| DTC | B1771 | PASSENGER SIDE BUCKLE SWITCH CIRCUIT MALFUNCTION |
|---|---|---|

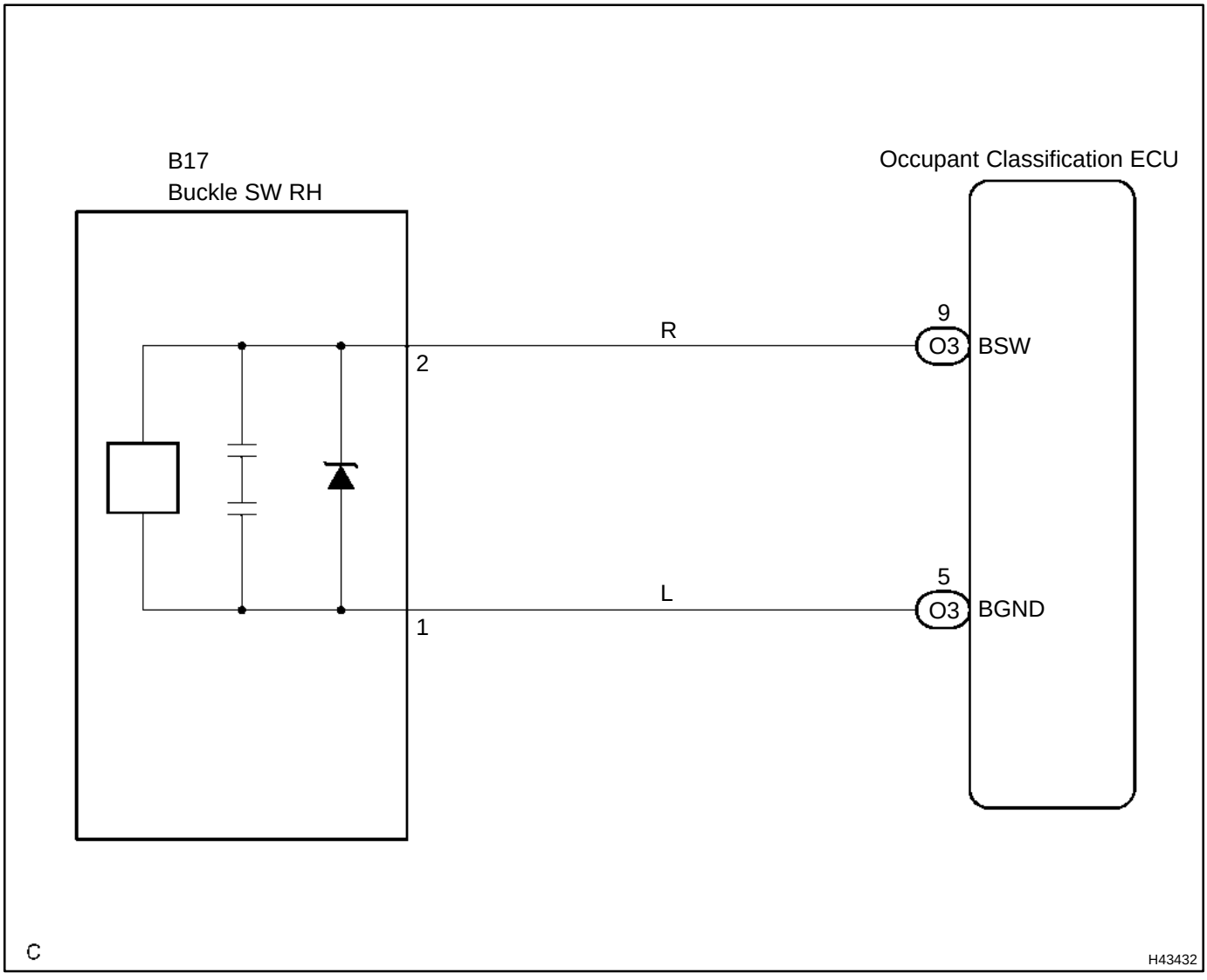
## CIRCUIT DESCRIPTION

The passenger side buckle switch circuit consists of the occupant classification ECU and the front seat inner belt assy RH (buckle switch RH).
DTC B1771 is recorded when a malfunction is detected in the passenger side buckle switch circuit.
Troubleshoot DTC B1771 first when the DTC B1771 and B1795 are output simultaneously.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1771 | • The occupant classification ECU receives a line short circuit signal, an open circuit signal, a short circuit to ground signal or a short circuit to B+ signal in the passenger side buckle switch circuit for 2 seconds.<br>• Passenger side buckle switch malfunction<br>• Occupant classification ECU malfunction | • Front seat inner belt assy RH (Buckle switch RH)<br>• Front seat wire RH<br>• Occupant classification ECU |

HINT:
When DTC B1150/23 is detected as a result of troubleshooting for the supplemental restraint system, perform troubleshooting for DTC B1771 of the occupant classification system.

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

- If troubleshooting (wire harness inspection) is difficult to perform, remove the front RH seat assy installation bolts to see the under surface of seat cushion.
- In the above case, hold the seat so that it does not fall down. Holding the seat for a long period of time may cause a problem, such as seat rail deformation. Hold the seat only as necessary.

| 1 | CHECK DTC |
|---|---|

(a) Turn the ignition switch to the ON position.
(b) Clear the DTCs stored in memory (see page 05-777 ).

HINT:

First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.

(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position.
(e) Using the hand-held tester, check the DTCs (see page 05-777 ).

**OK:**

**DTC B1771 is not output.**

HINT:

Codes other than code B1771 may be output at this time, but they are not related to this check.

**NG** → **Go to step 2**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

| 2 | CHECK CONNECTION OF CONNECTORS |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Check that the connectors are properly connected to the occupant classification ECU and the front seat inner belt assy RH.

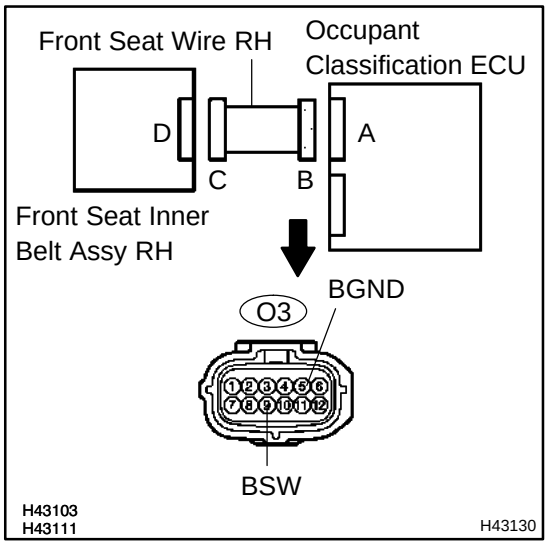
**OK:**

**The connectors are connected.**

**NG** → **CONNECT CONNECTORS, THEN GO TO STEP 1**

**OK**

## 3 CHECK FRONT SEAT WIRE RH(TO B+)




(a) Disconnect the connectors from the occupant classification ECU and the front seat inner belt assy RH.
(b) Connect the negative (-) terminal cable to the battery.
(c) Turn the ignition switch to the ON position.
(d) Measure the voltage according to the value(s) in the table below.

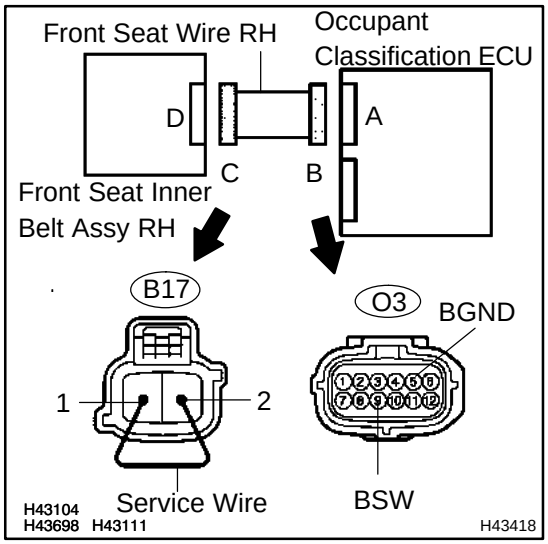
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| O3-9 (BSW) - Body ground | Ignition switch ON | Below 1 V |
| O3-5 (BGND) - Body ground | Ignition switch ON | Below 1 V |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

**OK**

## 4 CHECK FRONT SEAT WIRE RH(OPEN)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Using a service wire, connect B17-1 and B17-2 of connector ”C”.

**NOTICE:**

**Do not forcibly insert a service wire into the terminals of the connector when connecting.**

(d) Measure the resistance according to the value(s) in the table below.

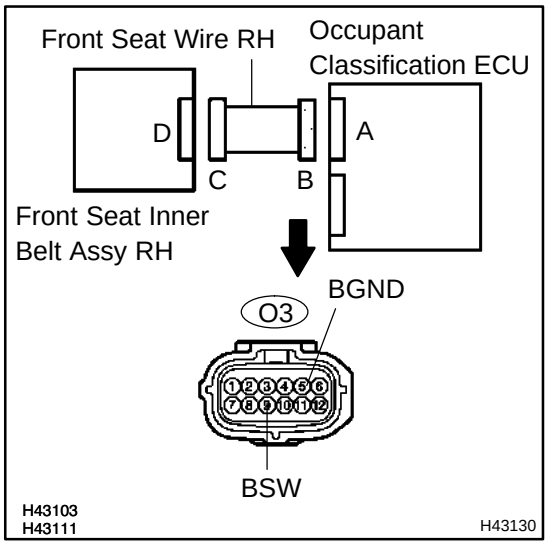
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| O3-9 (BSW) - O3-5 (BGND) | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

**OK**

## 5 CHECK FRONT SEAT WIRE RH(SHORT)




(a) Disconnect the service wire from connector "C".
(b) Measure the resistance according to the value(s) in the table below.

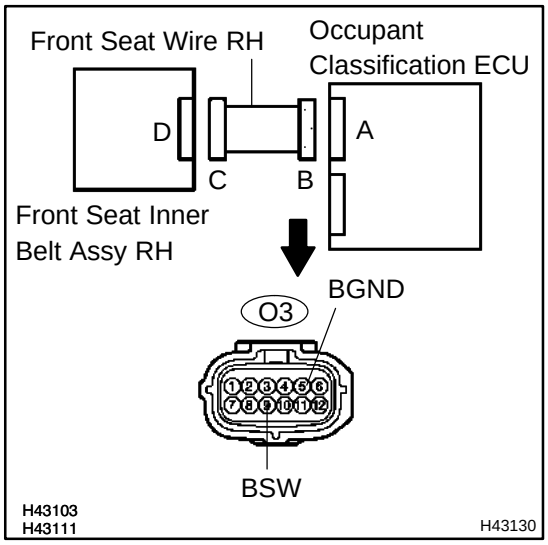
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| O3-9 (BSW) - O3-5 (BGND) | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

**OK**

## 6 CHECK FRONT SEAT WIRE RH(TO GROUND)




(a) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| O3-9 (BSW) - Body ground | Always | 1 MΩ or Higher |
| O3-5 (BGND) - Body ground | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

**OK**

| 7 | RECHECK DTC |
|---|---|

(a) Connect the connectors to the occupant classification ECU and the front seat inner belt assy RH.
(b) Connect the negative (-) terminal cable to the battery.
(c) Turn the ignition switch to the ON position.
(d) Clear the DTCs stored in memory (see page 05-777 ).

HINT:
First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.

(e) Turn the ignition switch to the LOCK position.
(f) Turn the ignition switch to the ON position.
(g) Using the hand-held tester, check the DTCs (see page 05-777 ).
**OK:**
**DTC B1771 is not output.**

HINT:
Codes other than code B1771 may be output at this time, but they are not related to this check.

**NG** → **Go to step 8**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

| 8 | REPLACE FRONT SEAT INNER BELT ASSY RH |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the front seat inner belt assy RH (see page 72-30 ).

HINT:
Perform the inspection using parts from a normal vehicle if possible.

(d) Connect the negative (-) terminal cable to the battery.
(e) Turn the ignition switch to the ON position.
(f) Clear the DTCs stored in memory (see page 05-777 ).

HINT:
First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.

(g) Turn the ignition switch to the LOCK position.
(h) Turn the ignition switch to the ON position.
(i) Using the hand-held tester, check the DTCs (see page 05-777 ).
**OK:**
**DTC B1771 is not output.**

HINT:
Codes other than code B1771 may be output at this time, but they are not related to this check.

**NG** → **Go to step 9**

**OK**

**END**

| 9 | REPLACE OCCUPANT CLASSIFICATION ECU |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the occupant classification ECU (see page 60-67 ).

NEXT

| 10 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the negative (-) terminal cable to the battery.
(b) Connect the hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed.**

NEXT

| 11 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

NEXT

END

| DTC | B1780 | OCCUPANT CLASSIFICATION SENSOR FRONT LH CIRCUIT MALFUNCTION |
|---|---|---|

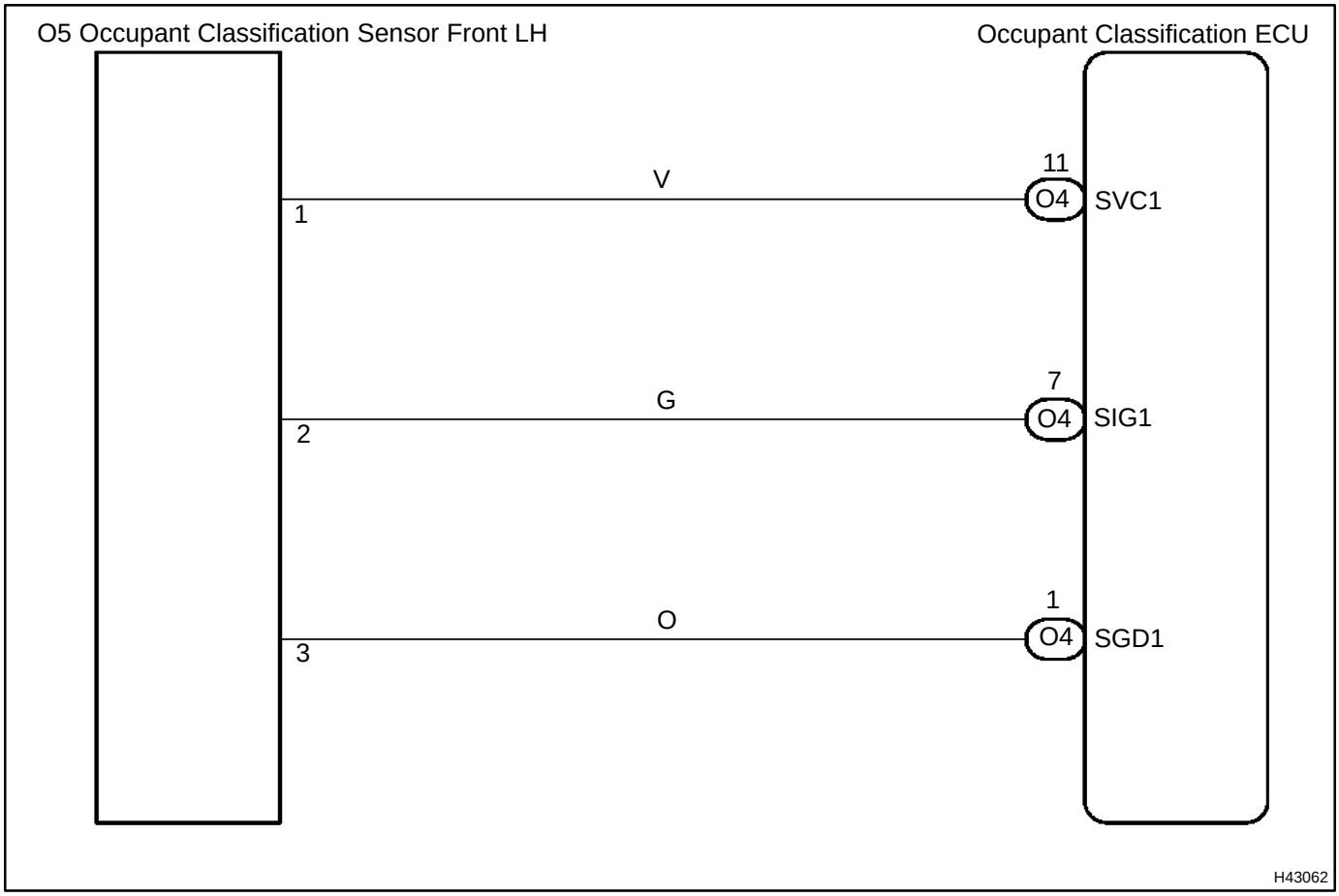
## CIRCUIT DESCRIPTION

The occupant classification sensor front LH circuit consists of the occupant classification ECU and the occupant classification sensor front LH.
DTC B1780 is recorded when a malfunction is detected in the occupant classification sensor front LH circuit.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1780 | • The occupant classification ECU receives a line short circuit signal, an open circuit signal, a short circuit to ground signal or a short circuit to B+ signal in the occupant classification sensor front LH circuit for 2 seconds.<br>• Occupant classification sensor front LH malfunction<br>• Occupant classification ECU malfunction | • Seat adjuster frame assy (Occupant classification sensor front LH)<br>• Front seat wire RH<br>• Occupant classification ECU |

HINT:
When DTC B1150/23 is detected as a result of troubleshooting for the supplemental restraint system, perform troubleshooting for the DTC B1780 of the occupant classification system.

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

- If troubleshooting (wire harness inspection) is difficult to perform, remove the front RH seat assy installation bolts to see the under surface of seat cushion.
- In the above case, hold the seat so that it does not fall down. Holding the seat for a long period of time may cause a problem, such as seat rail deformation. Hold the seat only as necessary.

| 1 | CHECK DTC |
|---|---|

(a) Turn the ignition switch to the ON position.
(b) Clear the DTCs stored in memory (see page 05-777 ).

HINT:

First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.

(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position.
(e) Using the hand-held tester, check the DTCs (see page 05-777 ).

**OK:**

**DTC B1780 is not output.**

HINT:

Codes other than code B1780 may be output at this time, but they are not related to this check.

**NG** → **Go to step 2**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

| 2 | CHECK CONNECTION OF CONNECTORS |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Check that the connectors are properly connected to the occupant classification ECU and the occupant classification sensor front LH.

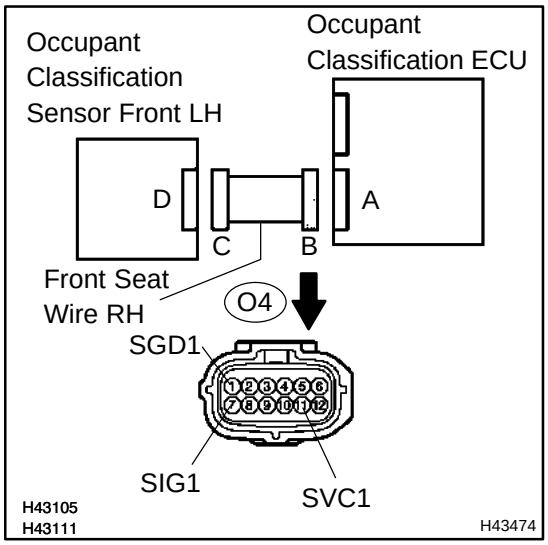
**OK:**

**The connectors are connected.**

**NG** → **CONNECT CONNECTORS, THEN GO TO STEP 1**

**OK**

## 3 CHECK FRONT SEAT WIRE RH(TO B+)




(a) Disconnect the connectors from the occupant classification ECU and the occupant classification sensor front LH.
(b) Connect the negative (-) terminal cable to the battery.
(c) Turn the ignition switch to the ON position.
(d) Measure the voltage according to the value(s) in the table below.

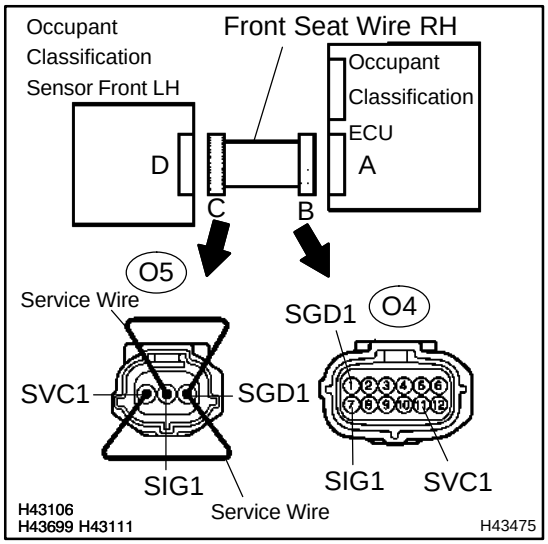
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| O4-1 (SGD1) - Body ground | Ignition switch ON | Below 1 V |
| O4-7 (SIG1) - Body ground | Ignition switch ON | Below 1 V |
| O4-11 (SVC1) - Body ground | Ignition switch ON | Below 1 V |

NG → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

OK

## 4 CHECK FRONT SEAT WIRE RH(OPEN)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Using a service wire, connect O5-1 (SVC1) and O5-3 (SGD1), and connect O5-2 (SIG1) and O5-3 (SGD1) of connector "C".

**NOTICE:**

**Do not forcibly insert a service wire into the terminals of the connector when connecting.**

(d) Measure the resistance according to the value(s) in the table below.

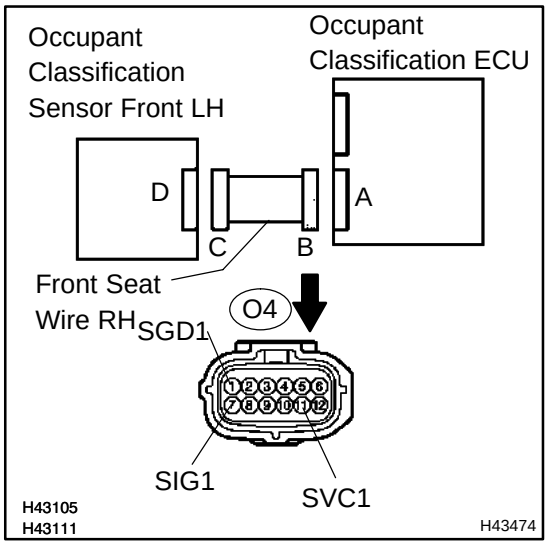
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| O4-7 (SIG1) - O4-1 (SGD1) | Always | Below 1 Ω |
| O4-11 (SVC1) - O4-1 (SGD1) | Always | Below 1 Ω |

NG → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

OK

## 5 CHECK FRONT SEAT WIRE RH(SHORT)




(a) Disconnect the service wire from connector "C".

(b) Measure the resistance according to the value(s) in the table below.

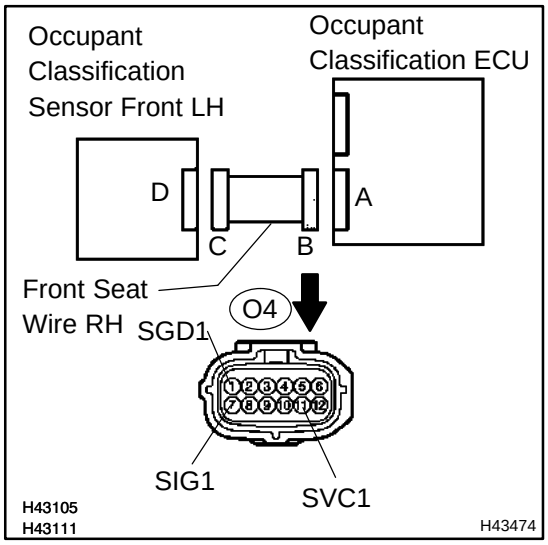
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| O4-7 (SIG1) - O4-1 (SGD1) | Always | 1 MΩ or Higher |
| O4-11 (SVC1) - O4-1 (SGD1) | Always | 1 MΩ or Higher |
| O4-7 (SIG1) - O4-11 (SVC1) | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

**OK**

## 6 CHECK FRONT SEAT WIRE RH(TO GROUND)




(a) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| O4-1 (SGD1) - Body ground | Always | 1 MΩ or Higher |
| O4-7 (SIG1) - Body ground | Always | 1 MΩ or Higher |
| O4-11 (SVC1) - Body ground | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

**OK**

| 7 | RECHECK DTC |
|---|---|

(a) Connect the connectors to the occupant classification ECU and the occupant classification sensor front LH.
(b) Connect the negative (-) terminal cable to the battery.
(c) Turn the ignition switch to the ON position.
(d) Clear the DTCs stored in memory (see page 05-777 ).

HINT:
First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.

(e) Turn the ignition switch to the LOCK position.
(f) Turn the ignition switch to the ON position.
(g) Using the hand-held tester, check the DTCs (see page 05-777 ).
**OK:**
**DTC B1780 is not output.**

HINT:
Codes other than code B1780 may be output at this time, but they are not related to this check.

**NG** → **Go to step 8**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

| 8 | REPLACE OCCUPANT CLASSIFICATION ECU |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the occupant classification ECU (see page 60-67 ).

HINT:
Perform the inspection using parts from a normal vehicle if possible.

**NEXT**

| 9 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the negative (-) terminal cable to the battery.
(b) Connect the hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed.**

**NG** → **Go to step 12**

**OK**

| 10 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

NG → **Go to step 12**

OK

| 11 | RECHECK DTC |
|---|---|

(a) Connect the negative (-) terminal cable to the battery.
(b) Turn the ignition switch to the ON position.
(c) Clear the DTCs stored in memory (see page 05-777 ).
HINT:
First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.
(d) Turn the ignition switch to the LOCK position.
(e) Turn the ignition switch to the ON position.
(f) Using the hand-held tester, check the DTCs (see page 05-777 ).
**OK:**
**DTC B1780 is not output.**
HINT:
Codes other than code B1780 may be output at this time, but they are not related to this check.

NG → **Go to step 12**

OK

**END**

| 12 | REPLACE SEAT ADJUSTER FRAME ASSY |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the seat adjuster frame assy (see page 72-30 ).

NEXT

| 13 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the negative (-) terminal cable to the battery.
(b) Connect the hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed.**

NEXT

| 14 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

NEXT

END

| DTC | B1781 | OCCUPANT CLASSIFICATION SENSOR FRONT RH CIRCUIT MALFUNCTION |
|---|---|---|

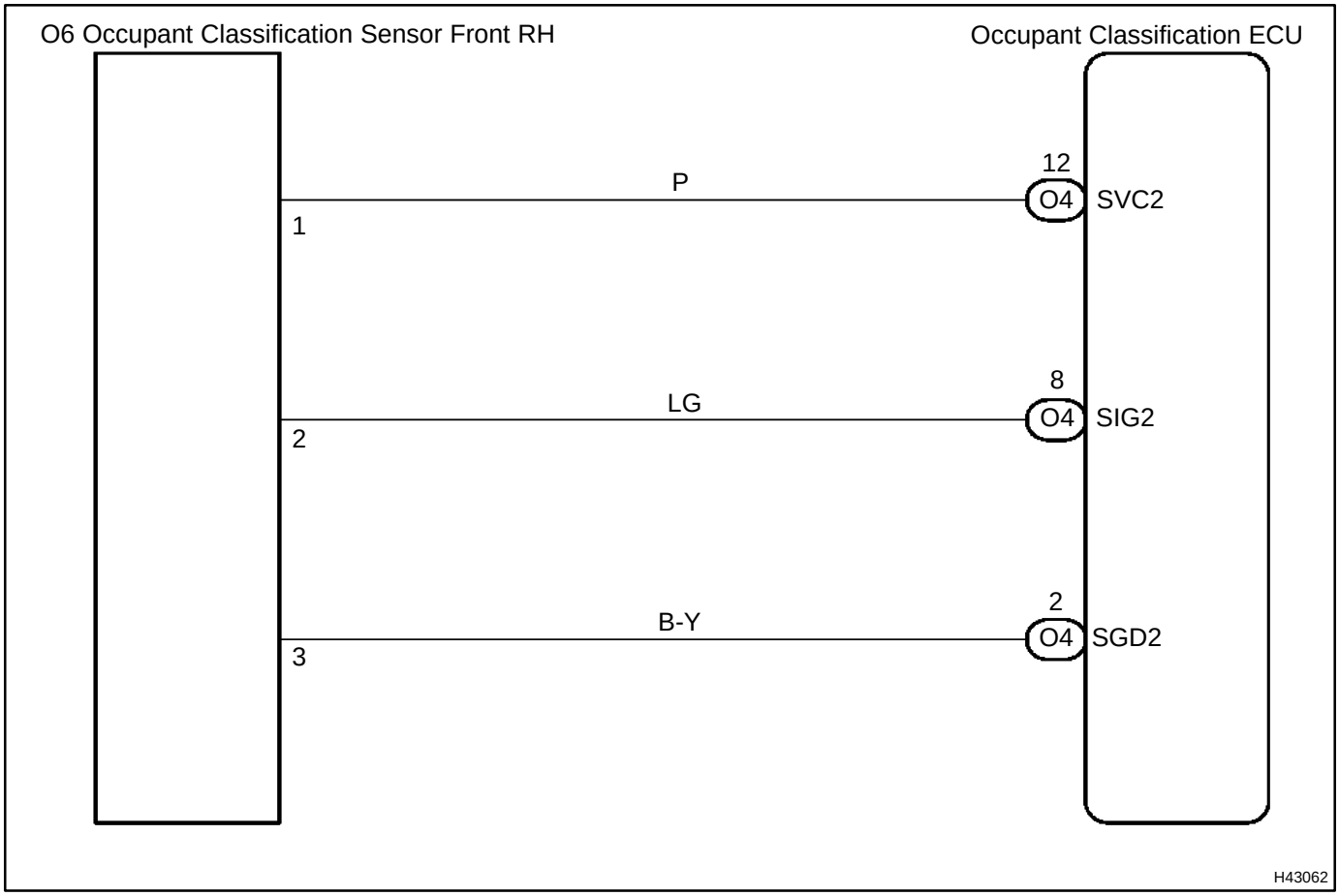
## CIRCUIT DESCRIPTION

The occupant classification sensor front RH circuit consists of the occupant classification ECU and the occupant classification sensor front RH.
DTC B1781 is recorded when a malfunction is detected in the occupant classification sensor front RH circuit.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1781 | • The occupant classification ECU receives a line short circuit signal, an open circuit signal, a short circuit to ground signal or a short circuit to B+ signal in the occupant classification sensor front RH circuit for 2 seconds.<br>• Occupant classification sensor front RH malfunction<br>• Occupant classification ECU malfunction | • Seat adjuster frame assy (Occupant classification sensor front RH)<br>• Front seat wire RH<br>• Occupant classification ECU |

HINT:
When DTC B1150/23 is detected as a result of troubleshooting for the supplemental restraint system, perform troubleshooting for DTC B1781 of the occupant classification system.

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

- If troubleshooting (wire harness inspection) is difficult to perform, remove the front RH seat assy installation bolts to see the under surface of seat cushion.
- In the above case, hold the seat so that it does not fall down. Holding the seat for a long period of time may cause a problem, such as seat rail deformation. Hold the seat only as necessary.

| 1 | CHECK DTC |
|---|---|

(a) Turn the ignition switch to the ON position.
(b) Clear the DTCs stored in memory (see page 05-777 ).

HINT:

First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.

(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position.
(e) Using the hand-held tester, check the DTCs (see page 05-777 ).

**OK:**

**DTC B1781 is not output.**

HINT:

Codes other than code B1781 may be output at this time, but they are not related to this check.

**NG** → **Go to step 2**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

| 2 | CHECK CONNECTION OF CONNECTORS |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Check that the connectors are properly connected to the occupant classification ECU and the occupant classification sensor front RH.

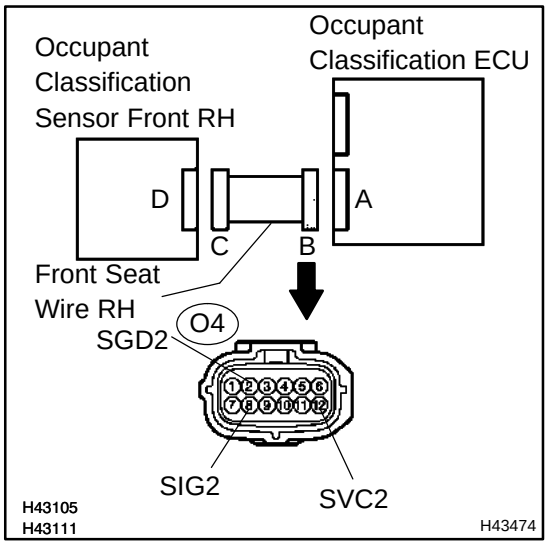
**OK:**

**The connectors are connected.**

**NG** → **CONNECT CONNECTORS, THEN GO TO STEP 1**

**OK**

## 3 CHECK FRONT SEAT WIRE RH(TO B+)




(a) Disconnect the connectors from the occupant classification ECU and the occupant classification sensor front RH.
(b) Connect the negative (-) terminal cable to the battery.
(c) Turn the ignition switch to the ON position.
(d) Measure the voltage according to the value(s) in the table below.

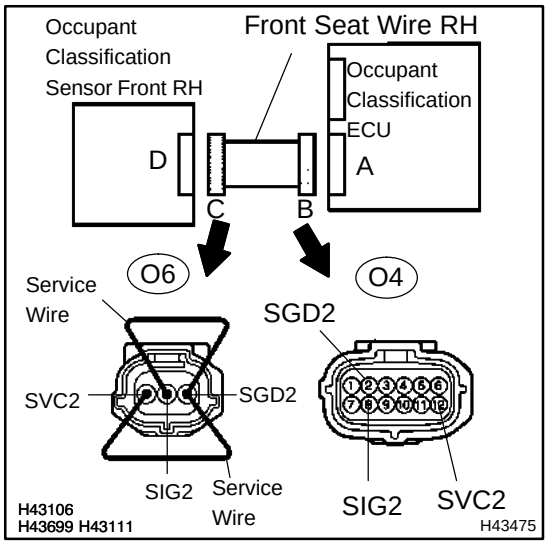
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| O4-2 (SGD2) - Body ground | Ignition switch ON | Below 1 V |
| O4-8 (SIG2) - Body ground | Ignition switch ON | Below 1 V |
| O4-12 (SVC2) - Body ground | Ignition switch ON | Below 1 V |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

**OK**

## 4 CHECK FRONT SEAT WIRE RH(OPEN)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Using a service wire, connect O6-1 (SVC2) and O6-3 (SGD2), and connect O6-2 (SIG2) and O6-3(SGD2) of connector ”C”.

**NOTICE:**

**Do not forcibly insert a service wire into the terminals of the connector when connecting.**

(d) Measure the resistance according to the value(s) in the table below.

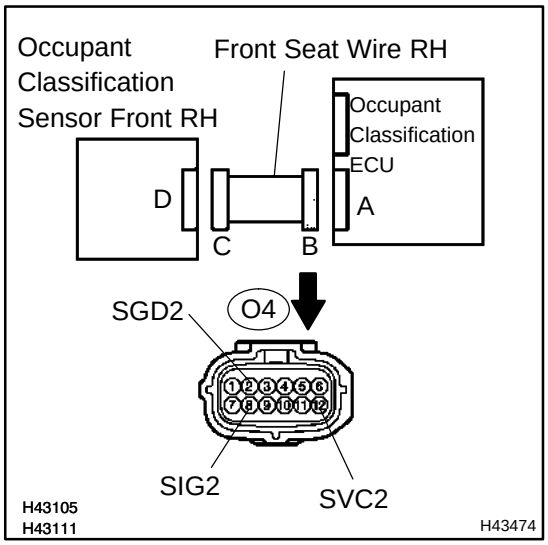
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| O4-8 (SIG2) - O4-2 (SGD2) | Always | Below 1 Ω |
| O4-12 (SVC2) - O4-2 (SGD2) | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

**OK**

## 5 CHECK FRONT SEAT WIRE RH(SHORT)




(a) Disconnect the service wire from connector "C".
(b) Measure the resistance according to the value(s) in the table below.

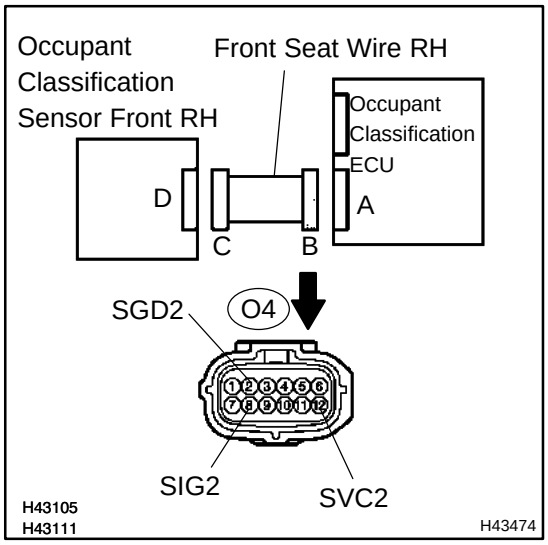
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| O4-8 (SIG2) - O4-2 (SGD2) | Always | 1 MΩ or Higher |
| O4-12 (SVC2) - O4-2 (SGD2) | Always | 1 MΩ or Higher |
| O4-8 (SIG2) - O4-12 (SVC2) | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

**OK**

## 6 CHECK FRONT SEAT WIRE RH(TO GROUND)




(a) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| O4-2 (SGD2) - Body ground | Always | 1 MΩ or Higher |
| O4-8 (SIG2) - Body ground | Always | 1 MΩ or Higher |
| O4-12 (SVC2) - Body ground | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

**OK**

| 7 | RECHECK DTC |
|---|---|

(a) Connect the connectors to the occupant classification ECU and the occupant classification sensor front RH.
(b) Connect the negative (-) terminal cable to the battery.
(c) Turn the ignition switch to the ON position.
(d) Clear the DTCs stored in memory (see page 05-777 ).

HINT:
First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.

(e) Turn the ignition switch to the LOCK position.
(f) Turn the ignition switch to the ON position.
(g) Using the hand-held tester, check the DTCs (see page 05-777 ).
**OK:**
**DTC B1781 is not output.**

HINT:
Codes other than code B1781 may be output at this time, but they are not related to this check.

**NG** → **Go to step 8**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

| 8 | REPLACE OCCUPANT CLASSIFICATION ECU |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the occupant classification ECU (see page 60-67 ).

HINT:
Perform the inspection using parts from a normal vehicle if possible.

**NEXT**

| 9 | PERFORM ZERO POINT CALIBRATION |
|---|---|

HINT:
Perform the inspection using parts from a normal vehicle if possible.

(a) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed.**

**NG** → **Go to step 12**

**OK**

| 10 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

**NG** → **Go to step 12**

**OK**

| 11 | RECHECK DTC |
|---|---|

(a) Connect the negative (-) terminal cable to the battery.
(b) Turn the ignition switch to the ON position.
(c) Clear the DTCs stored in memory (see page 05-777 ).
HINT:
First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.
(d) Turn the ignition switch to the LOCK position.
(e) Turn the ignition switch to the ON position.
(f) Using the hand-held tester, check the DTCs (see page 05-777 ).
**OK:**
**DTC B1781 is not output.**
HINT:
Codes other than code B1781 may be output at this time, but they are not related to this check.

**NG** → **Go to step 12**

**OK**

**END**

| 12 | REPLACE SEAT ADJUSTER FRAME ASSY |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the seat adjuster frame assy (see page 72-30 ).

NEXT

| 13 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the negative (-) terminal cable to the battery.
(b) Connect the hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed.**

NEXT

| 14 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

NEXT

END

| DTC | B1782 | OCCUPANT CLASSIFICATION SENSOR REAR LH CIRCUIT MALFUNCTION |
|---|---|---|

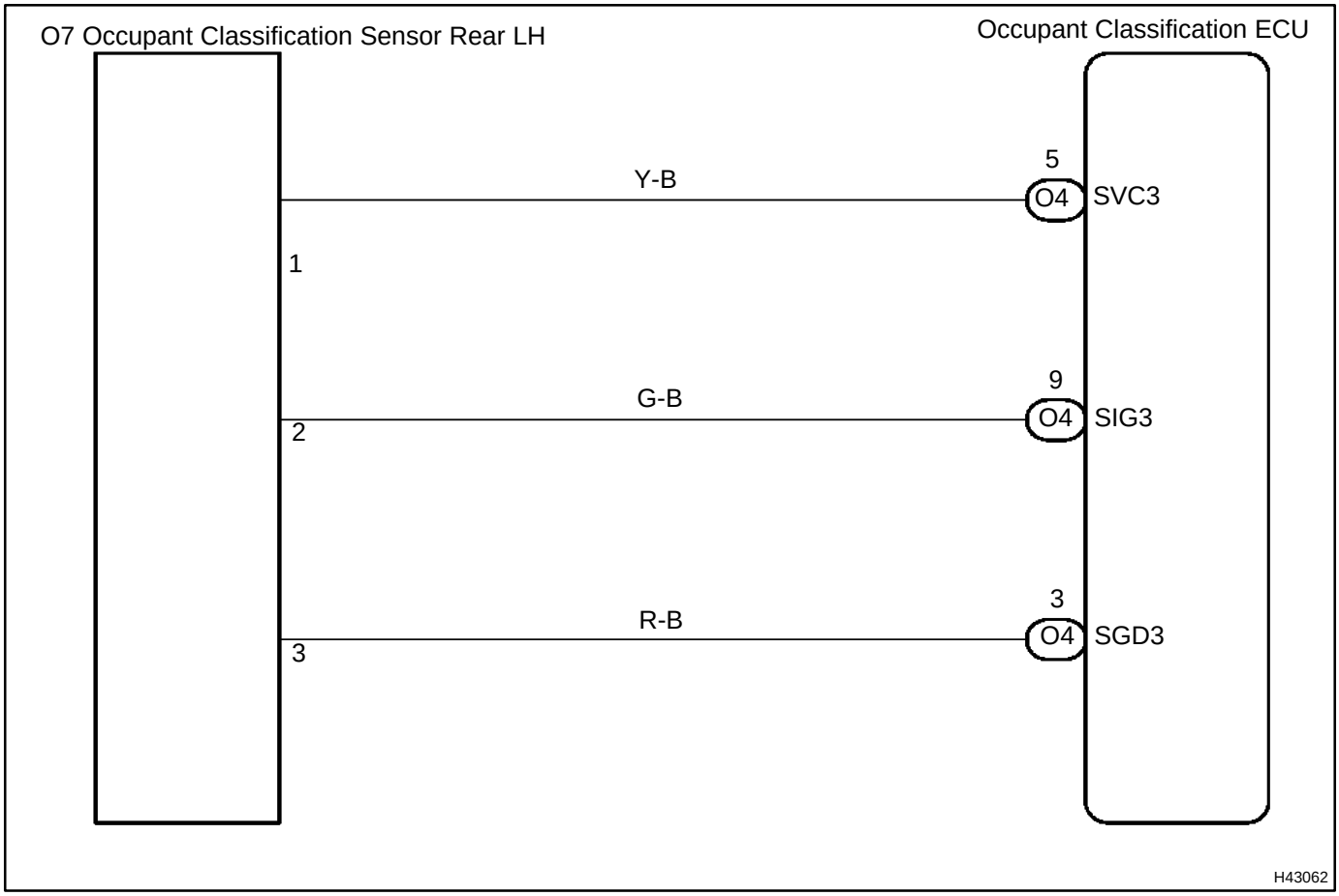
## CIRCUIT DESCRIPTION

The occupant classification sensor rear LH circuit consists of the occupant classification ECU and the occupant classification sensor rear LH.
DTC B1782 is recorded when a malfunction is detected in the occupant classification sensor rear LH circuit.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1782 | • The occupant classification ECU receives a line short circuit signal, an open circuit signal, a short circuit to ground signal or a short circuit to B+ signal in the occupant classification sensor rear LH circuit for 2 seconds.<br>• Occupant classification sensor rear LH malfunction<br>• Occupant classification ECU malfunction | • Seat adjuster frame assy (Occupant classification sensor rear LH)<br>• Front seat wire RH<br>• Occupant classification ECU |

HINT:
When DTC B1150/23 is detected as a result of troubleshooting for the supplemental restraint system, perform troubleshooting for DTC B1782 of the occupant classification system.

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

- If troubleshooting (wire harness inspection) is difficult to perform, remove the front RH seat assy installation bolts to see the under surface of seat cushion.
- In the above case, hold the seat so that it does not fall down. Holding the seat for a long period of time may cause a problem, such as seat rail deformation. Hold the seat only as necessary.

| 1 | CHECK DTC |
|---|---|

(a) Turn the ignition switch to the ON position.
(b) Clear the DTCs stored in memory (see page 05-777 ).

HINT:

First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.

(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position.
(e) Using the hand-held tester, check the DTCs (see page 05-777 ).

**OK:**

**DTC B1782 is not output.**

HINT:

Codes other than code B1782 may be output at this time, but they are not related to this check.

**NG** → **Go to step 2**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

| 2 | CHECK CONNECTION OF CONNECTORS |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Check that the connectors are properly connected to the occupant classification ECU and the occupant classification sensor rear LH.

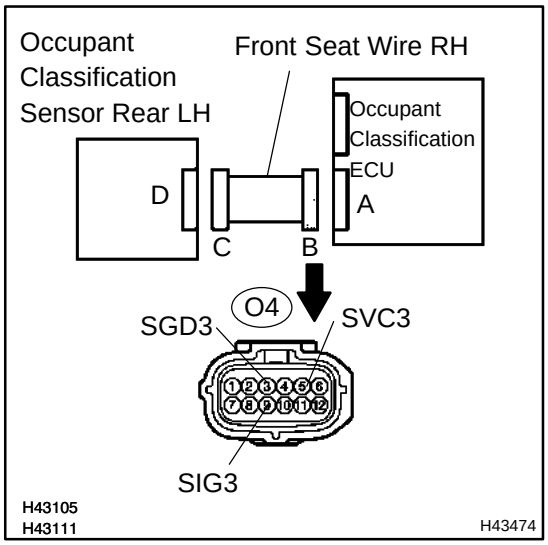
**OK:**

**The connectors are connected.**

**NG** → **CONNECT CONNECTORS, THEN GO TO STEP 1**

**OK**

## 3 CHECK FRONT SEAT WIRE RH(TO B+)




(a) Disconnect the connectors from the occupant classification ECU and the occupant classification sensor rear LH.
(b) Connect the negative (-) terminal cable to the battery.
(c) Turn the ignition switch to the ON position.
(d) Measure the voltage according to the value(s) in the table below.

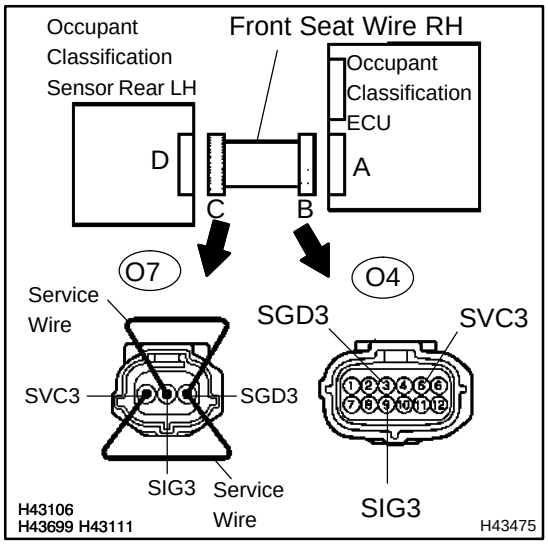
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| O4-3 (SGD3) - Body ground | Ignition switch ON | Below 1 V |
| O4-5 (SVC3) - Body ground | Ignition switch ON | Below 1 V |
| O4-9 (SIG3) - Body ground | Ignition switch ON | Below 1 V |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

**OK**

## 4 CHECK FRONT SEAT WIRE RH(OPEN)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Using a service wire, connect O7-1 (SVC3) and O7-3 (SGD3), and connect O7-2 (SIG3) and O7-3 (SGD3) of connector "C".

**NOTICE:**

**Do not forcibly insert a service wire into the terminals of the connector when connecting.**

(d) Measure the resistance according to the value(s) in the table below.

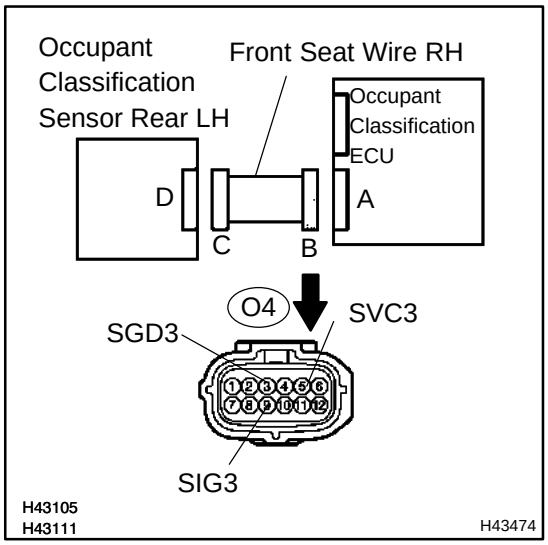
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| O4-5 (SVC3) - O4-3 (SGD3) | Always | Below 1 Ω |
| O4-9 (SIG3) - O4-3 (SGD3) | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

**OK**

## 5 CHECK FRONT SEAT WIRE RH(SHORT)




(a) Disconnect the service wire from connector "C".
(b) Measure the resistance according to the value(s) in the table below.

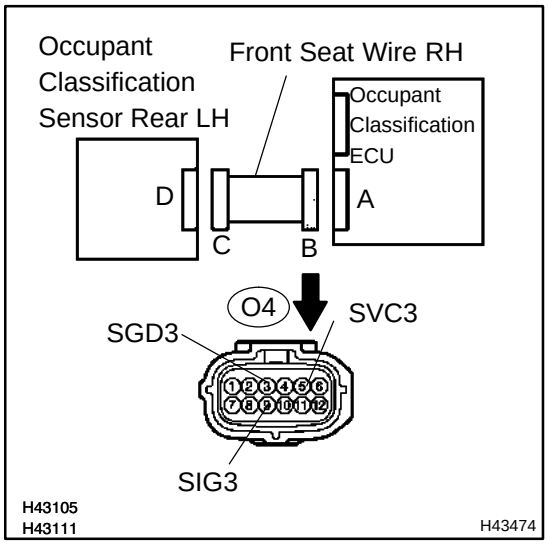
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| O4-5 (SVC3) - O4-3 (SGD3) | Always | 1 MΩ or Higher |
| O4-9 (SIG3) - O4-3 (SGD3) | Always | 1 MΩ or Higher |
| O4-5 (SVC3) - O4-9 (SIG3) | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

**OK**

## 6 CHECK FRONT SEAT WIRE RH(TO GROUND)




(a) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| O4-3 (SGD3) - Body ground | Always | 1 MΩ or Higher |
| O4-5 (SVC3) - Body ground | Always | 1 MΩ or Higher |
| O4-9 (SIG3) - Body ground | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

**OK**

| 7 | RECHECK DTC |
|---|---|

(a) Connect the connectors to the occupant classification ECU and the occupant classification sensor rear LH.
(b) Connect the negative (-) terminal cable to the battery.
(c) Turn the ignition switch to the ON position.
(d) Clear the DTCs stored in memory (see page 05-777 ).

HINT:
First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.

(e) Turn the ignition switch to the LOCK position.
(f) Turn the ignition switch to the ON position.
(g) Using the hand-held tester, check the DTCs (see page 05-777 ).
**OK:**
**DTC B1782 is not output.**

HINT:
Codes other than code B1782 may be output at this time, but they are not related to this check.

**NG** → **Go to step 8**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

| 8 | REPLACE OCCUPANT CLASSIFICATION ECU |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the occupant classification ECU (see page 60-67 ).

HINT:
Perform the inspection using parts from a normal vehicle if possible.

**NEXT**

| 9 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the negative (-) terminal cable to the battery.
(b) Connect the hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed.**

**NG** → **Go to step 12**

**OK**

| 10 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

**NG** → **Go to step 12**

**OK**

| 11 | RECHECK DTC |
|---|---|

(a) Connect the negative (-) terminal cable to the battery.
(b) Turn the ignition switch to the ON position.
(c) Clear the DTCs stored in memory (see page 05-777 ).
HINT:
First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.
(d) Turn the ignition switch to the LOCK position.
(e) Turn the ignition switch to the ON position.
(f) Using the hand-held tester, check the DTCs (see page 05-777 ).
**OK:**
**DTC B1782 is not output.**
HINT:
Codes other than code B1782 may be output at this time, but they are not related to this check.

**NG** → **Go to step 12**

**OK**

**END**

| 12 | REPLACE SEAT ADJUSTER FRAME ASSY |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the seat adjuster frame assy (see page 72-30 ).

NEXT

| 13 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the negative (-) terminal cable to the battery.
(b) Connect the hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed.**

NEXT

| 14 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

NEXT

END

| DTC | B1783 | OCCUPANT CLASSIFICATION SENSOR REAR RH CIRCUIT MALFUNCTION |
|---|---|---|

## CIRCUIT DESCRIPTION

The occupant classification sensor rear RH circuit consists of the occupant classification ECU and the occupant classification sensor rear RH.

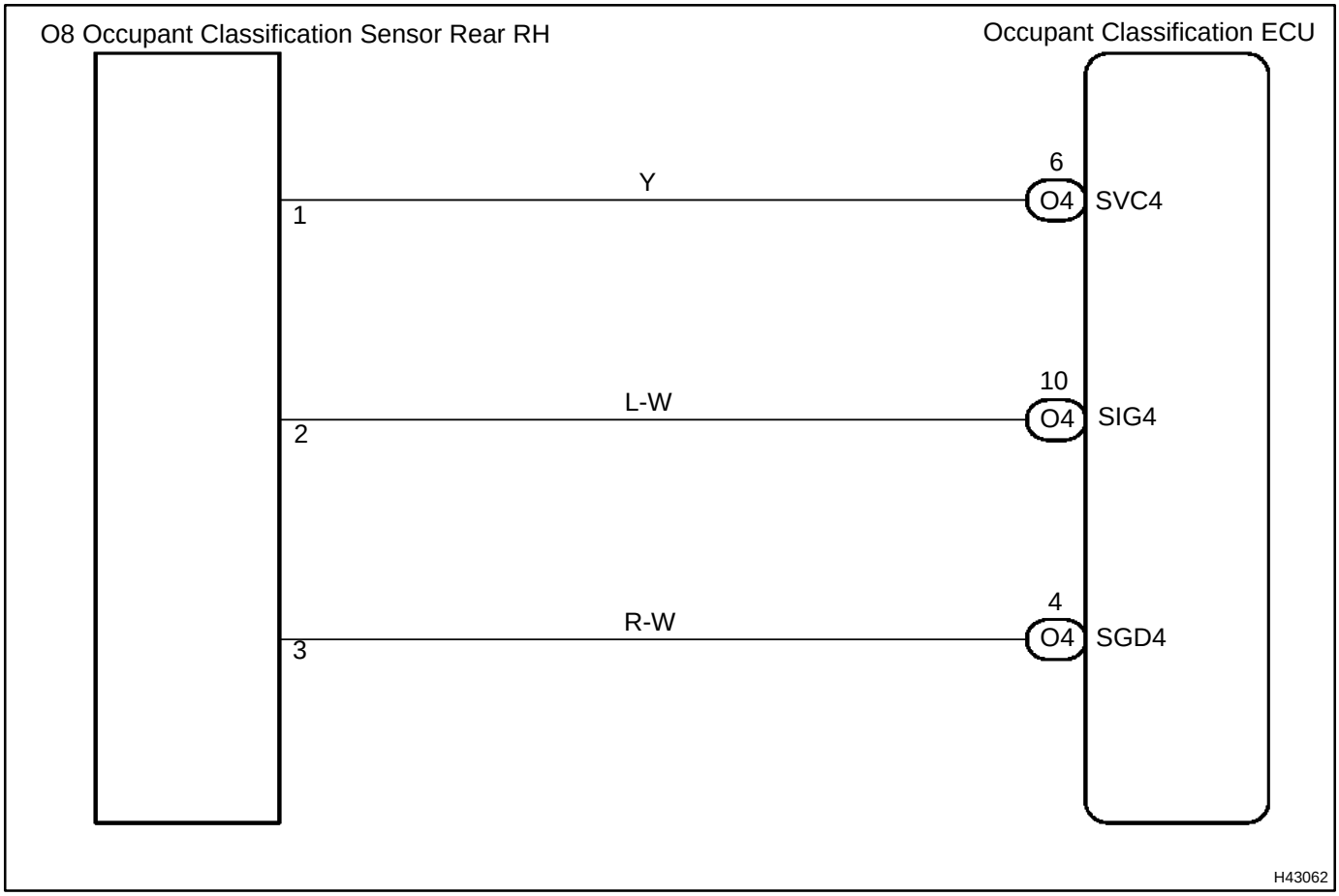
DTC B1783 is recorded when a malfunction is detected in the occupant classification sensor rear RH circuit.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1783 | • The occupant classification ECU receives a line short circuit signal, an open circuit signal, a short circuit to ground signal or a short circuit to B+ signal in the occupant classification sensor rear RH circuit for 2 seconds.<br>• Occupant classification sensor rear RH malfunction<br>• Occupant classification ECU malfunction | • Seat adjuster frame assy (Occupant classification sensor rear RH)<br>• Front seat wire RH<br>• Occupant classification ECU |

HINT:

When DTC B1150/23 is detected as a result of troubleshooting for the supplemental restraint system, perform troubleshooting for DTC B1783 of the occupant classification system.

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

- If troubleshooting (wire harness inspection) is difficult to perform, remove the front RH seat assy installation bolts to see the under surface of seat cushion.
- In the above case, hold the seat so that it does not fall down. Holding the seat for a long period of time may cause a problem, such as seat rail deformation. Hold the seat only as necessary.

| 1 | CHECK DTC |
|---|---|

(a) Turn the ignition switch to the ON position.
(b) Clear the DTCs stored in memory (see page 05-777 ).

HINT:

First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.

(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position.
(e) Using the hand-held tester, check the DTCs (see page 05-777 ).
**OK:**
**DTC B1783 is not output.**

HINT:

Codes other than code B1783 may be output at this time, but they are not related to this check.

**NG** → **Go to step 2**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

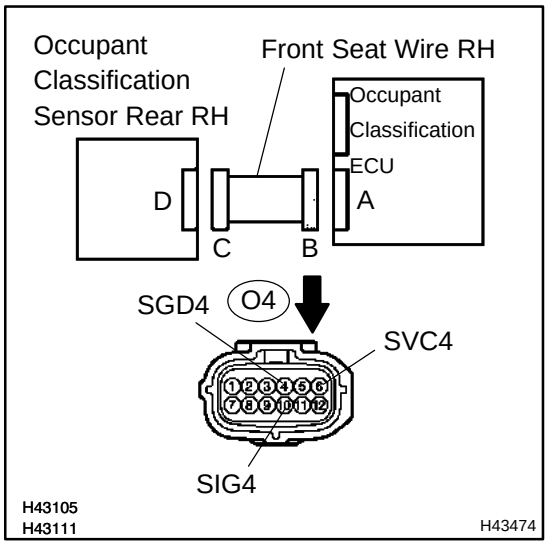
| 2 | CHECK CONNECTION OF CONNECTORS |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Check that the connectors are properly connected to the occupant classification ECU and the occupant classification sensor rear RH.
**OK:**
**The connectors are connected.**

**NG** → **CONNECT CONNECTORS, THEN GO TO STEP 1**

**OK**

## 3 CHECK FRONT SEAT WIRE RH(TO B+)




(a) Disconnect the connectors from the occupant classification ECU and the occupant classification sensor rear RH.
(b) Connect the negative (-) terminal cable to the battery.
(c) Turn the ignition switch to the ON position.
(d) Measure the voltage according to the value(s) in the table below.

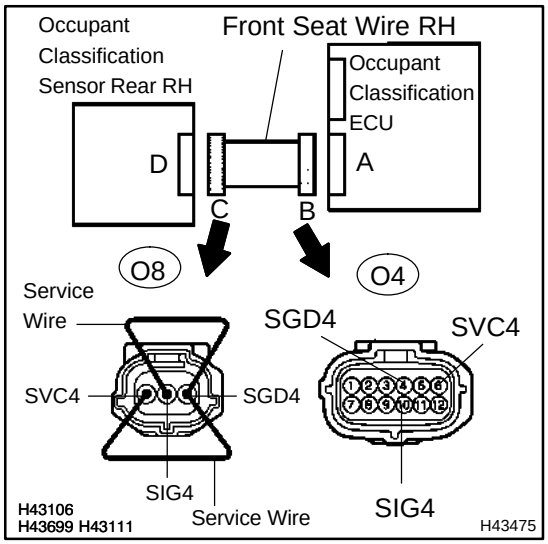
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| O4-4 (SGD4) - Body ground | Ignition switch ON | Below 1 V |
| O4-6 (SVC4) - Body ground | Ignition switch ON | Below 1 V |
| O4-10 (SIG4) - Body ground | Ignition switch ON | Below 1 V |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

**OK**

## 4 CHECK FRONT SEAT WIRE RH(OPEN)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Using a service wire, connect O8-1 (SVC4) and O8-3 (SGD4), and connect O8-2 (SIG4) and O8-3 (SGD4) of connector ”C”.

**NOTICE:**

**Do not forcibly insert a service wire into the terminals of the connector when connecting.**

(d) Measure the resistance according to the value(s) in the table below.

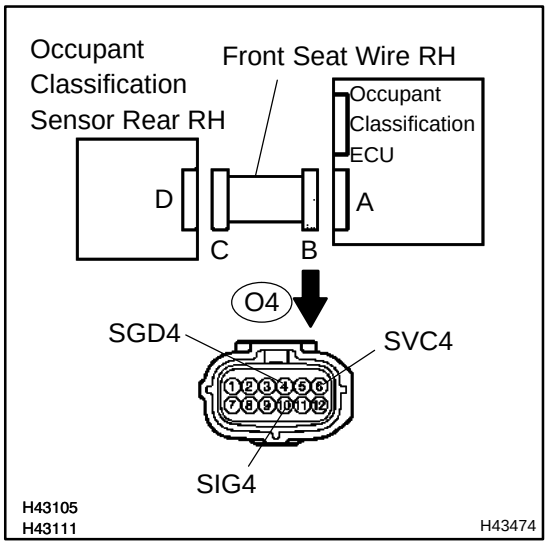
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| O4-6 (SVC4) - O4-4 (SGD4) | Always | Below 1 Ω |
| O4-10 (SIG4) - O4-4 (SGD4) | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

**OK**

## 5 CHECK FRONT SEAT WIRE RH(SHORT)




(a) Disconnect the service wire from connector "C".
(b) Measure the resistance according to the value(s) in the table below.

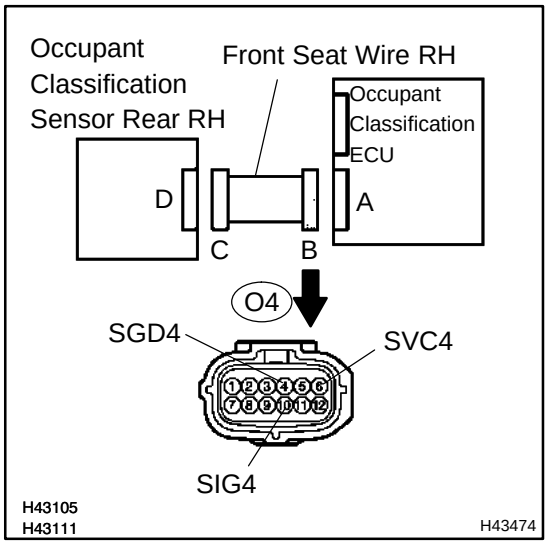
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| O4-6 (SVC4) - O4-4 (SGD4) | Always | 1 MΩ or Higher |
| O4-10 (SIG4) - O4-4 (SGD4) | Always | 1 MΩ or Higher |
| O4-6 (SVC4) - O4-10 (SIG4) | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

**OK**

## 6 CHECK FRONT SEAT WIRE RH(TO GROUND)




(a) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| O4-4 (SGD4) - Body ground | Always | 1 MΩ or Higher |
| O4-6 (SVC4) - Body ground | Always | 1 MΩ or Higher |
| O4-10 (SIG4) - Body ground | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

**OK**

| 7 | RECHECK DTC |
|---|---|

(a) Connect the connectors to the occupant classification ECU and the occupant classification sensor rear RH.
(b) Connect the negative (-) terminal cable to the battery.
(c) Turn the ignition switch to the ON position.
(d) Clear the DTCs stored in memory (see page 05-777 ).

HINT:
First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.

(e) Turn the ignition switch to the LOCK position.
(f) Turn the ignition switch to the ON position.
(g) Using the hand-held tester, check the DTCs (see page 05-777 ).
**OK:**
**DTC B1783 is not output.**

HINT:
Codes other than code B1783 may be output at this time, but they are not related to this check.

**NG** → **Go to step 8**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

| 8 | REPLACE OCCUPANT CLASSIFICATION ECU |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the occupant classification ECU (see page 60-67 ).

HINT:
Perform the inspection using parts from a normal vehicle if possible.

**NEXT**

| 9 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the negative (-) terminal cable to the battery.
(b) Connect the hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed.**

**NG** → **Go to step 12**

**OK**

| 10 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

**NG** → **Go to step 12**

**OK**

| 11 | RECHECK DTC |
|---|---|

(a) Connect the negative (-) terminal cable to the battery.
(b) Turn the ignition switch to the ON position.
(c) Clear the DTCs stored in memory (see page 05-777 ).
HINT:
First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.
(d) Turn the ignition switch to the LOCK position.
(e) Turn the ignition switch to the ON position.
(f) Using the hand-held tester, check the DTCs (see page 05-777 ).
**OK:**
**DTC B1783 is not output.**
HINT:
Codes other than code B1783 may be output at this time, but they are not related to this check.

**NG** → **Go to step 12**

**OK**

**END**

| 12 | REPLACE SEAT ADJUSTER FRAME ASSY |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the seat adjuster frame assy (see page 72-30 ).

NEXT

| 13 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the negative (-) terminal cable to the battery.
(b) Connect the hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed.**

NEXT

| 14 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

NEXT

END

| DTC | B1785 | OCCUPANT CLASSIFICATION SENSOR FRONT LH COLLISION DETECTION |
|---|---|---|

## CIRCUIT DESCRIPTION

DTC B1785 is output when the occupant classification ECU receives a collision detection signal sent by the occupant classification sensor front LH if an accident occurs.
DTC B1785 is also output when the seat adjuster frame assy is subjected to a strong impact, even if an actual accident does not occur.
However, when the occupant classification ECU outputs a collision detection signal, even if the vehicle is not in a collision, DTC B1785 can be cleared by ”Zero point calibration” and ”Sensitivity check”.
Therefore, if DTC B1785 is output, first perform ”Zero point calibration” and ”Sensitivity check”.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1785 | • Seat adjuster frame assy malfunction<br>• Occupant classification ECU malfunction<br>• Occupant classification sensor front LH senses a large load | • Occupant classification ECU<br>• Seat adjuster frame assy<br>(Occupant classification sensor front LH) |

HINT:
When DTC B1150/23 is detected as a result of troubleshooting for the supplemental restraint system, perform troubleshooting for DTC B1785 of the occupant classification system.

## WIRING DIAGRAM

See page 05-1038 .

## INSPECTION PROCEDURE

| 1 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the hand-held tester to the DLC3.
(b) Turn the ignition switch to the ON position.
(c) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed.**

**NG** → **Go to step 4**

**OK**

| 2 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

**NG** → **Go to step 4**

**OK**

| 3 | CHECK DTC |
|---|---|

(a) Turn the ignition switch to the ON position.
(b) Clear the DTCs stored in memory (see page 05-777 ).
HINT:
First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.
(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position.
(e) Using the hand-held tester, check the DTCs (see page 05-777 ).
**OK:**
**DTC B1785 is not output.**
HINT:
Codes other than code B1785 may be output at this time, but they are not related to this check.

**NG** → **Go to step 4**

**OK**

**END**

| 4 | REPLACE SEAT ADJUSTER FRAME ASSY |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the seat adjuster frame assy (see page 72-30 ).
HINT:
Perform the inspection using parts from a normal vehicle if possible.

**NEXT**

| 5 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the negative (-) terminal cable to the battery.
(b) Connect the hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed.**

**NG** → **Go to step 8**

**OK**

| 6 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

**NG** → **Go to step 8**

**OK**

| 7 | CHECK DTC |
|---|---|

(a) Turn the ignition switch to the ON position.
(b) Clear the DTCs stored in memory (see page 05-777 ).

HINT:
First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.

(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position.
(e) Using the hand-held tester, check the DTCs (see page 05-777 ).
**OK:**
**DTC B1785 is not output.**

HINT:
Codes other than code B1785 may be output at this time, but they are not related to this check.

**NG** → **Go to step 8**

**OK**

**END**

| 8 | REPLACE OCCUPANT CLASSIFICATION ECU |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the occupant classification ECU (see page 60-67 ).

**NEXT**

| 9 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the negative (-) terminal cable to the battery.
(b) Connect the hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed.**

**NEXT**

| 10 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

**NEXT**

**END**

| DTC | B1786 | OCCUPANT CLASSIFICATION SENSOR FRONT RH COLLISION DETECTION |
|---|---|---|

## CIRCUIT DESCRIPTION

DTC B1786 is output when the occupant classification ECU receives a collision detection signal sent by the occupant classification sensor front RH if an accident occurs.
DTC B1786 is also output when the seat adjuster frame assy is subjected to a strong impact, even if an actual accident does not occur.
However, when the occupant classification ECU outputs a collision detection signal, even if the vehicle is not in a collision, DTC B1786 can be cleared by ”Zero point calibration” and ”Sensitivity check”.
Therefore, if DTC B1786 is output, first perform ”Zero point calibration” and ”Sensitivity check”.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1786 | • Seat adjuster frame assy malfunction<br>• Occupant classification ECU malfunction<br>• Occupant classification sensor front RH senses a large load | • Occupant classification ECU<br>• Seat adjuster frame assy<br>(Occupant classification sensor front RH) |

HINT:
When DTC B1150/23 is detected as a result of troubleshooting for the supplemental restraint system, perform troubleshooting for DTC B1786 of the occupant classification system.

## WIRING DIAGRAM

See page 05-1045 .

## INSPECTION PROCEDURE

| 1 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the hand-held tester to the DLC3.
(b) Turn the ignition switch to the ON position.
(c) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed.**

**NG** → **Go to step 4**

**OK**

| 2 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

**NG** → **Go to step 4**

**OK**

| 3 | CHECK DTC |
|---|---|

(a) Turn the ignition switch to the ON position.
(b) Clear the DTCs stored in memory (see page 05-777 ).
HINT:
First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.
(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position.
(e) Using the hand-held tester, check the DTCs (see page 05-777 ).
**OK:**
**DTC B1786 is not output.**
HINT:
Codes other than code B1786 may be output at this time, but they are not related to this check.

**NG** → **Go to step 4**

**OK**

**END**

| 4 | REPLACE SEAT ADJUSTER FRAME ASSY |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the seat adjuster frame assy (see page 72-30 ).
HINT:
Perform the inspection using parts from a normal vehicle if possible.

**NEXT**

| 5 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the negative (-) terminal cable to the battery.
(b) Connect the hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed.**

**NG** → **Go to step 8**

**OK**

| 6 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

**NG** → **Go to step 8**

**OK**

| 7 | CHECK DTC |
|---|---|

(a) Turn the ignition switch to the ON position.
(b) Clear the DTCs stored in memory (see page 05-777 ).

HINT:
First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.

(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position.
(e) Using the hand-held tester, check the DTCs (see page 05-777 ).
**OK:**
**DTC B1786 is not output.**

HINT:
Codes other than code B1786 may be output at this time, but they are not related to this check.

**NG** → **Go to step 8**

**OK**

**END**

| 8 | REPLACE OCCUPANT CLASSIFICATION ECU |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the occupant classification ECU (see page 60-67 ).

**NEXT**

| 9 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the negative (-) terminal cable to the battery.
(b) Connect the hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed.**

**NEXT**

| 10 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

**NEXT**

**END**

| DTC | B1787 | OCCUPANT CLASSIFICATION SENSOR REAR LH COLLISION DETECTION |
|---|---|---|

## CIRCUIT DESCRIPTION

DTC B1787 is output when the occupant classification ECU receives a collision detection signal sent by the occupant classification sensor rear LH if an accident occurs.
DTC B1787 is also output when the seat adjuster frame assy is subjected to a strong impact, even if an actual accident does not occur.
However, when the occupant classification ECU outputs a collision detection signal, even if the vehicle is not in a collision, DTC B1787 can be cleared by ”Zero point calibration” and ”Sensitivity check”.
Therefore, if DTC B1787 is output, first perform ”Zero point calibration” and ”Sensitivity check”.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1787 | • Seat adjuster frame assy malfunction<br>• Occupant classification ECU malfunction<br>• Occupant classification sensor rear LH senses a large load | • Occupant classification ECU<br>• Seat adjuster frame assy<br>(Occupant classification sensor rear LH) |

HINT:
When DTC B1150/23 is detected as a result of troubleshooting for the supplemental restraint system, perform troubleshooting for DTC B1787 of the occupant classification system.

## WIRING DIAGRAM

See page 05-1052 .

## INSPECTION PROCEDURE

| 1 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the hand-held tester to the DLC3.
(b) Turn the ignition switch to the ON position.
(c) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed.**

**NG** → **Go to step 4**

**OK**

| 2 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

**NG** → **Go to step 4**

**OK**

| 3 | CHECK DTC |
|---|---|

(a) Turn the ignition switch to the ON position.
(b) Clear the DTCs stored in memory (see page 05-777 ).
HINT:
First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.
(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position.
(e) Using the hand-held tester, check the DTCs (see page 05-777 ).
**OK:**
**DTC B1787 is not output.**
HINT:
Codes other than code B1787 may be output at this time, but they are not related to this check.

**NG** → **Go to step 4**

**OK**

**END**

| 4 | REPLACE SEAT ADJUSTER FRAME ASSY |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the seat adjuster frame assy (see page 72-30 ).
HINT:
Perform the inspection using parts from a normal vehicle if possible.

**NEXT**

| 5 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the negative (-) terminal cable to the battery.
(b) Connect the hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed.**

**NG** → **Go to step 8**

**OK**

| 6 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

**NG** → **Go to step 8**

**OK**

| 7 | CHECK DTC |
|---|---|

(a) Turn the ignition switch to the ON position.
(b) Clear the DTCs stored in memory (see page 05-777 ).
HINT:
First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.
(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position.
(e) Using the hand-held tester, check the DTCs (see page 05-777 ).
**OK:**
**DTC B1787 is not output.**
HINT:
Codes other than code B1787 may be output at this time, but they are not related to this check.
SST 09843-18040

**NG** → **Go to step 8**

**OK**

**END**

| 8 | REPLACE OCCUPANT CLASSIFICATION ECU |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the occupant classification ECU (see page 60-67 ).

**NEXT**

| 9 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the negative (-) terminal cable to the battery.
(b) Connect the hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed.**

**NEXT**

| 10 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

**NEXT**

**END**

| DTC | B1788 | OCCUPANT CLASSIFICATION SENSOR REAR RH COLLISION DETECTION |
|---|---|---|

## CIRCUIT DESCRIPTION

DTC B1788 is output when the occupant classification ECU receives a collision detection signal sent by the occupant classification sensor rear RH if an accident occurs.
DTC B1788 is also output when the seat adjuster frame assy is subjected to a strong impact, even if an actual accident does not occur.
However, when the occupant classification ECU outputs a collision detection signal, even if the vehicle is not in a collision, DTC B1788 can be cleared by ”Zero point calibration” and ”Sensitivity check”.
Therefore, if DTC B1788 is output, first perform ”Zero point calibration” and ”Sensitivity check”.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1788 | • Seat adjuster frame assy malfunction<br>• Occupant classification ECU malfunction<br>• Occupant classification sensor rear RH senses a large load | • Occupant classification ECU<br>• Seat adjuster frame assy<br>(Occupant classification sensor rear RH) |

HINT:
When DTC B1150/23 is detected as a result of troubleshooting for the supplemental restraint system, perform troubleshooting for DTC B1788 of the occupant classification system.

## WIRING DIAGRAM

See page 05-1059 .

## INSPECTION PROCEDURE

| 1 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the hand-held tester to the DLC3.
(b) Turn the ignition switch to the ON position.
(c) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed.**

**NG** → **Go to step 4**

**OK**

| 2 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

**NG** → **Go to step 4**

**OK**

| 3 | CHECK DTC |
|---|---|

(a) Turn the ignition switch to the ON position.
(b) Clear the DTCs stored in memory (see page 05-777 ).
HINT:
First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.
(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position.
(e) Using the hand-held tester, check the DTCs (see page 05-777 ).
**OK:**
**DTC B1788 is not output.**
HINT:
Codes other than code B1788 may be output at this time, but they are not related to this check.

**NG** → **Go to step 4**

**OK**

**END**

| 4 | REPLACE SEAT ADJUSTER FRAME ASSY |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the seat adjuster frame assy (see page 72-30 ).
HINT:
Perform the inspection using parts from a normal vehicle if possible.

**NEXT**

| 5 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the negative (-) terminal cable to the battery.
(b) Connect the hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed.**

**NG** → **Go to step 8**

**OK**

| 6 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

**NG** → **Go to step 8**

**OK**

| 7 | CHECK DTC |
|---|---|

(a) Turn the ignition switch to the ON position.
(b) Clear the DTCs stored in memory (see page 05-777 ).

HINT:

First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.

(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position.
(e) Using the hand-held tester, check the DTCs (see page 05-777 ).

**OK:**

**DTC B1788 is not output.**

HINT:

Codes other than code B1788 may be output at this time, but they are not related to this check.

**NG** → **Go to step 8**

**OK**

**END**

| 8 | REPLACE OCCUPANT CLASSIFICATION ECU |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the occupant classification ECU (see page 60-67 ).

**NEXT**

| 9 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the negative (-) terminal cable to the battery.
(b) Connect the hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).

**OK:**

**The ”COMPLETED” is displayed.**

**NEXT**

| 10 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).

**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

**NEXT**

**END**

| DTC | B1790 | AIRBAG SENSOR ASSY CENTER COMMUNICATION CIRCUIT MALFUNCTION |
|---|---|---|

## CIRCUIT DESCRIPTION

The airbag sensor assy center communication circuit consists of the occupant classification ECU and the airbag sensor assy center.

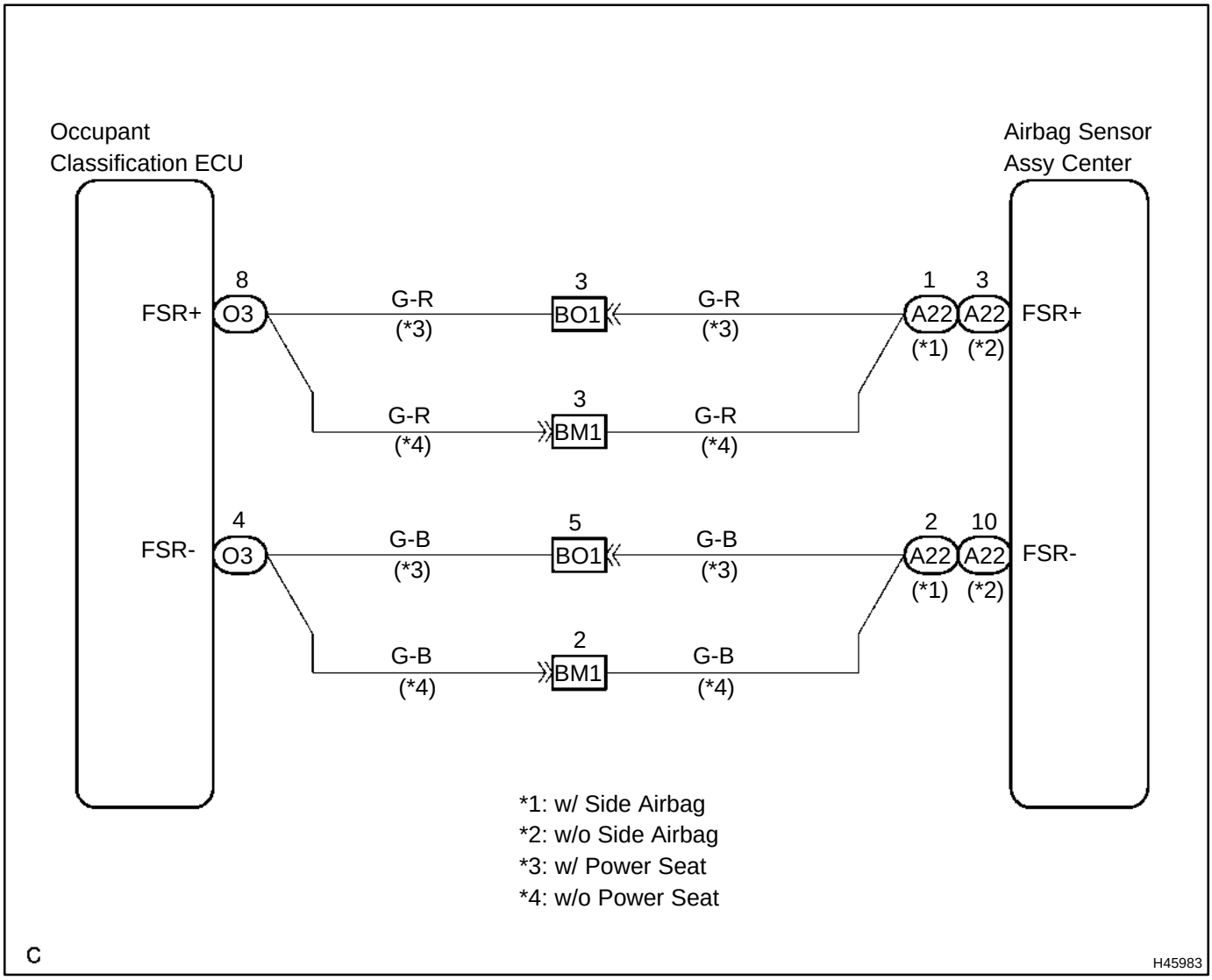
DTC B1790 is recorded when a malfunction is detected in the airbag sensor assy center communication circuit.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1790 | • The occupant classification ECU receives a line short circuit signal, an open circuit signal, a short circuit to ground signal or a short circuit to B+ signal in the airbag sensor assy center communication circuit for 2 seconds.<br>• Airbag sensor assy center malfunction<br>• Occupant classification ECU malfunction | • Occupant classification ECU<br>• Airbag sensor assy center<br>• Floor wire No.2<br>• Front seat wire RH |

HINT:

When DTC B1150/23 is detected as a result of troubleshooting for the supplemental restraint system, perform troubleshooting for DTC B1790 of the occupant classification system.

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

- If troubleshooting (wire harness inspection) is difficult to perform, remove the front RH seat assy installation bolts to see the under surface of seat cushion.
- In the above case, hold the seat so that it does not fall down. Holding the seat for a long period of time may cause a problem, such as seat rail deformation. Hold the seat only as necessary.

| 1 | CHECK DTC |
|---|---|

(a) Turn the ignition switch to the ON position.
(b) Clear the DTCs stored in memory (see page 05-777 ).

HINT:

First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.

(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position.
(e) Using the hand-held tester, check the DTCs (see page 05-777 ).

**OK:**

**DTC B1790 is not output.**

HINT:

Codes other than code B1790 may be output at this time, but they are not related to this check.

**NG** → **Go to step 2**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

| 2 | CHECK CONNECTION OF CONNECTORS |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Check that the connectors are properly connected to the occupant classification ECU and the airbag sensor assy center.

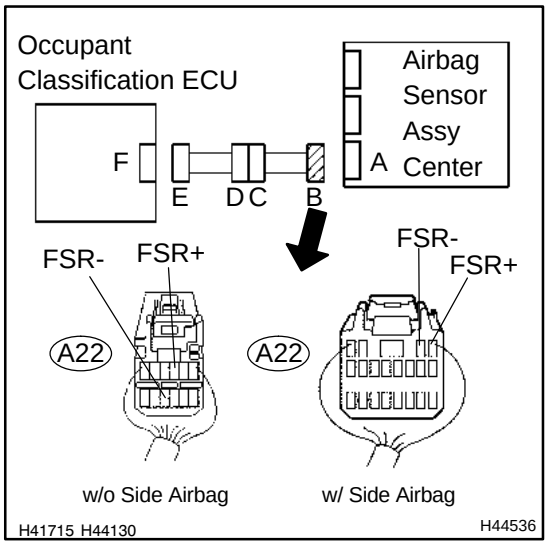
**OK:**

**The connectors are connected.**

**NG** → **CONNECT CONNECTORS, THEN GO TO STEP 1**

**OK**

## 3 CHECK AIRBAG SENSOR ASSY CENTER COMMUNICATION CIRCUIT(TO B+)




(a) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(b) Turn the ignition switch to the ON position.
(c) Measure the voltage according to the value(s) in the table below.

**Standard:**

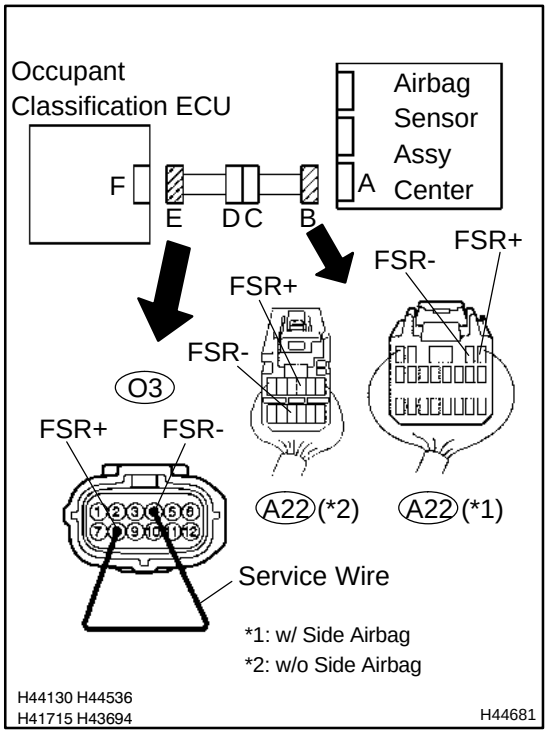
| Tester connection | Condition | Specified condition |
|---|---|---|
| A22-1 (FSR+) - Body ground (*1) | Ignition switch ON | Below 1 V |
| A22-2 (FSR-) - Body ground (*1) | Ignition switch ON | Below 1 V |
| A22-3 (FSR+) - Body ground (*2) | Ignition switch ON | Below 1 V |
| A22-10 (FSR-) - Body ground (*2) | Ignition switch ON | Below 1 V |

*1: w/ Side airbag
*2: w/o Side airbag

**NG** → **Go to step 12**

**OK**

## 4 CHECK AIRBAG SENSOR ASSY CENTER COMMUNICATION CIRCUIT(OPEN)




(a) Disconnect the connectors from the airbag sensor assy center and the occupant classification ECU.
(b) Using a service wire, connect O3-8 (FSR+) and O3-4 (FSR-) of connector "E".

**NOTICE:**
**Do not forcibly insert a service wire into the terminals of the connector when connecting.**

(c) Measure the resistance according to the value(s) in the table below.

**Standard:**

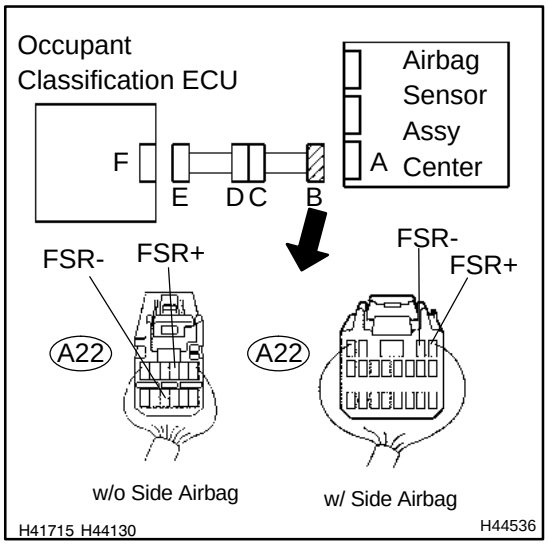
| Tester connection | Condition | Specified condition |
|---|---|---|
| A22-1 (FSR+) - A22-2 (FSR-) (*1) | Always | Below 1 Ω |
| A22-3 (FSR+) - A22-10 (FSR-) (*2) | Always | Below 1 Ω |

*1: w/ Side airbag
*2: w/o Side airbag

**NG** → **Go to step 13**

**OK**

## 5 CHECK AIRBAG SENSOR ASSY CENTER COMMUNICATION CIRCUIT(SHORT)




(a) Disconnect the service wire from connector "E".
(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

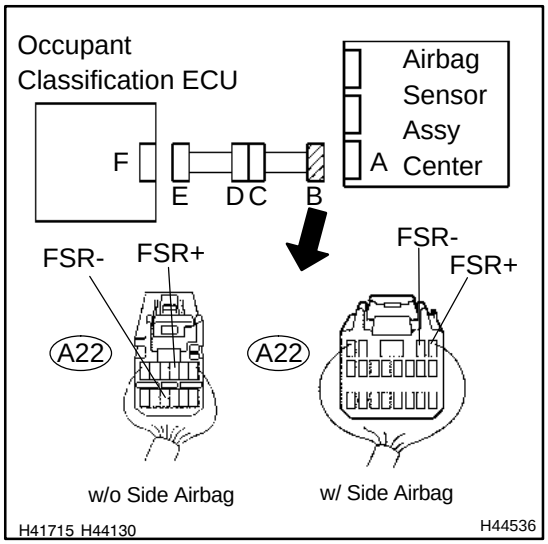
| Tester connection | Condition | Specified condition |
|---|---|---|
| A22-1 (FSR+) - A22-2 (FSR-) (*1) | Always | 1 MΩ or Higher |
| A22-3 (FSR+) - A22-10 (FSR-) (*2) | Always | 1 MΩ or Higher |

*1: w/ Side airbag
*2: w/o Side airbag

**NG** → **Go to step 14**

**OK**

## 6 CHECK AIRBAG SENSOR ASSY CENTER COMMUNICATION CIRCUIT(TO GROUND)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A22-1 (FSR+) - Body ground (*1) | Always | 1 MΩ or Higher |
| A22-2 (FSR-) - Body ground (*1) | Always | 1 MΩ or Higher |
| A22-3 (FSR+) - Body ground (*2) | Always | 1 MΩ or Higher |
| A22-10 (FSR-) - Body ground (*2) | Always | 1 MΩ or Higher |

*1: w/ Side airbag
*2: w/o Side airbag

**NG** → **Go to step 15**

**OK**

| 7 | RECHECK DTC |
|---|---|

(a) Connect the connectors to the occupant classification ECU and the airbag sensor assy center.
(b) Connect the negative (-) terminal cable to the battery.
(c) Turn the ignition switch to the ON position.
(d) Clear the DTCs stored in memory (see page 05-777 ).

HINT:
First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.

(e) Turn the ignition switch to the LOCK position.
(f) Turn the ignition switch to the ON position.
(g) Using the hand-held tester, check the DTCs (see page 05-777 ).
**OK:**
**DTC B1790 is not output.**

HINT:
Codes other than code B1790 may be output at this time, but they are not related to this check.

**NG** → **Go to step 8**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

| 8 | REPLACE OCCUPANT CLASSIFICATION ECU |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the occupant classification ECU (see page 60-67 ).

HINT:
Perform the inspection using parts from a normal vehicle if possible.

**NEXT**

| 9 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the negative (-) terminal cable to the battery.
(b) Connect the hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed.**

**NEXT**

| 10 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

**NEXT**

| 11 | RECHECK DTC |
|---|---|

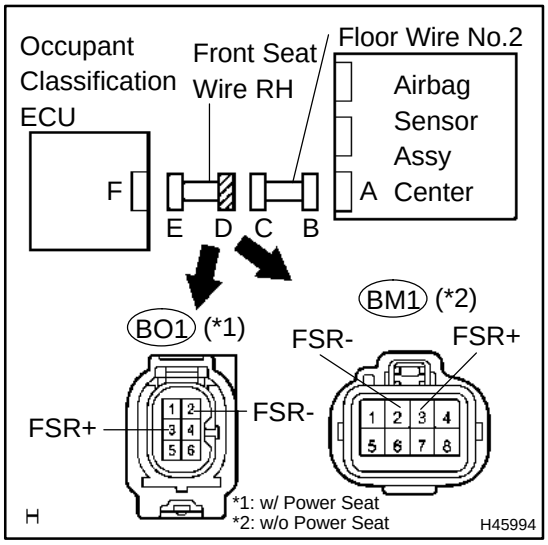
(a) Turn the ignition switch to the ON position.
(b) Clear the DTCs stored in memory (see page 05-777 ).
HINT:
First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.
(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position.
(e) Using the hand-held tester, check the DTCs (see page 05-777 ).
**OK:**
**DTC B1790 is not output.**
HINT:
Codes other than code B1790 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

**END**

| 12 | CHECK FRONT SEAT WIRE RH(TO B+) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the front seat wire RH connector from the floor wire No.2.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position.
(f) Measure the voltage according to the value(s) in the table below.
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| BO1-3 (FSR+) - Body ground (*1) | Ignition switch ON | Below 1 V |
| BO1-5 (FSR-) - Body ground (*1) | Ignition switch ON | Below 1 V |
| BM1-3 (FSR+) - Body ground (*2) | Ignition switch ON | Below 1 V |
| BM1-2 (FSR-) - Body ground (*2) | Ignition switch ON | Below 1 V |

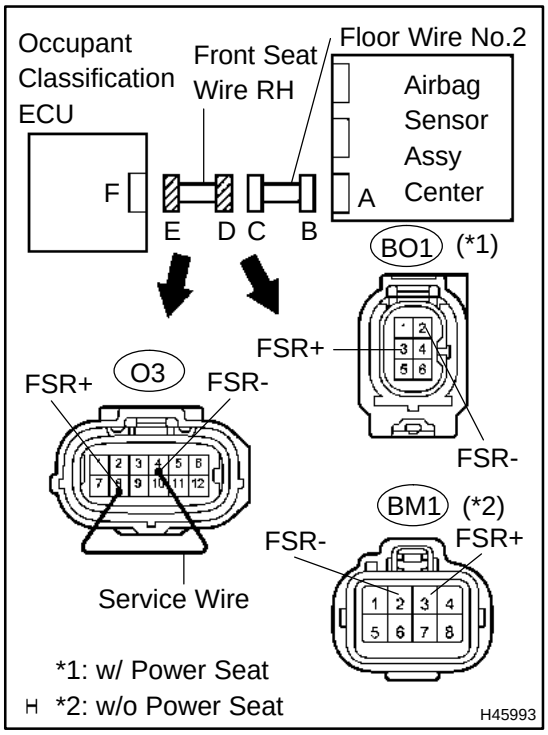
*1: w/ Power seat
*2: w/o Power seat

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

**OK**

**REPAIR OR REPLACE FLOOR WIRE NO.2**

## 13 CHECK FRONT SEAT WIRE RH(OPEN)




(a) Disconnect the front seat wire RH connector from the floor wire No.2.

HINT:

The service wire has already been inserted into connector "E".

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| BO1-3 (FSR+) - BO1-5 (FSR-) (*1) | Always | Below 1 Ω |
| BM1-3 (FSR+) - BM1-2 (FSR-) (*2) | Always | Below 1 Ω |

*1: w/ Power seat

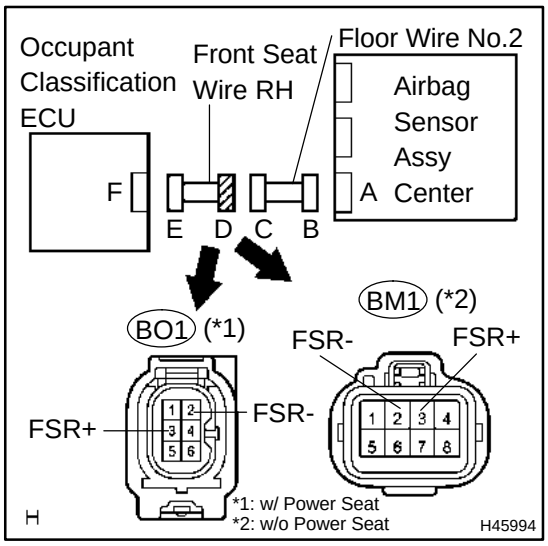
*2: w/o Power seat

NG → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

OK

**REPAIR OR REPLACE FLOOR WIRE NO.2**

## 14 CHECK FRONT SEAT WIRE RH(SHORT)




(a) Disconnect the front seat wire RH connector from the floor wire No.2.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

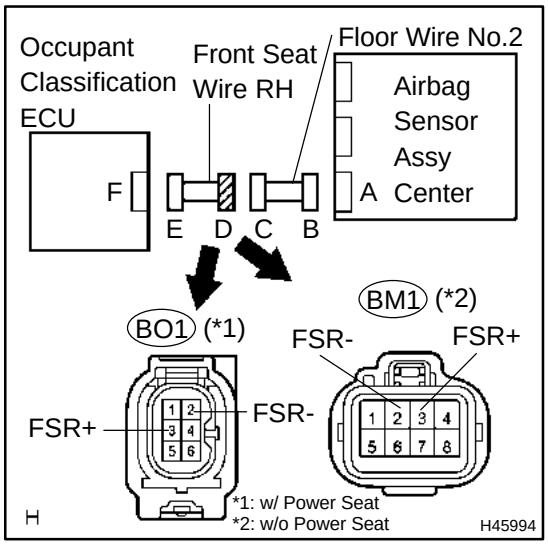
| Tester connection | Condition | Specified condition |
|---|---|---|
| BO1-3 (FSR+) - BO1-5 (FSR-) (*1) | Always | 1 MΩ or Higher |
| BM1-3 (FSR+) - BM1-2 (FSR-) (*2) | Always | 1 MΩ or Higher |

NG → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

OK

**REPAIR OR REPLACE FLOOR WIRE NO.2**

## 15 CHECK FRONT SEAT WIRE RH(TO GROUND)




(a) Disconnect the front seat wire RH connector from the floor wire No.2.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| BO1-3 (FSR+) - Body ground (*1) | Always | 1 MΩ or Higher |
| BO1-5 (FSR-) - Body ground (*1) | Always | 1 MΩ or Higher |
| BM1-3 (FSR+) - Body ground (*2) | Always | 1 MΩ or Higher |
| BM1-2 (FSR-) - Body ground (*2) | Always | 1 MΩ or Higher |

*1: w/ Power seat

*2: w/o Power seat

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

**OK**

**REPAIR OR REPLACE FLOOR WIRE NO.2**

| DTC | B1793 | OCCUPANT CLASSIFICATION SENSOR POWER SUPPLY CIRCUIT MALFUNCTION |
|---|---|---|

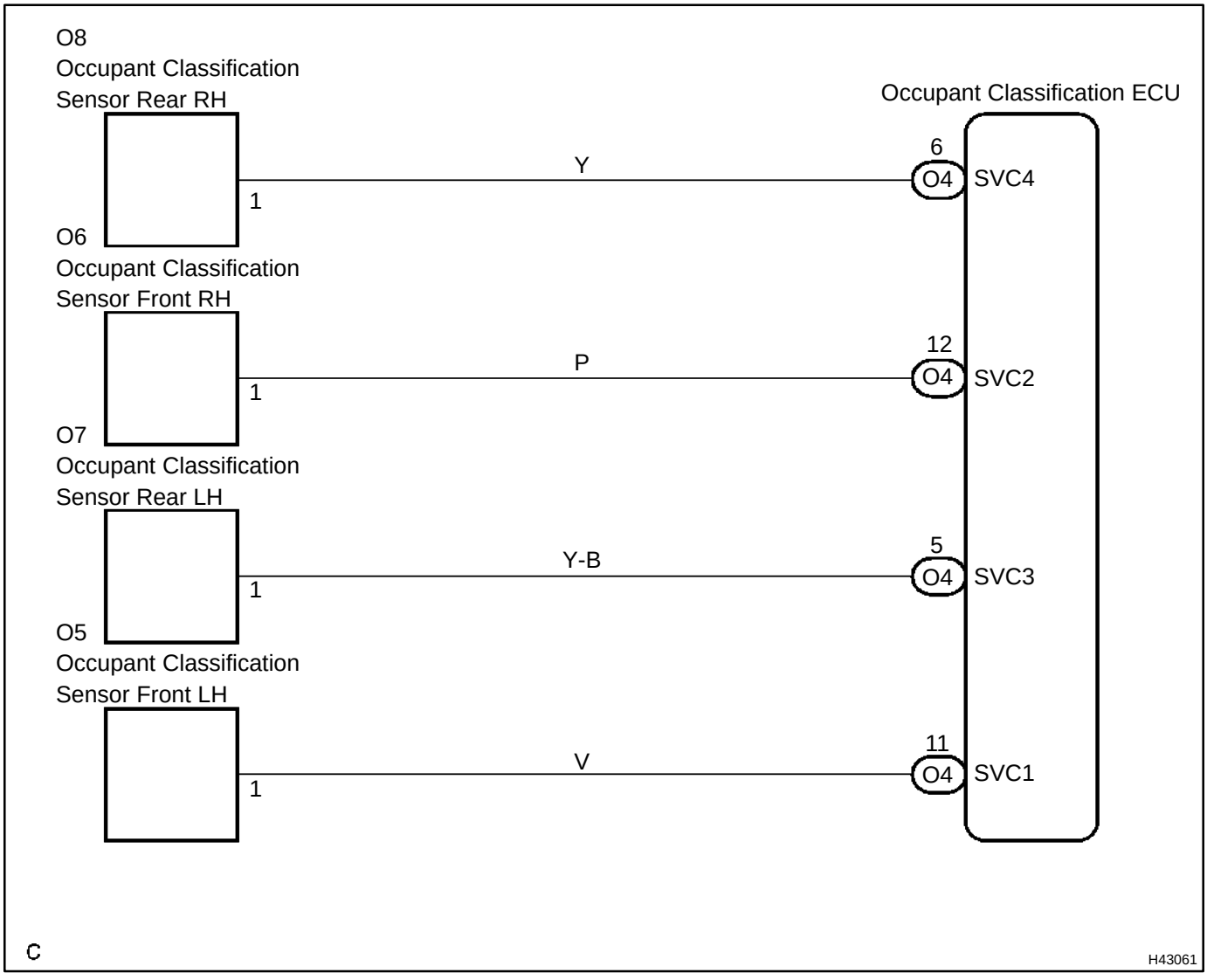
## CIRCUIT DESCRIPTION

The occupant classification sensor power supply circuit consists of the occupant classification ECU and the occupant classification sensors.
DTC B1793 is recorded when a malfunction is detected in the occupant classification sensor power supply circuit.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1793 | • The occupant classification ECU receives a line short circuit signal, an open circuit signal, a short circuit to ground signal or a short circuit to B+ signal in the occupant classification sensor power supply circuit for 2 seconds.<br>• Occupant classification ECU malfunction | • Seat adjuster frame assy (Occupant classification sensors)<br>• Front seat wire RH<br>• Occupant classification ECU |

HINT:
When DTC B1150/23 is detected as a result of troubleshooting for the supplemental restraint system, perform troubleshooting for DTC B1793 of the occupant classification system.

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

- If troubleshooting (wire harness inspection) is difficult to perform, remove the front RH seat assy installation bolts to see the under surface of seat cushion.
- In the above case, hold the seat so that it does not fall down. Holding the seat for a long period of time may cause a problem, such as seat rail deformation. Hold the seat only as necessary.

| 1 | CHECK DTC |
|---|---|

(a) Turn the ignition switch to the ON position.
(b) Clear the DTCs stored in memory (see page 05-777 ).

HINT:

First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.

(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position.
(e) Using the hand-held tester, check the DTCs (see page 05-777 ).

**OK:**

**DTC B1793 is not output.**

HINT:

Codes other than code B1793 may be output at this time, but they are not related to this check.

**NG** → **Go to step 2**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

| 2 | CHECK CONNECTION OF CONNECTORS |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Check that the connectors are properly connected to the occupant classification ECU and the occupant classification sensors.

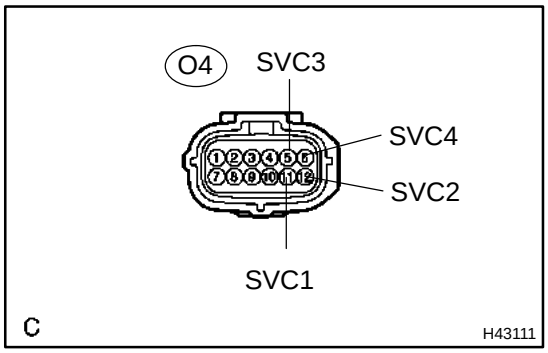
**OK:**

**The connectors are connected.**

**NG** → **CONNECT CONNECTORS, THEN GO TO STEP 1**

**OK**

## 3 CHECK FRONT SEAT WIRE RH(TO B+)




(a) Disconnect the occupant classification ECU connector and the 4 occupant classification sensor connectors.
(b) Connect the negative (-) terminal cable to the battery.
(c) Turn the ignition switch to the ON position.
(d) Measure the voltage according to the value(s) in the table below.

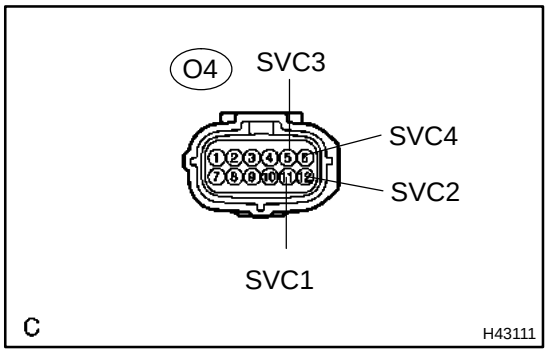
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| O4-5 (SVC3) - Body ground | Ignition switch ON | Below 1 V |
| O4-6 (SVC4) - Body ground | Ignition switch ON | Below 1 V |
| O4-11 (SVC1) - Body ground | Ignition switch ON | Below 1 V |
| O4-12 (SVC2) - Body ground | Ignition switch ON | Below 1 V |

NG → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

OK

## 4 CHECK FRONT SEAT WIRE RH(TO GROUND)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Measure the resistance according to the value(s) in the table below.

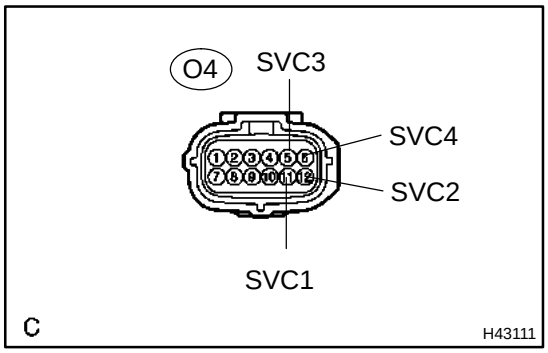
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| O4-5 (SVC3) - Body ground | Always | 1 MΩ or Higher |
| O4-6 (SVC4) - Body ground | Always | 1 MΩ or Higher |
| O4-11 (SVC1) - Body ground | Always | 1 MΩ or Higher |
| O4-12 (SVC2) - Body ground | Always | 1 MΩ or Higher |

NG → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

OK

## 5 CHECK FRONT SEAT WIRE RH(OPEN)




(a) Measure the resistance according to the value(s) in the table below.

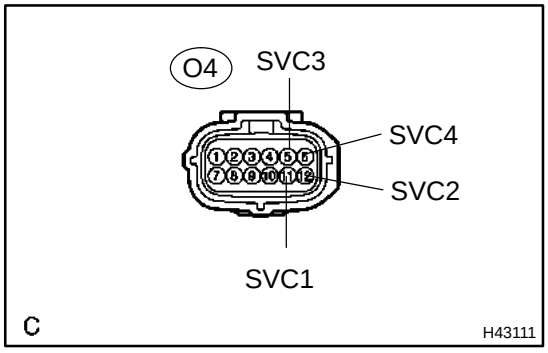
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| O4-5 (SVC3) - O7-1 (SVC3) | Always | Below 1 Ω |
| O4-6 (SVC4) - O8-1 (SVC4) | Always | Below 1 Ω |
| O4-11 (SVC1) - O5-1 (SVC1) | Always | Below 1 Ω |
| O4-12 (SVC2) - O6-1 (SVC2) | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

**OK**

## 6 CHECK FRONT SEAT WIRE RH(SHORT)




(a) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| O4-5 (SVC3) - O4-6 (SVC4) | Always | 1 MΩ or Higher |
| O4-6 (SVC4) - O4-11 (SVC1) | Always | 1 MΩ or Higher |
| O4-11 (SVC1) - O4-12 (SVC2) | Always | 1 MΩ or Higher |
| O4-12 (SVC2) - O4-5 (SVC3) | Always | 1 MΩ or Higher |
| O4-12 (SVC2) - O4-6 (SVC4) | Always | 1 MΩ or Higher |
| O4-11 (SVC1) - O4-5 (SVC3) | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

**OK**

| 7 | RECHECK DTC |
|---|---|

(a) Connect the occupant classification ECU connector and the 4 occupant classification sensor connectors.
(b) Connect the negative (-) terminal cable to the battery.
(c) Turn the ignition switch to the ON position.
(d) Clear the DTCs stored in memory (see page 05-777 ).

HINT:
First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.

(e) Turn the ignition switch to the LOCK position.
(f) Turn the ignition switch to the ON position.
(g) Using the hand-held tester, check the DTCs (see page 05-777 ).
**OK:**
**DTC B1793 is not output.**

HINT:
Codes other than code B1793 may be output at this time, but they are not related to this check.

**NG** → **Go to step 8**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

| 8 | REPLACE OCCUPANT CLASSIFICATION ECU |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the occupant classification ECU (see page 60-67 ).

HINT:
Perform the inspection using parts from a normal vehicle if possible.

**NEXT**

| 9 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the negative (-) terminal cable to the battery.
(b) Connect the hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed.**

**NG** → **Go to step 12**

**OK**

| 10 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

**NG** → **Go to step 12**

**OK**

| 11 | RECHECK DTC |
|---|---|

(a) Turn the ignition switch to the ON position.
(b) Clear the DTCs stored in memory (see page 05-777 ).
HINT:
First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.
(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position.
(e) Using the hand-held tester, check the DTCs (see page 05-777 ).
**OK:**
**DTC B1793 is not output.**
HINT:
Codes other than code B1793 may be output at this time, but they are related to this check.

**NG** → **Go to step 12**

**OK**

**END**

| 12 | REPLACE SEAT ADJUSTER FRAME ASSY |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the seat adjuster frame assy (see page 72-30 ).

NEXT

| 13 | CHECK PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the negative (-) terminal cable to the battery.
(b) Connect the hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed.**

NEXT

| 14 | CHECK PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

NEXT

END

| DTC | B1794 | OCCUPANT CLASSIFICATION ECU BATTERY POSITIVE LINE OPEN |
|---|---|---|

## CIRCUIT DESCRIPTION

This circuit consists of the occupant classification ECU and the power source circuit (battery, fuse, wire harness).

DTC B1794 is recorded when a malfunction is detected in the occupant classification ECU or the power source circuit.

HINT:

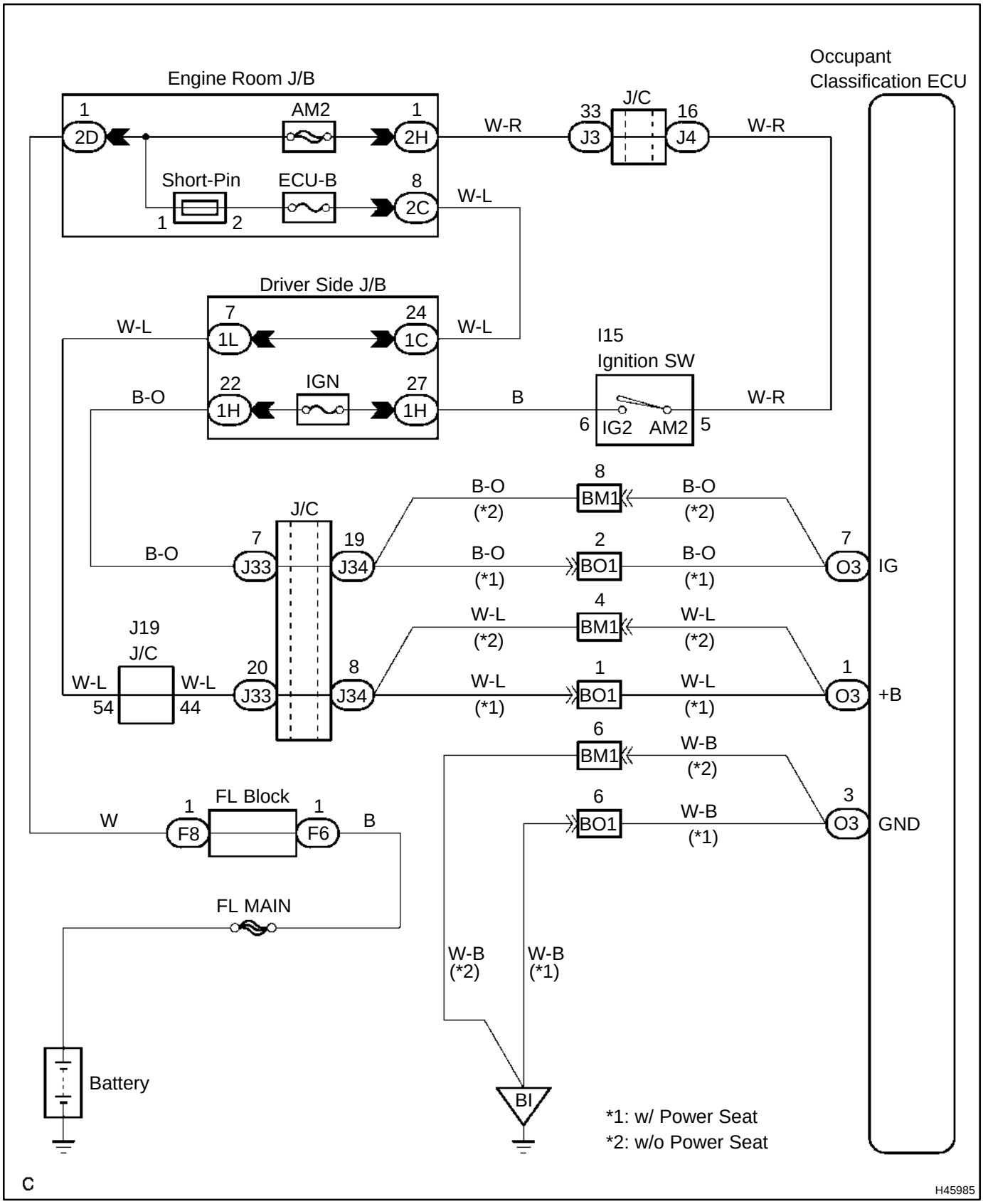
When DTC B1794 is output after switching the ignition switch LOCK-ON-LOCK 50 times in a row when a malfunction occurs in the power circuit for the occupant classification system, the DTC is output again when a malfunction is detected even once after being cleared, unless the normal system code is input.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1794 | • The ignition switch is turned from LOCK to ON, hold for 10 seconds or more, and back to LOCK again 50 times in a row when a malfunction occurs in the power circuit for the occupant classification system.<br>• Occupant classification ECU malfunction | • Battery<br>• ECU-B Fuse<br>• Floor wire<br>• Front seat wire RH<br>• Occupant classification ECU |

HINT:

When DTC B1650/32 is detected as a result of troubleshooting for the supplemental restraint system, perform troubleshooting for DTC B1794 of the occupant classification system.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CHECK BATTERY |
|---|---|

(a) Measure the voltage of the battery.
**Standard: 11 to 14 V**

**NG** → **REPLACE BATTERY**

**OK**

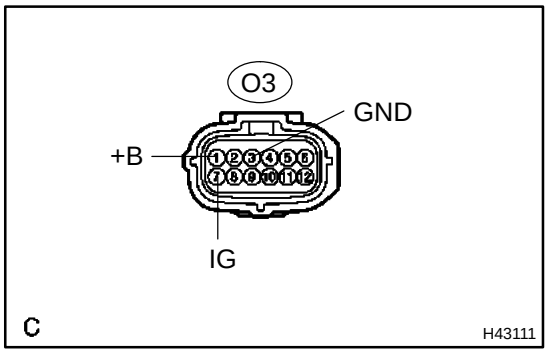
| 2 | CHECK FUSE |
|---|---|

(a) Check the ECU-B fuse.
**Standard: Below 1 Ω**

**NG** → **REPLACE FUSE**

**OK**

| 3 | CHECK WIRE HARNESS |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connector from the occupant classification ECU.
(d) Connect the negative (-) terminal cable to the battery.
(e) Turn the ignition switch to the ON position.
(f) Measure the voltage and resistance according to the value(s) in the table below.
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| O3-1 (+B) - Body ground | Ignition switch ON | 10 to 14 V |
| O3-7 (IG) - Body ground | Ignition switch ON | 10 to 14 V |
| O3-3 (GND) - Body ground | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE WIRE HARNESS**

**OK**

| 4 | CHECK DTC |
|---|---|

(a) Turn the ignition switch to the ON position.
(b) Clear the DTCs stored in memory (see page 05-777 ).
HINT:
First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.
(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position, and wait for at least 10 seconds.
(e) Using the hand-held tester, check the DTCs of the occupant classification ECU (see page 05-777 ).
**OK:**
**DTC B1794 is not output.**
HINT:
Codes other than code B1794 may be output at this time, but they are not related to this check.

**NG** → **Go to step 5**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

| 5 | REPLACE OCCUPANT CLASSIFICATION ECU |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the occupant classification ECU (see page 60-67 ).
HINT:
Perform the inspection using parts from a normal vehicle if possible.

**NEXT**

| 6 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the negative (-) terminal cable to the battery.
(b) Connect the hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Using the hand-held tester, perform the ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed.**

**NEXT**

| 7 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform the ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

**NEXT**

**END**

| DTC | B1795 | OCCUPANT CLASSIFICATION ECU MALFUNCTION |
|---|---|---|

## CIRCUIT DESCRIPTION

DTC B1795 is recorded when a malfunction is detected in the occupant classification ECU.
Troubleshoot DTC B1771 first when the DTC B1771 and B1795 are output simultaneously.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1795 | • Occupant classification ECU circuit malfunction<br>• The occupant classification ECU receives a short to ground signal in the passenger side buckle switch circuit for 2 seconds.<br>• Occupant classification ECU malfunction | • Front seat wire RH<br>• Front seat inner belt assy RH (Buckle switch RH)<br>• Occupant classification ECU |

HINT:
When DTC B1150/23 is detected as a result of troubleshooting for the supplemental restraint system, perform troubleshooting for DTC B1795 of the occupant classification system.

## INSPECTION PROCEDURE

| 1 | CHECK DTC |
|---|---|

(a) Turn the ignition switch to the ON position, and wait for at least 10 seconds.
(b) Using the hand-held tester, check the DTCs (see page 05-777 ).
**Result:**
**A: DTC B1795 is output.**
**B: DTC B1771 and B1795 are output.**

HINT:
Codes other than codes B1771 and B1795 may be output at this time, but they are not related to this check.

**B** → **GO TO DTC B1771 (SEE PAGE 05-1032 )**

**A**

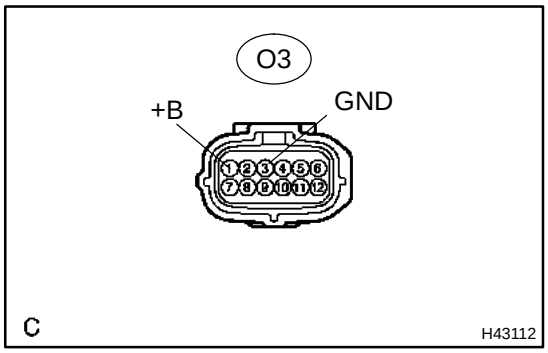
| 2 | CHECK FUSE |
|---|---|

(a) Check the ECU-B fuse.
**Standard: Below 1 Ω**

**NG** → **REPLACE FUSE**

**OK**

## 3 CHECK WIRE HARNESS(SOURCE VOLTAGE)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the "O6" connector from the occupant classification ECU.
(d) Connect the negative (-) terminal cable to the battery.
(e) Turn the ignition switch to the ON position.
(f) Measure the voltage and resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| O3-1 (+B) - Body ground | Ignition switch ON | 10 to 14 V |
| O3-3 (GND) - Body ground | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE WIRE HARNESS OR BATTERY**

**OK**

## 4 REPLACE OCCUPANT CLASSIFICATION ECU

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the occupant classification ECU (see page 60-67 ).

**NEXT**

## 5 PERFORM ZERO POINT CALIBRATION

(a) Connect the negative (-) terminal cable to the battery.
(b) Connect the hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Using the hand-held tester, perform "Zero point calibration" (see page 05-767 ).

**OK:**

**The "COMPLETED" is displayed.**

**NEXT**

## 6 PERFORM SENSITIVITY CHECK

(a) Using the hand-held tester, perform "Sensitivity check" (see page 05-767 ).

**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

**NEXT**

**END**

| DTC | B1796 | SLEEP OPERATION FAILURE OF OCCUPANT CLASSIFICATION ECU |
|---|---|---|

## CIRCUIT DESCRIPTION

During sleep mode, the occupant classification ECU reads the condition of each sensor while the ignition switch is off. In this mode, if the occupant classification ECU detects an internal malfunction, DTC B1796 is output.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1796 | • Occupant classification ECU malfunction | • Occupant classification ECU |

HINT:

When DTC B1150/23 is detected as a result of troubleshooting for the supplemental restraint system, perform troubleshooting for the DTC B1796 of the occupant classification system.

## INSPECTION PROCEDURE

| 1 | CHECK DTC |
|---|---|

(a) Turn the ignition switch to the ON position.

(b) Clear the DTCs stored in memory (see page 05-777 ).

HINT:

First clear DTCs stored in the occupant classification ECU and then in the airbag sensor assy center.

(c) Turn the ignition switch to the LOCK position, and wait for at least 10 seconds.

(d) Turn the ignition switch to the ON position.

(e) Using the hand-held tester, check the DTCs (see page 05-777 ).

**OK:**

**DTC B1796 is not output.**

HINT:

Codes other than code B1796 may be output at this time, but they are not related to this check.

**NG** → **Go to step 2**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

| 2 | REPLACE OCCUPANT CLASSIFICATION ECU |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the occupant classification ECU (see page 60-67 ).

NEXT

| 3 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed.**

NEXT

| 4 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

NEXT

END

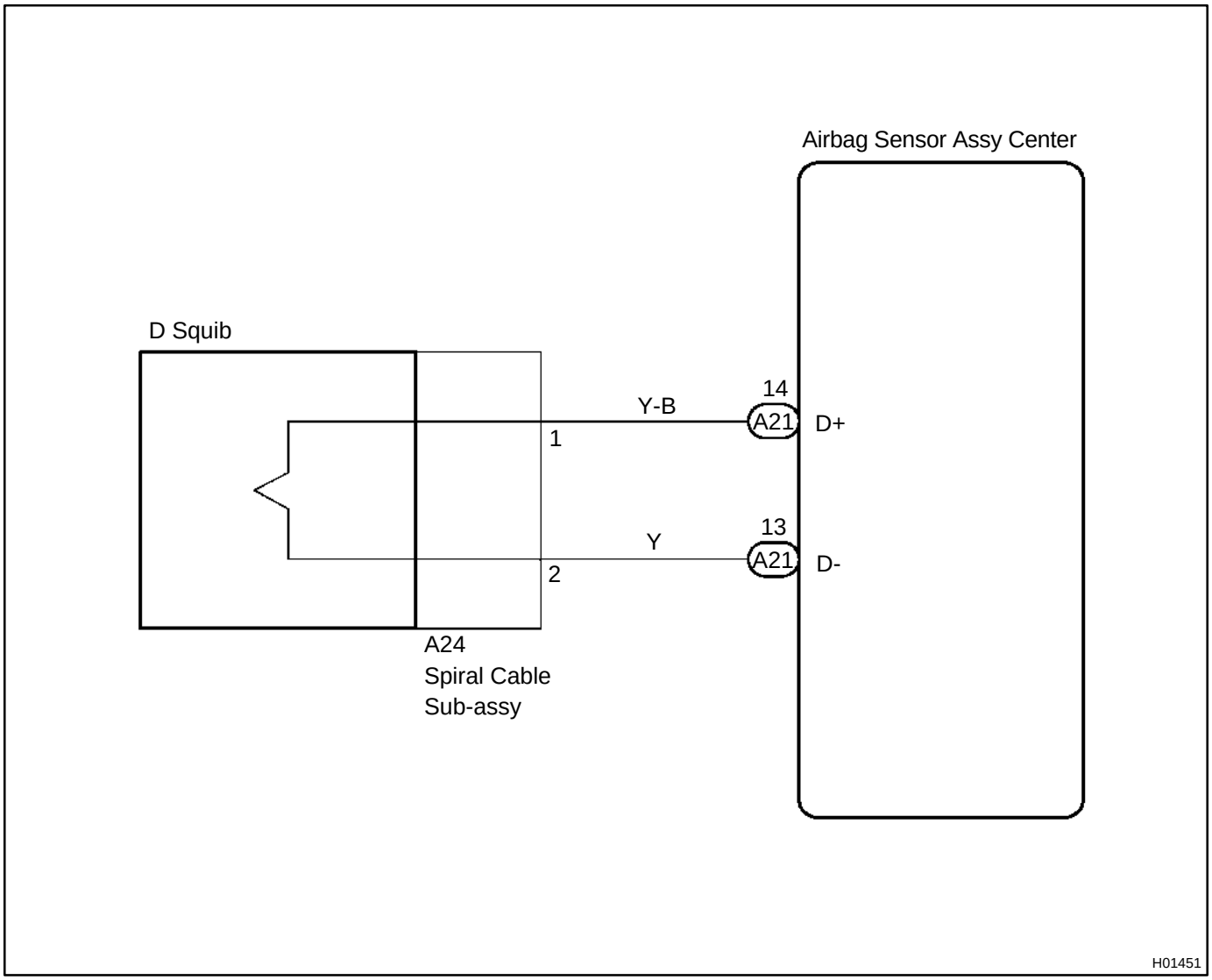
# DTC B0100/13 SHORT IN D SQUIB CIRCUIT

## CIRCUIT DESCRIPTION

The D squib circuit consists of the airbag sensor assy center, the spiral cable sub-assy and the horn button assy.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0100/13 is recorded when a short circuit is detected in the D squib circuit.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B0100/13 | • The airbag sensor assy center receives a line short circuit signal 5 times in the D squib circuit during primary check.<br>• D squib malfunction<br>• Spiral cable sub-assy malfunction<br>• Airbag sensor assy center malfunction | • Horn button assy (D squib)<br>• Spiral cable sub-assy<br>• Airbag sensor assy center<br>• Instrument panel wire |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

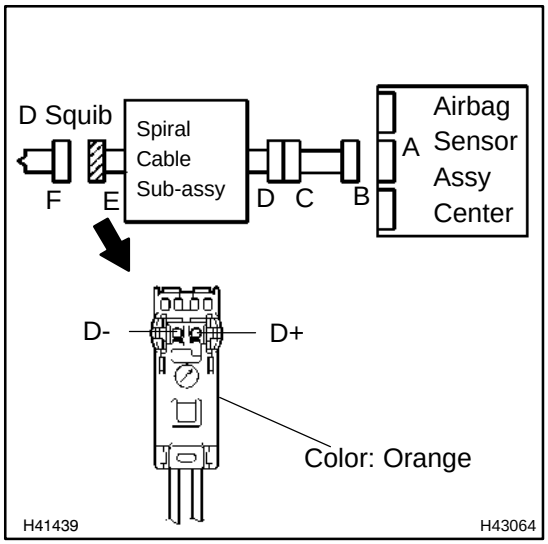
| 1 | CHECK CONNECTOR |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the horn button assy.
(d) Check that the spiral cable sub-assy connectors (on the horn button assy side) are not damaged.
**OK:**
**The lock button is not disengaged, or the claw of the lock is not deformed or damaged.**

**NG** → **REPLACE SPIRAL CABLE SUB-ASSY (SEE PAGE 60-28 )**

**OK**

| 2 | CHECK D SQUIB CIRCUIT(AIRBAG SENSOR ASSY CENTER - HORN BUTTON ASSY) |
|---|---|



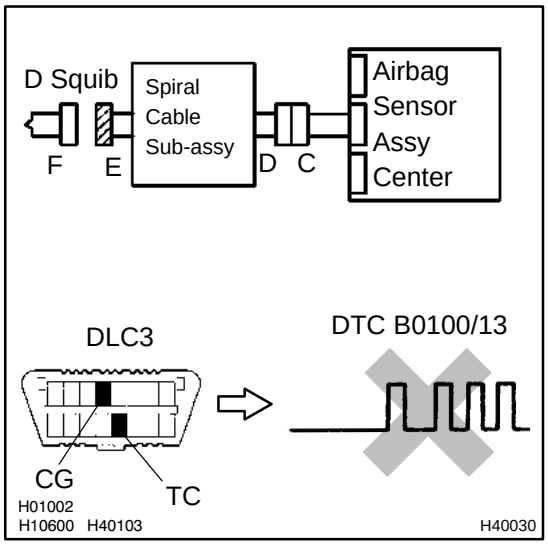

(a) Disconnect the connector from the airbag sensor assy center.
(b) Release the activation prevention mechanism built into connector ”B” (see page 05-770 ).
(c) Measure the resistance according to the value(s) in the table below.
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| D+ - D- | Always | 1 MΩ or Higher |

**NG** → **Go to step 5**

**OK**

| 3 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|



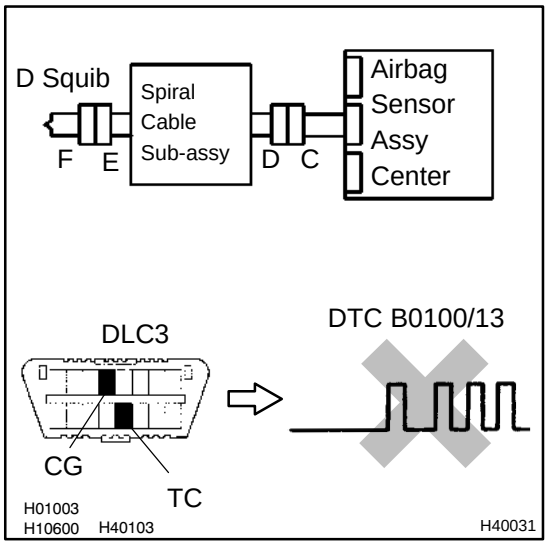

(a) Connect the connectors to the airbag sensor assy center.
(b) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(c) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(d) Clear the DTCs stored in memory (see page 05-777 ).
(e) Turn the ignition switch to the LOCK position.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B0100/13 is not output.**

HINT:
Codes other than code B0100/13 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

| 4 | CHECK HORN BUTTON ASSY(D SQUIB) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the connectors to the horn button assy.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(f) Clear the DTCs stored in memory (see page 05-777 ).
(g) Turn the ignition switch to the LOCK position.
(h) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(i) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0100/13 is not output.**

HINT:

Codes other than code B0100/13 may be output at this time, but they are not related to this check.

**NG** → **REPLACE HORN BUTTON ASSY (SEE PAGE 60-19 )**

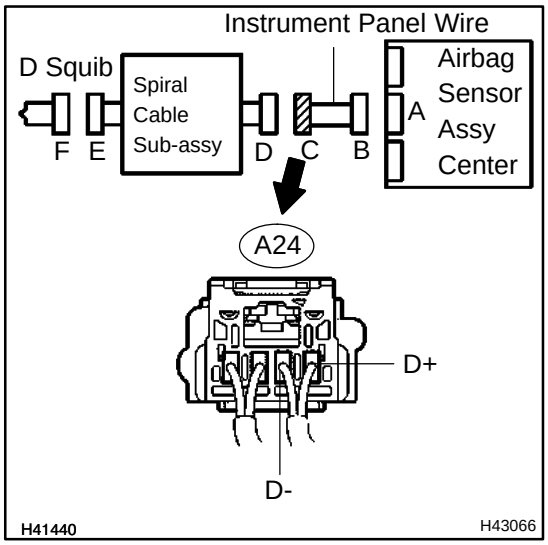
**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

## 5 CHECK INSTRUMENT PANEL WIRE




(a) Disconnect the instrument panel wire connector from the spiral cable sub-assy.

HINT:

The activation prevention mechanism of connector "B" has already been released.

(b) Measure the resistance according to the value(s) in the table below.

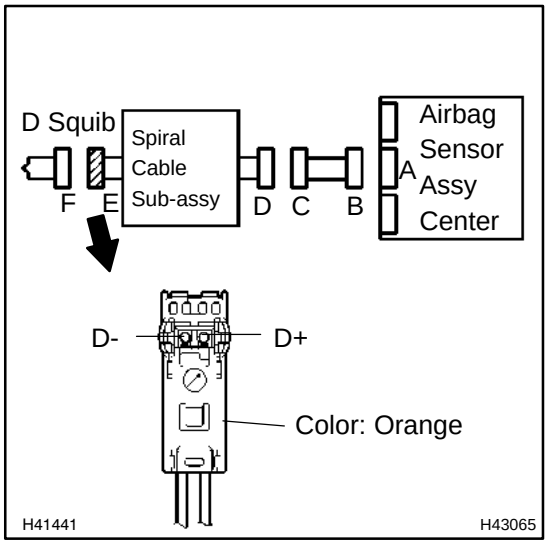
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A24-1 (D+) - A24-2 (D-) | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

**OK**

## 6 CHECK SPIRAL CABLE SUB-ASSY




(a) Release the activation prevention mechanism built into connector "D" (see page 05-770 ).

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| D+ - D- | Always | 1 MΩ or Higher |

**NG** → **REPLACE SPIRAL CABLE SUB-ASSY (SEE PAGE 60-28 )**

**0K**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

# DTC B0101/14 OPEN IN D SQUIB CIRCUIT

## CIRCUIT DESCRIPTION

The D squib circuit consists of the airbag sensor assy center, the spiral cable sub-assy and the horn button assy.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0101/14 is recorded when an open circuit is detected in the D squib circuit.

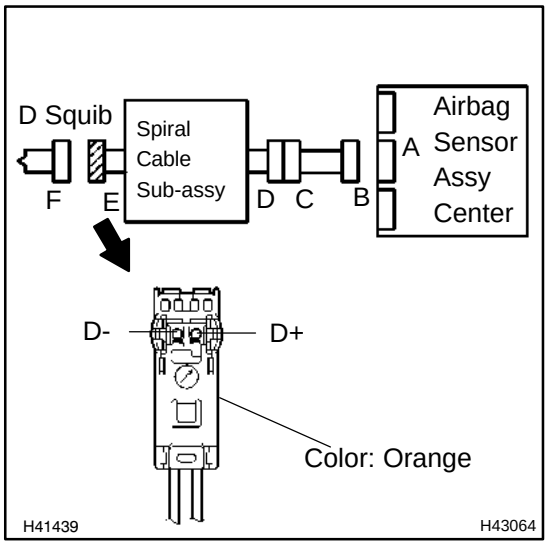
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B0101/14 | • The airbag sensor assy center receives an open circuit signal in the D squib circuit for 2 seconds.<br>• D squib malfunction<br>• Spiral cable sub-assy malfunction<br>• Airbag sensor assy center malfunction | • Horn button assy (D squib)<br>• Spiral cable sub-assy<br>• Airbag sensor assy center<br>• Instrument panel wire |

## WIRING DIAGRAM

See page 05-795 .

## INSPECTION PROCEDURE

| 1 | CHECK D SQUIB CIRCUIT(AIRBAG SENSOR ASSY CENTER - HORN BUTTON ASSY) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the horn button assy.
(d) Measure the resistance according to the value(s) in the table below.

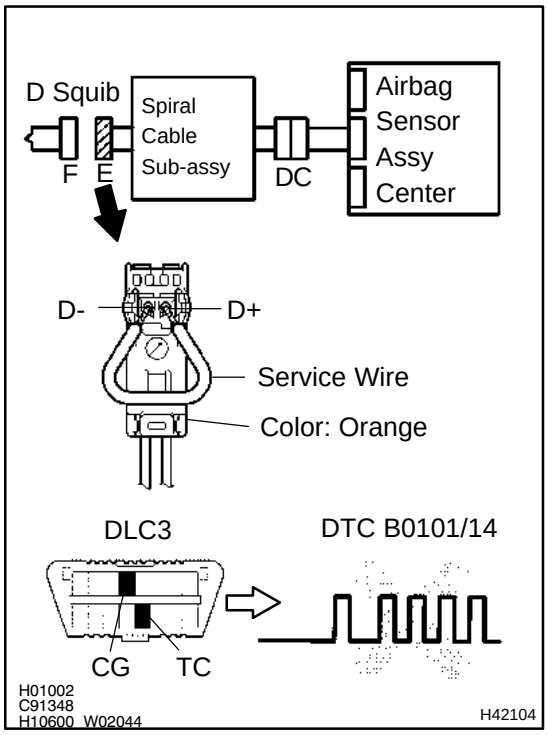
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| D+ - D- | Always | Below 1 Ω |

**NG** → **Go to step 4**

**OK**

## 2 CHECK AIR BAG SENSOR ASSY CENTER




(a) Connect the connector to the airbag sensor assy center.
(b) Using a service wire, connect D+ and D- of connector "E".

**NOTICE:**

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminals of the connector when connecting.**

(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0101/14 is not output.**

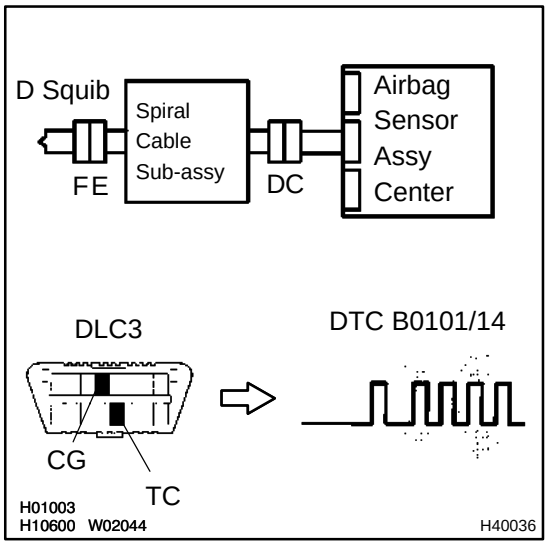
HINT:

Codes other than code B0101/14 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

## 3 CHECK HORN BUTTON ASSY(D SQUIB)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "E".
(d) Connect the connectors to the horn button assy.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**
**DTC B0101/14 is not output.**

HINT:
Codes other than code B0101/14 may be output at this time, but they are not related to this check.

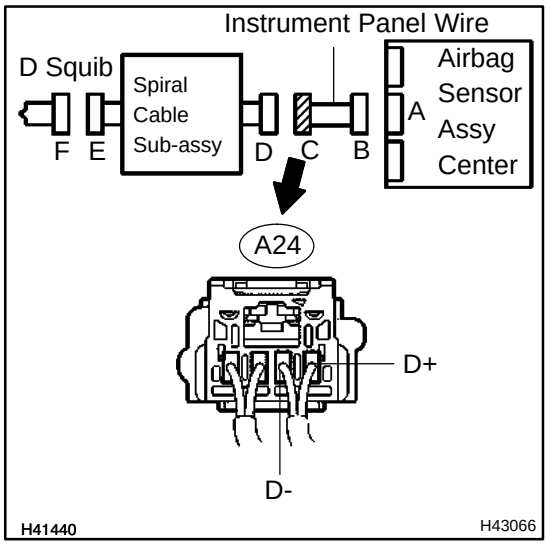
| NG | REPLACE HORN BUTTON ASSY (SEE PAGE 60-19 ) |
|---|---|

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:
- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

## 4 CHECK INSTRUMENT PANEL WIRE




(a) Disconnect the instrument panel wire connector from the spiral cable sub-assy.

(b) Measure the resistance according to the value(s) in the table below.

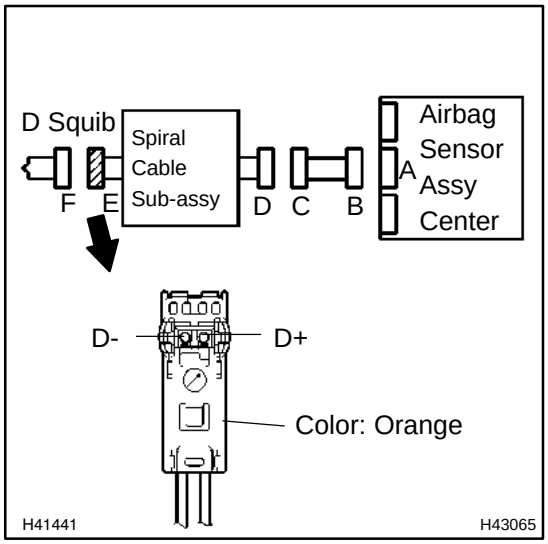
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A24-1 (D+) - A24-2 (D-) | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

**OK**

## 5 CHECK SPIRAL CABLE SUB-ASSY




(a) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| D+ - D- | Always | Below 1 Ω |

**NG** → **REPLACE SPIRAL CABLE SUB-ASSY (SEE PAGE 60-28 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the air-bag system or driving the vehicle on a city or rough road (see page 05-780 ).

# DTC B0102/11 SHORT IN D SQUIB CIRCUIT (TO GROUND)

## CIRCUIT DESCRIPTION

The D squib circuit consists of the airbag sensor assy center, the spiral cable sub-assy and the horn button assy.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0102/11 is recorded when a short to ground is detected in the D squib circuit.

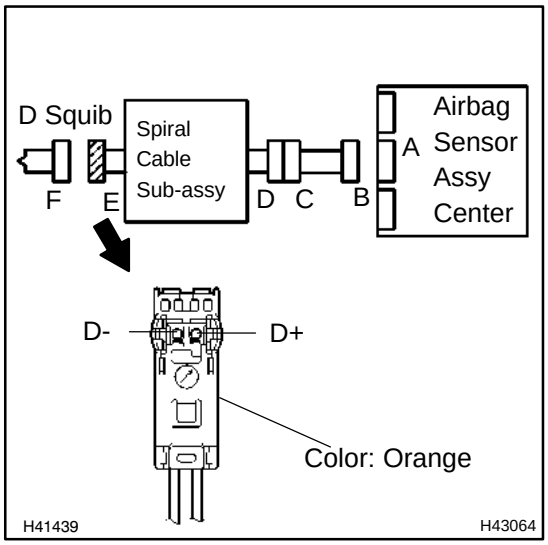
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B0102/11 | • The airbag sensor assy center receives a short circuit to ground signal in the D squib circuit for 0.5 seconds.<br>• D squib malfunction<br>• Spiral cable sub-assy malfunction<br>• Airbag sensor assy center malfunction | • Horn button assy (D squib)<br>• Spiral cable sub-assy<br>• Airbag sensor assy center<br>• Instrument panel wire |

## WIRING DIAGRAM

See page 05-795 .

## INSPECTION PROCEDURE

| 1 | CHECK D SQUIB CIRCUIT(AIRBAG SENSOR ASSY CENTER - HORN BUTTON ASSY) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the horn button assy.
(d) Measure the resistance according to the value(s) in the table below.

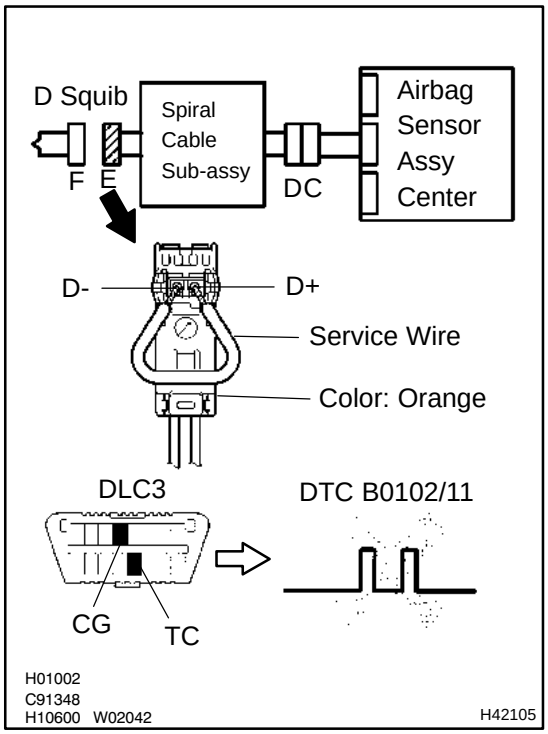
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| D+ - Body ground | Always | 1 MΩ or Higher |
| D- - Body ground | Always | 1 MΩ or Higher |

**NG** → **Go to step 4**

**OK**

## 2 CHECK AIR BAG SENSOR ASSY CENTER




(a) Connect the connector to the airbag sensor assy center.
(b) Using a service wire, connect D+ and D- of connector "E".

**NOTICE:**

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminals of the connector when connecting.**

(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0102/11 is not output.**

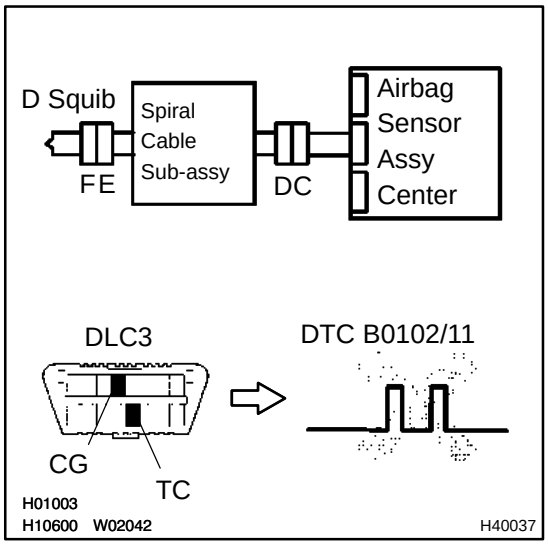
HINT:

Codes other than code B0102/11 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

| 3 | CHECK HORN BUTTON ASSY(D SQUIB) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "E".
(d) Connect the connectors to the horn button assy.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0102/11 is not output.**

HINT:

Codes other than code B0102/11 may be output at this time, but they are not related to this check.

| NG | REPLACE HORN BUTTON ASSY (SEE PAGE 60-19 ) |
|---|---|

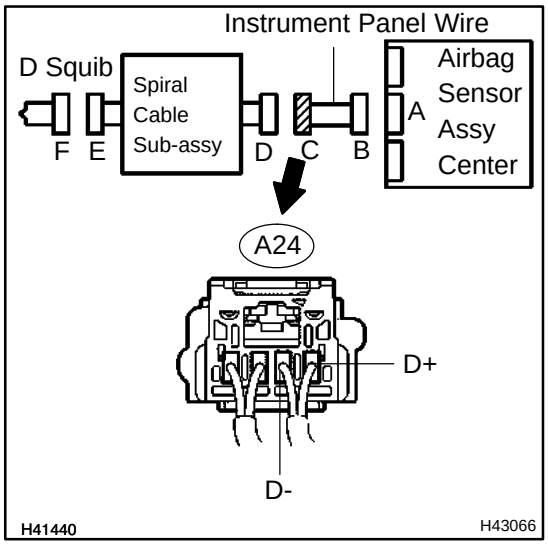
**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

## 4 CHECK INSTRUMENT PANEL WIRE




(a) Disconnect the instrument panel wire connector from the spiral cable sub-assy.

(b) Measure the resistance according to the value(s) in the table below.

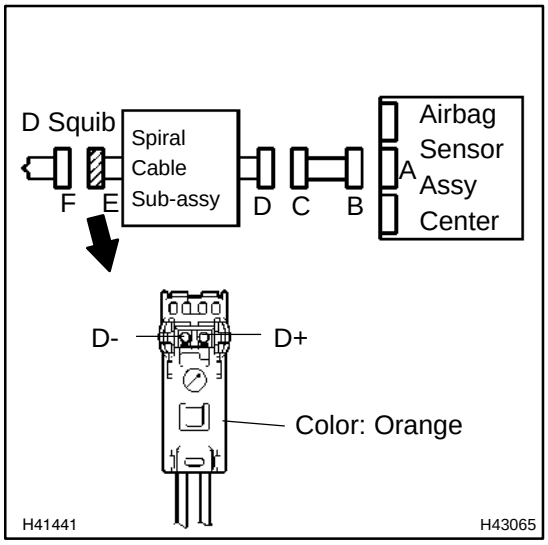
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A24-1 (D+) - Body ground | Always | 1 MΩ or Higher |
| A24-2 (D-) - Body ground | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

**OK**

## 5 CHECK SPIRAL CABLE SUB-ASSY




(a) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| D+ - Body ground | Always | 1 MΩ or Higher |
| D- - Body ground | Always | 1 MΩ or Higher |

**NG** → **REPLACE SPIRAL CABLE SUB-ASSY (SEE PAGE 60-28 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the air-bag system or driving the vehicle on a city or rough road (see page 05-780 ).

# DTC B0103/12 SHORT IN D SQUIB CIRCUIT (TO B+)

## CIRCUIT DESCRIPTION

The D squib circuit consists of the airbag sensor assy center, the spiral cable sub-assy and the horn button assy.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0103/12 is recorded when a short to B+ is detected in the D squib circuit.

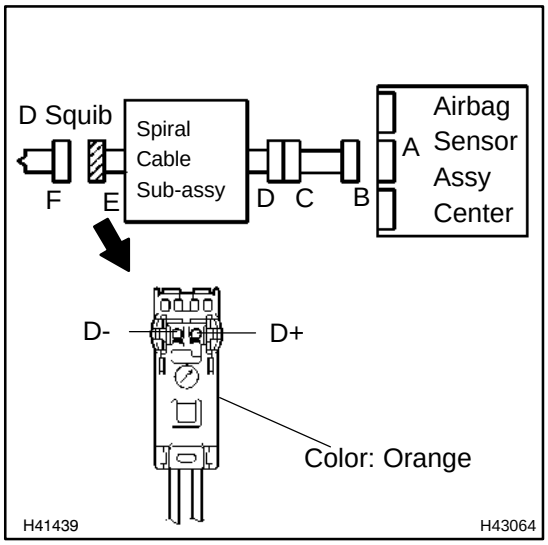
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B0103/12 | • The airbag sensor assy center receives a short circuit to B+ signal in the D squib circuit for 0.5 seconds.<br>• D squib malfunction<br>• Spiral cable sub-assy malfunction<br>• Airbag sensor assy center malfunction | • Horn button assy (D squib)<br>• Spiral cable sub-assy<br>• Airbag sensor assy center<br>• Instrument panel wire |

## WIRING DIAGRAM

See page 05-795 .

## INSPECTION PROCEDURE

| 1 | CHECK D SQUIB CIRCUIT(AIRBAG SENSOR ASSY CENTER - HORN BUTTON ASSY) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the horn button assy.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position.
(f) Measure the voltage according to the value(s) in the table below.

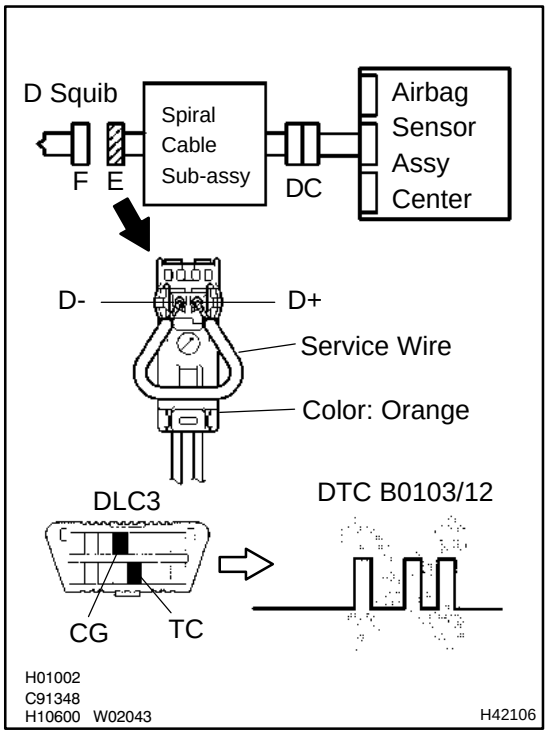
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| D+ - Body ground | Ignition switch ON | Below 1 V |
| D- - Body ground | Ignition switch ON | Below 1 V |

**NG** → **Go to step 4**

**OK**

## 2 CHECK AIR BAG SENSOR ASSY CENTER




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the connector to the airbag sensor assy center.
(d) Using a service wire, connect D+ and D- of connector "E".

**NOTICE:**

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminals of the connector when connecting.**

(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0103/12 is not output.**

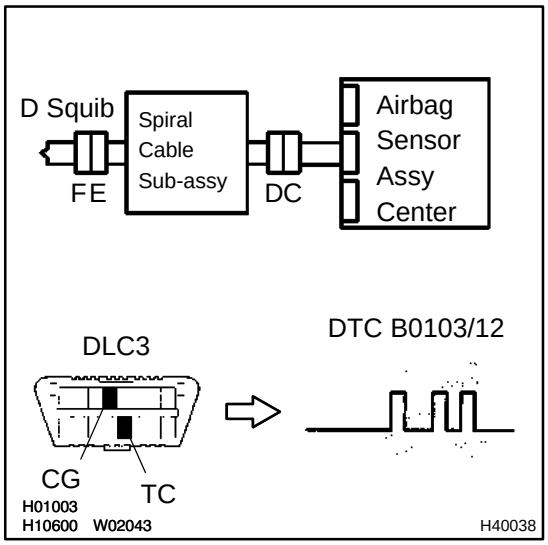
HINT:

Codes other than code B0103/12 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-28 )**

**OK**

## 3 CHECK HORN BUTTON ASSY(D SQUIB)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "E".
(d) Connect the connectors to the horn button assy.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**
**DTC B0103/12 is not output.**

HINT:
Codes other than code B0103/12 may be output at this time, but they are not related to this check.

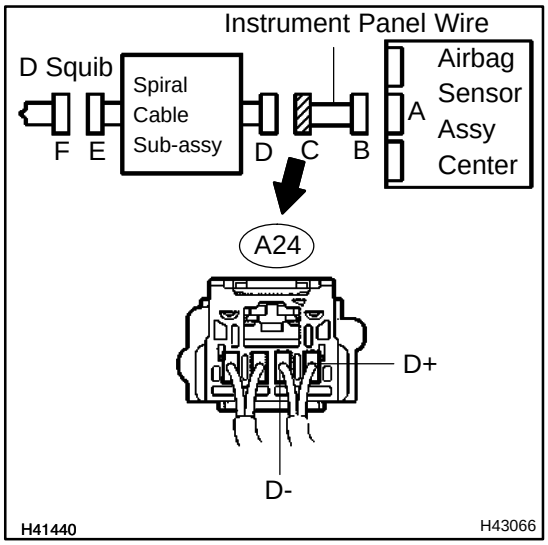
**NG** → **REPLACE HORN BUTTON ASSY (SEE PAGE 60-19 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:
- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

## 4 CHECK INSTRUMENT PANEL WIRE




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the instrument panel wire connector from the spiral cable sub-assy.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position.
(f) Measure the voltage according to the value(s) in the table below.

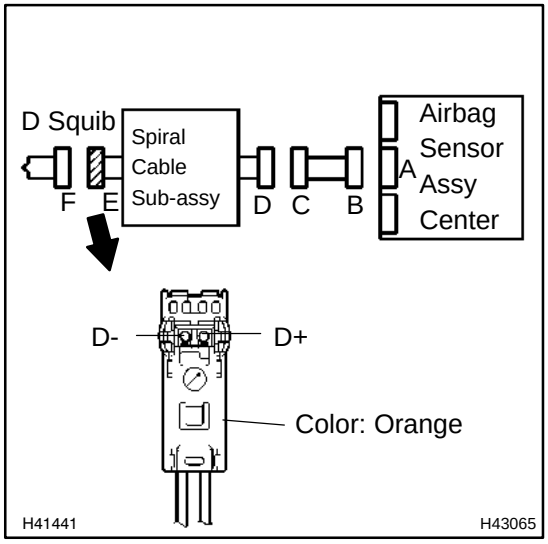
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A24-1 (D+) - Body ground | Ignition switch ON | Below 1 V |
| A24-2 (D-) - Body ground | Ignition switch ON | Below 1 V |

**NG** → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

**OK**

## 5 CHECK SPIRAL CABLE SUB-ASSY




(a) Measure the voltage according to the value(s) in the table below when the ignition switch is in the ON position.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| D+ - Body ground | Ignition switch ON | Below 1 V |
| D- - Body ground | Ignition switch ON | Below 1 V |

**NG** → **REPLACE SPIRAL CABLE SUB-ASSY (SEE PAGE 60-28 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

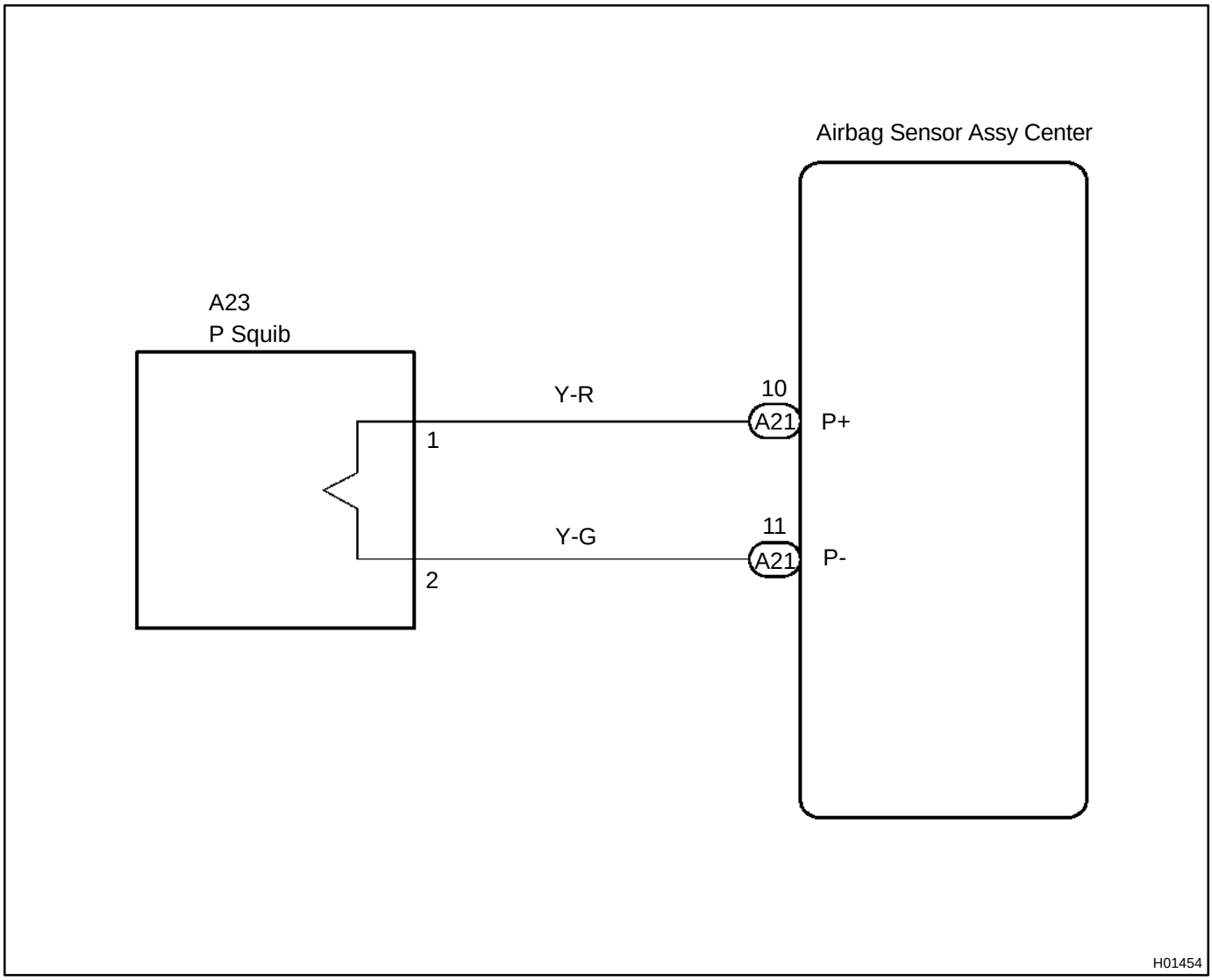
# DTC B0105/53 SHORT IN P SQUIB CIRCUIT

## CIRCUIT DESCRIPTION

The P squib circuit consists of the airbag sensor assy center and the front passenger airbag assy.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0105/53 is recorded when a short circuit is detected in the P squib circuit.

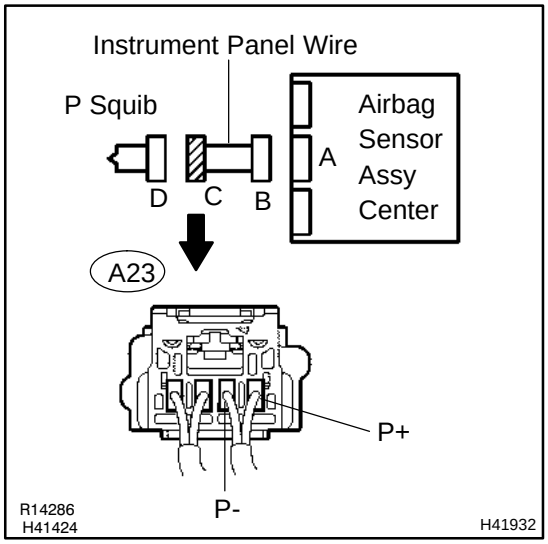
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B0105/53 | • The airbag sensor assy center receives a line short circuit signal 5 times in the P squib circuit during primary check.<br>• P squib malfunction<br>• Airbag sensor assy center malfunction | • Front passenger airbag assy (P squib)<br>• Airbag sensor assy center<br>• Instrument panel wire |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

## 1 CHECK INSTRUMENT PANEL WIRE(P SQUIB CIRCUIT)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the front passenger airbag assy.
(d) Release the activation prevention mechanism built into connector "B" (see page 05-770 ).
(e) Measure the resistance according to the value(s) in the table below.

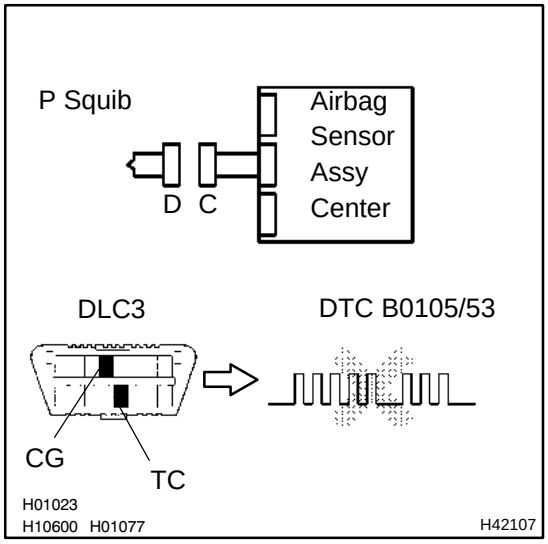
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A23-1 (P+) - A23-2 (P-) | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

**OK**

## 2 CHECK AIR BAG SENSOR ASSY CENTER




(a) Connect the connector to the airbag sensor assy center.
(b) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(c) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(d) Clear the DTCs stored in memory (see page 05-777 ).
(e) Turn the ignition switch to the LOCK position.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0105/53 is not output.**

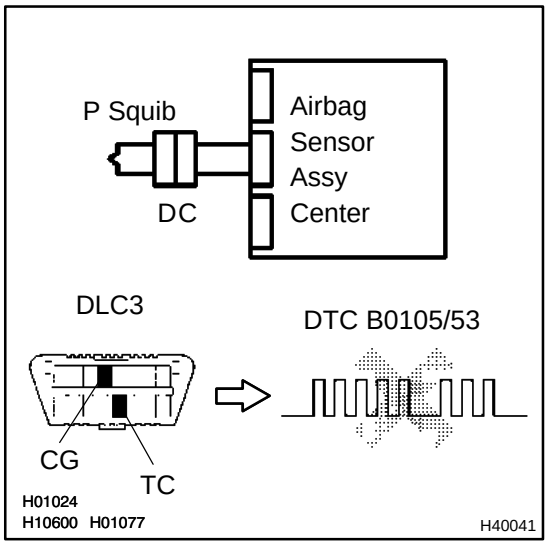
HINT:

Codes other than code B0105/53 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

## 3 CHECK FRONT PASSENGER AIRBAG ASSY(P SQUIB)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the connector to the front passenger airbag assy.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(f) Clear the DTCs stored in memory (see page 05-777 ).
(g) Turn the ignition switch to the LOCK position.
(h) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(i) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0105/53 is not output.**

HINT:

Codes other than code B0105/53 may be output at this time, but they are not related to this check.

**NG** → **REPLACE FRONT PASSENGER AIRBAG ASSY (SEE PAGE 60-31 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

# DTC B0106/54 OPEN IN P SQUIB CIRCUIT

## CIRCUIT DESCRIPTION

The P squib circuit consists of the airbag sensor assy center and the front passenger airbag assy.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0106/54 is recorded when an open circuit is detected in the P squib circuit.

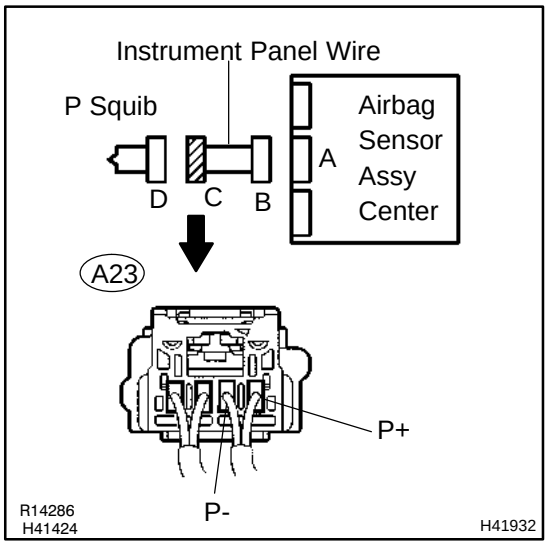
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B0106/54 | • The airbag sensor assy center receives an open circuit signal in the P squib circuit for 2 seconds.<br>• P squib malfunction<br>• Airbag sensor assy center malfunction | • Front passenger airbag assy (P squib)<br>• Airbag sensor assy center<br>• Instrument panel wire |

## WIRING DIAGRAM

See page 05-812 .

## INSPECTION PROCEDURE

**1 CHECK INSTRUMENT PANEL WIRE(P SQUIB CIRCUIT)**




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the front passenger airbag assy.
(d) Measure the resistance according to the value(s) in the table below.

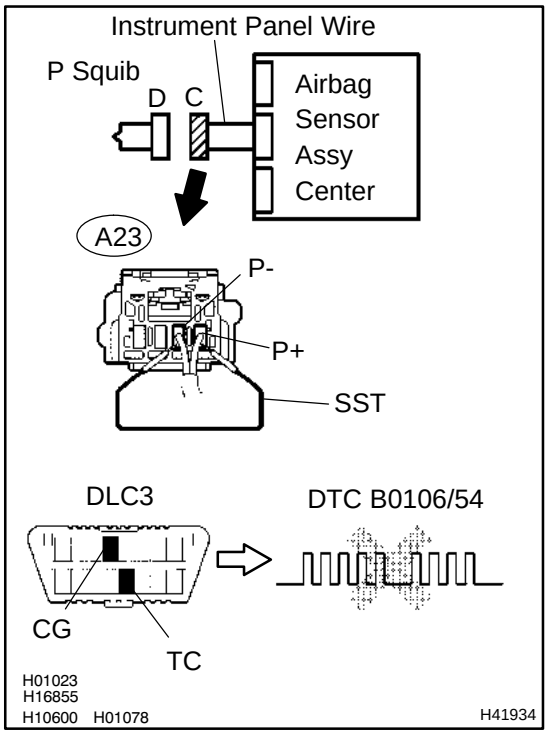
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A23-1 (P+) - A23-2 (P-) | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

**OK**

| 2 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|




(a) Connect the connector to the airbag sensor assy center.
(b) Using SST, connect A23-1 (P+) and A23-2 (P-) of connector "C".
(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0106/54 is not output.**

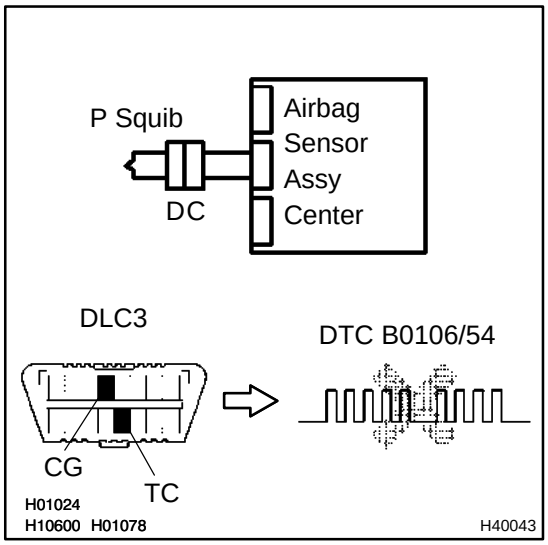
HINT:

Codes other than code B0106/54 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

## 3 CHECK FRONT PASSENGER AIRBAG ASSY(P SQUIB)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the SST from connector "C".
(d) Connect the connector to the front passenger airbag assy.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0106/54 is not output.**

HINT:

Codes other than code B0106/54 may be output at this time, but they are not related to this check.

**NG** → **REPLACE FRONT PASSENGER AIRBAG ASSY (SEE PAGE 60-31 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

# DTC B0107/51 SHORT IN P SQUIB CIRCUIT (TO GROUND)

## CIRCUIT DESCRIPTION

The P squib circuit consists of the airbag sensor assy center and the front passenger airbag assy.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0107/51 is recorded when a short to ground is detected in the P squib circuit.

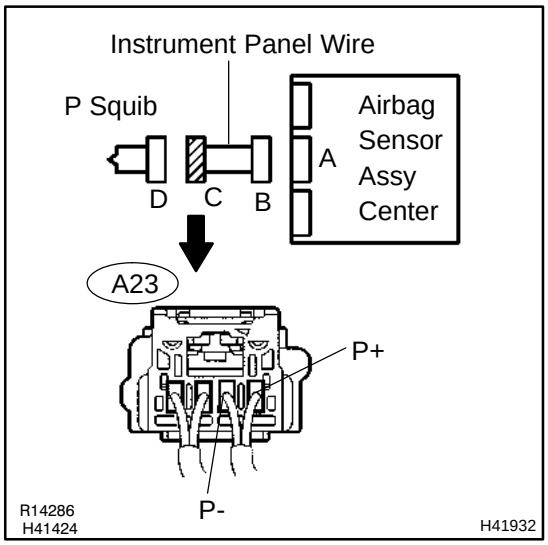
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B0107/51 | • The airbag sensor assy center receives a short circuit to ground signal in the P squib circuit for 0.5 seconds.<br>• P squib malfunction<br>• Airbag sensor assy center malfunction | • Front passenger airbag assy (P squib)<br>• Airbag sensor assy center<br>• Instrument panel wire |

## WIRING DIAGRAM

See page 05-812 .

## INSPECTION PROCEDURE

**1 CHECK INSTRUMENT PANEL WIRE(P SQUIB CIRCUIT)**




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the front passenger airbag assy.
(d) Measure the resistance according to the value(s) in the table below.

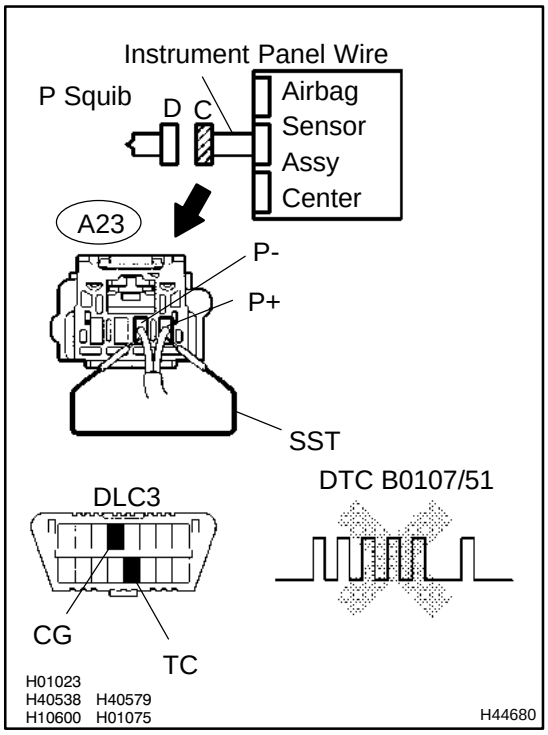
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A23-1 (P+) - Body ground | Always | 1 MΩ or Higher |
| A23-2 (P-) - Body ground | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

**OK**

| 2 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|




(a) Connect the connector to the airbag sensor assy center.
(b) Using SST, connect A23-1 (P+) and A23-2(P-) of connector ”C”.
(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0107/51 is not output.**

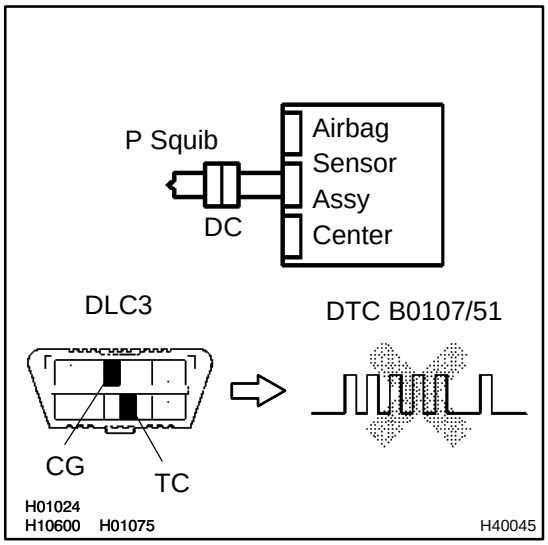
HINT:

Codes other than code B0107/51 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

## 3 CHECK FRONT PASSENGER AIRBAG ASSY(P SQUIB)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the SST from connector "C".
(d) Connect the connector to the front passenger airbag assy.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0107/51 is not output.**

HINT:

Codes other than code B0107/51 may be output at this time, but they are not related to this check.

**NG** → **REPLACE FRONT PASSENGER AIRBAG ASSY (SEE PAGE 60-31 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

# DTC B0108/52 SHORT IN P SQUIB CIRCUIT (TO B+)

## CIRCUIT DESCRIPTION

The P squib circuit consists of the airbag sensor assy center and the front passenger airbag assy.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0108/52 is recorded when a short to B+ is detected in the P squib circuit.

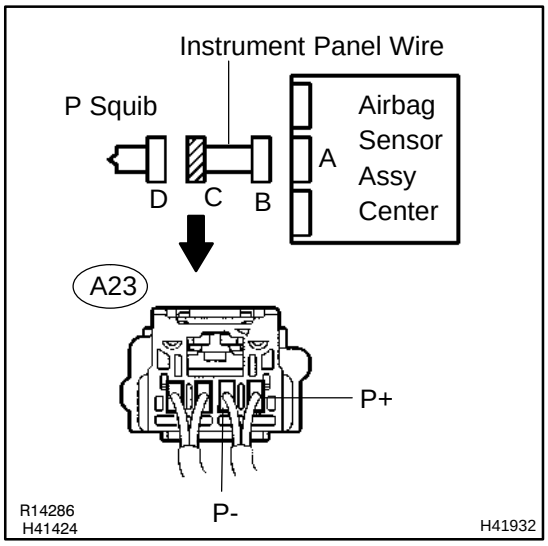
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B0108/52 | • The airbag sensor assy center receives a short circuit to B+ signal in the P squib circuit for 0.5 seconds.<br>• P squib malfunction<br>• Airbag sensor assy center malfunction | • Front passenger airbag assy (P squib)<br>• Airbag sensor assy center<br>• Instrument panel wire |

## WIRING DIAGRAM

See page 05-812 .

## INSPECTION PROCEDURE

**1 CHECK INSTRUMENT PANEL WIRE(P SQUIB CIRCUIT)**




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the front passenger airbag assy.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position.
(f) Measure the voltage according to the value(s) in the table below.

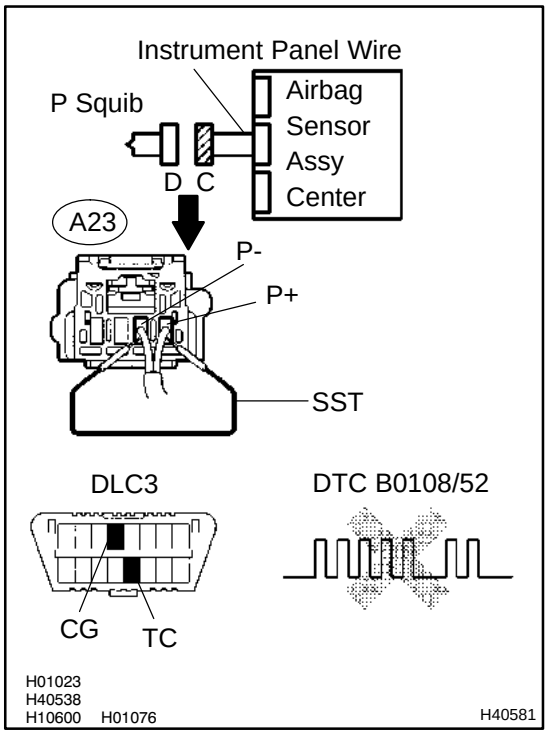
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A23-1 (P+) - Body ground | Ignition switch ON | Below 1 V |
| A23-2 (P-) - Body ground | Ignition switch ON | Below 1 V |

**NG** → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

**OK**

## 2 CHECK AIR BAG SENSOR ASSY CENTER



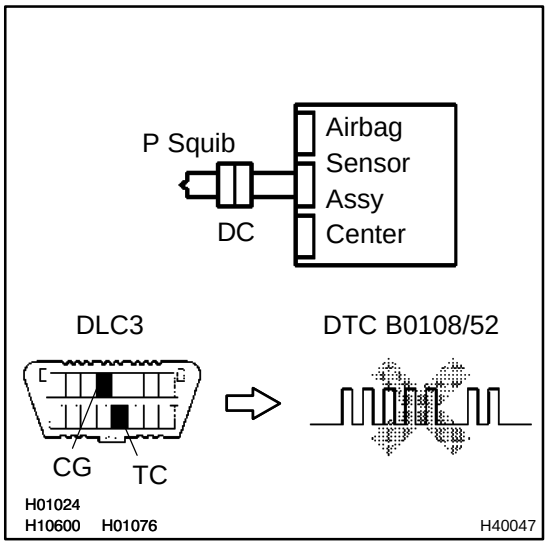

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the connector to the airbag sensor assy center.
(d) Using SST, connect A23-1 (P+) and A23-2 (P-) of connector "C".
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B0108/52 is not output.**

HINT:
Codes other than code B0108/52 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

| 3 | CHECK FRONT PASSENGER AIRBAG ASSY(P SQUIB) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the SST from connector "C".
(d) Connect the connector to the front passenger airbag assy.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B0108/52 is not output.**

HINT:
Codes other than code B0108/52 may be output at this time, but they are not related to this check.

**NG** → **REPLACE FRONT PASSENGER AIRBAG ASSY (SEE PAGE 60-31 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:
- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

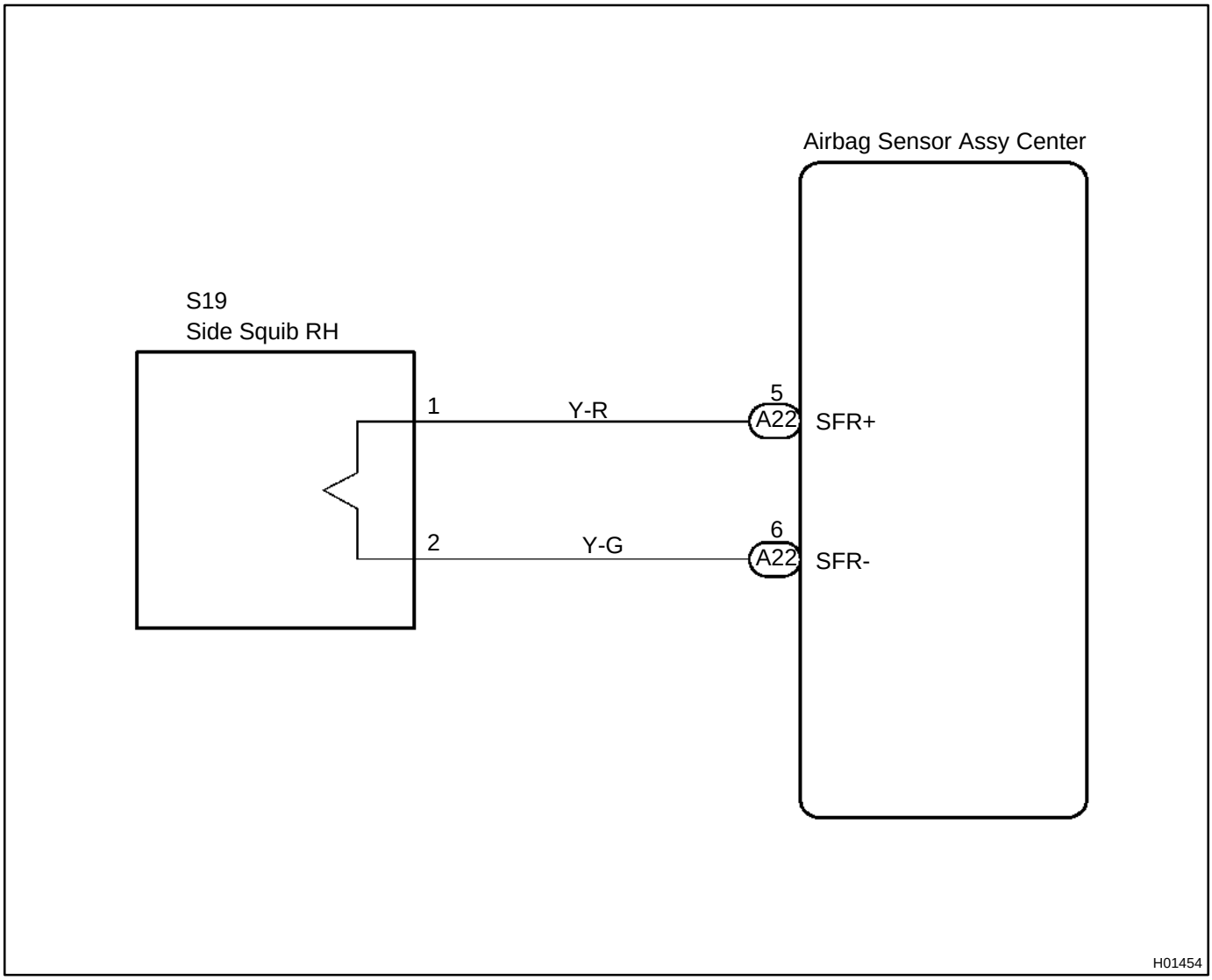
# DTC B0110/43 SHORT IN SIDE SQUIB (RH) CIRCUIT

## CIRCUIT DESCRIPTION

The side squib RH circuit consists of the airbag sensor assy center and the separate type front seat back assy (RH).
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0110/43 is recorded when a short circuit is detected in the side squib RH circuit.

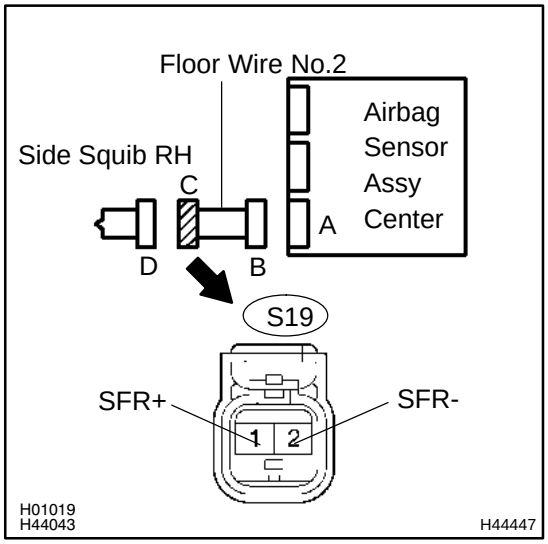
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B0110/43 | • The airbag sensor assy center receives a line short circuit signal 5 times in the side squib RH circuit during primary check.<br>• Side squib RH malfunction<br>• Airbag sensor assy center malfunction | • Separate type front seat back assy (RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

## 1 CHECK FLOOR WIRE NO.2(SIDE SQUIB RH CIRCUIT)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the separate type front seat back assy (RH).
(d) Release the activation prevention mechanism built into connector "B" (see page 05-770 ).
(e) Measure the resistance according to the value(s) in the table below.

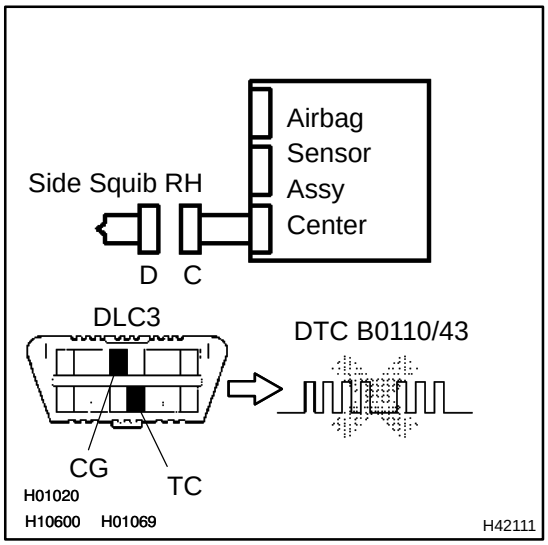
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| S19-1 (SFR+) - S19-2 (SFR-) | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FLOOR WIRE NO.2**

**OK**

## 2 CHECK AIR BAG SENSOR ASSY CENTER




(a) Connect the connector to the airbag sensor assy center.
(b) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(c) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(d) Clear the DTCs stored in memory (see page 05-777 ).
(e) Turn the ignition switch to the LOCK position.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0110/43 is not output.**

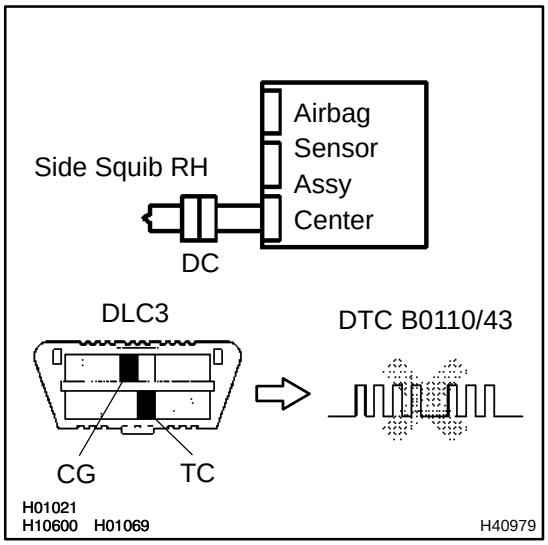
HINT:

Codes other than code B0110/43 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

| 3 | CHECK SEPARATE TYPE FRONT SEAT BACK ASSY(RH) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the connector to the separate type front seat back assy (side squib RH).
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(f) Clear the DTCs stored in memory (see page 05-777 ).
(g) Turn the ignition switch to the LOCK position.
(h) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(i) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0110/43 is not output.**

HINT:

Codes other than code B0110/43 may be output at this time, but they are not related to this check.

**NG** → **REPLACE SEPARATE TYPE FRONT SEAT BACK ASSY (RH) (SEE PAGE 72-30 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

# DTC B0111/44 OPEN IN SIDE SQUIB (RH) CIRCUIT

## CIRCUIT DESCRIPTION

The side squib RH circuit consists of the airbag sensor assy center and the separate type front seat back assy (RH).
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0111/44 is recorded when an open circuit is detected in the side squib RH circuit.

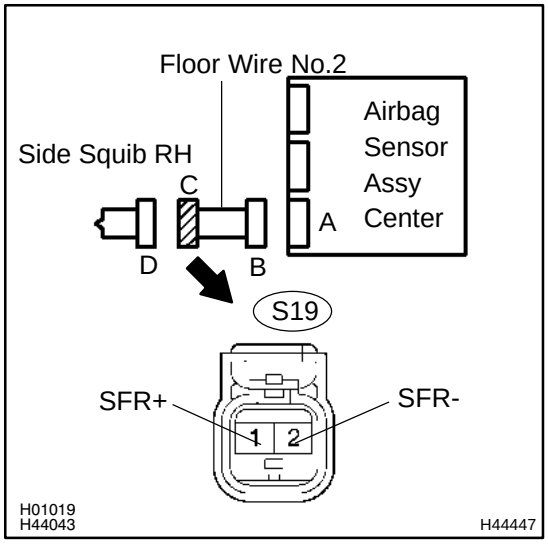
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B0111/44 | • The airbag sensor assy center receives an open circuit signal in the side squib RH circuit for 2 seconds.<br>• Side squib RH malfunction<br>• Airbag sensor assy center malfunction | • Separate type front seat back assy (RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 |

## WIRING DIAGRAM

See page 05-824 .

## INSPECTION PROCEDURE

**1 CHECK FLOOR WIRE NO.2(SIDE SQUIB RH CIRCUIT)**




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait at least for 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the separate type front seat back assy (RH).
(d) Measure the resistance according to the value(s) in the table below.

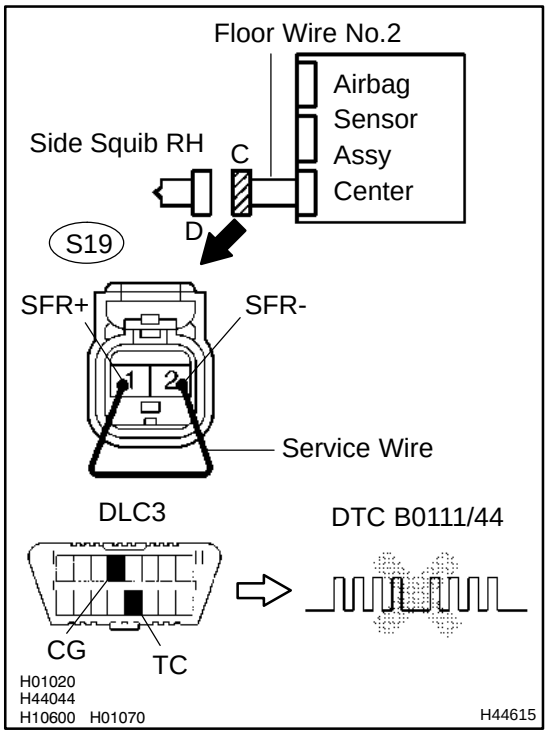
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| S19-1 (SFR+) - S19-2 (SFR-) | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE FLOOR WIRE NO.2**

**OK**

## 2 CHECK AIR BAG SENSOR ASSY CENTER




(a) Connect the connector to the airbag sensor assy center.
(b) Using a service wire, connect S19-1 (SFR+) and S19-2 (SFR-) of connector "C".

**NOTICE:**

**Do not forcibly insert a service wire into the terminals of the connector when connecting.**

(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0111/44 is not output.**

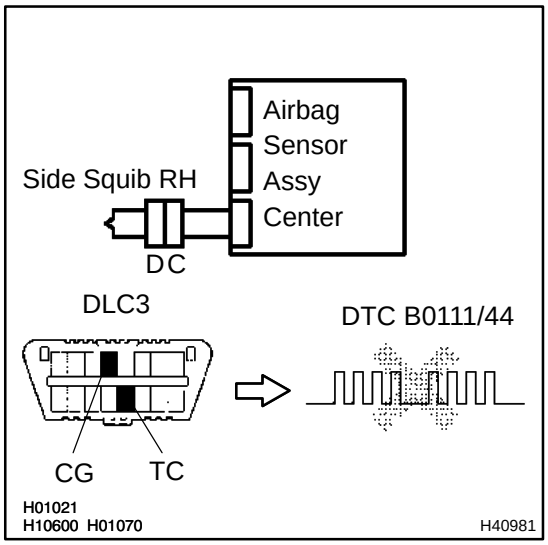
HINT:

Codes other than code B0111/44 may be output at this time, but they are not related to this check.

| | |
|---|---|
| NG | **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )** |

**OK**

| 3 | CHECK SEPARATE TYPE FRONT SEAT BACK ASSY(RH) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "C".
(d) Connect the connector to the separate type front seat back assy (RH).
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0111/44 is not output.**

HINT:

Codes other than code B0111/44 may be output at this time, but they are not related to this check.

**NG** → **REPLACE SEPARATE TYPE FRONT SEAT BACK ASSY (RH) (SEE PAGE 72-30 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

# DTC B0112/41 SHORT IN SIDE SQUIB (RH) CIRCUIT (TO GROUND)

## CIRCUIT DESCRIPTION

The side squib RH circuit consists of the airbag sensor assy center and the separate type front seat back assy (RH).
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0112/41 is recorded when a short to ground is detected in the side squib RH circuit.

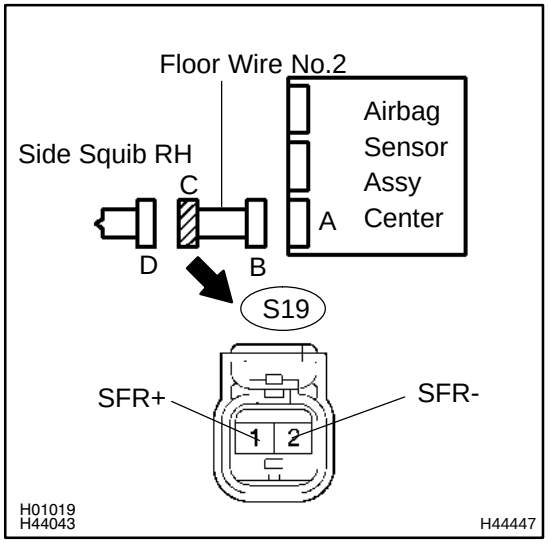
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B0112/41 | • The airbag sensor assy center receives a short circuit to ground signal in the side squib RH circuit for 0.5 seconds.<br>• Side squib RH malfunction<br>• Airbag sensor assy center malfunction | • Separate type front seat back assy (RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 |

## WIRING DIAGRAM

See page 05-824 .

## INSPECTION PROCEDURE

**1 CHECK FLOOR WIRE NO.2(SIDE SQUIB RH CIRCUIT)**




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the separate type front seat back assy (RH).
(d) Measure the resistance according to the value(s) in the table below.

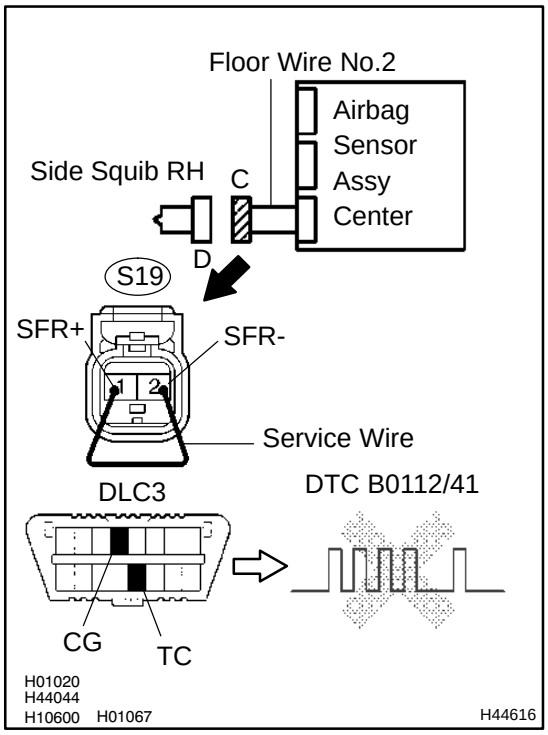
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| S19-1 (SFR+) - Body ground | Always | 1 MΩ or Higher |
| S19-2 (SFR-) - Body ground | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FLOOR WIRE NO.2**

**OK**

| 2 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|




(a) Connect the connector to the airbag sensor assy center.
(b) Using a service wire, connect S19-1 (SFR+) and S19-2 (SFR-) of connector "C".

**NOTICE:**

**Do not forcibly insert a service wire into the terminals of the connector when connecting.**

(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0112/41 is not output.**

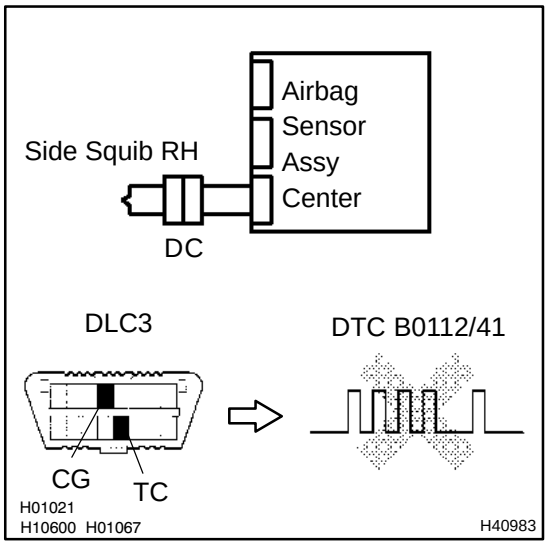
HINT:

Codes other than code B0112/41 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

## 3 CHECK SEPARATE TYPE FRONT SEAT BACK ASSY(RH)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "C".
(d) Connect the connector to the separate type front seat back assy (RH).
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0112/41 is not output.**

HINT:

Codes other than code B0112/41 may be output at this time, but they are not related to this check.

**NG** → **REPLACE SEPARATE TYPE FRONT SEAT BACK ASSY (RH) (SEE PAGE 72-30 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

| DTC | B0113/42 | SHORT IN SIDE SQUIB (RH) CIRCUIT (TO B+) |
|---|---|---|

## CIRCUIT DESCRIPTION

The side squib RH circuit consists of the airbag sensor assy center and the separate type front seat back assy (RH).
This circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0113/42 is recorded when a short to B+ is detected in the side squib RH circuit.

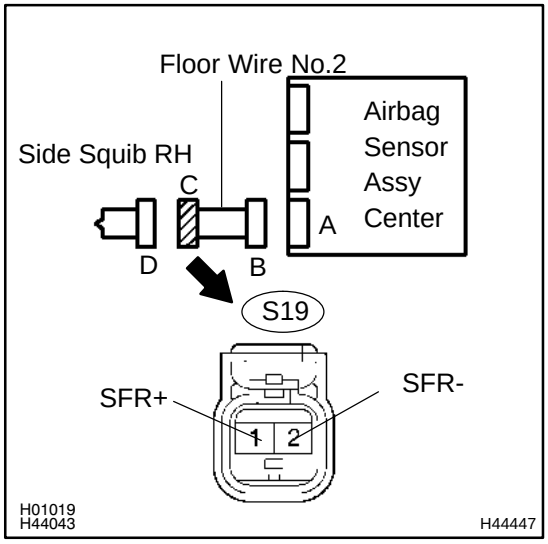
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B0113/42 | • The airbag sensor assy center receives a short circuit to B+ signal in the side squib RH circuit for 0.5 seconds.<br>• Side squib RH malfunction<br>• Airbag sensor assy center malfunction | • Separate type front seat back assy (RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 |

## WIRING DIAGRAM

See page 05-824 .

## INSPECTION PROCEDURE

| 1 | CHECK FLOOR WIRE NO.2(SIDE SQUIB RH CIRCUIT) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the separate type front seat back assy (RH).
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position.
(f) Measure the voltage according to the value(s) in the table below.

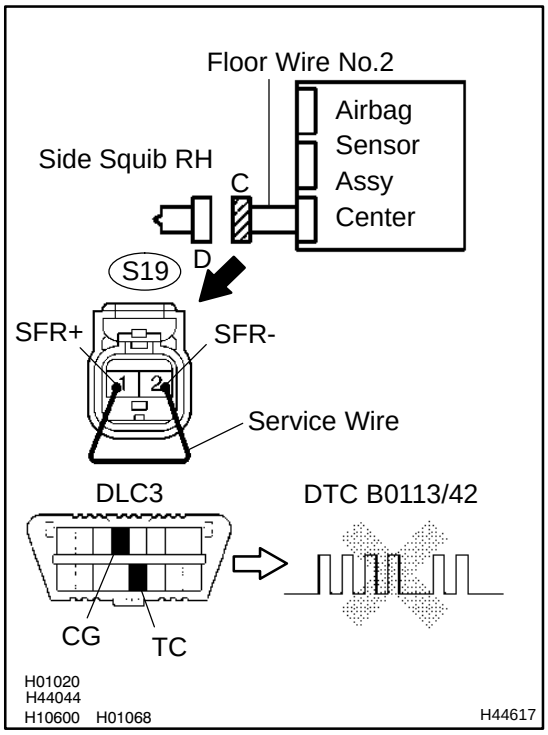
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| S19-1 (SFR+) - Body ground | Ignition switch ON | Below 1 V |
| S19-2 (SFR-) - Body ground | Ignition switch ON | Below 1 V |

**NG** → **REPAIR OR REPLACE FLOOR WIRE NO.2**

**OK**

## 2 CHECK AIR BAG SENSOR ASSY CENTER




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least for 90 seconds.
(c) Connect the connector to the airbag sensor assy center.
(d) Using a service wire, connect S19-1 (SFR+) and S19-2 (SFR-) of connector "C".

**NOTICE:**

**Do not forcibly insert a service wire into the terminals of the connector when connecting.**

(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0113/42 is not output.**

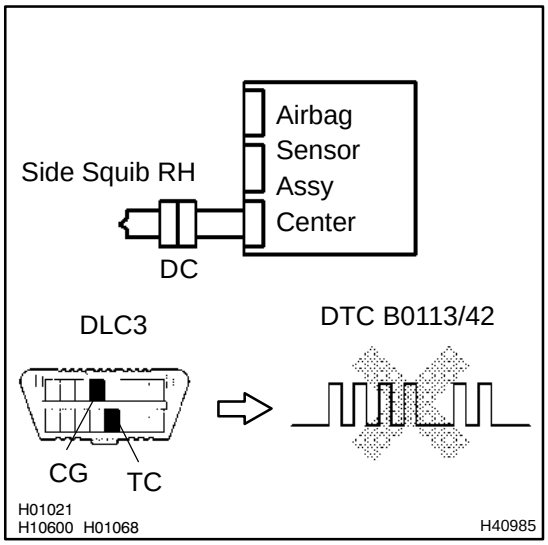
HINT:

Codes other than code B0113/42 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

| 3 | CHECK SEPARATE TYPE FRONT SEAT BACK ASSY(SIDE SQUIB RH) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "C".
(d) Connect the connector to the separate type front seat back assy (side squib RH).
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0113/42 is not output.**

HINT:

Codes other than code B0113/42 may be output at this time, but they are not related to this check.

**NG** → **REPLACE SEPARATE TYPE FRONT SEAT BACK ASSY (RH) (SEE PAGE 72-30 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

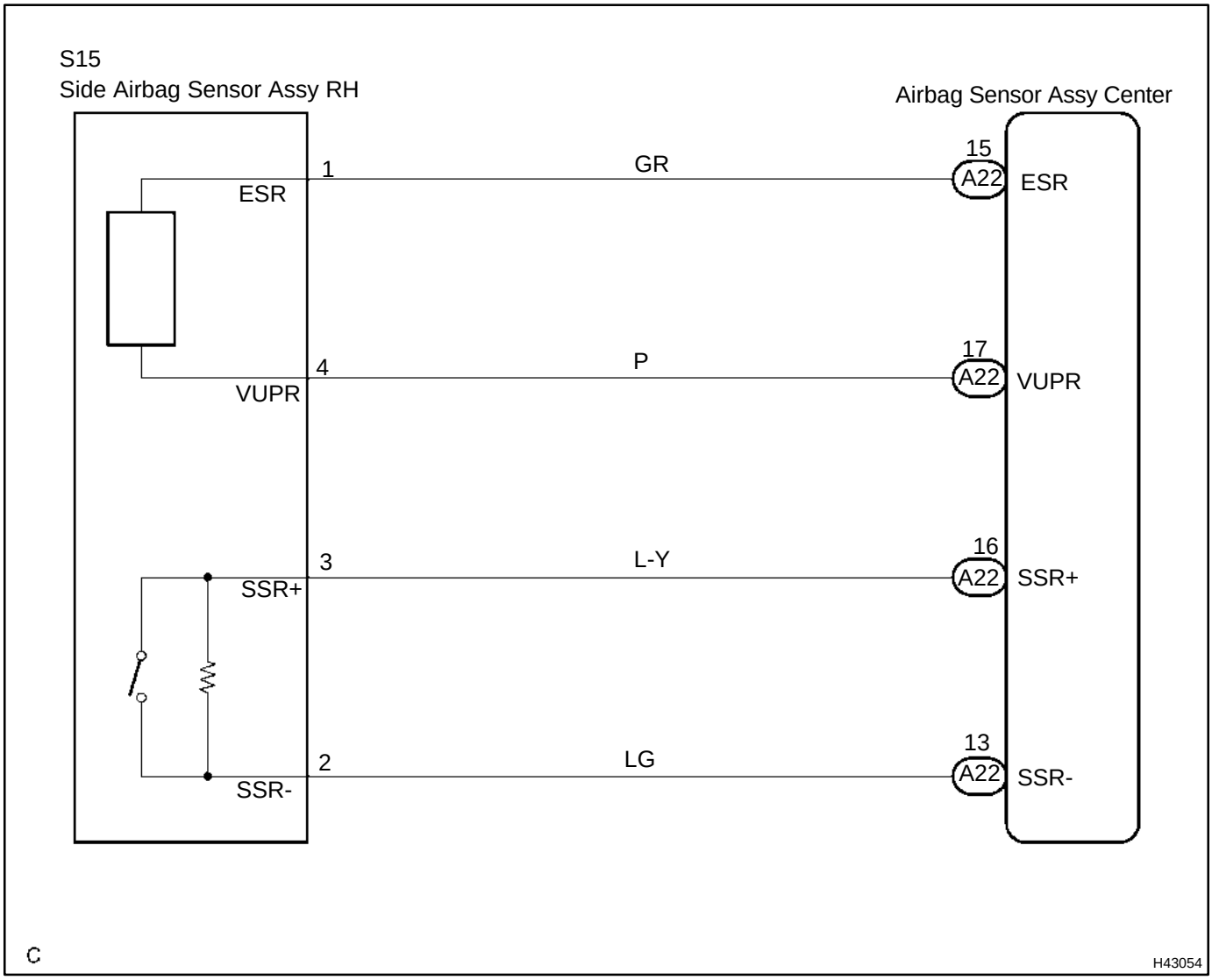
- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

| DTC | B1140/32 | SIDE AIRBAG SENSOR ASSY (RH) MALFUNCTION |
|---|---|---|

The side airbag sensor assy RH consists of the safing sensor, diagnosis circuit and lateral deceleration sensor, etc.
It receives signals from the lateral deceleration sensor, judges whether or not the SRS must be activated, and detects a diagnosis system malfunction.
DTC B1140/32 is recorded when a malfunction is detected in the side airbag sensor assy RH.

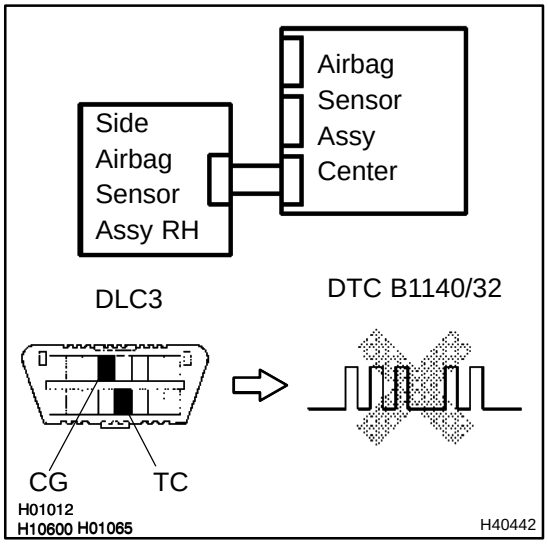
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1140/32 | • The airbag sensor assy center receives a line short circuit signal, an open circuit signal, a short circuit to ground signal or a short circuit to B+ signal in the side airbag sensor assy RH circuit for 2 seconds.<br>• Side airbag sensor assy RH malfunction<br>• Airbag sensor assy center malfunction | • Side airbag sensor assy RH<br>• Airbag sensor assy center<br>• Floor wire No.2 |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CHECK DTC |
|---|---|




(a) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(b) Clear the DTCs stored in memory (see page 05-777 ).
(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B1140/32 is not output.**

HINT:
Codes other than code B1140/32 may be output at this time, but they are not related to this check.

**NG** → **Go to step 2**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

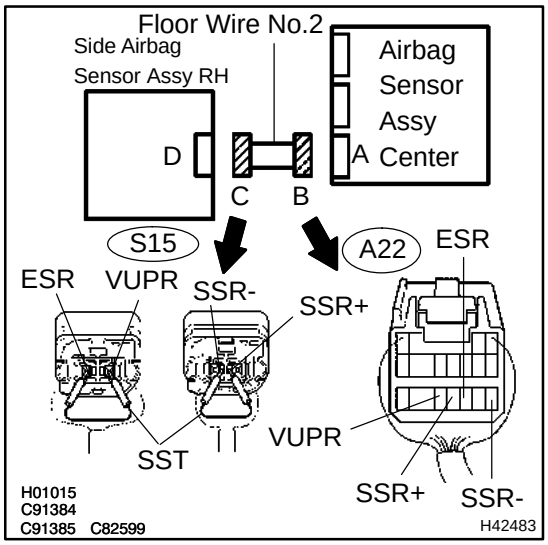
| 2 | CHECK CONNECTION OF CONNECTORS |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Check that the connectors are properly connected to the airbag sensor assy center and the side airbag sensor assy RH.

**NG** → **CONNECT CONNECTORS, THEN GO TO STEP 1**

**OK**

## 3 CHECK FLOOR WIRE NO.2(OPEN)




(a) Disconnect the connectors from the airbag sensor assy center and the side airbag sensor assy RH.

(b) Using SST, connect S15-4 (VUPR) and S15-1 (ESR), and connect S15-3 (SSR+) and S15-2 (SSR-) of connector "C".

(c) Measure the resistance according to the value(s) in the table below.

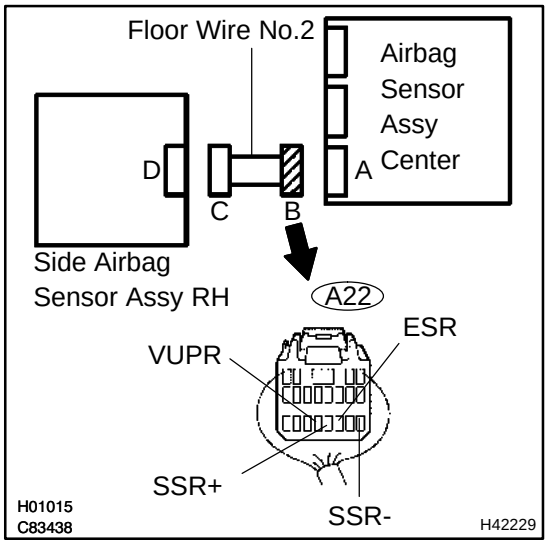
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A22-17 (VUPR) - A22-15 (ESR) | Always | Below 1 Ω |
| A22-16 (SSR+) - A22-13 (SSR-) | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE FLOOR WIRE NO.2**

**OK**

## 4 CHECK FLOOR WIRE NO.2(TO GROUND)




(a) Disconnect the SST from connector "C".

(b) Measure the resistance according to the value(s) in the table below.

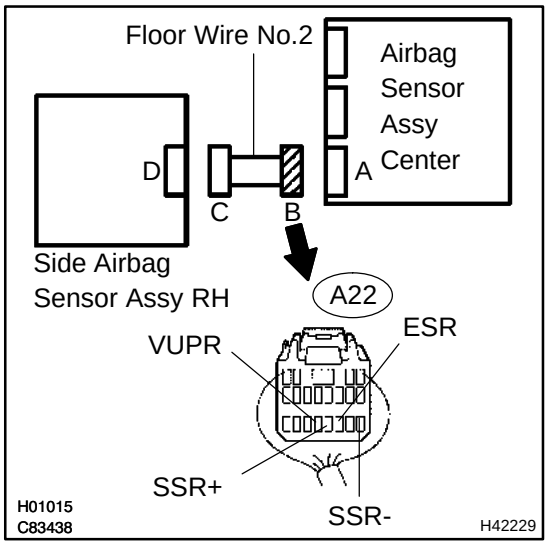
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A22-17 (VUPR) - Body ground | Always | 1 MΩ or Higher |
| A22-15 (ESR) - Body ground | Always | 1 MΩ or Higher |
| A22-16 (SSR+) - Body ground | Always | 1 MΩ or Higher |
| A22-13 (SSR-) - Body ground | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FLOOR WIRE NO.2**

**OK**

## 5 CHECK FLOOR WIRE NO.2(TO B+)




(a) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(b) Turn the ignition switch to the ON position.
(c) Measure the voltage according to the value(s) in the table below.

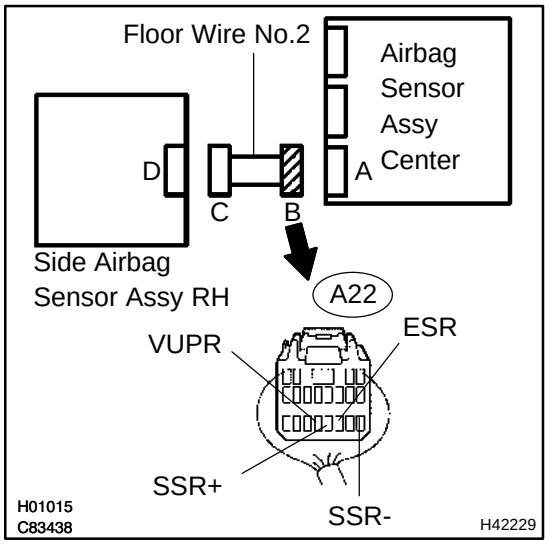
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A22-17 (VUPR) - Body ground | Ignition switch ON | Below 1 V |
| A22-15 (ESR) - Body ground | Ignition switch ON | Below 1 V |
| A22-16 (SSR+) - Body ground | Ignition switch ON | Below 1 V |
| A22-13 (SSR-) - Body ground | Ignition switch ON | Below 1 V |

NG → **REPAIR OR REPLACE FLOOR WIRE NO.2**

OK

## 6 CHECK FLOOR WIRE NO.2(SHORT)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Measure the resistance according to the value(s) in the table below.

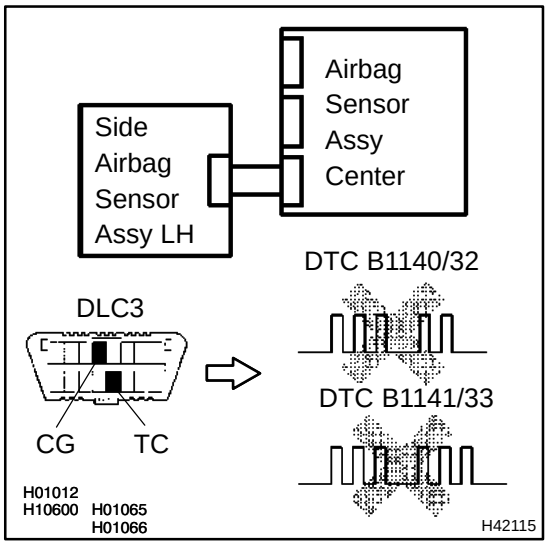
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A22-17 (VUPR) - A22-15 (ESR) | Always | 1 MΩ or Higher |
| A22-16 (SSR+) - A22-13 (SSR-) | Always | 1 MΩ or Higher |

NG → **REPAIR OR REPLACE FLOOR WIRE NO.2**

OK

## 7 CHECK SIDE AIR BAG SENSOR ASSY RH




(a) Connect the connector to the airbag sensor assy center.
(b) Interchange the side airbag sensor assy RH with LH and connect the connectors to them.
(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**Result:**

| | |
|---|---|
| NG: A | DTC B1140/32 is output. |
| NG: B | DTC B1141/33 is output. |
| OK | DTC B1140/32 and B1141/33 are not output. |

**NG:A** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**NG:B** → **REPLACE SIDE AIR BAG SENSOR ASSY RH (SEE PAGE 60-60 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

| DTC | B1141/33 | SIDE AIRBAG SENSOR ASSY (LH) MALFUNCTION |
|---|---|---|

## CIRCUIT DESCRIPTION

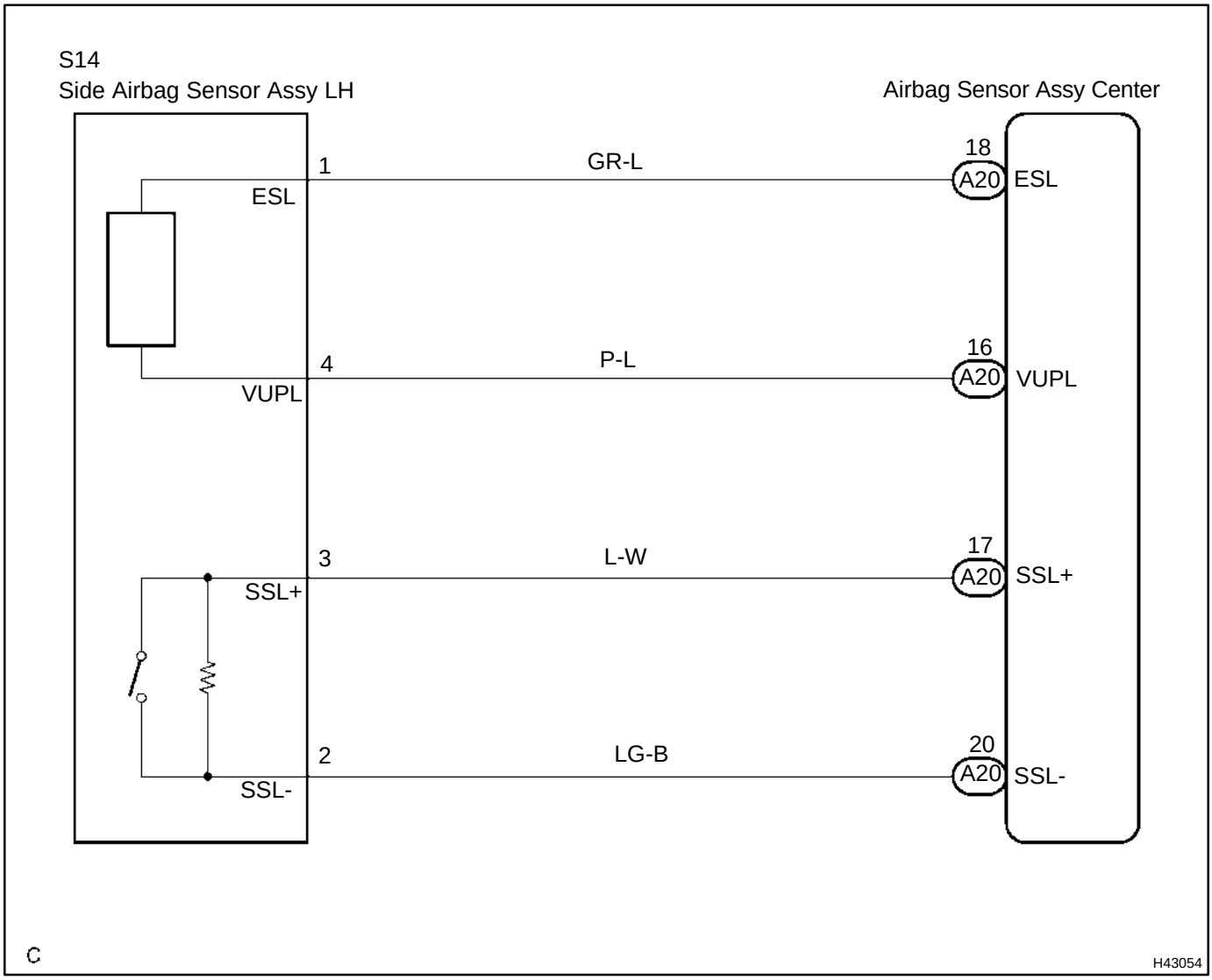
The side airbag sensor assy LH consists of the safing sensor, diagnosis circuit and lateral deceleration sensor, etc.

It receives signals from the lateral deceleration sensor, judges whether or not the SRS must be activated, and detects diagnosis system malfunction.

DTC B1141/33 is recorded when a malfunction is detected in the side airbag sensor assy LH.

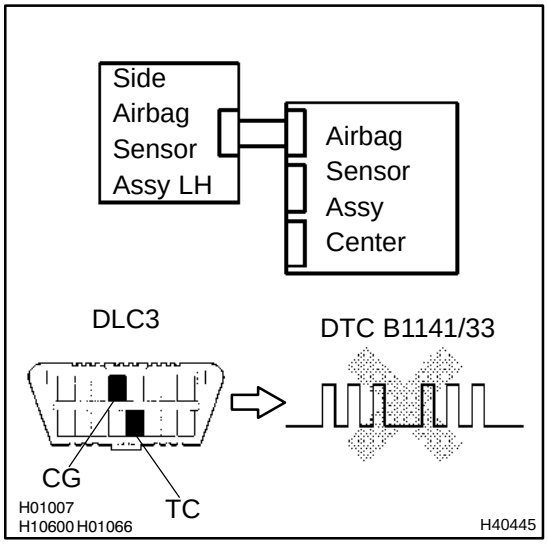
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1141/33 | • The airbag sensor assy center receives a line short circuit signal, an open circuit signal, a short circuit to ground signal or a short circuit to B+ signal in the side airbag sensor assy LH circuit for 2 seconds.<br>• Side airbag sensor assy LH malfunction<br>• Airbag sensor assy center malfunction | • Side airbag sensor assy LH<br>• Airbag sensor assy center<br>• Floor wire |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CHECK DTC |
|---|---|




(a) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(b) Clear the DTCs stored in memory (see page 05-777 ).
(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B1141/33 is not output.**

HINT:
Codes other than code B1141/33 may be output at this time, but they are not related to this check.

**NG** → **Go to step 2**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

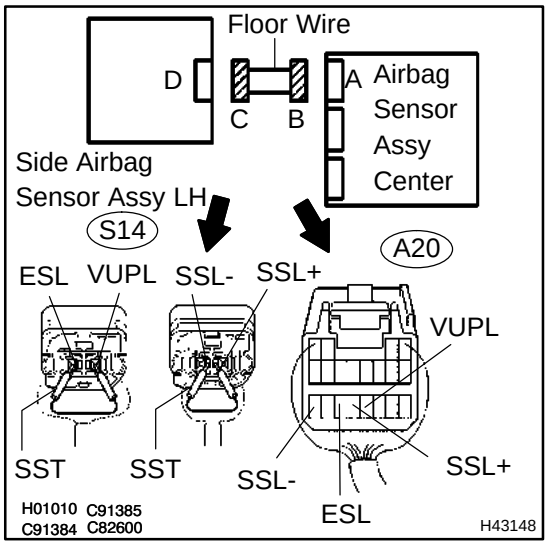
| 2 | CHECK CONNECTION OF CONNECTORS |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait at least for 90 seconds.
(c) Check that the connectors are properly connected to the airbag sensor assy center and the side airbag sensor assy LH.

**NG** → **CONNECT CONNECTORS, THEN GO TO STEP 1**

**OK**

## 3 CHECK FLOOR WIRE(OPEN)




(a) Disconnect the connectors from the airbag sensor assy center and the side airbag sensor assy LH.

(b) Using SST, connect S14-4 (VUPL) and S14-1 (ESL), and connect S14-3 (SSL+) and S14-2 (SSL-) of connector "C".

(c) Measure the resistance according to the value(s) in the table below.

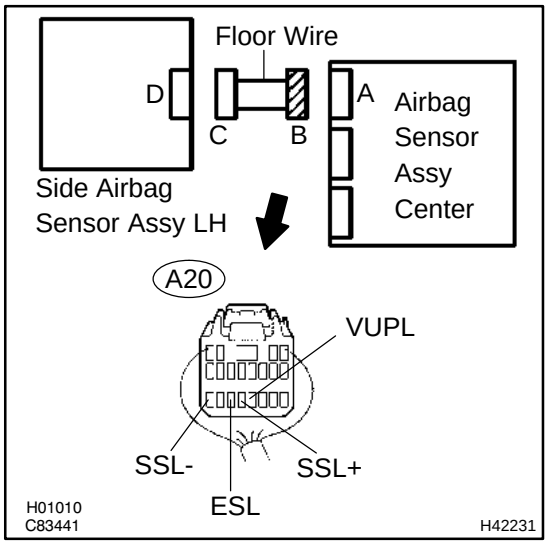
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A20-16 (VUPL) - A20-18 (ESL) | Always | Below 1 Ω |
| A20-17 (SSL+) - A20-20 (SSL-) | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE FLOOR WIRE**

**OK**

## 4 CHECK FLOOR WIRE(TO GROUND)




(a) Disconnect the SST from connector "C"

(b) Measure the resistance according to the value(s) in the table below.

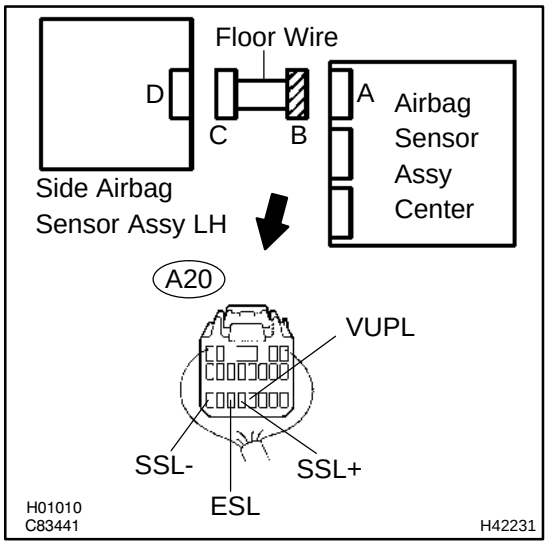
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A20-16 (VUPL) - Body ground | Always | 1 MΩ or Higher |
| A20-18 (ESL) - Body ground | Always | 1 MΩ or Higher |
| A20-17 (SSL+) - Body ground | Always | 1 MΩ or Higher |
| A20-20 (SSL-) - Body ground | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FLOOR WIRE**

**OK**

## 5 CHECK FLOOR WIRE(TO B+)




(a) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(b) Turn the ignition switch to the ON position.
(c) Measure the voltage according to the value(s) in the table below.

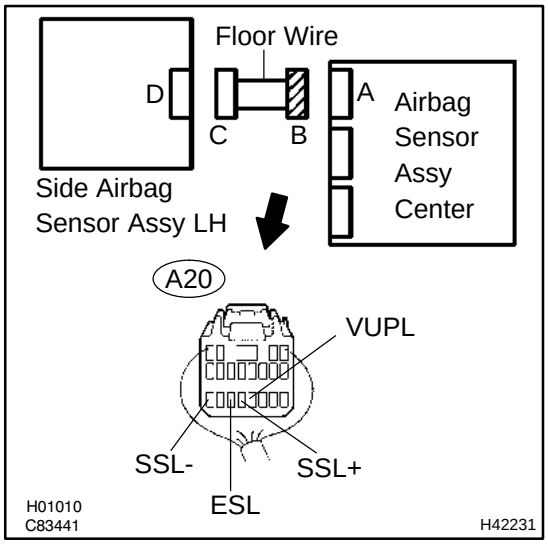
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A20-16 (VUPL) - Body ground | Ignition switch ON | Below 1 V |
| A20-18 (ESL) - Body ground | Ignition switch ON | Below 1 V |
| A20-17 (SSL+) - Body ground | Ignition switch ON | Below 1 V |
| A20-20 (SSL-) - Body ground | Ignition switch ON | Below 1 V |

**NG** → **REPAIR OR REPLACE FLOOR WIRE**

**OK**

## 6 CHECK FLOOR WIRE(SHORT)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Measure the resistance according to the value(s) in the table below.

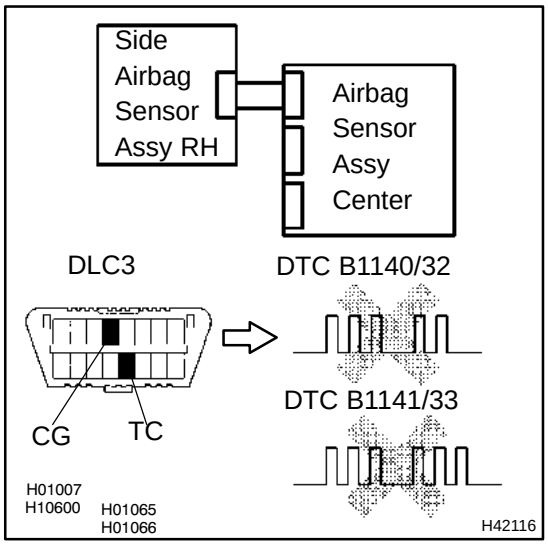
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A20-16 (VUPL) - A20-18 (ESL) | Always | 1 MΩ or Higher |
| A20-17 (SSL+) - A20-20 (SSL-) | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FLOOR WIRE**

**OK**

## 7 CHECK SIDE AIR BAG SENSOR ASSY LH




(a) Connect the airbag sensor assy center connector.
(b) Interchange the side airbag sensor assy RH with LH and connect the connectors to them.
(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait at for least 60 seconds.
(h) Check the DTC (see page 05-777 ).

**Result:**

| | |
|---|---|
| NG: A | DTC B1140/32 is output. |
| NG: B | DTC B1141/33 is output. |
| OK | DTC B1140/32 and B1141/33 are not output. |

**NG:A** → **REPLACE SIDE AIR BAG SENSOR ASSY LH (SEE PAGE 60-60 )**

**NG:B** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

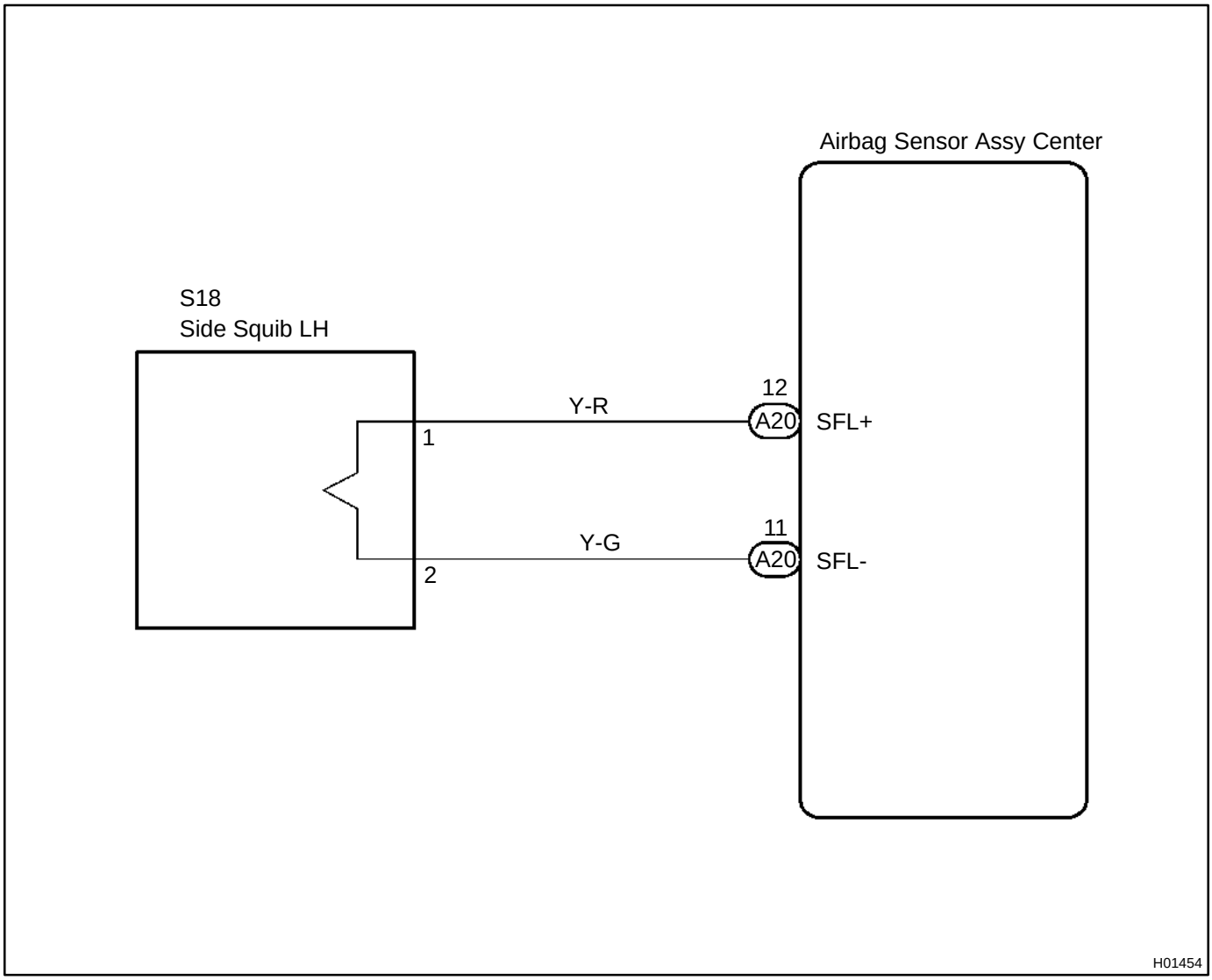
# DTC B0115/47 SHORT IN SIDE SQUIB (LH) CIRCUIT

## CIRCUIT DESCRIPTION

The side squib LH circuit consists of the airbag sensor assy center and the separate type front seat back assy (LH).
This circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0115/47 is recorded when a short circuit is detected in the side squib LH circuit.

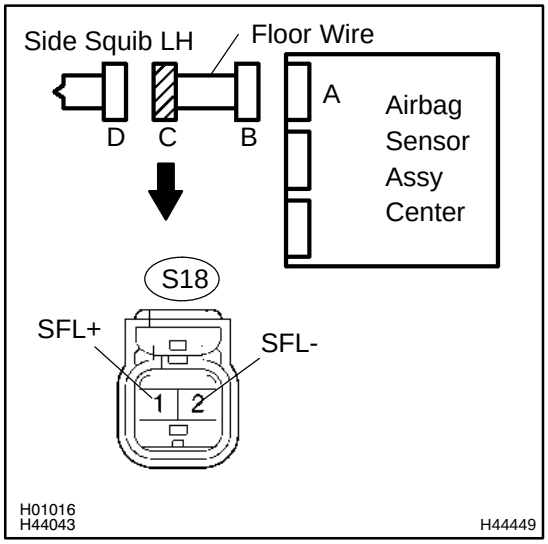
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B0115/47 | • The airbag sensor assy center receives a line short circuit signal 5 times in the side squib LH circuit during primary check.<br>• Side squib LH malfunction<br>• Airbag sensor assy center malfunction | • Separate type front seat back assy (LH)<br>• Airbag sensor assy center<br>• Floor wire |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

## 1 CHECK FLOOR WIRE(SIDE SQUIB LH CIRCUIT)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the separate type front seat back assy (LH).
(d) Release the activation prevention mechanism built into connector "B" (see page 05-770 ).
(e) Measure the resistance according to the value(s) in the table below.

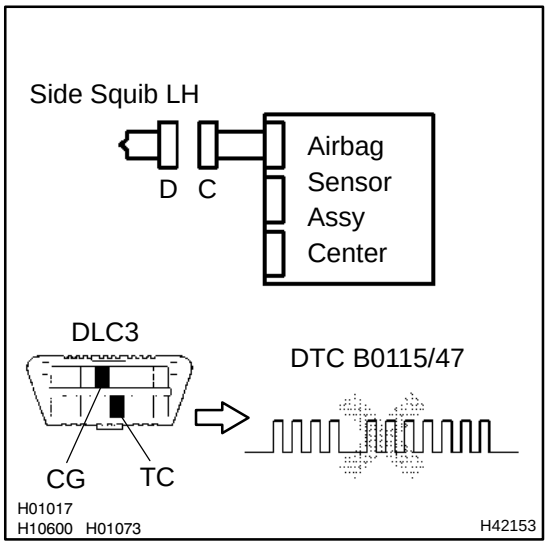
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| S18-1 (SFL+) - S18-2 (SFL-) | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FLOOR WIRE**

**OK**

## 2 CHECK AIR BAG SENSOR ASSY CENTER




(a) Connect the connector to the airbag sensor assy center.
(b) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(c) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(d) Clear the DTCs stored in memory (see page 05-777 ).
(e) Turn the ignition switch to the LOCK position.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0115/47 is not output.**

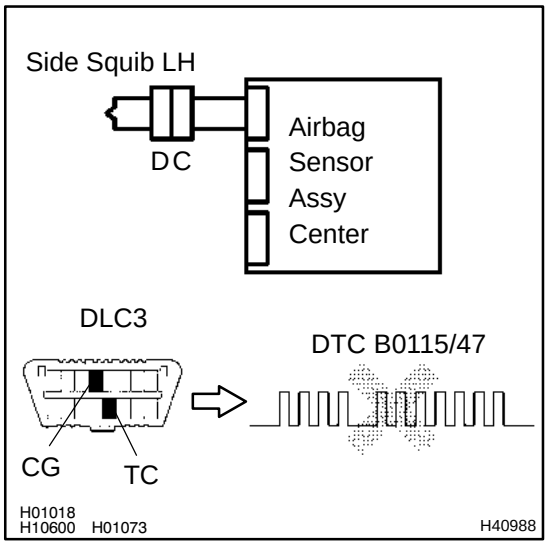
HINT:

Codes other than code B0115/47 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

## 3 CHECK SEPARATE TYPE FRONT SEAT BACK ASSY(LH)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the connector to the separate type front seat back assy (LH).
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(f) Clear the DTCs stored in memory (see page 05-777 ).
(g) Turn the ignition switch to the LOCK position.
(h) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(i) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0115/47 is not output.**

HINT:

Codes other than code B0115/47 may be output at this time, but they are not related to this check.

**NG** → **REPLACE SEPARATE TYPE FRONT SEAT BACK ASSY (LH) (SEE PAGE 72-12 , 72-22 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

# DTC B0116/48 OPEN IN SIDE SQUIB (LH) CIRCUIT

## CIRCUIT DESCRIPTION

The side squib LH circuit consists of the airbag sensor assy center and the separate type front seat back assy (LH).
This circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0116/48 is recorded when an open circuit is detected in the side squib LH circuit.

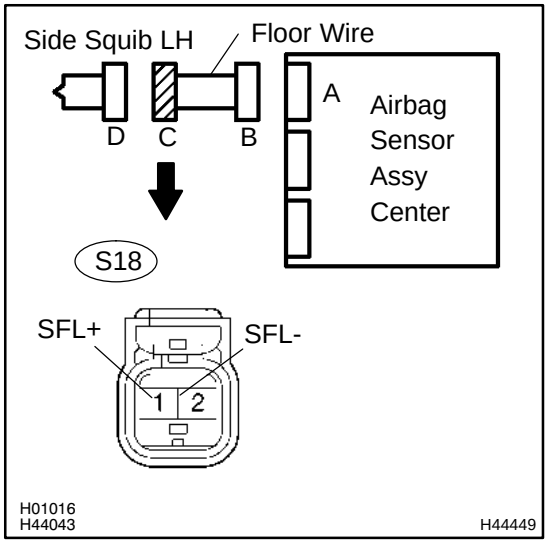
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B0116/48 | • The airbag sensor assy center receives an open circuit signal in the side squib LH circuit for 2 seconds.<br>• Side squib LH malfunction<br>• Airbag sensor assy center malfunction | • Separate type front seat back assy (LH)<br>• Airbag sensor assy center<br>• Floor wire |

## WIRING DIAGRAM

See page 05-836 .

## INSPECTION PROCEDURE

**1 CHECK FLOOR WIRE(SIDE SQUIB LH CIRCUIT)**




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the separate type front seat back assy (LH).
(d) Measure the resistance according to the value(s) in the table below.

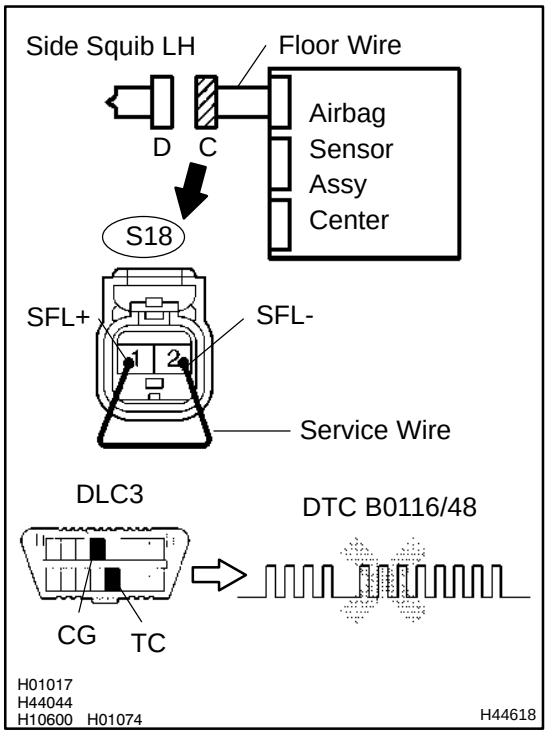
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| S18-1 (SFL+) - S18-2 (SFL-) | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE FLOOR WIRE**

**OK**

| 2 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|




(a) Connect the connector to the airbag sensor assy center.
(b) Using a service wire, connect S18-1 (SFL+) and S18-2 (SFL-) of connector "C".

**NOTICE:**

**Do not forcibly insert a service wire into the terminals of the connector when connecting.**

(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0116/48 is not output.**

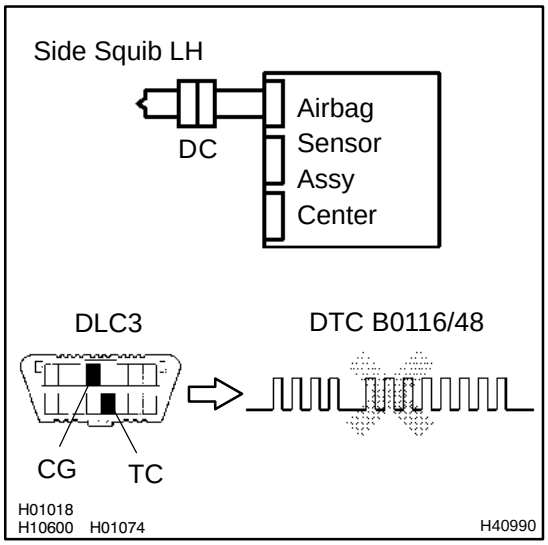
HINT:

Codes other than code B0116/48 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

## 3 CHECK SEPARATE TYPE FRONT SEAT BACK ASSY(LH)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "C".
(d) Connect the connector to the separate type front seat back assy (LH).
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0116/48 is not output.**

HINT:

Codes other than code B0116/48 may be output at this time, but they are not related to this check.

**NG** → **REPLACE SEPARATE TYPE FRONT SEAT BACK ASSY (LH) (SEE PAGE 72-12 , 72-22 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

| DTC | B0117/45 | SHORT IN SIDE SQUIB (LH) CIRCUIT (TO GROUND) |
|---|---|---|

## CIRCUIT DESCRIPTION

The side squib LH circuit consists of the airbag sensor assy center and the separate type front seat back assy (LH).
This circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0117/45 is recorded when a short to ground is detected in the side squib LH circuit.

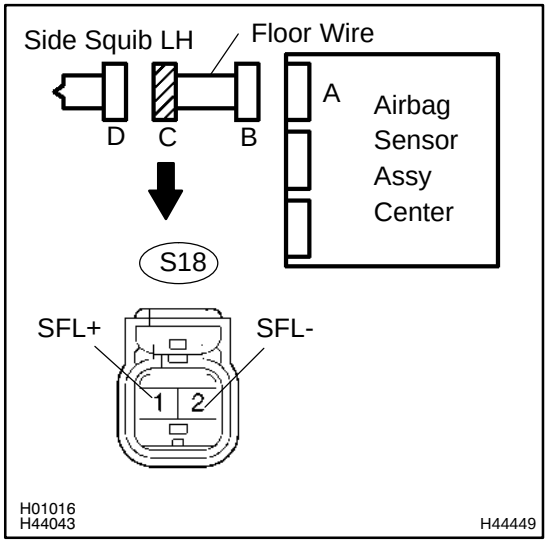
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B0117/45 | • The airbag sensor assy center receives a short circuit to ground signal in the side squib LH circuit for 0.5 seconds.<br>• Side squib LH malfunction<br>• Airbag sensor assy center malfunction | • Separate type front seat back assy (LH)<br>• Airbag sensor assy center<br>• Floor wire |

## WIRING DIAGRAM

See page 05-836 .

## INSPECTION PROCEDURE

| 1 | CHECK FLOOR WIRE(SIDE SQUIB LH CIRCUIT) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the separate type front seat back assy (LH).
(d) Measure the resistance according to the value(s) in the table below.

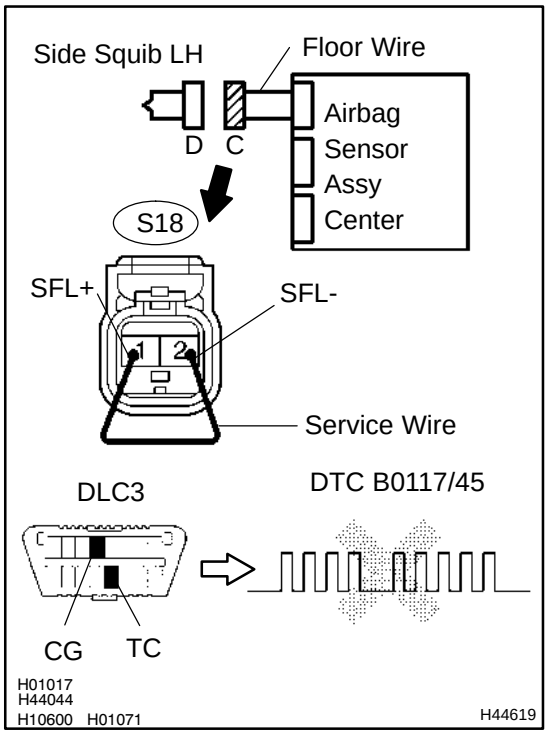
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| S18-1 (SFL+) - Body ground | Always | 1 MΩ or Higher |
| S18-2 (SFL-) - Body ground | Always | 1 MΩ or Higher |

NG → **REPAIR OR REPLACE FLOOR WIRE**

OK

## 2 CHECK AIR BAG SENSOR ASSY CENTER




(a) Connect the connector to the airbag sensor assy center.
(b) Using a service wire, connect S18-1 (SFL+) and S18-2 (SFL-) of connector "C".

**NOTICE:**

**Do not forcibly insert a service wire into the terminals of the connector when connecting.**

(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0117/45 is not output.**

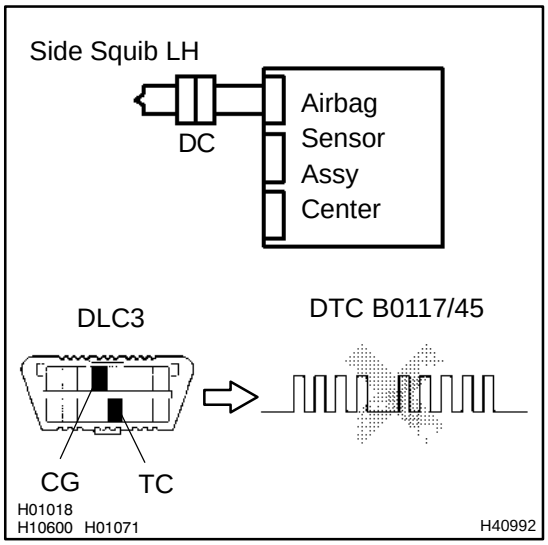
HINT:

Codes other than code B0117/45 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

| 3 | CHECK SEPARATE TYPE FRONT SEAT BACK ASSY(SIDE SQUIB LH) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "C".
(d) Connect the connector to the separate type front seat back assy (LH).
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0117/45 is not output.**

HINT:

Codes other than code B0117/45 may be output at this time, but they are not related to this check.

**NG** → **REPLACE SEPARATE TYPE FRONT SEAT BACK ASSY (LH) (SEE PAGE 72-12 , 72-22 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

| DTC | B0118/46 | SHORT IN SIDE SQUIB (LH) CIRCUIT (TO B+) |
|---|---|---|

## CIRCUIT DESCRIPTION

The side squib LH circuit consists of the airbag sensor assy center and the separate type front seat back assy (side squib LH).
This circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0118/46 is recorded when a short to B+ is detected in the side squib LH circuit.

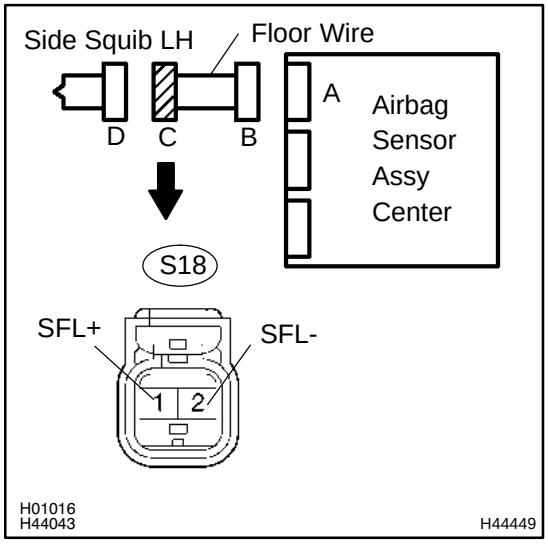
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B0118/46 | • The airbag sensor assy center receives a short circuit to B+ signal in the side squib LH circuit for 0.5 seconds.<br>• Side squib LH malfunction<br>• Airbag sensor assy center malfunction | • Separate type front seat back assy (LH)<br>• Airbag sensor assy center<br>• Floor wire |

## WIRING DIAGRAM

See page 05-836 .

## INSPECTION PROCEDURE

| 1 | CHECK FLOOR WIRE(SIDE SQUIB LH CIRCUIT) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the separate type front seat back assy (LH).
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position.
(f) Measure the voltage according to the value(s) in the table below.

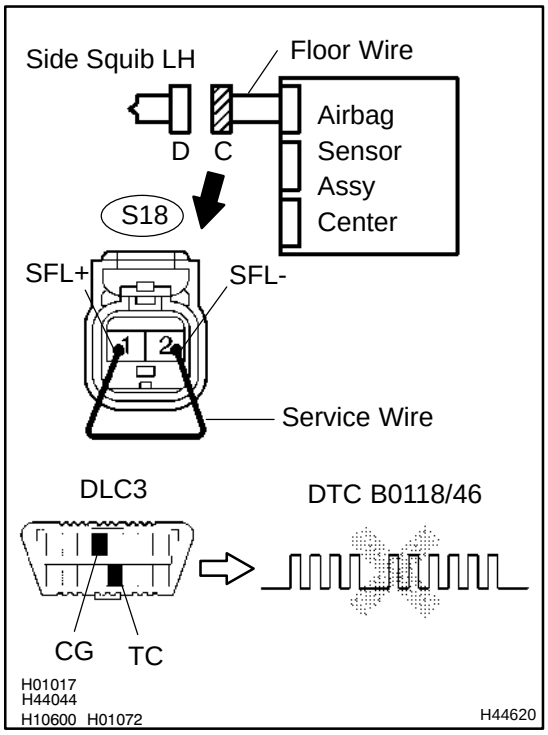
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| S18-1 (SFL+) - Body ground | Ignition switch ON | Below 1 V |
| S18-2 (SFL-) - Body ground | Ignition switch ON | Below 1 V |

NG → **REPAIR OR REPLACE FLOOR WIRE**

OK

## 2 CHECK AIR BAG SENSOR ASSY CENTER




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the connector to the airbag sensor assy center.
(d) Using a service wire, connect S18-1 (SFL+) and S18-2 (SFL-) of connector "C".

**NOTICE:**

**Do not forcibly insert a service wire into the terminals of the connector when connecting.**

(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0118/46 is not output.**

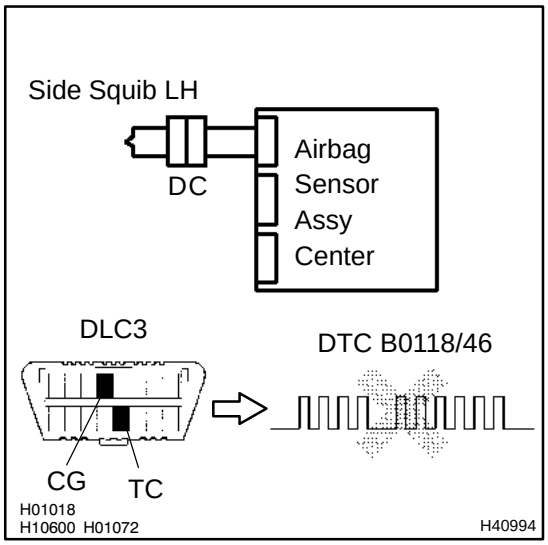
HINT:

Codes other than code B0118/46 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

| 3 | CHECK SEPARATE TYPE FRONT SEAT BACK ASSY(SIDE SQUIB LH) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "C".
(d) Connect the connector to the separate type front seat back assy (LH).
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0118/46 is not output.**

HINT:

Codes other than code B0118/46 may be output at this time, but they are not related to this check.

**NG** → **REPLACE SEPARATE TYPE FRONT SEAT BACK ASSY (LH) (SEE PAGE 72-12 , 72-22 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

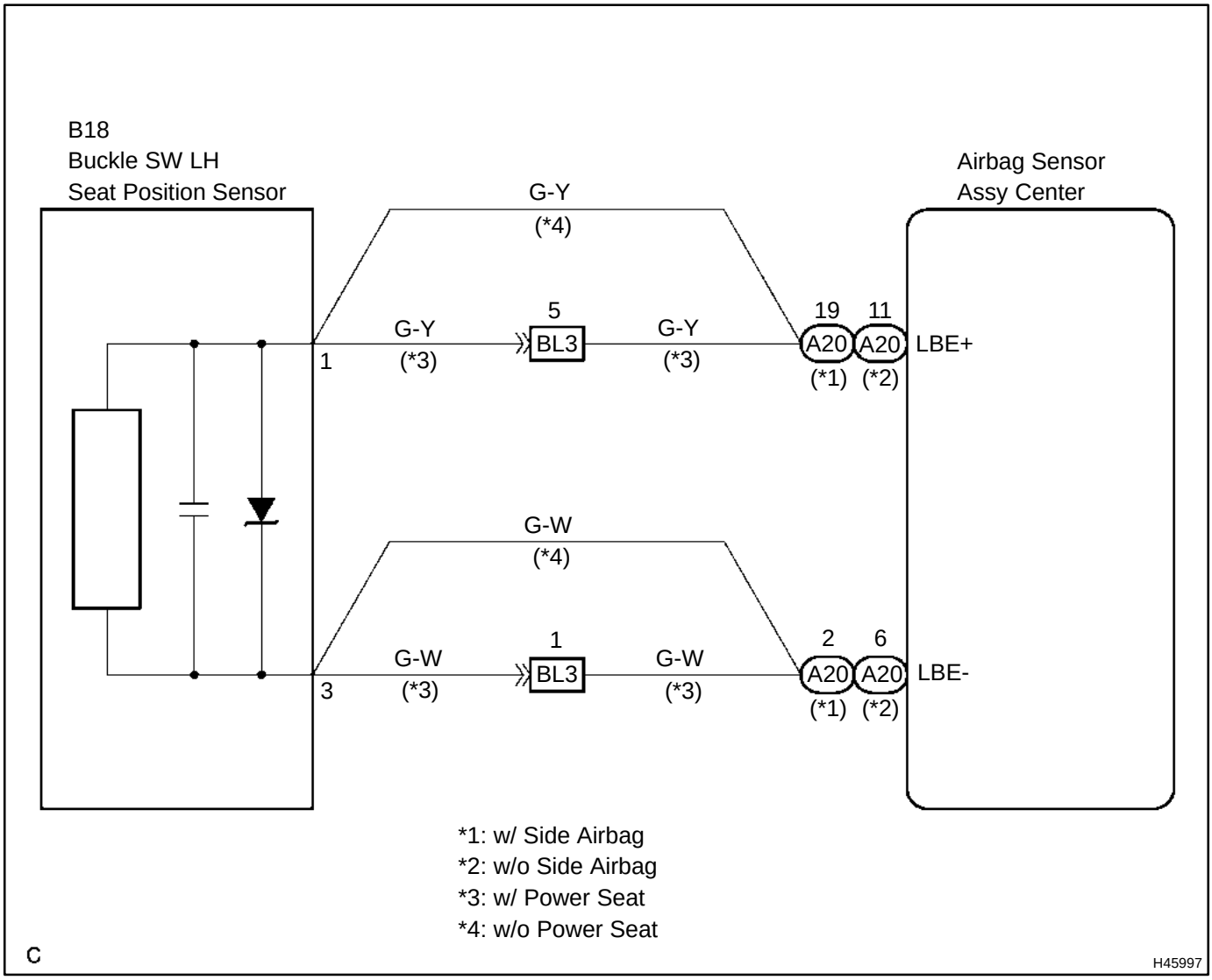
| DTC | B0126/27 | SEAT BELT BUCKLE SWITCH (LH) MALFUNCTION |
|---|---|---|

## CIRCUIT DESCRIPTION

The seat belt buckle switch LH circuit consists of the airbag sensor assy center and the front seat inner belt assy LH.
DTC B0126/27 is recorded when a malfunction is detected in the seat belt buckle switch LH circuit.

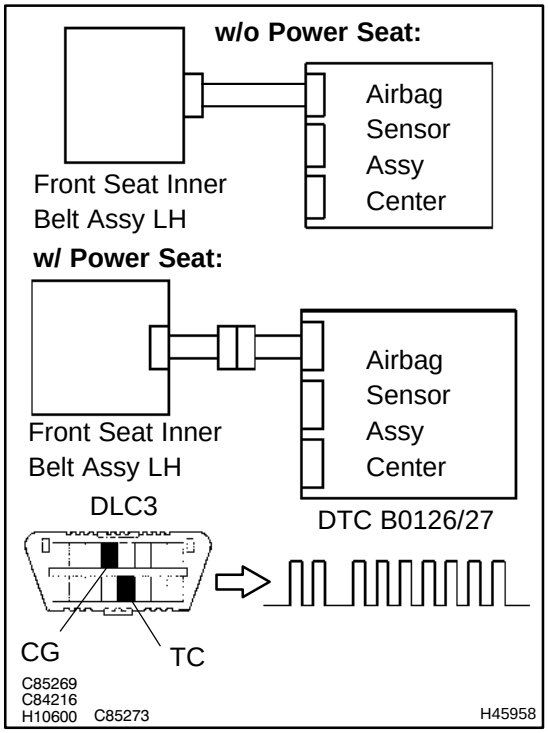
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B0126/27 | • The airbag sensor assy center receives a line short circuit signal, an open circuit signal, a short circuit to ground signal or a short circuit to B+ signal in the seat belt buckle switch LH circuit for 2 seconds.<br>• Front seat inner belt assy LH malfunction<br>• Airbag sensor assy center malfunction | • Front seat inner belt assy LH<br>• Airbag sensor assy center<br>• Floor wire<br>• Seat wire No.2 (w/ Power seat) |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CHECK DTC |
|---|---|




(a) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(b) Clear the DTCs stored in memory (see page 05-777 ).
(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position and wait for at least 60 seconds.
(e) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B0126/27 is not output.**

HINT:
Codes other than code B0126/27 may be output at this time, but they are not related to this check.

**NG** → **Go to step 2**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

| 2 | CHECK CONNECTION OF CONNECTORS |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Check that the connectors are properly connected to the airbag sensor assy center and the front seat inner belt assy LH.
**OK:**
**The connectors are connected.**

**NG** → **CONNECT CONNECTORS, THEN GO TO STEP 1**

**OK**

## 3 CHECK VEHICLE

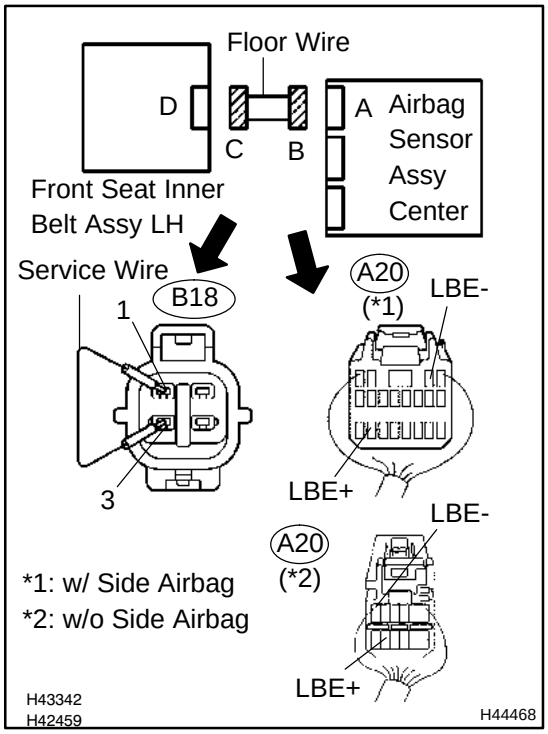
(a) Check the front driver seat type.
**RESULT:**

| | |
|---|---|
| w/o Power seat | A |
| w/ Power seat | B |

**B** → **Go to step 11**

**A**

## 4 CHECK FLOOR WIRE(OPEN)




(a) Disconnect the connectors from the airbag sensor assy center and the front seat inner belt assy LH.
(b) Using a service wire, connect B18-1 and B18-3 of connector "C".

**NOTICE:**
**Do not forcibly insert a service wire into the terminal of the connector when connecting.**

(c) Measure the resistance according to the value(s) in the table below.
**Standard:**

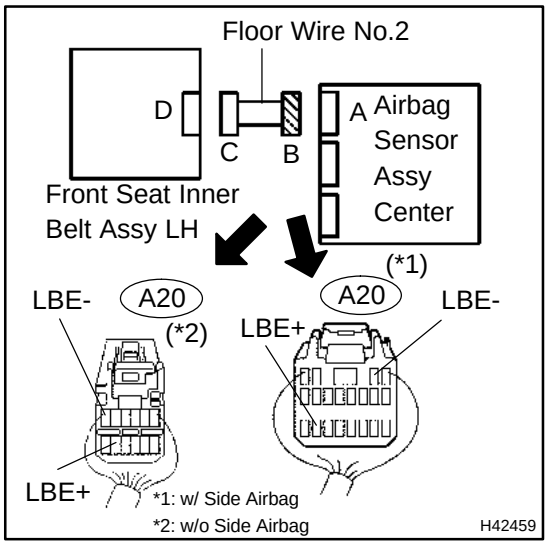
| Tester connection | Condition | Specified condition |
|---|---|---|
| A20-19 (LBE+) - A20-2 (LBE-) (*1) | Always | Below 1 Ω |
| A20-11 (LBE+) - A20-6 (LBE-) (*2) | Always | Below 1 Ω |

*1: w/ Side airbag
*2: w/o Side airbag

**NG** → **REPAIR OR REPLACE FLOOR WIRE**

**OK**

## 5 CHECK FLOOR WIRE(TO B+)




(a) Disconnect the service wire from connector "C".
(b) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(c) Turn the ignition switch to the ON position.
(d) Measure the voltage according to the value(s) in the table below.

**Standard:**

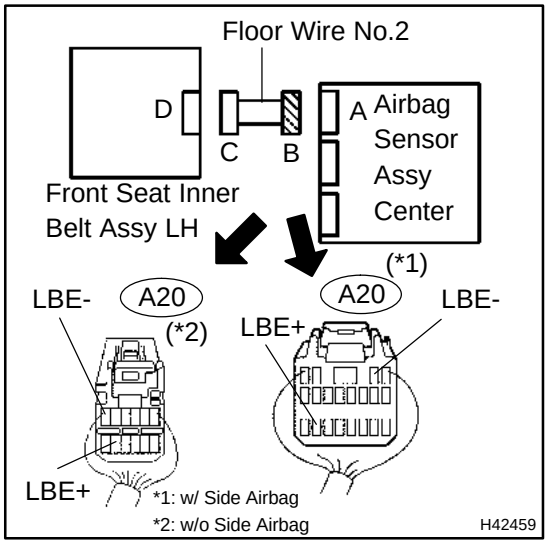
| Tester connection | Condition | Specified condition |
|---|---|---|
| A20-19 (LBE+) - Body ground (*1) | Ignition switch ON | Below 1 V |
| A20-2 (LBE-) - Body ground (*1) | Ignition switch ON | Below 1 V |
| A20-11 (LBE+) - Body ground (*2) | Ignition switch ON | Below 1 V |
| A20-6 (LBE-) - Body ground (*2) | Ignition switch ON | Below 1 V |

*1: w/ Side airbag
*2: w/o Side airbag

NG → **REPAIR OR REPLACE FLOOR WIRE**

OK

## 6 CHECK FLOOR WIRE(TO GROUND)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Measure the resistance according to the value(s) in the table below.

**Standard:**

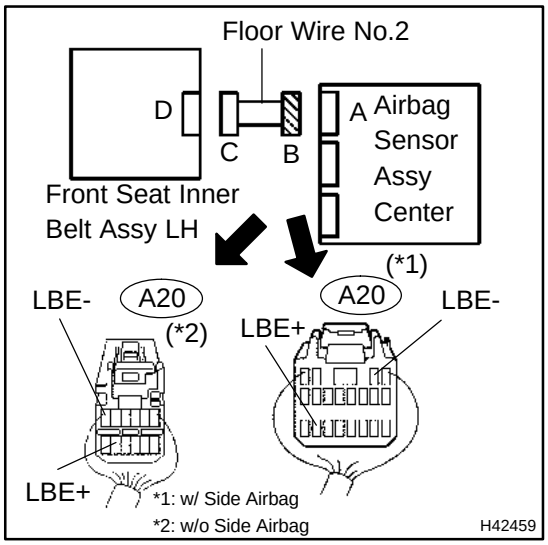
| Tester connection | Condition | Specified condition |
|---|---|---|
| A20-19 (LBE+) - Body ground (*1) | Always | 1 MΩ or Higher |
| A20-2 (LBE-) - Body ground (*1) | Always | 1 MΩ or Higher |
| A20-11 (LBE+) - Body ground (*2) | Always | 1 MΩ or Higher |
| A20-6 (LBE-) - Body ground (*2) | Always | 1 MΩ or Higher |

*1: w/ Side airbag
*2: w/o Side airbag

NG → **REPAIR OR REPLACE FLOOR WIRE**

OK

## 7 CHECK FLOOR WIRE(SHORT)




(a) Measure the resistance according to the value(s) in the table below.

**Standard:**

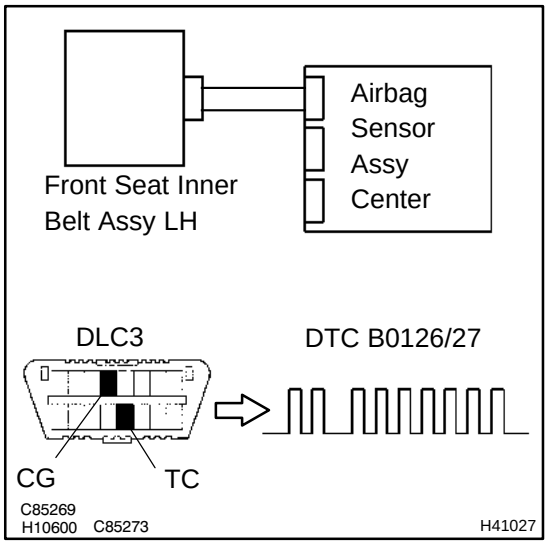
| Tester connection | Condition | Specified condition |
|---|---|---|
| A20-19 (LBE+) - A20-2 (LBE-) (*1) | Always | 1 MΩ or Higher |
| A20-11 (LBE+) - A20-6 (LBE-) (*2) | Always | 1 MΩ or Higher |

*1: w/ Side airbag
*2: w/o Side airbag

**NG** → **REPAIR OR REPLACE FLOOR WIRE**

**OK**

## 8 CHECK FRONT SEAT INNER BELT ASSY RH




(a) Connect the connectors to the front seat inner belt assy LH and the airbag sensor assy center.
(b) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(c) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(d) Clear the DTCs stored in memory (see page 05-777 ).
(e) Turn the ignition switch to the LOCK position.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0126/27 is not output.**

HINT:

Codes other than code B0126/27 may be output at this time, but they are not related to this check.

**NG** → **Go to step 9**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

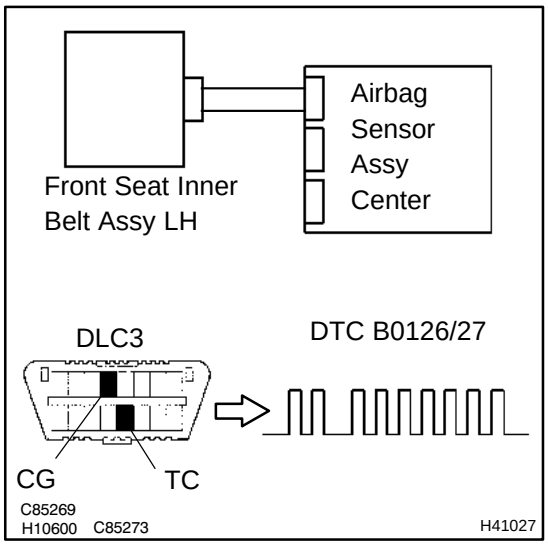
| 9 | REPLACE FRONT SEAT INNER BELT ASSY RH |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the front seat inner belt assy LH (see page 72-12 , 72-22 ).

HINT:
Perform the inspection using parts from a normal vehicle if possible.

**NEXT**

| 10 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|




(a) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(b) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(c) Clear the DTCs stored in memory (see page 05-777 ).
(d) Turn the ignition switch to the LOCK position.
(e) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(f) Check the DTCs (see page 05-777 ).

**OK:**
**DTC B0126/27 is not output.**

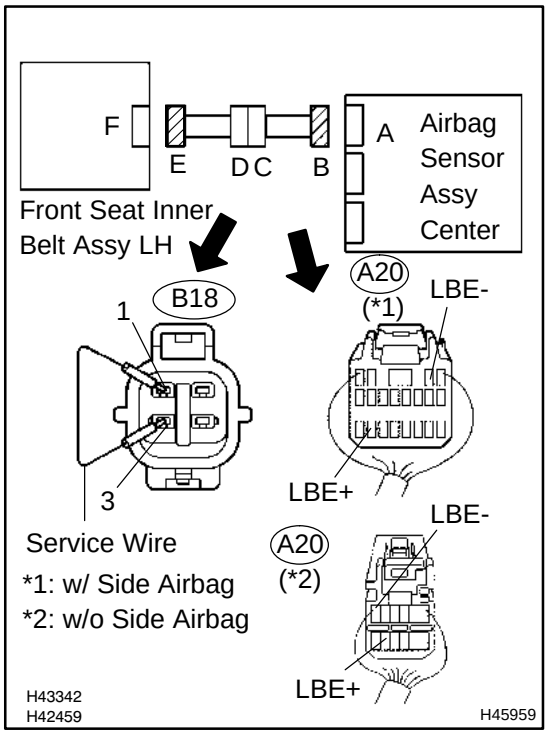
HINT:
Codes other than code B0126/27 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

**END**

## 11 CHECK SEAT BELT BUCKLE SWITCH LH CIRCUIT(OPEN)




(a) Disconnect the connectors from the airbag sensor assy center and the front seat inner belt assy LH.
(b) Using a service wire, connect B18-1 and B18-3 of connector "E".

**NOTICE:**
**Do not forcibly insert a service wire into the terminals of the connector when connecting.**

(c) Measure the resistance according to the value(s) in the table below.

**Standard:**

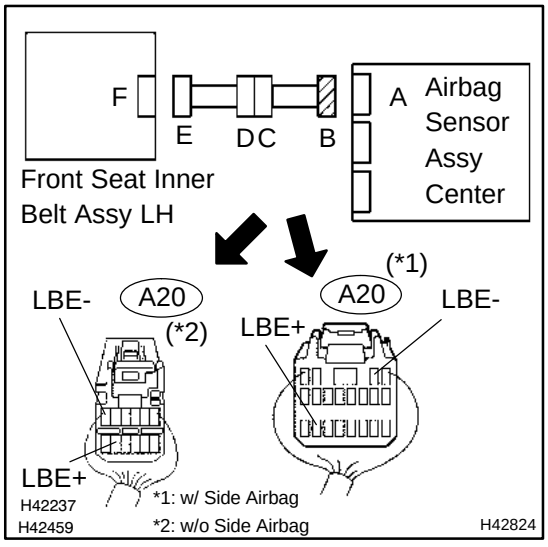
| Tester connection | Condition | Specified condition |
|---|---|---|
| A20-19 (LBE+) - A20-2 (LBE-) (*1) | Always | Below 1 Ω |
| A20-11 (LBE+) - A20-6 (LBE-) (*2) | Always | Below 1 Ω |

*1: w/ Side airbag
*2: w/o Side airbag

NG → **Go to step 18**

OK

## 12 CHECK SEAT BELT BUCKLE SWITCH LH CIRCUIT(TO B+)




(a) Disconnect the service wire from connector "C".
(b) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(c) Turn the ignition switch to the ON position.
(d) Measure the voltage according to the value(s) in the table below.

**Standard:**

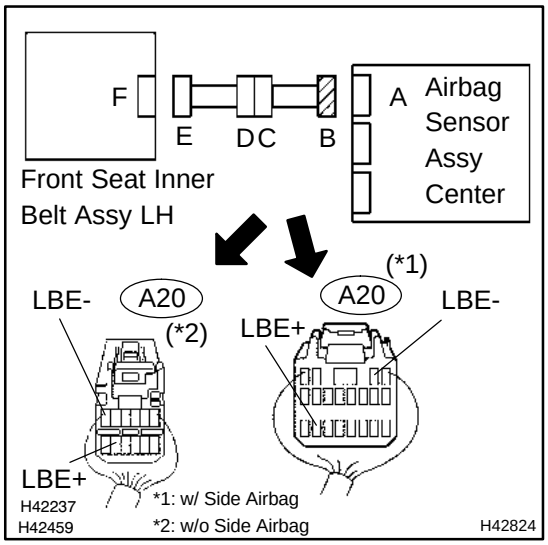
| Tester connection | Condition | Specified condition |
|---|---|---|
| A20-19 (LBE+) - Body ground (*1) | Ignition switch ON | Below 1 V |
| A20-2 (LBE-) - Body ground (*1) | Ignition switch ON | Below 1 V |
| A20-11 (LBE+) - Body ground (*2) | Ignition switch ON | Below 1 V |
| A20-6 (LBE-) - Body ground (*2) | Ignition switch ON | Below 1 V |

*1: w/ Side airbag
*2: w/o Side airbag

NG → **Go to step 19**

OK

## 13 CHECK SEAT BELT BUCKLE SWITCH LH CIRCUIT(TO GROUND)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Measure the resistance according to the value(s) in the table below.

**Standard:**

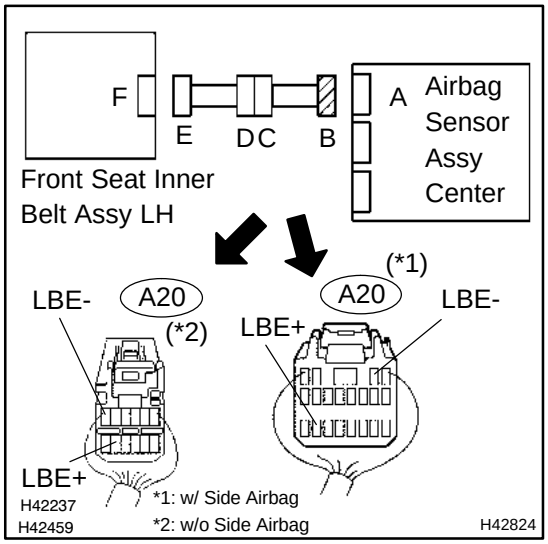
| Tester connection | Condition | Specified condition |
|---|---|---|
| A20-19 (LBE+) - Body ground (*1) | Always | 1 MΩ or Higher |
| A20-2 (LBE-) - Body ground (*1) | Always | 1 MΩ or Higher |
| A20-11 (LBE+) - Body ground (*2) | Always | 1 MΩ or Higher |
| A20-6 (LBE-) - Body ground (*2) | Always | 1 MΩ or Higher |

*1: w/ Side airbag
*2: w/o Side airbag

**NG** → **Go to step 20**

**OK**

## 14 CHECK SEAT BELT BUCKLE SWITCH LH CIRCUIT(SHORT)




(a) Measure the resistance according to the value(s) in the table below.

**Standard:**

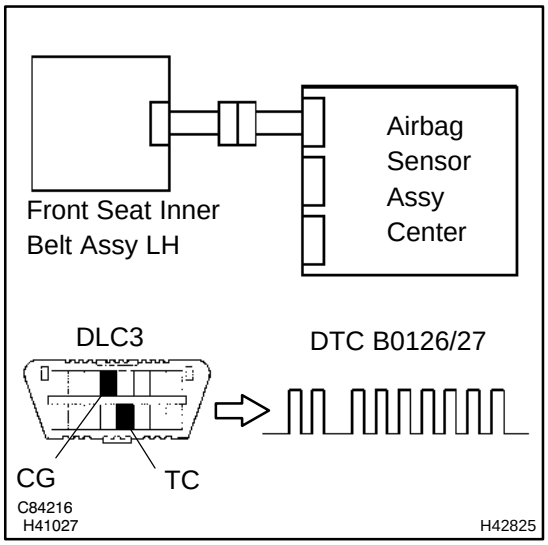
| Tester connection | Condition | Specified condition |
|---|---|---|
| A20-19 (LBE+) - A20-2 (LBE-) (*1) | Always | 1 MΩ or Higher |
| A20-11 (LBE+) - A20-6 (LBE-) (*2) | Always | 1 MΩ or Higher |

*1: w/ Side airbag
*2: w/o Side airbag

**NG** → **Go to step 21**

**OK**

## 15 CHECK FRONT SEAT INNER BELT ASSY LH




(a) Connect the connectors to the front seat inner belt assy LH and the airbag sensor assy center.
(b) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(c) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(d) Clear the DTCs stored in memory (see page 05-777 ).
(e) Turn the ignition switch to the LOCK position.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B0126/27 is not output.**

HINT:
Codes other than code B0126/27 may be output at this time, but they are not related to this check.

**NG** → **Go to step 16**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

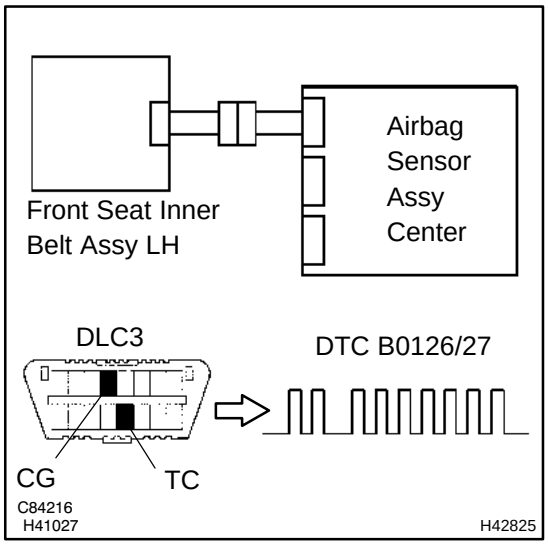
## 16 REPLACE FRONT SEAT INNER BELT ASSY LH

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the front seat inner belt assy LH (see page 72-12 , 72-22 ).

HINT:
Perform the inspection using parts from a normal vehicle if possible.

**NEXT**

## 17 CHECK AIR BAG SENSOR ASSY CENTER




(a) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(b) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(c) Clear the DTCs stored in memory (see page 05-777 ).
(d) Turn the ignition switch to the LOCK position.
(e) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(f) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0126/27 is not output.**

HINT:

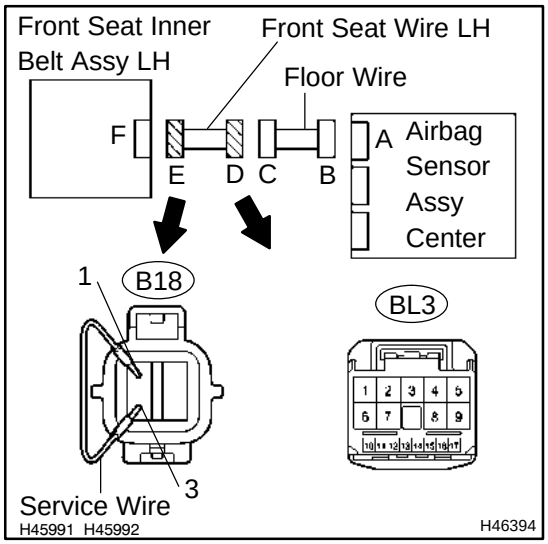
Codes other than code B0126/27 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

**END**

## 18 CHECK FRONT SEAT WIRE LH(OPEN)




(a) Disconnect the front seat wire LH connector from the floor wire.

HINT:

The service wire has already been inserted into connector ”E”.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

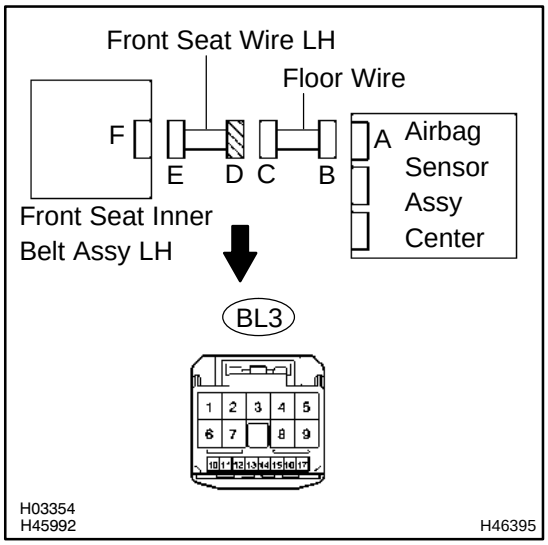
| Tester connection | Condition | Specified condition |
|---|---|---|
| BL3-5 - BL3-1 | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE LH**

**OK**

**REPAIR OR REPLACE FLOOR WIRE**

## 19 CHECK FRONT SEAT WIRE LH(TO B+)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the front seat wire LH connector from the floor wire.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position.
(f) Measure the voltage according to the value(s) in the table below.

**Standard:**

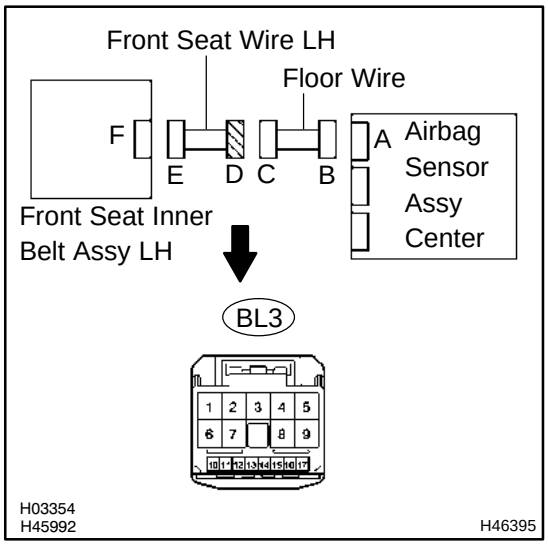
| Tester connection | Condition | Specified condition |
|---|---|---|
| BL3-5 - Body ground | Ignition switch ON | Below 1 V |
| BL3-1 - Body ground | Ignition switch ON | Below 1 V |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE LH**

**OK**

**REPAIR OR REPLACE FLOOR WIRE**

## 20 CHECK FRONT SEAT WIRE LH(TO GROUND)




(a) Disconnect the front seat wire LH connector from the floor wire.
(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

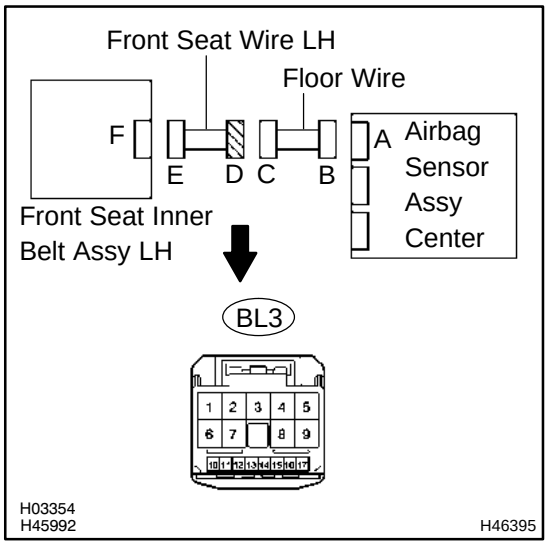
| Tester connection | Condition | Specified condition |
|---|---|---|
| BL3-5 - Body ground | Always | 1 MΩ or Higher |
| BL3-1 - Body ground | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE LH**

**OK**

**REPAIR OR REPLACE FLOOR WIRE**

| 21 | CHECK FRONT SEAT WIRE LH(SHORT) |
|---|---|




(a) Disconnect the front seat wire LH connector from the floor wire.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| BL3-5 - BL3-1 | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE LH**

**OK**

**REPAIR OR REPLACE FLOOR WIRE**

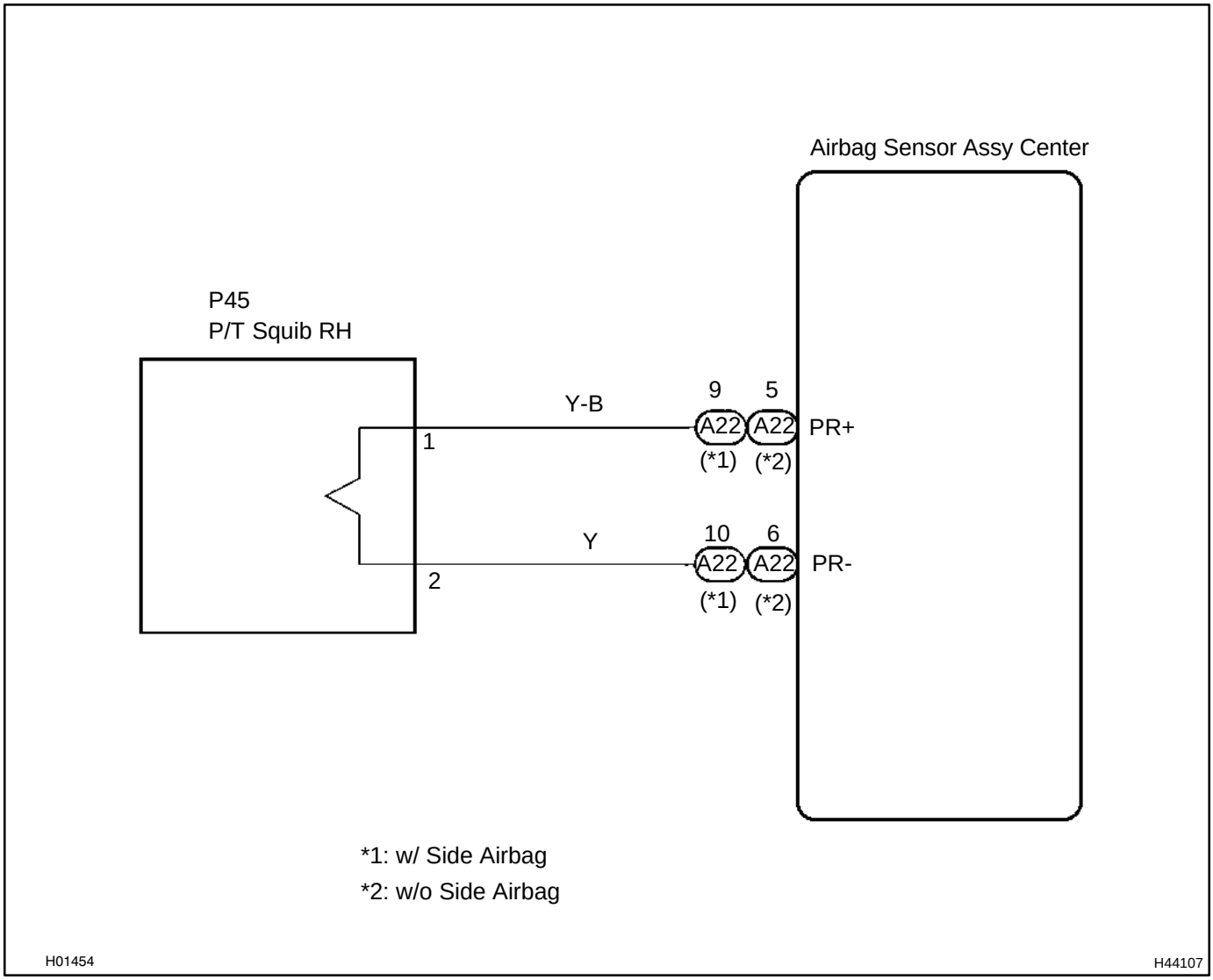
# DTC B0130/63 SHORT IN P/T SQUIB (RH) CIRCUIT

## CIRCUIT DESCRIPTION

The P/T squib RH circuit consists of the airbag sensor assy center and the front seat outer belt assy RH. This circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0130/63 is recorded when a short circuit is detected in the P/T squib RH circuit.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B0130/63 | • The airbag sensor assy center receives a line short circuit signal 5 times in the P/T squib RH circuit during primary check.<br>• P/T squib RH malfunction<br>• Airbag sensor assy center malfunction | • Front seat outer belt assy RH (P/T squib RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

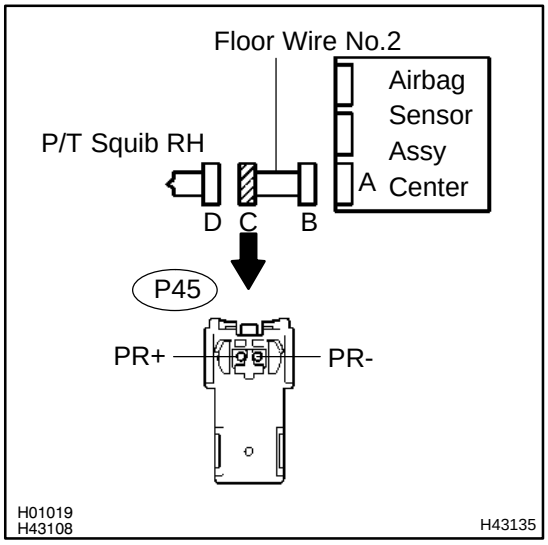
| 1 | CHECK CONNECTOR |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the front seat outer belt assy RH.
(d) Check that the floor wire No.2 connector (on the front seat outer belt assy RH side) is not damaged.
**OK:**
**The lock button is not disengaged, or the claw of the lock is not deformed or damaged.**

**NG** → **REPAIR OR REPLACE FLOOR WIRE NO.2**

**OK**

| 2 | CHECK FLOOR WIRE NO.2(P/T SQUIB RH CIRCUIT) |
|---|---|



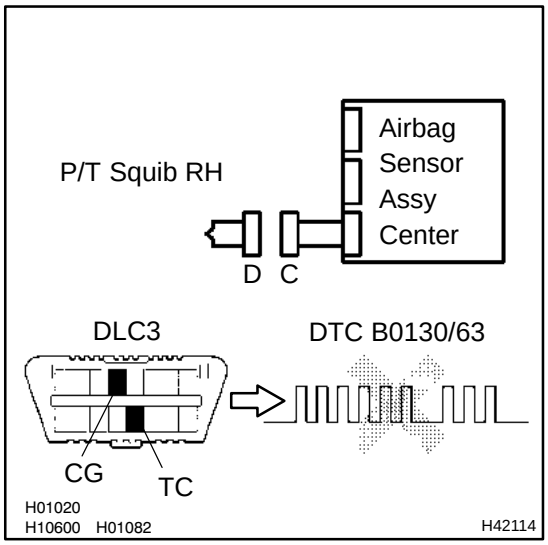

(a) Disconnect the connector from the airbag sensor assy center.
(b) Release the activation prevention mechanism built into connector "B" (see page 05-770 ).
(c) Measure the resistance according to the value(s) in the table below.
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| P45-1 (PR+) - P45-2 (PR-) | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FLOOR WIRE NO.2**

**OK**

| 3 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|



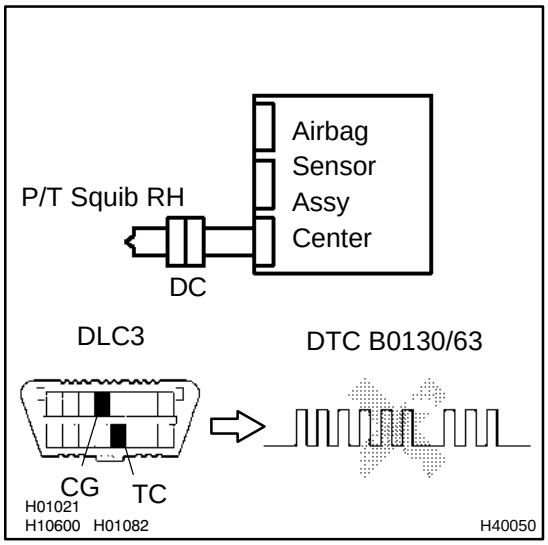

(a) Connect the connector to the airbag sensor assy center.
(b) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(c) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(d) Clear the DTCs stored in memory (see page 05-777 ).
(e) Turn the ignition switch to the LOCK position.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B0130/63 is not output.**

HINT:
Codes other than code B0130/63 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

| 4 | CHECK FRONT SEAT OUTER BELT ASSY RH(P/T SQUIB RH) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the connector to the front seat outer belt assy RH.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(f) Clear the DTCs stored in memory (see page 05-777 ).
(g) Turn the ignition switch to the LOCK position.
(h) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(i) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0130/63 is not output.**

HINT:

Codes other than code B0130/63 may be output at this time, but they are not related to this check.

**NG** → **REPLACE FRONT SEAT OUTER BELT ASSY RH (SEE PAGE 61-7 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

# DTC B0131/64 OPEN IN P/T SQUIB (RH) CIRCUIT

## CIRCUIT DESCRIPTION

The P/T squib RH circuit consists of the airbag sensor assy center and the front seat outer belt assy RH. This circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0131/64 is recorded when an open circuit detected in the P/T squib RH circuit.

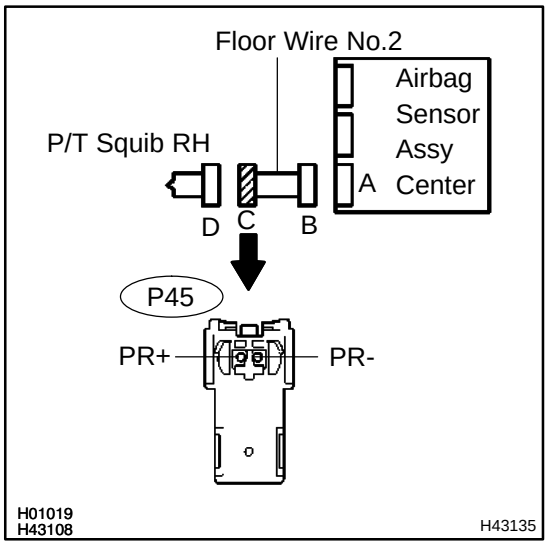
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B0131/64 | • The airbag sensor assy center receives an open circuit signal in the P/T squib RH circuit for 2 seconds.<br>• P/T squib RH malfunction<br>• Airbag sensor assy center malfunction | • Front seat outer belt assy RH (P/T squib RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 |

## WIRING DIAGRAM

See page 05-860 .

## INSPECTION PROCEDURE

**1 CHECK FLOOR WIRE NO.2(P/T SQUIB RH CIRCUIT)**




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the front seat outer belt assy RH.
(d) Measure the resistance according to the value(s) in the table below.

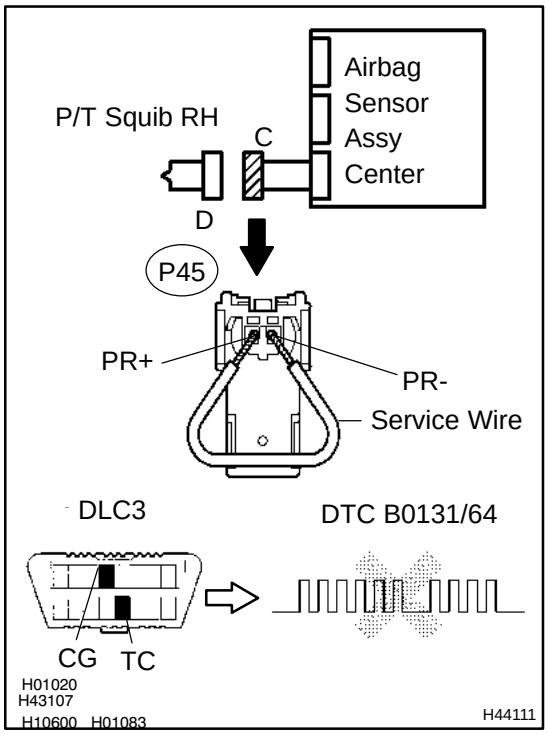
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| P45-1 (PR+) - P45-2 (PR-) | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE FLOOR WIRE NO.2**

**OK**

| 2 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|




(a) Connect the connector to the airbag sensor assy center.
(b) Using a service wire, connect P45-1 (PR+) and P45-2 (PR-) of connector "C".

**NOTICE:**

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminals of the connector when connecting.**

(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0131/64 is not output.**

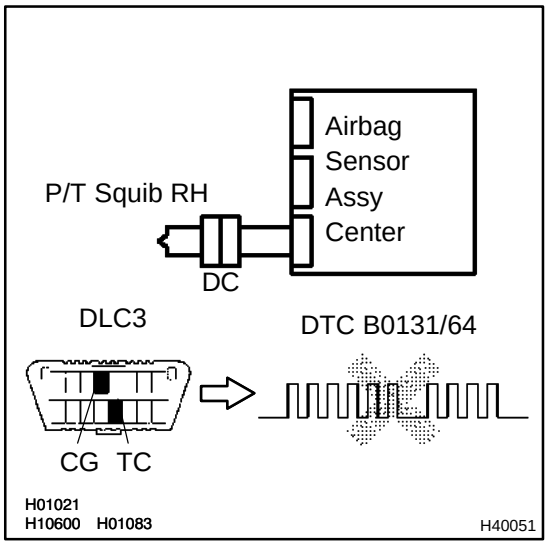
HINT:

Codes other than code B0131/64 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

| 3 | CHECK FRONT SEAT OUTER BELT ASSY RH(P/T SQUIB RH) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "C".
(d) Connect the connector to the front seat outer belt assy RH.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0131/64 is not output.**

HINT:

Codes other than code B0131/64 may be output at this time, but they are not relevant to this check.

**NG** → **REPLACE FRONT SEAT OUTER BELT ASSY RH (SEE PAGE 61-7 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

| DTC | B0132/61 | SHORT IN P/T SQUIB (RH) CIRCUIT (TO GROUND) |
|---|---|---|

## CIRCUIT DESCRIPTION

The P/T squib RH circuit consists of the airbag sensor assy center and the front seat outer belt assy RH. This circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0132/61 is recorded when a short to ground is detected in the P/T squib RH circuit.

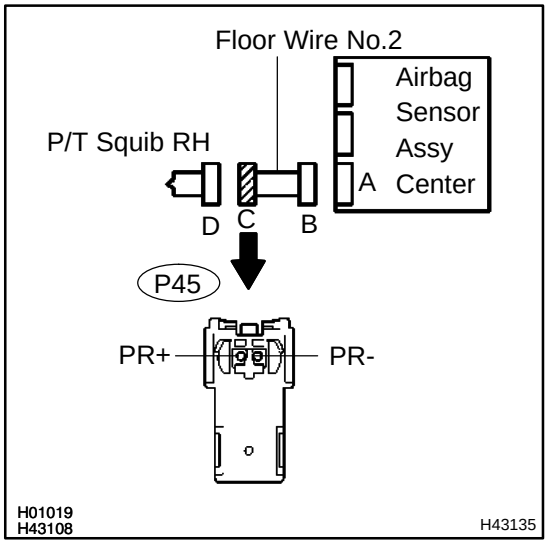
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B0132/61 | • The airbag sensor assy center receives a short circuit to ground signal in the P/T squib RH circuit for 0.5 seconds.<br>• P/T squib RH malfunction<br>• Airbag sensor assy center malfunction | • Front seat outer belt assy RH (P/T squib RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 |

## WIRING DIAGRAM

See page 05-860 .

## INSPECTION PROCEDURE

| 1 | CHECK FLOOR WIRE NO.2(P/T SQUIB RH CIRCUIT) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the front seat outer belt assy RH.
(d) Measure the resistance according to the value(s) in the table below.

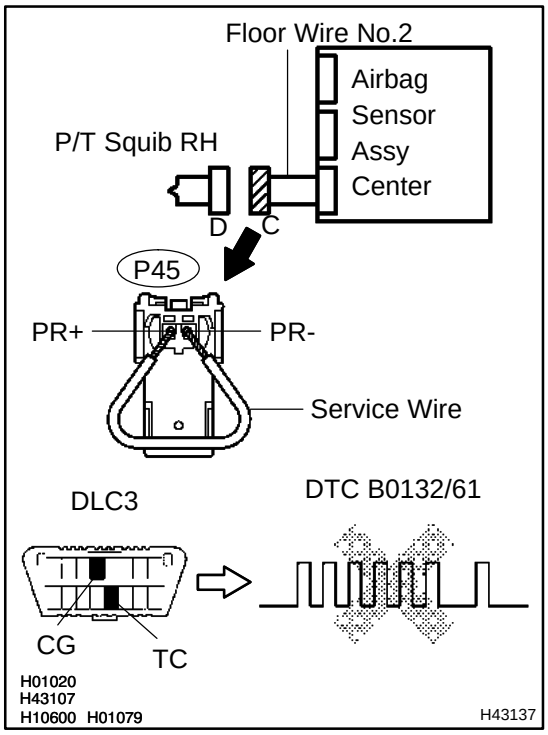
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| P45-1 (PR+) - Body ground | Always | 1 MΩ or Higher |
| P45-2 (PR-) - Body ground | Always | 1 MΩ or Higher |

NG → **REPAIR OR REPLACE FLOOR WIRE NO.2**

OK

## 2 CHECK AIR BAG SENSOR ASSY CENTER




(a) Connect the connector to the airbag sensor assy center.
(b) Using a service wire, connect P45-1 (PR+) and P45-2 (PR-) of connector "C".

**NOTICE:**

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminals of the connector when connecting.**

(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0132/61 is not output.**

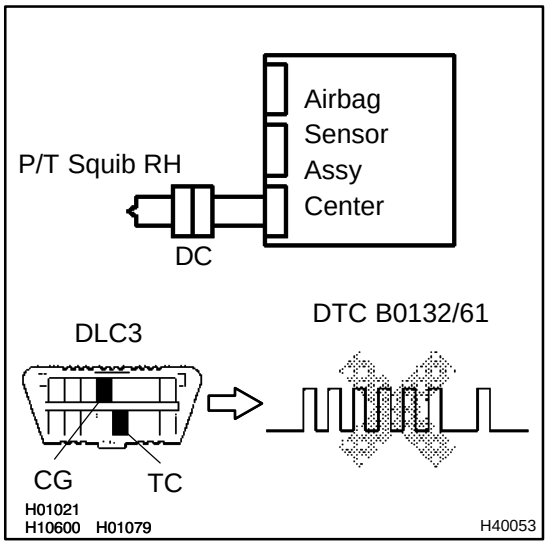
HINT:

Codes other than code B0132/61 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

| 3 | CHECK FRONT SEAT OUTER BELT ASSY RH(P/T SQUIB RH) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "C".
(d) Connect the connector to the front seat outer belt assy RH.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0132/61 is not output.**

HINT:

Codes other than code B0132/61 may be output at this time, but they are not related to this check.

**NG** → **REPLACE FRONT SEAT OUTER BELT ASSY RH (SEE PAGE 61-7 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

# DTC B0133/62 SHORT IN P/T SQUIB (RH) CIRCUIT (TO B+)

## CIRCUIT DESCRIPTION

The P/T squib RH circuit consists of the airbag sensor assy center and the front seat outer belt assy RH. This circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0133/62 is recorded when a short to B+ is detected in the P/T squib RH circuit.

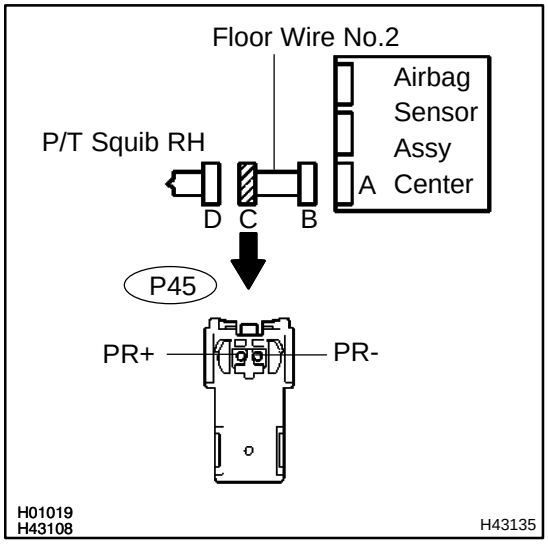
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B0133/62 | • The airbag sensor assy center receives a short circuit to B+ signal in the P/T squib RH circuit for 0.5 seconds.<br>• P/T squib RH malfunction<br>• Airbag sensor assy center malfunction | • Front seat outer belt assy RH (P/T squib RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 |

## WIRING DIAGRAM

See page 05-860 .

## INSPECTION PROCEDURE

| 1 | CHECK FLOOR WIRE NO.2(P/T SQUIB RH CIRCUIT) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the front seat outer belt assy RH.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position.
(f) Measure the voltage according to the value(s) in the table below.

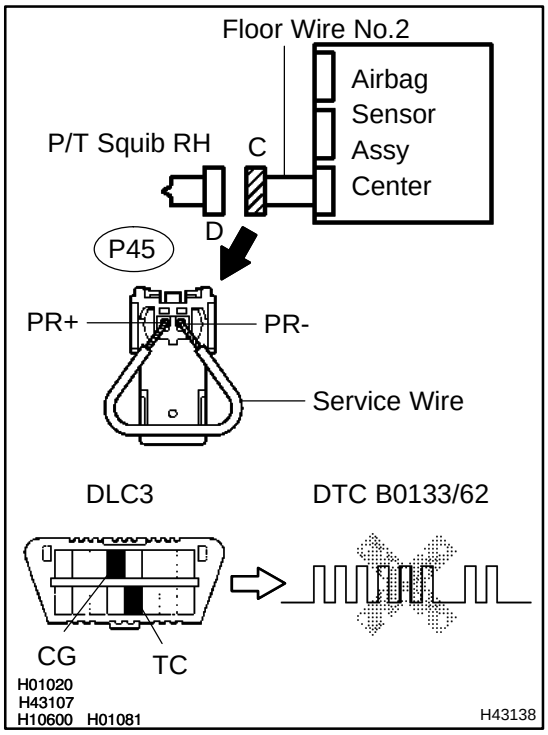
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| P45-1 (PR+) - Body ground | Ignition switch ON | Below 1 V |
| P45-2 (PR-) - Body ground | Ignition switch ON | Below 1 V |

NG → **REPAIR OR REPLACE FLOOR WIRE NO.2**

OK

| 2 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the connector to the airbag sensor assy center.
(d) Using a service wire, connect P45-1 (PR+) and P45-2 (PR-) of connector "C".

**NOTICE:**

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminals of the connector when connecting.**

(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0133/62 is not output.**

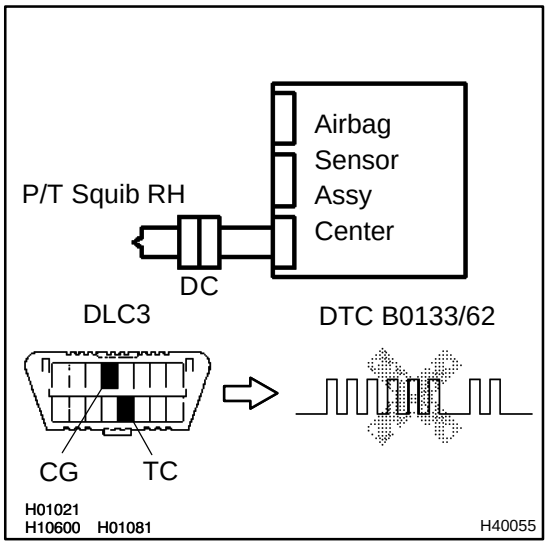
HINT:

Codes other than code B0133/62 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

## 3 CHECK FRONT SEAT OUTER BELT ASSY RH(P/T SQUIB RH)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "C".
(d) Connect the connector to the front seat outer belt assy RH.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0133/62 is not output.**

HINT:

Codes other than code B0133/62 may be output at this time, but they are not related to this check.

**NG** → **REPLACE FRONT SEAT OUTER BELT ASSY RH (SEE PAGE 61-7 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

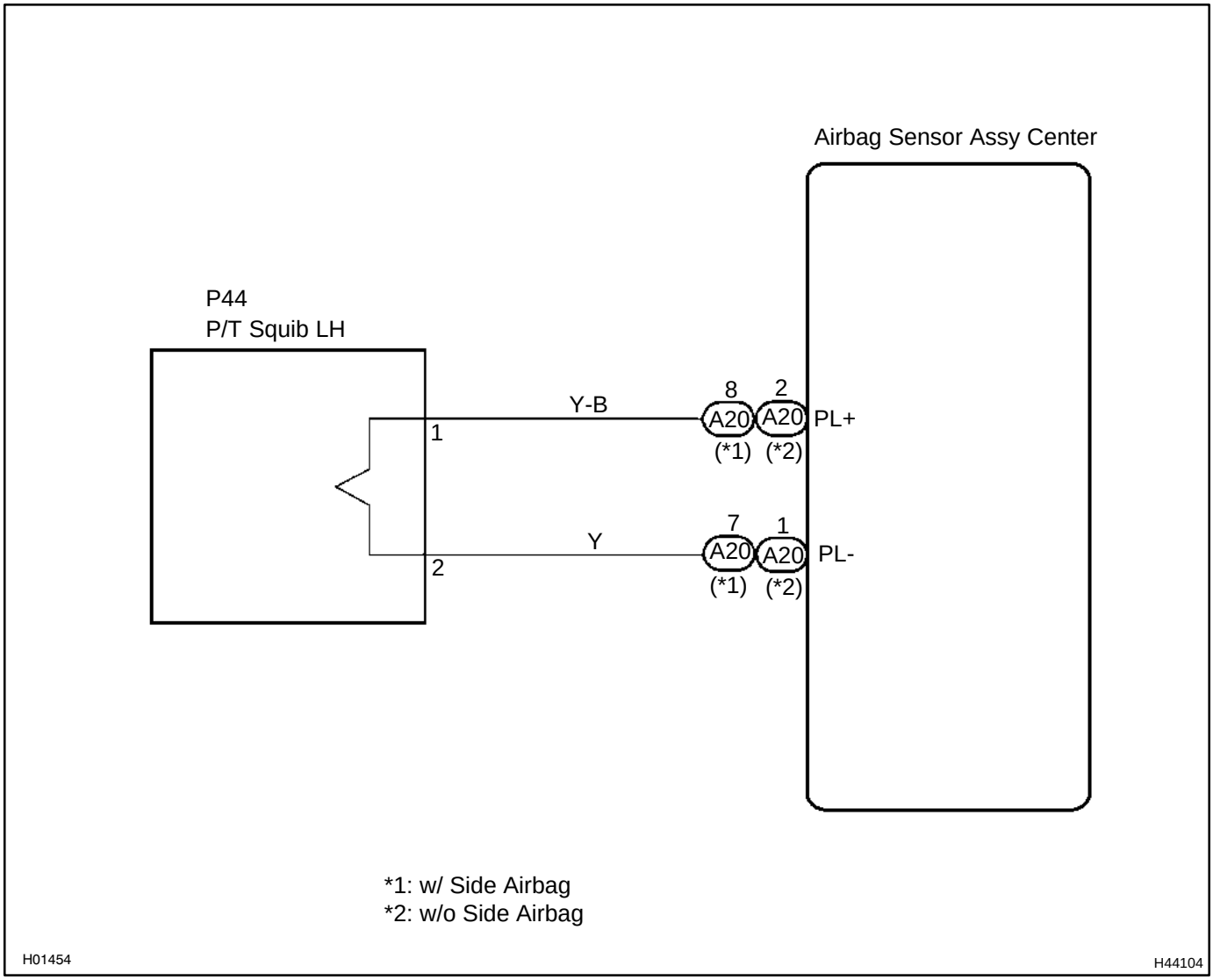
# DTC B0135/73 SHORT IN P/T SQUIB (LH) CIRCUIT

## CIRCUIT DESCRIPTION

The P/T squib LH circuit consists of the airbag sensor assy center and the front seat outer belt assy LH. This circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0135/73 is recorded when a short circuit is detected in the P/T squib LH circuit.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B0135/73 | • The airbag sensor assy center receives a line short circuit signal 5 times in the P/T squib LH circuit during primary check.<br>• P/T squib LH malfunction<br>• Airbag sensor assy center malfunction | • Front seat outer belt assy LH (P/T squib LH)<br>• Airbag sensor assy center<br>• Floor wire |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

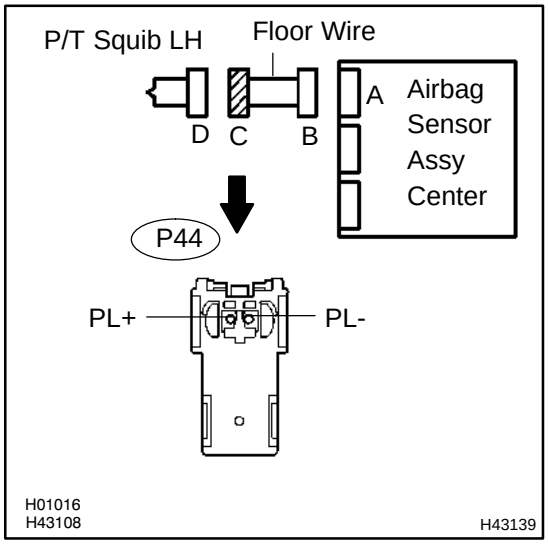
| 1 | CHECK CONNECTOR |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connector from the front seat outer belt assy LH.
(d) Check that the floor wire connector (on the front seat outer belt assy LH side) is not damaged.
**OK:**
**The lock button is not disengaged, or the claw of the lock is not deformed or damaged.**

NG → **REPAIR OR REPLACE FLOOR WIRE**

OK

| 2 | CHECK FLOOR WIRE(P/T SQUIB LH CIRCUIT) |
|---|---|



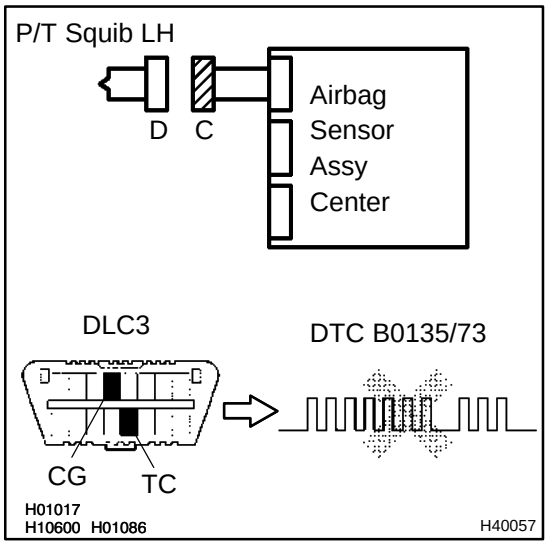

(a) Disconnect the connector from the airbag sensor assy center.
(b) Release the activation prevention mechanism built into connector "B" (see page 05-770 ).
(c) Measure the resistance according to the value(s) in the table below.
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| P44-1 (PL+) - P44-2 (PL-) | Always | 1 MΩ or Higher |

NG → **REPAIR OR REPLACE FLOOR WIRE**

OK

| 3 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|



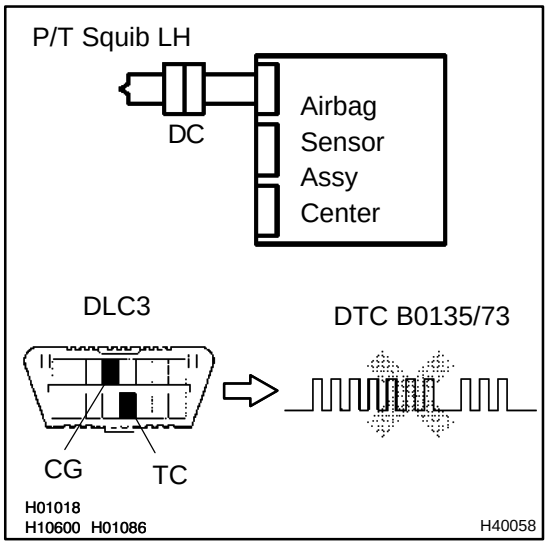

(a) Connect the connector to the airbag sensor assy center.
(b) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(c) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(d) Clear the DTCs stored in memory (see page 05-777 ).
(e) Turn the ignition switch to the LOCK position.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B0135/73 is not output.**

HINT:
Codes other than code B0135/73 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

| 4 | CHECK FRONT SEAT OUTER BELT ASSY LH(P/T SQUIB LH) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the connector to the front seat outer belt assy LH.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(f) Clear the DTCs stored in memory (see page 05-777 ).
(g) Turn the ignition switch to the LOCK position.
(h) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(i) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0135/73 is not output.**

HINT:

Codes other than code B0135/73 may be output at this time, but they are not related to this check.

**NG** → **REPLACE FRONT SEAT OUTER BELT ASSY LH (SEE PAGE 61-7 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

# DTC B0136/74 OPEN IN P/T SQUIB (LH) CIRCUIT

## CIRCUIT DESCRIPTION

The P/T squib LH circuit consists of the airbag sensor assy center and the front seat outer belt assy LH. This circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0136/74 is recorded when an open circuit is detected in the P/T squib LH circuit.

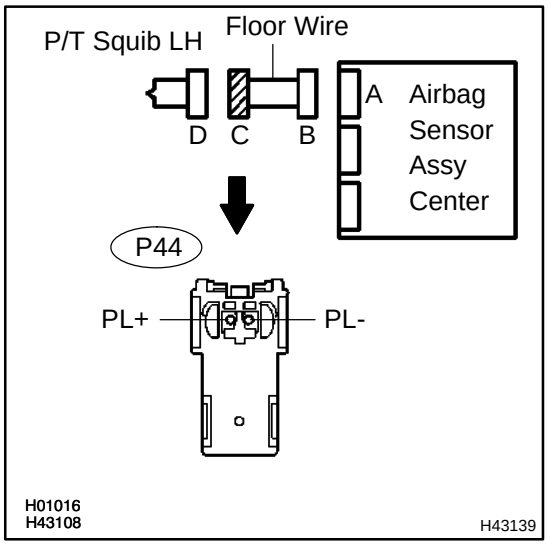
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B0136/74 | • The airbag sensor assy center receives an open circuit signal in the P/T squib LH circuit for 2 seconds.<br>• P/T squib LH malfunction<br>• Airbag sensor assy center malfunction | • Front seat outer belt assy LH (P/T squib LH)<br>• Airbag sensor assy center<br>• Floor wire |

## WIRING DIAGRAM

See page 05-873 .

## INSPECTION PROCEDURE

**1 CHECK FLOOR WIRE(P/T SQUIB LH CIRCUIT)**




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the front seat outer belt assy LH.
(d) Measure the resistance according to the value(s) in the table below.

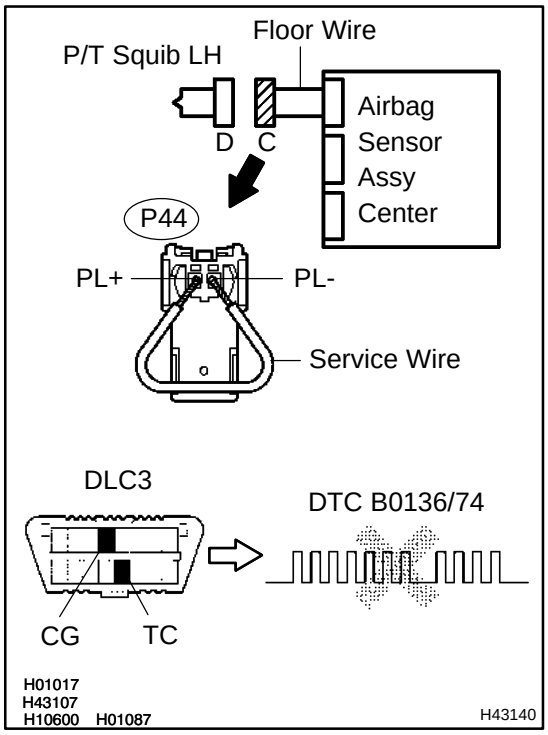
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| P44-1 (PL+) - P44-2 (PL-) | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE FLOOR WIRE**

**OK**

## 2 CHECK AIR BAG SENSOR ASSY CENTER




(a) Connect the connector to the airbag sensor assy center.
(b) Using a service wire, connect P44-1 (PL+) and P44-2 (PL-) of connector "C".

**NOTICE:**

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminals of the connector when connecting.**

(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0136/74 is not output.**

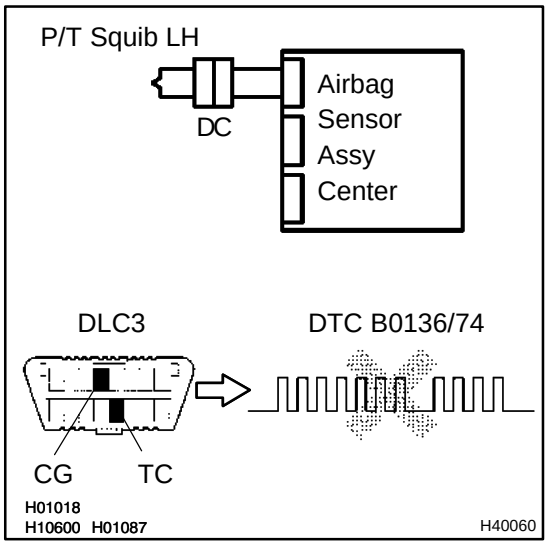
HINT:

Codes other than code B0136/74 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

## 3 CHECK FRONT SEAT OUTER BELT ASSY LH(P/T SQUIB LH)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "C".
(d) Connect the connector to the front seat outer belt assy LH.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0136/74 is not output.**

HINT:

Codes other than code B0136/74 may be output at this time, but they are not related to this check.

**NG** → **REPLACE FRONT SEAT OUTER BELT ASSY LH (SEE PAGE 61-7 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

| DTC | B0137/71 | SHORT IN P/T SQUIB (LH) CIRCUIT (TO GROUND) |
|---|---|---|

## CIRCUIT DESCRIPTION

The P/T squib LH circuit consists of the airbag sensor assy center and the front seat outer belt assy LH. This circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0137/71 is recorded when a short to ground is detected in the P/T squib LH circuit.

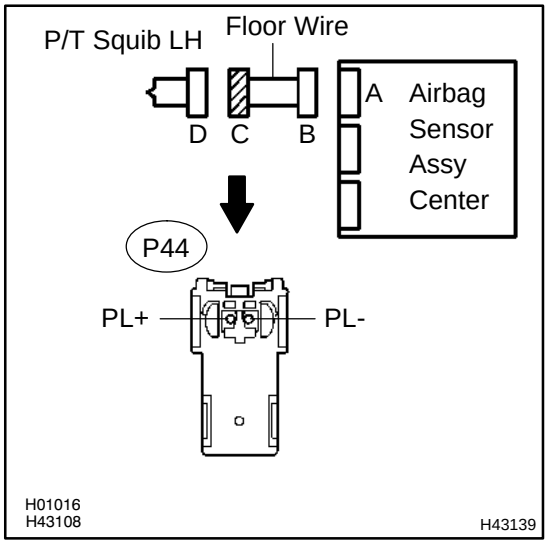
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B0137/71 | • The airbag sensor assy center receives a short circuit to ground signal in the P/T squib LH circuit for 0.5 seconds.<br>• P/T squib LH malfunction<br>• Airbag sensor assy center malfunction | • Front seat outer belt assy LH (P/T squib LH)<br>• Airbag sensor assy center<br>• Floor wire |

## WIRING DIAGRAM

See page 05-873 .

## INSPECTION PROCEDURE

| 1 | CHECK FLOOR WIRE(P/T SQUIB LH CIRCUIT) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connector from the airbag sensor assy center and the front seat outer belt assy LH.
(d) Measure the resistance according to the value(s) in the table below.

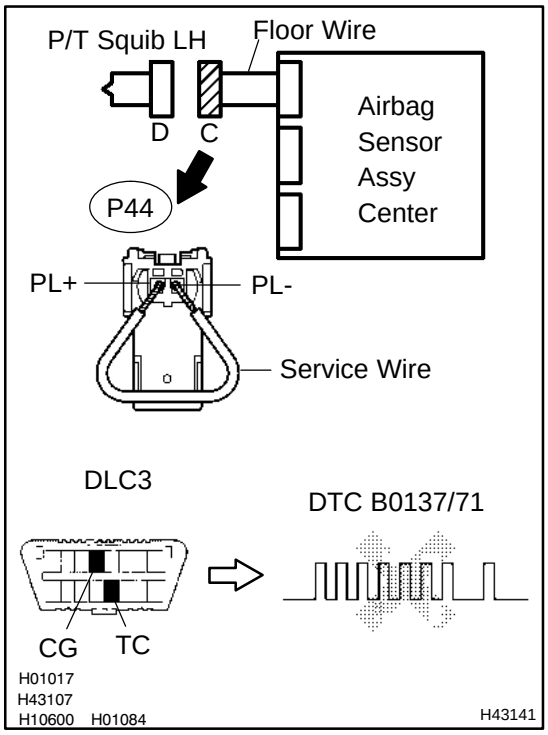
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| P44-1 (PL+) - Body ground | Always | 1 MΩ or Higher |
| P44-2 (PL-) - Body ground | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FLOOR WIRE**

**OK**

## 2 CHECK AIR BAG SENSOR ASSY CENTER




(a) Connect the connector to the airbag sensor assy center.
(b) Using a service wire, connect P44-1 (PL+) and P44-2 (PL-) of connector "C".

**NOTICE:**

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminals of the connector when connecting.**

(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0137/71 is not output.**

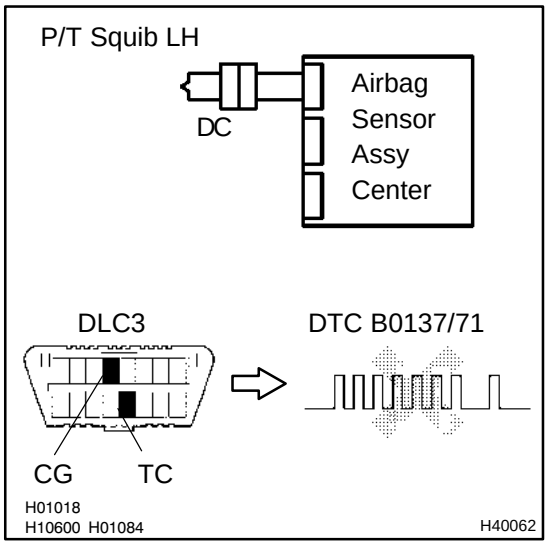
HINT:

Codes other than code B0137/71 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

## 3 CHECK FRONT SEAT OUTER BELT ASSY LH(P/T SQUIB LH)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "C".
(d) Connect the connector to the front seat outer belt assy LH.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0137/71 is not output.**

HINT:

Codes other than code B0137/71 may be output at this time, but they are not related to this check.

**NG** → **REPLACE FRONT SEAT OUTER BELT ASSY LH (SEE PAGE 61-7 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

# DTC B0138/72 SHORT IN P/T SQUIB (LH) CIRCUIT (TO B+)

## CIRCUIT DESCRIPTION

The P/T squib LH circuit consists of the airbag sensor assy center and the front seat outer belt assy LH. This circuit instructs the SRS to deploy when deployment conditions are met.
DTC B0137/71 is recorded when a short to ground is detected in the P/T squib LH circuit.

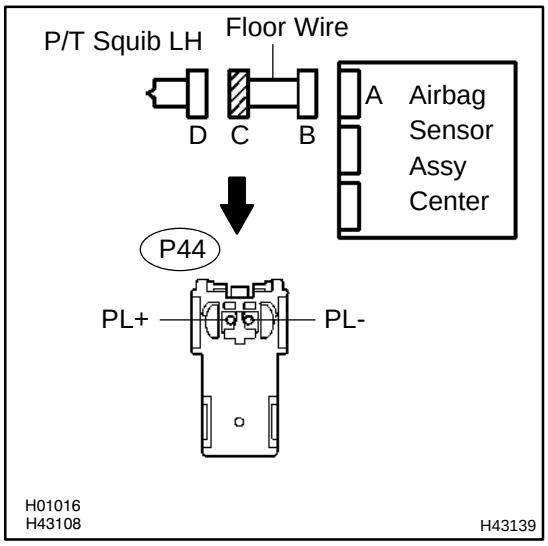
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B0138/72 | • The airbag sensor assy center receives a short circuit to B+ signal in the P/T squib LH circuit for 0.5 seconds.<br>• P/T squib LH malfunction<br>• Airbag sensor assy center malfunction | • Front seat outer belt assy LH (P/T squib LH)<br>• Airbag sensor assy center<br>• Floor wire |

## WIRING DIAGRAM

See page 05-873 .

## INSPECTION PROCEDURE

**1 CHECK FLOOR WIRE(P/T SQUIB CIRCUIT)**




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the front seat outer belt assy LH.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position.
(f) Measure the voltage according to the value(s) in the table below.

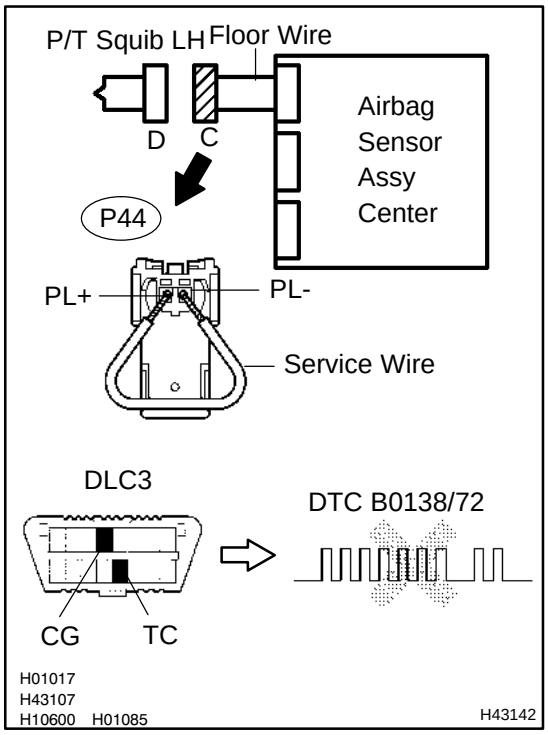
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| P44-1 (PL+) - Body ground | Ignition switch ON | Below 1 V |
| P44-2 (PL-) - Body ground | Ignition switch ON | Below 1 V |

**NG** → **REPAIR OR REPLACE FLOOR WIRE**

**OK**

## 2 CHECK AIR BAG SENSOR ASSY CENTER




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the connector to the airbag sensor assy center.
(d) Using a service wire, connect P44-1 (PL+) and P44-2 (PL-) of connector "C".

**NOTICE:**

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminals of the connector when connecting.**

(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0138/72 is not output.**

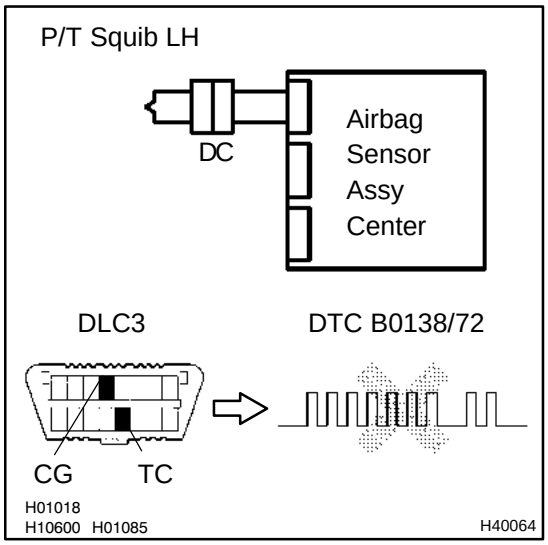
HINT:

Codes other than code B0138/72 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

| 3 | CHECK FRONT SEAT OUTER BELT ASSY LH(P/T SQUIB LH) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "C".
(d) Connect the connector to the front seat outer belt assy LH.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B0138/72 is not output.**

HINT:

Codes other than code B0138/72 may be output at this time, but they are not related to this check.

**NG** → **REPLACE FRONT SEAT OUTER BELT ASSY LH (SEE PAGE 61-7 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

| DTC | B1100/31 | AIRBAG SENSOR ASSY CENTER MALFUNCTION |
|---|---|---|

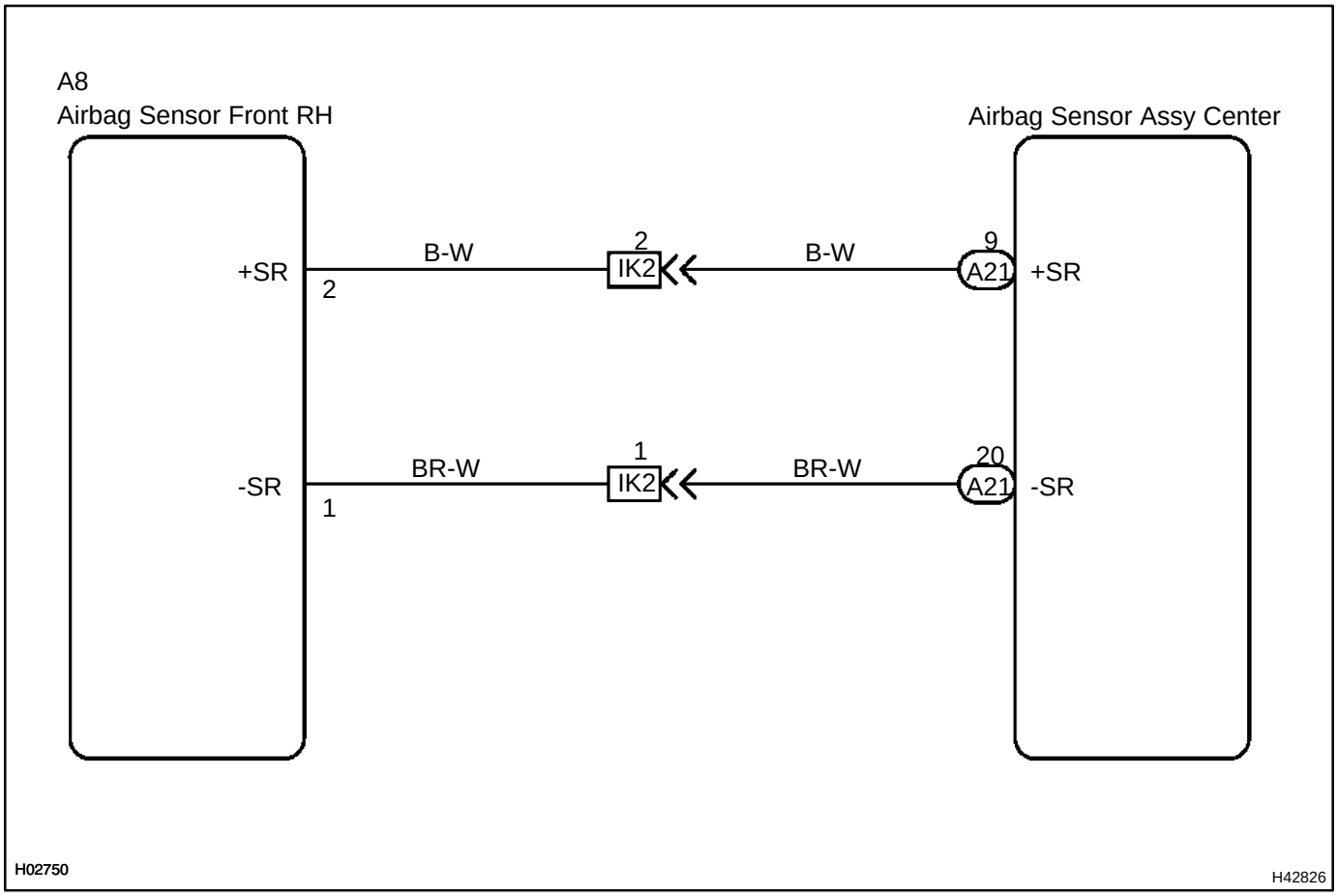
## CIRCUIT DESCRIPTION

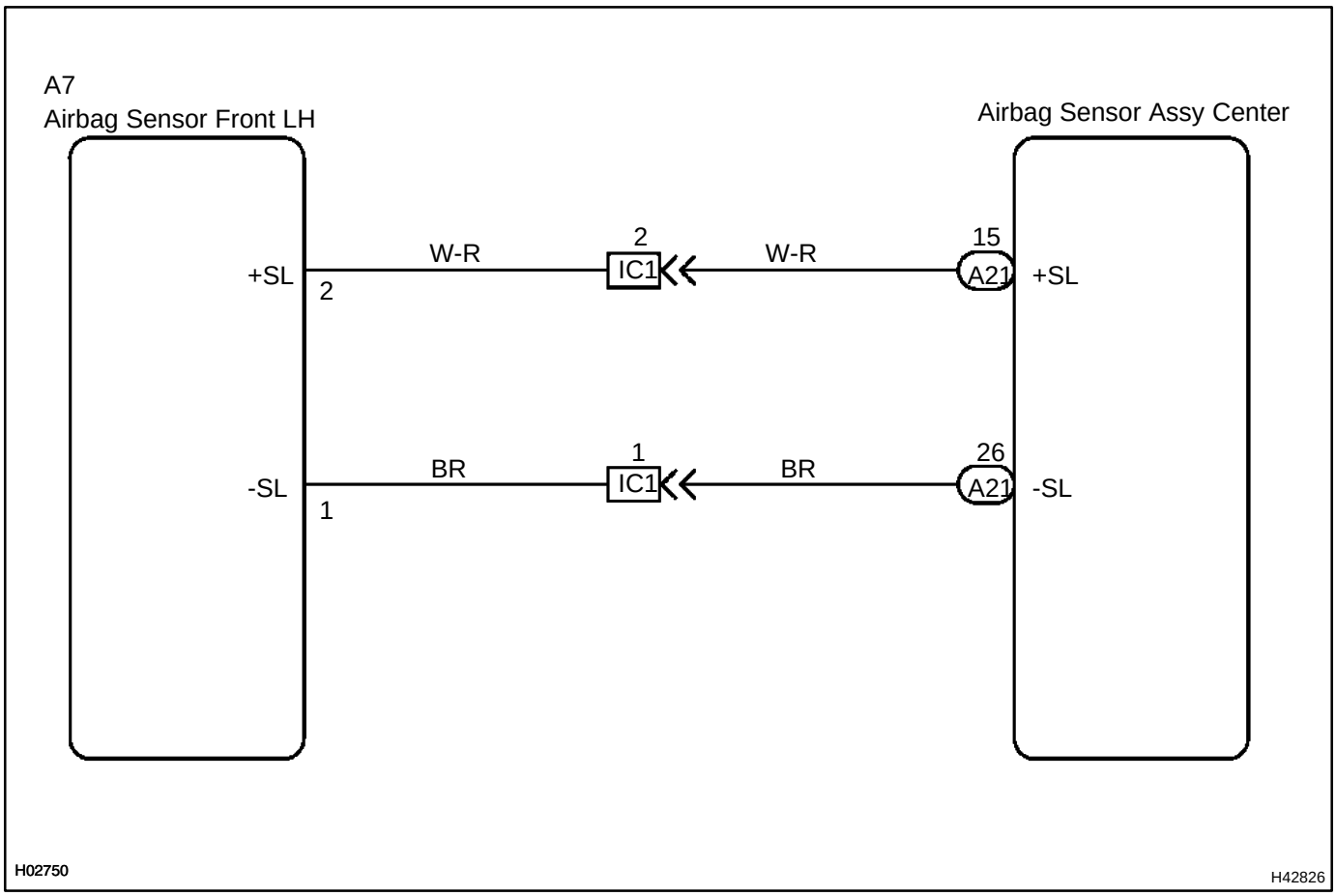
The airbag sensor assy center consists of a airbag sensor assy center, safing sensor, drive circuit, diagnosis circuit and ignition control, etc.
It receives signals from the airbag sensor, judges whether or not the SRS must be activated, and detects a diagnosis system malfunction.
DTC B1100/31 is recorded when a malfunction is detected in the airbag sensor assy center.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1100/31 | • The airbag sensor assy center receives a line short circuit signal, a short circuit to ground signal or a short circuit to B+ signal in the front airbag sensor RH circuit for 2 seconds.<br>• The airbag sensor assy center receives a line short circuit signal, a short circuit to ground signal or a short circuit to B+ signal in the front airbag sensor LH circuit for 2 seconds.<br>• Airbag sensor assy center malfunction | • Airbag sensor assy center<br>• Instrument panel wire<br>• Engine room main wire |

HINT:
When a trouble code is displayed simultaneously with B1100/31, repair the malfunction indicated by this code (except B1100/31) first.

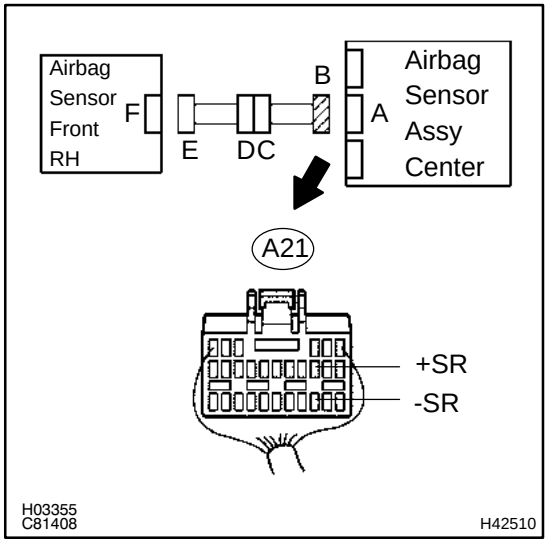
## WIRING DIAGRAM






## INSPECTION PROCEDURE

| 1 | CHECK FRONT AIRBAG SENSOR (RH) CIRCUIT (TO GROUND) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor front RH and the airbag sensor assy center.
(d) Measure the resistance according to the value(s) in the table below.

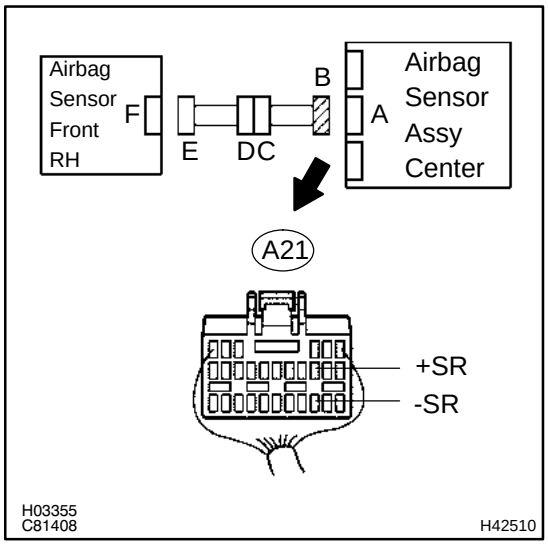
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A21-9 (+SR) - Body ground | Always | 1 MΩ or Higher |
| A21-20 (-SR) - Body ground | Always | 1 MΩ or Higher |

**NG** → **Go to step 8**

**OK**

## 2 CHECK FRONT AIRBAG SENSOR (RH) CIRCUIT (TO B+)




(a) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(b) Turn the ignition switch to the ON position.
(c) Measure the voltage according to the value(s) in the table below.

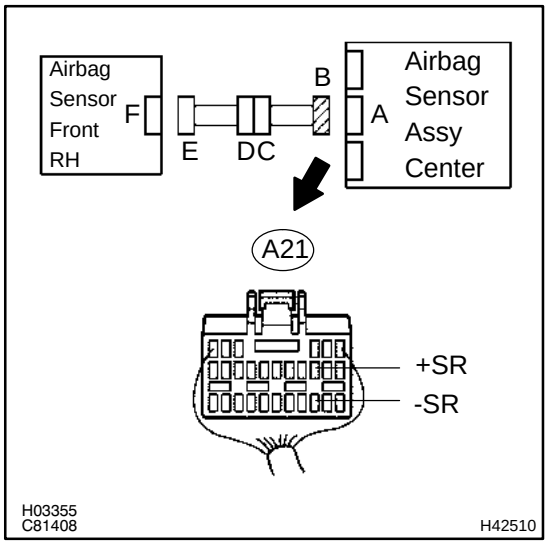
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A21-9 (+SR) - Body ground | Ignition switch ON | Below 1 V |
| A21-20 (-SR) - Body ground | Ignition switch ON | Below 1 V |

**NG** → **Go to step 9**

**OK**

## 3 CHECK FRONT AIRBAG SENSOR (RH) CIRCUIT




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Measure the resistance according to the value(s) in the table below.

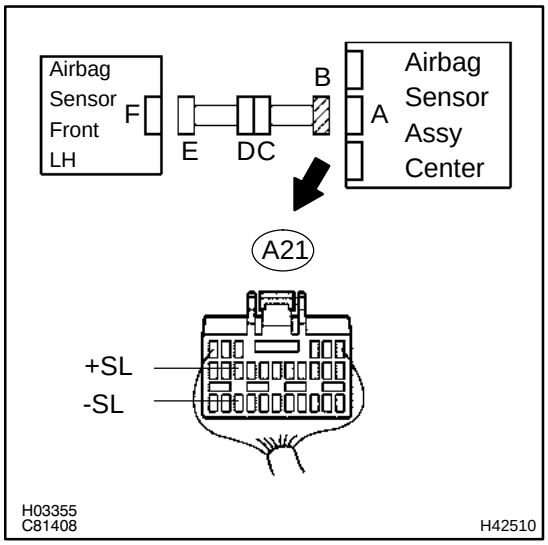
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A21-9 (+SR) - A21-20 (-SR) | Always | 1 MΩ or Higher |

**NG** → **Go to step 10**

**OK**

## 4 CHECK FRONT AIRBAG SENSOR (LH) CIRCUIT (TO GROUND)




(a) Disconnect the connectors from the airbag sensor front LH and the airbag sensor assy center.

(b) Measure the resistance according to the value(s) in the table below.

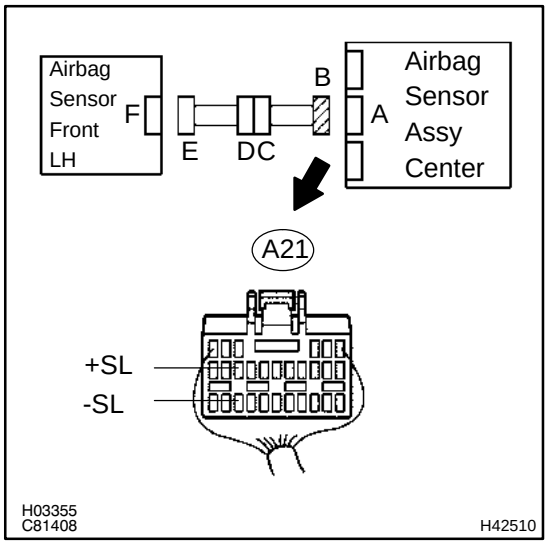
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A21-15 (+SL) - Body ground | Always | 1 MΩ or Higher |
| A21-26 (-SL) - Body ground | Always | 1 MΩ or Higher |

**NG** → **Go to step 11**

**OK**

## 5 CHECK FRONT AIRBAG SENSOR (LH) CIRCUIT (TO B+)




(a) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.

(b) Turn the ignition switch to the ON position.

(c) Measure the voltage according to the value(s) in the table below.

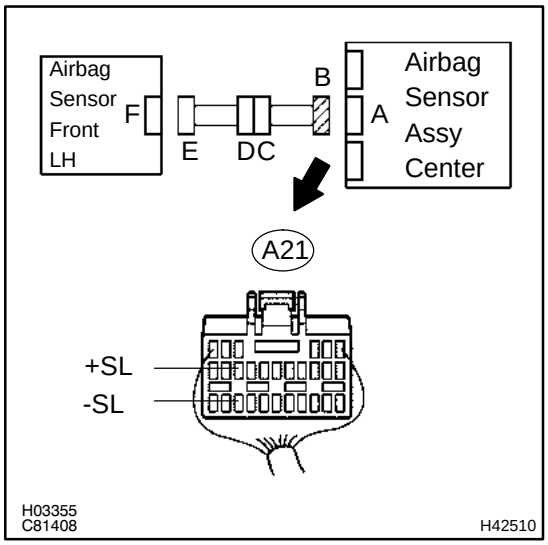
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A21-15 (+SL) - Body ground | Ignition switch ON | Below 1 V |
| A21-26 (-SL) - Body ground | Ignition switch ON | Below 1 V |

**NG** → **Go to step 12**

**OK**

## 6 CHECK FRONT AIRBAG SENSOR (LH) CIRCUIT




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Measure the resistance according to the value(s) in the table below.

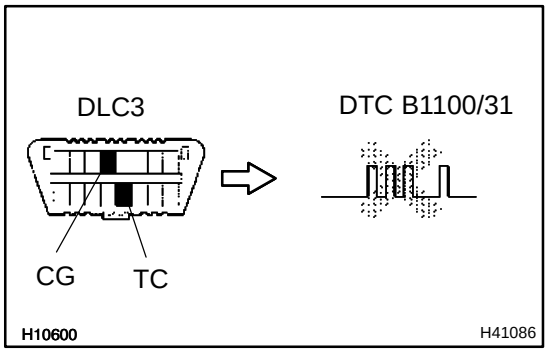
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A21-15 (+SL) - A21-26 (-SL) | Always | 1 MΩ or Higher |

**NG** → **Go to step 13**

**OK**

## 7 CHECK AIR BAG SENSOR ASSY CENTER




(a) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(b) Clear the DTCs stored in memory (see page 05-777 ).
(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Check the DTCs (see page 05-777 ).

**OK:**

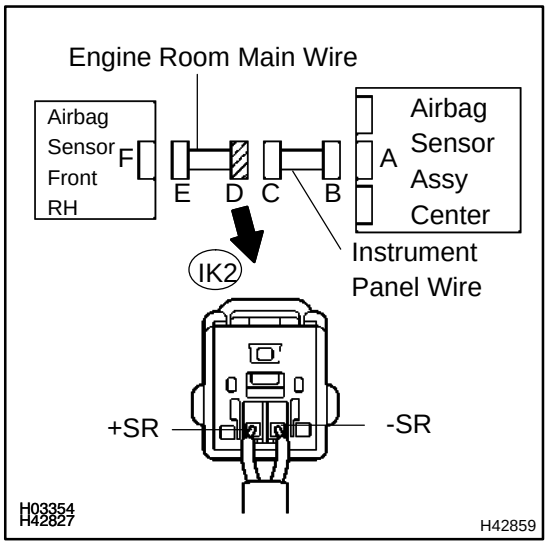
**DTC B1100/31 is not output.**

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

## 8 CHECK ENGINE ROOM MAIN WIRE(TO GROUND)




(a) Disconnect the engine room main wire connector from the instrument panel wire.
(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

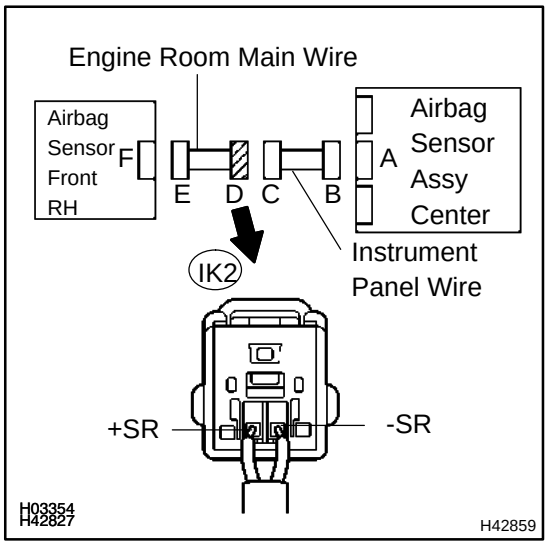
| Tester connection | Condition | Specified condition |
|---|---|---|
| IK2-2 (+SR) - Body ground | Always | 1 MΩ or Higher |
| IK2-1 (-SR) - Body ground | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE ENGINE ROOM MAIN WIRE**

**OK**

**REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

## 9 CHECK ENGINE ROOM MAIN WIRE(TO B+)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the engine room main wire connector from the instrument panel wire.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position.
(f) Measure the voltage according to the value(s) in the table below.

**Standard:**

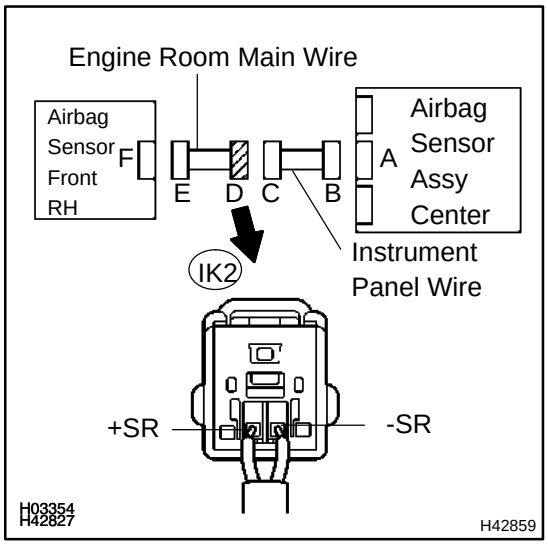
| Tester connection | Condition | Specified condition |
|---|---|---|
| IK2-2 (+SR) - Body ground | Ignition switch ON | Below 1 V |
| IK2-1 (-SR) - Body ground | Ignition switch ON | Below 1 V |

**NG** → **REPAIR OR REPLACE ENGINE ROOM MAIN WIRE**

**OK**

**REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

## 10 CHECK ENGINE ROOM MAIN WIRE(SHORT)




(a) Disconnect the engine room main wire connector from the instrument panel wire.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

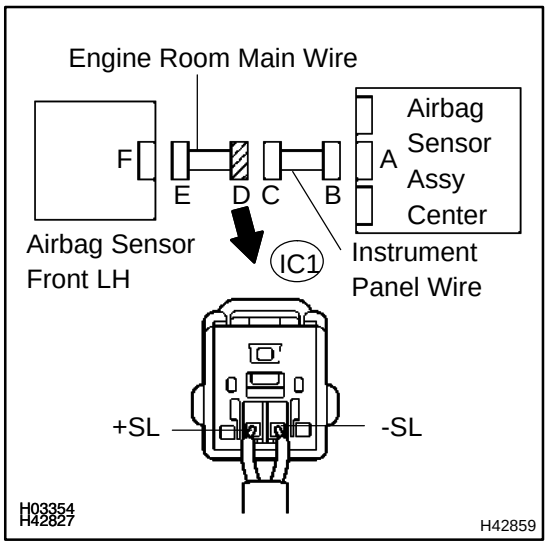
| Tester connection | Condition | Specified condition |
|---|---|---|
| IK2-2 (+SR) - IK2-1 (-SR) | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE ENGINE ROOM MAIN WIRE**

**OK**

**REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

## 11 CHECK ENGINE ROOM MAIN WIRE(TO GROUND)




(a) Disconnect the engine room main wire connector from the instrument panel wire.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

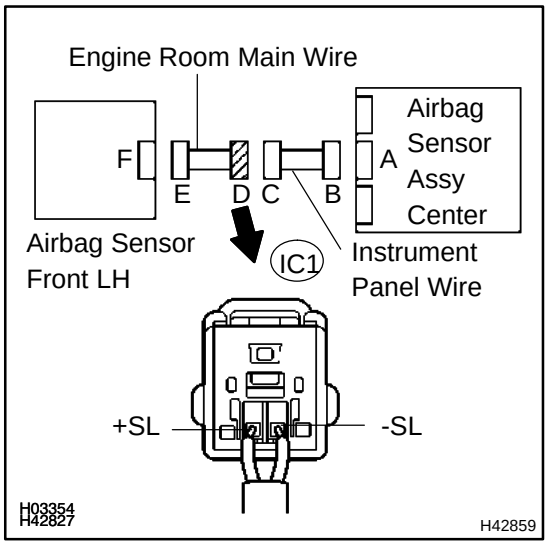
| Tester connection | Condition | Specified condition |
|---|---|---|
| IC1-2 (+SL) - Body ground | Always | 1 MΩ or Higher |
| IC1-1 (-SL) - Body ground | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE ENGINE ROOM MAIN WIRE**

**OK**

**REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

## 12 CHECK ENGINE ROOM MAIN WIRE(TO B+)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the engine room main wire connector from the instrument panel wire.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position.
(f) Measure the voltage according to the value(s) in the table below.

**Standard:**

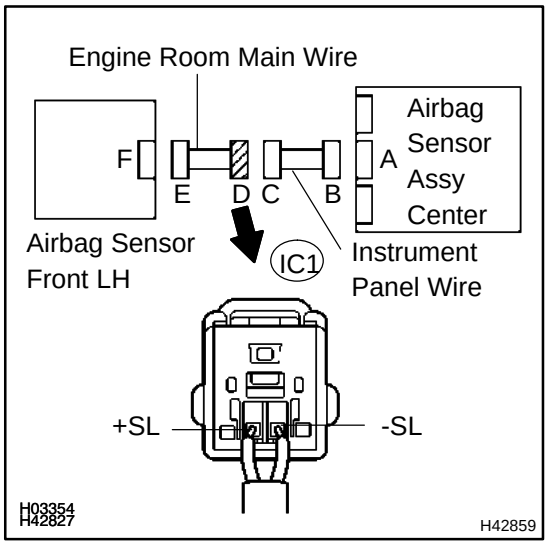
| Tester connection | Condition | Specified condition |
|---|---|---|
| IC1-2 (+SL) - Body ground | Ignition switch ON | Below 1 V |
| IC1-1 (-SL) - Body ground | Ignition switch ON | Below 1 V |

**NG** → **REPAIR OR REPLACE ENGINE ROOM MAIN WIRE**

**OK**

**REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

## 13 CHECK ENGINE ROOM MAIN WIRE(SHORT)




(a) Disconnect the engine room main wire connector from the instrument panel wire.
(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| IC1-2 (+SL) - IC1-1 (-SL) | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE ENGINE ROOM MAIN WIRE**

**OK**

**REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

| DTC | B1135/24 | HALF CONNECTION IN AIRBAG SENSOR ASSY CENTER CONNECTORS |
|---|---|---|

## CIRCUIT DESCRIPTION

The airbag sensor assy center detects partial connection of connector.
DTC B1135/24 is recorded when the airbag sensor assy center detects an open in the electrical connection check mechanism of the airbag sensor connector or in the airbag sensor circuit.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1135/24 | • Malfunction of electrical connection check mechanism of airbag sensor assy center connector<br>• Airbag sensor assy center malfunction | • Electrical connection check mechanism<br>• Airbag sensor assy center |

## INSPECTION PROCEDURE

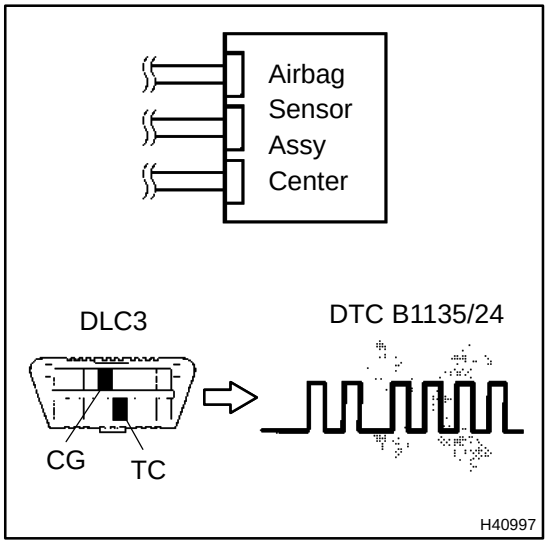
| 1 | CHECK AIRBAG SENSOR ASSY CENTER CONNECTOR |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Check the connection of the airbag sensor assy center connectors.
**OK:**
**The connectors are connected.**

HINT:
When the connectors are not firmly connected, disconnect them once and reconnect them securely.

**NEXT**

| 2 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|




(a) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(b) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(c) Clear the DTCs stored in memory (see page 05-777 ).
(d) Turn the ignition switch to the LOCK position.
(e) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(f) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B1135/24 is not output.**

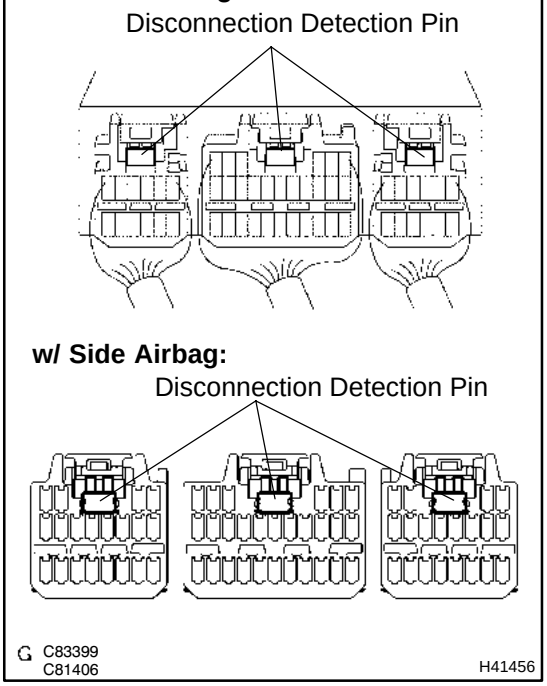
HINT:
Codes other than code B1135/24 may be output at this time, but they are not related to this check.

**NG** → **Go to step 3**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

| 3 | PERFORM A VISUAL CHECK OF THE DISCONNECTION DETECTION PIN |
|---|---|




(a) Check the disconnection detection pin of the connector.

HINT:

Compare one connector with the other 2 connectors.

**OK:**

**No deformation is identified.**

**NG** → **REPAIR OR REPLACE AIRBAG SENSOR ASSY CENTER CONNECTOR**

**OK**

**REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

| DTC | B1148/36 | FRONT AIRBAG SENSOR (RH) MALFUNCTION |
|---|---|---|

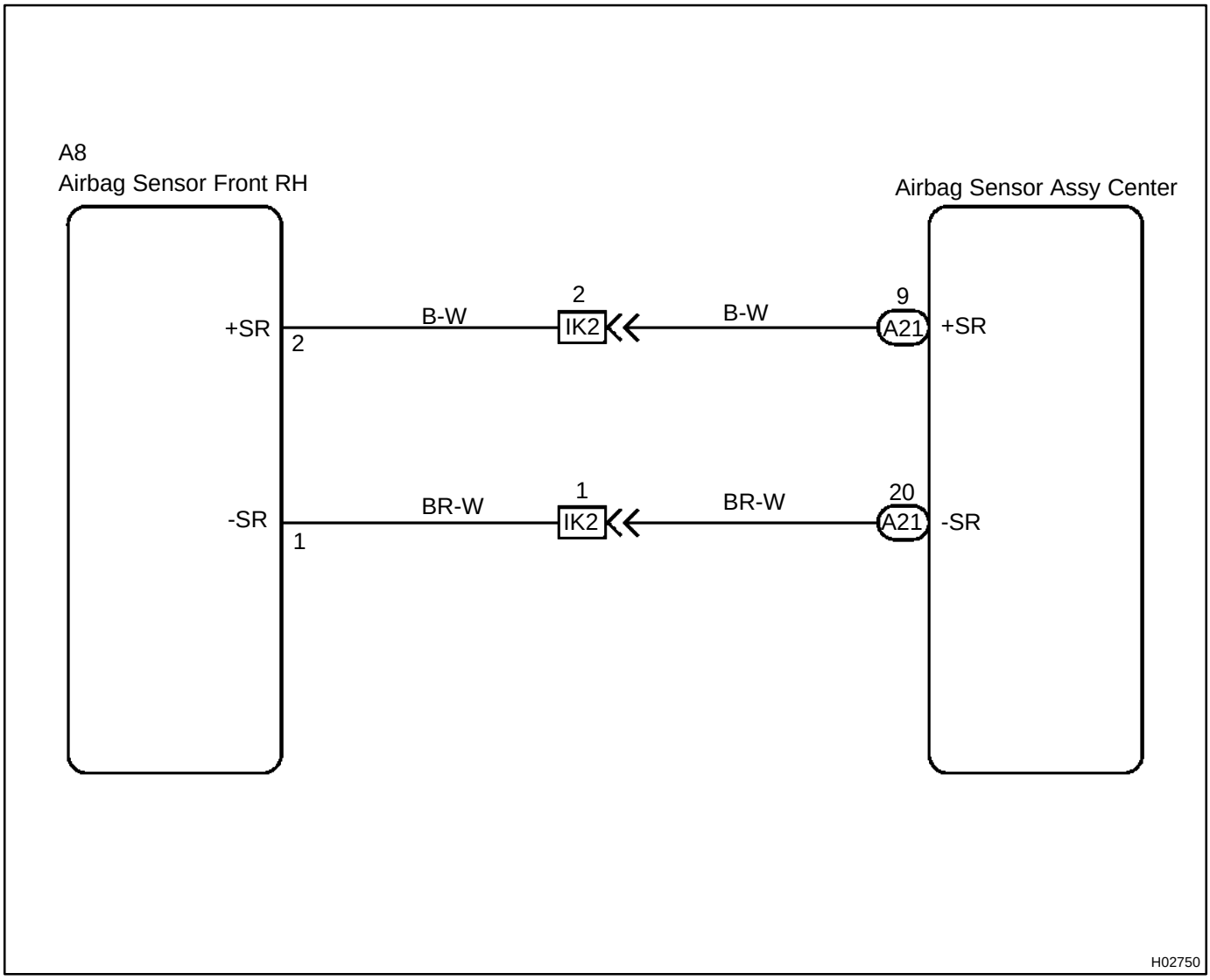
## CIRCUIT DESCRIPTION

The airbag front RH sensor circuit consists of the diagnostic circuit and the frontal deceleration sensor, etc. If the airbag sensor assy center receives signals from the frontal deceleration sensor, it judges whether or not the SRS should be activated.

DTC B1148/36 is recorded when a malfunction is detected in the front airbag sensor RH circuit.

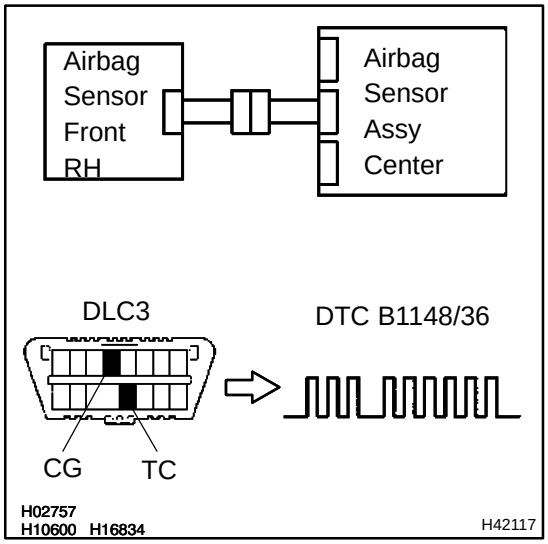
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1148/36 | • The airbag sensor assy center receives an open circuit signal in the front airbag sensor RH circuit for 2 seconds.<br>• Airbag sensor front RH malfunction<br>• Airbag sensor assy center malfunction | • Airbag sensor front RH<br>• Airbag sensor assy center<br>• Instrument panel wire<br>• Engine room main wire |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CHECK DTC |
|---|---|




(a) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(b) Clear the DTCs stored in memory (see page 05-777 ).
(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B1148/36 is not output.**

HINT:
Codes other than code B1148/36 may be output at this time, but they are not related to this check.

**NG** → **Go to step 2**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

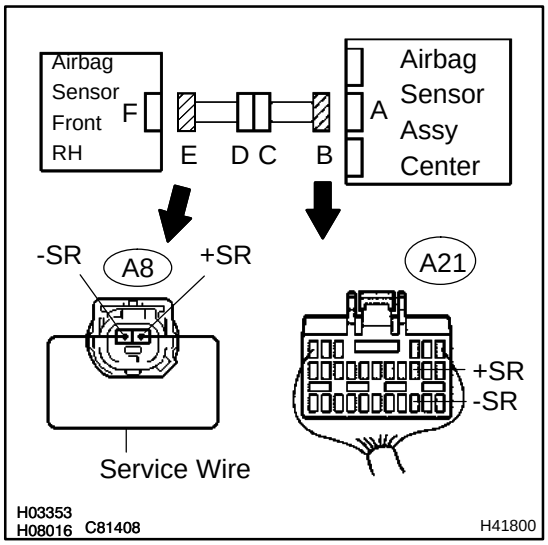
| 2 | CHECK CONNECTION OF CONNECTORS |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Check that the connectors are properly connected to the airbag sensor assy center and the airbag front RH sensor.
**OK:**
**The connectors are connected.**

**NG** → **CONNECT CONNECTORS, THEN GO TO STEP 1**

**OK**

## 3 CHECK FRONT AIRBAG SENSOR (RH) CIRCUIT (OPEN)




(a) Disconnect the connectors from the airbag sensor assy center and the airbag front RH sensor.
(b) Using a service wire, connect A8-2 (+SR) and A8-1 (-SR) of connector "E".

**NOTICE:**
**Do not forcibly insert a service wire into the terminals of the connector when connecting.**

(c) Measure the resistance according to the value(s) in the table below.

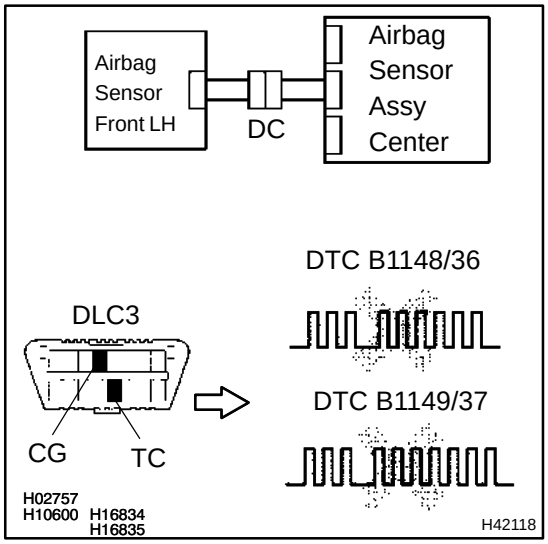
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A21-9 (+SR) - A21-20 (-SR) | Always | Below 1 Ω |

**NG** → **Go to step 5**

**OK**

## 4 CHECK AIRBAG SENSOR FRONT RH




(a) Connect the connector to the airbag sensor assy center.
(b) Interchange the airbag sensor front RH with LH and connect the connectors to them.
(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**Result:**

| | |
|---|---|
| NG: A | DTC B1149/37 is output. |
| NG: B | DTC B1148/36 is output. |
| OK | DTC B1148/36 and B1149/37 are not output. |

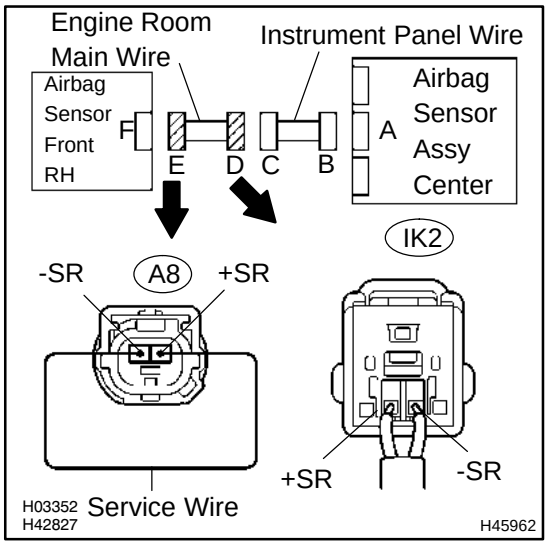
**NG:A** → **REPLACE AIRBAG SENSOR FRONT RH (SEE PAGE 60-58 )**

**NG:B** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

| 5 | CHECK ENGINE ROOM MAIN WIRE(OPEN) |
|---|---|




(a) Disconnect the engine room main wire connector from the instrument panel wire.

HINT:

The service wire has already been inserted into connector "E".

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| IK2-2 (+SR) - IK2-1 (-SR) | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE ENGINE ROOM MAIN WIRE**

**OK**

**REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

| DTC | B1149/37 | FRONT AIRBAG SENSOR (LH) MALFUNCTION |
|---|---|---|

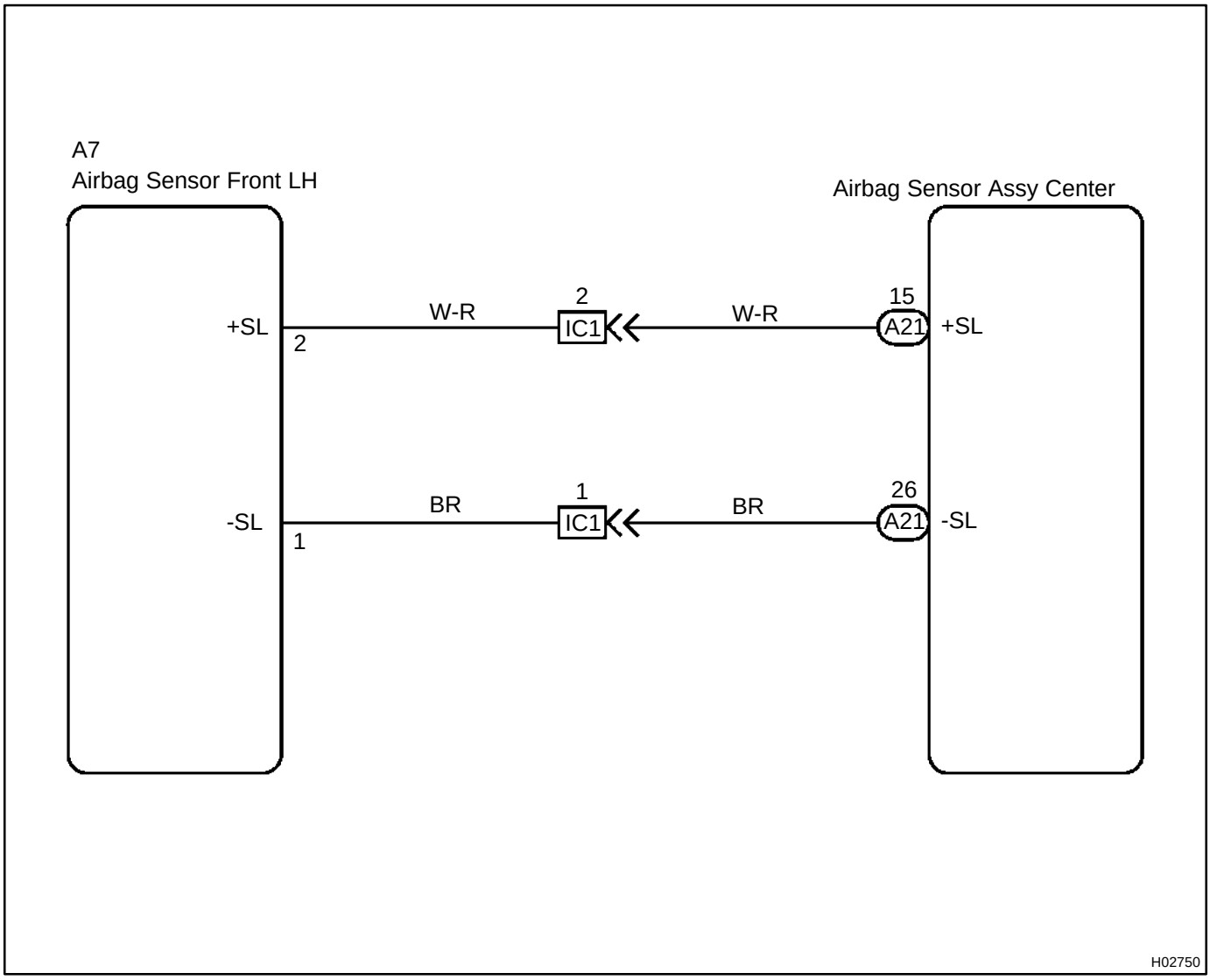
## CIRCUIT DESCRIPTION

The airbag sensor front LH circuit consists of the diagnostic circuit and the frontal deceleration sensor, etc. If the airbag sensor assy center receives signals from the frontal deceleration sensor, it judges whether or not the SRS should be activated.

DTC B1149/37 is recorded when a malfunction is detected in the airbag sensor front LH circuit.

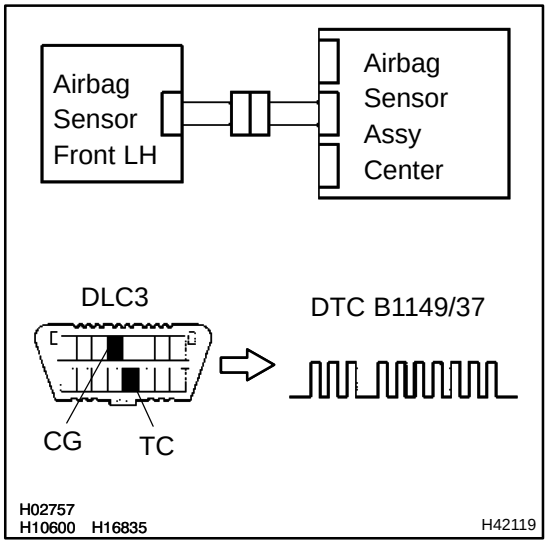
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1149/37 | • The airbag sensor assy center receives an open circuit signal in the front airbag sensor LH circuit for 2 seconds.<br>• Airbag sensor front LH malfunction<br>• Airbag sensor assy center malfunction | • Airbag sensor front LH<br>• Airbag sensor assy center<br>• Instrument panel wire<br>• Engine room main wire |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CHECK DTC |
|---|---|




(a) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(b) Clear the DTCs stored in memory (see page 05-777 ).
(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B1149/37 is not output.**

HINT:
Codes other than code B1149/37 may be output at this time, but they are not related to this check.

**NG** → **Go to step 2**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

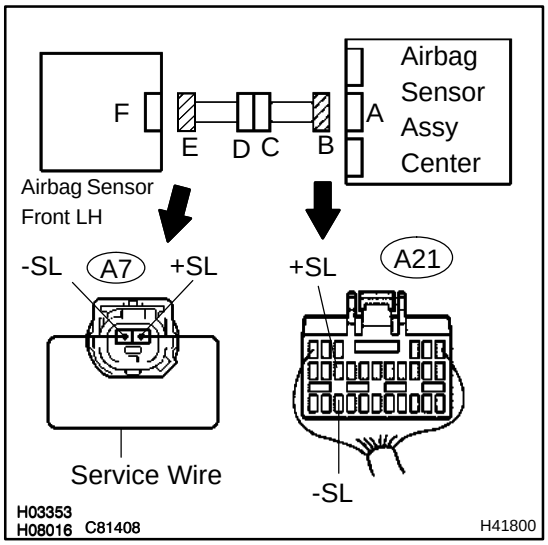
| 2 | CHECK CONNECTION OF CONNECTORS |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Check that the connector is properly connected to the airbag sensor assy center and the airbag sensor front LH.
**OK:**
**The connectors are connected.**

**NG** → **CONNECT CONNECTORS, THEN GO TO STEP 1**

**OK**

## 3 CHECK FRONT AIRBAG SENSOR (LH) CIRCUIT (OPEN)




(a) Disconnect the connectors from the airbag sensor assy center and the airbag sensor front LH.

(b) Using a service wire, connect A7-2 (+SL) and A7-1 (-SL) of connector "E".

**NOTICE:**

**Do not forcibly insert a service wire into the terminals of the connector when connecting.**

(c) Measure the resistance according to the value(s) in the table below.

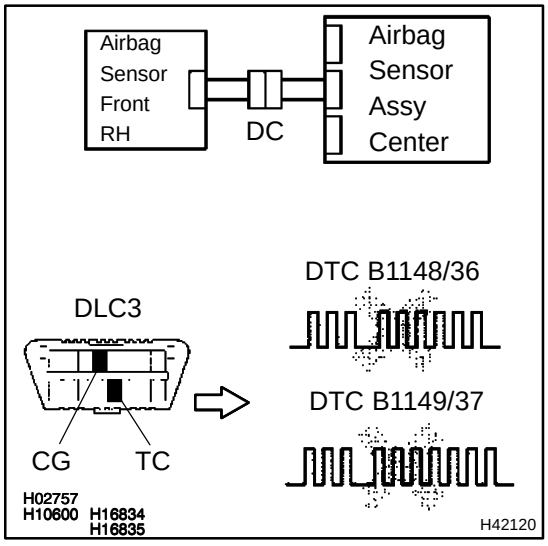
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A21-15 (+SL) - A21-26 (-SL) | Always | Below 1 Ω |

**NG** → **Go to step 5**

**OK**

## 4 CHECK AIR BAG SENSOR FRONT LH




(a) Connect the connector to the airbag sensor assy center.

(b) Interchange the airbag sensor front RH with LH and connect the connectors to them.

(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.

(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.

(e) Clear the DTCs stored in memory (see page 05-777 ).

(f) Turn the ignition switch to the LOCK position.

(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.

(h) Check the DTCs (see page 05-777 ).

**Result:**

| | |
|---|---|
| NG: A | DTC B1149/37 is output. |
| NG: B | DTC B1148/36 is output. |
| OK | DTC B1148/36 and B1149/37 are not output. |

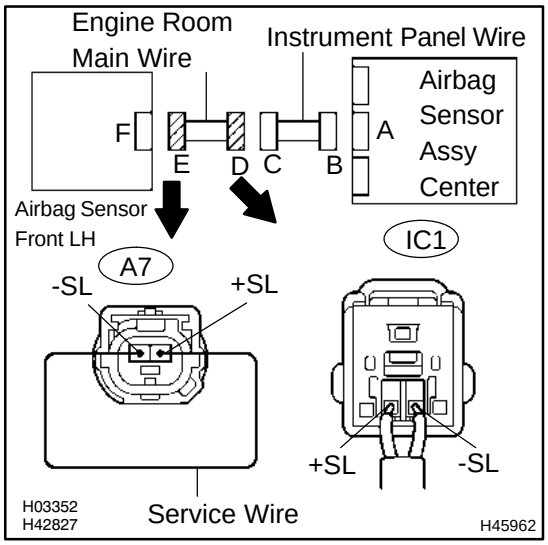
**NG:A** → **REPLACE AIR BAG SENSOR FRONT LH (SEE PAGE 60-58 )**

**NG:B** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

| 5 | CHECK ENGINE ROOM MAIN WIRE(OPEN) |
|---|---|




(a) Disconnect the engine room main wire connector from the instrument panel wire.

HINT:

The service wire has already been inserted into connector "E".

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| IC1-2 (+SL) - IC1-1 (-SL) | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE ENGINE ROOM MAIN WIRE**

**OK**

**REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

# DTC B1150/23 OCCUPANT CLASSIFICATION SYSTEM MALFUNCTION

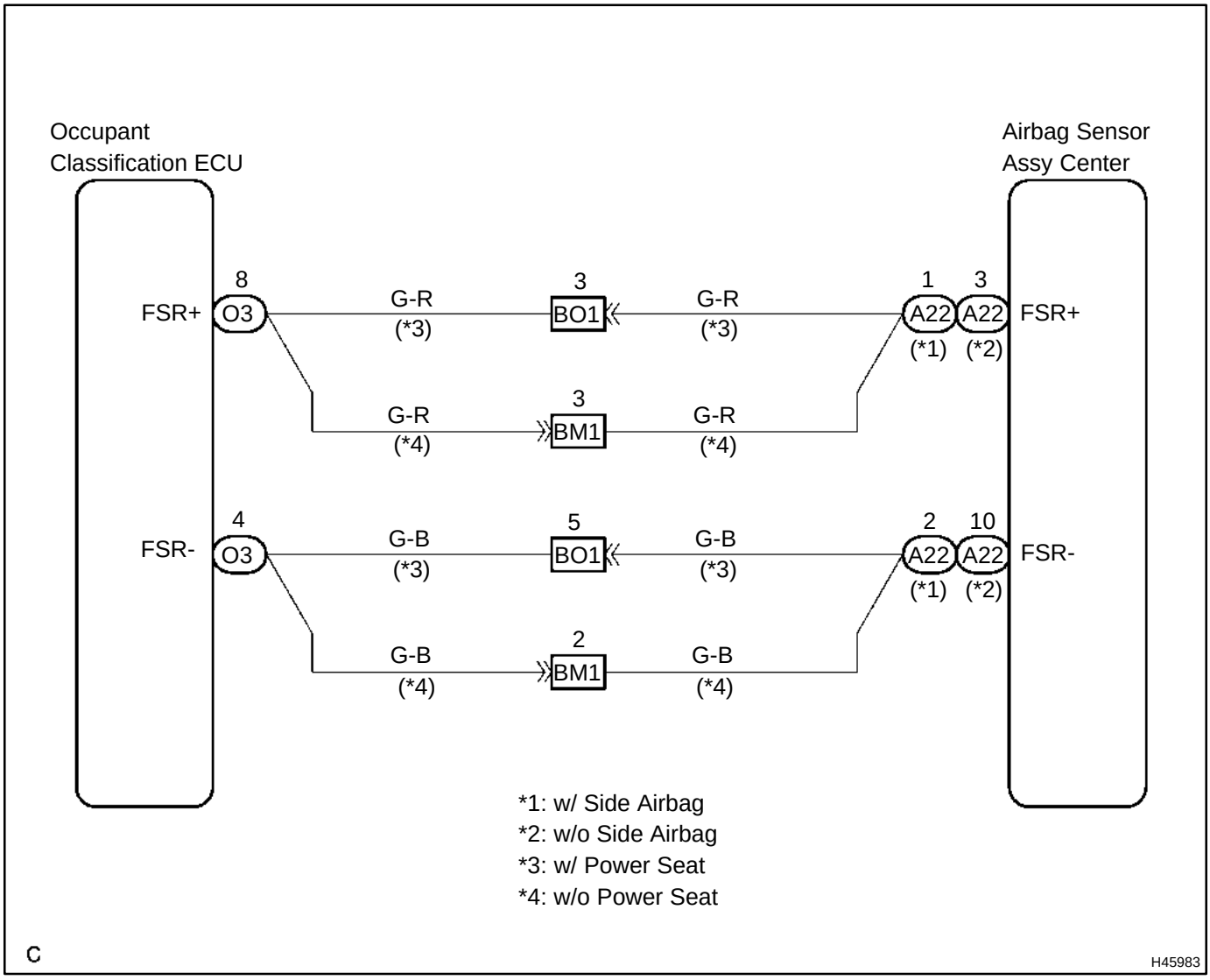
## CIRCUIT DESCRIPTION

The occupant classification system circuit consists of the airbag sensor assy center and the occupant classification system.

DTC B1150/23 is recorded when a malfunction is detected in the occupant classification system circuit.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1150/23 | • The airbag sensor assy center receives a line short circuit signal, an open circuit signal, a short circuit to ground signal or a short circuit to B+ signal in the occupant classification system circuit for 2 seconds.<br>• Occupant classification system malfunction<br>• Airbag sensor assy center malfunction | • Floor wire No.2<br>• Front seat wire RH<br>• Occupant classification ECU<br>• Airbag sensor assy center |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

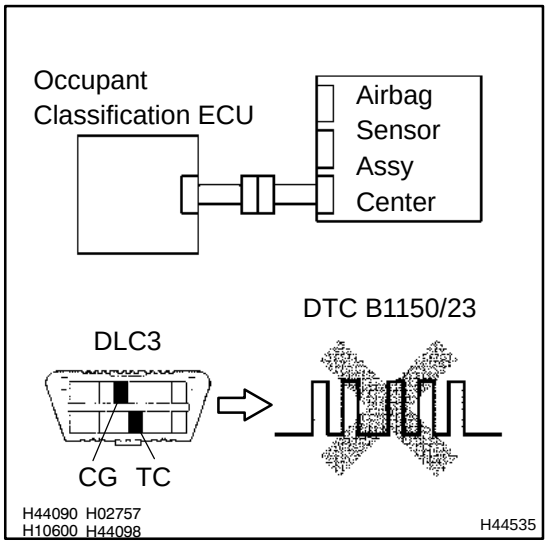
## 1 CHECK DTC(OCCUPANT CLASSIFICATION ECU)

(a) Turn the ignition switch to the ON position, and wait for at least 10 seconds.
(b) Using the hand-held tester, check the DTCs of the occupant classification ECU (see page 05-777 ).
**OK:**
**DTC is not output.**

**NG** → **GO TO INSPECTION PROCEDURE OF DTC OUTPUT (SEE PAGE 05-790 )**

**OK**

## 2 CHECK DTC(AIRBAG SENSOR ASSY CENTER)




(a) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(b) Clear the DTCs stored in memory (see page 05-777 ).
(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B1150/23 is not output.**

HINT:
Codes other than code B1150/23 may be output at this time, but they are not related to this check.

**NG** → **Go to step 3**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

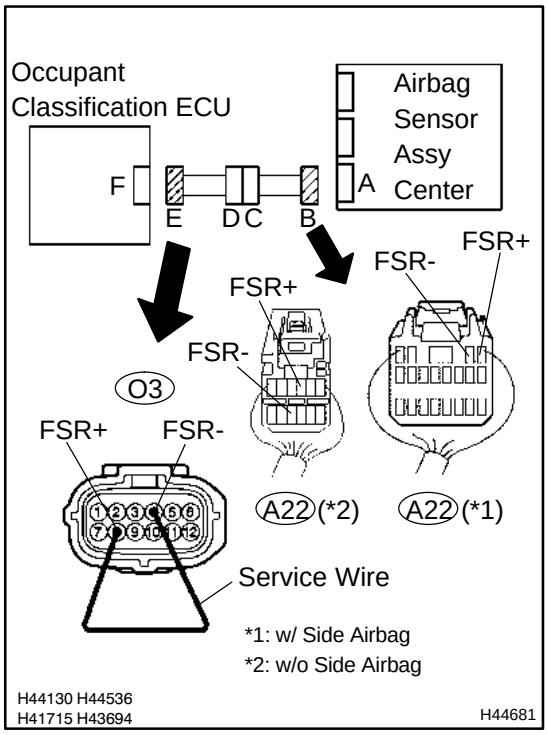
## 3 CHECK CONNECTION OF CONNECTORS

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Check that the connectors are properly connected to the airbag sensor assy center and the occupant classification ECU.
**OK:**
**The connectors are connected.**

**NG** → **CONNECT CONNECTORS, THEN GO TO STEP 1**

**OK**

## 4 CHECK OCCUPANT CLASSIFICATION ECU CIRCUIT(OPEN)




(a) Disconnect the connectors from the airbag sensor assy center and the occupant classification ECU.

(b) Using a service wire, connect O3-8 (FSR+) and O3-4 (FSR-) of connector "E".

**NOTICE:**

**Do not forcibly insert a service wire into the terminals of the connector when connecting.**

(c) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A22-1 (FSR+) - A22-2 (FSR-) (*1) | Always | Below 1 Ω |
| A22-3 (FSR+) - A22-10 (FSR-) (*2) | Always | Below 1 Ω |

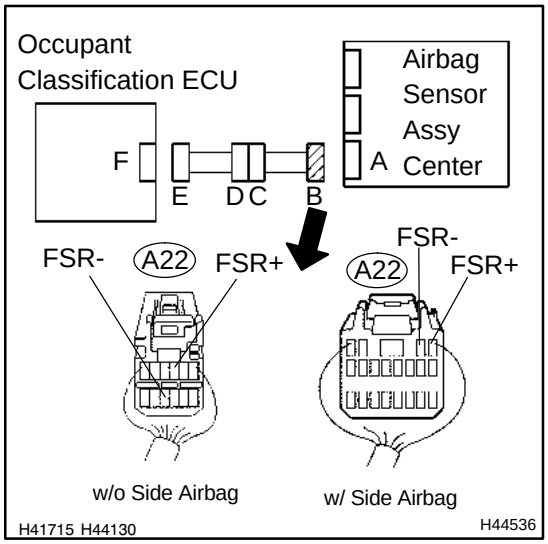
*1: w/ Side airbag

*2: w/o Side airbag

**NG** → **Go to step 8**

**OK**

## 5 CHECK OCCUPANT CLASSIFICATION ECU CIRCUIT (SHORT)




(a) Disconnect the service wire from connector "E".

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A22-1 (FSR+) - A22-2 (FSR-) (*1) | Always | 1 MΩ or Higher |
| A22-3 (FSR+) - A22-10 (FSR-) (*2) | Always | 1 MΩ or Higher |

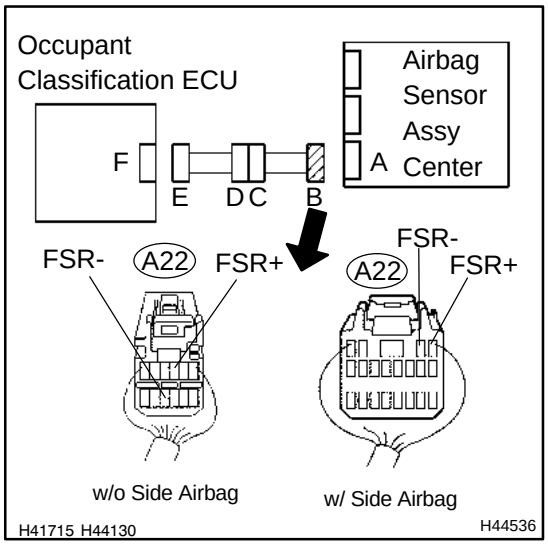
*1: w/ Side airbag

*2: w/o Side airbag

**NG** → **Go to step 9**

**OK**

## 6 CHECK OCCUPANT CLASSIFICATION ECU CIRCUIT (TO B+)




(a) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(b) Turn the ignition switch to the ON position.
(c) Measure the voltage according to the value(s) in the table below.

**Standard:**

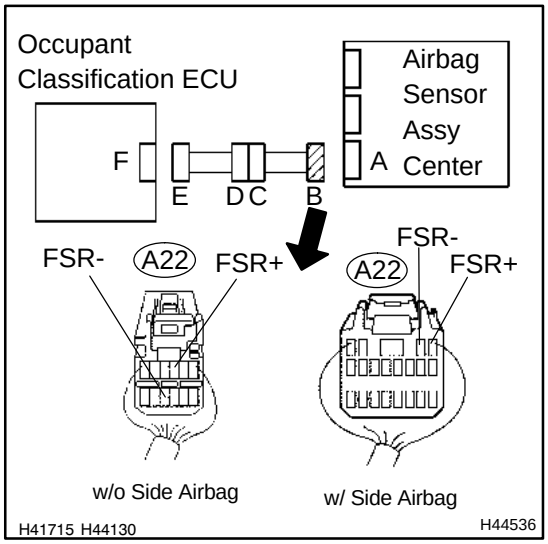
| Tester connection | Condition | Specified condition |
|---|---|---|
| A22-1 (FSR+) - Body ground (*1) | Ignition switch ON | Below 1 V |
| A22-2 (FSR-) - Body ground (*1) | Ignition switch ON | Below 1 V |
| A22-3 (FSR+) - Body ground (*2) | Ignition switch ON | Below 1 V |
| A22-10 (FSR-) - Body ground (*2) | Ignition switch ON | Below 1 V |

*1: w/ Side airbag
*2: w/o Side airbag

NG → **Go to step 10**

OK

## 7 CHECK OCCUPANT CLASSIFICATION ECU CIRCUIT (TO GROUND)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A22-1 (FSR+) - Body ground (*1) | Always | 1 MΩ or Higher |
| A22-2 (FSR-) - Body ground (*1) | Always | 1 MΩ or Higher |
| A22-3 (FSR+) - Body ground (*2) | Always | 1 MΩ or Higher |
| A22-10 (FSR-) - Body ground (*2) | Always | 1 MΩ or Higher |

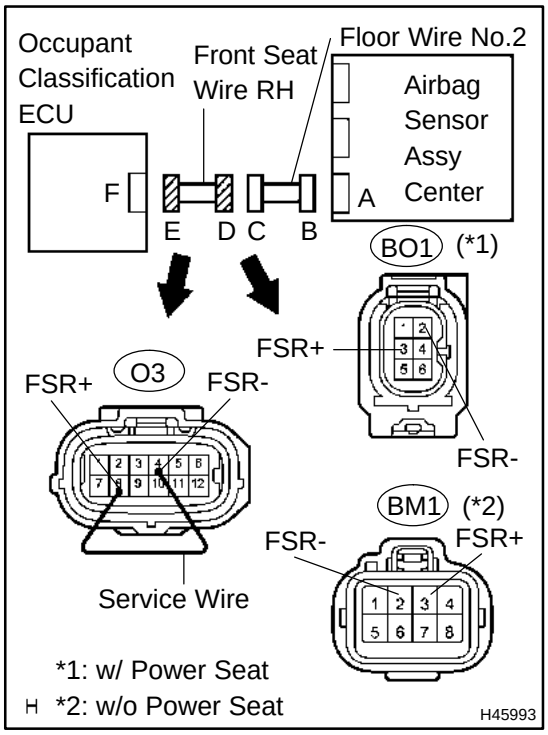
*1: w/ Side airbag
*2: w/o Side airbag

NG → **Go to step 11**

OK

**REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

## 8 CHECK FRONT SEAT WIRE RH(OPEN)




(a) Disconnect the front seat wire RH connector from the floor wire No.2.

HINT:

The service wire has already been inserted into connector "E".

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| BO1-3 (FSR+) - BO1-5 (FSR-) (*1) | Always | Below 1 Ω |
| BM1-3 (FSR+) - BM1-2 (FSR-) (*2) | Always | Below 1 Ω |

*1: w/ Power seat

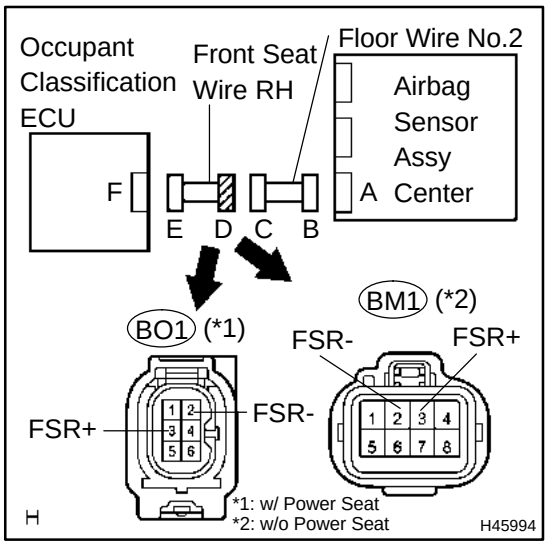
*2: w/o Power seat

NG → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

OK

**REPAIR OR REPLACE FLOOR WIRE NO.2**

## 9 CHECK FRONT SEAT WIRE RH(SHORT)




(a) Disconnect the front seat wire RH connector from the floor wire No.2.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| BO1-3 (FSR+) - BO1-5 (FSR-) (*1) | Always | 1 MΩ or Higher |
| BM1-3 (FSR+) - BM1-2 (FSR-) (*2) | Always | 1 MΩ or Higher |

*1: w/ Power seat

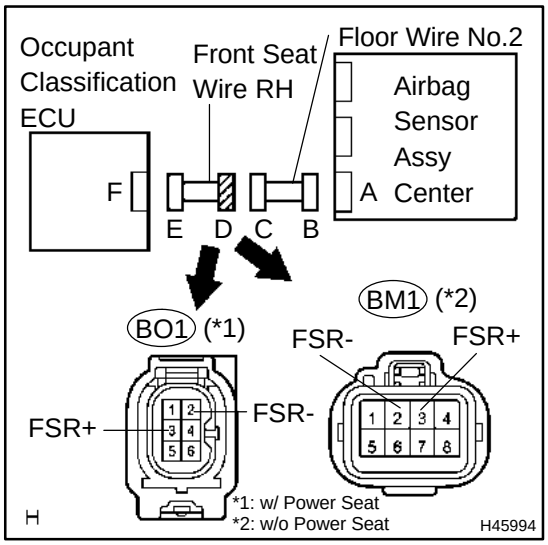
*2: w/o Power seat

NG → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

OK

**REPAIR OR REPLACE FLOOR WIRE NO.2**

## 10 CHECK FRONT SEAT WIRE RH(TO B+)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the front seat wire RH connector from the floor wire No.2.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position.
(f) Measure the voltage according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| BO1-3 (FSR+) - Body ground (*1) | Ignition switch ON | Below 1 V |
| BO1-5 (FSR-) - Body ground (*1) | Ignition switch ON | Below 1 V |
| BM1-3 (FSR+) - Body ground (*2) | Ignition switch ON | Below 1 V |
| BM1-2 (FSR-) - Body ground (*2) | Ignition switch ON | Below 1 V |

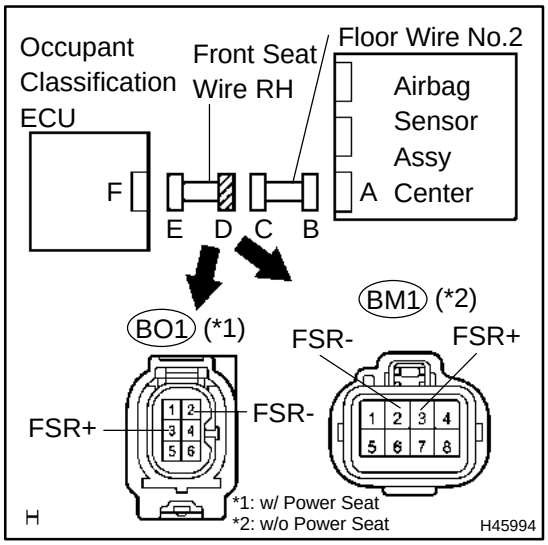
*1: w/ Power seat
*2: w/o Power seat

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

**OK**

**REPAIR OR REPLACE FLOOR WIRE NO.2**

## 11 CHECK FRONT SEAT WIRE RH(TO GROUND)




(a) Disconnect the front seat wire RH connector from the floor wire No.2.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| BO1-3 (FSR+) - Body ground (*1) | Always | 1 MΩ or Higher |
| BO1-5 (FSR-) - Body ground (*1) | Always | 1 MΩ or Higher |
| BM1-3 (FSR+) - Body ground (*2) | Always | 1 MΩ or Higher |
| BM1-2 (FSR-) - Body ground (*2) | Always | 1 MΩ or Higher |

*1: w/ Power seat

*2: w/o Power seat

NG → **REPAIR OR REPLACE FRONT SEAT WIRE RH**

OK

**REPAIR OR REPLACE FLOOR WIRE NO.2**

| DTC | B1152/28 | PASSENGER AIRBAG ON/OFF INDICATOR CIRCUIT MALFUNCTION |
|---|---|---|

## CIRCUIT DESCRIPTION

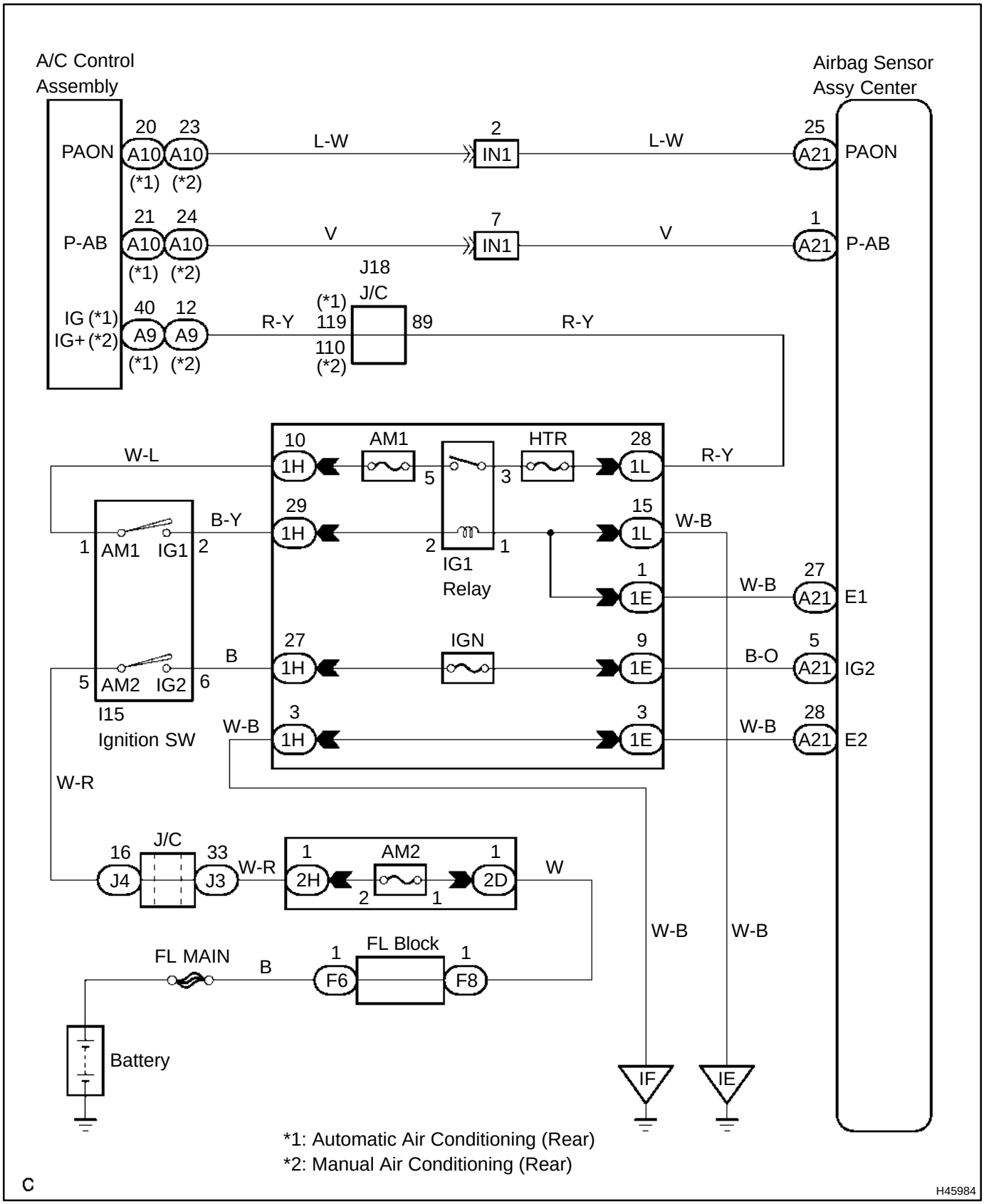
The passenger airbag ON/OFF indicator circuit consists of the airbag sensor assy center and the passenger airbag ON/OFF indicator.

This circuit indicates the operation condition of the front passenger airbag assy, the front seat airbag assy RH and passenger side seat belt pretensioner.

DTC B1152/28 is recorded when a malfunction is detected in the passenger airbag ON/OFF indicator circuit.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1152/28 | • The airbag sensor assy center receives a line short circuit signal, an open circuit signal, a short circuit to ground signal or a short circuit to B+ signal in the passenger airbag ON/OFF indicator circuit for 2 seconds.<br>• Passenger airbag ON/OFF indicator malfunction<br>• Airbag sensor assy center malfunction | • Air conditioning control assy (Passenger airbag ON/OFF indicator)<br>• Airbag sensor assy center<br>• Instrument panel wire |

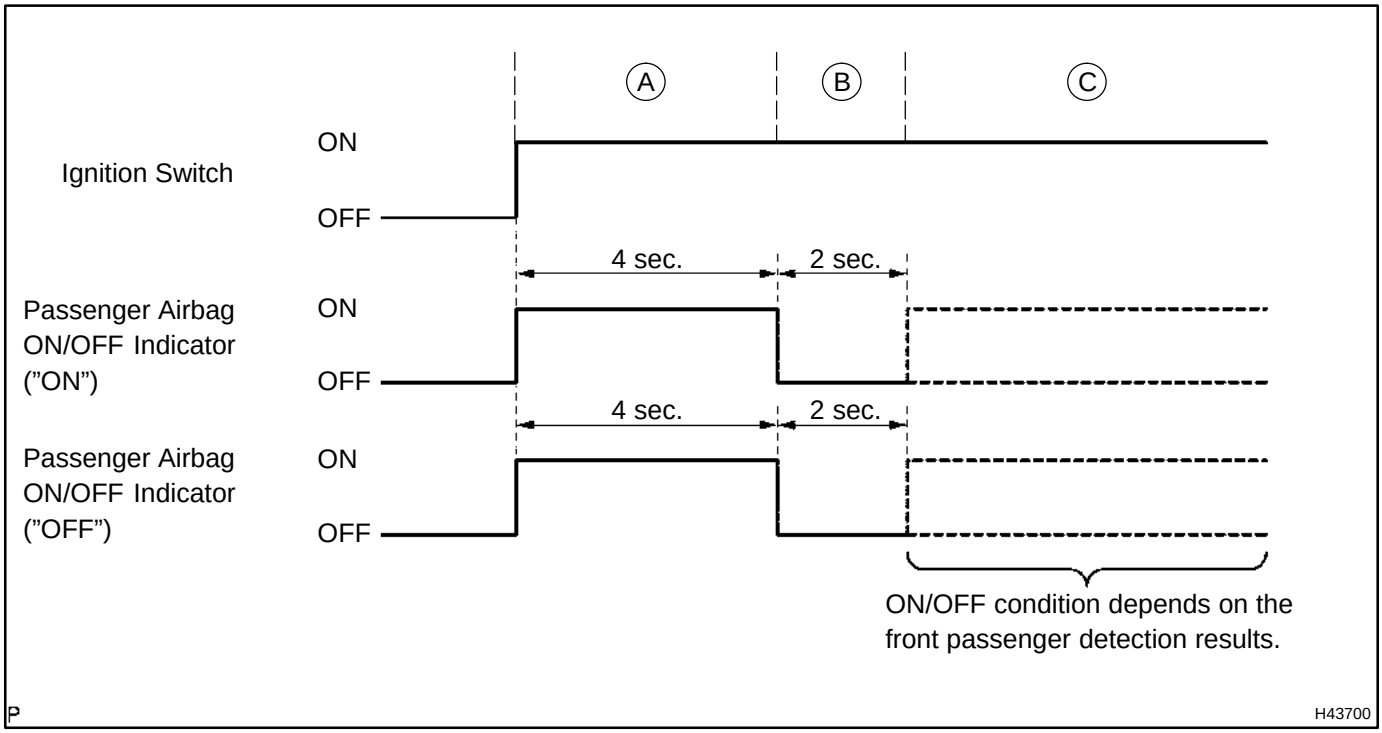
## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CHECK PASSENGER AIRBAG ON/OFF INDICATOR OPERATION |
|---|---|

(a) Turn the ignition switch to the ON position.
(b) Check the passenger airbag ON/OFF indicator operation.
HINT:
Refer to the normal condition of the passenger airbag ON/OFF indicator (see page 05-770 ).




**Result:**

**A:**

**During period "A" in the illustration, even if both the "ON" and "OFF" passenger airbag ON/OFF indicators normally come on, both of them do not go off during period "B".**

**During periods "A" and "B" in the illustration, even if both the "ON" and "OFF" passenger airbag ON/OFF indicators normally indicated, both of them come on during period "C".**

**B:**

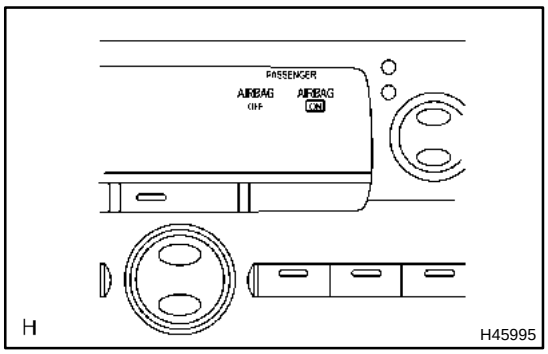
**During period "A", neither the "ON" nor "OFF" passenger airbag ON/OFF indicators come on, or one of them does not come on.**

**During period "C", even if the front passenger seat is occupied, neither the "ON" nor "OFF" passenger airbag ON/OFF indicators come on.**

| B | Go to step 6 |
|---|---|

A

## 2 CHECK AIRCONDITIONER AMPLIFIER ASSY(PASSENGER AIRBAG ON/OFF INDICATOR)

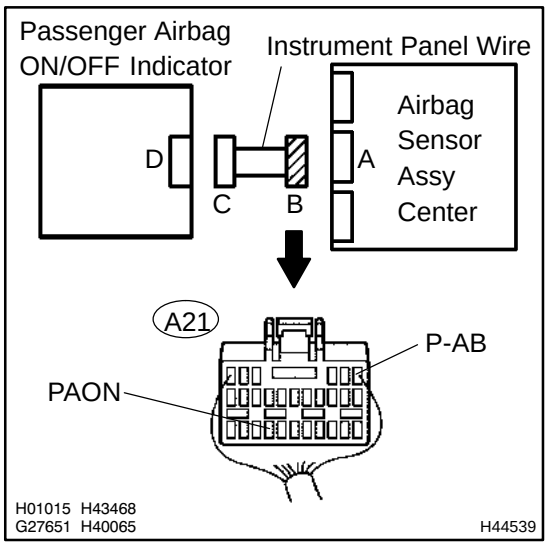



(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connector from the airconditioner amplifier assy.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position.
(f) Check the passenger airbag ON/OFF indicator operation.
**OK:**
**The passenger airbag ON/OFF indicator (”ON” and ”OFF”) do not come on.**

| NG | REPLACE AIRCONDITIONER AMPLIFIER ASSY (SEE PAGE 55-25 ) |
|---|---|

**OK**

## 3 CHECK INSTRUMENT PANEL WIRE(TO GROUND)



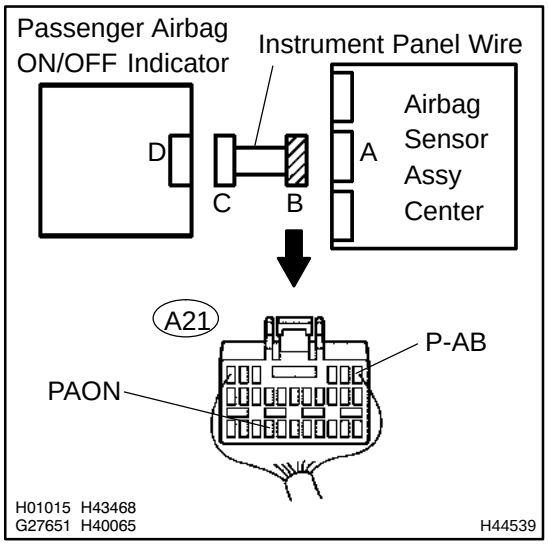

(a) Measure the resistance according to the value(s) in the table below.
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A21-1 (P-AB) - Body ground | Always | 1 MΩ or Higher |
| A21-25 (PAON) - Body ground | Always | 1 MΩ or Higher |

| NG | REPAIR OR REPLACE INSTRUMENT PANEL WIRE |
|---|---|

**OK**

## 4 CHECK INSTRUMENT PANEL WIRE(SHORT)




(a) Measure the resistance according to the value(s) in the table below.

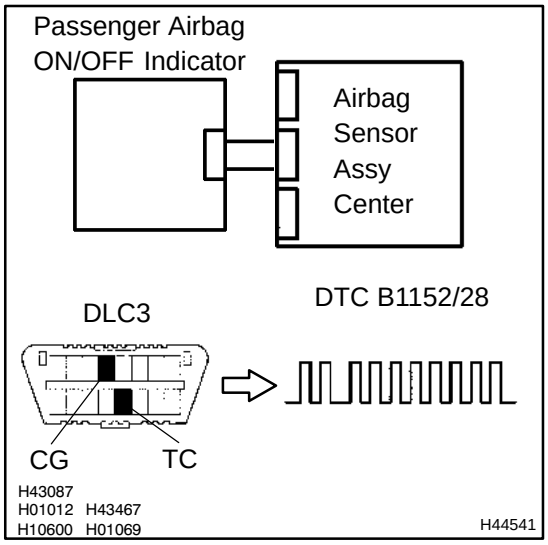
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A21-1 (P-AB) - A21-25 (PAON) | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

**OK**

## 5 CHECK AIR BAG SENSOR ASSY CENTER




(a) Connect the connectors to the airbag sensor assy center.
(b) Connect the connector to the airconditioner amplifier assy.
(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1152/28 is not output.**

HINT:

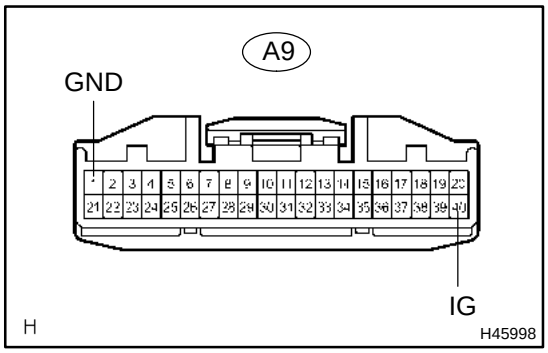
Codes other than code B1152/28 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

## 6 WIRE HARNESS(SOURCE VOLTAGE)




(a) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(b) Turn the ignition switch to the ON position.
(c) Measure the voltage and resistance according to the value(s) in the table below.

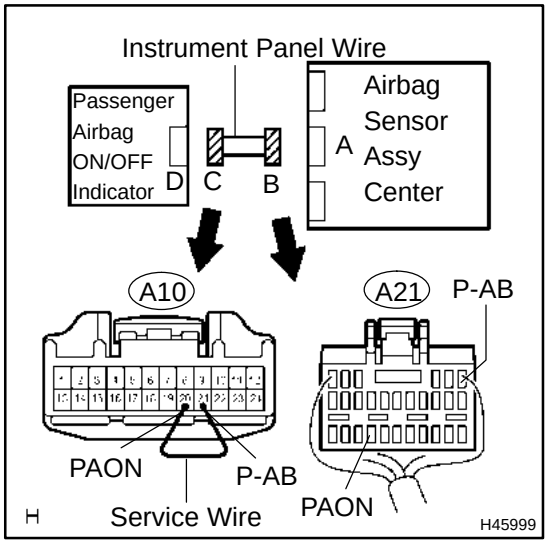
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A9-40 (IG) - Body ground | Ignition switch ON | 10 to 14 V |
| A9-1 (GND) - Body ground | Always | Below 1 Ω |

**NG** → **REPLACE A/C AMPLIFIRE ASSY OR WIRE HARNESS (A/C AMPLIFIRE ASSY - BATTERY) OR BATTERY**

**OK**

## 7 CHECK INSTRUMENT PANEL WIRE(OPEN)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the airconditioner amplifier assy.
(d) Using a service wire, connect A10- 20 (PAON) and A10-21 (P-AB) of connector "C".

**NOTICE:**

**Do not forcibly insert a service wire into the terminals of the connector when connecting.**

(e) Measure the resistance according to the value(s) in the table below.

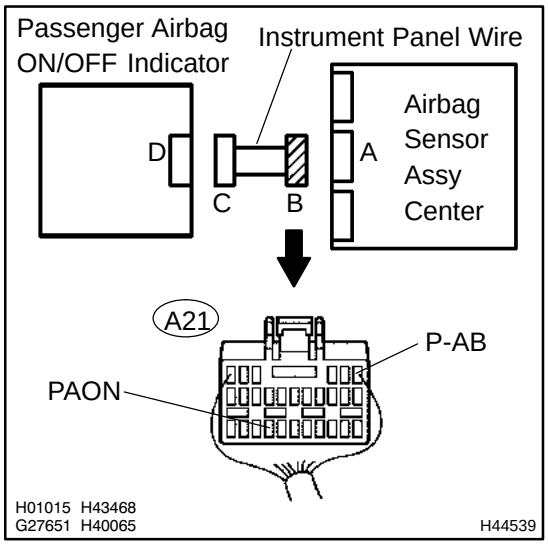
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A21-1 (P-AB) - A21-25 (PAON) | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

**OK**

## 8 CHECK INSTRUMENT PANEL WIRE(TO B+)




(a) Disconnect the service wire from connector "C".
(b) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(c) Turn the ignition switch to the ON position.
(d) Measure the voltage according to the value(s) in the table below.

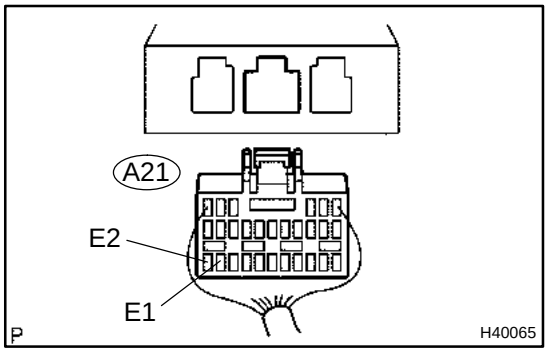
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A21-25 (PAON) - Body ground | Ignition switch ON | Below 1 V |
| A21-1 (P-AB) - Body ground | Ignition switch ON | Below 1 V |

**NG** → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

**OK**

## 9 CHECK INSTRUMENT PANEL WIRE(AIRBAG SENSOR ASSY CENTER - BODY GROUND)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Measure the resistance according to the value(s) in the table below.

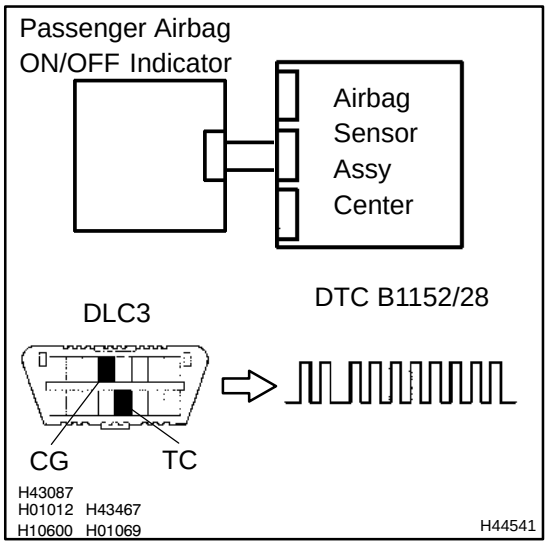
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A21-27 (E1) - Body ground | Always | Below 1 Ω |
| A21-28 (E2) - Body ground | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

**OK**

| 10 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|




(a) Connect the connectors to the airbag sensor assy center.
(b) Connect the connector to the airconditioner amplifier assy.
(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1152/28 is not output.**

HINT:

Codes other than code B1152/28 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

| DTC | B1153/25 | SEAT POSITION AIRBAG SENSOR MALFUNCTION |
|---|---|---|

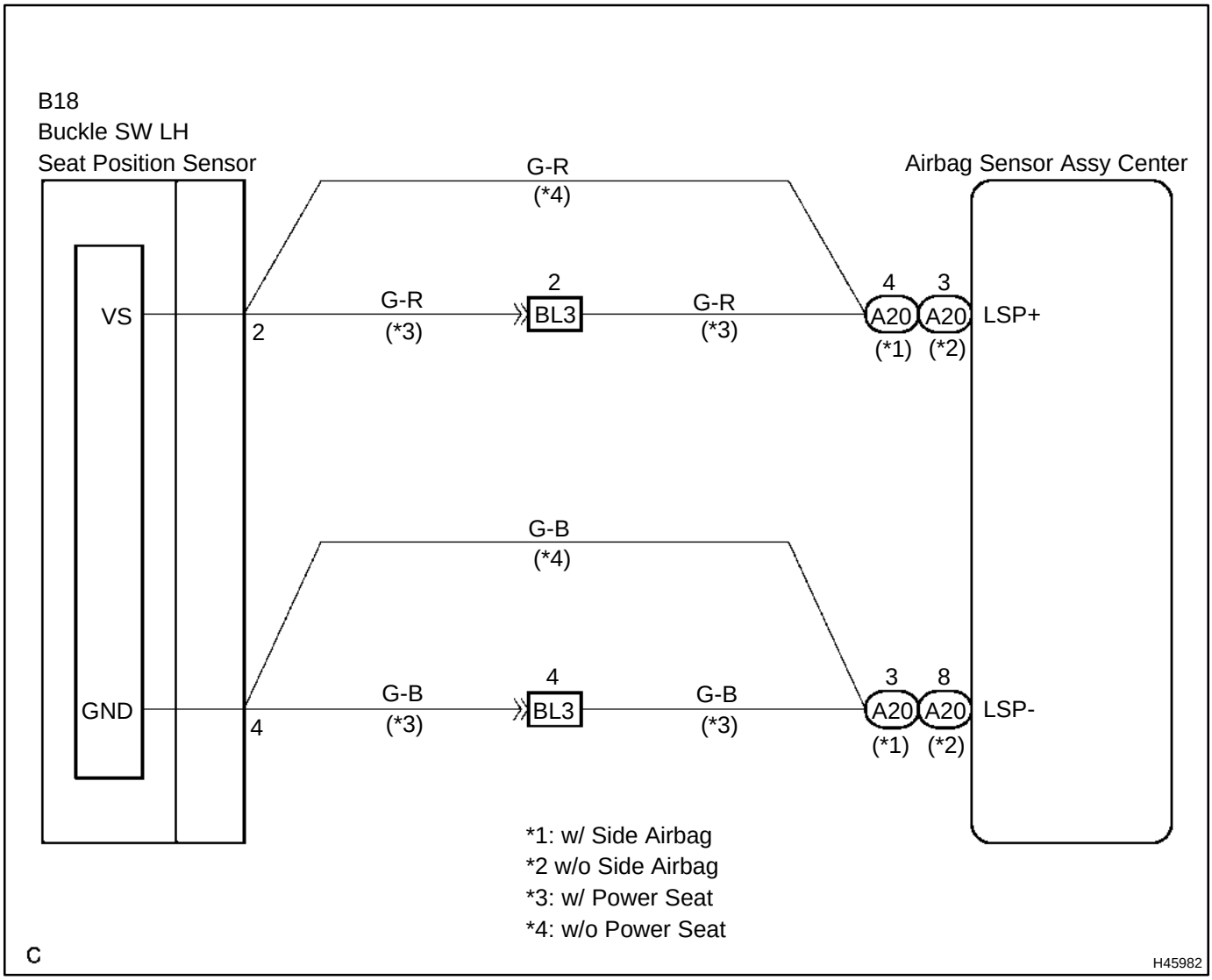
## CIRCUIT DESCRIPTION

The seat position airbag sensor circuit consists of the airbag sensor assy center and the seat position airbag sensor.

DTC B1153/25 is recorded when a malfunction is detected in the seat position airbag sensor circuit.

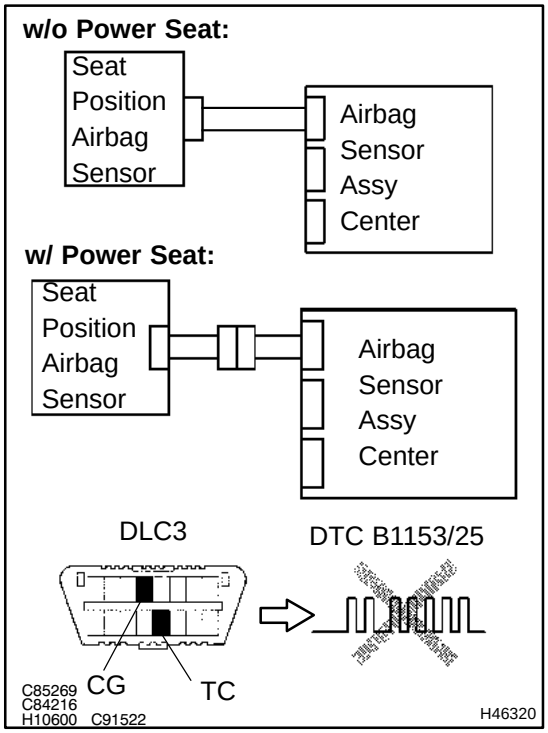
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1153/25 | • The airbag sensor assy center receives a line short circuit signal, an open circuit signal, a short circuit to ground signal or a short circuit to B+ signal in the seat position airbag sensor circuit for 2 seconds.<br>• Seat position airbag sensor malfunction<br>• Airbag sensor assy center malfunction | • Seat position airbag sensor<br>• Airbag sensor assy center<br>• Floor wire |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CHECK DTC |
|---|---|




(a) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(b) Clear the DTCs stored in memory (see page 05-777 ).
(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position and wait for at least 60 seconds.
(e) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B1153/25 is not output.**

HINT:
Codes other than code B1153/25 may be output at this time, but they are not related to this check.

**NG** → **Go to step 2**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

| 2 | CHECK CONNECTION OF CONNECTORS |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Check that the connectors are properly connected to the airbag sensor assy center and the seat position airbag sensor.
**OK:**
**The connectors are connected.**

**NG** → **CONNECT CONNECTORS, THEN GO TO STEP 1**

**OK**

## 3 CHECK VEHICLE TYPE

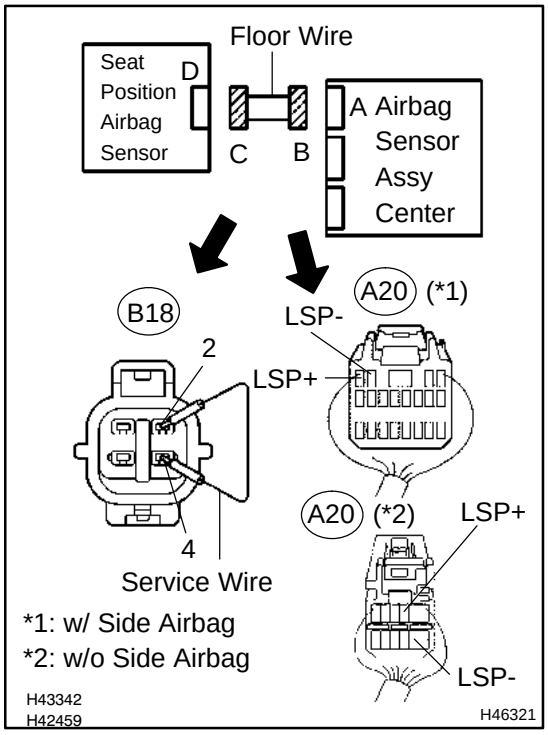
(a) Check the front driver seat type.
**RESULT:**

| | |
|---|---|
| w/o Power seat | A |
| w/ Power seat | B |

**B** → **Go to step 11**

**A**

## 4 CHECK FLOOR WIRE(OPEN)




(a) Disconnect the connectors from the airbag sensor assy center and the seat position airbag sensor.
(b) Using a service wire, connect B18-2 and B18-4 of connector "C".

**NOTICE:**
**Do not forcibly insert a service wire into the terminals of the connector when connecting.**

(c) Measure the resistance according to the value(s) in the table below.
**Standard:**

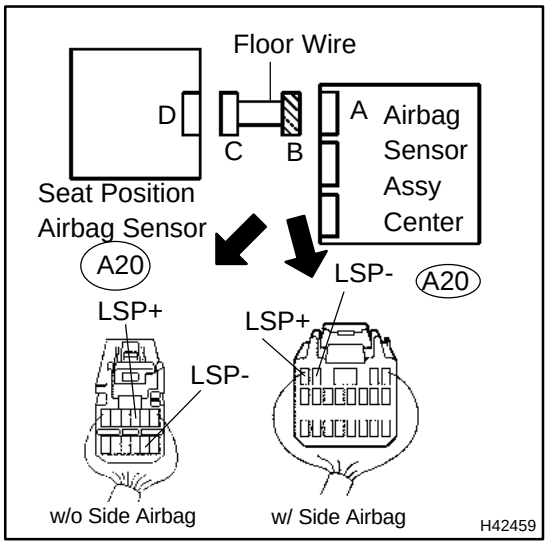
| Tester connection | Condition | Specified condition |
|---|---|---|
| A20-4 (LSP+) - A20-3 (LSP-) (*1) | Always | Below 1 Ω |
| A20-3 (LSP+) - A20-8 (LSP-) (*2) | Always | Below 1 Ω |

*1: w/ Side airbag
*2: w/o Side airbag

**NG** → **REPAIR OR REPLACE FLOOR WIRE**

**OK**

## 5 CHECK FLOOR WIRE(TO B+)




(a) Disconnect the service wire from connector "C".
(b) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(c) Turn the ignition switch to the ON position.
(d) Measure the voltage according to the value(s) in the table below.

**Standard:**

**w/ Curtain shield airbag:**

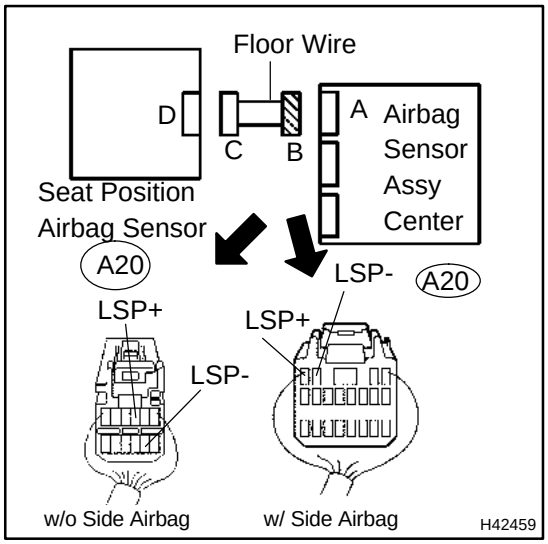
| Tester connection | Condition | Specified condition |
|---|---|---|
| A20-4 (LSP+) - Body ground (*1) | Ignition switch ON | Below 1 V |
| A20-3 (LSP-) - Body ground (*1) | Ignition switch ON | Below 1 V |
| A20-3 (LSP+) - Body ground (*2) | Ignition switch ON | Below 1 V |
| A20-8 (LSP-) - Body ground (*2) | Ignition switch ON | Below 1 V |

*1: w/ Side airbag
*2: w/o Side airbag

NG → **REPAIR OR REPLACE FLOOR WIRE**

OK

## 6 CHECK FLOOR WIRE(TO GROUND)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Measure the resistance according to the value(s) in the table below.

**Standard:**

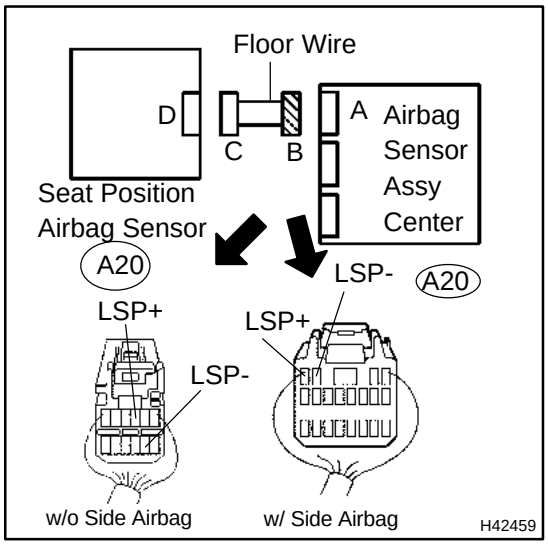
| Tester connection | Condition | Specified condition |
|---|---|---|
| A20-4 (LSP+) - Body ground (*1) | Always | 1 MΩ or Higher |
| A20-3 (LSP-) - Body ground (*1) | Always | 1 MΩ or Higher |
| A20-3 (LSP+) - Body ground (*2) | Always | 1 MΩ or Higher |
| A20-8 (LSP-) - Body ground(*2) | Always | 1 MΩ or Higher |

*1: w/ Side airbag
*2: w/o Side airbag

NG → **REPAIR OR REPLACE FLOOR WIRE**

OK

## 7 CHECK FLOOR WIRE(SHORT)




(a) Measure the resistance according to the value(s) in the table below.

**Standard:**

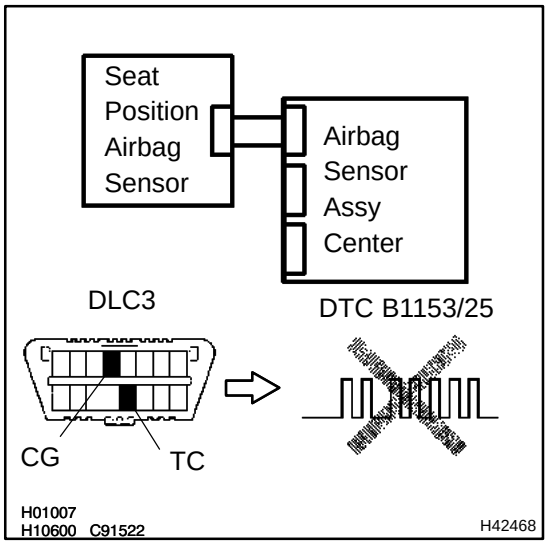
| Tester connection | Condition | Specified condition |
|---|---|---|
| A20-4 (LSP+) - A20-3 (LSP-) (*1) | Always | 1 MΩ or Higher |
| A20-3 (LSP+) - A20-8 (LSP-) (*2) | Always | 1 MΩ or Higher |

*1: w/ Side airbag
*2: w/o Side airbag

**NG** → **REPAIR OR REPLACE FLOOR WIRE**

**OK**

## 8 CHECK SEAT POSITION AIR BAG SENSOR




(a) Connect the connectors to the seat position airbag sensor and the airbag sensor assy center.
(b) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(c) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(d) Clear the DTCs stored in memory (see page 05-777 ).
(e) Turn the ignition switch to the LOCK position.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1153/25 is not output.**

HINT:

Codes other than code B1153/25 may be output at this time, but they are not related to this check.

**NG** → **Go to step 9**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

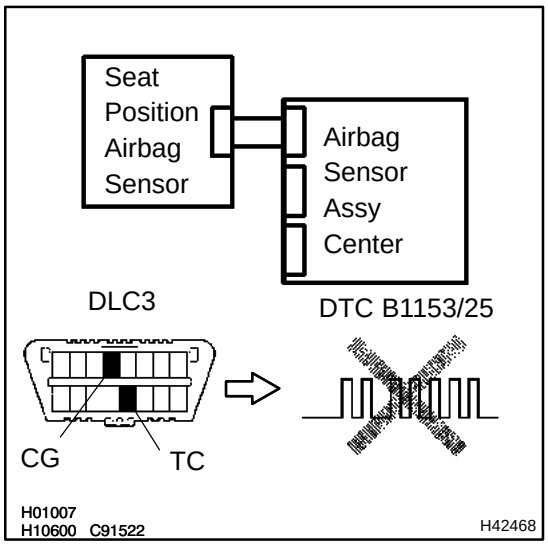
| 9 | REPLACE SEAT POSITION AIR BAG SENSOR |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the seat position airbag sensor (see page 60-64 ).

HINT:
Perform the inspection using parts from a normal vehicle if possible.

**NEXT**

| 10 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|




(a) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(b) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(c) Clear the DTCs stored in memory (see page 05-777 ).
(d) Turn the ignition switch to the LOCK position.
(e) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(f) Check the DTCs (see page 05-777 ).

**OK:**
**DTC B1153/25 is not output.**

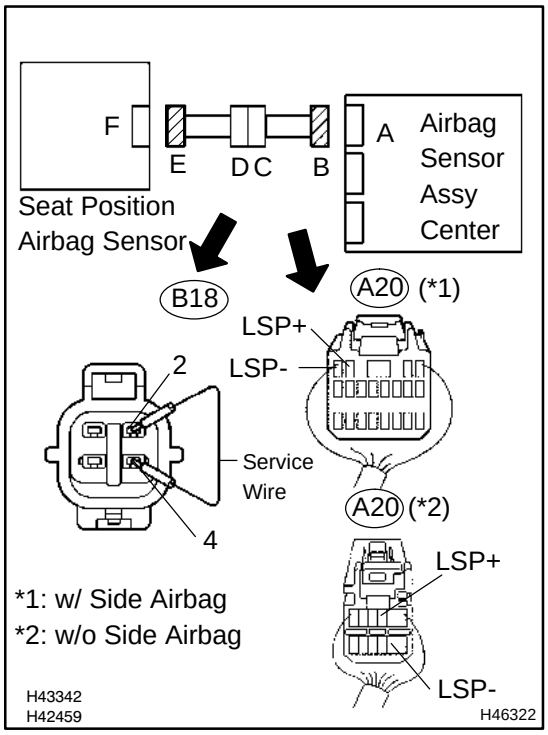
HINT:
Codes other than code B1153/25 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

**END**

## 11 CHECK SEAT POSITION AIRBAG SENSOR CIRCUIT(OPEN)




(a) Disconnect the connectors from the airbag sensor assy center and the front seat inner belt assy LH.

(b) Using a service wire, connect B18-1 and B18-3 of connector "E".

**NOTICE:**

**Do not forcibly insert a service wire into the terminals of the connector when connecting.**

(c) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A20-4 (LSP+) - A20-3 (LSP-) (*1) | Always | Below 1 Ω |
| A20-3 (LSP+) - A20-8 (LSP-) (*2) | Always | Below 1 Ω |

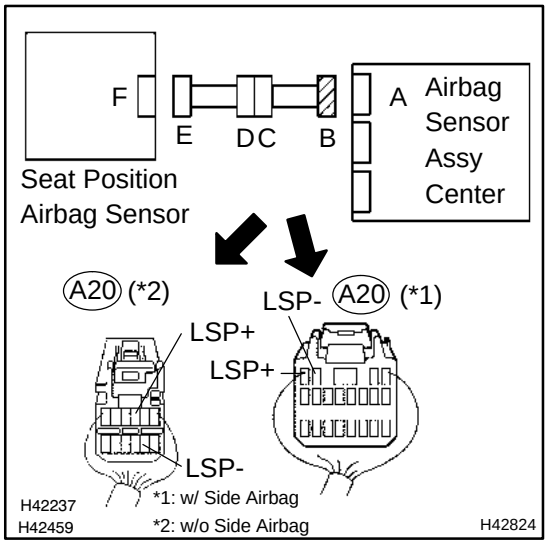
*1: w/ Side airbag

*2: w/o Side airbag

**NG** → **Go to step 18**

**OK**

## 12 CHECK SEAT POSITION AIRBAG SENSOR CIRCUIT(TO B+)




(a) Disconnect the service wire from connector "C".

(b) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.

(c) Turn the ignition switch to the ON position.

(d) Measure the voltage according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A20-4 (LSP+) - Body ground (*1) | Ignition switch ON | Below 1 V |
| A20-3 (LSP-) - Body ground (*1) | Ignition switch ON | Below 1 V |
| A20-3 (LSP+) - Body ground (*2) | Ignition switch ON | Below 1 V |
| A20-8 (LSP-) - Body ground (*2) | Ignition switch ON | Below 1 V |

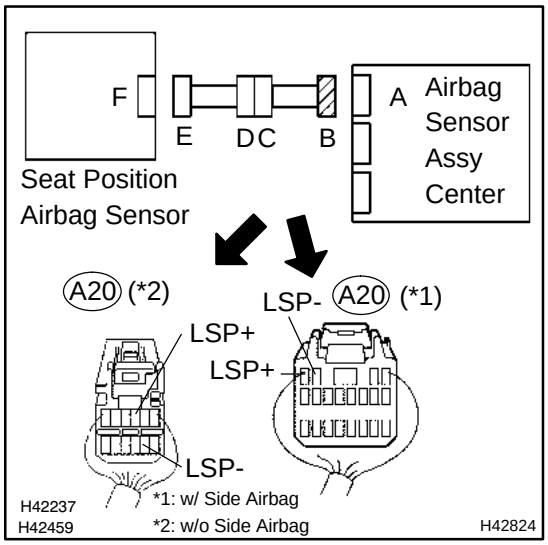
*1: w/ Side airbag

*2: w/o Side airbag

**NG** → **Go to step 19**

**OK**

## 13 CHECK SEAT POSITION AIRBAG SENSOR CIRCUIT(TO GROUND)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Measure the resistance according to the value(s) in the table below.

**Standard:**

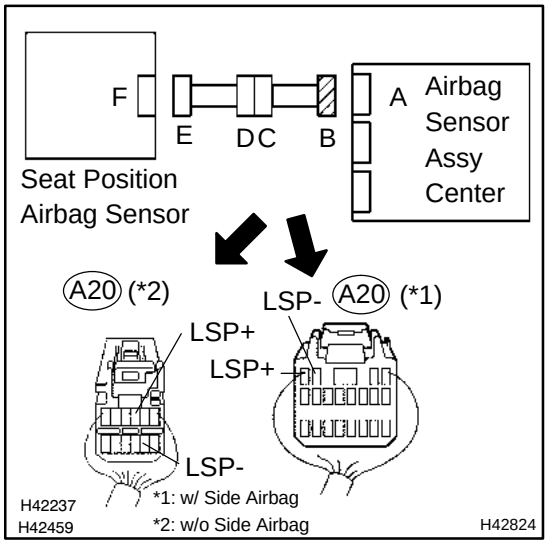
| Tester connection | Condition | Specified condition |
|---|---|---|
| A20-19 (LSP+) - Body ground (*1) | Always | 1 MΩ or Higher |
| A20-2 (LSP-) - Body ground (*1) | Always | 1 MΩ or Higher |
| A20-11 (LSP+) - Body ground (*2) | Always | 1 MΩ or Higher |
| A20-6 (LSP-) - Body ground (*2) | Always | 1 MΩ or Higher |

*1: w/ Side airbag
*2: w/o Side airbag

**NG** → **Go to step 20**

**OK**

## 14 CHECK SEAT POSITION AIRBAG SENSOR CIRCUIT(SHORT)




(a) Measure the resistance according to the value(s) in the table below.

**Standard:**

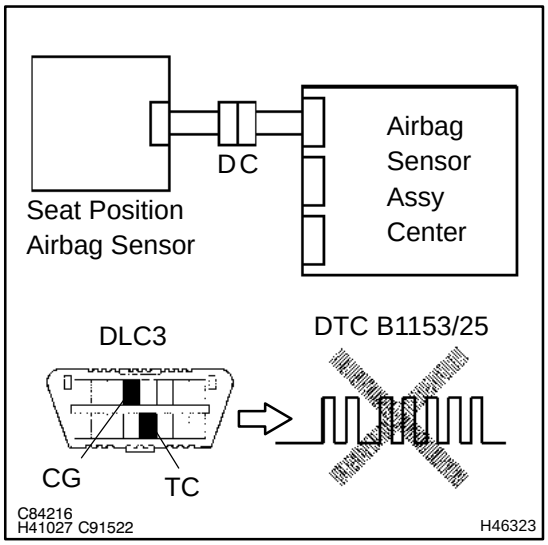
| Tester connection | Condition | Specified condition |
|---|---|---|
| A20-19 (LSP+) - A20-2 (LSP-) (*1) | Always | 1 MΩ or Higher |
| A20-11 (LSP+) - A20-6 (LSP-) (*2) | Always | 1 MΩ or Higher |

*1: w/ Side airbag
*2: w/o Side airbag

**NG** → **Go to step 21**

**OK**

## 15 CHECK SEAT POSITION AIR BAG SENSOR




(a) Connect the connectors to the seat position airbag sensor and the airbag sensor assy center.
(b) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(c) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(d) Clear the DTCs stored in memory (see page 05-777 ).
(e) Turn the ignition switch to the LOCK position.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1153/25 is not output.**

HINT:

Codes other than code B1153/25 may be output at this time, but they are not related to this check.

| NG | Go to step 16 |
|---|---|

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

## 16 REPLACE SEAT POSITION AIR BAG SENSOR

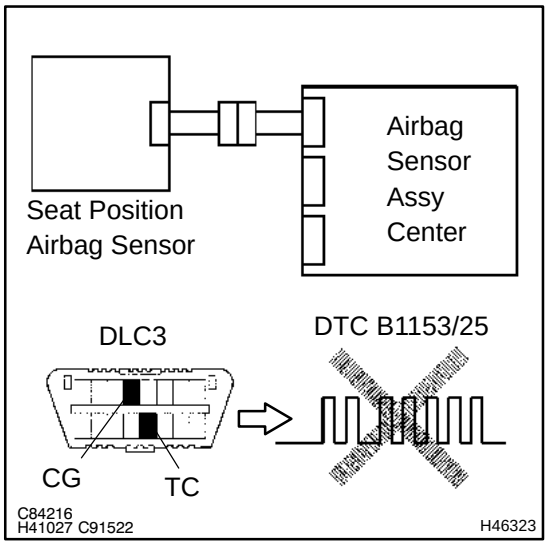
(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the seat position airbag sensor (see page 60-64 ).

HINT:

Perform the inspection using parts from a normal vehicle if possible.

**NEXT**

## 17 CHECK AIR BAG SENSOR ASSY CENTER




(a) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(b) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(c) Clear the DTCs stored in memory (see page 05-777 ).
(d) Turn the ignition switch to the LOCK position.
(e) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(f) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B1153/25 is not output.**

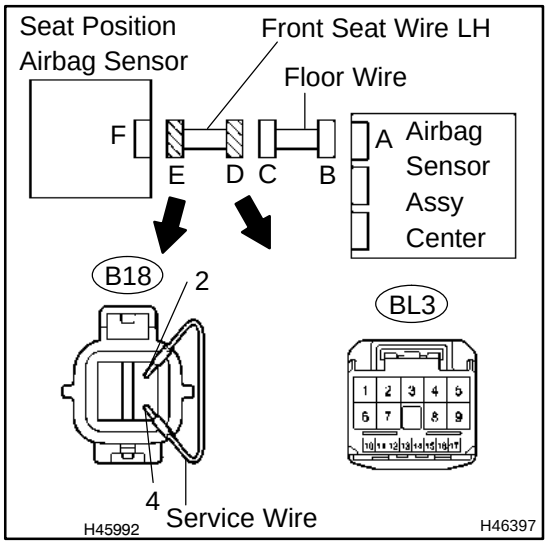
HINT:
Codes other than code B1153/25 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

**END**

## 18 CHECK FRONT SEAT WIRE LH (OPEN)




(a) Disconnect the front seat wire LH connector from the floor wire.

HINT:
The service wire has already been inserted into connector "E"

(b) Measure the resistance according to the value(s) in the table below.
**Standard:**

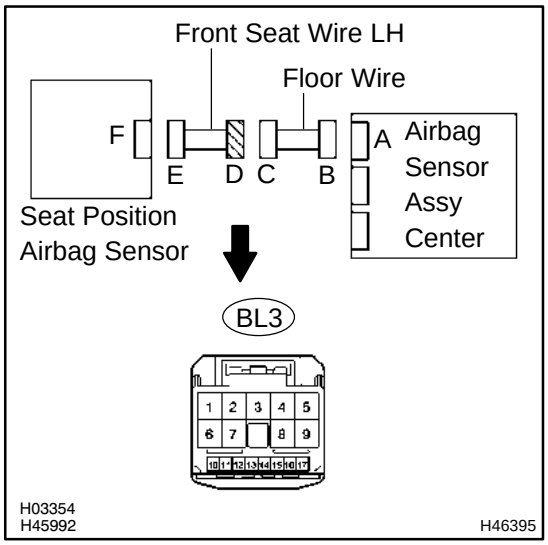
| Tester connection | Condition | Specified condition |
|---|---|---|
| BL3-2 - BL3-4 | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE LH**

**OK**

**REPAIR OR REPLACE FLOOR WIRE**

## 19 CHECK FRONT SEAT WIRE LH (TO B+)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the front seat wire LH connector from the floor wire.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position.
(f) Measure the voltage according to the value(s) in the table below.

**Standard:**

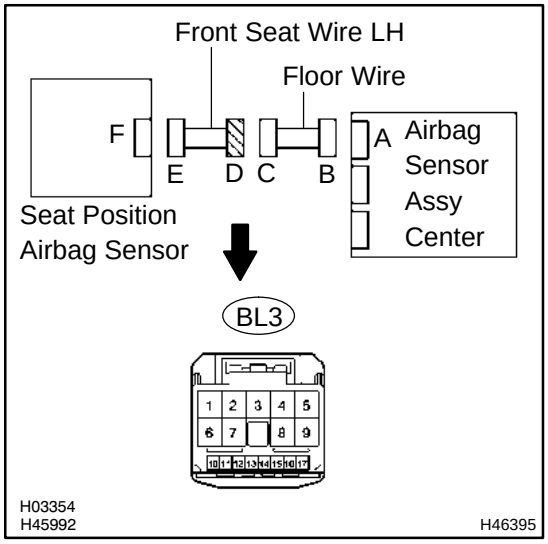
| Tester connection | Condition | Specified condition |
|---|---|---|
| BL3-2 - Body ground | Ignition switch ON | Below 1 V |
| BL3-4 - Body ground | Ignition switch ON | Below 1 V |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE LH**

**OK**

**REPAIR OR REPLACE FLOOR WIRE**

## 20 CHECK FRONT SEAT WIRE LH (TO GROUND)




(a) Disconnect the front seat wire LH connector from the floor wire.
(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

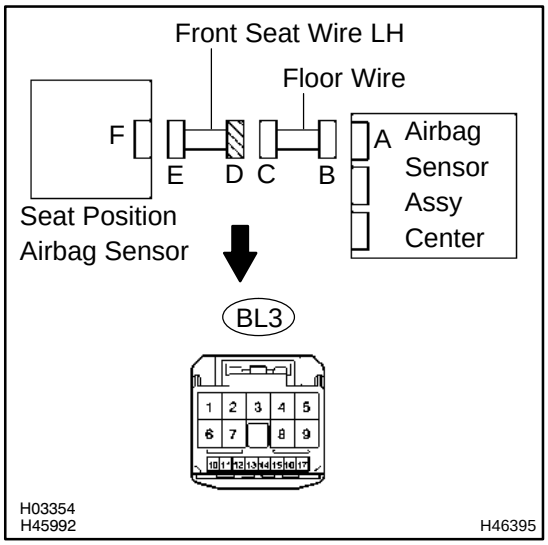
| Tester connection | Condition | Specified condition |
|---|---|---|
| BL3-2 - Body ground | Always | 1 MΩ or Higher |
| BL3-4 - Body ground | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE LH**

**OK**

**REPAIR OR REPLACE FLOOR WIRE**

## 21 CHECK FRONT SEAT WIRE LH (SHORT)




(a) Disconnect the front seat wire LH connector from the floor wire.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| BL3-2 - BL3-4 | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FRONT SEAT WIRE LH**

**OK**

**REPAIR OR REPLACE FLOOR WIRE**

| DTC | B1154/38 | AIRBAG SENSOR REAR (RH) MALFUNCTION |
|---|---|---|

## CIRCUIT DESCRIPTION

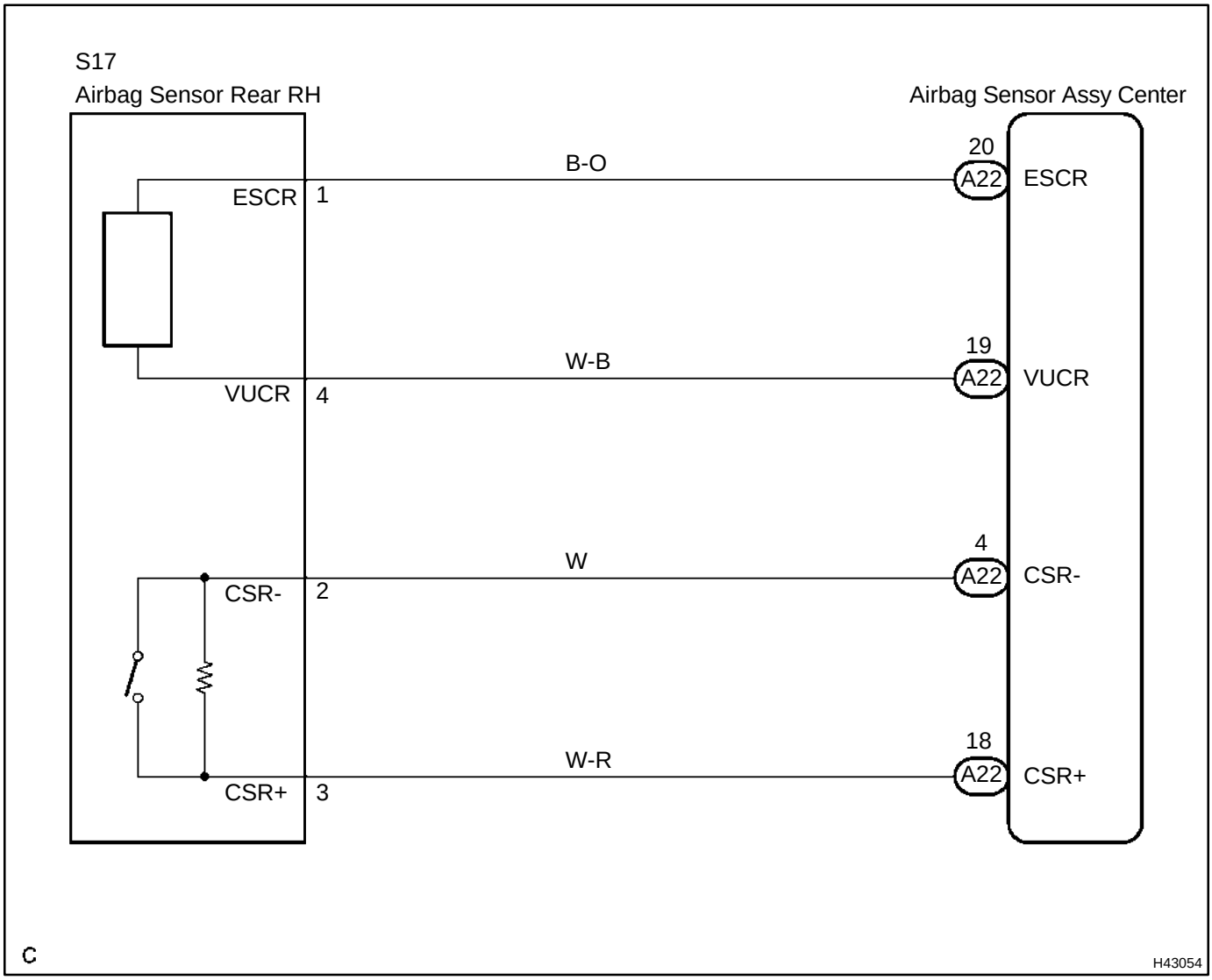
The airbag sensor rear RH consists of the safing sensor, the diagnostic circuit and the lateral deceleration sensor, etc.

If the airbag sensor assy center receives signals from the lateral deceleration sensor, it judges whether or not the SRS should be activated.

DTC B1154/38 is recorded when a malfunction is detected in the airbag sensor rear RH circuit.

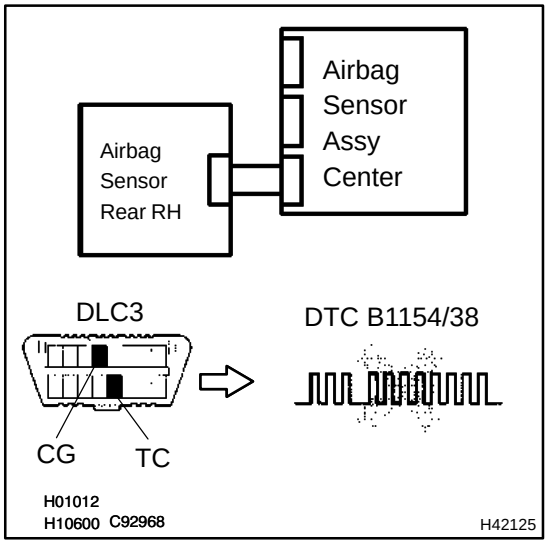
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1154/38 | • The airbag sensor assy center receives a line short circuit signal, an open circuit signal, a short circuit to ground signal or a short circuit to B+ signal in the airbag sensor rear RH circuit for 2 seconds.<br>• Airbag sensor rear RH malfunction<br>• Airbag sensor assy center malfunction | • Airbag sensor rear RH<br>• Airbag sensor assy center<br>• Floor wire No. 2 |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CHECK DTC |
|---|---|




(a) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(b) Clear the DTCs stored in memory (see page 05-777 ).
(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B1154/38 is not output.**

HINT:
Codes other than code B1154/38 may be output at this time, but they are not related to this check.

**NG** → **Go to step 2**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

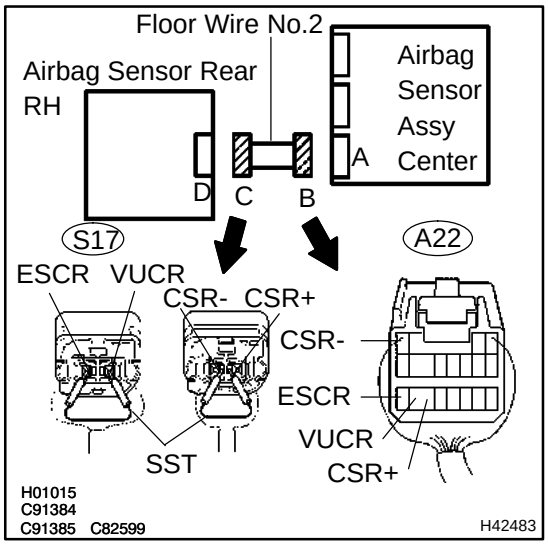
| 2 | CHECK CONNECTION OF CONNECTORS |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Check that the connectors are properly connected to the airbag sensor assy center and the airbag sensor rear RH.
**OK:**
**The connectors are connected.**

**NG** → **CONNECT CONNECTORS, THEN GO TO STEP 1**

**OK**

## 3 CHECK FLOOR WIRE NO.2(OPEN)




(a) Disconnect the connectors from the airbag sensor assy center and the airbag sensor rear assy RH.
(b) Using SST, connect S17-4 (VUCR) to S17-1 (ESCR), and connect S17-3 (CSR+) to S17-2 (CSR-) of connector "C".
(c) Measure the resistance according to the value(s) in the table below.

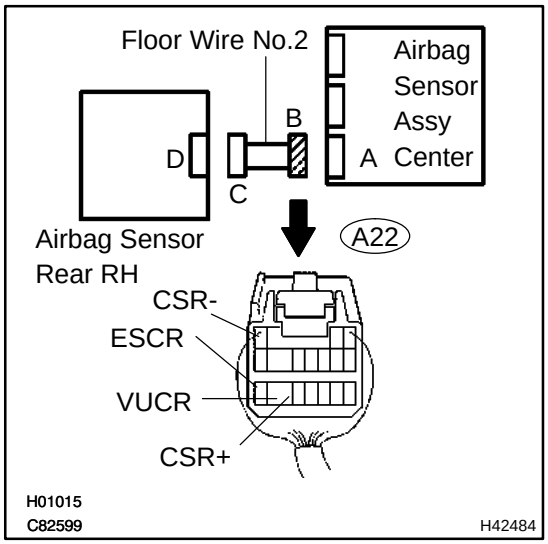
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A22-19 (VUCR) - A22-20 (ESCR) | Always | Below 1 Ω |
| A22-18 (CSR+) - A22-4 (CSR-) | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE FLOOR WIRE NO.2**

**OK**

## 4 CHECK FLOOR WIRE NO.2(TO B+)




(a) Disconnect the SST from connector "C".
(b) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(c) Turn the ignition switch to the ON position.
(d) Measure the voltage according to the value(s) in the table below.

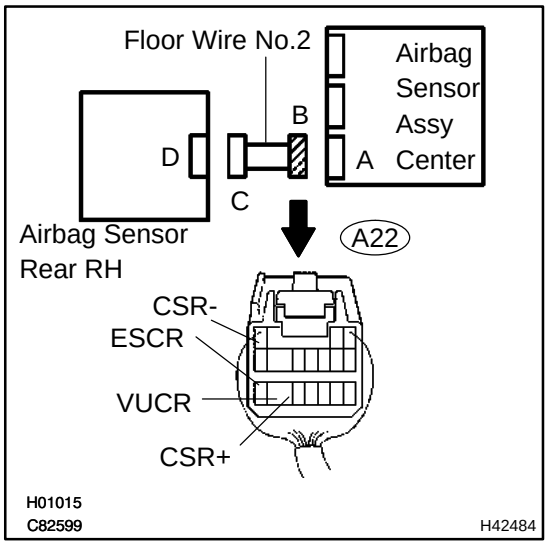
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A22-19 (VUCR) - Body ground | Ignition switch ON | Below 1 V |
| A22-20 (ESCR) - Body ground | Ignition switch ON | Below 1 V |
| A22-18 (CSR+) - Body ground | Ignition switch ON | Below 1 V |
| A22-4 (CSR-) - Body ground | Ignition switch ON | Below 1 V |

**NG** → **REPAIR OR REPLACE FLOOR WIRE NO.2**

**OK**

## 5 CHECK FLOOR WIRE NO.2(TO GROUND)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Measure the resistance according to the value(s) in the table below.

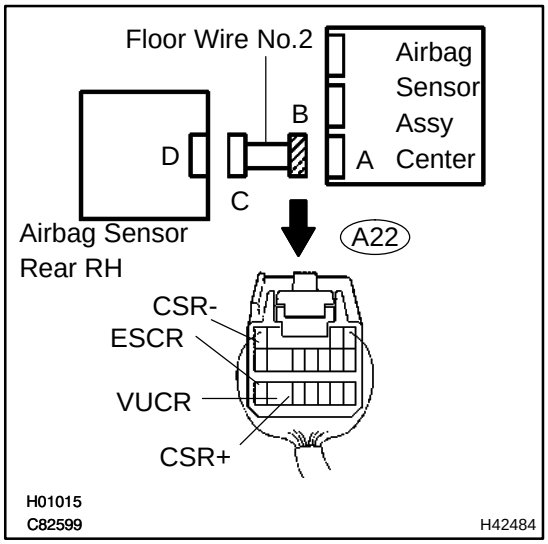
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A22-19 (VUCR) - Body ground | Always | 1 MΩ or Higher |
| A22-20 (ESCR) - Body ground | Always | 1 MΩ or Higher |
| A22-18 (CSR+) - Body ground | Always | 1 MΩ or Higher |
| A22-4 (CSR-) - Body ground | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FLOOR WIRE NO.2**

**OK**

## 6 CHECK FLOOR WIRE NO.2(SHORT)




(a) Measure the resistance according to the value(s) in the table below.

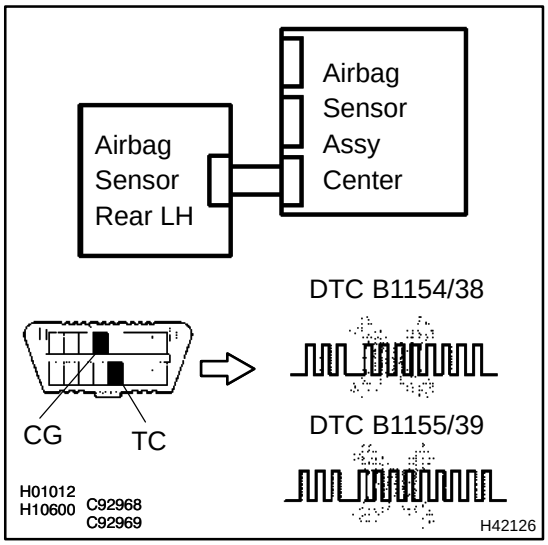
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A22-19 (VUCR) - A22-20 (ESCR) | Always | 1 MΩ or Higher |
| A22-18 (CSR+) - A22-4 (CSR-) | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FLOOR WIRE NO.2**

**OK**

## 7 CHECK AIR BAG SENSOR REAR RH




(a) Connect the connector to the airbag sensor assy center.
(b) Interchange the airbag sensor rear LH with RH and connect the connectors to them.
(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**Result:**

| | |
|---|---|
| NG: A | DTC B1154/38 is output. |
| NG: B | DTC B1155/39 is output. |
| OK | DTC B1154/38 and B1155/39 are not output. |

**NG:A** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**NG:B** → **REPLACE AIR BAG SENSOR REAR RH (SEE PAGE 60-62 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

| DTC | B1155/39 | AIRBAG SENSOR REAR (LH) MALFUNCTION |
|---|---|---|

## CIRCUIT DESCRIPTION

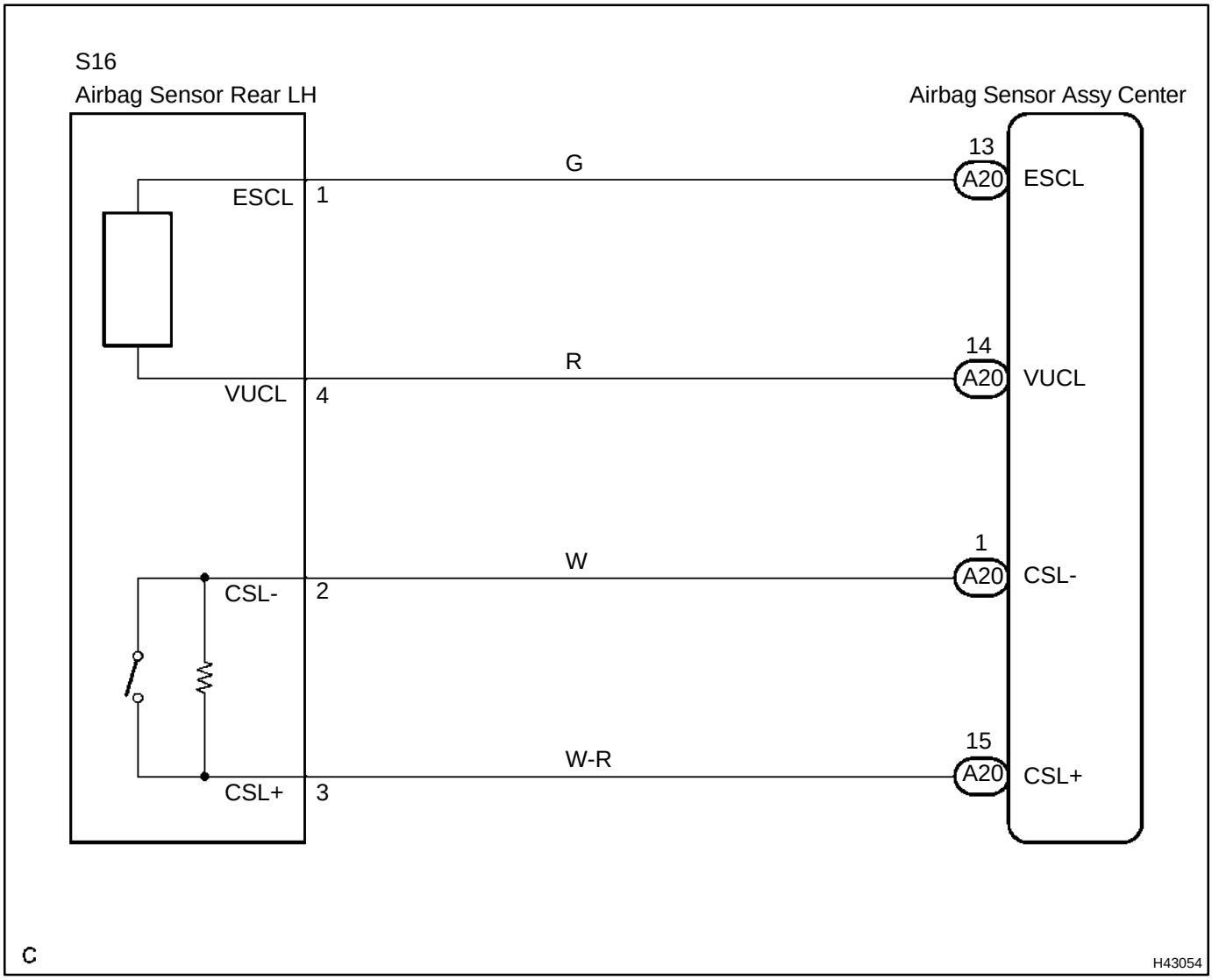
The airbag sensor rear LH consists of the safing sensor, the diagnostic circuit and the lateral deceleration sensor, etc.

If the airbag sensor assy center receives signals from the lateral deceleration sensor, it judges whether or not the SRS should be activated.

DTC B1155/39 is recorded when a malfunction is detected in the airbag sensor rear LH circuit.

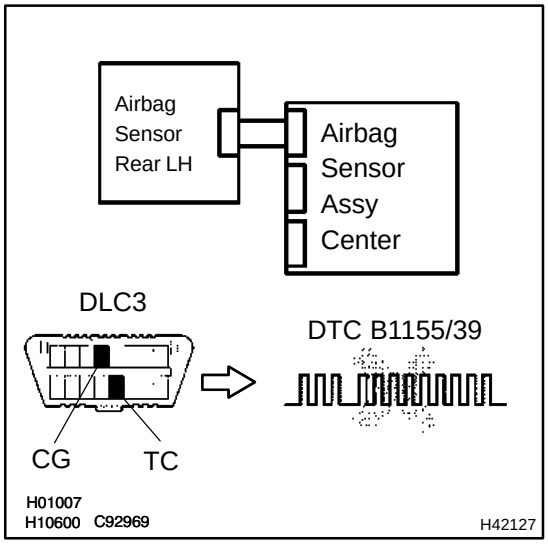
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1155/39 | • The airbag sensor assy center receives a line short circuit signal, an open circuit signal, a short circuit to ground signal or a short circuit to B+ signal in the airbag sensor rear LH circuit for 2 seconds.<br>• Airbag sensor rear LH malfunction<br>• Airbag sensor assy center malfunction | • Airbag sensor rear LH<br>• Airbag sensor assy center<br>• Floor wire |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CHECK DTC |
|---|---|




(a) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(b) Clear the DTCs stored in memory (see page 05-777 ).
(c) Turn the ignition switch to the LOCK position.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B1155/39 is not output.**

HINT:
Codes other than code B1155/39 may be output at this time, but they are not related to this check.

**NG** → **Go to step 2**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

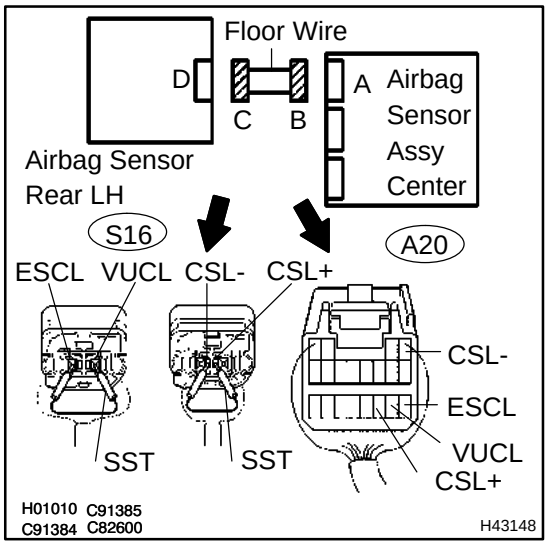
| 2 | CHECK CONNECTION OF CONNECTORS |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Check that the connectors are properly connected to the airbag sensor assy center and the airbag sensor rear LH.
**OK:**
**The connectors are connected.**

**NG** → **CONNECT CONNECTORS, THEN GO TO STEP 1**

**OK**

## 3 CHECK FLOOR WIRE(OPEN)




(a) Disconnect the connectors from the airbag sensor assy center and the airbag sensor rear assy LH.
(b) Using SST, connect S16-1 (VUCL) to S16-4 (ESCL), and connect S16-3 (CSL+) to S16-2 (CSL-) of connector "C".
(c) Measure the resistance according to the value(s) in the table below.

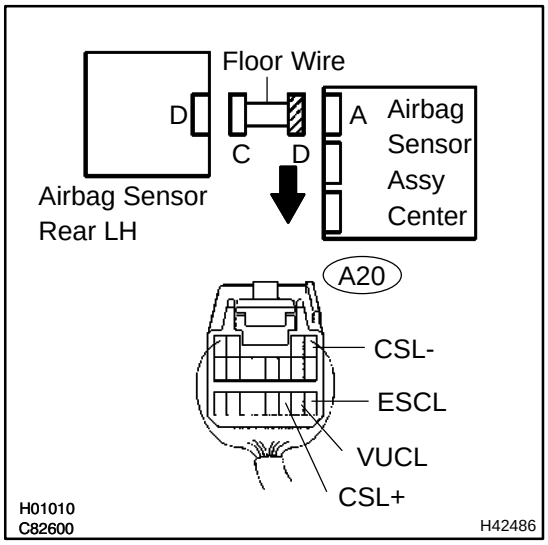
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A20-14 (VUCL) - A20-13 (ESCL) | Always | Below 1 Ω |
| A20-15 (CSL+) - A20-1 (CSL-) | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE FLOOR WIRE**

**OK**

## 4 CHECK FLOOR WIRE(TO B+)




(a) Disconnect the SST from connector "C".
(b) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(c) Turn the ignition switch to the ON position.
(d) Measure the voltage according to the value(s) in the table below.

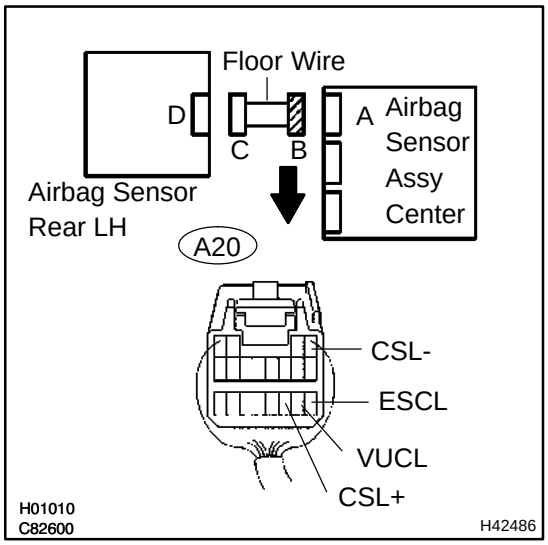
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A20-14 (VUCL) - Body ground | Ignition switch ON | Below 1 V |
| A20-13 (ESCL) - Body ground | Ignition switch ON | Below 1 V |
| A20-15 (CSL+) - Body ground | Ignition switch ON | Below 1 V |
| A20-1 (CSL-) - Body ground | Ignition switch ON | Below 1 V |

**NG** → **REPAIR OR REPLACE FLOOR WIRE**

**OK**

## 5 CHECK FLOOR WIRE(TO GROUND)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Measure the resistance according to the value(s) in the table below.

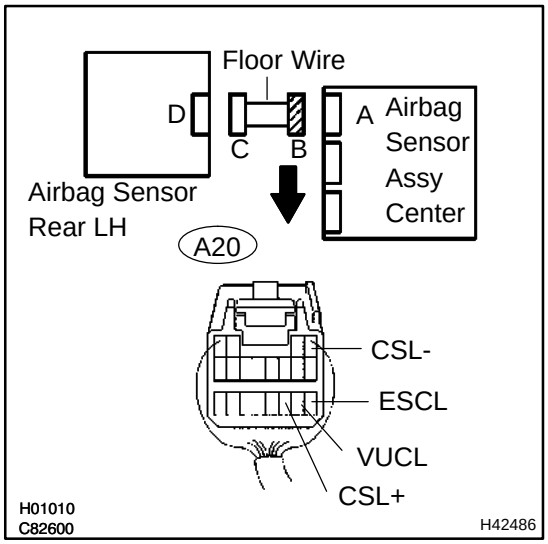
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A20-14 (VUCL) - Body ground | Always | 1 MΩ or Higher |
| A20-13 (ESCL) - Body ground | Always | 1 MΩ or Higher |
| A20-15 (CSL+) - Body ground | Always | 1 MΩ or Higher |
| A20-1 (CSL-) - Body ground | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FLOOR WIRE**

**OK**

## 6 CHECK FLOOR WIRE(SHORT)




(a) Measure the resistance according to the value(s) in the table below.

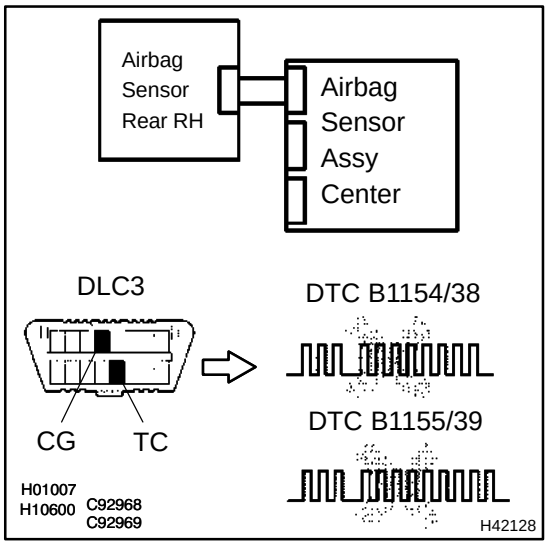
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A20-14 (VUCL) - A20-13 (ESCL) | Always | 1 MΩ or Higher |
| A20-15 (CSL+) - A20-1 (CSL-) | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FLOOR WIRE**

**OK**

## 7 CHECK AIR BAG SENSOR REAR LH




(a) Connect the connector to the airbag sensor assy center.
(b) Interchange the airbag sensor rear LH with RH and connect the connectors to them.
(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**Result:**

| | |
|---|---|
| NG: A | DTC B1154/38 is output. |
| NG: B | DTC B1155/39 is output. |
| OK | DTC B1154/38 and B1155/39 are not output. |

**NG:A** → **REPLACE AIR BAG SENSOR REAR LH (SEE PAGE 60-62 )**

**NG:B** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

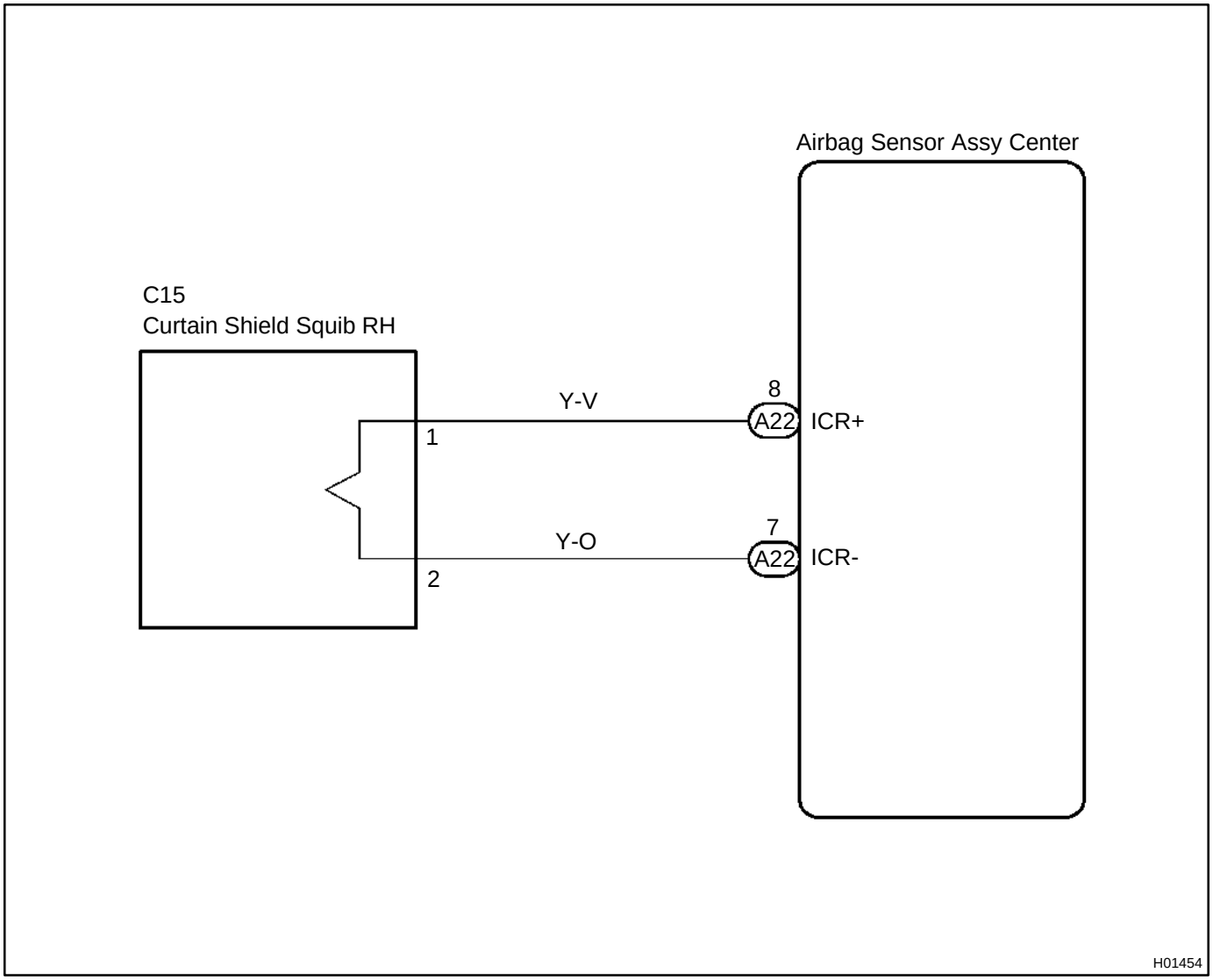
| DTC | B1160/83 | SHORT IN CURTAIN SHIELD SQUIB (RH) CIRCUIT |
|---|---|---|

## CIRCUIT DESCRIPTION

The curtain shield squib RH circuit consists of the airbag sensor assy center and the curtain shield airbag assy RH.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B1160/83 is recorded when a short circuit is detected in the curtain shield squib RH circuit.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1160/83 | • The airbag sensor assy center receives a line short circuit signal 5 times in the curtain shield squib RH circuit during primary check.<br>• Curtain shield squib front RH malfunction<br>• Airbag sensor assy center malfunction | • Curtain shield airbag assy RH (Curtain shield squib RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

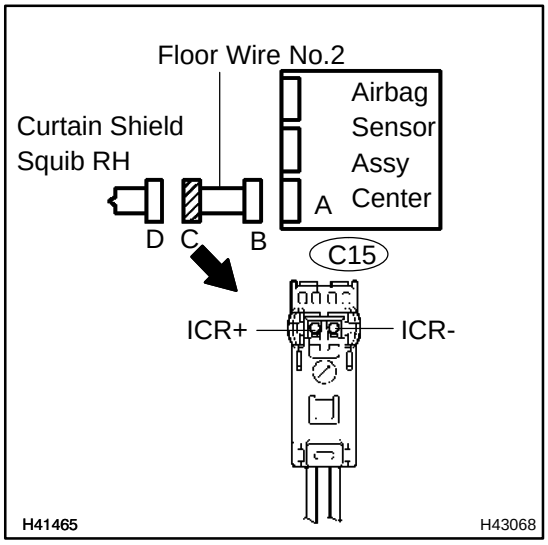
| 1 | CHECK CONNECTOR |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the curtain shield airbag assy RH.
(d) Check that the floor wire No.2 connector (on the curtain shield airbag assy RH side) is not damaged.
**OK:**
**The lock button is not disengaged, or the claw of the lock is not deformed or damaged.**

B → **REPAIR OR REPLACE FLOOR WIRE NO.2**

A

| 2 | CHECK FLOOR WIRE NO.2(CURTAIN SHIELD SQUIB RH CIRCUIT) |
|---|---|



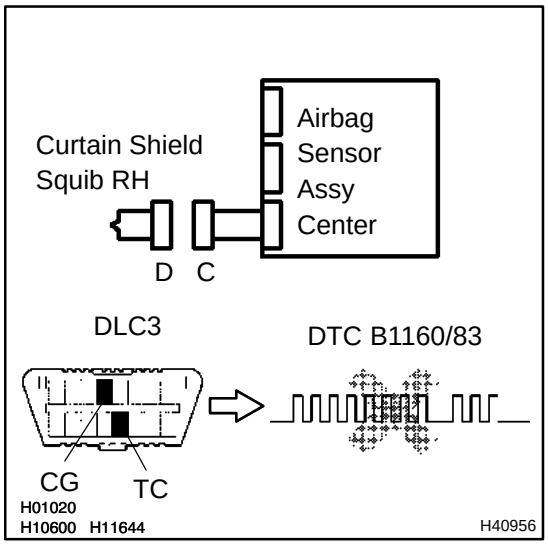

(a) Disconnect the connector from the airbag sensor assy center.
(b) Release the activation prevention mechanism built into connector "B" (see page 05-770 ).
(c) Measure the resistance according to the value(s) in the table below.
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| C15-1 (ICR+) - C15-2 (ICR-) | Always | 1 MΩ or Higher |

NG → **REPAIR OR REPLACE FLOOR WIRE NO.2**

OK

| 3 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|




(a) Connect the connector to the airbag sensor assy center.
(b) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(c) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(d) Clear the DTCs stored in memory (see page 05-777 ).
(e) Turn the ignition switch to the LOCK position.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1160/83 is not output.**

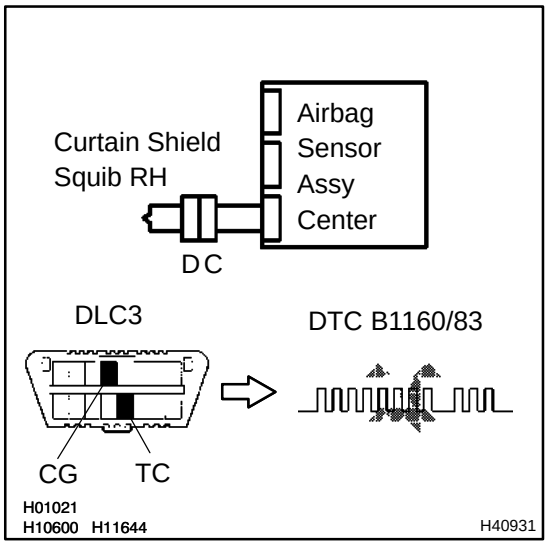
HINT:

Codes other than code B1160/83 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

| 4 | CHECK CURTAIN SHIELD AIR BAG ASSY RH(CURTAIN SHIELD SQUIB RH) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Connect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the connector to the curtain shield airbag assy RH.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(f) Clear the DTCs stored in memory (see page 05-777 ).
(g) Turn the ignition switch to the LOCK position.
(h) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(i) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1160/83 is not output.**

HINT:

Codes other than code B1160/83 may be output at this time, but they are not related to this check.

**NG** → **REPLACE CURTAIN SHIELD AIR BAG ASSY RH (SEE PAGE 60-40 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the air-bag system or driving the vehicle on a city or rough road (see page 05-780 ).

| DTC | B1161/84 | OPEN IN CURTAIN SHIELD SQUIB (RH) CIRCUIT |
|---|---|---|

## CIRCUIT DESCRIPTION

The curtain shield squib RH circuit consists of the airbag sensor assy center and the curtain shield airbag assy RH.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B1161/84 is recorded when an open circuit is detected in the curtain shield squib RH circuit.

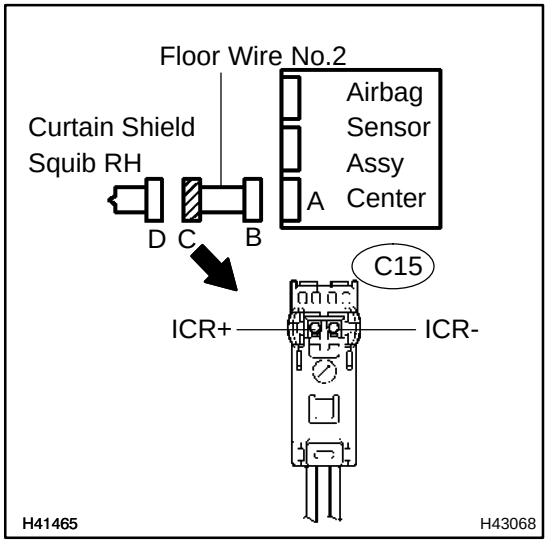
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1161/84 | • The airbag sensor assy center receives an open circuit signal in the curtain shield squib RH circuit for 2 seconds.<br>• Curtain shield squib RH malfunction<br>• Airbag sensor assy center malfunction | • Curtain shield airbag assy RH (Curtain shield squib RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 |

## WIRING DIAGRAM

See page 05-951 .

## INSPECTION PROCEDURE

| 1 | CHECK FLOOR WIRE NO.2(CURTAIN SHIELD SQUIB RH CIRCUIT) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the curtain shield airbag assy RH.
(d) Measure the resistance according to the value(s) in the table below.

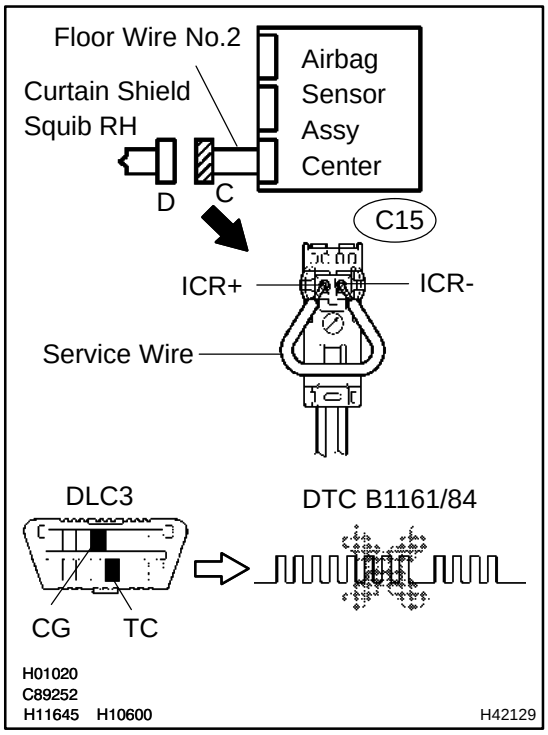
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| C15-1 (ICR+) - C15-2 (ICR-) | Always | Below 1 Ω |

NG → **REPAIR OR REPLACE FLOOR WIRE NO.2**

OK

## 2 CHECK AIR BAG SENSOR ASSY CENTER




(a) Connect the connector to the airbag sensor assy center.
(b) Using a service wire, connect C15-1 (ICR+) and C15-2 (ICR-) of connector "C".

**NOTICE:**

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminals of the connector when connecting.**

(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1161/84 is not output.**

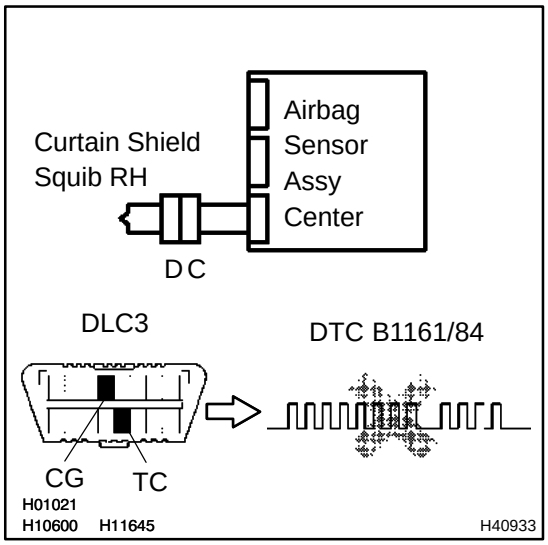
HINT:

Codes other than code B1161/84 may be output at this time, but they are not related to this check.

| | |
|---|---|
| NG | **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )** |

**OK**

| 3 | CHECK CURTAIN SHIELD AIR BAG ASSY RH(CURTAIN SHIELD SQUIB RH) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "C".
(d) Connect the connector to the curtain shield airbag assy RH.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1161/84 is not output.**

HINT:

Codes other than code B1161/84 may be output at this time, but they are not related to this check.

**NG** → **REPLACE CURTAIN SHIELD AIR BAG ASSY RH (SEE PAGE 60-40 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

# DTC B1162/81 SHORT IN CURTAIN SHIELD SQUIB (RH) CIRCUIT (TO GROUND)

## CIRCUIT DESCRIPTION

The curtain shield squib RH circuit consists of the airbag sensor assy center and the curtain shield airbag assy RH.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B1162/81 is recorded when a short to ground is detected in the curtain shield squib RH circuit.

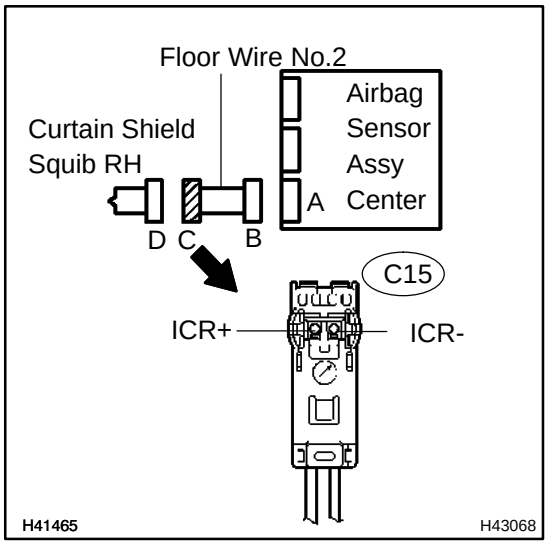
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1162/81 | • The airbag sensor assy center receives a short circuit to ground signal in the curtain shield squib RH circuit for 0.5 seconds.<br>• Curtain shield squib RH malfunction<br>• Airbag sensor assy malfunction | • Curtain shield airbag assy RH (Curtain shield squib RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 |

## WIRING DIAGRAM

See page 05-951 .

## INSPECTION PROCEDURE

**1 CHECK FLOOR WIRE NO.2(CURTAIN SHIELD SQUIB RH CIRCUIT)**




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the curtain shield airbag assy RH.
(d) Measure the resistance according to the value(s) in the table below.

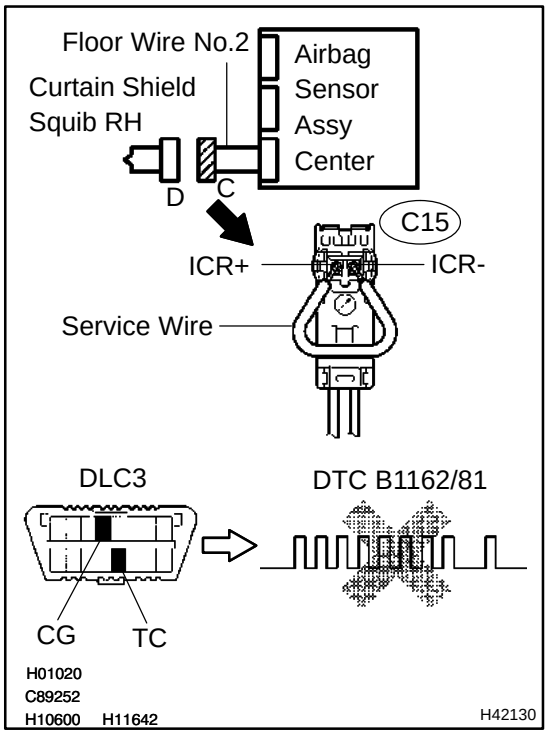
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| C15-1 (ICR+) - Body ground | Always | 1 MΩ or Higher |
| C15-2 (ICR-) - Body ground | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FLOOR WIRE NO.2**

**OK**

| 2 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|




(a) Connect the connector to the airbag sensor assy center.
(b) Using a service wire, connect C15-1 (ICR+) and C15-2 (ICR-) of connector "C".

**NOTICE:**

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminals of the connector when connecting.**

(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1162/81 is not output.**

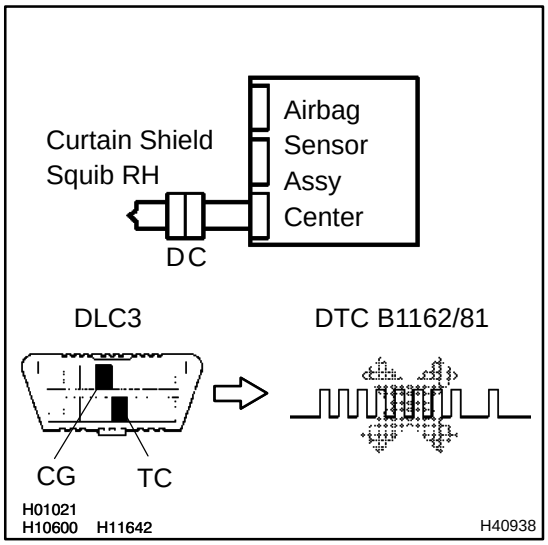
HINT:

Codes other than code B1162/81 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

## 3 CHECK CURTAIN SHIELD AIR BAG ASSY RH(CURTAIN SHIELD SQUIB RH)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "C".
(d) Connect the connector to the curtain shield airbag assy RH.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B1162/81 is not output.**

HINT:
Codes other than code B1162/81 may be output at this time, but they are not related to this check.

**NG** → **REPLACE CURTAIN SHIELD AIR BAG ASSY RH (SEE PAGE 60-40 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:
- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

# DTC B1163/82 SHORT IN CURTAIN SHIELD SQUIB (RH) CIRCUIT (TO B+)

## CIRCUIT DESCRIPTION

The curtain shield squib RH circuit consists of the airbag sensor assy center and the curtain shield airbag assy RH.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B1163/82 is recorded when a short to B+ is detected in the curtain shield squib RH circuit.

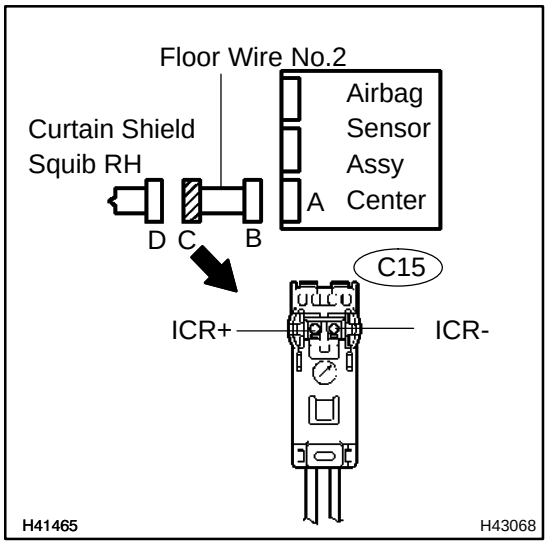
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1163/82 | • The airbag sensor assy center receives a short circuit to B+ signal in the curtain shield squib RH circuit for 0.5 seconds.<br>• Curtain shield squib RH malfunction<br>• Airbag sensor assy center malfunction | • Curtain shield airbag assy RH (Curtain shield squib RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 |

## WIRING DIAGRAM

See page 05-951 .

## INSPECTION PROCEDURE

| 1 | CHECK FLOOR WIRE NO.2(CURTAIN SHIELD SQUIB RH CIRCUIT) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the curtain shield airbag assy RH.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position.
(f) Measure the voltage according to the value(s) in the table below.

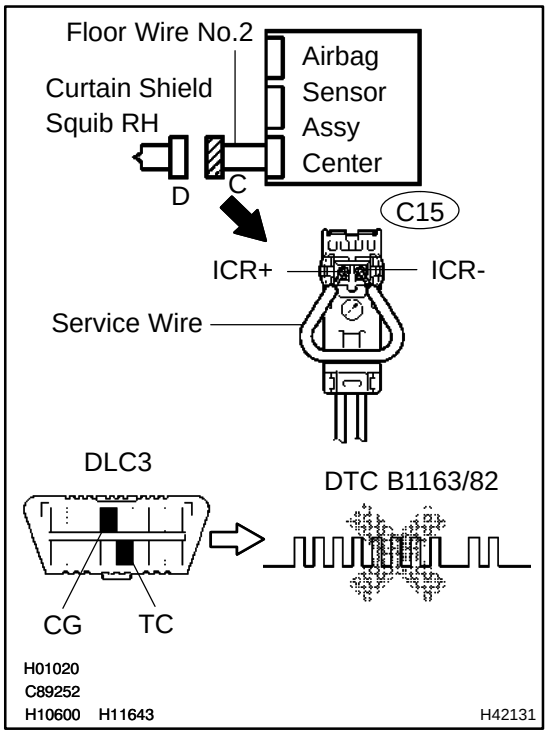
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| C15-1 (ICR+) - Body ground | Ignition switch ON | Below 1 V |
| C15-2 (ICR-) - Body ground | Ignition switch ON | Below 1 V |

**NG** → **REPAIR OR REPLACE FLOOR WIRE NO.2**

**OK**

## 2 CHECK AIR BAG SENSOR ASSY CENTER




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the connector to the airbag sensor assy center.
(d) Using a service wire, connect C15-1 (ICR+) and C15-2 (ICR-) of connector "C".

**NOTICE:**

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminals of the connector when connecting.**

(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1163/82 is not output.**

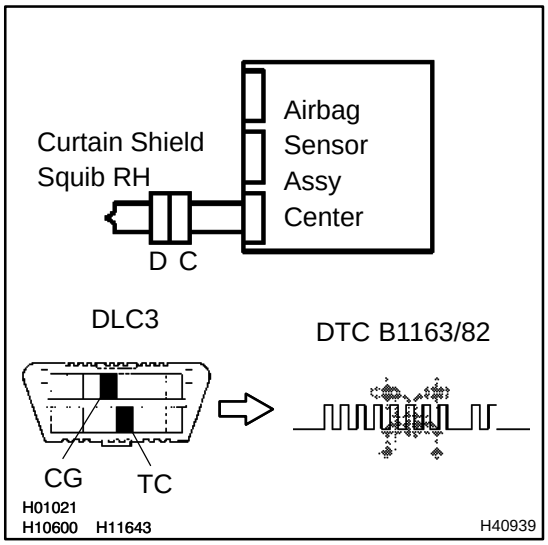
HINT:

Codes other than code B1163/82 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

| 3 | CHECK CURTAIN SHIELD AIR BAG ASSY RH(CURTAIN SHIELD SQUIB RH) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "C".
(d) Connect the connector to the curtain shield airbag assy RH.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B1163/82 is not output.**

HINT:
Codes other than code B1163/82 may be output at this time, but they are not related to this check.

**NG** → **REPLACE CURTAIN SHIELD AIR BAG ASSY RH (SEE PAGE 60-40 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:
- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

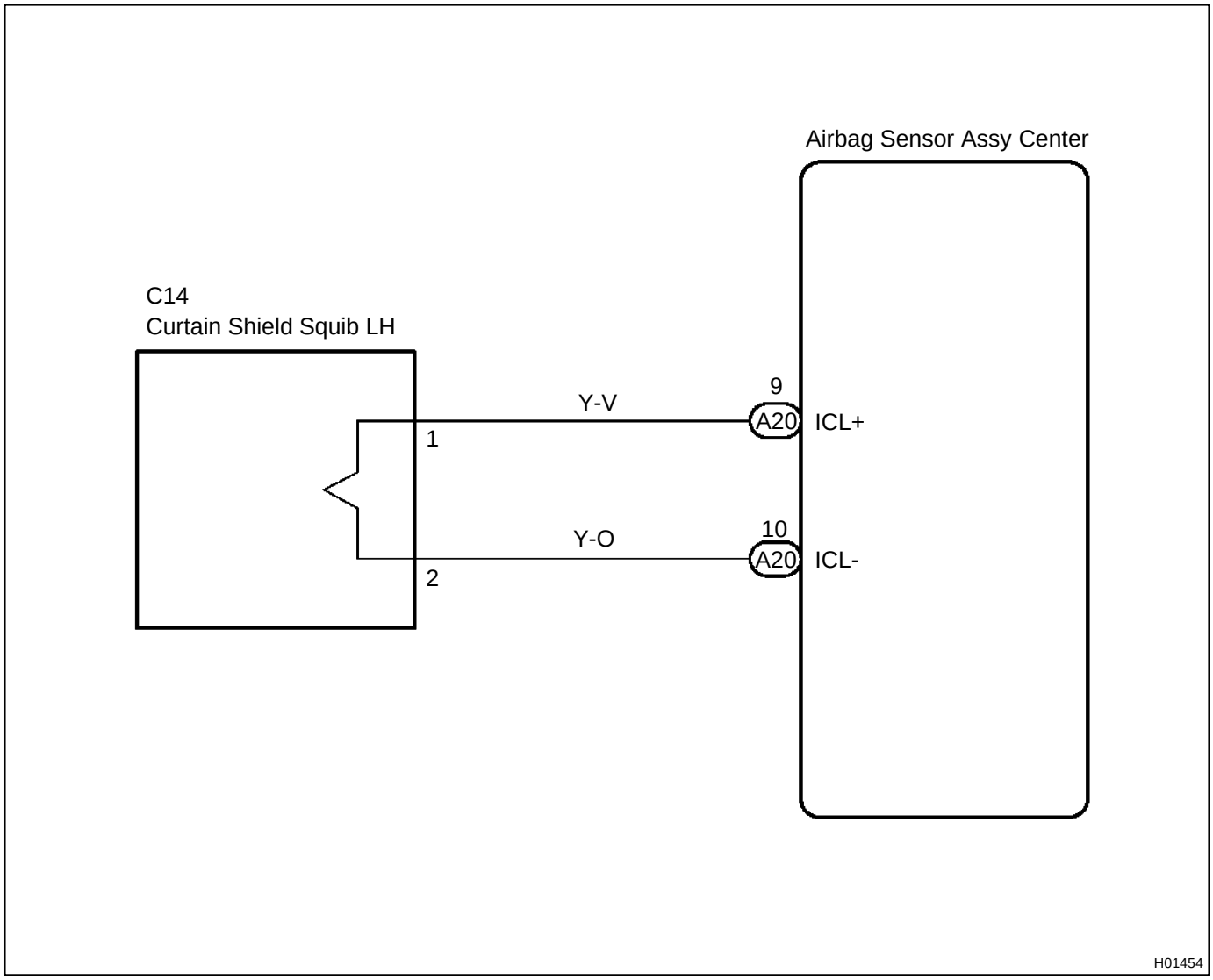
| DTC | B1165/87 | SHORT IN CURTAIN SHIELD SQUIB (LH) CIRCUIT |
|---|---|---|

## CIRCUIT DESCRIPTION

The curtain shield squib LH circuit consists of the airbag sensor assy center and the curtain shield airbag assy LH.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B1165/87 is recorded when a short circuit is detected in the curtain shield squib LH circuit.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1165/87 | • The airbag sensor assy center receives a line short circuit signal 5 times in the curtain shield squib LH circuit during primary check.<br>• Curtain shield squib LH malfunction<br>• Airbag sensor assy center malfunction | • Curtain shield airbag assy LH (Curtain shield squib LH)<br>• Airbag sensor assy center<br>• Floor wire |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

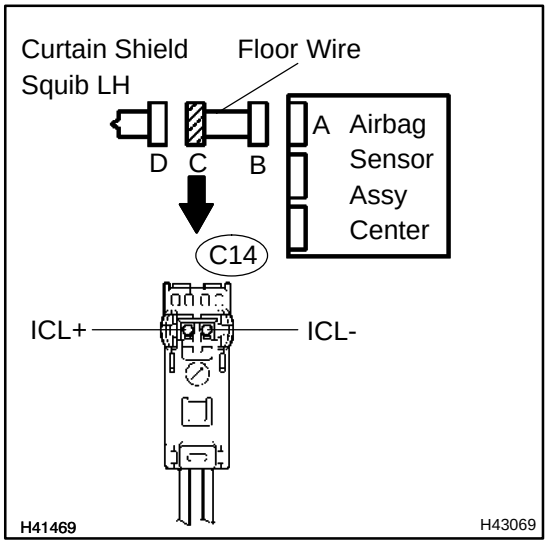
| 1 | CHECK CONNECTOR |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the curtain shield airbag assy LH.
(d) Check that the floor wire connector (on the curtain shield airbag assy LH side) is not damaged.
**OK:**
**The lock button is not disengaged, or the claw of the lock is not deformed or damaged.**

**NG** → **REPAIR OR REPLACE FLOOR WIRE**

**OK**

| 2 | CHECK FLOOR WIRE(CURTAIN SHIELD SQUIB LH CIRCUIT) |
|---|---|



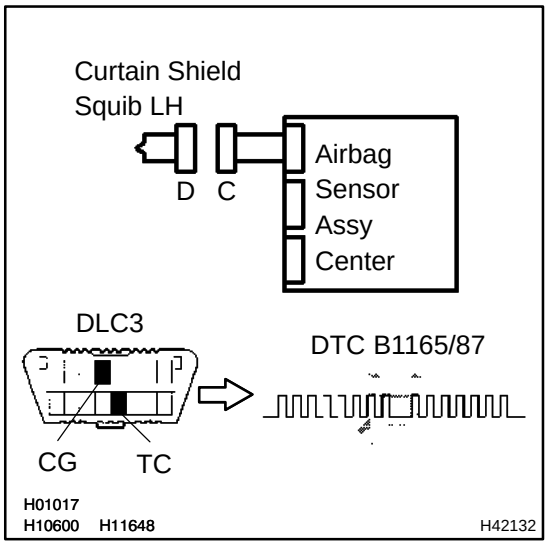

(a) Disconnect the connector from the airbag sensor assy center.
(b) Release the activation prevention mechanism built into connector "B" (see page 05-770 ).
(c) Measure the resistance according to the value(s) in the table below.
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| C14-1 (ICL+) - C14-2 (ICL-) | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FLOOR WIRE**

**OK**

| 3 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|



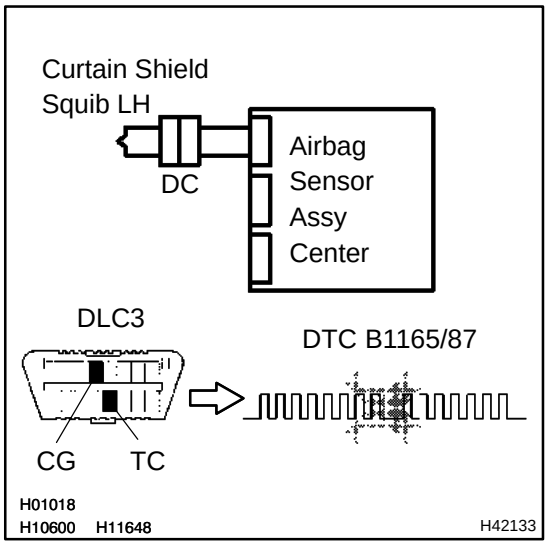

(a) Connect the connector to the airbag sensor assy center.
(b) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(c) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(d) Clear the DTCs stored in memory (see page 05-777 ).
(e) Turn the ignition switch to the LOCK position.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B1165/87 is not output.**

HINT:
Codes other than code B1165/87 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

| 4 | CHECK CURTAIN SHIELD AIR BAG ASSY LH(CURTAIN SHIELD SQUIB LH) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the connector to the curtain shield airbag assy LH.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(f) Clear the DTCs stored in memory (see page 05-777 ).
(g) Turn the ignition switch to the LOCK position.
(h) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(i) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1165/87 is not output.**

HINT:

Codes other than code B1165/87 may be output at this time, but they are not related to this check.

**NG** → **REPLACE CURTAIN SHIELD AIR BAG ASSY LH (SEE PAGE 60-40 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

| DTC | B1166/88 | OPEN IN CURTAIN SHIELD SQUIB (LH) CIRCUIT |
|---|---|---|

## CIRCUIT DESCRIPTION

The curtain shield squib LH circuit consists of the airbag sensor assy center and the curtain shield airbag assy LH.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B1166/88 is recorded when an open circuit is detected in the curtain shield squib LH circuit.

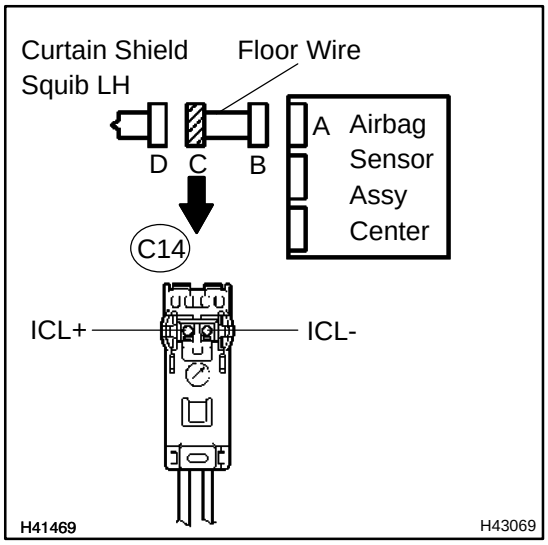
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1166/88 | • The airbag sensor assy center receives an open circuit signal in the curtain shield squib LH circuit for 2 seconds.<br>• Curtain shield squib LH malfunction<br>• Airbag sensor assy center malfunction | • Curtain shield airbag assy LH (Curtain shield squib LH)<br>• Airbag sensor assy center<br>• Floor wire |

## WIRING DIAGRAM

See page 05-964 .

## INSPECTION PROCEDURE

| 1 | CHECK FLOOR WIRE(CURTAIN SHIELD SQUIB LH CIRCUIT) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the curtain shield airbag assy LH.
(d) Measure the resistance according to the value(s) in the table below.

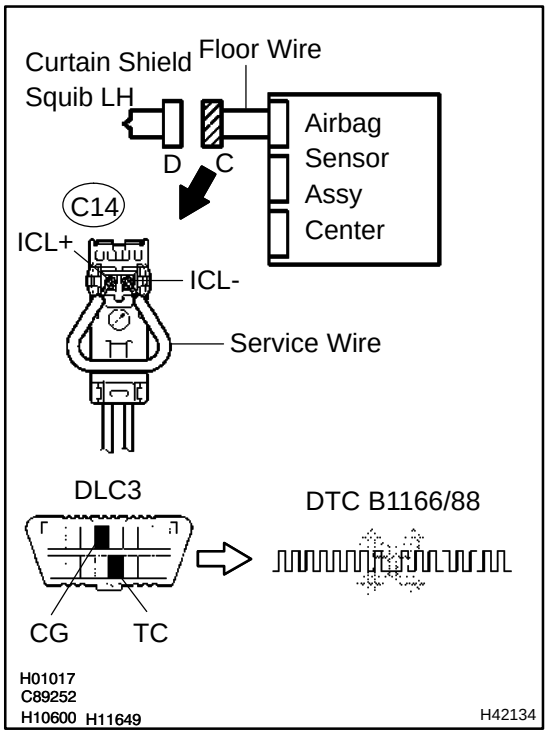
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| C14-1 (ICL+) - C14-2 (ICL-) | Always | Below 1 Ω |

NG → **REPAIR OR REPLACE FLOOR WIRE**

OK

| 2 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|




(a) Connect the connector to the airbag sensor assy center.
(b) Using a service wire, connect C14-1 (ICL+) and C14-2 (ICL-) of connector "C".

**NOTICE:**

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminals of the connector when connecting.**

(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1166/88 is not output.**

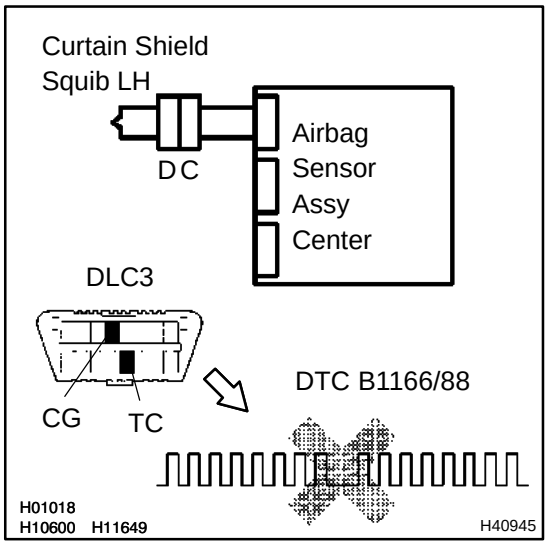
HINT:

Codes other than code B1166/88 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

| 3 | CHECK CURTAIN SHIELD AIR BAG ASSY LH(CURTAIN SHIELD SQUIB LH) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "C".
(d) Connect the connector to the curtain shield airbag assy LH.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B1166/88 is not output.**

HINT:
Codes other than code B1166/88 may be output at this time, but they are not related to this check.

**NG** → **REPLACE CURTAIN SHIELD AIR BAG ASSY LH (SEE PAGE 60-40 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:
- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

| DTC | B1167/85 | SHORT IN CURTAIN SHIELD SQUIB (LH) CIRCUIT (TO GROUND) |
|---|---|---|

## CIRCUIT DESCRIPTION

The curtain shield squib LH circuit consists of the airbag sensor assy center and the curtain shield airbag assy LH.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B1167/85 is recorded when a short to ground is detected in the curtain shield squib LH circuit.

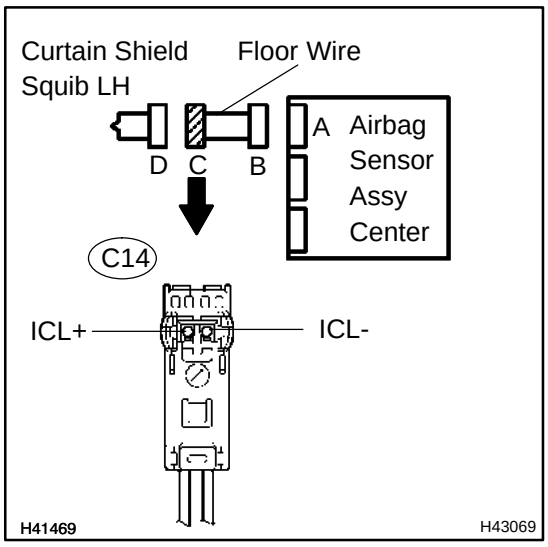
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1167/85 | • The airbag sensor assy center receives a short circuit to ground signal in the curtain shield squib LH circuit for 0.5 seconds.<br>• Curtain shield squib LH malfunction<br>• Airbag sensor assy malfunction | • Curtain shield airbag assy LH (Curtain shield squib LH)<br>• Airbag sensor assy center<br>• Floor wire |

## WIRING DIAGRAM

See page 05-964 .

## INSPECTION PROCEDURE

| 1 | CHECK FLOOR WIRE(CURTAIN SHIELD SQUIB LH CIRCUIT) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the curtain shield airbag assy LH.
(d) Measure the resistance according to the value(s) in the table below.

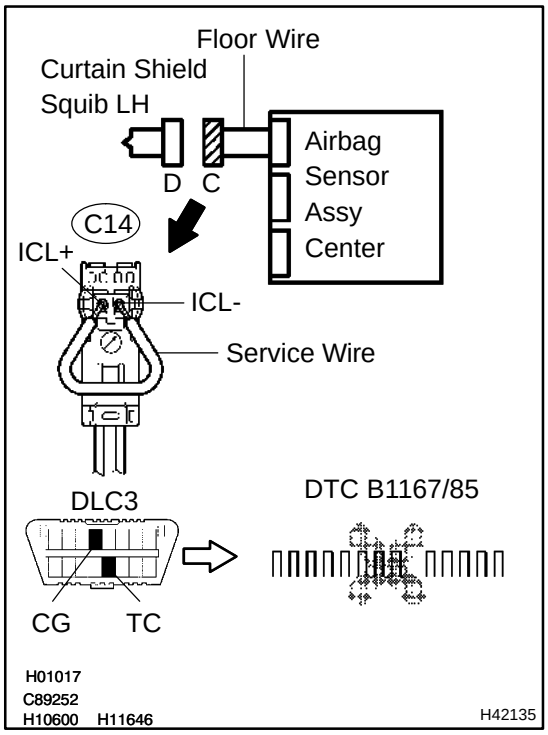
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| C14-1 (ICL+) - Body ground | Always | 1 MΩ or Higher |
| C14-2 (ICL-) - Body ground | Always | 1 MΩ or Higher |

NG → **REPAIR OR REPLACE FLOOR WIRE**

OK

## 2 CHECK AIR BAG SENSOR ASSY CENTER




(a) Connect the connector to the airbag sensor assy center.
(b) Using a service wire, connect C14-1 (ICL+) and C14-2 (ICL-) of connector "C".

**NOTICE:**

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminals of the connector when connecting.**

(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1167/85 is not output.**

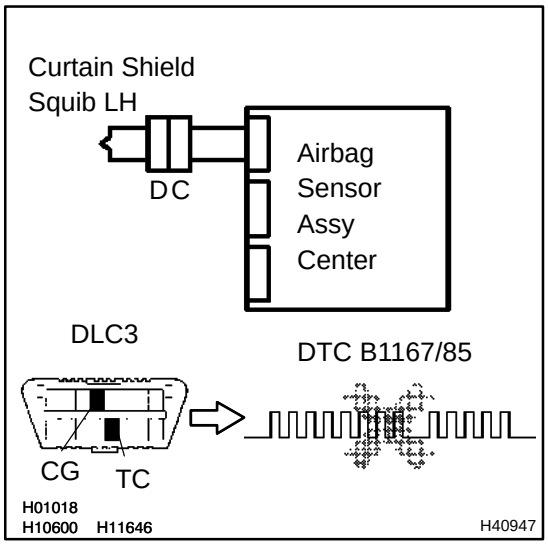
HINT:

Codes other than code B1167/85 may be output at this time, but they are not related to this check.

| | |
|---|---|
| NG | **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )** |

**OK**

| 3 | CHECK CURTAIN SHIELD AIR BAG ASSY LH(CURTAIN SHIELD SQUIB LH) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "C".
(d) Connect the connector to the curtain shield airbag assy LH.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1167/85 is not output.**

HINT:

Codes other than code B1167/85 may be output at this time, but they are not related to this check.

**NG** → **REPLACE CURTAIN SHIELD AIR BAG ASSY LH (SEE PAGE 60-40 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

| DTC | B1168/86 | SHORT IN CURTAIN SHIELD SQUIB (LH) CIRCUIT (TO B+) |
|---|---|---|

## CIRCUIT DESCRIPTION

The curtain shield squib LH circuit consists of the airbag sensor assy center and the curtain shield airbag assy LH.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B1168/86 is recorded when a short to B+ is detected in the curtain shield squib LH circuit.

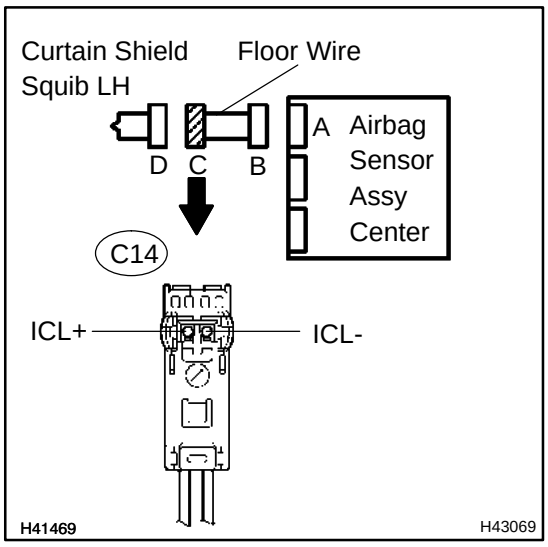
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1168/86 | • The airbag sensor assy center receives a short circuit to B+ signal in the curtain shield squib LH circuit for 0.5 seconds.<br>• Curtain shield squib LH malfunction<br>• Airbag sensor assy center malfunction | • Curtain shield airbag assy LH (Curtain shield squib LH)<br>• Airbag sensor assy center<br>• Floor wire |

## WIRING DIAGRAM

See page 05-964 .

## INSPECTION PROCEDURE

| 1 | CHECK FLOOR WIRE(CURTAIN SHIELD SQUIB LH CIRCUIT) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the curtain shield airbag assy LH.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position.
(f) Measure the voltage according to the value(s) in the table below.

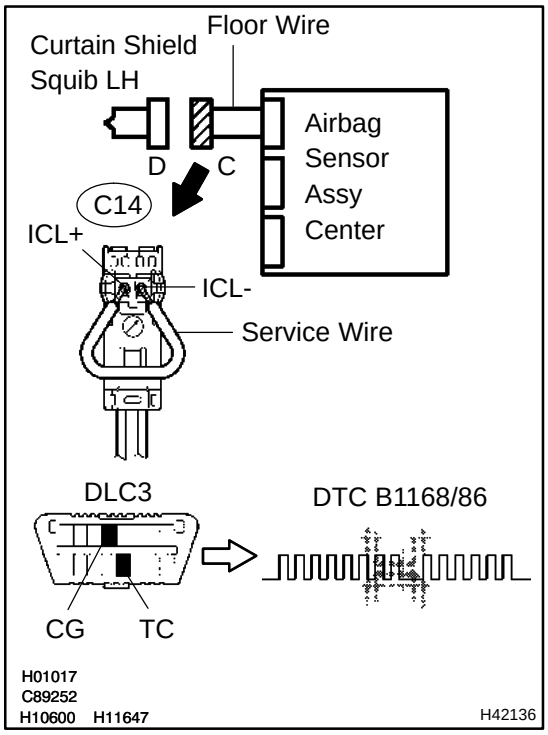
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| C14-1 (ICL+) - Body ground | Ignition switch ON | Below 1 V |
| C14-2 (ICL-) - Body ground | Ignition switch ON | Below 1 V |

NG → **REPAIR OR REPLACE FLOOR WIRE**

OK

## 2 CHECK AIR BAG SENSOR ASSY CENTER




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the connector to the airbag sensor assy center.
(d) Using a service wire, connect C14-1 (ICL+) and C14-2 (ICL-) of connector "C".

**NOTICE:**

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminals of the connector when connecting.**

(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1168/86 is not output.**

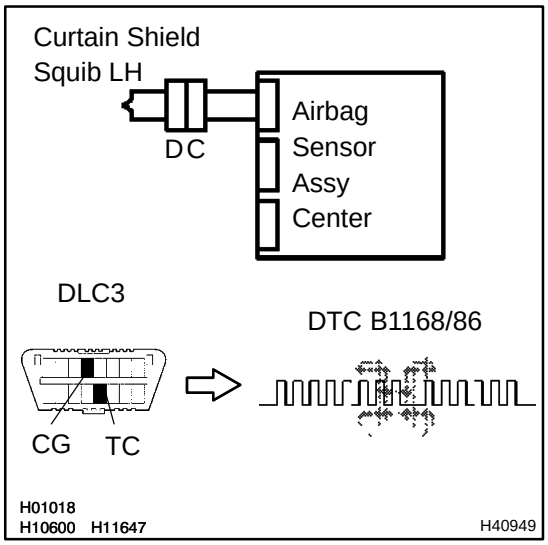
HINT:

Codes other than code B1168/86 may be output at this time, but they are not related to this check.

| | |
|---|---|
| NG | **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )** |

OK

| 3 | CHECK CURTAIN SHIELD AIR BAG ASSY LH(CURTAIN SHIELD SQUIB LH) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "C".
(d) Connect the connector to the curtain shield airbag assy LH.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1168/86 is not output.**

HINT:

Codes other than code B1168/86 may be output at this time, but they are not related to this check.

**NG** → **REPLACE CURTAIN SHIELD AIR BAG ASSY LH (SEE PAGE 60-40 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

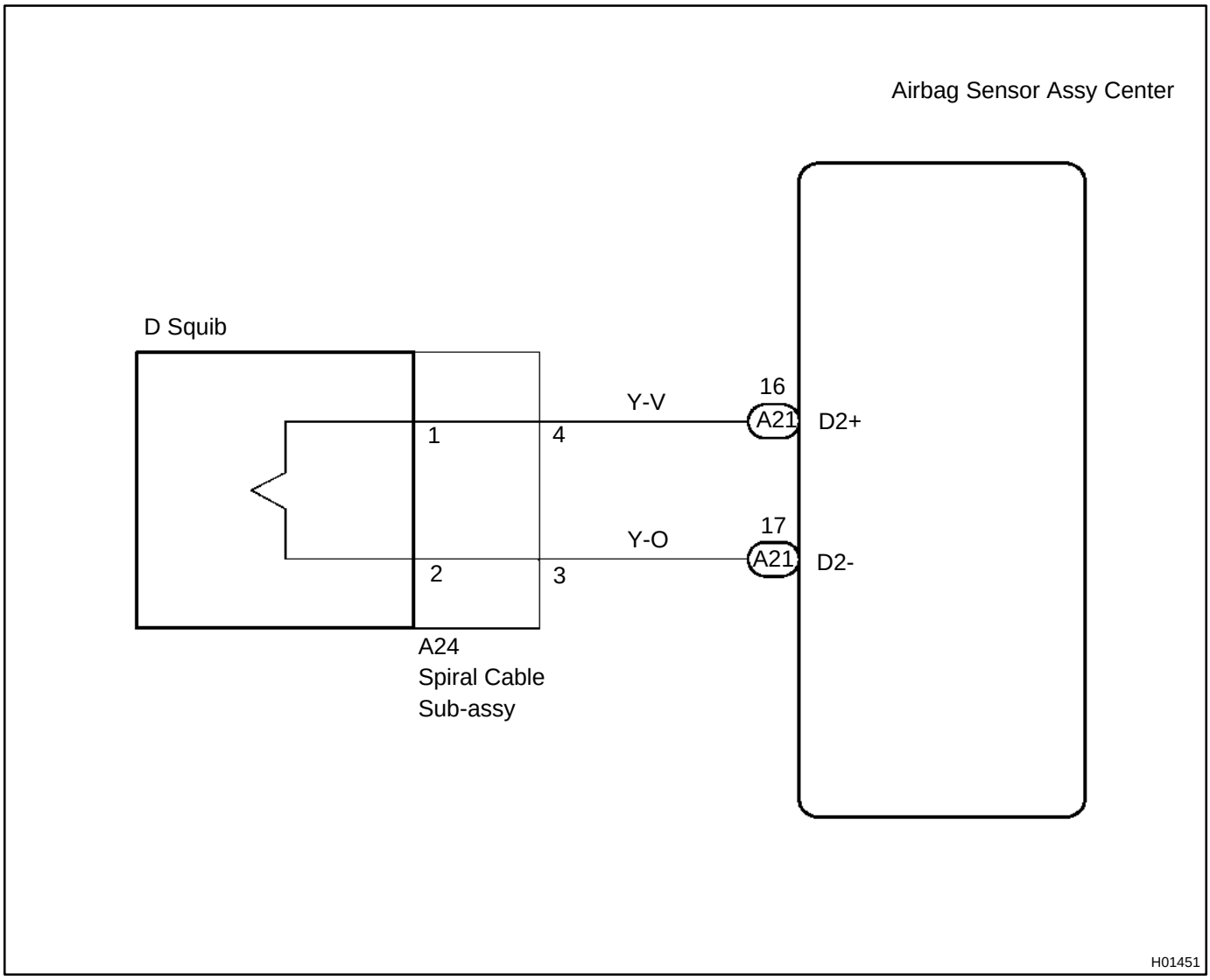
| DTC | B1180/17 | SHORT IN D SQUIB (DUAL STAGE - 2ND STEP) CIRCUIT |
|---|---|---|

## CIRCUIT DESCRIPTION

The D squib (Dual stage - 2nd step) circuit consists of the airbag sensor assy center, the spiral cable sub-assy and the horn button assy.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B1180/17 is recorded when a short circuit is detected in the D squib (Dual stage - 2nd step) circuit.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1180/17 | • The airbag sensor assy center receives a line short circuit signal 5 times in the D squib (Dual stage - 2nd step) circuit during primary check.<br>• D squib (Dual stage - 2nd step) malfunction<br>• Spiral cable sub-assy malfunction<br>• Airbag sensor assy center malfunction | • Horn button assy (D squib, Dual stage - 2nd step)<br>• Spiral cable sub-assy<br>• Airbag sensor assy center<br>• Instrument panel wire |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

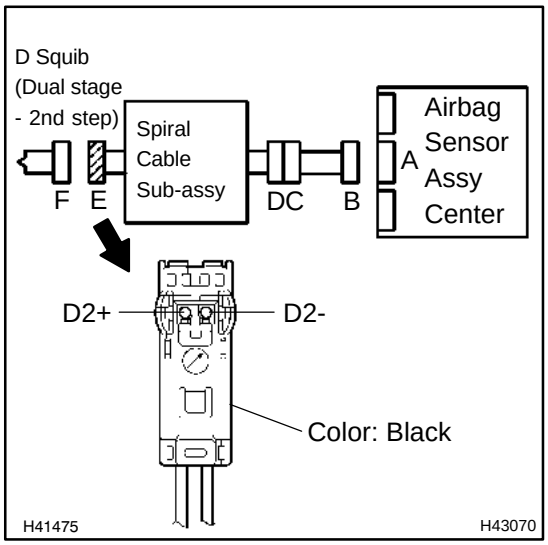
| 1 | CHECK CONNECTOR |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the horn button assy.
(d) Check that the spiral cable sub-assy connectors (on the horn button assy side) are not damaged.
**OK:**
**The lock button is not disengaged, or the claw of the lock is not deformed or damaged.**

**NG** → **REPLACE SPIRAL CABLE SUB-ASSY (SEE PAGE 60-28 )**

**OK**

| 2 | CHECK D SQUIB CIRCUIT(DUAL STAGE - 2ND STEP, AIRBAG SENSOR ASSY CENTER - HORN BUTTON ASSY) |
|---|---|



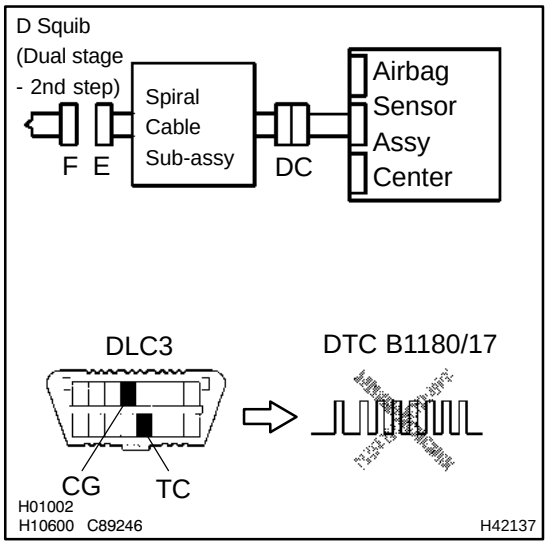

(a) Disconnect the connector from the airbag sensor assy center.
(b) Release the activation prevention mechanism built into connector ”B” (see page 05-770 ).
(c) Measure the resistance according to the value(s) in the table below.
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| D2+ - D2- | Always | 1 MΩ or Higher |

**NG** → **Go to step 5**

**OK**

| 3 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|




(a) Connect the connector to the airbag sensor assy center.
(b) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(c) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(d) Clear the DTCs stored in memory (see page 05-777 ).
(e) Turn the ignition switch to the LOCK position.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1180/17 is not output.**

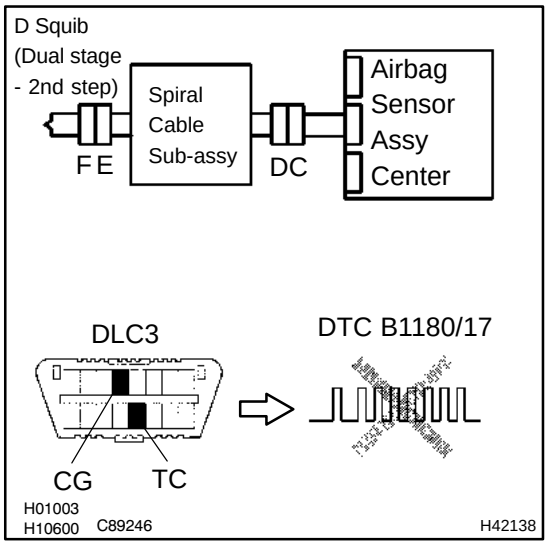
HINT:

Codes other than code B1180/17 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

## 4 CHECK HORN BUTTON ASSY(D SQUIB, DUAL STAGE - 2ND STEP)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the connectors to the horn button assy.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(f) Clear the DTCs stored in memory (see page 05-777 ).
(g) Turn the ignition switch to the LOCK position.
(h) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(i) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1180/17 is not output.**

HINT:

Codes other than code B1180/17 may be output at this time, but they are not related to this check.

**NG** → **REPLACE HORN BUTTON ASSY (SEE PAGE 60-19 )**

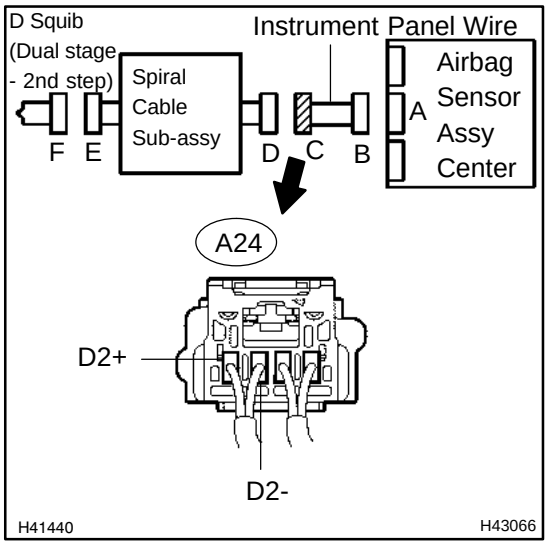
**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

## 5 CHECK INSTRUMENT PANEL WIRE




(a) Disconnect the instrument panel wire connector from the spiral cable sub-assy.

HINT:

The activation prevention mechanism of connector "B" has already been released.

(b) Measure the resistance according to the value(s) in the table below.

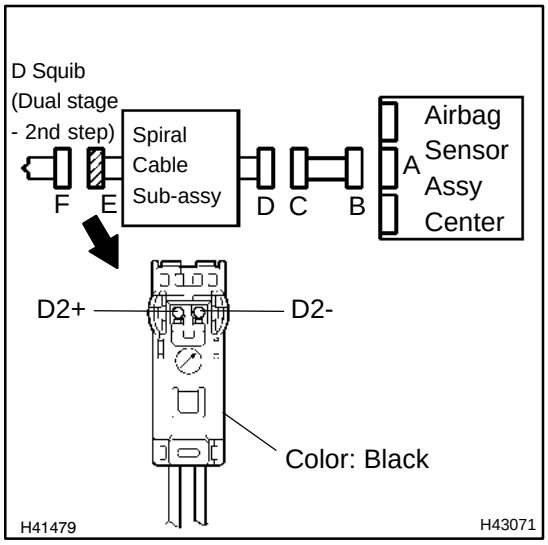
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A24-4 (D2+) - A24-3 (D2-) | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

**OK**

## 6 CHECK SPIRAL CABLE SUB-ASSY




(a) Release the activation prevention mechanism built into connector "D" (see page 05-770 ).

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| D2+ - D2- | Always | 1 MΩ or Higher |

**NG** → **REPLACE SPIRAL CABLE SUB-ASSY (SEE PAGE 60-28 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

| DTC | B1181/18 | OPEN IN D SQUIB (DUAL STAGE - 2ND STEP) CIRCUIT |
|---|---|---|

## CIRCUIT DESCRIPTION

The D squib (Dual stage - 2nd step) circuit consists of the airbag sensor assy center, the spiral cable sub-assy and the horn button assy.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B1182/19 is recorded when a short to ground is detected in the D squib (Dual stage - 2nd step) circuit.

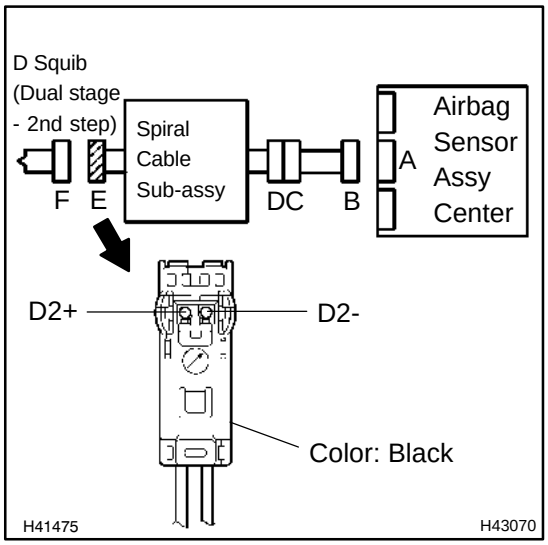
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1182/19 | • The airbag sensor assy center receives an open circuit signal in the D squib (Dual stage - 2nd step) circuit for 2 seconds.<br>• D squib (Dual stage - 2nd step) malfunction<br>• Spiral cable sub-assy malfunction<br>• Airbag sensor assy center malfunction | • Horn button assy (D squib, Dual stage - 2nd step)<br>• Spiral cable sub-assy<br>• Airbag sensor assy center<br>• Instrument panel wire |

## WIRING DIAGRAM

See page 05-977 .

## INSPECTION PROCEDURE

| 1 | CHECK D SQUIB CIRCUIT(DUAL STAGE - 2ND STEP, AIRBAG SENSOR ASSY CENTER - HORN BUTTON ASSY) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the horn button assy.
(d) Measure the resistance according to the value(s) in the table below.

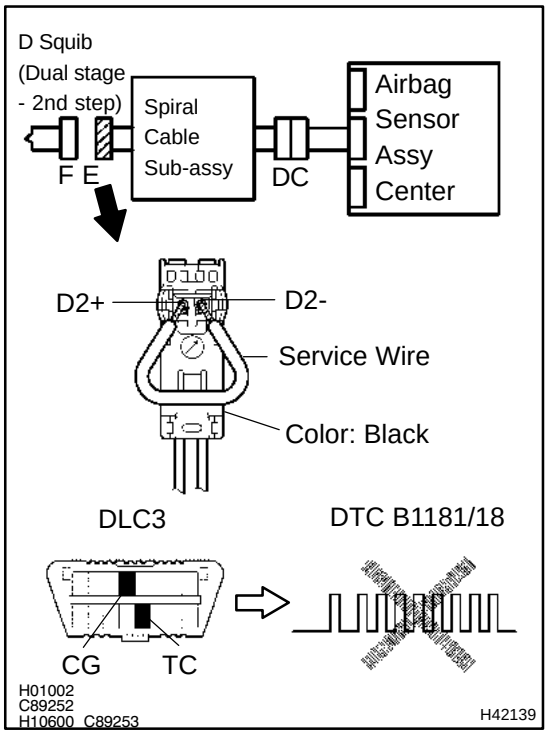
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| D2+ - D2- | Always | Below 1 Ω |

**NG** → **Go to step 4**

**OK**

## 2 CHECK AIR BAG SENSOR ASSY CENTER




(a) Connect the connector to the airbag sensor assy center.
(b) Using a service wire, connect D2+ and D2- of connector "E".

**NOTICE:**

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminals of the connector when connecting.**

(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1181/18 is not output.**

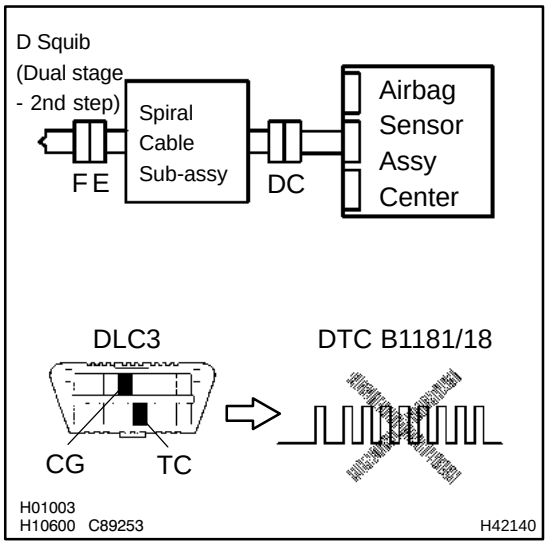
HINT:

Codes other than code B1181/18 may be output at this time, but they are not related to this check.

| | |
|---|---|
| NG | **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )** |

**OK**

## 3 CHECK HORN BUTTON ASSY(D SQUIB, DUAL STAGE - 2ND STEP)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "E".
(d) Connect the connectors to the horn button assy.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1181/18 is not output.**

HINT:

Codes other than code B1181/18 may be output at this time, but they are not related to this check.

**NG** → **REPLACE HORN BUTTON ASSY (SEE PAGE 60-19 )**

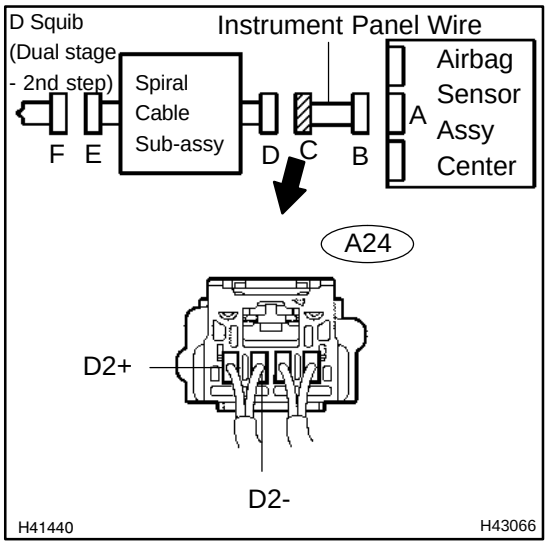
**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

## 4 CHECK INSTRUMENT PANEL WIRE




(a) Disconnect the instrument panel wire connector from the spiral cable sub-assy.

(b) Measure the resistance according to the value(s) in the table below.

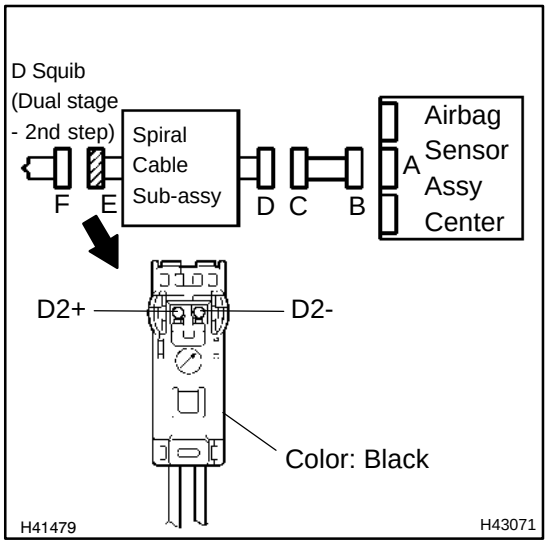
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A24-4 (D2+) - A24-3 (D2-) | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

**OK**

## 5 CHECK SPIRAL CABLE SUB-ASSY




(a) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| D2+ - D2- | Always | Below 1 Ω |

**NG** → **REPLACE SPIRAL CABLE SUB-ASSY (SEE PAGE 60-28 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the air-bag system or driving the vehicle on a city or rough road (see page 05-780 ).

| DTC | B1182/19 | SHORT IN D SQUIB (DUAL STAGE - 2ND STEP) CIRCUIT (TO GROUND) |
|---|---|---|

## CIRCUIT DESCRIPTION

The D squib (Dual stage - 2nd step) circuit consists of the airbag sensor assy center, the spiral cable sub-assy and the horn button assy.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B1182/19 is recorded when a short to ground is detected in the D squib (Dual stage - 2nd step) circuit.

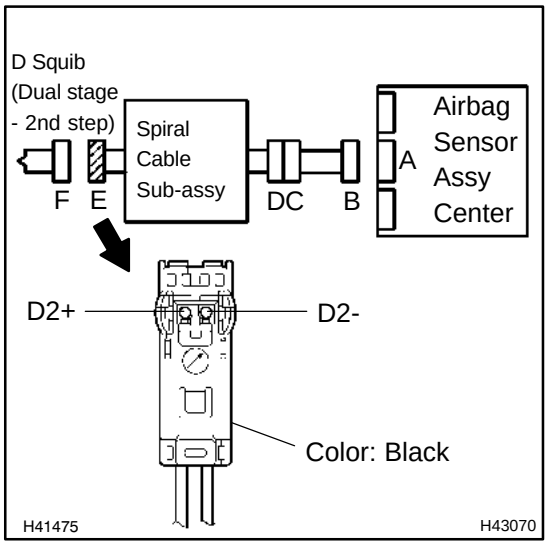
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1182/19 | • The airbag sensor assy center receives a short circuit to ground signal in the D squib (Dual stage - 2nd step) circuit for 0.5 seconds.<br>• D squib (Dual stage - 2nd step) malfunction<br>• Spiral cable sub-assy malfunction<br>• Airbag sensor assy center malfunction | • Horn button assy (D squib, Dual stage - 2nd step)<br>• Spiral cable sub-assy<br>• Airbag sensor assy center<br>• Instrument panel wire |

## WIRING DIAGRAM

See page 05-977 .

## INSPECTION PROCEDURE

| 1 | CHECK D SQUIB CIRCUIT(DUAL STAGE - 2ND STEP, AIRBAG SENSOR ASSY CENTER - HORN BUTTON ASSY) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the horn button assy.
(d) Measure the resistance according to the value(s) in the table below.

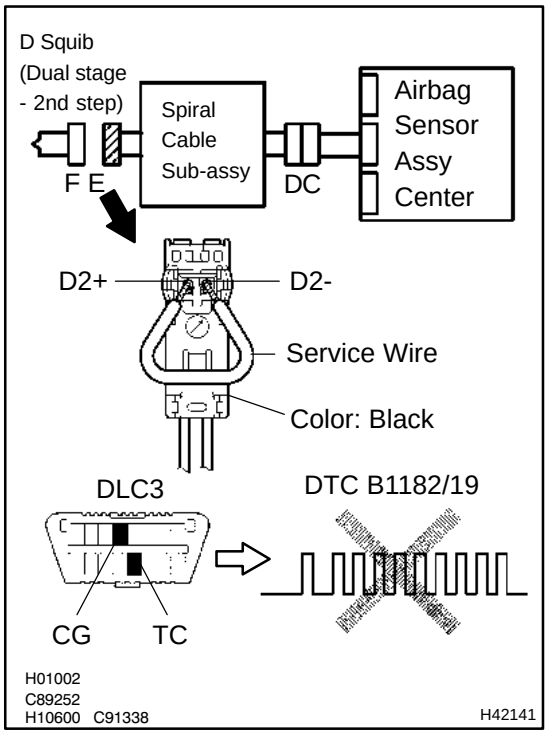
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| D2+ - Body ground | Always | 1 MΩ or Higher |
| D2- - Body ground | Always | 1 MΩ or Higher |

**NG** → **Go to step 4**

**OK**

## 2 CHECK AIR BAG SENSOR ASSY CENTER




(a) Connect the connector to the airbag sensor assy center.
(b) Using a service wire, connect D2+ and D2- of connector "E".

**NOTICE:**

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminals of the connector when connecting.**

(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1182/19 is not output.**

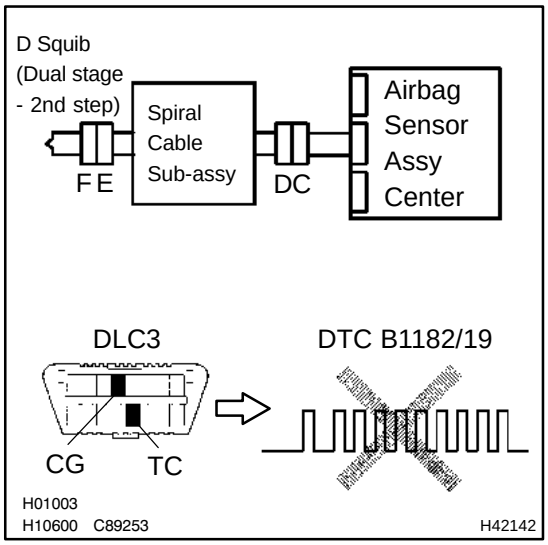
HINT:

Codes other than code B1182/19 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

## 3 CHECK HORN BUTTON ASSY(D SQUIB, DUAL STAGE - 2ND STEP)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "E".
(d) Connect the connectors to the horn button assy.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1182/19 is not output.**

HINT:

Codes other than code B1182/19 may be output at this time, but they are not related to this check.

**NG** → **REPLACE HORN BUTTON ASSY (SEE PAGE 60-19 )**

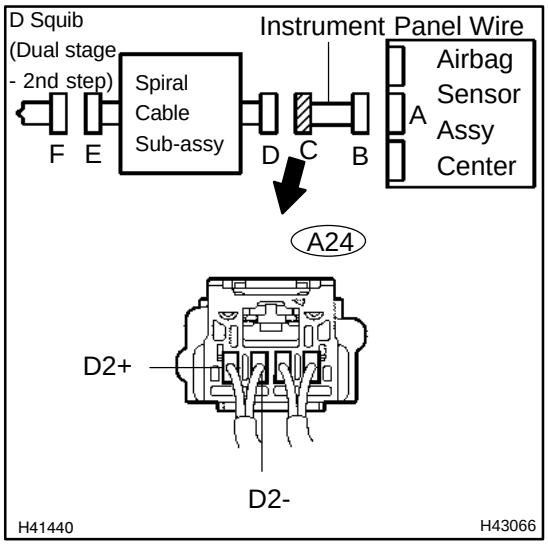
**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

## 4 CHECK INSTRUMENT PANEL WIRE




(a) Disconnect the instrument panel wire connector from the spiral cable sub-assy.

(b) Measure the resistance according to the value(s) in the table below.

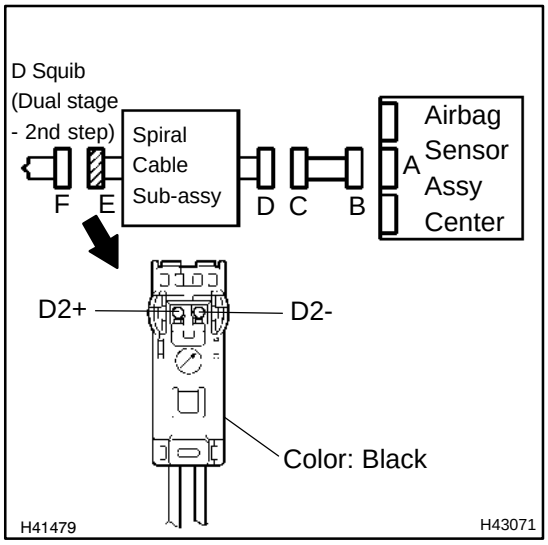
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A24-4 (D2+) - Body ground | Always | 1 MΩ or Higher |
| A24-3 (D2-) - Body ground | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

**OK**

## 5 CHECK SPIRAL CABLE SUB-ASSY




(a) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| D2+ - Body ground | Always | 1 MΩ or Higher |
| D2- - Body ground | Always | 1 MΩ or Higher |

**NG** → **REPAIR SPIRAL CABLE SUB-ASSY (SEE PAGE 60-28 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the air-bag system or driving the vehicle on a city or rough road (see page 05-780 ).

| DTC | B1183/22 | SHORT IN D SQUIB (DUAL STAGE - 2ND STEP) CIRCUIT (TO B+) |
|---|---|---|

## CIRCUIT DESCRIPTION

The D squib (Dual stage - 2nd step) circuit consists of the airbag sensor assy center, the spiral cable sub-assy and the horn button assy.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B1183/22 is recorded when a short to B+ is detected in the D squib (Dual stage - 2nd step) circuit.

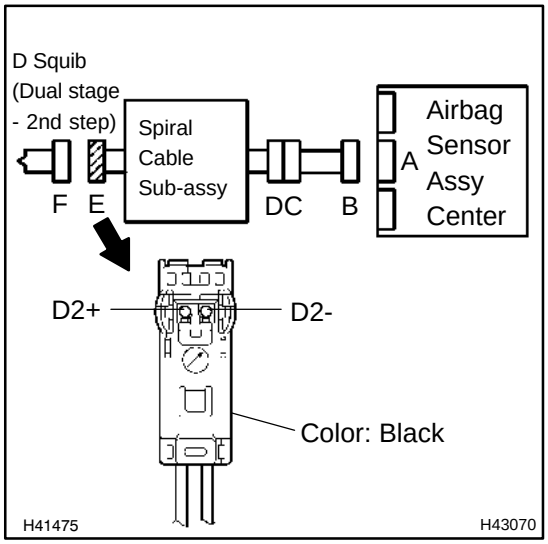
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1183/22 | • The airbag sensor assy center receives a short circuit to B+ signal in the D squib (Dual stage - 2nd step) circuit for 0.5 seconds.<br>• D squib (Dual stage - 2nd step) malfunction<br>• Spiral cable sub-assy malfunction<br>• Airbag sensor assy center malfunction | • Horn button assy (D squib, Dual stage - 2nd step)<br>• Spiral cable sub-assy<br>• Airbag sensor assy center<br>• Instrument panel wire |

## WIRING DIAGRAM

See page 05-977 .

## CIRCUIT INSPECTION

| 1 | CHECK D SQUIB CIRCUIT(DUAL STAGE - 2ND STEP, AIRBAG SENSOR ASSY CENTER - HORN BUTTON ASSY) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the horn button assy.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position.
(f) Measure the voltage according to the value(s) in the table below.

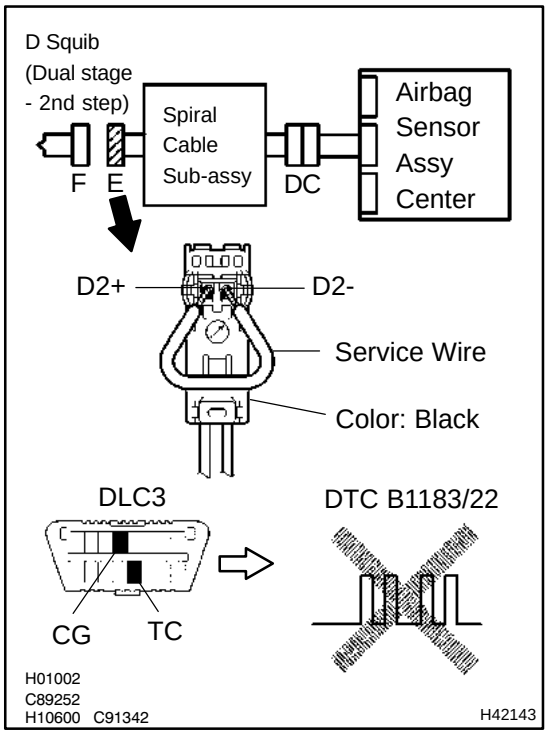
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| D2+ - Body ground | Ignition switch ON | Below 1 V |
| D2- - Body ground | Ignition switch ON | Below 1 V |

**NG** → **Go to step 4**

**OK**

## 2 CHECK AIR BAG SENSOR ASSY CENTER




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the connector to the airbag sensor assy center.
(d) Using a service wire, connect D2+ and D2- of connector "E".

**NOTICE:**

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminals of the connector when connecting.**

(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1183/22 is not output.**

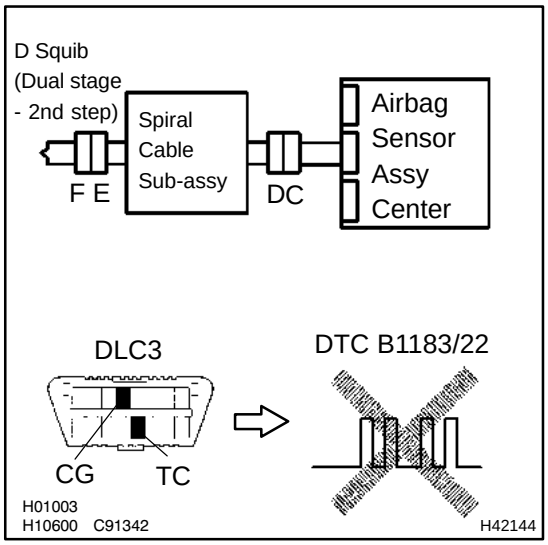
HINT:

Codes other than code B1183/22 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

## 3 CHECK HORN BUTTON ASSY(D SQUIB, DUAL STAGE - 2ND STEP)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "E".
(d) Connect the connectors to the horn button assy.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1183/22 is not output.**

HINT:

Codes other than code B1183/22 may be output at this time, but they are not related to this check.

**NG** → **REPLACE HORN BUTTON ASSY (SEE PAGE 60-19 )**

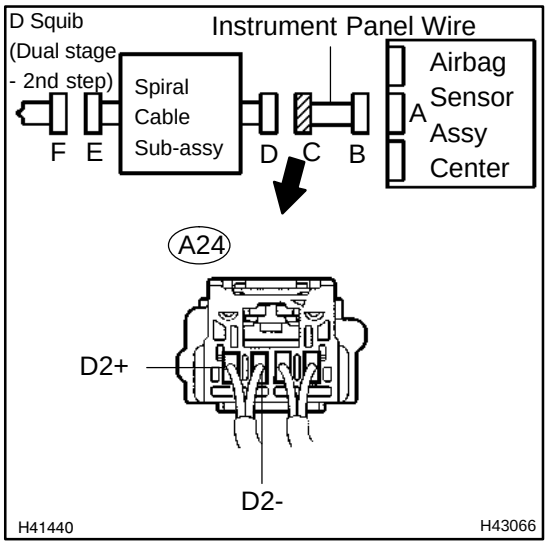
**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

## 4 CHECK INSTRUMENT PANEL WIRE




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the instrument panel wire connector from the spiral cable sub-assy.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position.
(f) Measure the voltage according to the value(s) in the table below.

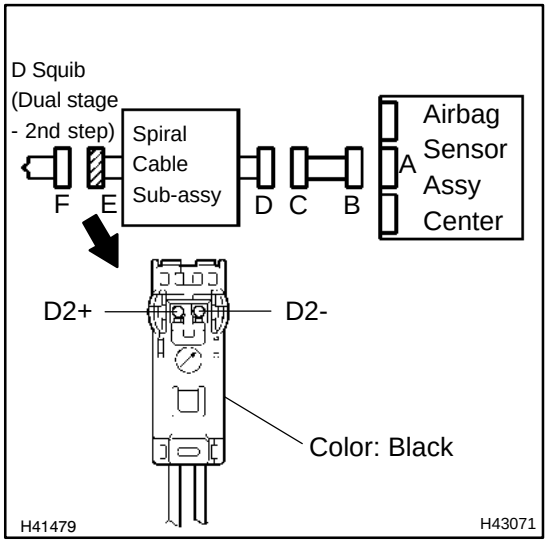
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A24-4 (D2+) - Body ground | Ignition switch ON | Below 1 V |
| A24-3 (D2-) - Body ground | Ignition switch ON | Below 1 V |

NG → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

OK

## 5 CHECK SPIRAL CABLE SUB-ASSY




(a) Measure the voltage according to the value(s) in the table below when the ignition switch is in the ON position.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| D2+ - Body ground | Ignition switch ON | Below 1 V |
| D2- - Body ground | Ignition switch ON | Below 1 V |

NG → **REPLACE SPIRAL CABLE SUB-ASSY (SEE PAGE 60-28 )**

OK

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

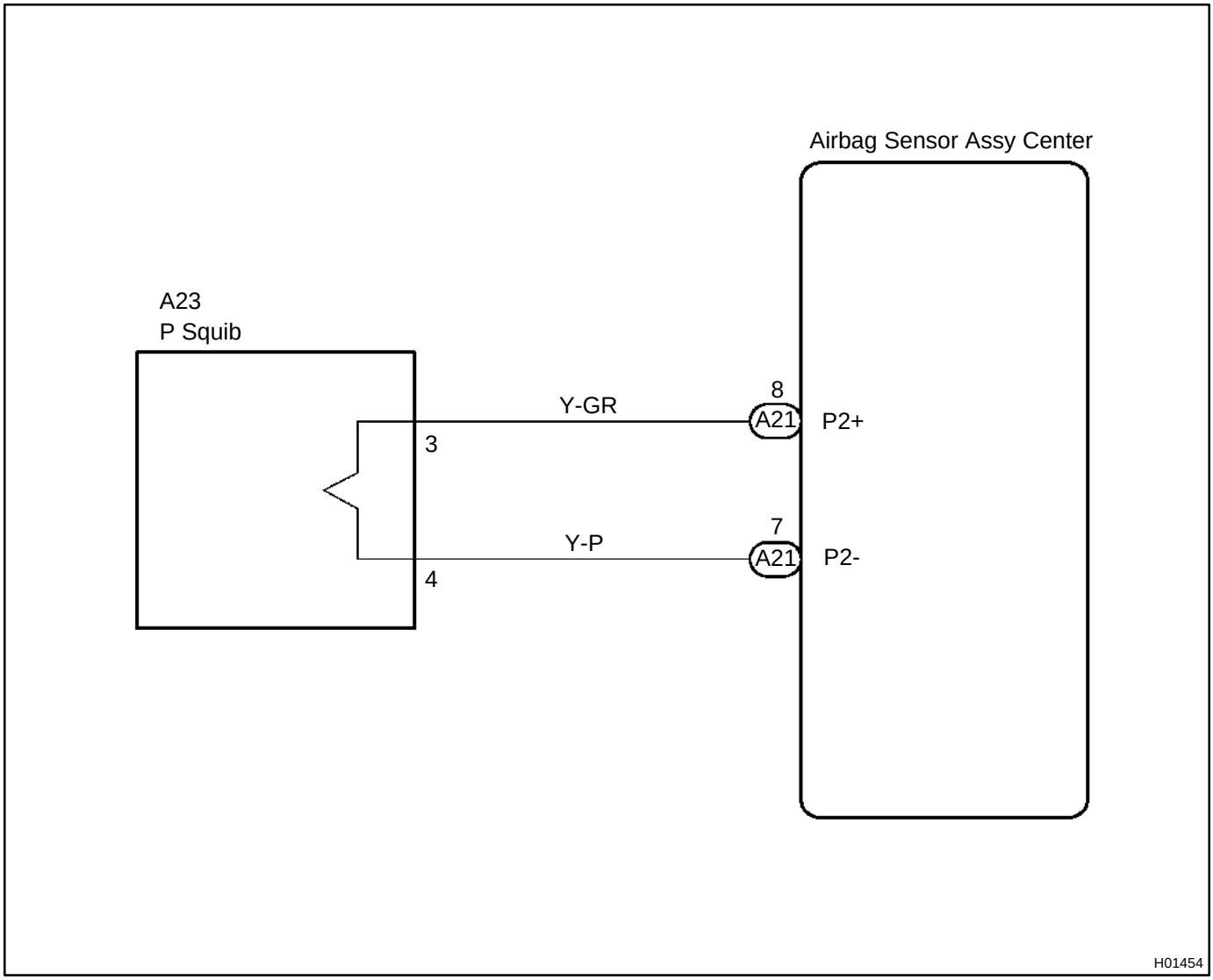
| DTC | B1185/57 | SHORT IN P SQUIB (DUAL STAGE - 2ND STEP) CIRCUIT |
|---|---|---|

## CIRCUIT DESCRIPTION

The P squib (Dual stage - 2nd step) circuit consists of the airbag sensor assy center and the front passenger airbag assy.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B1185/57 is recorded when a short circuit is detected in the P squib (Dual stage - 2nd step) circuit.

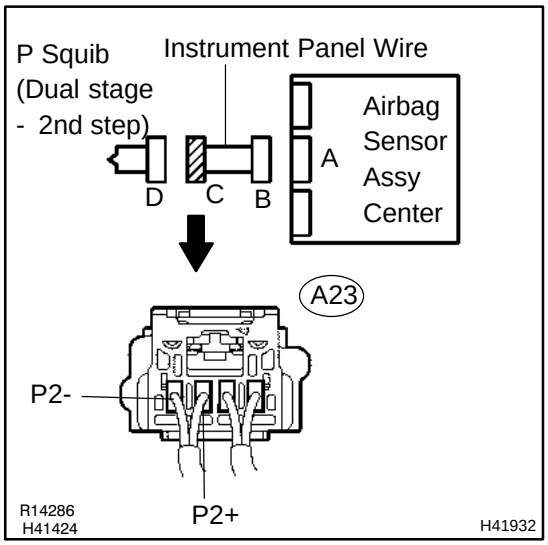
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1185/57 | • The airbag sensor assy center receives a line short circuit signal 5 times in the P squib (Dual stage - 2nd step) circuit during primary check.<br>• P squib (Dual stage - 2nd step) malfunction<br>• Airbag sensor assy center malfunction | • Front passenger airbag assy (P squib, Dual stage - 2nd step)<br>• Airbag sensor assy center<br>• Instrument panel wire |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CHECK INSTRUMENT PANEL WIRE(P SQUIB, DUAL STAGE - 2ND STEP CIRCUIT) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the front passenger airbag assy.
(d) Release the activation prevention mechanism built into connector "B" (see page 05-770 ).
(e) Measure the resistance according to the value(s) in the table below.

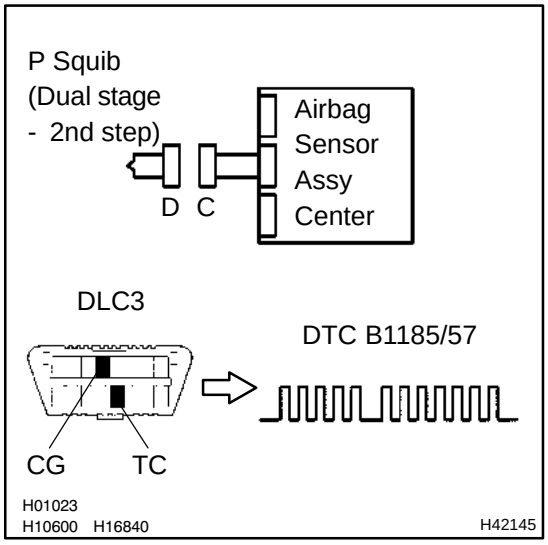
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A23-3 (P2+) - A23-4 (P2-) | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

**OK**

| 2 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|




(a) Connect the connector to the airbag sensor assy center.
(b) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(c) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(d) Clear the DTCs stored in memory (see page 05-777 ).
(e) Turn the ignition switch to the LOCK position.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1185/57 is not output.**

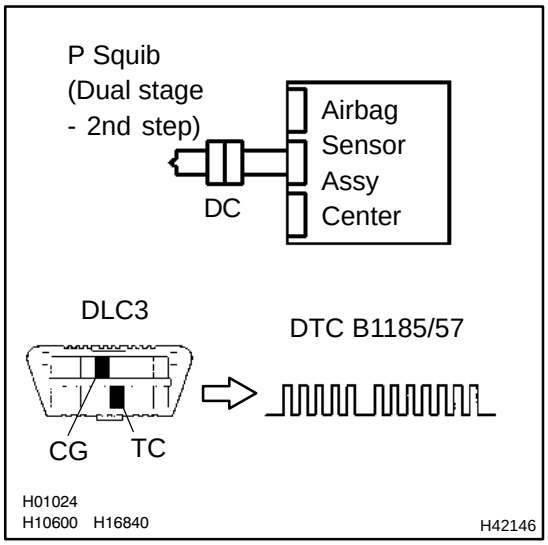
HINT:

Codes other than code B1185/57 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

## 3 CHECK FRONT PASSENGER AIRBAG ASSY(P SQUIB, DUAL STAGE - 2ND STEP)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the connector to the front passenger airbag assy.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(f) Clear the DTCs stored in memory (see page 05-777 ).
(g) Turn the ignition switch to the LOCK position.
(h) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(i) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1185/57 is not output.**

HINT:

Codes other than code B1185/57 may be output at this time, but they are not related to this check.

**NG** → **REPLACE FRONT PASSENGER AIRBAG ASSY (SEE PAGE 60-31 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

| DTC | B1186/58 | OPEN IN P SQUIB (DUAL STAGE - 2ND STEP) CIRCUIT |
|---|---|---|

## CIRCUIT DESCRIPTION

The P squib (Dual stage - 2nd step) circuit consists of the airbag sensor assy center and the front passenger airbag assy.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B1186/58 is recorded when an open circuit is detected in the P squib (Dual stage - 2nd step) circuit.

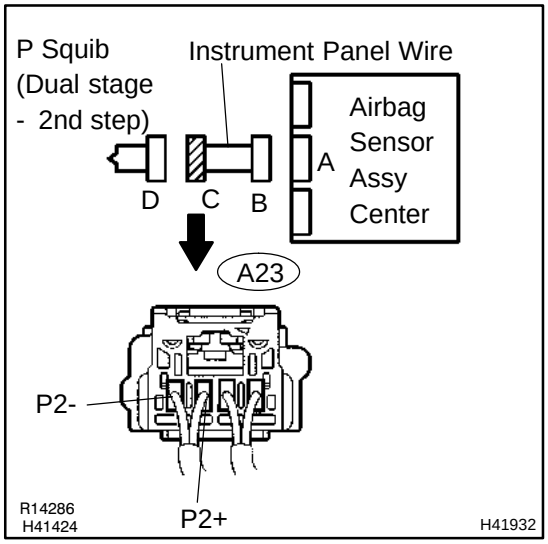
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1186/58 | • The airbag sensor assy center receives an open circuit signal in the P squib (Dual stage - 2nd step) circuit for 2 seconds.<br>• P squib (Dual stage - 2nd step) malfunction<br>• Airbag sensor assy center malfunction | • Front passenger airbag assy (P squib, Dual stage - 2nd step)<br>• Airbag sensor assy center<br>• Instrument panel wire |

## WIRING DIAGRAM

See page 05-994 .

## INSPECTION PROCEDURE

| 1 | CHECK INSTRUMENT PANEL WIRE(P SQUIB, DUAL STAGE - 2ND STEP CIRCUIT) |
|---|---|




(a) Turn the ignition switch to the LOCK position
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the front passenger airbag assy.
(d) Measure the resistance according to the value(s) in the table below.

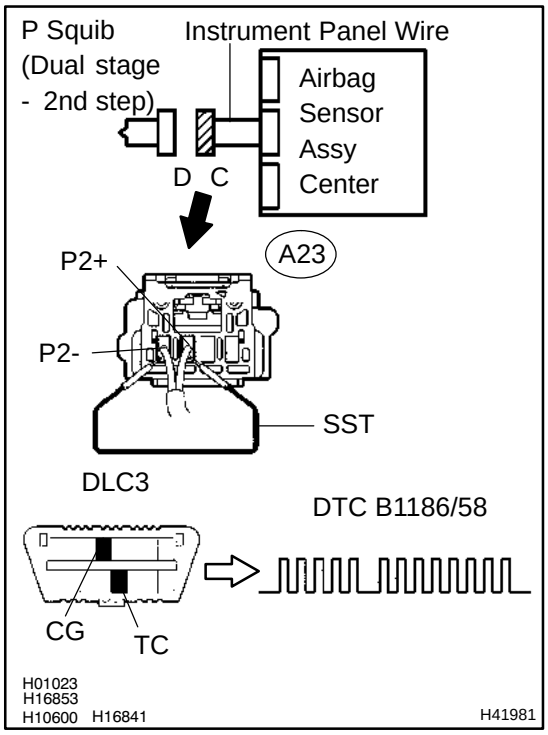
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A23-3 (P2+) - A23-4 (P2-) | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

**OK**

| 2 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|



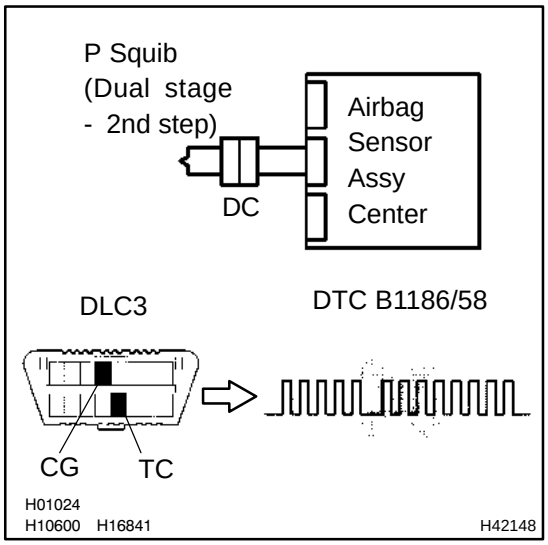

(a) Connect the connector to the airbag sensor assy center.
(b) Using SST, connect A23-3 (P2+) and A23-4 (P2-) of connector "C".
SST 09843-18040
(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B1186/58 is not output.**

HINT:
Codes other than code B1186/58 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

## 3 CHECK FRONT PASSENGER AIRBAG ASSY(P SQUIB, DUAL STAGE - 2ND STEP)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the SST from connector "C".
(d) Connect the connector to the front passenger airbag assy.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1186/58 is not output.**

HINT:

Codes other than code B1186/58 may be output at this time, but they are not related to this check.

**NG** → **REPLACE FRONT PASSENGER AIRBAG ASSY (SEE PAGE 60-31 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

| DTC | B1187/55 | SHORT IN P SQUIB (DUAL STAGE - 2ND STEP) CIRCUIT (TO GROUND) |
|---|---|---|

## CIRCUIT DESCRIPTION

The P squib (Dual stage - 2nd step) circuit consists of the airbag sensor assy center and the front passenger airbag assy.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B1187/55 is recorded when a short to ground is detected in the P squib (Dual stage - 2nd step) circuit.

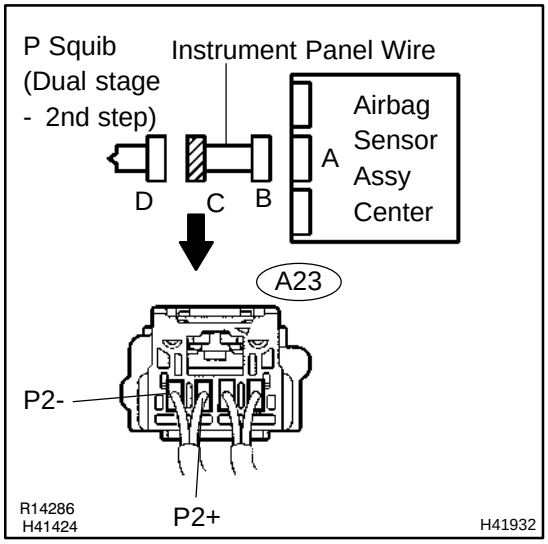
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1187/55 | • The airbag sensor assy center receives a short circuit to ground signal in the P squib (Dual stage - 2nd step) circuit for 0.5 seconds.<br>• P squib (Dual stage - 2nd step) malfunction<br>• Airbag sensor assy center malfunction | • Front passenger airbag assy (P squib, Dual stage - 2nd step)<br>• Airbag sensor assy center<br>• Instrument panel wire |

## WIRING DIAGRAM

See page 05-994 .

## INSPECTION PROCEDURE

| 1 | CHECK INSTRUMENT PANEL WIRE(P SQUIB, DUAL STAGE - 2ND STEP CIRCUIT) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the front passenger airbag assy.
(d) Measure the resistance according to the value(s) in the table below.

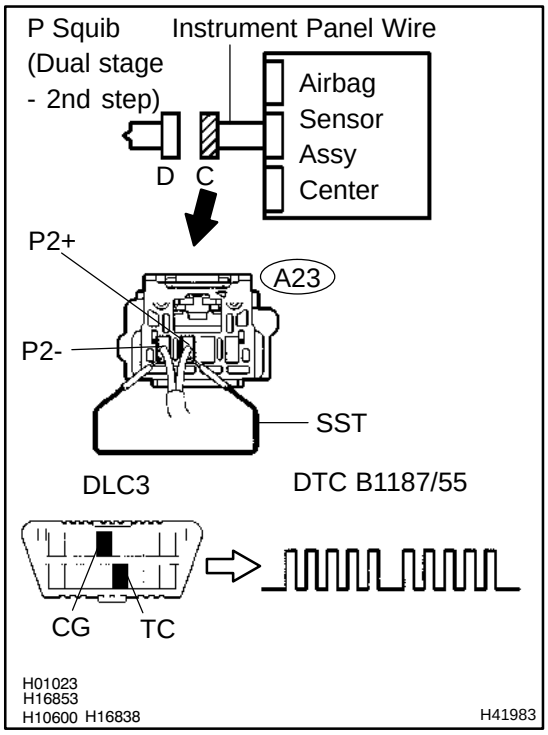
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A23-3 (P2+) - Body ground | Always | 1 MΩ or Higher |
| A23-4 (P2-) - Body ground | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

**OK**

| 2 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|



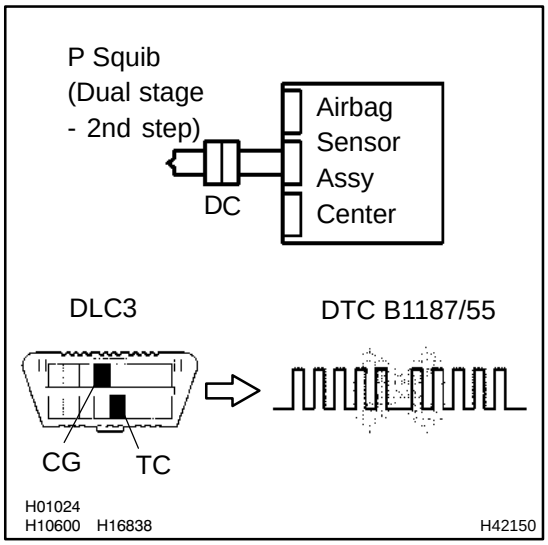

(a) Connect the connector to the airbag sensor assy center.
(b) Using SST, connect A23-3 (P2+) and A23-4 (P2-) of connector "C".
SST 09843-18040
(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B1187/55 is not output.**

HINT:
Codes other than code B1187/55 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

## 3 CHECK FRONT PASSENGER AIRBAG ASSY(P SQUIB, DUAL STAGE - 2ND STEP)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the SST from connector "C".
(d) Connect the connector to the front passenger airbag assy.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1187/55 is not output.**

HINT:

Codes other than code B1187/55 may be output at this time, but they are not related to this check.

**NG** → **REPLACE FRONT PASSENGER AIRBAG ASSY (SEE PAGE 60-31 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

| DTC | B1188/56 | SHORT IN P SQUIB (DUAL STAGE - 2ND STEP) CIRCUIT (TO B+) |
|---|---|---|

## CIRCUIT DESCRIPTION

The P squib (Dual stage - 2nd step) circuit consists of the airbag sensor assy center and the front passenger airbag assy.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B1188/56 is recorded when a short to B+ is detected in the P squib (Dual stage - 2nd step) circuit.

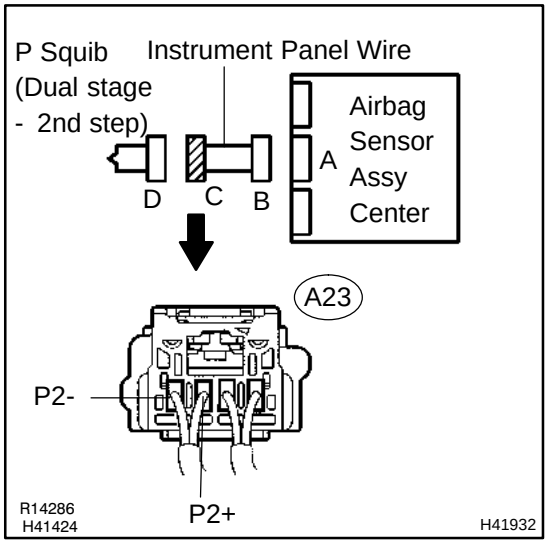
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1188/56 | • The airbag sensor assy center receives a short circuit to B+ signal in the P squib (Dual stage - 2nd step) circuit for 0.5 seconds.<br>• P squib (Dual stage - 2nd step) malfunction<br>• Airbag sensor assy center malfunction | • Front passenger airbag assy (P squib, Dual stage - 2nd step)<br>• Airbag sensor assy center<br>• Instrument panel wire |

## WIRING DIAGRAM

See page 05-994 .

## INSPECTION PROCEDURE

| 1 | CHECK INSTRUMENT PANEL WIRE(P SQUIB, DUAL STAGE - 2ND STEP CIRCUIT) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the front passenger airbag assy.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position.
(f) Measure the voltage according to the value(s) in the table below.

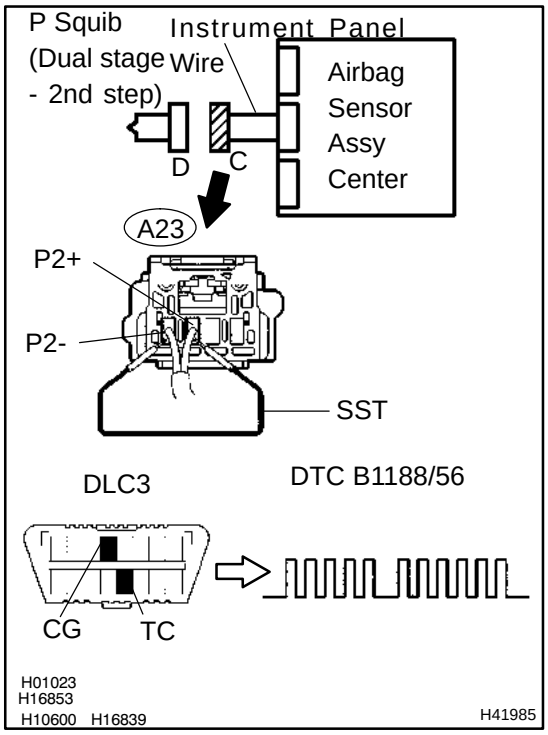
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A23-3 (P2+) - Body ground | Ignition switch ON | Below 1 V |
| A23-4 (P2-) - Body ground | Ignition switch ON | Below 1 V |

NG → **REPAIR OR REPLACE INSTRUMENT PANEL WIRE**

OK →

## 2 CHECK AIR BAG SENSOR ASSY CENTER



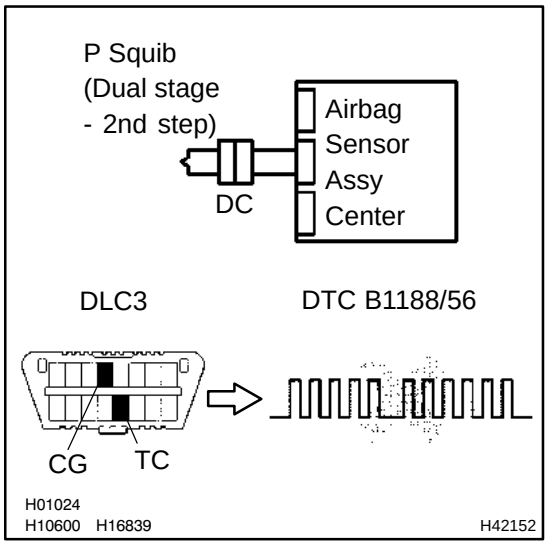

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the connector to the airbag sensor assy center.
(d) Using SST, connect A23-3 (P2+) and A23-4 (P2-) of connector "C".
SST 09843-18040
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B1188/56 is not output.**

HINT:
Codes other than code B1188/56 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

## 3 CHECK FRONT PASSENGER AIRBAG ASSY(P SQUIB, DUAL STAGE - 2ND STEP)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the SST from connector "C".
(d) Connect the connector to the front passenger airbag assy.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1188/56 is not output.**

HINT:

Codes other than code B1188/56 may be output at this time, but they are not related to this check.

**NG** → **REPLACE FRONT PASSENGER AIRBAG ASSY (SEE PAGE 60-31 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

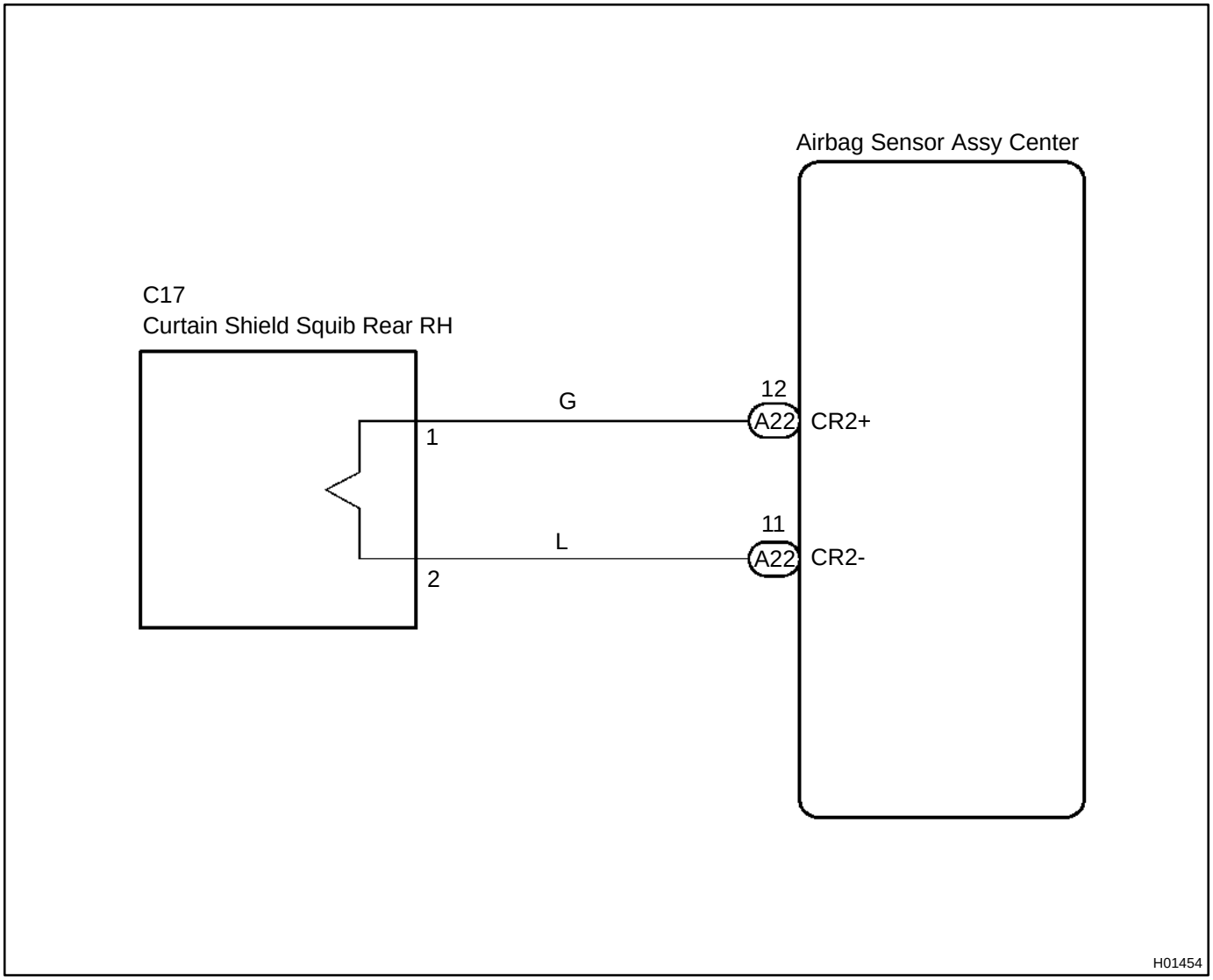
| DTC | B1630/83 | SHORT IN CURTAIN SHIELD SQUIB REAR (RH) CIRCUIT |
|---|---|---|

## CIRCUIT DESCRIPTION

The curtain shield squib rear RH circuit consists of the airbag sensor assy center and the curtain shield airbag assy RH.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B1630/83 is recorded when a short circuit is detected in the curtain shield squib rear RH circuit.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1630/83 | • The airbag sensor assy center receives a line short circuit signal 5 times in the curtain shield squib rear RH circuit during primary check.<br>• Curtain shield squib front rear RH malfunction<br>• Airbag sensor assy center malfunction | • Curtain shield airbag assy RH (Curtain shield squib rear RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

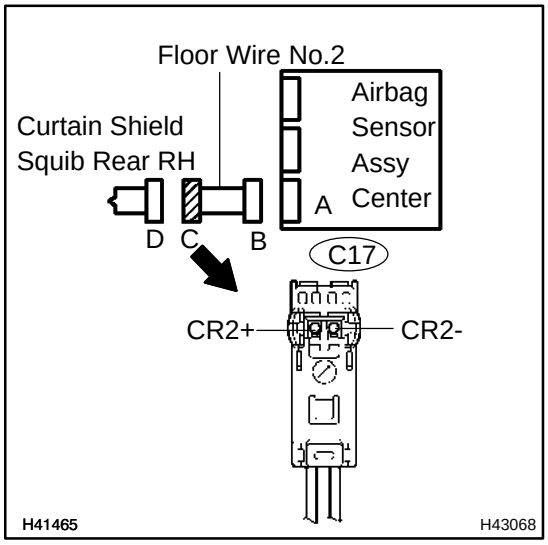
| 1 | CHECK CONNECTOR |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the curtain shield airbag assy RH.
(d) Check that the floor wire No.2 connector (on the curtain shield airbag assy RH side) is not damaged.
**OK:**
**The lock button is not disengaged, or the claw of the lock is not deformed or damaged.**

**NG** → **REPAIR OR REPLACE FLOOR WIRE NO.2**

**OK**

| 2 | CHECK FLOOR WIRE NO.2(CURTAIN SHIELD SQUIB REAR RH CIRCUIT) |
|---|---|



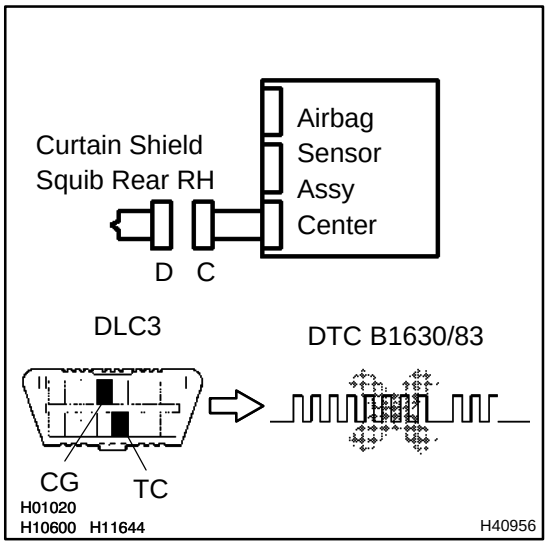

(a) Disconnect the connector from the airbag sensor assy center.
(b) Release the activation prevention mechanism built into connector "B" (see page 05-770 ).
(c) Measure the resistance according to the value(s) in the table below.
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| C17-1 (CR2+) - C17-2 (CR2-) | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FLOOR WIRE NO.2**

**OK**

| 3 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|




(a) Connect the connector to the airbag sensor assy center.
(b) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(c) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(d) Clear the DTCs stored in memory (see page 05-777 ).
(e) Turn the ignition switch to the LOCK position.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1630/83 is not output.**

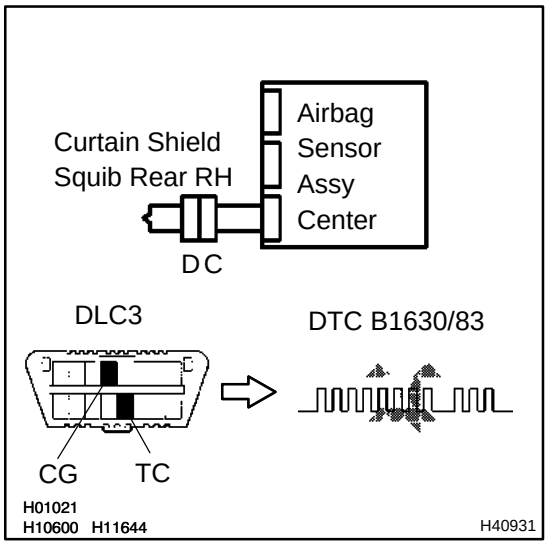
HINT:

Codes other than code B1630/83 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

| 4 | CHECK CURTAIN SHIELD AIR BAG ASSY RH(CURTAIN SHIELD SQUIB REAR RH) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Connect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the connector to the curtain shield airbag assy RH.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(f) Clear the DTCs stored in memory (see page 05-777 ).
(g) Turn the ignition switch to the LOCK position.
(h) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(i) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1630/83 is not output.**

HINT:

Codes other than code B1630/83 may be output at this time, but they are not related to this check.

**NG** → **REPLACE CURTAIN SHIELD AIR BAG ASSY RH (SEE PAGE 60-40 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the air-bag system or driving the vehicle on a city or rough road (see page 05-780 ).

# DTC B1631/84 OPEN IN CURTAIN SHIELD SQUIB REAR (RH) CIRCUIT

## CIRCUIT DESCRIPTION

The curtain shield squib rear RH circuit consists of the airbag sensor assy center and the curtain shield airbag assy RH.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B1631/84 is recorded when an open circuit is detected in the curtain shield squib rear RH circuit.

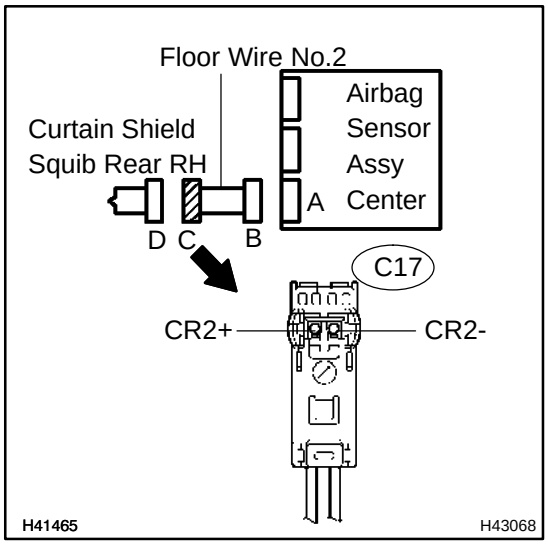
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1631/84 | • The airbag sensor assy center receives an open circuit signal in the curtain shield squib rear RH circuit for 2 seconds.<br>• Curtain shield squib rear RH malfunction<br>• Airbag sensor assy center malfunction | • Curtain shield airbag assy RH (Curtain shield squib rear RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 |

## WIRING DIAGRAM

See page 05-1006 .

## INSPECTION PROCEDURE

| 1 | CHECK FLOOR WIRE NO.2(CURTAIN SHIELD SQUIB REAR RH CIRCUIT) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the curtain shield airbag assy RH.
(d) Measure the resistance according to the value(s) in the table below.

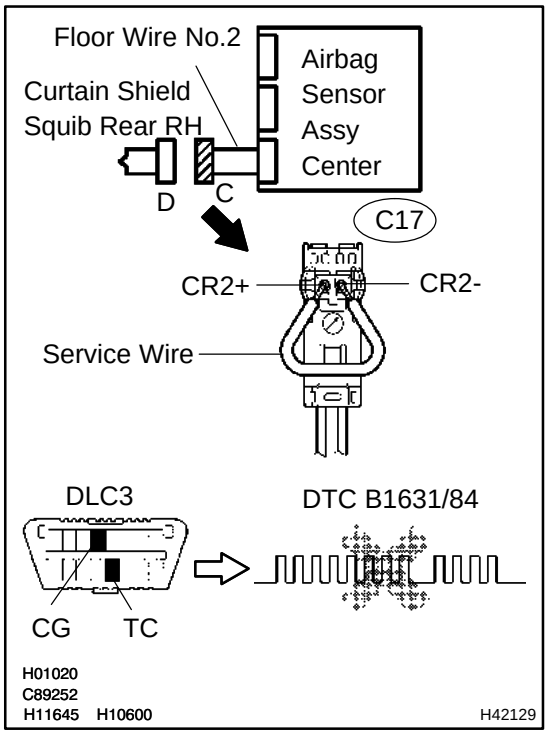
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| C17-1 (CR2+) - C17-2 (CR2-) | Always | Below 1 Ω |

NG → **REPAIR OR REPLACE FLOOR WIRE NO.2**

OK

| 2 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|




(a) Connect the connector to the airbag sensor assy center.
(b) Using a service wire, connect C17-1 (CR2+) and C17-2 (CR2-) of connector "C".

**NOTICE:**

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminals of the connector when connecting.**

(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1631/84 is not output.**

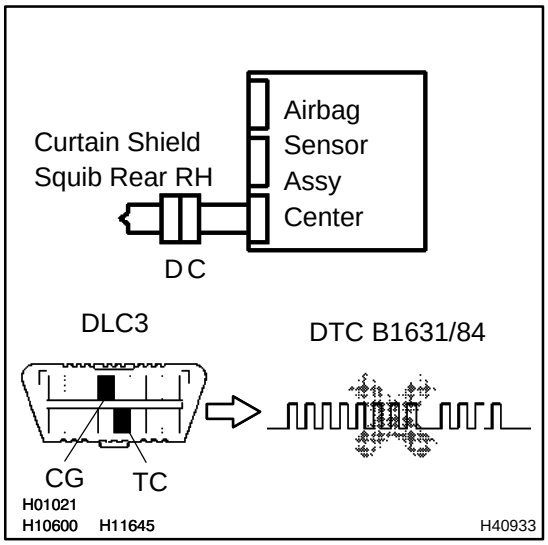
HINT:

Codes other than code B1631/84 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

| 3 | CHECK CURTAIN SHIELD AIR BAG ASSY RH(CURTAIN SHIELD SQUIB REAR RH) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "C".
(d) Connect the connector to the curtain shield airbag assy RH.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1631/84 is not output.**

HINT:

Codes other than code B1631/84 may be output at this time, but they are not related to this check.

**NG** → **REPLACE CURTAIN SHIELD AIR BAG ASSY RH (SEE PAGE 60-40 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

| DTC | B1632/81 | SHORT IN CURTAIN SHIELD SQUIB REAR (RH) CIRCUIT (TO GROUND) |
|---|---|---|

## CIRCUIT DESCRIPTION

The curtain shield squib rear RH circuit consists of the airbag sensor assy center and the curtain shield airbag assy RH.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B1162/81 is recorded when a short to ground is detected in the curtain shield squib rear RH circuit.

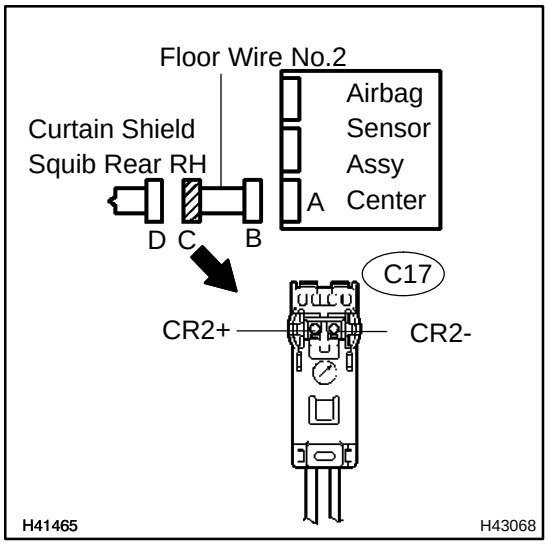
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1162/81 | • The airbag sensor assy center receives a short circuit to ground signal in the curtain shield squib rear RH circuit for 0.5 seconds.<br>• Curtain shield squib RH malfunction<br>• Airbag sensor assy malfunction | • Curtain shield airbag assy RH (Curtain shield squib rear RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 |

## WIRING DIAGRAM

See page 05-1006 .

## INSPECTION PROCEDURE

| 1 | CHECK FLOOR WIRE NO.2(CURTAIN SHIELD SQUIB REAR RH CIRCUIT) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the curtain shield airbag assy RH.
(d) Measure the resistance according to the value(s) in the table below.

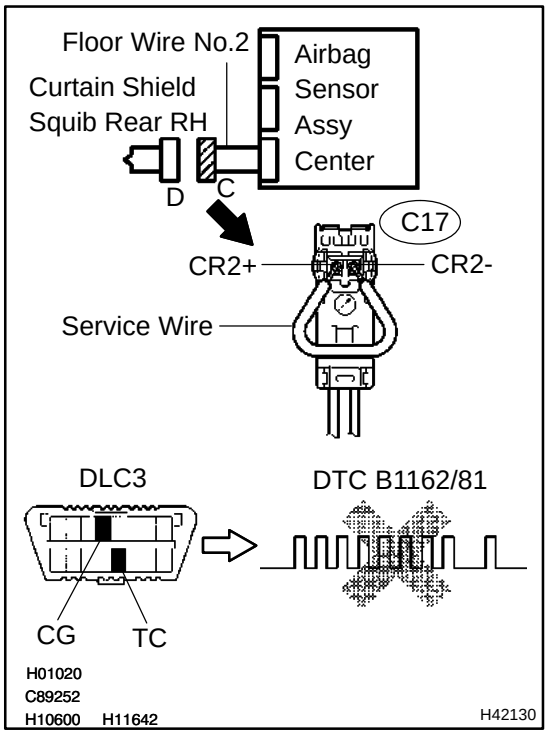
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| C17-1 (CR2+) - Body ground | Always | 1 MΩ or Higher |
| C17-2 (CR2-) - Body ground | Always | 1 MΩ or Higher |

NG → **REPAIR OR REPLACE FLOOR WIRE NO.2**

OK

## 2 CHECK AIR BAG SENSOR ASSY CENTER




(a) Connect the connector to the airbag sensor assy center.
(b) Using a service wire, connect C17-1 (CR2+) and C17-2 (CR2-) of connector "C".

**NOTICE:**

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminals of the connector when connecting.**

(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1162/81 is not output.**

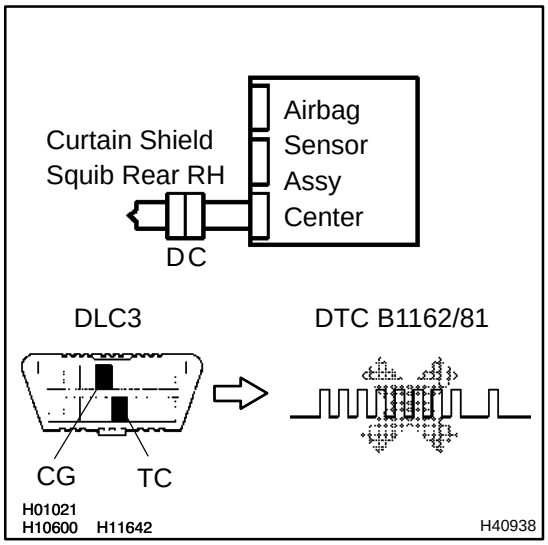
HINT:

Codes other than code B1162/81 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

| 3 | CHECK CURTAIN SHIELD AIR BAG ASSY RH(CURTAIN SHIELD SQUIB REAR RH) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "C".
(d) Connect the connector to the curtain shield airbag assy RH.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B1162/81 is not output.**

HINT:
Codes other than code B1162/81 may be output at this time, but they are not related to this check.

**NG** → **REPLACE CURTAIN SHIELD AIR BAG ASSY RH (SEE PAGE 60-40 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:
- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

| DTC | B1633/82 | SHORT IN CURTAIN SHIELD SQUIB REAR (RH) CIRCUIT (TO B+) |
|---|---|---|

## CIRCUIT DESCRIPTION

The curtain shield squib rear RH circuit consists of the airbag sensor assy center and the curtain shield airbag assy RH.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B1633/82 is recorded when a short to B+ is detected in the curtain shield squib rear RH circuit.

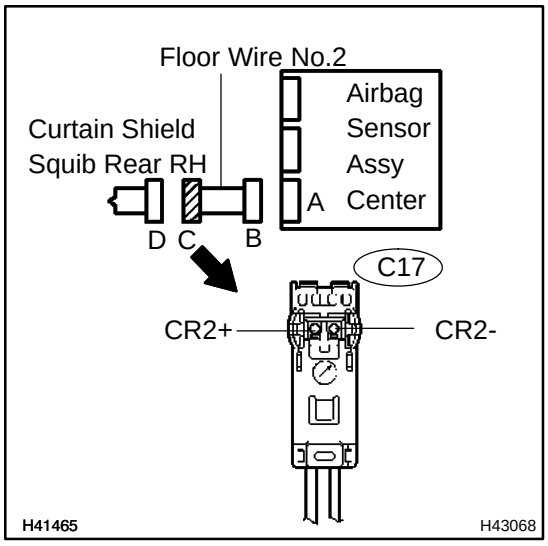
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1633/82 | • The airbag sensor assy center receives a short circuit to B+ signal in the curtain shield squib rear RH circuit for 0.5 seconds.<br>• Curtain shield squib rear RH malfunction<br>• Airbag sensor assy center malfunction | • Curtain shield airbag assy RH (Curtain shield squib rear RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 |

## WIRING DIAGRAM

See page 05-1006 .

## INSPECTION PROCEDURE

| 1 | CHECK FLOOR WIRE NO.2(CURTAIN SHIELD SQUIB REAR RH CIRCUIT) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the curtain shield airbag assy RH.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position.
(f) Measure the voltage according to the value(s) in the table below.

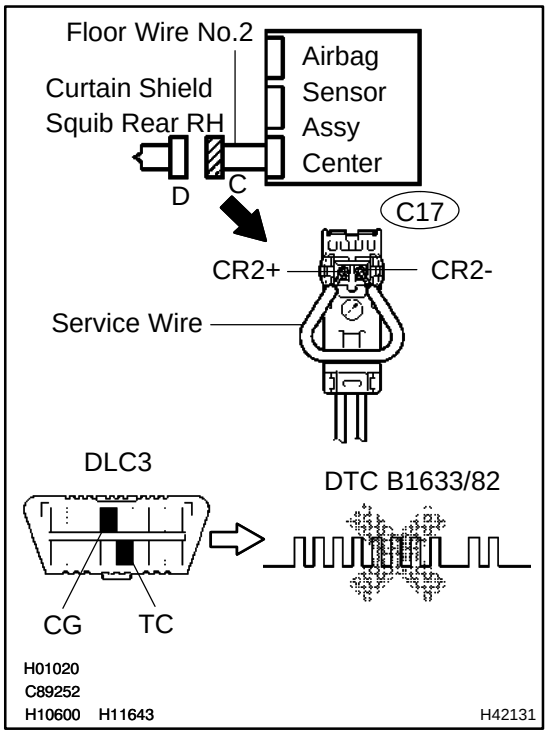
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| C17-1 (CR2+) - Body ground | Ignition switch ON | Below 1 V |
| C17-2 (CR2-) - Body ground | Ignition switch ON | Below 1 V |

**NG** → **REPAIR OR REPLACE FLOOR WIRE NO.2**

**OK**

## 2 CHECK AIR BAG SENSOR ASSY CENTER




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the connector to the airbag sensor assy center.
(d) Using a service wire, connect C17-1 (CR2+) and C17-2 (CR2-) of connector "C".

**NOTICE:**

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminals of the connector when connecting.**

(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1633/82 is not output.**

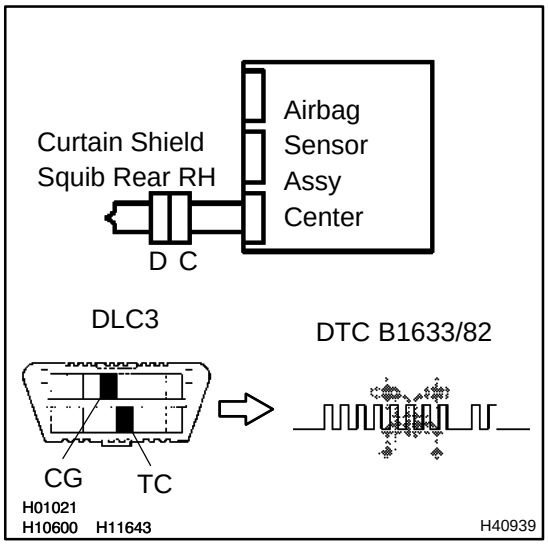
HINT:

Codes other than code B1633/82 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

| 3 | CHECK CURTAIN SHIELD AIR BAG ASSY RH(CURTAIN SHIELD SQUIB REAR RH) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "C".
(d) Connect the connector to the curtain shield airbag assy RH.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B1633/82 is not output.**

HINT:
Codes other than code B1633/82 may be output at this time, but they are not related to this check.

**NG** → **REPLACE CURTAIN SHIELD AIR BAG ASSY RH (SEE PAGE 60-40 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:
- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

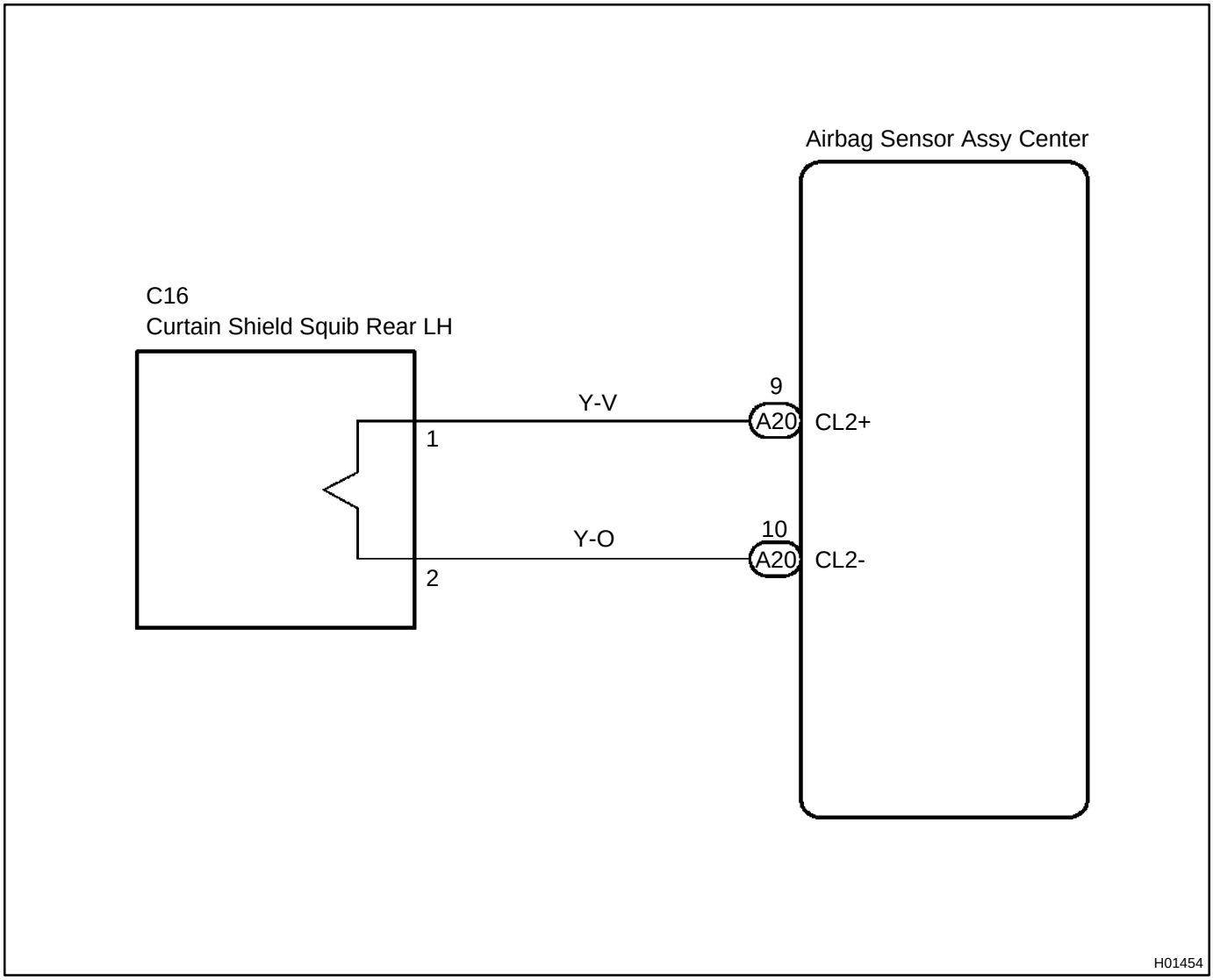
| DTC | B1635/87 | SHORT IN CURTAIN SHIELD SQUIB REAR (LH) CIRCUIT |
|---|---|---|

## CIRCUIT DESCRIPTION

The curtain shield squib rear LH circuit consists of the airbag sensor assy center and the curtain shield airbag assy LH.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B1635/87 is recorded when a short circuit is detected in the curtain shield squib rear LH circuit.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1635/87 | • The airbag sensor assy center receives a line short circuit signal 5 times in the curtain shield squib rear LH circuit during primary check.<br>• Curtain shield squib rear LH malfunction<br>• Airbag sensor assy center malfunction | • Curtain shield airbag assy LH (Curtain shield squib rear LH)<br>• Airbag sensor assy center<br>• Floor wire |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

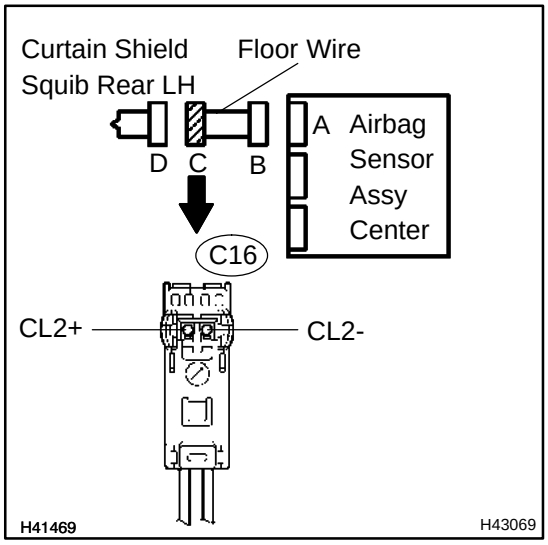
| 1 | CHECK CONNECTOR |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait at least for 90 seconds.
(c) Disconnect the connectors from the curtain shield airbag assy LH.
(d) Check that the floor wire connector (on the curtain shield airbag assy LH side) is not damaged.
**OK:**
**The lock button is not disengaged, or the claw of the lock is not deformed or damaged.**

**NG** → **REPAIR OR REPLACE FLOOR WIRE**

**OK**

| 2 | CHECK FLOOR WIRE(CURTAIN SHIELD SQUIB REAR LH CIRCUIT) |
|---|---|



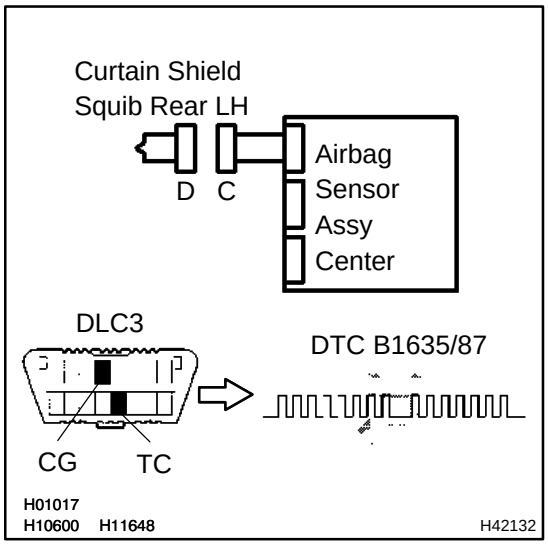

(a) Disconnect the connector from the airbag sensor assy center.
(b) Release the activation prevention mechanism built into connector "B" (see page 05-770 ).
(c) Measure the resistance according to the value(s) in the table below.
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| C16-1 (CL2+) - C16-2 (CL2-) | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FLOOR WIRE**

**OK**

| 3 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|




(a) Connect the connector to the airbag sensor assy center.
(b) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(c) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(d) Clear the DTCs stored in memory (see page 05-777 ).
(e) Turn the ignition switch to the LOCK position.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1635/87 is not output.**

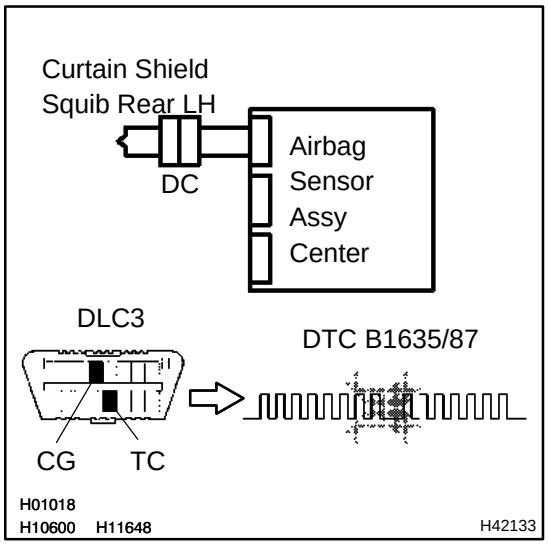
HINT:

Codes other than code B1635/87 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

| 4 | CHECK CURTAIN SHIELD AIR BAG ASSY LH(CURTAIN SHIELD SQUIB REAR LH) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the connector to the curtain shield airbag assy LH.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(f) Clear the DTCs stored in memory (see page 05-777 ).
(g) Turn the ignition switch to the LOCK position.
(h) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(i) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1635/87 is not output.**

HINT:

Codes other than code B1635/87 may be output at this time, but they are not related to this check.

**NG** → **REPLACE CURTAIN SHIELD AIR BAG ASSY LH (SEE PAGE 60-40 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

| DTC | B1636/88 | OPEN IN CURTAIN SHIELD SQUIB REAR (LH) CIRCUIT |
|---|---|---|

## CIRCUIT DESCRIPTION

The curtain shield squib rear LH circuit consists of the airbag sensor assy center and the curtain shield airbag assy LH.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B1636/88 is recorded when an open circuit is detected in the curtain shield squib rear LH circuit.

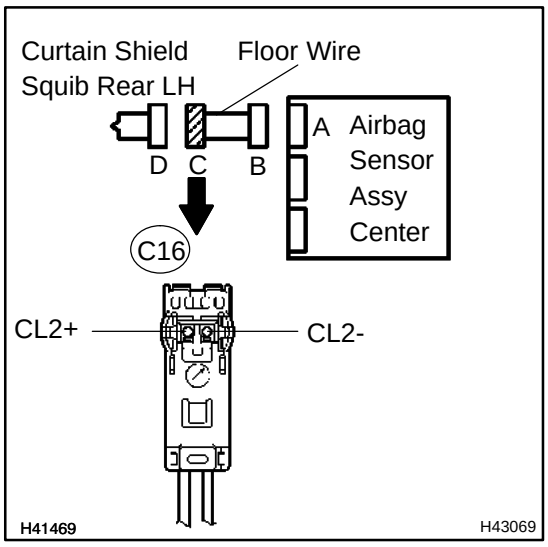
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1636/88 | • The airbag sensor assy center receives an open circuit signal in the curtain shield squib rear LH circuit for 2 seconds.<br>• Curtain shield squib rear LH malfunction<br>• Airbag sensor assy center malfunction | • Curtain shield airbag assy LH (Curtain shield squib rear LH)<br>• Airbag sensor assy center<br>• Floor wire |

## WIRING DIAGRAM

See page 05-1019 .

## INSPECTION PROCEDURE

| 1 | CHECK FLOOR WIRE(CURTAIN SHIELD SQUIB REAR LH) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the curtain shield airbag assy LH.
(d) Measure the resistance according to the value(s) in the table below.

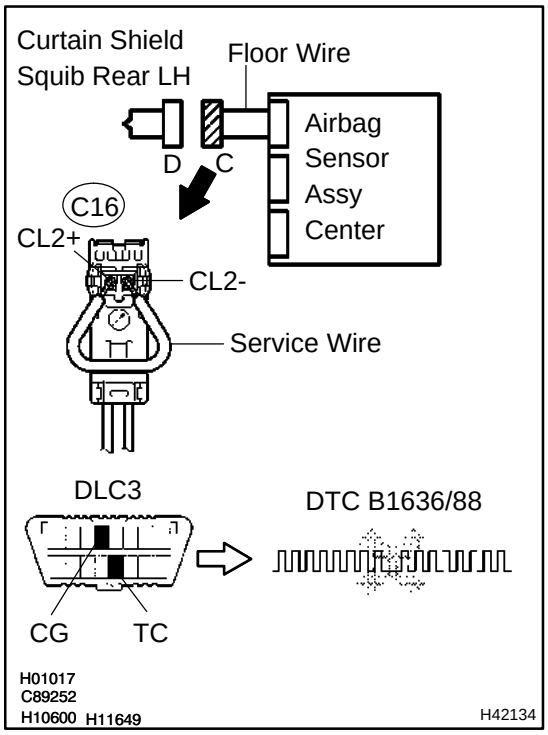
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| C16-1 (CL2+) - C16-2 (CL2-) | Always | Below 1 Ω |

NG → **REPAIR OR REPLACE FLOOR WIRE**

OK

| 2 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|




(a) Connect the connector to the airbag sensor assy center.
(b) Using a service wire, connect C16-1 (CL2+) and C16-2 (CL2-) of connector "C".

**NOTICE:**

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminals of the connector when connecting.**

(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1636/88 is not output.**

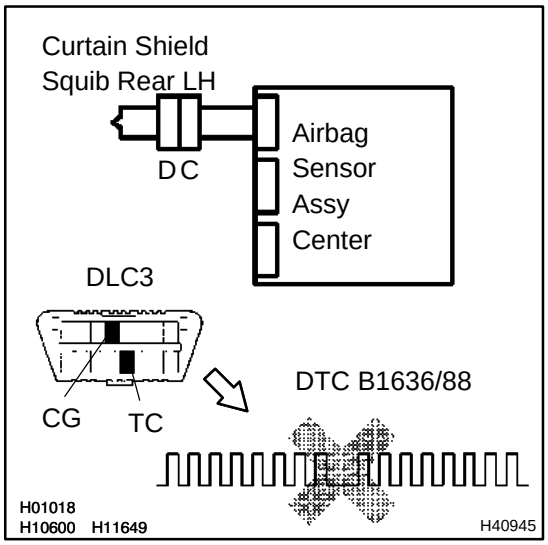
HINT:

Codes other than code B1636/88 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

| 3 | CHECK CURTAIN SHIELD AIR BAG ASSY LH(CURTAIN SHIELD SQUIB REAR LH) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "C".
(d) Connect the connector to the curtain shield airbag assy LH.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).
**OK:**
**DTC B1636/88 is not output.**

HINT:
Codes other than code B1636/88 may be output at this time, but they are not related to this check.

**NG** → **REPLACE CURTAIN SHIELD AIR BAG ASSY LH (SEE PAGE 60-40 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:
- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

| DTC | B1637/85 | SHORT IN CURTAIN SHIELD SQUIB REAR (LH) CIRCUIT (TO GROUND) |
|---|---|---|

## CIRCUIT DESCRIPTION

The curtain shield squib rear LH circuit consists of the airbag sensor assy center and the curtain shield airbag assy LH.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B1637/85 is recorded when a short to ground is detected in the curtain shield squib rear LH circuit.

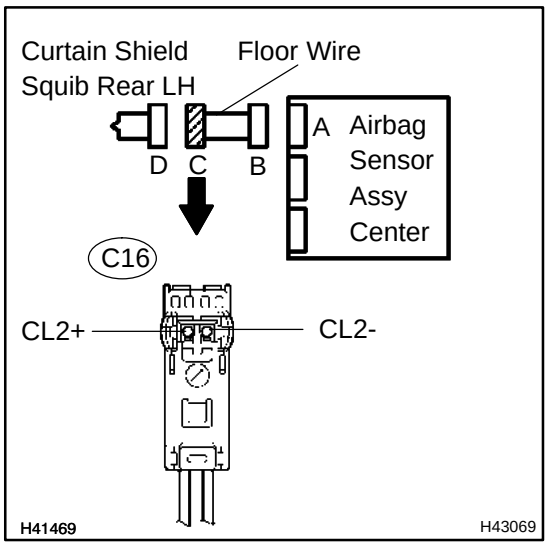
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1637/85 | • The airbag sensor assy center receives a short circuit to ground signal in the curtain shield squib rear LH circuit for 0.5 seconds.<br>• Curtain shield squib rear LH malfunction<br>• Airbag sensor assy malfunction | • Curtain shield airbag assy LH (Curtain shield squib rear LH)<br>• Airbag sensor assy center<br>• Floor wire |

## WIRING DIAGRAM

See page 05-1019 .

## INSPECTION PROCEDURE

| 1 | CHECK FLOOR WIRE(CURTAIN SHIELD SQUIB REAR LH CIRCUIT) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the curtain shield airbag assy LH.
(d) Measure the resistance according to the value(s) in the table below.

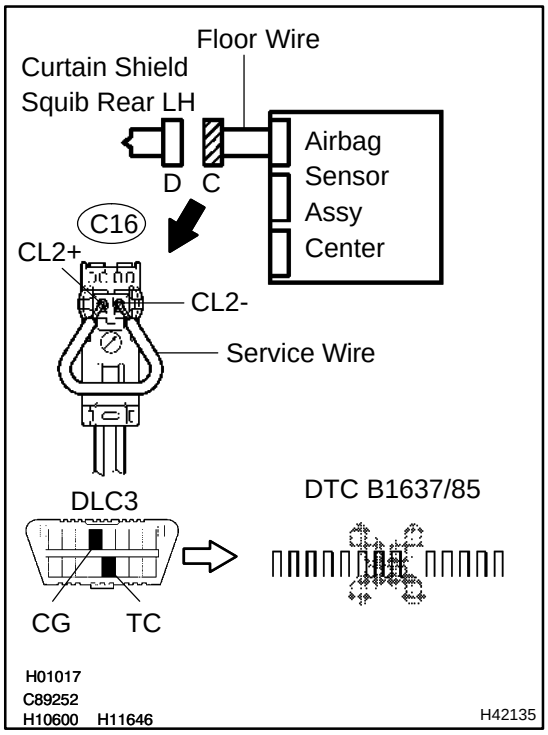
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| C16-1 (CL2+) - Body ground | Always | 1 MΩ or Higher |
| C16-2 (CL2-) - Body ground | Always | 1 MΩ or Higher |

**NG** → **REPAIR OR REPLACE FLOOR WIRE**

**OK**

| 2 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|




(a) Connect the connector to the airbag sensor assy center.
(b) Using a service wire, connect C16-1 (CL2+) and C16-2 (CL2-) of connector "C".

**NOTICE:**

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminals of the connector when connecting.**

(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1637/85 is not output.**

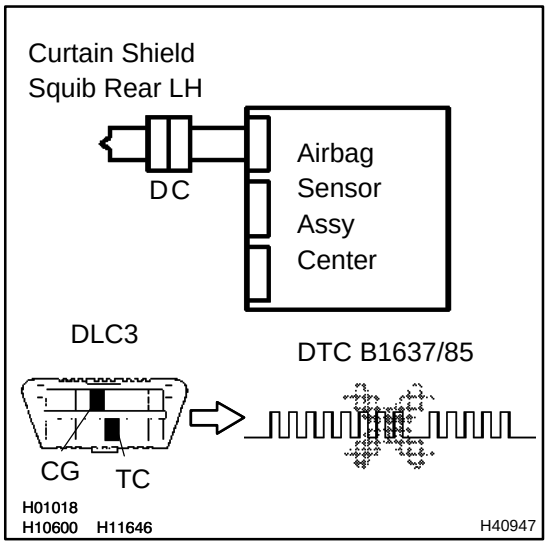
HINT:

Codes other than code B1637/85 may be output at this time, but they are not related to this check.

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

## 3 CHECK CURTAIN SHIELD AIR BAG ASSY LH(CURTAIN SHIELD SQUIB REAR LH)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "C".
(d) Connect the connector to the curtain shield airbag assy LH.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1637/85 is not output.**

HINT:

Codes other than code B1637/85 may be output at this time, but they are not related to this check.

**NG** → **REPLACE CURTAIN SHIELD AIR BAG ASSY LH (SEE PAGE 60-40 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

| DTC | B1638/86 | SHORT IN CURTAIN SHIELD SQUIB REAR (LH) CIRCUIT (TO B+) |
|---|---|---|

## CIRCUIT DESCRIPTION

The curtain shield squib rear LH circuit consists of the airbag sensor assy center and the curtain shield airbag assy LH.
The circuit instructs the SRS to deploy when deployment conditions are met.
DTC B1638/86 is recorded when a short to B+ is detected in the curtain shield squib rear LH circuit.

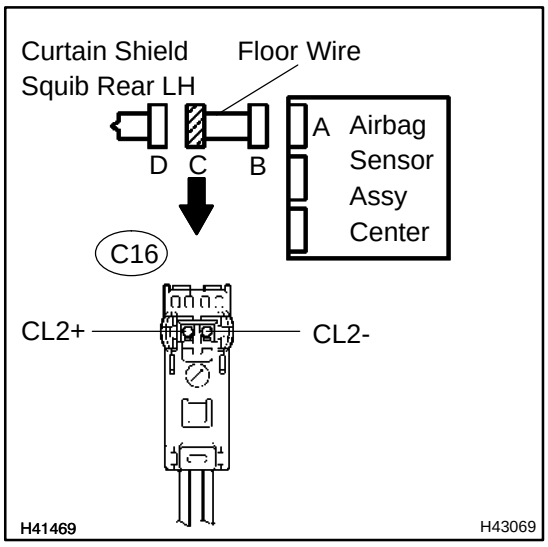
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1638/86 | • The airbag sensor assy center receives a short circuit to B+ signal in the curtain shield squib rear LH circuit for 0.5 seconds.<br>• Curtain shield squib rear LH malfunction<br>• Airbag sensor assy center malfunction | • Curtain shield airbag assy LH (Curtain shield squib rear LH)<br>• Airbag sensor assy center<br>• Floor wire |

## WIRING DIAGRAM

See page 05-1019 .

## INSPECTION PROCEDURE

| 1 | CHECK FLOOR WIRE(CURTAIN SHIELD SQUIB REAR LH CIRCUIT) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connectors from the airbag sensor assy center and the curtain shield airbag assy LH.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position.
(f) Measure the voltage according to the value(s) in the table below.

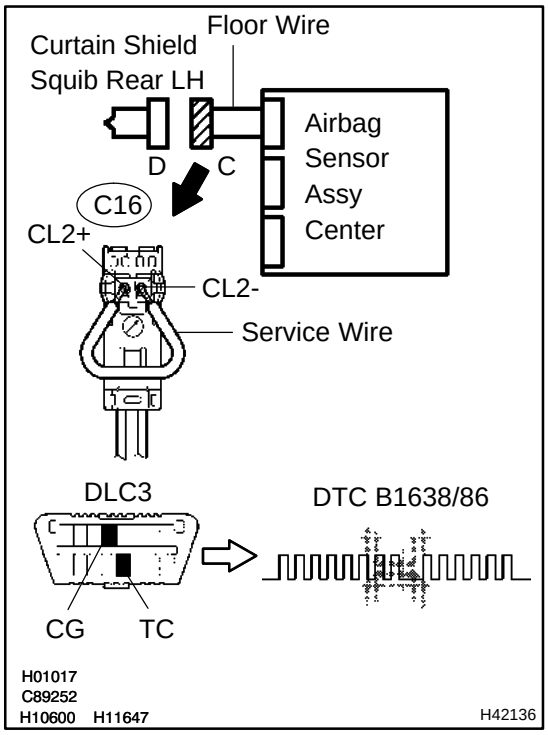
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| C16-1 (CL2+) - Body ground | Ignition switch ON | Below 1 V |
| C16-2 (CL2-) - Body ground | Ignition switch ON | Below 1 V |

NG → **REPAIR OR REPLACE FLOOR WIRE**

OK

## 2 CHECK AIR BAG SENSOR ASSY CENTER




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the connector to the airbag sensor assy center.
(d) Using a service wire, connect C16-1 (CL2+) and C16-2 (CL2-) of connector "C".

**NOTICE:**

- **Twist the end of the service wire in order to insert it into the connector.**
- **Do not forcibly insert the twisted service wire into the terminals of the connector when connecting.**

(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1638/86 is not output.**

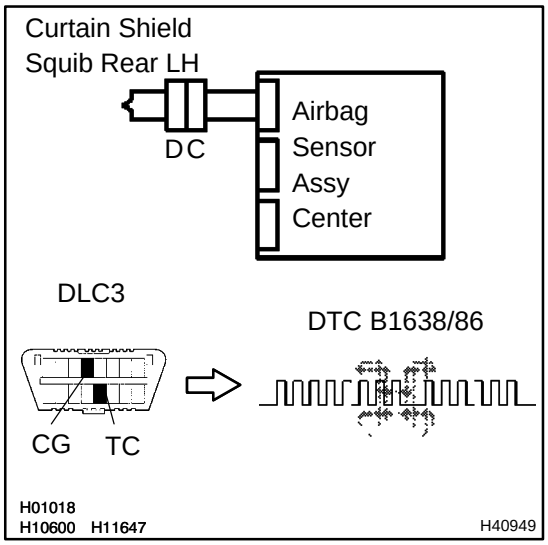
HINT:

Codes other than code B1638/86 may be output at this time, but they are not related to this check.

NG → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

OK

| 3 | CHECK CURTAIN SHIELD AIR BAG ASSY LH(CURTAIN SHIELD SQUIB REAR LH) |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the service wire from connector "C".
(d) Connect the connector to the curtain shield airbag assy LH.
(e) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Clear the DTCs stored in memory (see page 05-777 ).
(h) Turn the ignition switch to the LOCK position.
(i) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(j) Check the DTCs (see page 05-777 ).

**OK:**

**DTC B1638/86 is not output.**

HINT:

Codes other than code B1638/86 may be output at this time, but they are not related to this check.

**NG** → **REPLACE CURTAIN SHIELD AIR BAG ASSY LH (SEE PAGE 60-40 )**

**OK**

**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

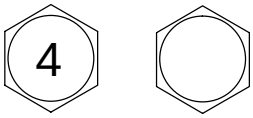
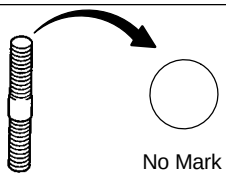
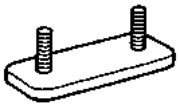
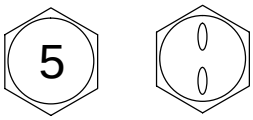
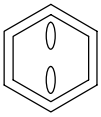
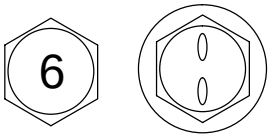
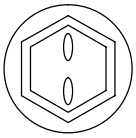
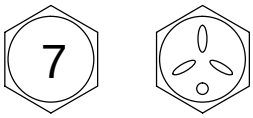
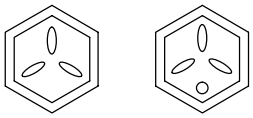
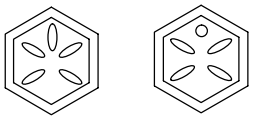
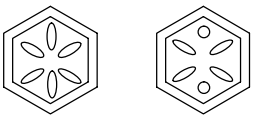
HINT:

- Perform the simulation method by selecting the check mode with the hand-held tester (see page 05-780 ).
- After selecting the check mode, perform the simulation method by wiggling each connector of the airbag system or driving the vehicle on a city or rough road (see page 05-780 ).

# STANDARD BOLT

## HOW TO DETERMINE BOLT STRENGTH

0313O-02

| Bolt Type | | | | Class |
|---|---|---|---|---|
| Hexagon Head Bolt | | Stud Bolt | Weld Bolt | |
| Normal Recess Bolt | Deep Recess Bolt | | | |
|  No Mark |  No Mark |  No Mark |  | 4T |
|  |  | | | 5T |
|  w/ Washer |  w/ Washer |  | | 6T |
|  |  | | | 7T |
|  |  |  | | 8T |
|  |  | | | 9T |
|  |  | | | 10T |
|  |  | | | 11T |

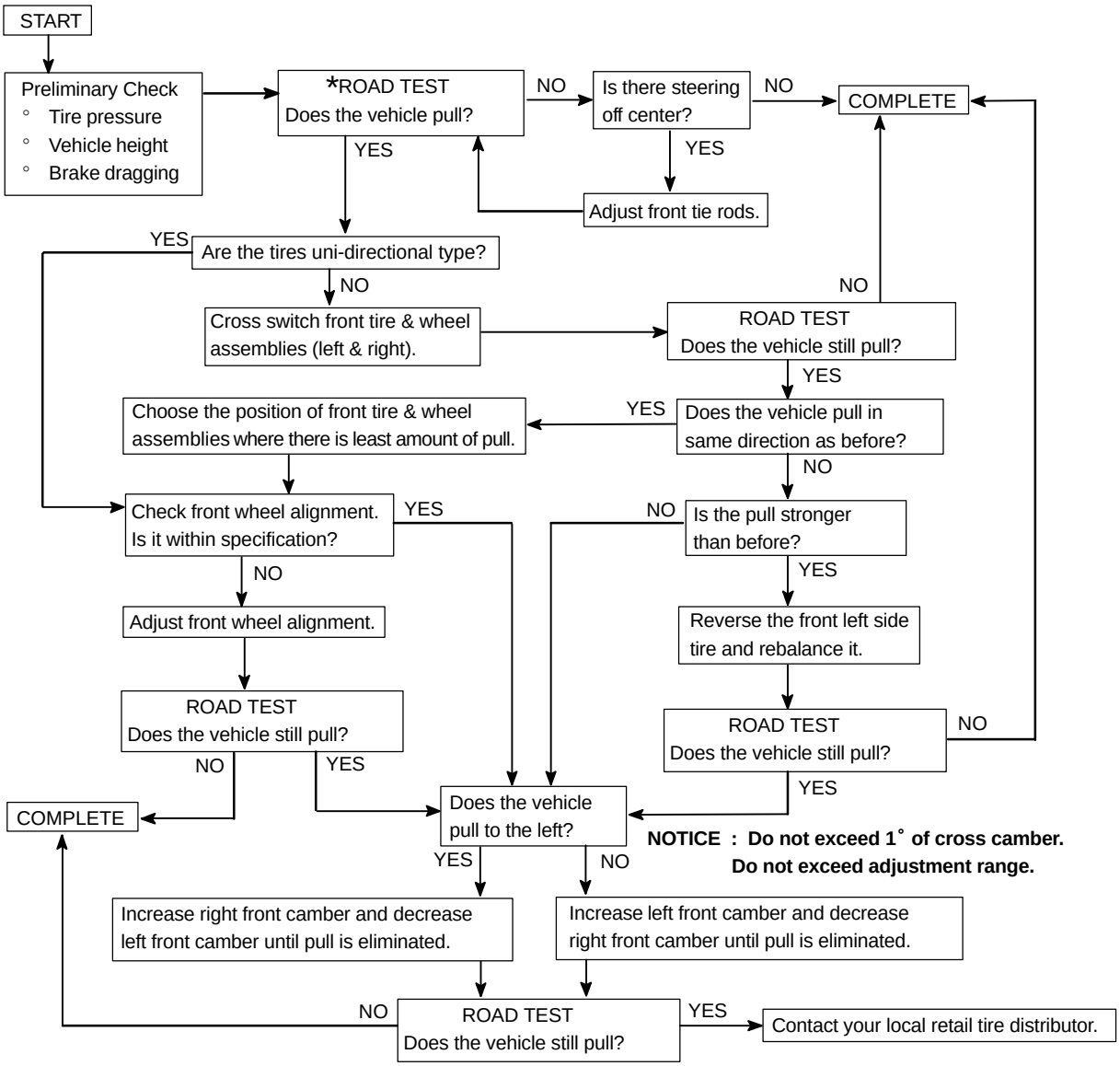
B06431

2606O-08

# REPAIR

HINT:

This is the repair procedure for vehicle pull.




*Select a flat road where the vehicle can be driven in a straight line for 100 meters at a constant speed of 35mph. Please confirm safety and set the steering wheel to its straight position. Drive the vehicle in a straight line for 100 meters at a constant speed of 35 mph without holding the steering wheel.

(1) The vehicle can keep straight but the steering wheel has some angle.

→STEERING OFF CENTER (See page 50-4)

(2) The vehicle cannot keep straight.

→STEERING PULL

# DTC 13 ABS SYSTEM MALFUNCTION

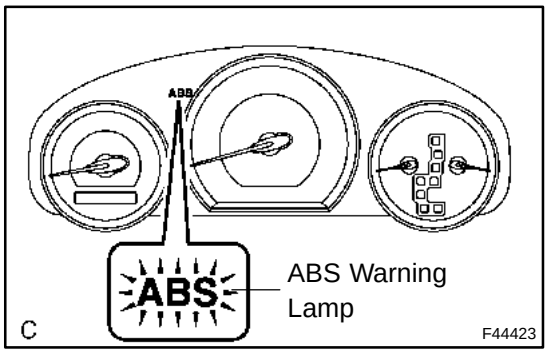
## CIRCUIT DESCRIPTION

The skid control ECU outputs this DTC when the speed sensor malfunction occurs or there is an open in the stop lamp switch assy circuit of ABS system.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| 13 | When satisfying the any following conditions:<br>• Speed sensor malfunction of ABS system occurs.<br>• Speed sensor noise malfunction of ABS system occurs.<br>• Stop lamp switch assy switch open circuit of ABS system occurs. | • ABS system<br>• Brake actuator assy |

## INSPECTION PROCEDURE

| 1 | CHECK ABS WARNING LIGHT |
|---|---|




(a) With the ignition switch ON, the ABS warning lamp illuminates for 3 seconds and then goes off.

**Standard:**

**The ABS warning lamp comes on for 3 seconds and then goes off.**

**Result:**

| | |
|---|---|
| OK | A |
| NG (w/o VSC) | B |
| NG (w/ VSC) | C |

**B** → **CHECK ABS WARNING LIGHT CIRCUIT (See page 05-419 or 05-423 )**

**C** → **CHECK ABS WARNING LIGHT CIRCUIT (See page 05-501 or 05-509 )**

**A**

| 2 | CHECK DIAGNOSTIC CODE OUTPUT |
|---|---|

(a) Check if the normal code is output by ABS system.
w/o VSC: See page 05-386 .
w/ VSC: See page 05-435 .
**Standard:**
**Normal code output.**

**Result:**

| | |
|---|---|
| OK (w/o VSC) | A |
| OK (w/ VSC) | B |
| NG | C |

**B** → **REPLACE BRAKE ACTUATOR ASSY (See page 32-46 )**

**C** → **REPAIR CIRCUIT INDICATED BY OUTPUT CODE**

**A**

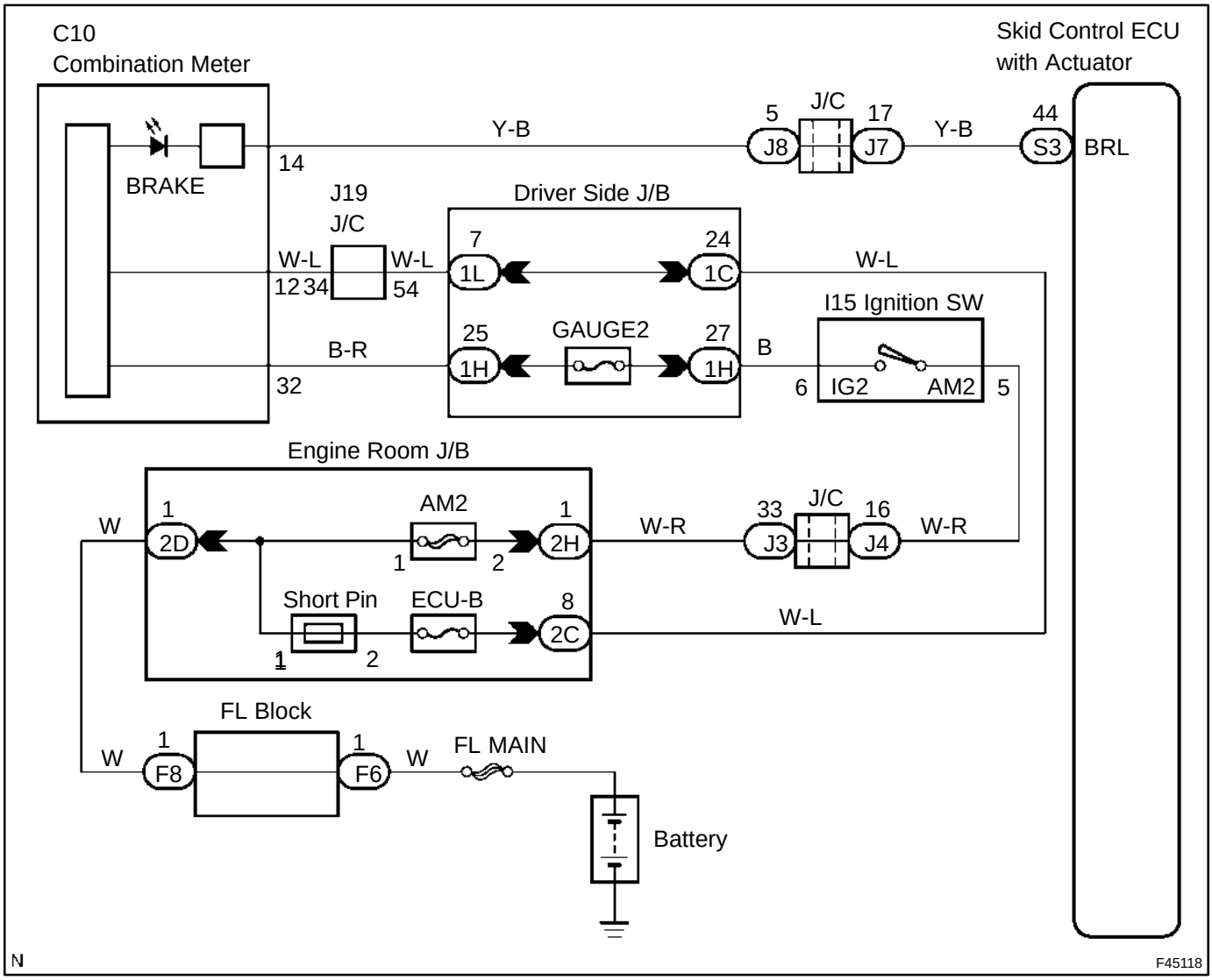
**REPLACE BRAKE ACTUATOR ASSY (See page 32-43 )**

# BRAKE WARNING LIGHT CIRCUIT

## CIRCUIT DESCRIPTION

The BRAKE warning light comes on when the brake fluid is insufficient, the parking brake is applied or the EBD is defective.

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

Start the inspection from step 1 if you are using the hand-held tester and start from step 2 if you are not using the hand-held tester.

| 1 | PERFORM ACTIVE TEST BY HAND-HELD TESTER(BRAKE WARNING LIGHT) |
|---|---|

(a) Connect the hand-held tester to the DLC3.
(b) Start the engine.
(c) Select the item "BRAKE WARN LIGHT" in the ACTIVE TEST and operate the BRAKE warning light on the hand-held tester.
(d) Check that "ON" and "OFF" of the BRAKE warning light is shown on the combination meter by the hand-held tester.

OK → Go to step 4

NG

| 2 | CHECK DTC FOR ABS |
|---|---|

(a) Check if the DTCs are detected (See page 05-435 ).

YES → REPAIR CIRCUIT INDICATED BY OUTPUT CODE

NO

| 3 | INSPECT BRAKE WARNING LIGHT(See page 71-1 ) |
|---|---|

NG → REPAIR OR REPLACE COMBINATION METER ASSEMBLY

OK

| 4 | INSPECT PARKING BRAKE SWITCH ASSY |
|---|---|

NG → REPLACE PARKING BRAKE SWITCH ASSY

OK

| 5 | INSPECT BRAKE FLUID LEVEL WARNING SWITCH |
|---|---|

NG → REPLACE BRAKE MASTER CYLINDER RESERVOIR SUB-ASSY

OK

| 6 | CHECK HARNESS AND CONNECTOR(SKID CONTROL ECU - PARKING BRAKE SWITCH) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the parking brake switch and skid control ECU (See page 01-37 ).

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

| 7 | CHECK HARNESS AND CONNECTOR(SKID CONTROL ECU - BRAKE FLUID LEVEL WARNING SWITCH) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the brake fluid level warning switch and skid control ECU (See page 01-37 ).

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

| 8 | CHECK HARNESS AND CONNECTOR(SKID CONTROL ECU - COMBINATION METER) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the combination meter and skid control ECU (See page 01-37 ).

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

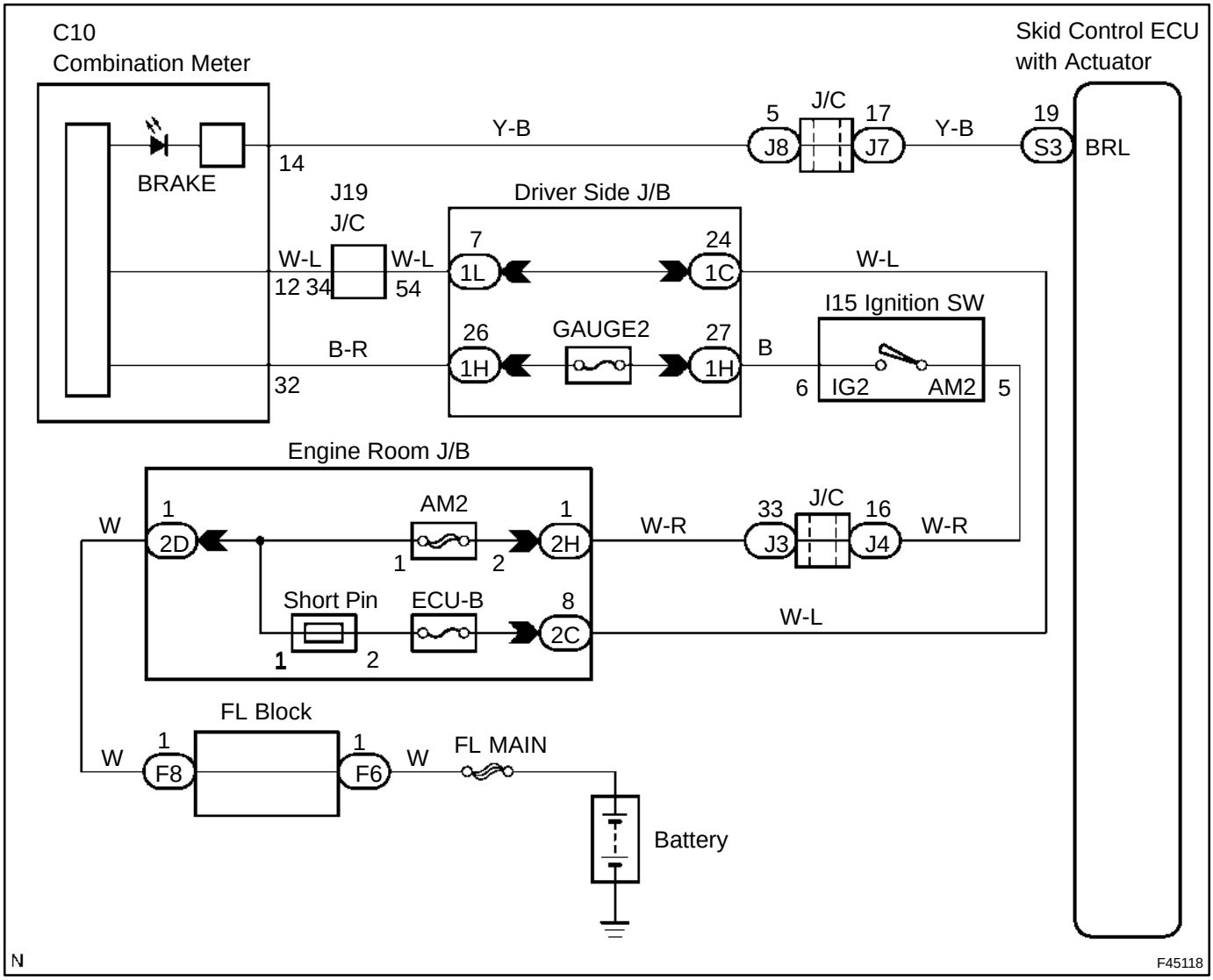
REPLACE ABS & TRACTION ACTUATOR ASSY(See page 32-46 )

# BRAKE WARNING LIGHT CIRCUIT

## CIRCUIT DESCRIPTION

If the ECU detects a trouble, it turns on the brake warning light at the same time of prohibiting ABS control. At this time, the ECU records a DTC in memory.
Connect terminals Tc and CG of the DLC3 to make the brake warning light blink and output the DTC.

## WIRING DIAGRAM



## INSPECTION PROCEDURE

| 1 | INSPECT PARKING BRAKE SWITCH CIRCUIT |
|---|---|

(a) Check for an open or short circuit in the parking brake switch circuit (See page 01-37 ).

NG → REPAIR OR REPLACE PARKING BRAKE SWITCH CIRCUIT

OK

| 2 | INSPECT BRAKE FLUID LEVEL WARNING SWITCH CIRCUIT |
|---|---|

(a) Check the brake fluid level in reservoir.
(b) Check for an open and shot circuit in brake fluid level warning switch circuit (See page 01-37 ).

NG → REPAIR OR REPLACE BRAKE FLUID LEVEL WARNING SWITCH CIRCUIT

OK

| 3 | CHECK DTC ONCE MORE |
|---|---|

(a) Check if the other DTCs are detected (See page 05-386 ).

NG → REPAIR CIRCUIT INDICATED BY OUTPUT CODE

OK

| 4 | INSPECT COMBINATION METER ASSY(BRAKE WARNING LIGHT CIRCUIT) |
|---|---|

(a) Check for an open or short circuit in the combination meter (See page 01-37 ).

NG → REPAIR OR REPLACE COMBINATION METER ASSY

OK

| 5 | CHECK HARNESS AND CONNECTOR(BRAKE ACTUATOR - COMBINATION METER) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the brake actuator and combination meter (See page 01-37 ).

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

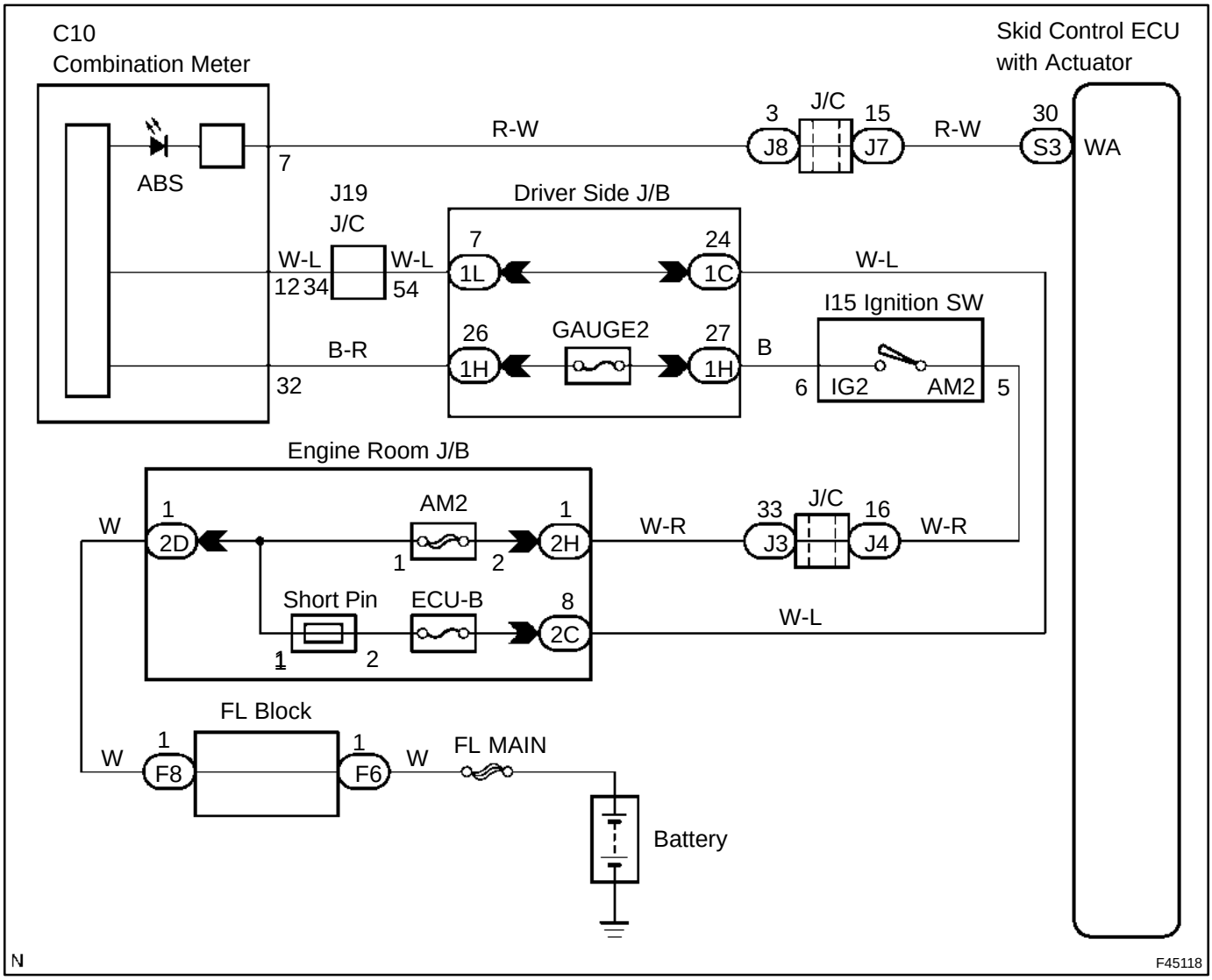
REPLACE BRAKE ACTUATOR ASSY (See page 32-43 )

# ABS WARNING LIGHT CIRCUIT (DOES NOT LIGHT UP)

## CIRCUIT DESCRIPTION

If the ECU detects a trouble, it will prohibit ABS control, turn on ABS warning light, and store the DTC. Connect terminals Tc and CG of the DLC3 to make the ABS warning light blink and output the DTC.

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

Start the inspection from step 1 if you are using the hand-held tester and start from step 2 if you are not using the hand-held tester.

| 1 | PERFORM ACTIVE TEST BY HAND-HELD TESTER(ABS WARNING LIGHT) |
|---|---|

(a) Connect the hand-held tester to the DLC3.
(b) Start the engine.
(c) Select the ACTIVE TEST mode on the hand-held tester.
(d) Check that "ON" and "OFF" of the ABS warning light is shown on the combination meter by the hand-held tester.

**OK** → **REPLACE BRAKE ACTUATOR ASSY (See page 32-43 )**

**NG**

| 2 | INSPECT COMBINATION METER ASSY(ABS WARNING LIGHT) |
|---|---|

(a) Disconnect the connector from the skid control ECU.
(b) Turn the ignition switch to ON.
(c) Check the ABS warning light.
**OK:**
**ABS warning light comes ON**

**NG** → **REPAIR OR REPLACE COMBINATION METER ASSY**

**OK**

| 3 | CHECK HARNESS AND CONNECTOR(WA CIRCUIT) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the combination meter and the skid control ECU (See page 01-37 ).

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

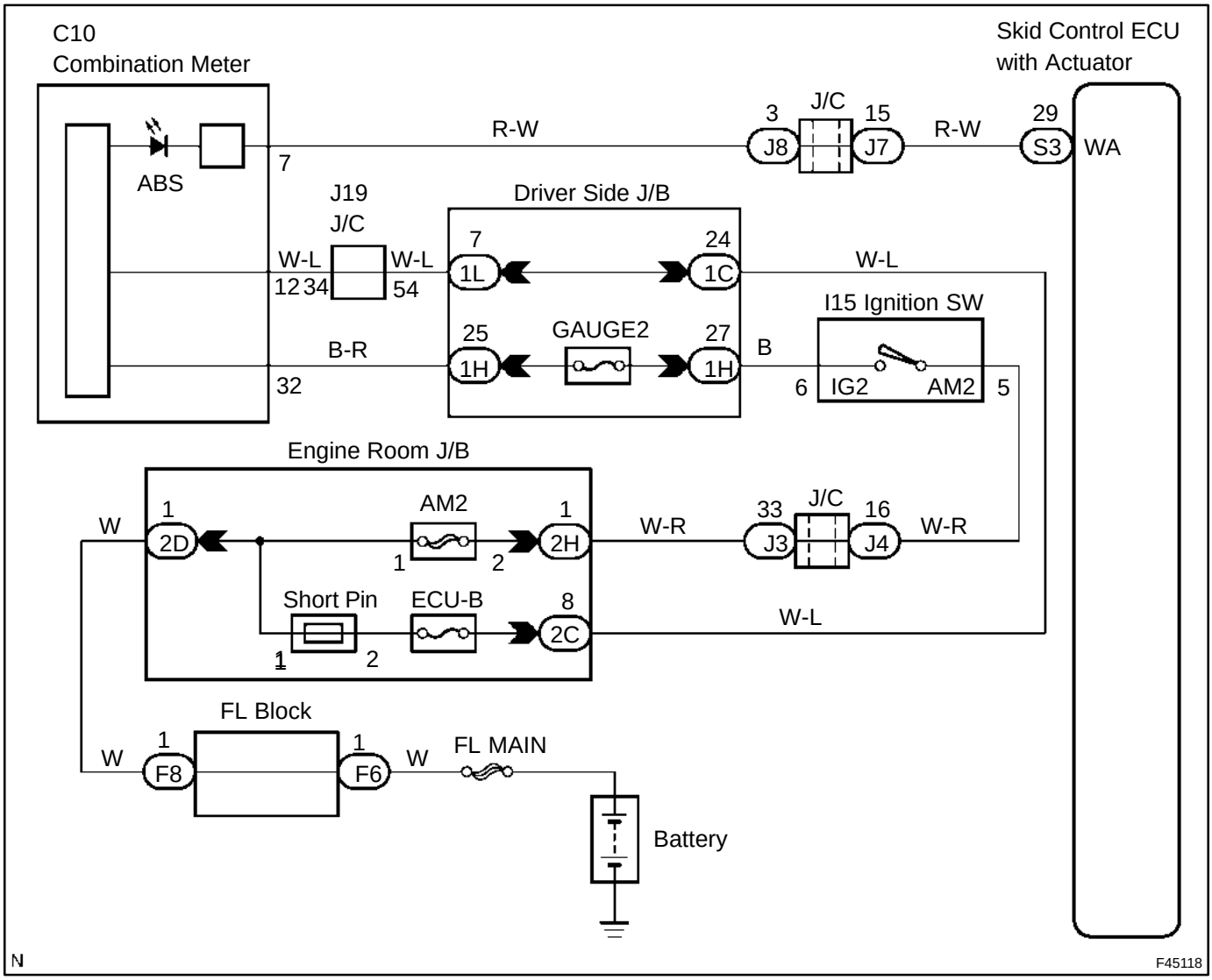
**REPLACE BRAKE ACTUATOR ASSY (See page 32-43 )**

# ABS WARNING LIGHT CIRCUIT (DOES NOT LIGHT UP)

## CIRCUIT DESCRIPTION

If the ECU detect trouble, it will prohibit ABS control, turn on ABS warning light, and store the DTC. Connect terminals Tc and CG of the DLC3 to make the ABS warning light blink and output the DTC.

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

Start the inspection from step 1 if you are using the hand-held tester and start from step 2 if you are not using the hand-held tester.

| 1 | PERFORM ACTIVE TEST BY HAND-HELD TESTER(ABS WARNING LIGHT) |
|---|---|

(a) Connect the hand-held tester to the DLC3.
(b) Start the engine.
(c) Select the item "ABS WARN LIGHT" in the ACTIVE TEST and operate the ABS warning light on the hand-held tester.
(d) Check that "ON" of the ABS warning light is shown on the combination meter by the hand-held tester.

OK → **REPLACE ABS & TRACTION ACTUATOR ASSY (See page 32-46 )**

NG

| 2 | INSPECT ABS WARNING LIGHT(See page 71-1 ) |
|---|---|

NG → **REPAIR OR REPLACE COMBINATION METER ASSY**

OK

| 3 | CHECK HARNESS AND CONNECTOR(SKID CONTROL ECU - COMBINATION METER) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the combination meter and skid control ECU (See page 01-37 ).

NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

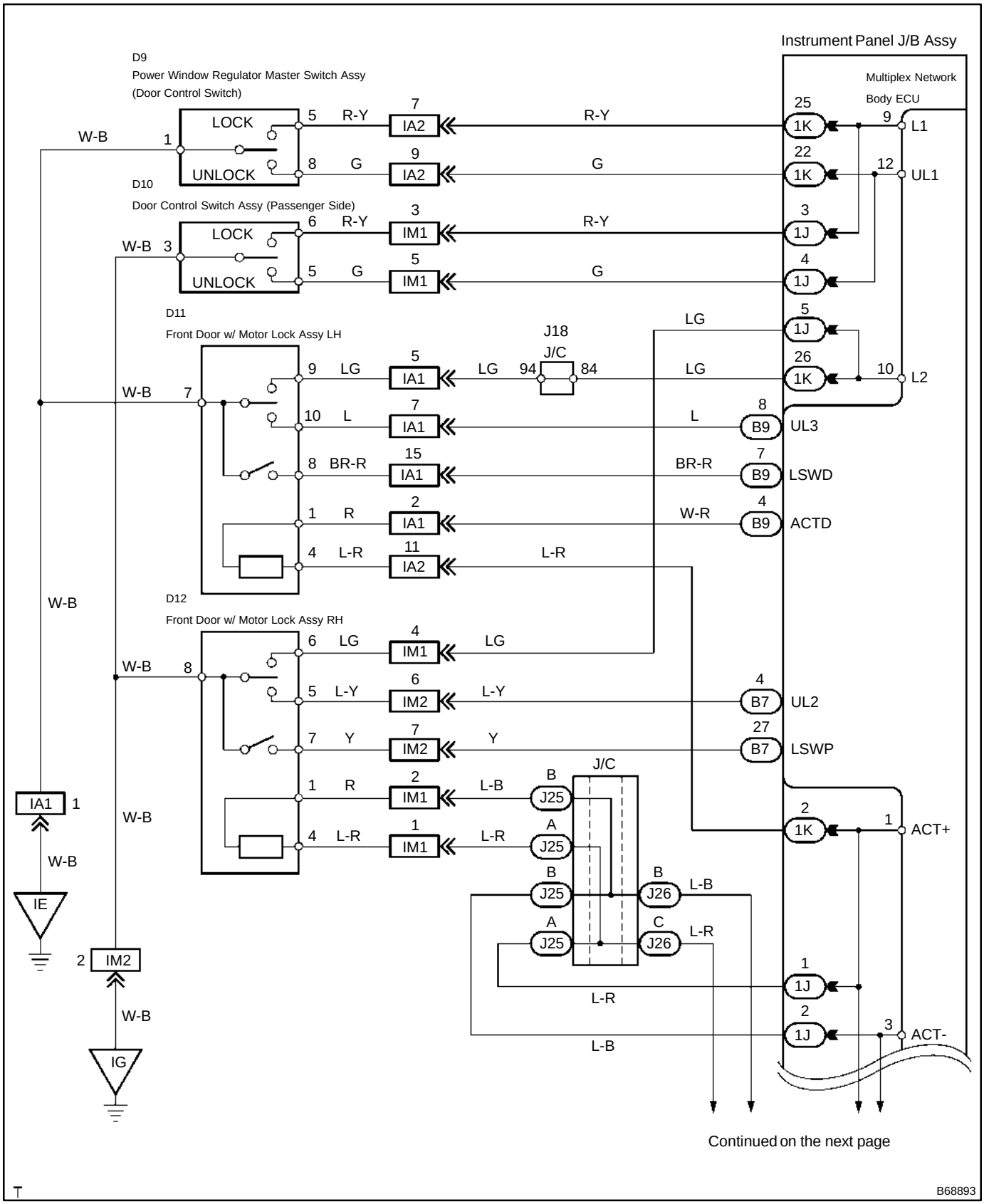
**REPLACE ABS & TRACTION ACTUATOR ASSY(See page 32-46 )**

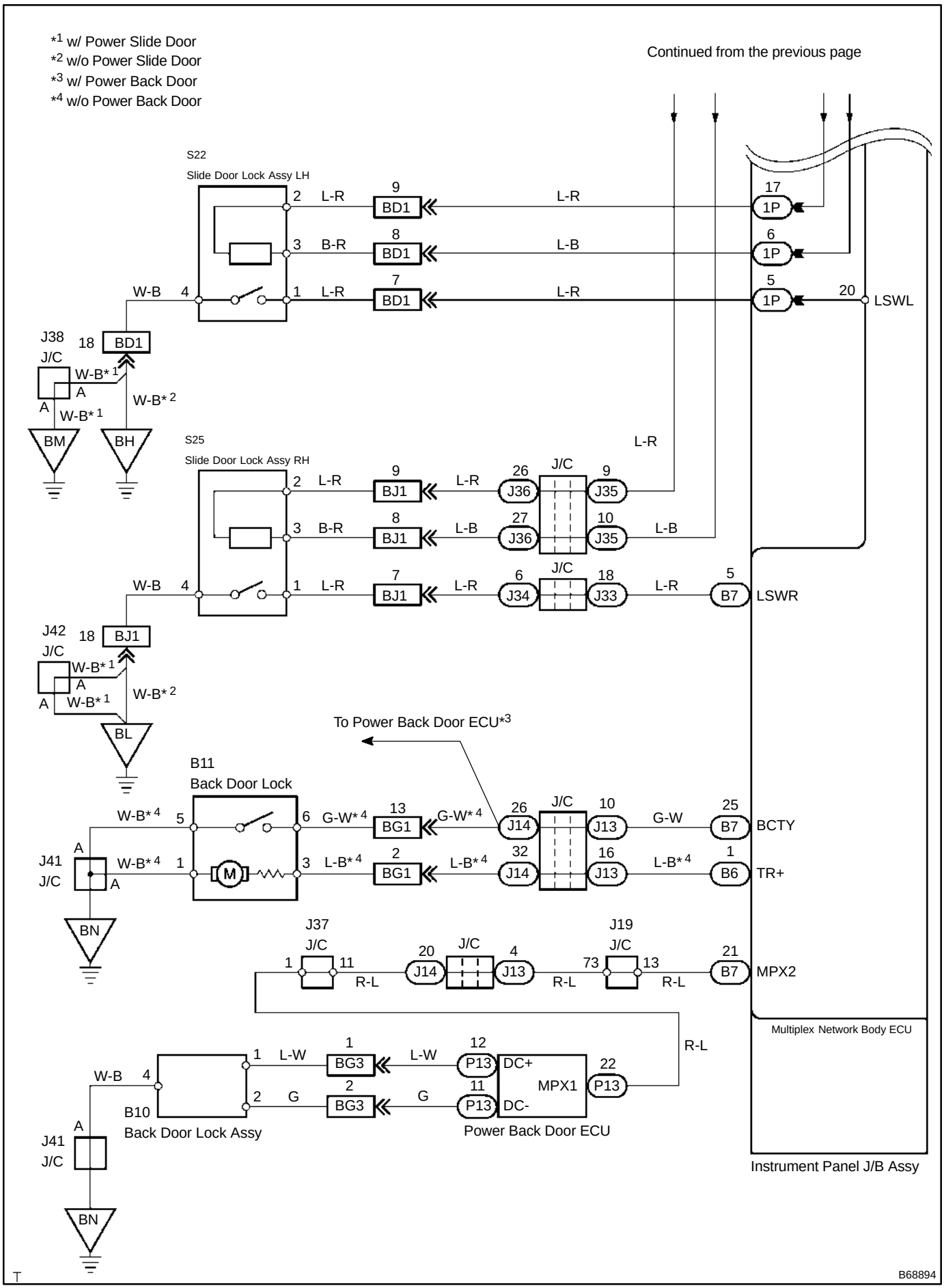
# ALL DOORS CANNOT BE LOCKED/UNLOCKED AT ONCE

## CIRCUIT DESCRIPTION

The body ECU receives a switch signal from the master switch, the door control switch, the driver door key cylinder and the passenger door key cylinder and then drives the door lock motor.

# WIRING DIAGRAM




*1 w/ Power Slide Door
*2 w/o Power Slide Door
*3 w/ Power Back Door
*4 w/o Power Back Door
Continued from the previous page
S22
Slide Door Lock Assy LH
S25
Slide Door Lock Assy RH
B11
Back Door Lock
B10
Back Door Lock Assy
J38 J/C
J42 J/C
J41 J/C
J37 J/C
J19 J/C
BM
BH
BL
BN
To Power Back Door ECU*3
Power Back Door ECU
Multiplex Network Body ECU
Instrument Panel J/B Assy
LSWL
LSWR
BCTY
TR+
MPX2
MPX1
DC+
DC-
B68894

# INSPECTION PROCEDURE

| 1 | INSPECT FUSE (ECU-B) |
|---|---|

(a) Inspect the ECU-B fuse (See page 68-1 ).

NG → REPLACE FUSE

OK

| 2 | PERFORM ACTIVE TEST USING HAND-HELD TESTER |
|---|---|

(a) Select the ACTIVE TEST and then check that the power door lock operates.

HINT:

During the ACTIVE TEST, the hand-held tester sends a signal to the body ECU to drive all the power door lock motors. If the power door lock operates, the power door lock motor itself and the wire harness between the power door lock motor and body ECU are considered to be functioning normally.

**Standard (Multiplex network body ECU):**

| Item | Test Details | Diagnostic Note |
|---|---|---|
| DOOR LOCK | Operate the door lock motor for all doors OFF/LOCK/UNLOCK | - |

OK → INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU)

NG

| 3 | MASTER SWITCH OR KEY CYLINDER OPERATION |
|---|---|

(a) When manual door lock/unlock operation via the master switch can not be performed, proceed to A.

(b) When manual door lock/unlock operation via the door control switch (passenger side) can not be performed, proceed to B.

(c) When manual door lock/unlock operation interlocked with the driver side door lock key cylinder can not be performed, proceed to C.

(d) When manual door lock/unlock operation interlocked with the passenger side door lock key cylinder can not be performed, proceed to D.

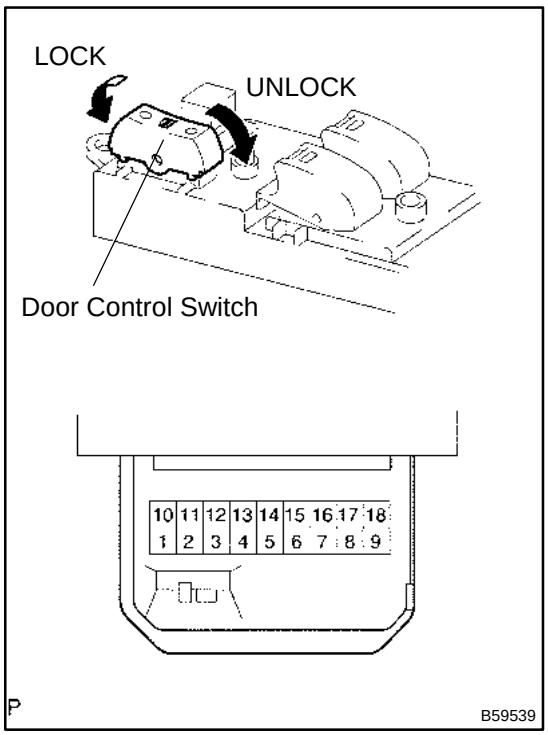
B → Go to step 6

C → Go to step 8

D → Go to step 10

A

| 4 | **INSPECT POWER WINDOW REGULATOR MASTER SWITCH ASSY (DOOR CONTROL SWITCH)** |
|---|---|




(a) Remove the master switch.

(b) Inspect the resistance of the door control switch.

**Standard:**

| Terminal No. | Switch Position | Specified Condition |
|---|---|---|
| 1 - 5 | Lock | Below 1 Ω |
| 1 - 5, 1 - 8 | OFF | 10 kΩ or higher |
| 1 - 8 | Unlock | Below 1 Ω |

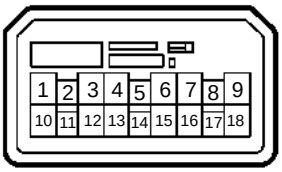
**NG** → **REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSY**

**OK**

| 5 | **CHECK WIRE HARNESS (POWER WINDOW REGULATOR MASTER SWITCH ASSY - INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU) AND BODY GROUND)** |
|---|---|

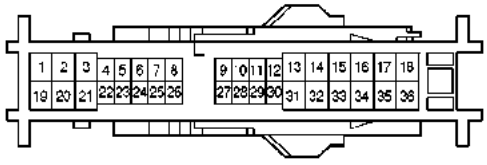
**Wire Harness Side**

D9
Power Window Regulator
Master Switch Assy




B66172

1K
Instrument Panel J/B Assy
(Multiplex Network Body ECU)




B68468

T

B68918

(a) Disconnect the D9 switch and 1K J/B connectors.
(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| D9-5 (L) - 1K-25 (L1) | Below 1 Ω |
| D9-8 (UL) - 1K-22 (UL1) | |

(c) Check the resistance between the D9 switch connector and body ground.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| D9-1 (E) - Body ground | Below 1 Ω |

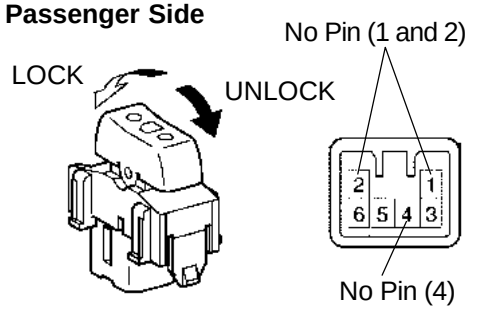
**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**Go to step 8**

| 6 | **INSPECT DOOR CONTROL SWITCH ASSY** |
|---|---|

**Passenger Side**




T

B67755

(a) Passenger side:
Inspect the resistance of the switch.

**Standard:**

| Terminal No. | Switch Position | Specified Condition |
|---|---|---|
| 3 - 6 | Lock | Below 1 Ω |
| 3 - 5, 3 - 6 | OFF | 10 kΩ or higher |
| 3 - 5 | Unlock | Below 1 Ω |

**NG** → **REPLACE DOOR CONTROL SWITCH ASSY**

**OK**

| 7 | CHECK WIRE HARNESS (DOOR CONTROL SWITCH ASSY (PASSENGER SIDE) - INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU) AND BODY GROUND) |
|---|---|

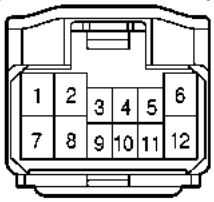
**Wire Harness Side**

D10
Door Control Switch Assy
(Passenger Side)




B66173

1J
Instrument Panel J/B Assy
(Multiplex Network Body ECU)




B68468
T

B68919

(a) Disconnect the D10 switch and 1J J/B connectors.

(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| D10-6 (L) - 1J-3 (L1) | Below 1 Ω |
| D10-5 (UL) - 1J-4 (UL1) | |

(c) Check the resistance between the D10 control switch connector and body ground.

**Standard (Check for open circuit):**

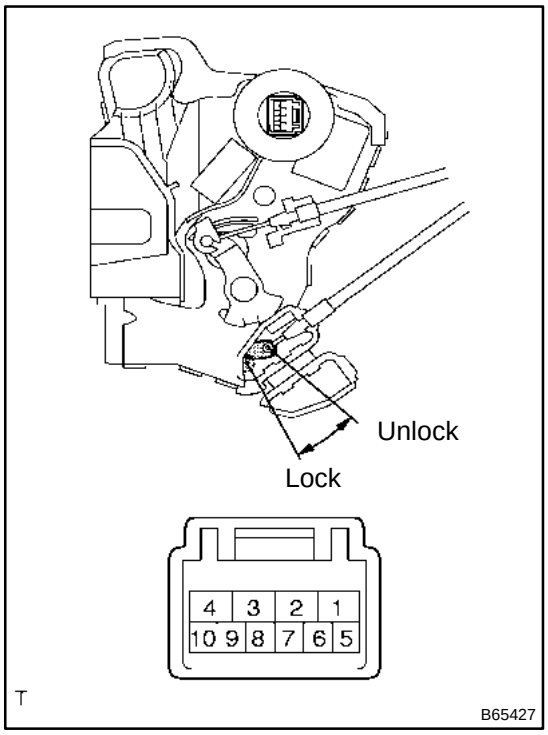
| Terminal No. | Specified Condition |
|---|---|
| D10-3 (E) - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**Go to step 10**

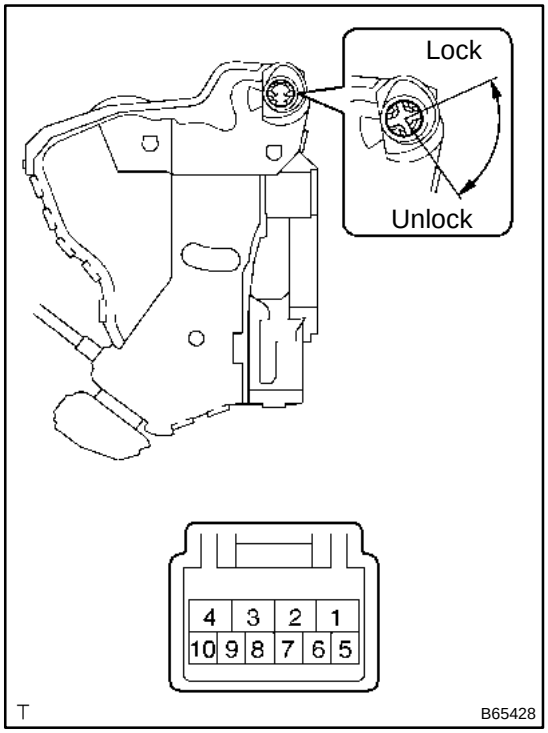
## 8 INSPECT FRONT DOOR W/MOTOR LOCK ASSY LH




(a) Apply battery voltage and inspect operation of the door lock motor.

**Standard:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 4<br>Battery negative (-) → Terminal 1 | Lock |
| Battery positive (+) → Terminal 1<br>Battery negative (-) → Terminal 4 | Unlock |




(b) Inspect the resistance of the door lock and unlock switch.

**Standard:**

| Terminal No. | Door Lock Position | Specified Condition |
|---|---|---|
| 7 - 9 | Lock | Below 1 Ω |
| 7 - 9, 7 - 10 | OFF | 10 kΩ or higher |
| 7 - 10 | Unlock | Below 1 Ω |

(c) Inspect the resistance of the position switch.

**Standard:**

| Terminal No. | Door Lock Position | Specified Condition |
|---|---|---|
| 7 - 8 | Lock | 10 kΩ or higher |
| | Unlock | Below 1 Ω |

**NG** → **REPLACE FRONT DOOR W/MOTOR LOCK ASSY LH**

**OK**

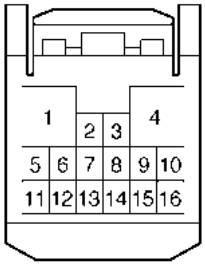
| 9 | CHECK WIRE HARNESS (FRONT DOOR W/ MOTOR LOCK ASSY LH - INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU) AND BODY GROUND) |
|---|---|

**Wire Harness Side**

D11
Front Door w/ Motor Lock Assy LH

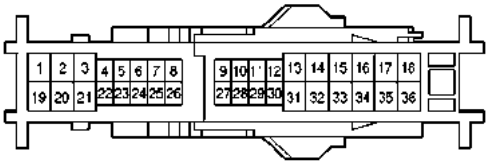



B9
Instrument Panel J/B Assy
(Multiplex Network Body ECU)




B68878

1K
Instrument Panel J/B Assy
(Multiplex Network Body ECU)




B68468

T

B68917

(a) Disconnect the D11 door lock, B9 and 1K body ECU connectors.

(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| D11-1 (UL) - B9-4 (ACTD) | Below 1 Ω |
| D11-4 (L) - 1K-2 (ACT+) | |

(c) Check the resistance between the D11 door lock connector and body ground.

**Standard (Check for open circuit):**

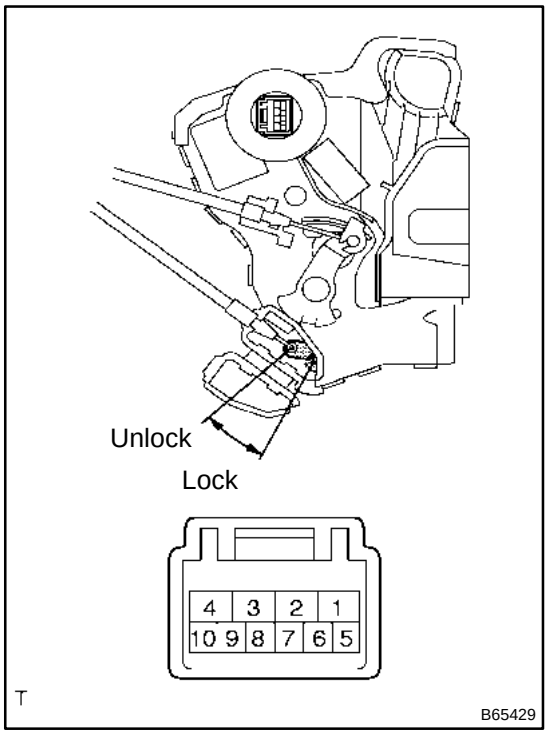
| Terminal No. | Specified Condition |
|---|---|
| D11-7 (E) - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU)**

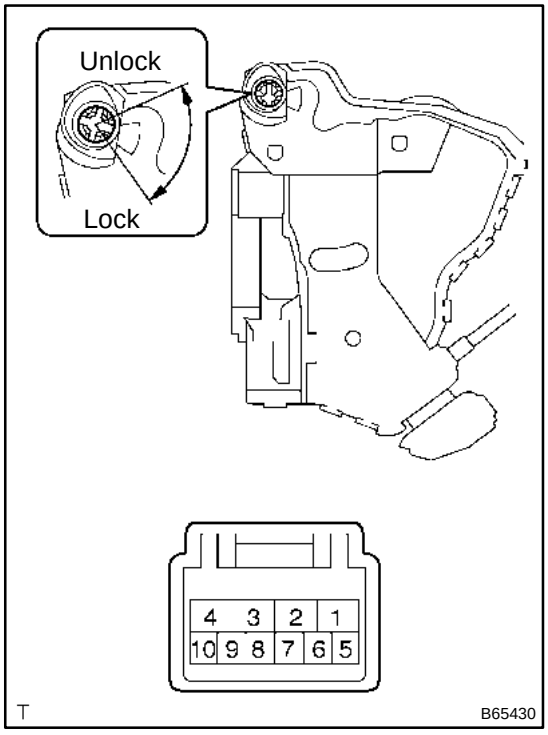
## 10 INSPECT FRONT DOOR W/MOTOR LOCK ASSY RH




(a) Apply battery voltage and inspect operation of the door lock motor.

**Standard:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 4<br>Battery negative (-) → Terminal 1 | Lock |
| Battery positive (+) → Terminal 1<br>Battery negative (-) → Terminal 4 | Unlock |




(b) Inspect the resistance of the door lock and unlock switch.

**Standard:**

| Terminal No. | Door Lock Position | Specified Condition |
|---|---|---|
| 8 - 5 | Lock | Below 1 Ω |
| 8 - 5, 8 - 6 | OFF | 10 kΩ or higher |
| 8 - 6 | Unlock | Below 1 Ω |

(c) Inspect the resistance of the position switch.

**Standard:**

| Terminal No. | Door Lock Position | Specified Condition |
|---|---|---|
| 7 - 8 | Lock | 10 kΩ or higher |
| | Unlock | Below 1 Ω |

**NG** → **REPLACE FRONT DOOR W/MOTOR LOCK ASSY RH**

**OK**

| 11 | CHECK WIRE HARNESS (FRONT DOOR W/ MOTOR LOCK ASSY RH - INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU) AND BODY GROUND) |
|---|---|

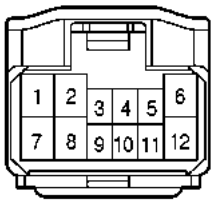
**Wire Harness Side**

D12
Front Door w/ Motor Lock Assy RH




B66177

1J
Instrument Panel J/B Assy
(Multiplex Network Body ECU)




B68468
T

B68920

(a) Disconnect the D12 door lock and 1J body ECU connectors.

(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| D12-1 (UL) - 1J-2 (ACT-) | Below 1 Ω |
| D12-4 (L) - 1J-1 (ACT+) | |

(c) Check the resistance between the D12 door lock connector and body ground.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| D12-8 (E) - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU)**

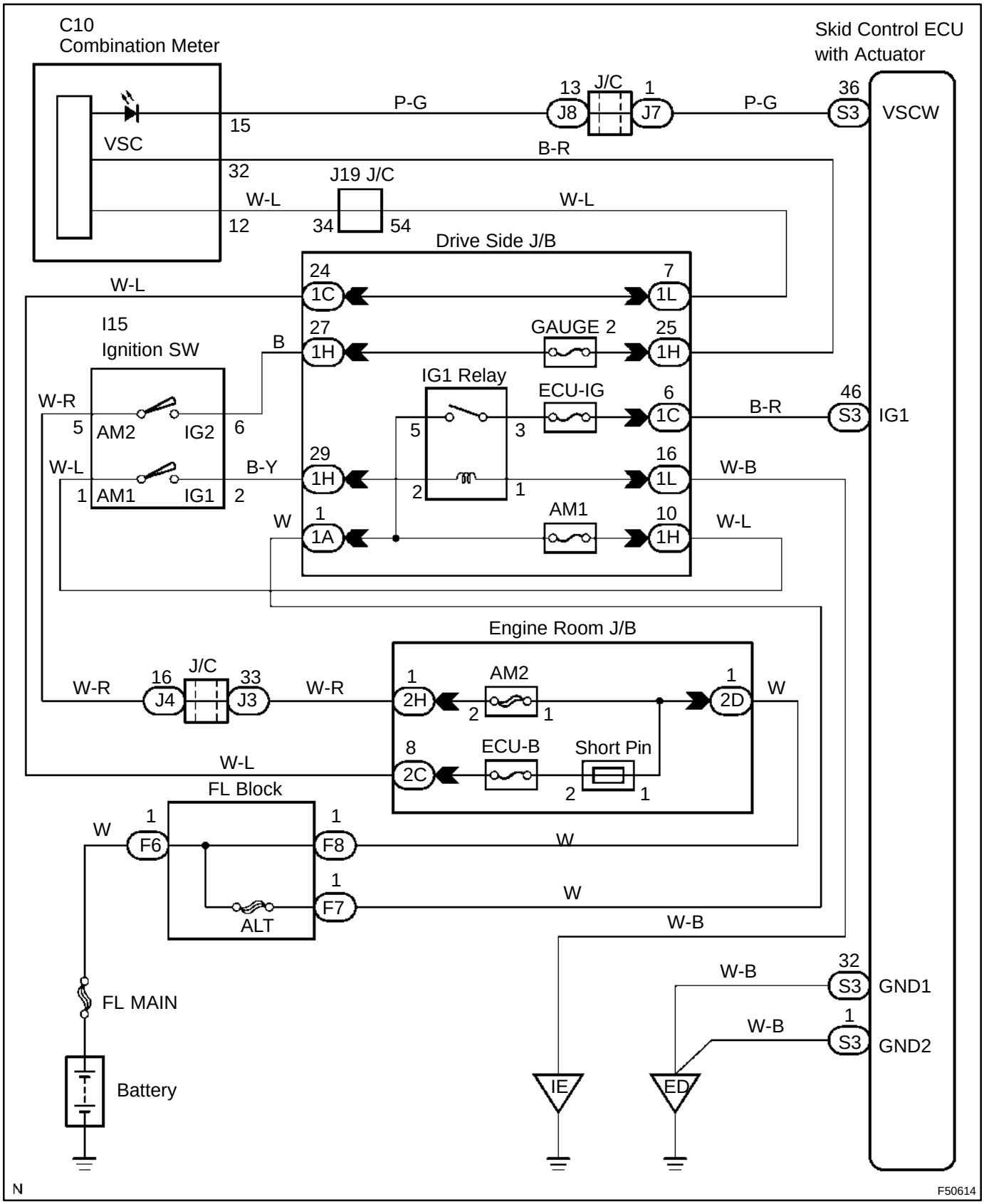
| DTC | Always ON | MALFUNCTION IN ECU(VSC WARNING LIGHT) |
|---|---|---|

## CIRCUIT DESCRIPTION

If the ECU stores DTC, the VSC warning light lights on the combination meter.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| Always ON | Malfunction in skid control EU | • Battery<br>• IC regulator<br>• Power source circuit<br>• Skid control ECU |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CHECK DTC FOR VSC |
|---|---|

(a) Check if the other DTCs are detected (See page 05-435 ).

YES → **REPAIR CIRCUIT INDICATED BY OUTPUT CODE**

NO

| 2 | INSPECT SKID CONTROL ECU CONNECTOR SECURELY CONNECTED |
|---|---|

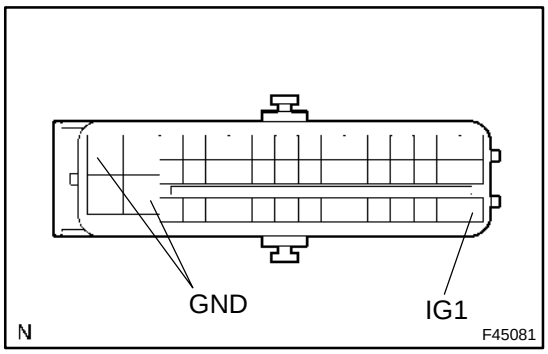
NO → **CONNECT CONNECTOR TO ECU**

YES

| 3 | INSPECT SKID CONTROL ECU TERMINAL VOLTAGE(IG1 TERMINAL) |
|---|---|

**IN CASE OF USING THE HAND-HELD TESTER:**

(a) Connect the hand-held tester to the DLC3.
(b) Start the engine.
(c) Select the DATA LIST mode on the hand-held tester.
(d) Check the voltage condition, which is output from the ECU displayed on the hand-held tester.
**OK:**
**"Normal" is displayed.**




**IN CASE OF NOT USING THE HAND-HELD TESTER:**

(a) Disconnect the skid control ECU connector.
(b) Turn the ignition switch ON.
(c) Measure the voltage between terminal IG1 and GND of the brake actuator harness side connector.
**OK:**
**Voltage: 10 to 14 V**

OK → **Go to step 6**

NG

| 4 | CHECK HARNESS AND CONNECTOR(SKID CONTROL ECU - BODY GROUND) |
|---|---|

(a) Check for an open circuit in harness and connector between the body ground and skid control ECU (See page 01-37 ).

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR(Skid control ECU - Body ground)**

OK

| 5 | INSPECT BATTERY |
|---|---|

(a) Check the battery positive voltage.
**OK:**
**Voltage: 10 to 14 V**

NG → **INSPECT CHARGING SYSTEM**

OK ↓

**CHECK AND REPLACE HARNESS AND CONNECTOR (Battery - Skid control ECU)**

| 6 | INSPECT VSC WARNING LIGHT |
|---|---|

**IN CASE OF USING THE HAND-HELD TESTER:**
(a) Connect the hand-held tester to the DLC3.
(b) Start the engine.
(c) Select the item ”VSC WARN LIGHT” in the ACTIVE TEST and operate the VSC warning light on the hand-held tester.
(d) Check that ”ON” and ”OFF” of the VSC warning light can be shown on the combination meter on the hand-held tester.

**IN CASE OF NOT USING THE HAND-HELD TESTER:**
(a) Turn the ignition switch OFF.
(b) Disconnect the connector from the skid control ECU.
(c) Turn the ignition switch ON.
(d) Check the VSC warning light goes off.

NG → **INSPECT CHARGING SYSTEM (See page 19-14 )**

NG ↓

**CHECK AND REPAIR VSC WARNING LIGHT CIRCUIT**

# DTC AlwaysON MALFUNCTION IN ABS ECU

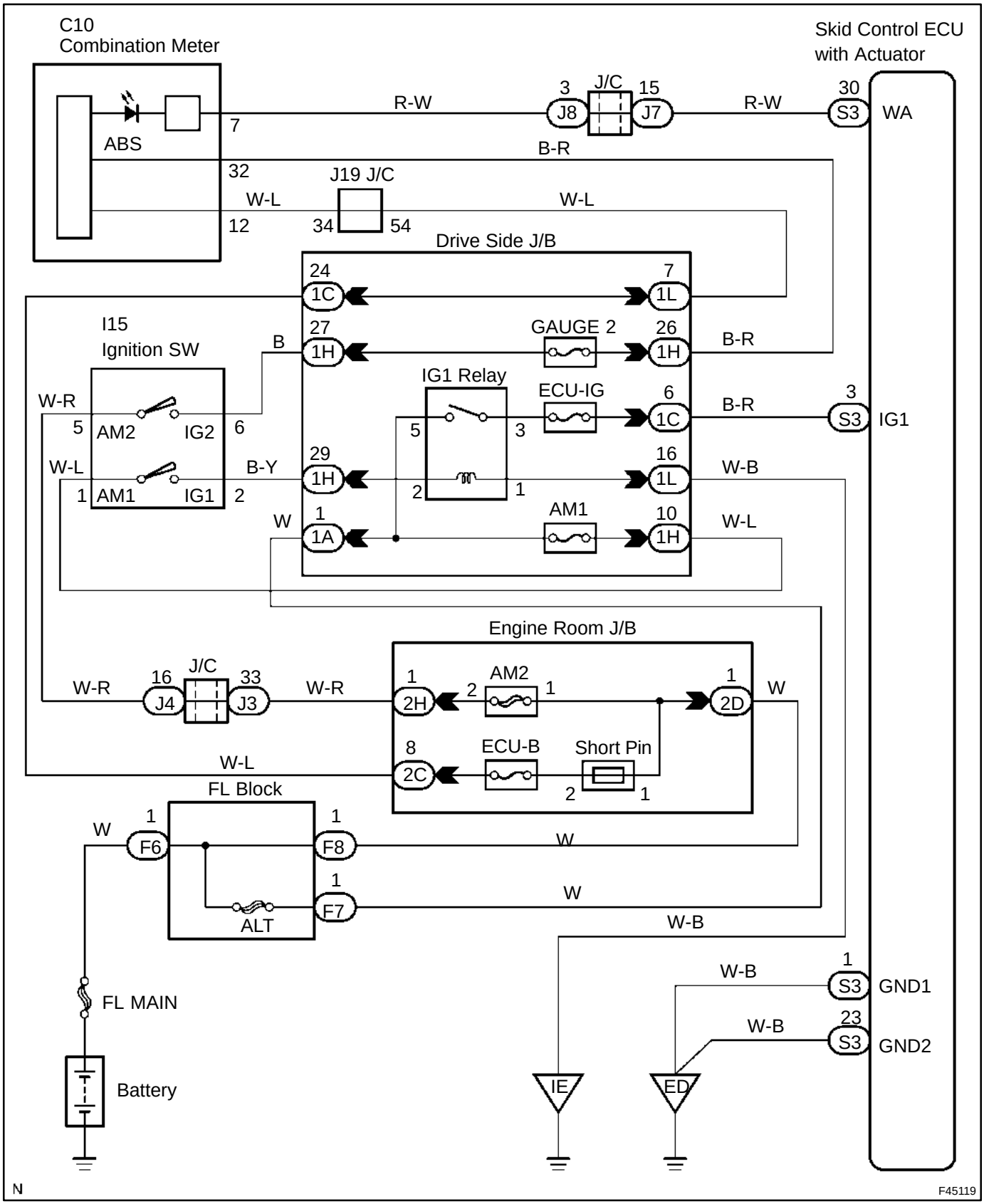
## CIRCUIT DESCRIPTION

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| Always ON | Either of the following 1. or 2. is detected:<br>1. The ECU connectors are OFF from the ECU.<br>2. There is a malfunction in the ECU internal circuit. | • Battery<br>• Charging system<br>• Power source circuit<br>• Brake actuator assy |

HINT:

There is a case that hand-held tester cannot be used when there is a malfunction in the ECU.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | RECONFIRM DTC |
|---|---|

(a) Check the DTC (See page 05-386 ).

YES → REPAIR CIRCUIT INDICATED BY OUTPUT CODE

NO

| 2 | INSPECT SKID CONTROL ECU CONNECTOR SECURELY CONNECTED |
|---|---|

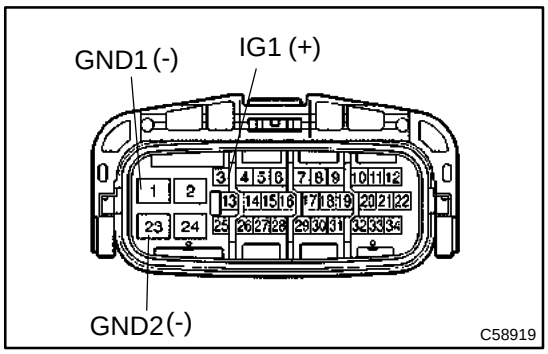
NO → CONNECT CONNECTOR TO ECU

YES

| 3 | INSPECT SKID CONTROL ECU CONNECTOR(IG1 TERMINAL VOLTAGE) |
|---|---|

**IN CASE OF USING HAND-HELD TESTER:**

(a) Connect the hand-held tester to the DLC3.
(b) Start the engine.
(c) Select the DATA LIST mode on the hand-held tester.
(d) Check the voltage condition, which is output from the ECU and displayed on the hand-held tester.
**OK:**
**"Normal" is displayed.**



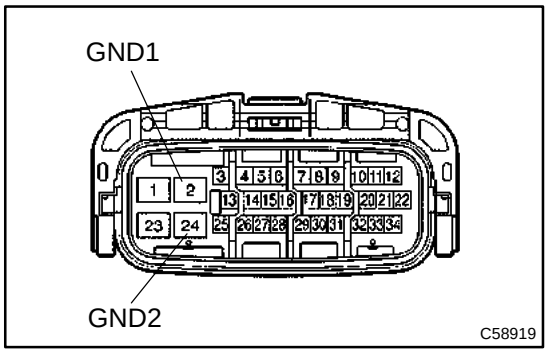

**IN CASE OF NOT USING HAND-HELD TESTER:**

(a) Disconnect the skid control ECU connector.
(b) Turn the ignition switch ON.
(c) Measure voltage between terminals IG1 and GND1, 2 of the skid control ECU harness side connector.
**OK:**
**Voltage: 10 to 14 V**

OK → Go to step 5

NG

| 4 | INSPECT SKID CONTROL ECU CONNECTOR(GND TERMINAL CONTINUITY) |
|---|---|



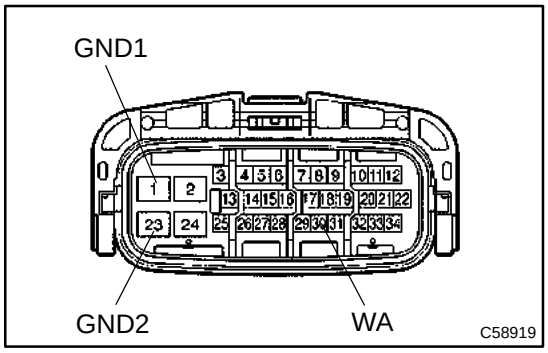

(a) Measure resistance between terminal GND1, 2 of the skid control ECU harness side connector and body ground.
**OK:**
**Resistance: 1 Ω or less**

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

**CHECK AND REPAIR HARNESS AND CONNECTOR**

| 5 | GO TO COMBINATION METER SYSTEM(ABS WARNING LIGHT) |
|---|---|




(a) Disconnect the skid control ECU connector.
(b) Using service wire, connect terminals WA and GND1, 2 of the skid control ECU harness side connector.
(c) Turn the ignition switch ON.
**OK:**
**ABS warning light goes off.**

**NG** → **REPAIR OR REPLACE COMBINATION METER ASSEMBLY**

**OK**

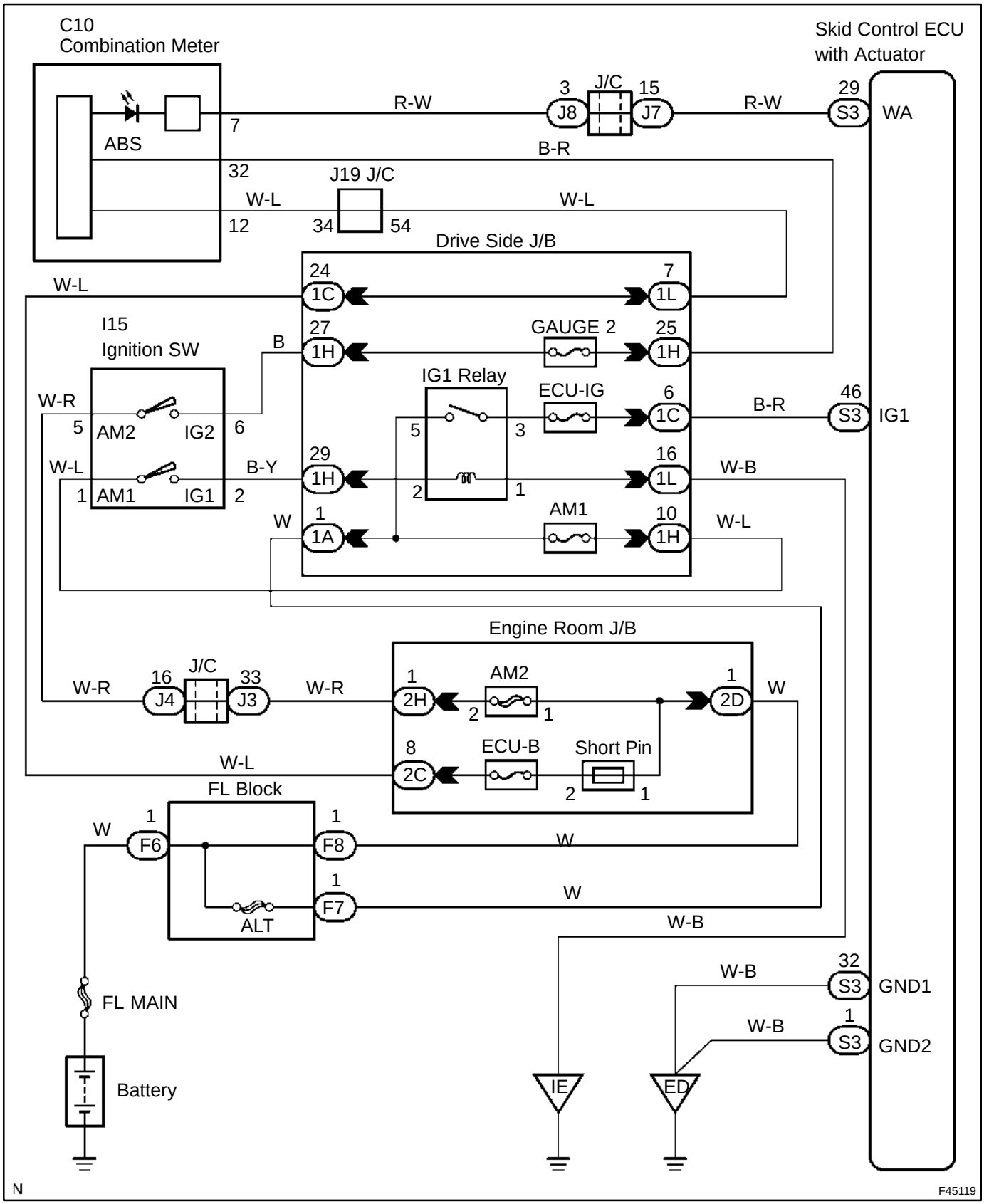
**REPLACE BRAKE ACTUATOR ASSY (See page 32-43 )**

# DTC Always ON MALFUNCTION IN SKID CONTROL ECU

## CIRCUIT DESCRIPTION

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| Always ON | Any of the following 1., 2. or 3. is detected:<br>1. Voltage of ECU terminal IG1 remains at more than 17 V.<br>2. The ECU connectors are off from the ECU.<br>3. There is a malfunction in the ECU internal circuit. | • Battery<br>• Charging system<br>• Power source circuit<br>• Skid control ECU |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CHECK DTC FOR ABS |
|---|---|

(a) Check if the other DTCs are detected (See page 05-435 ).

YES → REPAIR CIRCUIT INDICATED BY OUTPUT CODE

NO

| 2 | INSPECT SKID CONTROL ECU CONNECTOR SECURELY CONNECTED |
|---|---|

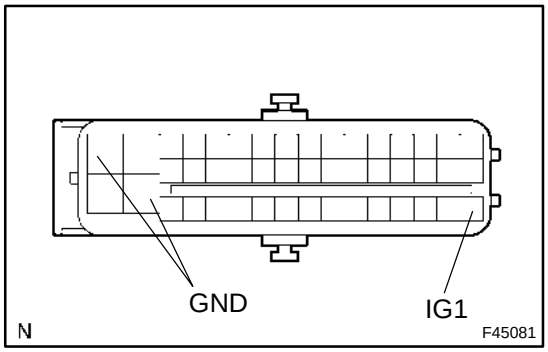
NO → CONNECT CONNECTOR TO ECU

YES

| 3 | INSPECT SKID CONTROL ECU TERMINAL VOLTAGE(IG1 TERMINAL) |
|---|---|

**IN CASE OF USING THE HAND-HELD TESTER:**

(a) Connect the hand-held tester to the DLC3.
(b) Start the engine.
(c) Select the DATA LIST mode on the hand-held tester.
(d) Check the voltage condition, which is output from the ECU and displayed on the hand-held tester.
**OK:**
**"Normal" is displayed.**




**IN CASE OF NOT USING THE HAND-HELD TESTER:**

(a) Disconnect the skid control ECU connector.
(b) Turn the ignition switch ON.
(c) Measure voltage between terminal IG1 and GND of the brake actuator harness side connector.
**OK:**
**Voltage: 10 to 14 V**

OK → Go to step 6

NG

| 4 | CHECK HARNESS AND CONNECTOR(SKID CONTROL ECU - BODY GROUND) |
|---|---|

(a) Check for open circuit in harness and connector between body ground and skid control ECU (See page 01-37 ).

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

| 5 | INSPECT BATTERY |
|---|---|

(a) Check the battery positive voltage.
**OK:**
**Voltage: 10 to 14 V**

NG → **INSPECT CHARGING SYSTEM**

OK

**CHECK AND REPLACE HARNESS AND CONNECTOR(BATTERY - IG1 TERMINAL)**

| 6 | INSPECT ABS WARNING LIGHT |
|---|---|

**IN CASE OF USING THE HAND-HELD TESTER:**
(a) Connect the hand-held tester to the DLC3.
(b) Start the engine.
(c) Select the item ”ABS WARN LIGHT” in the ACTIVE TEST and operate the ABS warning light with the hand-held tester.
(d) Check that ”ON” and ”OFF” of the ABS warning light is shown on the combination meter by the hand-held tester.

**IN CASE OF NOT USING THE HAND-HELD TESTER:**
(a) Turn the ignition switch OFF and disconnect the connector from the skid control ECU.
(b) Ground the WA terminal of the skid control ECU.
(c) Turn the ignition switch ON.
(d) Check the ABS warning light goes off.

NG → **REPLACE ABS & TRACTION ACTUATOR ASSY (See page 32-46 )**

OK

**CHECK AND REPAIR ABS WARNING LIGHT CIRCUIT**

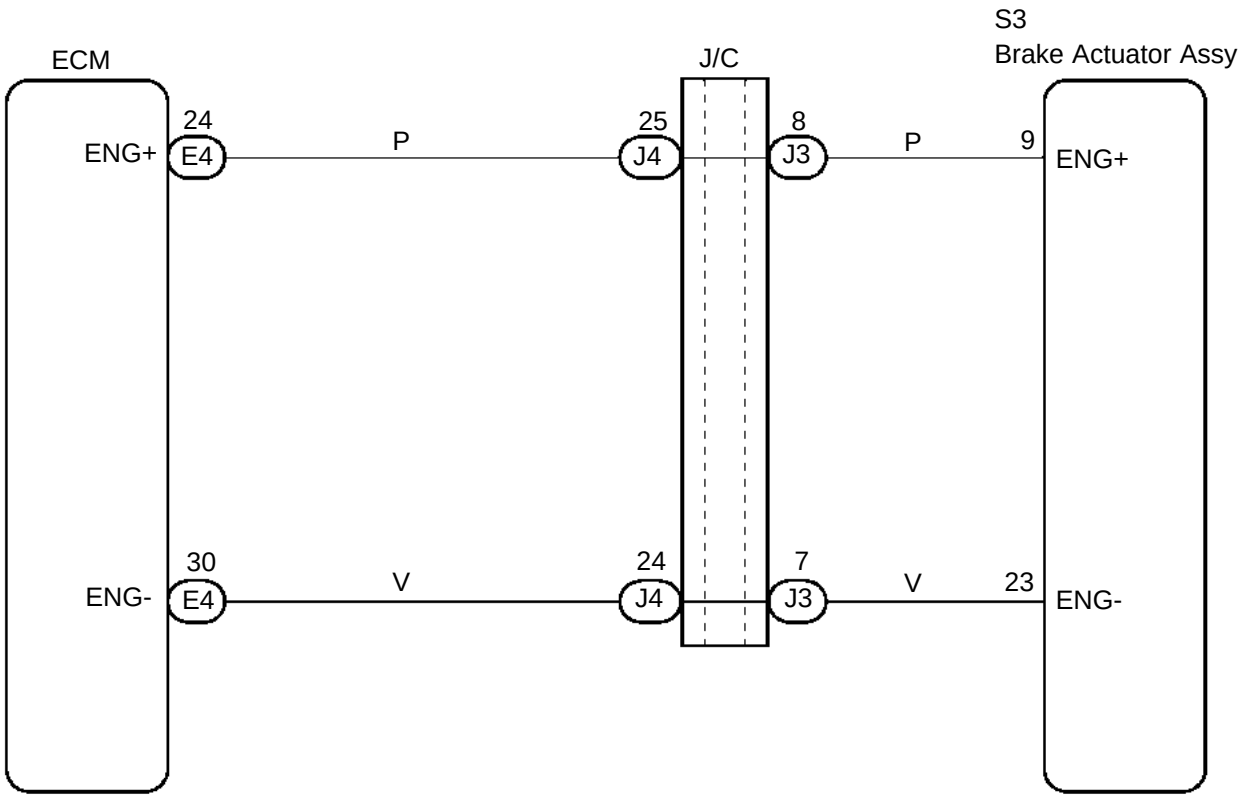
# AMBIENT TEMPERATURE SENSOR CIRCUIT

## CIRCUIT DESCRIPTION

The vehicle equipped with the VSC system:
The thermistor assy (Ambient temperature sensor) takes in the information of the outside temperature and sends it as a signal to the ECM. The ECM transmits the signal to the skid control ECU as a communication signal. Depending on the changes of the outside temperature, the ECU controls the tire pressure warning system.
HINT:
The signal sent from the thermistor assy (ambient temperature sensor) is used in the A/C.

## WIRING DIAGRAM

**w/ VSC:**




C

F44437

# INSPECTION PROCEDURE

| 1 | CHECK DIAGNOSTIC CODE OUTPUT |
|---|---|

(a) Check if the normal code is output by SFI system (See page 05-9 ).
**Standard:**
**Normal code output.**

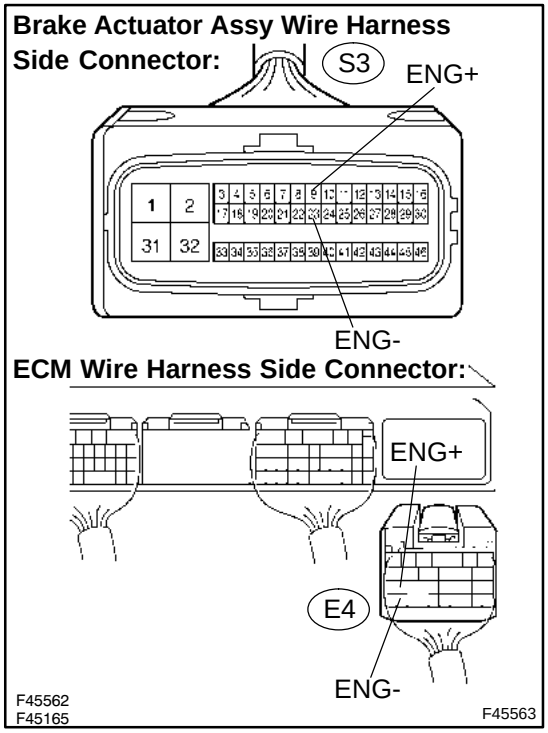
**Result:**

| | |
|---|---|
| OK | A |
| NG | B |

B → **REPAIR CIRCUIT INDICATED BY OUTPUT CODE**

A

| 2 | CHECK HARNESS AND CONNECTOR(BRAKE ACTUATOR ASSY - ECM) |
|---|---|




(a) Disconnect the brake actuator assy and ECM E4 connectors.
(b) Measure the resistance between each terminal of brake actuator assy and ECM wire harness side connectors.
**Standard:**

| Tester connection | Specified condition |
|---|---|
| S3-9 (ENG+) - E4-24 (ENG+) | Below 1 Ω |
| S3-23 (ENG-) - E4-30 (ENG-) | Below 1 Ω |

**NOTICE:**
**As a water proof connector cannot be checked be from the backside, check by connecting the sub-harness.**

(c) Measure the resistance between each terminal brake actuator assy wire harness side connector and body ground.
**Standard:**

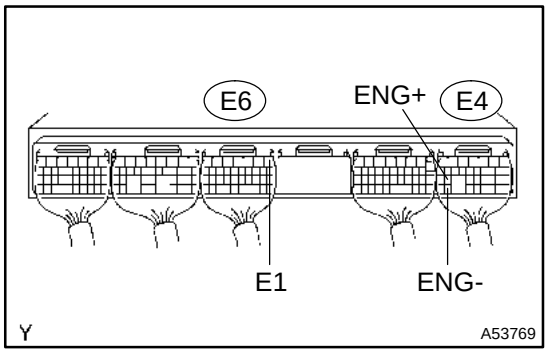
| Tester connection | Specified condition |
|---|---|
| S3-9 (ENG+) - Body ground | 10 kΩ or higher |
| S3-23 (ENG-) - Body ground | 10 kΩ or higher |

**NOTICE:**
**As a water proof connector cannot be checked be from the backside, check by connecting the sub-harness.**

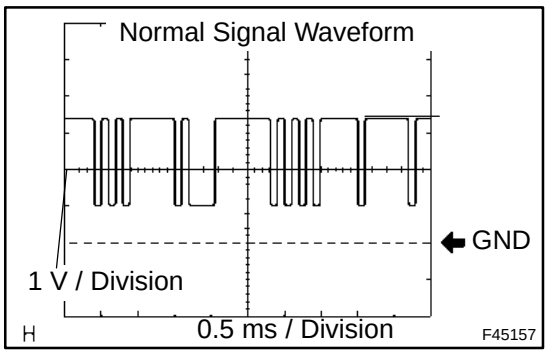
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

| 3 | INSPECT ECM(ENG+, ENG- OUTPUT) |
|---|---|



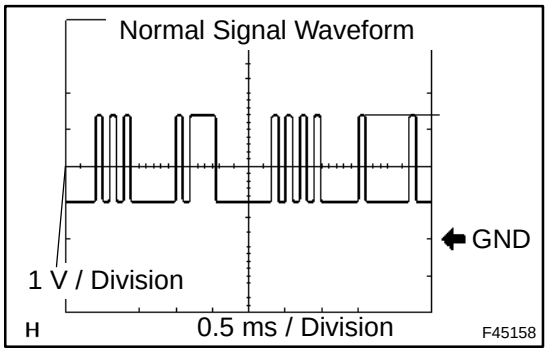

(a) Connect the brake actuator assy and ECM E4 connectors.
(b) Remove the ECM with connectors being connected.
(c) Turn the ignition switch ON.
(d) Using an oscilloscope, connect the terminal between E4-24 (ENG+) and E6-1 (E1) of the ECM harness side connectors.




(e) With the engine idling, check the output waveform.
**Standard:**
**Signal waveform appears as shown in the illustration.**

HINT:
As the vehicle speed becomes higher, the output waveform cycle gets shorter.

(f) Using an oscilloscope, connect the terminal between E4-30 (ENG-) and E6-1 (E1) of the ECM harness side connectors.




(g) With the engine idling, check the output waveform.
**Standard:**
**Signal waveform appears as shown in the illustration.**

HINT:
As the engine speed becomes higher, the waveform cycle gets shorter.

**NG** → **REPLACE ECM (See page 10-17 )**

**OK**

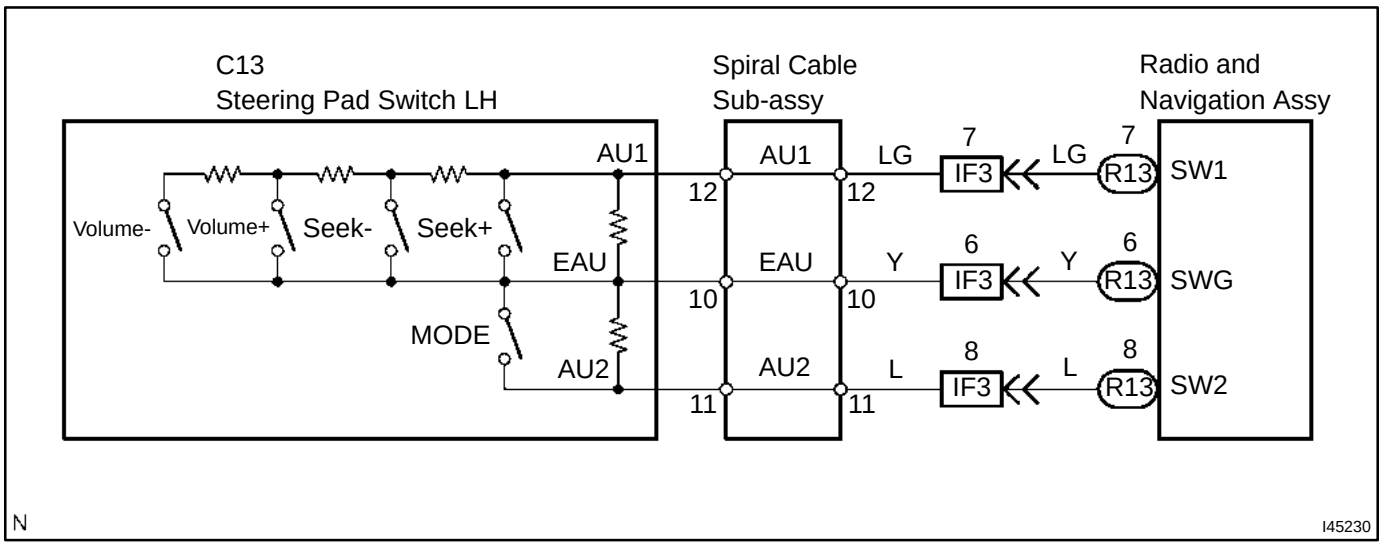
**REPLACE BRAKE ACTUATOR ASSY (See page 32-43 )**

# STEERING PAD SWITCH CIRCUIT

## CIRCUIT DESCRIPTION

This circuit sends an operation signal from the steering pad switch assy to the radio and navigation assy. If there is an open in the circuit, the navigation system cannot be operated by the steering pad switch assy. If there is a short in the circuit, the resulting condition is the same as if the switch were continuously depressed. Therefore, the radio and navigation assy cannot be operated by the steering pad switch assy, and the radio and navigation assy itself cannot function.

## WIRING DIAGRAM

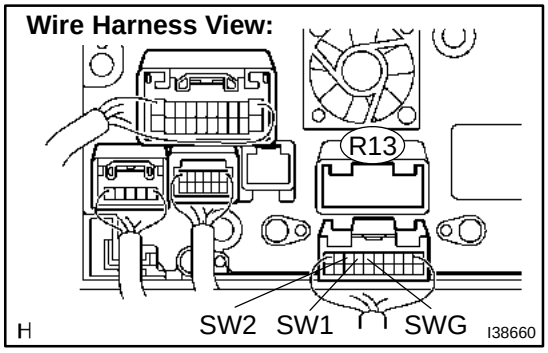


# INSPECTION PROCEDURE

**NOTICE:**

**The vehicle is equipped with SRS (Supplemental Restraint System) such as airbags. Before servicing (including removal or installation of parts), be sure to read the precautionary notice for the supplemental restraint system (see page 60-1 ).**

| 1 | INSPECT RADIO AND NAVIGATION ASSY |
|---|---|




(a) Disconnect the radio and navigation assy connector R13.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| SW1 - SWG | No switch is pushed | Approx. 100 kΩ |
| SW1 - SWG | SEEK+ switch: push | Approx. 0 Ω |
| SW1 - SWG | SEEK- switch: push | Approx. 0.3 kΩ |
| SW1 - SWG | VOL+ switch: push | Approx. 1 kΩ |
| SW1 - SWG | VOL- switch: push | Approx. 3.2 kΩ |
| SW2 - SWG | No switch is pushed | Approx. 100 kΩ |
| SW2 - SWG | MODE switch: push | Approx. 0 Ω |

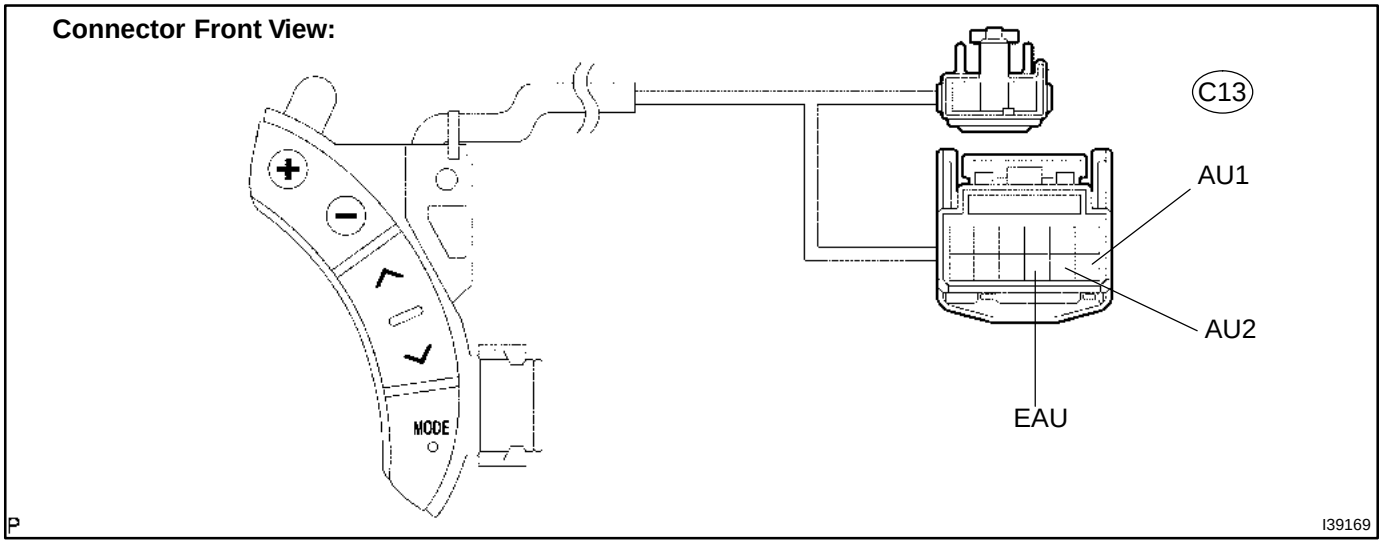
**NG** → **Go to step 2**

**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

| 2 | INSPECT STEERING PAD SWITCH ASSY |
|---|---|

**Connector Front View:**



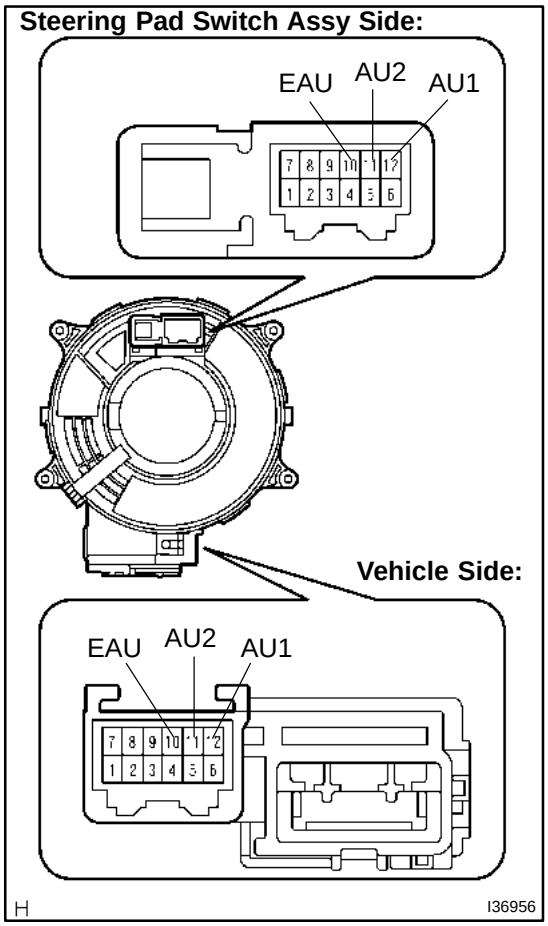

(a) Disconnect the steering pad switch assy connector C13.
(b) Measure the resistance according to the value(s) in the table below.
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| AU1 - EAU | No switch is pushed | Approx. 100 kΩ |
| AU1 - EAU | SEEK+ switch: push | Approx. 0 Ω |
| AU1 - EAU | SEEK- switch: push | Approx. 0.3 kΩ |
| AU1 - EAU | VOL+ switch: push | Approx. 1 kΩ |
| AU1 - EAU | VOL- switch: push | Approx. 3.2 kΩ |
| AU2 - EAU | No switch is pushed | Approx. 100 kΩ |
| AU2 - EAU | MODE switch: push | Approx. 0 Ω |

NG → **REPLACE STEERING PAD SWITCH LH (SEE PAGE 67-28 )**

**OK**

## 3 INSPECT SPIRAL CABLE SUB-ASSY




(a) Disconnect the steering pad switch assy and spiral cable sub-assy connectors.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

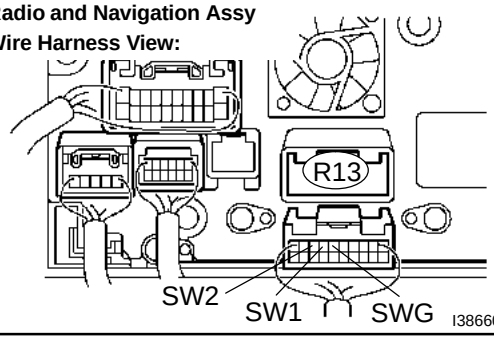
| Tester connection | Specified condition |
|---|---|
| EAU - EAU | Below 1 Ω |
| AU1 - AU1 | Below 1 Ω |
| AU2 - AU2 | Below 1 Ω |

**NG** → **REPLACE SPIRAL CABLE SUB-ASSY (SEE PAGE 60-28 )**

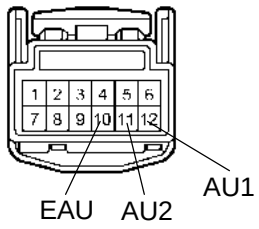
**OK**

| 4 | CHECK HARNESS AND CONNECTOR(SPIRAL CABLE SUB-ASSY - RADIO AND NAVIGATION ASSY) |
|---|---|

**Radio and Navigation Assy Wire Harness View:**




**Spiral Cable Sub-assy Connector Front View:**




(a) Disconnect the connectors from the spiral cable sub-assy and radio and navigation assy.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| SW1 - AU1 | Below 1 Ω |
| SW2 - AU2 | Below 1 Ω |
| SWG - EAU | Below 1 Ω |
| SW1 - Body ground | 10 kΩ or higher |
| SW2 - Body ground | 10 kΩ or higher |
| SWG - Body ground | 10 kΩ or higher |

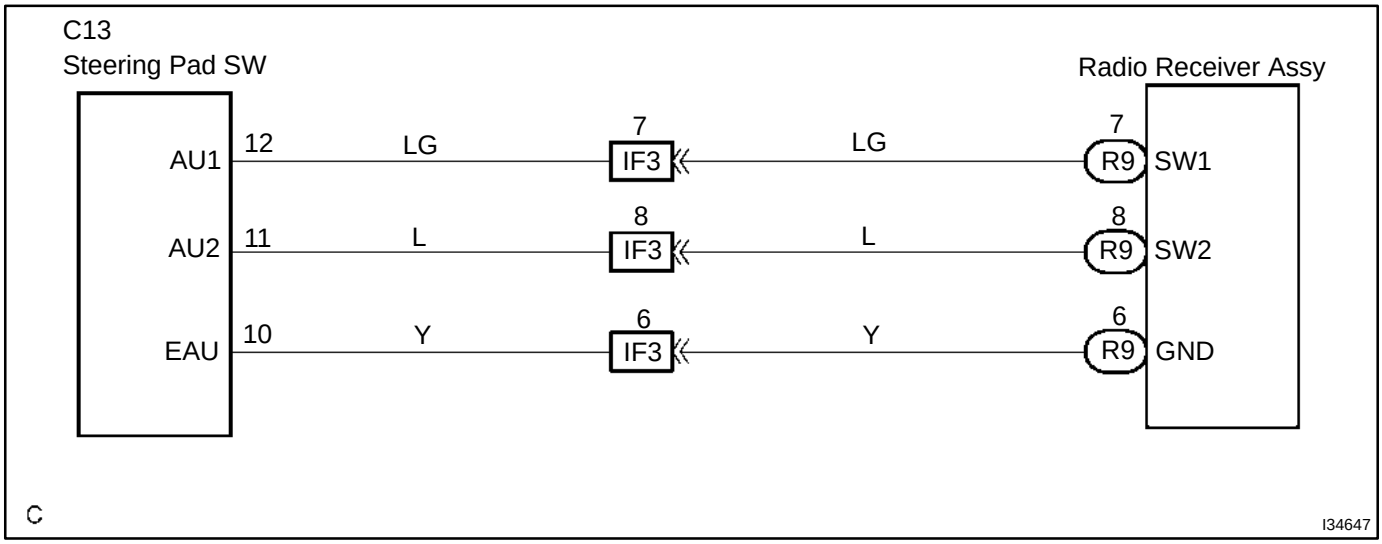
**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

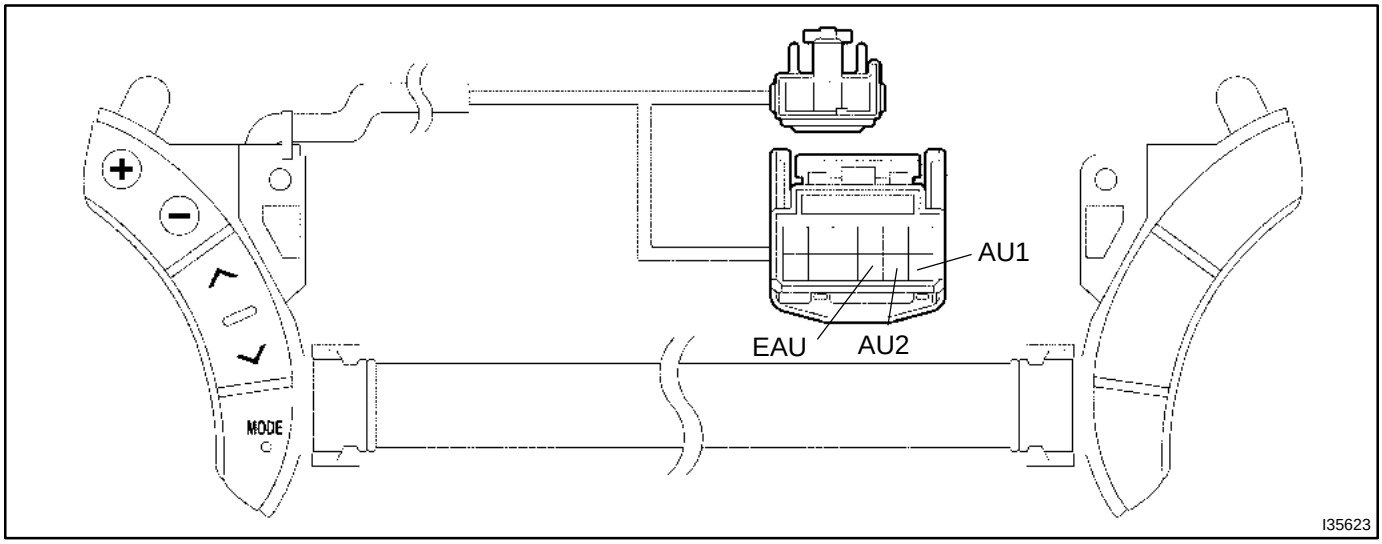
# AUDIO SYSTEM CANNOT BE OPERATED WITH STEERING PAD SWITCH

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT STEERING PAD SWITCH ASSY(AU1, AU2, EAU) |
|---|---|




(a) Remove the steering pad switch assy.
(b) Check continuity between terminals at each condition, as shown in the chart.
**Standard:**

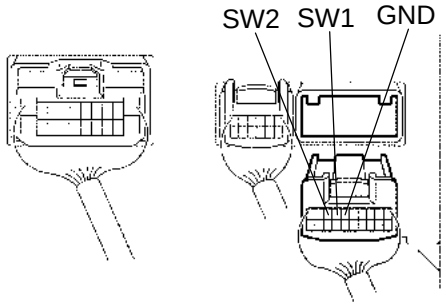
| Tester connection | Condition | Specified condition |
|---|---|---|
| AU1 - EAU | Do not switch position | Approx. 100 kΩ |
| AU1 - EAU | SEEK+ switch: push | 0 Ω |
| AU1 - EAU | SEEK- switch: push | Approx. 0.3 kΩ |
| AU1 - EAU | VOL+ switch: push | Approx. 1 kΩ |
| AU1 - EAU | VOL- switch: push | Approx. 3.2 kΩ |
| AU1 - EAU | Do not switch position | Approx. 100 kΩ |
| AU1 - EAU | MODE switch: push | 0 Ω |

**NG** → **REPLACE STEERING PAD SWITCH ASSY**

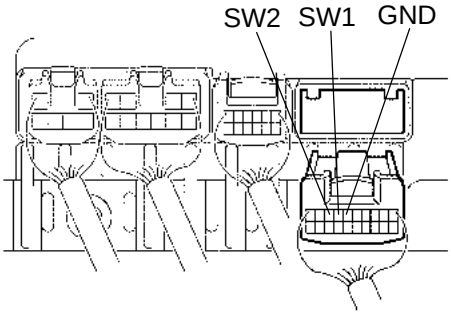
**OK**

| 2 | CHECK HARNESS AND CONNECTOR(STEERING PAD SWITCH LH - RADIO RECEIVER ASSY) |
|---|---|

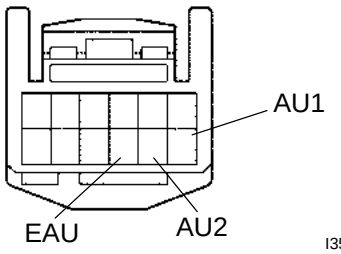
**10 Speaker, Radio Receiver Assy:**




**6 Speaker, Radio Receiver Assy:**




**Steering Pad Switch LH:**




I35608

(a) Disconnect the connectors from the steering pad switch LH and radio receiver assy.

(1) Check continuity between terminals at each condition, as shown in the chart.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| SW1- - AU1 | Continuity |
| SW2 - AU2 | Continuity |
| GND - EAU | Continuity |

(2) Check for a short between terminals at each condition, as shown in the chart.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| SW1 - Body ground | No continuity |
| SW2 - Body ground | No continuity |
| GND - Body ground | No continuity |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR (See page 01-37 )**

**OK**

**REPLACE RADIO RECEIVER ASSY**

# SPEAKER CIRCUIT

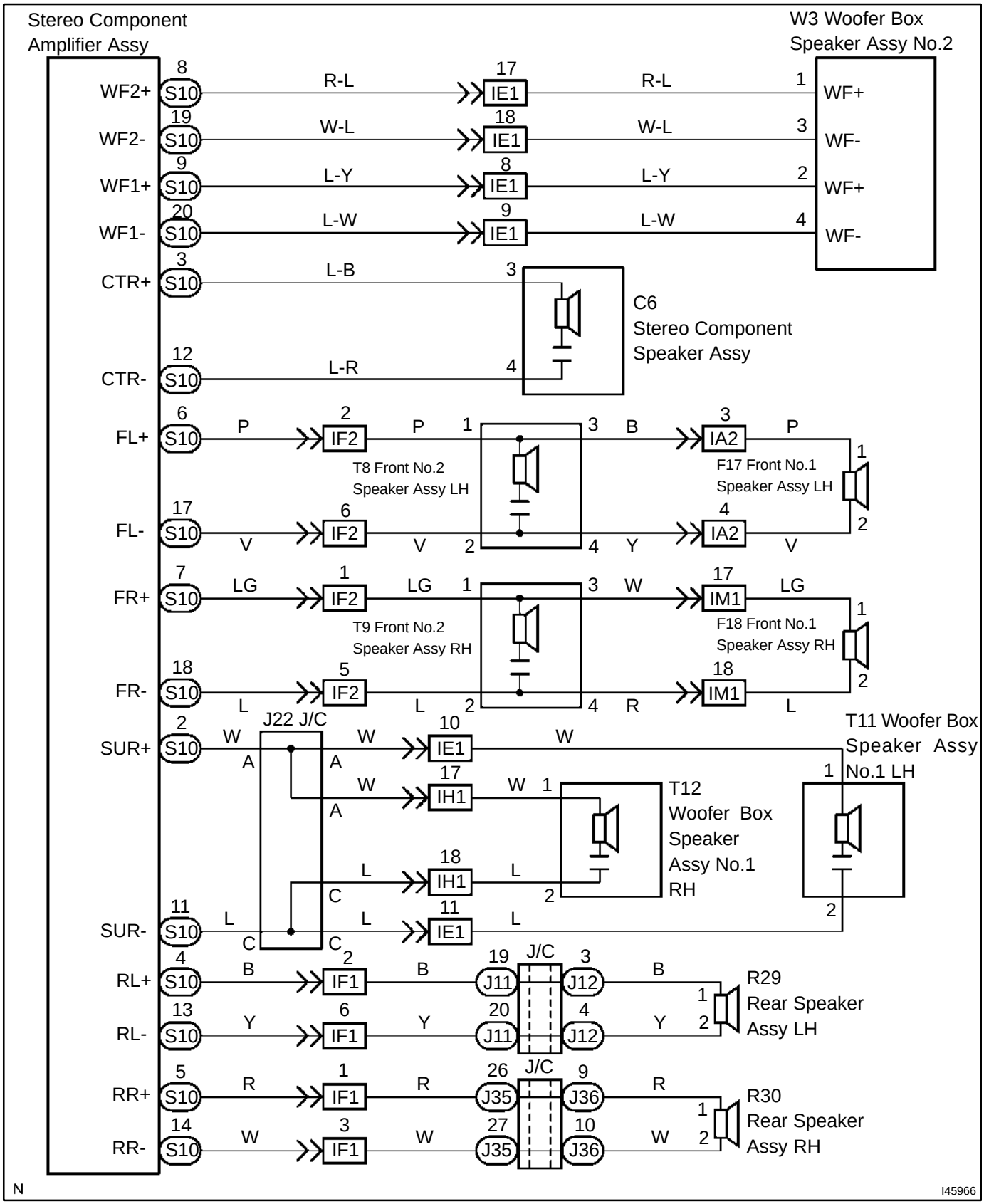
## CIRCUIT DESCRIPTION

The sound signal that has been amplified by the stereo component amplifier assy is sent to the speakers from the stereo component amplifier assy through this circuit.

If there is a short in this circuit, the stereo component amplifier assy detects it and stops output to the speakers. Thus sound cannot be heard from the speakers even if there is no malfunction in the stereo component amplifier assy or speakers.

When a short is detected in the speaker circuit, no sound can be heard from the speakers.

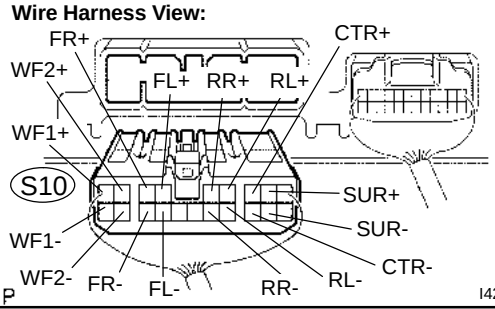
# WIRING DIAGRAM



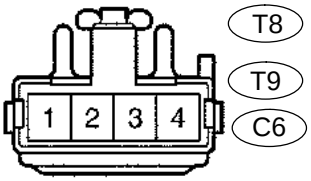
# INSPECTION PROCEDURE

| 1 | CHECK HARNESS AND CONNECTOR |
|---|---|

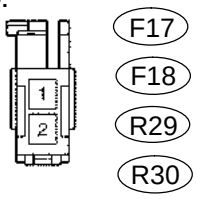
**Stereo Component Amplifier Assy**
**Wire Harness View:**



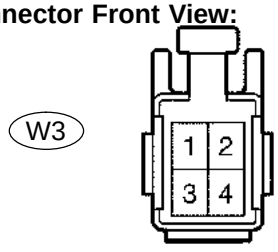

**Front No.2 Speaker Assy**
**Stereo Component Speaker Assy**
**Connector Front View:**




**Front No.1 Speaker Assy**
**Rear Speaker Assy**
**Connector Front View:**




**Woofer Box Speaker Assy No.2**
**Connector Front View:**




(a) Disconnect the connectors shown in the illustration on the left from the stereo component amplifier assy and speakers.

(b) Measure the resistance between the front No.2 speaker assy and the stereo component amplifier assy to check for an open circuit in the wire harness.
**Standard: Below 1 Ω**

(c) Measure the resistance between the rear speaker assy and the stereo component amplifier assy to check for an open circuit in the wire harness.
**Standard: Below 1 Ω**

(d) Measure the resistance between the stereo component speaker assy and the stereo component amplifier assy to check for an open circuit in the wire harness.
**Standard: Below 1 Ω**

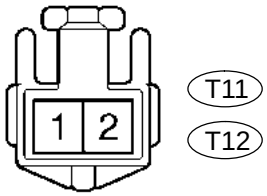
(e) Measure the resistance between the woofer box speaker assy No.2 and the stereo component amplifier assy to check for an open circuit in the wire harness.
**Standard: Below 1 Ω**

(f) Measure the resistance between the front No.1 speaker assy and the front No.2 speaker assy to check for an open circuit in the wire harness.
**Standard: Below 1 Ω**

(g) Measure the resistance between the woofer box speaker assy No.1 and the stereo component amplifier assy to check for an open circuit in the wire harness.
**Standard: Below 1 Ω**

(h) Measure the resistance between each speaker and body ground to check for a short circuit in the wire harness.
**Standard: 10 kΩ or higher**

**Woofer Box Speaker Assy No.1**
**Connector Front View:**

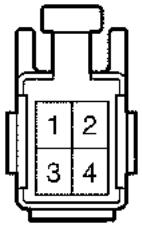



N I45967

| | |
|---|---|
| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |

OK

## 2 INSPECT WOOFER BOX SPEAKER ASSY NO.2




P I34673

(a) Resistance check.
(1) Measure the resistance according to the value(s) in the table below.

**NOTICE:**
**The speaker should not be removed for checking.**

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| 1 - 3 | Always | Approximately 1.21 Ω |
| 2 - 4 | Always | Approximately 1.21 Ω |

| | |
|---|---|
| NG | REPLACE WOOFER BOX SPEAKER ASSY NO.2 (SEE PAGE 67-16 ) |

OK

## 3 INSPECT FRONT NO.1 SPEAKER ASSY

(a) Resistance check.
(1) Measure the resistance between the terminals of the speaker.
**Standard: 4 to 6 Ω**

| | |
|---|---|
| NG | REPLACE FRONT NO.1 SPEAKER ASSY (SEE PAGE 67-1 1) |

OK

| 4 | INSPECT FRONT NO.2 SPEAKER ASSY |
|---|---|

(a) Check that the malfunction disappears when another speaker in good condition is installed.
**OK: Malfunction disappears.**

HINT:

- Connect all the connectors to the speakers.
- When there is a possibility that either right or left front speaker is defective, inspect by interchanging the right one with the left one.

| OK | REPLACE FRONT NO.2 SPEAKER ASSY (SEE PAGE 67-12 ) |
|---|---|

NG

| 5 | INSPECT REAR SPEAKER ASSY |
|---|---|

(a) Resistance check.
(1) Measure the resistance between the terminals of the speaker.
**Standard: Approximately 2.4 Ω**

| NG | REPLACE REAR SPEAKER ASSY (SEE PAGE 67-14 ) |
|---|---|

OK

| 6 | INSPECT WOOFER BOX SPEAKER ASSY NO.1 |
|---|---|

(a) Check that the malfunction disappears when another speaker in good condition is installed.
**OK: Malfunction disappears.**

HINT:

- Connect all the connectors to the speakers.
- When there is a possibility that either right or left rear speaker is defective, inspect by interchanging the right one with the left one.

| OK | REPLACE WOOFER BOX SPEAKER ASSY NO.1 (SEE PAGE 67-15 ) |
|---|---|

NG

| 7 | INSPECT STEREO COMPONENT SPEAKER ASSY |
|---|---|

(a) Check that the malfunction disappears when another speaker in good condition is installed.
**OK: Malfunction disappears.**

HINT:

- Connect all the connectors to the speakers.
- When there is a possibility that either right or left front speaker is defective, inspect by interchanging the right one with the left one.

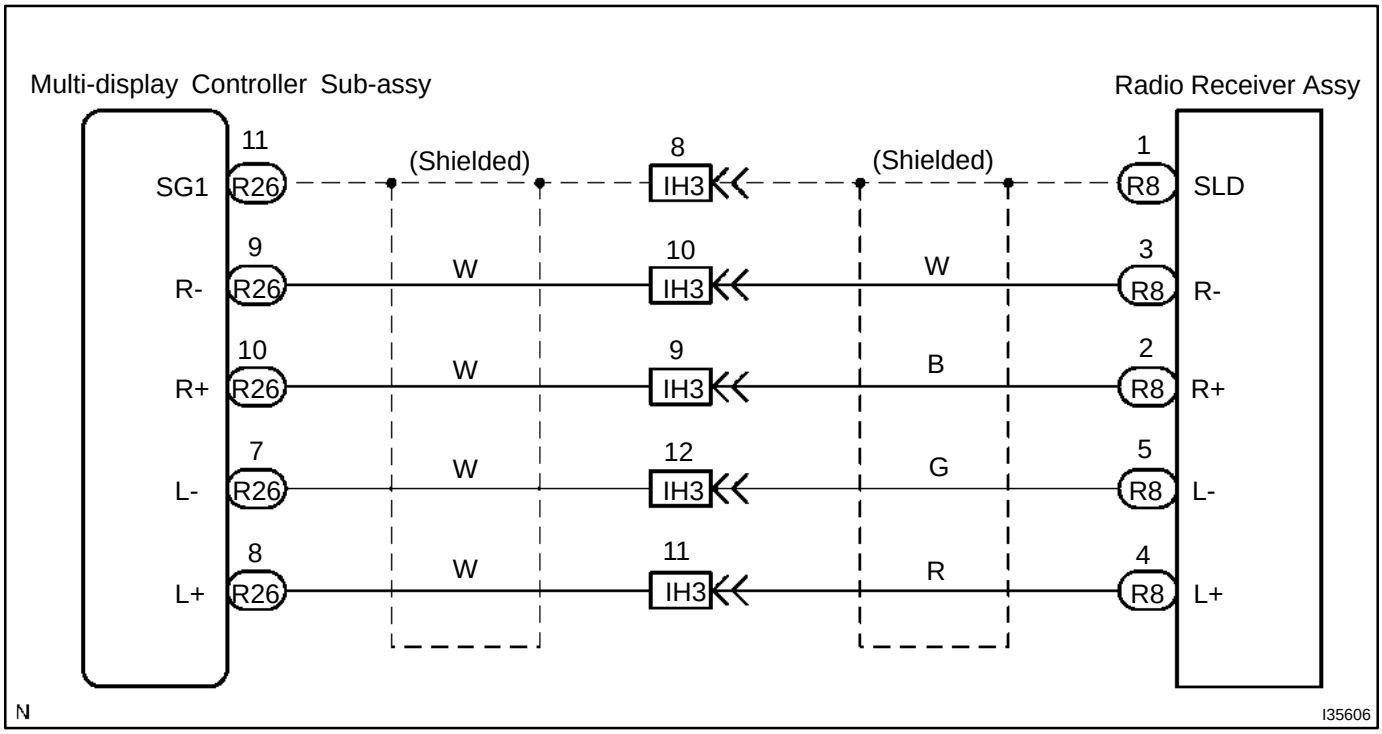
**OK** → **REPLACE STEREO COMPONENT SPEAKER ASSY (SEE PAGE 67-13 )**

**NG**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

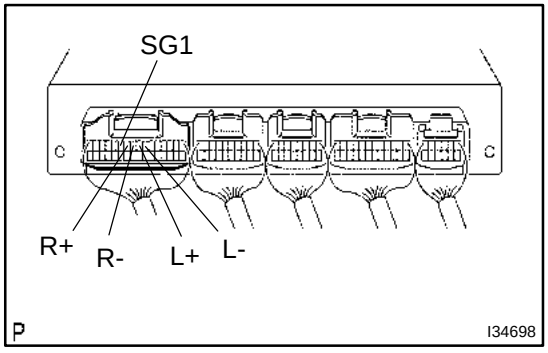
# SOUND QUALITY IS BAD (DVD SOUND)

## WIRING DIAGRAM




## INSPECTION PROCEDURE

| 1 | INSPECT MULTI-DISPLA Y CONTROLLER SUB-ASSY(R+, R-, L+, L-, SG1) |
|---|---|




(a) Remove the multi-display controller sub-assy.

(b) Check continuity between terminals at each condition, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| SG1 - Body ground | Constant | Continuity |

(c) Check the voltage between terminals at each condition, as shown in the chart.

**Standard:**

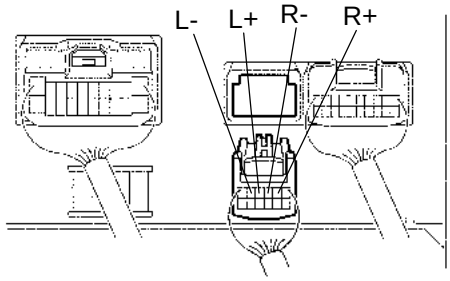
| Tester connection | Condition | Specified condition |
|---|---|---|
| R+ - SG1 | While voice sound is being produced | A waveform synchronized with sound is output |
| R- - SG1 | While voice sound is being produced | A waveform synchronized with sound is output |
| L+ - SG1 | While voice sound is being produced | A waveform synchronized with sound is output |
| L- - SG1 | While voice sound is being produced | A waveform synchronized with sound is output |

NG → **REPLACE MULTI-DISPLA Y CONTROLLER SUB-ASSY**

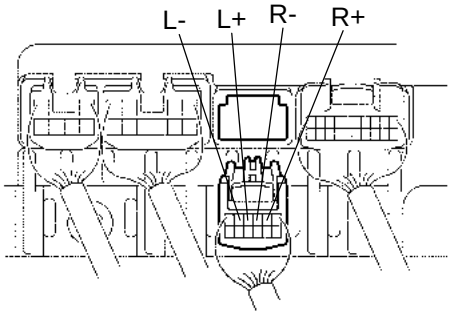
**OK**

| 2 | CHECK HARNESS AND CONNECTOR(MULTI-DISPLA Y CONTROLLER SUB-ASSY - RADIO RECEIVER ASSY) |
|---|---|

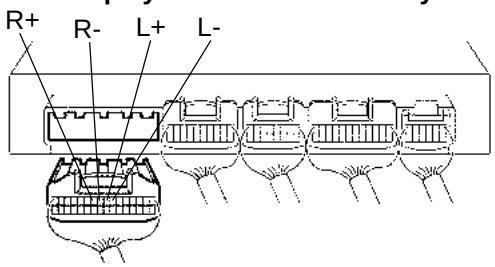
**10 Speaker, Radio Receiver Assy:**




**6 Speaker, Radio Receiver Assy:**




**Multi-display Controller Sub-assy:**




P I35600

(a) Disconnect the connectors from the multi-display controller sub-assy and radio receiver assy.

(1) Check continuity between terminals at each condition, as shown in the chart.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| R+ - R+ | Continuity |
| R- - R- | Continuity |
| L+ - L+ | Continuity |
| L- - L- | Continuity |

(2) Check for a short between terminals at each condition, as shown in the chart.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| R+ - Body ground | No continuity |
| R- - Body ground | No continuity |
| L+ - Body ground | No continuity |
| L- - Body ground | No continuity |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR (See page 01-37 )**

**OK**

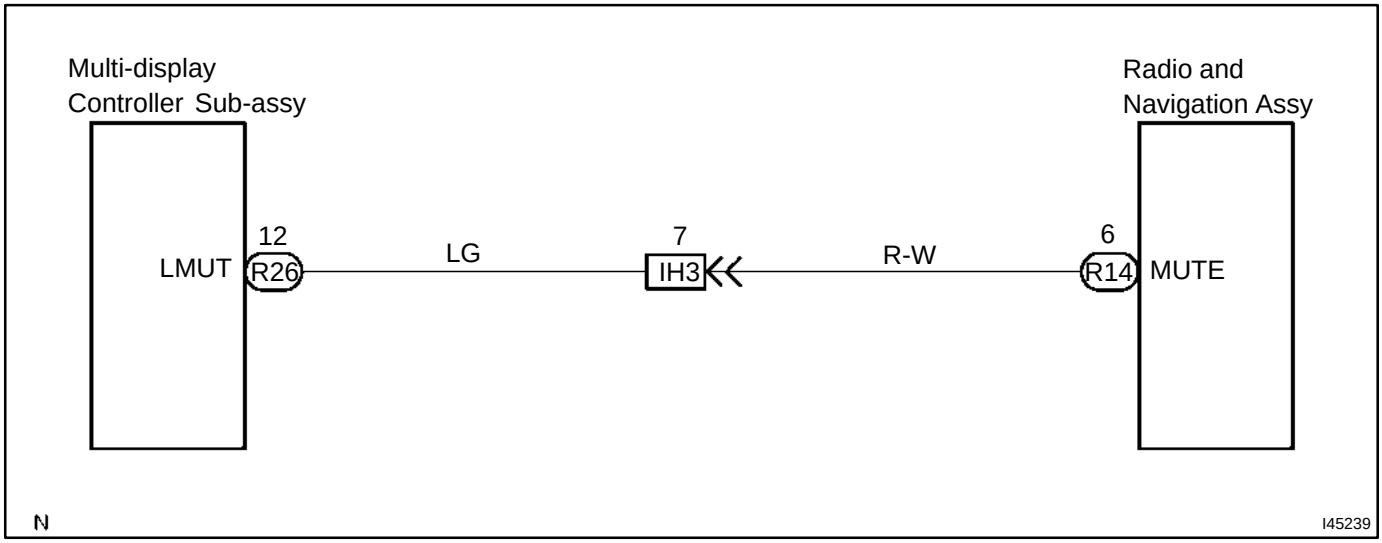
**REPLACE RADIO RECEIVER ASSY**

# MUTE SIGNAL CIRCUIT (FROM MULTI-DISPLA Y CONTROLLER SUB-ASSY)

## CIRCUIT DESCRIPTION

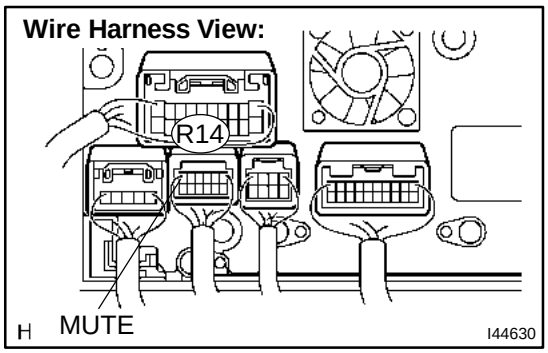
The radio and navigation assy controls the volume according to the MUTE signal from the multi-display controller sub-assy.
The MUTE signal is sent to reduce noise and a popping sound generated when switching the mode, etc.
If there is an open in the circuit, noise can be heard from the speakers when changing the sound source.
If there is a short in the circuit, even though the radio and navigation assy is normal, no sound or only an extremely small sound can be produced.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

| 1 | INSPECT RADIO AND NAVIGATION ASSY |
|---|---|




(a) Measure the voltage according to the value(s) in the table below.

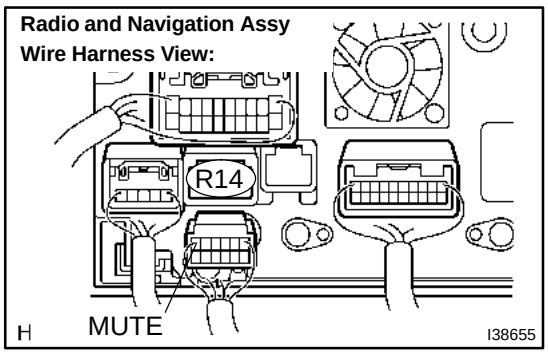
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| MUTE - Body ground | Turn ignition switch to ACC, Audio system is playing → Changing mode | Above 3.5 V → Below 1 V |

**OK** → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

**NG**

| 2 | CHECK HARNESS AND CONNECTOR(RADIO AND NAVIGATION ASSY - MULTI-DISPLAY CONTROLLER SUB-ASSY) |
|---|---|

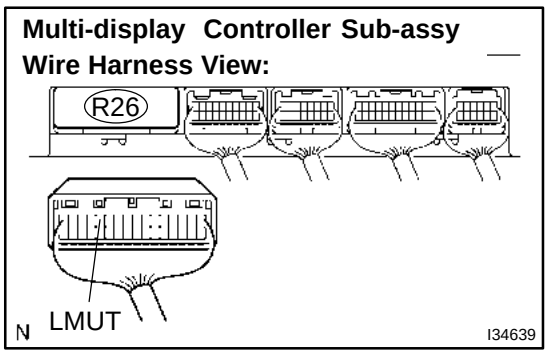



(a) Disconnect the radio and navigation assy connector R14 and multi-display controller sub-assy connector R26.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| MUTE - LMUT | Always | Below 1 Ω |
| MUTE - Body ground | Always | 10 kΩ or higher |




**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

| 3 | REPLACE MULTI-DISPLA Y CONTROLLER SUB-ASSY (SEE PAGE 67-26 ) |
|---|---|

(a) Replace the multi-display controller sub-assy and check if it operates normally.

**OK: The navigation system operates normally.**

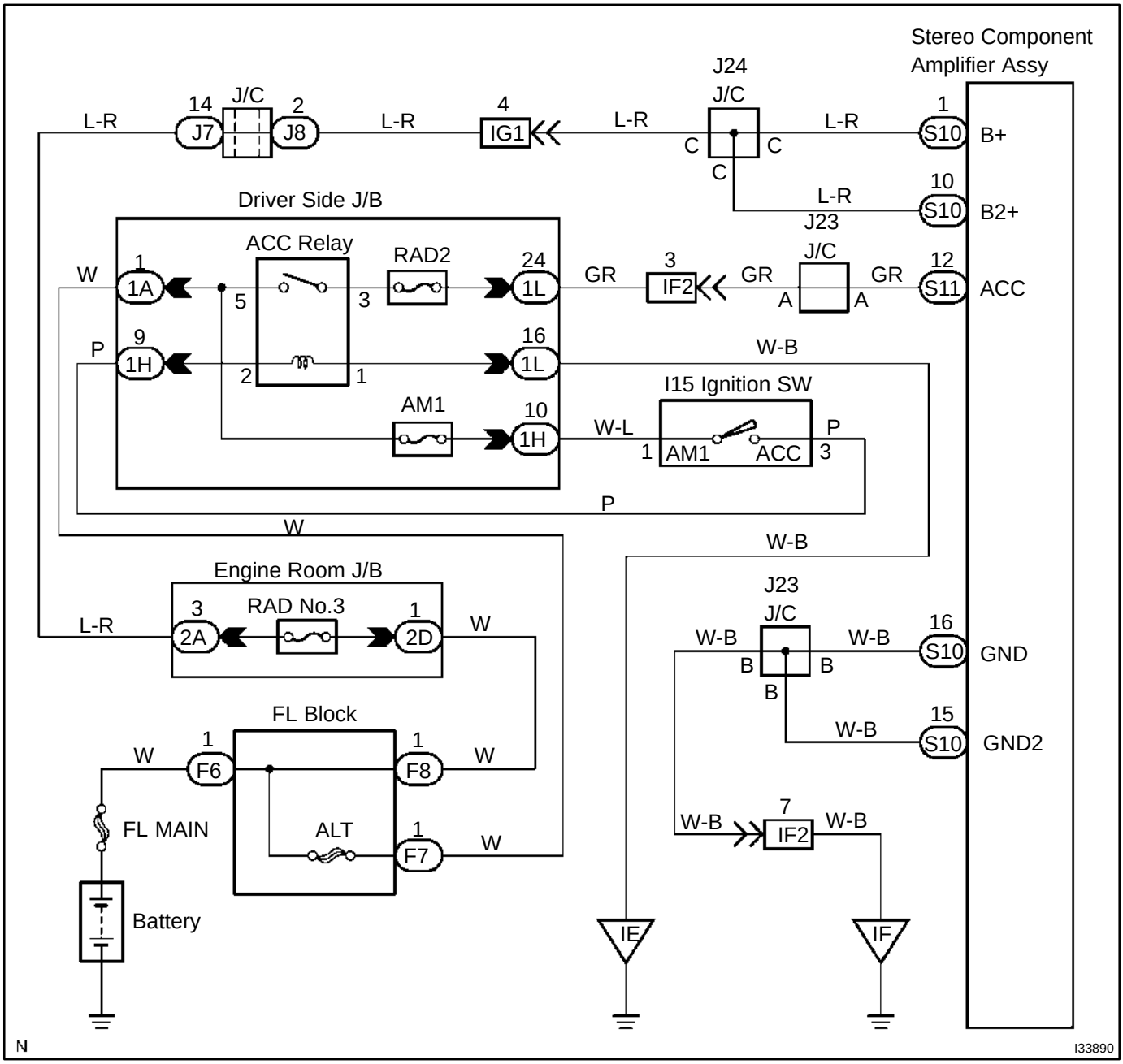
**OK** → **NORMAL OPERATION**

**NG**

**REPLACE RADIO AND NAVIGATION ASSY (SEE PAGE 67-9 )**

# POWER SOURCE CIRCUIT (STEREO COMPONENT AMPLIFIER ASSY)

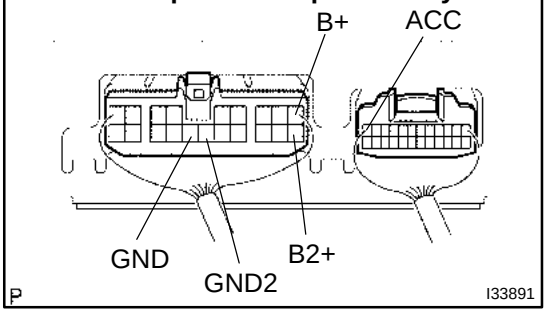
## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT STEREO COMPONENT AMPLIFIER ASSY(B+, B2+, ACC, GND, GND2) |
|---|---|

**Stereo Component Amplifier Assy:**




(a) Remove the stereo component amplifier assy.

(b) Check continuity between terminals at each condition, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| GND - Body ground | Always | Continuity |
| GND2 - Body ground | Always | Continuity |

(c) Check the voltage between terminals at each condition, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| B+ - GND | Always | 10 to 14 V |
| B2+ - GND | Always | 10 to14 V |
| ACC - GND | Ignition SW ACC | 10 to 14 V |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR (See page 01-37 )**

**OK**

| 2 | CHECK FOR PROBLEM SYMPTOMS TABLE |
|---|---|

(a) Check problem symptoms table (See page 05-1213 ).

| | |
|---|---|
| A | Suspected areas are cleared |
| B | Suspected areas still exist |

**B** → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1213 )**

**A**

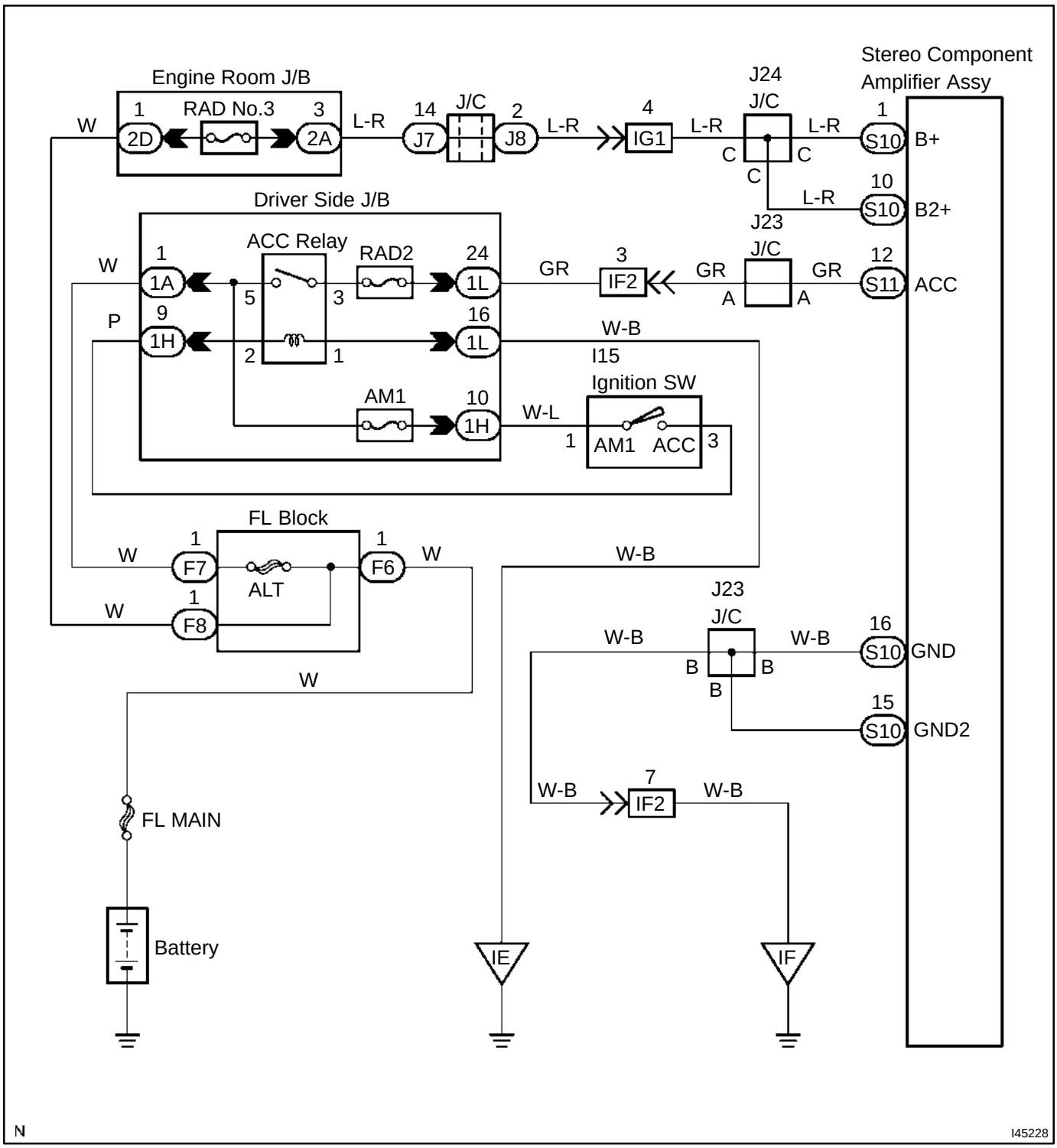
**REPLACE STEREO COMPONENT AMPLIFIER ASSY**

# POWER SOURCE CIRCUIT (STEREO COMPONENT AMPLIFIER ASSY)

## CIRCUIT DESCRIPTION

This circuit provides power to the stereo component amplifier assy.

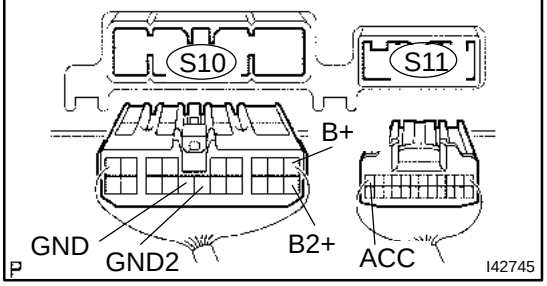
## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT STEREO COMPONENT AMPLIFIER ASSY(B+, B2+, ACC, GND, GND2) |
|---|---|

**Wire Harness View:**




(a) Disconnect the stereo component amplifier assy connectors S10 and S11.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| GND - Body ground | Always | Below 1 Ω |
| GND2 - Body ground | Always | Below 1 Ω |

(c) Measure the voltage according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| B+ - GND | Always | 10 to 14 V |
| B2+ - GND | Always | 10 to 14 V |
| ACC - GND | Ignition SW ACC | 10 to 14 V |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

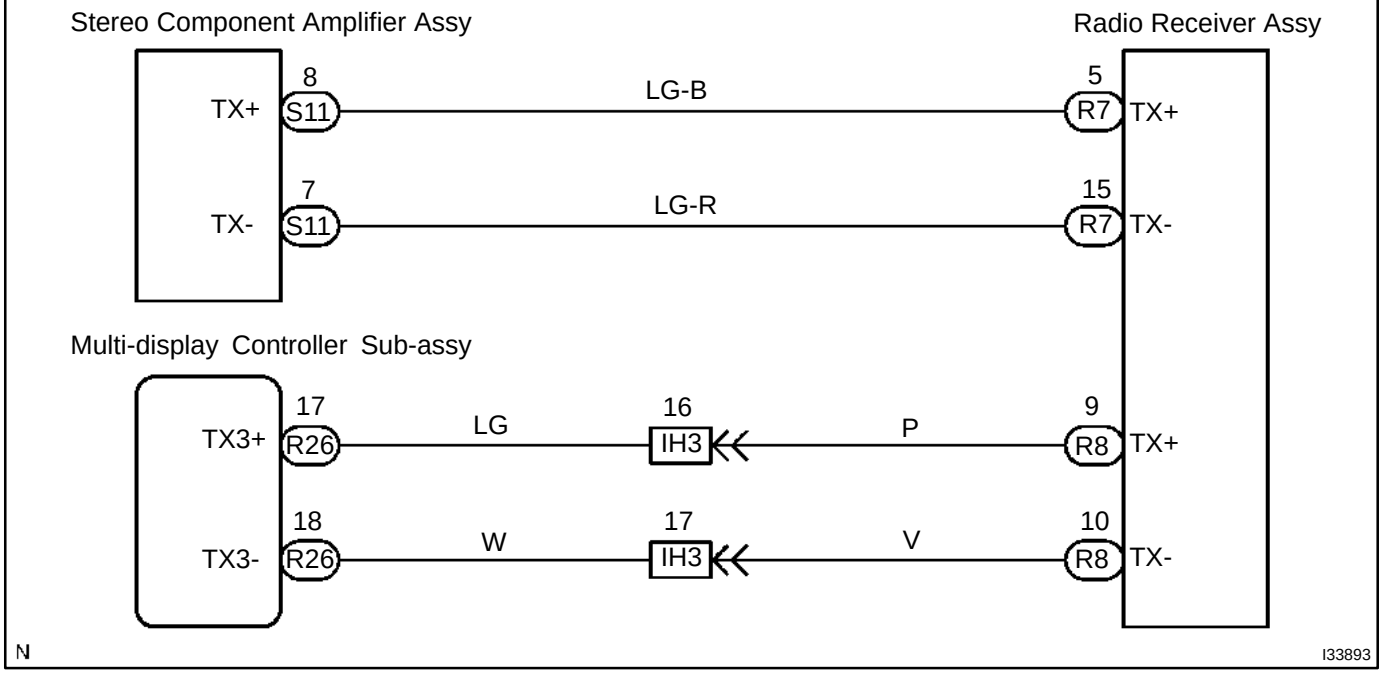
**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE OR DIAGNOSTIC TROUBLE CODE CHART (SEE PAGE 05-1286 OR 05-1278 )**

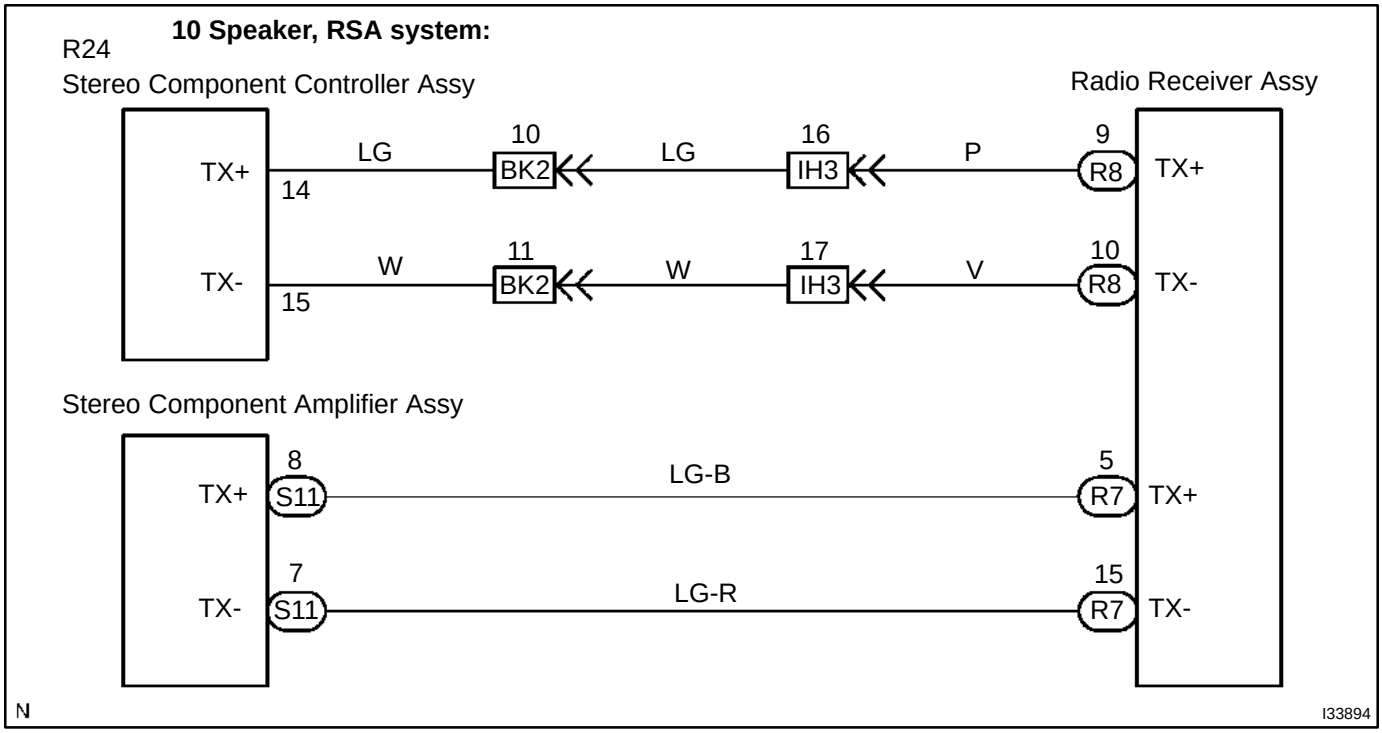
# AVC-LAN CIRCUIT

## WIRING DIAGRAM

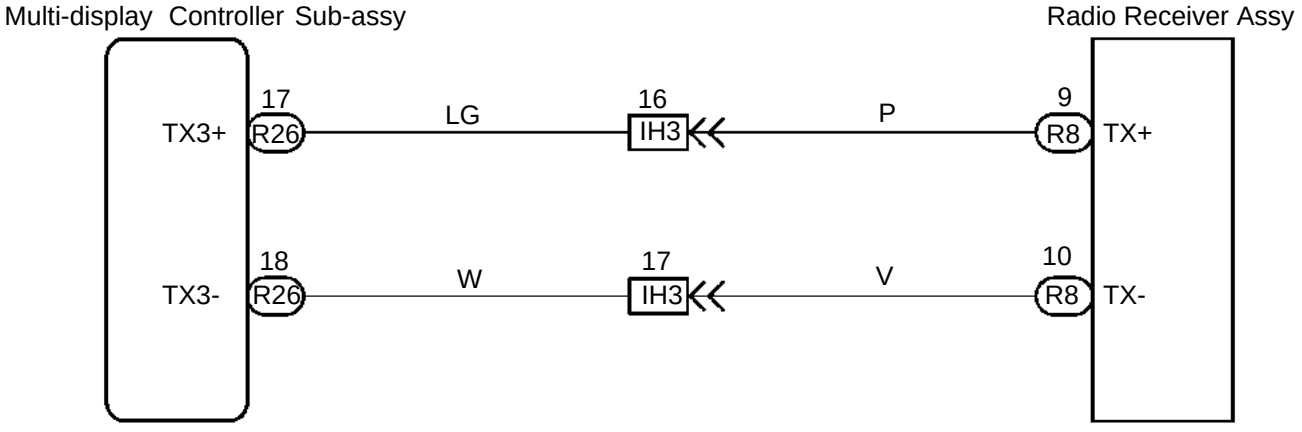
**10 Speaker, RSE system:**




**10 Speaker, RSA system:**



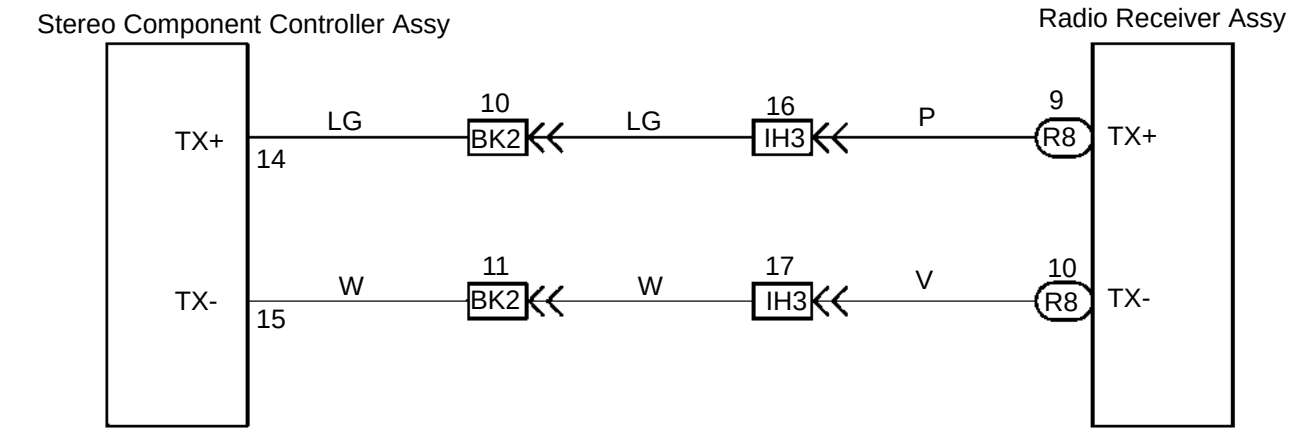
**6 Speaker, RSE system:**




**6 Speaker, RSA system:**

R24

Stereo Component Controller Assy



# INSPECTION PROCEDURE

| 1 | INSPECT APPARATUS |
|---|---|

(a) Choose the apparatus to be inspected.

| | |
|---|---|
| A | Stereo component amplifier assy |
| B | Stereo component controller assy |
| C | Multi-display control sub-assy |

B → Go to step 4

C → Go to step 6

A

| 2 | SERVICE CHECK MODE(STEREO COMPONENT AMPLIFIER ASSY) |
|---|---|

(a) Perform the service check.

(1) Start the diagnosis system and read check result for stereo component amplifier assy.

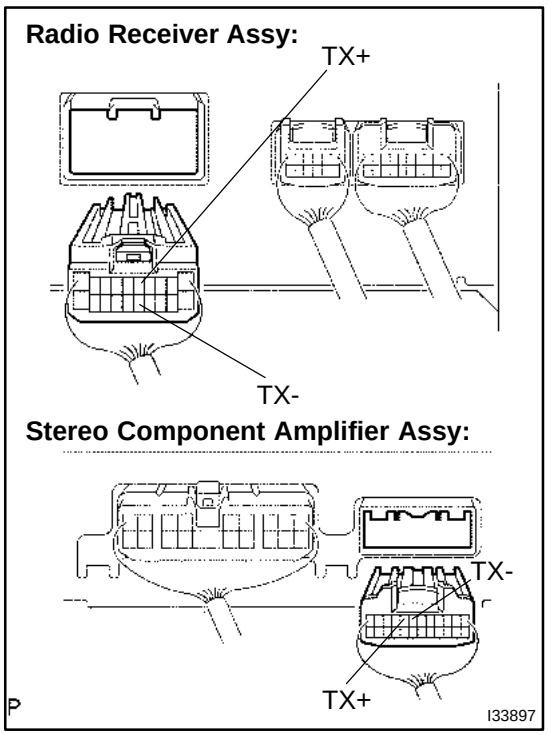
**Standard:**

| | |
|---|---|
| A | ”NCON” is displayed or no display (DSP AMP) |
| B | ”GOOD” is displayed |

B → REPLACE RADIO RECEIVER ASSY

A

| 3 | CHECK HARNESS AND CONNECTOR(RADIO RECEIVER ASSY - STEREO COMPONENT AMPLIFIER ASSY) |
|---|---|




(a) Disconnect the connectors from the radio receiver assy and stereo component amplifier assy.

(1) Check continuity between terminals at each condition, as shown in the chart.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| TX+ - TX+ | Continuity |
| TX- - TX- | Continuity |

(2) Check for a short between terminals at each condition, as shown in the chart.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| TX+ - Body ground | No Continuity |
| TX- - Body ground | No Continuity |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR (See page 01-37 )**

**OK**

**REPLACE STEREO COMPONENT AMPLIFIER ASSY**

| 4 | SERVICE CHECK MODE(STEREO COMPONENT CONTROLLER ASSY) |
|---|---|

(a) Perform the service check.

(1) Start the diagnosis system and read check result for stereo component controller assy.

**Standard:**

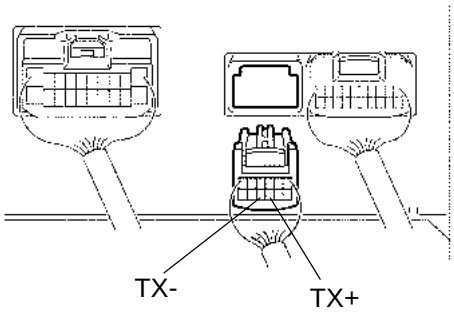
| | |
|---|---|
| A | "NCON" is displayed or no display (RSA) |
| B | "GOOD" is displayed |

**B** → **REPLACE RADIO RECEIVER ASSY**

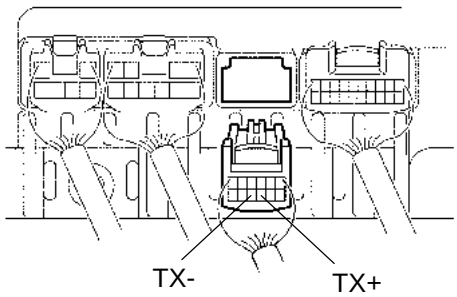
**A**

| 5 | CHECK HARNESS AND CONNECTOR(RADIO RECEIVER ASSY - STEREO COMPONENT CONTROLLER ASSY) |
|---|---|

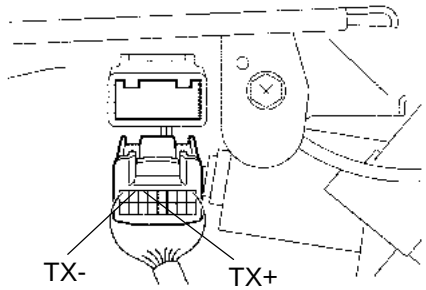
**10 Speaker, Radio Receiver Assy:**




**6 Speaker, Radio Receiver Assy:**




**Stereo Component Controller Assy:**




(a) Disconnect the connectors from the radio receiver assy and stereo component controller assy.

(1) Check continuity between terminals at each condition, as shown in the chart.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| TX+ - TX+ | Continuity |
| TX- - TX- | Continuity |

(2) Check for a short between terminals at each condition, as shown in the chart.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| TX+ - Body ground | No Continuity |
| TX- - Body ground | No Continuity |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR (See page 01-37 )**

**OK**

**REPLACE STEREO COMPONENT CONTROLLER ASSY**

| 6 | SERVICE CHECK MODE(MULTI-DISPLAY CONTROLLER SUB-ASSY) |
|---|---|

(a) Perform the service check.
(1) Start the diagnosis system and read check result for multi-display controller sub-assy.
**Standard:**

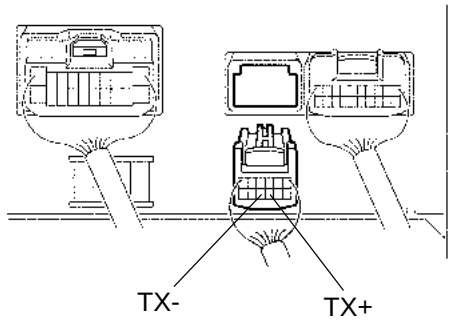
| | |
|---|---|
| A | "NCON" is displayed or no display (RSE ECU) |
| B | "GOOD" is displayed |

B → **REPLACE RADIO RECEIVER ASSY**

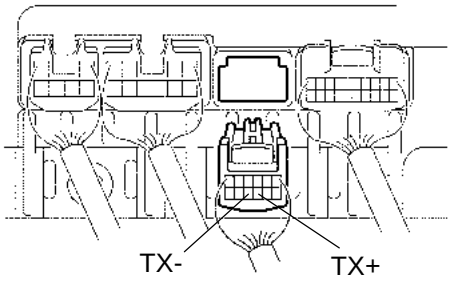
A

| 7 | CHECK HARNESS AND CONNECTOR(RADIO RECEIVER ASSY - MULTI-DISPLAY CONTROLLER SUB-ASSY) |
|---|---|

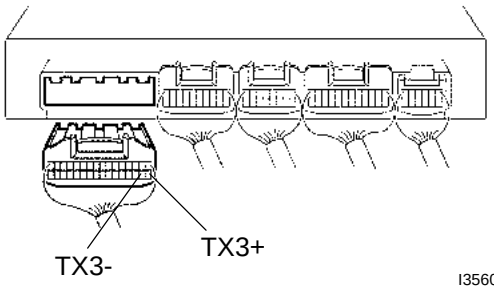
**10 Speaker, Radio Receiver Assy:**




**6 Speaker, Radio Receiver Assy:**




**Multi-display Controller Sub-assy:**




(a) Disconnect the connectors from the radio receiver assy and multi-display controller sub-assy.
(1) Check continuity between terminals at each condition, as shown in the chart.
**Standard:**

| Tester connection | Specified condition |
|---|---|
| TX+ - TX3- | Continuity |
| TX- - TX3- | Continuity |

(2) Check for a short between terminals at each condition, as shown in the chart.
**Standard:**

| Tester connection | Specified condition |
|---|---|
| TX+ - Body ground | No Continuity |
| TX- - Body ground | No Continuity |

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR (See page 01-37 )**

OK

**REPLACE MULTI-DISPLAY CONTROLLER SUB-ASSY**

# AUTO UP OPERATION DOES NOT FULLY CLOSE POWER WINDOW (JAM PROTECTION FUNCTION IS ACTIVATED)

## CIRCUIT DESCRIPTION

If AUTO UP operation does not fully close the power window, the following conditions may be the cause.

- The reset of the power window motor has not been completed, resulting in activation of the jam protection function.
- The memory of the power window switch misses the fully closed position of the power window, thus the window stops AUTO UP operation halfway.
- The jam protection function is activated at the fully closed position.
- Too much sliding resistance is applied to the window, resulting in activation of the jam protection function.

## INSPECTION PROCEDURE

| 1 | RESET POWER WINDOW REGULATOR MOTOR (DRIVER SIDE) |
|---|---|

(a) Reset the power window regulator motor (See page 70-12 ).
(b) Check if the power window operate normally.

OK → END

NG

| 2 | CHECK POWER WINDOW REGULATOR W/ MOTOR (DRIVER SIDE) |
|---|---|

(a) Remove the driver side door glass (See page 75-8 ).
(b) Operate the power window regulator via the power window master switch without the door glass being installed.
(c) Check that the power window regulator operates smoothly.

OK → REPLACE FRONT DOOR GLASS RUN LH

NG

REPLACE FRONT DOOR WINDOW REGULATOR SUB-ASSY LH

# PRESSING POWER SWITCH DOES NOT TURN ON SYSTEM

## INSPECTION PROCEDURE

| 1 | CHECK CABIN |
|---|---|

(a) Check that conditions in the cabin are not likely to cause condensation.

HINT:

This problem occurs when the cabin is humid and the temperature rapidly changes. This condition may produce condensation, resulting in a short circuit.

**OK: Condensation is not likely to occur.**

**NG** → **DRY CABIN AND RECHECK CONDITIONS**

**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

# BLACK SCREEN (NO IMAGE APPEARS ON NAVIGATION AND AUDIO SCREEN)

## INSPECTION PROCEDURE

| 1 | CHECK DISPLAY SETTING |
|---|---|

(a) Check that the display is not in ”Screen OFF” mode.
**OK: The display setting is not in ”Screen OFF” mode.**

**NG** → **CHANGE SCREEN TO ”SCREEN ON” MODE**

**OK**

| 2 | CHECK IMAGE QUALITY SETTING |
|---|---|

(a) Check if screen color quality can be set.
**OK: Screen color quality can be set.**

**OK** → **PRESS PANEL SWITCH ”DISPLAY” AND SET SCREEN COLOR QUALITY TO NORMAL**

**NG**

| 3 | CHECK CABIN |
|---|---|

(a) Check if condensation is likely to occur, or the temperature is high or low (extremely cold) in the cabin.
HINT:
This problem occurs when the cabin is humid and the temperature rapidly changes. This condition may produce condensation, resulting in a short circuit.
**OK: The above conditions are not observed.**

**NG** → **SET CABIN TEMPERATURE TO APPROPRIATE DEGREES (20 TO 30°C) (68 TO 86°F)**

**OK**

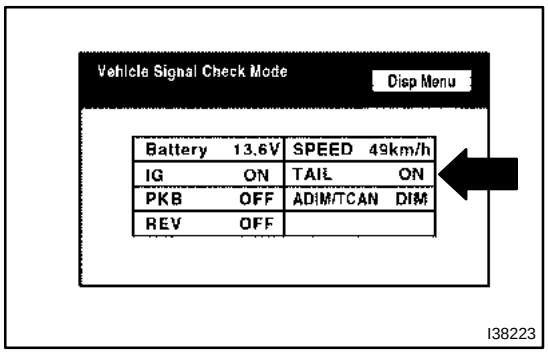
**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

# ILLUMINATION FOR PANEL SWITCH DOES NOT COME ON WITH TAIL SWITCH ON

## INSPECTION PROCEDURE

| 1 | DISPLAY CHECK MODE(VEHICLE SIGNAL CHECK MODE) |
|---|---|

(a) Enter the ”Display Check” mode (Vehicle Signal Check Mode) (see page 05-1298 ).




(b) Turn the light control switch to the TAIL, HEAD or OFF position.

**Standard:**

| Light Control Switch | Display |
|---|---|
| TAIL or HEAD | ON |
| OFF | OFF |

HINT:

The display is updated once per second. As a result, it is normal for the display to lag behind the actual change in the switch.

**OK** → **REPLACE RADIO AND NAVIGATION ASSY (SEE PAGE 67-9 )**

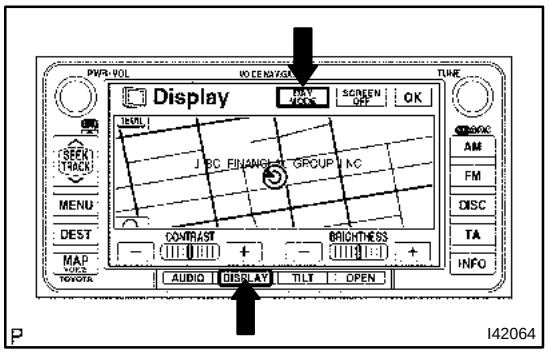
**NG**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

# DISPLAY DOES NOT DIM (NIGHT SCREEN) WITH TAIL SWITCH ON

## INSPECTION PROCEDURE

| 1 | CHECK IMAGE QUALITY SETTING |
|---|---|



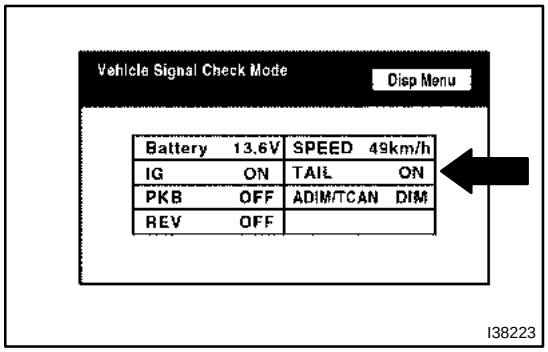

(a) Enter the display adjustment screen by pressing the "DISPLAY" switch.
(b) Turn the light control switch to the TAIL position.
(c) Check if "DAY MODE" on the display adjustment is ON.
**OK: "DAY MODE" is ON.**

**OK** → **TURN FORCED "DAY MODE" SETTING OFF**

**NG**

| 2 | DISPLAY CHECK MODE(VEHICLE SIGNAL CHECK MODE) |
|---|---|

(a) Enter the "Display Check" mode (Vehicle Signal Check Mode) (see page 05-1298 ).




(b) Turn the light control switch to the TAIL, HEAD or OFF position.
**Standard:**

| Light control switch | Display |
|---|---|
| TAIL or HEAD | ON |
| OFF | OFF |

HINT:
The display is updated once per second. As a result, it is normal for the display to lag behind the actual change in the switch.

**OK** → **REPLACE RADIO AND NAVIGATION ASSY (SEE PAGE 67-9 )**

**NG**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

# PANEL SWITCH DOES NOT FUNCTION

## INSPECTION PROCEDURE

| 1 | CHECK PANEL SWITCH |
|---|---|

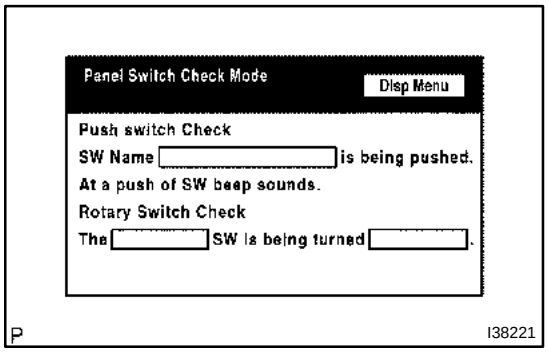
(a) Check for foreign matter around the switch that might prevent operation.
**OK: No foreign matter is found.**

NG → **REMOVE ANY FOREIGN MATTER FOUND**

OK

| 2 | DISPLAY CHECK MODE(DISPLAY PANEL SWITCH CHECK MODE) |
|---|---|

(a) Enter the ”Display Check” mode (Panel Switch Check Mode) (see page 05-1297 ).




(b) Operate the abnormal switch and check if the switch name and status are correctly displayed.
**OK: The switch name and status are correctly displayed as operated.**

OK → **REPLACE RADIO AND NAVIGATION ASSY (SEE PAGE 67-9 )**

NG

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

# TOUCH PANEL SWITCH DOES NOT FUNCTION

## INSPECTION PROCEDURE

| 1 | CHECK TOUCH PANEL |
|---|---|

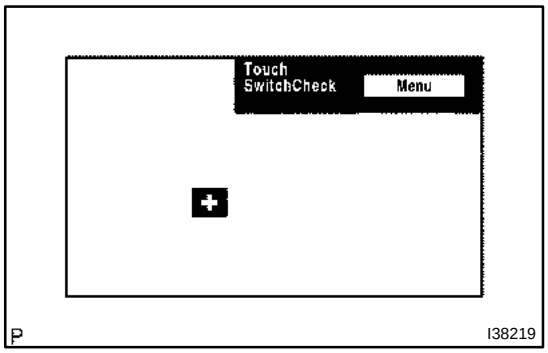
(a) Check for dirt on the display surface.
**OK: The display surface is clean.**

NG → **REMOVE ANY DIRT FOUND AND RECHECK TOUCH PANEL**

OK

| 2 | DISPLAY CHECK MODE(TOUCH SWITCH CHECK) |
|---|---|

(a) Enter the ”Display Check” mode (Touch Switch Check) (see page 05-1296 ).




(b) Touch the display in the area where the abnormal switch occurs.
**OK: A ”+” mark appears at the touched position.**

OK → **REPLACE RADIO AND NAVIGATION ASSY (SEE PAGE 67-9 )**

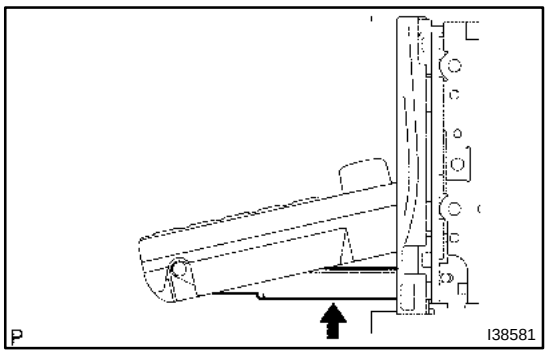
NG

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

# DISPLAY PANEL DOES NOT OPEN, TILT, OR TILTS IMPROPERLY

## INSPECTION PROCEDURE

| 1 | CHECK RADIO AND NAVIGATION ASSY |
|---|---|




(a) Check for foreign matter or obstructions caught in the moving parts of the panel.
**OK: No obstruction or foreign matter found.**

NG → **REMOVE ANY OBSTRUCTION OR FOREIGN MATTER FOUND**

OK

| 2 | OPERATION CHECK |
|---|---|

(a) Check if the navigation and audio systems function properly.
**OK: Navigation and audio systems function properly.**

OK → **REPLACE RADIO AND NAVIGATION ASSY (SEE PAGE 67-9 )**

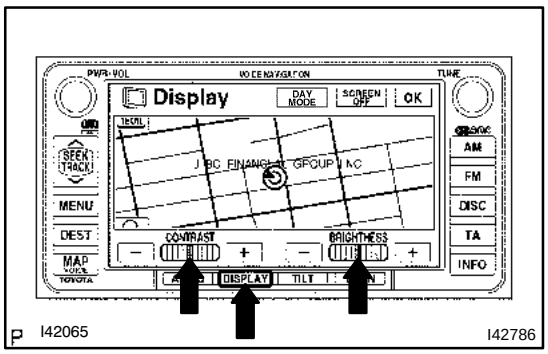
NG

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

# SCREEN FLICKER OR COLOR DISTORTION

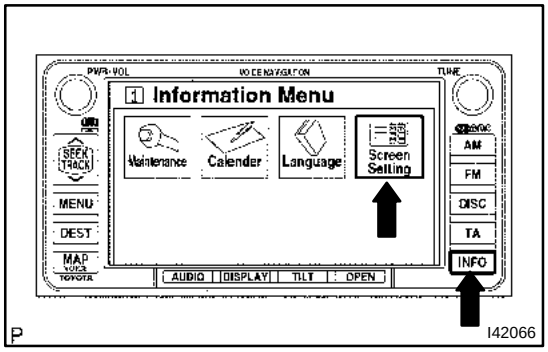
## INSPECTION PROCEDURE

### 1 CHECK DISPLAY SETTING

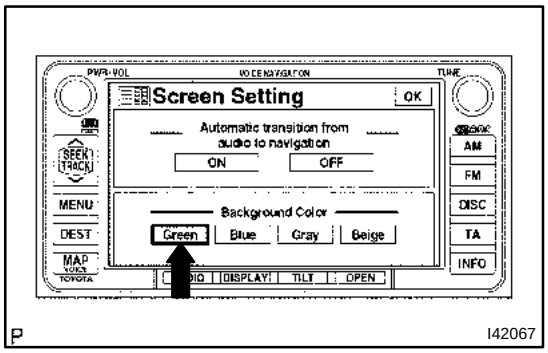



(a) Enter the display adjustment screen by pressing the "DISPLAY" switch.

(b) Reset display settings (contrast, brightness) and check if the screen appears normal.




(c) Press the "INFO" switch and then the "Screen Setting" switch.




(d) Set the "Background Color" to "Green" (initial setting) and check if it is normal.
**OK: Returns to normal.**

**OK** → **END**

**NG**

### 2 CHECK CABIN

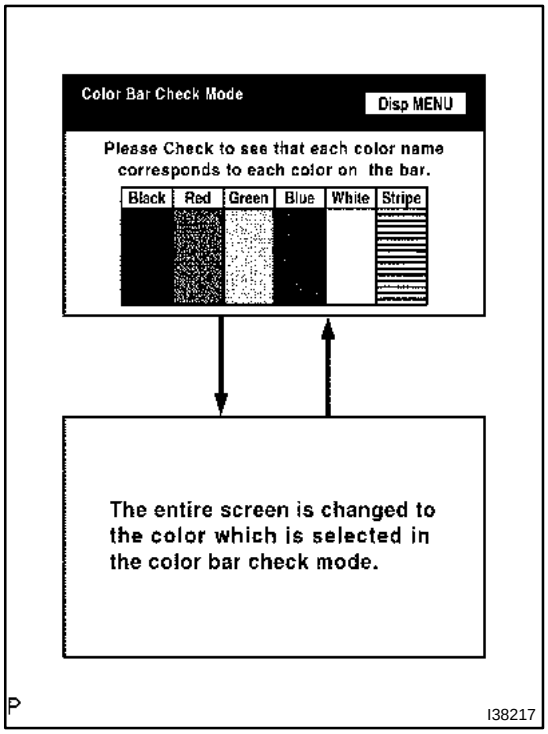
(a) Check if the cabin temperature is -20°C (-4.0°F) or less.
**OK: Cabin is warmer than -20°C (-4.0°F).**

**NG** → **HEAT CABIN AND RECHECK TEMPERATURE**

**OK**

## 3 DISPLAY CHECK MODE(COLOR BAR CHECK MODE)

(a) Enter the "Display Check" mode (Color Bar Check Mode) (see page 05-1295 ).




(b) Check that color bars match the displayed names.

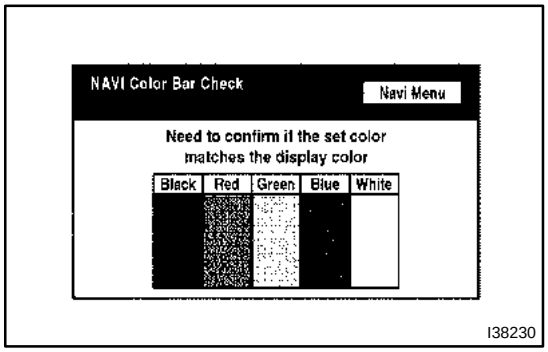
**OK: Color bars match the displayed names.**

**NG** → **REPLACE RADIO AND NAVIGATION ASSY (SEE PAGE 67-9 )**

**OK**

## 4 NAVIGATION CHECK MODE(NAVI COLOR BAR CHECK)

(a) Enter the "Navigation Check" mode (NAVI Color Bar Check) (see page 05-1301 ).




(b) Check that color bars match the displayed names.

**OK: Color bars match the displayed names.**

**NG** → **REPLACE RADIO AND NAVIGATION ASSY (SEE PAGE 67-9 )**

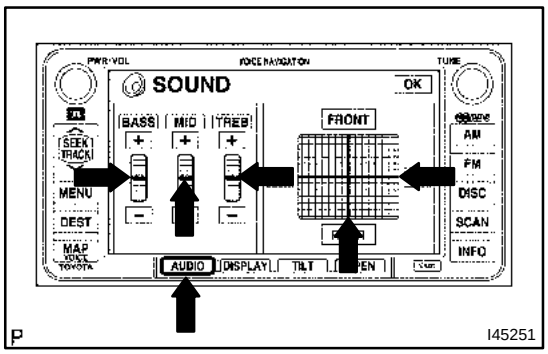
**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

# NO SOUND CAN BE HEARD FROM SPEAKERS (AUDIO IS MUTE)

## INSPECTION PROCEDURE

| 1 | CHECK AUDIO SETTINGS |
|---|---|




(a) Enter the sound adjustment screen by pressing the "SOUND" switch on the AUDIO display.

(b) Set volume, fader, and balance to the initial values and check that sound is normal.

**OK: Audio returns to normal.**

HINT:

Sound quality adjustment items vary depending on the type of the amplifier.

**OK** → **END**

**NG**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

# RADIO BROADCAST CANNOT BE RECEIVED (POOR RECEPTION)

## INSPECTION PROCEDURE

| 1 | CHECK RADIO AND NAVIGATION ASSY |
|---|---|

(a) Check the radio's automatic search function.
(1) Check that the radio's automatic station search function works properly.
**OK: The radio's automatic station search function works properly.**

OK → **REPLACE RADIO AND NAVIGATION ASSY (SEE PAGE 67-9 )**

NG

| 2 | CHECK OPTIONAL COMPONENTS |
|---|---|

(a) Check for optional components (sun-shade film, telephone antenna, etc.).
(1) Check if optional components, such as sun-shade film or telephone antenna that may decrease reception sensitivity, are installed.
**OK: Optional components are installed.**

OK → **REMOVE OPTIONAL COMPONENTS AND CHECK AGAIN**

NG

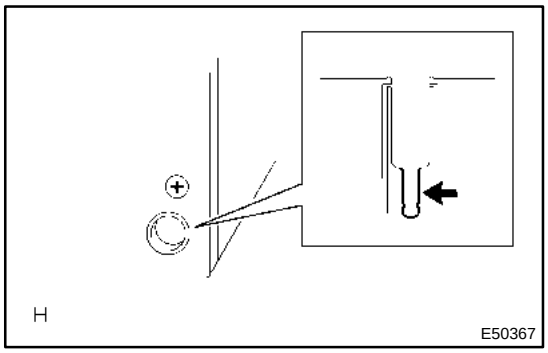
| 3 | CHECK ANTENNA |
|---|---|

(a) Check the antenna for noise.
(1) Turn the ignition switch to the ACC position, turn the radio on, and put the radio into AM mode. Bring the tip of a screwdriver into contact with the antenna assy and check that noise can be heard from the speakers.
**OK: Noise occurs.**

OK → **REPAIR ANTENNA ASSY(SEE PAGE 67-40 )**

NG

| 4 | CHECK RADIO AND NAVIGATION ASSY |
|---|---|




(a) Preparation for check
  (1) Remove the antenna plug from the radio and navigation assy.

(b) Check for noise
  (1) Turn the ignition switch to the ACC position with the radio and navigation assy connector connected.
  (2) Turn the radio on and select AM mode.
  (3) Bring a screwdriver, thin wire, or other metal object into contact with the radio receiver's antenna jack. Check that noise can be heard from the speakers.

**OK: Noise occurs.**

**NG** → **REPLACE RADIO AND NAVIGATION ASSY (SEE PAGE 67-9 )**

**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

# CD CANNOT BE INSERTED/PLAYED OR CD IS EJECTED RIGHT AFTER INSERTION

## INSPECTION PROCEDURE

| 1 | CHECK CD |
|---|---|

(a) Check if the CD is a normal audio CD that has no cracks, scratches, deformations, dirt, or other defects.
**OK: The CD is a normal audio CD.**

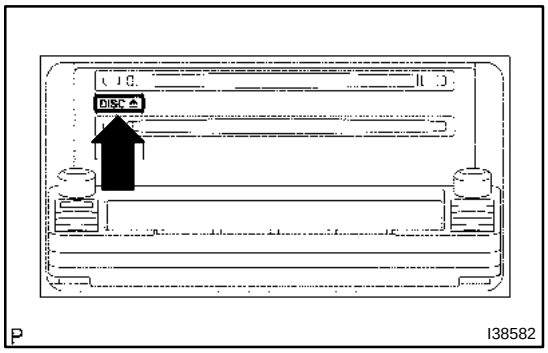
HINT:

- Translucent or deformed CDs cannot be played.
- CD-ROMs (even those with music) and CD-R discs cannot be played.
- A copy protected CD should not be used.
- An adaptor is not necessary to play 3.2 inch (8 cm) CDs.

NG → **REPLACE CD**

OK

| 2 | CHECK RADIO AND NAVIGATION ASSY |
|---|---|




(a) Check if the "DISC" indicator near the disc slot is on.
**OK: It is not on.**

NG → **PRESS DISC SWITCH TO EJECT DISC**

OK

| 3 | CHECK IF CD IS INSERTED PROPERLY |
|---|---|

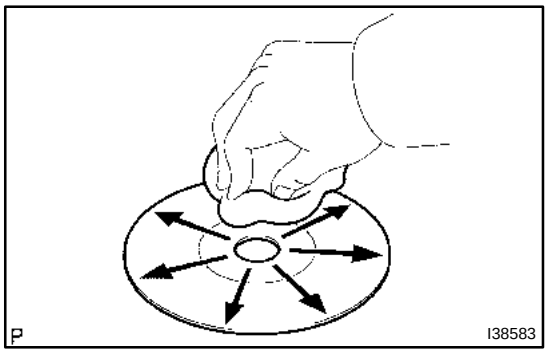
(a) Check if a CD is inserted properly.
(1) Check whether or not the CD is inserted upside down.
**OK: Not upside down.**

NG → **SET DISC CORRECTLY**

OK

| 4 | CHECK CD |
|---|---|

(a) Check for dirt on the CD surface.
**OK: The CD is clean.**




HINT:
If dirt is on the CD surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.
**NOTICE:**
**Do not use a conventional record cleaner or anti-static preservative.**

**NG** → **CLEAN CD**

**OK**

| 5 | CHECK USING ANOTHER CD |
|---|---|

(a) Check using another CD.
(1) Check if the problem recurs using another CD.
**OK: The problem does not recur.**

**OK** → **REPLACE CD**

**NG**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE OR DIAGNOSTIC TROUBLE CODE CHART (SEE PAGE 05-1286 OR 05-1278 )**

# ABNORMAL NOISE OCCURS

## INSPECTION PROCEDURE

| 1 | CHECK SPEAKERS |
|---|---|

(a) Check the speaker installation conditions.
  (1) Check that each speaker is securely installed.
  **OK: Each speaker is securely installed.**

HINT:
The radio is equipped with a noise prevention system that blocks excessively loud noise. If such noise occurs, check that all wiring is proper and that the antenna installation part ground and noise-prevention equipment are installed.

| Conditions Under Which Noise Occurs | Noise Type |
|---|---|
| Noise increases when the accelerator pedal is depressed, but stops when the engine is stopped. | Generator noise |
| Noise occurs during A/C or heater operation. | Blower motor noise |
| Noise occurs when the vehicle accelerates rapidly on an unpaved road or after the ignition switch is turned on. | Fuel pump noise |
| Noise occurs when the horn switch is pressed and released or when pressed and held. | Horn noise |
| Quiet noise occurs while the engine is running, but stops when the engine is stopped. | Ignition noise |
| Noise occurs synchronously with the blink of the turn signal. | Flasher noise |
| Noise occurs during window washer operation. | Washer noise |
| Noise occurs while the engine is running, and continues even after the engine is stopped. | Water temperature sensor noise |
| Noise occurs during wiper operation. | Wiper noise |
| Noise occurs when the brake pedal is depressed. | Stop light switch noise |
| Others | Static electricity stored on the vehicle |

HINT:
- First ensure that the noise is not coming from the outside. Failure to do so makes noise source detection difficult and may lead to a misdiagnosis.
- Noise should be removed in descending order of loudness.

NG → **REINSTALL SPEAKER PROPERLY**

OK

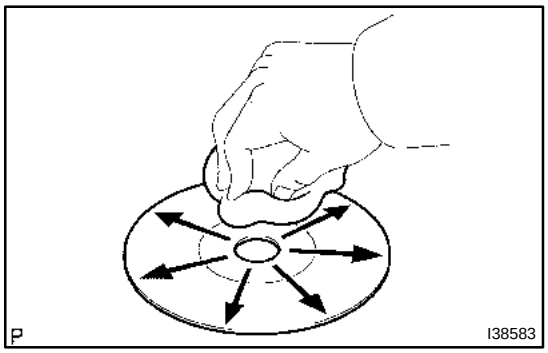
**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

# CD SOUND SKIPS

## INSPECTION PROCEDURE

| 1 | CHECK CD |
|---|---|

(a) Check for dirt on the CD surface.
**OK: The CD is clean.**

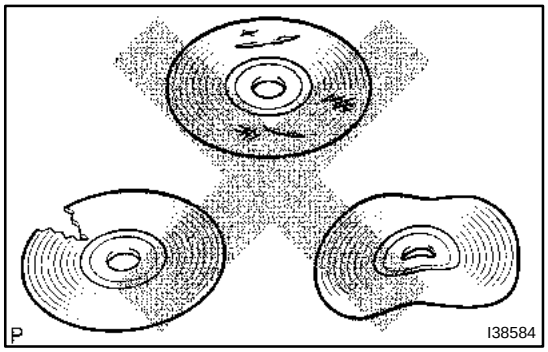



HINT:
If dirt is on the CD surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.
**NOTICE:**
**Do not use a conventional record cleaner or anti-static preservative.**

**NG** → **CLEAN CD**

**OK**

| 2 | CHECK CD |
|---|---|




(a) Check that the CD is not deformed or cracked.
**OK: No deformations or cracks appear on the CD.**

**NG** → **REPLACE CD**

**OK**

| 3 | CHECK USING ANOTHER CD |
|---|---|

(a) Check using another CD.
(1) Check if the problem recurs using another CD.
**OK: The problem does not recur.**

**OK** → **REPLACE CD**

**NG**

| 4 | CHECK RADIO AND NAVIGATION ASSY |
|---|---|

(a) Check the radio and navigation assy installation condition.
(1) Check that the radio and navigation assy is properly installed (see page 67-9 ).
**OK: Radio and navigation assy is properly installed.**

**NG** → **REINSTALL RADIO AND NAVIGATION ASSY PROPERLY**

**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

# CD CANNOT BE EJECTED

## INSPECTION PROCEDURE

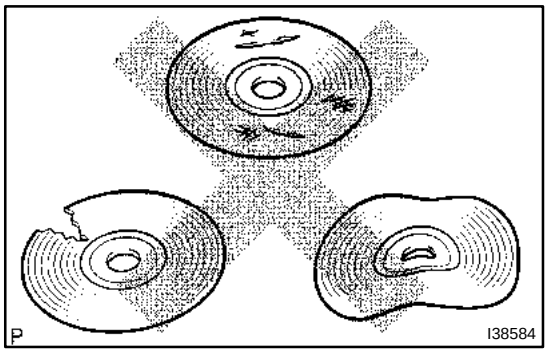
| 1 | CHECK RADIO AND NAVIGATION ASSY |
|---|---|

(a) Turn the ignition switch to the ACC position.
(b) Keep pressing the "DISC" eject switch for 5 seconds and check if the disc is ejected by forced ejection.
**OK: The disc is ejected.**

NG → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

OK

| 2 | CHECK CD |
|---|---|




(a) Check that the CD is not deformed or cracked.
**OK: No deformations or cracks appear on the CD.**

NG → **REPLACE CD**

OK

| 3 | CHECK RADIO AND NAVIGATION ASSY |
|---|---|

(a) Insert another CD and check if it is ejected.
**OK: The disc is ejected.**

NG → **REPLACE RADIO AND NAVIGATION ASSY (SEE PAGE 67-9 )**

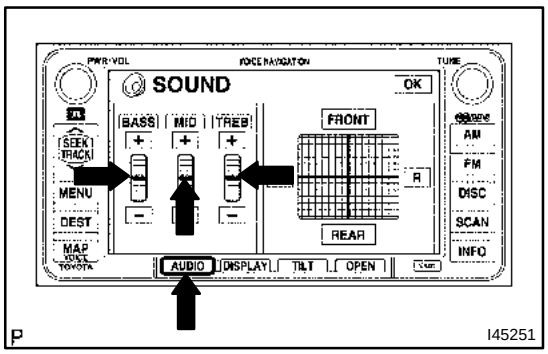
OK

**NORMAL OPERATION**

# POOR SOUND QUALITY IN ALL MODES (LOW VOLUME)

## INSPECTION PROCEDURE

| 1 | CHECK AUDIO SETTINGS |
|---|---|




(a) Enter the sound adjustment screen by pressing the "SOUND" switch on the AUDIO display.

(b) Set "BASS", "MID" and "TREB" to the initial values and check if sound is normal.

**OK: Returns to normal.**

HINT:

Sound quality adjustment items vary depending on the type of the amplifier.

**OK** → **END**

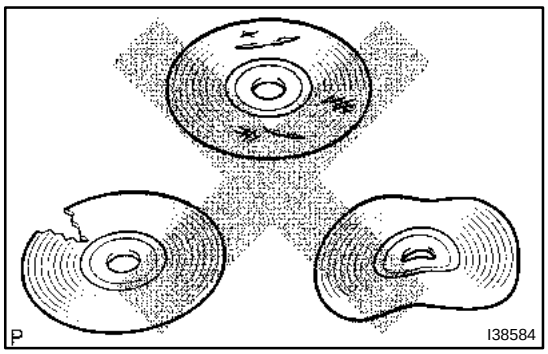
**NG**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

# MAP DISC CANNOT BE INSERTED

## INSPECTION PROCEDURE

| 1 | CHECK MAP DISC |
|---|---|

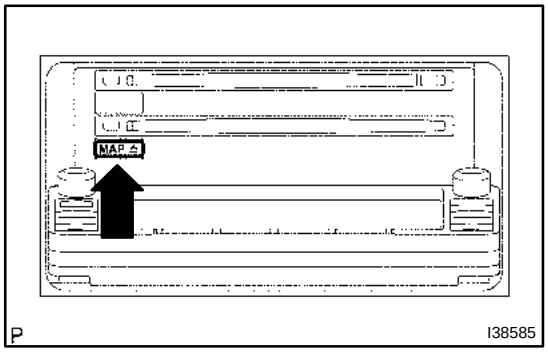



(a) Check that the map disc is not deformed or cracked.
**OK: No deformations or cracks appear on the map disc.**

**NG** → **REPLACE MAP DISC**

**OK**

| 2 | CHECK RADIO AND NAVIGATION ASSY |
|---|---|




(a) Check if the "MAP" indicator near the disc slot is on.
**OK: It is not on.**

**NG** → **PRESS EJECT SWITCH TO EJECT DISC**

**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**
**(SEE PAGE 05-1286 )**

# MAP DISC CANNOT BE EJECTED

## INSPECTION PROCEDURE

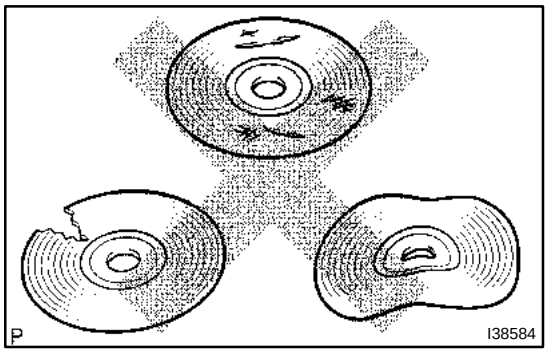
| 1 | CHECK RADIO AND NAVIGATION ASSY |
|---|---|

(a) Turn the ignition switch to the ACC position.
(b) Keep pressing the "MAP" eject switch for 5 seconds and check if the disc is ejected by forced ejection.
**OK: The disc is ejected.**

NG → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

OK

| 2 | CHECK MAP DISC |
|---|---|




(a) Check that the map disc is not deformed or cracked.
**OK: No deformations or cracks appear on the map disc.**

NG → **REPLACE MAP DISC**

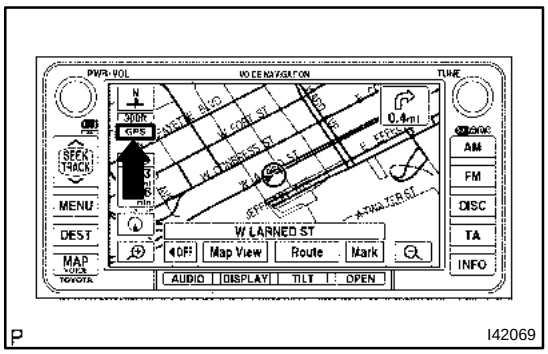
OK

**NORMAL OPERATION**

# VEHICLE POSITION MARK DEVIATES GREATLY

## INSPECTION PROCEDURE

| 1 | CHECK GPS MARK |
|---|---|



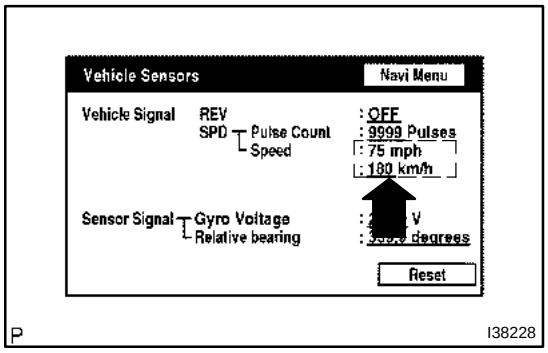

(a) Check that the GPS mark is displayed.
**OK: The GPS mark is displayed.**

NG → **GO TO "GPS MARK IS NOT DISPLAYED" IN FLOW CHART (SEE PAGE 05-1336 )**

OK

| 2 | NAVIGATION CHECK MODE(VEHICLE SENSORS CHECK) |
|---|---|

(a) Enter the "Navigation Check" mode (Vehicle Sensors) (see page 05-1300 ).

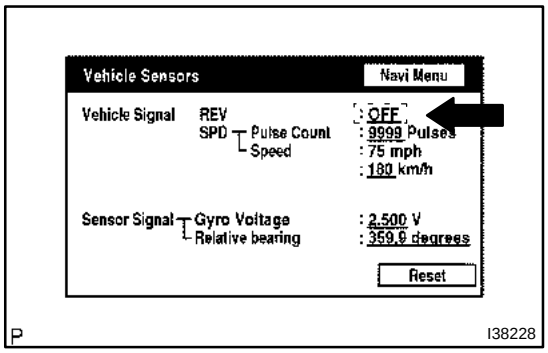



(b) While driving, compare the "Speed" indicator to the reading on the speedometer. Check that these readings are almost the same.
**OK: The readings are almost the same.**

NG → **GO TO "SPEED SIGNAL CIRCUIT" IN FLOW CHART (SEE PAGE 05-1354 )**

OK

## 3 NAVIGATION CHECK MODE(VEHICLE SENSORS CHECK)




(a) Move the shift lever to the R or P position.

**Standard:**

| Shift lever | Display |
|---|---|
| P | OFF |
| R | ON |

HINT:

The display is updated once per second. As a result, it is normal for the display to lag behind the actual change in the switch.

**NG** → **GO TO "REVERSE SIGNAL CIRCUIT" IN FLOW CHART (SEE PAGE 05-1358 )**

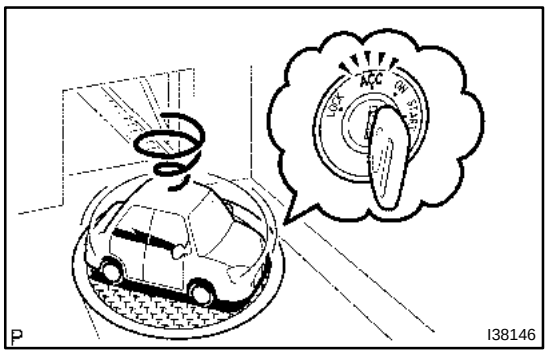
**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

# CURSOR OR MAP ROTATES WHEN VEHICLE IS STOPPED

## INSPECTION PROCEDURE

| 1 | CHECK CONDITION |
|---|---|




(a) Check with the customer if the vehicle has been turned by a turntable at parking.

**OK: The vehicle has not been turned by a turntable.**

HINT:

If the ignition switch is turned to the ACC or ON position while the vehicle is being turned by a turntable, the system may store the angular velocity at this time. For this reason, the vehicle position cursor could deviate.

**NG** → **TURN IGNITION SWITCH TO ON POSITION WHEN VEHICLE IS COMPLETELY STOPPED**

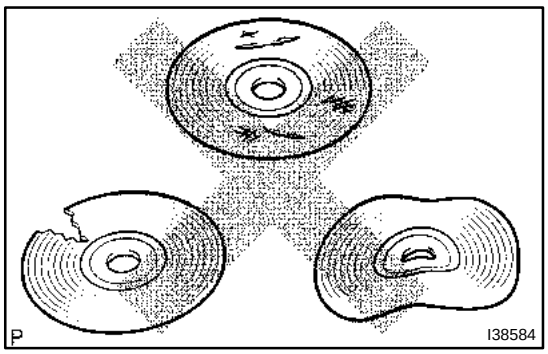
**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

# VEHICLE POSITION MARK IS NOT UPDATED

## INSPECTION PROCEDURE

| 1 | CHECK MAP DISC |
|---|---|




(a) Check that the map disc is not deformed or cracked.
**OK: No deformations or cracks appear on the map disc.**

NG → **REPLACE MAP DISC**

OK

| 2 | CHECK MAP DISPLAY |
|---|---|

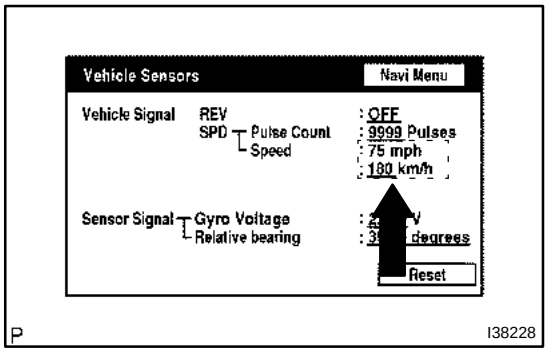
(a) Check if a touch scroll can be performed on the map display.
**OK: Touch scroll can be performed.**

NG → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

OK

| 3 | NAVIGATION CHECK MODE(VEHICLE SENSORS CHECK) |
|---|---|

(a) Enter the ”Navigation Check” mode (Vehicle Sensors) (see page 05-1300 ).




(b) While driving, compare the ”Speed” indicator to the reading on the speedometer. Check if these readings are almost the same.
**OK: The readings are almost the same.**

NG → **GO TO ”SPEED SIGNAL CIRCUIT” IN FLOW CHART (SEE PAGE 05-1354 )**

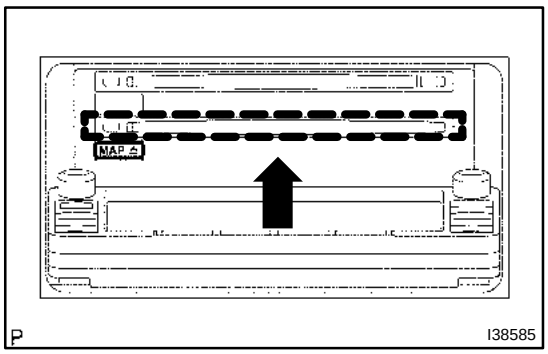
OK

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

# CURRENT POSITION DISPLAY DOES NOT APPEAR

## INSPECTION PROCEDURE

| 1 | CHECK RADIO AND NAVIGATION ASSY |
|---|---|

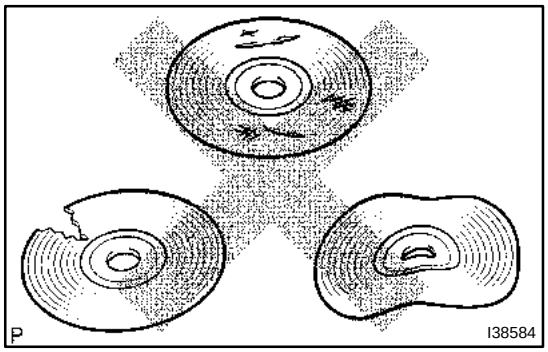



(a) Check if a map disc is inserted in the map disc slot.
**OK: A map disc is inserted.**

NG → **INSERT MAP DISC IN "MAP" SIDE SLOT**

OK

| 2 | CHECK MAP DISC |
|---|---|




(a) Check that the map disc is not deformed or cracked.
**OK: No deformations or cracks appear on the map disc.**

NG → **REPLACE MAP DISC**

OK

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**
**(SEE PAGE 05-1286 )**

# GPS MARK IS NOT DISPLAYED

## INSPECTION PROCEDURE

| 1 | CHECK CABIN |
|---|---|

(a) Check the cabin for any object that might interrupt radio reception on the instrument panel. If such an object exists, remove it and check if the GPS mark reappears.

HINT:

GPS works using extremely weak radio waves originating from satellites. If the signal is interrupted by obstructions or another radio wave, the GPS system may not be able to properly receive the signal.

**OK: Mark appears.**

**OK** → **NORMAL OPERATION**

**NG**

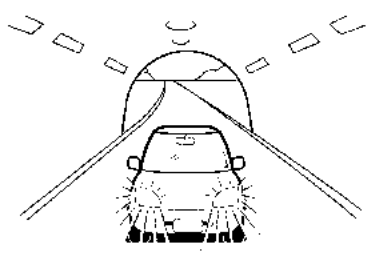
| 2 | CHECK SURROUNDINGS |
|---|---|

(a) Check if the vehicle is in a location where GPS signal reception is bad. If the vehicle is in such a place, move it elsewhere and check if the GPS mark reappears.

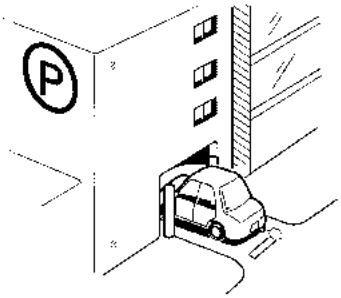
HINT:

- GPS uses 24 satellites in 6 orbits so that at any time 4 satellites will be in line-of-sight of your vehicle.
- GPS signals may not be received, however, based on surroundings, vehicle direction, and time.

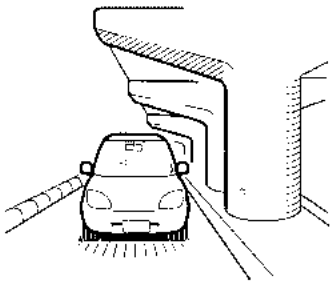
- The following illustrations show some conditions where it may be difficult to receive GPS signals.



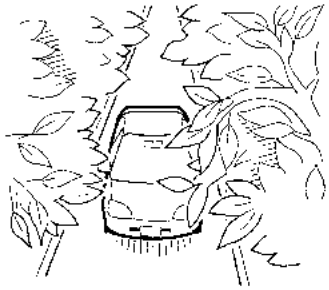
In a tunnel



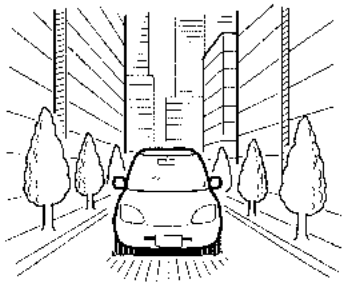
In a building



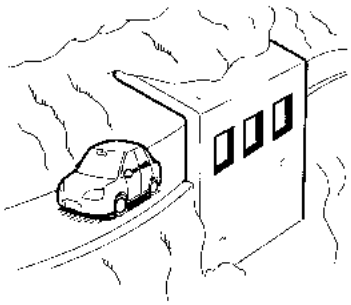
Under an overpass



Forest or tree-lined path



Between tall buildings



Under a cliff, overhang

P I38586

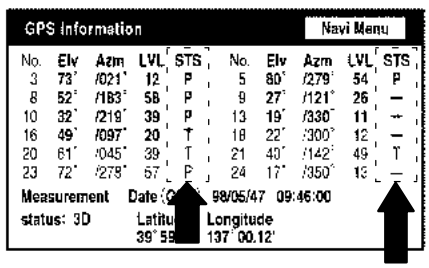
**OK: GPS mark is displayed.**

| OK | RETURNS TO NORMAL |
|---|---|

NG

## 3 NAVIGATION CHECK MODE(GPS IMFORMATION)

(a) Enter the "Navigation Check" mode (GPS information) (see page 05-1299 ).




P I38226

(b) Check how many of the following codes occur in the "STS" column.

**For DENSO Models: T, P**

**For AISIN AW Models: 04H, 08H**

**OK: At least 3 codes occur.**

| OK | REPLACE RADIO AND NAVIGATION ASSY (SEE PAGE 67-9 ) |
|---|---|

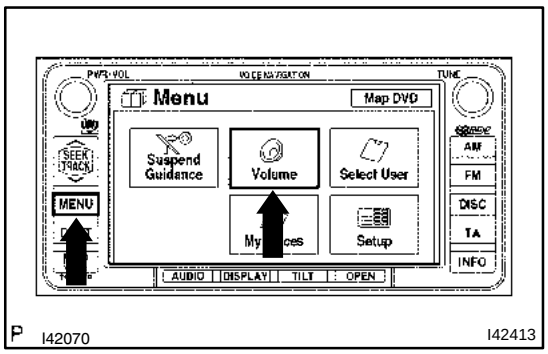
NG

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

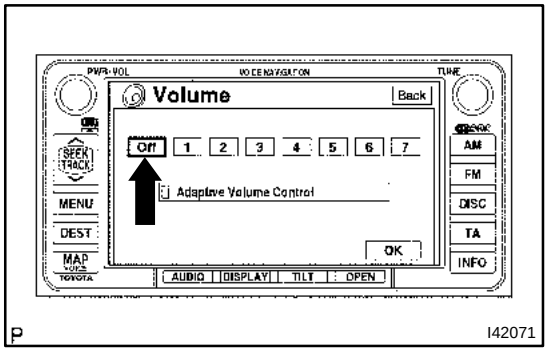
# VOICE GUIDANCE DOES NOT FUNCTION

## INSPECTION PROCEDURE

| 1 | CHECK NAVIGATION SYSTEM SETTING |
|---|---|




(a) Enter the ”Menu” screen by pressing the ”MENU” switch.
(b) Enter the volume adjustment screen by pressing the ”Volume” switch.

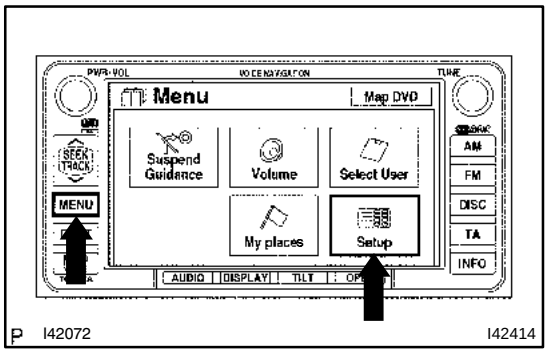



(c) Check that ”Off” is not selected.
**OK: ”Off” is not selected.**

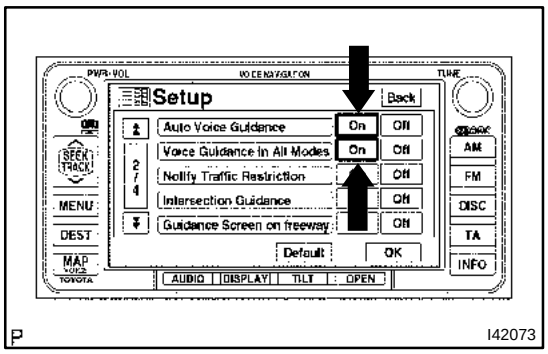
NG → **TURN VOICE GUIDANCE VOLUME UP TO 4 USING VOICE ADJUSTMENT SWITCHES**

OK

## 2 CHECK NAVIGATION SETTING




(a) Enter the ”Menu” screen by pressing the ”MENU” switch.
(b) Enter the ”Setup” screen by pressing the ”Setup” switch.

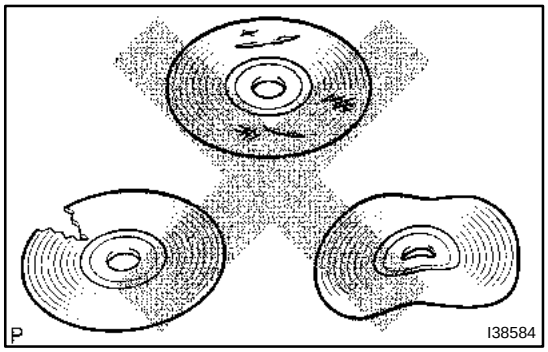



(c) Check that ”Auto Voice Guidance” is not OFF.
**OK: Auto voice guidance is not OFF.**
(d) Check that ”Voice Guidance in All Modes” is not OFF.
**OK: Voice guidance in all modes is not OFF.**

**NG** → **TURN AUTO VOICE GUIDANCE TO ”ON”**

**OK**

## 3 CHECK MAP DISC




(a) Check that the map disc is not deformed or cracked.
**OK: No deformations or cracks appear on the map disc.**

**NG** → **REPLACE MAP DISC**

**OK**

| 4 | CHECK RADIO AND NAVIGATION ASSY |
|---|---|

(a) Check if audio sound can be heard from the driver's side speaker.
**OK: Audio sound can be heard.**

NG → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

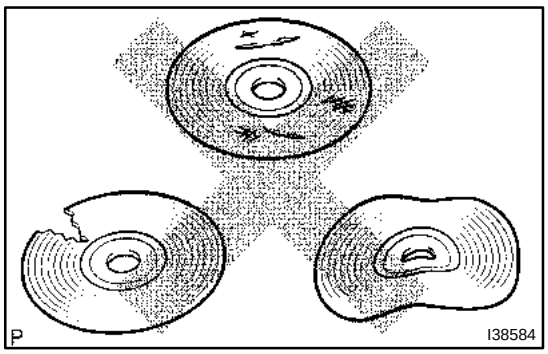
OK

**REPLACE RADIO AND NAVIGATION ASSY (SEE PAGE 67-9 )**

# MAP DISPLAY INCOMPLETE

## INSPECTION PROCEDURE

| 1 | CHECK MAP DISC |
|---|---|




(a) Check that the map disc is not deformed or cracked.
**OK: No deformations or cracks appear on the map disc.**

NG → **REPLACE MAP DISC**

OK

| 2 | CHECK DISPLAY |
|---|---|

(a) Check that displays other than the navigation display are complete.
**OK: No other incomplete displays are found.**

NG → **REPLACE RADIO AND NAVIGATION ASSY (SEE PAGE 67-9 )**

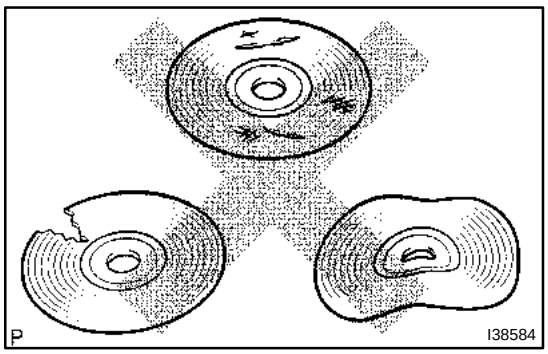
OK

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

# ROUTE CANNOT BE CALCULATED

## INSPECTION PROCEDURE

| 1 | CHECK MAP DISC |
|---|---|




(a) Check that the map disc is not deformed or cracked.
**OK: No deformations or cracks appear on the map disc.**

NG → **REPLACE MAP DISC**

OK

| 2 | SET DESTINATION |
|---|---|

(a) Set another destination and check if the system can calculate the route correctly.
**OK: Route can be correctly calculated.**

OK → **NORMAL OPERATION**

NG

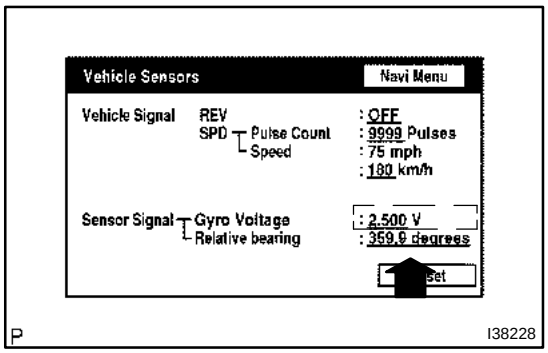
**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

# GYRO ERROR

## INSPECTION PROCEDURE

| 1 | NAVIGATION CHECK MODE(VEHICLE SENSORS CHECK) |
|---|---|

(a) Enter the "Navigation Check" mode (Vehicle Sensors) (see page 05-1300 ).




(b) Check the gyro voltage.
**Standard: 0.1 to 4.5 V**

**NG** → **REPLACE RADIO AND NAVIGATION ASSY (SEE PAGE 67-9 )**

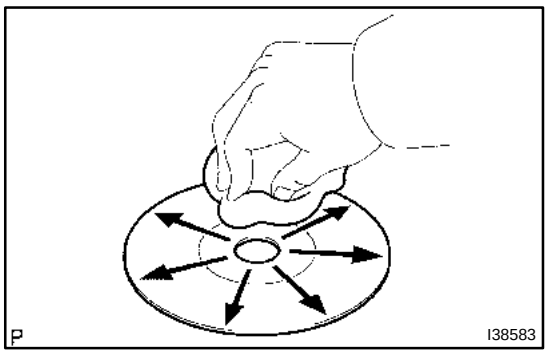
**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN DIAGNOSTIC TROUBLE CODE CHART (SEE PAGE 05-1278 )**

# MAP DISC READ ERROR

## INSPECTION PROCEDURE

| 1 | CHECK MAP DISC |
|---|---|




(a) Check for dirt on the map disc surface.
**OK: No dirt is on the map disc surface.**

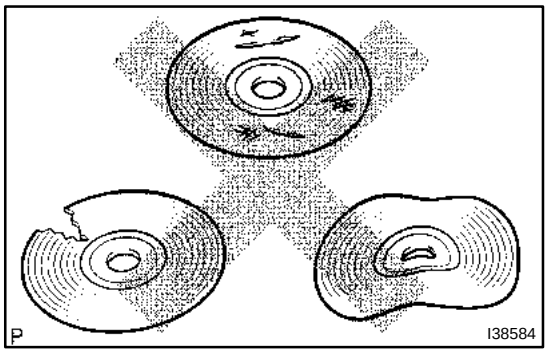
HINT:
If dirt is on the map disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

**NOTICE:**
**Do not use a conventional record cleaner or anti-static preservative.**

**NG** → **CLEAN MAP DISC**

**OK**

| 2 | CHECK MAP DISC |
|---|---|




(a) Check that the map disc is not deformed or cracked.
**OK: No deformations or cracks appear on the map disc.**

**NG** → **REPLACE MAP DISC**

**OK**

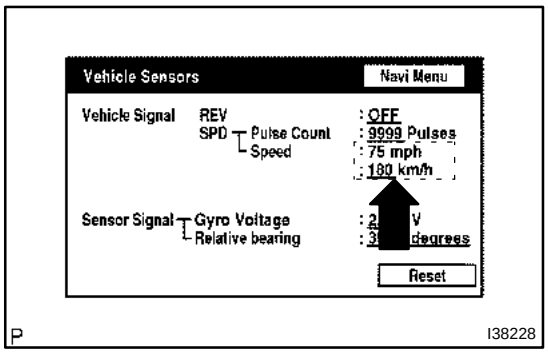
**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN DIAGNOSTIC TROUBLE CODE CHART (SEE PAGE 05-1278 )**

# SPEED SIGNAL ERROR

## INSPECTION PROCEDURE

| 1 | NAVIGATION CHECK MODE(VEHICLE SENSORS CHECK) |
|---|---|

(a) Enter the ”Navigation Check” mode (Vehicle Sensors) (see page 05-1300 ).




(b) While driving, compare the ”Speed” indicator to the reading on the speedometer. Check if these readings are almost the same.

**OK: The readings are almost the same.**

**OK** → **REPLACE RADIO AND NAVIGATION ASSY (SEE PAGE 67-9 )**

**NG**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN DIAGNOSTIC TROUBLE CODE CHART (SEE PAGE 05-1278 )**

# SPEED SIGNAL CIRCUIT (RADIO AND NAVIGATION ASSY)

## CIRCUIT DESCRIPTION

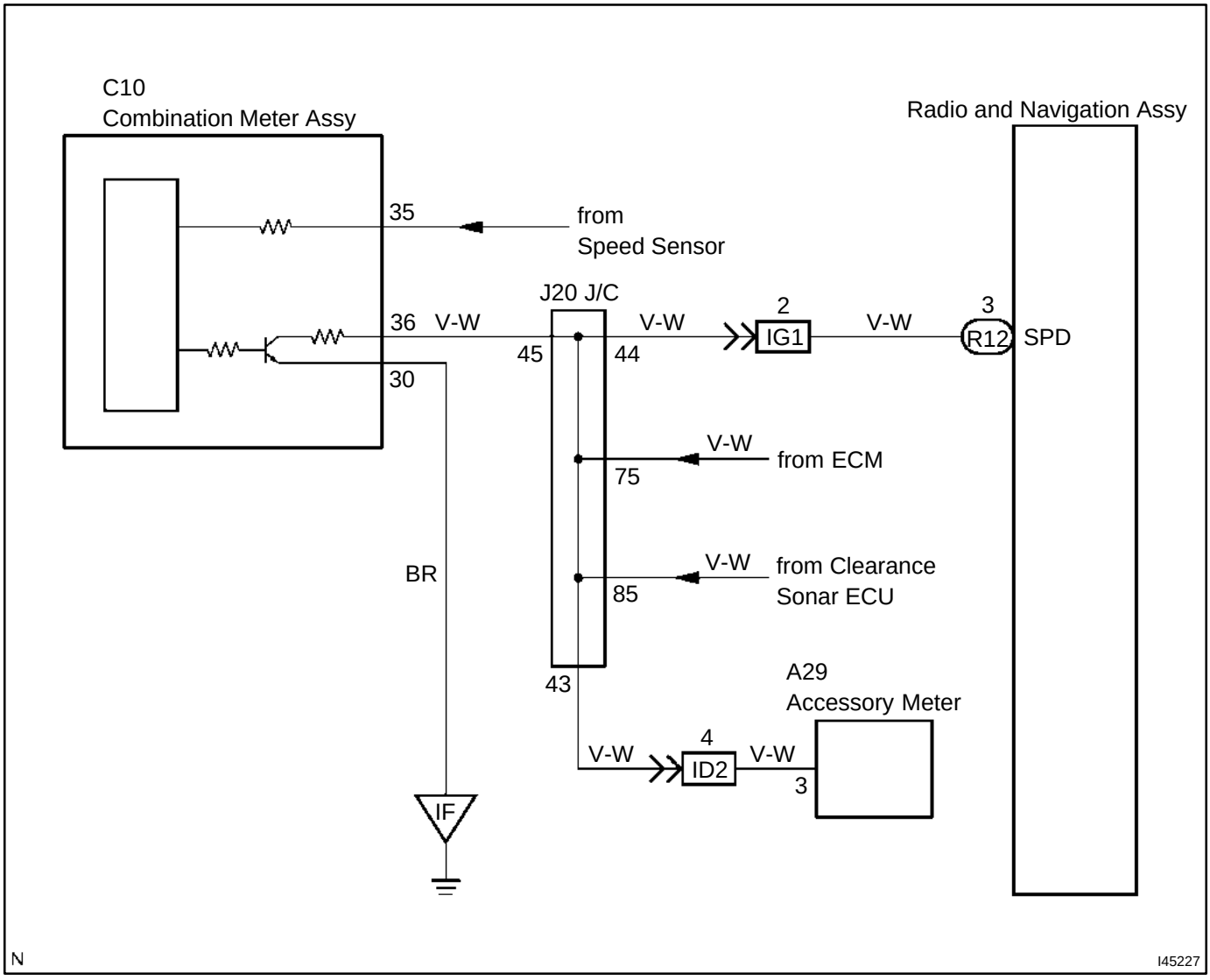
The radio and navigation assy receives a vehicle speed signal from the combination meter assy and information about the GPS antenna, and then adjusts vehicle position.

The radio and navigation assy performs switch operation control during driving by receiving the vehicle speed signal.

HINT:

- A voltage of 12 V or 5 V is output from each ECU and then input to the combination meter. The signal is changed to a pulse signal at the transistor in the combination meter. Each ECU controls the respective system based on the pulse signal.
- If a short occurs in an ECU, all systems in the diagram below will not operate normally.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CHECK OPERATION OF SPEEDOMETER |
|---|---|

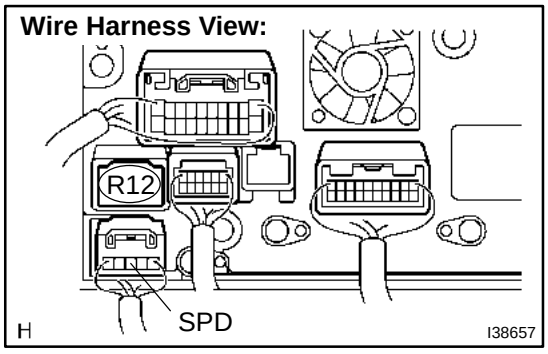
(a) Drive the vehicle and check if the function of the speedometer in the combination meter is normal.
**OK: Actual vehicle speed and the speed indicated on the speedometer are the same.**

HINT:
The vehicle speed sensor is functioning normally when the indication on the speedometer is normal.

NG → **CHECK COMBINATION METER ASSY (SEE PAGE 05-1538 )**

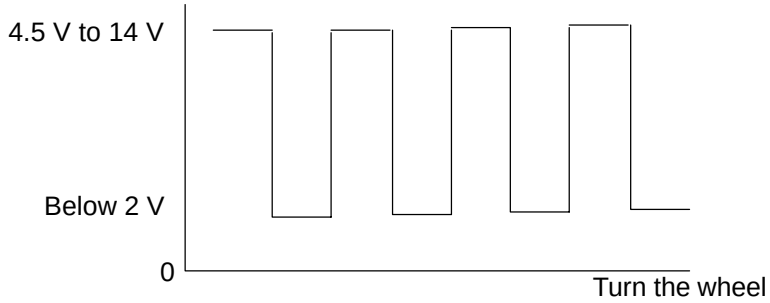
OK

| 2 | INSPECT RADIO AND NAVIGATION ASSY |
|---|---|




(a) Disconnect the radio and navigation assy connector R12.
(b) Measure voltage.
(1) Jack up either one of the drive wheels.
(2) Move the shift lever to the neutral position.
(3) Turn the ignition switch to the ON position.
(4) Measure the voltage between terminal SPD of the radio and navigation assy and body ground when the drive wheels are turned slowly.

**OK: Voltage pulses as shown below.**

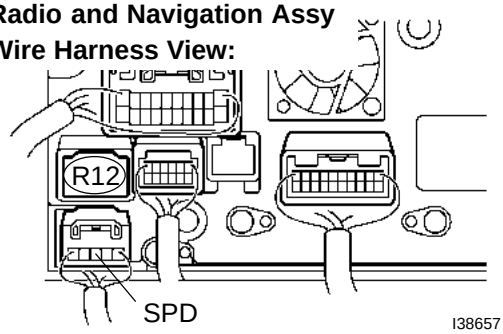



OK → **REPLACE RADIO AND NAVIGATION ASSY (SEE PAGE 67-9 )**

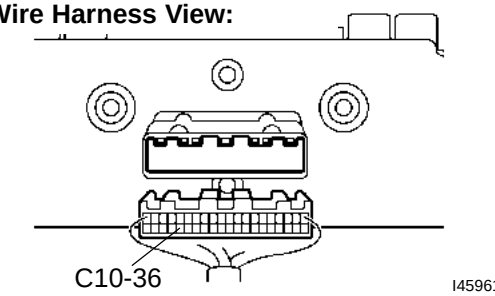
NG

| 3 | **CHECK HARNESS AND CONNECTOR(COMBINATION METER ASSY - RADIO AND NAVIGATION ASSY)** |
|---|---|

**Radio and Navigation Assy Wire Harness View:**




**Combination Meter Assy Wire Harness View:**




(a) Disconnect the radio and navigation assy connector R12 and combination meter assy connector C10.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

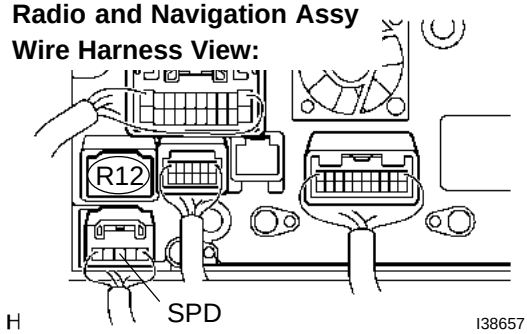
| Tester connection | Condition | Specified condition |
|---|---|---|
| SPD - C10-36 | Ignition switch OFF | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

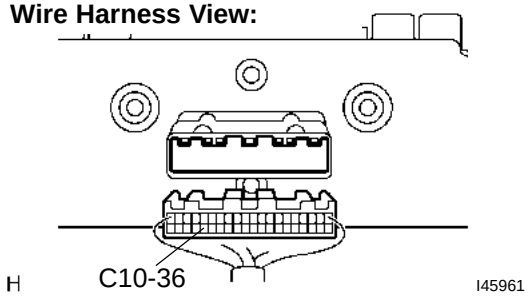
**OK**

| 4 | CHECK HARNESS AND CONNECTOR(COMBINATION METER ASSY - RADIO AND NAVIGATION ASSY) |
|---|---|

**Radio and Navigation Assy Wire Harness View:**




**Combination Meter Assy Wire Harness View:**




(a) Disconnect the radio and navigation assy connector R12 and combination meter assy connector C10.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| SPD - Body ground | Ignition switch OFF | 10 kΩ or higher |

HINT:

If the resistance between terminal SPD and body ground is less than 10 kΩ , there may be a short in a wire harness, connector, or ECU.

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR OR CHECK EACH ECU**

**OK**

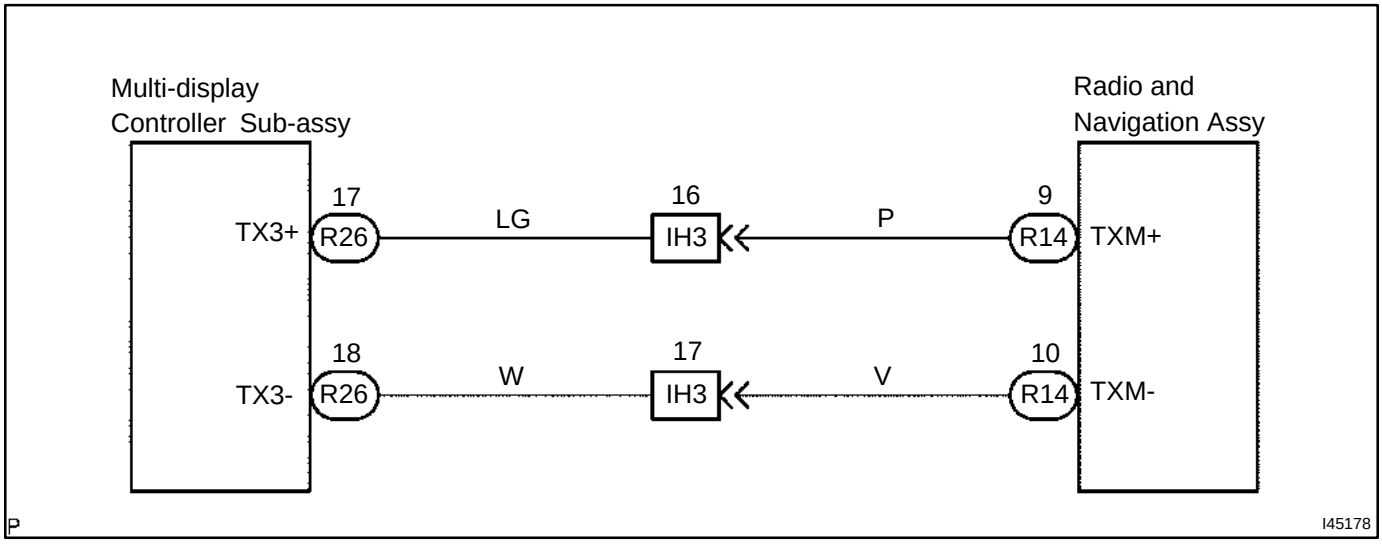
**REPLACE COMBINATION METER ASSY (SEE PAGE 71-20 )**

# AVC-LAN CIRCUIT (RADIO AND NAVIGATION ASSY - MULTI-DISPLAY CONTROLLER SUB-ASSY)

## CIRCUIT DESCRIPTION

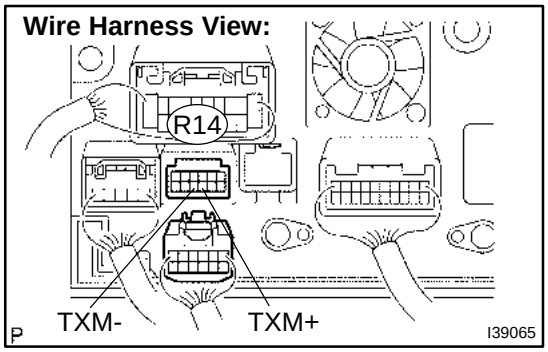
Each unit of the radio and navigation system connected to the AVC-LAN (communication bus) communicates by transferring the signals from each switch.
When a short to +B or short to ground occurs in this AVC-LAN, the radio and navigation system will not function normally as communication is discontinued.
In the AVC-LAN, the radio and navigation assy becomes the communication master and has enough resistance necessary for communication.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

| 1 | INSPECT RADIO AND NAVIGATION ASSY |
|---|---|




(a) Disconnect the radio and navigation assy connector R14.
(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

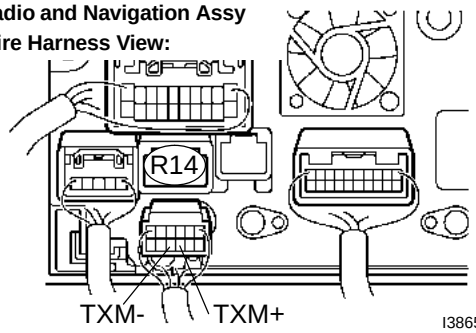
| Tester connection | Condition | Specified condition |
|---|---|---|
| TXM+ - TXM- | Always | 60 to 80 Ω |

**NG** → **REPLACE RADIO AND NAVIGATION ASSY (SEE PAGE 67-9 )**

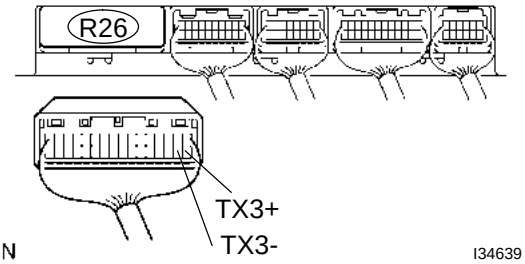
**OK**

| 2 | CHECK HARNESS AND CONNECTOR(RADIO AND NAVIGATION ASSY - MULTI-DISPLAY CONTROLLER SUB-ASSY) |
|---|---|

**Radio and Navigation Assy Wire Harness View:**




**Multi-display Controller Sub-assy Wire Harness View:**




(a) Disconnect the radio and navigation assy connector R14 and multi-display controller sub-assy connector R26.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| TXM+ - TX3+ | Always | Below 1 Ω |
| TXM- - TX3- | Always | Below 1 Ω |
| TXM+ - Body ground | Always | 10 kΩ or higher |
| TXM- - Body ground | Always | 10 kΩ or higher |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN DIAGNOSTIC TROUBLE CODE CHART (SEE PAGE 05-1278 )**

# RSE SOUND SIGNAL CIRCUIT (MULTI-DISPLA Y CONTROLLER SUB-ASSY - RADIO AND NAVIGATION ASSY)

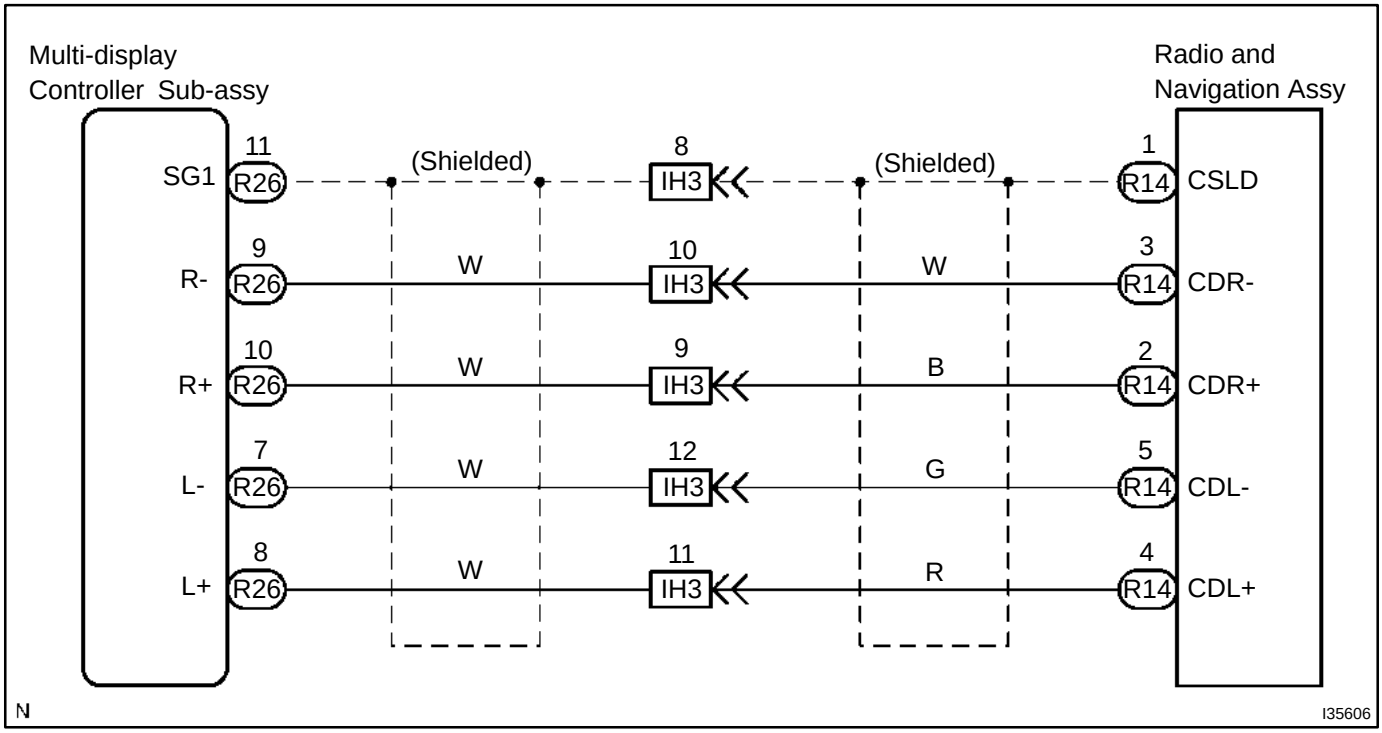
## CIRCUIT DESCRIPTION

The multi-display controller sub-assy sends a sound signal to the radio and navigation assy through this circuit.

The sound signal that has been sent is amplified by the stereo component amplifier assy, and then sent to the speakers.

If there is an open or short in the circuit, sound cannot be heard from the speakers even if there is no malfunction in the stereo component amplifier assy or speakers.

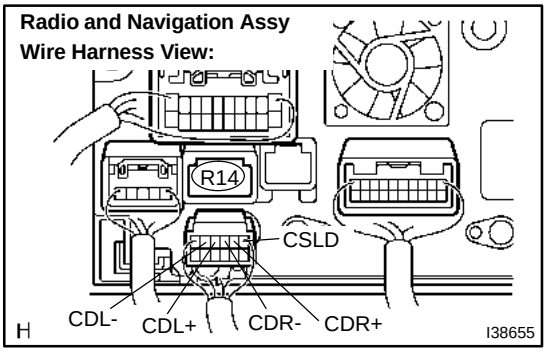
## WIRING DIAGRAM



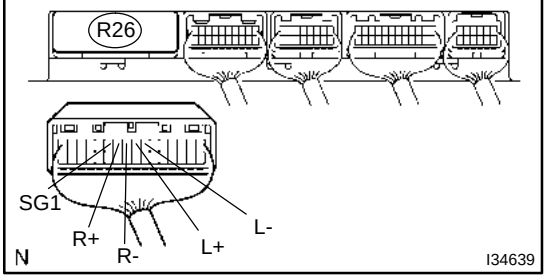
# INSPECTION PROCEDURE

| 1 | CHECK HARNESS AND CONNECTOR(RADIO AND NAVIGATION ASSY - MULTI-DISPLAY CONTROLLER SUB-ASSY) |
|---|---|

**Radio and Navigation Assy Wire Harness View:**




**Multi-display Controller Sub-Assy Wire Harness View:**




(a) Disconnect the radio and navigation assy connector R14 and multi-display controller sub-assy connector R26.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| CDR- - R- | Below 1 Ω |
| CDR+ - R+ | Below 1 Ω |
| CDL- - L- | Below 1 Ω |
| CDL+ - L+ | Below 1 Ω |
| CSLD - SG1 | Below 1 Ω |
| CDR- - Body ground | 10 kΩ or higher |
| CDR+ - Body ground | 10 kΩ or higher |
| CDL- - Body ground | 10 kΩ or higher |
| CDL+ - Body ground | 10 kΩ or higher |
| CSLD - Body ground | 10 kΩ or higher |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

| DTC | B1214 | DOOR SYSTEM COMMUNICATION BUS MALFUNCTION (+B SHORT) |
|---|---|---|

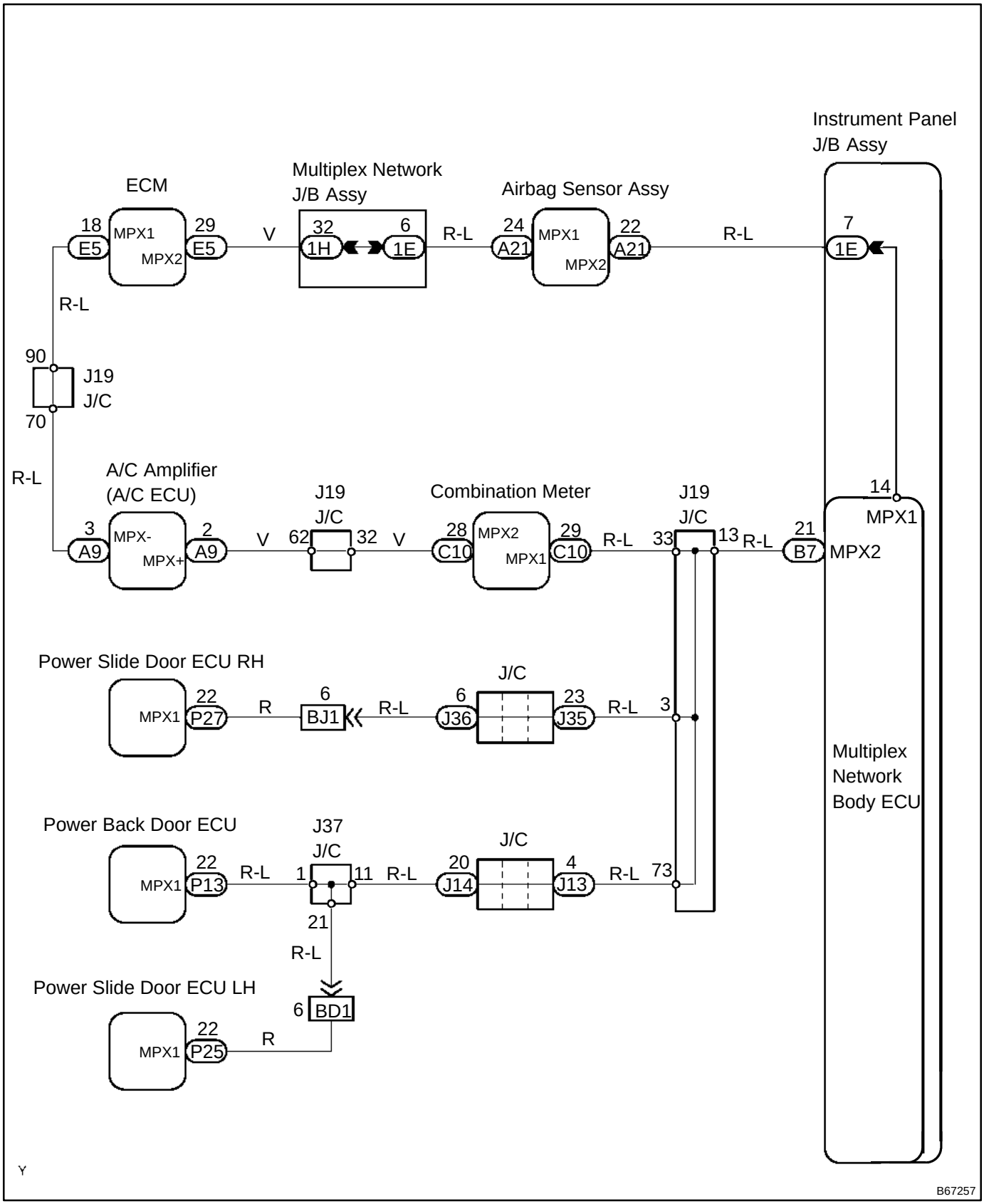
| DTC | B1215 | DOOR SYSTEM COMMUNICATION BUS MALFUNCTION (GND SHORT) |
|---|---|---|

## CIRCUIT DESCRIPTION

DTCs B1214 and B1215 are output when +B and the body ground is short-circuited on the communication bus. Detecting this condition disables all the BEAN communication and outputs some DTCs.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1214 | Communication circuit and +B battery system short | • Airbag sensor assy (Airbag ECU)<br>• ECM<br>• A/C amplifier assy (A/C ECU)<br>• Combination meter assy<br>• Multiplex network door ECU rear RH (Power slide door ECU RH)<br>• Multiplex network door ECU rear LH (Power slide door ECU LH)<br>• Multiplex network door ECU back (Power back door ECU)<br>• Instrument panel J/B assy (Multiplex network body ECU)<br>• Wire harness |
| B1215 | Communication circuit and body ground short | • Airbag sensor assy (Airbag ECU)<br>• ECM<br>• A/C amplifier assy (A/C ECU)<br>• Combination meter assy<br>• Multiplex network door ECU rear RH (Power slide door ECU RH)<br>• Multiplex network door ECU rear LH (Power slide door ECU LH)<br>• Multiplex network door ECU back (Power back door ECU)<br>• Instrument panel J/B assy (Multiplex network body ECU)<br>• Wire harness |

# WIRING DIAGRAM



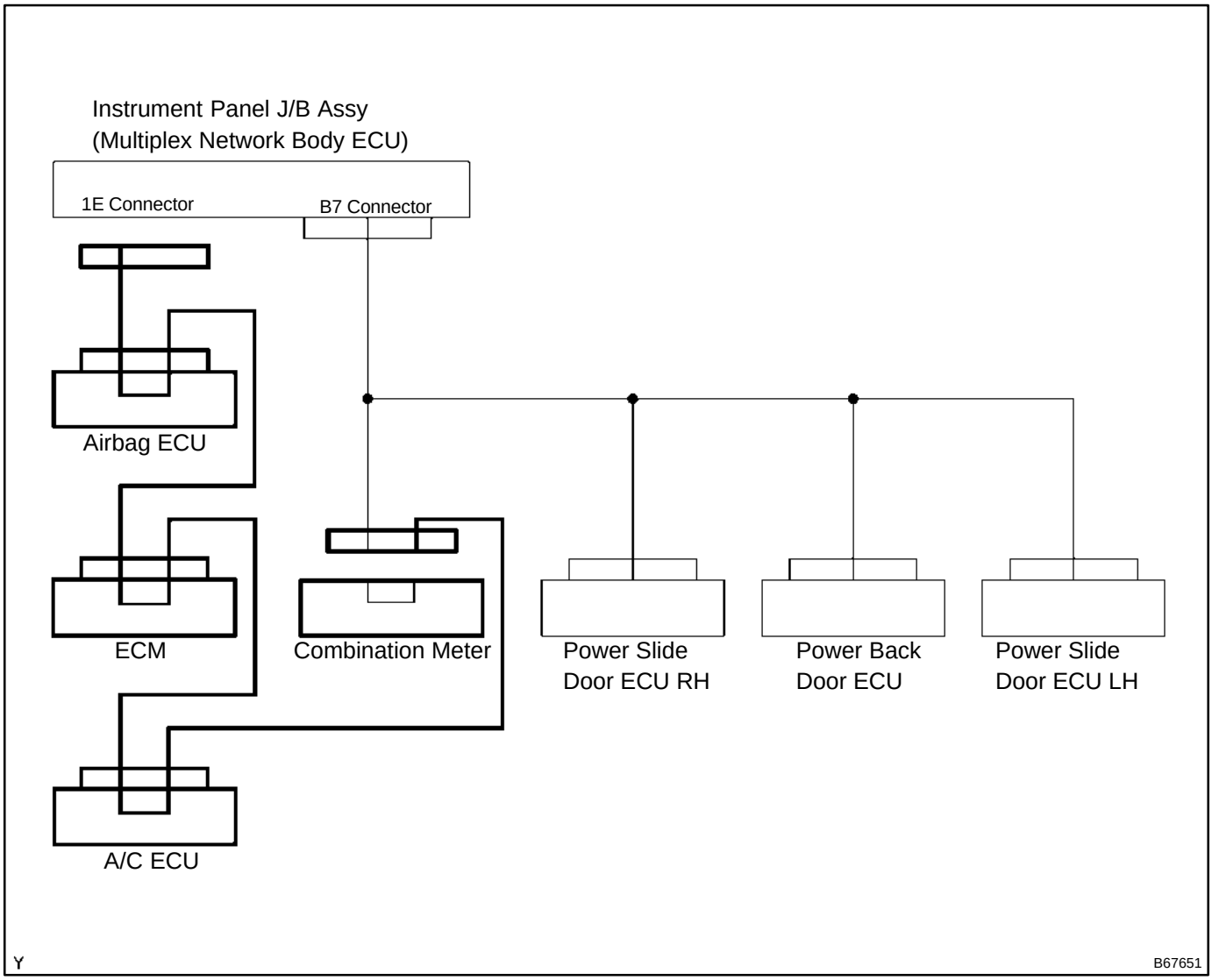
## INSPECTION PROCEDURE

**NOTICE:**

**Disconnect connectors in operational sequence, and start the next operation after the connectors are connected.**

| 1 | CHECK DTC (INSTRUMENT PANEL J/B ASSY - COMBINATION METER) |
|---|---|

(a) Check the DTC when the 1E connector of the instrument panel J/B assy and the combination meter connector are disconnected.




**Standard:**

**DTC B1214 or B1215 is not output**

HINT:

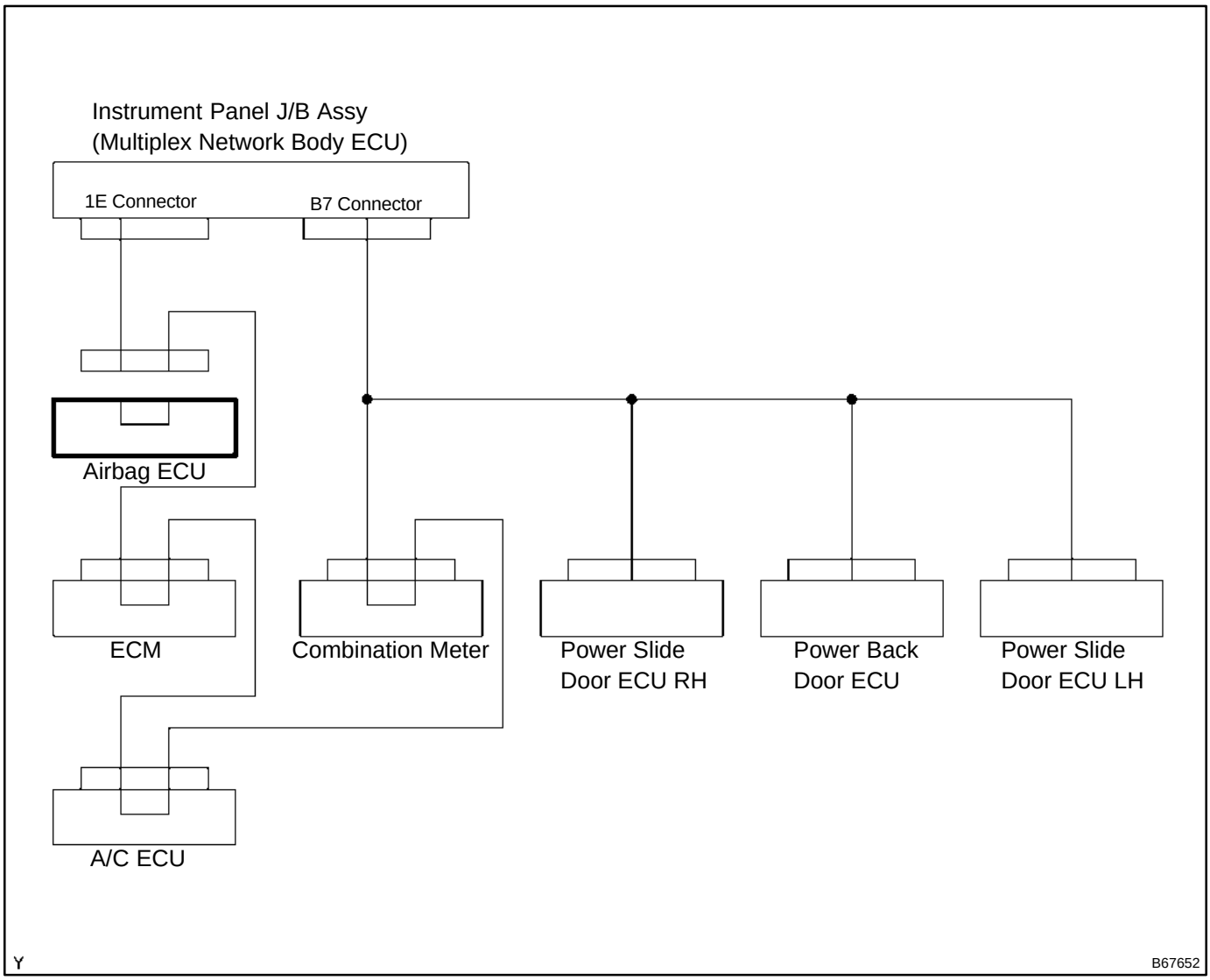
When the output of the DTC stops, there is a malfunction between the 1E connector of the instrument panel J/B assy and the combination meter.

| NG | Go to step 10 |
|---|---|

**OK**

| 2 | CHECK DTC (AIRBAG ECU) |
|---|---|

(a) Check whether the output of the DTC stops when the airbag ECU connector is disconnected.




**Standard:**

**DTC B1214 or B1215 is not output.**

HINT:

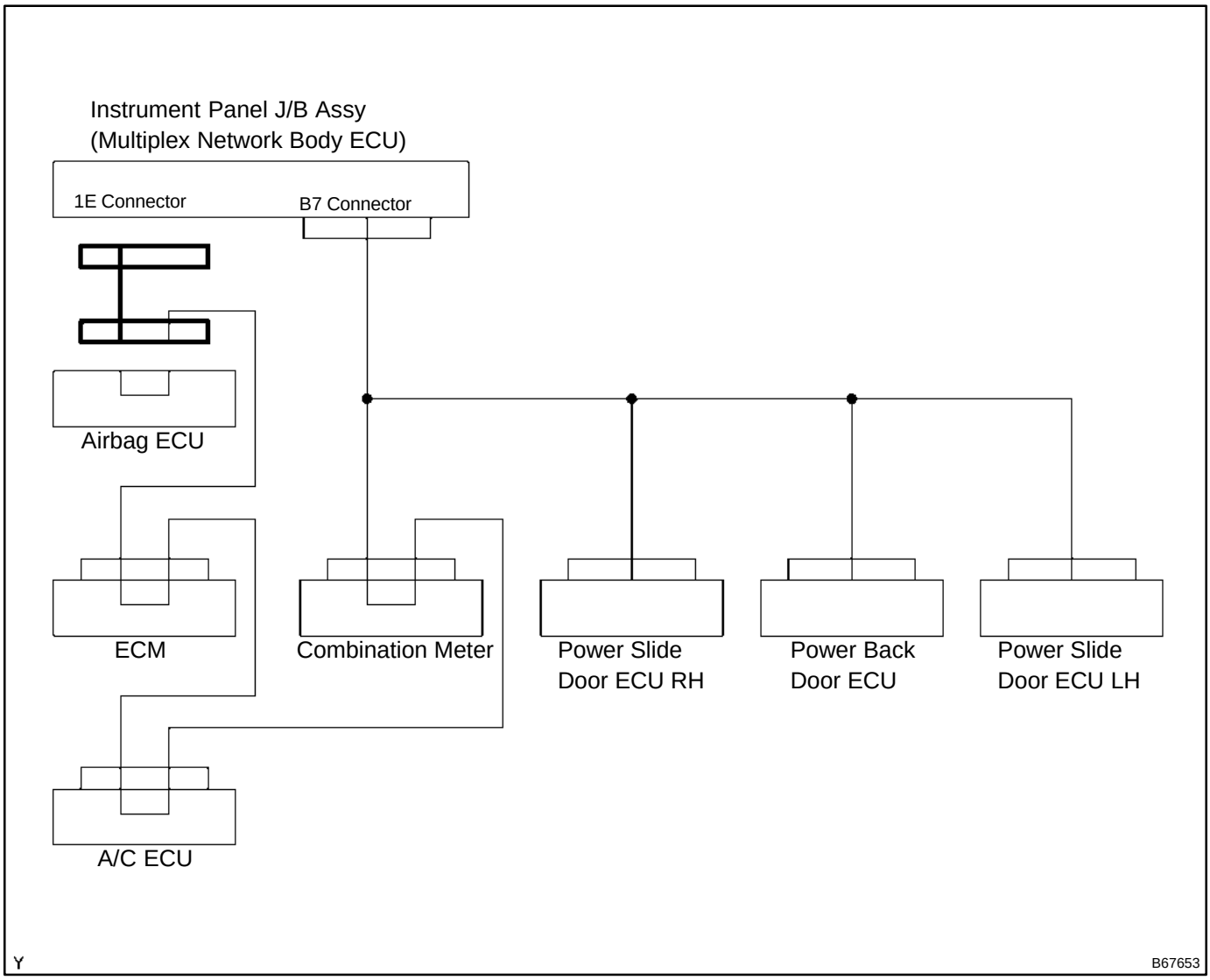
When the output of the DTC stops, the airbag ECU is malfunctioning.

| OK | REPLACE AIR BAG SENSOR ASSY CENTER (AIRBAG ECU) |
|---|---|

**NG**

| 3 | CHECK WIRE HARNESS (INSTRUMENT PANEL J/B ASSY - AIRBAG ECU) |
|---|---|

(a) Check whether the output of the DTC stops when the 1E connector of the instrument panel J/B assy and the airbag ECU connector are disconnected.




**Standard:**

**DTC B1214 ort B1215 is not output.**

HINT:

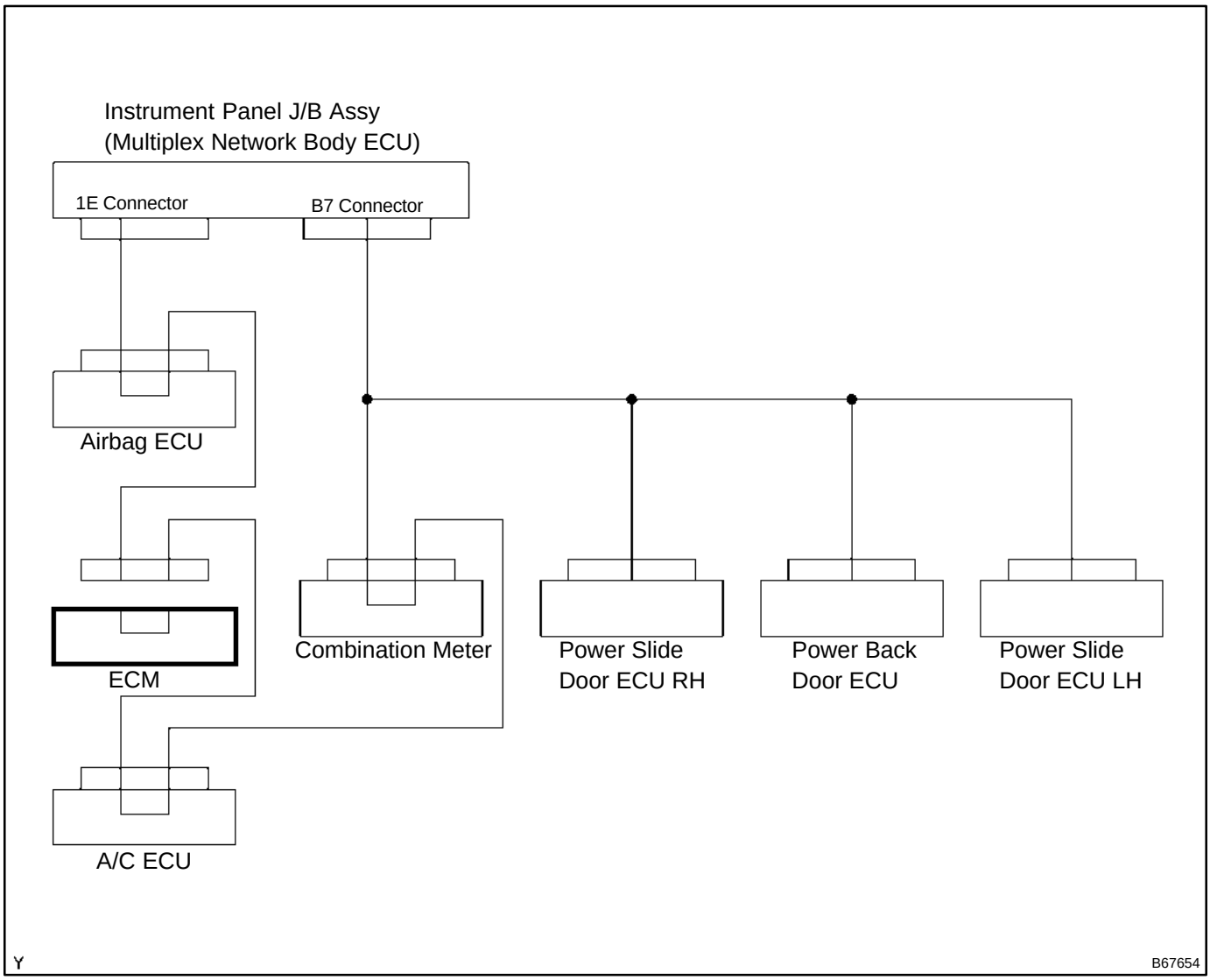
When the output of the DTC stops, the wire harness between the airbag ECU 1E connector of the instrument panel J/B assy is malfunctioning.

| | |
|---|---|
| OK | **REPAIR OR REPLACE HARNESS AND CONNECTOR (INSTRUMENT PANEL J/B ASSY - AIRBAG ECU)** |

**NG**

| 4 | CHECK DTC (ECM) |
|---|---|

(a) Check whether the output of the DTC stops when the ECM connector is disconnected.




**Standard:**

**DTC B1214 or B1215 is not output.**

HINT:

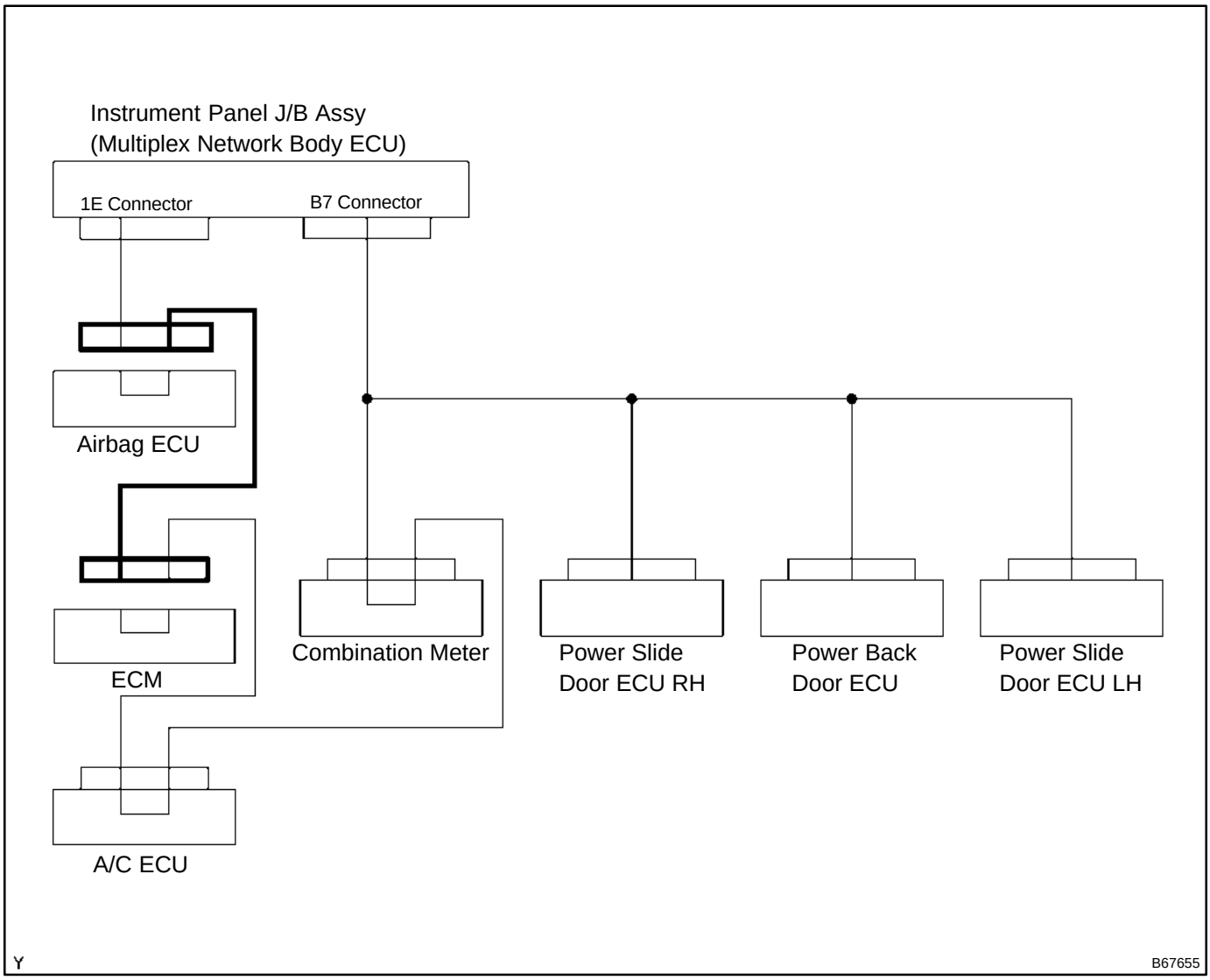
When the output of the DTC stops, the ECM is malfunctioning.

**OK** → **REPLACE ECM**

**NG**

| 5 | CHECK WIRE HARNESS (AIRBAG ECU - ECM) |
|---|---|

(a) Check whether the output of the DTC stops when the airbag ECU connector and the ECM connector are disconnected.




**Standard:**

**DTC B1214 or B1215 is not output.**

HINT:

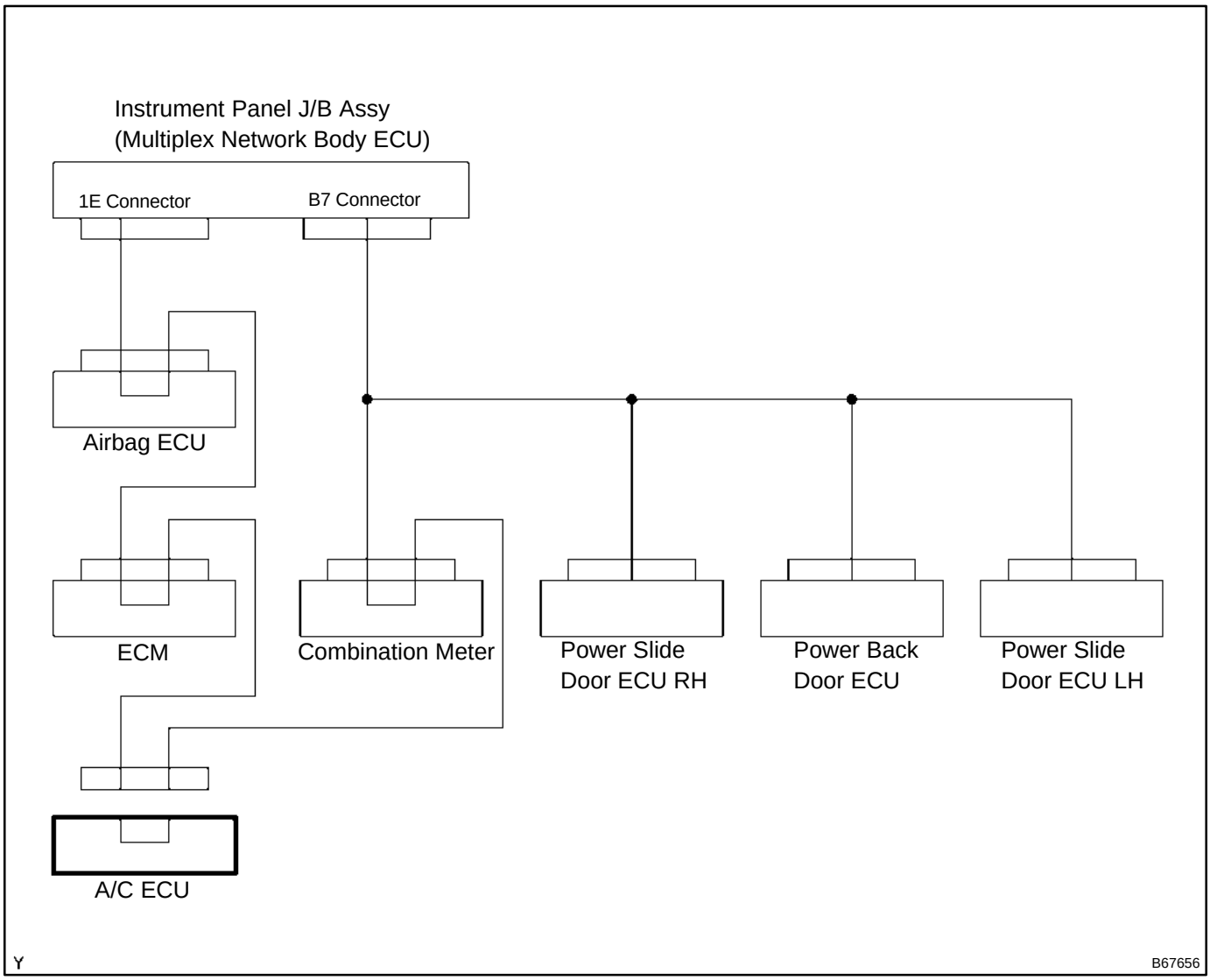
When the output of the DTC stops, the wire harness between the airbag ECU and the ECM is malfunctioning.

| | |
|---|---|
| OK | REPAIR OR REPLACE HARNESS AND CONNECTOR (AIRBAG ECU - ECM) |

NG

| 6 | CHECK DTC (A/C ECU) |
|---|---|

(a) Check whether the output of the DTC stops when the A/C ECU connector is disconnected.




**Standard:**

**DTC B1214 or B1215 is not output.**

HINT:

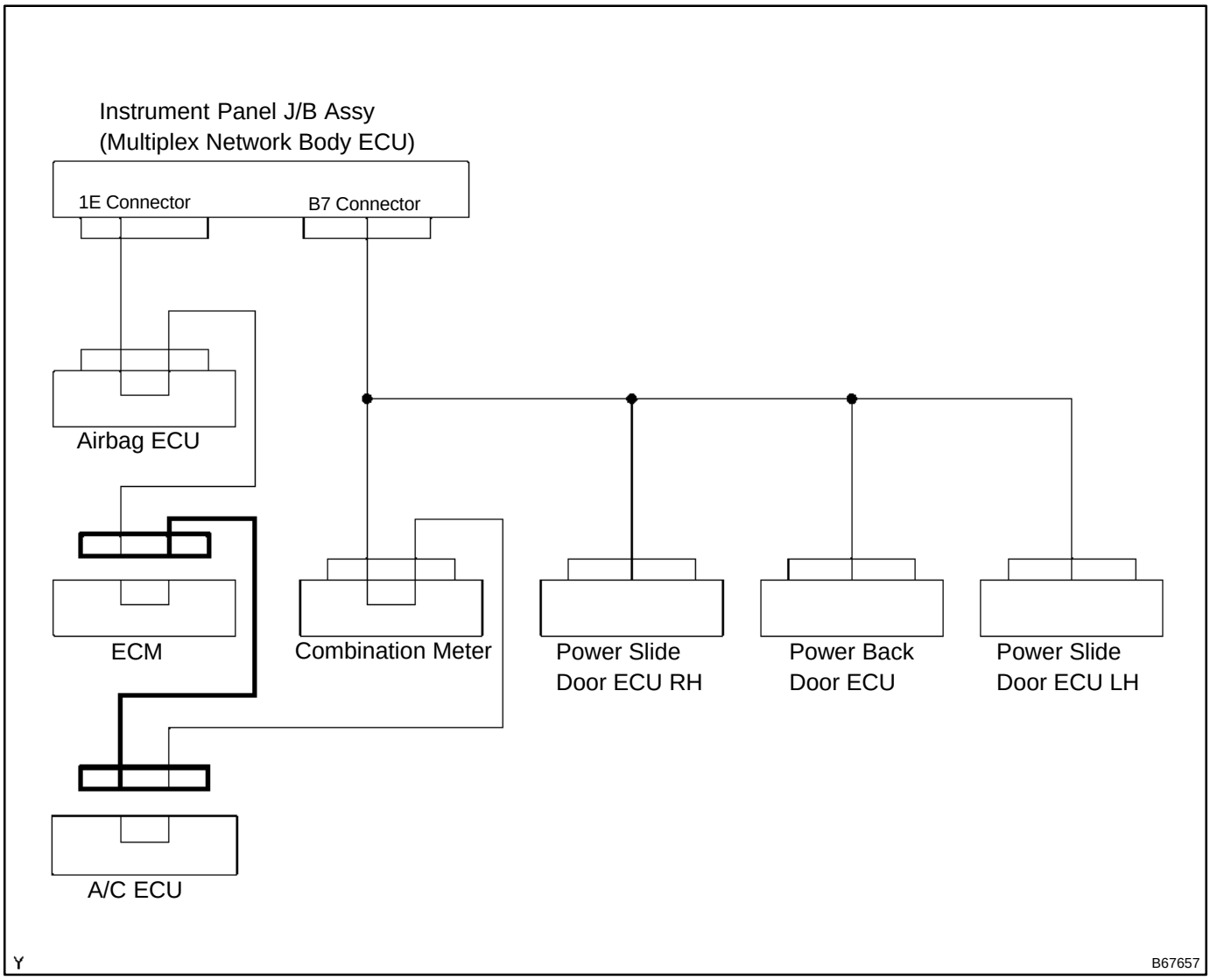
When the output of the DTC stops, the A/C ECU is malfunctioning.

**OK** → **REPLACE AIRCONDITIONER AMPLIFIER ASSY (A/C ECU)**

**NG**

| 7 | CHECK WIRE HARNESS (ECM - A/C ECU) |
|---|---|

(a) Check whether the output of the DTC stops when the ECM connector and the A/C ECU connector are disconnected.




**Standard:**

**DTC B1214 or B1215 is not output.**

HINT:

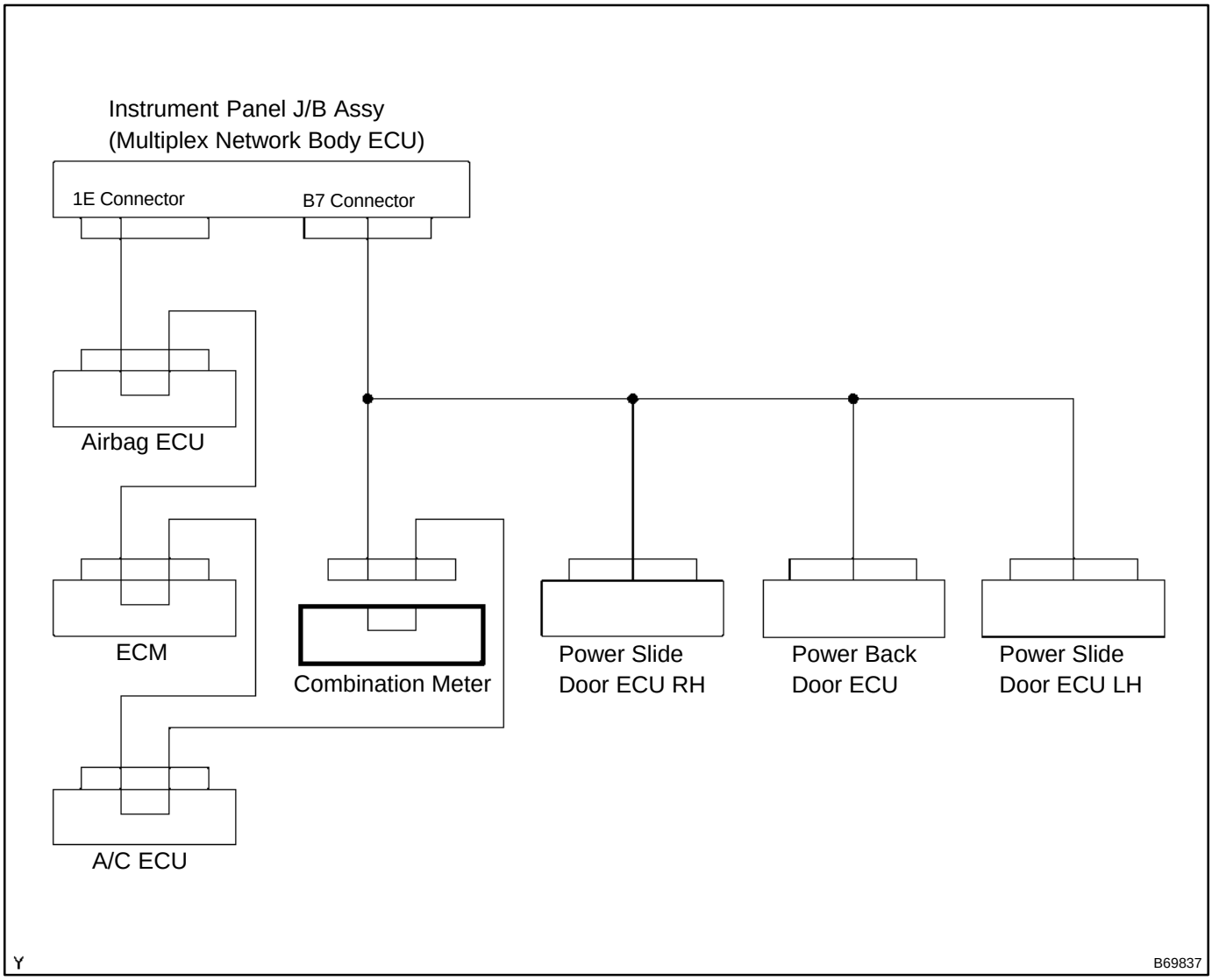
When the output of the DTC stops, the wire harness between the ECM and A/C ECU is malfunctioning.

| | |
|---|---|
| OK | **REPAIR OR REPLACE HARNESS AND CONNECTOR (ECM - A/C ECU)** |

**NG**

| 8 | CHECK DTC (COMBINATION METER) |
|---|---|

(a) Check whether the output of the DTC stops when the combination meter connector is disconnected.




**Standard:**

**DTC B1214 or B1215 is not output.**

HINT:

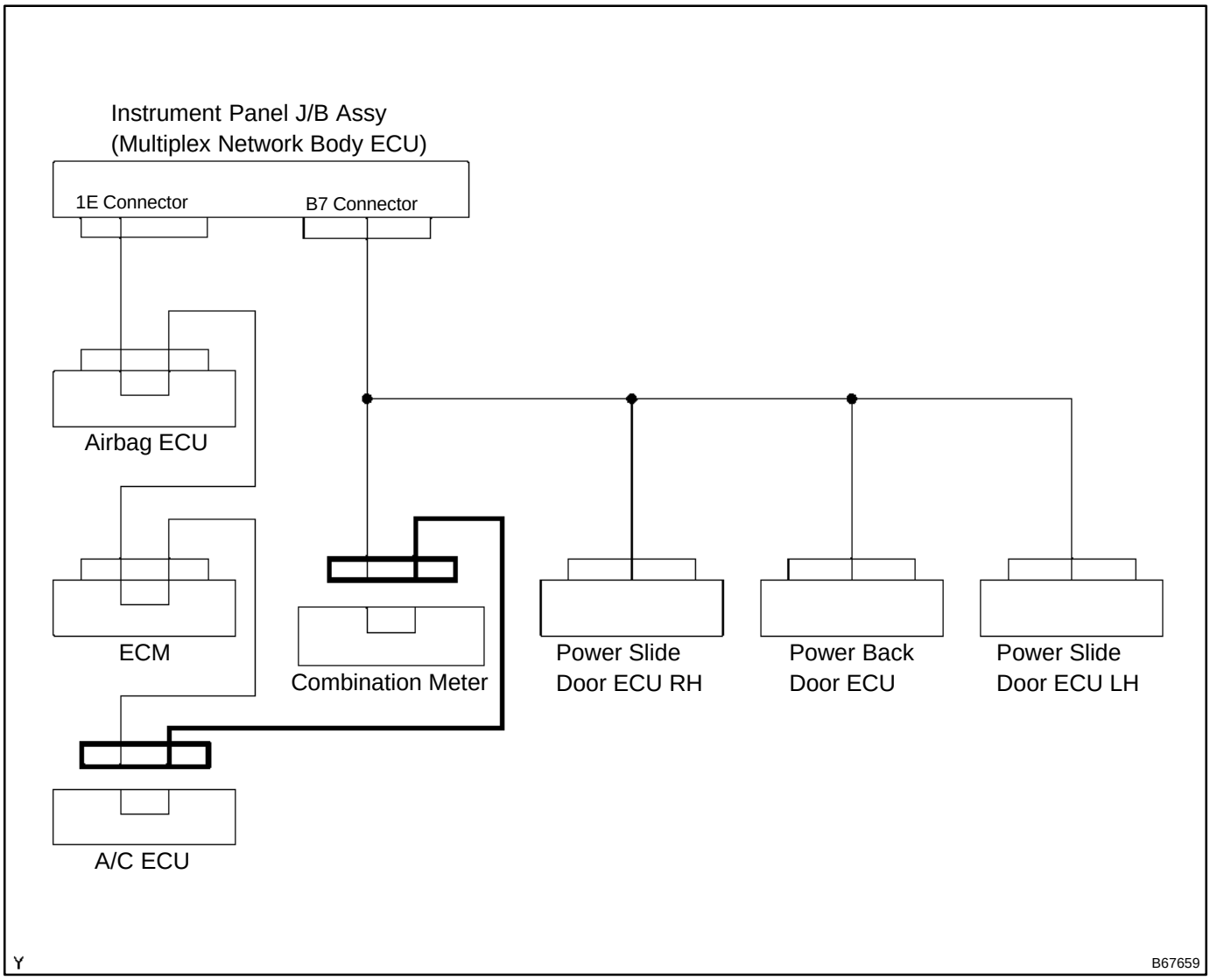
When the output of the DTC stops, the combination meter is malfunctioning.

**OK** → **REPLACE COMBINATION METER ASSY**

**NG**

| 9 | CHECK WIRE HARNESS (A/C ECU - COMBINATION METER) |
|---|---|

(a) Check whether the output of the DTC stops when the A/C ECU and the combination meter connector are disconnected.




**Standard:**

**DTC B1214 or B1215 is not output.**

HINT:

When the output of the DTC stops, the wire harness between the A/C ECU and combination meter is malfunctioning.

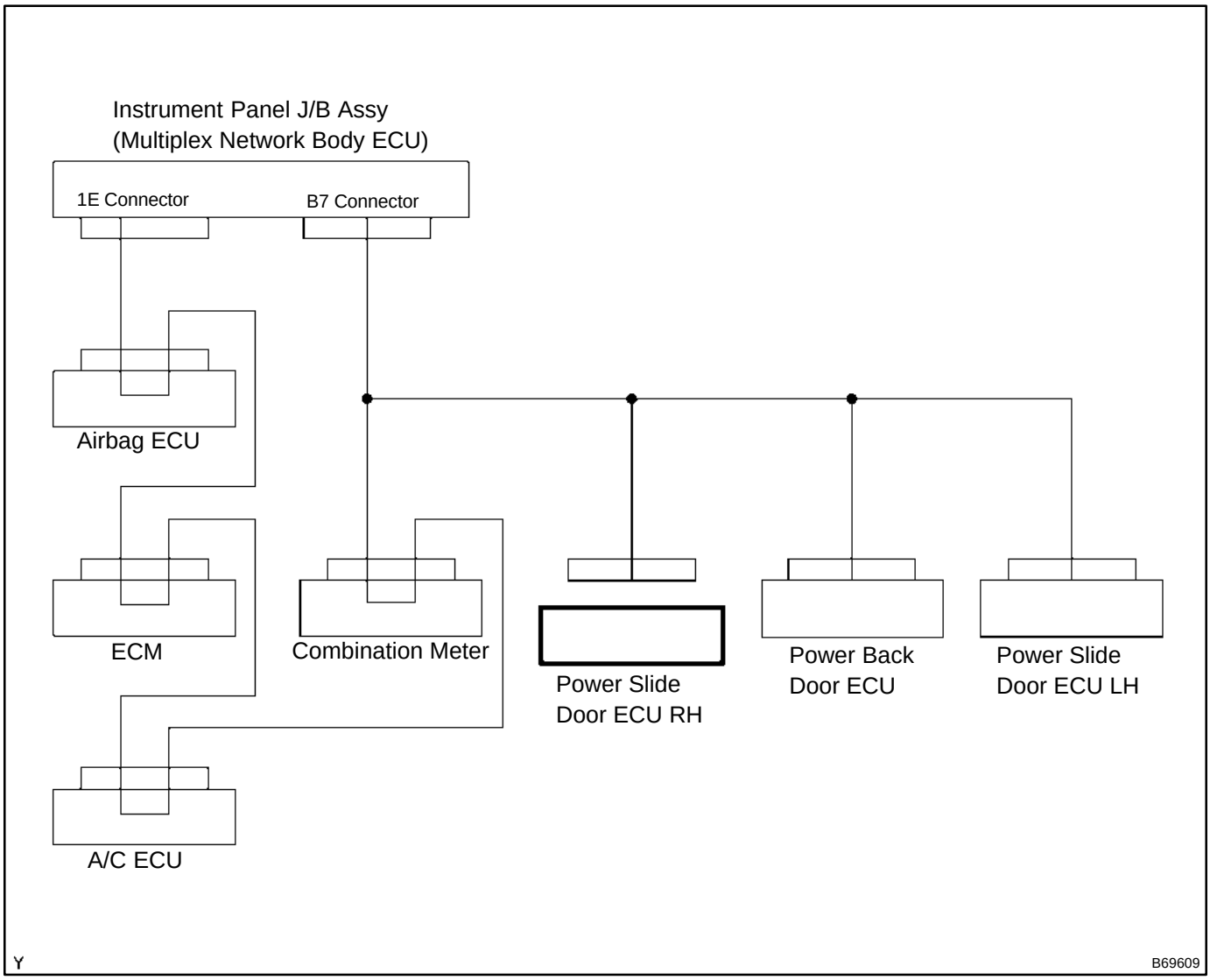
| OK | REPAIR OR REPLACE HARNESS AND CONNECTOR (A/C ECU - COMBINATION METER) |
|---|---|

NG

| REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY (BODY ECU) |
|---|

| 10 | CHECK DTC (POWER SLIDE DOOR ECU RH) |
|---|---|

(a) Check whether the output of the DTC stops when the power slide door ECU RH connector is disconnected.




**Standard:**

**DTC B1214 or B1215 is not output.**

HINT:

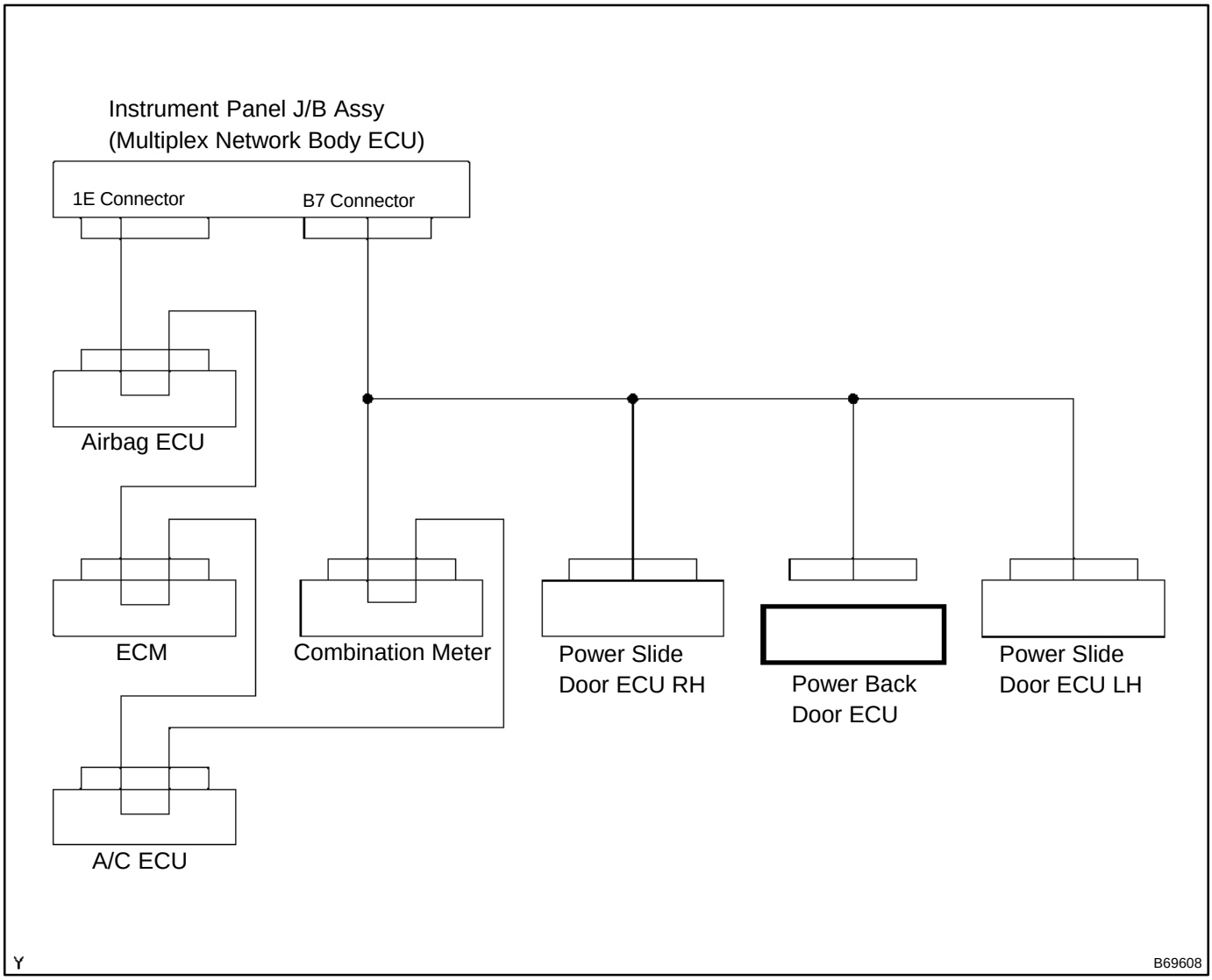
When the output of the DTC stops, the power slide door ECU RH is malfunctioning.

| | |
|---|---|
| OK | **REPLACE MULTIPLEX NETWORK DOOR ECU REAR RH (POWER SLIDE DOOR ECU RH)** |

**NG**

| . 11 | CHECK DTC (POWER BACK DOOR ECU) |
|---|---|

(a) Check whether the output of the DTC stops when the power back door ECU connector is disconnected.




**Standard:**

**DTC B1214 or B1215 is not output.**

HINT:

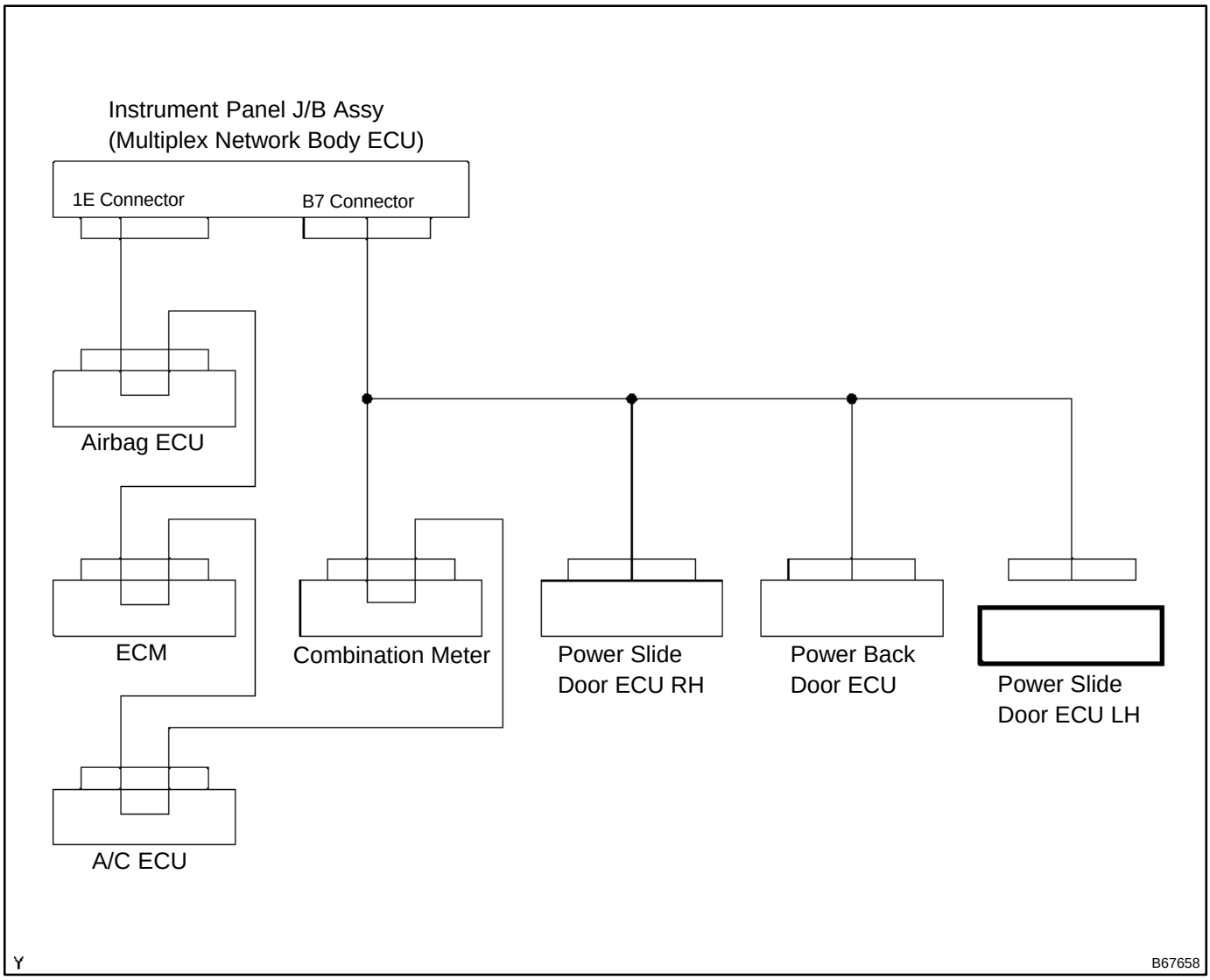
When the output of the DTC stops, the power back door ECU is malfunctioning.

| | |
|---|---|
| **OK** | **REPLACE MULTIPLEX NETWORK DOOR ECU BACK** |

**NG**

| 12 | CHECK DTC (POWER SLIDE DOOR ECU LH) |
|---|---|

(a) Check whether the output of the DTC stops when the power slide door ECU LH connector is disconnected.




**Standard:**

**DTC B1214 or B1215 is not output.**

HINT:

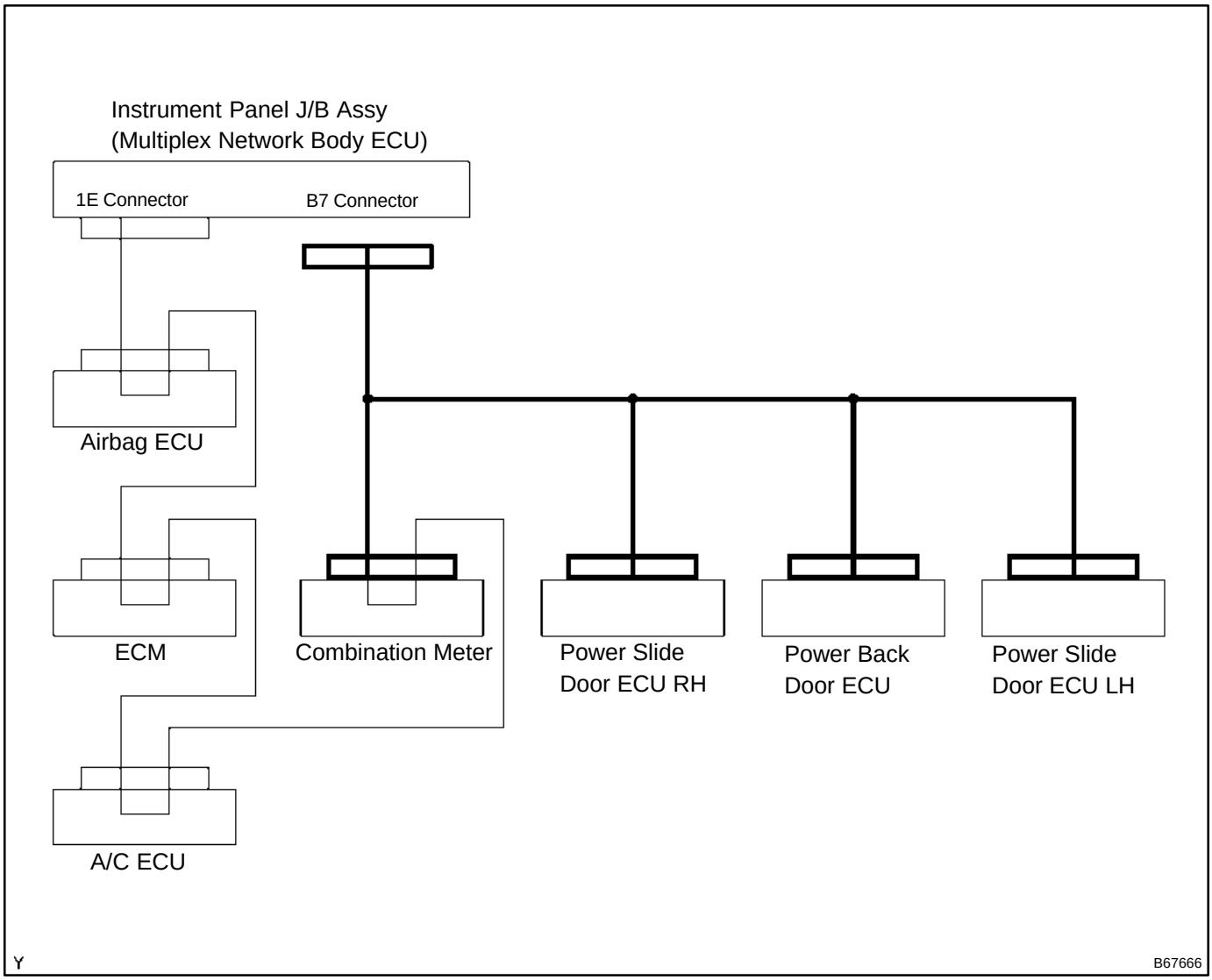
When the output of the DTC stops, the power slide door ECU LH is malfunctioning.

| | |
|---|---|
| OK | **REPLACE MULTIPLEX NETWORK DOOR ECU REAR LH** |

**NG**

| 13 | CHECK WIRE HARNESS (MULTIPLEX NETWORK BODY ECU - COMBINATION METER) |
|---|---|

(a) Check whether the output of the DTC stops when the B7 connector of the body ECU is disconnected.




**Standard:**

**DTC B1214 or B1215 is not output.**

HINT:

When the output of the DTC stops, the wire harness between the B7 connector of the body ECU and the power slide door ECU RH is malfunctioning.

| OK | REPAIR OR REPLACE HARNESS AND CONNECTOR (BODY ECU - COMBINATION METER) |
|---|---|

NG

| REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY |
|---|

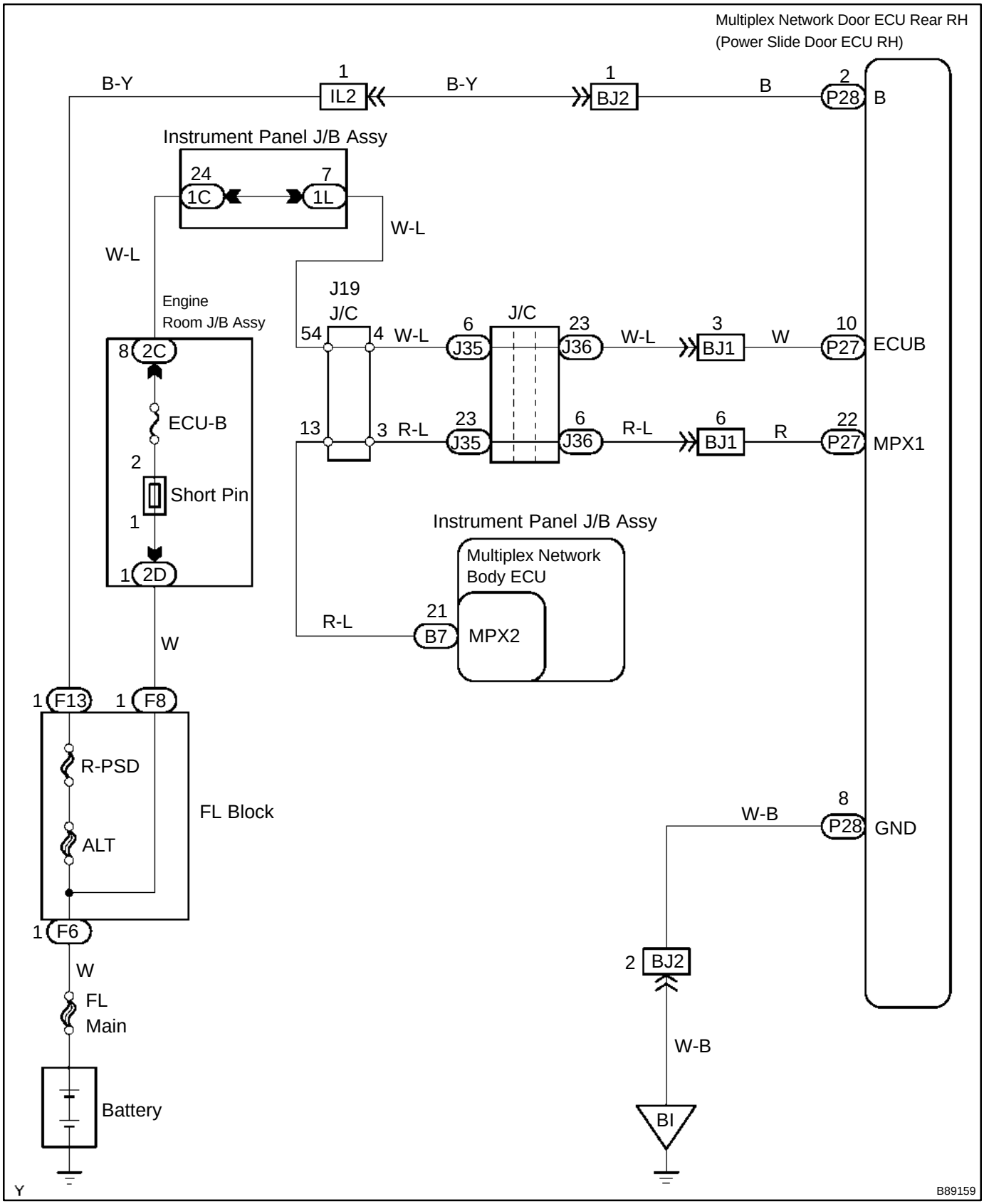
# DTC B1216 RR-DOOR ECU COMMUNICATION STOP

## CIRCUIT DESCRIPTION

DTC B1216 is output when communication between the power slide door ECU RH and the body ECU stops for more than 10 seconds.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1216 | RR-DOOR ECU communication stops | • Multiplex network door ECU rear RH (Power slide door ECU RH)<br>• Wire harness |

# WIRING DIAGRAM

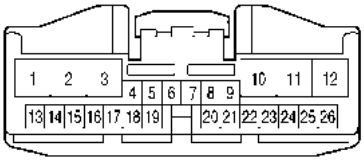


# INSPECTION PROCEDURE

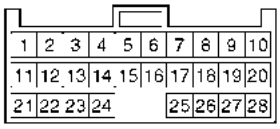
## 1 CHECK RESISTANCE OF COMMUNICATION LINE

**Wire Harness Side**

P27
Multiplex Network Door ECU Rear RH
(Power Slide Door ECU RH)




B7
Multiplex Network Body ECU




B67679

(a) Disconnect the P27 and B7 ECU connectors.
(b) Check the resistance between the wire harness side connectors.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| P27-22 (MPX1) - B7-21 (MPX2) | Below 1 Ω |

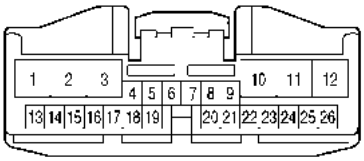
**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

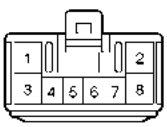
## 2 CHECK MULTIPLEX NETWORK DOOR ECU REAR RH (POWER SLIDE DOOR ECU RH) (POWER SOURCE)

**Wire Harness Side**

P27
Multiplex Network Door ECU Rear RH
(Power Slide Door ECU RH)




P28
Multiplex Network Door ECU Rear RH
(Power Slide Door ECU RH)




B67668

(a) Disconnect the P27 and P28 ECU connectors.
(b) Check the voltage between the wire harness side connector and body ground.

**Standard:**

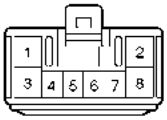
| Terminal No. | Specified Condition |
|---|---|
| P28-2 (B) - Body ground | 10 to 14 V |
| P27-10 (ECUB) - Body ground | 10 to 14 V |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

| 3 | CHECK MULTIPLEX NETWORK DOOR ECU REAR RH (POWER SLIDE DOOR ECU RH) (GROUND) |
|---|---|

**Wire Harness Side**
P28
Multiplex Network Door ECU Rear RH
(Power Slide Door ECU RH)




B67680

(a) Disconnect the P28 ECU connector.
(b) Check the resistance between the wire harness side connector and body ground.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| P28-8 (GND) - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE MULTIPLEX NETWORK DOOR ECU REAR RH**

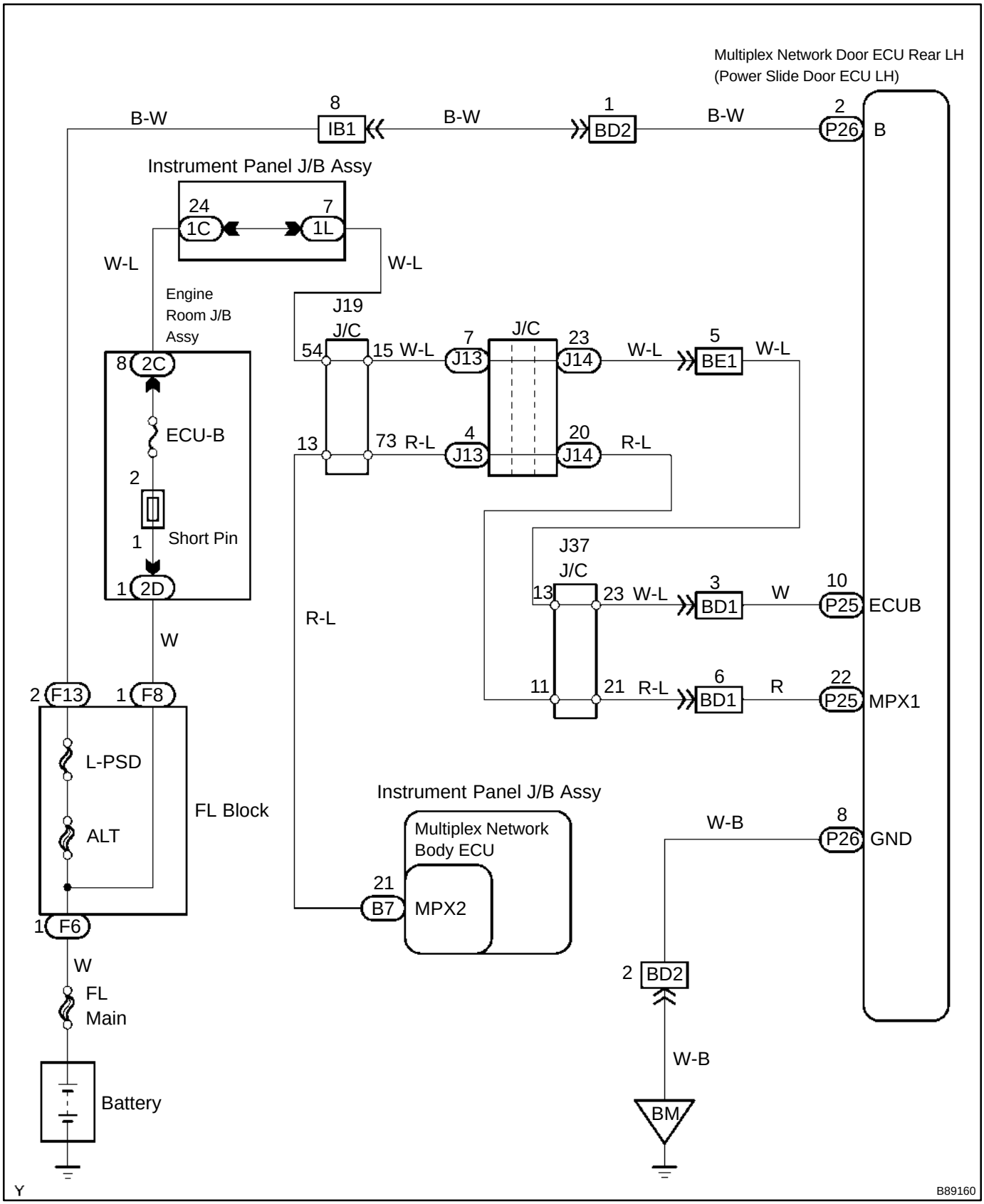
| DTC | B1217 | RL-DOOR ECU COMMUNICATION STOP |
|---|---|---|

## CIRCUIT DESCRIPTION

DTC B1217 is output when communication between the power slide door ECU LH and the body ECU stops for more than 10 seconds.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1217 | RL-DOOR ECU communication stops | • Multiplex network door ECU rear LH (Power slide door ECU LH)<br>• Wire harness |

# WIRING DIAGRAM

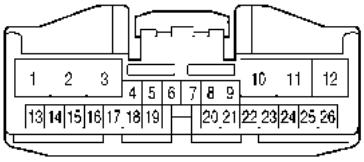


# INSPECTION PROCEDURE

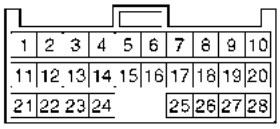
## 1 CHECK RESISTANCE OF COMMUNICATION LINE

**Wire Harness Side**

P25
Multiplex Network Door ECU Rear LH
(Power Slide Door ECU LH)




B7
Multiplex Network Body ECU




B67679

(a) Disconnect the P25 and B7 ECU connectors.
(b) Check the resistance between the wire harness side connectors.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| P25-22 (MPX1) ⇔ B7-21 (MPX2) | Below 1 Ω |

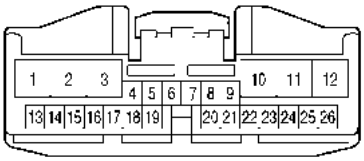
**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

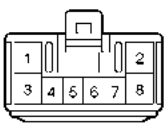
## 2 CHECK MULTIPLEX NETWORK DOOR ECU REAR LH (POWER SLIDE DOOR ECU LH) (POWER SOURCE)

**Wire Harness Side**

P25
Multiplex Network Door ECU Rear LH
(Power Slide Door ECU LH)




P26
Multiplex Network Door ECU Rear LH
(Power Slide Door ECU LH)




B67668

(a) Disconnect the P25 and P26 ECU connectors.
(b) Check the voltage between the wire harness side connector and body ground.

**Standard:**

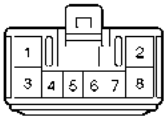
| Terminal No. | Specified Condition |
|---|---|
| P26-2 (B) - Body ground | 10 to 14 V |
| P25-10 (ECUB) - Body ground | 10 to 14 V |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

| 3 | CHECK MULTIPLEX NETWORK DOOR ECU REAR LH (POWER SLIDE DOOR ECU LH) (GROUND) |
|---|---|

**Wire Harness Side**
P26
Multiplex Network Door ECU Rear LH
(Power Slide Door ECU LH)




B67680

(a) Disconnect the P26 ECU connector.
(b) Check the resistance between the wire harness side connector and body ground.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| P26-8 (GND) - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE MULTIPLEX NETWORK DOOR ECU REAR LH**

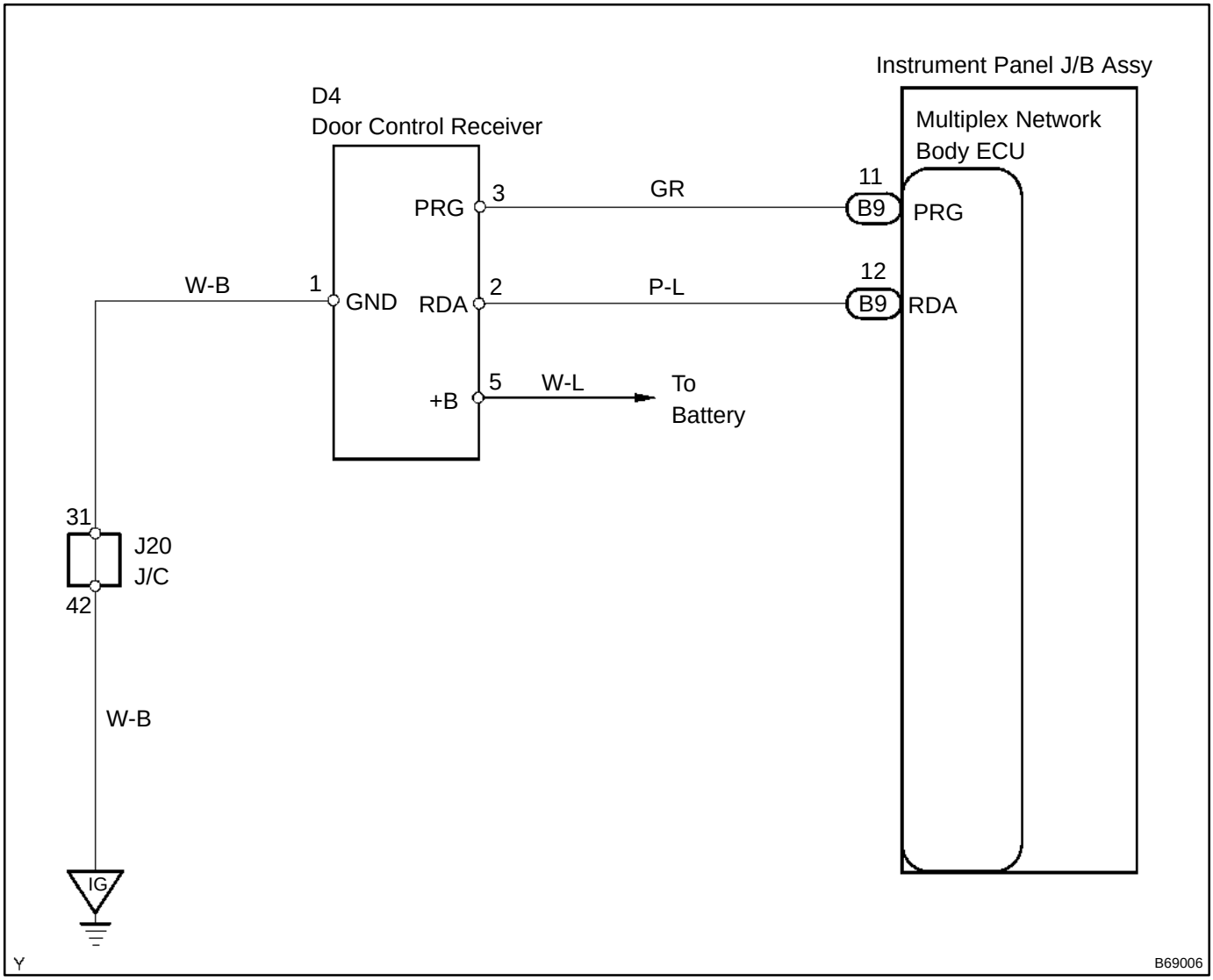
| DTC | B1242 | WIRELESS DOOR LOCK TUNER CIRCUIT MALFUNCTION |
|---|---|---|

## CIRCUIT DESCRIPTION

When a RDA signal is not input to the door control receiver within 1 second after the multiplex network body ECU outputs a PRG signal, this DTC is set.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1242 | Within 1 second after PRG signal is output from multiplex network body ECU during self-diagnostic mode, corresponding RDA signal is not input | • Wire harness<br>• Door control receiver<br>• Multiplex network body ECU |

## WIRING DIAGRAM



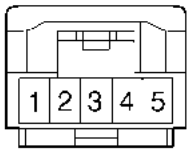
# INSPECTION PROCEDURE

| 1 | **CHECK WIRE HARNESS (DOOR CONTROL RECEIVER - MULTIPLEX NETWORK BODY ECU) (DOOR CONTROL RECEIVER OR MULTIPLEX NETWORK BODY ECU - BODY GROUND)** |
|---|---|

**Wire Harness Side**

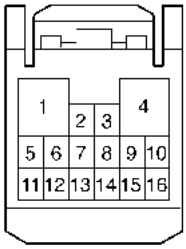
D4

Door Control Receiver




B9

Multiplex Network Body ECU




Y B68693

(a) Disconnect the D4 receiver connector.

(b) Disconnect the B9 ECU connector.

(c) Check the resistance between the wire harness side connectors.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| D4-2 (RDA) - RDA (B9-12) | Below 1 Ω |
| D4-3 (PRG) - PRG (B9-11) | Below 1 Ω |

(d) Check the voltage and resistance between the D4 receiver connector or B9 ECU connector and the body ground.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| D4-5 (+B) - Body ground | 10 to 14 V |
| D4-1 (GND) - Body ground | Below 1 Ω |
| D4-2 (RDA) or B9-12 (RDA) - Body ground | 10 kΩ or higher |
| D4-3 (PRG) or B9-11 (PRG) - Body ground | 10 kΩ or higher |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

| 2 | **REPLACE DOOR CONTROL RECEIVER WITH NORMAL ONE** |
|---|---|

(a) Check that the DTC is not output.

**OK** → **REPLACE DOOR CONTROL RECEIVER**

**NG**

**REPLACE MULTIPLEX NETWORK BODY ECU**

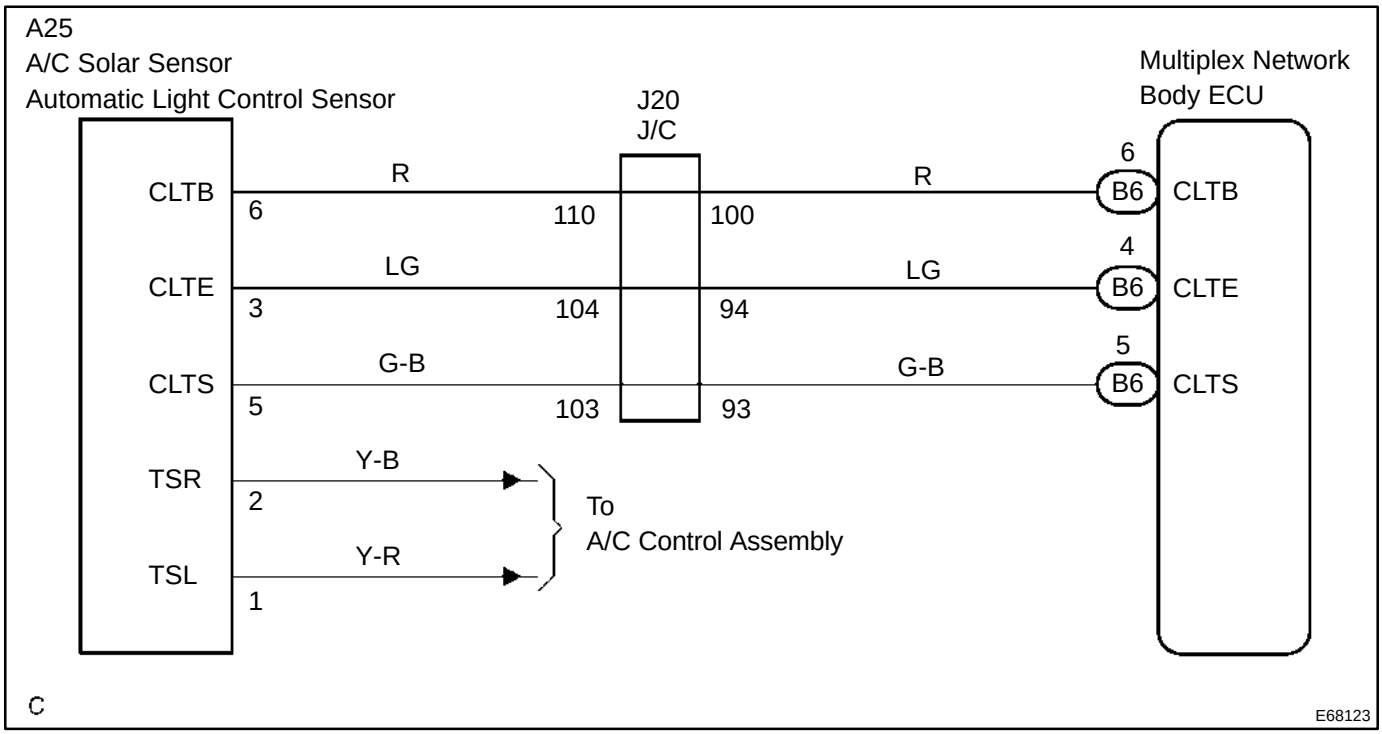
# DTC B1244 LIGHT SENSOR CIRCUIT MALFUNCTION

## CIRCUIT DESCRIPTION

This DTC is output when failure in the light sensor circuit is detected.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| B1244 | • Malfunction of automatic light control sensor<br>• Open or short of automatic light control sensor circuit | • Automatic light control sensor<br>• Harness or connector<br>• Multiplex network body ECU |

## WIRING DIAGRAM




## INSPECTION PROCEDURE

| 1 | READ VALUE OF HAND-HELD TESTER |
|---|---|

(a) Connect the hand-held tester to DLC3.
(b) Turn the ignition switch ON and push the hand-held tester main switch ON.
(c) Select the items below in the DATA LIST, and read the displays on the hand-held tester.

**BODY NO.1:**

| Item | Measurement Item/ Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| LIGHT CTRL TYPE | Light control type/ CRNT or OLD | Customized sign can be displayed. | - |

**OK** → **REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY**

**NG**

| 2 | CHECK HARNESS AND CONNECTOR(MULTIPLEX NETWORK BODY ECU - AUTOMATIC LIGHT CONTROL SENSOR) |
|---|---|

(a) Check for open or short circuit in the harness and the connector between the terminal 6 of the automatic light control sensor and the terminal B6-6 of the multiplex network body ECU (See page 01-37 ).
(b) Check for open or short circuit in the harness and the connector between the terminal 3 of the automatic light control sensor and the terminal B6-4 of the multiplex network body ECU (See page 01-37 ).
(c) Check for open or short circuit in the harness and the connector between the terminal 5 of the automatic light control sensor and the terminal B6-5 of the multiplex network body ECU (See page 01-37 ).

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

| 3 | INSPECT AUTOMATIC LIGHT CONTROL SENSOR |
|---|---|

(a) Measure voltage between the terminal 3 and the terminal 5 of the automatic light control sensor.
**Standard:**

| Tester connection | Condition | Specified voltage |
|---|---|---|
| 3 - 5 | Ignition switch OFF → ON | Signal wave form |

OK → **REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY**

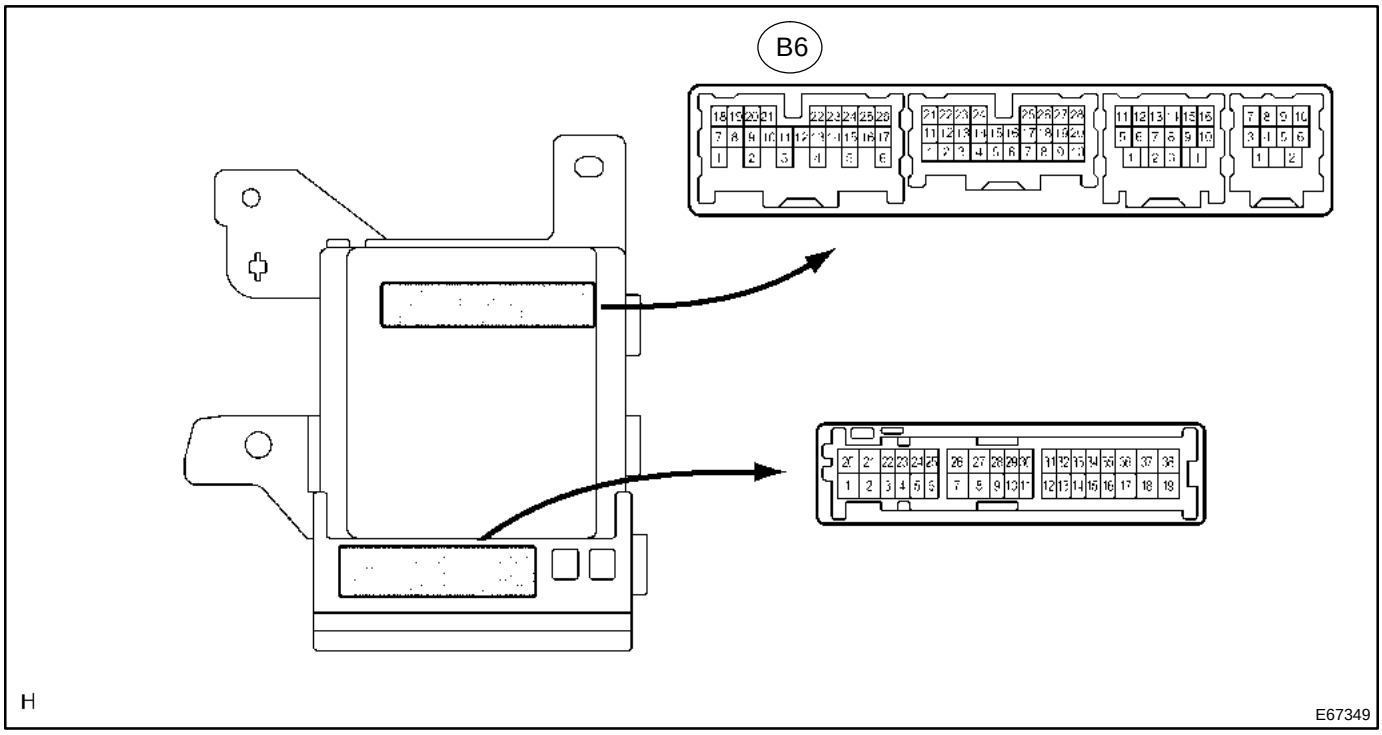
NG

| 4 | INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY |
|---|---|

(a) Measure voltage between the terminal B6-6 and the terminal B6-4 of the multiplex network body ECU in the instrument panel junction block assy.

**Standard:**

| Tester connection | Condition | Specified voltage |
|---|---|---|
| B6-4 - B6-6 | Ignition switch OFF → ON | 10 to 14 V |




NG → **REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY**

OK

**REPLACE AUTOMATIC LIGHT CONTROL SENSOR**

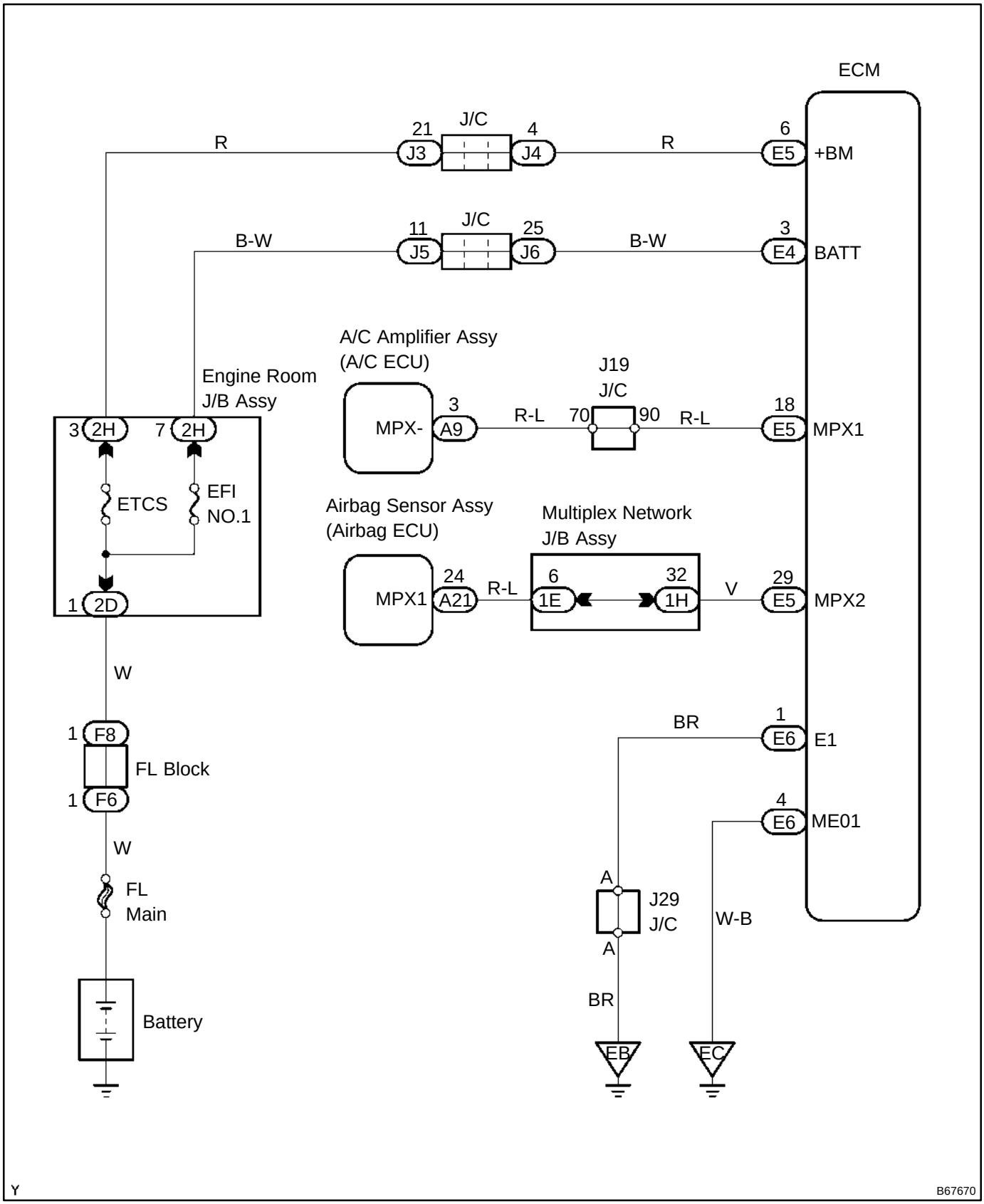
| DTC | B1261 | ECM COMMUNICATION STOP |
|---|---|---|

## CIRCUIT DESCRIPTION

DTC B1261 is output when communication between the ECM and the body ECU stops for more than 10 seconds.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1261 | ECM communication stops | • ECM<br>• Wire harness |

# WIRING DIAGRAM

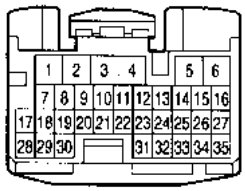


# INSPECTION PROCEDURE

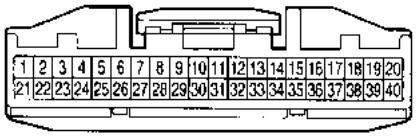
| 1 | CHECK RESISTANCE OF COMMUNICATION LINE |
|---|---|

**Wire Harness Side**

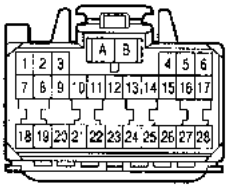
E5
ECM




A9
A/C Amplifier Assy (A/C ECU)




A21
Airbag Sensor Assy (Airbag ECU)




B67681

(a) Disconnect the E5 ECM, A9 A/C ECU and A21 airbag ECU connectors.

(b) Check the resistance between the wire harness side connectors.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| E5-18 (MPX1) - A9-3 (MPX-) | Below 1 Ω |
| E5-29 (MPX2) - A21-24 (MPX1) | Below 1 Ω |

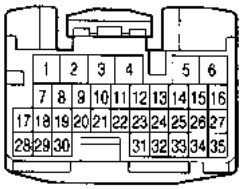
**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

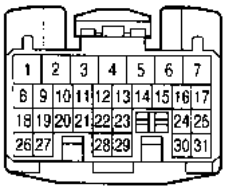
## 2 CHECK ECM (POWER SOURCE)

**Wire Harness Side**

E5
ECM



E4
ECM



B67682

(a) Disconnect the E5 and E4 ECM connectors.
(b) Check the voltage between the wire harness side connector and body ground.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| E5-6 (+BM) - Body ground | 10 to 14 V |
| E4-3 (BATT) - Body ground | 10 to 14 V |

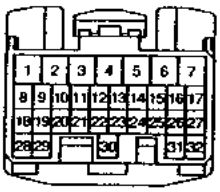
**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

## 3 CHECK ECM (GROUND)

**Wire Harness Side**

E6
ECM



B67683

(a) Disconnect the E6 ECM connector.
(b) Check the resistance between the wire harness side connector and body ground.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| E6-1 (E1) - Body ground | Below 1 Ω |
| E6-4 (ME01) - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE ECM**

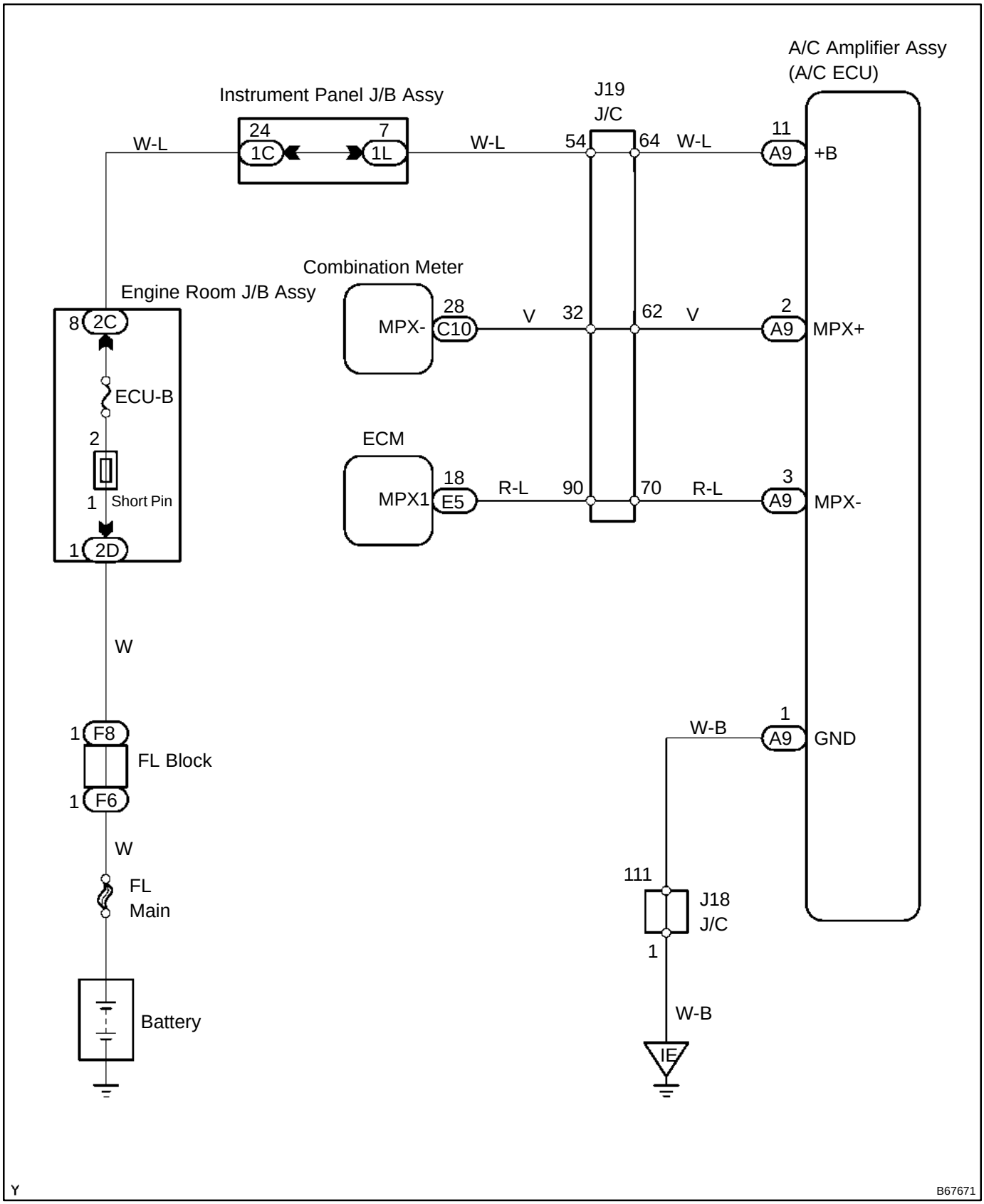
| DTC | B1262 | A/C ECU COMMUNICATION STOP |
|---|---|---|

## CIRCUIT DESCRIPTION

DTC B1262 is output when communication between the A/C ECU and the body ECU stops for more than 10 seconds.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1262 | A/C ECU communication stops | • A/C amplifier assy (A/C ECU)<br>• Wire harness |

## WIRING DIAGRAM

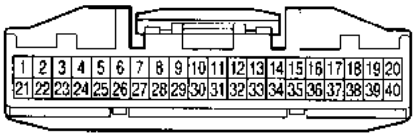


# INSPECTION PROCEDURE

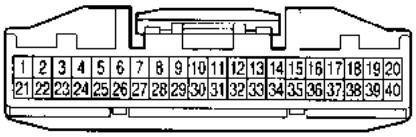
| 1 | CHECK RESISTANCE OF COMMUNICATION LINE |
|---|---|

**Wire Harness Side**

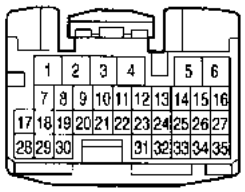
A9
A/C Amplifier Assy
(A/C ECU)




C10
Combination Meter




E5
ECM




B67684

(a) Disconnect the A9 A/C ECU, C10 meter and E5 ECM connectors.

(b) Check the resistance between the wire harness side connectors.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| A9-2 (MPX+) - C10-28 (MPX-) | Below 1 Ω |
| A9-3 (MPX-) - E5-18 (MPX1) | Below 1 Ω |

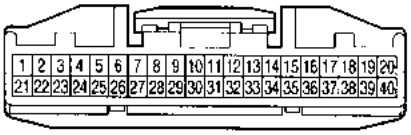
**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

| 2 | CHECK AIRCONDITIONER AMPLIFIER ASSY (A/C ECU) (POWER SOURCE) |
|---|---|

**Wire Harness Side**

A9
A/C Amplifier Assy
(A/C ECU)




B68234

(a) Disconnect the A9 ECU connector.
(b) Check the voltage between the wire harness side connector and body ground.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| A9-11 (+B) - Body ground | 10 to 14 V |

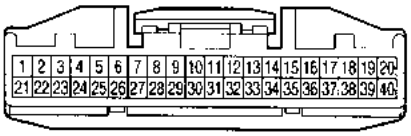
**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

| 3 | CHECK AIRCONDITIONER AMPLIFIER ASSY (A/C ECU) (GROUND) |
|---|---|

**Wire Harness Side**

A9
A/C Amplifier Assy
(A/C ECU)




B68234

(a) Disconnect the A9 ECU connector.
(b) Check the resistance between the wire harness side connector and body ground.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| A9-1 (GND) - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE AIRCONDITIONER AMPLIFIER ASSY**

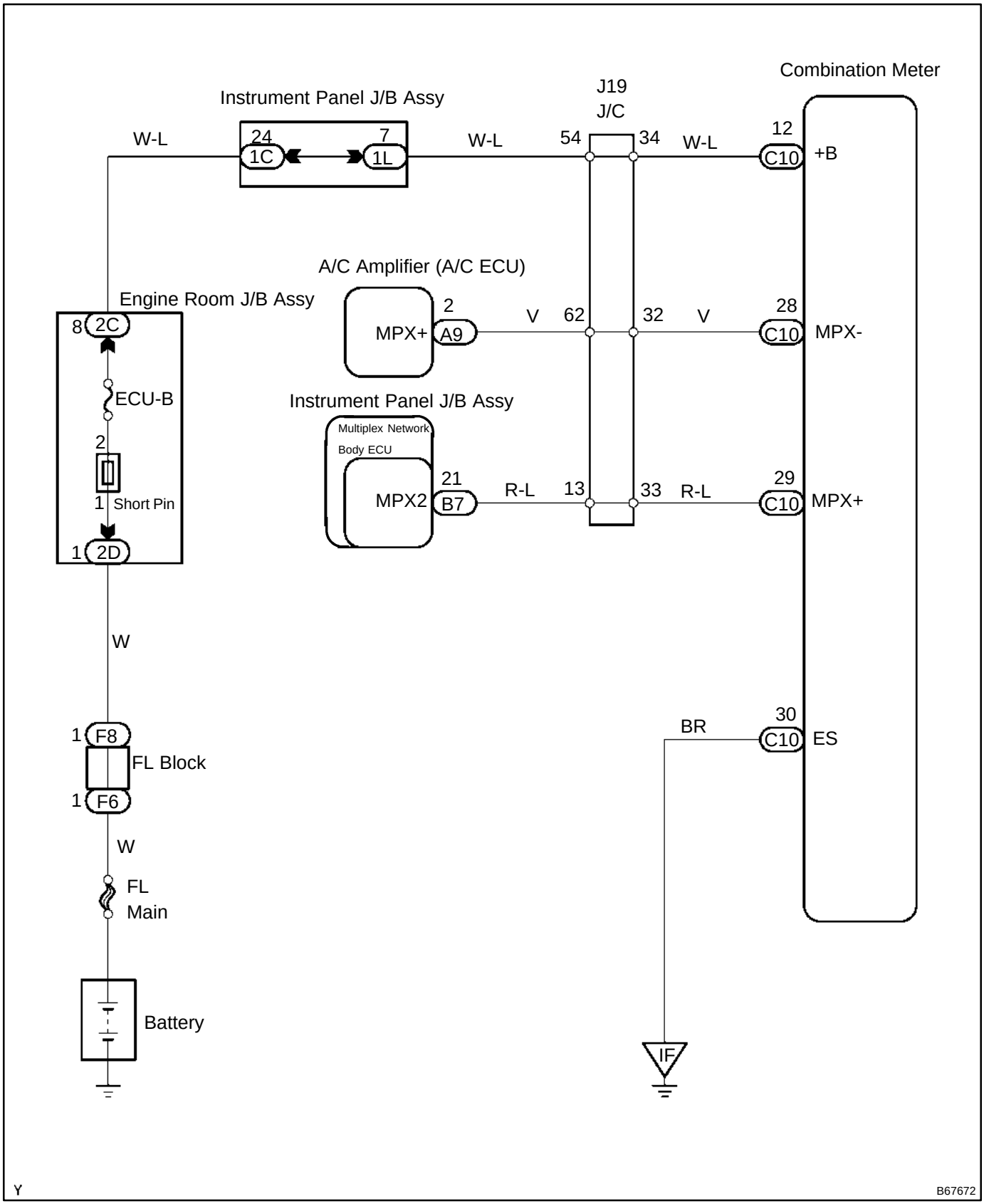
| DTC | B1271 | COMBINATION METER ECU COMMUNICATION STOP |
|---|---|---|

## CIRCUIT DESCRIPTION

DTC B1271 is output when communication between the combination meter and the body ECU stops for more than 10 seconds.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1271 | Combination meter communication stops | • Combination meter<br>• Wire harness |

## WIRING DIAGRAM

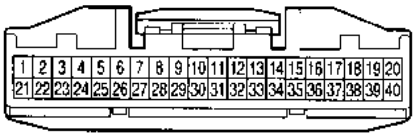


# INSPECTION PROCEDURE

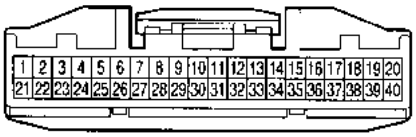
## 1 CHECK RESISTANCE OF COMMUNICATION LINE

**Wire Harness Side**

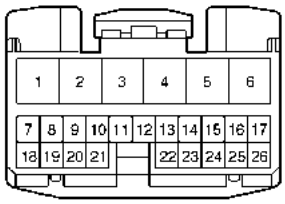
C10
Combination Meter



A9
A/C Amplifier Assy
(A/C ECU)



B7
Multiplex Network Body ECU



B68236

(a) Disconnect the C10 meter, A9 A/C ECU and B7 ECU connectors.
(b) Check the resistance between the wire harness side connectors.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| C10-28 (MPX-) - A9-2 (MPX+) | Below 1 Ω |
| C10-29 (MPX+) - B7-21 (MPX2) | Below 1 Ω |

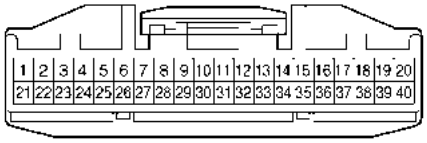
**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

## 2 CHECK COMBINATION METER ASSY (POWER SOURCE)

**Wire Harness Side**

C10
Combination Meter



B65849

(a) Disconnect the C10 meter connector.
(b) Check the voltage between the wire harness side connector and body ground.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| C10-12 (+B) - Body ground | 10 to 14 V |

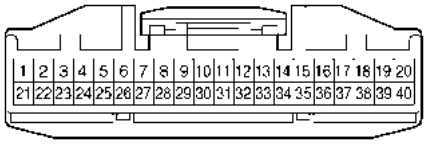
**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

## 3 CHECK COMBINATION METER ASSY (GROUND)

**Wire Harness Side**

C10
Combination Meter




B65849

(a) Disconnect the C10 meter connector.
(b) Check the resistance between the wire harness side connector and body ground.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| C10-30 (ES) - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE COMBINATION METER ASSY**

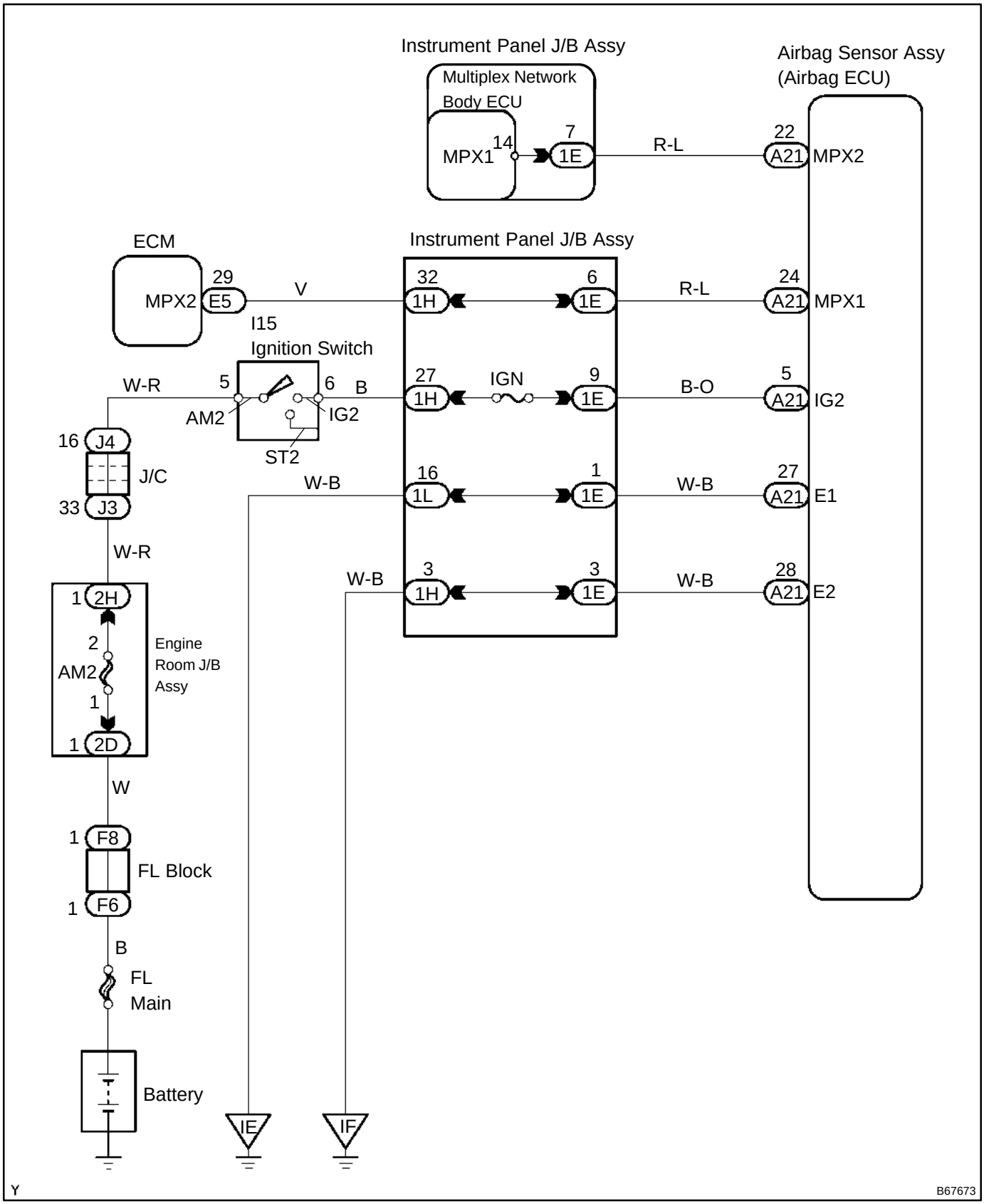
# DTC B1281 AIRBAG ECU COMMUNICATION STOP

## CIRCUIT DESCRIPTION

DTC B1281 is output when communication between the airbag ECU and the body ECU stops for more than 10 seconds.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1281 | Airbag ECU communication stops | • Airbag sensor assy (Airbag ECU)<br>• Wire harness |

## WIRING DIAGRAM

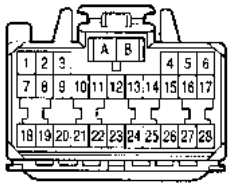


# INSPECTION PROCEDURE

## 1 CHECK RESISTANCE OF COMMUNICATION LINE

**Wire Harness Side**

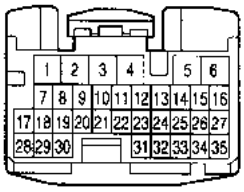
A21
Airbag Sensor Assy (Airbag ECU)




1E
Instrument Panel J/B Assy
(Body ECU)




E5
ECM




B68238

(a) Disconnect the A21 ECU, 1E J/B and E5 ECM connectors.
(b) Check the resistance between the wire harness side connectors.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| 1E-7 (MPX1) - A21-22 (MPX2) | Below 1 Ω |
| E5-29 (MPX2) - A21-24 (MPX1) | Below 1 Ω |

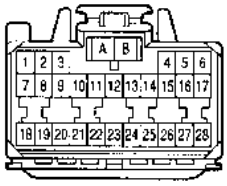
**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

## 2 CHECK AIR BAG SENSOR ASSY CENTER (AIRBAG ECU) (POWER SOURCE)

**Wire Harness Side**

A21
Airbag Sensor Assy (Airbag ECU)




B68239

(a) Turn the Ignition switch ON.
(b) Disconnect the A21 ECU connector.
(c) Check the voltage between the wire harness side connector and body ground.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| A21-5 (IG2) - Body ground | 10 to 14 V |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

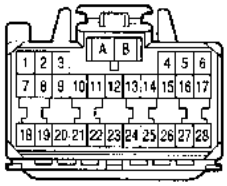
**OK**

| 3 | CHECK AIR BAG SENSOR ASSY CENTER (AIRBAG ECU) (GROUND) |
|---|---|

**Wire Harness Side**

A21

Airbag Sensor Assy (Airbag ECU)




B68239

(a) Disconnect the A21 ECU connector.

(b) Check the resistance between the wire harness side connector and body ground.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| A21-27 (E1) - Body ground | Below 1 Ω |
| A21-28 (E2) - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE AIR BAG SENSOR ASSY CENTER**

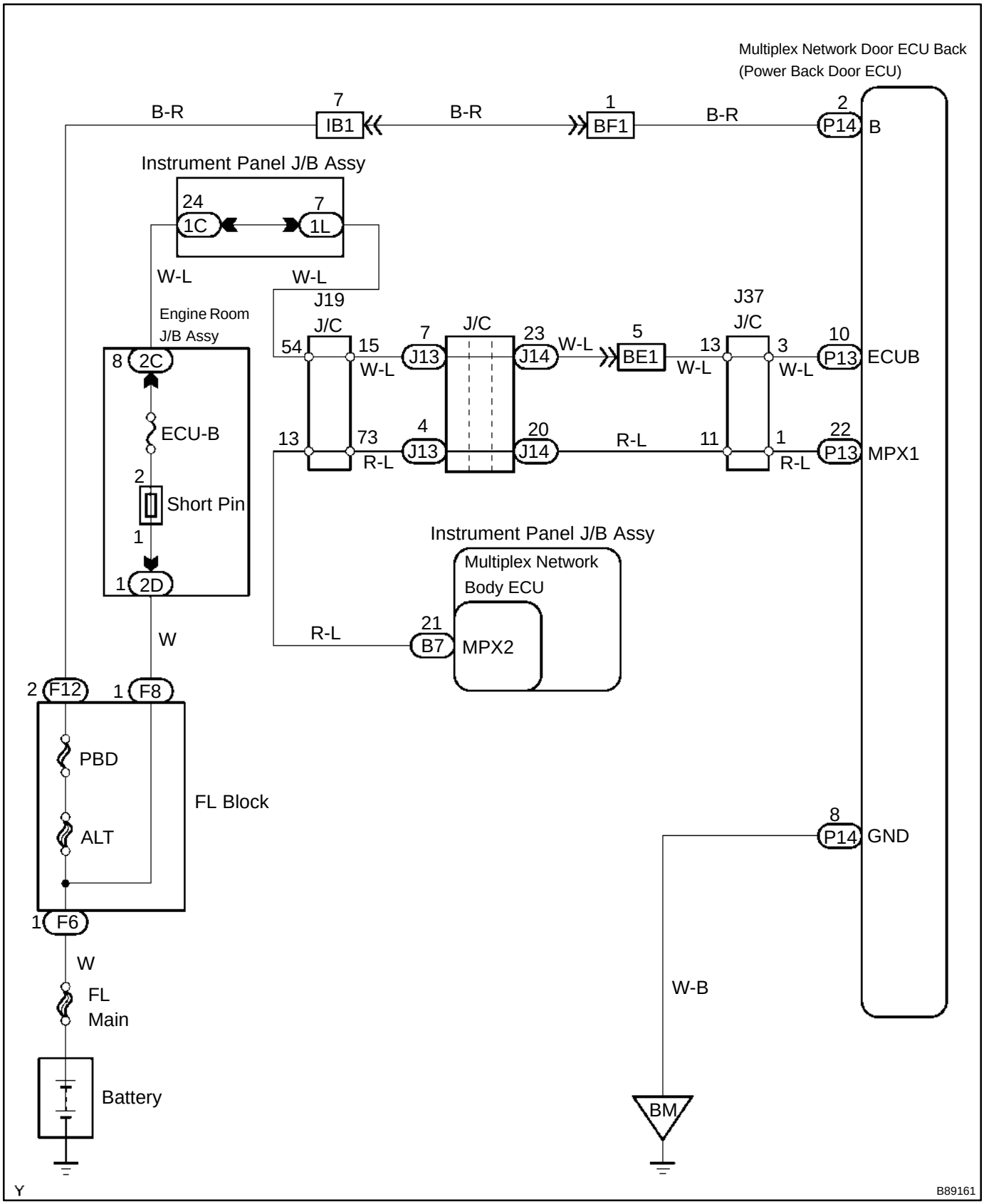
# DTC B1287 BACK DOOR ECU COMMUNICATION STOP

## CIRCUIT DESCRIPTION

DTC B1287 is output when communication between the power back door ECU and the body ECU stops for more than 10 seconds.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B1287 | Back door ECU communication stops | • Multiplex network door ECU (Power back door ECU)<br>• Wire harness |

# WIRING DIAGRAM

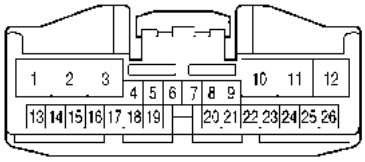


# INSPECTION PROCEDURE

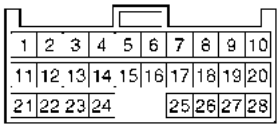
## 1 CHECK RESISTANCE OF COMMUNICATION LINE

**Wire Harness Side**

P13
Multiplex Network Door ECU Back
(Power Back Door ECU)




B7
Multiplex Network Body ECU




B67679

(a) Disconnect the P13 and B7 ECU connectors.
(b) Check the resistance between the wire harness side connectors.

**Standard:**

| Symbols (Terminal No.) | Specified Condition |
|---|---|
| P13-22 (MPX1) - B7-21 (MPX2) | Below 1 Ω |

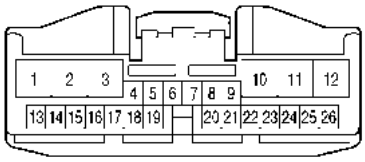
**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

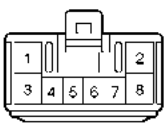
## 2 CHECK MULTIPLEX NETWORK DOOR ECU BACK (POWER BACK DOOR ECU) (POWER SOURCE)

**Wire Harness Side**

P13
Multiplex Network Door ECU Back
(Power Back Door ECU)




P14
Multiplex Network Door ECU Back
(Power Back Door ECU)




B67668

(a) Disconnect the P13 and P14 ECU connectors.
(b) Check the voltage between the wire harness side connector and body ground.

**Standard:**

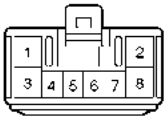
| Terminal No. | Specified Condition |
|---|---|
| P14-2 (B) - Body ground | 10 to 14 V |
| P13-10 (ECUB) - Body ground | 10 to 14 V |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

| 3 | CHECK MULTIPLEX NETWORK DOOR ECU BACK (POWER BACK DOOR ECU) (GROUND) |
|---|---|

**Wire Harness Side**
P14
Multiplex Network Door ECU Back
(Power Back Door ECU)




B67680

(a) Disconnect the P14 ECU connector.
(b) Check the resistance between the wire harness side connector and body ground.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| P14-8 (GND) - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE MULTIPLEX NETWORK DOOR ECU BACK**

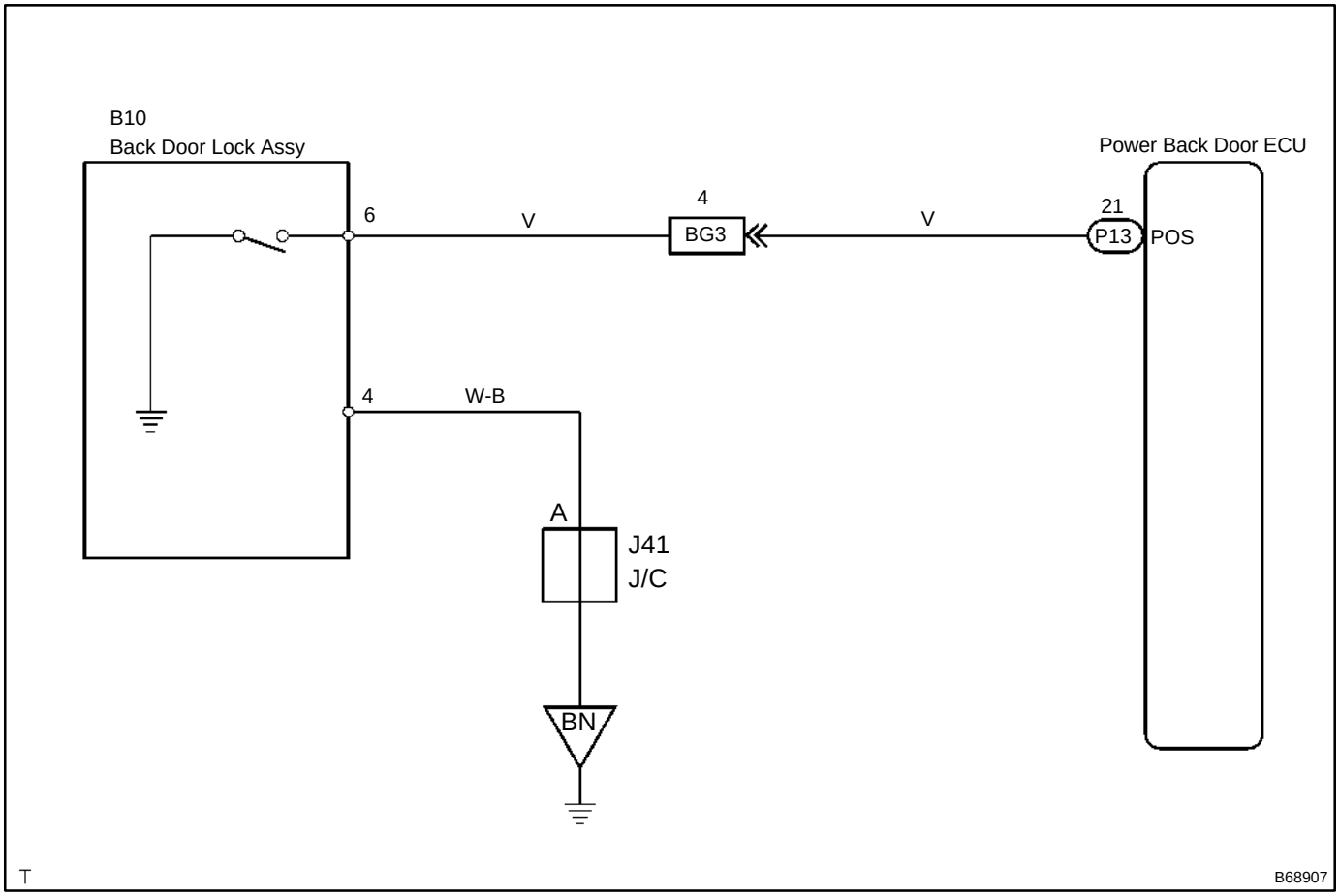
| DTC | B2215 | BACK DOOR CLOSER SWITCH MALFUNCTION |
|---|---|---|

## CIRCUIT DESCRIPTION

This DTC is output when a malfunction occurs in the position switch in the back door. This position switch detects if the back door is in the latch position and sends a position signal to the power back door ECU.

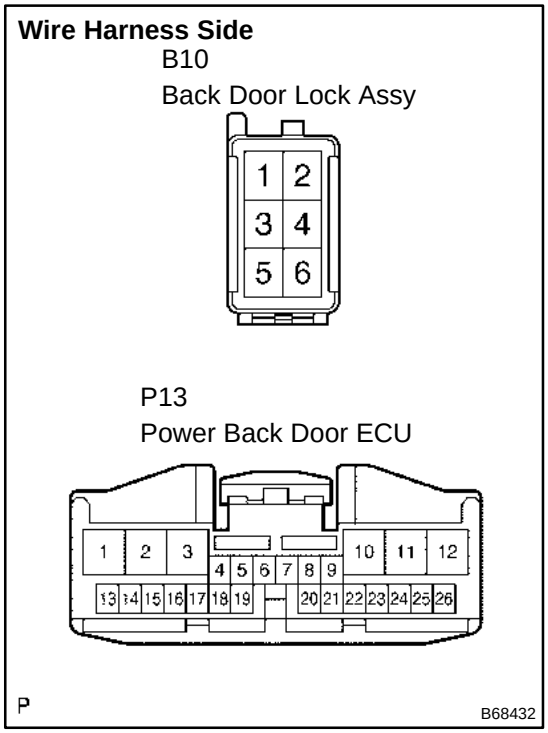
| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B2215 | Back door does not operate | • Back door lock assy<br>• Power back door ECU<br>• Wire harness |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CHECK WIRE HARNESS (BACK DOOR LOCK ASSY - POWER BACK DOOR ECU) |
|---|---|




(a) Disconnect the B10 lock and P13 ECU connectors.

(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| B10-6 - P13-21 (POS) | Below 1 Ω |

(c) Check the resistance between the B10 lock connector and body ground.

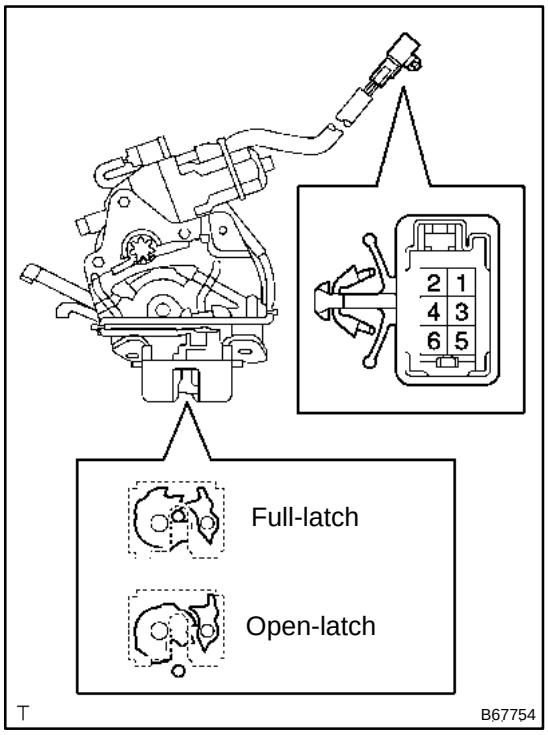
**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| B10-4 - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

| 2 | INSPECT BACK DOOR LOCK ASSY |
|---|---|




(a) Check operation of the door lock.

(1) Using a screwdriver, push the latch in order to put the back door lock in the locked condition (full-latch position).

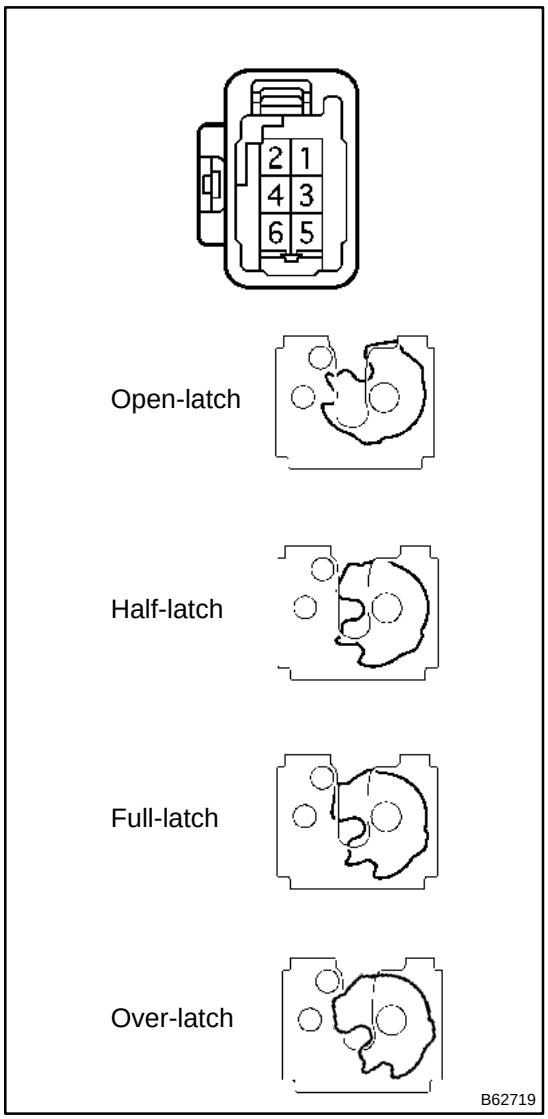
(2) Connect the battery positive (+) lead to terminal 1 and the battery negative (-) lead to terminal 2. Then, check operation of the latch.

**Standard: The latch turns to the open-latch position**

(3) Inspect motor operation when battery voltage is applied to the terminals.

**Standard:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 2<br>Battery negative (-) → Terminal 1 | Clockwise (Motor in normal rotation) |
| Battery positive (+) → Terminal 1<br>Battery negative (-) → Terminal 2 | Counterclockwise (Motor in reverse rotation) |




(b) Check the back door courtesy switch resistance.

(1) Check the resistance between the terminals of the courtesy switch.

**Standard:**

| Door Lock Latch Position | Terminal No. | Specified Condition |
|---|---|---|
| Open-latch position, Half-latch position | 3 - 4 | Below 1 Ω |
| Full-latch position, Over-latch position | | 10 kΩ or higher |

(c) Check the back door latch switch resistance.

(1) Check the resistance between the terminals of the latch switch.

**Standard:**

| Door Lock Latch Position | Terminal No. | Specified Condition |
|---|---|---|
| Open-latch position, Over-latch position | 4 - 5 | Below 1 Ω |
| Half-latch position, Full-latch position | | 10 kΩ or higher |

(d) Check the position switch resistance.

(1) Connect the battery positive (+) lead to connector terminal 1 and the negative (-) lead to connector terminal 2.

**Standard:**

| Door Lock Latch Position | Terminal No. | Specified Condition |
|---|---|---|
| Any position other than motor stop position (Motor in operation) | 4 - 6 | Below 1 Ω |
| Motor stop position (Gear in original position | | 10 kΩ or higher |

**NG** → **REPLACE BACK DOOR LOCK ASSY**

**OK**

**REPLACE POWER BACK DOOR ECU**

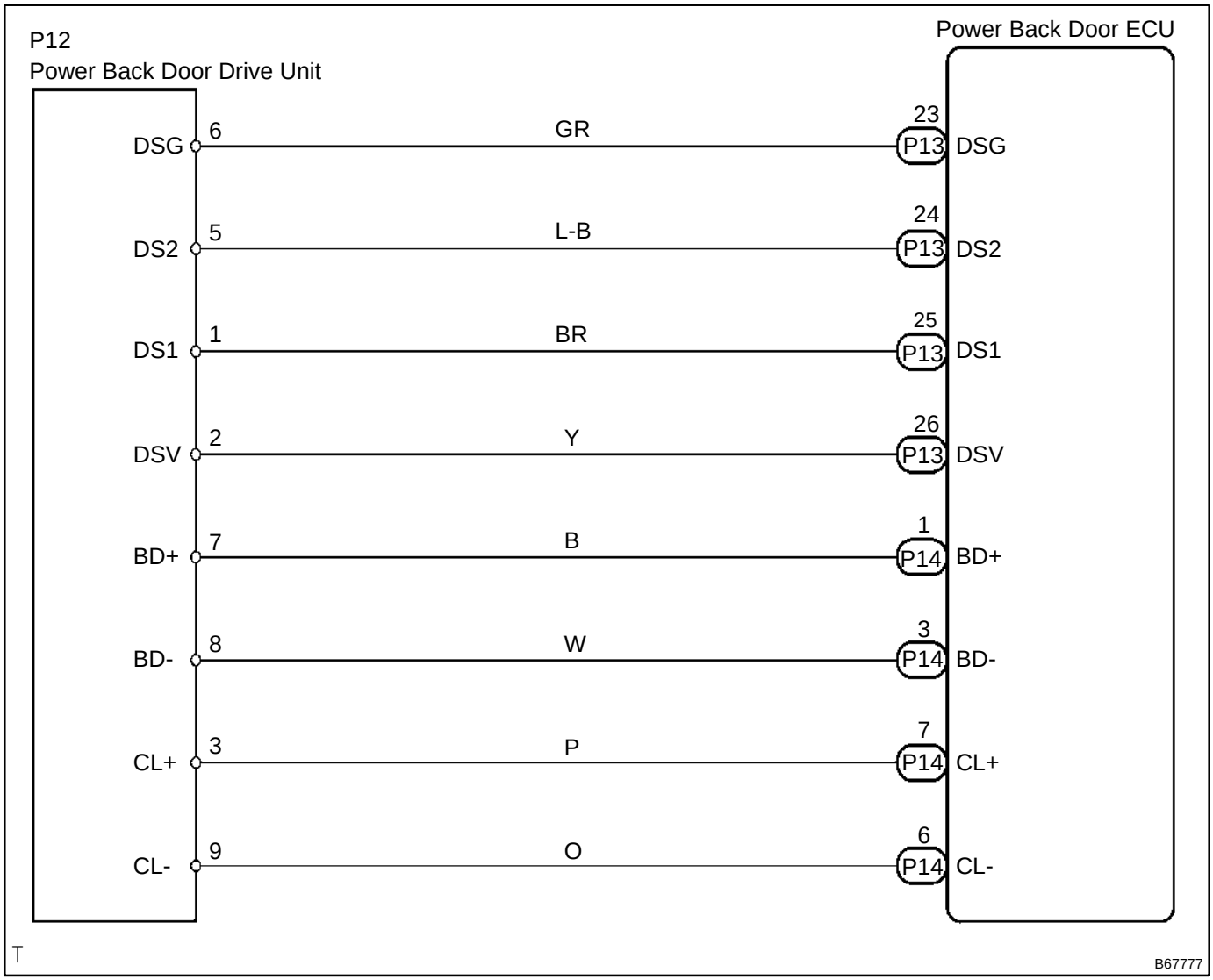
# DTC B2222 PBD PULSE SENSOR MALFUNCTION

## CIRCUIT DESCRIPTION

- A pulse sensor is built into the back door for a jam and foreign object detection and for back door position detection. The jam and foreign object detection feature of the pulse sensor monitors the operating speed of the back door while the power back door is in operation. The back door position detection feature of the pulse sensor monitors the back door location. If the back door position detection feature outputs a pulse signal that is out of the normal range, the power back door ECU will set DTC B2222.
- If DTC B2222 sets, the power back door system will be turned off. Thus, the back door can be moved freely and will be switched to manual operation mode (not electrically controlled).
- In order to restore the power back door system to normal operation mode, first solve the problem indicated by DTC B2222 and then manually close the back door fully (reset operation).

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B2222 | Power back door does not operate | • Wire harness<br>• Power back door drive unit<br>• Power back door ECU |

## WIRING DIAGRAM

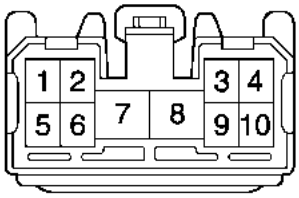


# INSPECTION PROCEDURE

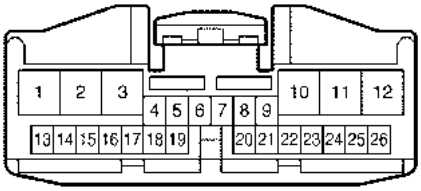
| 1 | **CHECK WIRE HARNESS (POWER BACK DOOR DRIVE UNIT - POWER BACK DOOR ECU)** |
|---|---|

**Wire Harness Side**

P12
Power Back Door Drive Unit




T P13
Power Back Door ECU




B68455

(a) Disconnect the P12 unit and P13 ECU connectors.
(b) Check the resistance between the wire harness side connectors.

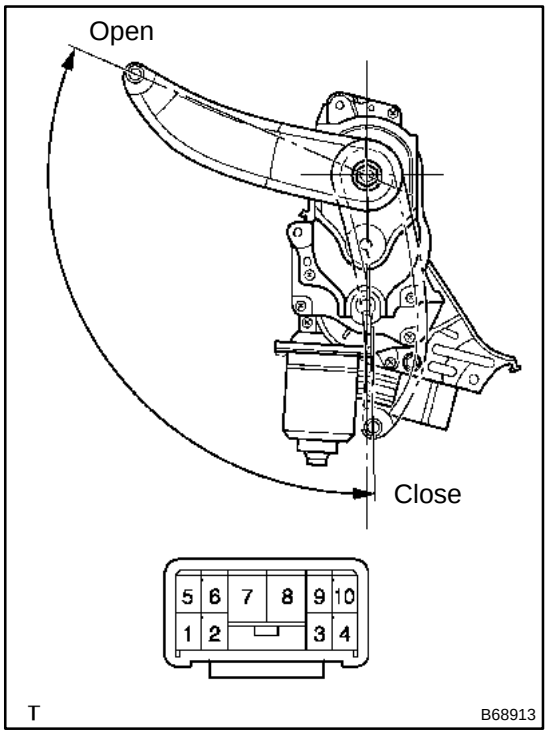
**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P12-6 - P13-23 (DSG) | Below 1 Ω |
| P12-5 - P13-24 (DS2) | |
| P12-1 - P13-25 (DS1) | |
| P12-2 - P13-26 (DSV) | |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

## 2 INSPECT POWER BACK DOOR DRIVE UNIT




(a) Remove the unit.

(b) Connect the battery positive (+) lead to terminal 3 and battery negative (-) terminal lead to terminal 9.

(c) Apply battery voltage to the terminals and check the motor operation.

**Standard:**

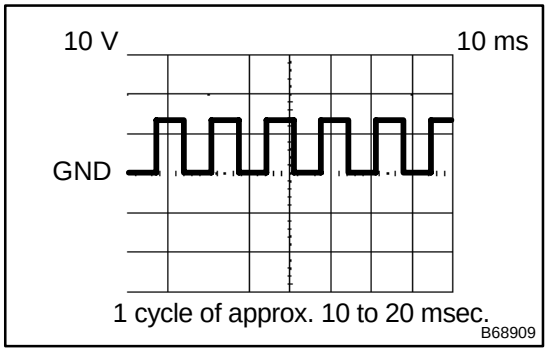
| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 8<br>Battery negative (-) → Terminal 7 | Open |
| Battery positive (+) → Terminal 7<br>Battery negative (-) → Terminal 8 | Close |

(d) Check the resistance of the clutch terminals.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| 3 - 9 | 4.0 Ω |

(e) Reinstall the unit with the connector connected.




(f) Check the pulse of the pulse sensor.

(1) Using an oscilloscope, check the pulse generated when the door is manually opened and closed.

**Standard (Reference):**

| Terminal | 1 - 6, 5 - 6 |
|---|---|
| Tool setting | 10 V/DIV., 10 ms/DIV. |
| Vehicle condition | Door moving |

HINT:

A cycle of the pulse changes between approx. 10 to 20 msec. according to the speeds that the slide door is moving.

**NOTICE:**

**When disconnecting the drive unit, initialize the power back door system (See page 05-1752 ).**

**NG** → **REPLACE POWER BACK DOOR DRIVE UNIT**

**OK**

**REPLACE POWER BACK DOOR ECU**

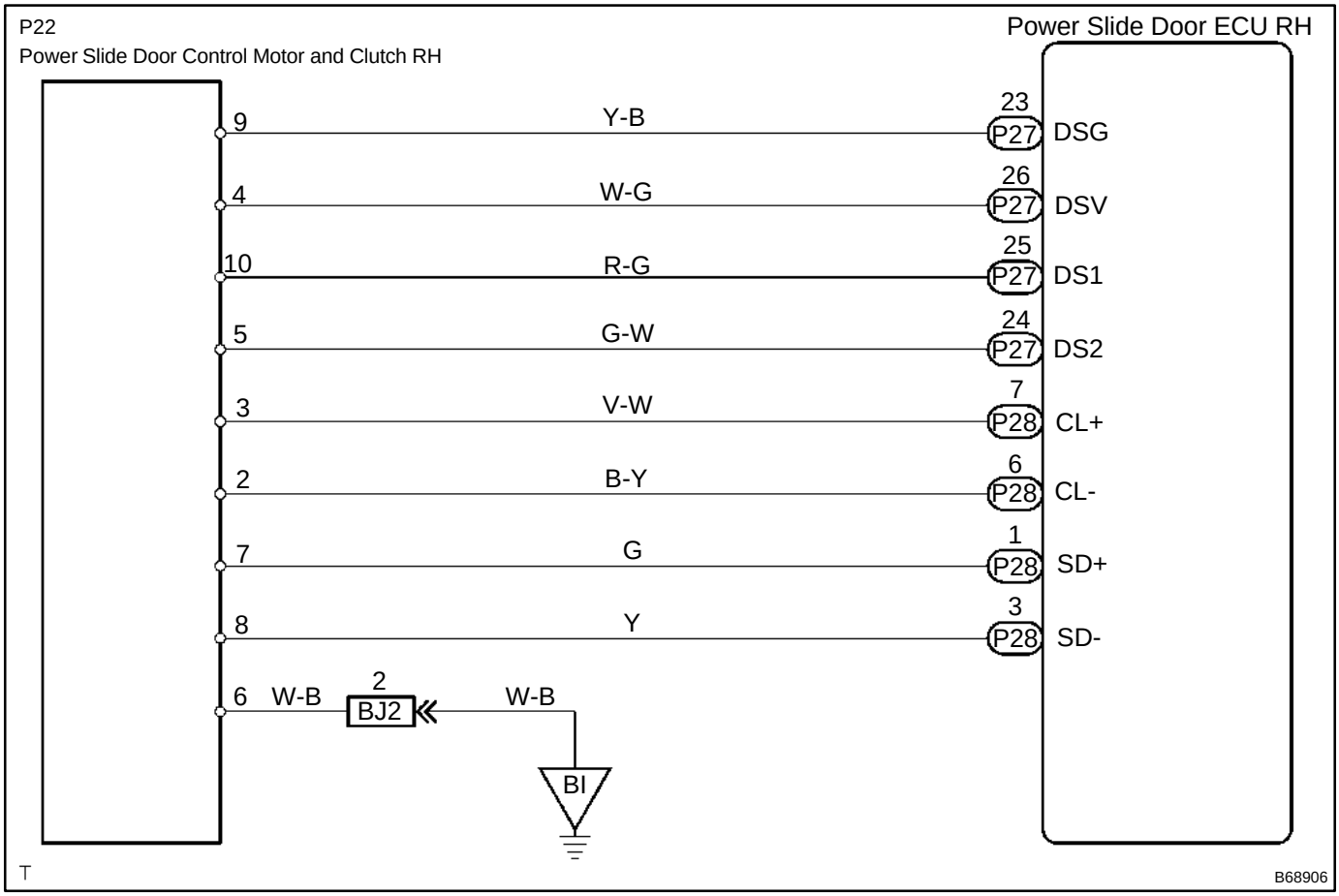
| DTC | B2223 | POWER SLIDE DOOR PULSE SENSOR MALFUNCTION ON REAR RIGHT DOOR |
|---|---|---|

## CIRCUIT DESCRIPTION

- A pulse sensor is built into slide door RH for jam and foreign object detection and for slide door position detection. The jam and foreign object detection feature of the pulse sensor monitors the operating speed of the slide door while the power slide door is in operation. The slide door position detection feature of the pulse sensor monitors where the slide door is. If the slide door position detection feature outputs a pulse signal that is out of the normal range, the power slide door ECU RH will set DTC B2223.
- If DTC B2223 is set, the power slide door system will be turned off. Thus, the slide door can be moved freely and will be switched to manual operation mode (not electrically controlled).
- In order to restore the power slide door system to normal operation mode, first solve the problem indicated by DTC B2223 and then manually close the slide door fully (reset operation).

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B2223 | Power slide door RH does not operate | • Wire harness<br>• Power slide door control motor and clutch RH<br>• Power slide door ECU RH |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

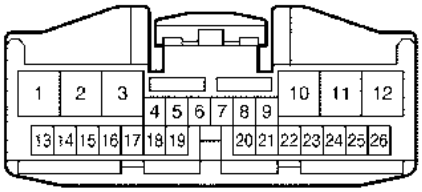
| 1 | **CHECK WIRE HARNESS (POWER SLIDE DOOR CONTROL MOTOR AND CLUTCH RH - POWER SLIDE DOOR ECU RH)** |
|---|---|

**Wire Harness Side**

P22
Power Slide Door Control
Motor and Clutch RH




T P27
Power Slide Door ECU RH




P B69864

(a) Disconnect the P22 motor and clutch, and P27 ECU connectors.

(b) Check the resistance between the wire harness side connectors.

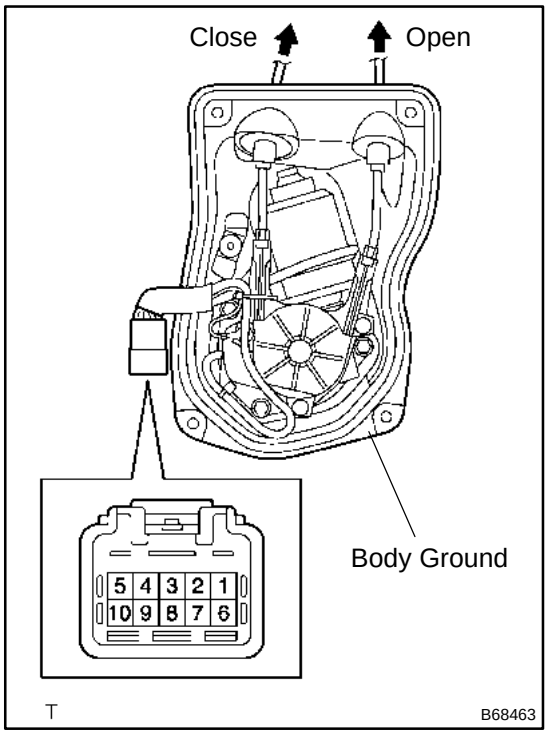
**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P22-9 - P27-23 (DSG) | Below 1 Ω |
| P22-4 - P27-26 (DSV) | |
| P22-10 - P27-25 (DS1) | |
| P22-5 - P27-24 (DS2) | |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

## 2 INSPECT SLIDE DOOR CONTROL MOTOR & CLUTCH ASSY RH




(a) Remove the motor and clutch.

(b) Connect the battery positive (+) lead to terminal 3 and battery negative (-) terminal lead to terminal 2.

(c) Apply battery voltage to the terminals and check the motor operation.

**Standard:**

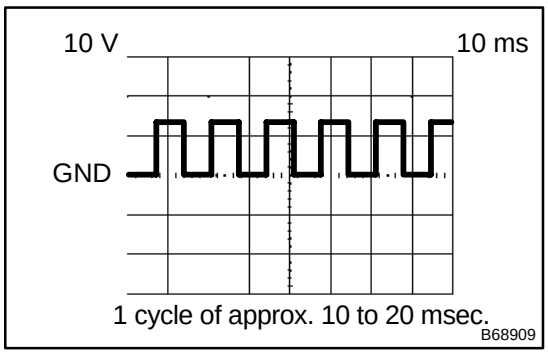
| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 8<br>Battery negative (-) → Terminal 7 | Open |
| Battery positive (+) → Terminal 7<br>Battery negative (-) → Terminal 8 | Close |

(d) Check the resistance of the clutch terminals.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| 2 - 3 | 4.0 Ω |
| 6 - Body ground | Below 1 Ω |

(e) Reinstall the motor and clutch with the connector connected.




(f) Check the pulse of the pulse sensor.

(1) Using an oscilloscope, check the pulse generated when the door is manually opened and closed.

**Standard (Reference):**

| Terminal | 5 - 9, 9 - 10 |
|---|---|
| Tool setting | 10 V/DIV., 10 ms/DIV. |
| Vehicle condition | Door moving |

HINT:

A cycle of the pulse changes between approx. 10 to 20 msec. according to the speeds that the slide door is moving.

**NOTICE:**

**When disconnecting the control motor and clutch, initialize the power slide door system (See page 05-1650 ).**

**NG** → **REPLACE SLIDE DOOR CONTROL MOTOR & CLUTCH ASSY RH**

**OK**

**REPLACE POWER SLIDE DOOR ECU RH**

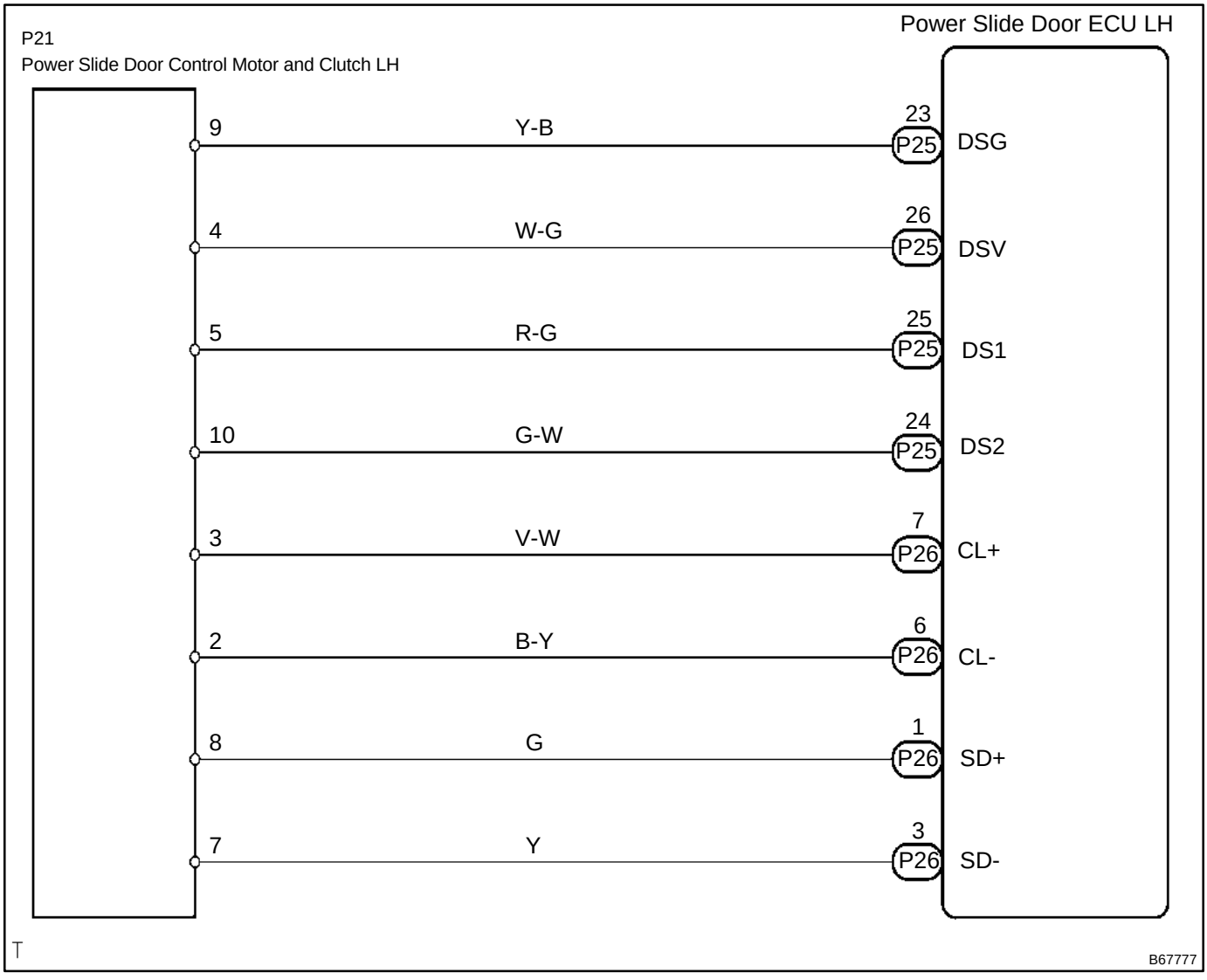
| DTC | B2224 | POWER SLIDE DOOR PULSE SENSOR MALFUNCTION ON REAR LEFT DOOR |
|---|---|---|

## CIRCUIT DESCRIPTION

- A pulse sensor is built into slide door LH for jam and foreign object detection and for slide door position detection. The jam and foreign object detection feature of the pulse sensor monitors the operating speed of the slide door while the power slide door is in operation. The slide door position detection feature of the pulse sensor monitors where the slide door is. If the slide door position detection feature outputs a pulse signal that is out of the normal range, the power slide door ECU LH will set DTC B2224.
- If DTC B2224 is set, the power slide door system will be turned off. Thus, the slide door can be moved freely and will be switched to manual operation mode (not electrically controlled).
- In order to restore the power slide door system to normal operation mode, first solve the problem indicated by DTC B2224 and then manually close the slide door fully (reset operation).

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B2224 | Power slide door LH does not operate | • Wire harness<br>• Power slide door control motor and clutch LH<br>• Power slide door ECU LH |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

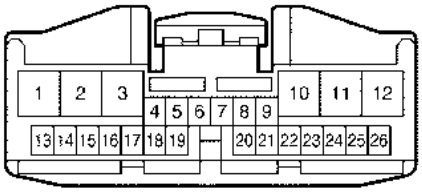
| 1 | **CHECK WIRE HARNESS (POWER SLIDE DOOR CONTROL MOTOR AND CLUTCH LH - POWER SLIDE DOOR ECU LH)** |
|---|---|

**Wire Harness Side**

P21
Power Slide Door Control
Motor and Clutch LH




T P25
Power Slide Door ECU LH




P B69864

(a) Disconnect the P21 motor and clutch, and the P25 ECU connectors.

(b) Check the continuity between the wire harness side connectors.

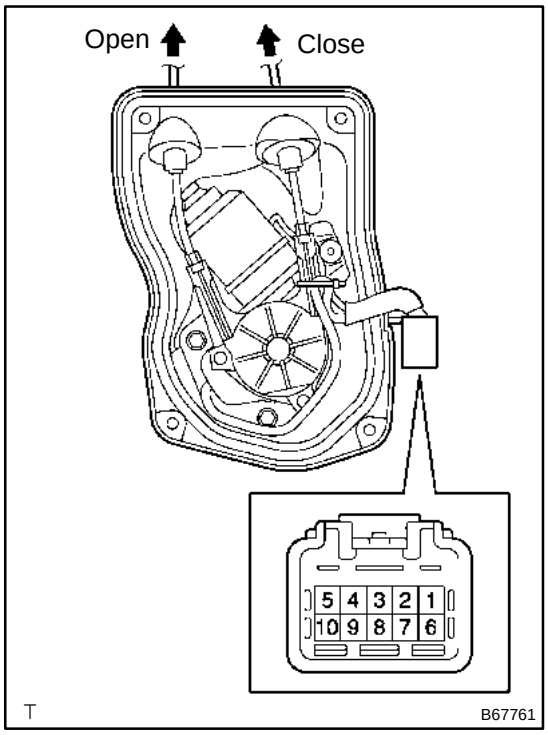
**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P21-9 - P25-23 (DSG) | Below 1 Ω |
| P21-4 - P25-26 (DSV) | |
| P21-5 - P25-25 (DS1) | |
| P21-10 - P25-24 (DS2) | |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

## 2 INSPECT SLIDE DOOR CONTROL MOTOR & CLUTCH ASSY LH




(a) Remove the motor and clutch.

(b) Connect the battery positive (+) lead to terminal 3 and battery negative (-) terminal lead to terminal 2.

(c) Apply battery voltage to the terminals and check the motor operation.

**Standard:**

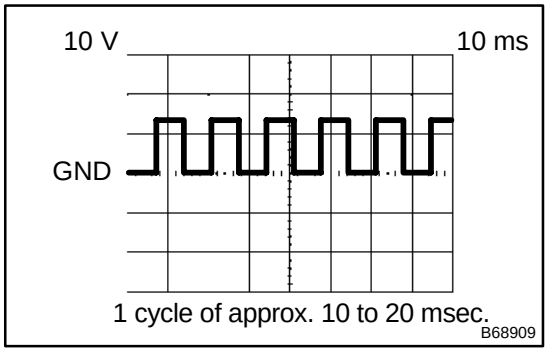
| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 8<br>Battery negative (-) → Terminal 7 | Open |
| Battery positive (+) → Terminal 7<br>Battery negative (-) → Terminal 8 | Close |

(d) Check the resistance of the clutch terminals.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| 2 - 3 | 4.0 Ω |

(e) Reinstall the motor and clutch with the connector connected.




(f) Check the pulse of the pulse sensor.

(1) Using an oscilloscope, check the pulse generated when the door is manually opened and closed.

**Standard (Reference):**

| Terminal | 5 - 9, 9 - 10 |
|---|---|
| Tool setting | 10 V/DIV., 10 ms/DIV. |
| Vehicle condition | Door moving |

HINT:

A cycle of the pulse changes between approx. 10 to 20 msec. according to the speeds that the slide door is moving.

**NOTICE:**

**When disconnecting the control motor and clutch, initialize the power slide door system (See page 05-1650 ).**

**NG** → **REPLACE SLIDE DOOR CONTROL MOTOR & CLUTCH ASSY LH**

**OK**

**REPLACE POWER SLIDE DOOR ECU LH**

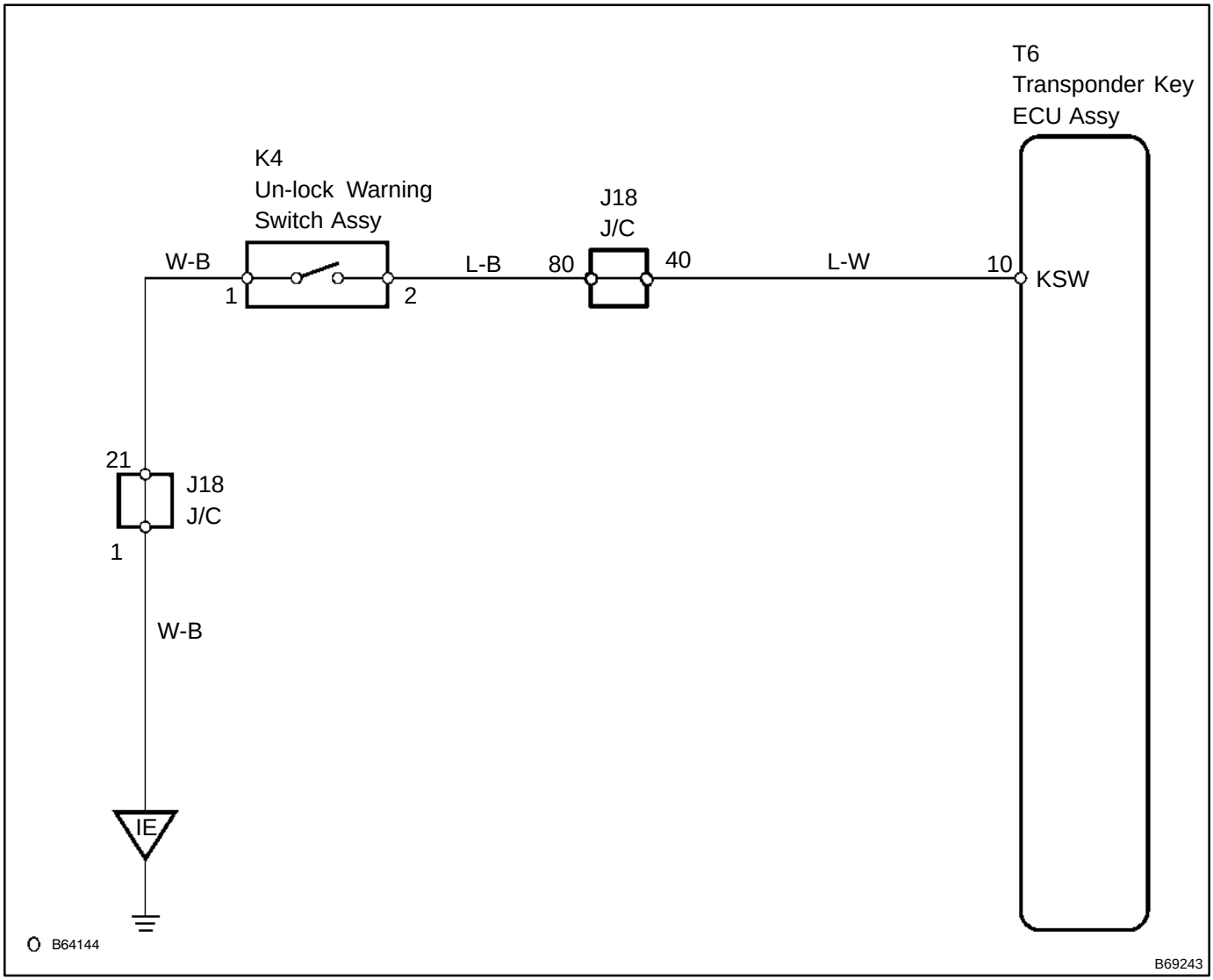
| DTC | B2780 | PUSH SWITCH/KEY UNLOCK WARNING SWITCH MALFUNCTION |
|---|---|---|

## CIRCUIT DESCRIPTION

This DTC will be output if the transponder key ECU does not detect that the un-lock warning switch is ON even when the ignition switch is ON (Under the normal condition, the un-lock warning switch is ON when the ignition switch is ON).

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B2780 | Un-lock warning switch ON is not detected when ignition switch is ON | • Un-lock warning switch assy<br>• Wire harness<br>• Transponder key ECU assy |

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

Start the inspection from step 1 when using the hand-held tester and start from step 2 when not using the hand-held tester.

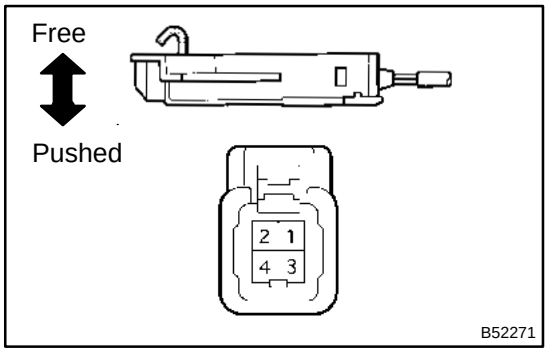
| 1 | **READ VALUE OF HAND-HELD TESTER (TRANSPONDER KEY ECU (SWITCH CONDITION))** |
|---|---|

(a) Connect the hand-held tester to the DLC3.
(b) Turn the ignition switch ON with the key that will not start the engine.
(c) Select the item KEY SW on the hand-held tester.
**OK:**
**ON → Key is in IG key cylinder**
**OFF → No key is in IG key cylinder**

**OK** → **REPLACE TRANSPONDER KEY ECU ASSY**

**NG**

| 2 | **INSPECT UN-LOCK WARNING SWITCH ASSY** |
|---|---|




(a) Remove the un-lock warning switch.
(b) Inspect the un-lock warning switch resistance.
**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Switch pushed (Key set) | Below 1 Ω |
| | Switch free (Key removed) | 10 kΩ or higher |

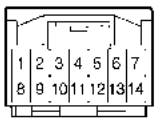
**NG** → **REPLACE UN-LOCK WARNING SWITCH ASSY**

**OK**

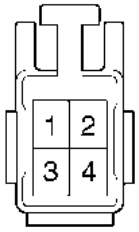
| 3 | **CHECK WIRE HARNESS (TRANSPONDER KEY ECU ASSY - UN-LOCK WARNING SWITCH ASSY)** |
|---|---|

**Wire Harness Side**

T6
Transponder Key ECU Assy




K4
Un-lock Warning Switch Assy




B63404
B69245

B64973

(a) Disconnect the T6 ECU and K4 switch connectors.

(b) Check the resistance between the wire harness side connectors.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| T6-10 (KSW) - K4-2 | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE TRANSPONDER KEY ECU ASSY**

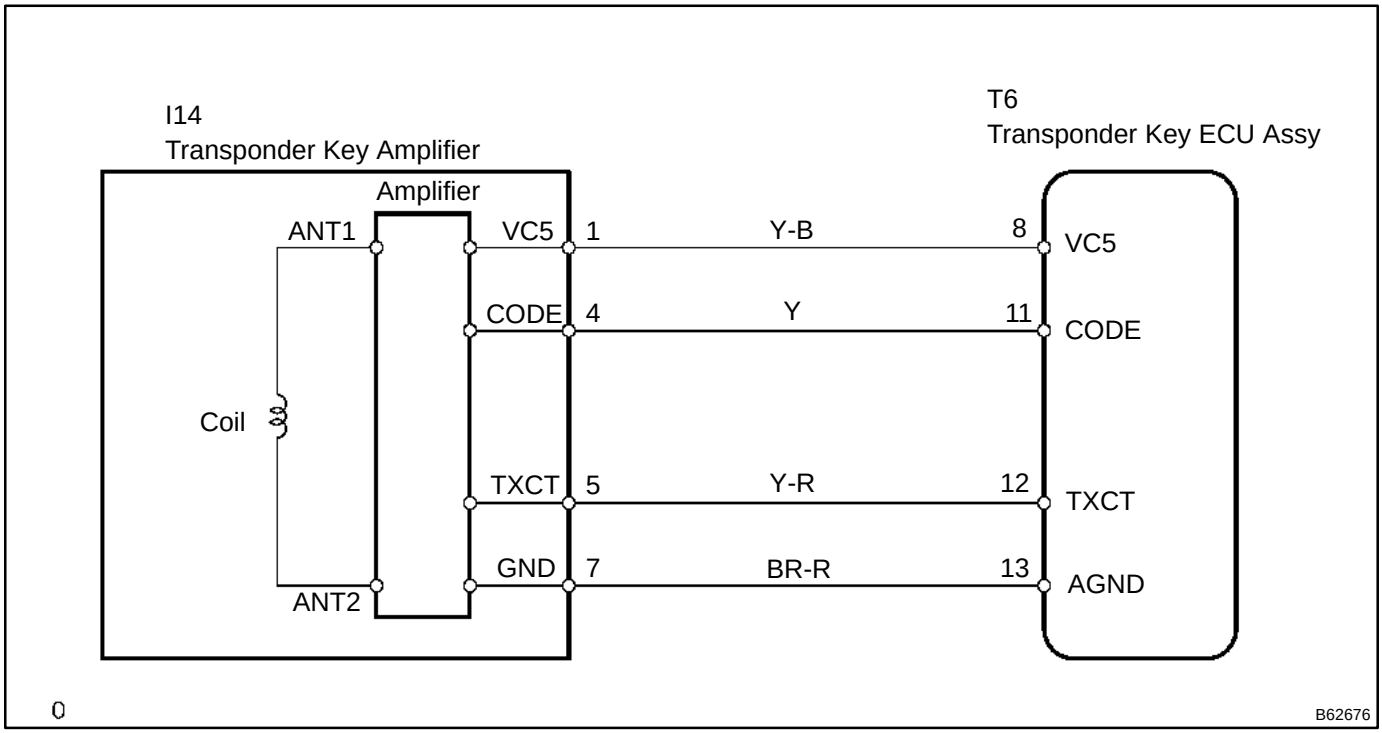
# DTC B2784 ANTENNA COIL OPEN/SHORT

## CIRCUIT DESCRIPTION

The transponder key coil is built into the transponder key amplifier and receives a key code signal from the transponder chip in the key. This signal is amplified by the amplifier, then it is output to the transponder key ECU.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B2784 | Antenna coil is open/short | • Wire harness<br>• Transponder key amplifier<br>• Transponder key ECU assy |

## WIRING DIAGRAM




## INSPECTION PROCEDURE

HINT:

Start the inspection from step 1 when using the hand-held tester and start from step 2 when not using the hand-held tester.

| | |
|---|---|
| 1 | **READ VALUE OF HAND-HELD TESTER (IMMOBILISER ECU (TRANSPONDER KEY ECU ASSY) (SWITCH CONDITION))** |

(a) Connect the hand-held tester to the DLC3.
(b) Turn the ignition switch ON with the key that will not start the engine.
(c) Select the item ANTENNA COIL on the hand-held tester.
**OK: NORMAL**
**NG: FAIL**

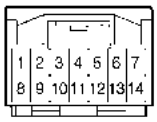
**OK** → **REPLACE TRANSPONDER KEY ECU ASSY**

**NG**

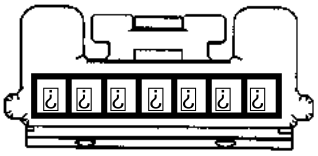
| 2 | CHECK WIRE HARNESS (TRANSPONDER KEY ECU ASSY - TRANSPONDER KEY AMPLIFIER) (TRANSPONDER KEY ECU ASSY OR TRANSPONDER KEY AMPLIFIER - BODY GROUND) |
|---|---|

**Wire Harness Side**

T6
Transponder Key ECU Assy




I14
Transponder Key Amplifier



B63404
B55013
B64974

(a) Disconnect the T6 ECU and I14 amplifier connectors.

(b) Check the resistance between the wire harness side connectors.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| T6-8 (VC5) - I14-1 (VC5) | Below 1 Ω |
| T6-11 (CODE) - I14-4 (CODE) | Below 1 Ω |
| T6-12 (TXCT) - I14-5 (TXCT) | Below 1 Ω |
| T6-13 (AGND) - I14-7 (GND) | Below 1 Ω |

(c) Check the resistance between the T6 ECU or I14 amplifier wire harness side connector and the body ground.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| T6-8 (VC5) or I14-1 (VC5) - Body ground | 10 kΩ or higher |
| T6-11 (CODE) or I14-4 (CODE) - Body ground | 10 kΩ or higher |
| T6-12 (TXCT) or I14-5 (TXCT) - Body ground | 10 kΩ or higher |
| T6-13 (AGND) or I14-7 (GND) - Body ground | 10 kΩ or higher |

NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE TRANSPONDER KEY AMPLIFIER**

# DTC B2793 TRANSPONDER CHIP MALFUNCTION

## CIRCUIT DESCRIPTION

This DTC is output when a malfunction is found in a key during the key code registration or the key code is not registered normally. Replace the key when the key code registration is not performed normally and this DTC is detected.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B2793 | Transponder chip malfunction | • Key |

## INSPECTION PROCEDURE

| 1 | CHECK DTC |
|---|---|

(a) Delete the DTC (See page 05-1834 ).
(b) Insert the key into the ignition key cylinder.
(c) Check that no code is output.

OK → NO PROBLEM

NG

| 2 | RE-REGISTER KEY |
|---|---|

(a) Delete the DTC (See page 05-1834 ).
(b) Re-register the key, and check that the engine starts with the key.

OK → NORMAL

NG

REPLACE KEY

# DTC B2794 UNMATCHED ENCRYPTION CODE

## CIRCUIT DESCRIPTION

This DTC is output when a key with an incomplete key code is inserted into the ignition key cylinder.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B2794 | Key with incomplete key code is inserted | • Key |

## INSPECTION PROCEDURE

| | |
|---|---|
| 1 | REPLACE KEY |

| DTC | B2795 | UNMATCHED KEY CODE |
|---|---|---|

## CIRCUIT DESCRIPTION

This DTC is output when a key with a key code that has not been registered in the ECU is inserted into the ignition key cylinder.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B2795 | Key with unregistered key code is inserted | • Key |

## INSPECTION PROCEDURE

| 1 | DELETE DTC AND INSERT ALL PRESENTLY AVAILABLE KEYS TO CHECK WHETHER ENGINE STARTS OR NOT |
|---|---|

**OK** → **NO PROBLEM (BECAUSE OF KEY RE-REGISTRATION)**

**NG**

**REPLACE KEY THAT WILL NOT START ENGINE**

| DTC | B2796 | NO COMMUNICATION IN IMMOBILISER SYSTEM |
|---|---|---|

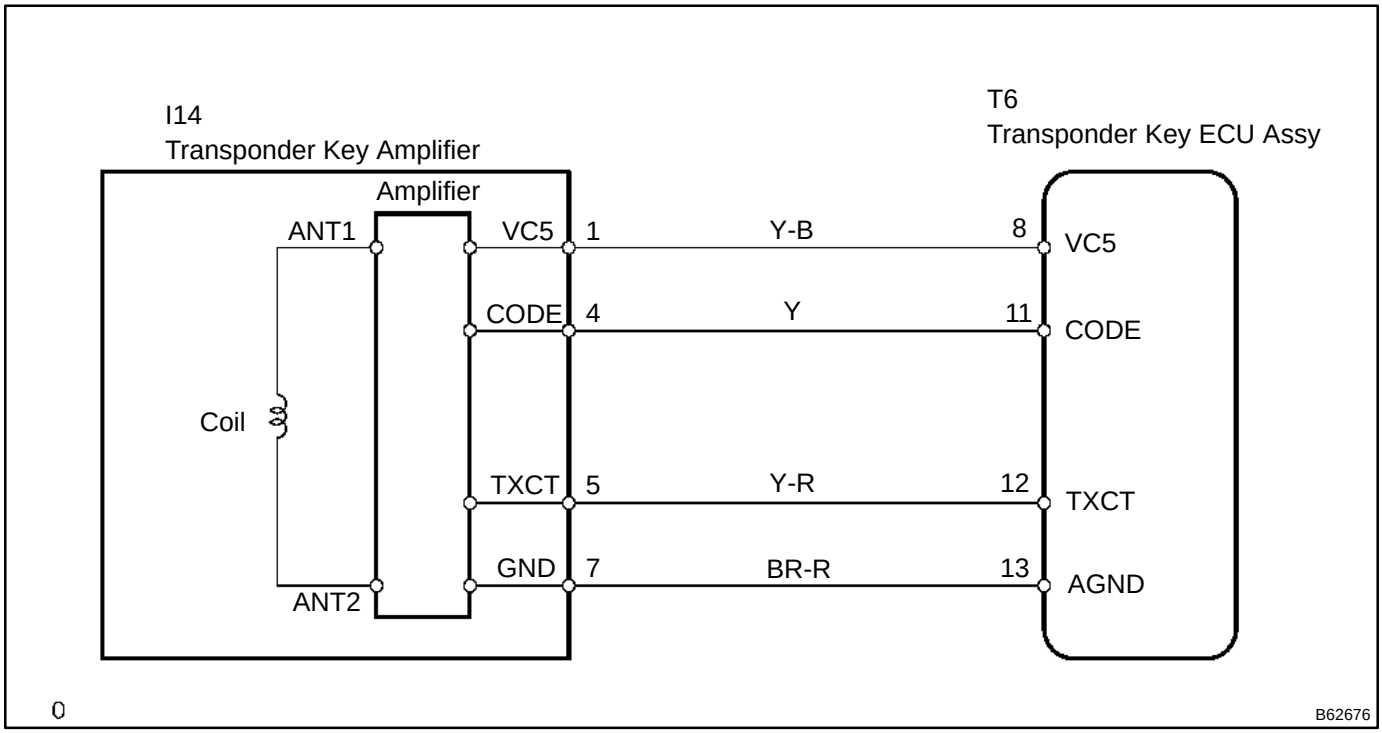
| DTC | B2798 | COMMUNICATION MALFUNCTION NO.2 |
|---|---|---|

## CIRCUIT DESCRIPTION

This code is stored in the memory when a key that does not have a transponder chip is inserted or if communication between the key and transponder key ECU is impossible.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B2796 | No communication | • Key<br>• Wire harness<br>• Transponder key amplifier<br>• Transponder key ECU assy |
| B2798 | Communication error | • Key |

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

Start the inspection from step 1 when using the hand-held tester and start from step 2 when not using the hand-held tester.

| | |
|---|---|
| **1** | **READ VALUE OF HAND-HELD TESTER (IMMOBILISER ECU (TRANSPONDER KEY ECU ASSY) (SWITCH CONDITION))** |

(a) Connect the hand-held tester to the DLC3.
(b) Turn the ignition switch ON with the key that will not start the engine.
(c) Select IMMOBILISER on the hand-held tester.
**OK:**
**SET → Ignition switch ON**
**UNSET → Without key**

**OK** → **NORMAL**

**NG**

| | |
|---|---|
| **2** | **CHECK WHETHER ENGINE STARTS WITH OTHER KEYS** |

(a) Check whether the engine starts with the other keys for the vehicle.

**OK** → **RE-REGISTER OR REPLACE KEY THAT WILL NOT START ENGINE**

**NG**

HINT:

Start the inspection from step 3 when using the hand-held tester and start from step 4 when not using the hand-held tester.

| | |
|---|---|
| **3** | **READ VALUE OF HAND-HELD TESTER (IMMOBILISER ECU (TRANSPONDER KEY ECU ASSY) (SWITCH CONDITION))** |

(a) Connect the hand-held tester to the DLC3.
(b) Turn the ignition switch ON with the key that will not start the engine.
(c) Select the item ANTENNA COIL on the hand-held tester.
**OK: NORMAL**
**NG: FAIL**

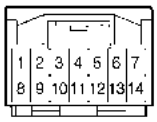
**NG** → **REPLACE TRANSPONDER KEY ECU ASSY**

**OK**

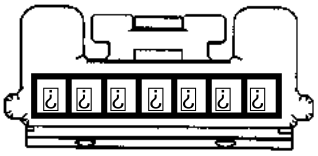
| 4 | CHECK WIRE HARNESS (TRANSPONDER KEY ECU ASSY - TRANSPONDER KEY AMPLIFIER) (TRANSPONDER KEY ECU ASSY OR TRANSPONDER KEY AMPLIFIER - BODY GROUND) |
|---|---|

**Wire Harness Side**

T6
Transponder Key ECU Assy




I14
Transponder Key Amplifier



B63404
B55013
B64974

(a) Disconnect the T6 ECU and I14 amplifier connectors.

(b) Check the resistance between the wire harness side connectors.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| T6-8 (VC5) - I14-1 (VC5) | Below 1 Ω |
| T6-11 (CODE) - I14-4 (CODE) | Below 1 Ω |
| T6-12 (TXCT) - I14-5 (TXCT) | Below 1 Ω |
| T6-13 (AGND) - I14-7 (GND) | Below 1 Ω |

(c) Check the resistance between the T6 ECU or I14 amplifier wire harness side connector and the body ground.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| T6-8 (VC5) or I14-1 (VC5) - Body ground | 10 kΩ or higher |
| T6-11 (CODE) or I14-4 (CODE) - Body ground | 10 kΩ or higher |
| T6-12 (TXCT) or I14-5 (TXCT) - Body ground | 10 kΩ or higher |
| T6-13 (AGND) or I14-7 (GND) - Body ground | 10 kΩ or higher |

NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

| 5 | CHECK OPERATION OF TRANSPONDER KEY AMPLIFIER |
|---|---|

(a) After replacing the transponder key amplifier, check that the engine starts.

NG → **REPLACE TRANSPONDER KEY ECU ASSY**

OK

**NORMAL (TRANSPONDER KEY AMPLIFIER DEFECTIVE)**

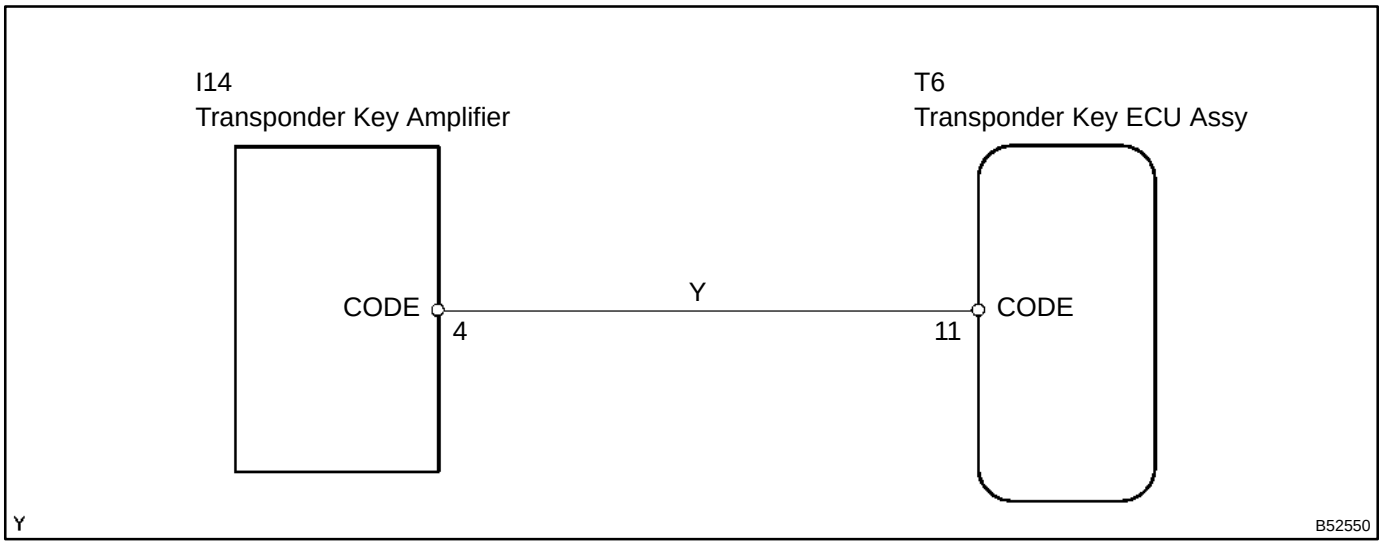
| DTC | B2797 | COMMUNICATION MALFUNCTION NO.1 |
|---|---|---|

## CIRCUIT DESCRIPTION

This DTC is output when an error occurs in normal communication.
HINT:
Some noise is found in the communication line.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B2797 | Keys are positioned too close to each other, or noise occurred in communication line | • Key<br>• Wire harness<br>• Transponder key amplifier<br>• Transponder key ECU assy |

## WIRING DIAGRAM




## INSPECTION PROCEDURE

| 1 | CHECK OPERATION OF TRANSPONDER KEY AMPLIFIER |
|---|---|

(a) After replacing the transponder key amplifier, check that the engine starts.

**OK** → **NORMAL (TRANSPONDER KEY AMPLIFIER DEFECTIVE)**

**NG**

**REPLACE TRANSPONDER KEY ECU ASSY**

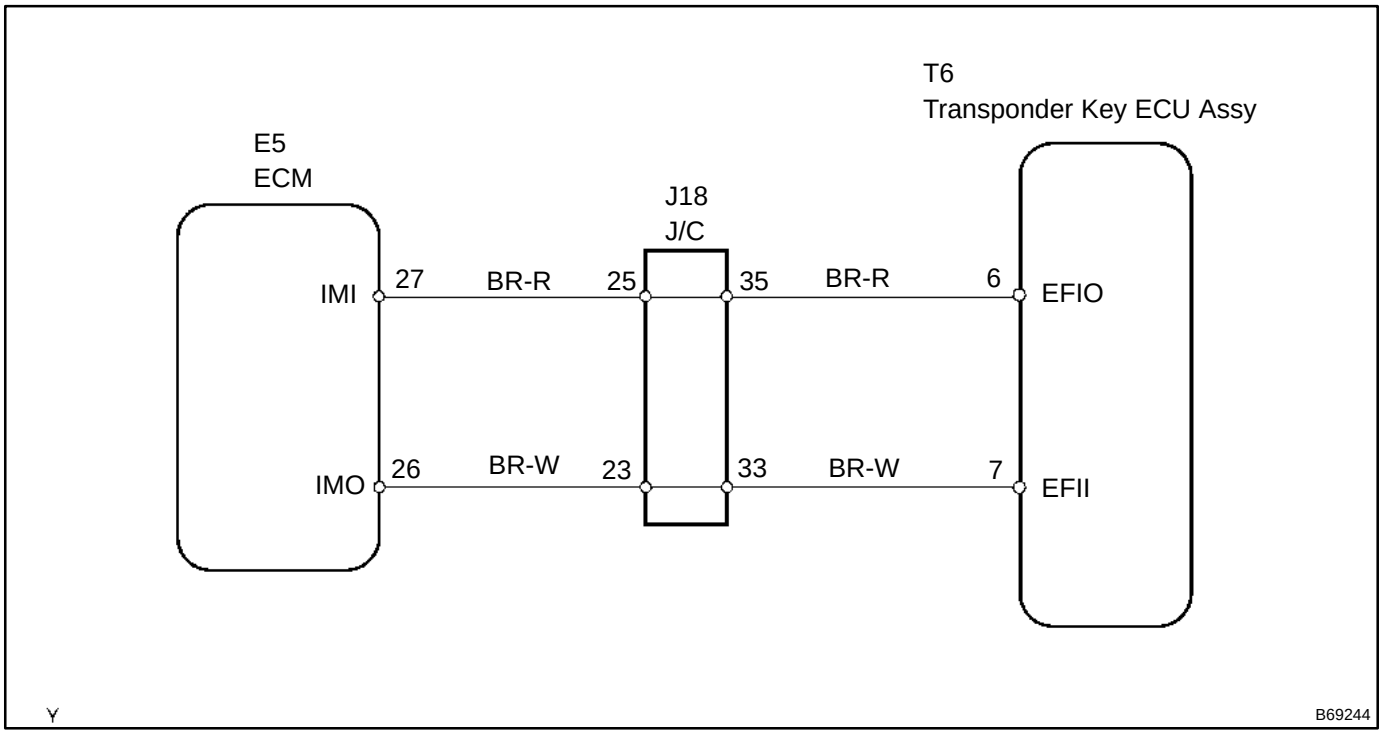
| DTC | B2799 | ENGINE IMMOBILISER SYSTEM MALFUNCTION |
|---|---|---|

## CIRCUIT DESCRIPTION

This DTC is output when the ECM detects errors in communication between the transponder key ECU and the ECM, or in the communication lines.
This DTC is also output when an engine start is attempted while the ECU communication ID between the transponder key ECU and the ECM are different.
Before troubleshooting for this DTC, make sure that there is no DTC detected in the transponder key ECU. If there is key code-related DTC detected in the transponder key ECU, repair it first.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| B2799 | • Error in communication between ECM and transponder key ECU, and in communication line<br>• Communication ID is different during communication with transponder key ECU | • Wire harness<br>• Key<br>• Transponder key ECU assy<br>• Transponder key amplifier<br>• ECM |

## WIRING DIAGRAM

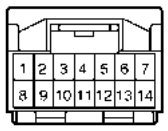


# INSPECTION PROCEDURE

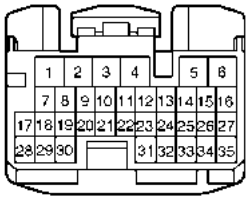
| 1 | CHECK WIRE HARNESS (TRANSPONDER KEY ECU ASSY - ECM) (TRANSPONDER KEY ECU ASSY OR ECM - BODY GROUND) |
|---|---|

**Wire Harness Side**

T6
Transponder Key ECU Assy




E5
ECM




Y B66220 B66229

(a) Disconnect the T6 ECU and E5 ECM connectors.

(b) Check the resistance between the wire harness side connectors.

**Standard:**

| Symbols (Terminal No.) | Specified Condition |
|---|---|
| T6-6 (EFIO) - E5-27 (IMI) | Below 1 Ω |
| T6-7 (EFII) - E5-26 (IMO) | Below 1 Ω |

(c) Check the resistance between the T6 or E5 wire harness side connector and body ground.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| T6-6 (EFIO) or E5-27 (IMI) - Body ground | 10 kΩ or higher |
| T6-7 (EFII) or E5-26 (IMO) - Body ground | 10 kΩ or higher |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

| 2 | CHECK OPERATION OF TRANSPONDER KEY AMPLIFIER |
|---|---|

(a) After replacing the transponder key amplifier, check that the engine starts.

**NG** → **NORMAL (TRANSPONDER KEY AMPLIFIER DEFECTIVE)**

**OK**

**REPLACE TRANSPONDER KEY ECU ASSY**

# BACK MONITOR SYSTEM DISPLAYS IMAGES EVEN IF THE SHIFT LEVER IS NOT IN R POSITION

## INSPECTION PROCEDURE

| 1 | INSPECT PARK/NEUTRAL POSITION SWITCH ASSY |
|---|---|

(a) Check the park/neutral position switch ASSY (See page 05-566 ).

NG → **REPLACE PARK/NEUTRAL POSITION SWITCH ASSY(See page 40-3 )**

OK

| 2 | INSPECT RADIO RECEIVER ASSY |
|---|---|

(a) Check the radio receiver ASSY (See page 05-1474 ).

NG → **REPLACE RADIO RECEIVER ASSY (See page 67-9 )**

OK

**REPAIR OR REPLACE HARNESS OR CONNECTOR(See page 01-37 )**

# BACK MONITOR SYSTEM DOES NOT DISPLAY IMAGES WHEN THE SHIFT LEVER IS IN R POSITION

## INSPECTION PROCEDURE

| 1 | INSPECT PARK/NEUTRAL POSITION SWITCH ASSY |
|---|---|

(a) Check the park/neutral position switch ASSY (See page 05-566 ).

NG → **REPLACE PARK/NEUTRAL POSITION SWITCH ASSY(See page 40-3 )**

OK

| 2 | INSPECT RADIO RECEIVER ASSY |
|---|---|

(a) Check the radio receiver ASSY (See page 05-1474 ).

NG → **REPLACE RADIO RECEIVER ASSY (See page 67-9 )**

OK

| 3 | INSPECT TELEVISION CAMERA ASSY |
|---|---|

(a) Check the television camera ASSY (See page 05-1474 ).

NG → **REPLACE TELEVISION CAMERA ASSY (See page 67-27 )**

OK

| 4 | INSPECT BACK MONITOR CAMERA WIRE |
|---|---|

(a) Check the back monitor camera wire (See page 05-1474 ).

NG → **REPLACE BACK MONITOR CAMERA WIRE**

OK

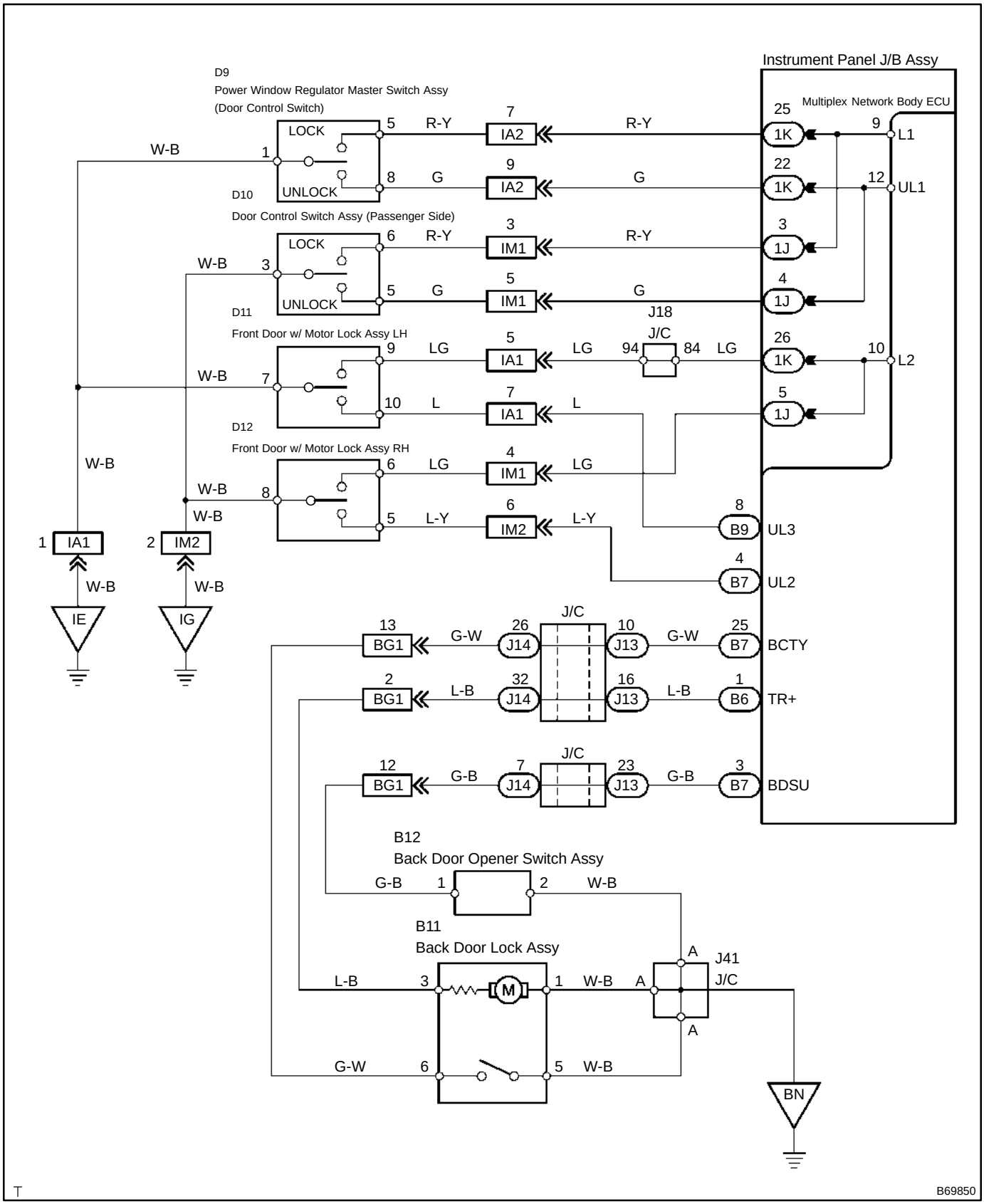
**REPAIR OR REPLACE HARNESS OR CONNECTOR(See page 01-37 )**

# ONLY BACK DOOR CAN NOT BE OPENED (UNLOCKED) (W/O POWER BACK DOOR)

## CIRCUIT DESCRIPTION

The signal for manual locking/unlocking operation of the driver/passenger side door and the signal for locking/unlocking operation interlocked with the driver side door key cylinder are sent to the body ECU. The ON signal of the back door opener switch, which is output when the switch is pressed, is sent to the body ECU.

# WIRING DIAGRAM



# INSPECTION PROCEDURE

## 1 PERFORM ACTIVE TEST USING HAND-HELD TESTER

(a) Select the ACTIVE TEST and then check that the power door lock operates.

HINT:

During the ACTIVE TEST, the hand-held tester sends a signal to the body ECU to drive all the power door lock motors. If all the power door locks operate, the power door lock motors and the wire harness between the power door lock motors and body ECU are considered to be functioning normally.

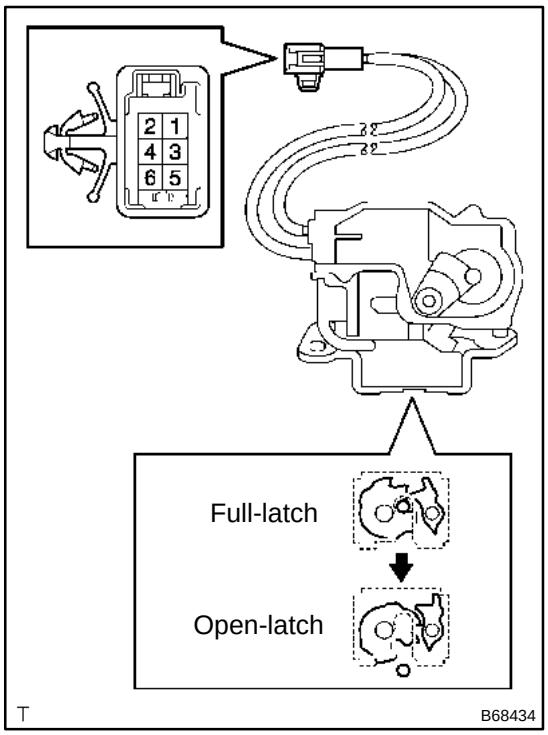
**Standard (Multiplex network body ECU):**

| Item | Test Details | Diagnostic Note |
|---|---|---|
| DOOR LOCK | Operate door lock motor for all doors OFF/LOCK/UNLOCK | - |

**OK** → **REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU)**

**NG**

## 2 INSPECT BACK DOOR LOCK ASSY




(a) Check operation of the door lock.

(1) Using a screwdriver, push the latch in order to put the back door lock in the locked condition (full-latch position).

(2) Connect the battery positive (+) lead to terminal 3 and the negative (-) lead to terminal 1. Then, check operation of the latch.

**Standard: The latch turns to the open-latch position**

(3) Inspect motor operation when battery voltage is applied to the terminals.

**Standard:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 3<br>Battery negative (-) → Terminal 1 | Clockwise¿Motor in normal rotation¿ |

(b) Inspect the resistance of the courtesy switch.

**Standard:**

| Door Lock Latch Position | Terminal No. | Specified Condition |
|---|---|---|
| Open-latch position | 5 - 6 | Below 1 Ω |
| Full-latch position | | 10 kΩ or higher |

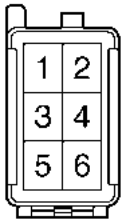
**NG** → **REPLACE BACK DOOR LOCK ASSY**

**OK**

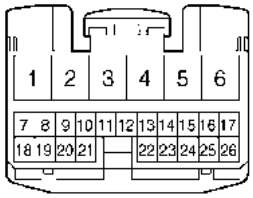
| 3 | **CHECK WIRE HARNESS (BACK DOOR LOCK ASSY - INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU) AND BODY GROUND)** |
|---|---|

**Wire Harness Side**

B11
Back Door Lock Assy

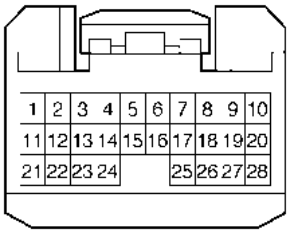



B6
Instrument Panel J/B Assy
(Multiplex Network Body ECU)




B68435

B7
Instrument Panel J/B Assy
(Multiplex Network Body ECU)




B68878

T

B68922

(a) Disconnect the B11 lock, B6 and B7 ECU connectors.
(b) Check the resistance between the wire harness side connectors.
**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| B11-3 - B6-1 (TR+) | Below 1 Ω |
| B11-6 - B7-25 (BCTY) | |

(c) Check the resistance between the B11 lock connector and body ground.
**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| B11-1 - Body ground | Below 1 Ω |
| B11-5 - Body ground | |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

| 4 | **READ VALUE OF HAND-HELD TESTER** |
|---|---|

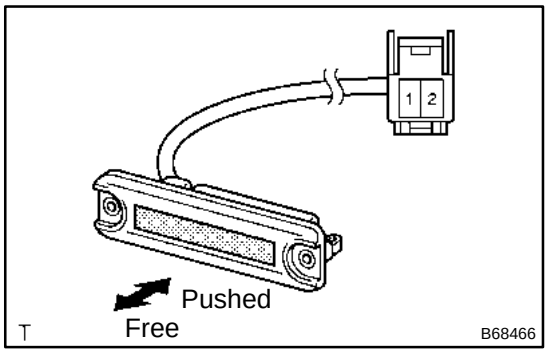
(a) Using the hand-held tester, check the data list for proper functioning of the back door opener switch.
**Standard (Power back door ECU):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| B DOR OPEN SW | Back door opener switch signal /ON or OFF | ON: Back door opener switch is pushed<br>OFF: Back door opener switch is not pushed | - |

**OK** → **REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU)**

**NG**

## 5 INSPECT BACK DOOR OPENER SWITCH ASSY




(a) Remove the back door opener switch.
(b) Inspect the resistance of the switch.
**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Free | 10 kΩ or higher |
| | Pushed | Below 1 Ω |

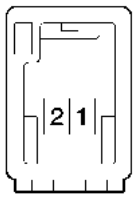
**NG** → **REPLACE BACK DOOR OPENER SWITCH ASSY**

**OK**

## 6 CHECK WIRE HARNESS (BACK DOOR OPENER SWITCH ASSY - INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU))

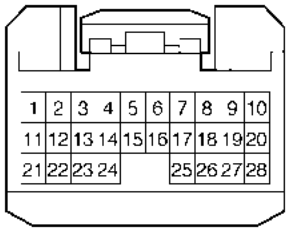
**Wire Harness Side**

B12
Back Door Opener Switch




B68436

B7
Instrument Panel J/B Assy
(Multiplex Network Body ECU)




B68878

B68923

(a) Disconnect the B12 switch and B7 ECU connectors.
(b) Check the resistance between the wire harness side connectors.
**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| B12-1 - B7-3 (DBSU) | Below 1 Ω |

(c) Check the resistance between the B12 lock connector and body ground.
**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| B12-2 - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

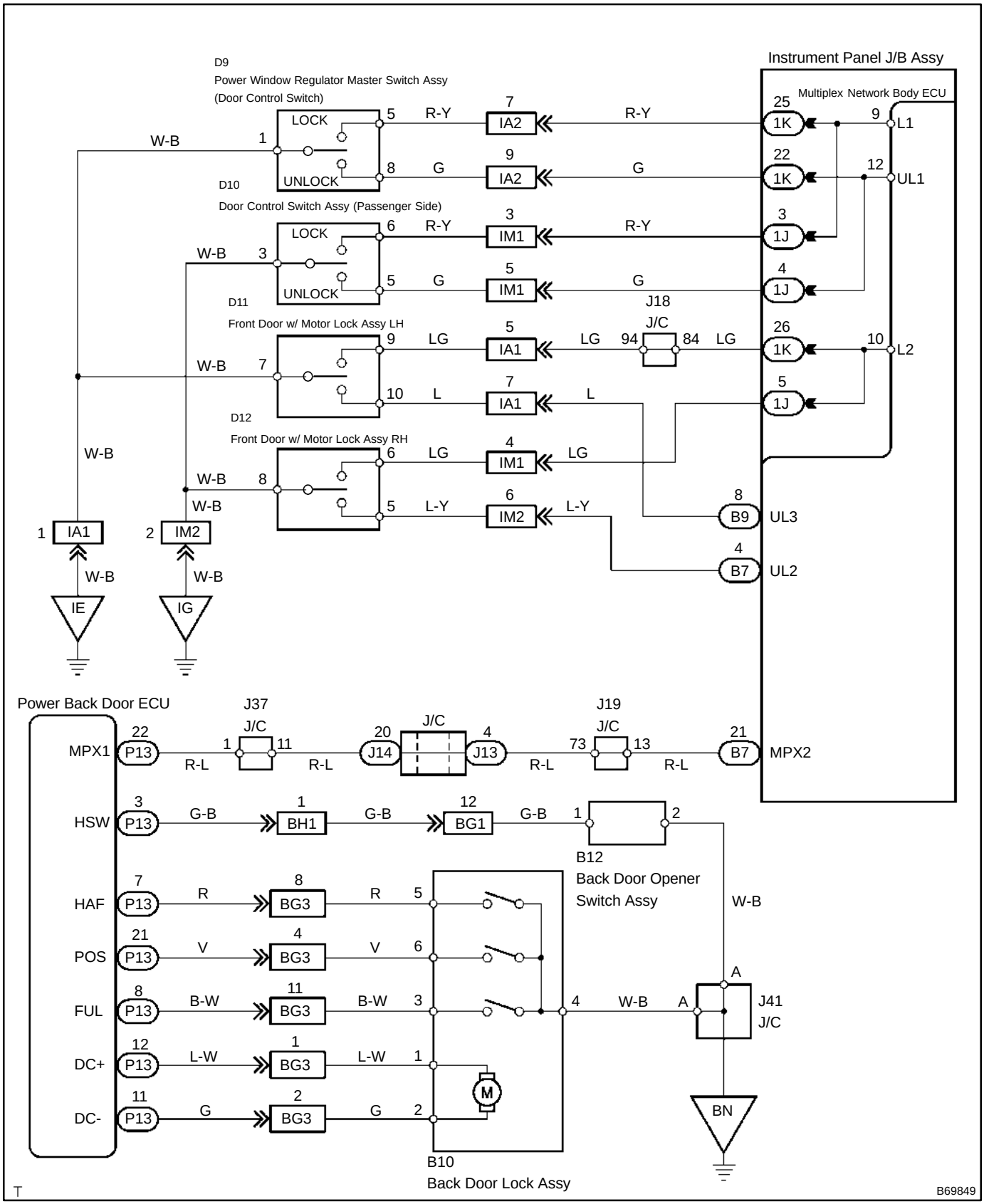
**REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU)**

# ONLY BACK DOOR CAN NOT BE OPENED (UNLOCKED) (W/ POWER BACK DOOR)

## CIRCUIT DESCRIPTION

The signal for manual locking/unlocking operation of the driver/passenger side door and the signal for locking/unlocking operation interlocked with the driver side door key cylinder are sent to the back door ECU from the body ECU using the MPX line. In response to these signals, the back door ECU causes the back door lock to be locked/unlocked. The ON signal of the back door opener switch, which is output when the switch is pressed, is directly sent to the back door ECU. In response to this signal, the back door ECU causes the back door lock to be open.

# WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CHECK DTC |
|---|---|

(a) Use the hand-held tester to check for normal function of the multiplex communication system.
  (1) (ECU unconnected, communication line malfunctioning) Without DTC B1214, B1215 or B1287 outputs, proceed to A.
  (2) (ECU unconnected, communication line malfunctioning) With DTC B1214, B1215 or B1287 outputs, proceed to B.

B → **GO TO MULTIPLEX COMMUNICATION SYSTEM (See page 05-1876 )**

A

| 2 | PERFORM ACTIVE TEST USING HAND-HELD TESTER |
|---|---|

(a) Select the ACTIVE TEST and then check that the power door lock operates.

HINT:

During the ACTIVE TEST, the hand-held tester sends a signal to the body ECU to drive all the power door lock motors. If all the power door locks operate, the power door lock motors and the wire harness between the power door lock motors and body ECU are considered to be functioning normally.

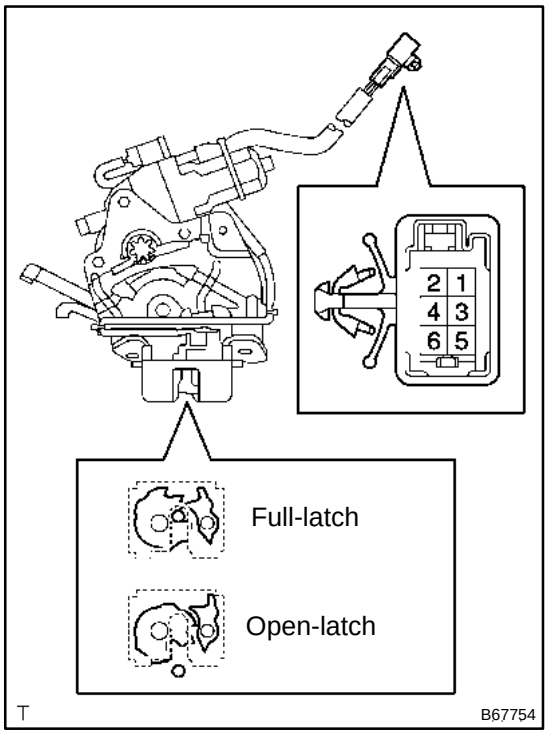
**Standard (Multiplex network body ECU):**

| Item | Test Details | Diagnostic Note |
|---|---|---|
| DOOR LOCK | Operate the door lock motor for all doors<br>OFF/LOCK/UNLOCK | - |

OK → **REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU)**

NG

## 3 INSPECT BACK DOOR LOCK ASSY




(a) Check operation of the door lock.

(1) Using a screwdriver, push the latch in order to put the back door lock in the locked condition (full-latch position).

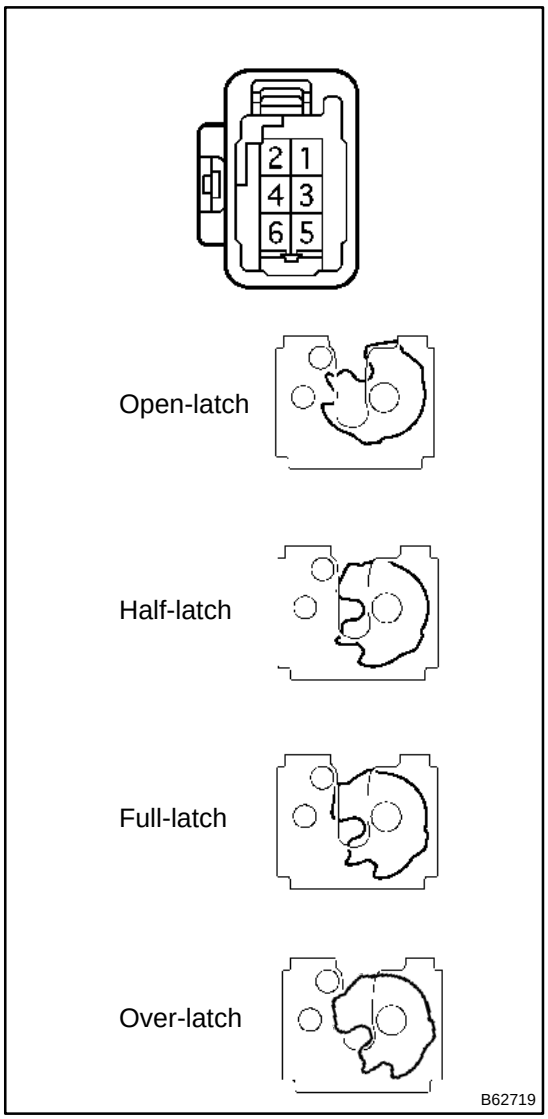
(2) Connect the battery positive (+) lead to terminal 1 and the battery negative (-) lead to terminal 2. Then, check operation of the latch.

**Standard: The latch turns to the open-latch position**

(3) Inspect motor operation when battery voltage is applied to the terminals.

**Standard:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 2<br>Battery negative (-) → Terminal 1 | Clockwise (Motor in normal rotation) |
| Battery positive (+) → Terminal 1<br>Battery negative (-) → Terminal 2 | Counterclockwise (Motor in reverse rotation) |




(b) Check the back door courtesy lamp switch resistance.

(1) Check the resistance between the terminals of the courtesy switch.

**Standard:**

| Terminal No. | Door Lock Latch Position | Specified Condition |
|---|---|---|
| 3 - 4 | Open-latch position, Half-latch position | Below 1 Ω |
| | Full-latch position, Over-latch position | 10 kΩ or higher |

(c) Check the back door latch switch resistance.

(1) Check the resistance between the terminals of the latch switch.

**Standard:**

| Terminal No. | Door Lock Latch Position | Specified Condition |
|---|---|---|
| 4 - 5 | Open-latch position, Over-latch position | Below 1 Ω |
| | Half-latch position, Full-latch position | 10 kΩ or higher |

(d) Check the position switch resistance.

(1) Connect the battery positive (+) lead to connector terminal 1 and the negative (-) lead to connector terminal 2.

(2) Check the resistance between the terminals of the latch switch.

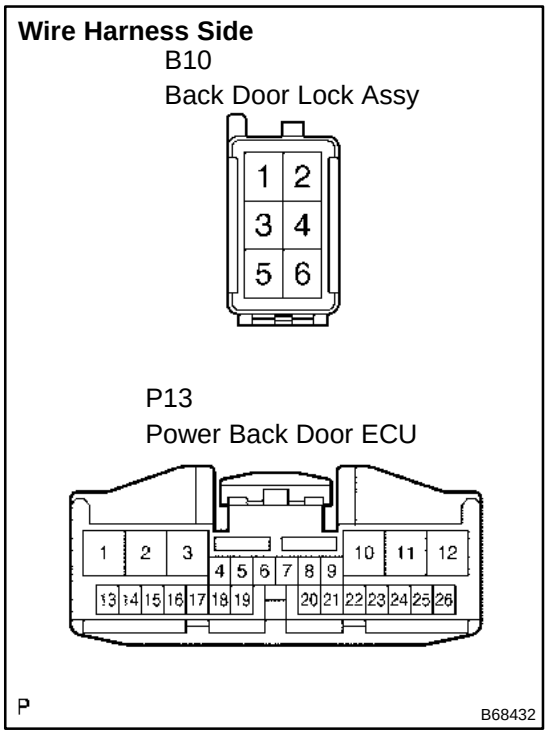
**Standard:**

| Terminal No. | Door Lock Latch Position | Specified Condition |
|---|---|---|
| 4 - 6 | Any position other than motor stop position (Motor in operation) | 10 kΩ or higher |
| | Motor stop position (Gear in original position | Below 1 Ω |

**NG** → **REPLACE BACK DOOR LOCK ASSY**

**OK**

## 4 CHECK WIRE HARNESS (BACK DOOR LOCK ASSY - POWER BACK DOOR ECU )




(a) Disconnect the B10 lock and P13 ECU connectors.
(b) Check the resistance between the wire harness connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| B10-5 - P13-7 (HAF) | Below 1 Ω |
| B10-6 - P13-21 (POS) | |
| B10-3 - P13-8 (FUL) | |
| B10-1 - P13-12 (DC+) | |
| B10-2 - P13-11 (DC-) | |

NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

## 5 READ VALUE OF HAND-HELD TESTER

(a) Using the hand-held tester, check the DATA LIST for proper functioning of the back door opener switch.

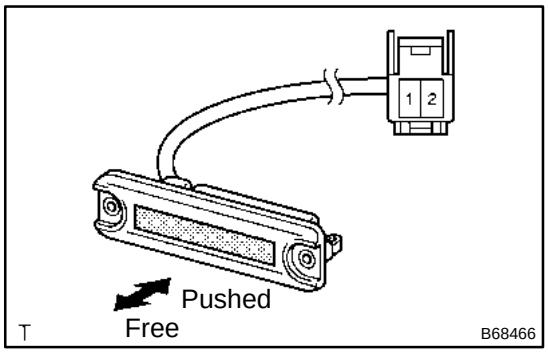
**Standard (Power back door ECU):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| B DOR OPEN SW | Back door opener switch signal /ON or OFF | ON: Back door opener switch is pushed<br>OFF: Back door opener switch is not pushed | - |

OK → **REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU)**

NG

## 6 INSPECT BACK DOOR OPENER SWITCH ASSY




(a) Remove the back door opener switch.
(b) Inspect the resistance of the switch.
**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Free | 10 kΩ or higher |
| | Pushed | Below 1 Ω |

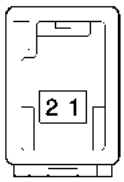
**NG** → **REPLACE BACK DOOR OPENER SWITCH ASSY**

**OK**

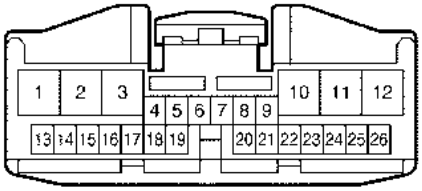
## 7 CHECK WIRE HARNESS (BACK DOOR OPENER SWITCH - POWER BACK DOOR ECU AND BODY GROUND)

**Wire Harness Side**

B12
Back Door Opener Switch




P13
Power Back Door ECU




B68924

(a) Disconnect the B12 switch and P13 ECU connectors.
(b) Check the resistance between the wire harness side connectors.
**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| B12-1 - P13-3 (HSW) | Below 1 Ω |

(c) Check the resistance between the B12 switch connector and body ground.
**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| B12-2 - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

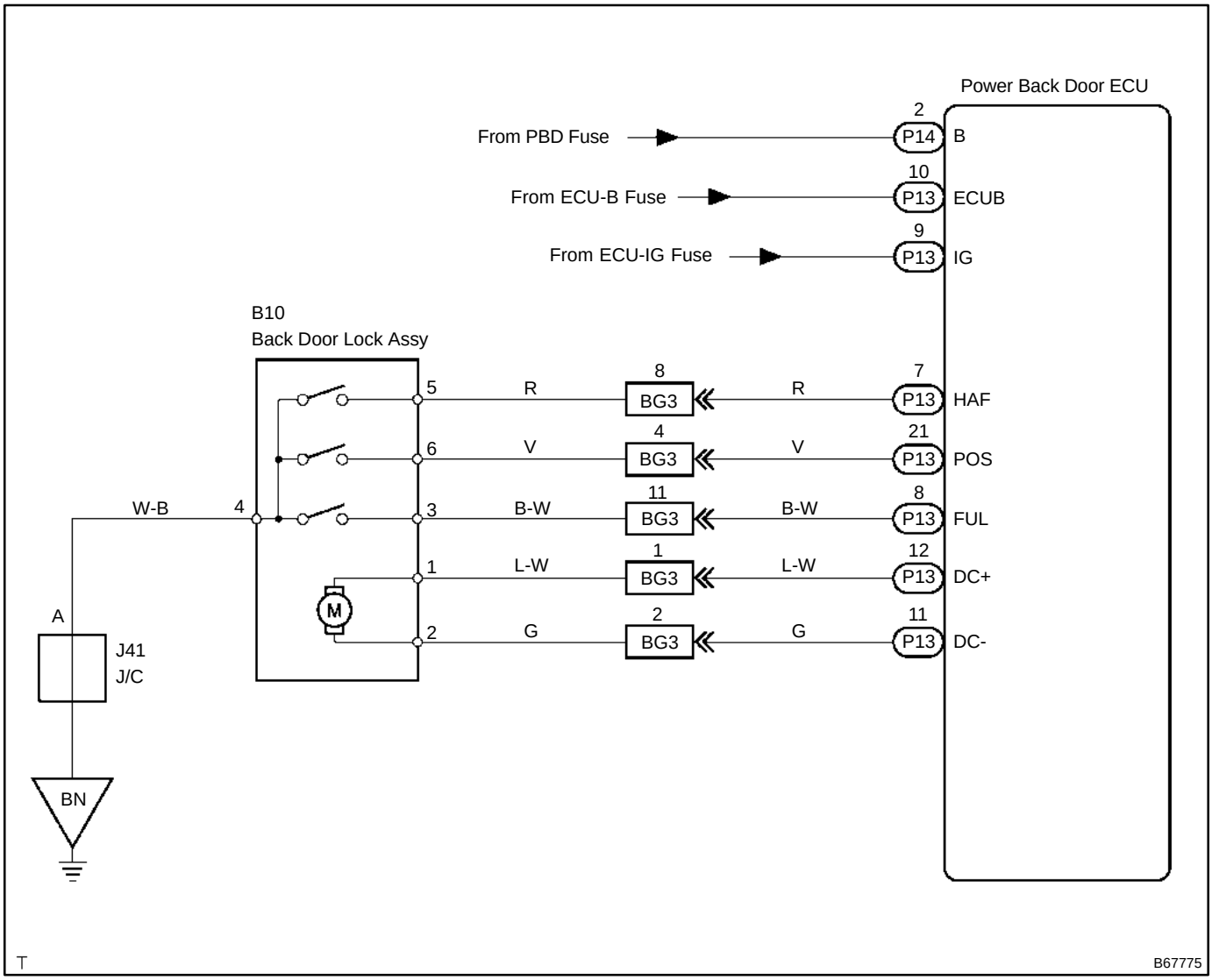
**OK**

**REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU)**

# BACK DOOR CLOSER DOES NOT OPERATE

The power back door ECU controls the back door closer system. In response to the signals output from the switches related to the back door lock, the back door latch activates the closer motor.
HINT:
The back door closer system operates regardless of whether the power back door main switch is ON/OFF.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT BACK DOOR LOCK |
|---|---|

(a) Check that the back door fully closes (fully locked) when the door is closed by hand.

NG → IMPROPER FIT OF BACK DOOR, OR A FOREIGN OBJECT IS STUCK IN BACK DOOR

OK

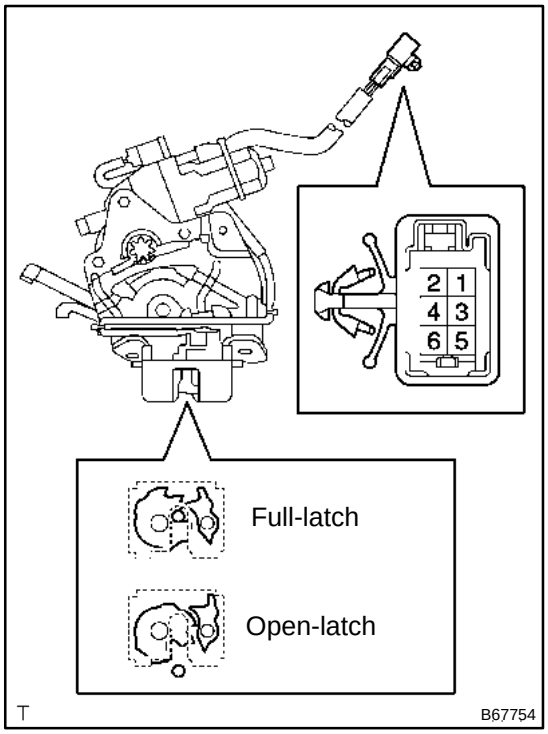
| 2 | POWER SOURCE RESET |
|---|---|

(a) Disconnect the ECU-B fuse and reconnect it. 10 seconds later, check whether the back door closer is operational.

OK → NORMAL

NG

| 3 | INSPECT BACK DOOR LOCK ASSY |
|---|---|



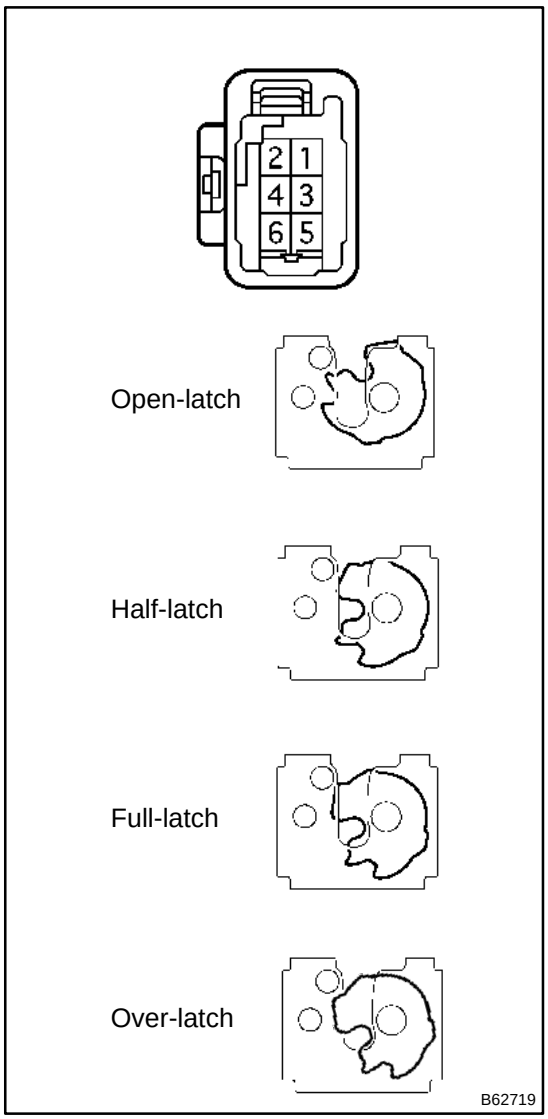

(a) Check operation of the door lock.
(1) Using a screwdriver, push the latch in order to put the back door lock in the locked condition (full-latch position).
(2) Connect the battery positive (+) lead to terminal 1 and the battery negative (-) lead to terminal 2. Then, check operation of the latch.

**Standard: The latch turns to the open-latch position**

(3) Inspect motor operation when battery voltage is applied to the terminals.

**Standard:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 2<br>Battery negative (-) → Terminal 1 | Clockwise (Motor in normal rotation) |
| Battery positive (+) → Terminal 1<br>Battery negative (-) → Terminal 2 | Counterclockwise (Motor in reverse rotation) |




(b) Check the back door courtesy switch resistance.

(1) Check the resistance between the terminals of the courtesy switch.

**Standard:**

| Door Lock Latch Position | Terminal No. | Specified Condition |
|---|---|---|
| Open-latch position, Half-latch position | 3 - 4 | Below 1 Ω |
| Full-latch position, Over-latch position | | 10 kΩ or higher |

(c) Check the back door latch switch resistance.

(1) Check the resistance between the terminals of the latch switch.

**Standard:**

| Door Lock Latch Position | Terminal No. | Specified Condition |
|---|---|---|
| Open-latch position, Over-latch position | 4 - 5 | Below 1 Ω |
| Half-latch position, Full-latch position | | 10 kΩ or higher |

(d) Check the position switch resistance.

(1) Connect the battery positive (+) lead to connector terminal 1 and the negative (-) lead to connector terminal 2.

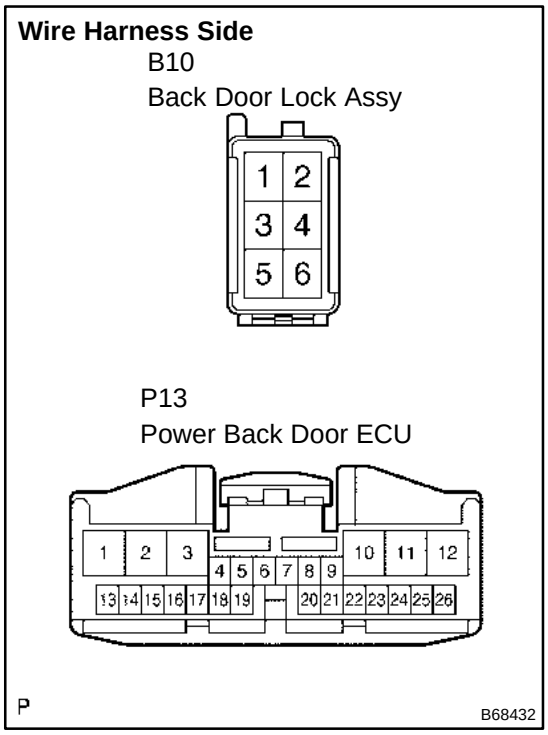
**Standard:**

| Door Lock Latch Position | Terminal No. | Specified Condition |
|---|---|---|
| Any position other than motor stop position (Motor in operation) | 4 - 6 | Below 1 Ω |
| Motor stop position (Gear in original position | | 10 kΩ or higher |

**NG** → **REPLACE BACK DOOR LOCK ASSY**

**OK**

## 4 CHECK WIRE HARNESS (BACK DOOR LOCK ASSY - POWER BACK DOOR ECU)




(a) Disconnect the B10 lock and P13 ECU connectors.

(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| B10-5 - P13-7 (HAF) | Below 1 Ω |
| B10-6 - P13-21 (POS) | |
| B10-3 - P13-8 (FUL) | |
| B10-2 - P13-12 (DC+) | |
| B10-1 - P13-11 (DC-) | |

(c) Check the resistance between the B10 lock connector and body ground.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| B10-4 - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE POWER BACK DOOR ECU**

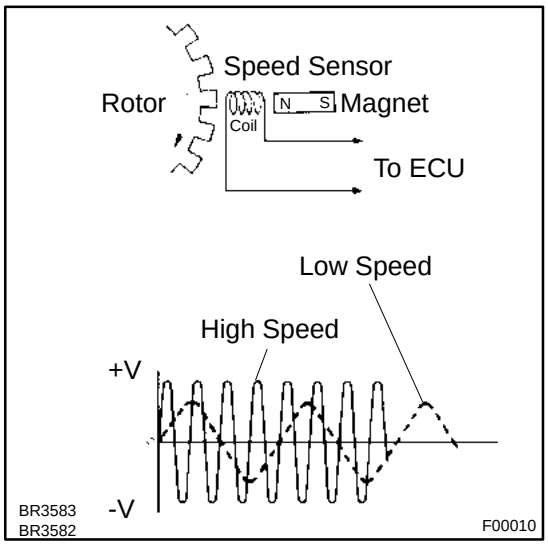
| DTC | C0200/31 | RIGHT FRONT SPEED SENSOR |
|---|---|---|

| DTC | C0205/32 | LEFT FRONT SPEED SENSOR CIRCUIT |
|---|---|---|

| DTC | C1235/35 | FOREIGN MATTER IS ATTACHED ON TIP OF RIGHT FRONT SENSOR |
|---|---|---|

| DTC | C1236/36 | FOREIGN MATTER IS ATTACHED ON TIP OF LEFT FRONT SENSOR |
|---|---|---|

## CIRCUIT DESCRIPTION

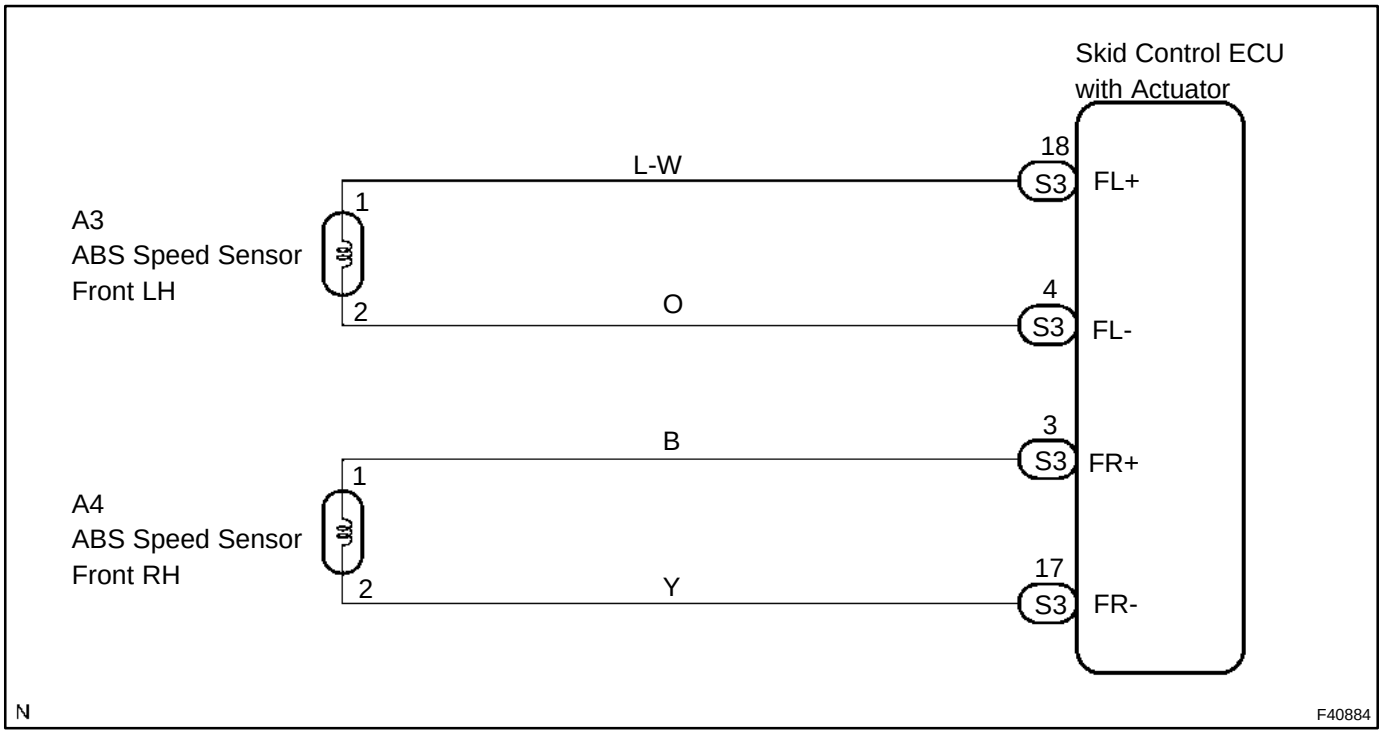



The speed sensor detects wheel speed and sends the appropriate signals to the ECU. These signals are used to control the ABS control system. The front and rear rotors have 48 serrations, respectively.
When the rotors rotate, the magnetic field emitted by the permanent magnet in the speed sensor generates an AC voltage. Since the frequency of this AC voltage changes in direct proportion to the speed of the rotor, the frequency is used by the ECU to detect the speed of each wheel.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| C0200 / 31<br>C0205 / 32 | • With vehicle speed at 10 km/h or more, pulses are not input for 15 (2WD) or 30 (4WD) sec.<br>• Momentary interruption of sensor signal of faulty wheel occurs 7 times or more.<br>• Sensor signal circuit is open for 0.5 sec. or more. | • Right front, left front, right rear, left rear speed sensor<br>• Each speed sensor circuit<br>• Sensor rotor |
| C1235/35<br>C1236/36 | With vehicle speed at 20 km/h or more, sensor signal of faulty wheel generated noise for 5 sec. or more. | • Right front, left front, right rear, left rear speed sensor<br>• Each speed sensor circuit |

- DTC Nos. C0200/31 and C1330/35 are for the right front speed sensor.
- DTC Nos. C0205/32 and C1331/36 are for the left front speed sensor.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

Start the inspection from step 1 if you are using the hand-held tester and start from step 2 if you are not using hand-held tester.

| 1 | READ VALUE OF HAND-HELD TESTER(FRONT SPEED SENSOR) |
|---|---|

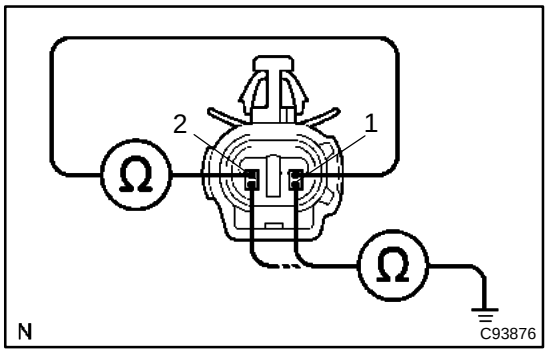
(a) Connect the hand-held tester to the DLC3.
(b) Start the engine.
(c) Select the DATA LIST mode on the hand-held tester.
(d) Check that there is no difference between the speed value output from the speed sensor displayed on the hand-held tester and the speed value displayed on the speedometer when driving the vehicle.
**OK:**
**There is almost no difference in the displayed speed value.**

There is tolerance of ± 10 % in the speedometer indication.

| OK | Go to step 5 |
|---|---|

**NG**

| 2 | INSPECT FRONT SPEED SENSOR |
|---|---|




(a) Make sure that there is no looseness at the connector lock part and connecting part of the connector.
(b) Disconnect the speed sensor connector.
(c) Measure the resistance between terminals 1 and 2 of the speed sensor connector.
**OK:**
**Resistance: 0.92 to 1.22 kΩ**
(d) Measure the resistance between terminals 1 and 2 of the speed sensor connector and body ground.
**OK:**
**Resistance: 1 MΩ or higher**

**NG** → **REPLACE SPEED SENSOR FRONT RH**

**NG** → **REPLACE SPEED SENSOR FRONT LH**

**OK**

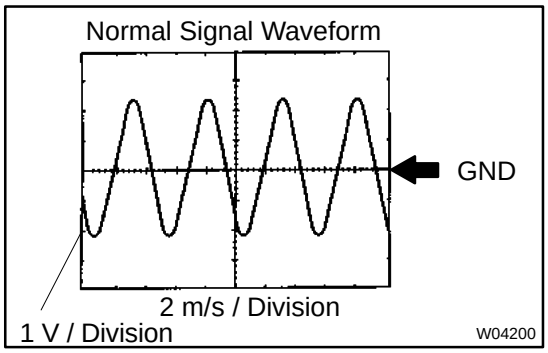
| 3 | CHECK HARNESS AND CONNECTOR(FRONT SPEED SENSOR - SKID CONTROL ECU) |
|---|---|

(a) Check for open or short circuit in harness and connector between each front speed sensor and skid control ECU (See page 01-37 ).

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

## 4 INSPECT SPEED SENSOR AND SENSOR ROTOR SERRATIONS




**(REFERENCE) INSPECTION USING OSCILLOSCOPE**

(a) Connect the oscilloscope to the terminal FR+ - FR- and FL+ - FL- of the skid control ECU.

(b) Drive the vehicle at about 30 km/h (19 mph), and check the signal waveform.

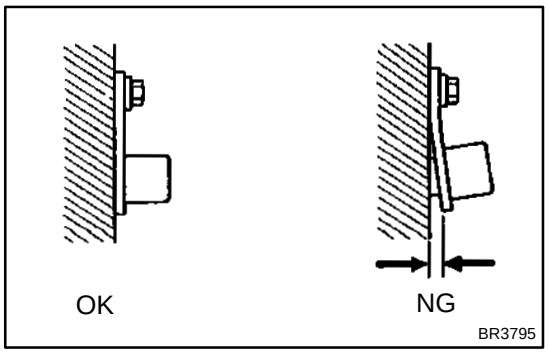
HINT:

- As the vehicle speed (wheel revolution speed) increases, a cycle of the waveform becomes shorter and the fluctuation in the output voltage becomes greater.
- When noise is identified in the waveform on the oscilloscope, error signals are generated due to the speed sensor rotor's scratches, looseness or foreign matter deposited on it.

**OK** → **REPLACE ABS & TRACTION ACTUATOR ASSY**

**NG**

## 5 INSPECT FRONT SPEED SENSOR INSTALLATION




**CHECK:**

**OK:**

**The installation bolt is tightened properly and there is no clearance between the sensor and the front steering knuckle or the rear axle carrier.**

**8.0 N·m (82 kgf·cm, 71 in.·lbf)**

**NG** → **REPLACE SPEED SENSOR FRONT RH**

**NG** → **REPLACE SPEED SENSOR FRONT LH**

**NOTICE:**

**Check the speed sensor signal last (See page 05-435 ).**

**OK**

## 6 INSPECT SPEED SENSOR TIP

(a) Remove the front speed sensor (See page 32-48 ).

(b) Check the sensor tip.

**OK:**

**No scratches or foreign objects on the sensor tip.**

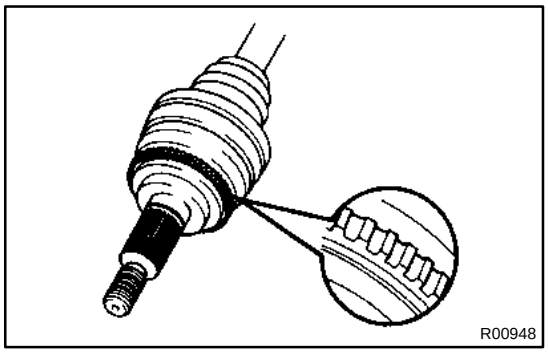
**NG** → **CLEAN OR REPAIR SPEED SENSOR**

**NOTICE:**

**Check the speed sensor signal last (See page 05-435 ).**

**OK**

| 7 | INSPECT SPEED SENSOR ROTOR |
|---|---|




(a) Remove the front speed sensor rotor (See page 30-18 ).

(b) Check the sensor rotor serrations.

**OK:**

**No scratches, missing teeth or foreign objects.**

HINT:

If foreign object is attached, remove it and check the output waveform after reassembling.

**NG** → **CLEAN OR REPAIR SPEED SENSOR ROTOR**

**NOTICE:**

**Check the speed sensor signal last (See page 05-435 ).**

**OK**

**REPLACE ABS & TRACTION ACTUATOR ASSY(See page 32-46 )**

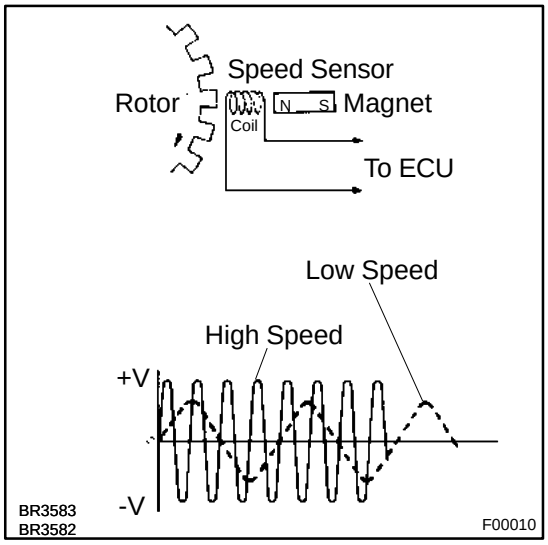
| DTC | C0200/31 | RIGHT FRONT SPEED SENSOR CIRCUIT |
|---|---|---|

| DTC | C0205/32 | LEFT FRONT SPEED SENSOR CIRCUIT |
|---|---|---|

| DTC | C1235/35 | FOREIGN MATTER IS ATTACHED ON TIP OF RIGHT FRONT SENSOR |
|---|---|---|

| DTC | C1236/36 | FOREIGN MATTER IS ATTACHED ON TIP OF LEFT FRONT SENSOR |
|---|---|---|

## CIRCUIT DESCRIPTION



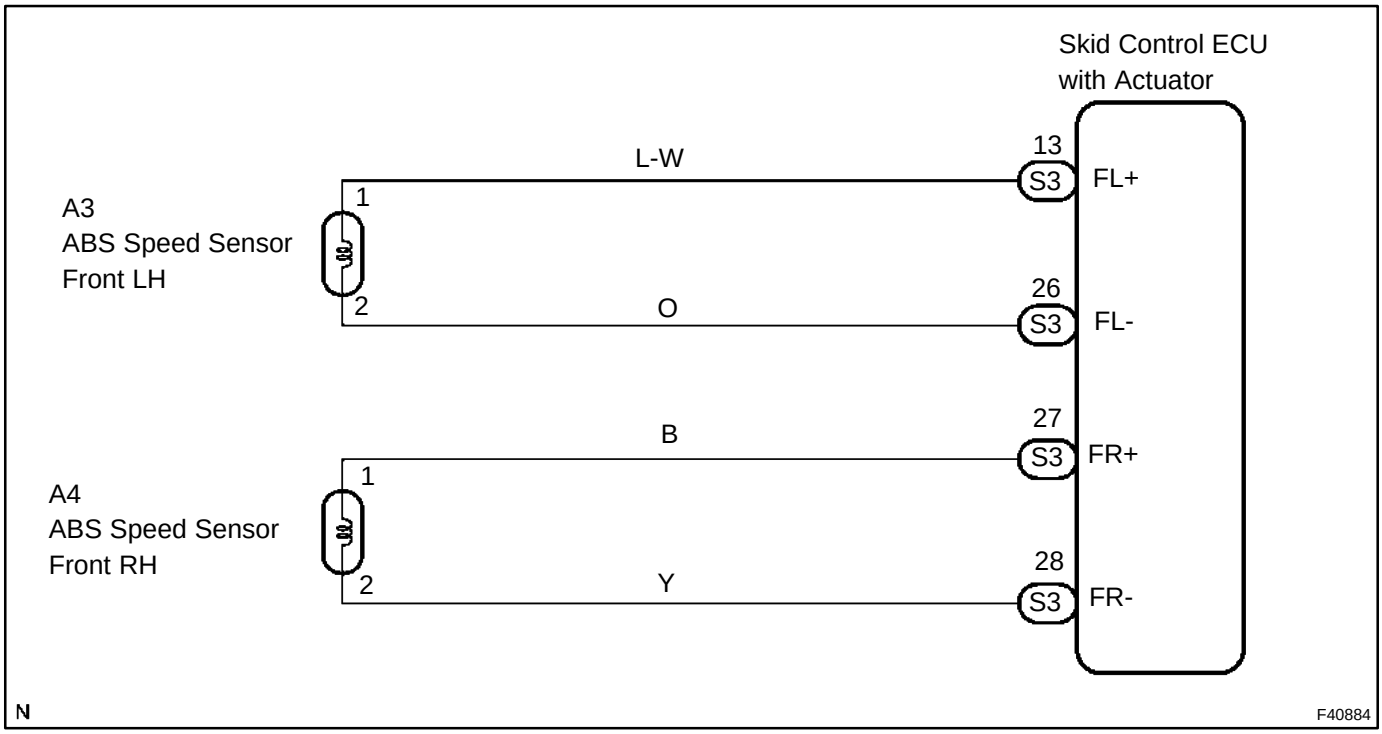

The speed sensor detects wheel speed and transmits the appropriate signals to the ECU. These signals are used for control of the ABS control system. Each of the front and rear rotors has 48 serrations.

When the rotors rotate, the magnetic field generated by the permanent magnet in the speed sensor induces an AC voltage. Since the frequency of this AC voltage changes in direct proportion to the speed of the rotor, the frequency is used by the ECU to detect the speed of each wheel.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| C0200/31<br>C0205/32 | Detection of any of conditions 1. through 3.:<br>1. With vehicle speed at 10 km/h (6 mph) or more, pulses are not input for 15 sec.<br>2. Momentary interruption of the speed sensor signal occurs at least 7 times in the time between turning the ignition switch ON and OFF.<br>3. The condition that the speed sensor signal circuit is open continues for 0.5 sec. or more. | • Right front and left front speed sensor<br>• Each speed sensor circuit<br>• Speed sensor rotor |
| C1235/35<br>C1236/36 | With the vehicle speed at 20 km/h (12 mph) or more, the condition that noise occurs in the speed sensor signal continues for 5 sec. or more. | • Right front and left front speed sensor<br>• Speed sensor rotor |

HINT:
DTC No. C0200/31 and C1235/35 are for the right front speed sensor.
DTC No. C0205/32 and C1236/36 are for the left front speed sensor.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

HINT:

Start the inspection from step 1 if you are using the hand-held tester and start from step 2 if you are not using the hand-held tester.

| 1 | READ VALUE OF HAND-HELD TESTER(FRONT SPEED SENSOR) |
|---|---|

(a) Connect the hand-held tester to the DLC3.
(b) Start the engine.
(c) Select the DATA LIST mode on the hand-held tester.
(d) Check that there is no difference between the speed value output from the speed sensor displayed on the hand-held tester and the speed value displayed on the speedometer when driving the vehicle.
**OK:**
**There is almost no difference in the displayed speed value.**

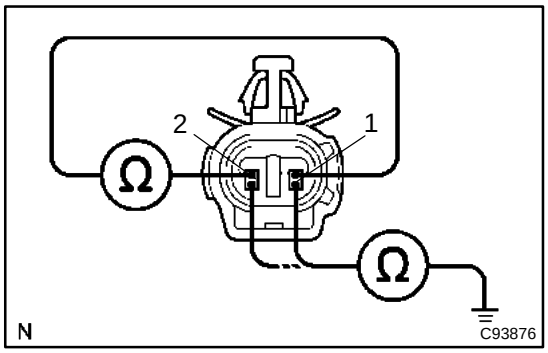
HINT:

There is tolerance of ±10 % in the speedometer indication.

| OK | Go to step 5 |
|---|---|

NG

## 2 INSPECT FRONT SPEED SENSOR




(a) Remove the fender liner.
(b) Disconnect the speed sensor connector.
(c) Measure resistance between terminals 1 and 2 of the speed sensor connector.
**OK: 0.92 to 1.22 kΩ at 20°C**
(d) Measure resistance between each of terminals 1 and 2 of the speed sensor connector and body ground.
**OK:**
**Resistance: 1 MΩ or higher**

**NG** → **REPLACE SPEED SENSOR FRONT RH**

**NG** → **REPLACE SPEED SENSOR FRONT LH**

**NOTICE:**
**Check the speed sensor signal last (See page 05-386 ).**

**OK**

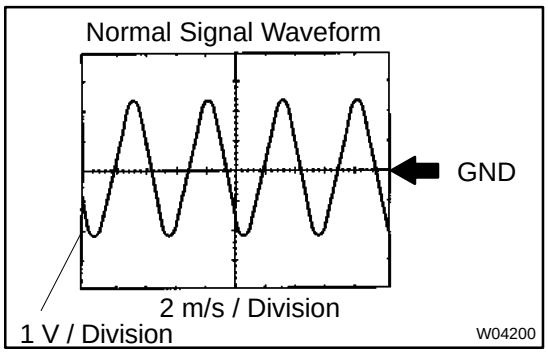
## 3 CHECK HARNESS AND CONNECTOR(FRONT SPEED SENSOR - SKID CONTROL ECU)

(a) Check for open or short circuit in harness and connector between each front speed sensor and the skid control ECU (See page 01-37 ).

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

## 4 INSPECT SPEED SENSOR AND SENSOR ROTOR SERRATIONS



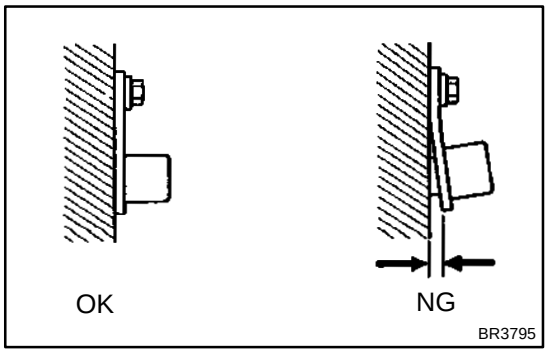

**(REFERENCE) INSPECTION USING OSCILLOSCOPE**
(a) Connect the oscilloscope to the terminal FR+ - FR- and FL+ - FL- of the skid control ECU.
(b) Drive the vehicle at about 30 km/h (19 mph), and check the signal waveform.

HINT:
- As the vehicle speed (wheel revolution speed) increases, a cycle of the waveform becomes shorter and the fluctuation in the output voltage becomes greater.
- When noise is identified in the waveform on the oscilloscope, error signals are generated due to the speed sensor rotor's scratches, looseness or foreign matter deposited on it.

**OK** → **REPLACE BRAKE ACTUATOR ASSY (See page 32-43 )**

**NG**

| 5 | INSPECT FRONT SPEED SENSOR INSTALLATION |
|---|---|




(a) Check the speed sensor installation.
**OK:**
**The installation bolt is tightened properly and there is no clearance between the sensor and front steering knuckle.**
**Torque: 8.0 N·m (82 kgf·cm, 71 in.·lbf)**

**NG** → **REPLACE SPEED SENSOR FRONT RH**

**NG** → **REPLACE SPEED SENSOR FRONT LH**

**NOTICE:**
**Check the speed sensor signal last (See page 05-386 ).**

**OK**

| 6 | INSPECT SPEED SENSOR TIP |
|---|---|

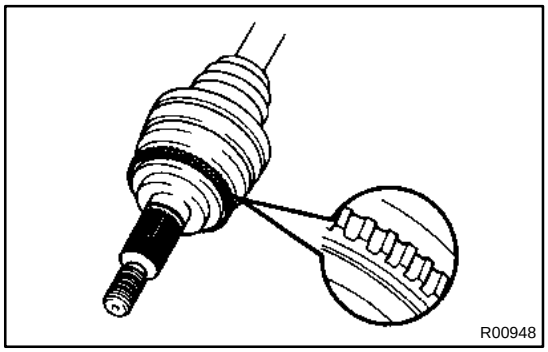
(a) Remove the front speed sensor (See page 32-48 ).
(b) Check the sensor tip.
**OK:**
**No scratches or foreign objects on the sensor tip.**

**NG** → **CLEAN OR REPAIR SPEED SENSOR**

**NOTICE:**
**Check the speed sensor signal last (See page 05-386 ).**

**OK**

| 7 | INSPECT SPEED SENSOR ROTOR |
|---|---|




(a) Remove the front speed sensor rotor (See page 30-18 ).
(b) Check the sensor rotor serrations.
**OK:**
**No scratches, missing teeth or foreign objects.**
HINT:
If a foreign object is attached, remove it and after reassembling, check the output waveform.

**NG** → **CLEAN OR REPAIR SPEED SENSOR ROTOR**

**NOTICE:**
**Check the speed sensor signal last (See page 05-386 ).**

**OK**

**REPLACE BRAKE ACTUATOR ASSY (See page 32-43 )**

| DTC | C0210/33 | RIGHT REAR SPEED SENSOR CIRCUIT |
|---|---|---|

| DTC | C0215/34 | LEFT REAR SPEED SENSOR CIRCUIT |
|---|---|---|

| DTC | C1238/38 | FOREIGN MATTER IS ATTACHED ON TIP OF RIGHT REAR SENSOR |
|---|---|---|

| DTC | C1239/39 | FOREIGN MATTER IS ATTACHED ON TIP OF LEFT REAR SENSOR |
|---|---|---|

## CIRCUIT DESCRIPTION

Refer to DTC C0200/31, C0205/32, C1235/35, C1236/36 on page 05-397 .

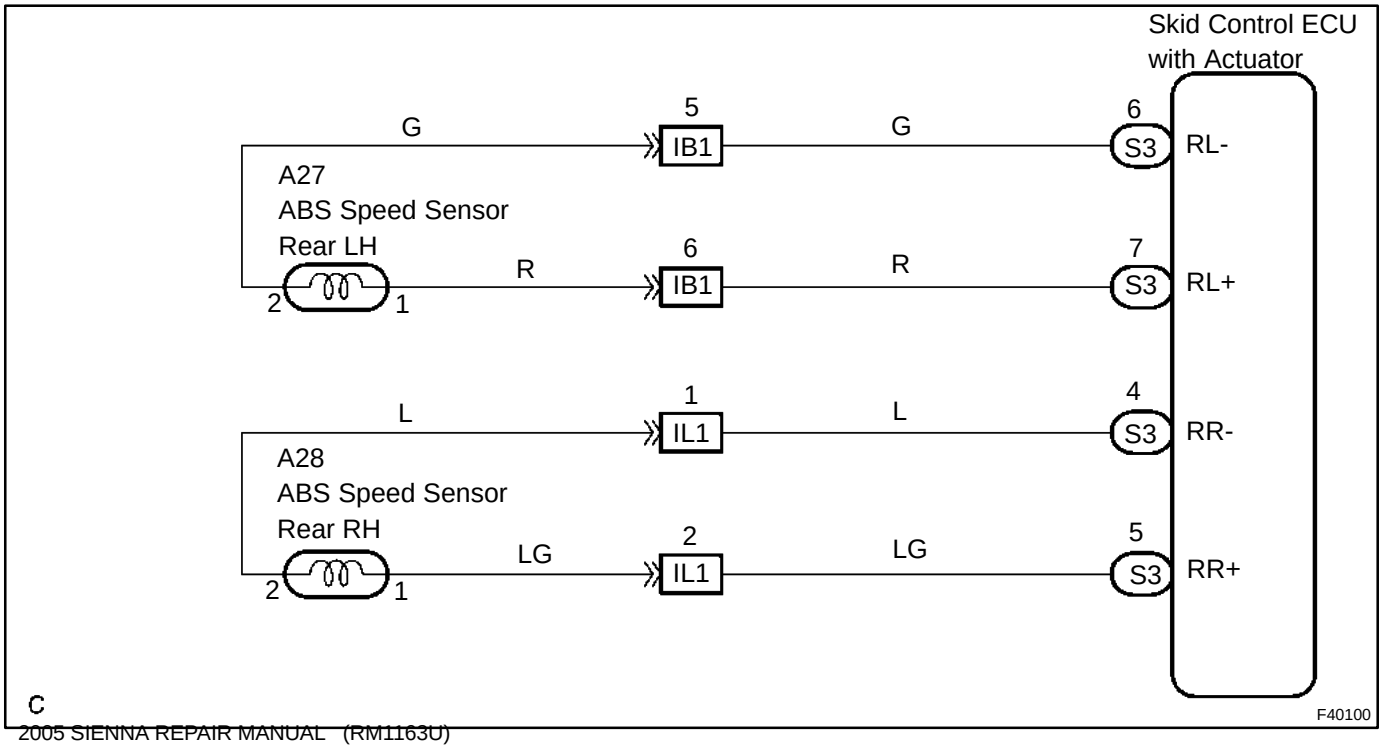
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| C0210/33<br>C0215/34 | Detection of any of conditions 1. through 3.:<br>1. With vehicle speed at 10 km/h (6 mph) or more, pulses are not input for 15 sec.<br>2. Momentary interruption of the speed sensor signal occurs at least 7 times in the time between turning the ignition switch ON and OFF.<br>3. The condition that the speed sensor signal circuit is open continues for 0.5 sec. or more. | • Right rear and left rear speed sensor<br>• Each speed sensor circuit<br>• Speed sensor rotor |
| C1238/38<br>C1239/39 | With the vehicle speed at 20 km/h (12 mph) or more, the condition that noise occurs in the speed sensor signal continues for 5 sec. or more. | • Right rear and left rear speed sensor<br>• Speed sensor rotor |

HINT:

DTC No. C0210/33, C1238/38 are for the right rear speed sensor.

DTC No. C0215/34, C1239/39 are for the left rear speed sensor.

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

Start the inspection from step 1 if you are using the hand-held tester and start from step 2 if you are not using the hand-held tester.

| 1 | READ VALUE OF HAND-HELD TESTER(SKID CONTROL SENSOR) |
|---|---|

(a) Connect the hand-held tester to the DLC3.
(b) Start the engine.
(c) Select the DATA LIST mode on the hand-held tester.
(d) Check that there is no difference between the speed value output from the speed sensor displayed on the hand-held tester and the speed value displayed on the speedometer when driving the vehicle.
**OK:**
**There is almost no difference in the displayed speed value.**

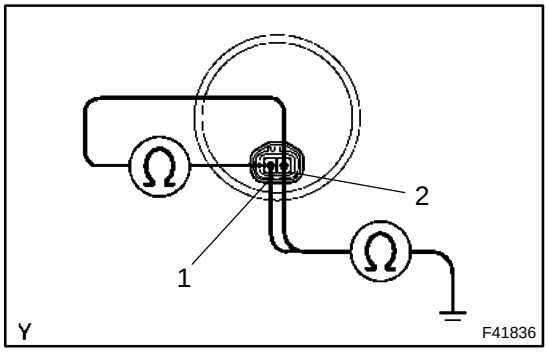
HINT:

There is tolerance of ± 10 % in the speedometer indication.

**OK** → **Go to step 5**

**NG**

| 2 | INSPECT REAR SPEED SENSOR |
|---|---|




(a) Disconnect the skid control sensor connector.
(b) Measure resistance between terminals 1 and 2 of the skid control sensor connector.
**OK:**
**Resistance: less than 2.2 kΩ**
(c) Measure resistance between each of terminals 1 and 2 of the skid control sensor connector and body ground.
**OK:**
**Resistance: 1 MΩ or higher**

**NOTICE:**

**Check the speed sensor signal last (See page 05-386 ).**

**NG** → **REPLACE REAR SPEED SENSOR**

**OK**

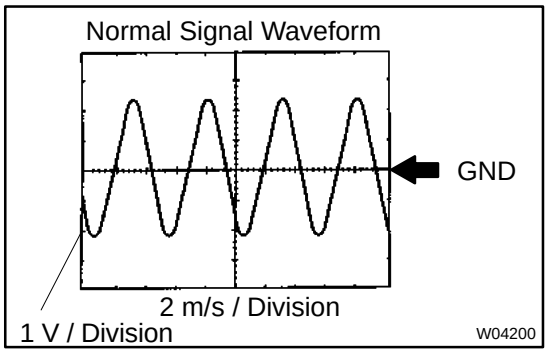
| 3 | CHECK HARNESS AND CONNECTOR(SKID CONTROL SENSOR - SKID CONTROL ECU) |
|---|---|

(a) Check for an open or short circuit in harness and connector between each front speed sensor and the skid control ECU (See page 01-37 ).

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

## 4 INSPECT SENSOR AND SENSOR ROTOR SERRATIONS




**(REFERENCE) INSPECTION USING OSCILLOSCOPE**

(a) Connect the oscilloscope to the terminals RR+ - RR- and RL+ - RL- of the skid control ECU.

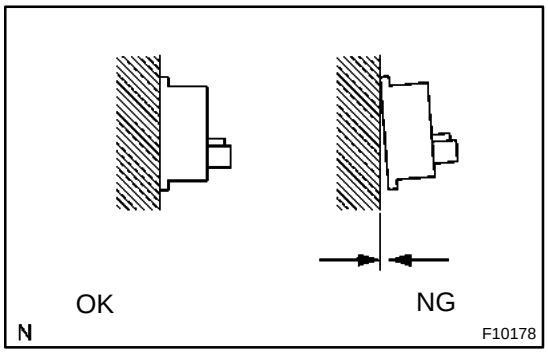
(b) Drive the vehicle at about 30 km/h (19 mph), and check the signal waveform.

- As the vehicle speed (wheel revolution speed) increases, a cycle of the waveform becomes shorter and the fluctuation in the output voltage becomes greater.
- When noise is identified in the waveform on the oscilloscope, error signals are generated due to the speed sensor rotor's scratches, looseness or foreign matter deposited on it.

**OK** → **REPLACE BRAKE ACTUATOR ASSY (See page 32-43 )**

**NG**

## 5 INSPECT SENSOR INSTALLATION




(a) Check the sensor installation.

**OK:**

**There is no clearance between the sensor and rear axle carrier.**

**NG** → **REPLACE REAR SPEED SENSOR**

**NOTICE:**

**Check the speed sensor signal last (See page 05-386 ).**

**OK**

## 6 INSPECT SKID CONTROL SENSOR TIP

(a) Remove the skid control sensor (See page 30-46 ).

(b) Check the sensor tip.

**OK:**

**No scratches or foreign objects on the sensor tip.**

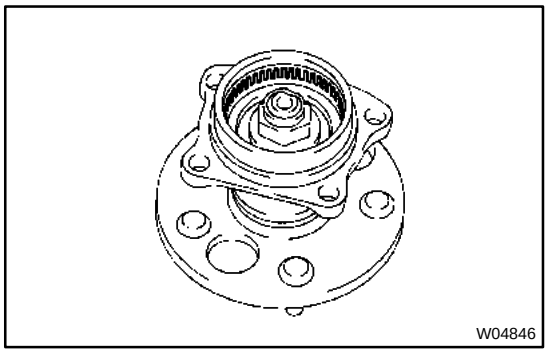
**NG** → **CLEAN OR REPAIR SKID CONTORL SENSOR**

**NOTICE:**

**Check the speed sensor signal last (See page 05-386 ).**

**OK**

| 7 | INSPECT SENSOR ROTOR |
|---|---|




(a) Check the sensor rotor serrations.
**OK:**
**No scratches, missing teeth or foreign objects.**

NG → **REPLACE REAR AXLE HUB & BEARING ASSY RH**

NG → **REPLACE REAR AXLE HUB & BEARING ASSY LH**

**NOTICE:**
**Check the speed sensor signal last (See page 05-386 ).**

**OK**

**REPLACE BRAKE ACTUATOR ASSY (See page 32-43 )**

**NOTICE:**
**Do not reuse the skid control sensor.**

| DTC | C0210/33 | RIGHT REAR SPEED SENSOR |
|---|---|---|

| DTC | C0215/34 | LEFT REAR SPEED SENSOR CIRCUIT |
|---|---|---|

| DTC | C1238/38 | FOREIGN MATTER IS ATTACHED ON TIP OF RIGHT REAR SENSOR |
|---|---|---|

| DTC | C1239/39 | FOREIGN MATTER IS ATTACHED ON TIP OF LEFT REAR SENSOR |
|---|---|---|

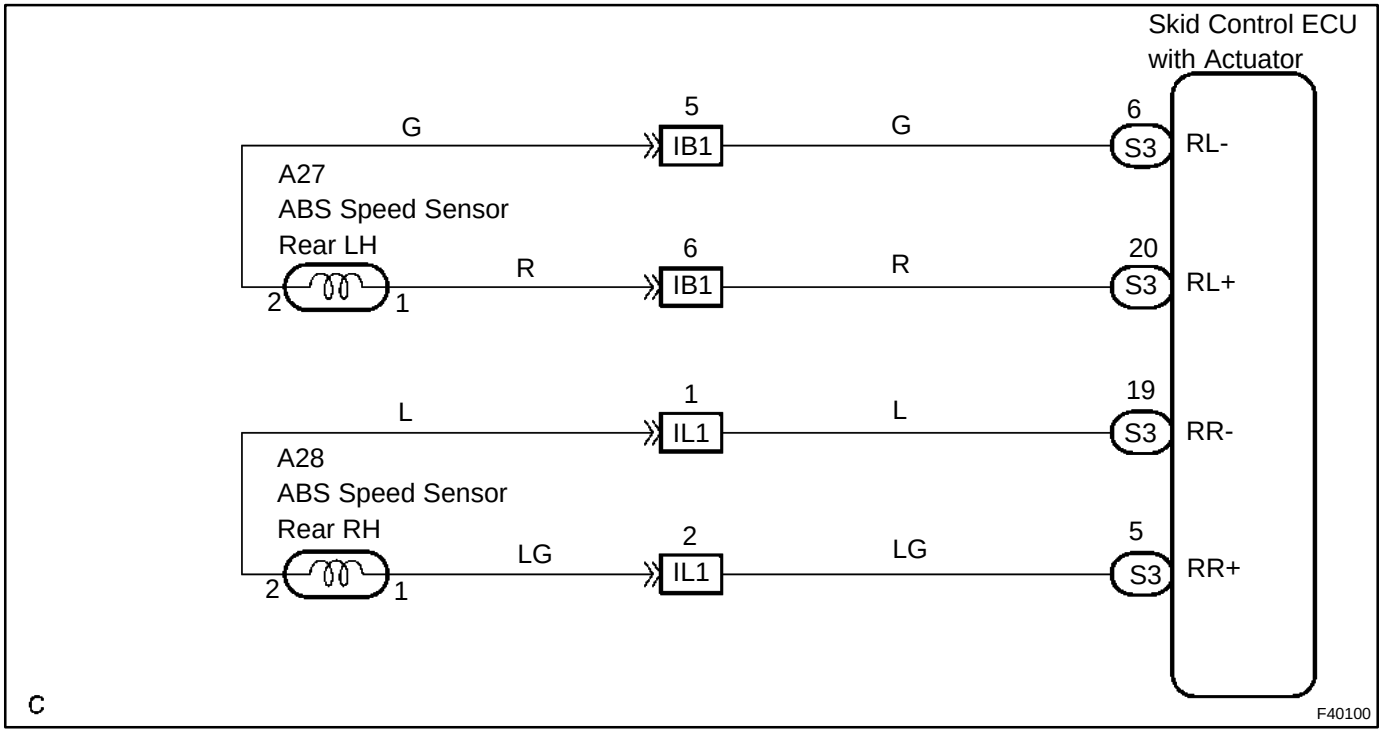
## CIRCUIT DESCRIPTION

Refer to DTC C0200/31, C0205/32, C1235/35, C1236/36 on page 05-455 .

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| C0210 / 33<br>C0215 / 34 | • With vehicle speed at 10 km/h or more, pulses are not input for 15 (2WD) or 30 (4WD) sec.<br>• Momentary interruption of sensor signal of faulty wheel occurrs 7 times or more.<br>• Sensor signal circuit is open for 0.5 sec. or more. | • Right front, left front, right rear, left rear speed sensor<br>• Each speed sensor circuit<br>• Sensor rotor |
| C1238/38<br>C1239/39 | With vehicle speed at 20 km/h or more, sensor signal of faulty wheel generated noise for 5 sec. or more. | • Right front, left front, right rear, left rear speed sensor<br>• Each speed sensor circuit |

- DTC Nos. C0210/33 and C1332/38 are for the right rear speed sensor.
- DTC Nos. C0215/34 and C1333/39 are for the left rear speed sensor.

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

Start the inspection from step 1 if you are using the hand-held tester and start from step 2 if you are not using the hand-held tester.

| 1 | READ VALUE OF HAND-HELD TESTER(SKID CONTROL SENSOR) |
|---|---|

(a) Connect the hand-held tester to the DLC3.
(b) Start the engine.
(c) Select the DATA LIST mode on the hand-held tester.
(d) Check that there is no difference between the speed value output from the speed sensor displayed on the hand-held tester and the speed value displayed on the speedometer when driving the vehicle.
**OK:**
**There is almost no difference in the displayed speed value.**

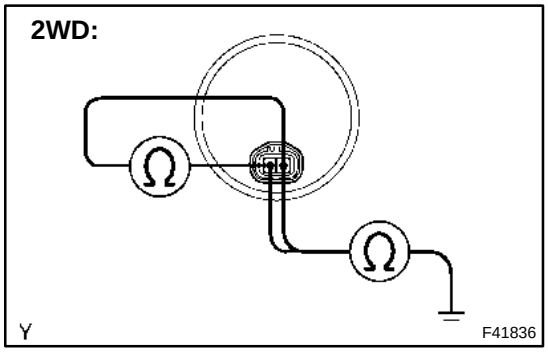
HINT:

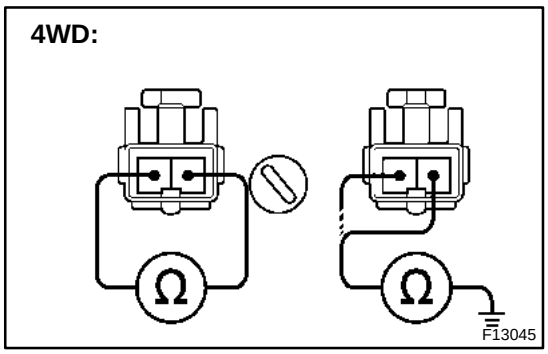
There is tolerance of ± 10 % in the speedometer indication.

**OK** → **Go to step 5**

**NG**

| 2 | INSPECT REAR SPEED SENSOR |
|---|---|




**2WD:**
(a) Disconnect the skid control sensor connector.
(b) Measure the resistance between terminals 1 and 2 of the skid control sensor connector.
**OK:**
**Resistance: less than 2.2 kΩ**
(c) Measure resistance between each of terminals 1 and 2 of the skid control sensor connector and body ground.
**OK:**
**Resistance: 1 MΩ or higher**

**4WD:**
(a) Remove the seat cushion and seatback.
(b) Disconnect the speed sensor connector.
(c) Measure the resistance between terminals 1 and 2 of the speed sensor connector.
**OK:**
**Resistance: 1.1 ± 0.2 kΩ at 25 ± 5°C**
(d) Measure the resistance between each of terminals 1 and 2 of skid control sensor connector and body ground.
**OK:**
**Resistance: 1 MΩ or higher**

**NOTICE:**
**Check the speed sensor signal last (See page 05-435 ).**

**NG** → **REPLACE REAR SPEED SENSOR**

**OK**

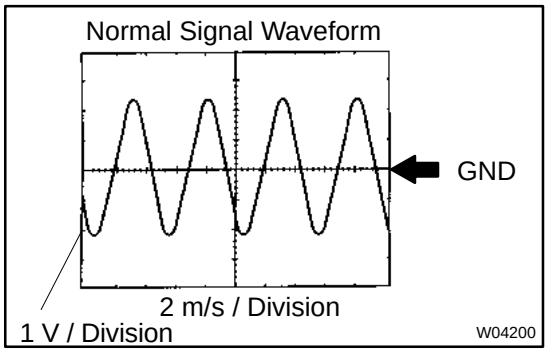
| 3 | CHECK HARNESS AND CONNECTOR(SKID CONTROL SENSOR - SKID CONTROL ECU) |
|---|---|

(a) Check for an open or short circuit in harness and connector between each front speed sensor and skid control ECU (See page 01-37 ).

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

| 4 | INSPECT SENSOR AND SENSOR ROTOR SERRATIONS |
|---|---|




**(REFERENCE) INSPECTION USING OSCILLOSCOPE**

(a) Connect the oscilloscope to the terminals RR+ - RR- and RL+ - RL- of the skid control ECU.

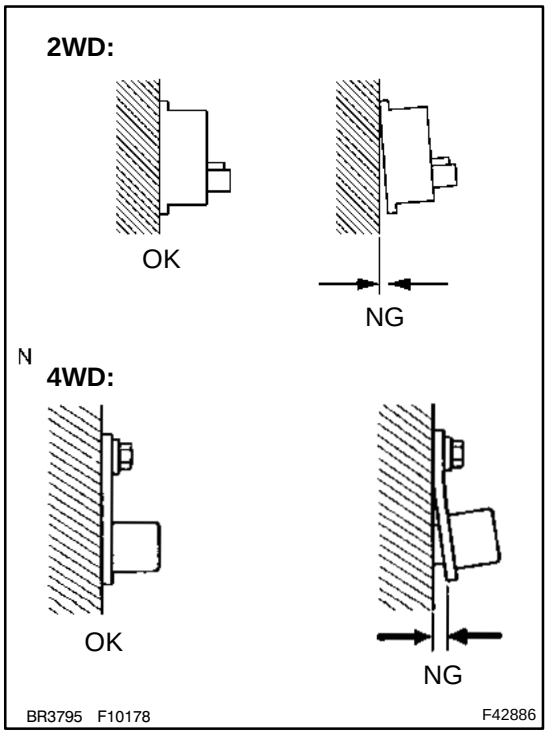
(b) Drive the vehicle at about 30 km/h (19 mph), and check the signal waveform.

- As the vehicle speed (wheel revolution speed) increases, a cycle of the waveform becomes shorter and the fluctuation in the output voltage becomes greater.
- When noise is identified in the waveform on the oscilloscope, error signals are generated due to the speed sensor rotor's scratches, looseness or foreign matter deposited on it.

OK → **REPLACE ABS & TRACTION ACTUATOR ASSY (See page 32-46 )**

NG

| 5 | INSPECT SKID CONTROL SENSOR INSTALLATION |
|---|---|




(a) Check the sensor installation.

**OK:**

**There is no clearance between the sensor and rear axle carrier.**

**NG** → **REPLACE REAR SPEED SENSOR**

**OK**

| 6 | INSPECT SKID CONTROL SENSOR TIP |
|---|---|

(a) Remove the skid control sensor (See page 32-50 (2WD) or 32-52 (4WD)).

(b) Check the sensor tip.

**OK:**

**No scratches or foreign objects on the sensor tip.**

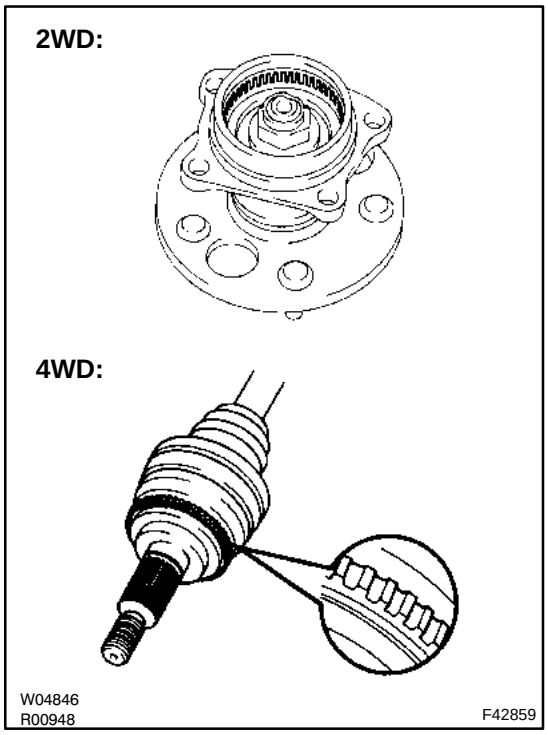
**NG** → **CLEAN OR REPAIR SKID CONTORL SENSOR**

**NOTICE:**

**Check the speed sensor signal last (See page 05-435 ).**

**OK**

| 7 | INSPECT SENSOR ROTOR |
|---|---|




(a) Check the sensor rotor serrations.
**OK:**
**No scratches, missing teeth or foreign objects.**

**NG** → **REPLACE SPEED SENSOR ROTOR**

**NOTICE:**
**Check the speed sensor signal last (See page 05-435 ).**

**OK**

**REPLACE ABS & TRACTION ACTUATOR ASSY(See page 32-46 )**

| DTC | C0226/21 | SFR SOLENOID CIRCUIT |
|---|---|---|

| DTC | C0236/22 | SFL SOLENOID CIRCUIT |
|---|---|---|

| DTC | C0246/23 | SRR SOLENOID CIRCUIT |
|---|---|---|

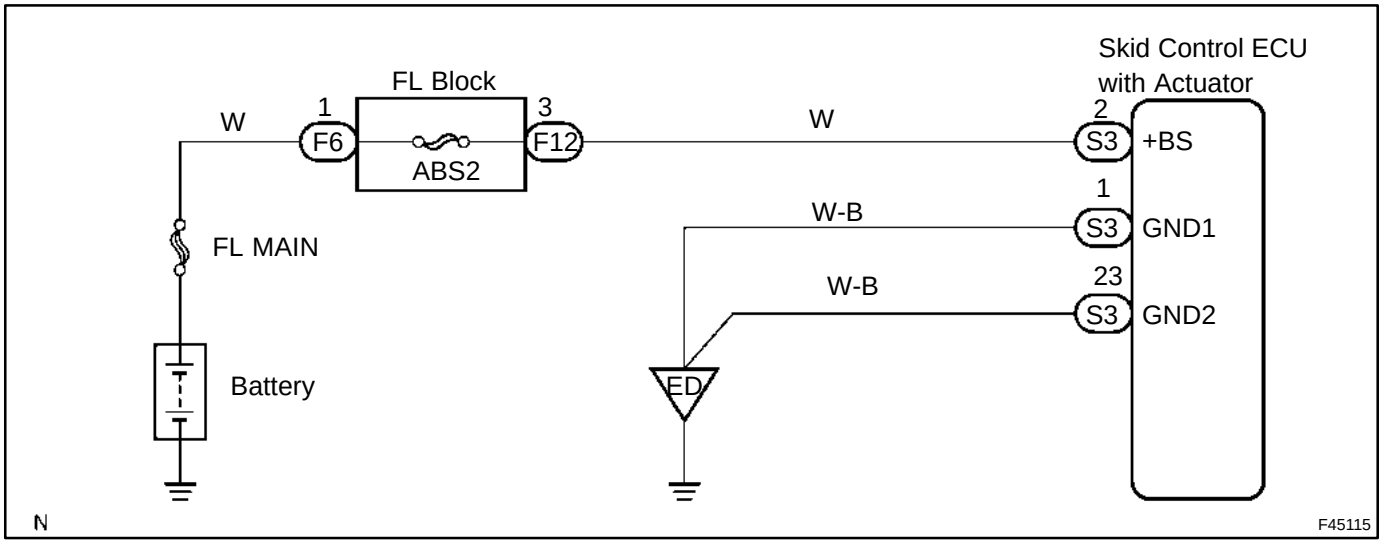
| DTC | C0256/24 | SRL SOLENOID CIRCUIT |
|---|---|---|

## CIRCUIT DESCRIPTION

These solenoids goes on when receivingsignals are received from the ECU and control the pressure acting on the wheel cylinders to control the braking force.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| C0226/21<br>C0236/22<br>C0246/23<br>C0256/24 | Detection of any condition in 1. and 2.:<br>1. With IG1 terminal voltage at 10V to 16V, solenoid circuit is an open or short for 0.05 sec. or longer.<br>2. With IG1 terminal voltage at 10V to 16V, during ABS control solenoid relay contact is OFF for 0.05 sec. or longer. | • Each solenoid circuit<br>• Brake actuator |

## WIRING DIAGRAM



## INSPECTION PROCEDURE

| 1 | RECONFIRM DTC |
|---|---|

(a) Check if other DTCs are detected (See page 05-386 ).

YES → REPAIR CIRCUIT INDICATED BY OUTPUT CODE

NO

REPLACE BRAKE ACTUATOR ASSY (See page 32-43 )

| DTC | C0226/21 | SFR SOLENOID CIRCUIT |
|---|---|---|

| DTC | C0236/22 | SFL SOLENOID CIRCUIT |
|---|---|---|

| DTC | C0246/23 | SRR SOLENOID CIRCUIT |
|---|---|---|

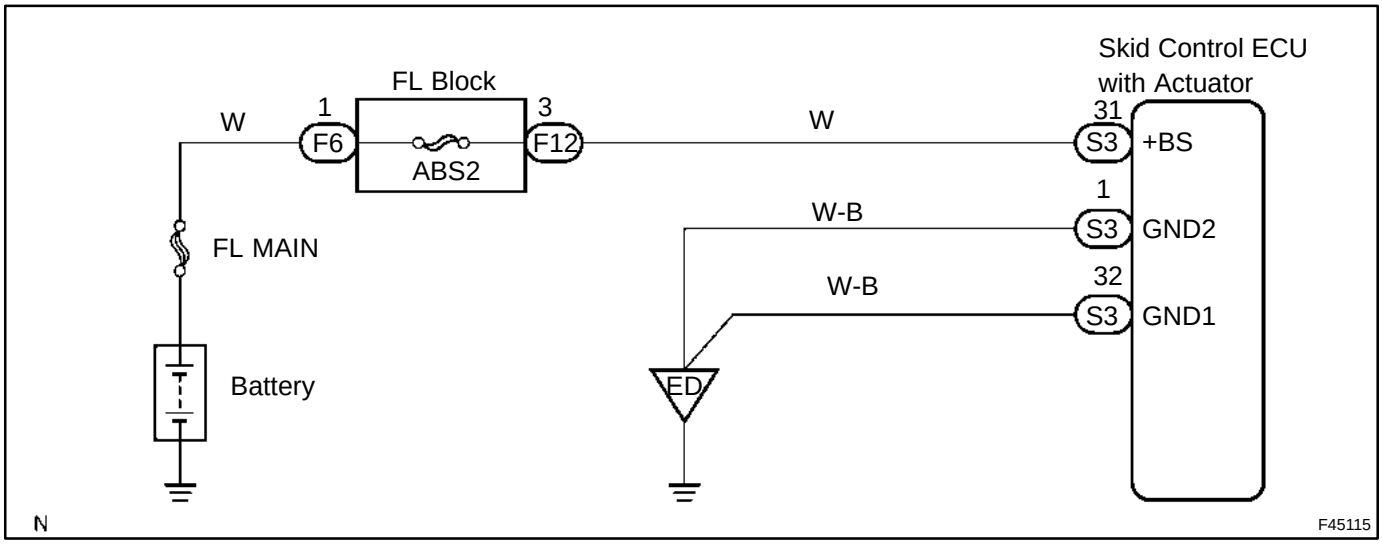
| DTC | C0256/24 | SRL SOLENOID CIRCUIT |
|---|---|---|

## CIRCUIT DESCRIPTION

This solenoid turns on when receiving signals from the ECU and controls the pressure acting on the wheel cylinders to control the braking force.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| C0226 / 21 | Open or short circuit of front right solenoid circuit (SFRR or SFRH) continues for 0.05 sec, or more. | • ABS & Traction actuator assy |
| C0236 / 22 | Open or short circuit of front left solenoid circuit (SFLR or SFLH) continues for 0.05 sec, or more. | |
| C0246 / 23 | Open or short circuit of rear right solenoid circuit (SRRR or SRRH) continues for 0.05 sec, or more. | |
| C0236 / 22 | Open or short circuit of rear left solenoid circuit (SRLR or SRLH) continues for 0.05 sec, or more. | |

## WIRING DIAGRAM



## INSPECTION PROCEDURE

| 1 | RECONFIRM DTC |
|---|---|

(a) Check if the DTCs are detected (See page 05-435 ).

NO → END

YES

REPLACE ABS & TRACTION ACTUATOR ASSY(See page 32-46 )

| DTC | C0273/13 | OPEN CIRCUIT IN ABS MOTOR RELAY CIRCUIT |
|---|---|---|

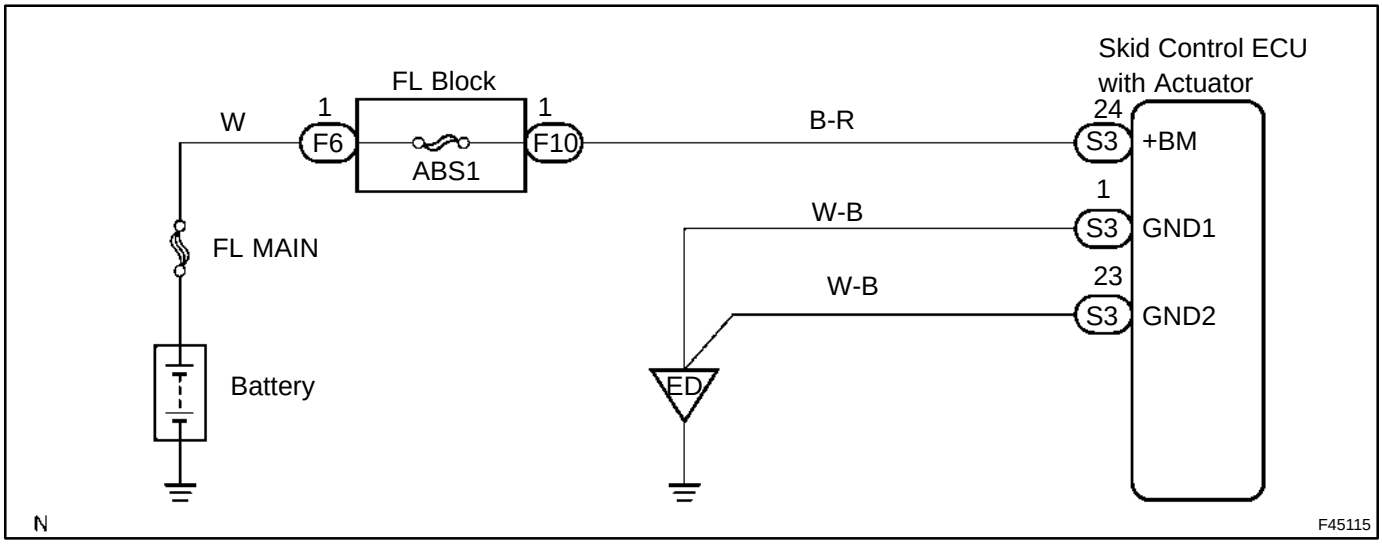
| DTC | C0274/14 | B+ SHORT CIRCUIT IN ABS MOTOR RELAY CIRCUIT |
|---|---|---|

## CIRCUIT DESCRIPTION

The ABS motor relay supplies power to the ABS pump motor. While the ABS is activated, the ECU switches the motor relay ON and operates the ABS pump motor.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| C0273/13 | With IG1 voltage 10V or below during initial check or ABS control, pump motor relay is turned ON, and relay contact is not ON for 0.2 sec. or longer. | • ABS motor relay<br>• ABS motor relay circuit |
| C0274/14 | When pump motor relay is turned OFF, relay contact is ON for 3 sec. or longer. | |

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

Start the inspection from step 1 if you are using the hand-held tester and start from step 2 if you are not using the hand-held tester.

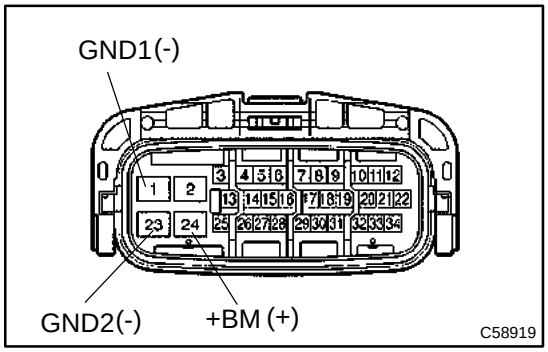
| 1 | PERFORM ACTIVE TEST BY HAND-HELD TESTER(ABS MOTOR RELAY) |
|---|---|

(a) Connect the hand-held tester to the DLC3.
(b) Start the engine.
(c) Select the ACTIVE TEST mode on the hand-held tester.
(d) Check the operation sound of the ABS motor individually when operating it with the hand-held tester.
**OK:**
**The operation sound of the ABS motor should be heard.**

**OK** → **REPLACE BRAKE ACTUATOR ASSY (See page 32-43 )**

**NG**

| 2 | INSPECT SKID CONTROL ECU CONNECTOR(+BM TERMINAL VOLTAGE) |
|---|---|




(a) Disconnect the skid control ECU connector.
(b) Measure the voltage between terminals +BM and GND1, 2 of the skid control ECU harness side connector.
**OK:**
**Voltage: 10 to 14 V**

**OK** → **REPLACE BRAKE ACTUATOR ASSY (See page 32-43 )**

**NG**

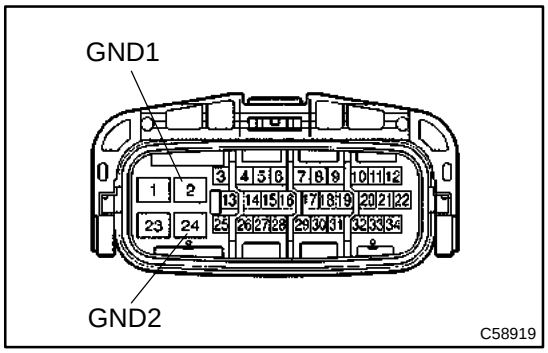
| 3 | INSPECT FUSE(ABS1 FUSE) |
|---|---|

(a) Check continuity of the ABS1 fuse in the FL block.
**OK:**
**Continuity**

**NG** → **CHECK FOR SHORT IN ALL HARNESS AND CONNECTOR CONNECTED FUSE AND REPLACE FUSE(See page 01-5 )**

**OK**

| 4 | INSPECT SKID CONTROL ECU CONNECTOR(GND TERMINAL CONTINUITY) |
|---|---|




(a) Measure resistance between terminal GND1, 2 of the skid control ECU harness side connector and body ground.
**OK:**
**Resistance: 1 Ω or less**

**NG** → **CHECK AND REPAIR HARNESS AND CONNECTOR(GND TERMINAL - BODY GROUND)(See page 01-37 )**

**OK**

**CHECK AND REPAIR HARNESS AND CONNECTOR(+BM TERMINAL - BATTERY) (See page 01-37 )**

| DTC | C0273/13 | OPEN OR SHORT CIRCUIT IN ABS MOTOR RELAY CIRCUIT |
|---|---|---|

| DTC | C0274/14 | SHORT CIRCUIT IN ABS MOTOR RELAY CIRCUIT |
|---|---|---|

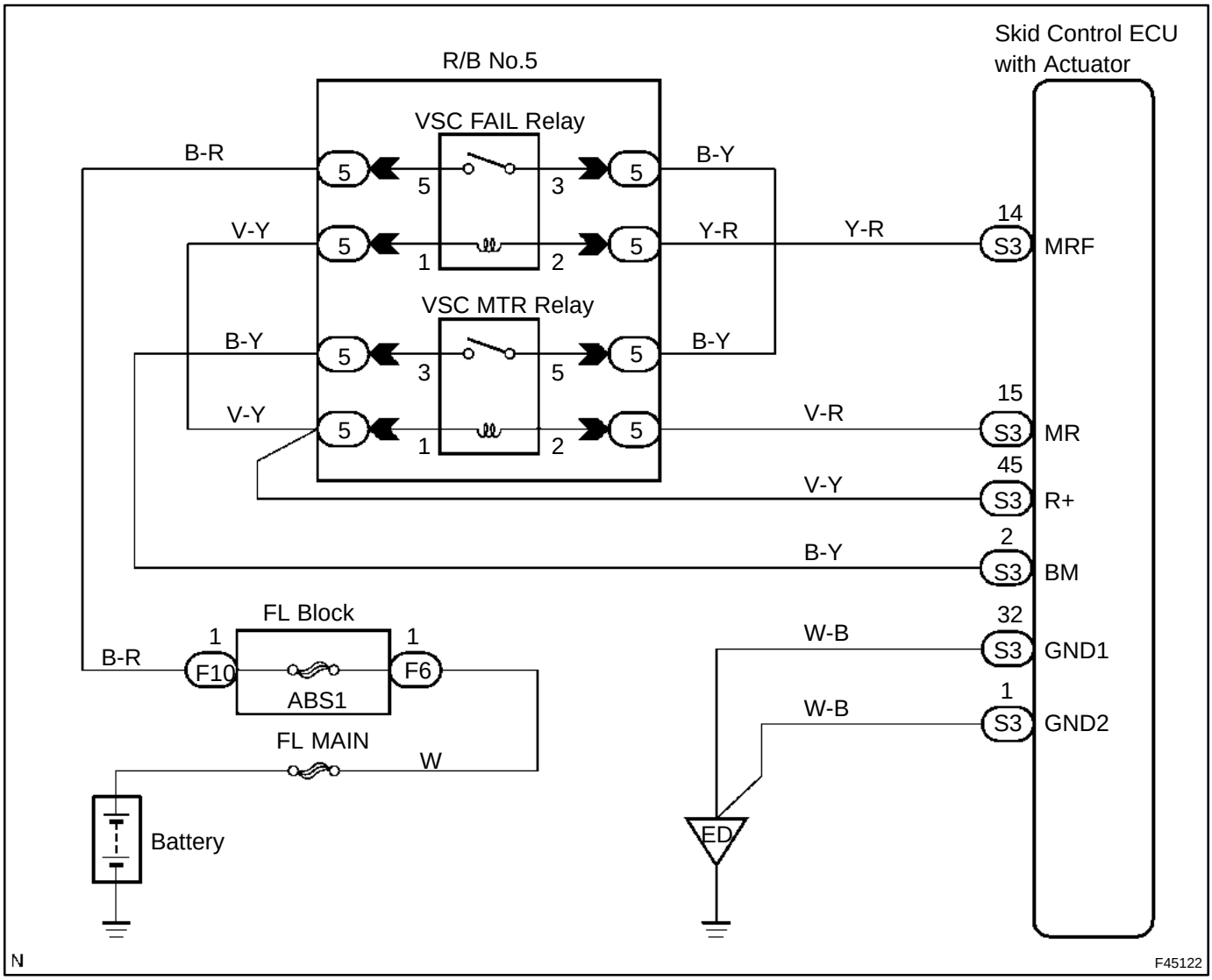
| DTC | C1361/91 | SHORT CIRCUIT IN ABS MOTOR FAIL SAFE RELAY CIRCUIT |
|---|---|---|

## CIRCUIT DESCRIPTION

The ABS motor relay supplies power to the ABS pump motor. While the ABS & TRAC & VSC are activated, the ECU switches the ABS motor relay ON and operates the ABS pump motor.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| C0273/13 | • With IG1 terminal voltage at 9.0 to 17.2 V, during initial check, ABS control, TRAC control VSC control or BA control, pump motor relay is turned ON, and relay contact is ”OFF” for 0.12 sec. or more. | • VSC motor relay<br>• VSC fail relay<br>• VSC motor relay circuit<br>• ABS 1 fuse |
| C0274/14 | When pump motor relay is turned OFF, relay contact is ”ON” for 4 sec. or more. | |
| C1361/91 | • Immediately after IG1 is turned ON, when pump motor fail safe relay is tuned OFF, relay contact is ”ON” for 4 sec. or more. | |

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

Start the inspection from step 1 if you are using the hand-held tester and start from step 2 if you are not using the hand-held tester.

| 1 | PERFORM ACTIVE TEST BY HAND-HELD TESTER(VSC MOTOR RELAY OPERATION) |
|---|---|

(a) Connect the hand-held tester to the DLC3.
(b) Start the engine.
(c) Select the ACTIVE TEST mode on the hand-held tester.
(d) Check the operation sound of the ABS motor individually when operating it with the hand-held tester.

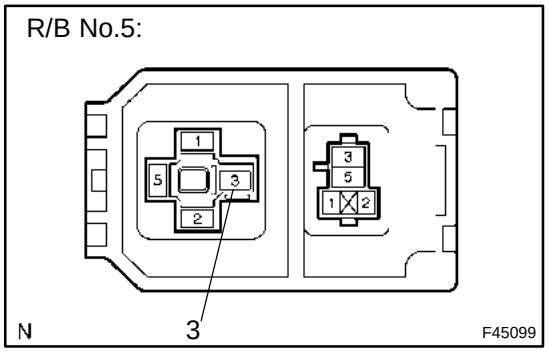
**OK:**

**The operation sound of the ABS motor should be heard.**

**OK** → **REPLACE ABS & TRACTION ACTUATOR ASSY (See page 32-46 )**

**NG**

| 2 | CHECK TERMINAL VOLTAGE(VSC MOTOR RELAY 3 TERMINAL OF R/B NO.5) |
|---|---|




(a) Remove the VSC MTR relay from the R/B No.5.
(b) Turn the ignition switch ON.

Measure voltage between terminal 3 of R/B No.5 (for VSC MTR relay) and body ground.

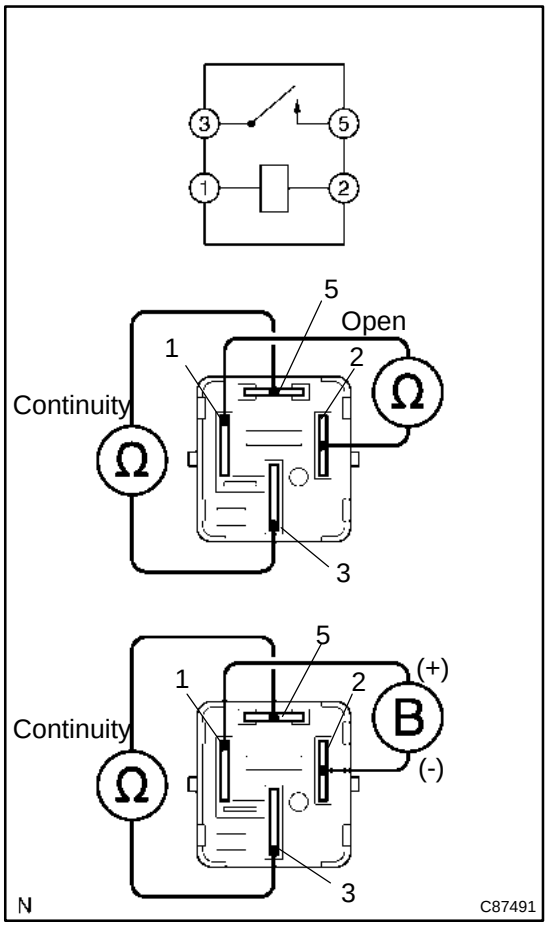
**OK:**

**Voltage: 10 to 14 V**

**NG** → **Go to step 5**

**OK**

| 3 | INSPECT VSC MOTOR RELAY |
|---|---|




(a) Check continuity between each pair of terminals of the motor relay.

| | |
|---|---|
| Terminals 1 and 2 | Continuity (Reference value 80 Ω) |
| Terminals 3 and 5 | No continuity |

(b) Apply battery positive voltage between terminals 1 and 2.

(c) Check continuity between terminals.

| | |
|---|---|
| Terminals 3 and 5 | Continuity |

NG → **REPLACE VSC MOTOR RELAY**

OK

| 4 | CHECK HARNESS AND CONNECTOR(VSC MOTOR RELAY - SKID CONTROL ECU ASSY)(See page 01-37 ) |
|---|---|

(a) Check for open or short circuit in harness and connector between the VSC motor relay and skid control ECU.

NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

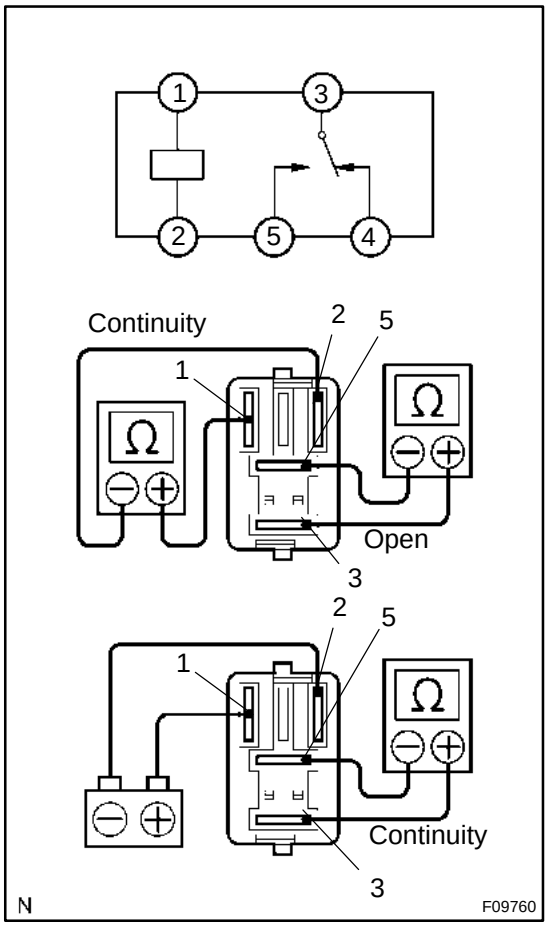
**CHECK AND REPLACE IF THE SAME CODE IS STILL OUTPUT AFTER THE DTC IS DELETED, CHECK THE CONTACT CONDITION OF EACH CONNECTION**

| 5 | INSPECT FUSE(ABS1 FUSE) |
|---|---|

NG → **CHECK FOR SHORT IN ALL HARNESS AND CONNECTOR CONNECTED FUSE AND REPLACE FUSE**

OK

| 6 | INSPECT VSC FAIL RELAY |
|---|---|




(a) Check continuity between each pair of terminals of the VSC FAIL relay.

| Terminals 1 and 2 | Continuity (Reference value 100 Ω) |
|---|---|
| Terminals 3 and 5 | No continuity |

(b) Apply battery voltage between terminals 1 and 2.
(c) Check continuity between terminals 3 and 5 of the VSC FAIL relay.

| Terminals 3 and 5 | Continuity |
|---|---|

NG → **REPLACE VSC FAIL RELAY**

OK →

**REPAIR OR REPLACE HARNESS AND CONNECTOR**

| DTC | C0278/11 | OPEN CIRCUIT IN ABS SOLENOID RELAY CIRCUIT |
|---|---|---|

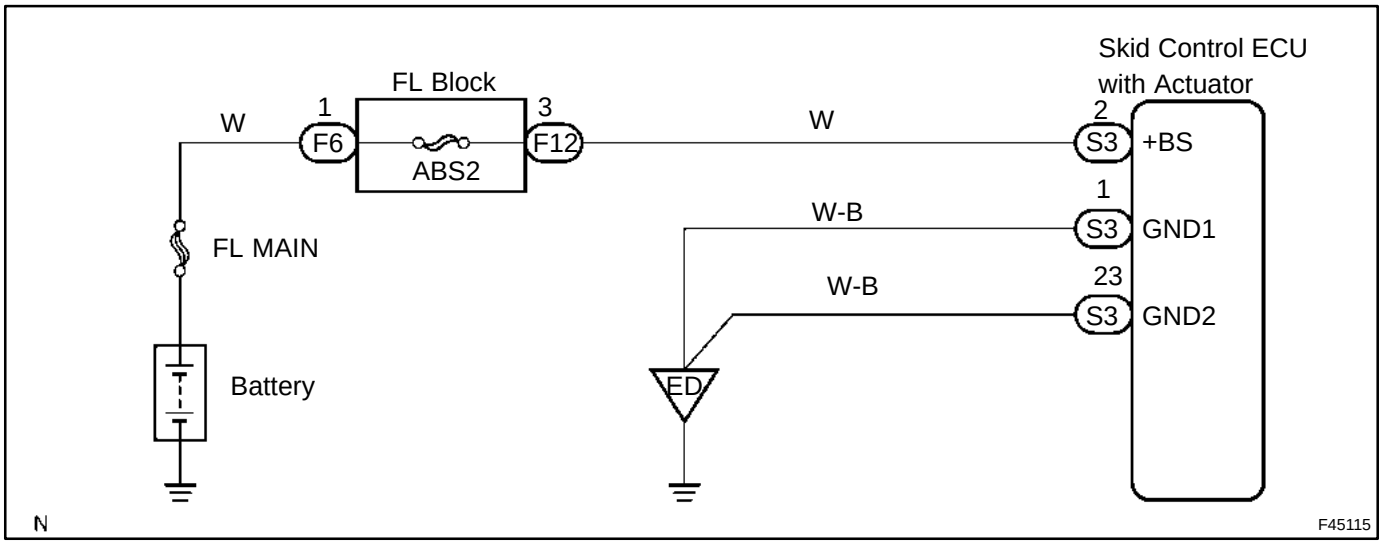
| DTC | C0279/12 | SHORT CIRCUIT IN ABS SOLENOID RELAY CIRCUIT |
|---|---|---|

## CIRCUIT DESCRIPTION

This relay supplies power to each ABS solenoid. After the ignition switch is turned ON, if the initial check is OK, the relay goes on.

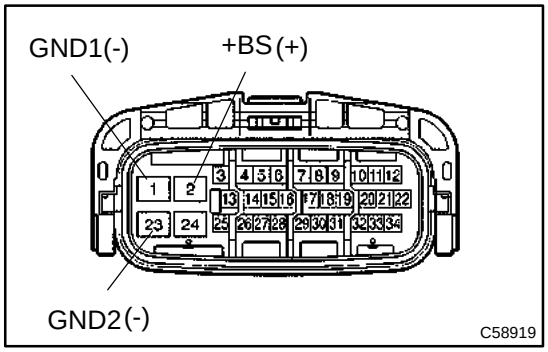
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| C0278/11 | When solenoid relay is turned ON, relay contact is OFF for 0.2 sec. or longer. | • ABS solenoid relay<br>• ABS solenoid relay circuit |
| C0279/12 | Immediately after IG1 is turned ON, when solenoid relay is turned OFF, relay contact is ON for 0.2 sec. or longer. | |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT SKID CONTROL ECU CONNECTOR(+BS TERMINAL VOLTAGE) |
|---|---|




(a) Disconnect the skid control ECU connector.
(b) Measure the voltage between terminals +BS and GND1, 2 of the skid control ECU harness side connector.
**OK:**
**Voltage: 10 to 14 V**

**OK** → **IF THE SAME CODE IS STILL OUTPUT AFTER THE DTC IS DELETED, CHECK THE CONTACT CONDITION OF EACH CONNECTION**

**NG**

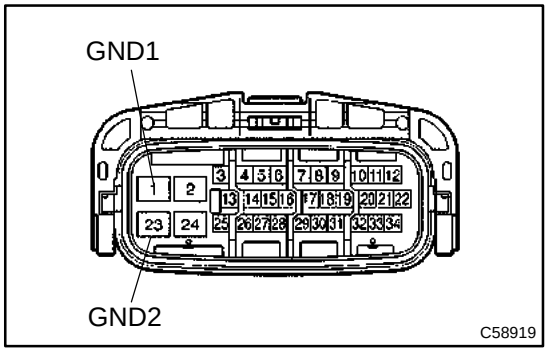
| 2 | INSPECT FUSE(ABS2 FUSE) |
|---|---|

(a) Check continuity of the ABS2 fuse in the FL block.
**OK:**
**Continuity**

**NG** → **CHECK FOR SHORT IN ALL HARNESS AND CONNECTOR CONNECTED FUSE AND REPLACE FUSE**

**OK**

| 3 | INSPECT SKID CONTROL ECU CONNECTOR(GND TERMINAL CONTINUITY) |
|---|---|




(a) Measure resistance between terminal GND1, 2 of the skid control ECU harness side connector and body ground.
**OK:**
**Resistance: 1 Ω or less**

**NG** → **CHECK AND REPAIR HARNESS AND CONNECTOR(GND TERMINAL - BODY GROUND)(See page 01-37 )**

**OK**

**CHECK AND REPAIR HARNESS AND CONNECTOR(+BS TERMINAL - BATTERY) (See page 01-37 )**

| DTC | C0278/11 | OPEN CIRCUT IN ABS SOLENOID RELAY CIRCUIT |
|---|---|---|

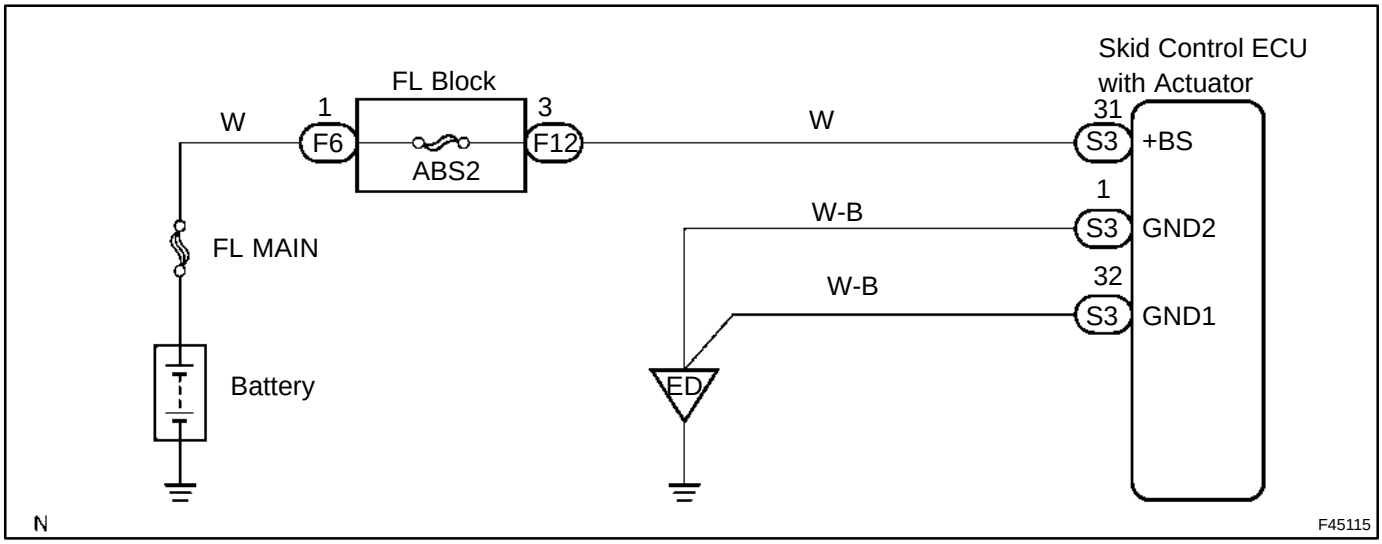
| DTC | C0279/12 | SHORT CIRCUIT IN ABS SOLENOID RELAY CIRCUIT |
|---|---|---|

## CIRCUIT DESCRIPTION

This relay supplies power to each ABS solenoid. After the ignition switch is turned ON, if the initial check is OK, the relay goes on.

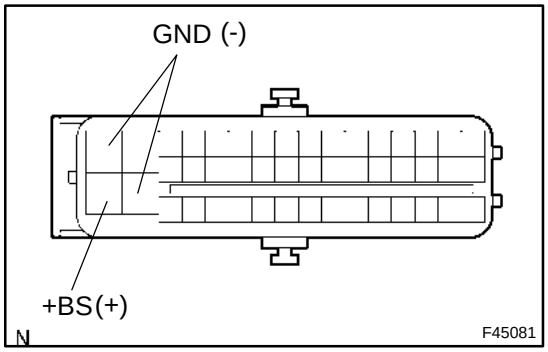
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| C0278/11 | • With IG terminal voltage at 9.5 to 17.2 V, when solenoid relay is turned on, relay contact is "OFF" for 0.2 sec. or more. | • ABS & Traction actuator assy |
| C0279/12 | Immediately after IG1 is turned ON, when solenoid relay is turned OFF, relay contact is "ON" for 0.2 sec. or more. | |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT SKID CONTROL ECU CONNECTOR(+BS TERMINAL VOLTAGE) |
|---|---|




(a) Disconnect the brake actuator connector.
(b) Measure the voltage between terminals +BS and GND of the brake actuator harness side connector.
**OK:**
**Voltage: 10 to 14 V**

**NG** → **Go to step 2**

**OK**

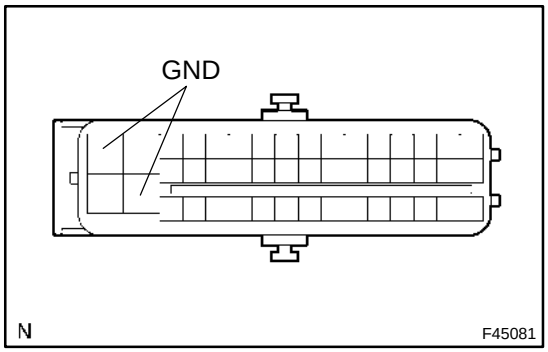
**IF THE SAME CODE IS STILL OUTPUT AFTER THE DTC IS DELETED, CHECK THE CONTACT CONDITION OF EACH CONNECTION**

| 2 | INSPECT FUSE(ABS2 FUSE) |
|---|---|

**NG** → **CHECK FOR SHORT IN ALL HARNESS AND CONNECTOR CONNECTED FUSE AND REPLACE FUSE**

**OK**

| 3 | INSPECT SKID CONTROL ECU CONNECTOR(GND TERMINAL CONTINUITY) |
|---|---|




(a) Disconnect the brake actuator connector.
(b) Measure the resistance between terminal GND of the skid control ECU harness side connector and the body ground.
**OK:**
**Resistance: 1 Ω or less**

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

**REPLACE ABS & TRACTION ACTUATOR ASSY(See page 32-46 )**

# DTC C1201/51 ENGINE CONTROL SYSTEM MALFUNCTION

## CIRCUIT DESCRIPTION

If trouble occurs in the engine control system, the ECU prohibits TRAC and VSC control.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| C1201 / 51 | At the engine speed of 500 rpm, a trouble signal in the engine control system continues for 5 sec. or more. | Engine control system |

## INSPECTION PROCEDURE

| 1 | CHECK DTC FOR ENGINE |
|---|---|

| | |
|---|---|
| A | Malfunction Code |
| B | Normal Code |

**B** → **REPAIR ENGINE CONTROL SYSTEM ACCORDING TO CODE OUTPUT**

**A**

**CHECK AND REPLACE ECM(See page 01-37 )**

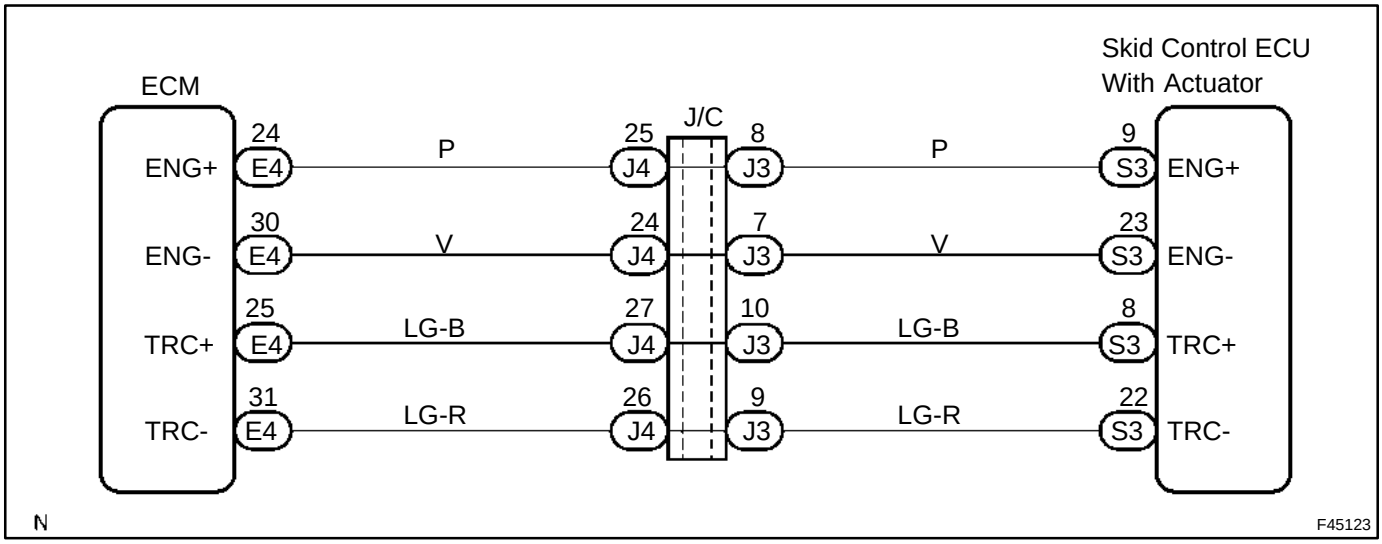
| DTC | C1203/53 | ECM COMMUNICATION CIRCUIT MALFUNCTION |
|---|---|---|

## CIRCUIT DESCRIPTION

This circuit is used to send TRAC & VSC control information from the skid control ECU to the ECM (TRC+, TRC-), and engine control information from the ECM to the skid control ECU (ENG+, ENG-).

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| C1203 / 53 | • When IG1 terminal voltage is 9.5 V or more, the condition that the data is not transmitted to ECM continues for more than 5 sec.<br>• When ECU IG1 terminal voltage is 9.5 V or more and the engine speed is 500 rpm or more, data reception from the ECM is impossible for 5 sec. or more.<br>• The condition that data transmission and reception to/from ECM is impossible once or more within 5 sec. repeatedly occurs.<br>• When the data about engine, drive system, and user country from ECM does not match up to skid control ECU. | • TRC+ or TRC- circuit<br>• ENG+ or ENG- circuit<br>• ECM |

## WIRING DIAGRAM




## INSPECTION PROCEDURE

| 1 | CHECK HARNESS AND CONNECTOR(ENG+, ENG-, TRC+, TRC- OF ECM AND SKID CONTROL ECU)(See page 01-37 ) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the ECM and skid control ECU.

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

| 2 | CHECK HARNESS AND CONNECTOR(E1 OF ECM AND BODY GROUND) |
|---|---|

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE ECM(See page 10-17 )

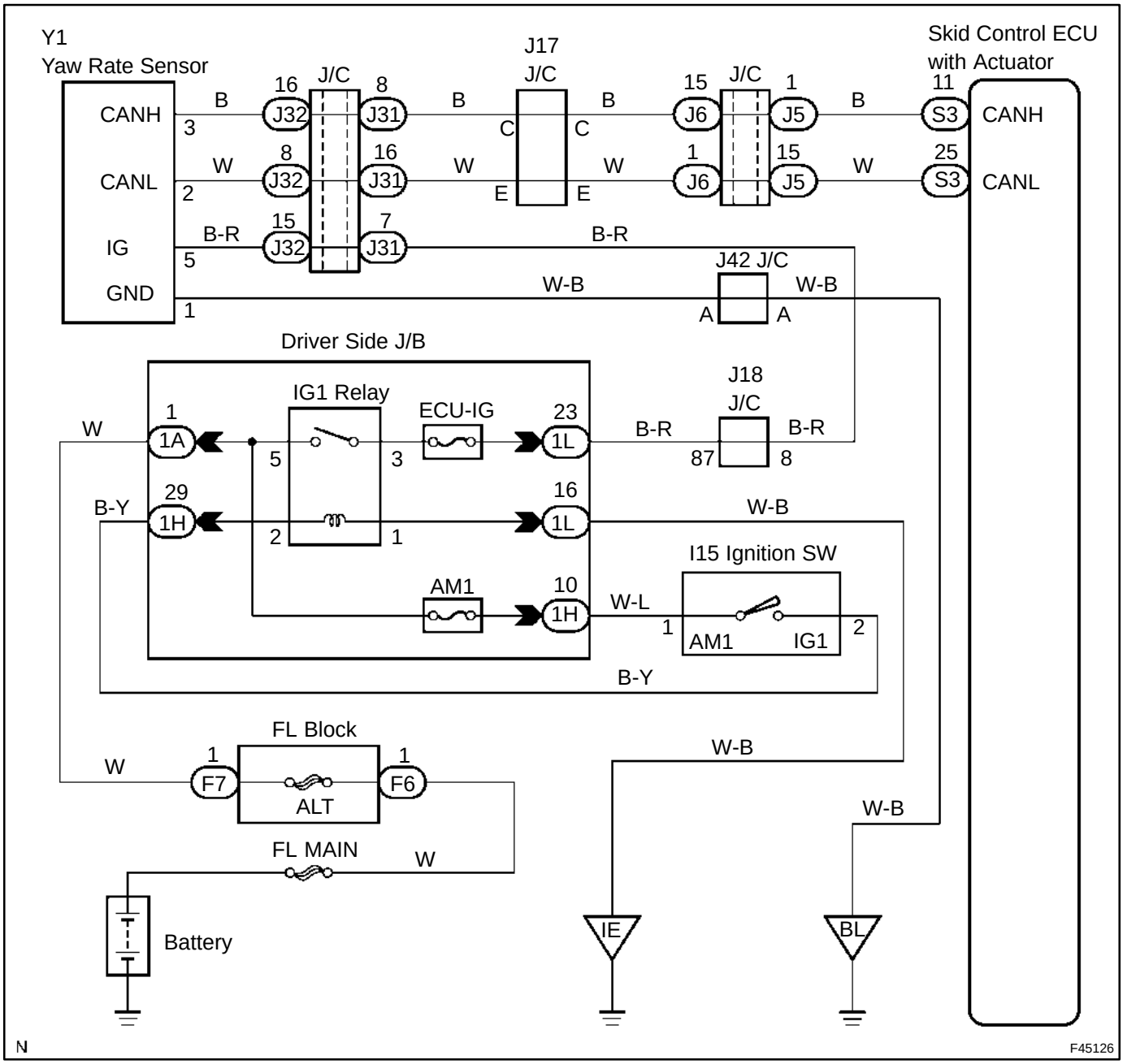
| DTC | C1210/36 | ZERO POINT CALIBRATION OF YAW RATE SENSOR UNDONE |
|---|---|---|

| DTC | C1336/39 | ZERO POINT CALIBRATION OF DECELERATION SENSOR UNDONE |
|---|---|---|

## CIRCUIT DESCRIPTION

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| C1210/36 | 1. After ECU was replaced, when the shift lever was moved other than to P position within 15 sec. soon after ECU terminal IG1 become ON for the first time.<br>2. When the yaw rate sensor zero point recorded in ECU is deleted. | • Yaw rate sensor<br>• Yaw rate sensor circuit |
| C1233/33 | Detection of any of conditions 1. through 4.:<br>1. When the ECU IG1 terminal voltage is 9.5 to 17.2 V, the yaw rate sensor voltage is out of the range from 0.25 to 4.75 V for 1 sec. or more.<br>2. The yaw rate sensor open circuit detect signal is ON for 1 sec. or more.<br>3. The yaw rate sensor power source voltage is out of the range from 4.4 to 5.6 V for 1 sec. or more.<br>4. Momentary open circuit of the yaw rate sensor signal occurs 10 times or more. | • Yaw rate sensor (Deceleration sensor)<br>• Yaw rate sensor circuit (Deceleration sensor) |

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

When U0121/94, U0123/62, U0124/95 or U0126/63 are output accompanied with C1210/36 or C1336/39, inspect and repair the trouble areas indicated by U0121/94, U0123/62, U0124/95 or U0126/63 first.

| | |
|---|---|
| 1 | CHECK SENSOR INSTALLATION |

NG → REPAIR OR REPLACE YAW RATE SENSOR IS INSTALLED CORRECTLY

OK

| | |
|---|---|
| 2 | PERFORM ZERO POINT CALIBRATION OF YAW RATE SENSOR AND DECELERATION SENSOR |

| | |
|---|---|
| 3 | CHECK DTC ONCE MORE |

(a) Check if the other DTCs are detected (See page 05-435 ).

| | |
|---|---|
| A | Malfunction Code |
| B | Normal Code |

B → END

A

REPLACE SENSOR AND YAW RATE

# DTC C1223/43 ABS CONTROL SYSTEM MALFUNCTION

## CIRCUIT DESCRIPTION

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| C1223/43 | ABS control system is abnormal. | ABS control system |

## INSPECTION PROCEDURE

| 1 | CHECK DTC |
|---|---|

(a) Check if the other DTCs for ABS are detected (See page 05-435 ).

| | |
|---|---|
| A | Normal Code |
| B | Malfunction Code |

B → REPAIR CIRCUIT INDICATED BY OUTPUT CODE

A

CHECK ABS WARNING LIGHT CIRCUIT

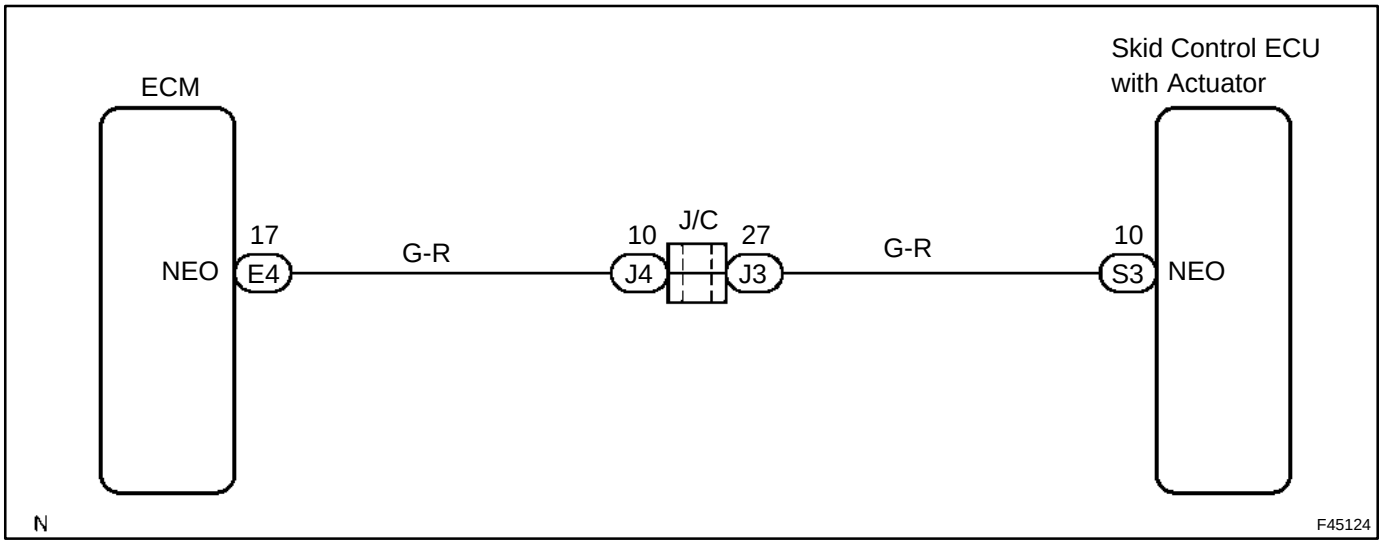
# DTC C1224/44 NE SIGNAL CIRCUIT

## CIRCUIT DESCRIPTION

The skid control ECU receives engine revolution speed signals (NE signals) from the ECM.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| C1224 / 44 | Detection of either condition 1. or 2.:<br>1. When the vehicle speed is 30 km/h (19 mph) or more and data reception from the ECM is in normal condition, open or short circuit of engine revolution signal continues for 10 sec. or more.<br>2. When TRC is in operation, open or short circuit of engine revolution signal continues for 0.24 sec. or more. | • NEO circuit<br>• ECM |

## WIRING DIAGRAM



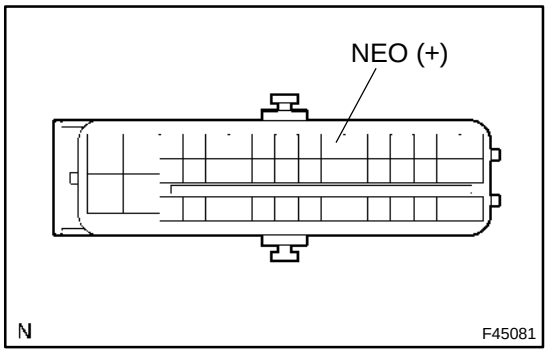

## INSPECTION PROCEDURE

| 1 | CHECK HARNESS AND CONNECTOR(SKID CONTROL ECU - ECM) |
|---|---|

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

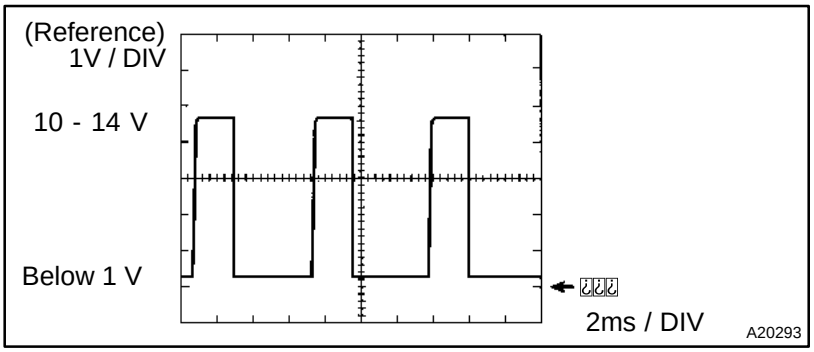
## 2 INSPECT ECM TERMINAL VOLTAGE(NEO TERMINAL)




(a) Disconnect the brake actuator connector.
(b) Measure the voltage between the terminal NEO of the skid control ECU and body ground under the engine conditions below.

**OK:**

| Engine condition | Voltage |
|---|---|
| OFF (Ignition switch ON) | 3 to 6 V or below 1 V |
| ON (Idling) | 3 to 6 V ↔ below 1 V (Pulse) |




**NG** → **CHECK AND REPLACE ECM**

**OK**

**IF THE SAME CODE IS STILL OUTPUT AFTER THE DTC IS DELETED, CHECK THE CONTACT CONDITION OF EACH CONNECTION**

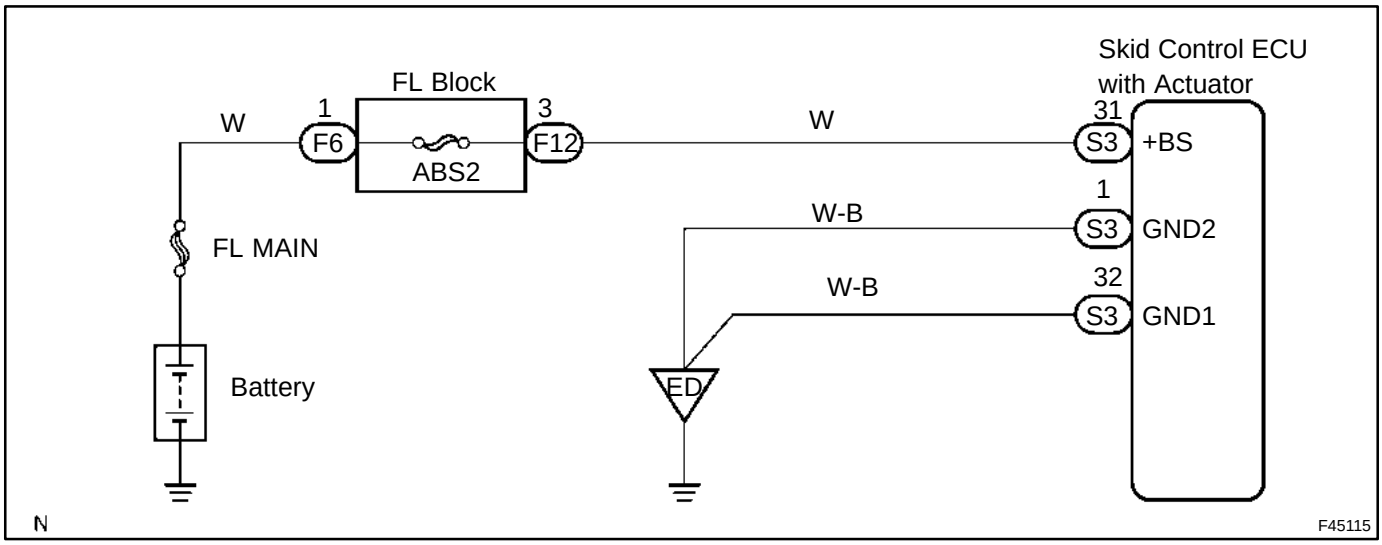
# DTC C1225/25 SMC SOLENOID CIRCUIT

## CIRCUIT DESCRIPTION

This solenoid turns on when receiving signals from the ECU and controls the pressure acting on the wheel cylinders to control the braking force.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| C1225/25 | Detection of any of conditions 1. to 4.:<br>1. When SM1 or SM2 is ON, excessive electric current on SM1 or SM2 continues for 0.05 sec. or more.<br>2. When SM1 or SM2 is OFF, open circuit of SM1 or SM2 continues for 0.05 sec. or more.<br>3. When SM1 or SM2 is ON, open circuit of SM1 or SM2 continues for 0.1 sec. or more.<br>4. When SM1 or SM2 is OFF, electric current application on SM1 or SM2 continues for 0.1 sec. or more. | • ABS & Traction actuator assy<br>• VSC solenoid circuit |

## WIRING DIAGRAM



## INSPECTION PROCEDURE

| | |
|---|---|
| 1 | **RECONFIRM DTC** |

(a) Check if the same DTCs are detected (See page 05-435 ).

**YES** → **REPLACE ABS & TRACTION ACTUATOR ASSY (See page 32-46 )**

**NO**

**END**

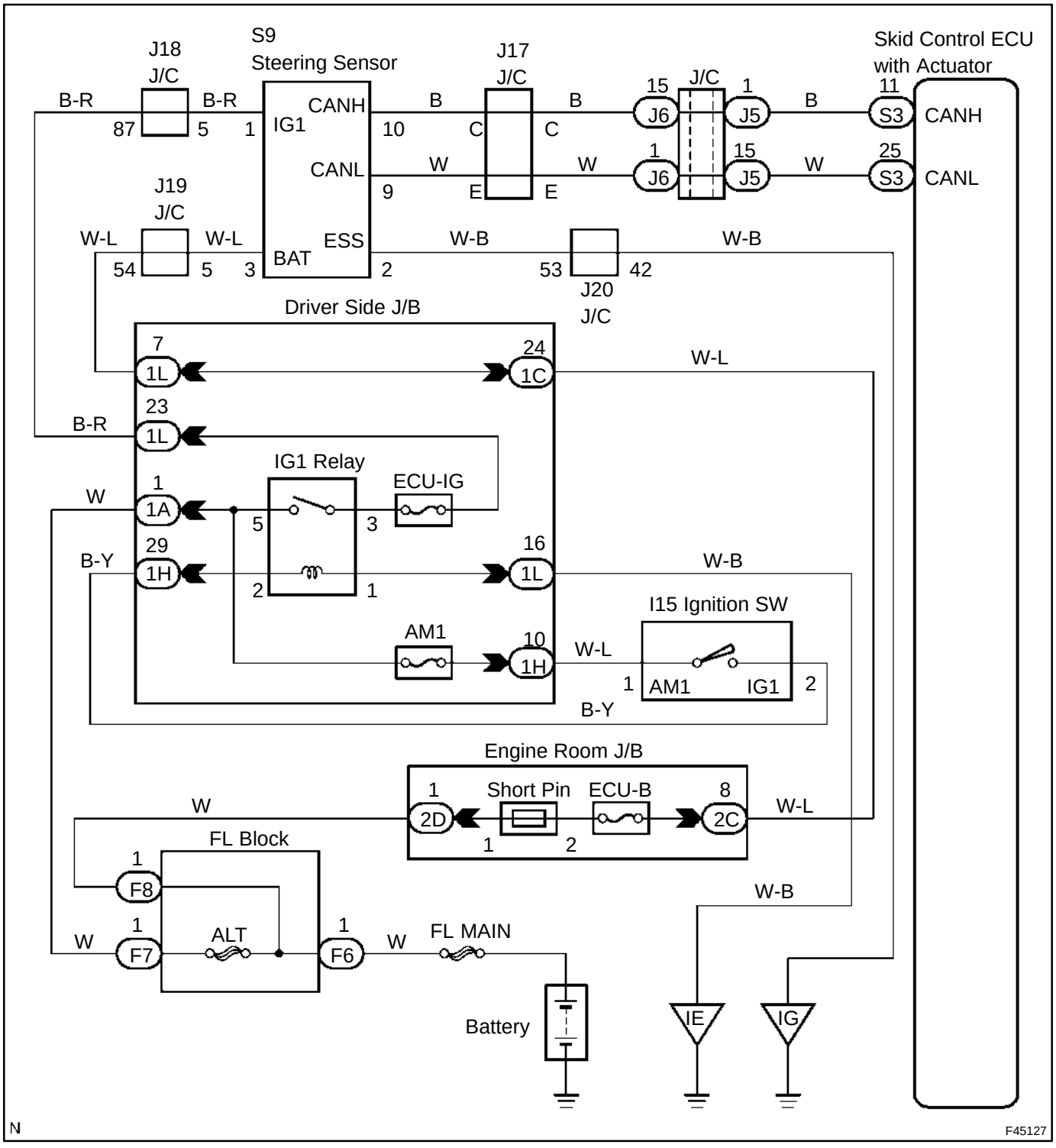
| DTC | C1231/31 | MALFUNCTION IN STEERING ANGLE SENSOR CIRCUIT |
|---|---|---|

## CIRCUIT DESCRIPTION

The steering angle sensor signal is sent to the skid control ECU through CAN communication system. When there is malfunction in communication, it will be detected by the diagnosis function.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| C1231 / 31 | When ECU IG1 terminal voltage is 9.5 V or more, the steering angle sensor malfunction signal is received. | • Steering angle sensor<br>• Steering angle sensor circuit<br>• Power source circuit |

## WIRING DIAGRAM

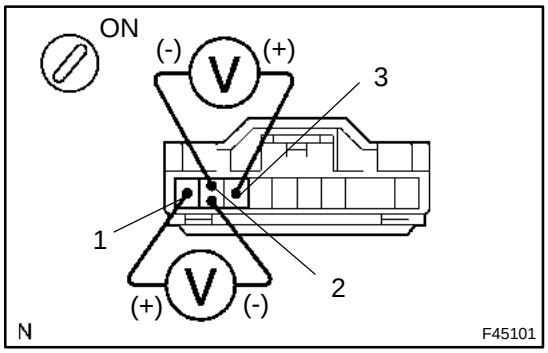


## INSPECTION PROCEDURE

HINT:

- When U0121/94, U0123/62, U0124/95 or U0126/63 are output accompanied with C1210/36 or C1336/39, inspect and repair the trouble areas indicated by U0121/94, U0123/62, U0124/95 or U0126/63 first.
- When the speed sensor or the yaw rate sensor has trouble, DTCs for the steering angle sensor may be output even when the steering angle sensor is normal. When DTCs for the speed sensor or yaw rate sensor are output accompanied with other DTCs for the steering angle sensor, inspect and repair the speed sensor and yaw rate sensor first, and then inspect and repair the steering angle sensor.

| 1 | CHECK TERMINAL VOLTAGE(STEERING ANGLE SENSOR CONNECTOR) |
|---|---|




(a) Remove the steering wheel and column lower cover.
(b) Disconnect the steering angle sensor connector.
(c) Turn the ignition switch ON.
(d) Measure voltage between terminals 1 and 2, 2 and 3 of the steering angle sensor harness side connector.
**OK:**
**Voltage: 10 to 14 V**

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

**REPLACE STEERING ANGLE SENSOR**

| DTC | C1232/32 | MALFUNCTION IN DECELERATION SENSOR |
|---|---|---|

| DTC | C1234/34 | MALFUNCTION IN YAW RATE SENSOR |
|---|---|---|

| DTC | C1243/43 | MALFUNCTION IN DECELERATION SENSOR |
|---|---|---|

| DTC | C1244/44 | OPEN OR SHORT IN DECELERATION SENSOR CIRCUIT |
|---|---|---|

| DTC | C1245/45 | MALFUNCTION IN DECELERATION SENSOR |
|---|---|---|

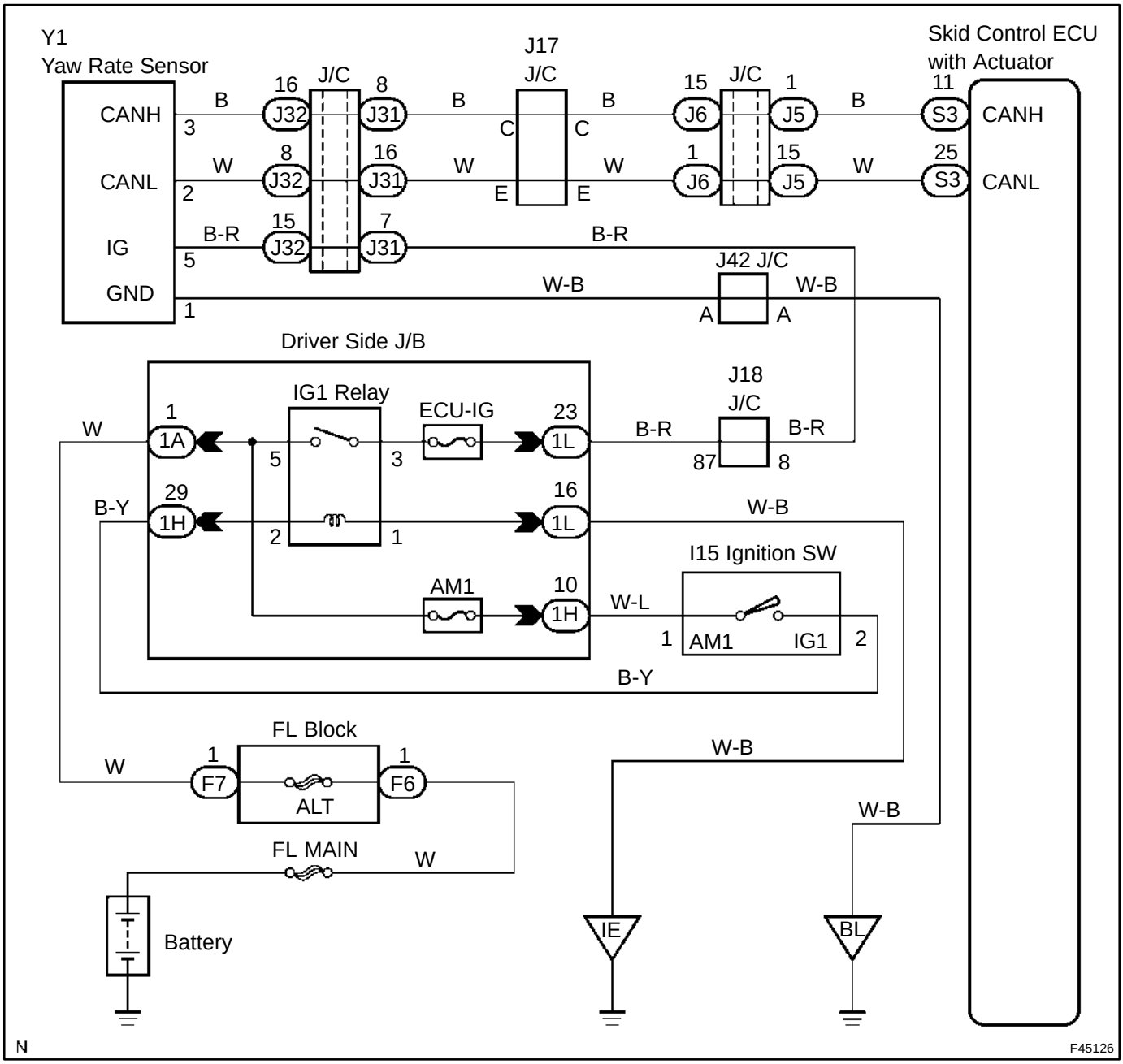
| DTC | C1381/97 | MALFUNCTION IN POWER SUPPLY VOLTAGE YAW/DECELERATION SENSOR |
|---|---|---|

## CIRCUIT DESCRIPTION

The yaw rate sensor signal is sent to the skid control ECU through CAN communication system. When there is malfunction in communication, it will be detected by the diagnosis function.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| C1232/32 | While vehicle speed becomes 0 km/h (0 mph) from 30 km/h (18 mph), and the condition that GL1 and GL2 signals of ECU terminals did not change 40 mV or less continued in a sequence 16 times. | • Yaw rate sensor<br>• Yaw rate sensor circuit<br>• Wire harness |
| C1234 / 34 | The yaw rate sensor malfunction signal is received | |
| C1243 / 43 | While vehicle speed becomes 0 km/h (0 mph) from 30 km/h (18 mph) or more, the condition that both GL1 and GL2 signals of ECU terminals do not change 2 LSB or more continued in a sequence 16 times. | |
| C1244 / 44 | • With vehicle speed at 0 km/h, after the difference of output absolute value of G conversion value between deceleration sensor terminals GL1 and GL2 becomes 0.6 G or more, and the condition that does not become 0.4 G continues for 60 sec. or more.<br>• Deceleration sensor malfunction signal is received. | |
| C1245 / 45 | At the vehicle speed of 30 km/h (18 mph), the acceleration and deceleration values calculated from the deceleration sensor values and from vehicle speed are different, and the condition that the difference exceeds 0.35 G continues for 60 sec. or more. | |
| C1381 / 97 | With vehicle speed at 3 km/h or more, malfunction signal of deceleration sensor terminal IG1 is received for 10 sec. or more. | • Yaw rate sensor<br>• Yaw rate sensor power source circuit |

## WIRING DIAGRAM




## INSPECTION PROCEDURE

HINT:

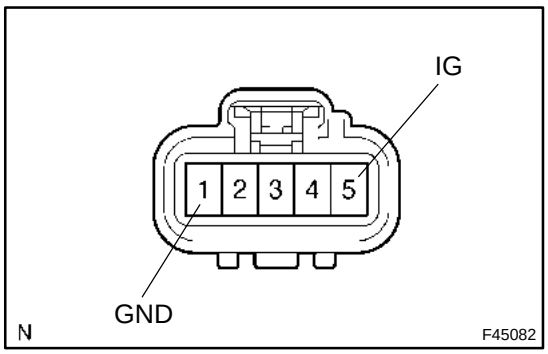
When U0121/94, U0123/62, U0124/95 or U0126/63 are output accompanied with C1210/36 or C1336/39, inspect and repair the trouble areas indicated by U0121/94, U0123/62, U0124/95 or U0126/63 first.

| | |
|---|---|
| **1** | **CHECK SENSOR INSTALLATION(YAW RATE SENSOR)** |

**NG** → **YAW RATE SENSOR IS INSTALLED CORRECTLY**

**OK**

| 2 | CHECK TERMINAL VOLTAGE(IG AND GND OF YAW RATE SENSOR CONNECTOR) |
|---|---|




(a) Disconnect the yaw rate sensor connector.
(b) Turn the ignition switch ON.
(c) Measure the voltage between terminal IG and GND of the yaw rate sensor connector.
**OK:**
**Voltage: 10 to 14 V**

| OK | REPLACE ABS & TRACTION ACTUATOR ASSY (See page 32-46 ) |
|---|---|

NG

| 3 | CHECK HARNESS AND CONNECTOR(YAW RATE SENSOR - ECU-IG FUSE, YAW RATE SENSOR - BODY GROUND) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the yaw rate sensor and skid control ECU (See page 01-37 ).

| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |
|---|---|

OK

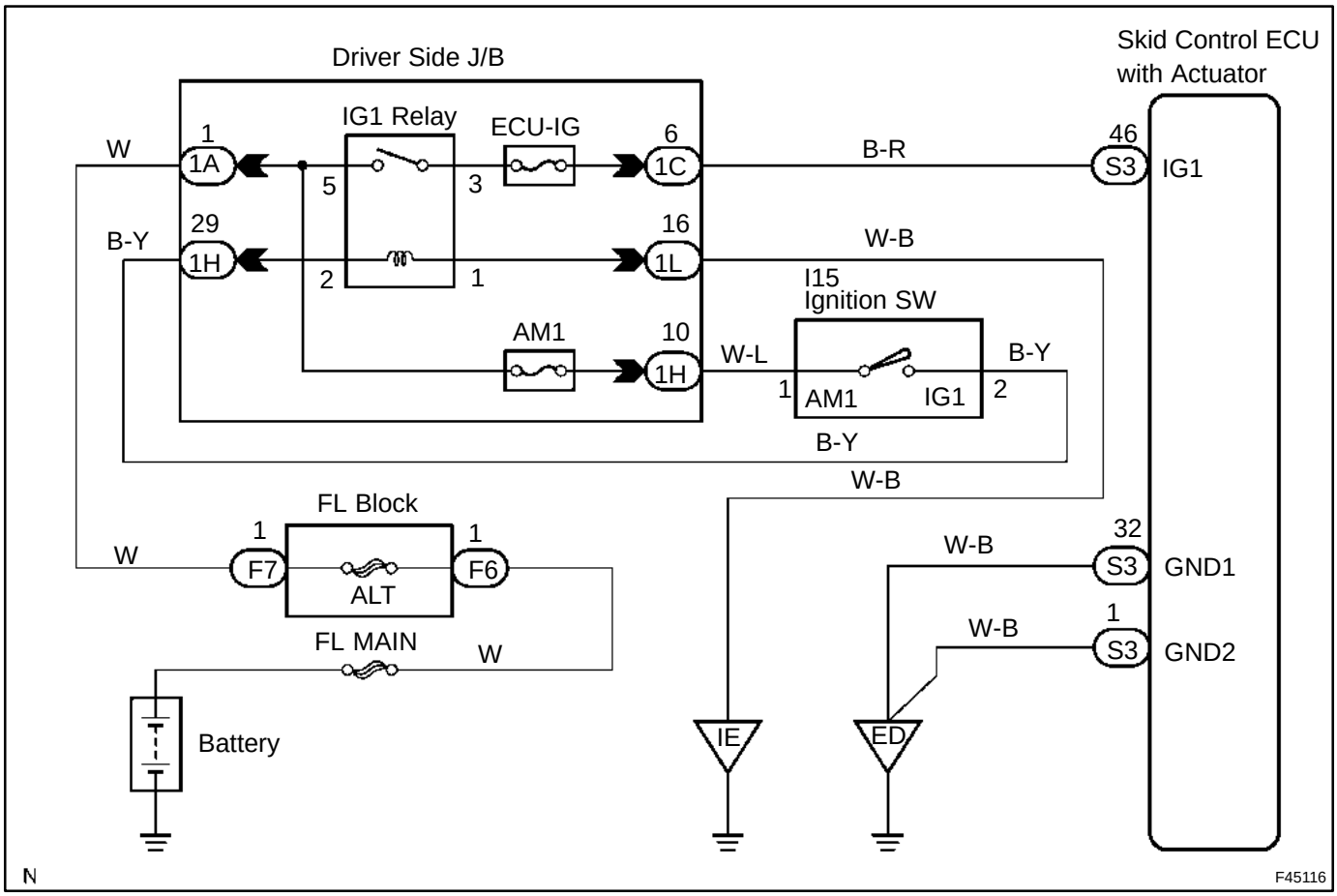
| REPLACE YAW RATE SENSOR |
|---|

| DTC | C1241/41 | LOW BATTERY POSITIVE VOLTAGE OR ABNORMALLY HIGH BATTERY POSITIVE VOLTAGE |
|---|---|---|

## CIRCUIT DESCRIPTION

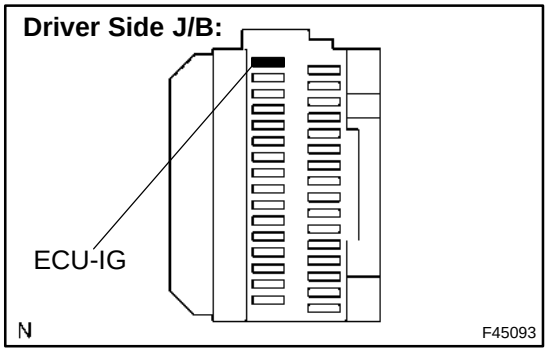
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| C1241 / 41 | • With vehicle speed at 3 km/h or more, IG1 voltage is 9.5 or less for 10 sec. or more. | • Battery<br>• Charging system<br>• Power source circuit |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

## 1 INSPECT FUSE(ECU-IG FUSE)




(a) Remove ECU-IG fuse from the instrument panel J/B.
(b) Check continuity of ECU-IG fuse.
**OK:**
**Continuity**

**NG** → **INSPECT FOR SHORT CIRCUIT IN ALL HARNESS AND COMPONENTS CONNECTED TO ECU-IG FUSE**

**OK**

## 2 INSPECT BATTERY

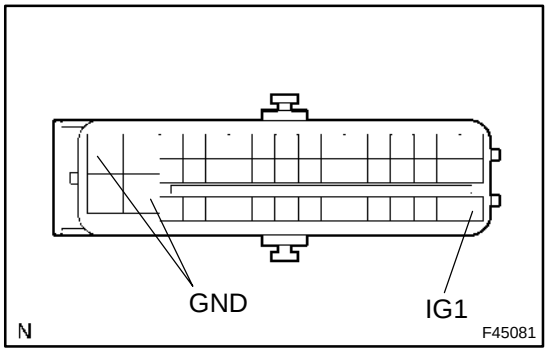
(a) Check battery positive voltage.
**OK:**
**Voltage: 10 to 14 V**

**NG** → **INSPECT CHARGING SYSTEM**

**OK**

## 3 INSPECT SKID CONTROL ECU TERMINAL VOLTAGE(IG1 TERMINAL)

**In the case of using the hand-held tester:**
(a) Connect the hand-held tester to the DLC3.
(b) Start the engine.
(c) Select the DATA LIST mode on the hand-held tester.
(d) Check the voltage condition, which is output from the ECU and displayed on the hand-held tester.
**OK:**
**"Normal" is displayed.**

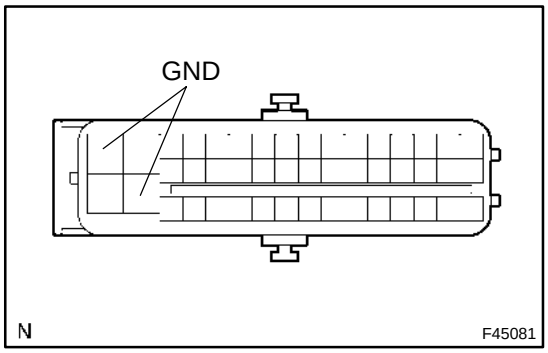



**When not using the hand-held tester:**
(a) Disconnect the skid control ECU connector.
(b) Turn the ignition switch ON.
(c) Measure the voltage between terminal IG1 and GND of the brake actuator harness side connector.
**OK:**
**Voltage: 10 to 14 V**

**OK** → **REPLACE ABS & TRACTION ACTUATOR ASSY (See page 32-46 )**

**NG**

| 4 | INSPECT SKID CONTROL ECU CONNECTOR(GND TERMINAL CONTINUITY) |
|---|---|




(a) Disconnect the brake actuator connector.
(b) Measure the resistance between terminal GND of the skid control ECU harness side connector and the body ground.
**OK:**
**Resistance: 1 Ω or less**

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR(GND TERMINAL - BODY GROUND)**

**OK**

**CHECK AND REPAIR HARNESS AND CONNECTOR(IG1 TERMINAL - BATTERY)**

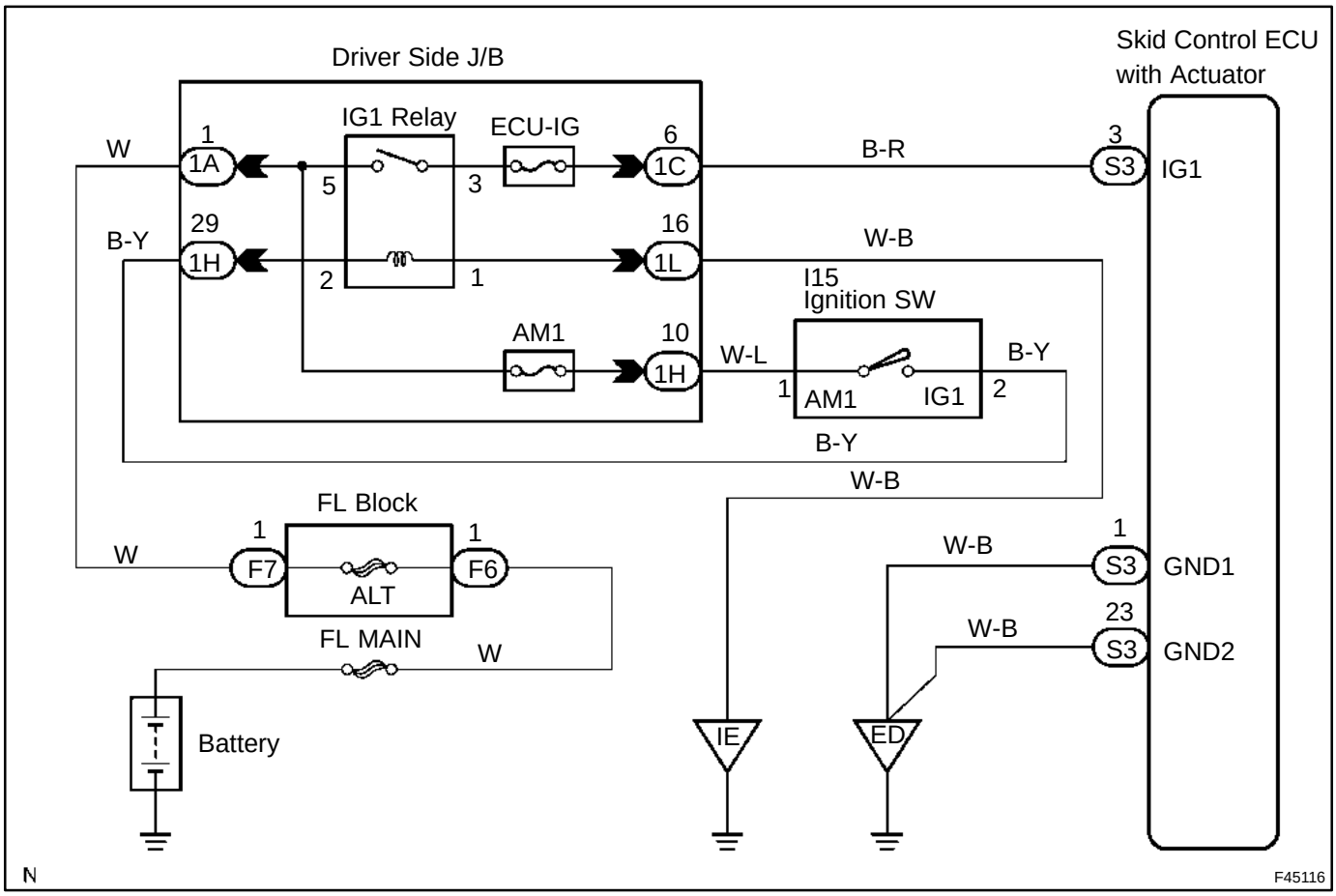
| DTC | C1241/41 | LOW BATTERY POSITIVE VOLTAGE OR ABNORMALLY HIGH BATTERY POSITIVE VOLTAGE |
|---|---|---|

## CIRCUIT DESCRIPTION

This is the power source of the ECU, hence the actuators.

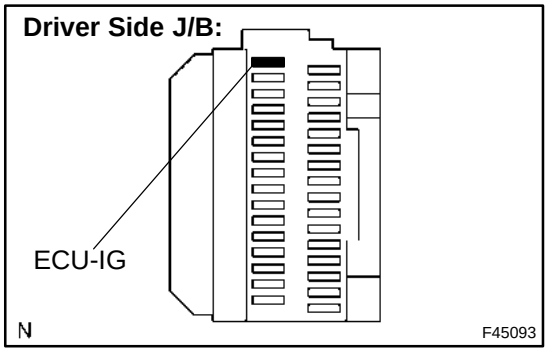
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| C1241/41 | Detection of any of conditions 1. through 3. :<br>1. With vehicle speed at 3 km/h or more, IG1 terminal voltage is 10V or below for 10 sec. or longer.<br>2. With IG1 terminal voltage at 10V or below, solenoid relay open, pump motor relay open, solenoid fault detecting conditions are established<br>3. Voltage of ECU terminal IG1 remains at more than 17V for 1.0 sec. or more. | • Battery<br>• Charging system<br>• Power source circuit |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

## 1 INSPECT FUSE(ECU-IG FUSE)




(a) Remove the ECU-IG fuse from the instrument panel J/B.
(b) Check continuity of the ECU-IG fuse.
**OK:**
**Continuity**

**NG** → **INSPECT FOR SHORT CIRCUIT IN ALL HARNESS AND COMPONENTS CONNECTED TO ECU-IG FUSE**

**OK**

## 2 INSPECT BATTERY

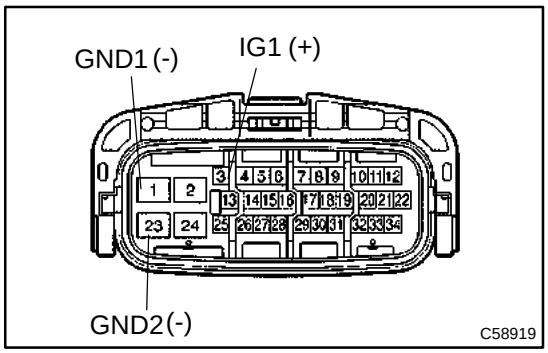
(a) Check battery positive voltage.
**OK:**
**Voltage: 10 to 14 V**

**NG** → **INSPECT CHARGING SYSTEM**

**OK**

## 3 INSPECT SKID CONTROL ECU CONNECTOR(IG1 TERMINAL VOLTAGE)

**IN CASE OF USING HAND-HELD TESTER:**
(a) Connect the hand-held tester to the DLC3.
(b) Start the engine.
(c) Select the DATA LIST mode on the hand-held tester.
(d) Check the voltage condition, which is output from the ECU and displayed on the hand-held tester.
**OK:**
**"Normal" is displayed.**

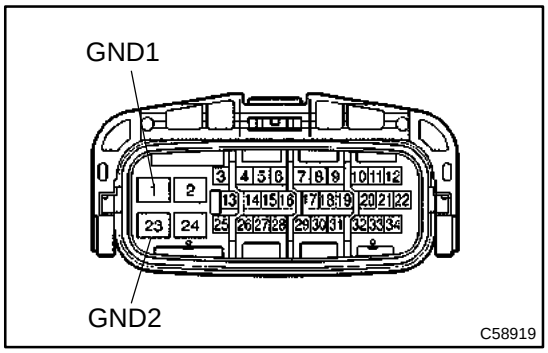



**IN CASE OF NOT USING HAND-HELD TESTER:**
(a) Disconnect the skid control ECU connector.
(b) Turn the ignition switch to ON.
(c) Measure the voltage between terminals IG1 and GND1, 2 of the skid control ECU harness side connector.
**OK:**
**Voltage: 10 to 14 V**

**OK** → **REPLACE BRAKE ACTUATOR ASSY (See page 32-43 )**

**NG**

| 4 | INSPECT SKID CONTROL ECU CONNECTOR(GND TERMINAL CONTINUITY) |
|---|---|




(a) Measure resistance between terminal GND1, 2 of skid control ECU harness side connector and body ground.
**OK:**
**Resistance: 1 Ω or less**

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

**REPLACE BRAKE ACTUATOR ASSY(See page 32-43 )**

| DTC | C1246/46 | MALFUNCTION IN MASTER CYLINDER PRESSURE SENSOR |
|---|---|---|

## CIRCUIT DESCRIPTION

Master cylinder pressure sensor is connected to the skid control ECU in the actuator.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| C1246 / 46 | • When the vehicle speed is 7 km/h (4 mph) or more and ECU PMC terminal voltage exceeds 0.86 V, the condition that the voltage does not change 1 V or more continues for 30 sec.<br>• Noise in ECU PMC terminal occurs 7 times or more within 5 sec.<br>• When the ECU STP terminal is OFF, the condition that ECU PMC terminal voltage is 0.86 V or more, or less than 0.3 V continues for 5 sec. or more.<br>• When IG1 terminal voltage is 9.5 to 17.2 V, the condition that ECU VCM terminal voltage is out of the range from 4.4 to 5.6 V continues for 1.2 sec. or more.<br>• When ECU VCM terminal voltage is 4.4 to 5.6 V, the condition that the ECU PMC terminal voltage is out of the range from 0.19 to 4.57 V continues for 1.2 sec. or more. | • Master cylinder pressure sensor<br>• Master cylinder pressure sensor circuit |

## INSPECTION PROCEDURE

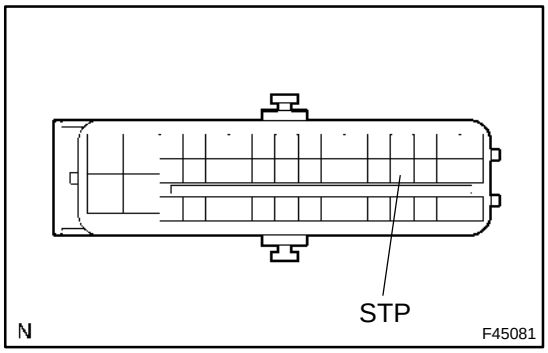
| 1 | READ VALUE OF HAND-HELD TESTER(MSTER CYLINDER PRESSURE SENSOR) |
|---|---|

(a) Connect the hand-held tester to the DLC3.
(b) Start the engine.
(c) Select the DATA LIST mode on the hand-held tester.
(d) Check that the brake fluid pressure value of the master cylinder pressure sensor observed in the hand-held tester changes when the brake pedal is depressed.
**OK:**
**Brake fluid pressure value changes.**

**OK** → **REPLACE ABS & TRACTION ACTUATOR ASSY (See page 32-46 )**

**NG**

| 2 | INSPECT SKID CONTROL ECU TERMINAL VOLTAGE(STP TERMINAL) |
|---|---|




(a) Disconnect the brake actuator connector.

(b) Measure the voltage between terminal STP of the skid control ECU and body ground when brake pedal is depressed.

**OK:**

**Voltage: 8 to 14 V**

(c) Measure the voltage between terminal STP of the skid control ECU and body ground when brake pedal is released.

**OK:**

**Voltage: 1 V or less**

**NG** → **CHECK AND REPLACE STOP LIGHT SWITCH CIRCUIT**

**OK**

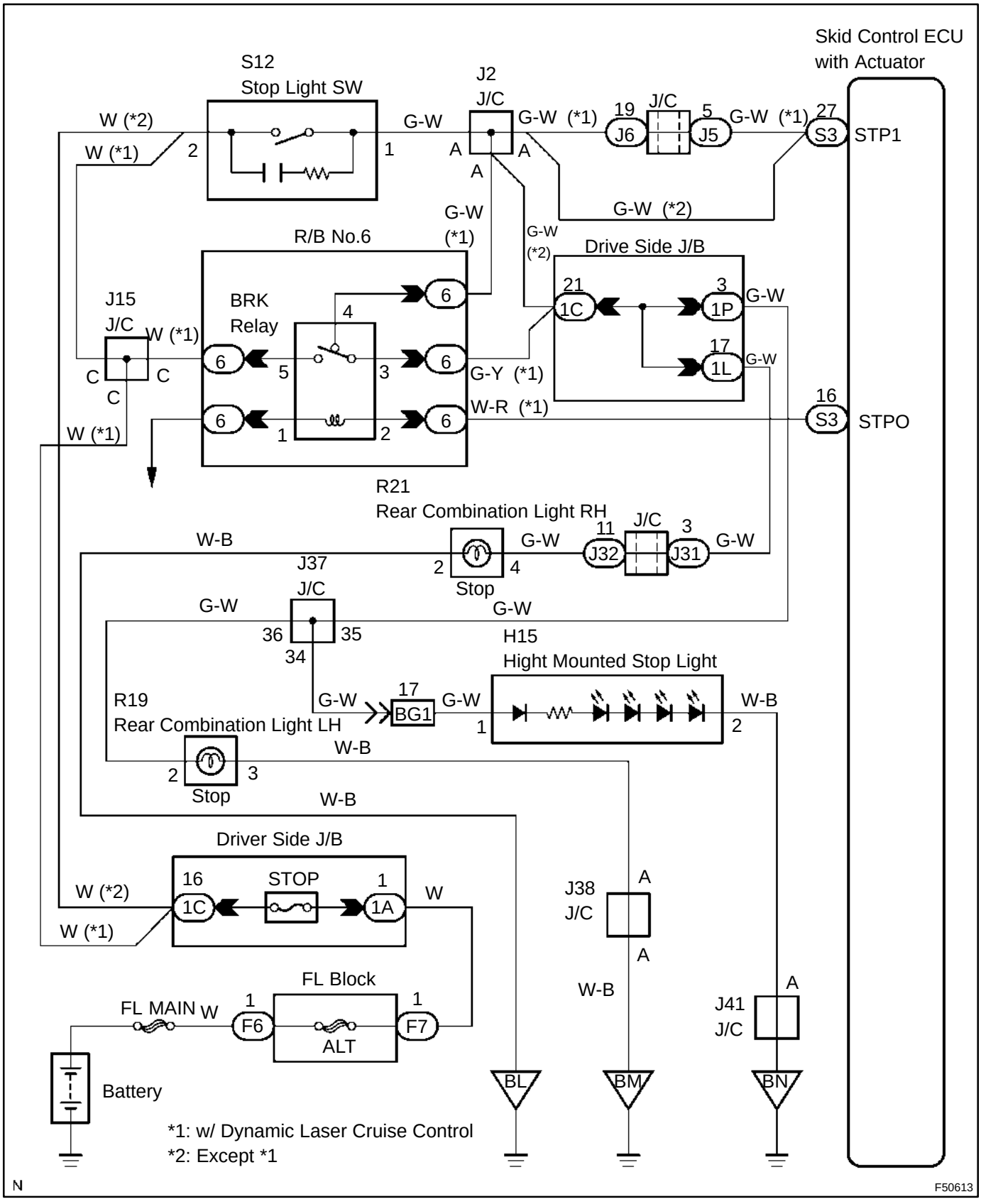
**REPLACE ABS & TRACTION ACTUATOR ASSY(See page 32-46 )**

| DTC | C1249/49 | OPEN CIRCUIT IN STOP LIGHT SWITCH CIRCUIT |
|---|---|---|

## CIRCUIT DESCRIPTION

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| C1249 / 49 | • When IG1 terminal voltage is 9.5 to 17.2 V, open circuit of the stop light switch continues for 0.3 sec. or more. | • Stop light switch<br>• Stop light switch circuit |

# WIRING DIAGRAM



# INSPECTION PROCEDURE

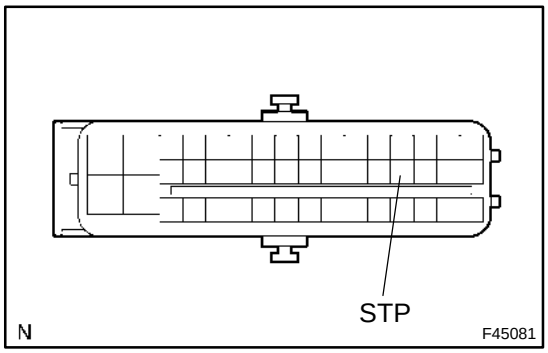
| 1 | INSPECT STOP LAMP SWITCH ASSY |
|---|---|

(a) Check that the stop light comes on when the brake pedal is depressed and goes off when the brake pedal is released.

NG → **Go to step 4**

OK

| 2 | INSPECT SKID CONTROL ECU TERMINAL VOLTAGE(STP TERMINAL) |
|---|---|




(a) Disconnect the brake actuator connector.
(b) Measure the voltage between terminal STP of the skid control ECU and body ground when brake pedal is depressed.
**OK:**
**Voltage: 8 to 14 V**
(c) Measure the voltage between terminal STP of the skid control ECU and body ground when brake pedal is released.
**OK:**
**Voltage: 1 V or less**

OK → **REPLACE ABS & TRACTION ACTUATOR ASSY (See page 32-46 )**

NG

| 3 | CHECK HARNESS AND CONNECTOR(STOP LIGHT SWITCH - SKID CONTROL ECU) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the stop light switch and skid control ECU (See page 01-37 ).

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE**

| 4 | CHECK HARNESS AND CONNECTOR(STOP LIGHT CIRCUIT) |
|---|---|

OK → **REPLACE STOP LAMP SWITCH ASSY**

NG

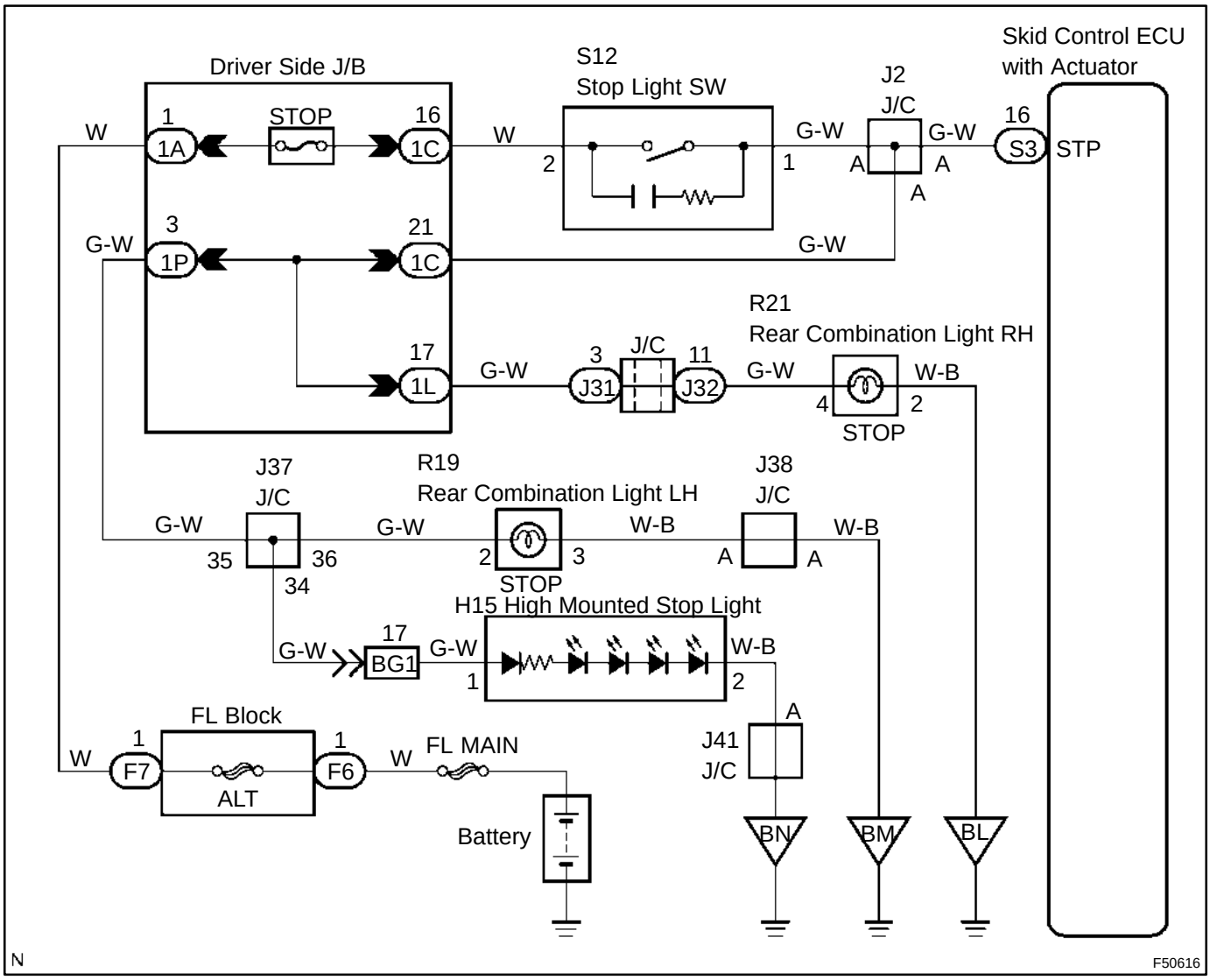
**REPAIR OR REPLACE HARNESS OR CONNECTOR**

| DTC | C1249/49 | OPEN CIRCUIT IN STOP LIGHT SWITCH CIRCUIT |
|---|---|---|

## CIRCUIT DESCRIPTION

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| C1249/49 | With IG1 terminal voltage at 10V to 16V, ABS is not operating and stop light switch circuit is open for 1.0 sec. or longer. | • Stop light switch<br>• Stop light switch circuit |

## WIRING DIAGRAM



## INSPECTION PROCEDURE

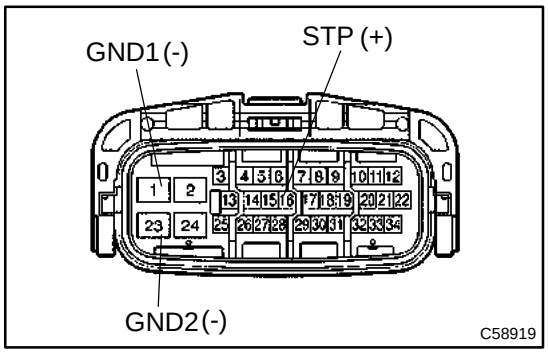
| 1 | INSPECT STOP LAMP SWITCH ASSY |
|---|---|

(a) Check that the stop light comes on when brake pedal is depressed and goes off when the brake pedal is released.

NG → **Go to step 4**

OK

| 2 | INSPECT SKID CONTROL ECU TERMINAL VOLTAGE(STP TERMINAL) |
|---|---|




(a) Disconnect the skid control ECU connector.
(b) Measure the voltage between terminal STP and GND1, 2 of the skid control ECU harness side connector when the brake pedal is depressed.
**OK:**
**Voltage: 10 to 14 V**

OK → **REPLACE BRAKE ACTUATOR ASSY (See page 32-43 )**

NG

| 3 | CHECK HARNESS AND CONNECTOR(STOP LIGHT SWITCH - SKID CONTROL ECU) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the stop light switch and skid control ECU (See page 01-37 ).

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE**

| 4 | CHECK HARNESS AND CONNECTOR(STOP LIGHT CIRCUIT) |
|---|---|

OK → **REPLACE STOP LAMP SWITCH ASSY**

NG

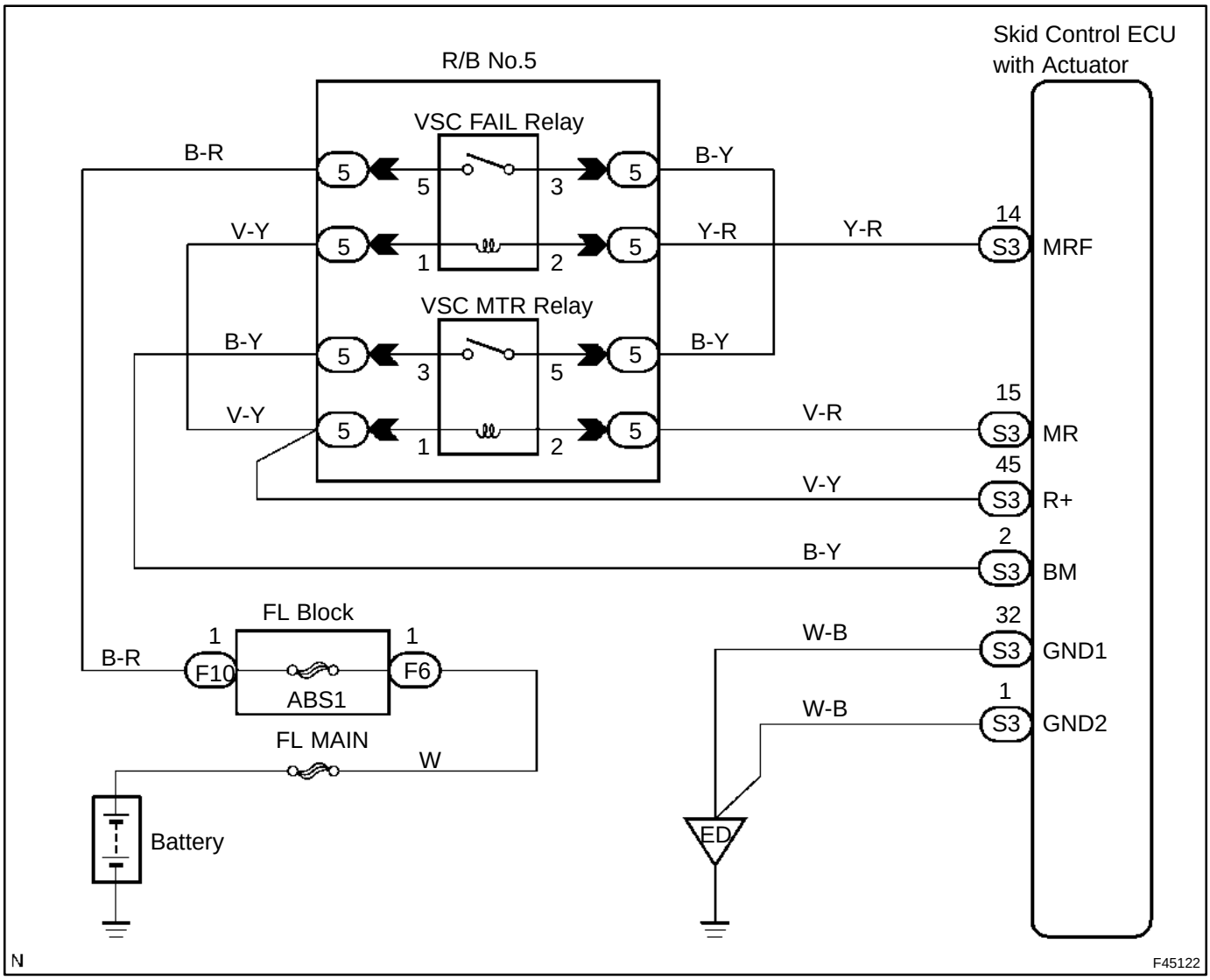
**REPAIR OR REPLACE HARNESS OR CONNECTOR**

| DTC | C1251/51 | PUMP MOTOR IS LOCKED/OPEN CIRCUIT IN PUMP MOTOR GROUND |
|---|---|---|

## CIRCUIT DESCRIPTION

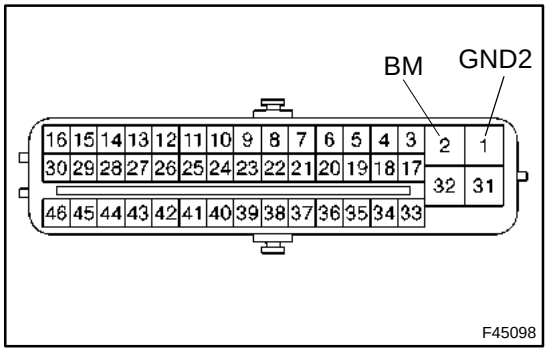
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| C1251 / 51 | When either condition 1. or 2. is defected:<br>1. The ABS pump motor is not operating normally.<br>2. Open circuit of the ABS pump motor continues for 2 sec. or more. | ABS pump motor |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CHECK CHECK OPERATION OF BRAKE ACTUATOR(PUMP MOTOR) |
|---|---|




(a) Disconnect the brake actuator connector.

(b) Connect positive ⊕ lead to terminal BM and negative ⊖ lead to terminal GND of the brake actuator. Check that the pump motor is operating.

**OK:**

**The running sound of the pump motor should be heard.**

**NG** → **REPLACE ABS & TRACTION ACTUATOR ASSY (See page 32-46 )**

**OK**

| 2 | INSPECT HARNESS AND CONNECTOR(GND2 OF SKID CONTROL ECU AND BODY GROUND)(See page 01-37 ) |
|---|---|

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

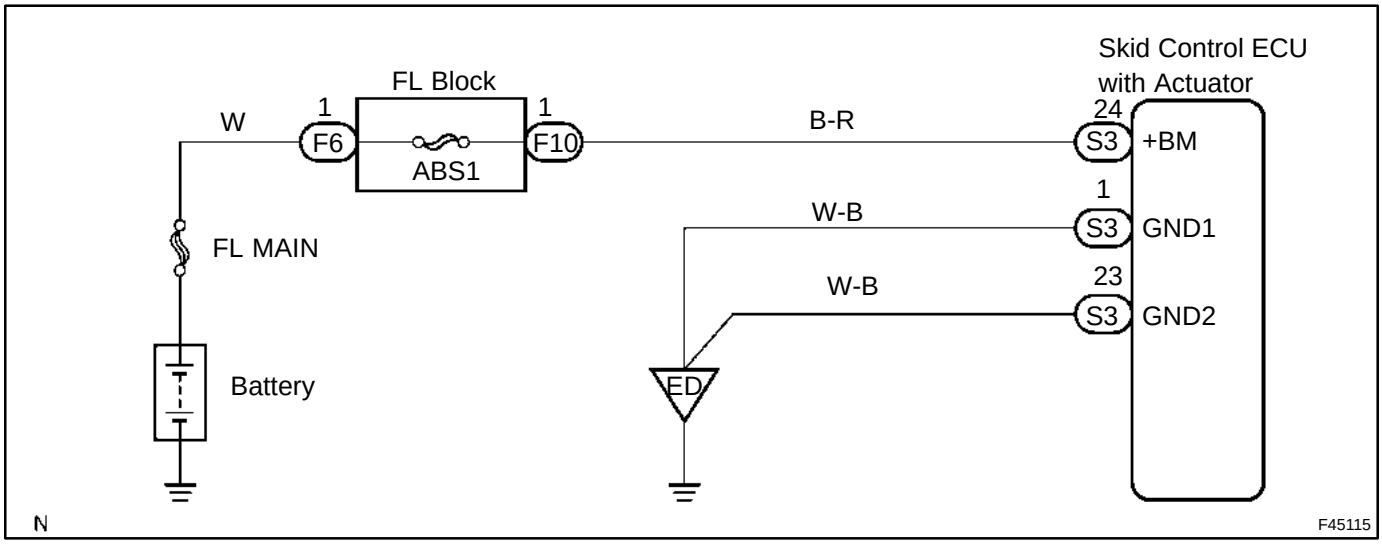
**REPLACE ABS & TRACTION ACTUATOR ASSY(See page 32-46 )**

| DTC | C1251/51 | PUMP MOTOR IS LOCKED/OPEN CIRCUIT IN PUMP MOTOR GROUND |
|---|---|---|

## CIRCUIT DESCRIPTION

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| C1251/51 | ABS actuator pump motor is not operating normally during initial check. | ABS pump motor |

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

Start the inspection from step 1 if you are using the hand-held tester and start from step 2 if you are not using hand-held tester.

| 1 | INSPECT BRAKE ACTUATOR ASSY |
|---|---|

(a) Connect the hand-held tester to the DLC3.
(b) Start the engine.
(c) Select the ACTIVE TEST mode on the hand-held tester.
(d) Check the operation sound of the ABS pump motor when operating it with the hand-held tester.

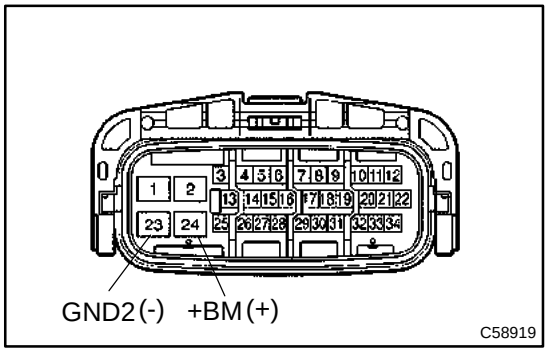
**OK:**

**The operation sound of the ABS pump motor should be heard.**

| OK | PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE |
|---|---|

NG

| 2 | INSPECT SKID CONTROL ECU TERMINAL VOLTAGE(+BM TERMINAL VOLTAGE) |
|---|---|




(a) Disconnect the skid control ECU connector.
(b) Measure the voltage between terminal +BM and GND1, 2 of the skid control ECU harness side connector.

**OK:**

**The operation sound of the ABS pump motor should be heard.**

| OK | REPAIR OR REPLACE HARNESS OR CONNECTOR |
|---|---|

NG

**REPLACE BRAKE ACTUATOR ASSY (See page 32-43 )**

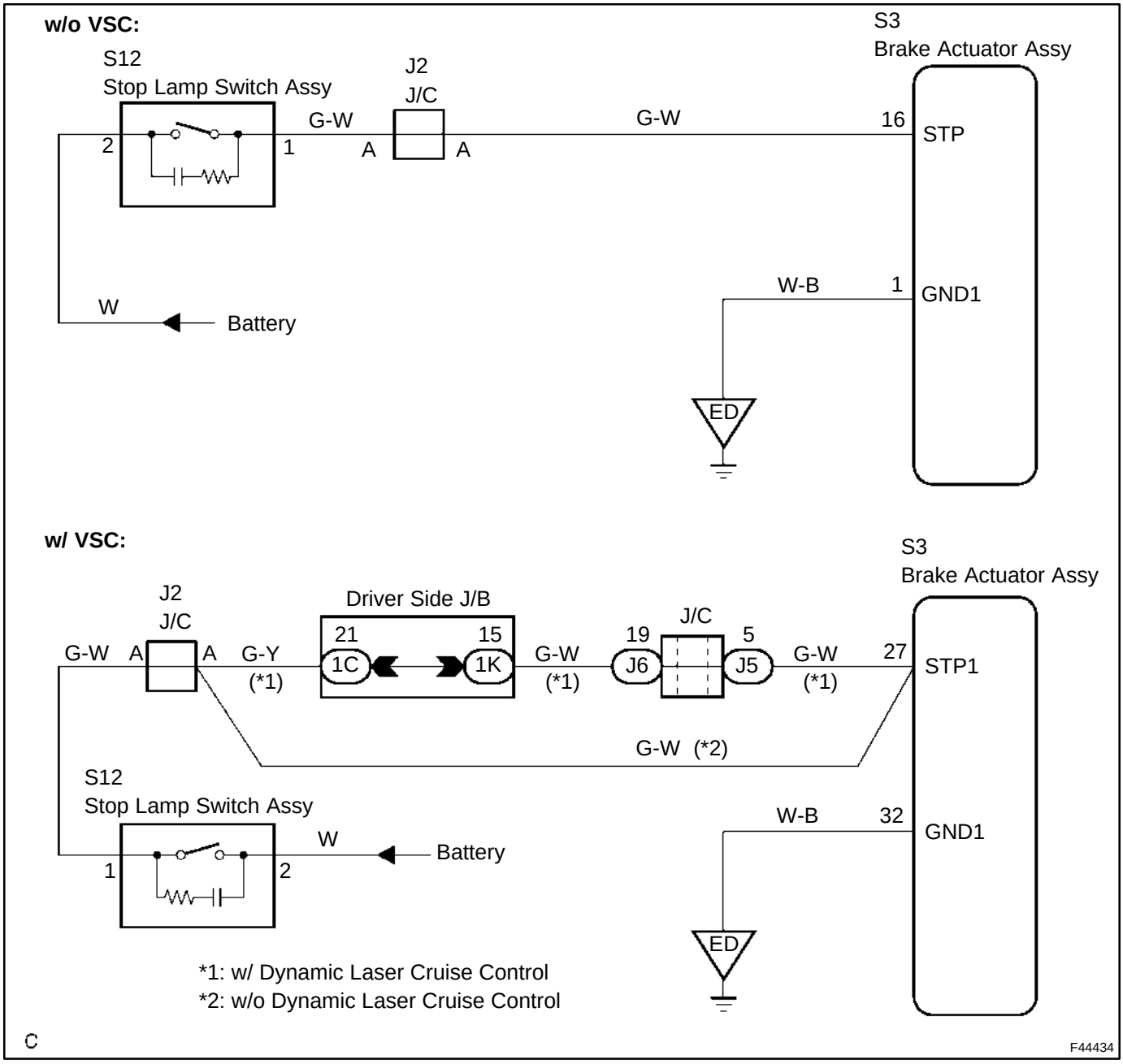
| DTC | C2106/11 | STOP LAMP SWITCH CONSTANT ON MALFUNCTION |
|---|---|---|

## CIRCUIT DESCRIPTION

When the stop lamp switch is ON (brake pedal is depressed), the skid control ECU stops the tire pressure warning system.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| C2106/11 | With vehicle speed at 20 km/h (12 mph) or more, stop lamp switch assy is "ON" for 15 min. | • Stop lamp switch assy<br>• Stop lamp switch assy circuit<br>• Brake actuator assy |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CONFIRM VEHICLE MODELS |
|---|---|

(a) Confirm the vehicle models.
**Result:**

| | |
|---|---|
| w/o VSC | A |
| w/ VSC | B |

**B** → **Go to step 6**

**A**

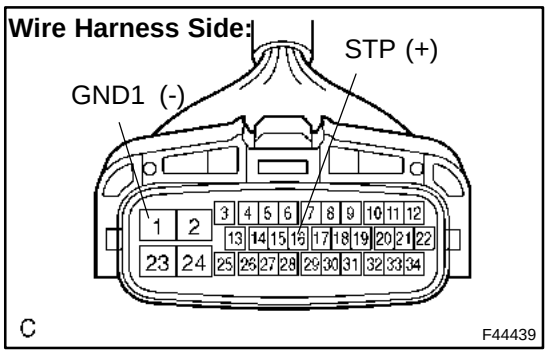
| 2 | CHECK STOP LAMP SWITCH OPERATION |
|---|---|

(a) Check that the stop lamp comes on when the brake pedal is depressed and goes off when the brake pedal is released.
**Standard:**
**Stop lamp switch function normal.**

**NG** → **Go to step 4**

**OK**

| 3 | CHECK HARNESS AND CONNECTOR(BRAKE ACTUATOR ASSY - STOP LAMP SWITCH ASSY) |
|---|---|




(a) Disconnect the brake actuator assy connector.
(b) Measure the voltage between terminal 16 (STP) and 1 (GND1) of brake actuator wire harness side connector when brake pedal is depressed and released.
**Standard:**

| Switch condition | Specified condition |
|---|---|
| Brake pedal depressed | 10 to 14 V |
| Brake pedal released | Below 1.5 V |

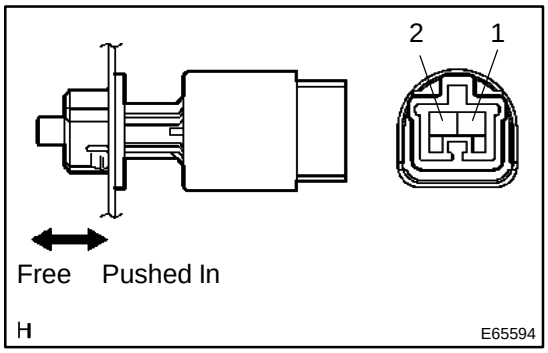
**NOTICE:**
**As a water proof connector cannot be checked be from the backside, check by connecting the sub-harness.**

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

**REPLACE BRAKE ACTUATOR ASSY (See page 32-43 )**

## 4 INSPECT STOP LAMP SWITCH ASSY



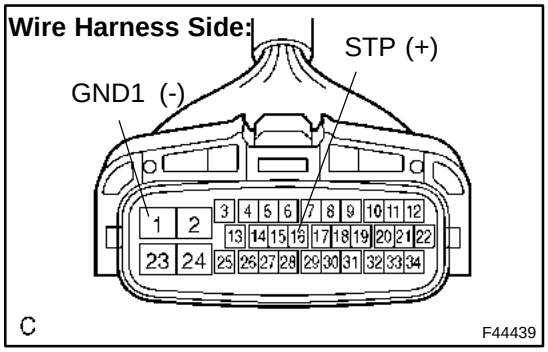

(a) Disconnect the stop lamp switch assy connector.
(b) Measure the resistance between terminal 1 and 2 of the stop lamp switch assy when stop lamp switch assy is pin free and pushed in.
**Standard:**

| Switch condition | Tester connection | Specified condition |
|---|---|---|
| Switch pin free | 1 - 2 | Below 1 Ω |
| Switch pin pushed in | 1 - 2 | 10 kΩ or higher |

**NG** → **REPLACE STOP LAMP SWITCH ASSY**

**OK**

## 5 CHECK HARNESS AND CONNECTOR(BRAKE ACTUATOR ASSY - STOP LAMP SWITCH ASSY)




(a) Connect the stop lamp switch assy connector.
(b) Disconnect the brake actuator assy connector.
(c) Measure the voltage between terminal 16 (STP) and 1 (GND1) of brake actuator wire harness side connector when brake pedal is depressed and released.
**Standard:**

| Switch condition | Specified condition |
|---|---|
| Brake pedal depressed | 10 to 14 V |
| Brake pedal released | Below 1.5 V |

**NOTICE:**
**As a water proof connector cannot be checked be from the backside, check by connecting the sub-harness.**

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

**REPLACE BRAKE ACTUATOR ASSY (See page 32-43 )**

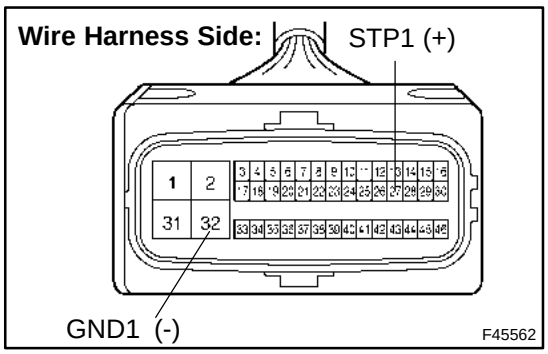
## 6 CHECK STOP LAMP SWITCH OPERATION

(a) Check that the stop lamp comes on when the brake pedal is depressed and goes off when the brake pedal is released.
**Standard:**
**Stop lamp switch function normal.**

**NG** → **Go to step 8**

**OK**

| 7 | CHECK HARNESS AND CONNECTOR(BRAKE ACTUATOR ASSY - STOP LAMP SWITCH ASSY) |
|---|---|




(a) Disconnect the brake actuator assy connector.
(b) Measure the voltage between terminal 27 (STP1) and 32 (GND1) of brake actuator wire harness side connector when brake pedal is depressed and released.

**Standard:**

| Switch condition | Specified condition |
|---|---|
| Brake pedal depressed | 10 to 14 V |
| Brake pedal released | Below 1.5 V |

**NOTICE:**

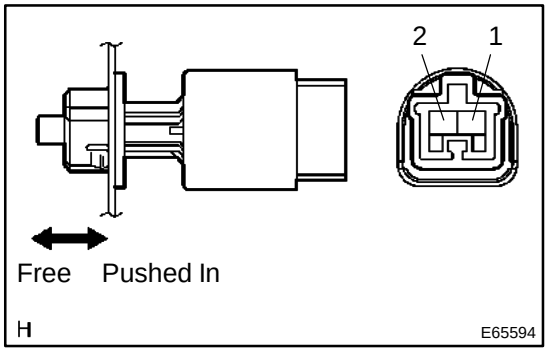
**As a water proof connector cannot be checked be from the backside, check by connecting the sub-harness.**

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

**REPLACE BRAKE ACTUATOR ASSY (See page 32-46 )**

| 8 | INSPECT STOP LAMP SWITCH ASSY |
|---|---|




(a) Disconnect the stop lamp switch assy connector.
(b) Measure the resistance between terminal 1 and 2 of the stop lamp switch assy when stop lamp switch assy is pin free and pushed in.

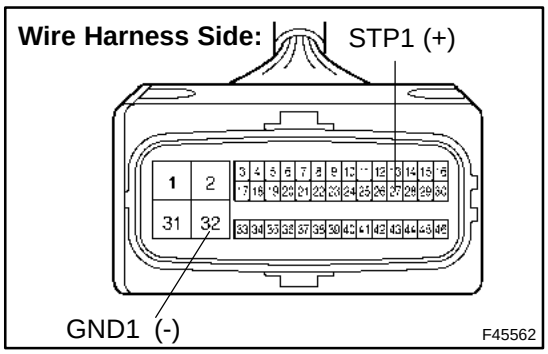
**Standard:**

| Switch condition | Tester connection | Specified condition |
|---|---|---|
| Switch pin free | 1 - 2 | Below 1 Ω |
| Switch pin pushed in | 1 - 2 | 10 kΩ or higher |

**NG** → **REPLACE STOP LAMP SWITCH ASSY**

**OK**

| 9 | CHECK HARNESS AND CONNECTOR(BRAKE ACTUATOR ASSY - STOP LAMP SWITCH ASSY) |
|---|---|




(a) Connect the stop lamp switch assy connector.
(b) Disconnect the brake actuator assy connector.
(c) Measure the voltage between terminal 27 (STP1) and 32 (GND1) of brake actuator wire harness side connector when brake pedal is depressed and released.

**Standard:**

| Switch condition | Specified condition |
|---|---|
| Brake pedal depressed | 10 to 14 V |
| Brake pedal released | Below 1.5 V |

**NOTICE:**

**As a water proof connector cannot be checked be from the backside, check by connecting the sub-harness.**

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

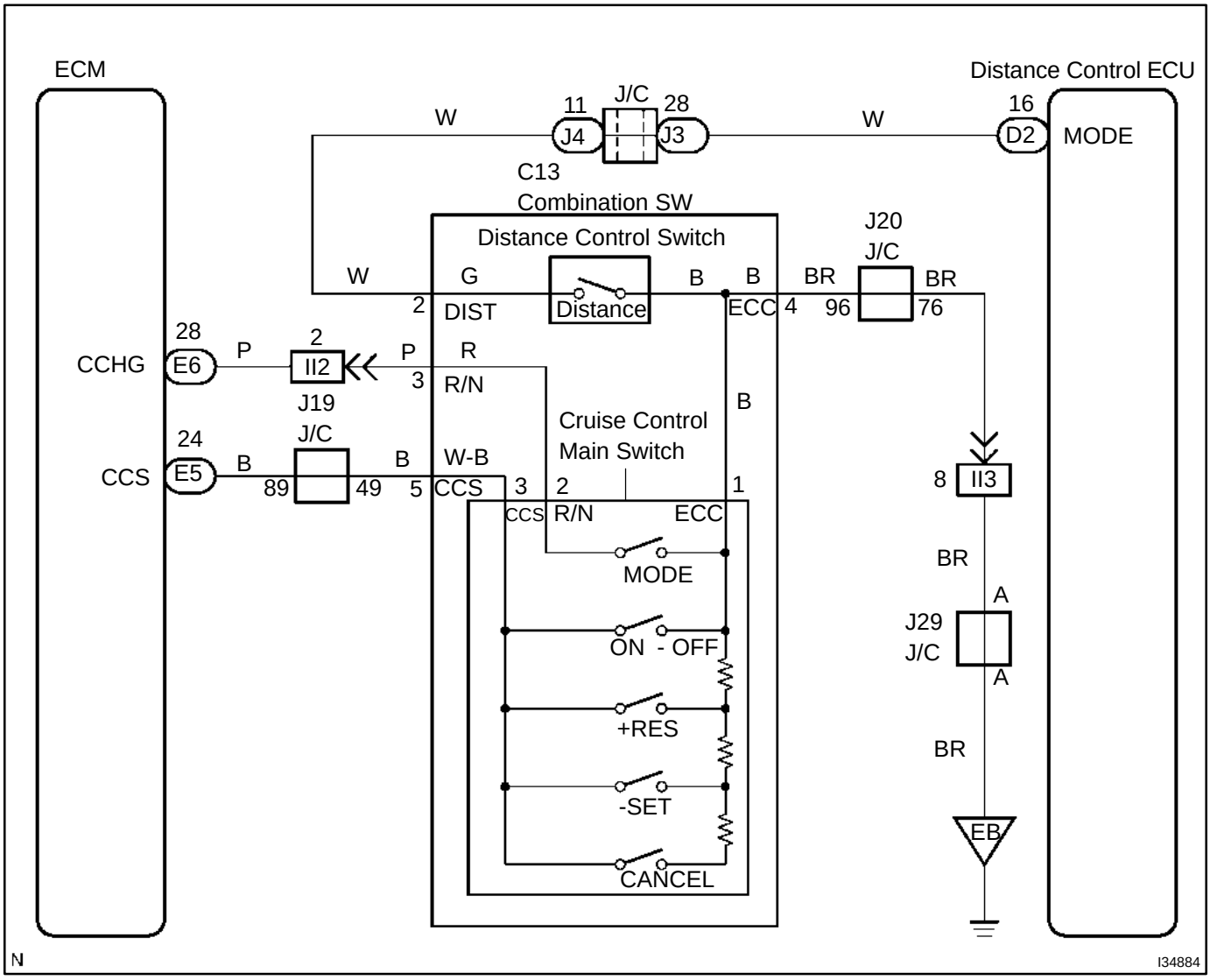
**REPLACE BRAKE ACTUATOR ASSY (See page 32-46 )**

# CRUISE CONTROL SWITCH CIRCUIT

## CIRCUIT DESCRIPTION

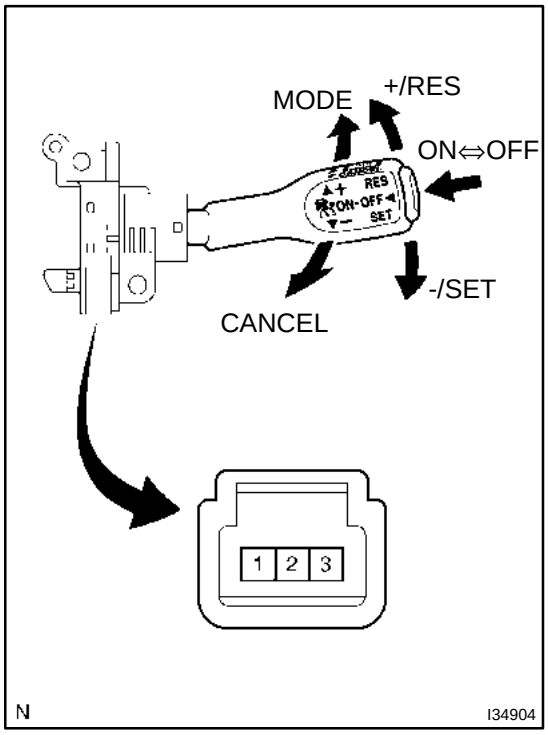
This circuit carries the -/SET, +/RES, MODE and CANCEL signals (each voltage) to the ECM.
The mode switch on cruise control main switch changes the vehicle-to-vehicle mode to constant speed control mode.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

## 1 INSPECT CRUISE CONTROL MAIN SWITCH




(a) Disconnect the cruise control main switch connector.

(b) Measure the resistance between terminal 1 and 3 of the cruise control main switch connector when the cruise control main switch is operated.

**Standard:**

| Switch position | Resistance (Ω) |
|---|---|
| Neutral | 10 kΩ or higher |
| +/RES | 210 to 270 |
| -/SET | 560 to 700 |
| CANCEL | 1,380 to 1,700 |

(c) Check continuity between terminals 1 and 3 of cruise control main switch connector when the main switch is held on and off.

**Standard:**

| Switch position | Tester connection | Specification |
|---|---|---|
| OFF | 1 - 3 | 10 kΩ or higher |
| ON | 1 - 3 | Below 1 Ω |

(d) Check continuity between terminals 1 and 2 of cruise control main switch connector when the mode switch is operated.

**Standard:**

| Switch position | Tester connection | Specification |
|---|---|---|
| MODE | 1 - 2 | Below 1 Ω |

**NG** → **REPLACE CRUISE CONTROL MAIN SWITCH**

**OK**

## 2 CHECK WIRE HARNESS AND CONNECTOR(CRUISE CONTROL MAIN SWITCH - ECM)

(a) Check for an open or short circuit in harness and connector between cruise control main switch and ECM (See page 01-37 ).

**NG** → **REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR**

**OK**

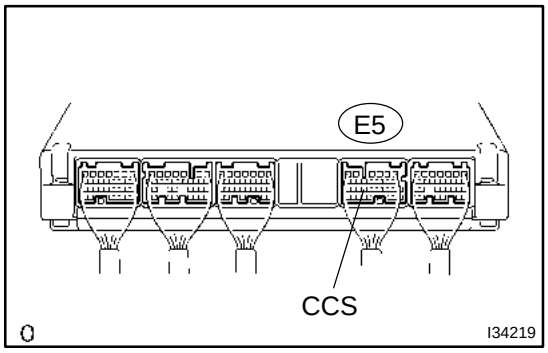
| 3 | CHECK WIRE HARNESS AND CONNECTOR(CRUISE CONTROL MAIN SWITCH - BODY GROUND) |
|---|---|

(a) Check for an open or short circuit in harness and connector between cruise control main switch and body ground (See page 01-37 ).

NG → **REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR**

OK

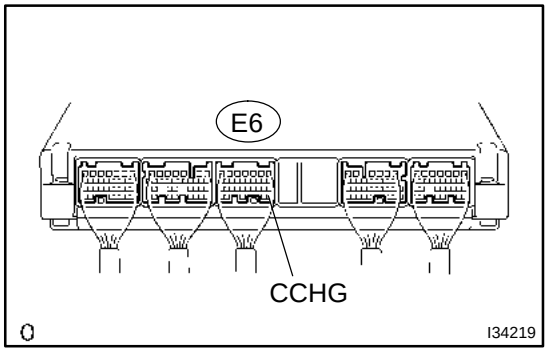
| 4 | INSPECT ECM |
|---|---|




(a) Remove the ECM with connector.
(b) Turn the ignition switch ON.
(c) Measure the voltage between terminal CCS (E5-24) of ECM and body ground, when cruise main switch is operated.

**Standard:**

| Switch position | Voltage |
|---|---|
| Neutral | 10 to 16 V |
| CANCEL | 6.6 to 10.1 V |
| -/SET | 4.5 to 7.1 V |
| +/RES | 2.3 to 4.0 V |
| Main switch ON | Below 1 V |




(d) Measure the voltage between terminal CCHG (E6-28) of ECM and body ground, when cruise control main switch is operated.

**Standard:**

| Switch position | Voltage |
|---|---|
| MODE | Below 1 V |
| Neutral | 10 to 14 V |

NG → **REPLACE ECM (See page 10-17 )**

OK

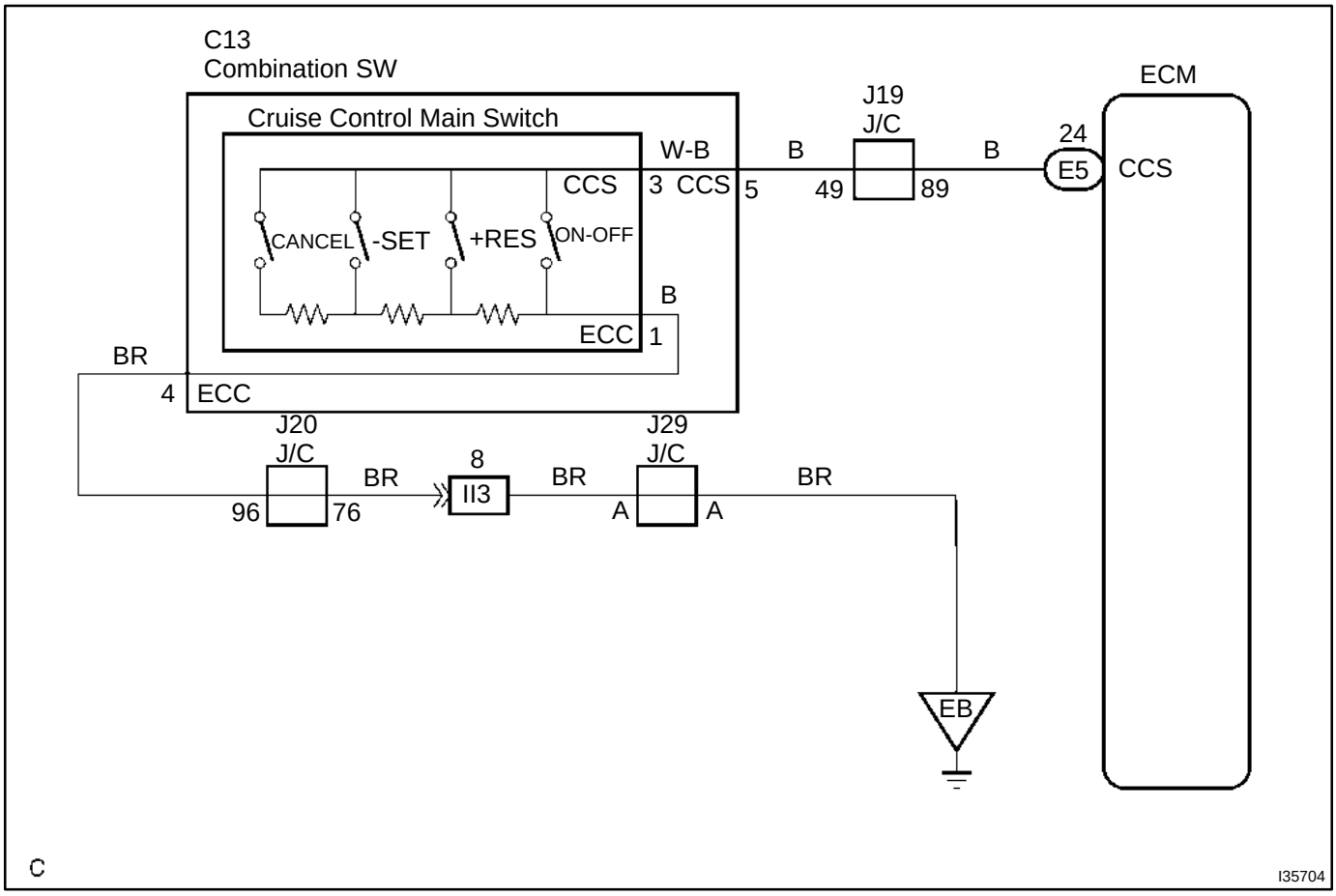
**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-2008 )**

# CRUISE CONTROL SWITCH CIRCUIT

## CIRCUIT DESCRIPTION

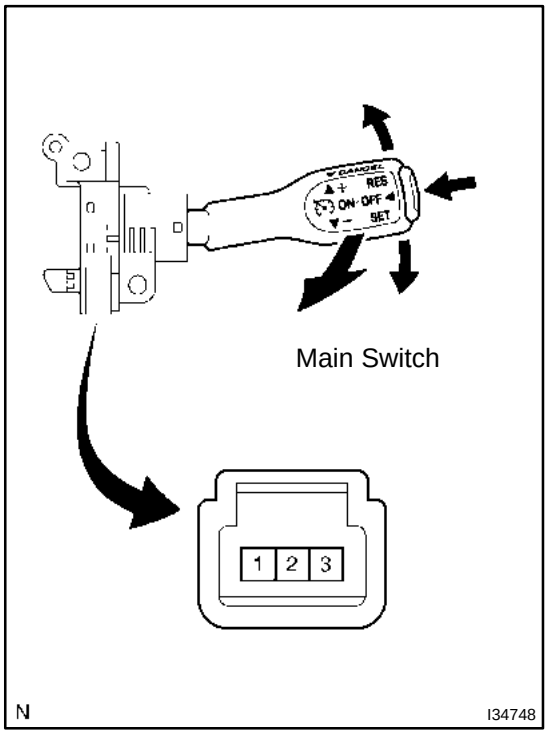
This circuit carries the -/SET, +/RES and CANCEL signals (each voltage) to the ECM.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT CRUISE CONTROL MAIN SWITCH |
|---|---|




(a) Disconnect the cruise control main switch connector.

(b) Measure resistance between terminal 1 and 3 of the cruise control switch connector when cruise control main switch is operated.

**Standard:**

| Switch condition | Resistance (Ω) |
|---|---|
| Neutral | ∞ (No continuity) |
| +/RES | 210 to 270 |
| -/SET | 560 to 700 |
| CANCEL | 1,380 to 1,700 |

(c) Check continuity between terminals 1 and 3 of cruise control main switch connector when main switch button is held on and off.

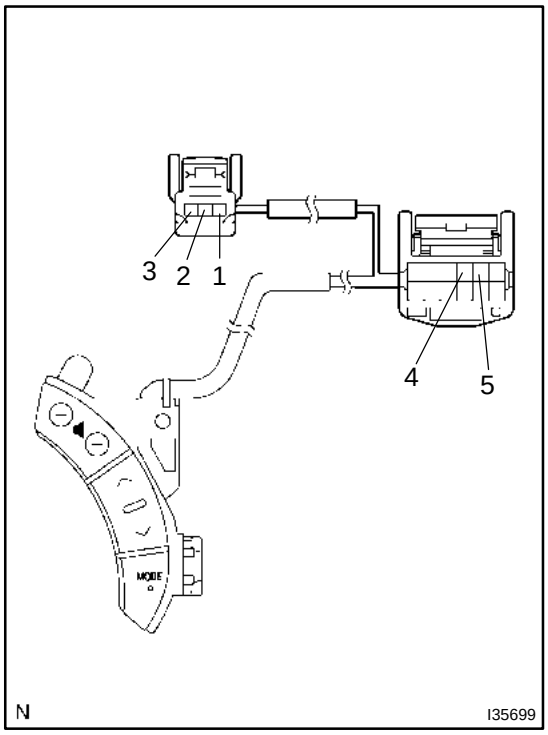
**Standard:**

| Switch condition | Tester connection | Specification |
|---|---|---|
| OFF | 1 - 3 | No continuity |
| ON | 1 - 3 | Continuity |

**NG** → **REPLACE CRUISE CONTROL MAIN SWITCH**

**OK**

## 2 INSPECT STEERING PAD SWITCH LH



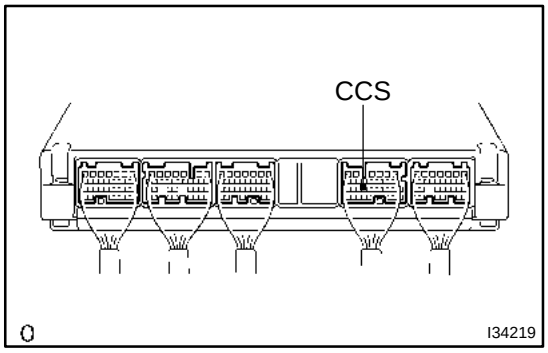

(a) Check for open and short circuit in harness and connector between cruise control main switch side terminal 1 and ECM side terminal 4. (See page 01-37 )

(b) Check for open and short circuit in harness and connector between cruise control main switch side terminal 3 and ECM side terminal 5. (See page 01-37 )

**NG** → **REPAIR OR REPLACE STEERING PAD SWITCH LH**

**OK**

## 3 INSPECT ECM




(a) Remove the ECM with connector.

(b) Ignition switch ON.

(c) Measure voltage between terminal CCS of ECM and body ground, when cruise control main switch is operated.

**Standard:**

| Switch position | Voltage |
|---|---|
| Neutral | 10 to 14 V |
| CANCEL | 6.6 to 10.1 V |
| -/SET | 4.5 to 7.1 V |
| +/RES | 2.3 to 4 V |
| Main switch ON | Below 1 V |

**NG** → **REPLACE ECM (See page 01-37 )**

**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1972 )**

# CRUISE MAIN INDICATOR LIGHT CIRCUIT

## CIRCUIT DESCRIPTION

When the cruise control main switch is ON, CRUISE main indicator light and READY indicator light comes on.
This indicates the control condition (the front vehicle, vehicle-to-vehicle distance, and set vehicle speed) and fail-safe state through the multiplex communication system.
The master warning light, cruise main indicator light and vehicle-to-vehicle distance information come on as the alarm buzzer sounds.
HINT:
If the front vehicle in the same lane significantly decrease the vehicle speed or another vehicle cuts in front of your vehicle, adequate deceleration cannot be applied and the vehicle-to-vehicle distance will shorten. At this time, the system sounds the buzzer and the master warning light blinks to warn the driver.

## INSPECTION PROCEDURE

| 1 | READ VALUE OF HAND-HELD TESTER |
|---|---|

(a) Connect the hand-held tester to the DLC3.
(b) Check the cruise main indicator light using DATA LIST.

**ECM:**

| Item | Measurement Item / Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| CCS READY M | Cruise control system stand by condition (Main CPU) / ON or OFF | ON ⇔ OFF : Change ON/OFF each time Main SW is Pushed in. | ”1” |
| CCS READY S | Cruise control system stand by condition (Sub CPU) / ON or OFF | ON ⇔ OFF : Change ON/OFF each time Main SW is Pushed in. | ”1” |
| CCS INDICATOR M | Cruise indicator signal (Main CPU) / ON or OFF | ON : ”CCS READY” ON<br>OFF : ”CCS READY” OFF | ”2” |
| CCS INDICATOR S | Cruise indicator signal (Sub CPU) / ON or OFF | ON : ”CCS READY” ON<br>OFF : ”CCS READY” OFF | ”2” |

HINT:
”1” is OK, but ”2” is NG → DTC output or ECM failure

**OK** → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-2008 )**

**NG**

**GO TO COMBINATION METER SYSTEM (See page 05-1525 )**

# CRUISE MAIN INDICATOR LIGHT CIRCUIT

## CIRCUIT DESCRIPTION

- Output the cruise control controlling condition and the diagnosis code from the ECM to the combination meter.
- This signal is transmitted to the combination meter by BEAN signal.

## INSPECTION PROCEDURE

| 1 | PERFORM ACTIVE TEST BY HAND-HELD TESTER |
|---|---|

(a) Connect the hand-held tester to the DLC3.
(b) Check the cruise control switch using ACTIVE TEST.

**COMBINATION METER:**

| Description | Tester display | Check condition |
|---|---|---|
| CRUISE indicator light | CRUISE INDIC | ON-OFF |

**NG** → **REPAIR OR REPLACE COMBINATION METER ASSY**

**OK**

| 2 | READ VALUE OF HAND-HELD TESTER |
|---|---|

(a) Connect the hand-held tester to the DLC3.
(b) Turn the ignition switch ON and push the hand-held tester main switch ON.
(c) Select the item below in the DATA LIST, and read the display on the hand-held tester.

**CRUISE CONTROL (ECM):**

| ITEM | EXTEND | PARAM |
|---|---|---|
| CCS INDICATOR M | Cruise Control Main Switch-Indicator (Main CPU) | OFF/ON |
| CCS INDICATOR S | Cruise Control Main Switch-Indicator (Sub CPU) | OFF/ON |

**Result:**

| | |
|---|---|
| All OK | A |
| All NG | B |
| Others | B |

**B** → **REPLACE ECM (See page 01-37 )**

**A**

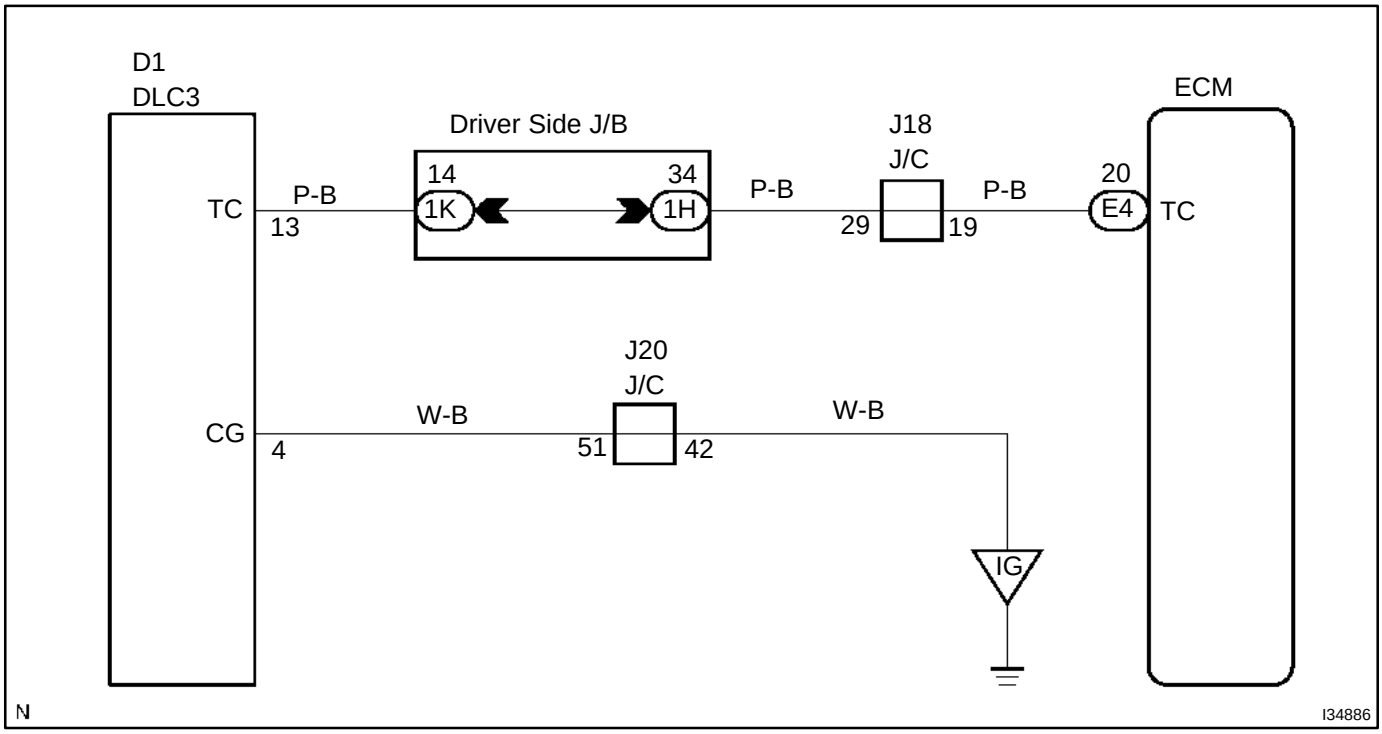
**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE(See page 05-1972 )**

# DIAGNOSIS CIRCUIT

## CIRCUIT DESCRIPTION

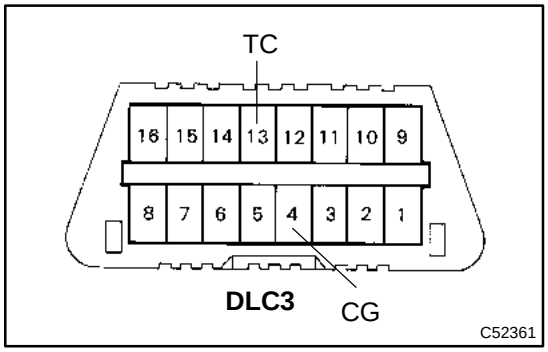
This circuit output the malfunction codes on the cruise main indicator light in the combination meter when terminal TC and CG of DLC3 is connected.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT DLC3 |
|---|---|




(a) Turn the ignition switch to ON.
(b) Measure voltage between terminals TC and CG of DLC3.
**Standard:**
**10 to 14 V**

**OK** → **Go to step 3**

**NG**

| 2 | CHECK WIRE HARNESS AND CONNECTOR(DLC3 - BODY GROUND) |
|---|---|

(a) Check for an open circuit in harness and connector between terminal CG of DLC3 and body ground (See page 01-37 ).

**NG** → **REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR**

**OK**

| 3 | CHECK WIRE HARNESS AND CONNECTOR(DLC3 - ECM) |
|---|---|

(a) Check for an open or short circuit in harness and connector between terminal TC of DLC3 and ECM (See page 01-37 ).

**NG** → **REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR**

**OK**

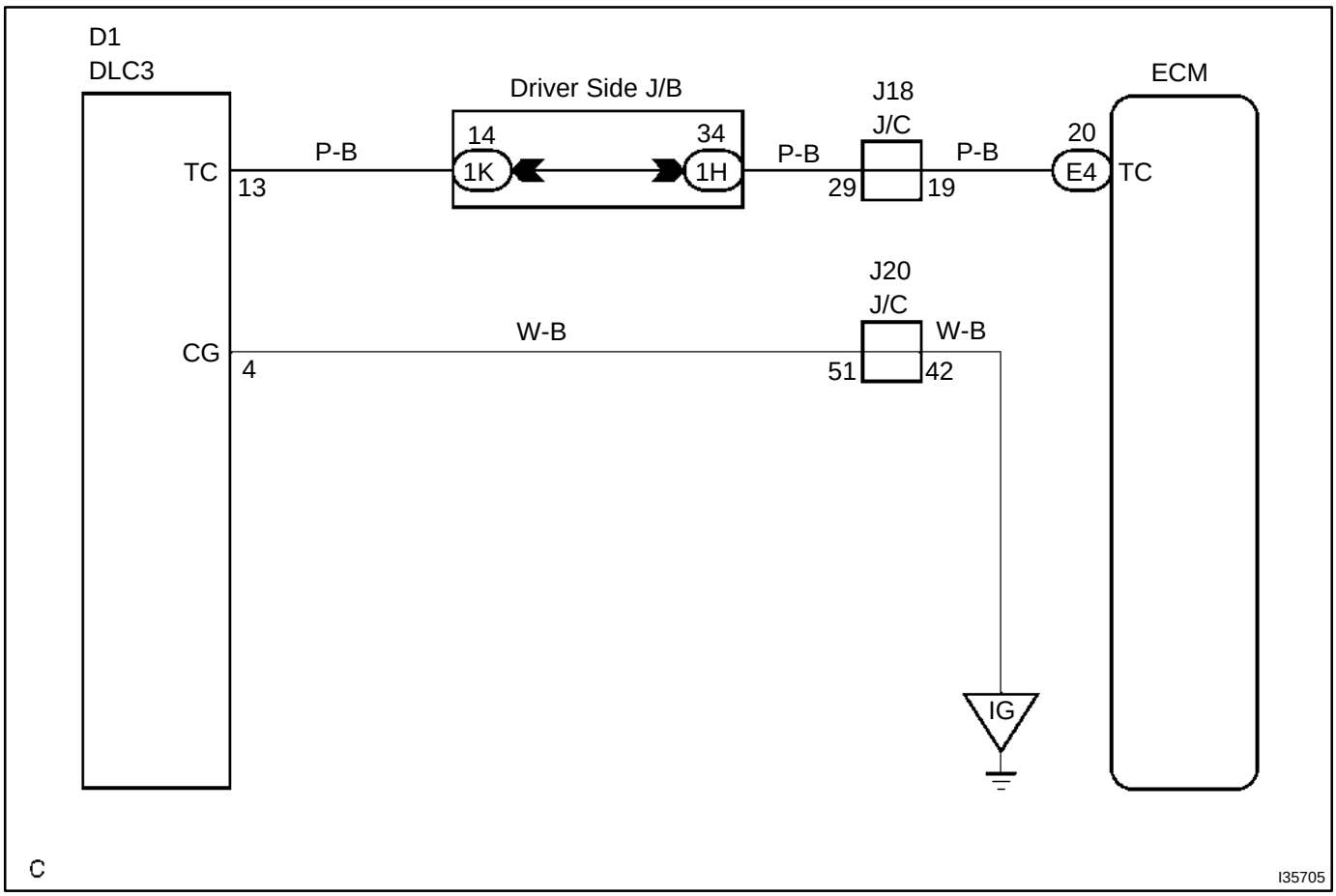
**REPLACE ECM (See page 10-17 )**

# DIAGNOSIS CIRCUIT

## CIRCUIT DESCRIPTION

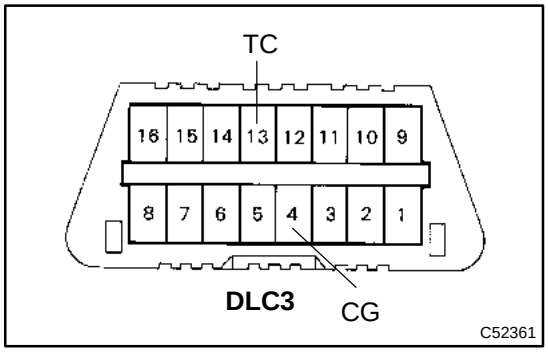
Making short circuit between terminals TC and CG of DLC3 will output DTC from the DLC3.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

## 1 INSPECT DLC3(TC TERMINAL VOLTAGE)



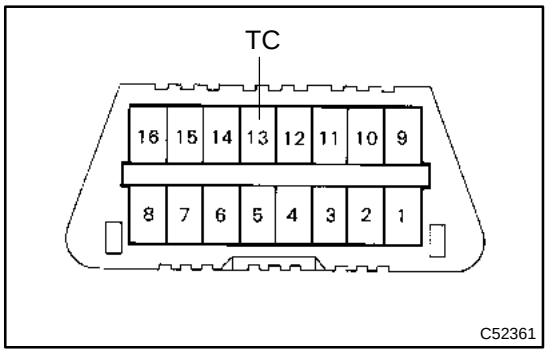

(a) Turn the ignition switch to ON.
(b) Measure voltage between terminals TC and CG of DLC3.
**Standard:**

| Tester Connection | Specified Condition |
|---|---|
| Terminal 13 (TC) - Terminal 4 (CG) | 10 to 14 V |

**NG** → **Go to step 3**

**OK**

## 2 CHECK HARNESS AND CONNECTOR(DLC3 - ECM)



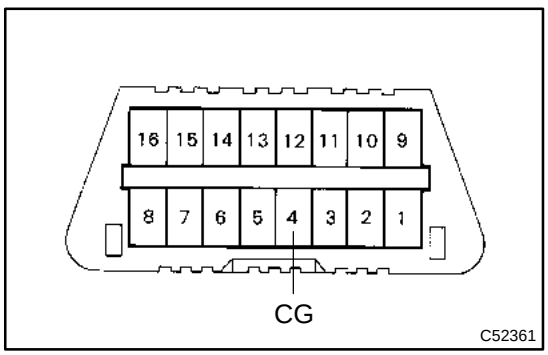

(a) Check for open or short circuit in harness and connector between terminal TC of DLC3 and body ground (See page 01-37 ).

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

**REPLACE ECM (See page 01-37 )**

## 3 CHECK HARNESS AND CONNECTOR(DLC3 - BODY GROUND)

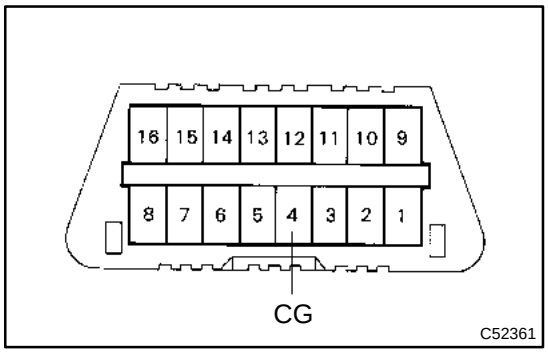



(a) Check for open circuit in harness and connector between terminal CG of DLC3 and body ground (See page 01-37 ).

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

| 4 | CHECK HARNESS AND CONNECTOR(DLC3 - ECM) |
|---|---|




(a) Check for open or short circuit in harness and connector between terminal TC of DLC3 and ECM (See page 01-37 ).

| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |
|---|---|

OK

**REPLACE ECM (See page 01-37 )**

# DISTANCE CONTROL SWITCH CIRCUIT

## CIRCUIT DESCRIPTION

This switch sets the vehicle-to-vehicle mode.

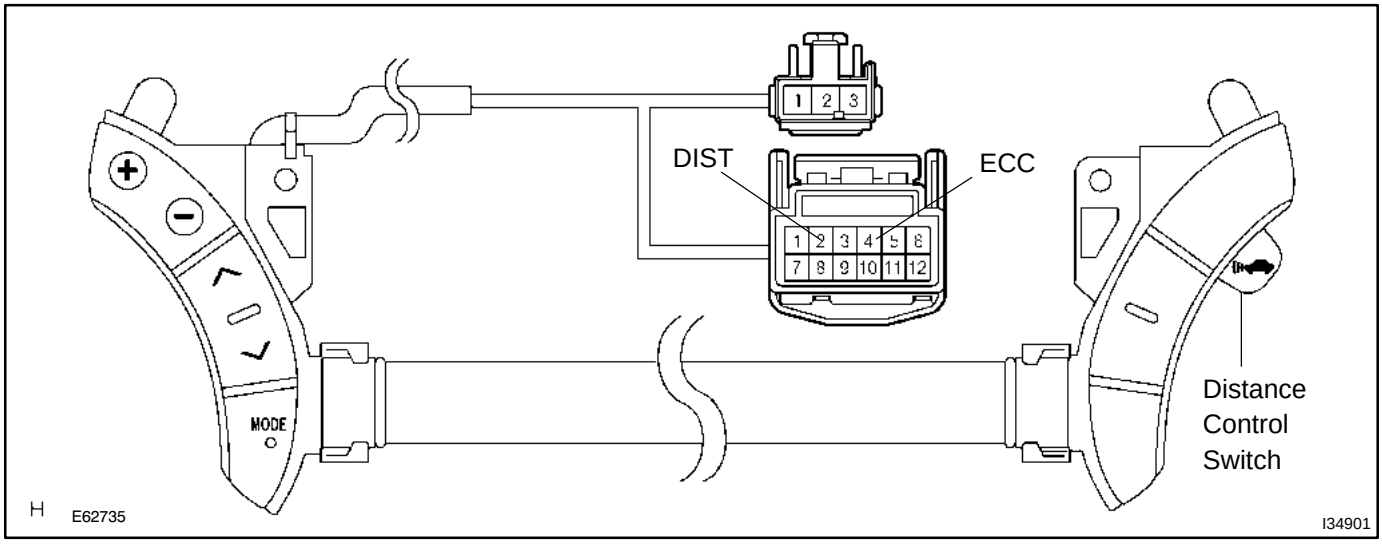
## WIRING DIAGRAM

See page 05-2038 .

## INSPECTION PROCEDURE

| 1 | INSPECT STEERING PAD SWITCH ASSY |
|---|---|

(a) Remove the steering pad switch assy.




(b) Check the continuity between terminal 2 (DIST) and 4 (ECC) of steering pad switch assy connector when distance control switch is operated.

**Standard:**

| Switch position | Specified condition |
|---|---|
| Distance control switch is ON | Below 1 Ω |
| Distance control switch is OFF | 10 kΩ or higher |

HINT:

When a malfunction is found on the distance control switch, replace the steering pad switch assy.

NG → REPLACE STEERING PAD SWITCH ASSY

OK

| 2 | CHECK WIRE HARNESS AND CONNECTOR(DISTANCE CONTROL ECU - STEERING PAD SWITCH ASSY) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the distance control ECU and the steering pad switch assy (See page 01-37 ).

NG → **REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR**

OK

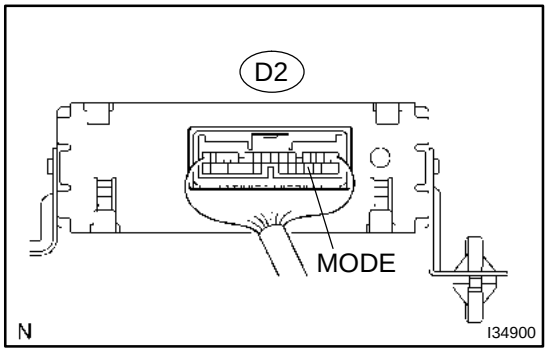
| 3 | CHECK WIRE HARNESS AND CONNECTOR(STEERING PAD SWITCH ASSY - BODY GROUND) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the steering pad switch assy and body ground (See page 01-37 ).

NG → **REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR**

OK

| 4 | INSPECT DISTANCE CONTROL ECU ASSY |
|---|---|




(a) Remove the distance control ECU with connector.
(b) Ignition switch ON.
(c) Measure the voltage between terminal MODE (D2-16) of the distance control ECU and body ground, when distance control switch is operated.

**Standard:**

| Switch position | Voltage |
|---|---|
| Distance control switch is ON | Below 1 V |
| Distance control switch is OFF | 10 to 14 V |

NG → **REPLACE DISTANCE CONTROL ECU ASSY (See page 82-1 )**

OK

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-2008 )**

# CD CANNOT BE EJECTED

## INSPECTION PROCEDURE

| 1 | PRESS ”EJECT” AND CHECK OPERATION |
|---|---|

(a) Press ”EJECT”and check the operation.
  (1) Press the CD EJECT switch of the radio receiver assembly for 2 seconds or more to see if the CD is ejected.
  **Standard: CD is ejected.**

Reference:
If the CD is not ejected, send the vehicle for repair.
Do not try to remove it by force.

**NG** → **REPLACE RADIO RECEIVER ASSY**

**OK**

| 2 | CHECK IF A PROPER CD IS INSERTED |
|---|---|

(a) Check that a proper CD is inserted.
  (1) Check that in what conditions the sound skipping occurs.
  **Standard: Driving on the bad road.**

**NG** → **REPLACE RADIO RECEIVER ASSY**

**OK**

| 3 | REPLACE CD WITH ANOTHER AND RECHECK |
|---|---|

(a) Replace the CD with another and recheck.
  (1) Check the installation condition of the radio receiver assembly.
  **Standard: Installed properly.**

**OK** → **CD FAULTY**

**NG**

**REPLACE RADIO RECEIVER ASSY**

# CD CANNOT BE INSERTED OR IS EJECTED RIGHT AFTER INSERTION

## INSPECTION PROCEDURE

| 1 | CHECK IF A PROPER CD IS INSERTED |
|---|---|

(a) Check if a proper CD is inserted.
  (1) Make sure that the CD is normal audio CD, and that there is no deformation, flaw, stain, burr or other defects on the CD.
  **Standard: Normal audio CD.**

Reference:
- Translucent or different-shaped CD cannot be played.
- CD-ROM for the computers (with music recorded in) and recorded CD -R may not be played.
- Playing an 8-cm CD does not require an adapter.

NG → **CD FAULTY**

OK

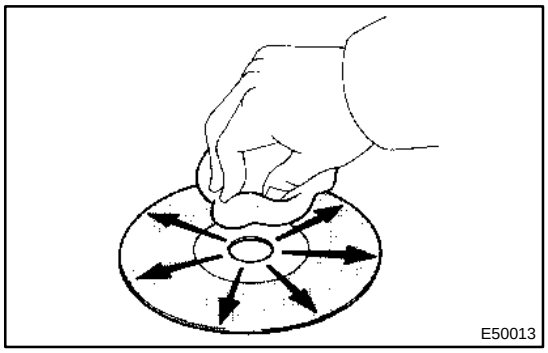
| 2 | CHECK IF A CD IS INSERTED PROPERLY |
|---|---|

(a) Check if a CD is inserted properly.
  (1) Check whether or not the CD is inserted upside down.
  **Standard: Not upside down.**

NG → **SET DISC CORRECTLY**

OK

| 3 | DISC CLEANING |
|---|---|


E50013

(a) Disk cleaning
  (1) If the disk gets dirty, clean the disk by wiping the surface from the center to outside in the radial directions with a soft cloth.

**NOTICE:**
**Do not use a conventional record cleaner or anti-static preservative.**

OK → **DISC DIRTY**

NG

| 4 | REPLACE CD WITH ANOTHER AND RECHECK |
|---|---|

(a) Replace the CD with another and recheck.
(1) Replace the CD with another normal one to see if the same trouble occurs again.
**Standard: Malfunction disappears.**

**OK** → **CD FAULTY**

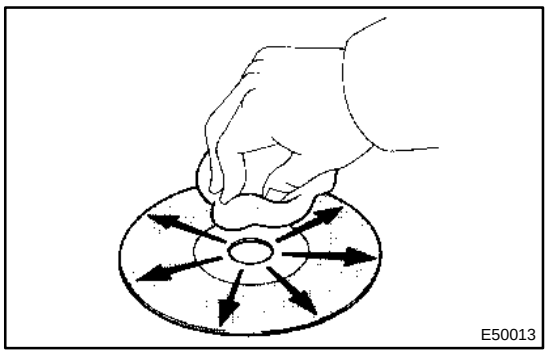
**NG**

**REPLACE RADIO RECEIVER ASSY**

# CD SOUND SKIPS

## INSPECTION PROCEDURE

| 1 | DISC CLEANING |
|---|---|




(a) Disk cleaning
  (1) If the disk gets dirty, clean the disk by wiping the surface from the center to outside in the radial directions with a soft cloth.

**NOTICE:**
**Do not use a conventional record cleaner or anti-static preservative.**

**Standard: Malfunction disappears.**

| OK | DISC DIRTY |
|---|---|

**NG**

| 2 | REPLACE CD WITH ANOTHER AND RECHECK |
|---|---|

(a) Replace the CD with another and recheck.
  (1) Replace the CD with another normal one to see if the same trouble occurs again.
  **Standard: Malfunction disappears.**

| OK | CD FAULTY |
|---|---|

**NG**

| 3 | CHECK WHEN THIS HAPPENS |
|---|---|

(a) Check when this happens.
  (1) Check when any condition (place) noise occurs.
  **Standard: Driving on the bumpy road.**

| OK | Go to step 5 |
|---|---|

**NG**

| 4 | COMPARE IT WITH ANOTHER CAR OF SAME MODEL |
|---|---|

(a) Compare it with another vehicle of the same model.
  (1) Compare with the vehicle of the same type which does not have a trouble to see if there is any difference in the condition of trouble occurrence.
  **Standard: No difference found.**

| OK | SETTING |
|---|---|

**NG**

| 5 | CHECK OF RADIO RECEIVER ASSEMBLY INSTALLATION |
|---|---|

(a) Check of radio receiver assembly installation.
(1) Check the installation condition of the radio receiver assembly.
**Standard: Installed properly.**

**NG** → **INSTALL THE RADIO RECEIVER ASSEMBLY PROPERLY**

**OK**

| 6 | DID TEMPERATURE IN CABIN CHANGE RAPIDLY? |
|---|---|

(a) Did the temperature in the cabin change rapidly?
(1) Check whether or not the rapid temperature change occurred in the cabin.
**Standard: The rapid temperature change occurred.**

Reference:
The rapid temperature change creates condensation inside the CD player, which may prevent the CD from being played.

**OK** → **CONDENSATION DUE TO TEMPERATURE CHANGE (LEAVE IT AS IT IS FOR A WHILE BEFORE USING)**

**NG**

**REPLACE RADIO RECEIVER ASSY**

05IV7-02

# CHECK MODE PROCEDURE

**1. SIGNAL CHECK (CHECK MODE)**
**(USING A HAND-HELD TESTER)**

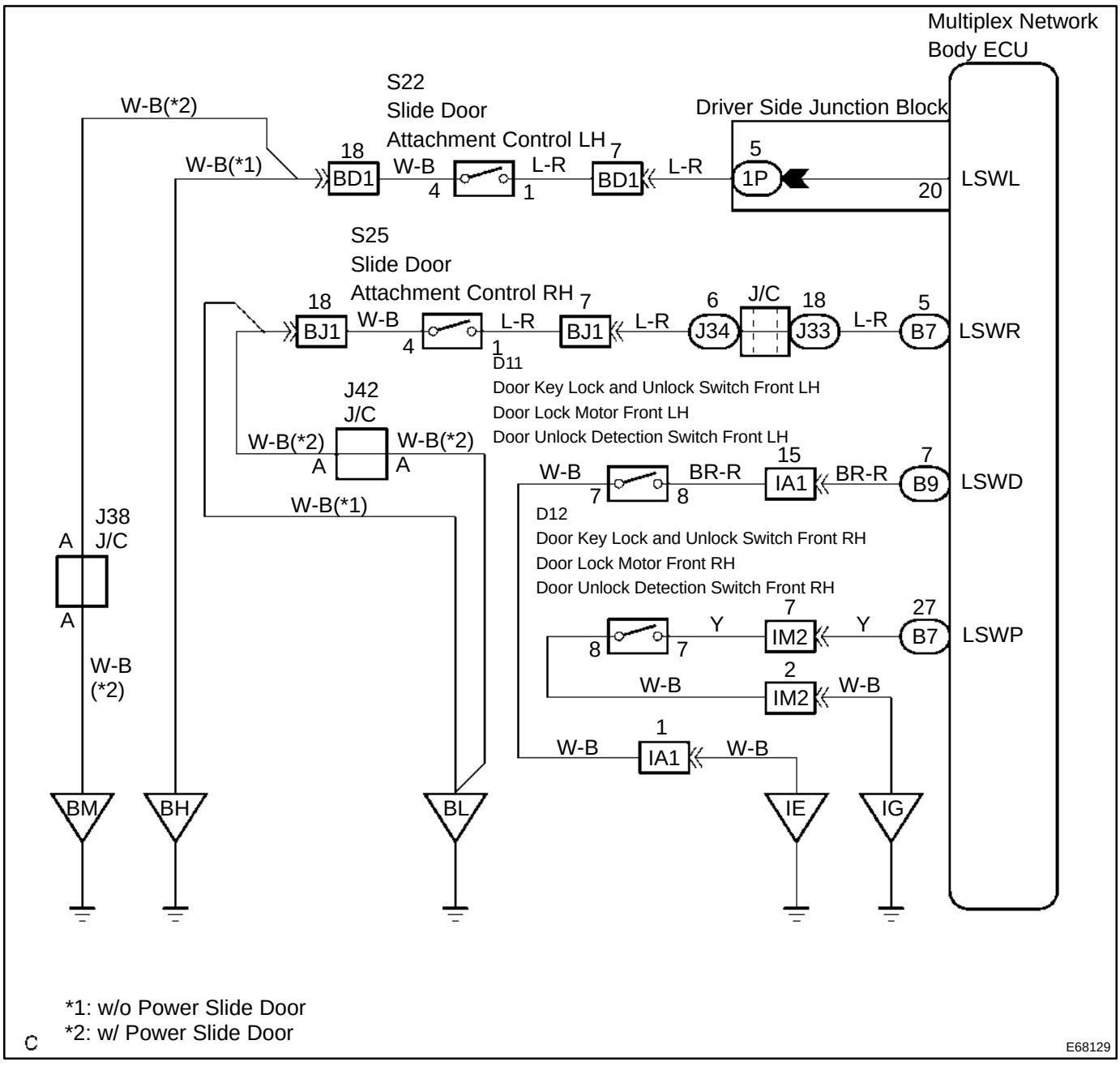
(a) Connect the hand-held tester to the DLC3.
(b) Turn the ignition switch to the ON position.
(c) Select the ”SIGNAL CHECK”, and proceed checking with the hand-held tester.

# DOOR LOCK POSITION CIRCUIT

## CIRCUIT DESCRIPTION

This circuit detects the state of the door lock detection sensor and send it to the Multiplex network body ECU.

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

Start the inspection from step 1 in the case of using the hand-held tester, and start from step 2 in the case of not using the hand-held tester.

| 1 | READ VALUE OF HAND-HELD TESTER |
|---|---|

(a) Connect the hand-held tester to DLC3.
(b) Turn the ignition switch ON and push the hand-held tester main switch ON.
(c) Select the items below in the DATA LIST, and read the displays on the hand-held tester.

**BODY NO.1:**

| Item | Measurement Item/ Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| P LOCK POS SW | Front passenger's door lock position SW signal/ON or OFF | ON: Front passenger's door lock is in unlock position<br>OFF: Front passenger's door lock is in lock position | - |
| Rr. LOCK POS SW | Rear slide door lock position SW signal/ON or OFF | ON: Rear slide door lock is in unlock position<br>OFF: Rear slide door lock is in lock position | - |
| D LOCK POS SW | Driver's door lock position SW signal/ ON or OFF | ON: Door lock is in unlock position<br>OFF: Door lock is in lock position | - |

**OK** → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1 131)**

**NG**

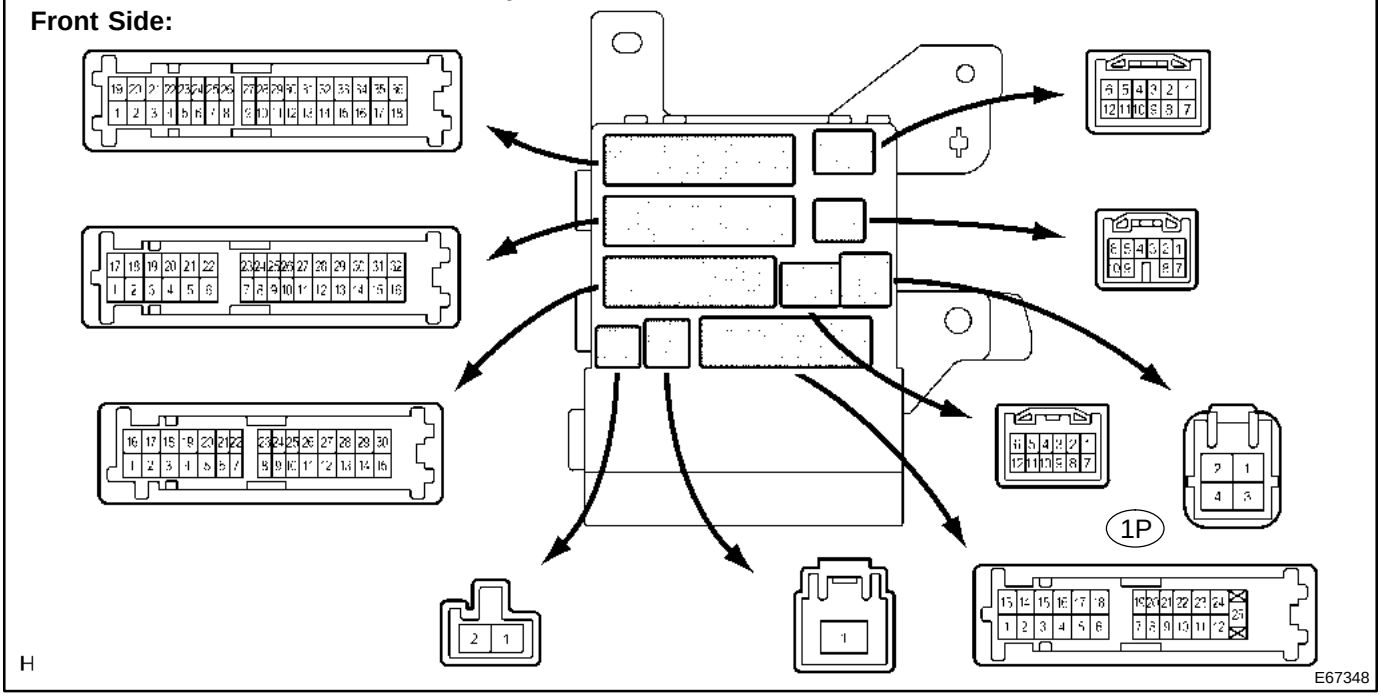
| 2 | CHECK HARNESS AND CONNECTOR |
|---|---|

(a) Disconnect the 1P, B7 and B9 connector from instrument panel junction block assy.
(b) Check the continuity between each of the terminals of the instrument panel junction block assy connector side and body ground as shown in the chart below.

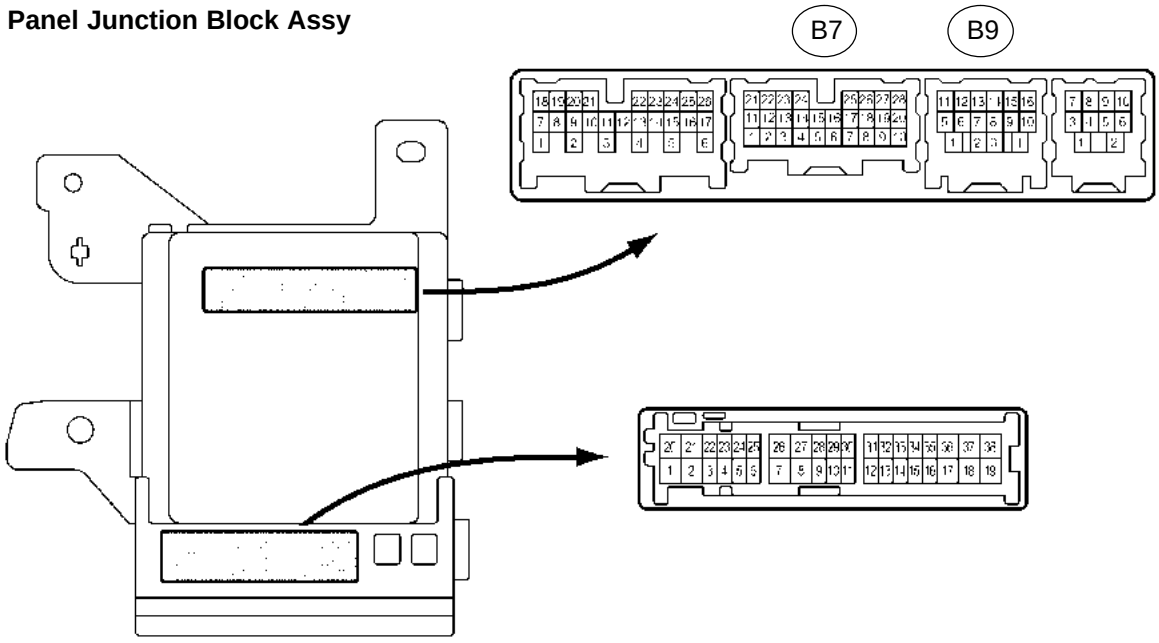
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| B9-7 - Body ground | Front driver door lock → unlock | Continuity → No continuity |
| B7-27 - Body ground | Front passenger door lock → unlock | Continuity → No continuity |
| 1P-5 - Body ground | Rear LH slide door lock → unlock | Continuity → No continuity |
| B7-5 - Body ground | Rear RH slide door lock → unlock | Continuity → No continuity |

**Instrument Panel Junction Block Assy**
**Front Side:**



**Instrument Panel Junction Block Assy**
**Back Side:**




H

E67349

**OK** → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1 131)**

**NG**

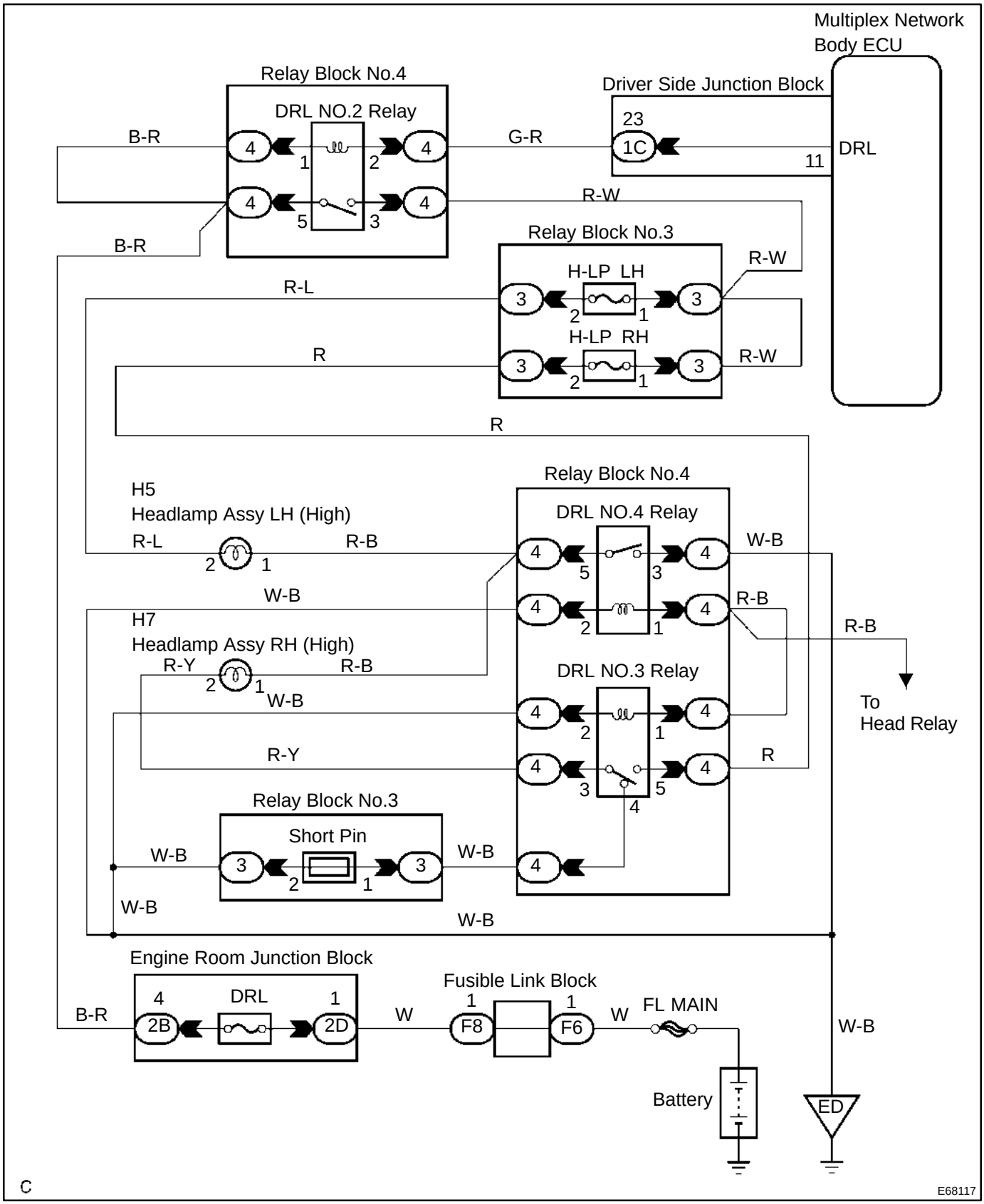
**GO TO POWER DOOR LOCK CONTROL SYSTEM (See page 05-1586 )**

# DRL RELAY CIRCUIT

## CIRCUIT DESCRIPTION

The Multiplex network body ECU controls the DRL No.2 relay.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

HINT:

Start the inspection from step 1 in the case of using the hand-held tester, and start from step 2 in the case of not using the hand-held tester.

## 1 PERFORM ACTIVE TEST USING HAND-HELD TESTER

(a) Connect the hand-held tester to DLC3.
(b) Turn the ignition switch ON and push the hand-held tester main switch ON.
(c) Select the item below in the ACTIVE TEST and then check that the relay operates.

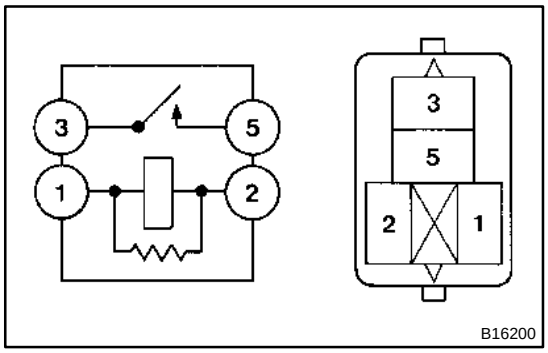
**BODY NO.1:**

| Item | Test Details | Diagnostic Note |
|---|---|---|
| DRL RELAY | (Test Details)<br>Turn daytime running light relay ON/OFF<br>(Vehicle Condition)<br>Ignition SW is ON, engine is stopped and light control SW is in OFF position. | - |

**OK** → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1 131)**

**NG**

## 2 INSPECT HEADLAMP DAY DIM LIGHT RELAY




(a) Inspect headlamp day dim relay continuity.

**Standard:**

| Condition | Tester connection | Specified condition |
|---|---|---|
| Always | 1 - 2 | Continuity |
| Always | 3 - 5 | No continuity |
| Apply B+ between the terminal 1 and 2 | 3 - 5 | Continuity |

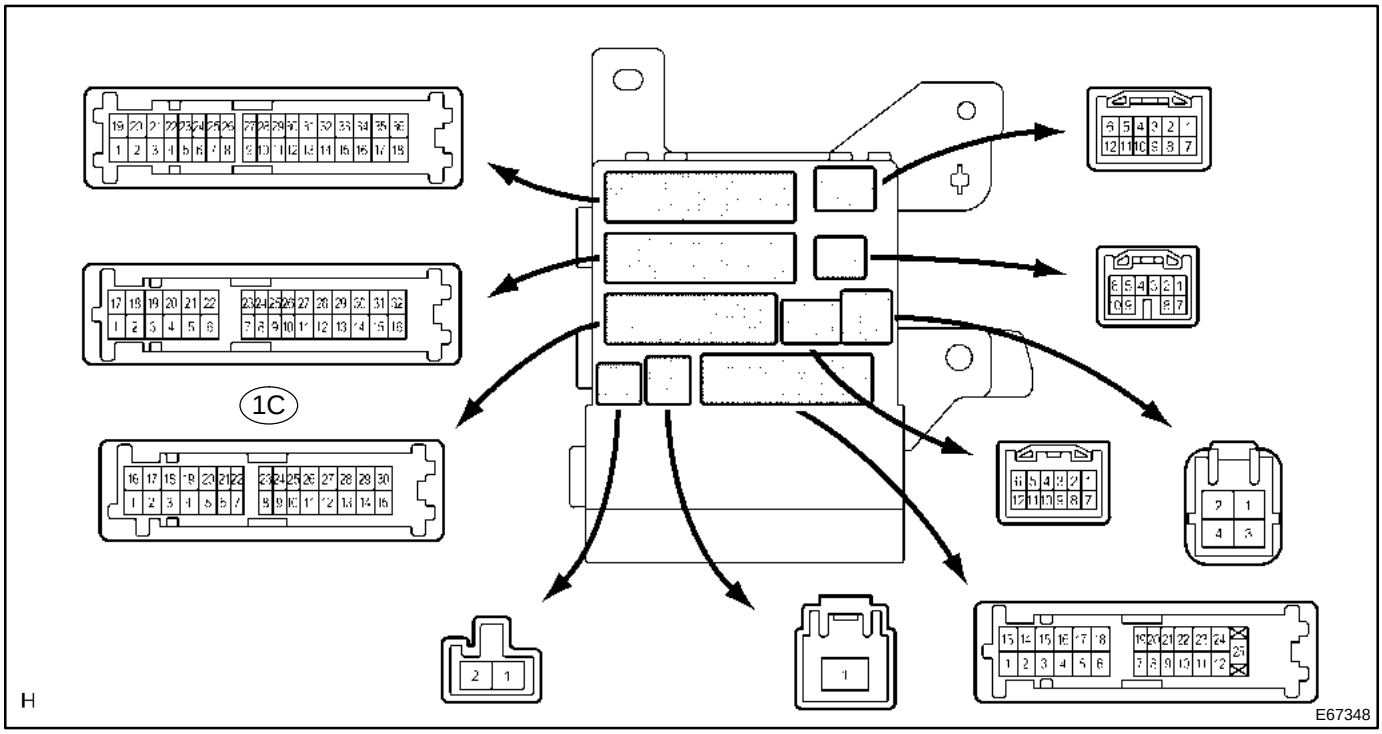
**NG** → **REPLACE HEADLAMP DAY DIM LIGHT RELAY**

**OK**

| 3 | INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY |
|---|---|

(a) Measure voltage between the terminal as shown in the chart below.
**Standard:**

| Tester connection | Condition | Specified voltage (V) |
|---|---|---|
| 1C-23 - Body ground | Headlamp dimmer switch LOW → FLASH | Below 1 V → 10 to 14 V |




| OK | REPAIR OR REPLACE HARNESS OR CONNECTOR |
|---|---|

NG

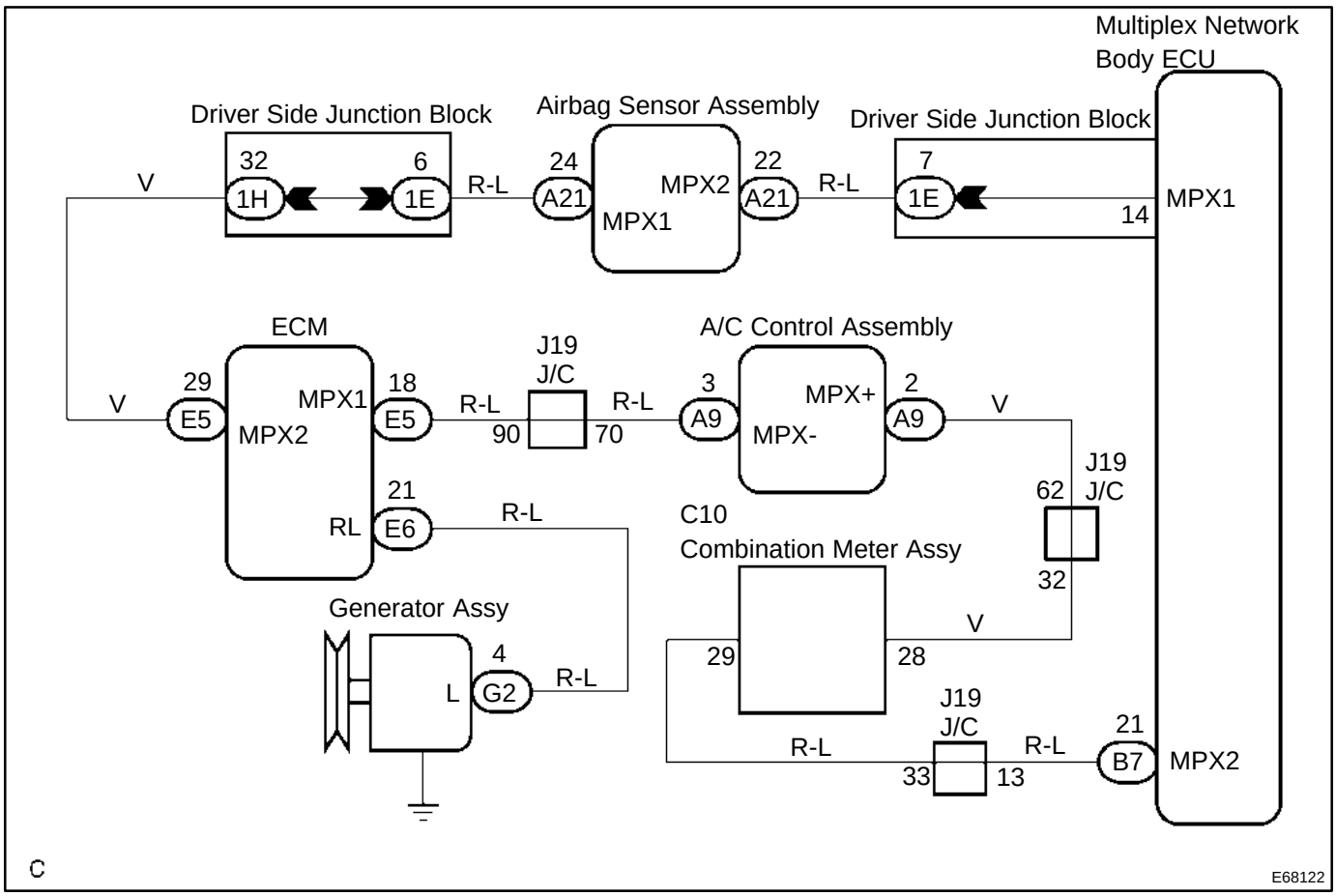
**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE**
**(See page 05-1 131)**

# GENERATOR SIGNAL CIRCUIT

## CIRCUIT DESCRIPTION

The Multiplex network body ECU receives engine condition (ON or OFF) by generator signal.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

| 1 | CHECK HARNESS AND CONNECTOR(ECM - GENERATOR ASSY) |
|---|---|

(a) Check for open or short circuit in the harness and connector between ECM and generator assy (See page 01-37 ).

| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |
|---|---|

OK

| 2 | INSPECT GENERATOR ASSY |
|---|---|

(a) Inspect the generator assy (See page 19-21 ).

NG → CHECK AND REPLACE GENERATOR ASSY

OK

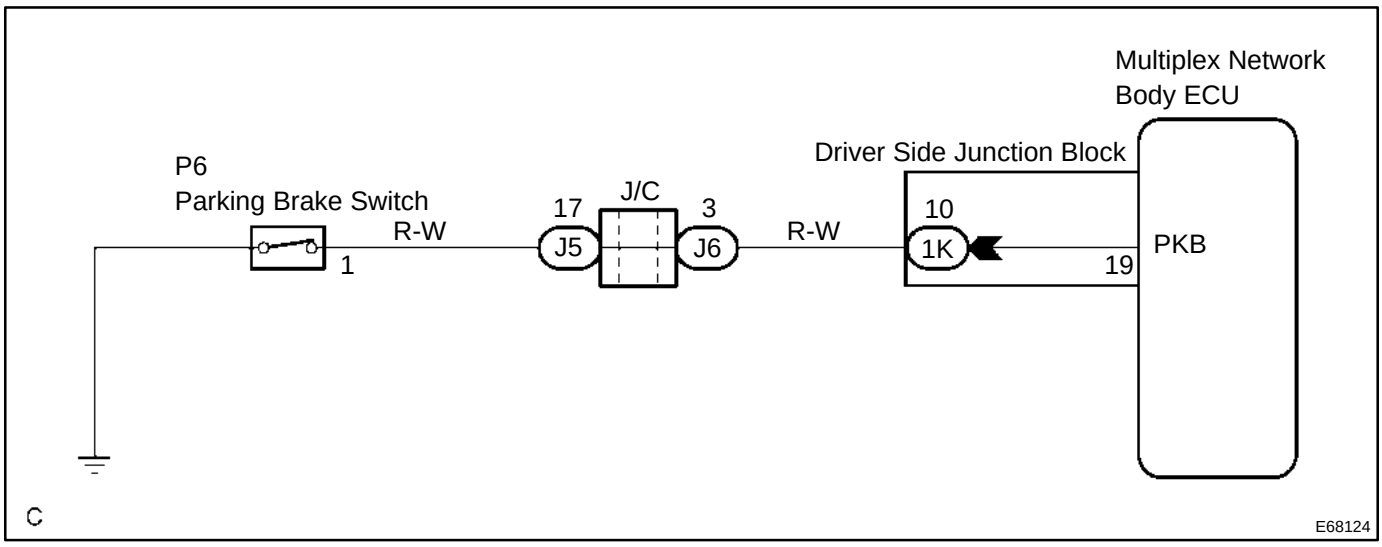
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE
(See page 05-1 131)

# PARKING BRAKE SWITCH CIRCUIT

## CIRCUIT DESCRIPTION

The Multiplex network body ECU receives parking brake switch signal.

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

Start the inspection from step 1 in the case of using the hand-held tester, and start from step 2 in the case of not using the hand-held tester.

| 1 | READ VALUE OF HAND-HELD TESTER |
|---|---|

(a) Connect the hand-held tester to DLC3.
(b) Turn the ignition switch ON and push the hand-held tester main switch ON.
(c) Select the items below in the DATA LIST, and read the displays on the hand-held tester.

**BODY NO.1:**

| Item | Measurement Item/ Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| PARKING BRAKE SW | Parking brake SW signal/ON or OFF | ON: Parking brake pedal is ON<br>OFF: Parking brake pedal is OFF | - |

**OK** → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1 131)**

**NG**

| 2 | INSPECT PARKING BRAKE SWITCH ASSY |
|---|---|

(a) Check that there is continuity between the terminal and the body ground when parking brake switch is operated.

**Standard:**

**ON (When shaft is pressed): No continuity**

**OFF (When shaft is not pressed): Continuity**

**NG** → **REPLACE PARKING BRAKE SWITCH ASSY**

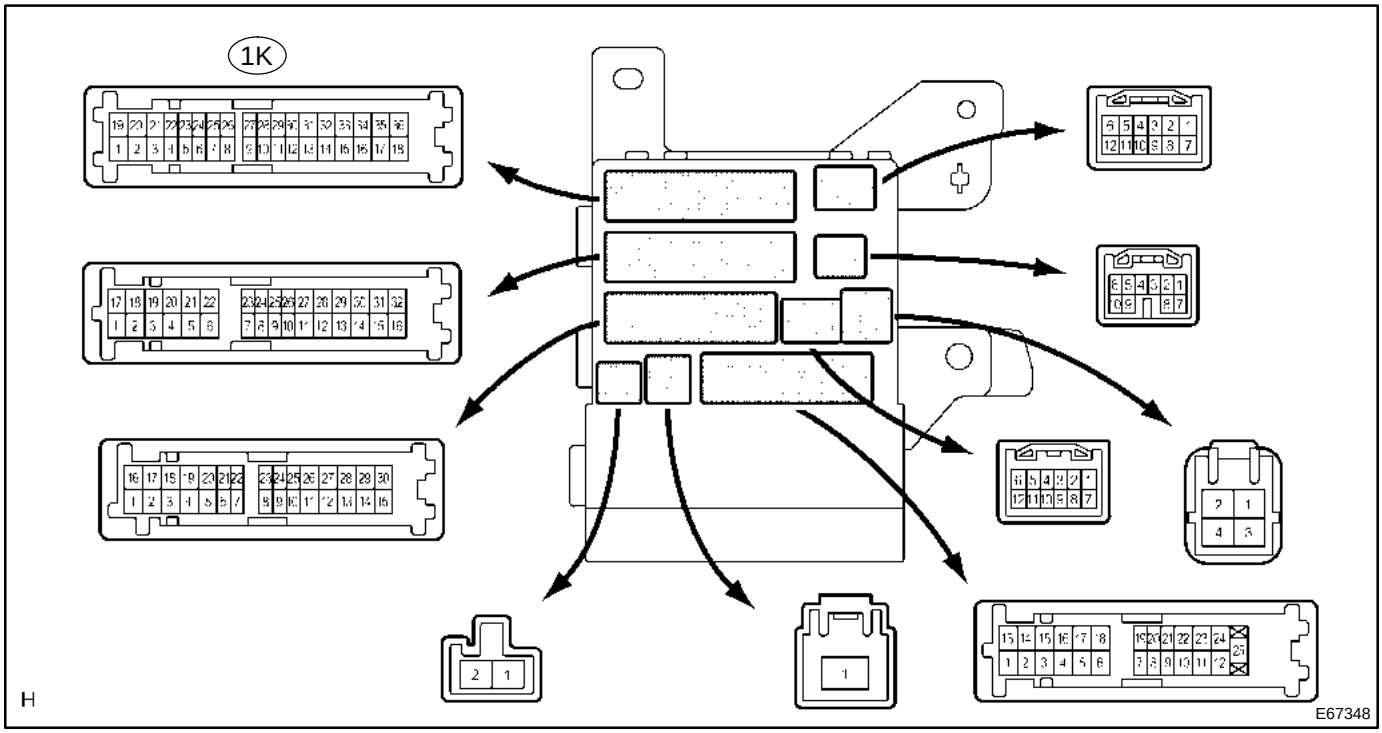
**OK**

| 3 | CHECK HARNESS AND CONNECTOR |
|---|---|

(a) Disconnect the 1K connector from instrument panel junction block assy.
(b) Check the continuity between the terminal 1K-10 of the instrument panel junction block assy connector side and body ground.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| 1K-10 - Body ground | Shaft of parking brake switch is pressed | No continuity |
| 1K-10 - Body ground | Shaft of parking brake switch is not pressed | Continuity |




NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

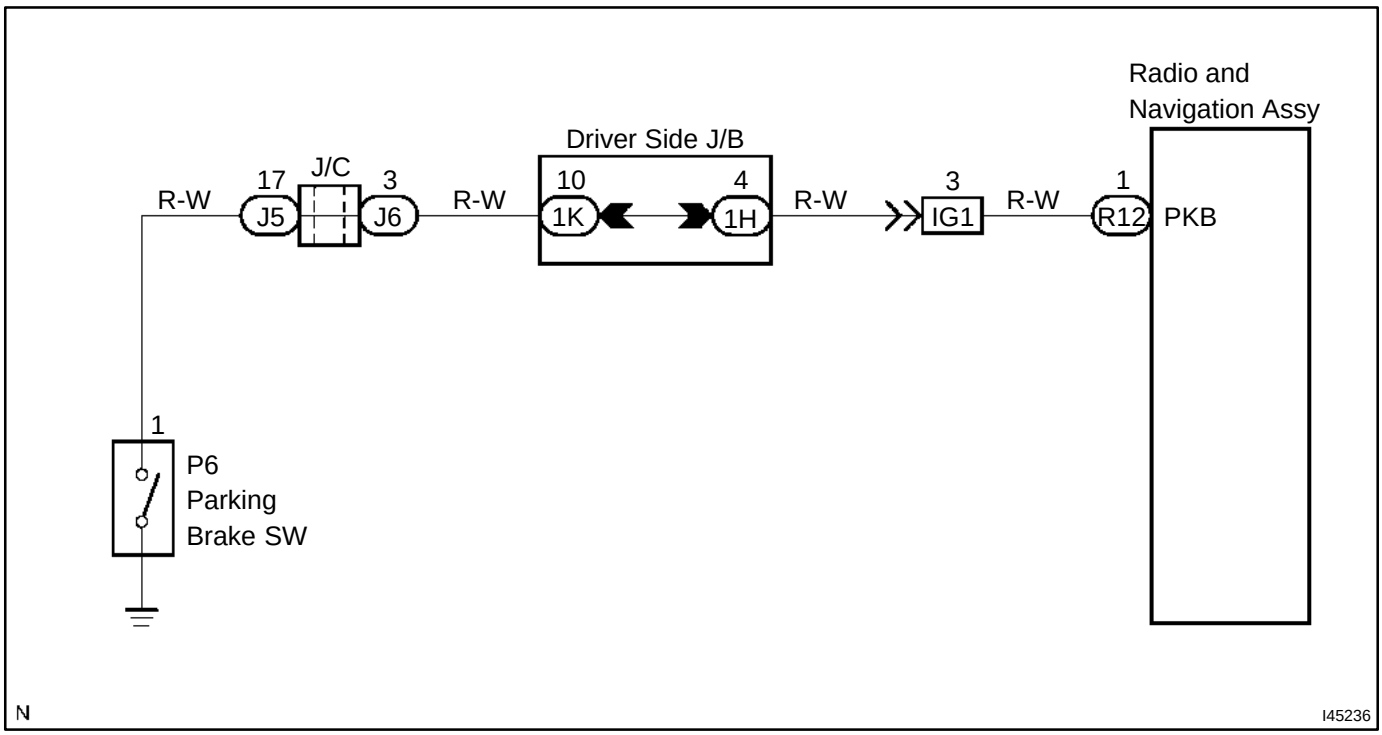
**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE**
**(See page 05-1 131)**

# PARKING BRAKE SWITCH CIRCUIT

## CIRCUIT DESCRIPTION

This circuit is from the parking brake switch to the radio and navigation assy.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CHECK BRAKE WARNING LIGHT |
|---|---|

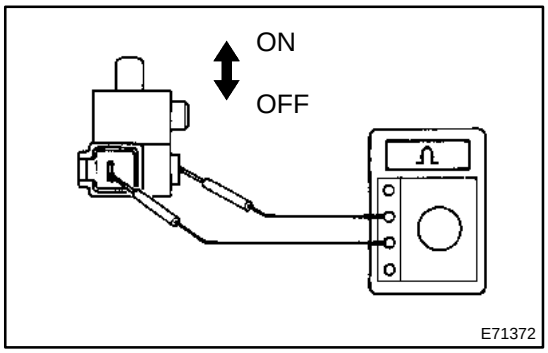
(a) Check that the brake warning light comes on when the parking brake is applied and goes off when it is released.

**OK: The brake warning light operates as specified above.**

**OK** > **Go to step 3**

**NG**

| 2 | INSPECT PARKING BRAKE SWITCH ASSY |
|---|---|




(a) Disconnect the parking brake switch assy.

(b) Measure the resistance according to the value(s) in the table below.

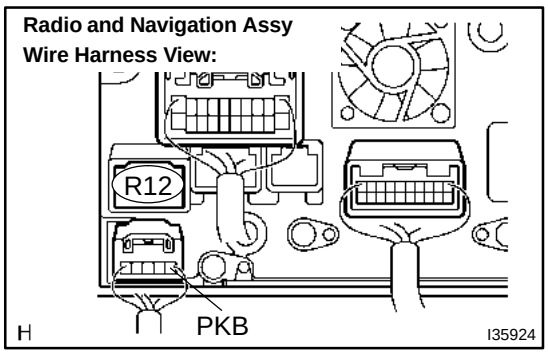
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| Switch connector - Switch body | ON (Shaft is not pressed) | Below 1 Ω |
| Switch connector - Switch body | OFF (Shaft is pressed) | 10 kΩ or higher |

**NG** > **REPLACE PARKING BRAKE SWITCH ASSY**

**OK**

| 3 | CHECK HARNESS AND CONNECTOR (PARKING BRAKE SWITCH - RADIO AND NAVIGATION ASSY) |
|---|---|

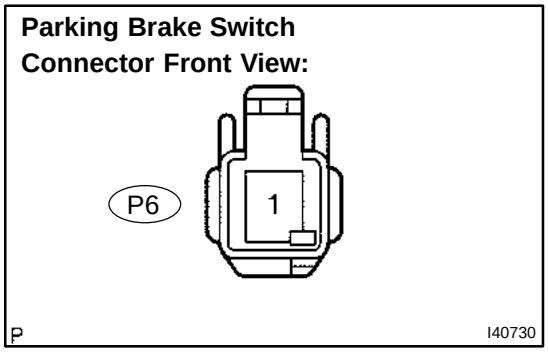



(a) Disconnect the radio and navigation assy connector R12 and parking brake switch connector P6.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| PKB - P6-1 | Always | Below 1 Ω |
| PKB - Body ground | Always | 10 kΩ or higher |




NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK →

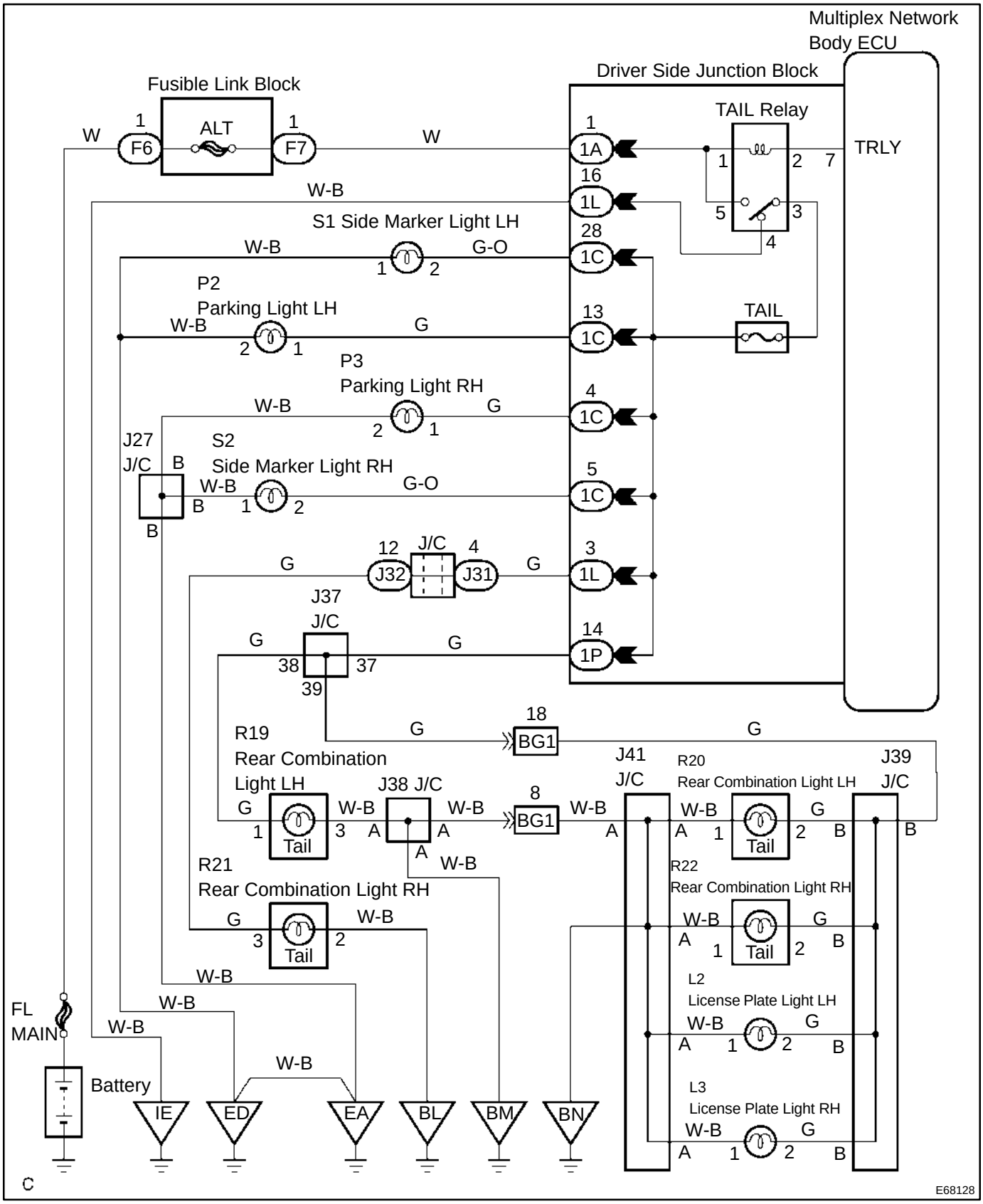
**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

# TAIL RELAY CIRCUIT

## CIRCUIT DESCRIPTION

The Multiplex network body ECU controls TAIL relay when signal is received from headlamp dimmer switch assy.

# WIRING DIAGRAM



# INSPECTION PROCEDURE

HINT:

Start the inspection from step 1 in the case of using the hand-held tester, and start from step 2 in the case of not using the hand-held tester.

## 1 PERFORM ACTIVE TEST USING HAND-HELD TESTER

(a) Connect the hand-held tester to DLC3.
(b) Turn the ignition switch ON and push the hand-held tester main switch ON.
(c) Select the item below in the ACTIVE TEST and then check that the relay operates.

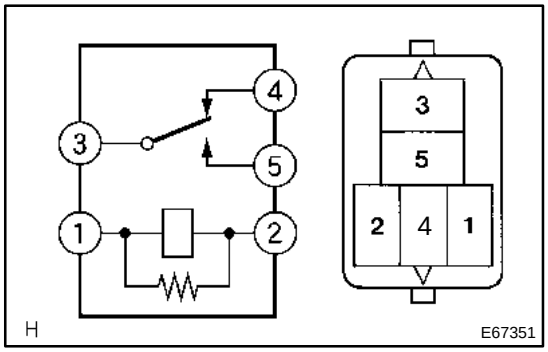
**BODY NO.1:**

| Item | Test Details | Diagnostic Note |
|---|---|---|
| TAIL LIGHT | Turn Tail light relay ON/OFF | - |

**OK** → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1 131)**

**NG**

## 2 INSPECT TAIL LAMP RELAY




(a) Inspect tail lamp relay continuity.

**Standard:**

| Condition | Tester connection | Specified condition |
|---|---|---|
| Always | 1 - 2<br>3 - 4 | Continuity |
| Always | 3 - 5 | No continuity |
| Apply B+ between the terminal 1 and 2 | 3 - 5 | Continuity |

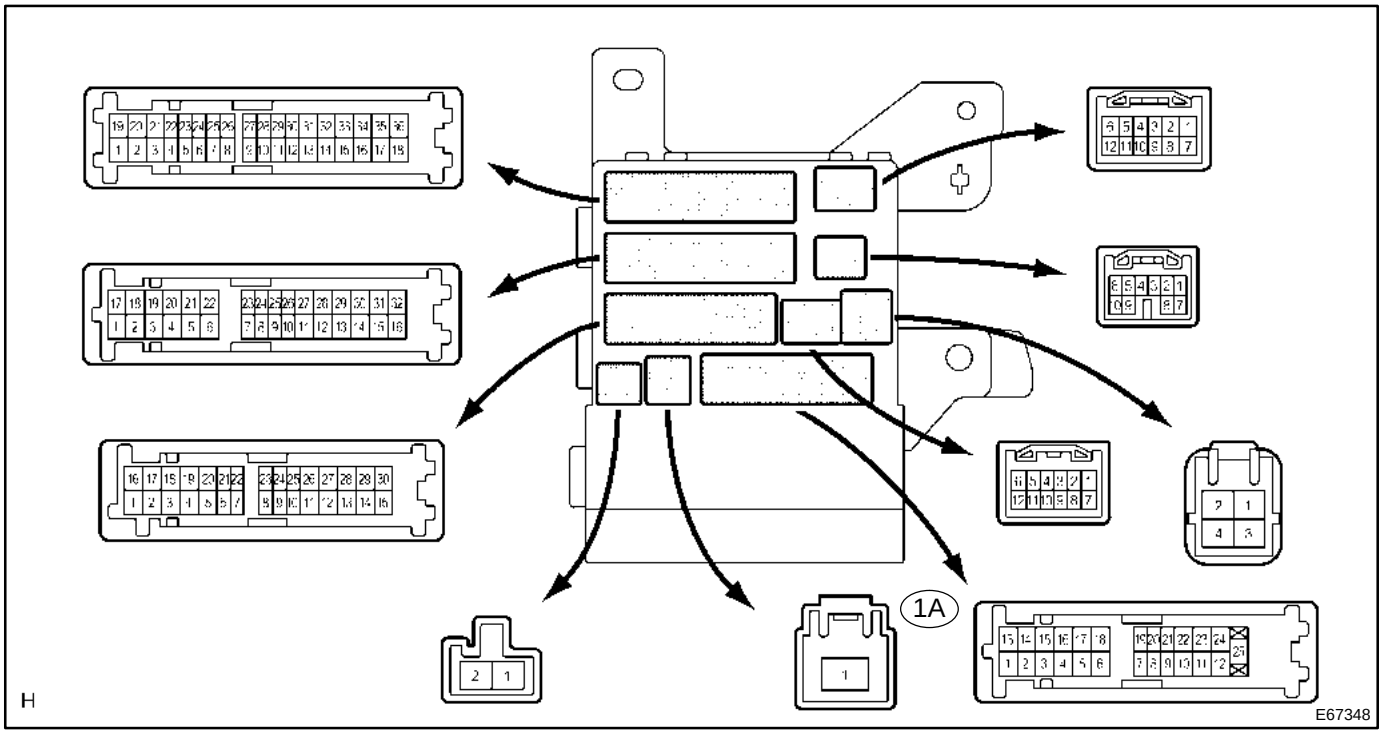
**NG** → **REPLACE TAIL LAMP RELAY**

**OK**

| 3 | INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY |
|---|---|

(a) Measure voltage between the terminal 1A-1 and body ground.
**Standard:**

| Tester connection | Specified voltage |
|---|---|
| 1A-1 - Body ground | 10 to 14 V |



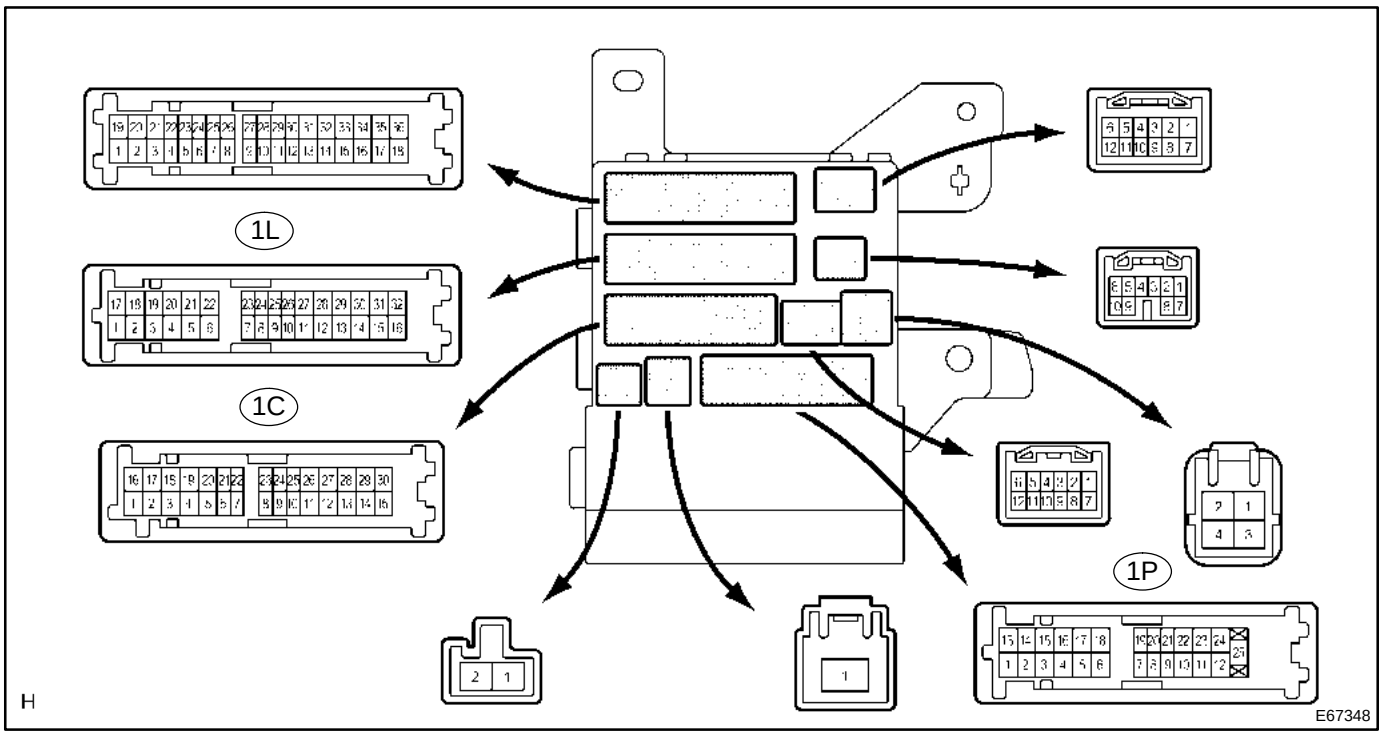

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

| 4 | INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY |
|---|---|

(a) Measure voltage between the each of terminals as shown in the chart below.
**Standard:**

| Tester connection | Condition | Specified Voltage |
|---|---|---|
| 1L-16 - 1C-4 | Light control switch OFF → TAIL | Below 1 V → 10 to 14V |
| 1L-16 - 1C-5 | Light control switch OFF → TAIL | Below 1 V → 10 to 14V |
| 1L-16 - 1C-13 | Light control switch OFF → TAIL | Below 1 V → 10 to 14V |
| 1L-16 - 1C-28 | Light control switch OFF → TAIL | Below 1 V → 10 to 14V |
| 1L-16 - 1L-3 | Light control switch OFF → TAIL | Below 1 V → 10 to 14V |
| 1L-16 - 1P-14 | Light control switch OFF → TAIL | Below 1 V → 10 to 14V |




**OK** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**NG**

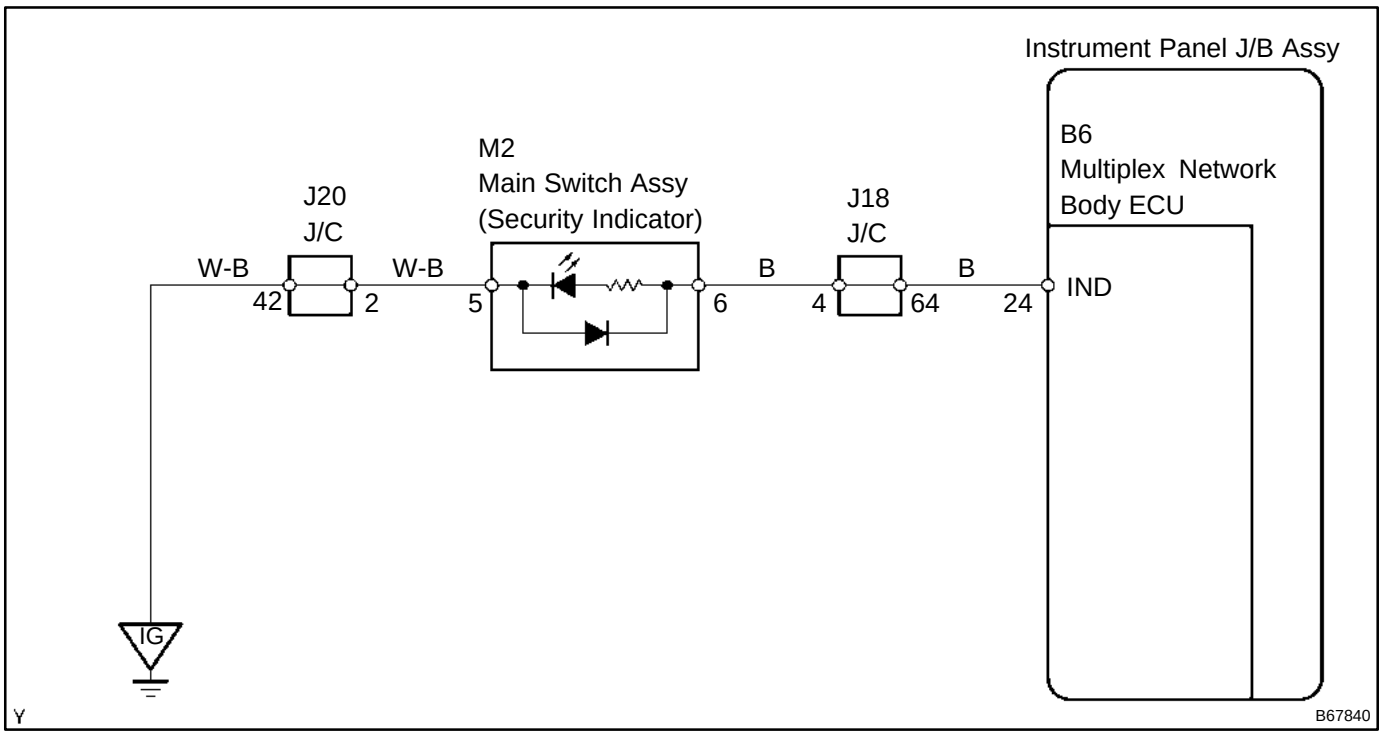
**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1 131)**

# INDICATOR LIGHT CIRCUIT

## CIRCUIT DESCRIPTION

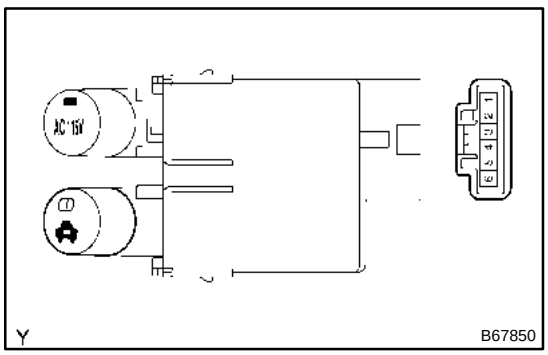
Even when the theft deterrent system is in the disarmed state, the security indicator flashes due to a signal output from the immobiliser system. The security indicator flashes continuously by receiving a signal from the immobiliser system at all times while in the armed state.
The multiplex network body ECU causes the security indicator to light up or blink only during the arming preparation state and alarm sounding state.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

| 1 | CHECK MAIN SWITCH ASSY (SECURITY INDICATOR) |
|---|---|




(a) Remove the main switch assy.
(b) Apply 12 V positive voltage between the terminals of the switch, and check the lighting condition of the security indicator.

**Standard:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 6<br>Battery negative (-) → Terminal 5 | Lights up |

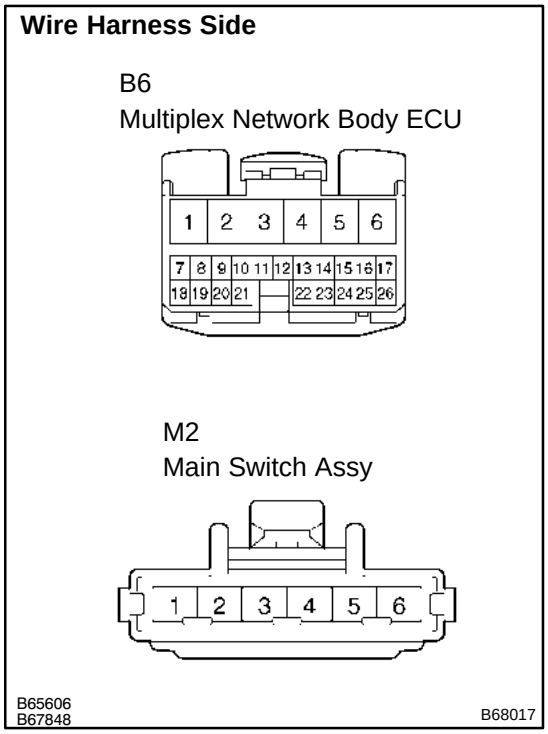
**NOTICE:**

- **If the positive (+) lead and the negative (-) lead are incorrectly connected, the security indicator does not light up.**
- **Voltage of more than 12 V will damage the security indicator.**
- **If the voltage is too low, the security indicator will not light up.**

NG → REPLACE MAIN SWITCH ASSY

OK

| 2 | CHECK WIRE HARNESS (MULTIPLEX NETWORK BODY ECU - MAIN SWITCH ASSY (SECURITY INDICATOR)) |
|---|---|




(a) Disconnect the B6 ECU and M2 switch connectors.
(b) Check the resistance between the wire harness side connectors.

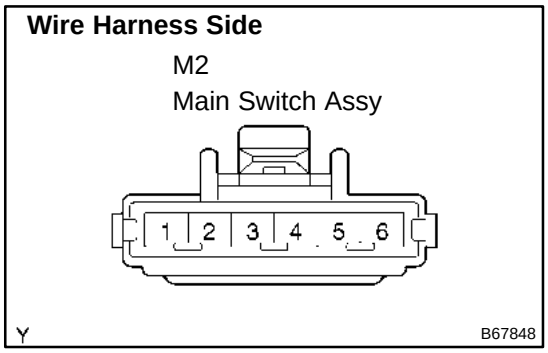
**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| B6-24 (IND) - M2-6 | Below 1 Ω |

NG → REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

| 3 | CHECK WIRE HARNESS (MAIN SWITCH ASSY (SECURITY INDICATOR) - BODY GROUND) |
|---|---|




(a) Disconnect the M2 switch connector.
(b) Check the resistance between the wire harness side connector and the body ground.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| M2-5 - Body ground | Below 1 Ω |

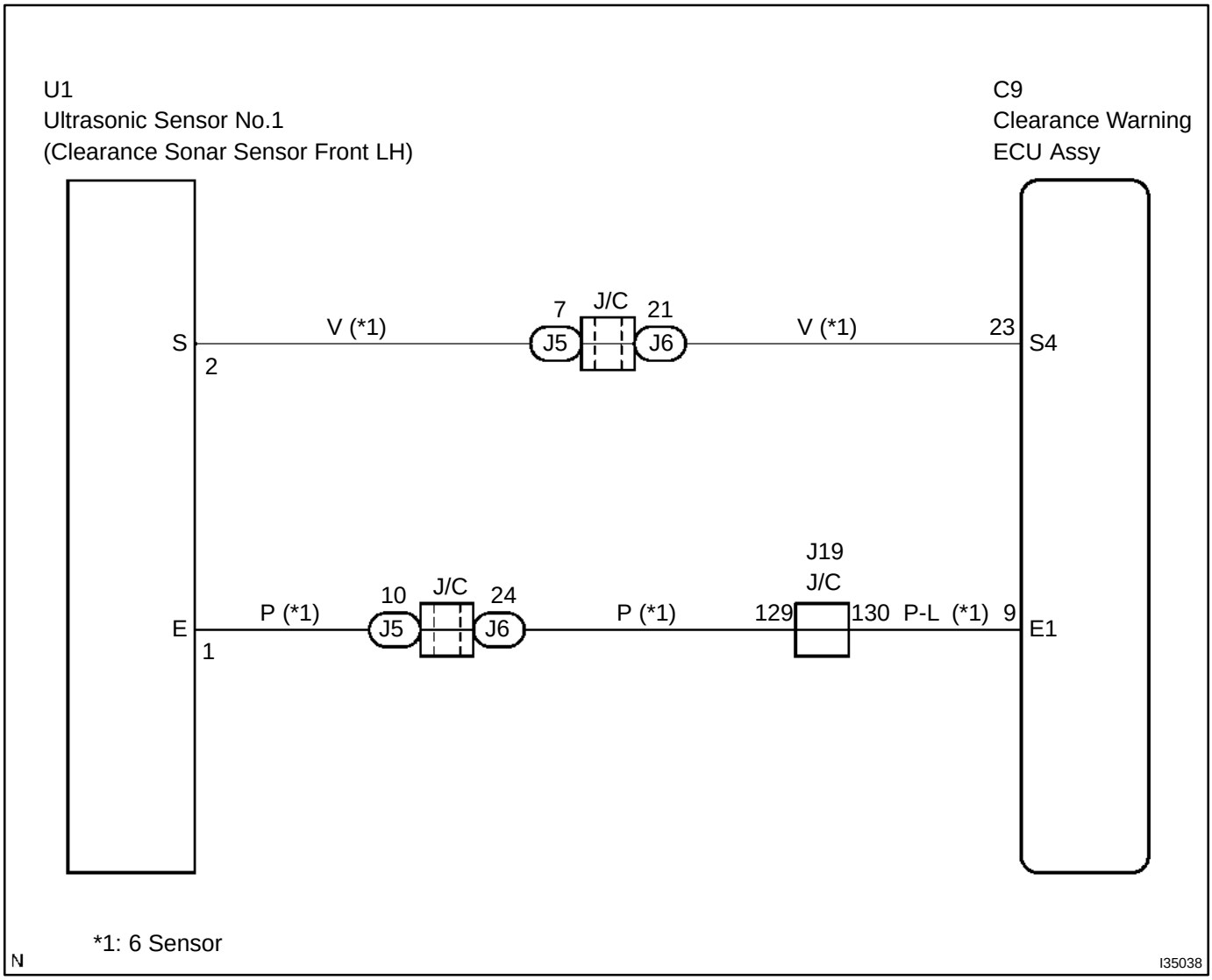
NG → REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

REPLACE MULTIPLEX NETWORK BODY ECU

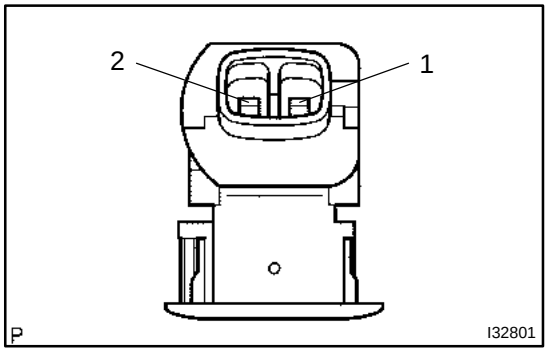
# CLEARANCE SONAR SENSOR FRONT LH CIRCUIT

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT ULTRASONIC SENSOR NO.1 |
|---|---|




(a) Remove the ultrasonic sensor No.1.
(b) Measure the resistance between terminals 1 and 2 of ultrasonic sensor No.1.
**Standard: 10 ± 2 kΩ**

**NG** → **REPLACE ULTRASONIC SENSOR NO.1**

**OK**

| 2 | CHECK HARNESS AND CONNECTOR(ULTRASONIC SENSOR NO.1 - CLEARANCE WARNING ECU ASSY) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the ultrasonic sensor No.1 and clearance warning ECU assy (See page 01-37 ).

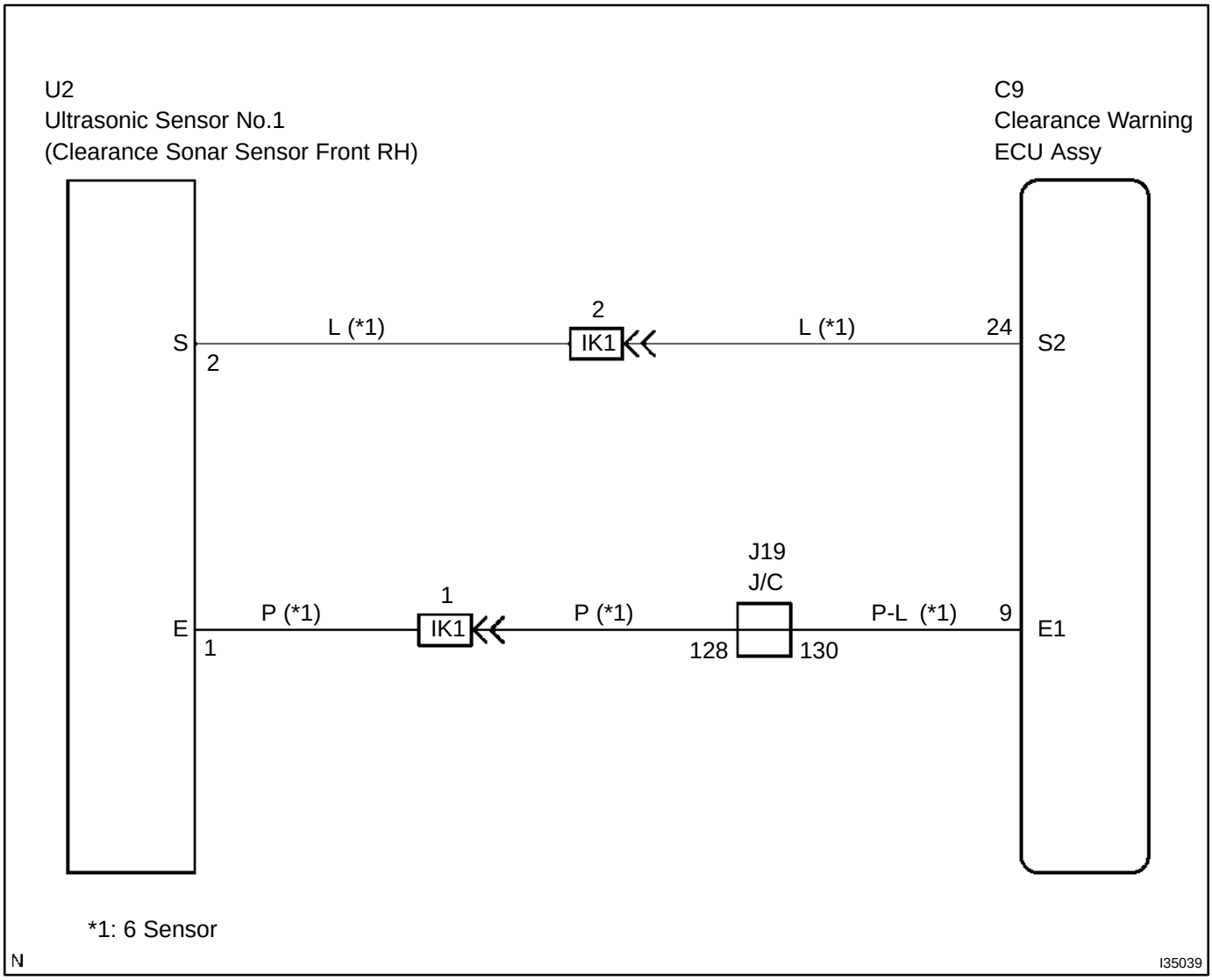
**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1497 )**

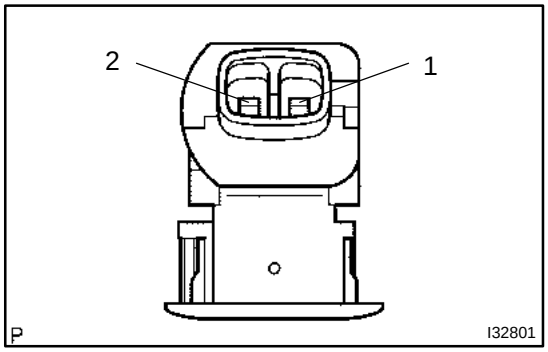
# CLEARANCE SONAR SENSOR FRONT RH CIRCUIT

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT ULTRASONIC SENSOR NO.1 |
|---|---|




(a) Remove the ultrasonic sensor No.1.
(b) Measure the resistance between terminals 1 and 2 of ultrasonic sensor No.1.
**Standard: 10 ± 2 kΩ**

**NG** → **REPLACE ULTRASONIC SENSOR NO.1**

**OK**

| 2 | CHECK HARNESS AND CONNECTOR(ULTRASONIC SENSOR NO.1 - CLEARANCE WARNING ECU ASSY) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the ultrasonic sensor No.1 and clearance warning ECU assy (See page 01-37 ).

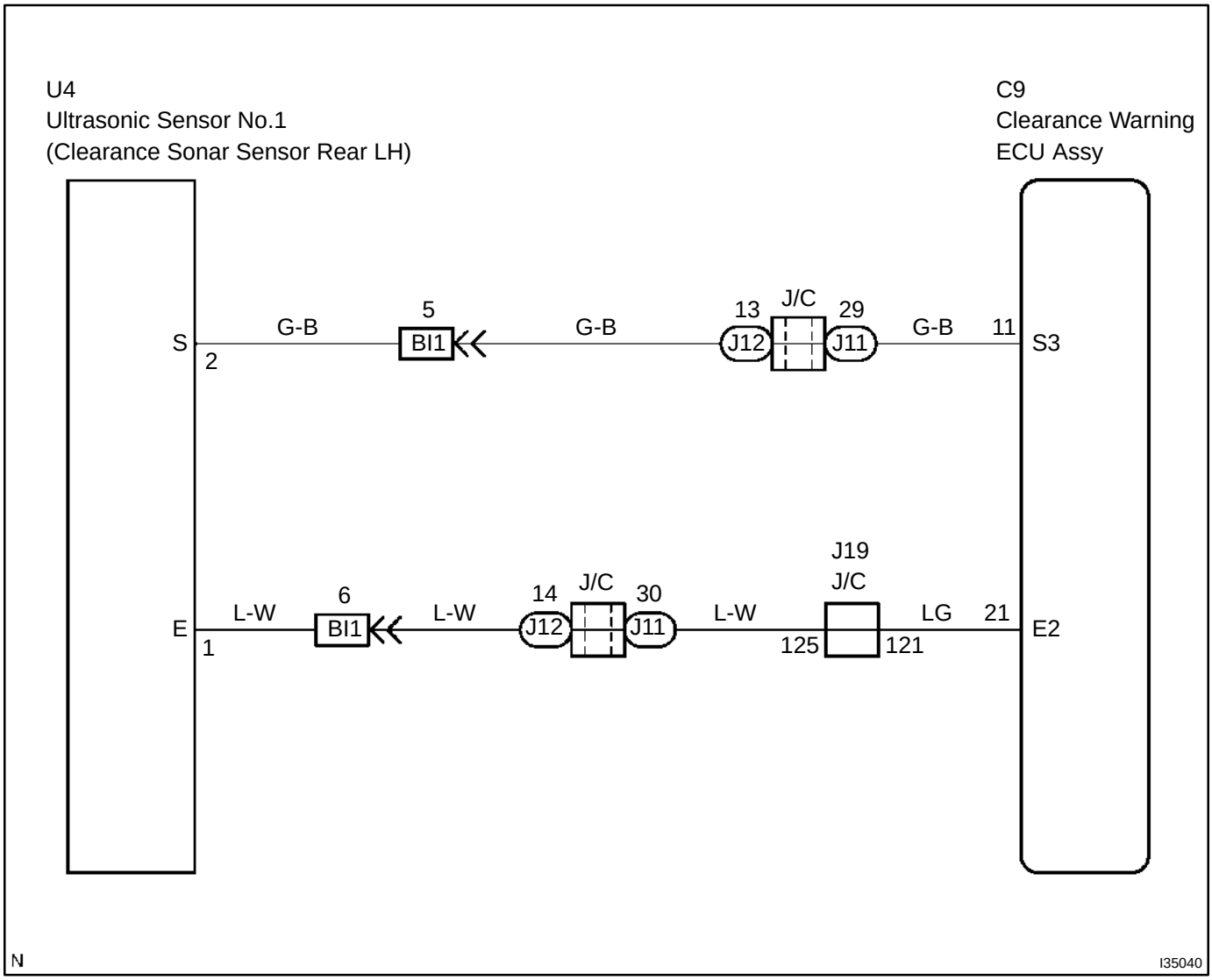
**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1497 )**

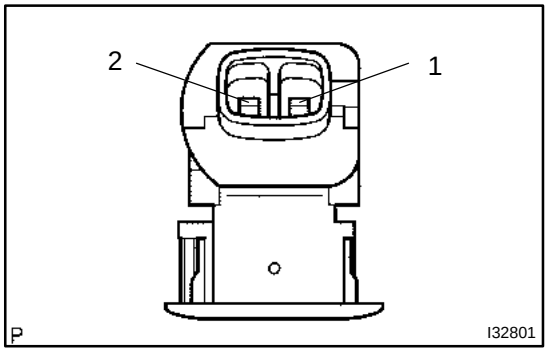
# CLEARANCE SONAR SENSOR REAR LH CIRCUIT

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT ULTRASONIC SENSOR NO.1 |
|---|---|




(a) Remove the ultrasonic sensor No.1.
(b) Measure the resistance between terminals 1 and 2 of ultrasonic sensor No.1.
**Standard: 10 ± 2 kΩ**

**NG** → **REPLACE ULTRASONIC SENSOR NO.1**

**OK**

| 2 | CHECK HARNESS AND CONNECTOR(ULTRASONIC SENSOR NO.1 - CLEARANCE WARNING ECU) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the ultrasonic sensor No.1 and clearance warning ECU assy (See page 01-37 ).

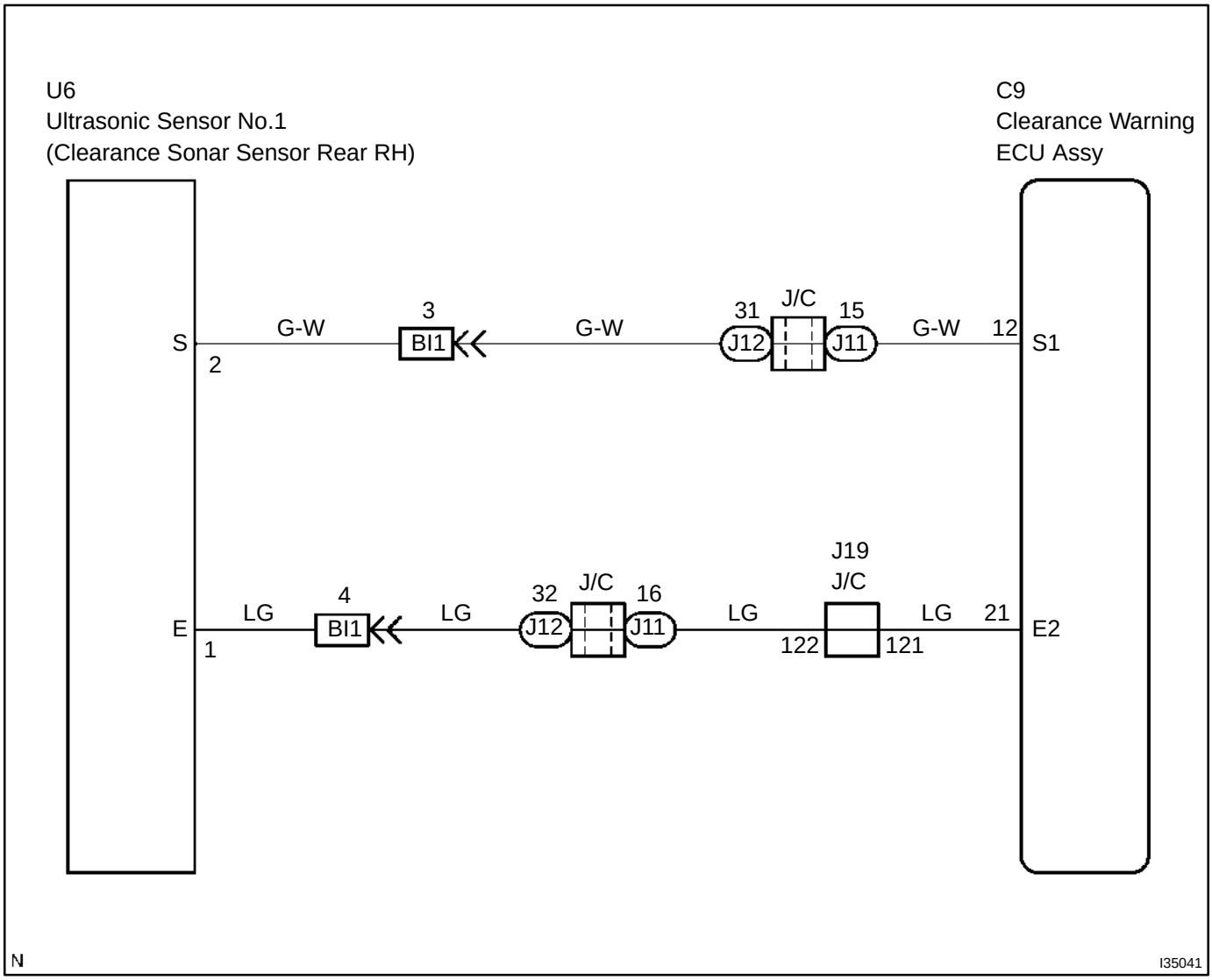
**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1497 )**

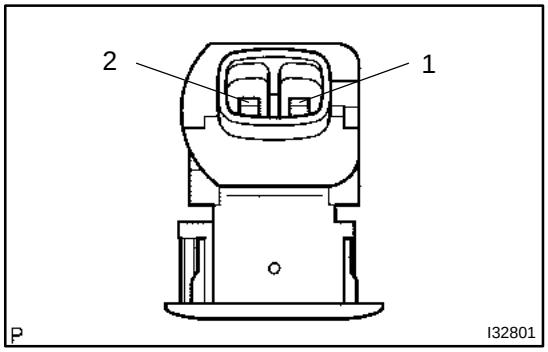
# CLEARANCE SONAR SENSOR REAR RH CIRCUT

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT ULTRASONIC SENSOR NO.1 |
|---|---|




(a) Remove the ultrasonic sensor No.1.
(b) Measure the resistance between terminals 1 and 2 of ultrasonic sensor No.1.
**Standard: 10 ± 2 kΩ**

**NG** → **REPLACE ULTRASONIC SENSOR NO.1**

**OK**

| 2 | CHECK HARNESS AND CONNECTOR(ULTRASONIC SENSOR NO.1 - CLEARANCE WARNING ECU ASSY) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the ultrasonic sensor No.1 and clearance warning ECU assy (See page 01-37 ).

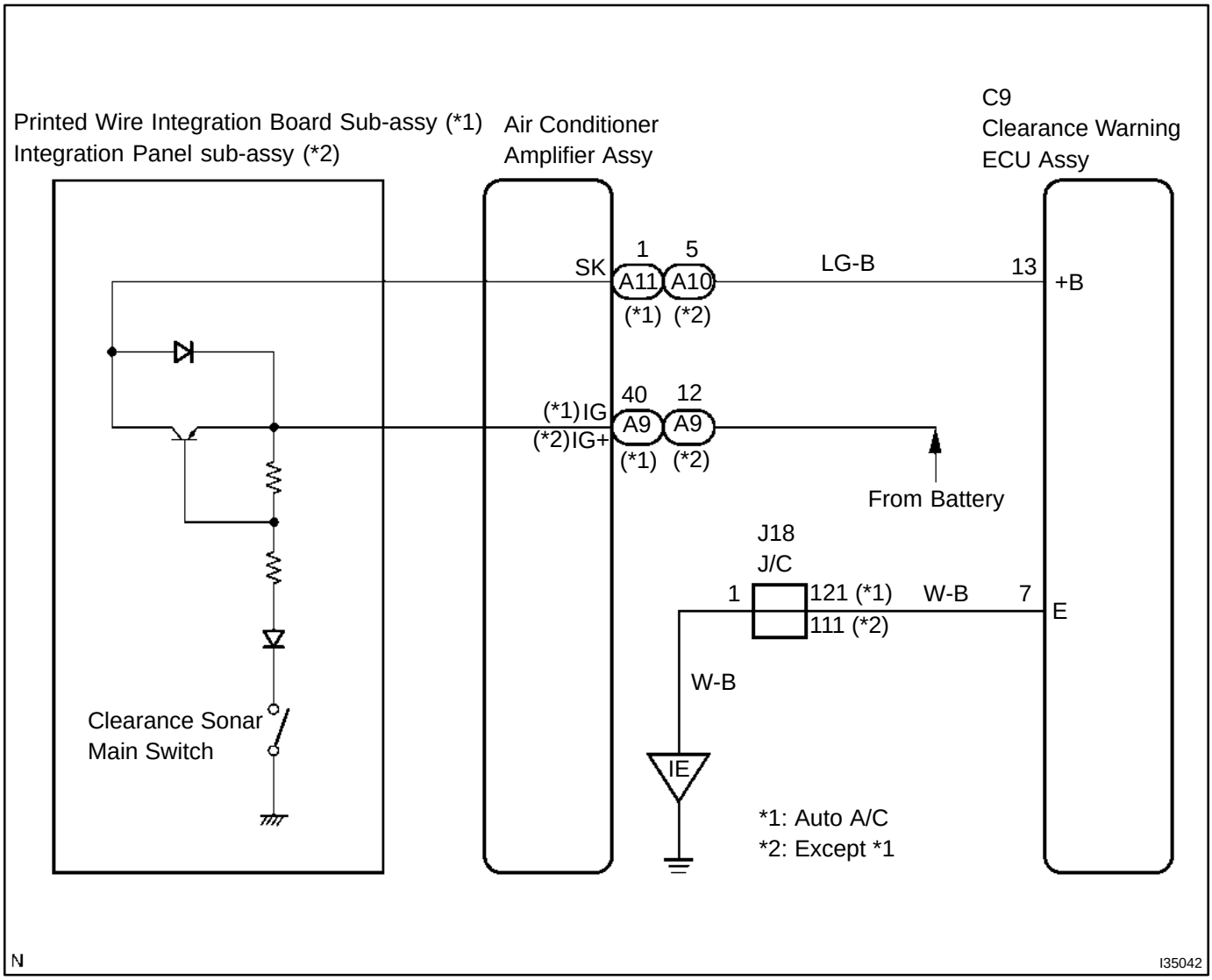
**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1497 )**

# POWER SOURCE OF CLEARANCE WARNING ECU CIRCUIT

## WIRING DIAGRAM



# INSPECTION PROCEDURE

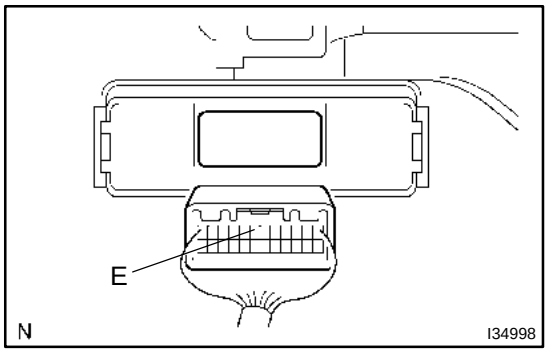
| 1 | CHECK HARNESS AND CONNECTOR(CLEARANCE WARNING ECU ASSY - AIR CONDITIONER AMPLIFIER ASSY) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the clearance warning ECU assy and air conditioner amplifier assy (See page 01-37 ).

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

| 2 | CHECK HARNESS AND CONNECTOR(CLEARANCE WARNING ECU ASSY - BODY GROUND) |
|---|---|

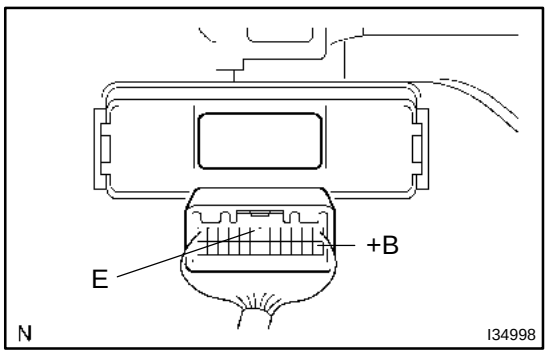



(a) Measure the resistance between terminal E of the clearance warning ECU assy and body ground.
**Standard: 1 Ω or less**

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

| 3 | INSPECT CLEARANCE WARNING ECU ASSY(+B, E TERMINAL) |
|---|---|




(a) Disconnect the clearance warning ECU assy connector.
(b) Turn the ignition switch ON.
(c) Turn the clearance sonar main switch ON.
(d) Measure the voltage between terminals +B and E of the ECU.
**Standard: 10 to 14 V**
**Result:**

| | |
|---|---|
| OK | A |
| NG | B (Auto A/C) |
| NG | C (Manual A/C) |

**B** → **Go to step 4**

**C** → **Go to step 5**

**A**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1497 )**

| 4 | INSPECT PRINTED WIRE INTEGRATION BOARD SUB-ASSY |
|---|---|

(a) Check that the malfunction disappears when a proper printed wire integration board sub-assy is installed (See page 55-23 ).
**Standard: Malfunction disappears**

NG → **REPLACE AIRCONDITIONER AMPLIFIER ASSY (See page 55-23 )**

OK

**REPLACE PRINTED WIRE INTEGRATION BOARD SUB-ASSY (See page 55-23 )**

| 5 | INSPECT INTEGRATION PANEL SUB-ASSY |
|---|---|

(a) Check that the malfunction disappears when a good integration panel sub-assy is installed (See page 55-23 ).
**Standard: Malfunction disappears**

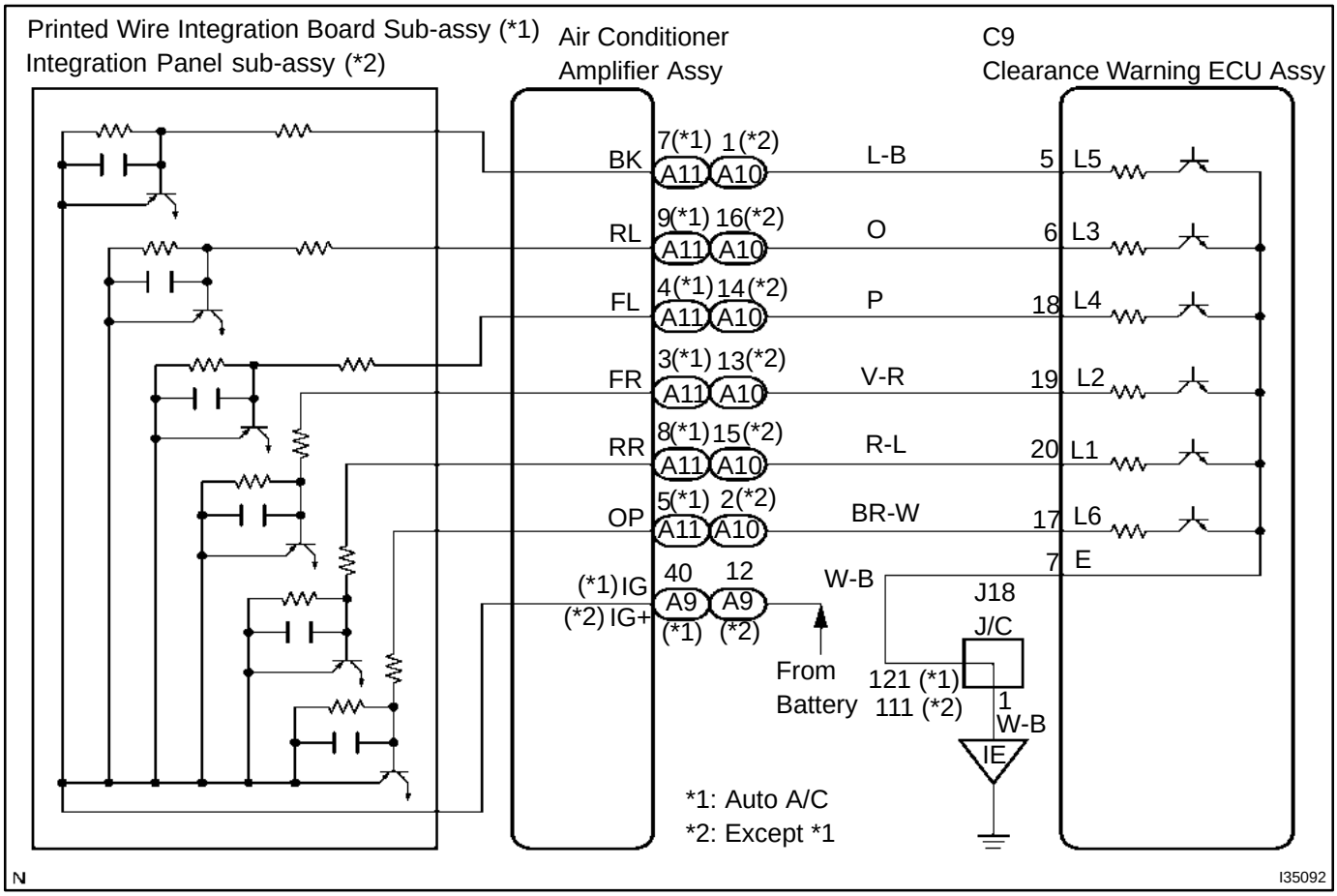
NG → **REPLACE AIRCONDITIONER AMPLIFIER ASSY (See page 55-23 )**

OK

**REPLACE INTEGRATION PANEL SUB-ASSY (See page 55-23 )**

# INDICATOR CIRCUIT

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CHECK HARNESS AND CONNECTOR(CLEARANCE WARNING ECU ASSY - AIR CONDITIONER AMPLIFIER ASSY) |
|---|---|

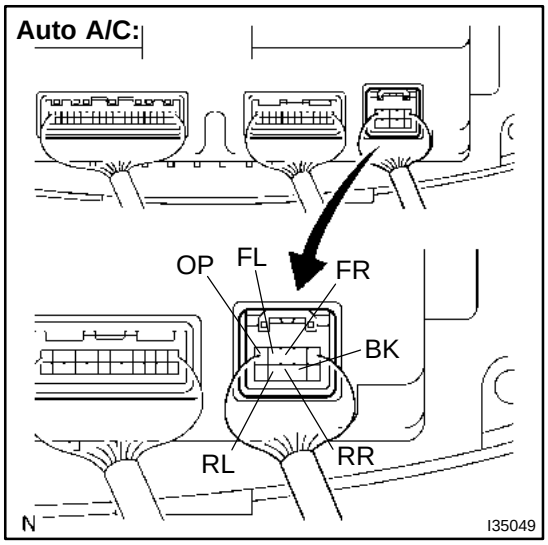
(a) Check for an open or short circuit in harness and connector between the clearance warning ECU assy and air conditioner amplifier assy (See page 01-37 ).

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

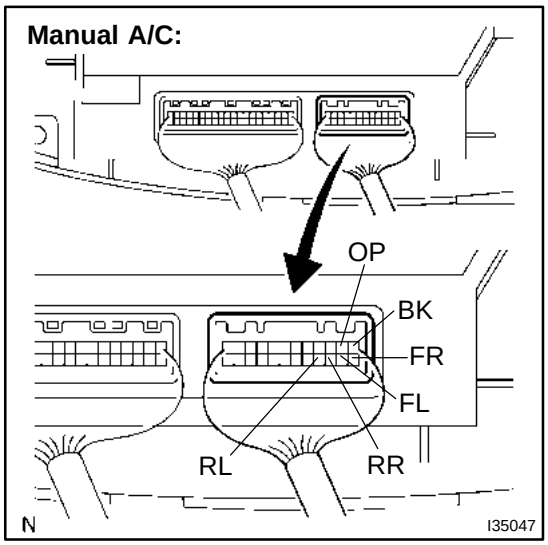
**OK**

| 2 | INSPECT INDICATOR |
|---|---|

**Auto A/C:**




**Manual A/C:**




(a) Remove the integration control & panel assy with connectors being connected.
(b) Using a service wire, ground the each terminal of the integration control & panel assy connector.
(c) Turn the ignition switch ON.
(d) Check each LED comes on.

| Indicators that come on | The terminals to which the service wire connects |
|---|---|
| Power indicator | OP |
| Back sonar | BK |
| Clearance sonar front RH | FR |
| Clearance sonar front LH | FL |
| Clearance sonar rear RH | RR |
| Clearance sonar rear LH | RL |

**Result:**

| | |
|---|---|
| OK | A |
| NG | B (Auto A/C) |
| NG | C (Manual A/C) |

**B** → **Go to step 3**

**C** → **Go to step 4**

**A**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1497 )**

| 3 | INSPECT PRINTED WIRE INTEGRATION BOARD SUB-ASSY |
|---|---|

(a) Check that the malfunction disappears when a proper printed wire integration board sub-assy is installed (See page 55-23 ).
**Standard: Malfunction disappears**

NG → **REPLACE AIRCONDITIONER AMPLIFIER ASSY (See page 55-23 )**

OK

**REPLACE PRINTED WIRE INTEGRATION BOARD SUB-ASSY (See page 55-23 )**

| 4 | INSPECT INTEGRATION PANEL SUB-ASSY |
|---|---|

(a) Check that the malfunction disappears when a good integration panel sub-assy is installed (See page 55-23 ).
**Standard: Malfunction disappears**

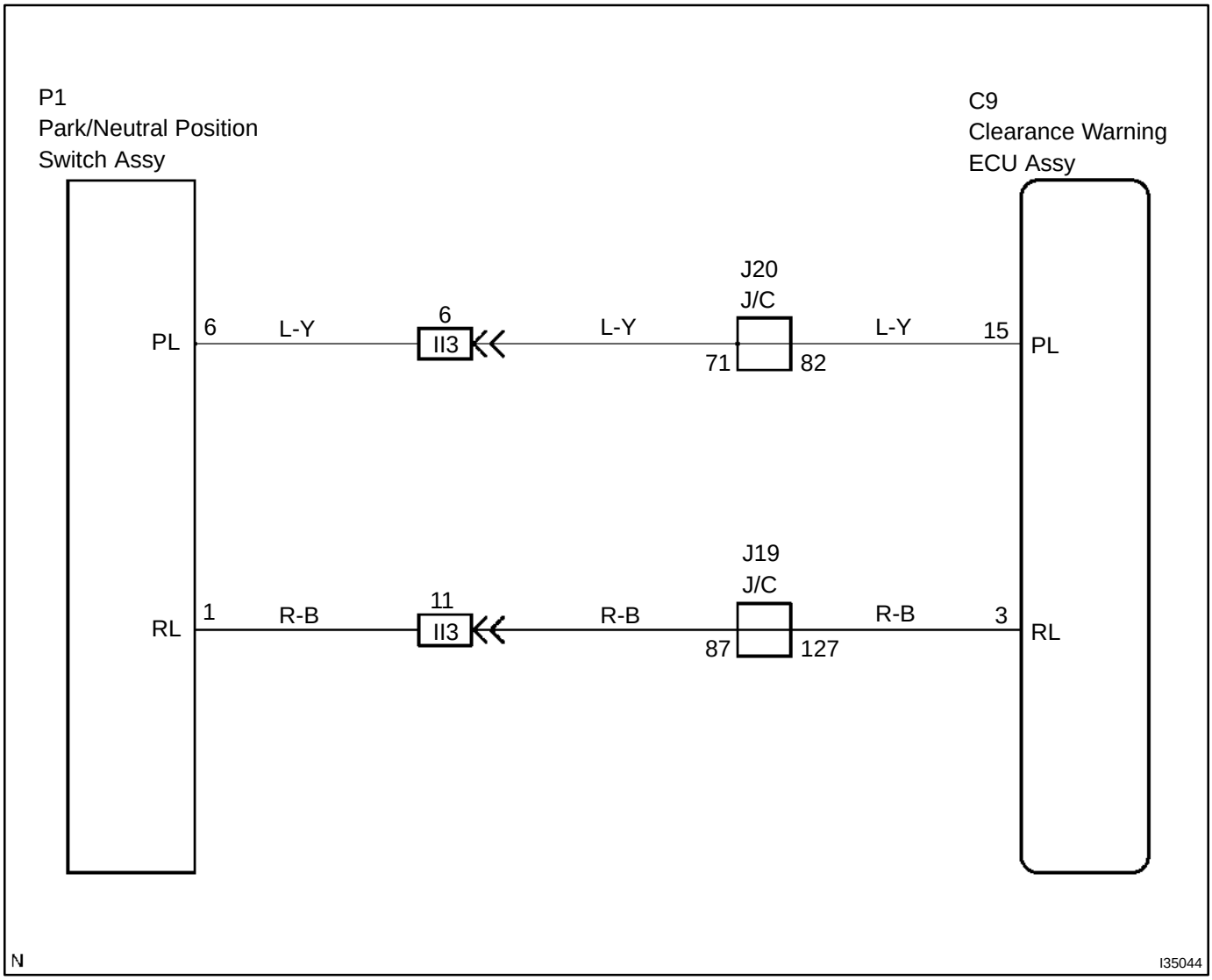
NG → **REPLACE AIRCONDITIONER AMPLIFIER ASSY (See page 55-23 )**

OK

**REPLACE INTEGRATION PANEL SUB-ASSY (See page 55-23 )**

# PARK/NEUTRAL POSITION SWITCH SIGNAL CIRCUIT

## WIRING DIAGRAM



# INSPECTION PROCEDURE

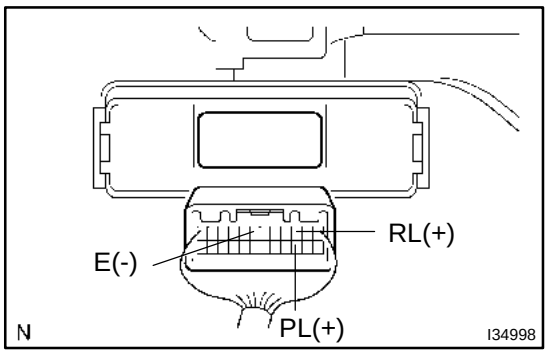
| 1 | CHECK HARNESS AND CONNECTOR(CLEARANCE WARNING ECU ASSY - PARK/NEUTRAL POSITION SWITCH ASSY) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the clearance warning ECU assy and park/neutral position switch assy (See page 01-37 ).

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

| 2 | INSPECT CLEARANCE WARNING ECU ASSY(PL,RL TERMINAL) |
|---|---|




(a) Disconnect the connector from the clearance warning ECU assy.
(b) Turn the ignition switch ON.
(c) Measure the voltage between terminals RL and E.

**Standard:**

| Shift position | Voltage |
|---|---|
| Except R | Less than 1.5 V |
| R | More than 7 V |

(d) w/ Front clearance sonar:
Measure the voltage between terminals PL and E.

**Standard:**

| Shift position | Voltage |
|---|---|
| Except P | Less than 1.5 V |
| P | More than 7 V |

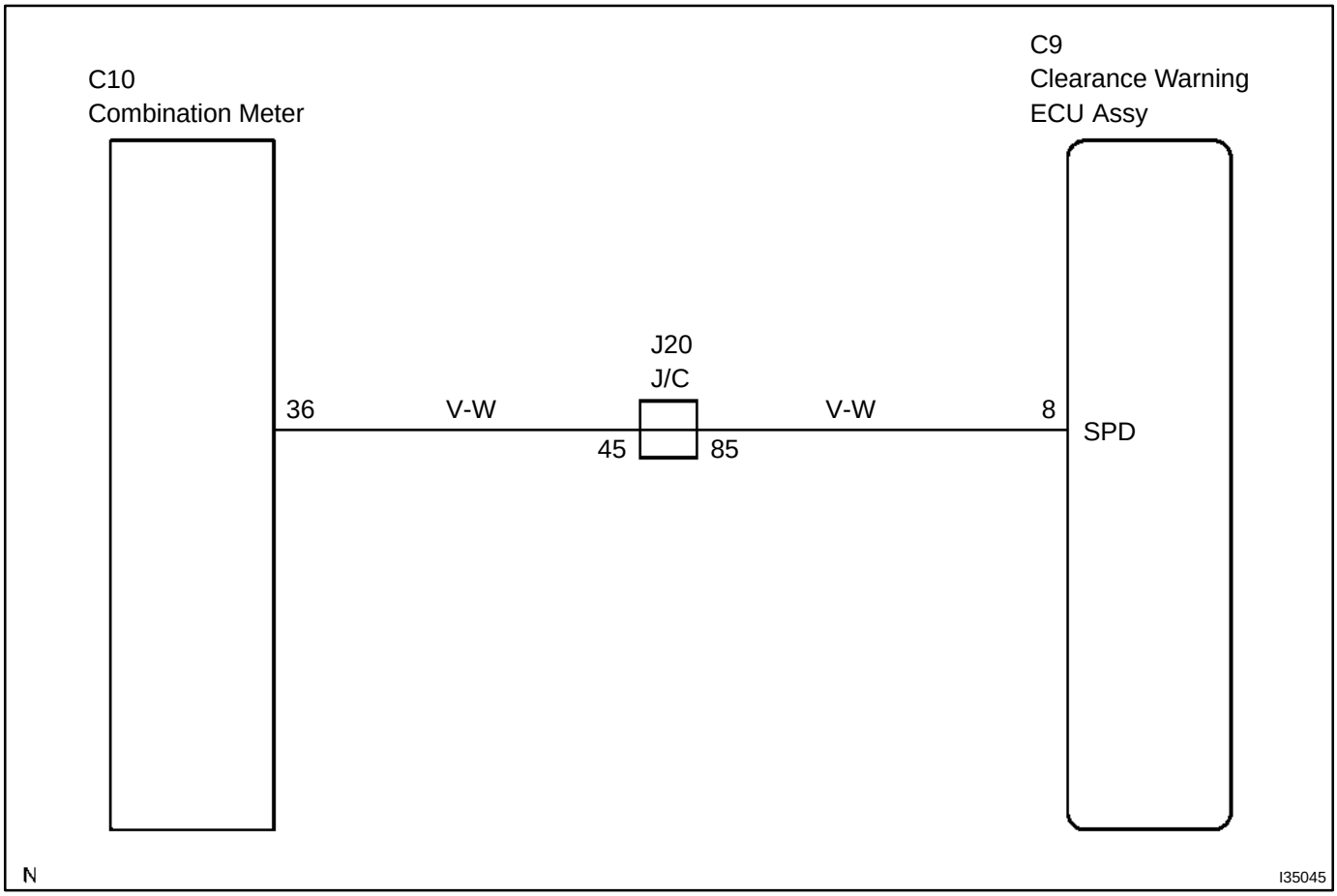
NG → **INSPECT PARK/NEUTRAL POSITION SWITCH ASSY (See page 05-566 )**

OK

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1497 )**

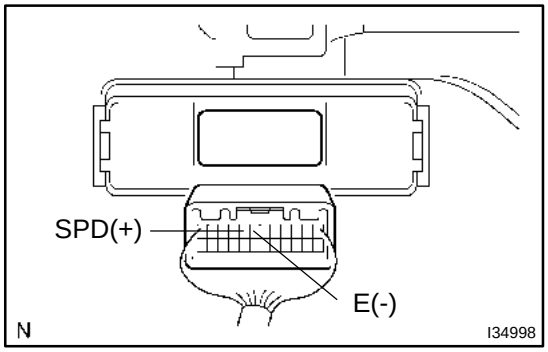
# SPEED SIGNAL CIRCUIT

## WIRING DIAGRAM



# INSPECTION PROCEDURE

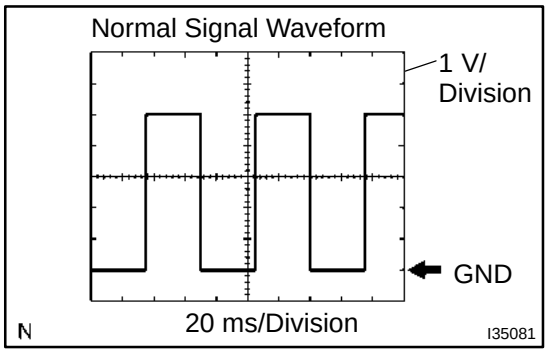
| 1 | INSPECT CLEARANCE WARNING ECU ASSY(SPD TERMINAL) |
|---|---|




**(REFERENCE) INSPECTION USING OSCILLOSCOPE**

(a) Disconnect the connector from the clearance warning ECU assy.

(b) Connect the oscilloscope to the terminals SPD and E of clearance warning ECU assy.




(c) Drive the vehicle with about 20 km/h (12 mph), and check the signal waveform.

HINT:

- As the vehicle speed (rpm of the wheels) increases, a cycle of the waveform narrows.
- When noise is identified in the waveform on the oscilloscope, error signals are generated due to the speed sensor rotor's scratches, looseness or foreign matter deposited on it.

| OK | PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1497 ) |
|---|---|

NG

| 2 | CHECK HARNESS AND CONNECTOR(COMBINATION METER ASSY - REAR CLEARANCE WARNING ECU ASSY) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the combination meter assy and clearance warning ECU assy (See page 01-37 ).

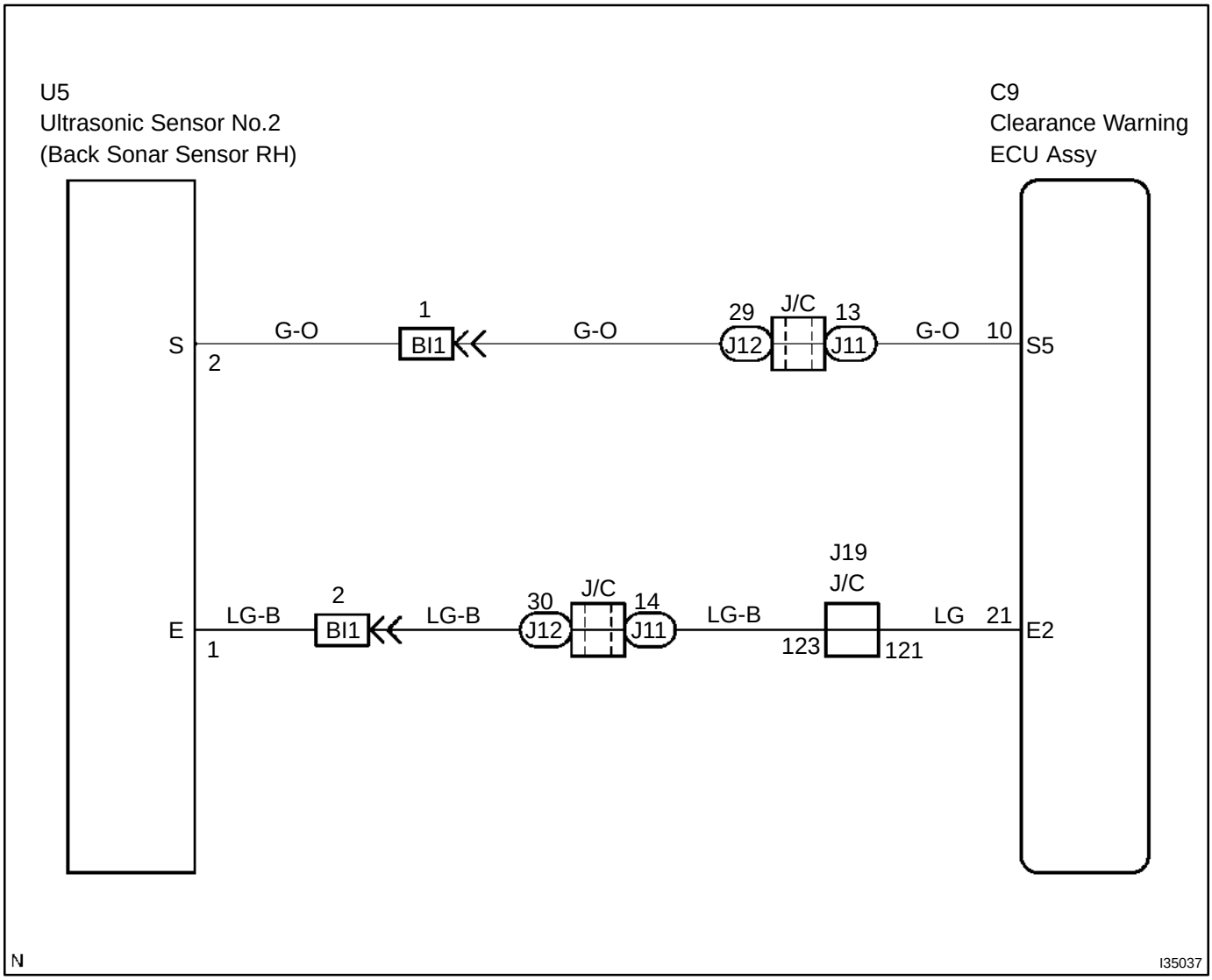
| NG | CHECK AND REPLACE HARNESS OR CONNECTOR |
|---|---|

OK

| GO TO COMBINATION METER SYSTEM (See page 05-1539 ) |
|---|

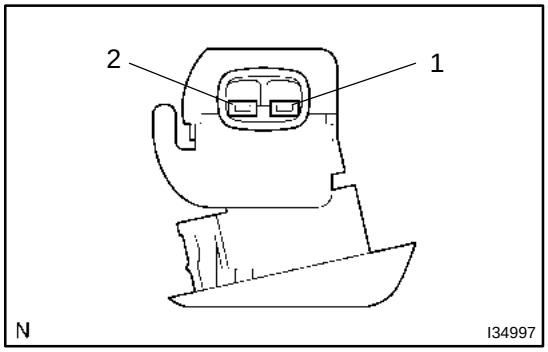
# BACK SONAR SENSOR RH CIRCUIT

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT ULTRASONIC SENSOR NO.2 |
|---|---|




(a) Remove the ultrasonic sensor No.2.
(b) Measure the resistance between terminals 1 and 2 of ultrasonic sensor No.2.
**Standard: 10 ± 2 kΩ**

**NG** → **REPLACE ULTRASONIC SENSOR NO.2**

**OK**

| 2 | CHECK HARNESS AND CONNECTOR(ULTRASONIC SENSOR NO.2 - CLEARANCE WARNING ECU ASSY) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the ultrasonic sensor No.2 and clearance warning ECU assy (See page 01-37 ).

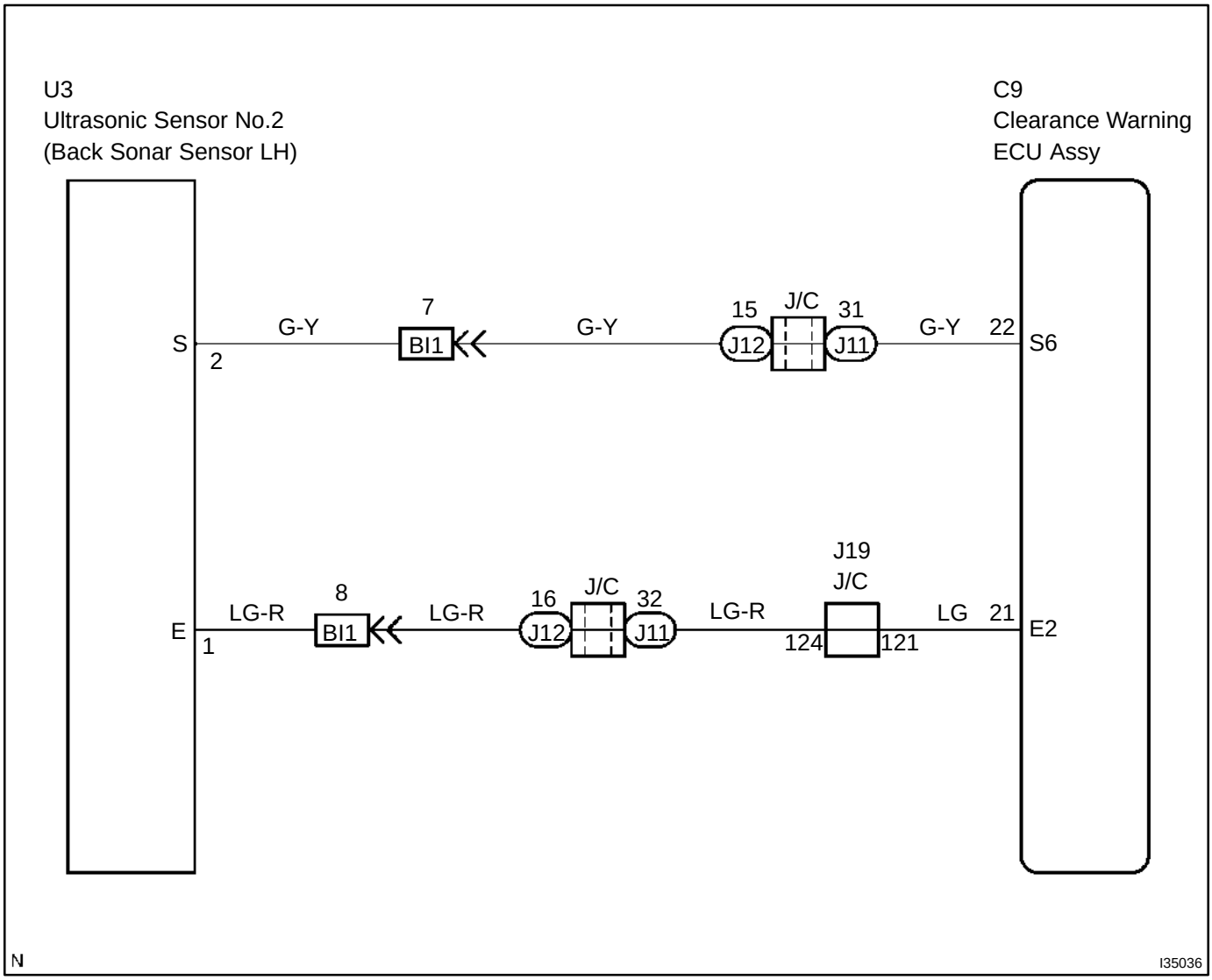
**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1497 )**

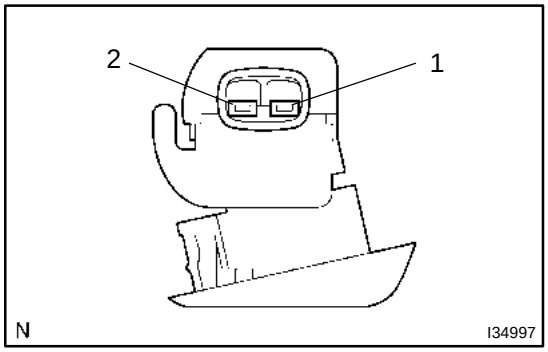
# BACK SONAR SENSOR LH CIRCUIT

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT ULTRASONIC SENSOR NO.2 |
|---|---|




(a) Remove the ultrasonic sensor No.2.
(b) Measure the resistance between terminals 1 and 2 of ultrasonic sensor No.2.
**Standard: 10 ± 2 kΩ**

**NG** → **REPLACE ULTRASONIC SENSOR NO.2**

**OK**

| 2 | CHECK HARNESS AND CONNECTOR(ULTRASONIC SENSOR NO.2 - CLEARANCE WARNING ECU ASSY) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the ultrasonic sensor No.2 and clearance warning ECU assy (See page 01-37 ).

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1497 )**

05BYV-01

# CUSTOMIZE PARAMETERS

HINT:

The following items can be customized.

**NOTICE:**

- **After confirming whether the items requested by the customer are applicable or not for customization, perform the customize operation.**
- **Be sure to record the current settings before customizing.**
- **When troubleshooting, make sure that the item in question is not set to ”OFF” as a result of customization.**

**Standard (Multiplex network body ECU):**

| DISPLAY (ITEM) | DEFAULT | CONTENTS | SETTING |
|---|---|---|---|
| AUTO LOCK (Auto Lock) | OFF | Function that locks doors when vehicle reaches a certain speed | ON/OFF |
| AUTO LOCK/SHIFT (Auto Lock/shift not P) | ON | Function that locks doors when lever is shifted from P position to any position other than P | ON/OFF |
| AUTO LOCK DELAY | 30s | Function that sets AUTO LOCK time at 30 sec. or 60 sec. | 30s/60s |
| UNLK/KEY TWICE (Unlock w/ 2 times D key operation) | ON | Function that unlocks only driver side door when driver side door key cylinder is turned to unlock once and unlocks all the doors when it is turned to unlock twice<br>In OFF setting, turning once makes all doors unlocked | ON/OFF |
| UNLOCK/PARK (Unlock w/ IG ON, shift P, speed 0) | OFF | Function that unlocks doors when lever is shifted to P position from any position other than P while the ignition switch is ON | ON/OFF |
| ALL UNLK/OPN-CL (All unlock w/ D door open-close) | OFF | Function that unlocks all other doors when opening driver side door within 10 seconds after turning the ignition switch to OFF from ON | ON/OFF |

05B9X-01

# CUSTOMIZE PARAMETERS

HINT:

The following items can be customized.

**NOTICE:**

- **After confirming whether the items requested by the customer are applicable or not for customization, perform the customize operation.**
- **Be sure to record the current settings before customizing.**
- **When troubleshooting, make sure that the item in question is not set to "OFF" as a result of customization (Example: For the system, "the wireless function does not operate", first check that the wireless function is not set to "OFF", then perform troubleshooting).**

**THEFT DETERRENT SYSTEM**

| DISPLAY (ITEM) | DEFAULT | CONTENTS | SETTING |
|---|---|---|---|
| PASSIVE MODE<br>(Passive Arming Mode) | OFF | PASSIVE MODE is a function that switches theft deterrent system from arming preparation state to armed state 30 seconds after key is removed from ignition key cylinder and driver side door is closed, even if doors are not locked by wireless or door key lock operation<br>In PASSIVE MODE if you do not perform following operations within 14 seconds after door is opened during armed state, theft deterrent system will judge that condition as a theft and switch to alarm sounding state<br>• Unlock any door by wireless operation<br>• Reconnect battery<br>• Insert key into ignition key cylinder and turn ignition switch from OFF to ON<br>• Unlock any door by key operation | ON/OFF |
| WARNING (HORN)<br>(Warning (horn)) | ON | Function that makes vehicle horn and theft deterrent horn able to be used as a warning device | ON/OFF |
| ENTRY DELAY<br>(Entry delay time) | 14 s | Function that changes entry delay time (time before warning starts) for PASSIVE MODE | 0 s/14 s/30 s |
| WARN BY GLS SEN<br>(Warning by glass broken sensor) | ON | Function that turns glass breakage sensor ON/OFF | ON/OFF |

05BZO-01

# CUSTOMIZE PARAMETERS

HINT:

The following items can be customized.

**NOTICE:**

- **After confirming whether the items requested by the customer are applicable or not for customization, perform the customize operation.**
- **Be sure to record the current settings before customizing.**
- **When troubleshooting, make sure that the item in question is not set to "OFF" as a result of customization.**

**Standard (Power Back Door ECU):**

| DISPLAY (ITEM) | DEFAULT | CONTENTS | SETTING |
|---|---|---|---|
| PBD SW OPER | 0.8s | Function that turns power back door switch ON when switch is pushed once or held down for 0.8 sec. | 0.8s/ON |
| PBD BUZZ VOL | OFF | Function that adjusts the volume of warning buzzer that notifies power back door is operating | OFF/SMALL/LARGE |
| WIRELS PBD OPER | 0.8s | Function that operates power back door when transmitter switch is pressed in specified way (1-press, 2-presses, 0.8 sec.-press or OFF*1) | ON/TWICE ON/0.8s/OFF |
| PBD ASSIST CLS*2 | ON | Function that helps power back door closing operation | ON/OFF |
| PBD ASSIST OPN*3 | OFF | Function that helps power back door opening operation | ON/OFF |

*1 Wireless (transmitter switch) operation of the power slide door is disabled.

*2 When this item is set to ON:

When the back door is fully open, manually moving the back door approximately 12 cm within 0.5 sec. in the direction that the back door closes activates the power back door system to automatically close.

*3 When this item is set to ON:

When the back door is fully closed, pulling the outside handle activates the power back door system to automatically open after the back door is unlatched.

05BMF-01

# CUSTOMIZE PARAMETERS

HINT:

The following item can be customized.

**NOTICE:**

- **After confirming whether the items requested by the customer are applicable or not for customization, perform the customize operation.**
- **Be sure to record the current settings before customizing.**
- **When troubleshooting, make sure that the item in question is not set to "OFF" as a result of customization (Example: For the system, "the wireless function does not operate", first check that the wireless function is not set to "OFF", then perform troubleshooting).**

**POWER WINDOW**

| DISPLAY (ITEM) | DEFAULT | CONTENTS | SETTING |
|---|---|---|---|
| IG OFF P/W | ON | After ignition switch OFF, power window control permission signal is output | ON / OFF |

05BZ5-01

# CUSTOMIZE PARAMETERS

HINT:

The following items can be customized.

**NOTICE:**

- **After confirming whether the items requested by the customer are applicable or not for customization, perform the customize operation.**
- **Be sure to record the current settings before customizing.**
- **When troubleshooting, make sure that the item in question is not set to "OFF" as a result of customization.**

**Standard (Power slide door ECU LH/RH):**

| DISPLAY (ITEM) | DEFAULT | CONTENTS | SETTING |
|---|---|---|---|
| PSD SW OPER | 0.8s | Function that turns satellite switch ON when switch is pressed for specified time | 0.8s/0.0s*1 |
| PSD BUZZ VOL | OFF | Function that adjusts volume of warning buzzer that notifies power slide door is operating | OFF/SMALL/LARGE |
| WIRELS PSD OPER | 0.8sPR | Function that operates power slide door when transmitter switch is pressed in specified way (1-press, 2-presses, 0.8 sec.-press or OFF*2) | 1TIME/2TIMES/0.8sPR/OFF*2 |

*1 "0.0s" appearing on the display of the hand-held tester means that a 1-press of the satellite switch operates the power slide door.

*2 Wireless (transmitter switch) operation of the power slide door is disabled.

05BMD-01

# CUSTOMIZE PARAMETERS

HINT:

The following items can be customized.

**NOTICE:**

- **After confirming whether the items requested by the customer are applicable or not for customization, perform the customize operation.**
- **Be sure to record the current settings before customizing.**
- **When troubleshooting, make sure that the item in question is not set to "OFF" as a result of customization (Example: For the system, "the wireless function does not operate", first check that the wireless function is not set to "OFF", then perform troubleshooting).**

## WIRELESS DOOR LOCK

| DISPLAY (ITEM) | DEFAULT | CONTENTS | SETTING |
|---|---|---|---|
| OPEN DOOR WARN (Open Door Warning) | ON | Function that makes buzzer sound for 10 seconds if door is not completely closed when locking with wireless door lock function | ON / OFF |
| BUZZ RESP SOUND (Buzzer Answer-back of Wireless) | ON | Function that wireless buzzer for answer-back when lock/unlock switch switch on transmitter pressed ON/OFF | ON / OFF |
| WIRELESS OPER (Wireless Door Lock Control Function) | ON | Function that turns wireless door lock function ON/OFF | ON / OFF |
| ALARM FUNCTION (Panic Function) | ON | Function that operates theft deterrent system when panic switch on transmitter is held for 0.8 seconds | ON / OFF |
| UNLOCK / 2OPER (2 Times Operation Wireless Unlock) | ON | Function that unlocks driver side door when unlock switch on transmitter is pressed once and unlocks all doors when pressed twice<br>In OFF setting, pressing unlock switch once makes all doors unlock | ON / OFF |
| AUTO LOCK DELAY (Auto Lock Time) | 30 s | Function that changes time until automatic re-locking after unlocking with wireless door lock function | 30 s / 60 s |
| HAZARD ANS BACK (Hazard Answer-back of Wireless) | ON | Function that lights up all hazard warning lamps once when lock switch on transmitter is pressed and lights up twice when unlock switch is pressed, with all doors closed | ON / OFF |

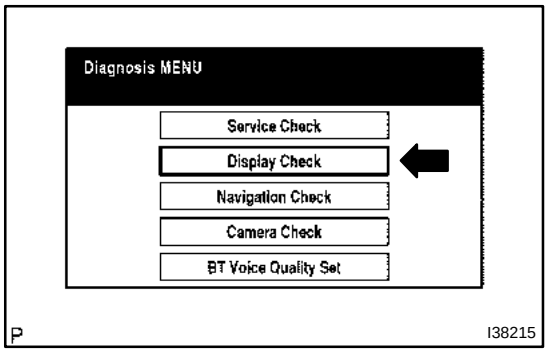
05FGC-04

# DISPLAY CHECK MODE (COLOR BAR CHECK)

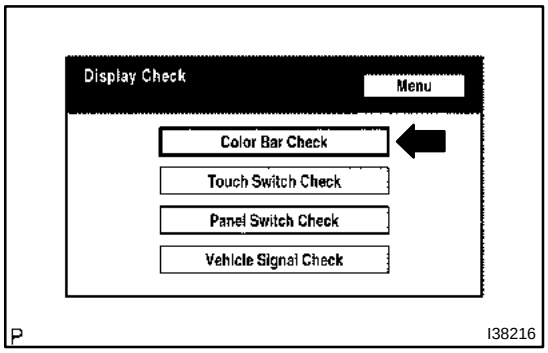
HINT:

- This mode checks the color display on the radio and navigation assy.
- Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle.

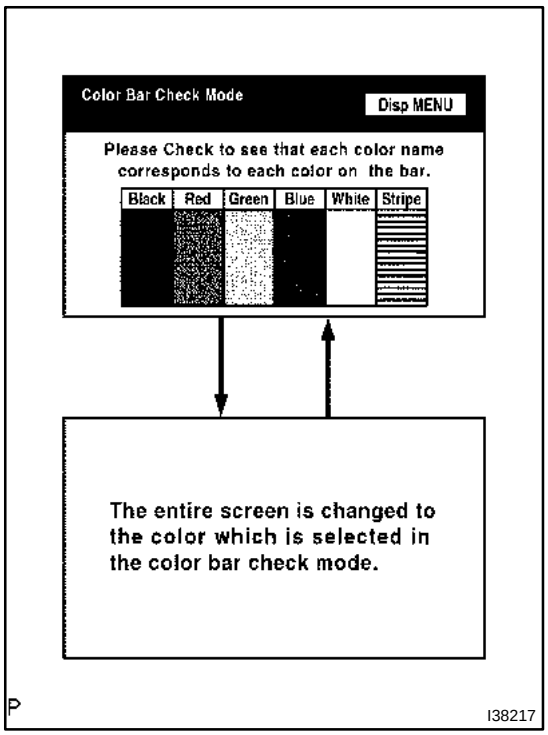
**1. Enter diagnostic mode (see page 05-1273 ).**




**2. Select "Display Check" from the "Diagnosis MENU" screen.**




**3. Select "Color Bar Check" from the "Display Check" screen.**




**4. Select a color bar from the "Color Bar Check Mode" screen.**

HINT:

- The entire screen turns to the color or stripe selected.
- Touching the display will return to the "Color Bar Check" screen.

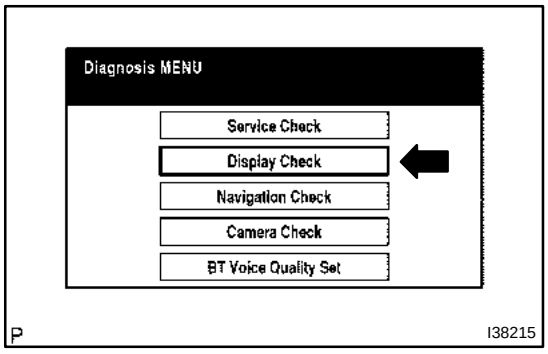
05FGE-04

# DISPLAY CHECK MODE (PANEL SWITCH CHECK)

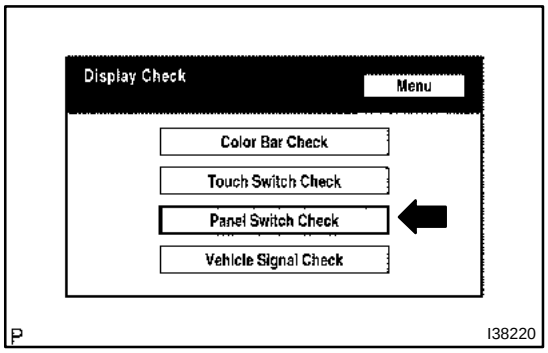
HINT:

- This mode checks the panel switch operation response on the radio and navigation assy.
- Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle.

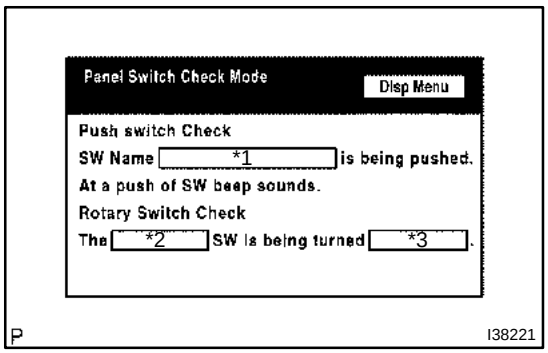
**1. Enter diagnostic mode (see page 05-1273 ).**




**2. Select "Display Check" from the "Diagnosis MENU" screen.**




**3. Select "Panel Switch Check" from the "Display Check" screen.**




**4. Operate each switch and check that the switch name and condition are correctly displayed.**

HINT:

- Pressing the "DISPLAY" switch for 3 seconds will exit the diagnostic mode.
- "OPEN" and "TILT" switches are not displayed. To test these switches, they must be operated.

| Display | Contents |
|---|---|
| Push switch name/*1 | • Name of the pressed switch is displayed.<br>• If more than one switch is pressed, "MULTIPLE" is displayed. |
| Rotary switch name/*2 | Name of the rotary switch is displayed. |
| Rotary switch direction/*3 | Direction of the rotary switch is displayed. |

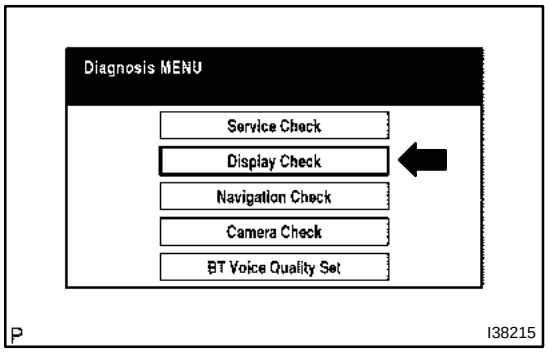
05FGD-04

# DISPLAY CHECK MODE (TOUCH SWITCH CHECK)

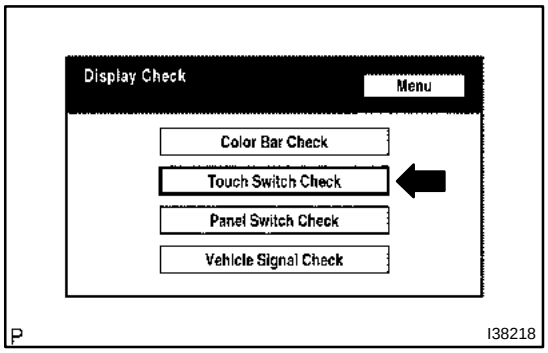
HINT:

- This mode checks the touch switch operation condition on the radio and navigation assy.
- Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle.

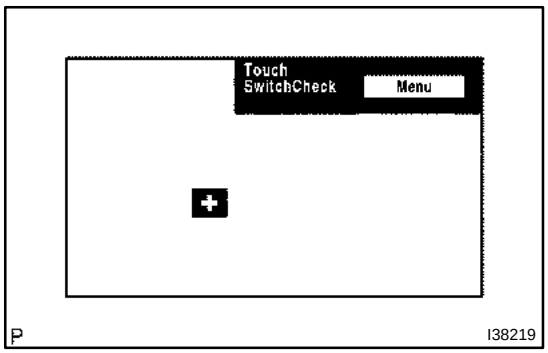
**1. Enter diagnostic mode (see page 05-1273 ).**




**2. Select "Display Check" from the "Diagnosis MENU" screen.**




**3. Select "Touch Switch Check" from the "Display Check" screen.**




**4. Touch the display anywhere in the open area to perform the check when the "Touch Switch Check" screen is displayed.**

HINT:

- A "+" mark is displayed where the display is touched.
- The "+" mark remains on the display even after the finger is removed.

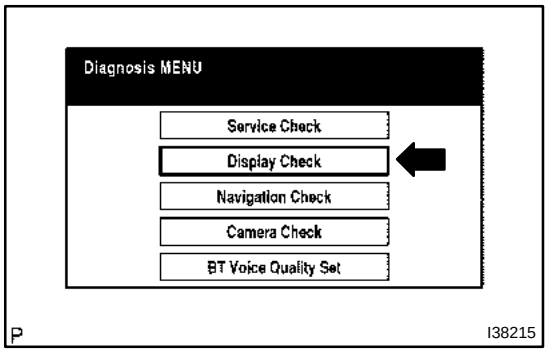
05FGF-04

# DISPLAY CHECK MODE (VEHICLE SIGNAL CHECK)

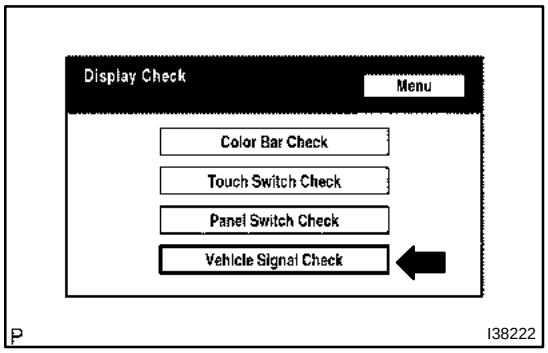
HINT:

- This mode checks the vehicle signal status input to the radio and navigation assy.
- Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle.

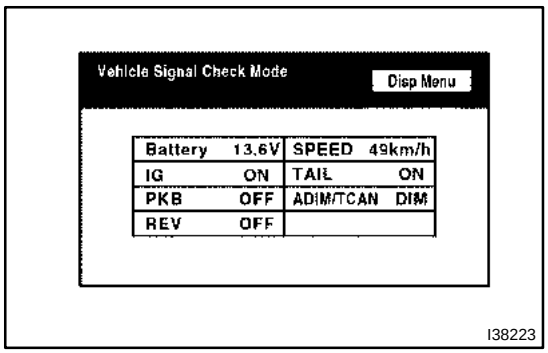
**1. Enter diagnostic mode (see page 05-1273 ).**




**2. Select "Display Check" from the "Diagnosis MENU" screen.**




**3. Select "Vehicle Signal Check" from the "Display Check" screen.**




**4. When the "Vehicle Signal Check Mode" screen is displayed, check all the vehicle signal conditions.**

HINT:

- Only conditions having inputs are displayed.
- This screen is updated once per second when input signals to the vehicle are changed.

05FHU-04

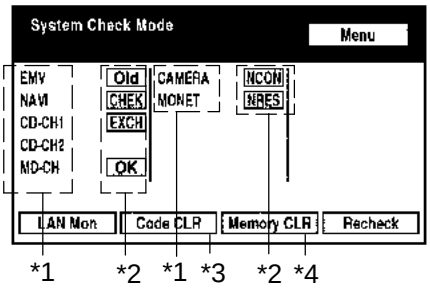
# DIAGNOSIS DISPLAY DETAILED DESCRIPTION

HINT:

- This section contains a detailed description of displays within diagnostic mode.
- Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle.

**1. System Check**

(a) System Check Mode Screen




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I38587

**Device Names and Hardware Address/*1**

HINT:

- Registered device names are displayed.
- If a device name is unknown to the system, its physical address is shown instead.

| Address No. | Name | Address No. | Name |
|---|---|---|---|
| 110 | EMV | 120 | AVX |
| 128 | 1DIN TV | 140 | AVN |
| 144 | G-BOOK | 178 | NAVI |
| 17C | MONET | 190 | AUDIO H/U |
| 1AC | CAMERA-C | 1B0 | Rr-TV |
| 1C0 | Rr-CONT | 1C2 | TV-TUNER2 |
| 1C4 | PANEL | 1C6 | G/W |
| 1C8 | FM-M-LCD | 1D8 | CONT-SW |
| 1EC | Body | 1F0 | RADIO TUNER |
| 1F1 | XM | 1F2 | SIRIUS |
| 230 | TV-TUNER | 240 | CD-CH2 |
| 250 | DVD-CH | 280 | CAMERA |
| 360 | CD-CH1 | 3A0 | MD-CH |
| 17D | TEL | 440 | DSP-AMP |
| 530 | ETC | 5C8 | MAYDAY |
| 1A0 | DVD-P | 1D6 | CLOCK |
| 1F4 | RSA | 1F6 | RSE |
| 480 | AMP | - | - |

**Check Result/*2**

HINT:

Result codes for all devices are displayed.

| Result | Meaning | Action |
|---|---|---|
| OK | The device did not respond with a DTC (excluding communication DTCs from the AVC-LAN). | - |
| EXCH | The device responds with a ”replace”-type DTC. | Look up the DTC in ”Unit Check Mode” and replace the device. |
| CHEK | The device responds with a ”check”-type DTC. | Look up the DTC in ”Unit Check Mode”. |
| NCON | The device was previously present, but does not respond in diagnostic mode. | 1. Check power supply wire harness of the device.<br>2. Check the AVC-LAN of the device. |
| Old | The device responds with an ”old”-type DTC. | Look up the DTC in ”Unit Check Mode”. |
| NRES | The device responds in diagnostic mode, but gives no DTC information. | 1. Check power supply wire harness of the device.<br>2. Check the AVC-LAN of the device. |

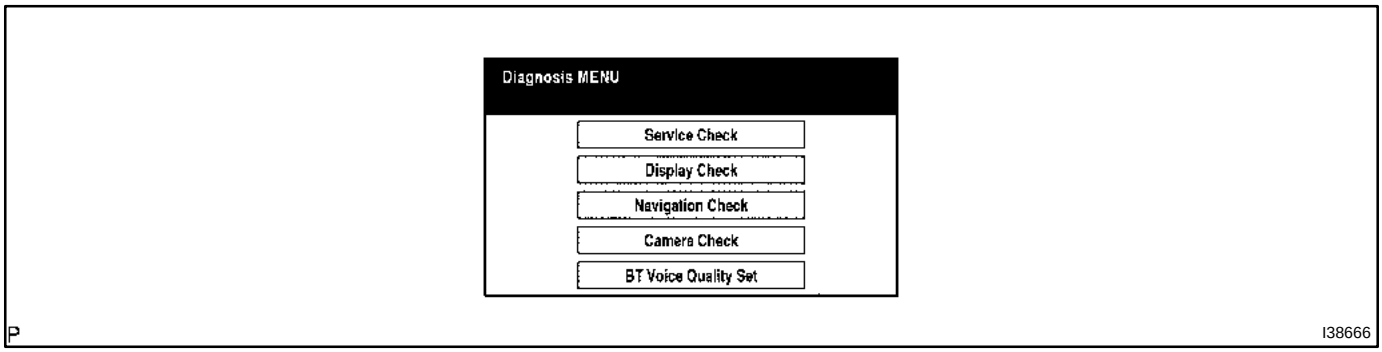
**Code Clear/*3**

Present DTCs are cleared.

**Memory Clear/*4**

Present and past DTCs and registered connected device names are cleared.

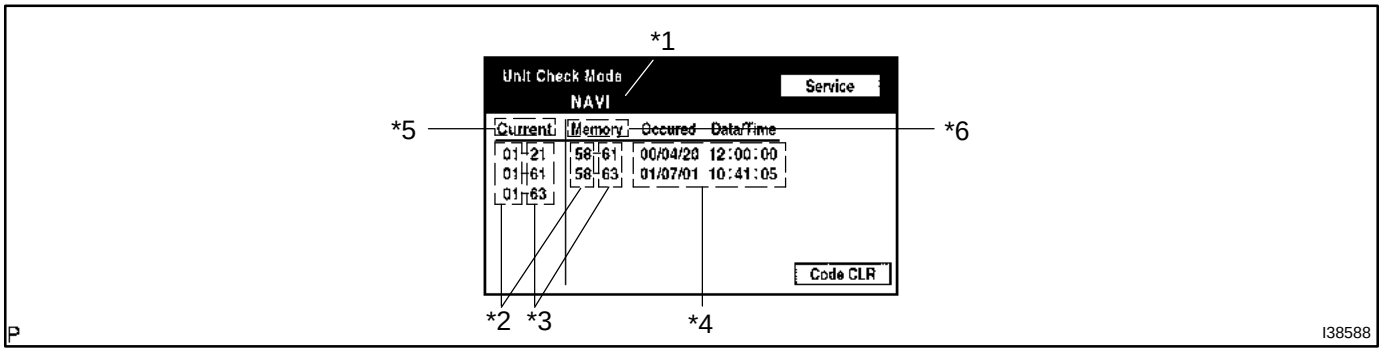
(b) Diagnosis MENU Screen




HINT:

Each item is grayed out or not displayed based on the device settings.

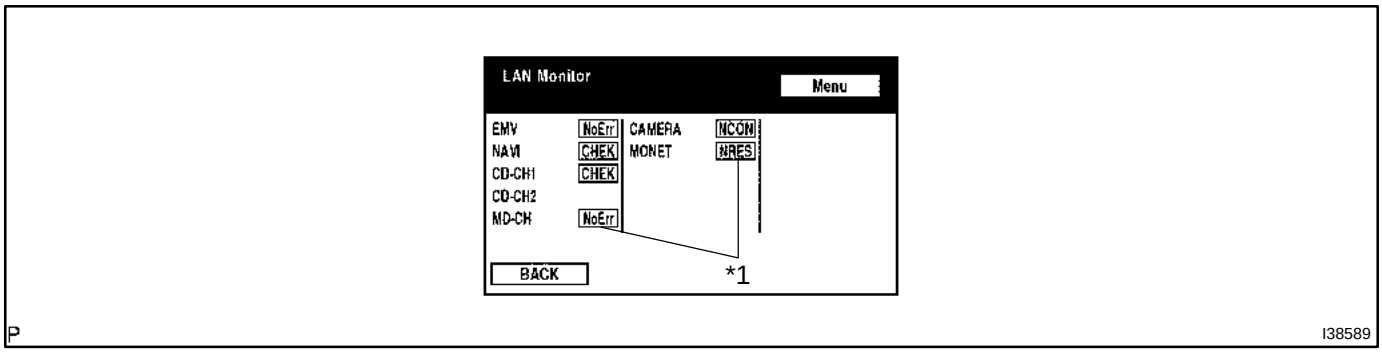
(c) Unit Check Mode Screen




## Screen Description

| Display | Contents |
|---|---|
| Device name/*1 | Target device |
| Segment/*2 | Target device logical address |
| DTC/*3 | DTC (Diagnostic Trouble Code) |
| Timestamp/*4 | The time and date of past DTCs are displayed. (The year is displayed in 2 digit format.) |
| Present Code/*5 | The DTC output at the service check is displayed. |
| Past Code/*6 | Diagnostic memory results and recorded DTCs are displayed. |

(d) LAN Monitor (Original) Screen



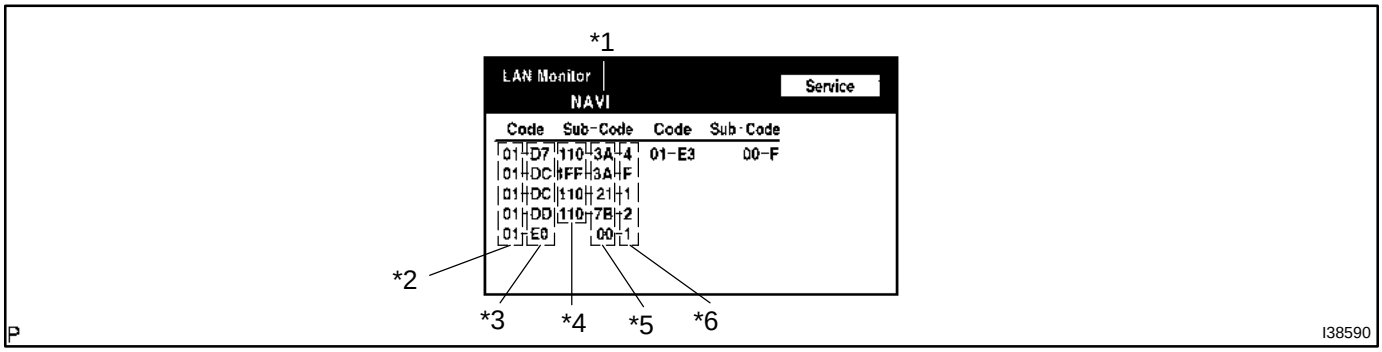

## Check result/*1

HINT:

Check results of all the devices are displayed.

| Result | Meaning | Action |
|---|---|---|
| No Err (OK) | There are no communication DTCs. | - |
| CHEK | The device responds with a ”check”-type DTC. | Look up the DTC in ”Unit Check Mode”. |
| NCON | The device was previously present, but does not respond in diagnostic mode. | 1. Check power supply wire harness of the device.<br>2. Check the AVC-LAN of the device. |
| Old | The device responds with an ”old”-type DTC. | Look up the DTC in ”Unit Check Mode”. |
| NRES | Device responds in diagnostic mode, but gives no DTC information. | 1. Check power supply wire harness of the device.<br>2. Check the AVC-LAN of the device. |

(e) LAN Monitor (Individual) Screen

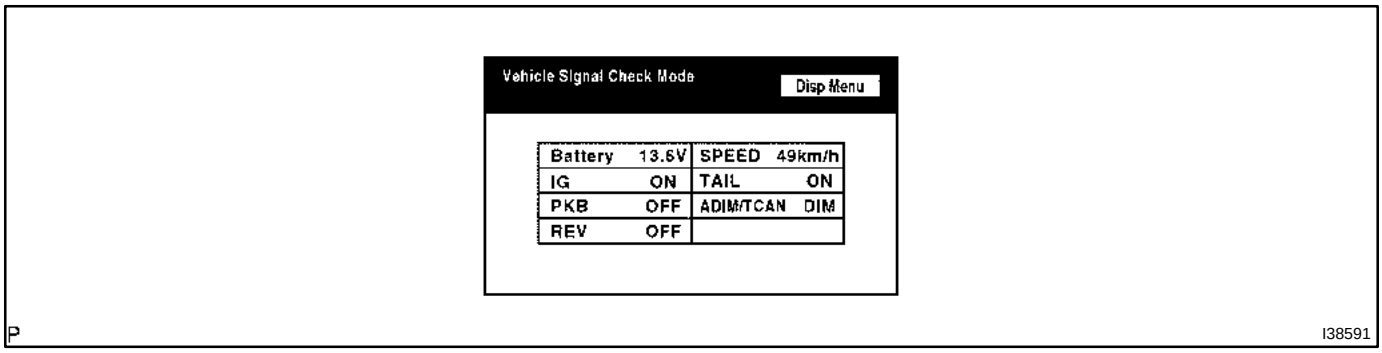



## Screen Description

| Display | Contents |
|---|---|
| Device name/*1 | Target device |
| Segment/*2 | Target logical address |
| DTC/*3 | DTC (Diagnostic Trouble Code) |
| Sub-code (device address)/*4 | Physical address stored with DTC. (If there is no address, nothing is displayed.) |
| Connection check No./*5 | Connection check number stored with DTC. |
| DTC occurrence/*6 | Number of times the same DTC has been recorded. |

## 2. DISPLAY CHECK

(a) Vehicle Signal Check Mode Screen




## Screen Description

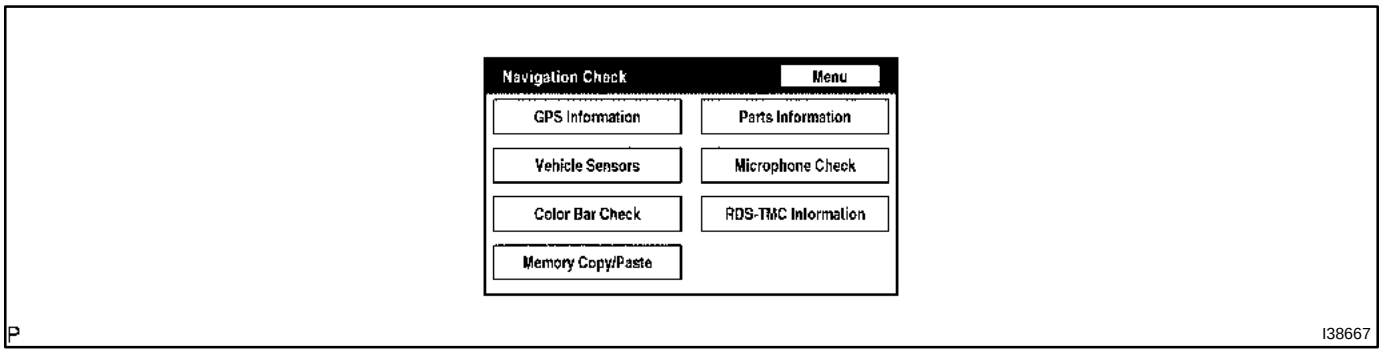
| Name | Contents |
|---|---|
| Battery | Battery voltage is displayed. |
| PKB | Parking brake ON/OFF state is displayed. |
| REV | Reverse signal ON/OFF state is displayed. |
| IG | IG switch ON/OFF state is displayed. |
| ADIM/TCAN | Brightness state DIM (with)/ BRIGHT (without) is displayed. |
| SPEED | Vehicle speed is displayed in km/h. |
| TAIL | TAIL signal (Head lamp dimmer switch) ON/OFF state is displayed. |

HINT:

- Only items sending a vehicle signal will be displayed.
- This screen is updated once per second when input signals to the vehicle are changed.

## 3. NAVIGATION CHECK

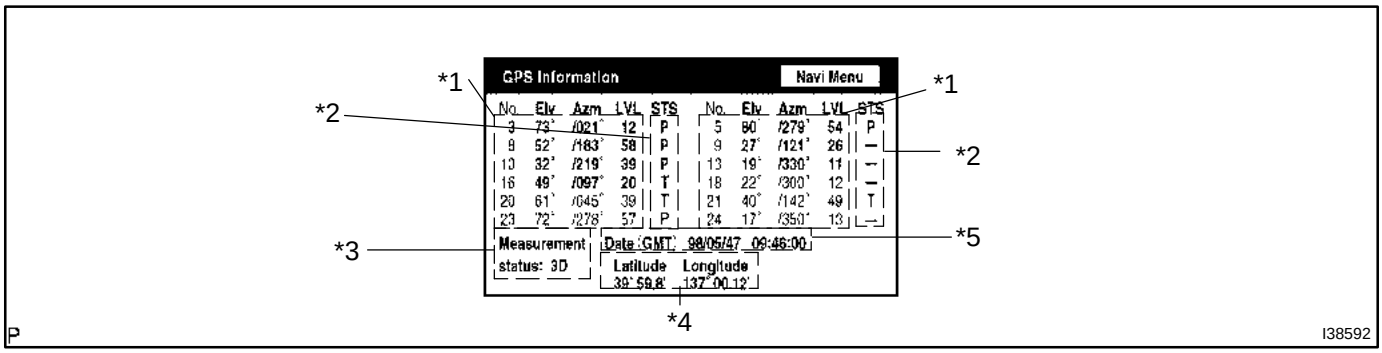
(a) Navigation Check Screen




HINT:

Each item is grayed out or not displayed based on the device settings.

(b) GPS Information Screen




**Satellite information/*1**

Information from a maximum of 12 satellites is displayed on the screen. This information includes the target GPS satellite number, elevation angle, direction and signal level.

**Receiving condition/*2**

**(DENSO model)**

| Display | Contents |
|---|---|
| T | The system is receiving a GPS signal, but is not using it for location. |
| P | The system is using the GPS signal for location. |
| - | The system cannot receive a GPS signal. |

**(AISIN AW model)**

| Display | Contents |
|---|---|
| 01H | The system cannot receive a GPS signal. |
| 02H | The system is tracing a satellite. |
| 03H | The system is receiving a GPS signal, but is not using it for location. |
| 04H | The system is using the GPS signal for location. |

**Measurement information/*3**

| Display | Contents |
|---|---|
| 2D | 2-dimensional location method is being used. |
| 3D | 3-dimensional location method is being used. |
| NG | Location data cannot be used. |
| Error | Reception error has occurred. |
| - | Any other state. |

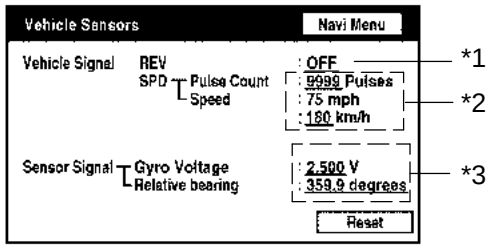
### Position information/*4

| Display | Contents |
|---|---|
| Position | Latitude and longitude information on the current position is displayed. |

### Date information/*5

| Display | Contents |
|---|---|
| Date | The date/time information obtained from GPS signal is displayed in Greenwich mean time (GMT). The last 4 digits are displayed. |

(c) Vehicle Sensor Screen




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### Vehicle signal

| Display | Contents |
|---|---|
| REV/*1 | REV signal ON/OFF state is displayed. |
| SPD/*2 | SPD signal condition is displayed. |

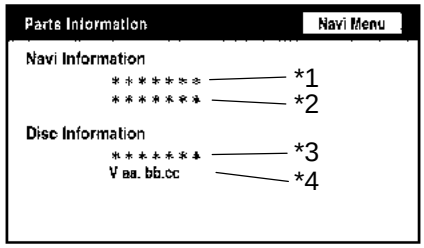
### Sensor signal

| Display | Contents |
|---|---|
| Gyro sensor/*3 | Gyro sensor output condition is displayed (when the vehicle runs straight or is stationary, the voltage is approximately 2.5 V). |

HINT:

Signals are updated once per second only when vehicle sensor signals are changed.

(d) Parts Information Screen

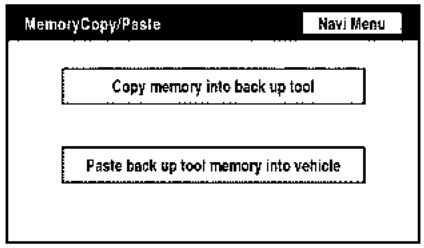



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### Screen description

| Display | Contents |
|---|---|
| Navigation Manufacturer/*1 | Radio and navigation assy manufacturer is displayed. |
| Navigation Version No./*2 | Radio and navigation assy version is displayed. |
| Disc Manufacturer/*3 | Map disc manufacturer is displayed. |
| Disc Version No./*4 | Map disc version is displayed. |

(e) Memory Copy/Paste Screen




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HINT:
This function cannot be used.

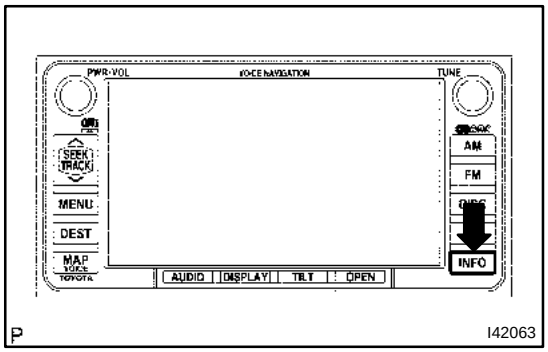
05FG7-04

# DIAGNOSTIC START-UP/FINISH

HINT:

- Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle.
- After the ignition switch is turned on, check that the map is displayed before starting the diagnostic mode. Otherwise, some items cannot be checked.

**1. There are 2 methods to start diagnostic mode. Start the mode by using one of them.**

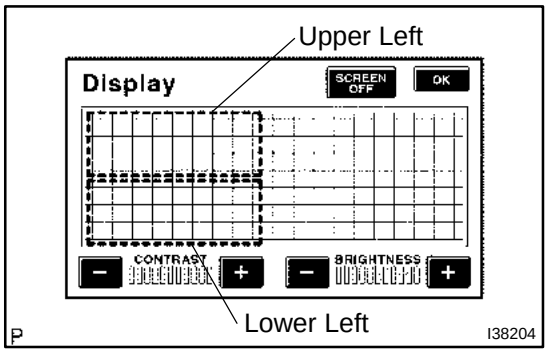



**2. Method 1**

(a) Start the engine.

(b) While pressing and holding the "INFO" switch, operate the light control switch: OFF → TAIL → OFF → TAIL → OFF → TAIL → OFF.

(c) The diagnostic mode starts and the service check screen ("System Check Mode") will be displayed. Service inspection starts automatically and the result will be displayed.



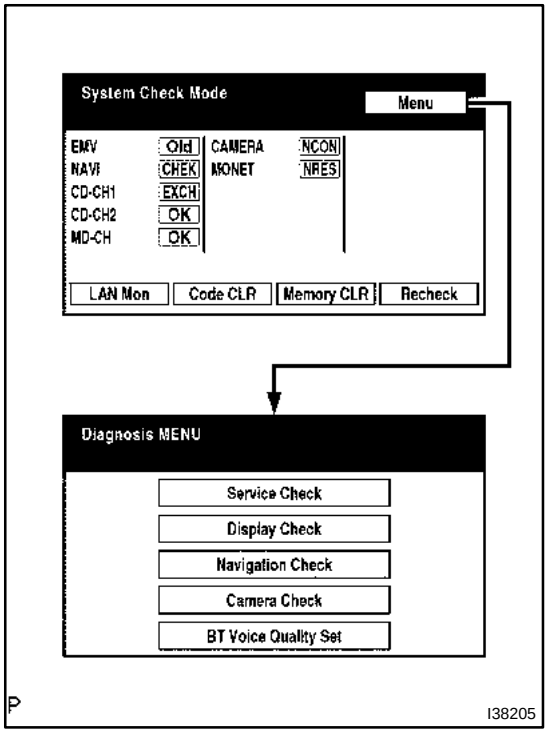

**3. Method 2**

(a) Start the engine.

(b) Switch to the "Display quality adjustment" screen.

(c) From the display quality adjustment screen, touch the corners of the screen in the following order: upper left → lower left → upper left → lower left → upper left → lower left.

(d) The diagnostic mode starts and the "Service Check" screen will be displayed. Service inspection starts automatically and the result will be displayed.




**4. Diagnosis MENU**

(a) The diagnostic screen will be displayed by pressing the menu switch on the service check screen.

**5. There are 2 methods to exit. Use one of them.**

(a) Turn the ignition switch off.

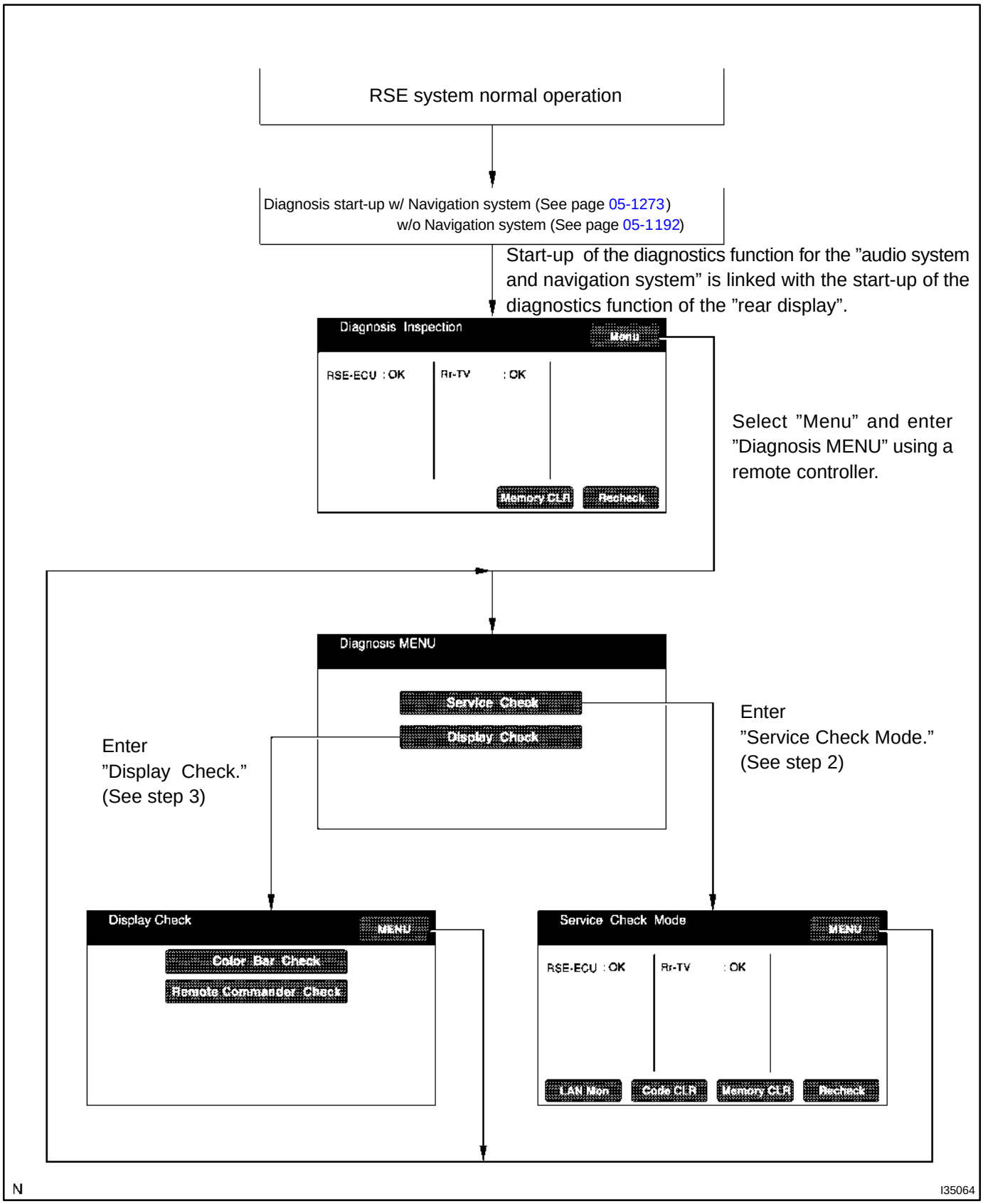
(b) Press the ”Display” switch for 3 seconds.

05NPH-01

# DIAGNOSTIC START-UP/FINISH

HINT:

Diagnosis system mode is operated as follows.



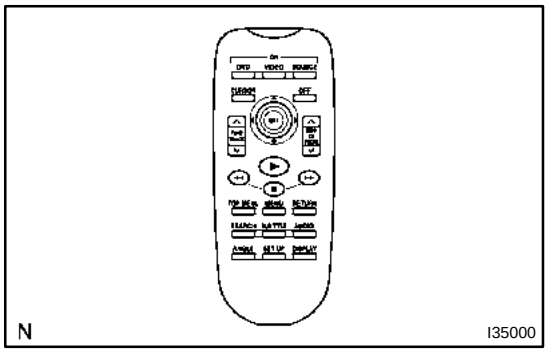
HINT:
RSE system inspects the devices consisting of Sub AVC-LAN by multi-display controller sub-assy.

(a) Starting Main AVC- LAN diagnosis mode (See page 05-1273 , 05-1 192).

HINT:

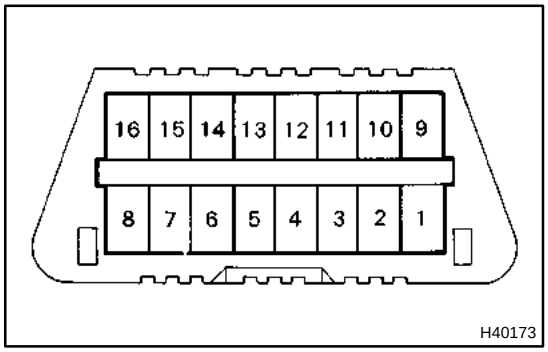
- Starting Main AVC-LAN operates the diagnosis mode, and Sub AVC-LAN also automatically enters the diagnosis mode and performs the diagnosis mode operation on the multi-display controller sub-assy.
- Use a switch assy to operate diagnosis mode.

(b) Finishing the diagnosis mode.
Turn the ignition switch off to finish the diagnosis mode.



05NSV-01

# DIAGNOSIS SYSTEM




**1. CHECK DTC**

(a) The vehicle's ECM conforms to ISO 9141-2 for communication protocol. The terminal arrangement of the DLC3 complies with SAE J1962 and meets the ISO 9141-2 format.

| Terminal No. | Connection/Voltage or Resistance | Condition |
|---|---|---|
| 7 | Bus + Line/Pulse generation | During Transmission |
| 4 | Chassis Ground ⇔ Body Ground/Below 1 Ω | Always |
| 16 | Battery Positive ⇔ Body Ground/10 to 14 V | Always |

HINT:

If the display shows UNABLE TO CONNECT TO VEHICLE when you connect the cable of the hand-held tester to the DLC3, turn the ignition switch to the ON position and operate the hand-held tester, there is a problem on the vehicle side or tool side.

- If communication is normal when the tool is connected to another vehicle, inspect the DLC3 on the original vehicle.
- If communication is still not possible when the tool is connected to another vehicle, the problem is probably in the tool itself. Consult the Service Department listed in the tool's instruction manual.

**2. FUNCTION OF SRS WARNING LIGHT**

(a) Primary check.

(1) Turn the ignition switch to the LOCK position. Wait for at least 2 seconds, then turn the ignition switch to the ON position. The SRS warning light comes on for approximately 6 seconds and the airbag system diagnosis (including the seat belt protensioner and occupant classification system) is performed.

HINT:

If trouble is detected during the primary check, the SRS warning light remains on or blinks even after the primary check period (for approximately 6 seconds) has elapsed.

(b) Constant check.

(1) After the primary check, the airbag sensor assy center constantly monitors the SRS airbag system for trouble.

HINT:

If trouble is detected during the constant check, the airbag sensor assy center functions as follows:

- The SRS warning light comes on or blinks.
- The SRS warning light goes off, and then comes on. This blinking pattern indicates the source voltage drop. The SRS warning light goes off 10 seconds after the source voltage returns to normal.

(c) Review.

(1) When the airbag system is normal:
The SRS warning light comes on only during the primary check period (for approximately 6 seconds after the ignition switch is turned to the ON position).

(2) When the airbag system has trouble:
- The SRS warning light remains on or blinks even after the primary check period has elapsed.
- The SRS warning light goes off after the primary check, but comes on or blinks again during the constant check.
- The SRS warning light does not come on when turning the ignition switch from the LOCK to ON position.

HINT:
The airbag sensor assy center keeps the SRS waning light on if the airbag has been deployed.

**3. FUNCTION OF PASSENGER AIRBAG ON/OFF INDICATOR**

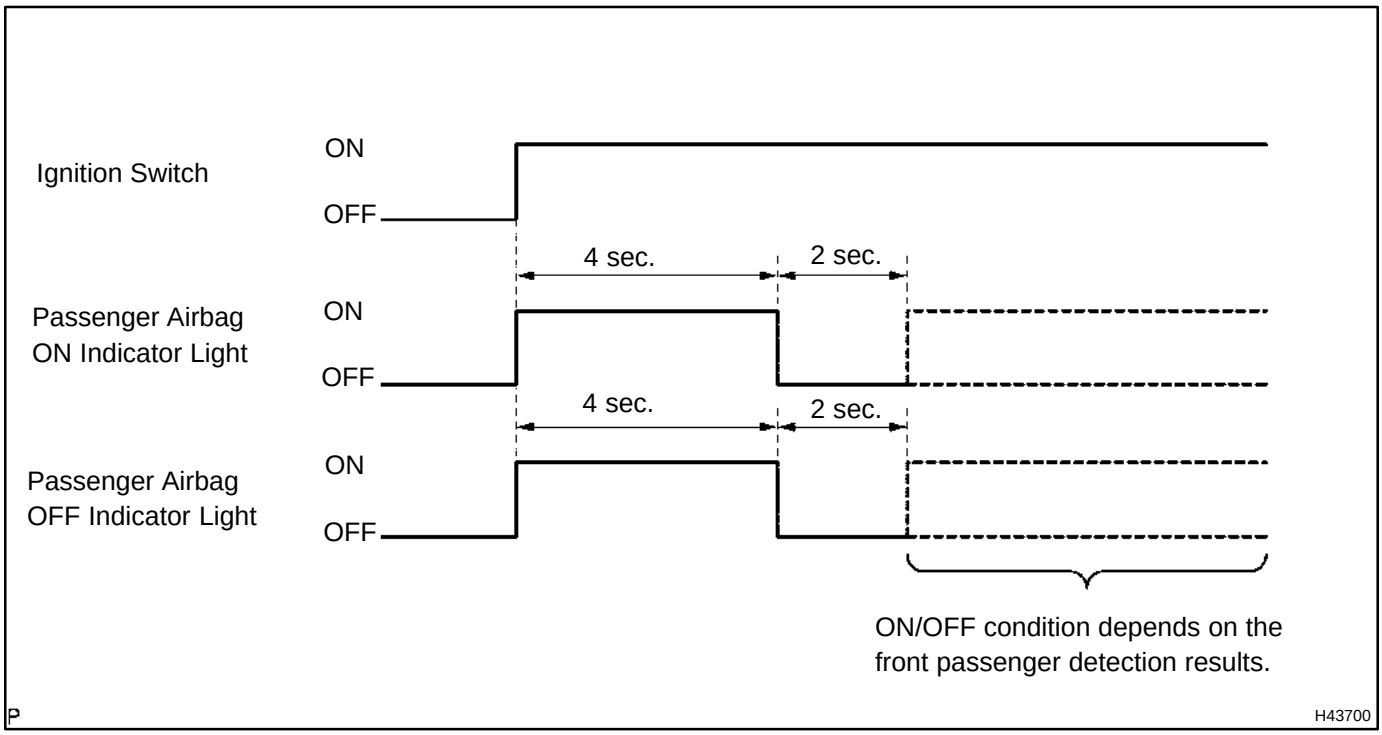
(a) Initial check.
(1) Turn the ignition switch to the ON position.
(2) The passenger airbag ON/OFF indicator (”ON” and ”OFF”) comes on for approximately 4 seconds, then goes off for approximately 2 seconds.
(3) Approximately 6 seconds after the ignition switch is turned to the ON position, the passenger airbag ON/OFF indicator will be ON/OFF depending on the conditions listed below.

HINT:
If the front passenger seat condition and the indication by the passenger airbag ON/OFF indicator differ from those shown in the table below, and the SRS warning light is off, then the DTC is not output. If this occurs, perform troubleshooting of ”Trouble in indication of Passenger airbag ON/OFF indicator” (see page 05-1 104).

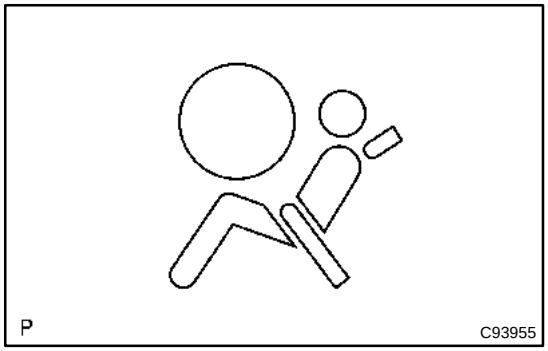
| Condition | ”ON” indicator | ”OFF” indicator |
|---|---|---|
| Vacant | OFF | OFF |
| Adult is seated. | ON | OFF |
| Child is seated. | OFF | ON |
| Child restraint system is set. | OFF | ON |
| Front passenger occupant classification system failure | OFF | ON |

HINT:

- The passenger airbag ON/OFF indicator is based on the timing chart below in order to check the indicator light circuit.




- When the occupant classification system has trouble, both the SRS warning light and the passenger airbag ON/OFF indicator come on. In this case, check the DTCs in the supplemental restraint system first. Then troubleshoot the occupant classification system if DTC B1150/23 is detected, and troubleshoot the passenger airbag ON/OFF indicator (supplemental restraint system) if DTC B1152/28 is detected.




**4. SRS WARNING LIGHT CHECK**

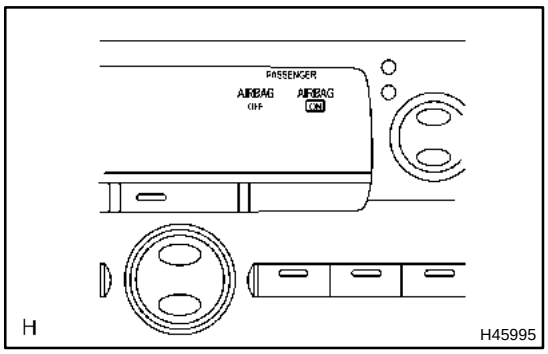
(a) Turn the ignition switch to the ON position, and check that the SRS warning light comes on for approximately 6 seconds (primary check).

(b) Check that the SRS warning light goes off approximately 6 seconds after the ignition switch is turned to the ON position (constant check).

HINT:

When any of the following symptoms occur, refer to the ”Problem Symptoms Table” (see page 05-789 ).

- The SRS warning light comes on occasionally, even after the primary check period has elapsed.
- The SRS warning light comes on, but a DTC is not output.
- The ignition switch is turned from the LOCK to ON position, but the SRS warning light does not come on.




**5. PASSENGER AIRBAG ON/OFF INDICATOR CHECK**

(a) Turn the ignition switch to the ON position.

(b) Check that the passenger airbag ON/OFF indicator (”ON” and ”OFF”) come on for approximately 4 seconds, then goes off for approximately 2 seconds.

HINT:

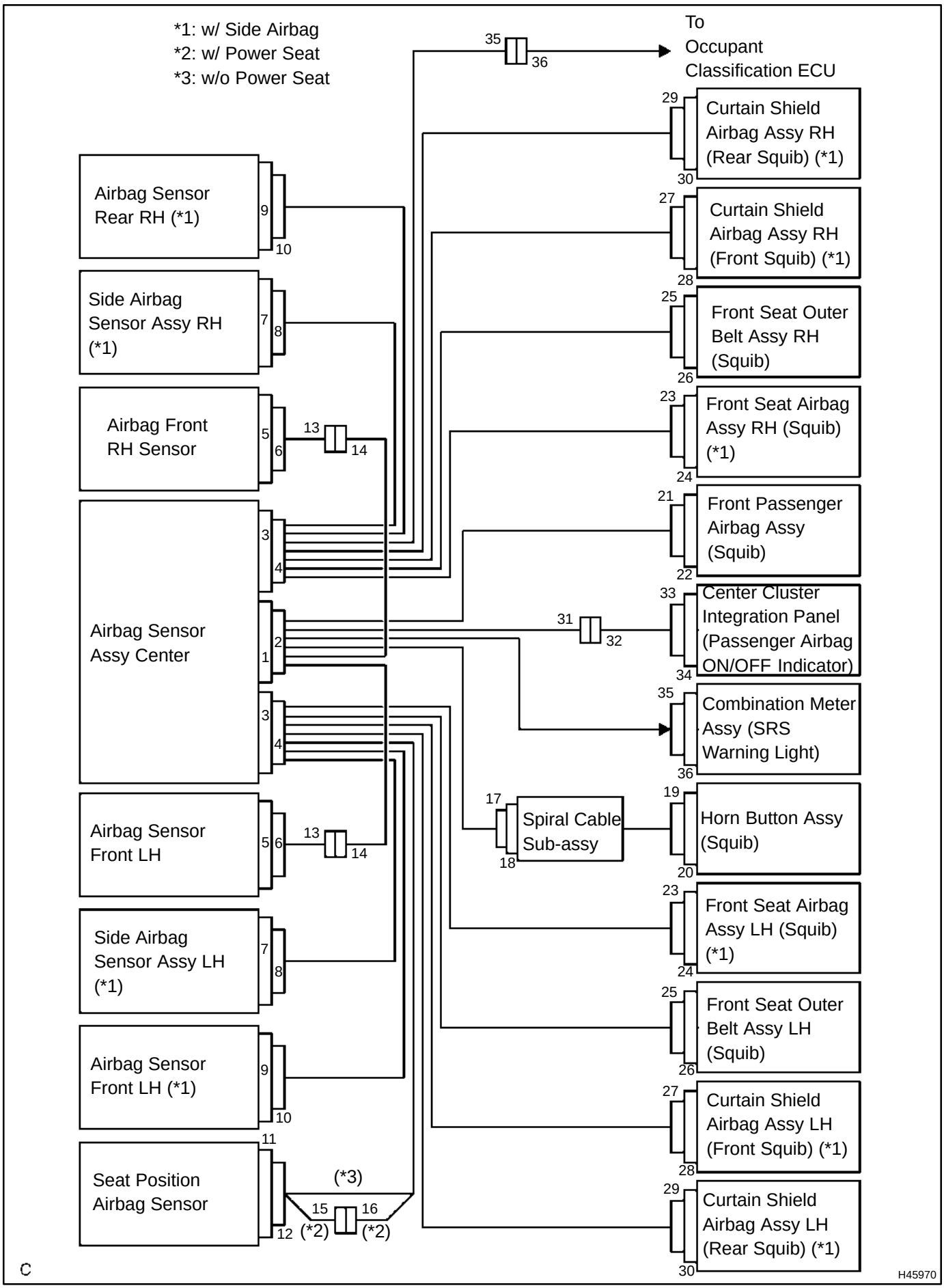
Refer to the table in step 3 regarding the passenger airbag ON/OFF indicator when the ignition switch is turned to the ON position and approximately 6 seconds pass.

**6. RELEASE METHOD OF ACTIVATION PREVENTION MECHANISM**

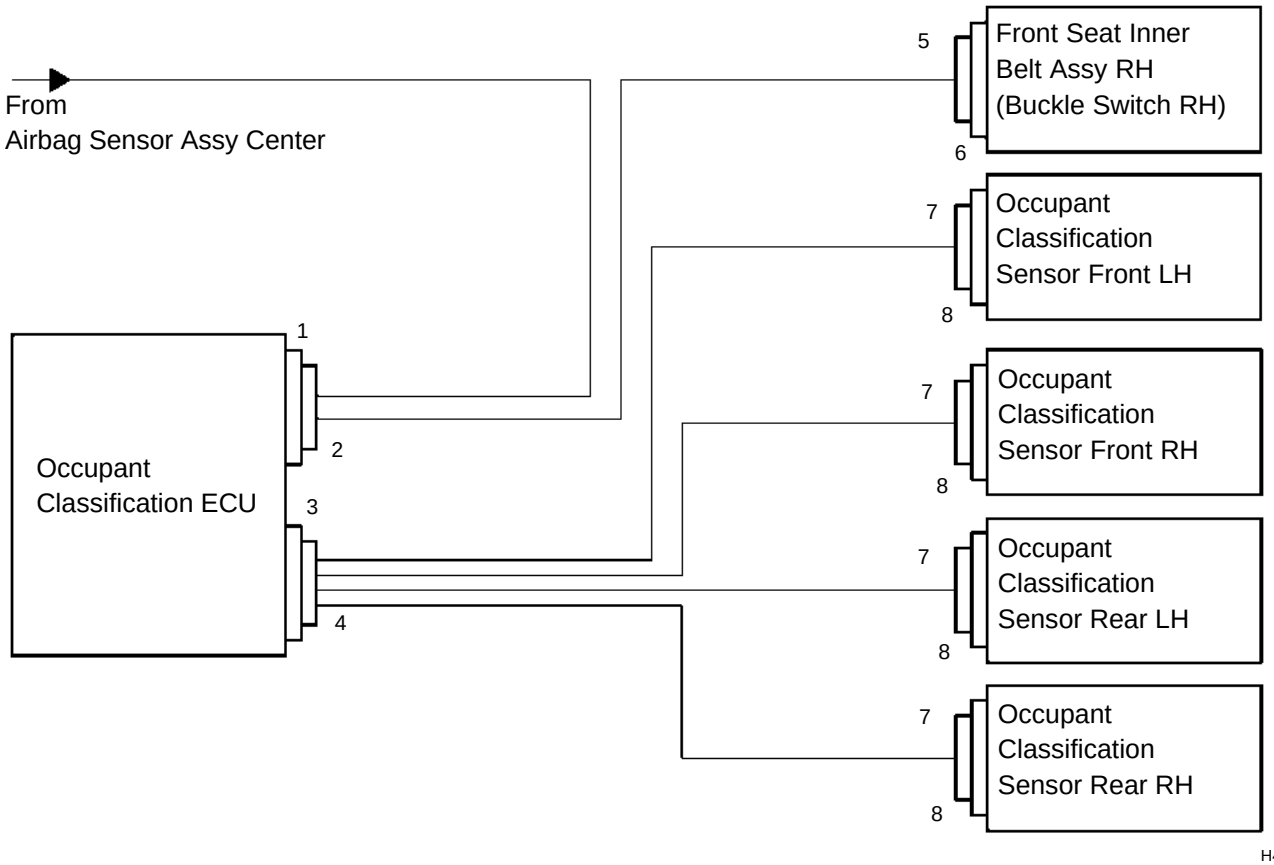
(a) The activation prevention mechanism is built into the connector for the squib circuit of the SRS. As explained in the troubleshooting section, insert a piece of paper that is the same thickness as the male terminal between the terminal and the short spring to release it (Refer to the illustrations on the next 3 pages).

**CAUTION:**

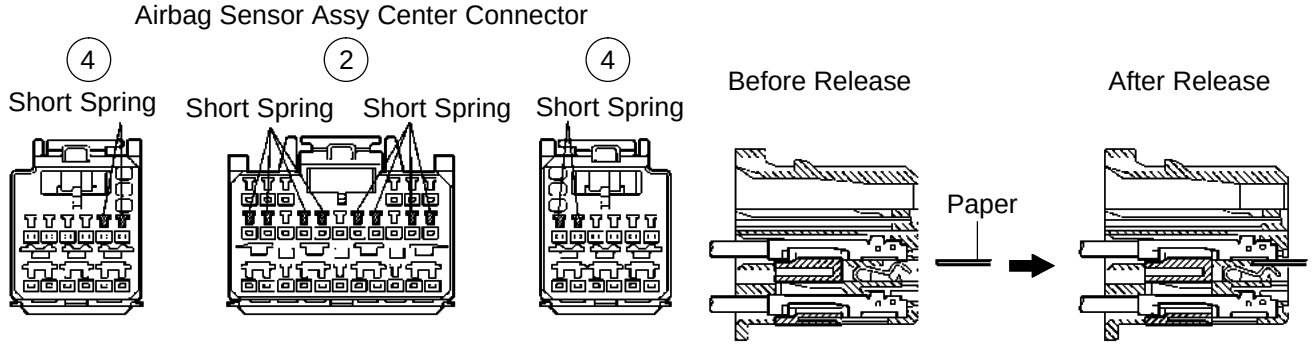
- **Never release the activation prevention mechanism unless specially directed by the troubleshooting procedure.**
- **To prevent the terminal and the short spring from being damaged, always use a piece of paper that is the same thickness as the male terminal.**


*1: w/ Side Airbag
*2: w/ Power Seat
*3: w/o Power Seat
To Occupant Classification ECU
35
36
Airbag Sensor Rear RH (*1)
9
10
Side Airbag Sensor Assy RH (*1)
7
8
Airbag Front RH Sensor
5
6
13
14
Airbag Sensor Assy Center
3
4
2
1
Airbag Sensor Front LH
Side Airbag Sensor Assy LH (*1)
Airbag Sensor Front LH (*1)
Seat Position Airbag Sensor
11
12
(*3)
15
16
(*2)
(*2)
29
30
Curtain Shield Airbag Assy RH (Rear Squib) (*1)
27
28
Curtain Shield Airbag Assy RH (Front Squib) (*1)
25
26
Front Seat Outer Belt Assy RH (Squib)
23
24
Front Seat Airbag Assy RH (Squib) (*1)
21
22
Front Passenger Airbag Assy (Squib)
31
32
33
34
Center Cluster Integration Panel (Passenger Airbag ON/OFF Indicator)
35
36
Combination Meter Assy (SRS Warning Light)
17
18
Spiral Cable Sub-assy
19
20
Horn Button Assy (Squib)
23
24
Front Seat Airbag Assy LH (Squib) (*1)
25
26
Front Seat Outer Belt Assy LH (Squib)
27
28
Curtain Shield Airbag Assy LH (Front Squib) (*1)
29
30
Curtain Shield Airbag Assy LH (Rear Squib) (*1)
C
H45970

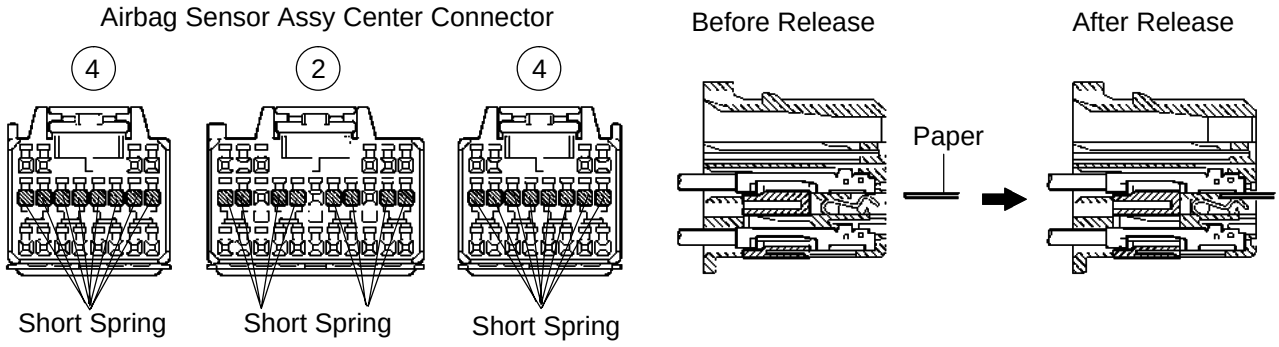
**Occupant Classification ECU:**

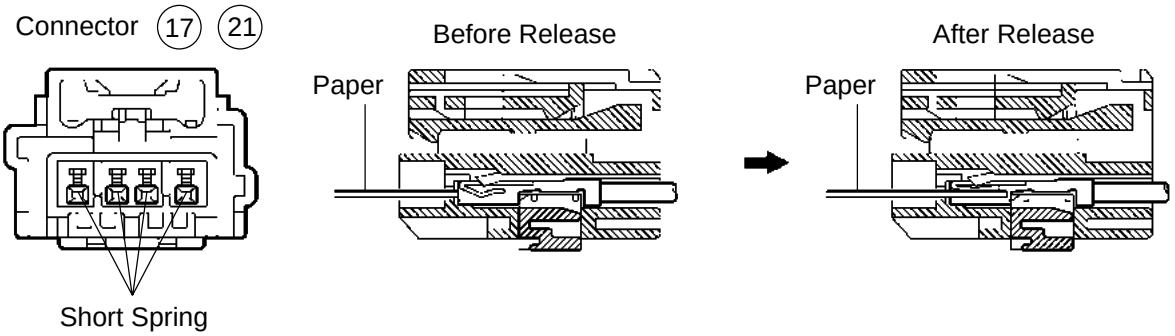


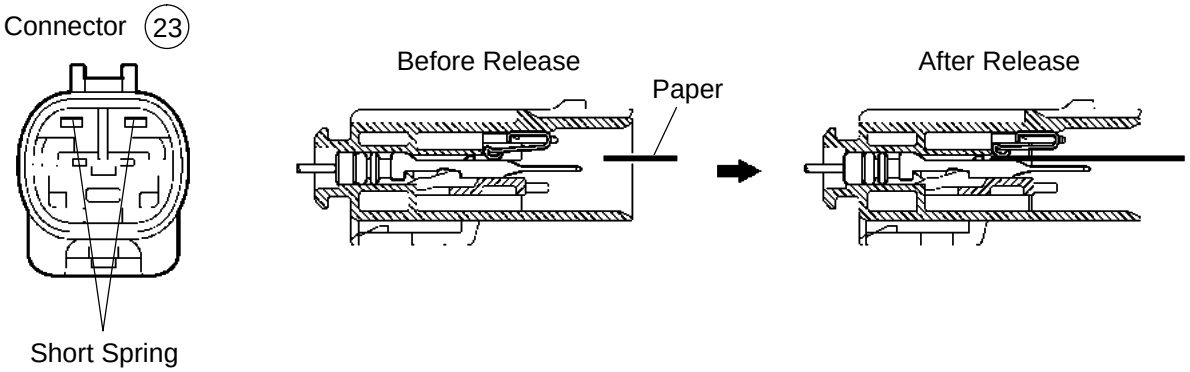
**w/o Side Airbag:**




**w/ Side Airbag:**




H42327

05NPG-01

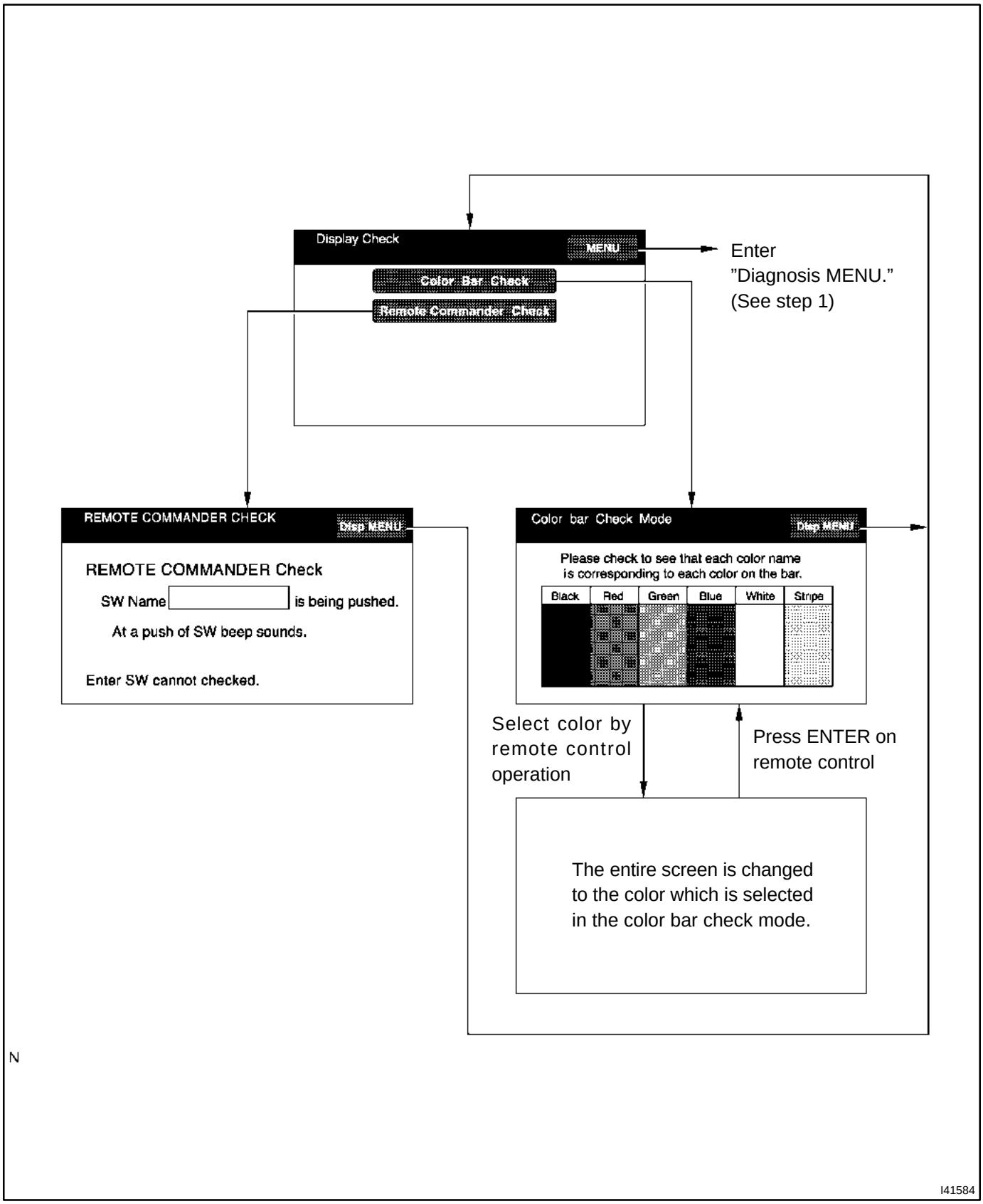
# DISPLAY CHECK MODE

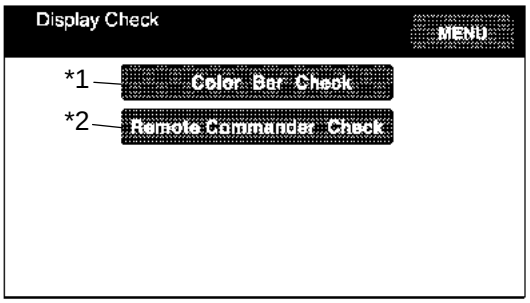
**1. ENTER DIAGNOSTIC MODE (See page 05-1431 )**

**2. DISPLAY CHECK MODE**

HINT:

Display check mode is operated as follows.



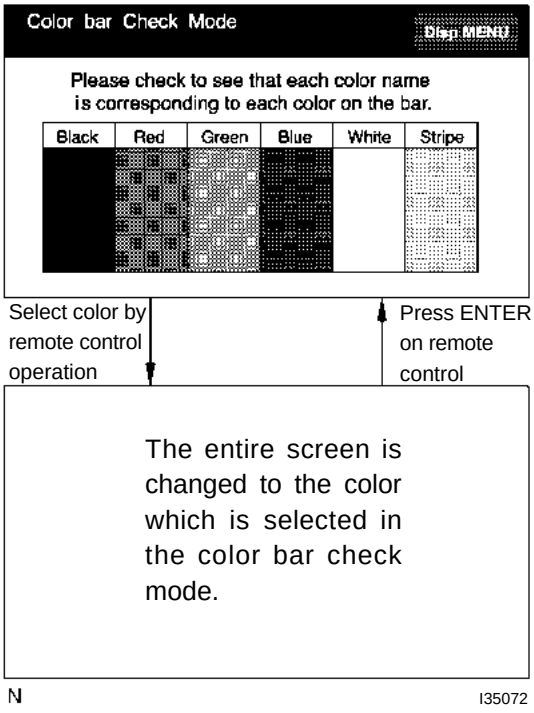



N I35071

(a) Display Check Mode

| Display | Contents |
|---|---|
| Color Bar Check/*1 | Color display is checked. |
| Remote Commander/*2 | Operating condition of remote commander display is checked. |

HINT:
In Display Check Mode, above checks can be performed.

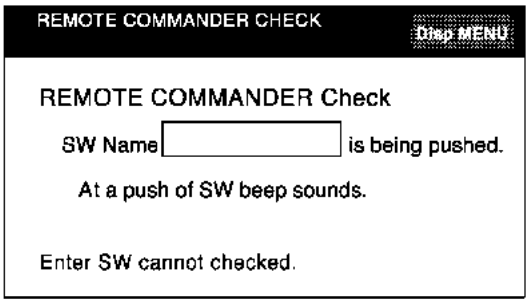



N I35072

(b) Display Color Bar Check
(1) Start the Diagnosis System.
(2) Select ”MENU”.
(3) Select ”Display Check”.
(4) Select ”Color Bar Check”.
(5) Make sure that each color name is corresponding to each color on the bar.

HINT:
Select Black, Red, Green, Blue, White and Stripe to display selected colors and stripe on the entire screen.

(6) Compare the color with the Color Bar Check, and make sure that the color is the same.




N I41585

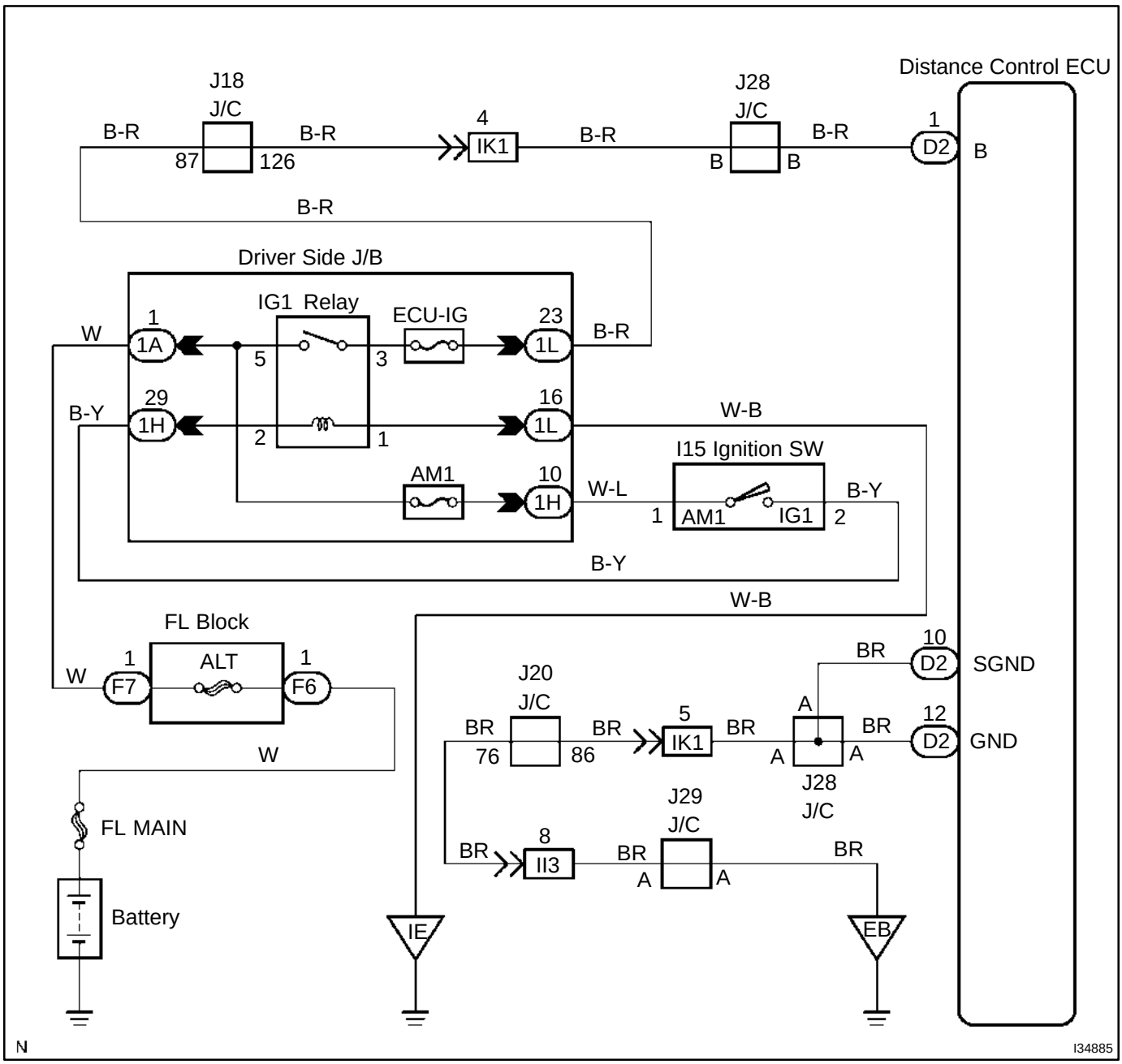
(c) Display Remote Commander Check
(1) Start the Diagnosis system.
(2) Select ”MENU”.
(3) Select ”Display Check”.
(4) Select ”Remote Commander”.
(5) Press each switch and make sure that it corresponds to the display on the screen.

# DISTANCE CONTROL ECU POWER SOURCE CIRCUIT

## CIRCUIT DESCRIPTION

This circuit provides power to operate the distance control ECU.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

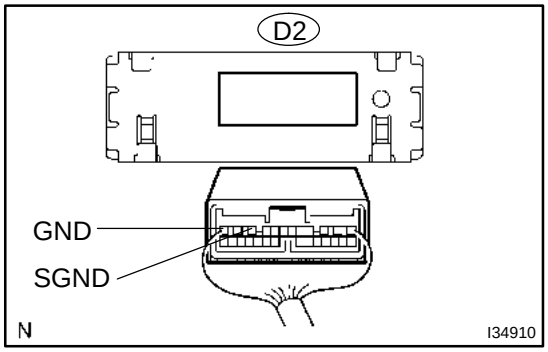
| 1 | INSPECT FUSE(ECU-IG) |
|---|---|

(a) Remove the ECU - IG fuse from the driver side J/B.
(b) Check the continuity of ECU - IG fuse.
**Standard:**
**Below 1 Ω**

**NG** → **REPLACE FUSE**

**OK**

| 2 | CHECK WIRE HARNESS AND CONNECTOR(DISTANCE CONTROL ECU - BODY GROUND) |
|---|---|

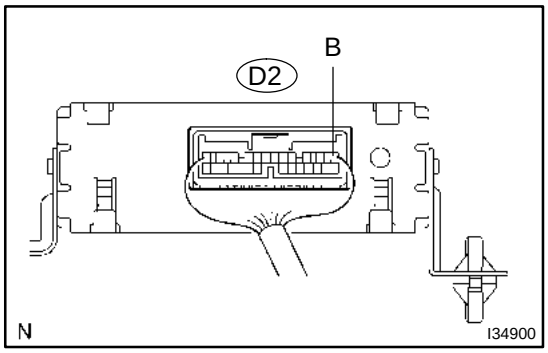



(a) Remove the distance control ECU with connector.
(b) Check the continuity between terminal SGND (D2-10) and GND (D2-12) of distance control ECU and body ground.
**Standard:**
**Below 1 Ω**

**NG** → **REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR**

**OK**

| 3 | CHECK WIRE HARNESS AND CONNECTOR(DISTANCE CONTROL ECU - BATTERY) |
|---|---|




(a) Measure the voltage between terminal B (D2-1) of distance control ECU and body ground.
**Standard:**
**10 to 14 V**

**NG** → **REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR**

**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE**
**(See page 05-2008 )**

05IV8-04

# DATA LIST/ACTIVE TEST

HINT:

By accessing the DATA LIST displayed by the hand-held tester, you can perform such functions as reading the values of switches and sensors without removing any parts. Reading the DATA LIST is the first step of troubleshooting and is one method to shorten labor time.

(d) Connect the hand-held tester to the DLC3.

(e) Turn the ignition switch to the ON position.

(f) Following the display on the tester screen, read the ”DATA LIST”.

**1. DATA LIST FOR AIRBAG SENSOR ASSY CENTER**

| Item | Measurement Item/ Range (Display) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| D SEAT POSITION | Seat position (Driver side)/<br>FORWARD: Seat position is forward<br>BKWARD: Seat position is rearward<br>FAIL: A failure is detected | FORWARD/BKWARD | - |
| PASSENGER CLASS | Passenger classification/<br>NG: Data is not determined<br>NONE: Vacant<br>CHILD: Child (less than 36 kg (79.37 lb)) is seated<br>SMALL: Adult (36 to 54 kg (79.37 to 119.05 lb)) is seated<br>REGULAR: Adult (more than 54 kg (119.05 lb)) is seated<br>FAIL: A failure is detected | NG/NONE/CHILD/SMALL/ REGULAR | - |
| D BUCKLE SW | Buckle switch (Driver side)/<br>ON: The seat belt is fastened<br>OFF: The seat belt is not fastened<br>NG: Data is not determined | ON/OFF | - |
| P BUCKLE SW | Buckle switch (Passenger side)/<br>ON: The seat belt is fastened<br>OFF: The seat belt is not fastened<br>NG: Data is not determined | ON/OFF | - |
| #CODES | Number of past DTC recorded/<br>Min.: 0, Max.: 255 | 0 | - |

## 2. DATA LIST FOR OCCUPANT CLASSIFICATION ECU

| Item | Measurement Item/ Range (Display) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| IG SW | Ignition switch condition/<br>ON: Ignition switch ON<br>OFF: Ignition switch OFF | ON/OFF | - |
| P BUCKLE SW | Buckle switch (Passenger side)/<br>OFF: Unfasten the passenger side seat belt<br>ON: Fasten the passenger side seat belt<br>NG: Passenger side seat belt has trouble | OFF/ON | - |
| PASSENGER CLASS | Passenger classification/<br>AF05: Adult (36 to 54 kg (79.37 to 119.05 lb)) is seated<br>AM50: Adult (more than 54 kg (119.05 lb)) is seated<br>CHILD: Child (less than 36 kg (79.37 lb) is seated<br>CRS:Child restraint system (less than 7 kg (15.43 lb)) and passenger side buckle switch are ON, then 7 to 36 kg (15.43 to 79.37 lb)) is set<br>OFF: Vacant | AF05/AM50/CHILD/CRS/ OFF | - |
| SENS RANGE INF | Sensor range information/<br>OK: The value of a sensor is within the range<br>NG: The value of a sensor is out of the range | OK | - |
| FL SENS RANGE | Front left sensor range information/<br>OK: Sensor range is -17 to 27 kg (-37.48 to 59.52 lb)<br>Min.: Less than -17 kg (-37.48 lb)<br>Max.: More than 27 kg (59.52 lb) | OK | - |
| FR SENS RANGE | Front right sensor range information/<br>OK: Sensor range is -17 to 27 kg (-37.48 to 59.52 lb)<br>Min.: Less than -17 kg (-37.48 lb)<br>Max.: More than 27 kg (59.52 lb) | OK | - |
| RL SENS RANGE | Rear left sensor range information/<br>OK: Sensor range is -17 to 37 kg (-37.48 to 81.57 lb)<br>Min.: Less than -17 kg (-37.48 lb)<br>Max.: More than 37 kg (81.57 lb) | OK | - |

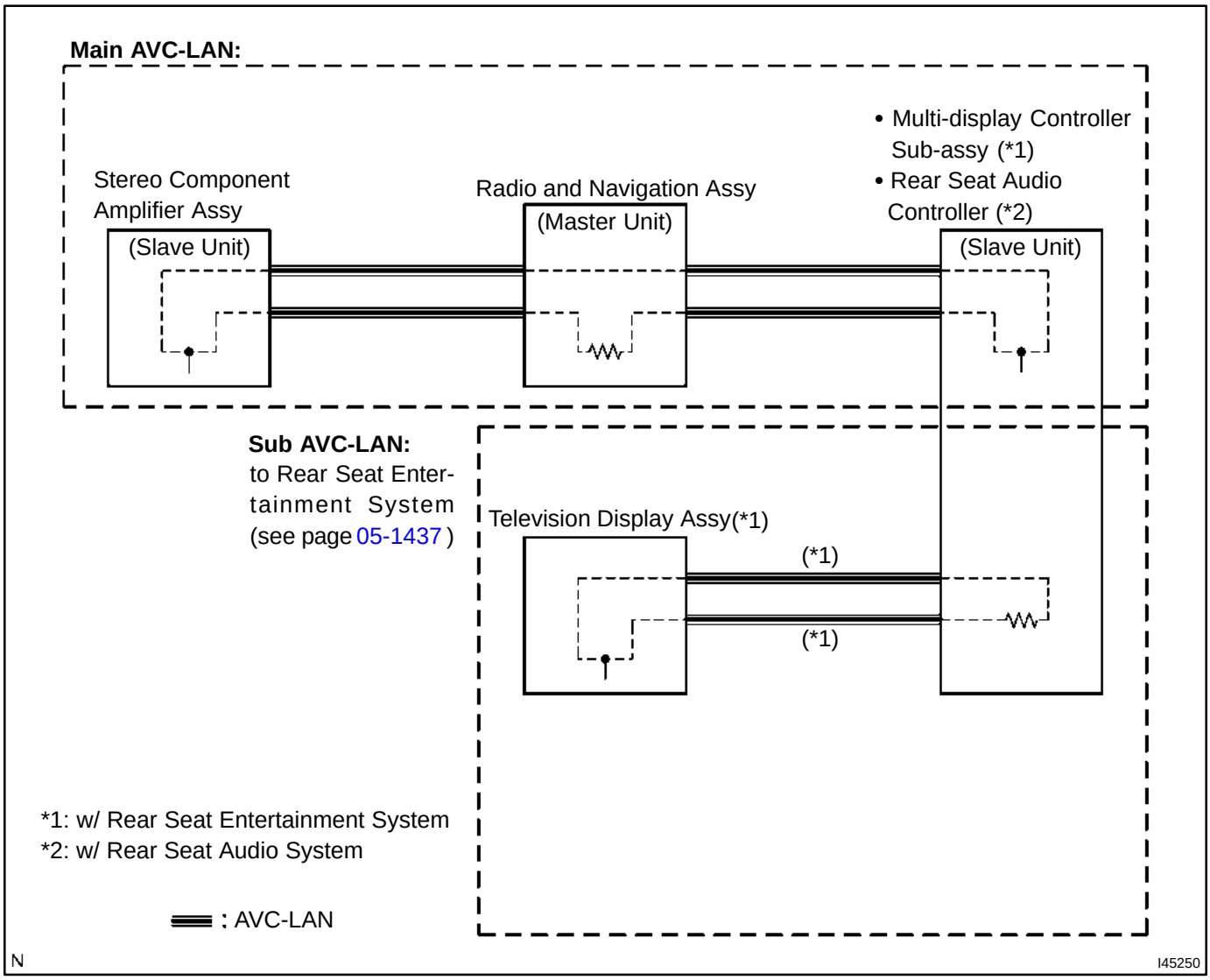
| Item | Measurement Item/ Range (Display) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| RR SENS RANGE | Rear right sensor range information/ OK: Sensor range is -17 to 37 kg (-37.48 to 81.57 lb) Min.: Less than -17 kg (-37.48 lb) Max.: More than 37 kg (81.57 lb) | OK | - |
| FL SENS VOL | Front left sensor voltage/ Min.: 0 V Max.: 19.8 V | 0 to 4.7 V | - |
| FR SENS VOL | Front right sensor voltage/ Min.: 0 V Max.: 19.8 V | 0 to 4.7 V | - |
| RL SENS VOL | Rear left sensor voltage/ Min.: 0 V Max.: 19.8 V | 0 to 4.7 V | - |
| RR SENS VOL | Rear right sensor voltage/ Min.: 0 V Max.: 19.8 V | 0 to 4.7 V | - |
| FL SENS WEIGHT | Front left sensor weight information/ Min.: -17 kg (-37.48 lb) Max.: 27 kg (59.52 lb) | -17 to 27 kg (-37.48 to 59.52 lb) | - |
| FR SENS WEIGHT | Front right sensor weight information/ Min.: -17 kg (-37.48 lb) Max.: 27 kg (59.52 lb) | -17 to 27 kg (-37.48 to 59.52 lb) | - |
| RL SENS WEIGHT | Rear left sensor weight information/ Min.: -17 kg (-37.48 lb) Max.: 37 kg (81.57 lb) | -17 to 37 kg (-37.48 to 81.57 lb) | - |
| RR SENS WEIGHT | Rear right sensor weight information/ Min.: -17 kg (-37.48 lb) Max.: 37 kg (81.57 lb) | -17 to 37 kg (-37.48 to 81.57 lb) | - |
| TOTAL WEIGHT | Total weight information/ Min.: -68 kg (-149.91 lb) Max.: 128 kg (282.19 lb) | -68 to 128 kg (-149.91 to 282.19 lb) | - |
| #CODES | Number of DTC recorded/ Min.: 0, Max.: 255 | 0 | - |

05NR9-01

# DIAGNOSTIC TROUBLE CODE CHART

| Terms | Description |
|---|---|
| Physical address | 3-digit, hexadecimal code assigned to all components connected to the AVC-LAN. Individual symbols are specified based on function. Units whose names are unknown or relevant units are displayed with physical addresses. |
| Logical address | 2-digit, hexadecimal code assigned to all the functions in the AVC-LAN system. |

## AVC-LAN DIAGRAM



HINT:

Titles for each unit are stated in the following order: part name (physical address) [Name indicated by DTC]

**1. RADIO AND NAVIGATION ASSY (physical address: 140) [AVN]**

(a) Logical address: 01 (Communication control)

HINT:

Methods used to verify the cause of the problem are listed in order of probability in the verification column.

| DTC | Name | Diagnosis | Verification | See page |
|---|---|---|---|---|
| D5<br>*1<br>*5 | Absence of registration unit | The device indicated by the sub code is (was) disconnected from the system when turning the ignition switch to the ACC or ON position.<br>The communication condition with the device indicated by the code cannot be obtained when the engine starts. | Inspection for the device indicated by the sub code.<br>(Refer to the inspection list for the device indicated by the sub code.) | Refer to step (b) |
| D8<br>*2<br>*5 | No response to connection check | The device indicated by the sub code is (was) disconnected from the system after engine start. | Inspection for the device indicated by the sub code.<br>(Refer to the inspection list for the device indicated by the sub code.) | Refer to step (b) |
| D9<br>*1<br>*5 | Last mode error | The device (for audio visual system) that had functioned before the engine stopped is (was) disconnected from the system when the ignition switch is (was) in the ACC or ON position. | Inspection for the device indicated by the sub code.<br>(Refer to the inspection list for the device indicated by the sub code.) | Refer to step (b) |
| DA<br>*5 | No response to ON/OFF command | No response is identified when changing mode (audio and visual mode change). Sound and image do not change by switch operation. | Inspection for the device indicated by the sub code.<br>(Refer to the inspection list for the device indicated by the sub code.) | Refer to step (b) |
| DB<br>*1<br>*5 | Mode status error | A dual alarm is detected. | Inspection for the device indicated by the sub code.<br>(Refer to the inspection list for the device indicated by the sub code.) | Refer to step (b) |
| DC<br>*3<br>*5 | Failure in transmission | A transmission failure to the device indicated by the sub code is detected.<br>NOTE: This DTC may have no direct relationship with the malfunction. | Inspection for the device indicated by the sub code.<br>(Refer to the inspection list for the device indicated by the sub code.) | Refer to step (b) |
| DE<br>*4<br>*5 | Slave reset | A slave device has been disconnected after engine start. | Inspection for the device indicated by the sub code.<br>(Refer to the inspection list for the device indicated by the sub code.) | Refer to step (b) |
| 21 | ROM error | A malfunction exists in ROM. | Replace radio and navigation assy | 67-9 |
| 22 | RAM error | A malfunction exists in RAM. | Replace radio and navigation assy | 67-9 |

HINT:

- *1: This code may be stored depending on the battery condition or engine start voltage even if no failure is detected.
- *2: If the power connector is disconnected after the engine starts, this code is stored after 180 seconds.
- *3: This code may be stored if the ignition key is turned to the START position again with the engine running.
- *4: This code may be stored if the ignition key is held in the START position for 1 minute or more before returning to the ON position.
- *5: If the device is reported as not existing during verification, check the power source circuit and AVC-LAN circuit for the device.

(b) The inspection list for the device indicated by the sub code

HINT:

Methods used to verify the cause of the problem are listed in order of probability in the verification column.

| Sub code address (Device name) | Verification | See page |
|---|---|---|
| 1F4 (Stereo Component Controller assy) | 3. Power source circuit (stereo component controller assy)<br>4. AVC-LAN circuit (radio and navigation assy - stereo component controller assy)<br>5. Replace stereo component controller assy | 05-1350<br>05-1377<br>67-24 |
| 440 (Stereo Component Amplifier Assy) | 1. Power source circuit (stereo component amplifier assy)<br>2. AVC-LAN circuit (radio and navigation assy - stereo component amplifier assy)<br>3. Replace stereo component amplifier assy | 05-1348<br>05-1375<br>67-23 |
| 1F6 (Multi-display Controller Sub-assy) | 1. Power source circuit (multi-display controller sub-assy)<br>2. AVC-LAN circuit (radio and navigation assy - multi-display controller sub-assy)<br>3. Replace multi-display controller sub-assy | 05-1352<br>05-1379<br>67-26 |

(c) Logical address: 21 (SW): 23 (SW with name): 24 (SW converting): 25 (command SW)

HINT:

Methods used to verify the cause of the problem are listed in order of probability in the verification column.

| DTC | Name | Diagnosis | Verification | See page |
|---|---|---|---|---|
| 10 | Panel switch error | The panel SW detection circuit has a failure. | Replace radio and navigation assy | 67-9 |

(d) Logical address: 58 (Navigation): 80 (GPS)

HINT:

Methods used to verify the cause of the problem are listed in order of probability in the verification column.

| DTC | Name | Diagnosis | Verification | See page |
|---|---|---|---|---|
| 10 | Gyro error | Ground short, power supply short, open circuit in the gyro signal, or gyro failure. | 1. Inspect gyro malfunction<br>2. Replace GPS antenna<br>3. Replace radio and navigation assy | 05-1343<br>67-22<br>67-9 |
| 11 | GPS receiver error | RTC, ROM, and RAM of the GPS receiver and TCXO errors. GPS receiver is failed. | Replace radio and navigation assy | 67-9 |
| 40 | GPS antenna error | GPS antenna error | 1. Replace GPS antenna<br>2. Replace radio and navigation assy | 67-22<br>67-9 |
| 41 | GPS antenna power source error | Error of the power source to the GPS antenna | 1. Replace GPS antenna<br>2. Replace radio and navigation assy | 67-22<br>67-9 |
| 42 | Map disc read error | Player error. A scratch or dirt on the disc.<br>Access to an invalid address due to software error. | 1. Inspect map disc read error<br>2. Replace map disc<br>3. Replace radio and navigation assy | 05-1344<br>-<br>67-9 |
| 43 | SPD signal error | A difference between the GPS speed and SPD pulse is detected. | 1. Inspect speed signal error<br>2. Speed signal circuit<br>3. Replace radio and navigation assy | 05-1345<br>05-1354<br>67-9 |

| | | | | |
|---|---|---|---|---|
| 44 | Player error | Map player error is detected. | 1. Check if the disc can be inserted and ejected. If a malfunction is found, replace the radio and navigation assy.<br>2. If the same code is detected again, replace the radio and navigation assy. | 67-9<br>67-9 |
| 45 | High temperature | High map player temperature is detected. | 1. Park the vehicle in a cool place. Turn the engine off. After checking that the temperature of the radio and navigation assy becomes sufficiently low, turn the engine on to verify the malfunction symptom.<br>2. If the same code is detected, replace the radio and navigation assy. | -<br>67-9 |

## 2. STEREO COMPONENT AMPLIFIER ASSY (Physical address: 440) [DSP AMP]

(a) Logical address: 01 (Communication control)

HINT:

Methods used to verify the cause of the problem are listed in order of probability in the verification column.

| DTC | Name | Diagnosis | Verification | See page |
|---|---|---|---|---|
| D7 | Connection check error | Either of the following conditions is met:<br>• The device that stored this code has (had) been disconnected after the engine starts (started).<br>• The master device has (had) been disconnected when this code is (was) stored. | 1. Power source circuit (radio and navigation assy)<br>2. AVC-LAN circuit (radio and navigation assy - stereo component amplifier assy)<br>3. Power source circuit (stereo component amplifier assy)<br>4. Replace radio and navigation assy<br>5. If error occurs again, replace stereo component amplifier assy | 05-1346<br>05-1375<br>05-1348<br>67-9<br>67-23 |
| DC<br>*2<br>*3 | Transmission error | Transmission to the device indicated by the sub code has failed.<br>NOTE: This DTC may not be directly related to the problem. | 1. Power source circuit (radio and navigation assy)<br>2. AVC-LAN circuit (radio and navigation assy - stereo component amplifier assy)<br>3. Power source circuit (stereo component amplifier assy)<br>4. Replace radio and navigation assy<br>5. If error occurs again, replace stereo component amplifier assy | 05-1346<br>05-1375<br>05-1348<br>67-9<br>67-23 |
| E0<br>*1 | Registration complete indication error | ”Registration complete” command from the master device cannot be received.<br>NOTE: This DTC may not be directly related to the problem. | - | - |
| E1<br>*1 | Voice processing device ON error | The AMP device records that the AMP output does not function even while the source device operates. | 1. Power source circuit (radio and navigation assy)<br>2. AVC-LAN circuit (radio and navigation assy - stereo component amplifier assy)<br>3. Replace radio and navigation assy | 05-1346<br>05-1375<br>67-9 |

| | | | | |
|---|---|---|---|---|
| E2 | ON/OFF indication parameter error | The command for ON/OFF control from the master device has a problem. | Replace radio and navigation assy | 67-9 |
| E3 *1 | Registration demand transmission | The registration demand command from the slave device is output, or the registration demand command is output by receiving connection confirmation command from the sub master device. NOTE: This DTC may not be directly related to the problem. | - | - |
| E4 | Multiple frame incomplete | Multiple frame transmission ends incomplete. NOTE: This DTC may not be directly related to the problem. | - | - |

HINT:

- *1: This code may be stored depending on the battery condition or engine start voltage even if no failure is detected.
- *2: If the power connector is disconnected after the engine starts, this code is stored after 180 seconds.
- *3: If the device is reported as not existing during verification, check the power source circuit and AVC-LAN circuit for the device.

**3. STEREO COMPONENT CONTROLLER ASSY (Physical address: 1F4) [RSA]**

(a) Logical address: 01 (Communication control)

HINT:

Methods used to verify the cause of the problem are listed in order of probability in the verification column.

| DTC | Name | Diagnosis | Verification | See page |
|---|---|---|---|---|
| D6 *1 | No master | Either of the following conditions is met:<br>• The device that stores (stored) the code has (had) been disconnected when the ignition switch is in the ACC or ON position.<br>• The master device has (had) been disconnected when this code is (was) stored. | 1. Power source circuit (radio and navigation assy)<br>2. AVC-LAN circuit (radio and navigation assy - stereo component controller assy)<br>3. Power source circuit (stereo component controller assy)<br>4. Replace radio and navigation assy<br>5. If error occurs again, replace stereo component controller assy | 05-1346<br>05-1377<br>05-1350<br>67-9<br>67-24 |
| D7 | Connection check error | Either of the following conditions is met:<br>• The device that stored this code has (had) been disconnected after the engine starts (started).<br>• The master device has (had) been disconnected when this code is (was) stored. | 1. Power source circuit (radio and navigation assy)<br>2. AVC-LAN circuit (radio and navigation assy - stereo component controller assy)<br>3. Power source circuit (stereo component controller assy)<br>4. Replace radio and navigation assy<br>5. If error occurs again, replace stereo component controller assy | 05-1346<br>05-1377<br>05-1350<br>67-9<br>67-24 |

| | | | | |
|---|---|---|---|---|
| DC<br>*2<br>*5 | Transmission error | Transmission to the device indicated by the sub code has failed. | 1. Power source circuit (radio and navigation assy)<br>2. AVC-LAN circuit (radio and navigation assy - stereo component controller assy)<br>3. Power source circuit (stereo component controller assy)<br>4. Replace radio and navigation assy<br>5. If error occurs again, replace stereo component controller assy | 05-1346<br>05-1377<br>05-1350<br>67-9<br>67-24 |
| DD<br>*3 | Master reset | The device that should be the master has been disconnected after engine start. | 1. Power source circuit (radio and navigation assy)<br>2. AVC-LAN circuit (radio and navigation assy - stereo component controller assy)<br>3. Replace radio and navigation assy | 05-1346<br>05-1377<br>67-9 |
| DF<br>*4 | Master error | The device with a display fails and the master is switched to the audio device.<br>Either that, or a communication error between the sub master (audio) and master has occurred. | 1. Power source circuit (radio and navigation assy)<br>2. AVC-LAN circuit (radio and navigation assy - stereo component controller assy)<br>3. Replace radio and navigation assy | 05-1346<br>05-1377<br>67-9 |
| E0<br>*1 | Registration complete indication error | ”Registration complete” command from the master device cannot be received. | This code will be detected when signal receiving time is delayed. | - |
| E1<br>*1 | Voice processing device ON error | The AMP device records that the AMP output does not function even while the source device operates. | 1. Power source circuit (radio and navigation assy)<br>2. AVC-LAN circuit (radio and navigation assy - stereo component controller assy)<br>3. Replace radio and navigation assy | 05-1346<br>05-1377<br>67-9 |
| E2 | ON/OFF indication parameter error | The command for ON/OFF control from the master device has a problem. | Replace radio and navigation assy | 67-9 |
| E3<br>*1 | Registration demand transmission | The registration demand command from the slave device is output, or the registration demand command is output by receiving connection confirmation command from the sub master device. | - | - |
| E4 | Multiple frame incomplete | Multiple frame transmission ends incomplete. | - | - |

HINT:

- *1: Even if no failure is detected, this code may be stored depending on the battery condition or engine start voltage.
- *2: If the power connector is disconnected after the engine starts, this code is stored after 180 seconds.
- *3: This code may be stored if the ignition key is turned to the START position with the engine running.
- *4: This code may be stored if the ignition key is held in the START position for one minute or more before returning to the ON position.
- *5: If the device is reported as not existing during verification, check the power source circuit and AVC-LAN circuit for the device.

## 4. MULTI-DISPLA Y CONTROLLER SUB-ASSY (Physical address: 1F6) [RSE ECU]

(a) Logical address: 01 (Communication control)

HINT:

Methods used to verify the cause of the problem are listed in order of probability in the verification column.

| DTC | Name | Diagnosis | Verification | See page |
|---|---|---|---|---|
| D6 *1 | No master | When either of the following conditions is met:<br>• The device that stores (stored) the code has (had) been disconnected when the ignition switch is (was) in ACC or ON position.<br>• The master device has (had) been disconnected when this code is (was) stored. | 1. Power source circuit (multi-display controller sub-assy)<br>2. AVC-LAN circuit (radio and navigation assy - multi-display controller sub-assy)<br>3. Replace multi-display controller sub-assy<br>4. If error occurs again, replace radio and navigation assy | 05-1352<br>05-1379<br>67-26<br>67-9 |
| D7 | Connection check error | When either of the following conditions is met:<br>• The device that stored this code has (had) been disconnected after the engine starts (started).<br>• The master device has (had) been disconnected when this code is (was) stored. | 1. Power source circuit (multi-display controller sub-assy)<br>2. AVC-LAN circuit (radio and navigation assy - multi-display controller sub-assy)<br>3. Replace multi-display controller sub-assy<br>4. If error occurs again, replace radio and navigation assy | 05-1352<br>05-1379<br>67-26<br>67-9 |
| DC *2 *4 | Transmission error | Transmission to the device indicated by the sub code has failed. | Inspection for the device indicated by the sub code.<br>(Refer to the inspection list for the device indicated by the sub code.) | Refer to step 8 |
| DD *3 | Master reset | The device that should be the master has been disconnected after engine start. | 1. Power source circuit (radio and navigation assy)<br>2. AVC-LAN circuit (radio and navigation assy - multi-display controller sub-assy)<br>3. Replace radio and navigation assy<br>4. If error occurs again, replace multi-display controller sub-assy | 05-1352<br>05-1379<br>67-9<br>67-26 |
| E0 *1 | Registration complete indication error | "Registration complete" command from the master device cannot be received. | This code is detected when signal receiving time is delayed. | - |
| E3 *1 | Registration demand transmission | The registration demand command from the slave device is output, or the registration demand command is output by receiving connection confirmation command from the sub master device. | - | - |
| E4 | Multiple frame incomplete | Multiple frame transmission ends incomplete. | - | - |
| 21 | ROM error | A malfunction exists in ROM. | Replace multi-display controller sub-assy | 67-26 |
| 22 | RAM error | A malfunction exists in RAM. | Replace multi-display controller sub-assy | 67-26 |

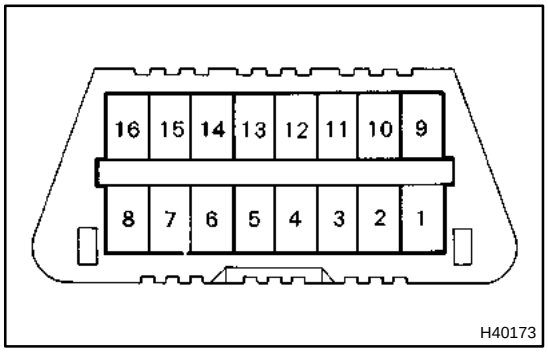
HINT:

- *1: This code may be stored depending on the battery condition or engine start voltage even if no failure is detected.
- *2: If the power connector is disconnected after the engine starts, this code is stored after 180 seconds.
- *3: This code may be stored if the ignition key is turned to the START position again with the engine running.

- *4: If the device is reported as not existing during verification, check the power source circuit and AVC-LAN circuit for the device.

05IV6-03

# DTC CHECK/CLEAR




**1. SUPPLEMENTAL RESTRAINT SYSTEM DTC CHECK (USING SST CHECK WIRE)**

(a) Check the DTCs (Present trouble code).

(1) Turn the ignition switch to the ON position, and wait for approximately 60 seconds.

(2) Using SST, connect terminals TC and CG of the DTC3.

SST 09843-18040

**NOTICE:**

**Connect the terminals to the correct positions to avoid a malfunction.**

(b) Check the DTCs (Past trouble code).

(1) Using SST, connect terminals TC and CG of the DTC3.

SST 09843-18040

**NOTICE:**

**Connect the terminals to the correct positions to avoid a malfunction.**

(2) Turn the ignition switch to the ON position, and wait for approximately 60 seconds.

(c) Read the DTCs.

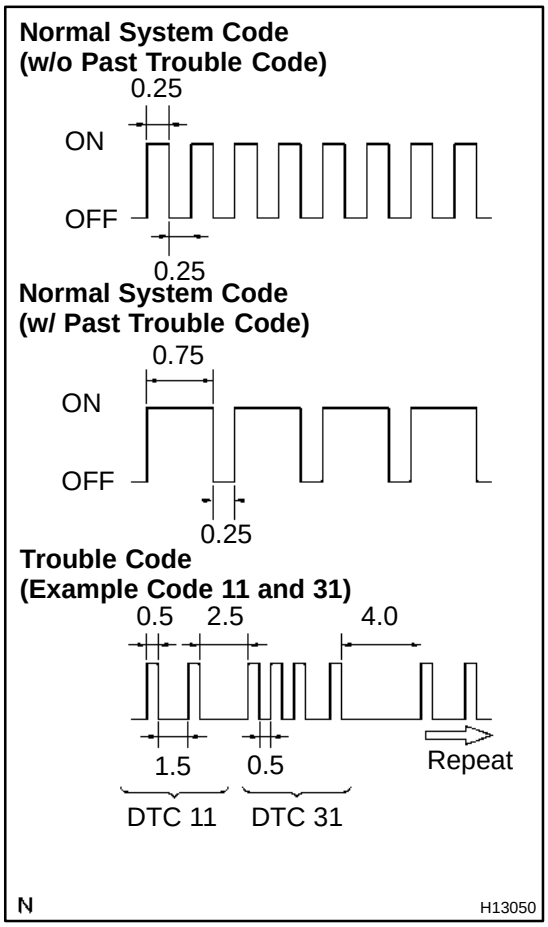
(1) Read the blinking patterns of the DTCs. As examples, the blinking patterns for the normal system code and trouble codes 11 and 31 are shown in the illustration to the left.

- Normal system code indication (w/o past trouble code)
  The light blinks twice per second.
- Normal system code indication (w/ past trouble code)
  When the past trouble code is stored in the airbag sensor assy center, the light blinks only once per second.
- Trouble code indication
  The first blinking indicates the first DTC. The second blinking occurs after a 1.5-second pause.

If there are more than 1 code, there will be a 2.5-second pause between each code. After all the codes are shown, there will be a 4.0-second pause, and they will all be repeated.

HINT:

- If 2 or more malfunctions are found, the indication begins will the smallest numbered code.
- If DTCs are indicated without connecting the terminals, proceed to the ”TC terminal circuit” on page 05-1 113.



## 2. DTC CLEAR (USING SST CHECK WIRE)

(a) Clear the DTCs.

(1) When the ignition switch is turned off, the DTCs are cleared.

HINT:

Depending on the DTC, the code may not be cleared by turning off the ignition switch. In this case, proceed to the next procedure.

(2) Using SST, connect terminals TC and CG of the DLC3, and then turn the ignition switch to the ON position.

SST 09843-18040

(3) Disconnect terminal TC of the DLC3 within 3 to 10 seconds after the DTCs are output, and check if the SRS warning light comes on after 3 seconds.

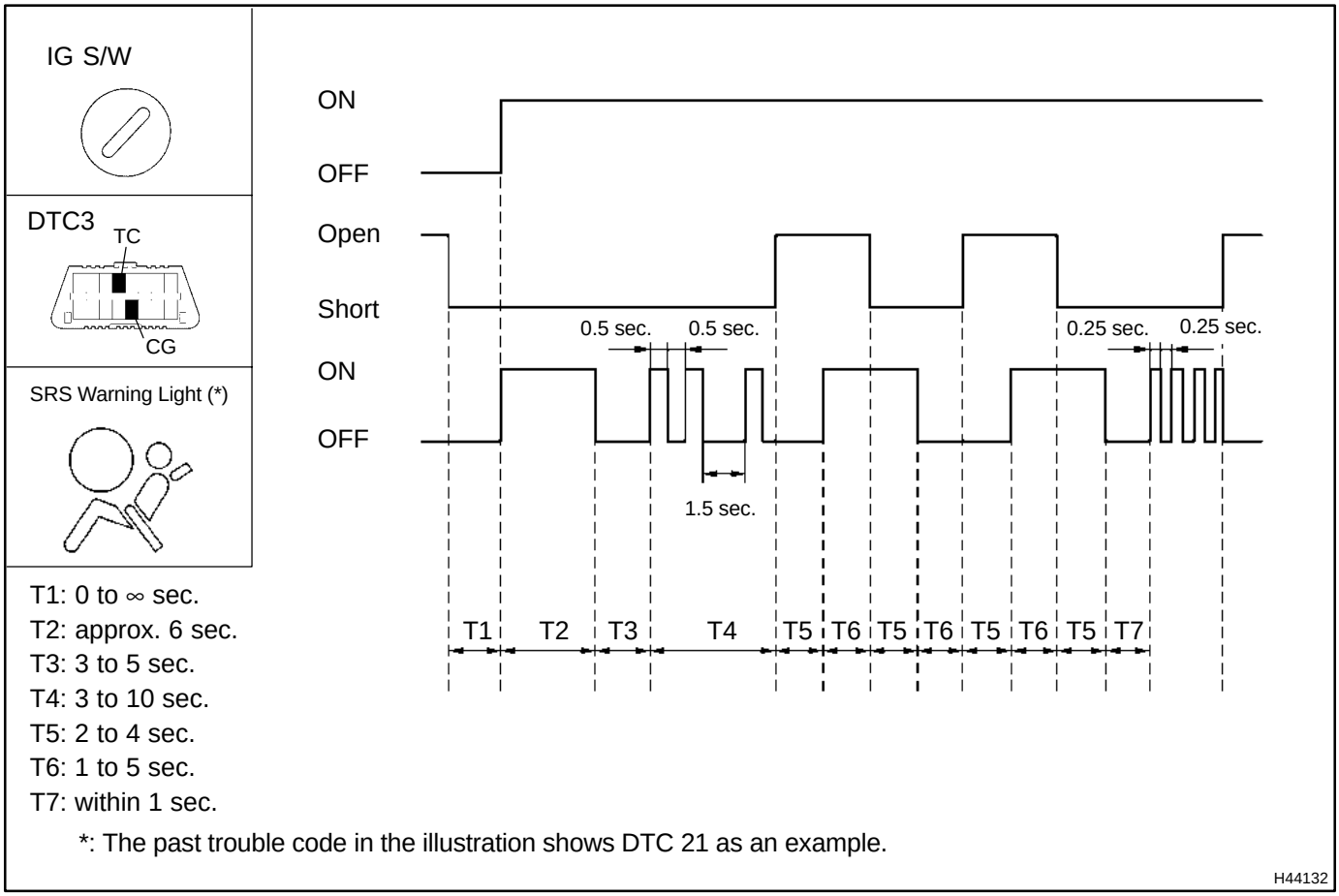
(4) Within 2 to 4 seconds after the SRS warning light comes on, connect terminals TC and CG of the DLC3.

(5) The SRS warning light should go off within 2 to 4 seconds after connecting terminals TC and CG of the DLC3. Then, disconnect terminal TC within 2 to 4 seconds after the SRS warning light goes off.

(6) The SRS warning light comes on again within 2 to 4 seconds after disconnecting terminal TC. Then, reconnect terminals TC and CG within 2 to 4 seconds after the SRS warning light comes on.

(7) Check if the SRS warning light goes off 2 to 4 seconds after connecting terminals TC and CG of the DLC3. Also check if the normal system code is output within 1 second after the SRS warning light goes off.

If DTCs are not cleared, repeat this procedure until the codes are cleared.



**3. SUPPLEMENTAL RESTRAINT SYSTEM DTC CHECK (USING A HAND-HELD TESTER)**

(a) Check the DTCs.
  (1) Connect the hand-held tester to the DLC3.
  (2) Turn the ignition switch to the ON position.
  (3) Check the DTCs by following the prompts on the tester screen.

HINT:

Refer to the hand-held tester operator's manual for further details.

(b) Clear the DTCs.
  (1) Connect the hand-held tester to the DLC3.
  (2) Turn the ignition switch to the ON position.
  (3) Clear the DTCs by following the prompts on the tester screen.

HINT:

Refer to the hand-held tester operator's manual for further details.

**4. OCCUPANT CLASSIFICATION SYSTEM DTC CHECK (USING A HAND-HELD TESTER)**

HINT:

When DTC B1150/23 is detected as a result of troubleshooting for the supplemental restraint system, perform troubleshooting for the occupant classification system.

- Since the DTCs for the occupant classification system can only be output by the hand-held tester, use the hand-held tester to output the DTCs.

(a) Check the DTCs.
  (1) Connect the hand-held tester to the DLC3.
  (2) Turn the ignition switch to the ON position.
  (3) Check the DTCs by following the prompts on the tester screen.

HINT:

Refer to the hand-held tester operator's manual for further details.

(b) Clear the DTCs.
  (1) Connect the hand-held tester to the DLC3.
  (2) Turn the ignition switch to the ON position.
  (3) Clear the DTCs by following the prompts on the tester screen.

HINT:

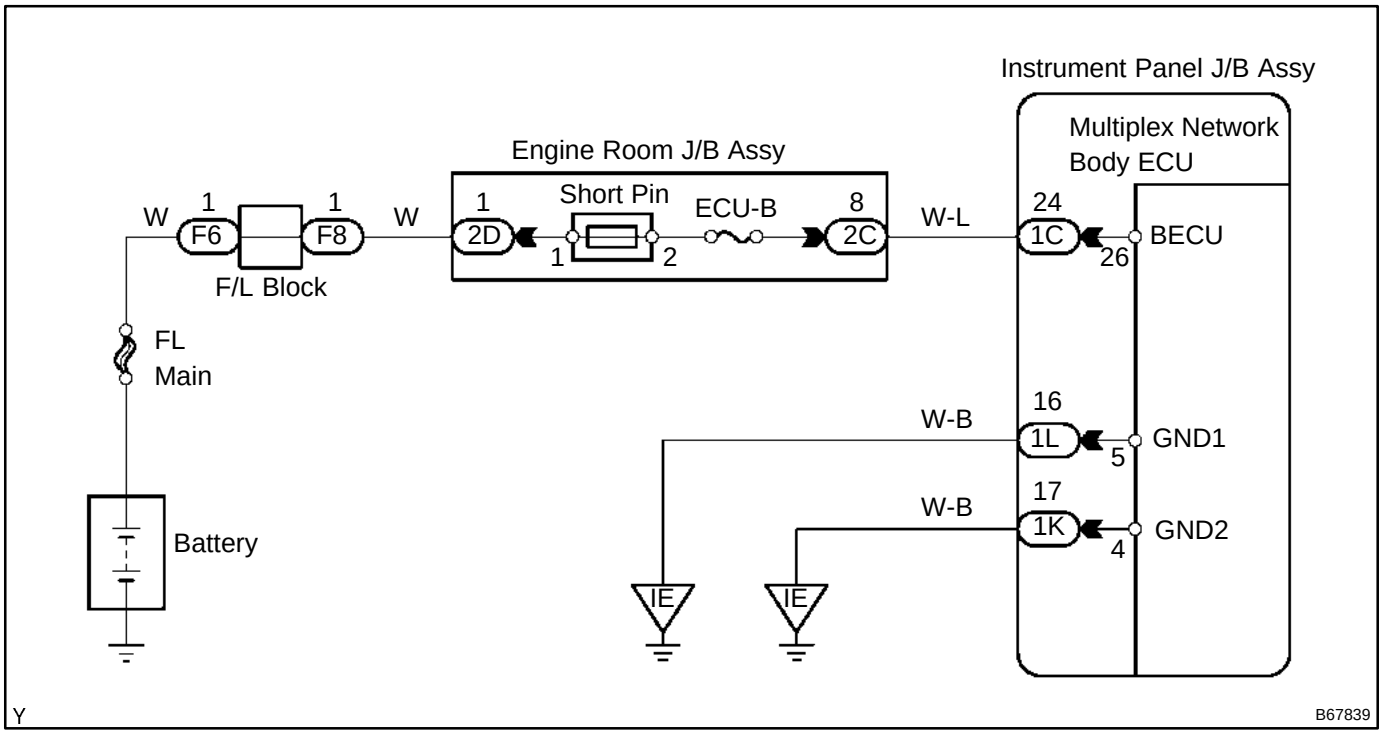
Refer to the hand-held tester operator's manual for further details.

# ECU POWER SOURCE CIRCUIT

## CIRCUIT DESCRIPTION

This circuit provides power to operate the multiplex network body ECU.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

| 1 | INSPECT FUSE (ECU-B) |
|---|---|

(a) Remove the ECU-B fuse from the engine room J/B.
(b) Check the resistance.
**Standard: Below 1 Ω**

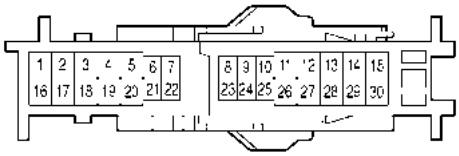
**NG** → **REPLACE FUSE**

**OK**

| 2 | **CHECK INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU) (POWER SOURCE)** |
|---|---|

**Wire Harness Side**

1C
Instrument Panel J/B Assy



Y B67854

(a) Disconnect the 1C J/B connector.
(b) Check the voltage between the wire harness side connector and the body ground.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| 1C-24 (BECU) - Body ground | 10 to 14 V |

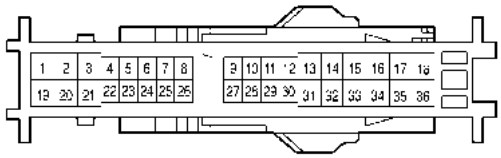
**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

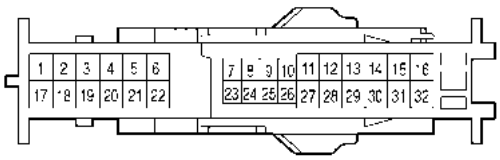
| 3 | **CHECK WIRE HARNESS (INSTRUMENT PANEL J/B ASSY (MULTIPLEX NETWORK BODY ECU) - BODY GROUND)** |
|---|---|

**Wire Harness Side**

1K
Instrument Panel J/B Assy



1L
Instrument Panel J/B Assy



B67856
B67855 B68353

(a) Disconnect the 1K and 1L J/B connectors.
(b) Check the resistance between the wire harness side connector and the body ground.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| 1L-16 (GND1) - Body ground | Below 1 Ω |
| 1K-17 (GND2) - Body ground | |

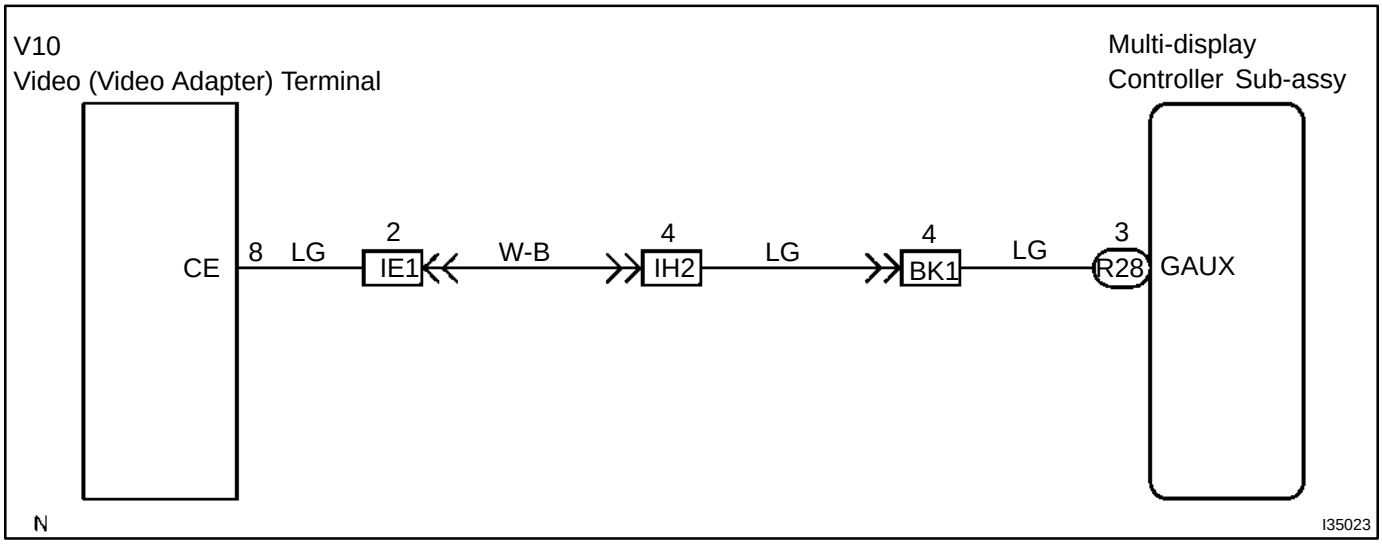
**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY**

# THE OPERATION TO THE EXTERNAL DEVICE CANNOT BE PERFORMED

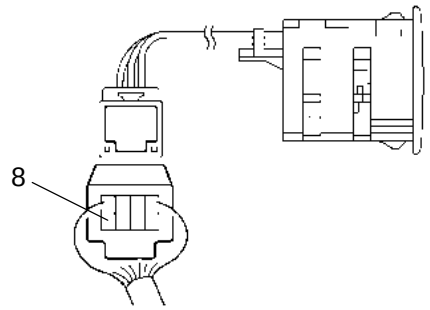
## WIRING DIAGRAM



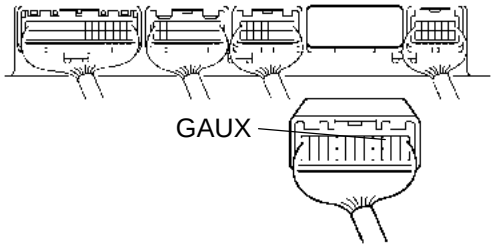
# INSPECTION PROCEDURE

| 1 | CHECK HARNESS AND CONNECTOR(VIDEO (VIDEO ADAPTER) TERMINAL - MULTI-DISPLA Y CONTROLLER SU) |
|---|---|

**Video (Video Adapter) Terminal:**




**Multi-display Controller Sub-assy:**




I35966

(a) Disconnect the video (video adapter) terminal and multi-display controller sub-assy connectors.

(b) In order to check for an open circuit, measure the resistance between the terminals, as shown in the chart.

**Standard:**

| tester connection | Specified condition |
|---|---|
| 8 - GAUX | Below 1 Ω |

(c) In order to check for a short circuit, measure the resistance between the terminals, as shown in the chart.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| 8 - Body ground | 10 kΩ or higher |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

| 2 | REPLACE VIDEO(VIDEO ADAPTER) TERMINAL |
|---|---|

**OK: Malfunction disappears**

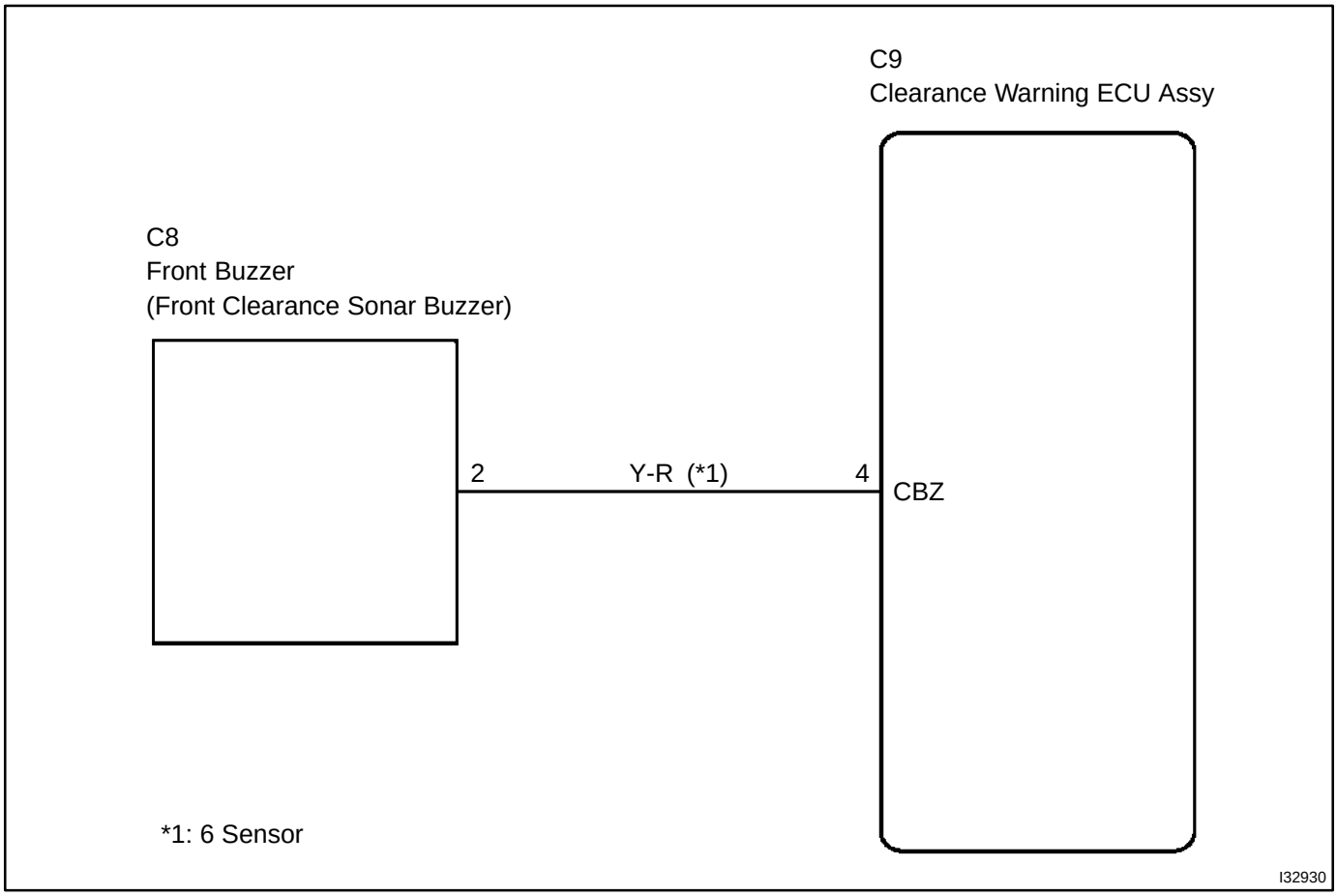
**OK** → **NORMAL**

**NG**

**REPLACE MULTI-DISPLA Y CONTROLLER SUB-ASSY**

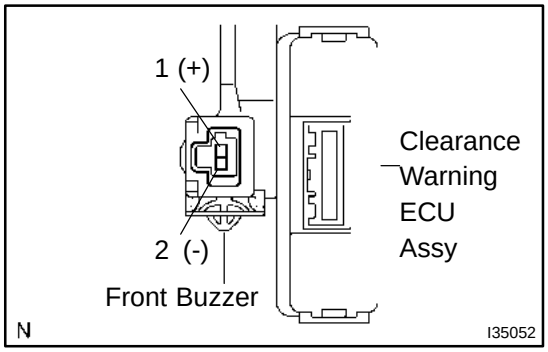
# FRONT BUZZER CIRCUIT

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT FRONT BUZZER |
|---|---|




(a) Remove the clearance warning ECU assy with front buzzer.

(b) Apply the battery voltage to the terminals 1 and 2 of the buzzer assy, check that the buzzer assy sounds.

**Standard:**

**The buzzer assy sounds**

**NG** → **REPLACE FRONT BUZZER**

**OK**

| 2 | CHECK HARNESS AND CONNECTOR(CLEARANCE WARNING ECU ASSY - FRONT BUZZER) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the clearance warning ECU assy and front buzzer (See page 01-37 ).

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1497 )**

# POWER SLIDE DOOR DOES NOT FULLY OPEN (STOPS OPERATION AT APPROX. 105 mm FROM FULLY OPEN POSITION)

## CIRCUIT DESCRIPTION

- When the LH/RH rear window is open 105 mm (5.91 in.) or more, the slide door half-open stopper is activated to force the slide door to stop at approximately 105 mm (5.91 in.) from the fully open position. This is caused by the jam protection function between the slide door and vehicle body. A cable connects the rear power window regulator and the slide door half-open stopper directly. When the rear power window regulator operates until the opening reaches 150 mm (5.91 in.) or more, the rear power window regulator transmits a signal to the half-open stopper through the cable and then the stop lever is activated. This prevents the slide door from opening fully.
- When the power slide door main switch is turned OFF* while the slide door is operating, the slide door stops operation.
  * OFF is the position where the orange paint on the top of the switch does not appear
- Conditions that stop power slide door operation.
  - Power slide door main switch is OFF
  - DTCs B2223 or B2224 set
  - Fuel lid open (only LH side)
  - Touch sensor is open/short
  - With ignition switch ON, shift lever is moved into any position except P position

## INSPECTION PROCEDURE

| 1 | CHECK REAR WINDOW POSITION |
|---|---|

(a) Check that the rear window is fully open or the opening is less than 150 mm (5.91 in.) (the slide door half-open stopper is inactive).

NG → **CHECK AND ADJUST SLIDE DOOR HALF OPEN STOPPER AND CABLE (See page 75-19 )**

OK

| 2 | VISUALLY CHECK |
|---|---|

(a) Check that there is no foreign object on the sliding area that the door is moving.

NG → **REMOVE CAUSE OF OBSTACLE AND RE-CHECK SLIDE OPERATION**

OK

| 3 | CHECK OPERATION |
|---|---|

(a) Check that the slide door fully opened by manual operation.

NG → **ADJUST FITTING CONDITION OF SLIDE DOOR (See page 75-67 )**

OK

**CHECK FOR DTC AND INSPECT POWER SLIDE DOOR SYSTEM (See pages 05-1650 and 75-19 )**

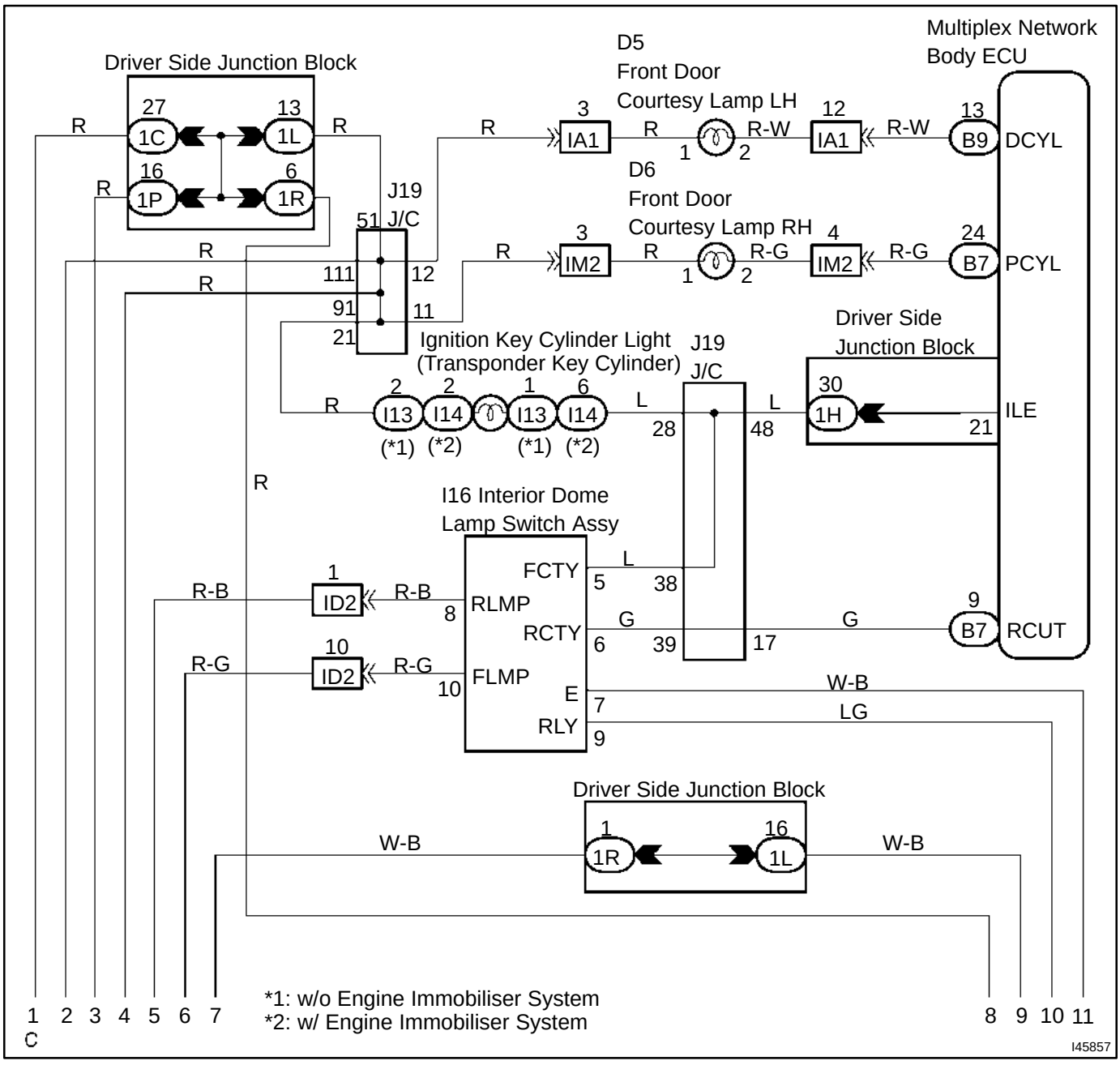
# ILLUMINATION CIRCUIT

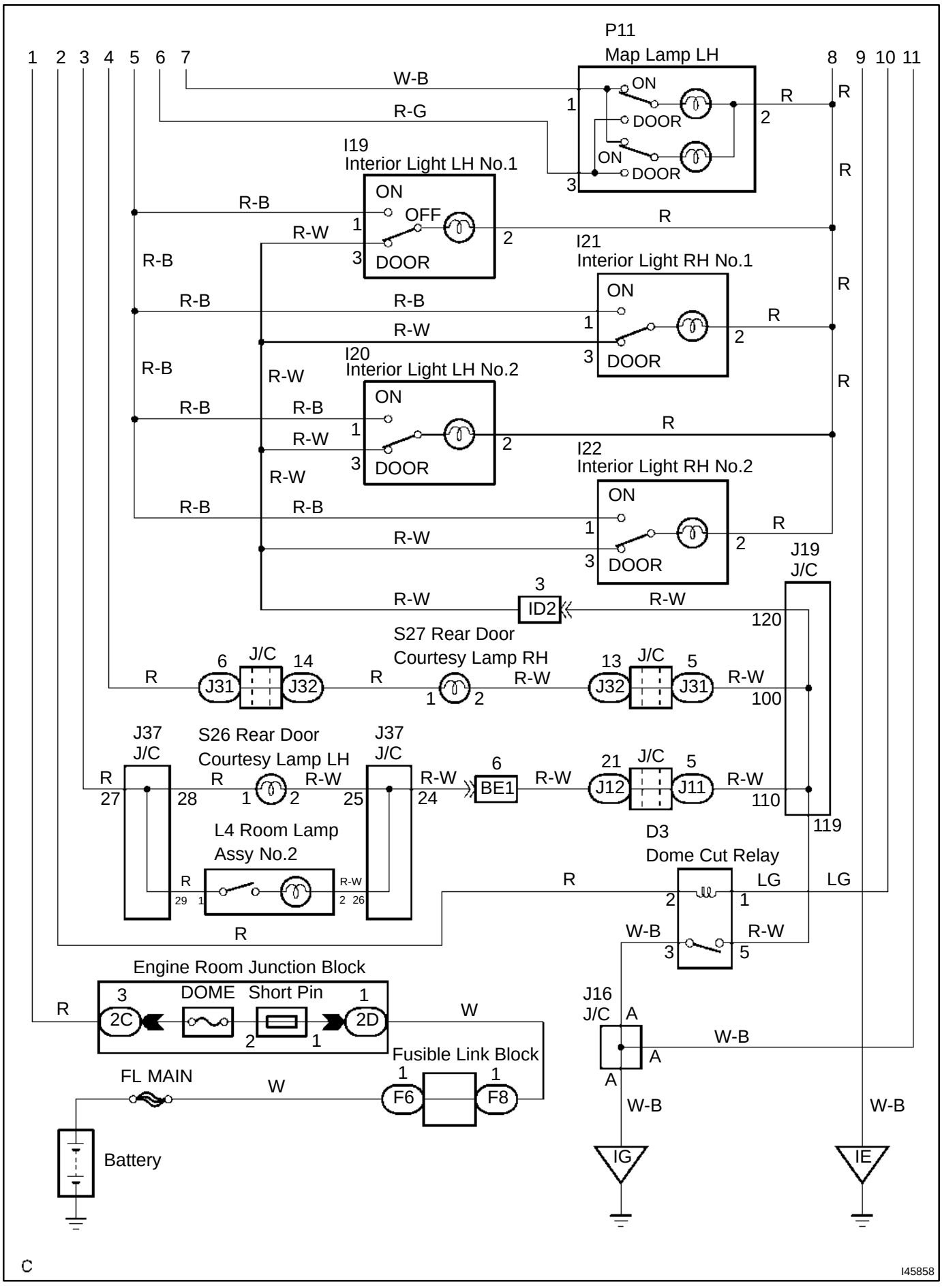
## CIRCUIT DESCRIPTION

The Multiplex network body ECU controls illumination lamp as shown in the chart below.

(1) Room lamp assy (Interior light, luggage component light) and courtesy lamp with DOOR position
(2) Map lamp assy (Personal light)
(3) Transponder key amplifier (Ignition key cylinder light)

## WIRING DIAGRAM




P11
Map Lamp LH
ON
DOOR
I19
Interior Light LH No.1
I21
Interior Light RH No.1
I20
Interior Light LH No.2
I22
Interior Light RH No.2
OFF
W-B
R-G
R-B
R-W
R
LG
ID2
S27 Rear Door
Courtesy Lamp RH
S26 Rear Door
Courtesy Lamp LH
J/C
J31
J32
J37
J19
J12
J11
BE1
L4 Room Lamp
Assy No.2
D3
Dome Cut Relay
Engine Room Junction Block
DOME
Short Pin
2C
2D
J16
Fusible Link Block
FL MAIN
F6
F8
Battery
IG
IE
I45858

## INSPECTION PROCEDURE

HINT:

Start the inspection from step 1 in the case of using the hand-held tester, and start from step 2 in the case of not using the hand-held tester.

### 1 PERFORM ACTIVE TEST USING HAND-HELD TESTER

(a) Connect the hand-held tester to DLC3.
(b) Turn the ignition switch ON and push the hand-held tester main switch ON.
(c) Select the item below in the ACTIVE TEST and then check that the relay operates.

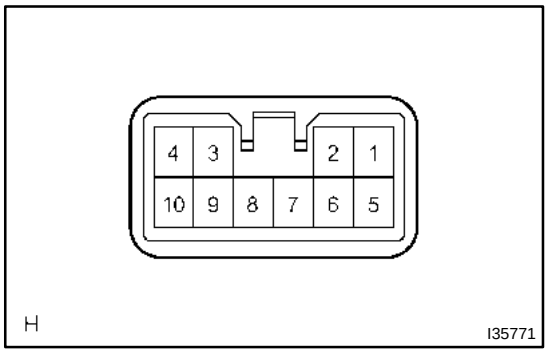
**BODY NO.1:**

| Item | Test Details | Diagnostic Note |
|---|---|---|
| ILLUMI OUTPUT | (Test Details)<br>Turn Interior light and Key illumination ON/OFF<br>(Vehicle Condition)<br>Interior light SW is in Door position and all doors are closed | - |

**NG** → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1 131)**

**OK**

### 2 INSPECT LIGHT CONTROL RELAY




(a) Check that there is continuity between the terminals at each switch position as shown in the chart.

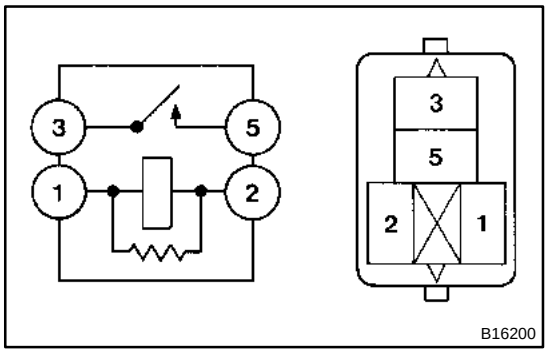
**Standard:**

| Switch operation | Tester connection | Specified condition |
|---|---|---|
| OFF | 8 - 7<br>9 - 7<br>10 - 7 | No continuity |
| DOOR | 5 -10<br>6 - 9<br>7 - 8 | Continuity |
| ON | 7 - 8 - 9 - 10 | Continuity |

**NG** → **REPLACE LIGHT CONTROL RELAY**

**OK**

| 3 | INSPECT INTERIOR DOME LAMP SWITCH ASSY |
|---|---|




(a) Inspect interior dome lamp relay continuity.

**Standard:**

| Condition | Tester connection | Specified condition |
|---|---|---|
| Always | 1 - 2 | Continuity |
| Always | 3 - 5 | No continuity |
| Apply B+ between the terminal 1 and 2 | 3 - 5 | Continuity |

**NG** → **REPLACE INTERIOR DOME LAMP SWITCH ASSY**

**OK**

| 4 | INSPECT INTERIOR LIGHT |
|---|---|

(a) Inspect the each of interior light (See page 65-4 ).

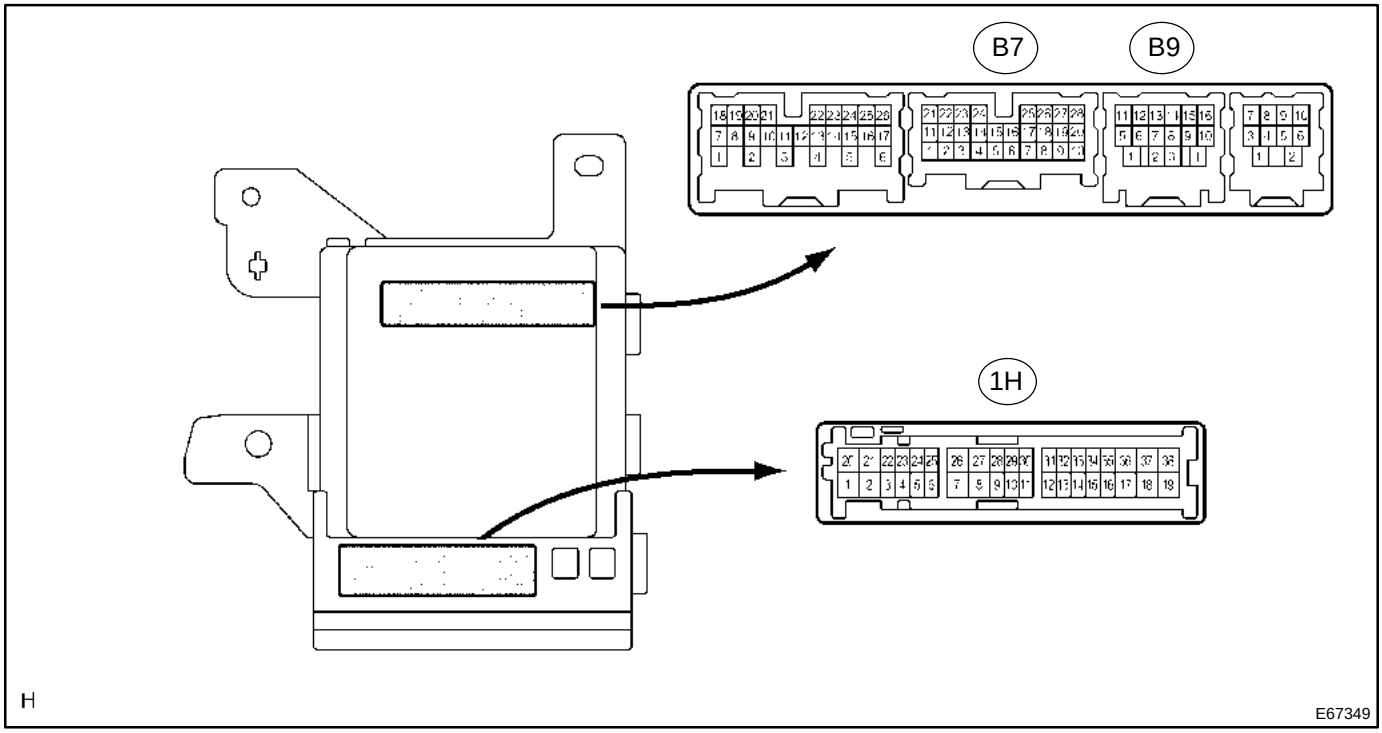
**NG** → **REPLACE INTERIOR LIGHT**

**OK**

| 5 | INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY |
|---|---|

(a) Measure voltage between each of the terminals as shown in the chart below.
**Standard:**

| Tester connection | Condition | Specified voltage |
|---|---|---|
| 1H-30 - Body ground | All doors are closed → any door is open | 10 to 14 V → Below 1 V |
| B7-9 - Body ground | All doors are closed → open | 10 to 14 V → Below 1 V |
| B9-13 - Body ground | Front driver's door is closed → open | 10 to 14 V → Below 1 V |
| B7-24 - Body ground | Front passenger's door is closed → open | 10 to 14 V → Below 1 V |




**OK** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**NG**

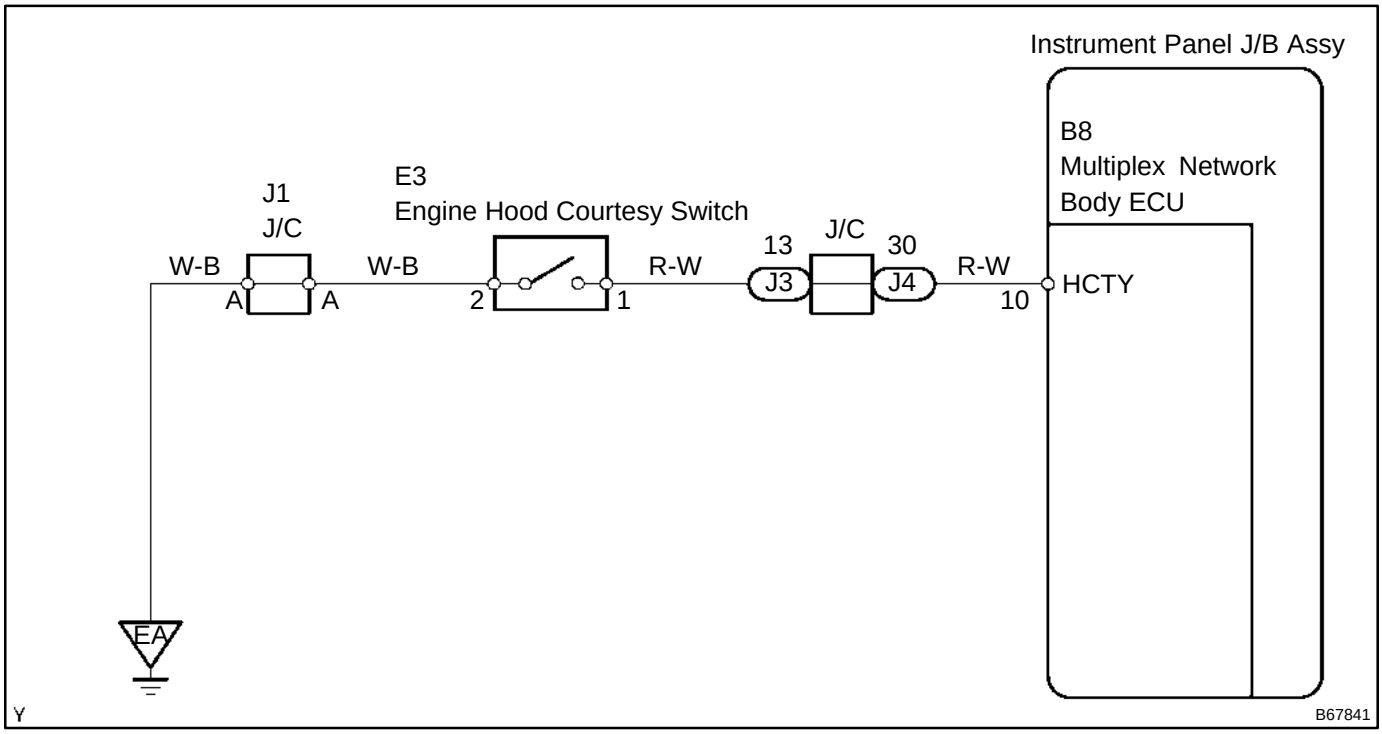
**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE**
**(See page 05-1 131)**

# ENGINE HOOD COURTESY SWITCH CIRCUIT

## CIRCUIT DESCRIPTION

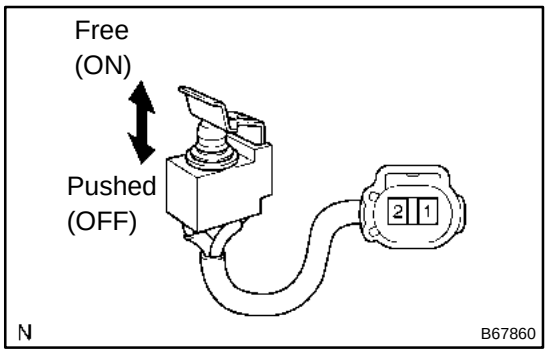
The engine hood courtesy switch is installed together with the hood lock. This switch comes on when the engine hood is opened and goes off when the engine hood is closed.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

| 1 | INSPECT ENGINE HOOD COURTESY SWITCH |
|---|---|




(a) Remove the courtesy switch from the hood lock.
(b) Check the switch resistance.

**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Pushed (OFF) | 10 kΩ or higher |
| | Free (ON) | Below 1 Ω |

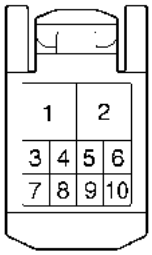
**NG** → **REPLACE ENGINE HOOD COURTESY SWITCH**

**OK**

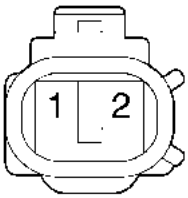
| 2 | **CHECK WIRE HARNESS (MULTIPLEX NETWORK BODY ECU - ENGINE HOOD COURTESY SWITCH)** |
|---|---|

**Wire Harness Side**

B8
Multiplex Network Body ECU




E3
Engine Hood Courtesy Switch




B69123
B67849
B68354

(a) Disconnect the B8 ECU connector.
(b) Disconnect the E3 switch connector.
(c) Check the resistance between the wire harness side connectors.

**Standard:**

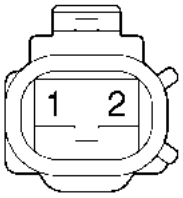
| Terminal No. | Specified Condition |
|---|---|
| B8-10 (HCTY) - E3-1 | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

| 3 | **CHECK WIRE HARNESS (ENGINE HOOD COURTESY SWITCH - BODY GROUND)** |
|---|---|

**Wire Harness Side**
E3
Engine Hood Courtesy Switch




Y
B67849

(a) Disconnect the E3 switch connector.
(b) Check the resistance between the wire harness side connector and the body ground.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| E3-2 - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE MULTIPLEX NETWORK BODY ECU**

# IMAGES BECOME FAINT

## INSPECTION PROCEDURE

| 1 | INSPECT TELEVISION CAMERA ASSY |
|---|---|

(a) Check the television camera ASSY (See page 05-1474 ).

NG → **REPLACE TELEVISION CAMERA ASSY (See page 67-27 )**

OK

| 2 | INSPECT RADIO RECEIVER ASSY |
|---|---|

(a) Check the radio receiver ASSY (See page 05-1474 ).

NG → **REPLACE RADIO RECEIVER ASSY (See page 67-9 )**

OK

**REPAIR OR REPLACE HARNESS OR CONNECTOR (See page 01-37 )**

# IMAGES CHANGE TOO SLOW

## INSPECTION PROCEDURE

| 1 | INSPECT RADIO RECEIVER ASSY |
|---|---|

(a) Check the radio receiver ASSY (See page 05-1474 ).

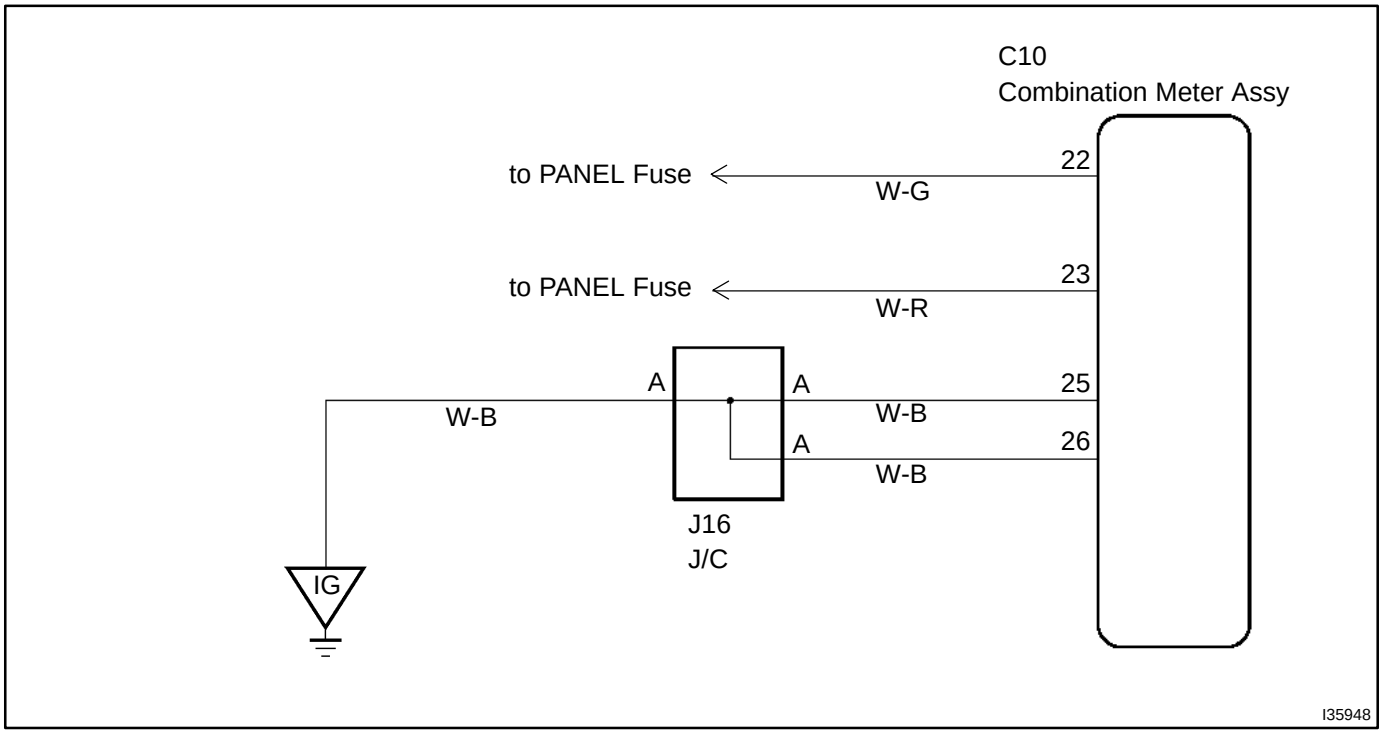
NG → **REPLACE RADIO RECEIVER ASSY (See page 67-9 )**

OK

**REPAIR OR REPLACE HARNESS OR CONNECTOR (See page 01-37 )**

# OPERATING LIGHT CONTROL RHEOSTAT DOES NOT CHANGE LIGHT BRIGHTNESS

## WIRING DIAGRAM




## INSPECTION PROCEDURE

| 1 | READ VALUE OF HAND-HELD TESTER |
|---|---|

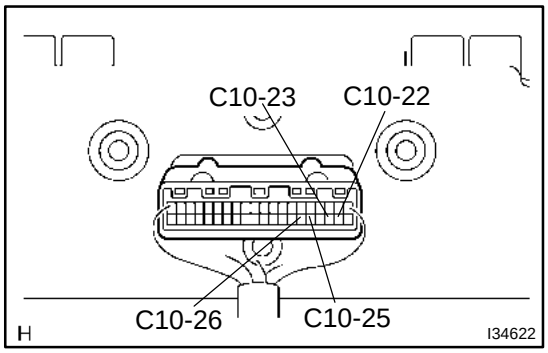
(a) Operate the hand-held tester according to the steps on the display and select ”DATA LIST”.

| Item | Test Details | Diagnostic Note |
|---|---|---|
| LIGHT RHEOSTAT | Light control rheostat / Min.: 0 , Max.: 255 | - |

OK → **REPAIR OR REPLACE COMBINATION METER ASSY**

NG

| 2 | CHECK COMBINATION METER ASSY |
|---|---|




(a) Remove the combination meter assy.
(b) Check continuity.
  (1) Check continuity between the terminal C10-25, 26 of the combination meter connector and the body ground.
  **Standard: Continuity.**
  (2) Light control switch to ON.
  (3) Measure the voltage between the terminal C10-22, 23 of the combination meter connector and the body ground.
  **Standard voltage: 10 - 14 V**

| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |
|---|---|

**OK**

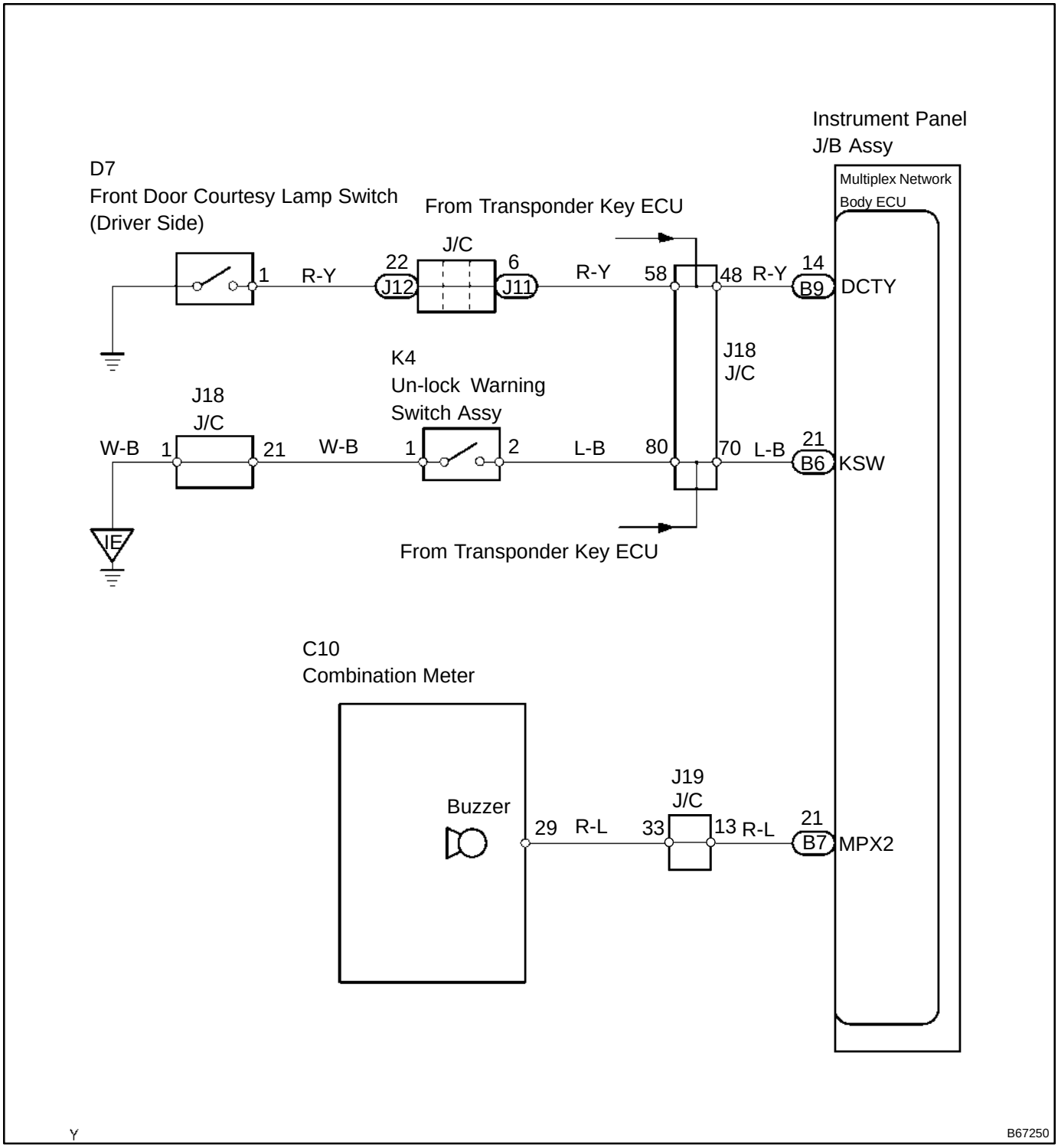
| REPAIR OR REPLACE COMBINATION METER ASSY |
|---|

# KEY REMINDER BUZZER DOES NOT SOUND

## CIRCUIT DESCRIPTION

When the ignition switch is OFF, the key is in the ignition key cylinder and the driver side door is opened, the multiplex network body ECU transmits a key switch signal and driver side courtesy switch signal to the combination meter, which causes the buzzer to sound.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

## When using hand-held tester:

| 1 | CHECK DTC |
|---|---|

(a) Check that there is no abnormality in the communication system by inspecting the communication function of the multiplex communication system with the hand-held tester.
  (1) (ECU unconnected, communication line abnormal) Without code outputs, proceed to A.
  (2) (ECU unconnected, communication line abnormal) With code outputs, proceed to B.

B → **GO TO MULTIPLEX COMMUNICATION SYSTEM (See page 05-1876 )**

A

| 2 | READ VALUE OF HAND-HELD TESTER |
|---|---|

(a) Connect the hand-held tester to the DLC3.
(b) Turn the ignition switch and the hand-held tester main switch ON.
(c) Select the item D DOOR CTY SW in the DATA LIST and read its value displayed on the hand-held tester.
**Standard:**
**ON: Driver side door is open**
**OFF: Driver side door is closed**

NG → **Go to step 4**

(d) Select the item KEY UNLK WRN SW in the DATA LIST and read its value displayed on the hand-held tester.
**Standard:**
**ON: The key is in the ignition key cylinder**
**OFF: No key is in the ignition key cylinder**

NG → **Go to step 6**

OK

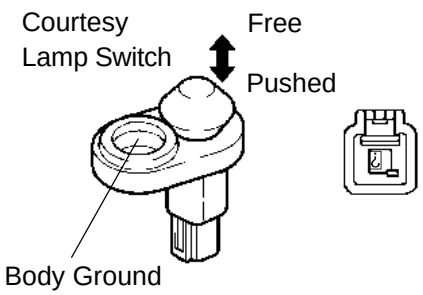
| 3 | CHECK BUZZER (COMBINATION METER) (See page 05-1525 ) |
|---|---|

NG → **REPLACE COMBINATION METER ASSY**

OK

**REPLACE MULTIPLEX NETWORK BODY ECU**

## 4 INSPECT FRONT DOOR COURTESY LAMP SWITCH ASSY (DRIVER SIDE)




(a) Remove the courtesy lamp switch.
(b) Check the switch continuity.
**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 1 - Switch body | Switch Free | Below 1 Ω |
| | Switch Pushed | 10 kΩ or higher |

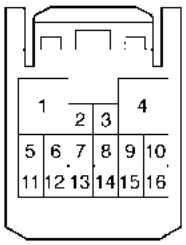
**NG** → **REPLACE FRONT DOOR COURTESY LAMP SWITCH ASSY**

**OK**

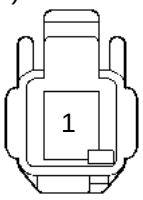
## 5 CHECK WIRE HARNESS (MULTIPLEX NETWORK BODY ECU - FRONT DOOR COURTESY LAMP SWITCH)

**Wire Harness Side**

B9
Multiplex Network Body ECU




D7
Front Door Courtesy Lamp Switch
(Driver Side)




B67251

(a) Disconnect the D7 switch connector.
(b) Disconnect the B9 ECU connector.
(c) Check the continuity between the wire harness side connectors.
**Standard:**

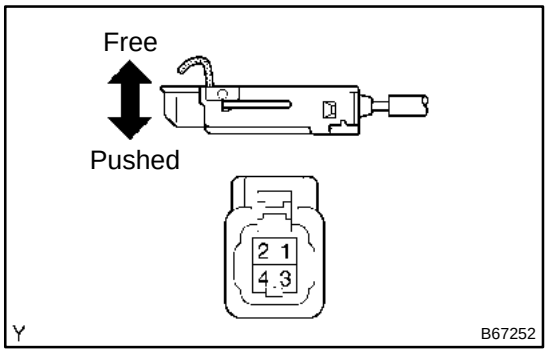
| Terminal No. | Specified Condition |
|---|---|
| B9-14 (DCTY) - D7-1 | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE MULTIPLEX NETWORK BODY ECU**

| 6 | INSPECT UN-LOCK WARNING SWITCH ASSY |
|---|---|



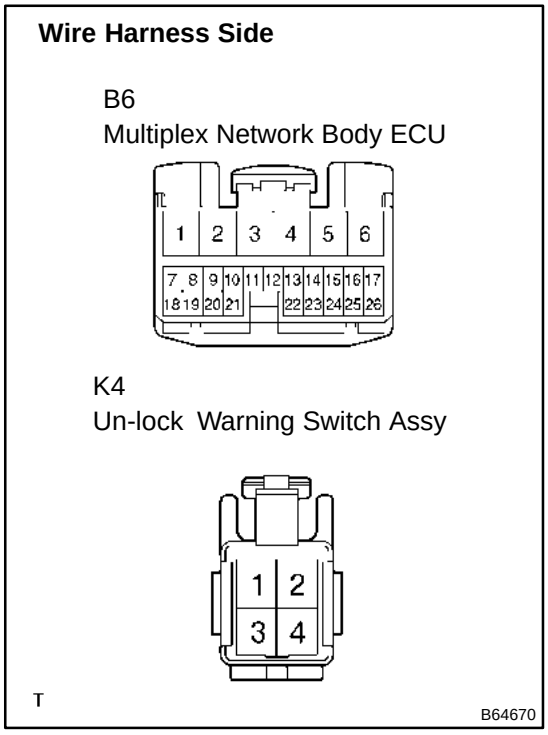

(a) Remove the un-lock warning switch.
(b) Check the switch continuity.
**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Free | 10 kΩ or higher |
| | Pushed | Below 1 Ω |

NG → **REPLACE UN-LOCK WARNING SWITCH ASSY**

OK

| 7 | CHECK WIRE HARNESS (MULTIPLEX NETWORK BODY ECU - UN-LOCK WARNING SWITCH ASSY) (UN-LOCK WARNING SWITCH ASSY - BODY GROUND) |
|---|---|




(a) Disconnect the B6 ECU connectors.
(b) Disconnect the K4 switch connector.
(c) Check the continuity between the wire harness side connectors.
**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| B6-21 (KSW) - K4-2 | Below 1 Ω |

(d) Check the continuity between the K4 switch connector and body ground.
**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| K4-1 - Body ground | Below 1 Ω |

NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

**REPLACE MULTIPLEX NETWORK BODY ECU**

## When not using hand-held tester:

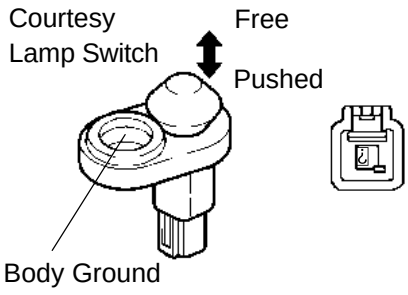
| 1 | CHECK FRONT DOOR COURTESY LAMP SWITCH ASSY |
|---|---|

(a) Put the dome lamp assy No. 2 switch in the door position and open the driver side door. Then check that the courtesy lamp comes on.

OK → CHECK BUZZER

NG

| 2 | INSPECT FRONT DOOR COURTESY LAMP SWITCH ASSY (DRIVER SIDE) |
|---|---|




(a) Remove the courtesy lamp switch.
(b) Check the switch continuity.

**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 1 - Switch body | Switch Free | Below 1 Ω |
| | Switch Pushed | 10 kΩ or higher |

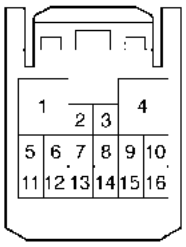
NG → REPLACE FRONT DOOR COURTESY LAMP SWITCH ASSY

OK

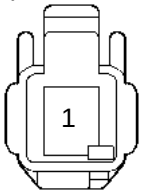
| 3 | CHECK WIRE HARNESS (MULTIPLEX NETWORK BODY ECU - FRONT DOOR COURTESY LAMP SWITCH) |
|---|---|

**Wire Harness Side**

B9
Multiplex Network Body ECU




D7
Front Door Courtesy Lamp Switch
(Driver Side)




(a) Disconnect the D7 switch connector.
(b) Disconnect the B9 ECU connector.
(c) Check the continuity between the wire harness side connectors.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| B9-14 (DCTY) - D7-1 | Below 1 Ω |

NG → REPAIR OR REPLACE HARNESS AND CONNECTOR

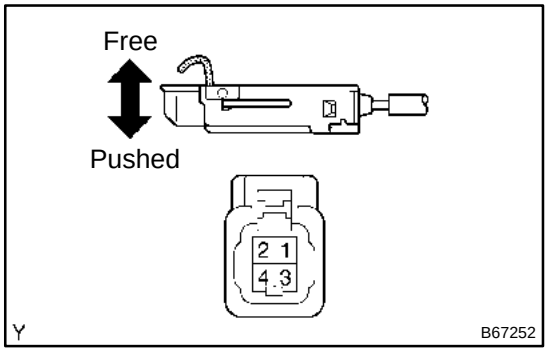
OK

| 4 | CHECK BUZZER (COMBINATION METER) (See page 05-1525 ) |
|---|---|

NG → REPLACE COMBINATION METER ASSY

OK

| 5 | INSPECT UN-LOCK WARNING SWITCH ASSY |
|---|---|




(a) Remove the un-lock warning switch.
(b) Check the switch continuity.

**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Free | 10 kΩ or higher |
| | Pushed | Below 1 Ω |

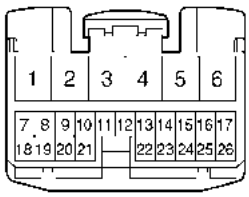
NG → REPLACE UN-LOCK WARNING SWITCH ASSY

OK

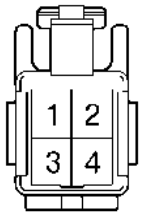
| 6 | CHECK WIRE HARNESS (MULTIPLEX NETWORK BODY ECU - UN-LOCK WARNING SWITCH ASSY) (UN-LOCK WARNING SWITCH ASSY - BODY GROUND) |
|---|---|

**Wire Harness Side**

B6
Multiplex Network Body ECU




K4
Un-lock Warning Switch Assy




(a) Disconnect the B6 ECU connectors.
(b) Disconnect the K4 switch connector.
(c) Check the continuity between the wire harness side connectors.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| B6-21 (KSW) - K4-2 | Below 1 Ω |

(d) Check the continuity between the K4 switch connector and body ground.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| K4-1 - Body ground | Below 1 Ω |

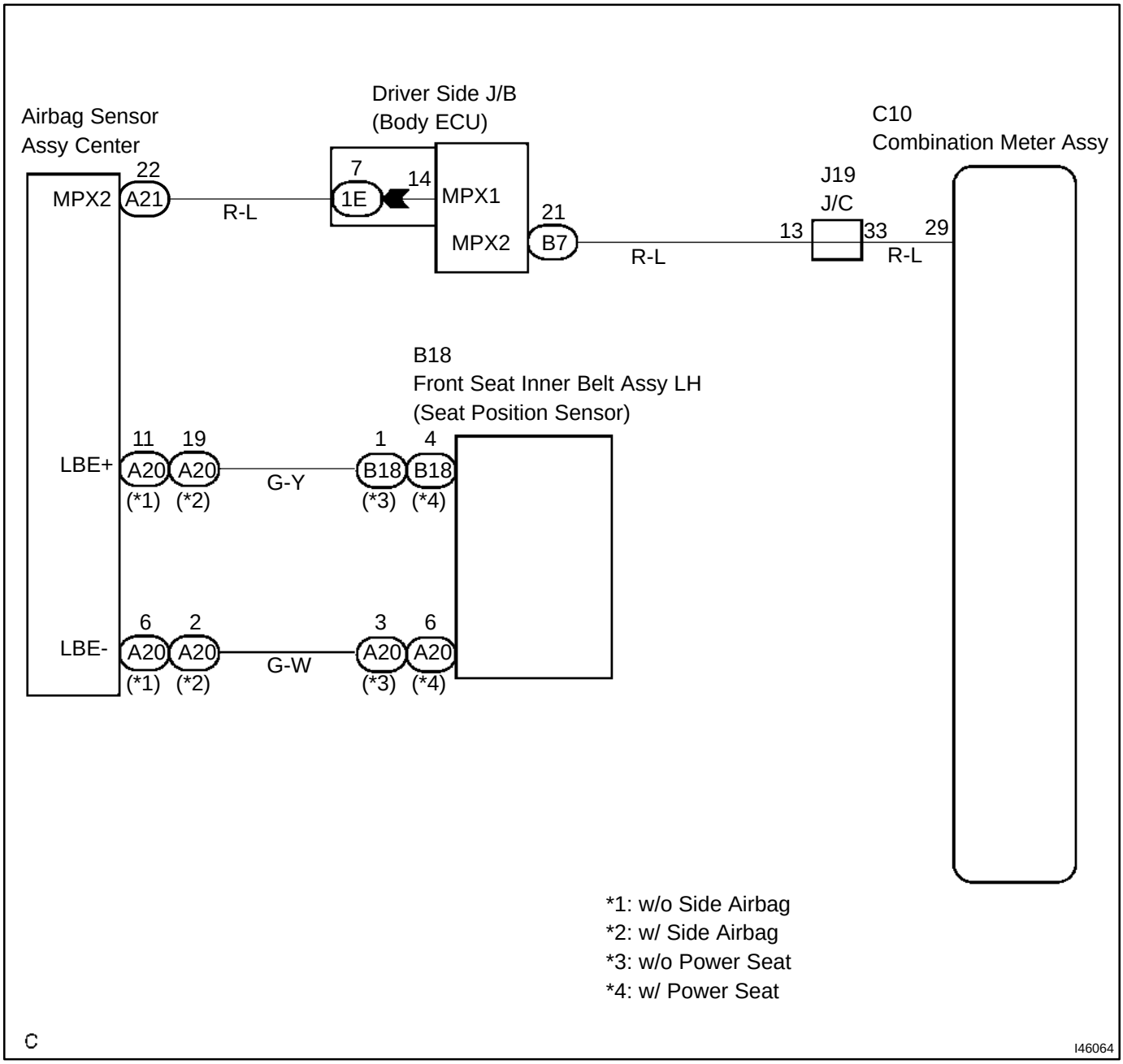
NG → REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

REPLACE MULTIPLEX NETWORK BODY ECU

# SEAT BELT WARNING LAMP FOR DRIVER'S SEAT DOES NOT OPERATE

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | DTC CHECK |
|---|---|

(a) Perform troubleshooting with the ”Supplemental Restraint System” 05-777 .

HINT:

If there is an open in the ground circuit (Airbag sensor ECU), the airbag sensor ECU outputs DTCs.

**OK:**

**DTC is outputs.**

**OK** → **GO TO TROUBLESHOOTING (SEE PAGE 05-790 )**

**NG**

| 2 | PERFORM ACTIVE TEST BY HAND-HELD TESTER |
|---|---|

(a) Operate the hand-held tester according to the steps on the display and perform the ”ACTIVE TEST”.

| Item | Test Details | Diagnostic Note |
|---|---|---|
| D-BELT REMIND | D-belt indicator OFF/ON | - |

**OK** → **END**

**NG**

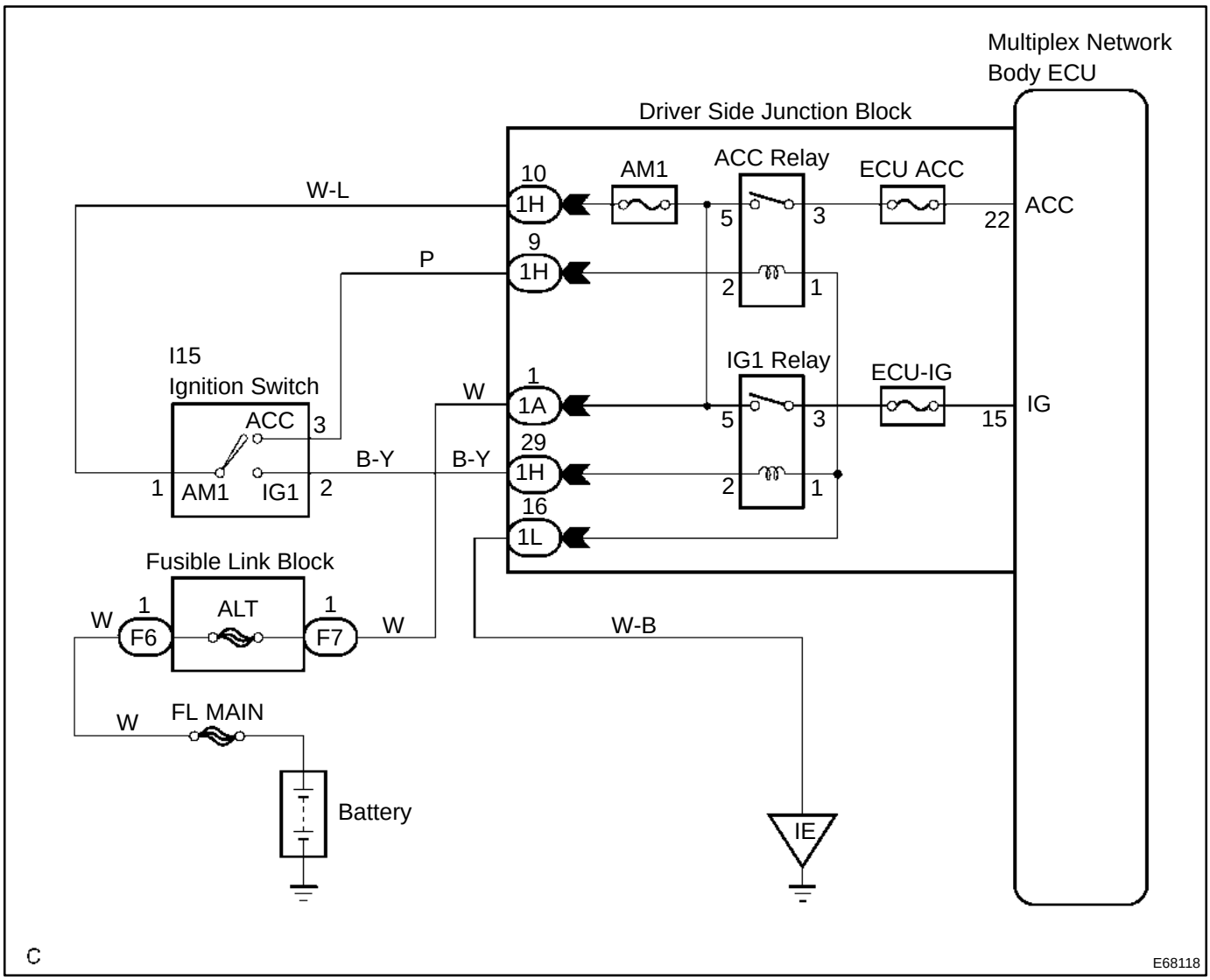
**CHECK AND REPLACE COMBINATION METER ASSY (SEE PAGE 71-20 )**

# IGNITION SWITCH CIRCUIT

## CIRCUIT DESCRIPTION

This circuit detects the state of the ignition switch and send it to Multiplex network body ECU.

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

Start the inspection from step 1 in the case of using the hand-held tester, and start from step 2 in the case of not using the hand-held tester.

| 1 | READ VALUE OF HAND-HELD TESTER |
|---|---|

(a) Connect the hand-held tester to DLC3.
(b) Turn the ignition switch ON and push the hand-held tester main switch ON.
(c) Select the items below in the DATA LIST, and read the displays on the hand-held tester.

**BODY NO.1:**

| Item | Measurement Item/ Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| ACC SW | ACC SW signal/ ON or OFF | ON: Ignition key is in ACC, ON or START position<br>OFF: Ignition key is in OFF position | - |
| IG SW | IG SW signal/ ON or OFF | ON: Ignition key is in ON or START position<br>OFF: Ignition key is in OFF or ACC position | - |

**OK** → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1 131)**

**NG**

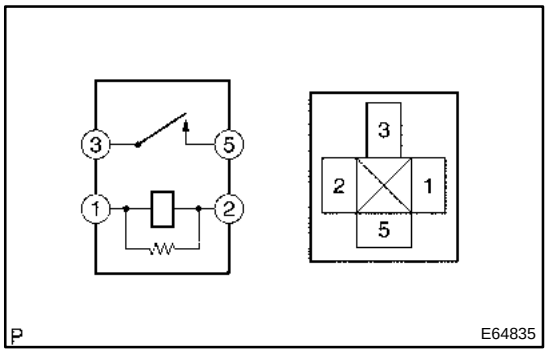
| 2 | INSPECT FUSE |
|---|---|

(a) Inspect the ECU ACC fuse, ECU-IG fuse and AM1 fuse in instrument panel junction block assy.

**NG** → **REPLACE FUSE**

**OK**

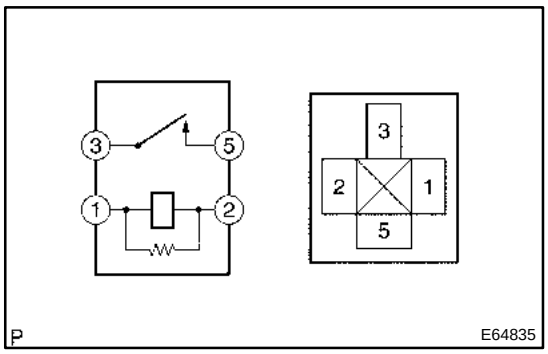
## 3 INSPECT RELAY




(a) Inspect ACC relay continuity.

**Standard:**

| Condition | Tester connection | Specified condition |
|---|---|---|
| Always | 1 - 2 | Continuity |
| Always | 3 - 5 | No continuity |
| Apply B+ between the terminal 1 and 2 | 3 - 5 | Continuity |




(b) Inspect IG1 relay continuity.

**Standard:**

| Condition | Tester connection | Specified condition |
|---|---|---|
| Always | 1 - 2 | Continuity |
| Always | 3 - 5 | No continuity |
| Apply B+ between the terminal 1 and 2 | 3 - 5 | Continuity |

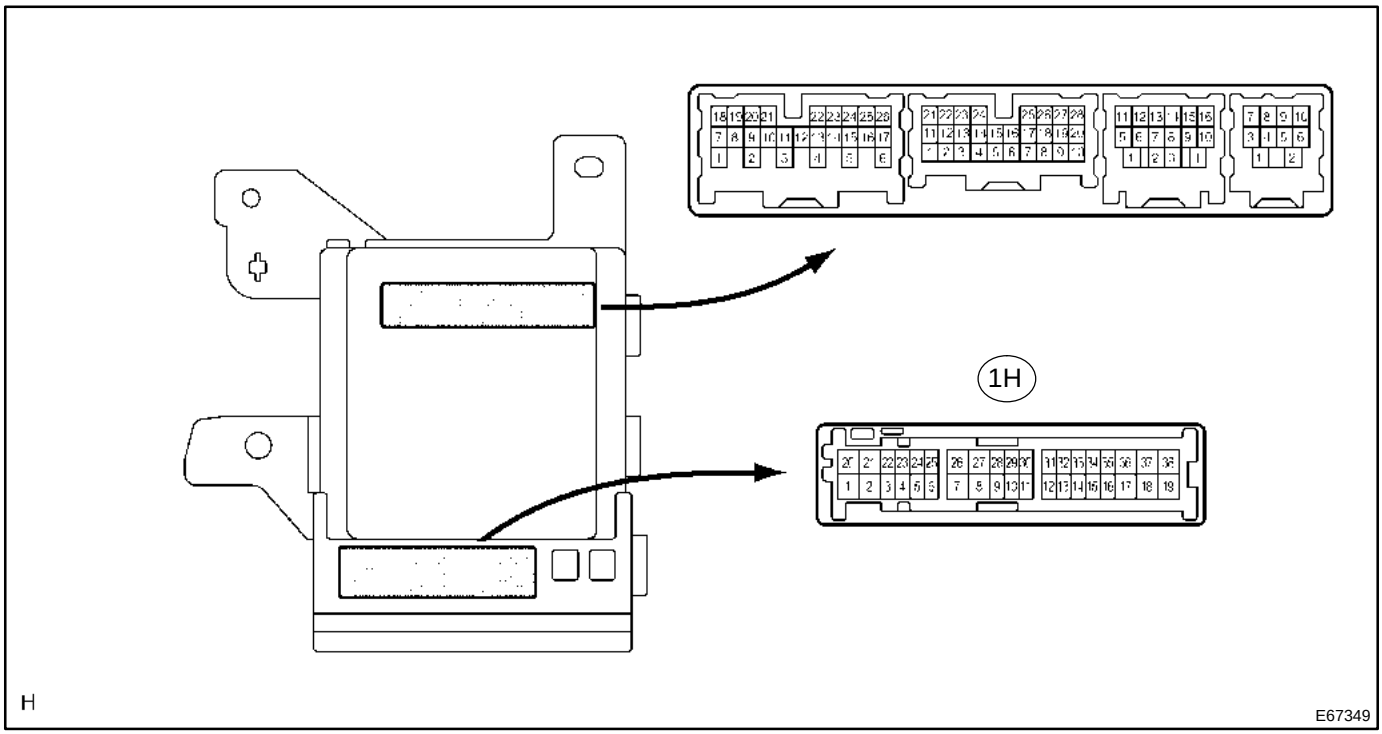
**NG** → **REPLACE RELAY**

**OK**

| 4 | INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY(ACC, IG) |
|---|---|

(a) Measure the voltage between the terminals as shown in the chart below.
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| 1H-9 - Body ground | Ignition switch is OFF → ACC, ON | Below 1 V → 10 to 14 V |
| 1H-29 - Body ground | Ignition switch is OFF → ON | Below 1 V → 10 to 14 V |




**OK** → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1 131)**

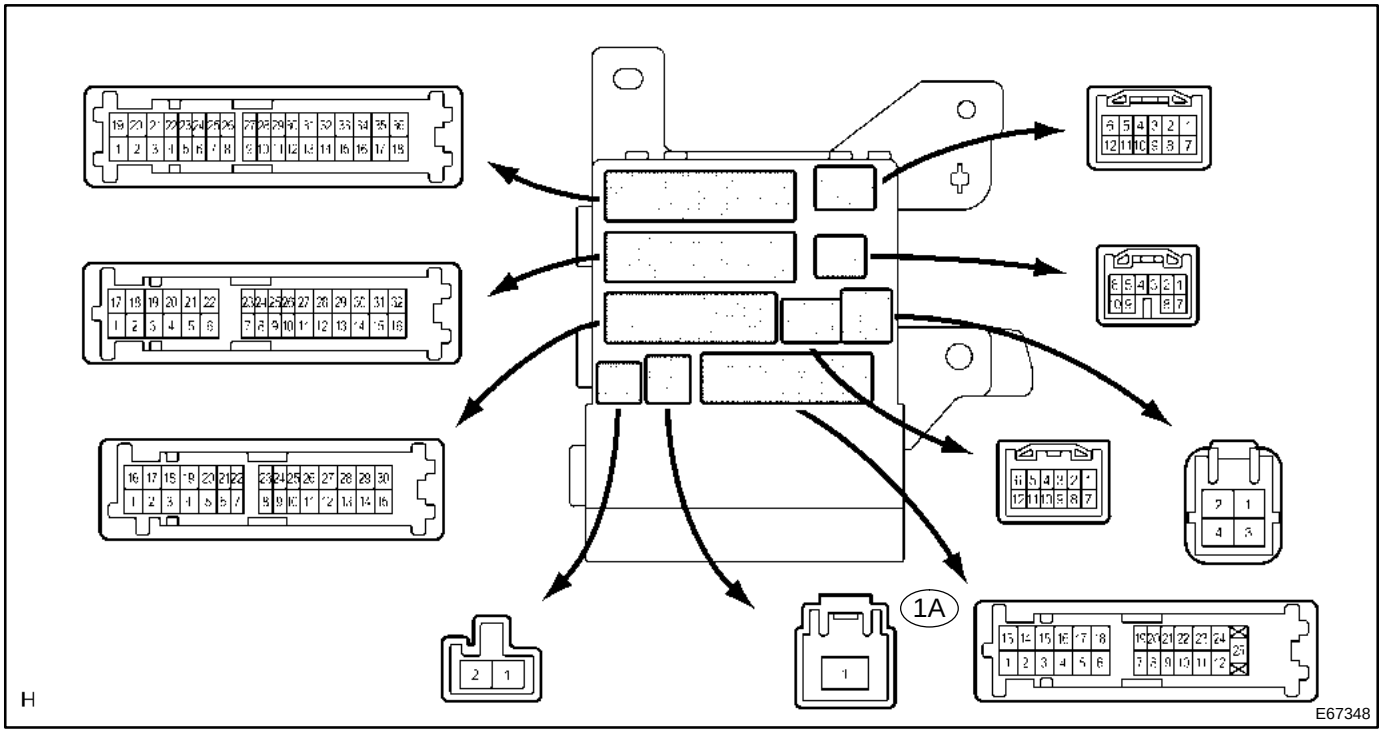
**NG**

| 5 | INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY(+B) |
|---|---|

(a) Measure voltage between the terminal 1A-1 of the instrument panel junction block assy and body ground.

**Standard:**

| Tester connection | Specified voltage |
|---|---|
| 1A-1 - Body ground | 10 to 14 V |




**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

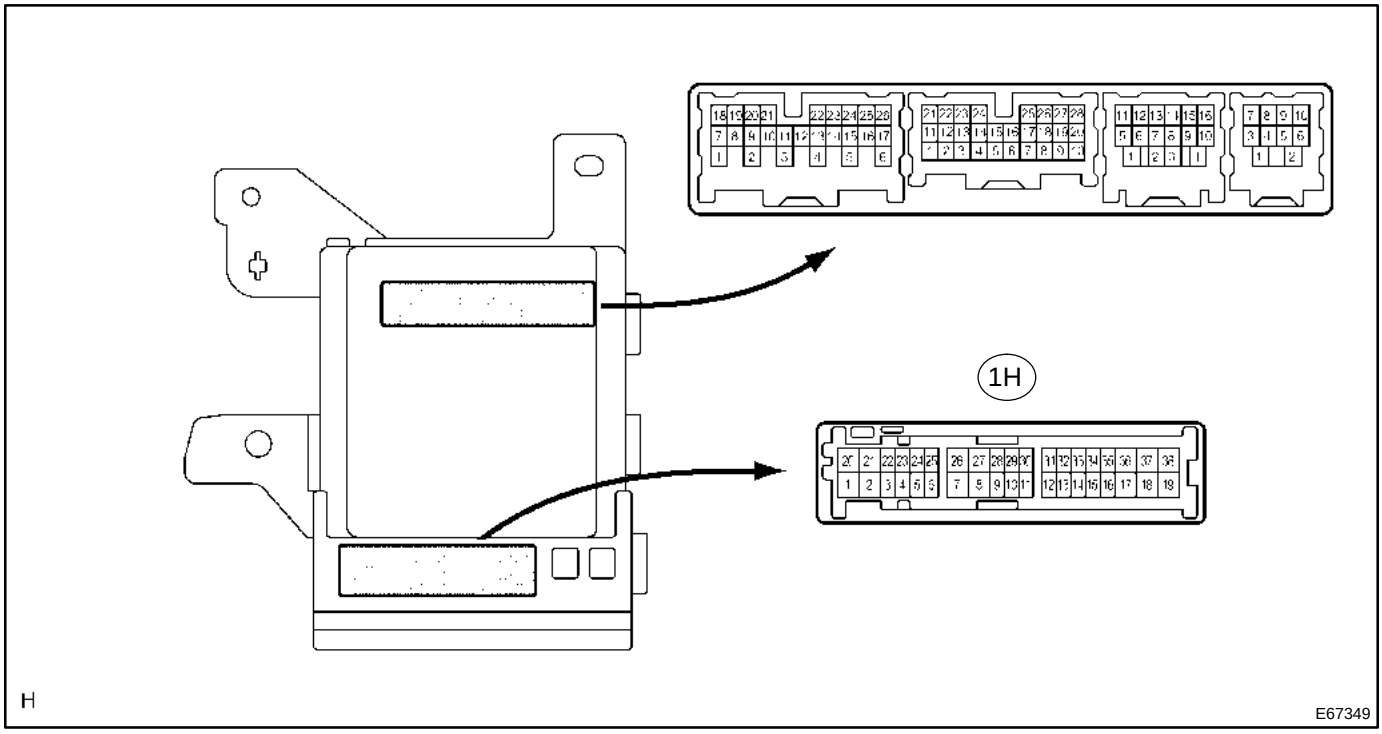
**OK**

| 6 | INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY |
|---|---|

(a) Measure voltage between the terminal 1H-10 of the instrument panel junction block assy and body ground.

**Standard:**

| Tester connection | Condition | Specified voltage |
|---|---|---|
| 1H-10 - Body ground | Always | 10 to 14 V |




**NG** → **REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY**

**OK**

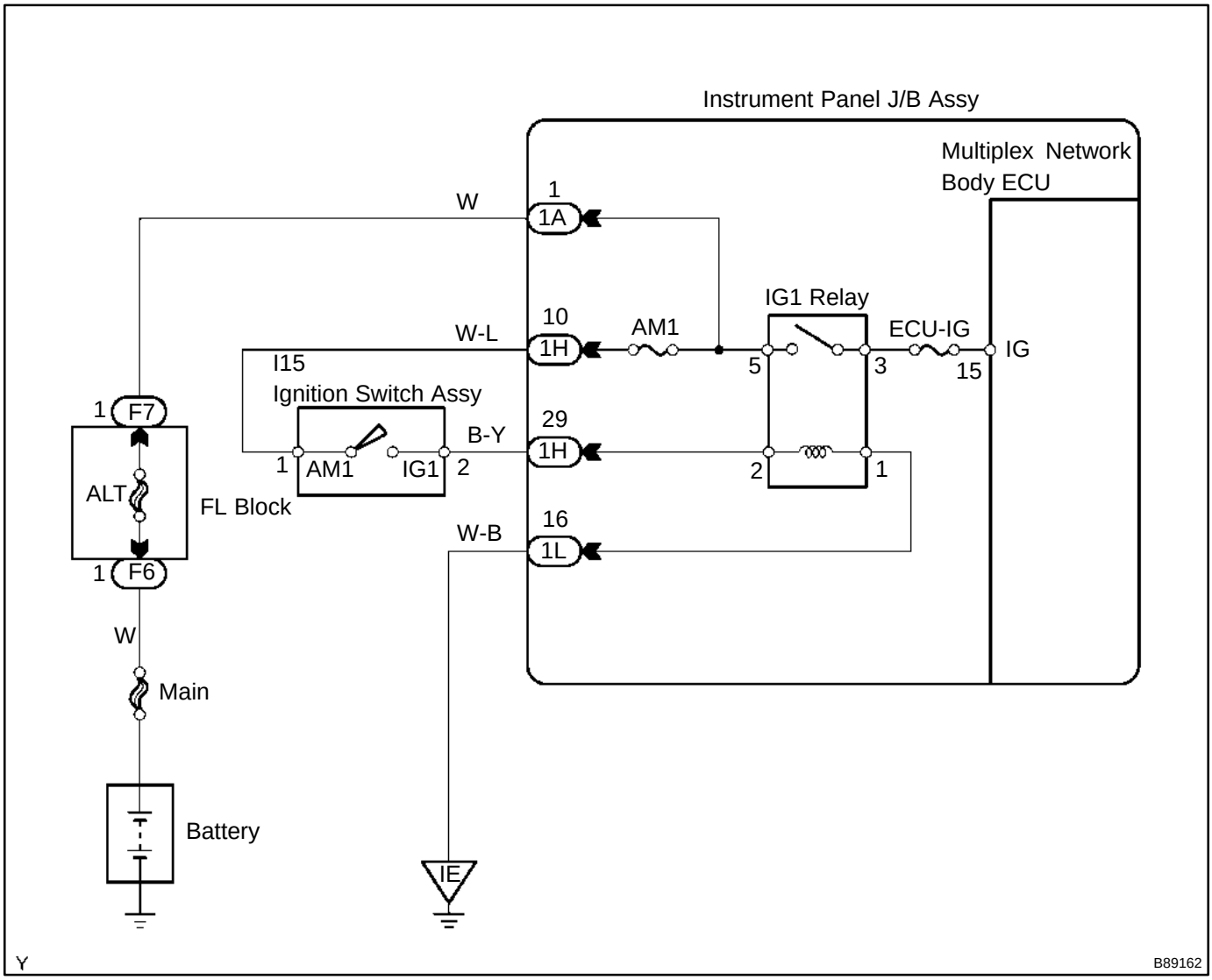
**REPAIR OR REPLACE HARNESS OR CONNECTOR**

# IGNITION SWITCH CIRCUIT

## CIRCUIT DESCRIPTION

When the ignition switch is turned to the ON position, battery positive voltage is applied to terminal IG of the multiplex network body ECU.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

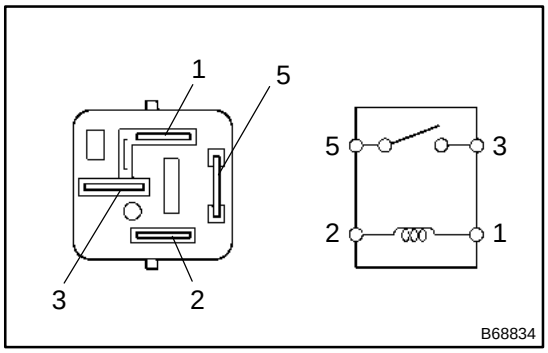
| 1 | INSPECT FUSE (ECU-IG, AM1) |
|---|---|

(a) Remove the ECU-IG and AM1 fuses from the instrument panel J/B.
(b) Check the resistance.
**Standard: Below 1 Ω**

**NG** → **REPLACE FUSE**

**OK**

## 2 INSPECT RELAY (IG1)



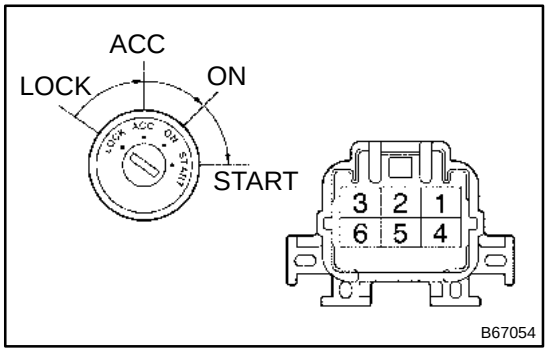

(a) Remove the IG1 relay from the instrument panel J/B.
(b) Check the operation of the IG1 relay.
**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| 3 - 5 | 10 kΩ or higher |
| | Below 1 Ω (When battery voltage is applied to terminals 1 and 2) |

**NG** → **REPLACE RELAY**

**OK**

## 3 INSPECT IGNITION OR STARTER SWITCH ASSY



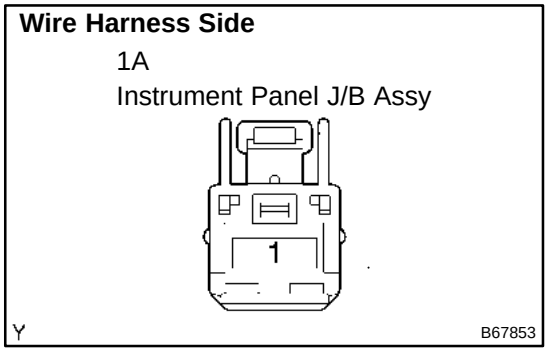

(a) Check the switch resistance.
**Standard:**

| Terminal No. | Switch Position | Specified Condition |
|---|---|---|
| 1 - 3 | ACC | Below 1 Ω |
| 1 - 2 | ON | |
| 1 - 3 | | |
| 5 - 6 | | |
| 1 - 2 | START | |
| 5 - 4 | | |
| 5 - 6 | | |

**NG** → **REPLACE IGNITION OR STARTER SWITCH ASSY**

**OK**

## 4 CHECK INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU) (POWER SOURCE)




(a) Disconnect the 1A J/B connector.
(b) Check the voltage between the wire harness side connector and the body ground.
**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 1A-1 (IG) - Body ground | Ignition switch ON | 10 to 14 V |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY**

05NSU-01

# INITIALIZATION

## 1. ZERO POINT CALIBRATION AND SENSITIVITY CHECK

**NOTICE:**

**Make sure that the seat is not occupied before performing the operation.**

HINT:

Perform the zero point calibration and sensitivity check if any of the following conditions occur.

- The occupant classification ECU is replaced.
- Accessories (seatback tray and seat cover, etc.) are installed.
- The passenger seat is removed from the vehicle.
- The passenger airbag ON/OFF indicator (”OFF”) comes on when the passenger seat is not occupied.
- The vehicle is brought to the workshop for repair due to an accident or a collision.

(a) Zero point calibration and sensitivity check procedures.

HINT:

Make sure that zero point calibration has finished normally, and then perform the sensitivity check.

(1) Adjust the seat position according to the table below.

| Adjustment Component | Position |
|---|---|
| Slide Direction | Rearmost position |
| Reclining Angle | Upright position |
| Headrest Height | Lowest position |
| Lifter Height | Lowest Position |

(2) Connect the hand-held tester to the DLC3.

(3) Turn the ignition switch to the ON position.

(4) Perform the zero point calibration by following the prompts on the tester screen.

HINT:

Refer to the hand-held tester operator’s manual for further details.

**OK: ”COMPLETE” is displayed.**

(5) Place a 30 kg (66.14 lb) weight (eg. a 30 kg (66.14 lb) of lead mass) onto the passenger seat.

(6) Perform the sensitivity check, and confirm that the sensitivity is within the standard value.

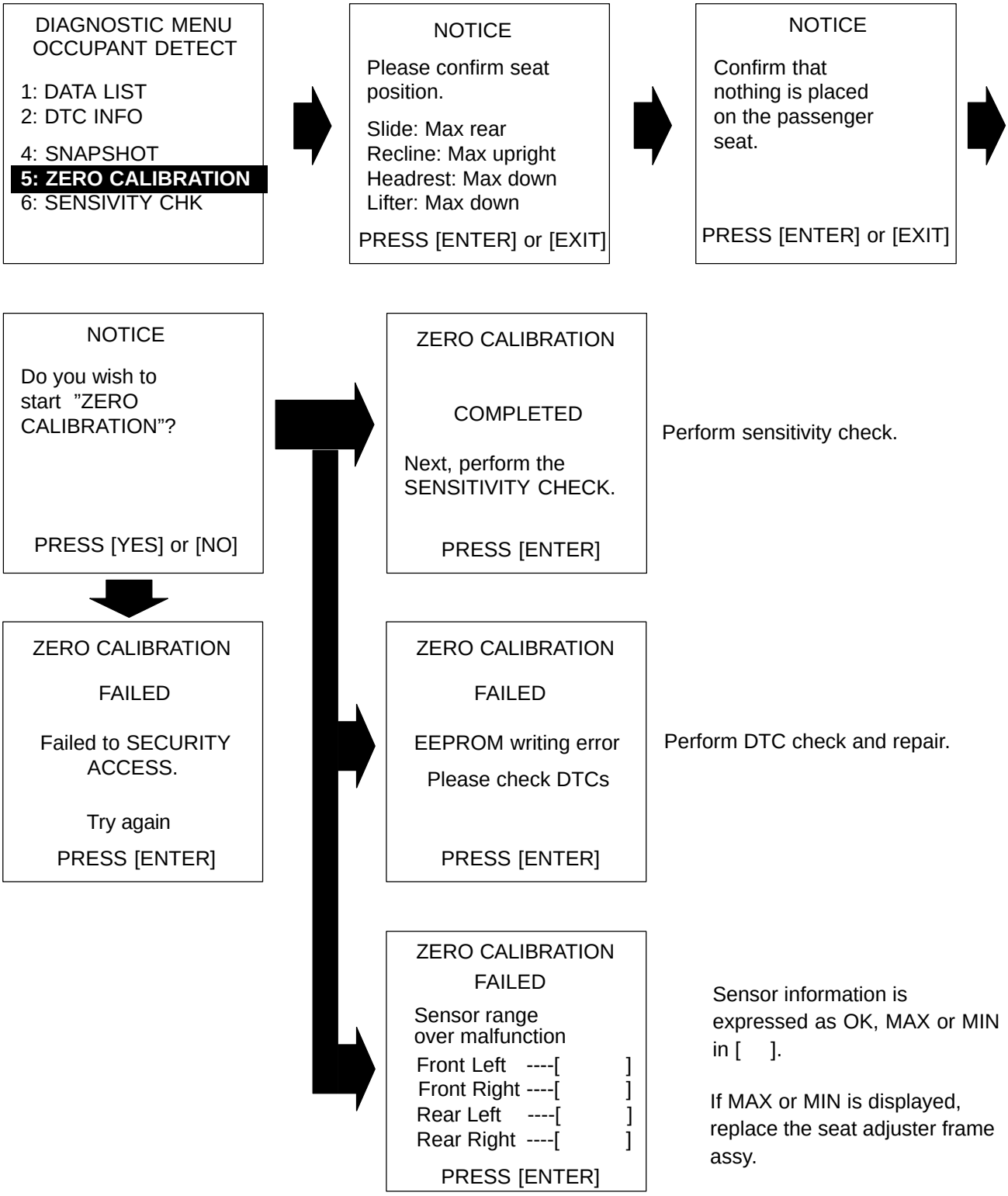
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

HINT:

- When performing the sensitivity check, use a solid metal weight (the check result may not appear properly if the weight made from liquid is used).
- When the sensitivity deviates from the standard value, retighten the bolts of the passenger seat taking care not to deform the seat rail. After performing this procedure, if the sensitivity is not within the standard value, replace the front RH seat assy.
- When zero point calibration has not finished normally, replace the seat adjuster frame assy.

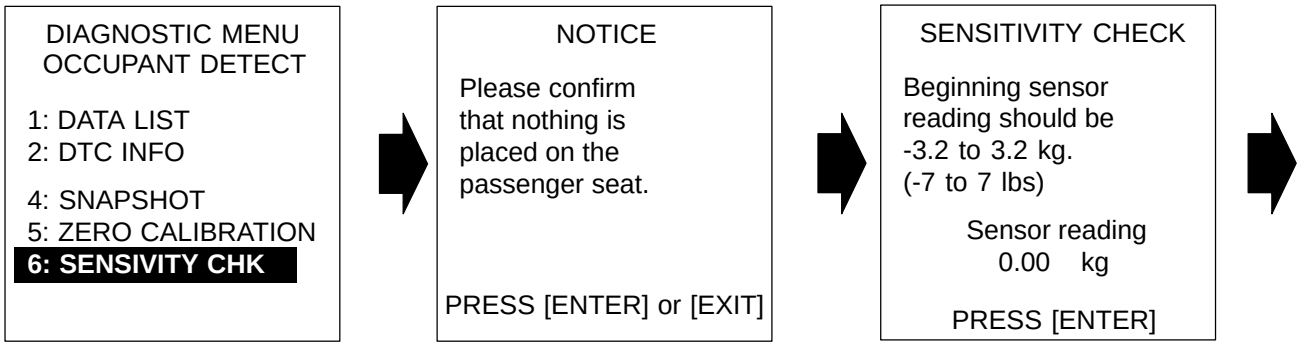
**ZERO POINT CALIBRATION PROCEDURE**

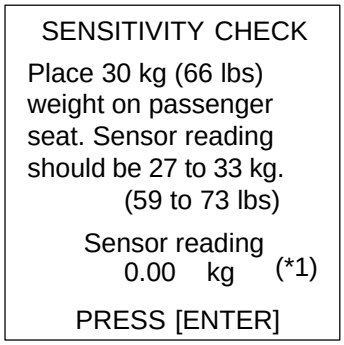
”1: DIAGNOSIS” - ”1: OBD/MOBD” - ”MODEL YEAR” - ”MODEL SELECTION = SIENNA” - Select the option parts - ”9: OCCUPANT DETECT” - Refer to the following screen flow.



**SENSITIVITY CHECK PROCEDURE**

”1: DIAGNOSIS” - ”1: OBD/MOBD” - ”MODEL YEAR” - ”MODEL SELECTION = SIENNA” - Select the option parts - ”9: OCCUPANT DETECT” - Refer to the following screen flow.




*1: kg ⇔ lb
Unit can be changed based on the unit conversion setting.
**[System Selection Screen]**
**”1: DIAGNOSIS” - ”9: SETUP” - ”4: UNIT CONVERSION” - ”WEIGHT” (kg ⇔ lbs)**

05FG4-04

# IDENTIFICATION OF NOISE SOURCE

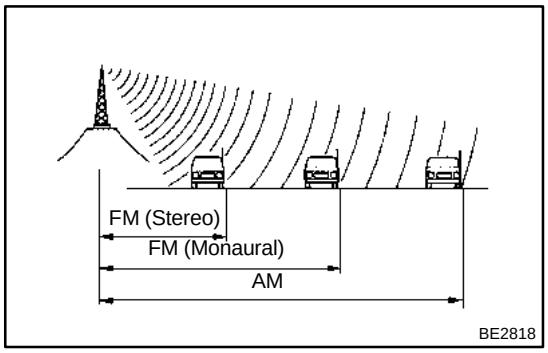
## 1. Radio Description

(a) Radio frequency band

(1) Radio Broadcasts use the radio frequency bands shown in the table below.

| Frequency | 30 kHz | 300 kHz | 3 MHz | 30 MHz | 300 MHz |
|---|---|---|---|---|---|
| Designation | LF | MF | HF | VHF | |
| Radio wave | | AM ⟷ | | FM ⟷ | |
| Modulation | Amplitude modulation | | | Frequency modulation | |

LF: Low Frequency
MF: Medium Frequency
HF: High Frequency
VHF: Very High Frequency




(b) Service area

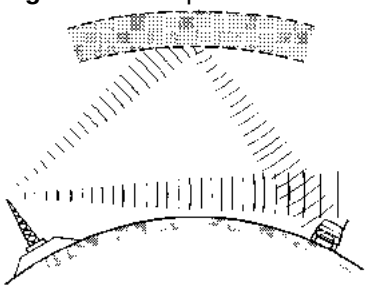
(1) The service areas of the AM and FM broadcasts are vastly different. Even if an AM broadcast has clear reception, an FM broadcast originating in the same location may not be received at all.
The service area of FM stereo broadcasts is small, and static as well as interference (noise) easily enters the signal.

(c) Radio reception problems

HINT:

In addition to static, other problems such as ”phasing”, ”multipath”, and ”fade out” exist. These problems are not caused by electrical noise, but by the radio signal propagation method itself.

**Phasing:** Ionosphere

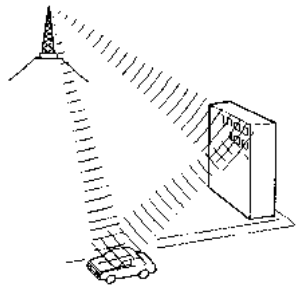


BE2819

(1) Phasing

The AM frequency band reflects off the earth’s ionosphere at night. When this occurs, the reflected signal may interfere with the direct signal sent by the same transmitter. This phenomenon is known as ”phasing”.

**Multipath:**

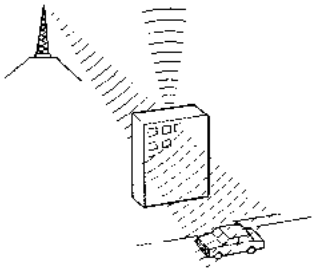


BE2820

(2) Multipath

A radio signal can sometimes be reflected by an obstruction in its path. When this occurs, the reflected signal may interfere with the direct signal sent from the transmitter. This phenomenon is known as ”Multipath”.

**Fade Out:**



BE2821

(3) Fade out

FM radio frequency is higher than AM. Therefore, it is more likely to be reflected by large obstructions such as tall buildings or mountains. For this reason, the FM signal will gradually weaken or disappear when the vehicle is behind such obstructions. This phenomenon is known as ”fade out”.

(d) Noise problem

It is very important for a technician to understand the specifics of the noise problem. To diagnose the symptom, use the table below.

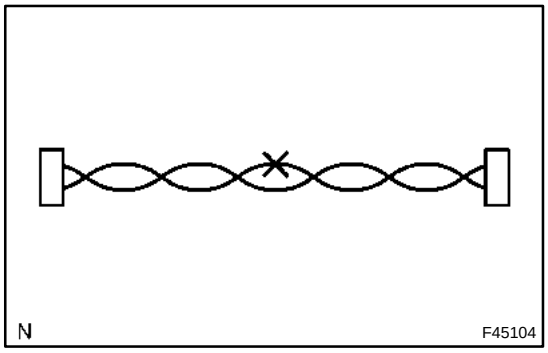
| Radio Frequency | Noise occurrence condition | Presumable cause |
|---|---|---|
| AM | Noise occurs in a specified area | Foreign noise |
| AM | Noise occurs when listening to an intermittent broadcast | An identical program transmitted from multiple towers can cause noise where the signals overlap |
| AM | Noise occurs only at night | Music beat from a far-off broadcast |
| FM | Noise occurs while driving in a specified area | Multipath or phasing noise resulting from a change in FM frequency |

HINT:

If the noise does not fall into any category in the table above, determine the cause using ”Radio reception problems” above. Refer to the multipath and phasing sections.

# CAN COMMUNICATION SYSTEM

05BYH-01



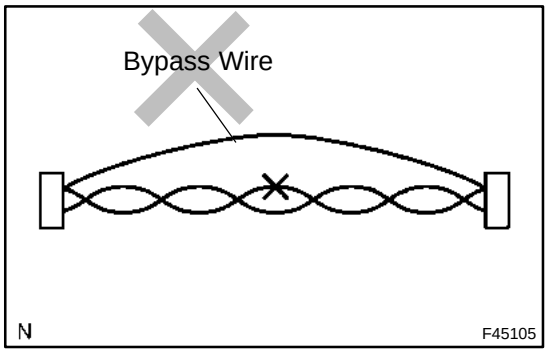

## PRECAUTION

**1. WIRE HARNESS REPAIR**

(a) After repairing wire harness, wrap the repaired part with a vinyl tape.

**NOTICE:**

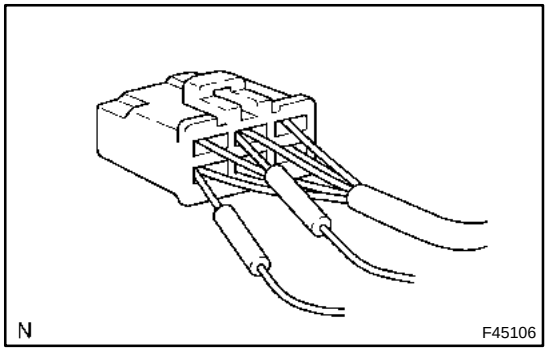
- **The CANL wire harness and CANH wire harness must be installed together all the time.**
  **When installing, make sure to twist them.**
- **The difference in the length of the CANL wire harness and CANH wire harness should be within 100 mm (3.937 in.).**




(b) Do not perform the bypass wiring between the connectors.

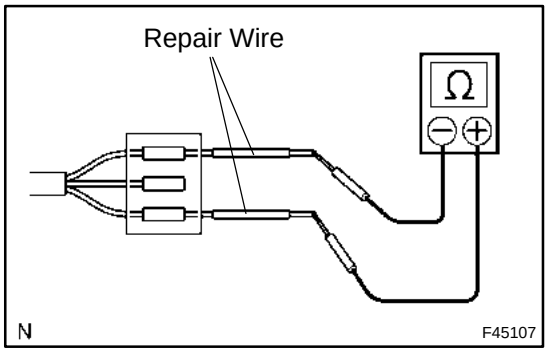
**NOTICE:**

**If you perform the bypass wiring, the characteristic of the twisted wire harness will be lost.**




**2. CONNECTOR HANDLING**

(a) When inserting tester probes into a connector, insert them from the rear of the connector.




(b) If it is impossible to check resistance from the back of the connector, use a repair wire to check it.

05FHT-04

# HOW TO PROCEED WITH TROUBLESHOOTING

| | |
|---|---|
| 1 | Vehicle brought into a workshop |

NEXT

| | |
|---|---|
| 2 | Diagnostic questioning and symptom confirmation (see page 05-1269 ) |

Ask the customer about symptoms and confirm malfunctions. Fill out the Customer Problem Analysis check sheet.

- The screen displays nothing (go to step 6, proceed to "BLACK SCREEN (NO IMAGE APPEARS ON NAVIGATION/AUDIO SCREEN)")
- Other symptoms (go to step 3)

| | |
|---|---|
| 3 | Confirm the system normal condition (see page 05-1270 ) |

- Applicable (This is not a malfunction.)
- Not applicable (go to step 4)

| | |
|---|---|
| 4 | Check the diagnostic trouble codes (see page 05-1275 ) |

HINT:

- Even if the malfunction symptom is not confirmed, check the diagnostic trouble codes. This is because the system stores past diagnostic trouble codes.
- Refer to the detailed description on the diagnostic screen, as necessary (see page 05-1303 ).

- A code is output (go to step 5)
- A code is not output (go to step 6)

| | |
|---|---|
| 5 | Diagnostic trouble code chart (see page 05-1278 ) |

Find the output code in the diagnostic trouble code chart.

- NEXT Go to step 8

| | |
|---|---|
| 6 | Problem symptoms table (see page 05-1286 ) |

Find the applicable symptom code in the problem symptoms table.
HINT:
If the symptom does not recur and no code is output, perform the symptom reproduction method (see page 01-27 ).

- There is an applicable symptom code in the table. (go to step 8)
- There is no applicable symptom code in the table. (go to step 7)

| | |
|---|---|
| 7 | **Check the ECU terminal arrangement based on the malfunction symptom (see page 05-1289 )** |

NEXT

| | |
|---|---|
| 8 | **Check the circuit** |

Adjust, repair or replace as necessary.

NEXT

| | |
|---|---|
| 9 | **Recheck the diagnostic trouble code (see page 05-1293 )** |

HINT:
After deleting the DTC, recheck the diagnostic trouble code.

NEXT

| | |
|---|---|
| 10 | **Perform confirmation test** |

NEXT

END

05BUS-01

# HOW TO PROCEED WITH TROUBLESHOOTING

| | |
|---|---|
| 1 | VEHICLE BROUGHT TO WORKSHOP |

| | |
|---|---|
| 2 | CUSTOMER PROBLEM ANALYSIS |

| | |
|---|---|
| 3 | CHECK INITIAL CHECK FUNCTION (See page 05-1487 ) |

| | |
|---|---|
| 4 | PROBLEM SYMPTOMS TABLE (See page 05-1497 ) |

The corresponding symptom exists (Go to step 6)

The corresponding symptom does not exist (Go to step 5)

| | |
|---|---|
| 5 | BASED ON THE MALFUNCTION SYMPTOM, PERFORM THE TROUBLESHOOTING BELOW |

(a) Pre-Check.
(b) Terminals of ECU.

| | |
|---|---|
| 6 | ADJUSTMENT, REPAIR OR REPLACE |

| | |
|---|---|
| 7 | CONFIRMATION TEST |

END

# ENGINE IMMOBILISER SYSTEM

052IA-04

## HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

Troubleshoot in accordance with the procedures on the following pages.

| | |
|---|---|
| 1 | **VEHICLE BROUGHT TO WORKSHOP** |

| | |
|---|---|
| 2 | **CUSTOMER PROBLEM ANALYSIS CHECK AND SYMPTOM CHECK (See page 05-1833 )** |

| | |
|---|---|
| 3 | **CRANK ENGINE FOR MORE THAN 10 SECONDS** |

| | |
|---|---|
| 4 | **CHECK DTC** |

(a) Check for DTCs and note any codes that are output.
(b) Delete the DTC.
(c) Recheck for DTCs. Try to prompt the DTC (SFI system and engine immobiliser system) by simulating the original activity that the DTC suggested.
  (1) If the DTC does not reoccur, proceed to A.
  (2) If the DTC (SFI system) reoccurs, proceed to B.
  (3) If the DTC (engine immobiliser system) reoccur, proceed to C.

| | |
|---|---|
| **B** | **Go to SFI SYSTEM (See page 05-5 )** |
| **C** | **Go to step 8** |

**A**

| | |
|---|---|
| 5 | **READ VALUE OF HAND-HELD TESTER (IMMOBILISER ECU (TRANSPONDER KEY ECU ASSY) (SWITCH CONDITION))** |

(a) Connect the hand-held tester to the DLC3.
(b) Turn the ignition switch ON and push the hand-held tester main switch ON.
(c) Select the item KEY SW in the DATA LIST and read its value displayed on the hand-held tester.
**Transponder key ECU assy:**

| Item | Measurement Item/ Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| KEY SW | Un-lock warning switch signal /ON or OFF | ON: Key is in ignition key cylinder OFF: No key is in ignition key cylinder | - |

| | |
|---|---|
| **NG** | **Go to DTC B2780 (See page 05-1844 )** |

**OK**

| 6 | PROBLEM SYMPTOMS TABLE (See page 05-1843 ) |
|---|---|

(a) When problem is not listed on problem symptoms table, proceed to A.
(b) When problem is listed on problem symptoms table, proceed to B.

B → Go to step 8

A

| 7 | PERFORM TROUBLESHOOTING ACCORDING TO MALFUNCTION SYMPTOM |
|---|---|

(a) Pre-check (See page 05-1834 )
  (1) Inspect with the hand-held tester (ECU data monitor).
  (2) Inspect with the hand-held tester (ACTIVE TEST).
(b) Terminals of ECU (See page 05-1839 )

| 8 | ADJUST, REPAIR OR REPLACE |
|---|---|

END

# JAM PROTECTION FUNCTION IS ACTIVATED WHILE POWER SLIDE DOOR LH IS OPERATING (FOR SOME REASONS*)

* It may be caused by ill-fitting slide door, faulty touch sensor or faulty pulse sensor.

## CIRCUIT DESCRIPTION

- The power slide door ECU activates the slide motor to open/close the power slide door, thus controlling the power slide door operation. For jam and foreign object detection, the power slide door system uses the pulse sensor built into the slide motor and the touch sensor installed in the front side of the slide door.
- When the touch sensor comes in contact with an object while the slide door is closing, the resistance of the touch sensor changes which is monitored by the power slide door ECU. If a change in resistance is detected, the ECU will judge it to be a jam and foreign object detection in the direction that the power slide door is moving and reverse slide motor rotation. The touch sensor operates only while the slide door is closing. It does not operate while the slide door is opening.
- The pulse sensor detects changes in the operating speed of the slide door while the slide door is operating. When the sensor detects a change in the operating speed, the pulse from the sensor also changes, which is monitored by the power slide door ECU. If there is a pulse change detected, the ECU will judge it to be a jam and foreign object detection in the direction that the power slide door is moving and reverse slide motor rotation.
- If a jam and foreign object detection by the touch sensor and the pulse sensor has occurred 2 or more consecutive times and if the 2nd or most recent detection has occurred during closing, then the power slide door ECU will cancel automated slide door operation and switch the slide door to manual operation mode (not electrically controlled). In order to return the power slide door system to normal operation mode, perform either of the following: manually close the slide door fully or press the satellite switch for the power slide door or the power slide door control switch again (reset operation).

## WIRING DIAGRAM

See page 05-1669 .

## INSPECTION PROCEDURE

| 1 | CHECK DTC |
|---|---|

(a) Check for DTC B2224. DTC B2224 indicates a pulse sensor malfunction.
  (1) Without code outputs, proceed to A.
  (2) With code outputs, proceed to B.

B → GO TO DTC B2224 (See page 05-1666 )

A

| 2 | VISUALLY CHECK |
|---|---|

(a) Check for foreign objects on the sliding area.

NG → REMOVE OBSTACLES AND RE-CHECK SLIDE OPERATION

OK

## 3 MANUAL OPERATION

(a) Turn off* the power slide door main switch in order to locate the area where reverse operation has been triggered.
* OFF is the position where orange paint on the top of the switch does not appear.

(b) Move the slide door manually, and check to make sure no obstacles are present (no extra resistance) around the reverse operation area and that the slide door smoothly operates.

**NG** → **ADJUST FITTING CONDITION OF SLIDE DOOR (See page 75-67 )**

**OK**

## 4 READ VALUE OF HAND-HELD TESTER

(a) Using the hand-held tester, check the DATA LIST for proper functioning of power slide door touch sensor LH.

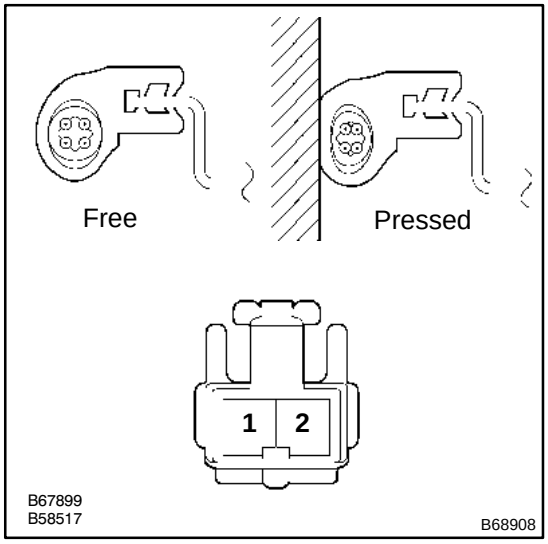
**Standard (Power Slide Door ECU LH):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| PSD TOUCH SEN | Power slide door touch sensor /OFF, ON or OPEN | OFF: Power slide door touch sensor is free<br>ON: Power slide door touch sensor is pressed<br>OPEN: Power slide door touch sensor is opened | - |

**OK** → **Go to step 7**

**NG**

## 5 INSPECT POWER SLIDE DOOR TOUCH SENSOR LH




(a) Inspect the resistance of the sensor.

**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Free | Approx. 1 kΩ |
| | Pressed | Less than 100 Ω |

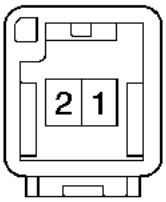
**NG** → **REPLACE POWER SLIDE DOOR TOUCH SENSOR LH**

**OK**

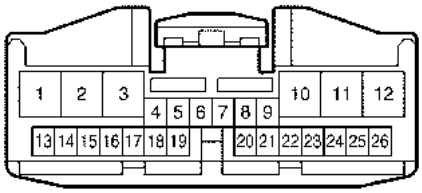
| 6 | CHECK WIRE HARNESS (POWER SLIDE DOOR TOUCH SENSOR LH - POWER SLIDE DOOR ECU LH) |
|---|---|

**Wire Harness Side**

P31
Power Slide Door Touch Sensor LH




T P25
Power Slide Door ECU LH




B68446

(a) Disconnect the P31 sensor and P25 ECU connectors.
(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P31-1 - P25-16 (OS) | Below 1 Ω |
| P31-2 - P25-15 (OSG) | |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE POWER SLIDE DOOR ECU LH**

| 7 | PERFORM ACTIVE TEST USING HAND-HELD TESTER |
|---|---|

(a) Select the ACTIVE TEST and then check that the power slide door control motor and clutch LH operates.

HINT:

During the ACTIVE TEST, the hand-held tester sends a signal to the power slide door ECU LH to drive the motor and clutch. If the motor and clutch operates, the motor and clutch itself and the wire harness between the motor and clutch and the power slide door ECU are considered to be functioning normally.

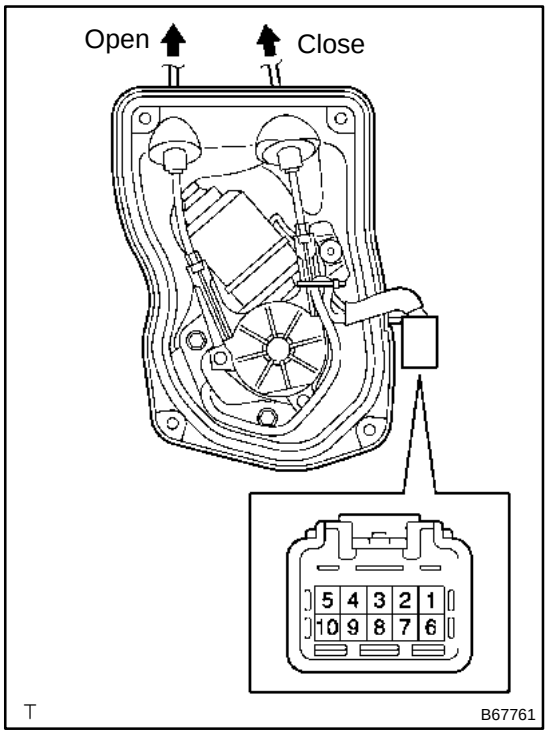
**Standard (Power Slide Door ECU LH):**

| Item | Test Details | Diagnostic Note |
|---|---|---|
| PSD MOTOR | Power slide door motor is operation OFF/FORWARD/REVERSE | Clutch is OFF while power slide door motor is operating |
| PSD CLUTCH | Power slide door clutch is release OFF/ON | Power slide door motor is OFF when clutch is ON |

**OK** → **REPLACE POWER SLIDE DOOR ECU LH**

**NG**

## 8 INSPECT SLIDE DOOR CONTROL MOTOR & CLUTCH ASSY LH




(a) Remove the motor and clutch.

(b) Connect the battery positive (+) lead to terminal 3 and battery negative (-) terminal lead to terminal 2.

(c) Apply battery voltage to the terminals and check the motor operation.

**Standard:**

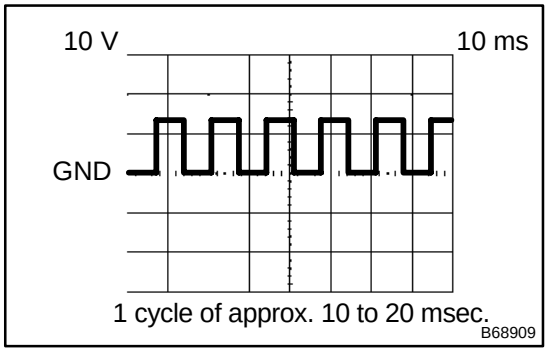
| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 8<br>Battery negative (-) → Terminal 7 | Open |
| Battery positive (+) → Terminal 7<br>Battery negative (-) → Terminal 8 | Close |

(d) Check the resistance of the clutch terminals.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| 2 - 3 | 4.0 Ω |

(e) Reinstall the motor and clutch with the connector connected.




(f) Check the pulse of the pulse sensor.

(1) Using an oscilloscope, check the pulse generated when the door is manually opened and closed.

**Standard (Reference):**

| | |
|---|---|
| Terminal | 5 - 9, 9 - 10 |
| Tool setting | 10 V/DIV., 10 ms/DIV. |
| Vehicle condition | Door moving |

HINT:

A cycle of the pulse changes between approx. 10 to 20 msec. according to the speeds that the slide door is moving.

**NOTICE:**

**When disconnecting the control motor and clutch, initialize the power slide door system (See page 05-1650 ).**

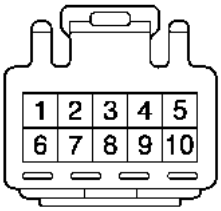
**NG** → **REPLACE SLIDE DOOR CONTROL MOTOR & CLUTCH ASSY LH**

**OK**

| 9 | **CHECK WIRE HARNESS (POWER SLIDE DOOR CONTROL MOTOR AND CLUTCH LH - POWER SLIDE DOOR ECU LH)** |
|---|---|

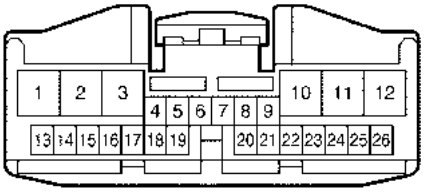
**Wire Harness Side**

P21
Power Slide Door Control Motor and Clutch LH



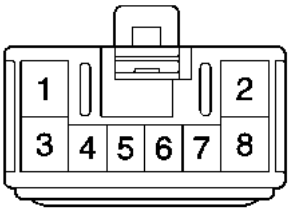

T

P25
Power Slide Door ECU LH




P

P26
Power Slide Door ECU LH




T

B68440

(a) Disconnect the P21 motor and clutch, the P25 and P26 ECU connectors.

(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P21-9 - P25-23 (DSG) | Below 1 Ω |
| P21-4 - P25-26 (DSV) | |
| P21-5 - P25-25 (DS1) | |
| P21-10 - P25-24 (DS2) | |
| P21-3 - P26-7 (CL+) | |
| P21-2 - P26-6 (CL-) | |
| P21-8 - P26-1 (SD+) | |
| P21-7 - P26-3 (SD-) | |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE POWER SLIDE DOOR ECU LH**

# JAM PROTECTION FUNCTION IS ACTIVATED WHILE POWER BACK DOOR IS OPERATING (FOR SOME REASONS*)

* It may be caused by ill-fitting back door, faulty touch sensor or faulty pulse sensor.

## CIRCUIT DESCRIPTION

- The power back door ECU activates the back motor to open/close the power back door, thus controlling the power back door operation. For jam and foreign object detection, the power back door system uses the pulse sensor built into the power back door drive unit and the 2 touch sensors installed in both sides of the back door respectively.
- When either of the touch sensors comes in contact with an object while the back door is closing, the resistance of the touch sensor changes, which is monitored by the power back door ECU. If a change in resistance is detected, the ECU will judge it to be a jam and foreign object detection in the direction that the power back door is moving and reverse back motor rotation. The touch sensors operate only while the back door is closing. They do not operate while the back door is opening.
- The pulse sensor detects changes in the operating speed of the back door while the back door is operating. When the sensor detects a change in the operating speed, the pulse from the sensor also changes, which is monitored by the power back door ECU. If there is a pulse change detected, the ECU will judge it to be a jam and foreign object detection in the direction that the power back door is moving and reverse back motor rotation.
- If a jam and foreign object detection by the touch sensors and the pulse sensor has occurred 2 or more consecutive times and if the 2nd or most recent detection has occurred during closing, then the power back door ECU will cancel automated back door operation and switch the back door to manual operation mode (not electrically controlled). In order to restore the power back door system to normal operation mode, perform either of the following: manually close the back door fully or press the satellite switch for the power back door or the power back door control switch again (reset operation).

## WIRING DIAGRAM

See page 05-1765 .

## INSPECTION PROCEDURE

| 1 | CHECK DTC |
|---|---|

(a) Check for DTC B2222. DTC B2222 indicates a pulse sensor malfunction.
  (1) Without code outputs, proceed to A.
  (2) With code outputs, proceed to B.

B → GO TO DTC B2222 (See page 05-1762 )

A

| 2 | VISUALLY CHECK |
|---|---|

(a) Check for foreign objects on the operating area.

NG → REMOVE OBSTACLES AND RE-CHECK DOOR OPERATION

OK

## 3 MANUAL OPERATION

(a) Turn off* the power door main switch in order to locate the area where reverse operation has been triggered.
* OFF is the condition when the orange paint on the top of the switch does not appear

(b) Move the back door manually, and then check to make sure no obstacles are present (no extra resistance) around the reverse operation area and that the back door smoothly operates.

**NG** → **ADJUST FITTING CONDITION OF BACK DOOR (See page 75-106 )**

**OK**

## 4 READ VALUE OF HAND-HELD TESTER

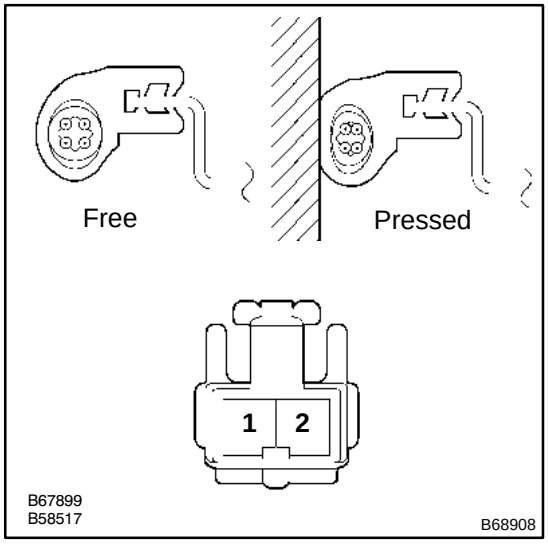
(a) Using the hand-held tester, check the DATA LIST for proper functioning of the power back door touch sensor LH.
**Standard (Power back door ECU):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| PBD TOUCH SEN L | Power back door touch sensor LH signal /OFF, ON or OPEN | OFF: Power back door touch sensor LH is free<br>ON: Power back door touch sensor LH is pressed<br>OPEN: Power back door touch sensor LH is opened | - |

**OK** → **Go to step 10**

**NG**

## 5 INSPECT POWER BACK DOOR TOUCH SENSOR LH




(a) Check the resistance of the sensor.
**Standard:**

| Terminal No. | Condition | Specified condition |
|---|---|---|
| 1 - 2 | Free | Approx. 1 kΩ |
| | Pressed | Less than 100 Ω |

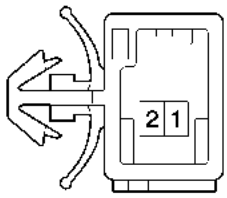
**NG** → **REPLACE POWER BACK DOOR TOUCH SENSOR LH**

**OK**

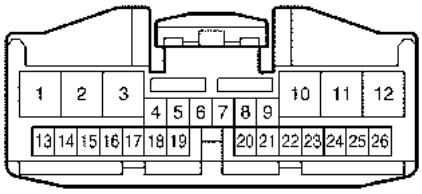
| 6 | CHECK WIRE HARNESS (POWER BACK DOOR TOUCH SENSOR LH - POWER BACK DOOR ECU) |
|---|---|

**Wire Harness Side**

P15
Power Back Door Touch Sensor LH




P13
Power Back Door ECU




B68456

(a) Disconnect the P15 sensor and P13 ECU connectors.
(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P15-1 - P13-14 (OSL) | Below 1 Ω |
| P15-2 - P13-15 (OSE) | |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE POWER BACK DOOR ECU**

| 7 | READ VALUE OF HAND-HELD TESTER |
|---|---|

(a) Using the hand-held tester, check the DATA LIST for proper functioning of the power back door touch sensor RH.

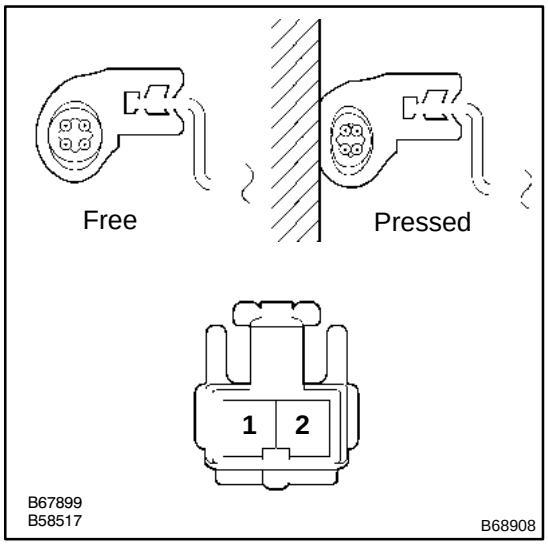
**Standard (Power back door ECU):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| PBD TOUCH SEN R | Power back door touch sensor RH signal /OFF, ON or OPEN | OFF: Power back door touch sensor RH is free<br>ON: Power back door touch sensor RH is pressed<br>OPEN: Power back door touch sensor RH is opened | - |

**OK** → **Go to step 10**

**NG**

## 8 INSPECT POWER BACK DOOR TOUCH SENSOR RH




(a) Check the resistance of the sensor.
**Standard:**

| Terminal No. | Condition | Specified condition |
|---|---|---|
| 1 - 2 | Free | Approx. 1 kΩ |
| | Pressed | Less than 100 Ω |

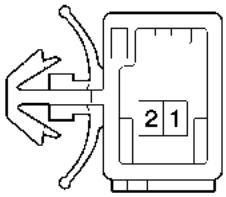
**NG** → **REPLACE POWER BACK DOOR TOUCH SENSOR RH**

**OK**

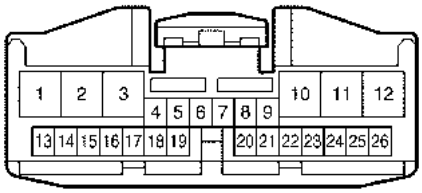
## 9 CHECK WIRE HARNESS (POWER BACK DOOR TOUCH SENSOR RH - POWER BACK DOOR ECU)

**Wire Harness Side**

P16
Power Back Door Touch Sensor RH




P13
Power Back Door ECU




(a) Disconnect the P16 sensor and P13 ECU connectors.
(b) Check the resistance between the wire harness side connectors.
**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P16-1 - P13-16 (OSR) | Below 1 Ω |
| P16-2 - P13-15 (OSE) | |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE POWER BACK DOOR ECU**

| 10 | PERFORM ACTIVE TEST USING HAND-HELD TESTER |
|---|---|

(a) Select the ACTIVE TEST and then check that the power back door drive unit operates.

HINT:

During the ACTIVE TEST, the hand-held tester sends a signal to the power back door ECU to drive the drive unit. If the drive unit operates, the drive unit itself and the wire harness between the drive unit and power back door ECU are considered to be functioning normally.

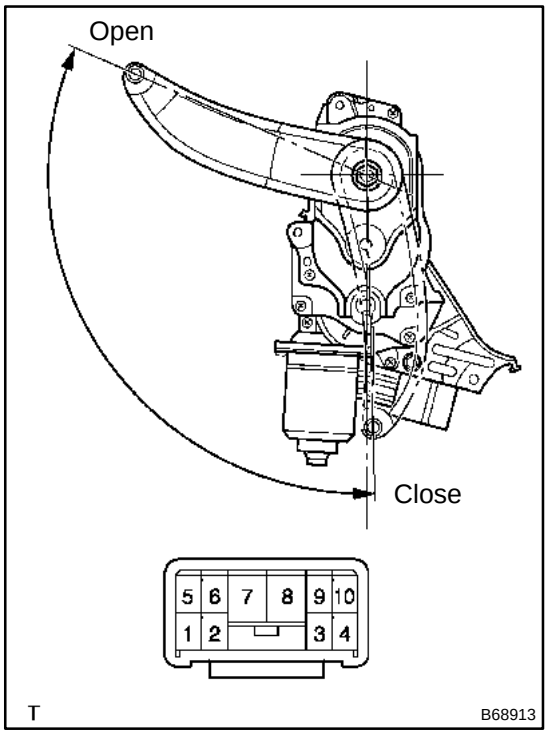
**Standard (Power back door ECU):**

| Item | Test Details | Diagnostic Note |
|---|---|---|
| PBD MOTOR | Power back door motor is operate OFF/FORWARD/REVERSE | Clutch is OFF while power slide door motor is operating |
| PBD CLUTCH | Power back door clutch is operate OFF/ON | Power slide door motor is OFF when clutch is ON |

**OK** → **REPLACE POWER BACK DOOR ECU AND RE-CHECK DOOR OPERATION**

**NG**

## 11 INSPECT POWER BACK DOOR DRIVE UNIT




(a) Remove the unit.

(b) Connect the battery positive (+) lead to terminal 3 and battery negative (-) terminal lead to terminal 9.

(c) Apply battery voltage to the terminals and check the motor operation.

**Standard:**

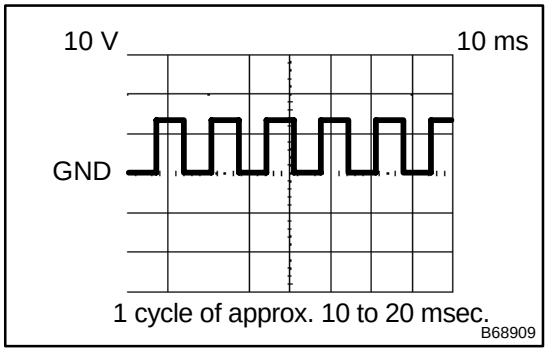
| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 8<br>Battery negative (-) → Terminal 7 | Open |
| Battery positive (+) → Terminal 7<br>Battery negative (-) → Terminal 8 | Close |

(d) Check the resistance of the clutch terminals.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| 3 - 9 | 4.0 Ω |

(e) Reinstall the unit with the connector connected.




(f) Check the pulse of the pulse sensor.

(1) Using an oscilloscope, check the pulse generated when the door is manually opened and closed.

**Standard (Reference):**

| | |
|---|---|
| Terminal | 1 - 6, 5 - 6 |
| Tool setting | 10 V/DIV., 10 ms/DIV. |
| Vehicle condition | Door moving |

HINT:

A cycle of the pulse changes between approx. 10 to 20 msec. according to the speeds that the slide door is moving.

**NOTICE:**

**When disconnecting the drive unit, initialize the power back door system (See page 05-1752 ).**

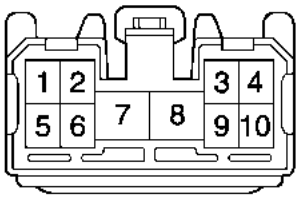
**NG** → **REPLACE POWER BACK DOOR DRIVE UNIT**

**OK**

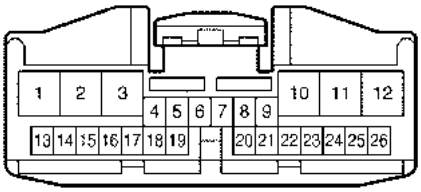
| 12 | **CHECK WIRE HARNESS (POWER BACK DOOR DRIVE UNIT - POWER BACK DOOR ECU)** |
|---|---|

**Wire Harness Side**

P12
Power Back Door Drive Unit




T P13
Power Back Door ECU




B68455

(a) Disconnect the P12 unit and P13 ECU connectors.
(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P12-6 - P13-23 (DSG) | Below 1 Ω |
| P12-5 - P13-24 (DS2) | |
| P12-1 - P13-25 (DS1) | |
| P12-2 - P13-26 (DSV) | |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE POWER BACK DOOR ECU**

# JAM PROTECTION FUNCTION IS ACTIVATED WHILE POWER SLIDE DOOR RH IS OPERATING (FOR SOME REASONS*)

* It may be caused by ill-fitting slide door, faulty touch sensor or faulty pulse sensor.

## CIRCUIT DESCRIPTION

- The power slide door ECU activates the slide motor to open/close the power slide door, thus controlling the power slide door operation. For jam and foreign object detection, the power slide door system uses the pulse sensor built into the slide motor and the touch sensor installed in the front side of the slide door.
- When the touch sensor comes in contact with an object while the slide door is closing, the resistance of the touch sensor changes, which is monitored by the power slide door ECU. If a change in resistance is detected, the ECU will judge it to be a jam and foreign object detection in the direction that the power slide door is moving and reverse slide motor rotation. The touch sensor operates only while the slide door is closing. It does not operate while the slide door is opening.
- The pulse sensor detects changes in the operating speed of the slide door while the slide door is operating. When the sensor detects a change in the operating speed, the pulse from the sensor also changes, which is monitored by the power slide door ECU. If there is a pulse change detected, the ECU will judge it to be a jam and foreign object detection in the direction that the power slide door is moving and reverse slide motor rotation.
- If a jam and foreign object detection by the touch sensor and the pulse sensor has occurred 2 or more consecutive times and if the 2nd or most recent detection has occurred during closing, then the power slide door ECU will cancel automated slide door operation and switch the slide door to manual operation mode (not electrically controlled). In order to return the power slide door system to normal operation mode, perform either of the following: manually close the slide door fully or press the satellite switch for the power slide door or the power slide door control switch again (reset operation).

## WIRING DIAGRAM

See page 05-1688 .

## INSPECTION PROCEDURE

| 1 | CHECK DTC |
|---|---|

(a) Check for DTC B2223. DTC B2223 indicates a pulse sensor malfunction.
  (1) Without code outputs, proceed to A.
  (2) With code outputs, proceed to B.

B → GO TO DTC B2223 ( See page 05-1663 )

A

| 2 | VISUALLY CHECK |
|---|---|

(a) Check for foreign objects on the sliding area.

NG → REMOVE OBSTACLES AND RE-CHECK SLIDE OPERATION

OK

## 3 MANUAL OPERATION

(a) Turn OFF* the power slide door main switch in order to locate the area where reverse operation has been triggered.
* OFF is a condition that orange paint on the top of the switch does not appear.

(b) Move the slide door manually, and check to make sure no obstacles are present (no extra resistance) around the reverse operation area and that the slide door smoothly operates.

**NG** → **ADJUST FITTING CONDITION OF SLIDE DOOR (See page 75-67 )**

**OK**

## 4 READ VALUE OF HAND-HELD TESTER

(a) Using the hand-held tester, check the DATA LIST for proper functioning of power slide door touch sensor RH.

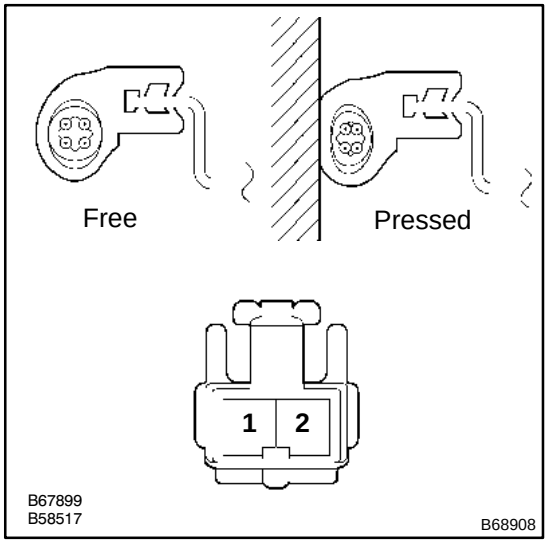
**Standard (Power slide door ECU RH):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| PSD TOUCH SEN | Power slide door touch sensor /OFF, ON or OPEN | OFF: Power slide door touch sensor is free<br>ON: Power slide door touch sensor is pressed<br>OPEN: Power slide door touch sensor is opened | - |

**OK** → **Go to step 7**

**NG**

## 5 INSPECT POWER SLIDE DOOR TOUCH SENSOR RH




(a) Inspect the resistance of the sensor.

**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Free | Approx. 1 kΩ |
| | Pressed | Less than 100 Ω |

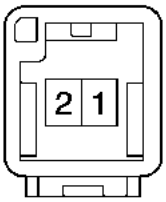
**NG** → **REPLACE POWER SLIDE DOOR TOUCH SENSOR RH**

**OK**

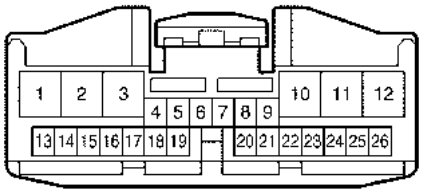
| 6 | CHECK WIRE HARNESS (POWER SLIDE DOOR TOUCH SENSOR RH - POWER SLIDE DOOR ECU RH) |
|---|---|

**Wire Harness Side**

P32
Power Slide Door Touch Sensor RH




T P27
Power Slide Door ECU RH




B68446

(a) Disconnect the P32 sensor and the P27 ECU connectors.
(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P32-1 - P27-16 (OS) | Below 1 Ω |
| P32-2 - P27-15 (OSG) | |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE POWER SLIDE DOOR ECU RH**

| 7 | PERFORM ACTIVE TEST USING HAND-HELD TESTER |
|---|---|

(a) Select the ACTIVE TEST and then check that the power slide door control motor and clutch RH operates.

HINT:

During the ACTIVE TEST, the hand-held tester sends a signal to the power slide door ECU RH to drive the motor and clutch. If the motor and clutch operates, the motor and clutch itself and the wire harness between the motor and clutch and the power slide door ECU are considered to be functioning normally.

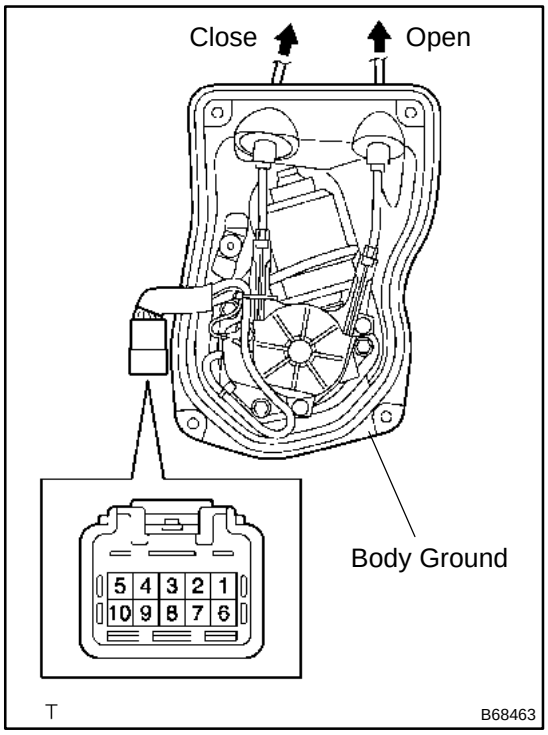
**Standard (Power slide door ECU RH):**

| Item | Test Details | Diagnostic Note |
|---|---|---|
| PSD MOTOR | Power slide door motor is operation OFF/FORWARD/REVERSE | Clutch is OFF while power slide door motor is operating |
| PSD CLUTCH | Power slide door clutch is release OFF/ON | Power slide door motor is OFF when clutch is ON |

**OK** → **REPLACE POWER SLIDE DOOR ECU RH**

**NG**

## 8 INSPECT SLIDE DOOR CONTROL MOTOR & CLUTCH ASSY RH




(a) Remove the motor and clutch.

(b) Connect the battery positive (+) lead to terminal 3 and battery negative (-) terminal lead to terminal 2.

(c) Apply battery voltage to the terminals and check the motor operation.

**Standard:**

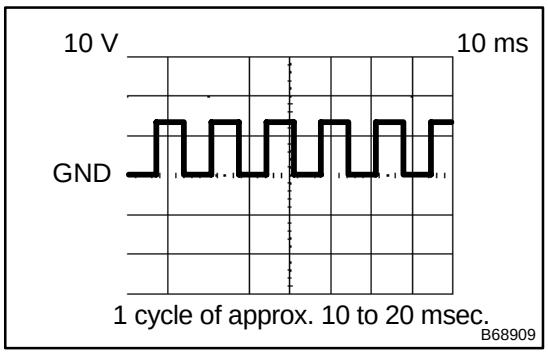
| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 8<br>Battery negative (-) → Terminal 7 | Open |
| Battery positive (+) → Terminal 7<br>Battery negative (-) → Terminal 8 | Close |

(d) Check the resistance of the clutch terminals.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| 2 - 3 | 4.0 Ω |
| 6 - Body ground | Below 1 Ω |

(e) Reinstall the motor and clutch with the connector connected.




(f) Check the pulse of the pulse sensor.

(1) Using an oscilloscope, check the pulse generated when the door is manually opened and closed.

**Standard (Reference):**

| | |
|---|---|
| Terminal | 5 - 9, 9 - 10 |
| Tool setting | 10 V/DIV., 10 ms/DIV. |
| Vehicle condition | Door moving |

HINT:

A cycle of the pulse changes between approx. 10 to 20 msec. according to the speeds that the slide door is moving.

**NOTICE:**

**When disconnecting the control motor and clutch, initialize the power slide door system (See page 05-1650 ).**

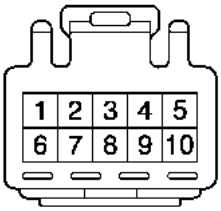
**NG** → **REPLACE SLIDE DOOR CONTROL MOTOR & CLUTCH ASSY RH**

**OK**

| 9 | **CHECK WIRE HARNESS (POWER SLIDE DOOR CONTROL MOTOR AND CLUTCH RH - POWER SLIDE DOOR ECU RH)** |
|---|---|

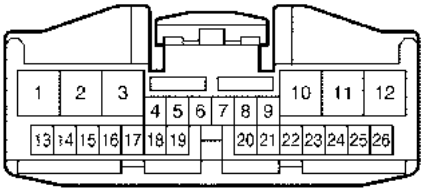
**Wire Harness Side**

P22
Power Slide Door Control Motor and Clutch RH



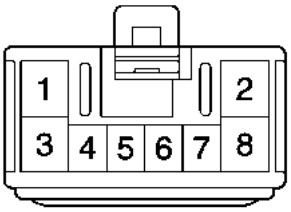

T

P27
Power Slide Door ECU RH




P

P28
Power Slide Door ECU RH




T

B68440

(a) Disconnect the P22 motor and clutch, the P27 and P28 ECU connectors.

(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P22-9 - P27-23 (DSG) | Below 1 Ω |
| P22-4 - P27-26 (DSV) | |
| P22-10 - P27-25 (DS1) | |
| P22-5 - P27-24 (DS2) | |
| P22-3 - P28-7 (CL+) | |
| P22-2 - P28-6 (CL-) | |
| P22-7 - P28-1 (SD+) | |
| P22-8 - P28-3 (SD-) | |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

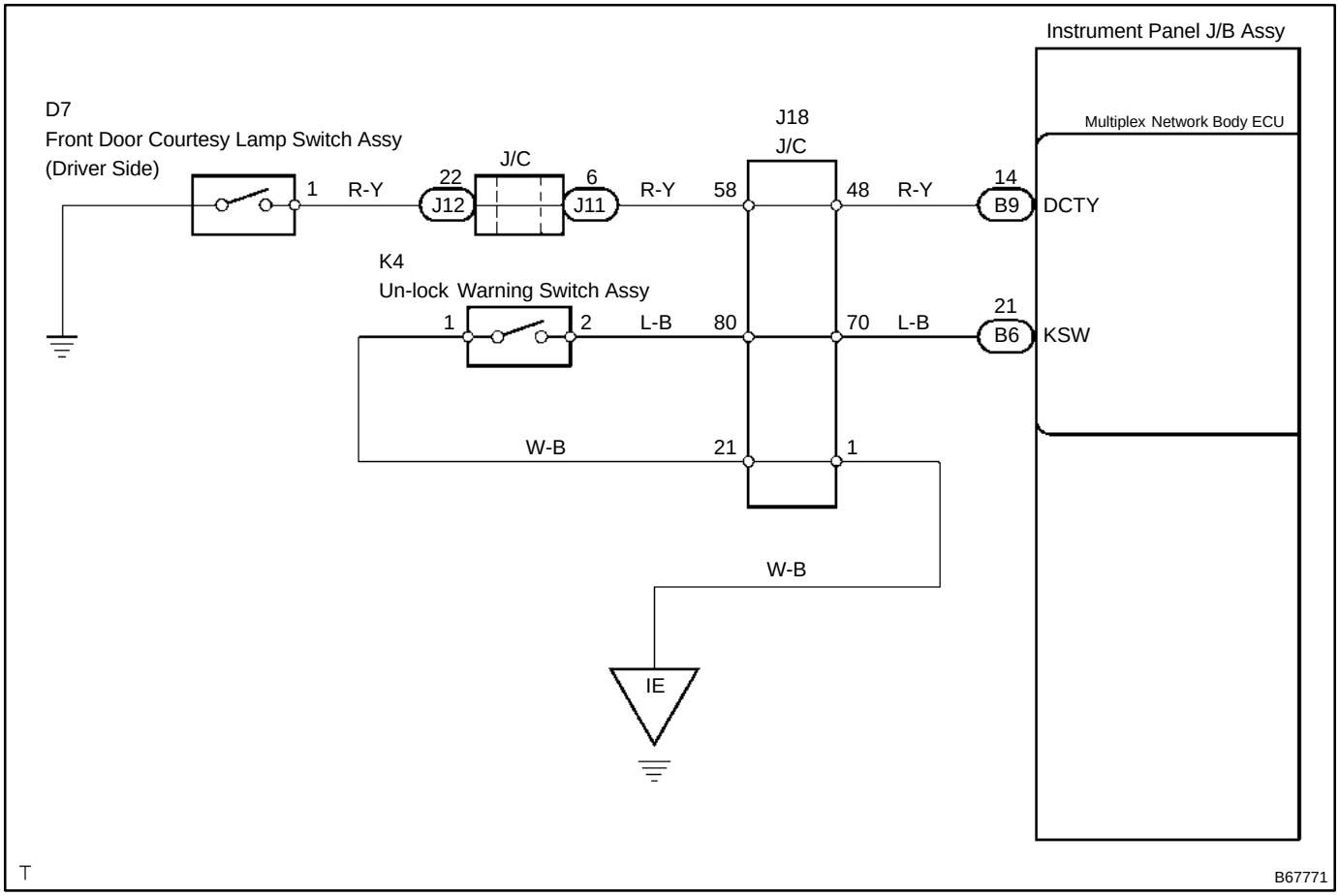
**REPLACE POWER SLIDE DOOR ECU RH**

# KEY LOCK-IN PREVENTION FUNCTION DOES NOT WORK PROPERLY (MANUAL OPERATION AND OPERATION INTERLOCKED WITH KEY ARE ACTIVE)

## CIRCUIT DESCRIPTION

The un-lock warning switch turns ON when the key is inserted in the ignition key cylinder. The courtesy lamp switch turns ON when the driver side door is opened. These 2 switches are monitored by the body ECU. In order to prevent the key from being locked in, the body ECU controls door locking operation according to the conditions of these switches so that the doors are not locked.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT FUSE (ECU-B) |
|---|---|

(a) Inspect the ECU-B fuse (See page 68-1 ).

NG → REPLACE FUSE

OK

| 2 | READ VALUE OF HAND-HELD TESTER |
|---|---|

(a) Using the hand-held tester, check that the un-lock warning switch signal is output when the switch is operated.

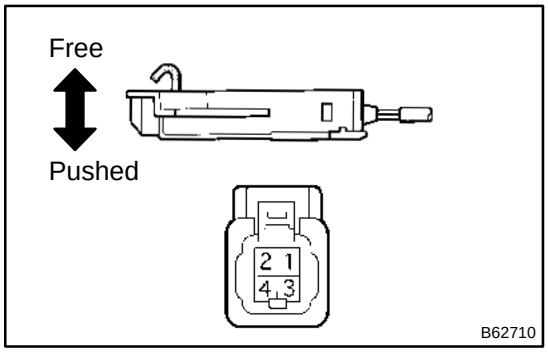
**Standard (Multiplex network body ECU):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| KEY UNLK WRN SW | Un-lock warning switch signal/ON or OFF | ON: Key is in ignition key cylinder<br>OFF: No key is in ignition key cylinder | - |

OK → Go to step 5

NG

| 3 | INSPECT UN-LOCK WARNING SWITCH ASSY |
|---|---|




(a) Remove the un-lock warning switch.
(b) Inspect the resistance of the switch.

**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Free<br>(Key removed) | 10 kΩ or higher |
| | Pushed<br>(Key set) | Below 1 Ω |

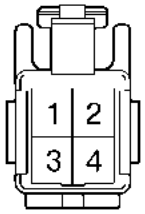
NG → REPLACE UN-LOCK WARNING SWITCH ASSY

OK

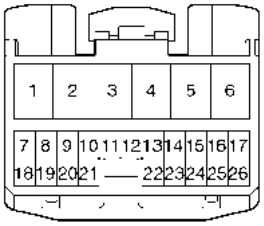
| 4 | CHECK WIRE HARNESS (UN-LOCK WARNING SWITCH ASSY - INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU)) |
|---|---|

**Wire Harness Side**

K4
Un-lock Warning Switch Assy




T B6
Instrument Panel J/B Assy
(Multiplex Network Body ECU)




B64723

(a) Disconnect the K4 switch and B6 body ECU connectors.
(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| K4-2 - B6-21 (KSW) | Below 1 Ω |
| K4-1 - Body ground | |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU)**

| 5 | READ VALUE OF HAND-HELD TESTER |
|---|---|

(a) Using the hand-held tester, check that the driver side door courtesy lamp switch signal is output when the switch is operated.

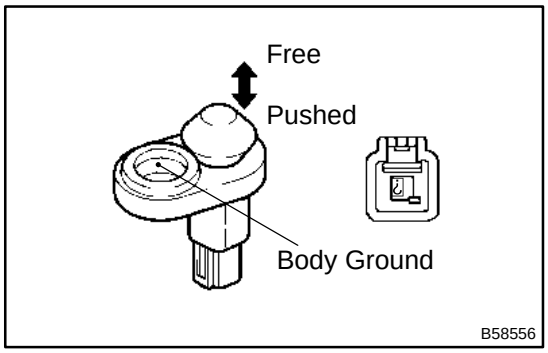
**Standard (Multiplex network body ECU):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| D DOR CTY SW | Driver side door courtesy lamp switch signal/ ON or OFF | ON: Driver side door is open<br>OFF: Driver side door is closed | - |

**OK** → **REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU)**

**NG**

| 6 | INSPECT FRONT DOOR COURTESY LAMP SWITCH ASSY (DRIVER SIDE) |
|---|---|




(a) Remove the courtesy lamp switch.
(b) Inspect the resistance of the switch.

**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 1 - Body ground | Free | Below 1 Ω |
| | Pushed | 10 kΩ or higher |

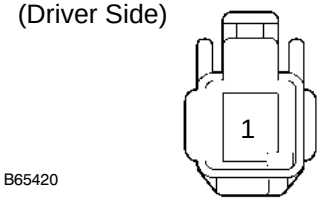
**NG** → **REPLACE FRONT DOOR COURTESY LAMP SWITCH ASSY**

**OK**

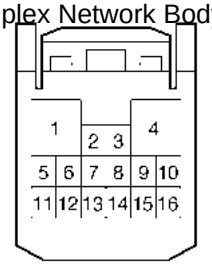
| 7 | CHECK WIRE HARNESS (FRONT DOOR COURTESY LAMP SWITCH ASSY (DRIVER SIDE) - INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU)) |
|---|---|

**Wire Harness Side**

D7
Front Door Courtesy Lamp Switch Assy
(Driver Side)




B9
Instrument Panel J/B Assy
(Multiplex Network Body ECU)




(a) Disconnect the D7 switch and B9 body ECU connectors.
(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| D7-1 - B9-14 (DCTY) | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU)**

# POWER SLIDE DOOR LH DOES NOT OPERATE WHEN USING INSIDE/OUTSIDE HANDLE (NORMALLY OPERATES WHEN USING SWITCH*)

* The ”SWITCH” indicates the satellite switch for the power slide door LH and the power slide door control switch LH

## CIRCUIT DESCRIPTION

- The inside/outside handles have the ability to control operation of the power slide door. Pulling either handle transmits a request signal to the power slide door ECU LH, which then commands the power slide door control motor and clutch to open/close the power slide door.
- The slide door lock remote control assy has the handle operation detect switch for detection of switch operation and also the child protection detect switch for the child lock function that disables the power slide door control switch LH function while the child lock is ON.
- If there is a malfunction detected in these 2 detection switches or the wire harness, replace the slide door lock remote control assy LH.

## WIRING DIAGRAM

See page 05-1669 .

## INSPECTION PROCEDURE

| 1 | OPERATION CHECK |
|---|---|

(a) If the power slide door does not operate when trying to open it, proceed to A.
(b) If the power slide door does not operate when trying to close it, proceed to B.

B → Go to step 3

A

| 2 | CHECK SLIDE DOOR CLOSER SYSTEM |
|---|---|

(a) Check if the slide door closer system operates.

NG → GO TO CLOSER SYSTEM (See page 05-1627 )

OK

| 3 | READ VALUE OF HAND-HELD TESTER |
|---|---|

(a) Using the hand-held tester, check the DATA LIST for proper functioning of the handle operation detect switch.

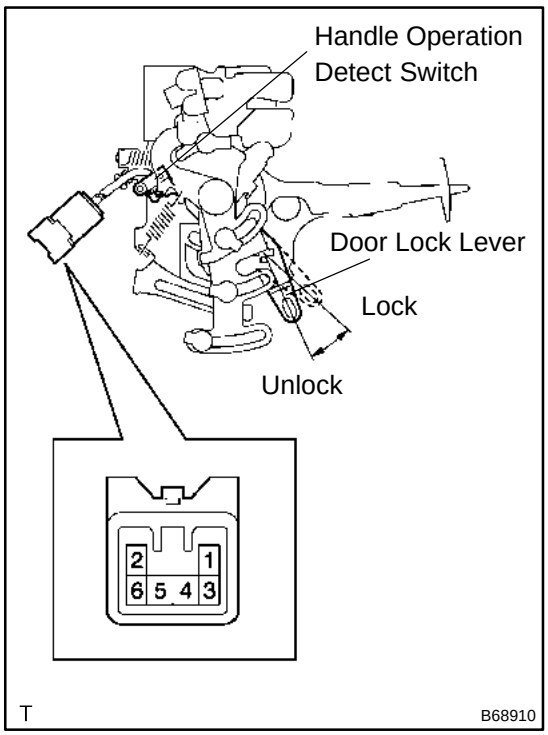
**Standard (Power slide door ECU LH):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| HANDLE SW | Handle operation detect switch signal /ON or OFF | ON: Slide door inside/outside handle is pulled<br>OFF: Slide door inside/outside handle is not pulled | - |

OK → Go to step 6

NG

| 4 | **INSPECT SLIDE DOOR LOCK REMOTE CONTROL SUB-ASSY LH (HANDLE OPERATION DETECT SWITCH)** |
|---|---|




(a) Inspect the resistance of the switch.

**Standard:**

| Terminal No. | Lever Position | Specified Condition |
|---|---|---|
| 1 - 3 | Unlock | 10 kΩ or higher |
| | Lock | Below 1 Ω |

**NG** → **REPLACE SLIDE DOOR LOCK REMOTE CONTROL SUB-ASSY LH**

**OK**

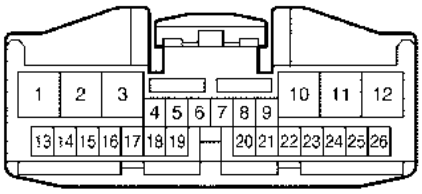
| 5 | CHECK WIRE HARNESS (SLIDE DOOR LOCK REMOTE CONTROL ASSY (HANDLE OPERATION DETECT SWITCH) - POWER SLIDE DOOR ECU LH) |
|---|---|

**Wire Harness Side**

S20
Slide Door Lock Remote Control Assy LH




P25
Power Slide Door ECU LH




P

B68450

(a) Disconnect the S20 remote control and P25 ECU connectors.

(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| S20-1 - P25-3 (HSW) | Below 1 Ω |

(c) Check the resistance between the S20 remote control connector and body ground.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| S20-3 - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE POWER SLIDE DOOR ECU LH**

| 6 | READ VALUE OF HAND-HELD TESTER |
|---|---|

(a) Using the hand-held tester, check the DATA LIST for proper functioning of the child protection detect switch.

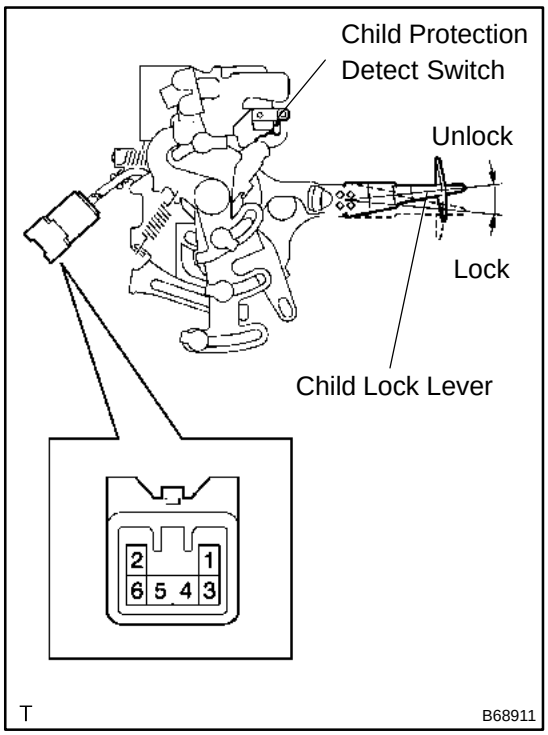
**Standard (Power slide door ECU LH):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| CHILD LOCK SW | Child protection detect switch signal /ON or OFF | ON: Child lock lever is LOCK<br>OFF: Child lock lever is UNLOCK | - |

**OK** → **REPLACE POWER SLIDE DOOR ECU LH**

**NG**

| 7 | **INSPECT SLIDE DOOR LOCK REMOTE CONTROL SUB-ASSY LH (CHILD PROTECTION DETECT SWITCH)** |
|---|---|




(a) Inspect the resistance of the switch.

**Standard:**

| Terminal No. | Lever Position | Specified Condition |
|---|---|---|
| 4 - 5 | Unlock | 10 kΩ or higher |
| | Lock | Below 1 Ω |

**NG** → **REPLACE SLIDE DOOR LOCK REMOTE CONTROL SUB-ASSY LH**

**OK**

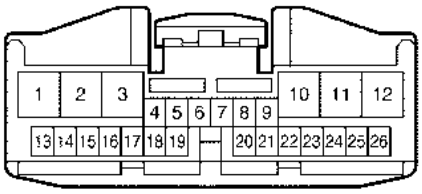
| 8 | **CHECK WIRE HARNESS (SLIDE DOOR LOCK REMOTE CONTROL ASSY LH (CHILD PROTECTION DETECT SWITCH) - POWER SLIDE DOOR ECU LH)** |
|---|---|

**Wire Harness Side**

S20
Slide Door Lock Remote Control Assy LH




P25 Power Slide Door ECU LH




P

B68450

(a) Disconnect the S20 switch and P25 ECU connectors.

(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| S20-5 - P25-18 (CPSW) | Below 1 Ω |

(c) Check the resistance between the S20 switch connector and body ground.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| S20-4 - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

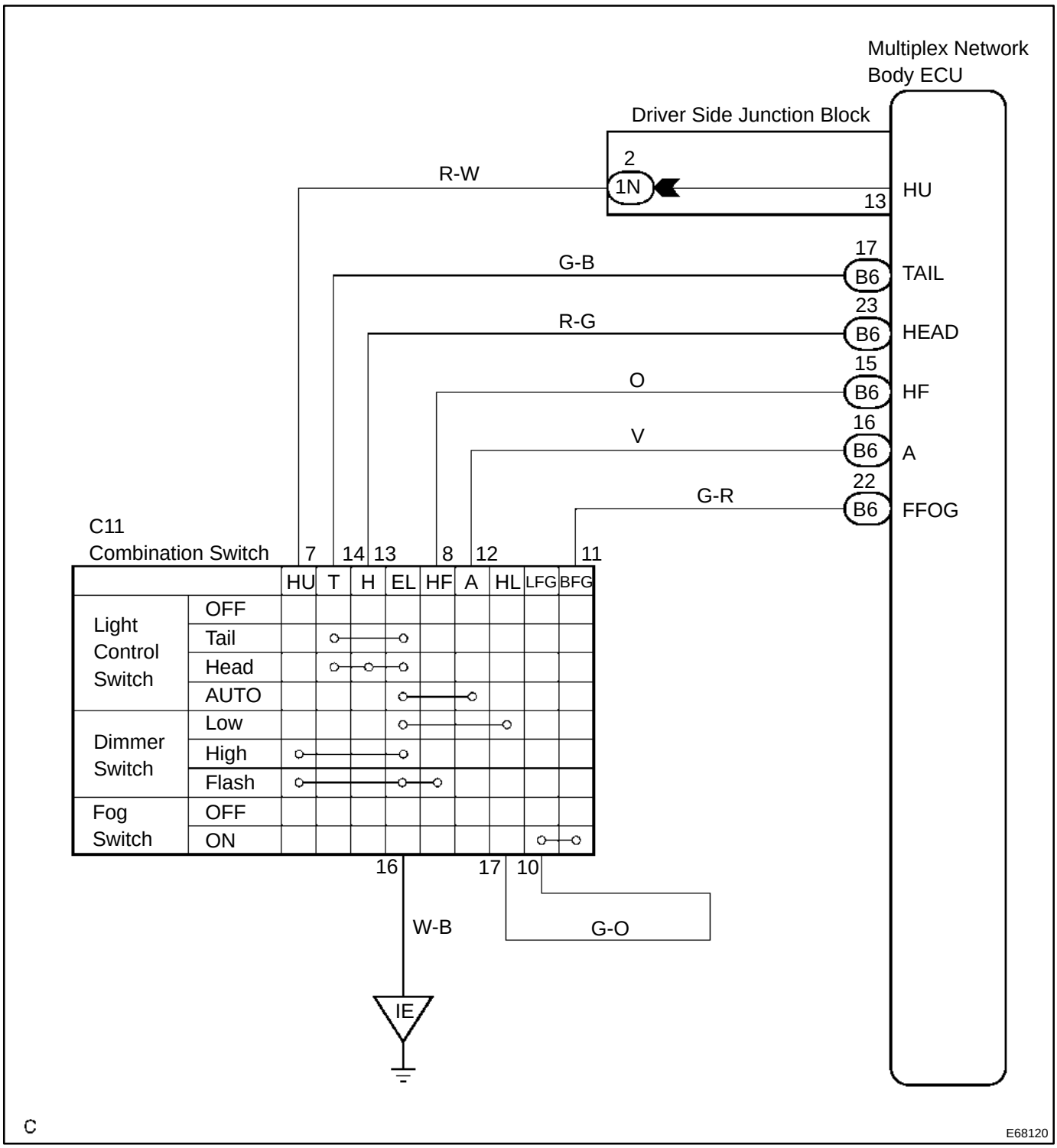
**REPLACE POWER SLIDE DOOR ECU LH**

# LIGHT CONTROL SWITCH CIRCUIT

## CIRCUIT DESCRIPTION

This circuit detects the state of the headlight dimmer switch.

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

Start the inspection from step 1 in the case of using the hand-held tester, and start from step 2 in the case of not using the hand-held tester.

### 1 READ VALUE OF HAND-HELD TESTER

(a) Connect the hand-held tester to DLC3.
(b) Turn the ignition switch ON and push the hand-held tester main switch ON.
(c) Select the items below in the DATA LIST, and read the displays on the hand-held tester.

**BODY NO.1:**

| Item | Measurement Item/ Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| DIMMER SW | Headlight dimmer SW signal/ON or OFF | ON: Headlight dimmer switch is in HI or FLASH position<br>OFF: Headlight dimmer switch is in LO position | - |
| HIGH FLASHER SW | Headlight dimmer SW signal/ON or OFF | ON: Headlight dimmer switch is in FLASH position<br>OFF: Headlight dimmer switch is in except FLASH position | - |
| F FOG LIGHT SW | Front fog light SW signal/ON or OFF | ON: Front fog light switch is in ON position when headlight dimmer switch is LOW<br>OFF: Front fog light switch is in OFF position | - |
| AUTO LIGHT SW | Auto light SW signal/ ON or OFF | ON: Headlight dimmer switch is in AUTO position<br>OFF: Headlight dimmer switch is in except AUTO position | - |
| HEAD LIGHT SW | Head light control SW signal/ON or OFF | ON: Light control switch is in HEAD position<br>OFF: Light control switch is in except HEAD position | - |
| TAIL LIGHT SW | Taillight SW signal/ ON or OFF | ON: Light control switch is in TAIL or HEAD position<br>OFF: Light control switch is in OFF position | - |

OK → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1 131)**

NG

### 2 INSPECT HEADLAMP DIMMER SWITCH ASSY

(a) Inspect headlamp dimmer switch assy (See page 65-4 ).

NG → **REPLACE HEADLAMP DIMMER SWITCH ASSY**

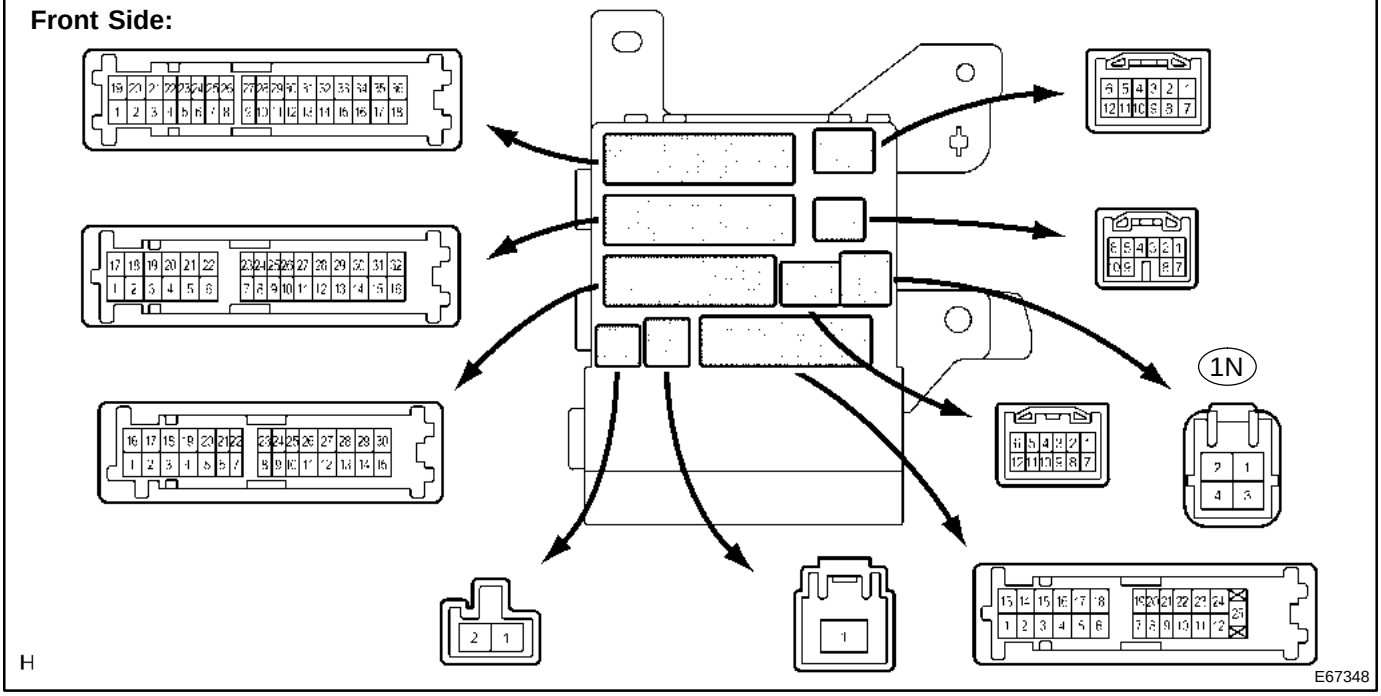
OK

| 3 | **INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY** |
|---|---|

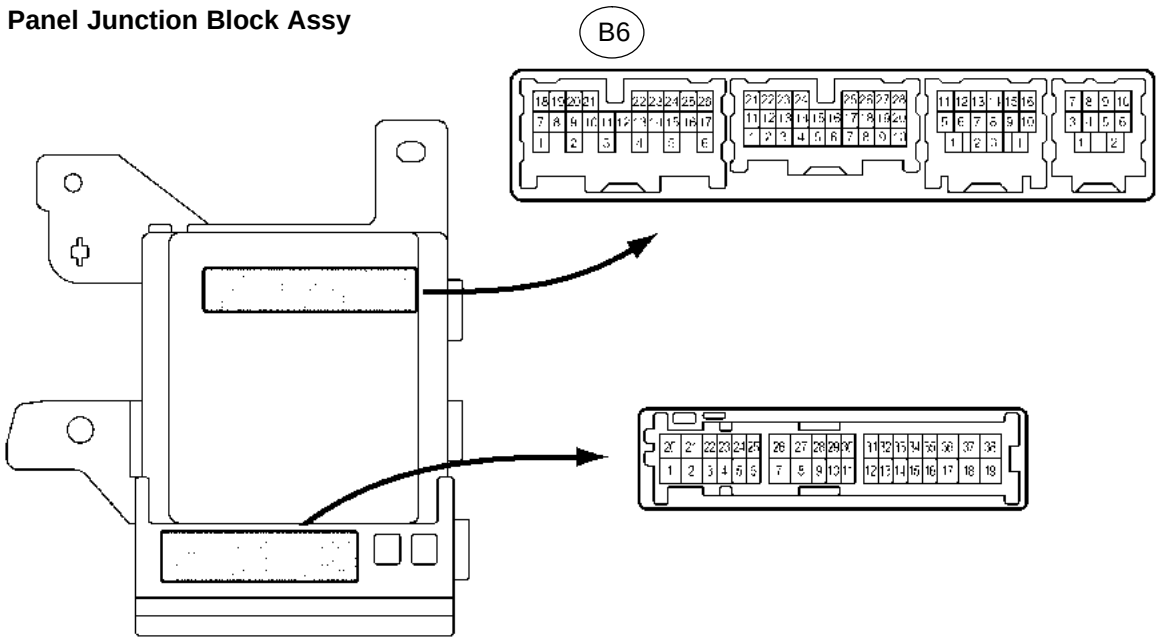
(a) Measure voltage between the each of terminals as shown in the chart below.
**Standard:**

| Tester connection | Condition | Specified voltage |
|---|---|---|
| 1N-2 - Body ground | Headlamp dimmer switch LOW → HIGH | 10 to 14 V → Below 1 V |
| B6-15 - Body ground | Headlamp dimmer switch LOW → FLASH | 10 to 14 V → Below 1 V |
| B6-16 - Body ground | Light control switch OFF → AUTO | 10 to 14 V → Below 1 V |
| B6-17 - Body ground | Light control switch OFF → TAIL | 10 to 14 V → Below 1 V |
| B6-22 - Body ground | Fog lamp switch OFF → ON | 10 to 14 V → Below 1 V |
| B6-23 - Body ground | Light control switch OFF → HEAD | 10 to 14 V → Below 1 V |

**Instrument Panel Junction Block Assy**
**Front Side:**



**Instrument Panel Junction Block Assy**
**Back Side:**




| | |
|---|---|
| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |

OK

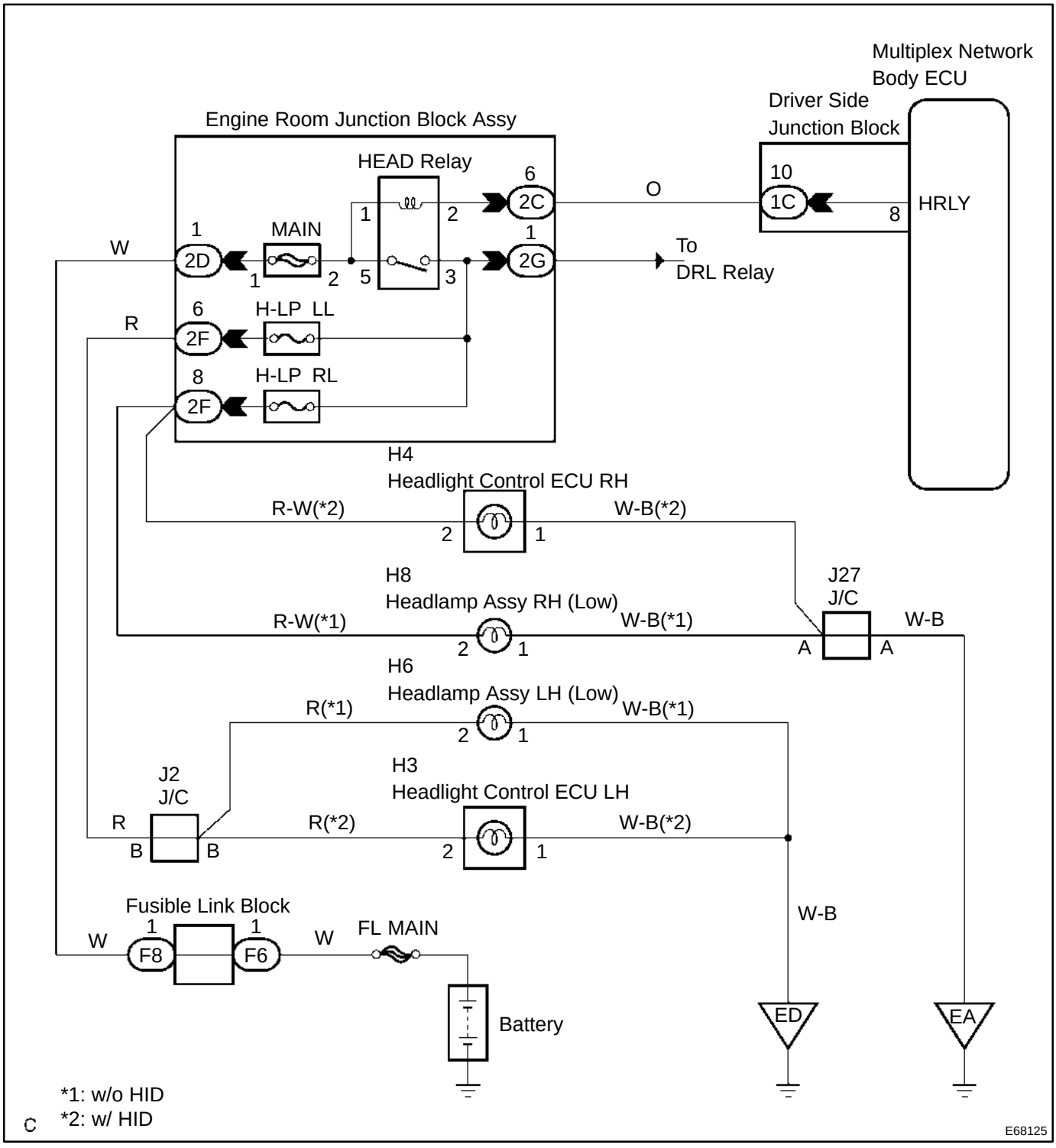
**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE**
**(See page 05-1 131)**

# HEADLIGHT RELAY CIRCUIT

## CIRCUIT DESCRIPTION

The Multiplex network body ECU controls HEAD relay when signal is received from headlamp dimmer switch assy.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

HINT:

Start the inspection from step 1 in the case of using the hand-held tester, and start from step 2 in the case of not using the hand-held tester.

## 1 PERFORM ACTIVE TEST USING HAND-HELD TESTER

(a) Connect the hand-held tester to DLC3.
(b) Turn the ignition switch ON and push the hand-held tester main switch ON.
(c) Select the item below in the ACTIVE TEST and then check that the relay operates.

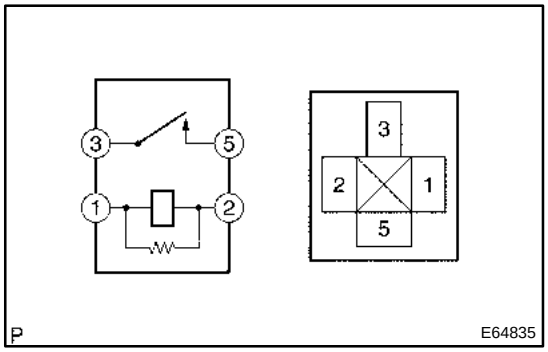
**BODY NO.1:**

| Item | Test Details | Diagnostic Note |
|---|---|---|
| HEAD LIGHT | Turn Headlight relay ON/OFF | - |

**OK** → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1 131)**

**NG**

## 2 INSPECT HEADLAMP RELAY




(a) Inspect headlamp relay continuity.

**Standard:**

| Condition | Tester connection | Specified condition |
|---|---|---|
| Always | 1 - 2 | Continuity |
| Always | 3 - 5 | No continuity |
| Apply B+ between the terminal 1 and 2 | 3 - 5 | Continuity |

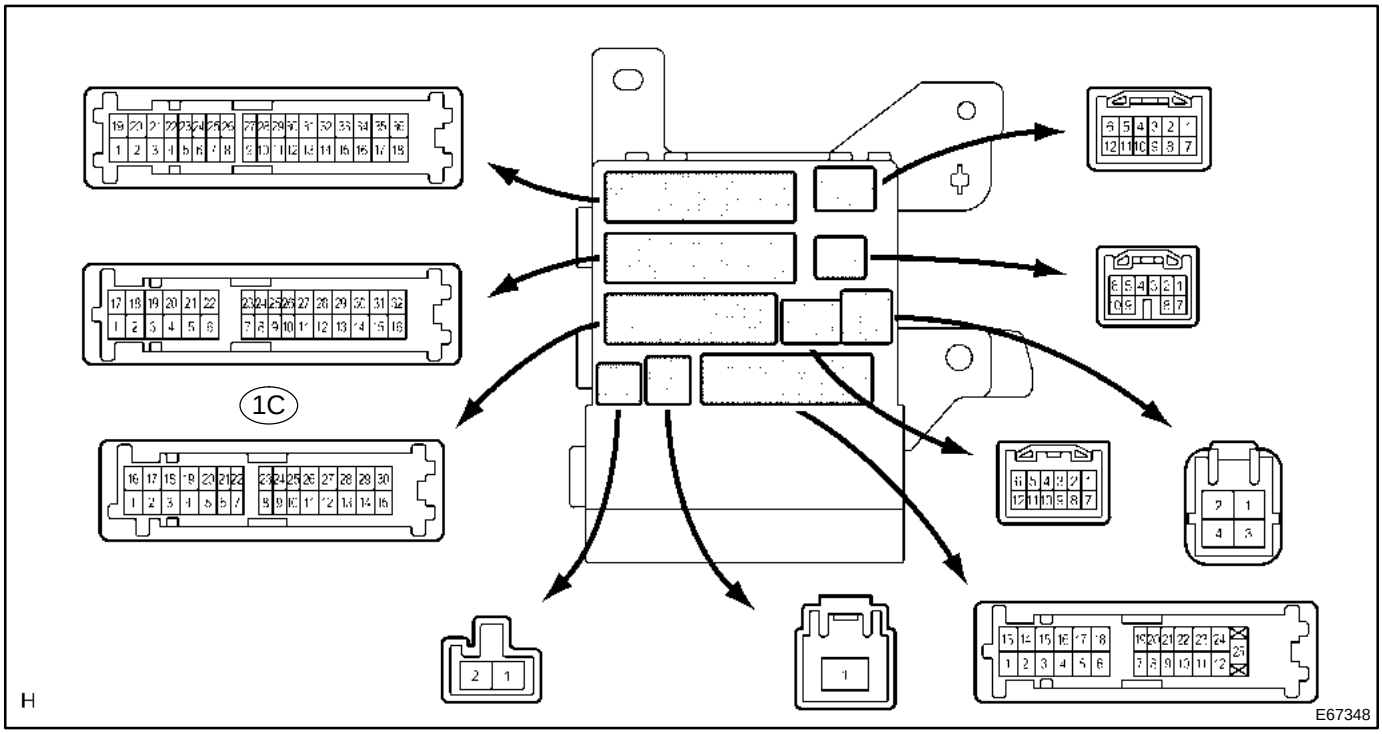
**NG** → **REPLACE HEADLAMP RELAY**

**OK**

| 3 | INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY |
|---|---|

(a) Measure voltage between the terminal as shown in the chart below.
**Standard:**

| Tester connection | Condition | Specified voltage (V) |
|---|---|---|
| 1C-10 - Body ground | Light control switch OFF → ON | Below 1 V → 10 to 14 V |




NG → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1 131)**

OK →

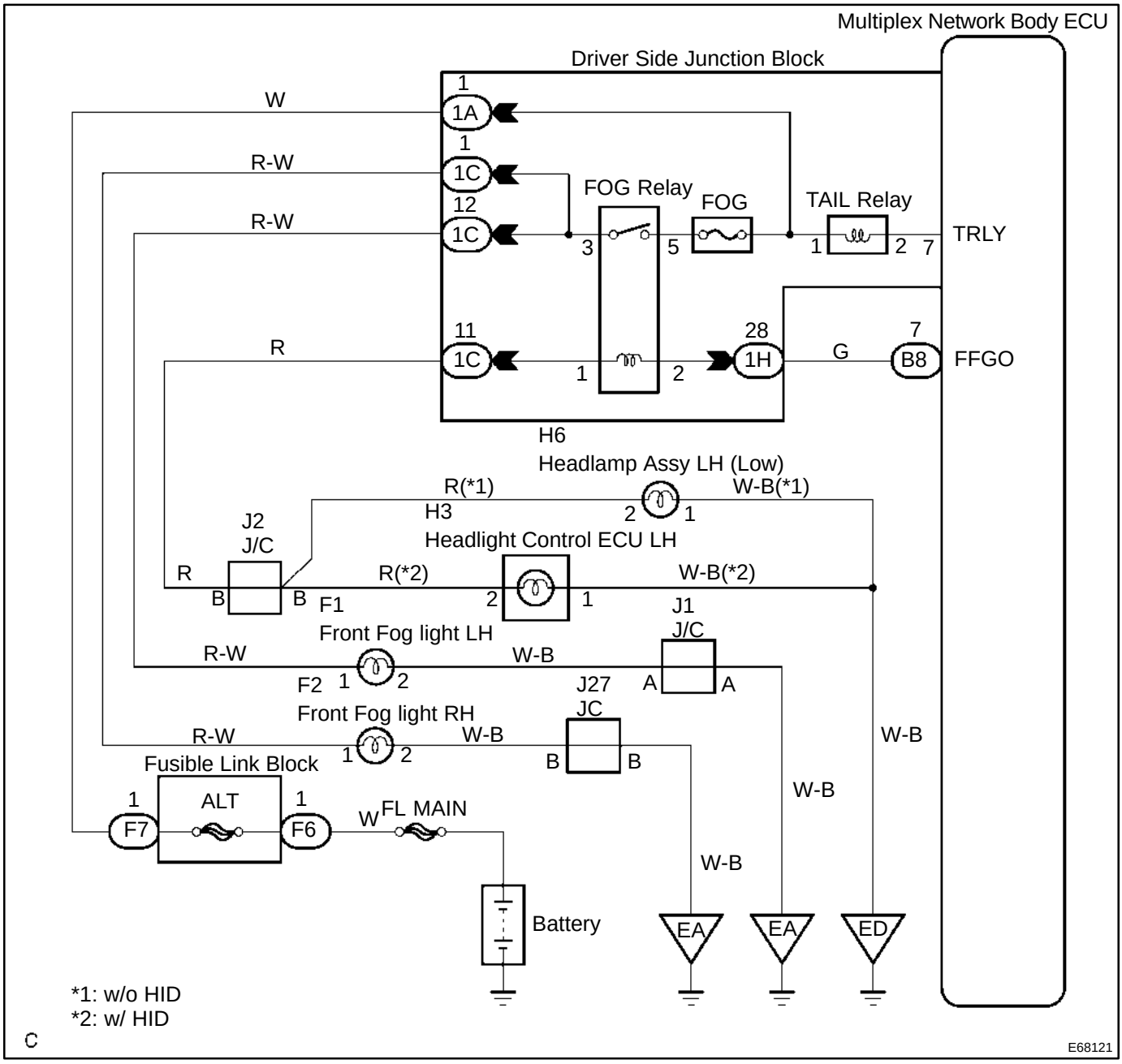
**REPAIR OR REPLACE HARNESS OR CONNECTOR**

# FRONT FOG LIGHT CIRCUIT

## CIRCUIT DESCRIPTION

The Multiplex network body ECU controls FOG relay when signal is received from headlamp dimmer switch assy.

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

Start the inspection from step 1 in the case of using the hand-held tester, and start from step 2 in the case of not using the hand-held tester.

| 1 | PERFORM ACTIVE TEST USING HAND-HELD TESTER |
|---|---|

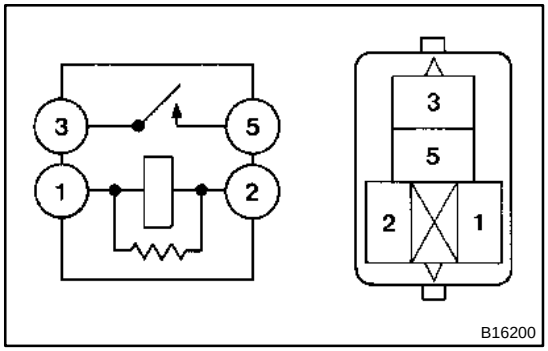
(a) Connect the hand-held tester to DLC3.
(b) Turn the ignition switch ON and push the hand-held tester main switch ON.
(c) Select the item below in the ACTIVE TEST and then check that the relay operates.

| Item | Test Details | Diagnostic Note |
|---|---|---|
| F FOG LIGHT RLY | Turn Front fog light relay ON/OFF | - |

**OK** → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1 131)**

**NG**

| 2 | INSPECT FOG LAMP RELAY |
|---|---|




(a) Inspect fog lamp relay continuity.

**Standard:**

| Condition | Tester connection | Specified condition |
|---|---|---|
| Always | 1 - 2 | Continuity |
| Always | 3 - 5 | No continuity |
| Apply B+ between the terminal 1 and 2 | 3 - 5 | Continuity |

**NG** → **REPLACE FOG LAMP RELAY**

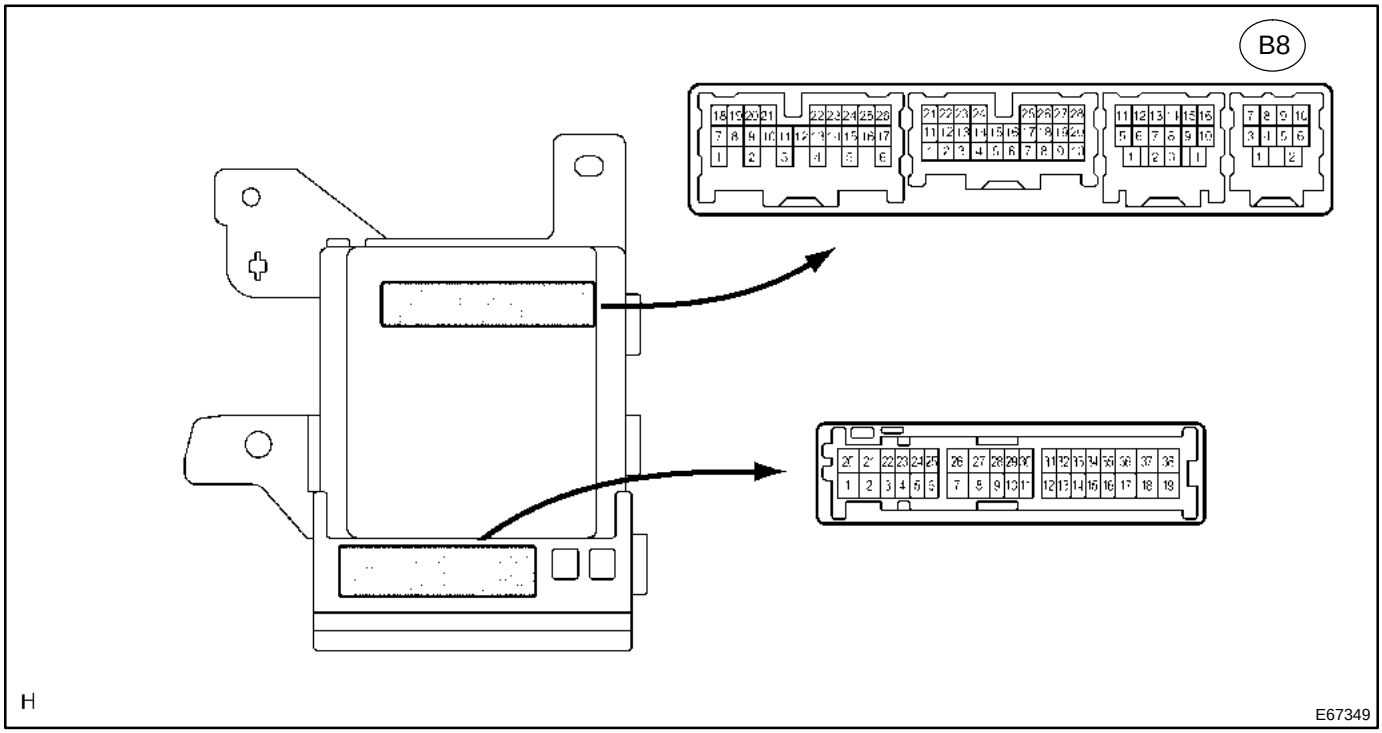
**OK**

| 3 | INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY |
|---|---|

(a) Measure voltage between the terminal B8-7 of the multiplex network body ECU in the instrument panel junction block assy and body ground.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| B8-7 - Body ground | Light control switch TAIL and Fog lamp switch ON | Below 1 V |
| B8-7 - Body ground | Light control switch TAIL and Fog lamp switch ON | 10 to 14 V |




NG → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1 131)**

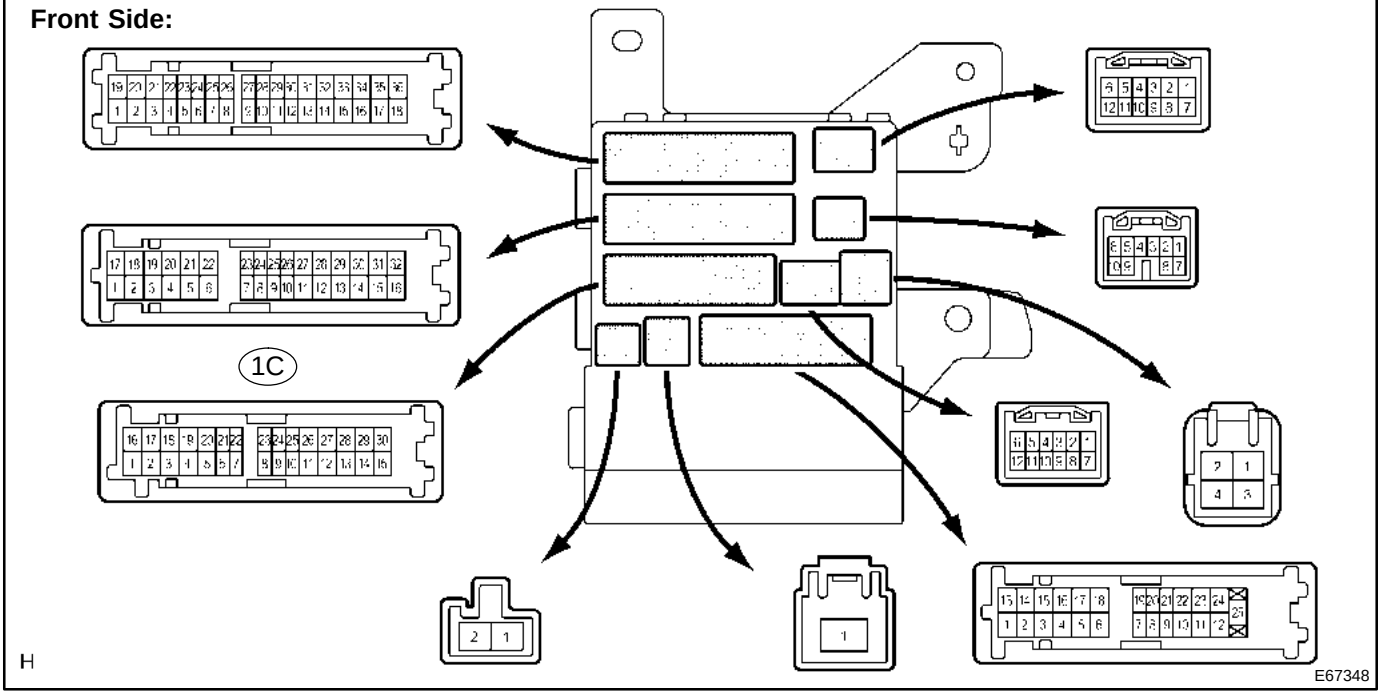
OK

| 4 | **INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY** |
|---|---|

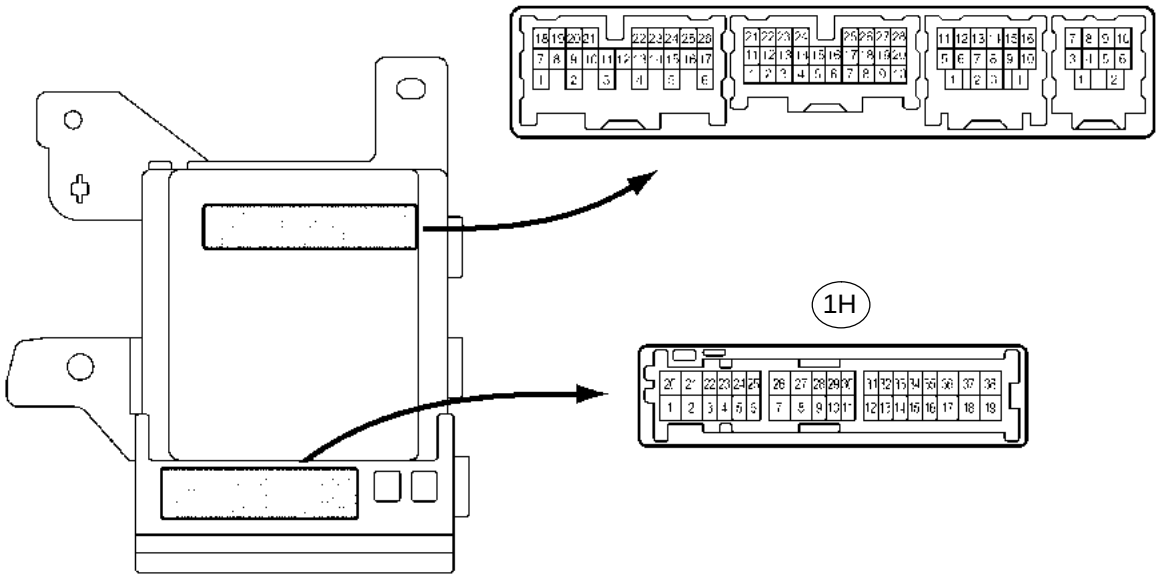
(a) Measure voltage between each of the terminals as shown in the chart below.
**Standard:**

| Tester connection | Condition | Specified voltage |
|---|---|---|
| 1C-1 - Body ground | Light control switch TAIL and front fog lamp switch is OFF | Below 1 V → 10 to 14 V |
| 1C-12 - Body ground | Light control switch TAIL and front fog lamp switch is OFF | Below 1 V → 10 to 14 V |
| 1C-28 - Body ground | Light control switch TAIL and front fog lamp switch is OFF | 10 to 14 V → Below 1 V |

**Instrument Panel Junction Block Assy**
**Front Side:**



**Instrument Panel Junction Block Assy**
**Back Side:**




H

E67349

NG

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1 131)**

OK

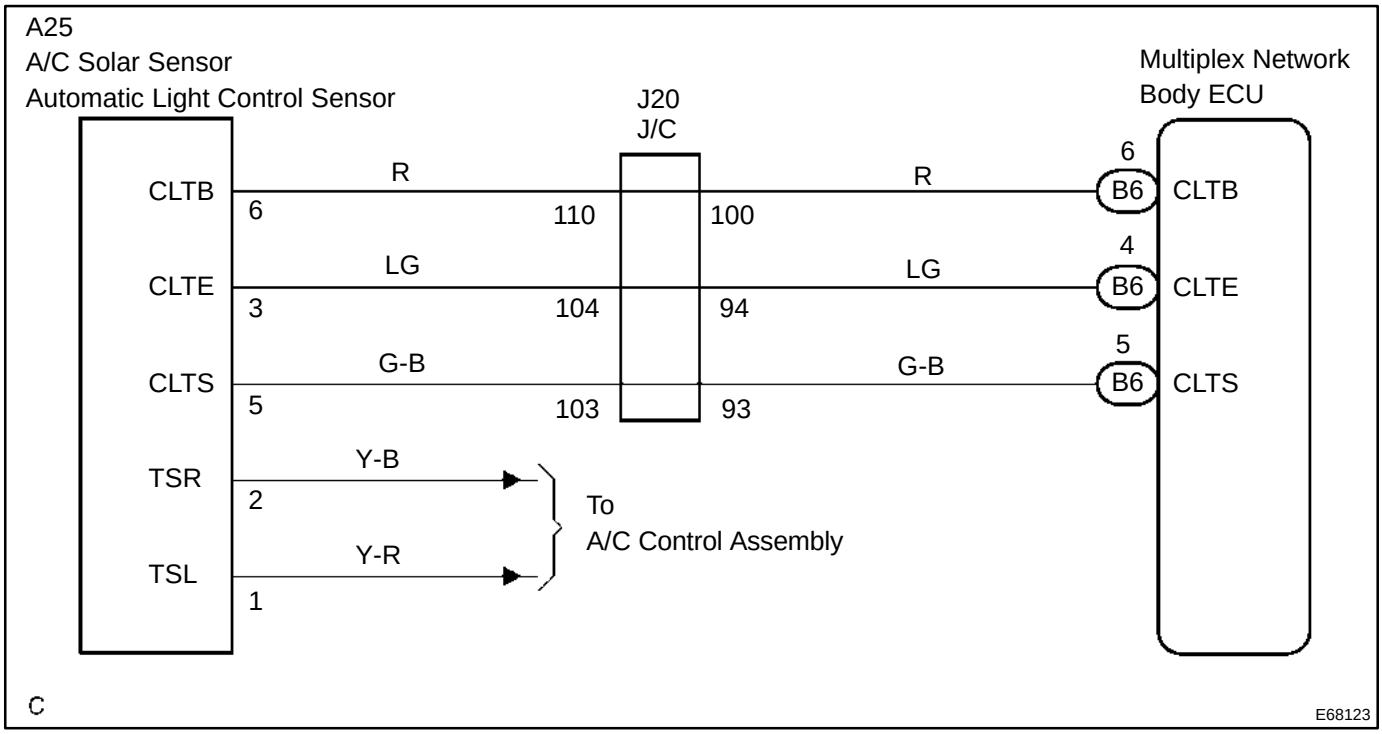
**REPAIR OR REPLACE HARNESS OR CONNECTOR**

# AUTOMATIC LIGHT CONTROL SENSOR CIRCUIT

## CIRCUIT DESCRIPTION

The Multiplex network body ECU receives the signal from the automatic light control sensor.
HINT:
DTC code is output when malfunction of automatic light control sensor or open or short of automatic light control sensor circuit occurs.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

HINT:
Start the inspection from step 1 in the case of using the hand-held tester, and start from step 2 in the case of not using the hand-held tester.

| 1 | READ VALUE OF HAND-HELD TESTER |
|---|---|

(a) Connect the hand-held tester to DLC3.
(b) Turn the ignition switch ON and push the hand-held tester main switch ON.
(c) Select the items below in the DATA LIST, and read the displays on the hand-held tester.

**BODY NO.1:**

| Item | Measurement Item/ Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| LIGHT CTRL TYPE | Light control type/ CRNT or OLD | Customized sign can be displayed. | - |

**OK** → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1 131)**

**NG**

| 2 | CHECK HARNESS AND CONNECTOR(MULTIPLEX NETWORK BODY ECU - AUTOMATIC LIGHT CONTROL SENSOR) |
|---|---|

(a) Check for open or short circuit in the harness and the connector between the terminal 6 of the automatic light control sensor and the terminal B6-6 of the multiplex network body ECU (See page 01-37 ).
(b) Check for open or short circuit in the harness and the connector between the terminal 3 of the automatic light control sensor and the terminal B6-4 of the multiplex network body ECU (See page 01-37 ).
(c) Check for open or short circuit in the harness and the connector between the terminal 5 of the automatic light control sensor and the terminal B6-5 of the multiplex network body ECU (See page 01-37 ).

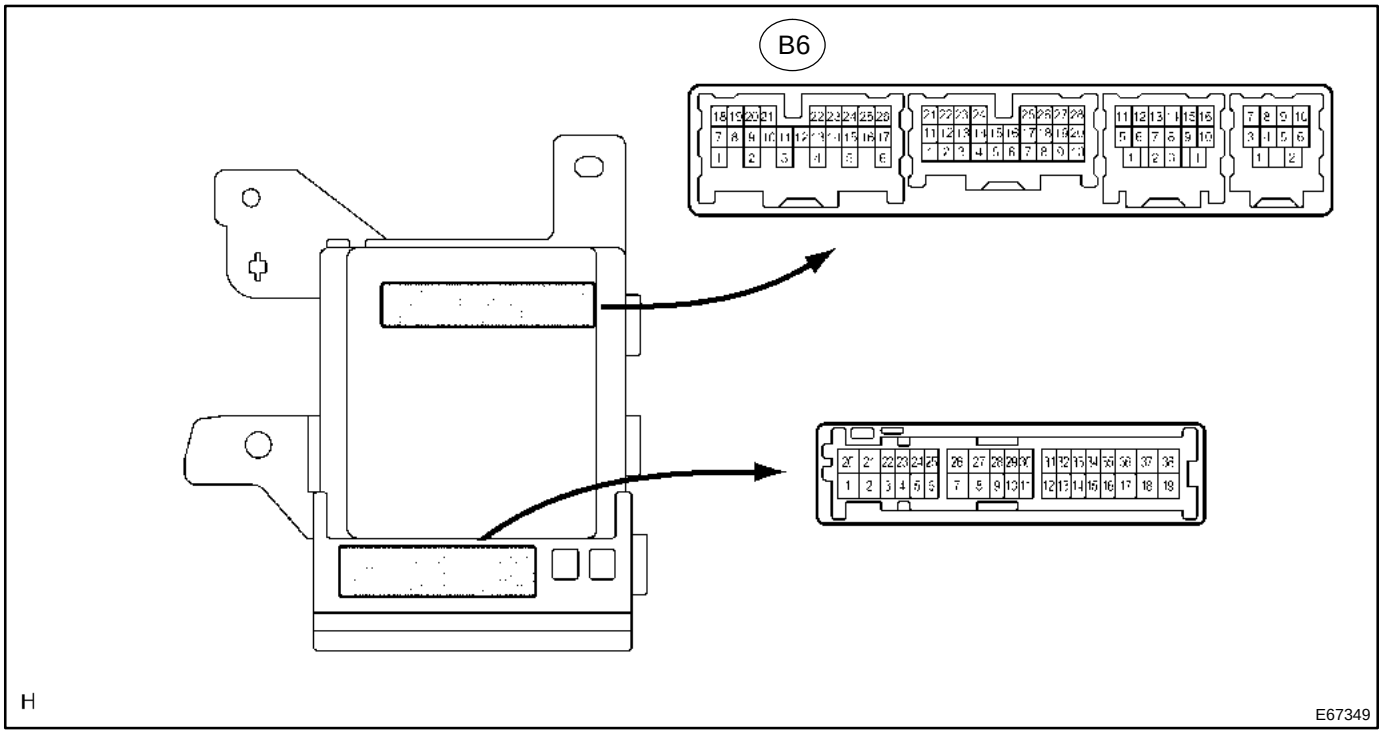
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

| 3 | INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY |
|---|---|

(a) Measure voltage between the terminal B6-4 and the terminal B6-6 of the multiplex network body ECU in the instrument panel junction block assy.
**Standard:**

| Tester connection | Condition | Specified voltage |
|---|---|---|
| B6-4 - B6-6 | Ignition switch OFF → ON | 10 to 14 V |



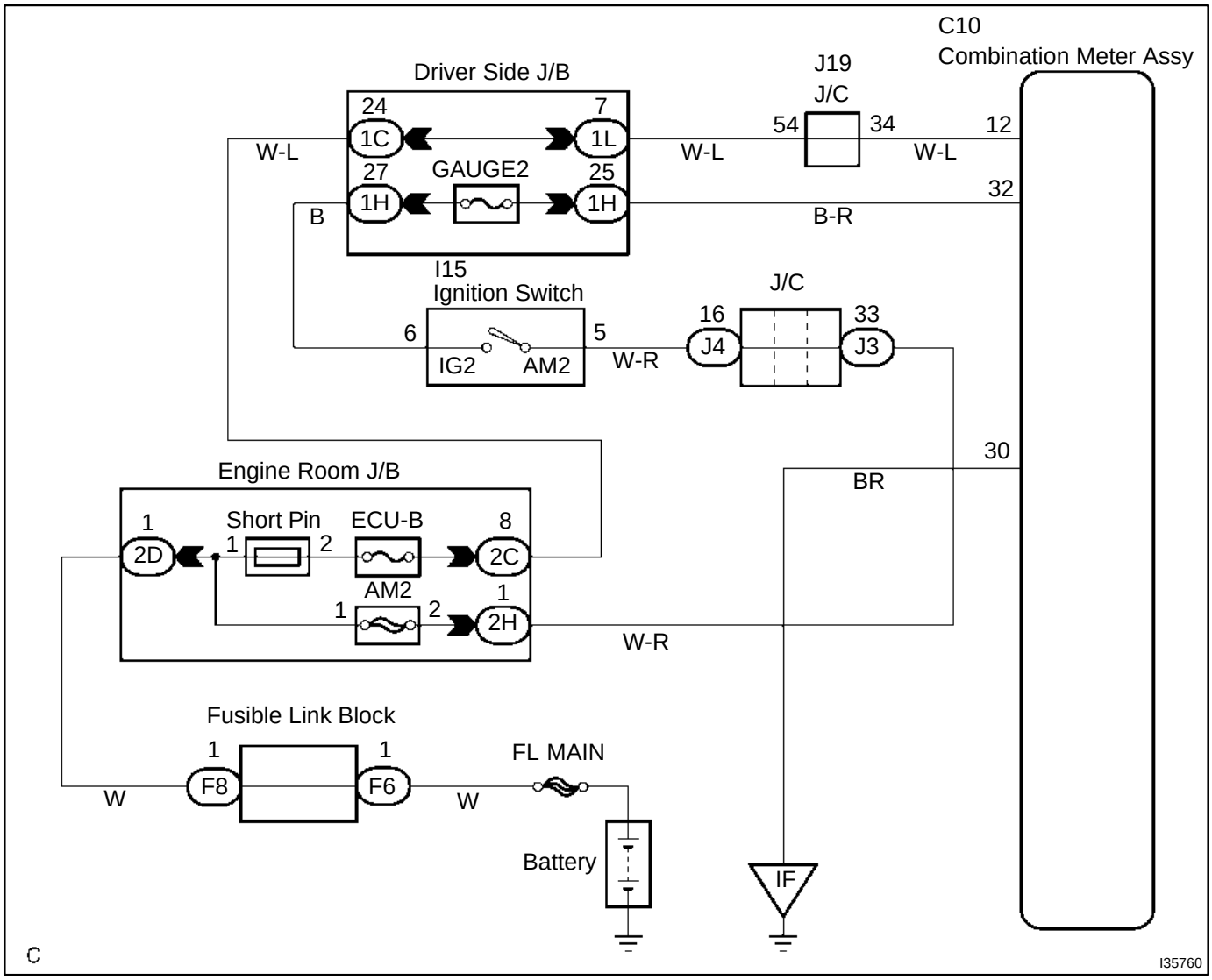

NG → **REPLACE AUTOMATIC LIGHT CONTROL SENSOR**

OK

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1 131)**

# ENTIRE COMBINATION METER DOES NOT OPERATE

## WIRING DIAGRAM



# INSPECTION PROCEDURE

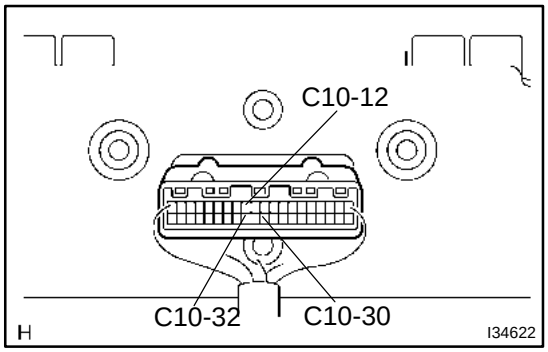
| 1 | INSPECT FUSE(GAUGE2, ECU-B) |
|---|---|

(a) Check the continuity in GAUGE2, ECU-B fuse.

**NG** → **REPLACE FUSE**

**OK**

| 2 | CHECK COMBINATION METER ASSY(POWER SOURCE AND GROUND CIRCUIT) |
|---|---|




(a) Remove the combination meter assy.
(b) Check continuity.
  (1) Check continuity between the terminal C10-30 of the combination meter connector and the body ground.

  **Standard: Continuity.**
(c) Check the voltage.
  (1) Measure the voltage between the terminal C10-12 of the combination meter connector and the body ground.

  **Standard voltage: 10 - 14 V**
  (2) Turn the ignition switch to ON.
  (3) Measure the voltage between the terminal C10-32 of the combination meter connector and the body ground.

  **Standard voltage: 10 - 14 V**

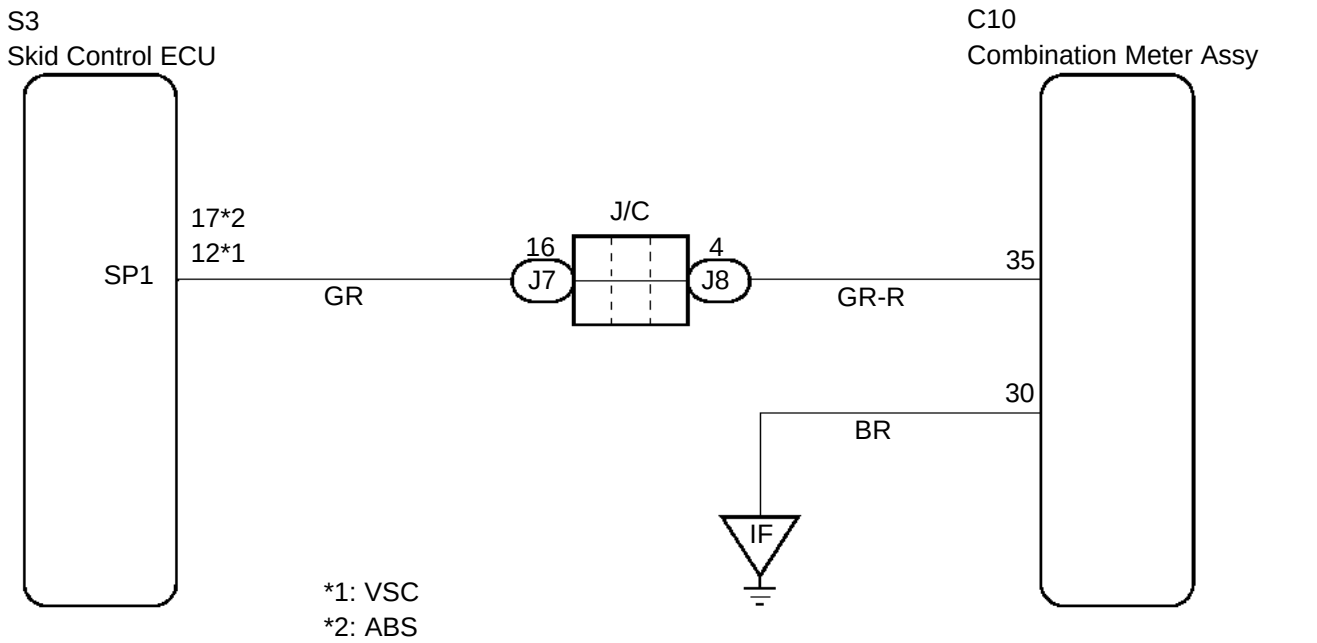
**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

**CHECK AND REPLACE COMBINATION METER ASSY**

# MALFUNCTION IN SPEEDOMETER

## WIRING DIAGRAM




## INSPECTION PROCEDURE

| 1 | PERFORM ACTIVE TEST BY HAND-HELD TESTER(COMBIMATION METER) |
|---|---|

(a) Operate the hand-held tester according to the steps on the display and perform the ”ACTIVE TEST”.

| Item | Test Details | Diagnostic Note |
|---|---|---|
| SPEED METER | 0 / 40 / 80 / 120 / 160 | - |

NG → **CHECK AND REPLACE COMBINATION METER ASSY**

OK

| 2 | READ VALUE OF HAND-HELD TESTER(COMBINATION METER) |
|---|---|

(a) Operate the hand-held tester according to the steps on the display and select ”DATA LIST”.

| Item | Test Details | Diagnostic Note |
|---|---|---|
| SPEED METER | Vehicle speed / Min.: 0 km/h, Max.: 255 km/h | Almost same at the meter speed (When driving) |

OK → **CHECK AND REPLACE COMBINATION METER ASSY**

NG

| 3 | READ VALUE OF HAND-HELD TESTER(SKID CONTROL ECU) |
|---|---|

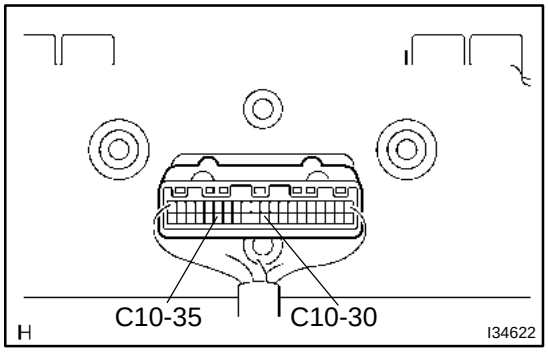
(a) Operate the hand-held tester according to the steps on the display and select ”DATA LIST”.

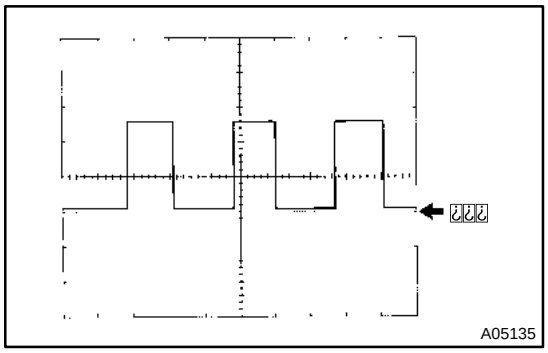
| Item | Test Details | Diagnostic Note |
|---|---|---|
| SPD1 | Vehicle speed / Min.: 0 km/h, Max.: 255 km/h | - |

NG → GO TO BRAKE SYSTEM

OK

| 4 | INSPECT COMBINATION METER ASSY |
|---|---|




**(REFERENCE) INSPECTION USING OSCILLOSCOPE**

(a) Check the input signal waveform.
  (1) Remove the combination meter assy.
  (2) Connect the oscilloscope to the terminal C10-35 and C10-30 of the combination meter assy.
  (3) Start the engine.
  (4) Check the signal waveform.

| Item | Contents |
|---|---|
| Tool setting | 5 V/ DIV, 20 ms/ DIV |
| Vehicle condition | Driving at approx. 20Km/h |

HINT:
As the vehicle speed becomes higher, the cycle of the signal waveform becomes shorter.

OK → CHECK AND REPLACE COMBINATION METER ASSY

NG

| 5 | CHECK HARNESS AND CONNECTOR(BETWEEN SKID CONTROL ECU ASSY AND COMBINATION METER ASSY) |
|---|---|

(a) Remove the combination meter.
(b) Disconnect the connector from skid control ECU.
(c) Check continuity between the terminal S3-12, 17 (SP1) of skid control ECU and the terminal C10-35 of the combination meter connector.
**Standard: Continuity.**

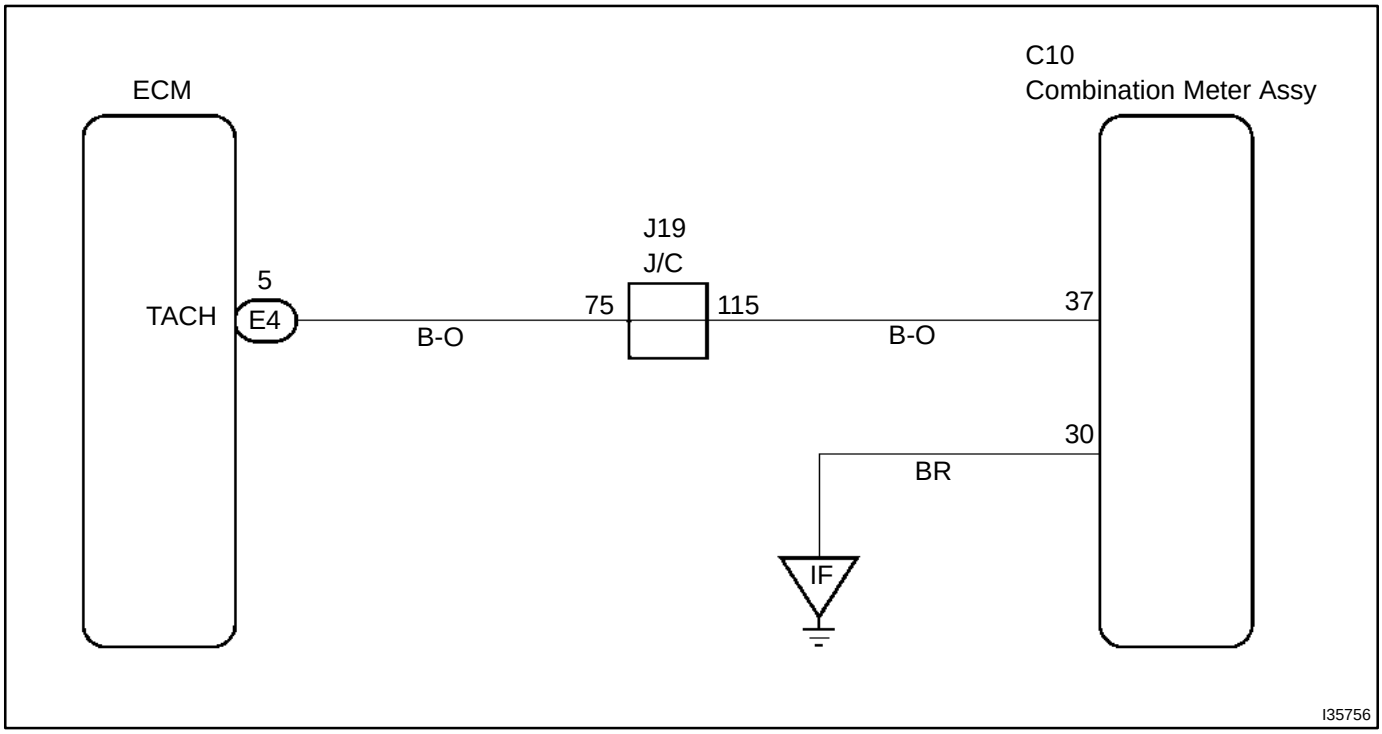
OK → CHECK AND REPLACE SKID CONTROL ECU ASSY

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

# MALFUNCTION IN TACHOMETER

## WIRING DIAGRAM




## INSPECTION PROCEDURE

| 1 | PERFORM ACTIVE TEST BY HAND-HELD TESTER(COMBINATION METER) |
|---|---|

(a) Operate the hand-held tester according to the steps on the display and perform the "ACTIVE TEST".

| Item | Test Details | Diagnostic Note |
|---|---|---|
| TACHOMETER | 0rpm / 1000rpm / 2000rpm / 3000rpm / 4000rpm / 5000rpm / 6000rpm / 7000 | - |

NG → CHECK AND REPLACE COMBINATION METER ASSY

OK

| 2 | READ VALUE OF HAND-HELD TESTER(COMBINATION METER) |
|---|---|

(a) Operate the hand-held tester according to the steps on the display and select "DATA LIST".

| Item | Test Details | Diagnostic Note |
|---|---|---|
| TACHO METER | Engine speed / Min.: 0 rpm, Max.: 12,750 rpm | Almost same at the meter rpm (When engine is running) |

OK → CHECK AND REPLACE COMBINATION METER ASSY

NG

## 3 READ VALUE OF HAND-HELD TESTER(ECM)

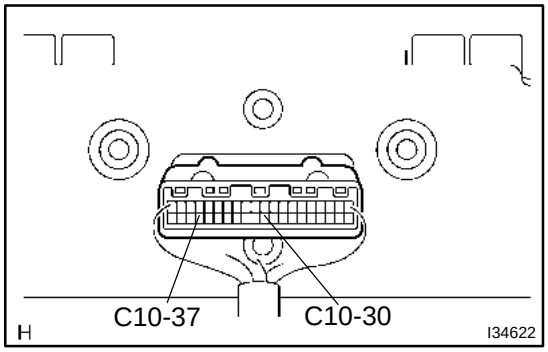
(a) Operate the hand-held tester according to the steps on the display and select ”DATE LIST”.

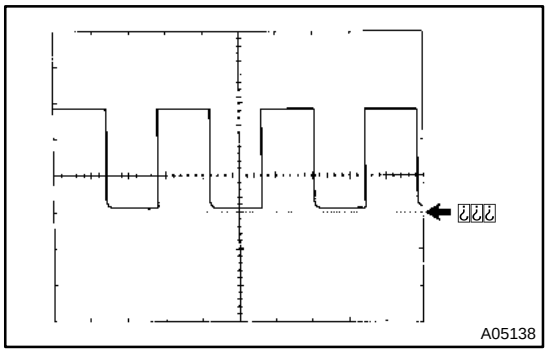
| Item | Test Details | Diagnostic Note |
|---|---|---|
| TACHO METER | Engine peed / Min.: 0 rpm, Max.: 12,750 rpm | - |

NG → GO TO ENGINE CONTROL SYSTEM

OK

## 4 INSPECT COMBINATION METER ASSY




**(REFERENCE) INSPECTION USING OSCILLOSCOPE**

(a) Check the input signal waveform.
  (1) Remove the combination meter assy.
  (2) Connect the oscilloscope to the terminals C10-37 and C10-30 of the combination meter connector.
  (3) Start the engine.
  (4) Check the signal waveform.

| Item | Contents |
|---|---|
| Tool setting | 5 V/ DIV, 10 ms/ DIV |
| Vehicle condition | Engine idle speed |

OK → CHECK AND REPLACE COMBINATION METER ASSY

NG

## 5 CHECK HARNESS AND CONNECTOR(BETWEEN ECM AND COMBINATION METER ASSY)

(a) Remove the combination meter assy.
(b) Disconnect the connector from ECM.
(c) Check the continuity between the terminal E4-5 (TACH) of ECM and the terminal C10-37 of the combination meter connector (See Page 05-1535 ).
**Standard: Continuity.**

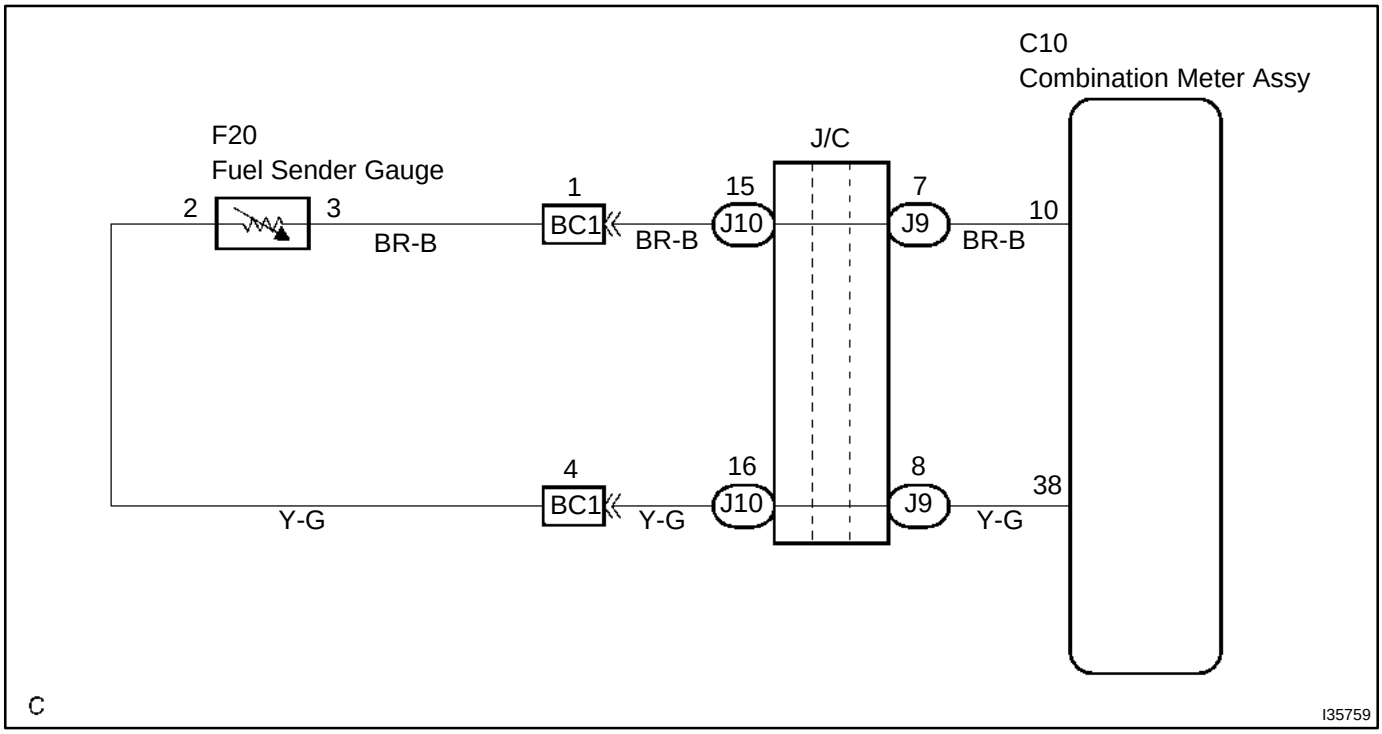
OK → CHECK AND REPLACE ECM

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

# MALFUNCTION IN FUEL RECEIVER GAUGE

## WIRING DIAGRAM




## INSPECTION PROCEDURE

| 1 | PERFORM ACTIVE TEST BY HAND-HELD TESTER(COMBINATION METER) |
|---|---|

(a) Operate the hand-held tester according to the steps on the display and perform the ”ACTIVE TEST”.

| Item | Test Details | Diagnostic Note |
|---|---|---|
| FUEL GAUGE | EMPTY, 1/2, FULL | - |

NG → CHECK AND REPLACE COMBINATION METER ASSY

OK

| 2 | READ VALUE OF HAND-HELD TESTER(COMBINATION METER) |
|---|---|

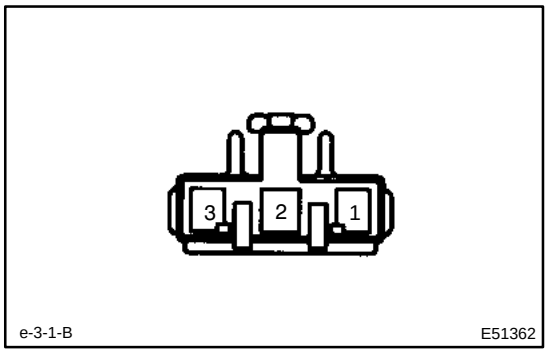
(a) Operate the hand-held tester according to the steps on the display and selsct ”DATA LIST”.

| Item | Test Details | Diagnostic Note |
|---|---|---|
| FUEL GAUGE | Fuel gauge indicates ”F” | 53 |
| | Fuel gauge indicates ”3/4” | 97 |
| | Fuel gauge indicates ”1/2” | 151 |
| | Fuel gauge indicates ”1/4” | 190 |
| | Fuel gauge indicates ”E” | 208 |
| | (Fuel input / Min.: 0 , Max.: 255) | |

OK → CHECK AND REPLACE COMBINATION METER ASSY

NG

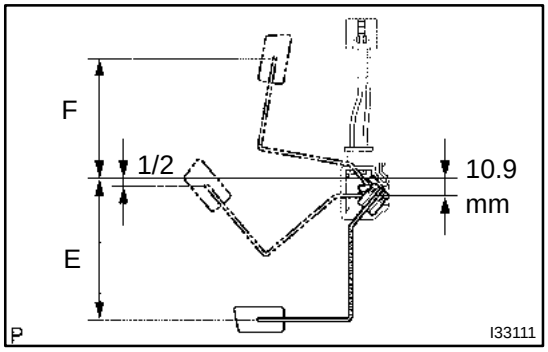
## 3 INSPECT FUEL SENDER GAUGE ASSY




(a) Remove the fuel sender gauge assy.
(b) Check that the float position is between E and F and measure resistance between the terminals 2 and 3 of the connector. Check that the resistance value changes continuously.

**Standard:**

| Float level | Float position mm (in.) | Resistance (Ω) |
|---|---|---|
| F | 43.2 (0.17) ± 3 (0.12) | 4.0 ± 1 |
| 1/2 | 5.2 (0.20) ± 3 (0.12) | 59 ± 3 |
| E | 67.7 (2.67) ± 3 (0.12) | 110.0 ± 1 |



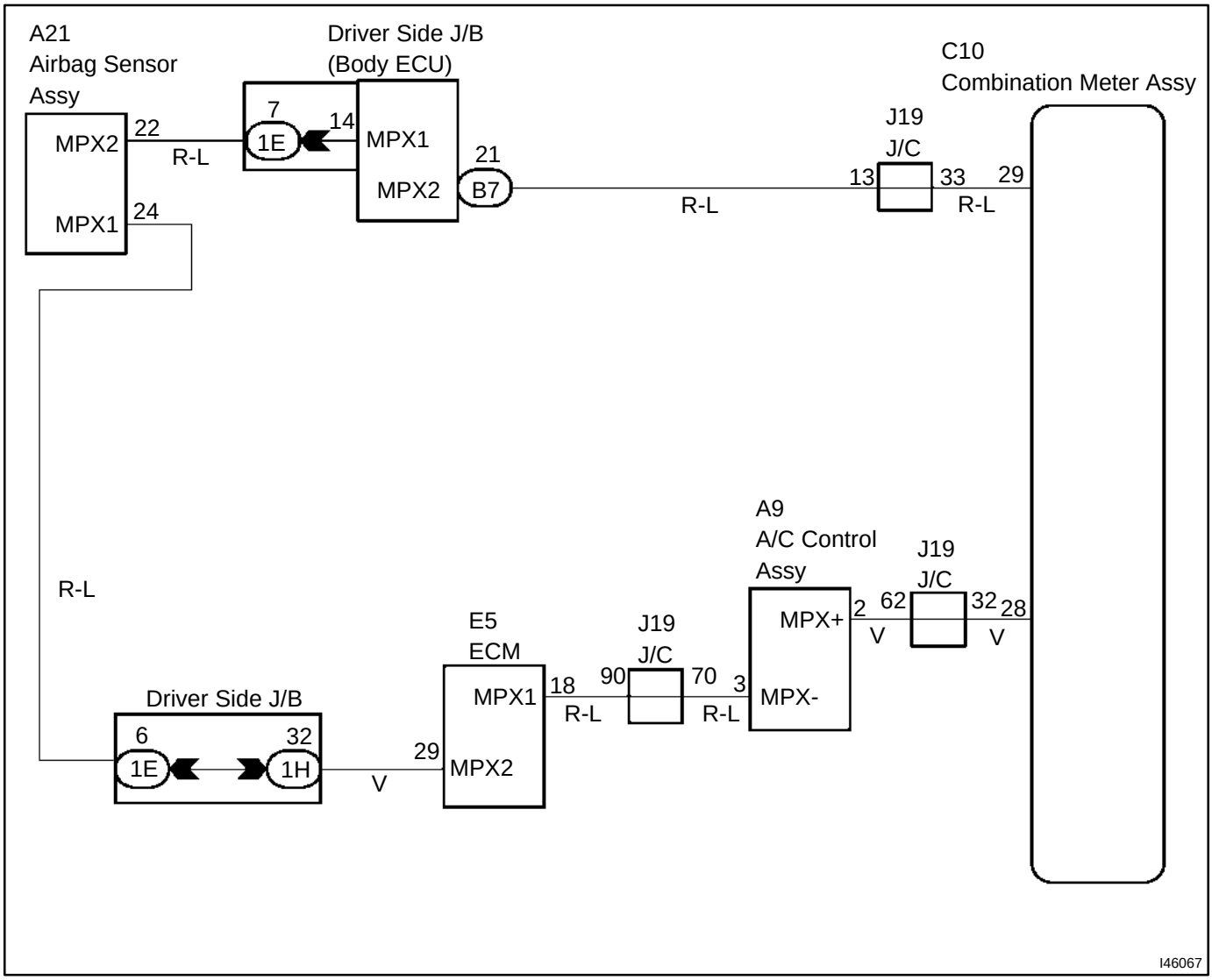

**NG** → **REPLACE FUEL SENDER GAUGE ASSY**

**OK**

**REPAIR OR REPLACE HARNESS OR CONNECTOR**

# MALFUNCTION IN WATER TEMPERATURE RECEIVER GAUGE

## WIRING DIAGRAM




## INSPECTION PROCEDURE

| 1 | PERFORM ACTIVE TEST BY HAND-HELD TESTER(COMBINATION METER) |
|---|---|

(a) Operate the hand-held tester according to the steps on the display and perform the "ACTIVE TEST".

| Item | Test Details | Diagnostic Note |
|---|---|---|
| COOLANT TEMP | LOW / NORM / HIGH | - |

NG → CHECK AND REPLACE COMBINATION METER ASSY

OK

| 2 | READ VALUE OF HAND-HELD TESTER(COMBINATION METER) |
|---|---|

(a) Operate the hand-held tester according to the steps on the display and select ”DATA LIST”.

| Item | Test Details | Diagnostic Note |
|---|---|---|
| COOLANT | Coolant Temperature / Min.: -40°C, Max.: 140°C | - |

NG → GO TO ENGINE CONTROL SYSTEM

OK

| 3 | CHECK THAT MALFUNCTION DISAPPEARS A KNOWN GOOD COMBINATION METER IS INSTALLED |
|---|---|

NG → CHECK AND REPLACE ECM

OK

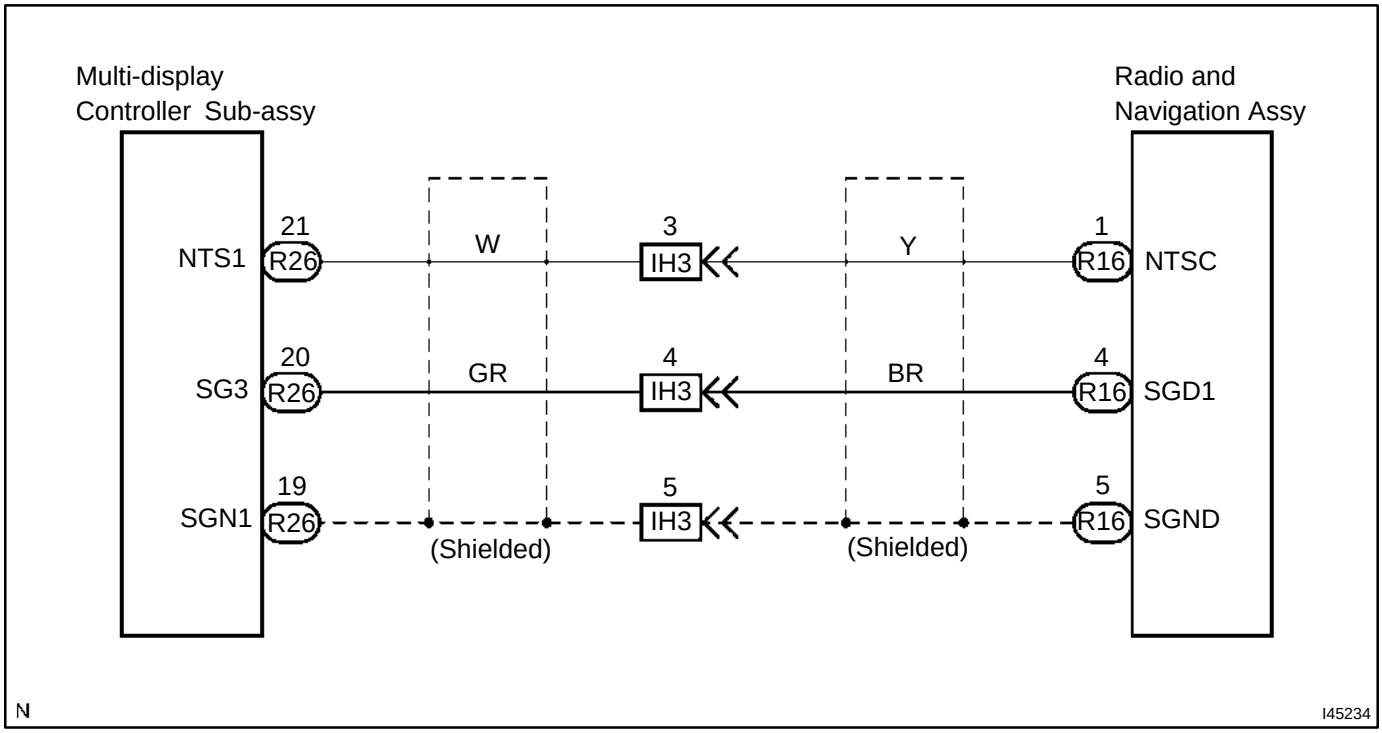
CHECK AND REPLACE COMBINATION METER ASSY

# DISPLAY SIGNAL CIRCUIT (FROM MULTI-DISPLA Y CONTROLLER SUB-ASSY)

## CIRCUIT DESCRIPTION

This is the display signal circuit from the multi-display controller sub-assy to the radio and navigation assy.

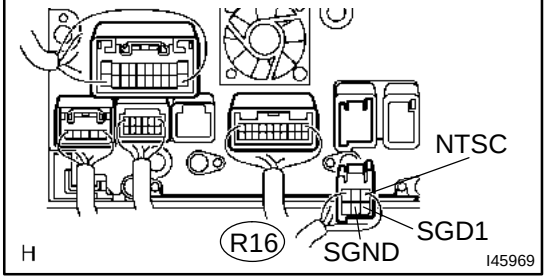
## WIRING DIAGRAM



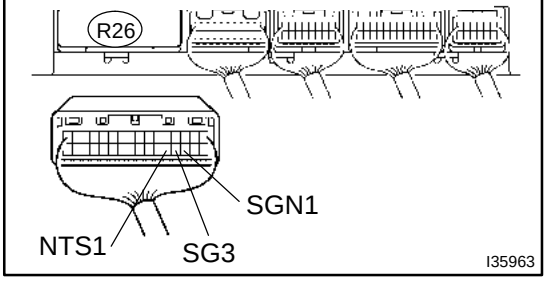
# INSPECTION PROCEDURE

| 1 | **CHECK HARNESS AND CONNECTOR(MULTI-DISPLA Y CONTROLLER SUB-ASSY - RADIO AND NAVIGATION ASSY)** |
|---|---|

**Radio and Navigation Assy Wire Harness View:**




**Multi-display Controller Sub-Assy Wire Harness View:**




(a) Disconnect the radio and navigation assy connector R16 and multi-display controller sub-assy connector R26.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

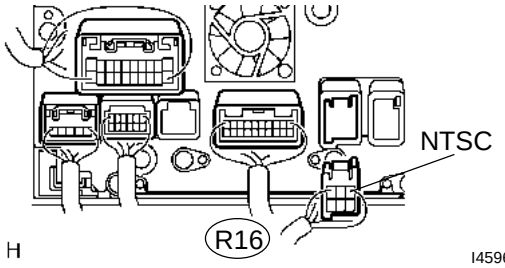
| Tester connection | Condition | Specified condition |
|---|---|---|
| SGND - SGN1 | Always | Below 1 Ω |
| NTSC - NTS1 | Always | Below 1 Ω |
| SGD1 - SG3 | Always | Below 1 Ω |
| NTSC - Body ground | Always | 10 kΩ or higher |
| SGD1 - Body ground | Always | 10 kΩ or higher |
| SGND - Body ground | Always | 10 kΩ or higher |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

## 2 INSPECT MULTI-DISPLAY CONTROLLER SUB-ASSY (OUTPUT SIGNAL)

**Radio and Navigation Assy**
**Wire Harness View:**




(a) Reconnect the multi-display controller sub-assy connector R26.

(b) Measure the waveform according to the table below.

**Standard:**

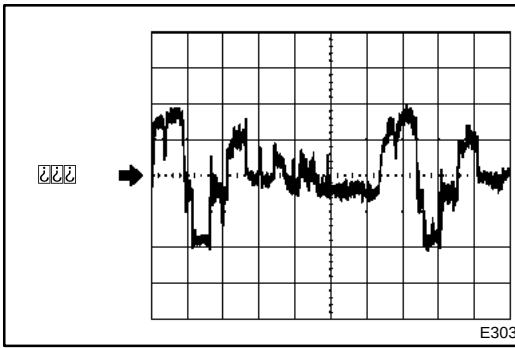
| Tester connection | Condition | Specified condition |
|---|---|---|
| NTSC - Body ground | DVD display is ON | A waveform synchronized with display signals is output |

**NG** → **REPLACE MULTI-DISPLAY CONTROLLER SUB-ASSY (SEE PAGE 67-26 )**

**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

HINT:
The waveform pattern may differ from that shown in the illustration below due to differences in oscilloscope setting. A normal multi-display controller sub-assy operating condition can be determined if any waveform is output.



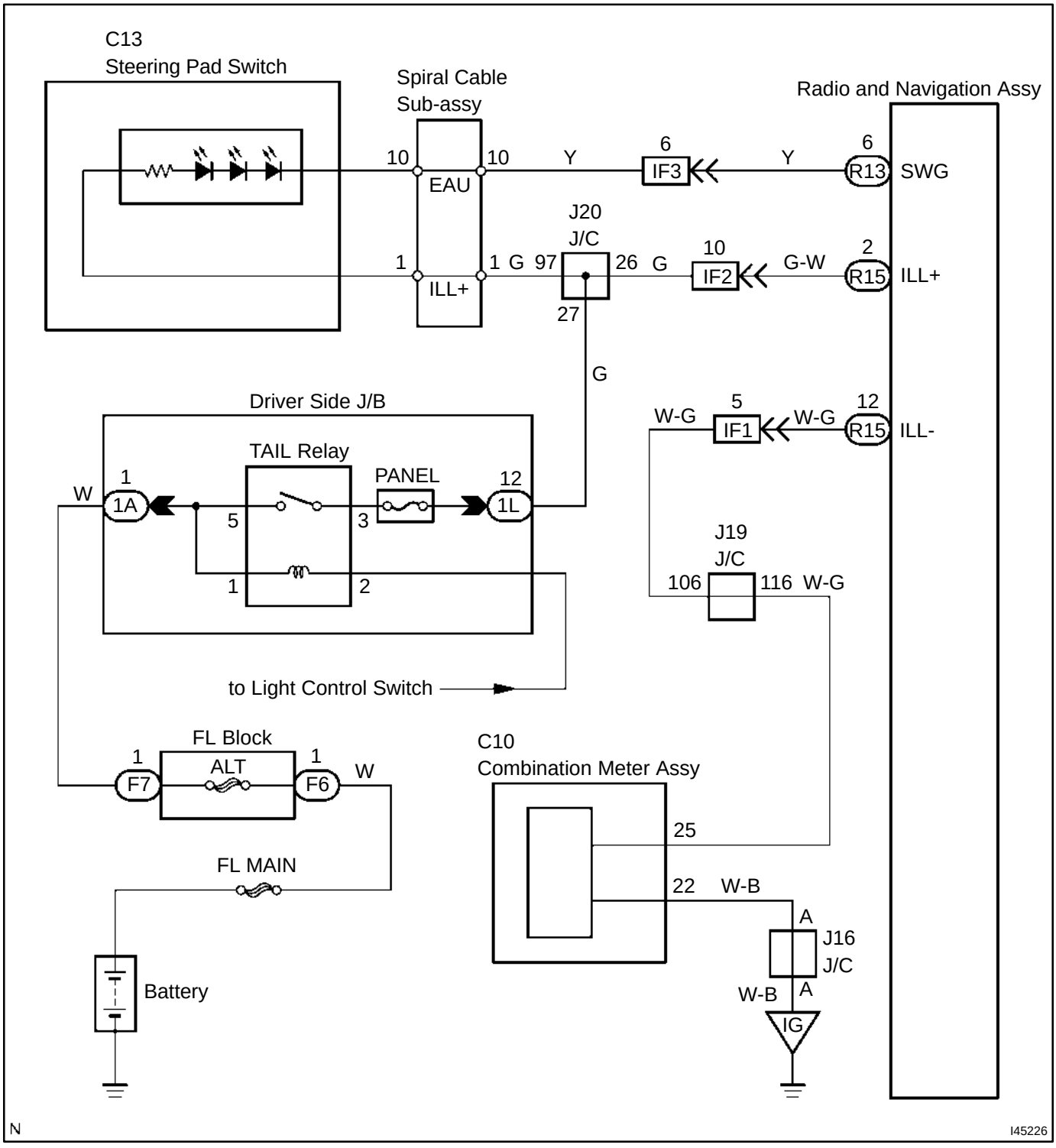

Oscilloscope wave
Terminal: NTSC-Body ground
Setting: 500 mV/DIV 10μs/DIV
Condition: DVD display is on.

# DIMMER SIGNAL CIRCUIT

## CIRCUIT DESCRIPTION

Receiving a dimmer signal from the light control switch, the radio and display assy dims the display and illuminates the panel switches and the steering pad switch.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

**NOTICE:**

**The vehicle is equipped with SRS (Supplemental Restraint System) such as the airbags. Before servicing (including removal or installation of parts), be sure to read the precautionary notice for the supplemental restraint system (see page 60-1 ).**

## 1 CHECK ILLUMINATION

(a) Check if the illumination for the radio and navigation assy, steering pad switch assy, accessory meter or others (hazard SW, TRAC off SW, etc.) comes on when the light control switch is turned to the HEAD or TAIL position.

**Result:**

| Result | Proceed to |
|---|---|
| Illumination comes on for all components except steering pad switch. | A |
| Illumination comes on for all components except radio and navigation assy. | B |
| No illumination comes on (radio and navigation assy, rear A/C control SW, A/T shift level illumination, accessory meter, etc.) | C |
| Illumination comes on only for steering pad switch. | D |

**B** → **Go to step 6**

**C** → **GO TO LIGHTING SYSTEM (SEE PAGE 05-1 131)**

**D** → **GO TO COMBINATION METER SYSTEM (SEE PAGE 05-1538 )**

**A**

## 2 INSPECT SPIRAL CABLE SUB-ASSY (ILL+)

**Spiral Cable Sub-assy Connector Front View:**




H I36955 I38235

(a) Disconnect the spiral cable sub-assy connector.

(b) Measure the voltage according to the value(s) in the table below.

**Standard:**

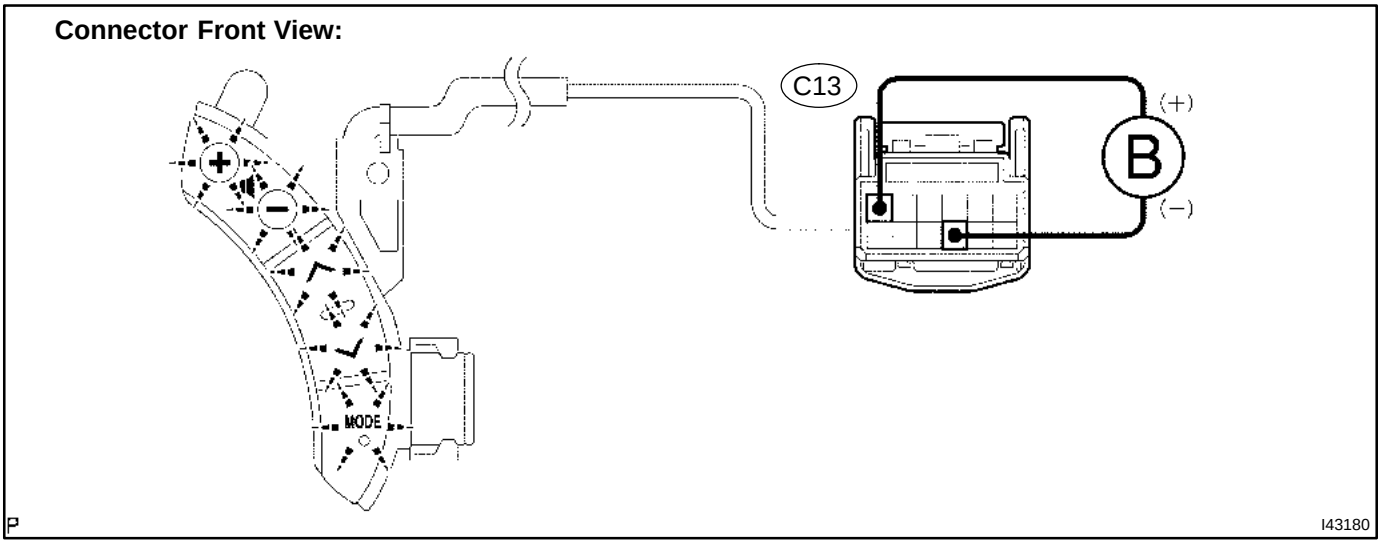
| Tester connection | Condition | Specified condition |
|---|---|---|
| ILL+ - Body ground | Light control SW TAIL or HEAD | 10 to 14 V |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

| 3 | INSPECT STEERING PAD SWITCH ASSY |
|---|---|

**Connector Front View:**




(a) Disconnect the steering pad switch assy connector.

(b) Connect the positive (+) lead to terminal ILL+ and the negative (-) lead to terminal EAU of the steering pad switch assy connector.

(c) Check if the illumination for the steering pad switch assy comes on.

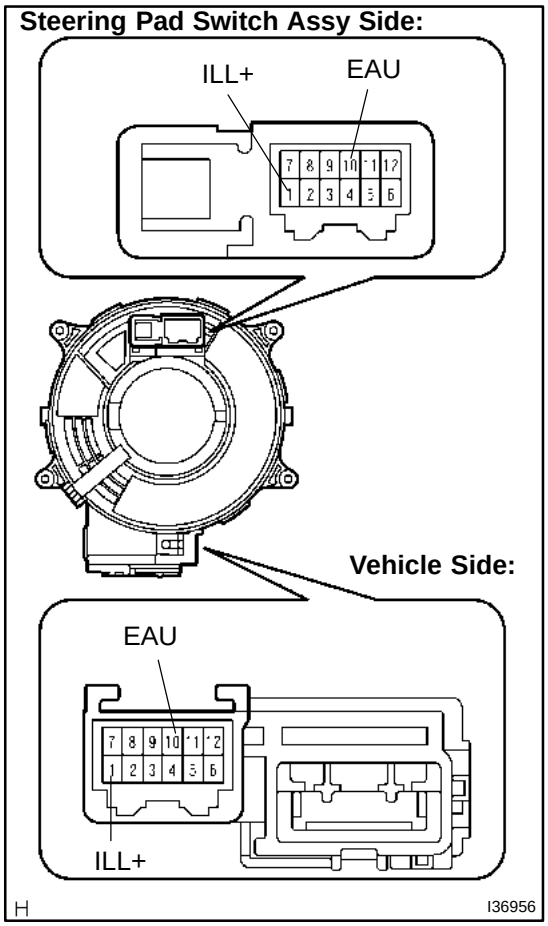
**OK:**

**Illumination for the steering pad switch assy comes on.**

**NG** → **REPLACE STEERING PAD SWITCH LH (SEE PAGE 67-28 )**

**OK**

## 4 INSPECT SPIRAL CABLE SUB-ASSY




(a) Disconnect the steering pad switch assy and spiral cable sub-assy connectors.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

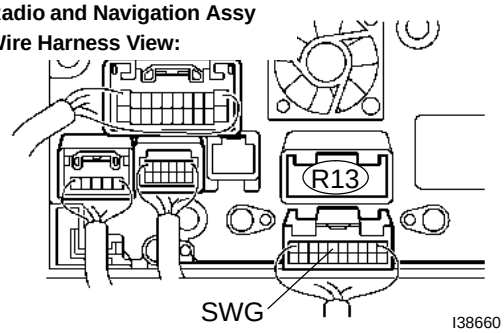
| Tester connection | Specified condition |
|---|---|
| EAU - EAU | Below 1 Ω |
| ILL+ - ILL+ | Below 1 Ω |

NG → **REPLACE SPIRAL CABLE SUB-ASSY (SEE PAGE 60-28 )**

OK

## 5 CHECK HARNESS AND CONNECTOR(SPIRAL CABLE SUB-ASSY - RADIO AND NAVIGATION ASSY)

**Radio and Navigation Assy Wire Harness View:**



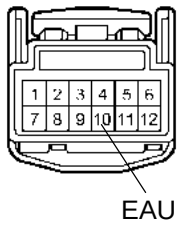

(a) Disconnect the connectors from the radio and navigation assy and spiral cable sub-assy.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connector | Condition | Specified condition |
|---|---|---|
| SWG - EAU | Always | Below 1 Ω |
| SWG - Body ground | Always | 10 kΩ or higher |

**Spiral Cable Sub-assy Connector Front View:**



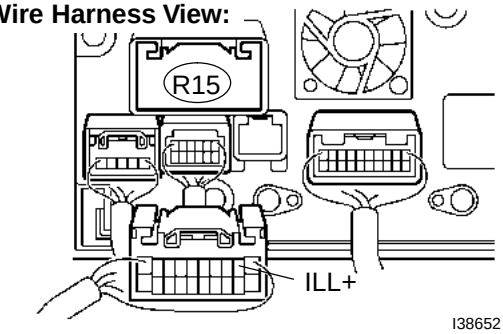

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

## 6 INSPECT RADIO AND NAVIGATION ASSY(ILL+)

**Wire Harness View:**




(a) Disconnect the radio and navigation assy connector R15.

(b) Measure the voltage according to the value(s) in the table below.

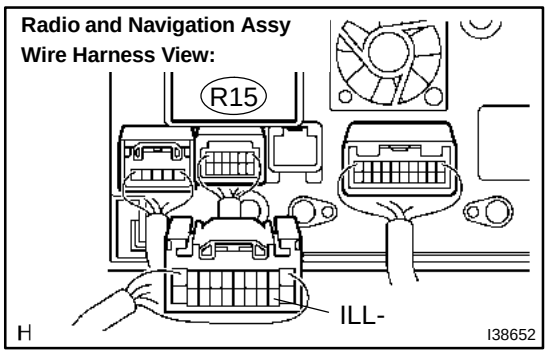
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| ILL+ - Body ground | Light control switch TAIL or HEAD | 10 to 14 V |

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

| 7 | CHECK HARNESS AND CONNECTOR(RADIO AND NAVIGATION ASSY - COMBINATION METER ASSY) |
|---|---|

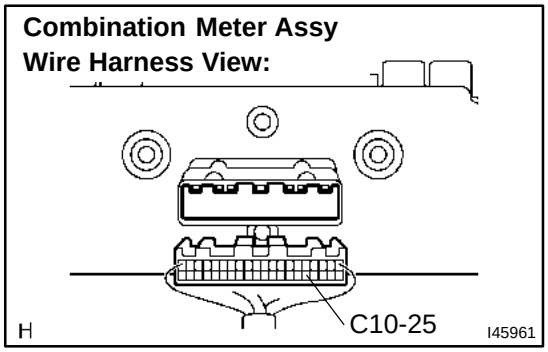



(a) Disconnect the radio and navigation assy connector R15 and combination meter assy connector C10.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connector | Condition | Specified condition |
|---|---|---|
| ILL- - C10-25 | Always | Below 1 Ω |
| ILL- - Body ground | Always | 10 kΩ or higher |




NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

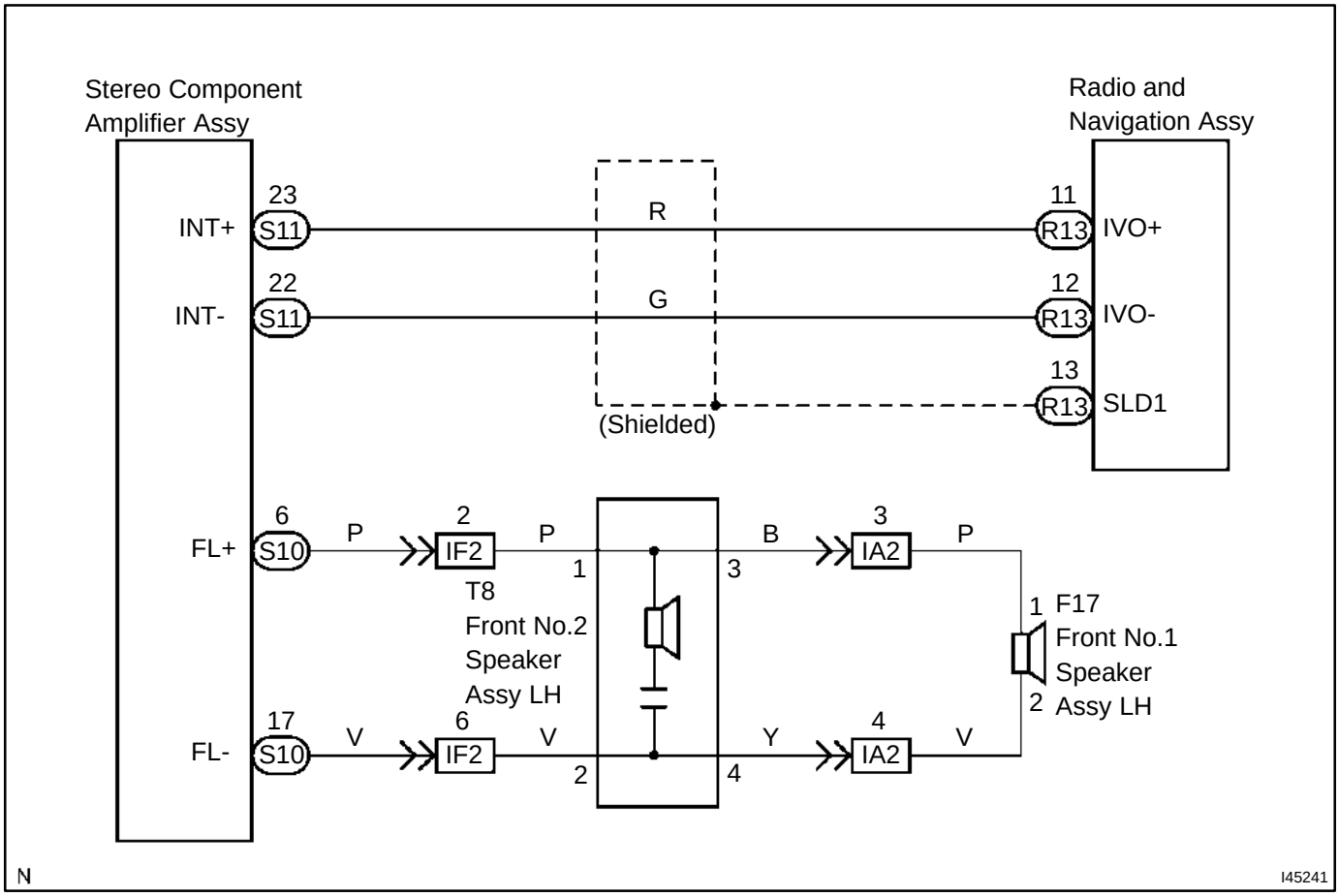
**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

# SPEAKER CIRCUIT (NAVIGATION VOICE)

## CIRCUIT DESCRIPTION

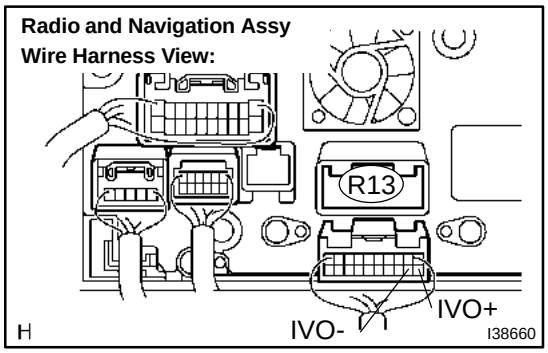
This circuit is used when the voice guidance in the navigation system is on.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CHECK HARNESS AND CONNECTOR(RADIO AND NAVIGATION ASSY - STEREO COMPONENT AMPLIFIER ASSY) |
|---|---|

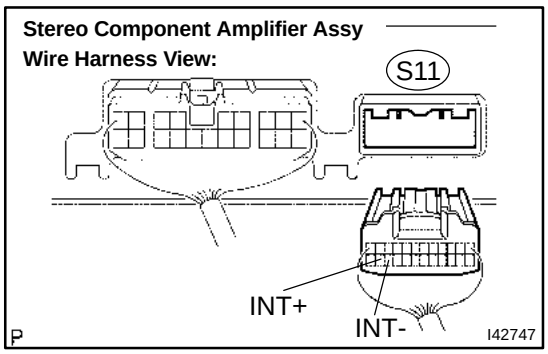



(a) Disconnect the radio and navigation assy connector R13 and stereo component amplifier assy connector S11.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| IVO+ - INT+ | Always | Below 1 Ω |
| IVO- - INT- | Always | Below 1 Ω |
| IVO+ - Body ground | Always | 10 kΩ or higher |
| IVO- - Body ground | Always | 10 kΩ or higher |




NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

| 2 | INSPECT FRONT NO.1 SPEAKER ASSY (LEFT SIDE) |
|---|---|

(a) Disconnect the speaker connector F17.

(b) Resistance check.

(1) Measure the resistance between the terminals of the speaker.

**NOTICE:**

**The speaker should not be removed for checking.**

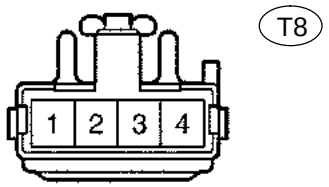
**Standard: 4 to 6 Ω**

NG → **REPLACE FRONT NO.1 SPEAKER ASSY (SEE PAGE 67-1 1)**

OK

| 3 | CHECK HARNESS AND CONNECTOR(FRONT NO.1 SPEAKER ASSY - FRONT NO.2 SPEAKER ASSY) |
|---|---|

**Front No.2 Speaker Assy**
**Connector Front View:**



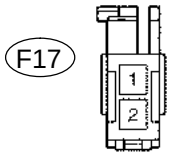

I38999

(a) Disconnect the front No.2 speaker assy connector T8.
(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| T8-3 - F17-1 | Always | Below 1 Ω |
| T8-4 - F17-2 | Always | Below 1 Ω |
| T8-4 - Body ground | Always | 10 kΩ or higher |
| T8-3 - Body ground | Always | 10 kΩ or higher |

**Front No.1 Speaker Assy**
**Connector Front View:**




I38233

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

| 4 | INSPECT FRONT NO.2 SPEAKER ASSY |
|---|---|

(a) Inspect by changing the right one with the left one, and vice versa.
**OK: Malfunction disappears.**

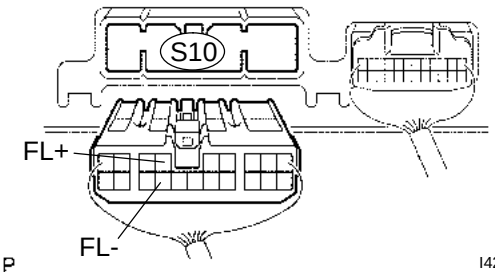
HINT:
Connect all connectors of the speakers.

**OK** → **REPLACE FRONT NO.2 SPEAKER ASSY (SEE PAGE 67-12 )**

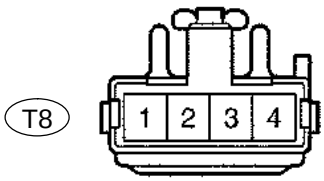
**NG**

| 5 | CHECK HARNESS AND CONNECTOR(STEREO COMPONENT AMPLIFIER ASSY-FRONT NO.2 SPEAKER ASSY) |
|---|---|

**Stereo Component Amplifier Assy**
**Wire Harness View:**




**Front No.2 Speaker Assy**
**Connector Front View:**




(a) Disconnect the stereo component amplifier assy connector S10 and front No.2 speaker assy connector T8.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| FL+ - T8-1 | Always | Below 1 Ω |
| FL- - T8-2 | Always | Below 1 Ω |
| FL+ - Body ground | Always | 10 kΩ or higher |
| FL- - Body ground | Always | 10 kΩ or higher |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

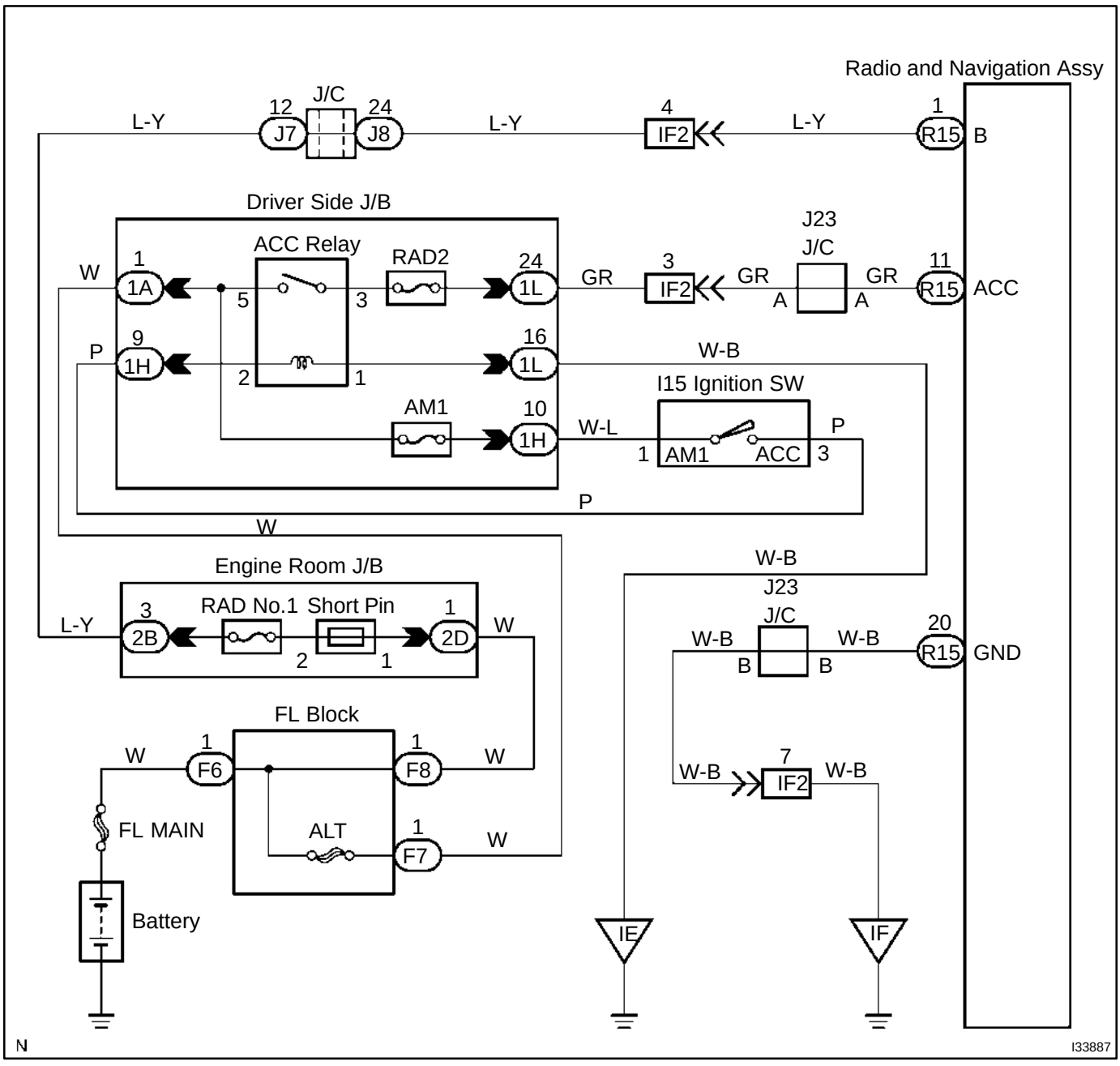
**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

# POWER SOURCE CIRCUIT (RADIO AND NAVIGATION ASSY)

## CIRCUIT DESCRIPTION

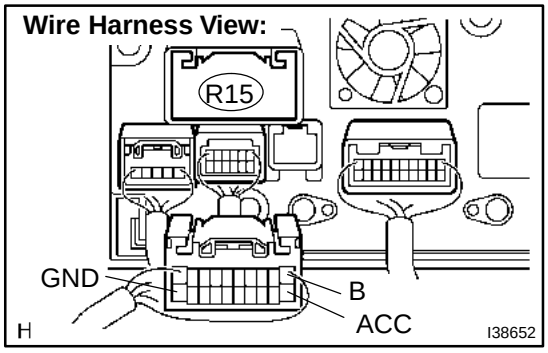
This circuit provides power to the radio and navigation assy.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT RADIO AND NAVIGATION ASSY(B, ACC, GND) |
|---|---|




(a) Disconnect the radio and navigation assy connector R15.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| GND - Body ground | Always | Below 1 Ω |

(c) Measure the voltage according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| B - GND | Always | 10 to 14 V |
| ACC - GND | Ignition SW ACC | 10 to 14 V |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

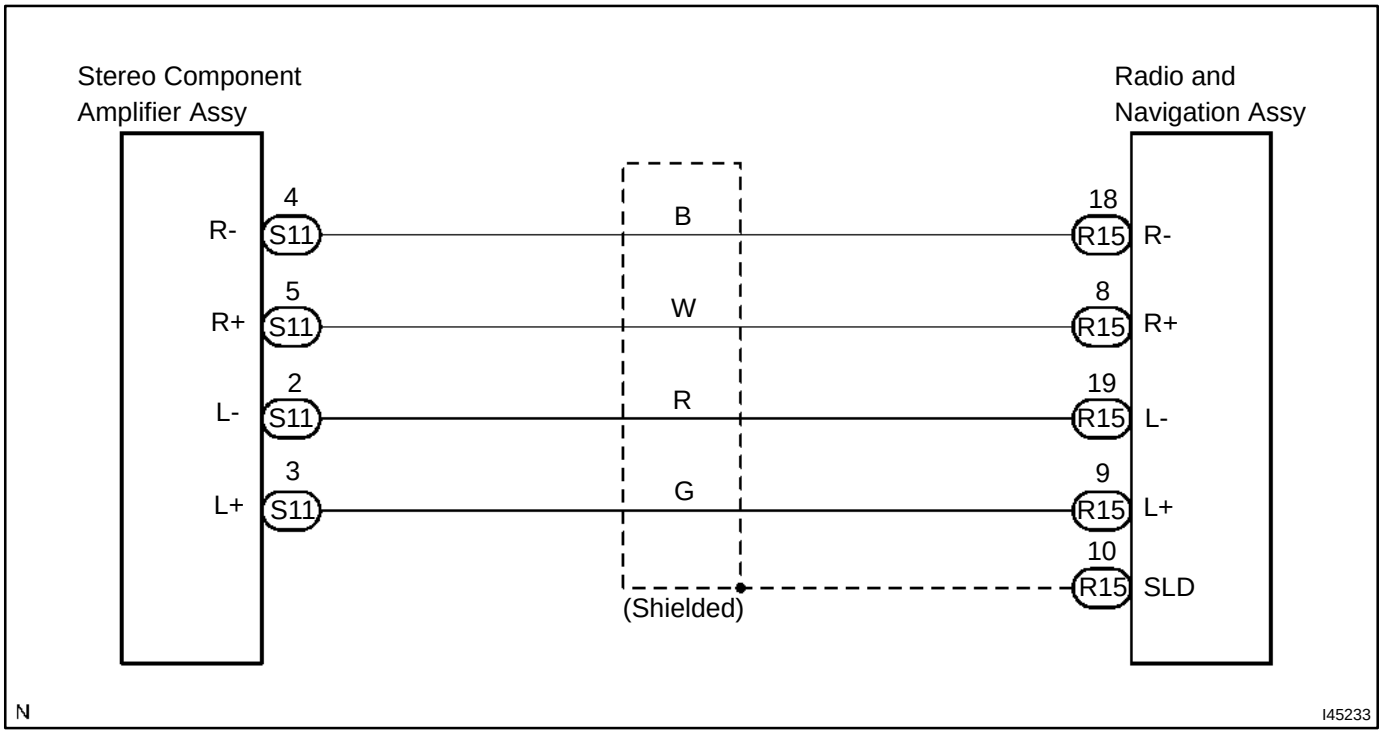
**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE OR DIAGNOSTIC TROUBLE CODE CHART (SEE PAGE 05-1286 OR 05-1278 )**

# SOUND SIGNAL CIRCUIT (RADIO AND NAVIGATION ASSY - STEREO COMPONENT AMPLIFIER ASSY)

## CIRCUIT DESCRIPTION

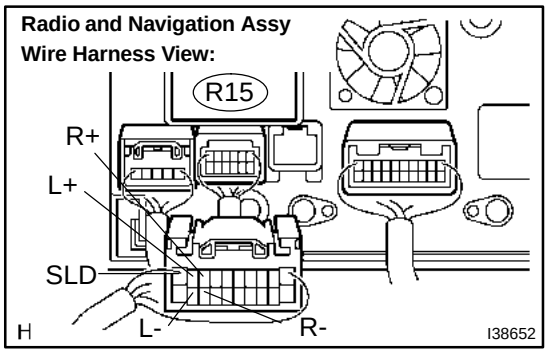
The radio and navigation assy sends a sound signal to the stereo component amplifier assy through this circuit. The sound signal that has been sent is amplified by the stereo component amplifier assy, and then sent to the speakers. If there is an open or short in the circuit, sound cannot be heard from the speakers even if there is no malfunction in the stereo component amplifier assy or speakers.

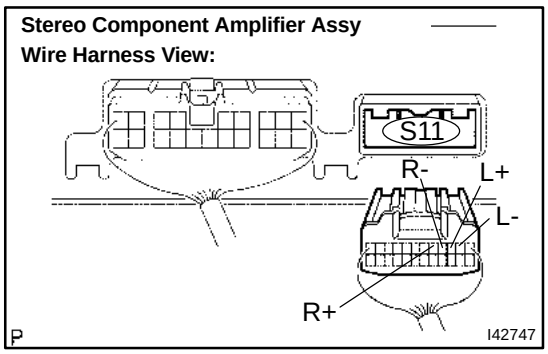
## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CHECK HARNESS AND CONNECTOR(RADIO AND NAVIGATION ASSY - STEREO COMPONENT AMPLIFIER ASSY) |
|---|---|




(a) Disconnect the radio and navigation assy connector R15 and stereo component amplifier assy connector S11.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| L+ - L+ | Below 1 Ω |
| L- - L- | Below 1 Ω |
| R+ - R+ | Below 1 Ω |
| R- - R- | Below 1 Ω |
| L+ - Body ground | 10 kΩ or higher |
| L- - Body ground | 10 kΩ or higher |
| R+ - Body ground | 10 kΩ or higher |
| R- - Body ground | 10 kΩ or higher |
| SLD - Body ground | 10 kΩ or higher |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

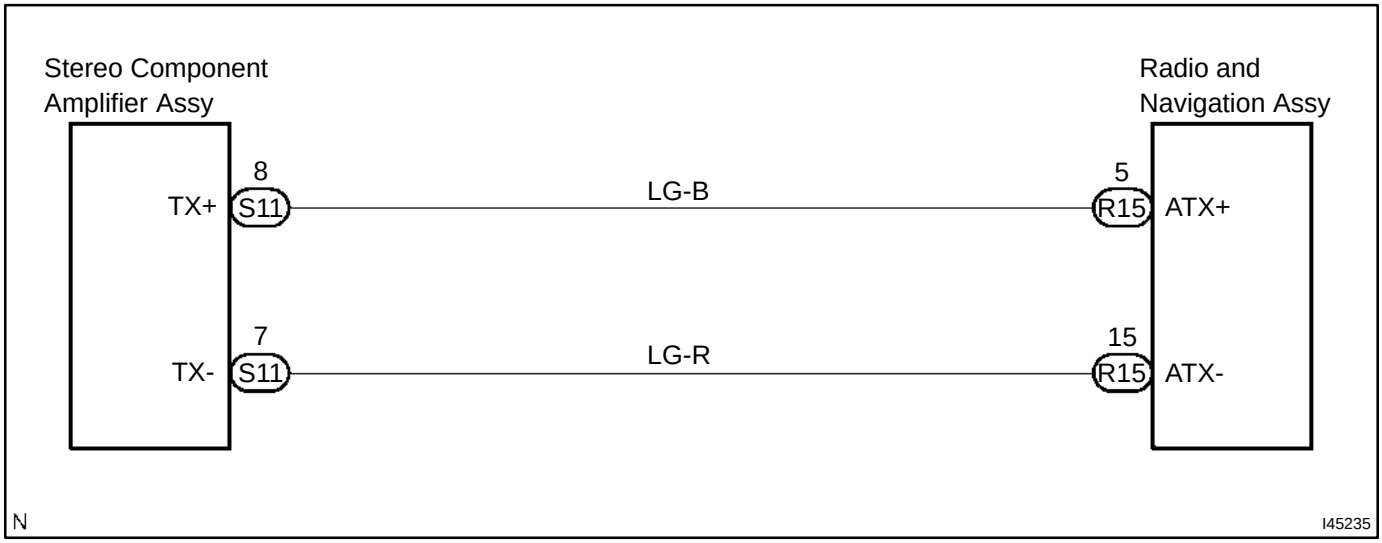
**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

# AVC-LAN CIRCUIT (RADIO AND NAVIGATION ASSY - STEREO COMPONENT AMPLIFIER ASSY)

## CIRCUIT DESCRIPTION

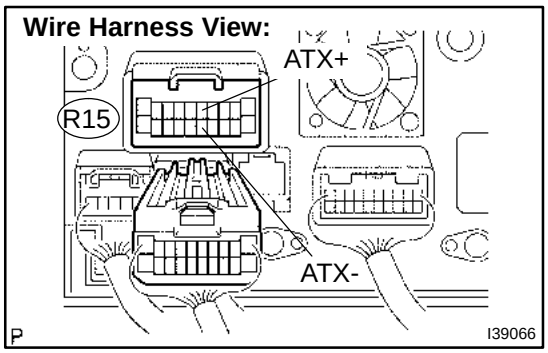
Each unit of the radio and navigation system connected to the AVC-LAN (communication bus) communicates by transferring the signals from each switch.
When a short to +B or short to ground occurs in this AVC-LAN, the radio and navigation system will not function normally as communication is discontinued.
In the AVC-LAN, the radio and navigation assy becomes the communication master and has enough resistance necessary for communication.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

| 1 | INSPECT RADIO AND NAVIGATION ASSY |
|---|---|




(a) Disconnect the radio and navigation assy connector R15.
(b) Measure the resistance according to the value(s) in the table below.

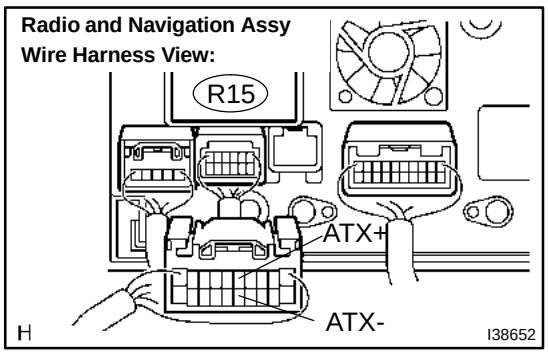
**Standard:**

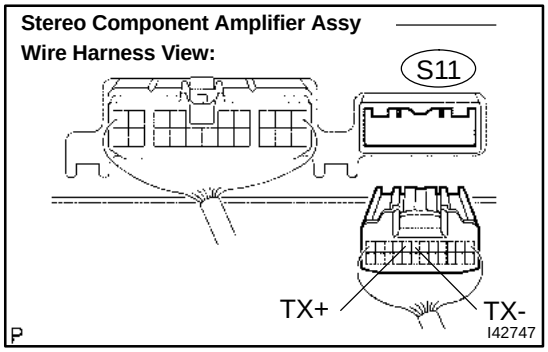
| Tester connection | Condition | Specified condition |
|---|---|---|
| ATX+ - ATX- | Always | 60 to 80 Ω |

NG → **REPLACE RADIO AND NAVIGATION ASSY (SEE PAGE 67-9 )**

OK

| 2 | CHECK HARNESS AND CONNECTOR(RADIO AND NAVIGATION ASSY - STEREO COMPONENT AMPLIFIER ASSY) |
|---|---|




(a) Disconnect the radio and navigation assy connector R15 and stereo component amplifier assy connector S11.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| ATX+ - TX+ | Always | Below 1 Ω |
| ATX- - TX- | Always | Below 1 Ω |
| ATX+ - Body ground | Always | 10 kΩ or higher |
| ATX- - Body ground | Always | 10 kΩ or higher |

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

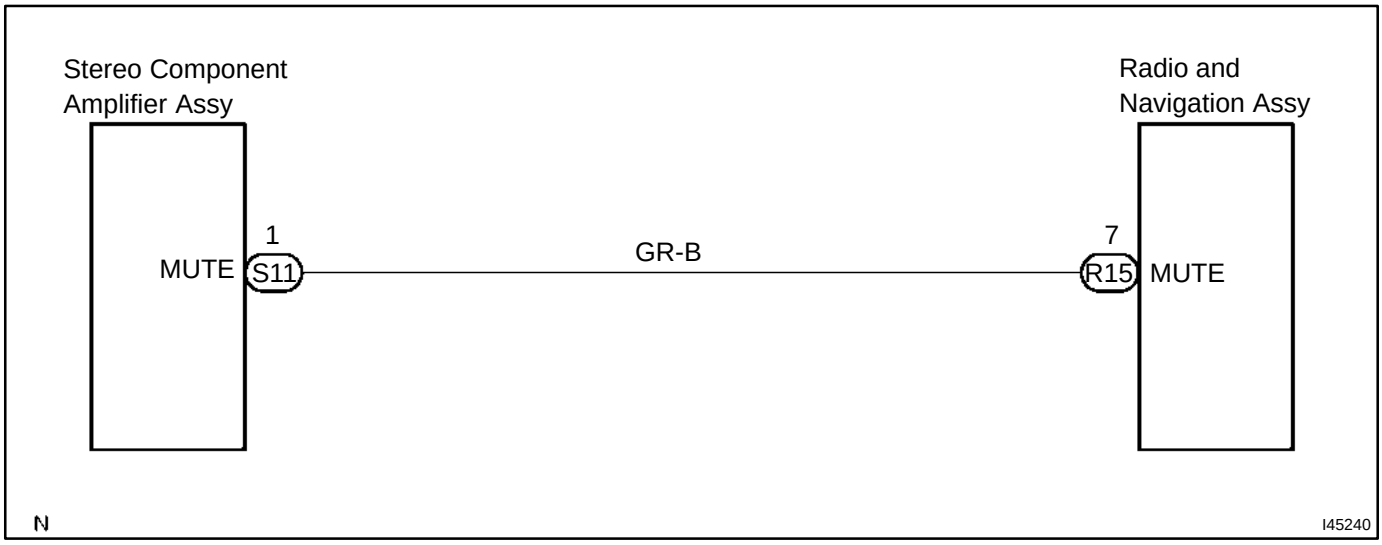
**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN DIAGNOSTIC TROUBLE CODE CHART (SEE PAGE 05-1278 )**

# MUTE SIGNAL CIRCUIT (RADIO AND NAVIGATION ASSY - STEREO COMPONENT AMPLIFIER ASSY)

## CIRCUIT DESCRIPTION

This circuit sends a signal to each component to mute noise. Because of that, noise produced by changing the sound source ceases.
In addition, this circuit is used to mute sound when the navigation system performs voice guide.
If there is an open in the circuit, noise can be heard from the speakers when changing the sound source. When the vehicle is equipped with a navigation system, audio sound keeps coming out from the speaker on the driver's side while the voice navigation is in operation.
If there is a short in the circuit, even though the stereo component amplifier assy is normal, no sound or only an extremely small sound can be produced.

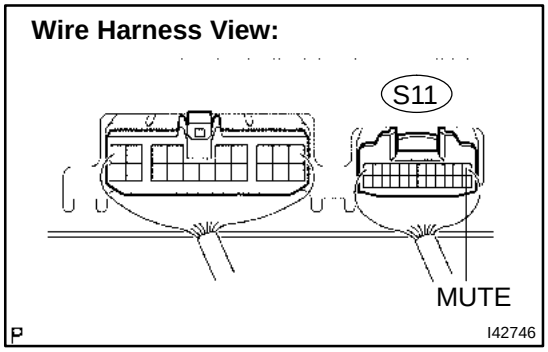
## WIRING DIAGRAM




## INSPECTION PROCEDURE

| 1 | INSPECT STEREO COMPONENT AMPLIFIER ASSY |
|---|---|

**Wire Harness View:**




(a) Measure the voltage according to the value(s) in the table below.

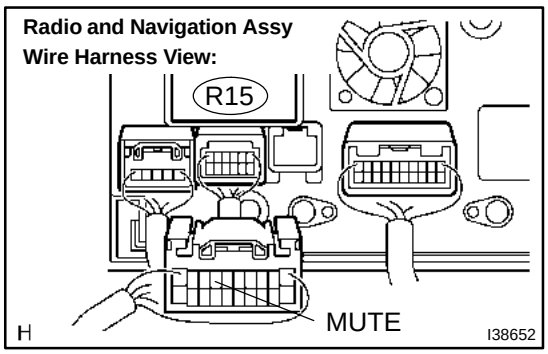
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| MUTE - Body ground | Turn ignition switch to ACC, Audio system is playing → Changing mode | Above 3.5 V → Below 1 V |

**OK** → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

**NG**

| 2 | CHECK HARNESS AND CONNECTOR(RADIO AND NAVIGATOIN ASSY - STEREO COMPONENT AMPLIFIER ASSY) |
|---|---|

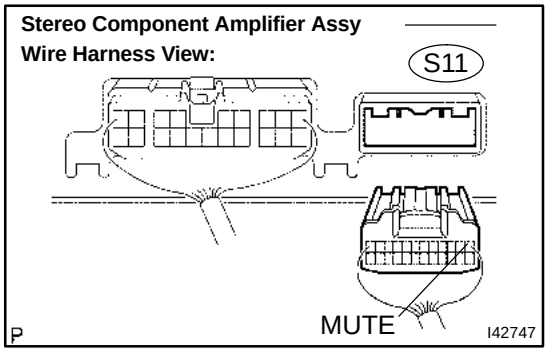



(a) Disconnect the radio and navigation assy connector R15 and stereo component amplifier assy connector S11.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| MUTE - MUTE | Always | Below 1 Ω |
| MUTE - Body ground | Always | 10 kΩ or higher |




NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

| 3 | REPLACE STEREO COMPONENT AMPLIFIER ASSY (SEE PAGE 67-23 ) |
|---|---|

(a) Replace the stereo component amplifier assy and check if it operates normally.

**OK: The navigation system operates normally.**

OK → **NORMAL OPERATION**

NG

**REPLACE RADIO AND NAVIGATION ASSY (SEE PAGE 67-9 )**

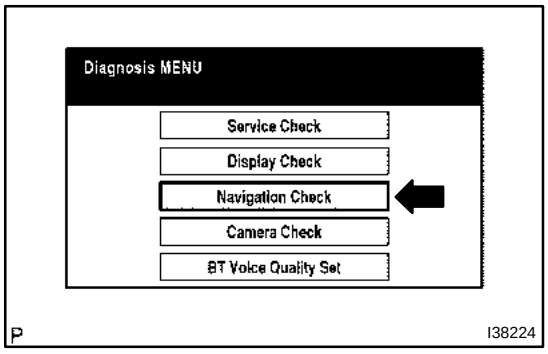
05FGG-04

# NAVIGATION CHECK MODE (GPS INFORMATION)

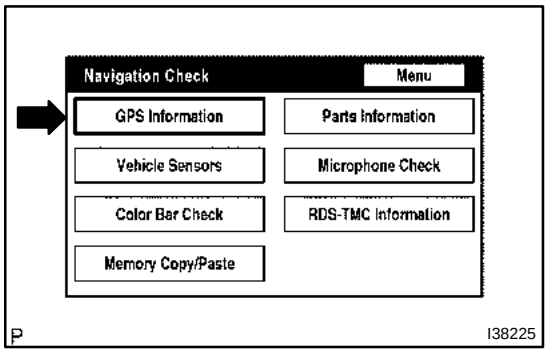
HINT:

- This mode displays GPS satellite information.
- Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle.

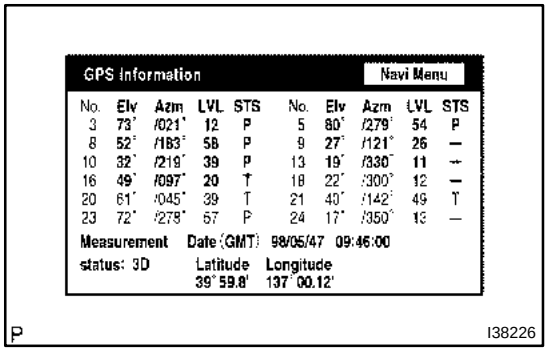
**1. Enter diagnostic mode (see page 05-1273 ).**




**2. Select "Navigation Check" from the "Diagnosis MENU" screen.**




**3. Select "GPS Information" from the "Navigation Check" screen.**




**4. When GPS information is displayed, check the GPS conditions.**

HINT:

This screen is updated once per second when input signals to the vehicle are changed.

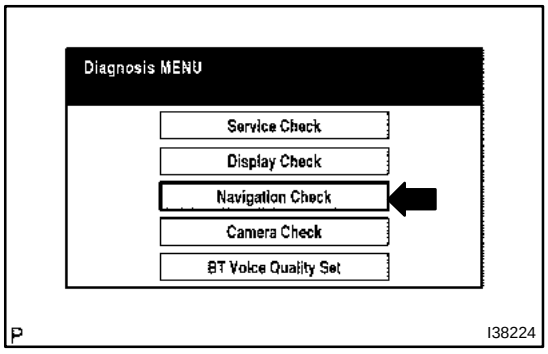
05FGI-04

# NAVIGATION CHECK MODE (NAVI COLOR BAR CHECK)

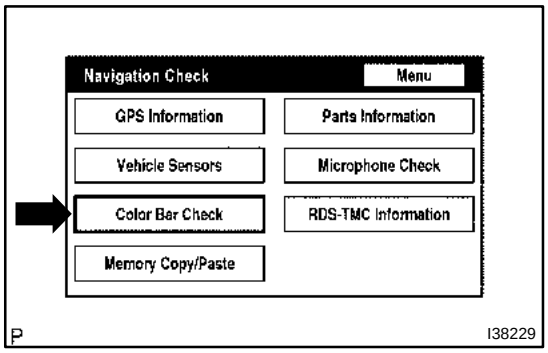
HINT:

- This mode checks the color display on the radio and navigation assy.
- Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle.

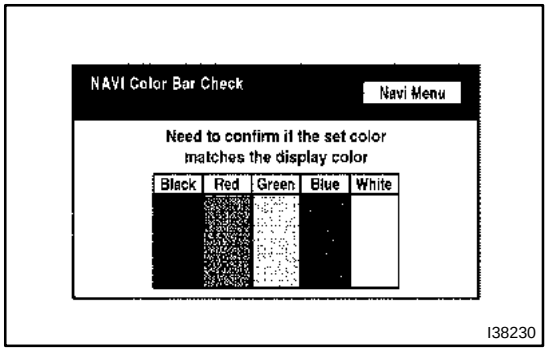
**1. Enter diagnostic mode (see page 05-1273 ).**




**2. Select "Navigation Check" from the "Diagnosis MENU" screen.**




**3. Select "Color Bar Check" from the "Navigation Check" screen.**




**4. Check each color of the color bar when the "NAVI Color Bar Check" screen is displayed.**

HINT:

Colors will not be displayed full-screen as in "Display Check Mode".

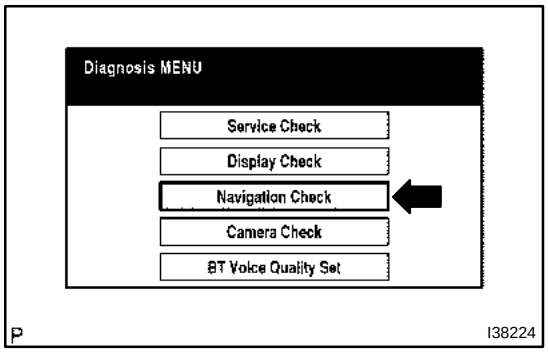
05FGJ-04

# NAVIGATION CHECK MODE (PARTS INFORMATION)

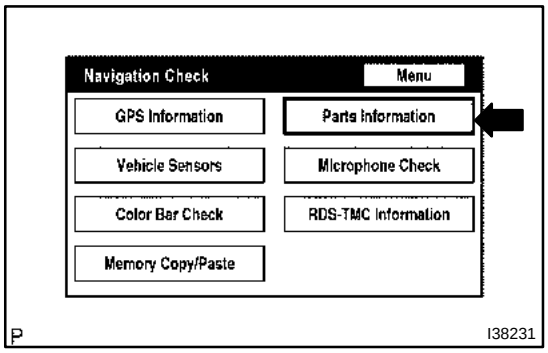
HINT:

- This mode displays product information on the radio and navigation assy and discs.
- Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle.

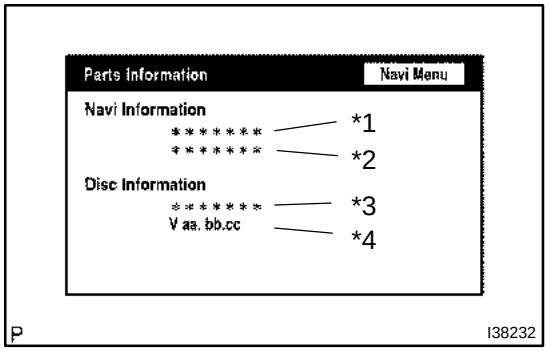
**1. Enter diagnostic mode (see page 05-1273 ).**




**2. Select "Navigation Check" from the "Diagnosis MENU" screen.**




**3. Select "Parts Information" from the "Navigation Check" screen.**




**4. Check the navigation and disc information when the "Parts Information" screen is displayed.**

| Display | Contents |
|---|---|
| Navigation Manufacturer/*1 | Radio and navigation assy manufacturer name is displayed. |
| Navigation Version/*2 | Radio and navigation assy version is displayed. |
| Disc Manufacturer/*3 | Map disc manufacturer is displayed. |
| Disc Version/*4 | Map disc version is displayed. |

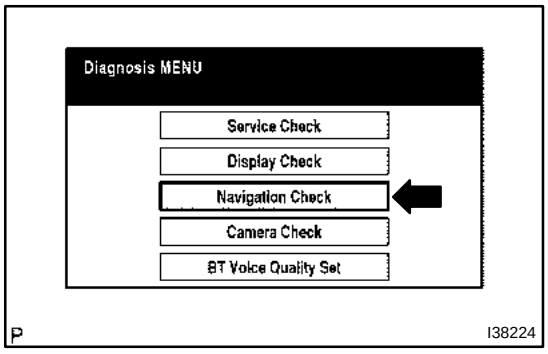
05FGH-04

# NAVIGATION CHECK MODE (VEHICLE SENSORS)

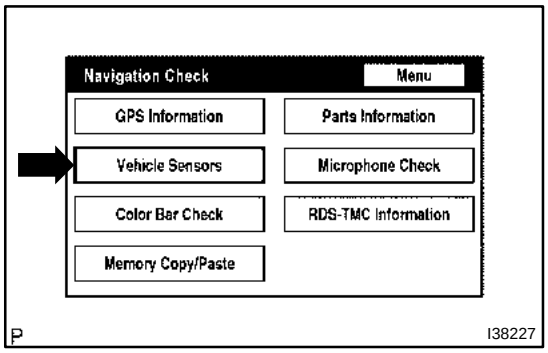
HINT:

- This mode checks the vehicle signal status input to the radio and navigation assy.
- Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle.

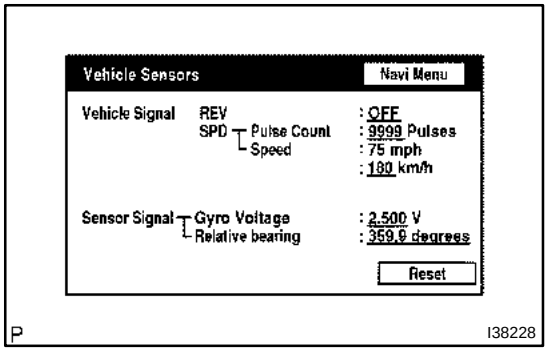
**1. Enter diagnostic mode (see page 05-1273 ).**




**2. Select "Navigation Check" from the "Diagnosis MENU" screen.**




**3. Select "Vehicle Sensors" from the "Navigation Check" screen.**




**4. Check all the signals and sensors when vehicle signal information is displayed.**

HINT:

This screen is updated once per second when input signals to the vehicle are changed.

# NOISE OCCURS

## INSPECTION PROCEDURE

### 1 CHECK OF SPEAKER INSTALLATION

(a) Check the speaker installation condition.
  (1) Check that each speaker is securely installed.
  **Standard: Malfunction disappears.**

HINT:

The radio is equipped with the noise prevention system that works against only the excessively large noise, thereby excessively large noise do not occur in the radio. If large noise occurs, check whether or not the earth on the antenna installation part and the proper noise-prevention equipment are all installed, and whether or not the improper wiring is held.

| Condition in which noise occurs | Noise type |
|---|---|
| Depressing the acceleration pedal increases noise, and stopping the engine erases the noise immediately. | Alternator noise |
| Noise occurs during the A/C or the heater operation. | Blower motor noise |
| Rapid acceleration during the drive on the unpaved road or after the IG switch is turned ON makes noise. | Fuel pump noise |
| Pressing and then releasing the horn switch, and keeping pressing the horn switch makes noise. | Horn noise |
| Stopping the engine erases the small noise that has been heard. | Ignition noise |
| Noise occurs in turn with the blink of the turn signal flash. | Flasher noise |
| Noise occurs during the window washer operation. | Washer noise |
| Noise occurs during the engine running, and it continues to occur after the engine is stopped. | Water temperature sensor noise |
| Noise occurs during the wiper operation. | Wiper noise |
| Noise occurs when the brake pedal is depressed. | Stop light switch noise |
| Others. | Static electricity on the vehicle |

HINT:

- Identify the condition under which the noise occurs, and check the noise filter on the related part.
- Make sure first that there is no noise from outside. Failing to do so makes the noise occurrence source detection impossible and leads to misunderstanding.
- The noise should be removed in descending order of loudness.

NG → INSTALL IT PROPERLY

OK

IDENTIFICATION OF NOISE SOURCE

# DTC P0705 TRANSMISSION RANGE SENSOR CIRCUIT MALFUNCTION (PRNDL INPUT)

## CIRCUIT DESCRIPTION

The park/neutral position switch detects the shift lever position and sends signals to the ECM.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| P0705 | (A) Any 2 or more signals of the following are ON simultaneously (2-trip detection logic)<br>• P input signal is ON.<br>• N input signal is ON.<br>• R input signal is ON.<br>• D input signal is ON.<br>• 3 input signal is ON.<br>• 2 input signal is ON.<br>(B) Any 2 or more signals of the following are ON simultaneously (2-trip detection logic)<br>• NSW input signal is ON.<br>• R input signal is ON.<br>• D input signal is ON.<br>• 3 input signal is ON.<br>• 2 input signal is ON. | • Open or short in park/neutral position switch circuit<br>• Park/neutral position switch<br>• ECM |

## MONITOR DESCRIPTION

The park/neutral position switch detects the shift lever position and sends a signal to the ECM.
For security, the park/neutral position switch detects the shift lever position so that engine can be started only when the vehicle is in P or N shift position.
When the park/neutral position switch sends more than one signal at a time from switch positions P, R, N or D, the ECM interprets this as a fault in the switch. The ECM will turn on the MIL and store the DTC.

## MONITOR STRATEGY

| | |
|---|---|
| Related DTCs | P0705: Park/neutral position switch/Verify switch input |
| Required sensors/Components | Park/neutral position switch |
| Frequency of operation | Continuous |
| Duration | 2 sec. |
| MIL operation | 2 driving cycles |
| Sequence of operation | None |

## TYPICAL ENABLING CONDITIONS

### Condition (A), (B), (C)

| | |
|---|---|
| The monitor will run whenever this DTC is not present. | See page 05-9 |
| Ignition switch | ON |
| Battery voltage | 10.5 V or more |

# TYPICAL MALFUNCTION THRESHOLDS

## One of the following conditions is met: Condition (A), (B) or (C)

### Condition (A)

| Number of the following signal input at the same time | 2 or more |
|---|---|
| P switch | ON |
| R switch | ON |
| N switch | ON |
| D switch | ON |
| 3 switch | ON |
| 2 switch | ON |

### Condition (B)

| Number of the following signal input at the same time | 2 or more |
|---|---|
| NSW switch | ON |
| R switch | ON |
| D switch | ON |
| 3 switch | ON |
| 2 switch | ON |

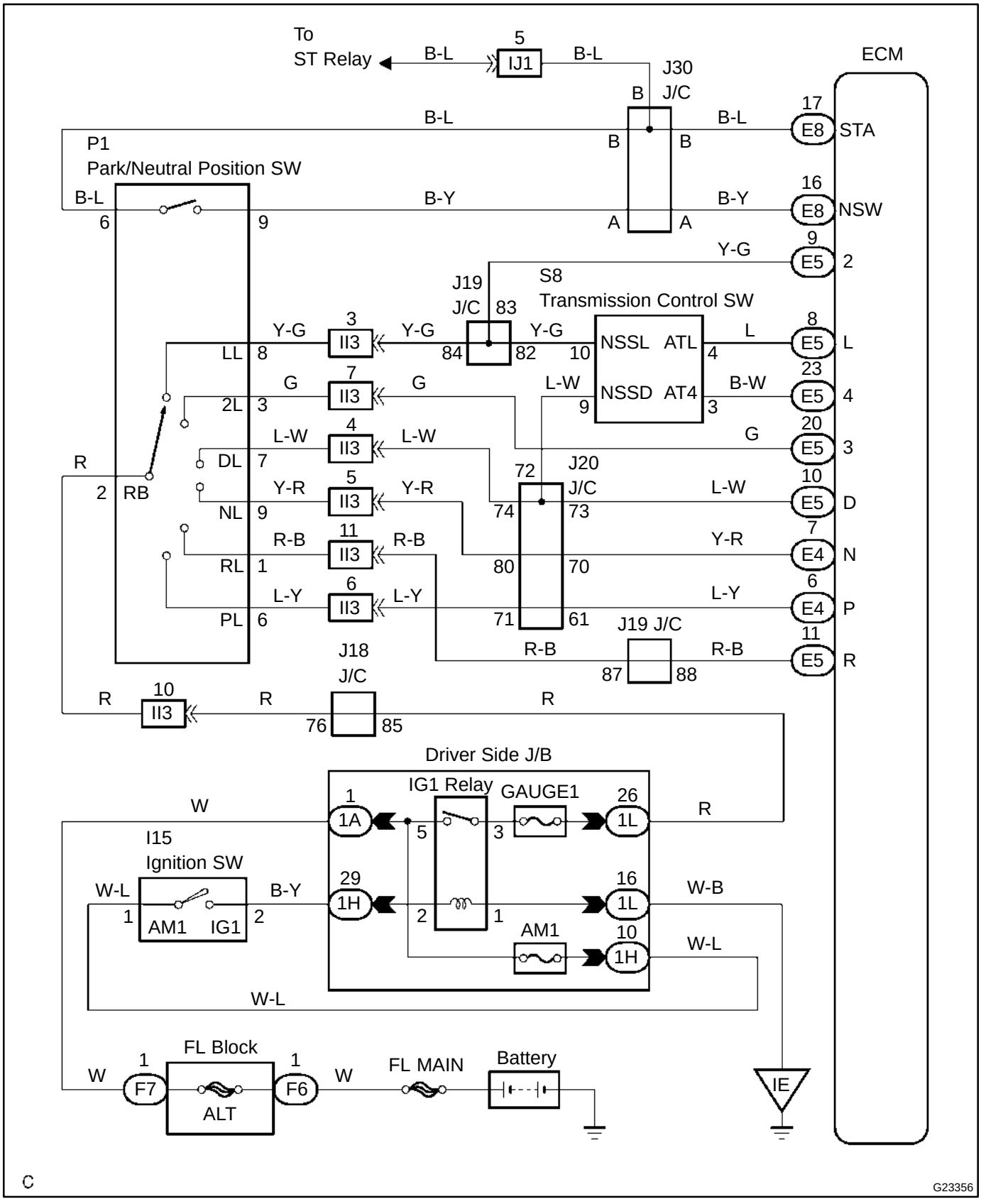
### Condition (C)

| Both of the following conditions are met: | Condition 1 and 2 |
|---|---|
| 1. One of the following conditions is met: | Condition (a), (b), (c) or (d) |
| (a) NSW switch | ON |
| (b) P switch | ON |
| (c) R switch | ON |
| (d) N switch | ON |
| 2. One of the following conditions is met: | Condition (a) or (b) |
| (a) 4 switch | ON |
| (b) L switch | ON |

# COMPONENT OPERATING RANGE

| Park/neutral Position switch | The park/neutral position switch sends only one signal to the ECM. |
|---|---|

## WIRING DIAGRAM



## INSPECTION PROCEDURE

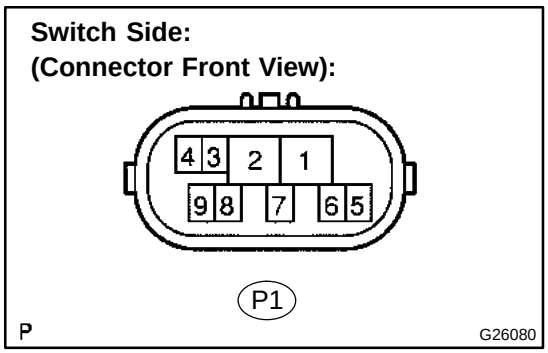
HINT:

According to the DATA LIST displayed by the OBD II scan tool or hand-held tester, you can read the value of the switch, sensor, actuator and so on without parts removal. Reading the DATA LIST as the first step of troubleshooting is one method to shorten labor time.

(a) Turn the ignition switch off.
(b) Connect the OBD II scan tool or hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Push the "ON" button of the OBD II scan tool or the hand-held tester.
(e) When you use hand-held tester:
Select the item "DIAGNOSIS/ENHANCED OBD II/DATA LIST".
(f) According to the display on tester, read the "DATA LIST".

| Item | Measurement Item/ Range (display) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| PNP SW [NSW] | PNP SW Status/ ON or OFF | Shift lever position is; P and N: ON Except P and N: OFF | When the shift lever position displayed on the hand-held tester differs from the actual position, adjustment of the PNP switch or the shift cable may be incorrect. |
| LOW | PNP SW Status/ ON or OFF | Shift lever position is; L: ON Except L: OFF | ↑ |
| 2ND | PNP SW Status/ ON or OFF | Shift lever position is; 2 and L: ON Except 2 and L: OFF | ↑ |
| REVERSE | PNP SW Status/ ON or OFF | Shift lever position is; R: ON Except R: OFF | ↑ |
| DRIVE | PNP SW Status/ ON or OFF | Shift lever position is; D: ON Except D: OFF | ↑ |

**1 INSPECT PARK/NEUTRAL POSITION SWITCH ASSY**




(a) Disconnect the park/neutral position switch connector.
(b) Check continuity between each terminal shown below when the shift lever is moved to each position.

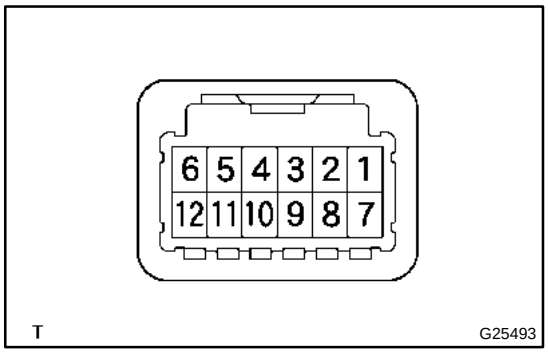
| Shift Position | Terminal No. to continuity | |
|---|---|---|
| P | 2 - 6 | 4 - 5 |
| R | 2 - 1 | - |
| N | 2 - 9 | 4 - 5 |
| D, 4 | 2 - 7 | - |
| 3 | 2 - 3 | - |
| 2, L | 2 - 8 | - |

**OK:**
**There is continuity.**

**NG** → **REPLACE PARK/NEUTRAL POSITION SWITCH ASSY(See page 40-3 )**

**OK**

## 2 INSPECT SHIFT LOCK CONTROL UNIT ASSY




(a) Connect the park/neutral position switch connector.
(b) Disconnect the transmission control switch connector of shift lock control unit assy.
(c) Check continuity between each terminal shown below when the shift lever is moved to each position.

| Shift Position | Terminal No. to continuity | Specified valve |
|---|---|---|
| D | 2 - 9 | Continuity |
| 4 | | No continuity |
| D | 3 - 9 | No continuity |
| 4 | | Continuity |
| 2 | 5 - 10 | Continuity |
| L | | No continuity |
| 2 | 4 - 10 | No continuity |
| L | | Continuity |

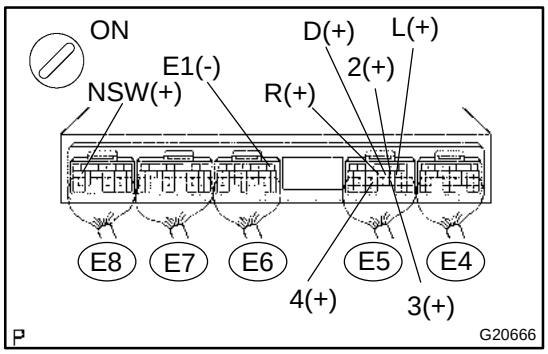
**OK:**

**There is continuity.**

**NG** → **REPLACE SHIFT LOCK CONTROL UNIT ASSY**

**OK**

| 3 | CHECK HARNESS AND CONNECTOR(PARK/NEUTRAL POSITION SWITCH - ECM) |
|---|---|




(a) Connect the transmission control switch connector of shift lock control unit assy.

(b) Turn the IG switch ON and measure the voltage between terminals NSW, R, D, 4, 3, 2, and L of ECM and the E1 when the shift lever is shifted to the following position.

**OK:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| NSW - E1 | Shift lever position: P and N | Below 1 V |
| | Shift lever position: Except P and N | Battery voltage |
| R - E1 | Shift lever position: R | Battery voltage* |
| D - E1 | Shift lever position: D and 4 | Battery voltage |
| 4 - E1 | Shift lever position: 4 | Battery voltage |
| 3 - E1 | Shift lever position: 3 | Battery voltage |
| 2 - E1 | Shift lever position: 2 and L | Battery voltage |
| L - E1 | Shift lever position: L | Battery voltage |

HINT:

*: The voltage will drop slightly due to lighting up of the back up light.

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR(See page 01-37 )**

OK →

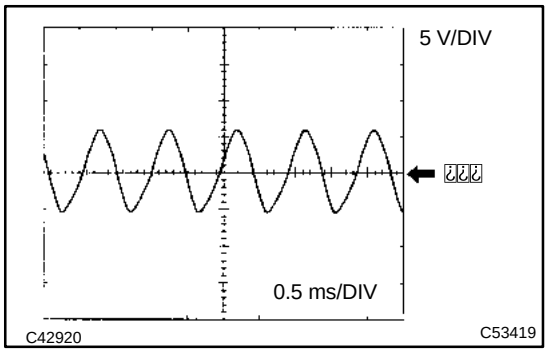
**CHECK AND REPLACE ECM(See page 01-37 )**

| DTC | P0717 | TURBINE SPEED SENSOR CIRCUIT NO SIGNAL |
|---|---|---|

## CIRCUIT DESCRIPTION

This sensor detects the rotation speed of the input turbine. By comparing the input turbine speed signal (NT) with the counter gear speed sensor signal (NC), the ECM detects the shift timing of the gears and appropriately controls the engine torque and hydraulic pressure according to various conditions. Thus, providing smooth gear shift.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| P0717 | ECM detects conditions (a), (b) and (c) continuity for 5 sec. or more: (1-trip detection logic)<br>(a) Vehicle speed: 50 km/h (31 mph) or more<br>(b) Park/neutral position switch (NSW and R) is OFF<br>(c) Speed sensor (NT): less than 300 rpm | • Open or short in transmission revolution sensor NT (speed sensor NT) circuit<br>• Transmission revolution sensor NT (speed sensor NT)<br>• ECM<br>• Automatic transaxle assembly |




Reference (Using an oscilloscope):

Check the waveform between the terminals NT+ and NT- of the ECM connector.

**Standard: Refer to the illustration.**

| Terminal | NT+ - NT- |
|---|---|
| Tool setting | 5V/DIV, 0.5ms/DIV |
| Vehicle condition | Vehicle speed 20 km/h (12 mph) |

## MONITOR DESCRIPTION

The NT terminal of the ECM detects a revolution signal from the speed sensor (NT) (input RPM). The ECM calculates a gearshift comparing the speed sensor (NT) with the speed sensor (NC).

While the vehicle is operating in 2nd, 3rd, 4th or 5th gear in the shift position of D, if the input shaft revolution is less than 300 rpm*1 although the output shaft revolution is more than 1,000 rpm*2, the ECM detects the trouble, illuminates the MIL and stores the DTC.

*1: Pulse is not output or is irregularly output.

*2: The vehicle speed is 50 km/h (31 mph) or more.

## MONITOR STRATEGY

| | |
|---|---|
| Related DTCs | P0717: Speed sensor (NT)/Verify pulse input |
| Required sensors/Components | Speed sensor (NT), Speed sensor (NC) |
| Frequency of operation | Continuous |
| Duration | 5 sec. |
| MIL operation | Immediate |
| Sequence of operation | None |

## TYPICAL ENABLING CONDITIONS

| | |
|---|---|
| The monitor will run whenever this DTC is not present. | See page 05-533 |
| Shift change | Shift change is completed and before starting next shift change operation |
| ECM selected gear | 2nd, 3rd, 4th or 5th |
| Output shaft rpm | 1,000 rpm or more |
| NSW switch | OFF |
| R switch | OFF |
| L switch | OFF |
| Engine | Running |
| Ignition switch | ON |
| Starter | OFF |

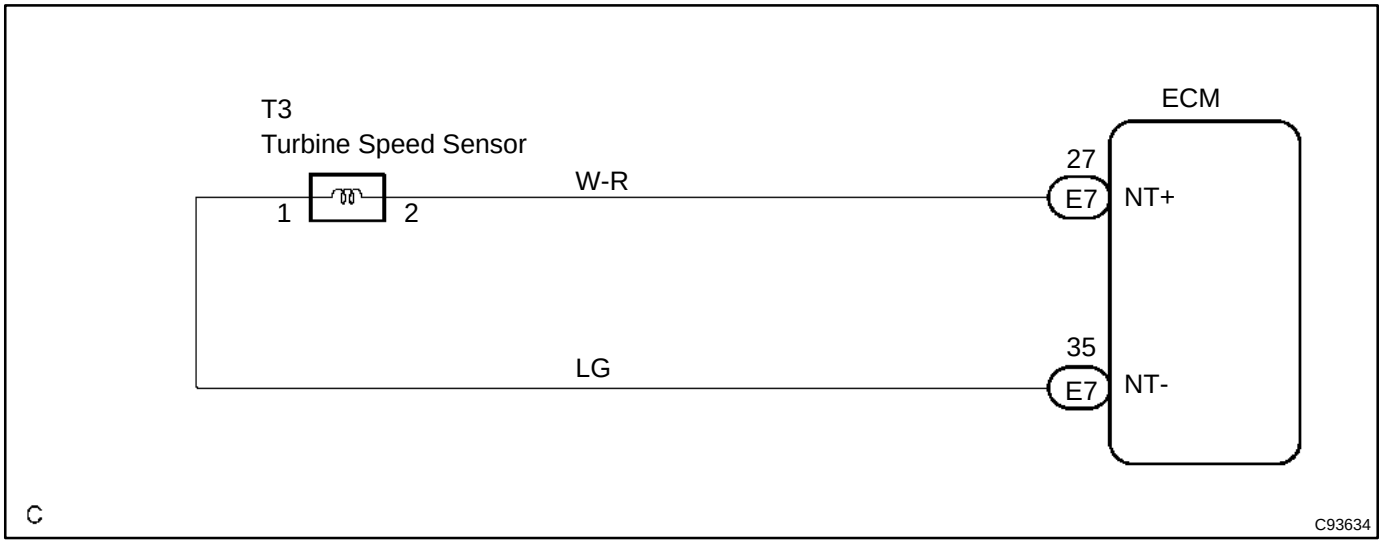
## TYPICAL MALFUNCTION THRESHOLDS

| | |
|---|---|
| Sensor signal rpm | Less than 300 rpm |

## COMPONENT OPERATING RANGE

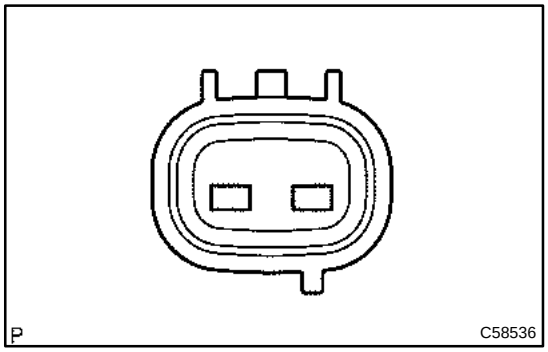
| | |
|---|---|
| Speed sensor (NT) | Turbine speed is equal to engine speed when lock-up ON |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

## 1 INSPECT SPEED SENSOR(NT)




(a) Disconnect the speed sensor connector from the transaxle.

(b) Measure the resistance between terminals of speed sensor.

**OK:**

**Resistance:**

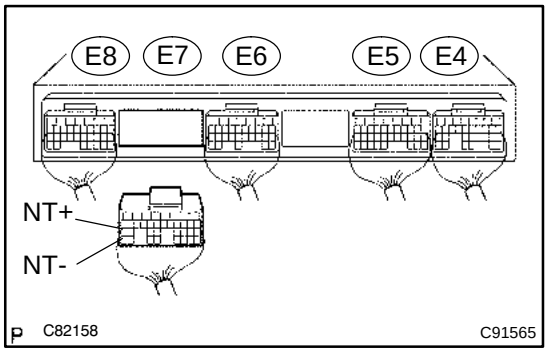
**TOYOTA made: 500 to 620 Ω at 20 °C (68 °F)**

**AISIN made: 560 to 680 Ω at 20 °C (68 °F)**

**NG** → **REPLACE SPEED SENSOR(NT) (See page 40-20 )**

**OK**

## 2 CHECK HARNESS AND CONNECTOR(SPEED SENSOR - ECM)




(a) Connect the speed sensor connector.

(b) Disconnect the ECM connector.

(c) Measure the resistance between terminals NT+ and NT-.

**OK:**

**Resistance:**

**TOYOTA made: 500 to 620 Ω at 20 °C (68 °F)**

**AISIN made: 560 to 680 Ω at 20 °C (68 °F)**

(d) Check the continuity between the wire harness side connectors.

**OK:**

**Standard (Check for short):**

| Symbols | Specified condition |
|---|---|
| NT+ - Body ground | No continuity |
| NT- - Body ground | |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR(See page 01-37 )**

**OK**

**CHECK AND REPLACE ECM(See page 01-37 )**

# DTC P0724 BRAKE SWITCH "B" CIRCUIT HIGH

## CIRCUIT DESCRIPTION

The purpose of this circuit is to prevent the engine from stalling while driving in lock-up condition, when brakes are suddenly applied.
When the brake pedal is depressed, this switch sends a signals to the ECM. Then the ECM cancels the operation of the lock-up clutch while braking is in progress.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| P0724 | The stop light switch remains ON even when the vehicle is driven in a GO (30 km/h) and STOP (3 km/h) fashion 5 times. (2-trip detection logic). | • Short in stop light switch signal circuit<br>• Stop light switch<br>• ECM |

## MONITOR DESCRIPTION

This DTC indicates that the stop light switch remains on. When the stop light switch remains ON during "stop and go" driving, the ECM interprets this as a fault in the stop light switch and the MIL comes on and the ECM stores the DTC. The vehicle must stop (less than 3 km/h (2 mph)) and go (30 km/h (19 mph) or more) 5 times for two driving cycles in order to detect malfunction.

## MONITOR STRATEGY

| | |
|---|---|
| Related DTCs | P0724: Stop light switch/Rationality |
| Required sensors/Components | Stop light switch, Vehicle speed sensor |
| Frequency of operation | Continuous |
| Duration | GO and STOP 5 times |
| MIL operation | 2 driving cycles |
| Sequence of operation | None |

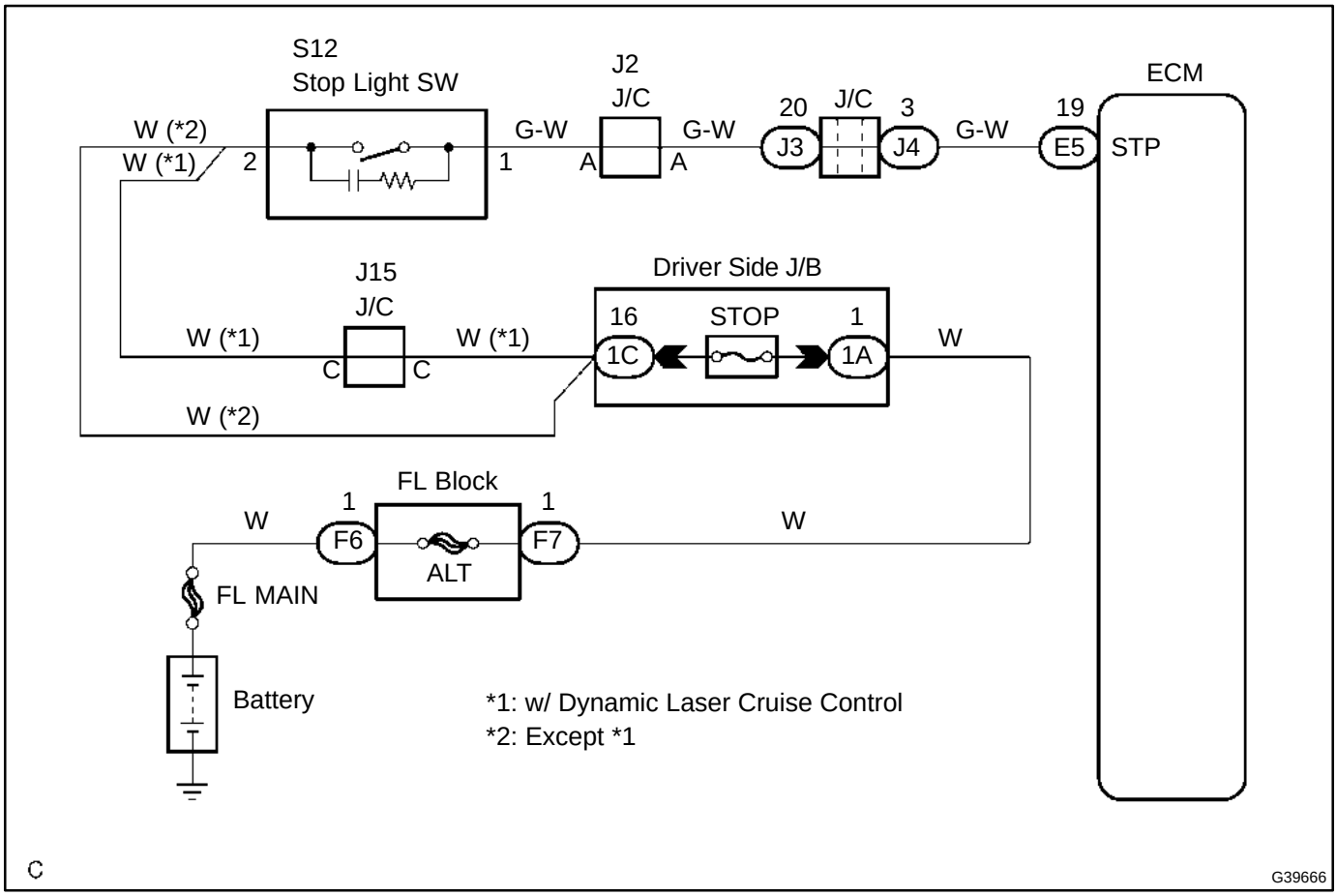
## TYPICAL ENABLING CONDITIONS

| | |
|---|---|
| The monitor will run whenever this DTC is not present. | See page 05-9 |
| Battery voltage | 8 V or more |
| Ignition switch | ON |
| Starter | OFF |
| GO (Vehicle speed is 30 km/h (18.63 mph) or more) | Once |
| STOP (Vehicle speed is less than 3 km/h (1.86 mph)) | Once |

## TYPICAL MALFUNCTION THRESHOLDS

| | |
|---|---|
| Brake switch | Remain ON during GO and STOP 5 times |

## WIRING DIAGRAM




## INSPECTION PROCEDURE

HINT:

According to the DATA LIST displayed by the OBD II scan tool or hand-held tester, you can read the value of the switch, sensor, actuator and so on without parts removal. Reading the DATA LIST as the first step of troubleshooting is one method to shorten labor time.

(a) Turn the ignition switch off.
(b) Connect the OBD II scan tool or hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Push the ”ON” button of the OBD II scan tool or the hand-held tester.
(e) When you use hand-held tester:
Select the item ”DIAGNOSIS/ENHANCED OBD II/DATA LIST”.
(f) According to the display on tester, read the ”DATA LIST”.

| Item | Measurement Item/ Range (display) | Normal Condition |
|---|---|---|
| STOP LIGHT SW | Stop light SW Status/ ON or OFF | • Brake Pedal is depressed: ON<br>• Brake Pedal is released: OFF |

| | |
|---|---|
| 1 | INSPECT STOP LAMP SWITCH ASSY(See page 65-4 ) |

NG → REPLACE STOP LAMP SWITCH ASSY

OK

| | |
|---|---|
| 2 | CHECK HARNESS AND CONNECTOR(STOP LAMP SWITCH ASSY - ECM) |

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR(See page 01-37 )

OK

REPAIR OR REPLACE ECM(See page 01-37 )

| DTC | P0746 | PRESSURE CONTROL SOLENOID ”A” PERFORMANCE (SHIFT SOLENOID VALVE SL1) |
|---|---|---|

## SYSTEM DESCRIPTION

The ECM uses signals from the vehicle speed sensor to detect the actual gear position (1st, 2nd, 3rd, 4th or 5th gear).
Then the ECM compares the actual gear with the shift schedule in the ECM memory to detect mechanical problems of the shift solenoid valves and valve body.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| P0746 | The gear required by the ECM does not match the actual gear when driving (2-trip detection logic) | • Shift solenoid valve SL1 remains open or closed<br>• Valve body is blocked<br>• Shift solenoid valve SL1<br>• Automatic transaxle (clutch, brake or gear etc.)<br>• ECM |

## MONITOR DESCRIPTION

The ECM commands gear shifts by turning the shift solenoid valves ”ON/OFF”. According to the input shaft revolution, intermediate (counter) shaft revolution and output shaft revolution, the ECM detects the actual gear position (1st, 2nd, 3rd, 4th or 5th gear position). When the gear position commanded by the ECM and the actual gear position are not same, the ECM illuminates the MIL.
Example:
When either condition (a) or (b) is met, the ECM detects a malfunction.
(a) The ECM commands the 1st gear, but the actual gear is 2nd.
(b) The ECM commands the 2nd gear, but the actual gear is 1st.

## MONITOR STRATEGY

| | |
|---|---|
| Related DTCs | P0746:<br>Shift solenoid valve SL1/OFF malfunction<br>Shift solenoid valve SL1/ON malfunction |
| Required sensors/Components | Shift solenoid valve SL1, Speed sensor (NT), Speed sensor (NC), Crankshaft position sensor (NE) |
| Frequency of operation | Continuous |
| Duration | 0.8 sec. |
| MIL operation | 2 driving cycles |
| Sequence of operation | None |

# TYPICAL ENABLING CONDITIONS

## ALL:

| | |
|---|---|
| Transmission range | ”D” |
| ECT (Engine coolant temperature) | 10°C (50°F) or more |
| TFT (Transmission fluid temperature) | -20 °C (-4°F) or more |
| TFT sensor circuit | Not circuit malfunction |
| ECT sensor circuit | Not circuit malfunction |
| Turbine speed sensor circuit | Not circuit malfunction |
| Intermediate shaft speed sensor circuit | Not circuit malfunction |
| Output speed sensor circuit | Not circuit malfunction |
| Shift solenoid valve SL1 circuit | Not circuit malfunction |
| Shift solenoid valve SL2 circuit | Not circuit malfunction |
| Shift solenoid valve SL3 circuit | Not circuit malfunction |
| Shift solenoid valve S4 circuit | Not circuit malfunction |
| Shift solenoid valve SR circuit | Not circuit malfunction |
| Shift solenoid valve DSL circuit | Not circuit malfunction |

## OFF malfunction

| | |
|---|---|
| ECM selected gear | 1st |
| Vehicle speed | Less than 40 km/h (24.9 mph) |
| Throttle valve opening angle | 4.5% or more at engine speed 1,900 rpm<br>(Varies with engine speed) |

## ON malfunction

| | |
|---|---|
| ECM selected gear | 2nd |
| Throttle valve opening angle | 4.5% or more at engine speed 1,900 rpm<br>(Varies with engine speed) |

# TYPICAL MALFUNCTION THRESHOLDS

## Either of the following conditions is met: OFF malfunction or ON malfunction

## OFF malfunction

2 detections are necessary per driving cycle:

1st detection; temporary flag ON

2nd detection; pending fault code ON

| | |
|---|---|
| Input (turbine) speed/Intermediate shaft speed | 1.49 to 1.63 |

## ON malfunction

| | |
|---|---|
| Input (turbine) speed/Intermediate shaft speed | 2.72 to 2.86 |

## INSPECTION PROCEDURE

HINT:

Performing the ACTIVE TEST using the hand-held tester allows the relay, VSV, actuator and so on to operate without parts removal. Performing the ACTIVE TEST as the first step of troubleshooting is one method to shorten labor time.

It is possible to display the DATA LIST during the ACTIVE TEST.

(a) Turn the ignition switch off.
(b) Connect the hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Push the ”ON” button of the hand-held tester.
(e) Select the item ”DIAGNOSIS/ENHANCED OBD II/ACTIVE TEST/SHIFT”.
(f) According to the display on tester, perform the ”ACTIVE TEST”.

HINT:

While driving, the shift position can be forcibly changed with the hand-held tester.

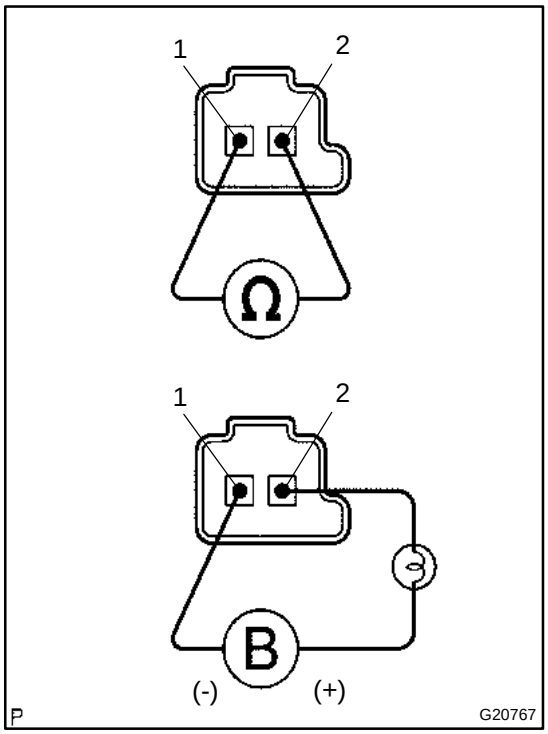
Comparing the shift position commanded by the ACTIVE TEST with the actual shift position enables you to confirm the problem.

| Item | Test Details | Diagnostic Note |
|---|---|---|
| SHIFT | [Test Details]<br>Operate the shift solenoid valve and set the each shift position by yourself.<br>[Vehicle Condition]<br>Less than 50 km/h (31 mph)<br>[Others]<br>• Press ”→” button: Shift up<br>• Press ”←” button: Shift down | Possible to check the operation of the shift solenoid valves. |

HINT:

- This test can be conducted when the vehicle speed is 50 km/h (31 mph) or less.
- The shift position commanded by the ECM is shown in the DATA LIST/SHIFT display on the hand-held tester.

| 1 | INSPECT SHIFT SOLENOID VALVE(SL1) |
|---|---|




(a) Remove the shift solenoid valve SL1.

(b) Measure the resistance between terminals.

**OK:**

**Resistance: 5.0 to 5.6 Ω at 20˚C (68˚F)**

(c) Connect the positive (+) lead with a 21 W bulb to terminal 2 and the negative (-) lead to terminal 1 of the solenoid valve connector, then check the movement of the valve.

**OK:**

**The solenoid makes an operating noise.**

**NG** → **REPLACE SHIFT SOLENOID VALVE(SL1)**

**OK**

| 2 | INSPECT TRANSMISSION VALVE BODY ASSY(See chapter 2 in the problem symptoms table)(See page 05-561 ) |
|---|---|

**NG** → **REPAIR OR REPLACE TRANSMISSION VALVE BODY ASSY(See page 40-25 )**

**OK**

| 3 | INSPECT TORQUE CONVERTER CLUTCH ASSY(See page 40-18 ) |
|---|---|

**NG** → **REPLACE TORQUE CONVERTER CLUTCH ASSY**

**OK**

**REPAIR OR REPLACE AUTOMATIC TRANSAXLE ASSY(See page 40-8 )**

| | | |
|---|---|---|
| **DTC** | **P0748** | **PRESSURE CONTROL SOLENOID ”A” ELECTRICAL (SHIFT SOLENOID VALVE SL1)** |

| | | |
|---|---|---|
| **DTC** | **P0778** | **PRESSURE CONTROL SOLENOID ”B” ELECTRICAL (SHIFT SOLENOID VALVE SL2)** |

| | | |
|---|---|---|
| **DTC** | **P0798** | **PRESSURE CONTROL SOLENOID ”C” ELECTRICAL (SHIFT SOLENOID VALVE SL3)** |

| | | |
|---|---|---|
| **DTC** | **P0982** | **SHIFT SOLENOID ”D” CONTROL CIRCUIT LOW (SHIFT SOLENOID VALVE S4)** |

| | | |
|---|---|---|
| **DTC** | **P0983** | **SHIFT SOLENOID ”D” CONTROL CIRCUIT HIGH (SHIFT SOLENOID VALVE S4)** |

| | | |
|---|---|---|
| **DTC** | **P0985** | **SHIFT SOLENOID ”E” CONTROL CIRCUIT LOW (SHIFT SOLENOID VALVE SR)** |

| | | |
|---|---|---|
| **DTC** | **P0986** | **SHIFT SOLENOID ”E” CONTROL CIRCUIT HIGH (SHIFT SOLENOID VALVE SR)** |

## CIRCUIT DESCRIPTION

Shifting from 1st to 5th is performed in combination with ON and OFF operation of the shift solenoid valves SL1, SL2, SL3, S4 and SR which are controlled by the ECM. If an open or short circuit occurs in either of the shift solenoid valves, the ECM controls the remaining normal shift solenoid valve to allow the vehicle to be operated smoothly (Fail safe function).

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| P0748 | ECM checks for an open or short circuit in shift solenoid valves SL1 (1-trip detection logic)<br>• Output signal duty equals to 100% | • Open or short in shift solenoid valve SL1 circuit<br>• Shift solenoid valve SL1<br>• ECM |
| P0778 | ECM checks for an open or short circuit in shift solenoid valves SL2 (1-trip detection logic)<br>Hybrid IC for solenoid indicates fail. | • Open or short in shift solenoid valve SL2 circuit<br>• Shift solenoid valve SL2<br>• ECM |
| P0798 | ECM checks for an open or short circuit in shift solenoid valves SL3 (1-trip detection logic)<br>• Output signal duty equals to 100% | • Open or short in shift solenoid valve SL3 circuit<br>• Shift solenoid valve SL3<br>• ECM |
| P0982 | ECM detects short in solenoid valve S4 circuit 2 times when solenoid valve S4 is operated (1-trip detection logic) | • Short in shift solenoid valve S4 circuit<br>• Shift solenoid valve S4<br>• ECM |
| P0983 | ECM detects open in solenoid valve S4 circuit 2 times when solenoid valve S4 is not operated (1-trip detection logic) | • Open in shift solenoid valve S4 circuit<br>• Shift solenoid valve S4<br>• ECM |
| P0985 | ECM detects short in solenoid valve SR circuit 2 times when solenoid valve SR is operated (1-trip detection logic) | • Short in shift solenoid valve SR circuit<br>• Shift solenoid valve SR<br>• ECM |
| P0986 | ECM detects open in solenoid valve SR circuit 2 times when solenoid valve SR is not operated (1-trip detection logic) | • Open in shift solenoid valve SR circuit<br>• Shift solenoid valve SR<br>• ECM |

Fail safe function:
If either of the shift solenoid valve circuits develops an open or short, the ECM turns the other shift solenoid ON and OFF in order to shift into the gear positions shown in the table below.
Manual shifting as shown in the following table must be done (In case of a short circuit, the ECM stops sending the current to the short circuit solenoid).

○ : ON △ : Lock-up ON × : OFF

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Normal | Solenoid Valve | SL1 | ○ | × | ○ | × | × |
| | | SL2 | ○ | ○ | △ | △ | △ |
| | | SL3 | × | × | × | ○ | ○ |
| | | S4 | × | × | × | × | ○ |
| | Gear Position | | 1st | 2nd | 3rd | 4th | 5th |
| SL1 Malfunction (During driving at 1st or 2nd) | Solenoid Valve | SL1 | × | | | | |
| | | SL2 | ○ | ○ | △→○ | △→○ | △→○ |
| | | SL3 | × | × | × | ○→× | ○→× |
| | | S4 | × | × | × | × | ○→× |
| | Gear Position | | 1st → 2nd | 2nd | 3rd → 2nd | 4th → 2nd | 5th → 2nd |
| SL1 Malfunction (During driving at 3rd) | Solenoid Valve | SL1 | × | | | | |
| | | SL2 | ○→△ | ○→△ | △ | △ | △ |
| | | SL3 | × | × | × | ○→× | ○→× |
| | | S4 | ×→○ | ×→○ | ×→○ | ×→○ | ○ |
| | Gear Position | | 1st → 4th | 2nd→ 4th | 3rd → 4th | 4th | 5th → 4th |
| SL1 Malfunction (During driving at 4th or 5th) | Solenoid Valve | SL1 | × | | | | |
| | | SL2 | ○→△ | ○→△ | △ | △ | △ |
| | | SL3 | ×→○ | ×→○ | ×→○ | ○ | ○ |
| | | S4 | × | × | × | × | ○ |
| | Gear Position | | 1st → 4th | 2nd→ 4th | 3rd → 4th | 4th | 5th → 4th |
| SL2 Malfunction | Solenoid Valve | SL1 | ○ | ×→○ | ○ | ×→○ | ×→○ |
| | | SL2 | × | | | | |
| | | SL3 | × | × | × | ○→× | ○→× |
| | | S4 | ×→○ | ×→○ | ×→○ | ×→○ | ○ |
| | Gear Position | | 1st → 4th | 2nd→ 4th | 3rd → 4th | 4th | 5th → 4th |
| SL3 Malfunction | Solenoid Valve | SL1 | ○ | × | ○ | ×→○ | ×→○ |
| | | SL2 | ○ | ○ | △ | △ | △ |
| | | SL3 | × | | | | |
| | | S4 | × | × | × | ×→○ | ○ |
| | Gear Position | | 1st | 2nd | 3rd | 4th | 5th → 4th |
| S4 Malfunction | Solenoid Valve | SL1 | ○ | × | ○ | × | × |
| | | SL2 | ○ | ○ | △ | △ | △ |
| | | SL3 | × | × | × | ○ | ○ |
| | | S4 | × | | | | |
| | Gear Position | | 1st | 2nd | 3rd | 4th | 5th → 4th |
| SL1, SL2, SL3, and S4 Malfunction | Solenoid Valve | SL1 | × | | | | |
| | | SL2 | × | | | | |
| | | SL3 | × | | | | |
| | | S4 | × | | | | |
| | Gear Position | | 1st → 4th | 2nd→ 4th | 3rd → 4th | 4th | 5th → 4th |

## MONITOR DESCRIPTION

The ECM commands gear shifts by turning the shift solenoid valves ”ON/OFF”. When there is an open or short circuit in any shift solenoid valve circuit, the ECM detects the problem and illuminates the MIL and stores the DTC. And the ECM performs the fail-safe function and turns the other shift solenoid valves in good condition ”ON/OFF” (In case of an open or short circuit, the ECM stops sending current to the circuit.).

## MONITOR STRATEGY

### P0748

| | |
|---|---|
| Related DTCs | P0748: Shift solenoid valve SL1/Range check |
| Required sensors/Components | Shift solenoid valve SL1 |
| Frequency of operation | Continuous |
| Duration | 1 sec. |
| MIL operation | Immediate |
| Sequence of operation | None |

### P0778

| | |
|---|---|
| Related DTCs | P0778: Shift solenoid valve SL2/Range check |
| Required sensors/Components | Shift solenoid valve SL2 |
| Frequency of operation | Continuous |
| Duration | 1 sec. |
| MIL operation | Immediate |
| Sequence of operation | None |

### P0798

| | |
|---|---|
| Related DTCs | P0798: Shift solenoid valve SL3/Range check |
| Required sensors/Components | Shift solenoid valve SL3 |
| Frequency of operation | Continuous |
| Duration | 1 sec. |
| MIL operation | Immediate |
| Sequence of operation | None |

### P0982, P0983

| | |
|---|---|
| Related DTCs | P0982: Shift solenoid valve S4/Range check (Low resistance)<br>P0983: Shift solenoid valve S4/Range check (High resistance) |
| Required sensors/Components | Shift solenoid valve S4 |
| Frequency of operation | Continuous |
| Duration | 0.064 sec. |
| MIL operation | Immediate |
| Sequence of operation | None |

### P0985, P0986

| | |
|---|---|
| Related DTCs | P0985: Shift solenoid valve SR/Range check (Low resistance)<br>P0986: Shift solenoid valve SR/Range check (High resistance) |
| Required sensors/Components | Shift solenoid valve SR |
| Frequency of operation | Continuous |
| Duration | 0.064 sec. |
| MIL operation | Immediate |
| Sequence of operation | None |

# TYPICAL ENABLING CONDITIONS

## P0748

| | |
|---|---|
| The monitor will run whenever this DTC is not present. | See page 05-9 |
| Battery voltage | 10 V or more |
| Ignition switch | ON |
| Starter | OFF |

## P0778

| | |
|---|---|
| The monitor will run whenever this DTC is not present. | See page 05-9 |
| Solenoid current cut status | Not cut |
| Battery voltage | 11 V or more |
| CPU commanded duty ratio to SL2 | 19% or more |
| Ignition switch | ON |
| Starter | OFF |

## P0798

| | |
|---|---|
| The monitor will run whenever this DTC is not present. | See page 05-9 |
| Battery voltage | 10 V or more |
| Ignition switch | ON |
| Starter | OFF |

## P0982: Range check (Low resistance)

| | |
|---|---|
| The monitor will run whenever this DTC is not present. | See page 05-9 |
| Shift solenoid valve S4 | ON |
| Battery voltage | 8 V or more |
| Ignition switch | ON |
| Starter | OFF |

## P0983: Range check (High resistance)

| | |
|---|---|
| The monitor will run whenever this DTC is not present. | See page 05-9 |
| Shift solenoid valve S4 | OFF |
| Battery voltage | 8 V or more |
| Ignition switch | ON |
| Starter | OFF |

## P0985: Range check (Low resistance)

| | |
|---|---|
| The monitor will run whenever this DTC is not present. | See page 05-9 |
| Shift solenoid valve SR | ON |
| Battery voltage | 8 V or more |
| Ignition switch | ON |
| Starter | OFF |

## P0986: Range check (High resistance)

| | |
|---|---|
| The monitor will run whenever this DTC is not present. | See page 05-9 |
| Shift solenoid valve SR | OFF |
| Battery voltage | 8 V or more |
| Ignition switch | ON |
| Starter | OFF |

# TYPICAL MALFUNCTION THRESHOLDS

### P0748

| | |
|---|---|
| Output signal duty | 100% |

### P0778

| | |
|---|---|
| Solenoid status from IC | Fail (Open or short) |

### P0798

| | |
|---|---|
| Output signal duty | 100% |

### P0982: Range check (Low resistance)

| | |
|---|---|
| Shift solenoid valve S4 resistance | 8 Ω or less |

### P0983: Range check (High resistance)

| | |
|---|---|
| Shift solenoid valve S4 resistance | 100 kΩ or more |

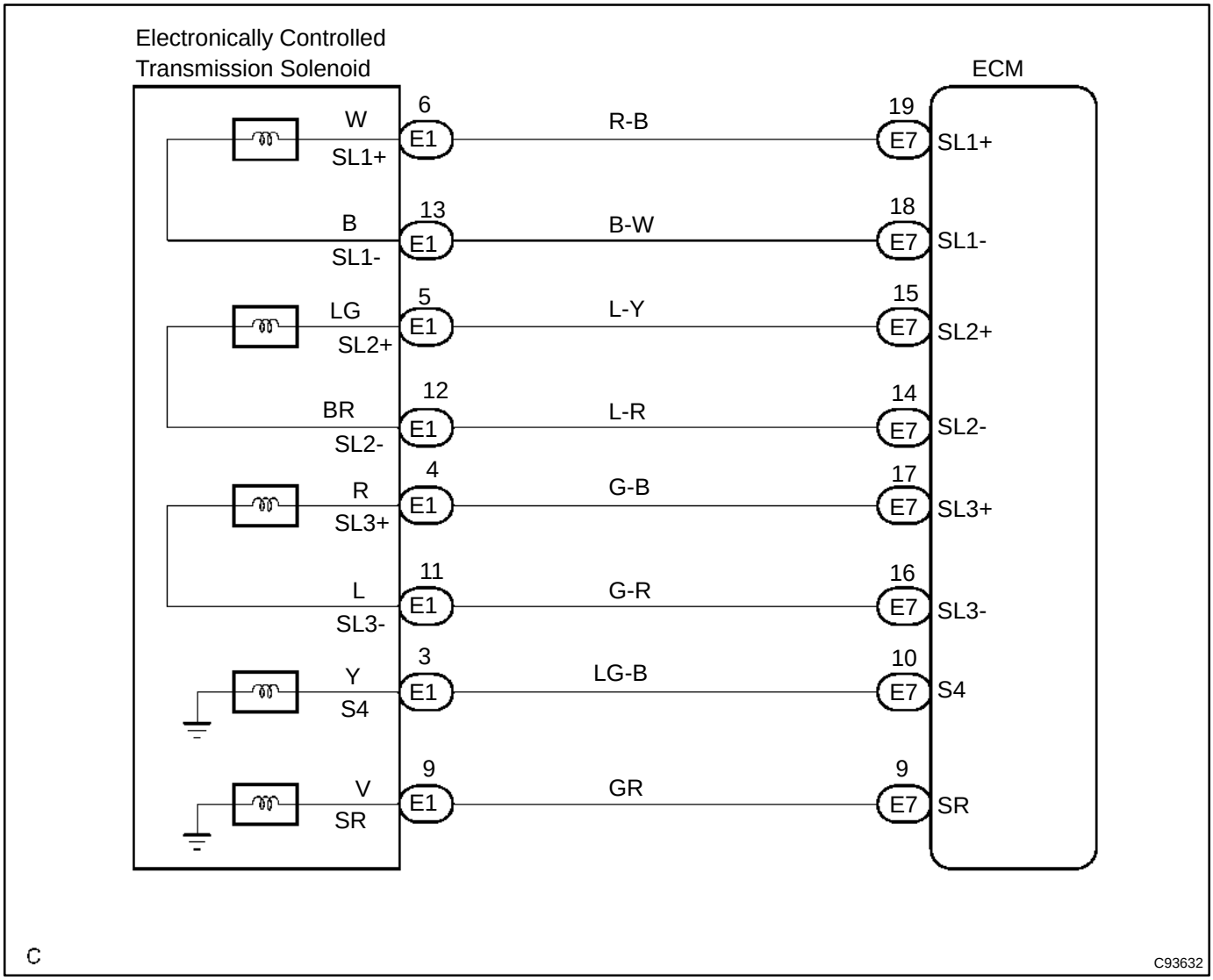
### P0985: Range check (Low resistance)

| | |
|---|---|
| Shift solenoid valve SR resistance | 8 Ω or less |

### P0986: Range check (High resistance)

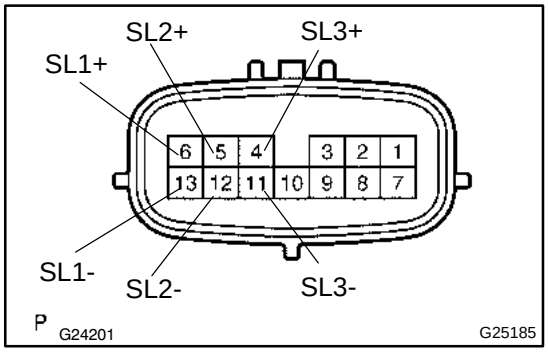
| | |
|---|---|
| Shift solenoid valve SR resistance | 100 kΩ or more |

# WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT TRANSMISSION WIRE(SL1/SL2/SL3) |
|---|---|




(a) Disconnect the transmission wire connector from the transaxle.

(b) Measure the resistance between terminals SL1+ and SL1-.

**OK:**

**Resistance: 5.0 to 5.6 Ω at 20 °C (68 °F)**

(c) Check the continuity between the wire harness side connectors.

**OK:**

**Standard (Check for short):**

| Symbols | Specified condition |
|---|---|
| SL1+ - Body ground | No continuity |
| SL1- - Body ground | |

**NG(A)** → **Go to step 4**

(d) Measure the resistance between terminals SL2+ and SL2-.

**OK:**

**Resistance: 5.0 to 5.6 Ω at 20 °C (68 °F)**

(e) Check the continuity between the wire harness side connectors.

**OK:**

**Standard (Check for short):**

| Symbols | Specified condition |
|---|---|
| SL2+ - Body ground | No continuity |
| SL2- - Body ground | |

**NG(B)** → **Go to step 5**

(f) Measure the resistance between terminals SL3+ and SL3-.

**OK:**

**Resistance: 5.0 to 5.6 Ω at 20 °C (68 °F)**

(g) Check the continuity between the wire harness side connectors.

**OK:**

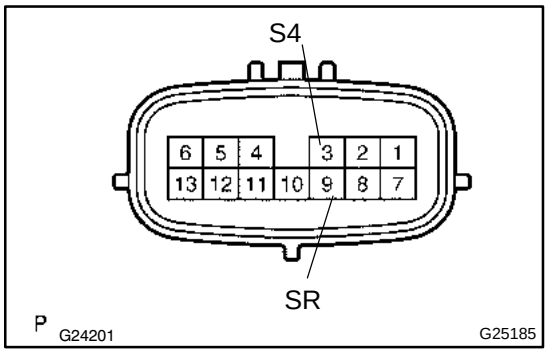
**Standard (Check for short):**

| Symbols | Specified condition |
|---|---|
| SL3+ - Body ground | No continuity |
| SL3- - Body ground | |

**NG(C)** → **Go to step 6**

**OK**

## 2 INSPECT TRANSMISSION WIRE(S4/SR)




(a) Disconnect the transmission wire connector from the transaxle.

(b) Measure resistance between terminal S4 and body ground.

**OK:**

**Resistance: 11 to 15 Ω at 20 °C (68 °F)**

**NG(A)** → **Go to step 7**

(c) Measure resistance between terminal SR and body ground.

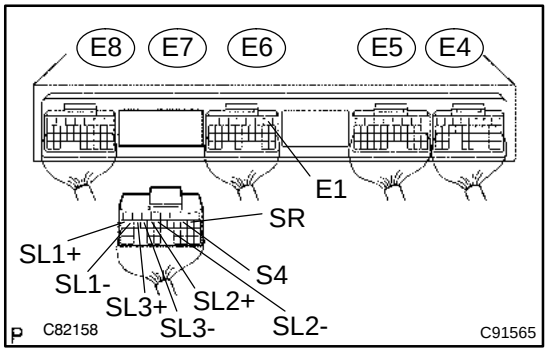
**OK:**

**Resistance: 11 to 15 Ω at 20 °C (68 °F)**

**NG(B)** → **Go to step 8**

**OK**

## 3 CHECK HARNESS AND CONNECTOR(TRANSMISSION WIRE-ECM)




(a) Connect the transmission connector to the transaxle.

(b) Disconnect the connector from the ECM.

(c) Measure the resistance between terminals.

**OK:**

**Resistance:**

**SL1+ - SL1-: 5.0 to 5.6 Ω at 20 °C (68 °F)**

**SL2+ - SL2-: 5.0 to 5.6 Ω at 20 °C (68 °F)**

**SL3+ - SL3-: 5.0 to 5.6 Ω at 20 °C (68 °F)**

**S4 - E1: 11 to 15 Ω at 20 °C (68 °F)**

**SR - E1: 11 to 15 Ω at 20 °C (68 °F)**

(d) Check the continuity between the wire harness side connectors.

**OK:**

**Standard (Check for short):**

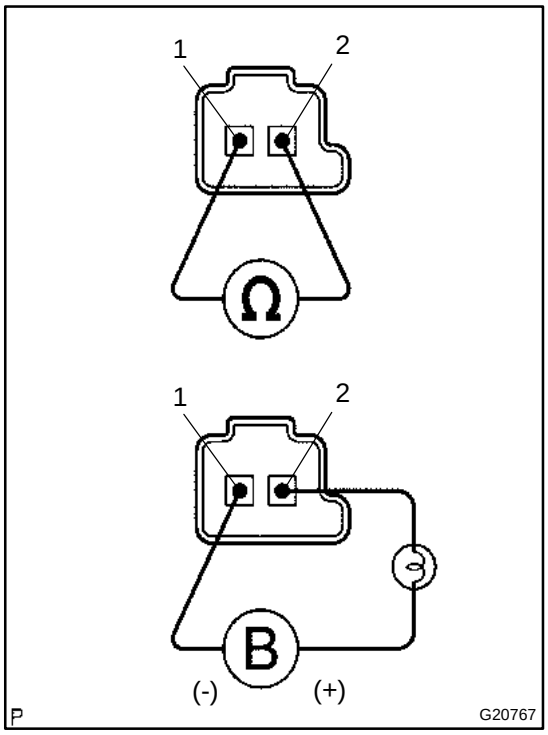
| Symbols | Specified condition |
|---|---|
| SL1+ - Body ground | No continuity |
| SL1- - Body ground | |
| SL2+ - Body ground | No continuity |
| SL2- - Body ground | |
| SL3+ - Body ground | No continuity |
| SL3- - Body ground | |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR(See page 01-37 )**

**OK**

**CHECK AND REPLACE ECM(See page 01-37 )**

| 4 | INSPECT SHIFT SOLENOID VALVE(SL1) |
|---|---|




(a) Remove the shift solenoid valve SL1.

(b) Measure the resistance between terminals.

**OK:**

**Resistance: 5.0 to 5.6 Ω at 20˚C (68˚F)**

(c) Connect the positive (+) lead with a 21 W bulb to terminal 2 and the negative (-) lead to terminal 1 of the solenoid valve connector, then check the movement of the valve.

**OK:**

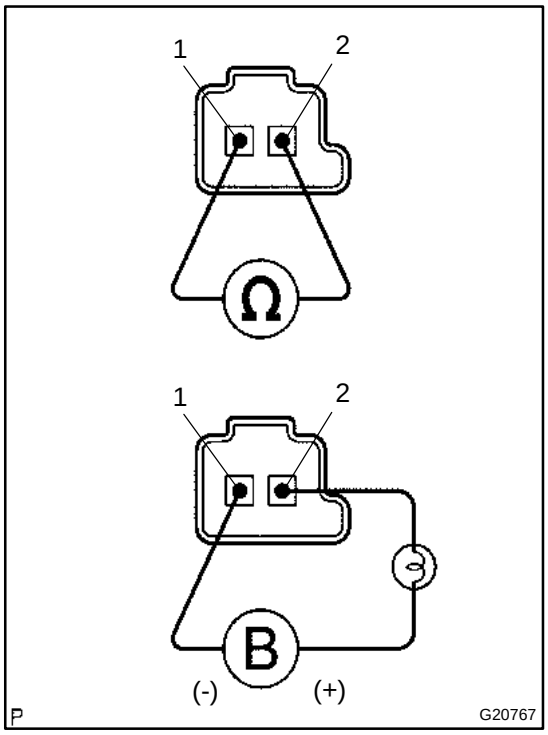
**The solenoid makes an operating noise.**

**NG** → **REPLACE SHIFT SOLENOID VALVE(SL1)**

**OK**

**REPAIR OR REPLACE TRANSMISSION WIRE(See page 40-22 )**

| 5 | INSPECT SHIFT SOLENOID VALVE(SL2) |
|---|---|




(a) Remove the shift solenoid valve SL2.

(b) Measure the resistance between terminals.

**OK:**

**Resistance: 5.0 to 5.6 Ω at 20˚C (68˚F)**

(c) Connect the positive (+) lead with a 21 W bulb to terminal 2 and the negative (-) lead to terminal 1 of the solenoid valve connector, then check the movement of the valve.

**OK:**

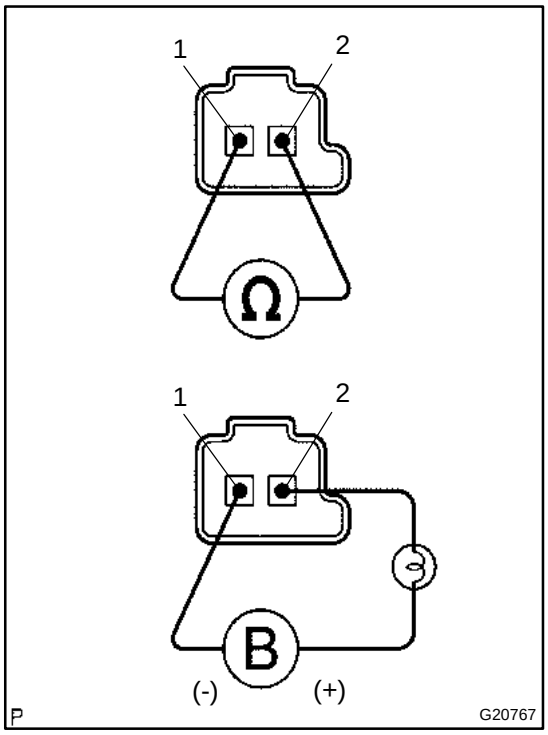
**The solenoid makes an operating noise.**

**NG** → **REPLACE SHIFT SOLENOID VALVE(SL2)**

**OK**

**REPAIR OR REPLACE TRANSMISSION WIRE(See page 40-22 )**

## 6 INSPECT SHIFT SOLENOID VALVE(SL3)



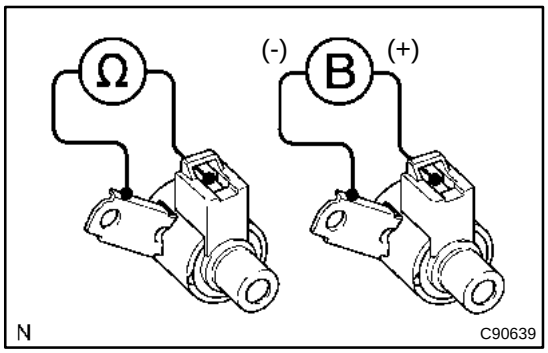

(a) Remove the shift solenoid valve SL3.
(b) Measure the resistance between terminals.
**OK:**
**Resistance: 5.0 to 5.6 Ω at 20˚C (68˚F)**
(c) Connect the positive (+) lead with a 21 W bulb to terminal 2 and the negative (-) lead to terminal 1 of the solenoid valve connector, then check the movement of the valve.
**OK:**
**The solenoid makes an operating noise.**

**NG** → **REPLACE SHIFT SOLENOID VALVE(SL3)**

**OK**

**REPAIR OR REPLACE TRANSMISSION WIRE(See page 40-22 )**

## 7 INSPECT SHIFT SOLENOID VALVE(S4)



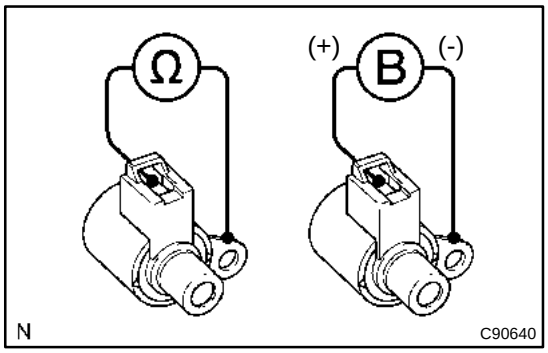

(a) Remove the shift solenoid valve S4.
(b) Measure the resistance between the solenoid connector and the solenoid body.
**OK:**
**Resistance: 11 to 15 Ω at 20˚C (68˚F)**
(c) Connect positive (+) lead to the terminal of solenoid connector, negative (-) lead to the solenoid body.
**OK:**
**The solenoid makes an operating noise.**

**NG** → **REPLACE SHIFT SOLENOID VALVE(S4)**

**OK**

**REPAIR OR REPLACE TRANSMISSION WIRE(See page 40-22 )**

| 8 | INSPECT SHIFT SOLENOID VALVE(SR) |
|---|---|




(a) Remove the shift solenoid valve SR.

(b) Measure the resistance between the solenoid connector and the solenoid body.

**OK:**

**Resistance: 11 to 15 Ω at 20˚C (68˚F)**

(c) Connect positive (+) lead to the terminal of solenoid connector, negative (-) lead to the solenoid body.

**OK:**

**The solenoid makes an operating noise.**

**NG** → **REPLACE SHIFT SOLENOID VALVE(SR)**

**OK**

**REPAIR OR REPLACE TRANSMISSION WIRE(See page 40-22 )**

# DTC P0766 SHIFT SOLENOID ”D” PERFORMANCE (SHIFT SOLENOID VALVE S4)

## SYSTEM DESCRIPTION

The ECM uses signals from the vehicle speed sensor to detect the actual gear position (1st, 2nd, 3rd, 4th or 5th gear).
Then the ECM compares the actual gear with the shift schedule in the ECM memory to detect mechanical problems of the shift solenoid valves and valve body.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| P0766 | The gear required by the ECM does not match the actual gear when driving (2-trip detection logic) | • Shift solenoid valve S4 remains open or closed<br>• Valve body is blocked<br>• Shift solenoid valve S4<br>• Automatic transaxle (clutch, brake or gear etc.)<br>• ECM |

## MONITOR DESCRIPTION

The ECM commands gear shifts by turning the shift solenoid valves ”ON/OFF”. According to the input shaft revolution, intermediate (counter) shaft revolution and output shaft revolution, the ECM detects the actual gear position (1st, 2nd, 3rd, 4th or 5th gear position). When the gear position commanded by the ECM and the actual gear position are not same, the ECM illuminates the MIL and stores the DTC.

## MONITOR STRATEGY

| | |
|---|---|
| Related DTCs | P0766:<br>Shift solenoid valve S4/ON malfunction<br>Shift solenoid valve S4/OFF malfunction |
| Required sensors/Components | Shift solenoid valve S4, Speed sensor (NT), Speed sensor (NC), Crankshaft position sensor (NE) |
| Frequency of operation | Continuous |
| Duration | OFF malfunction (A) and ON malfunction (B)<br>1 sec.<br>OFF malfunction (B)<br>1.2 sec.<br>ON malfunction (A)<br>0.8 sec. |
| MIL operation | 2 driving cycles |
| Sequence of operation | None |

# TYPICAL ENABLING CONDITIONS

**All:**

| | |
|---|---|
| Transmission range | ”D” |
| ECT (Engine coolant temperature) | 10°C (50°F) or more |
| TFT (Transmission fluid temperature) | -20 °C (-4°F) or more |
| TFT sensor circuit | Not circuit malfunction |
| ECT sensor circuit | Not circuit malfunction |
| Turbine speed sensor circuit | Not circuit malfunction |
| Intermediate shaft speed sensor circuit | Not circuit malfunction |
| Output speed sensor circuit | Not circuit malfunction |
| Shift solenoid valve SL1 circuit | Not circuit malfunction |
| Shift solenoid valve SL2 circuit | Not circuit malfunction |
| Shift solenoid valve SL3 circuit | Not circuit malfunction |
| Shift solenoid valve S4 circuit | Not circuit malfunction |
| Shift solenoid valve SR circuit | Not circuit malfunction |
| Shift solenoid valve DSL circuit | Not circuit malfunction |

**OFF malfunction (A)**

| | |
|---|---|
| ECM selected gear | 5th |
| Throttle valve opening angle | 5% or more |
| Vehicle speed | 10 km/h (6.2 mph) or more |

**OFF malfunction (B)**

| | |
|---|---|
| ECM lock-up command | ON |
| ECM selected gear | 3rd, 4th or 5th |
| Throttle valve opening angle | 10% or more |
| Vehicle speed | 25 to 100 km/h (15.5 to 62.1 mph) |

**ON malfunction (A)**

| | |
|---|---|
| ECM selected gear | 4th or 5th |
| Throttle valve opening angle | 4.5% or more at engine speed 1,900 rpm<br>(Varies with engine speed) |

**ON malfunction (B)**

| | |
|---|---|
| ECM selected gear | 4th |
| Throttle valve opening angle | 5% or more |
| Vehicle speed | 10 km/h (6.2 mph) or more |

# TYPICAL MALFUNCTION THRESHOLDS

**Either of the following conditions is met:**

**OFF malfunction (A) and (B), or ON malfunction (A) and (B)**

2 detections are necessary per driving cycle:

1st detection; temporary flag ON

2nd detection; pending fault code ON

**OFF malfunction (A)**

| | |
|---|---|
| Intermediate shaft speed/Output speed | 1.44 to 1.58 |

**OFF malfunction (B)**

| | |
|---|---|
| Difference between engine speed and input (turbine) speed | Less than 35 rpm |

**ON malfunction (A)**

| | |
|---|---|
| Input (turbine) speed/Intermediate shaft speed | 0.64 to 0.74 |

**ON malfunction (B)**

| | |
|---|---|
| Intermediate shaft speed/Output speed | 1.02 to 1.16 |

## INSPECTION PROCEDURE

HINT:

(a) Turn the ignition switch off.
(b) Connect the hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Push the "ON" button of the hand-held tester.
(e) Select the item "DIAGNOSIS/ENHANCED OBD II/ACTIVE TEST/SHIFT".
(f) According to the display on tester, perform the "ACTIVE TEST".

HINT:

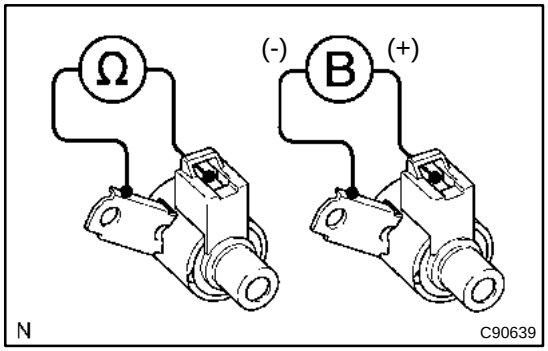
While driving, the shift position can be forcibly changed with the hand-held tester.
Comparing the shift position commanded by the ACTIVE TEST with the actual shift position enables you to confirm the problem.

| Item | Test Details | Diagnostic Note |
|---|---|---|
| SHIFT | [Test Details]<br>Operate the shift solenoid valve and set the each shift position by yourself.<br>[Vehicle Condition]<br>Less than 50 km/h (31 mph)<br>[Others]<br>• Press "→" button: Shift up<br>• Press "←" button: Shift down | Possible to check the operation of the shift solenoid valves. |

HINT:

- This test can be conducted when the vehicle speed is 50 km/h (31 mph) or less.
- The shift position commanded by the ECM is shown in the DATA LIST/SHIFT display on the hand-held tester.

| 1 | INSPECT SHIFT SOLENOID VALVE(S4) |
|---|---|




(a) Remove the shift solenoid valve S4.
(b) Measure the resistance between the solenoid connector and the solenoid body.
**OK:**
**Resistance: 11 to 15 Ω at 20°C (68°F)**
(c) Connect positive (+) lead to the terminal of solenoid connector, negative (-) lead to the solenoid body.
**OK:**
**The solenoid makes an operating noise.**

**NG** → **REPLACE SHIFT SOLENOID VALVE(S4)**

**OK**

| 2 | INSPECT TRANSMISSION VALVE BODY ASSY(See chapter 2 in the problem symptoms table)(See page 05-561 ) |
|---|---|

**NG** → **REPAIR OR REPLACE TRANSMISSION VALVE BODY ASSY(See page 40-25 )**

**OK**

| | |
|---|---|
| 3 | INSPECT TORQUE CONVERTER CLUTCH ASSY(See page 40-18 ) |

NG → REPLACE TORQUE CONVERTER CLUTCH ASSY

OK

REPAIR OR REPLACE AUTOMATIC TRANSAXLE ASSY(See page 40-8 )

# DTC P0771 SHIFT SOLENOID ”E” PERFORMANCE (SHIFT SOLENOID VALVE SR)

## SYSTEM DESCRIPTION

The ECM uses signals from the vehicle speed sensor to detect the actual gear position (1st, 2nd, 3rd, 4th or 5th gear).
Then the ECM compares the actual gear with the shift schedule in the ECM memory to detect mechanical problems of the shift solenoid valves and valve body.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| P0771 | The gear required by the ECM does not match the actual gear when driving (2-trip detection logic) | • Shift solenoid valve SR remains open or closed<br>• Valve body is blocked<br>• Shift solenoid valve SR<br>• Automatic transaxle (clutch, brake or gear etc.)<br>• ECM |

## MONITOR DESCRIPTION

The ECM commands gear shifts by turning the shift solenoid valves ”ON/OFF”. According to the input shaft revolution, intermediate (counter) shaft revolution and output shaft revolution, the ECM detects the actual gear position (1st, 2nd, 3rd, 4th or 5th gear position). When the gear position commanded by the ECM and the actual gear position are not same, the ECM illuminates the MIL and stores the DTC.

## MONITOR STRATEGY

| | |
|---|---|
| Related DTCs | P0771: Shift solenoid valve SR/Rationality check |
| Required sensors/Components | Shift solenoid valve SR, Speed sensor (NT), Speed sensor (NC), Crankshaft position sensor (NE) |
| Frequency of operation | Continuous |
| Duration | OFF malfunction (A)<br>1 sec.<br>OFF malfunction (B)<br>3.2 sec.<br>ON malfunction (A)<br>Continuous<br>ON malfunction (B) and (C)<br>0.8 sec. |
| MIL operation | 2 driving cycles |
| Sequence of operation | None |

# TYPICAL ENABLING CONDITIONS

## All:

| | |
|---|---|
| Transmission range | ”D” |
| ECT (Engine coolant temperature) | 10°C (50°F) or more |
| TFT (Transmission fluid temperature) | -20 °C (-4°F) or more |
| TFT sensor circuit | Not circuit malfunction |
| ECT sensor circuit | Not circuit malfunction |
| Turbine speed sensor circuit | Not circuit malfunction |
| Intermediate shaft speed sensor circuit | Not circuit malfunction |
| Output speed sensor circuit | Not circuit malfunction |
| Shift solenoid valve SL1 circuit | Not circuit malfunction |
| Shift solenoid valve SL2 circuit | Not circuit malfunction |
| Shift solenoid valve SL3 circuit | Not circuit malfunction |
| Shift solenoid valve S4 circuit | Not circuit malfunction |
| Shift solenoid valve SR circuit | Not circuit malfunction |
| Shift solenoid valve DSL circuit | Not circuit malfunction |

## OFF malfunction (A)

| | |
|---|---|
| ECM selected gear | 5th |
| Throttle valve opening angle | 5% or more |
| Vehicle speed | 10 km/h (6.2 mph) or more |

## OFF malfunction (B)

| | |
|---|---|
| ECM lock-up command | ON |
| ECM selected gear | 3rd, 4th or 5th |
| Vehicle speed | 25 km/h (15.5 mph) |

## ON malfunction (A)

| | |
|---|---|
| ECM lock-up command | OFF |

## ON malfunction (B)

| | |
|---|---|
| ECM selected gear | 1st |
| Vehicle speed | Less than 40 km/h (24.9 mph) |
| Throttle valve opening angle | 4.5% or more at engine speed 1,900 rpm<br>(Varies with engine speed) |

## ON malfunction (C)

| | |
|---|---|
| ECM selected gear | 3rd |
| Throttle valve opening angle | 4.5% or more at engine speed 1,900 rpm<br>(Varies with engine speed) |

## ON malfunction (D)

| | |
|---|---|
| ECM selected gear | 4th or 5th |
| Duration time from shift command of ECM | 15 sec. or more |

# TYPICAL MALFUNCTION THRESHOLDS

**Either of the following conditions is met:**

**OFF malfunction (A) and (B), or ON malfunction (A), (B), (C) and (D)**

**OFF malfunction (A)**

| | |
|---|---|
| Intermediate shaft speed/Output speed | 1.44 to 1.58 |

**OFF malfunction (B)**

| | |
|---|---|
| Engine speed - Input (turbine) speed | |
| When condition "OFF malfunction (A)" of shift solenoid "D" is detected; | 75 rpm or more |
| When condition "OFF malfunction (A)" of shift solenoid "D" is not detected; | 100 rpm or more |

**ON malfunction (A)**

| | |
|---|---|
| Difference between engine speed and input (turbine) speed | 150 rpm or more |

**ON malfunction (B)**

| | |
|---|---|
| Input (turbine) speed/Intermediate shaft speed | 0.93 to 1.07 |

**ON malfunction (C)**

| | |
|---|---|
| Input (turbine) speed/Intermediate shaft speed | 0.93 to 1.07 |

**ON malfunction (D)**

| | |
|---|---|
| Input (turbine) speed/Intermediate shaft speed | 0.64 to 0.74 |

## INSPECTION PROCEDURE

HINT:

Performing the ACTIVE TEST using the hand-held tester allows the relay, VSV, actuator and so on to operate without parts removal. Performing the ACTIVE TEST as the first step of troubleshooting is one method to shorten labor time.

It is possible to display the DATA LIST during the ACTIVE TEST.

(a) Turn the ignition switch off.
(b) Connect the hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Push the ”ON” button of the hand-held tester.
(e) Select the item ”DIAGNOSIS/ENHANCED OBD II/ACTIVE TEST/SHIFT”.
(f) According to the display on tester, perform the ”ACTIVE TEST”.

HINT:

While driving, the shift position can be forcibly changed with the hand-held tester.

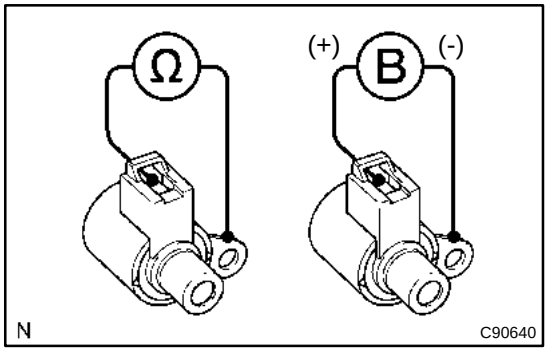
Comparing the shift position commanded by the ACTIVE TEST with the actual shift position enables you to confirm the problem.

| Item | Test Details | Diagnostic Note |
|---|---|---|
| SHIFT | [Test Details]<br>Operate the shift solenoid valve and set the each shift position by yourself.<br>[Vehicle Condition]<br>Less than 50 km/h (31 mph)<br>[Others]<br>• Press ”→” button: Shift up<br>• Press ”←” button: Shift down | Possible to check the operation of the shift solenoid valves. |

HINT:

- This test can be conducted when the vehicle speed is 50 km/h (31 mph) or less.
- The shift position commanded by the ECM is shown in the DATA LIST/SHIFT display on the hand-held tester.

**1 INSPECT SHIFT SOLENOID VALVE(SR)**




(a) Remove the shift solenoid valve SR.
(b) Measure the resistance between the solenoid connector and the solenoid body.
**OK:**
**Resistance: 11 to 15 Ω at 20˚C (68˚F)**
(c) Connect positive (+) lead to the terminal of solenoid connector, negative (-) lead to the solenoid body.
**OK:**
**The solenoid makes an operating noise.**

**NG** → **REPLACE SHIFT SOLENOID VALVE(SR)**

**OK**

| | |
|---|---|
| 2 | INSPECT TRANSMISSION VALVE BODY ASSY(See chapter 2 in the problem symptoms table)(See page 05-561 ) |

NG → REPAIR OR REPLACE TRANSMISSION VALVE BODY ASSY(See page 40-25 )

OK

| | |
|---|---|
| 3 | INSPECT TORQUE CONVERTER CLUTCH ASSY(See page 40-18 ) |

NG → REPLACE TORQUE CONVERTER CLUTCH ASSY

OK

REPAIR OR REPLACE AUTOMATIC TRANSAXLE ASSY(See page 40-8 )

| DTC | P0776 | PRESSURE CONTROL SOLENOID ”B” PERFORMANCE (SHIFT SOLENOID VALVE SL2) |
|---|---|---|

## SYSTEM DESCRIPTION

The ECM uses signals from the vehicle speed sensor to detect the actual gear position (1st, 2nd, 3rd, 4th or 5th gear).
Then the ECM compares the actual gear with the shift schedule in the ECM memory to detect mechanical problems of the shift solenoid valves and valve body.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| P0776 | The gear required by the ECM does not match the actual gear when driving (2-trip detection logic) | • Shift solenoid valve SL2 remains open or closed<br>• Valve body is blocked<br>• Shift solenoid valve SL2<br>• Automatic transaxle (clutch, brake or gear etc.)<br>• ECM |

## MONITOR DESCRIPTION

The ECM commands gear shifts by turning the shift solenoid valves ”ON/OFF”. According to the input shaft revolution, intermediate (counter) shaft revolution and output shaft revolution, the ECM detects the actual gear position (1st, 2nd, 3rd, 4th or 5th gear position). When the gear position commanded by the ECM and the actual gear position are not same, the ECM illuminates the MIL and stores the DTC.

## MONITOR STRATEGY

| | |
|---|---|
| Related DTCs | P0776:<br>Shift solenoid valve SL2/OFF malfunction<br>Shift solenoid valve SL2/ON malfunction |
| Required sensors/Components | Shift solenoid valve SL2, Speed sensor (NT), Speed sensor (NC), Crankshaft position sensor (NE) |
| Frequency of operation | Continuous |
| Duration | OFF malfunction (A)<br>1.8 sec.<br>OFF malfunction (B) and (C)<br>0.8 sec.<br>ON malfunction (A) and (B)<br>0.8 sec.<br>ON malfunction (C)<br>0.4 sec. |
| MIL operation | 2 driving cycles |
| Sequence of operation | None |

# TYPICAL ENABLING CONDITIONS

## All:

| | |
|---|---|
| Transmission range | ”D” |
| ECT (Engine coolant temperature) | 10°C (50°F) or more |
| TFT (Transmission fluid temperature) | -20 °C (-4°F) or more |
| TFT sensor circuit | Not circuit malfunction |
| ECT sensor circuit | Not circuit malfunction |
| Turbine speed sensor circuit | Not circuit malfunction |
| Intermediate shaft speed sensor circuit | Not circuit malfunction |
| Output speed sensor circuit | Not circuit malfunction |
| Shift solenoid valve SL1 circuit | Not circuit malfunction |
| Shift solenoid valve SL2 circuit | Not circuit malfunction |
| Shift solenoid valve SL3 circuit | Not circuit malfunction |
| Shift solenoid valve S4 circuit | Not circuit malfunction |
| Shift solenoid valve SR circuit | Not circuit malfunction |
| Shift solenoid valve DSL circuit | Not circuit malfunction |

## OFF malfunction (A)

| | |
|---|---|
| ECM lock-up command | OFF |
| Vehicle speed | Less than 60 km/h (37.3 mph) |
| Throttle valve opening angle | 10% or more |

## OFF malfunction (B)

| | |
|---|---|
| ECM selected gear | 1st |
| Vehicle speed | Less than 40 km/h (24.9 mph) |
| Throttle valve opening angle | 4.5% or more at engine speed 1,900 rpm<br>(Varies with engine speed) |

## OFF malfunction (C)

| | |
|---|---|
| ECM selected gear | 3rd |
| Throttle valve opening angle | 4.5% or more at engine speed 1,900 rpm<br>(Varies with engine speed) |

## OFF malfunction (D)

| | |
|---|---|
| ECM select gear | 4th or 5th |
| Duration time from shift command of ECM | 15 sec. or more |

## ON malfunction (A)

| | |
|---|---|
| ECM select gear | 1st |
| Vehicle speed | Less than 40 km/h (24.9 mph) |
| Throttle valve opening angle | 4.5% or more at engine speed 1,900 rpm<br>(Varies with engine speed) |

## ON malfunction (B)

| | |
|---|---|
| ECM selected gear | 3rd |
| Throttle valve opening angle | 7.0% or more at output speed 1,400 rpm<br>(Varies with engine speed) |
| Malfunction of pressure control solenoid ”B” (SL2) and ”C” (SL3) | Not detected |

## ON malfunction (C)

| | |
|---|---|
| Throttle valve opening angle | 7.0% or more at output speed 1,050 rpm<br>(Varies with engine speed) |
| Malfunction of pressure control solenoid ”B” (SL2) | Not detected |

## TYPICAL MALFUNCTION THRESHOLDS

**Either of the following conditions is met:**

**OFF malfunction (A), (B), (C) and (D), or ON malfunction (A), (B) and (C)**

**OFF malfunction (A)**

| | |
|---|---|
| Difference between engine speed and input (turbine) speed | Less than 35 rpm |

**OFF malfunction (B)**

| | |
|---|---|
| Input (turbine) speed/Intermediate shaft speed | 0.93 to 1.07 |

**OFF malfunction (C)**

| | |
|---|---|
| Input (turbine) speed/Intermediate shaft speed | 0.93 to 1.07 |

**OFF malfunction (D)**

| | |
|---|---|
| Input (turbine) speed/Intermediate shaft speed | 0.64 to 0.74 |

**ON malfunction (A)**

| | |
|---|---|
| Input (turbine) speed/Intermediate shaft speed | 2.72 to 2.86 |

**ON malfunction (B)**

| | |
|---|---|
| Input (turbine) speed - Intermediate shaft speed | 700 rpm or more |

**ON malfunction (C)**

| | |
|---|---|
| Input (turbine) speed - Intermediate shaft speed | Less than -500 rpm<br>or<br>700 rpm or more |

## INSPECTION PROCEDURE

HINT:

Performing the ACTIVE TEST using the hand-held tester allows the relay, VSV, actuator and so on to operate without parts removal. Performing the ACTIVE TEST as the first step of troubleshooting is one method to shorten labor time.

It is possible to display the DATA LIST during the ACTIVE TEST.

(a) Turn the ignition switch off.
(b) Connect the hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Push the ”ON” button of the hand-held tester.
(e) Select the item ”DIAGNOSIS/ENHANCED OBD II/ACTIVE TEST/SHIFT”.
(f) According to the display on tester, perform the ”ACTIVE TEST”.

HINT:

While driving, the shift position can be forcibly changed with the hand-held tester.

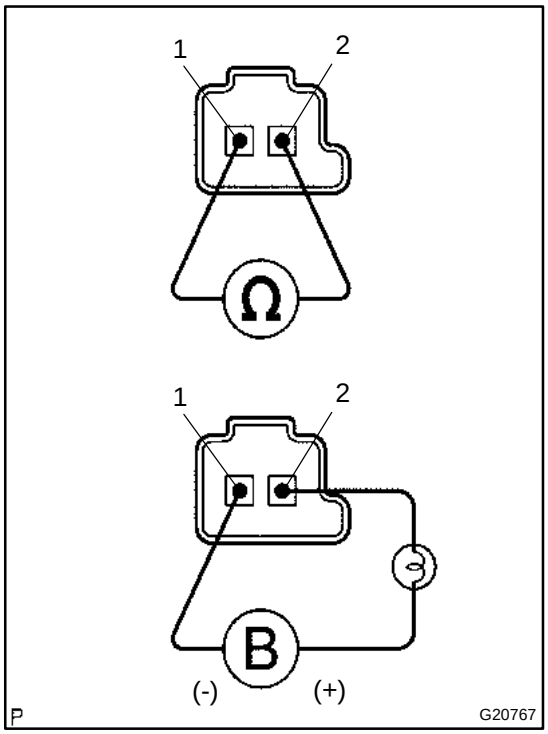
Comparing the shift position commanded by the ACTIVE TEST with the actual shift position enables you to confirm the problem.

| Item | Test Details | Diagnostic Note |
|---|---|---|
| SHIFT | [Test Details]<br>Operate the shift solenoid valve and set the each shift position by yourself.<br>[Vehicle Condition]<br>Less than 50 km/h (31 mph)<br>[Others]<br>• Press ”→” button: Shift up<br>• Press ”←” button: Shift down | Possible to check the operation of the shift solenoid valves. |

HINT:

- This test can be conducted when the vehicle speed is 50 km/h (31 mph) or less.
- The shift position commanded by the ECM is shown in the DATA LIST/SHIFT display on the hand-held tester.

| 1 | INSPECT SHIFT SOLENOID VALVE(SL2) |
|---|---|




(a) Remove the shift solenoid valve SL2.
(b) Measure the resistance between terminals.
**OK:**
**Resistance: 5.0 to 5.6 Ω at 20˚C (68˚F)**
(c) Connect the positive (+) lead with a 21 W bulb to terminal 2 and the negative (-) lead to terminal 1 of the solenoid valve connector, then check the movement of the valve.
**OK:**
**The solenoid makes an operating noise.**

NG → **REPLACE SHIFT SOLENOID VALVE(SL2)**

OK

| 2 | INSPECT TRANSMISSION VALVE BODY ASSY(See chapter 2 in the problem symptoms table)(See page 05-561 ) |
|---|---|

NG → **REPAIR OR REPLACE TRANSMISSION VALVE BODY ASSY(See page 40-25 )**

OK

| 3 | INSPECT TORQUE CONVERTER CLUTCH ASSY(See page 40-18 ) |
|---|---|

NG → **REPLACE TORQUE CONVERTER CLUTCH ASSY**

OK

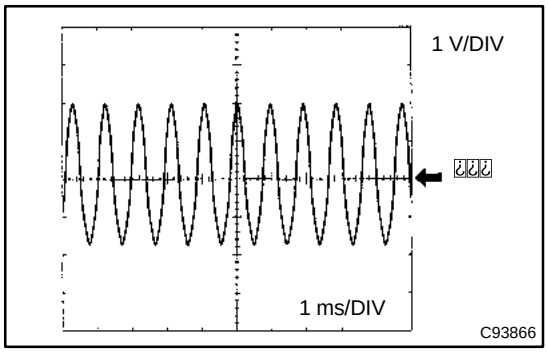
**REPAIR OR REPLACE AUTOMATIC TRANSAXLE ASSY(See page 40-8 )**

| DTC | P0793 | INTERMEDIATE SHAFT SPEED SENSOR "A" |
|---|---|---|

## CIRCUIT DESCRIPTION

This sensor detects the rotation speed of the counter gear. By comparing the counter gear speed signal (NC) with the direct clutch speed sensor signal (NT), the ECM detects the shift timing of the gears and appropriately controls the engine torque and hydraulic pressure according to various conditions. Thus smooth gear shifting is performed.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| P0793 | ECM detects conditions (a), (b) and (c) continuity for 5 sec. or more: (1-trip detection logic)<br>(a) Vehicle speed: 50 km/h (31 mph) or more<br>(b) Park/neutral position switch (NSW) is OFF<br>(c) Speed sensor (NC): less than 300 rpm | • Open or short in transmission revolution sensor NC (speed sensor NC) circuit<br>• Transmission revolution sensor NC (speed sensor NC)<br>• ECM |




Reference (Using an oscilloscope):

Check the waveform between the terminals NC+ and NC- of the ECM connector.

**Standard: Refer to the illustration.**

| | |
|---|---|
| Terminal | NC+ - NC- |
| Tool setting | 1V/DIV, 1ms/DIV |
| Vehicle condition | Vehicle speed 30 km/h (19 mph): (3rd gear)<br>Engine speed 1,400 rpm |

## MONITOR DESCRIPTION

The NC terminal of ECM detects a revolution signal from the speed sensor (NC) (counter gear rpm). The ECM calculates a gearshift comparing the speed sensor (NT) with the speed sensor (NC).

While the vehicle is operating in 2nd, 3rd, 4th or 5th gear in the shift position of D, if the counter gear revolution is less than 300 rpm*1 although the output shaft revolution is more than 1,000 rpm*2, the ECM detects the trouble, illuminates the MIL and stores the DTC.

*1: Pulse is not output or is irregularly output.

*2: The vehicle speed is 50 km/h (31 mph) or more.

## MONITOR STRATEGY

| | |
|---|---|
| Related DTCs | P0793: Speed sensor (NC)/Verify pulse input |
| Required sensors/Components | Speed sensor (NC), Speed sensor (NT), Park/neutral position switch |
| Frequency of operation | Continuous |
| Duration | 5 sec. |
| MIL operation | Immediate |
| Sequence of operation | None |

## TYPICAL ENABLING CONDITIONS

| | |
|---|---|
| The monitor will run whenever this DTC is not present. | See page 05-9 |
| Engine | Running |
| NSW switch | OFF |
| Output shaft rpm | 1,000 rpm or more |

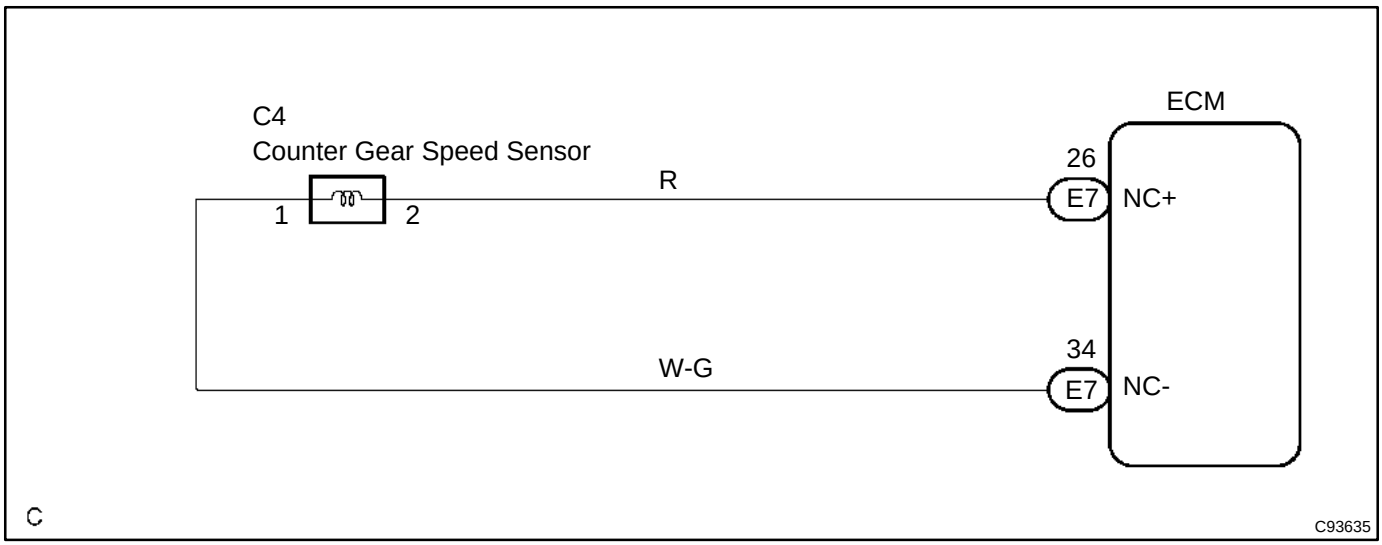
## TYPICAL MALFUNCTION THRESHOLDS

| | |
|---|---|
| Sensor signal rpm | Less than 300 rpm |

## COMPONENT OPERATING RANGE

| | |
|---|---|
| Counter gear speed sensor (NC) | [HINT]<br>3rd when shift lever position is D position (After warming up the engine);<br>• Intermediate shaft speed (NC) becomes close to the engine speed. |

## WIRING DIAGRAM




## INSPECTION PROCEDURE

HINT:

According to the DATA LIST displayed by the OBD II scan tool or hand-held tester, you can read the value of the switch, sensor, actuator and so on without parts removal. Reading the DATA LIST as the first step of troubleshooting is one method to shorten labor time.

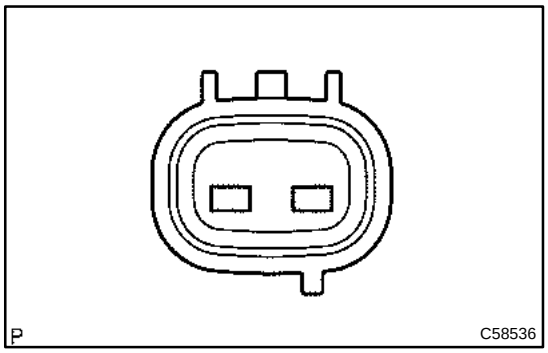
(a) Warm up the engine.
(b) Turn the ignition switch off.
(c) Connect the OBD II scan tool or hand-held tester to the DLC3.
(d) Turn the ignition switch to the ON position.
(e) Push the ”ON” button of the OBD II scan tool or the hand-held tester.
(f) When you use hand-held tester:
Select the item ”DIAGNOSIS/ENHANCED OBD II/DATA LIST”.
(g) According to the display on tester, read the ”DATA LIST”.

| Item | Measurement Item/ Range (display) | Normal Condition |
|---|---|---|
| SPD (NC) | Counter Gear Speed/ display: 50 r/min | [HINT]<br>3rd when shift lever position is D position (After warming up the engine);<br>• Intermediate shaft speed (NC) becomes close to the engine speed. |

HINT:

- SPD (NC) is always 0 while driving:
Open or short in the sensor or circuit.
- SPD (NC) is always more than 0 and less than 300 rpm while driving the vehicle at 50 km/h (31 mph) or more:
Sensor trouble, improper installation, or intermittent connection trouble of the circuit.

## 1 INSPECT SPEED SENSOR(NC)




(a) Disconnect the speed sensor connector from the transaxle.

(b) Measure the resistance between terminals of speed sensor.

**OK:**

**Resistance:**

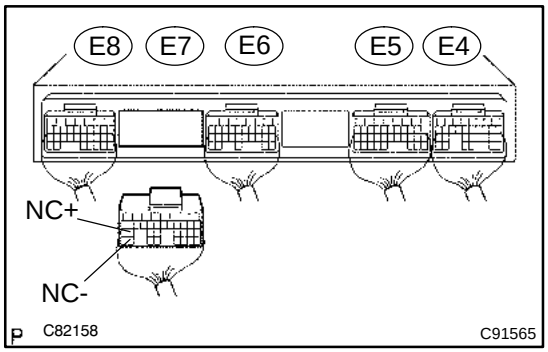
**TOYOTA made: 500 to 620 Ω at 20 °C (68 °F)**

**AISIN made: 560 to 680 Ω at 20 °C (68 °F)**

**NG** → **REPLACE SPEED SENSOR(NC) (See page 40-20 )**

**OK**

## 2 CHECK HARNESS AND CONNECTOR(SPEED SENSOR - ECM)




(a) Connect the speed sensor connector.

(b) Disconnect the ECM connector.

(c) Measure the resistance between terminals NC+ and NC-.

**OK:**

**Resistance:**

**TOYOTA made: 500 to 620 Ω at 20 °C (68 °F)**

**AISIN made: 560 to 680 Ω at 20 °C (68 °F)**

(d) Check the continuity between the wire harness side connectors.

**OK:**

**Standard (Check for short):**

| Symbols | Specified condition |
|---|---|
| NC+ - Body ground | No continuity |
| NC- - Body ground | |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR(See page 01-37 )**

**OK**

**CHECK AND REPLACE ECM(See page 01-37 )**

| DTC | P0796 | PRESSURE CONTROL SOLENOID ”C” PERFORMANCE (SHIFT SOLENOID VALVE SL3) |
|---|---|---|

## SYSTEM DESCRIPTION

The ECM uses signals from the vehicle speed sensor to detect the actual gear position (1st, 2nd, 3rd, 4th or 5th gear).
Then the ECM compares the actual gear with the shift schedule in the ECM memory to detect mechanical troubles of the shift solenoid valves and valve body.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| P0796 | The gear required by the ECM does not match the actual gear when driving (2-trip detection logic) | • Shift solenoid valve SL3 remains open or closed<br>• Valve body is blocked<br>• Shift solenoid valve SL3<br>• Automatic transaxle (clutch, brake or gear etc.)<br>• ECM |

## MONITOR DESCRIPTION

The ECM commands gear shifts by turning the shift solenoid valves ”ON/OFF”. According to the input shaft revolution, intermediate (counter) shaft revolution and output shaft revolution, the ECM detects the actual gear position (1st, 2nd, 3rd, 4th or 5th gear position). When the gear position commanded by the ECM and the actual gear position are not same, the ECM illuminates the MIL and stores the DTC.

## MONITOR STRATEGY

| | |
|---|---|
| Related DTCs | P0796:<br>Shift solenoid valve SL3/OFF malfunction<br>Shift solenoid valve SL3/ON malfunction |
| Required sensors/Components | Shift solenoid valve SL3, Speed sensor (NT), Speed sensor (NC), Crankshaft position sensor (NE) |
| Frequency of operation | Continuous |
| Duration | OFF malfunction (A)<br>0.8 sec.<br>OFF malfunction (B)<br>1 sec.<br>ON malfunction (A) and (B)<br>0.8 sec.<br>ON malfunction (C)<br>0.4 sec. |
| MIL operation | 2 driving cycles |
| Sequence of operation | None |

# TYPICAL ENABLING CONDITIONS

## All:

| | |
|---|---|
| Transmission range | ”D” |
| ECT (Engine coolant temperature) | 10°C (50°F) or more |
| TFT (Transmission fluid temperature) | -20 °C (-4°F) or more |
| TFT sensor circuit | Not circuit malfunction |
| ECT sensor circuit | Not circuit malfunction |
| Turbine speed sensor circuit | Not circuit malfunction |
| Intermediate shaft speed sensor circuit | Not circuit malfunction |
| Output speed sensor circuit | Not circuit malfunction |
| Shift solenoid valve SL1 circuit | Not circuit malfunction |
| Shift solenoid valve SL2 circuit | Not circuit malfunction |
| Shift solenoid valve SL3 circuit | Not circuit malfunction |
| Shift solenoid valve S4 circuit | Not circuit malfunction |
| Shift solenoid valve SR circuit | Not circuit malfunction |
| Shift solenoid valve DSL circuit | Not circuit malfunction |

## OFF malfunction (A)

| | |
|---|---|
| ECM selected gear | 4th or 5th |
| Throttle valve opening angle | 4.5% or more at engine speed 1,900 rpm (Varies with engine speed) |

## OFF malfunction (B)

| | |
|---|---|
| ECM selected gear | 4th |
| Throttle valve opening angle | 5% or more |
| Vehicle speed | 10 km/h (6.2 mph) or more |

## ON malfunction (A)

| | |
|---|---|
| ECM selected gear | 1st |
| Vehicle speed | Less than 40 km/h (24.9 mph) |
| Throttle valve opening angle | 4.5% or more at engine speed 1,900 rpm (Varies with engine speed) |

## ON malfunction (B)

| | |
|---|---|
| ECM selected gear | 3rd |
| Throttle valve opening angle | 7.0% or more at output speed 1,400 rpm (Varies with engine speed) |
| Malfunction of pressure control solenoid ”B” (SL2) and ”C” (SL3) | Not detected |

## ON malfunction (C)

| | |
|---|---|
| Throttle valve opening angle | 7.0% or more at output speed 1,050 rpm (Varies with engine speed) |
| Malfunction of pressure control solenoid ”B” (SL2) | Not detected |

## TYPICAL MALFUNCTION THRESHOLDS

**Either of the following conditions is met:**

**OFF malfunction (A) and (B), or ON malfunctions (A), (B) and (C)**

2 detections are necessary per driving cycle:

1st detection; temporary flag ON

2nd detection; pending fault code ON

**OFF malfunction (A)**

| | |
|---|---|
| Input (turbine) speed/Intermediate shaft speed | 0.93 to 1.07 |

**OFF malfunction (B)**

| | |
|---|---|
| Intermediate shaft speed/Output speed | 1.02 to 1.16 |

**ON malfunction (A)**

| | |
|---|---|
| Input (turbine) speed/Intermediate shaft speed | 0.93 to 1.07 |

**ON malfunction (B)**

| | |
|---|---|
| Input (turbine) speed - Intermediate shaft speed | 700 rpm or more |

**ON malfunction (C)**

| | |
|---|---|
| Input (turbine) speed - Intermediate shaft speed | Less than -500 rpm<br>or<br>700 rpm or more |

## INSPECTION PROCEDURE

HINT:

Performing the ACTIVE TEST using the hand-held tester allows the relay, VSV, actuator and so on to operate without parts removal. Performing the ACTIVE TEST as the first step of troubleshooting is one method to shorten labor time.

It is possible to display the DATA LIST during the ACTIVE TEST.

(a) Turn the ignition switch off.

(b) Connect the hand-held tester to the DLC3.

(c) Turn the ignition switch to the ON position.

(d) Push the "ON" button of the hand-held tester.

(e) Select the item "DIAGNOSIS/ENHANCED OBD II/ACTIVE TEST/SHIFT".

(f) According to the display on tester, perform the "ACTIVE TEST".

HINT:

While driving, the shift position can be forcibly changed with the hand-held tester.

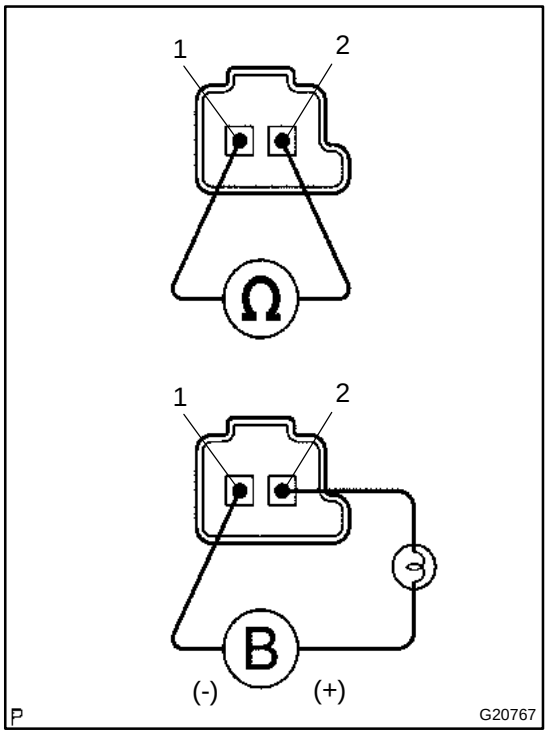
Comparing the shift position commanded by the ACTIVE TEST with the actual shift position enables you to confirm the problem.

| Item | Test Details | Diagnostic Note |
|---|---|---|
| SHIFT | [Test Details]<br>Operate the shift solenoid valve and set the each shift position by yourself.<br>[Vehicle Condition]<br>Less than 50 km/h (31 mph)<br>[Others]<br>• Press "→" button: Shift up<br>• Press "←" button: Shift down | Possible to check the operation of the shift solenoid valves. |

HINT:

- This test can be conducted when the vehicle speed is 50 km/h (31 mph) or less.
- The shift position commanded by the ECM is shown in the DATA LIST/SHIFT display on the hand-held tester.

| 1 | INSPECT SHIFT SOLENOID VALVE(SL3) |
|---|---|




(a) Remove the shift solenoid valve SL3.
(b) Measure the resistance between terminals.
**OK:**
**Resistance: 5.0 to 5.6 Ω at 20˚C (68˚F)**
(c) Connect the positive (+) lead with a 21 W bulb to terminal 2 and the negative (-) lead to terminal 1 of the solenoid valve connector, then check the movement of the valve.
**OK:**
**The solenoid makes an operating noise.**

NG → **REPLACE SHIFT SOLENOID VALVE(SL3)**

OK

| 2 | INSPECT TRANSMISSION VALVE BODY ASSY(See chapter 2 in the problem symptoms table)(See page 05-561 ) |
|---|---|

NG → **REPAIR OR REPLACE TRANSMISSION VALVE BODY ASSY(See page 40-25 )**

OK

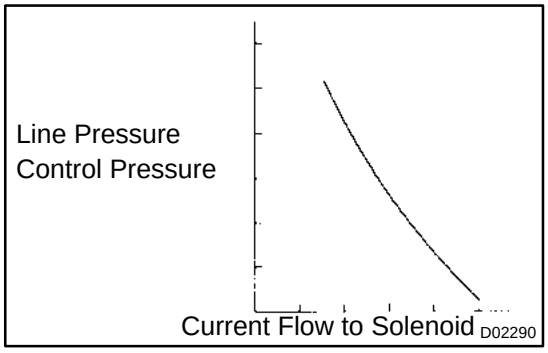
| 3 | INSPECT TORQUE CONVERTER CLUTCH ASSY(See page 40-18 ) |
|---|---|

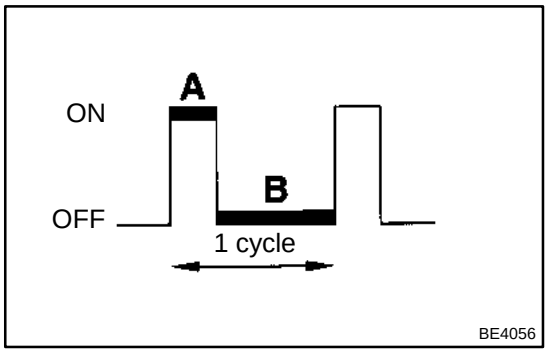
NG → **REPLACE TORQUE CONVERTER CLUTCH ASSY**

OK

**REPAIR OR REPLACE AUTOMATIC TRANSAXLE ASSY(See page 40-8 )**

| DTC | P2716 | PRESSURE CONTROL SOLENOID ”D” ELECTRICAL (SHIFT SOLENOID SLT) |
|---|---|---|




## CIRCUIT DESCRIPTION

The throttle pressure that is applied to the primary regulator valve (which modulates the line pressure) causes the solenoid valve SLT, under electronic control, to precisely and minutely modulate and generate the line pressure according the extent of the accelerator pedal depressed or the output of engine power.

This controls the line pressure and provides smooth shifting.

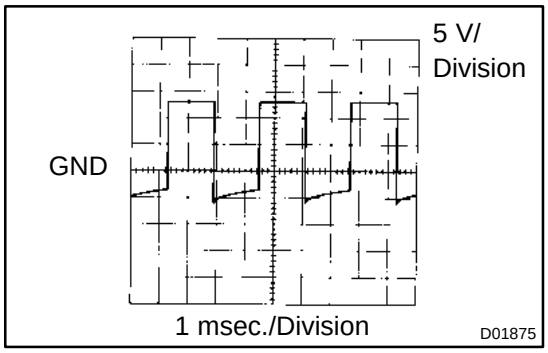
Upon receiving a signal of the throttle valve opening angle, the ECM controls the line pressure by sending a predetermined (*) duty ratio to the solenoid valve, modulating the line pressure and generating throttle pressure.

(*): Duty Ratio

The duty ratio is the ratio of the period of continuity in one cycle. For example, if A is the period of continuity in one cycle, and B is the period of non-continuity, then

Duty Ratio=A/(A+B) x 100 (%)

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| P2716 | Condition (a) or (b) below is detected 1 sec. or more:<br>(1-trip detection logic)<br>(a) SLT- terminal: 0V<br>(b) SLT- terminal: 12V | • Open or short in shift solenoid valve SLT circuit<br>• Shift solenoid valve SLT<br>• ECM |




Reference:

Check the waveform between terminals SLT+ and SLT- during the engine idling.

## MONITOR DESCRIPTION

When an open or short in the linear solenoid valve (SLT) circuit is detected, the ECM interprets this as a fault. The ECM will turn ON the MIL and store the DTC.

## MONITOR STRATEGY

| | |
|---|---|
| Related DTCs | P2716: Shift solenoid valve SLT/Range check |
| Required sensors/Components | Shift solenoid valve SLT |
| Frequency of operation | Continuous |
| Duration | 1 sec. |
| MIL operation | Immediate |
| Sequence of operation | None |

## TYPICAL ENABLING CONDITIONS

| | |
|---|---|
| The monitor will run whenever this DTC is not present. | See page 05-9 |
| Solenoid current cut status | Not cut |
| Battery voltage | 11 V or more |
| CPU commanded duty ratio to SLT | 19% or more |
| Ignition switch | ON |
| Starter | OFF |

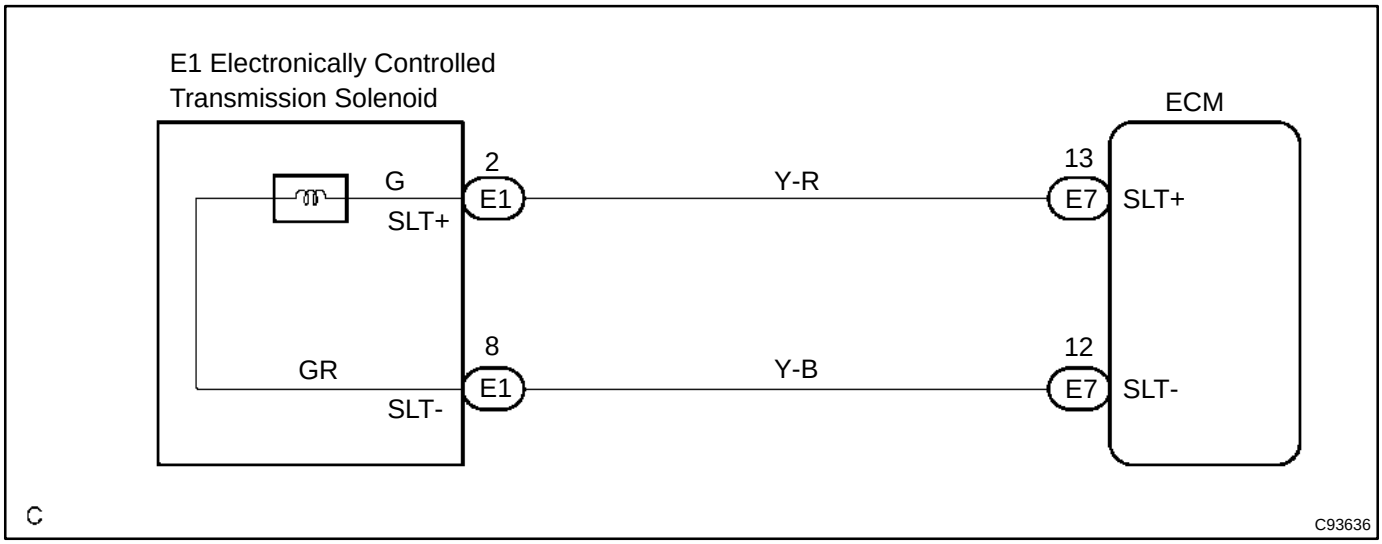
## TYPICAL MALFUNCTION THRESHOLDS

| | |
|---|---|
| Solenoid status from IC | Fail (Open or short) |

## COMPONENT OPERATING RANGE

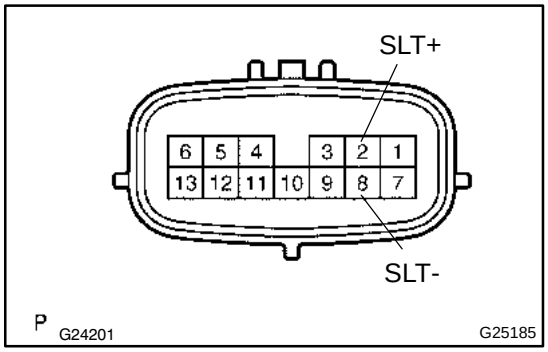
| | |
|---|---|
| Shift solenoid valve SLT | Resistance: 5.0 to 5.6 Ω at 20°C (68°F) |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

## 1 INSPECT TRANSMISSION WIRE(SLT)




(a) Disconnect the transmission wire connector from the transaxle.

(b) Measure the resistance between the terminals SLT+ and SLT-.

**OK:**

**Resistance: 5.0 to 5.6 Ω at 20 ˚C (68˚F)**

(c) Check the continuity between the wire harness side connectors.

**OK:**

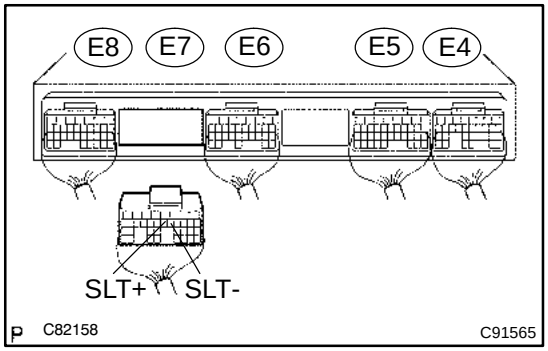
**Standard (Check for short):**

| Symbols | Specified condition |
|---|---|
| SLT+ - Body ground | No continuity |
| SLT- - Body ground | |

**NG** → **Go to step 3**

**OK**

## 2 CHECK HARNESS AND CONNECTOR(TRANSMISSION WIRE - ECM)




(a) Connect the transmission wire connector to the transaxle.

(b) Disconnect the ECM connector.

(c) Measure the resistance between terminals SLT+ and SLT- of ECM connector.

**OK:**

**Resistance: 5.0 to 5.6 Ω at 20 ˚C (68 ˚F)**

(d) Check the continuity between the wire harness side connectors.

**OK:**

**Standard (Check for short):**

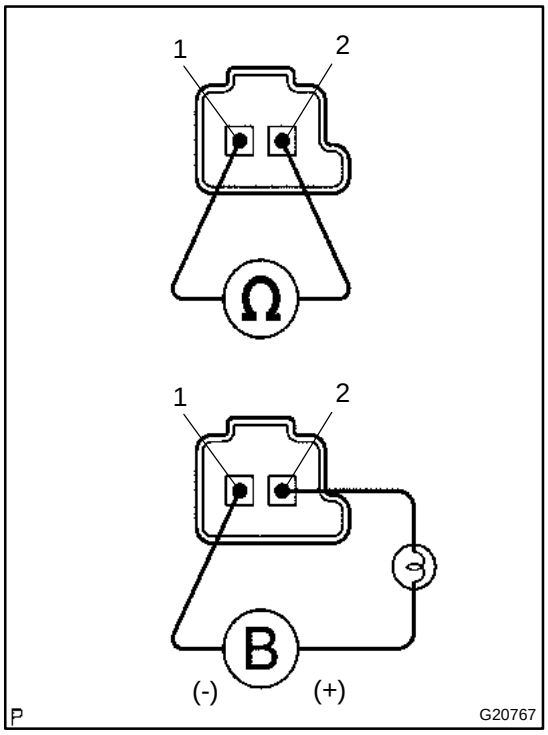
| Symbols | Specified condition |
|---|---|
| SLT+ - Body ground | No continuity |
| SLT- - Body ground | |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR(See page 01-37 )**

**OK**

**CHECK AND REPLACE ECM(See page 01-37 )**

| 3 | INSPECT SHIFT SOLENOID VALVE(SLT) |
|---|---|




(a) Remove the shift solenoid valve (SLT).

(b) Measure the resistance between terminals.

**OK:**

**Resistance: 5.0 to 5.6 Ω at 20˚C (68˚F)**

(c) Connect the positive (+) lead with a 21 W bulb to terminal 2 and the negative (-) lead to terminal 1 of the solenoid valve connector, then check the movement of the valve.

**OK:**

**The solenoid makes an operating noise.**

**NG** → **REPLACE SHIFT SOLENOID VALVE(SLT)**

**OK**

**REPAIR OR REPLACE TRANSMISSION WIRE(See page 40-22 )**

| DTC | P2769 | DSL SOLENOID CIRCUIT LOW (SHIFT SOLENOID VALVE DSL) |
|---|---|---|

| DTC | P2770 | DSL SOLENOID CIRCUIT HIGH (SHIFT SOLENOID VALVE DSL) |
|---|---|---|

## CIRCUIT DESCRIPTION

The shift solenoid valve DSL is turned ON and OFF by signals from the ECM in order to control the hydraulic pressure operation, the lock-up relay valve, which then the controls operation of the lock-up clutch.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| P2769 | ECM detects short in solenoid valve DSL circuit (0.1 sec.) when solenoid valve DSL is operated (2-trip detection logic) | • Short in shift solenoid valve DSL circuit<br>• Shift solenoid valve DSL<br>• ECM |
| P2770 | ECM detects open in solenoid valve DSL circuit (0.1 sec.) when solenoid valve DSL is not operated (2-trip detection logic) | • Open in shift solenoid valve DSL circuit<br>• Shift solenoid valve DSL<br>• ECM |

Fail safe function:
If the ECM detects a malfunction, it turns the shift solenoid valve DSL OFF.

## MONITOR DESCRIPTION

Torque converter lock-up is controlled by the ECM based on engine rpm, engine load, engine temperature, vehicle speed, transmission temperature, and shift range selection. The ECM determines the lock-up status of the torque converter by comparing the engine rpm (NE) to the input turbine rpm (NT). The ECM calculates the actual transmission gear by comparing input turbine rpm (NT) to counter gear rpm (NC). When conditions are appropriate, the ECM requests ”lock-up” by applying control voltage to shift solenoid DSL. When the DSL is opened, solenoid DSL applies pressure to the lock-up relay valve and locks the torque converter clutch. If the ECM detects an open or short in the DSL solenoid circuit, the ECM interprets this as a fault in the DSL solenoid or circuit. The ECM will turn on the MIL and store the DTC.

## MONITOR STRATEGY

| | |
|---|---|
| Related DTCs | P2769: Shift solenoid valve DSL/Range check (Low resistance)<br>P2770: Shift solenoid valve DSL/Range check (High resistance) |
| Required sensors/Components | Shift solenoid valve DSL |
| Frequency of operation | Continuous |
| Duration | 0.064 sec. |
| MIL operation | 2 driving cycles |
| Sequence of operation | None |

## TYPICAL ENABLING CONDITIONS

### P2769: Range check (Low resistance)

| | |
|---|---|
| The monitor will run whenever this DTC is not present. | See page 05-9 |
| Shift solenoid valve DSL | ON |
| Solenoid current cut status | Not cut |
| Battery voltage | 8 V or more |
| Ignition switch | ON |
| Starter | OFF |

### P2770: Range check (High resistance)

| | |
|---|---|
| The monitor will run whenever this DTC is not present. | See page 05-9 |
| Shift solenoid valve DSL | ON |
| Battery voltage | 8 V or more |
| Ignition switch | ON |
| Starter | OFF |

## TYPICAL MALFUNCTION THRESHOLDS

### P2769: Range check (Low resistance)

| | |
|---|---|
| Shift solenoid valve DSL resistance | 8 Ω or less |

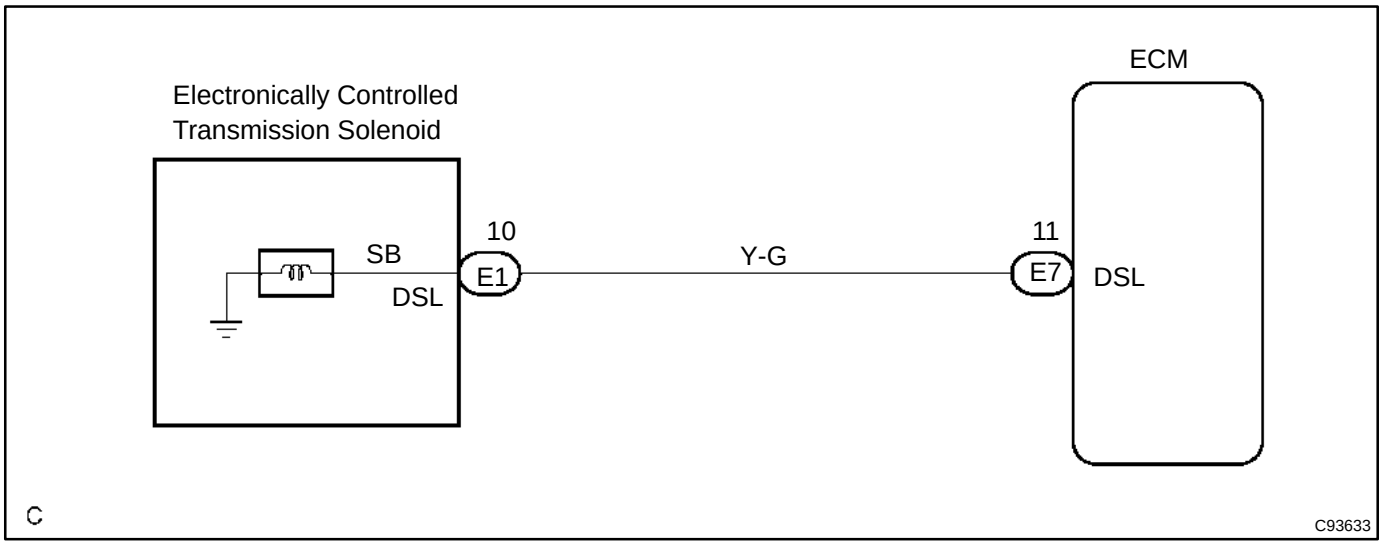
### P2770: Range check (High resistance)

| | |
|---|---|
| Shift solenoid valve DSL resistance | 100 kΩ or more |

## COMPONENT OPERATING RANGE

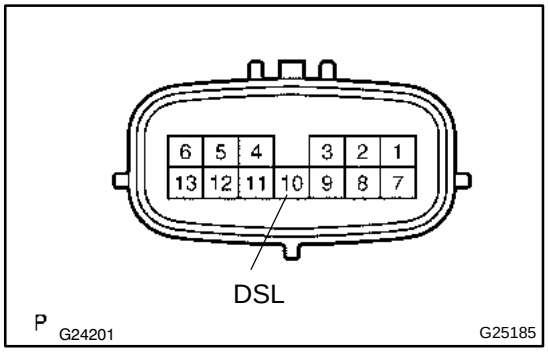
| | |
|---|---|
| Shift solenoid valve DSL | Resistance: 11 to 13 Ω at 20°C (68°F) |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT TRANSMISSION WIRE(DSL) |
|---|---|

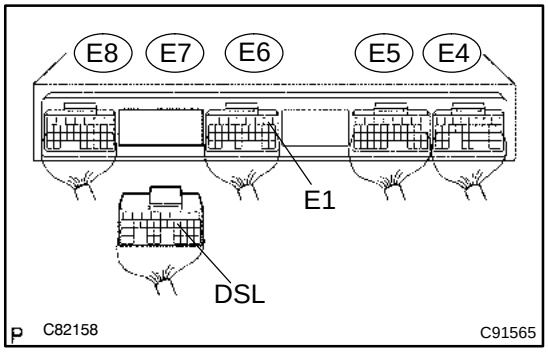



(a) Disconnect the transmission wire connector from the transaxle.
(b) Measure resistance between the terminal DSL and body ground.
**OK:**
**Resistance: 11 to 13 Ω at 20 °C (68 °F)**

**NG** → **Go to step 3**

**OK**

| 2 | CHECK HARNESS AND CONNECTOR(TRANSMISSION WIRE - ECM) |
|---|---|



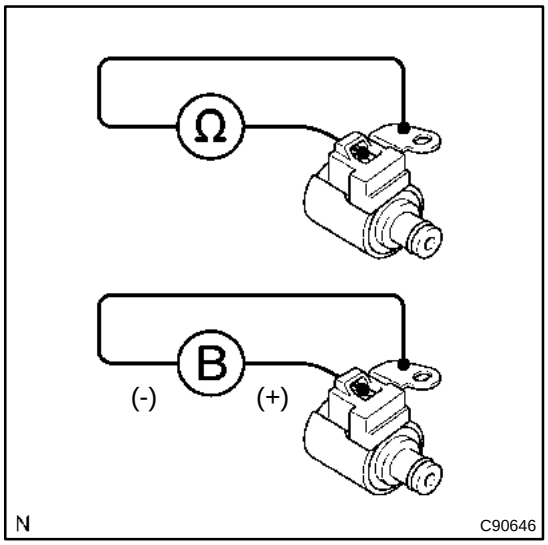

(a) Connect the transmission wire connector.
(b) Disconnect the ECM connector.
(c) Measure the resistance between terminals DSL and E1.
**OK:**
**Resistance: 11 to 13 Ω at 20 °C (68 °F)**

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR(See page 01-37 )**

**OK**

**CHECK AND REPLACE ECM(See page 01-37 )**

| 3 | INSPECT SHIFT SOLENOID VALVE(DSL) |
|---|---|




(a) Remove the shift solenoid valve DSL.

(b) Measure the resistance between the terminal DSL of shift solenoid valve and the solenoid body.

**OK:**

**Resistance: 11 - 13 Ω at 20 °C (68 °F)**

(c) Connect positive (+) lead to the terminal of solenoid connector, negative (-) lead to the solenoid body.

**OK:**

**The solenoid valve makes an operating noise.**

**NG** → **REPLACE SHIFT SOLENOID VALVE(DSL)**

**OK**

**REPAIR OR REPLACE TRANSMISSION WIRE(See page 40-22 )**

| DTC | P0500/21 | VEHICLE SPEED SENSOR ”A” |
|---|---|---|

| DTC | P0503/23 | VEHICLE SPEED SENSOR ”A” INTERMITTENT/ERRATIC/HIGH |
|---|---|---|

## CIRCUIT DESCRIPTION

See page 05-201 .

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| P0500/21 | The malfunction code is output when the vehicle speed signal from the vehicle speed sensor is cut for 0.14 sec. or more while the cruise control is in operation. | • Combination meter assy<br>• Vehicle speed sensor<br>• Vehicle speed sensor circuit<br>• ECM |
| P0503/23 | Momentary interruption and noise malfunction codes are detected when a rapid change of vehicle speed occurs while the cruise control is in operation. | |

## WIRING DIAGRAM

See page 05-201 .

## INSPECTION PROCEDURE

See page 05-201 .

| DTC | P0500/21 | VEHICLE SPEED SENSOR CIRCUIT |
|---|---|---|

| DTC | P0503/23 | VEHICLE SPEED SENSOR "A" INTERMITTENT/ERRATIC/HIGH |
|---|---|---|

## CIRCUIT DESCRIPTION

See page 05-201 .

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| P0500/21 | The malfunction code is output when the vehicle speed signal from the vehicle speed sensor is cut for 0.14 sec. or more while the cruise control is in operation. | • Combination meter assy<br>• Vehicle speed sensor<br>• Vehicle speed sensor signal circuit<br>• ECM |
| P0503/23 | Momentary interruption and noise are detected when a rapid change of vehicle speed occurs while the cruise control is in operation. | |

## WIRING DIAGRAM

See page 05-201 .

## INSPECTION PROCEDURE

See page 05-201 .

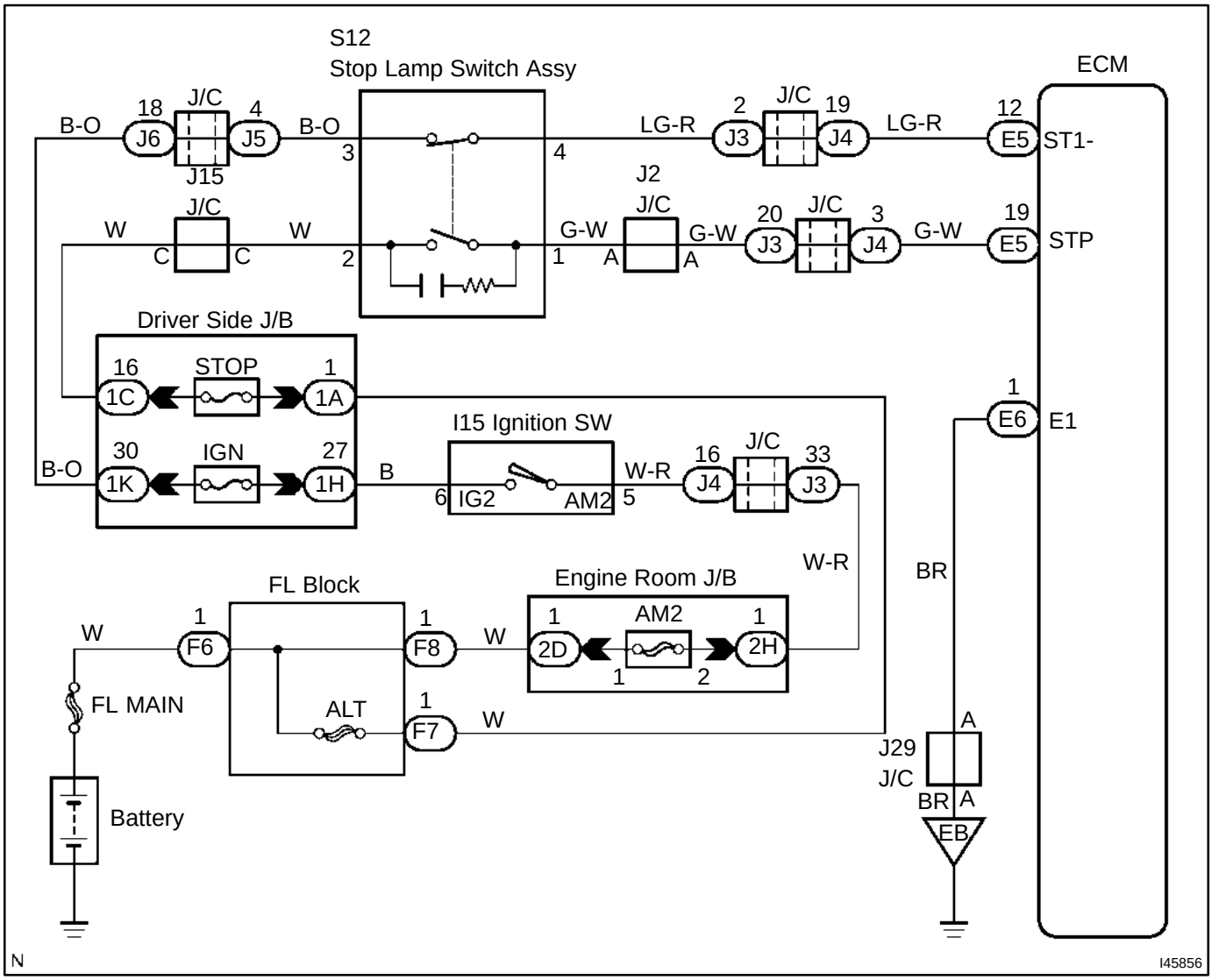
# DTC P0571/52 BRAKE SWITCH "A" CIRCUIT

## CIRCUIT DESCRIPTION

When the brake pedal is depressed, the stop lamp switch assy sends a signal to the ECM. When the ECM receives the signal, it cancels the cruise control.
Even if a malfunction occurs in the stop lamp signal circuit, a normal vehicle operation can be maintained by the fail-safe function.
The cancel condition occurs when battery positive voltage is supplied to terminal STP.
When the brake pedal is on, battery positive voltage is normally applied through the STOP fuse and the stop lamp switch assy to terminal STP of the ECM, and the ECM turns the cruise control OFF.
If the harness connected to terminal STP has an open circuit, terminal STP will have battery positive voltage and the cruise control will be turned OFF.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| P0571/52 | • The malfunction code is output when the voltage of the STP terminal and that of the ST1- terminal on the ECM are less than 1 V for 0.5 sec. or more.<br>• When the following conditions are realized, a malfunction is detected.<br>(c) The STP terminal voltage is less than 1 V.<br>(d) The ST1- terminal voltage is less than 1 V.<br>(e) For more than 0.5 sec. or more. | • Stop lamp switch assy<br>• Stop lamp switch signal circuit<br>• ECM |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

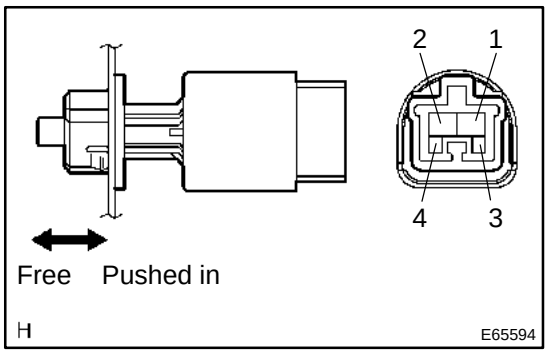
| 1 | CHECK STOP LAMP SWITCH OPERATION |
|---|---|

(a) Check that the stop lamp lights up when brake pedal is depressed, and goes off when the brake pedal is released.

NG → **INSPECT STOP LAMP SWITCH CIRCUIT (See page 05-1 131)**

OK

| 2 | INSPECT STOP LAMP SWITCH ASSY |
|---|---|




(a) Disconnect the stop lamp switch assy connector.
(b) Check the continuity between each terminal of the stop lamp switch assy.

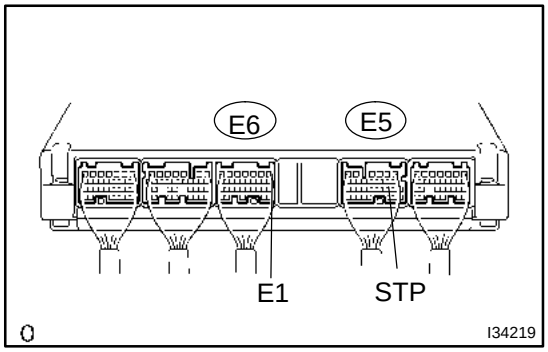
**Standard:**

| Switch condition | Tester connection | Specification |
|---|---|---|
| Switch pin free | 1 - 2 | Below 1 Ω |
| | 3 - 4 | 10 kΩ or higher |
| Switch pin pushed in | 1 - 2 | 10 kΩ or higher |
| | 3 - 4 | Below 1 Ω |

NG → **REPLACE STOP LAMP SWITCH ASSY**

OK

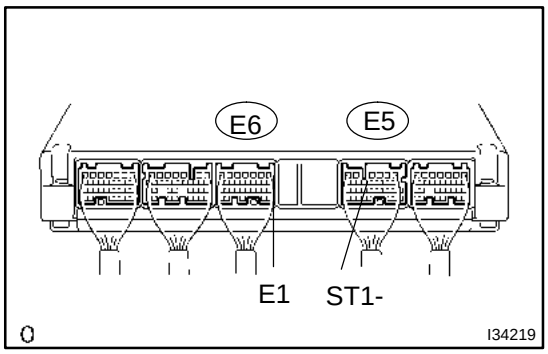
| 3 | INSPECT ECM |
|---|---|




(a) Remove the ECM with connector.
(b) Turn the ignition switch to ON.
(c) Measure the voltage between terminal STP (E5-19) and E1 (E6-1) of ECM connector when the brake pedal is depressed and released.

**Standard:**

| Condition | Voltage |
|---|---|
| Depressed | 10 to 14 V |
| Released | Below 1 V |




(d) Measure the voltage between terminal ST1- (E5-12) and E1 (E6-1) of ECM connector when the brake pedal is depressed and released.

**Standard:**

| Condition | Voltage |
|---|---|
| Depressed | Below 1 V |
| Released | 10 to 14 V |

**OK** → **REPLACE ECM (See page 10-17 )**

**NG**

**REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR**

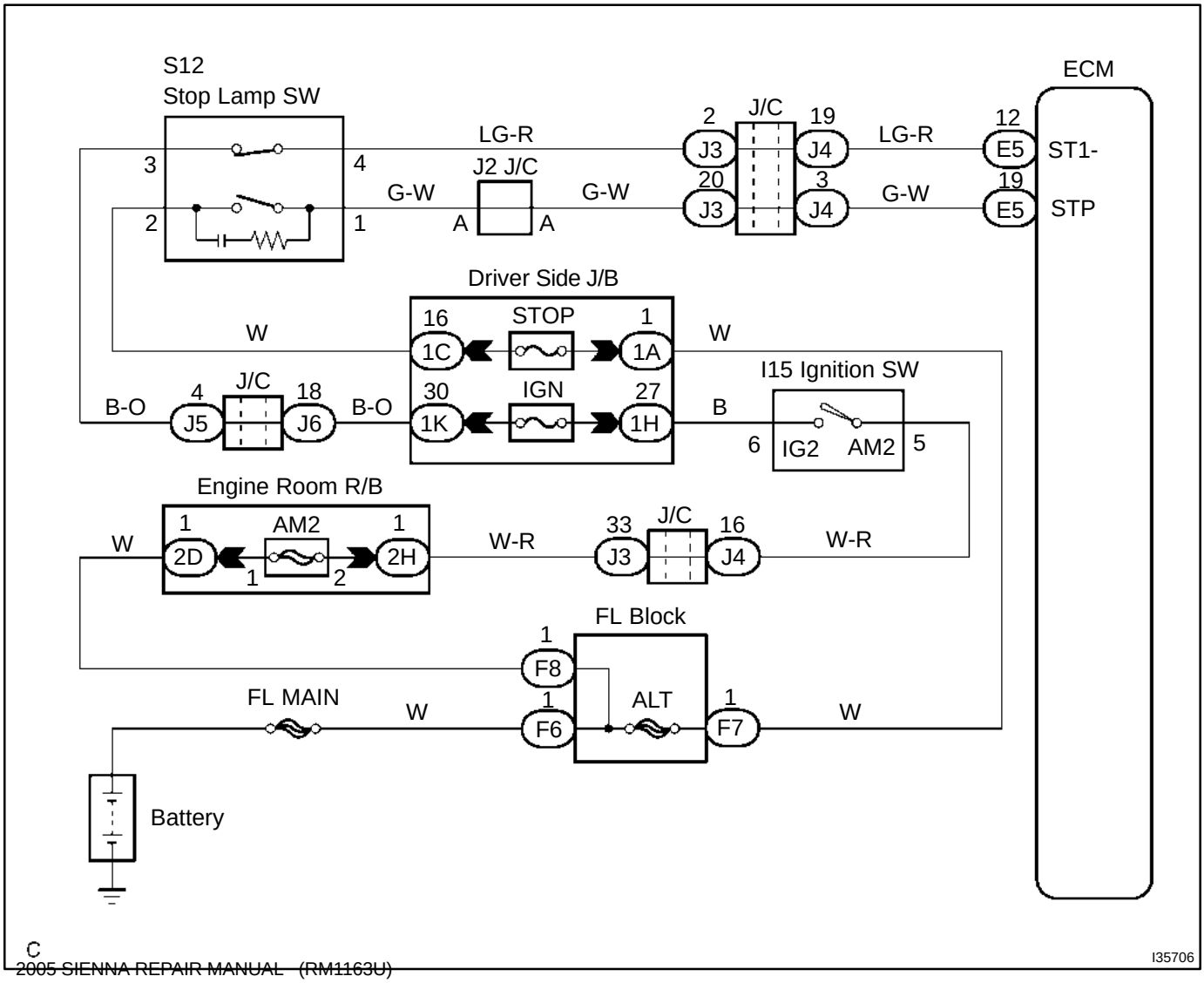
# DTC P0571/52 BRAKE SWITCH "A" CIRCUIT

## CIRCUIT DESCRIPTION

When the brake pedal is depressed, the stop lamp switch assy sends a signal to the ECM. When the ECM receives the signal, it cancels the cruise control.
A fail-safe function is provided so that it functions normally, even if there is a malfunction in the stop lamp signal circuit.
The cancel condition occurs when battery positive voltage is supplied to terminal STP.
When the brake is on, battery positive voltage is normally applied through the STOP fuse and the stop lamp switch assy to terminal STP of the ECM, and the ECM turns the cruise control OFF.
If the harness connected to terminal STP has an open circuit, terminal STP will have battery positive voltage and the cruise control will be turned OFF.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| P0571/52 | The malfunction code is output when the voltage of the STP terminal and that of the ST1- terminal on the ECM are less than 1 V for 0.5 sec. or more. | • Stop lamp switch assy<br>• Stop lamp switch assy circuit<br>• ECM |

## WIRING DIAGRAM




I35706

# INSPECTION PROCEDURE

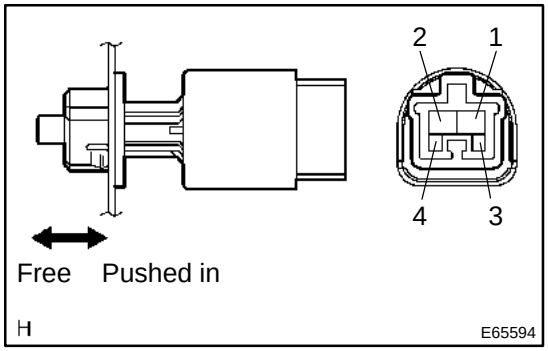
| 1 | INSPECT STOP LAMP SWITCH OPERATION |
|---|---|

(a) Check that the stop lamp lights up when brake pedal is depressed and turns OFF when the brake pedal is released.

NG → **INSPECT STOP LAMP SWITCH CIRCUIT (See page 05-496 )**

OK

| 2 | INSPECT STOP LAMP SWITCH ASSY |
|---|---|



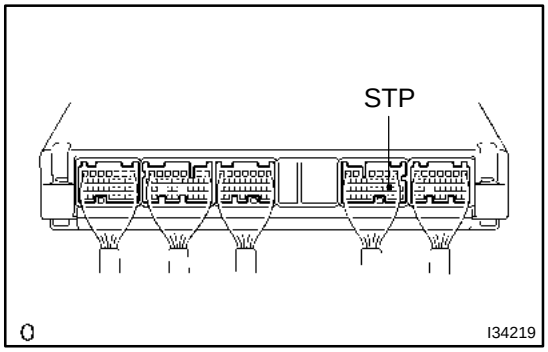

(a) Disconnect the stop lamp switch assy connector.
(b) Measure the continuity between each terminal of the stop lamp switch assy.
**Standard:**

| Switch condition | Tester connection | Specification |
|---|---|---|
| Switch pin free | 1 - 2 | Continuity |
| Switch pin free | 3 - 4 | No continuity |
| Switch pin pushed in | 1 - 2 | No continuity |
| Switch pin pushed in | 3 - 4 | Continuity |

NG → **REPLACE STOP LAMP SWITCH ASSY**

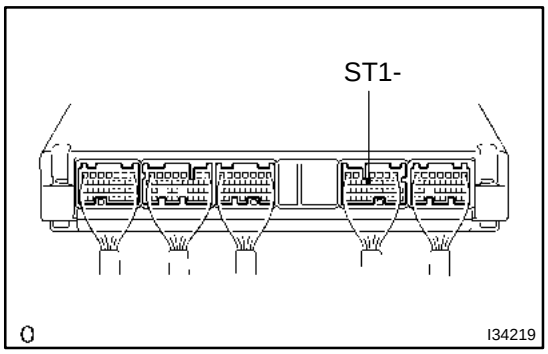
OK

| 3 | INSPECT ECM |
|---|---|




(a) Remove the ECM with connectors.
(b) Turn the ignition switch ON.
(c) Measure voltage between terminal STP of ECM connector and body ground when the brake pedal is depressed and released.
**Standard:**

| Pedal condition | Voltage (V) |
|---|---|
| Depressed | 10 to 14 |
| Released | Below 1 |




(d) Measure voltage between terminal ST1- of ECM connector and body ground when the brake pedal is depressed and released.

**Standard:**

| Pedal condition | Voltage (V) |
|---|---|
| Depressed | Below 1 |
| Released | 10 to 14 |

**NG** → **REPLACE ECM (See page 01-37 )**

**OK**

**REPAIR OR REPLACE HARNESS OR CONNECTOR**

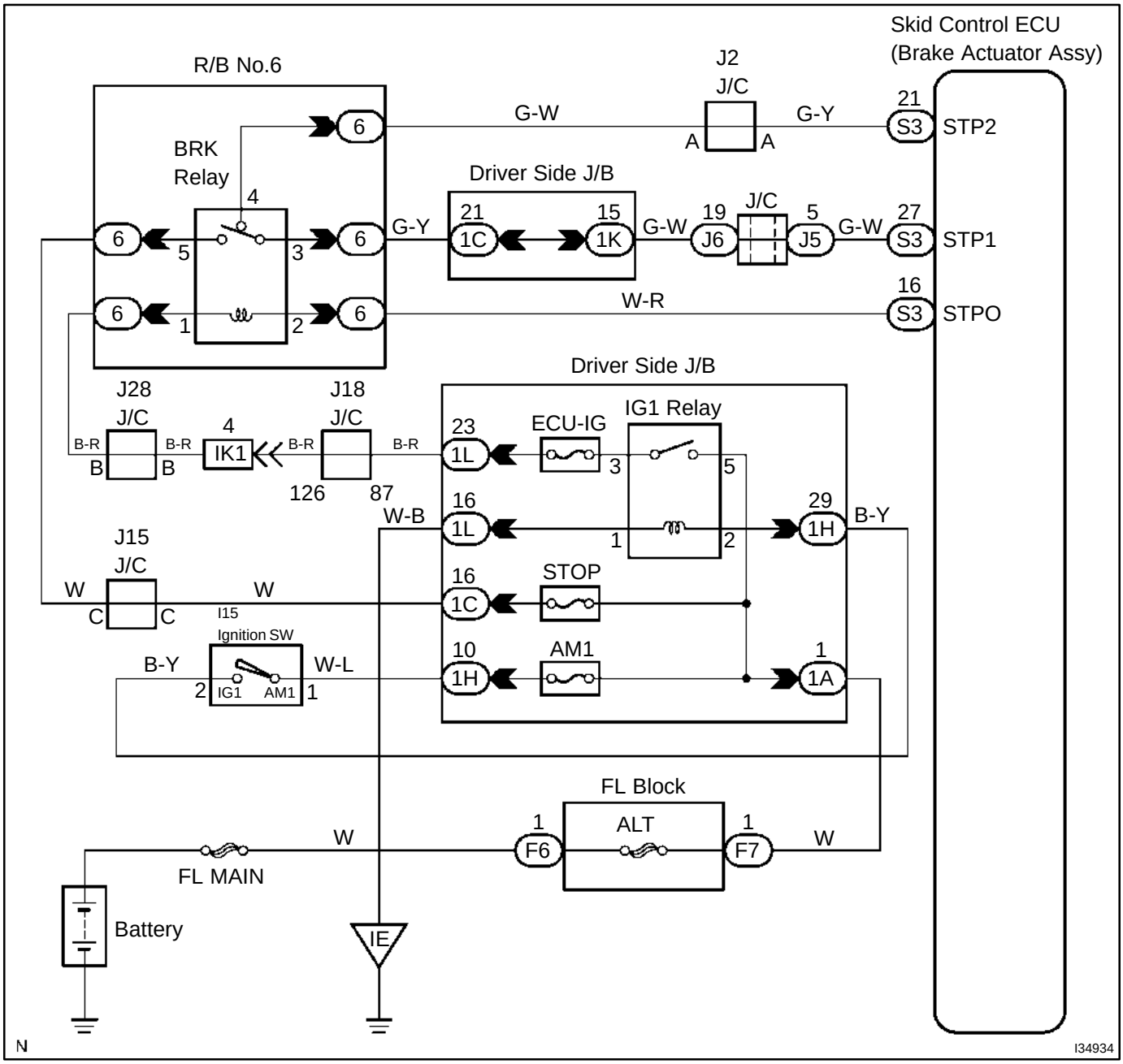
# DTC P0571/76 BRAKE SWITCH "A" CIRCUIT

## CIRCUIT DESCRIPTION

The ECM receives the brake demand signal from the distance control ECU and transmits these to the skid control ECU (Brake actuator assy).
The skid control ECU (Brake actuator assy) receives a signal from ECM and operate the brake actuator.
The skid control ECU (Brake actuator assy) operates the brake actuator and illuminates the stop lamp by operating the BRK relay at the same time.

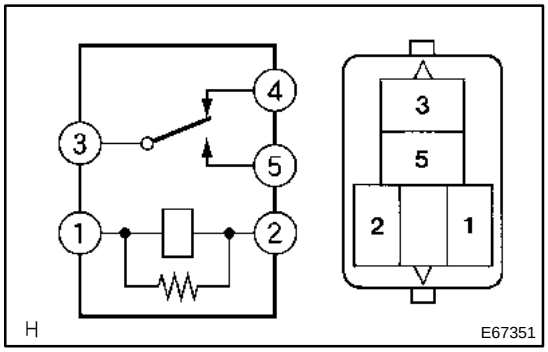
| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| P0571/76 | The malfunction code is output when the ECM detected the BRK relay error signal from the skid control ECU for 0.2 sec. or more while the dynamic cruise control is in operation. | • BRK relay<br>• BRK relay circuit<br>• Skid control ECU |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CHECK BRK RELAY |
|---|---|




(a) Remove the BRK relay from the R/B No. 6.
(b) Check the continuity between each terminal BRK relay.
**Standard:**

| Terminal No. | Specified condition |
|---|---|
| 1 - 2 | Below 1 Ω |
| 3 - 4 | Below 1 Ω |
| 3 - 5 | 10 kΩ or higher |

(c) Apply battery voltage between terminal 1 and 2.
(d) Check the continuity between each terminal of BRK relay.

| Terminal No. | Specified condition |
|---|---|
| 3 - 5 | Below 1 Ω |

NG → **REPLACE BRK RELAY**

OK

| 2 | CHECK WIRE HARNESS AND CONNECTOR(BRK RELAY - BATTERY) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the BRK relay and battery (See page 01-37 ).

NG → **REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR**

OK

| 3 | CHECK WIRE HARNESS AND CONNECTOR(BRK RELAY - SKID CONTROL ECU) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the BRK relay and skid control ECU (See page 01-37 ).

NG → **REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR**

OK

**REPLACE BRAKE ACTUATOR ASSY**

HINT:
When a malfunction is found in the skid control ECU, replace the brake actuator assy.

| DTC | P0607/54 | CONTROL MODULE PERFORMANCE |
|---|---|---|

## CIRCUIT DESCRIPTION

This DTC indicates the internal abnormalities of ECM.
HINT:
When a malfunction is detected, the fail-safe must be kept on until the ignition switch is turned off.

| DTC No. | Detection Item | Trouble Area |
|---|---|---|
| P0607/54 | • The malfunction code is output after 0.4 sec. have passed from the time the cruise cancel input signal (STP input) is input into the ECM.<br>• The ECM has a supervisory CPU and a control ECU inside. When each input STP signal is different for 0.15 sec. or more, the malfunction code is output. | • ECM |

## INSPECTION PROCEDURE

| | |
|---|---|
| 1 | **REPLACE ECM (See page 10-17 )** |

| DTC | P0607/54 | CONTROL MODULE PERFORMANCE |
|---|---|---|

## CIRCUIT DESCRIPTION

This DTC expresses the internal abnormalities of ECM.

| DTC No. | Detection Item | Trouble Area |
|---|---|---|
| P0607/54 | The ECM has a supervisory CPU and control ECU inside.<br>When each input STP signal is different for 0.15 sec. or more, the malfunction code is output.<br>The malfunction code is output after 0.4 sec. have passed from the time the cruise cancel input signal (STP input) is input into the ECM.<br>HINT:<br>When a malfunction code is detected, the fail safe must be kept on until the ignition switch is turned off. | • ECM |

## INSPECTION PROCEDURE

| | |
|---|---|
| 1 | **REPLACE ECM (See page 01-37 )** |

| DTC | P0710 | TRANSMISSION FLUID TEMPERATURE SENSOR ”A” CIRCUIT |
|---|---|---|

| DTC | P0712 | TRANSMISSION FLUID TEMPERATURE SENSOR ”A” CIRCUIT LOW INPUT |
|---|---|---|

| DTC | P0713 | TRANSMISSION FLUID TEMPERATURE SENSOR ”A” CIRCUIT HIGH INPUT |
|---|---|---|

## CIRCUIT DESCRIPTION

The ATF (Automatic Transmission Fluid) temperature sensor converts the fluid temperature into a resistance value which is input into the ECM.
The ECM applies a voltage to the temperature sensor through ECM terminal THO1.
The sensor resistance changes with the transmission fluid temperature. As the temperature becomes higher, the sensor resistance decreases.
One terminal of the sensor is grounded so that the sensor resistance decreases and the voltage goes down as the temperature becomes higher.
The ECM calculates the fluid temperature based on the voltage signal.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| P0710 | (a) and (b) is detected momentary within 0.5 sec. when neither P0712 or P0713 is not detected (1-trip detection logic)<br>(a) ATF temperature sensor resistance is less than 79 Ω.<br>(b) ATF temperature sensor resistance is more than 156 kΩ.<br>HINT:<br>Within 0.5 sec., the malfunction switches from (a) to (b) or from (b) to (a) | • Open or short in ATF temperature sensor circuit<br>• Transmission wire (ATF temperature sensor)<br>• ECM |
| P0712 | ATF temperature sensor resistance is less than 79 Ω for 0.5 sec. or more (1-trip detection logic) | • Short in ATF temperature sensor circuit<br>• Transmission wire (ATF temperature sensor)<br>• ECM |
| P0713 | ATF temperature sensor resistance is more than 156 kΩ when 15 minutes or more after the engine start<br>DTC is detected for 0.5 sec. or more (1-trip detection logic) | • Open in ATF temperature sensor circuit<br>• Transmission wire (ATF temperature sensor)<br>• ECM |

## MONITOR DESCRIPTION

The automatic transmission fluid (ATF) temperature sensor converts ATF temperature to an electrical resistance value. Based on the resistance, the ECM determines the ATF temperature, and the ECM detects an opens or shorts in the ATF temperature circuit. If the resistance value of the ATF temperature is less than 79 Ω*1 or more than 156 kΩ*2, the ECM interprets this as a fault in the ATF sensor or wiring. The ECM will turn on the MIL and store the DTC.
*1: 150°C (302°F) or more is indicated regardless of the actual ATF temperature.
*2: -40°C (-40°F) is indicated regardless of the actual ATF temperature.
HINT:
The ATF temperature can be checked on the OBD II scan tool or hand-held tester display.

## MONITOR STRATEGY

| | |
|---|---|
| Related DTCs | P0710: ATF temperature sensor/Range check (Fluttering)<br>P0712: ATF temperature sensor/Range check (Low resistance)<br>P0713: ATF temperature sensor/Range check (High resistance) |
| Required sensors/Components | ATF temperature sensor (TFT sensor) |
| Frequency of operation | Continuous |
| Duration | 0.5 sec. |
| MIL operation | Immediate |
| Sequence of operation | None |

## TYPICAL ENABLING CONDITIONS

### P0710: Range check (Fluttering)
### P0712: Range check (Low resistance)

| | |
|---|---|
| The monitor will run whenever these DTCs are not present. | See page 05-9 |
| The typical enabling condition is not available. | - |

### P0713: Range check (High resistance)

| | |
|---|---|
| The monitor will run whenever this DTC is not present. | See page 05-9 |
| Time after engine start | 15 min. or more |

## TYPICAL MALFUNCTION THRESHOLDS

### P0710: Range check (Fluttering)

| | |
|---|---|
| TFT (transmission fluid temperature) sensor | Less than 79 Ω<br>or<br>More than 156 kΩ |

### P0712: Range check (Low resistance)

| | |
|---|---|
| TFT (transmission fluid temperature) sensor | Less than 79 Ω |

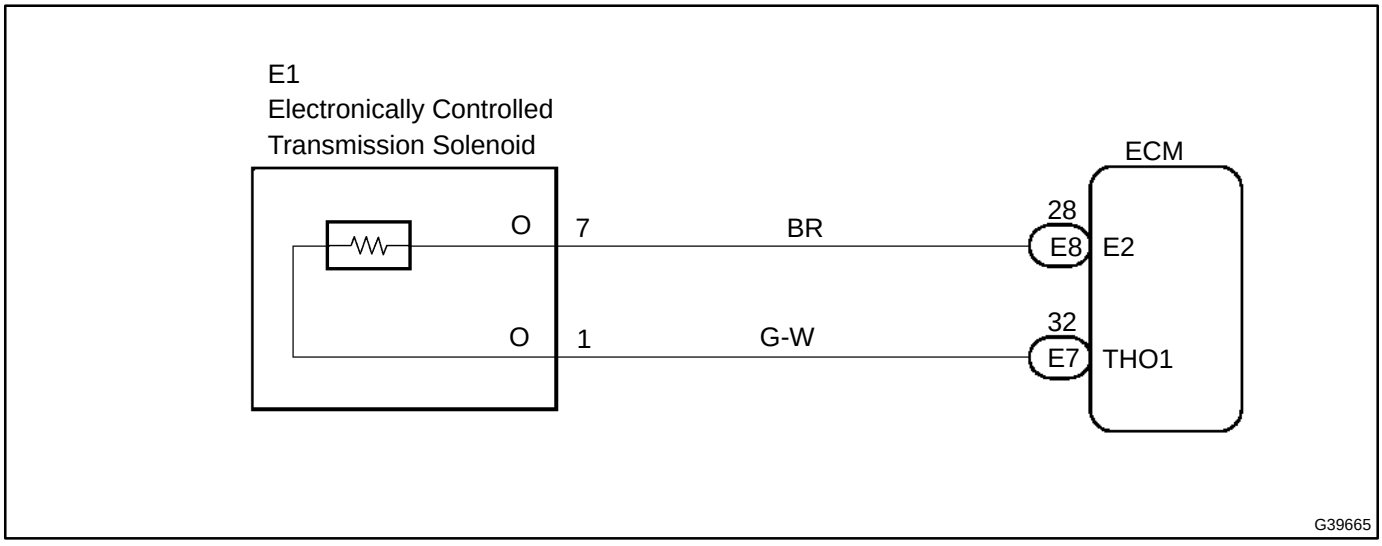
### P0713: Range check (High resistance)

| | |
|---|---|
| TFT (transmission fluid temperature) sensor | More than 156 kΩ |

## COMPONENT OPERATING RANGE

| | |
|---|---|
| TFT (transmission fluid temperature) | Atmospheric temperature - approx. 130°C (266°F) |

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:
According to the DATA LIST displayed by the OBD II scan tool or hand-held tester, you can read the value of the switch, sensor, actuator and so on without parts removal. Reading the DATA LIST as the first step of troubleshooting is one method to shorten labor time.

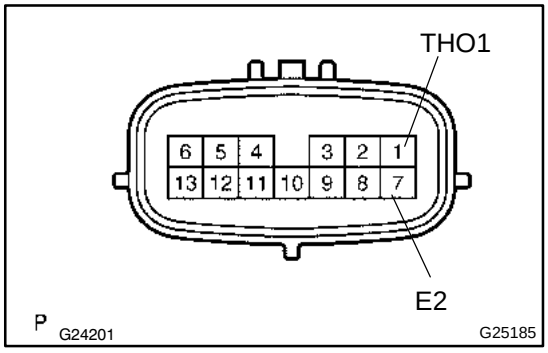
(a) Warm up the engine.
(b) Turn the ignition switch off.
(c) Connect the OBD II scan tool or hand-held tester to the DLC3.
(d) Turn the ignition switch to the ON position.
(e) Push the "ON" button of the OBD II scan tool or the hand-held tester.
(f) When you use hand-held tester:
Select the item "DIAGNOSIS/ENHANCED OBD II/DATA LIST".
(g) According to the display on tester, read the "DATA LIST".

| Item | Measurement Item/ Range (display) | Normal Condition |
|---|---|---|
| AT FLUID TEMP | ATF Temp. Sensor Value/ min.: -40°C (-40°F) max.: 215°C (419°F) | Approx. 80°C (176°F) (After Stall Test) |

HINT:
When DTC P0712 is output and OBD II scan tool or hand-held tester output is 150°C (302°F), there is a short circuit.
When DTC P0713 is output and OBD II scan tool or hand-held tester output is -40°C (-40°F), there is an open circuit.
Measure the resistance between terminal THO1 (THO) and body ground.

| Temperature Displayed | Malfunction |
|---|---|
| -40 ˚C (-40˚F) | Open circuit |
| 150˚C (302˚F) or more | Short circuit |

**1 INSPECT TRANSMISSION WIRE(ATF TEMPERATURE SENSOR)**



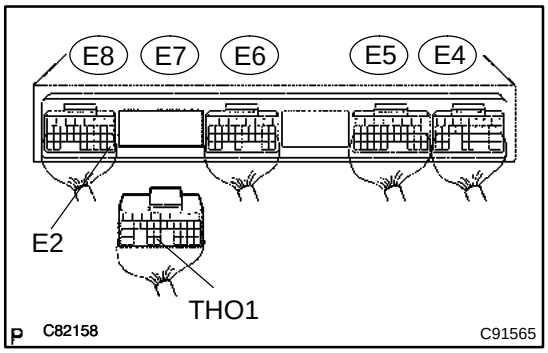

(a) Disconnect the transmission wire connector from the transaxle.
(b) Measure the resistance between terminals THO1 and E2.
**OK:**
**79 Ω to 156 kΩ**
(c) Check the continuity between the wire harness side connectors.
**OK:**
**Standard (Check for short):**

| Symbols | Specified condition |
|---|---|
| THO1 - Body ground | No continuity |
| E2 - Body ground | |

**NG** → **REPAIR OR REPLACE TRANSMISSION WIRE (See page 40-22 )**

**OK**

| 2 | CHECK HARNESS AND CONNECTOR(TRANSMISSION WIRE - ECM) |
|---|---|




(a) Connect the transmission wire connector from the transaxle.

(b) Disconnect the ECM connector.

(c) Measure resistance between terminals THO1 and E2.

**OK:**

**79 Ω to 156 kΩ**

(d) Check the continuity between the wire harness side connectors.

**OK:**

**Standard (Check for short):**

| Symbols | Specified condition |
|---|---|
| THO1 - Body ground | No continuity |
| E2 - Body ground | |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR(See page 01-37 )**

**OK**

**CHECK AND REPLACE ECM(See page 01-37 )**

| DTC | P0711 | TRANSMISSION FLUID TEMPERATURE SENSOR "A" PERFORMANCE |
|---|---|---|

## CIRCUIT DESCRIPTION

The ATF (Automatic Transmission Fluid) temperature sensor converts the fluid temperature into a resistance value which is input into the ECM.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| P0711 | Both (a) and (b) are detected: (2-trip detection logic)<br>(a) Intake air and engine coolant temperatures are more than -10˚C (14°F) at engine start<br>(b) After normal driving for over 19 min. and 9 km (6 mile) or more, ATF temp. is less than 10˚C (50°F) | • Open or short in ATF temperature sensor circuit<br>• Transmission wire (ATF temperature sensor)<br>• ECM |

## MONITOR DESCRIPTION

The ATF temperature sensor converts the ATF temperature to an electrical resistance value. Based on the resistance, the ECM determines the ATF temperature and detects an opens or shorts in the ATF temperature circuit or a fault of the ATF temperature sensor.
After running the vehicle for a certain period, the ATF temperature should increase. If the ATF temperature is below 10°C (50°F) after running the vehicle for a certain period, the ECM interprets this as a fault, and turns on the MIL.

## MONITOR STRATEGY

| | |
|---|---|
| Related DTCs | P0711: ATF temperature sensor/Rationality check |
| Required sensors/Components | ATF temperature sensor (TFT sensor) |
| Frequency of operation | Continuous |
| Duration | 3 sec. |
| MIL operation | 2 driving cycles |
| Sequence of operation | None |

## TYPICAL ENABLING CONDITIONS

| | |
|---|---|
| The monitor will run whenever this DTC is not present. | See page 05-9 |
| Time after engine start | 16 min. and 40 sec. or more |
| ECT (Engine coolant temperature) | -15 °C (5°F) or more |
| TFT (transmission fluid temperature) sensor circuit | Not circuit malfunction |
| ECT sensor circuit | Not circuit malfunction |
| IAT (Intake air temperature) sensor circuit | Not circuit malfunction |
| Time after engine start | 18 min. and 20 sec. |
| Driving distance after engine start | 9 km (5.6 mile) or more |
| IAT (12 sec. after starting engine) | -10 °C (14°F) or more |
| ECT (12 sec. after starting engine) | -10 °C (14°F) or more |

## TYPICAL MALFUNCTION THRESHOLDS

| | |
|---|---|
| TFT (transmission fluid temperature) | Less than 10°C (50°F) |

## COMPONENT OPERATING RANGE

| | |
|---|---|
| TFT (transmission fluid temperature) | Atmospheric temperature to approx. 130°C (266°F) |

## WIRING DIAGRAM

See page 05-572 .

## INSPECTION PROCEDURE

HINT:
According to the DATA LIST displayed by the OBD II scan tool or hand-held tester, you can read the value of the switch, sensor, actuator and so on without parts removal. Reading the DATA LIST as the first step of troubleshooting is one method to shorten labor time.

(a) Warm up the engine.
(b) Turn the ignition switch off.
(c) Connect the OBD II scan tool or hand-held tester to the DLC3.
(d) Turn the ignition switch to the ON position.
(e) Push the "ON" button of the OBD II scan tool or the hand-held tester.
(f) When you use hand-held tester:
Select the item "DIAGNOSIS/ENHANCED OBD II/DATA LIST".
(g) According to the display on tester, read the "DATA LIST".

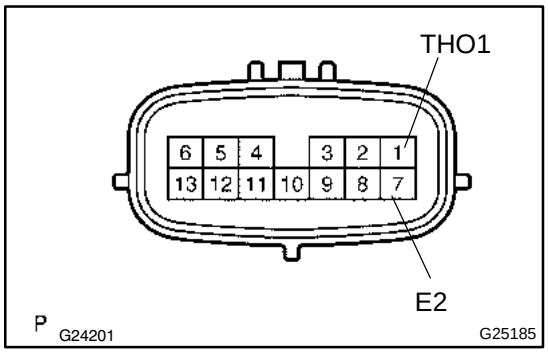
| Item | Measurement Item/ Range (display) | Normal Condition |
|---|---|---|
| AT FLUID TEMP | ATF Temp. Sensor Value/ min.: -40°C (-40°F) max.: 215°C (419°F) | Approx. 80°C (176°F) (After Stall Test) |

HINT:
When DTC P0712 is output and OBD II scan tool or hand-held tester output is 150°C (302°F), there is a short circuit.
When DTC P0713 is output and OBD II scan tool or hand-held tester output is -40°C (-40°F), there is an open circuit.
Measure the resistance between terminal THO1 (THO) and body ground.

| Temperature Displayed | Malfunction |
|---|---|
| -40 ˚C (-40˚F) | Open circuit |
| 150˚C (302˚F) or more | Short circuit |

HINT:
If a circuit related to the ATF temperature sensor becomes open, P0713 is immediately set (in 0.5 second). When P0713 is set, P0711 cannot be detected.
It is not necessary to inspect the circuit when P0711 is set.

## 1 INSPECT TRANSMISSION WIRE(ATF TEMPERATURE SENSOR)




(a) Disconnect the transmission wire connector from the transaxle.

(b) Measure the resistance between terminals THO1 and E2.

**OK:**

| Temperature: °C (°F) | Resistance: kΩ |
|---|---|
| 10 (50) | 6.4 |
| 110 (230) | 0.2 |

(c) Check the continuity between the wire harness side connectors.

**OK:**

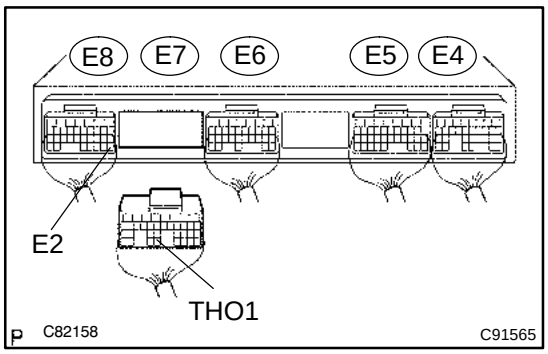
**Standard (Check for short):**

| Symbols | Specified condition |
|---|---|
| THO1 - Body ground | No continuity |
| E2 - Body ground | |

**NG** → **REPAIR OR REPLACE TRANSMISSION WIRE (See page 40-22 )**

**OK**

## 2 CHECK HARNESS AND CONNECTOR(TRANSMISSION WIRE - ECM)




(a) Connect the transmission wire connector from the transaxle.

(b) Disconnect the ECM connector.

(c) Measure resistance between terminals THO1 and E2.

**OK:**

| Temperature: °C (°F) | Resistance: kΩ |
|---|---|
| 10 (50) | 6.4 |
| 110 (230) | 0.2 |

(d) Check the continuity between the wire harness side connectors.

**OK:**

**Standard (Check for short):**

| Symbols | Specified condition |
|---|---|
| THO1 - Body ground | No continuity |
| E2 - Body ground | |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR(See page 01-37 )**

**OK**

**CHECK AND REPLACE ECM(See page 01-37 )**

| DTC | P0741 | TORQUE CONVERTER CLUTCH SOLENOID PERFORMANCE (SHIFT SOLENOID VALVE DSL) |
|---|---|---|

## SYSTEM DESCRIPTION

The ECM uses the signals from the throttle position sensor, Air-flow meter, turbine (input) speed sensor, intermediate (counter) shaft speed sensor and crankshaft position sensor to monitor the engagement condition of the lock-up clutch.

Then the ECM compares the engagement condition of the lock-up clutch with the lock-up schedule in the ECM memory to detect a mechanical problems of the shift solenoid valve DSL, valve body and torque converter clutch.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| P0741 | Lock-up does not occur when driving in lock-up range or lock-up remains ON in lock-up OFF range (2-trip detection logic) | • Shift solenoid valve DSL remains open or closed<br>• Valve body is blocked<br>• Shift solenoid valve DSL<br>• Torque converter clutch<br>• Automatic transaxle (clutch, brake or gear etc.)<br>• Line pressure is too low<br>• ECM |

## MONITOR DESCRIPTION

Torque converter lock-up is controlled by the ECM based on speed sensor (NT), speed sensor (NC), engine rpm, engine load, engine temperature, vehicle speed, transmission temperature, and gear selection. The ECM determines the lock-up status of the torque converter by comparing the engine rpm (NE) to the input turbine rpm (NT). The ECM calculates the actual transmission gear by comparing input turbine rpm (NT) to counter gear rpm (NC). When conditions are appropriate, the ECM requests ”lock-up” by applying control voltage to shift solenoid DSL. When the DSL is turned on, solenoid DSL applies pressure to the lock-up relay valve and locks the torque converter clutch.

If the ECM detects no lock-up after lock-up has been requested or if it detects lock-up when it is not requested, the ECM interprets this as a fault in the shift solenoid valve DSL or lock-up system performance. The ECM will turn on the MIL and store the DTC.

Example:

When any of the following is met, the system judges it as a malfunction.

(a) There is a difference in rotation between before and after torque converters even when the ECM commands lock-up.
(Engine speed is at least 75 rpm greater than input turbine speed.)

(b) There is no difference in rotation between before and after torque converters even when the ECM commands lock-up off.
(The difference between engine speed and input turbine speed is less than 35 rpm.)

# MONITOR STRATEGY

| | |
|---|---|
| Related DTCs | P0741: Shift solenoid valve DSL/OFF malfunction<br>P0741: Shift solenoid valve DSL/ON malfunction |
| Required sensors/Components | Shift solenoid valve DSL, Speed sensor (NT), Speed sensor (NC),Crankshaft position sensor (NE), Throttle position sensor (VPA1), Mass air flow sensor (MAF), Transmission temperature sensor (THO1), Engine coolant temperature sensor (ECT) |
| Frequency of operation | Continuous |
| Duration | OFF malfunction<br>3.2 sec.<br>ON malfunction<br>1.8 sec. |
| MIL operation | 2 driving cycles |
| Sequence of operation | None |

# TYPICAL ENABLING CONDITIONS

## ALL:

| | |
|---|---|
| Transmission range | ”D” |
| ECT (Engine coolant temperature) | 10°C (50°F) or more |
| TFT (Transmission fluid temperature) | -20 °C (-4°F) or more |
| TFT sensor circuit | Not circuit malfunction |
| ECT sensor circuit | Not circuit malfunction |
| Turbine speed sensor circuit | Not circuit malfunction |
| Intermediate shaft speed sensor circuit | Not circuit malfunction |
| Output speed sensor circuit | Not circuit malfunction |
| Shift solenoid valve SL1 circuit | Not circuit malfunction |
| Shift solenoid valve SL2 circuit | Not circuit malfunction |
| Shift solenoid valve SL3 circuit | Not circuit malfunction |
| Shift solenoid valve S4 circuit | Not circuit malfunction |
| Shift solenoid valve SR circuit | Not circuit malfunction |
| Shift solenoid valve DSL circuit | Not circuit malfunction |

## OFF malfunction

| | |
|---|---|
| ECM lock-up command | ON |
| Duration time from lock-up on command | 3 sec. or more |
| ECM selected gear | 3rd, 4th or 5th |
| Vehicle speed | 25 km/h (15.5 mph) or more |

## ON malfunction

| | |
|---|---|
| ECM lock-up command | OFF |
| ECM selected gear | 3rd, 4th or 5th |
| Throttle valve opening angle | 10% or more |
| Vehicle speed | 25 to 60 km/h (15.5 to 37.3 mph) |

# TYPICAL MALFUNCTION THRESHOLDS

## Either of the following conditions is met: OFF malfunction or ON malfunction

## OFF malfunction

| | |
|---|---|
| Engine speed - Input (turbine) speed | 100 rpm or more |

## ON malfunction

| | |
|---|---|
| Diffierence between engine speed and input (turbine) speed | Less than 35 rpm |

## INSPECTION PROCEDURE

HINT:

Performing the ACTIVE TEST using the hand-held tester allows the relay, VSV, actuator and so on to operate without parts removal. Performing the ACTIVE TEST as the first step of troubleshooting is one method to shorten labor time.

It is possible to display the DATA LIST during the ACTIVE TEST.

(a) Warm up the engine.
(b) Turn the ignition switch off.
(c) Connect the hand-held tester to the DLC3.
(d) Turn the ignition switch to the ON position.
(e) Push the ”ON” button of the hand-held tester.
(f) When you use hand-held tester:
Select the item ”DIAGNOSIS/ENHANCED OBD II/ACTIVE TEST”.
(g) According to the display on tester, perform the ”ACTIVE TEST”.

| Item | Test Details | Diagnostic Note |
|---|---|---|
| LOCK UP | [Test Details]<br>Control the shift solenoid DSL to set the automatic transaxle to the lock-up condition.<br>[Vehicle Condition]<br>Vehicle Speed: 60 km/h (37 mph) or more | Possible to check the DSL operation. |

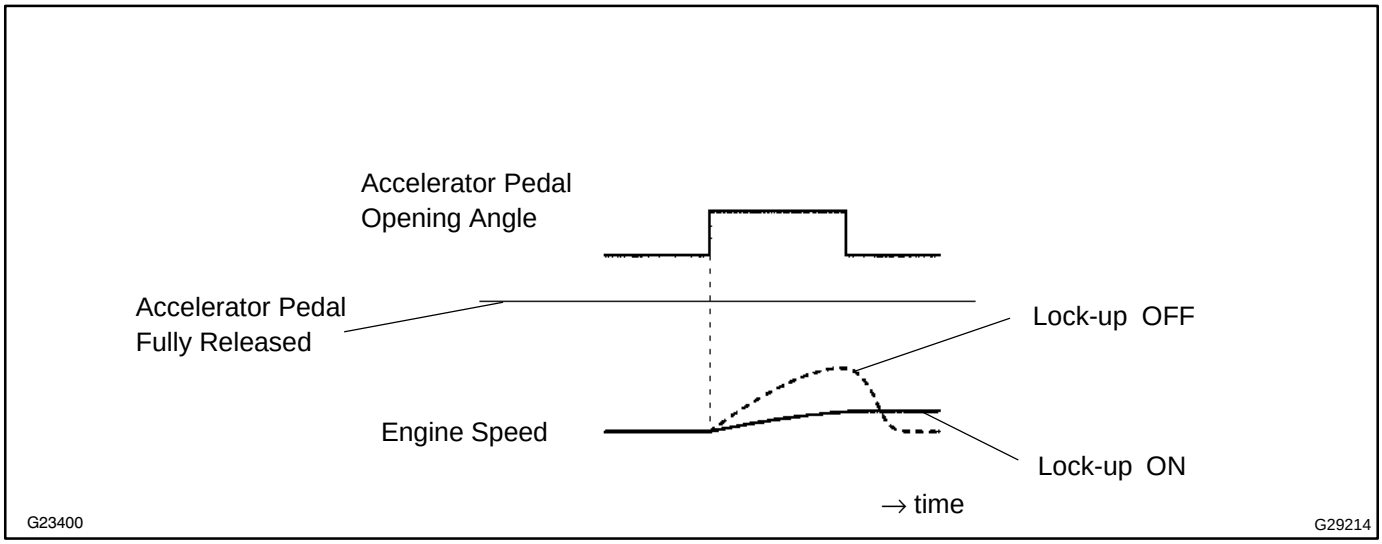
HINT:

- This test can be conducted when the vehicle speed is 60 km/h (37 mph) or more.
- This test can be conducted with the 5th gear.

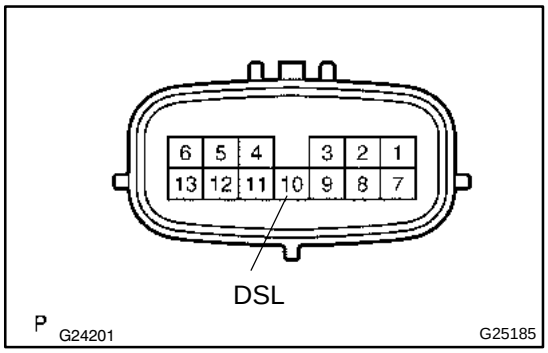
(h) Lightly depress the accelerator pedal and check that the engine speed does not change abruptly.

HINT:

- When changing the accelerator pedal opening angle while driving, if the engine speed does not change, lock-up is on.
- Slowly release, but not fully, the accelerator pedal in order to decelerate. (Fully releasing the pedal will close the throttle valve and lock-up may be turned off.)



## 1 INSPECT TRANSMISSION WIRE(DSL)

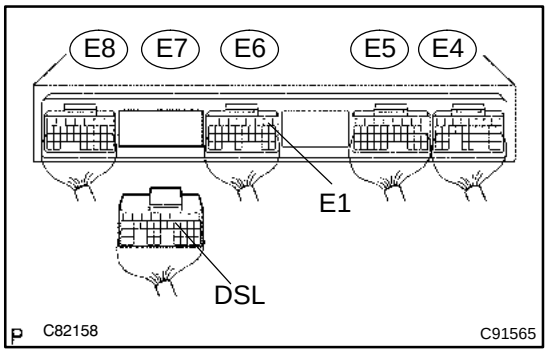



(a) Disconnect the transmission wire connector from the transaxle.
(b) Measure resistance between the terminal DSL and body ground.
**OK:**
**Resistance: 11 to 13 Ω at 20 °C (68 °F)**

**NG** → **Go to step 3**

**OK**

## 2 CHECK HARNESS AND CONNECTOR(TRANSMISSION WIRE - ECM)

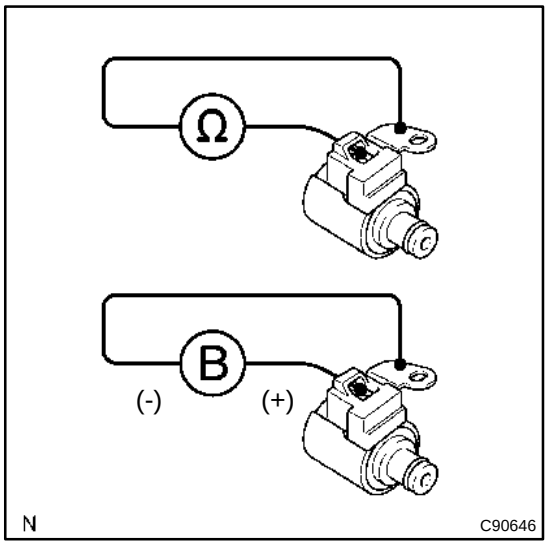



(a) Connect the transmission wire connector.
(b) Disconnect the ECM connector.
(c) Measure the resistance between terminals DSL and E1.
**OK:**
**Resistance: 11 to 13 Ω at 20 °C (68 °F)**

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR(See page 01-37 )**

**OK**

## 3 INSPECT SHIFT SOLENOID VALVE DSL




(a) Remove the shift solenoid valve DSL.
(b) Measure the resistance between the terminal DSL of shift solenoid valve and the solenoid body.
**OK:**
**Resistance: 11 to 13 Ω at 20 °C (68 °F)**
(c) Connect positive (+) lead to the terminal of solenoid connector, negative (-) lead to the solenoid body.
**OK:**
**The solenoid valve makes an operating noise.**

**NG** → **REPLACE SHIFT SOLENOID VALVE DSL**

**OK**

| | |
|---|---|
| 4 | CHECK TRANSMISSION WIRE(See page 01-37 ) |

NG → REPAIR OR REPLACE TRANSMISSION WIRE (See page 40-22 )

OK

| | |
|---|---|
| 5 | INSPECT TRANSMISSION VALVE BODY ASSY(See chapter 2 in the problem symptoms table)(See page 05-561 ) |

NG → REPAIR OR REPLACE TRANSMISSION VALVE BODY ASSY(See page 40-25 )

OK

| | |
|---|---|
| 6 | INSPECT TORQUE CONVERTER CLUTCH ASSY(See page 40-18 ) |

NG → REPLACE TORQUE CONVERTER CLUTCH ASSY

OK

REPAIR AUTOMATIC TRANSAXLE ASSY(See page 40-8 )

# DTC P1570/73 LASER RADAR SENSOR MALFUNCTION

## CIRCUIT DESCRIPTION

The laser radar sensor emits laser beams towards the front object, and it measures a distance and direction of the object by receiving the beam reflections. Based on the reflections, the sensor calculates the relative speed. These data are transmitted to the distance control ECU.

| DTC No. | Detection Item | Trouble Area |
|---|---|---|
| P1570/73 | • The ECM outputs a malfunction code when it detects the communication error signal from the distance control ECU to the laser radar sensor for 0.15 sec. or more while the dynamic laser cruise control is in operation. | • Laser radar sensor |

HINT:
The laser radar monitors the laser emission and reception by itself. When it cannot monitor, this DTC is detected.
When rain drops or snowflakes strike the windshield, the distance between the front vehicle and your own vehicle cannot be measured correctly.
The dynamic laser cruise control system functions by detecting the reflector of the vehicle directly in front. In the following cases, the system may not be able to detect front vehicle and may not properly maintain the correct vehicle-to-vehicle distance.

- The front vehicle is tall a trailer.
- The back of the front vehicle is extremely dirty.
- The exhaust from the front vehicle or from other lanes is heavy.
- The front vehicle has no reflector.
- The laser radar sensor is facing bright light (sunlight).

## INSPECTION PROCEDURE

| | |
|---|---|
| 1 | **REPLACE LASER RADAR SENSOR (See page 82-2 )** |

| DTC | P1572/75 | IMPROPER AIMING OF LASER RADAR SENSOR BEAM AXIS |
|---|---|---|

## CIRCUIT DESCRIPTION

This DTC is output when the scanning angle of the laser radar sensor is incorrect.
This DTC is output when the laser radar sensor optical axis is incorrect position or bad weather (rain, fog, and so on) is detected.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| P1572/75 | The ECM outputs a malfunction code when the ECU detects that the laser radar sensor optical axis is incorrect position (0.15 sec. or more) while dynamic laser cruise control is in operation. | • Laser radar sensor |

HINT:
If the optical axis is deflected ± 2° or more in lateral direction (not in vertical erection), this DTC is detected.

## INSPECTION PROCEDURE

| | |
|---|---|
| 1 | **ADJUST LASER RADAR SENSOR AXIS (See page 82-3 )** |

# DTC P1575/66 WARNING BUZZER MALFUNCTION

## CIRCUIT DESCRIPTION

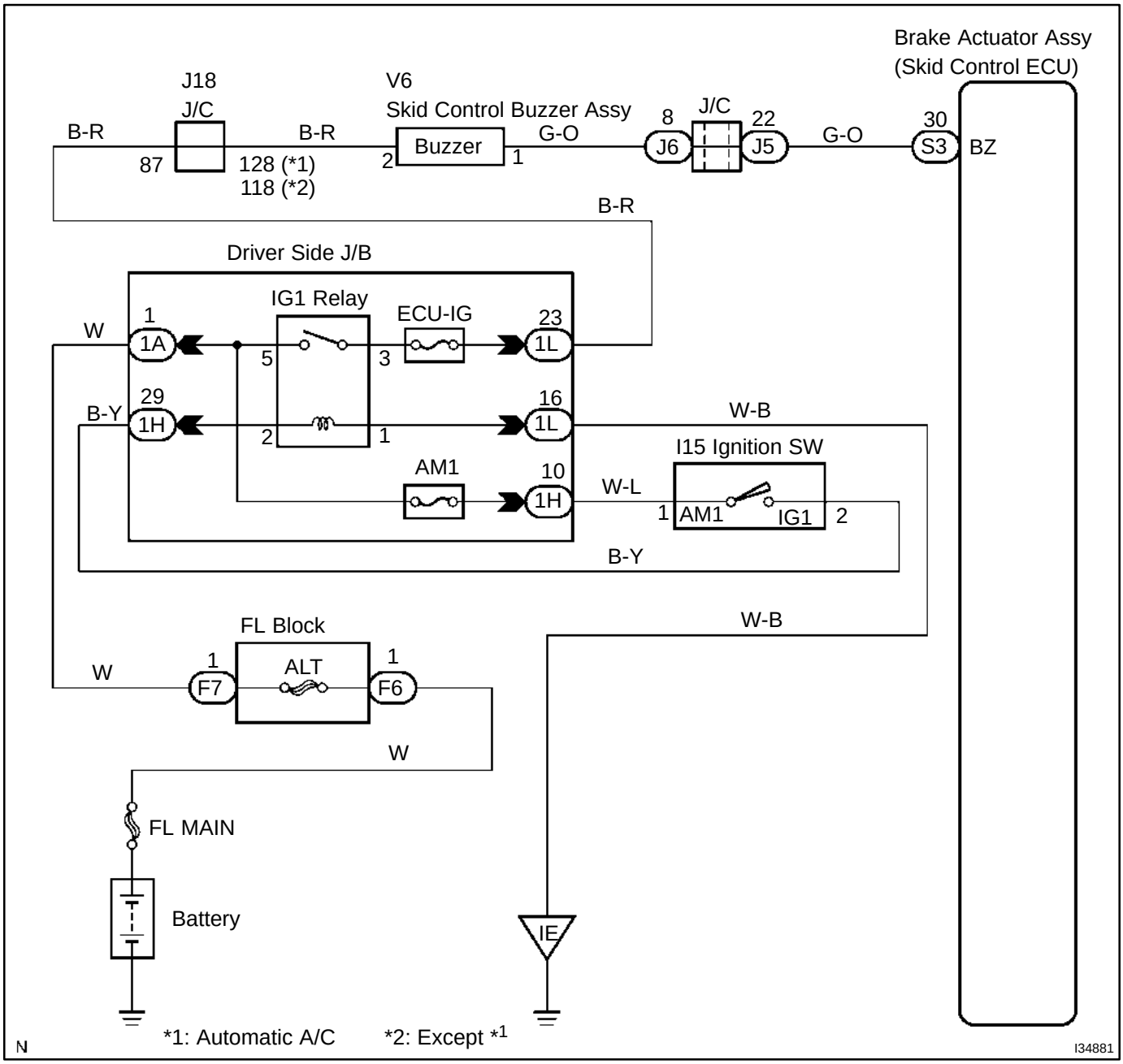
The skid control ECU receives the alarm demand signal from the ECM and drives the skid control buzzer. It warns that the vehicle-to-vehicle distance between the vehicle in front and your own vehicle is shortening.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| P1575/66 | The malfunction code is output when the ECM receives the buzzer abnormal signal for 0.2 sec. or more while the dynamic laser cruise control is in operation. | • VSC system (Buzzer active test)<br>• Skid control buzzer assy<br>• Skid control buzzer circuit<br>• Skid control ECU (Brake actuator assy) |

HINT:

If the front vehicle in the same lane significantly decrease the vehicle speed slows down or another vehicle cuts in front of your own vehicle, adequate deceleration cannot be applied and the vehicle-to-vehicle distance will shorten. At this time, the system sounds the buzzer and the master warning light blinks to warn the driver.

# WIRING DIAGRAM



## INSPECTION PROCEDURE

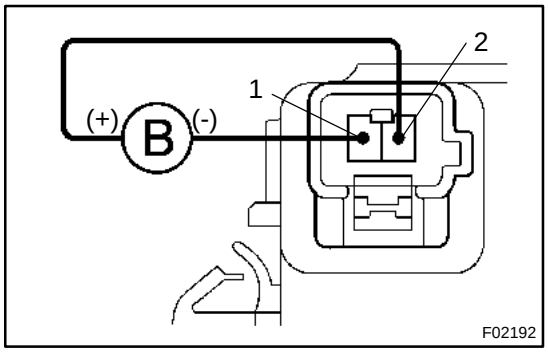
| 1 | PERFORM ACTIVE TEST BY SKID CONTROL BUZZER ASSY |
|---|---|

(a) Check that skid control buzzer sounds ”ON” and ”OFF” with the hand-held tester.

OK → **Go to step 3**

NG

| 2 | INSPECT SKID CONTROL BUZZER ASSY |
|---|---|




(a) Disconnect the skid control buzzer assy connector.
(b) Apply battery positive voltage to the terminals 1 and 2 of skid control buzzer assy connector, check that the buzzer sounds.

NG → **REPLACE SKID CONTROL BUZZER ASSY**

OK

| 3 | CHECK WIRE HARNESS AND CONNECTOR(SKID CONTROL BUZZER ASSY - SKID CONTROL ECU) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the skid control buzzer assy and skid control ECU (See page 01-37 ).

NG → **REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR**

OK

**REPLACE BRAKE ACTUATOR ASSY (See page 32-46 )**

HINT:
When a malfunction is found in the skid control ECU, replace the brake actuator assy.

| DTC | P1578/69 | MALFUNCTION IN BRAKE SYSTEM |
|---|---|---|

## CIRCUIT DESCRIPTION

When the skid control ECU receives the steering angle signal from the steering angle and the acceleration/deceleration signal from the yawrate sensor it transmits them to the ECM.

| DTC No. | DTC Detection Condition | Trouble Area |
|---|---|---|
| P1578/69 | The malfunction code is output when the ECM receives the brake system error signal for 0.2 sec. or more while the dynamic laser cruise control is in operation. | • VSC system |

HINT:

This DTC is output when the VSC system has problem. Check the VSC system when this DTC is output.

## INSPECTION PROCEDURE

| | |
|---|---|
| 1 | **CHECK BRAKE SYSTEM (See page 05-431 )** |

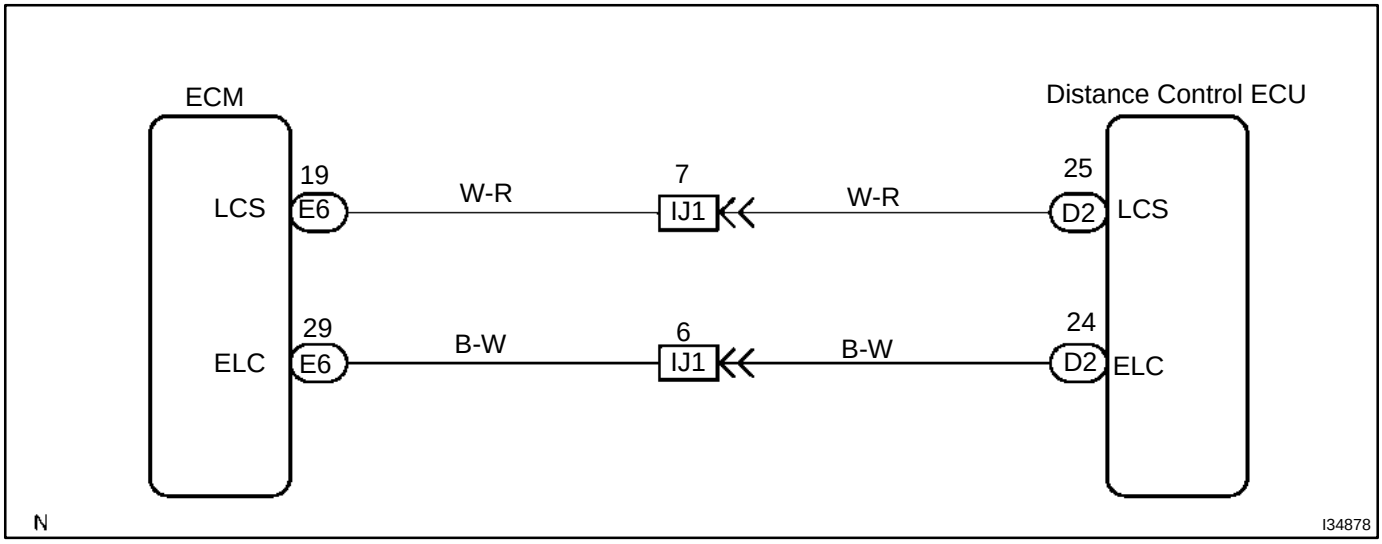
| DTC | P1615/61 | COMMUNICATION ERROR FROM DISTANCE CONTROL ECU TO ECM |
|---|---|---|

## CIRCUIT DESCRIPTION

The distance control ECU and ECM always communicate the data for vehicle general control and diagnosis function each other through communication line.
The distance control ECU determines the distance, relative speed, and target deceleration speed based on the signal from the laser radar sensor, and it transmits a control demand signal to the skid control ECU.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| P1615/61 | The malfunction code is output when the communication between the distance control ECU and ECM is invalid for 0.5 sec. or more, while the laser radar sensor is in operation, or the communication from the distance control ECU becomes logically distant for 0.5 sec. or more. | • Communication circuit<br>• Distance control ECU<br>• ECM |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

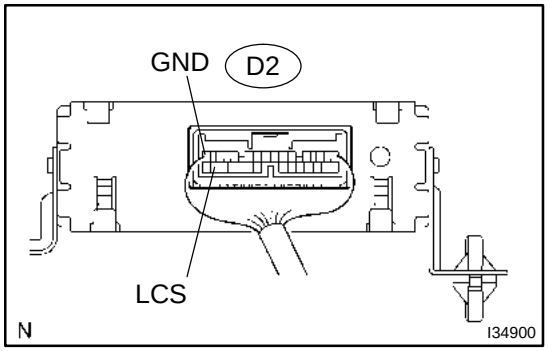
| 1 | CHECK WIRE HARNESS AND CONNECTOR(DISTANCE CONTROL ECU - ECM) |
|---|---|

(a) Check for an open or short circuit in the harness and the connector between the distance control ECU and ECM (See page 01-37 ).

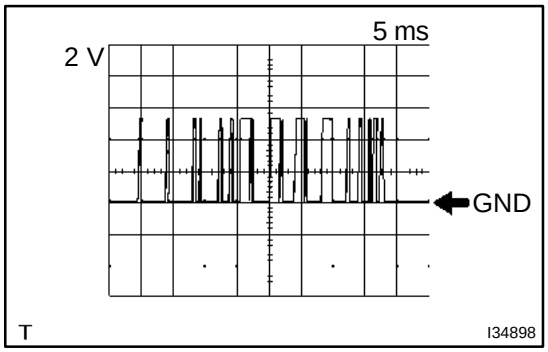
NG → **REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR**

OK

| 2 | INSPECT DISTANCE CONTROL ECU ASSY |
|---|---|




(a) Remove the distance control ECU with connector.
(b) Turn the ignition switch ON.




(c) Check the signal waveform between terminal LCS (D2-25) and GND (D2-12) of the distance control ECU.
**Standard:**
**The correct signal waveform appears, as shown in the illustration.**

HINT:

- Gauge set: 2 V/DIV, 5 ms/DIV
- Condition: Ignition switch ON

NG → **REPLACE DISTANCE CONTROL ECU ASSY (See page 82-1 )**

OK

**REPLACE ECM (See page 10-17 )**

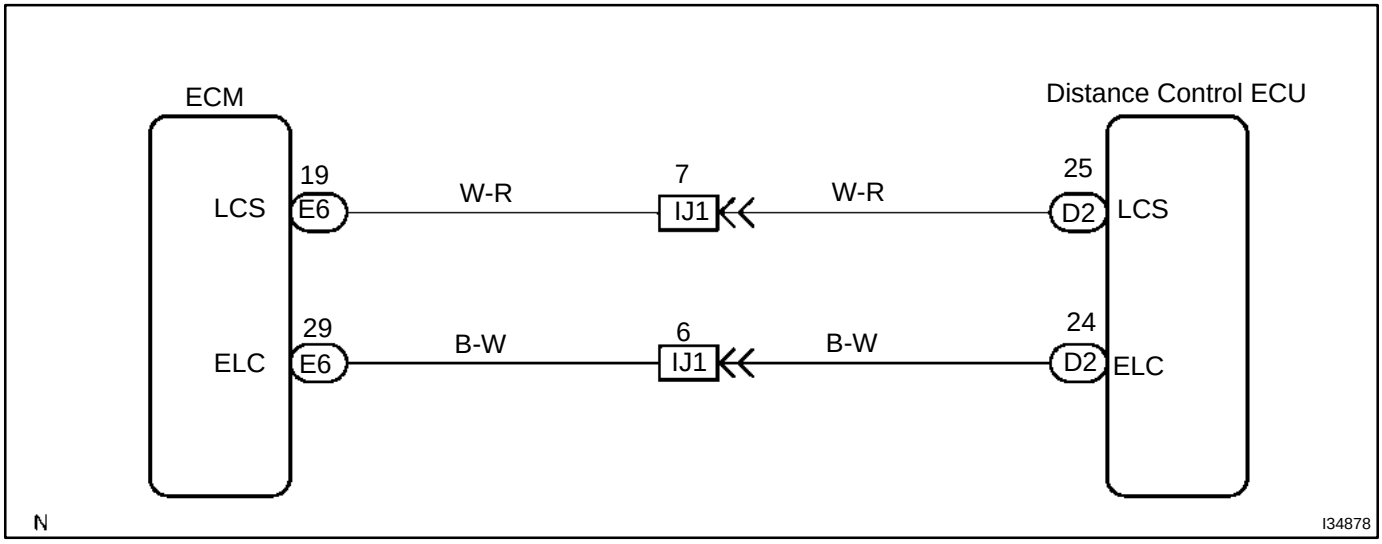
| DTC | P1616/62 | COMMUNICATION ERROR FROM ECM TO DISTANCE CONTROL ECU |
|---|---|---|

## CIRCUIT DESCRIPTION

The ECM and Distance control ECU always communicate the data for vehicle general control and diagnosis function each other through communication line.
The ECM transmits the current speed/stored speed and steering angle signal from the skid control ECU to the distance control ECU.
This sit is detected when the distance control ECU responds to the ECM to instruct that the information sent from the distance control ECU to ECM is abnormal.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| P1616/62 | The malfunction code is output when the ECM detects a communication error signal between the ECM and distance control ECU for 0.15 sec. or more. | • Communication circuit<br>• ECM<br>• Distance control ECU |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

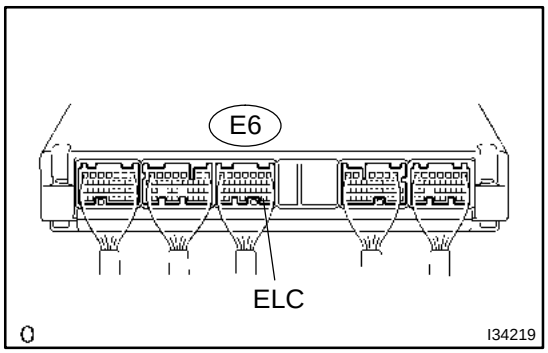
| 1 | CHECK WIRE HARNESS AND CONNECTOR(ECM - DISTANCE CONTROL ECU) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the ECM and distance control ECU (See page 01-37 ).

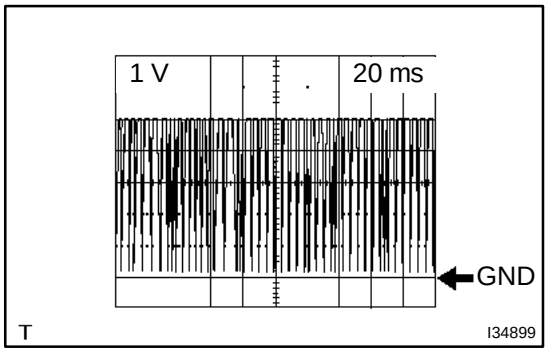
NG → **REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR**

OK

| 2 | INSPECT ECM |
|---|---|




(a) Remove the ECM with connector.
(b) Turn the ignition switch ON.




(c) Check the signal waveform between terminal ELC (E6-29) of ECM and body ground.
**Standard:**
**The connect signal waveform appears, as shown in the illustration.**

HINT:
- Gauge set: 1 V/DIV, 20 ms/DIV
- Condition: Ignition switch ON

NG → **REPLACE ECM (See page 10-17 )**

OK

**REPLACE DISTANCE CONTROL ECU ASSY (See page 82-1 )**

# POWER BACK DOOR WARNING BUZZER DOES NOT SOUND

## CIRCUIT DESCRIPTION

- The power back door system uses a warning buzzer built into the back door, which has 3 ways of sounding that are used differently according to the situations:
  (1) When all the following conditions are met, the warning buzzer sounds at a cycle of 0.3 seconds:
    - The ignition switch is turned ON.
    - The shift lever is moved into any position except P position.
    - The back door is open or the power back door is activated to open.

  The warning buzzer continues to sound until the back door is fully closed or the shift lever is moved into the P position.
  (2) While the power back door is operating, the warning buzzer sounds at a cycle of 0.7 seconds. The warning buzzer turns off when the power back door stops. This way of sounding is set to OFF at factory (default setting) and can be customized when required.
  (3) When the power back door is activated to open, the warning buzzer that notifies the start of opening of the power back door sounds at 2 cycles of 0.5 seconds. At the start of opening of the power back door, a wireless buzzer (built into the engine room) also sounds.
- The power back door ECU directly sends a signal to the warning buzzer.

HINT:

- Only item 2 can be customized (See page 05-1756 ).
- If all items occur at the same time, item 1 is prior to the others.

## WIRING DIAGRAM

See page 05-1765 .

## INSPECTION PROCEDURE

| 1 | PERFORM ACTIVE TEST USING HAND-HELD TESTER |
|---|---|

(a) Select the ACTIVE TEST and then check that the power back door warning buzzer operates.

HINT:

During the ACTIVE TEST, the hand-held tester sends a signal to the power back door ECU to drive the warning buzzer. If the warning buzzer operates, the warning buzzer itself and the wire harness between the warning buzzer and power back ECU are considered to be functioning normally.

**Standard (Power back door ECU):**

| Item | Test Details | Diagnostic Note |
|---|---|---|
| PBD BUZZER | Power back door buzzer is sound<br>OFF/ON | - |

**OK** → **REPLACE POWER BACK DOOR ECU**

**NG**

| 2 | **CHECK WIRE HARNESS (POWER BACK DOOR WARNING BUZZER WIRE HARNESS SIDE)** |
|---|---|

**Wire Harness Side**

P17

Power Slide Door Warning Buzzer




T

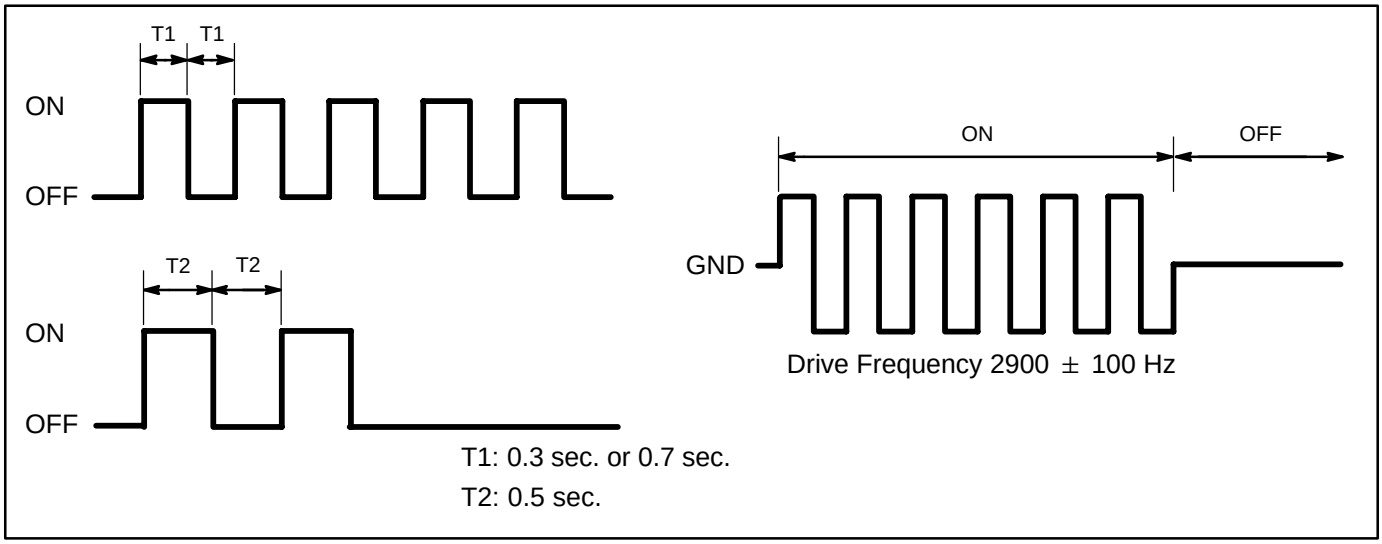
B67759

(a) Remove the buzzer connector.

(b) Inspect the buzzer connector side voltage.

**NOTICE:**

**Use an oscilloscope to check the output voltages of the buzzer.**



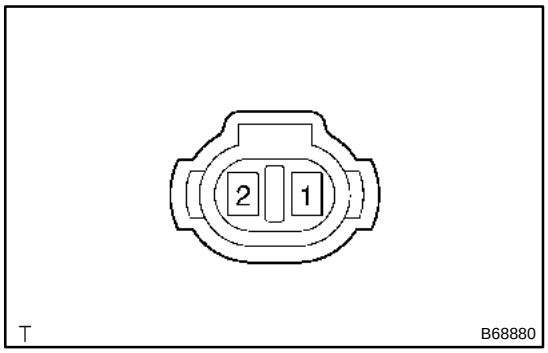

**Standard:**

| Terminal No. | Measurement Condition | Specified Condition |
|---|---|---|
| P17-1 - Body ground | Condition that causes buzzer to sound are met (See CIRCUIT DESCRIPTION) | • 10 to 14 V (a cycle of 0.3 sec. or 0.7 sec.)<br>• 10 to 14 V (2 cycles of approx. 0.5 sec.) |

**NG** → **Go to step 4**

**OK**

## 3 INSPECT POWER BACK DOOR WARNING BUZZER




(a) Check the resistance of the buzzer.
**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| 1 - 2 | Approx.1 kΩ |

**NOTICE:**

- **The circuit that causes the buzzer to sound is built into the back door ECU, not around the buzzer.**
- **Directly applying battery voltage to the buzzer does not cause the buzzer to sound.**

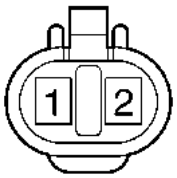
**NG** → **REPLACE POWER BACK DOOR WARNING BUZZER**

**OK**

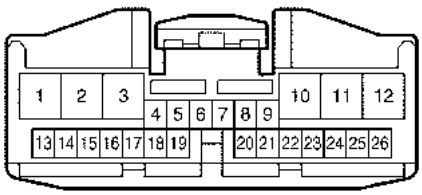
## 4 CHECK WIRE HARNESS (POWER BACK DOOR WARNING BUZZER - POWER BACK DOOR ECU)

**Wire Harness Side**

P17
Power Back Door Warning Buzzer




P13
Power Back Door ECU




(a) Disconnect the P17 buzzer and P13 ECU connectors.
(b) Check the resistance between the wire harness side connectors.
**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P17-1 - P13-2 (BZR+) | Below 1 Ω |
| P17-2 - P13-1 (BZR-) | |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE POWER BACK DOOR ECU**

# POWER BACK DOOR DOES NOT OPERATE

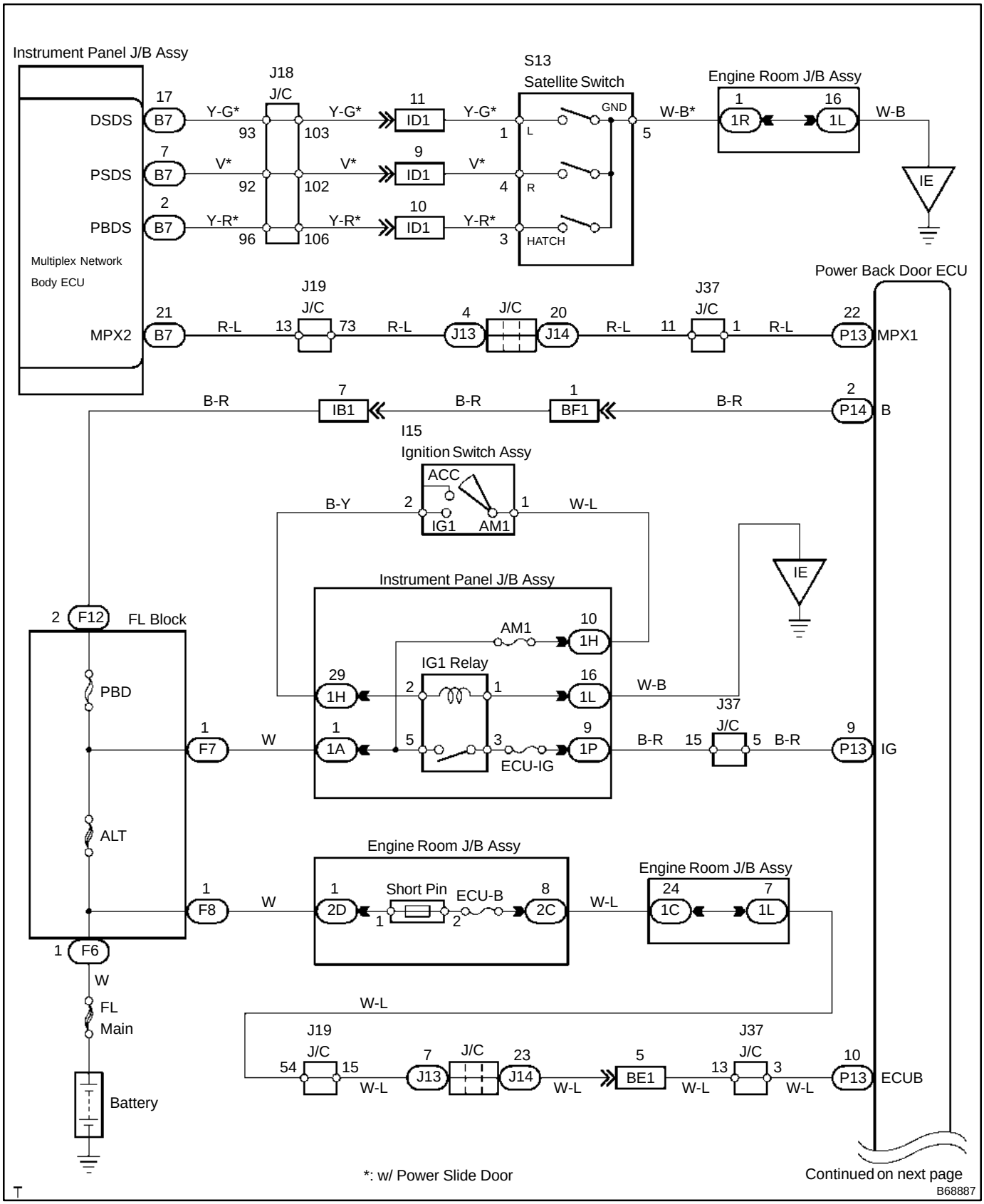
## CIRCUIT DESCRIPTION

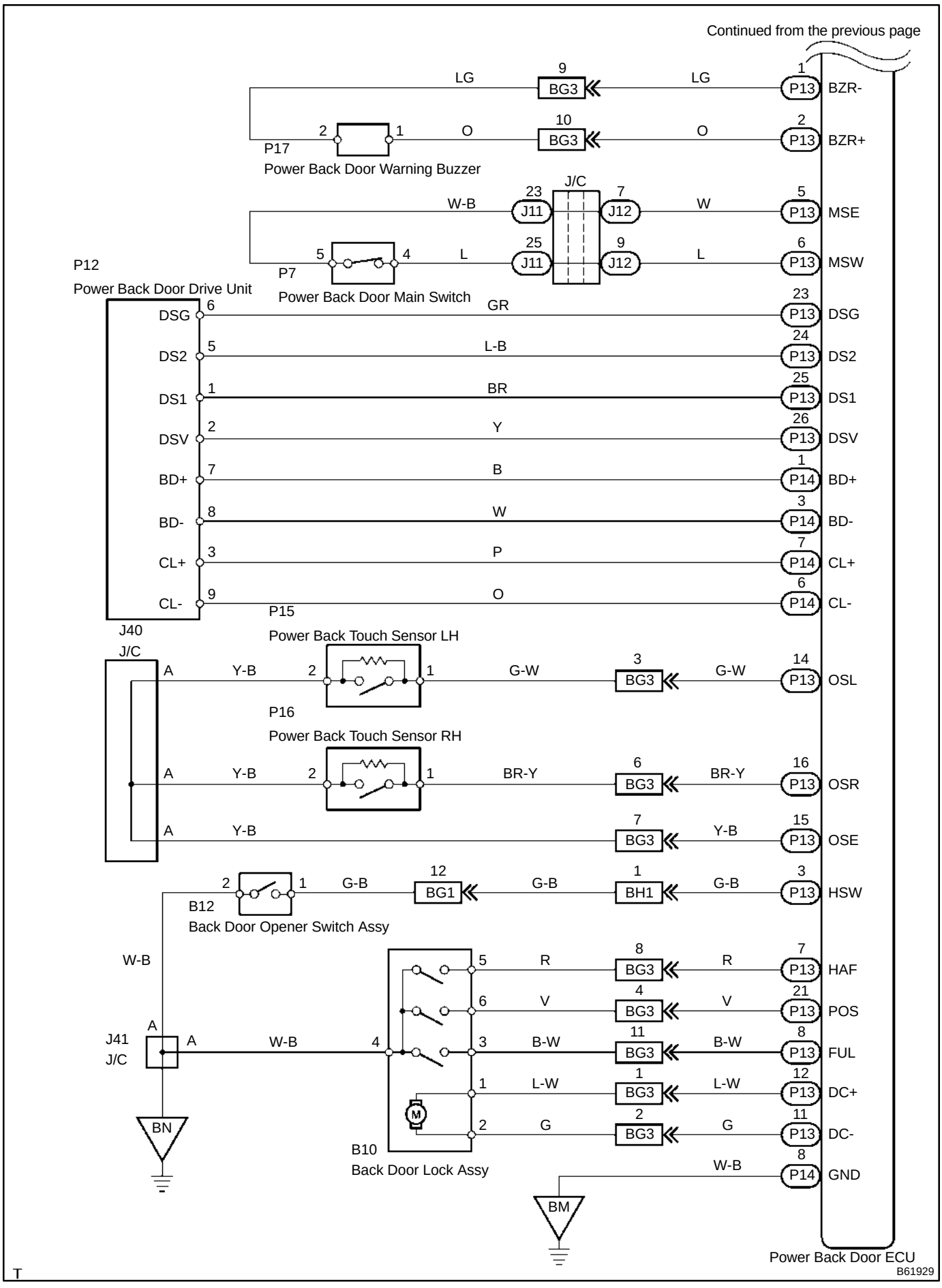
- The power back door operates only when the power back door main switch is ON. The power back door ECU controls the power back door by activating the back door motor (built into the power back door drive unit) to open/close the back door.
- A request signal from the satellite switch for power back door is input to the body ECU, which then sends this signal using a BEAN line to the power back door ECU so that the power back door is opened/closed.
  - When a request signal is output from the satellite switch while the power back door is operating, the power back door reverses operation.
- If the power back door is manually moved in a specified distance when the back door is in the fully closed/opened position, the power back door will be activated and continue to operate to the fully opened/closed position.
- A request signal from the outside handle switch is directly input to the power back door ECU.
  - Pulling the outside handle switch when the back door is in the fully closed position releases the latch of the closer and makes the back door not-fully-closed, which does not activate the power back door to open. (The power back door operation can be switched by customization.)
  - When a request signal is output from the outside handle switch while the power back door is operating, the power back door reverses operation.
  - When a request signal is output from the outside handle switch when the back door is in the fully open position, the power back door is activated to fully close. (Power back door operation can be changed by customization.)
- When the touch sensor has an open/short-circuit, closing of the power back door is disabled.

**NOTICE:**

**When disconnecting the negative (-) terminal cable of the battery or drive unit, initialize the power back door system (See page 05-1752 ).**

# WIRING DIAGRAM




Continued from the previous page
LG
9
BG3
LG
1
P13
BZR-
O
10
BG3
O
2
P13
BZR+
2
1
P17
Power Back Door Warning Buzzer
J/C
W-B
23
J11
7
J12
W
5
P13
MSE
5
4
L
25
J11
9
J12
L
6
P13
MSW
P12
Power Back Door Drive Unit
P7
Power Back Door Main Switch
DSG
6
GR
23
P13
DSG
DS2
5
L-B
24
P13
DS2
DS1
1
BR
25
P13
DS1
DSV
2
Y
26
P13
DSV
BD+
7
B
1
P14
BD+
BD-
8
W
3
P14
BD-
CL+
3
P
7
P14
CL+
CL-
9
O
6
P14
CL-
P15
Power Back Touch Sensor LH
J40
J/C
A
Y-B
2
1
G-W
3
BG3
G-W
14
P13
OSL
P16
Power Back Touch Sensor RH
A
Y-B
2
1
BR-Y
6
BG3
BR-Y
16
P13
OSR
A
Y-B
7
BG3
Y-B
15
P13
OSE
2
1
G-B
12
BG1
G-B
1
BH1
G-B
3
P13
HSW
B12
Back Door Opener Switch Assy
W-B
5
R
8
BG3
R
7
P13
HAF
6
V
4
BG3
V
21
P13
POS
A
J41
J/C
A
W-B
4
3
B-W
11
BG3
B-W
8
P13
FUL
1
L-W
1
BG3
L-W
12
P13
DC+
BN
M
2
G
2
BG3
G
11
P13
DC-
B10
Back Door Lock Assy
W-B
8
P14
GND
BM
Power Back Door ECU
T
B61929

# INSPECTION PROCEDURE

| 1 | BASIC INSPECTION |
|---|---|

(a) Conditions necessary for the power back door to open:
  (1) Power back door main switch is in the ON position (switch free: orange paint on the top of the switch appears).
  (2) Back door is between the fully closed position and approximately around the half-open position.
  (3) Shift lever is in the P position when the ignition switch is ON (When the ignition switch is OFF, the power back door operates in any position of the shift lever.)

(b) Conditions necessary for the power back door to close:
  (1) Power back door main switch is in the ON position (switch free: orange paint on the top of the switch appears).
  (2) Back door is between approximately around the half-open position and the fully open position.
  (3) Back door touch sensor is not damaged and deformed.

**OK**

| 2 | INSPECT FUSE (ECU-B, ECU IG, AM1) |
|---|---|

(a) Inspect the ECU-B, ECU IG and AM1 fuses (See page 68-1 ).

**NG** → **REPLACE FUSE**

**OK**

| 3 | CHECK DTC |
|---|---|

(a) Check for DTC B2222. DTC B2222 indicates a pulse sensor malfunction.
  (1) Without code outputs, proceed to A.
  (2) With code outputs, proceed to B.

**B** → **GO TO DTC B2222 (See page 05-1762 )**

**A**

| 4 | INSPECT COMMUNICATION FUNCTION OF LARGE-SCALE MULTIPLEX COMMUNICATION SYSTEM (BEAN) |
|---|---|

(a) Use the hand-held tester to check for normal function of the multiplex communication system.
  (1) (ECU unconnected, communication line malfunctioning) Without DTC B1214, B1215 or B1287 outputs, proceed to A.
  (2) (ECU unconnected, communication line malfunctioning) With DTC B1214, B1215 or B1287 outputs, proceed to B.

**B** → **GO TO MULTIPLEX COMMUNICATION SYSTEM (See page 05-1876 )**

**A**

## 5 READ VALUE OF HAND-HELD TESTER

(a) Using the hand-held tester, check the DATA LIST for proper functioning of the power back door main switch.

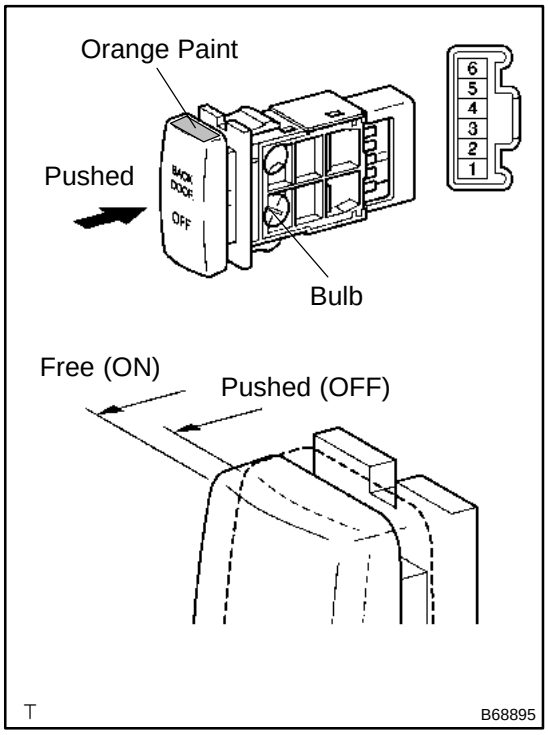
**Standard (Power back door ECU):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| PBD MAIN SW | Power back door main switch signal /ON or OFF | ON: Orange paint on top of switch appears<br>OFF: Orange paint on top of switch does not appear | - |

**OK** → **Go to step 8**

**NG**

## 6 INSPECT POWER BACK DOOR MAIN SWITCH




(a) Inspect the resistance of the main switch.

**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 4 - 5 | Free (ON) | Below 1 Ω |
| | Pushed (OFF) | 10 kΩ or higher |

HINT:

If the switch does not illuminate, it will not affect the ON/OFF function of the switch. For the illumination check, refer to page 75-102 .

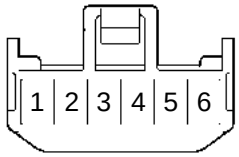
**NG** → **REPLACE POWER BACK DOOR MAIN SWITCH**

**OK**

| 7 | CHECK WIRE HARNESS (POWER BACK DOOR MAIN SWITCH - POWER BACK DOOR ECU) |
|---|---|

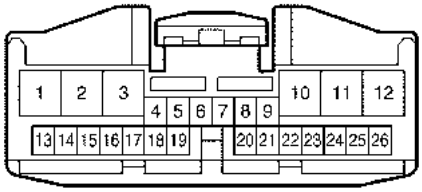
**Wire Harness Side**

P7
Power Back Door Main Switch




Y

P13
Power Back Door ECU




B68444

(a) Disconnect the P7 main switch and P13 ECU connectors.
(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P7-4 - P13-6 (MSW) | Below 1 Ω |
| P7-5 - P13-5 (MSE) | |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE POWER BACK DOOR ECU**

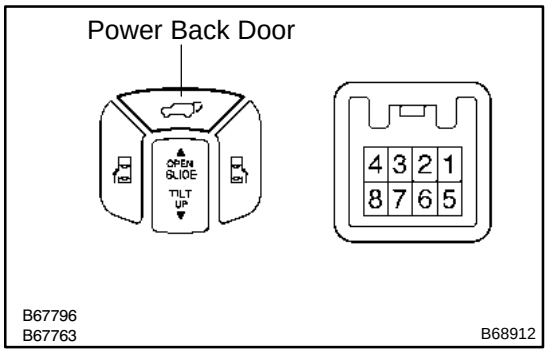
| 8 | CHECK SWITCH OPERATION |
|---|---|

(a) If the power back door does not respond to using the satellite switch, proceed to A.
(b) If the power back door does not respond to using the back door opener switch outside, proceed to B.

**B** → **Go to step 11**

**A**

## 9 INSPECT SATELLITE SWITCH




(a) Inspect the resistance of the back door switch.

**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 3 - 5 | Free | 10 kΩ or higher |
| | Pushed | Below 1 Ω |

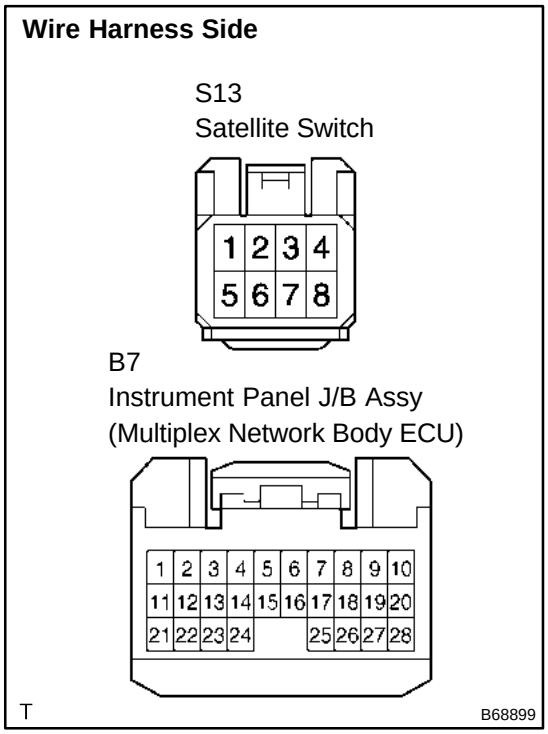
HINT:

If the switch does not illuminate, it will not affect the ON/OFF function of the switch. For the illumination check, refer to page 75-102 .

**NG** → **REPLACE SATELLITE SWITCH**

**OK**

## 10 CHECK WIRE HARNESS (SATELLITE SWITCH - INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU) AND BODY GROUND)




(a) Disconnect the S13 switch and the B7 ECU connectors.

(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| S13-3 (HATCH) - B7-2 (PBDS) | Below 1 Ω |

(c) Check the resistance between the S13 switch connector and body ground.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| S13-5 (GND) - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**Go to step 14**

| 11 | READ VALUE OF HAND-HELD TESTER |
|---|---|

(a) Using the hand-held tester, check the DATA LIST for proper functioning of the back door opener switch (Outside handle switch).

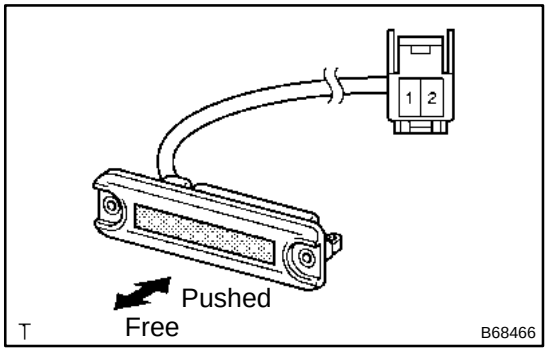
**Standard (Power back door ECU):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| DOOR HANDLE SW | Back door opener switch signal/ON or OFF | ON: Back door opener switch is pushed<br>OFF: Back door opener switch is not pushed | - |

**OK** → **Go to step 14**

**NG**

| 12 | INSPECT BACK DOOR OPENER SWITCH ASSY (OUTSIDE HANDLE SWITCH) |
|---|---|




(a) Inspect the resistance of the switch.

**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Free | 10 kΩ or higher |
| | Pushed | Below 1 Ω |

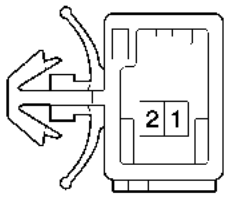
**NG** → **REPLACE BACK DOOR OPENER SWITCH ASSY**

**OK**

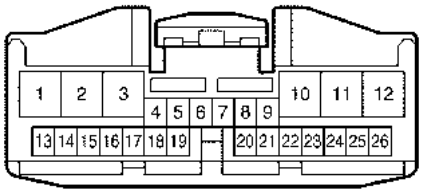
## 13 CHECK WIRE HARNESS (BACK DOOR OPENER SWITCH ASSY - POWER BACK DOOR ECU AND GROUND)

**Wire Harness Side**

B12
Back Door Opener Switch Assy




P13
Power Back Door ECU




B68456

(a) Disconnect the B12 switch and P13 ECU connectors.
(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| B12-1 - P13-3 (HSW) | Below 1 Ω |

(c) Check the resistance between the B12 switch connector and body ground.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| B12-2 - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE POWER BACK DOOR ECU**

## 14 READ VALUE OF HAND-HELD TESTER

(a) Using the hand-held tester, check the DATA LIST for proper functioning of the power back door touch sensor LH.

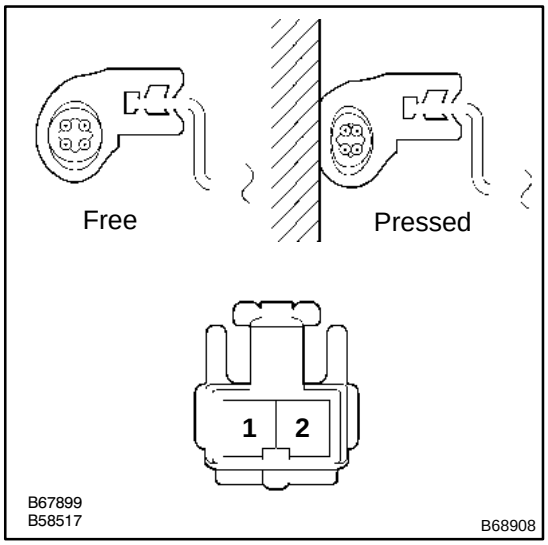
**Standard (Power back door ECU):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| PBD TOUCH SEN L | Power back door touch sensor LH signal /OFF, ON or OPEN | OFF: Power back door touch sensor LH is free<br>ON: Power back door touch sensor LH is pressed<br>OPEN: Power back door touch sensor LH is opened | - |

**OK** → **Go to step 17**

**NG**

## 15 INSPECT POWER SLIDE DOOR CONTROL SWITCH LH




(a) Check the resistance of the sensor.
**Standard:**

| Terminal No. | Condition | Specified condition |
|---|---|---|
| 1 - 2 | Free | Approx. 1 kΩ |
| | Pressed | Less than 100 Ω |

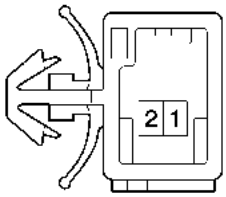
**NG** → **REPLACE POWER BACK DOOR TOUCH SENSOR LH**

**OK**

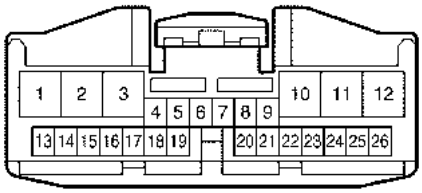
## 16 CHECK WIRE HARNESS (POWER BACK DOOR TOUCH SENSOR LH - POWER BACK DOOR ECU)

**Wire Harness Side**

P15
Power Back Door Touch Sensor LH




P13
Power Back Door ECU




(a) Disconnect the P15 sensor and P13 ECU connectors.
(b) Check the resistance between the wire harness side connectors.
**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P15-1 - P13-14 (OSL) | Below 1 Ω |
| P15-2 - P13-15 (OSE) | |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE POWER BACK DOOR ECU**

## 17 READ VALUE OF HAND-HELD TESTER

(a) Using the hand-held tester, check the DATA LIST for proper functioning of the power back door touch sensor RH.

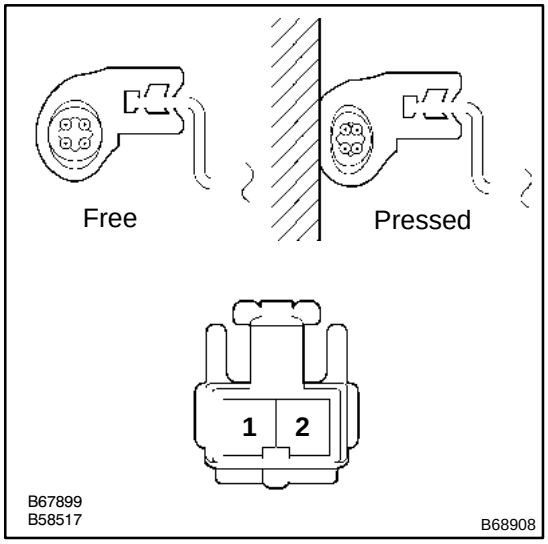
**Standard (Power back door ECU):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| PBD TOUCH SEN R | Power back door touch sensor RH signal /OFF, ON or OPEN | OFF: Power back door touch sensor RH is free<br>ON: Power back door touch sensor RH is pressed<br>OPEN: Power back door touch sensor RH is opened | - |

**OK** → **Go to step 20**

**NG**

## 18 INSPECT POWER SLIDE DOOR WARNING BUZZER RH




(a) Check the resistance of the sensor.

**Standard:**

| Terminal No. | Condition | Specified condition |
|---|---|---|
| 1 - 2 | Free | Approx. 1 kΩ |
| | Pressed | Less than 100 Ω |

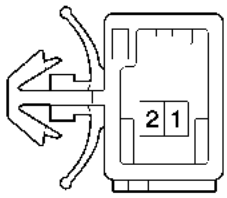
**NG** → **REPLACE POWER BACK DOOR TOUCH SENSOR RH**

**OK**

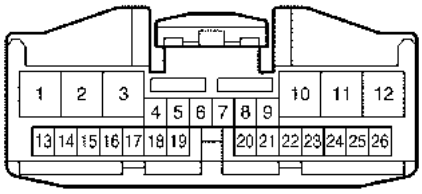
| 19 | CHECK WIRE HARNESS (POWER BACK DOOR TOUCH SENSOR RH - POWER BACK DOOR ECU) |
|---|---|

**Wire Harness Side**

P16
Power Back Door Touch Sensor RH




P13
Power Back Door ECU




B68456

(a) Disconnect the P16 sensor and P13 ECU connectors.
(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P16-1 - P13-16 (OSR) | Below 1 Ω |
| P16-2 - P13-15 (OSE) | |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE POWER BACK DOOR ECU**

| 20 | PERFORM ACTIVE TEST USING HAND-HELD TESTER |
|---|---|

(a) Select the ACTIVE TEST and then check that the power back door drive unit operates.

HINT:

During the ACTIVE TEST, the hand-held tester sends a signal to the power back door ECU to drive the power back door drive unit. If the power back door drive unit operates, the power back door drive unit itself and the wire harness between the power back door drive unit and power back door ECU are considered to be functionary normally.

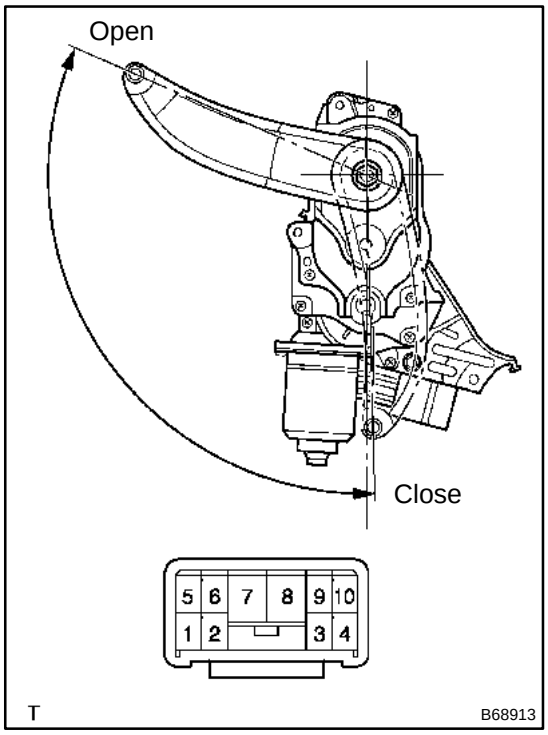
**Standard (Power back door ECU):**

| Item | Test Details | Diagnostic Note |
|---|---|---|
| PBD MOTOR | Power back door motor is operate OFF/FORWARD/REVERSE | Clutch is OFF while power slide door motor is operating |
| PBD CLUTCH | Power back door clutch is operate OFF/ON | Power slide door motor is OFF when clutch is ON |

**OK** → **Go to step 23**

**NG**

## 21 INSPECT POWER BACK DOOR DRIVE UNIT




(a) Remove the unit.

(b) Connect the battery positive (+) lead to terminal 3 and battery negative (-) terminal lead to terminal 9.

(c) Apply battery voltage to the terminals and check the motor operation.

**Standard:**

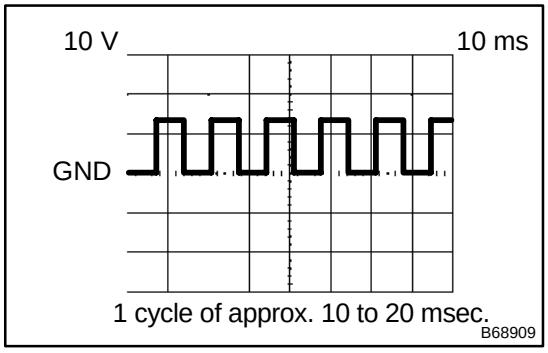
| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 8<br>Battery negative (-) → Terminal 7 | Open |
| Battery positive (+) → Terminal 7<br>Battery negative (-) → Terminal 8 | Close |

(d) Check the resistance of the clutch terminals.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| 3 - 9 | 4.0 Ω |

(e) Reinstall the unit with the connector connected.




(f) Check the pulse of the pulse sensor.

(1) Using an oscilloscope, check the pulse generated when the door is manually opened and closed.

**Standard (Reference):**

| Terminal | 1 - 6, 5 - 6 |
|---|---|
| Tool setting | 10 V/DIV., 10 ms/DIV. |
| Vehicle condition | Door moving |

HINT:

A cycle of the pulse changes between approx. 10 to 20 msec. according to the speeds that the slide door is moving.

**NOTICE:**

**When disconnecting the drive unit, initialize the power back door system (See page 05-1752 ).**

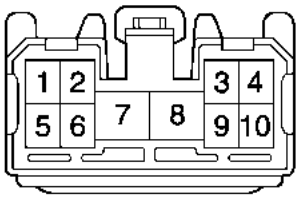
**NG** → **REPLACE POWER BACK DOOR DRIVE UNIT**

**OK**

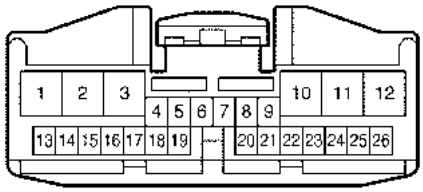
| 22 | CHECK WIRE HARNESS (POWER BACK DOOR DRIVE UNIT - POWER BACK DOOR ECU) |
|---|---|

**Wire Harness Side**

P12
Power Back Door Drive Unit




T P13
Power Back Door ECU




B68455

(a) Disconnect the P12 unit and P13 ECU connectors.
(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P12-6 - P13-23 (DSG) | Below 1 Ω |
| P12-5 - P13-24 (DS2) | |
| P12-1 - P13-25 (DS1) | |
| P12-2 - P13-26 (DSV) | |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE POWER BACK DOOR ECU**

| 23 | READ VALUE OF HAND-HELD TESTER |
|---|---|

(a) Using the hand-held tester, check the DATA LIST for proper functioning of the switches listed below.

**Standard (Power back door ECU):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| HALF LATCH SW | Back door lock half latch switch signal /ON or OFF | ON: Back door is not completely closed<br>OFF: Back door is closed | - |
| FULL LATCH SW | Back door lock full latch switch signal /ON or OFF | ON: Back door is opened<br>OFF: Back door is closed | - |

**OK** → **Go to step 26**

**NG**

| | |
|---|---|
| 24 | INSPECT BACK DOOR LOCK ASSY (See page 05-1745 ) |

NG → REPLACE BACK DOOR LOCK ASSY

OK

| | |
|---|---|
| 25 | CHECK WIRE HARNESS (BACK DOOR LOCK ASSY) - POWER BACK DOOR ECU) (See page 05-1745 ) |

NG → REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

| | |
|---|---|
| 26 | REPLACE POWER BACK DOOR ECU |

(a) Check the power back door for normal OPEN/CLOSE operation.

NG → REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU)

OK

SYSTEM NORMAL

# POWER WINDOW CANNOT BE OPERATED BY WIRELESS OPERATION

## CIRCUIT DESCRIPTION

When the switch on the transmitter is operated during normal operating conditions (See page 70-9 ), the multiplex network body ECU sends a request signal to the master switch and the regulator switches which then drive the applicable power window motors.

## INSPECTION PROCEDURE

| 1 | CHECK WIRELESS DOOR LOCK CONTROL FUNCTIONS |
|---|---|

(a) Check that the wireless door lock functions operate with movement of the transmitter switch.

HINT:

When the wireless door LOCK/UNLOCK operation can be performed, it means that the wireless signal from the transmitter is properly input to the multiplex network body ECU.

NG → **CHECK WIRELESS DOOR LOCK CONTROL FUNCTIONS (See page 05-1804 )**

OK

| 2 | CHECK MANUAL UP/DOWN FUNCTION |
|---|---|

(a) Check that the manual UP/DOWN function using the master switch and each regulator switch can operate all the power windows.

NG → **OTHER PROBLEM (See page 05-1558 )**

OK

| 3 | CHECK REMOTE UP/DOWN FUNCTION |
|---|---|

(a) Check that the remote UP/DOWN function using the master switch can operate the power windows.

NG → **OTHER PROBLEM (See page 05-1562 )**

OK

**REPLACE MULTIPLEX NETWORK BODY ECU**

# POWER SLIDE DOOR LH DOES NOT OPERATE WHEN SWITCH* IS PRESSED

* ”SWITCH” indicates the satellite switch for the power slide door LH and the power slide door control switch LH

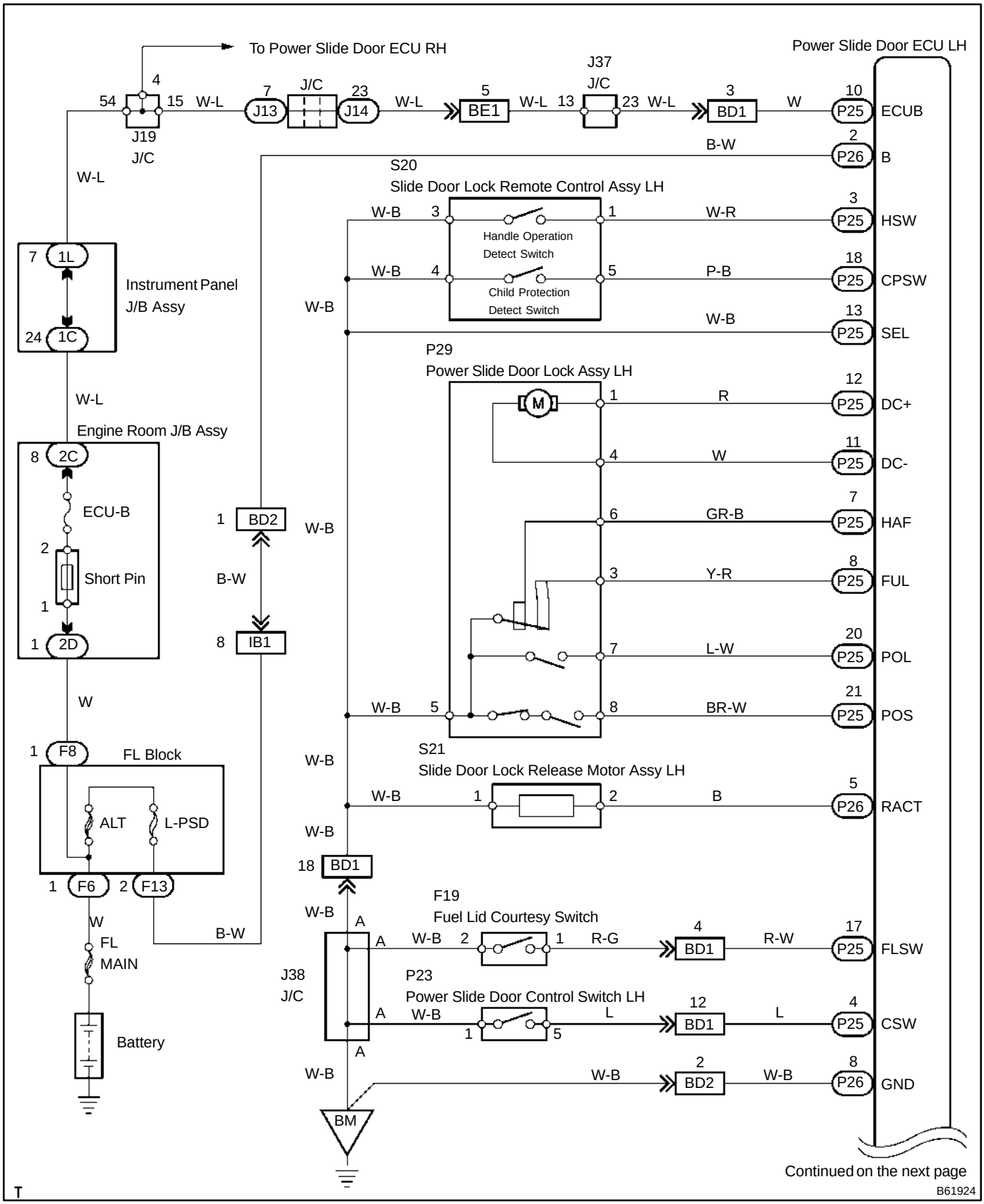
## CIRCUIT DESCRIPTION

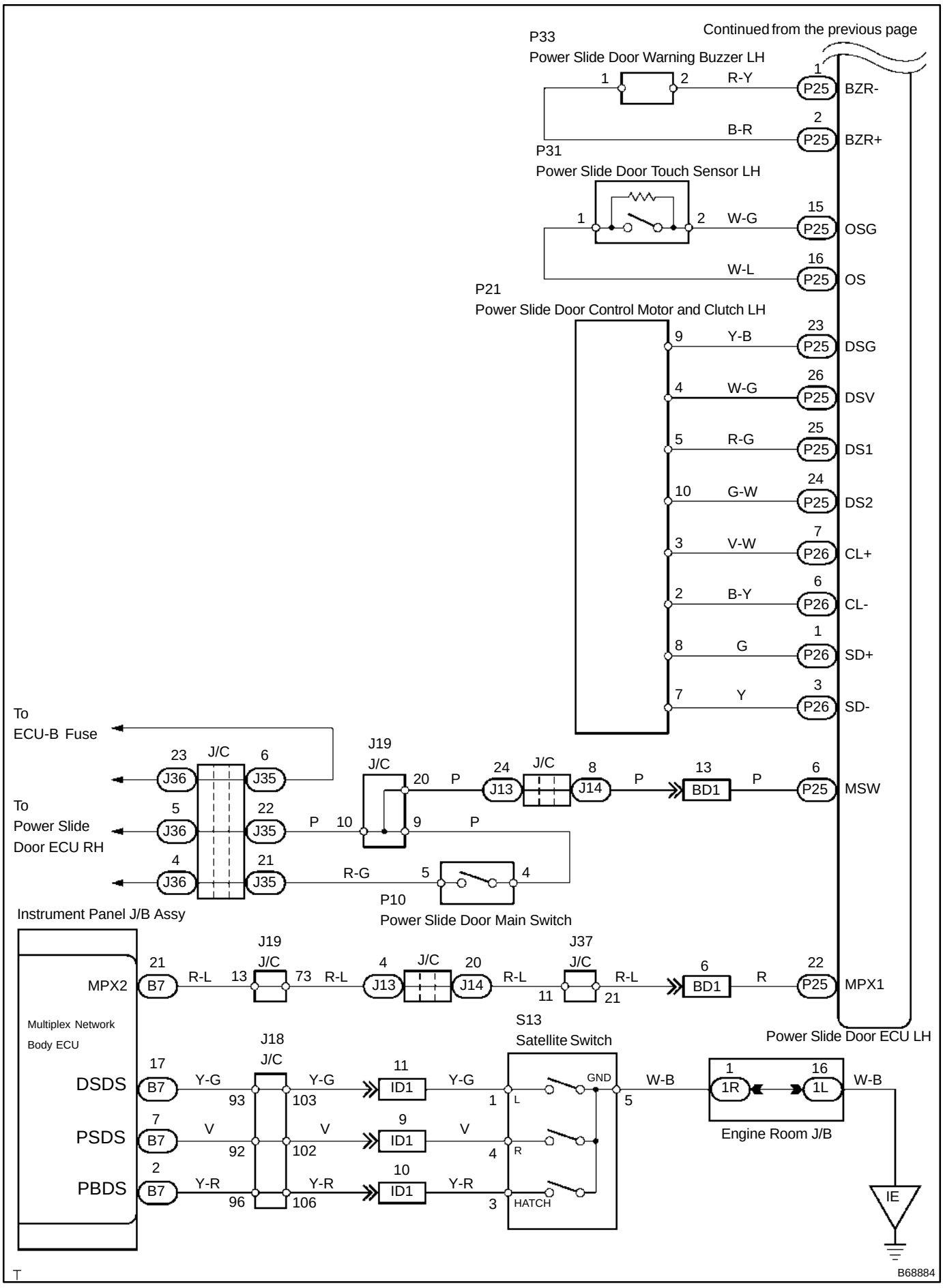
- The power slide door operates only when the power slide door main switch is ON (switch free: orange paint on the top of the switch appears). The power slide door ECU LH controls the power slide door LH, which activates the slide door motor to open/close the slide door.
- A request signal from the satellite switch for the power slide door LH is input to the the driver side junction block ECU, which then sends this request signal using a BEAN line to the power slide door ECU LH.
- A request signal from the power slide door control switch LH is directly input to the power slide door ECU LH.
- When the child lock is in the locked condition, the power slide door control switch LH is disabled, thus the power slide door LH is not activated by this switch.
- When the fuel lid is open, the power slide door does not operate. Opening the fuel lid while the power slide door is operating stops the power slide door operation and switches the system to manual operation mode.
- When the touch sensor has an open/short-circuit, closing of the power slide door is disabled.

**NOTICE:**

**When disconnecting the negative (-) terminal cable of the battery or control motor and clutch, initialize the power slide door system (See page 05-1650 ).**

# WIRING DIAGRAM




Continued from the previous page
P33
Power Slide Door Warning Buzzer LH
R-Y
B-R
BZR-
BZR+
P31
Power Slide Door Touch Sensor LH
W-G
W-L
OSG
OS
P21
Power Slide Door Control Motor and Clutch LH
Y-B
W-G
R-G
G-W
V-W
B-Y
G
Y
DSG
DSV
DS1
DS2
CL+
CL-
SD+
SD-
To
ECU-B Fuse
To
Power Slide
Door ECU RH
J/C
J19
J36
J35
J13
J14
BD1
P25
P26
MSW
P10
Power Slide Door Main Switch
Instrument Panel J/B Assy
J37
MPX2
MPX1
R-L
R
Multiplex Network
Body ECU
Power Slide Door ECU LH
S13
Satellite Switch
J18
DSDS
PSDS
PBDS
Y-G
V
Y-R
ID1
GND
W-B
1R
1L
Engine Room J/B
IE
HATCH
B68884

# INSPECTION PROCEDURE

| 1 | BASIC INSPECTION |
|---|---|

(a) Check the conditions necessary for the power slide door to open:
  (1) Power slide door main switch is in the ON position (switch free: orange paint on the top of the switch appears).
  (2) Slide door is unlocked (door lock position switch is in the ON position when the slide door is fully closed).
  (3) Shift lever is in the P position when the ignition switch is ON (When the ignition switch is OFF, the power slide door operates at any position of the shift lever.)

(b) Check the conditions necessary for the power slide door to close:
  (1) Power slide door main switch is in the ON position (switch free: orange paint on the top of the switch appears).
  (2) Slide door is between approximately the half-open position and the fully open position.
  (3) Slide door touch sensor is not damaged/deformed.

**OK**

| 2 | INSPECT FUSE (ECU-B) |
|---|---|

(a) Inspect the ECU-B fuse (See page 68-1 ).

**NG** → **REPLACE FUSE**

**OK**

| 3 | CHECK DTC |
|---|---|

(a) Check for DTC B2224. DTC B2224 indicates a pulse sensor malfunction.
  (1) Without code outputs, proceed to A.
  (2) With code outputs, proceed to B.

**B** → **GO TO DTC B2224 (See page 05-1666 )**

**A**

| 4 | INSPECT COMMUNICATION FUNCTION OF LARGE-SCALE MULTIPLEX COMMUNICATION SYSTEM (BEAN) |
|---|---|

(a) Use the hand-held tester to check for normal function of the multiplex communication system.
  (1) (ECU unconnected, communication line malfunctioning) Without DTC B1214, B1215 or B1217 outputs, proceed to A.
  (2) (ECU unconnected, communication line malfunctioning) With DTC B1214, B1215 or B1217 outputs, proceed to B.

**B** → **GO TO MULTIPLEX COMMUNICATION SYSTEM (See page 05-1876 )**

**A**

## 5 READ VALUE OF HAND-HELD TESTER

(a) Using the hand-held tester, check the DATA LIST for proper functioning of the power slide door main switch.

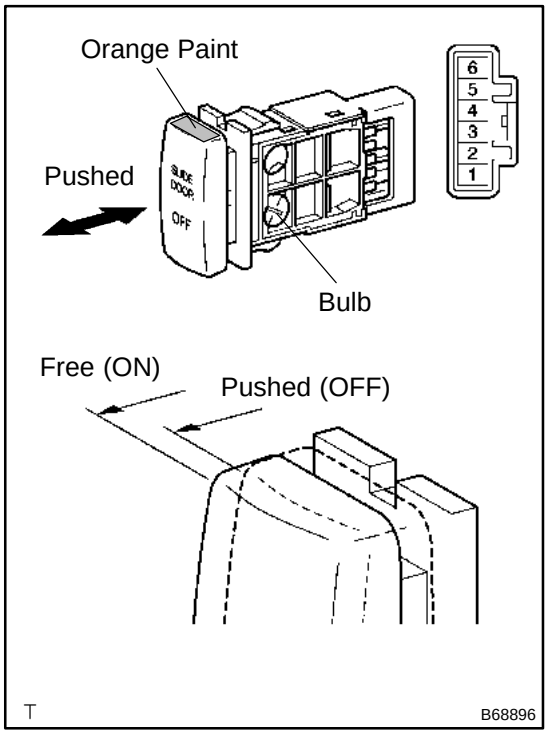
**Standard (Power slide door ECU LH):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| PSD MAIN SW | Power slide door main SW /ON or OFF | ON: Orange paint on top of the switch appears<br>OFF: Orange paint on top of the switch does not appear | - |

**OK** → **Go to step 10**

**NG**

## 6 INSPECT POWER SLIDE DOOR MAIN SWITCH




(a) Inspect the resistance of the main switch.

**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 4 - 5 | Free (ON) | Below 1 Ω |
| | Pushed (OFF) | 10 kΩ or higher |

HINT:

If the switch does not illuminate, it will not affect the ON/OFF function of the switch. For the illumination check, refer to page 75-30 .

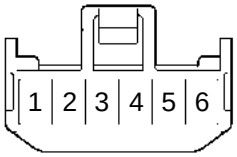
**NG** → **REPLACE POWER SLIDE DOOR MAIN SWITCH**

**OK**

| 7 | **CHECK WIRE HARNESS (POWER SLIDE DOOR MAIN SWITCH - POWER SLIDE DOOR ECU LH)** |
|---|---|

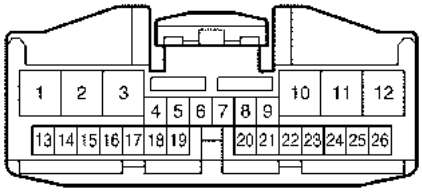
**Wire Harness Side**

P10
Power Slide Door Main Switch




Y

P25
Power Slide Door ECU LH




B68444

(a) Disconnect the P10 switch and P25 ECU connectors.

(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P10-4 - P25-6 (MSW) | Below 1 Ω |

(c) Check the resistance between the P10 switch connector and body ground.

**Standard (Check for short circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P10-4 - Body ground | 10 kΩ or higher |

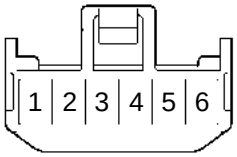
**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

| 8 | CHECK WIRE HARNESS (POWER SLIDE DOOR MAIN SWITCH - POWER SLIDE DOOR ECU RH) |
|---|---|

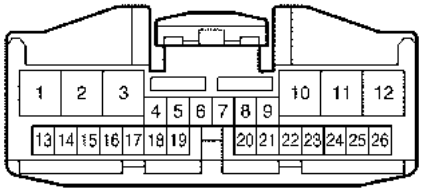
**Wire Harness Side**

P10
Power Slide Door Main Switch




Y

P27
Power Slide Door ECU RH




B68444

(a) Disconnect the P10 switch and P27 ECU connectors.
(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P10-4 - P27-6 (MSW) | Below 1 Ω |
| P10-5 - P27-5 (MSE) | |

(c) Check the resistance between the S13 switch connector and body ground.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| S13-5 (GND) - Body ground | Below 1 Ω |

**NG** → **REPLACE HARNESS AND CONNECTOR**

**OK**

| 9 | READ VALUE OF HAND-HELD TESTER |
|---|---|

(a) Using the hand-held tester, check the DATA LIST for proper functioning of the power slide door main switch.

**Standard (Power slide door ECU RH):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| PSD MAIN SW | Power slide door main SW /ON or OFF | ON: Orange paint on the top of the switch appears<br>OFF: Orange paint on the top of the switch does not appear | - |

**NG** → **REPLACE POWER SLIDE DOOR ECU RH**

**OK**

**REPLACE POWER SLIDE DOOR ECU LH**

## 10 CHECK SWITCH OPERATION

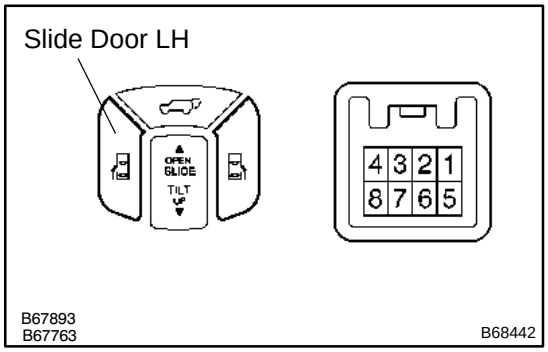
(a) If the power slide door does not respond to using the satellite switch, proceed to A.
(b) If the power slide door does not respond to using the power slide door control switch (child lock is set at UNLOCK.), proceed to B.

HINT:
If the power slide door cannot operate using the power slide door control switch even when the child lock is unlocked, there may be a malfunction in the child lock switch. In this case, check the handle switch circuit (See page 05-1704 ).

**B** → **Go to step 13**

**A**

## 11 INSPECT SATELLITE SWITCH




(a) Inspect the resistance of the LH switch.
**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 1 - 5 | Free | 10 kΩ or higher |
| | Pushed | Below 1 Ω |

HINT:
If the switch does not illuminate, it will not affect the ON/OFF function of the switch. For the illumination check, refer to page 75-30 .

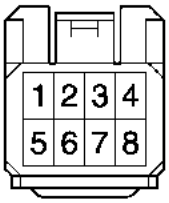
**NG** → **REPLACE SATELLITE SWITCH**

**OK**

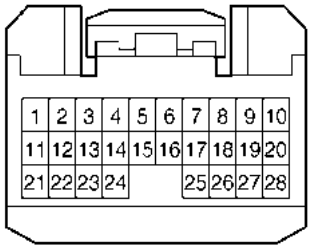
| 12 | CHECK WIRE HARNESS (SATELLITE SWITCH - INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU) AND BODY GROUND) |
|---|---|

**Wire Harness Side**

S13
Satellite Switch




B7
Instrument Panel J/B Assy
(Multiplex Network Body ECU)




T B68899

(a) Disconnect the S13 switch and B7 ECU connectors.
(b) Check the resistance between the wire harness side connectors.
**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| S13-1 (L) - B7-17 (SNOW) | Below 1 Ω |

(c) Check the resistance between the S13 switch connector and body ground.
**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| S13-5 (GND) - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**Go to step 16**

| 13 | READ VALUE OF HAND-HELD TESTER |
|---|---|

(a) Using the hand-held tester, check the DATA LIST for proper functioning of the power slide door control switch LH.
**Standard (Power slide door ECU LH):**

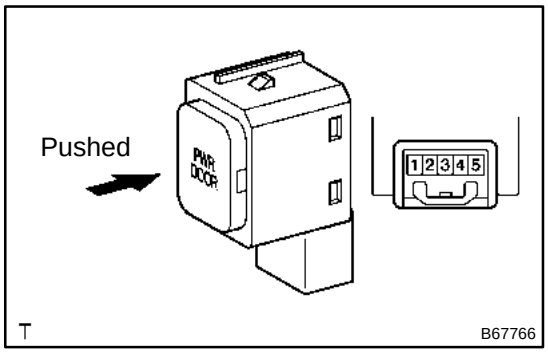
| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| B PILLAR SW* | Power slide door control switch* signal /ON or OFF | ON: Power slide door control switch* is pushed<br>OFF: Power slide door control switch* is not pushed | - |

* ”B PILLAR SW” appears on the display of the hand-held tester, however the name of the part corresponding to the display of the tester is ”Power slide door control switch”.

**OK** → **Go to step 16**

**NG**

## 14 INSPECT POWER SLIDE DOOR CONTROL SWITCH LH




(a) Inspect the resistance of the switch.

**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 1 - 5 | Free | 10 kΩ or higher |
| | Pushed | Below 1 Ω |

HINT:

If the switch does not illuminate, it will not affect the ON/OFF function of the switch. For the illumination check, refer to page 75-30 .

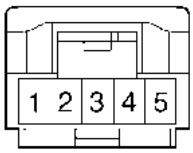
**NG** → **REPLACE POWER SLIDE DOOR CONTROL SWITCH LH**

**OK**

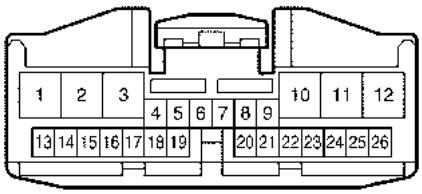
## 15 CHECK WIRE HARNESS (POWER SLIDE DOOR CONTROL SWITCH LH - POWER SLIDE DOOR ECU LH AND BODY GROUND)

**Wire Harness Side**

P23
Power Slide Door Control Switch LH




P25
Power Slide Door ECU LH




B68445

(a) Disconnect the P23 switch and P25 ECU connectors.

(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P23-5 - P25-4 (CSW) | Below 1 Ω |

(c) Check the resistance between the P23 switch connector and body ground.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P23-1 - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE POWER SLIDE DOOR ECU LH**

## 16 READ VALUE OF HAND-HELD TESTER

(a) Using the hand-held tester, check that a power slide door touch sensor LH signal is output when the sensor is operated.

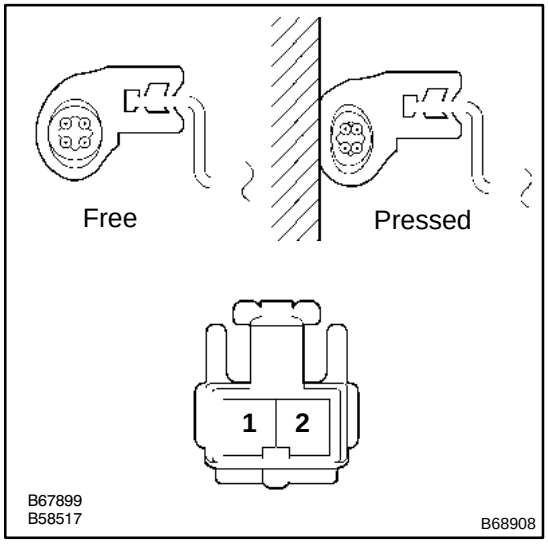
**Standard (Power slide door ECU LH):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| PSD TOUCH SEN | Power slide door touch sensor /OFF, ON or OPEN | OFF: Power slide door touch sensor is free<br>ON: Power slide door touch sensor is pressed<br>OPEN: Power slide door touch sensor is opened | - |

**OK** → **Go to step 19**

**NG**

## 17 INSPECT POWER SLIDE DOOR TOUCH SENSOR LH




(a) Inspect the resistance of the sensor.

**Standard:**

| Terminal No. | Condition | Specified condition |
|---|---|---|
| 1 - 2 | Free | Approx. 1 kΩ |
| | Pressed | Less than 100 Ω |

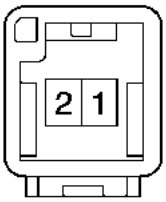
**NG** → **REPLACE POWER SLIDE DOOR TOUCH SENSOR LH**

**OK**

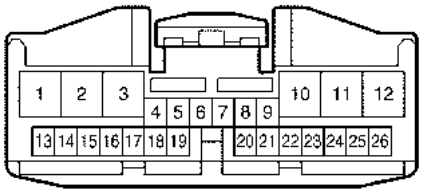
| 18 | CHECK WIRE HARNESS (POWER SLIDE DOOR TOUCH SENSOR LH - POWER SLIDE DOOR ECU LH) |
|---|---|

**Wire Harness Side**

P31
Power Slide Door Touch Sensor LH




T P25
Power Slide Door ECU LH




B68446

(a) Disconnect the P31 sensor and P25 ECU connectors.
(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P31-1 - P25-16 (OS) | Below 1 Ω |
| P31-2 - P25-15 (OSG) | |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE POWER SLIDE DOOR ECU LH**

| 19 | READ VALUE OF HAND-HELD TESTER |
|---|---|

(a) Using the hand-held tester, check the DATA LIST for proper functioning of the fuel lid courtesy switch.

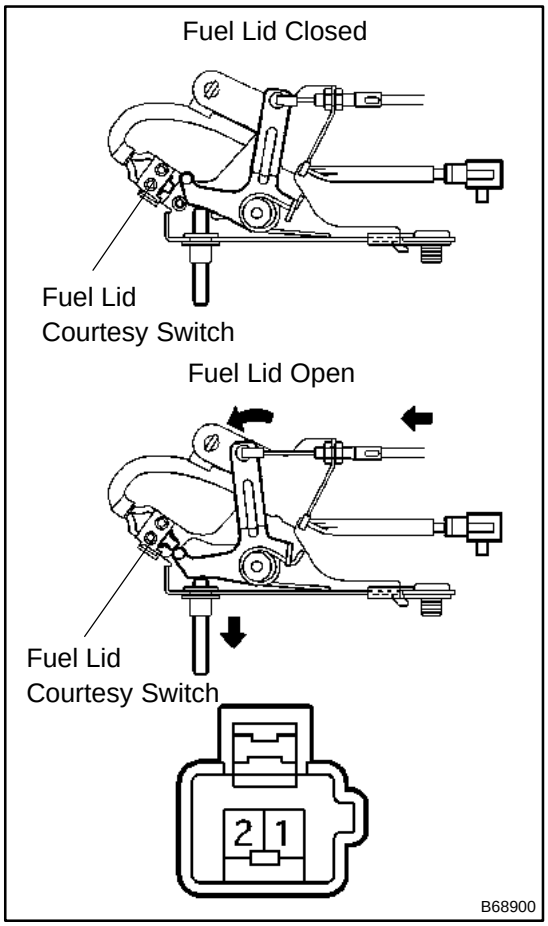
**Standard (Power slide door ECU LH):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| FUEL LID SW | Fuel lid courtesy switch signal /ON or OFF | ON: Fuel lid is closed<br>OFF: Fuel lid is open | - |

**OK** → **Go to step 22**

**NG**

| 20 | **INSPECT FUEL LID COURTESY SWITCH** |
|---|---|




(a) Inspect the resistance of the switch.
**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | ON (Fuel lid closed) | Below 1 Ω |
| | OFF (Fuel lid open) | 10 kΩ or higher |

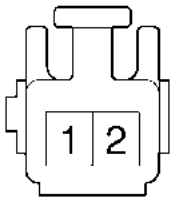
**NG** → **REPLACE FUEL LID COURTESY SWITCH**

**OK**

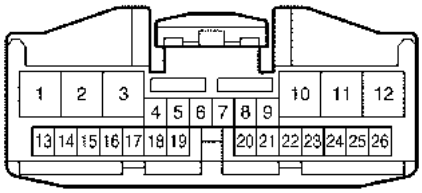
| 21 | CHECK WIRE HARNESS (FUEL LID COURTESY SWITCH - POWER SLIDE DOOR ECU LH AND BODY GROUND ) |
|---|---|

**Wire Harness Side**

F19
Fuel Lid Courtesy Switch




P25
Power Slide Door ECU LH




B68901

(a) Disconnect the F19 switch and P25 ECU connectors.
(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| F19-1 - P25-17 (FLSW) | Below 1 Ω |

(c) Check the resistance between the F19 switch connector and body ground.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| F19-2 - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE POWER SLIDE DOOR ECU LH**

| 22 | PERFORM ACTIVE TEST USING HAND-HELD TESTER |
|---|---|

(a) Select the ACTIVE TEST and then check that the power slide door control motor and clutch LH operates.

HINT:

During the ACTIVE TEST, the hand-held tester sends a signal to the power slide door ECU LH to drive the motor and clutch. If the motor and clutch operate, the motor and clutch itself and the wire harness between the motor and clutch and the power slide door ECU LH are considered to be functioning normally.

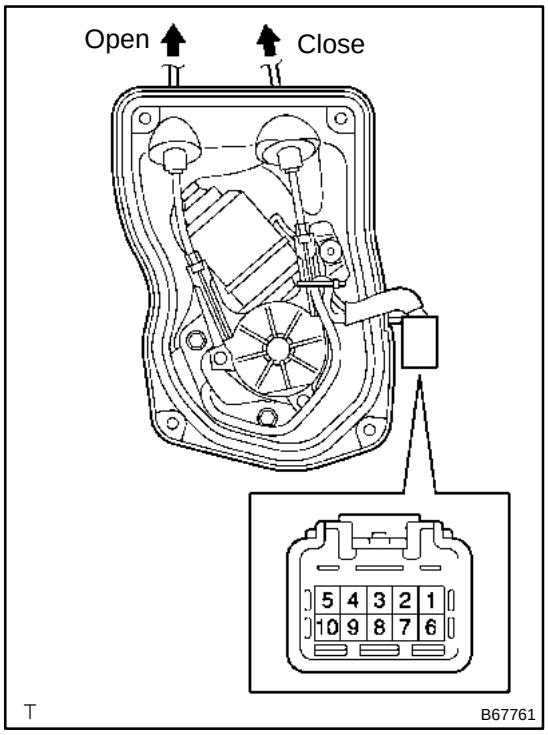
**Standard (Power slide door ECU LH):**

| Item | Test Details | Diagnostic Note |
|---|---|---|
| PSD MOTOR | Power slide door control motor is in operation OFF/FORWARD/REVERAE | Clutch is OFF while power slide door motor is operating |
| PSD CLUTCH | Power slide door control clutch is release OFF/ON | Power slide door motor is OFF when clutch is ON |

**OK** → **Go to step 25**

**NG**

| 23 | INSPECT SLIDE DOOR CONTROL MOTOR & CLUTCH ASSY LH |
|---|---|




(a) Remove the motor and clutch.
(b) Connect the battery positive (+) lead to terminal 3 and battery negative (-) terminal lead to terminal 2.
(c) Apply battery voltage to the terminals and check the motor operation.

**Standard:**

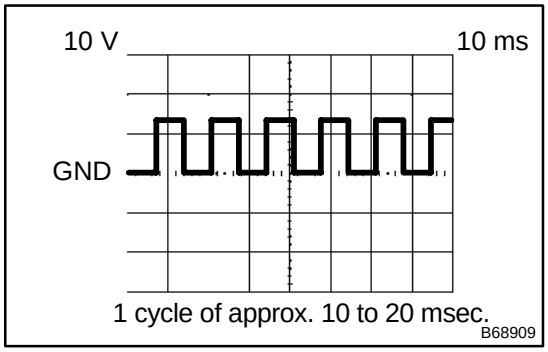
| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 8<br>Battery negative (-) → Terminal 7 | Open |
| Battery positive (+) → Terminal 7<br>Battery negative (-) → Terminal 8 | Close |

(d) Check the resistance of the clutch terminals.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| 2 - 3 | 4.0 Ω |

(e) Reinstall the motor and clutch with the connector connected.




(f) Check the pulse of the pulse sensor.
(1) Using an oscilloscope, check the pulse generated when the door is manually opened and closed.

**Standard (Reference):**

| Terminal | 5 - 9, 9 - 10 |
|---|---|
| Tool setting | 10 V/DIV., 10 ms/DIV. |
| Vehicle condition | Door moving |

HINT:
A cycle of the pulse changes between approx. 10 to 20 msec. according to the speeds that the slide door is moving.

**NOTICE:**
**When disconnecting the control motor and clutch, initialize the power slide door system (See page 05-1650 ).**

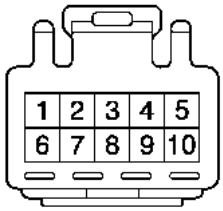
**NG** → **REPLACE SLIDE DOOR CONTROL MOTOR & CLUTCH ASSY LH**

**OK**

| 24 | **CHECK WIRE HARNESS (POWER SLIDE DOOR CONTROL MOTOR AND CLUTCH LH - POWER SLIDE DOOR ECU LH)** |
|---|---|

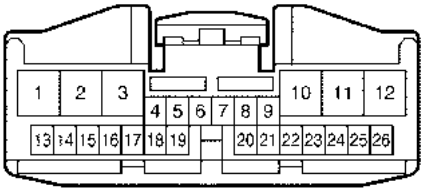
**Wire Harness Side**

P21
Power Slide Door Control Motor and Clutch LH



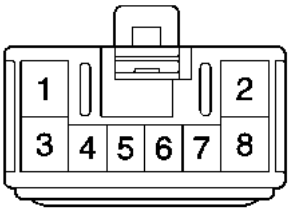

T

P25
Power Slide Door ECU LH




P

P26
Power Slide Door ECU LH




T

B68440

(a) Disconnect the P21 motor and clutch, the P25 and P26 ECU connectors.

(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P21-9 - P25-23 (DSG) | Below 1 Ω |
| P21-4 - P25-26 (DSV) | |
| P21-5 - P25-25 (DS1) | |
| P21-10 - P25-24 (DS2) | |
| P21-3 - P26-7 (CL+) | |
| P21-2 - P26-6 (CL-) | |
| P21-8 - P26-1 (SD+) | |
| P21-7 - P26-3 (SD-) | |

**NG** → **REPAIR OR REPLACE WIRE HARNESS**

**OK**

**REPLACE POWER SLIDE DOOR ECU LH**

| 25 | READ VALUE OF HAND-HELD TESTER |
|---|---|

(a) Using the hand-held tester, check the DATA LIST for proper functioning of the switches listed below.
**Standard (Power slide door ECU LH):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| POLE* SW | Power slide door lock pawl* position switch signal /ON or OFF | ON: Slide door is unlatched<br>OFF: Slide door is latched | - |
| HALF SW | Power slide door lock half latch switch signal /ON or OFF | ON: Slide door is not completely closed<br>OFF: Slide door is closed | - |
| FULL SW | Power slide door lock full latch switch signal /ON or OFF | ON: Slide door is open<br>OFF: Slide door is closed | - |
| CLOSER POS SW | Power slide door lock closer position switch signal /ON or OFF | ON: Closer is not in initial position and inside/outside handle is not pulled<br>OFF: Closer is in initial position and inside/outside handle is pulled | - |

* ”POLE ” appears on the display of the hand-held tester, however the name of the part corresponding to the display of the tester is ”pawl”.

**OK** → **Go to step 28**

**NG**

| 26 | INSPECT POWER SLIDE DOOR LOCK ASSY LH (See page 05-1635 ) |
|---|---|

**NG** → **REPLACE POWER SLIDE DOOR LOCK ASSY LH**

**OK**

| 27 | CHECK WIRE HARNESS (POWER SLIDE DOOR LOCK ASSY LH - POWER SLIDE DOOR ECU LH ) (See page 05-1635 ) |
|---|---|

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE POWER SLIDE DOOR ECU LH**

## 28 PERFORM ACTIVE TEST USING HAND-HELD TESTER

(a) Select the ACTIVE TEST and then check that the slide door lock release motor LH operates.

HINT:

During the ACTIVE TEST, the hand-held tester sends a signal to the power slide door ECU LH to drive the release motor. If the release motor operates, the release motor itself and the wire harness between the release motor and power slide ECU LH are considered to be functioning normally.

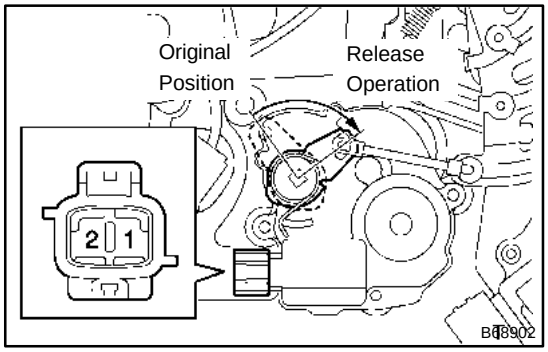
**Standard (Power slide door ECU LH):**

| Item | Test Details | Diagnostic Note |
|---|---|---|
| RELEASE ACT | Slide door lock release motor is release<br>OFF/ON | - |

**OK** → **Go to step 31**

**NG**

## 29 INSPECT SLIDE DOOR LOCK RELEASE MOTOR ASSY




(a) Apply battery voltage and inspect operation of the release motor.

**Standard:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 2<br>Battery negative (-) → Terminal 1 | Release operation |
| No battery voltage is applied | Original position |

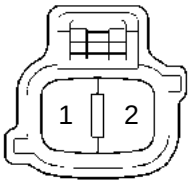
**NG** → **REPLACE SLIDE DOOR LOCK RELEASE MOTOR ASSY**

**OK**

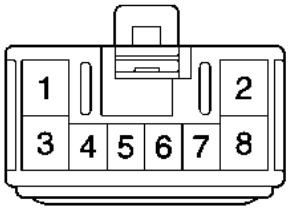
| 30 | INSPECT WIRE HARNESS (SLIDE DOOR LOCK RELEASE MOTOR ASSY LH - POWER SLIDE DOOR ECU LH) |
|---|---|

**Wire Harness Side**

S21
Slide Door Lock Release Motor Assy LH




P26
Power Slide Door ECU LH




T

B68448

(a) Disconnect the S21 motor and P26 ECU connectors.
(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| S21-2 - P26-5 (RACT) | Below 1 Ω |

(c) Check the resistance between the S21 motor connector and body ground.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| S21-1 - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

| 31 | REPLACE POWER SLIDE DOOR ECU LH |
|---|---|

(a) Check the power slide door for normal OPEN/CLOSE operation.

**NG** → **REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU)**

**OK**

**SYSTEM NORMAL**

# POWER SLIDE DOOR RH DOES NOT OPERATE WHEN SWITCH* IS PRESSED

* ”SWITCH” indicates the satellite switch for the power slide door RH and the power slide door control switch RH

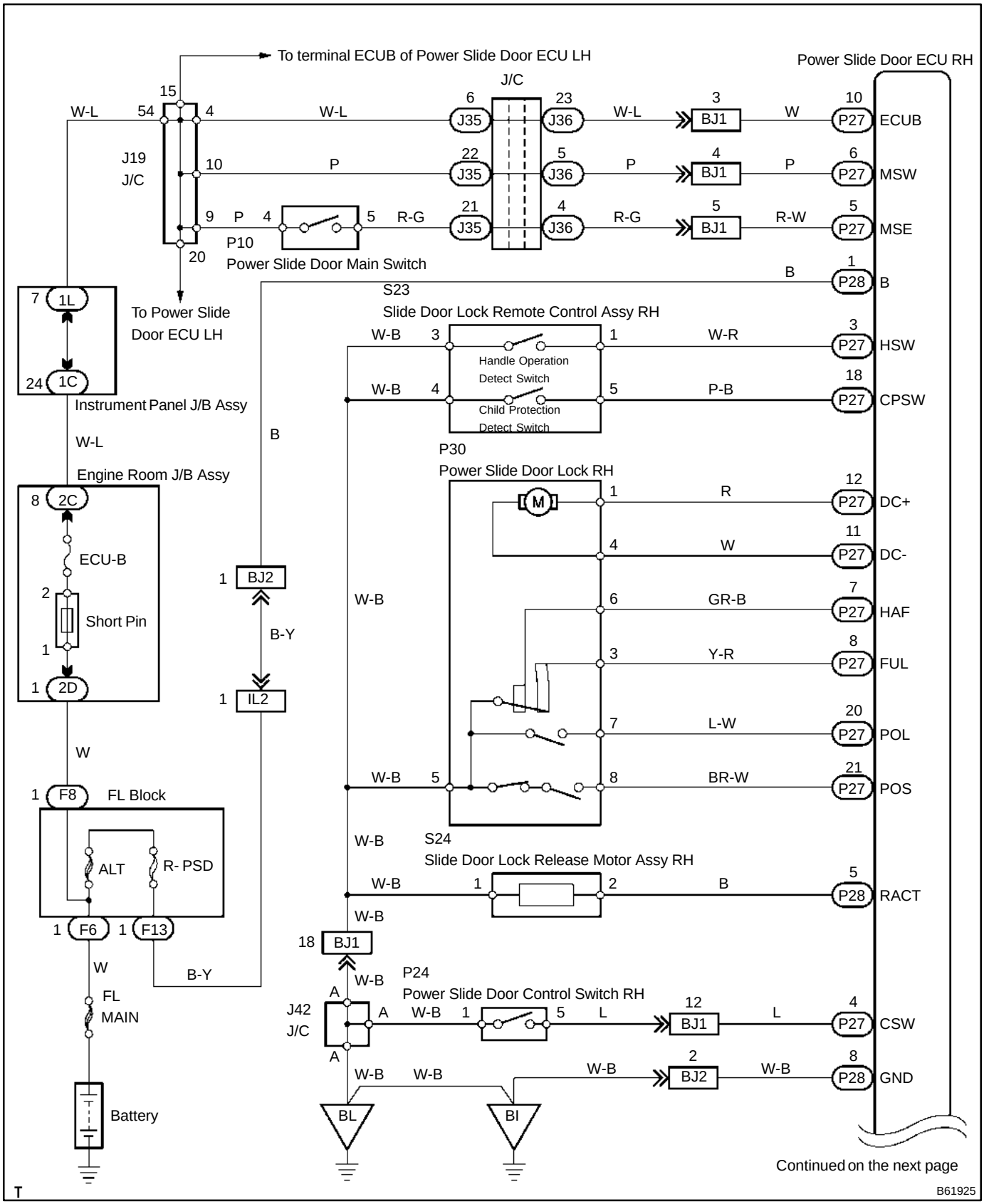
## CIRCUIT DESCRIPTION

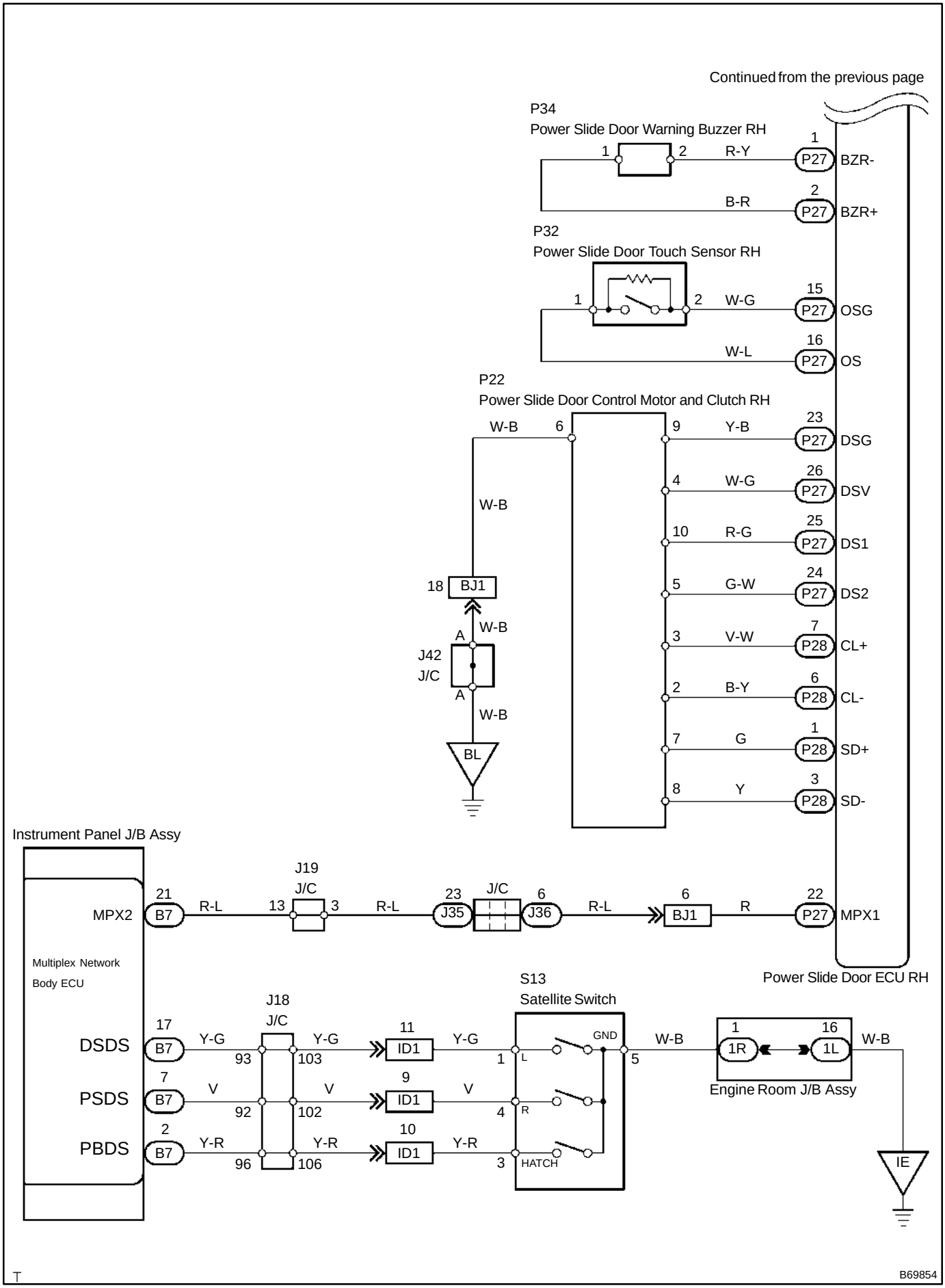
- The power slide door operates only when the power slide door main switch is ON (switch free: orange paint on the top of the switch appears). The power slide door ECU RH controls the power slide door RH, which activates the slide door motor to open/close the slide door.
- A request signal from the satellite switch for the power slide door RH is input to the the driver side junction block ECU, which then sends this request signal using a BEAN line to the power slide door ECU RH.
- A request signal from the power slide door control switch RH is directly input to the power slide door ECU RH.
- When the child lock is in the locked condition, the power slide door control switch RH is disabled, thus the power slide door RH is not activated by this switch.
- When the touch sensor has an open/short-circuit, closing of the power slide door is disabled.

**NOTICE:**

**When disconnecting the negative (-) terminal cable of the battery or control motor and clutch, initialize the power slide door system (See page 05-1650 ).**

# WIRING DIAGRAM




Continued from the previous page
P34
Power Slide Door Warning Buzzer RH
R-Y
B-R
BZR-
BZR+
P32
Power Slide Door Touch Sensor RH
W-G
W-L
OSG
OS
P22
Power Slide Door Control Motor and Clutch RH
W-B
Y-B
W-G
R-G
G-W
V-W
B-Y
G
Y
DSG
DSV
DS1
DS2
CL+
CL-
SD+
SD-
BJ1
J42
J/C
BL
Instrument Panel J/B Assy
MPX2
MPX1
R-L
R
J19
J/C
J35
J36
Multiplex Network
Body ECU
Power Slide Door ECU RH
S13
Satellite Switch
J18
J/C
DSDS
PSDS
PBDS
Y-G
V
Y-R
ID1
GND
HATCH
W-B
1R
1L
Engine Room J/B Assy
IE
T
B69854

# INSPECTION PROCEDURE

| 1 | BASIC INSPECTION |
|---|---|

(a) Conditions necessary for the power slide door to open:
  (1) Power slide door main switch is in the ON position (switch free: orange paint on the top of the switch appears).
  (2) Slide door is unlocked (door lock position switch is in the ON position when the slide door is fully closed).
  (3) Shift lever is in the P position when the ignition switch is ON (When the ignition switch is OFF, the power slide door operates at any position of the shift lever.)

(b) Conditions necessary for the power slide door to close:
  (1) Power slide door main switch is in the ON position (switch free: orange paint on the top of the switch appears).
  (2) Slide door is between approximately the half-open position and the fully open position.
  (3) Slide door touch sensor is not damaged and deformed.

**OK**

| 2 | INSPECT FUSE (ECU-B) |
|---|---|

(a) Inspect the ECU-B fuse (See page 68-1 ).

**NG** → **REPLACE FUSE**

**OK**

| 3 | CHECK DTC |
|---|---|

(a) Check for DTC B2223. DTC B2223 indicates a pulse sensor malfunction.
  (1) Without code outputs, proceed to A.
  (2) With code outputs, proceed to B.

**B** → **GO TO DTC B2223 (See page 05-1663 )**

**A**

| 4 | INSPECT COMMUNICATION FUNCTION OF LARGE-SCALE MULTIPLEX COMMUNICATION SYSTEM (BEAN) |
|---|---|

(a) Use the hand-held tester to check for normal function of the multiplex communication system.
  (1) (ECU unconnected, communication line malfunctioning) Without DTC B1214, B1215 or B1216 outputs, proceed to A.
  (2) (ECU unconnected, communication line malfunctioning) With DTC B1214, B1215 or B1216 outputs, proceed to B.

**B** → **GO TO MULTIPLEX COMMUNICATION SYSTEM (See page 05-1876 )**

**A**

## 5 READ VALUE OF HAND-HELD TESTER

(a) Using the hand-held tester, check the DATA LIST for proper functioning of the power slide door main switch.

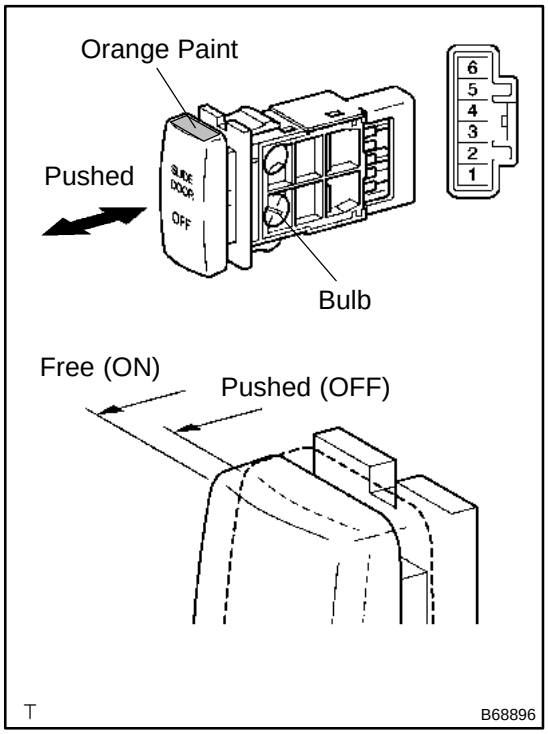
**Standard (Power slide door ECU RH):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| PSD MAIN SW | Power slide door main switch /ON or OFF | ON: Orange paint on top of switch appears<br>OFF: Orange paint on top of switch does not appear | - |

**OK** → **Go to step 8**

**NG**

## 6 INSPECT POWER SLIDE DOOR MAIN SWITCH




(a) Inspect the resistance of the switch.

**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 4 - 5 | Free (ON) | Below 1 Ω |
| | Pushed (OFF) | 10 kΩ or higher |

HINT:

If the switch does not illuminate, it will not affect the ON/OFF function of the switch. For the illumination check, refer to page 75-30 .

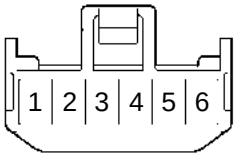
**NG** → **REPLACE POWER SLIDE DOOR MAIN SWITCH**

**OK**

| 7 | CHECK WIRE HARNESS (POWER SLIDE DOOR MAIN SWITCH - POWER SLIDE DOOR ECU RH) |
|---|---|

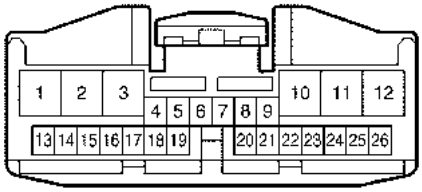
**Wire Harness Side**

P10
Power Slide Door Main Switch




Y

P27
Power Slide Door ECU RH




B68444

(a) Disconnect the P10 switch and P27 ECU connectors.
(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P10-4 - P27-6 (MSW) | Below 1 Ω |
| P10-5 - P27-5 (MSE) | |

(c) Check the resistance between the P10 switch connector and body ground.

**Standard (Check for short circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P10-4 - Body ground | 10 kΩ or higher |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE POWER SLIDE DOOR ECU RH**

| 8 | CHECK SWITCH OPERATION |
|---|---|

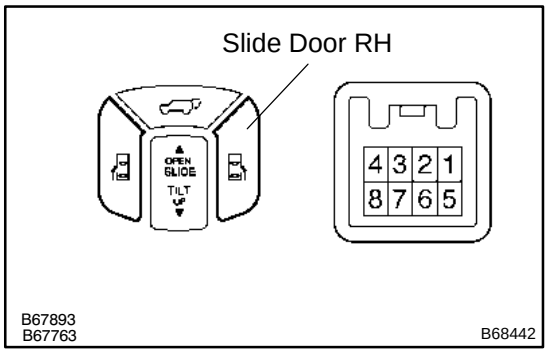
(a) If the power slide door does not respond to using the satellite switch, proceed to A.
(b) If the power slide door does not respond to using the power slide door control switch (child lock is set at UNLOCK.), proceed to B.

HINT:
If the power slide door cannot operate using the power slide door control switch even when the child lock is locked, there may be a malfunction in the child lock switch. In this case, check the handle switch circuit (See page 05-1709 ).

**B** → **Go to step 11**

**A**

## 9 INSPECT SATELLITE SWITCH




(a) Check the resistance of the RH switch.

**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 4 - 5 | Free | 10 kΩ or higher |
| | Pushed | Below 1 Ω |

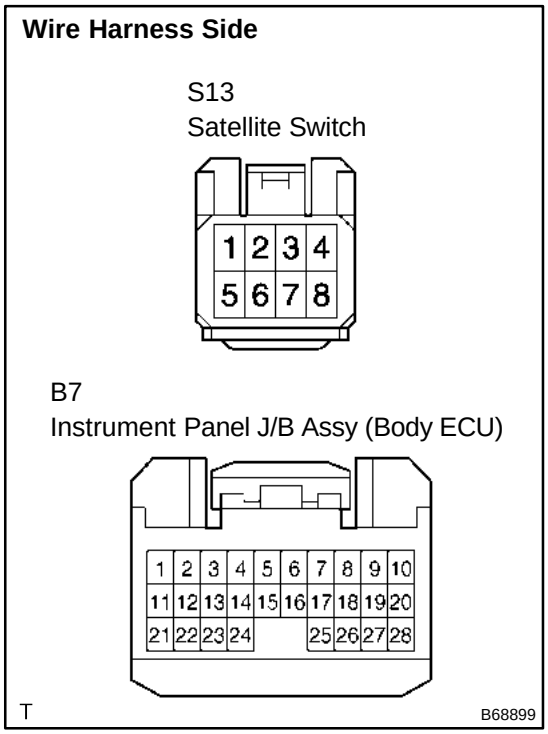
HINT:

If the switch does not illuminate, it will not affect the ON/OFF function of the switch. For the illumination check, refer to page 75-30 .

**NG** → **REPLACE SATELLITE SWITCH**

**OK**

## 10 CHECK WIRE HARNESS (SATELLITE SWITCH - INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU) AND BODY GROUND)




(a) Disconnect the S13 and B7 ECU connectors.

(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| S13-4 (R) - B7-7 (PSDS) | Below 1 Ω |

(c) Check the resistance between the S13 switch connector and body ground.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| S13-5 (GND) - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**Go to step 14**

| 11 | READ VALUE OF HAND-HELD TESTER |
|---|---|

(a) Using the hand-held tester, check the DATA LIST for proper functioning of the power slide door control switch RH.

**Standard (Power slide door ECU RH):**

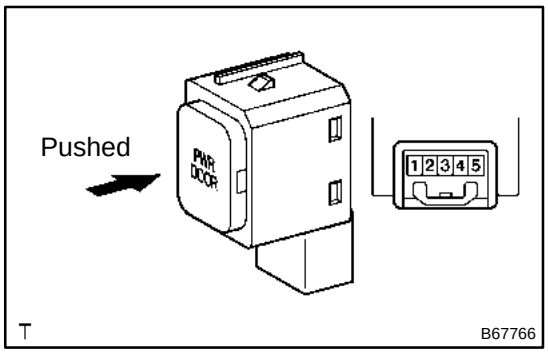
| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| B PILLAR SW* | Power slide door control switch* signal /ON or OFF | ON: Power slide door control switch* is pushed<br>OFF: Power slide door control switch* is not pushed | - |

* "B PILLAR SW" appears on the display of the hand-held tester, however the name of the part corresponding to the display of the tester is "Power slide door control switch".

**OK** → **Go to step 14**

**NG**

| 12 | INSPECT POWER SLIDE DOOR CONTROL SWITCH RH |
|---|---|




(a) Inspect the resistance of the switch.

**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 1 - 5 | Free | 10 kΩ or higher |
| | Pushed | Below 1 Ω |

HINT:

If the switch does not illuminate, it will not affect the ON/OFF function of the switch. For the illumination check, refer to page 75-30 .

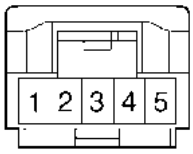
**NG** → **REPLACE POWER SLIDE DOOR CONTROL SWITCH RH**

**OK**

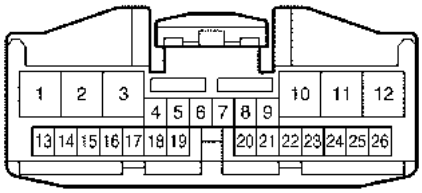
| 13 | CHECK WIRE HARNESS (POWER SLIDE DOOR CONTROL SWITCH RH - POWER SLIDE DOOR ECU RH AND BODY GROUND) |
|---|---|

**Wire Harness Side**

P24
Power Slide Door Control Switch RH




P27
Power Slide Door ECU RH




B68445

(a) Disconnect the P24 switch and P27 ECU connectors.
(b) Check the resistance between the wire harness connectors.
**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P24-5 - P27-4 (CSW) | Below 1 Ω |

(c) Check the resistance between the P24 switch connector and body ground.
**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P24-1 - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE POWER SLIDE DOOR ECU RH**

| 14 | READ VALUE OF HAND-HELD TESTER |
|---|---|

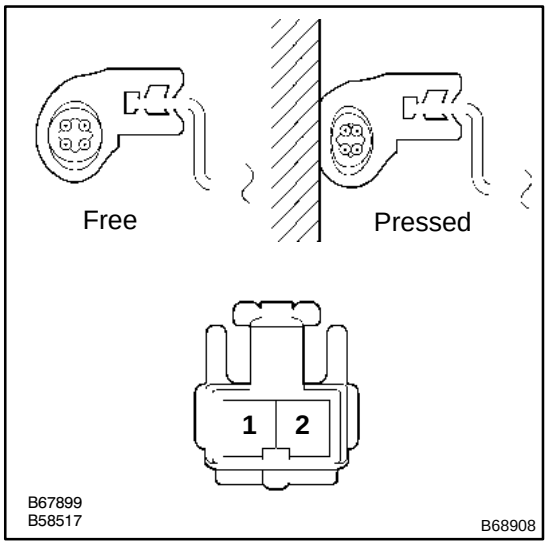
(a) Using the hand-held tester, check the DATA LIST for proper functioning of the power slide door touch sensor RH.
**Standard (Power slide door ECU RH):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| PSD TOUCH SEN | Power slide door touch sensor /OFF, ON or OPEN | OFF: Power slide door touch sensor is free<br>ON: Power slide door touch sensor is pressed<br>OPEN: Power slide door touch sensor is opened | - |

**OK** → **Go to step 17**

**NG**

## 15 INSPECT POWER SLIDE DOOR TOUCH SENSOR RH




(a) Check the resistance of the sensor.
**Standard:**

| Terminal No. | Condition | Specified condition |
|---|---|---|
| 1 - 2 | Free | Approx. 1 kΩ |
| | Pressed | Less than 100 Ω |

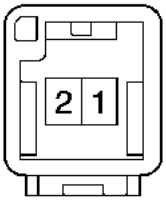
**NG** → **REPLACE POWER SLIDE DOOR TOUCH SENSOR RH**

**OK**

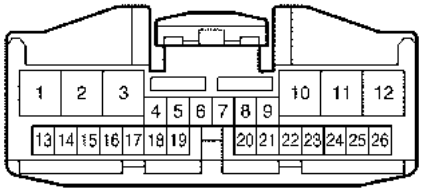
## 16 CHECK WIRE HARNESS (POWER SLIDE DOOR TOUCH SENSOR RH - POWER SLIDE DOOR ECU RH)

**Wire Harness Side**

P32
Power Slide Door Touch Sensor RH




T P27
Power Slide Door ECU RH




B68446

(a) Disconnect the P32 sensor and P27 ECU connectors.
(b) Check the resistance between the wire harness side connectors.
**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P32-1 - P27-16 (OS) | Below 1 Ω |
| P32-2 - P27-15 (OSG) | |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE POWER SLIDE DOOR ECU RH**

| 17 | PERFORM ACTIVE TEST USING HAND-HELD TESTER |
|---|---|

(a) Select the ACTIVE TEST and then check that the power slide door control motor and clutch RH operates.

HINT:

During the ACTIVE TEST, the hand-held tester sends a signal to the power slide door ECU RH to drive the motor and clutch. If the motor and clutch operates, the motor and clutch itself and the wire harness between the motor and clutch and the power slide door ECU RH are considered to be functioning normally.

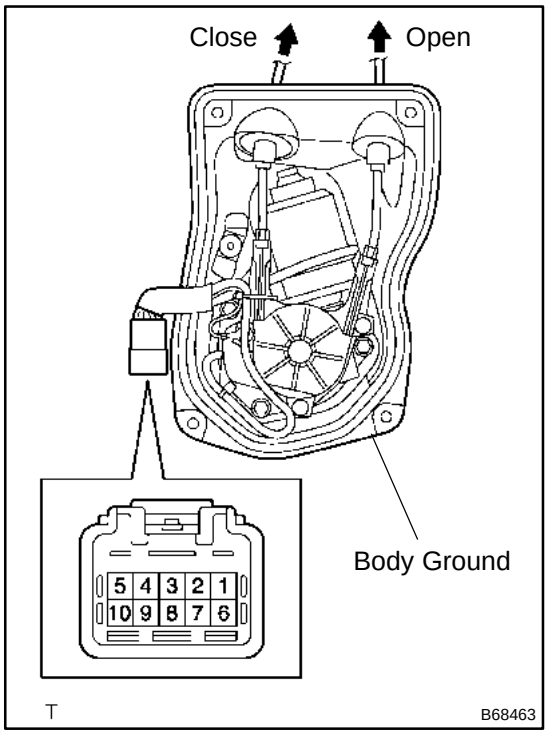
**Standard (Power slide door ECU RH):**

| Item | Test Details | Diagnostic Note |
|---|---|---|
| PSD MOTOR | Power slide door control motor is operation OFF/FORWARD/REVERAE | Clutch is OFF while power slide door motor is operating |
| PSD CLUTCH | Power slide door control clutch is release OFF/ON | Power slide door motor is OFF when clutch is ON |

**OK** → **Go to step 20**

**NG**

| 18 | INSPECT SLIDE DOOR CONTROL MOTOR & CLUTCH ASSY RH |
|---|---|




(a) Remove the motor and clutch.

(b) Connect the battery positive (+) lead to terminal 3 and battery negative (-) terminal lead to terminal 2.

(c) Apply battery voltage to the terminals and check the motor operation.

**Standard:**

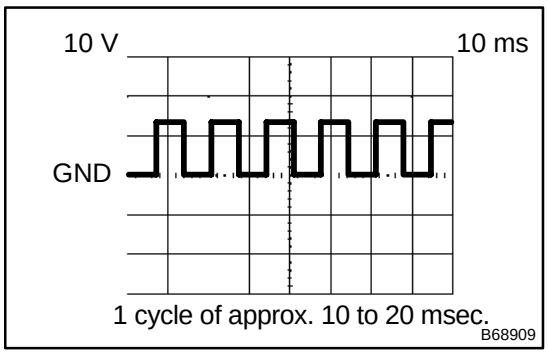
| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 8<br>Battery negative (-) → Terminal 7 | Open |
| Battery positive (+) → Terminal 7<br>Battery negative (-) → Terminal 8 | Close |

(d) Check the resistance of the clutch terminals.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| 2 - 3 | 4.0 Ω |
| 6 - Body ground | Below 1 Ω |

(e) Reinstall the motor and clutch with the connector connected.




(f) Check the pulse of the pulse sensor.

(1) Using an oscilloscope, check the pulse generated when the door is manually opened and closed.

**Standard (Reference):**

| | |
|---|---|
| Terminal | 5 - 9, 9 - 10 |
| Tool setting | 10 V/DIV., 10 ms/DIV. |
| Vehicle condition | Door moving |

HINT:

A cycle of the pulse changes between approx. 10 to 20 msec. according to the speeds that the slide door is moving.

**NOTICE:**

**When disconnecting the control motor and clutch, initialize the power slide door system (See page 05-1650 ).**

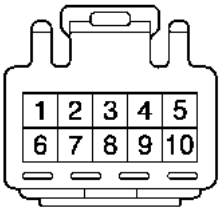
**NG** → **REPLACE SLIDE DOOR CONTROL MOTOR & CLUTCH ASSY RH**

**OK**

| 19 | **CHECK WIRE HARNESS (POWER SLIDE DOOR CONTROL MOTOR AND CLUTCH RH - POWER SLIDE DOOR ECU RH)** |
|---|---|

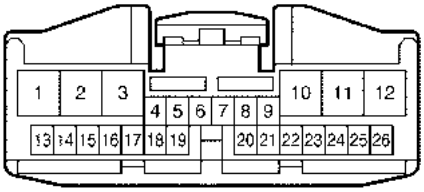
**Wire Harness Side**

P22
Power Slide Door Control Motor and Clutch RH



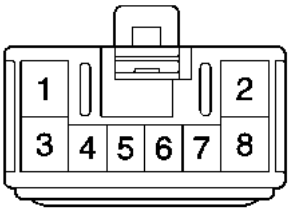

T

P27
Power Slide Door ECU RH




P

P28
Power Slide Door ECU RH




T

B68440

(a) Disconnect the P22 motor and clutch, P27 and P28 ECU connectors.

(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P22-9 - P27-23 (DSG) | Below 1 Ω |
| P22-4 - P27-26 (DSV) | |
| P22-10 - P27-25 (DS1) | |
| P22-5 - P27-24 (DS2) | |
| P22-3 - P28-7 (CL+) | |
| P22-2 - P28-6 (CL-) | |
| P22-7 - P28-1 (SD+) | |
| P22-8 - P28-3 (SD-) | |

**NG** → **REPAIR OR REPLACE WIRE HARNESS**

**OK**

**REPLACE POWER SLIDE DOOR ECU RH**

| 20 | READ VALUE OF HAND-HELD TESTER |
|---|---|

(a) Using the hand-held tester, check the DATA LIST for proper functioning of the switches listed below.
**Standard (Power Slide Door ECU RH):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| POLE* SW | Power slide door lock pawl* position switch signal /ON or OFF | ON: Slide door is unlatched<br>OFF: Slide door is latched | - |
| HALF SW | Power slide door lock half latch switch signal /ON or OFF | ON: Slide door is not completely closed<br>OFF: Slide door is closed | - |
| FULL SW | Power slide door lock full latch switch signal /ON or OFF | ON: Slide door is open<br>OFF: Slide door is closed | - |
| CLOSER POS SW | Power slide door lock closer position switch signal /ON or OFF | ON: Closer is not in the initial position and inside/outside handle is not pulled<br>OFF: Closer is in the initial position and inside/outside handle is pulled | - |

* ”POLE ” appears on the display of the hand-held tester, however the name of the part corresponding to the display of the tester is ”pawl”.

**OK** → **Go to step 23**

**NG**

| 21 | INSPECT POWER SLIDE DOOR LOCK ASSY RH (See page 05-1641 ) |
|---|---|

**NG** → **REPLACE POWER SLIDE DOOR LOCK ASSY RH**

**OK**

| 22 | CHECK WIRE HARNESS (POWER SLIDE DOOR LOCK ASSY RH - POWER SLIDE DOOR ECU RH ) (See page 05-1641 ) |
|---|---|

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE POWER SLIDE DOOR ECU RH**

| 23 | PERFORM ACTIVE TEST USING HAND-HELD TESTER |
|---|---|

(a) Select the ACTIVE TEST and then check that the slide door lock release motor RH operates.

HINT:

During the ACTIVE TEST, the hand-held tester sends a signal to the power slide door ECU RH to drive the release motor. If the release motor operates, the release motor itself and the wire harness between the release motor and power slide ECU RH are considered to be functioning normally.

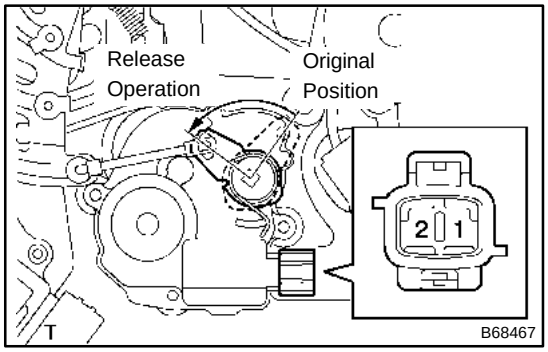
**Standard (Power slide door ECU LH):**

| Item | Test Details | Diagnostic Note |
|---|---|---|
| RELEASE ACT | Slide door lock release motor is release<br>OFF/ON | - |

**OK** → **Go to step 26**

**NG**

| 24 | INSPECT SLIDE DOOR LOCK RELEASE MOTOR ASSY |
|---|---|




(a) Apply battery voltage and inspect operation of the release motor.

**Standard:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 2<br>Battery negative (-) → Terminal 1 | Release operation |
| No battery voltage is applied | Original position |

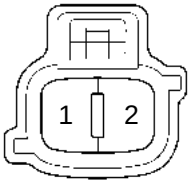
**NG** → **REPLACE SLIDE DOOR LOCK RELEASE MOTOR ASSY**

**OK**

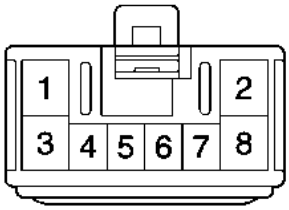
| 25 | INSPECT WIRE HARNESS (SLIDE DOOR LOCK RELEASE MOTOR ASSY RH - POWER SLIDE DOOR ECU RH) |
|---|---|

**Wire Harness Side**

S24
Slide Door Lock Release Motor Assy RH




P28
Power Slide Door ECU RH




T

B68448

(a) Disconnect the S24 motor and P28 ECU connectors.

(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| S24-2 - P28-5 (RACT) | Below 1 Ω |

(c) Check the resistance between the S22 motor connector and body ground.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| S24-1 - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

| 26 | REPLACE POWER SLIDE DOOR ECU RH |
|---|---|

(a) Check the power slide door for normal OPEN/CLOSE operation.

**NG** → **REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU)**

**OK**

**SYSTEM NORMAL**

# POWER SLIDE DOOR WARNING BUZZER LH DOES NOT SOUND

## CIRCUIT DESCRIPTION

- The power slide door system uses warning buzzers built into LH slide doors respectively. Each buzzer has 2 ways of sounding that are used differently according to the situations.
  (1) When all the following conditions are met, the warning buzzer sounds at a cycle of 0.3 seconds:
    - The ignition switch is turned ON.
    - The shift lever is moved into any position except P position.
    - The slide door is open or the power slide door is activated to open.

  The warning buzzer continues to sound until the slide door is fully closed or the shift lever is moved into the P position.
  (2) While the power slide door is operating, the warning buzzer that notifies that the door is moving sounds at a cycle of 0.7 seconds. This stops sounding when the power slide door stops. This way of sounding is set to OFF at factory (default setting) and can be customized when required.
- The power slide door ECU LH directly sends a signal to the warning buzzer.

HINT:

- Only item 2 can be customized (See page 05-1654 ).
- If both items occur at the same time, item 1 is prior to the other.

## WIRING DIAGRAM

See page 05-1669 .

## INSPECTION PROCEDURE

| 1 | PERFORM ACTIVE TEST USING HAND-HELD TESTER |
|---|---|

(a) Select the ACTIVE TEST and then check that the power slide door warning buzzer LH operates.

HINT:

During the ACTIVE TEST, the hand-held tester sends a signal to the power slide door ECU LH to activate the warning buzzer. If the warning buzzer is activated, the warning buzzer itself and the wire harness between the warning buzzer and power slide door ECU LH are considered to be functioning normally.

**Standard (Power Slide Door ECU LH):**

| Item | Test Details | Diagnostic Note |
|---|---|---|
| PSD BUZZER | Power slide door warning buzzer sound<br>OFF/ON | - |

**OK** → **REPLACE POWER SLIDE DOOR ECU LH AND RE-CHECK BUZZER SYSTEM**

**NG**

| 2 | CHECK WIRE HARNESS |
|---|---|

**Wire Harness Side**

P33

Power Slide Door Warning Buzzer LH




T

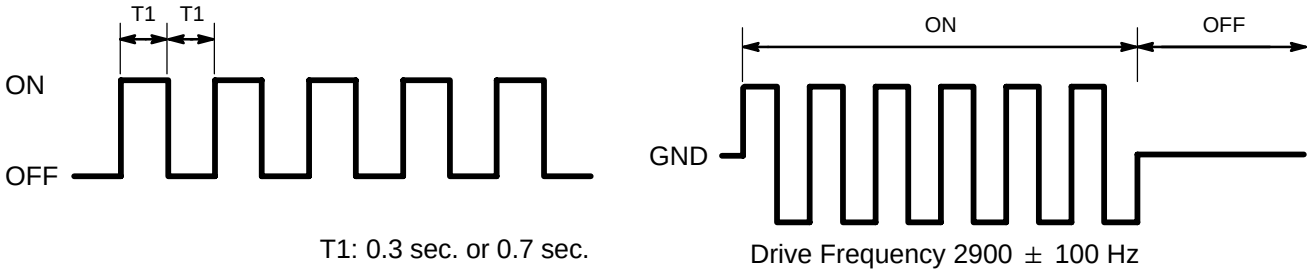
B67759

(a) Remove the buzzer connector.

(b) Inspect the buzzer connector side voltage.

**NOTICE:**

**Use an oscilloscope to check the output voltages of the buzzer.**



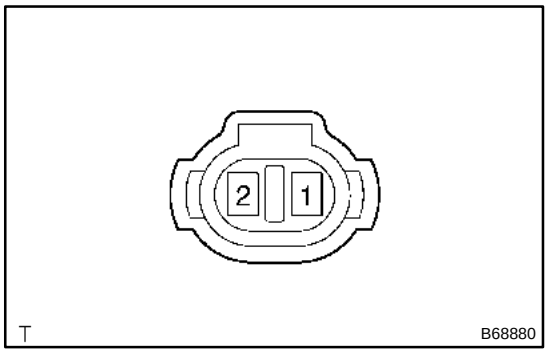

**Standard:**

| Terminal No. | Measurement Condition | Specified Condition |
|---|---|---|
| P33/P34-⍰ - Body ground | Condition that causes the buzzer to sound are met (See CIRCUIT DESCRIPTION) | 10 to 14 V (a cycle of 0.3 sec. or 0.7 sec.) |

**NG** → **Go to step 4**

**OK**

## 3 INSPECT POWER SLIDE DOOR WARNING BUZZER LH




(a) Check the resistance of the buzzer.
**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| 1 - 2 | Approx.1 kΩ |

**NOTICE:**

- **The circuit that causes the buzzer to sounds is built into the slide door ECU, not around the buzzer.**
- **Directly applying battery voltage to the buzzer does not cause the buzzer to sound.**

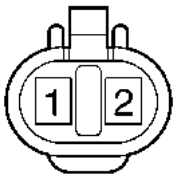
**NG** → **REPLACE POWER SLIDE DOOR WARNING BUZZER LH**

**OK**

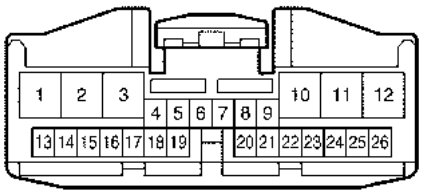
## 4 CHECK WIRE HARNESS (POWER SLIDE DOOR WARNING BUZZER LH - POWER SLIDE DOOR ECU LH)

**Wire Harness Side**

P33
Power Slide Door Warning Buzzer LH




P25
Power Slide Door ECU LH




(a) Disconnect the P33 buzzer and the P25 ECU connectors.
(b) Check the resistance between the wire harness side connectors.
**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P33-1 - P25-2 (BZR+) | Below 1 Ω |
| P33-2 - P25-1 (BZR-) | |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE POWER SLIDE DOOR ECU LH**

# POWER SLIDE DOOR WARNING BUZZER RH DOES NOT SOUND

## CIRCUIT DESCRIPTION

- The power slide door system uses warning buzzers built into RH slide doors respectively. Each buzzer has 2 ways of sounding that are used differently according to the situations:
  (1) When all the following conditions are met, the warning buzzer sounds at a cycle of 0.3 seconds:
    - The ignition switch is turned ON.
    - The shift lever is moved into any position except P position.
    - The slide door is open or the power slide door is activated to open.

  The warning buzzer continues to sound until the slide door is fully closed or the shift lever is moved into the P position.
  (2) While the power slide door is operating, the warning buzzer that notifies that the door is moving sounds at a cycle of 0.7 seconds. This stops sounding when the power slide door stops. This way of sounding is set to OFF at factory (default setting) and can be customized when required.
- The power slide door ECU RH directly sends a signal to the warning buzzer.

HINT:

- Only item 2 can be customized (See page 05-1654 ).
- If both items occur at the same time, item 1 is prior to the other.

## WIRING DIAGRAM

See page 05-1688 .

## INSPECTION PROCEDURE

| 1 | PERFORM ACTIVE TEST USING HAND-HELD TESTER |
|---|---|

(a) Select the active test and then check that the power slide door warning buzzer RH operates.

HINT:

During the active test, the hand-held tester sends a signal to the power slide door ECU RH to activate the warning buzzer. If the warning buzzer is activated, the warning buzzer itself and the wire harness between the warning buzzer and power slide door ECU RH are considered to be functioning normally.

**Standard (Power slide door ECU RH):**

| Item | Test Details | Diagnostic Note |
|---|---|---|
| PSD BUZZER | Power slide door warning buzzer sound<br>OFF/ON | - |

**OK** → **REPLACE POWER SLIDE DOOR ECU RH**

**NG**

| 2 | **CHECK WIRE HARNESS (POWER SLIDE DOOR WARNING BUZZER RH - BODY GROUND)** |
|---|---|

**Wire Harness Side**

P34

Power Slide Door Warning Buzzer RH




T

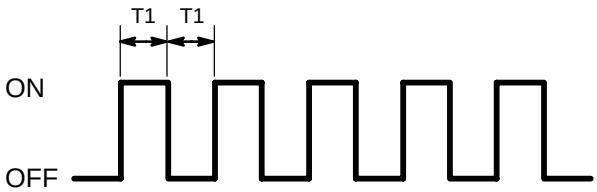
B67759

(a) Remove the buzzer connector.

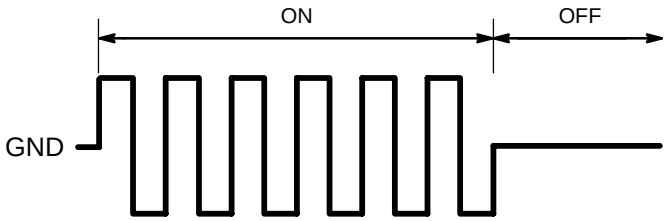
(b) Inspect the buzzer connector side voltage.

**NOTICE:**

**Use an oscilloscope to check the output voltages of the buzzer.**




T1: 0.3 sec. or 0.7 sec.




Drive Frequency 2900 ± 100 Hz

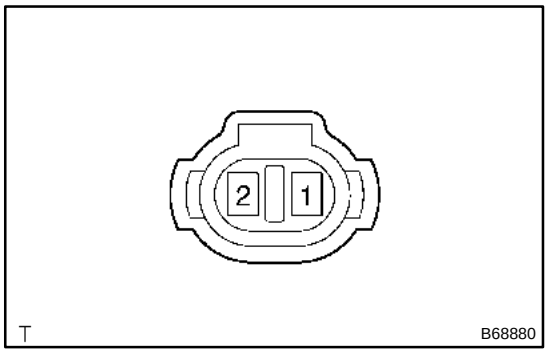
**Standard:**

| Terminal No. | Measurement Condition | Specified Condition |
|---|---|---|
| P33/P34-□ - Body ground | Condition that causes the buzzer to sound are met (See CIRCUIT DESCRIPTION) | 10 to 14 V (a cycle of 0.3 sec. or 0.7 sec.) |

**NG** → **Go to step 4**

**OK**

## 3 INSPECT POWER SLIDE DOOR WARNING BUZZER RH




(a) Check the resistance of the buzzer.
**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| 1 - 2 | Approx.1 kΩ |

**NOTICE:**

- **The circuit that causes the buzzer to sounds is built into the slide door ECU, not around the buzzer.**
- **Directly applying battery voltage to the buzzer does not cause the buzzer to sound.**

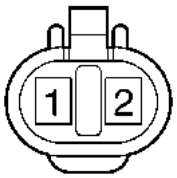
**NG** → **REPLACE POWER SLIDE DOOR WARNING BUZZER RH**

**OK**

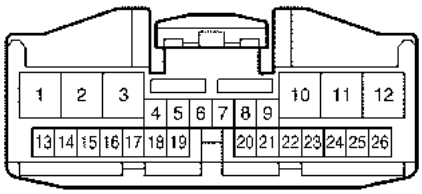
## 4 CHECK WIRE HARNESS (POWER SLIDE DOOR WARNING BUZZER RH - POWER SLIDE DOOR ECU RH)

**Wire Harness Side**

P34
Power Slide Door Warning Buzzer RH




P27
Power Slide Door ECU RH




(a) Disconnect the P34 buzzer and the P27 ECU connectors.
(b) Check the resistance between the wire harness side connectors.
**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P34-1 - P27-2 (BZR+) | Below 1 Ω |
| P34-2 - P27-1 (BZR-) | |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE POWER SLIDE DOOR ECU RH**

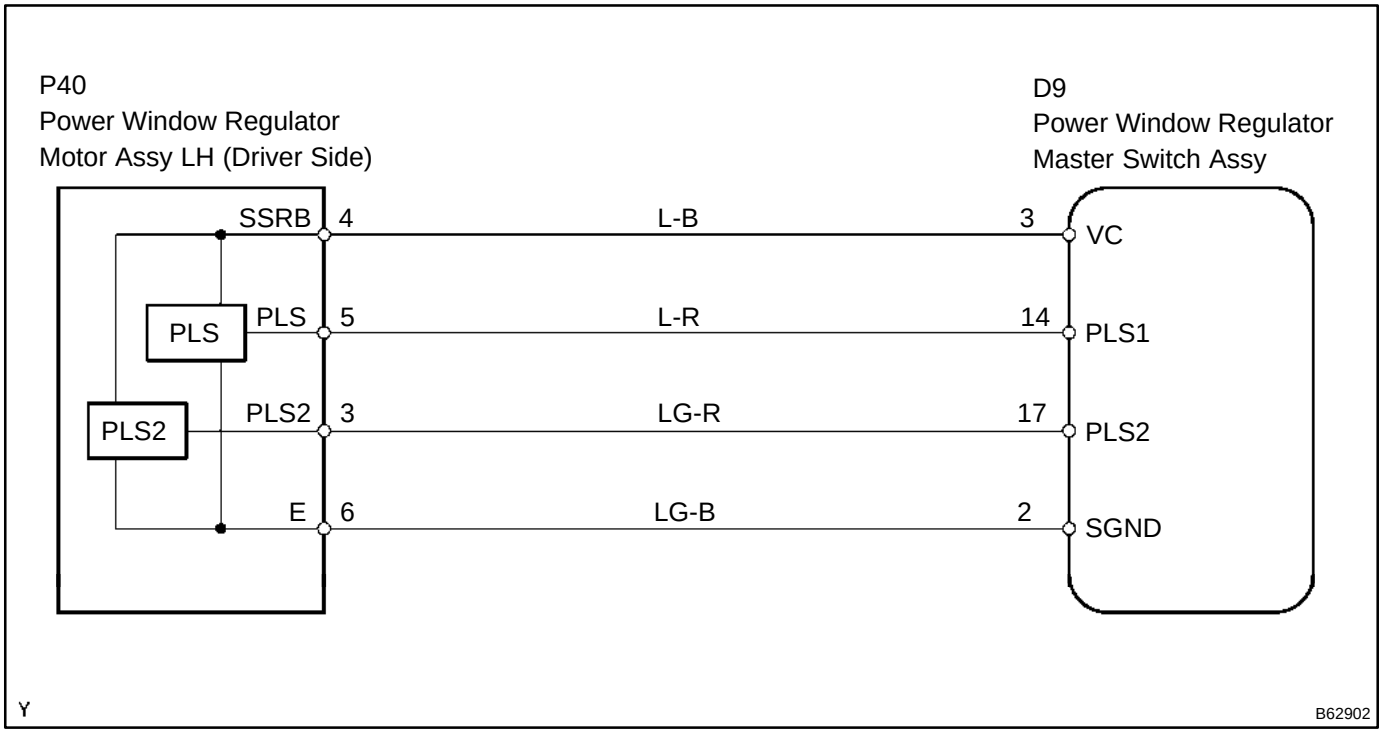
# AUTO UP/DOWN FUNCTION DOES NOT OPERATE

## CIRCUIT DESCRIPTION

If the AUTO UP/DOWN function does not operate, any of the following troubles may be the cause:

- When the PWR fuse or the power window relay (Marking: PWR) is replaced with new ones, or when the battery terminal and the connector of the power window master switch are disconnected, the power window memory of the fully closed position which is recorded in the power window master switch is erased.
- The pulse sensors in the driver side power window motor have a malfunction.
- There is an open or short circuit in the wiring between the power window master switch and the driver side power window motor.
- The power window master switch has a malfunction.

## WIRING DIAGRAM



## INSPECTION PROCEDURE

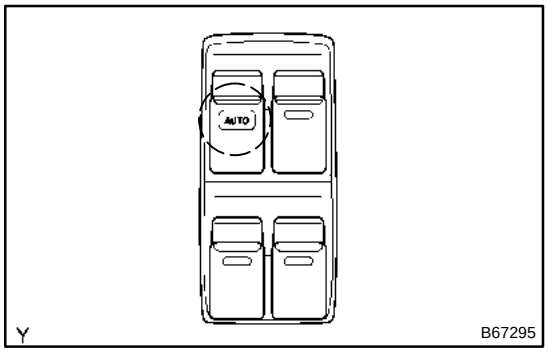
| 1 | CHECK MANUAL UP/DOWN FUNCTION (DRIVER SIDE) |
|---|---|

(a) Check that the door glass can be operated manually.

NG → OTHER PROBLEM (See page 05-1565 )

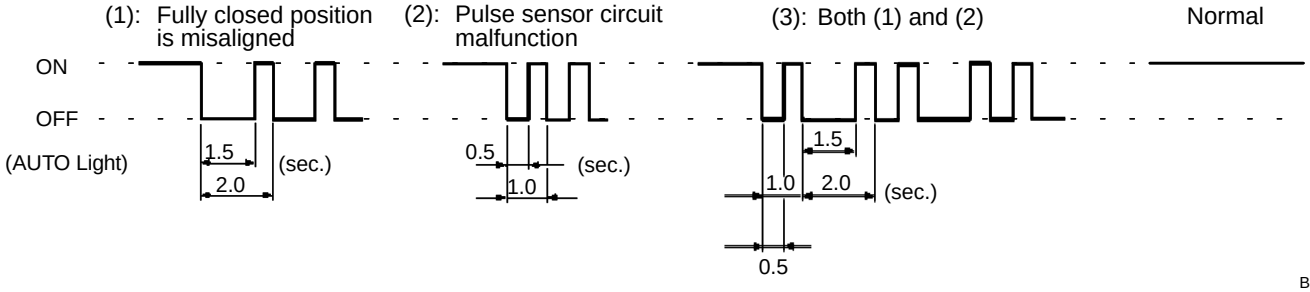
OK

| 2 | CHECK ILLUMINATION OF POWER WINDOW MASTER SWITCH |
|---|---|




(a) Turn the ignition switch ON.
(b) Operate the AUTO (drive side) switch of the master switch.
(c) Check the blinking pattern of the AUTO light as shown in the illustration.
  (1) If pattern (1) is displayed, proceed to A.
  (2) If pattern (2) or (3) is displayed, proceed to B.
  (3) If the normal pattern is displayed, proceed to C.

**Blinking Pattern of AUTO Light**




B → Go to step 4

C → REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSY

A

| 3 | RESET POWER WINDOW REGULATOR MOTOR (DRIVER SIDE) (See page 70-12 ) |
|---|---|

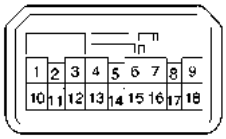
OK → END

NG

| 4 | CHECK WIRE HARNESS (MASTER SWITCH - MOTOR) (MASTER SWITCH - BODY GROUND) |
|---|---|

**Wire Harness Side**

D9
Power Window Regulator
Master Switch Assy




P40
Power Window Regulator
Motor Assy LH (Driver Side)




B62894

(a) Disconnect the D9 master switch connector.
(b) Disconnect the P40 motor connector (driver side).
(c) Check the resistance between the wire harness side connectors.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| D9-3 (VC) - P40-4 (SSRB) | Below 1 Ω |
| D9-14 (PLS1) - P40-5 (PLS) | |
| D9-17 (PLS2) - P40-3 (PLS2) | |
| D9-2 (SGND) - P40-6 (E) | |

(d) Check the resistance between the D9 master switch connector and body ground.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| D9-3 (VC) - Body ground | 10 kΩ or higher |
| D9-14 (PLS1) - Body ground | |
| D9-17 (PLS2) - Body ground | |
| D9-2 (SGND) - Body ground | |

NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

**REPLACE POWER WINDOW REGULATOR MOTOR ASSY LH (DRIVER SIDE)**

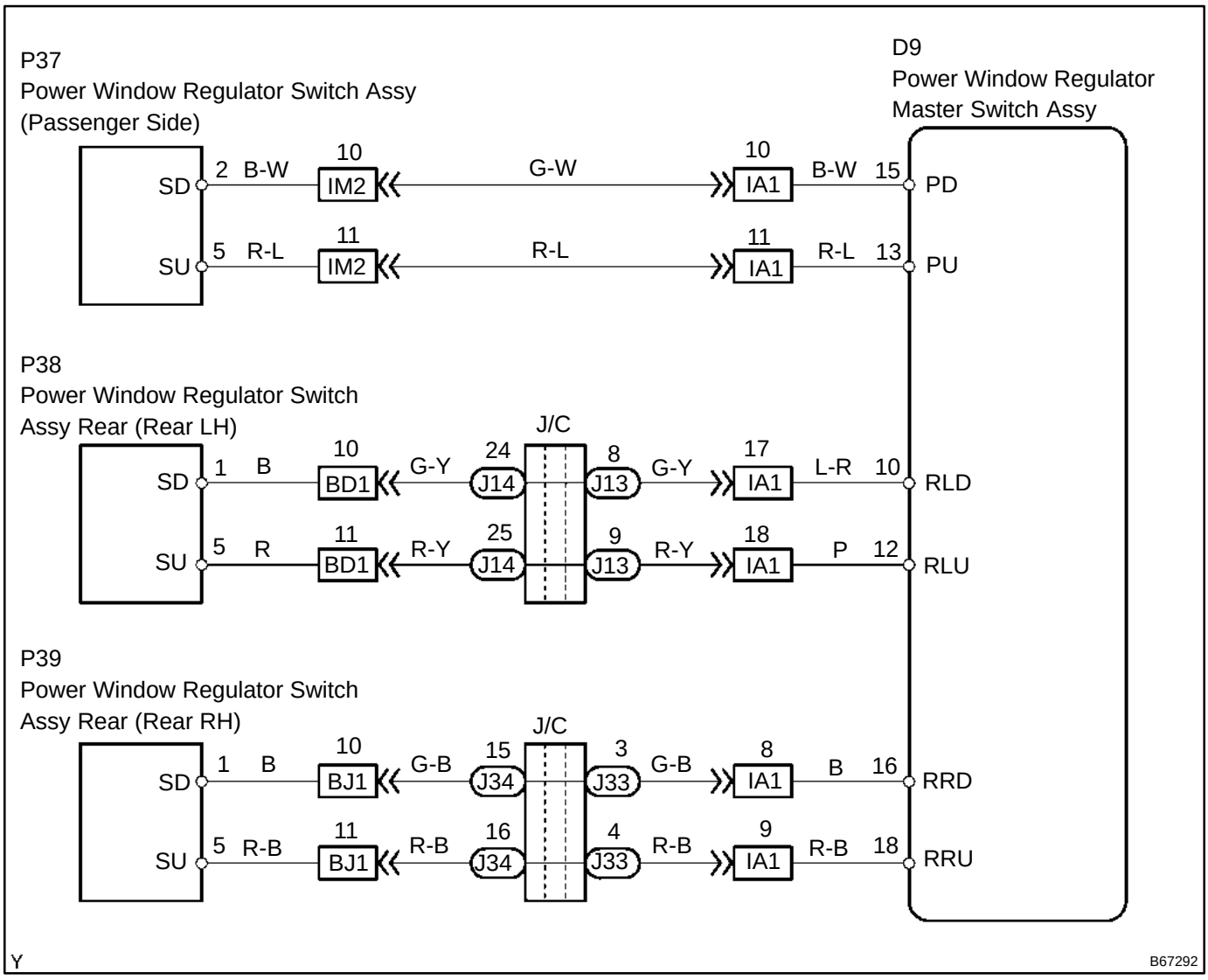
# REMOTE UP/DOWN FUNCTION DOES NOT OPERATE

## CIRCUIT DESCRIPTION

If the REMOTE UP/DOWN function does not operate, any of the following troubles may be the cause:

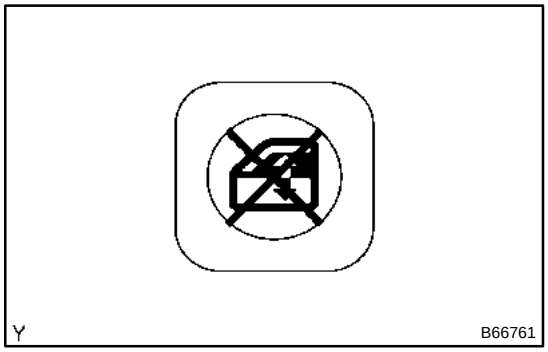
- There is an open or short circuit in the wiring between the power window master switch and the applicable power window regulator switch.
- The power window master switch has a malfunction.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

## 1 CHECK POWER WINDOW LOCK SWITCH




(a) Push the window lock switch OFF (normal) and check that the remote UP/DOWN function operates.

**OK** → **END**

**NG**

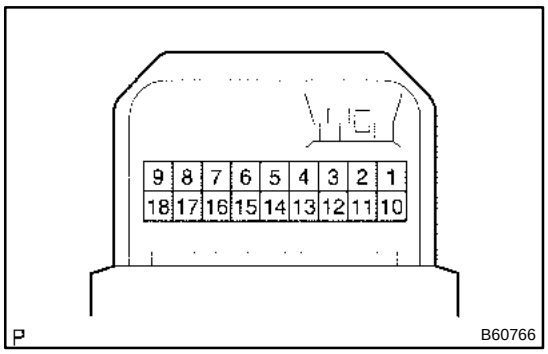
## 2 CHECK MANUAL UP/DOWN FUNCTION

(a) Check that the passenger side door window and slide door windows can be operated via each regulator switch.

**NG** → **OTHER PROBLEM (See page 05-1558 )**

**OK**

## 3 INSPECT POWER WINDOW REGULATOR MASTER SWITCH ASSY




HINT:
Inspect the switch with the nonoperational remote function.

(a) Remove the master switch.

(b) Check the resistance between the terminals of the master switch when each switch is operated, as shown in the table below.

**Standard:**
**Passenger side switch**

| Window Lock Switch | Power Window Switch | Terminal No. | Specified Condition |
|---|---|---|---|
| OFF (Normal) | UP | 1 - 15, 6 - 13 | Below 1 Ω |
| | OFF | 1 - 13 - 15 | |
| | DOWN | 1 - 13, 6 - 15 | |
| ON (Lock) | UP | 6 - 13 | |
| | OFF | 13 - 15 | |
| | DOWN | 6 - 15 | |

### Rear LH switch

| Window Lock Switch | Power Window Switch | Terminal No. | Specified Condition |
|---|---|---|---|
| OFF (Normal) | UP | 1 - 10, 6 - 12 | Below 1 Ω |
| | OFF | 1 - 10 - 12 | |
| | DOWN | 1 - 12, 6 - 10 | |
| ON (Lock) | UP | 6 - 12 | |
| | OFF | 10 - 12 | |
| | DOWN | 6 - 10 | |

### Rear RH switch

| Window Lock Switch | Power Window Switch | Terminal No. | Specified Condition |
|---|---|---|---|
| OFF (Normal) | UP | 1 - 16, 6 - 18 | Below 1 Ω |
| | OFF | 1 - 6 - 18 | |
| | DOWN | 1 - 18, 6 - 16 | |
| ON (Lock) | UP | 6 - 18 | |
| | OFF | 16 - 18 | |
| | DOWN | 6 - 16 | |

NG → **REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSY**

OK

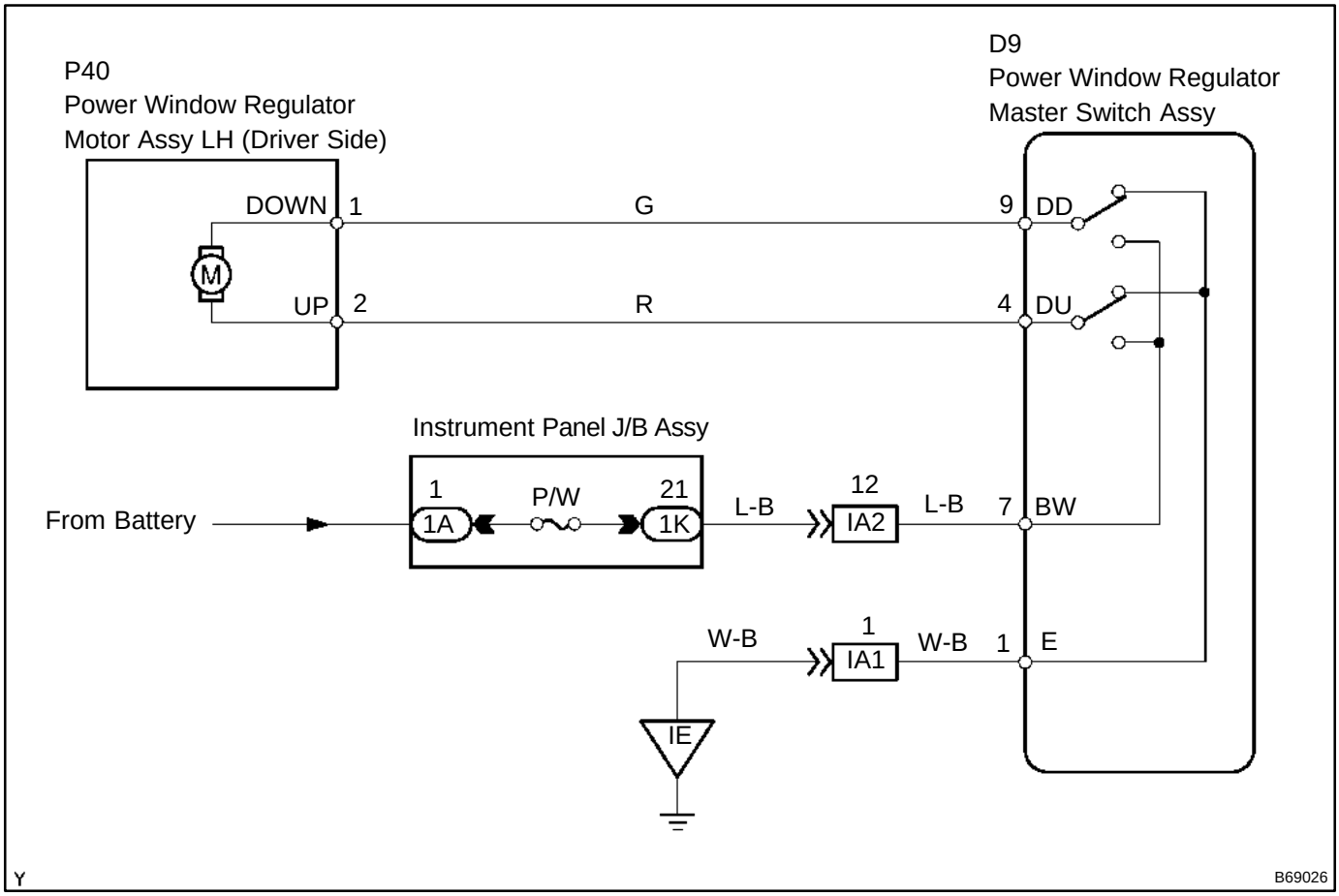
**REPAIR OR REPLACE HARNESS AND CONNECTOR (MASTER SWITCH - EACH REGULATOR SWITCH)**

# MANUAL UP/DOWN FUNCTION DOES NOT OPERATE ON DRIVER SIDE

## CIRCUIT DESCRIPTION

If the manual UP/DOWN function does not operate, no power may be supplied to the power window master switch or the power window motor. The power window master switch itself or the wire harness may be malfunctioning.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

| 1 | INSPECT FUSE (P/W) |
|---|---|

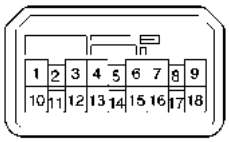
(a) Remove the fuse from the instrument panel J/B.
(b) Check the resistance.
**Standard: Below 1 Ω**

**NG** → **REPLACE FUSE**

**OK**

## 2 CHECK WIRE HARNESS (TERMINAL BW)

**Wire Harness Side**
D9
Power Window Regulator
Master Switch




B62895

(a) Turn the ignition switch ON.
(b) Check the voltage between the terminal of the wire harness side connector and the body ground.

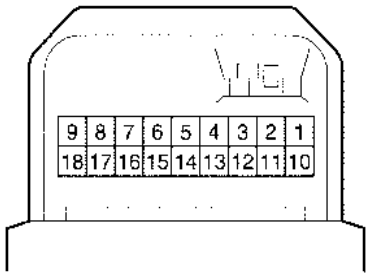
**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| D9-7 - Body ground | Ignition switch ON | 10 to 14 V |

NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR (P/W FUSE - MASTER SWITCH)**

OK

## 3 INSPECT POWER WINDOW REGULATOR MASTER SWITCH ASSY




B60766

(a) Remove the master switch.
(b) Check the resistance between the terminals of the master switch when the AUTO (driver side) switch is operated, as shown in the table below.

**Standard:**

| Terminal No. | AUTO Switch | Specified Condition |
|---|---|---|
| 1 - 9, 4 - 7 | UP | Below 1 Ω |
| 1 - 4 - 9 | OFF | |
| 1 - 4, 7 - 9 | DOWN | |

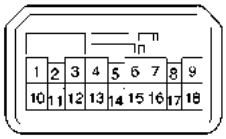
NG → **REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSY**

OK

## 4 CHECK WIRE HARNESS (MASTER SWITCH - MOTOR) (MASTER SWITCH - BODY GROUND)

**Wire Harness Side**

D9
Power Window Regulator
Master Switch Assy




P40
Power Window Regulator
Motor Assy LH (Driver Side)




B62894

(a) Disconnect the D9 master switch connector.
(b) Disconnect the P40 motor connector.
(c) Check the resistance between the wire harness side connectors.

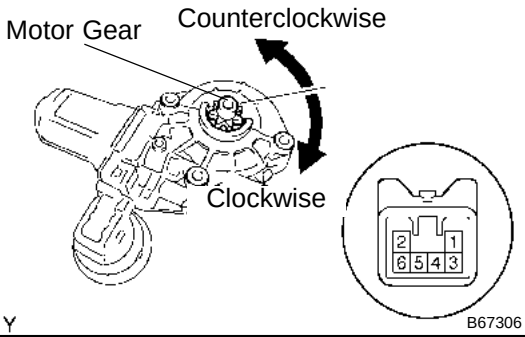
**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| D9-9 (DD) - P40-1 (DOWN) | Below 1 Ω |
| D9-4 (DU) - P40-2 (UP) | |

(d) Check the resistance between the D9 master switch connector and body ground.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| D9-9 (DD) - Body ground | 10 kΩ or higher |
| D9-4 (DU) - Body ground | |




(e) Reference:
Check operation of the power window motor (driver side).
(1) Remove the motor (See page 75-8 ).
(2) Apply battery voltage to connector terminals 1 and 2.
(3) Check that the motor smoothly rotates.

**NOTICE:**
**Do not apply battery voltage to any terminals except terminals 1 and 2.**

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| Battery positive (+) → 1<br>Battery negative (-) → 2 | Motor gear rotates counterclockwise |
| Battery positive (+) → 2<br>Battery negative (-) → 1 | Motor gear rotates clockwise |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

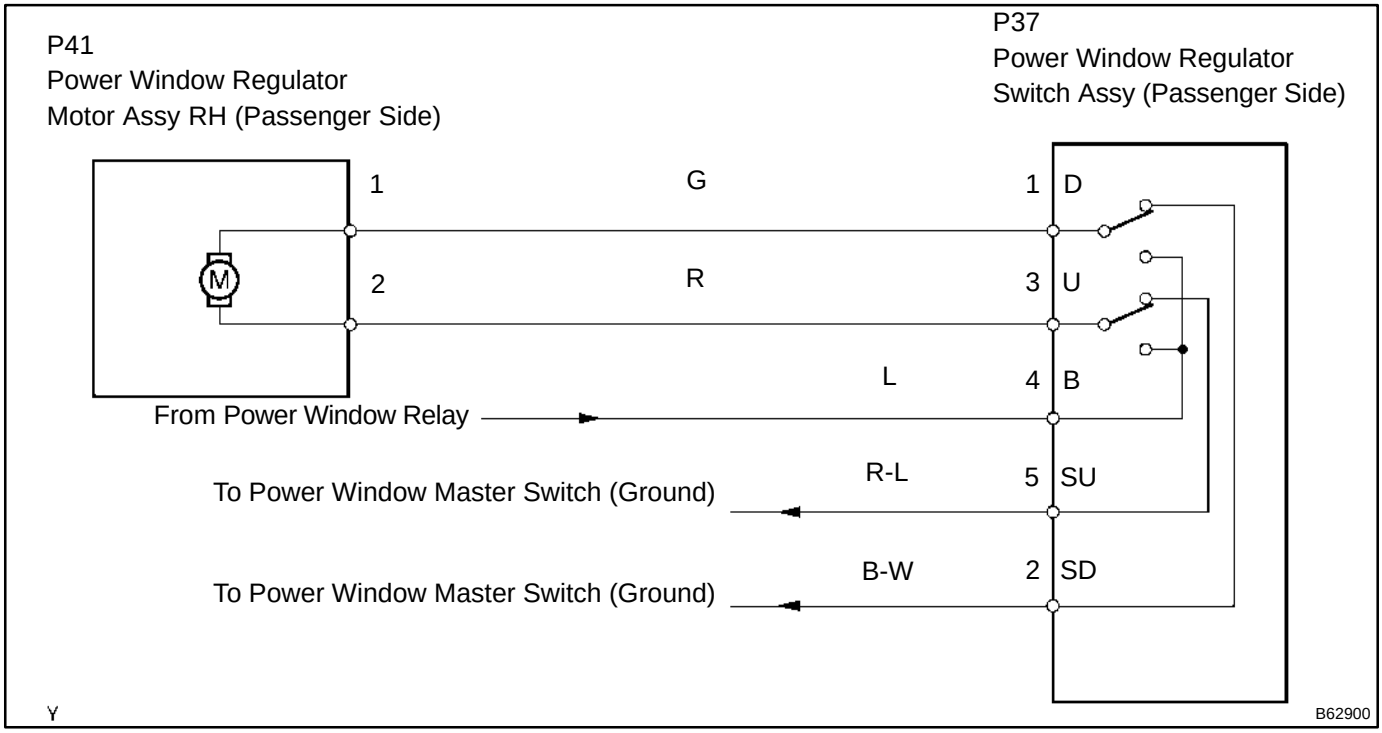
**REPLACE POWER WINDOW REGULATOR MOTOR ASSY LH (DRIVER SIDE)**

# MANUAL UP/DOWN FUNCTION DOES NOT OPERATE ON PASSENGER SIDE

## CIRCUIT DESCRIPTION

If the manual UP/DOWN function does not operate, the power window motor, the regulator switch or the wire harness may be malfunctioning.

## WIRING DIAGRAM

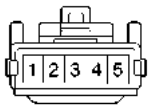



## INSPECTION PROCEDURE

| 1 | CHECK WIRE HARNESS (POWER SOURCE) |
|---|---|

**Wire Harness Side**

P37
Power Window Regulator
Switch Assy (Passenger Side)




B62901

(a) Disconnect the P37 regulator switch connector.
(b) Turn the ignition switch ON.
(c) Check the voltage between the terminal 4 of the wire harness side connector and the body ground.

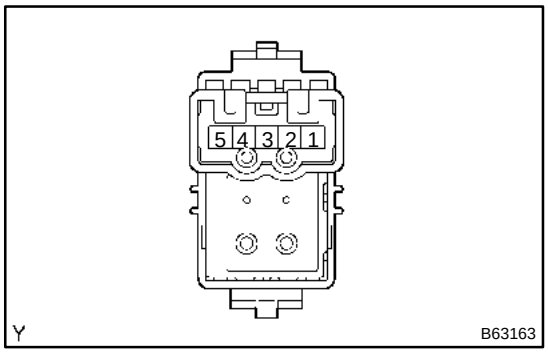
**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| P37-4 - Body ground | Ignition switch ON | 10 to 14 V |

NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR (REGULATOR SWITCH - RELAY)**

OK

## 2 INSPECT POWER WINDOW REGULATOR SWITCH ASSY (PASSENGER SIDE)




(a) Remove the regulator switch.

(b) Check the resistance between the switch terminals when the switch is operated, as shown in the table below.

**Standard:**

| Terminal No. | Regulator Switch | Specified Condition |
|---|---|---|
| 1 - 2, 3 - 4 | UP | Below 1 Ω |
| 1 - 2, 3 - 5 | OFF | |
| 1 - 4, 3 - 5 | DOWN | |

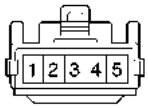
**NG** → **REPLACE POWER WINDOW REGULATOR SWITCH ASSY (PASSENGER SIDE)**

**OK**

## 3 CHECK WIRE HARNESS (REGULATOR SWITCH - MOTOR) (REGULATOR SWITCH - BODY GROUND)

**Wire Harness Side**

P37
Power Window Regulator
Switch Assy (Passenger Side)




P41
Power Window Regulator
Motor Assy RH (Passenger Side)




B63164

(a) Disconnect the P41 motor connector.

(b) Check the resistance between the wire harness side connectors.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| P37-1 (D) - P41-1 | Below 1 Ω |
| P37-3 (U) - P41-2 | |

(c) Check the resistance between the P37 regulator switch connector and body ground.

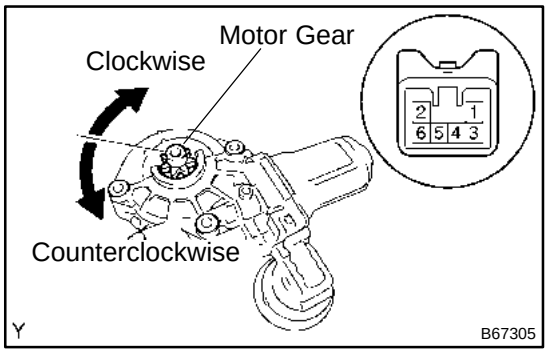
**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| P37-1 (D) - Body ground | 10 kΩ or higher |
| P37-3 (U) - Body ground | |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

| 4 | INSPECT POWER WINDOW REGULATOR MOTOR ASSY RH (PASSENGER SIDE) |
|---|---|




(a) Remove the motor (See page 75-8 ).
(b) Apply battery voltage to connector terminals 1 and 2.
(c) Check that the motor smoothly rotates.

**NOTICE:**

**Do not apply battery voltage to any terminals except terminals 1 and 2.**

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| Battery positive (+) → 1<br>Battery negative (-) → 2 | Motor gear rotates clockwise |
| Battery positive (+) → 2<br>Battery negative (-) → 1 | Motor gear rotates counterclockwise |

**NG** → **REPLACE POWER WINDOW REGULATOR MOTOR ASSY RH (PASSENGER SIDE)**

**OK**

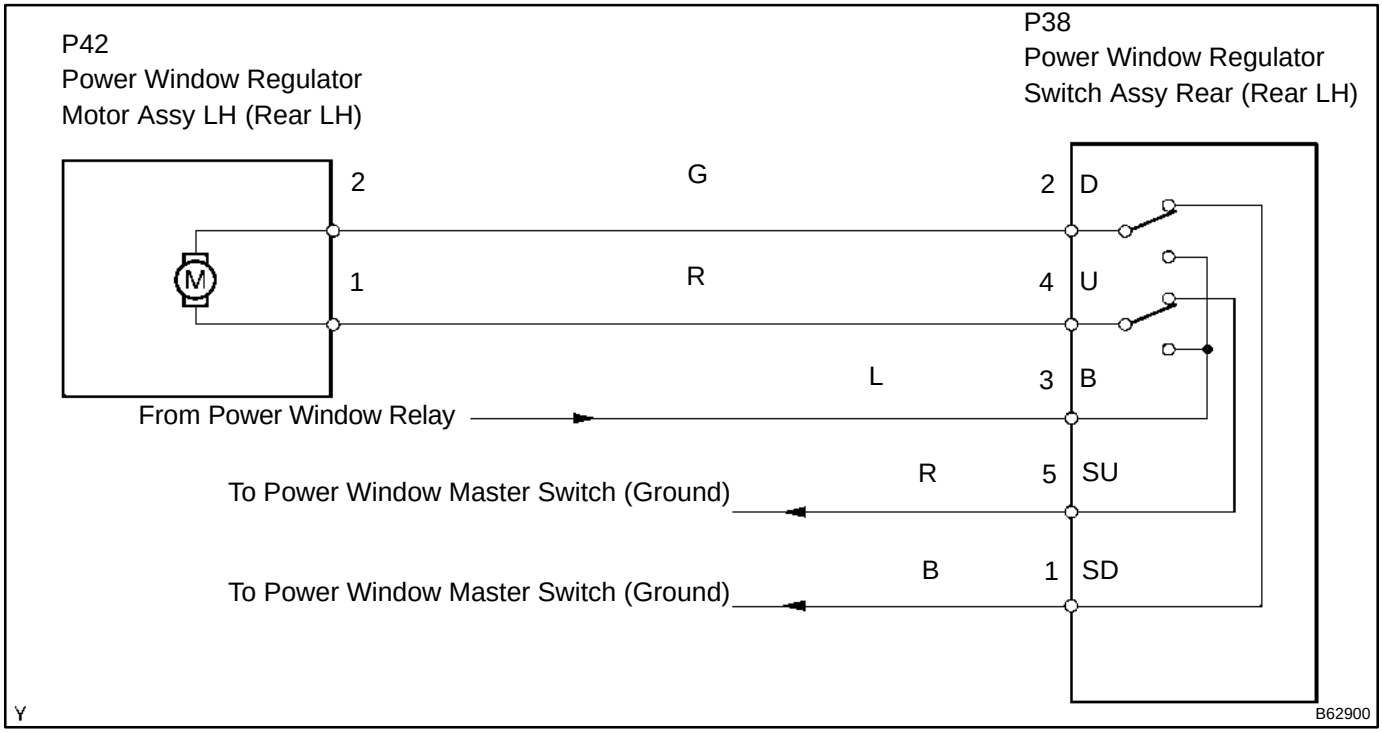
**REPAIR OR REPLACE HARNESS AND CONNECTOR (MASTER SWITCH - REGULATOR SWITCH)**

# MANUAL UP/DOWN FUNCTION DOES NOT OPERATE AT REAR LH

## CIRCUIT DESCRIPTION

If the manual UP/DOWN function does not operate, the power window motor, the regulator switch or the wire harness may be malfunctioning.

## WIRING DIAGRAM

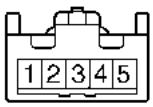



## INSPECTION PROCEDURE

| 1 | CHECK WIRE HARNESS (POWER SOURCE) |
|---|---|

**Wire Harness Side**

P38
Power Window Regulator
Switch Assy Rear (Rear LH)




B67300

(a) Disconnect the P38 regulator switch connector.
(b) Turn the ignition switch on.
(c) Check the voltage between the terminal of the wire harness side connector and the body ground.

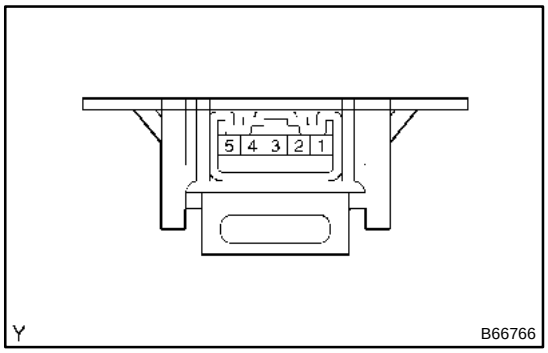
**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| P38-3 - Body ground | Ignition switch ON | 10 to 14 V |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR (REGULATOR SWITCH - POWER WINDOW RELAY)**

**OK**

## 2 INSPECT POWER WINDOW REGULATOR SWITCH ASSY REAR (REAR LH)




(a) Remove the regulator switch.

(b) Check the resistance between the switch terminals when the switch is operated, as shown in the table below.

**Standard:**

| Terminal No. | Regulator Switch | Specified Condition |
|---|---|---|
| 1 - 2, 3 - 4 | UP | Below 1 Ω |
| 1 - 2, 4 - 5 | OFF | |
| 2 - 3, 4 - 5 | DOWN | |

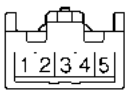
| | |
|---|---|
| NG | **REPLACE POWER WINDOW REGULATOR SWITCH ASSY REAR (REAR LH)** |

**OK**

## 3 CHECK WIRE HARNESS (REGULATOR SWITCH - MOTOR) (REGULATOR SWITCH - BODY GROUND)

**Wire Harness Side**

P38
Power Window Regulator
Switch Assy Rear (Rear LH)




P42
Power Window Regulator
Motor Assy LH (Rear LH)




(a) Disconnect the P42 motor connector.

(b) Check the resistance between the wire harness side connectors.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| P38-2 (D) - P42-2 | Below 1 Ω |
| P38-4 (U) - P42-1 | |

(c) Check the resistance between the P38 regulator switch connector and body ground.

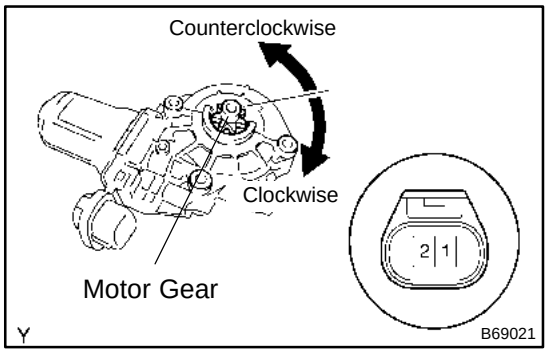
**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| P38-2 (D) - Body ground | 10 kΩ or higher |
| P38-4 (U) - Body ground | |

| | |
|---|---|
| NG | **REPAIR OR REPLACE HARNESS AND CONNECTOR** |

**OK**

## 4 INSPECT POWER WINDOW REGULATOR MOTOR ASSY LH (REAR LH)




(a) Remove the motor (See page 75-48 ).
(b) Apply battery voltage to connector terminals 1 and 2.
(c) Check that the motor smoothly rotates.

**NOTICE:**

**Do not apply battery voltage to any terminals except terminals 1 and 2.**

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| Battery positive (+) → 1<br>Battery negative (-) → 2 | Motor gear rotates clockwise |
| Battery positive (+) → 2<br>Battery negative (-) → 1 | Motor gear rotates counterclockwise |

**NG** → **REPLACE POWER WINDOW REGULATOR MOTOR ASSY LH (REAR LH)**

**OK**

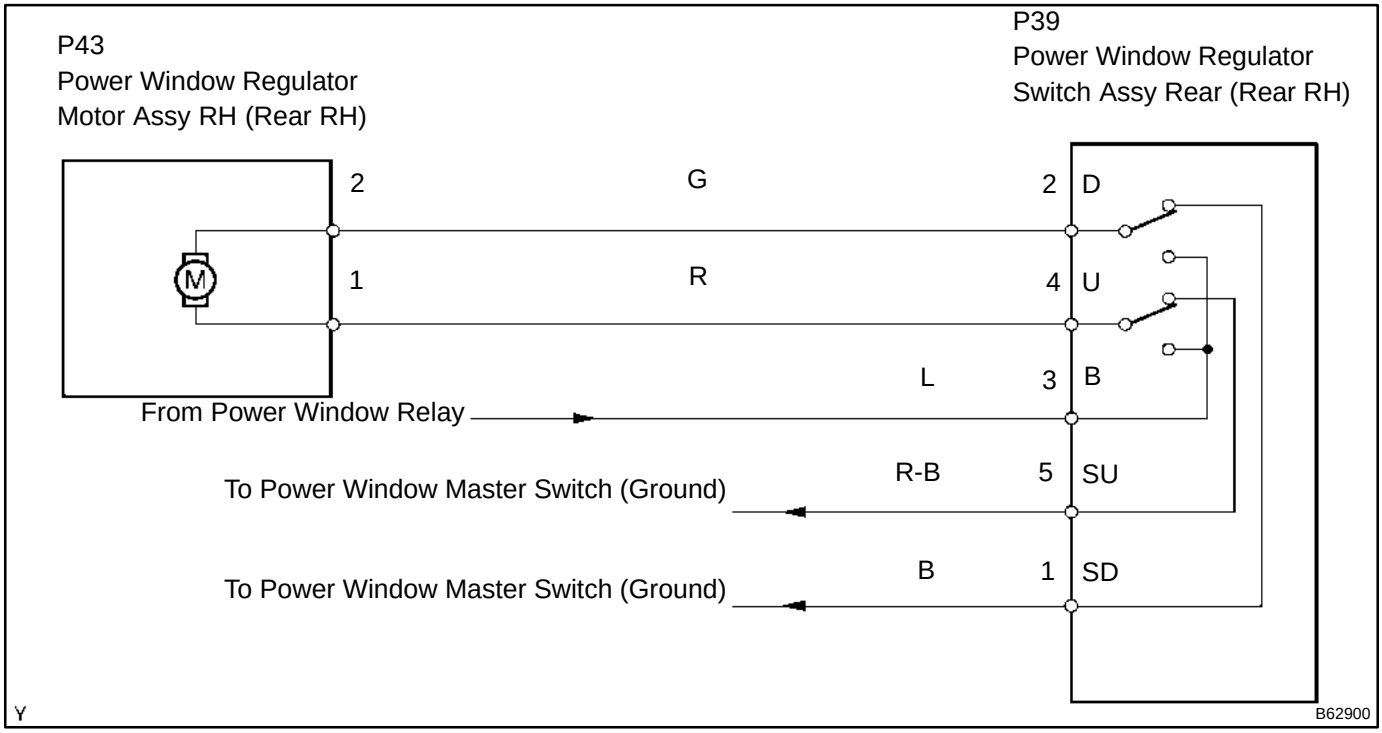
**REPAIR OR REPLACE HARNESS AND CONNECTOR (MASTER SWITCH - REGULATOR SWITCH)**

# MANUAL UP/DOWN FUNCTION DOES NOT OPERATE AT REAR RH

## CIRCUIT DESCRIPTION

If the manual UP/DOWN function does not operate, the power window motor, the regulator switch or the wire harness may be malfunctioning.

## WIRING DIAGRAM

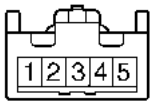



## INSPECTION PROCEDURE

| 1 | CHECK WIRE HARNESS (POWER SOURCE) |
|---|---|

**Wire Harness Side**

P39
Power Window Regulator
Switch Assy Rear (Rear RH)




B67300

(a) Disconnect the P39 regulator switch connector.
(b) Turn the ignition switch ON.
(c) Check the voltage between the terminal of the wire harness side connector and the body ground.

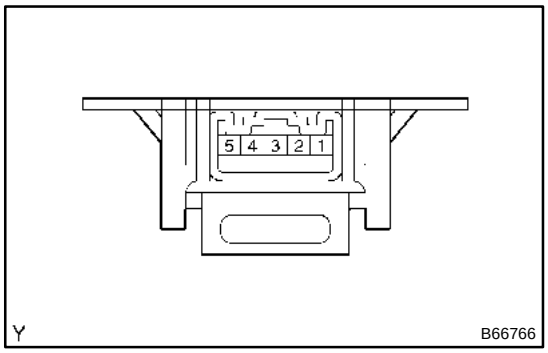
**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| P39-3 - Body ground | Ignition switch ON | 10 to 14 V |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR (REGULATOR SWITCH - RELAY)**

**OK**

## 2 INSPECT POWER WINDOW REGULATOR SWITCH ASSY REAR (REAR RH)




(a) Remove the regulator switch.

(b) Check the resistance between the switch terminals when the switch is operated, as shown in the table below.

**Standard:**

| Terminal No. | Regulator Switch | Specified Condition |
|---|---|---|
| 1 - 2, 3 - 4 | UP | Below 1 Ω |
| 1 - 2, 4 - 5 | OFF | |
| 2 - 3, 4 - 5 | DOWN | |

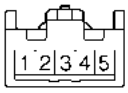
| | |
|---|---|
| NG | **REPLACE POWER WINDOW REGULATOR SWITCH ASSY REAR (REAR RH)** |

**OK**

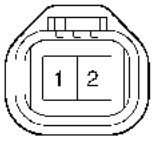
## 3 CHECK WIRE HARNESS (REGULATOR SWITCH - MOTOR) (REGULATOR SWITCH - BODY GROUND)

**Wire Harness Side**

P39
Power Window Regulator
Switch Assy Rear (Rear RH)




P43
Power Window Regulator
Motor Assy RH (Rear RH)




(a) Disconnect the P43 motor connector.

(b) Check the resistance between the wire harness side connectors.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| P39-2 (D) - P43-2 | Below 1 Ω |
| P39-4 (U) - P43-1 | |

(c) Check the resistance between the P39 regulator switch connector and body ground.

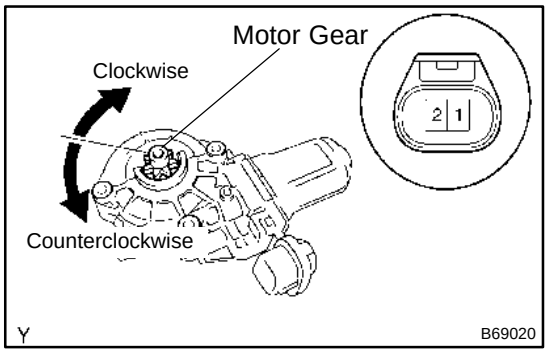
**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| P39-2 (D) - Body ground | 10 kΩ or higher |
| P39-4 (U) - Body ground | |

| | |
|---|---|
| NG | **REPAIR OR REPLACE HARNESS AND CONNECTOR** |

**OK**

## 4 INSPECT POWER WINDOW REGULATOR MOTOR ASSY RH (REAR RH)




(a) Remove the motor (See page 75-48 ).
(b) Apply battery voltage to connector terminals 1 and 2.
(c) Check that the motor smoothly rotates.

**NOTICE:**

**Do not apply battery voltage to any terminals except terminals 1 and 2.**

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| Battery positive (+) → 1<br>Battery negative (-) → 2 | Motor gear rotates counterclockwise |
| Battery positive (+) → 2<br>Battery negative (-) → 1 | Motor gear rotates clockwise |

**NG** → **REPLACE POWER WINDOW REGULATOR MOTOR ASSY RH (REAR RH)**

**OK**

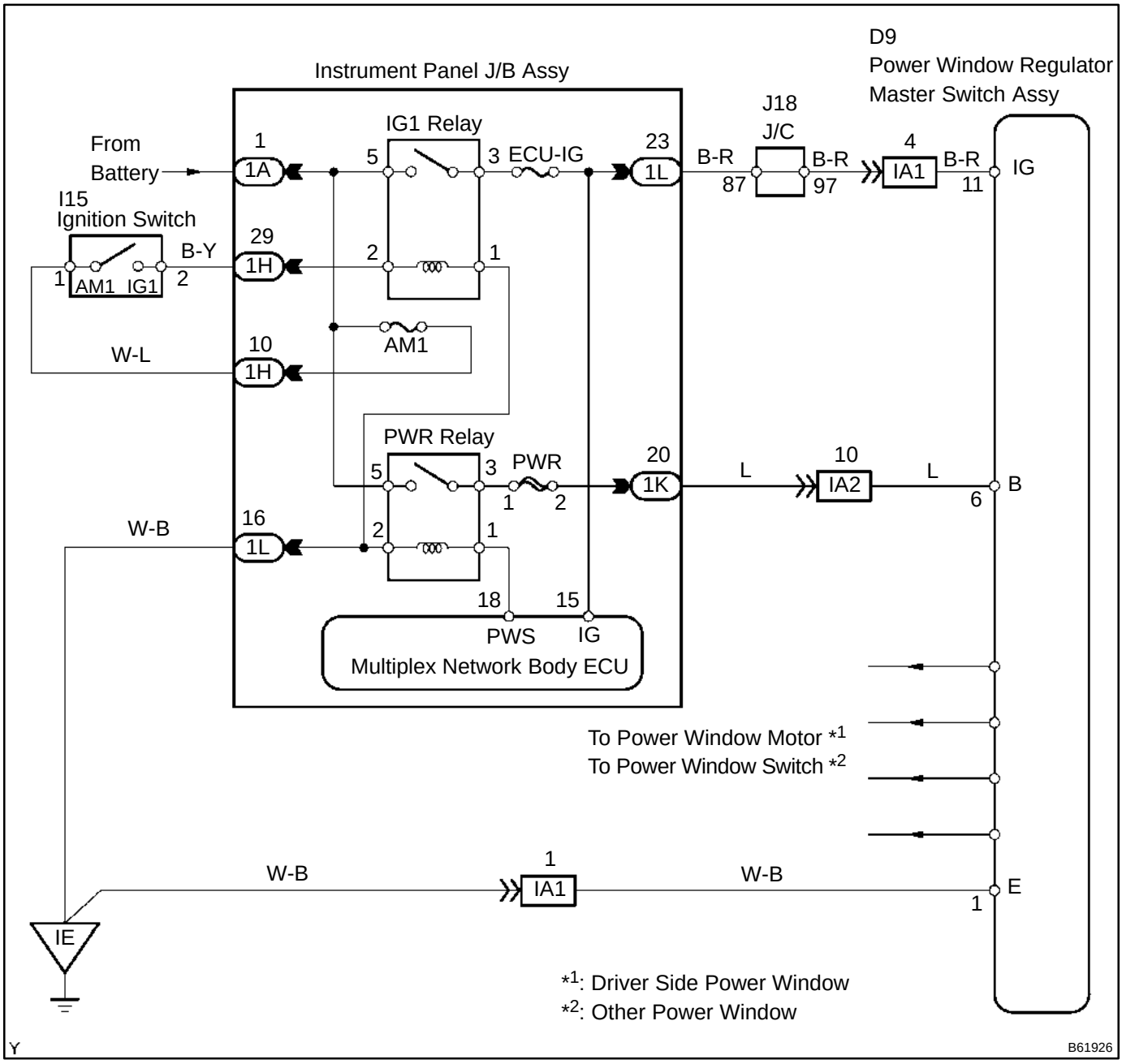
**REPAIR OR REPLACE HARNESS AND CONNECTOR (MASTER SWITCH - REGULATOR SWITCH)**

# POWER WINDOWS DO NOT OPERATE AT ALL

## CIRCUIT DESCRIPTION

If all of the door windows do not operate, no power may be supplied to the power window master switch or the power window master switch itself may have a malfunction.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

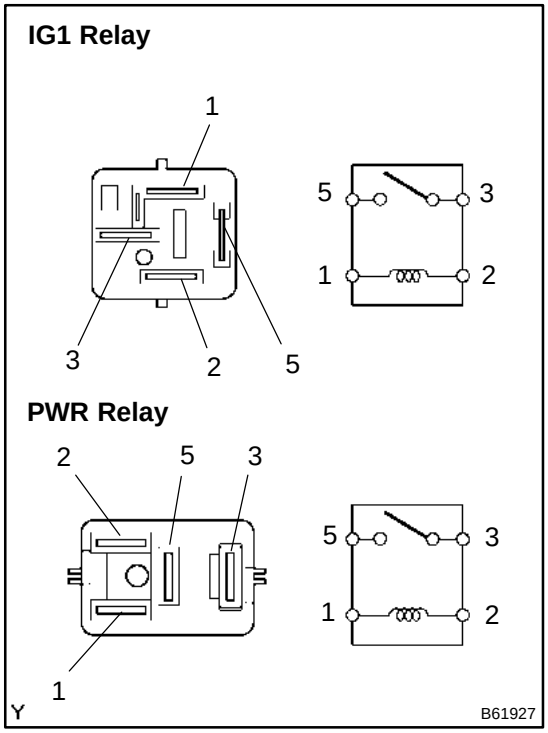
| 1 | INSPECT FUSE (PWR, ECU-IG, AM1) |
|---|---|

(a) Remove the fuses from the instrument panel J/B.
(b) Check the resistance.
**Standard: Below 1 Ω**

**NG** → **REPLACE FUSE**

**OK**

| 2 | INSPECT RELAY (IG1, PWR) |
|---|---|




(a) Remove the relay from the instrument panel J/B.
(b) Check the resistance of the relay.
**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| 3 - 5 | 10 kΩ or higher |
| | Below 1 Ω (When battery voltage is applied to terminals 1 and 2) |

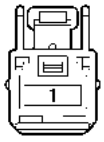
**NG** → **REPLACE RELAY**

**OK**

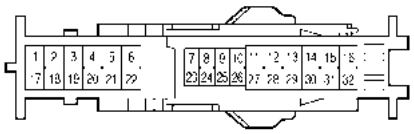
## 3 CHECK WIRE HARNESS (TO INSTRUMENT JUNCTION BLOCK ASSY)

**Wire Harness Side**

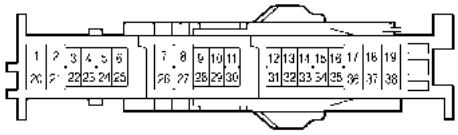
1A
Instrument Panel J/B Assy



1L
Instrument Panel J/B Assy



1H
Instrument Panel J/B Assy



Y B67307

(a) Disconnect the 1A, 1H and 1L J/B connectors.
(b) Check the voltage and resistance between each terminal of the wire harness side connector and the body ground.

**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 1A-1 - Body ground | Constant | 10 to 14 V |
| 1L-16 - Body ground | Constant | Below 1 Ω |
| 1H-10 - 1H-29 | Ignition switch ON | Below 1 Ω |

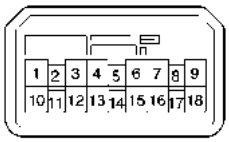
**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

## 4 CHECK WIRE HARNESS (TO POWER WINDOW REGULATOR MASTER SWITCH)

**Wire Harness Side**

D9
Power Window Regulator
Master Switch Assy



B62895

(a) Disconnect the D9 master switch connector.
(b) Check the voltage or resistance between each terminal of the wire harness side connector and the body ground.

**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| D9-6 (B) - Body ground | Ignition switch ON | 10 to 14 V |
| D9-11 (IG) - Body ground | | |
| D9-1 (E) - Body ground | Constant | Below 1 Ω |

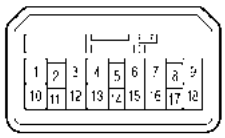
**OK** → **REPLACE POWER WINDOW REGULATOR MASTER SWITCH ASSY**

**NG**

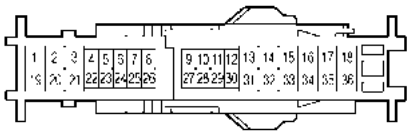
| 5 | CHECK WIRE HARNESS (INSTRUMENT JUNCTION BLOCK ASSY - POWER WINDOW MASTER SWITCH) |
|---|---|

**Wire Harness Side**

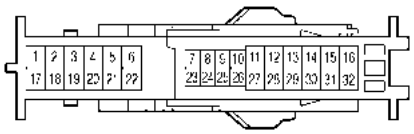
D9
Power Window Regulator
Master Switch Assy



1K
Instrument J/B Assy



1L
Instrument J/B Assy



Y B68012

(a) Disconnect the 1L and 1K J/B connectors.
(b) Disconnect the D9 master switch connector.
(c) Check the resistance between the wire harness side connectors.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| 1K-20 - D9-6 (B) | Below 1 Ω |
| 1L-23 - D9-11 (IG) | |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

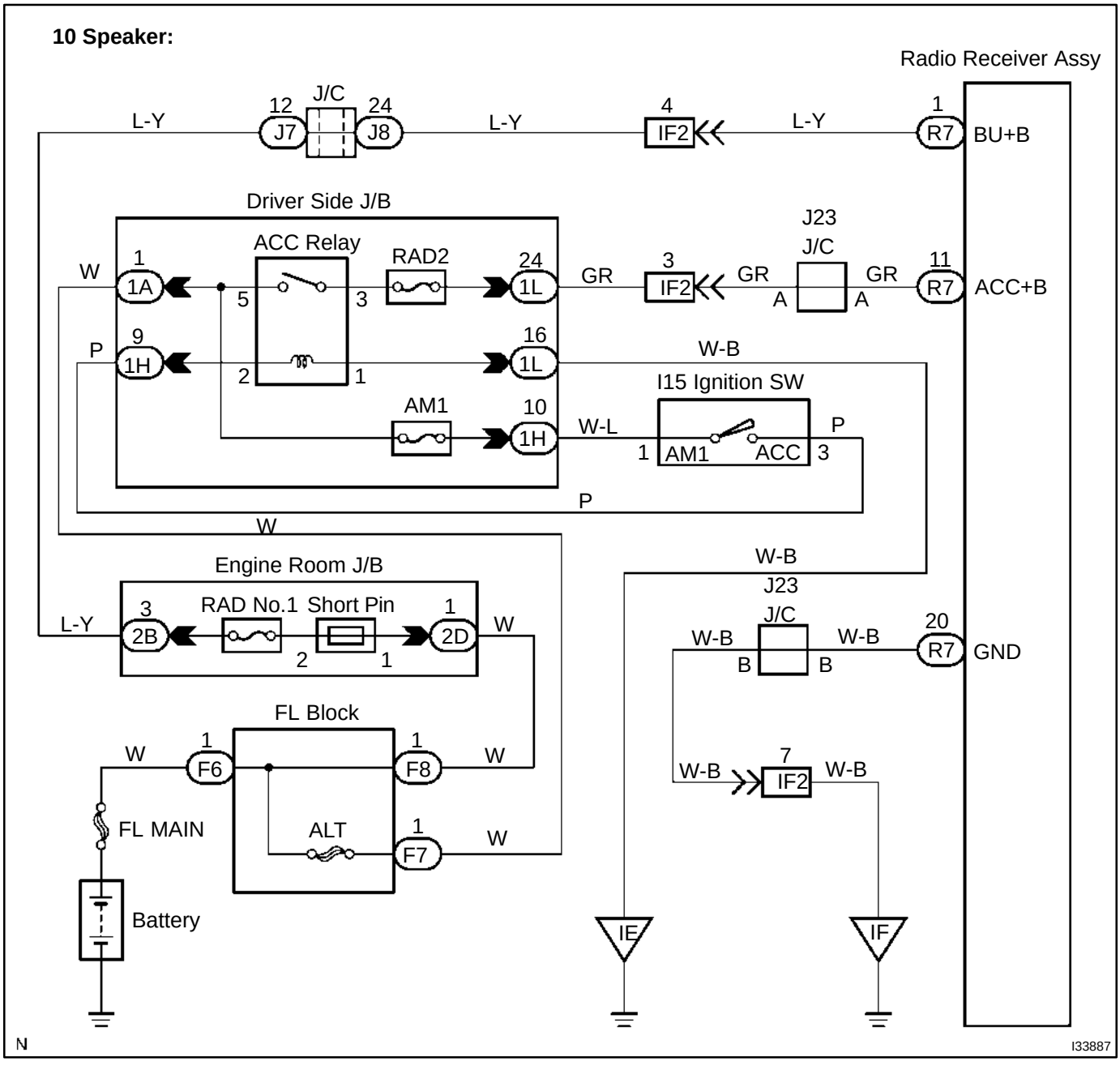
**OK**

**REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY**

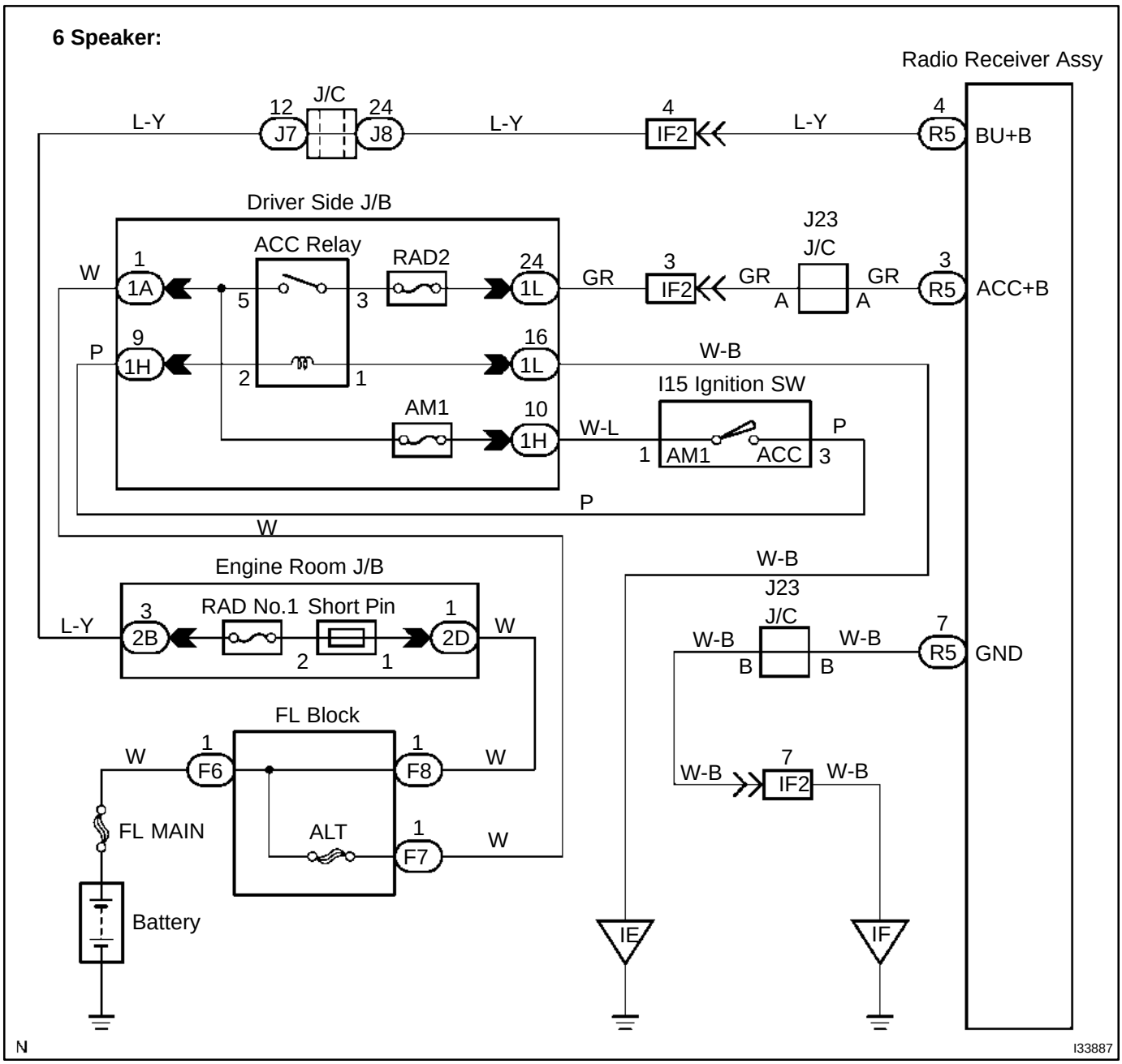
# POWER SOURCE CIRCUIT (RADIO RECEIVER ASSY)

## WIRING DIAGRAM

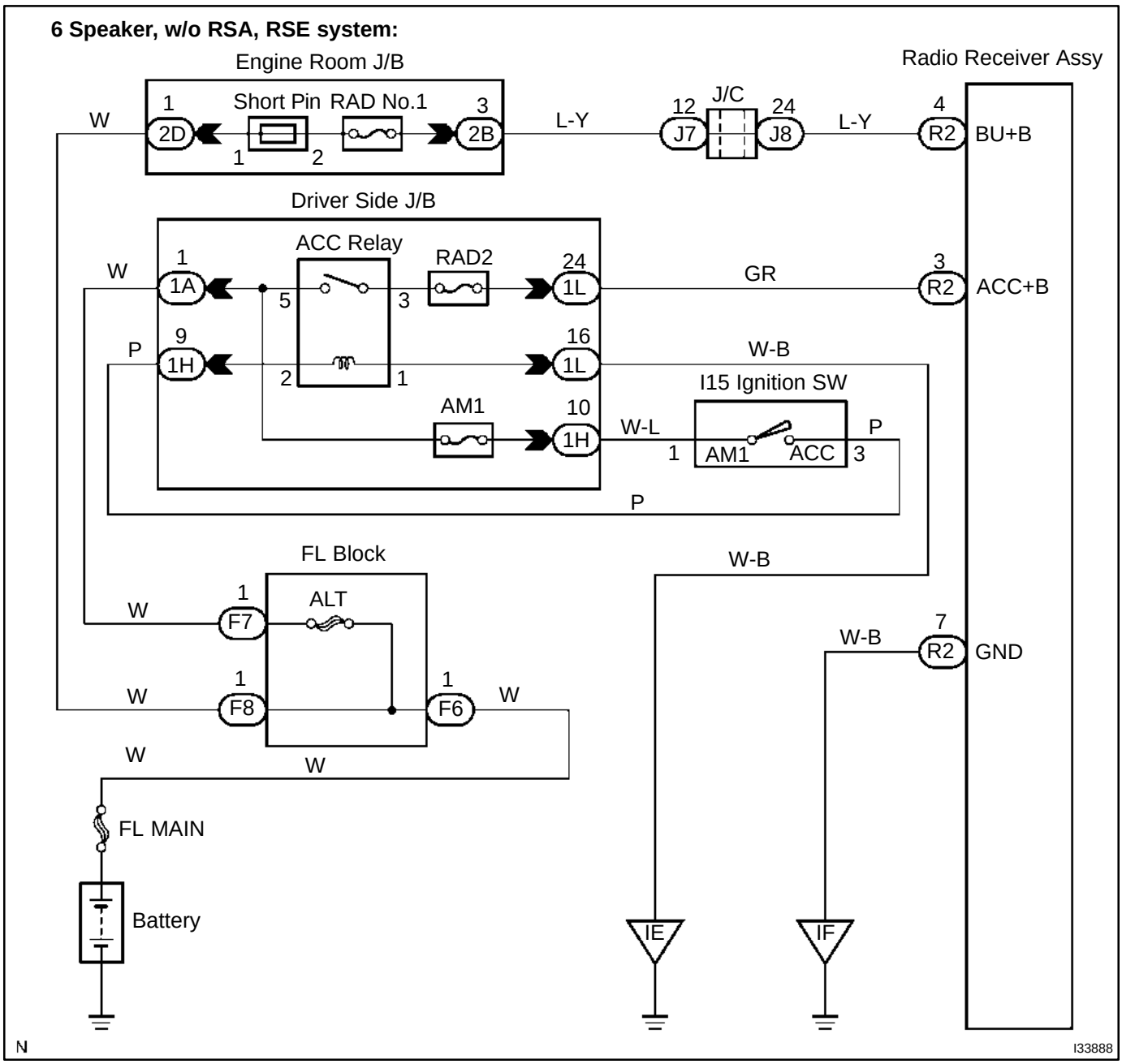
**10 Speaker:**



**6 Speaker:**

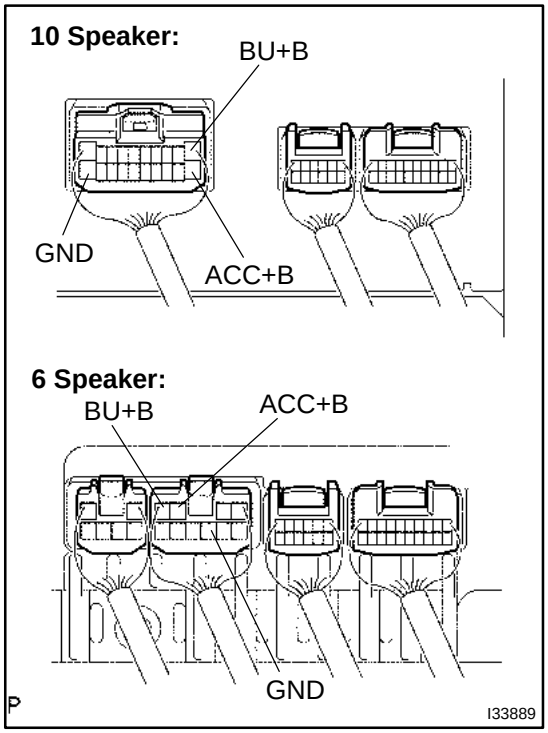

Radio Receiver Assy
J/C
12
J7
24
J8
L-Y
L-Y
4
IF2
L-Y
4
R5
BU+B
Driver Side J/B
ACC Relay
RAD2
W
1
1A
5
3
24
1L
GR
3
IF2
GR
J23
J/C
A
A
GR
3
R5
ACC+B
P
9
1H
2
1
16
1L
W-B
I15 Ignition SW
AM1
10
1H
W-L
1
AM1
ACC
3
P
P
W
Engine Room J/B
W-B
J23
J/C
L-Y
3
2B
RAD No.1
Short Pin
2
1
1
2D
W
W-B
B
B
W-B
7
R5
GND
FL Block
W
1
F6
1
F8
W
W-B
7
IF2
W-B
FL MAIN
ALT
1
F7
W
Battery
IE
IF
N
I33887

**6 Speaker, w/o RSA, RSE system:**



# INSPECTION PROCEDURE

| 1 | INSPECT RADIO RECEIVER ASSY(BU+B, ACC+B, GND) |
|---|---|




(a) Remove the radio receiver assy.

(b) Check continuity between terminals at each condition, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| GND - Body ground | Always | Continuity |

(c) Check the voltage between terminals at each condition, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| BU+B - GND | Always | 10 to 14 V |
| ACC+B - GND | Ignition SW ACC | 10 to 14 V |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR (See page 01-37 )**

**OK**

| 2 | CHECK FOR PROBLEM SYMPTOMS TABLE |
|---|---|

(a) Check problem symptoms table (See page 05-1213 ).

| | |
|---|---|
| A | Suspected areas are cleared |
| B | Suspected areas still exist |

**B** → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1213 )**

**A**

**REPLACE RADIO RECEIVER ASSY**

# RADIO BROADCAST CANNOT BE RECEIVED (BAD RECEPTION)

## INSPECTION PROCEDURE

| 1 | CHECK IF RADIO AUTO-SEARCH FUNCTIONS PROPERLY |
|---|---|

(a) Check if the radio auto-search functions properly.
  (1) Perform the auto-search of the radio and check that it functions normally.
  **Standard: The radio auto-search functions properly.**

**OK** → **REPLACE RADIO RECEIVER ASSY**

**NG**

| 2 | CHECK OPTIONAL COMPONENT |
|---|---|

(a) Check optional component (Sun shade film, telephone antenna etc.).
  (1) Check whether or not any optional component is installed, such as the sunshade film and the telephone antenna.
  **Standard: Optional component is installed.**

**OK** → **EFFECT FROM OPTIONAL COMPONENT**

**NG**

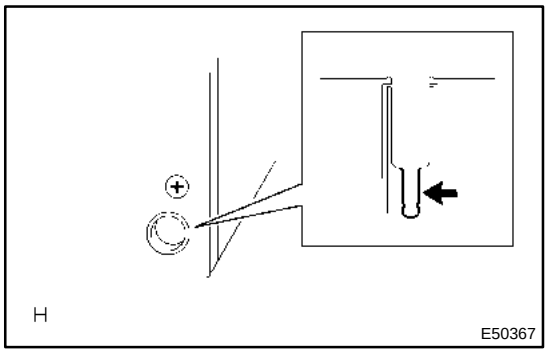
| 3 | CHECK ANTENNA FOR NOISE PRODUCTION |
|---|---|

(a) Noise Check with Antenna
  (1) With the ignition switch in ACC, turn on the radio and choose the AM mode.
  (2) Place a tip of a screwdriver or the antenna of the antenna assembly w/ holder and check that the noise heard from the speaker.
  **Standard: Noise occurs.**

**OK** → **REPLACE RADIO RECEIVER ASSY**

**NG**

| 4 | INSPECT RADIO RECEIVER ASSY(ANTENNA) |
|---|---|




(a) Preparation for Check
  (1) Remove the antenna plug of the radio receiver assembly.

(b) Noise Check
  (1) With the radio receiver assy connector connected, turn the ignition switch to ACC.
  (2) Turn on the radio and choose the AM mode.
  (3) Place a flat-head screwdriver or a metal such as a thin wire on the antenna jack of the radio receiver assy and check that the noise heard from the speaker.

**Standard: Noise occurs.**

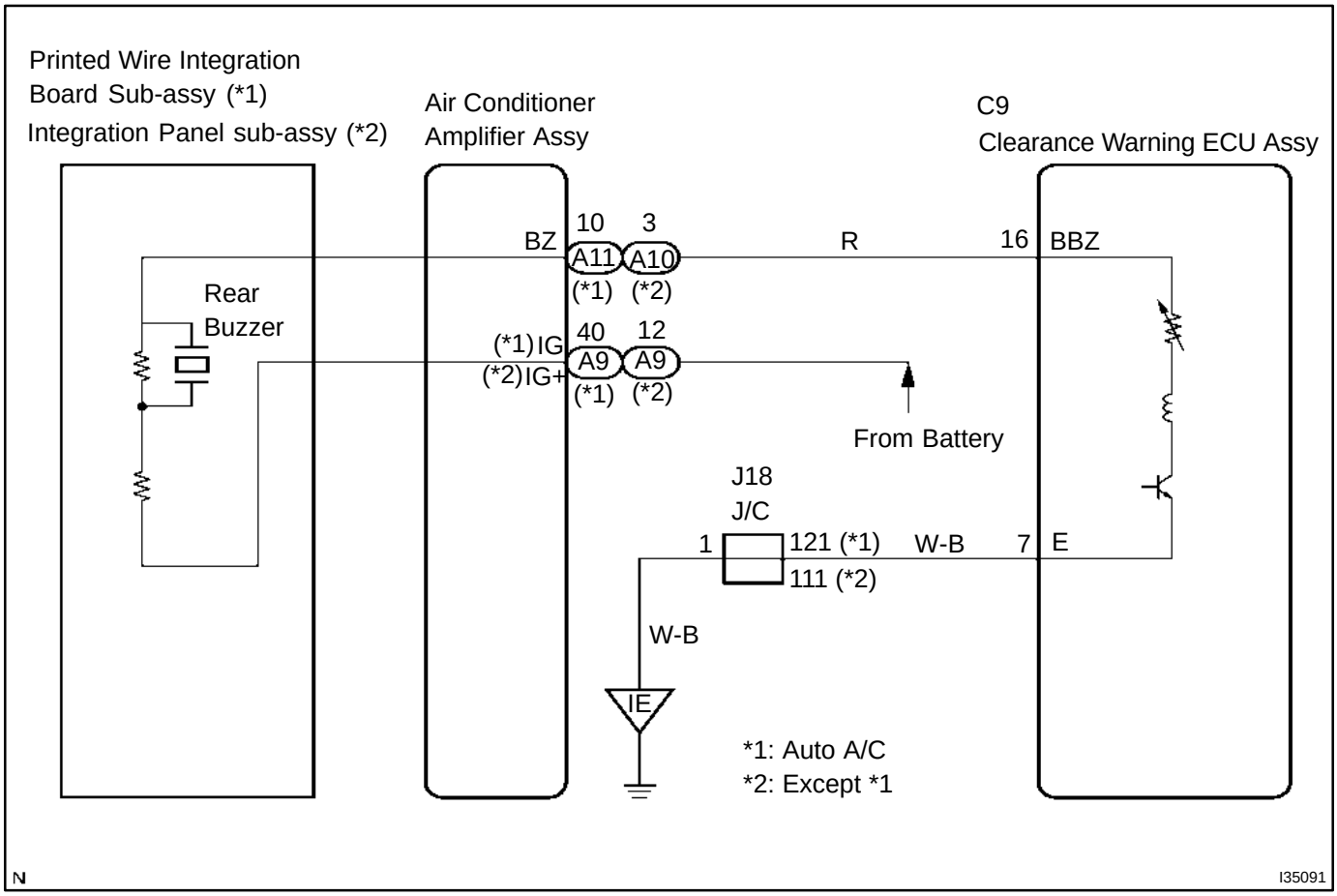
**OK** → **REPLACE RADIO RECEIVER ASSY**

**NG**

**REPLACE ANTENNA CORD SUB-ASSY**

# REAR BUZZER CIRCUIT

## WIRING DIAGRAM



# INSPECTION PROCEDURE

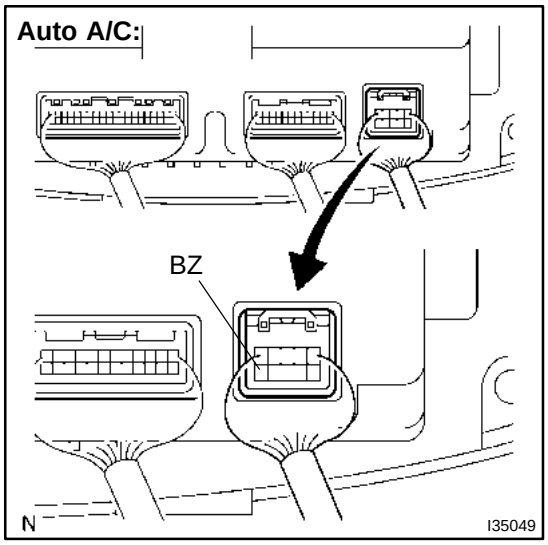
| 1 | CHECK HARNESS AND CONNECTOR(CLEARANCE WARNING ECU ASSY - AIR CONDITIONER AMPLIFIER ASSY) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the clearance warning ECU assy and air conditioner amplifier assy (See page 01-37 ).

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

| 2 | INSPECT REAR BUZZER |
|---|---|

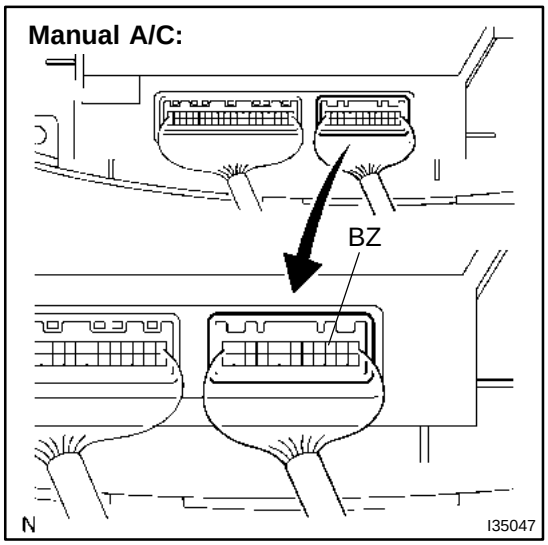



(a) Remove the integration control & panel assy with connectors being connected.
(b) Using a service wire, ground the terminal BZ of the integration control & panel assy connector.
(c) Turn the ignition switch ON.
(d) Check the rear buzzer sounds.

**Standard:**

**Rear buzzer sounds**

| | |
|---|---|
| OK | A |
| NG | B (Auto A/C) |
| NG | C (Manual A/C) |




**B** → **Go to step 3**

**C** → **Go to step 4**

**A**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1497 )**

| 3 | INSPECT PRINTED WIRE INTEGRATION BOARD SUB-ASSY |
|---|---|

(a) Check that the malfunction disappears when a proper printed wire integration board sub-assy is installed (See page 55-23 ).

**Standard: Malfunction disappears**

**NG** → **REPLACE AIRCONDITIONER AMPLIFIER ASSY (See page 55-23 )**

**OK**

**REPLACE PRINTED WIRE INTEGRATION BOARD SUB-ASSY (See page 55-23 )**

| 4 | INSPECT INTEGRATION PANEL SUB-ASSY |
|---|---|

(a) Check that the malfunction disappears when a good integration panel sub-assy is installed (See page 55-23 ).

**Standard: Malfunction disappears**

**NG** → **REPLACE AIRCONDITIONER AMPLIFIER ASSY (See page 55-23 )**

**OK**

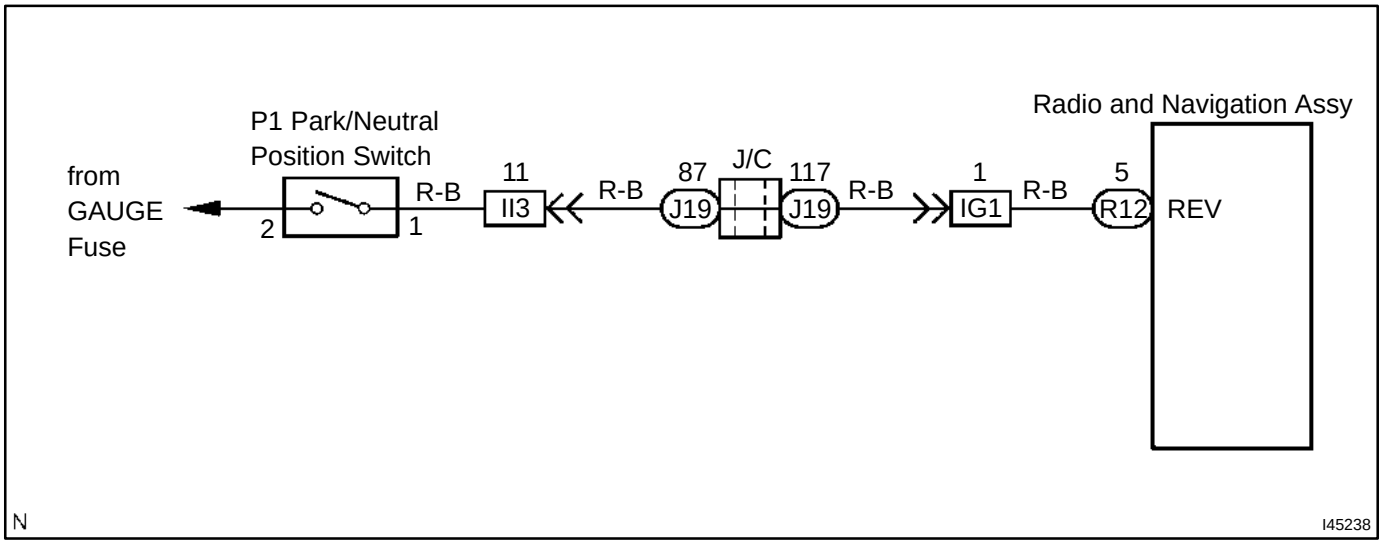
**REPLACE INTEGRATION PANEL SUB-ASSY (See page 55-23 )**

# REVERSE SIGNAL CIRCUIT

## CIRCUIT DESCRIPTION

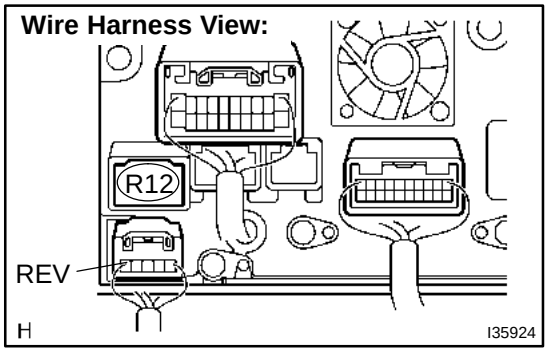
The radio and navigation assy receives a reverse signal from the park/neutral position switch and information about the GPS antenna, and then adjusts vehicle position.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT RADIO AND NAVIGATION ASSY |
|---|---|




(a) Disconnect the radio and navigation assy connector R12.
(b) Measure the resistance according to the value(s) in the table below.

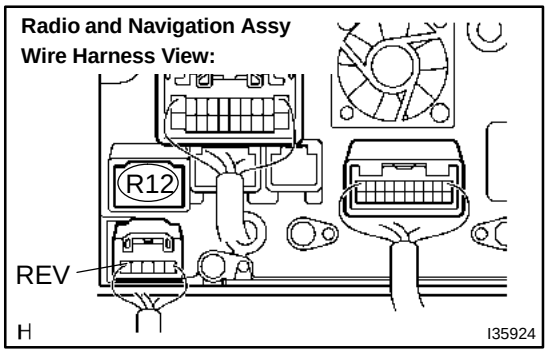
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| REV - Body ground | Ignition switch is ON. Shift lever is moved to R position. | 10 to 14 V |
| REV - Body ground | Ignition switch is ON. Shift lever is moved to any position except R. | Below 1 V |

OK → **REPLACE RADIO AND NAVIGATION ASSY (SEE PAGE 67-9 )**

NG

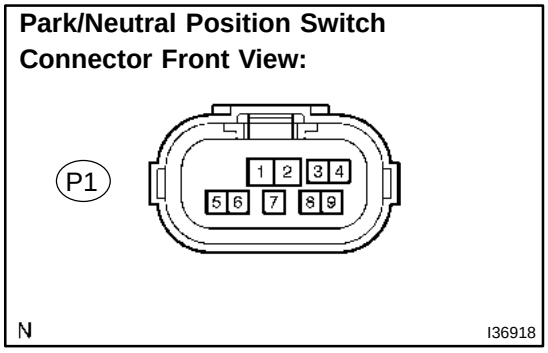
| 2 | CHECK HARNESS AND CONNECTOR(RADIO AND NAVIGATION ASSY - PARK/ NEUTRAL POSITION SWITCH ASSY) |
|---|---|




(a) Disconnect the radio and navigation assy connector R12 and park/neutral position switch assy connector P1.
(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| REV - P1-1 | Always | Below 1 Ω |
| REV - Body ground | Always | 10 kΩ or higher |




NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

**GO TO "P0705" IN ELECTRONIC CONTROLLED AUTOMATIC TRANSAXLE (SEE PAGE 05-555 )**

# POWER SLIDE DOOR RH DOES NOT OPERATE WHEN USING INSIDE/OUTSIDE HANDLE (NORMALLY OPERATES WHEN USING SWITCH*)

* "SWITCH" indicates the satellite switch for the power slide door RH and the power slide door control switch RH

## CIRCUIT DESCRIPTION

- The inside/outside handles have the ability to control operation of the power slide door. Pulling either handle transmits a request signal to the power slide door ECU RH, which then commands the power slide door control motor and clutch to open/close the power slide door.
- The slide door lock remote control assy has the handle operation detect switch for detection of switch operation and also the child protection detect switch for the child lock function that disables the power slide door control switch RH function while the child lock is ON.
- If there is a malfunction detected in these 2 detection switches or the wire harness, replace the slide door lock remote control assy RH.

## WIRING DIAGRAM

See page 05-1688 .

## INSPECTION PROCEDURE

| 1 | OPERATION CHECK |
|---|---|

(a) If the power slide door does not operate when tying to open it, proceed to A.
(b) If the power slide door does not operate when tying to close it, proceed to B.

**B** → **Go to step 3**

**A**

| 2 | CHECK SLIDE DOOR CLOSER SYSTEM |
|---|---|

(a) Check if the slide door closer system operates.

**NG** → **GO TO CLOSER SYSTEM (See page 05-1641 )**

**OK**

| 3 | READ VALUE OF HAND-HELD TESTER |
|---|---|

(a) Using the hand-held tester, check the DATA LIST for proper functioning of the handle operation detect switch.

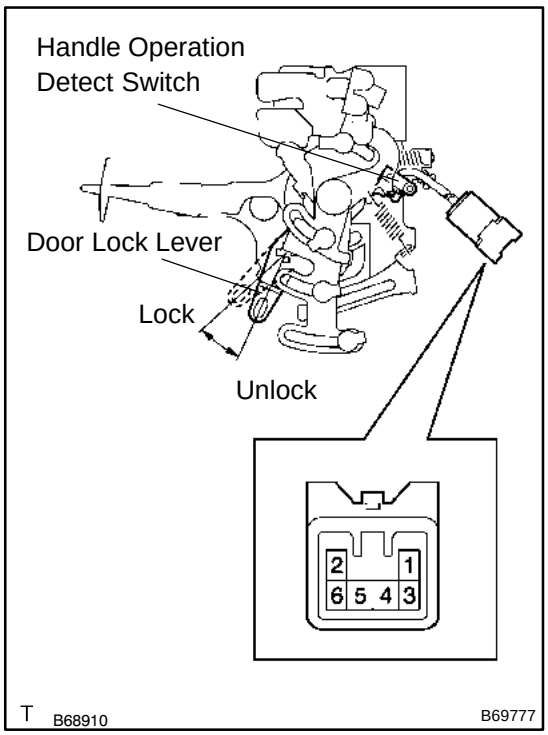
**Standard (Power slide door ECU RH):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| HANDLE SW | Handle operation detect switch signal /ON or OFF | ON: Slide door inside/outside handle is pulled<br>OFF: Slide door inside/outside handle is not pulled | - |

**OK** → **Go to step 6**

**NG**

| 4 | **INSPECT SLIDE DOOR LOCK REMOTE CONTROL SUB-ASSY RH (HANDLE OPERATION DETECT SWITCH)** |
|---|---|




(a) Inspect the resistance of the switch.

**Standard:**

| Terminal No. | Lever Position | Specified Condition |
|---|---|---|
| 1 - 3 | Unlock | 10 kΩ or higher |
| | Lock | Below 1 Ω |

**NG** → **REPLACE SLIDE DOOR LOCK REMOTE CONTROL SUB-ASSY RH**

**OK**

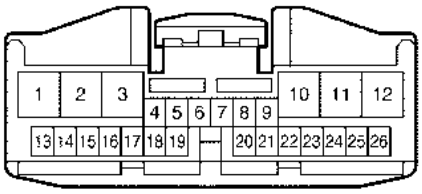
| 5 | CHECK WIRE HARNESS (SLIDE DOOR LOCK REMOTE CONTROL ASSY RH (HANDLE OPERATION DETECT SWITCH) - POWER SLIDE DOOR ECU RH) |
|---|---|

**Wire Harness Side**

S23
Slide Door Lock Remote Control Assy RH




P27
Power Slide Door ECU RH




P

B68450

(a) Disconnect the S23 remote control and P27 ECU connectors.

(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| S23-1 - P27-3 (HSW) | Below 1 Ω |

(c) Check the resistance between the S23 remote control connector and body ground.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| S23-3 - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE POWER SLIDE DOOR ECU RH**

| 6 | READ VALUE OF HAND-HELD TESTER |
|---|---|

(a) Using the hand-held tester, check the DATA LIST for proper functioning of the child protection detect switch.

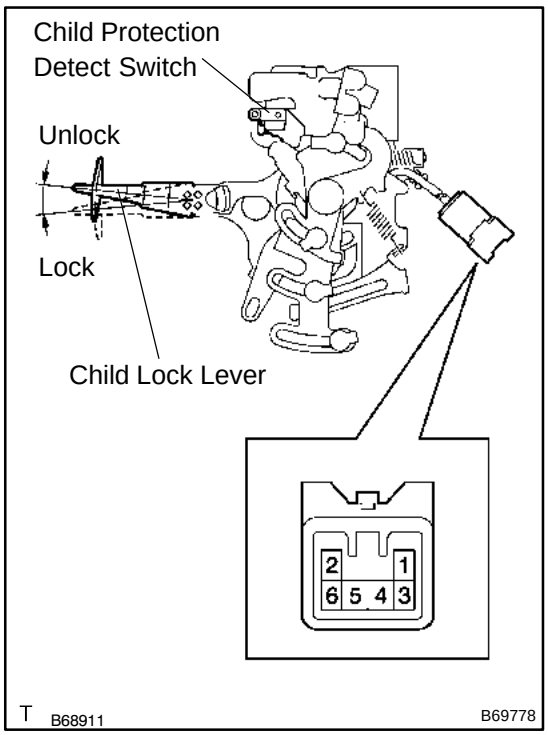
**Standard (Power slide door ECU RH):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| CHILD LOCK SW | Child protection detect switch signal /ON or OFF | ON: Child lock lever is LOCK<br>OFF: Child lock lever is UNLOCK | - |

**OK** → **REPLACE POWER SLIDE DOOR ECU RH**

**NG**

| 7 | **INSPECT SLIDE DOOR LOCK REMOTE CONTROL SUB-ASSY RH (CHILD PROTECTION DETECT SWITCH)** |
|---|---|




(a) Inspect the resistance of the switch.

**Standard:**

| Terminal No. | Lever Position | Specified Condition |
|---|---|---|
| 4 - 5 | Unlock | 10 kΩ or higher |
| | Lock | Below 1 Ω |

**NG** → **REPLACE SLIDE DOOR LOCK REMOTE CONTROL SUB-ASSY RH**

**OK**

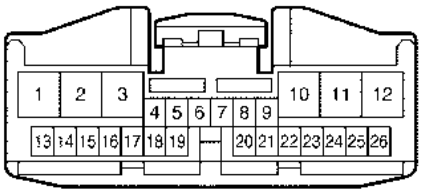
| 8 | **CHECK WIRE HARNESS (SLIDE DOOR LOCK REMOTE CONTROL ASSY (CHILD PROTECTION DETECT SWITCH) - POWER SLIDE DOOR ECU RH)** |
|---|---|

**Wire Harness Side**

S23
Slide Door Lock Remote Control Assy RH




P27
Power Slide Door ECU RH




P

B68450

(a) Disconnect the S23 switch and P27 ECU connectors.

(b) Check the resistance between the wire harness side connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| S23-5 - P27-18 (CPSW) | Below 1 Ω |

(c) Check the resistance between the S23 switch connector and body ground.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| S23-4 - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

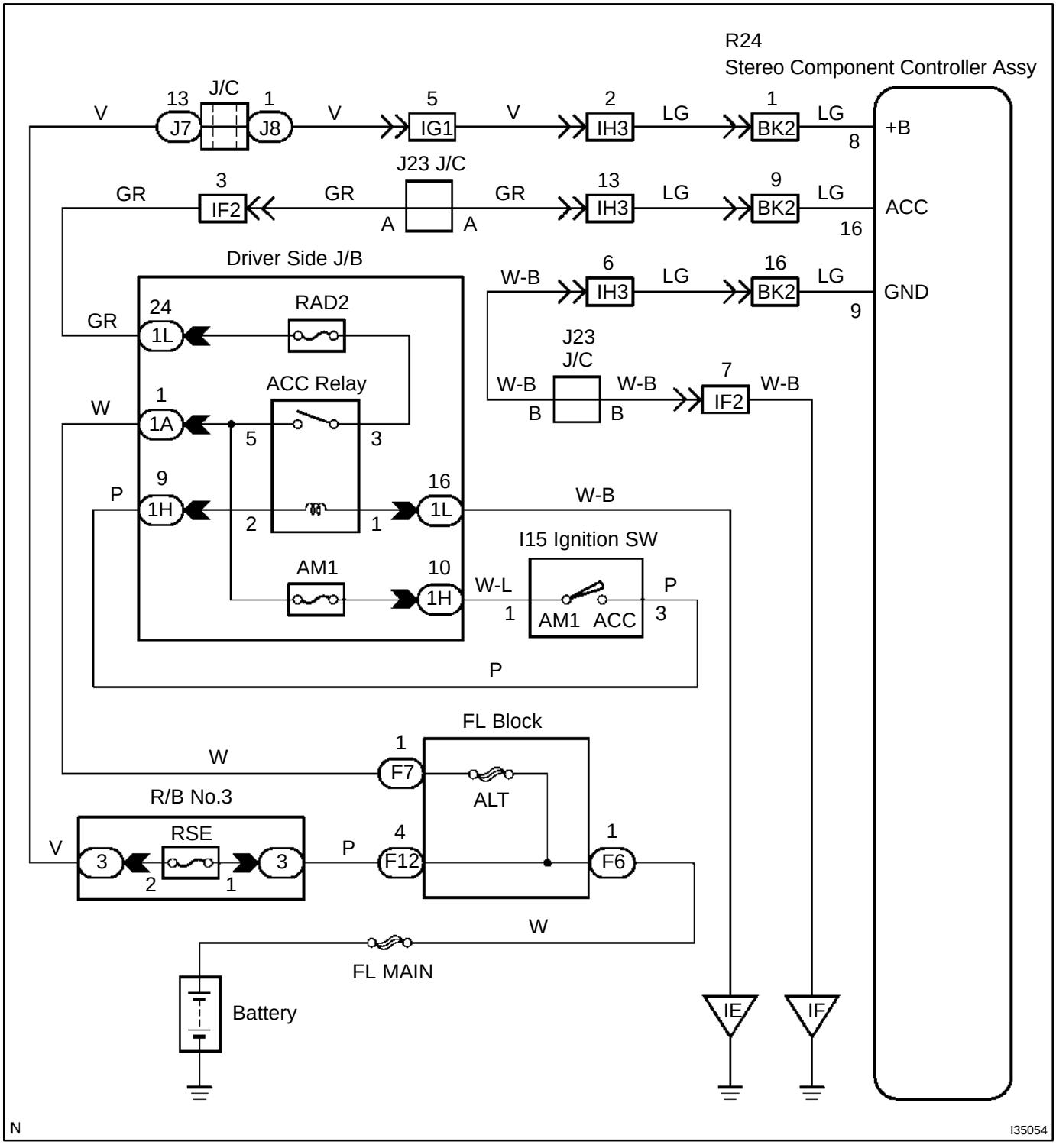
**REPLACE POWER SLIDE DOOR ECU RH**

# POWER SOURCE CIRCUIT(STEREO COMPONENT CONTROLLER ASSY)

## CIRCUIT DESCRIPTION

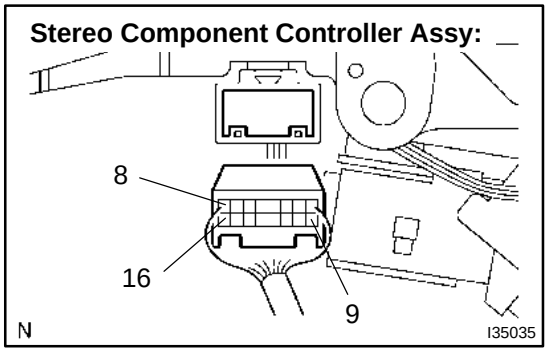
This circuit is the power source circuit to operate the stereo component controller assy.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

## 1 INSPECT STEREO COMPONENT CONTROLLER ASSY




(a) Disconnect the stereo component controller assy connector.

(b) In order to check for an open circuit, measure the resistance between the terminals according to the condition, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| 9 - Body ground | Always | Below 1 Ω |

(c) Measure the voltage between the terminals according to the conditions, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| 8 - 9 | Always | 10 to 14 V |
| 16 - 9 | Ignition SW ACC | 10 to 14 V |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

## 2 CHECK FOR PROBLEM SYMPTOMS TABLE

(a) Check problem symptoms table (See page 05-1410 ).

| | |
|---|---|
| A | Suspected areas are cleared |
| B | Suspected areas still exist |

**B** → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1410 )**

**A**

**REPLACE STEREO COMPONENT CONTROLLER ASSY**

# A REMOTE CONTROL SYSTEM DOES NOT OPERATE

## INSPECTION PROCEDURE

HINT:

Check that there are no obstructions between the switch & volume assy and the infrared ray light emission portion of the stereo component controller assy.

| 1 | CHECK BATTERY(SWITCH & VOLUME ASSY) |
|---|---|

(a) Check battery.

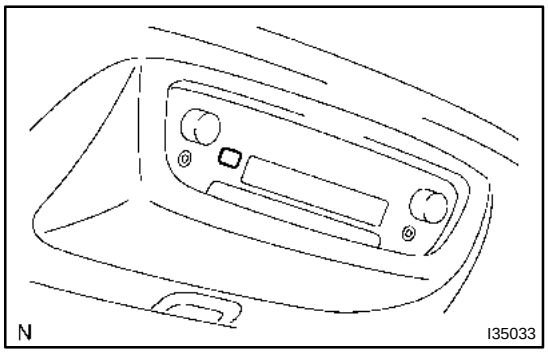
(1) Check that the dry-cell battery used for the switch & volume assy is not dead.

**Standard: It is not dead.**

**NG** → **BATTERY IS DEAD**

**OK**

| 2 | CLEAN THE INFRARED RAYS RECEIVING PORTION |
|---|---|




(a) Clean the infrared rays receiving portion.

(1) Clean the infrared rays receiving portion on the stereo component controller assy.

(2) Check whether the same malfunction occurs.

**Standard: The function returns to normal.**

**OK** → **NORMAL**

**NG**

| 3 | REPLACE SWITCH & VOLUME ASSY |
|---|---|

**Standard: Malfunction disappears**

**OK** → **NORMAL**

**NG**

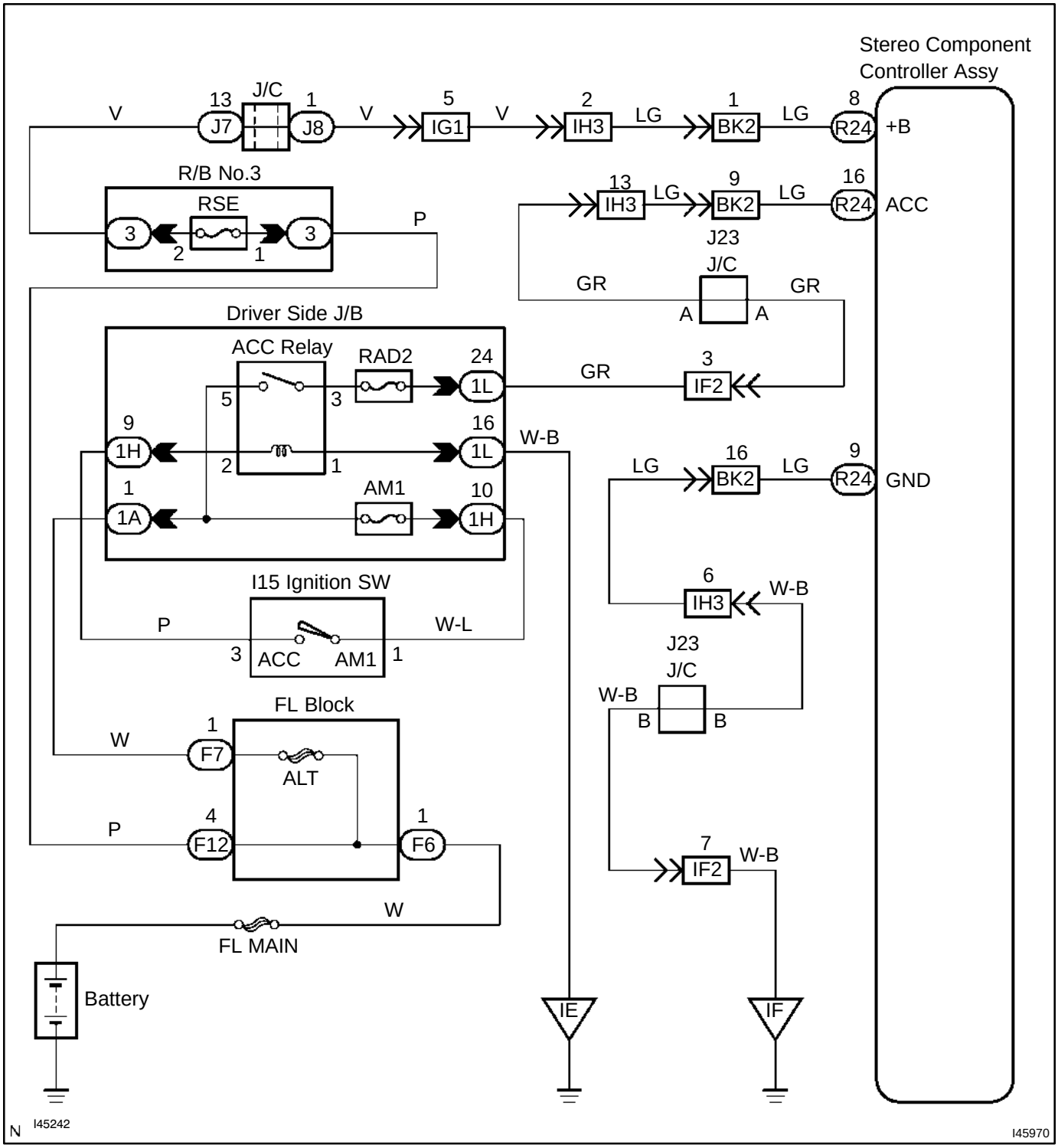
**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE**
**(See page 05-1410 )**

# POWER SOURCE CIRCUIT (STEREO COMPONENT CONTROLLER ASSY)

## CIRCUIT DESCRIPTION

This circuit provides power to the stereo component controller assy.

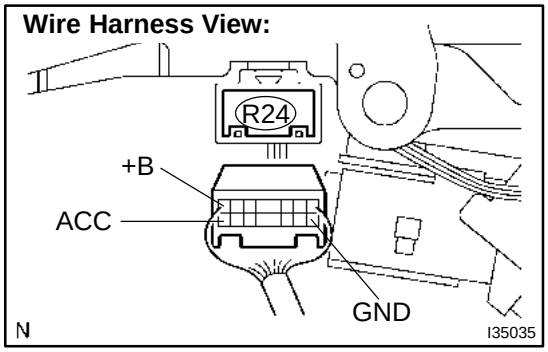
## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT STEREO COMPONENT CONTROLLER ASSY (+B, ACC, GND) |
|---|---|

**Wire Harness View:**




(a) Disconnect the stereo component controller assy connector R24.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| GND - Body ground | Always | Below 1 Ω |

(c) Measure the voltage according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| +B - GND | Always | 10 to 14 V |
| ACC - GND | Ignition SW ACC | 10 to 14 V |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

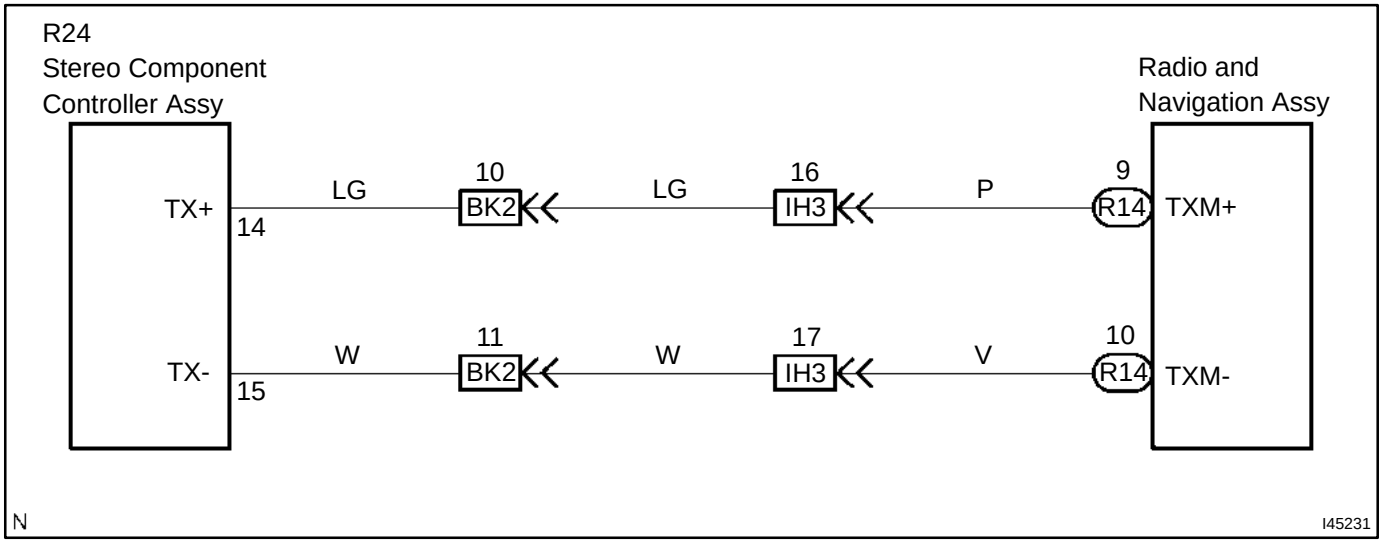
**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE OR DIAGNOSTIC TROUBLE CODE CHART (SEE PAGE 05-1286 OR 05-1278 )**

# AVC-LAN CIRCUIT (RADIO AND NAVIGATION ASSY - STEREO COMPONENT CONTROLLER ASSY)

## CIRCUIT DESCRIPTION

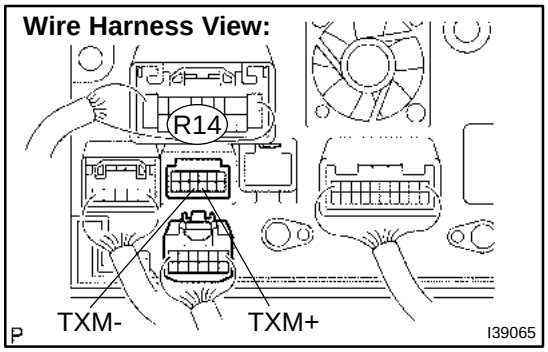
Each unit of the radio and navigation system connected to the AVC-LAN (communication bus) communicates by transferring the signals from each switch.
When a short to +B or short to ground occurs in this AVC-LAN, the radio and navigation system will not function normally as communication is discontinued.
In the AVC-LAN, the radio and navigation assy becomes the communication master and has enough resistance necessary for communication.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

| 1 | INSPECT RADIO AND NAVIGATION ASSY |
|---|---|




(a) Disconnect the radio and navigation assy connector R14.
(b) Measure the resistance according to the value(s) in the table below.

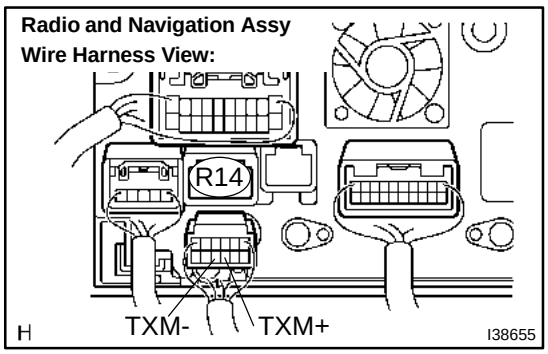
**Standard:**

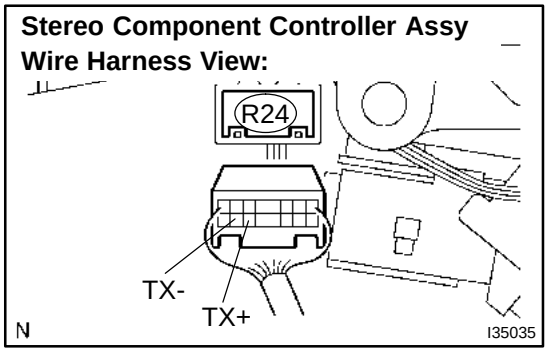
| Tester connection | Condition | Specified condition |
|---|---|---|
| TXM+ - TXM- | Always | 60 to 80 Ω |

**NG** → **REPLACE RADIO AND NAVIGATION ASSY (SEE PAGE 67-9 )**

**OK**

| 2 | CHECK HARNESS AND CONNECTOR(RADIO AND NAVIGATION ASSY - STEREO COMPONENT AMPLIFIER ASSY) |
|---|---|




(a) Disconnect the radio and navigation assy connector R14 and stereo component amplifier assy connector R24.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| TXM+ - TX+ | Always | Below 1 Ω |
| TXM- - TX- | Always | Below 1 Ω |
| TXM+ - Body ground | Always | 10 kΩ or higher |
| TXM- - Body ground | Always | 10 kΩ or higher |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

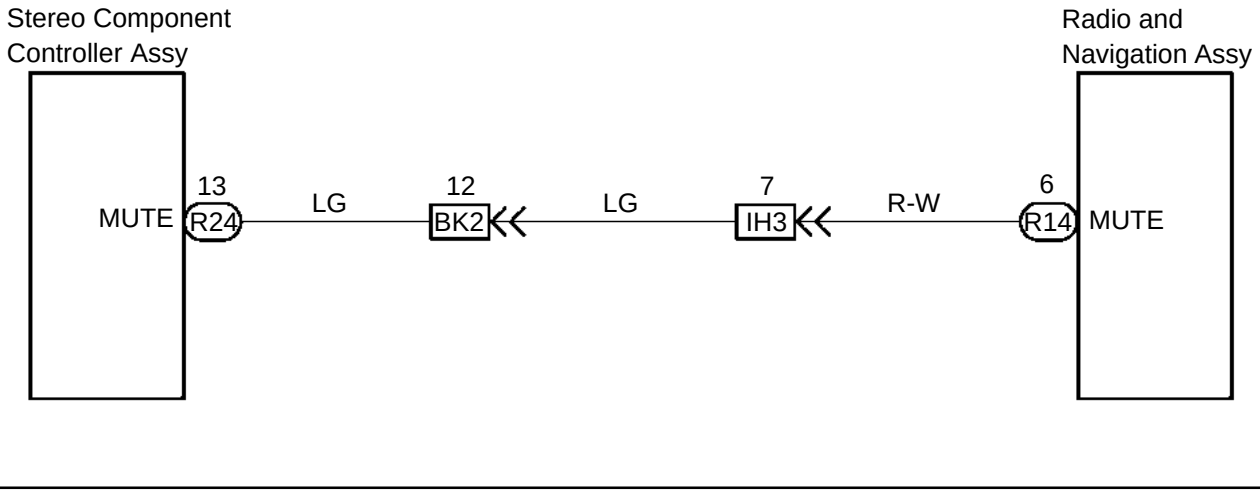
**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN DIAGNOSTIC TROUBLE CODE CHART (SEE PAGE 05-1278 )**

# MUTE SIGNAL CIRCUIT (FROM STEREO COMPONENT CONTROLLER ASSY)

## CIRCUIT DESCRIPTION

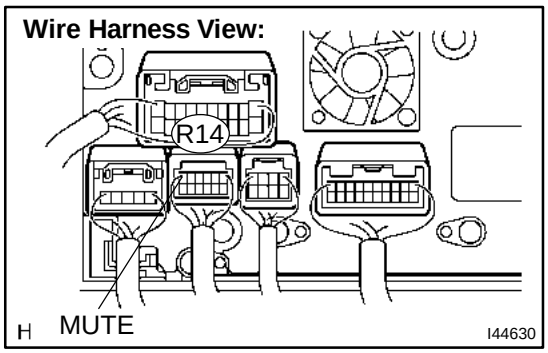
The radio and navigation assy controls the volume according to the MUTE signal from the stereo component controller assy.
The MUTE signal is sent to reduce noise and a popping sound generated when switching the mode, etc.
If there is an open in the circuit, noise can be heard from the speakers when changing the sound source.
If there is a short in the circuit, even though the radio and navigation assy is normal, no sound or only an extremely small sound can be produced.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

| 1 | INSPECT RADIO AND NAVIGATION ASSY |
|---|---|




(a) Measure the voltage according to the value(s) in the table below.

**Standard:**

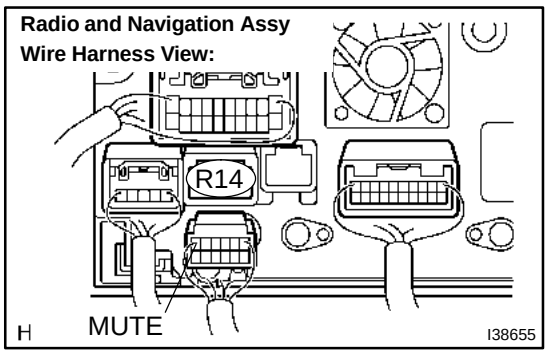
| Tester connection | Condition | Specified condition |
|---|---|---|
| MUTE - Body ground | Turn ignition switch to ACC, Audio system is playing → Changing mode | Above 3.5 V → Below 1 V |

**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1286 )**

**NG**

| 2 | CHECK HARNESS AND CONNECTOR(RADIO AND NAVIGATION ASSY - STEREO COMPONENT CONTROLLER ASSY) |
|---|---|

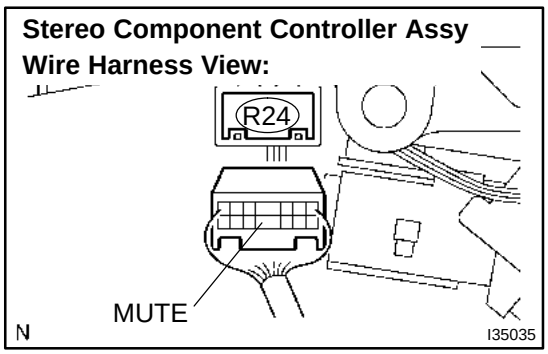



(a) Disconnect the radio and navigation assy connector R14 and stereo component controller assy connector R24.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| MUTE - MUTE | Always | Below 1 Ω |
| MUTE - Body ground | Always | 10 kΩ or higher |




**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

| 3 | REPLACE STEREO COMPONENT CONTROLLER ASSY (SEE PAGE 67-24 ) |
|---|---|

(a) Replace the stereo component controller assy and check if it operates normally.

**OK: The navigation system operates normally.**

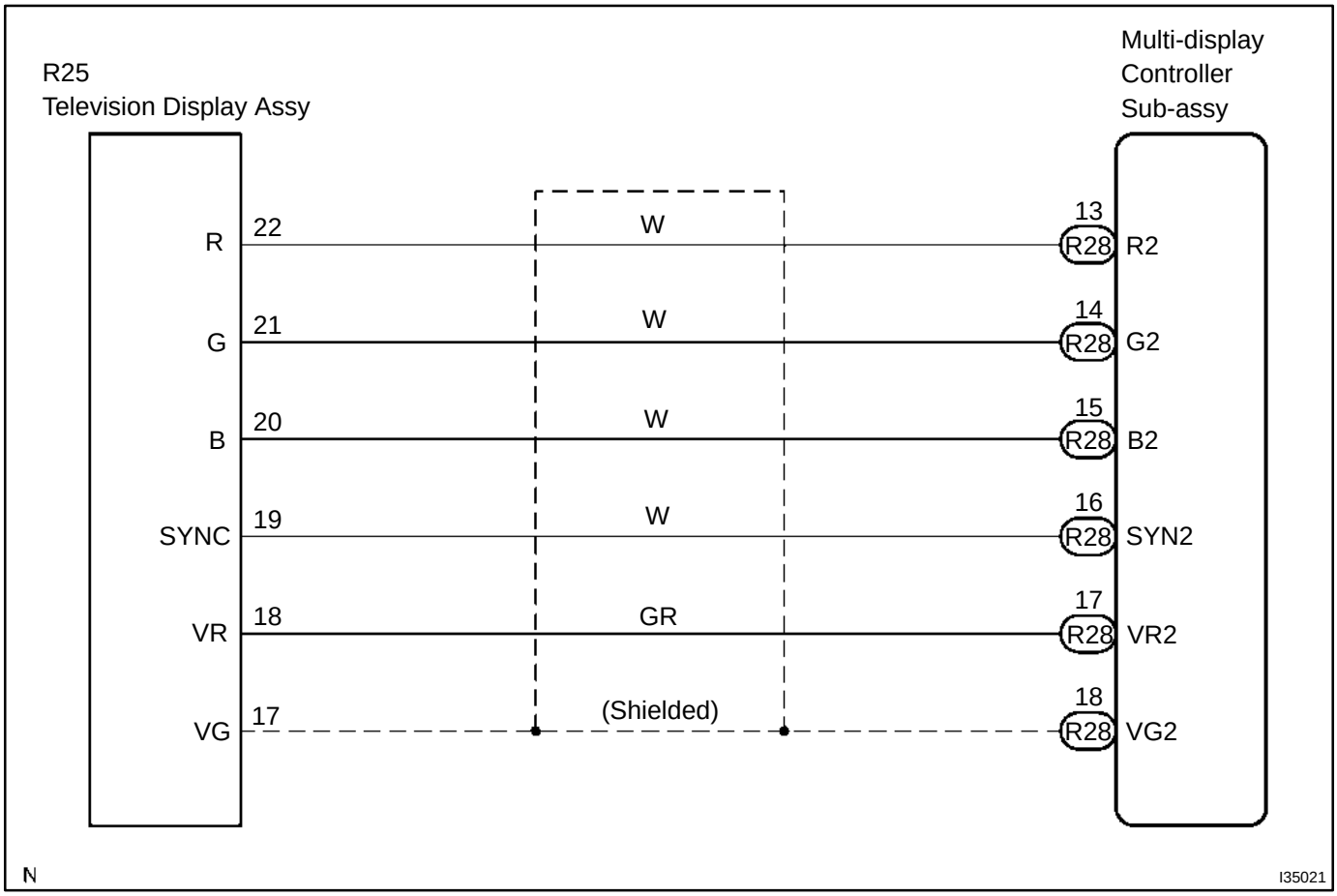
**OK** → **NORMAL OPERATION**

**NG**

**REPLACE RADIO AND NAVIGATION ASSY (SEE PAGE 67-9 )**

# DISPLAY SCREEN NOT STABILIZED(SYNCHRONOUS ERROR)

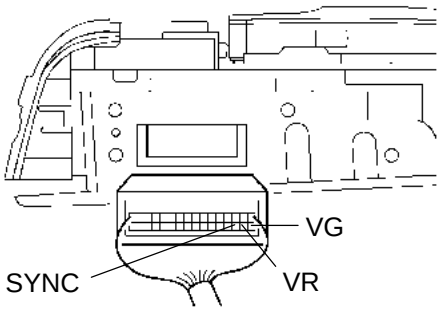
## WIRING DIAGRAM



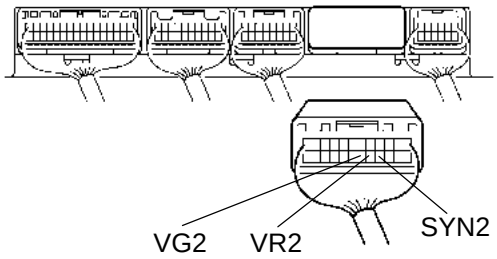
# INSPECTION PROCEDURE

| 1 | CHECK HARNESS AND CONNECTOR(MULTI-DISPLA Y CONTROLLER SUB-ASSY - TELEVISION DISPLAY ASSY) |
|---|---|

**Television Display Assy:**




**Multi-display Controller Sub-assy:**




I35960

(a) Disconnect the television display assy and multi-display controller sub-assy connectors.

(b) In order to check for an open circuit, measure the resistance between the terminals, as shown in the chart.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| VG - VG2 | Below 1 Ω |
| VR - VR2 | Below 1 Ω |
| SYNC - SYN2 | Below 1 Ω |

(c) In order to check for a short circuit, measure the resistance between the terminals, as shown in the chart.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| VG - Body ground | 10 kΩ or higher |
| VR - Body ground | 10 kΩ or higher |
| SYNC - Body ground | 10 kΩ or higher |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

| 2 | REPLACE TELEVISION DISPLAY ASSY |
|---|---|

**OK: Malfunction disappears**

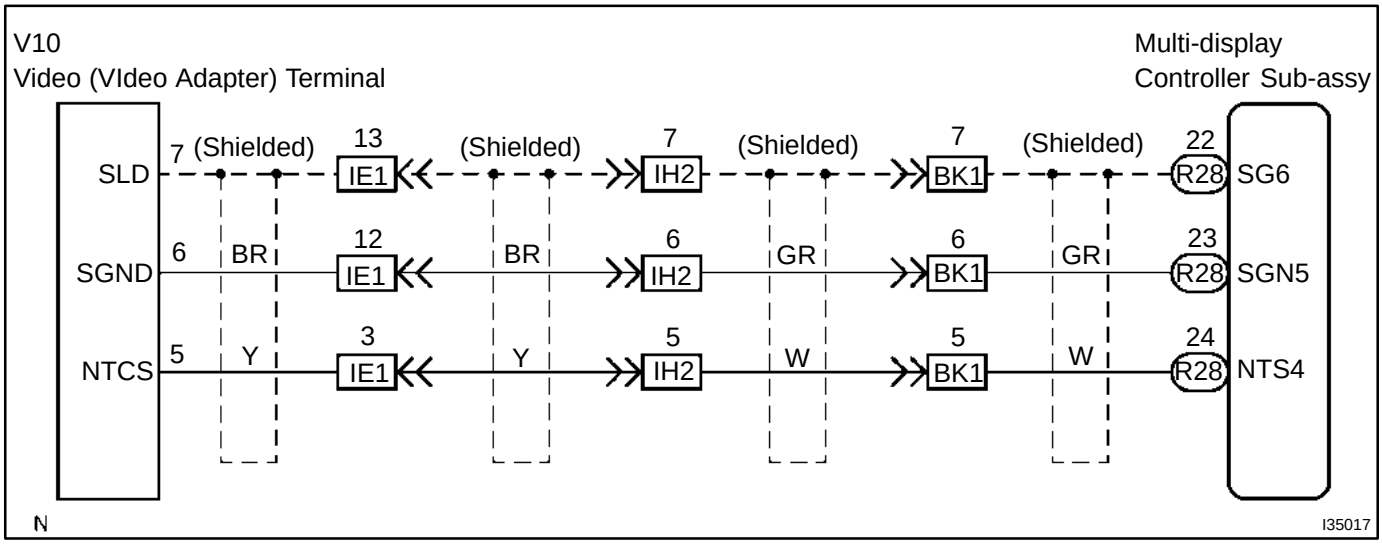
**OK** → **NORMAL**

**NG**

**REPLACE MULTI-DISPLA Y CONTROLLER SUB-ASSY**

# DISPLAY SCREEN INPUT FROM THE EXTERNAL DEVICE NOT STABILIZED

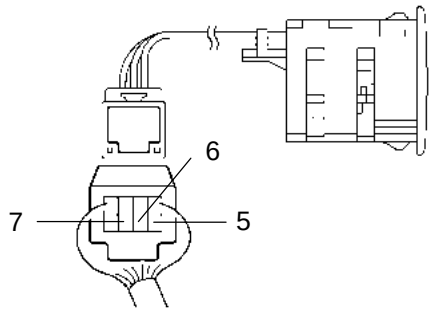
## WIRING DIAGRAM



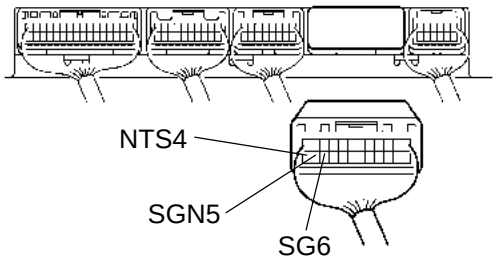
# INSPECTION PROCEDURE

| 1 | CHECK HARNESS AND CONNECTOR(VIDEO (VIDEO ADAPTER) TERMINAL - MULTI-DISPLAY CONTROLLER SUB-ASSY) |
|---|---|

**Video (Video Adapter) Terminal:**




**Multi-display Controller Sub-assy:**




(a) Disconnect the video (video adapter) terminal and multi-display controller sub-assy connectors.

(b) In order to check for an open circuit, measure the resistance between the terminals, as shown in the chart.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| 5 - NTS4 | Below 1 Ω |
| 6 - SGN5 | Below 1 Ω |
| 7 - SG6 | Below 1 Ω |

(c) In order to check for a short circuit, measure the resistance between the terminals, as shown in the chart.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| NTS4 - Body ground | 10 kΩ or higher |
| SGN5 - Body ground | 10 kΩ or higher |
| SG6 - Body ground | 10 kΩ or higher |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

| 2 | REPLACE VIDEO(VIDEO ADAPTER) TERMINAL |
|---|---|

**OK: Malfunction disappears**

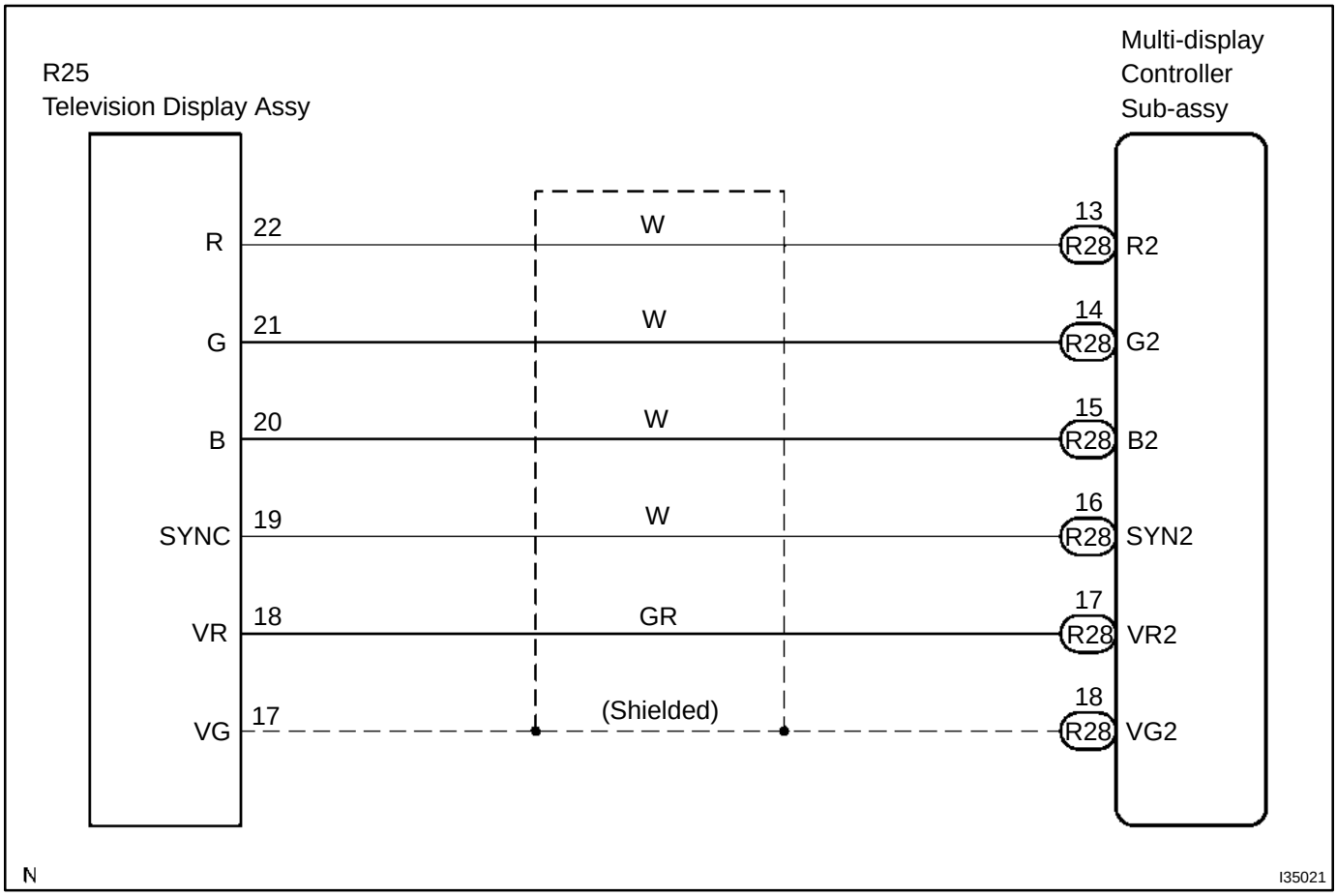
**OK** → **NORMAL**

**NG**

**REPLACE MULTI-DISPLAY CONTROLLER SUB-ASSY**

# COLOR ON DISPLAY SCREEN IS UNUSUAL(RGB SIGNAL ERROR)

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | DISPLAY CHECK MODE(COLOR BAR CHECK) |
|---|---|

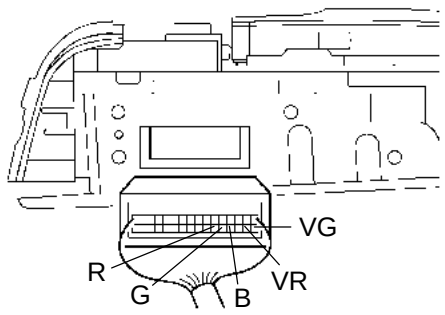
(a) Perform display check mode.
(1) Start the diagnosis system and perform rear display color bar check of display check mode.
**OK: Color bar check is normal**

**OK** → **NORMAL**

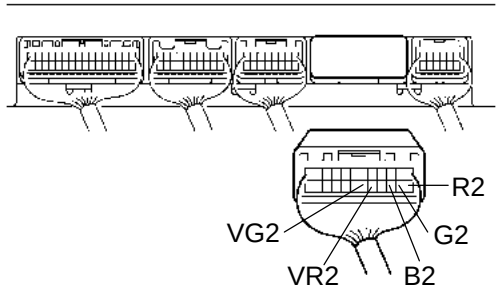
**NG**

| 2 | CHECK HARNESS AND CONNECTOR(TELEVISION DISPLAY ASSY - MULTI-DISPLAY CONTROLLER SUB-ASSY) |
|---|---|

**Television Display Assy:**




**Multi-display Controller Sub-assy:**




I35960

(a) Disconnect the television display assy and multi-display controller sub-assy connectors.
(b) In order to check for an open circuit, measure the resistance between the terminals, as shown in the chart.
**Standard:**

| Tester connection | Specified condition |
|---|---|
| VG - VG2 | Below 1 Ω |
| VR - VR2 | Below 1 Ω |
| R - R2 | Below 1 Ω |
| G - G2 | Below 1 Ω |
| B - B2 | Below 1 Ω |

(c) In order to check for a short circuit, measure the resistance between the terminals, as shown in the chart.
**Standard:**

| Tester connection | Specified condition |
|---|---|
| VG - Body ground | 10 kΩ or higher |
| VR - Body ground | 10 kΩ or higher |
| R - Body ground | 10 kΩ or higher |
| G - Body ground | 10 kΩ or higher |
| B - Body ground | 10 kΩ or higher |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

| 3 | REPLACE TELEVISION DISPLAY ASSY |
|---|---|

**OK: Malfunction disappears**

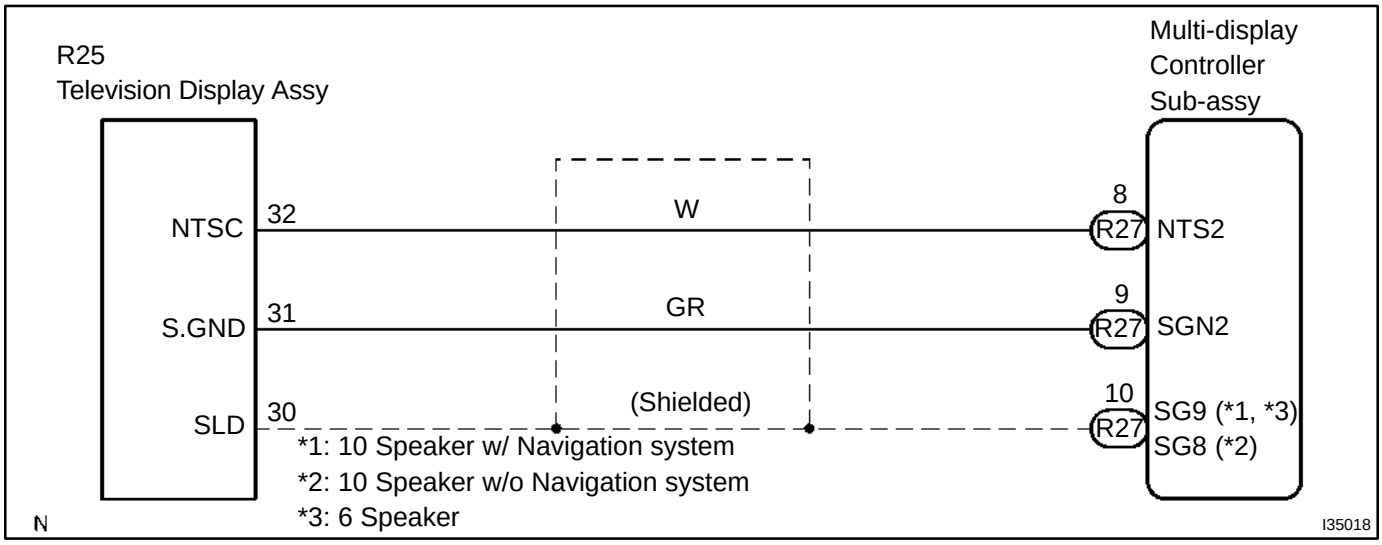
**NG** → **NORMAL**

**OK**

**REPLACE MULTI-DISPLAY CONTROLLER SUB-ASSY**

# DVD SCREEN IS NOT DISPLAYED

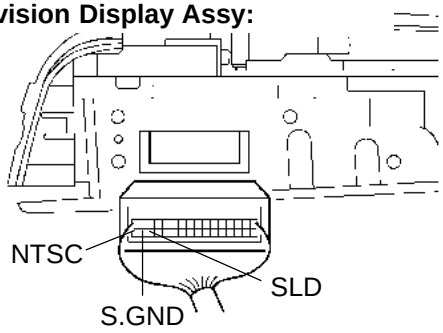
## WIRING DIAGRAM



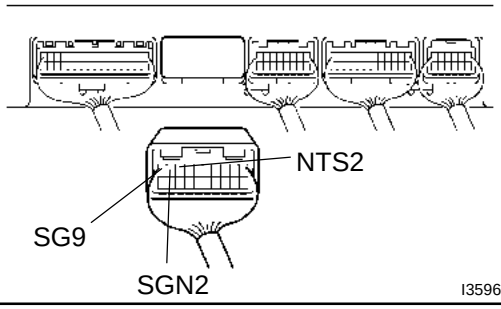
# INSPECTION PROCEDURE

| 1 | CHECK HARNESS AND CONNECTOR(TELEVISION DISPLAY ASSY - MULTI-DISPLAY CONTROLLER SUB-ASSY) |
|---|---|

**Television Display Assy:**




**Multi-display Controller Sub-assy:**




(a) Disconnect the television display assy and multi display controller sub-assy connectors.

(b) In order to check for an open circuit, measure the resistance between the terminals, as shown in the chart.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| NTSC - NTS2 | Below 1 Ω |
| S. GND - SGN2 | Below 1 Ω |
| SLD - SG9 | Below 1 Ω |

(c) In order to check for a short circuit, measure the resistance between the terminals, as shown in the chart.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| NTSC - Body ground | 10 kΩ or higher |
| S. GND - Body ground | 10 kΩ or higher |
| SLD - Body ground | 10 kΩ or higher |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

| 2 | REPLACE TELEVISION DISPLAY ASSY |
|---|---|

**OK: Malfunction disappears**

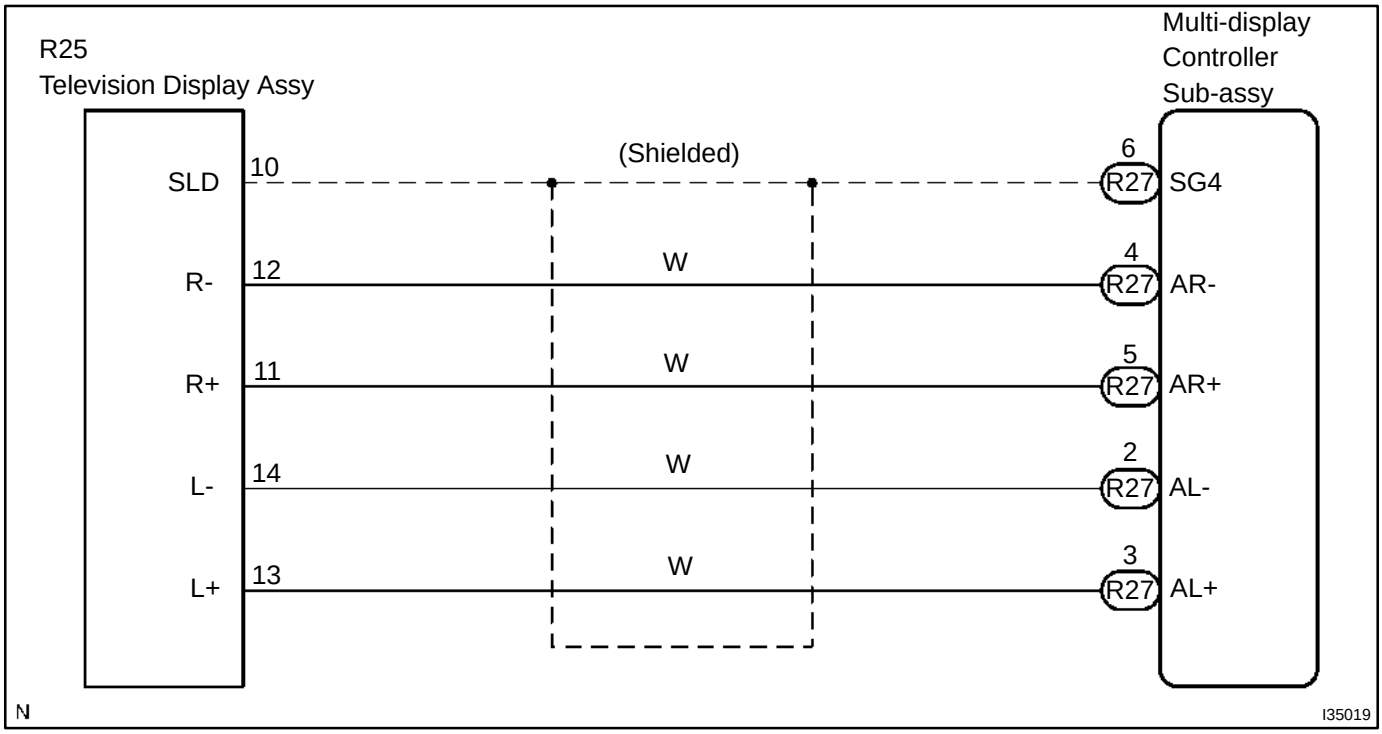
**OK** → **NORMAL**

**NG**

**REPLACE MULTI-DISPLAY CONTROLLER SUB-ASSY**

# DVD IS NOT HEARD OR THE SOUND QUALITY IS POOR

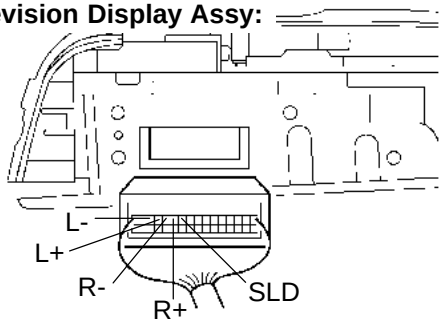
## WIRING DIAGRAM



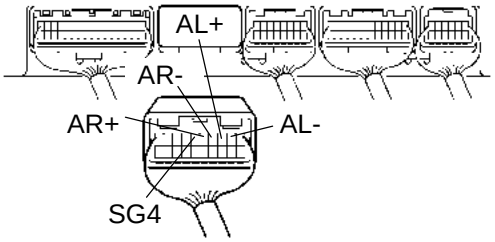
# INSPECTION PROCEDURE

| 1 | **CHECK HARNESS AND CONNECTOR(TELEVISION DISPLAY ASSY - MULTI-DISPLAY CONTROLLER SUB-ASSY)** |
|---|---|

**Television Display Assy:**




**Multi-display Controller Sub-assy:**




I35962

(a) Disconnect the television display assy and multi-display controller sub-assy connectors.

(b) In order to check for an open circuit, measure the resistance between the terminals, as shown in the chart.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| L+ - AL+ | Below 1 Ω |
| L- - L- | Below 1 Ω |
| R+ - AR+ | Below 1 Ω |
| R- - AR- | Below 1 Ω |
| SLD - SG4 | Below 1 Ω |

(c) In order to check for a short circuit, measure the resistance between the terminals, as shown in the chart.

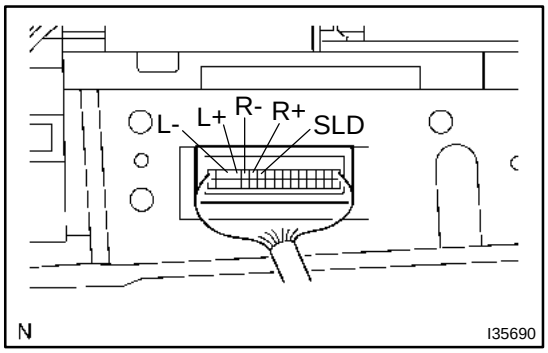
**Standard:**

| Tester connection | Specified condition |
|---|---|
| L+ - Body ground | 10 kΩ or higher |
| L- - Body ground | 10 kΩ or higher |
| R+ - Body ground | 10 kΩ or higher |
| R- - Body ground | 10 kΩ or higher |
| SLD- - Body ground | 10 kΩ or higher |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

| 2 | INSPECT TELEVISION DISPLAY ASSY(L+, L-, R+, R-, SLD) |
|---|---|




(a) In order to check for an open circuit, measure the resistance between the terminals according to the conditions, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| SLD - Body ground | Always | Below 1 Ω |

(b) Using an oscilloscope, check the signal waveform according to the conditions, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| L+ - SLD | While voice sound is being produced | A waveform synchronized with sound is output |
| L- - SLD | While voice sound is being produced | A waveform synchronized with sound is output |
| R+ - SLD | While voice sound is being produced | A waveform synchronized with sound is output |
| R- - SLD | While voice sound is being produced | A waveform synchronized with sound is output |

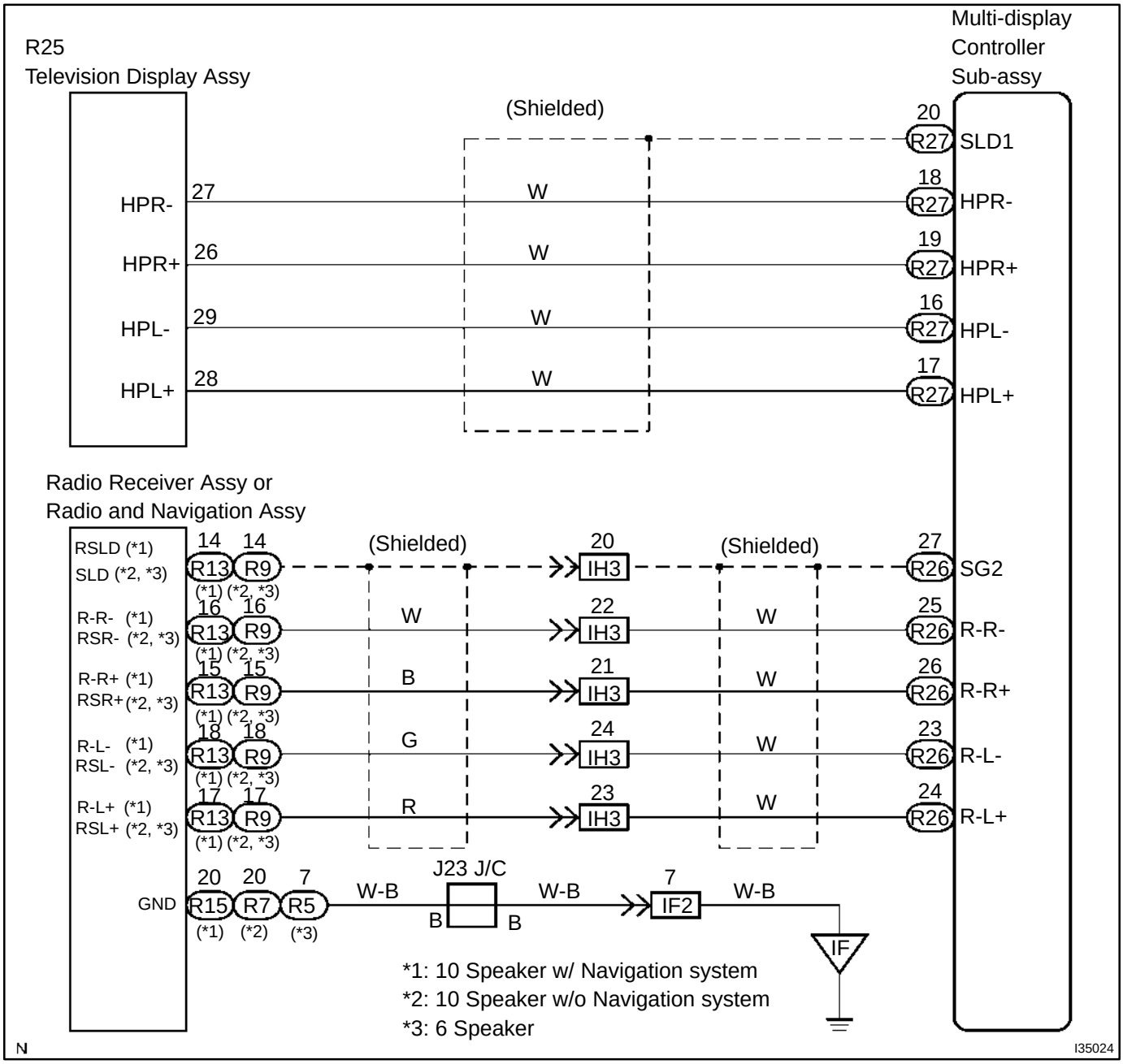
NG → **REPLACE TELEVISION DISPLAY ASSY**

**OK**

**REPLACE MULTI-DISPLA Y CONTROLLER SUB-ASSY**

# QUALITY OF SOUND FROM WIRELESS HEADPHONE IS POOR OR NO SOUND CAN BE HEARD

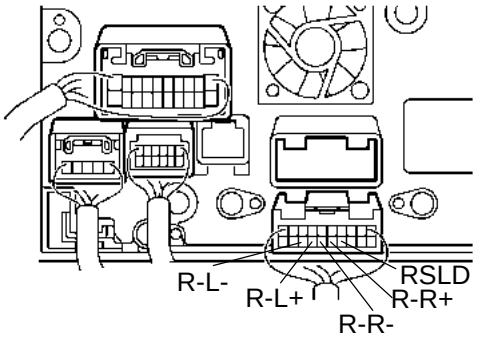
## WIRING DIAGRAM



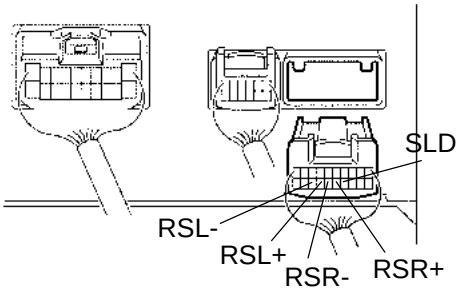
# INSPECTION PROCEDURE

| 1 | CHECK HARNESS AND CONNECTOR(RADIO RECEIVER ASSY - MULTI-DISPLAY CONTROLLER SUB-ASSY) |
|---|---|

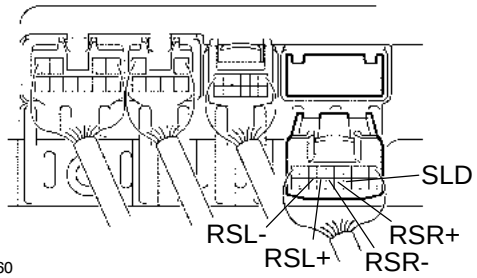
**Radio Receiver Assy**
**w/ Navigation system:**




**w/o Navigation system (10 Speaker):**




**w/o Navigation system (6 Speaker):**




I38660
I35959
I45601

(a) Disconnect the radio receiver assy and multi-display controller sub-assy connectors.

(b) In order to check for an open circuit, measure the resistance between the terminals, as shown in the chart.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| R-R+ - R-R+ (*1) | Below 1 Ω |
| R-R- - R-R- (*1) | Below 1 Ω |
| R-L+ - R-L+ (*1) | Below 1 Ω |
| R-L- - R-L- (*1) | Below 1 Ω |
| RSLD - SG2 (*1) | Below 1 Ω |
| RSR+ - R-R+ (*2, *3) | Below 1 Ω |
| RSR- - R-R- (*2, *3) | Below 1 Ω |
| RSL+ - R-L+ (*2, *3) | Below 1 Ω |
| RSL- - R-L- (*2, *3) | Below 1 Ω |
| SLD - SG2 (*2, *3) | Below 1 Ω |

HINT:

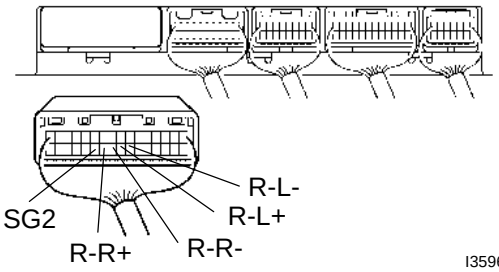
- *1: w/ Navigation system
- *2: w/o Navigation system (10 speaker)
- *3: w/o Navigation system (6 speaker)

(c) In order to check for a short circuit, measure the resistance between the terminals, as shown in the chart.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| R-L- - Body ground | 10 kΩ or higher |
| R-L+ - Body ground | 10 kΩ or higher |
| R-R- - Body ground | 10 kΩ or higher |
| R-R+ - Body ground | 10 kΩ or higher |
| SG2 - Body ground | 10 kΩ or higher |

**Multi-display Controller Sub-assy:**



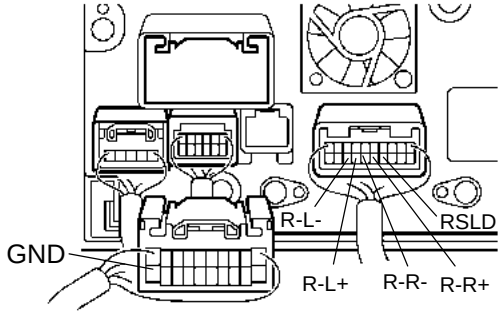

I35963

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

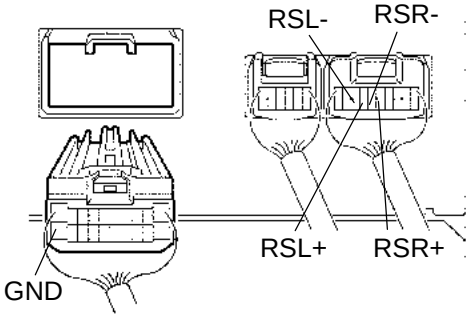
OK

| 2 | **INSPECT RADIO RECEIVER ASSY(R-R+, R-R-, R-L+, R-L-, RSR+, RSR-, RSL+, RSL-, GND)** |
|---|---|

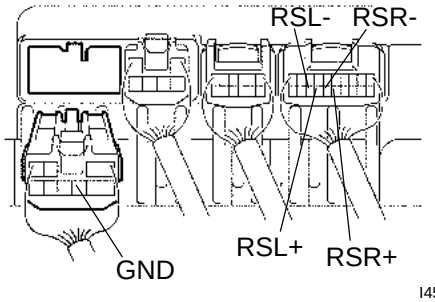
**Radio Receiver Assy w/ Navigation system:**




**w/o Navigation system (10 Speaker):**




**w/o Navigation system (6 Speaker):**




I38652
I35958
I45602

(a) In order to check for an open circuit, measure the resistance between the terminals according to the condition, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| GND - Body ground | Always | Below 1 Ω |

(b) Connect the radio receiver assy connector.

(c) Using an oscilloscope, check the signal waveform according to the conditions, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| R-R+ - GND (*1) | While voice sound is being produced | A waveform synchronized with sound is output |
| R-R- - GND (*1) | While voice sound is being produced | A waveform synchronized with sound is output |
| R-L+ - GND (*1) | While voice sound is being produced | A waveform synchronized with sound is output |
| R-L- - GND (*1) | While voice sound is being produced | A waveform synchronized with sound is output |
| RSR+ - GND (*2, *3) | While voice sound is being produced | A waveform synchronized with sound is output |
| RSR- - GND (*2, *3) | While voice sound is being produced | A waveform synchronized with sound is output |
| RSL+ - GND (*2, *3) | While voice sound is being produced | A waveform synchronized with sound is output |
| RSL- - GND (*2, *3) | While voice sound is being produced | A waveform synchronized with sound is output |

HINT:

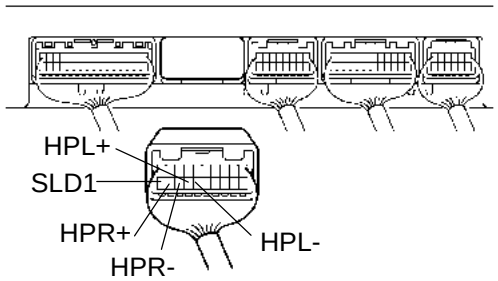
- *1: w/ Navigation system
- *2: w/o Navigation system (10 speaker)
- *3: w/o Navigation system (6 speaker)

**NG** → **REPLACE RADIO RECEIVER ASSY**

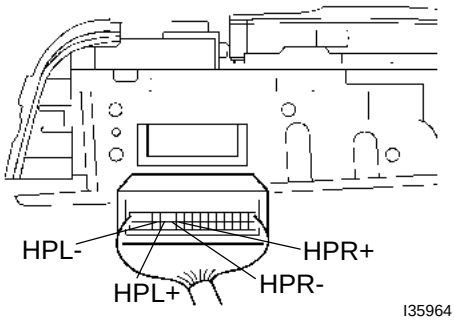
**OK**

| 3 | **CHECK HARNESS AND CONNECTOR(MULTI-DISPLA Y CONTROLLER SUB-ASSY - TELEVISION DISPLAY ASSY)** |
|---|---|

**Multi-display Controller Sub-assy:**




**Television Display Assy:**




I35964

(a) Disconnect the multi-display controller sub-assy and television display assy connectors.

(b) In order to check for an open circuit, measure the resistance between the terminals, as shown in the chart.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| HPR+ - HPR+ | Below 1 Ω |
| HPR- - HPR- | Below 1 Ω |
| HPL+ - HPL+ | Below 1 Ω |
| HPL- - HPL- | Below 1 Ω |

(c) In order to check for a short circuit, measure the resistance between the terminals, as shown in the chart.

**Standard:**

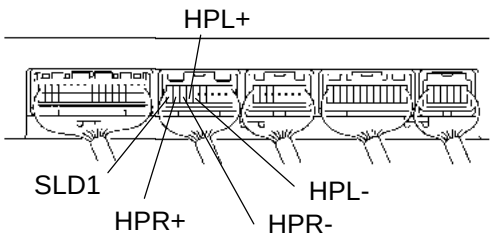
| Tester connection | Specified condition |
|---|---|
| HPR+ - Body ground | 10 kΩ or higher |
| HPR- - Body ground | 10 kΩ or higher |
| HPL+ - Body ground | 10 kΩ or higher |
| HPL- - Body ground | 10 kΩ or higher |
| SLD1 - Body ground | 10 kΩ or higher |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

| 4 | **INSPECT MULTI-DISPLAY CONTROLLER SUB-ASSY(HPR+, HPR-, HPL+, HPL-, SLD1)** |
|---|---|

**Multi-display Controller Sub-assy:**




(a) Connect the multi-display controller sub-assy connector.

(b) In order to check for an open circuit, measure the resistance between the terminals according to the condition, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| SLD1 - Body ground | Always | Below 1 Ω |

(c) Using an oscilloscope, check the signal waveform according to the conditions, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| HPR+ - SLD1 | While voice sound is being produced | A waveform synchronized with sound is output |
| HPR- - SLD1 | While voice sound is being produced | A waveform synchronized with sound is output |
| HPL+ - SLD1 | While voice sound is being produced | A waveform synchronized with sound is output |
| HPL- - SLD1 | While voice sound is being produced | A waveform synchronized with sound is output |

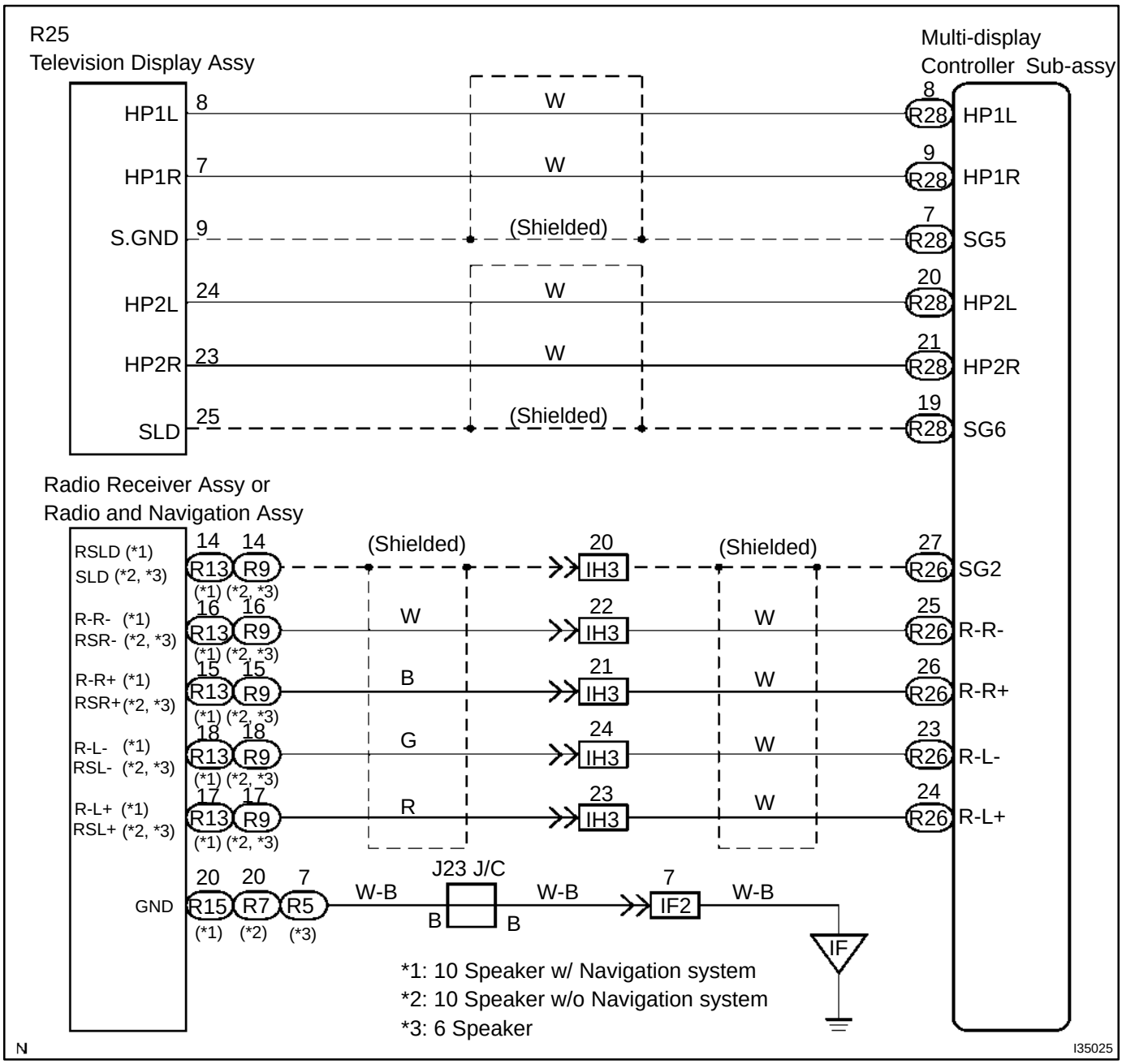
**NG** → **REPLACE MULTI-DISPLAY CONTROLLER SUB-ASSY**

**OK**

**REPLACE TELEVISION DISPLAY ASSY**

# QUALITY OF SOUND FROM HEADPHONE CONNECTED TO HEADPHONE TERMINAL IS POOR OR NO SOUND CAN BE HEARD

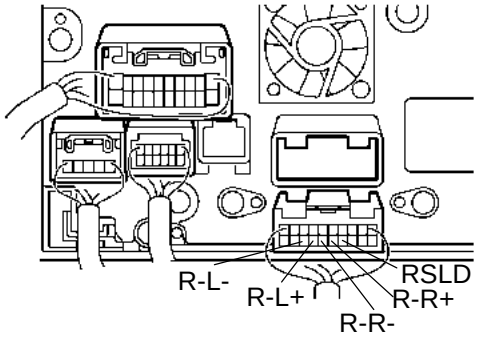
## WIRING DIAGRAM



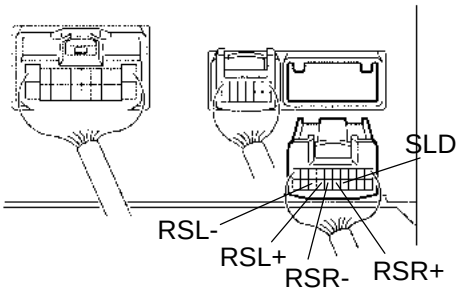
# INSPECTION PROCEDURE

| 1 | **CHECK HARNESS AND CONNECTOR(RADIO RECEIVER ASSY - MULTI-DISPLAY CONTROLLER SUB-ASSY)** |
|---|---|

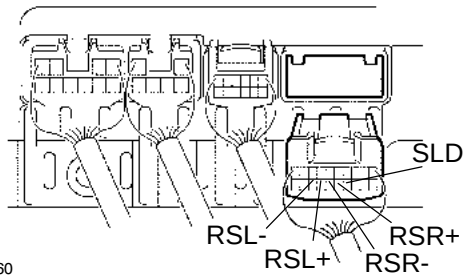
**Radio Receiver Assy**
**w/ Navigation system:**




**w/o Navigation system (10 Speaker):**




**w/o Navigation system (6 Speaker):**




I38660
I35959
I45601

(a) Disconnect the radio receiver assy and multi-display controller sub-assy connectors.

(b) In order to check for an open circuit, measure the resistance between the terminals, as shown in the chart.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| R-R+ - R-R+ (*1) | Below 1 Ω |
| R-R- - R-R- (*1) | Below 1 Ω |
| R-L+ - R-L+ (*1) | Below 1 Ω |
| R-L- - R-L- (*1) | Below 1 Ω |
| RSLD - SG2 (*1) | Below 1 Ω |
| RSR+ - R-R+ (*2, *3) | Below 1 Ω |
| RSR- - R-R- (*2, *3) | Below 1 Ω |
| RSL+ - R-L+ (*2, *3) | Below 1 Ω |
| RSL- - R-L- (*2, *3) | Below 1 Ω |
| SLD - SG2 (*2, *3) | Below 1 Ω |

HINT:

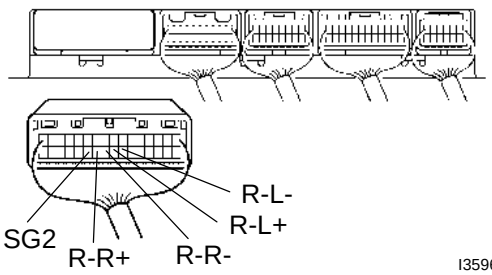
- *1: w/ Navigation system
- *2: w/o Navigation system (10 speaker)
- *3: w/o Navigation system (6 speaker)

(c) In order to check for a short circuit, measure the resistance between the terminals, as shown in the chart.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| R-L- - Body ground | 10 kΩ or higher |
| R-L+ - Body ground | 10 kΩ or higher |
| R-R- - Body ground | 10 kΩ or higher |
| R-R+ - Body ground | 10 kΩ or higher |
| SG2 - Body ground | 10 kΩ or higher |

**Multi-display Controller Sub-assy:**



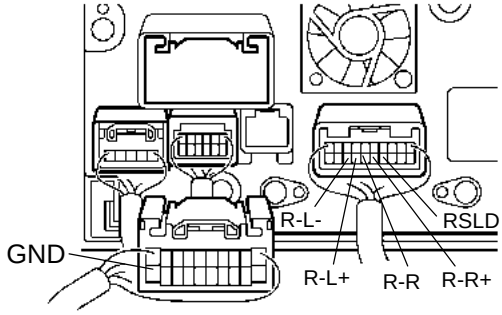

I35963

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

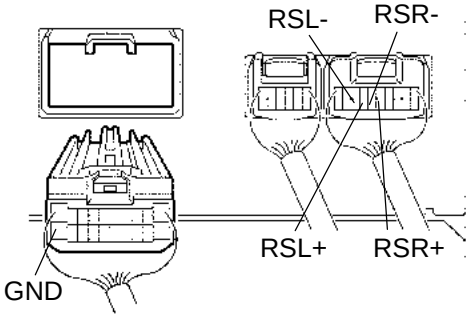
**OK**

| 2 | **INSPECT RADIO RECEIVER ASSY(R-R+, R-R-, R-L+, R-L-, RSR+, RSR-, RSL+, RSL-, GND)** |
|---|---|

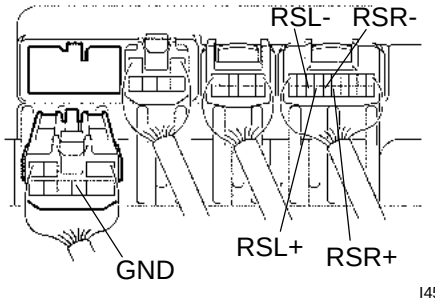
**Radio Receiver Assy w/ Navigation system:**




**w/o Navigation system (10 Speaker):**




**w/o Navigation system (6 Speaker):**




I38652
I35958
I45602

(a) In order to check for an open circuit, measure the resistance between the terminals according to the condition, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| GND - Body ground | Always | Below 1 Ω |

(b) Connect the radio receiver assy connector.

(c) Using an oscilloscope, check the signal waveform according to the conditions, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| R-R+ - GND (*1) | While voice sound is being produced | A waveform synchronized with sound is output |
| R-R- - GND (*1) | While voice sound is being produced | A waveform synchronized with sound is output |
| R-L+ - GND (*1) | While voice sound is being produced | A waveform synchronized with sound is output |
| R-L- - GND (*1) | While voice sound is being produced | A waveform synchronized with sound is output |
| RSR+ - GND (*2, 3) | While voice sound is being produced | A waveform synchronized with sound is output |
| RSR- - GND (*2, 3) | While voice sound is being produced | A waveform synchronized with sound is output |
| RSL+ - GND (*2, 3) | While voice sound is being produced | A waveform synchronized with sound is output |
| RSL- - GND (*2, 3) | While voice sound is being produced | A waveform synchronized with sound is output |

HINT:

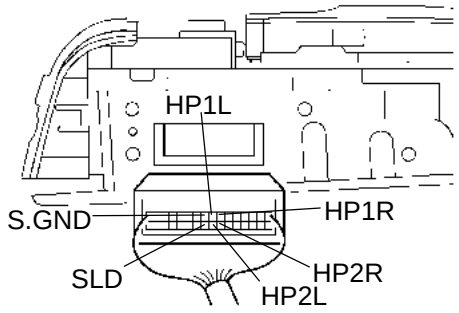
- *1: w/ Navigation system
- *2: w/o Navigation system (10 speaker)
- *3: w/o Navigation system (6 speaker)

**NG** → **REPLACE RADIO RECEIVER ASSY**

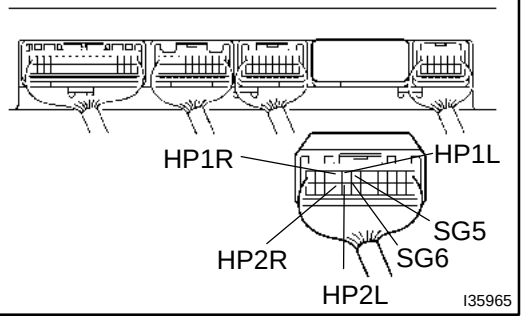
**OK**

## 3 CHECK HARNESS AND CONNECTOR(MULTI-DISPLA Y CONTROLLER SUB-ASSY - TELEVISION DISPLAY ASSY)

**Television Display Assy:**




**Multi-display Controller Sub-assy:**




(a) Disconnect the multi-display controller sub-assy and television display assy connectors.

(b) In order to check for an open circuit, measure the resistance between the terminals, as shown in the chart.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| HP1R - HP1R | Below 1 Ω |
| HP1L - HP1L | Below 1 Ω |
| HP2R - HP2R | Below 1 Ω |
| HP2L - HP2L | Below 1 Ω |
| S.GND - SG5 | Below 1 Ω |
| SLD - SG6 | Below 1 Ω |

(c) In order to check for a short circuit, measure the resistance between the terminals, as shown in the chart.

**Standard:**

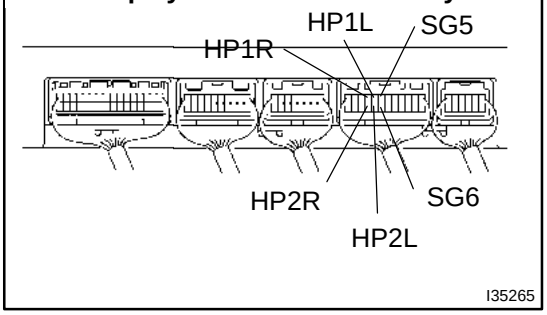
| Tester connection | Specified condition |
|---|---|
| HP1R - Body ground | 10 kΩ or higher |
| HP1L - Body ground | 10 kΩ or higher |
| HP2R - Body ground | 10 kΩ or higher |
| HP2L - Body ground | 10 kΩ or higher |
| S. GND - Body ground | 10 kΩ or higher |
| SLD - Body ground | 10 kΩ or higher |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

| 4 | INSPECT MULTI-DISPLAY CONTROLLER SUB-ASSY(HP1R, HP1L, HP2R, HP2L, SG5, SG6) |
|---|---|

**Multi-display Controller Sub-assy:**




(a) Connect the multi-display controller sub-assy.

(b) In order to check for an open circuit, measure the resistance between the terminals according to the conditions, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| SG5 - Body ground | Always | Below 1 Ω |
| SG6 - Body ground | Always | Below 1 Ω |

(c) Using an oscilloscope, check the signal waveform according to the conditions, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| HP1R - SG5 | While voice sound is being produced | A waveform synchronized with sound is output |
| HP1L - SG5 | While voice sound is being produced | A waveform synchronized with sound is output |
| HP2R - SG6 | While voice sound is being produced | A waveform synchronized with sound is output |
| HP2L - SG6 | While voice sound is being produced | A waveform synchronized with sound is output |

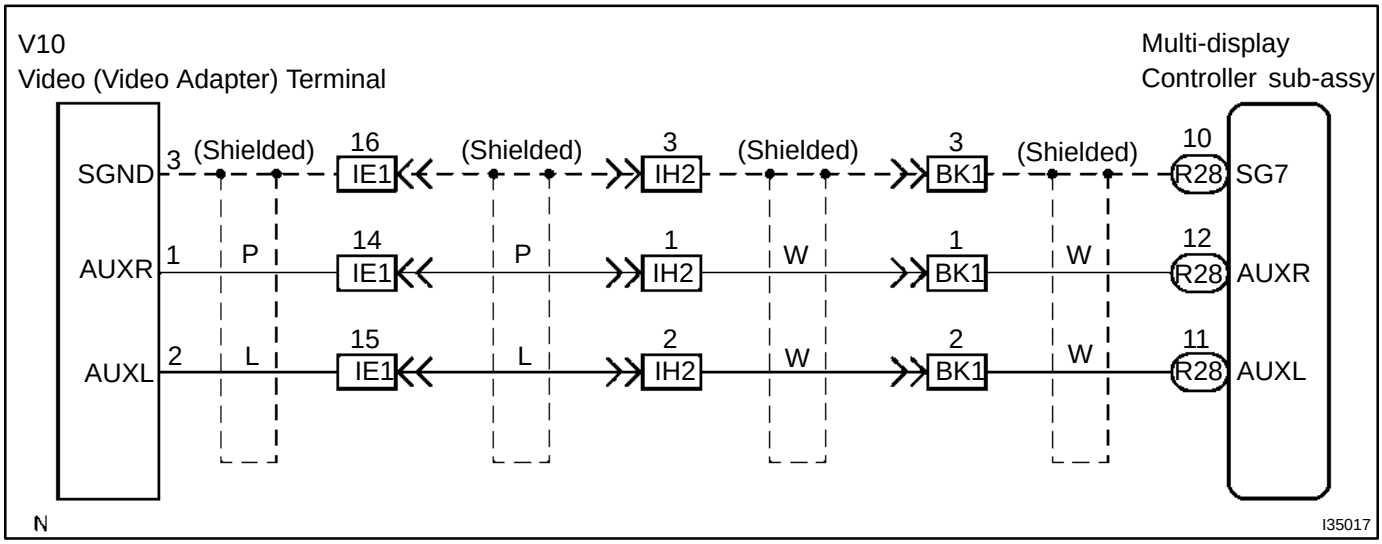
NG → **REPLACE MULTI-DISPLAY CONTROLLER SUB-ASSY**

OK

**REPLACE TELEVISION DISPLAY ASSY**

# SOUND QUALITY INPUT FROM THE EXTERNAL DEVICE IS POOR OR NO SOUND

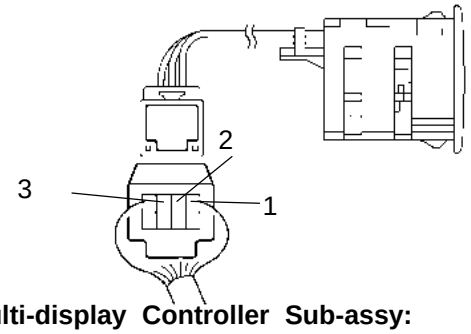
## WIRING DIAGRAM



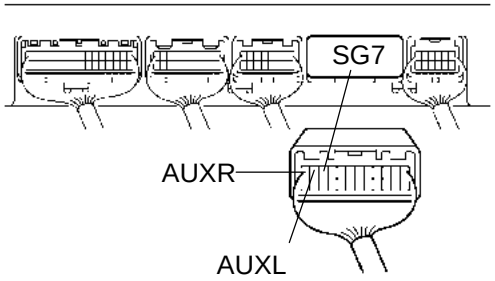

## INSPECTION PROCEDURE

| 1 | CHECK HARNESS AND CONNECTOR(VIDEO (VIDEO ADAPTER) TERMINAL - MULTI-DISPLA Y CONTROLLER SU) |
|---|---|

**Video (Video Adapter) Terminal:**




**Multi-display Controller Sub-assy:**




(a) Disconnect the video (video adapter) terminal and multi-display controller sub-assy connectors.

(b) In order to check for an open circuit, measure the resistance between the terminals, as shown in the chart.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| 2 - AUXL | Below 1 Ω |
| 1 - AUXR | Below 1 Ω |
| 3 - SG7 | Below 1 Ω |

(c) In order to check for a short circuit, measure the resistance between the terminals, as shown in the chart.

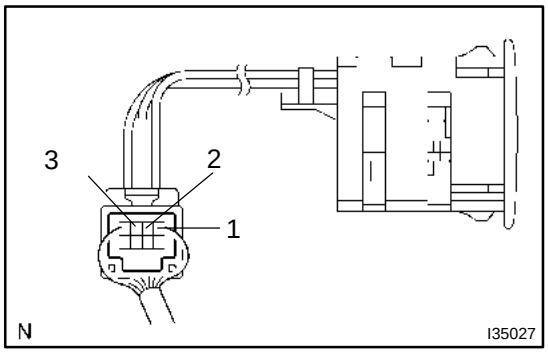
**Standard:**

| Tester connection | Specified condition |
|---|---|
| AUXL - Body ground | 10 kΩ or higher |
| AUXR - Body ground | 10 kΩ or higher |
| SG7 - Body ground | 10 kΩ or higher |

| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |
|---|---|

OK

## 2 INSPECT VIDEO(VIDEO ADAPTER) TERMINAL




(a) In order to check for an open circuit, measure the resistance between the terminals according to the condition, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| 3 - Body ground | Always | Below 1 Ω |

(b) Using an oscilloscope, check the signal waveform according to the conditions, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| 2 - 3 | While voice sound is being produced | A waveform synchronized with sound is output |
| 1 - 3 | While voice sound is being produced | A waveform synchronized with sound is output |

**NG** → **REPLACE VIDEO(VIDEO ADAPTER) TERMINAL**

**OK**

**REPLACE MULTI-DISPLA Y CONTROLLER SUB-ASSY**

# A REMOTE CONTROL SYSTEM DOES NOT OPERATE

## INSPECTION PROCEDURE

HINT:

Check that there are no obstructions between the switch & volume assy and the infrared ray light emission portion of the television display assy.

| 1 | CHECK BATTERY(SWITCH & VOLUME ASSY) |
|---|---|

(a) Check battery.

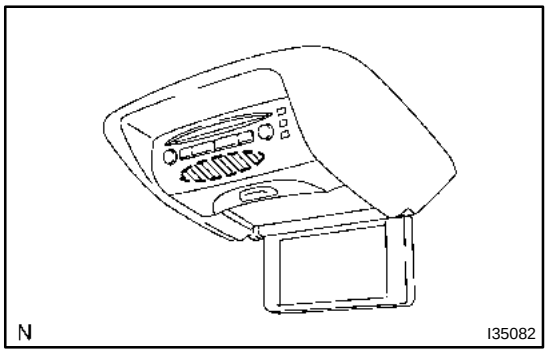
(1) Check that the dry-cell battery used for the switch & volume assy is not dead.

**OK: It is not dead**

**NG** → **BATTERY IS DEAD**

**OK**

| 2 | CLEAN THE INFRARED RAYS RECEIVING PORTION |
|---|---|




(a) Clean the infrared rays receiving portion.

(1) Clean the infrared rays receiving portion on the television display assy.

(2) Check whether the same malfunction occurs.

**OK: The function returns to normal.**

**OK** → **NORMAL**

**NG**

| 3 | REPLACE SWITCH & VOLUME ASSY |
|---|---|

**OK: Malfunction disappears**

**OK** → **NORMAL**

**NG**

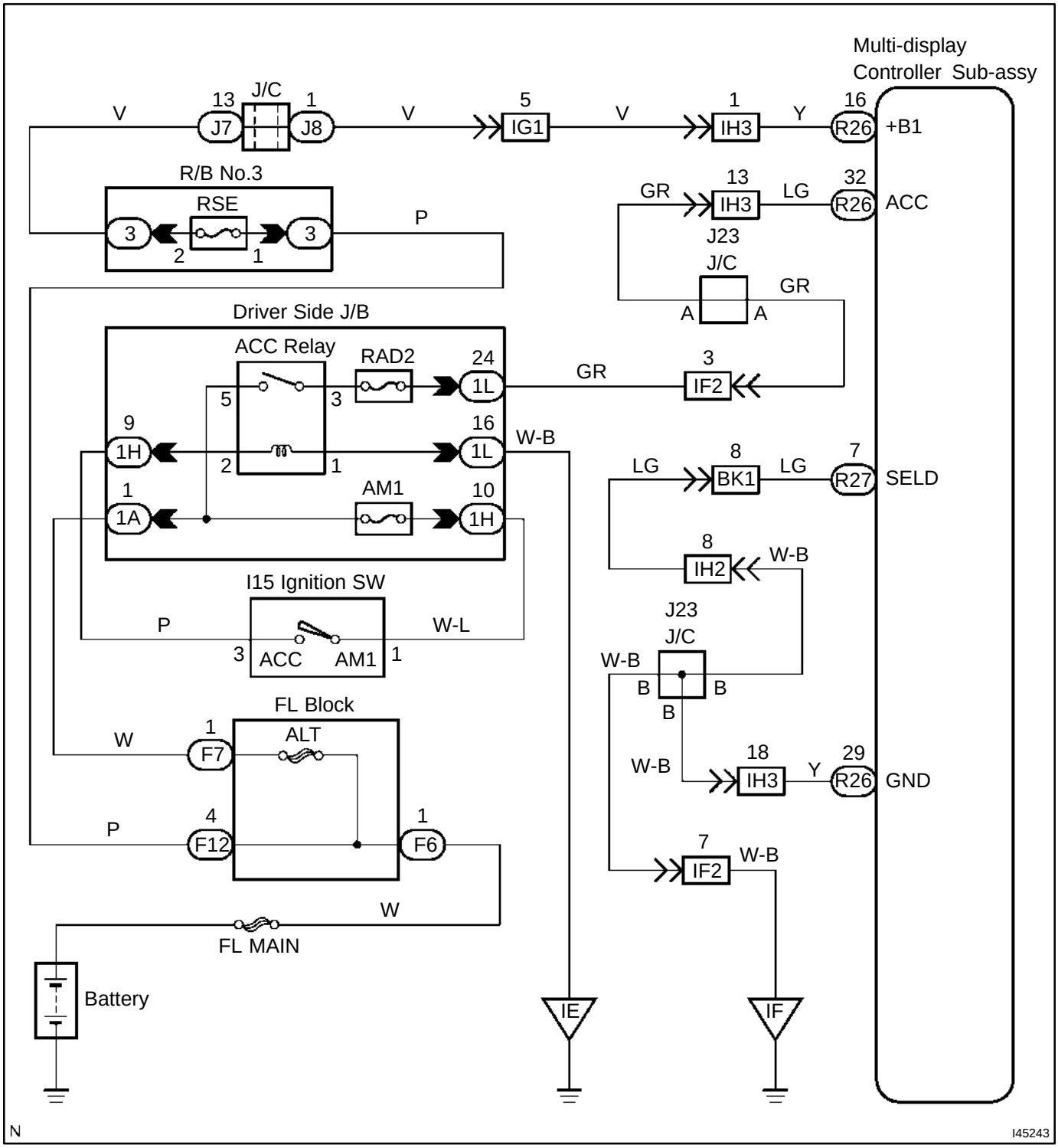
**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**
**(See page 05-1425 )**

# POWER SOURCE CIRCUIT(MULTI-DISPLA Y CONTROLLER SUB-ASSY)

## CIRCUIT DESCRIPTION

This circuit is the power source circuit to operate the multi-display controller sub-assy.

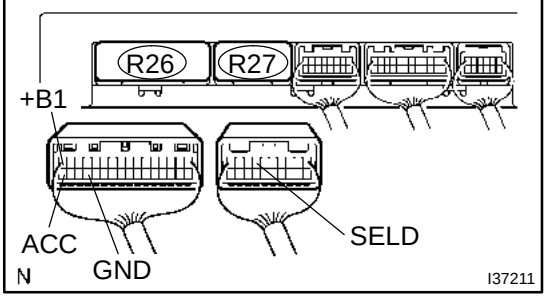
## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT MULTI-DISPLA Y CONTROLLER SUB-ASSY(+B1, ACC, GND, SELD) |
|---|---|

**Wire Harness View:**




(a) Disconnect the multi-display controller sub-assy connectors R26 and R27.

(b) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| GND - Body ground | Always | Below 1 Ω |
| SELD - Body ground | Always | Below 1 Ω |

(c) Measure the voltage according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| +B1 - GND | Always | 10 to 14 V |
| ACC - GND | Ignition SW ACC | 10 to 14 V |

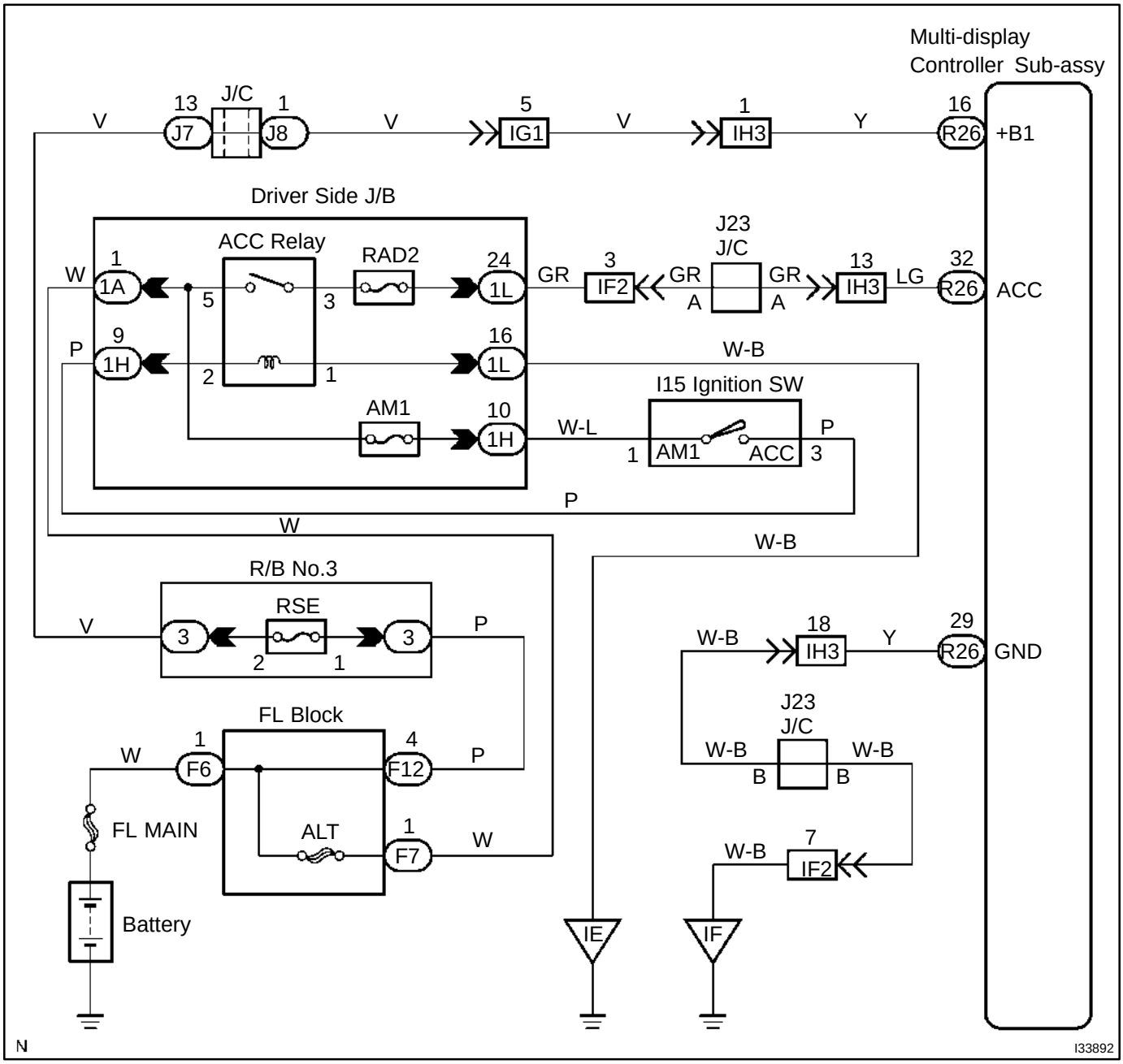
**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN DIAGNOSTIC TROUBLE CODE CHART (SEE PAGE 05-1278 )**

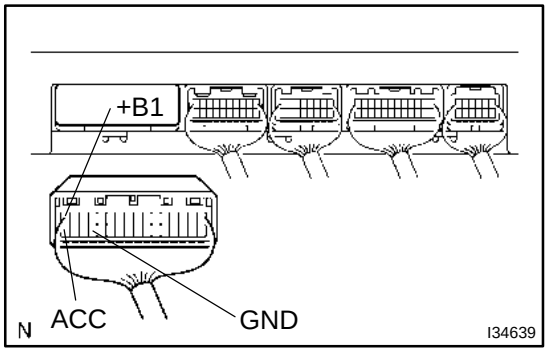
# POWER SOURCE CIRCUIT(MULTI-DISPLA Y CONTROLLER SUB-ASSY)

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT MULTI-DISPLAY CONTROLLER SUB-ASSY(+B1, ACC, GND) |
|---|---|




(a) Remove the multi-display controller sub-assy.
(b) Check continuity between terminals at each condition, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| GND - Body ground | Always | Continuity |

(c) Check the voltage between terminals at each condition, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| +B1 - GND | Always | 10 to 14 V |
| ACC - GND | Ignition SW ACC | 10 to 14 V |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR (See page 01-37 )**

**OK**

| 2 | CHECK FOR PROBLEM SYMPTOMS TABLE |
|---|---|

(a) Check problem symptoms table (See page 05-1213 ).

| | |
|---|---|
| A | Suspected areas are cleared |
| B | Suspected areas still exist |

**B** → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1213 )**

**A**

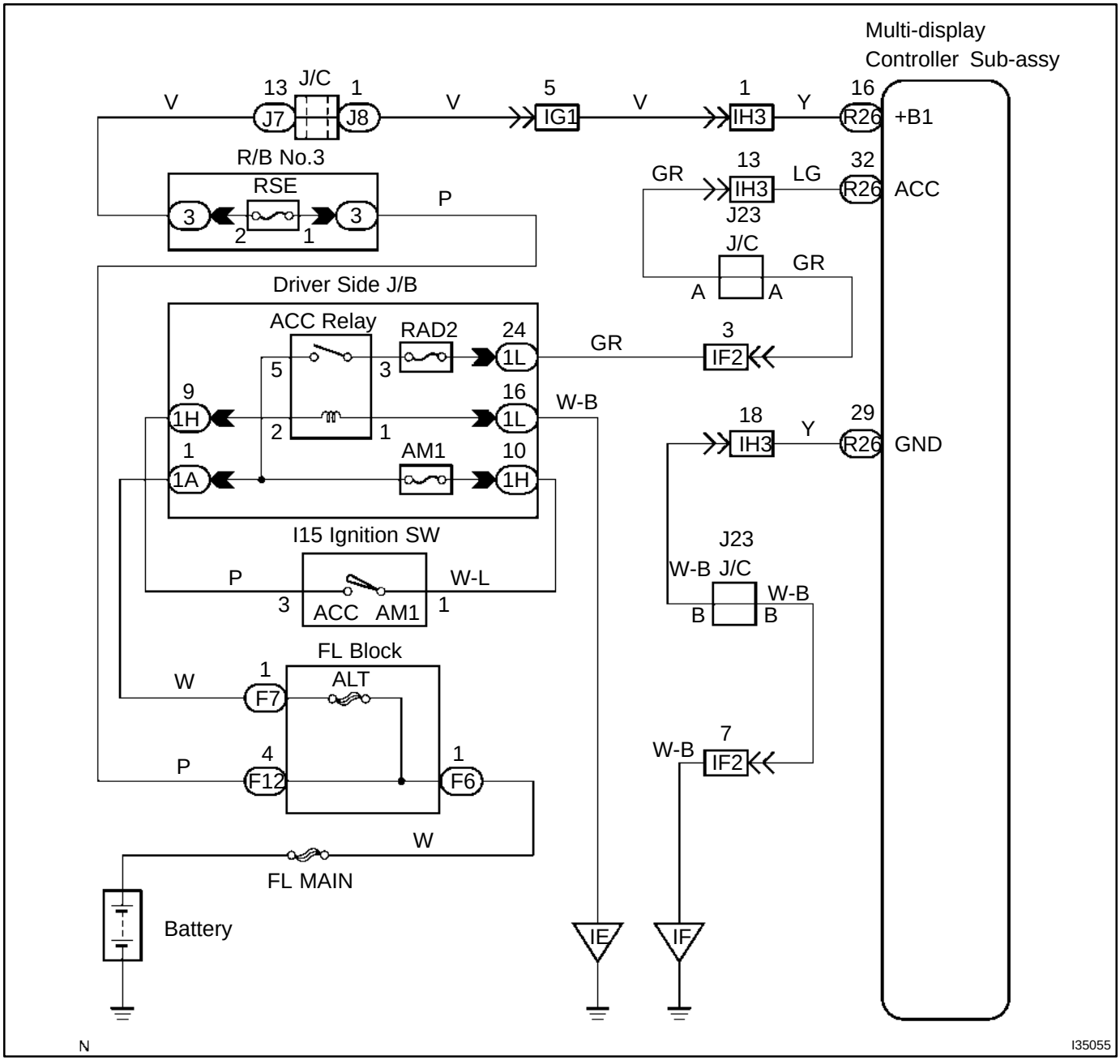
**REPLACE MULTI-DISPLAY CONTROLLER SUB-ASSY**

# POWER SOURCE CIRCUIT(MULTI-DISPLA Y CONTROLLER SUB-ASSY)

## CIRCUIT DESCRIPTION

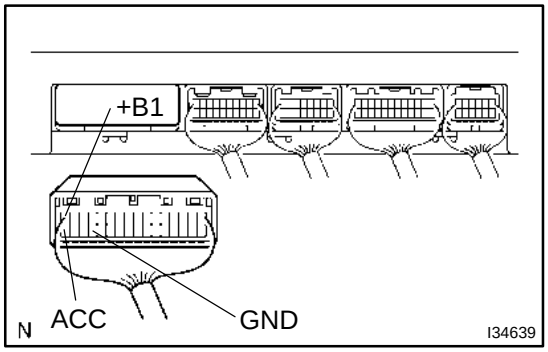
This circuit is the power source circuit to operate the multi-display controller sub-assy.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

## 1 INSPECT MULTI-DISPLAY CONTROLLER SUB-ASSY(+B1, ACC, GND)




(a) Disconnect the multi-display controller sub-assy connectors.

(b) In order to check for an open circuit, measure the resistance between the terminals according to the condition, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| GND - Body ground | Always | Below 1 Ω |

(c) Check the voltage between the terminals according to the conditions, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| +B1 - GND | Always | 10 to 14 V |
| ACC - GND | Ignition SW ACC | 10 to 14 V |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

## 2 CHECK FOR PROBLEM SYMPTOMS TABLE

(a) Check problem symptoms table (See page 05-1425 ).

**Result:**

| | |
|---|---|
| A | Suspected areas are cleared |
| B | Suspected areas still exist |

**B** → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (See page 05-1425 )**

**A**

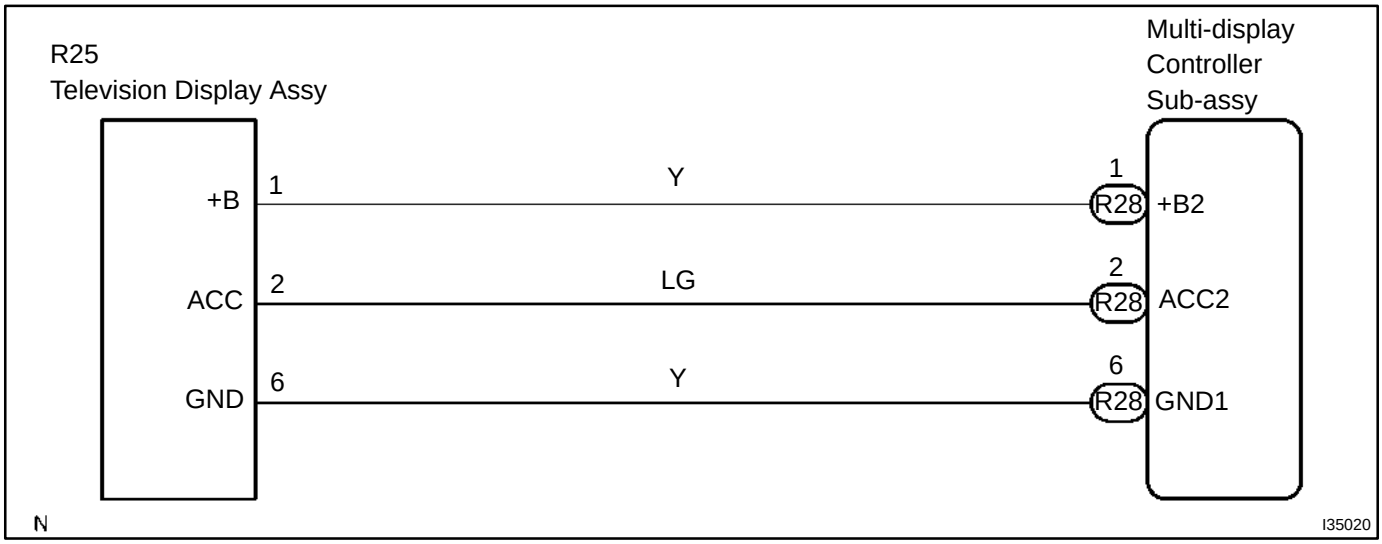
**REPLACE MULTI-DISPLAY CONTROLLER SUB-ASSY**

# POWER SOURCE CIRCUIT(TELEVISION DISPLAY ASSY)

## CIRCUIT DESCRIPTION

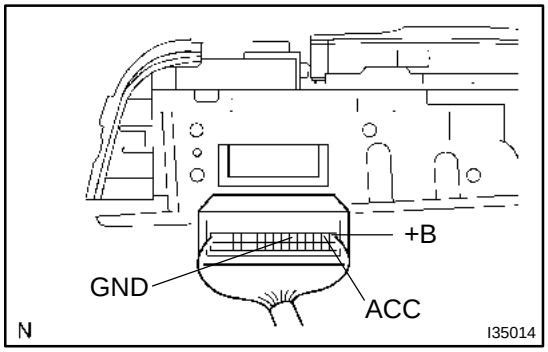
This circuit is the power source circuit to operate the television display assy. The power source is sent from the battery to the television display assy through the multi-display controller sub-assy.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

## 1 INSPECT TELEVISION DISPLAY ASSY(+B, ACC, GND)




(a) Disconnect the television display assy connector.

(b) In order to check for an open circuit, measure the resistance between the terminals according to the condition, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| GND - Body ground | Always | Below 1 Ω |

(c) Check the voltage between the terminals according to the conditions, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| +B - GND | Always | 10 to 14 V |
| ACC - GND | Ignition SW ACC | 10 to 14 V |

**OK** → **REPLACE TELEVISION DISPLAY ASSY**

**NG**

## 2 CHECK HARNESS AND CONNECTOR(TELEVISION DISPLAY ASSY - MULTI-DISPLAY CONTROLLER SUB-ASSY)

(a) Check for an open or short circuit in harness and connector between the television display assy and multi-display controller sub-assy (See page 01-37 ).

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

## 3 CHECK FOR PROBLEM SYMPTOMS TABLE

(a) Check problem symptoms table (See page 05-1425 ).

**Result:**

| | |
|---|---|
| A | Suspected areas are cleared |
| B | Suspected areas still exist |

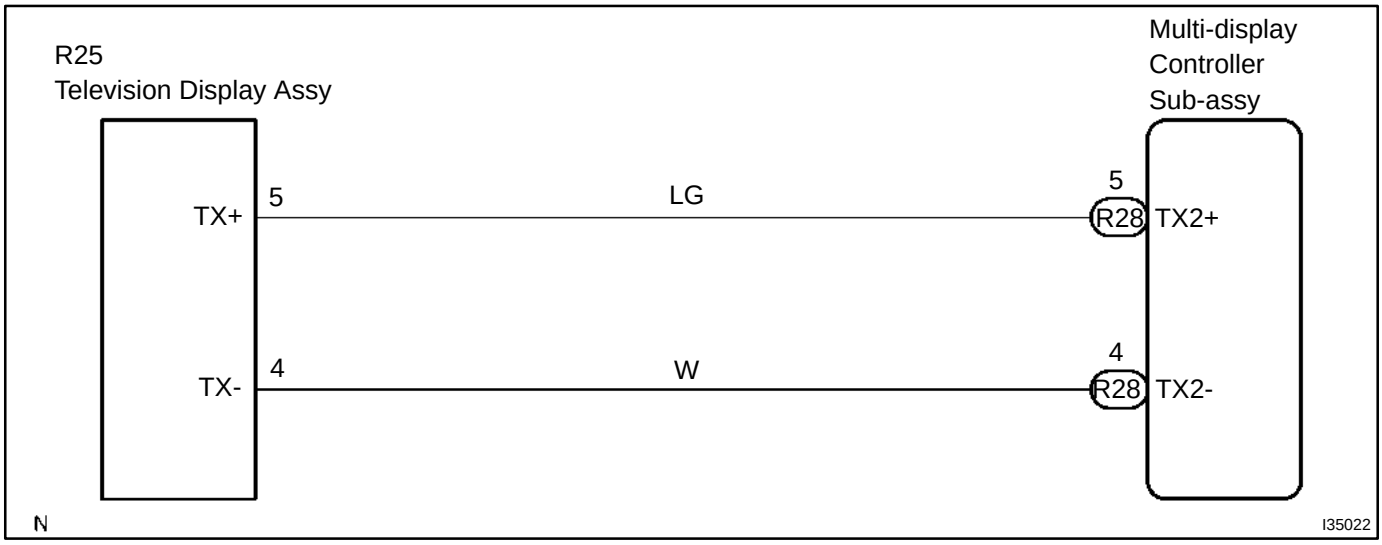
**B** → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (See page 05-1425 )**

**A**

**REPLACE MULTI-DISPLAY CONTROLLER SUB-ASSY**

# AVC-LAN CIRCUIT

## WIRING DIAGRAM



# INSPECTION PROCEDURE

## 1 SERVICE CHECK MODE(TELEVISION DISPLAY ASSY)

(a) Perform service check.
(1) Start the diagnosis system and read check result for television display assy.
**Result:**

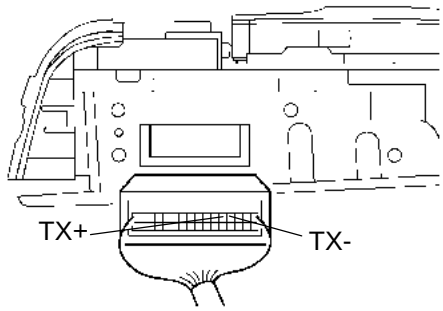
| | |
|---|---|
| A | "NCON" is displayed or no display (Rr-TV) |
| B | "OK" is displayed |

B → **REPLACE MULTI-DISPLA Y CONTROLLER SUB-ASSY**

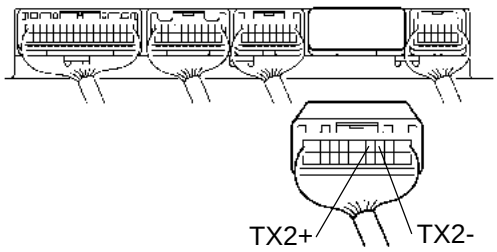
A

## 2 CHECK HARNESS AND CONNECTOR(TELEVISION DISPLAY ASSY - MULTI-DISPLA Y CONTROLLER SUB-ASSY)

**Television Display Assy:**




**Multi display Controller Sub-assy:**




I35960

(a) Disconnect the television display assy and multi-display controller sub-assy connectors.
(b) In order to check for an open circuit, measure the resistance between the terminals, as shown in the chart.
**Standard:**

| Tester connection | Specified condition |
|---|---|
| TX+ - TX2+ | Below 1 Ω |
| TX- - TX2- | Below 1 Ω |

(c) In order to check for a short circuit, measure the resistance between the terminals, as shown in the chart.
**Standard:**

| Tester connection | Specified condition |
|---|---|
| TX+ - Body ground | 10 kΩ or higher |
| TX- - Body ground | 10 kΩ or higher |

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

**REPLACE TELEVISION DISPLAY ASSY**

# SOURCE VOLTAGE DROP

## CIRCUIT DESCRIPTION

The SRS is equipped with a voltage-increase circuit (DC-DC converter) in the airbag sensor assy center in case the source voltage drops.

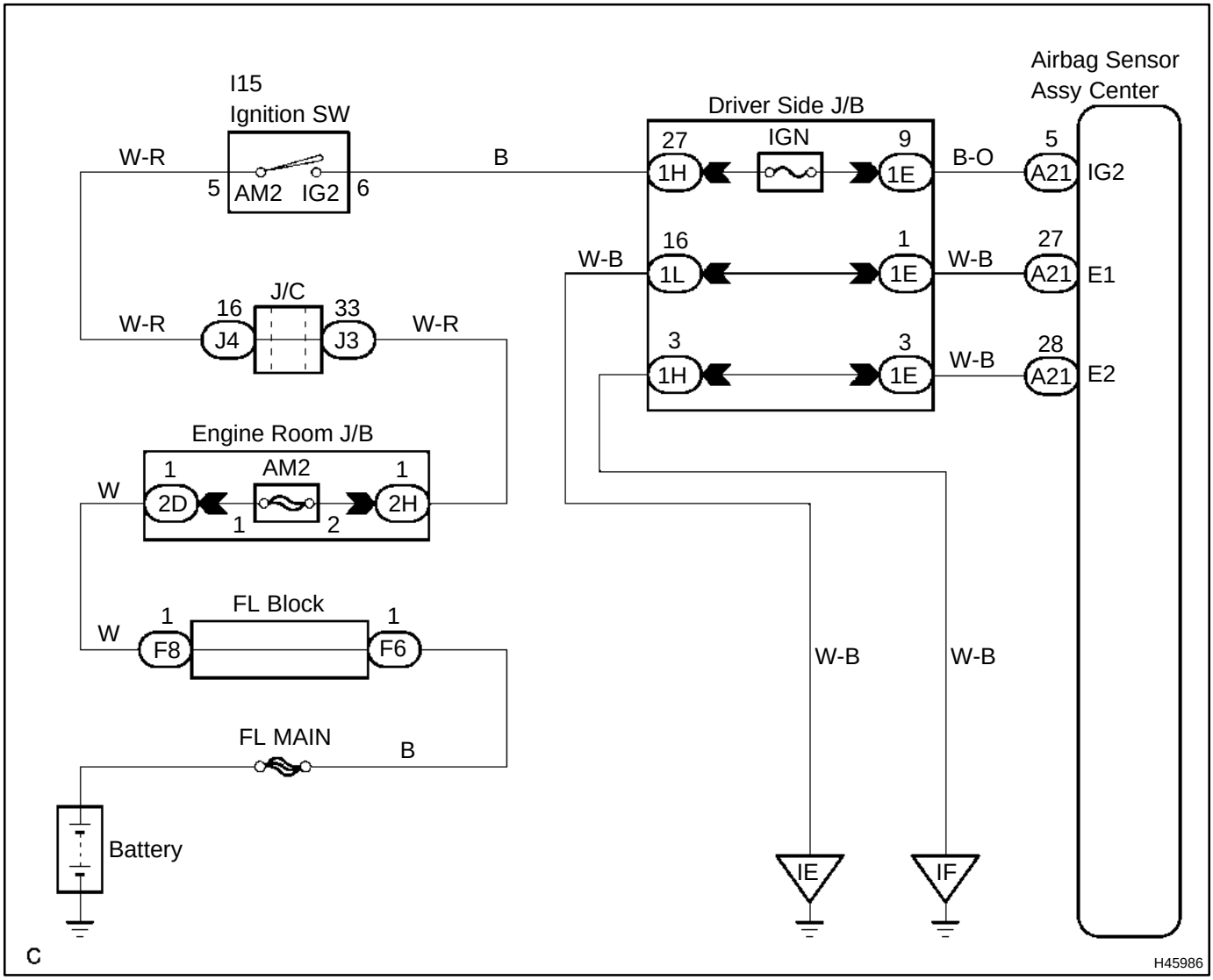
When the battery voltage drops, the voltage-increase circuit (DC-DC converter) functions to increase the voltage of the SRS to normal voltage.

A malfunction in this circuit is displayed differently from other codes. The source voltage drop is indicated when the SRS warning light comes on without showing any DTCs.

A malfunction in this circuit is not recorded in the airbag sensor assy center. The SRS warning light automatically goes off when the source voltage returns to normal.

| DTC No. | Diagnosis |
|---|---|
| (Normal) | Source voltage drop |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

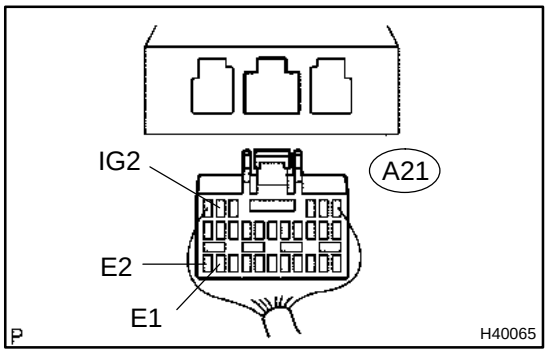
| 1 | CHECK BATTERY |
|---|---|

(a) Measure the voltage of the battery.
**Standard: 11 to 14 V**

**NG** → **REPLACE BATTERY**

**OK**

| 2 | CHECK WIRE HARNESS |
|---|---|




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connector of the airbag sensor assy center.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position.
(f) Measure the voltage and resistance according to the value(s) in the table below.
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| A21-5 (IG2) - Body ground | Ignition switch ON | 10 to 14 V |
| A21-27 (E1) - Body ground | Always | Below 1 Ω |
| A21-28 (E2) - Body ground | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE WIRE HARNESS (AIRBAG SENSOR ASSY CENTER - BATTERY)**

**OK**

| 3 | CHECK SRS WARNING LIGHT TURN OFF |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the airbag sensor assy center connectors.
(d) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position.
(f) Operate all components of the electrical system (defogger, wiper, headlight, heater blower, etc.) and check the SRS warning light operation.
**OK:**
**SRS warning light does not come on.**

**NG** → **REPAIR OR REPLACE WIRE HARNESS**

**OK**

| 4 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the stored DTCs in the memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**OK:**

**DTC is not output.**

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

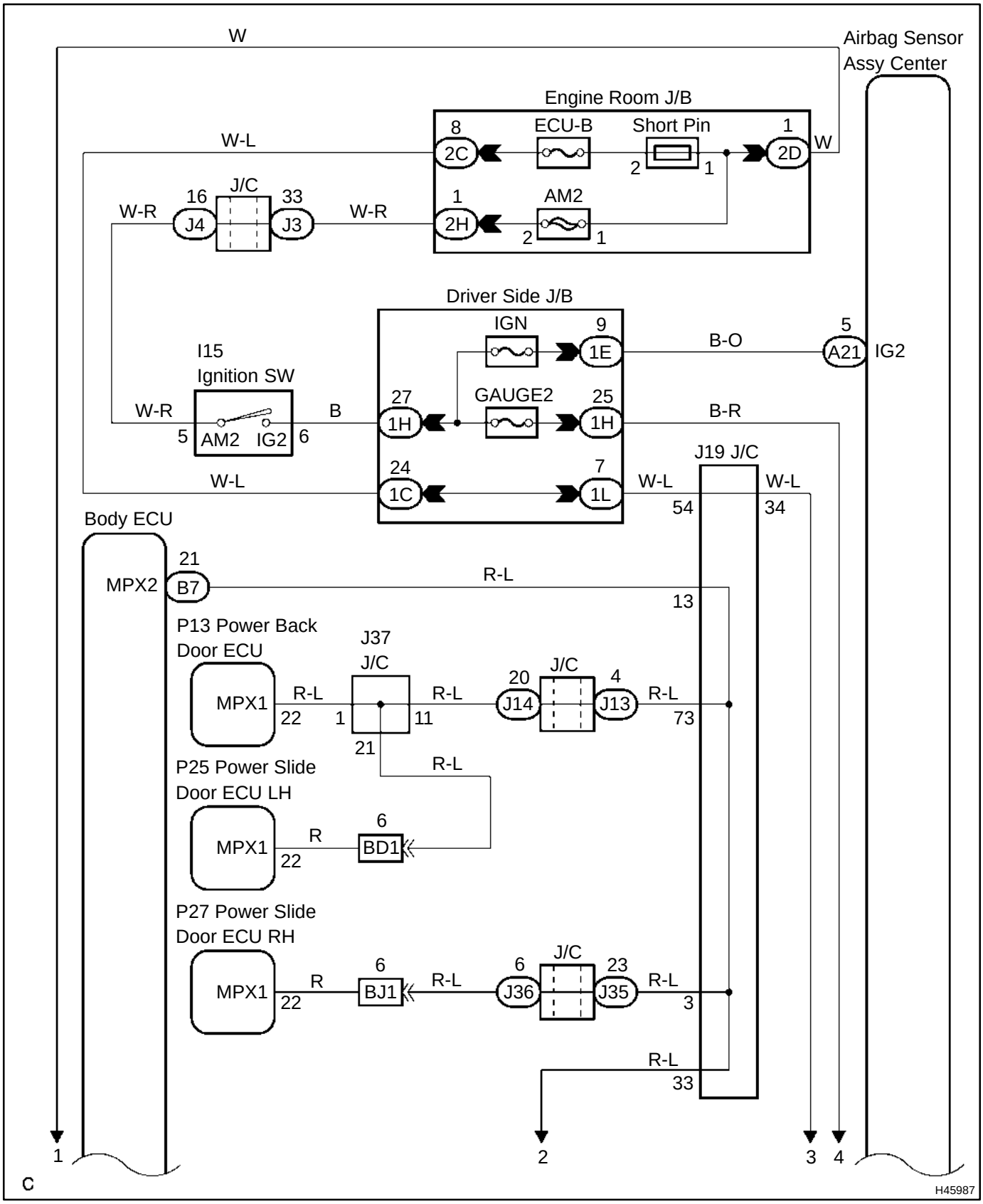
**USE SIMULATION METHOD TO CHECK (SEE PAGE 05-770 )**

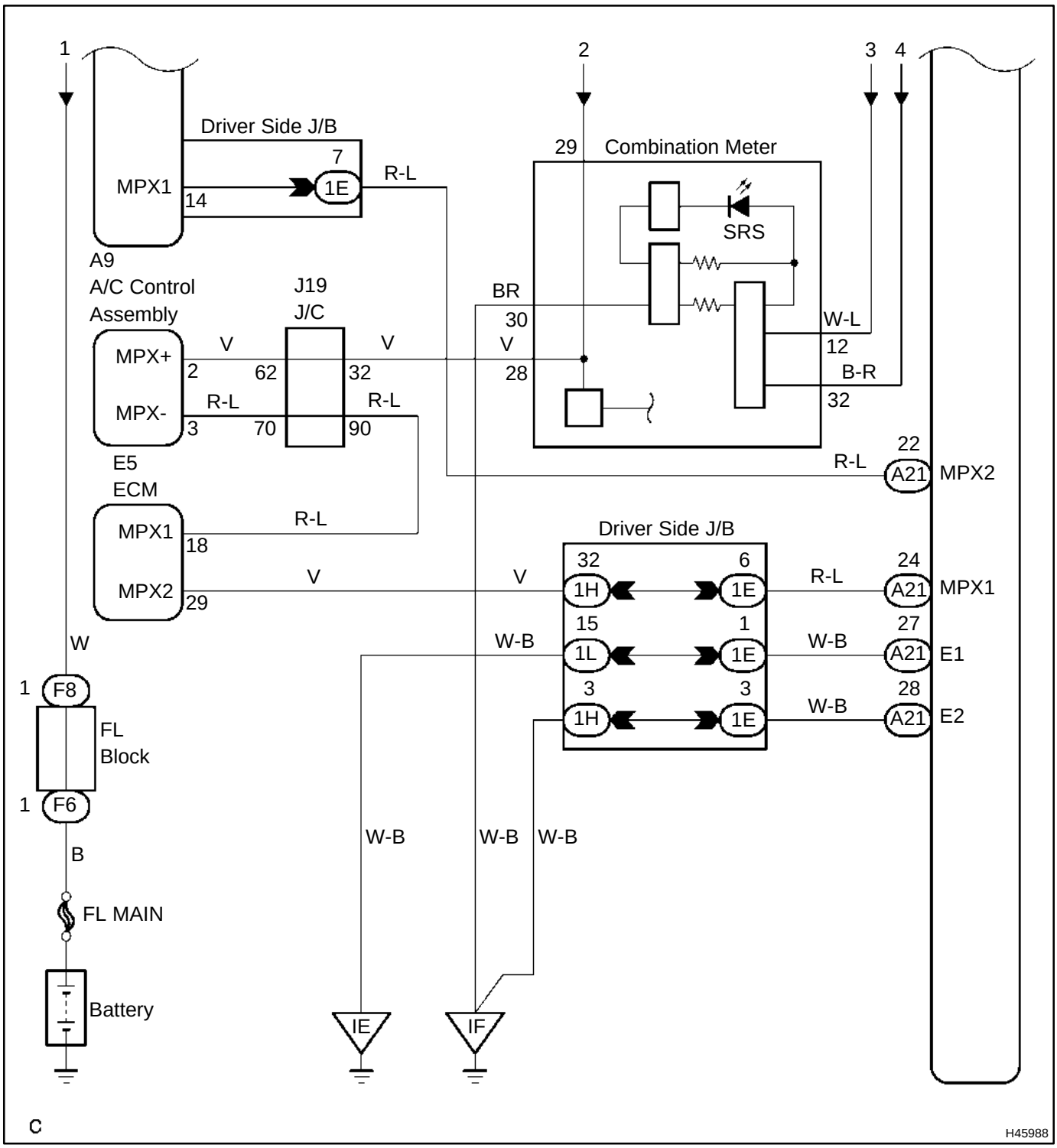
# SRS WARNING LIGHT CIRCUIT MALFUNCTION (ALWAYS LIGHT UP, WHEN IGNITION SWITCH IS LOCK POSITION.)

## CIRCUIT DESCRIPTION

The SRS warning light is located on the combination meter assy.
When the SRS is normal, the SRS warning light comes on for approx. 6 seconds after the ignition switch is turned from the LOCK position to ON position, and then it turns off automatically.
If there is a malfunction in the SRS, the SRS warning light comes on to inform the driver.
When terminals TC and CG of the DLC3 are connected, the DTCs are displayed by blinking the SRS warning light.
The signal to illuminate the SRS warning light is transmitted from the airbag sensor assy center to the combination meter assy through the multiplex communication system.

## WIRING DIAGRAM




1
2
3
4
Driver Side J/B
MPX1
7
1E
14
R-L
A9
A/C Control
Assembly
J19
J/C
MPX+
MPX-
2
62
32
3
70
90
V
R-L
E5
ECM
MPX1
MPX2
18
29
29
Combination Meter
SRS
BR
30
28
W-L
12
B-R
32
22
A21
MPX2
Driver Side J/B
32
1H
6
1E
15
1L
1
1E
3
1H
3
1E
24
A21
MPX1
27
A21
E1
28
A21
E2
W-B
W
1
F8
FL
Block
1
F6
B
FL MAIN
Battery
IE
IF
C
H45988

## INSPECTION PROCEDURE

| 1 | CHECK AIR BAG SENSOR ASSY CENTER |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Connect the negative (-) terminal cable to the battery, and wait for at least 2 seconds.
(d) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(e) Clear the DTCs stored in memory (see page 05-777 ).
(f) Turn the ignition switch to the LOCK position.
(g) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(h) Check the DTCs (see page 05-777 ).

**OK:**

**DTC is not output.**

**NG** → **GO TO INSPECTION PROCEDURE OF DTC OUTPUT (SEE PAGE 05-790 )**

**OK**

**GO TO COMBINATION METER SYSTEM (SEE PAGE 05-1525 )**

# SRS WARNING LIGHT CIRCUIT MALFUNCTION (DOES NOT LIGHT UP, WHEN IGNITION SWITCH IS TURNED TO ON)

## CIRCUIT DESCRIPTION

The SRS warning light is located on the combination meter assy.
When the SRS is normal, the SRS warning light comes on for approx. 6 seconds after the ignition switch is turned from the LOCK position to ON position, and then it turns off automatically.
If there is a malfunction in the SRS, the SRS warning light comes on to inform the driver.
When terminals TC and CG of the DLC3 are connected, the DTC is displayed by blinking the SRS warning light.
The signal to illuminate the SRS warning light is transmitted from the airbag sensor assy center to the combination meter assy through the multiplex communication system.

## WIRING DIAGRAM

See page 05-1 108.

## INSPECTION PROCEDURE

| 1 | CHECK SOURCE VOLTAGE |
|---|---|

(a) Measure the voltage of the battery.
**Standard: 11 to 14 V**

NG → **REPLACE BATTERY**

OK

| 2 | CHECK SRS WARNING LIGHT |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Disconnect the connector from the airbag sensor assy center.
(d) Connect the negative (-) terminal cable from the battery, and wait for at least 2 seconds.
(e) Turn the ignition switch to the ON position.
(f) Check the SRS warning light operation.
**OK:**
**The SRS warning light comes on.**

NG → **REPLACE COMBINATION METER ASSY (SEE PAGE 71-10 )**

OK

**REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

# TROUBLE IN INDICATOR OF PASSENGER AIRBAG ON/OFF INDICATOR

## CIRCUIT DESCRIPTION

The occupant classification system detects the front passenger seat condition. It then informs a passenger of the front passenger airbag assembly condition (activated/not activated) by the passenger airbag ON/OFF indicator.

The table below shows the normal indication condition of the passenger airbag ON/OFF indicator and the front pasenger seat condition.

| Front passenger seat condition | ON Indicator | OFF Indicator |
|---|---|---|
| Adult is seated. | ON | OFF |
| Child is seated. | OFF | ON |
| Vacant | OFF | OFF |
| Occupant classification system failure | OFF | ON |

## INSPECTION PROCEDURE

**1 CHECK SRS WARNING LIGHT**

(a) Turn the ignition switch to the ON position, and check the SRS warning light condition.

HINT:

If this trouble occurs, the SRS warning light is off. If it is on, a DTC is output. Troubleshoot for the output DTC.

**OK:**

**The SRS warning light does not come on.**

**NG** → **CHECK DTC (SEE PAGE 05-777 )**

**OK**

**2 CHECK PASSENGER AIRBAG ON/OFF INDICATOR**

(a) Turn the ignition switch to the ON position.

(b) Check if the passenger airbag ON/OFF indicator correctly indicates the front passenger seat condition.

**OK:**

| Front passenger seat condition | ON Indicator | OFF Indicator |
|---|---|---|
| Adult is seated. | ON | OFF |
| Child is seated. | OFF | ON |
| Vacant | OFF | OFF |
| Occupant classification system failure | OFF | ON |

**NG** → **Go to step 3**

**OK**

**END**

| 3 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the hand-held tester to the DLC3.
(b) Turn the ignition switch to the ON position.
(c) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed on the tester screen.**

**NG** → **Go to step 5**

**OK**

| 4 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

**NG** → **Go to step 5**

**OK**

**END**

| 5 | RETIGHTEN FRONT SEAT ASSEMBLY RH BOLT (SEE PAGE 72-30 ) |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Loosen the 4 installation bolts of the front seat assembly RH.
(c) Tighten the 4 installation bolts of the front seat assembly RH to the specified torque.
**Torque: 37 N·m (377 kgf·cm, 27 ft·lbf)**

**NEXT**

| 6 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the hand-held tester to the DLC3.
(b) Turn the ignition switch to the ON position.
(c) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed on the tester screen.**

**NG** → **Go to step 8**

**OK**

| 7 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

**NG** → **Go to step 8**

**OK**

**END**

| 8 | CHECK CONNECTOR |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Check the connectors are properly connected to the occupant classification ECU and the 4 occupant classification sensors.
**OK:**
**The connectors are connected.**
(d) Disconnect the connectors from the occupant classification ECU and the 4 occupant classification sensors.
(e) Check the connectors are not damaged or deformed.
**OK:**
**The connectors are normal.**

**NG** → **REPAIR OR REPLACE CONNECTOR, THEN GO TO STEP 1**

**OK**

| 9 | CHECK DTC |
|---|---|

(a) Connect the connectors to the occupant classification ECU and the 4 occupant classification sensors.
(b) Connect the negative (-) terminal cable to the battery.
(c) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(d) Clear the DTCs stored in memory (see page 05-777 ).
(e) Turn the ignition switch to the LOCK position.
(f) Turn the ignition switch to the ON position, and wait for at least 60 seconds.
(g) Check the DTCs (see page 05-777 ).
**OK:**
**DTC is not output.**

**NG** → **REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

**OK**

| 10 | REPLACE OCCUPANT CLASSIFICATION ECU |
|---|---|

(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the negative (-) terminal cable from the battery, and wait for at least 90 seconds.
(c) Replace the occupant classification ECU (see page 60-67 ).

HINT:
Perform the inspection using parts from a normal vehicle if possible.

NEXT

| 11 | PERFORM ZERO POINT CALIBRATION |
|---|---|

(a) Connect the negative (-) terminal cable to the battery.
(b) Connect the hand-held tester to the DLC3.
(c) Turn the ignition switch to the ON position.
(d) Using the hand-held tester, perform ”Zero point calibration” (see page 05-767 ).
**OK:**
**The ”COMPLETED” is displayed on the tester screen.**

NEXT

| 12 | PERFORM SENSITIVITY CHECK |
|---|---|

(a) Using the hand-held tester, perform ”Sensitivity check” (see page 05-767 ).
**Standard value: 27 to 33 kg (59.52 to 72.75 lb)**

NEXT

END

# SLIDE DOOR CLOSER LH DOES NOT OPERATE

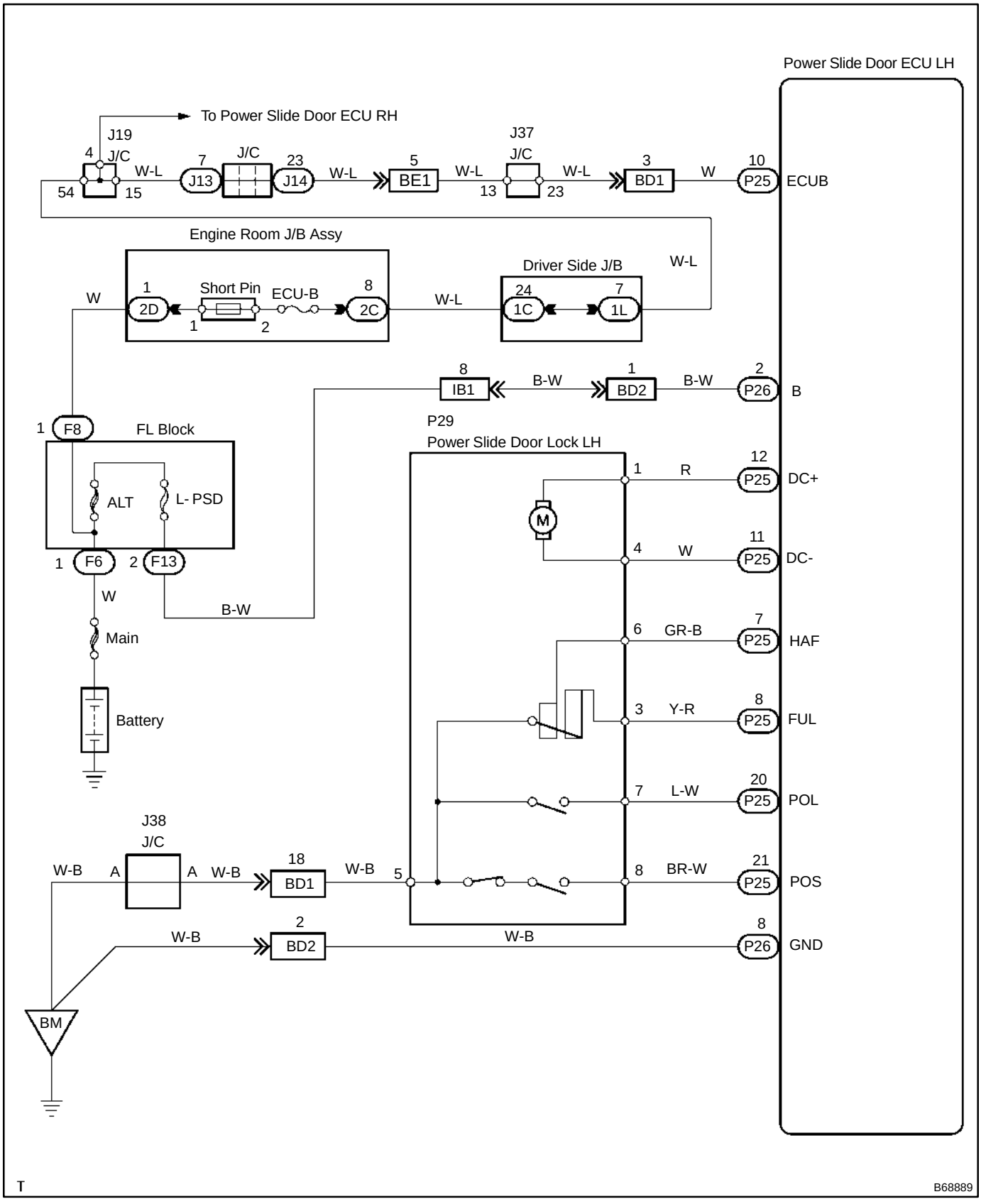
## CIRCUIT DESCRIPTION

The slide door ECU LH controls the slide door closer. In response to the output signals from the switches in the slide door lock, the slide door closer drives the closer motor.

HINT:

The slide door closer system operates regardless of the power slide door main switch ON/OFF.

# WIRING DIAGRAM



## INSPECTION PROCEDURE

| 1 | INSPECT FUSE (ECU-B) |
|---|---|

(a) Inspect the ECU-B fuse (See page 68-1 ).

NG → REPLACE FUSE

OK

| 2 | INSPECT SLIDE DOOR LOCK |
|---|---|

(a) Check that the slide door fully closes (fully locked) when the door is closed by hand.

NG → IMPROPER FIT OF SLIDE DOOR, OR A FOREIGN OBJECT IS STUCK IN SLIDE DOOR

OK

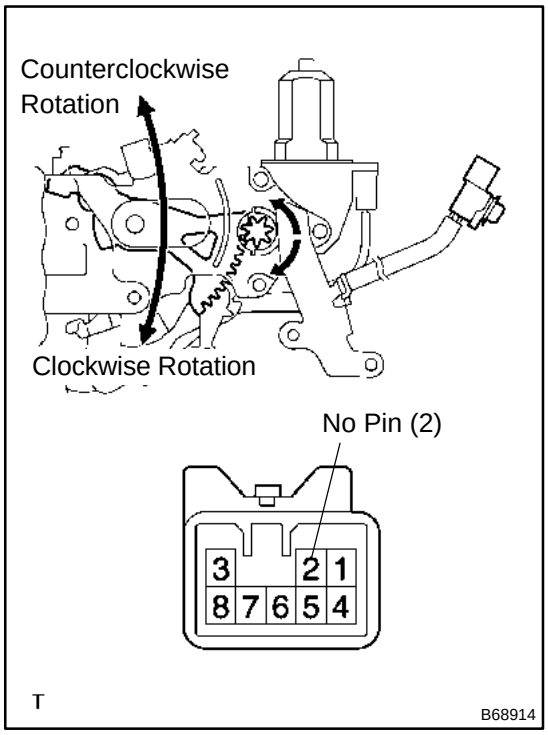
| 3 | POWER SOURCE RESET |
|---|---|

(a) Disconnect the ECU-B fuse and reconnect it. 10 seconds later, check that the slide door closer is operational.

OK → NORMAL

NG

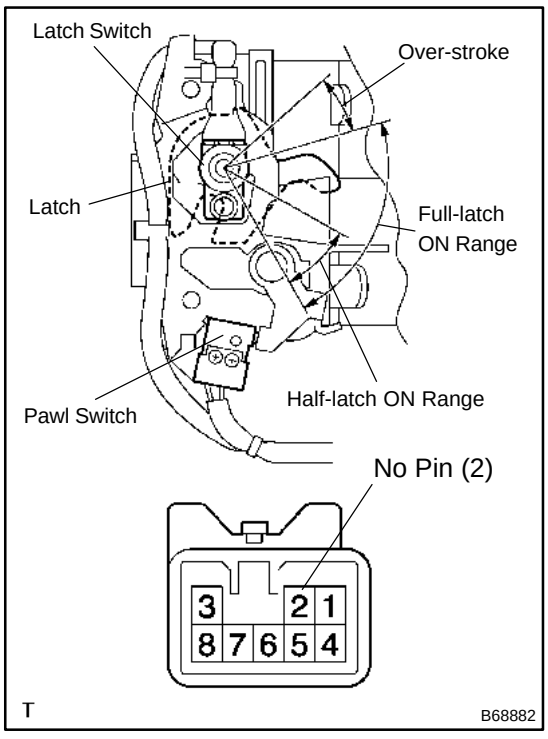
## 4 INSPECT POWER SLIDE DOOR LOCK ASSY LH




(a) Apply battery voltage to the terminals and check the motor operation.

**Standard:**

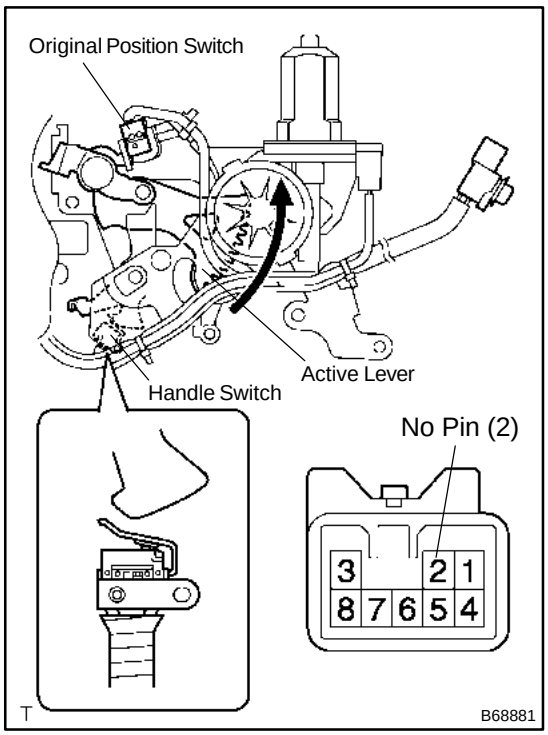
| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 1<br>Battery negative (-) → Terminal 4 | Clockwise Rotation |
| Battery positive (+) → Terminal 4<br>Battery negative (-) → Terminal 1 | Counterclockwise Rotation |




(b) At each range of the latch, inspect the resistance of the pawl switch and latch switch.

**Standard:**

| Terminal No. | Condition | Result |
|---|---|---|
| 5 - 6 | Half-latch ON range | Below 1 Ω |
| 3 - 5 | Full-latch ON range | |
| 5 - 6<br>3 - 5 | Over-stroke range | More than 10 kΩ |




(c) Inspect the resistance of the original position switch and handle switch.

**Standard:**

| Terminal No. | Original Position Switch | Handle Switch | Result |
|---|---|---|---|
| 5 - 8 | OFF (Active lever in original position) | ON (Handle in original position) | 10 kΩ or higher |
| | | OFF (Handle operated) | |
| | ON (CLoser in operation) | ON (Handle in original position) | Below 1 Ω |
| | | OFF (Handle operated) | 10 kΩ or higher |

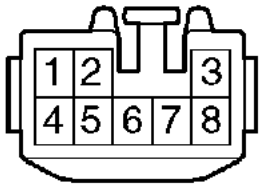
**NG** → **REPLACE POWER SLIDE DOOR LOCK ASSY LH**

**OK**

| 5 | CHECK WIRE HARNESS (POWER SLIDE DOOR LOCK ASSY LH - POWER SLIDE DOOR ECU LH) |
|---|---|

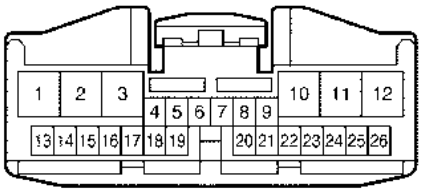
**Wire Harness Side**

P29
Power Slide Door Lock Assy LH




B65742

P25
Power Slide Door ECU LH




P

B68439

(a) Disconnect the P29 door lock and P25 ECU connectors.

(b) Check the resistance between the wire harness connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P29-1 - P25-12 (DC+) | Below 1 Ω |
| P29-4 - P25-11 (DC-) | |
| P29-6 - P25-7 (HAF) | |
| P29-3 - P25-8 (FUL) | |
| P29-7 - P25-20 (POL) | |
| P29-8 - P25-21 (POS) | |

(c) Check the resistance between the P29 lock connector and body ground.

**Standard (Check for open circut):**

| Terminal No. | Specified Condition |
|---|---|
| P29-5 - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE POWER SLIDE DOOR ECU LH**

# SLIDE DOOR CLOSER RH DOES NOT OPERATE

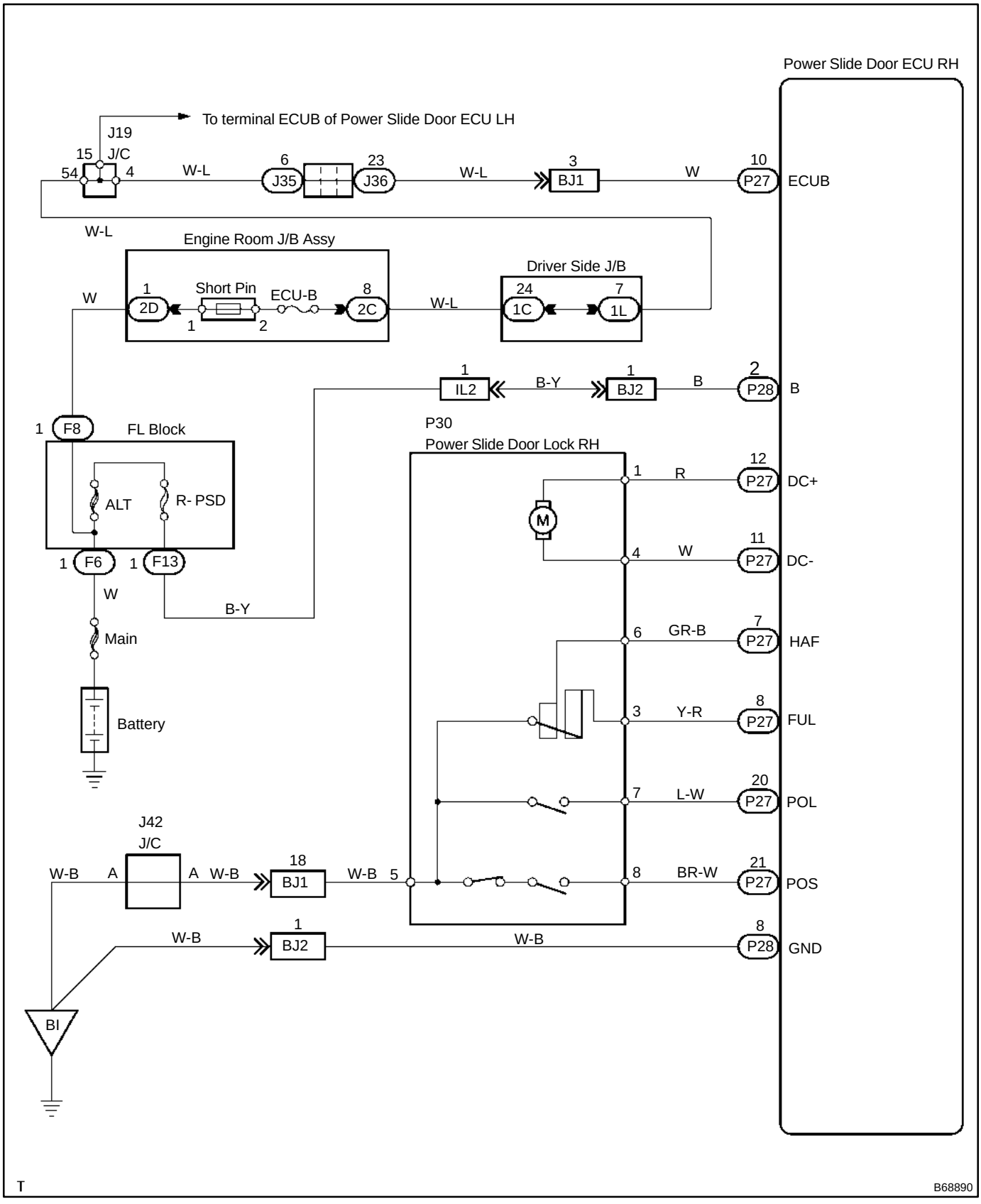
## CIRCUIT DESCRIPTION

The slide door ECU RH controls the slide door closer. In response to the signals output from the switches in the slide door lock, the slide door closer drives the closer motor.

HINT:

The slide door closer system operates regardless of the power slide door main switch ON/OFF.

# WIRING DIAGRAM



## INSPECTION PROCEDURE

| 1 | INSPECT FUSE (ECU-B) |
|---|---|

(a) Inspect the ECU-B fuse (See page 68-1 ).

NG → REPLACE FUSE

OK

| 2 | INSPECT SLIDE DOOR LOCK |
|---|---|

(a) Check that the slide door fully closes (fully locked) when the door is closed by hand.

NG → IMPROPER FIT OF SLIDE DOOR, OR A FOREIGN OBJECT IS STUCK IN SLIDE DOOR

OK

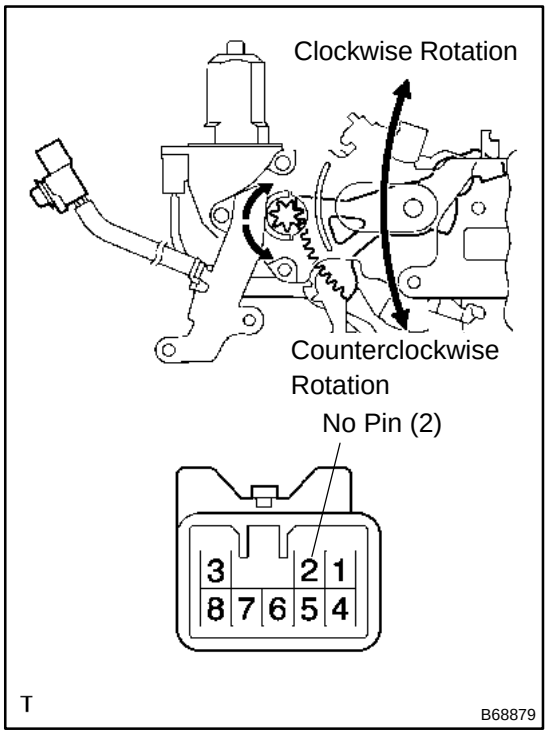
| 3 | POWER SOURCE RESET |
|---|---|

(a) Disconnect the ECU-B fuse and reconnect it. 10 seconds later, check that the back door closer is operational.

OK → NORMAL

NG

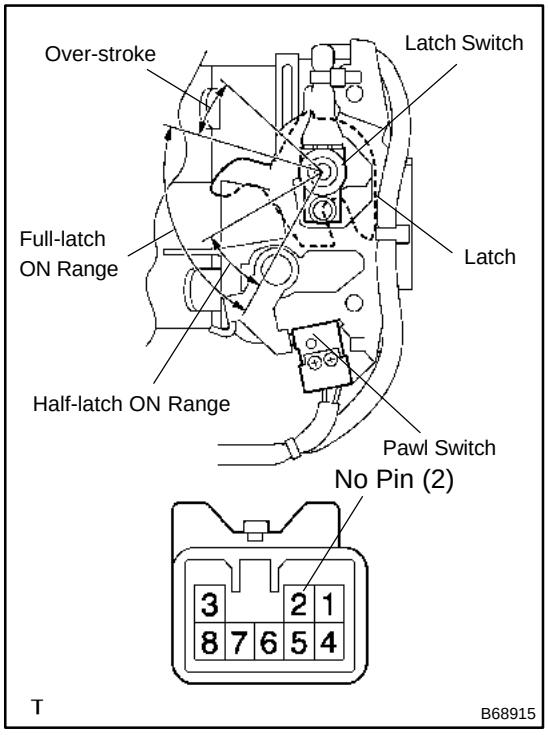
## 4 INSPECT POWER SLIDE DOOR LOCK ASSY RH




(a) Apply battery voltage to the terminals and check the motor operation.

**Standard:**

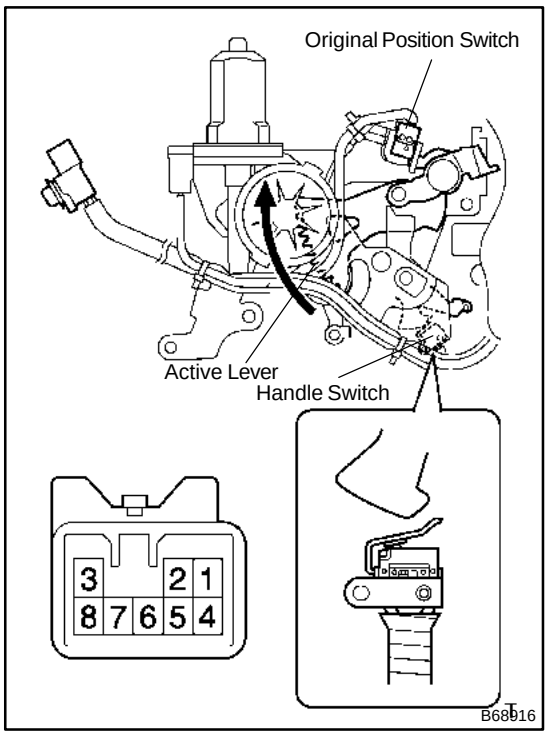
| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 1<br>Battery negative (-) → Terminal 4 | Clockwise Rotation |
| Battery positive (+) → Terminal 4<br>Battery negative (-) → Terminal 1 | Counterclockwise Rotation |




(b) At each range of the latch, inspect the resistance of the pawl switch and latch switch.

**Standard:**

| Terminal No. | Condition | Result |
|---|---|---|
| 5 - 6 | Half-latch ON range | Below 1 Ω |
| 3 - 5 | Full-latch ON range | |
| 5 - 6<br>3 - 5 | Over-stroke range | 10 kΩ or higher |




(c) Inspect the resistance of the original position switch and handle switch.

**Standard:**

| Terminal No. | Original Position Switch | Handle Switch | Result |
|---|---|---|---|
| 5 - 8 | OFF (Active lever in original position) | ON (Handle in original position) | 10 kΩ or higher |
| | | OFF (Handle operated) | |
| | ON (CLoser in operation) | ON (Handle in original position) | Below 1 Ω |
| | | OFF (Handle operated) | 10 kΩ or higher |

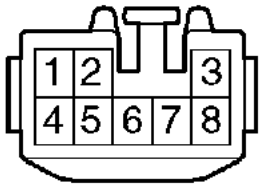
**NG** → **REPLACE POWER SLIDE DOOR LOCK ASSY RH**

**OK**

| 5 | CHECK WIRE HARNESS (POWER SLIDE DOOR LOCK ASSY RH - POWER SLIDE DOOR ECU RH) |
|---|---|

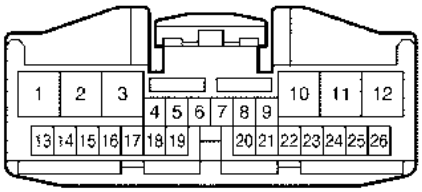
**Wire Harness Side**

P30
Power Slide Door Lock Assy RH




B65742

P27
Power Slide Door ECU RH




P

B68439

(a) Disconnect the P30 door lock and P27 ECU connectors.

(b) Check the resistance between the wire harness connectors.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P30-1 - P27-12 (DC+) | Below 1 Ω |
| P30-4 - P27-11 (DC-) | |
| P30-6 - P27-7 (HAF) | |
| P30-3 - P27-8 (FUL) | |
| P30-7 - P27-20 (POL) | |
| P30-8 - P27-21 (POS) | |

(c) Check the resistance between the P30 lock connector and body ground.

**Standard (Check for open circuit):**

| Terminal No. | Specified Condition |
|---|---|
| P30-5 - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

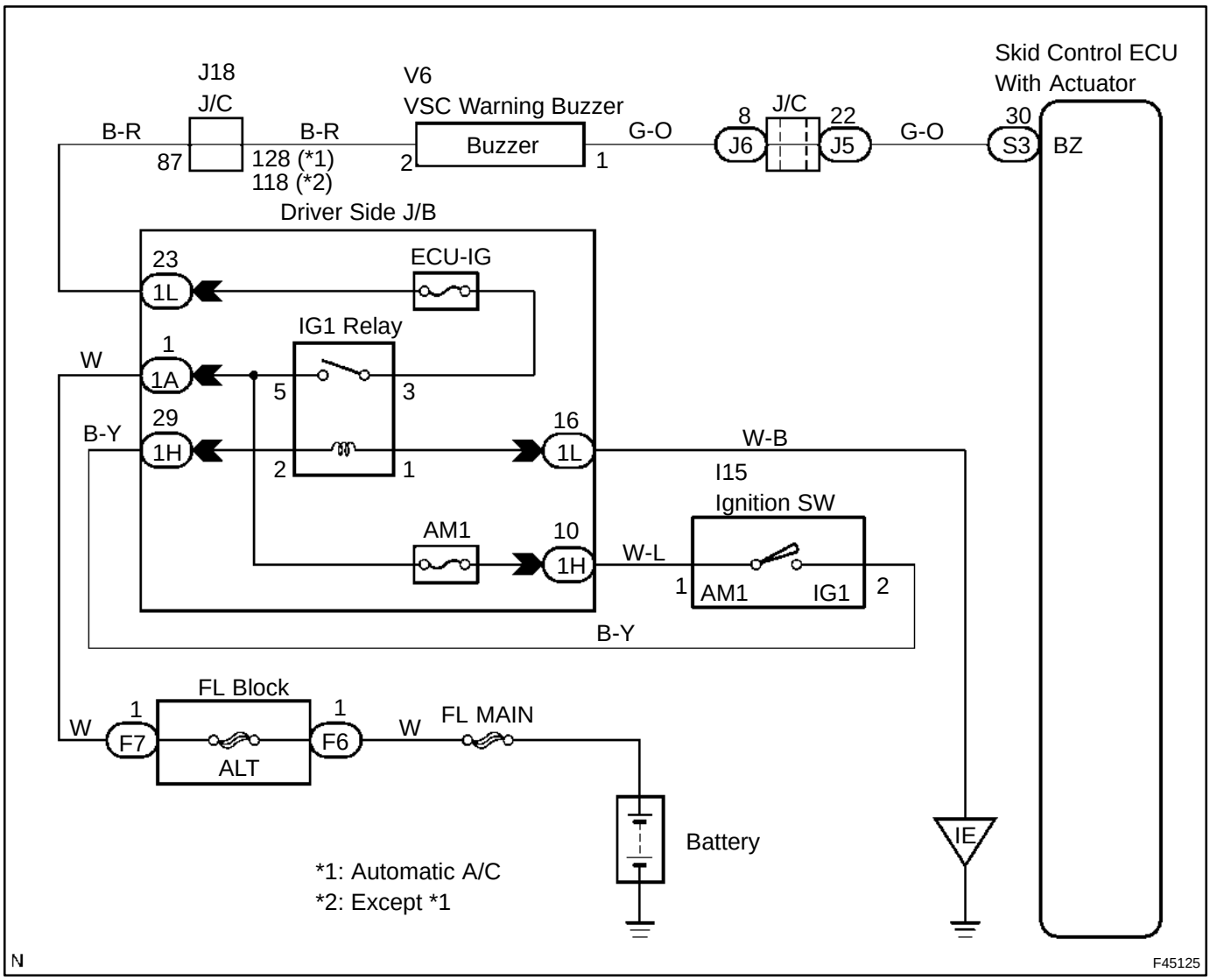
**REPLACE POWER SLIDE DOOR ECU RH**

# SKID CONTROL BUZZER CIRCUIT

## CIRCUIT DESCRIPTION

The skid control buzzer sounds during the VSC operation.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

Start the inspection from step 1 if you are using the hand-held tester and start from step 2 if you are not using the hand-held tester.

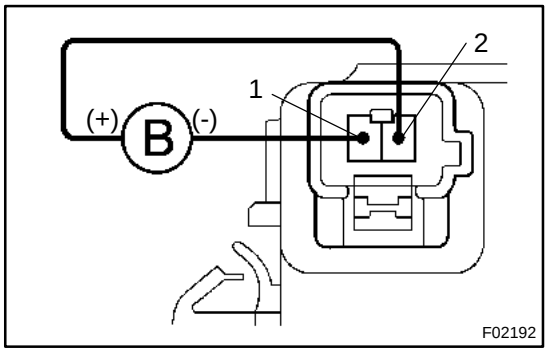
| 1 | PERFORM ACTIVE TEST BY HAND-HELD TESTER(SKID CONTROL BUZZER) |
|---|---|

(a) Connect the hand-held tester to the DLC3.
(b) Start the engine.
(c) Select the item "VSC/BR WARN BUZ" in the ACTIVE TEST and operate the skid control buzzer with the hand-held tester.
(d) Check that skid control buzzer sounds "ON" and "OFF" with the hand-held tester.

OK → **REPLACE ABS & TRACTION ACTUATOR ASSY (See page 32-46 )**

NG

| 2 | INSPECT SKID CONTROL BUZZER ASSY |
|---|---|




(a) Disconnect the skid control buzzer connector.
(b) Apply battery positive voltage to the terminals 1 and 2 of the skid control buzzer connector, check that the buzzer sounds.

NG → **REPLACE SKID CONTROL BUZZER ASSY**

OK

| 3 | CHECK HARNESS AND CONNECTOR(SKID CONTROL BUZZER - SKID CONTROL ECU, SKID CONTROL BUZZER - BODY GROUND) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the skid control buzzer and skid control ECU, skid control buzzer and body ground (See page 01-37 ).

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

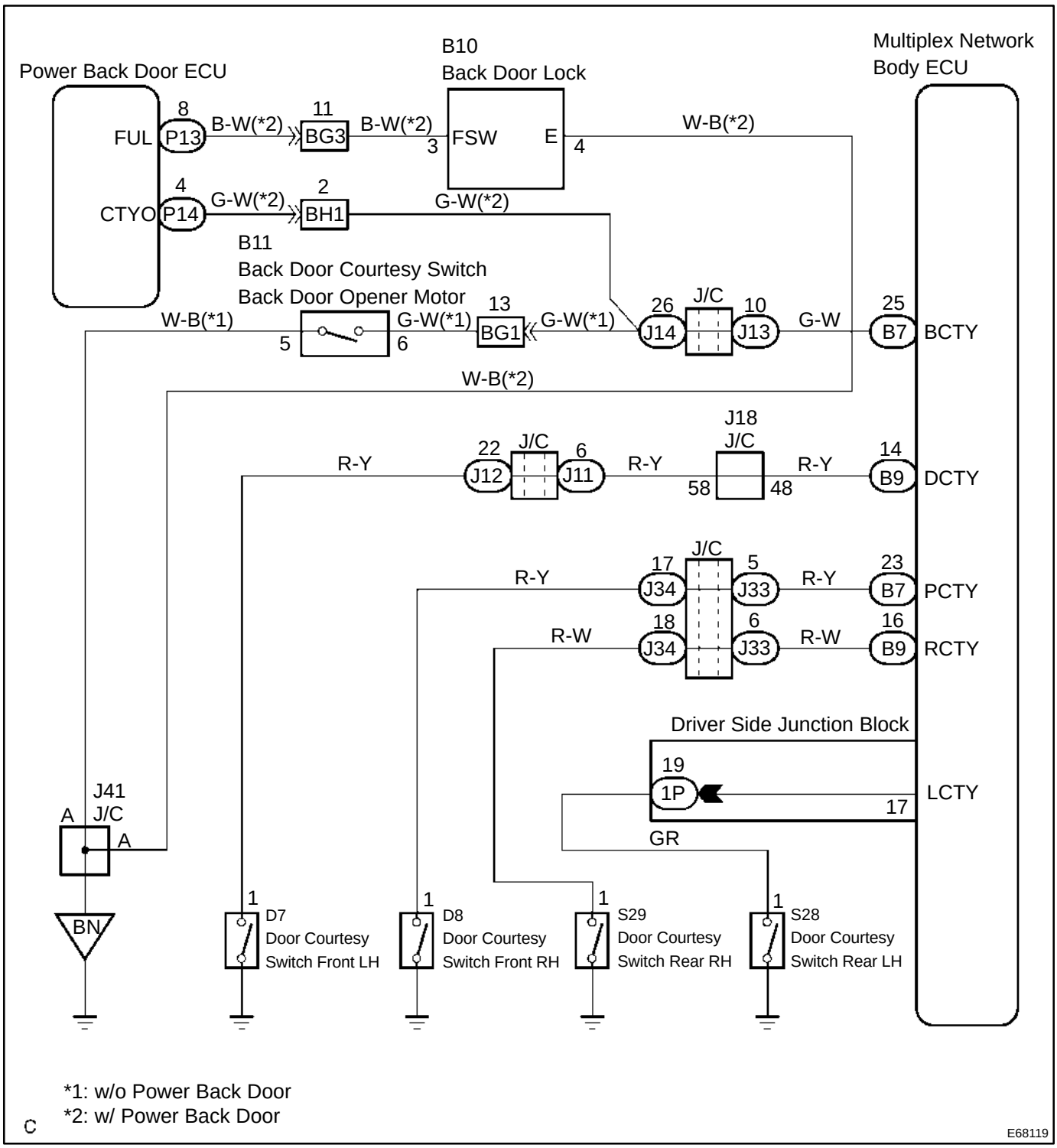
**REPLACE ABS & TRACTION ACTUATOR ASSY(See page 32-46 )**

# DOOR COURTESY SWITCH CIRCUIT

## CIRCUIT DESCRIPTION

The Multiplex network body ECU detects the condition of the door courtesy switch assy.

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

Start the inspection from step 1 in the case of using the hand-held tester, and start from step 2 in the case of not using the hand-held tester.

### 1 READ VALUE OF HAND-HELD TESTER

(a) Connect the hand-held tester to DLC3.
(b) Turn the ignition switch to ON and push the hand-held tester main switch ON.
(c) Select the items below in the DATA LIST, and read the displays on the hand-held tester.

**BODY NO.1:**

| Item | Measurement Item/ Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| D DOR CTY SW | Driver's door courtesy SW signal/ON or OFF | ON: Driver's door is open<br>OFF: Driver's door is closed | - |
| P DOR CYT SW | Passenger's door courtesy SW signal/ ON or OFF | ON: Front passenger's door is open<br>OFF: Front passenger's door is closed | - |
| Rr DOR CTY SW | Rear slide door courtesy SW signal/ON or OFF | ON: Either right or left rear slide door is open<br>OFF: Both the right and left slide doors are closed | - |

**BACK DOOR:**

| Item | Measurement Item/ Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| COURTESY SW | Back door courtesy SW signal/ ON or OFF | ON: Back door is open<br>OFF: Back door is closed | - |

**OK** → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1 131)**

**NG**

### 2 INSPECT COURTESY LAMP SWITCH

(a) Inspect each of the courtesy lamp switch continuity (See page 65-4 ).

**NG** → **REPLACE COURTESY LAMP SWITCH**

**OK**

### 3 INSPECT BACK DOOR LOCK ASSY

(a) Inspect the courtesy lamp switch terminal of the back door lock assy (See page 65-4 ).

**NG** → **REPLACE BACK DOOR LOCK ASSY**

**OK**

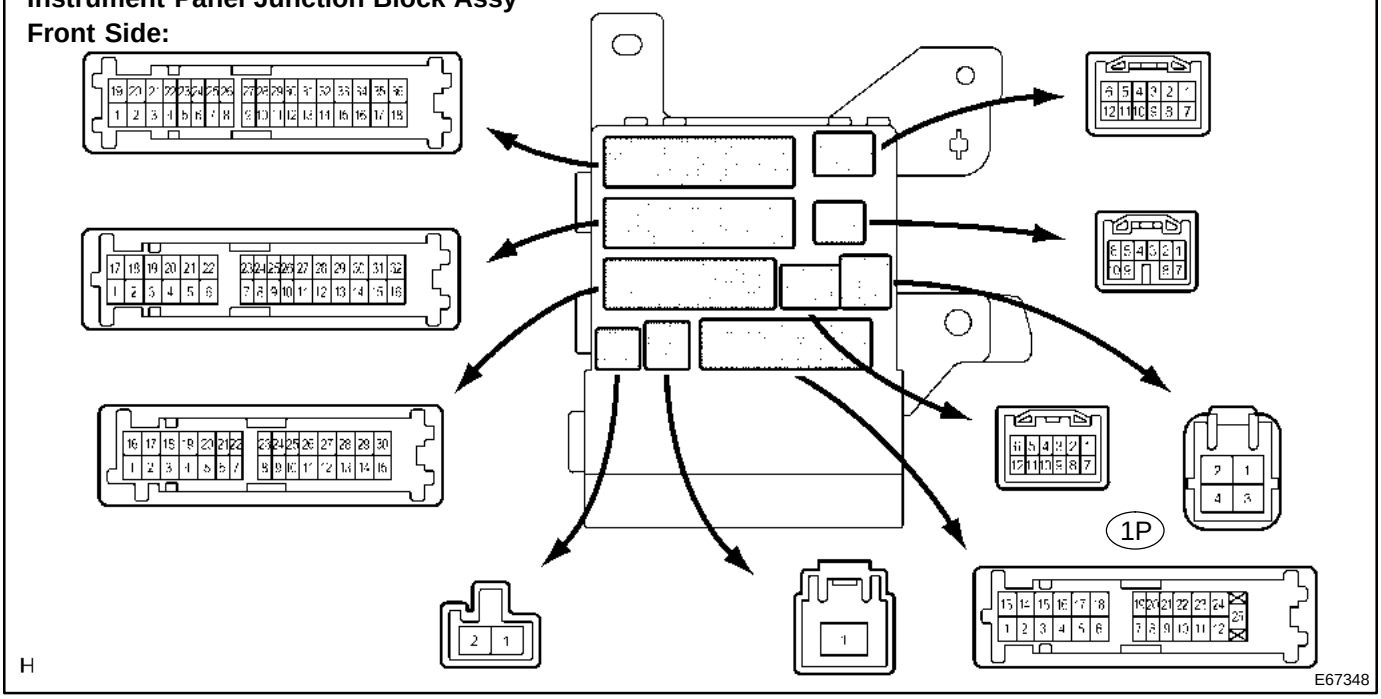
| 4 | CHECK HARNESS AND CONNECTOR |
|---|---|

(a) Disconnect the 1P, B7 and B9 connector from the instrument panel junction block assy.
(b) Check the continuity between each of the terminals of instrument panel junction block assy connector side and body ground as shown in the chart below.

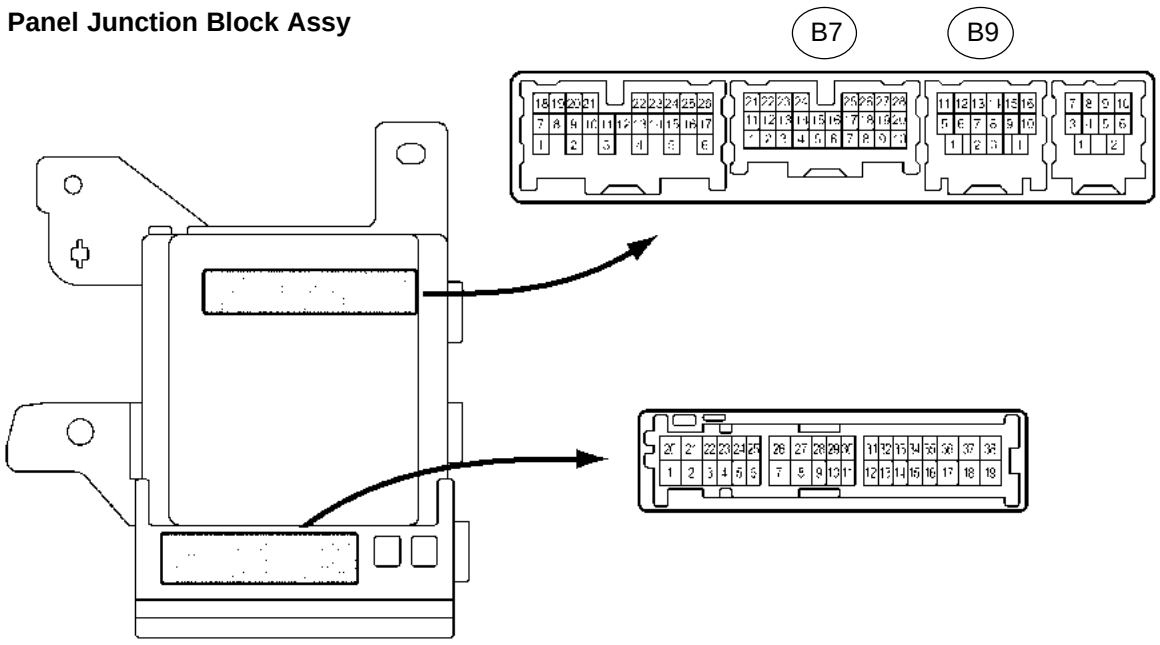
**Standard:**

| Inspect area | Tester connection | Specified condition |
|---|---|---|
| Front driver door open → close | B9-14 - Body ground | Continuity → No continuity |
| Front passenger door open → close | B7-23 - Body ground | Continuity → No continuity |
| Rear RH slide door open → close | B9-16 - Body ground | Continuity → No continuity |
| Rear LH slide door open → close | 1P-19 - Body ground | Continuity → No continuity |

**Instrument Panel Junction Block Assy**
**Front Side:**



**Instrument Panel Junction Block Assy**
**Back Side:**



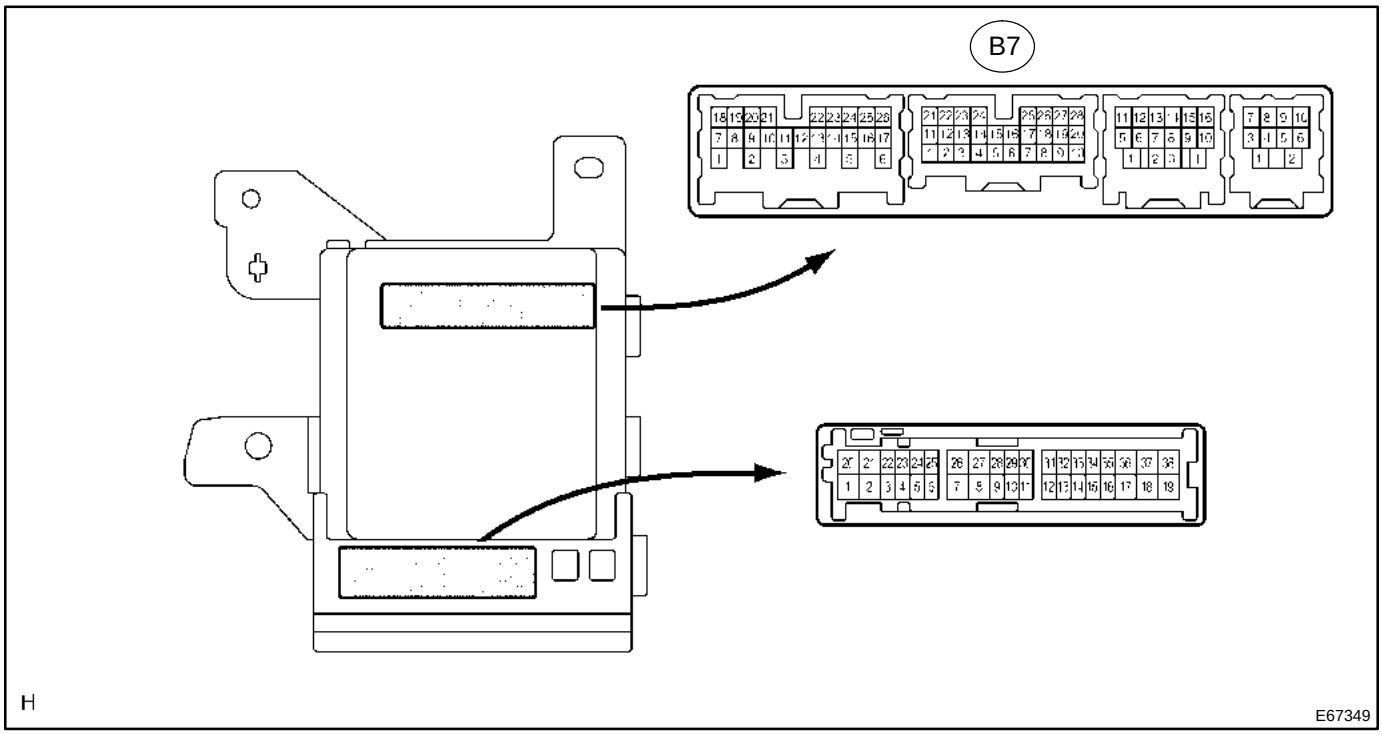

| | |
|---|---|
| **NG** | **REPAIR OR REPLACE HARNESS OR CONNECTOR** |

**OK**

| 5 | INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSY(BACK DOOR COURTESY LAMP SWITCH CIRCUIT) |
|---|---|

(a) Measure voltage between the terminal B7-25 of the multiplex network body ECU and body ground.
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| B7-25 - Body ground | Back door is open | Below 1 V |
| B7-25 - Body ground | Back door is closed | 10 to 14 V |




OK → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-1 131)**

NG

| 6 | CONFIRM VEHICLE MODELS |
|---|---|

(a) Check the vehicle models.
A: w/o Power back door
B: w/ Power back door

A → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

B

| 7 | INSPECT POWER BACK DOOR SYSTEM |
|---|---|

(a) Inspect the power back door circuit (See page 05-1749 ).

NG → CHECK AND REPLACE POWER BACK DOOR SYSTEM

OK

REPAIR OR REPLACE HARNESS OR CONNECTOR

# NO ANSWER-BACK (HAZARD WARNING LAMP AND WIRELESS DOOR LOCK BUZZER)

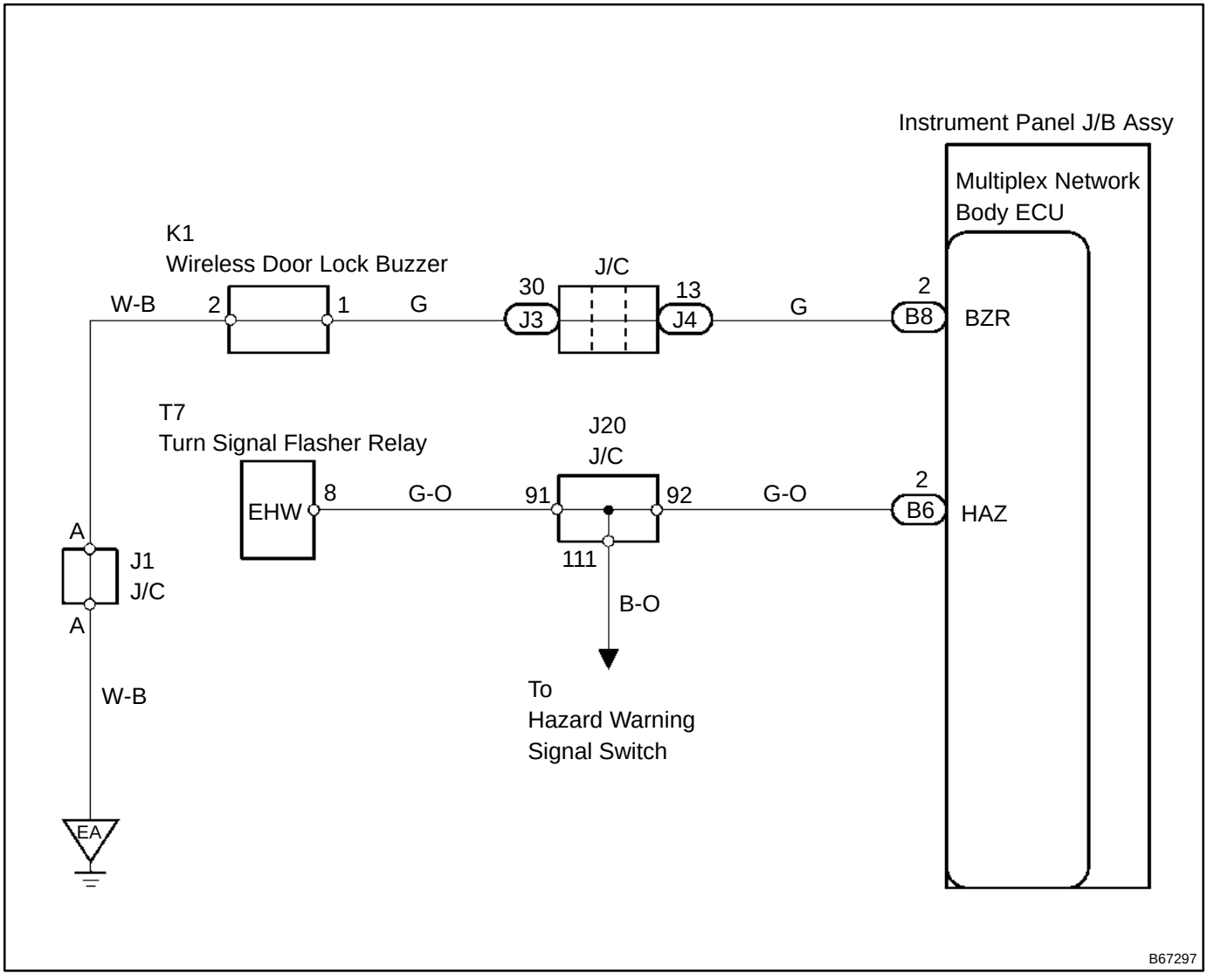
## CIRCUIT DESCRIPTION

If there is no answer-back of the hazard lamp signal and the wireless door lock buzzer although the wireless control function is operating normally, there might be a malfunction in the hazard lamp signal and the wireless door lock buzzer signal which are output from the multiplex network body ECU.

**NOTICE:**

**Troubleshooting should be started after confirming that the answer-back function has been switched ON through customization.**

## WIRING DIAGRAM






Author : Date : 1995

# INSPECTION PROCEDURE

## When using hand-held tester:

| 1 | CHECK WIRELESS DOOR LOCK FUNCTIONS |
|---|---|

(a) Check whether the wireless door lock functions by operating the transmitter switch.

HINT:

When the wireless door LOCK/UNLOCK operation can be performed, it means that the wireless signal from the transmitter is properly input to the multiplex network body ECU.

NG → GO TO FLOW CHART (See page 05-1804 )

OK

| 2 | PERFORM ACTIVE TEST USING HAND-HELD TESTER |
|---|---|

(a) Connect the hand-held tester to the DLC3.

(b) Turn the ignition switch ON and push the hand-held tester main switch ON.

(c) Select the item ”HAZARD” in the ACTIVE TEST and check the turn signal flasher relay ON/OFF.

(d) Select the item ”BUZZ RESP SOUND” in the ACTIVE TEST and check the wireless buzzer ON/OFF.

HINT:

- In the case of no wireless buzzer ON/OFF, go to step A.
- In the case of no turn signal flasher assy ON/OFF, go to step B.
- In the case of turn signal flasher assy ON/OFF and wireless buzzer ON/OFF, go to step C.

A → Go to step 4

C → REPLACE MULTIPLEX NETWORK BODY ECU

B

| 3 | CHECK OUTPUTS OF HAZARD WARNING LAMPS |
|---|---|

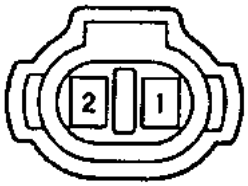
(a) Check that the hazard warning lamps blink when the hazard warning signal switch is pressed.

NG → GO TO LIGHTING SYSTEM (See page 05-1 131)

OK

REPLACE MULTIPLEX NETWORK BODY ECU

| 4 | INSPECT WIRELESS DOOR LOCK BUZZER |
|---|---|



B30785

(a) Check the buzzer resistance.

**NOTICE:**

- **The buzzer circuit is built into the body ECU, not into the buzzer itself.**
- **When battery voltage is directly applied to the buzzer, the buzzer does not sound.**

(1) Check the resistance between terminals of the buzzer.

**Standard:**

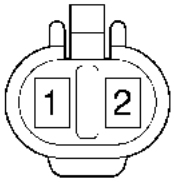
| Terminal No. | Specified Condition |
|---|---|
| 1 - 2 | Approx. 1kΩ |

**NG** → **REPLACE WIRELESS DOOR LOCK BUZZER**

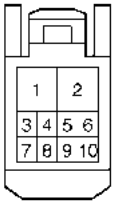
**OK**

| 5 | CHECK WIRE HARNESS (WIRELESS DOOR LOCK BUZZER - MULTIPLEX NETWORK BODY ECU) (WIRELESS DOOR LOCK BUZZER - BODY GROUND) |
|---|---|

**Wire Harness Side**




K1
Wireless Door Lock Buzzer




B8
Multiplex Network Body ECU

Y
B68692

(a) Disconnect the K1 buzzer connector.

(b) Disconnect the B8 ECU connector.

(c) Check the resistance between the wire harness side connectors.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| K1-1 - B8-2 (BZR) | Below 1 Ω |

(d) Check the resistance between the K1 buzzer connector and body ground.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| K1-2 - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

**REPLACE MULTIPLEX NETWORK BODY ECU**

## When not using hand-held tester:

| 1 | CHECK WIRELESS DOOR LOCK FUNCTIONS |
|---|---|

(a) Check whether the wireless door lock functions by operating the transmitter switch.

HINT:

When the wireless door LOCK/UNLOCK operation can be performed, it means that the wireless signal from the transmitter is properly input to the multiplex network body ECU.

HINT:

- If the wireless door lock functions but no answer-back (wireless door lock buzzer) occurs, go to step A.
- If the wireless door lock functions but no answer-back (hazard warning lamps) occurs, go to step B.
- If the wireless door does not lock function, go to step C.

**A** → **Go to step 3**

**C** → **GO TO FLOW CHART (See page 05-1804 )**

**B**

| 2 | CHECK OUTPUTS OF HAZARD WARNING LAMPS |
|---|---|

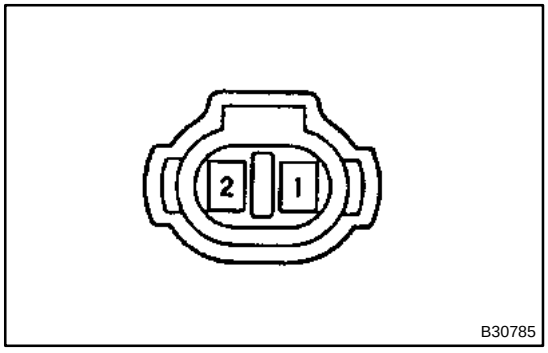
(a) Check that the hazard warning lamps blink when the hazard warning signal switch is pressed.

**NG** → **GO TO LIGHTING SYSTEM**

**OK**

**REPLACE MULTIPLEX NETWORK BODY ECU**

| 3 | INSPECT WIRELESS DOOR LOCK BUZZER |
|---|---|




(a) Check the buzzer resistance.

**NOTICE:**

- **The buzzer circuit is built into the body ECU, not into the buzzer itself.**
- **When battery voltage is directly applied to the buzzer, the buzzer does not sound.**

(1) Check the resistance between terminals of the buzzer.

**Standard:**

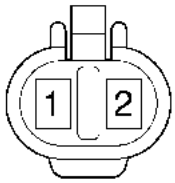
| Terminal No. | Specified Condition |
|---|---|
| 1 - 2 | Approx. 1kΩ |

**NG** → **REPLACE WIRELESS DOOR LOCK BUZZER**

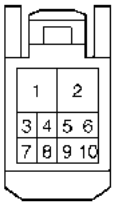
**OK**

| 4 | **CHECK WIRE HARNESS (WIRELESS DOOR LOCK BUZZER - MULTIPLEX NETWORK BODY ECU) (WIRELESS DOOR LOCK BUZZER - BODY GROUND)** |
|---|---|

**Wire Harness Side**




K1
Wireless Door Lock Buzzer




B8
Multiplex Network Body ECU

Y B68692

(a) Disconnect the K1 wireless buzzer connector.
(b) Disconnect the B8 ECU connector.
(c) Check the resistance between the wire harness side connectors.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| K1-1 - B8-2 (BZR) | Below 1 Ω |

(d) Check the resistance between the K1 buzzer connector and body ground.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| K1-2 - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

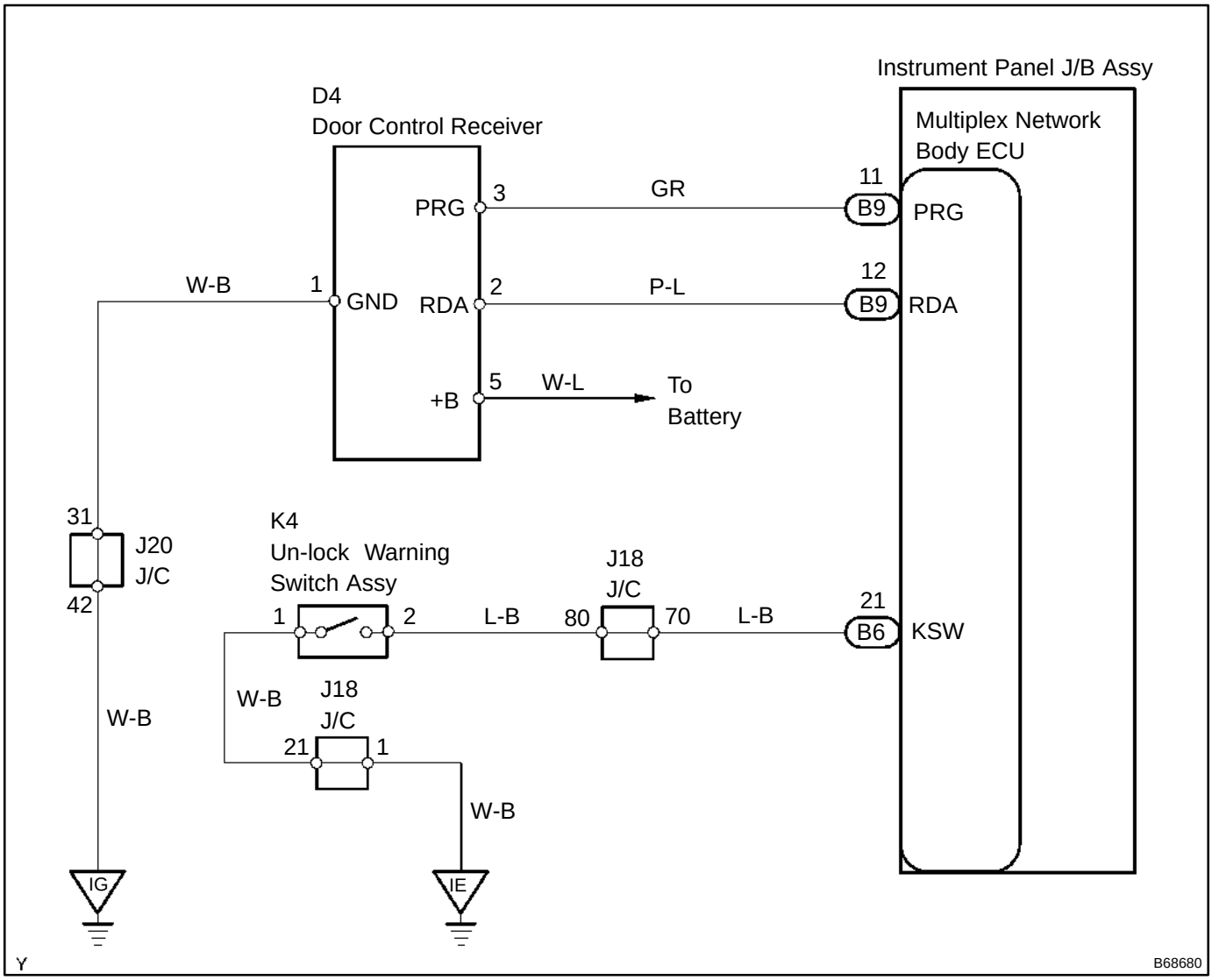
**REPLACE MULTIPLEX NETWORK BODY ECU**

# ONLY WIRELESS CONTROL FUNCTION DOES NOT OPERATE (PREPARE NEW OR NORMAL TRANSMITTER OF THE SAME TYPE VEHICLE)

## CIRCUIT DESCRIPTION

The door control receiver receives a signal from the transmitter and sends this signal to the multiplex network body ECU. Then, the multiplex network body ECU controls operation of the door locks and power windows. Then, the power slide door ECU causes the power slide door to open or close when it receives a signal from the transmitter via the door control receiver and multiplex network body body ECU. Also, the power back door ECU causes the power back door to open or close when it receives a signal from the transmitter via the door control receiver and multiplex network body ECU.

## WIRING DIAGRAM



## INSPECTION PROCEDURE

| | |
|---|---|
| 1 | CHECK WIRELESS DOOR LOCK CONTROL FUNCTIONS (See page 73-1 1) |

OK → NORMAL

NG

| | |
|---|---|
| 2 | REPLACE TRANSMITTER BATTERY WITH NORMAL ONE |

(a) After replacing the transmitter battery with a new or normal one, check that the doors can lock and unlock, using the transmitter LOCK/UNLOCK switch.

OK → REPLACE TRANSMITTER BATTERY

NG

| | |
|---|---|
| 3 | CHECK WIRELESS DOOR LOCK CONTROL FUNCTIONS (STANDARD OPERATION) |

(a) Using the transmitter to LOCK/UNLOCK doors in standard operation, check that the doors can lock and unlock.

**NOTICE:**

**Standardized test procedure: Press the transmitter switch for 1 second, directing the beam to driver's door outside handle from a distance of 1 m (39.4 in.). The transmitter should be pointed directly at the door handle, i.e at 90° angle to the vehicle body.**

NG → REPLACE DOOR CONTROL TRANSMITTER

OK

| | |
|---|---|
| 4 | CHECK WIRELESS DOOR LOCK BUZZER |

(a) Check that the wireless door lock buzzer sounds.

NG → GO TO FLOW CHART (See page 05-1812 )

OK

| 5 | SWITCH TO SELF-DIAGNOSTIC MODE |
|---|---|

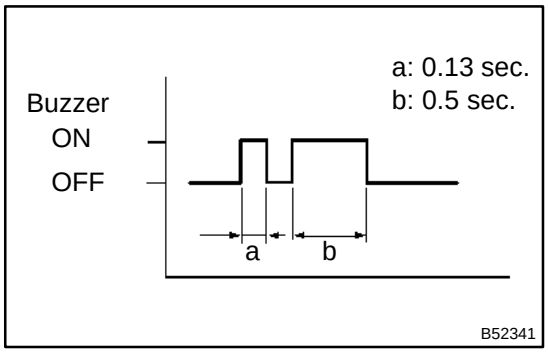
(a) When using the hand-held tester:
Switch to the self-diagnostic mode on the hand-held tester.
(1) Connect the hand-held tester to the DLC3.
(2) Turn the ignition switch ON and push the hand-held tester main switch ON.

HINT:
Please refer to the hand-held tester operator's manual for further details.

(b) When not using the hand-held tester:
Switch to the self-diagnostic mode by operating the ignition key cylinder.
(1) Insert the key into the ignition key cylinder and remove it under the initial vehicle condition (See page 73-1 1).
(2) Within 5 seconds after the above step, insert the key into the ignition key cylinder and turn the ignition switch from ON to OFF once.
(3) Within 30 seconds after the above step, turn the ignition switch from ON to OFF 9 times.

**NOTICE:**
**If operation has failed, the system will return to the normal mode.**

HINT:
- Operation of the ignition switch from OFF to ON will end the self-diagnostic mode.
- Do not lock or unlock doors during the self-diagnostic mode.




(c) Check that the system has switched to self-diagnostic mode by the answer-back of the wireless door lock buzzer sound.

NG → **Go to step 10**

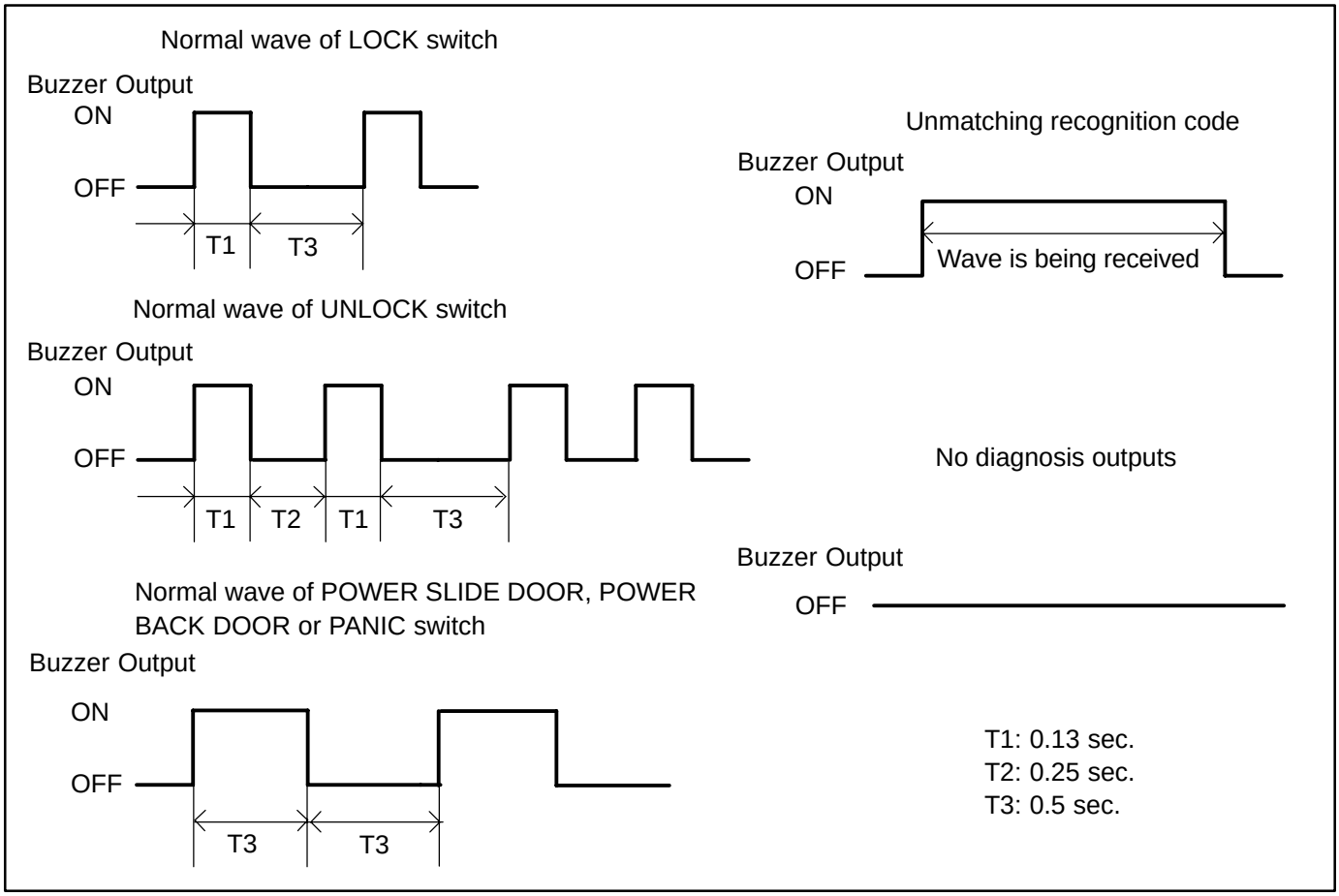
**OK**

| 6 | CHECK BY SELF-DIAGNOSTIC MODE |
|---|---|

(a) Inspect the diagnosis outputs when the door control transmitter switch is held down (The diagnosis outputs can be checked with the sound of the wireless door lock buzzer).

HINT:

- In the case of a reception of the normal wave of the LOCK, UNLOCK, POWER SLIDE DOOR, POWER BACK DOOR or PANIC switch (wireless door lock buzzer sounds), go to step A.
- In the case of an unmatching recognition code (wireless door lock buzzer ON), go to step B.
- In the case of no diagnosis outputs (wireless door lock buzzer OFF), go to step C.




| A | Go to step 18 |
|---|---|

| C | Go to step 8 |
|---|---|

B

| 7 | REGISTER RECOGNITION CODE |
|---|---|

(a) Check that the system can switch to rewrite mode or add mode and also check wether a recognition code can be registered.

NG → Go to step 9

OK

NORMAL (CARRY OUT INSPECTION OF FUNCTIONS)

| 8 | CHECK RESPONSE OF DOOR CONTROL RECEIVER |
|---|---|

(a) When a new or normal door control transmitter switch for the same type vehicle is held down, check that a diagnosis of unmatching recognition code is output.

NG → Go to step 14

OK

REPLACE DOOR CONTROL TRANSMITTER

| 9 | REPLACE DOOR CONTROL RECEIVER WITH NORMAL ONE |
|---|---|

NG → Go to step 18

OK

REPLACE DOOR CONTROL RECEIVER

| 10 | CONFIRM INPUT METHOD OF SELF-DIAGNOSTIC MODE |
|---|---|

(a) When the method for switching the system to self-diagnostic mode works, proceed to A.
(b) When the method for switching the system to self-diagnostic mode does not work, proceed to B.

B → Go to step 5

A

| 11 | READ VALUE OF HAND-HELD TESTER |
|---|---|

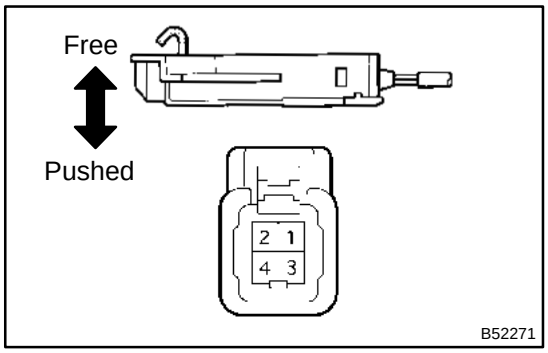
(a) Using the hand-held tester, check the DATA LIST for proper functioning of the un-lock warning switch.
**Standard (Multiplex network body ECU):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| KEY UNLK WRN SW | Un-lock warning switch signal/ON or OFF | ON: Key is in ignition key cylinder<br>OFF: No key is in ignition key cylinder | - |

OK → Go to step 14

NG

## 12 INSPECT UN-LOCK WARNING SWITCH ASSY




(a) Inspect the resistance of the un-lock warning switch.
**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Switch free (Key removed) | 10 kΩ or higher |
| | Switch pushed (Key set) | Below 1 Ω |

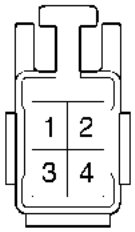
**NG** → **REPLACE UN-LOCK WARNING SWITCH ASSY**

**OK**

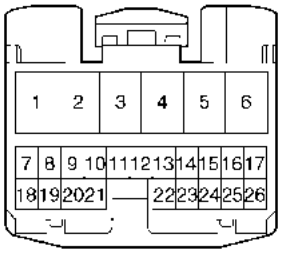
## 13 CHECK WIRE HARNESS (UN-LOCK WARNING SWITCH ASSY - MULTIPLEX NETWORK BODY ECU) (UN-LOCK WARNING SWITCH - BODY GROUND)

**Wire Harness Side**

K4
Un-lock Warning Switch




B6
Multiplex Network Body ECU




(a) Disconnect the K4 warning switch connector.
(b) Disconnect the B6 ECU connector.
(c) Check the resistance between the wire harness side connectors.
**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| K4-2 - B6-14 | Below 1 Ω |

(d) Check the resistance between the K4 warning switch connector and body ground.
**Standard:**

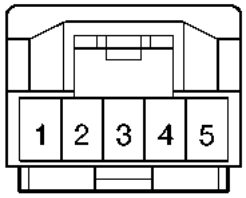
| Terminal No. | Specified Condition |
|---|---|
| K4-1 - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

## 14 CHECK WIRE HARNESS (DOOR CONTROL RECEIVER - BODY GROUND)

**Wire Harness Side**




D4
Door Control Receiver

B59092

(a) Disconnect the D4 receiver connector.
(b) Check the voltage and resistance between the wire harness side connector of the receiver and body ground.

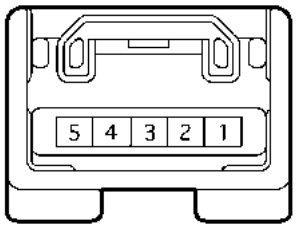
**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| D4-5 (+B) - Body ground | 10 to 14 V |
| D4-1 (GND) - Body ground | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

## 15 CHECK DOOR CONTROL RECEIVER (OUTPUT)




B51174

(a) Reconnect the D4 receiver connector, and check the voltage between the terminal and body ground.

**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| D4-2 (RDA) - Body ground | No key in ignition key cylinder, all doors closed and each transmitter switch OFF → ON | Below 1 V → Approx. 6 to 7 V → Below 1 V |

**OK** → **Go to step 17**

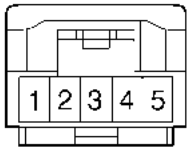
**NG**

| 16 | CHECK WIRE HARNESS (DOOR CONTROL RECEIVER - MULTIPLEX NETWORK BODY ECU) (DOOR CONTROL RECEIVER OR MULTIPLEX NETWORK BODY ECU) - BODY GROUND) |
|---|---|

**Wire Harness Side**

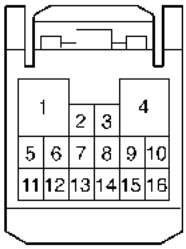
D4

Door Control Receiver




B9

Multiplex Network Body ECU




Y B68693

(a) Disconnect the D4 receiver connector.

(b) Disconnect the B9 ECU connector.

(c) Check the resistance between the wire harness side connectors.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| D4-2 (RDA) - B9-12 (RDA) | Below 1 Ω |

(d) Check the continuity between the D4 receiver connector or B9 ECU connector and the body ground.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| D4-2 (RDA) - Body ground | 10 kΩ or higher |
| B9-12 (RDA) - Body ground | 10 kΩ or higher |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

| 17 | REPLACE DOOR CONTROL RECEIVER WITH NORMAL ONE |
|---|---|

**OK** → **REPLACE DOOR CONTROL RECEIVER**

**NG**

| 18 | REPLACE MULTIPLEX NETWORK BODY ECU WITH NORMAL ONE |
|---|---|

**NG** → **REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSY**

**OK**

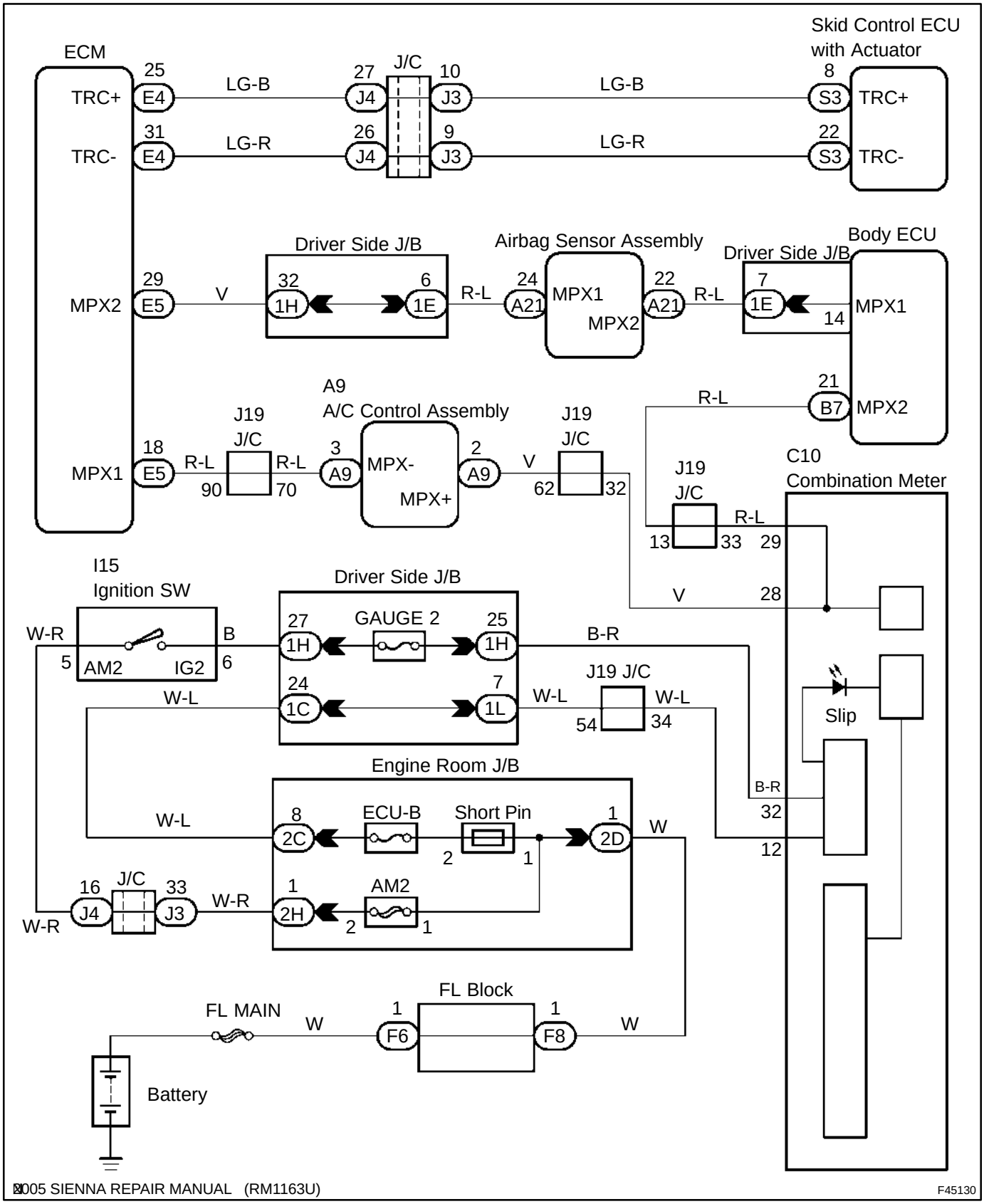
**REPLACE MULTIPLEX NETWORK BODY ECU**

# SLIP INDICATOR LIGHT CIRCUIT

## CIRCUIT DESCRIPTION

The SLIP indicator blinks during the TRAC & VSC operation.

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

Start the inspection from step 1 if you are using the hand-held tester and start from step 2 if you are not using the hand-held tester.

| | |
|---|---|
| 1 | **PERFORM ACTIVE TEST BY HAND-HELD TESTER(SLIP INDICATOR LIGHT)** |

(a) Connect the hand-held tester to the DLC3.
(b) Start the engine.
(c) Select the item "SLIP INDI LIGHT" in the ACTIVE TEST and operate the SLIP indicator light with the hand-held tester.
(d) Check that "ON" and "OFF" of the SLIP indicator light is shown on the combination meter by the hand-held tester.

OK → **REPLACE ABS & TRACTION ACTUATOR ASSY (See page 32-46 )**

NG

| | |
|---|---|
| 2 | **INSPECT MULTIPLEX COMMUNCATION SYSTEM(See page 05-1876 )** |

NG → **REPAIR MULTIPLEX COMMUNCATION SYSTEM**

OK

| | |
|---|---|
| 3 | **CHECK HARNESS AND CONNECTOR(ECM - SKID CONTROL ECU)** |

(a) Check for an open or short circuit in harness and connector between terminals TRC+ and TRC- of the ECM and terminals TRC+ and TRC- of the skid control ECU (See page 01-37 ).

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

| | |
|---|---|
| 4 | **INSPECT COMBINATION METER ASSEMBLY(SLIP INDICATOR LIGHT) (See page 71-1 )** |

NG → **REPAIR OR REPLACE COMBINATION METER ASSEMBLY**

OK

**REPLACE ABS & TRACTION ACTUATOR ASSY(See page 32-46 )**

# SOUND QUALITY IS BAD ONLY WHEN CD IS PLAYED (VOLUME IS TOO LOW)

## INSPECTION PROCEDURE

| 1 | REPLACE CD WITH ANOTHER AND RECHECK |
|---|---|

(a) Replace the CD with another one and recheck.
(1) Check the installation condition of the radio receiver assembly.
**Standard: Malfunction disappears.**

**OK** → **CD FAULTY**

**NG**

**REPLACE RADIO RECEIVER ASSY**

# SOUND QUALITY IS BAD ONLY WHEN PLAYING TAPE

## INSPECTION PROCEDURE

| 1 | REPLACE CASSETTE TAPE WITH ANOTHER AND RECHECK |
|---|---|

(a) Replace the cassette tape with another one and recheck.
(1) Replace the cassette tape with another normal one to see if the same trouble occurs again.
**Standard: Malfunction disappears.**

**OK** → **CASSETTE TAPE FAULTY**

**NG**

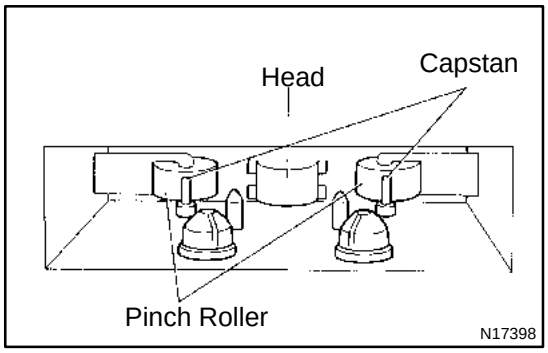
| 2 | CHECK FOR ANY FOREIGN OBJECT |
|---|---|

(a) Check for foreign objects.
(1) Check that no foreign objects or defects are detected in the cassette tape player of radio receiver assy.
**Standard: No foreign objects or defects detected.**

**NG** → **REMOVE FOREIGN OBJECT**

**OK**

| 3 | CLEAN HEAD AND CHECK OPERATION |
|---|---|




(a) Head cleaning
(1) Raise the cassette door with your finger. Next, using a pencil or similar object, push in the guide.
(2) Using a cleaning pen or cotton applicator soaked in cleaner, clean the head surface, pinch rollers and capstans.
(3) Check that the same trouble occurs again.
**Standard: Malfunction disappears.**

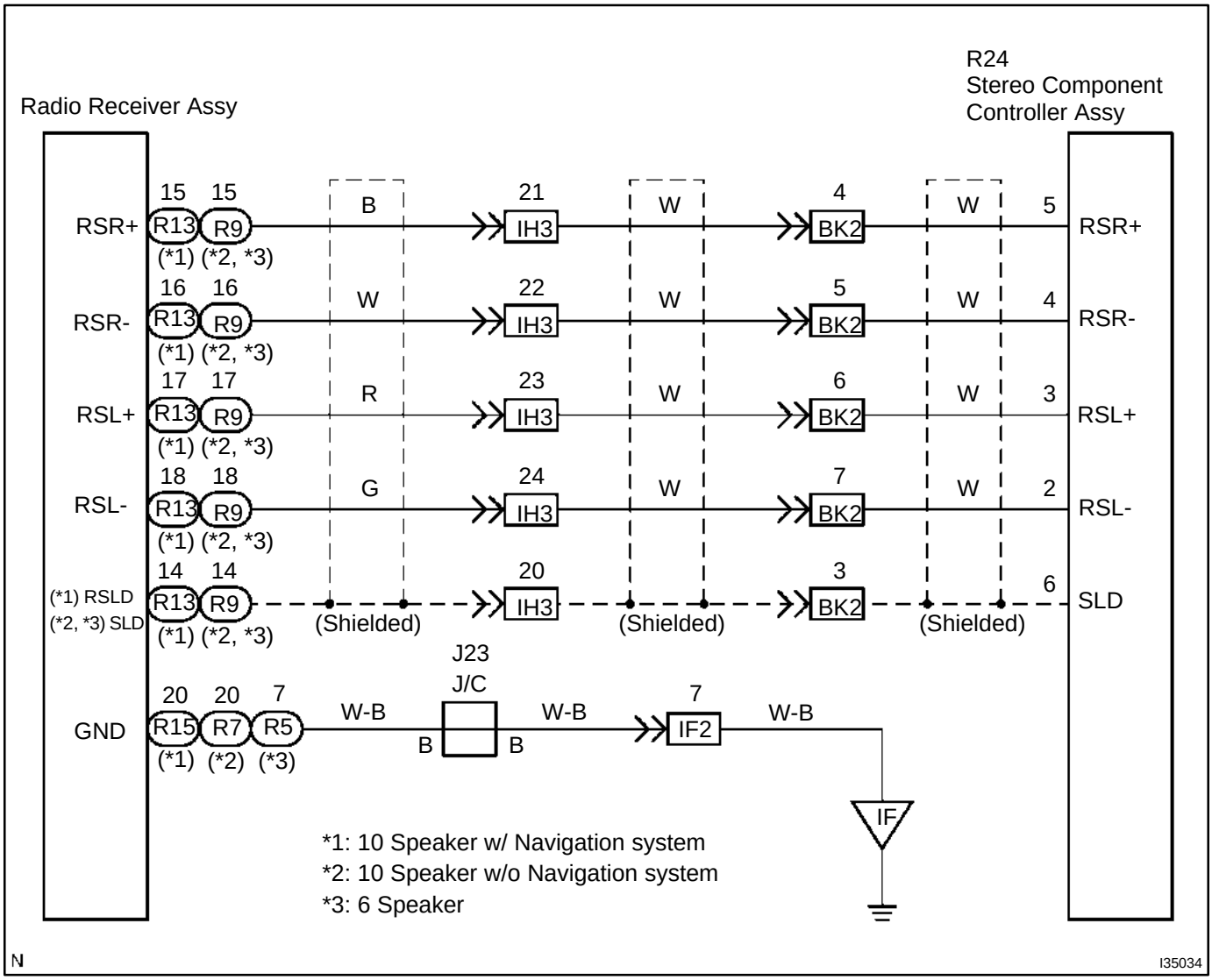
**OK** → **HEAD DIRTY**

**NG**

**REPLACE RADIO RECEIVER ASSY**

# QUALITY OF SOUND IS POOR OR NO SOUND CAN BE HEARD

## WIRING DIAGRAM

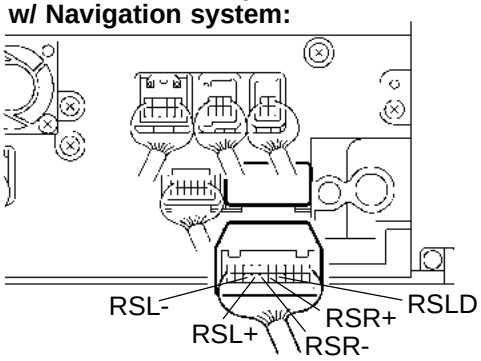


# INSPECTION PROCEDURE

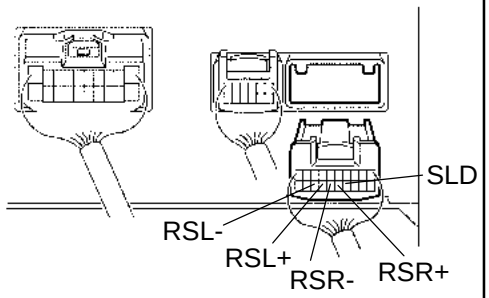
| 1 | CHECK HARNESS AND CONNECTOR(RADIO RECEIVER ASSY - STEREO COMPONENT CONTROLLER ASSY) |
|---|---|

**Radio Receiver Assy:**

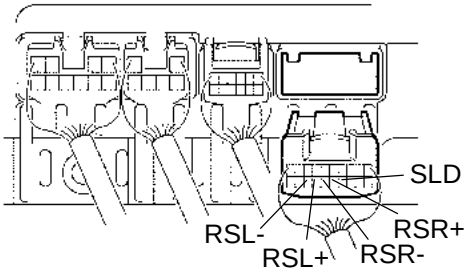
**w/ Navigation system:**




**w/o Navigation system (10 Speaker):**

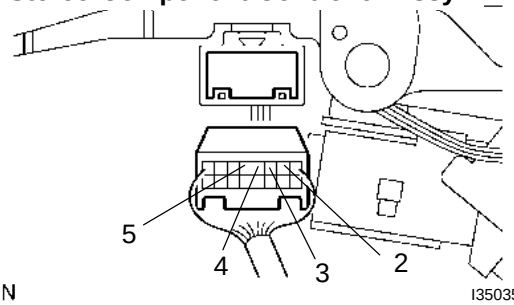



**w/o Navigation system (6 Speaker):**




I35959

**Stereo Component Controller Assy:**




I35035

(a) Disconnect the radio receiver assy and stereo component controller assy connector.

(b) In order to check for an open circuit, measure the resistance between the terminals, as shown in the chart.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| RSR+ - 5 | Below 1 Ω |
| RSR- - 4 | Below 1 Ω |
| RSL+ - 3 | Below 1 Ω |
| RSL- - 2 | Below 1 Ω |
| RSLD - 6 | Below 1 Ω |
| SLD - 6 | Below 1 Ω |

(c) In order to check for a short circuit, measure the resistance between the terminals, as shown in the chart.

**Standard:**

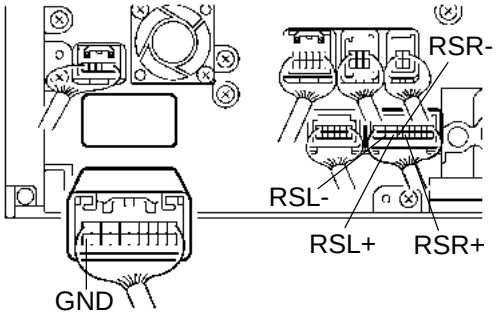
| Tester connection | Specified condition |
|---|---|
| RSR+ - Body ground | 10 kΩ or higher |
| RSR- - Body ground | 10 kΩ or higher |
| RSL+ - Body ground | 10 kΩ or higher |
| RSL- - Body ground | 10 kΩ or higher |
| RSLD - Body ground | 10 kΩ or higher |
| SLD - Body ground | 10 kΩ or higher |

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

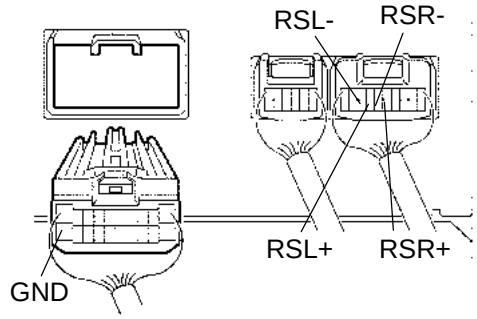
**OK**

| 2 | INSPECT RADIO RECEIVER ASSY(RSR+, RSR-, RSL+, RSL-, GND) |
|---|---|

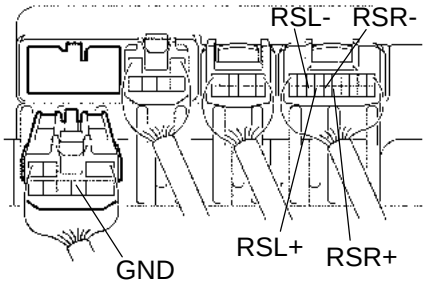
**Radio Receiver Assy:**
**w/ Navigation system:**




**w/o Navigation system (10 Speaker):**




**w/o Navigation system (6 Speaker):**




I35958

(a) Disconnect the radio receiver assy connector.
(b) In order to check for an open circuit, measure the resistance between the terminals according to the condition, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| GND - Body ground | Always | Below 1 Ω |

(c) Using an oscilloscope, check the signal waveform between the terminals according to the conditions, as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| RSR+ - GND | While voice sound is being produced | A waveform synchronized with sound is output |
| RSR- - GND | While voice sound is being produced | A waveform synchronized with sound is output |
| RSL+ - GND | While voice sound is being produced | A waveform synchronized with sound is output |
| RSL- - GND | While voice sound is being produced | A waveform synchronized with sound is output |

**NG** → **REPLACE RADIO RECEIVER ASSY**

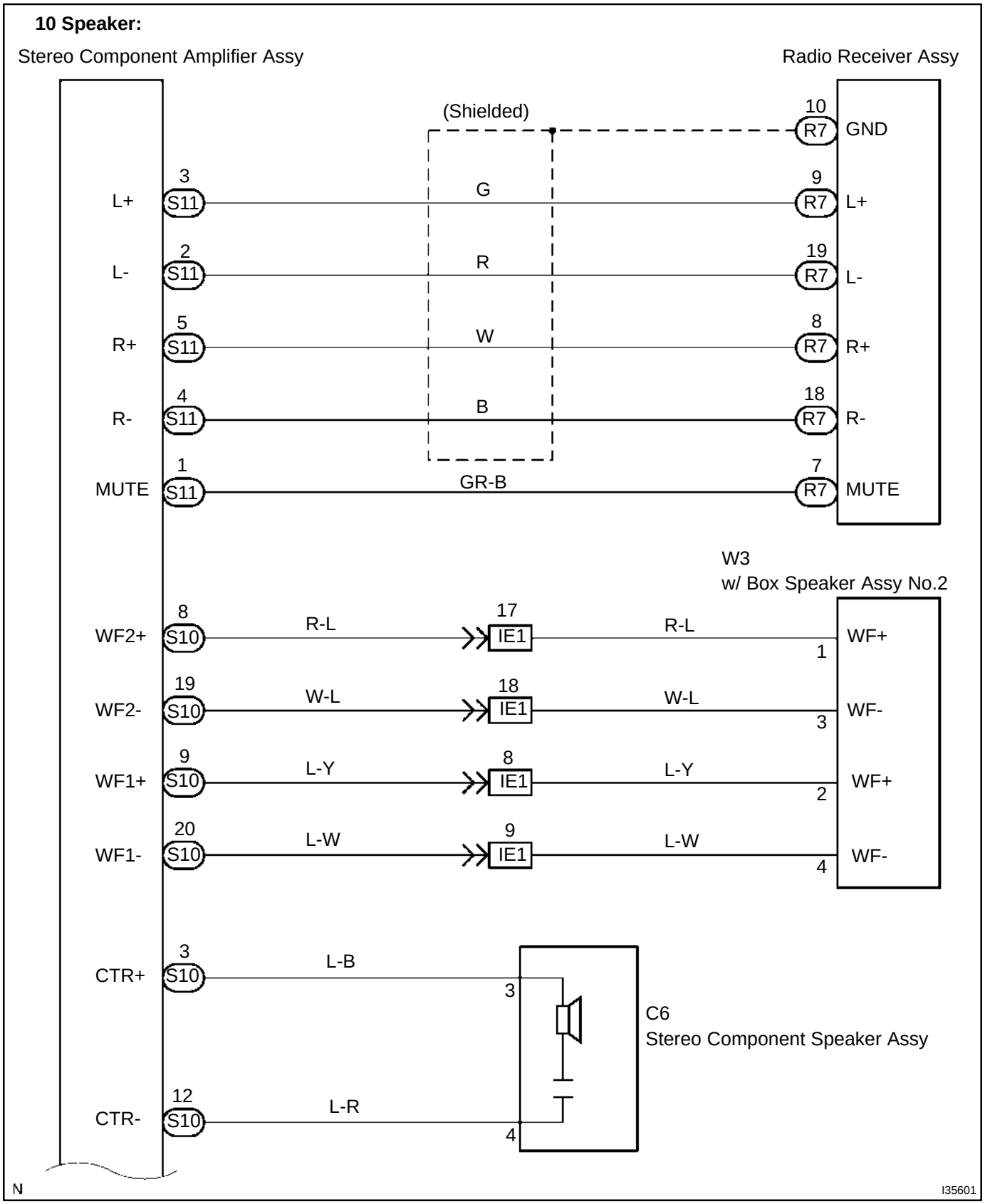
**OK**

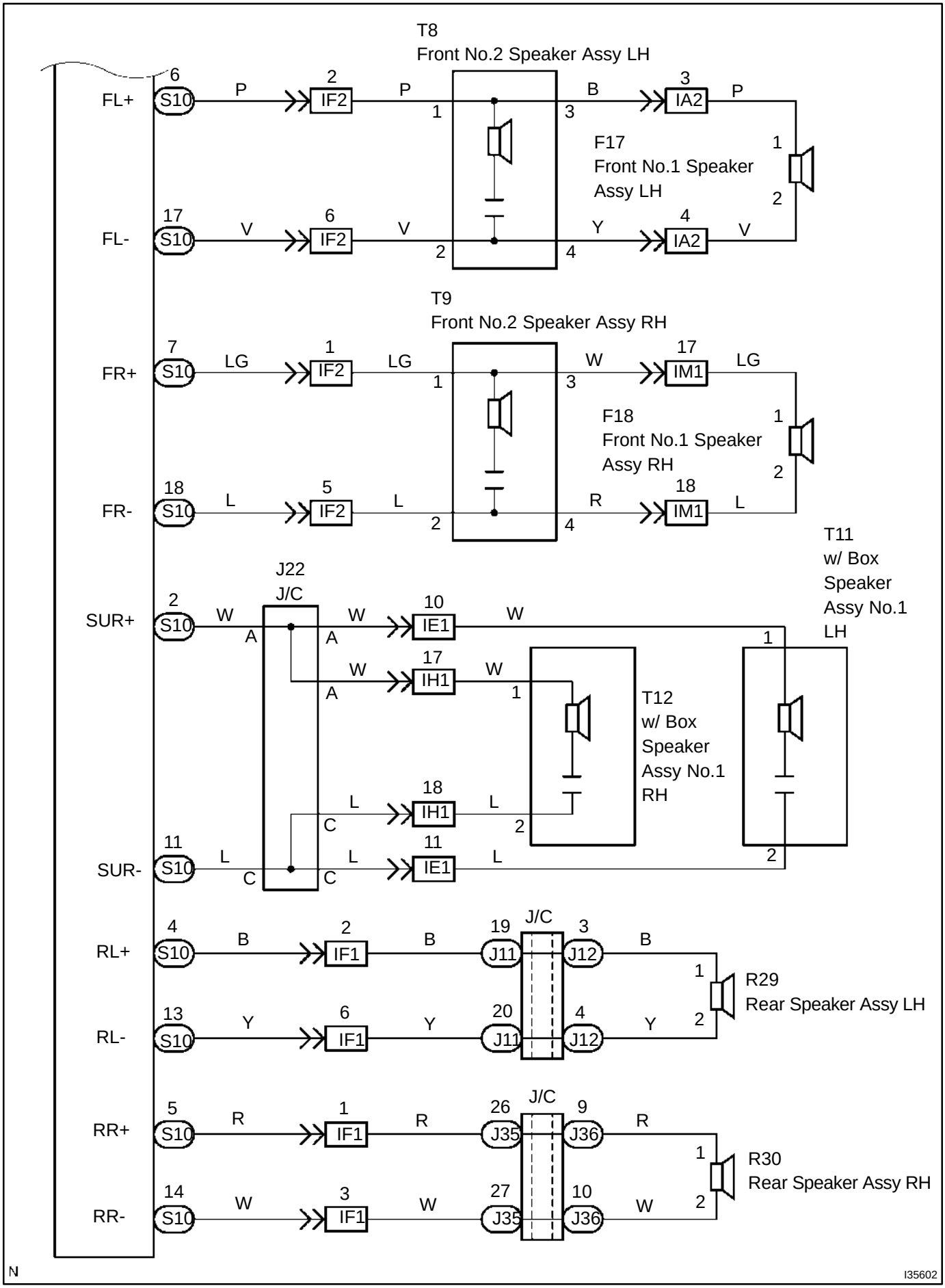
**REPLACE STEREO COMPONENT CONTROLLER ASSY**

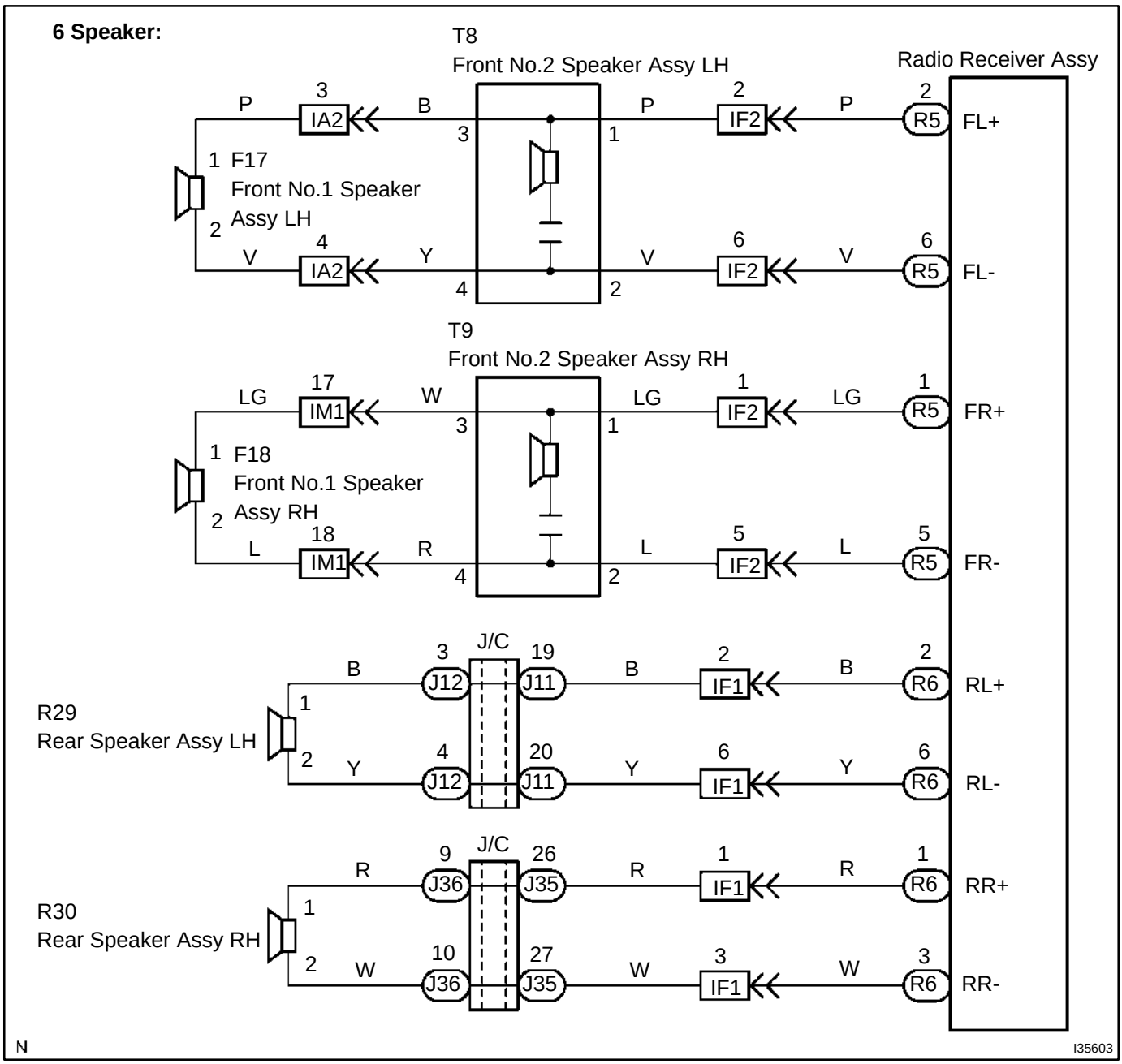
# SOUND QUALITY IS BAD IN ALL MODES (VOLUME IS TOO LOW)

## WIRING DIAGRAM

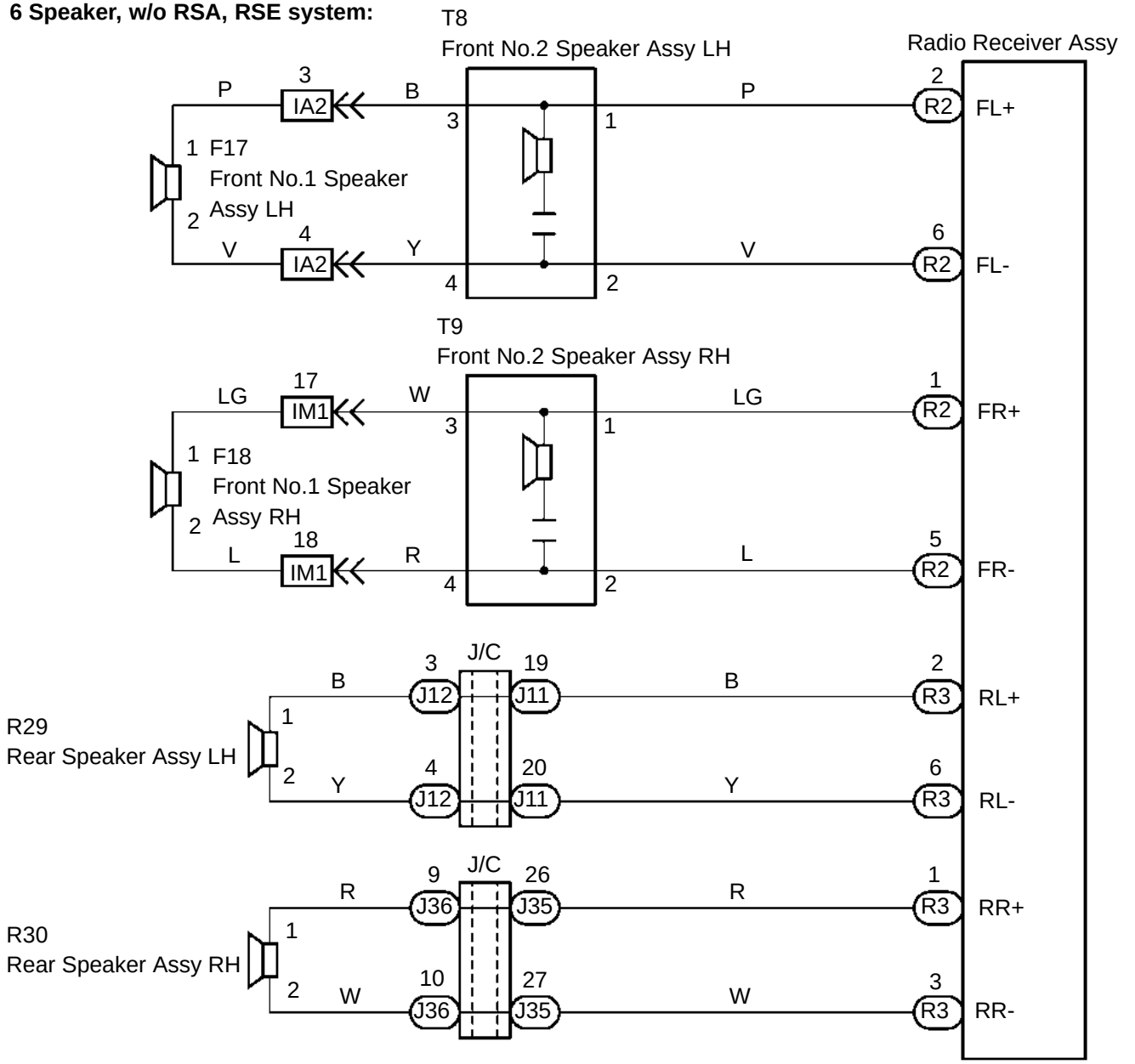
**10 Speaker:**




T8
Front No.2 Speaker Assy LH
FL+
FL-
S10
IF2
IA2
F17
Front No.1 Speaker
Assy LH
T9
Front No.2 Speaker Assy RH
FR+
FR-
IM1
F18
Front No.1 Speaker
Assy RH
T11
w/ Box
Speaker
Assy No.1
LH
J22
J/C
SUR+
SUR-
IE1
IH1
T12
w/ Box
Speaker
Assy No.1
RH
RL+
RL-
IF1
J11
J12
J/C
R29
Rear Speaker Assy LH
RR+
RR-
J35
J36
R30
Rear Speaker Assy RH
I35602


6 Speaker:
T8
Front No.2 Speaker Assy LH
Radio Receiver Assy
P
3
IA2
B
3
1
P
2
IF2
P
2
R5
FL+
1 F17
Front No.1 Speaker
Assy LH
2
V
4
IA2
Y
4
2
V
6
IF2
V
6
R5
FL-
T9
Front No.2 Speaker Assy RH
LG
17
IM1
W
3
1
LG
1
IF2
LG
1
R5
FR+
1 F18
Front No.1 Speaker
Assy RH
2
L
18
IM1
R
4
2
L
5
IF2
L
5
R5
FR-
J/C
B
3
J12
19
J11
B
2
IF1
B
2
R6
RL+
R29
Rear Speaker Assy LH
1
2
Y
4
J12
20
J11
Y
6
IF1
Y
6
R6
RL-
J/C
R
9
J36
26
J35
R
1
IF1
R
1
R6
RR+
R30
Rear Speaker Assy RH
1
2
W
10
J36
27
J35
W
3
IF1
W
3
R6
RR-
N
I35603

**6 Speaker, w/o RSA, RSE system:**



# INSPECTION PROCEDURE

| 1 | ADJUST SOUND QUALITY |
|---|---|

(a) Adjust the sound quality.
(1) Operate the radio receiver assy to adjust the sound quality.
**Standard: malfunction disappears.**

| OK | BAD SOUND QUALITY |
|---|---|

**NG**

| 2 | COMPARE IT WITH ANOTHER CAR OF SAME MODEL |
|---|---|

(a) Compare it with another vehicle of the same models.
(1) Compare with the vehicle of the same type which does not have a trouble to see if there is any difference in the condition of trouble occurrence.
**Standard: No difference found.**

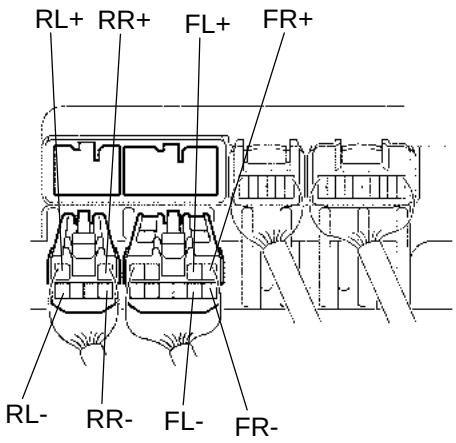
| NG | Go to step 3 (6 SPEAKER) |
|---|---|

| NG | Go to step 4 (10 SPEAKER) |
|---|---|

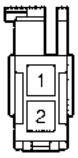
**OK**

| SETTING |
|---|

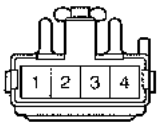
| 3 | CHECK HARNESS AND CONNECTOR(RADIO RECEIVER ASSY - SPEAKER ASSY) |
|---|---|




Front No.1 Speaker Assy
Rear Speaker Assy




Front No.2 Speaker Assy




I35604

(a) Disconnect the connectors from the radio receiver assy and speakers.

(1) Check continuity between terminals at each condition, as shown in the chart.

| Tester connection | Specified condition |
|---|---|
| FL+ - 1 (Front No.1 speaker assy LH) | Continuity |
| FL- - 2 (Front No.1 speaker assy LH) | Continuity |
| FR+ - 1 (Front No.1 speaker assy RH) | Continuity |
| FR- - 2 (Front No.1 speaker assy RH) | Continuity |
| FL+ - 1 (Front No.2 speaker assy LH) | Continuity |
| FL- - 2 (Front No.2 speaker assy LH) | Continuity |
| FR+ - 1 (Front No.2 speaker assy RH) | Continuity |
| FR- - 2 (Front No.2 speaker assy RH) | Continuity |
| RL+ - 1 (Rear speaker assy LH) | Continuity |
| RL- - 2 (Rear speaker assy LH) | Continuity |
| RR+ - 1 (Rear speaker assy RH) | Continuity |
| RR- - 2 (Rear speaker assy RH) | Continuity |

(2) Check for a short between terminals at each condition, as shown in the chart.

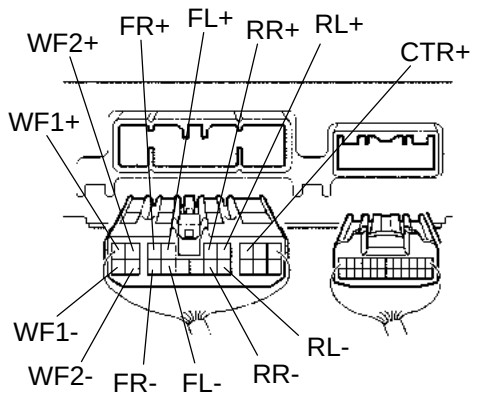
| Tester connection | Specified condition |
|---|---|
| FL+ - Body ground | No Continuity |
| FL- - Body ground | No Continuity |
| FR+ - Body ground | No Continuity |
| FR- - Body ground | No Continuity |
| RL+ - Body ground | No Continuity |
| RL- - Body ground | No Continuity |
| RR+ - Body ground | No Continuity |
| RR- - Body ground | No Continuity |

**OK** → **Go to step 6**

**NG**

**REPAIR OR REPLACE HARNESS OR CONNECTOR (See page 01-37 )**

## 4 CHECK HARNESS AND CONNECTOR(STEREO COMPONENT AMPLIFIER ASSY - SPEAKER ASSY)

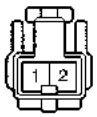



Front No.1 Speaker Assy

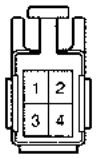
Rear Speaker Assy




w/ Box Speaker Assy No.1

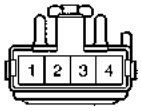



w/ Box Speaker Assy No.2




Front No.2 Speaker Assy

Stereo Component Speaker Assy




P I35605

(a) Disconnect the connectors from the stereo component amplifier assy and speaker.

(1) Check continuity between terminals at each condition, as shown in the chart.

| Tester connection | Specified condition |
|---|---|
| FL+ - 1 (Front No.1 speaker assy LH) | Continuity |
| FL- - 2 (Front No.1 speaker assy LH) | Continuity |
| FR+ - 1 (Front No.1 speaker assy RH) | Continuity |
| FR- - 2 (Front No.1 speaker assy RH) | Continuity |
| FL+ - 1 (Front No.2 speaker assy LH) | Continuity |
| FL- - 2 (Front No.2 speaker assy LH) | Continuity |
| FR+ - 1 (Front No.2 speaker assy RH) | Continuity |
| FR- - 2 (Front No.2 speaker assy RH) | Continuity |
| RL+ - 1 (Rear speaker assy LH) | Continuity |
| RL- - 2 (Rear speaker assy LH) | Continuity |
| RR+ - 1 (Rear speaker assy RH) | Continuity |
| RR- - 2 (Rear speaker assy RH) | Continuity |
| RL+ - 1 (Rear speaker assy No. 2 LH) | Continuity |
| RL- - 2 (Rear speaker assy No. 2 LH) | Continuity |
| RR+ - 1 (Rear speaker assy No. 2 RH) | Continuity |
| RR- - 2 (Rear speaker assy No. 2 RH) | Continuity |
| WF2+ - 1 (w/ box speaker assy LH) | Continuity |
| WF2- - 3 (w/ box speaker assy LH) | Continuity |
| WF1+ - 2 (w/ box speaker assy RH) | Continuity |
| WF1- - 4 (w/ box speaker assy RH) | Continuity |
| CTR+ - 3 (Stereo component speaker assy front) | Continuity |
| CTR- - 4 (Stereo component speaker assy front) | Continuity |

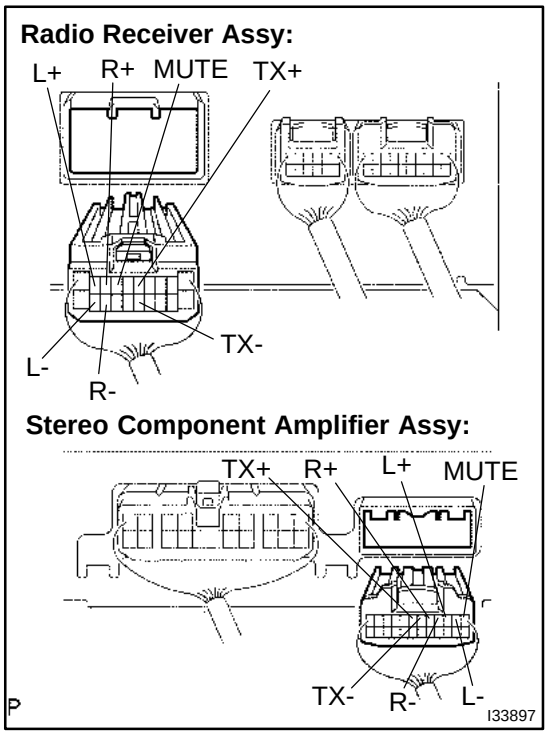
(2) Check for a short between terminals at each condition, as shown in the chart.

| Tester connection | Specified condition |
|---|---|
| FL+ - Body ground | No Continuity |
| FL- - Body ground | No Continuity |
| FR+ - Body ground | No Continuity |
| FR- - Body ground | No Continuity |
| RL+ - Body ground | No Continuity |
| RL- - Body ground | No Continuity |
| RR+ - Body ground | No Continuity |
| RR- - Body ground | No Continuity |
| WF2+ - Body ground | No Continuity |
| WF2- - Body ground | No Continuity |
| WF1+ - Body ground | No Continuity |
| WF1- - Body ground | No Continuity |
| CTR+ - Body ground | No Continuity |
| CTR- - Body ground | No Continuity |

| | |
|---|---|
| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR (See page 01-37 ) |

OK

## 5 CHECK HARNESS AND CONNECTOR(RADIO RECEIVER ASSY - STEREO COMPONENT AMPLIFIER ASSY)




(a) Disconnect the connectors from the radio receiver assy and stereo component amplifier assy.

(1) Check continuity between terminals at each condition, as shown in the chart.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| L+ - L+ | Continuity |
| L- - L- | Continuity |
| R+ - R+ | Continuity |
| R- - R- | Continuity |
| TX+ - TX+ | Continuity |
| TX- - TX- | Continuity |
| MUTE - MUTE | Continuity |

(2) Check for a short between terminals at each condition, as shown in the chart.

**Standard:**

| Tester connection | Specified condition |
|---|---|
| L+ - Body ground | No Continuity |
| L- - Body ground | No Continuity |
| R+ - Body ground | No Continuity |
| R- - Body ground | No Continuity |
| TX+ - Body ground | No Continuity |
| TX- - Body ground | No Continuity |
| MUTE - Body ground | No Continuity |

| | |
|---|---|
| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR (See page 01-37 ) |

OK

## 6 INSPECT FRONT NO.1 SPEAKER ASSY

(a) Resistance check.

(1) Check the resistance between the terminals of the speaker.

**NOTICE:**

**The speaker should not be removed for checking.**

**Standard: 4 Ω**

| | |
|---|---|
| NG | REPLACE FRONT NO.1 SPEAKER ASSY |

OK

| 7 | INSPECT FRONT NO.2 SPEAKER ASSY |
|---|---|

(a) Check that malfunction disappear when a known good speaker is installed.
**Standard: Malfunction disappear**

HINT:
Connect the all connectors speakers.

**NG** → **REPLACE FRONT NO.2 SPEAKER ASSY**

**OK**

| 8 | INSPECT REAR SPEAKER ASSY |
|---|---|

(a) Resistance check.
(1) Check the resistance between the terminals of the speaker.

**NOTICE:**
**The speaker should not be removed for checking.**

**Standard:**
**6 speaker models: 6.0 Ω**
**10 speaker models: 2.4 Ω**

**NG** → **REPLACE REAR SPEAKER ASSY**

**OK**

| 9 | INSPECT W/BOX SPEAKER ASSY NO.1(W/ 10 SPEAKER MODELS) |
|---|---|

(a) Check that malfunction disappear when a known good speaker is installed.
**Standard: Malfunction disappear**

HINT:
Connect the all connectors speakers.

**NG** → **REPLACE W/BOX SPEAKER ASSY NO.1**

**OK**

| 10 | INSPECT STEREO COMPONENT SPEAKER ASSY(W/ 10 SPEAKER MODELS) |
|---|---|

(a) Check that malfunction disappear when a known good speaker is installed.
**Standard: Malfunction disappear**

HINT:
Connect the all connectors speakers.

**NG** → **REPLACE STEREO COMPONENT SPEAKER ASSY**

**OK**

| 11 | INSPECT W/BOX SPEAKER ASSY NO.2(W/ 10 SPEAKER MODELS) |
|---|---|

(a) Resistance check.
(1) Check the resistance between the terminals of the speaker.

**NOTICE:**
**The speaker should not be removed for checking.**
**Standard: 1.7 Ω**

**NG** → **REPLACE W/BOX SPEAKER ASSY NO.2**

**OK**

| 12 | REPLACE STEREO COMPONENT AMPLIFIER ASSY |
|---|---|

**OK** → **SYSTEM OK**

**NG**

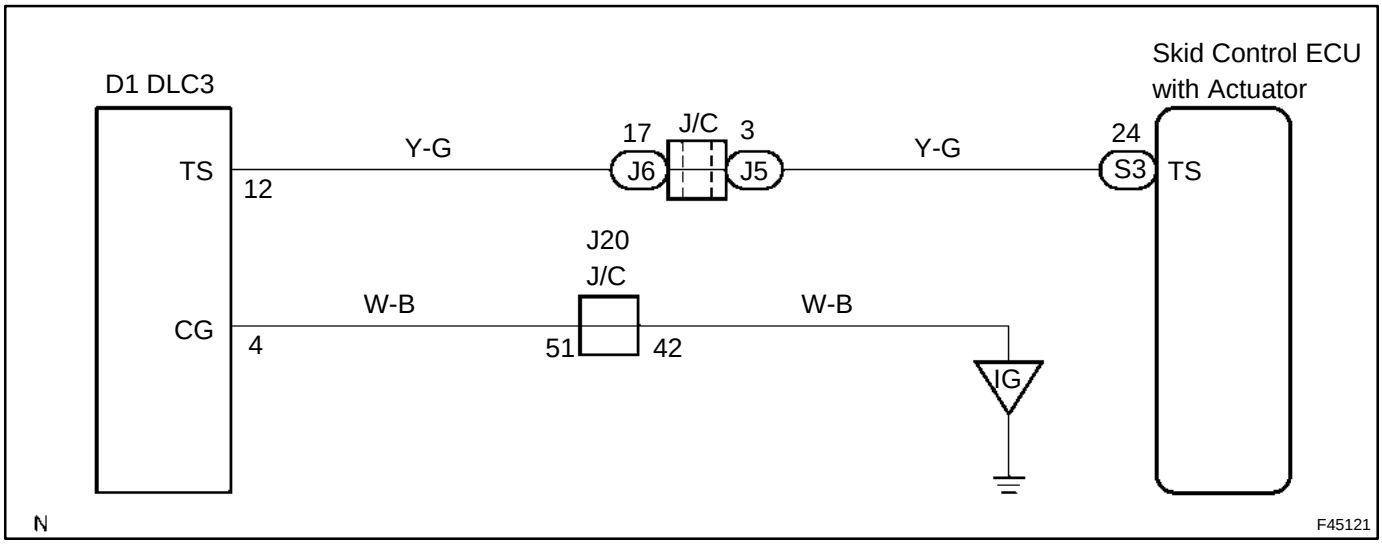
**REPLACE RADIO RECEIVER ASSY**

# TS TERMINAL CIRCUIT

## CIRCUIT DESCRIPTION

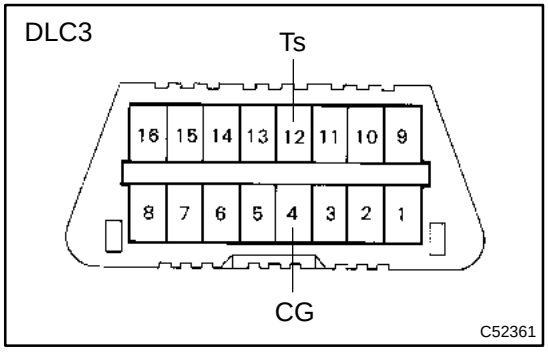
In the sensor check mode, a malfunction of the speed sensor that cannot be judged when the vehicle is stopped is judged while driving.
Transition to the sensor check mode can be performed by connecting terminals Ts and CG of the DLC3 and turning the ignition switch from OFF to ON.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

| 1 | INSPECT DLC3 TERMINAL VOLTAGE(Ts TERMINAL) |
|---|---|




(a) Turn the ignition switch ON.
(b) Measure the voltage between terminals Ts and CG of the DLC3.
**OK:**
**Voltage: 10 to 14 V**

**OK** → **Go to step 3**

**NG**

| 2 | CHECK HARNESS AND CONNECTOR(DLC3 - BODY GROUND) |
|---|---|

(a) Check for an open circuit in harness and connector between terminal CG of DLC3 and body ground (See page 01-37 ).

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

| 3 | CHECK HARNESS AND CONNECTOR(SKID CONTROL ECU - DLC3) |
|---|---|

(a) Check for an open or short circuit in harness and connector between terminal Ts of the DLC3 and skid control ECU(See page 01-37 ).

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE ABS & TRACTION ACTUATOR ASSY(See page 32-46 )

05NST-01

# SYSTEM DESCRIPTION

## 1. DESCRIPTION OF SUPPLEMENTAL RESTRAINT SYSTEM

(a) General description.

(1) In this system, the airbag sensor assy center installed on the floor under the A/C unit determines whether or not to activate the SRS airbags (driver airbag, passenger airbag, front seat airbags and curtain shield airbags) and seat belt pretensioners by receiving the collision signal from each sensor (excluding the airbag sensor assy center). When there is trouble in the system, the airbag sensor assy center turns on the SRS warning light on the combination meter assy to inform the driver.

(b) Description of the dual stage control.

(1) The airbag sensor assy center controls the dual stage deployment of the driver airbag in the horn button assy and the passenger airbag on the instrument panel. The airbag sensor assy center controls the dual stage deployment of the driver airbag according to the collision impact, seat position and seat belt ON/OFF state. It also controls the dual stage deployment of the passenger airbag according to the collision impact and seat belt ON/OFF state.

## 2. IGNITION JUDGEMENT AND CONDITIONS

(a) Operation in case of front collision.

(1) When the vehicle collides in the hatched area (Fig.1) and shock is larger than a predetermined level, the airbags (driver and front passenger) are activated automatically. The deceleration sensor of the airbag sensor assy center determines the need for ignition in response to collisions within the hatched area based on the signal from the deceleration sensor of the front airbag sensor.

(2) Safing sensor of the airbag sensor assy center is designed to activate at a smaller deceleration rate than the deceleration sensor. As illustrated in Fig. 2 below, when both the safing sensor and deceleration sensor go on simultaneously, current flows to the squib and ignition occurs.

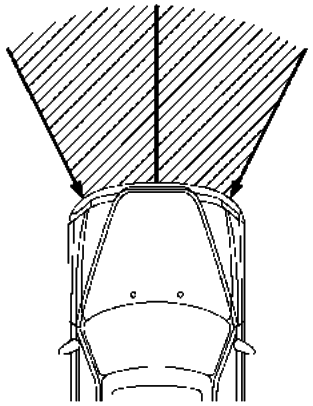


Fig. 1

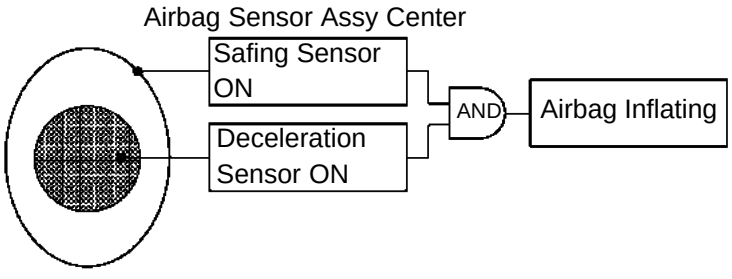



Fig. 2

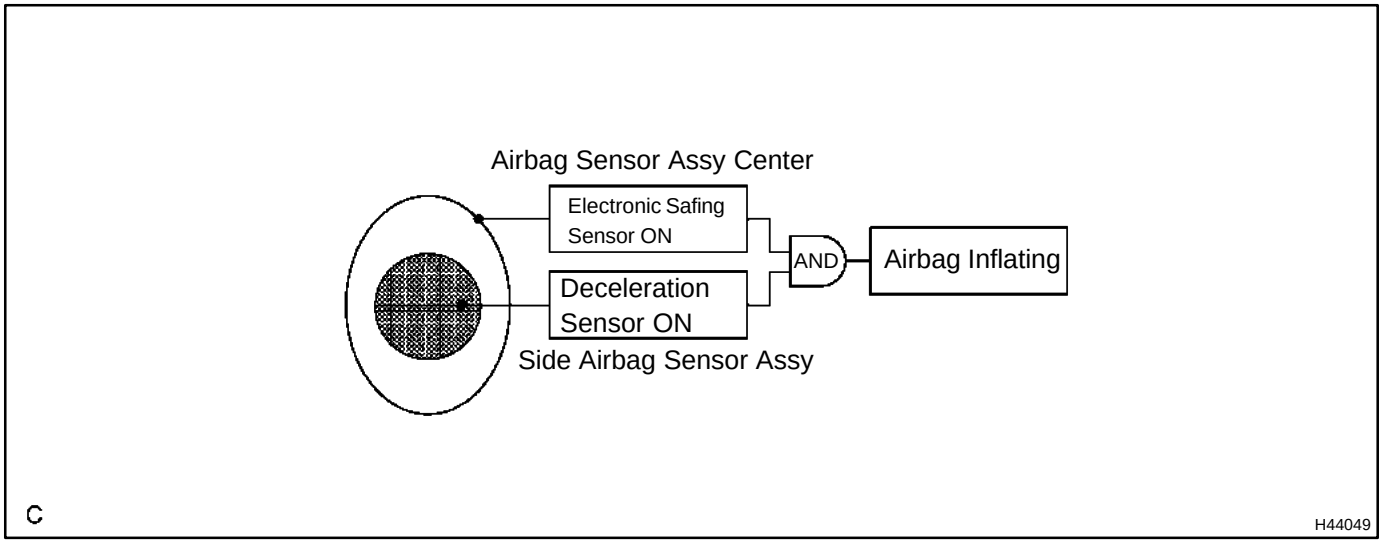
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(b) w/ Side airbag:

Operation in case of front side collision.

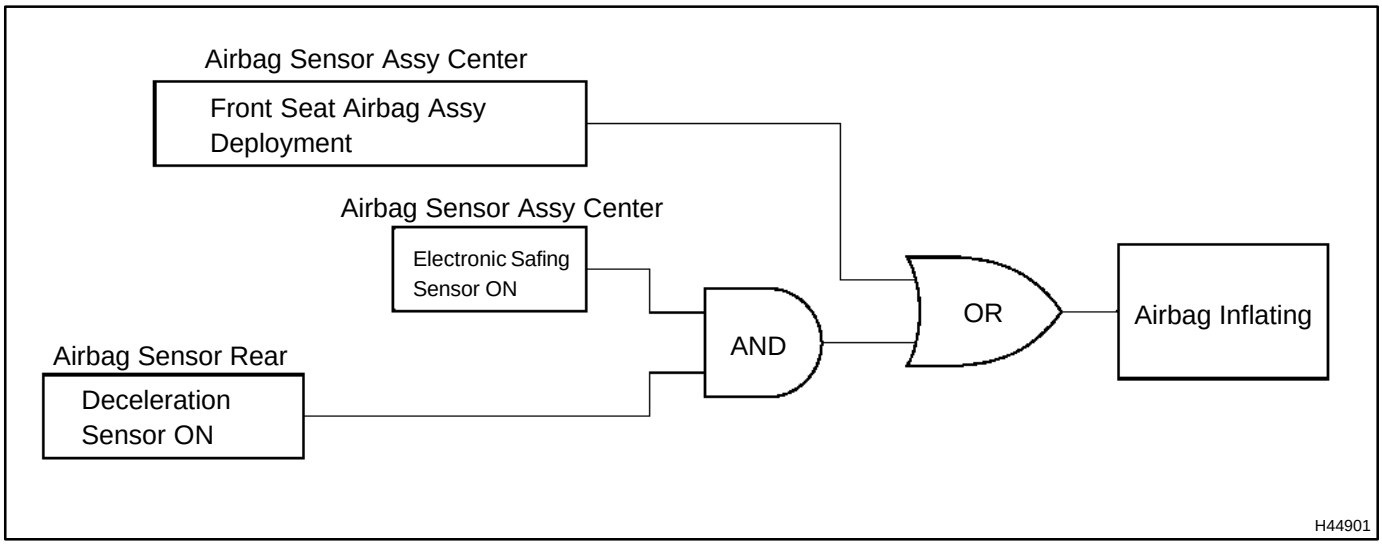
(1) Electronic safing sensor of the side airbag sensor assy is designed to activate at a smaller deceleration rate than the deceleration sensor of the side airbag sensor assy. As illustrated below, when both the safing sensor and deceleration sensor go on simultaneously, current flows to the squib and ignition occurs.




(c) w/ Side airbag:

Operation in case of rear side collision.

(1) Electronic safing sensor of the airbag sensor assy center is designed to activate at a smaller deceleration rate than the deceleration sensor of the airbag sensor rear. As illustrated below, when both the safing sensor and deceleration sensor go on simultaneously, current flows to the squib and ignition occurs.



## 3. DESCRIPTION OF OCCUPANT CLASSIFICATION SYSTEM

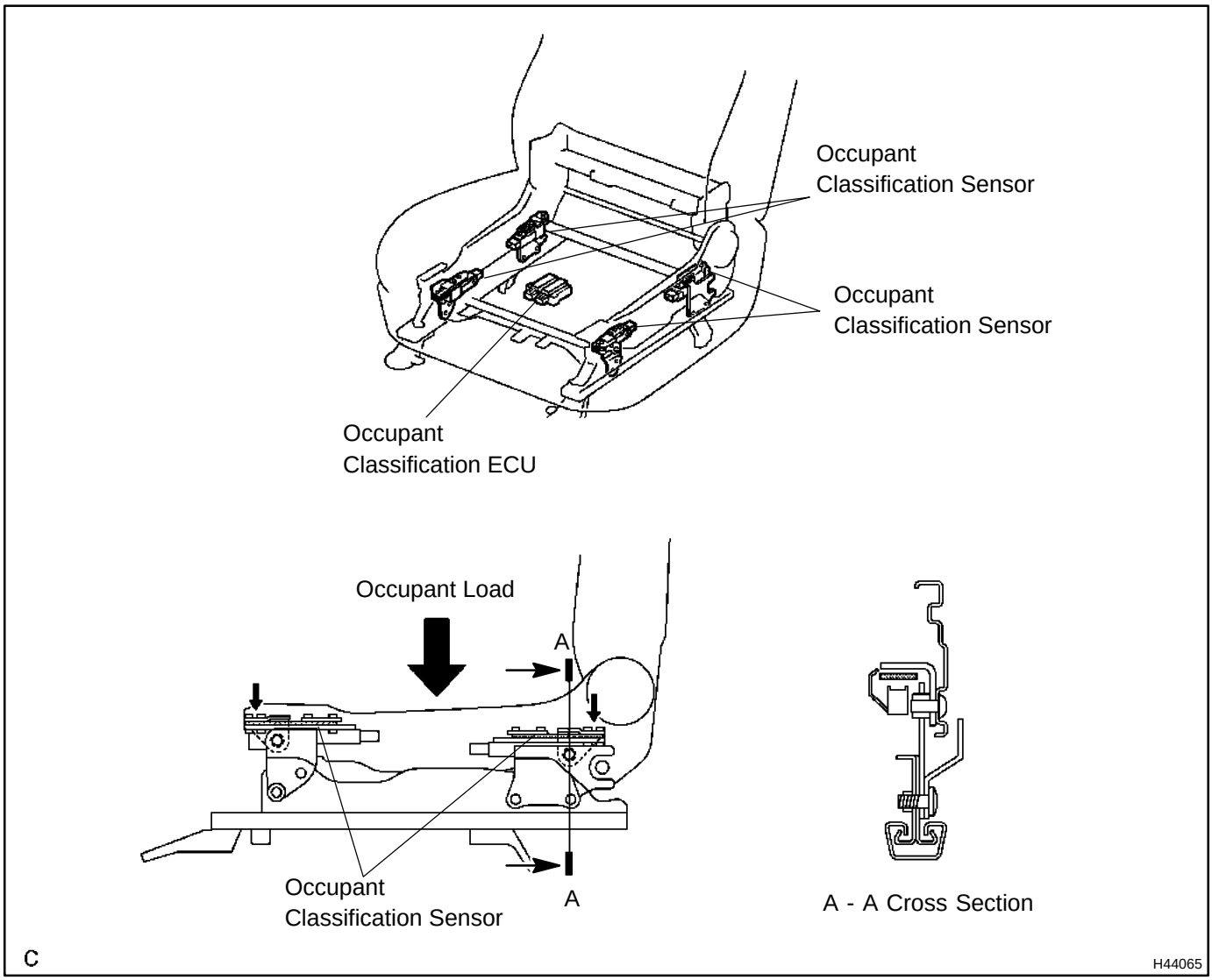
(a) GENERAL DESCRIPTION.

(1) In the front passenger occupant classification system, the occupant classification ECU calculates the weight of the occupant based on a signal from the occupant classification sensor. This system recognizes the occupant to be a child if it detects a weight of less than 36 kg (79.37 lb), and disables the front and side airbags.

(2) This system is mainly comprised of 4 occupant classification sensors that detect the load on the front passenger seat. The occupant classification ECU controls the system, and the passenger airbag ON/OFF indicator light indicates the ON/OFF condition of the front passenger airbag and front passenger seat airbag assy.

(b) OCCUPANT CLASSIFICATION SENSOR.

(1) The occupant classification sensors are installed on the 4 brackets connecting the seat rail and seat frame. Accordingly, when a load is applied to the passenger seat by an occupant sitting in it, the occupant classification sensors register a distortion.

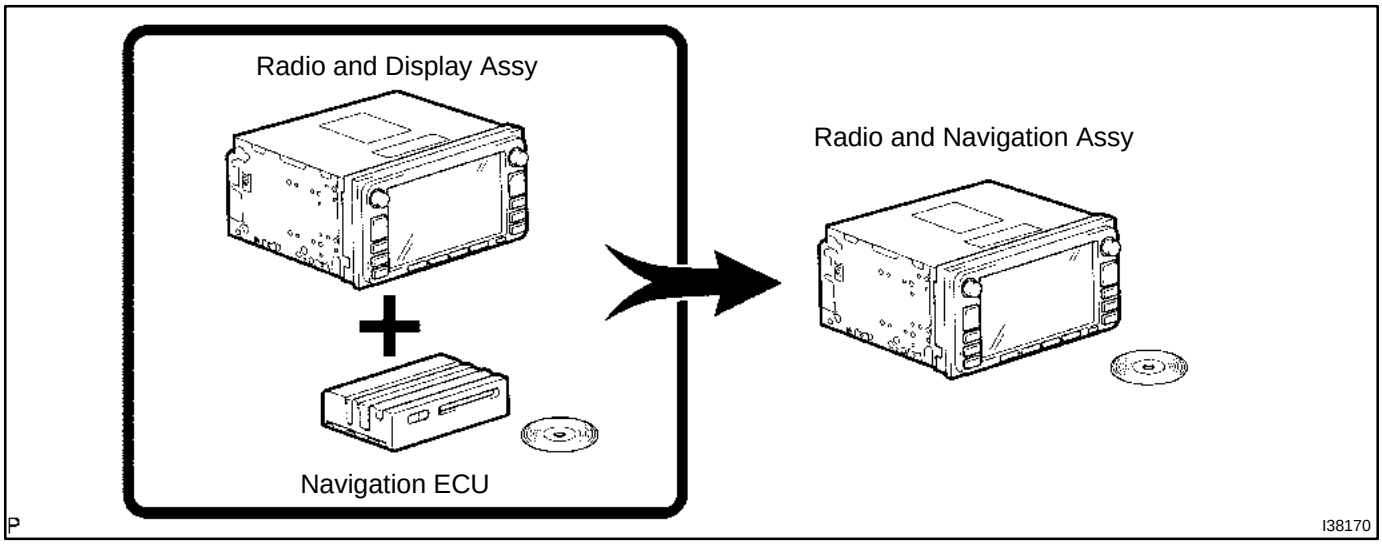


05FG3-04

# SYSTEM DESCRIPTION

## 1. Radio and navigation assy outline

(a) Conventionally, 2 separate devices, a ”radio and display assy” and a ”navigation ECU” are used. This model has adopted a new type, combining these devices into a single unit.

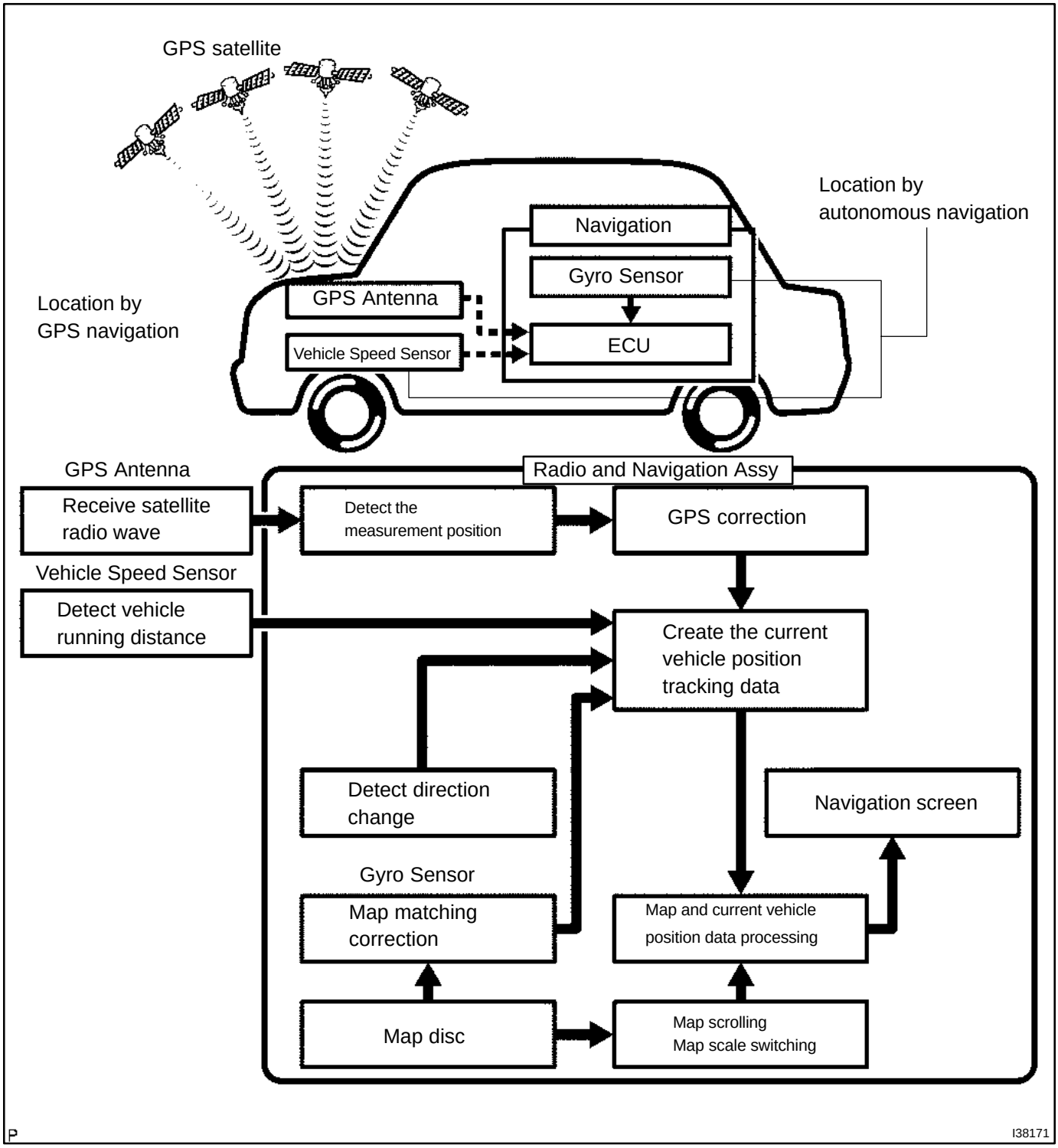


## 2. Navigation system outline

(a) Vehicle position tracking methods

It is essential that the navigation system correctly tracks the current vehicle position and displays it on the map. There are 2 methods to track the current vehicle position: autonomous (dead reckoning) and GPS* (satellite) navigation. Both navigation methods are used in conjunction with each other.

*GPS (Global Positioning System)

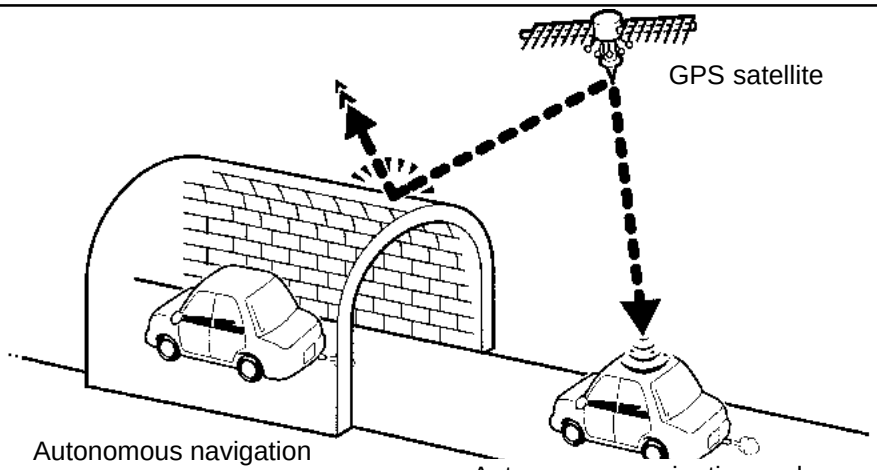


| Operation | Description |
|---|---|
| Vehicle Position Calculation | The navigation ECU calculates the current vehicle position (direction and current position) using the direction deviation signal from the gyro sensor and the running distance signal from the vehicle speed sensor and creates the driving route. |
| Map Display Processing | The navigation ECU displays the vehicle track on the map by processing the vehicle position data, vehicle running track, and map data from the map disc. |
| Map Matching | The map data from the map disc is compared to the vehicle position and running track data. Then, the vehicle position is matched with the nearest road. |
| GPS Correction | The vehicle position is matched to the position measured by GPS. Then, the measurement position data from the GPS unit is compared with the vehicle position and running track data. If the position is widely different, the GPS measurement position is used. |
| Distance Correction | The running distance signal from the vehicle speed sensor includes the error caused by tire wear and slippage between the tires and road surface. Distance correction is performed to account for this. The navigation ECU automatically offsets the running distance signal to make up for the difference between it and the distance data of the map. The offset is automatically updated. |

HINT:

The combination of autonomous and GPS navigation makes it possible to display the vehicle position even when the vehicle is in places where the GPS radio wave cannot receive a signal. When only autonomous navigation is used, however, the mapping accuracy may slightly decline.

Navigation performed even where the GPS radio wave does not reach.
- In a tunnel
- In an indoor parking lot
- Between tall buildings
- Under an overpass
- On a forest or tree-lined path




P I38172

(b) Autonomous navigation

This method determines the relative vehicle position based on the running track determined by the gyro and vehicle speed sensors located in the navigation ECU.

(1) Gyro sensor

Calculates the direction by detecting angular velocity. It is located in the radio and navigation assy.

(2) Vehicle speed sensor

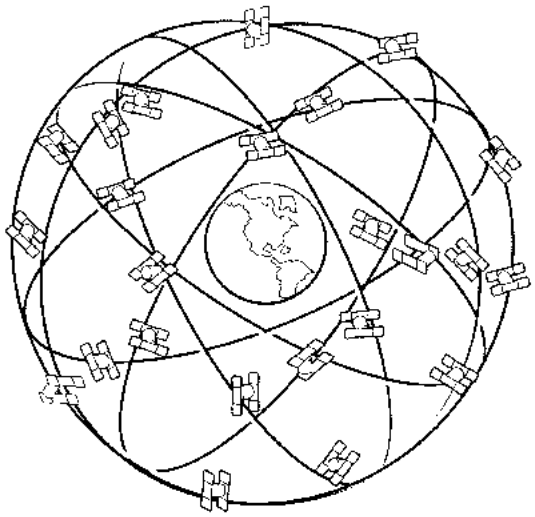
Used to calculate the vehicle running distance.

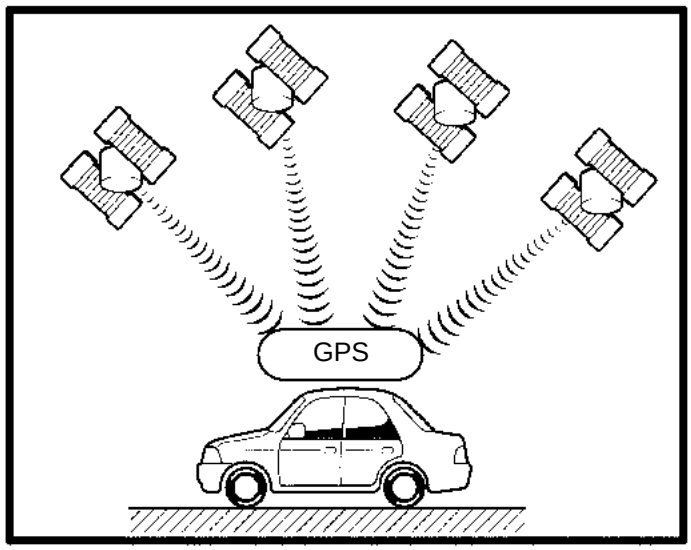
(c) GPS navigation (Satellite navigation)

This method detects the absolute vehicle position using radio wave from a GPS satellite.

* GPS satellites were launched by the U.S. Department of Defence for military purposes.

Current longitude/latitude/altitude is determined using the radio wave arrival time from four satellites.



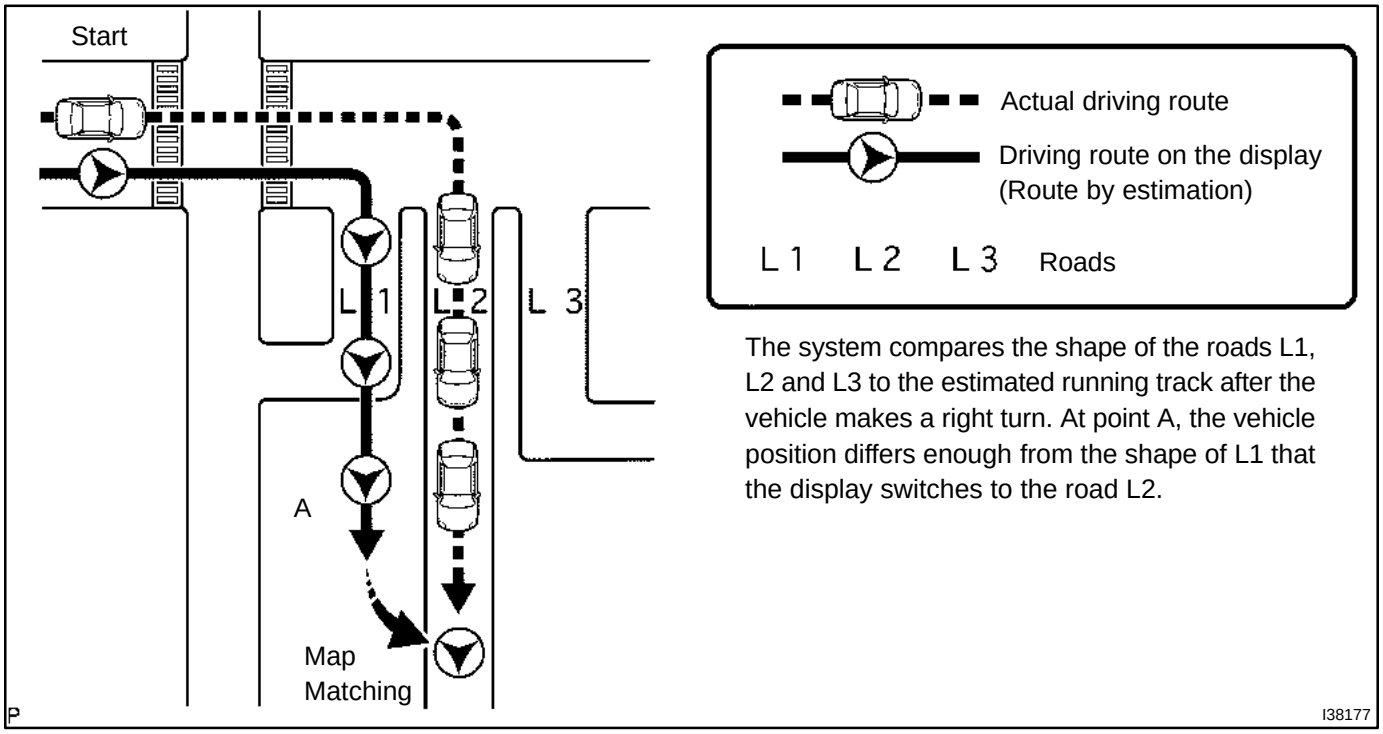



P I38174

| Number of satellites | Measurement | Description |
|---|---|---|
| 2 or less | Measurement impossible | Vehicle position cannot be obtained because the number of satellites is not enough. |
| 3 | 2-dimensional measurement is possible | Vehicle position is obtained based on the current longitude and latitude. (This is less precise than 3-dimensional measurement) |
| 4 | 3-dimensional measurement is possible | Vehicle position is obtained based on the current longitude, latitude and altitude. |

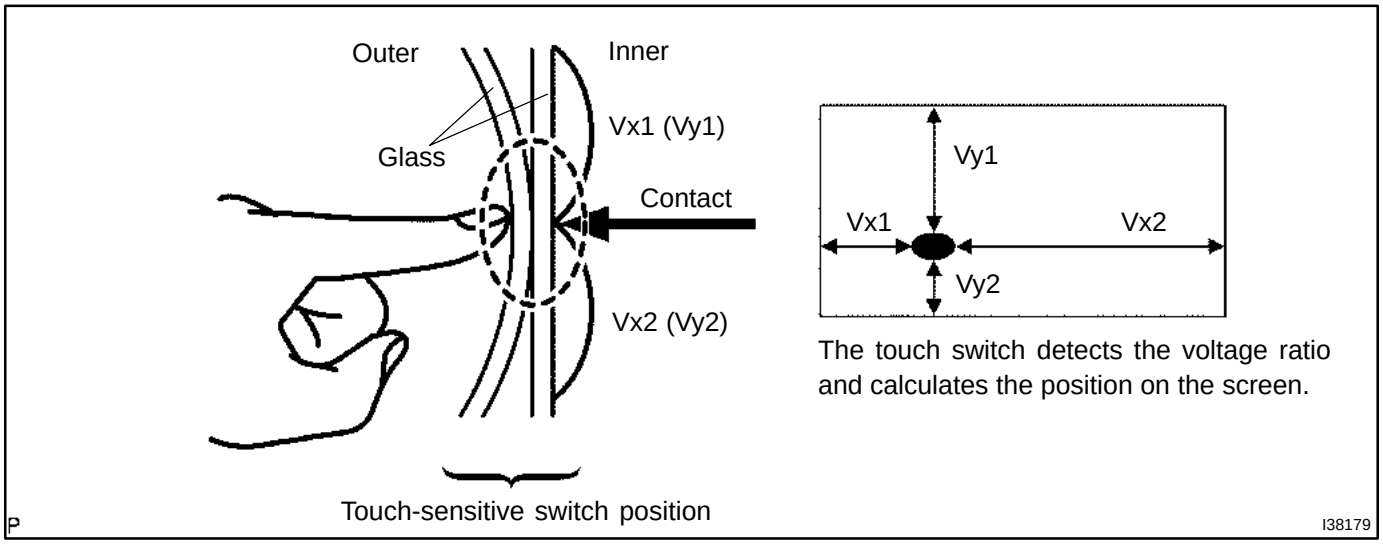
(d) Map matching

The current driving route is calculated by autonomous navigation (according to the gyro sensor and vehicle speed sensor) and GPS navigation. This information is then compared with possible road shapes from the map data in the map disc and the vehicle position is set onto the most appropriate road.




(e) Touch switch

Touch switches are touch-sensitive (interactive) switches operated by touching the screen. When a switch is pressed, the outer glass bends in to contact the inner glass at the pressed position. By doing this, the voltage ratio is measured and the pressed position is detected.



**3. DVD (Digital Versatile Disc) player outline (for navigation map)**

(a) The navigation ECU uses a laser pickup to read the digital signals recorded on a DVD.

HINT:

- Do not disassemble any part of the navigation system.
- Do not apply oil to the navigation system.
- Do not insert anything but a DVD into the navigation system.

**CAUTION:**

**Do not look directly at the laser pickup because the navigation system uses an invisible laser beam. Be sure to only operate the navigation system as instructed.**

**4. CD (Compact Disc) player outline**

(a) A compact disc player uses a laser pickup to read digital signals recorded on a compact disc (CD). By converting the digital signals to analog, it can play music and other things. In general, CD players can play a 4.7-inch (12 cm) or 3.2-inch (8 cm) disc.

HINT:

- Do not disassemble any part of the CD player.
- Do not apply oil to the CD player.
- Do not insert anything but a CD into the CD player.

**CAUTION:**

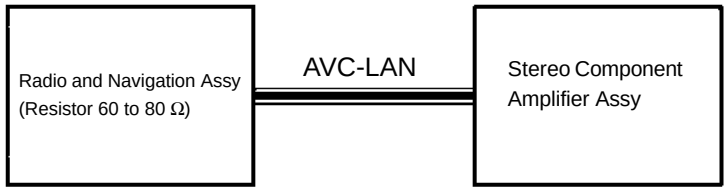
**Do not look directly at the laser pickup because the CD player uses an invisible laser beam. Be sure to only operate the player as instructed.**

## 5. AVC-LAN Description

(a) What is AVC-LAN?

AVC-LAN, an abbreviation for "Audio Visual Communication Local Area Network", is a united standard developed by the manufacturers in affiliation with Toyota Motor Corporation. This standard pertains to audio and visual signals as well as switch and communication signals.

**Example:**




(b) Purpose:

Recently, car audio systems have rapidly developed and the functions vastly changed. The conventional car audio system is being integrated with multi-media interfaces similar to those in navigation systems. At the same time, customers are demanding higher quality from their audio systems. This is merely an overview of the standardization background. The specific purposes are as follows:

(1) To solve sound problems, etc. caused by using components of different manufacturers through signal standardization.

(2) To allow each manufacturer to concentrate on developing products they do best. From this, reasonably priced products can be produced.

HINT:

- If a short to +B or short to ground is detected in the AVC-LAN circuit, communication is interrupted and the audio system will stop functioning.
- If an audio system is equipped with a navigation system, the multi-display unit acts as the master unit. If the navigation system is not equipped, the audio head unit acts as the master unit instead. If the radio and navigation assy is equipped, it is the master unit.
- The radio and navigation assy provides resistance to make communication possible.
- The car audio system with an AVC-LAN circuit has a diagnostic function.
- Each component has a specified number (3-digit) called a physical address. Each function has a number (2-digit) called a logical address.

## 6. Communication system outline

(a) Components of the audio system communicate with each other via the AVC-LAN.

(b) The master component of the AVC-LAN is a radio and navigation assy with a 60 to 80 Ω resistor. This is essential for communication.

(c) If a short circuit or open circuit occurs in the AVC-LAN circuit, communication is interrupted and the audio system will stop functioning.

## 7. Diagnostic function outline

(a) The audio system has a diagnostic function (the result is indicated on the master unit).

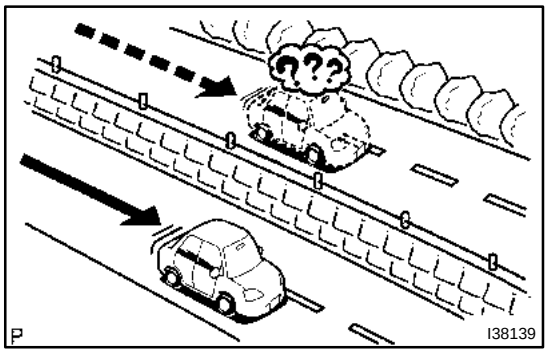
(b) A 3-digit hexadecimal component code (physical address) is allocated to each component on the AVC-LAN. Using this code, the component in the diagnostic function can be displayed.

05FG6-04

# SYSTEM NORMAL CONDITION CHECK

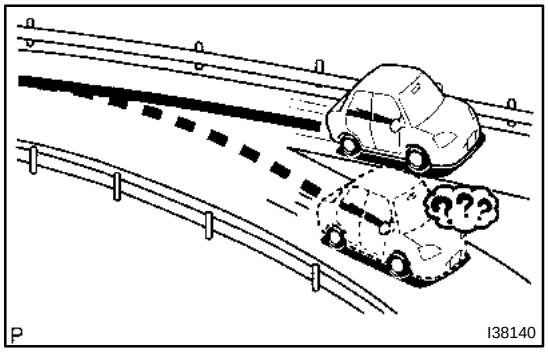
(a) If the symptom is applicable to any of the following, it is intended behavior, and not a malfunction.

| Symptom | Answer |
|---|---|
| A longer route than expected is chosen. | Depending on the road conditions, the navigation ECU may determine that a longer route is quicker. |
| Even when distance priority is high, the shortest route is not shown. | Some paths may not be advised due to safety concerns. |
| When the vehicle is put into motion immediately after the engine starts, the navigation system deviates from the actual position. | If the vehicle starts before the navigation system activates, the system may not react. |
| When running on certain types of roads, especially new roads, the vehicle position deviates from the actual position. | When the vehicle is driving on new roads not available on the map disc, the system attempts to match it to another nearby road, causing the position mark to deviate. |

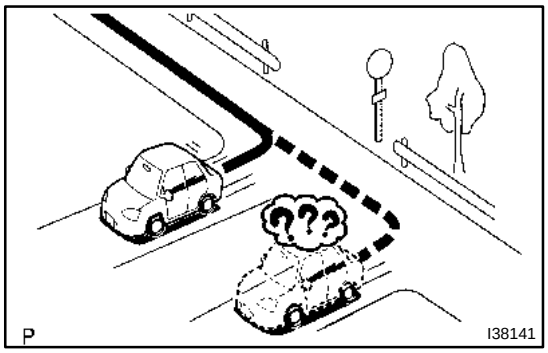



(b) The following symptoms are not a malfunction, but are caused by errors inherent in the GPS, gyro sensor, speed sensor, and navigation ECU.

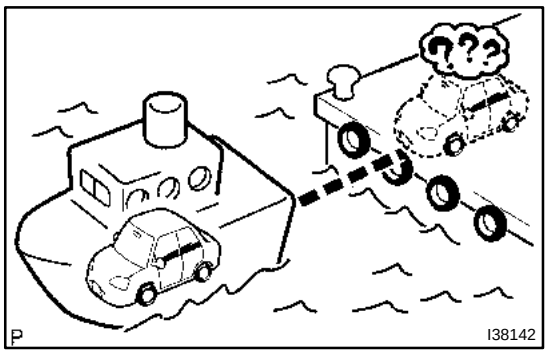
(1) The current position mark may be displayed on a nearby parallel road.



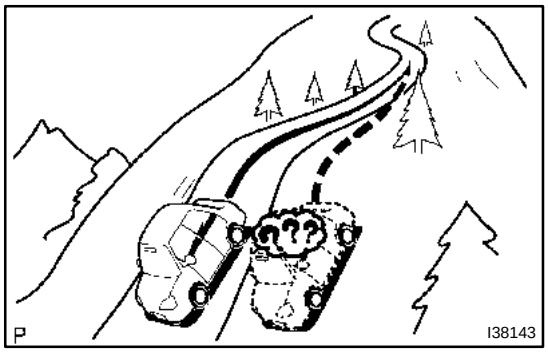

(2) Immediately after a fork in the road, the current vehicle position mark may be displayed on the wrong road.



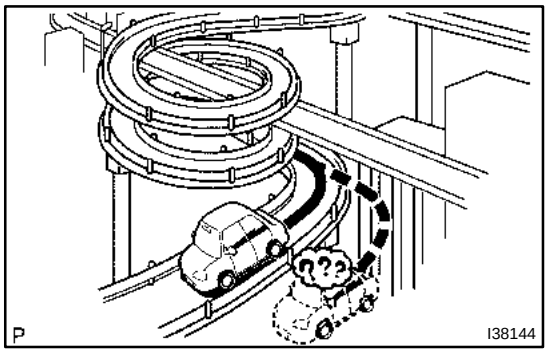

(3) When the vehicle turns right or left at an intersection, the current vehicle position mark may be displayed on a nearby parallel road.



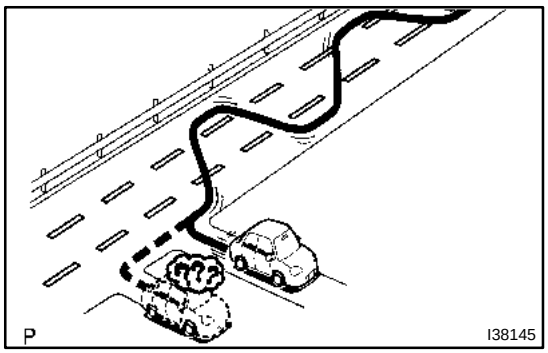

(4) When the vehicle is carried, such as on a ferry, and the vehicle itself is not running, the current vehicle position mark may be displayed in the position where the vehicle was until a measurement can be performed by GPS.



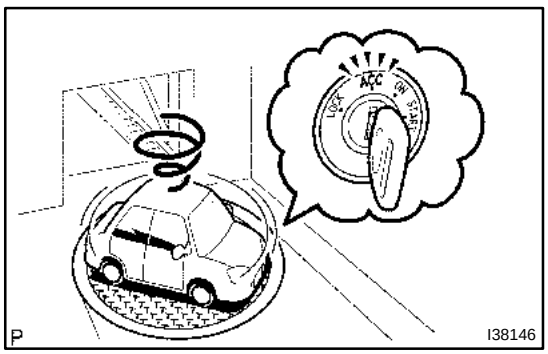

(5) When the vehicle runs on a steep hill, the current vehicle position mark may deviate from the correct position.



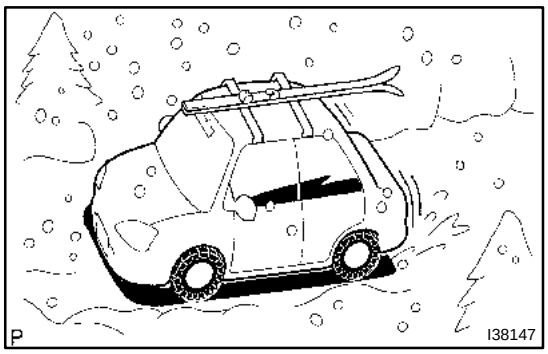

(6) When the vehicle makes a continuous turn of 360, 720, 1,080, etc. degrees, the current vehicle position mark may deviate from the correct position.



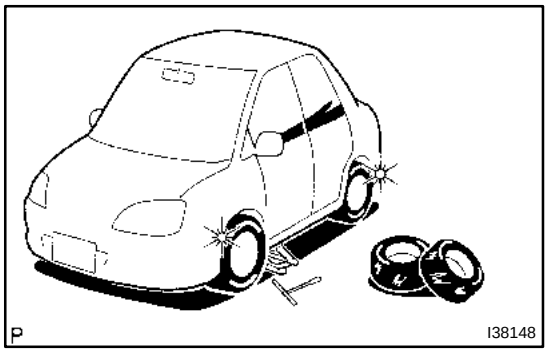

(7) When the vehicle moves erratically, such as constant lane changes, the current vehicle position mark may deviate from the correct position.




(8) When the ignition switch is turned to the ACC or ON position on a turntable before parking, the current vehicle position mark may not point in the correct direction. The same will occur when the vehicle comes out of parking.




(9) When the vehicle runs on a snowy road or a mountain path with the chains installed or using a spare tire, the current vehicle position mark may deviate from the correct position.




(10) When a tire is changed, the current vehicle position mark may deviate from the correct position.

HINT:

- Diameter of the tire may change, causing a speed sensor error.
- Performing the ”tire change” in calibration mode will allow the system to correct the current vehicle position faster.

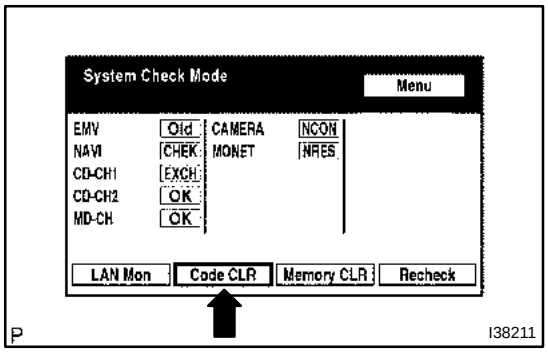
05FGB-04

# SYSTEM CHECK MODE (DTC CLEAR/RECHECK)

HINT:

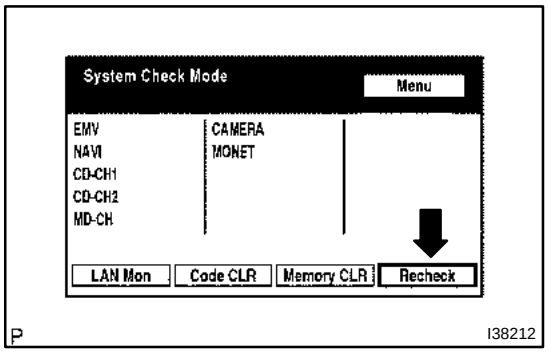
The illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle.

**1. Enter diagnostic mode (see page 05-1273 ).**




**2. Clear DTC**

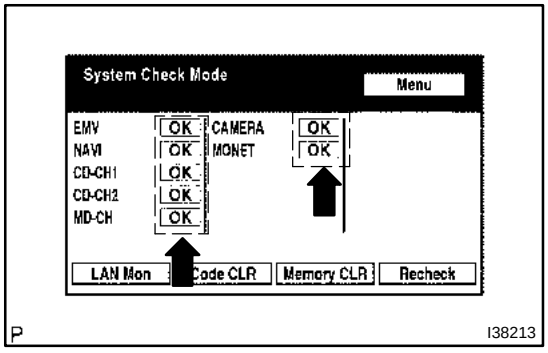
(a) Press the ”Code CLR” switch for 3 seconds.




(b) The check results are cleared.

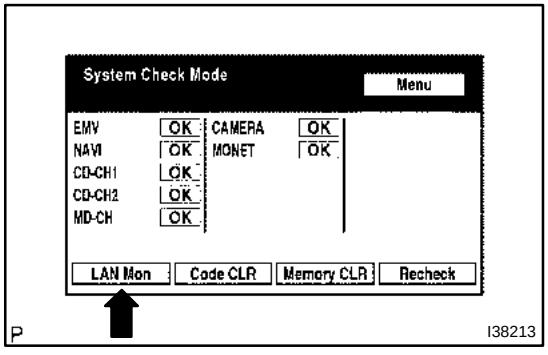
**3. Recheck**

(a) Press the ”Recheck” switch.

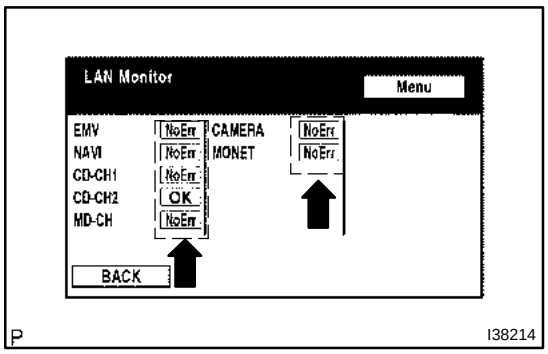



(b) Confirm that all diagnostic codes are ”OK” when the check results are displayed.

If a code other than ”OK” is displayed, troubleshoot again.




(c) Press the ”LAN Mon” switch to change to ”LAN Monitor” mode.




(d) Confirm that all diagnostic codes are ”No Err”.
If a code other than ”No Err” is displayed, troubleshoot again.

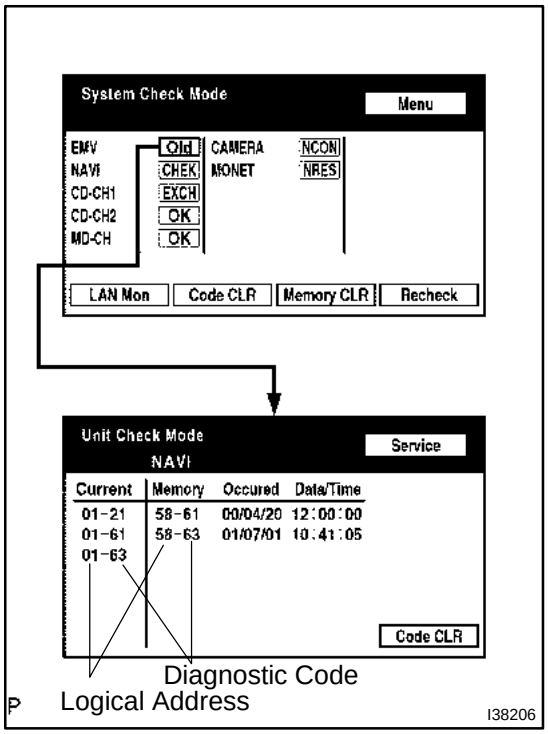
05FG8-04

# SYSTEM CHECK MODE (DTC CHECK)

HINT:

Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle.

**1. Start the diagnostic mode (see page 05-1273 ).**

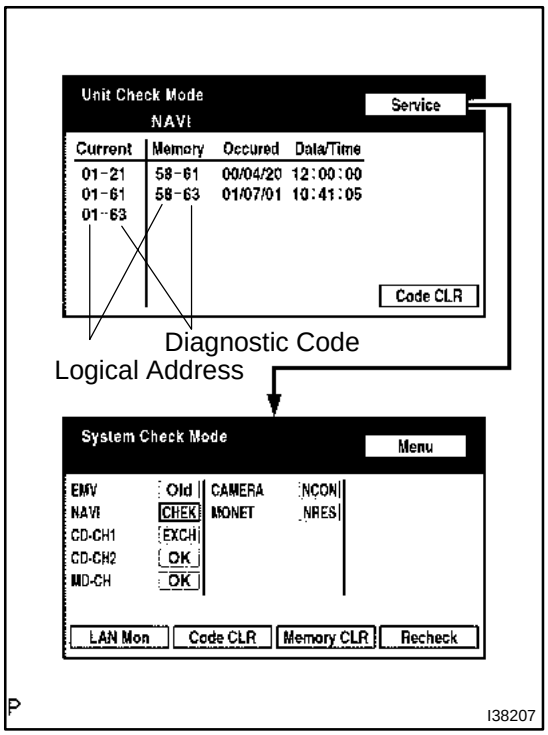



**2. Read the system check result.**

(a) If the check result is "EXCH," "CHEK" or "Old," touch the displayed check result to view the results on the "Unit Check Mode" screen and record them on the customer problem analysis check sheet.

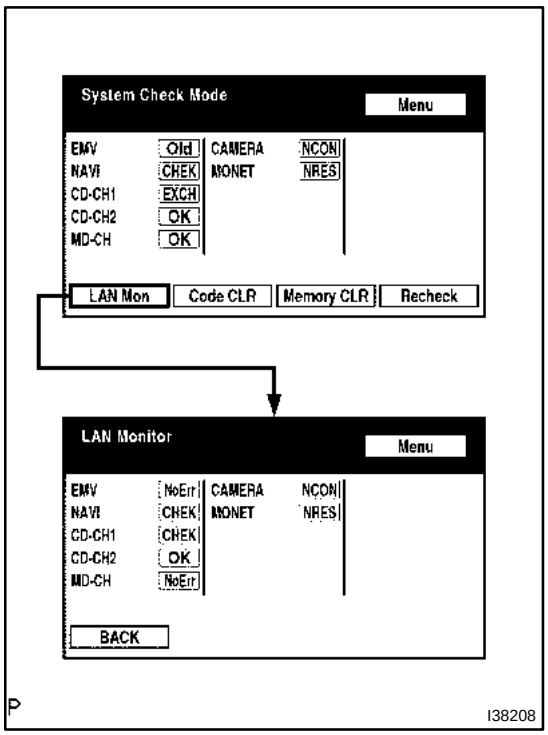
HINT:

- If all check results are "OK," go to communication DTC check (go to step 3).
- If a device name is not known, its physical address is displayed.



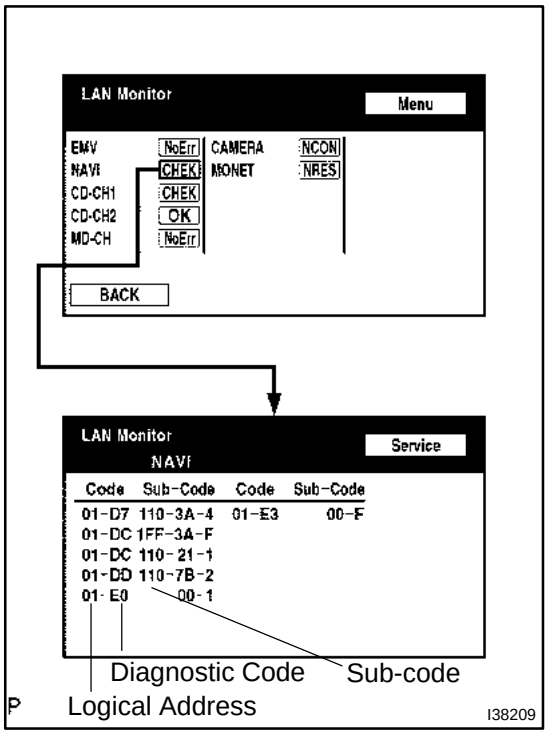

HINT:

When proceeding to view the results of another device, press the service switch to return to the "System Check Mode". Repeat step (a).




**3. Read the communication diagnostic check result.**

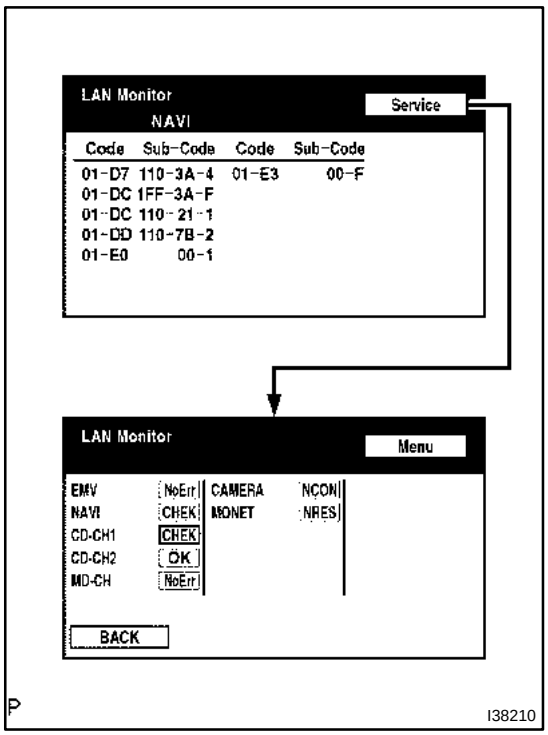
(a) Return to the "System Check Mode", and press the "LAN Mon" switch to enter the LAN monitor screen.




(b) If the check result is "CHEK" or "Old," touch the displayed check result to view the results on the individual communication diagnostic screen and record them on the customer problem analysis check sheet.

HINT:

- If all check results are "No Err," the system judges that no DTC exists.
- The sub-code (relevant device) will be indicated by its physical address.




HINT:

When Proceeding to view the results of another device, press the ”Service” switch to return to the original ”LAN Monitor” screen. Repeat step (b).

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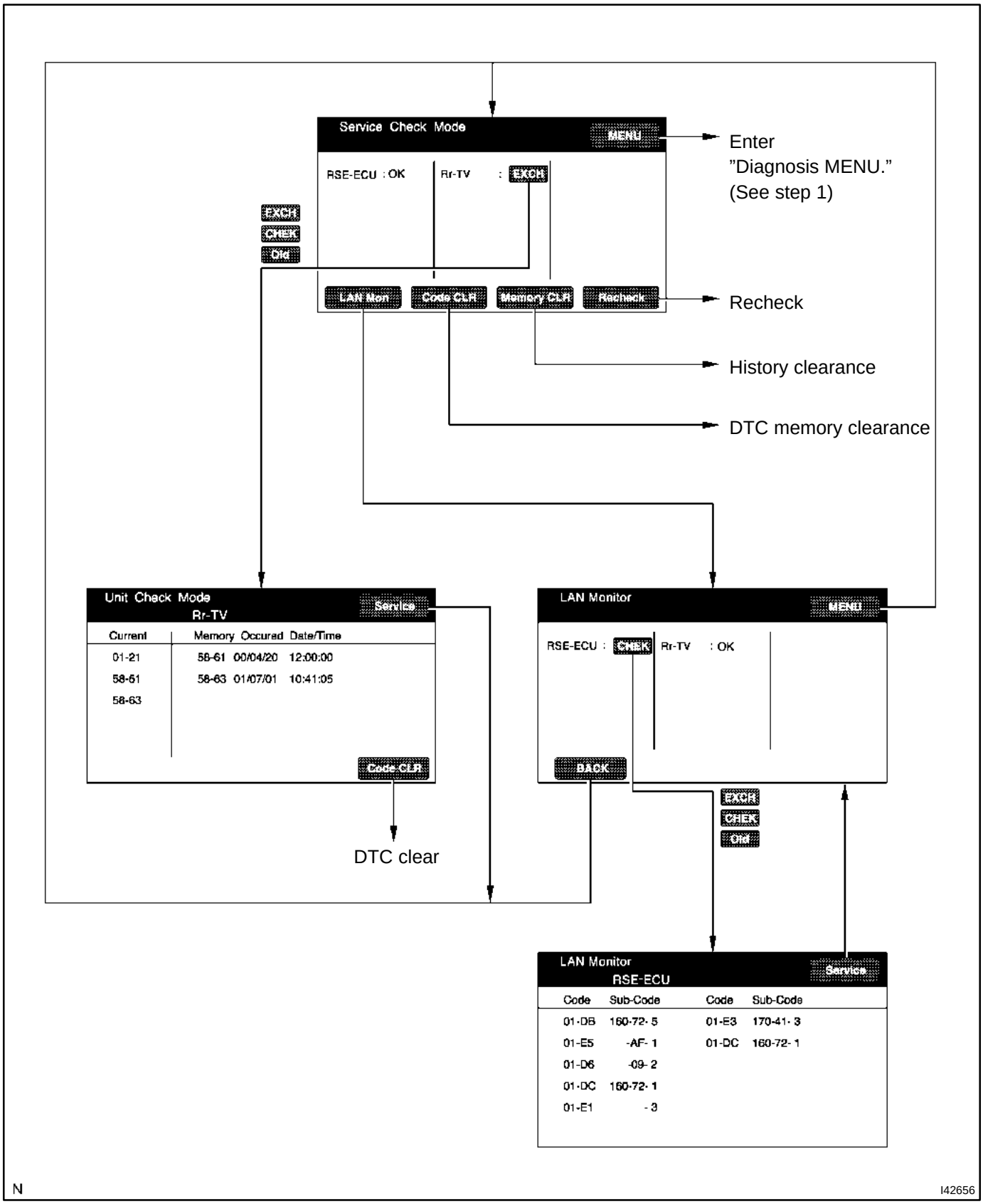
# SYSTEM CHECK MODE (DTC CLEAR/RECHECK)

**1. ENTER DIAGNOSTIC MODE (See page 05-1431 )**

**2. SERVICE CHECK MODE**

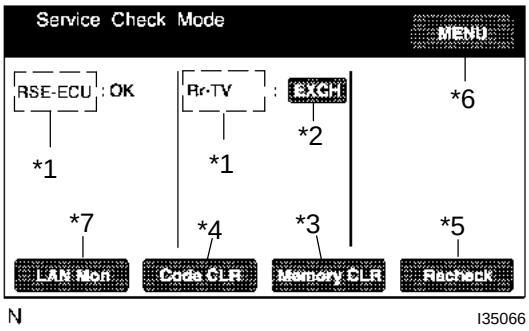
HINT:

Service Check Mode is operated as follows.




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I42656




(a) Service Check Mode

(1) Start the Diagnosis System.

| Display Item | Function |
|---|---|
| Components Names/*1 | List of component names including optional components (15 components max.) are displayed. When the names are not identified, their physical addresses are displayed. |
| Check Result/*2 | Check results are displayed. |
| Memory Clear switch/*3 | Pressing this switch for 3 sec. deletes all the information about master component registration. |
| DTC Clear switch/*4 | Pressing this switch for 3 sec. deletes diagnosis memory of all the components. It deletes Service Check results and the screen displaying the check results. |
| Recheck/*5 | Pressing this switch performs Service Check again. |
| MENU/*6 | Pressing this switch activates the Diagnosis Menu screen. |
| LAN Monitor screen switch/*7 | Pressing this switch activates the LAN Monitor screen, which displays the logical address 01 with DTC D0 - FE. |

**Components:/*1**

| Display | Name |
|---|---|
| RSE-ECU | Multi-display Controller Sub-assy |
| Rr-TV | Television Display Assy |

HINT:

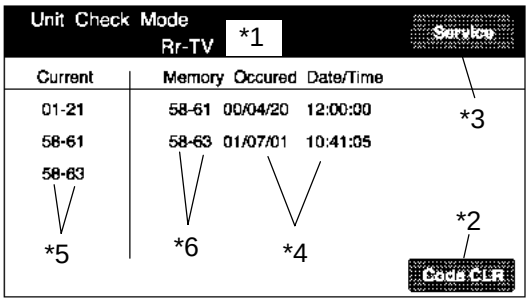
Service Check displays the check results based on the information obtained from each component's response to "System Check Execution" and "Diagnosis Memory Request", and the information of "Current DTC Notification" (the Unit Check that will be displayed on the next screens.).

(2) Read Check Result

| Check Result | Meaning |
|---|---|
| OK | No DTC is identified. |
| EXCH | One or more DTC requesting for exchange are detected. |
| CHEK | One or more DTC requesting for check are detected. |
| NCON | No connection response to Diagnosis System start-up, whereas it has the connection response to the AVC-LAN system when the power switch is turned on (when IG is turned to ACC). |
| Old | One or more DTC are detected because of old version. |
| NRES | No response to the information about the Diagnosis System, whereas it responds to the Diagnosis System start-up. |

HINT:

- After repairing and checking, press "Code CLR" for more than 3 seconds to delete diagnosis memory.
- After deleting diagnosis memory, press "Recheck" and make sure "OK" is displayed on the screen.



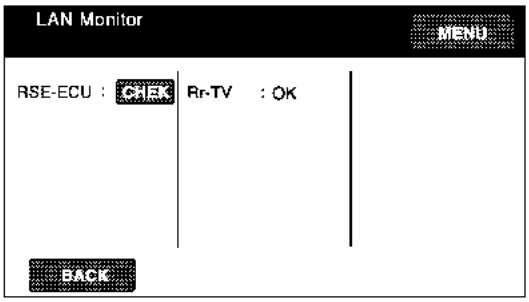

N I35067

(3) ”EXCH”, ”CHEK” and ”Old” can be used as switches to activate ”Unit Check Mode” for detailed information. Check troubled parts of the components in this mode by referring to the DTC code list.

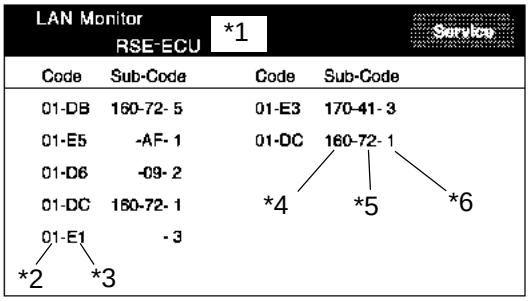
| Display Item | Description |
|---|---|
| Component name/*1 | Name of component to be checked is displayed. |
| DTC clear switch/*2 | Pressing this switch for 3 sec. deletes DTC memory of the selected diagnosis component. |
| Service check mode screen switch/*3 | Pressing this returns to the Service Check Mode screen. |
| Date/Time/*4 | The date and time stamped at the time of DTC occurrence are displayed in the order of year-month-day-hour-minute-second. (If the date and time data is invalid, it is displayed as a blank.) |
| Current/ *5 | Up to 6 DTC codes detected during the System Check are displayed. |
| Memory/ *6 | DTC memories stored and current DTC Notification are displayed. |

HINT:

- Detecting Unit DTC activates the Unit Check Mode on the screen.
- In the Unit Check Mode, DTC which is identified as ”EXCH” in the Service Check is displayed as classified into Current DTC and Past DTC.




N I35068




N I35069

(4) ”LAN Monitor” can be used as a switch to activate ”LAN Monitor” for detailed information. Check faulty parts of the components in this mode by referring to the DTC code list.

| Display Item | Description |
|---|---|
| Component name/*1 | Name of component to be checked is displayed. |
| Segment/*2 | Logical address codes corresponding to DTC are displayed. |
| DTC/*3 | DTC is displayed. |
| Sub-Code (address numbers of related components)/*4 | Physical address codes memorized together with DTC are displayed. |
| Sub-code (Connection confirmation number) /*5 | Connection confirmation numbers memorized together with DTC are displayed. |
| Sub-code (Number of occurrence) /*6 | The number of occurrence of the same DTC is displayed. |

HINT:

- Detecting no LAN DTC activates the LAN Monitor on the screen.
- The LAN Monitor chooses and displays the LAN DTC out of DTC of components identified as ”CHEK” in the LAN Monitor.

(5) Read Check Result

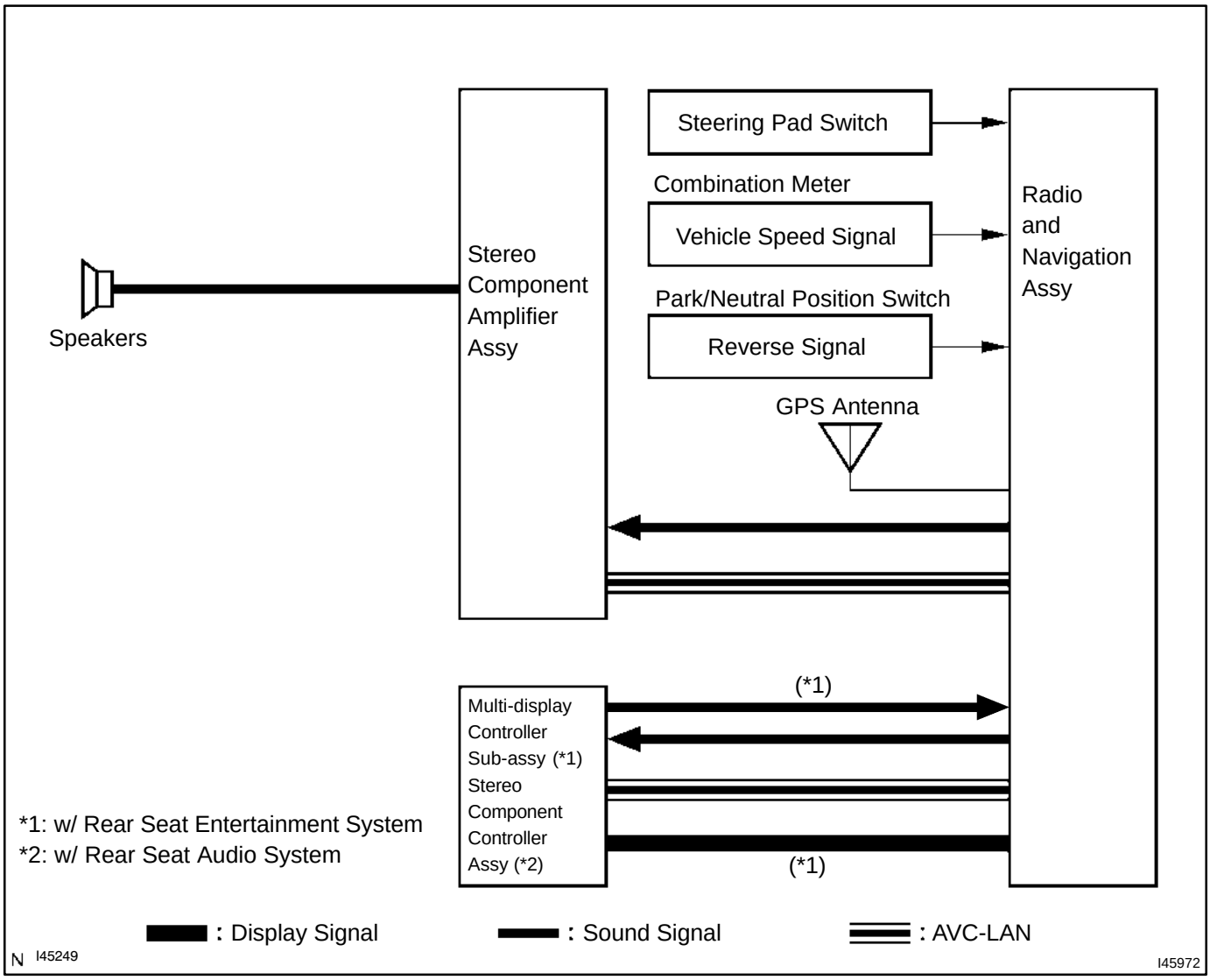
| Check Result | Meaning |
|---|---|
| OK | No DTC is identified. |
| CHEK | One or more DTC requesting for check are detected. |
| NCON | No connection response to Diagnosis System start-up, whereas it has the connection response to the AVC-LAN system when the power switch is turned on (when IG is turned to ACC). |
| NRES | No response to the information about the Diagnosis System, whereas it responds to the Diagnosis System start-up. |
| Old | One or more DTC are detected because of old version. |

HINT:

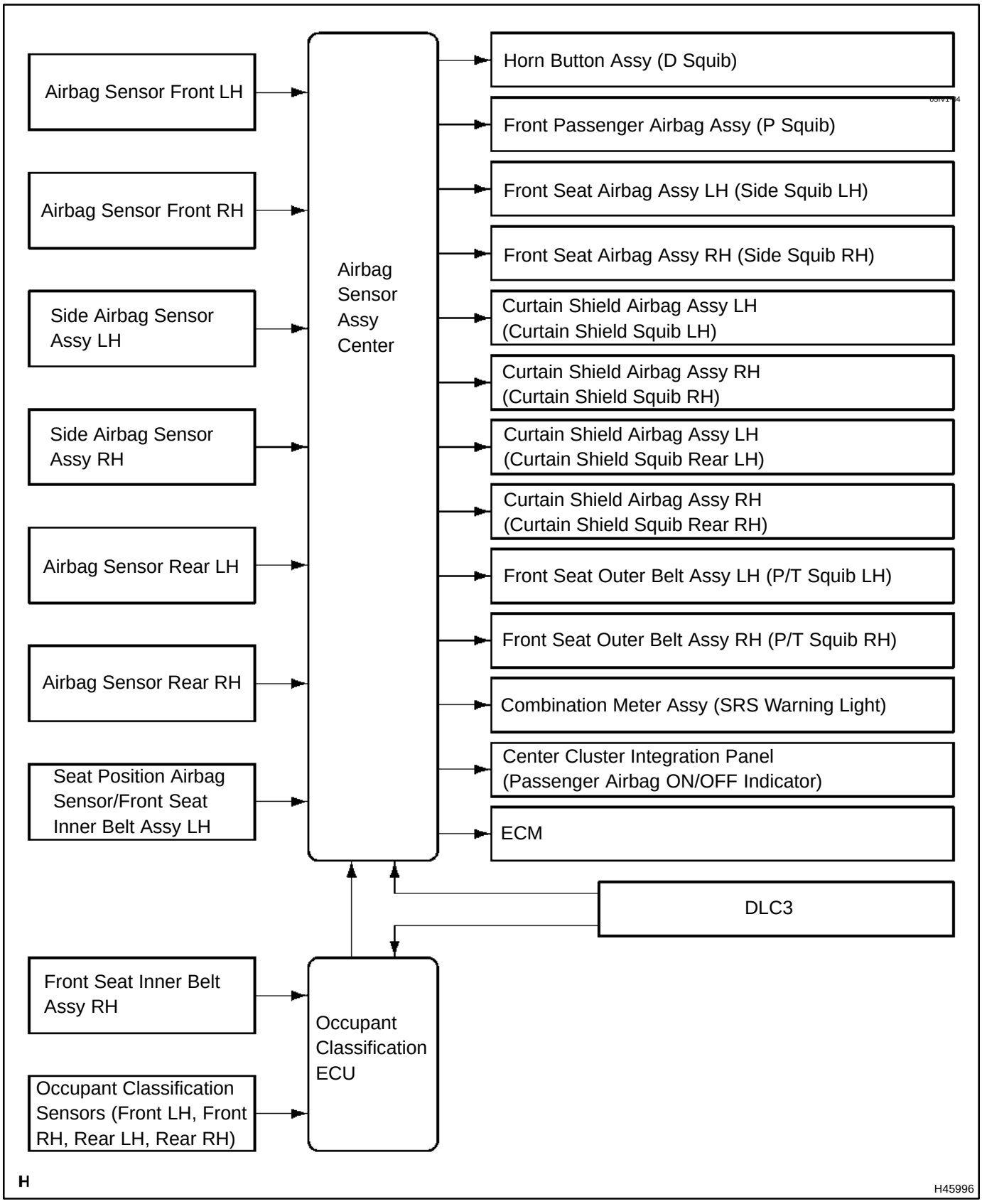
- After repairing and checking, press ”Code CLR” for more than 3 seconds to delete diagnosis memory.
- After deleting diagnosis memory, press ”Recheck” and make sure ”OK” is displayed on the screen.

05FG2-04

# SYSTEM DIAGRAM



# SYSTEM DIAGRAM



# CASSETTE TAPE CANNOT BE EJECTED

## INSPECTION PROCEDURE

| 1 | PRESS ”EJECT” AND CHECK OPERATION |
|---|---|

(a) Press ”EJECT” and check the operation.
  (1) Press the cassette tape EJECT switch of the radio receiver assembly for 2 seconds or more and check that the cassette tape is ejected.
  **Standard: The cassette tape is ejected.**

**NG** → **REPLACE RADIO RECEIVER ASSY**

**OK**

| 2 | CHECK CASSETTE TAPE |
|---|---|

(a) Check the cassette tape.
  (1) Check that the ejected cassette tape does not have the label peeled, cassette body deformation or others.
  **Standard: No fault on the cassette tape.**

**NG** → **CASSETTE TAPE FAULTY**

**OK**

| 3 | REPLACE CASSETTE TAPE WITH ANOTHER AND RECHECK |
|---|---|

(a) Replace the cassette tape with another and recheck.
  (1) Replace the cassette tape with another normal one to see if the same trouble occurs again.
  **Standard: Malfunction disappears.**

**OK** → **CASSETTE TAPE FAULTY**

**NG**

**REPLACE RADIO RECEIVER ASSY**

# CASSETTE TAPE CANNOT BE INSERTED OR PLAYED

## INSPECTION PROCEDURE

| 1 | CHECK FOR ANY FOREIGN OBJECT |
|---|---|

(a) Check for any foreign objects.
(1) Check that no foreign objects or defects are detected in the cassette tape player of radio receiver assembly.
**Standard: No foreign objects or defects detected.**

**NG** → **REMOVE FOREIGN OBJECT**

**OK**

| 2 | CHECK CASSETTE TAPE |
|---|---|

(a) Check the cassette tape.
(1) Check that the cassette tape is a normal tape to which music or voice is recorded.
**Standard: Proper cassette tape to which music or voice is recorded.**

**NG** → **CASSETTE TAPE FAULTY**

**OK**

| 3 | REPLACE CASSETTE TAPE WITH ANOTHER AND RECHECK |
|---|---|

(a) Replace the cassette tape with another one and recheck.
(1) Replace the cassette tape with another normal one to see if the same trouble occurs again.
**Standard: The function is recovered to be normal.**

**OK** → **CASSETTE TAPE FAULTY**

**NG**

**REPLACE RADIO RECEIVER ASSY**

# TAPE IS TANGLED DUE TO INCORRECT TAPE SPEED OR AUTO-REVERSE MALFUNCTION

## INSPECTION PROCEDURE

| 1 | CHECK FOR ANY FOREIGN OBJECT |
|---|---|

(a) Check for any foreign objects.
  (1) Check that no foreign objects or defects are detected in the cassette tape player of radio receiver assy.

**Standard: No foreign objects or detects detected.**

**NG** → **REMOVE FOREIGN OBJECT**

**OK**

| 2 | REPLACE CASSETTE TAPE WITH ANOTHER AND RECHECK(BELOW 90 MIN.) |
|---|---|

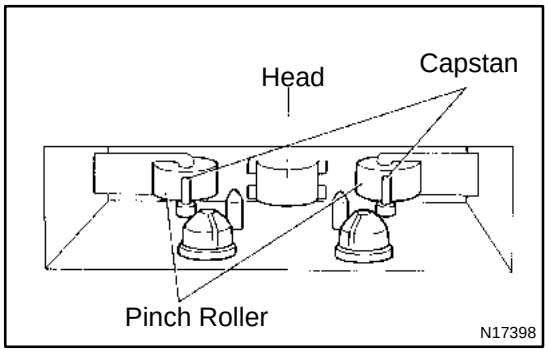
(a) Replace the cassette tape with another one and recheck.
  (1) Replace the cassette tape with another normal one (90 minuites or less) to see if the same trouble occurs again.

**Standard: Malfunction disappears.**

**OK** → **CASSETTE TAPE FAULTY**

**NG**

| 3 | CLEAN HEAD AND CHECK OPERATION |
|---|---|




(a) Head cleaning
  (1) Raise the cassette door with your finger. Next, using a pencil or similar object, push in the guide.
  (2) Using a cleaning pen or cotton applicator soaked in cleaner, clean the head surface, pinch rollers and capstans.
  (3) Check that the same trouble occurs again.

**Standard: Malfunction disappears.**

**OK** → **HEAD DIRTY**

**NG**

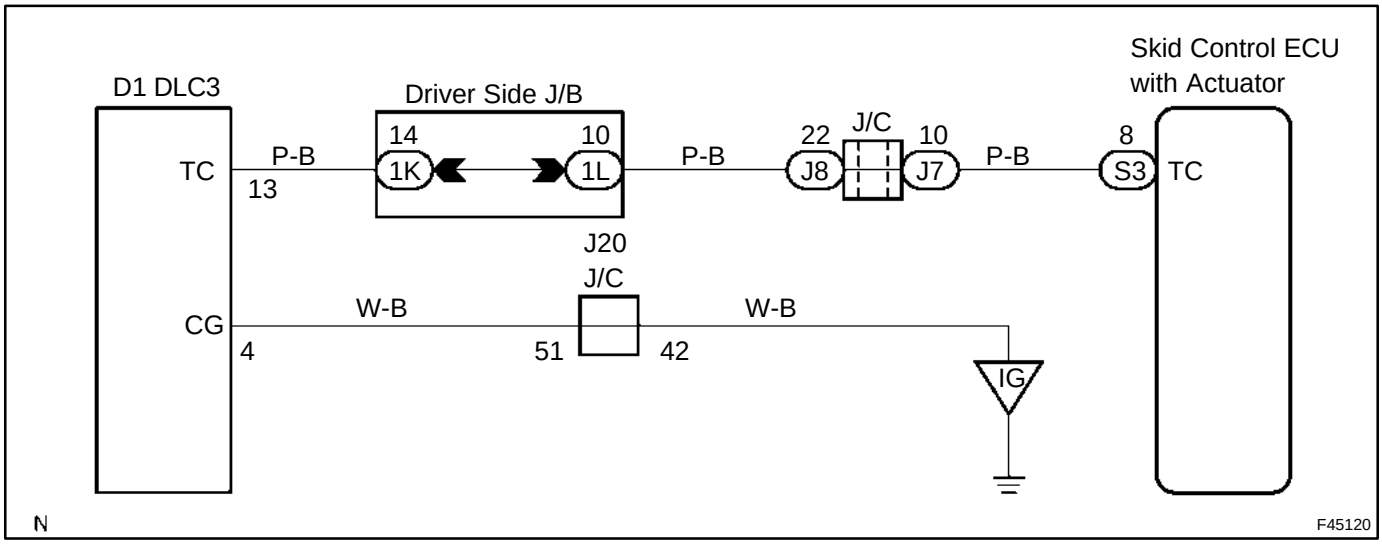
**REPLACE RADIO RECEIVER ASSY**

# TC TERMINAL CIRCUIT

## CIRCUIT DESCRIPTION

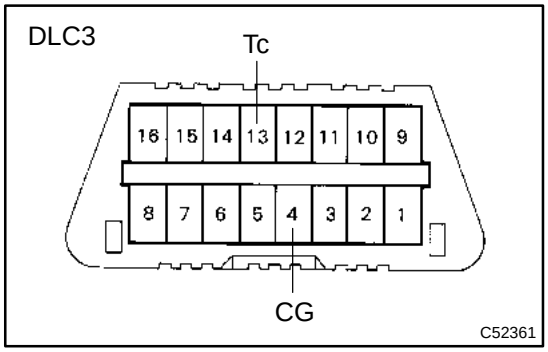
Connecting terminals Tc and CG of the DLC3 causes the ECU to display the DTC by flashing the ABS warning light.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT DLC3 TERMINAL VOLTAGE(Tc TERMINAL) |
|---|---|




(a) Turn the ignition switch ON.
(b) Measure the voltage between terminals Tc and CG of the DLC3.
**OK:**
**Voltage: 10 to 14 V**

| OK | Go to step 3 |
|---|---|

**NG**

| 2 | CHECK HARNESS AND CONNECTOR(DLC3 - BODY GROUND) |
|---|---|

(a) Check for an open circuit in harness and connector between terminal CG of the DLC3 and body ground (See page 01-37 ).

| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |
|---|---|

**OK**

| 3 | CHECK HARNESS AND CONNECTOR(SKID CONTROL ECU - DLC3) |
|---|---|

(a) Check for an open or short circuit in harness and connector between terminal Tc of the skid control ECU and DLC3 (See page 01-37 ).

| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |
|---|---|

**OK**

**REPLACE BRAKE ACTUATOR ASSY (See page 05-395 )**

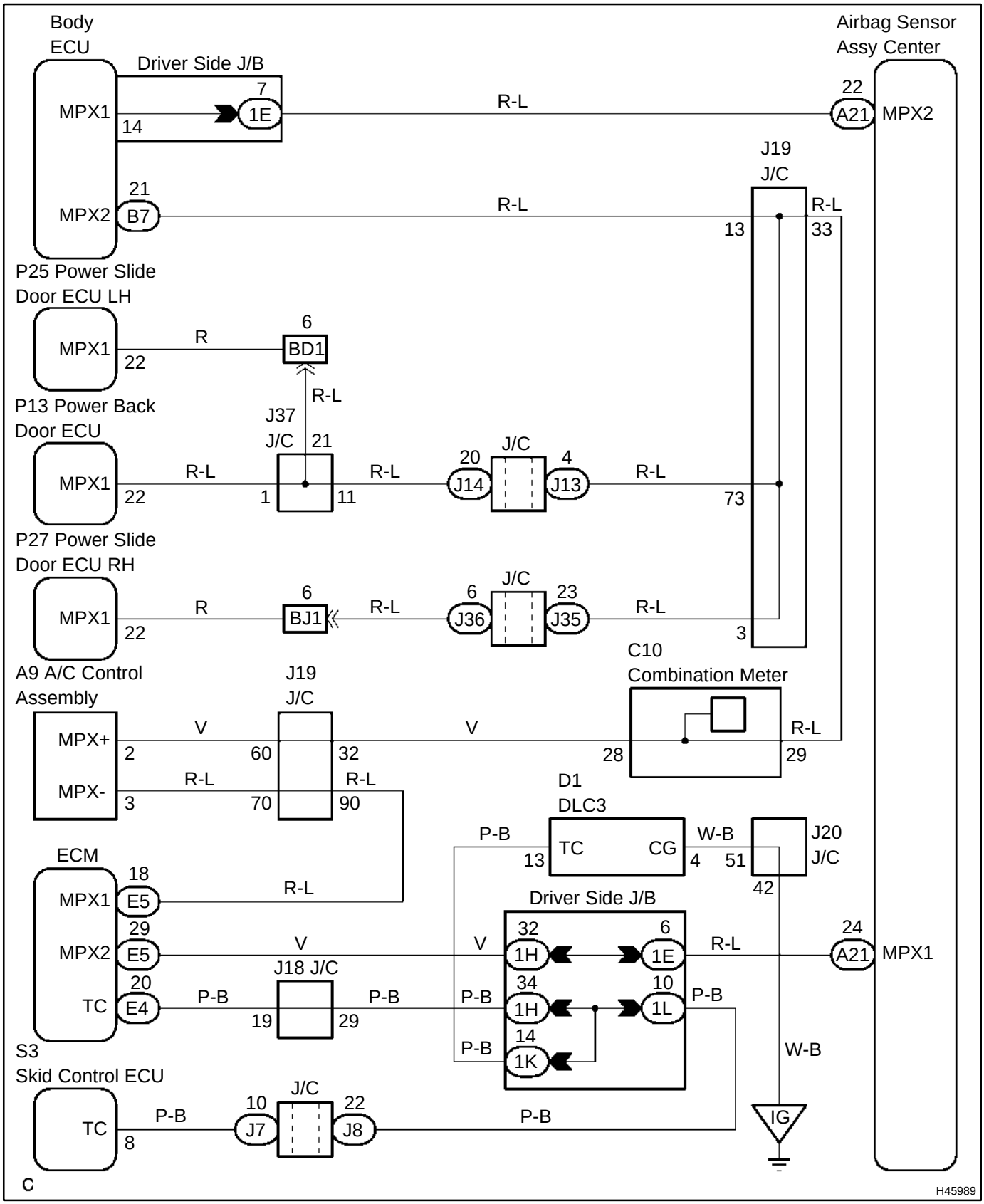
# TC TERMINAL CIRCUIT

## CIRCUIT DESCRIPTION

The DTC output mode is set by connecting terminals TC and CG of the DLC3.
The DTCs are displayed by blinking the SRS warning light.
HINT:

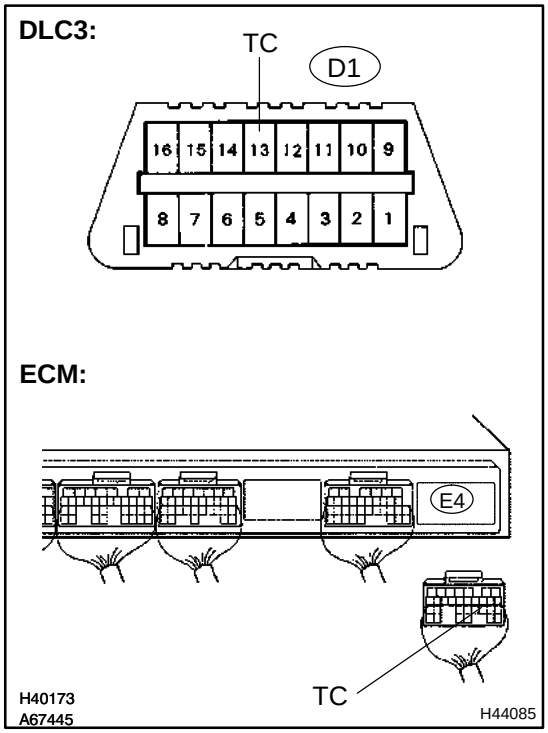
- Make sure that DTC B1281 has not been output. If DTC B1281 has been output, refer to the multiplex communication system.
- When each warning light stays blinking, a ground short in the wiring of terminal TC of the DLC3 or an internal ground short in each ECU is suspected.
- The DTC output mode signal is transmitted through BEAN to each ECU including the airbag sensor assy center, except for the skid control ECU with actuator. Thus when all systems except the ABS system do not enter DTC output mode, it can be suspected that there is an ECM malfunction.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

## 1 CHECK WIRE HARNESS(DLC3 - ECM)




(a) Turn the ignition switch to the LOCK position.
(b) Disconnect the airbag sensor assy center connector.
(c) Measure the resistance according to the value(s) in the table below.

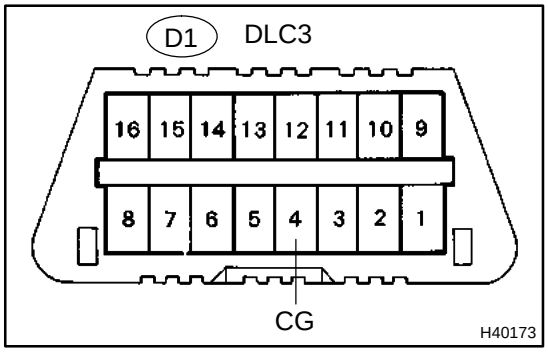
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| D1-13 (TC) - E4-20 (TC) | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE WIRE HARNESS**

**OK**

## 2 CHECK WIRE HARNESS(CG of DLC3 - BODY GROUND)




(a) Measure the resistance according to the value(s) in the table below.

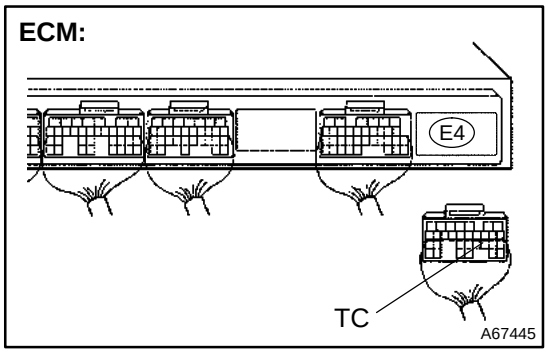
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| D1-4 (CG) - Body ground | Always | Below 1 Ω |

**NG** → **REPAIR OR REPLACE WIRE HARNESS**

**OK**

| 3 | CHECK WIRE HARNESS(TC of ECM - BODY GROUND) |
|---|---|




(a) Measure the resistance according to the value(s) in the table below.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| E4-20 (TC) - Body ground | Always | 1MΩ or Higher |

**NG** → **REPAIR OR REPLACE WIRE HARNESS**

**OK**

| 4 | REPLACE ECM |
|---|---|

(a) Check the ECM.

**Result:**

**A: Normal system code is output.**

**B: DTC is output.**

**C: DTC output mode is set.**

**A** → **END**

**B** → **GO TO INSPECTION PROCEDURE OF DTC OUTPUT (SEE PAGE 05-790 )**

**C**

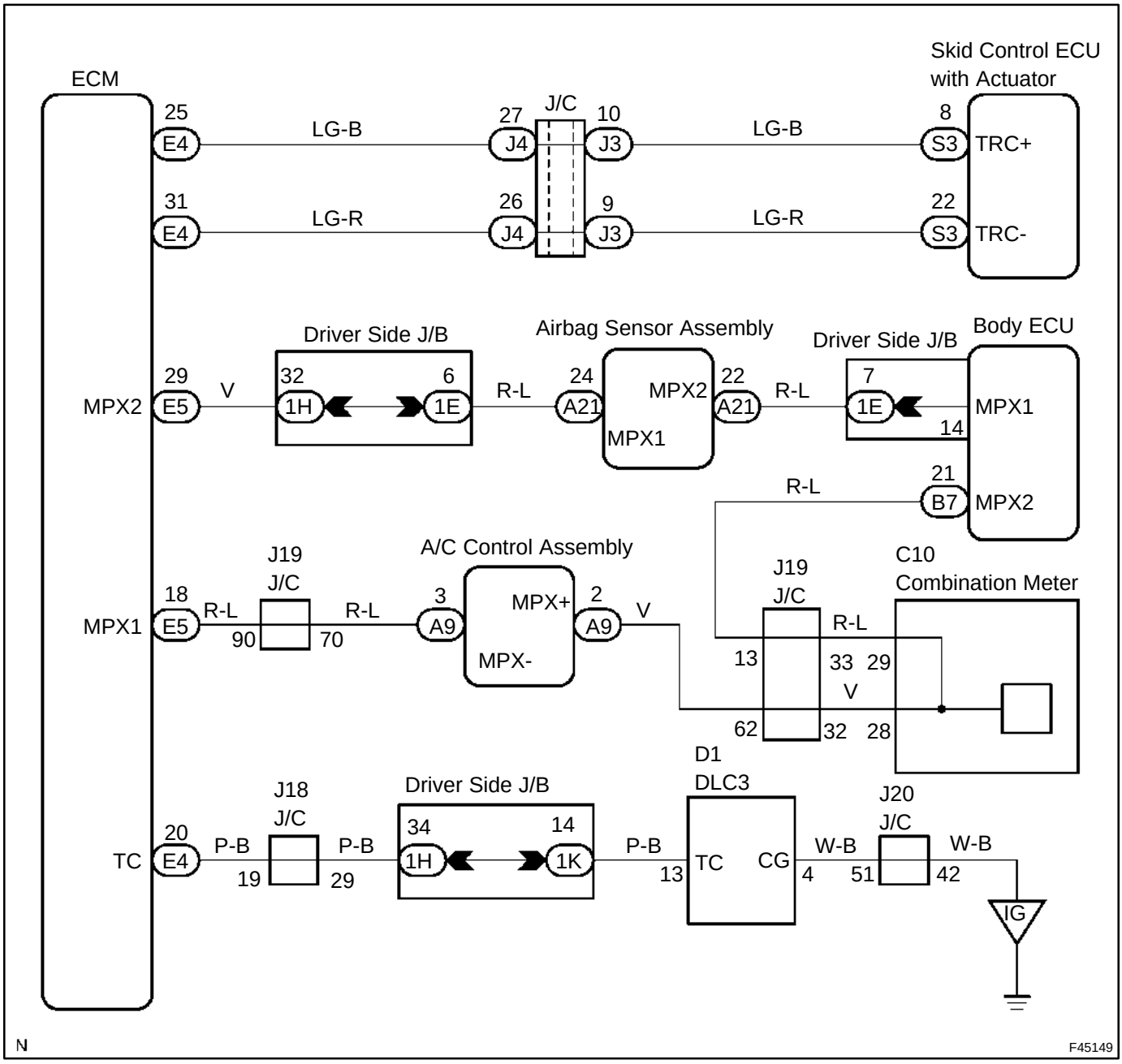
**REPLACE AIR BAG SENSOR ASSY CENTER (SEE PAGE 60-56 )**

# TC TERMINAL CIRCUIT

## CIRCUIT DESCRIPTION

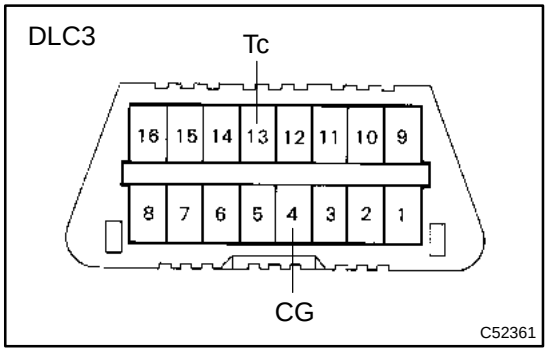
Connecting terminals Tc and CG of the DLC3 causes the ECU to display the DTC by flashing the ABS warning light.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT DLC3 TERMINAL VOLTAGE(Tc TERMINAL) |
|---|---|




(a) Turn the ignition switch ON.
(b) Measure the voltage between terminals Tc and CG of the DLC3.
**OK: 10 to 14 V**

**NG** → **Go to step 4**

**OK**

| 2 | CHECK HARNESS AND CONNECTOR(DLC3 - ECM) |
|---|---|

(a) Check for an open or short circuit in harness and connector between terminal Tc of the ECM and DLC3 (See page 01-37 ).

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

| 3 | CHECK HARNESS AND CONNECTOR(BODY GROUND - DLC3) |
|---|---|

(a) Check for an open circuit in harness and connector between terminal CG of the DLC3 and body ground (See page 01-37 ).

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

| 4 | CHECK HARNESS AND CONNECTOR(ECM - SKID CONTROL ECU) |
|---|---|

(a) Check for an open or short circuit in harness and connector between terminal ENG+ and ENG- of the skid control ECU and terminal ENG+ and ENG- of the ECM (See page 01-37 ).

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

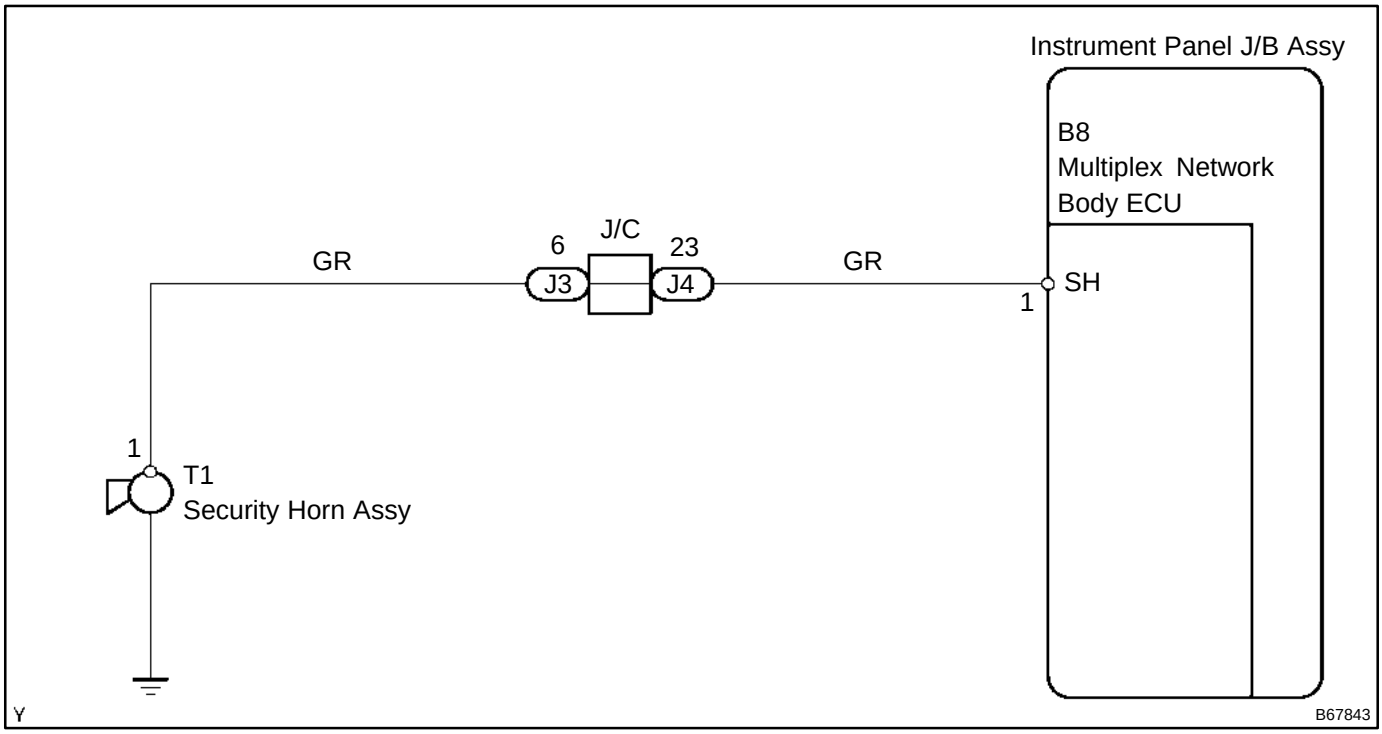
**REPLACE ABS & TRACTION ACTUATOR ASSY(See page 32-46 )**

# THEFT DETERRENT HORN CIRCUIT

## CIRCUIT DESCRIPTION

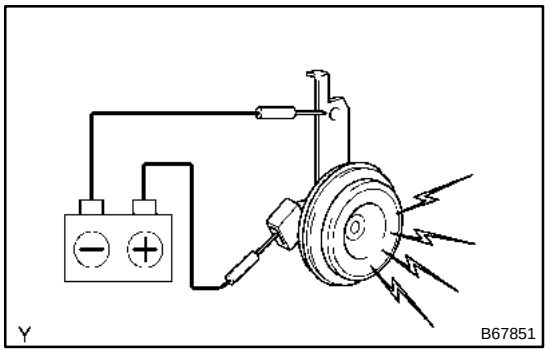
When the theft deterrent system is operating, the relay in the multiplex network body ECU turns ON and OFF in a cycle of approx. 0.2 seconds, causing the theft deterrent (security) horn to sound.

## WIRING DIAGRAM




## INSPECTION PROCEDURE

| 1 | INSPECT SECURITY HORN ASSY |
|---|---|




(a) Check operation of the horn.

**Standard:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 1<br>Battery negative (-) → Horn body | Horn blows |

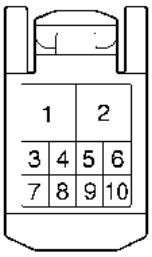
**NG** → **REPLACE SECURITY HORN ASSY**

**OK**

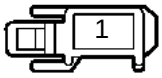
| 2 | **CHECK WIRE HARNESS (MULTIPLEX NETWORK BODY ECU) - SECURITY HORN ASSY)** |
|---|---|

**Wire Harness Side**

B8
Multiplex Network Body ECU




T1
Security Horn Assy




B69123
B58961

B68016

(a) Disconnect the B8 ECU connector.
(b) Disconnect the T1 security horn connector.
(c) Check the resistance between the wire harness side connectors.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| B8-1 (SH) - T1-1 | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

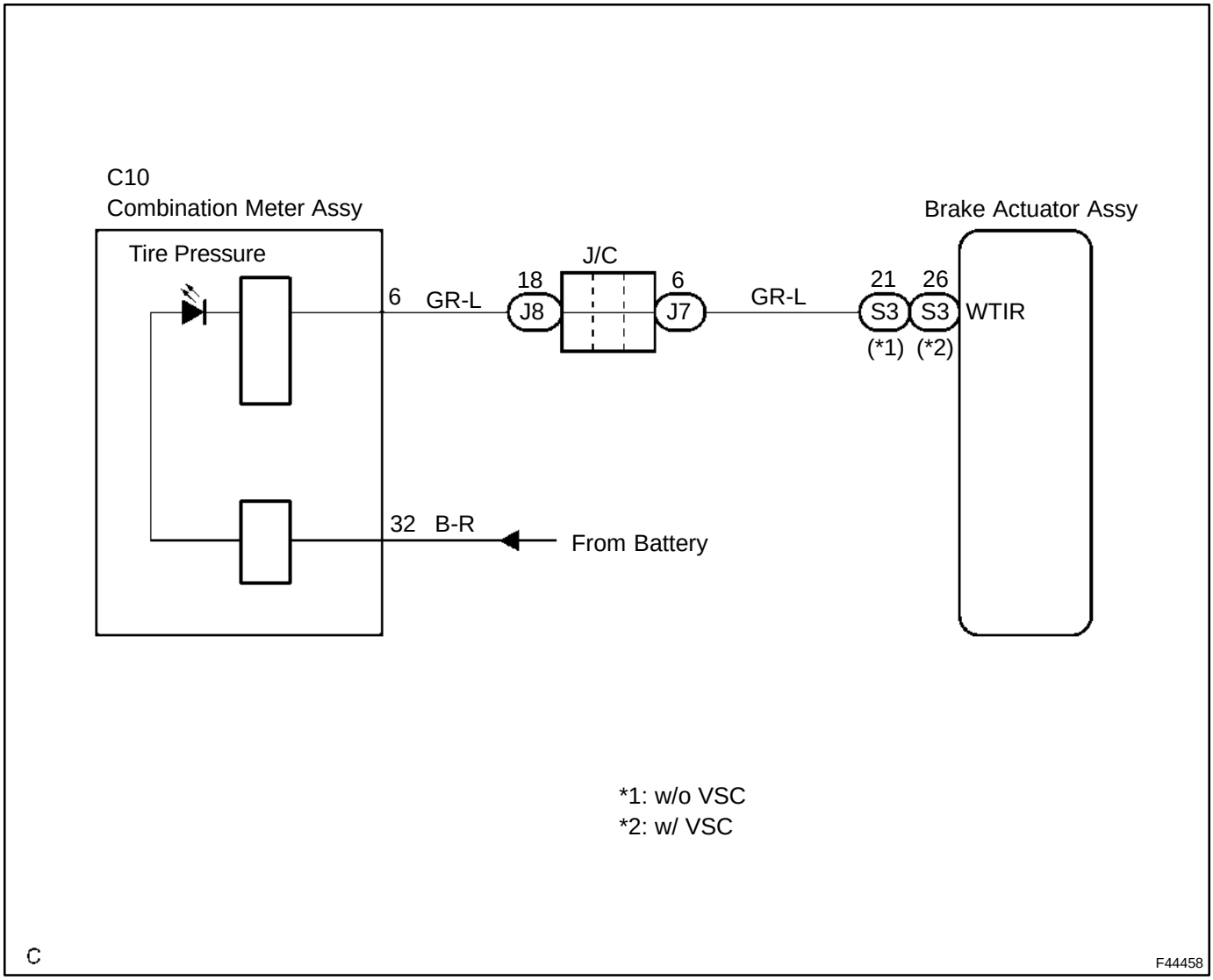
**REPLACE MULTIPLEX NETWORK BODY ECU**

# TIRE PRESSURE WARNING LAMP CIRCUIT

## CIRCUIT DESCRIPTION

When the tire pressure decreases, according to the signal from the skid control ECU, the tire pressure warning lamp in the combination meter assy comes on.
The tire pressure warning lamp also comes on when the tire pressure warning lamp signal becomes an open circuit.
HINT:
Refer to the ”TIRE PRESSURE WARNING LAMP CHART” section in the ”PRE-CHECK” for the tire pressure warning lamp (See page 05-347 ).

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CONFIRM VEHICLE MODELS |
|---|---|

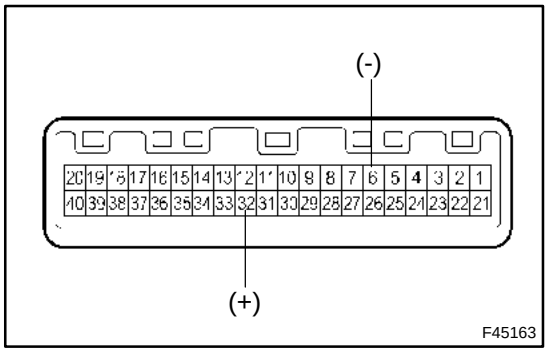
(a) Confirm the vehicle models.
**Result:**

| | |
|---|---|
| w/o VSC | A |
| w/ VSC | B |

**B** → **Go to step 4**

**A**

| 2 | INSPECT COMBINATION METER ASSY(TIRE PRESSURE WARNING LAMP) |
|---|---|

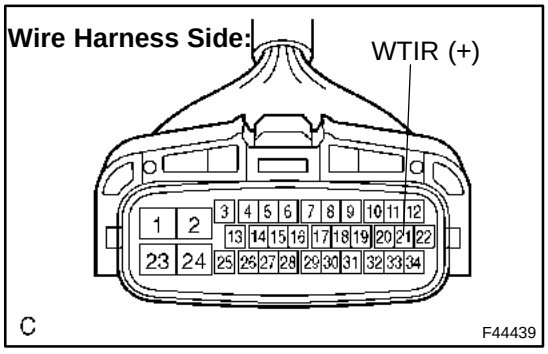



(a) Disconnect the combination meter connector.
(b) Connect the terminal 32 to batteries' positive (+) terminal, and terminal 6 to batteries' negative (-) terminal of combination meter assy, then check that the tire pressure warning lamp comes on.
**Standard:**
**Tire pressure warning lamp comes on.**

**NG** → **REPLACE COMBINATION METER ASSY (See page 71-20 )**

**OK**

| 3 | CHECK HARNESS AND CONNECTOR(BRAKE ACTUATOR ASSY - COMBINATION METER ASSY) |
|---|---|




(a) Connect the combination meter assy connector.
(b) Disconnect the brake actuator assy connector.
(c) Turn the ignition switch ON.
(d) Measure the voltage between the terminal 21 (WTIR) of the brake actuator assy wire harness side connector and the body ground when tire pressure warning lamp comes on.
**Standard:**
**10 to 14 V**

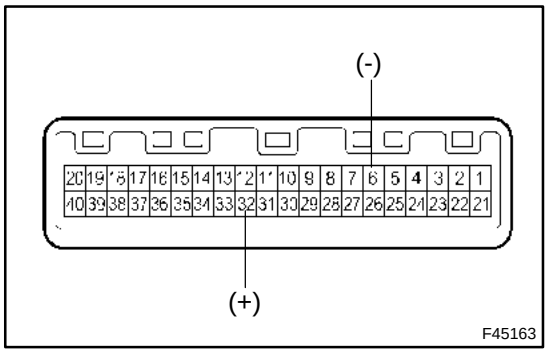
**NOTICE:**
**As a water proof connector cannot be checked be from the backside, check by connecting the sub-harness.**

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-364 )**

| 4 | INSPECT COMBINATION METER ASSY(TIRE PRESSURE WARNING LAMP) |
|---|---|

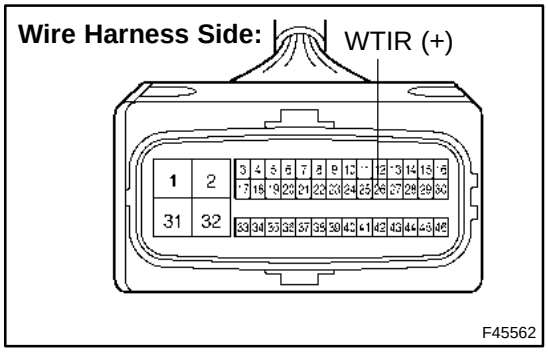



(a) Disconnect the combination meter connector.
(b) Connect the terminal 32 to batteries' positive (+) terminal, and terminal 6 to batteries' negative (-) terminal of combination meter assy, then check that the tire pressure warning lamp comes on.
**Standard:**
**Tire pressure warning lamp comes on.**

| NG | REPLACE COMBINATION METER ASSY (See page 71-20 ) |
|---|---|

**OK**

| 5 | CHECK HARNESS AND CONNECTOR(BRAKE ACTUATOR ASSY - COMBINATION METER ASSY) |
|---|---|




(a) Connect the combination meter connector.
(b) Disconnect the brake actuator assy.
(c) Turn the ignition switch ON.
(d) Measure the voltage between the terminal 26 (WTIR) of the brake actuator assy wire harness side connector and the body ground when tire pressure warning lamp comes on.
**Standard:**
**10 to 14 V**

**NOTICE:**
**As a water proof connector cannot be checked be from the backside, check by connecting the sub-harness.**

| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |
|---|---|

**OK**

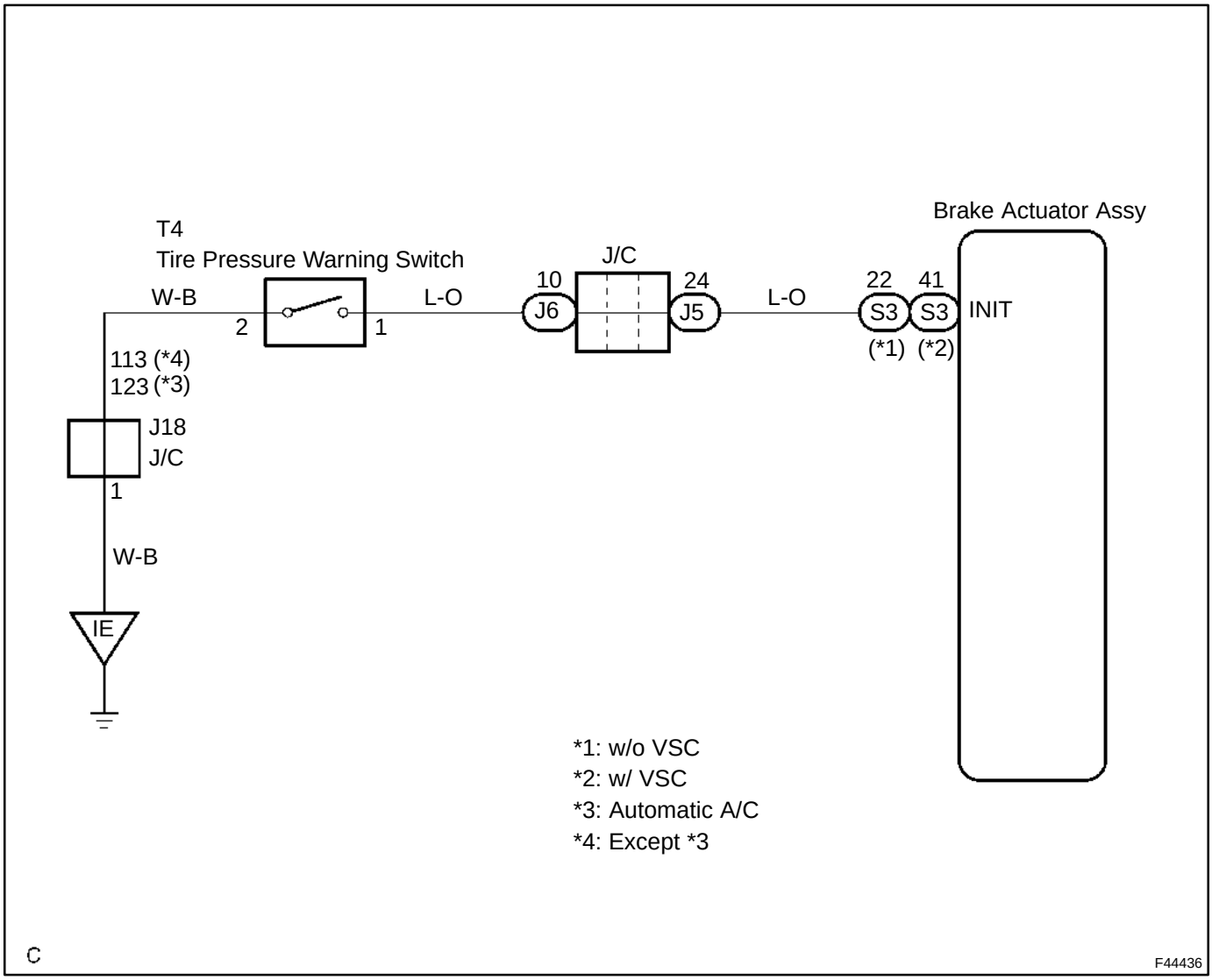
**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-364 )**

# TIRE PRESSURE WARNING SWITCH CIRCUIT

## CIRCUIT DESCRIPTION

Receiving the signal from the tire pressure warning switch, the skid control ECU indicates the initialization of the tire pressure warning system.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CONFIRM VEHICLE MODELS |
|---|---|

(a) Confirm the vehicle models.
**Result:**

| | |
|---|---|
| w/o VSC | A |
| w/ VSC | B |

**B** → **Go to step 5**

**A**

| 2 | CHECK TIRE PRESSURE WARNING SWITCH FUNCTION (See page 05-347 ) |
|---|---|

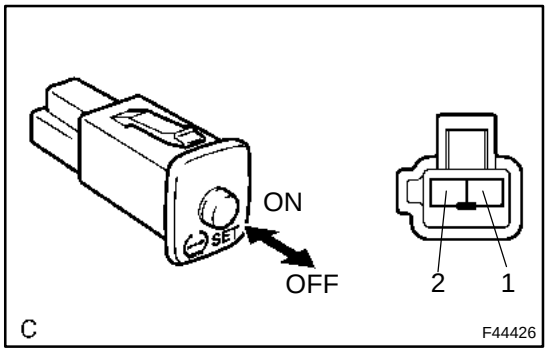
**Standard:**
**Tire pressure warning switch function normal.**

**NG** → **Go to step 3**

**OK**

**CHECK AIR PRESSURE OF TIRE AND ADJUST IT TO SPECIFIED PRESSURE, AFTER THEN INITIALIZE THIS SYSTEM**

| 3 | INSPECT TIRE PRESSURE WARNING SWITCH |
|---|---|



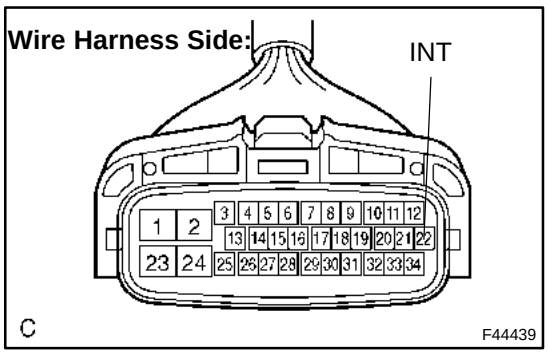

(a) Disconnect the tire pressure warning switch connector.
(b) Measure the resistance between the terminal 1 and 2 of the tire pressure warning switch when the tire pressure warning switch is ON and OFF.
**Standard:**

| Switch condition | Specified condition |
|---|---|
| ON | Below 1 Ω |
| OFF | 10 kΩ or higher |

**NG** → **REPLACE TIRE PRESSURE WARNING SWITCH**

**OK**

| 4 | CHECK HARNESS AND CONNECTOR(TIRE PRESSURE WARNING SWITCH - BRAKE ACUTUATOR ASSY) |
|---|---|




(a) Connect the tire pressure warning switch connector.
(b) Disconnect the brake actuator assy connector.
(c) Measure the resistance between the terminal 22 (INT) of brake actuator wire harness side connector and the body ground when the tire pressure warning switch is ON and OFF.

**Standard:**

| Switch condition | Specified condition |
|---|---|
| ON | Below 1 Ω |
| OFF | 10 kΩ or higher |

**NOTICE:**
**As a water proof connector cannot be checked be from the backside, check by connecting the sub-harness.**

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-364 )**

| 5 | CHECK TIRE PRESSURE WARNING SWITCH FUNCTION (See page 05-347 ) |
|---|---|

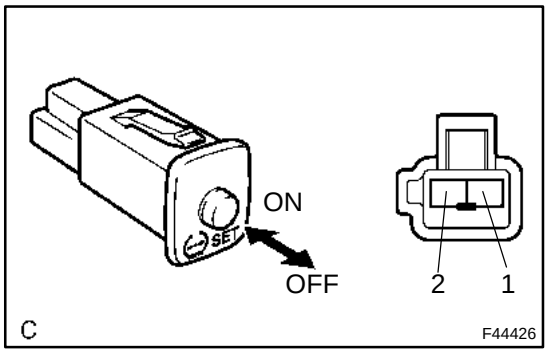
**Standard:**
**Tire pressure warning switch function normal.**

**NG** → **Go to step 6**

**OK**

**AIR PRESSURE OF TIRE AND ADJUST IT TO SPECIFIED PRESSURE, AFTER THEN INITIALIZE THIS SYSTEM**

## 6 INSPECT TIRE PRESSURE WARNING SWITCH




(a) Disconnect the tire pressure warning switch connector.
(b) Measure the resistance between the terminal 1 and 2 of the tire pressure warning switch when the tire pressure warning switch is ON and OFF.

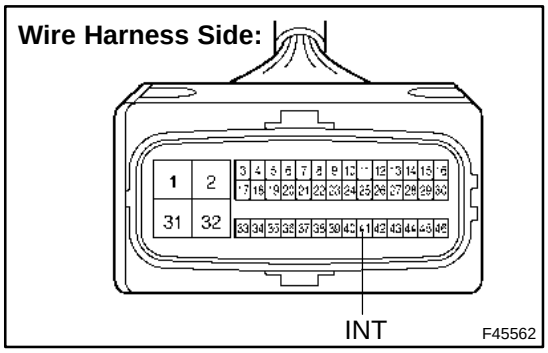
**Standard:**

| Switch condition | Specified condition |
|---|---|
| ON | Below 1 Ω |
| OFF | 10 kΩ or higher |

**NG** → **REPLACE TIRE PRESSURE WARNING SWITCH**

**OK**

## 7 CHECK HARNESS AND CONNECTOR(TIRE PRESSURE WARNING SWITCH - BRAKE ACTUATOR ASSY)




(a) Connect the tire pressure warning switch connector.
(b) Disconnect the brake actuator assy connector.
(c) Measure the resistance between the terminal 41 (INIT) of the brake actuator assy wire harness side connector and body ground when tire pressure warning switch is ON and OFF.

**Standard:**

| Switch condition | Specified condition |
|---|---|
| ON | Below 1 Ω |
| OFF | 10 kΩ or higher |

**NOTICE:**

**As a water proof connector cannot be checked be from the backside, check by connecting the sub-harness.**

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

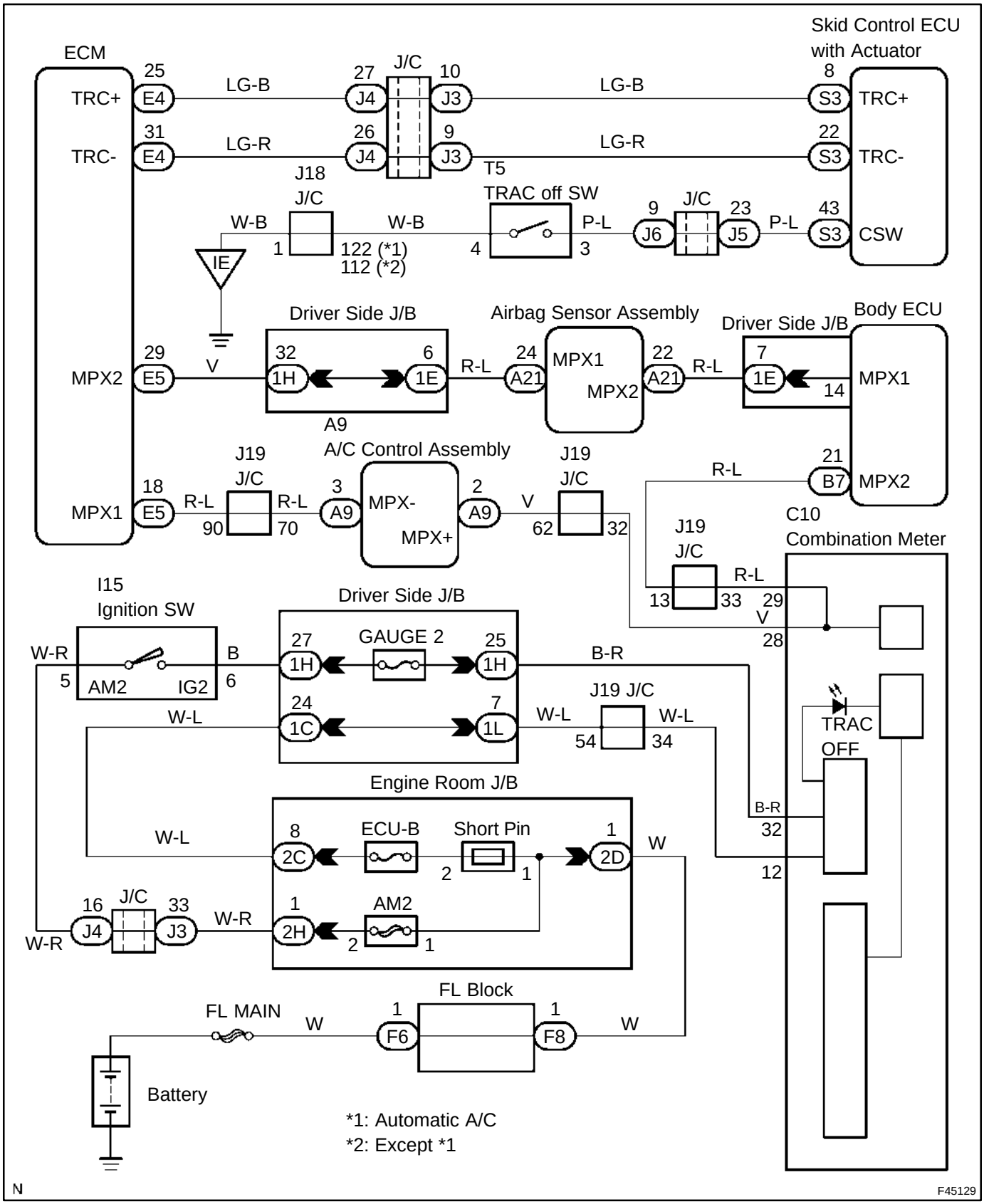
**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-364 )**

# TRAC OFF INDICATOR LIGHT, TRAC OFF SWITCH CIRCUIT

## CIRCUIT DESCRIPTION

This is the TRAC control main switch. When the TRAC cut switch is turned on, the TRAC control goes off and the TRAC OFF indicator lights up. If the ignition switch is turned OFF, TRAC control surely comes on the next time the ignition switch is turned ON.

# WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

Start the inspection from step 1 if you are using the hand-held tester and start from step 2 if you are not using the hand-held tester.

| 1 | PERFORM ACTIVE TEST BY HAND-HELD TESTER(TRAC OFF INDICATOR LIGHT) |
|---|---|

(a) Connect the hand-held tester to the DLC3.
(b) Start the engine.
(c) Select the item "TRAC OFF LIGHT" in the ACTIVE TEST and operate the TRAC OFF indicator light with the hand-held tester.
(d) Check that "ON" and "OFF" of the TRAC OFF indicator light is shown on the combination meter by the hand-held tester.

**OK** → **Go to step 4**

**NG**

| 2 | INSPECT MULTIPLEX COMMUNCATION SYSTEM(See page 05-1876 ) |
|---|---|

**NG** → **MULTIPLEX COMMUNCATION SYSTEM**

**OK**

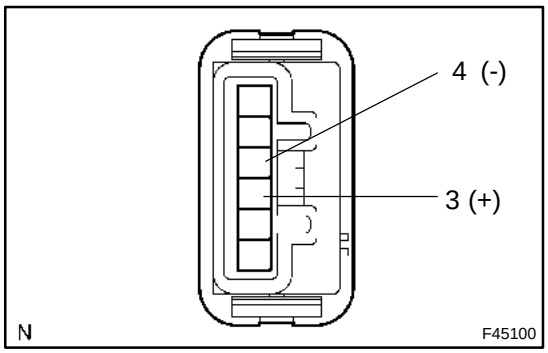
| 3 | CHECK HARNESS AND CONNECTOR(ECM - SKID CONTROL ECU) |
|---|---|

(a) Check for open or short circuit in harness and connector between terminals TRC+ and TRC- of the ECM and terminals TRC+ and TRC- of the skid control ECU (See page 01-37 ).

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

| 4 | INSPECT TRACTION CONTROL SWITCH |
|---|---|




(a) Remove the TRAC control switch.
(b) Disconnect the TRAC control switch connector.
(c) Measure resistance between terminals 3 and 4 of the TRAC control switch when TRAC control switch is on and off.

**OK:**

| TRAC cut switch | Resistance |
|---|---|
| Pushed in | Continuity |

**NG** → **REPLACE TRACTION CONTROL SWITCH**

**OK**

| | |
|---|---|
| 5 | **CHECK HARNESS AND CONNECTOR(SKID CONTROL ECU - TRAC OFF SWITCH)** |

(a) Check for an open or short circuit in harness and connector between the TRAC OFFswitch and skid control ECU (See page 01-37 ).

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

| | |
|---|---|
| 6 | **CHECK COMBINATION METER ASSEMBLY(TRAC OFF INDICATOR LIGHT) (See page 71-1 )** |

**NG** → **REPAIR OR REPLACE COMBINATION METER ASSEMBLY**

**OK**

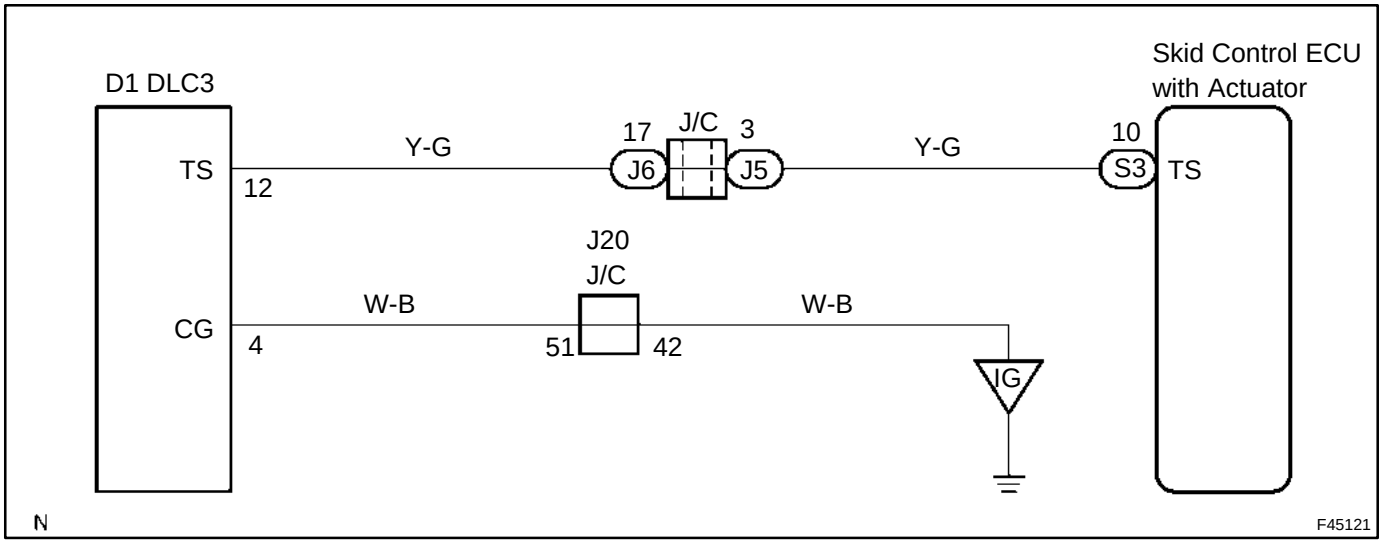
**REPLACE ABS & TRACTION ACTUATOR ASSY(See page 32-46 )**

# Ts Terminal Circuit

## CIRCUIT DESCRIPTION

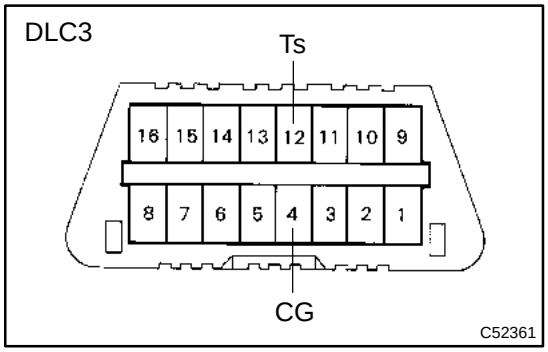
The sensor check circuit detects troubles in the speed sensor signal which cannot be detected by the DTC check.
Connecting terminals Ts and CG of the DLC3 starts the check.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT DLC3 TERMINAL VOLTAGE(Ts TERMINAL) |
|---|---|




(a) Turn the ignition switch ON.
(b) Measure the voltage between terminals Ts and CG of the DLC3.
**OK:**
**Voltage: 10 to 14 V**

| OK | Go to step 3 |
|---|---|

**NG**

| 2 | CHECK HARNESS AND CONNECTOR(DLC3 - BODY GROUND) |
|---|---|

(a) Check for an open circuit in harness and connector between terminal CG of the DLC3 and body ground (See page 01-37 ).

| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |
|---|---|

**OK**

| 3 | CHECK HARNESS AND CONNECTOR(SKID CONTROL ECU - DLC3) |
|---|---|

(a) Check for an open and short circuit in harness and connector between terminal Ts of the DLC3 and skid control ECU (See page 01-37 ).

| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |
|---|---|

**OK**

**REPLACE BRAKE ACTUATOR ASSY (See page 32-43 )**

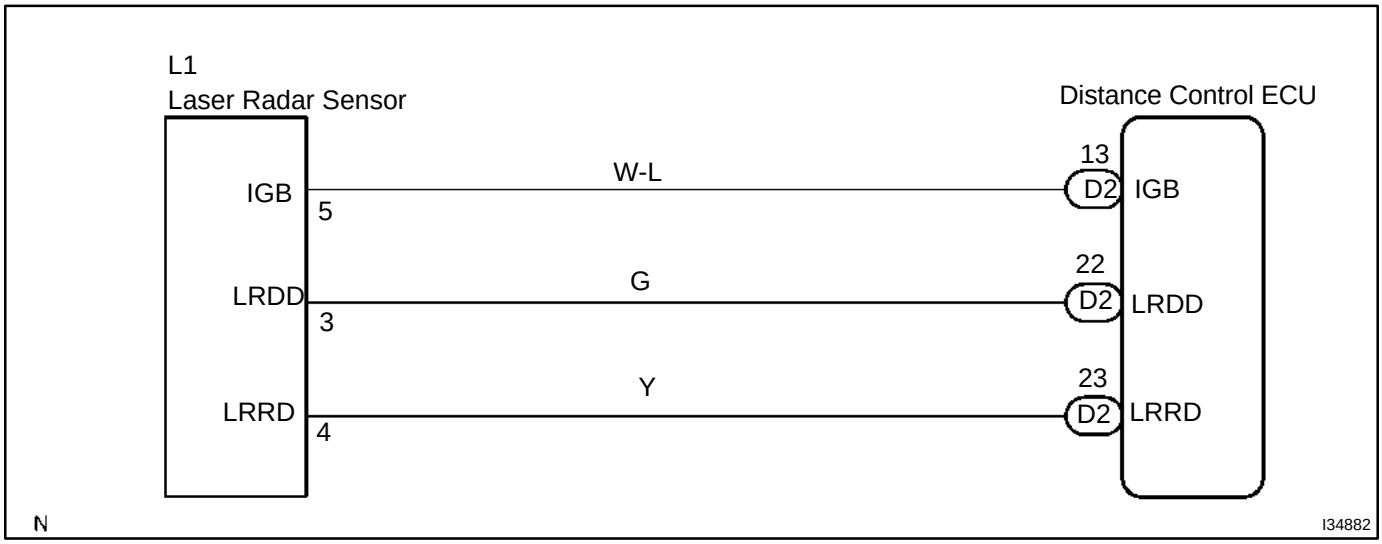
| DTC | U0235/72 | COMMUNICATION ERROR FROM DISTANCE CONTROL ECU TO LASER RADAR SENSOR |
|---|---|---|

## CIRCUIT DESCRIPTION

The laser radar sensor and distance control ECU always communicate the data for vehicle general control and diagnosis function each other via communication line.
The distance control ECU determines the presumed R information based on the signal from the steering wheel and yaw rate sensor.
The distance control ECU transmits the current vehicle speed and presumed R information to the laser radar sensor.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| U0235/72 | The malfunction code is output when the ECM detects the communication error signal from the distance control ECU to the laser radar sensor for 0.15 sec. or more while the dynamic laser cruise control is in operation. | • Communication circuit<br>• Laser radar sensor<br>• Distance control ECU |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

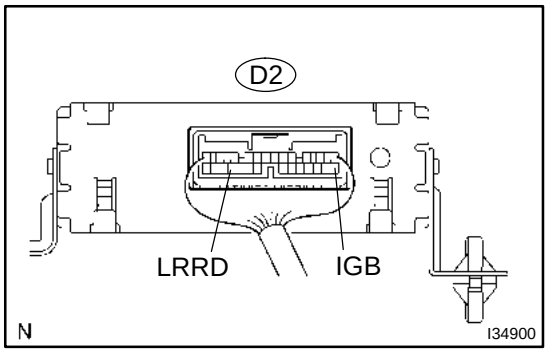
| 1 | CHECK WIRE HARNESS AND CONNECTOR(DISTANCE CONTROL ECU - LASER RADAR SENSOR) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the distance control ECU and the laser radar sensor (See page 01-37 ).

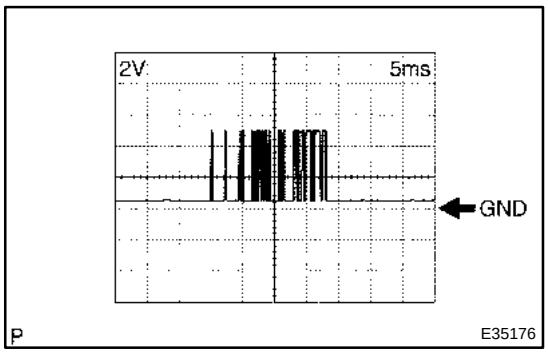
NG → **REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR**

OK

| 2 | INSPECT DISTANCE CONTROL ECU ASSY |
|---|---|




(a) Remove the distance control ECU with connector.
(b) Turn the ignition switch ON.
(c) Measure the voltage between terminal IGB (D2-13) of distance control ECU and body ground.
**Standard:**
**10 to 14 V**




(d) Check the signal waveform between terminal LRRD (D2-23) of distance control ECU and body ground.
**Standard:**
**The connect signal waveform appears, as shown in the illustration.**

HINT:
- Gauge set: 2 V/DIV, 5 ms/DIV
- Condition: Ignition switch ON

NG → **REPLACE DISTANCE CONTROL ECU ASSY (See page 82-1 )**

OK

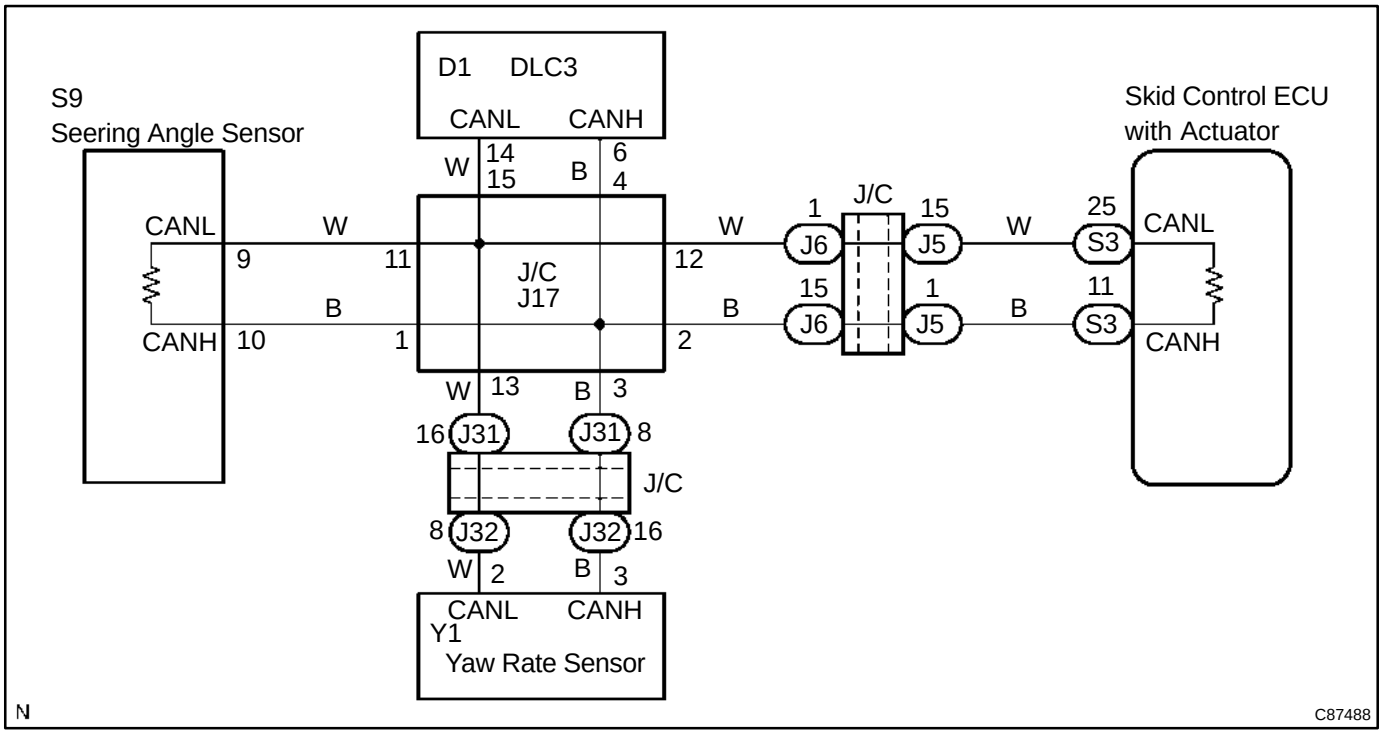
**REPLACE LASER RADAR SENSOR**

# SKID CONTROL ECU COMMUNICATION STOP MODE

## CIRCUIT DESCRIPTION

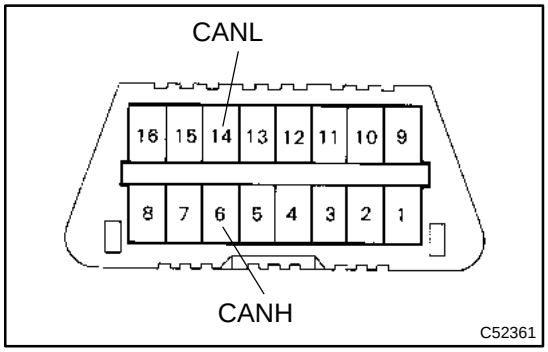
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| U0121/94 | • Data transmission from VSC ECU is not finished for more than 5 sec.<br>• The condition that CAN bus-off status occurs once or more within 0.1 sec., and it repeatedly occurs 10 times. | • Open circuit for between skid control ECU and junction connector<br>• Short circuit between CANL circuit and CANH circuit<br>• Short (GND) circuit in CANL circuit<br>• Short (+B) circuit in CANL circuit<br>• Skid control ECU |
| U0123/62 | • When ECU terminal IG1 voltage is 9.5 V or more, the data is not received from yaw rate sensor for more than 1 sec.<br>• When ECU terminal IG1 voltage is 9.5 V or more, the condition that the data received from yaw rate sensor is impossible once or more within 5 sec., and it repeatedly occurs 10 times. | • Open circuit for between yaw rate sensor and junction connector<br>• Yaw rate sensor |
| U0124/95 | • When ECU terminal IG1 voltage is 9.5 V or more, data is not received from deceleration sensor for more than 1 sec.<br>• When ECU terminal IG1 voltage is 9.5 V or more, data received from deceleration sensor is impossible once or more within 5 sec., and it repeatedly occurs 10 times. | • Open circuit for between yaw rate sensor and junction connector<br>• Yaw rate sensor |
| U0126/63 | • When ECU terminal IG1 voltage is 9.5 V or more, data is not received from steering angle sensor for more than 1 sec.<br>• When ECU terminal IG1 voltage is 9.5 V or more, data received from steering angle sensor is impossible once or more within 5 sec., and it repeatedly occurs 10 times. | • Open circuit for between steering angle sensor and junction connector<br>• Steering angle sensor |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CHECK RESISTANCE(CANL - CANH OF DLC3) |
|---|---|




(a) Measure the resistance between the terminals CANL and CANH of the DLC3.

| | |
|---|---|
| A | 54 to 66 Ω |
| B | 1 MΩ or more |
| C | Less than 54 Ω |
| D | 108 to 132 Ω |

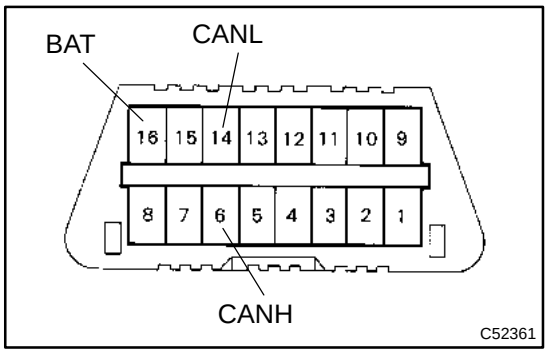
**B** → **Go to step 4**

**C** → **Go to step 8**

**D** → **Go to step 5**

**A**

| 2 | CHECK HARNESS AND CONNECTOR(CANL CIRCUIT - +B CIRCUIT, CANH CIRCUIT - +B CIRCUIT) |
|---|---|



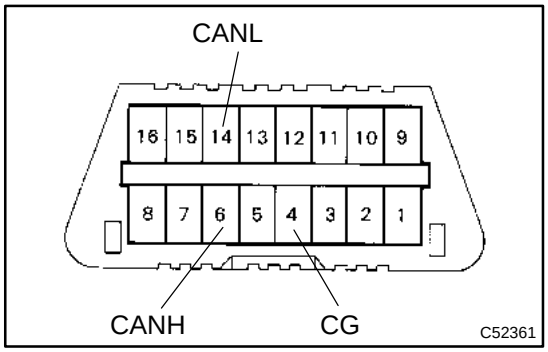

(a) Measure the resistance between the terminals CANL and BAT of the DLC3.
**OK:**
**Resistance: 1 MΩ or higher**

(b) Measure the resistance between the terminal CANH and BAT of the DLC3.
**OK:**
**Resistance: 1 MΩ or higher**

**NG** → **Go to step 15**

**OK**

| 3 | CHECK HARNESS AND CONNECTOR(CANL CIRCUIT - GROUND CIRCUIT, CANH CIRCUIT - GROUND CIRCUIT) |
|---|---|




(a) Measure the resistance between the terminals CANL and CG of the DLC3.
**OK:**
**Resistance: 1 MΩ or higher**

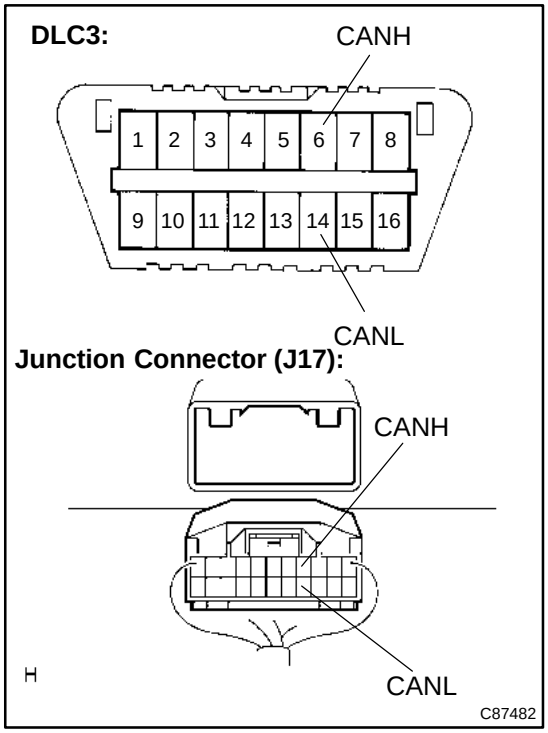
(b) Measure the resistance between the terminal CANH and CG of the DLC3.
**OK:**
**Resistance: 1 MΩ or higher**

**NG** → **Go to step 23**

**OK**

**IF THE SAME CODE IS STILL OUTPUT AFTER THE DTC IS DELETED, CHECK THE CONTACT CONDITION OF EACH CONNECTION**

## 4 CHECK HARNESS AND CONNECTOR(JUNCTION CONNECTOR(J17) - DLC3)



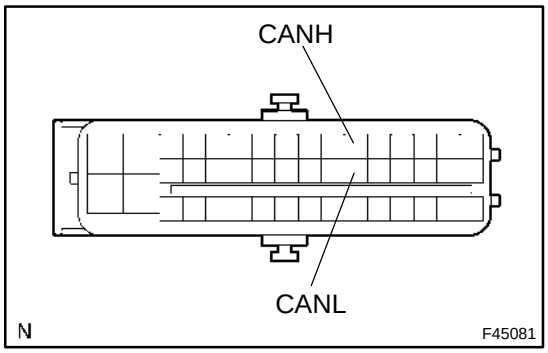

(a) Disconnect the junction connector (J17).
(b) Measure the resistance between the terminal CANL of the DLC3 and CANL of the junction connector (J17).
**OK:**
**Resistance: 1 Ω or less**
(c) Measure the resistance between the terminal CANH of the DLC3 and CANH of the junction connector (J17).
**OK:**
**Resistance: 1 Ω or less**

**OK** → **Go to step 1**

**NG**

**REPAIR OR REPLACE HARNESS OR CONNECTOR AND GO TO STEP 1**

## 5 CHECK HARNESS AND CONNECTOR(CAN BUS CIRCUIT)

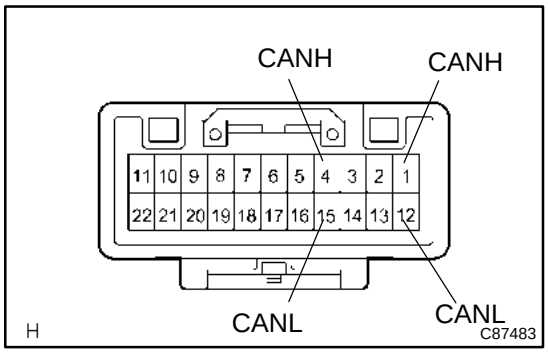



(a) Disconnect the skid control ECU connector.
(b) Measure the resistance between the terminals CANL and CANH of the skid control ECU wire harness side connector.
**OK:**
**Resistance: 108 to 132 Ω**

**OK** → **Go to step 7**

**NG**

## 6 CHECK JUNCTION CONNECTOR(J17)



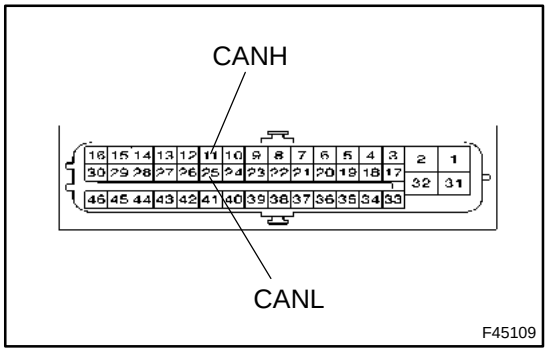

(a) Disconnect the junction connector (J17).
(b) Measure the resistance between the terminals 1 and 4 of the junction connector.
**OK:**
**Resistance: 1 Ω or less**
(c) Measure the resistance between the terminals 12 and 15 of the junction connector.
**OK:**
**Resistance: 1 Ω or less**

**NG** → **REPLACE JUNCTION CONNECTOR**

**OK**

**REPAIR OR REPLACE HARNESS OR CONNECTOR(SKID CONTROL ECU - JUNCTION CONNECTOR)**

## 7 CHECK RESISTANCE(CANL - CANH OF SKID CONTROL ECU)



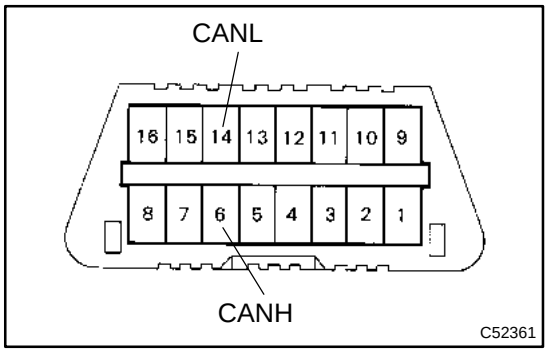

(a) Disconnect the skid control ECU connector.
(b) Measure the resistance between the terminals CANL and CANH of the skid control ECU.
**OK:**
**Resistance: 108 to 132 Ω**

**NG** → **REPLACE ABS & TRACTION ACTUATOR ASSY**

**OK**

**IF THE SAME CODE IS STILL OUTPUT AFTER THE DTC IS DELETED, CHECK THE CONTACT CONDITION OF EACH CONNECTION**

## 8 CHECK HARNESS AND CONNECTOR(DLC3 - JUNCTION CONNECTOR(J17))

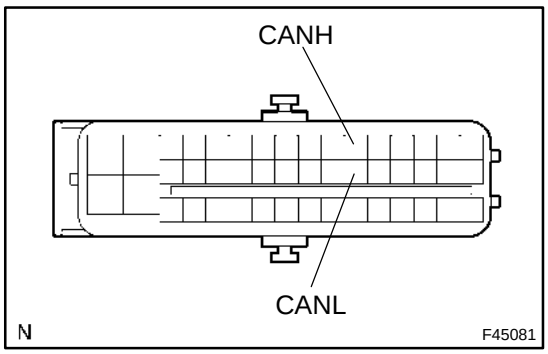



(a) Disconnect the junction connector (J17).
(b) Measure the resistance between the terminals CANL and CANH of the DLC3.
**OK:**
**Resistance: 1 MΩ or higher**

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

| 9 | CHECK HARNESS AND CONNECTOR(SKID CONTROL ECU - JUNCTION CONNECTOR(J17)) |
|---|---|

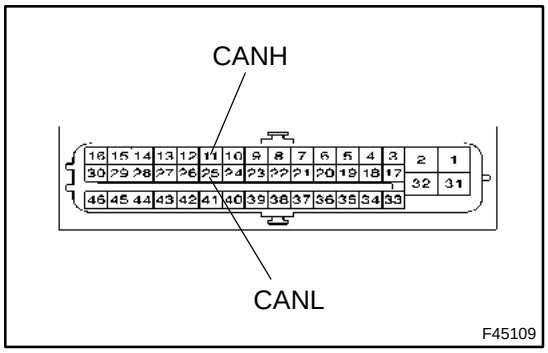



(a) Disconnect the junction connector (J14).
(b) Disconnect the skid control ECU connector.
(c) Measure the resistance between the terminals CANL and CANH of the skid control ECU wire harness side connector.
**OK:**
**Resistance: 1 MΩ or higher**

| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |
|---|---|

**OK**

| 10 | CHECK RESISTANCE(CANL - CANH OF SKID CONTROL ECU) |
|---|---|

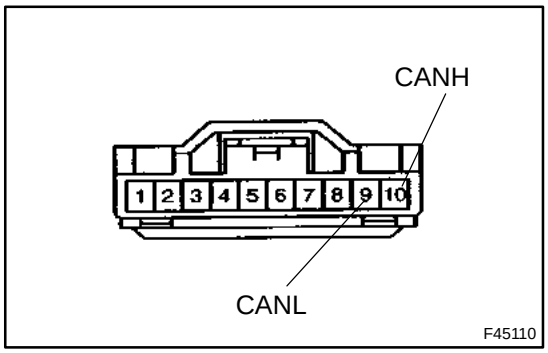



(a) Disconnect the skid control ECU connector.
(b) Measure the resistance between the terminals CANL and CANH of the skid control ECU.
**OK:**
**Resistance: 108 to 132 Ω**

| NG | REPLACE ABS & TRACTION ACTUATOR ASSY |
|---|---|

**OK**

| 11 | CHECK HARNESS AND CONNECTOR(STEERING ANGLE SENSOR - JUNCTION CONNECTOR(J17)) |
|---|---|

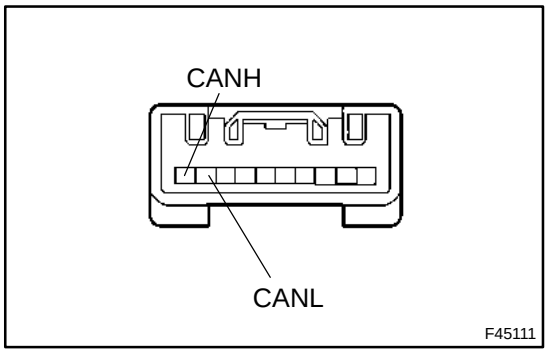



(a) Disconnect the junction connector (J17).
(b) Disconnect the steering angle sensor connector.
(c) Measure the resistance between the terminals CANL and CANH of the steering angle sensor wire harness side connector.
**OK:**
**Resistance: 1 MΩ or higher**

| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |
|---|---|

**OK**

| 12 | CHECK RESISTANCE(CANL - CANH OF STEERING ANGLE SENSOR) |
|---|---|

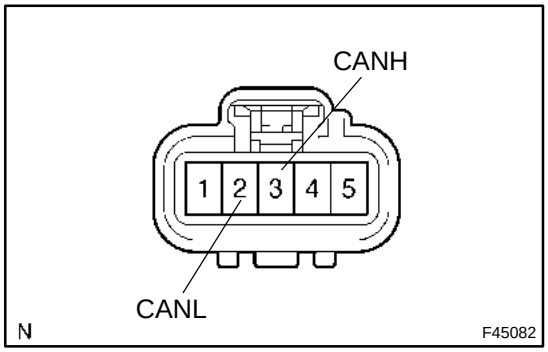



(a) Disconnect the skid control ECU connector.
(b) Measure the resistance between the terminals CANL and CANH of the steering angle sensor.
**OK:**
**Resistance: 108 to 132 Ω**

**NG** → **REPLACE STEERING ANGLE SENSOR**

**OK**

| 13 | CHECK HARNESS AND CONNECTOR(YAW RATE SENSOR - JUNCTION CONNECTOR(J17)) |
|---|---|

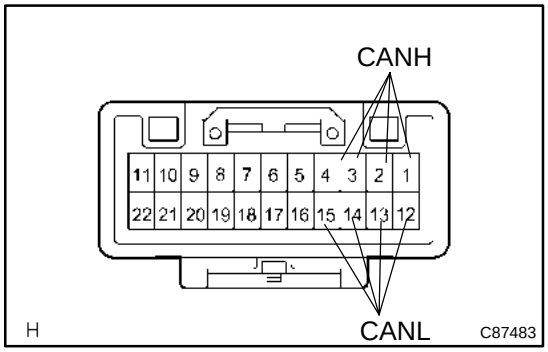



(a) Disconnect the junction connector (J17).
(b) Disconnect the yaw rate sensor connector.
(c) Measure the resistance between the terminals CANL and CANH of the yaw rate sensor wire harness side connector.
**OK:**
**Resistance: 1 MΩ or higher**

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

| 14 | CHECK JUNCTION CONNECTOR(J17) |
|---|---|



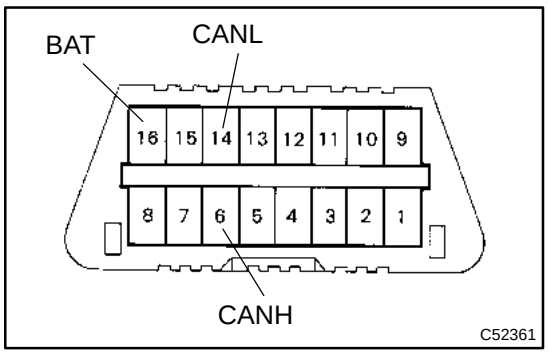

(a) Disconnect the junction connector (J17).
(b) Measure the resistance between the terminals 1, 2, 3 or 4 and 12, 13, 14 or 15 of the junction connector.
**OK:**
**Resistance: 1 MΩ or higher**

**NG** → **REPLACE JUNCTION CONNECTOR**

**OK**

**REPLACE YAW RATE SENSOR**

| 15 | CHECK HARNESS AND CONNECTOR(DLC3 - JUNCTION CONNECTOR (+B SHORT)) |
|---|---|

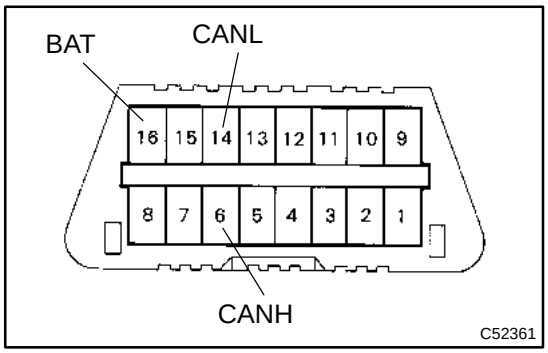



(a) Disconnect the junction connector (J17).
(b) Measure the resistance between the terminals CANL and BAT of the DLC3.
**OK:**
**Resistance: 1 MΩ or more**
(c) Measure the resistance between the terminals CANH and BAT of the DLC3.
**OK:**
**Resistance: 1 MΩ or higher**

| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |
|---|---|

**OK**

| 16 | CHECK SKID CONTROL ECU |
|---|---|

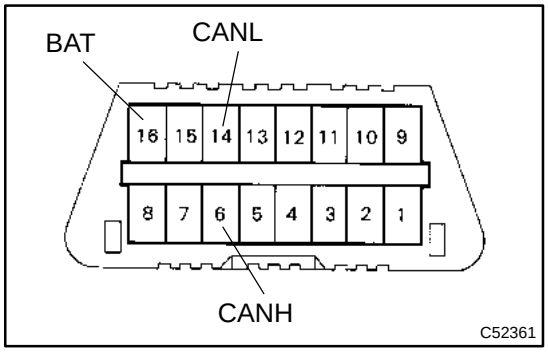



(a) Connect the junction connector (J17).
(b) Disconnect the skid control ECU connector.
(c) Measure the resistance between the terminals CANL and BAT of the DLC3.
**OK:**
**Resistance: 1 MΩ or more**
(d) Measure the resistance between the terminals CANH and BAT of the DLC3.
**OK:**
**Resistance: 1 MΩ or higher**

| OK | REPLACE ABS & TRACTION ACTUATOR ASSY |
|---|---|

**NG**

| 17 | CHECK STEERING ANGLE SENSOR |
|---|---|

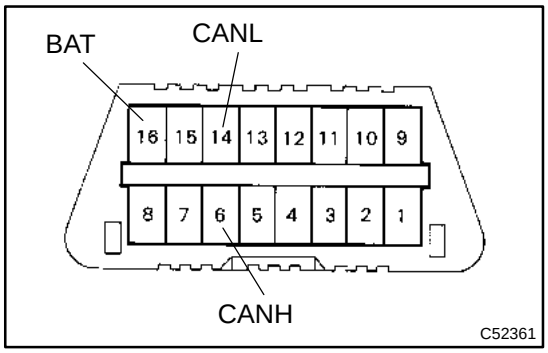



(a) Disconnect the steering angle sensor connector.
(b) Measure resistance between terminals CANL and BAT of the DLC3.
**OK:**
**Resistance: 1 MΩ or more**
(c) Measure resistance between terminals CANH and BAT of the DLC3.
**OK:**
**Resistance: 1 MΩ or higher**

| OK | REPLACE STEERING ANGLE SENSOR |
|---|---|

**NG**

## 18 CHECK YAW RATE SENSOR

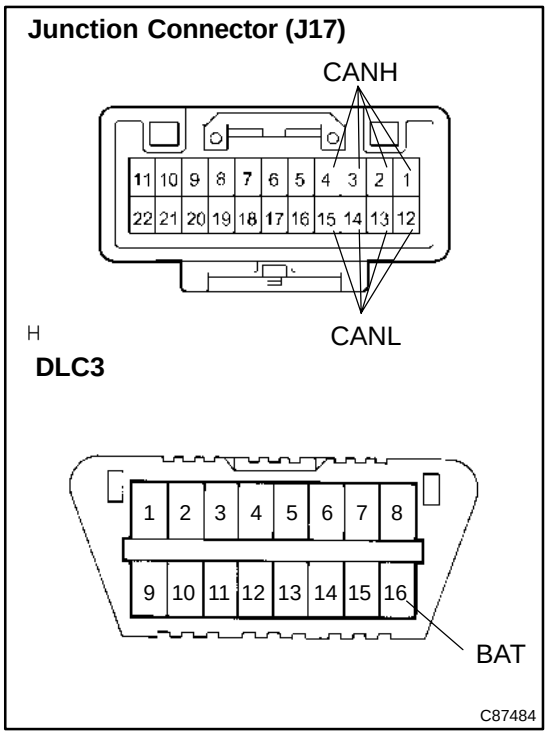



(a) Disconnect the steering angle sensor connector.
(b) Measure the resistance between the terminals CANL and BAT of the DLC3.
**OK:**
**Resistance: 1 MΩ or more**
(c) Measure the resistance between the terminals CANH and BAT of the DLC3.
**OK:**
**Resistance: 1 MΩ or higher**

**OK** → **REPLACE YAWRATE SENSOR**

**NG**

## 19 CHECK AND REPLACE JUNCTION CONNECTOR(J17)

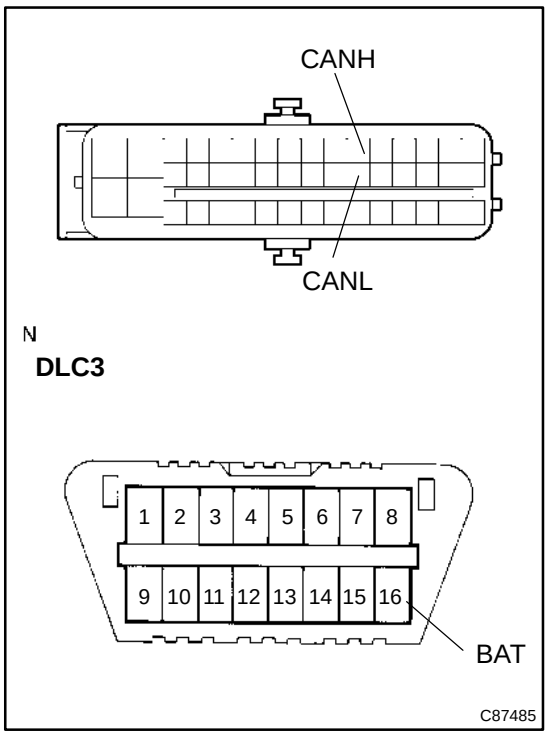



(a) Disconnect the junction connector (J17).
(b) Measure the resistance the between terminal BAT of the DLC3 and any CANL of the junction connector wire harness side connector.
**OK:**
**Resistance: 1 MΩ or more**
(c) Measure the resistance between the terminal BAT of the DLC3 and any CANH of the junction connector wire harness side connector.
**OK:**
**Resistance: 1 MΩ or higher**

**NG** → **REPLACE JUNCTION CONNECTOR**

**OK**

| 20 | CHECK HARNESS AND CONNECTOR(SKID CONTROL ECU - JUNCTION CONNECTOR(J17)) |
|---|---|

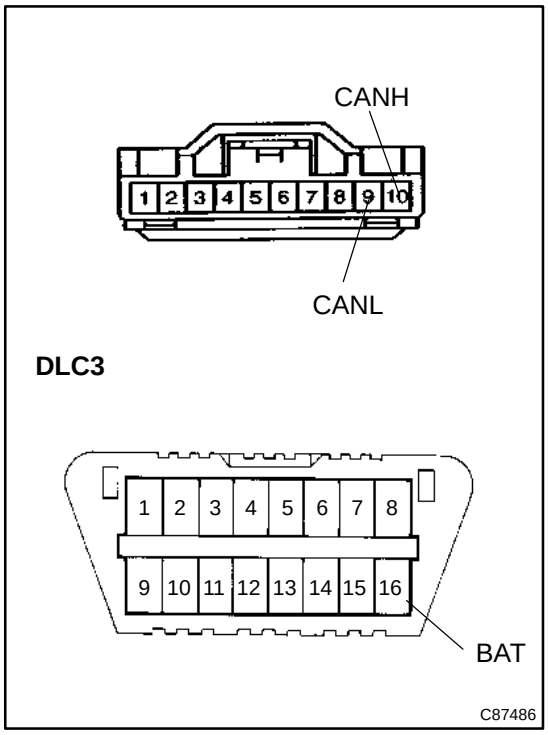



(a) Disconnect the junction connector (J17).
(b) Disconnect the skid control ECU.
(c) Measure the resistance between the terminal CANL of the skid control ECU wire harness side connector and BAT of the DLC3.
**OK:**
**Resistance: 1 MΩ or more**
(d) Measure the resistance between the terminal CANH of the skid control ECU wire harness side connector and BAT of the DLC3.
**OK:**
**Resistance: 1 MΩ or higher**

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

| 21 | CHECK HARNESS AND CONNECTOR(STEERING ANGLE SENSOR - JUNCTION CONNECTOR(J17)) |
|---|---|

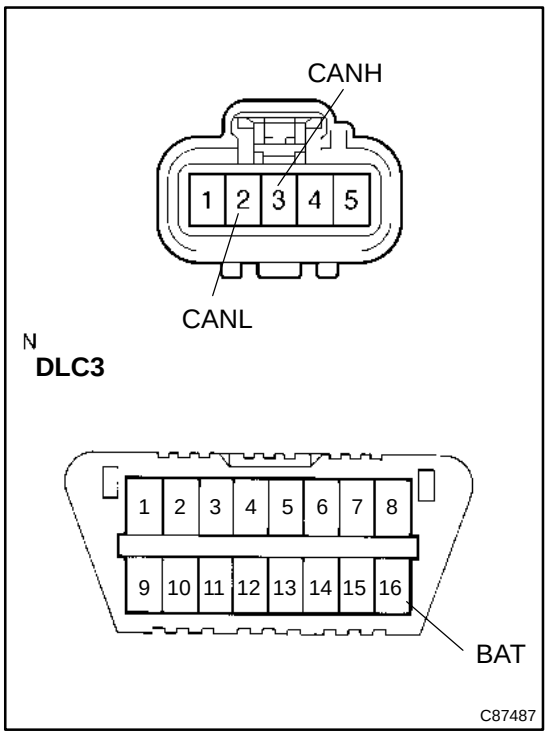



(a) Disconnect the junction connector (J17).
(b) Disconnect the steering angle sensor connector.
(c) Measure the resistance between the terminal CANL of the steering angle sensor wire harness side connector and BAT of the DLC3.
**OK:**
**Resistance: 1 MΩ or more**
(d) Measure the resistance between the terminal CANH of the steering angle sensor wire harness side connector and BAT of the DLC3.
**OK:**
**Resistance: 1 MΩ or higher**

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

| 22 | CHECK HARNESS AND CONNECTOR(YAW RATE SENSOR - JUNCTION CONNECTOR(J17)) |
|---|---|



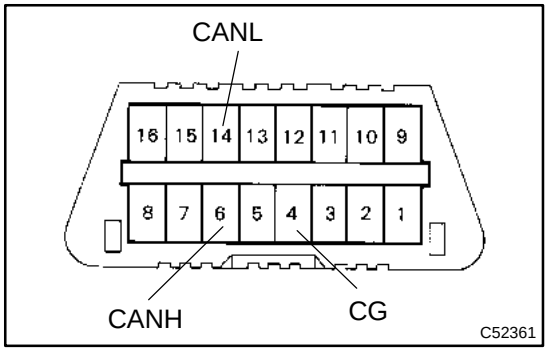

(a) Disconnect the junction connector (J17).
(b) Disconnect the yaw rate sensor connector.
(c) Measure the resistance between the terminal CANL of the yaw rate sensor wire harness side connector and BAT of the DLC3.
**OK:**
**Resistance: 1 MΩ or more**
(d) Measure the resistance between the terminal CANH of the yaw rate sensor wire harness side connector and BAT of the DLC3.
**OK:**
**Resistance: 1 MΩ or higher**

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

**IF THE SAME CODE IS STILL OUTPUT AFTER THE DTC IS DELETED, CHECK THE CONTACT CONDITION OF EACH CONNECTION**

| 23 | CHECK HARNESS AND CONNECTOR(DLC3 - JUNCTION CONNECTOR(GND SHORT)) |
|---|---|

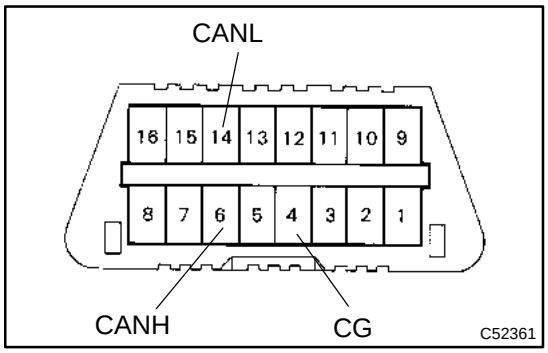



(a) Disconnect the junction connector (J17).
(b) Measure the resistance between the terminals CANL and CG of the DLC3.
**OK:**
**Resistance: 1 MΩ or more**
(c) Measure the resistance between the terminals CANH and CG of the DLC3.
**OK:**
**Resistance: 1 MΩ or higher**

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

## 24 CHECK SKID CONTROL ECU

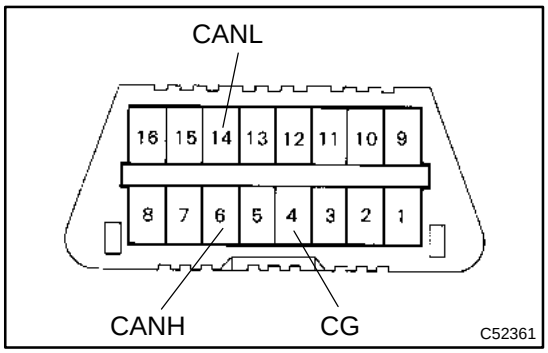



(a) Disconnect the skid control ECU connector.
(b) Measure the resistance between the terminals CANL and CG of the DLC3.
**OK:**
**Resistance: 3 kΩ or more**
(c) Measure the resistance between the terminals CANH and CG of the DLC3.
**OK:**
**Resistance: 3 kΩ or higher**

**OK** > **REPLACE ABS & TRACTION ACTUATOR ASSY**

**NG**

## 25 CHECK STEERING ANGLE SENSOR

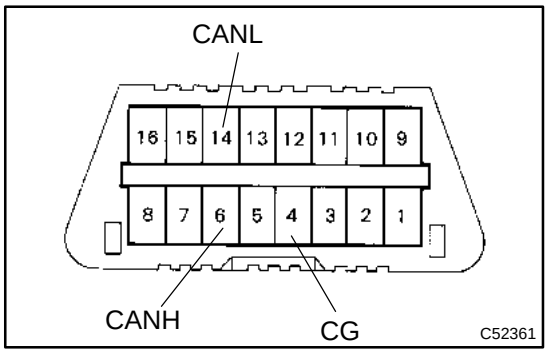



(a) Disconnect the steering angle sensor connector.
(b) Measure the resistance between the terminals CANL and CG of the DLC3.
**OK:**
**Resistance: 3 kΩ or more**
(c) Measure the resistance between the terminals CANH and CG of the DLC3.
**OK:**
**Resistance: 3 kΩ or higher**

**OK** > **REPLACE STEERING ANGLE SENSOR**

**NG**

## 26 CHECK YAW RATE SENSOR

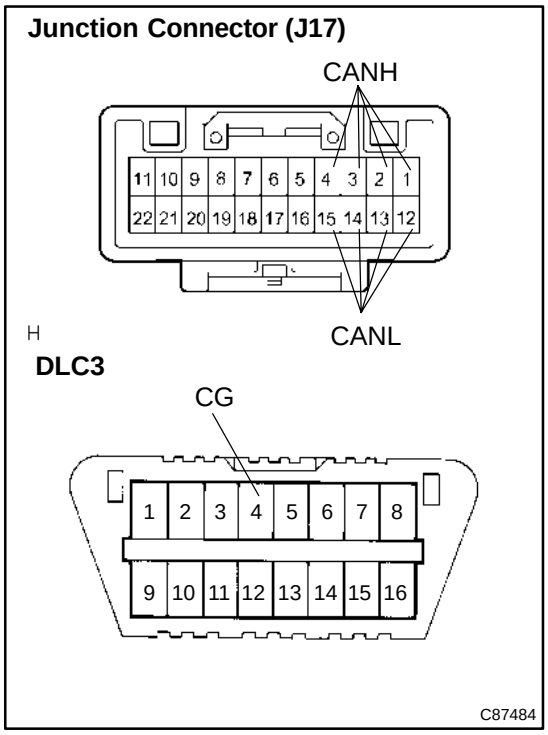



(a) Disconnect the steering angle sensor connector.
(b) Measure the resistance between the terminals CANL and CG of the DLC3.
**OK:**
**Resistance: 3 kΩ or more**
(c) Measure the resistance between the terminals CANH and CG of the DLC3.
**OK:**
**Resistance: 3 kΩ or higher**

**OK** > **REPLACE YAW RATE SENSOR**

**NG**

| 27 | CHECK JUNCTION CONNECTOR(J17) |
|---|---|

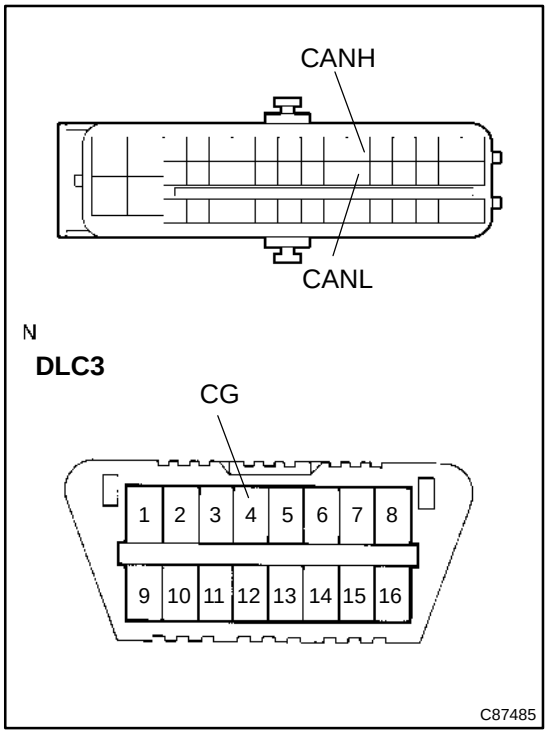



(a) Disconnect the junction connector (J17).
(b) Measure the resistance between the terminal CG of the DLC3 and any CANL of the junction connector wire harness side connector.
**OK:**
**Resistance: 1 MΩ or more**
(c) Measure the resistance between the terminal CG of the DLC3 and any CANH of the junction connector wire harness side connector.
**OK:**
**Resistance: 1 MΩ or higher**

**NG** → **REPLACE JUNCTION CONNECTOR**

**OK**

| 28 | CHECK HARNESS AND CONNECTOR(SKID CONTROL ECU - JUNCTON CONNECTOR(J17)) |
|---|---|

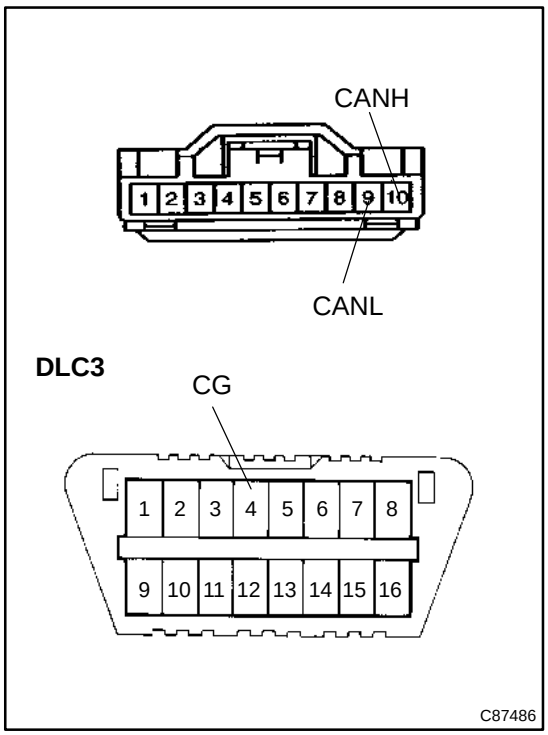



(a) Disconnect the junction connector (J17).
(b) Disconnect the skid control ECU.
(c) Measure the resistance between the terminal CANL of the skid control ECU wire harness side connector and CG of the DLC3.
**OK:**
**Resistance: 1 MΩ or more**
(d) Measure resistance between terminal CANH of the skid control ECU wire harness side connector and CG of the DLC3.
**OK:**
**Resistance: 1 MΩ or higher**

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

| 29 | CHECK HARNESS AND CONNECTOR(STEERING ANGLE SENSOR - JUNCTION CONNECTOR(J17)) |
|---|---|

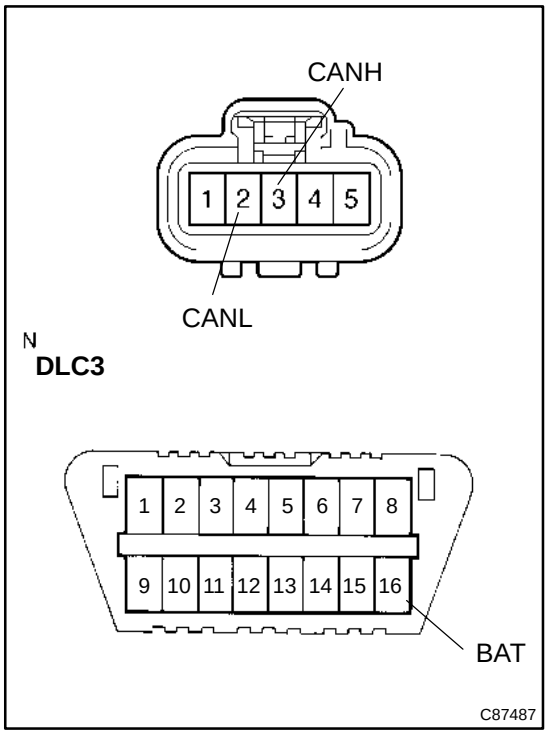



(a) Disconnect the junction connector (J17).
(b) Disconnect the steering angle sensor connector.
(c) Measure the resistance between the terminal CANL of the steering angle sensor wire harness side connector and CG of the DLC3.
**OK:**
**Resistance: 1 MΩ or more**
(d) Measure the resistance between the terminal CANH of the steering angle sensor wire harness side connector and CG of the DLC3.
**OK:**
**Resistance: 1 MΩ or higher**

| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |
|---|---|

**OK**

| 30 | CHECK HARNESS AND CONNECTOR(YAW RATE SENSOR - JUNCTION CONNECTOR(J17)) |
|---|---|




(a) Disconnect the junction connector (J17).
(b) Disconnect the yaw rate sensor connector.
(c) Measure the resistance between the terminal CANL of the yaw rate sensor wire harness side connector and BAT of the DLC3.
**OK:**
**Resistance: 1 MΩ or more**
(d) Measure the resistance between the terminal CANH of the yaw rate sensor wire harness side connector and BAT of the DLC3.
**OK:**
**Resistance: 1 MΩ or higher**

| NG | REPAIR OR REPLACE HARNESS OR CONNECTOR |
|---|---|

**OK**

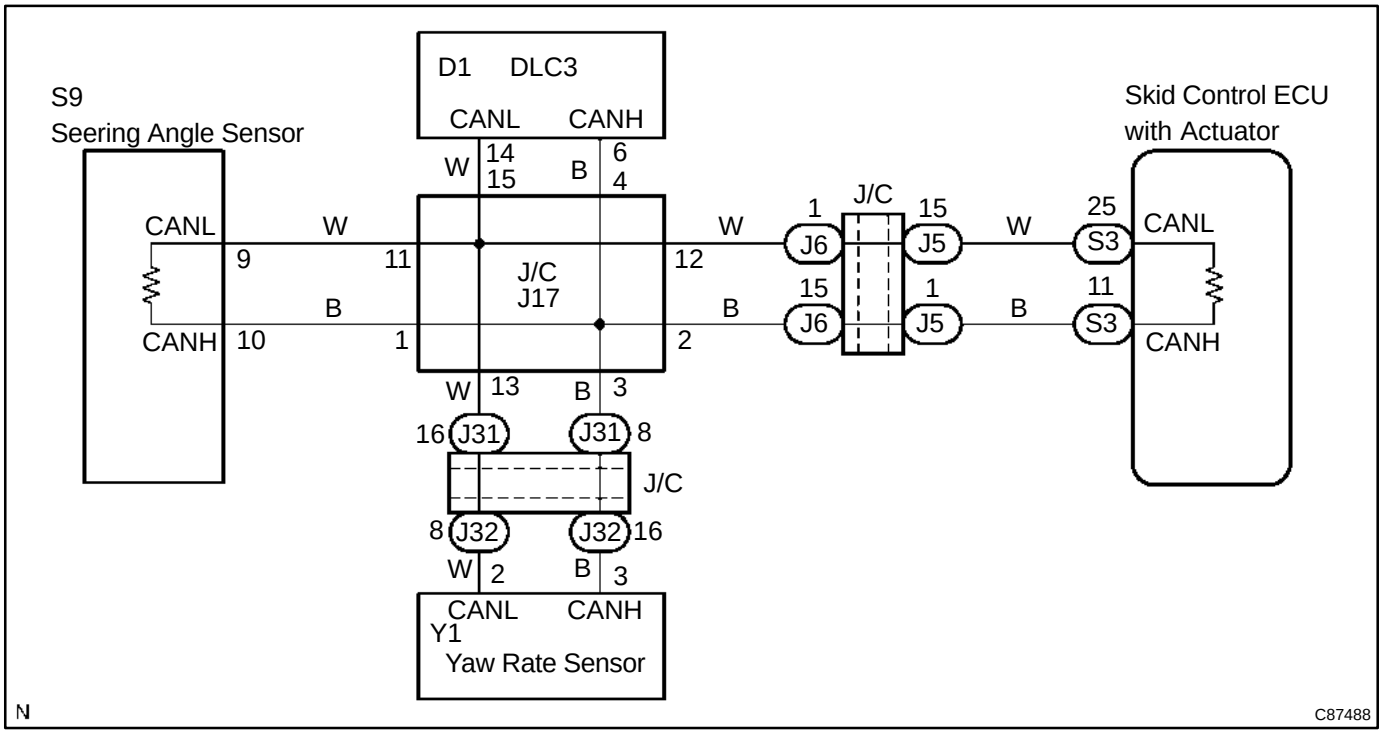
**IF THE SAME CODE IS STILL OUTPUT AFTER THE DTC IS DELETED, CHECK THE CONTACT CONDITION OF EACH CONNECTION**

# YAW RATE SENSOR COMMUNICATION STOP MODE

## CIRCUIT DESCRIPTION

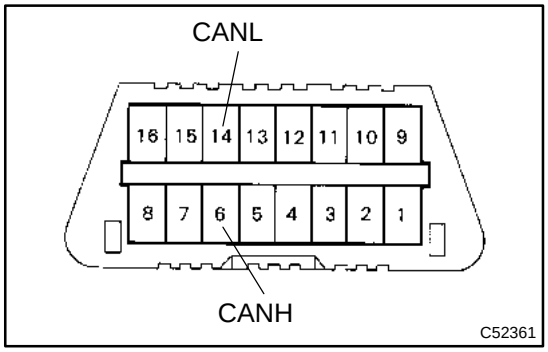
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| U0123/62 | • When ECU terminal IG1 voltage is 9.5 V or more, the data is not received from yaw rate sensor for more than 1 sec.<br>• When ECU terminal IG1 voltage is 9.5 V or more, the data received from yaw rate sensor is impossible once or more within 5 sec., and it repeatedly occurs 10 times. | • Open circuit for between yaw rate sensor and junction connector<br>• Yaw rate sensor |
| U0124/95 | • When ECU terminal IG1 voltage is 9.5 V or more, the data is not received from deceleration sensor for more than 1 sec.<br>• When ECU terminal IG1 voltage is 9.5 V or more, the data received from deceleration sensor is impossible once or more within 5 sec., and it repeatedly occurs 10 times. | • Open circuit for between yaw rate sensor and junction connector<br>• Yaw rate sensor |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | CHECK RESISTANCE(CANL - CANH OF DLC3) |
|---|---|



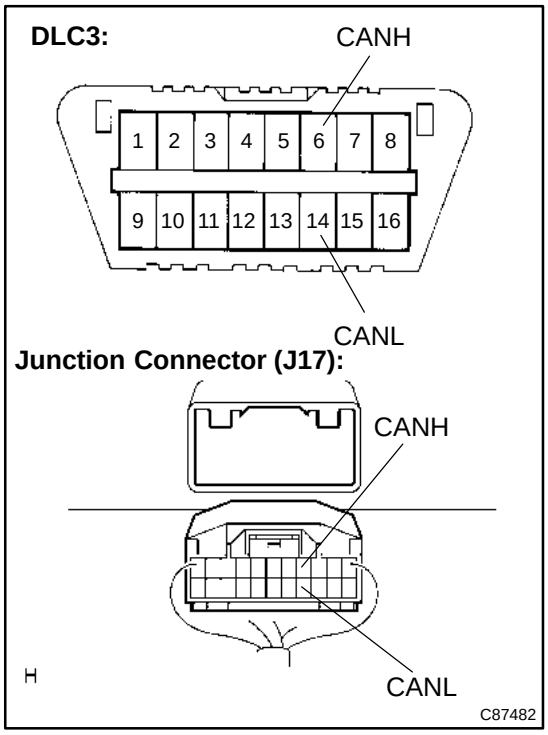

(a) Measure the resistance between the terminals CANL and CANH of the DLC3.

| | |
|---|---|
| A | 54 to 66 Ω |
| B | 1 MΩ or more |

**A** → **Go to step 3**

**B**

| 2 | CHECK HARNESS AND CONNECTOR(SKID CONTROL ECU - DLC3) |
|---|---|



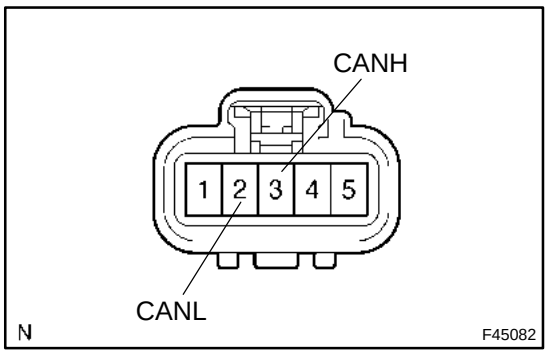

(a) Disconnect the junction connector (J17).
(b) Measure the resistance between the terminal CANL of the DLC3 and CANL of the junction connector (J17).
**OK:**
**Resistance: 1 Ω or less**
(c) Measure the resistance between the terminal CANH of the DLC3 and CANH of the junction connector (J17).
**OK:**
**Resistance: 1 Ω or less**

**OK** → **Go to step 3**

**NG**

**REPAIR OR REPLACE HARNESS OR CONNECTOR AND GO TO STEP 3**

| 3 | CHECK HARNESS AND CONNECTOR(CANL - CANH OF YAW RATE SENSOR CONNECTOR) |
|---|---|

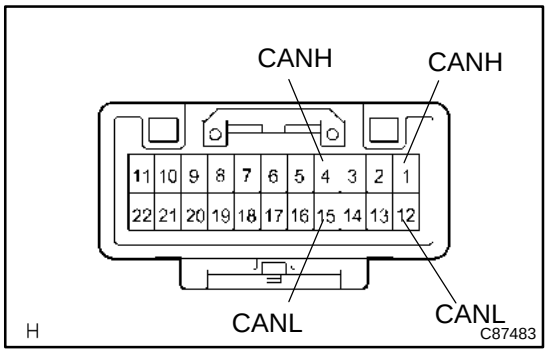



(a) Connect the junction connector (J17).
(b) Disconnect the yaw rate sensor connector.
(c) Measure the resistance between the terminals CANL and CANH of the yaw rate sensor wire harness side connector.
**OK:**
**Resistance: 1 MΩ or higher**

| OK | Go to step 5 |
|---|---|

**NG**

| 4 | CHECK JUNCTION CONNECTOR(J17) |
|---|---|



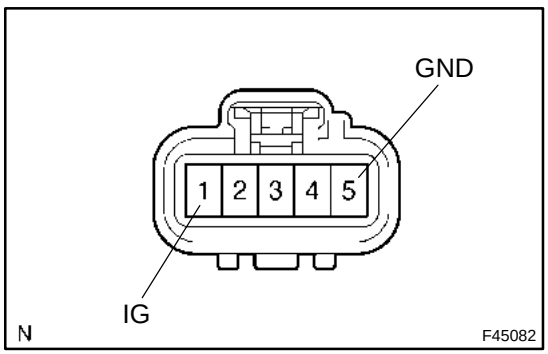

(a) Disconnect the junction connector (J17).
(b) Measure the resistance between the terminals 1 and 4 of the junction connector.
**OK:**
**Resistance: 1 Ω or less**
(c) Measure the resistance between the terminals 12 and 15 of the junction connector.
**OK:**
**Resistance: 1 Ω or less**

| NG | REPLACE JUNCTION CONNECTOR |
|---|---|

**OK**

**REPAIR OR REPLACE HARNESS OR CONNECTOR**

| 5 | CHECK TERMINAL VOLTAGE(YAW RATE SENSOR CONNECTOR) |
|---|---|

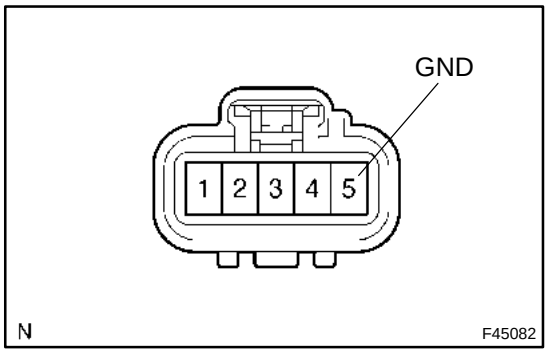



(a) Disconnect the yaw rate sensor connector.
(b) Turn the ignition switch ON.
(c) Measure the voltage between terminals IG and GND of the yaw rate sensor connector.
**OK:**
**Voltage: 10 to 14 V**

| OK | REPAIR OR REPLACE HARNESS OR CONNECTOR |
|---|---|

**NG**

| 6 | CHECK HARNESS AND CONNECTOR(YAW RATE SENSOR - BODY GROUND) |
|---|---|




(a) Disconnect the yaw rate sensor connector.
(b) Measure the resistance between terminal GND of the yaw rate sensor connector and body ground.
**OK:**
**Resistance: 1 Ω or less**

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

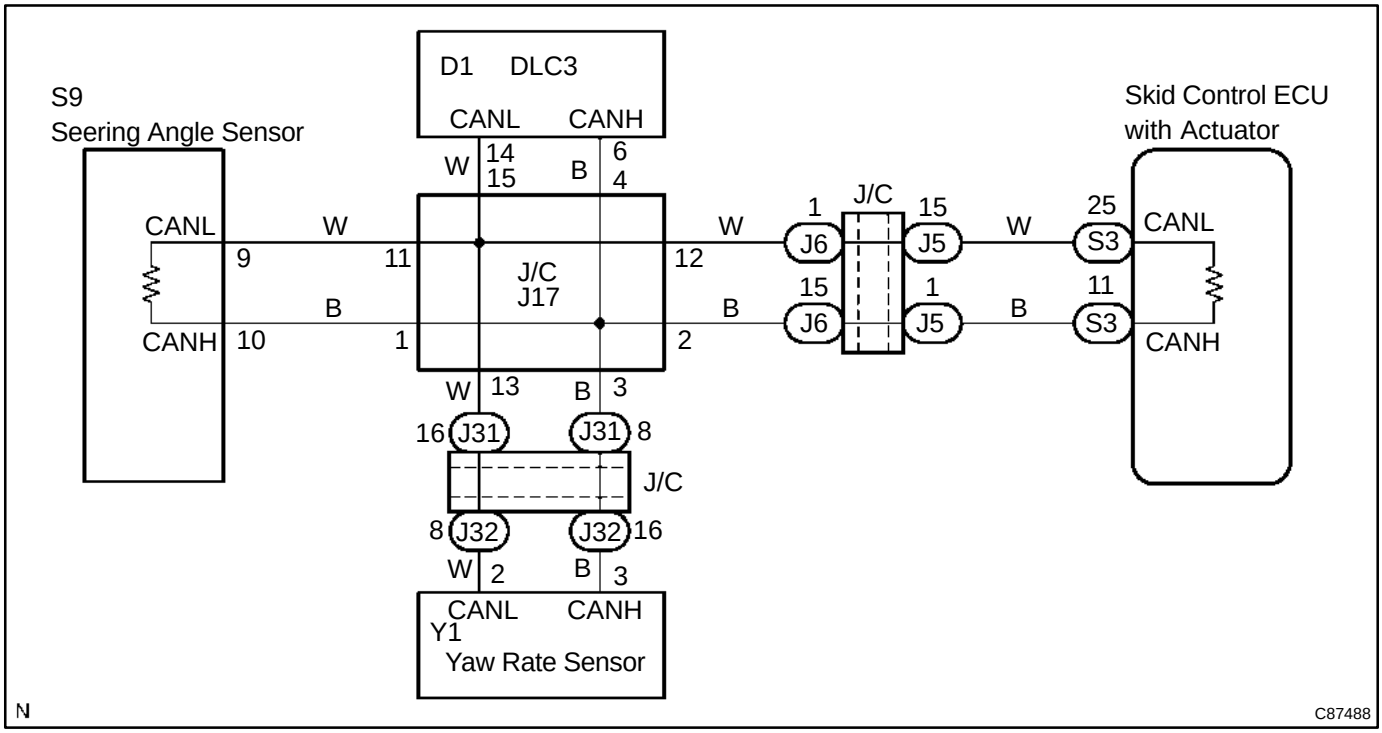
**REPLACE YAW RATE SENSOR**

# STEERING ANGLE SENSOR COMMUNICATION STOP MODE

## CIRCUIT DESCRIPTION

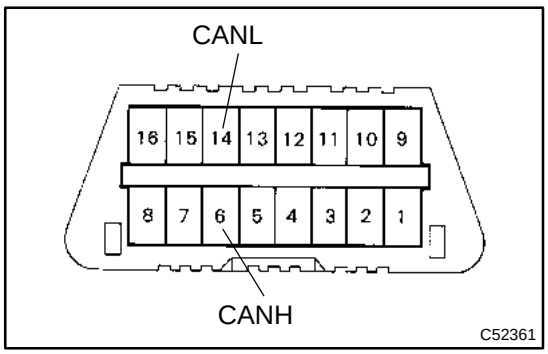
| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| U0126/63 | • When ECU terminal IG1 voltage is 9.5 V or more, the data is not received from steering angle sensor for more than 1 sec.<br>• When ECU terminal IG1 voltage is 9.5 V or more, the data received from steering angle sensor is impossible once or more within 5 sec., and it repeatedly occurs 10 times. | • Open circuit for between steering angle sensor and junction connector<br>• Steering angle sensor |

## WIRING DIAGRAM




## INSPECTION PROCEDURE

| 1 | CHECK RESISTANCE(CANL - CANH OF DLC3) |
|---|---|



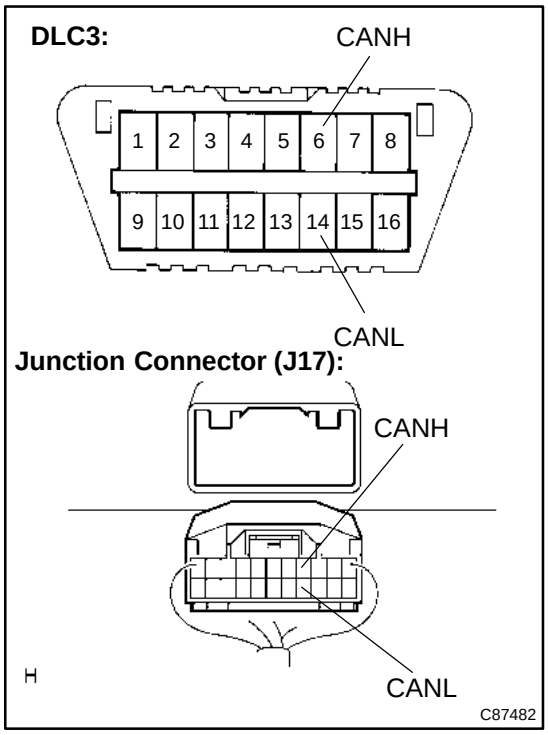

(a) Measure the resistance between the terminal CANL and CANH of the DLC3.

| | |
|---|---|
| A | 1 MΩ or more |
| B | 54 to 66 Ω |

**B** → **Go to step 3**

**A**

| 2 | CHECK HARNESS AND CONNECTOR(SKID CONTROL ECU - DLC3) |
|---|---|



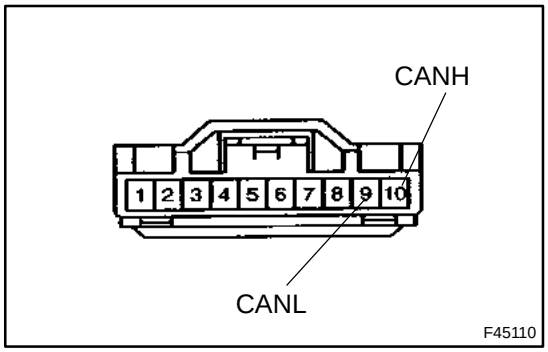

(a) Disconnect the junction connector (J17).
(b) Measure the resistance between the terminal CANL of the DLC3 and CANL of the junction connector (J17).
**OK:**
**Resistance: 1 Ω or less**
(c) Measure the resistance between the terminal CANH of the DLC3 and CANH of the junction connector (J17).
**OK:**
**Resistance: 1 Ω or less**

| OK | Go to step 3 |
|---|---|

NG

**REPAIR OR REPLACE HARNESS OR CONNECTOR AND GO TO STEP 3**

| 3 | CHECK RESISTANCE(CANL - CANH OF STEERING ANGLE SENSOR CONNECTOR) |
|---|---|

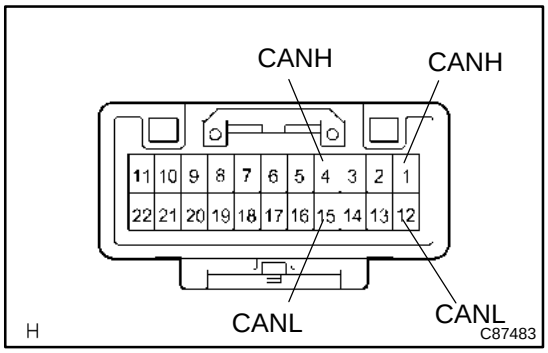



(a) Disconnect the steering angle sensor connector.
(b) Measure the resistance between the terminals CANL and CANH of the steering angle sensor wire harness side connector.
**OK:**
**Resistance: 108 to 132 Ω**

| OK | Go to step 5 |
|---|---|

NG

## 4 CHECK JUNCTION CONNECTOR(J17)



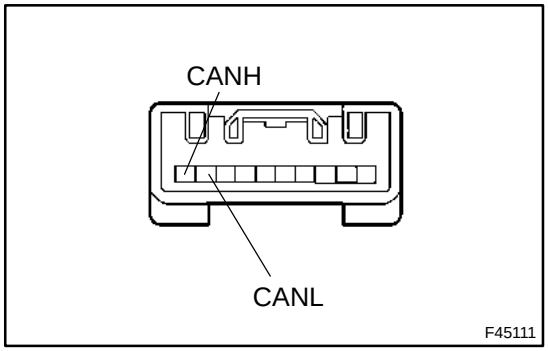

(a) Disconnect the junction connector (J17).
(b) Measure the resistance between the terminals 1 and 4 of the junction connector.
**OK:**
**Resistance: 1 Ω or less**
(c) Measure the resistance between the terminals 12 and 15 of the junction connector.
**OK:**
**Resistance: 1 Ω or less**

**NG** → **REPLACE JUNCTION CONNECTOR**

**OK**

**REPAIR OR REPLACE HARNESS OR CONNECTOR**

## 5 CHECK RESISTANCE(CANL - CANH OF STEERING ANGLE SENSOR)



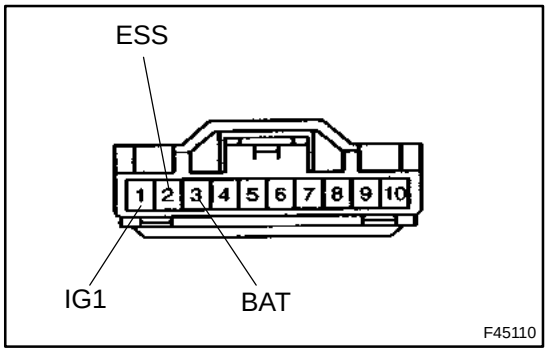

(a) Disconnect the skid control ECU connector.
(b) Measure the resistance between the terminals CANL and CANH of the steering angle sensor.
**OK:**
**Resistance: 108 to 132 Ω**

**NG** → **Go to step 6**

**OK**

**IF THE SAME CODE IS STILL OUTPUT AFTER THE DTC IS DELETED, CHECK THE CONTACT CONDITION OF EACH CONNECTION**

## 6 CHECK TERMINAL VOLTAGE(STEERING ANGLE SENSOR CONNECTOR)

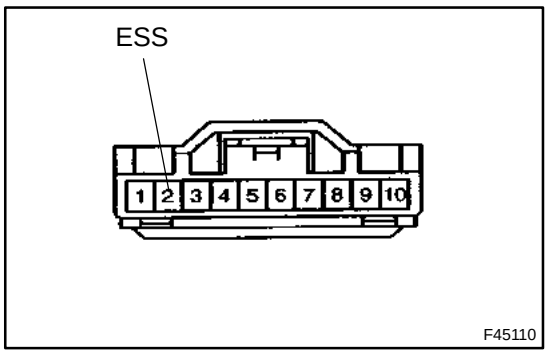



(a) Disconnect the steering angle sensor connector.
(b) Turn the ignition switch ON.
(c) Measure voltage between terminals 1 and 2, 2 and 3 of the steering angle sensor harness side connector.
**OK:**
**Voltage: 10 to 14 V**

**OK** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**NG**

| 7 | CHECK HARNESS AND CONNECTOR(STEERING ANGLE SENSOR - BODY GROUND) |
|---|---|




(a) Disconnect the steering angle sensor connector.
(b) Measure the resistance between terminal ESS of the yaw rate sensor connector and body ground.
**OK:**
**Resistance: 1 Ω or less**

**NG** → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

**REPLACE STEERING ANGLE SENSOR**

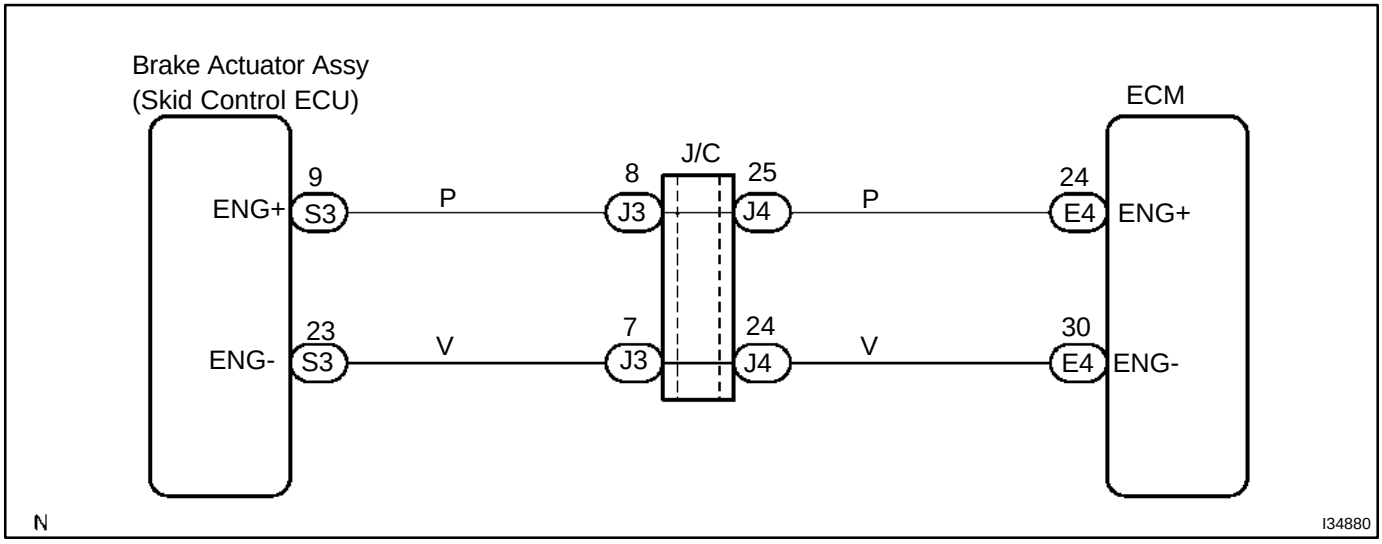
# DTC U0100/65 LOST COMMUNICATION WITH ECM/PCM

## CIRCUIT DESCRIPTION

The ECM and skid control ECU always communicate the data for vehicle general control and diagnosis function each other through communication line.
The ECM receives the alarm demand signal and brake demand signal from the distance control ECU, and it transmits them to the skid control ECU (brake actuator assy).

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| U0100/65 | The malfunction code is output when the ECM receives the communication error signal for 1.0 sec. or more while the dynamic laser cruise control is in operation. | • Communication circuit<br>• ECM<br>• Skid control ECU (Brake actuator assy) |

## WIRING DIAGRAM



## INSPECTION PROCEDURE

| 1 | CHECK WIRE HARNESS AND CONNECTOR(ECM - SKID CONTROL ECU) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the ECM and the skid control ECU (See page 01-37 ).

NG → REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR

OK

| 2 | REPLACE ECM (See page 10-17 ) |
|---|---|

HINT:
If the problem still occurs after the replacement, replace the brake actuator assy.

REPLACE BRAKE ACTUATOR ASSY (See page 32-46 )

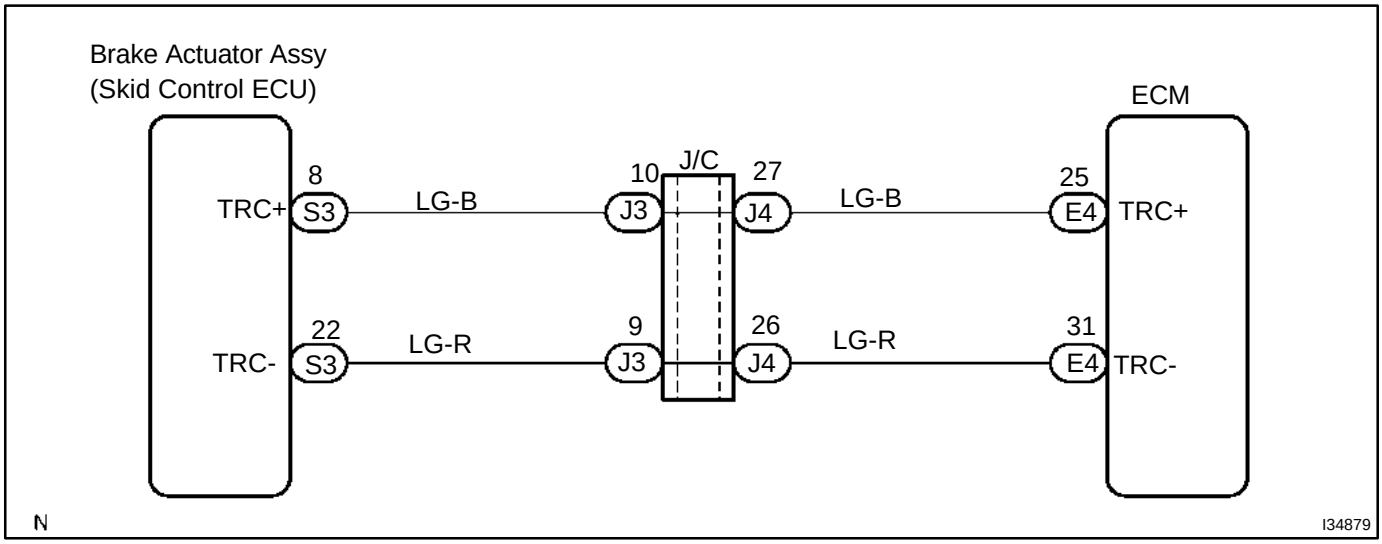
| DTC | U0122/64 | LOST COMMUNICATION WITH VEHICLE DYNAMICS CONTROL MODULE |
|---|---|---|

## CIRCUIT DESCRIPTION

The skid control ECU and ECM always communicate the data for vehicle general control and diagnosis function each other through communication line.
The dynamic laser cruise control system receives information about the laser radar sensor, steering angle sensor and yawrate sensor from the skid control ECU (brake actuator assy). It identifies the vehicle in front and follows it keeping a proper vehicle-to-vehicle distance.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| U0122/64 | The malfunction code is output when communication between the skid control ECU and ECM is invalid for 0.5 sec. or more while the dynamic radar sensor is in operation, or the communication from the skid control ECU become logically discordant for 0.5 sec. or more. | • Communication circuit<br>• Skid control ECU (Brake actuator assy)<br>• ECM |

## WIRING DIAGRAM



## INSPECTION PROCEDURE

| 1 | CHECK WIRE HARNESS AND CONNECTOR(ECM - SKID CONTROL ECU) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the ECM and the skid control ECU (See page 01-37 ).

NG → **REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR**

**OK**

| 2 | REPLACE BRAKE ACTUATOR ASSY(SKID CONTROL ECU) (See page 32-46 ) |
|---|---|

HINT:

- If the problem still occurs after the replacement, replace the ECM.
- When a malfunction is found in the skid control ECU, replace the brake actuator assy.

**REPLACE ECM (See page 10-17 )**

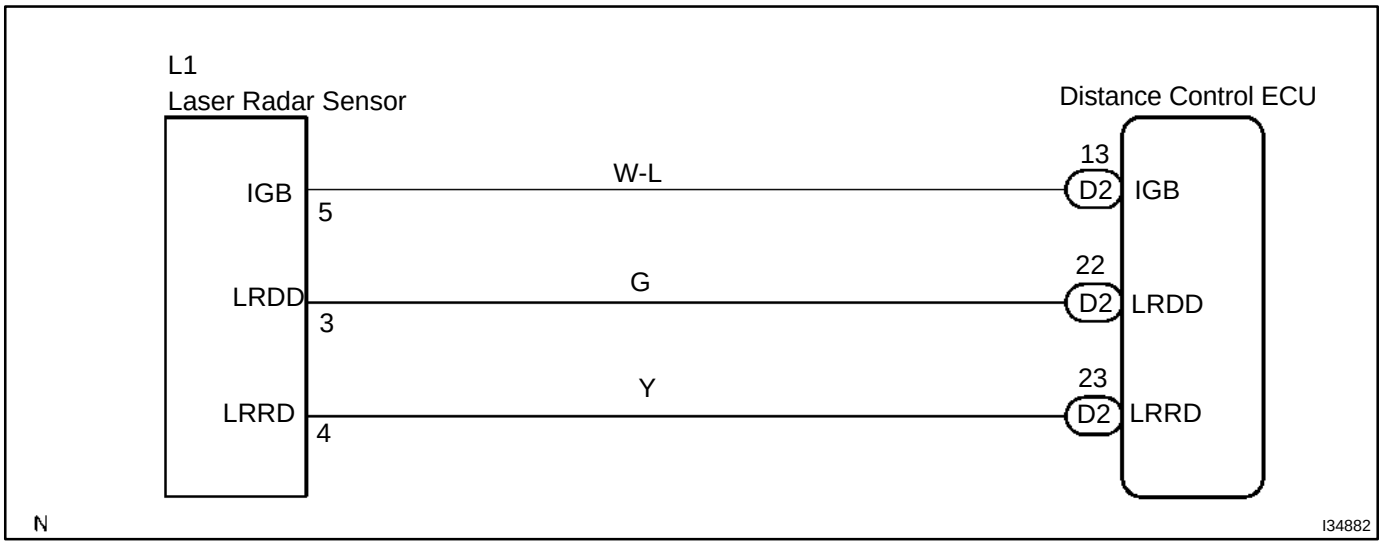
| DTC | U0235/71 | COMMUNICATION ERROR FROM LASER RADAR SENSOR TO DISTANCE CONTROL ECU |
|---|---|---|

## CIRCUIT DESCRIPTION

The laser radar sensor and distance control ECU always communicate the data for vehicle general control and diagnosis function each other through communication line.
The laser radar sensor transmits information about the front vehicle to the distance control ECU.

| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| U0235/71 | The malfunction code is output when the ECM detects the communication error signal from the laser radar sensor to the distance control ECU for 0.15 sec. or more while the dynamic laser cruise control is in operation. | • Communication circuit<br>• Laser radar sensor<br>• Distance control ECU |

## WIRING DIAGRAM



# INSPECTION PROCEDURE

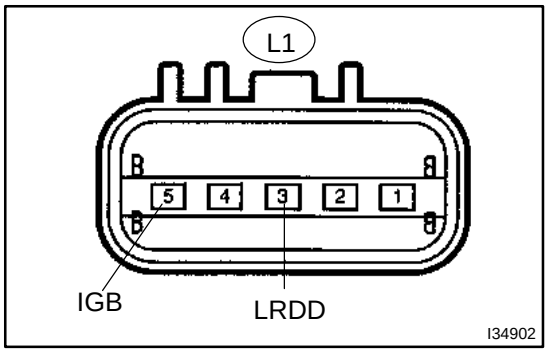
| 1 | CHECK WIRE HARNESS AND CONNECTOR(DISTANCE CONTROL ECU - LASER RADAR SENSOR) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the distance control ECU and the laser radar sensor (See page 01-37 ).

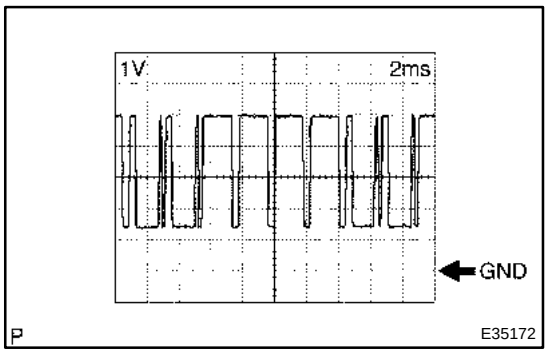
NG → **REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR**

OK

| 2 | INSPECT LASER RADAR SENSOR |
|---|---|




(a) Remove the laser radar sensor with connector.
(b) Turn the ignition switch ON.
(c) Measure the voltage between terminal IGB (L1-5) and body ground.
**Standard:**
**10 to 14 V**




(d) Check the signal waveform between terminal LRDD (L1-3) and body ground.
**Standard:**
**The connect signal waveform appears, as shown in the illustration.**

HINT:
- Gauge set: 2 V/DIV, 10 ms/DIV
- Condition: Ignition switch ON

NG → **REPLACE LASER RADAR SENSOR**

OK

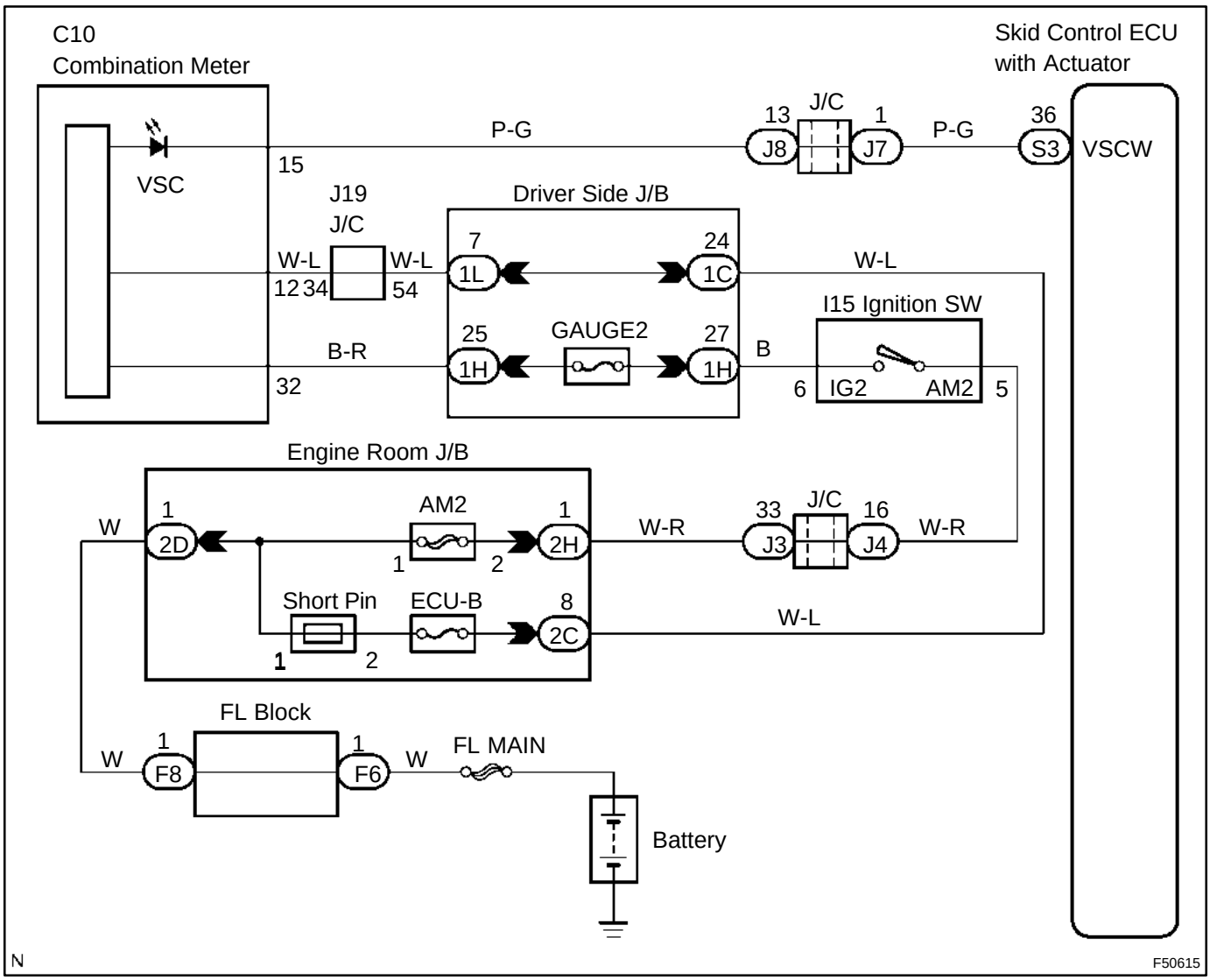
**REPLACE DISTANCE CONTROL ECU ASSY (See page 82-1 )**

# VSC WARNING LIGHT CIRCUIT (DOES NOT LIGHT UP)

## CIRCUIT DESCRIPTION

If the ECU stores DTC, the VSC warning light lights on the combination meter.

## WIRING DIAGRAM



## INSPECTION PROCEDURE

HINT:

Start the inspection from step 1 if you are using the hand-held tester and start from step 2 if you are not using the hand-held tester.

| 1 | PERFORM ACTIVE TEST BY HAND-HELD TESTER(VSC WARNING LIGHT) |
|---|---|

(a) Connect the hand-held tester to the DLC3.
(b) Start the engine.
(c) Select the item "VSC WARN LIGHT" in the ACTIVE TEST and operate the VSC warning light with the hand-held tester.
(d) Check that "ON" and "OFF" of the VSC warning light is shown on the combination meter by the hand-held tester.

OK → **REPLACE ABS & TRACTION ACTUATOR ASSY (See page 32-46 )**

NG

| 2 | INSPECT VSC WARNING LIGHT(See page 71-1 ) |
|---|---|

NG → **REPAIR OR REPLACE COMBINATION METER ASSEMBLY**

OK

| 3 | CHECK HARNESS AND CONNECTOR(COMBINATION METER - SKID CONTROL ECU) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the combination meter and skid control ECU (See page 01-37 ).

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

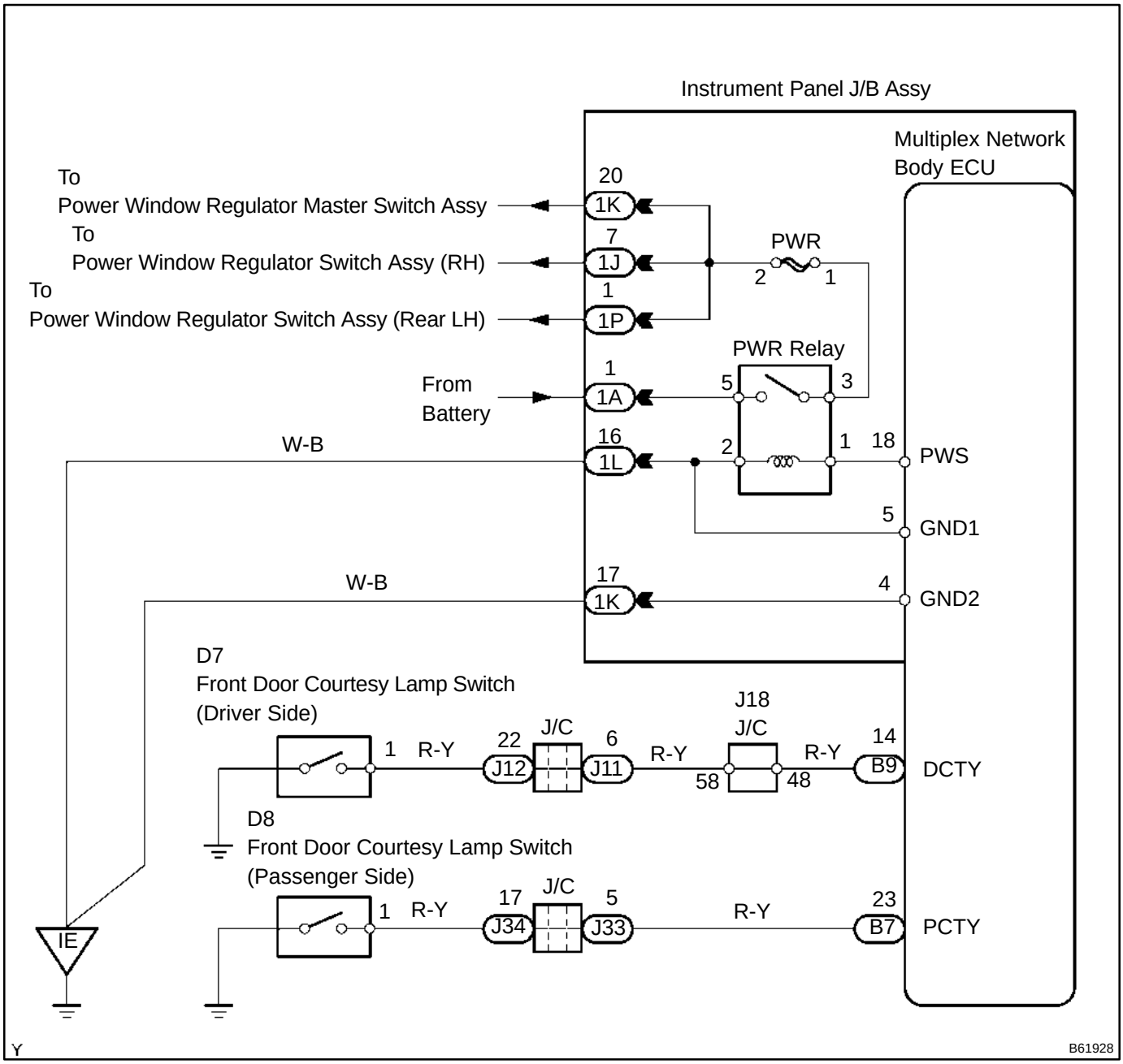
**REPLACE ABS & TRACTION ACTUATOR ASSY(See page 32-46 )**

# POWER WINDOW CAN BE OPERATED AFTER IGNITION SWITCH IS TURNED OFF EVEN IF OPERATIVE CONDITIONS ARE NOT FULFILLED

## CIRCUIT DESCRIPTION

The multiplex network body ECU controls power supplied to the power window master switch and each regulator switch continuously for 45 seconds after the ignition switch is turned OFF unless the front doors have been opened, so that the power window can be operated during this period (See page 70-9 ). However, if either front door is opened or if a signal from any of the front door courtesy lamp switches is input to the ECU during 45 seconds, or if 45 seconds pass with nothing being done, the multiplex network body ECU will stop supplying power, thus disabling power window operation disabled.

## WIRING DIAGRAM



# INSPECTION PROCEDURE

## 1 CHECK OPERATION FUNCTION AFTER IGNITION SWITCH IS TURNED OFF

(a) If the power window operates even after either front door is opened within 45 seconds after the ignition switch is turned OFF, proceed to A.

(b) If the power window operates even after 45 seconds have passed after the ignition switch is turned OFF, proceed to B.

**B** → **REPLACE MULTIPLEX NETWORK BODY ECU**

**A**

## 2 READ VALUE OF HAND-HELD TESTER

(a) Using the hand-held tester, check that the data list for proper functioning of the front door courtesy switches.

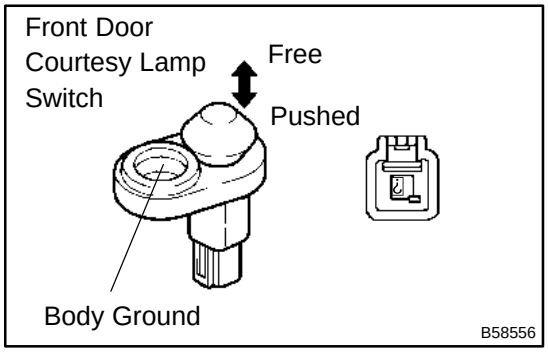
**Standard (Multiplex network body ECU):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| D DOR CTY SW | Driver side door courtesy switch signal/ON or OFF | ON: Driver side door is open<br>OFF: Driver side door is closed | - |
| P DOR CTY SW | Passenger side door courtesy switch signal/ON or OFF | ON: Passenger side door is open<br>OFF: Passenger side door is closed | - |

**OK** → **REPLACE MULTIPLEX NETWORK BODY ECU**

**NG**

## 3 INSPECT FRONT DOOR COURTESY LAMP SWITCH ASSY




(a) Remove the courtesy lamp switch.

(b) Check the switch resistance.

**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 1 - Body ground | Switch pushed | 10 kΩ or higher |
| | Switch free | Below 1 Ω |

**NG** → **REPLACE FRONT DOOR COURTESY LAMP SWITCH ASSY**

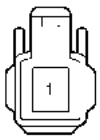
**OK**

| 4 | CHECK WIRE HARNESS (FRONT DOOR COURTESY LAMP SWITCH ASSY - MULTIPLEX NETWORK BODY ECU) |
|---|---|

**Wire Harness Side**

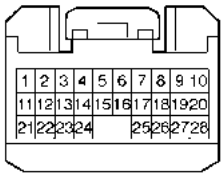
D7*1 or D8*2

Courtesy Lamp Switch



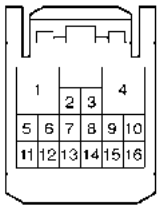

B7

Multiplex Network Body ECU




B9

Multiplex Network Body ECU




*1: Driver Side

*2: Passenger Side

B68694

(a) Disconnect the D7 or D8 lamp switch connector.

(b) Disconnect the B7 or B9 ECU connector.

(c) Check the resistance between the wire harness side connectors.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| D7-1 - B9-14 (DCTY) | Below 1 Ω |
| D8-1 - B7-23 (PCTY) | Below 1 Ω |

**NG** → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

**OK**

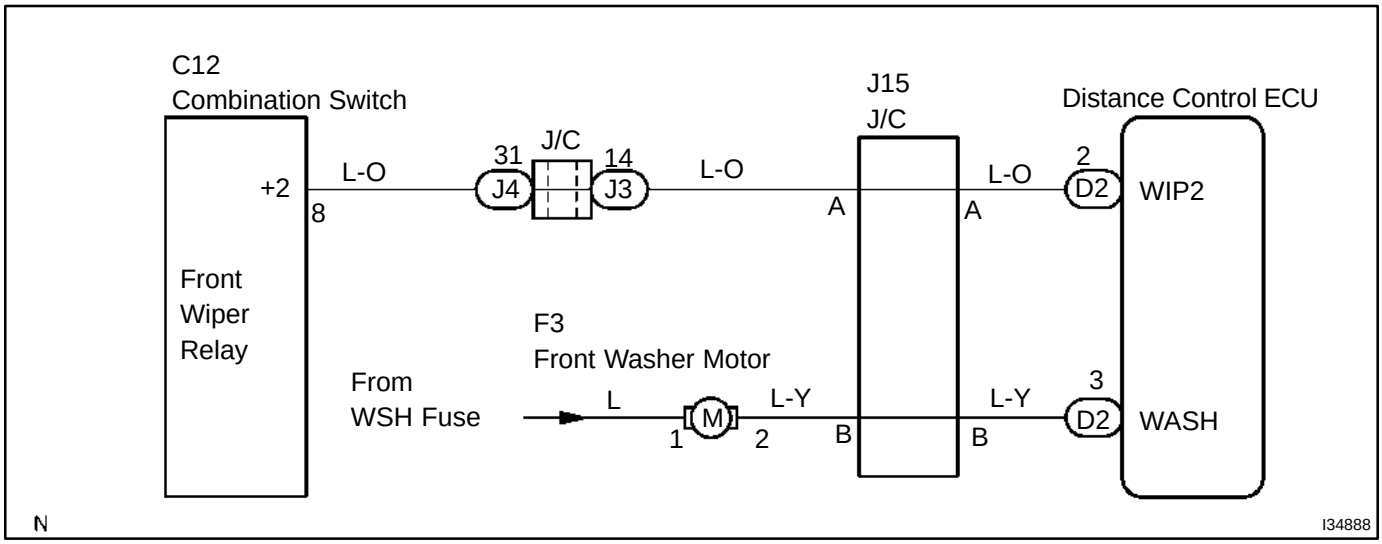
**REPLACE MULTIPLEX NETWORK BODY ECU**

# WIPER SIGNAL CIRCUIT

## CIRCUIT DESCRIPTION

When the distance control ECU detects the wiper in operation, the dynamic laser cruise control system will be canceled.
HINT:
When the wiper is the LO or HI mode, the dynamic laser cruise control is automatically cancelled and goes into standby mode (In INT (intermittent operation) mode, the laser cruise control is not cancelled).

## WIRING DIAGRAM



# INSPECTION PROCEDURE

| 1 | INSPECT WIPER AND WASHER SYSTEM |
|---|---|

**Standard:**
**Wiper function is correct.**

NG → **GO TO WIPER AND WASHER SYSTEM (See page 66-2 )**

OK

| 2 | CHECK WIRE HARNESS AND CONNECTOR(DISTANCE CONTROL ECU - FRONT WASHER MOTOR) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the distance control ECU and the front washer motor (See page 01-37 ).

NG → **REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR**

OK

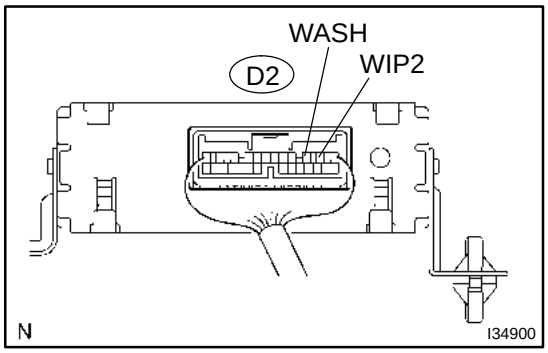
| 3 | CHECK WIRE HARNESS AND CONNECTOR(DISTANCE CONTROL ECU - COMBINATION SWITCH) |
|---|---|

(a) Check for an open or short circuit in harness and connector between the distance control ECU and the combination switch (See page 01-37 ).

NG → **REPAIR OR REPLACE WIRE HARNESS OR CONNECTOR**

OK

## 4 INSPECT DISTANCE CONTROL ECU ASSY




(a) Remove the distance control ECU with connector.
(b) Turn the ignition switch ON.
(c) Measure the voltage between terminal WIP2 (D2-2) and WASH (D2-3) of distance control ECU, when combination switch is operated.

**Standard:**

| Switch | Position | Specified condition |
|---|---|---|
| Wiper Switch | OFF | Below 1 V |
| Wiper Switch | HI | 10 to 14 V |
| Washer Switch | OFF | 10 to 14 V |
| Washer Switch | ON | Below 1 V |

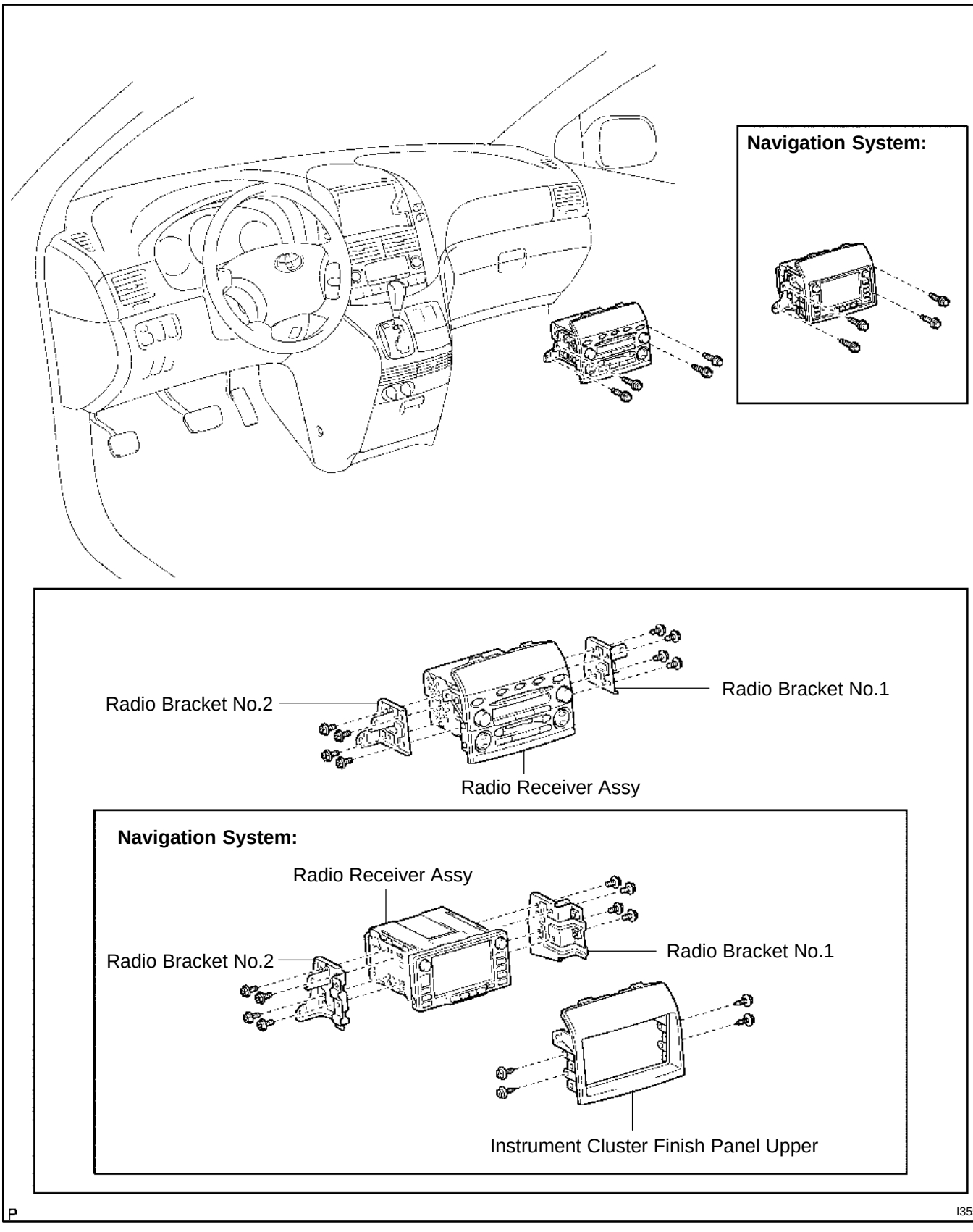
**NG** → **REPLACE DISTANCE CONTROL ECU ASSY (See page 82-1 )**

**OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05-2008 )**

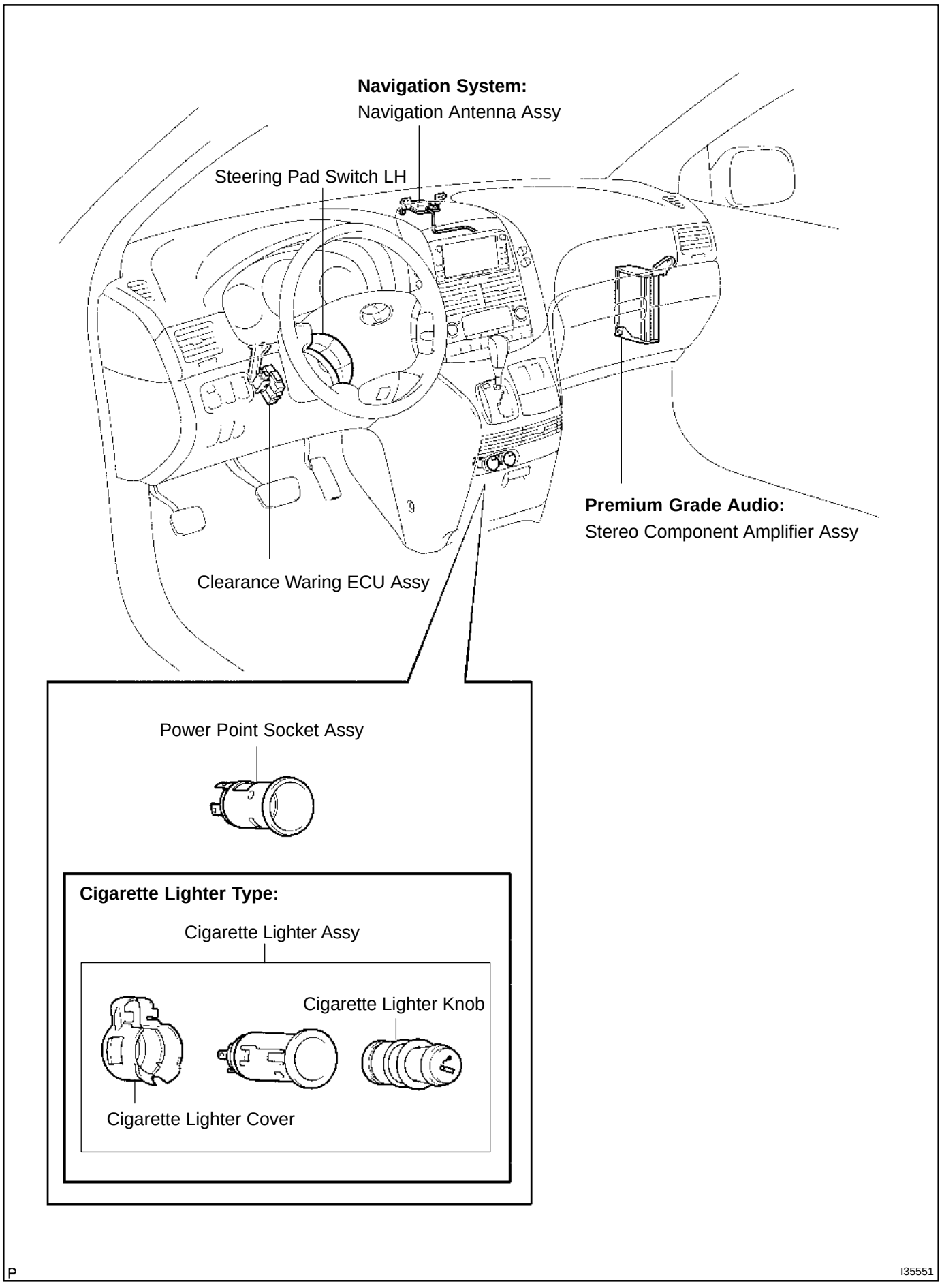
670RK-02

# COMPONENTS

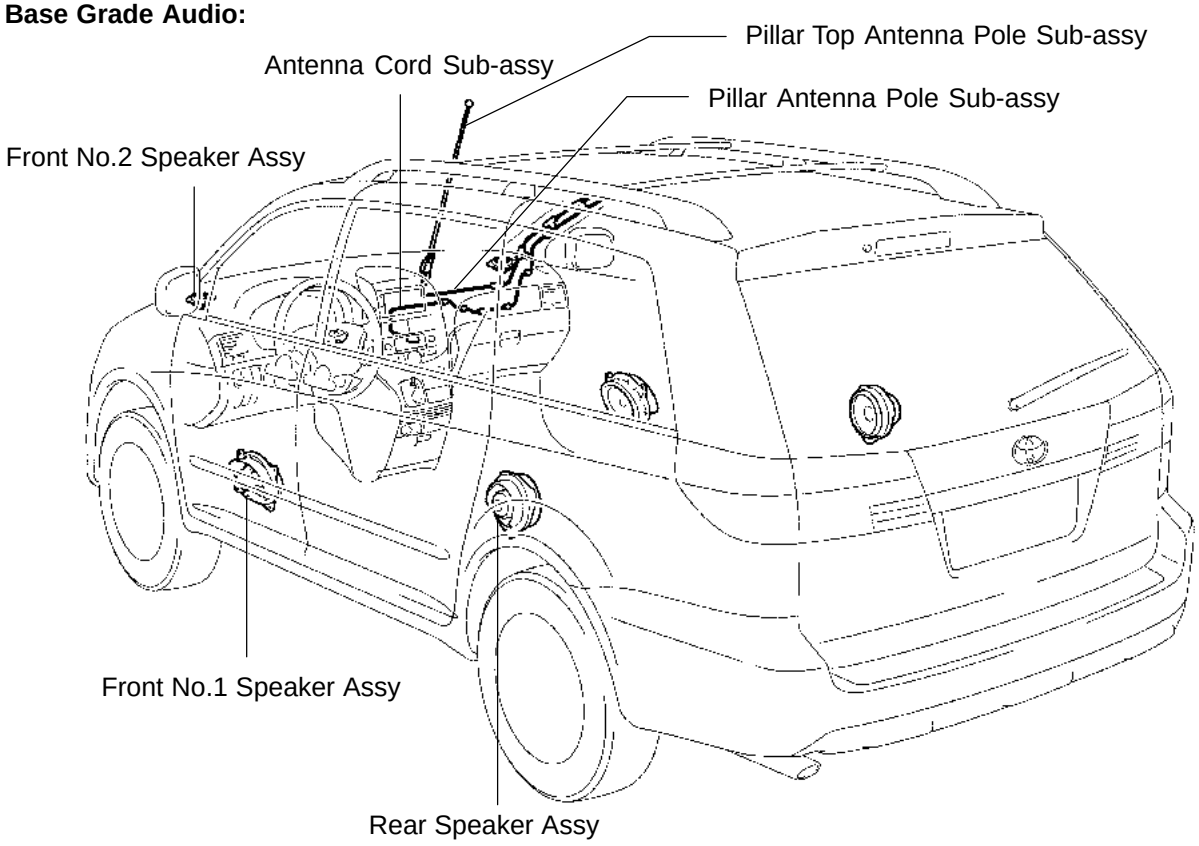



P

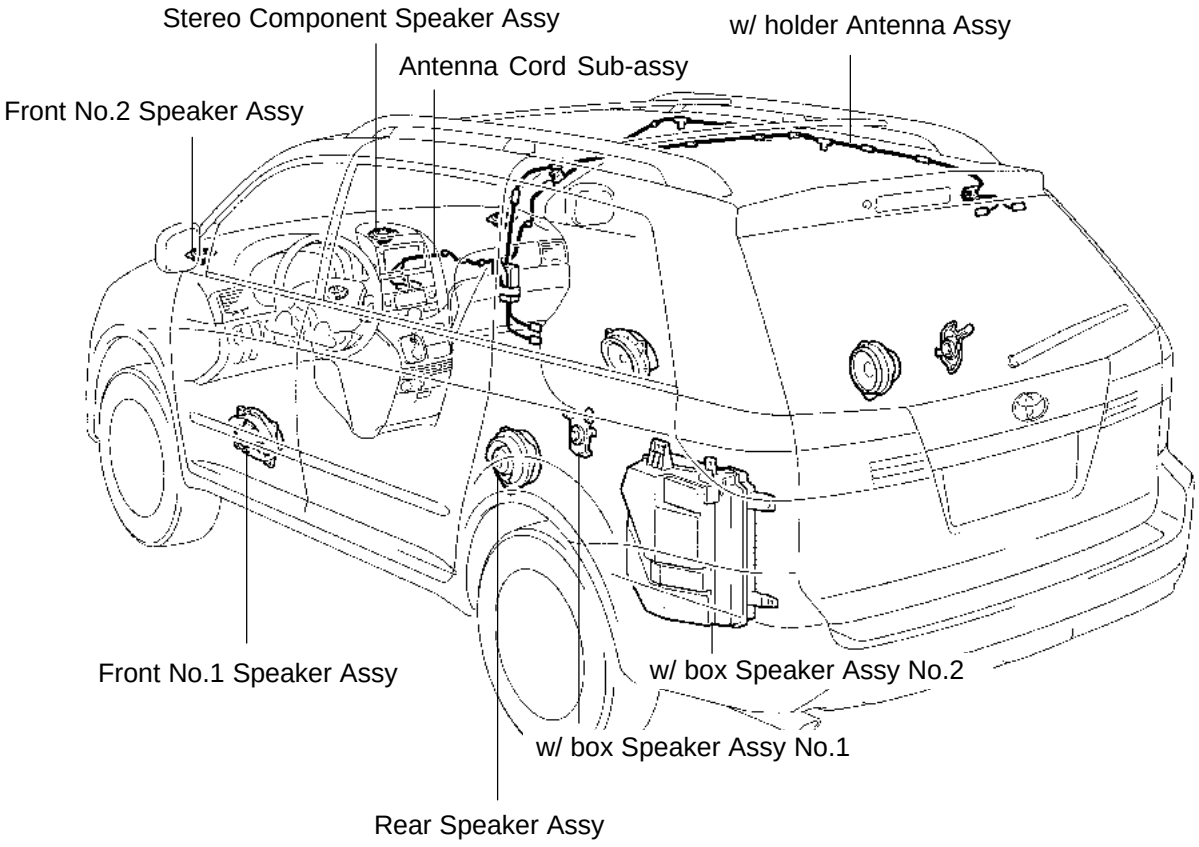
I35550


**Navigation System:**
Navigation Antenna Assy
Steering Pad Switch LH
**Premium Grade Audio:**
Stereo Component Amplifier Assy
Clearance Waring ECU Assy
Power Point Socket Assy
**Cigarette Lighter Type:**
Cigarette Lighter Assy
Cigarette Lighter Knob
Cigarette Lighter Cover
P
I35551

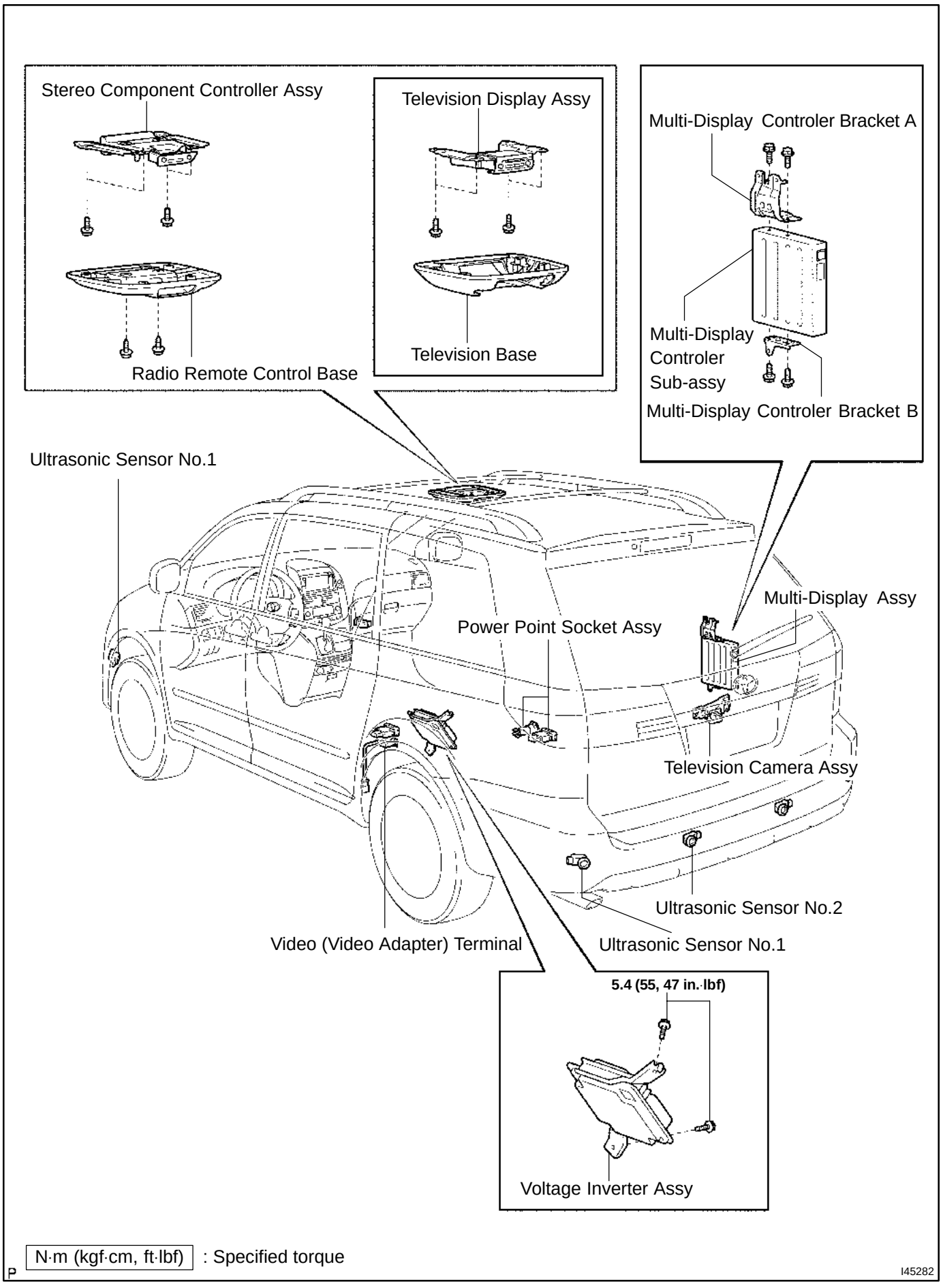
**Base Grade Audio:**




**Premium Grade Audio:**



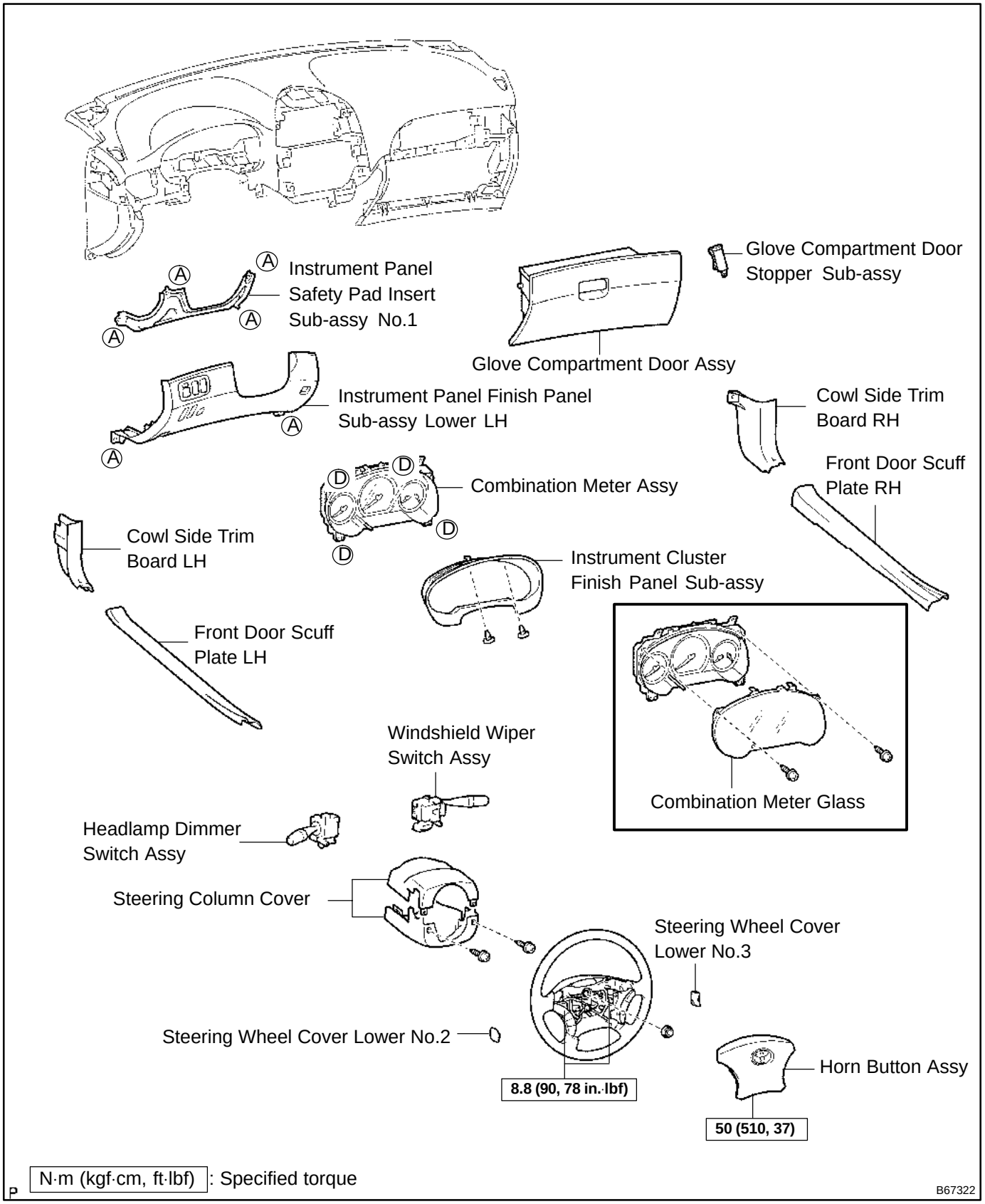

P I35552

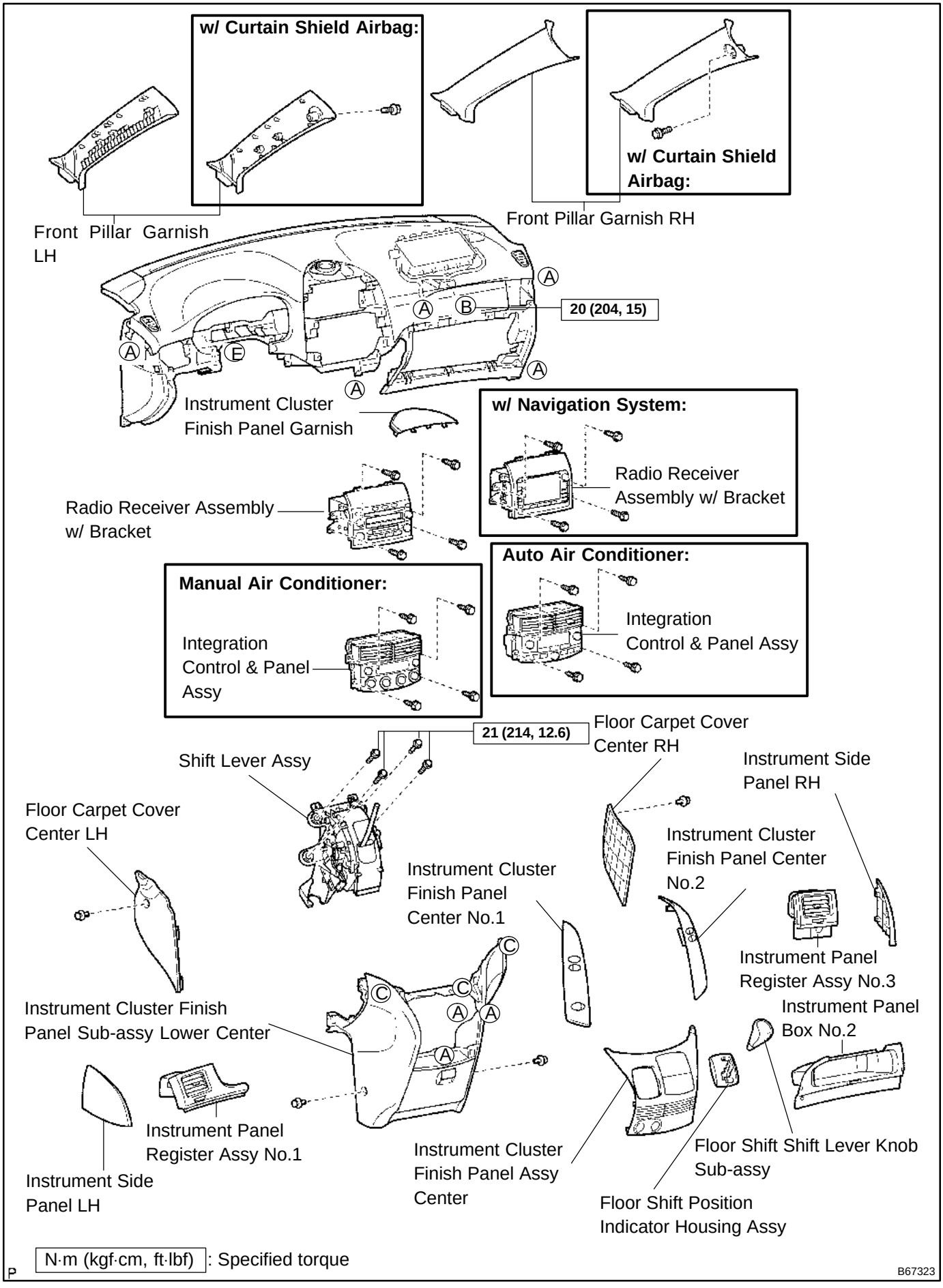

Stereo Component Controller Assy
Radio Remote Control Base
Television Display Assy
Television Base
Multi-Display Controler Bracket A
Multi-Display Controler Sub-assy
Multi-Display Controler Bracket B
Ultrasonic Sensor No.1
Multi-Display Assy
Power Point Socket Assy
Television Camera Assy
Ultrasonic Sensor No.2
Video (Video Adapter) Terminal
Ultrasonic Sensor No.1
5.4 (55, 47 in.·lbf)
Voltage Inverter Assy
N·m (kgf·cm, ft·lbf) : Specified torque
I45282

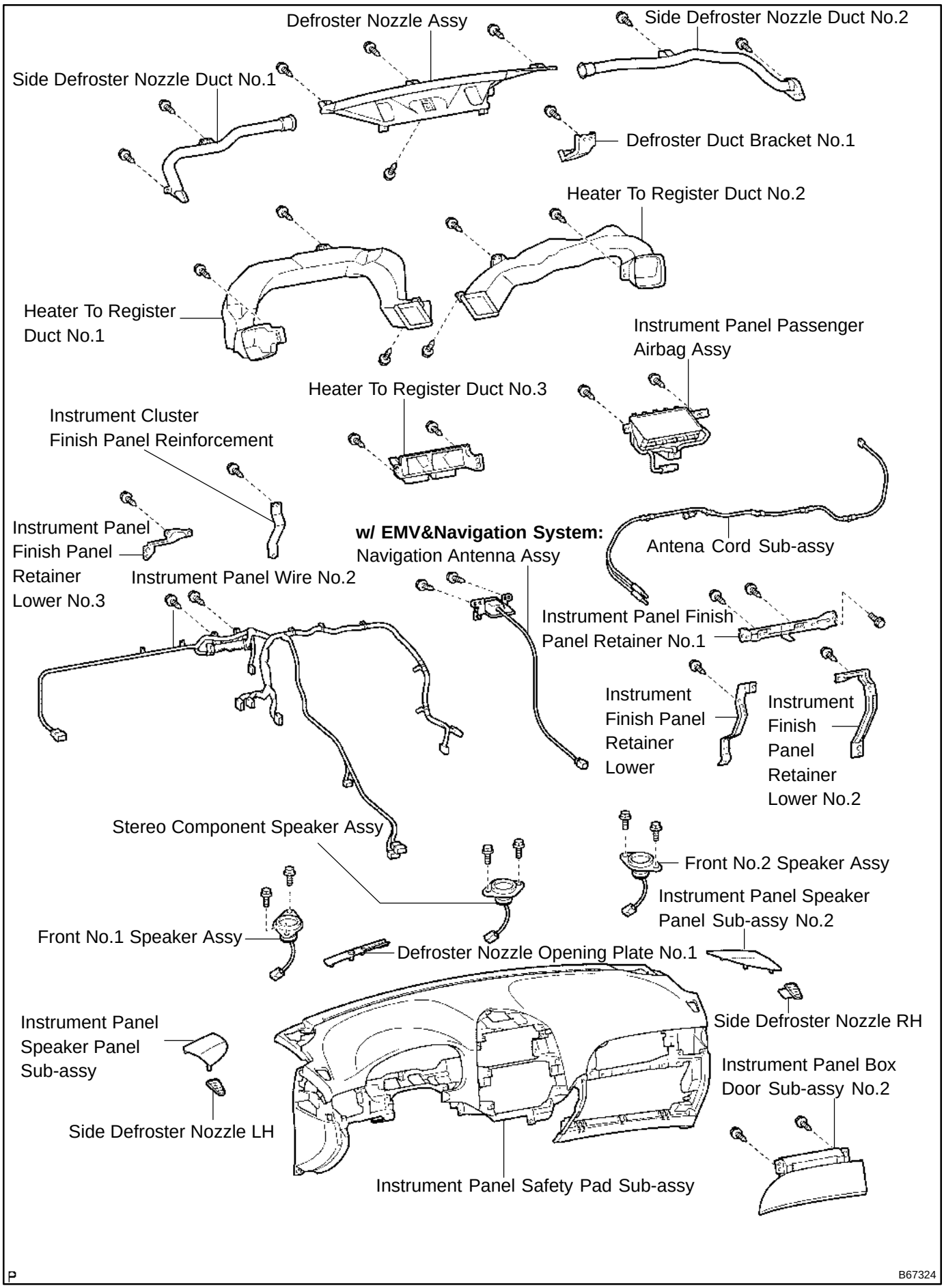
# INSTRUMENT PANEL/METER

## COMPONENTS

710FN-02



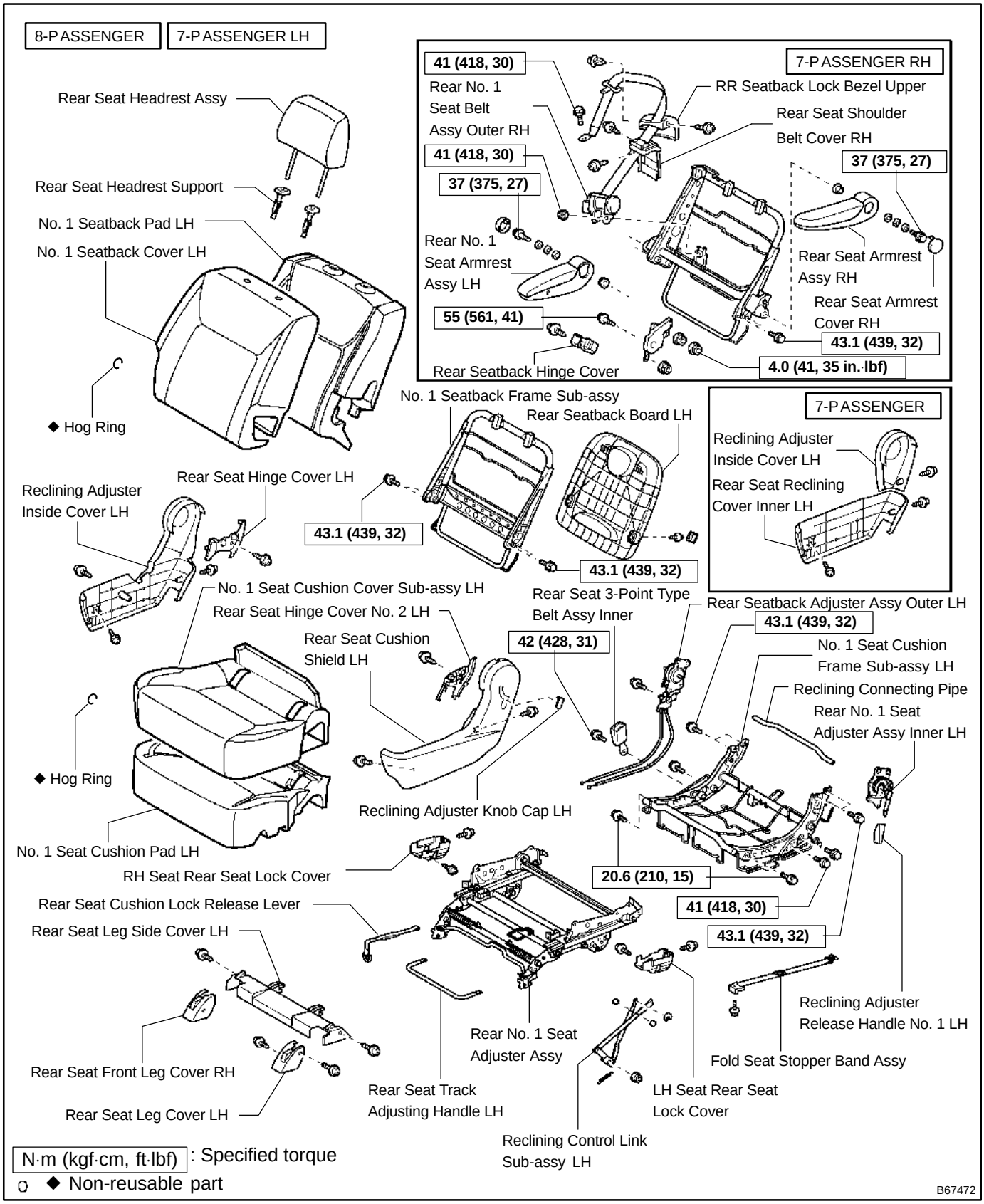

w/ Curtain Shield Airbag:
w/ Curtain Shield Airbag:
Front Pillar Garnish LH
Front Pillar Garnish RH
20 (204, 15)
Instrument Cluster Finish Panel Garnish
w/ Navigation System:
Radio Receiver Assembly w/ Bracket
Radio Receiver Assembly w/ Bracket
Auto Air Conditioner:
Integration Control & Panel Assy
Manual Air Conditioner:
Integration Control & Panel Assy
21 (214, 12.6)
Floor Carpet Cover Center RH
Shift Lever Assy
Instrument Side Panel RH
Floor Carpet Cover Center LH
Instrument Cluster Finish Panel Center No.2
Instrument Cluster Finish Panel Center No.1
Instrument Panel Register Assy No.3
Instrument Panel Box No.2
Instrument Cluster Finish Panel Sub-assy Lower Center
Instrument Panel Register Assy No.1
Instrument Side Panel LH
Instrument Cluster Finish Panel Assy Center
Floor Shift Shift Lever Knob Sub-assy
Floor Shift Position Indicator Housing Assy
N·m (kgf·cm, ft·lbf) : Specified torque
B67323


Defroster Nozzle Assy
Side Defroster Nozzle Duct No.2
Side Defroster Nozzle Duct No.1
Defroster Duct Bracket No.1
Heater To Register Duct No.2
Heater To Register Duct No.1
Instrument Panel Passenger Airbag Assy
Heater To Register Duct No.3
Instrument Cluster Finish Panel Reinforcement
Instrument Panel Finish Panel Retainer Lower No.3
w/ EMV&Navigation System:
Navigation Antenna Assy
Antena Cord Sub-assy
Instrument Panel Wire No.2
Instrument Panel Finish Panel Retainer No.1
Instrument Finish Panel Retainer Lower
Instrument Finish Panel Retainer Lower No.2
Stereo Component Speaker Assy
Front No.2 Speaker Assy
Instrument Panel Speaker Panel Sub-assy No.2
Front No.1 Speaker Assy
Defroster Nozzle Opening Plate No.1
Side Defroster Nozzle RH
Instrument Panel Speaker Panel Sub-assy
Instrument Panel Box Door Sub-assy No.2
Side Defroster Nozzle LH
Instrument Panel Safety Pad Sub-assy
P
B67324

# REAR NO. 1 SEAT ASSEMBLY LH (CAPTAIN SEAT TYPE)

720IM-02

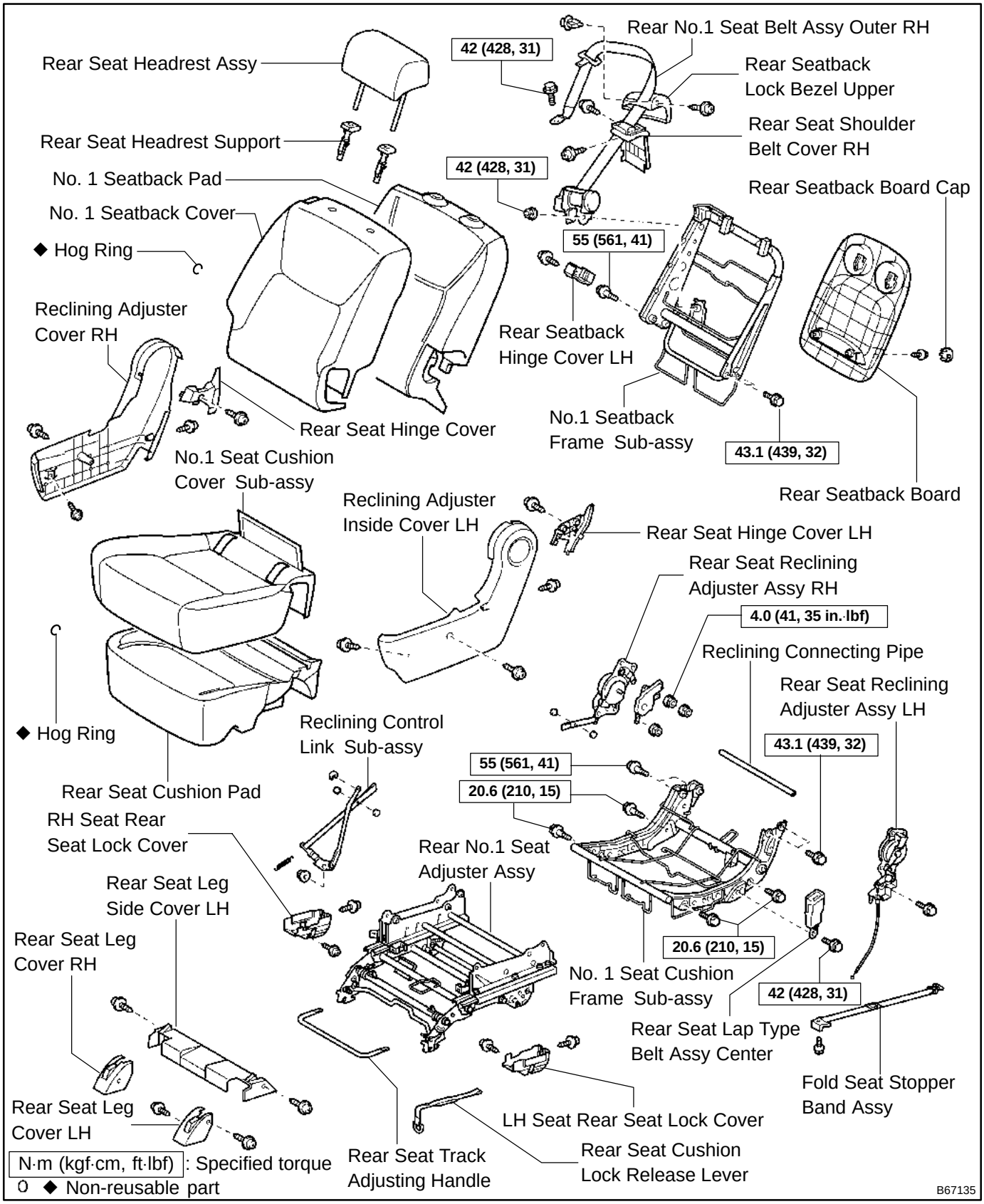
## COMPONENTS



# REAR NO. 1 SEAT ASSEMBLY CTR (CAPTAIN SEAT TYPE)

720IO-02

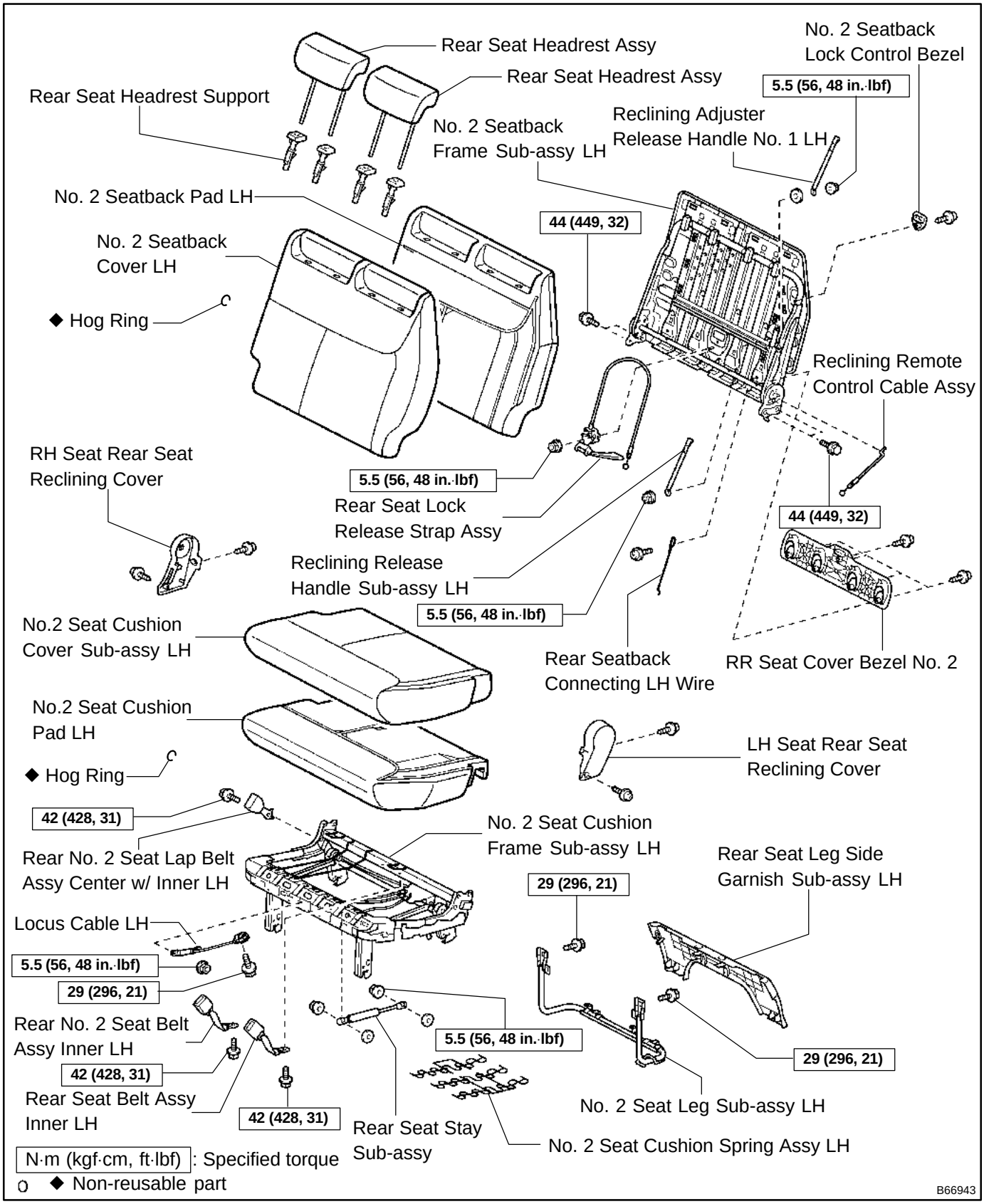
## COMPONENTS



# REAR NO. 2 SEAT ASSEMBLY LH

## COMPONENTS

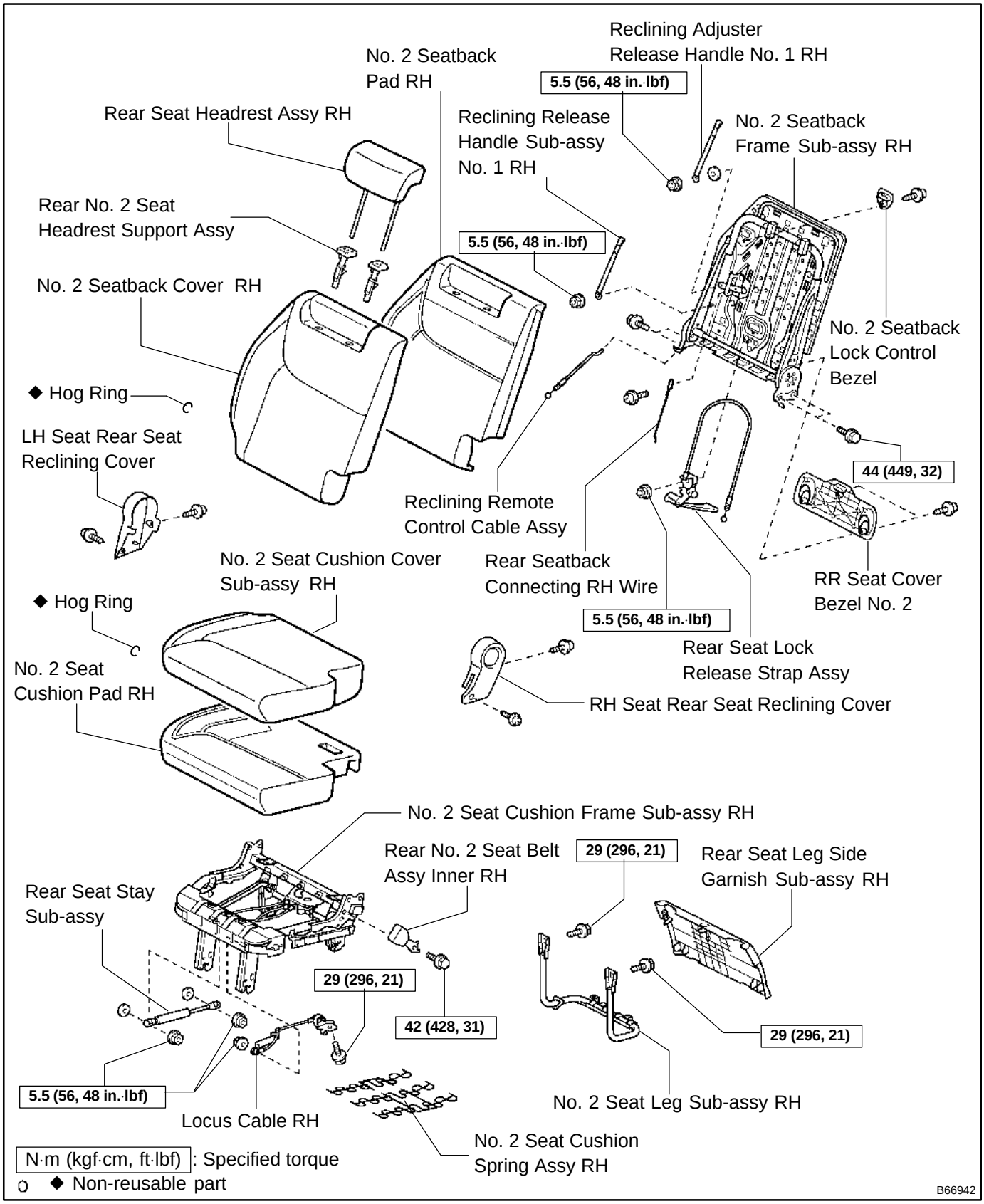
720IQ-02



# REAR NO. 2 SEAT ASSEMBLY RH

720IS-02

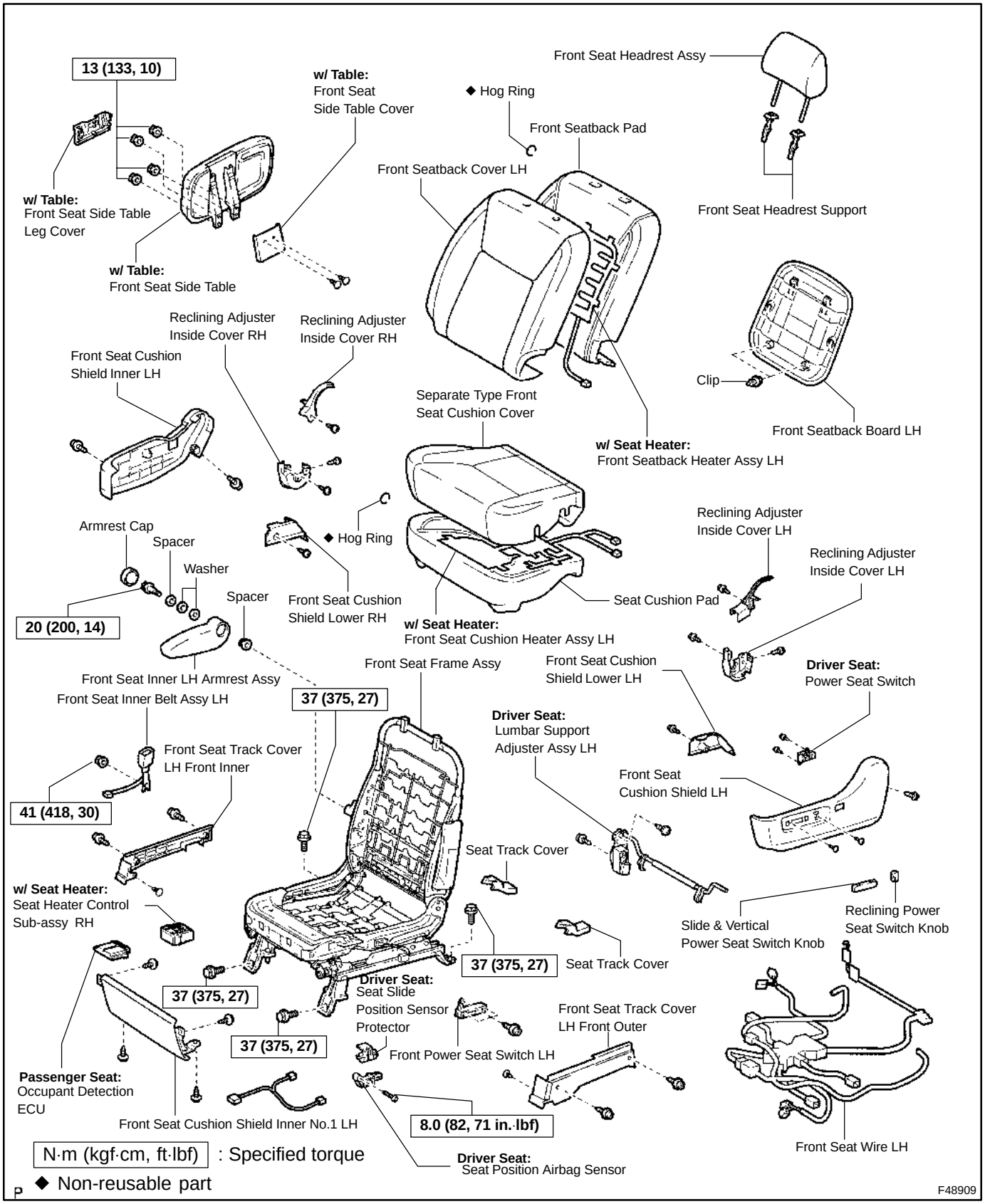
## COMPONENTS



# FRONT SEAT ASSEMBLY LH (POWER SEAT TYPE)

## COMPONENTS

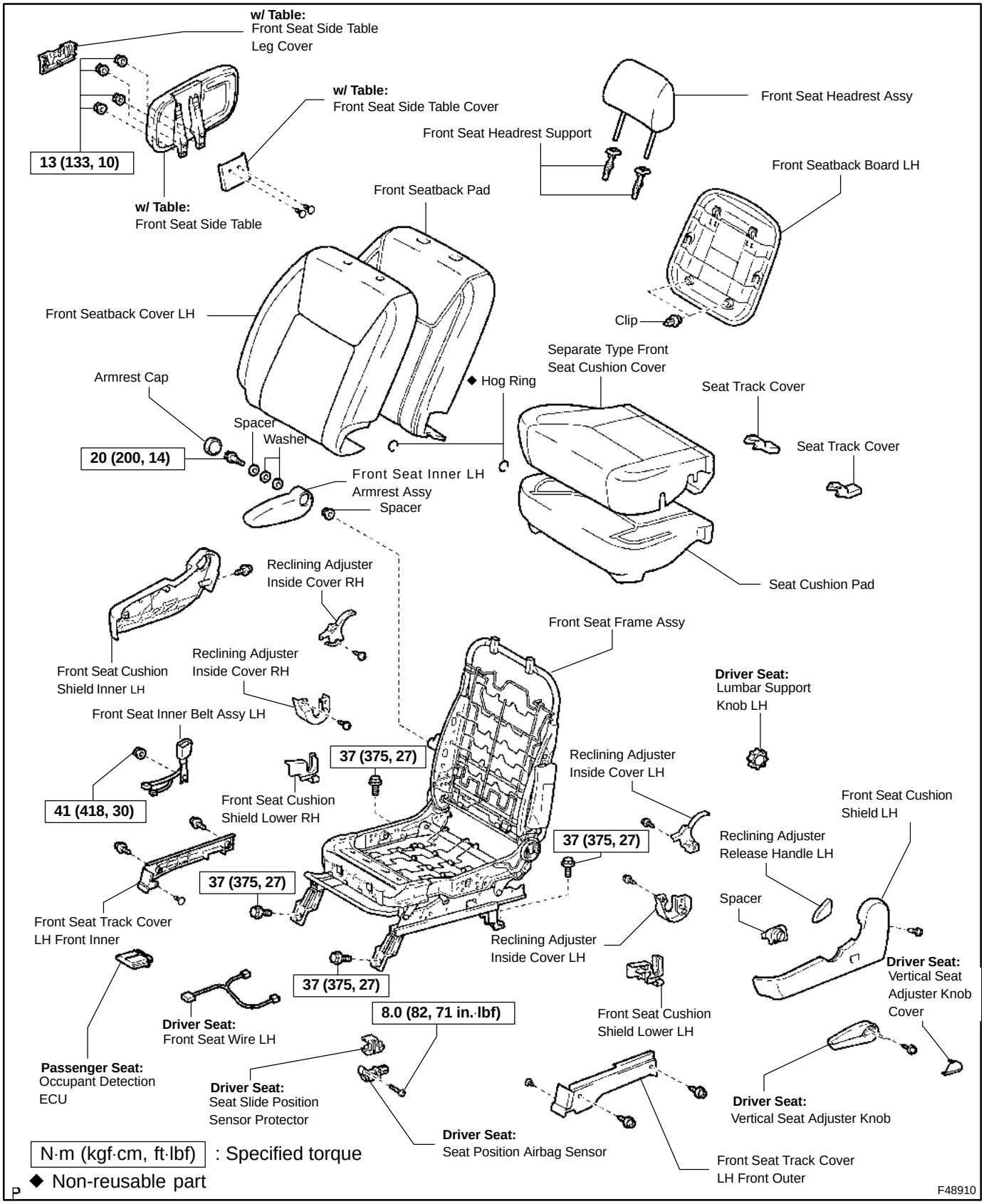
720IG-02



# FRONT SEAT ASSEMBLY LH (MANUAL SEAT TYPE)

720II-02

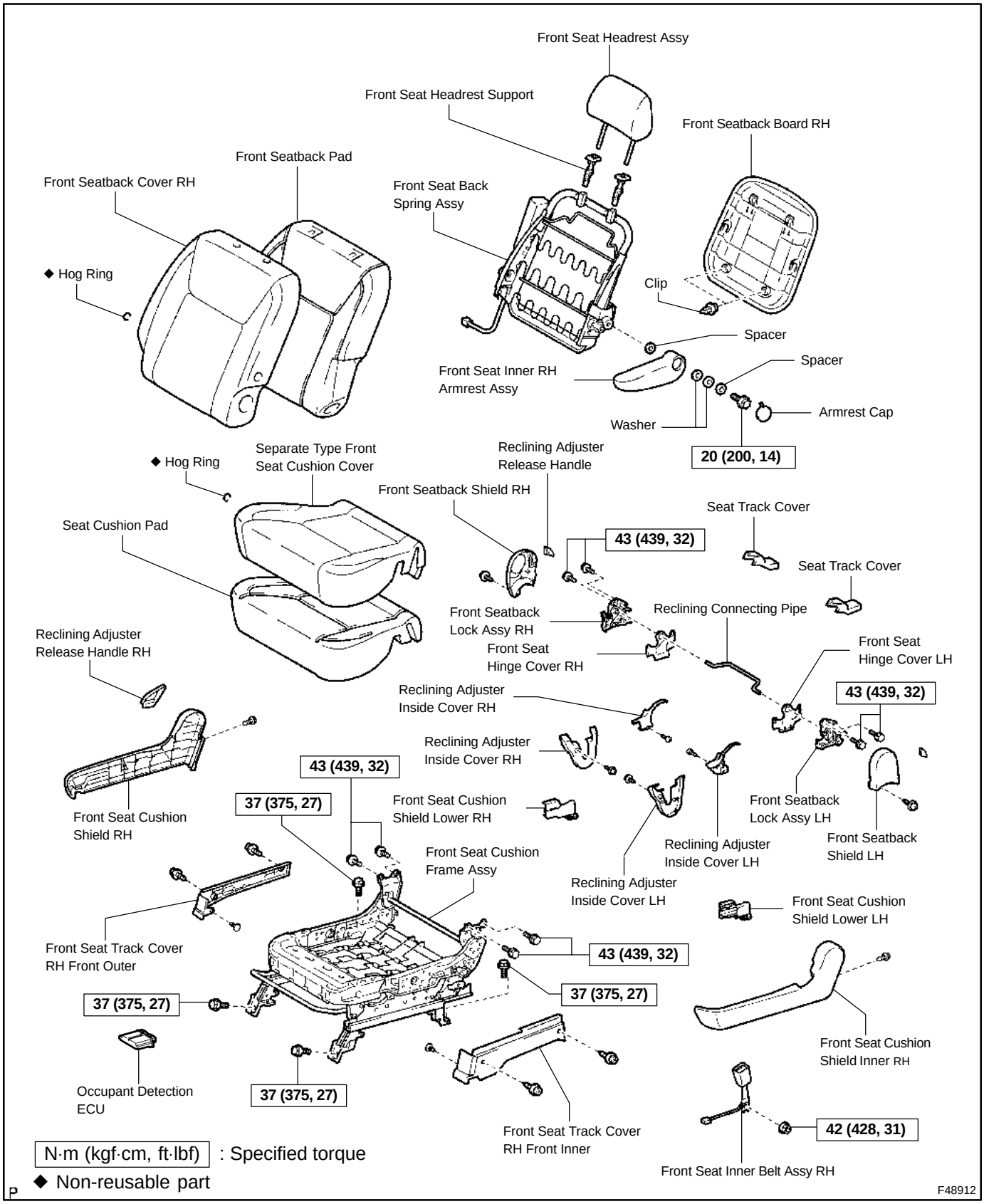
## COMPONENTS



# FRONT SEAT ASSEMBLY RH (FOLD FLAT TYPE)

720IK-02

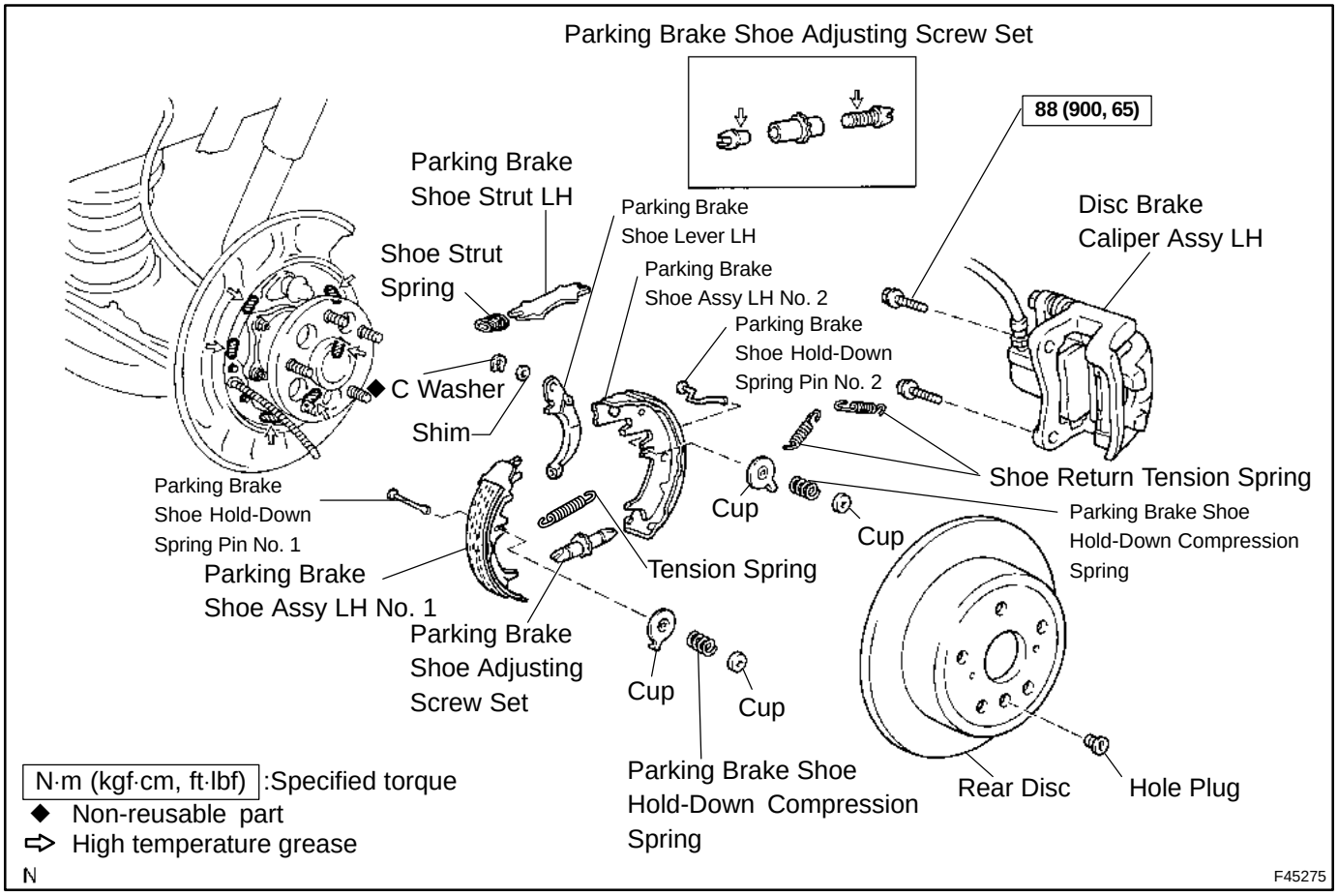
## COMPONENTS



# PARKING BRAKE ASSY

## COMPONENTS

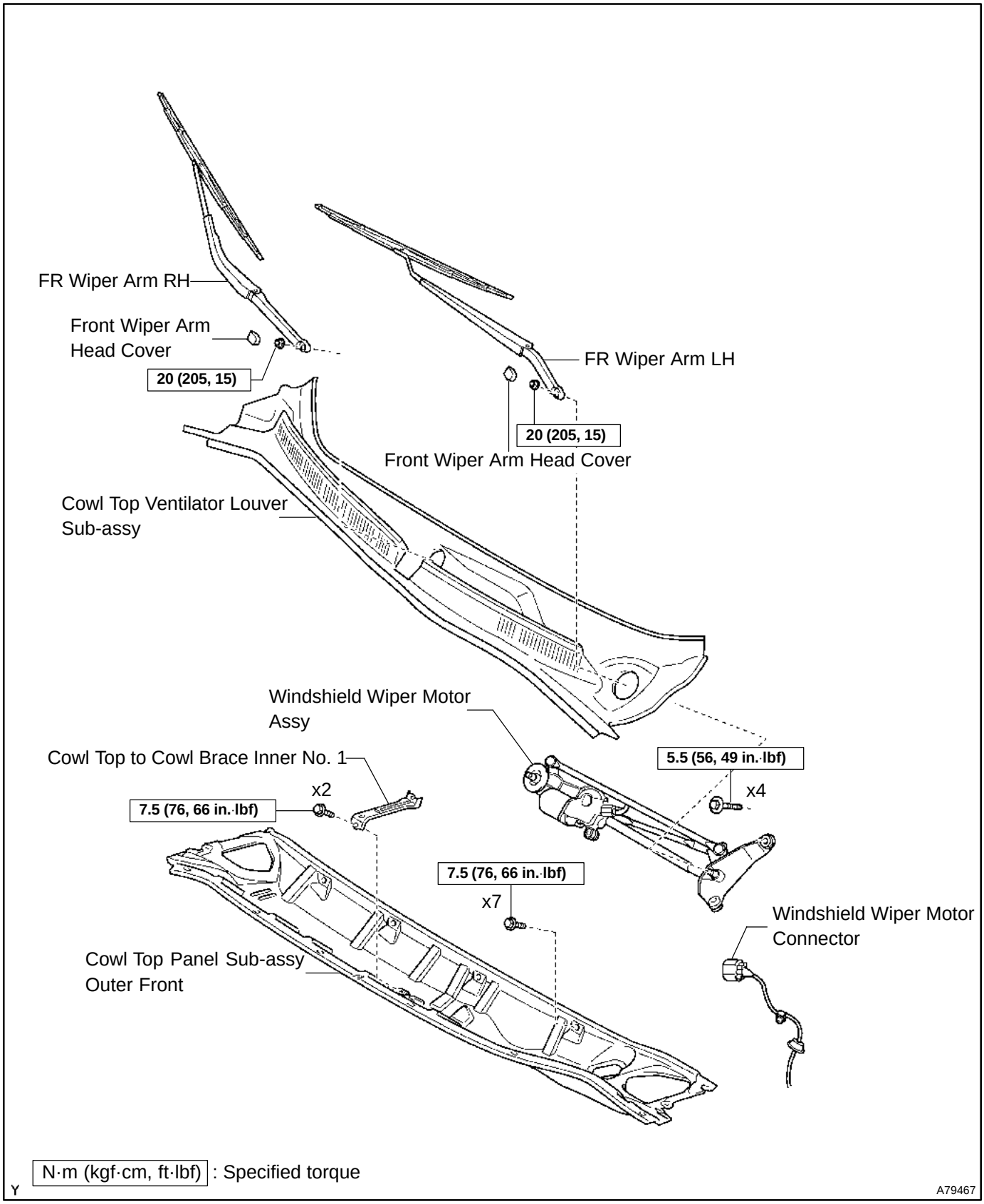
330C2-01

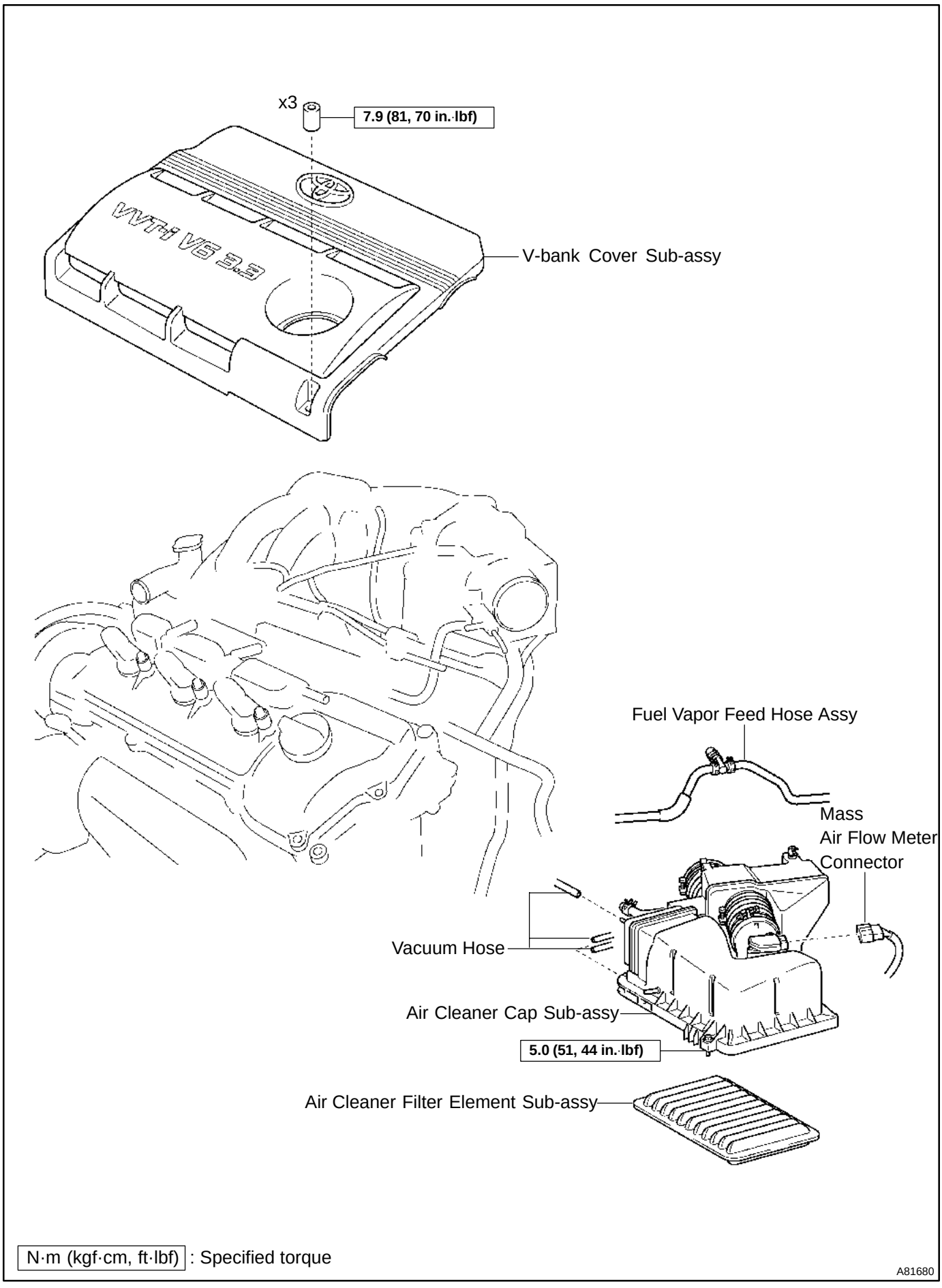


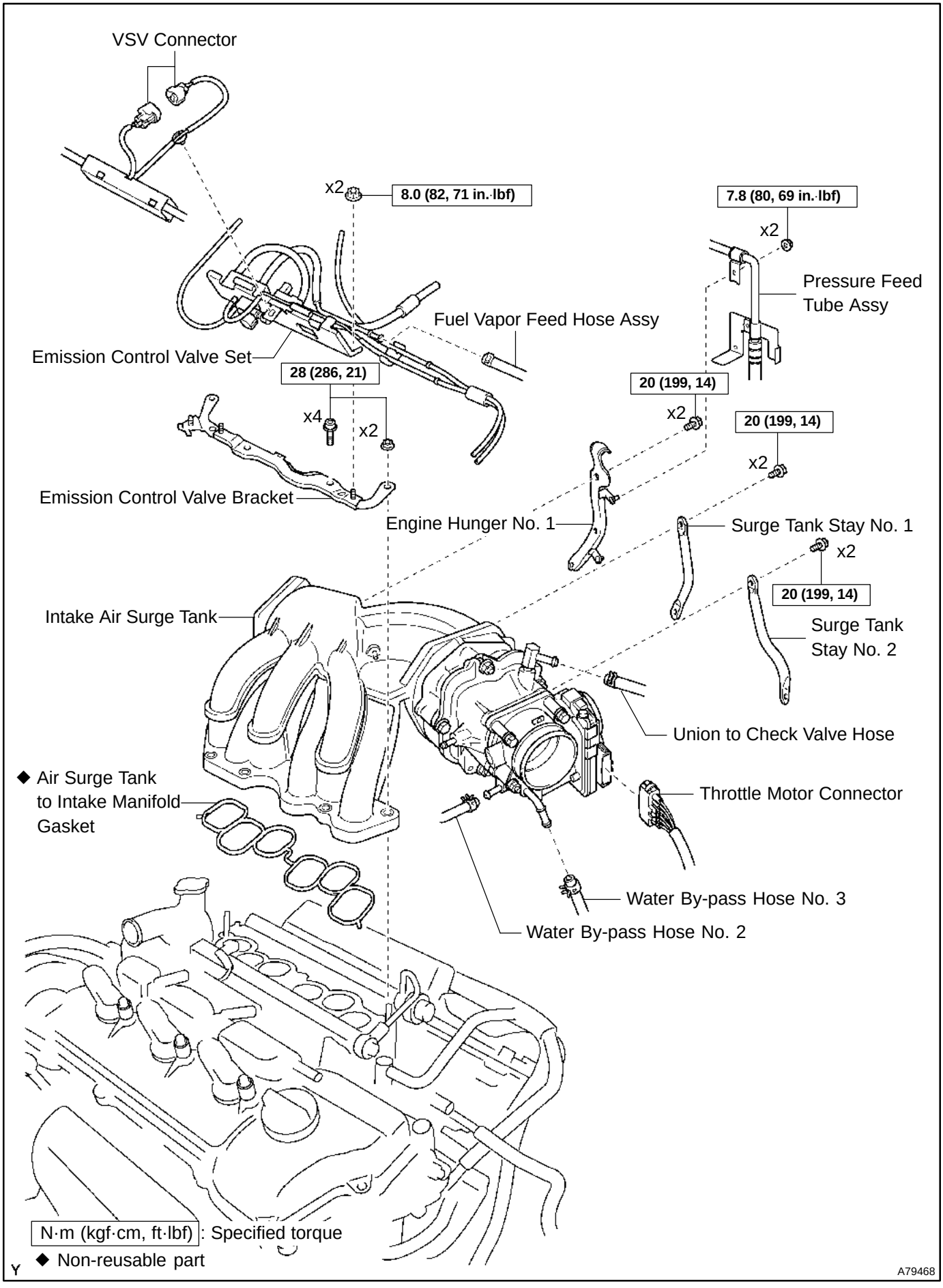
# FUEL INJECTOR ASSY

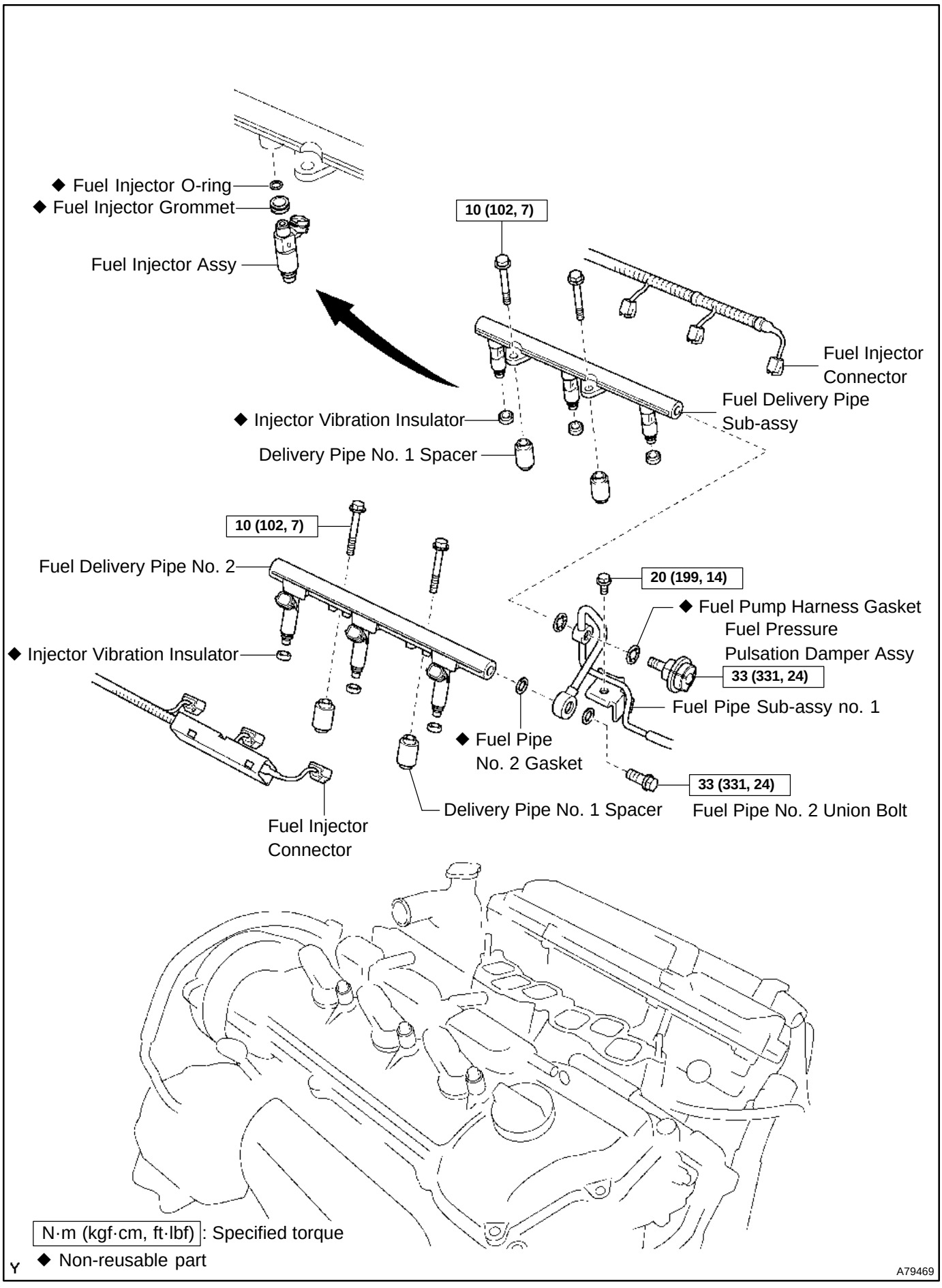
## COMPONENTS

110SZ-01




x3
7.9 (81, 70 in.·lbf)
V-bank Cover Sub-assy
Fuel Vapor Feed Hose Assy
Mass
Air Flow Meter
Connector
Vacuum Hose
Air Cleaner Cap Sub-assy
5.0 (51, 44 in.·lbf)
Air Cleaner Filter Element Sub-assy
N·m (kgf·cm, ft·lbf) : Specified torque
A81680

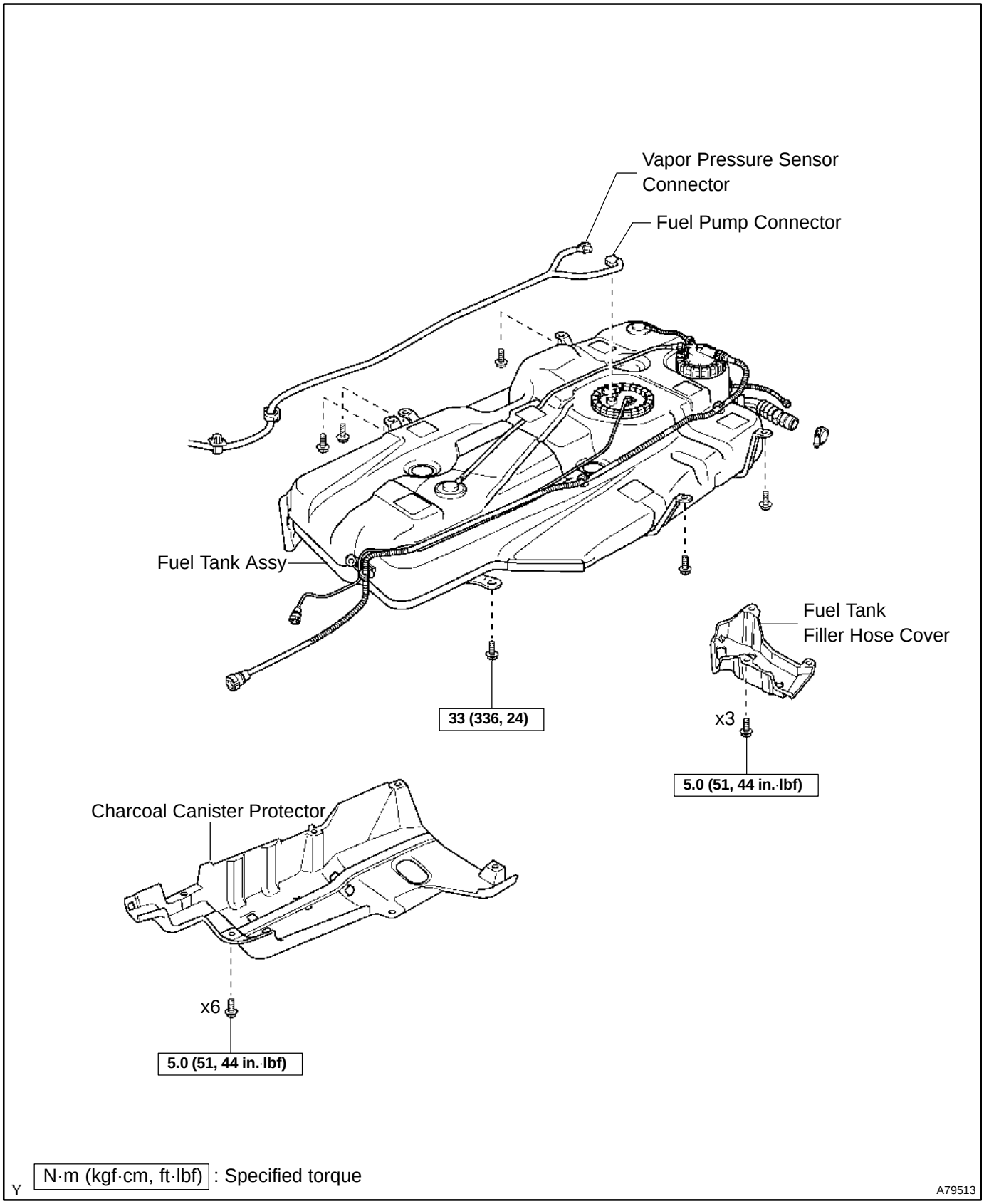

VSV Connector
x2
8.0 (82, 71 in.·lbf)
7.8 (80, 69 in.·lbf)
x2
Pressure Feed Tube Assy
Fuel Vapor Feed Hose Assy
Emission Control Valve Set
28 (286, 21)
x4
x2
20 (199, 14)
x2
20 (199, 14)
x2
Emission Control Valve Bracket
Engine Hunger No. 1
Surge Tank Stay No. 1
x2
20 (199, 14)
Surge Tank Stay No. 2
Intake Air Surge Tank
Union to Check Valve Hose
◆ Air Surge Tank to Intake Manifold Gasket
Throttle Motor Connector
Water By-pass Hose No. 3
Water By-pass Hose No. 2
N·m (kgf·cm, ft·lbf) : Specified torque
◆ Non-reusable part
A79468

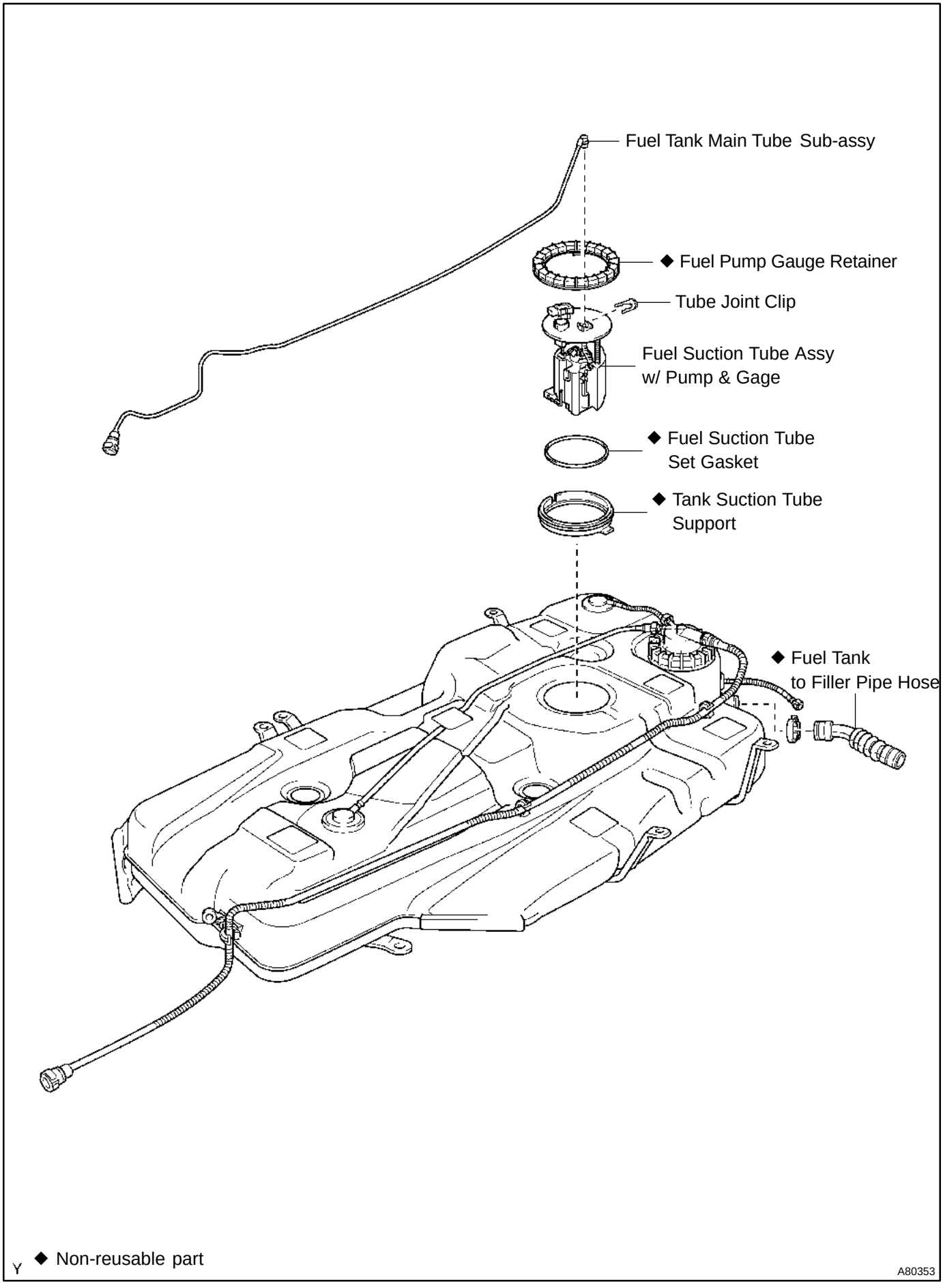

◆ Fuel Injector O-ring
◆ Fuel Injector Grommet
Fuel Injector Assy
10 (102, 7)
Fuel Injector Connector
Fuel Delivery Pipe Sub-assy
◆ Injector Vibration Insulator
Delivery Pipe No. 1 Spacer
10 (102, 7)
Fuel Delivery Pipe No. 2
20 (199, 14)
◆ Fuel Pump Harness Gasket
Fuel Pressure Pulsation Damper Assy
33 (331, 24)
◆ Injector Vibration Insulator
Fuel Pipe Sub-assy no. 1
◆ Fuel Pipe No. 2 Gasket
33 (331, 24)
Delivery Pipe No. 1 Spacer
Fuel Pipe No. 2 Union Bolt
Fuel Injector Connector
N·m (kgf·cm, ft·lbf): Specified torque
◆ Non-reusable part
A79469

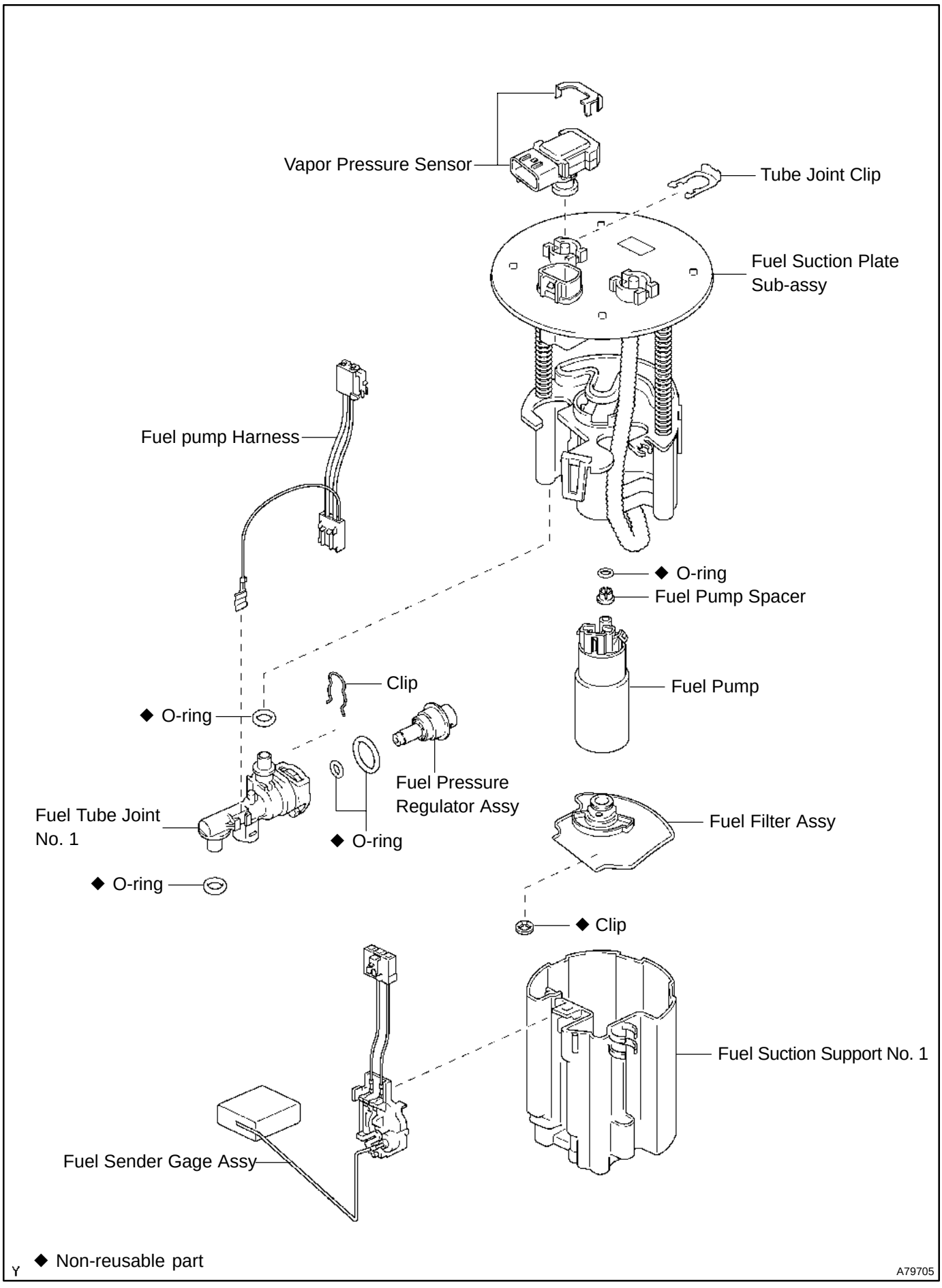
# FUEL SUCTION TUBE ASSY W/ PUMP & GAGE

110T1-01

## COMPONENTS



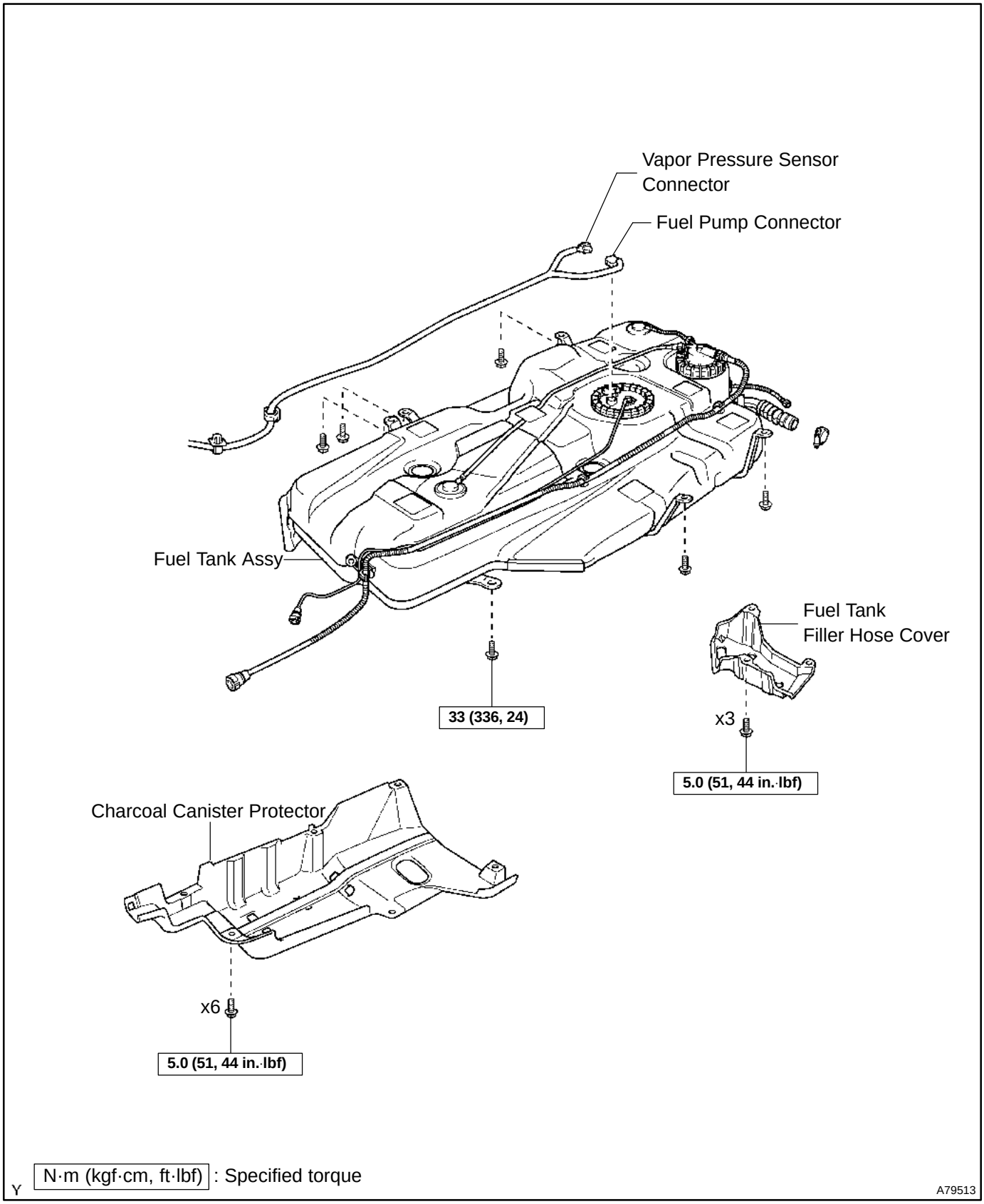

Fuel Tank Main Tube Sub-assy
◆ Fuel Pump Gauge Retainer
Tube Joint Clip
Fuel Suction Tube Assy
w/ Pump & Gage
◆ Fuel Suction Tube
Set Gasket
◆ Tank Suction Tube
Support
◆ Fuel Tank
to Filler Pipe Hose
◆ Non-reusable part
A80353

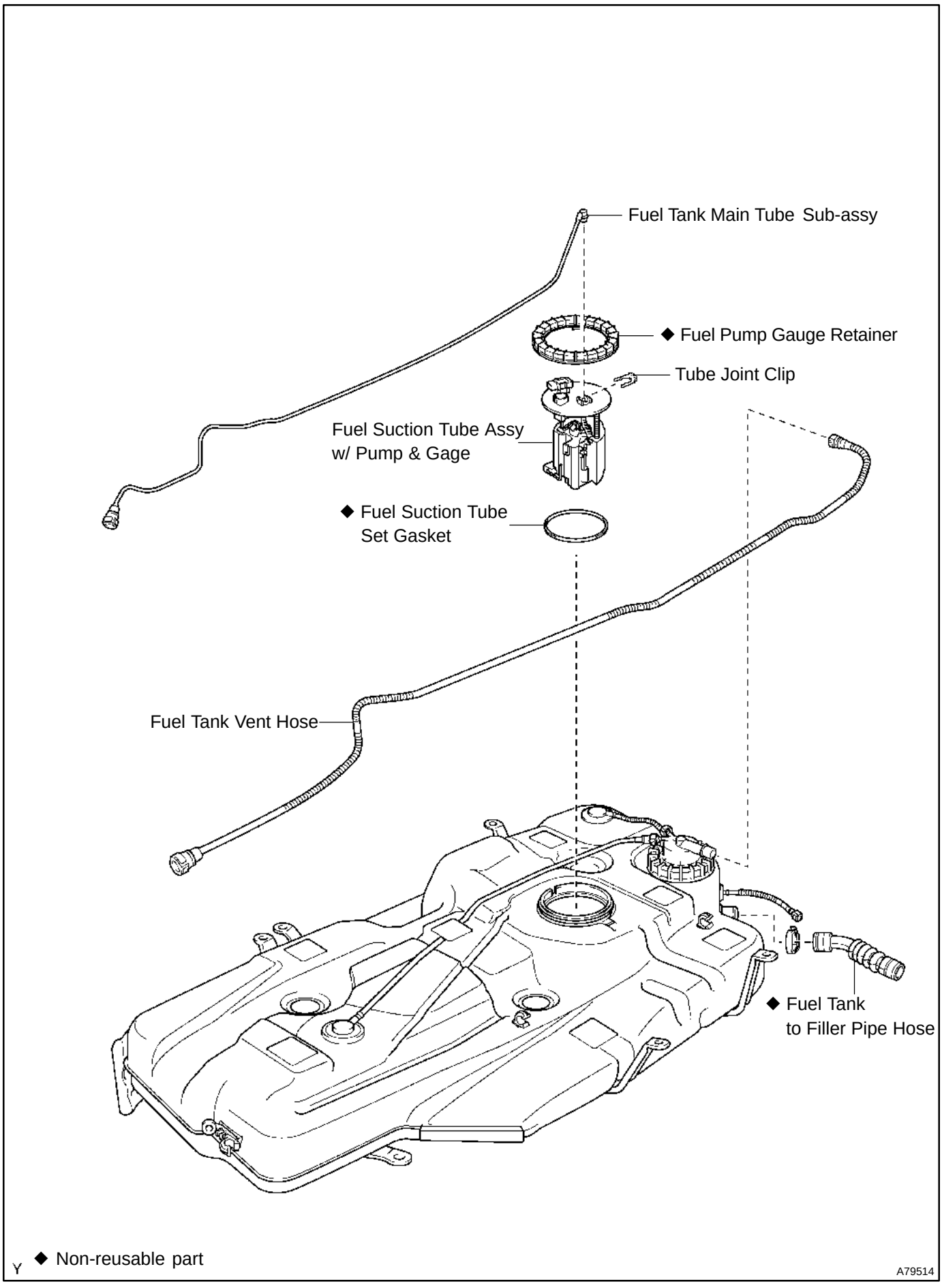

Vapor Pressure Sensor
Tube Joint Clip
Fuel Suction Plate Sub-assy
Fuel pump Harness
◆ O-ring
Fuel Pump Spacer
Fuel Pump
Clip
◆ O-ring
Fuel Pressure Regulator Assy
Fuel Tube Joint No. 1
◆ O-ring
Fuel Filter Assy
◆ O-ring
◆ Clip
Fuel Suction Support No. 1
Fuel Sender Gage Assy
◆ Non-reusable part
A79705

# FUEL TANK ASSY

## COMPONENTS

110T3-01

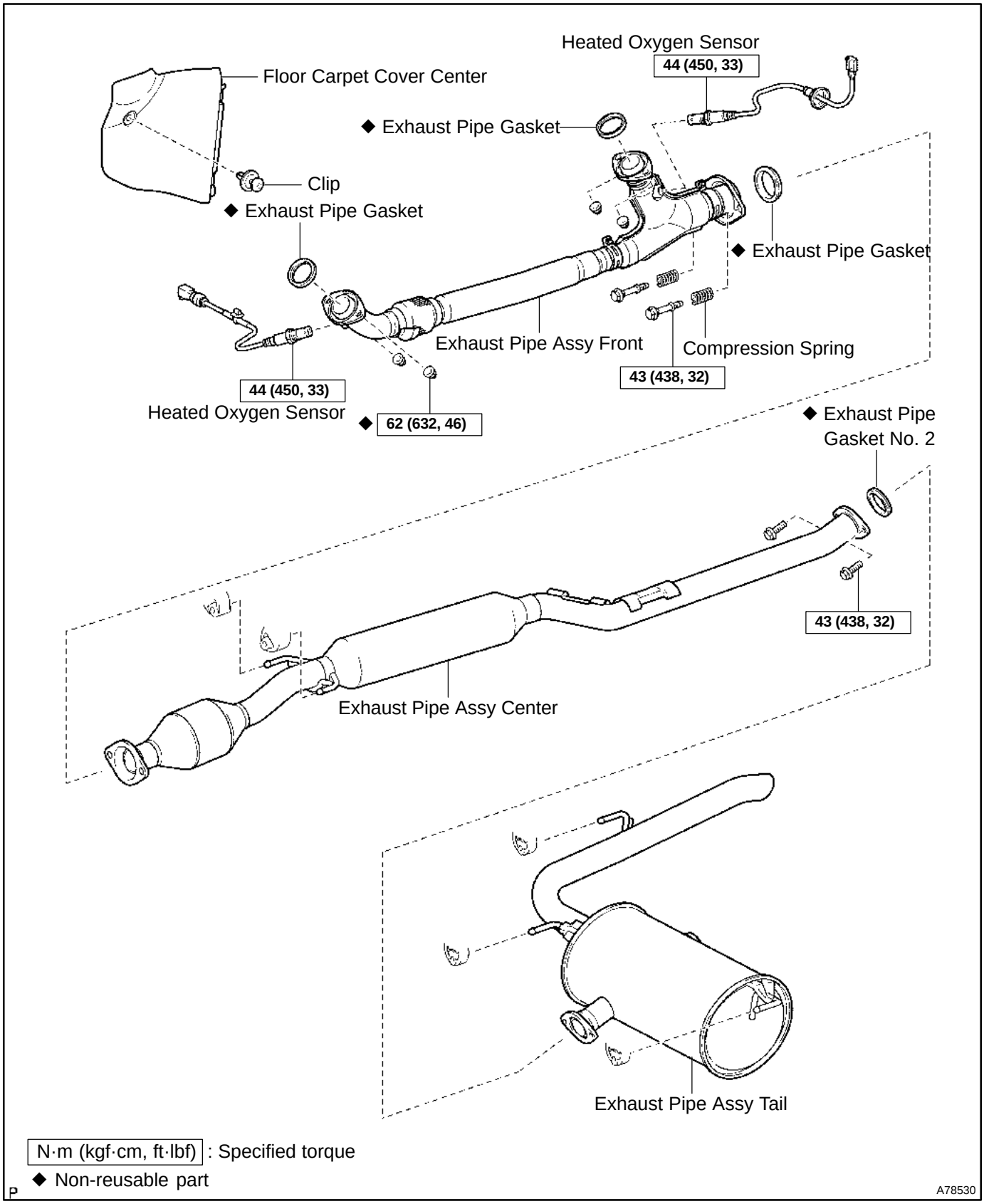



Fuel Tank Main Tube Sub-assy
◆ Fuel Pump Gauge Retainer
Tube Joint Clip
Fuel Suction Tube Assy
w/ Pump & Gage
◆ Fuel Suction Tube
Set Gasket
Fuel Tank Vent Hose
◆ Fuel Tank
to Filler Pipe Hose
◆ Non-reusable part
A79514

# EXHAUST PIPE ASSY (FF)

## COMPONENTS

1509G-01




N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

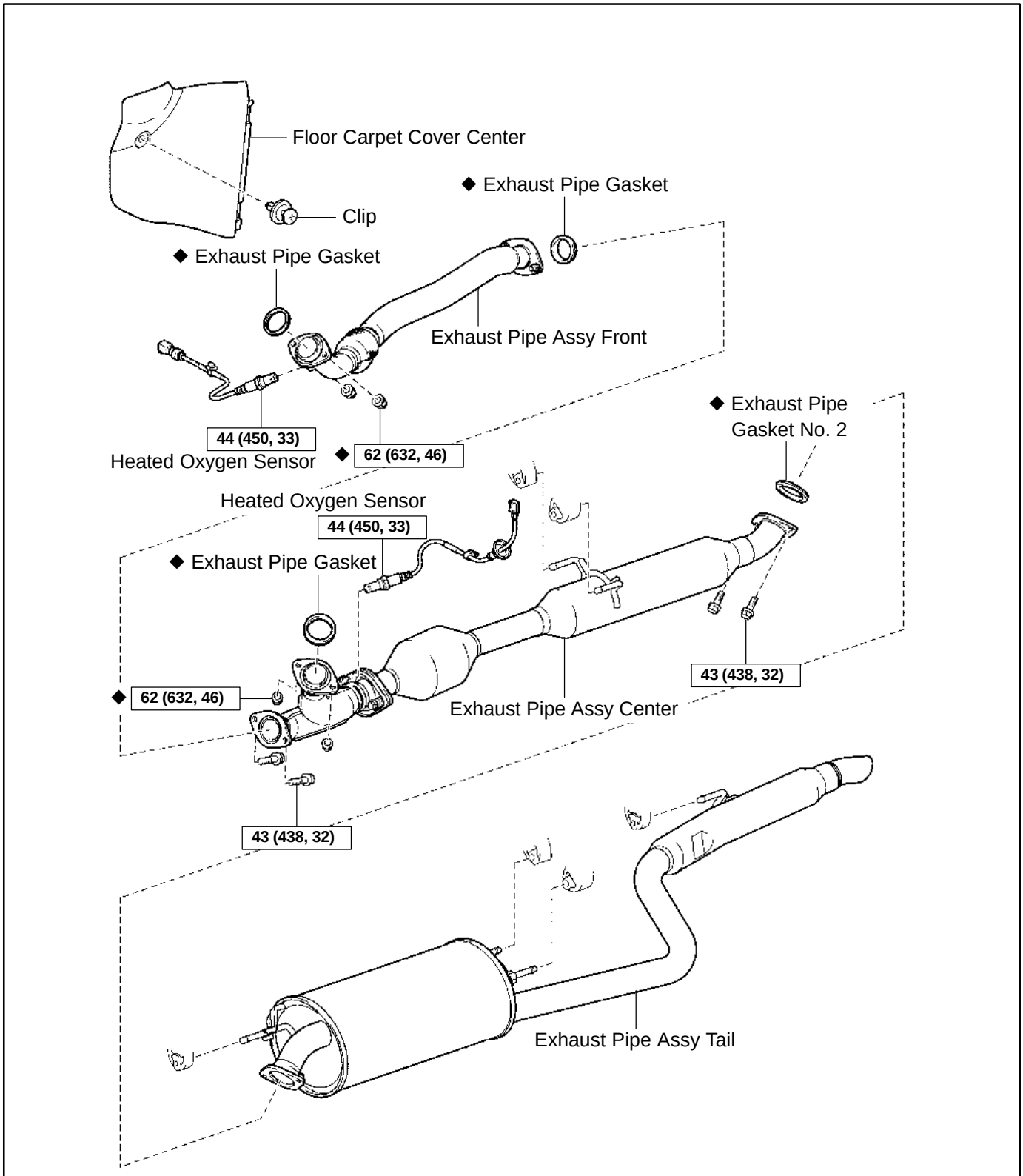
P

A78530

# EXHAUST PIPE ASSY (4WD)

1509I-01

## COMPONENTS




N·m (kgf·cm, ft·lbf) : Specified torque

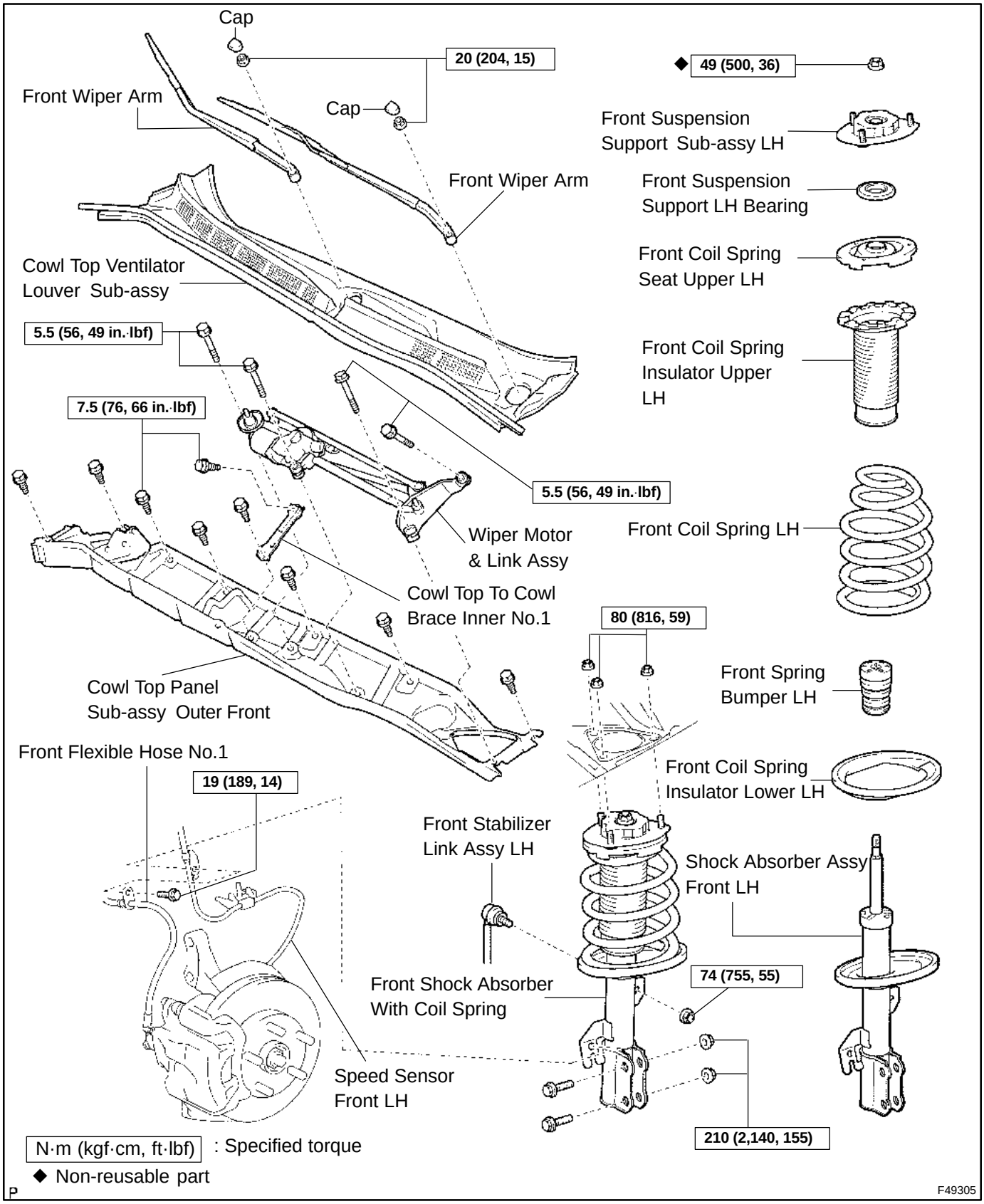
◆ Non-reusable part

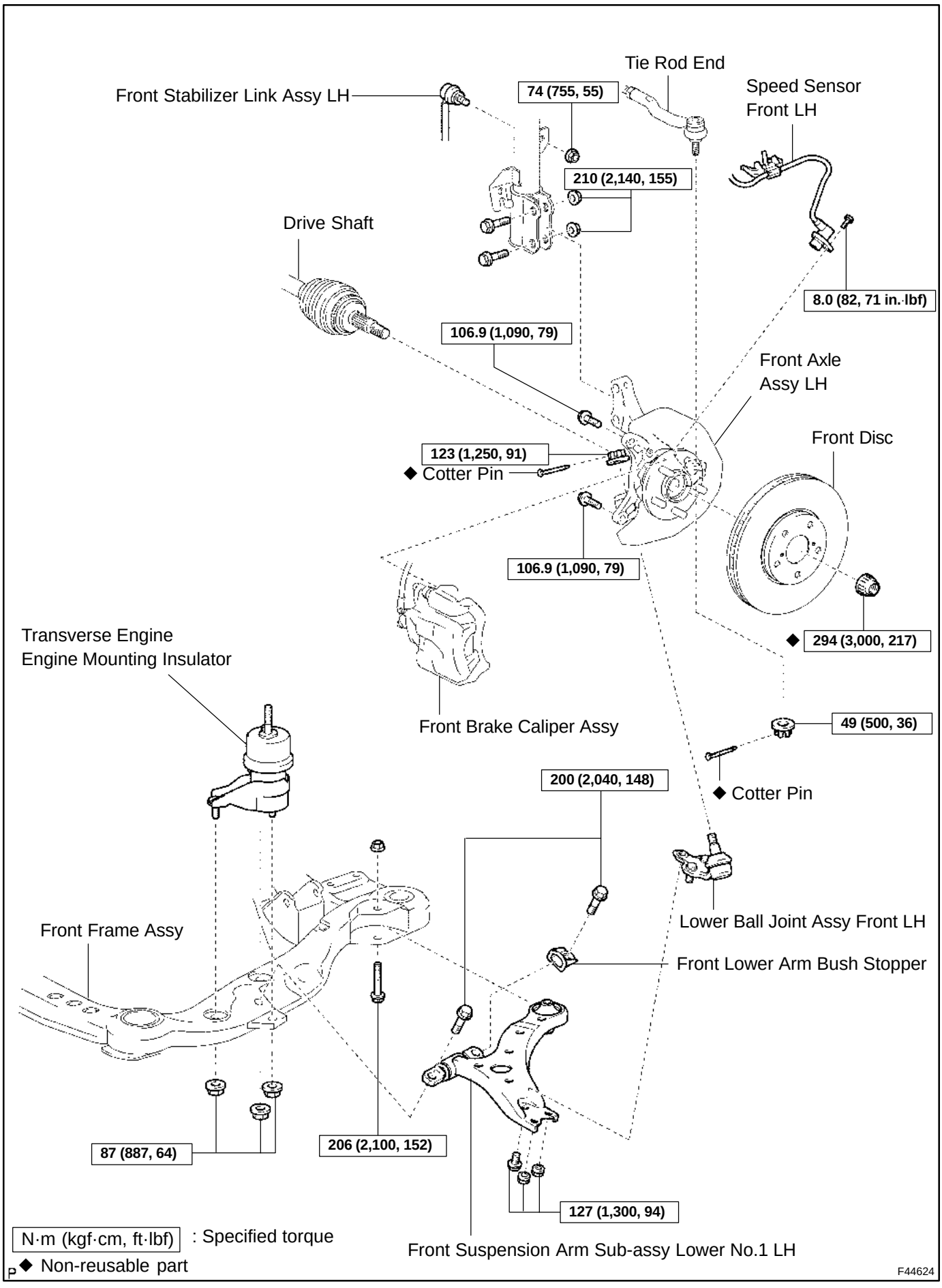
A79450

# FRONT SUSPENSION

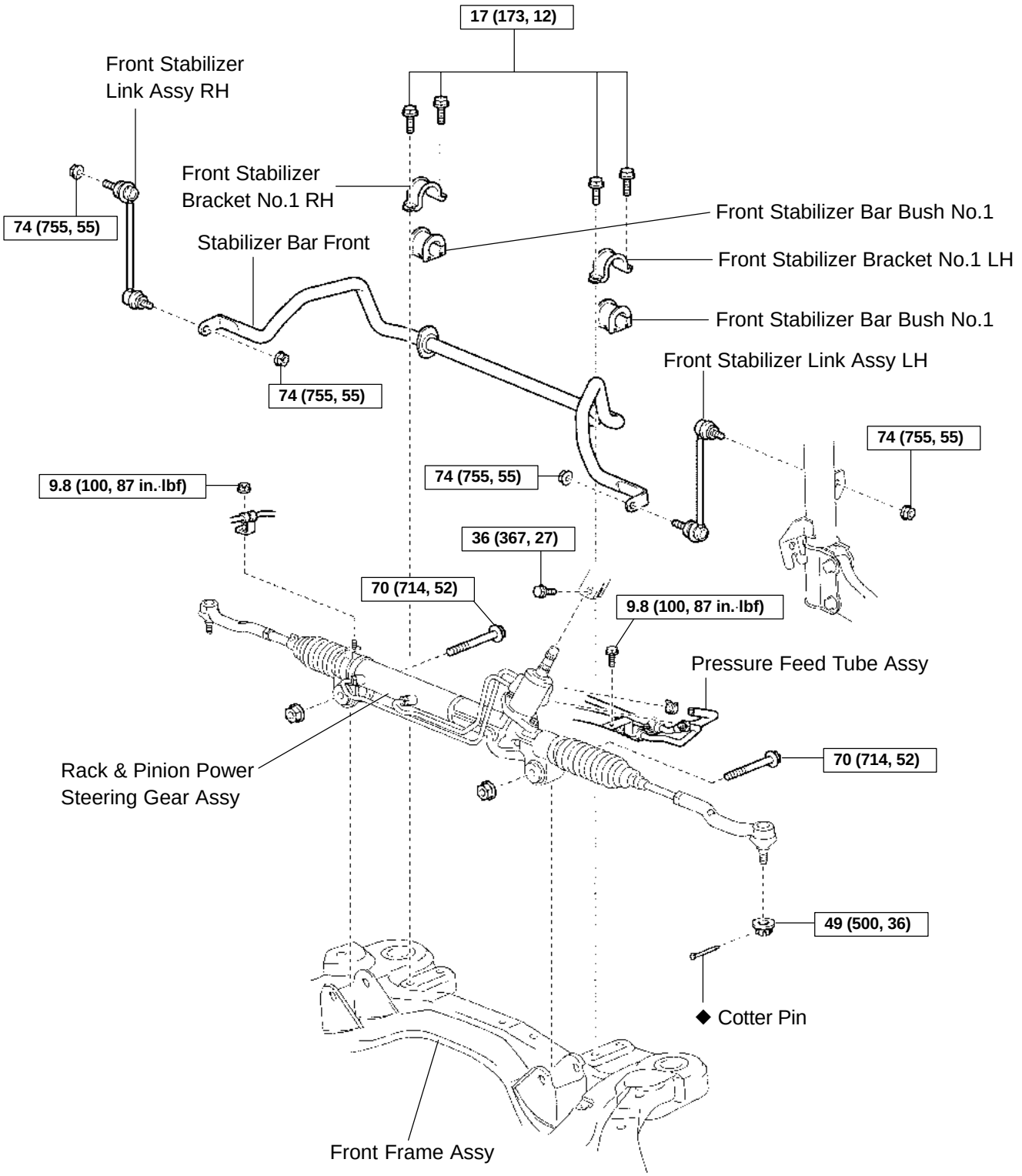
260DJ-02

## COMPONENTS




Tie Rod End
Front Stabilizer Link Assy LH
74 (755, 55)
Speed Sensor
Front LH
210 (2,140, 155)
Drive Shaft
8.0 (82, 71 in.·lbf)
106.9 (1,090, 79)
Front Axle
Assy LH
123 (1,250, 91)
◆ Cotter Pin
Front Disc
106.9 (1,090, 79)
◆ 294 (3,000, 217)
Transverse Engine
Engine Mounting Insulator
Front Brake Caliper Assy
49 (500, 36)
200 (2,040, 148)
◆ Cotter Pin
Lower Ball Joint Assy Front LH
Front Frame Assy
Front Lower Arm Bush Stopper
87 (887, 64)
206 (2,100, 152)
127 (1,300, 94)
N·m (kgf·cm, ft·lbf) : Specified torque
◆ Non-reusable part
Front Suspension Arm Sub-assy Lower No.1 LH
F44624

**FF Type:**



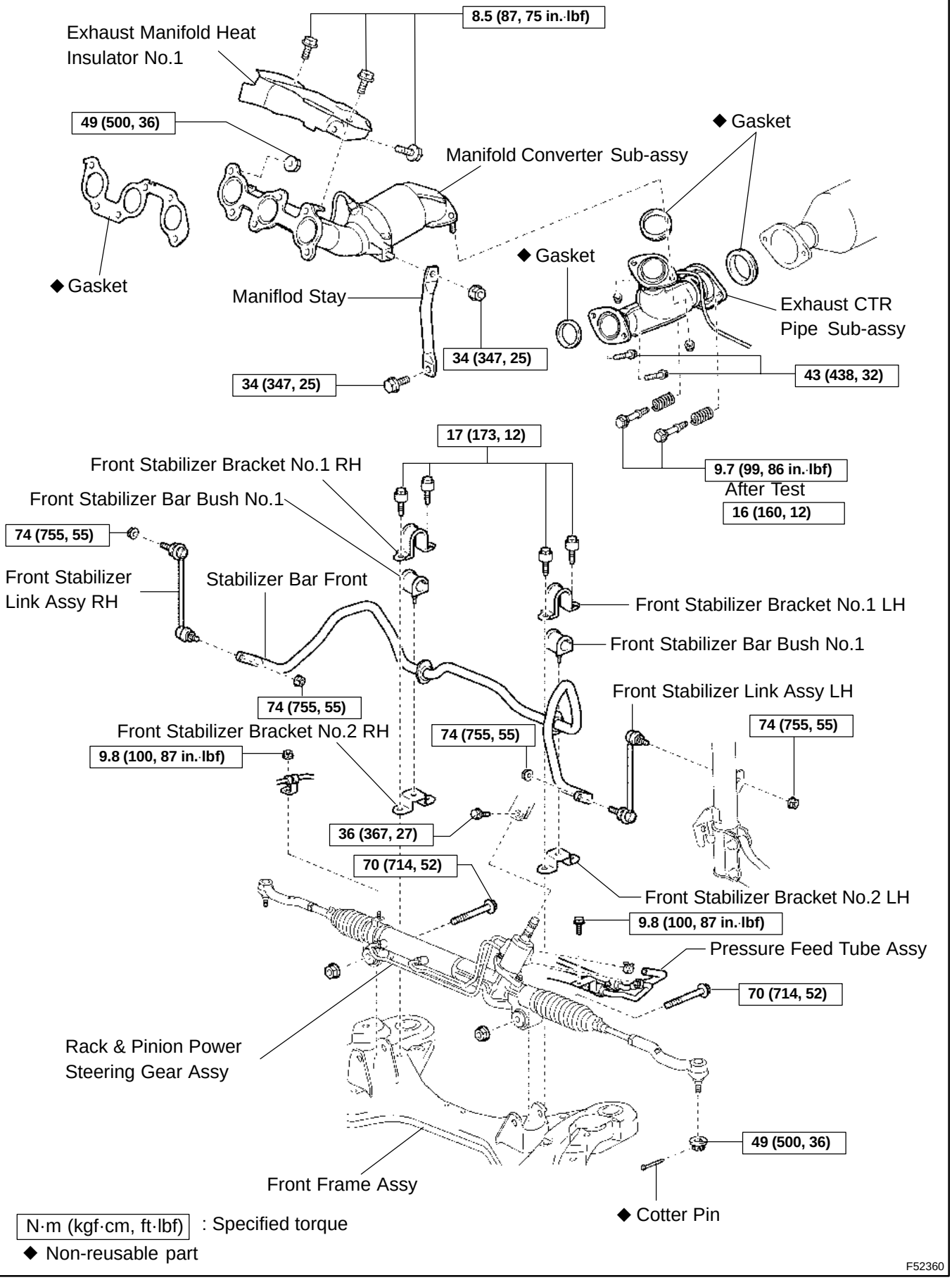

P

N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

F44625

**4WD Type:**




N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

P

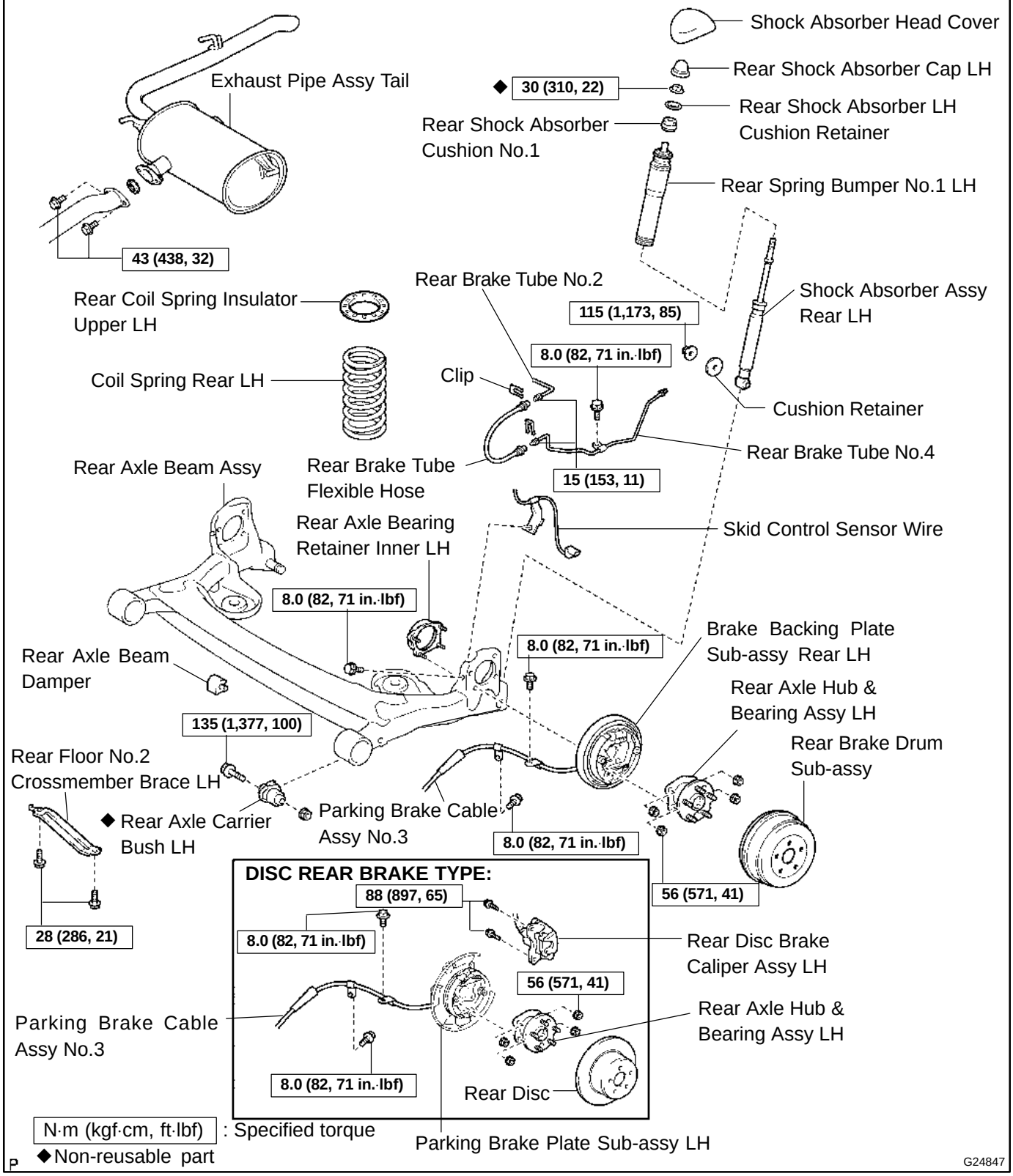
F52360

# REAR SUSPENSION

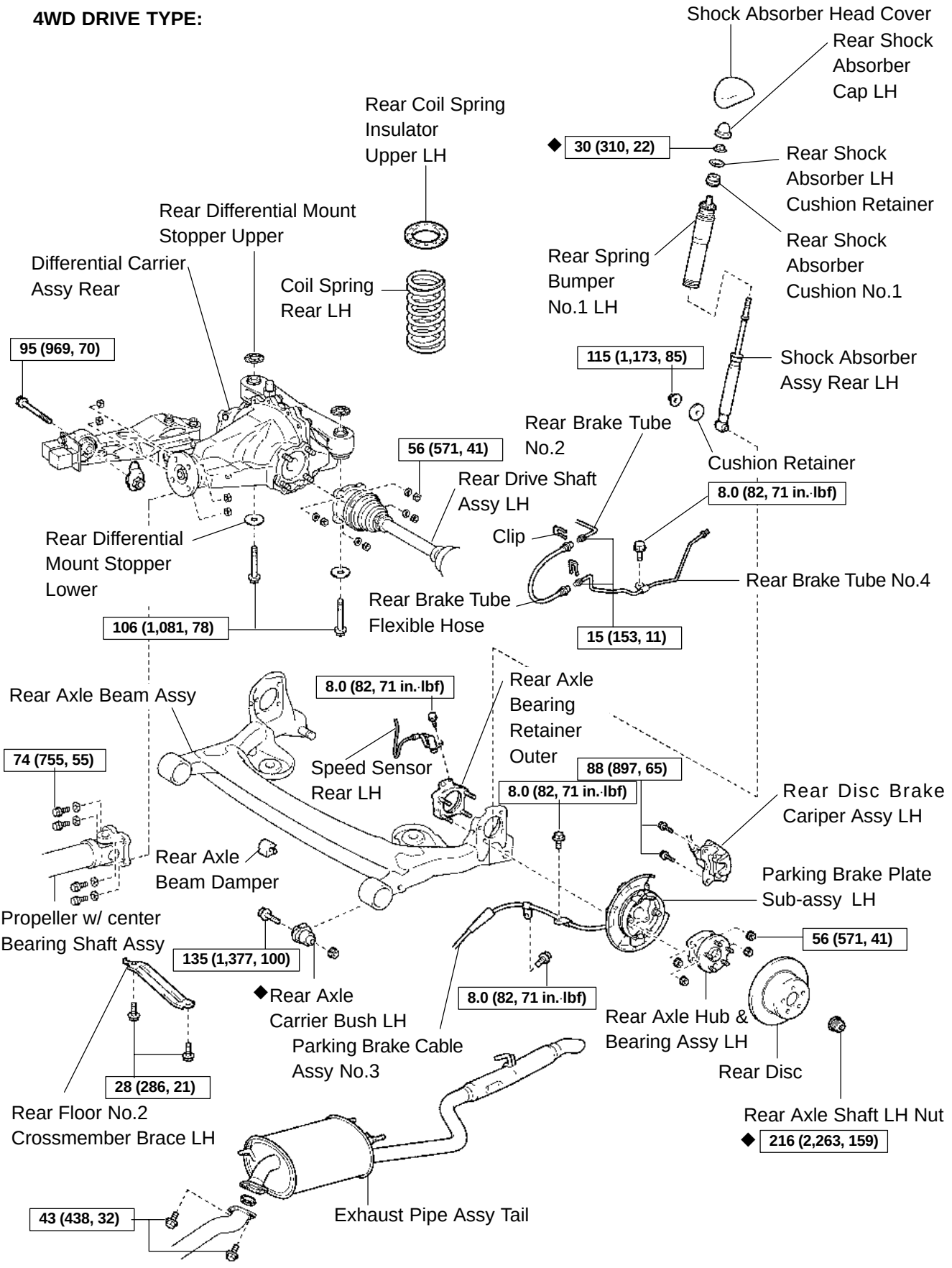
## COMPONENTS

270DR-02

**2WD DRIVE TYPE:**



**4WD DRIVE TYPE:**




N·m (kgf·cm, ft·lbf) : Specified torque

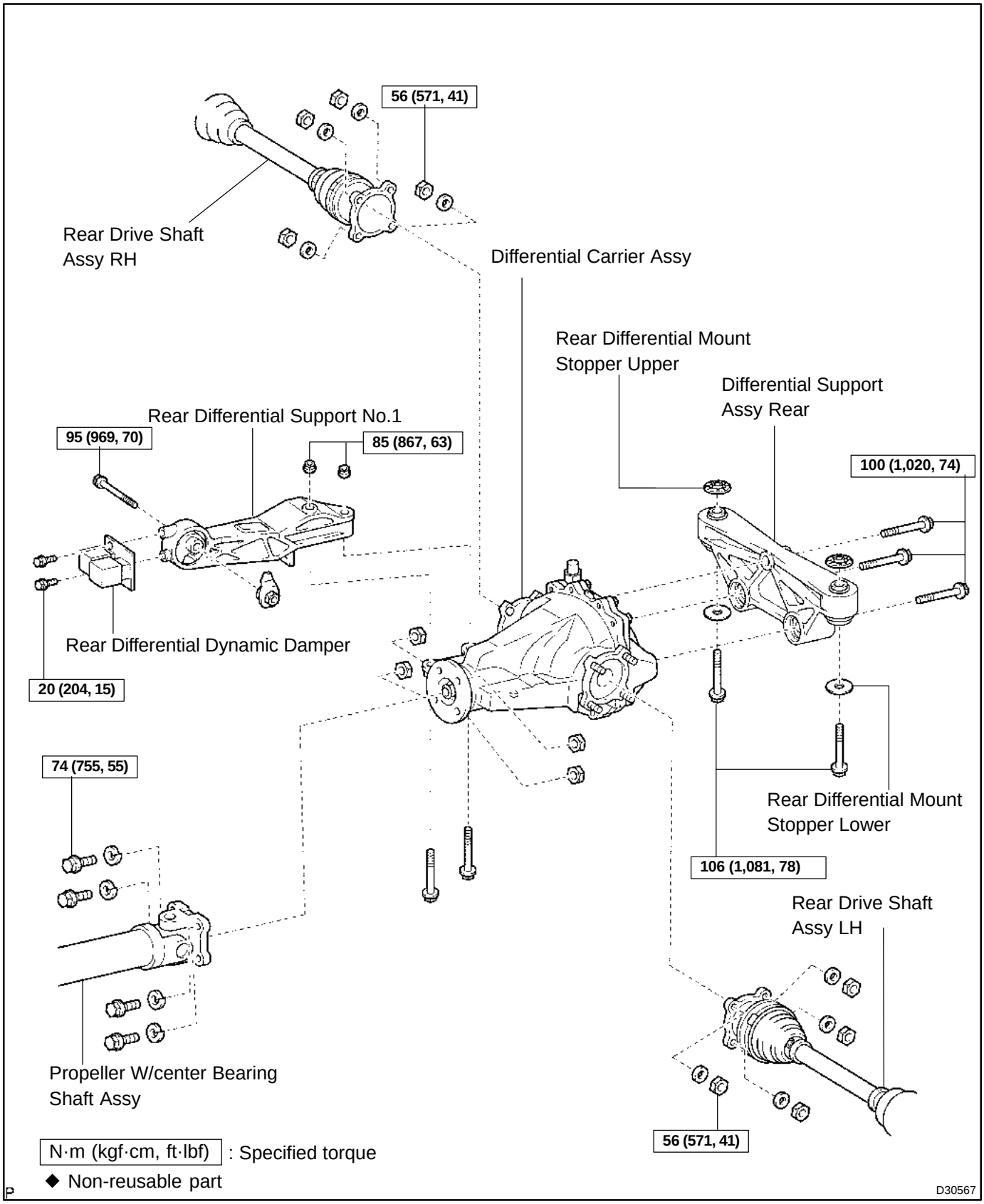
◆ Non-reusable part

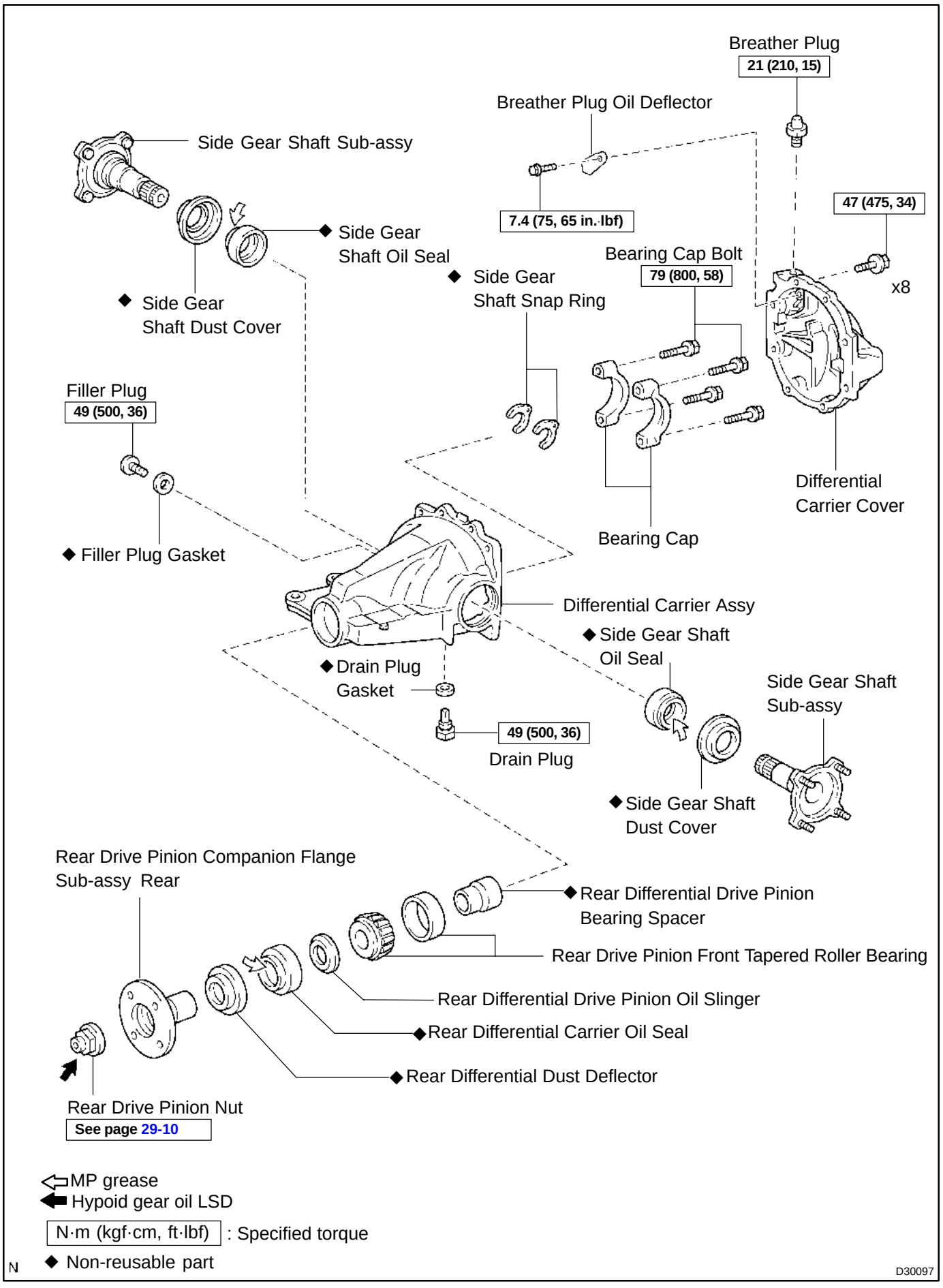
G24848

# DIFFERENTIAL (4WD)

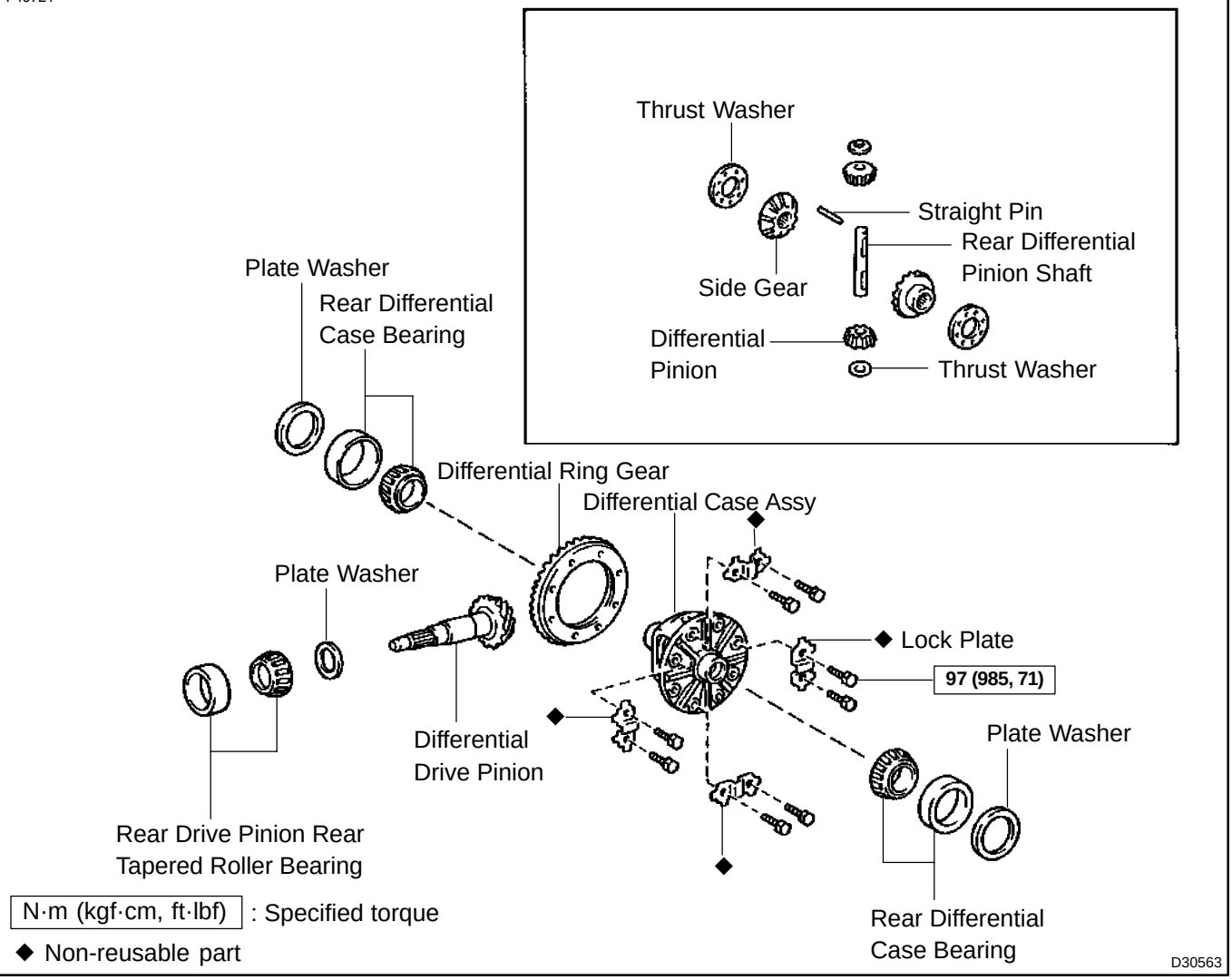
29081-01

## COMPONENTS




Breather Plug
21 (210, 15)
Breather Plug Oil Deflector
Side Gear Shaft Sub-assy
7.4 (75, 65 in.·lbf)
47 (475, 34)
◆ Side Gear Shaft Oil Seal
Bearing Cap Bolt
79 (800, 58)
x8
◆ Side Gear Shaft Snap Ring
◆ Side Gear Shaft Dust Cover
Filler Plug
49 (500, 36)
Differential Carrier Cover
Bearing Cap
◆ Filler Plug Gasket
Differential Carrier Assy
◆ Side Gear Shaft Oil Seal
◆ Drain Plug Gasket
Side Gear Shaft Sub-assy
49 (500, 36)
Drain Plug
◆ Side Gear Shaft Dust Cover
Rear Drive Pinion Companion Flange Sub-assy Rear
◆ Rear Differential Drive Pinion Bearing Spacer
Rear Drive Pinion Front Tapered Roller Bearing
Rear Differential Drive Pinion Oil Slinger
◆ Rear Differential Carrier Oil Seal
◆ Rear Differential Dust Deflector
Rear Drive Pinion Nut
See page 29-10
⇦ MP grease
⬅ Hypoid gear oil LSD
N·m (kgf·cm, ft·lbf) : Specified torque
◆ Non-reusable part
N
D30097

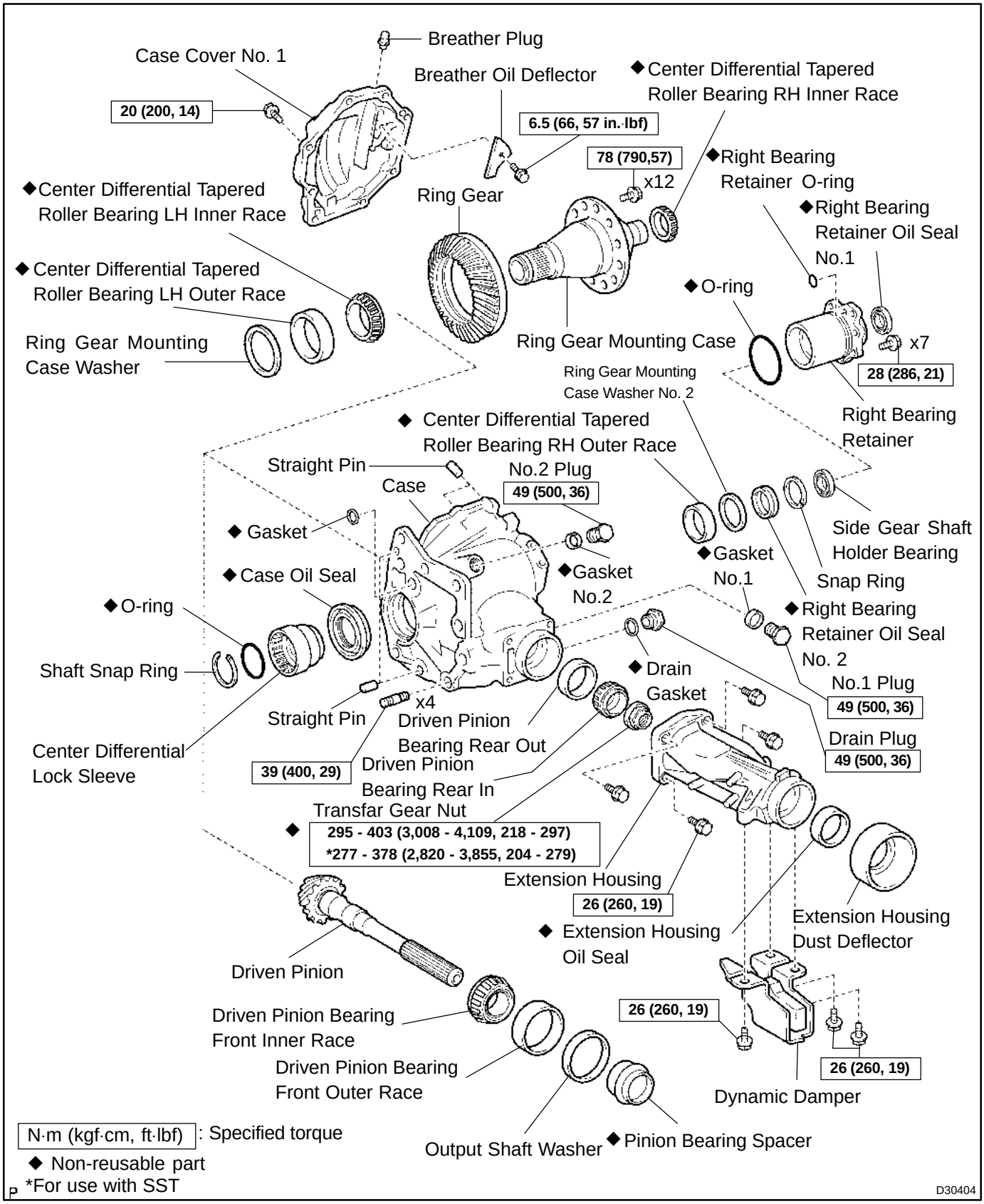
F40721


Thrust Washer
Straight Pin
Rear Differential Pinion Shaft
Side Gear
Differential Pinion
Thrust Washer
Plate Washer
Rear Differential Case Bearing
Differential Ring Gear
Differential Case Assy
Plate Washer
◆ Lock Plate
97 (985, 71)
Differential Drive Pinion
Plate Washer
Rear Drive Pinion Rear Tapered Roller Bearing
Rear Differential Case Bearing
N·m (kgf·cm, ft·lbf) : Specified torque
◆ Non-reusable part
D30563

# TRANSFER (4WD)

## COMPONENTS

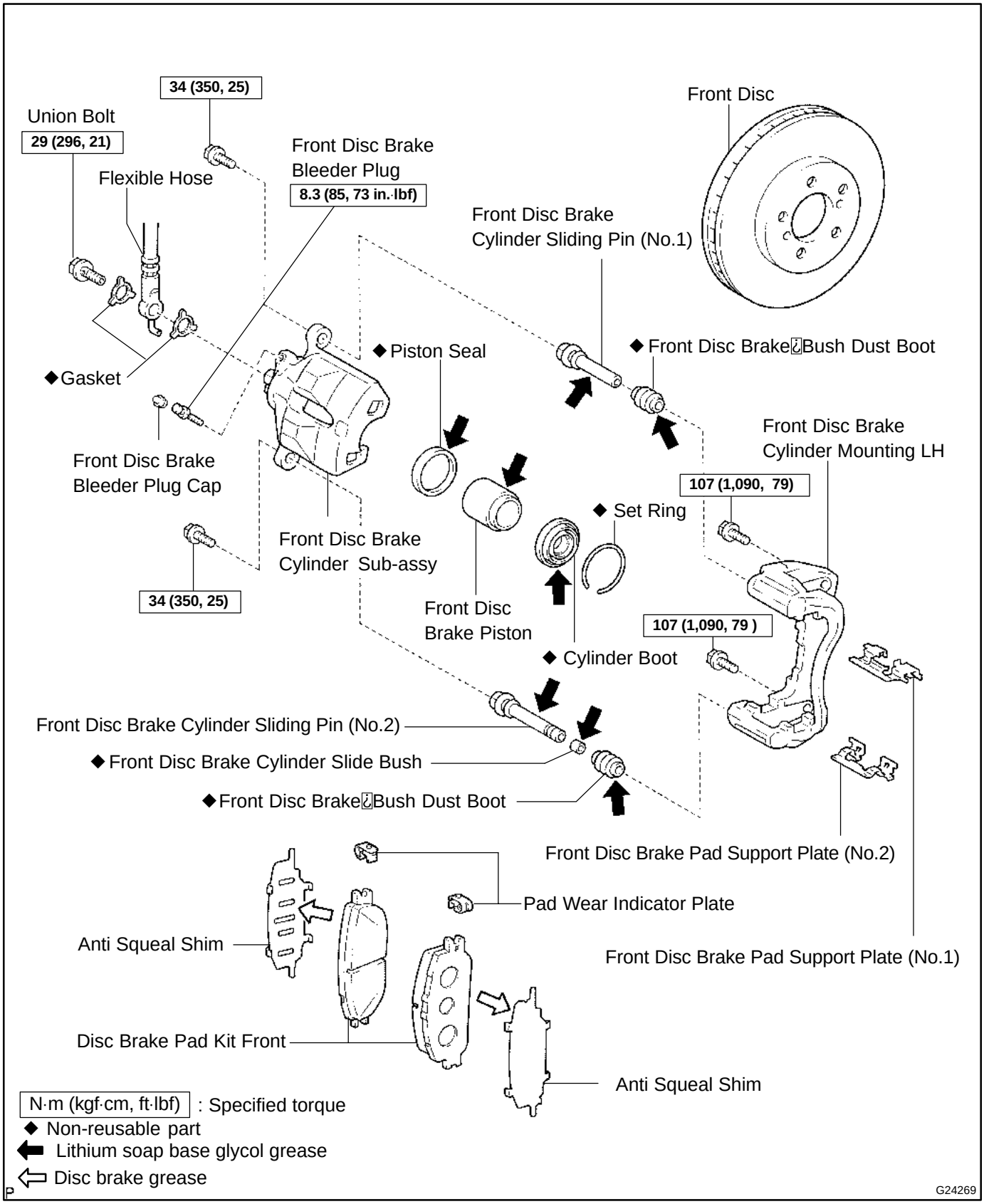
3100R-02



# FRONT BRAKE

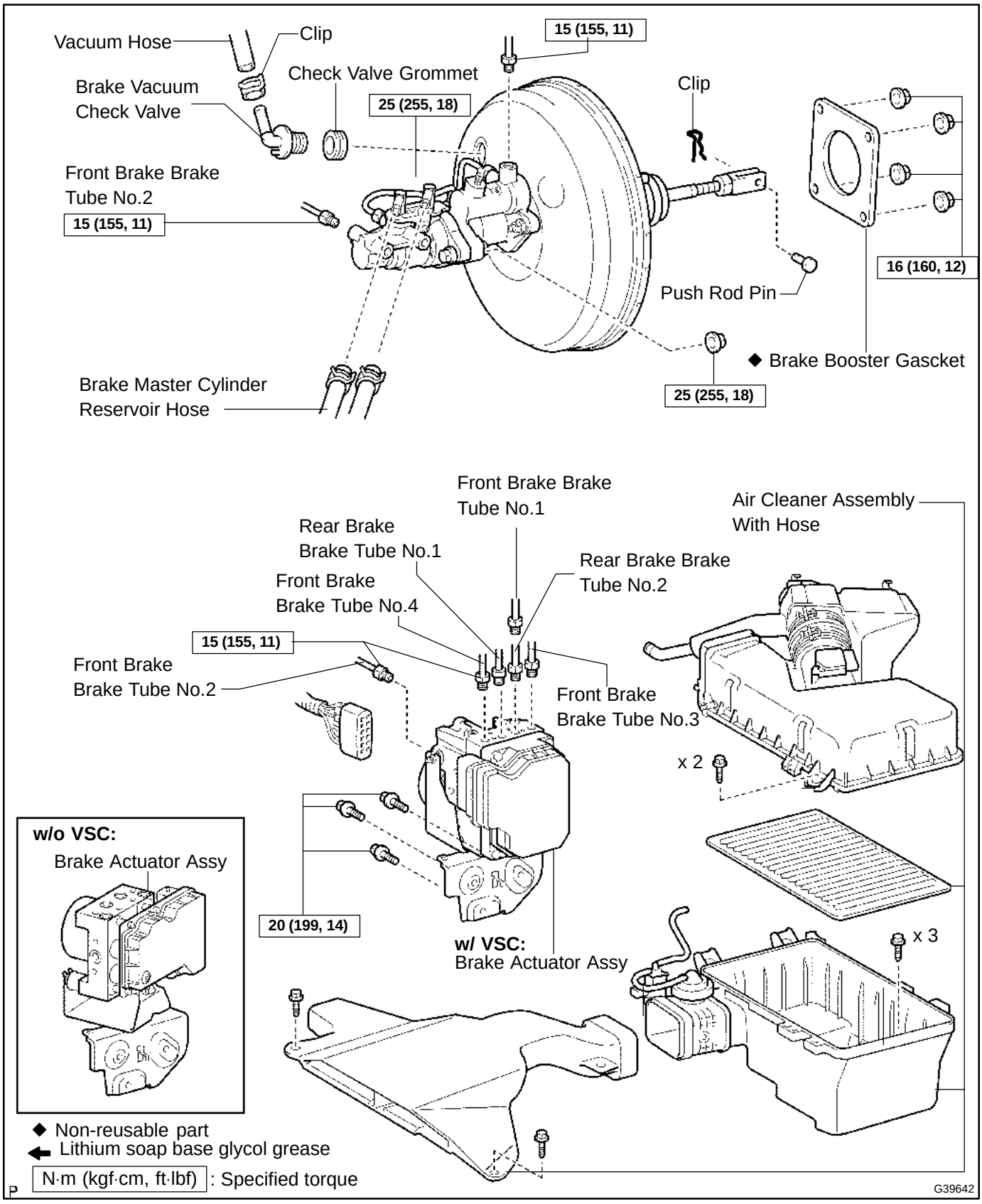
## COMPONENTS

320V1-01



320VA-02

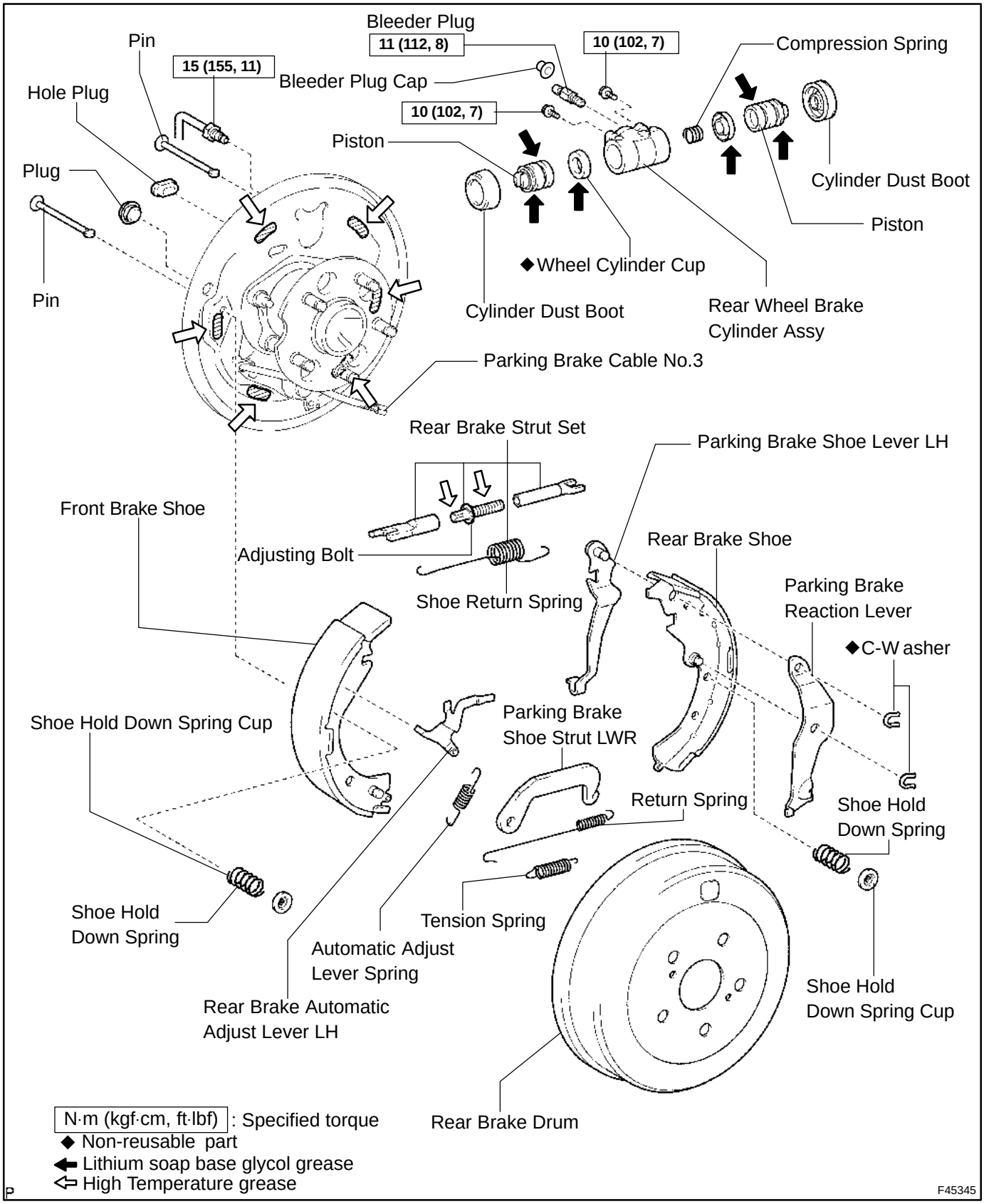
# COMPONENTS



# REAR DRUM BRAKE

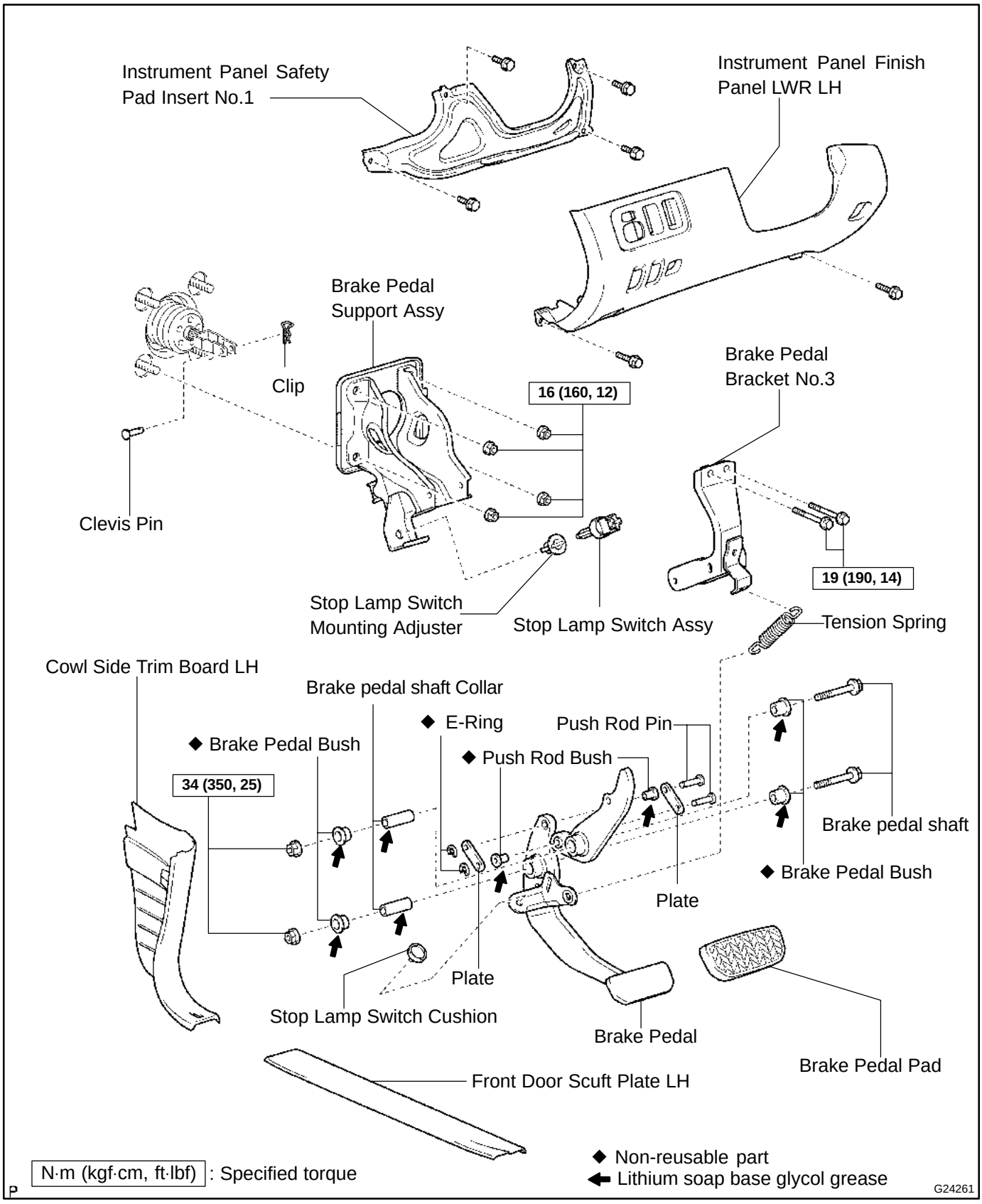
## COMPONENTS

320V8-01



320UX-02

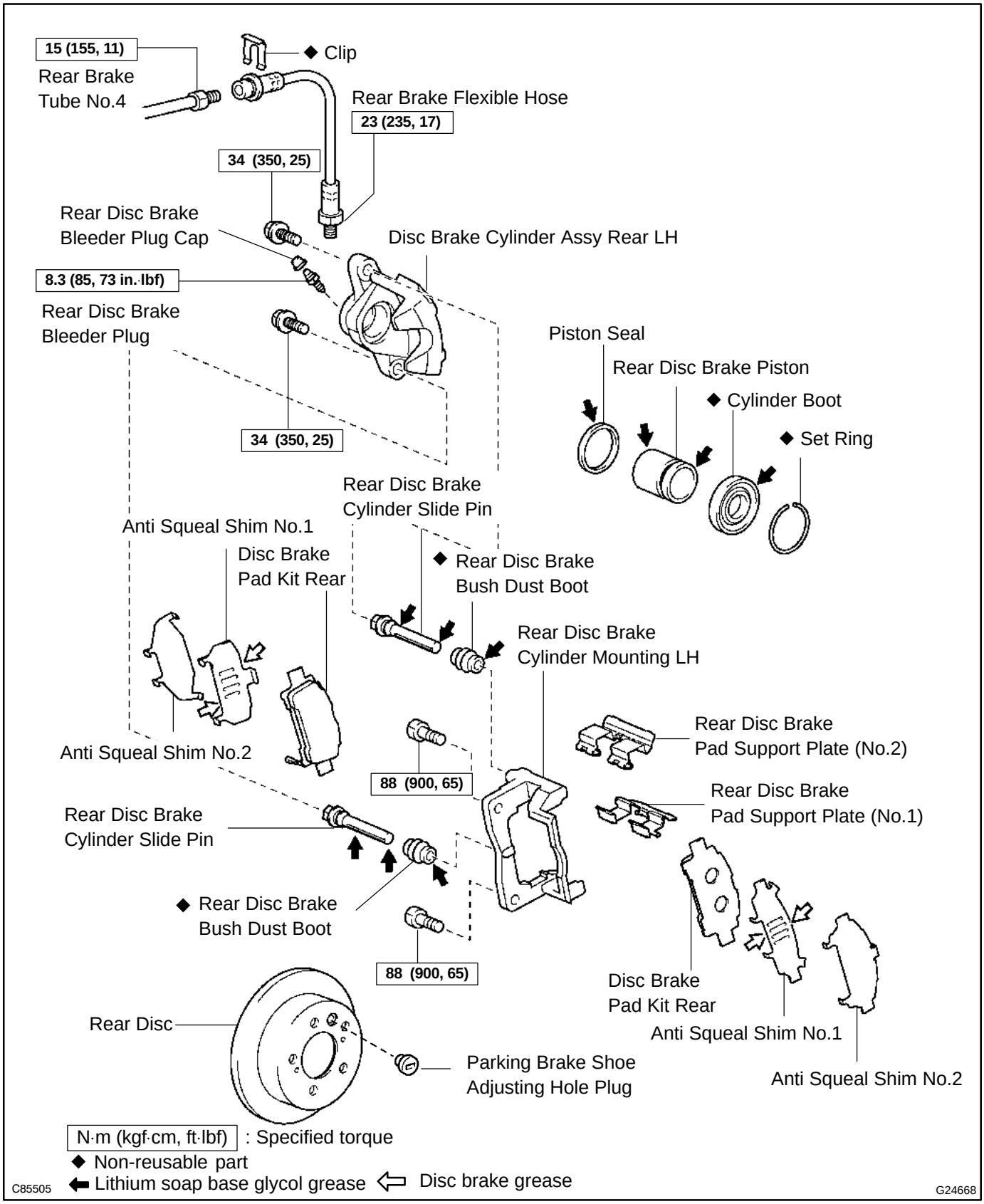
# COMPONENTS



# REAR DISC BRAKE

320V6-01

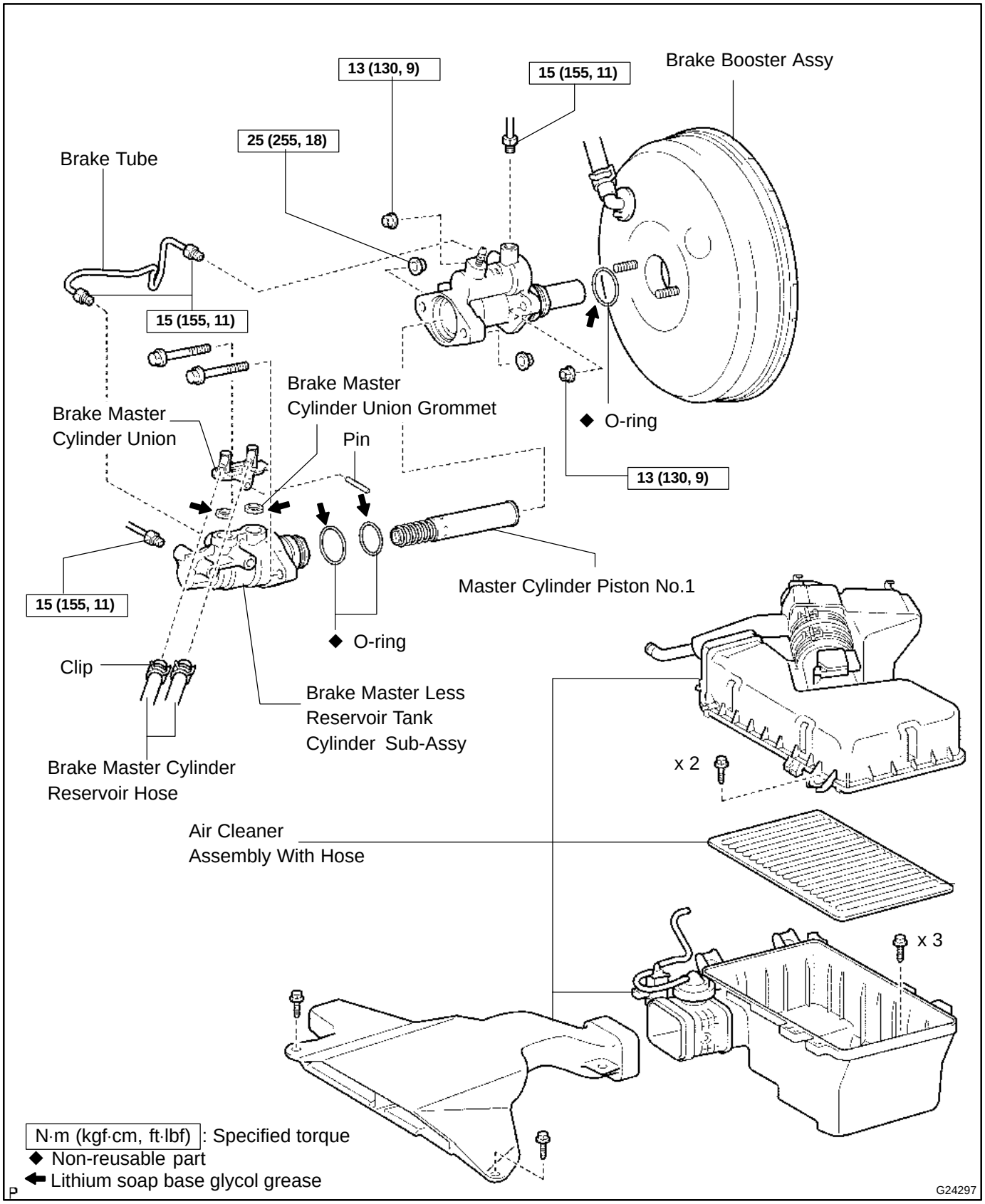
## COMPONENTS



# BRAKE MASTER LESS RESERVOIR TANK CYLINDER SUB-ASSY

320UZ-01

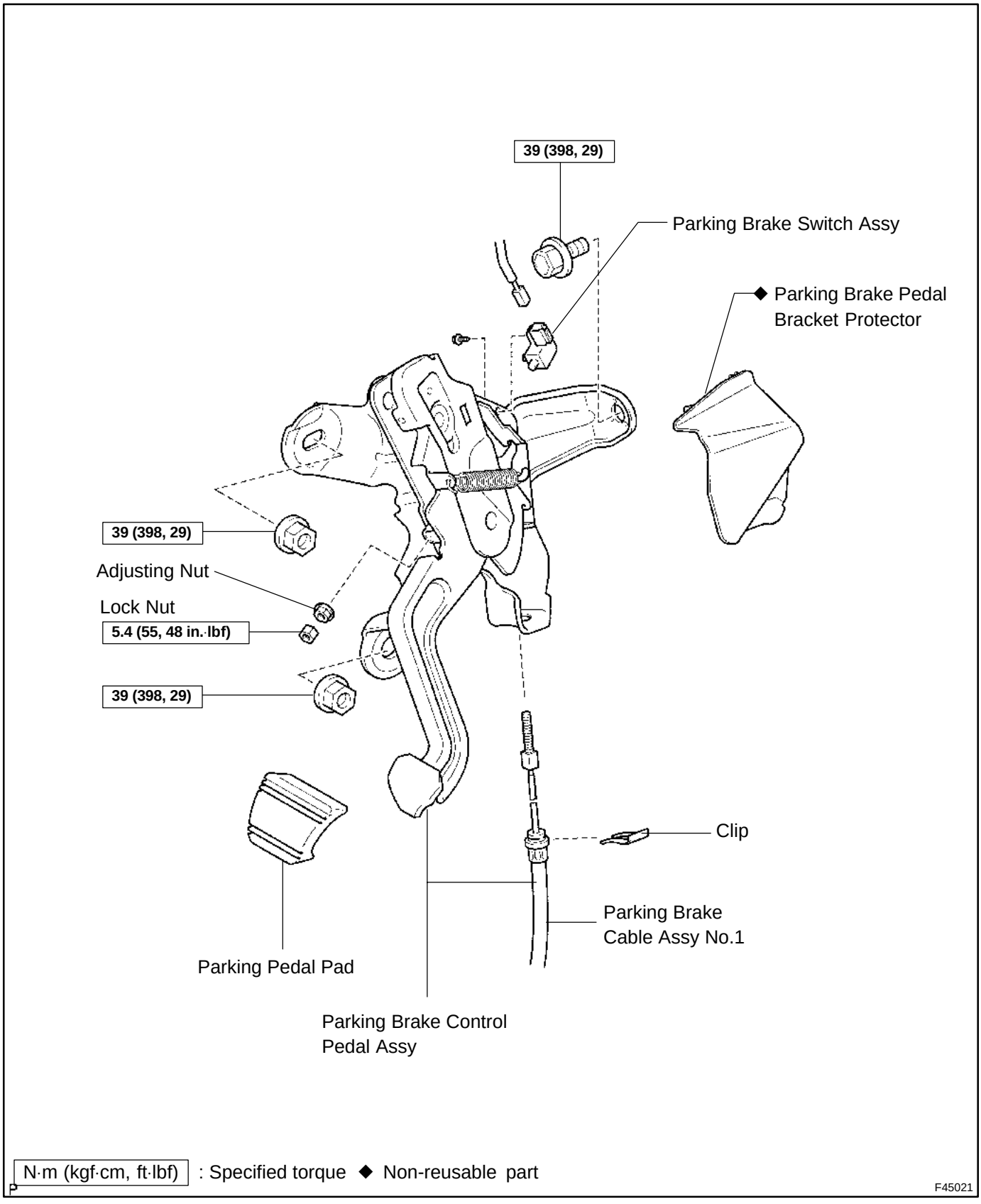
## COMPONENTS



# PARKING BRAKE CONTROL PEDAL ASSY

330BW-01

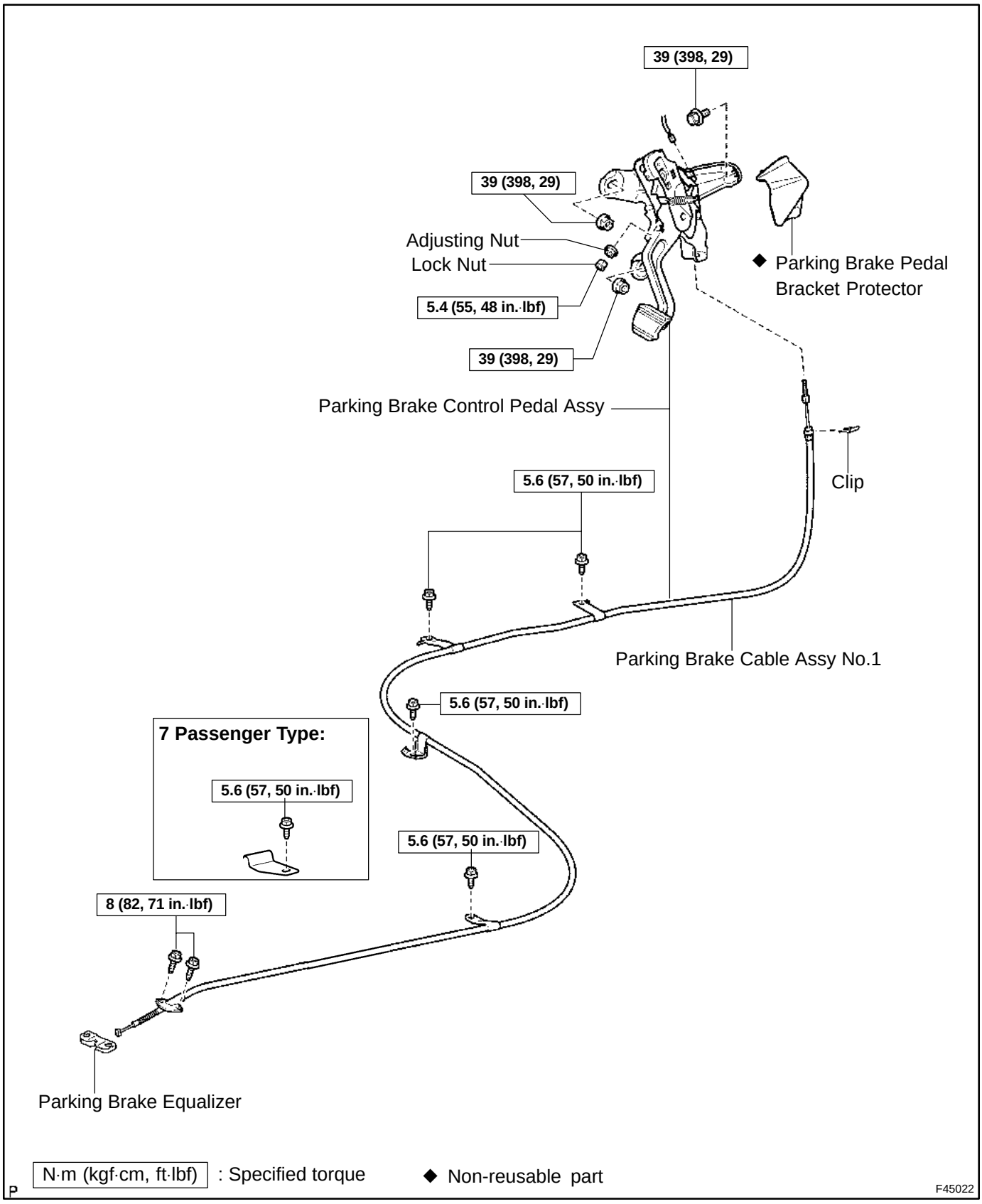
## COMPONENTS



# PARKING BRAKE CABLE ASSY NO.1

## COMPONENTS

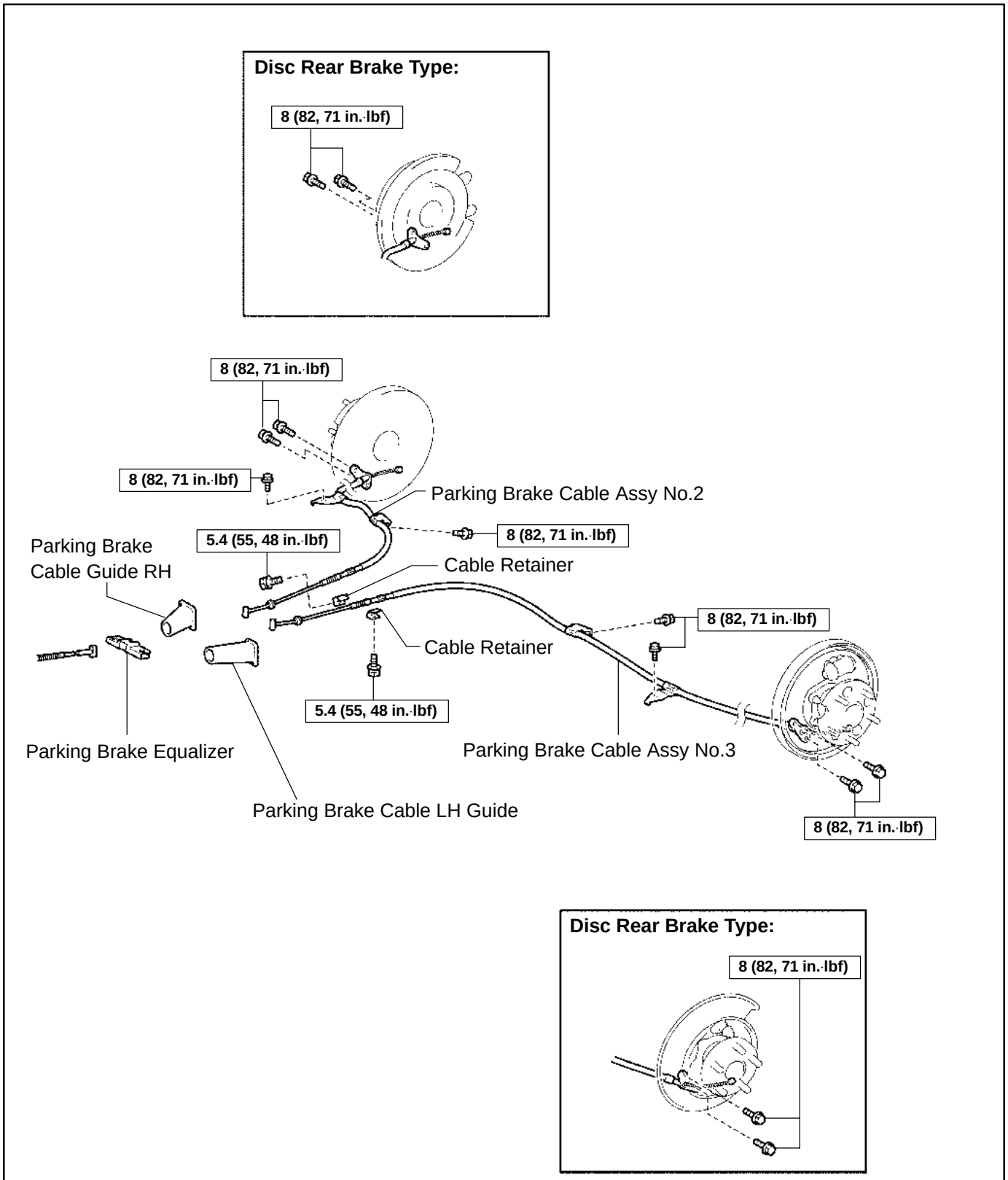
330BY-01



# PARKING BRAKE CABLE ASSY NO.3

## COMPONENTS

330C0-01



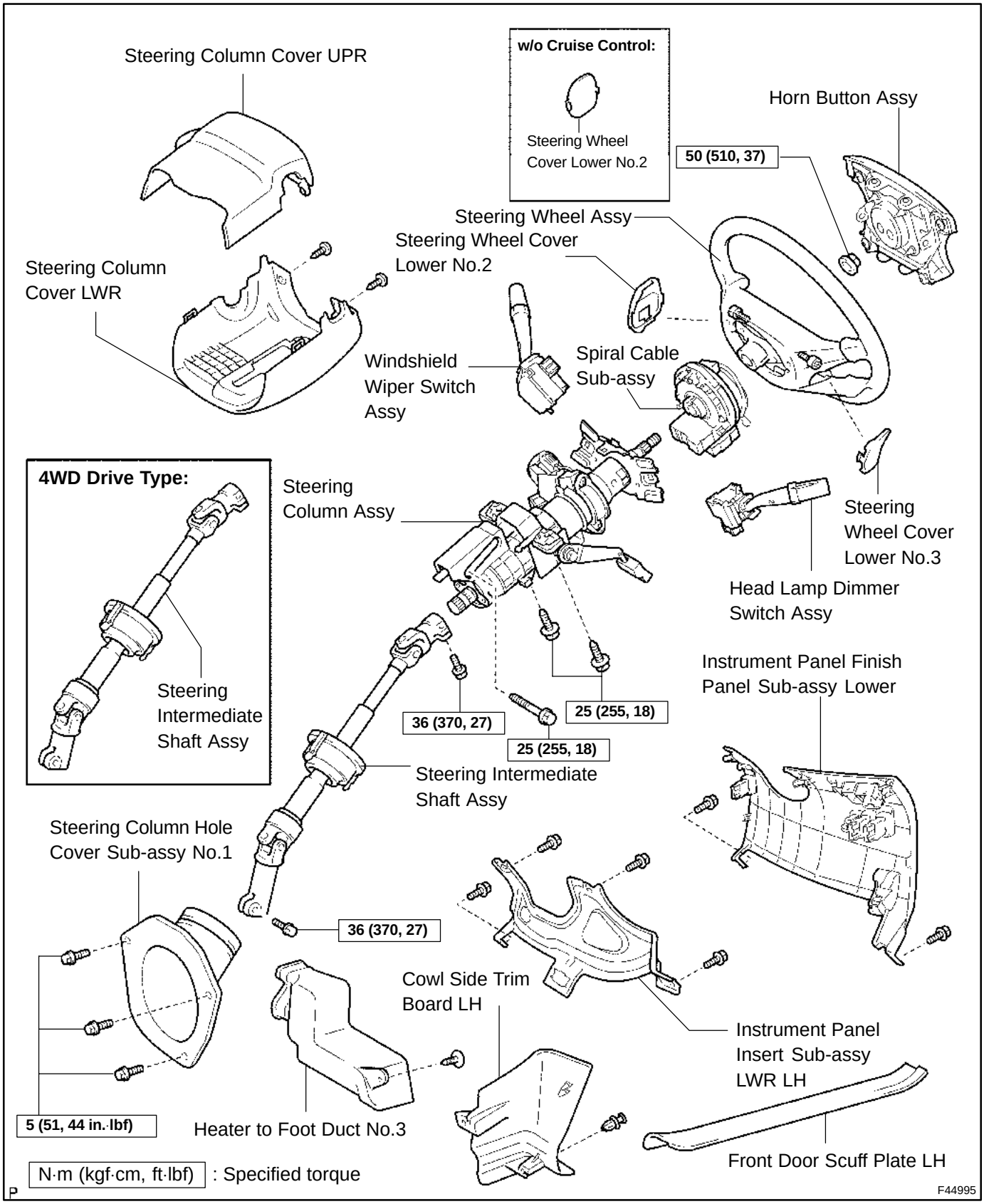

N·m (kgf·cm, ft·lbf) : Specified torque

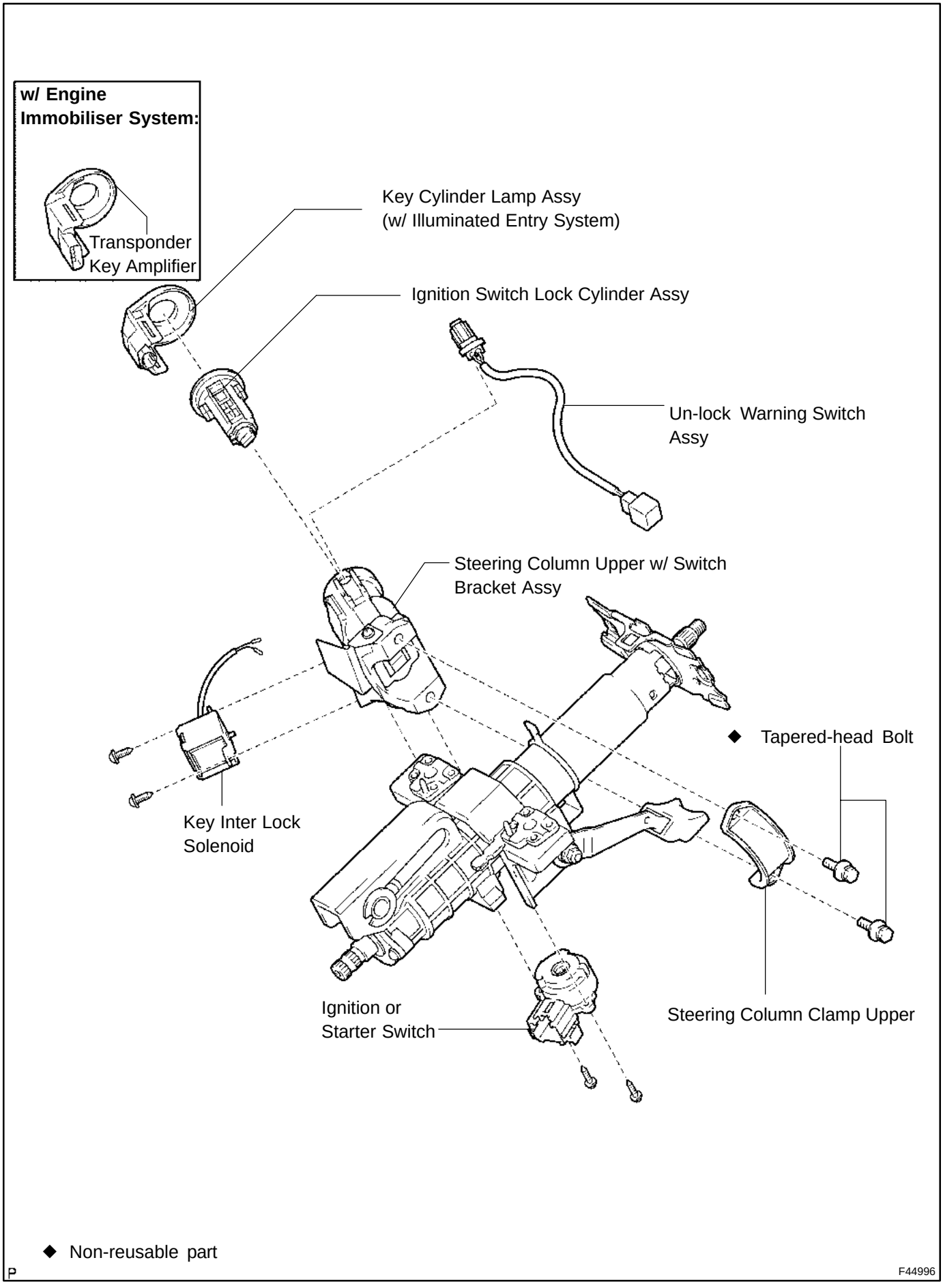
F45023

# STEERING COLUMN ASSY

## COMPONENTS

500B8-01

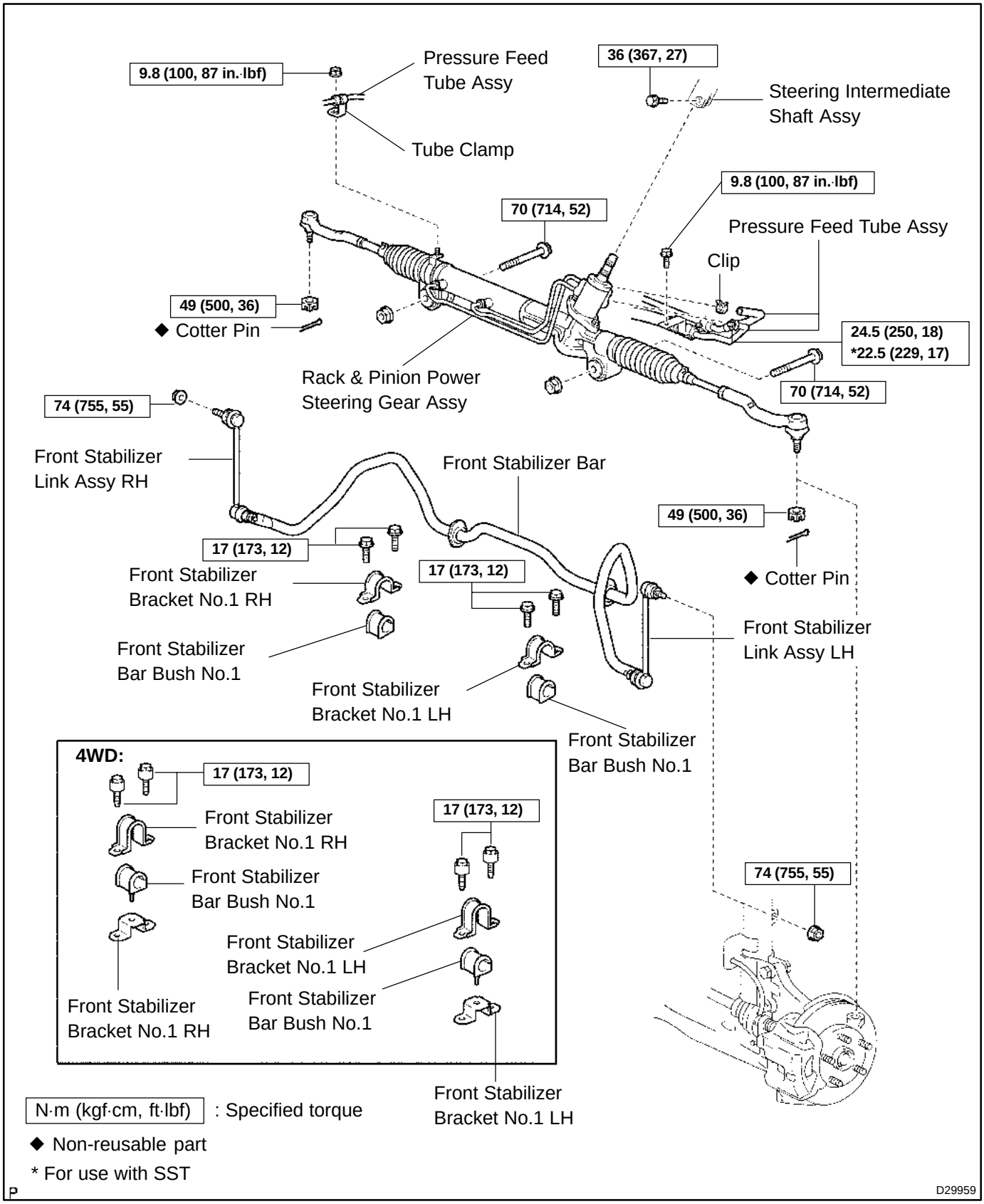


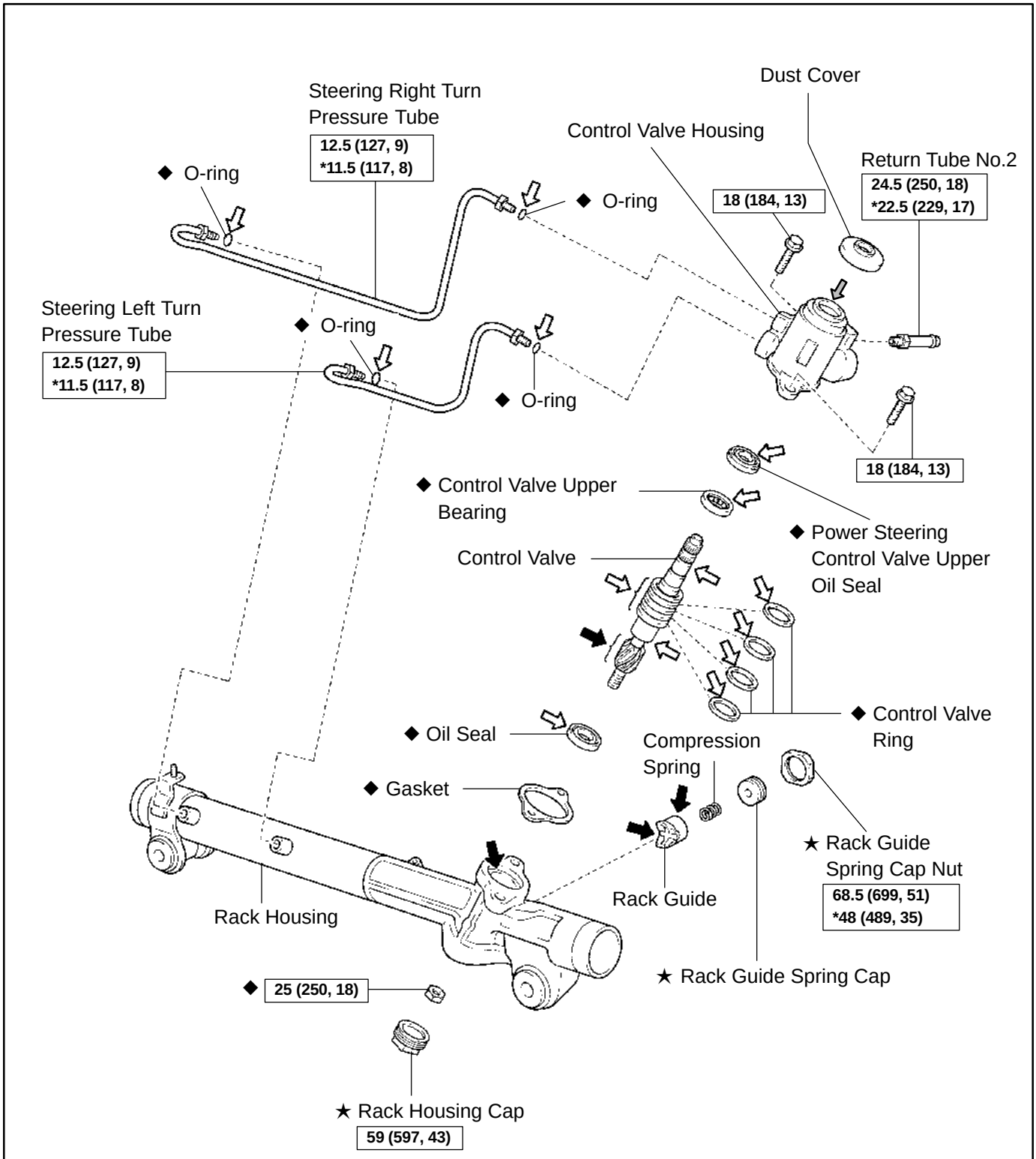

w/ Engine Immobiliser System:
Transponder Key Amplifier
Key Cylinder Lamp Assy (w/ Illuminated Entry System)
Ignition Switch Lock Cylinder Assy
Un-lock Warning Switch Assy
Steering Column Upper w/ Switch Bracket Assy
◆ Tapered-head Bolt
Key Inter Lock Solenoid
Ignition or Starter Switch
Steering Column Clamp Upper
◆ Non-reusable part
F44996

# RACK & PINION POWER STEERING GEAR ASSY

## COMPONENTS

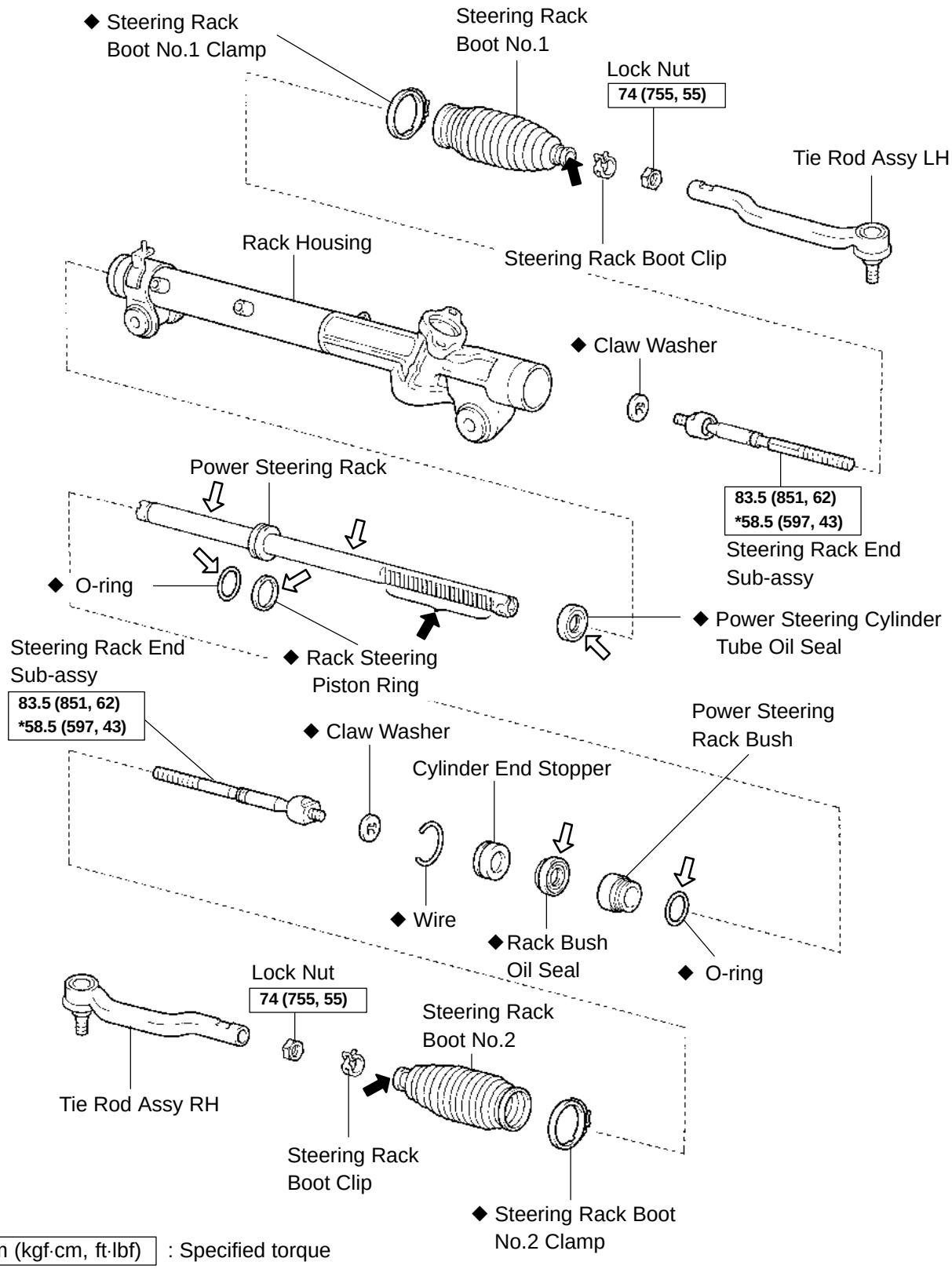
5105R-02






N·m (kgf·cm, ft·lbf) : Specified torque
◆ Non-reusable part
★ Precoated part
⬅ Molybdenum disulfide lithium base grease
⇦ Power steering fluid
⇦ MP grease
* For use with SST

D29963




N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

⬅ Molybdenum disulfide lithium base grease

⇦ Power steering fluid

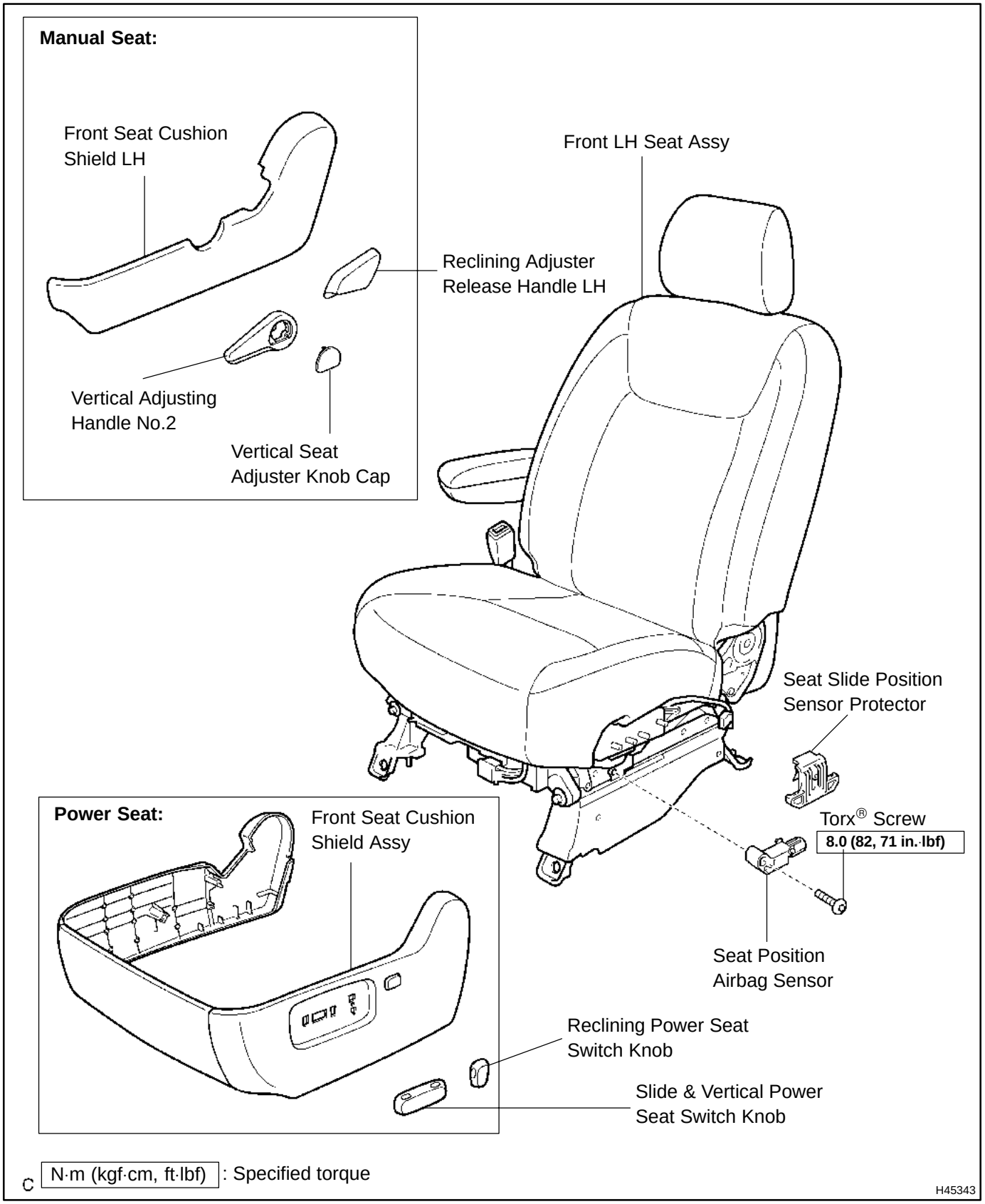
* For use with SST

D29964

# SEAT POSITION AIR BAG SENSOR

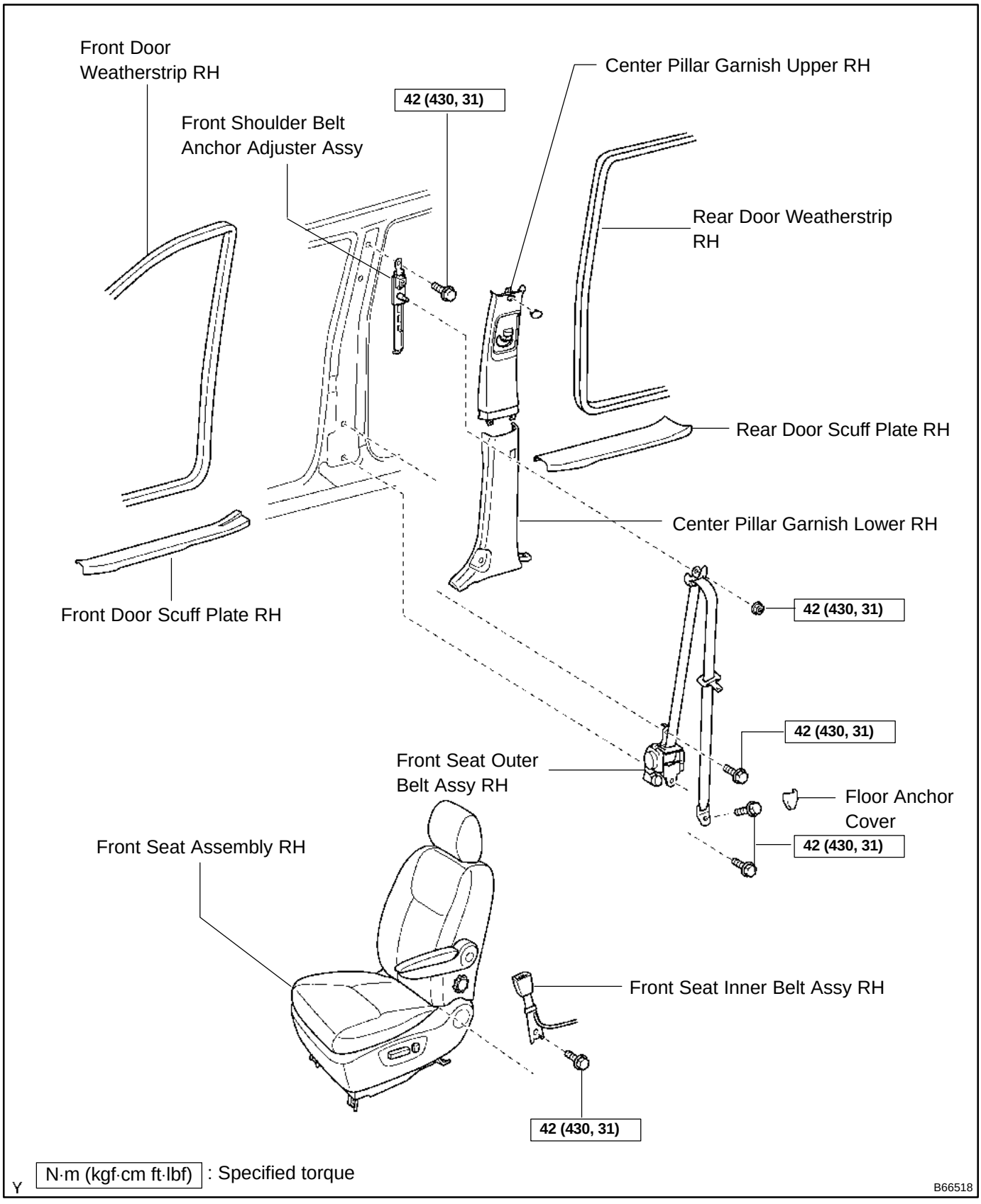
## COMPONENTS

600KV-09



610AL-02

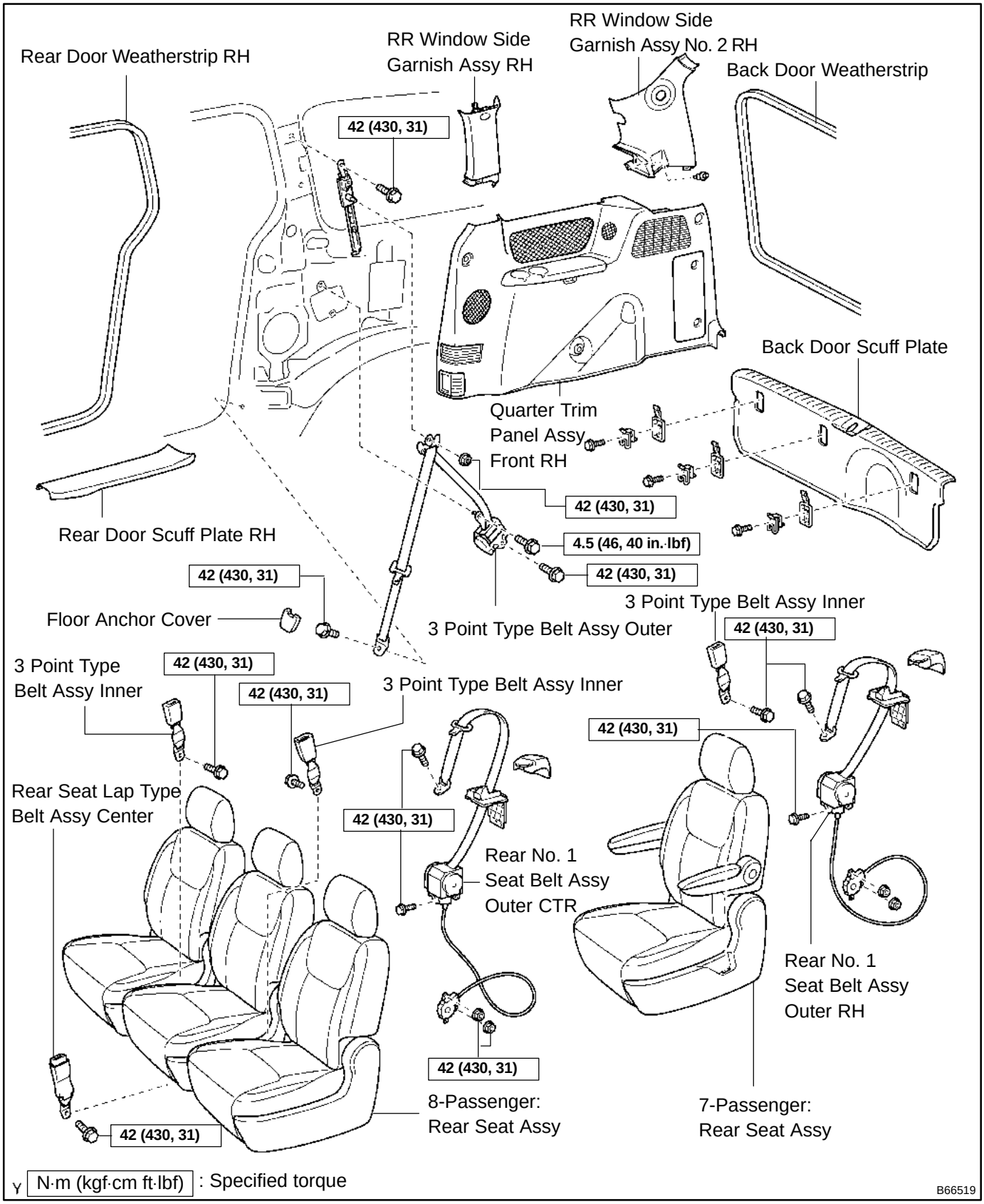
# COMPONENTS



# REAR SEAT 3 POINT TYPE BELT ASSY OUTER

610AO-02

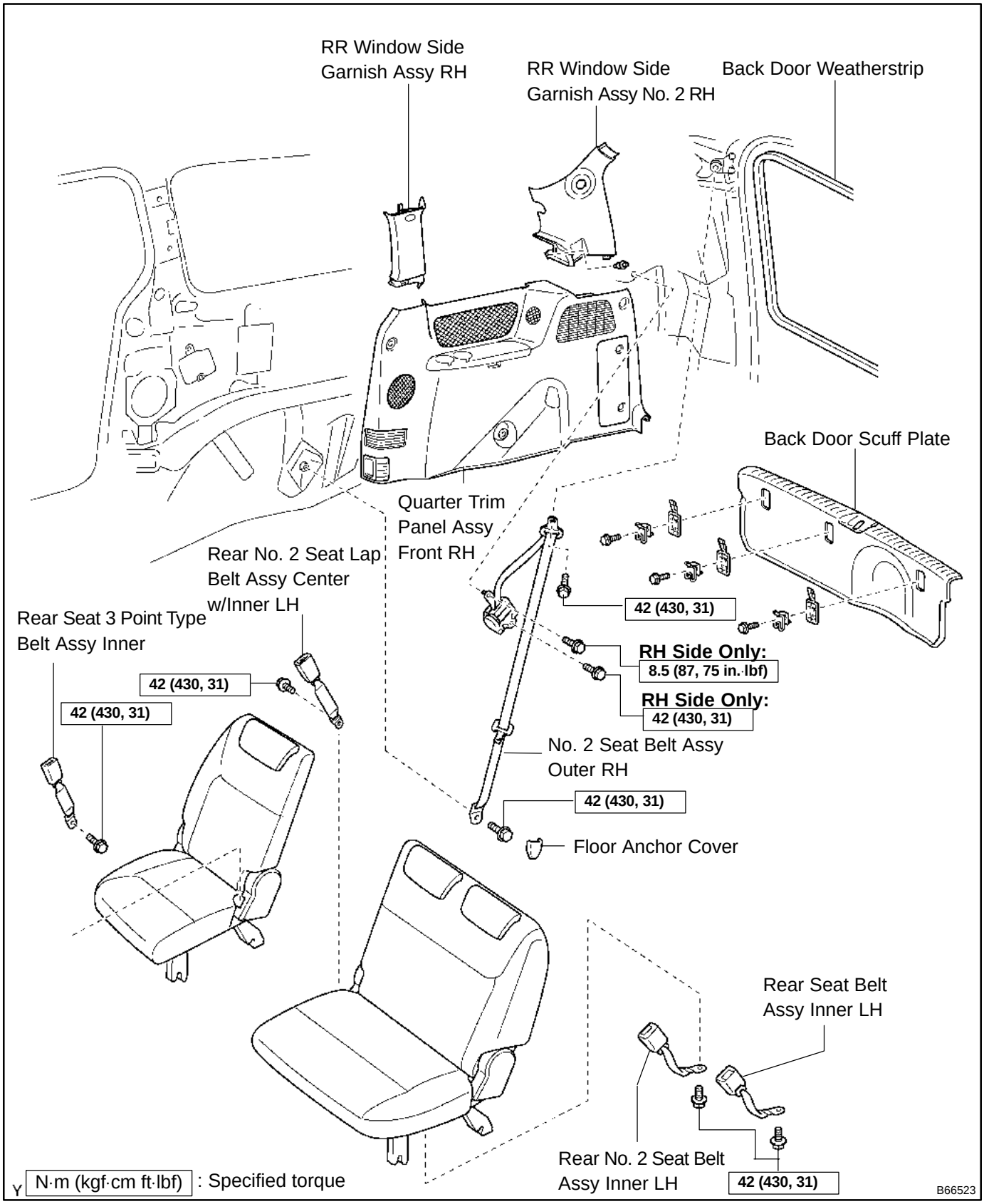
## COMPONENTS

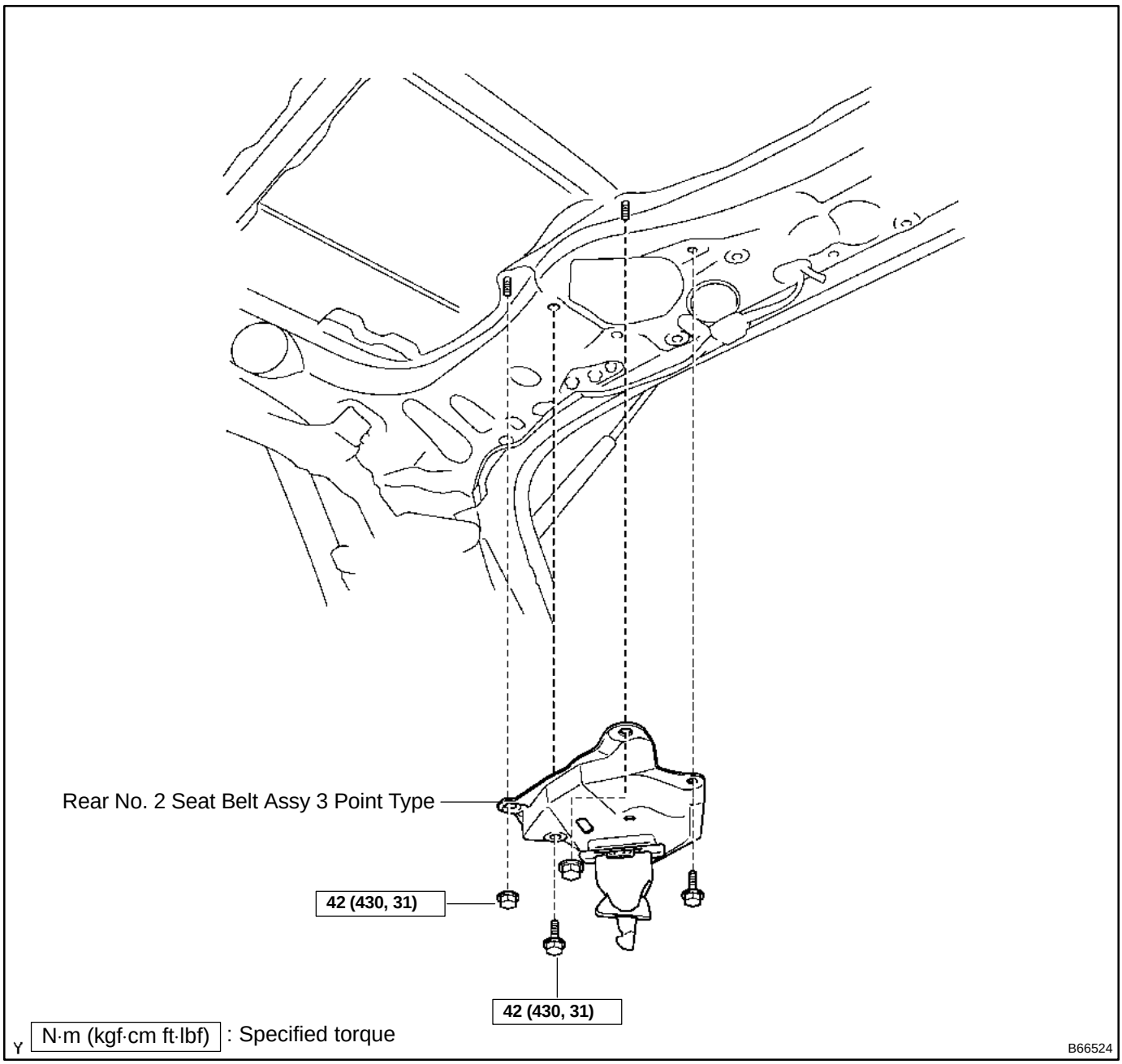


# REAR NO.2 SEAT BELT ASSY OUTER RH

610DR-01

## COMPONENTS




Rear No. 2 Seat Belt Assy 3 Point Type
42 (430, 31)
42 (430, 31)
Y N·m (kgf·cm ft·lbf) : Specified torque
B66524

05BUD-01

# CUSTOMER PROBLEM ANALYSIS CHECK

**BACK MONITOR SYSTEM**

Inspector's name: _____

| | | | |
|---|---|---|---|
| **Customer's Name** | | **VIN** | |
| | | **Production Date** | |
| | | **Licence No.** | |
| **Brought-in Date** | / / | **Odometer Reading** | **km**<br>**Mile** |

| | |
|---|---|
| **Date of First Occurrence** | / / |
| **Frequency of Problem Occurrence** | ☐ Constant ☐ Intermittent ( Times a day) |

| | | |
|---|---|---|
| **Problem Symptom** | Condition on the normal return | ☐ **ACC ON** ☐ **E/G starts running** ☐ **SW operating** |
| | Condition on the trouble | ☐ **ACC OFF → ON** ☐ **( ) SW operating** ☐ **others** |
| | | |
| | | |

I35086

052IB-04

# CUSTOMER PROBLEM ANALYSIS CHECK

**ENGINE IMMOBILISER SYSTEM Check Sheet**

Inspector's Name :

| | | | |
|---|---|---|---|
| **Customer's Name** | | **VIN** | |
| | | **Production Date** | / / |
| | | **Licence No.** | |
| **Date Vehicle Brought In** | / / | **Odometer Reading** | km miles |

| | | |
|---|---|---|
| **Date Problem First Occurred** | | / / |
| **Frequency Problem Occurs** | | ☐ Constant ☐ Intermittent ( times a day)<br>☐ Only once |
| **Weather Conditions When Problem Occurred** | **Weather** | ☐ Fine ☐ Cloudy ☐ Rainy ☐ Snowy<br>☐ Various/Others |
| | **Outdoor Temperature** | ☐ Hot ☐ Warm ☐ Cool<br>☐ Cold (Approx. °F ( °C) |

| | |
|---|---|
| **Symptoms** | ☐ Immobiliser is not set<br>(Engine starts with key codes other than registered key code) |
| | ☐ Engine does not start |

| | | |
|---|---|---|
| **DTC Check** | **1st Time** | ☐ Normal code ☐ Malfunction code (Code ) |
| | **2nd Time** | ☐ Normal code ☐ Malfunction code (Code ) |

05BX3-01

# CUSTOMER PROBLEM ANALYSIS CHECK

**ABS & EBD & BA Check Sheet**

Inspector's Name :

| | | | |
|---|---|---|---|
| **Customer's Name** | | **VIN** | |
| | | **Production Date** | / / |
| | | **Licence No.** | |
| **Date Vehicle Brought In** | / / | **Odometer Reading** | km miles |

| | |
|---|---|
| **Date Problem First Occurred** | / / |
| **Frequency Problem Occurs** | ☐ Continuously ☐ Intermittently ( times a day) |

| | | |
|---|---|---|
| **Symptoms** | ☐ ABS does not operate. | |
| | ☐ ABS does not operate efficiently. | |
| | ☐ BA does not operate. | |
| | ☐ EBD does not operate. | |
| | **ABS Warning Light Abnormal** | ☐ Remains ON ☐ Does not Light Up |
| | **Brake Warning Light Abnormal** (PKB released) | ☐ Remains ON ☐ Does not Light Up |

| | | |
|---|---|---|
| **DTC Check** | **1st Time** | ☐ Normal Code ☐ Malfunction Code (Code ) |
| | **2nd Time** | ☐ Normal Code ☐ Malfunction Code (Code ) |

| | | |
|---|---|---|
| **Freeze Frame Data** | STOP LIGHT SW | ☐ ON ☐ OFF |
| | SYSTEM | ☐ NO SYS<br>☐ ABS<br>☐ BA<br>☐ FAIL SF |
| | #IG ON | |
| | VEHICLE SPD | km/h MPH |

**TRAC & VSC Check Sheet**

Inspector's Name :

| | | | |
|---|---|---|---|
| **Customer's Name** | | **VIN** | |
| | | **Production Date** | / / |
| | | **Licence No.** | |
| **Date Vehicle Brought In** | / / | **Odometer Reading** | km miles |

| | |
|---|---|
| **Date Problem First Occurred** | / / |
| **Frequency Problem Occurs** | ☐ Continuous ☐ Intermittent ( times a day) |

| | | |
|---|---|---|
| **Symptoms** | ☐ TRAC does not operate. (Wheels spin when starting rapidly.) | |
| | ☐ VSC does not operate. (Wheels sideslip at the time of sharp turning.) | |
| | **TRAC OFF Indicator Light Abnormal** | ☐ Remains ON ☐ Does not Light Up |
| | **VSC Warning Indicator Abnormal** | ☐ Displays ☐ Does not Display |
| | **SLIP Indicator Light Abnormal** | ☐ Remains ON ☐ Does not Light Up |
| | **Skid Control Buzzer Abnormal** | ☐ Sounds ☐ Does not Sound |

| | | |
|---|---|---|
| **Check Item** | **ABS Warning Light** | ☐ Normal ☐ Malfunction Code (Code ) |
| | **Malfunction Indicator Light** | ☐ Normal ☐ Malfunction Code (Code ) |

| | | |
|---|---|---|
| **DTC Check** | **1st Time** | ☐ Normal Code ☐ Malfunction Code (Code ) |
| | **2nd Time** | ☐ Normal Code ☐ Malfunction Code (Code ) |

| | | |
|---|---|---|
| **Freeze Frame Data** | VSC/TRC OFF SW | ☐ ON ☐ OFF |
| | SYSTEM | ☐ VSC/TRC |
| | SHIFT POSITION | ☐ P,N ☐ 2 ☐ R ☐ 3<br>☐ D ☐ 4 ☐ L ☐ FAIL |
| | STEERING ANG | deg |
| | YAW RAT | deg/s |
| | MAS CYL PRESS | V |
| | THROTTLE | deg |
| | MAS PRESS GRADE | MPa/s |
| | G (RIGHT&LEFT) | G |
| | G (BACK&FORTH) | G |

0569B-04

# CUSTOMER PROBLEM ANALYSIS CHECK

**AUDIO SYSTEM Check Sheet**

Inspector's name: _____

| | | | |
|---|---|---|---|
| **Customer's Name** | | **VIN** | |
| | | **Production Date** | |
| | | **Licence No.** | |
| **Brought-in Date** | / / | **Odometer Reading** | **km**<br>**Mile** |

| | |
|---|---|
| **Date of First Occurrence** | / / |
| **Frequency of Problem Occurrence** | ☐ Constant ☐ Intermittent ( Times a day) |

| | |
|---|---|
| **Problem Symptom** | ☐ **Switch** |
| | ☐ **Radio** |
| | ☐ **CD** |
| | ☐ **Noise** |

| | **Parts name** | **DTC (1st time).** | **DTC (2nd time).** |
|---|---|---|---|
| **DTC Check** | Radio receiver assy | | |
| | Stereo component amplifier assy | | |
| | Stereo component controller assy | | |
| | Multi-display controller sub-assy | | |

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I32867

I35621

05BE0-01

# CUSTOMER PROBLEM ANALYSIS CHECK

**DYNAMIC LASER CRUISE CONTROL SYSTEM Check Sheet** Inspector's name: _____

| | | | |
|---|---|---|---|
| **Customer's Name** | | **VIN** | |
| | | **Production Date** | |
| | | **Licence No.** | |
| **Date of Vehicle Brought in** | / / | **Odometer Reading** | **km** **Mile** |

| | | |
|---|---|---|
| **Condition of Problem Occurrence** | **Date of Problem Occurrence** | / / |
| | **Frequency Problem Occurs** | ☐ Continuous ☐ Intermittent ( Times a day) |
| | **Vehicle Speed when Problem Occurred** | **km** **Mile** |

| | | |
|---|---|---|
| **Symptoms** | ☐ Auto cancel occurs | ● Driving condition<br>☐ City driving ☐ Freeway ☐ Up hill ☐ Down hill<br>● After cancel occurred, did the driver activate cruise control again?<br>☐ Yes ☐ No |
| | ☐ Cancel does not occur | ☐ With brake ON<br>☐ Except D position shift<br>☐ When control SW turns to CANCEL position |
| | ☐ Cruise control malfunction | ☐ Slip to acceleration side<br>☐ Slip to deceleration side<br>☐ Hunting occurs<br>☐ O/D cut off does not occur<br>☐ O/D does not return |
| | ☐ Switch malfunction | ☐ SET ☐ ACCEL (+) ☐ COAST (-) ☐ RESUME<br>☐ CANCEL ☐ MODE ☐ DISTANCE |
| | ☐ Cruise Control Indicator | ☐ Remains ON ☐ Does not illuminate ☐ Blinks |

| | | |
|---|---|---|
| **DTC Check** | **1st Time** | ☐ Normal Code ☐ Malfunction Code (Code ) |
| | **2nd Time** | ☐ Normal Code ☐ Malfunction Code (Code ) |

05BW7-01

# CUSTOMER PROBLEM ANALYSIS CHECK

**Tire Pressure Warning System Check Sheet**

Inspector's Name :

| | | | |
|---|---|---|---|
| **Customer's Name** | | **VIN** | |
| | | **Production Date** | / / |
| | | **Licence No.** | |
| **Date Vehicle Brought In** | / / | **Odometer Reading** | km miles |

| | |
|---|---|
| **Date Problem First Occurred** | / / |
| **Frequency Problem Occurs** | ☐ Continuous ☐ Intermittent ( times a day) |

| | | |
|---|---|---|
| **Symptoms** | ☐ **In spite of abnormal low pressure of the tire inflation pressure, the warning lamp does not come on.** | |
| | ☐ **The warning lamp was on and the tire was filled up with air, but the warning lamp does not go off.** | |
| | **Tire Pressure Warning Lamp Abnormal** | ☐ Remains ON ☐ Does not Come on |

| | | |
|---|---|---|
| **Check Item** | **ABS Warning Lamp** | ☐ Normal ☐ Malfunction Code (Code ) |
| | **Tire** | ☐ Tire Pressure<br>FR ( ) FL ( ) RR ( ) RL ( )<br>☐ Tire Size<br>FR ( ) FL ( ) RR ( ) RL ( )<br>☐ Tire Type<br>FR ( ) FL ( ) RR ( ) RL ( )<br>☐ Tire Wear Condition<br>FR ( ) FL ( ) RR ( ) RL ( )<br>☐ History of changing tires or wheels<br>When ( )<br>☐ History of rotating tires<br>When ( ) |

05B2Z-05

# CUSTOMER PROBLEM ANALYSIS CHECK

**CRUISE CONTROL SYSTEM Check Sheet**

Inspector's name: _____

| | | | |
|---|---|---|---|
| **Customer's Name** | | **VIN** | |
| | | **Production Date** | |
| | | **Licence No.** | |
| **Date of Vehicle Brought in** | / / | **Odometer Reading** | **km** **Mile** |

| | | |
|---|---|---|
| **Condition of Problem Occurrence** | **Date of Problem Occurrence** | / / |
| | **Frequency Problem Occurs** | ☐ Continuous ☐ Intermittent ( Times a day) |
| | **Vehicle Speed when Problem Occurred** | **km** **Mile** |

| | | |
|---|---|---|
| **Symptoms** | ☐ Auto cancel occurs | ● Driving condition<br>☐ City driving ☐ Freeway ☐ Up hill ☐ Down hill<br>● After cancel occurred, did the driver activate cruise control again?<br>☐ Yes ☐ No |
| | ☐ Cancel does not occur | ☐ With brake ON<br>☐ Except D range shift<br>☐ When control SW turns to CANCEL position |
| | ☐ Cruise control malfunction | ☐ Slip to acceleration side<br>☐ Slip to deceleration side<br>☐ Hunting occurs<br>☐ O/D cut off does not occur<br>☐ O/D does not return |
| | ☐ Switch malfunction | ☐ SET ☐ '+' ☐ '-' ☐ RES ☐ CANCEL |
| | ☐ CRUISE MAIN indicator light | ☐ Remains ON ☐ Does not light up ☐ Blinks |

| | | |
|---|---|---|
| **DTC Check** | **1st Time** | ☐ Normal Code ☐ Malfunction Code (Code ) |
| | **2nd Time** | ☐ Normal Code ☐ Malfunction Code (Code ) |

05BYT-01

# CUSTOMER PROBLEM ANALYSIS CHECK

**POWER DOOR LOCK CONTROL SYSTEM Check Sheet**

Inspector's name:_____

| | | | |
|---|---|---|---|
| **Customer's Name** | | **VIN** | |
| | | **Production Date.** | |
| | | **Licence No.** | |
| **Date Vehicle Brought in** | / / | **Odometer Reading** | km<br>miles |

| | | |
|---|---|---|
| **Date Problem First Occurred** | | / / |
| **Frequency Problem Occurs** | | ☐ Constant ☐ Sometimes ( Times per day, month)<br>☐ Once only |
| **Weather Conditions When Problem Occurred** | **Weather** | ☐ Fine ☐ Cloudy ☐ Rainy ☐ Snowy<br>☐ Various/Others |
| | **Outdoor temperature** | ☐ Hot ☐ Warm ☐ Cool<br>☐ Cold (Approx. ☐℃ ( ☐℉)) |

| | | | |
|---|---|---|---|
| **Problem Symptoms** | ☐ Malfunction in Door Lock/Unlock Operation Using Door Lock Control Switch | ☐ Driver side door lock control switch | ☐ Driver side door<br>☐ Passenger side door<br>☐ Rear left door<br>☐ Rear right door<br>☐ Back door |
| | | ☐ Passenger side door lock control switch | ☐ Driver side door<br>☐ Passenger side door<br>☐ Rear left door<br>☐ Rear right door<br>☐ Back door |
| | ☐ Malfunction in Door Lock/Unlock Operation Using Key | ☐ Driver side door key lock and unlock control switch | ☐ Driver side door<br>☐ Passenger side door<br>☐ Rear left door<br>☐ Rear right door<br>☐ Back door |
| | ☐ Malfunction in Key Lock-in Prevention Function | | |
| | ☐ Malfunction in Back Door Opener Function | | |
| | ☐ Others | | |

056B8-04

# CUSTOMER PROBLEM ANALYSIS CHECK

## WIRELESS DOOR LOCK CONTROL SYSTEM Check Sheet

**Inspector's Name** _____

| | | | |
|---|---|---|---|
| **Customer's Name** | | **VIN** | |
| | | **Production Date** | / / |
| | | **Licence No.** | |
| **Date Vehicle Brought in** | / / | **Odometer Reading** | km<br>miles |

| | | |
|---|---|---|
| **Date Problem First Occurred** | | / / |
| **Frequency Problem Occurs** | | ☐ Constant ☐ Sometimes ( times/per day, month)<br>☐ Once only |
| **Weather Conditions When Problem Occurred** | **Weather** | ☐ Fine ☐ Cloudy ☐ Rainy ☐ Snowy<br>☐ Various/Others |
| | **Outdoor Temperature** | ☐ Hot ☐ Warm ☐ Cool<br>☐ Cold (Approx. ˚C ( ˚F)) |
| | **Place** | ☐ Everywhere ☐ Specific Locality ( ) |
| **Date Transmitter Battery Last Replaced** | | / / |

| | |
|---|---|
| **Problem Symptoms** | ☐ Whole wireless door lock control system does not operate. |
| | ☐ Only door unlock function does not operate. |
| | ☐ Only door lock function does not operate. |
| | ☐ Doors are locked by wireless door lock operation even when doors are opened. |
| | ☐ Wireless door lock functions abnormally. |
| | ☐ Others |
| **DTC No.** | ☐ B1242 |

05BVH-01

# CUSTOMER PROBLEM ANALYSIS CHECK

**LIGHTING SYSTEM Check Sheet**

Inspector's name: _____

| | | | |
|---|---|---|---|
| **Customer's Name** | | **VIN** | |
| | | **Production Date** | |
| | | **Licence No.** | |
| **Date Vehicle Brought in** | / / | **Odometer Reading** | **km Mile** |

| | | |
|---|---|---|
| **Date Problem First Occurred** | | / / |
| **Frequency Problem Occurs** | | ¿ Always ¿ Sometimes ( times per day, month) ¿ Once only |
| **Weather Conditions When Problem Occurred** | **Weather** | ¿ Fine ¿ Cloudy ¿ Rainy ¿ Snowy ¿ Various/ Others |
| | **Outdoor Temperature** | ¿ Hot ¿ Warm ¿ Cool ¿ Cold (Approx. °F ( °C)) |

| | |
|---|---|
| **Malfunctioning System:** | ☐ Fog light system |
| | ☐ Turn signal and hazard warning system |
| | ☐ Illumination light system |
| | ☐ Interior system |
| | ☐ Headlight system |
| | ☐ Taillight system |
| | ☐ Stop light system |
| | ☐ Others |

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057U8-03

# CUSTOMER PROBLEM ANALYSIS CHECK

**ABS Check Sheet**

Inspector's Name :

| | | | |
|---|---|---|---|
| **Customer's Name** | | **VIN** | |
| | | **Production Date** | / / |
| | | **Licence No.** | |
| **Date Vehicle Brought In** | / / | **Odometer Reading** | km miles |

| | |
|---|---|
| **Date Problem First Occurred** | / / |
| **Frequency the Problem Occurs** | ☐ Continuously ☐ Intermittently ( times a day) |

| | | |
|---|---|---|
| **Symptoms** | ☐ ABS does not operate. | |
| | ☐ ABS does not operate properly. | |
| | **ABS Warning Light Abnormal** | ☐ Remains ON ☐ Does not Light Up |
| | **Brake Warning Light Abnormal** | ☐ Remains ON ☐ Does not Light Up |

| | | |
|---|---|---|
| **DTC Check** | **1st Time** | ☐ Normal Code ☐ Malfunction Code (Code ) |
| | **2nd Time** | ☐ Normal Code ☐ Malfunction Code (Code ) |

| | | |
|---|---|---|
| **Freeze Frame Data** | STOP LIGHT SW | ☐ ON ☐ OFF |
| | SYSTEM | ☐ NO SYS<br>☐ ABS<br>☐ FAIL SF |
| | #IG ON | |
| | VEHICLE SPD | MPH<br>km/h |

05BTN-01

# CUSTOMER PROBLEM ANALYSIS CHECK

## KEY REMINDER WARNING SYSTEM Check Sheet

**Inspector's Name :**

| | | | |
|---|---|---|---|
| **Customer's Name** | | **VIN** | |
| | | **Production Date** | / / |
| | | **Licence No.** | |
| **Date Vehicle Brought In** | / / | **Odometer Reading** | km miles |

| | | |
|---|---|---|
| **Date Problem First Occurred** | | / / |
| **Frequency Problem Occurs** | | ☐ Constant ☐ Intermittent ( times a day)<br>☐ Only once |
| **Weather Conditions When Problem Occurred** | **Weather** | ☐ Fine ☐ Cloudy ☐ Rainy ☐ Snowy<br>☐ Various/Others |
| | **Outdoor Temperature** | ☐ Hot ☐ Warm ☐ Cool<br>☐ Cold (Approx. °C ( °F)) |

| | |
|---|---|
| **Problem Symptoms** | ☐ Key reminder buzzer does not sound |

05BYQ-01

# CUSTOMER PROBLEM ANALYSIS CHECK

**CAN Communication System Check Sheet**

Inspector's Name :

| | | | |
|---|---|---|---|
| **Customer's Name** | | **VIN** | |
| | | **Production Date** | / / |
| | | **Licence No.** | |
| **Date Vehicle Brought In** | / / | **Odometer Reading** | km miles |

| | |
|---|---|
| **Date Problem First Occurred** | / / |
| **Frequency Problem Occurs** | ☐ Continuous ☐ Intermittent ( times a day) |

| | | |
|---|---|---|
| **DTC Check** | **1st Time** | ☐ Normal Code ☐ Malfunction Code (Code ) |
| | **2nd Time** | ☐ Normal Code ☐ Malfunction Code (Code ) |

05FG5-04

# CUSTOMER PROBLEM ANALYSIS CHECK

**RADIO AND NAVIGATION SYSTEM Check Sheet**

Inspector's name: _____

| | | | |
|---|---|---|---|
| **Customer's Name** | | **VIN** | |
| | | **Production Date** | |
| | | **Licence Plate No.** | |
| **Date Vehicle Brought in** | / / | **Odometer Reading** | **km mile** |

| | |
|---|---|
| **Date Problem First Occurred** | / / |
| **Frequency Problem Occurs** | ☐ Always ☐ Intermittently ( Times a day) |

**DTC Check**

**1st time trouble code**

| Unit Check Mode | | | | |
|---|---|---|---|---|
| Current | Memory | Occured | Data/Time | |
| | | | | |

| LAN Monitor | | | |
|---|---|---|---|
| Code | Sub-Code | Code | Sub-Code |
| | | | |

**2nd time trouble code**

| Unit Check Mode | | | | |
|---|---|---|---|---|
| Current | Memory | Occured | Data/Time | |
| | | | | |

| LAN Monitor | | | |
|---|---|---|---|
| Code | Sub-Code | Code | Sub-Code |
| | | | |

**Problem Symptom**

I38696 I39529

05BZN-01

# CUSTOMER PROBLEM ANALYSIS CHECK

**POWER BACK DOOR SYSTEM Check Sheet**

Inspector's name:_____

| | | | |
|---|---|---|---|
| **Customer's Name** | | **VIN** | |
| | | **Production Date** | |
| | | **Licence No.** | |
| **Date Vehicle Brought in** | / / | **Odometer Reading** | km<br>miles |

| | | |
|---|---|---|
| **Date Problem First Occurred** | | / / |
| **Frequency Problem Occurs** | | ☐ Constant ☐ Sometimes ( Times per day, month)<br>☐ Once only |
| **Weather Conditions When Problem Occurred** | **Weather** | ☐ Fine ☐ Cloudy ☐ Rainy ☐ Snowy<br>☐ Various/Others |
| | **Outdoor temperature** | ☐ Hot ☐ Warm ☐ Cool<br>☐ Cold (Approx. ☐°C ( ☐°F)) |

| **Problem Symptoms** | |
|---|---|
| | ☐ DTC ( ☐ B2222 ☐ Others ) |
| | ☐ Malfunction in power back door opening system |
| | ☐ Malfunction in power back door closing system |
| | ☐ The jam protection function is activated while the power back door is opening |
| | ☐ The jam protection function is activated while the power back door is closing |
| | ☐ Others |

05IV3-04

# CUSTOMER PROBLEM ANALYSIS CHECK

| Supplemental Restraint System Check Sheet | Inspector's Name |
|---|---|

| | | | |
|---|---|---|---|
| Customer's Name | | VIN | |
| | | Production Date | / / |
| | | Licence Plate No. | |
| Date Vehicle Brought In | | Odometer Reading | km Miles |

| | |
|---|---|
| Date Problem Occurred | |
| Weather | ☐ Fine ☐ Cloudy ☐ Rainy ☐ Snowy ☐ Other |
| Temperature | Approx. |

| | |
|---|---|
| Vehicle Operation | ☐ Starting ☐ Idling<br>☐ Driving [ ☐ Constant speed ☐ Acceleration ☐ Deceleration<br>☐ Other ] |
| Road Condition | |
| Details of Problem | |

| | |
|---|---|
| Vehicle Inspection, and Repair History Prior to Occurrence of Malfunction (Including Supplemental Restraint System) | |

Diagnostic System Inspection

| | | |
|---|---|---|
| SRS Warning Light Inspection | 1st Time | ☐ Remains ON ☐ Sometimes comes on ☐ Does not come on |
| | 2nd Time | ☐ Remains ON ☐ Sometimes comes on ☐ Does not come on |
| Passenger Airbag ON/OFF Indicator Inspection | 1st Time | ☐ Remains ON ☐ Does not come on |
| | 2nd Time | ☐ Remains ON ☐ Does not come on |
| DTC Inspection | 1st Time | ☐ Normal System Code ☐ Trouble Code ☐ [ Code. ] |
| | 2nd Time | ☐ Normal System Code ☐ Trouble Code ☐ [ Code. ] |

05ATN-07

# CUSTOMER PROBLEM ANALYSIS CHECK

**RSE SYSTEM Check Sheet**

Inspector's name: _____

| | | | |
|---|---|---|---|
| **Customer's Name** | | **VIN** | |
| | | **Production Date** | |
| | | **Licence No.** | |
| **Brought-in Date** | / / | **Odometer Reading** | **km Mile** |

| | |
|---|---|
| **Date of First Occurrence** | / / |
| **Frequency of Problem Occurrence** | ☐ Constant ☐ Intermittent ( Times a day) |

| | |
|---|---|
| **Problem Symptom** | ☐ **Switch & Volume Assy** |
| | ☐ **Headphone** |
| | ☐ **Multi-display Controller Sub-assy** |
| | ☐ **Television Display Assy** |
| | ☐ **Disc Player Controller (Built in Television Display Assy)** |
| | |

| | **Parts name** | **DTC (1st time).** | **DTC (2nd time).** |
|---|---|---|---|
| **DTC Check** | Multi-display Controller Sub-assy | | |
| | Television Display Assy | | |
| | Disc Player Controller (Built in Television Display Assy) | | |

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0527I-49

# CUSTOMER PROBLEM ANALYSIS CHECK

| Automatic Transaxle System Check Sheet |
|---|

Inspector's Name :

| | | | |
|---|---|---|---|
| Customer's Name | | VIN | |
| | | Production Date | / / |
| | | Licence Plate No. | |
| Date Vehicle Brought In | / / | Odometer Reading | km mile |

| | |
|---|---|
| Date Problem Occurred | / / |
| How Often Does Problem Occur? | ☐ Continuous ☐ Intermittent ( times a day) |

| | |
|---|---|
| Symptoms | ☐ Vehicle does not move (☐ Any position ☐ particular position) |
| | ☐ No up-shift ( ☐ 1st → 2nd ☐ 2nd → 3rd ☐ 3rd → 4th ☐ 4th → 5th) |
| | ☐ No down-shift ( ☐ 5th → 4th ☐ 4th → 3rd ☐ 3rd → 2nd ☐ 2nd → 1st) |
| | ☐ Lock-up malfunction |
| | ☐ Shift point too high or too low |
| | ☐ Harsh engagement (☐ N → D ☐ Lock-up ☐ Any drive position) |
| | ☐ Slip or shudder |
| | ☐ No kick-down |
| | ☐ Others ( ) |

| | | |
|---|---|---|
| Check Item | Malfunction Indicator Lamp | ☐ Normal ☐ Remains ON |

| | | |
|---|---|---|
| DTC Check | 1st Time | ☐ Normal code ☐ Malfunction code (DTC ) |
| | 2nd Time | ☐ Normal code ☐ Malfunction code (DTC ) |

059YN-02

# CUSTOMER PROBLEM ANALYSIS CHECK

## POWER WINDOW CONTROL SYSTEM Check Sheet

Inspector's name; _____

| | | | |
|---|---|---|---|
| **Customer's Name** | | **VIN** | |
| | | **Production Date** | |
| | | **Licence No.** | |
| **Date Vehicle Brought in** | / / | **Odometer Reading** | km<br>miles |

| | | |
|---|---|---|
| **Date Problem First Occurred** | | / / |
| **Frequency Problem Occurs** | | ☐ Constant ☐ Sometimes ( times per day, month)<br>☐ Once only |
| **Weather Conditions When Problem Occurred** | **Weather** | ☐ Fine ☐ Cloudy ☐ Rainy ☐ Snowy<br>☐ Various/Others |
| | **Outdoor Temperature** | ☐ Hot ☐ Warm ☐ Cool<br>☐ Cold ( °C [ °F] ) |

| | | |
|---|---|---|
| **Malfunction Symptoms** | ☐ AUTO UP/DOWN function does not operate | |
| | ☐ Remote UP/DOWN function does not operate | |
| | ☐ Driver side door window glass goes down during AUTO UP operation | |
| | ☐ Manual UP/DOWN function does not operate | |
| | ☐ All ☐ Driver side ☐ Passenger side ☐ Rear LH ☐ Rear RH | |
| | ☐ Window cannot be operated after ignition switch is turned OFF | |
| **Condition When Returned to Normal** | | ☐ Ignition switch ON ☐ Engine started ☐ ( ) Switch operated |
| **Condition When Problem Occurred** | Yes ☐<br>No | ☐ Ignition switch OFF ☐ ON ☐ ( ) Switch operated<br>☐ Others ( ) |

05BUT-01

# CUSTOMER PROBLEM ANALYSIS CHECK

**TOYOTA PARK ASSIST SYSTEM Check Sheet**

Inspector's name: _____

| | | | |
|---|---|---|---|
| **Customer's Name** | | **VIN** | |
| | | **Production Date** | |
| | | **Licence No.** | |
| **Brought-in Date** | / / | **Odometer Reading** | |

| | |
|---|---|
| **Date of First Occurrence** | / / |
| **Frequency of Problem Occurrence** | ☐ Always ☐ Intermittent ( Times a day) |
| **Weather** | ☐ Fine ☐ Cloudy ☐ Rainy ☐ Snowy<br>☐ Various/Others ( ) |
| **Outdoor Temperature** | ☐ Hot ☐ Warm ☐ Cool ☐ Cold<br>(Approx. ☐F ( ☐C )) |
| **Strength of Wind** | ☐ Windless or Bleeze ☐ Moderate Wind ☐ Strong Wind |
| **Driving Condition** | ☐ Moving Slowly ☐ Moving Back<br>☐ Stopping (☐ Engine is ON ☐ Engine is OFF) |
| **Road Surface** | ☐ Asphalt Surface ☐ Off-road Surface ☐ Snowy Road<br>☐ Paved or Bumpy Road ☐ Step or Logway<br>☐ Others ( ) |
| **Lading Condition** | ☐ 1 or 2 People ☐ 3 to 5 People ☐ More than 5 People<br>☐ With Heavy Load |
| **Cabin** | ☐ Radios are ON ☐ Audios are ON ☐ Navigations are ON<br>☐ The Other Electric Equipment |

| | | |
|---|---|---|
| **Problem Symptoms** | **Trouble Area** | ☐ Clearance Sonar<br>(☐ Front Right Corner ☐ Front Left Corner ☐ Rear Right Corner ☐ Rear Left Corner )<br>☐ Back Sonar (☐ Rear Right Center ☐ Rear Left Center) |
| | **Details of Problem** | ☐ No Sound ☐ Occasional (PIP-PIP) ☐ Occasional (PEEP)<br>☐ Repeated PIP-PIP Sound ☐ Continuous Peeping Sound<br>☐ Others ( ) |
| | **Details of Problem Pointed Out** | ex.) There are no sounds even if the vehicle approaches a pole. |

I32833

05BZ4-01

# CUSTOMER PROBLEM ANALYSIS CHECK

**POWER SLIDE DOOR SYSTEM Check Sheet**

Inspector's name:_____

| | | | |
|---|---|---|---|
| **Customer's Name** | | **VIN** | |
| | | **Production Date.** | |
| | | **Licence No.** | |
| **Date Vehicle Brought in** | / / | **Odometer Reading** | km<br>miles |

| | | |
|---|---|---|
| **Date Problem First Occurred** | | / / |
| **Frequency Problem Occurs** | | ☐ Constant ☐ Sometimes ( Times per day, month)<br>☐ Once only |
| **Weather Conditions When Problem Occurred** | **Weather** | ☐ Fine ☐ Cloudy ☐ Rainy ☐ Snowy<br>☐ Various/Others |
| | **Outdoor temperature** | ☐ Hot ☐ Warm ☐ Cool<br>☐ Cold (Approx. ☐°C ( ☐°F)) |

**Problem Symptoms**

☐ DTC ( ☐ B2223 ☐ B2224 ☐ Others )

☐ Malfunction in power slide door opening system ( ☐ LH ☐ RH ☐ LH and RH )

☐ Malfunction in power slide door closing system ( ☐ LH ☐ RH ☐ LH and RH )

☐ The jam protection function is activated while the power slide door is opening
( ☐ LH ☐ RH ☐ LH and RH )

☐ The jam protection function is activated while the power slide door is closing
( ☐ LH ☐ RH ☐ LH and RH )

☐ Others

05BZZ-01

# CUSTOMER PROBLEM ANALYSIS CHECK

**BACK DOOR CLOSER SYSTEM Check Sheet**

Inspector's name:_____

| | | | |
|---|---|---|---|
| **Customer's Name** | | **VIN** | |
| | | **Production Date.** | |
| | | **Licence No.** | |
| **Date Vehicle Brought in** | / / | **Odometer Reading** | km<br>miles |

| | | |
|---|---|---|
| **Date Problem First Occurred** | | / / |
| **Frequency Problem Occurs** | | ☐ Constant ☐ Sometimes ( Times per day, month)<br>☐ Once only |
| **Weather Conditions When Problem Occurred** | **Weather** | ☐ Fine ☐ Cloudy ☐ Rainy ☐ Snowy<br>☐ Various/Others |
| | **Outdoor temperature** | ☐ Hot ☐ Warm ☐ Cool<br>☐ Cold (Approx. ☐°C ( ☐°F)) |

| | |
|---|---|
| **Problem Symptoms** | ☐ DTC ( ☐ B2215 ☐ Others ) |
| | ☐ Malfunction in back door closer system |
| | ☐ Others |

056E7-04

# CUSTOMER PROBLEM ANALYSIS CHECK

**COMBINATION METER SYSTEM Check Sheet**

Inspector's name: _____

| | | | |
|---|---|---|---|
| **Customer's Name** | | **VIN** | |
| | | **Production Date** | |
| | | **License No.** | |
| **Date of Vehicle Brought In** | / / | **Odometer Reading** | **km**<br>**Mile** |

| | | |
|---|---|---|
| **Date Problem First Occurred** | | / / |
| **Frequency Problem Occurs** | | ☐ Constantly ☐ Sometimes ( Times per day, month)<br>☐ Once only |
| **Weather Conditions When Problem Occurred** | **Weather** | ☐ Fine ☐ Cloudy ☐ Rainy ☐ Snowy<br>☐ Various/Others |
| | **Outside temperature** | ☐ Hot ☐ Warm ☐ Cool<br>☐ Cold (Approx. °F ( °C)) |

| | | |
|---|---|---|
| **Problem Symptom** | **Gauge** | ☐ Malfunction in speedometer |
| | | ☐ Malfunction in tachometer |
| | | ☐ Malfunction in water temperature receiver gauge |
| | | ☐ Malfunction in fuel receiver gauge |
| | **Others** | ☐ Entire combination meter does not operate |
| | | ☐ Buzzer does not sound (Key reminder warning, Seat belt warning) |
| | | ☐ Seat belt warning lamp for driver's seat does not come on |

05C08-01

# CUSTOMER PROBLEM ANALYSIS CHECK

**SLIDE DOOR CLOSER SYSTEM Check Sheet**

Inspector's name:_____

| | | | |
|---|---|---|---|
| **Customer's Name** | | **VIN** | |
| | | **Production Date.** | |
| | | **Licence No.** | |
| **Date Vehicle Brought in** | / / | **Odometer Reading** | km<br>miles |

| | | |
|---|---|---|
| **Date Problem First Occurred** | | / / |
| **Frequency Problem Occurs** | | ☐ Constant ☐ Sometimes ( Times per day, month)<br>☐ Once only |
| **Weather Conditions When Problem Occurred** | **Weather** | ☐ Fine ☐ Cloudy ☐ Rainy ☐ Snowy<br>☐ Various/Others |
| | **Outdoor temperature** | ☐ Hot ☐ Warm ☐ Cool<br>☐ Cold (Approx. ☐°C ( ☐°F)) |

| | |
|---|---|
| **Problem Symptoms** | ☐ Malfunction in slide door closer LH system |
| | ☐ Malfunction in slide door closer RH system |
| | ☐ Others |

05B9W-01

# CUSTOMER PROBLEM ANALYSIS CHECK

**THEFT DETERRENT SYSTEM Check Sheet**

Inspector's name: _____

| | | | |
|---|---|---|---|
| **Customer's Name** | | **VIN** | |
| | | **Production Date** | |
| | | **Licence No.** | |
| **Date Vehicle Brought in** | / / | **Odometer Reading** | km<br>miles |

| | | |
|---|---|---|
| **Date Problem First Occurred** | | / / |
| **Frequency Problem Occurs** | | ☐ Constant ☐ Sometimes ( Times per day, month)<br>☐ Once only |
| **Weather Conditions When Problem Occurred** | **Weather** | ☐ Fine ☐ Cloudy ☐ Rainy ☐ Snowy<br>☐ Various/Others |
| | **Outdoor Temperature** | ☐ Hot ☐ Warm ☐ Cool<br>☐ Cold (Approx. °C ( °F)) |

**Problem Symptom**

| | | |
|---|---|---|
| ☐ Theft deterrent system cannot be set. | | |
| ☐ Security indicator does not flash when theft deterrent system is set (It stays ON or does not light up at all) | | |
| ☐ Theft deterrent system does not operate | ☐ When door is opened<br>☐ When engine hood is opened | Malfunction<br>☐ Horns only<br>☐ Theft deterrent horn only<br>☐ Headlamps only<br>☐ Taillamps only<br>☐ Door lock operation only<br>☐ Hazard warning lamp only<br>☐ Room lamp only |
| ☐ Theft deterrent system cannot be canceled once set | ☐ When door is unlocked using wireless door lock control system | |
| ☐ Theft deterrent system cannot be canceled during warning operation | ☐ When door is unlocked using wireless door lock control system<br>☐ When key is inserted in ignition key cylinder and ignition switch is turned ON-OFF 10 times within 15 seconds | |
| ☐ Warning operation does not start when theft deterrent system is set and door is opened with key | | |
| ☐ Others | | |

05ATA-02

# CUSTOMER PROBLEM ANALYSIS CHECK

**RSA SYSTEM Check Sheet**

Inspector's name: _____

| | | | |
|---|---|---|---|
| **Customer's Name** | | **VIN** | |
| | | **Production Date** | |
| | | **Licence No.** | |
| **Brought-in Date** | / / | **Odometer Reading** | **km**<br>**Mile** |

| | |
|---|---|
| **Date of First Occurrence** | / / |
| **Frequency of Problem Occurrence** | ☐ Constant ☐ Intermittent ( Times a day) |

| | |
|---|---|
| **Problem Symptom** | ☐ **Switch & Volume Assy** |
| | ☐ **Headphone** |
| | ☐ **Stereo Component Controller Assy** |
| | |
| | |

700SI-01

# CUSTOMIZE PARAMETERS

HINT:

The following item can be customized.

**NOTICE:**

- **After confirming whether the items requested by the customer are applicable or not for the customization, perform the customize operation.**
- **Be sure to record the current settings before customizing.**
- **When troubleshooting, make sure that the item in question is not set to "OFF" as a result of customization (Example: For the system, "the wireless function does not operate", first check that the wireless function is not set to "OFF", then perform troubleshooting).**

**POWER WINDOW**

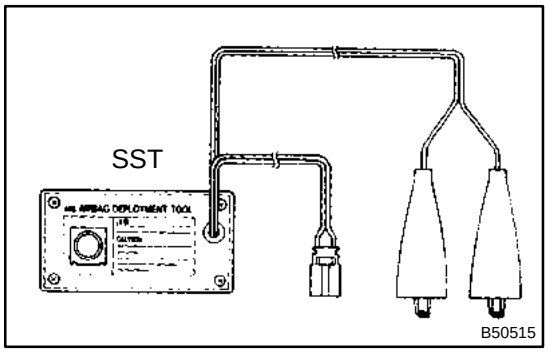
| DISPLAY (ITEM) | DEFAULT | CONTENTS | SETTING |
|---|---|---|---|
| IG OFF P/W | ON | After ignition switch OFF, power window control permission output | ON / OFF |

610AN-04

# DISPOSAL

HINT:

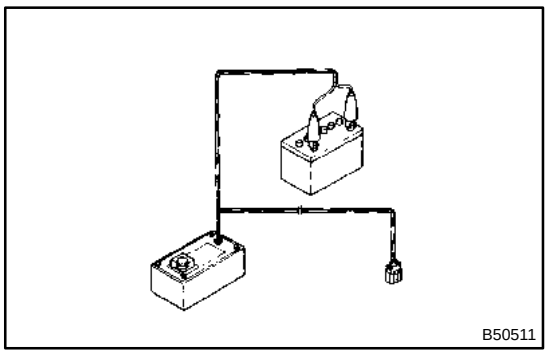
When scrapping vehicles epuipped with a seat belt pretensioner or disposing of a front seat outer belt (with seat belt pretensioner), always first activate the seat belt pretensioner in accordance with the procedures described below. If any abnormality occurs in activation of the seat belt pretensioner, contact the SERVICE DEPT. of the TOYOTA MOTOR SALES, U.S.A., INC. When disposing of a front seat outer belt assy (with seat belt pretensioner) that was activated in a collision, follow the same procedures listed in step 2-(e) in DISPOSAL.




**CAUTION:**

- **Never dispose of an outer belt assy with an inactivated pretensioner.**
- **The seat belt pretensioner produces a sizeable exploding sound when it activates, so perform the operation outdoors so that it will not be a nuisance to nearby residents.**
- **When activating an outer belt (with seat belt pretensioner), control operation at least 10 m (33 ft) away from the outer belt.**
- **Use gloves and safety glasses when handling a seat belt with an activated pretensioner.**
- **Always wash your hands with water after completing activation.**
- **Do not apply water, etc. to the outer belt with an activated pretensioner.**
- **When activating the seat belt pretensioner, always use the specified SST (SRS airbag deployment tool). Perform operation in a place away from electrical interference.**

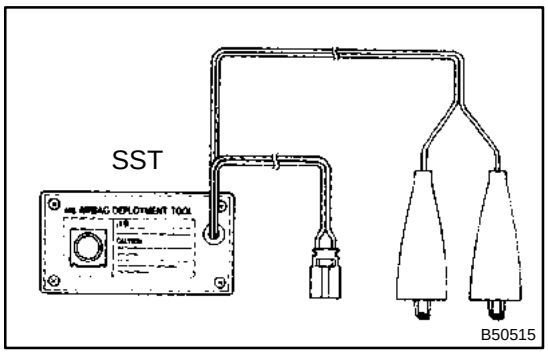
  SST 09082-00700




**1. DISPOSE OF FRONT SEAT OUTER BELT ASSY RH (WHEN INSTALLED IN VEHICLE)**

HINT:

Check that the battery positive voltage is above 12 V.

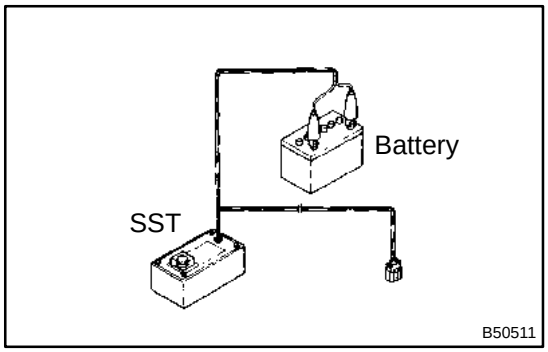



(a) Check the functioning of SST.

**CAUTION:**

**When activating the seat belt pretensioner, always use the specified SST.**

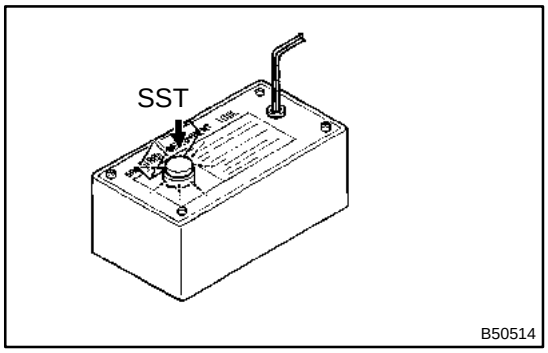
SST 09082-00700, 09082-00770




(1) Connect the SST red clip to the battery positive (+) terminal and the black clip to the battery negative (-) terminal.

HINT:

Do not connect the yellow connector which should be connected to the seat belt pretensioner.




(2) Press the SST activation switch and check that the LED of the SST activation switch lights up.

**CAUTION:**

**If the LED lights up when the activation switch is not pressed, the SST may have a malfunction which case that SST should not be used.**

(b) Disconnect the SST from the battery.

(c) Disconnect the pretensioner connector.

(1) Disconnect the battery negative (-) terminal.

(2) Check the SRS airbag system (See page 60-1 ).

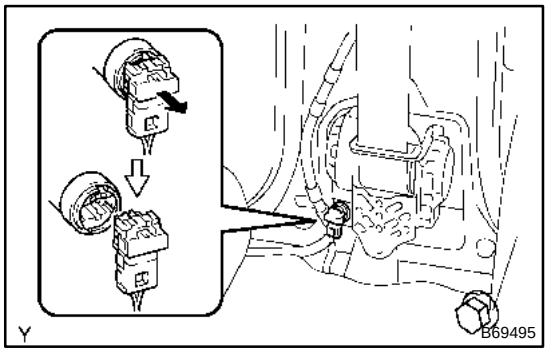
(3) Remove the front door scuff plate RH (See page 76-27 ).

(4) Remove the rear door scuff plate RH (See page 76-27 ).

(5) Remove the front door weatherstrip RH.

(6) Remove the rear door weatherstrip RH.

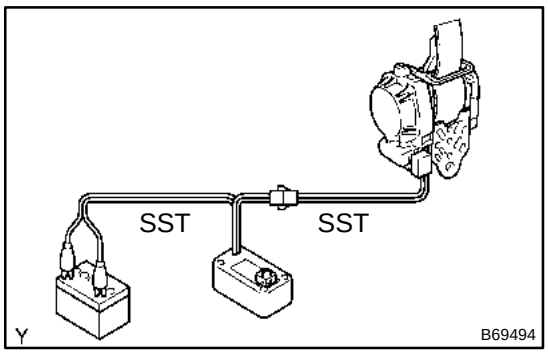
(7) Remove the center pillar garnish lower RH (See page 76-27 ).




(8) Disconnect the pretensioner connector, as shown in the illustration.

(d) Connect the SST.

(1) Install the floor anchor of the seat belt.

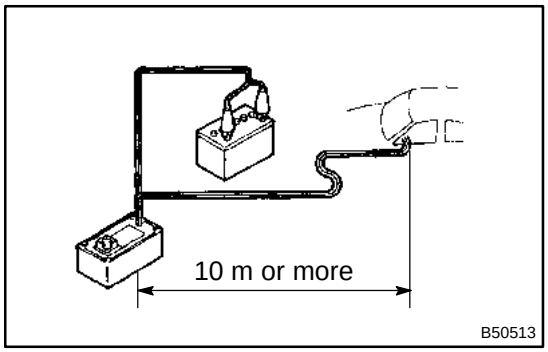



(2) Connect SST, then connect them to the seat belt pretensioner.

SST 09082-00700, 09082-00770

**NOTICE:**

**To avoid damaging the SST connector and wire harness, do not lock the secondary lock of the twin lock.**




(3) Move the SST at least 10 m (33 ft) away from the front of the vehicle.

(4) Close all the doors and windows of the vehicle.

**NOTICE:**

**Take care not to damage the SST wire harness.**

(5) Connect the SST red clip to the battery positive (+) terminal and the black clip to the negative (-) terminal.

(e) Activate the seat belt pretensioner.

(1) Confirm that no one is inside the vehicle or within 10 m (33 ft) of the vehicle.

(2) Press the SST activation switch and activate the seat belt pretensioner.

HINT:

The seat belt pretensioner operates simultaneously with the LED light for the SST activation switch.

(f) Dispose of the front seat outer belt (with the seat belt pretensioner).

**CAUTION:**

- **The outer belt is very hot when the seat belt pretensioner is activated, so leave it untouched for at least 30 minutes after it has been activated.**
- **Use gloves and safety glasses when handling the outer belt with a pretensioner that has been activated.**
- **Always wash your hands with water after completing the operation.**
- **Do not apply water, etc. to an outer belt assy with a pretensioner that has been activated.**

HINT:

When scrapping a vehicle, activate the seat belt pretensioner, and then scrap the vehicle with the activated outer belt installed.

**2. DISPOSE OF FRONT SEAT OUTER BELT ASSY RH (WHEN NOT INSTALLED IN VEHICLE)**

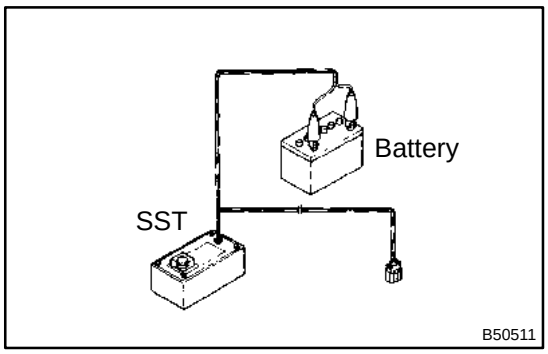
**NOTICE:**

- **When disposing of the outer belt (with the seat belt pretensioner) only, never use the customer's vehicle to activate the seat belt pretensioner.**
- **Be sure to follow the procedures listed below when activating the seat belt pretensioner.**

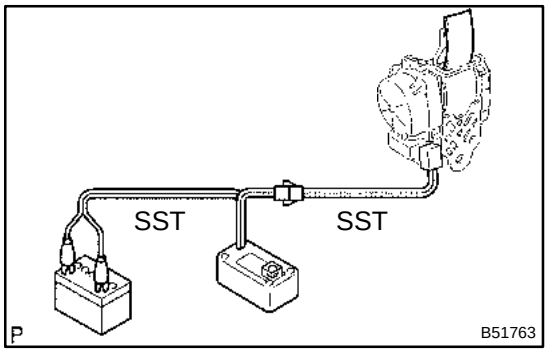
(a) Remove the front seat outer belt (See page 61-7 ).

HINT:

Cut the belt near the seat belt retractor.

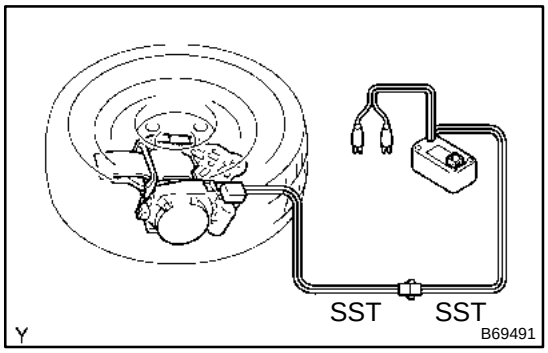



(b) Check the functioning of SST (See step 1-(a)).
SST 09082-00700, 09082-00770




(c) Install the SST.
(1) Connect SST, then connect them to the seat belt pretensioner.
SST 09082-00700, 09082-00770

**NOTICE:**
**To avoid damaging the SST connector and wire harness, do not lock the secondary lock of the twin lock.**

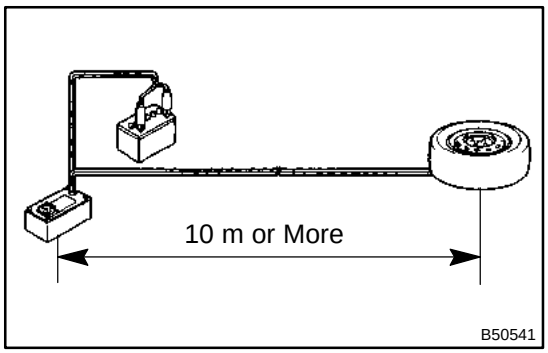



(2) Place the front seat outer belt on the ground and cover it with a wheel with tire.

**NOTICE:**
**Set up the outer belt assy as shown in the illustration.**

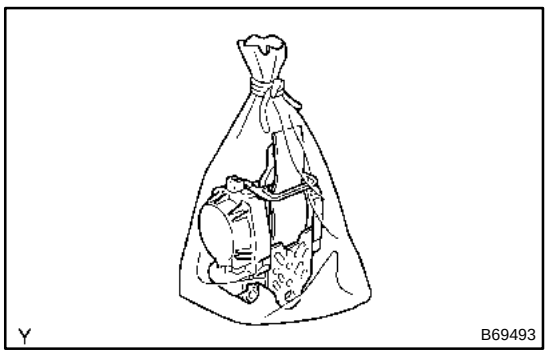
(3) Move the SST at least 10 m (33 ft) away from the disc wheel.

**NOTICE:**
**Take care not to damage the SST wire harness.**




(d) Activate the seat belt pretensioner.
(1) Connect the SST red clip to the battery positive (+) terminal and the black clip to the battery negative (-) terminal.
(2) Check that no one is within 10 m (33 ft) of the wheel.
(3) Press the SST activation switch and activate the seat belt pretensioner.

HINT:
The seat belt pretensioner operates simultaneously with the LED light for the SST activation switch.




(e) Dispose of the front seat outer belt (with the seat belt pretensioner).

**CAUTION:**
- **The outer belt is very hot when the seat belt pretensioner is activated, so leave it untouched for at least 30 minutes after it has been activated.**
- **Use gloves and safety glasses when handling the front seat outer belt with the pretensioner that has been activated.**

- **Always wash your hands with water after completing operation.**
- **Do not apply water, etc. to an outer belt with the pretensioner that has been activated.**
  (1) Remove the wheel and SST.
  (2) Place the outer belt in a plastic bag, tie the end tightly and dispose of it in the same way as other general parts.

# FRONT SEAT AIRBAG ASSY LH

600JN-02

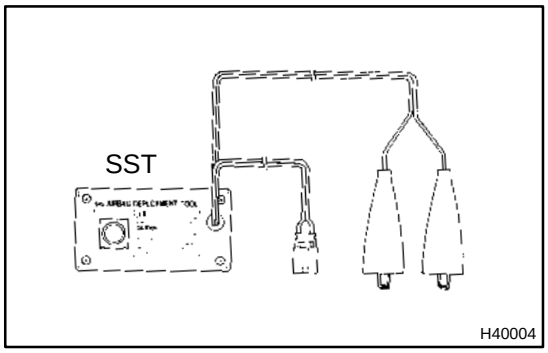
## DISPOSAL

HINT:

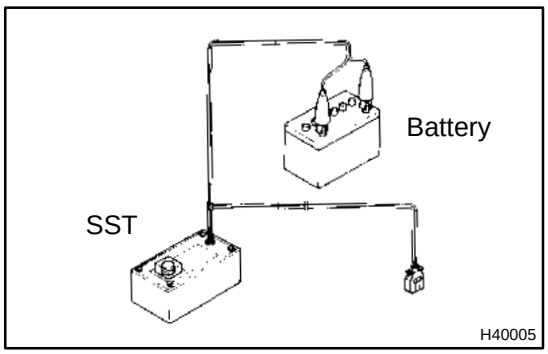
- Disposal procedure of the RH side is the same as that of with LH side.
- When scrapping a vehicle equipped with the SRS or disposing of the front seat airbag assy LH be sure to deploy the airbag first in accordance with the procedure described below. If any abnormality occurs with the airbag deployment, contact the SERVICE DEPT. of TOYOTA MOTOR SALES, U.S.A., INC.

**CAUTION:**

- **Never dispose of the front seat airbag assy LH that has an deployed airbag.**
- **The airbag produces an extremely exploding sound when it is deployed, so perform the operation out of doors and where it will not create a nuisance to nearby residents.**




- **When deploying the airbag, always use the specified SST (SRS Airbag Deployment Tool), perform the operation in a place away from electrical noise.**
- **When deploying the airbag, perform the operation at least 10 m (33 ft) away from the airbag assy.**
- **The front seat airbag assy is extremely hot when the airbag is deployed, so leave it alone for at least 30 minutes after deployment.**
- **Use gloves and safety glasses when handling the front seat airbag assy with a deployed airbag.**
- **Always wash your hands with water after completing the operation.**
- **Do not apply water, etc. to the front seat airbag assy with a deployed airbag.**

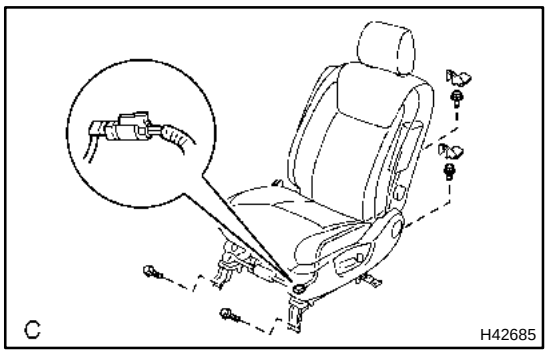



**1. DISPOSE OF FRONT SEAT AIRBAG ASSY LH (WHEN SCRAPPING VEHICLE DEPLOYMENT METHOD)**

HINT:

Prepare a battery as the power source to deploy the airbag.

(a) Check the function of the SST (see step 1- (a) on page 60-21 ).

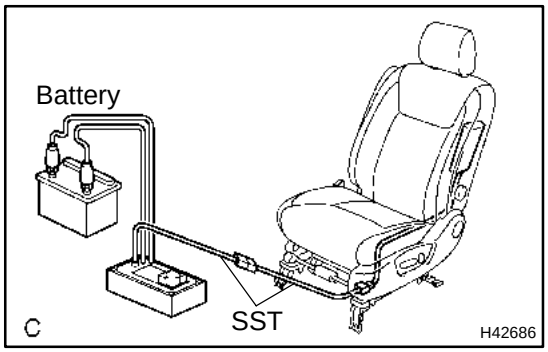



(b) Remove the front seat assy LH (see page 72-12 (power seat) or 72-22 (manual seat)).

(c) Disconnect the front seat airbag LH connector.

**NOTICE:**

**When handling the airbag connector, take care not to damage the airbag wire harness.**



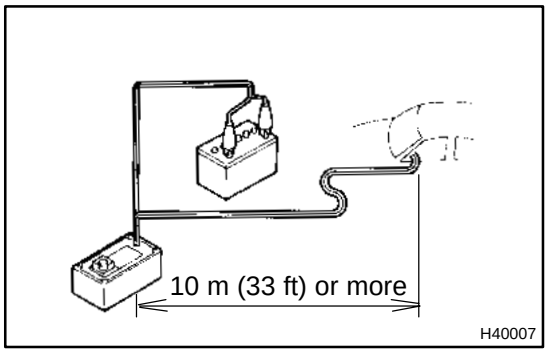

(d) Install the SST.

(1) Connect the connector of the SST to the front seat airbag LH connector.

SST 09082-00700, 09082-00750

**NOTICE:**

**To avoid damaging the SST connector and the wire harness, do not lock the secondary lock of the twin lock.**




(2) Move the SST at least 10 m (33 ft) away from the front of the vehicle.

(3) Close all the doors and windows of the vehicle.

**NOTICE:**

**Take care not to damage the SST wire harness.**

(4) Connect the red clip of the SST to the battery positive (+) terminal and the black clip of the SST to the battery negative (-) terminal.

(e) Deploy the airbag.

(1) Check that no one is inside the vehicle or within 10 m (33 ft) area around the vehicle.

(2) Press the activation switch of the SST and deploy the airbag.

HINT:

The airbag is deployed as the LED of the SST activation switch comes on.

(f) Dispose of the front seat airbag assy LH.

**CAUTION:**

- **The front seat airbag assy LH is extremely hot when the airbag is deployed, so leave it alone for at least 30 minutes after deployment.**
- **Use gloves and safety glasses when handling the front seat airbag assy LH with the deployed airbag.**
- **When moving a vehicle for scrapping which has the front seat airbag assy LH with the deployed airbag, use gloves and safety glasses.**
- **Do not apply water, etc. to the front seat airbag assy LH with a deployed airbag.**
- **Always wash your hands with water after completing the operation.**

HINT:

When scrapping a vehicle, deploy the airbag and scrap the vehicle with the front seat airbag assy LH being installed.

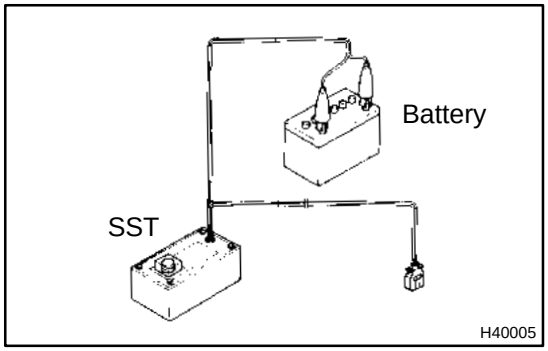
**2. DISPOSE OF FRONT SEAT AIRBAG ASSY LH (WHEN DISPOSING OF AIRBAG ASSEMBLY DEPLOYMENT METHOD)**

**NOTICE:**

- **When disposing of the front seat airbag assy LH only, never use the customer's vehicle to deploy the airbag.**
- **Be sure to follow the procedure given below when deploying the airbag.**

HINT:

Prepare a battery as the power source to deploy the airbag.




(a) Check the function of the SST (see step 1- (a) on page 60-21 ).

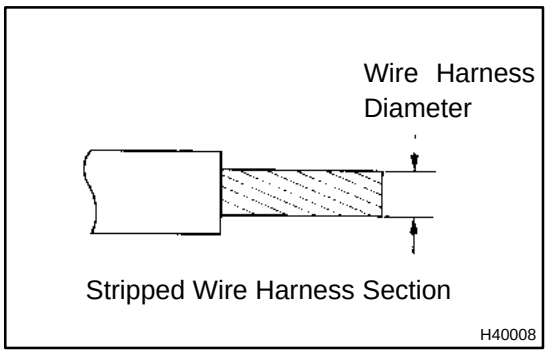
(b) Remove the front seat airbag assy LH.

(1) Remove the front seat assy LH (see page 72-12 (power seat) or 72-22 (manual seat)).

(2) Remove the 2 nuts and the front seat airbag assy LH from the seatback assembly.

**CAUTION:**

- **When removing the front seat airbag assy LH, work must be started 90 seconds after the ignition switch is turned to the "LOCK" position and the negative (-) terminal cable is disconnected from the battery.**
- **When storing the front seat airbag assy LH, keep the upper surface of the airbag deployment side facing upward.**




(c) Using a service-purpose wire harness, tie down the front seat airbag assy.

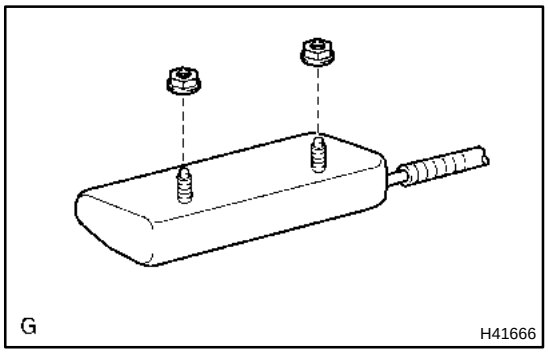
**Wire harness: Stripped wire harness section 1.25 $mm^2$ or more (0.0019 $in^2$ or more)**

HINT:

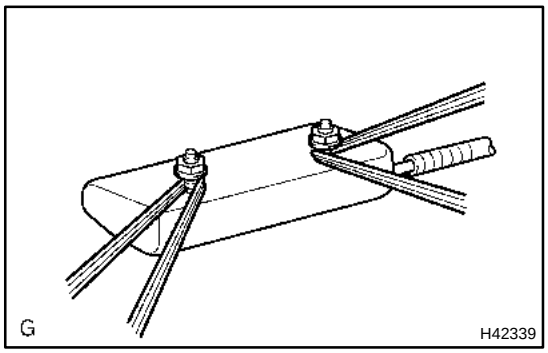
To calculate the square of the stripped wire harness section:
Square = 3.14 x $(Diameter)^2$ divided by 4

**CAUTION:**

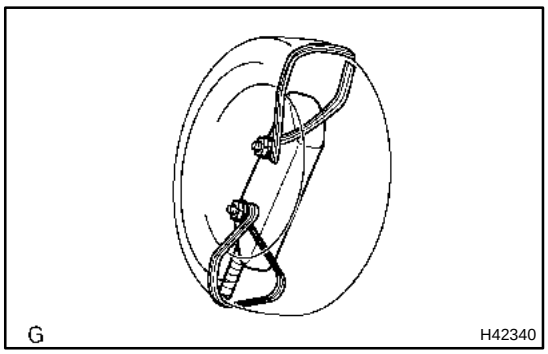
**If the wire harness which is too thin or alternative object is used to tie down the front seat airbag assy LH, it may be snapped by the shock when the airbag is deployed. This is highly dangerous. Always use a wire harness for vehicle use which is at least 1.25 $mm^2$ (0.0019 $in^2$).**




(1) Install the 2 nuts in the front seat airbag assy LH.




(2) Wind the wire harness around the stud bolts of the front seat airbag assy LH as shown in the illustration.




(3) Position the front seat airbag assy LH inside the tire with the airbag deployment direction facing inside.

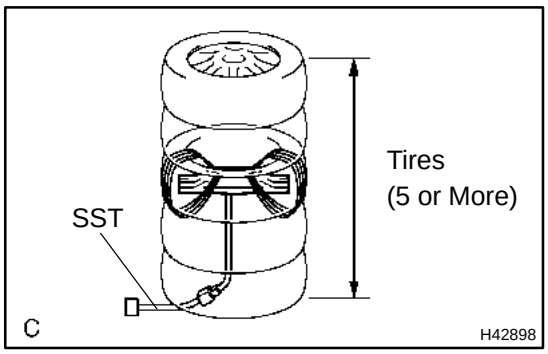
**Tire size : Must exceed the following dimensions**
**Width 185 mm (7.28 in.)**
**Inner diameter 360 mm (14.17 in.)**

**CAUTION:**

- **Make sure the wire harness is tight. It is highly dangerous when looseness in the wire harness results in the front seat airbag assy LH coming free due to the shock from the airbag deploying.**
- **Always tie down the front seat airbag assy LH with the airbag door facing inside.**

**NOTICE:**

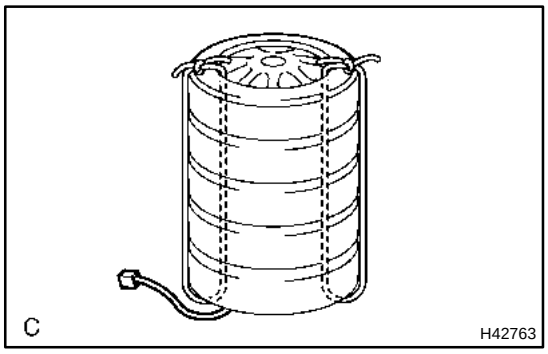
**The tire will be marked by the airbag deployment, so use the redundant tire.**




(d) Install the SST.
Connect the connector of SST to the front seat airbag assy LH connect.
SST 09082-00750

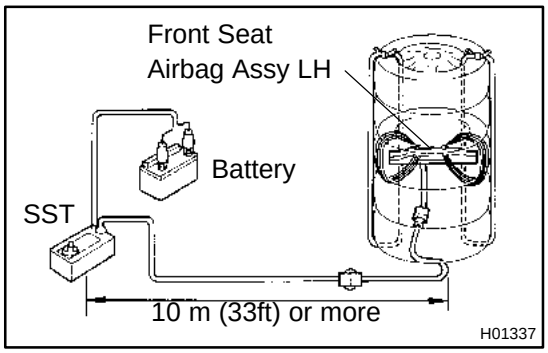
(e) Place the tires.
(1) Place at least 2 tires under the tire to which the front seat airbag assy LH is tied.
(2) Place at least 2 tires over the tire to which the front seat airbag assy LH is tied. The top tire should have the wheel installed.

**NOTICE:**
**Do not place the SST connector under the tire because the SST connector could be damaged.**




(3) Tie the tires together with 2 wire harnesses.

**CAUTION:**
**Make sure that the wire harnesses is tight. It is highly dangerous whew looseness in the wire harness results in the tires coming free due to the shock from the airbag deployment.**

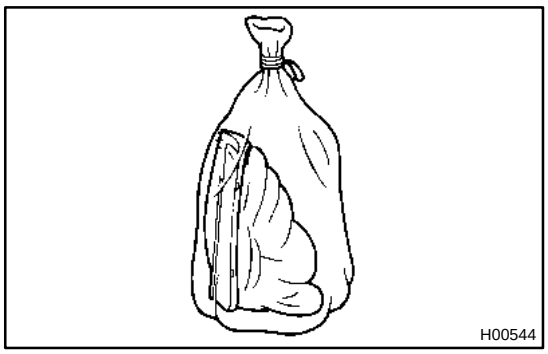



(f) Install the SST.
Connect the connector of the SST.
SST 09082-00700

**NOTICE:**
**To avoid damaging the SST connector and wire harness, do not lock the secondary lock of the twin lock.**

(g) Deploy the airbag.
(1) Connect the red clip of the SST to the battery positive (+) terminal and the black clip of the SST to the battery negative (-) terminal.
(2) Check that no one is within 10 m (33 ft) area around the tire the which the front seat airbag assy LH is tied to.
(3) Press the activation switch of the SST and deploy the airbag.

HINT:
The airbag is deployed as the LED of the SST activation switch comes on.




(h) Dispose of the front seat airbag assy LH.

**CAUTION:**

- **The front seat airbag assy LH is extremely hot when the airbag is deployed, so leave it alone for at least 30 minutes after deployment.**
- **Use gloves and safety glasses when handling the front seat airbag assy LH with a deployed airbag.**
- **Always wash your hands with water after completing the operation.**
- **Do not apply water etc. to the front seat airbag assy with the deployed airbag.**

(1) Remove the front seat airbag assy LH from the tire.

(2) Place the front seat airbag assy LH in a plastic bag, tie the end tightly and dispose of it in the same way as other general parts disposal.

05BYI-01

# DESCRIPTION

## SYSTEM DESCRIPTION

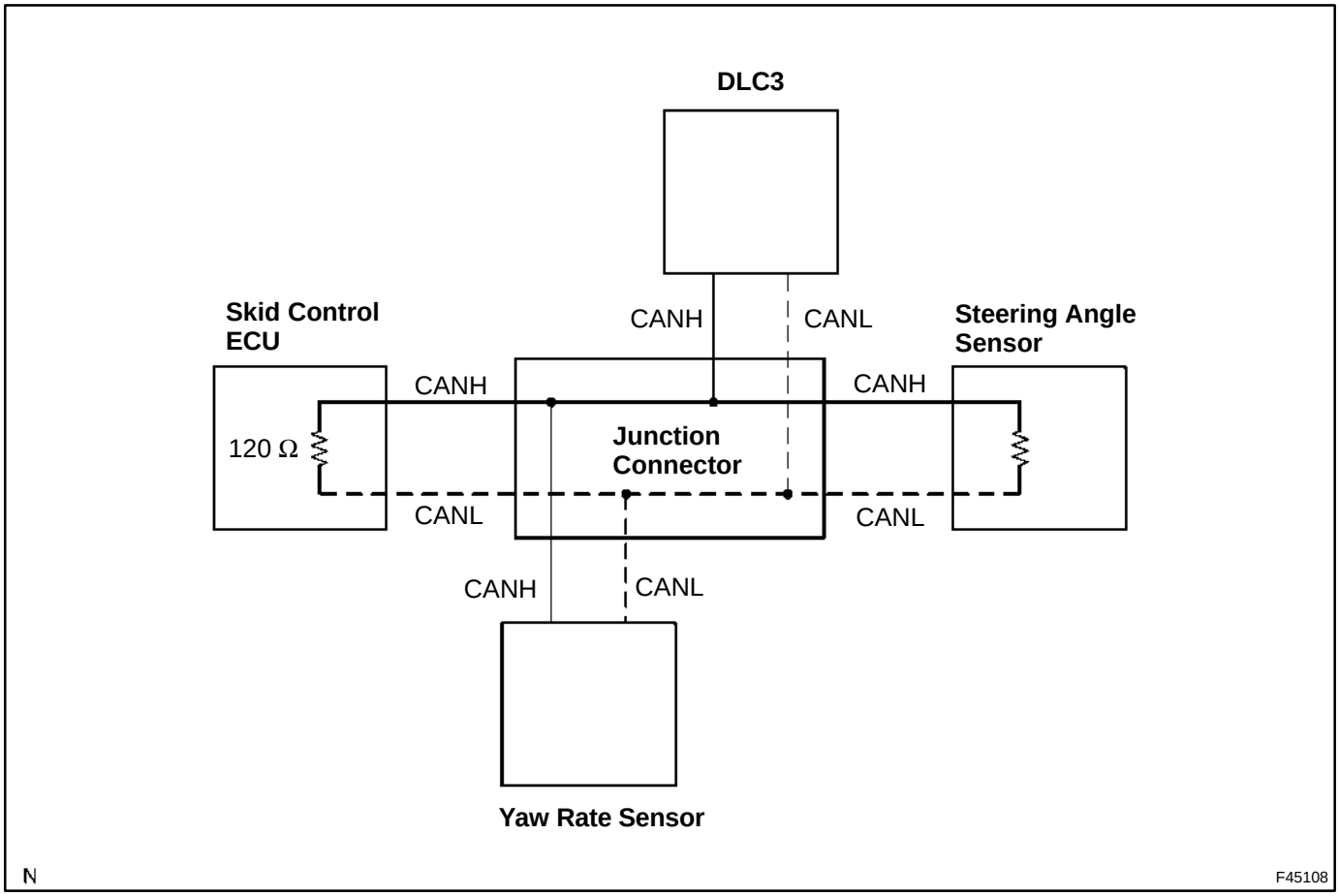
(a) CAN(Controller Area Network) is a serial data communication system for real time application. It is a multiplex communication system to be equipped for a vehicle and has a high communication speed (500 kbps) and the function to detect malfunction.

(b) Pairing the CANH wire harness and CANL wire harness, the CAN performs the communication based on the voltage difference.

(c) The SIENNA uses the CAN communication system for the communication between the following ECU and sensors in the ABS with EBD & BA & TARC & VSC system.
- Skid control ECU
- Yaw rate sensor
- Steering angle sensor

(d) The skid control ECU stores and outputs DTCs in stead of the steering angle sensor and yaw rate sensor because they cannot store or output DTCs.

(e) In the CAN communication system, 2 terminus circuits* which are necessary to communicate with the mainline are placed.
*: A circuit which consists of a resistor and condenser is placed to convert the communication current of the CAN communication into bus voltage.



# AUDIO SYSTEM

05ASA-02

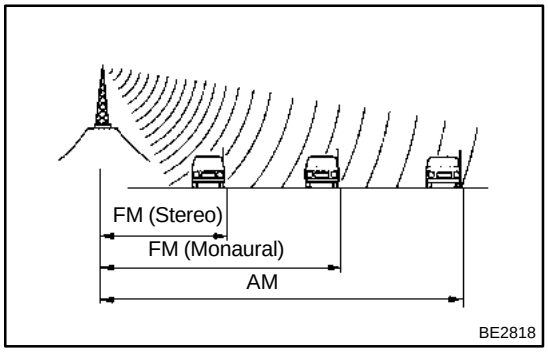
## DESCRIPTION

### 1. RADIO WAVE BAND

The radio wave bands used in radio broadcasting are as follows:

| Frequency | 30 kHz | 300 kHz | 3 MHz | 30 MHz | 300 MHz |
|---|---|---|---|---|---|
| Designation | LF | MF | HF | VHF | |
| Radio wave | | AM ⟷ | | FM ⟷ | |
| Modulation | Amplitude modulation | | | Frequency modulation | |

LF: Low Frequency
MF: Medium Frequency
HF: High Frequency
VHF: Very High Frequency

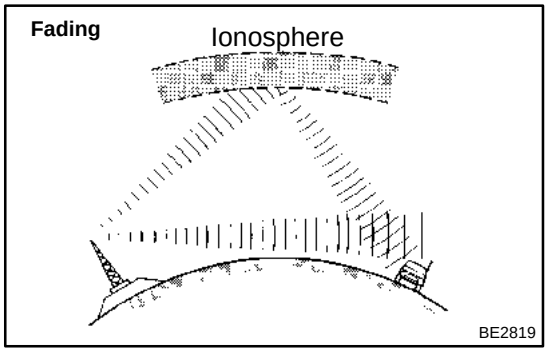



### 2. SERVICE AREA

(a) There are great differences in the size of the service area for AM and FM broadcasting. Sometimes FM stereo broadcast cannot be received even though AM can be received very clearly.
FM stereo has the smaller service area, it also picks up static and other types of interference (”noise”) easily.

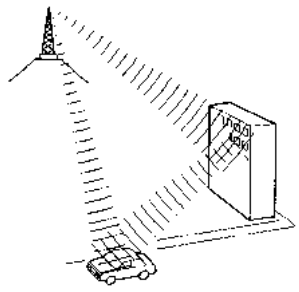
### 3. RECEPTION PROBLEMS

HINT:
Besides the problem of static, there are some move problems called ”fading”, ”multipath” and ”fade out”. These problems are caused not by electrical noise but by the nature of the radio waves themselves.




(a) Fading
Besides electrical interference, AM broadcasts are also susceptible to other types of interference, especially at night. This is because AM radio waves bounce off the ionosphere at night. These radio waves then interfere with the signals that reach the vehicle’s antenna directly from the same transmitter. This type of interference is called ”fading”.

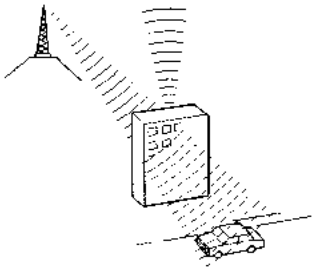
**Multipath**



BE2820

(b) Multipath
Interference caused by reflection of radio waves against obstructions is called ”Multipath”. Multipath occurs when radio signals emitted from the broadcast transmitter antenna are reflected against tall buildings or mountains and interferes with other signals which are to be received directly.

**Fade Out**



BE2821

(c) Fade Out
Because FM frequency is higher than that of AM, FM radio wave tends to be reflected against obstructions such as tall buildings or mountains. For this reason, FM signals often seem to gradually disappear or fade away as the vehicle goes behind those obstructions. This phenomenon is called ”fade out”.

**4. NOISE PROBLEMS**

(a) It is very important for technicians to understand a customer’s claim about the noise clearly. Use the following table to diagnose the phenomena.

| Radio wave | Condition in which noise occurs | Probable cause |
|---|---|---|
| AM | Noise occurs at a specific place. | Strong possibility of foreign noise. |
| | Noise occurs when listening to faint broadcasting. | The same program may be broadcasted from some local stations. If the program is the same, one of those may be tuned in. |
| FM | Noise occurs only at night. | Strong possibility of beat from a distant broadcasting. |
| | Noise occurs at a specific place during driving. | Strong possibility of multipath noise and fading noise caused by changes of FM frequency. |

HINT:

If the condition where the noise occurs does not meet any of the above, find out the cause based on ”Reception Problems”. Refer to the description about Multipath and Fading mentioned previously.

**5. COMPACT DISC PLAYER**

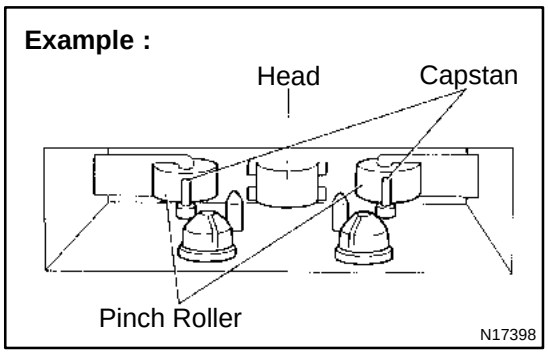
(a) Compact Disc (hereafter called ”CD”) Players use a laser beam pick-up to read the digital signals recorded on the CD and reproduce analog signals of the music, etc. 4.7 in. (12 cm) and 3.2 in. (8 cm) discs are available for the CD player.

HINT:

Never attempt to disassemble or apply oil to any part of the player unit. Do not insert any object into the magazine except for a disc.

**NOTICE:**

**CD players use an invisible laser beam which could cause hazardous radiation exposure. Be sure to operate the player correctly as instructed.**

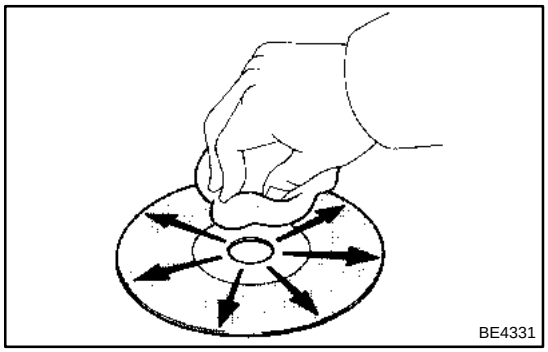



**6. MAINTENANCE**

**Tape Player / Head Cleaning:**

(a) Raise the cassette door with your finger.
Using a pencil or similar object, push in the guide.

(b) Using a cleaning pen or cotton applicator soaked in cleaner, clean the head surface, pinch rollers and capstans.




**7. MAINTENANCE**

**CD Player / Disc Cleaning:**

If the disc gets dirty, clean the disc by wiping the surface from the center to outside in the radial directions with a soft cloth.

**NOTICE:**

**Do not use a conventional record cleaner or anti-static preservative.**

**8. COMMUNICATION SYSTEM**

(a) Components in the audio system communicate each other through AVC-LAN. (Radio receiver with CD changer control function)

(b) The master component of AVC-LAN is the radio receiver assy with resistance (60 - 80 Ω), which is necessary for communication.

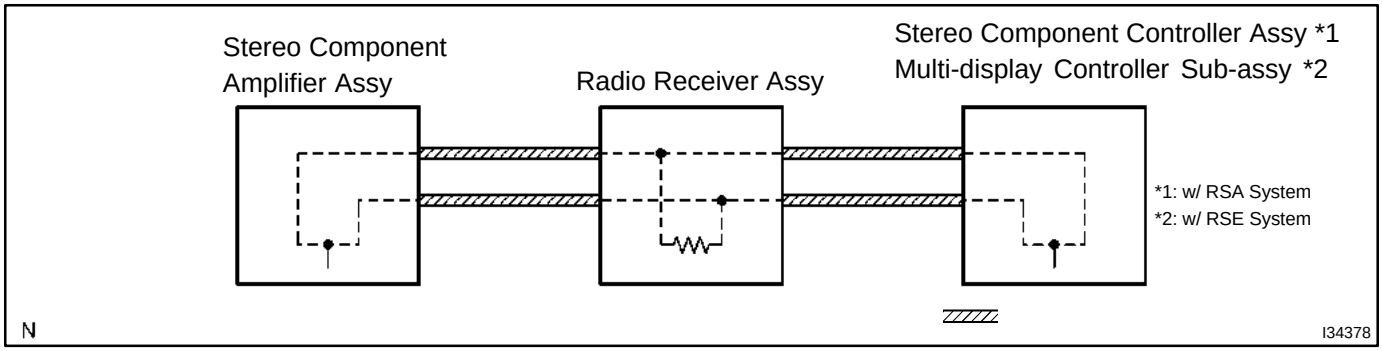
(c) When short circuit or circuit breakdown occurs in the AVC-LAN circuit, the audio system does not operate normally due to the communication cutoff.

**9. DIAGNOSIS FUNCTION**

(a) The audio system has diagnosis function (The diagnosis result is displayed on the LCD of the radio receiver assy). (Radio receiver with CD changer control function)

(b) The component code (physical address), or three-digit number (in hexadecimal) is set for each component comprising AVC-LAN.

(c) The logical address, or two-digit number (in hexadecimal) is set for each function and component unit in each component.



# TOYOTA PARK ASSIST SYSTEM

05BUR-01

## DESCRIPTION

### 1. NOTE FOR TOYOTA PARK ASSIST SYSTEM

(a) Under the following conditions, the sensor of the clearance sonar may not operate properly.
  (1) When foreign matter such as snow or mud gets on the sensor (the detection function returns to normal if the foreign matters are cleared away).
  (2) When the sensor is frozen (the detection function returns to normal if the sensor is defrosted).

HINT:

Especially in cold weather, a malfunction warning may be indicated and the sensor may not able to detect any obstacles due to a frozen sensor etc.

(b) The detection range of the clearance sonar may be affected by the following conditions.
  (1) Foreign matter such as snow or mud gets on the sensor.
  (2) In boiling weather and cold weather.

(c) Under the following conditions, the clearance sonar may make detection error.
  (1) When something that generates ultrasonic wave, such as a horn of another vehicle, engine sound of motorcycle, or air brake sound of large-sized vehicle approaches.
  (2) When the vehicle gets caught in a downpour or when mud or water splashed the vehicle's body.
  (3) When the vehicle is largely tilted.
  (4) When the vehicle is equipped with a commercial fender pole or radio antenna.
  (5) When foreign matter such as snow or mud gets on the sensor.
  (6) When a vehicle equipped with a sonar system is in the vicinity.
  (7) When the vehicle is equipped with a towing hook.

(d) The clearance sonar may detect the following objects.
  (1) Threadlike and thin object such as wire and rope.
  (2) Something that easily absorbs the ultrasonic wave such as cottons, snow, etc.
  (3) Objects with a sharp edge.
  (4) Short objects.
  (5) Tall objects with a projected upper part.

(e) Other conditions
  (1) The sensor does not detect an object that is lying just under the bumper. Also, the sensor may suddenly be disabled to detect objects lying lower than the sensor or thin pickets even though the sensor once detects them.
  (2) The sensor may be unable to detect objects as the sensor gets too close to the objects.
  (3) The sensor may not operate properly if it is given a strong impact, for example, the sensor is struck strongly or hit with an object, etc.

# REAR SEAT ENTERTAINMENT SYSTEM

05BVA-02

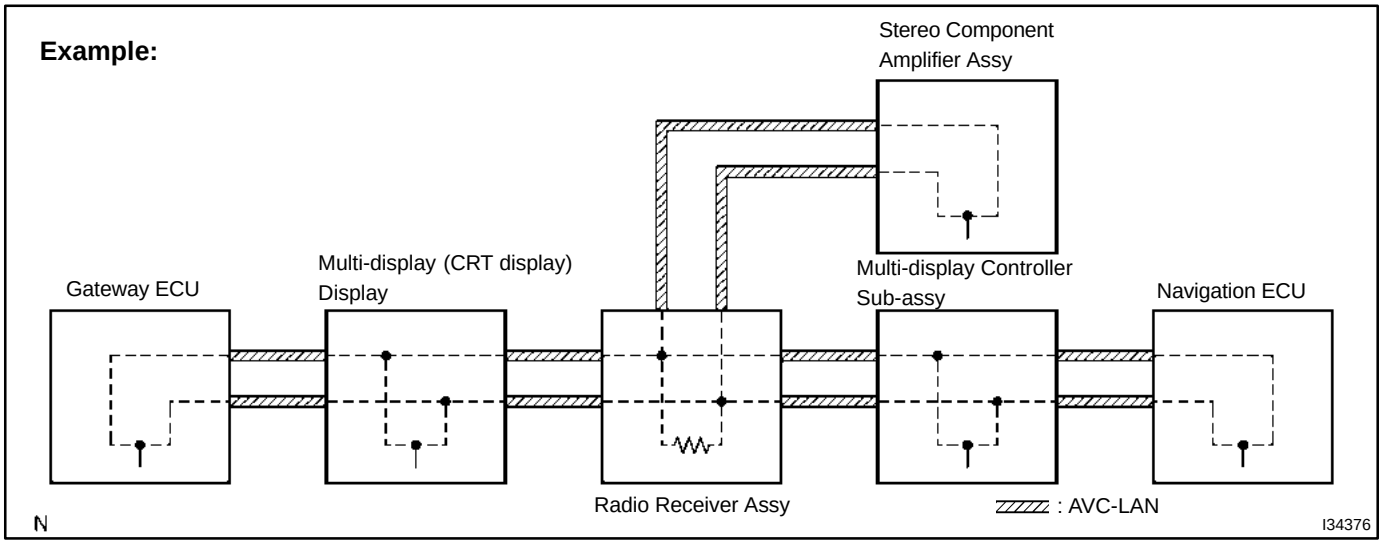
## DESCRIPTION

### 1. OUTLINE OF AVC-LAN

(a) What is AVC-LAN?

AVC-LAN is the abbreviation, which stands for Audio Visual Communication-Local Area Network. This is a unified standard co-developed by 6 audio manufactures associated with Toyota Motor Corporation.

The Unified standard covers signals, such as audio signal, visual signal, signal for switch indication and communication signal.




(b) Objectives

Recently the car audio system has been rapidly developed and functions have been changed drastically. The conventional system has been switched to the multi-media type such as a navigation system. At the same time the level of customers needs to audio system has been upgraded. This lies behind this standardization.

The concrete objectives are explained below.

(1) When products by different manufactures were combined together, malfunctions used to occur such as sound failure. This problem can be solved by standardization of signals.

(2) Various types of after market products have been able to add or replace freely.

(3) Because of the above (2), each manufacture has become able to concentrate on developing products in their strongest field. This has enabled many types of products provided inexpensively.

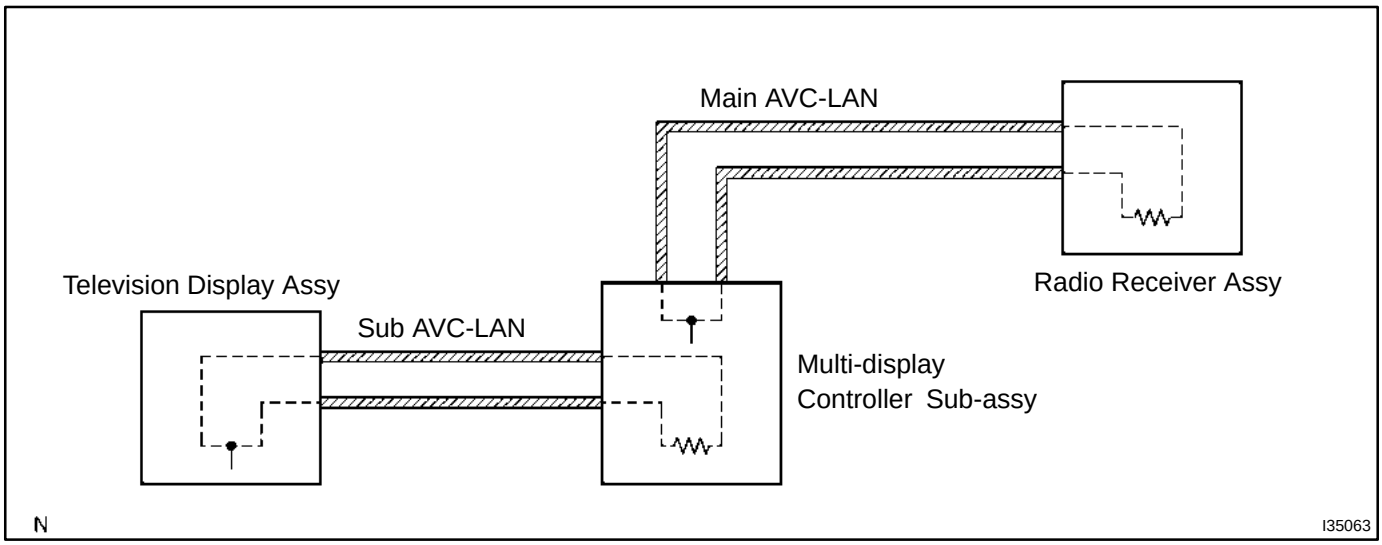
(4) In general, a new product developed by one particular manufacture could not be used due to a lack of compatibility with other manufactures products. By developing this new standard, users can enjoy many compatible products from different manufacture anytime they went.

HINT:

- When +B short or GND short is detected in AVC-LAN circuit, communication stops, and audio system does not function normally.
- When audio system is not equipped with a navigation system, audio head unit is the master unit. When audio system is equipped with a navigation system, radio receiver and navigation assy is the master unit.
- The master unit is equipped with a resistor (60 to 80 Ω) for communication.
- The car audio system using AVC-LAN circuit has a diagnosis function.
- Each product has its own specified numbers called physical address (three-digit number). Numbers are also allotted to each function in one product, which are called logical address (two-digit number).

## 2. COMMUNICATION SYSTEM

(a) This system performs communication between components through the Main AVC-LAN and Sub AVC-LAN.




(b) The multi-display controller sub-assy functions as a master unit, which performs communication between the multi-display controller sub-assy and television display assy, in the Sub AVC-LAN circuit.

HINT:

Refer to "NAVIGATION SYSTEM" (See page 05-1379 ) and "AUDIO SYSTEM" (See page 05-1222 ) for the Main AVC-LAN circuit.

(c) The multi-display controller sub-assy is equipped with a resistor (60 to 80 Ω) for communication.

## 3. DIAGNOSIS FUNCTION

(a) The multi-display controller sub-assy functions as a master unit in the Sub AVC-LAN circuit on this system. It identifies the trouble in this circuit, and the identified information is displayed on the television display assy.

# REAR SEAT AUDIO SYSTEM

05BUE-03

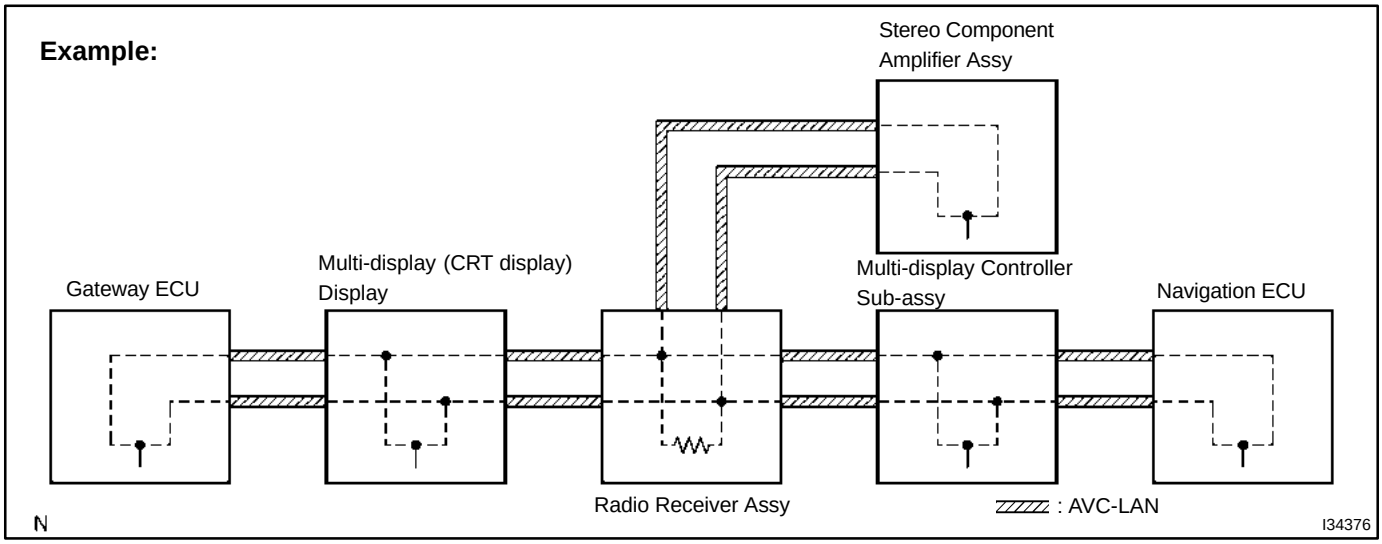
## DESCRIPTION

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(a) What is AVC-LAN?

AVC-LAN is the abbreviation, which stands for Audio Visual Communication-Local Area Network. This is a unified standard co-developed by 6 audio manufactures associated with Toyota Motor Corporation.

The Unified standard covers signals, such as audio signal, visual signal, signal for switch indication and communication signal.




(b) Objectives

Recently the car audio system has been rapidly developed and functions have been changed drastically. The conventional system has been switched to the multi-media type such as a navigation system. At the same time the level of customers needs to audio system has been upgraded. This lies behind this standardization.

The concrete objectives are explained below.

(1) When products by different manufactures were combined together, malfunctions used to occur such as sound failure. This problem can be solved by standardization of signals.

(2) Various types of after market products have been able to add or replace freely.

(3) Because of the above (2), each manufacture has become able to concentrate on developing products in their strongest field. This has enabled many types of products provided inexpensively.

(4) In general, a new product developed by one particular manufacture could not be used due to a lack of compatibility with other manufactures products. By developing this new standard, users can enjoy many compatible products from different manufacture anytime they want.

(c) The above descriptions are the objectives to introduce AVC-LAN. By this standardization, development of new products no longer cause systematic errors.

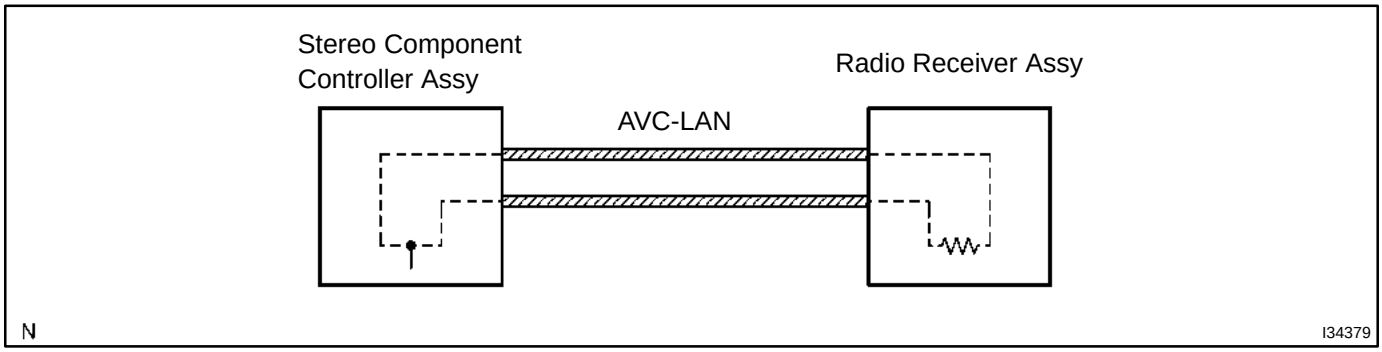
HINT:

- When +B short or GND short is detected in AVC-LAN circuit, communication stops, and audio system does not function normally.
- When audio system is not equipped with a navigation system, audio head unit is the master unit. When audio system is equipped with a navigation system, radio receiver is the master unit.
- The master unit is equipped with a resistor (60 to 80 Ω) for communication.
- The car audio system using AVC-LAN circuit has a diagnosis function.

- Each product has its own specified numbers called physical address (three-digit number). Numbers are also allotted to each function in one product, which are called logical address (two-digit number).

**2. COMMUNICATION SYSTEM**

(a) This system performs communication between the radio receiver assy and stereo component controller assy through the AVC-LAN.




HINT:

Refer to "TOYOTA NAVIGATION SYSTEM" (See page 05-1379 ) or "AUDIO SYSTEM" (See page 05-1222 ) for the Main AVC-LAN circuit.

**3. DIAGNOSIS FUNCTION**

(a) The radio receiver assy functions as a master unit in the AVC-LAN circuit on this system. It identifies the trouble in this circuit, and the identified information is displayed on the radio receiver assy.

HINT:

When performing the diagnosis check, refer to "TOYOTA NAVIGATION SYSTEM" (See page 05-1275 ) or "AUDIO SYSTEM" (See page 05-1 192).

# DYNAMIC LASER CRUISE CONTROL SYSTEM

05BEQ-01

## DESCRIPTION

Keep in mind these following points when inspecting the dynamic laser cruise control system.

- As there is a limitation the vehicle-to-vehicle distance controlling capability, do not overly rely on the dynamic laser cruise control system.
- Do not neglect to pay constant attention to the vehicle-to-vehicle distance and the traffic conditions when using the dynamic laser cruise control system. Keep an appropriate distance between the vehicle in front and your own vehicle by decelerating with the brake pedal depressed or accelerating with the accelerator pedal depressed depending on the situation.
- When the preceding vehicle decelerates rapidly or another vehicle pulls out in front of your own vehicle, the vehicle fails to decelerate in time and thus will collide with the preceding vehicle.
- The dynamic laser cruise control system is designed to assist you in maintaining an appropriate distance between your own vehicle and the preceding vehicle. However, the system alone is not sufficient. It is imperative that the driver maintains attention at all times.

05BX5-06

# DIAGNOSTIC TROUBLE CODE CHART

HINT:

If a malfunction code is displayed during the DTC check, check the circuit indicated by the DTC. For details of each code, turn to the page for the respective "DTC No." in the DTC chart.

**DTC chart of ABS:**

| DTC No. (See Page) | Detection Item | Trouble Area |
|---|---|---|
| C0200 / 31 (05-455) | Right front wheel speed sensor signal malfunction | • Right front, left front, right rear, left rear speed sensor<br>• Each speed sensor circuit<br>• Sensor rotor |
| C0205 / 32 (05-455) | Left front wheel speed sensor signal malfunction | |
| C0210 / 33 (05-460) | Right rear wheel speed sensor signal malfunction | |
| C0215 / 34 (05-460) | Left rear wheel speed sensor signal malfunction | |
| C0226 / 21 (05-465) | Open or short circuit in ABS & Traction actuator assy solenoid circuit (SFR circuit) | • ABS & Traction actuator assy |
| C0236 / 22 (05-465) | Open or short circuit in ABS & Traction actuator assy solenoid circuit (SFL circuit) | • ABS & Traction actuator assy |
| C0246 / 23 (05-465) | Open or short circuit in ABS & Traction actuator assy solenoid circuit (SRR circuit) | • ABS & Traction actuator assy |
| C0256 / 24 (05-465) | Open or short circuit in ABS & Traction actuator assy solenoid circuit (SRL circuit) | • ABS & Traction actuator assy |
| C0273 / 13 (05-467) | Open circuit in ABS MTR relay circuit | • VSC motor relay<br>• VSC fail relay<br>• VSC motor relay circuit<br>• ABS 1 fuse |
| C0274 / 14 (05-467) | Short circuit in ABS MTR relay circuit | |
| C0278 / 11 (05-472) | Open circuit in ABS SOL relay circuit | • ABS & Traction actuator assy |
| C0279 / 12 (05-472) | Short circuit in ABS SOL relay circuit | |
| C1225 / 25 (05-483) | Open or short circuit in ABS & Traction actuator assy solenoid circuit (SM circuit) | • ABS & Traction actuator assy<br>• VSC solenoid circuit |
| C1235 / 35 (05-455) | Foreign matter is attached on the tip of the right front sensor | • Right front, left front, right rear, left rear speed sensor<br>• Sensor rotor |
| C1236 / 36 (05-455) | Foreign matter is attached on the tip of the left front sensor | |
| C1238 / 38 (05-460) | Foreign matter is attached on the tip of the right rear sensor | |
| C1239 / 39 (05-460) | Foreign matter is attached on the tip of the left rear sensor | |
| C1241 / 41 (05-491) | Low battery positive voltage or abnormally high battery positive voltage | • Battery<br>• Charging system<br>• Power source circuit |
| C1243 / 43 (05-488) | Malfunction in deceleration sensor (constant output) | • Yaw rate sensor<br>• Yaw rate sensor circuit<br>• Wire harness |

| | | |
|---|---|---|
| C1244 / 44 (05-488) | Malfunction in deceleration sensor | • Yaw rate sensor<br>• Yaw rate sensor circuit<br>• Wire harness |
| C1245 / 45 (05-488) | Malfunction in deceleration sensor | • Yaw rate sensor<br>• Yaw rate sensor circuit<br>• Wire harness |
| C1246 / 46 (05-494) | Malfunction in master cylinder pressure sensor | • Master cylinder pressure sensor<br>• Master cylinder pressure sensor circuit |
| C1249 / 49 (05-496) | Open circuit in stop light switch circuit | • Stop light switch<br>• Stop light switch circuit |
| C1251 / 51 (05-499) | ABS pump motor is locked<br>Open circuit in pump motor circuit | ABS pump motor |
| C1361/91 (05-472) | Short circuit in ABS motor fail safe relay circuit | • VSC motor relay<br>• VSC fail relay<br>• VSC motor relay circuit<br>• ABS fuse |
| C1381/97 (05-488) | Malfunction in power supply voltage yaw/deceleration sensor | • Yaw rate sensor<br>• Yaw rate sensor power source circuit |
| U0121/94 (05-1931) | Malfunction in CAN communication | • Wire harness<br>• Steering angle sensor |
| U0124/95 (05-1931) | Malfunction in CAN communication with deceleration sensor | • Wire harness<br>• Yaw rate sensor |
| Always ON (05-501) | Malfunction in skid control ECU | • Battery<br>• Charging system<br>• Power source circuit<br>• Skid control ECU |

## DTC chart of VSC:

| DTC No. (See Page) | Detection Item | Trouble Area |
|---|---|---|
| C1201 / 51 (05-474) | Malfunction in ECM | Engine control system |
| C1203 / 53 (05-475) | Malfunction in ECM communication circuit | • TRC+ or TRC- circuit<br>• ENG+ or ENG- circuit<br>• ECM |
| C1210 / 36 (05-477) | Zero point calibration of yaw rate sensor undone | • Yaw rate sensor<br>• Yaw rate sensor circuit |
| C1223 / 43 (05-480) | Malfunction in ABS control system | ABS control system |
| C1224 / 44 (05-481) | Open or short circuit in NEO signal circuit | • NEO circuit<br>• ECM |
| C1231 / 31 (05-485) | Malfunction in steering angle sensor | • Steering angle sensor<br>• Steering angle sensor circuit<br>• Power source circuit |
| C1232 / 32 (05-488) | Malfunction in deceleration sensor | • Yaw rate sensor<br>• Yaw rate sensor circuit<br>• Wire harness |
| C1234 / 34 (05-488) | Malfunction in yaw rate sensor | • Yaw rate sensor<br>• Yaw rate sensor circuit<br>• Wire harness |
| C1336 / 39 (05-477) | Zero point calibration of deceleration sensor undone | • Yaw rate sensor (Deceleration sensor)<br>• Yaw rate sensor circuit (Deceleration sensor) |
| U0123/62 (05-1931) | Malfunction in CAN communication with yaw rate sensor | • Wire harness<br>• Yaw rate sensor |

| | | |
|---|---|---|
| U0126/63 (05-1931) | Malfunction in CAN communication with steering position sensor | • Wire harness<br>• Skid control ECU |
| Always ON (05-505) | Malfunction in skid control ECU<br>Open circuit in VSC warning indicator circuit | • Battery<br>• IC regulator<br>• Power source circuit<br>• Skid control ECU |

HINT:

In some cases, the hand-held tester cannot be used when VSC warning light is always on.

## DTC of sensor check function:

| Code No. | Diagnosis | Trouble Area |
|---|---|---|
| C1271 / 71 | Low output voltage of right front speed sensor | • Right front speed sensor<br>• Sensor installation<br>• Sensor rotor |
| C1272 / 72 | Low output voltage of left front speed sensor | • Left front speed sensor<br>• Sensor installation<br>• Sensor rotor |
| C1273 / 73 | Low output voltage of right rear speed sensor | • Right rear speed sensor<br>• Sensor installation<br>• Sensor rotor |
| C1274 / 74 | Low output voltage of left rear speed sensor | • Left rear speed sensor<br>• Sensor installation<br>• Sensor rotor |
| C1275 / 75 | Abnormal change in output voltage of right front speed sensor | Right front sensor rotor |
| C1276 / 76 | Abnormal change in output voltage of left front speed sensor | Left front speed sensor rotor |
| C1277 / 77 | Abnormal change in output voltage of right rear speed sensor | Right rear sensor rotor |
| C1278 / 78 | Abnormal change in output voltage of left rear speed sensor | Left rear speed sensor rotor |
| C1279 / 79 | Deceleration sensor is faulty | • Deceleration sensor<br>• Sensor installation |
| C1281 / 81 | Master cylinder pressure sensor output signal is faulty | Master cylinder pressure sensor |

05BW9-03

# DIAGNOSTIC TROUBLE CODE CHART

HINT:

- If no abnormality is found when the parts are inspected, inspect the skid control ECU.
- When a malfunction is found in the skid control ECU, replace the brake actuator assy.
- If a malfunction code is displayed during the DTC check, check the circuit listed for that code. For details of each code, refer to the "See page" under respective "DTC No." in the DTC chart.
- DTC 13 will not be output, if the check is performed by the hand-held tester.

| DTC No. (See Page) | Detection Item | Trouble Area |
|---|---|---|
| C2106/11 (05-366) | Stop lamp switch constant ON malfunction | • Stop lamp switch assy<br>• Stop lamp switch assy circuit<br>• Brake actuator assy |
| 13 (05-371) | ABS system malfunction | • ABS system<br>• Brake actuator assy |

05C01-03

# DIAGNOSTIC TROUBLE CODE CHART

If a malfunction code is displayed during the DTC check, check the circuit listed for that code in the table below. (Proceed to the page given for that circuit.)

| DTC No. (See Page) | Detection Item | Trouble Area |
|---|---|---|
| B2215 (05-1741) | Back door closer switch malfunction | • Back door lock assy<br>• Power back door ECU<br>• Wire harness |

05BYL-17

# DIAGNOSTIC TROUBLE CODE CHART

HINT:

Check the trouble areas following the DTCs combination table (See page 05-1935 ).

| DTC No. | Detection Item | Trouble Area |
|---|---|---|
| U0121/94 | Malfunction in CAN communication | • Open circuit for between skid control ECU and junction connector<br>• Short circuit between CANL circuit and CANH circuit<br>• Short (GND) circuit in CANL circuit<br>• Short (+B) circuit in CANL circuit<br>• Skid control ECU |
| U0123/62 | Malfunction in CAN communication with yaw rate sensor | • Open circuit for between yaw rate sensor and junction connector<br>• Yaw rate sensor |
| U0124/95 | Malfunction in CAN communication with deceleration sensor | • Open circuit for between yaw rate sensor and junction connector<br>• Yaw rate sensor |
| U0126/63 | Malfunction in CAN communication with steering position sensor | • Open circuit for between steering angle sensor and junction connector<br>• Steering angle sensor |

05BVJ-01

# DIAGNOSTIC TROUBLE CODE CHART

## 1. DTC CHECK

If a malfunction code is displayed during the DTC check, check the suspected area listed for that code in the table below, and proceed to the appropriate page.

| DTC No. (See Page) | Symptom | Suspect Area |
|---|---|---|
| B1244 (05-1134) | Light sensor circuit malfunction | • Automatic light control sensor<br>• Harness or connector<br>• Multiplex network body ECU |

0527K-56

# DIAGNOSTIC TROUBLE CODE CHART

If a DTC is displayed during the DTC check, check the circuit listed in the table below and proceed to the page given.

* :● ... MIL light up

| DTC No. (See Page) | Detection Item | Trouble Area | MIL * | Memory |
|---|---|---|---|---|
| P0500 (05-201) | Vehicle Speed Sensor "A" | • Combination meter<br>• Open or short in vehicle speed sensor circuit<br>• Vehicle speed sensor<br>• ECM | ● | ○ |
| P0705 (05-566) | Transmission Range Sensor Circuit Malfunction (PRNDL Input) | • Open or short in park/neutral position switch circuit<br>• Park/neutral position switch<br>• ECM | ● | ○ |
| P0710 (05-572) | Transmission Fluid Temperature Sensor "A" Circuit | • Open or short in ATF temperature sensor circuit<br>• Transmission wire (ATF temperature sensor)<br>• ECM | ● | ○ |
| P0711 (05-576) | Transmission Fluid Temperature Sensor "A" Performance | • Open or short in ATF temperature sensor circuit<br>• Transmission wire (ATF temperature sensor)<br>• ECM | ● | ○ |
| P0712 (05-572) | Transmission Fluid Temperature Sensor "A" Circuit Low Input | • Short in ATF temperature sensor circuit<br>• Transmission wire (ATF temperature sensor)<br>• ECM | ● | ○ |
| P0713 (05-572) | Transmission Fluid Temperature Sensor "A" Circuit High Input | • Open in ATF temperature sensor circuit<br>• Transmission wire (ATF temperature sensor)<br>• ECM | ● | ○ |
| P0717 (05-579) | Turbine Speed Sensor Circuit No Signal | • Open or short in transmission revolution sensor NT (speed sensor NT) circuit<br>• Transmission revolution sensor NT (speed sensor NT)<br>• ECM<br>• Automatic transaxle assembly | ● | ○ |
| P0724 (05-582) | Brake Switch "B" Circuit High | • Short in stop light switch signal circuit<br>• Stop light switch<br>• ECM | ● | ○ |
| P0741 (05-585) | Torque Converter Clutch Solenoid Performance (Shift Solenoid Valve DSL) | • Shift solenoid valve DSL is remains open or closed<br>• Valve body is blocked<br>• Shift solenoid valve DSL<br>• Torque converter clutch<br>• Automatic transaxle (clutch, brake or gear etc.)<br>• Line pressure is too low<br>• ECM | ● | ○ |
| P0746 (05-590) | Pressure Control Solenoid "A" Performance (Shift Solenoid Valve SL1) | • Shift solenoid valve SL1 is remains open or closed<br>• Valve body is blocked<br>• Shift solenoid valve SL1<br>• Automatic transaxle (clutch, brake or gear etc.)<br>• ECM | ● | ○ |
| P0748 (05-594) | Pressure Control Solenoid "A" Electrical (Shift Solenoid Valve SL1) | • Open or short in shift solenoid valve SL1 circuit<br>• Shift solenoid valve SL1<br>• ECM | ● | ○ |
| P0766 (05-606) | Shift Solenoid "D" Performance (Shift Solenoid Valve S4) | • Shift solenoid valve S4 is remains open or closed<br>• Valve body is blocked<br>• Shift solenoid valve S4<br>• Automatic transaxle (clutch, brake or gear etc.)<br>• ECM | ● | ○ |

| | | | | |
|---|---|---|---|---|
| P0771 (05-610) | Shift Solenoid "E" Performance (Shift Solenoid Valve SR) | • Shift solenoid valve SR is remains open or closed<br>• Valve body is blocked<br>• Shift solenoid valve SR<br>• Automatic transaxle (clutch, brake or gear etc.)<br>• ECM | ● | ○ |
| P0776 (05-615) | Pressure Control Solenoid "B" Performance (Shift Solenoid Valve SL2) | • Shift solenoid valve SL2 is remains open or closed<br>• Valve body is blocked<br>• Shift solenoid valve SL2<br>• Automatic transaxle (clutch, brake or gear etc.)<br>• ECM | ● | ○ |
| P0778 (05-594) | Pressure Control Solenoid "B" Electrical (Shift Solenoid Valve SL2) | • Open or short in shift solenoid valve SL2 circuit<br>• Shift solenoid valve SL2<br>• ECM | ● | ○ |
| P0793 (05-619) | Intermediate Shaft Speed Sensor "A" | • Open or short in transmission revolution sensor NC (speed sensor NC) circuit<br>• Transmission revolution sensor NC (speed sensor NC)<br>• ECM | ● | ○ |
| P0796 (05-622) | Pressure Control Solenoid "C" Performance (Shift Solenoid Valve SL3) | • Shift solenoid valve SL3 is remains open or closed<br>• Valve body is blocked<br>• Shift solenoid valve SL3<br>• Automatic transaxle (clutch, brake or gear etc.)<br>• ECM | ● | ○ |
| P0798 (05-594) | Pressure Control Solenoid "C" Electrical (Shift Solenoid Valve SL3) | • Open or short in shift solenoid valve SL3 circuit<br>• Shift solenoid valve SL3<br>• ECM | ● | ○ |
| P0982 (05-594) | Shift Solenoid "B" Control Circuit Low (Shift Solenoid Valve S4) | • Short in shift solenoid valve S4 circuit<br>• Shift solenoid valve S4<br>• ECM | ● | ○ |
| P0983 (05-594) | Shift Solenoid "B" Control Circuit High (Shift Solenoid Valve S4) | • Open in shift solenoid valve S4 circuit<br>• Shift solenoid valve S4<br>• ECM | ● | ○ |
| P0985 (05-594) | Shift Solenoid "E" Control Circuit Low (Shift Solenoid Valve SR) | • Short in shift solenoid valve SR circuit<br>• Shift solenoid valve SR<br>• ECM | ● | ○ |
| P0986 (05-594) | Shift Solenoid "E" Control Circuit High (Shift Solenoid Valve SR) | • Open in shift solenoid valve SR circuit<br>• Shift solenoid valve SR<br>• ECM | ● | ○ |
| P2716 (05-626) | Pressure Control Solenoid "D" Electrical (Shift Solenoid Valve SLT) | • Open or short in shift solenoid valve SLT circuit<br>• Shift solenoid valve SLT<br>• ECM | ● | ○ |
| P2769 (05-630) | DSL Solenoid Circuit Low (Shift Solenoid Valve DSL) | • Short in shift solenoid valve DSL circuit<br>• Shift solenoid valve DSL<br>• ECM | ● | ○ |
| P2770 (05-630) | DSL Solenoid Circuit High (Shift Solenoid Valve DSL) | • Open in shift solenoid valve DSL circuit<br>• Shift solenoid valve DSL<br>• ECM | ● | ○ |

056BA-04

# DIAGNOSTIC TROUBLE CODE CHART

If a malfunction code is displayed during the DTC check, check the circuit listed for that code in the chart below (Proceed to the page given for that circuit).

HINT:

The DTC detection method (See page 05-1793 ).

| DTC No. (See Page) | Detection Item | Trouble Area |
|---|---|---|
| B1242 (05-1802) | Wireless Door Lock Tuner Circuit Malfunction | • Wire harness<br>• Door control receiver<br>• Multiplex network body ECU |

05BZP-01

# DIAGNOSTIC TROUBLE CODE CHART

If a malfunction code is displayed during the DTC check, check the circuit listed for that code in the table below. (Proceed to the page given for that circuit.)

| DTC No. (See Page) | Detection Item | Trouble Area |
|---|---|---|
| B2222 (05-1762) | PBD pulse sensor malfunction | • Wire harness<br>• Power back door drive unit<br>• Power back door ECU |

05BTB-01

# DIAGNOSTIC TROUBLE CODE CHART

If a malfunction code is displayed during the DTC check, check the circuit listed for that code in the chart below (Proceed to the page given for that circuit).

| DTC No. (See Page) | Detection Item | Trouble Area |
|---|---|---|
| B1214 (05-1888) | Door System Communication Bus Malfunction (+B Short) | • Airbag sensor assy (Airbag ECU)<br>• ECM<br>• A/C amplifier assy (A/C ECU)<br>• Combination meter assy<br>• Multiplex network door ECU rear RH (Power slide door ECU RH)<br>• Multiplex network door ECU rear LH (Power slide door ECU LH)<br>• Multiplex network door ECU back (Power back door ECU)<br>• Instrument panel J/B assy (Multiplex network body ECU)<br>• Wire harness |
| B1215 (05-1888) | Door System Communication Bus Malfunction (GND Short) | • Airbag sensor assy (Airbag ECU)<br>• ECM<br>• A/C amplifier assy (A/C ECU)<br>• Combination meter assy<br>• Multiplex network door ECU rear RH (Power slide door ECU RH)<br>• Multiplex network door ECU rear LH (Power slide door ECU LH)<br>• Multiplex network door ECU back (Power back door ECU)<br>• Instrument panel J/B assy (Multiplex network body ECU)<br>• Wire harness |
| B1216 (05-1903) | RR-Door ECU Communication Stop | • Multiplex network door ECU rear RH (Power slide door ECU RH)<br>• Wire harness |
| B1217 (05-1907) | RL-Door ECU Communication Stop | • Multiplex network door ECU rear LH (Power slide door ECU LH)<br>• Wire harness |
| B1261 (05-1911) | ECM Communication Stop | • ECM<br>• Wire harness |
| B1262 (05-1915) | A/C ECU Communication Stop | • A/C amplifier assy (A/C ECU)<br>• Wire harness |
| B1271 (05-1919) | Combination Meter ECU Communication Stop | • Combination meter assy<br>• Wire harness |
| B1281 (05-1923) | Airbag ECU Communication Stop | • Airbag sensor assy (Airbag ECU)<br>• Wire harness |
| B1287 (05-1927) | Back door ECU Communication Stop | • Multiplex network door ECU back (Power back door ECU)<br>• Wire harness |

05BE2-01

# DIAGNOSTIC TROUBLE CODE CHART

HINT:

- Using SST 09843-18040, connect terminal TC and CG of DLC3.
- If a malfunction code is displayed during the DTC check, check the circuit listed for that code. For details of each code, refer to the "See page" under respective "DTC No." in the DTC chart.

| DTC No. (See Page) | Circuit Inspection | Trouble Area |
|---|---|---|
| P0500/21 (05-2010) | Vehicle speed sensor "A" | • Combination mater<br>• Vehicle speed sensor<br>• Vehicle speed sensor signal circuit<br>• ECM |
| P0503/23 (05-2010) | Vehicle speed sensor "A" Intermittent / Erratic / High | |
| P0571/52 (05-2011) | Brake switch "A" circuit | • Stop lamp switch<br>• Stop lamp switch signal circuit<br>• ECM |
| P0607/54 (05-2017) | Control module performance | • ECM (This DTC indicates a malfunction in the ECM. When this DTC is output, it is necessary to replace the ECM.) |
| P1615/61 (05-2024) | Communication error from distance control ECU to engine ECU | • Communication circuit<br>• Distance control ECU<br>• ECM |
| P1616/62 (05-2026) | Communication error from engine ECU to distance control ECU | |
| U0122/64 (05-2030) | Lost communication with vehicle dynamics control module | • Communication circuit<br>• Skid control ECU (Brake actuator assy)<br>• ECM |
| U0100/65 (05-2028) | Lost communication with ECM/PCM | |
| P1575/66 (05-2020) | Warning buzzer malfunction | • VSC system (Buzzer active test)<br>• Skid control buzzer assy<br>• Skid control buzzer circuit<br>• Skid control ECU (Brake actuator assy) |
| P1578/69* (05-2023) | Brake system malfunction | • VSC system |
| U0235/71 (05-2032) | Communication error from laser radar sensor to distance control ECU | • Communication circuit<br>• Laser radar sensor<br>• Distance control ECU |
| U0235/72 (05-2034) | Communication error from distance control ECU to laser radar sensor | |
| P1570/73 (05-2018) | Laser sensor malfunction | • Laser radar sensor |
| P1572/75 (05-2019) | Improper aiming of laser sensor beam axis | |
| P0571/76 (05-2015) | Brake switch "A" circuit | • BRK relay<br>• BRK relay circuit<br>• Skid control ECU (Brake actuator assy) |

HINT:

*: When DTC P1578 (69) is output, check the DTCs on the skid control ECU in the diagnosis mode. Only when any code is output, inspect the trouble area based on following the DTC.

05ATP-07

# DIAGNOSTIC TROUBLE CODE CHART

| Terms | Meaning |
|---|---|
| Physical address | Three-digit code (shown in hexadecimal) which is given to each component comprising the AVC-LAN.<br>Corresponding to the function, individual symbols are specified. |
| Logical address | Two-digit code (shown in hexadecimal) which is given to each function comprising the inner system of the AVC-LAN. |

HINT:

The DTC of the Main AVC-LAN circuit is displayed on the radio receiver assy or radio and navigation assy, and the DTC of the Sub AVC-LAN circuit is displayed on the television display assy.

Titles for each unit are stated in the following order: parts name, (physical address) and [name indicated on the DTC display].

**1. MULTI-DISPLA Y CONTROLLER SUB-ASSY (Physical address: 16C) [RSE ECU]**

HINT:

- *1: Even if no failure is detected, this code may be stored depending on the battery condition or voltage for starting the engine.
- *2: This code is stored when 180 seconds have passed after the power supply connector is pulled out after engine start.
- *3: This code may be stored when the engine key is turned again after the engine starts.
- *4: This code may be stored when the engine key is turned again in 1 minute after the engine starts.

(a) Sub (16C)-AVC-LAN L-1

Logical address: 01 (Communication control)

| DTC | Diagnosis item | Condition | Countermeasure and inspected parts |
|---|---|---|---|
| D8<br>*2 | No Response To Connection Check | Component shown by sub-code is or had been disconnected from system after engine start. | • Check harness for power supply system of component shown by sub-code.<br>• Check harness for communication system of component shown by sub-code. |
| D9<br>*1 | Last Mode Error | Component operated (sound and/or image was provided) before engine stop is or was disconnected with ignition switch in ACC or ON. | • Check harness for power supply of component shown by sub-code.<br>• Check harness for communication system of component shown by sub-code. |
| DA | No Response to ON/OFF Instruction | No response is identified when changing mode (audio and visual mode change).<br>Detected when sound and picture does not change by button operation. | • Check harness for power supply system of component shown by sub-code.<br>• Check harness for communication system of component shown by sub-code.<br>• If error occurs again, replace component shown by auxiliary code. |
| DB<br>*1 | Mode Status Error | Dual alarm is detected. | • Check harness for power supply system of component shown by sub-code.<br>• Check harness for communication system of component shown by sub-code. |
| DC<br>*4 | Transmission Error | Transmission to component shown by sub-code failed.<br>(This code does not necessarily mean actual failure.) | If same sub-code is recorded in other component(s), check harness for power supply and communication system of all components shown by code. |
| DE<br>*3 | Slave Reset (Momentary Interruption) | After engine start, slave component has been disconnected. | • Check harness for power supply system of component shown by sub-code.<br>• Check harness for communication system of component shown by sub-code. |
| E4<br>*1 | Multiple Frame Abort | Multiple frame transmission is aborted. | Since this DTC is provided for engineering purpose, it may be detected when no actual failure exists. |

## 2. TELEVISION DISPLAY ASSY (Physical address: 1B0) [Rr TV]

HINT:

- *1: Even if no failure is detected, this code may be stored depending on the battery condition or voltage for starting the engine.
- *2: This code may be stored when the engine key is turned again in 1 minute after the engine starts.
- *3: This code may be stored when the engine key is turned again after the engine starts.
- *4: When 210 seconds have passed after pulling out the power supply connector of the master component with the ignition switch in ACC or ON, this code is stored.

(a) Logical address: 01 (Communication control)

| DTC | Diagnosis item | Condition | Countermeasure and inspected parts |
|---|---|---|---|
| 22 | RAM Error | Abnormal condition of RAM is detected. | Replace television display assy |
| D6 *1 | Absence of Master | Component in which this code is recorded was disconnected from system with ignition ACC or ON. Or, when this code was recorded, multi-display controller sub-assy was disconnected. | • Check harness for power supply of multi-display controller sub-assy.<br>• Check harness for communication system of multi-display controller sub-assy.<br>• Check harness for power supply of television display assy.<br>• Check harness for communication system of television display assy. |
| D7 *4 | Communication Check Error | Component in which this code is recorded is or was disconnected from system after engine start. Or, when recording this code, multi-display controller sub-assy was disconnected. | • Check harness for power supply of multi-display controller sub-assy.<br>• Check harness for communication system of multi-display controller sub-assy.<br>• Check harness for power supply of television display assy.<br>• Check harness for communication system of television display assy. |
| DC *2 | Transmission Error | Transmission to component shown by sub-code failed.<br>(Detecting this DTC does not necessarily mean actual failure.) | If same sub-code is recorded in other components, check harness for power supply and communication system of all components shown by code. |
| DD *3 | Master Reset (Momentary Interruption) | After engine start, multi-display controller sub-assy was disconnected from system. | • Check harness for power supply of multi-display controller sub-assy.<br>• Check harness for communication system of multi-display controller sub-assy.<br>• If this error occurs frequently, replace multi-display controller sub-assy. |
| DF *4 | Master Error | Due to defective condition of component with a display, master function is switched to audio equipment.<br>Error occurs in communication between sub-master (audio) and master component. | • Check harness for power supply of multi-display controller sub-assy.<br>• Check harness for communication system of multi-display controller sub-assy. |
| E0 *1 | Registration Completion Instruction Error | ”Registration Completion Instruction” command from master cannot be received. | Since this DTC is provided for engineering purpose, it may be detected when no actual failure exists. |
| E2 | ON/OFF Instruction Parameter Error | Error occurs in ON/OFF controlling command from multi-display controller sub-assy. | Replace multi-display controller sub-assy. |

| DTC | Diagnosis item | Condition | Countermeasure and inspected parts |
|---|---|---|---|
| E3 *1 | Registration Request Transmission | • Registration Request command is output from slave component.<br>• Registration Connection Check Instruction, Registration Request command is output from sub-master component. | Since this DTC is provided for engineering purpose, it may be detected when no actual failure exists. |
| E4 *1 | Multiple Frame Abort | Multiple frame transmission is aborted. | Since this DTC is provided for engineering purpose, it may be detected when no actual failure exists. |

(b) Logical address: 44 (DVD)

| DTC | Diagnosis item | Condition | Countermeasure and inspected parts |
|---|---|---|---|
| 42 | No Disc Readout | Disc cannot be read. | Inspect disc |
| 44 | DVD Error | Error is detected in disc player controller. | • Inspect disc<br>• Television display assy |
| 45 | EJECT Error | Disc cannot be ejected. | • Inspect disc<br>• Television display assy |
| 46 | Disc Crack | A crack and dirt are in a disc. | • Inspect disc<br>• Television display assy |
| 52 | Player Error | Clamp malfunction occurs. | • Inspect disc<br>• Television display assy |

057UA-03

# DIAGNOSTIC TROUBLE CODE CHART

**NOTICE:**

**When removing parts, turn the ignition switch to OFF.**

HINT:

If a malfunction code is displayed during the DTC check, check the circuit indicated by the DTC. For details of each code, turn to the page for the respective "DTC No." in the DTC chart.

**DTC chart of ABS system:**

| DTC No. (See Page) | Detection Item | Trouble Area |
|---|---|---|
| C0200/31 (05-397) | Right front wheel speed sensor signal malfunction | • Right front speed sensor<br>• Right front speed sensor circuit<br>• Right front speed sensor rotor |
| C0205/32 (05-397) | Left front wheel speed sensor signal malfunction | • Left front speed sensor<br>• Left front speed sensor circuit<br>• Left front speed sensor rotor |
| C0210/33 (05-401) | Right rear wheel speed sensor signal malfunction | • Right rear speed sensor<br>• Right rear speed sensor circuit<br>• Right rear speed sensor rotor |
| C0215/34 (05-401) | Left rear wheel speed sensor signal malfunction | • Left rear speed sensor<br>• Left rear speed sensor circuit<br>• Left rear speed sensor rotor |
| C0226/21 (05-405) | Open or short circuit in ABS actuator solenoid (SFR) circuit | • Brake actuator<br>• SFRR or SFRH circuit |
| C0236/22 (05-405) | Open or short circuit in ABS actuator solenoid (SFL) circuit | • Brake actuator<br>• SFLR or SFLH circuit |
| C0246/23 (05-405) | Open or short circuit in ABS actuator solenoid (SRR) circuit | • Brake actuator<br>• SRRR or SRRH circuit |
| C0256/24 (05-405) | Open or short circuit in ABS actuator solenoid (SRL) circuit | • Brake actuator<br>• SRLR or SRLH circuit |
| C0273/13 (05-407) | Open circuit in ABS motor relay circuit | • ABS motor relay<br>• ABS motor relay circuit |
| C0274/14 (05-407) | Short circuit in ABS motor relay circuit | |
| C0278/11 (05-410) | Open circuit in ABS solenoid relay circuit | • ABS solenoid relay<br>• ABS solenoid relay circuit |
| C0279/12 (05-410) | Short circuit in ABS solenoid relay circuit | |
| C1235/35 (05-397) | Foreign matter is attached on the tip of right front sensor | • Right front speed sensor<br>• Right front speed sensor rotor |
| C1236/36 (05-397) | Foreign matter is attached on the tip of left front sensor | • Left front speed sensor<br>• Left front speed sensor rotor |
| C1238/38 (05-401) | Foreign matter is attached on the tip of right rear sensor | • Right rear speed sensor<br>• Right rear speed sensor rotor |
| C1239/39 (05-401) | Foreign matter is attached on the tip of left rear sensor | • Left rear speed sensor<br>• Left rear speed sensor rotor |
| C1241/41 (05-412) | Low battery voltage or abnormally high battery voltage | • Battery<br>• Charging system<br>• Power source circuit |
| C1249/49 (05-415) | Open circuit in stop light switch circuit | • Stop light switch<br>• Stop light switch circuit |
| C1251/51 (05-417) | Pump motor is locked<br>Open circuit in pump motor circuit | • ABS pump motor |
| Always ON (05-419) | Malfunction in skid control ECU | • Battery<br>• Charging system<br>• Power source circuit<br>• Brake actuator assy |

## DTC of speed sensor check function:

| Code No. | Diagnosis | Trouble Area |
|---|---|---|
| C1271/71 | Low output voltage of right front speed sensor | • Right front speed sensor<br>• Sensor installation<br>• Sensor rotor |
| C1272/72 | Low output voltage of left front speed sensor | • Left front speed sensor<br>• Sensor installation<br>• Sensor rotor |
| C1273/73 | Low output voltage of right rear speed sensor | • Right rear speed sensor<br>• Sensor installation<br>• Sensor rotor |
| C1274/74 | Low output voltage of left rear speed sensor | • Left rear speed sensor<br>• Sensor installation<br>• Sensor rotor |
| C1275/75 | Abnormal change in output voltage of right front speed sensor | Right front speed sensor rotor |
| C1276/76 | Abnormal change in output voltage of left front speed sensor | Left front speed sensor rotor |
| C1277/77 | Abnormal change in output voltage of right rear speed sensor | Right rear speed sensor rotor |
| C1278/78 | Abnormal change in output voltage of left rear speed sensor | Left rear speed sensor rotor |

05BZ6-01

# DIAGNOSTIC TROUBLE CODE CHART

If a malfunction code is displayed during the DTC check, check the circuit listed for that code in the table below. (Proceed to the page given for that circuit.)

| DTC No. (See Page) | Detection Item | Trouble Area |
|---|---|---|
| B2223 (05-1663) | Power slide door pulse sensor malfunction on rear right door | • Wire harness<br>• Power slide door control motor and clutch RH<br>• Power slide door ECU RH |
| B2224 (05-1666) | Power slide door pulse sensor malfunction on rear left door | • Wire harness<br>• Power slide door control motor and clutch LH<br>• Power slide door ECU LH |

052ID-04

# DIAGNOSTIC TROUBLE CODE CHART

## 1. TRANSPONDER KEY ECU DIAGNOSTIC TROUBLE CODE CHART

| DTC No. (See Page) | Detection Item | Trouble Area |
|---|---|---|
| B2780 (05-1844) | Push Switch/Key Unlock Warning Switch Malfunction | • Un-lock warning switch<br>• Wire harness<br>• Transponder key ECU assy |
| B2784 (05-1847) | Antenna Coil Open/Short | • Wire harness<br>• Transponder key amplifier<br>• Transponder key ECU assy |
| B2793 (05-1849) | Transponder Chip Malfunction | • Key |
| B2794 (05-1850) | Unmatched Encryption Code | • Key |
| B2795 (05-1851) | Unmatched Key Code | • Key |
| B2796 (05-1852) | No Communication in Immobiliser System | • Key<br>• Transponder key amplifier<br>• Wire harness<br>• Transponder key ECU assy |
| B2797 (05-1855) | Communication Malfunction No.1 | • Key<br>• Wire harness<br>• Transponder key amplifier<br>• Transponder key ECU assy |
| B2798 (05-1852) | Communication Malfunction No.2 | • Key |

## 2. ECM DIAGNOSTIC TROUBLE CODE CHART

**NOTICE:**

**The DTC for the immobiliser system is specified. If the other codes are output, check the DTC chart of the engine control system.**

| DTC No. (See Page) | Detection Item | Trouble Area |
|---|---|---|
| B2799 (05-1856) | Engine Immobiliser System Malfunction | • Wire harness<br>• Key<br>• Transponder key ECU assy<br>• Transponder key amplifier<br>• ECM |

056BK-05

# DIAGNOSTIC TROUBLE CODE CHART

If a malfunction code is indicated during the DTC check, check the circuit listed for that code in the table below, and proceed to the applicable page.

| DTC No. (See Page) | Circuit Inspection | Trouble Area |
|---|---|---|
| P0500/21 (05-1973) | Vehicle Speed Sensor ”A” | • Combination meter assy<br>• Vehicle speed sensor<br>• Vehicle speed sensor circuit<br>• ECM |
| P0503/23 (05-1973) | Vehicle Speed Sensor ”A” Intermittent/Erratic/High | |
| P0571/52 (05-1974) | Brake Switch ”A” Circuit | • Stop lamp switch assy<br>• Stop lamp switch assy circuit<br>• ECM |
| P0607/54 (05-1977) | Control Module Performance | • ECM |

055LJ-21

# DIAGNOSTIC TROUBLE CODE CHART

| Terms | Meaning |
|---|---|
| Physical address | Three-digit code (shown in hexadecimal) which is given to each component comprising the AVC-LAN.<br>Corresponding to the function, individual symbols are specified. |
| Logical address | Two-digit code (shown in hexadecimal) which is given to each function comprising the inner system of the AVC-LAN. |

## 1. RADIO RECEIVER ASSY (Physical address: 190)

HINT:

- *1: Even if no failure is detected, trouble code may be stored depending on the battery condition or voltage for starting the engine.
- *2: It is stored when 180 seconds have passed after the power supply connector is pulled out after the engine starts.
- *3: It may be stored when the engine key is turned 1 minute after the engine starts.
- *4: It may be stored when the engine key is turned again after the engine starts.
- *5: When 210 seconds have passed after pulling out the power supply connector of the master component with the ignition switch in ACC or ON, this code is stored.

(a) Logical address: 01 (Communication control)

| DTC | Diagnosis item | Diagnosis content | Countermeasure and inspected parts |
|---|---|---|---|
| 21 | ROM Error | Abnormal condition of ROM is detected. | Replace radio receiver assy. |
| 22 | RAM Error | Abnormal condition of RAM is detected. | Replace radio receiver assy. |
| D6<br>*1 | Absence of Master | Component in which this code is recorded was disconnected from system or master component with ignition in ACC or ON. | • Check harness for power supply system of radio receiver assy.<br>• Check harness for communication system of radio receiver assy. |
| D7<br>*5 | Connection check Error | Component in which this code is recorded was disconnected from system or master component ignition with in ACC or ON. | • Check harness for power supply of radio receiver assy.<br>• Check harness for communication system of radio receiver assy. |
| D8<br>*2 | No Response to Connection Check | Component shown by sub code is or was disconnected from system after engine start. | • Check harness for power supply system of component shown by sub code.<br>• Check harness for communication system of component shown by sub code. |
| D9<br>*1 | Last Mode Error | Audio or visual component operated before engine stop is or was disconnected with ignition switch in ACC or ON. | • Check harness for power supply system of component shown by sub code.<br>• Check harness for communication system of component shown by sub code. |
| DA | No Response to ON/OFF Instruction | No response is identified when changing mode (audio and visual mode change).<br>Detected when sound and picture does not change by button operation. | • Check harness for power supply system of component shown by sub code.<br>• Check harness for communication system of component shown by sub code.<br>• If error occurs again, replace component shown by sub code. |
| DB<br>*1 | Mode Status Error | Dual alarm is detected. | • Check harness for power supply system of component shown by sub code.<br>• Check harness for communication system of component shown by sub code. |
| DC<br>*3 | Transmission Error | Transmission to component shown by auxiliary code has been failed.<br>(Detecting this DTC does not necessarily mean actual failure.) | If same sub code is recorded in other component, check harness for power supply and communication system of all components shown by code.<br>(If not, delete DTC and recheck.) |

| DTC | Diagnosis item | Diagnosis content | Countermeasure and inspected parts |
|---|---|---|---|
| DD *4 | Master Reset (Momentary Interruption) | After the engine was started, master component was disconnected from system. | • Check harness for power supply system of radio receiver assy.<br>• Check harness for communication system of radio receiver assy.<br>• If this error occurs frequently, replace radio receiver assy. |
| DE *4 | Slave Reset (Momentary Interruption) | After the engine was started, component shown by sub code was disconnected from system. | • Check harness for power supply of component shown by sub code.<br>• Check harness for communication system of component shown by sub code. |
| DF *5 | Master Error | Due to defective condition of component with a display, master function is switched to audio equipment.<br>Error occurs in communication between sub-master (audio) and master component. | • Check harness for power supply of radio receiver assy.<br>• Check harness for communication system of radio receiver assy. |
| E0 *1 | Registration Completion Instruction Error | ”Registration Completion Instruction” command from master cannot be received. | Since this DTC is provided for engineering purpose, it may be detected when no actual failure exists. |
| E2 | ON/OFF Instruction Parameter Error | Error occurs in ON/OFF controlling command from master component. | Replace radio receiver assy |
| E3 *1 | Registration Request Transmission | Registration Request command is output from component shown by sub code.<br>Receiving Connection Check Instruction, Registration Request command is output from sub-master component. | Since this DTC is provided for engineering purpose, it may be detected when no actual failure exists. |
| E4 *1 | Multiple Frame Abort | Multiple frame transmission is aborted. | Since this DTC is provided for engineering purpose, it may be detected when no actual failure exists. |

(b) Logical address: 21 (Switch)

| DTC | Diagnosis item | Condition | Countermeasure and inspected parts |
|---|---|---|---|
| 10 | Panel Switch Error | Error in panel switch input part is detected. (Error in switch control part, or internal communication error with switch control part is detected.) | • Inspect all switches on panel switch test screen in display check mode. If any of them does not function, replace radio receiver assy.<br>• If all switches function without problem, observe them for a while. |
| 11 | Touch Switch Error | Error in touch switch sensor is detected. (Light level of LED is detected to be less than a fixed value.) | • Inspect all touch switches on touch switch test screen in display check mode. If any of lines does not react, replace radio receiver assy.<br>• If all of vertical and horizontal lines react normally, observe them for a while. |

(c) Logical address: 61 (Cassette switch)

| DTC | Diagnosis item | Diagnosis content | Countermeasure and inspected parts |
|---|---|---|---|
| 40 | Mechanical Error of Media | Malfunction due to mechanical failure is identified.<br>Or cassette tape is cut or entangled. | • Inspect cassette tape.<br>• Replace radio receiver assy. |
| 41 | EJECT Error | Malfunction due to mechanical failure. | Replace radio receiver assy. |
| 42 | Tape caught in the radio receiver assy | Hub lock etc. | Inspect cassette tape. |

(d) Logical address: 62 (CD player)

| DTC | Diagnosis item | Diagnosis content | Countermeasure and inspected parts |
|---|---|---|---|
| 42 | No Disc Readout | Disc cannot be read. | • Inspect CD.<br>• Replace radio receiver assy. |
| 44 | CD player Error | Error is detected in CD player. | Replace radio receiver assy. |
| 45 | EJECT Error | Magazine cannot be ejected. | Replace radio receiver assy. |
| 47 | Detection of high temperature | - | - |
| 48 | Detection of eddy current | - | - |

(e) Logical address: 63 (In-dush CD changer)

| DTC | Diagnosis item | Diagnosis content | Countermeasure and inspected parts |
|---|---|---|---|
| 42 | No Disc Readout | Disc cannot be read. | • Inspect CD.<br>• Replace radio receiver assy. |
| 44 | CD player Error | Error is detected in CD player. | Replace radio receiver assy. |
| 45 | EJECT Error | Magazine cannot be ejected. | Replace radio receiver assy. |
| 47 | Detection of high temperature | - | - |
| 48 | Detection of eddy current | - | - |

## 2. STEREO COMPONENT AMPLIFIER ASSY (Physical address: 440)

HINT:

- *1: Even if no failure is detected, this code may be stored depending on the battery condition or voltage for starting the engine.
- *2: This code may be stored when the engine key is turned again 1 min. after the engine starts.
- *3: This code may be stored when the engine key is turned again after the engine starts.
- *4: When 210 seconds have passed after pulling out the power supply connector of the master component with the ignition switch in ACC or ON, this code is stored.

Logical address: 01 (Communication control)

| DTC | Diagnosis item | Diagnosis content | Countermeasure and inspected parts |
|---|---|---|---|
| D6<br>*1 | Absence of Master | Component in which this code is recorded was disconnected from system with ignition in ACC or ON. Or, when this code was recorded, radio receiver assy was disconnected. | • Check harness for power supply of radio receiver assy.<br>• Check harness for communication system of radio receiver assy.<br>• Check harness for power supply of stereo component amplifier assy.<br>• Check harness for communication system of stereo component amplifier assy. |
| D7<br>*4 | Communication Check Error | Component in which this code is recorded is or was disconnected from system after engine start. Or, when this code was recorded, radio receiver assy was disconnected. | • Check harness for power supply of radio receiver assy.<br>• Check harness for communication system of radio receiver assy.<br>• Check harness for power supply of stereo component amplifier assy.<br>• Check harness for communication system of stereo component amplifier assy. |
| DC<br>*2 | Transmission Error | Transmission to component shown by auxiliary code failed.<br>(Detecting this DTC does not necessarily mean actual failure.) | If same auxiliary code is recorded in other components, check harness for power supply and communication system of all components shown by code. |

| DTC | Diagnosis item | Diagnosis content | Countermeasure and inspected parts |
|---|---|---|---|
| DD *3 | Master Reset (Momentary Interruption) | After engine was started, radio receiver assy was disconnected from system. | • Check harness for power supply of radio receiver assy.<br>• Check harness for communication system of radio receiver assy.<br>• Check harness for power supply of stereo component amplifier assy.<br>• Check harness for communication system of stereo component amplifier assy.<br>• If this error occurs frequently, replace radio receiver assy. |
| DF *4 | Master Error | Due to defective condition of component with a display, master function is switched to audio equipment.<br>Error occurs in communication between sub-master (audio) and master component. | • Check harness for power supply of radio receiver assy.<br>• Check harness for communication system of radio receiver assy.<br>• Check harness for communication system between radio receiver assy and sub-master component. |
| E0 *1 | Registration Completion Instruction Error | ”Registration Completion Instruction” command from master cannot be received. | Since this DTC is provided for engineering purpose, it may be detected when no actual failure exists. |
| E1 *1 | Audio processor ON error | While source equipment is operating, AMP output is stopped. | • Check harness for power supply of radio receiver assy.<br>• Check harness for communication system of radio receiver assy. |
| E2 | ON/OFF Instruction Parameter Error | Error occurs in ON/OFF controlling command from radio receiver assy. | Replace radio receiver assy. |
| E3 *1 | Registration Request Transmission | • Registration Request command is output from slave component.<br>• Registration Connection Check Instruction, Registration Request command are output from sub-master component. | Since this DTC is provided for engineering purpose, it may be detected when no actual failure exists. |

## 3. MULTI-DISPLA Y CONTROLLER SUB-ASSY (Physical address: 1F6, 16C)

HINT:

- *1: Even if no failure is detected, this code may be stored depending on the battery condition or voltage for starting the engine.
- *2: This code may be stored when the engine key is turned again 1 min. after the engine starts.
- *3: This code may be stored when the engine key is turned again after the engine starts.
- *4: When 210 seconds have passed after pulling out the power supply connector of the master component with the ignition switch in ACC or ON, this code is stored.

(a) Main (1F6)

Logical address: 01 (Communication control)

| DTC | Diagnosis item | Condition | Countermeasure and inspected parts |
|---|---|---|---|
| 21 | ROM Error | Abnormal condition of ROM is detected. | Replace multi-display controller sub-assy. |
| 22 | RAM Error | Abnormal condition of RAM is detected. | Replace multi-display controller sub-assy. |
| D1 *1 | Registered component disconnected AVC-LAN transmitting abnormalities | Component shown by sub-code is or was disconnected from system with ignition switch in ACC or ON.<br>Communication with component shown by sub-code is not ensured when engine is started. | • Check harness for power supply of component shown by sub-code.<br>• Check harness for communication system of component shown by sub-code. |

| DTC | Diagnosis item | Condition | Countermeasure and inspected parts |
|---|---|---|---|
| D7 *4 | No response to connection check | Component shown by sub-code is or was disconnected from system after engine started. | • Check harness for power supply of component shown by sub-code.<br>• Check harness for communication system of component shown by sub-code. |
| D7 *4 | AVC-LAN Communication Check Error | Component in which this code is recorded is or was disconnected from system after engine start. Or, when recording this code, multi-display controller sub-assy was disconnected. | • Check harness for power supply of radio receiver assy.<br>• Check harness for communication system of radio receiver assy.<br>• Check harness for power supply of multi-display controller sub-assy.<br>• Check harness for communication system of multi-display controller sub-assy. |
| D6 *1 | Absence of Master | Component in which this code is recorded was disconnected from system with ignition in ACC or ON. Or, when this code was recorded, multi-display controller sub-assy was disconnected. | • Check harness for power supply system of radio receiver assy.<br>• Check harness for communication system of radio receiver assy.<br>• Check harness for communication system between radio receiver assy and multi-display controller sub-assy. |
| D7 *4 | Connection Check Error | Component in which this code is recorded was disconnected from system after engine start. Or, when this code was recorded, multi-display controller sub-assy was disconnected. | • Check harness for power supply system of radio receiver assy.<br>• Check harness for communication system of radio receiver assy.<br>• Check harness for power supply of multi-display controller sub-assy.<br>• Check harness for communication system of multi-display controller sub-assy. |
| DC *2 | Transmission Error | Transmission to component shown by sub-code failed.<br>(This code does not necessarily mean actual failure.) | If same sub-code is recorded in other component(s), check harness for power supply and communication system of all components shown by code. |
| DD *3 | Master Reset (Momentary Interruption) | Component that is to be master was disconnected after engine start. | • Check harness for power supply system of radio receiver assy.<br>• Check harness for communication system of radio receiver assy.<br>• Check harness for power supply of multi-display controller sub-assy.<br>• Check harness for communication system of multi-display controller sub-assy.<br>• If error occurs frequently, replace radio receiver assy. |
| DF *4 | Master Error | Due to defective condition of component with a display, master function is switched to audio equipment.<br>Error occurs in communication between sub-master (audio) and master component. | • Check harness for power supply of radio receiver assy.<br>• Check harness for communication system of radio receiver assy.<br>• Check harness for communication system between multi-display controller sub-assy and radio receiver assy. |
| E0 *1 | Registration Completion Instruction Error | ”Registration Completion Instruction” command from master cannot be received. | Since this DTC is provided for engineering, it may be detected when no actual failure exists. |

| DTC | Diagnosis item | Condition | Countermeasure and inspected parts |
|---|---|---|---|
| E3 *1 | Registration Request Transmission | • Registration Request command is output from slave component.<br>• Registration Request command is output from sub-master component. | Since this DTC is provided for engineering, it may be detected when no actual failure exists. |
| E4 *1 | Multiple Frame Abort | Multiple frame transmission is aborted. | Since this DTC is provided for engineering purpose, it may be detected when no actual failure exists. |

(b) Sub (16C)-AVC-LAN L-1
Logical address: 01 (Communication control)

| DTC | Diagnosis item | Condition | Countermeasure and inspected parts |
|---|---|---|---|
| D8 *2 | No Response To Connection Check | Component shown by sub-code is or was disconnected from system after engine start. | • Check harness for power supply system of component shown by sub-code.<br>• Check harness for communication system of component shown by sub-code. |
| D9 *1 | Last Mode Error | Component operated (sound and/or image was provided) before engine stop is or was disconnected with ignition switch in ACC or ON. | • Check harness for power supply of component shown by sub-code.<br>• Check harness for communication system of component shown by sub-code. |
| DA | No Response to ON/OFF Instruction | No response is identified when changing mode (audio and visual mode change). Sound and picture does not change by button operation | • Check harness for power supply system of component shown by sub-code.<br>• Check harness for communication system of component shown by sub-code.<br>• If error occurs again, replace component shown by auxiliary code |
| DB *1 | Mode Status Error | Dual alarm is detected. | • Check harness for power supply system of component shown by sub-code.<br>• Check harness for communication system of component shown by sub-code. |
| DC *2 | Transmission Error | Transmission to component shown by sub-code failed.<br>(This code does not necessarily mean actual failure.) | If same sub-code is recorded in other component(s), check harness for power supply and communication system of all components shown by code. |
| DE *3 | Slave Reset (Momentary Interruption) | After engine start, slave component was disconnected. | • Check harness for power supply system of component shown by sub-code.<br>• Check harness for communication system of component shown by sub-code. |
| E4 *1 | Multiple Frame Abort | Multiple frame transmission is aborted. | Since this DTC is provided for engineering purpose, it may be detected when no actual failure exists. |

## 4. STEREO COMPONENT CONTROLLER ASSY (Physical address: 1F4)

HINT:

- *1: Even if no failure is detected, this code may be stored depending on the battery condition or voltage for starting the engine.
- *2: When 210 seconds have passed after pulling out the power supply connector of the master component with the ignition switch in ACC or ON, this code is stored.
- *3: This code may be stored when the engine key is turned again 1 minute after the engine starts.
- *4: This code may be stored when the engine key is turned again after the engine starts.

(a) Logical address: 01 (Communication control)

| DTC | Diagnosis item | Condition | Countermeasure and inspected parts |
|---|---|---|---|
| D6 *1 | Absence of Master | Component in which this code is recorded was disconnected from system with ignition in ACC or ON. Or, when this code was recorded, radio receiver assy was disconnected. | • Check harness for power supply system of radio receiver assy.<br>• Check harness for communication system of radio receiver assy.<br>• Check harness for communication system between radio receiver assy and stereo component controller assy. |
| D7 *2 | Connection Check Error | Component in which this code is recorded was disconnected from system after engine start. Or, when this code was recorded, radio receiver assy was disconnected. | • Check harness for power supply system of radio receiver assy.<br>• Check harness for communication system of radio receiver assy. |
| DC *3 | Transmission Error | Transmission to component shown by sub-code failed.<br>(This code does not necessarily mean actual failure.) | If same sub-code is recorded in other component(s), check harness for power supply and communication system of all components shown by code. |
| DD *4 | Master Reset (Momentary Interruption) | Component that is to be master was disconnected after engine start. | • Check harness for power supply system of radio receiver assy.<br>• Check harness for communication system of radio receiver assy.<br>• If error occurs frequently, replace stereo component controller assy. |
| E0 *1 | Registration Completion Instruction Error | ”Registration Completion Instruction” command from master cannot be received. | Since this DTC is provided for engineering, it may be detected when no actual failure exists. |
| E3 *1 | Registration Request Transmission | • Registration Request command is output from slave component.<br>• Registration Request command is output from sub-master component. | Since this DTC is provided for engineering, it may be detected when no actual failure exists. |
| DF *2 | Master Error | Due to defective condition of component with a display, master function is switched to audio equipment.<br>Error occurs in communication between sub-master (audio) and master component. | • Check harness for power supply of radio receiver assy.<br>• Check harness for communication system of radio receiver assy.<br>• Check harness for communication system between stereo component controller assy and radio receiver assy. |
| E4 *1 | Multiple Frame Abort | Multiple frame transmission is aborted. | Since this DTC is provided for engineering purpose, it may be detected when no actual failure exists. |
| D8 *2 | No Response To Connection Check | Component shown by sub-code is or was disconnected from system after engine start. | • Check harness for power supply system of component shown by sub-code.<br>• Check harness for communication system of component shown by sub-code. |

| DTC | Diagnosis item | Condition | Countermeasure and inspected parts |
|---|---|---|---|
| D9 *1 | Last Mode Error | Component operated (sound and/or image was provided) before engine stop is or was disconnected with ignition switch in ACC or ON. | • Check harness for power supply of component shown by sub-code.<br>• Check harness for communication system of component shown by sub-code. |
| DA | No Response to ON/OFF Instruction | No response is identified when changing mode (audio and visual mode change).<br>Sound and picture does not change by button operation | • Check harness for power supply system of component shown by sub-code.<br>• Check harness for communication system of component shown by sub-code.<br>• If error occurs again, replace component shown by auxiliary code |
| DB *1 | Mode Status Error | Dual alarm is detected. | • Check harness for power supply system of component shown by sub-code.<br>• Check harness for communication system of component shown by sub-code. |
| DC *3 | Transmission Error | Transmission to component shown by sub-code failed.<br>(This code does not necessarily mean actual failure.) | If same sub-code is recorded in other component(s), check harness for power supply and communication system of all components shown by code. |
| DE *4 | Slave Reset (Momentary Interruption) | After engine start, slave component was disconnected. | • Check harness for power supply system of component shown by sub-code.<br>• Check harness for communication system of component shown by sub-code. |

05259-35

# DIAGNOSTIC TROUBLE CODE CHART

## 1. DTCS FOR SUPPLEMENTAL RESTRAINT SYSTEM

If a trouble code is displayed during the DTC check, check the circuit listed for the code in the table below (Proceed to the page listed for that circuit.).

HINT:

- When the SRS warning light remains on and the DTC output is the normal system code, a voltage source drop is likely to occur. This malfunction is not stored in memory by the airbag sensor assy center. If the power source voltage returns to normal, the SRS warning light will automatically go off.
- When 2 or more codes are indicated, the code with the lower number appears first.
- If a code is not listed on the display chart, the airbag sensor assy center may have failed.
- In the case of any malfunction concerning an open circuit, short to ground, or short to B+ due to a squib, other trouble codes may not be detected. In this case, repair the malfunction currently indicated and then perform malfunction diagnosis again.
- Mark in the check mode column:
  "○": DTC is corresponding to the check mode.
  "—": DTC is not corresponding to the check mode.
- When DTC B1150/23 is detected as a result of troubleshooting for the Supplemental Restraint System, perform troubleshooting for the occupant classification system as shown in the chart below.

| DTC No. (See Page) | Detection Item | Trouble Area | Check Mode | SRS Warning Light |
|---|---|---|---|---|
| B0100/13 (05-795) | Short in D squib circuit | • Horn button assy (D squib)<br>• Spiral cable sub-assy<br>• Airbag sensor assy center<br>• Instrument panel wire | ○ | ON |
| B0101/14 (05-800) | Open in D squib circuit | • Horn button assy (D squib)<br>• Spiral cable sub-assy<br>• Airbag sensor assy center<br>• Instrument panel wire | ○ | ON |
| B0102/11 (05-804) | Short in D squib circuit (to ground) | • Horn button assy (D squib)<br>• Spiral cable sub-assy<br>• Airbag sensor assy center<br>• Instrument panel wire | ○ | ON |
| B0103/12 (05-808) | Short in D squib circuit (to B+) | • Horn button assy (D squib)<br>• Spiral cable sub-assy<br>• Airbag sensor assy center<br>• Instrument panel wire | ○ | ON |
| B0105/53 (05-812) | Short in P squib circuit | • Front passenger airbag assy (P squib)<br>• Airbag sensor assy center<br>• Instrument panel wire | ○ | ON |
| B0106/54 (05-815) | Open in P squib circuit | • Front passenger airbag assy (P squib)<br>• Airbag sensor assy center<br>• Instrument panel wire | ○ | ON |
| B0107/51 (05-818) | Short in P squib circuit (to ground) | • Front passenger airbag assy (P squib)<br>• Airbag sensor assy center<br>• Instrument panel wire | ○ | ON |
| B0108/52 (05-821) | Short in P squib circuit (to B+) | • Front passenger airbag assy (P squib)<br>• Airbag sensor assy center<br>• Instrument panel wire | ○ | ON |
| B0110/43 (*1) (05-824) | Short in side squib (RH) circuit | • Separate type front seat back assy (Side squib RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 | ○ | Blink |
| B0111/44 (*1) (05-827) | Open in side squib (RH) circuit | • Separate type front seat back assy (Side squib RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 | ○ | Blink |

| | | | | |
|---|---|---|---|---|
| B0112/41 (*1) (05-830) | Short in side squib (RH) circuit (to ground) | • Separate type front seat back assy (Side squib RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 | ○ | Blink |
| B0113/42 (*1) (05-833) | Short in side squib (RH) circuit (to B+) | • Separate type front seat back assy (Side squib RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 | ○ | Blink |
| B0115/47 (*1) (05-836) | Short in side squib (LH) circuit | • Separate type front seat back assy (Side squib LH)<br>• Airbag sensor assy center<br>• Floor wire | ○ | Blink |
| B0116/48 (*1) (05-839) | Open in side squib (LH) circuit | • Separate type front seat back assy (Side squib LH)<br>• Airbag sensor assy center<br>• Floor wire | ○ | Blink |
| B0117/45 (*1) (05-842) | Short in side squib (LH) circuit (to ground) | • Separate type front seat back assy (Side squib LH)<br>• Airbag sensor assy center<br>• Floor wire | ○ | Blink |
| B0118/46 (*1) (05-845) | Short in side squib (LH) circuit (to B+) | • Separate type front seat back assy (Side squib LH)<br>• Airbag sensor assy center<br>• Floor wire | ○ | Blink |
| B0126/27 (05-848) | Seat belt buckle switch (LH) malfunction | • Front seat inner belt assy LH<br>• Airbag sensor assy center<br>• Floor wire<br>• Seat wire No.2 (*2) | — | ON |
| B0130/63 (05-860) | Short in P/T squib (RH) circuit | • Front seat outer belt assy RH (P/T squib RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 | ○ | Blink |
| B0131/64 (05-864) | Open in P/T squib (RH) circuit | • Front seat outer belt assy RH (P/T squib RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 | ○ | Blink |
| B0132/61 (05-867) | Short in P/T squib (RH) circuit (to ground) | • Front seat outer belt assy RH (P/T squib RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 | ○ | Blink |
| B0133/62 (05-870) | Short in P/T squib (RH) circuit (to B+) | • Front seat outer belt assy RH (P/T squib RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 | ○ | Blink |
| B0135/73 (05-873) | Short in P/T squib (LH) circuit | • Front seat outer belt assy LH (P/T squib LH)<br>• Airbag sensor assy center<br>• Floor wire | ○ | Blink |
| B0136/74 (05-877) | Open in P/T squib (LH) circuit | • Front seat outer belt assy LH (P/T squib LH)<br>• Airbag sensor assy center<br>• Floor wire | ○ | Blink |
| B0137/71 (05-880) | Short in P/T squib (LH) circuit (to ground) | • Front seat outer belt assy LH (P/T squib LH)<br>• Airbag sensor assy center<br>• Floor wire | ○ | Blink |
| B0138/72 (05-883) | Short in P/T squib (LH) circuit (to B+) | • Front seat outer belt assy LH (P/T squib LH)<br>• Airbag sensor assy center<br>• Floor wire | ○ | Blink |
| B1100/31 (05-886) | Airbag sensor assy center malfunction | • Airbag sensor assy center<br>• Engine room main wire<br>• Instrument panel wire | — | ON |
| B1135/24 (05-873) | Half connection in airbag sensor assy center connectors | • Airbag sensor assy center<br>• Instrument panel wire<br>• Floor wire<br>• Floor wire No.2 | — | ON |
| B1140/32 (*1) (05-896) | Side airbag sensor assy (RH) malfunction | • Side airbag sensor assy RH<br>• Airbag sensor assy center<br>• Floor wire No.2 | — | Blink |
| B1141/33 (*1) (05-901) | Side airbag sensor assy (LH) malfunction | • Side airbag sensor assy LH<br>• Airbag sensor assy center<br>• Floor wire | — | Blink |

| | | | | |
|---|---|---|---|---|
| B1148/36 (05-906) | Front airbag sensor (RH) malfunction | • Airbag sensor front RH<br>• Airbag sensor assy center<br>• Engine room main wire<br>• Instrument panel wire | — | ON |
| B1149/37 (05-910) | Front airbag sensor (LH) malfunction | • Airbag sensor front LH<br>• Airbag sensor assy center<br>• Engine room main wire<br>• Instrument panel wire | — | ON |
| B1150/23 (05-914) | Occupant classification system malfunction | • Occupant classification ECU<br>• Airbag sensor assy center<br>• Floor wire No.2<br>• Front seat wire RH | — | ON |
| B1152/28 (05-921) | Passenger airbag ON/OFF indicator circuit malfunction | • Air conditioning control assy<br>• Airbag sensor assy center<br>• Instrument panel wire | ○ | ON |
| B1153/25 (05-929) | Seat position airbag sensor assy malfunction | • Seat position airbag sensor<br>• Airbag sensor assy center<br>• Floor wire | — | ON |
| B1154/38 (*1) (05-941) | Airbag sensor rear (RH) malfunction | • Airbag sensor rear RH<br>• Airbag sensor assy center<br>• Floor wire No.2 | — | Blink |
| B1155/39 (*1) (05-946) | Airbag sensor rear (LH) malfunction | • Airbag sensor rear LH<br>• Airbag sensor assy center<br>• Floor wire | — | Blink |
| B1160/83 (*1) (05-951) | Short in curtain shield squib (RH) circuit | • Curtain shield airbag assy RH (Curtain shield squib front RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 | ○ | Blink |
| B1161/84 (*1) (05-955) | Open in curtain shield squib (RH) circuit | • Curtain shield airbag assy RH (Curtain shield squib front RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 | ○ | Blink |
| B1162/81 (*1) (05-958) | Short in curtain shield squib (RH) circuit (to ground) | • Curtain shield airbag assy RH (Curtain shield squib front RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 | ○ | Blink |
| B1163/82 (*1) (05-961) | Short in curtain shield squib (RH) circuit (to B+) | • Curtain shield airbag assy RH (Curtain shield squib front RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 | ○ | Blink |
| B1165/87 (*1) (05-964) | Short in curtain shield squib (LH) circuit | • Curtain shield airbag assy LH (Curtain shield squib front LH)<br>• Airbag sensor assy center<br>• Floor wire | ○ | Blink |
| B1166/88 (*1) (05-968) | Open in curtain shield squib (LH) circuit | • Curtain shield airbag assy LH (Curtain shield squib front LH)<br>• Airbag sensor assy center<br>• Floor wire | ○ | Blink |
| B1167/85 (*1) (05-971) | Short in curtain shield squib (LH) circuit (to ground) | • Curtain shield airbag assy LH (Curtain shield squib front LH)<br>• Airbag sensor assy center<br>• Floor wire | ○ | Blink |
| B1168/86 (*1) (05-974) | Short in curtain shield squib (LH) circuit (to B+) | • Curtain shield airbag assy LH (Curtain shield squib front LH)<br>• Airbag sensor assy center<br>• Floor wire | ○ | Blink |
| B1180/17 (05-977) | Short in D squib (Dual stage - 2nd step) circuit | • Horn button assy (D squib, Dual stage - 2nd step)<br>• Spiral cable sub-assy<br>• Airbag sensor assy center<br>• Instrument panel wire | ○ | ON |
| B1181/18 (05-982) | Open in D squib (Dual stage - 2nd step) circuit | • Horn button assy (D squib, Dual stage - 2nd step)<br>• Spiral cable sub-assy<br>• Airbag sensor assy center<br>• Instrument panel wire | ○ | ON |
| B1182/19 (05-986) | Short in D squib (Dual stage - 2nd step) circuit (to ground) | • Horn button assy (D squib, Dual stage - 2nd step)<br>• Spiral cable sub-assy<br>• Airbag sensor assy center<br>• Instrument panel wire | ○ | ON |

| | | | | |
|---|---|---|---|---|
| B1183/22 (05-990) | Short in D squib (Dual stage - 2nd step) circuit (to B+) | • Horn button assy (D squib, Dual stage - 2nd step)<br>• Spiral cable sub-assy<br>• Airbag sensor assy center<br>• Instrument panel wire | ○ | ON |
| B1185/57 (05-994) | Short in P squib (Dual stage - 2nd step) circuit | • Front passenger airbag assy (P squib, Dual stage - 2nd step)<br>• Airbag sensor assy center<br>• Instrument panel wire | ○ | ON |
| B1186/58 (05-997) | Open in P squib (Dual stage - 2nd step) circuit | • Front passenger airbag assy (P squib, Dual stage - 2nd step)<br>• Airbag sensor assy center<br>• Instrument panel wire | ○ | ON |
| B1187/55 (05-1000) | Short in P squib (Dual stage - 2nd step) circuit (to ground) | • Front passenger airbag assy (P squib, Dual stage - 2nd step)<br>• Airbag sensor assy center<br>• Instrument panel wire | ○ | ON |
| B1188/56 (05-1003) | Short in P squib (Dual stage - 2nd step) circuit (to B+) | • Front passenger airbag assy (P squib, Dual stage - 2nd step)<br>• Airbag sensor assy center<br>• Instrument panel wire | ○ | ON |
| B1630/83 (*1) (05-1006) | Short in curtain shield squib rear (RH) circuit | • Curtain shield airbag assy RH (Curtain shield squib rear RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 | ○ | Blink |
| B1631/84 (*1) (05-1010) | Open in curtain shield squib rear (RH) circuit | • Curtain shield airbag assy RH (Curtain shield squib rear RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 | ○ | Blink |
| B1632/81 (*1) (05-1013) | Short in curtain shield squib rear (RH) circuit (to ground) | • Curtain shield airbag assy RH (Curtain shield squib rear RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 | ○ | Blink |
| B1633/82 (*1) (05-1016) | Short in curtain shield squib rear (RH) circuit (to B+) | • Curtain shield airbag assy RH (Curtain shield squib rear RH)<br>• Airbag sensor assy center<br>• Floor wire No.2 | ○ | Blink |
| B1635/87 (*1) (05-1019) | Short in curtain shield squib rear (LH) circuit | • Curtain shield airbag assy LH (Curtain shield squib rear LH)<br>• Airbag sensor assy center<br>• Floor wire | ○ | Blink |
| B1636/88 (*1) (05-1023) | Open in curtain shield squib rear (LH) circuit | • Curtain shield airbag assy LH (Curtain shield squib rear LH)<br>• Airbag sensor assy center<br>• Floor wire | ○ | Blink |
| B1637/85 (*1) (05-1026) | Short in curtain shield squib rear (LH) circuit (to ground) | • Curtain shield airbag assy LH (Curtain shield squib rear LH)<br>• Airbag sensor assy center<br>• Floor wire | ○ | Blink |
| B1638/86 (*1) (05-1029) | Short in curtain shield squib rear (LH) circuit (to B+) | • Curtain shield airbag assy LH (Curtain shield squib rear LH)<br>• Airbag sensor assy center<br>• Floor wire | ○ | Blink |
| Normal (05-1032) | System normal | - | — | OFF |
| | Voltage source drop | • Battery<br>• Airbag sensor assy center | — | ON |

*1: w/ Side airbag
*2: w/ Power seat

## 2. DTCS FOR OCCUPANT CLASSIFICATION SYSTEM

HINT:

- When DTC B1150/23 is detected as a result of troubleshooting for the Supplemental Restraint System, perform troubleshooting for the occupation classification system as shown in the chart below.
- Use the hand-held tester to check the DTCs of the occupant classification ECU, otherwise the DTCs cannot be read.

| DTC No. (See page) | Detection Item | Trouble Area | Passenger Airbag OFF Indicator |
|---|---|---|---|
| B1771 (05-1032) | • Passenger side buckle switch circuit malfunction | • Front seat inner belt assy RH<br>• Occupant classification ECU<br>• Front seat wire RH | ON |
| B1780 (05-1038) | • Occupant classification sensor front LH circuit malfunction | • Seat adjuster frame assy (Occupant classification sensor front LH)<br>• Occupant classification ECU<br>• Front seat wire RH | ON |
| B1781 (05-1045) | • Occupant classification sensor front RH circuit malfunction | • Seat adjuster frame assy (Occupant classification sensor front RH)<br>• Occupant classification ECU<br>• Front seat wire RH | ON |
| B1782 (05-1052) | • Occupant classification sensor rear LH circuit malfunction | • Seat adjuster frame assy (Occupant classification sensor rear LH)<br>• Occupant classification ECU<br>• Front seat wire RH | ON |
| B1783 (05-1059) | • Occupant classification sensor rear RH circuit malfunction | • Seat adjuster frame assy (Occupant classification sensor rear RH)<br>• Occupant classification ECU<br>• Front seat wire RH | ON |
| B1785 (05-1066) | • Occupant classification sensor front LH collision detection | • Occupant classification ECU<br>• Seat adjuster frame assy (Occupant classification sensor front LH) | ON |
| B1786 (05-1069) | • Occupant classification sensor front RH collision detection | • Occupant classification ECU<br>• Seat adjuster frame assy (Occupant classification sensor front RH) | ON |
| B1787 (05-1072) | • Occupant classification sensor rear LH collision detection | • Occupant classification ECU<br>• Seat adjuster frame assy (Occupant classification sensor rear LH) | ON |
| B1788 (05-1075) | • Occupant classification sensor rear RH collision detection | • Occupant classification ECU<br>• Seat adjuster frame assy (Occupant classification sensor rear RH) | ON |
| B1790 (05-1078) | • Airbag sensor assy center communication circuit malfunction | • Occupant classification ECU<br>• Airbag sensor assy center<br>• Floor wire No.2<br>• Front seat wire RH | ON |
| B1793 (05-1086) | • Occupant classification sensor power supply circuit malfunction | • Seat adjuster frame assy (Occupant classification sensors)<br>• Front seat wire RH<br>• Occupant classification ECU | ON |
| B1794 (05-1093) | • Occupant classification ECU battery positive line open | • Battery<br>• ECU-B fuse<br>• Floor wire No.2<br>• Front seat wire RH<br>• Occupant classification ECU | ON |
| B1795 (05-1097) | • Occupant classification ECU malfunction | • Occupant classification ECU<br>• Front seat wire RH<br>• ECU-B fuse<br>• Front seat inner belt assy RH (Buckle switch RH) | ON |
| B1796 (05-1099) | • Sleep operation failure of occupant classification ECU | • Occupant classification ECU | ON |

# BRAKE FLUID

320UV-02

## BLEEDING

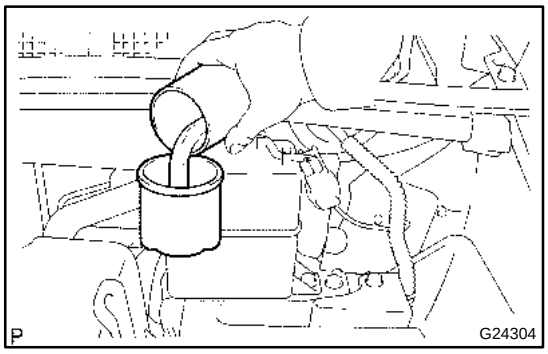
HINT:

When working on the brake system or when air in the brake lines is suspected, bleed the air from the system.

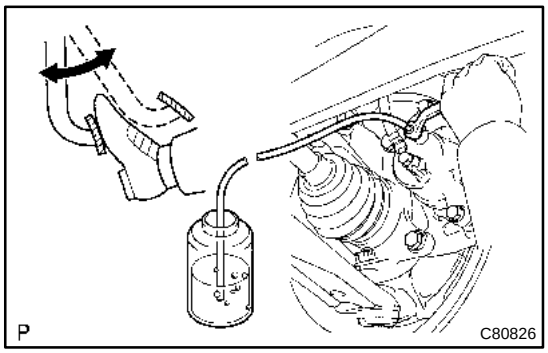
**NOTICE:**

- **Bleed air in order of the chassis, 3rd chamber, and chassis.**
- **When the air is bled from the 3rd chamber, be sure to run the engine.**
- **If the brake fluid attaches to any painted surfaces,wash it off immediately.**

**1. REMOVE COWL TOP PANEL SUB-ASSY OUTER FRONT (See page 55-33 )**

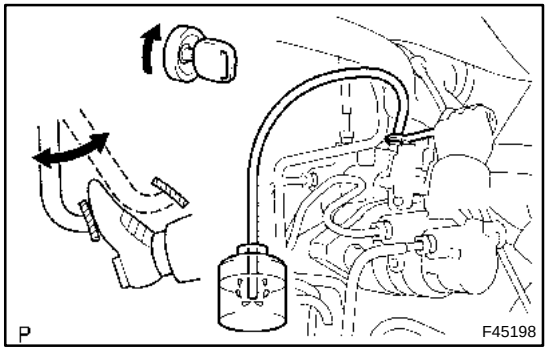



**2. FILL RESERVOIR WITH BRAKE FLUID**
**Fluid: SAE J1703 or FMVSS No. 116 DOT3**




**3. BLEED BRAKE LINE**

(a) Connect the vinyl tube to the brake caliper bleeder plug.
(b) Depress the brake pedal several times, then loosen the bleeder plug with the pedal held down.
(c) At the point when the fluid stops coming out, tighten the bleeder plug, then release the brake pedal.
(d) Repeat (b) and (c) until all the air in the fluid has been bled out.
(e) Repeat the above procedure to bleed the air out of the brake line for each wheel.
**Torque: 8.3 N·m (85 kgf·cm, 73 in.·lbf)**




**4. BLEED MASTER CYLINDER**

**NOTICE:**

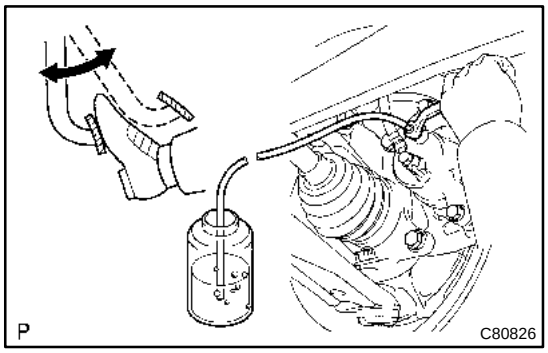
**When the air is bled from the master cylinder (3rd chamber), be sure to run the engine.**

HINT:

After disassembling the master cylinder or when if the reservoir becomes empty, bleed the air from the master cylinder.

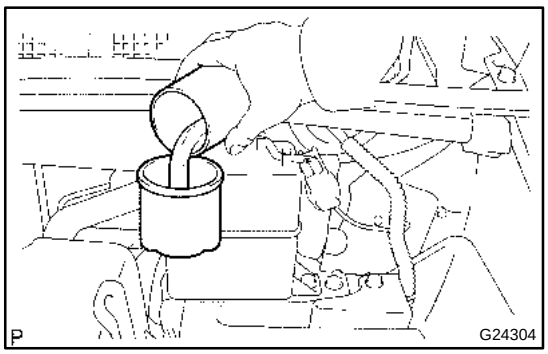
(a) Run the engine at idle.
(b) Connect the vinyl tube to the brake caliper bleeder plug.

(c) Open the brake caliper bleeder plug or wheel cylinder bleeder plug.
(d) Depress the brake pedal several times, then loosen the master cylinder (3rd chamber) bleeder plug with the pedal held down.
(e) At the point when the fluid stops coming out, tighten the master cylinder (3rd chamber) bleeder plug, then release the brake pedal.
(f) Repeat (d) and (e) until all the air in the fluid has been bled out.
(g) Tighten the master cylinder (3rd chamber) bleeder plug.
**Torque: 11 N·m (112 kgf·cm, 8 ft·lbf)**
(h) Tighten the brake caliper bleeder plug or wheel cylinder bleeder plug.
**Torque:**
**Disc: 8.3 N·m (85 kgf·cm, 73 in.·lbf)**
**Drum: 11 N·m (112 kgf·cm, 8 ft.·lbf)**
(i) Stop the engine.




**5. BLEED BRAKE LINE**

(a) Connect the vinyl tube to the brake caliper.
(b) Depress the brake pedal several times, then loosen the bleeder plug with the pedal held down.
(c) At the point when the fluid stops coming out, tighten the bleeder plug, then release the brake pedal.
(d) Repeat (b) and (c) until all the air in the fluid has been bled out.
(e) Repeat the above procedure to bleed the air out of the brake line for each wheel.
**Torque: 8.3 N·m (85 kgf·cm, 73 in.·lbf)**




**6. CHECK FLUID LEVEL IN RESERVOIR**

(a) Check the fluid level and add fluid if necessary.
**Fluid: SAE J1703 or FMVSS No. 116 DOT3**

**7. INSTALL COWL TOP PANEL SUB-ASSY OUTER FRONT (See page 55-33 )**

05BYJ-01

# HOW TO PROCEED WITH TROUBLESHOOTING

**NOTICE:**

**When DTCs other than U0121/94, U0123/62, U0124/95, U0126/63, C1231/31, C1234/34, C1243/43, C1244/44 or C1245/45 are output, inspect and repair the trouble areas indicated by the DTCs.**

| | |
|---|---|
| 1 | DTC CHART (See page 05-1936 ) |

| | |
|---|---|
| 2 | Check DTC Combination (See page 05-1935 ) |

| | |
|---|---|
| 3 | CIRCUIT INSPECTION (See page 05-1939 ) |

| | |
|---|---|
| 4 | INDENTFICATION OF PROBLEM |

| | |
|---|---|
| 5 | REPAIR OR REPLACE |

| | |
|---|---|
| 6 | CONFIRMATION TEST |

END

05BVG-01

# HOW TO PROCEED WITH TROUBLESHOOTING

| | |
|---|---|
| 1 | VEHICLE BROUGHT TO WORK SHOP |

| | |
|---|---|
| 2 | CUSTOMER PROBLEM ANALYSIS (See page 05-1 120) |

| | |
|---|---|
| 3 | CHECK BODY MULTIPLEX COMMUNICATION SYSTEM (See page 05-1876 ) |

(a) Check for the DTC outputs.

- DTC OUTPUTS (PROCEED TO "BODY MULTIPLEX COMMUNICATION SYSTEM")
- DTC DOES NOT OUTPUT (GO TO STEP 4)

| | |
|---|---|
| 4 | DTC CHECK (See Page 05-1 121) |

- MALFUNCTION CODE (GO TO STEP 5)
- NORMAL CODE (GO TO STEP 6)

| | |
|---|---|
| 5 | DTC CHART (See Page 05-1 124) |

- GO TO STEP 8

| | |
|---|---|
| 6 | PROBLEM SYMPTOMS TABLE (See page 05-1 131) |

| | |
|---|---|
| 7 | TERMINAL OF ECU (See page 05-1 128) |

| | |
|---|---|
| 8 | CIRCUIT INSPECTION (See Page 05-1 134 - 05-1 181) |

| | |
|---|---|
| 9 | IDENTIFICATION OF PROBLEM |

| | |
|---|---|
| 10 | REPAIR OR REPLACE |

| 11 | CONFIRMATION TEST |
|---|---|

END

# BACK MONITOR SYSTEM

059F9-03

## HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

Troubleshoot in accordance with the procedure on this page.

| | |
|---|---|
| 1 | VEHICLE BROUGHT TO WORKSHOP |

| | |
|---|---|
| 2 | CUSTOMER PROBLEM ANALYSIS (See page 05-1473 ) |

| | |
|---|---|
| 3 | PROBLEM SYMPTOM CONFIRMATION |

(a) If the symptom does not occur, proceed to A.

(b) If the symptom occurs, proceed to B.

| | |
|---|---|
| A | SYMPTOM SIMULATION |

B

| | |
|---|---|
| 4 | PROBLEM SYMPTOMS TABLE (See page 05-1479 ) |

| | |
|---|---|
| 5 | INSPECTION (See page 05-1474 ) |

| | |
|---|---|
| 6 | IDENTIFICATION OF PROBLEM |

| | |
|---|---|
| 7 | REPAIR OR REPLACE |

| | |
|---|---|
| 8 | CONFIRMATION TEST |

END

**Before troubleshooting:**

(a) Using the tester, check the battery voltage.
**Standard Voltage: 11 to 14 V**

(b) Perform a visual check for blown fuses, and poor connections in connectors.

# POWER SLIDE DOOR SYSTEM

## HOW TO PROCEED WITH TROUBLESHOOTING

05BZ3-01

HINT:

Troubleshoot in accordance with the procedures on the following pages.

| | |
|---|---|
| 1 | **VEHICLE BROUGHT TO WORKSHOP** |

| | |
|---|---|
| 2 | **CUSTOMER PROBLEM ANALYSIS CHECK AND SYMPTOM CHECK** |

| | |
|---|---|
| 3 | **INSPECT COMMUNICATION FUNCTION OF LARGE-SCALE MULTIPLEX COMMUNICATION SYSTEM (BEAN)** |

(a) Use the hand-held tester to check for normal function of the multiplex communication system.
  (1) (ECU unconnected, communication line malfunctioning) Without code outputs, proceed to A.
  (2) (ECU unconnected, communication line malfunctioning) With code outputs, proceed to B.

| | |
|---|---|
| B | **Go to MULTIPLEX COMMUNICATION SECTION (See page 05-1876 )** |

A

| | |
|---|---|
| 4 | **DTC CHECK (See page 05-1655 )** |

(a) Check for a diagnostic trouble code.
  (1) Without code outputs, proceed to A.
  (2) With code outputs, proceed to B.

| | |
|---|---|
| B | **Go to step 6** |

A

| | |
|---|---|
| 5 | **PROBLEM SYMPTOMS TABLE (See page 05-1662 )** |

(a) When problem is not listed on problem symptoms table, proceed to A.
(b) When problem is listed on problem symptoms table, proceed to B.

| | |
|---|---|
| B | **Go to step 7** |

A

| 6 | PERFORM TROUBLESHOOTING ACCORDING TO MALFUNCTION SYMPTOM |
|---|---|

(a) Pre-check (See page 05-1650 ).
  (1) Inspection with the hand-held tester (ECU DATA LIST).
  (2) Inspection with the hand-held tester (ACTIVE TEST).
(b) On-vehicle inspection (See page 75-19 ).
(c) Inspection (See page 75-30 ).
(d) Terminals of ECU (See page 05-1658 ).

| 7 | ADJUST, REPAIR OR REPLACE |
|---|---|

| 8 | RESET POWER SLIDE DOOR SYSTEM (See page 05-1735 ) |
|---|---|

| 9 | CONFIRMATION TEST |
|---|---|

| END |
|---|

# POWER WINDOW CONTROL SYSTEM (W/ JAM PROTECTION)

## HOW TO PROCEED WITH TROUBLESHOOTING

059YM-02

HINT:

Troubleshoot in accordance with the procedures on the following pages.

| | |
|---|---|
| 1 | VEHICLE BROUGHT TO WORKSHOP |

| | |
|---|---|
| 2 | CUSTOMER PROBLEM ANALYSIS CHECK AND SYMPTOM CHECK (See page 05-1554 ) |

| | |
|---|---|
| 3 | PROBLEM SYMPTOMS TABLE (See page 05-1558 ) |

(a) When problem is not listed on problem symptoms table, proceed to A.

(b) When problem is listed on problem symptoms table, proceed to B.

B → Go to step 5

A

| | |
|---|---|
| 4 | PERFORM TROUBLESHOOTING ACCORDING TO MALFUNCTION SYMPTOM |

(a) Pre-check (See page 05-1555 ).

(1) Inspection with the hand-held tester (ECU DATA LIST).

(2) Inspection with the hand-held tester (ACTIVE TEST).

(b) Circuit inspection (See pages 05-1559 to 05-1585 ).

| | |
|---|---|
| 5 | ADJUST, REPAIR OR REPLACE |

| | |
|---|---|
| 6 | RESET POWER WINDOW REGULATOR MOTOR |

(a) If the AUTO switch (driver side switch) light of the power window master switch is blinking after the repair, reset the power window motor (See page 70-12 ).

END

# ABS WITH EBD & BA & TRAC & VSC SYSTEM

## HOW TO PROCEED WITH TROUBLESHOOTING

05BX2-01

| | |
|---|---|
| 1 | Vehicle Brought to Workshop |

| | |
|---|---|
| 2 | Customer Problem Analysis (See page 05-433 ) |

| | |
|---|---|
| 3 | Check and Clear DTCs (See page 05-435 ) |

| | |
|---|---|
| 4 | Problem Symptom Confirmation |

- Symptom does not occur: Go to step 5
- Symptom occur: Go to step 6

| | |
|---|---|
| 5 | Symptom Simulation (See page 01-27 ) |

| | |
|---|---|
| 6 | DTC Check (See page 05-435 ) |

- There is no output: Go to step 7
- There is output: Go to step 8

| | |
|---|---|
| 7 | Problem Symptoms Table (See page 05-453 ) |

- Check for fluid leakage and Go to step 10

| | |
|---|---|
| 8 | DTC Chart (See page 05-447 ) |

| | |
|---|---|
| 9 | Circuit Inspection (See page 05-455 - 05-526 ) |

| | |
|---|---|
| 10 | Identification of Problem |

| | |
|---|---|
| 11 | **Repair** |

| | |
|---|---|
| 12 | **Confirmation Test** |

**End**

HINT:
Step 3, 6, 9, 12:
Diagnostic steps permitting the use of the hand-held tester.
Fail safe function:
When a failure occurs in the ABS & BA & TRAC & VSC systems, the ABS and VSC warning lights and the TRAC OFF indicator light comes on and the ABS & BA & TRAC & VSC operations are prohibited. In addition to this, when there is a failure that disables the EBD operation, the brake warning light also comes on and the EBD operation is prohibited.

# COMBINATION METER

## HOW TO PROCEED WITH TROUBLESHOOTING

056E6-04

| | |
|---|---|
| 1 | Vehicle Brought to Workshop |

| | |
|---|---|
| 2 | Customer Problem Analysis (See page 05-1526 ) |

| | |
|---|---|
| 3 | Check multiplex communication system (See page 05-1876 ) |

(a) Check the DTC output.

| | |
|---|---|
| DTC outputs (Proceed to "BODY MULTIPLEX COMMUNICATION SYSTEM) | |
| DTC does not output (Go to step 4) | |

| | |
|---|---|
| 4 | Problem Symptom Confirmation (See page 05-1538 ) |

| | |
|---|---|
| 5 | Circuit Inspection (See page 05-1539 - 05-1549 ) |

| | |
|---|---|
| 6 | Repair or Replace |

| | |
|---|---|
| 7 | Confirmation Test |

| | |
|---|---|
| 8 | End |

05BDZ-01

# HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

Step 3, 4, 9:

Diagnostic steps permitting the use of the hand-held tester.

| | |
|---|---|
| 1 | VEHICLE BROUGHT TO WORK SHOP |

| | |
|---|---|
| 2 | CUSTOMER PROBLEM ANALYSIS (See page 05-1988 ) |

| | |
|---|---|
| 3 | CHECK BODY MULTIPLEX COMMUNICATION SYSTEM (See page 05-1876 ) |

(a) Check that the DTCs output.

HINT:

The ECM of this system is connected to the multiplex communication system. Therefore, before starting troubleshooting, make sure to check that there is no trouble in the multiplex communication system.

- DTC OUTPUTS (PROCEED TO "BODY MULTIPLEX COMMUNICATION SYSTEM")
- DTC DOES NOT OUTPUT (GO TO STEP 4)

| | |
|---|---|
| 4 | THE DTCs CHECK (See page 05-1989 ) |

- MALFUNCTION CODE (GO TO STEP 5)
- NORMAL CODE (GO TO STEP 6)

| | |
|---|---|
| 5 | DTC CHART (See page 05-2000 ) |

GO TO STEP 9

| | |
|---|---|
| 6 | PROBLEM SYMPTOM CONFIRMATION |

- SYMPTOM DOES NOT OCCUR (GO TO STEP 7)
- SYMPTOM OCCURS (GO TO STEP 8)

| | |
|---|---|
| 7 | SYMPTOM SIMULATION (See page 01-27 ) |

GO TO STEP 9

| | |
|---|---|
| 8 | PROBLEM SYMPTOMS TABLE (See page 05-2008 ) |

| | |
|---|---|
| 9 | CIRCUIT INSPECTION (See page 05-2010 - 05-2047 ) |

| | |
|---|---|
| 10 | TERMINAL OF ECU (See page 05-2003 ) |

| | |
|---|---|
| 11 | IDENTIFYING PROBLEM |

| | |
|---|---|
| 12 | REPAIR OR REPLACE |

| | |
|---|---|
| 13 | CONFIRMATION TEST |

END

# SLIDE DOOR CLOSER SYSTEM

05C07-01

## HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

Troubleshoot in accordance with the procedures on the following pages.

| | |
|---|---|
| 1 | **VEHICLE BROUGHT TO WORKSHOP** |

| | |
|---|---|
| 2 | **CUSTOMER PROBLEM ANALYSIS CHECK AND SYMPTOM CHECK** |

| | |
|---|---|
| 3 | **INSPECT COMMUNICATION FUNCTION OF LARGE-SCALE MULTIPLEX COMMUNICATION SYSTEM (BEAN)** |

(a) Use the hand-held tester to check for normal function of the multiplex communication system.
  (1) (ECU unconnected, communication line malfunctioning) Without code outputs, proceed to A.
  (2) (ECU unconnected, communication line malfunctioning) With code outputs, proceed to B.

| | |
|---|---|
| B | **Go to MULTIPLEX COMMUNICATION SECTION (See page 05-1876 )** |

**A**

| | |
|---|---|
| 4 | **PROBLEM SYMPTOMS TABLE (See page 05-1662 )** |

(a) When problem is not listed on problem symptoms table, proceed to A.
(b) When problem is listed on problem symptoms table, proceed to B.

| | |
|---|---|
| B | **Go to step 6** |

**A**

| | |
|---|---|
| 5 | **PERFORM TROUBLESHOOTING ACCORDING TO MALFUNCTION SYMPTOM** |

(a) Pre-check (See page 05-1629 ).
  (1) Inspection with the hand-held tester (ECU DATA LIST).
(b) Terminals of ECU (See page 05-1632 ).

| | |
|---|---|
| 6 | **ADJUST, REPAIR OR REPLACE AND RESET SLIDE DOOR SYSTEM (See page 05-1629 )** |

**END**

# POWER BACK DOOR SYSTEM

05BZM-01

## HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

Troubleshoot in accordance with the procedures on the following pages.

| | |
|---|---|
| 1 | **VEHICLE BROUGHT TO WORKSHOP** |

| | |
|---|---|
| 2 | **CUSTOMER PROBLEM ANALYSIS CHECK AND SYMPTOM CHECK** |

| | |
|---|---|
| 3 | **INSPECT COMMUNICATION FUNCTION OF LARGE-SCALE MULTIPLEX COMMUNICATION SYSTEM (BEAN)** |

(a) Use the hand-held tester to check for normal function of the multiplex communication system.
  (1) (ECU unconnected, communication line malfunctioning) Without code outputs, proceed to A.
  (2) (ECU unconnected, communication line malfunctioning) With code outputs, proceed to B.

| | |
|---|---|
| B | **Go to MULTIPLEX COMMUNICATION SECTION (See page 05-1876 )** |

A

| | |
|---|---|
| 4 | **DTC CHECK (See page 05-1757 )** |

(a) Check for a diagnostic trouble code.
  (1) Without code outputs, proceed to A.
  (2) With code outputs, proceed to B.

| | |
|---|---|
| B | **Go to step 6** |

A

| | |
|---|---|
| 5 | **PROBLEM SYMPTOMS TABLE (See page 05-1761 )** |

(a) When problem is not listed on problem symptoms table, proceed to A.
(b) When problem is listed on problem symptoms table, proceed to B.

| | |
|---|---|
| B | **Go to step 7** |

A

| 6 | PERFORM TROUBLESHOOTING ACCORDING TO MALFUNCTION SYMPTOM |
|---|---|

(a) Pre-check (See page 05-1752 ).
  (1) Inspection with the hand-held tester (ECU DATA LIST).
  (2) Inspection with the hand-held tester (ACTIVE TEST).
(b) On-vehicle inspection (See page 75-94 ).
(c) Inspection (See page 75-102 ).
(d) Terminals of ECU (See page 05-1759 ).

| 7 | ADJUST, REPAIR OR REPLACE |
|---|---|

| 8 | RESET POWER BACK DOOR SYSTEM (See page 05-1752 ) |
|---|---|

| 9 | CONFIRMATION TEST |
|---|---|

| END |
|---|

# TIRE PRESSURE WARNING SYSTEM

05BW6-01

## HOW TO PROCEED WITH TROUBLESHOOTING

| | |
|---|---|
| 1 | VEHICLE BROUGHT TO WORKSHOP |

| | |
|---|---|
| 2 | CUSTOMER PROBLEM ANALYSIS (See page 05-346 ) |

| | |
|---|---|
| 3 | CHECK AND CLEAR DTCs (See page 05-347 ) |

| | |
|---|---|
| 4 | PROBLEM SYMPTOM CONFIRMATION |

- SYMPTOM DOES NOT OCCUR (Go to step 5)
- SYMPTOM OCCURS (Go to step 6)

| | |
|---|---|
| 5 | SYMPTOM SIMULATION (See page 01-27 ) |

| | |
|---|---|
| 6 | CHECK TIRE PRESSURE WARNING LAMP CONDITION |

(a) Turn the ignition switch ON.
(b) Record the condition of the tire pressure warning lamp on the combination meter assy.
(c) Refer to the ”TIRE PRESSURE WARNING DISPLAY FUNCTION” section of the ”PRE-CHECK” for the condition of the tire pressure warning lamp (See page 05-347 ).

| | |
|---|---|
| 7 | DTC CHECK (See page 05-347 ) |

- DTC DOES NOT OUTPUT (Go to step 8)
- DTC OUTPUT (Go to step 9)

| | |
|---|---|
| 8 | PROBLEM SYMPTOMS TABLE (See page 05-364 ) |

| | |
|---|---|
| 9 | CIRCUIT INSPECTION (See page 05-366 to 05-380 ) |

| | |
|---|---|
| 10 | IDENTIFICATION OF PROBLEM |

| | |
|---|---|
| 11 | REPAIR |

| | |
|---|---|
| 12 | CONFIRMATION TEST |

END

HINT:

- Step 3, 7, 9, 12:
  Diagnostic steps permitting the use of the hand-held tester.
- DTC13 (ABS system malfunction) will not be output, if the check is performed by the hand-held tester.

055LG-05

# HOW TO PROCEED WITH TROUBLESHOOTING

| | |
|---|---|
| 1 | VEHICLE BROUGHT TO WORKSHOP |

| | |
|---|---|
| 2 | CUSTOMER PROBLEM ANALYSIS (SEE PAGE 05-1 191) |

| | |
|---|---|
| 3 | CHECK AND CLEAR THE DTCS (SEE PAGE 05-1 192) |

| | |
|---|---|
| 4 | PROBLEM SYMPTOM CONFIRMATION |

→ SYMPTOM OCCURS (GO TO STEP 6)

SYMPTOM DOES NOT OCCUR (GO TO STEP 5)

| | |
|---|---|
| 5 | SYMPTOM SIMULATION (SEE PAGE 01-27 ) |

| | |
|---|---|
| 6 | DTC CHECK (SEE PAGE 05-1 192) |

→ MALFUNCTION CODE (GO TO STEP 7)

→ NORMAL CODE (GO TO STEP 8)

| | |
|---|---|
| 7 | DTC CHART (SEE PAGE 05-1 198) |

→ GO TO STEP 9

| | |
|---|---|
| 8 | PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1213 ) |

| | |
|---|---|
| 9 | CIRCUIT INSPECTION (SEE PAGE 05-1214 - 05-1253 ) |

| | |
|---|---|
| 10 | CONFIRMATION TEST |

**END**

# BACK DOOR CLOSER SYSTEM

05BZY-01

## HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

Troubleshoot in accordance with the procedures on the following pages.

| | |
|---|---|
| 1 | **VEHICLE BROUGHT TO WORKSHOP** |

| | |
|---|---|
| 2 | **CUSTOMER PROBLEM ANALYSIS CHECK AND SYMPTOM CHECK** |

| | |
|---|---|
| 3 | **INSPECT COMMUNICATION FUNCTION OF LARGE-SCALE MULTIPLEX COMMUNICATION SYSTEM (BEAN)** |

(a) Use the hand-held tester to check for normal function of the multiplex communication system.
  (1) (ECU unconnected, communication line malfunctioning) Without code outputs, proceed to A.
  (2) (ECU unconnected, communication line malfunctioning) With code outputs, proceed to B.

| | |
|---|---|
| B | **Go to MULTIPLEX COMMUNICATION SECTION (See page 05-1876 )** |

A

| | |
|---|---|
| 4 | **DTC CHECK (See page 05-1737 )** |

(a) Check for DTCs.
  (1) Without code outputs, proceed to A.
  (2) With code outputs, proceed to B.

| | |
|---|---|
| B | **Go to step 6** |

A

| | |
|---|---|
| 5 | **PROBLEM SYMPTOMS TABLE (See page 05-1740 )** |

(a) When problem is not listed on problem symptoms table, proceed to A.
(b) When problem is listed on problem symptoms table, proceed to B.

| | |
|---|---|
| B | **Go to step 7** |

A

| 6 | PERFORM TROUBLESHOOTING ACCORDING TO MALFUNCTION SYMPTOM |
|---|---|

(a) Pre-check (See page 05-1735 ).
  (1) Inspection with the hand-held tester (ECU DATA LIST).
  (2) Inspection with the hand-held tester (ACTIVE TEST).
(b) Inspection (See page 73-3 ).
(c) Terminals of ECU (See page 05-1739 ).

| 7 | ADJUST, REPAIR OR REPLACE |
|---|---|

| 8 | RESET BACK DOOR SYSTEM (See page 05-1735 ) |
|---|---|

| 9 | CONFIRMATION TEST |
|---|---|

| END |
|---|

# KEY REMINDER WARNING SYSTEM

05BTM-02

## HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

Troubleshoot in accordance with the procedures on the following pages.

| | |
|---|---|
| 1 | **VEHICLE BROUGHT TO WORKSHOP** |

| | |
|---|---|
| 2 | **CUSTOMER PROBLEM ANALYSIS CHECK AND SYMPTOM CHECK (See page 05-1819 )** |

| | |
|---|---|
| 3 | **INSPECT COMMUNICATION FUNCTION OF LARGE-SCALE MULTIPLEX COMMUNICATION SYSTEM (BEAN)** |

(a) Use the hand-held tester to check for normal function of the multiplex communication system.
  (1) (ECU unconnected, communication line malfunctioning) Without code outputs, proceed to A.
  (2) (ECU unconnected, communication line malfunctioning) With code outputs, proceed to B.

| | |
|---|---|
| B | **GO TO MULTIPLEX COMMUNICATION SECTION (See page 05-1876 )** |

A

| | |
|---|---|
| 4 | **PROBLEM SYMPTOMS TABLE (See page 05-1824 )** |

(a) When problem is not listed on problem symptoms table, proceed to A.
(b) When problem is listed on problem symptoms table, proceed to B.

| | |
|---|---|
| B | **Go to step 6** |

A

| | |
|---|---|
| 5 | **PERFORM TROUBLESHOOTING ACCORDING TO MALFUNCTION SYMPTOM** |

(a) Pre-check (See page 05-1820 )
  (1) Inspection with the hand-held tester (ECU DATA MONITOR).
(b) Terminals of ECU (See page 05-1822 )
(c) On-vehicle inspection

| | |
|---|---|
| 6 | **ADJUST, REPAIR OR REPLACE** |

| 7 | CONFIRMATION TEST |
|---|---|

END

# THEFT DETERRENT SYSTEM

## HOW TO PROCEED WITH TROUBLESHOOTING

05B9V-01

HINT:

Troubleshoot in accordance with the procedures on the following pages.

| | |
|---|---|
| 1 | **VEHICLE BROUGHT TO WORKSHOP** |

| | |
|---|---|
| 2 | **CUSTOMER PROBLEM ANALYSIS CHECK AND SYMPTOM CHECK (See page 05-1859 )** |

| | |
|---|---|
| 3 | **INSPECT COMMUNICATION FUNCTION OF LARGE-SCALE MULTIPLEX COMMUNICATION SYSTEM (BEAN)** |

(a) Use the hand-held tester to check for normal function of the multiplex communication system.
  (1) (ECU unconnected, communication line malfunctioning) Without code outputs, proceed to A.
  (2) (ECU unconnected, communication line malfunctioning) With code outputs, proceed to B.

| | |
|---|---|
| B | **Go to MULTIPLEX COMMUNICATION SECTION (See page 05-1876 )** |

A

| | |
|---|---|
| 4 | **PROBLEM SYMPTOMS TABLE (See page 05-1865 )** |

(a) When problem is not listed on problem symptoms table, proceed to A.
(b) When problem is listed on problem symptoms table, proceed to B.

| | |
|---|---|
| B | **Go to step 6** |

A

| | |
|---|---|
| 5 | **PERFORM TROUBLESHOOTING ACCORDING TO MALFUNCTION SYMPTOM** |

(a) Terminals of ECU (See page 05-1863 )
(b) On-vehicle inspection (See page 73-30 )

| | |
|---|---|
| 6 | **ADJUST, REPAIR OR REPLACE** |

**END**

# POWER DOOR LOCK CONTROL SYSTEM

## HOW TO PROCEED WITH TROUBLESHOOTING

05BYS-01

HINT:

Troubleshoot in accordance with the procedures on the following pages.

| | |
|---|---|
| 1 | VEHICLE BROUGHT TO WORKSHOP |

| | |
|---|---|
| 2 | CUSTOMER PROBLEM ANALYSIS CHECK AND SYMPTOM CHECK |

| | |
|---|---|
| 3 | INSPECT COMMUNICATION FUNCTION OF LARGE-SCALE MULTIPLEX COMMUNICATION SYSTEM (BEAN) |

(a) Use the hand-held tester to check for normal function of the multiplex communication system.
  (1) (ECU unconnected, communication line malfunctioning) Without code outputs, proceed to A.
  (2) (ECU unconnected, communication line malfunctioning) With code outputs, proceed to B.

| | |
|---|---|
| B | Go to MULTIPLEX COMMUNICATION SECTION (See page 05-1876 ) |

A

| | |
|---|---|
| 4 | PROBLEM SYMPTOMS TABLE (See page 05-1599 ) |

(a) When problem is not listed on problem symptoms table, proceed to A.
(b) When problem is listed on problem symptoms table, proceed to B.

| | |
|---|---|
| B | Go to step 6 |

A

| | |
|---|---|
| 5 | PERFORM TROUBLESHOOTING ACCORDING TO MALFUNCTION SYMPTOM |

(a) Pre-check (See page 05-1589 ).
  (1) Inspection with the hand-held tester (ECU DATA LIST).
  (2) Inspection with the hand-held tester (ACTIVE TEST).
(b) On-vehicle inspection (See page 73-1 ).
(c) Inspection (See page 73-3 ).
(d) Terminals of ECU (See page 05-1595 ).

| | |
|---|---|
| 6 | ADJUST, REPAIR OR REPLACE |

| 7 | CONFIRMATION TEST |
|---|---|

**END**

05ATM-06

# HOW TO PROCEED WITH TROUBLESHOOTING

| | |
|---|---|
| 1 | Vehicle Brought to Workshop |

NEXT

| | |
|---|---|
| 2 | Customer Problem Analysis (See page 05-1422 ) |

NEXT

| | |
|---|---|
| 3 | Problem Symptom Confirmation |

- Symptom does not occur (Go to step 4)
- Symptom occurs (Go to step 5)

| | |
|---|---|
| 4 | Symptom Simulation |

NEXT

| | |
|---|---|
| 5 | DTC Check (See page 05-1433 ) |

- DTC is not output (Go to step 7)
- DTC is output (Go to step 6)
- Remote control does not operate (Go to step 7)

| | |
|---|---|
| 6 | DTC Chart (See page 05-1437 ) |

- Go to step 8

| | |
|---|---|
| 7 | Problem Symptoms Table (See page 05-1425 ) |

NEXT

| | |
|---|---|
| 8 | Circuit Inspection and Part Inspection |

NEXT

| | |
|---|---|
| 9 | Indemnification of Problem |

NEXT

| | |
|---|---|
| 10 | **Repair or Replace** |

NEXT

| | |
|---|---|
| 11 | **Confirmation Test** |

NEXT

**End**

# MULTIPLEX COMMUNICATION SYSTEM

## HOW TO PROCEED WITH TROUBLESHOOTING

05BT9-03

HINT:

Troubleshoot in accordance with the procedures on the following pages.

| | |
|---|---|
| 1 | VEHICLE BROUGHT TO WORKSHOP |

| | |
|---|---|
| 2 | DTC CHECK (See page 05-1880 ) |

(a) Check for DTCs and make a note of the code that is output.
(b) Delete the DTC.
(c) Check if the DTC is output once again when the problem symptom is simulated based on the noted code.
  (1) When no code is output (symptom check and simulation are possible), proceed to A.
  (2) When a code is output, proceed to B.

| | |
|---|---|
| B | Go to step 4 |

A

| | |
|---|---|
| 3 | PERFORM TROUBLESHOOTING ACCORDING TO MALFUNCTION SYMPTOM |

(a) Pre-check (See page 05-1877 )
(b) Terminals of ECU (See page 05-1882 )

| | |
|---|---|
| 4 | ADJUST, REPAIR OR REPLACE |

END

# WIRELESS DOOR LOCK CONTROL SYSTEM

## HOW TO PROCEED WITH TROUBLESHOOTING

056B7-07

HINT:

Troubleshooting of the wireless door lock control system is based on the premise that the power door lock system, the power slide door system, the power back door system and the power window system are operating normally. Therefore, before troubleshooting the wireless door lock control system, first make certain that these systems are operating normally.

Troubleshoot in accordance with the procedures on the following pages.

| | |
|---|---|
| 1 | **VEHICLE BROUGHT TO WORKSHOP** |

| | |
|---|---|
| 2 | **CUSTOMER PROBLEM ANALYSIS CHECK AND SYMPTOM CHECK (See page 05-1792 )** |

| | |
|---|---|
| 3 | **DTC CHECK (See page 05-1796 )** |

(a) Check for DTC and note any codes that are output.
(b) Delete the DTC.
(c) Recheck for DTC. Try to prompt the DTC by simulating the original activity that the DTC suggests.
  (1) If the DTC does not reoccur, proceed to A.
  (2) If the DTC reoccur, proceed to B.

| | |
|---|---|
| B | **Go to step 6** |

**A**

| | |
|---|---|
| 4 | **PROBLEM SYMPTOMS TABLE (See page 05-1801 )** |

(a) When problem is not listed on problem symptoms table, proceed to A.
(b) When problem is listed on problem symptoms table, proceed to B.

| | |
|---|---|
| B | **Go to step 6** |

**A**

| | |
|---|---|
| 5 | **PERFORM TROUBLESHOOTING ACCORDING TO MALFUNCTION SYMPTOM** |

(a) Pre-check (See page 05-1793 )
  (1) Inspection with the hand-held tester (ECU DATA LIST)
  (2) Inspection with the hand-held tester (ACTIVE TEST)
(b) Terminals of ECU (See page 05-1799 )
(c) On-vehicle inspection (See page 73-1 1)

| | |
|---|---|
| 6 | ADJUST, REPAIR OR REPLACE |

| | |
|---|---|
| 7 | CONFIRMATION TEST |

END

05256-39

# HOW TO PROCEED WITH TROUBLESHOOTING

The hand-held tester can be used in steps 3, 4, 6, 9 and 10.

| | |
|---|---|
| 1 | VEHICLE BROUGHT TO WORKSHOP |

NEXT

| | |
|---|---|
| 2 | CUSTOMER PROBLEM ANALYSIS (SEE PAGE 05-766 ) |

NEXT

| | |
|---|---|
| 3 | CHECK MULTIPLEX COMMUNICATION SYSTEM (SEE PAGE 05-1877 ) |

- DTC IS OUTPUT: CHECK MULTIPLEX COMMUNICATION CIRCUIT
- DTC IS NOT OUTPUT: Go to step 4

| | |
|---|---|
| 4 | DTCs CHECK (Present and Past DTCs) (SEE PAGE 05-777 ) |

- DTC IS OUTPUT: Go to step 5
- DTC IS NOT OUTPUT: PROBLEM SYMPTOMS TABLE (SEE PAGE 05-789 )
- DTC B1150/23 IS OUTPUT: Go to step 5

| | |
|---|---|
| 5 | DTCs CHART (SEE PAGE 05-790 ) |

NEXT

| | |
|---|---|
| 6 | CIRCUIT INSPECTION (SEE PAGE 05-795 TO 05-1 113) |

- MALFUNCTION CODE IS OUTPUT: Go to step 7
- NORMAL CODE IS OUTPUT: Go to step 12

| | |
|---|---|
| 7 | IDENTIFICATION OF PROBLEM |

NEXT

| | |
|---|---|
| 8 | REPAIR |

NEXT

| | |
|---|---|
| 9 | CLEAR DTCs (Present and Past DTCs) (SEE PAGE 05-777 ) |

NEXT

| | |
|---|---|
| 10 | DTCs CHECK (SEE PAGE 05-777 ) |

DTC CODE IS NOT OUTPUT: Go to step 10

DTC CODE IS OUTPUT: Go to step 5

| | |
|---|---|
| 11 | SYMPTOM SIMULATION (SEE PAGE 01-27 ) |

WARNING LIGHT REMAINS OFF: Go to step 12

WARNING LIGHT IS ON: Go to step 5

| | |
|---|---|
| 12 | CONFIRMATION TEST |

NEXT

END

# ABS WITH EBD SYSTEM

## HOW TO PROCEED WITH TROUBLESHOOTING

057U7-03

| | |
|---|---|
| 1 | Vehicle Brought to Workshop |

| | |
|---|---|
| 2 | Customer Problem Analysis (See page 05-385 ) |

| | |
|---|---|
| 3 | Check and Clear DTCs and Freeze Frame Data (See page 05-386 ) |

| | |
|---|---|
| 4 | Problem Symptom Confirmation |

- Symptom does not occur: Go to step 5
- Symptom occurs: Go to step 6

| | |
|---|---|
| 5 | Symptom Simulation (See page 01-37 ) |

| | |
|---|---|
| 6 | DTC Check (See page 05-386 ) |

- There is no output: Go to step 7
- There is output: Go to step 8

| | |
|---|---|
| 7 | Problem Symptoms Table (See page 05-396 ) |

- Check for fluid leakage and Go to step 10

| | |
|---|---|
| 8 | DTC Chart (See page 05-392 ) |

| | |
|---|---|
| 9 | Circuit Inspection (See page 05-397 - 05-429 ) |

HINT:
When 2 or more DTC's are detected, perform circuit inspection one by one until the problem is identified.

| 10 | Identification of Problem |
|---|---|

| 11 | Repair |
|---|---|

| 12 | Confirmation Test |
|---|---|

| End |
|---|

HINT:
Step 3, 6, 9, 12:
Diagnostic steps permitting the use of the hand-held tester.
Fail safe function:
When a failure occurs in the ABS system, the ABS warning light comes on and the ABS operation is prohibited. In addition to this, when the failure which disables the EBD operation occurs, the brake warning light comes on as well and the EBD operation is prohibited.

# CRUISE CONTROL SYSTEM

## HOW TO PROCEED WITH TROUBLESHOOTING

05B2Y-05

| | |
|---|---|
| 1 | VEHICLE BROUGHT TO WORK SHOP |

| | |
|---|---|
| 2 | CUSTOMER PROBLEM ANALYSIS (See page 05-1963 ) |

| | |
|---|---|
| 3 | CHECK AND CLEAR DTC (See page 05-1964 ) |

- DTC DOES NOT OUTPUT (PROCEED TO "BODY MULTIPLEX COMMUNICATION SYSTEM")
- DTC OUTPUTS (GO TO STEP 4)

| | |
|---|---|
| 4 | PROBLEM SYMPTOM CONFIRMATION |

- SYMPTOM DOES NOT OCCUR (GO TO STEP 5)
- SYMPTOM OCCURS (GO TO STEP 6)

| | |
|---|---|
| 5 | SYMPTOM SIMULATION (See page 01-27 ) |

| | |
|---|---|
| 6 | DTC CHECK (See page 05-1964 ) |

- MALFUNCTION CODE (GO TO STEP 7)
- NORMAL CODE (GO TO STEP 8)

| | |
|---|---|
| 7 | DTC CHART (See page 05-1969 ) |

GO TO STEP 9

| | |
|---|---|
| 8 | PROBLEM SYMPTOMS TABLE (See page 05-1972 ) |

| | |
|---|---|
| 9 | CIRCUIT INSPECTION (See page 05-1973 - 05-1982 ) |

| | |
|---|---|
| 10 | IDENTIFICATION OF PROBLEM |

| | |
|---|---|
| 11 | REPAIR OR REPLACE |

| | |
|---|---|
| 12 | CONFIRMATION TEST |

**END**

HINT:
Step 3, 6, 9, 13:
Diagnostic steps permit the use of the hand-held tester.

05AT9-04

# HOW TO PROCEED WITH TROUBLESHOOTING

| | |
|---|---|
| 1 | Vehicle Brought to Workshop |

| | |
|---|---|
| 2 | Customer Problem Analysis (See page 05-1407 ) |

| | |
|---|---|
| 3 | Problem Symptom Confirmation |

- Symptom does not occur (Go to step 4)
- Symptom occurs (Go to step 5)

| | |
|---|---|
| 4 | Symptom Simulation (See page 01-27 ) |

| | |
|---|---|
| 5 | DTC Check (See page 05-1431 ) |

- DTC is not output (Go to step 7)
- DTC is output (Go to step 6)

| | |
|---|---|
| 6 | DTC Chart (See page 05-1437 ) |

- Go to step 8

| | |
|---|---|
| 7 | Problem Symptoms Table (See page 05-1410 ) |

| | |
|---|---|
| 8 | Circuit Inspection and Part Inspection |

| | |
|---|---|
| 9 | Identification of Problem |

| | |
|---|---|
| 10 | Repair or Replace |

| 11 | Confirmation Test |
|---|---|

End

# ELECTRONIC CONTROLLED AUTOMATIC TRANSAXLE [ECT]

0527H-51

## HOW TO PROCEED WITH TROUBLESHOOTING

| | |
|---|---|
| 1 | Vehicle Brought to Workshop |

| | |
|---|---|
| 2 | Customer Problem Analysis (See page 05-532 ) |

| | |
|---|---|
| 3 | Connect the OBD II scan tool or hand-held tester to DLC3 |

| | |
|---|---|
| 4 | Check and Clear DTC and Freeze Frame Data (See page 05-533 ) |

| | |
|---|---|
| 5 | Visual Inspection |

| | |
|---|---|
| 6 | Setting the Check Mode Diagnosis (See page 05-533 ) |

| | |
|---|---|
| 7 | Problem Symptom Confirmation |

- Symptom does not occur: Go to step 8
- Symptom occur: Go to step 9

| | |
|---|---|
| 8 | Symptom Simulation (See page 01-27 ) |

| | |
|---|---|
| 9 | DTC Check (See page 05-533 ) |

- DTC is not output: Go to step 10
- DTC is output: Go to step 17

| | |
|---|---|
| 10 | Basic Inspection (See page 40-2 , 40-7 and 40-44 ) |

NG → Go to step 19

OK

| | |
|---|---|
| 11 | Mechanical System Test (See page 05-533 ) |

NG → Go to step 16

OK

| | |
|---|---|
| 12 | Manual Shifting Test (See page 05-533 ) |

NG → Go to step 14

OK

| | |
|---|---|
| 13 | Problem Symptoms Table Chapter 1 (See page 05-561 ) |

NG → Go to step 18

OK

| | |
|---|---|
| 14 | Problem Symptoms Table Chapter 2 (See page 05-561 ) |

NG → Go to step 16

OK

| | |
|---|---|
| 15 | Problem Symptoms Table Chapter 3 (See page 05-561 ) |

NG

| | |
|---|---|
| 16 | Part Inspection |

→ Go to step 19

| | |
|---|---|
| 17 | DTC Chart (See page 05-555 ) |

| | |
|---|---|
| 18 | Circuit Inspection (See page 05-566 ) |

| | |
|---|---|
| 19 | Identification of Problem |

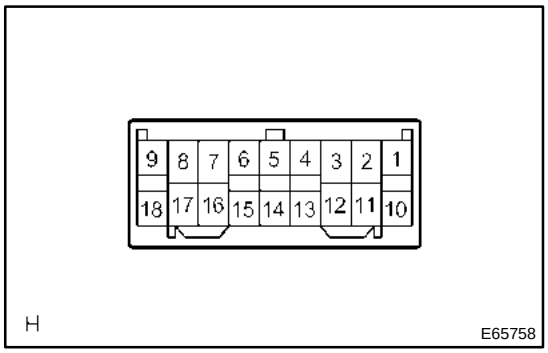
| | |
|---|---|
| 20 | Repair |

| | |
|---|---|
| 21 | Confirmation Test |

End

660CB-02

# INSPECTION




## 1. WINDSHIELD WIPER SWITCH ASSY

(a) Continuity Check

(1) Check the continuity between each of the terminals of the connector.

**Standard:**

**Front Wiper Switch**

| Switch position | Tester connection | Specified condition |
|---|---|---|
| MIST | 7 (+1) - 17 (+B) | Continuity |
| OFF | 7 (+1) - 16 (+S),<br>7 (+1) - 17 (+B) | No continuity |
| INT | 7 (+1) - 16 (+S) | Continuity |
| LO | 7 (+1) - 17 (+B) | Continuity |
| HI | 8 (+2) - 17 (+B) | Continuity |

**Front Washer Switch**

| Switch position | Tester connection | Specified condition |
|---|---|---|
| OFF | 2 (EW) - 11 (WF) | No continuity |
| ON | 2 (EW) - 11 (WF) | Continuity |

**Rear Wiper Switch**

| Switch position | Tester connection | Specified condition |
|---|---|---|
| OFF | 2 (EW) - 13 (C1R),<br>2 (EW) - 10 (+1R) | No continuity |
| INT | 2 (EW) - 13 (C1R) | Continuity |
| ON | 2 (EW) - 10 (+1R) | Continuity |

**Rear Washer Switch**

| Switch position | Tester connection | Specified condition |
|---|---|---|
| OFF | 2 (EW) - 12 (WR) | No continuity |
| ON<br>(Rear wiper switch OFF side) | 2 (EW) - 12 (WR) | Continuity |
| ON<br>(Rear wiper switch ON side) | 2 (EW) - 12 (WR),<br>2 (EW) - 10 (+1R) | Continuity |

(b) Intermittent Operation Check

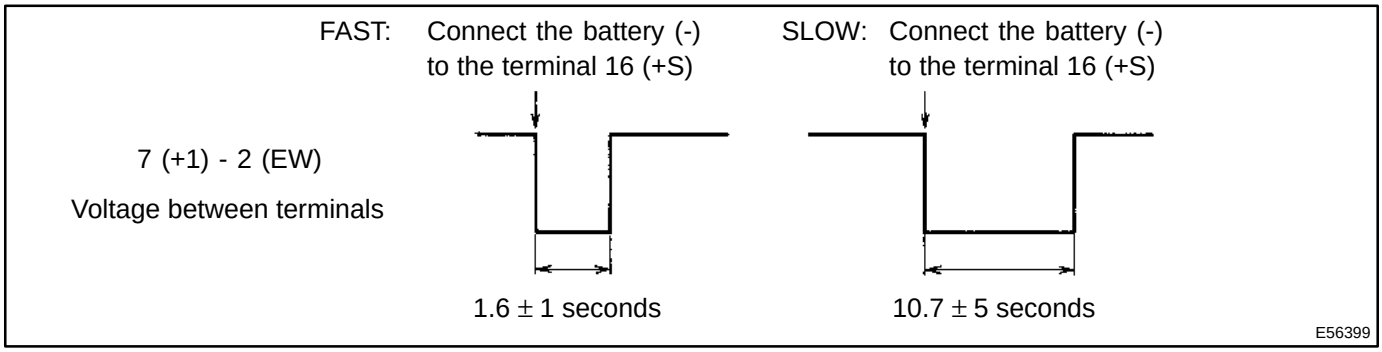
(1) Connect the voltmeter (+) terminal to the terminal 7 (+1) of the connector, the voltmeter (-) terminal to the terminal 2 (EW) of the connector.

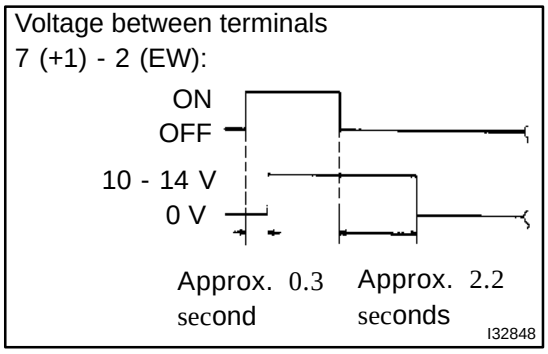
(2) Connect the battery (+) to the terminal 7 (+B) of the connector, the battery (-) to the terminal 2 (EW) and the terminal 6 (+S) of the connector.

(3) Turn the wiper switch into the INT position.

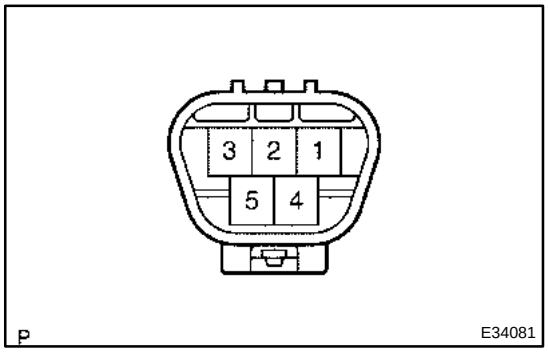
(4) Connect the battery (+) to the terminal 16 (+S) of the connector for 5 seconds.

(5) Connect the battery (-) to the terminal 16 (+S) of the connector. Operate the intermittent wiper relay and check voltage between the terminal 7 (+1) and the terminal 2 (EW).




(c) Operation Check (Front Wiper)
(1) Turn the wiper switch into the OFF position.
(2) Connect the battery (+) to the terminal 17 (+B) of the connector, the battery (-) to the terminal 16 (+S) and 2 (EW) of the connecter.
(3) Connect the voltmeter (+) terminal to the terminal 7 (+1) of the connector, the voltmeter (-) terminal to the terminal 2 (EW) of the connector. Turn the washer switch ON and OFF and check voltage between the terminal 7 (+1) and the terminal 2 (EW).

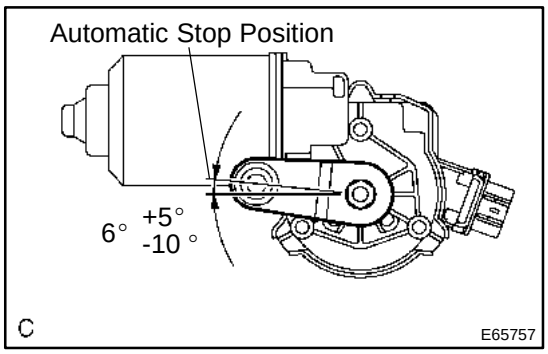



**2. WINDSHIELD WIPER MOTOR ASSY**

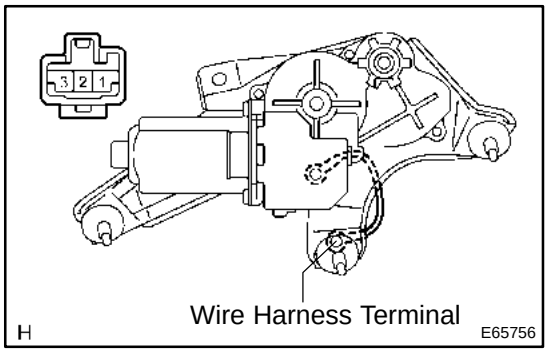
(a) LO Operation Check
(1) Connect the battery (+) to the terminal 1 (+1) of the connector, the battery (-) to the terminal 5 (E) of the connector, and check that the motor operates at low speed (LO).

(b) HI Operation Check
(1) Connect the battery (+) to the terminal 4 (+2) of the connector, the battery (-) to the terminal 5 (E) of the connector, and check that the motor operates at high speed (HI).

(c) Automatic Stop Operation Check
(1) Connect the battery (+) to the terminal 1 (+1) of the connector, the battery (-) to the terminal 5 (E) of the connector. With the motor being rotated at low speed (LO), disconnect terminal 1 (+1) to stop the wiper motor operation at any position except the automatic stop position.
(2) Using SST, connect the terminal 1 (+1) and 3 (S), and the battery (+) to the terminal 2 (B) to restart the motor operation at low speed (LO).
SST 09843-18040



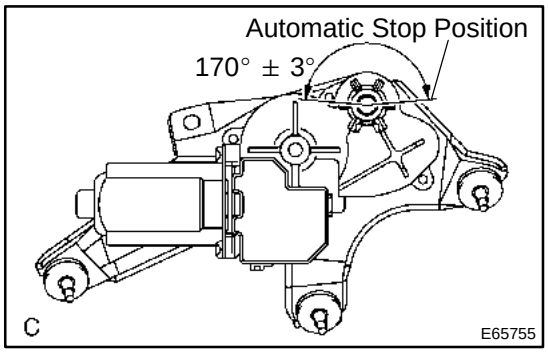

(3) Check the automatic stop position.
**Standard: See the illustration.**




**3. REAR WIPER MOTOR AND BRACKET ASSY**

(a) Operation check

(1) Connect the battery (+) to the terminal 1 (+B) of the connector, the battery (-) to the terminal 3 (LS) of the connector and wire harness terminal of the rear wiper motor and bracket assy, then check that the rear wiper motor and bracket operate.

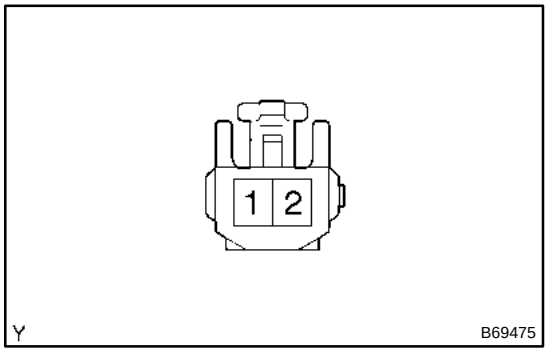



(b) Automatic Stop Position Operation Check

(1) Connect the battery (+) to the terminal 1 (+B) of the connector, the battery (-) to the terminal 3 (LS) of the connector and wire harness terminal of the rear wiper motor and bracket assy. With the motor being rotated disconnect the terminal 3 (LS) from the battery (-), then check that the wiper motor stops automatically to the automatic stop position.

610AW-02

# INSPECTION



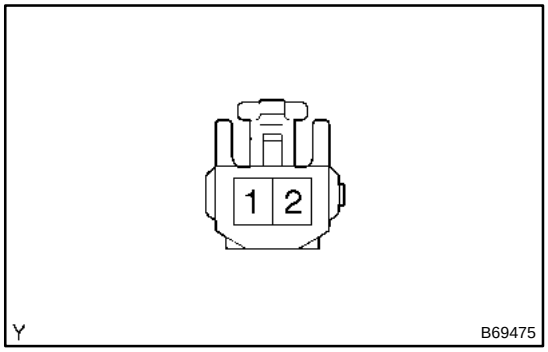

## 1. INSPECT FRONT SEAT INNER BELT ASSY RH

(1) Release the seat belt (Buckle switch is ON).
(2) Check the resistance between the terminals.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| 1 - 2 | Below 1 Ω |

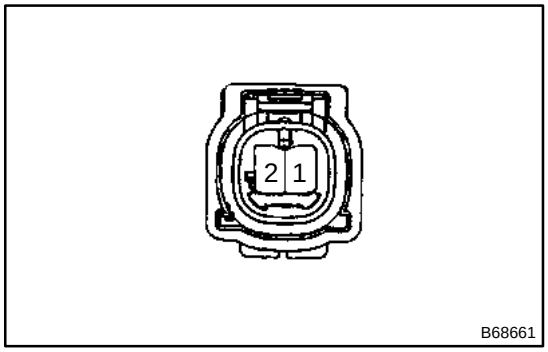
If the result is not as specified, replace the inner belt assy.




(a) Inspect the buckle switch.
(1) Fasten the seat belt (Buckle switch is OFF).
(2) Check the resistance between the terminals.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| 1 - 2 | 10 kΩ or higher |

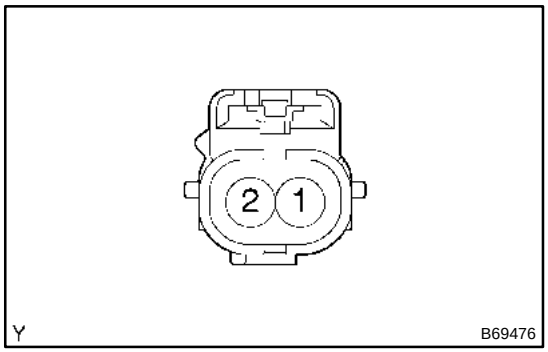



(b) Inspect the circuit for the airbag seat position sensor.
(1) Check the resistance between the terminals.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| 1 - 2 (Connector for airbag seat position sensor) | Below 1 Ω |

If the result is not as specified, replace the seat cushion assy.

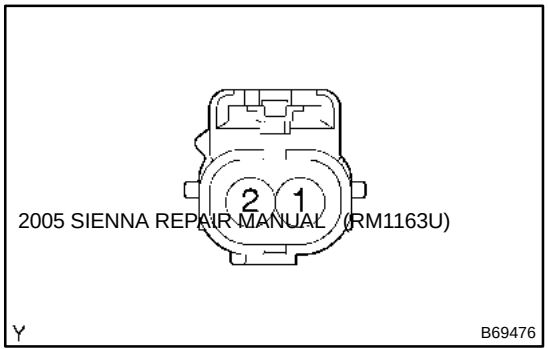



## 2. INSPECT FRONT SEAT INNER BELT ASSY LH

(a) Inspect the buckle switch.
(1) Fasten the seat belt (Buckle switch is ON).
(2) Check the resistance between the terminals.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| 1 - 2 | 330 Ω |




(3) Release the seat belt (Buckle switch is OFF).

(4) Check the resistance between the terminals.

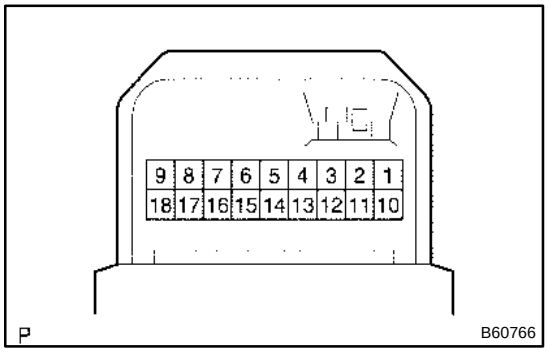
**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| 1 - 2 | 1,330 Ω |

If the result is not as specified, replace the inner belt assy.

700S6-02

# INSPECTION




**1. INSPECT POWER WINDOW REGULATOR MASTER SWITCH ASSY**

(a) Check the resistance between the terminals of the switch when the switch is operated.

**Standard:**

**AUTO (driver side) switch**

| Window Lock Switch | Power Window Switch | Terminal No. | Specified Condition |
|---|---|---|---|
| - | UP | 1 - 9, 4 - 6 | Below 1 Ω |
| | OFF | 1 - 4 - 9 | |
| | DOWN | 1 - 4, 6 - 9 | |

**Passenger side switch**

| Window Lock Switch | Power Window Switch | Terminal No. | Specified Condition |
|---|---|---|---|
| OFF (Normal) | UP | 1 - 15, 6 - 18 | Below 1 Ω |
| | OFF | 1 - 15 - 18 | |
| | DOWN | 1 - 18, 6 - 15 | |
| ON (Lock) | UP | 6 - 18 | |
| | OFF | 15 - 18 | |
| | DOWN | 6 - 15 | |

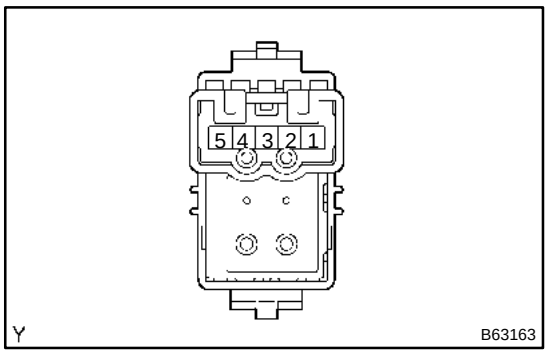
**Rear LH switch**

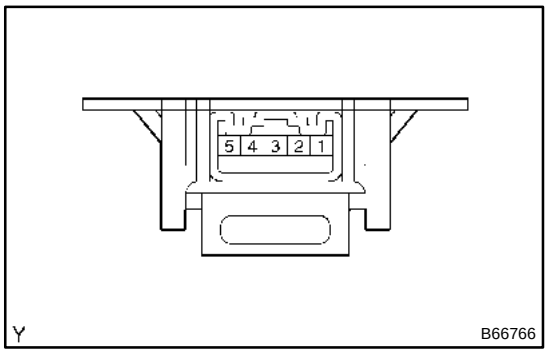
| Window Lock Switch | Power Window Switch | Terminal No. | Specified Condition |
|---|---|---|---|
| OFF (Normal) | UP | 1 - 13, 6 - 12 | Below 1 Ω |
| | OFF | 1 - 12 - 13 | |
| | DOWN | 1 - 12, 6 - 13 | |
| ON (Lock) | UP | 6 - 12 | |
| | OFF | 12 - 13 | |
| | DOWN | 6 - 12 | |

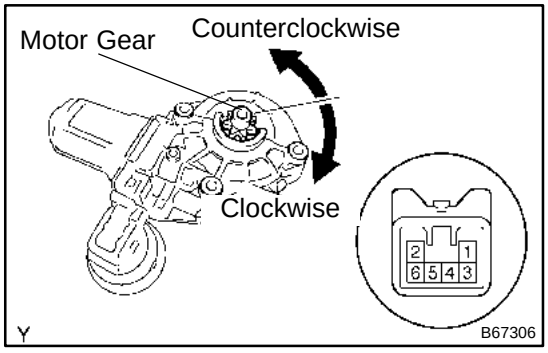
**Rear RH switch**

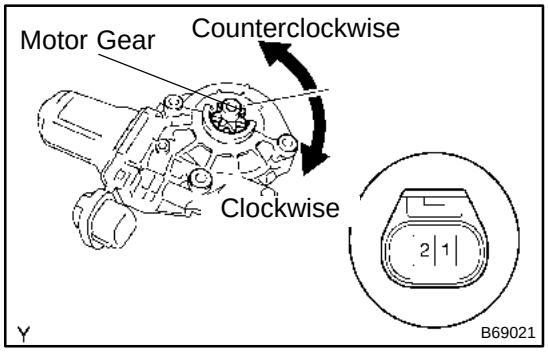
| Window Lock Switch | Power Window Switch | Terminal No. | Specified Condition |
|---|---|---|---|
| OFF (Normal) | UP | 1 - 16, 6 - 10 | Below 1 Ω |
| | OFF | 1 - 10 - 16 | |
| | DOWN | 1 - 10, 6 - 16 | |
| ON (Lock) | UP | 6 - 10 | |
| | OFF | 10 - 16 | |
| | DOWN | 6 - 16 | |

If the result is not as specified, replace the switch assy.




**2. INSPECT POWER WINDOW REGULATOR SWITCH ASSY (PASSENGER)**

(a) Check the resistance between the switch terminals when the switch is operated.

**Standard:**

| Terminal No. | Regulator Switch | Specified Condition |
|---|---|---|
| 1 - 2, 3 - 4 | UP | Below 1 Ω |
| 1 - 2, 3 - 5 | OFF | |
| 1 - 4, 3 - 5 | DOWN | |

If the result is not as specified, replace the switch assy.

**3. INSPECT POWER WINDOW REGULATOR SWITCH ASSY REAR**

(a) Check the resistance between the switch terminals when the switch is operated.

**Standard:**

| Terminal No. | Regulator Switch | Specified Condition |
|---|---|---|
| 1 - 2, 3 - 4 | UP | Below 1 Ω |
| 1 - 2, 4 - 5 | OFF | |
| 2 - 3, 4 - 5 | DOWN | |

If the result is not as specified, replace the switch assy.

**4. INSPECT POWER WINDOW REGULATOR MOTOR ASSY LH (FRONT)**

(a) Apply battery voltage to terminals 1 and 2.

(b) Check that the motor smoothly rotates.

**NOTICE:**

**Do not apply battery voltage to any terminals except terminals 1 and 2.**

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| Battery positive (+) → 1<br>Battery negative (-) → 2 | Motor gear rotates counterclockwise |
| Battery positive (+) → 2<br>Battery negative (-) → 1 | Motor gear rotates clockwise |

If the result is not as specified, replace the motor assy.

**5. INSPECT POWER WINDOW REGULATOR MOTOR ASSY LH (REAR)**

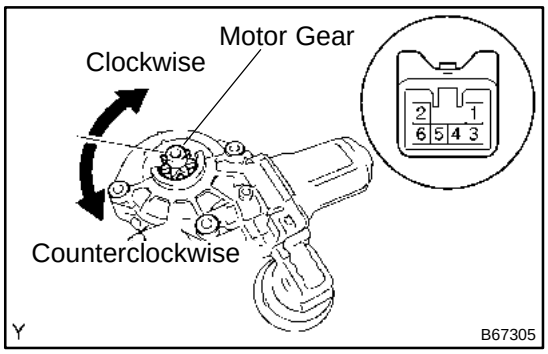
(a) Apply battery voltage to terminals 1 and 2.

(b) Check that the motor smoothly rotates.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| Battery positive (+) → 1<br>Battery negative (-) → 2 | Motor gear rotates clockwise |
| Battery positive (+) → 2<br>Battery negative (-) → 1 | Motor gear rotates counterclockwise |

If the result is not as specified, replace the motor assy.




**6. INSPECT POWER WINDOW REGULATOR MOTOR ASSY RH (FRONT)**

(a) Apply battery voltage to terminals 1 and 2.

(b) Check that the motor smoothly rotates.

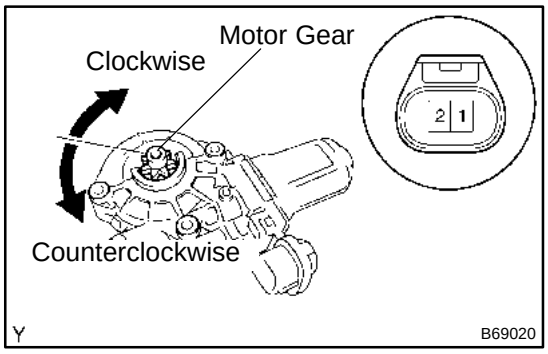
**NOTICE:**

**Do not apply battery voltage to any terminals except terminals 1 and 2.**

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| Battery positive (+) → 1<br>Battery negative (-) → 2 | Motor gear rotates clockwise |
| Battery positive (+) → 2<br>Battery negative (-) → 1 | Motor gear rotates counterclockwise |

If the result is not as specified, replace the motor assy.




**7. INSPECT POWER WINDOW REGULATOR MOTOR ASSY RH (REAR)**

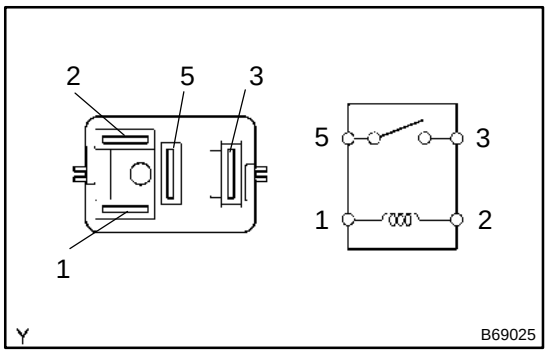
(a) Apply battery voltage to terminals 1 and 2.

(b) Check that the motor smoothly rotates.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| Battery positive (+) → 1<br>Battery negative (-) → 2 | Motor gear rotates counterclockwise |
| Battery positive (+) → 2<br>Battery negative (-) → 1 | Motor gear rotates clockwise |

If the result is not as specified, replace the motor assy.




**8. INSPECT POWER WINDOW RELAY (Marking: PWR)**

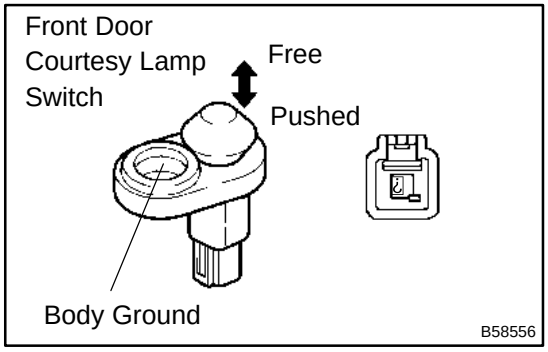
(a) Remove the relay from the instrument panel J/B.

(b) Check the resistance of the relay.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| 3 - 5 | 10 kΩ or higher |
| | Below 1 Ω<br>(When battery voltage is applied to terminals 1 and 2) |

If the result is not as specified, replace the relay.




**9. INSPECT FRONT DOOR COURTESY LAMP SWITCH ASSY**

(a) Remove the courtesy lamp switch.

(b) Check the switch resistance.

**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 1 - Body ground | Switch pushed | 10 kΩ or higher |
| | Switch free | Below 1 Ω |

If the result is not as specified, replace the switch assy.

# WHEEL AND TIRE SYSTEM

28009-05

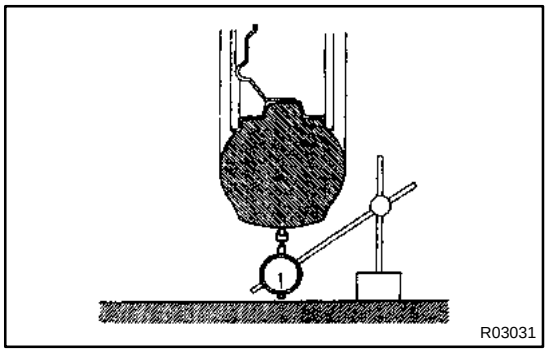
## INSPECTION

### 1. INSPECT TIRE

(a) Check the tires for wear and proper inflation pressure.

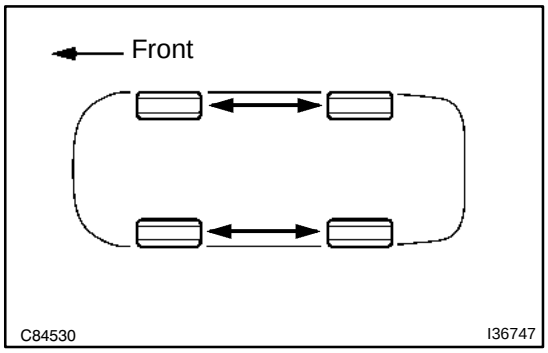
**Cold tire inflation pressure:**

| Tire size | Front Kpa (kgf·cm$^2$, pai) | Rear Kpa (kgf·cm$^2$, pai) |
|---|---|---|
| P215/65R16 96T<br>P225/60R17 98T | 240 (2.4, 35) | 240 (2.4, 35) |




(b) Using a dial indicator, check the runout of tires.

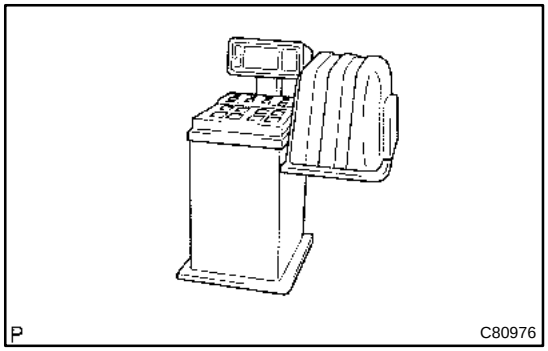
**Tire runout: 1.4 mm (0.055 in.) or less**




### 2. ROTATE TIRE

HINT:

- See the illustration for tire rotation.
  Initialize the tire pressure warning system when tire and wheel have been replaced or tire rotation has been done.(See page 05-347 )




### 3. INSPECT WHEEL BALANCE

(a) Check and adjust the Off-the-car balance.

(b) If required, check and adjust the On-the-car balance.

**Imbalance after adjustment: 8.0 g (0.018 lb) or less**

**4. INSPECT BEARING BACKLASH (See page 30-3 )**

**5. INSPECT BEARING BACKLASH (See page 30-3 )**

**6. INSPECT AXLE HUB DEVIATION (See page 30-3 )**

**7. INSPECT AXLE HUB DEVIATION (See page 30-3 )**

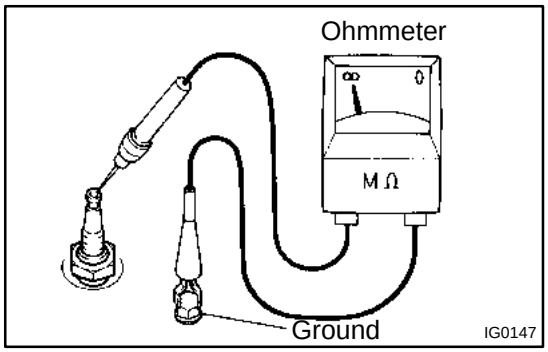
1807E-02

# INSPECTION

**1. INSPECT SPARK PLUG**

**NOTICE:**

- **Do not use a wire brush for cleaning.**
- **Do not attempt to adjust the electrode gap of a used spark plug.**
- **Spark plug should be replaced every 200,000 km (120,000 miles).**




(a) Check the electrode.

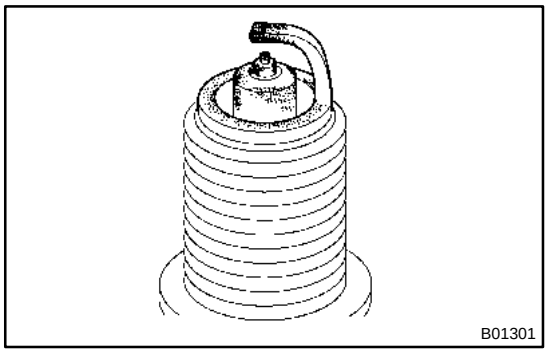
(1) Using an ohmmeter, measure the insulation resistance.

**Correct insulation resistance: 10 MΩ or more**

If the resistance is less than the specified value, proceed to step (d).

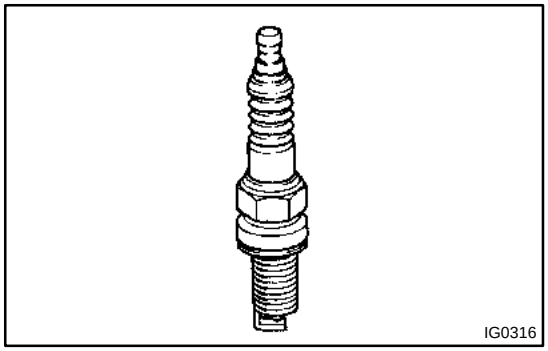
HINT:

If the ohmmeter is not available, do the following simple inspection instead.




(b) Simple inspection method:

(1) Run the engine to 4,000 rpm 5 times quickly.
(2) Remove the spark plug.
(3) Visually check the spark plug.
(4) If the electrode is dry...OK.
(5) If the electrode is wet...Proceed to step (C).
(6) Reinstall the spark plug.

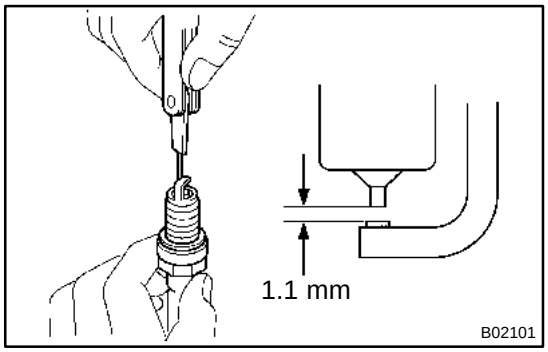



(c) Check the spark plug for any damage on its thread and insulator.

If there is damage, replace the spark plug.

**Recommended spark plug:**

| | |
|---|---|
| DENSO made | SK20R11 |
| NGK made | IFR6A11 |

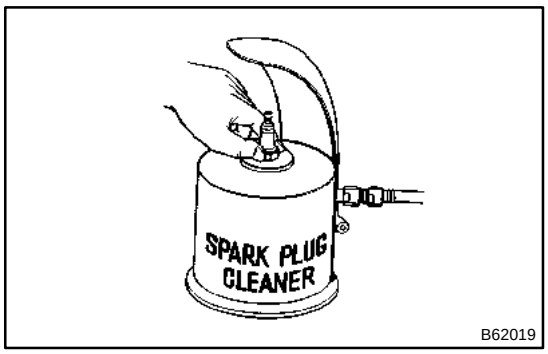



(d) Check the spark plug electrode gap.

**Maximum electrode gap for used spark plug:**
**1.3 mm (0.051 in.)**

If the gap is greater than maximum, replace the spark plug.

**Correct electrode gap for new spark plug:**
**1.0 to 1.1 mm (0.039 to 0.043 in.)**




(e) Clean the spark plugs.

If the electrode has traces of wet carbon, clean the electrode with a spark plug cleaner, then dry it.

**Air pressure: Blow 588 kPa (6 kgf/cm$^2$, 85 psi)**

**Duration: 20 seconds or less**

HINT:

If there are traces of oil, remove it with gasoline before using the spark plug cleaner.

**2. INSPECT VVT SENSOR**

(a) Using an ohmmeter, measure the resistance between the terminals.

**RESISTANCE:**

**835 to 1,400 Ω at cold**

**1,060 to 1,645 Ω at hot**

**NOTICE:**

**"Cold" and "Hot" mean the temperature of the coils themselves."Cold" is from -10°C (14°F) to 50 °C (122 °F) and "Hot" is from 50 °C (122 °F) to 100 °C (212 °F).**

**3. INSPECT CRANKSHAFT POSITION SENSOR**

(a) Using an ohmmeter, measure the resistance between the terminals.

**RESISTANCE:**

**1,630 to 2,740 Ω at cold**

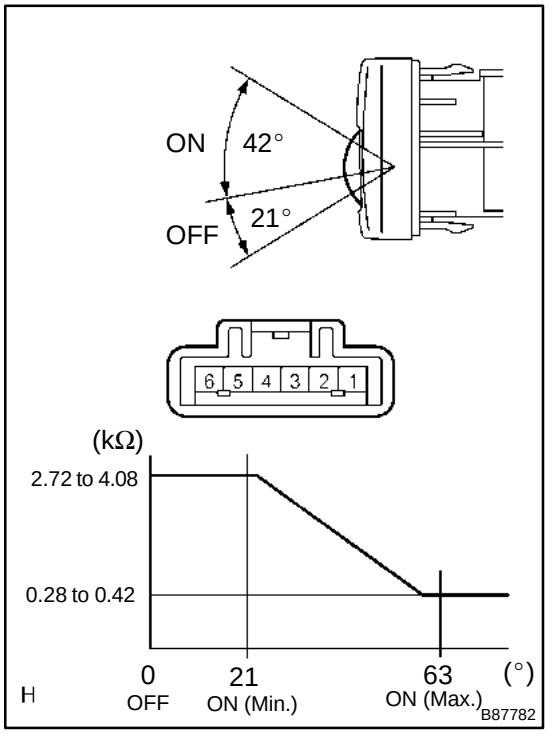
**2,065 to 3,225 Ω at hot**

**NOTICE:**

**"Cold" and "Hot" mean the temperature of the coils themselves."Cold" is from -10°C (14°F) to 50 °C (122 °F) and "Hot" is from 50 °C (122 °F) to 100 °C (212 °F).**

720IX-01

# INSPECTION




**1. INSPECT SEAT HEATER SWITCH LH**

(a) Measure the resistance of the seat heater switch when the switch is operated.

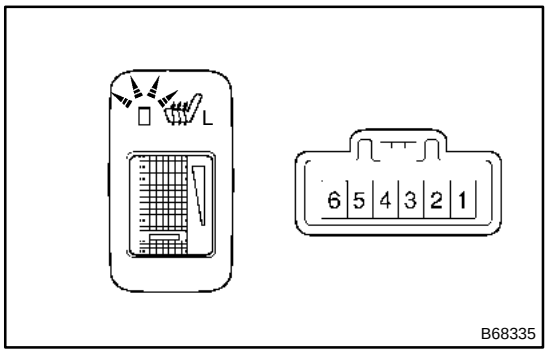
**Standard:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| 2 - 3 | ON (min.) | 2.72 to 4.08 kΩ |
| 2 - 3 | ON (max.) | 0.28 to o.42 kΩ |
| 3 - 4 | ON (min.) | Below 1 Ω |
| 3 - 4 | ON (max.) | Below 1 Ω |
| 2 - 3 | OFF | 10 kΩ or higher |
| 3 - 4 | OFF | 10 kΩ or higher |

If the result is not as specified, replace the switch.

HINT:

As the dial is being turned, the resistance changes gradually.

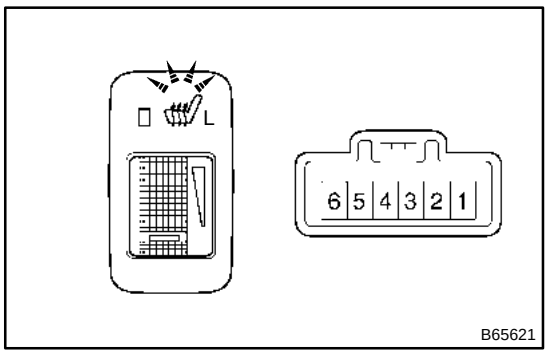



(b) Push the seat heater switch ON and check that the seat heater switch indicator illuminates when the switch is operated.

**OK:**

| Measurement Condition | Switch Condition | Specified Condition |
|---|---|---|
| Battery positive (+) → Terminal 3<br>Battery negative (-) → Terminal 1 | ON | Illuminates |

If the result is not as specified, replace the switch.

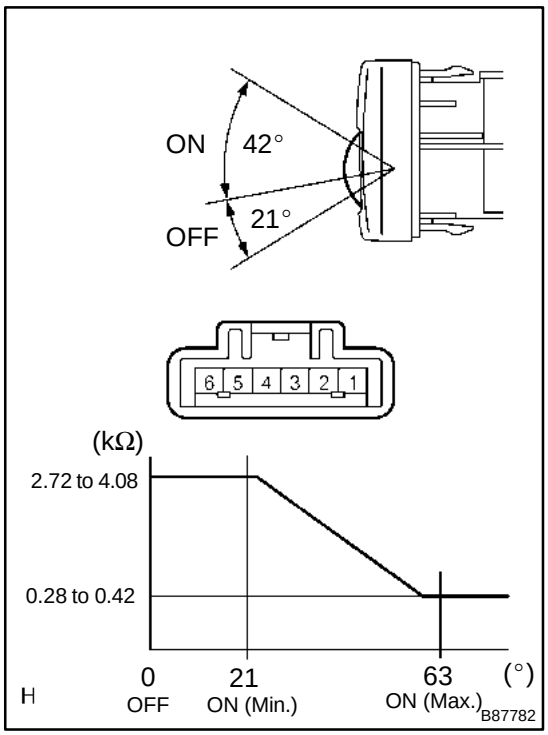



(c) Check the seat heater switch illumination.

**OK:**

| Measurement Condition | Switch Condition | Specified Condition |
|---|---|---|
| Battery positive (+) → Terminal 6<br>Battery negative (-) → Terminal 5 | Always | Illuminates |

If the result is not as specified, replace the seat heater switch or bulb.




## 2. INSPECT SEAT HEATER SWITCH RH

(a) Measure the resistance of the seat heater switch when the switch is operated.

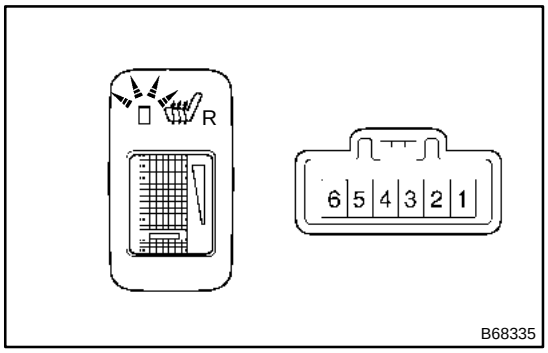
**Standard:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| 2 - 3 | ON (min.) | 2.72 to 4.08 kΩ |
| 2 - 3 | ON (max.) | 0.28 to o.42 kΩ |
| 3 - 4 | ON (min.) | Below 1 Ω |
| 3 - 4 | ON (max.) | Below 1 Ω |
| 2 - 3 | OFF | 10 kΩ or higher |
| 3 - 4 | OFF | 10 kΩ or higher |

If the result is not as specified, replace the switch.

HINT:

As the dial is being turned, the resistance changes gradually.

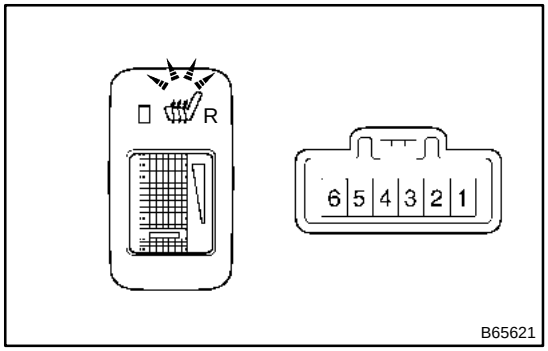



(b) Push the seat heater switch ON and check that the seat heater switch indicator illuminates when the switch is operated.

**OK:**

| Measurement Condition | Switch Condition | Specified Condition |
|---|---|---|
| Battery positive (+) → Terminal 3<br>Battery negative (-) → Terminal 1 | ON | Illuminates |

If the result is not as specified, replace the switch.

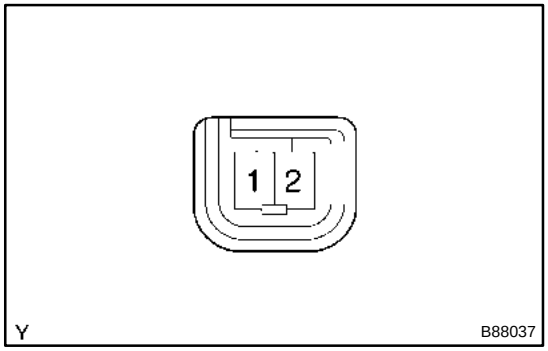



(c) Check the seat heater switch illumination.

**OK:**

| Measurement Condition | Switch Condition | Specified Condition |
|---|---|---|
| Battery positive (+) → Terminal 6<br>Battery negative (-) → Terminal 5 | Always | Illuminates |

If the result is not as specified, replace the seat heater switch or bulb.



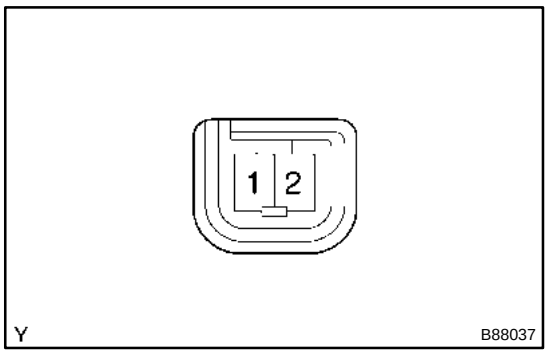

## 3. INSPECT FRONT SEATBACK HEATER ASSY LH

(a) Measure the resistance of the seatback heater.

**Standard:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | 20°C (77°F) | 0.4 to 1.4 Ω |

If the result is not as specified, replace the seatback heater assy.



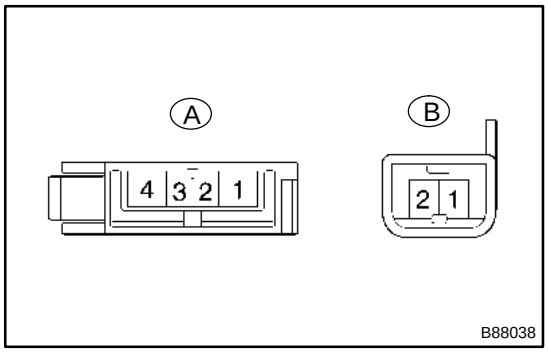

**4. INSPECT FRONT SEATBACK HEATER ASSY RH**

(a) Measure the resistance of the seatback heater.

**Standard:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | 20°C (77°F) | 0.4 to 1.4 Ω |

If the result is not as specified, replace the seatback heater assy.



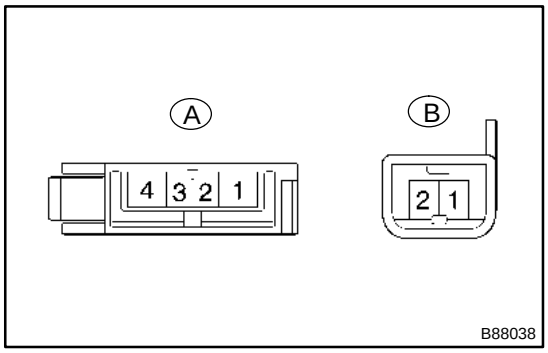

**5. INSPECT FRONT SEAT CUSHION HEATER ASSY LH**

(a) Measure the resistance of the seat cushion heater.

**Standard:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| A1 - B1 | 20°C (77°F) | 0.7 to 1.7 Ω |
| A2 - A3 | 20°C (77°F) | 4.5 to 5.5 kΩ |
| A4 - B2 | Always | Below 1 Ω |

If the result is not as specified, replace the seat cushion heater assy.




**6. INSPECT FRONT SEAT CUSHION HEATER ASSY RH**

(a) Measure the resistance of the seat cushion heater.

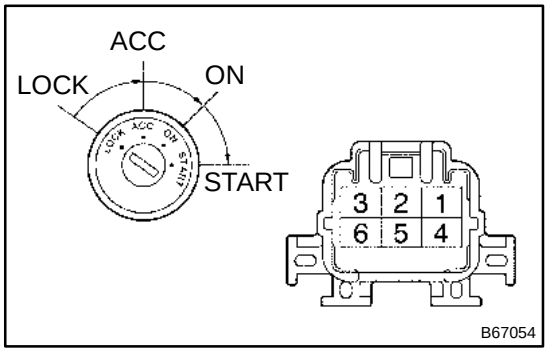
**Standard:**

| Tester Connection | Condition | Specified Condition |
|---|---|---|
| A1 - B1 | 20°C (77°F) | 0.7 to 1.7 Ω |
| A2 - A3 | 20°C (77°F) | 4.5 to 5.5 kΩ |
| A4 - B2 | Always | Below 1 Ω |

If the result is not as specified, replace the seat cushion heater assy.

8004E-02

# INSPECTION




**1. INSPECT IGNITION OR STARTER SWITCH ASSY**

(a) Inspect the switch resistance.

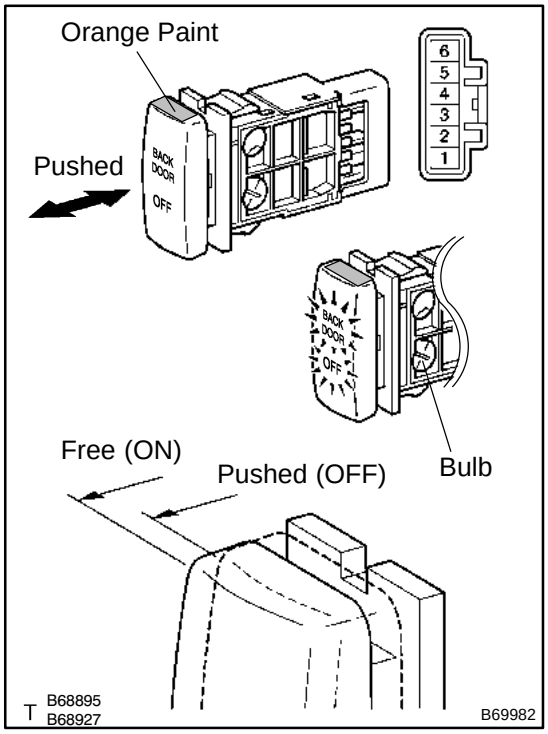
**Standard:**

| Terminal No | Switch Position | Specified Condition |
|---|---|---|
| 1 - 3 | ACC | Below 1 Ω |
| 1 - 2 | ON | |
| 1 - 3 | | |
| 5 - 6 | | |
| 1 - 2 | START | |
| 5 - 4 | | |
| 5 - 6 | | |

If the result is not as specified, replace the switch assy.

750MF-01

# INSPECTION




**1. INSPECT POWER BACK DOOR MAIN SWITCH**

(a) Inspect the resistance of the main switch.

**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 4 - 5 | Free (ON) | Below 1 Ω |
| | Pushed (OFF) | 10 kΩ or higher |

If the result is not as specified, replace the switch.

(b) Apply battery voltage and check the illuminates.

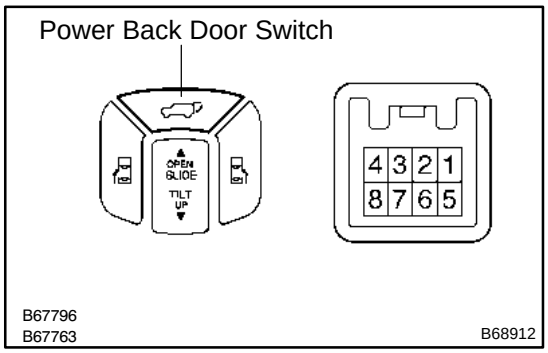
**Standard:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 1<br>Battery negative (-) → Terminal 2 | Illuminates |

HINT:

Whether the switch illuminates or not will not affect the function of the LH side.

If the result is not as specified, replace the bulb.




**2. INSPECT SATELLITE SWITCH**

(a) Inspect the resistance of the back door switch.

**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 3 - 5 | Free (OFF) | 10 kΩ or higher |
| | Pushed (ON) | Below 1 Ω |

If the result is not as specified, replace the switch.

(b) Apply battery voltage and check whether the switch illuminates.

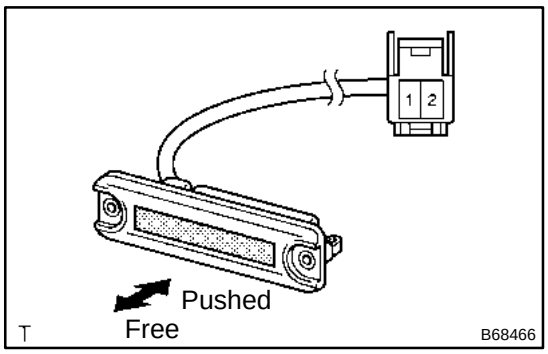
**Standard:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 8<br>Battery negative (-) → Terminal 7 | Illuminates |

HINT:

Whether the switch illuminates or not will not affect the function of the RH side.

If the result is not as specified, replace the bulb.



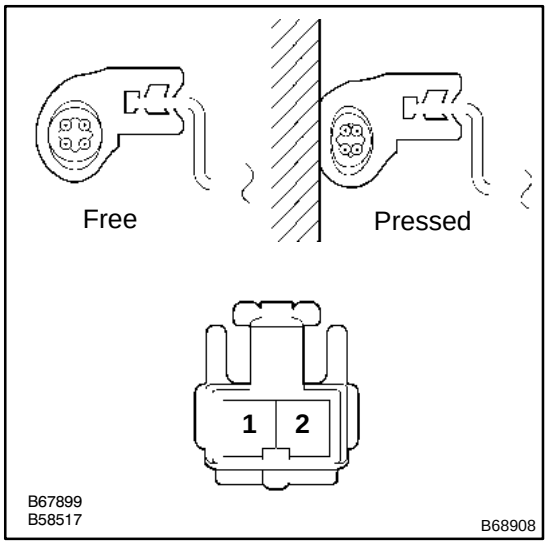

### 3. INSPECT BACK DOOR OPNER SWITCH

(a) Inspect the resistance of the switch.

**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 1 - 2 | Free | 10 kΩ or higher |
| | Pushed | Below 1 Ω |

If the result is not as specified, replace the switch.



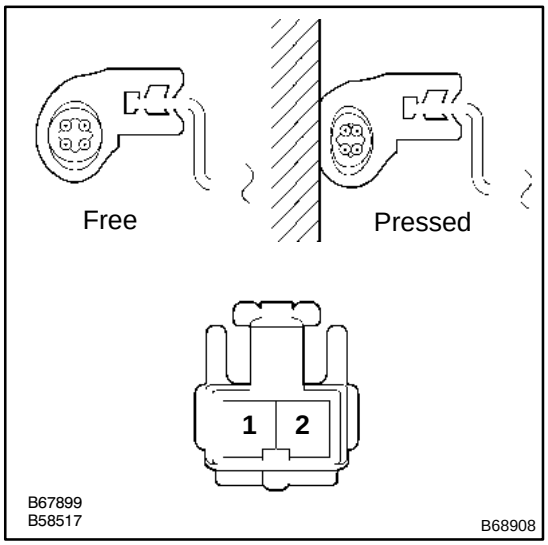

### 4. INSPECT POWER BACK DOOR TOUCH SENSOR LH

(a) Check the resistance of the sensor.

**Standard:**

| Terminal No. | Condition | Specified condition |
|---|---|---|
| 1 - 2 | Free | Approx. 1 kΩ |
| | Pressed | Below 100 Ω |

If the result is not as specified, replace the sensor.



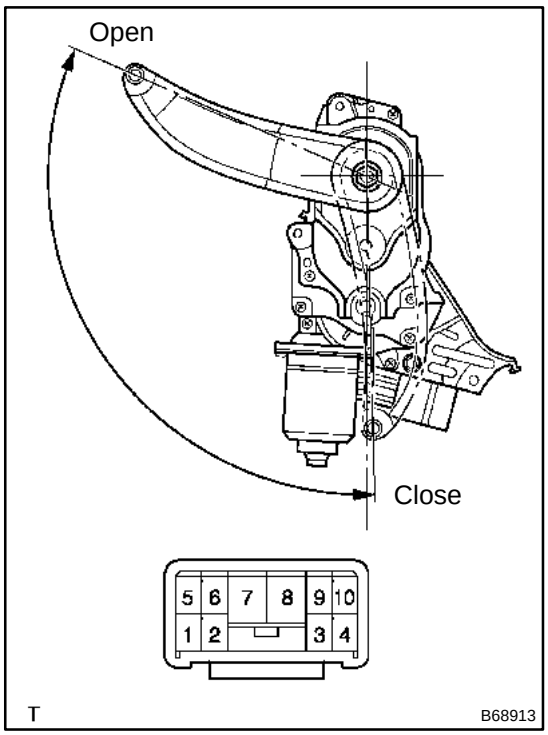

### 5. INSPECT POWER BACK DOOR TOUCH SENSOR RH

(a) Check the resistance of the sensor.

**Standard:**

| Terminal No. | Condition | Specified condition |
|---|---|---|
| 1 - 2 | Free | Approx. 1 kΩ |
| | Pressed | Below 100 Ω |

If the result is not as specified, replace the sensor.




**6. INSPECT POWER BACK DOOR DRIVE UNIT**

(a) Remove the unit.

(b) Apply battery voltage to the terminals and check the motor operation.

**Standard:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 8<br>Battery negative (-) → Terminal 7 | Open |
| Battery positive (+) → Terminal 7<br>Battery negative (-) → Terminal 8 | Close |

If the result is not as specified, replace the drive unit.

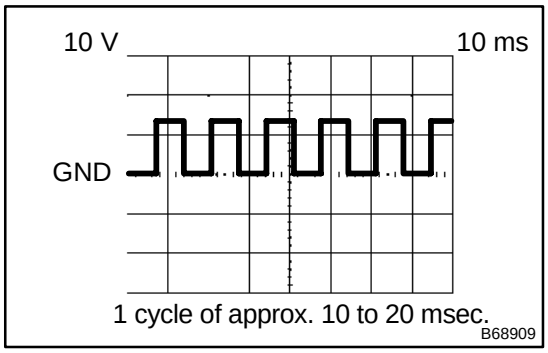
(c) Check the resistance of the clutch terminals.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| 3 - 9 | 4.0 Ω |

If the result is not as specified, replace the drive unit.

(d) Reinstall the unit with the connector connected.




(e) Check the pulse of the pulse sensor.

(1) Using an oscilloscope, check the pulse generated when the door is manually opened and closed.

**Standard (Reference):**

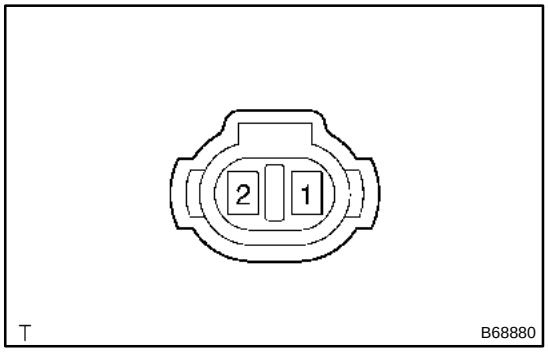
| Terminal | 1 - 2, 2 - 5 |
|---|---|
| Tool setting | 10 V/DIV., 10 ms/DIV. |
| Vehicle condition | Door moving |

If the result is not as specified, replace the drive unit.

HINT:

A cycle of the pulse changes between approx. 10 to 20 msec. according to the speeds that the slide door is moving.

(f) With the connector connected, check the voltage of the terminals of the power back door drive unit connector.




**7. POWER BACK DOOR WARNING BUZZER**

(a) Check the resistance of the buzzer.

**Standard:**

| Terminal No. | Specified Condition |
|---|---|
| 1 - 2 | Approx.1 kΩ |

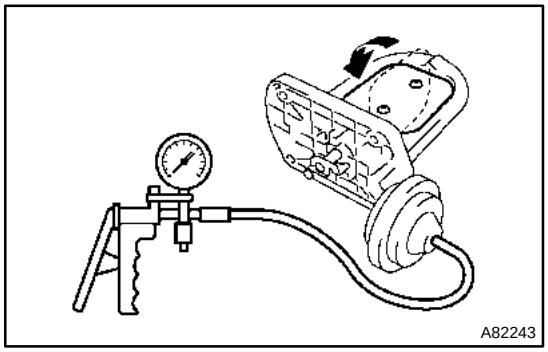
If the result is not as specified, replace the buzzer.

**NOTICE:**

- **The circuit that causes the buzzer to sounds is built into the back door ECU, not around the buzzer.**
- **Directly applying battery voltage to the buzzer does not cause the buzzer to sound.**

1306U-01

# INSPECTION

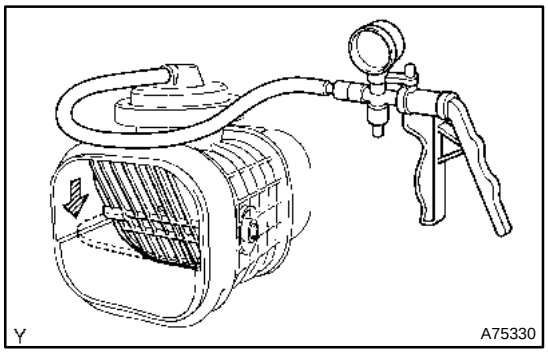



**1. INSPECT INTAKE AIR CONTROL VALVE ASSY NO.2**

(a) With 26.7 kPa (200 mm Hg, 7.9 in. Hg) of vacuum applied to the actuator, check that the actuator rod moves.

(b) One minute after applying the vacuum, check that the actuator rod does not return.

(c) If the operation is not as specified, replace the intake air control valve assembly No.2.



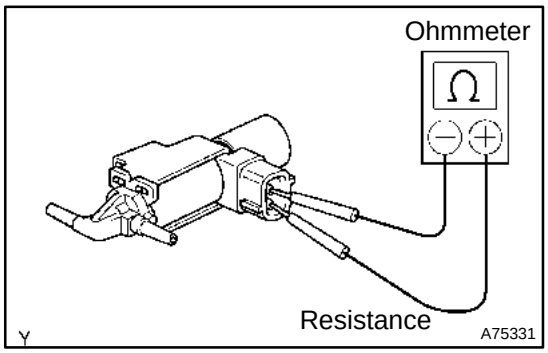

**2. INSPECT INTAKE AIR CONTROL VALVE ASSY NO.3**

(a) Inspect actuator operation

(1) With 26.7 kPa (200 mm Hg, 7.9 in. Hg) of vacuum applied to the actuator, check that the actuator rod moves.

(2) One minute after applying the vacuum, check that the actuator rod does not return.

(3) If the operation is not as specified, replace the intake air control valve No.3.

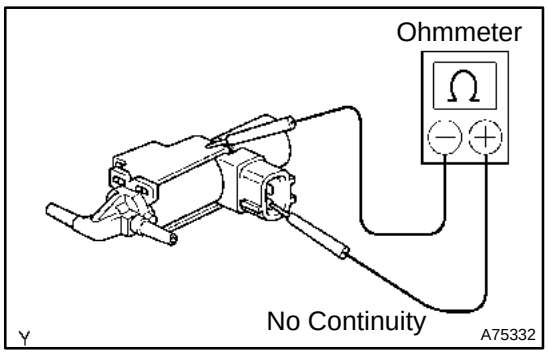



(b) Inspect VSV operation

(1) Using an ohmmeter, check the resistance between the terminals.

**Resistance: 37 to 44 Ω at 20°C (68°F)**

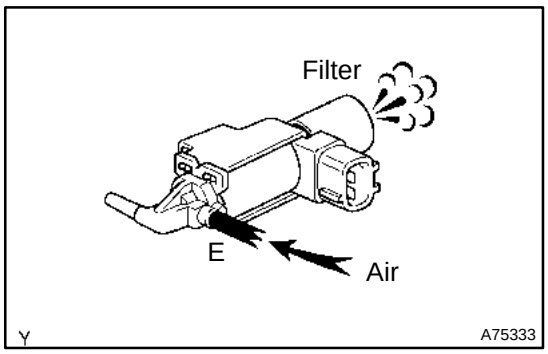
If the resistance is not as specified, replace the VSV.



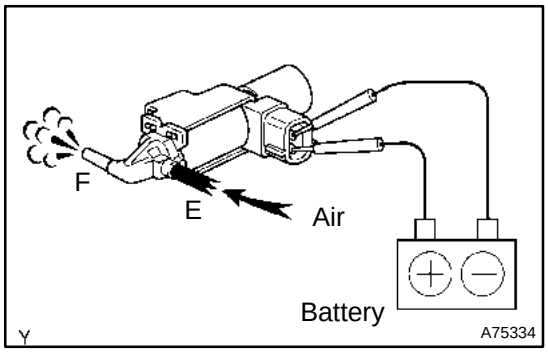

(2) Inspect the VSV for ground.

- Using an ohmmeter, check that there is no continuity between each terminal and the body.

If there is continuity, replace the VSV.

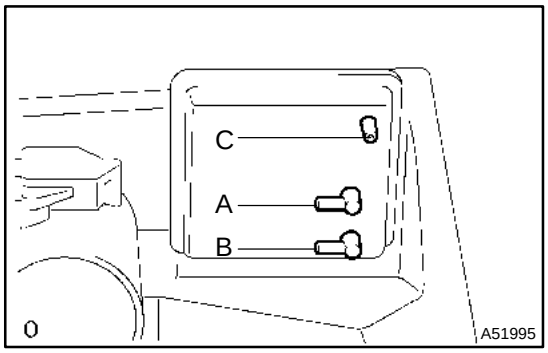



(3) Inspect the VSV operation.
- Check that air flows from port E to the filter.




- Apply battery voltage across the terminals.
- Check that air flows from port E to port F.

If operation is not as specified, replace the VSV.

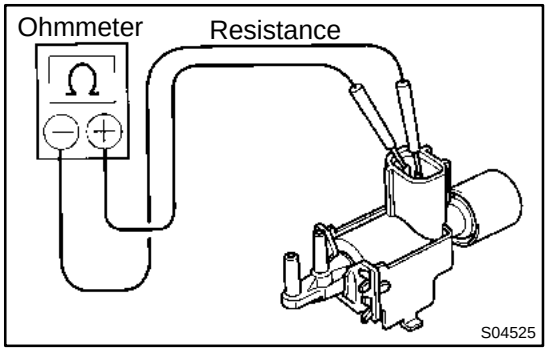



**3. INSPECT AIR CLEANER CAP SUB-ASSY**

(a) Cover port C with finger, and check that air flows from port B to port A.

(b) Cover port C with finger, and check that air does not flow from port A to port B.

(c) Cover port A and C with fingers, and apply 60 kPa (450 mm Hg, 18 in. Hg) of vacuum to port B, and check that there is no change of vacuum after one minute.



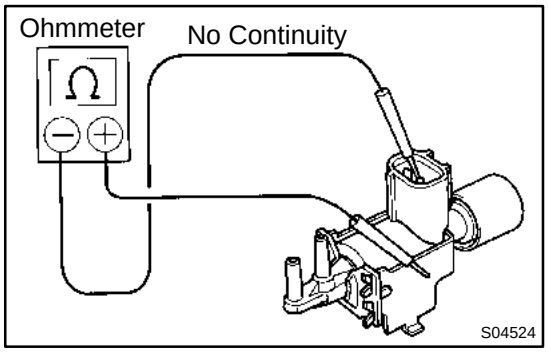

**4. INSPECT VACUUM SWITCHING VALVE ASSY NO.1**

(a) Inspect the VSV for open circuit.

(1) Using an ohmmeter, check the resistance between the terminals.

**Resistance: 33 to 39 Ω at 20°C (68°F)**

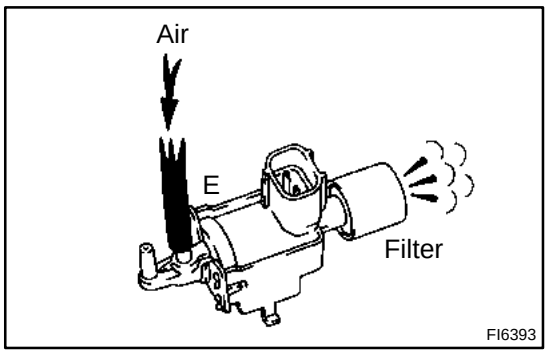
If the resistance is not as specified, replace the VSV.



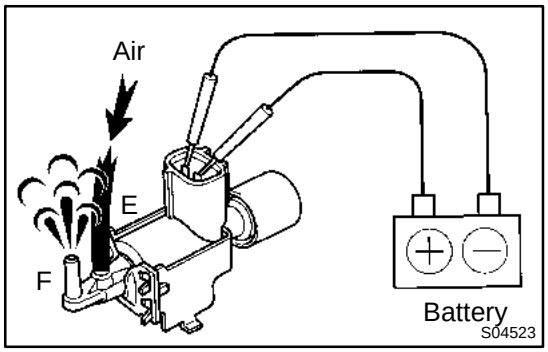

(b) Inspect the VSV for ground.

(1) Using an ohmmeter, check that there is no continuity between each terminal and the body.

If there is continuity, replace the VSV.




(c) Inspect the VSV operation.
(1) Check that air flows from port E to the filter.

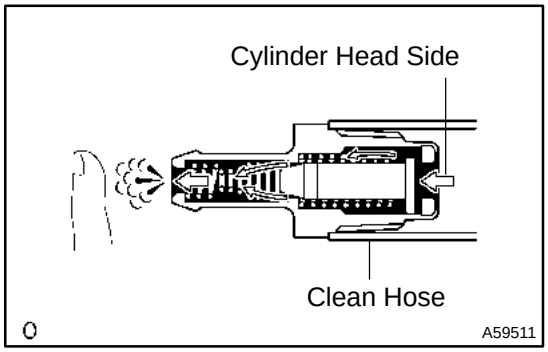



(2) Apply battery voltage across the terminals.
(3) Check that air flows from port E to port F.

If operation is not as specified, replace the VSV.

1209L-02

# INSPECTION




**1. INSPECT VENTILATION VALVE SUB-ASSY**

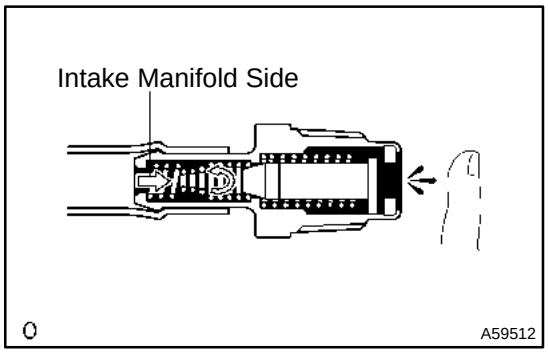
(a) Install a clean hose to the ventilation valve.

(b) Inspect the ventilation valve operation.

(1) Blow air into the cylinder head side, and check that air passes through easily.

**CAUTION:**

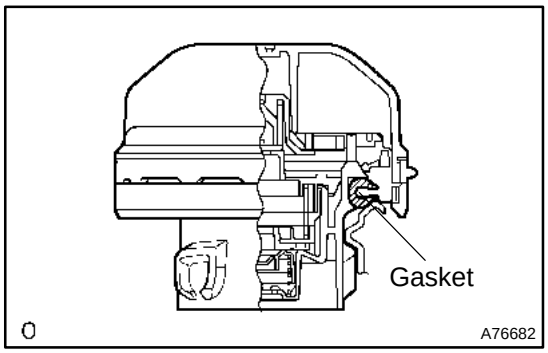
**Do not suck air through the valve. Petroleum substances inside the valve are harmful.**




(2) Blow air into the intake manifold side, and check that air passes through with difficulty.

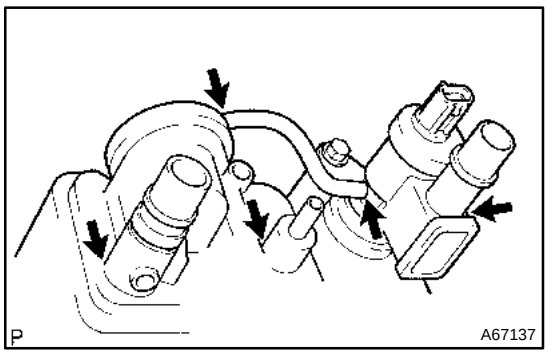
If operation is not as specified, replace the ventilation valve.

(c) Remove the clean hose from the ventilation valve.



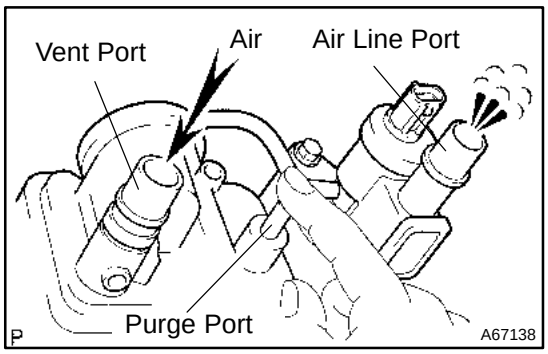

**2. INSPECT FUEL TANK CAP ASSY**

(a) Visually check if the cap and/or gasket are deformed or damaged.



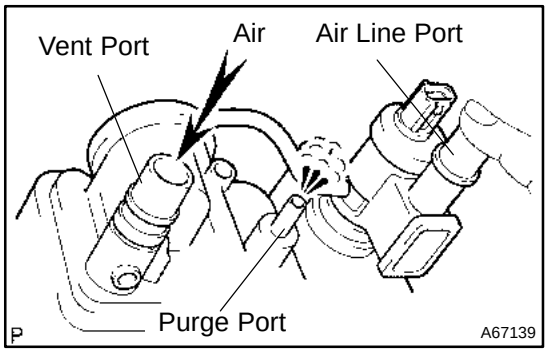

**3. INSPECT CHARCOAL CANISTER ASSY**

(a) Visually check the charcoal canister for cracks or damage.

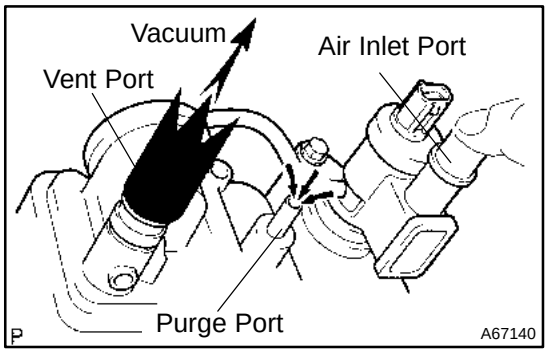



(b) Inspect the charcoal canister operation.

(1) With the purge port closed, blow air (0.39 kPa, 4.0 gf/cm$^2$, 0.06 psi) into the vent port, and check that air flows from the air inlet port.

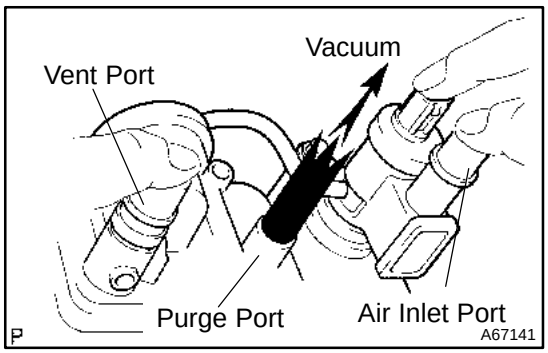



(2) With the air inlet port closed, blow air (0.39 kPa, 4.0 gf/cm$^2$, 0.06 psi) into the vent port, and check that air flows from the purge port.




(3) With the air inlet port closed, apply vacuum (3.43 kPa, 25.7 gf/cm$^2$, 1.01 psi) to the vent port, and check that air is sucked in from the purge port.

If operation is not as specified, replace the charcoal canister.



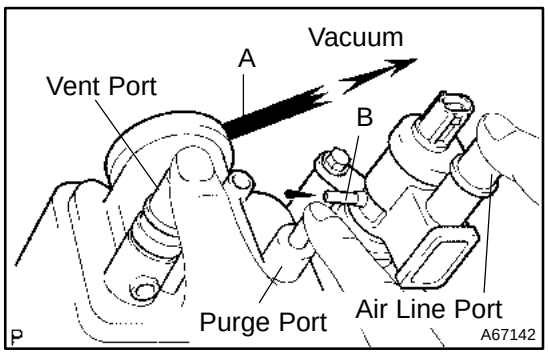

(c) Inspect the air tightness.

(1) With the vent and air inlet ports closed, apply vacuum (3.43 kPa, 25.7 gf/cm$^2$, 1.01 psi) to the purge port, and check that the vacuum remains stable for 1 minute.

HINT:

In order to maintain air tightness, this operation should be performed with the CCV terminal ports closed by your fingers.

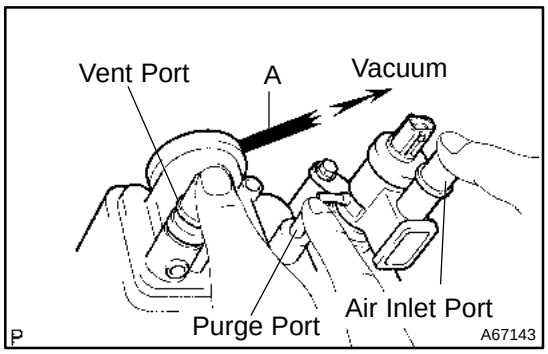
If operation is not as specified, replace the charcoal canister.




(d) Inspect the diaphragm.

(1) Remove the air hose between ports A and B.

(2) With the vent, purge and air inlet ports closed, apply vacuum (1.42 kPa, 11 mmHg, 0.42 in.Hg) into port A, and check that air is sucked in from port B.

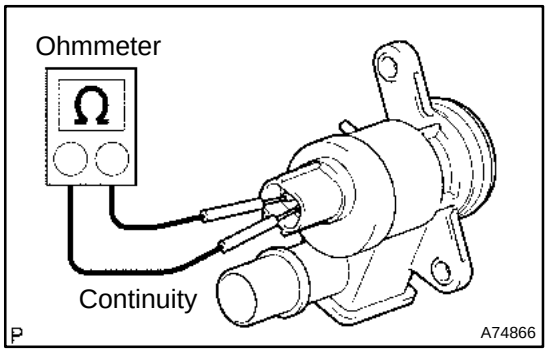



(3) With the vent, purge and air inlet ports closed, apply vacuum (1.42 kPa, 11 mmHg, 0.42 in.Hg) into port A, and measure how long it takes for vacuum to drop.

**Vacuum drop time: 10 sec. or more**

If operation is not as specified, replace the charcoal canister.

(4) Reinstall the air hose between ports A and B.



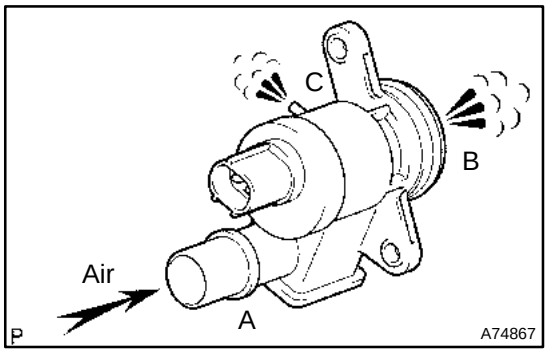

(e) Inspect VSV for open circuit.

(1) Using an ohmmeter, check the resistance between the terminals.

**Resistance:**

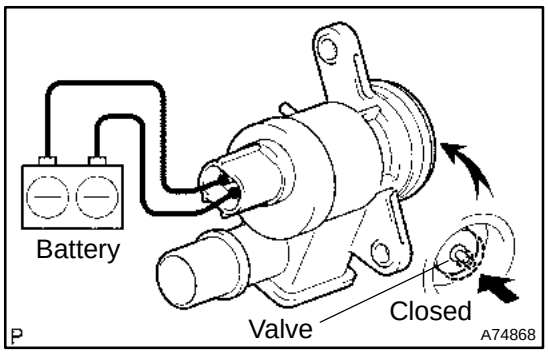
| | |
|---|---|
| 20 °C (68 °F) | 25 to 30 Ω |
| 100 °C (212 °F) | 32 to 42 Ω |

If the resistance is not as specified, replace the charcoal canister.



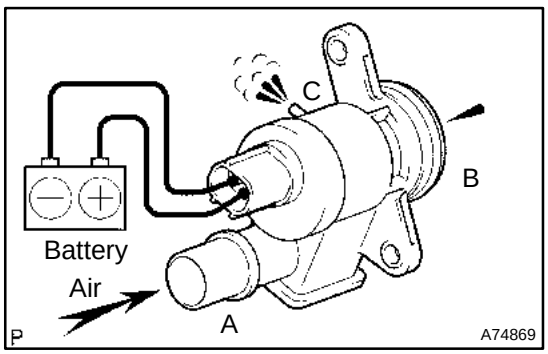

(f) Inspect VSV operation.

(1) Check that air flows from port A to ports B and C.




(2) Apply battery positive voltage across the terminals.

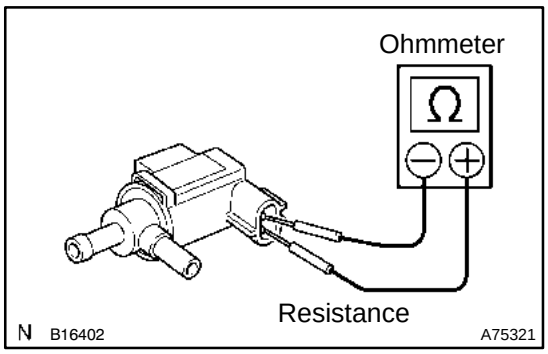
(3) Check that the valve is closed.




(4) Check that air does not flow from port A to port B.

(5) Check that air flows from port A to port C.

If operation is not as specified, replace the charcoal canister.



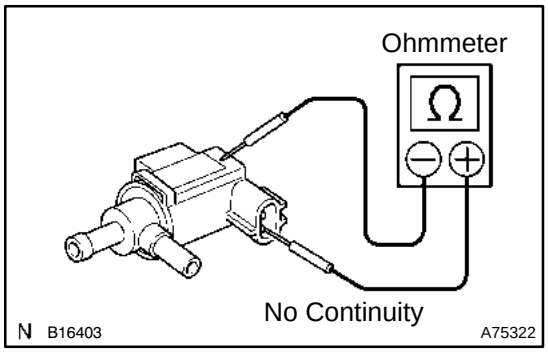

**4. INSPECT DUTY VACUUM SWITCHING VALVE**

(a) Inspect the VSV for open circuit.

(1) Using an ohmmeter, check the resistance between the terminals.

**Resistance: 26 to 30 Ω at 20 °C (68 °F)**

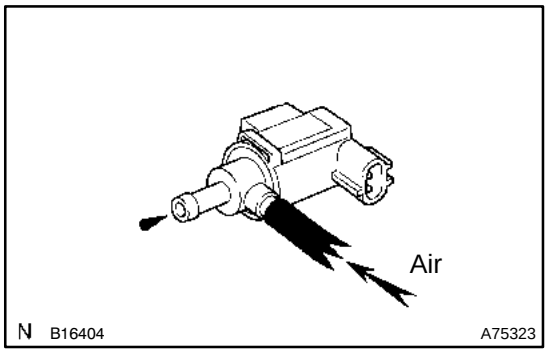
If the resistance is not as specified, replace the VSV.




(b) Inspect the VSV for ground.

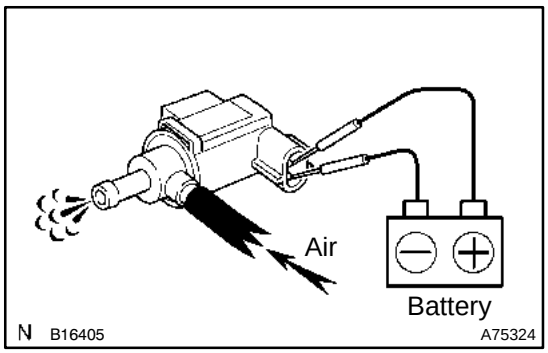
(1) Using an ohmmeter, check that there is no continuity between each terminal and the body.

If there is continuity, replace the VSV.




(c) Inspect the VSV operation.

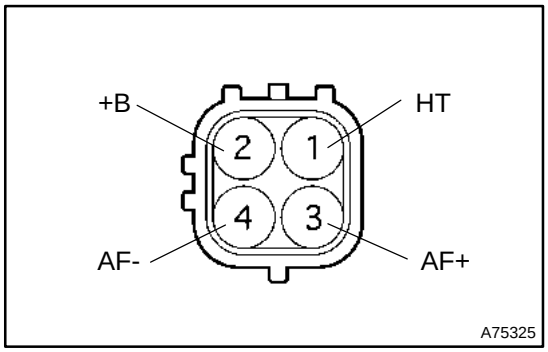
(1) Check that air does not flow from the part.




(2) Apply battery positive voltage across the terminals.

(3) Check that air flows from the port.

If operation is not as specified, replace the VSV.



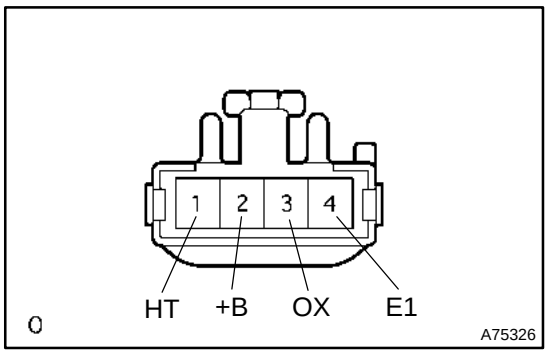

**5. INSPECT AIR FUEL RATIO SENSOR**

(a) Using an ohmmeter, measure the resistance between the terminals.

**Resistance:**

| Terminal No. | Resistance |
|---|---|
| 1 (HT) - 2 (+B) | 0.8 to 1.4 Ω at 20°C (68°F) |
| 1 (HT) - 2 (+B) | 1.8 to 3.2 Ω at 800°C (1,472°F) |
| 1 (HT) - 4 (AF-) | No Continuity |

If the resistance is not as specified, replace the sensor.



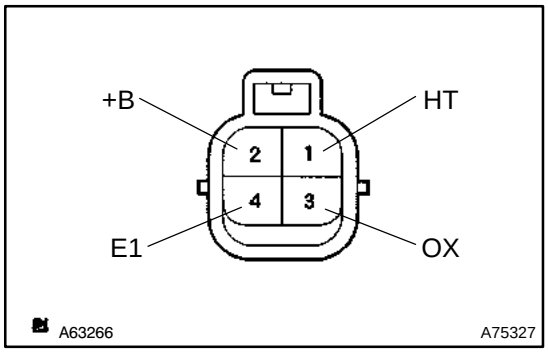

**6. INSPECT HEATED OXYGEN SENSOR (BANK1 OXYGEN SENSOR NO.2)**

(a) Using an ohmmeter, measure the resistance between the terminals.

**Resistance:**

| Terminal No. | Resistance |
|---|---|
| 1 (HT) - 2 (+B) | 11 to 16 Ω at 20 °C (68 °F) |
| 1 (HT) - 4 (E1) | No Continuity |

If the resistance is not as specified, replace the sensor.




**7. INSPECT HEATED OXYGEN SENSOR (BANK2 OXYGEN SENSOR NO.2)**

(a) Using an ohmmeter, measure the resistance between the terminals.

**Resistance:**

| Terminal No. | Resistance |
|---|---|
| 1 (HT) - 2 (+B) | 11 to 16 Ω at 20 °C (68 °F) |
| 1 (HT) - 4 (E1) | No Continuity |

If the resistance is not as specified, replace the sensor.

110SY-02

# INSPECTION

**1. INSPECT FUEL INJECTOR ASSY**

(a) Inspect injector resistance

(1) Using an ohmmeter, measure the resistance between the terminals.

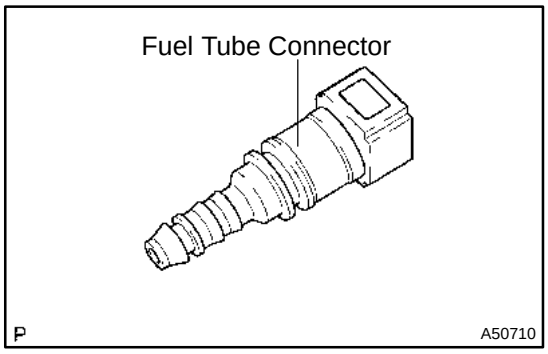
**Resistance:13.4 to 14.2 Ω at 20°C (68°F)**

If the resistance is not as specified, replace the injector.

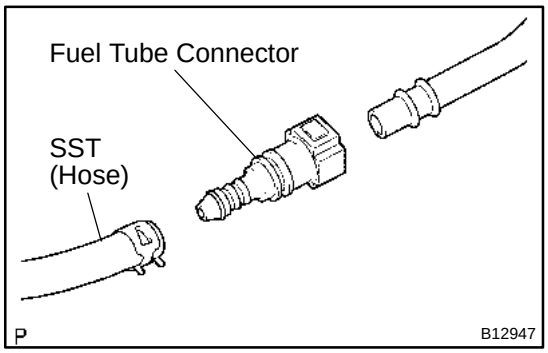
(b) Inspect injector operation.

**CAUTION:**

**This test involves high-pressure fuel and electricity. Take every precaution regarding safe handling of both the fuel and the electricity. Preform this test in a safe area, and avoid any sparks or flame. Do not smoke.**




(1) Obtain new No. 1 fuel pipe (part No. 23801-20171) and remove the fuel tube connector from the pipe.

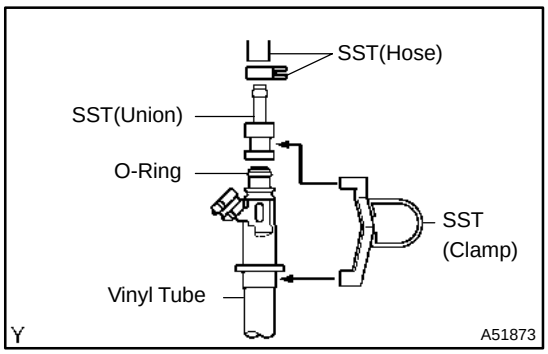



(2) Install the fuel tube connector to SST (hose), then connect the tube connector and the fuel pipe.

SST 09268-41047 (95336-08070)

**CAUTION:**

**Connect the fuel tube connector (quick type) after observing the precautions.**




(3) Install the grommet and O-ring to the injector.

(4) Connect SST (union and hose) to the injector, and hold the injector and the union with SST (clamp).

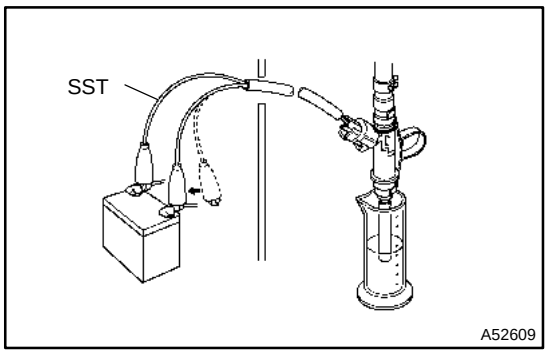
SST 09268- 41047 (09268- 41110, 09268- 41300, 95336-08070)

(5) Put the injector into a graduated cylinder.

**CAUTION:**

**Install a suitable vinyl tube onto the injector to contain gasoline spray.**

(6) Operate the fuel pump.(See Page 11-4 )




(7) Connect SST (wire) to the injector and the battery for 15 seconds, and measure the injection volume with a graduated cylinder. Perform this test on each injector 2 or 3 times.

SST 09842-30070

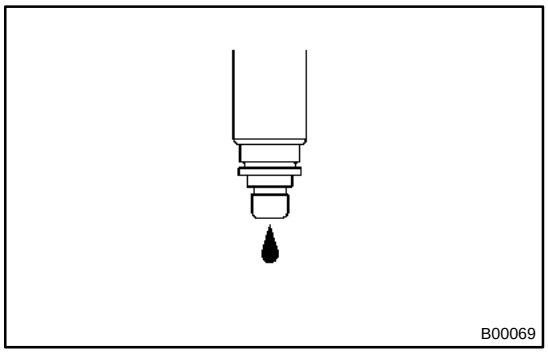
**Injection volume:**

| Injection volume | Difference between each injector |
|---|---|
| 60 to 73 $cm^3$ (3.7 to 4.5 cu in.) in 15 seconds | 13 $cm^3$ (0.8 cu in.) or less |

**NOTICE:**

**Always do the switching at the battery side.**

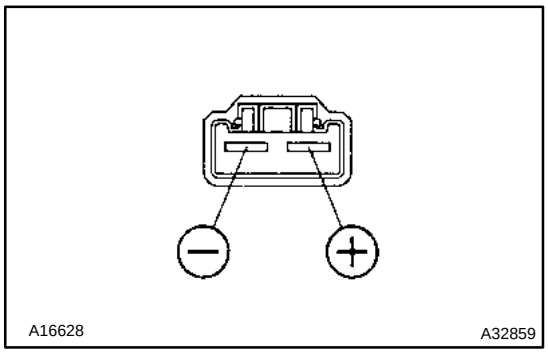
If the injection volume is not as specified,replace the injector.




(c) Inspect leakage

(1) In the condition above, disconnect the test probes of SST (wire) from the battery and check the fuel leakage from the injector.

**Fuel drop: 1 drop or less in 12 minutes**




**2. INSPECT FUEL PUMP**

(a) Inspect fuel pump resistance.

(1) Using an ohmmeter, measure the resistance between the terminals.

**Resistance: 0.2 to 3.0 Ω at 20°C (68°F)**

(b) Inspect fuel pump operation

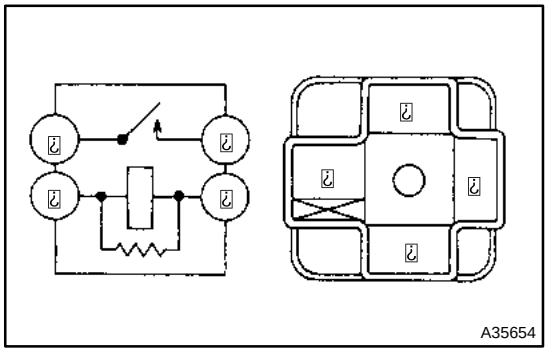
(1) Apply battery voltage to both the terminals. Check that the pump operates.

**NOTICE:**

- **These tests must be done quickly (within 10 seconds) to prevent damage to the pump.**
- **Keep fuel pump as far away from the battery as possible.**
- **Always do the switching at the battery side.**

160M8-02

# INSPECTION




**1. INSPECT COOLING FAN RELAY**

(a) Continuity inspection.

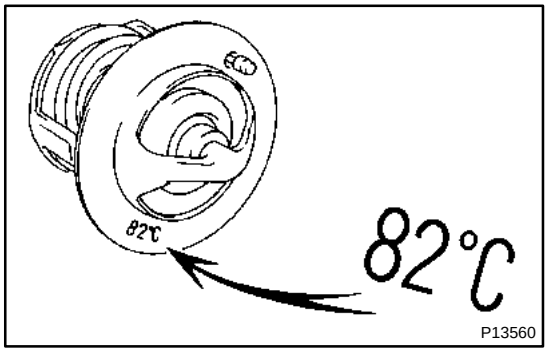
(1) Using an ohmmeter, check for continuity between each terminal.

**Specified condition:**

| Terminal No. | Specified condition |
|---|---|
| 1 - 2 | Continuity |
| 3 - 5 | No continuity |
| | Continuity<br>(Apply battery voltage terminals 1 and 2) |

160M6-02

# INSPECTION

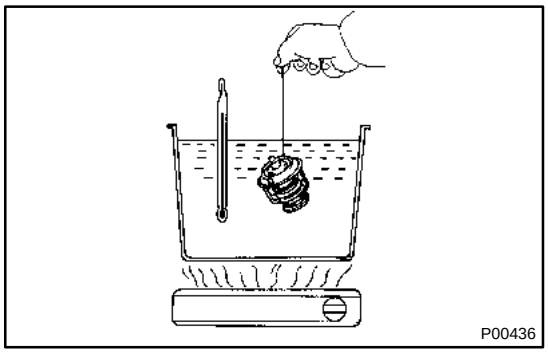


P13560

**1. INSPECT THERMOSTAT**

HINT:

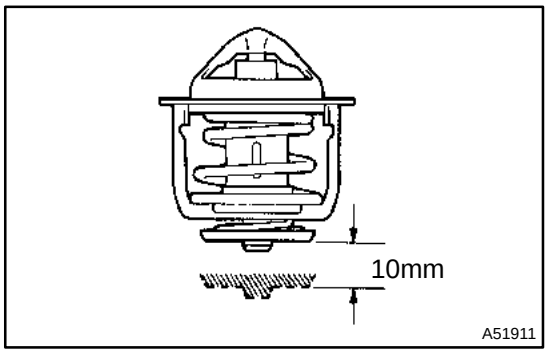
The thermostat is numbered with the valve opening temperature.


P00436

(a) Immerse the thermostat in water and gradually heat the water.

(b) Check the valve opening temperature of the thermostat.
**Valve opening temperature:**
**80 to 84°C (176 to 183°F)**

If the valve opening temperature is not as specified, replace the thermostat.



A51911

(c) Check the valve lift.
**Valve lift: 10 mm (0.394 in.) or more at 95°C (203°F)**

If the valve lift is not as specified, replace the thermostat.

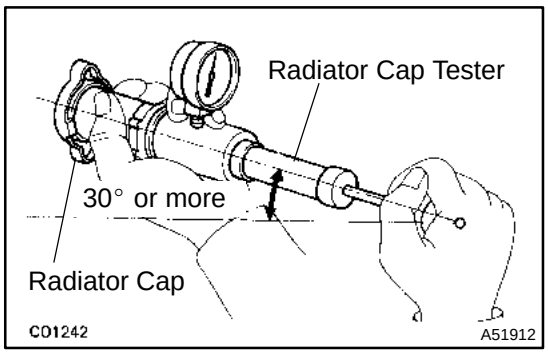
(d) Check that the valve is fully closed when the thermostat is at low temperatures (below 77°C (171°F)).

If not closed, replace the thermostat.

**2. INSPECT WATER OUTLET CAP SUB-ASSY**

**NOTICE:**

- **If the radiator cap has contaminations, rinse it with water.**
- **Before using a radiator cap tester, wet the relief valve and pressure valve with engine coolant or water.**
- **When performing steps (a) and (b) below, keep the tester at an angle of over 30° above the horizontal.**




(a) Using a radiator cap tester, slowly pump the tester and check that air is coming from the vacuum valve.

**Pump speed: 1 push / 3 seconds or more**

**NOTICE:**

**Push the pump at a constant speed.**

If air is not coming from the vacuum valve, replace the radiator cap.

(b) Pump the tester and measure the relief valve opening pressure.

**Pump speed: 1 push within 1 second**

**NOTICE:**

**The following pump speed is for the first pump only (in order to close the vacuum valve). After the first pump, the pump speed can be reduced.**

**Standard opening pressure:**

**83 to 113 kPa (0.85 to 1.15 kgf/cm$^2$, 12.1 to 16.4 psi)**

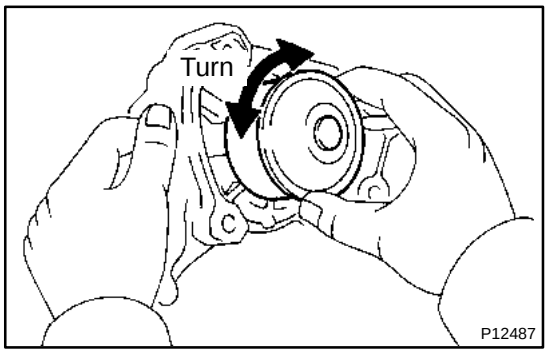
**Minimum opening pressure:**

**69 kPa (0.7 kgf/cm$^2$, 10.0 psi)**

If the opening pressure is less than minimum, replace the radiator cap.

HINT:

Use the tester's maximum reading as the opening pressure.




**3. INSPECT WATER PUMP ASSY**

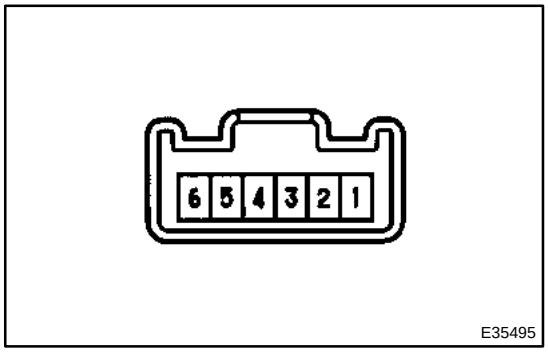
(a) Visually check the drain hole for coolant leakage.

If leakage is found, replace the water pump.

(b) Turn the pulley, and check that the water pump bearing moves smoothly and does not make noise.

If necessary, replace the water pump.

# INSPECTION




**1. INSPECT MAIN SWITCH ASSY**

(a) Inspect the continuity between terminal at the each switch position shown in the chart.

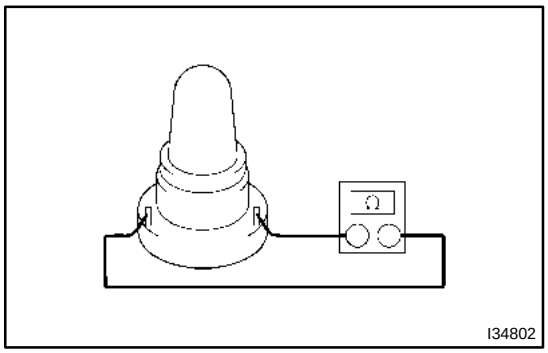
| Switch operation | Tester connection | Specified condition |
|---|---|---|
| OFF | 3 - 2 | No continuity |
| ON | 3 - 2 | Continuity |

If continuity is not as specified, replace the main switch assy.

(b) Inspect the bulb state when connecting the battery to each terminal.

| Inspection item | Battery connection | Specified condition |
|---|---|---|
| Indicator | Battery positive terminal - 3<br>Battery negative terminal - 5 | Comes on |
| Illumination | Battery positive terminal - 4<br>Battery negative terminal - 1 | Comes on |

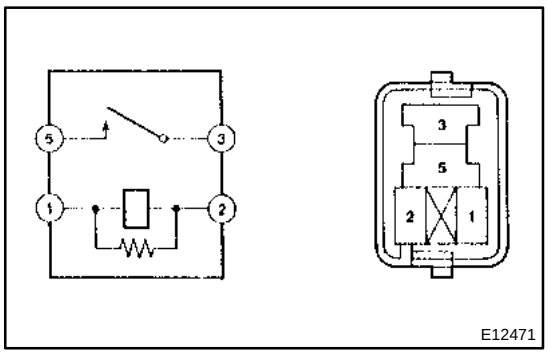
If operation is not as specified, check the faulty bulb.




(c) Inspect continuity of the bulb by connecting the tester as shown in the illustration.

If continuity exists, replace the main switch assy.

If no continuity exists, replace the bulb.




**2. INSPECT INVERTER RELAY**

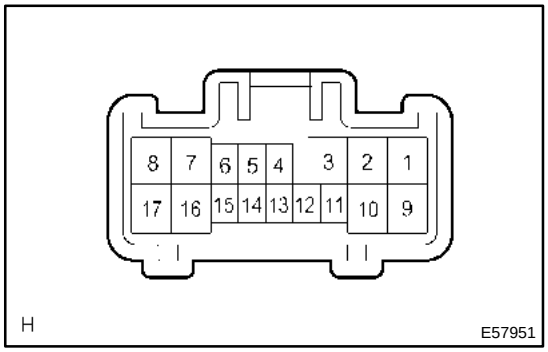
(a) Inspect continuity between terminal at the each switch position shown in the chart.

| Condition | Tester connection | Specified condition |
|---|---|---|
| Always | 1 - 2 | Continuity |
| Always | 3 - 5 | No continuity |
| Apply B+ between terminal 1 and 2 | 3 - 5 | Continuity |

If continuity is not as specified, replace the point socket relay.

650SA-01

# INSPECTION




## 1. HEADLAMP DIMMER SWITCH ASSY

(a) Inspect light control switch continuity.

(1) Check that there is continuity between the terminals at each switch position as shown in the chart.

**Standard:**

| Switch operation | Tester connection | Specified condition |
|---|---|---|
| OFF | - | No continuity |
| TAIL | 14 - 16 | Continuity |
| HEAD | 13 - 16 - 14 | Continuity |
| AUTO | 12 - 16 | Continuity |

(b) Inspect headlight dimmer switch continuity.

(1) Check that there is continuity between the terminals at each switch position as shown in the chart.

**Standard:**

| Switch operation | Tester connection | Specified condition |
|---|---|---|
| FLASH | 7 - 8 - 16 | Continuity |
| LOW BEAM | 16 - 17 | Continuity |
| HI BEAM | 7 - 16 | Continuity |

(c) Inspect turn signal switch continuity.

(1) Check that there is continuity between the terminals at each switch position as shown in the chart.

**Standard:**

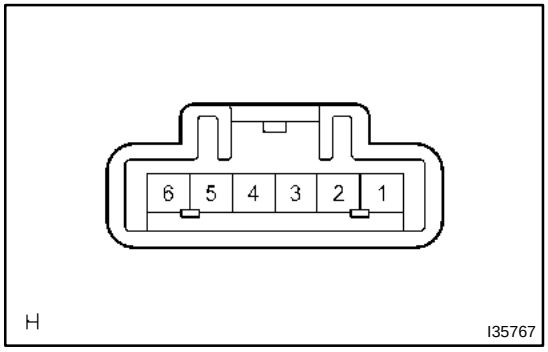
| Switch operation | Tester connection | Specified condition |
|---|---|---|
| Right turn | 2 - 3 | Continuity |
| Neutral | - | No continuity |
| Left turn | 1 - 2 | Continuity |

(d) Inspect front fog light switch continuity.

(1) Check that there is continuity between the terminals at each switch position as shown in the chart.

**Standard:**

| Switch operation | Tester connection | Specified condition |
|---|---|---|
| OFF | - | No continuity |
| ON | 11 - 18 | Continuity |




## 2. HAZARD WARNING SIGNAL SWITCH ASSY

(a) Check that there is continuity between the terminals at each switch position as shown in the chart.

**Standard:**

| Switch operation | Tester connection | Specified condition |
|---|---|---|
| OFF | 3 - 4 | No continuity |
| ON | 3 - 4 | Continuity |
| Illumination circuit | 5 - 6 | Continuity |

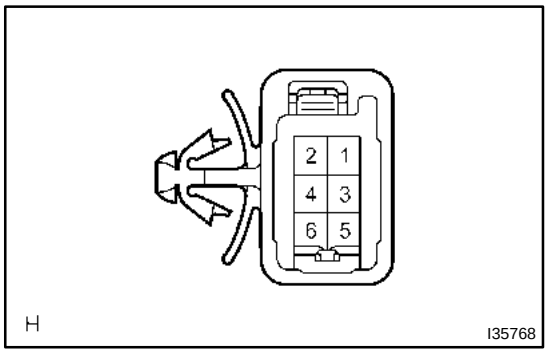
(b) Inspect illumination operation.
(1) Connect the positive (+) lead from the battery to the terminal 6 and negative (-) lead to the terminal 5, then check that the illumination comes on.

**3. FRONT DOOR COURTESY LAMP SWITCH ASSY**

(a) Check that there is continuity between the terminal and the switch body when the switch is operated.
**Standard:**
**ON (When shaft is pressed): No continuity**
**OFF (When shaft is not pressed): Continuity**

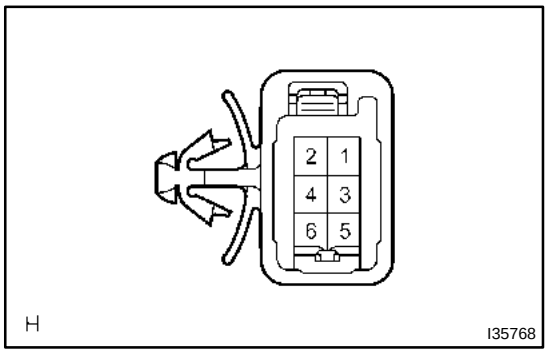
**4. REAR DOOR COURTESY LAMP SWITCH ASSY**

(a) Check that there is continuity between the terminal and the switch body when the switch is operated.
**Standard:**
**ON (When shaft is pressed): No continuity**
**OFF (When shaft is not pressed): Continuity**



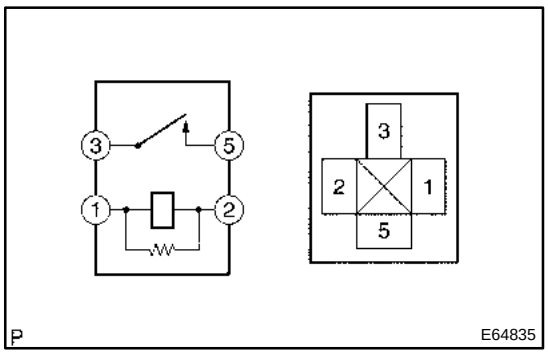

**5. BACK DOOR LOCK ASSY (W/O POWER BACK DOOR)**

(a) Inspect back door courtesy lamp switch operation.
(1) Check that there is continuity between the terminal 5 and the terminal 6 when the back door is open and closed.
**Standard:**
**Back door is open: No continuity**
**Back door is closed: Continuity**




**6. BACK DOOR LOCK ASSY (W/ POWER BACK DOOR)**

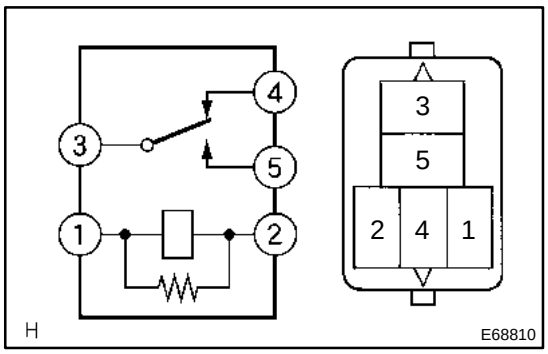
(a) Inspect back door courtesy lamp switch operation.
(1) Check that there is continuity between the terminal 3 and the terminal 4 when the back door is open and closed.
**Standard:**
**Back door is open: No continuity**
**Back door is closed: Continuity**




**7. HEADLAMP RELAY**

(a) Inspect relay continuity.
**Standard:**

| Condition | Tester connection | Specified condition |
|---|---|---|
| Always | 1 - 2 | Continuity |
| Always | 3 - 5 | No continuity |
| Apply B+ between the terminal 1 and 2 | 3 - 5 | Continuity |

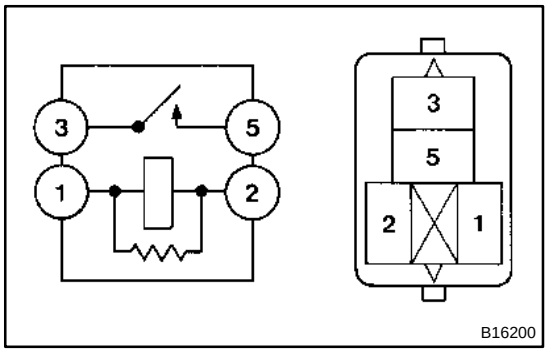



## 8. TAIL LAMP RELAY

(a) Inspect relay continuity.

**Standard:**

| Condition | Tester connection | Specified condition |
|---|---|---|
| Always | 1 - 2<br>3 - 4 | Continuity |
| Always | 3 - 5 | No continuity |
| Apply B+ between the terminal 1 and 2 | 3 - 5 | Continuity |

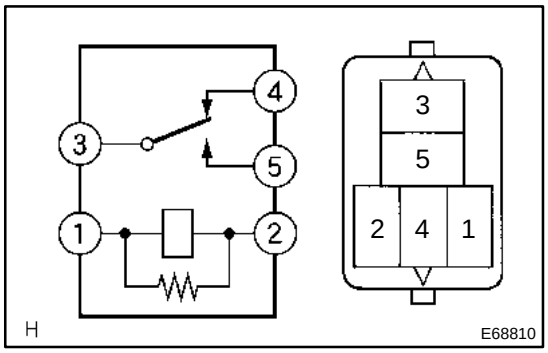



## 9. FOG LAMP RELAY

(a) Inspect relay continuity.

**Standard:**

| Condition | Tester connection | Specified condition |
|---|---|---|
| Always | 1 - 2 | Continuity |
| Always | 3 - 5 | No continuity |
| Apply B+ between the terminal 1 and 2 | 3 - 5 | Continuity |

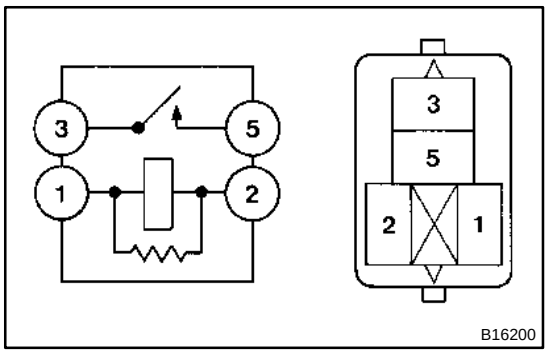



## 10. RUNNING LIGHT RELAY

(a) Inspect relay continuity.

**Standard:**

| Condition | Tester connection | Specified condition |
|---|---|---|
| Always | 1 - 2<br>3 - 4 | Continuity |
| Always | 3 - 5 | No continuity |
| Apply B+ between the terminal 1 and 2 | 3 - 5 | Continuity |

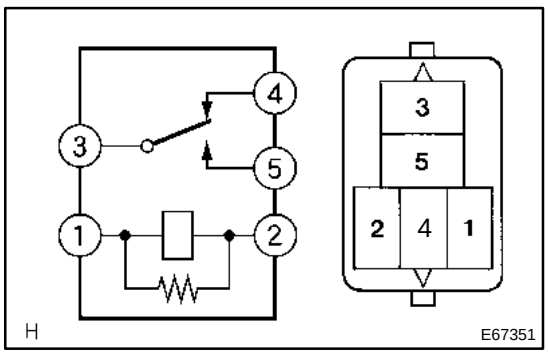



## 11. HEADLAMP DAY DIM LIGHT RELAY

(a) Inspect relay continuity.

**Standard:**

| Condition | Tester connection | Specified condition |
|---|---|---|
| Always | 1 - 2 | Continuity |
| Always | 3 - 5 | No continuity |
| Apply B+ between the terminal 1 and 2 | 3 - 5 | Continuity |

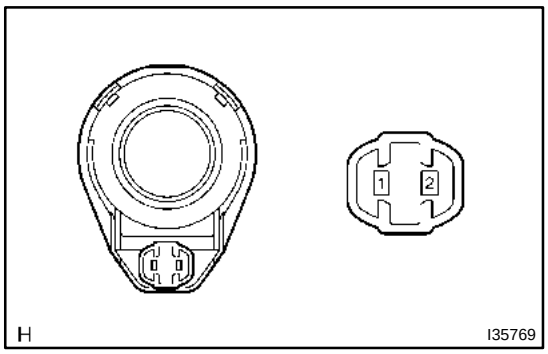



## 12. BRK RELAY

(a) Inspect relay continuity.

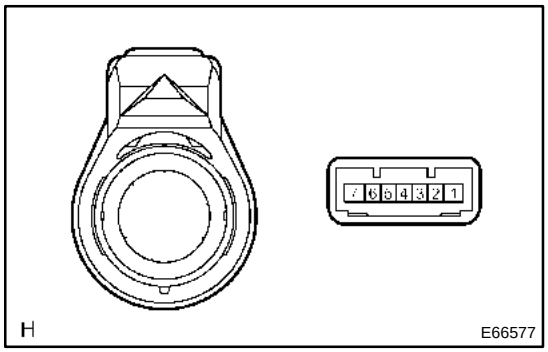
**Standard:**

| Condition | Tester connection | Specified condition |
|---|---|---|
| Always | 1 - 2<br>3 - 4 | Continuity |
| Always | 3 - 5 | No continuity |
| Apply B+ between the terminal 1 and 2 | 3 - 5 | Continuity |




### 13. KEY CYLINDER LAMP ASSY

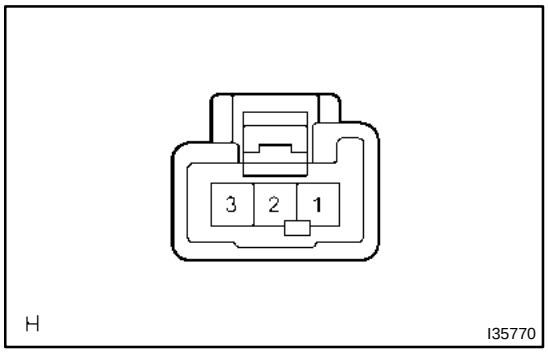
(a) Connect the battery positive (+) lead to the terminal 1 and the battery negative (-) lead to the terminal 2, and check that the indicator light comes on.




### 14. TRANSPONDER KEY AMPLIFIER

(a) Inspect key cylinder lamp operation.

(1) Connect the battery positive (+) lead to the terminal 2 and the battery negative (-) lead to the terminal 6, and check that the indicator light comes on.



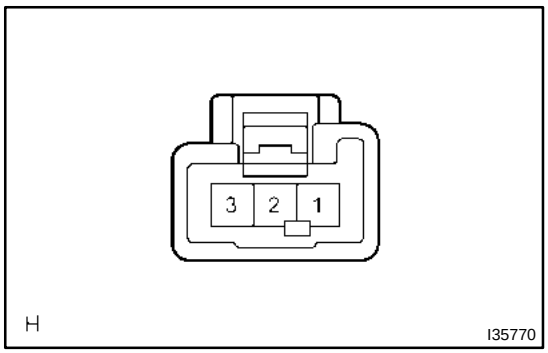

### 15. ROOF CONSOLE BOX ASSY

(a) Inspect map light assy continuity.

(1) Check the continuity between the terminals at each switch position as shown in the chart.

**Standard:**

| Switch operation | Tester connection | Specified condition |
|---|---|---|
| OFF | - | No continuity |
| DOOR | 2 - 3 | Continuity |
| ON | 1 - 2 | Continuity |



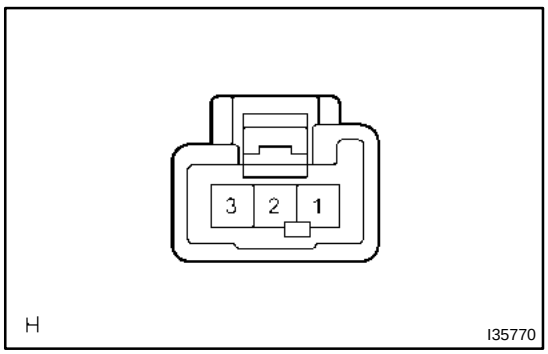

### 16. AIR OUTLET REGISTER ASSY NO.1

(a) Inspect interior light LH No.1 continuity.

(1) Check that there is continuity between the terminals at each switch position as shown in the chart.

**Standard:**

| Switch operation | Tester connection | Specified condition |
|---|---|---|
| OFF | - | No continuity |
| DOOR | 2 - 3 | Continuity |
| ON | 1 - 2 | Continuity |



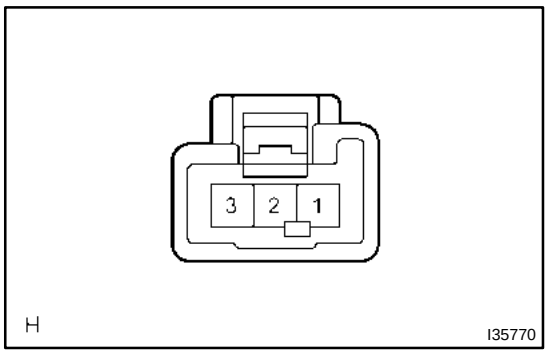

### 17. AIR OUTLET REGISTER ASSY NO.2

(a) Inspect interior light RH No.1 continuity.

(1) Check that there is continuity between the terminals at each switch position as shown in the chart.

**Standard:**

| Switch operation | Tester connection | Specified condition |
|---|---|---|
| OFF | - | No continuity |
| DOOR | 2 - 3 | Continuity |
| ON | 1 - 2 | Continuity |



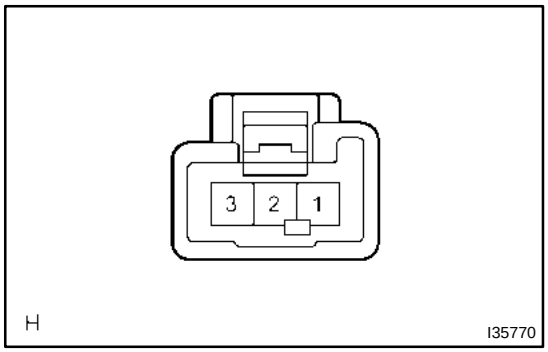

**18. AIR DUCT REGISTER ASSY NO.3**

(a) Inspect interior light LH No.2 continuity.

(1) Check that there is continuity between the terminals at each switch position as shown in the chart.

**Standard:**

| Switch operation | Tester connection | Specified condition |
|---|---|---|
| OFF | - | No continuity |
| DOOR | 2 - 3 | Continuity |
| ON | 1 - 2 | Continuity |




**19. AIR OUTLET REGISTER ASSY NO.4**

(a) Inspect interior light RH No.2 continuity.

(1) Check that there is continuity between the terminals at each switch position as shown in the chart.

**Standard:**

| Switch operation | Tester connection | Specified condition |
|---|---|---|
| OFF | - | No continuity |
| DOOR | 2 - 3 | Continuity |
| ON | 1 - 2 | Continuity |

**20. FRONT DOOR TRIM BOARD SUB-ASSY LH**

(a) Inspect front door courtesy lamp.

(1) Check that the continuity exists between the terminals.

**Standard: There is continuity**

**21. FRONT DOOR TRIM BOARD SUB-ASSY RH**

(a) Inspect front door courtesy lamp.

(1) Check that the continuity exists between the terminals.

**Standard: There is continuity**

**22. REAR DOOR COURTESY LAMP ASSY LH**

(a) Check that the continuity exists between the terminals.

**Standard: There is continuity**

**23. REAR DOOR COURTESY LAMP ASSY RH**

(a) Check that the continuity exists between the terminals.

**Standard: There is continuity**

**24. ROOM LAMP ASSY NO.2**

(a) Check that the continuity exists between the terminals.

**Standard: There is continuity**

**25. LH VISOR ASSY**

(a) Inspect vanity light continuity.

(1) Check that the continuity exists between the terminal 1 and the terminal 2 when the light is operated.

**Standard:**

**OFF (closed): No continuity**

**ON (opened): Continuity**

**26. RH VISOR ASSY**

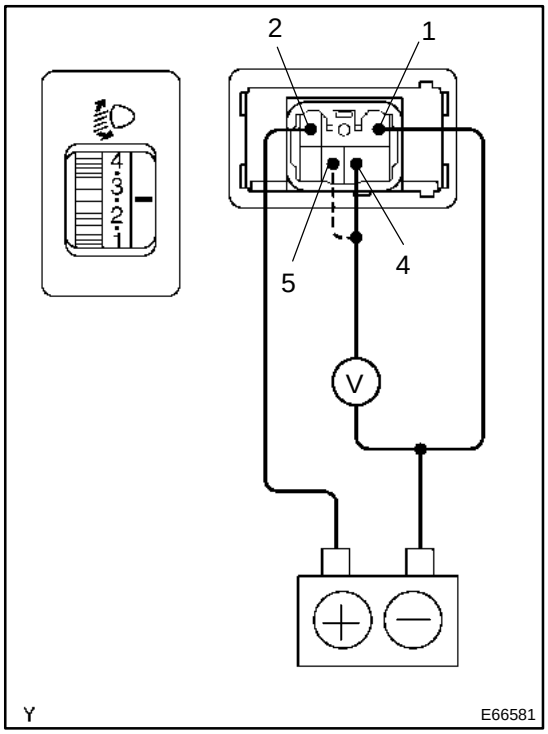
(a) Inspect vanity light continuity.

(1) Check that the continuity exists between the terminal 1 and the terminal 2 when the light is operated.

**Standard:**

**OFF (closed): No continuity**

**ON (opened): Continuity**




**27. HEADLAMP LEVELING SWITCH**

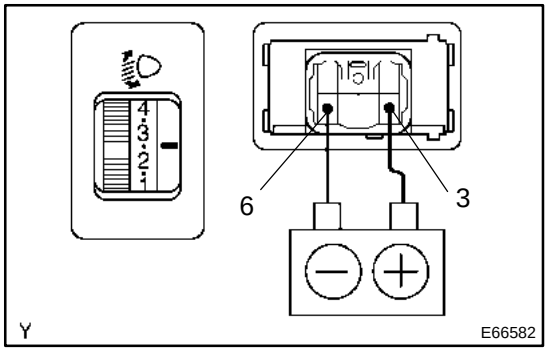
(a) Connect the battery positive (+) lead to the terminal 1 and the battery negative (-) lead to the terminal 5.

(b) Measure the resistance between the terminal 4 and the battery negative (-) lead when headlamp leveling switch is operated.

(c) Measure the resistance between the terminal 5 and the battery negative (-) lead when headlamp leveling switch is operated.

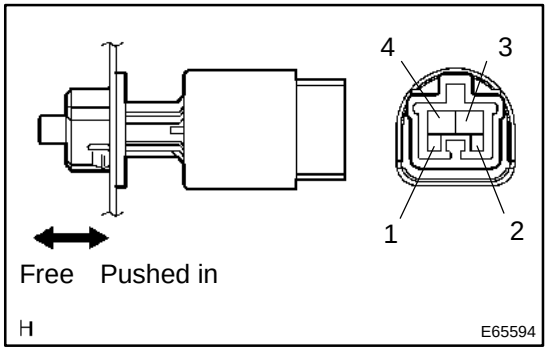
**Standard:**

| Switch position | Specified voltage (V) |
|---|---|
| 0 | 9.0 to 12.6 |
| 1 | 7.9 to 11.1 |
| 2 | 6.9 to 9.6 |
| 3 | 5.8 to 8.2 |
| 4 | 4.7 to 6.6 |
| 5 | 3.7 to 5.1 |




(d) Inspect switch illumination.

(1) Connect the battery positive (+) lead to the terminal 3 and the battery negative (-) lead to the terminal 6, and check that the illumination comes on.

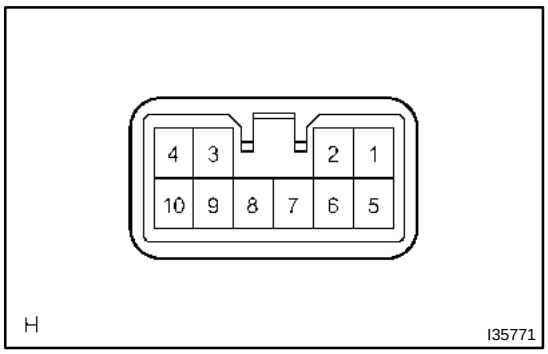



**28. STOP LAMP SWITCH ASSY**

(a) Check the continuity between the terminals at each switch position as shown in the chart.

**Standard:**

| Switch position | Tester connection | Specified condition |
|---|---|---|
| Switch pin free | 1 - 2 | No continuity |
| Switch pin free | 3 - 4 | Continuity |
| Switch pin pushed in | 1 - 2 | Continuity |
| Switch pin pushed in | 3 - 4 | No continuity |




### 29. INTERIOR DOME LAMP SWITCH ASSY

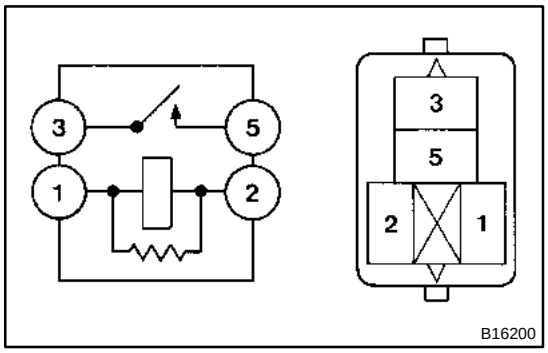
(a) Check that there is continuity between the terminals at each switch position as shown in the chart.

**Standard:**

| Switch operation | Tester connection | Specified condition |
|---|---|---|
| OFF | 8 - 7<br>9 - 7<br>10 - 7 | No continuity |
| DOOR | 5 - 10<br>6 - 9<br>7 - 8 | Continuity |
| ON | 7 - 8 - 9 - 10 | Continuity |

(b) Inspect illumination operation.

(1) Connect the battery positive (+) lead to the terminal 4 and the battery negative (-) lead to the terminal 1, and check that the illumination comes on.




### 30. LIGHT CONTROL RELAY

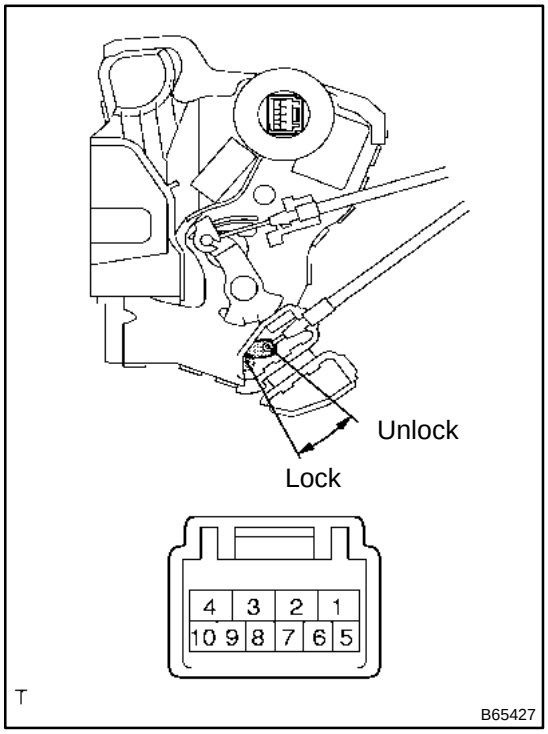
(a) Inspect relay continuity.

**Standard:**

| Condition | Tester connection | Specified condition |
|---|---|---|
| Always | 1 - 2 | Continuity |
| Always | 3 - 5 | No continuity |
| Apply B+ between the terminal 1 and 2 | 3 - 5 | Continuity |

730GQ-01

# INSPECTION




**1. INSPECT FRONT DOOR W/MOTOR LOCK ASSY LH**

(a) Apply battery voltage and inspect operation of the door lock motor.

**Standard:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 4<br>Battery negative (-) → Terminal 1 | Lock |
| Battery positive (+) → Terminal 1<br>Battery negative (-) → Terminal 4 | Unlock |

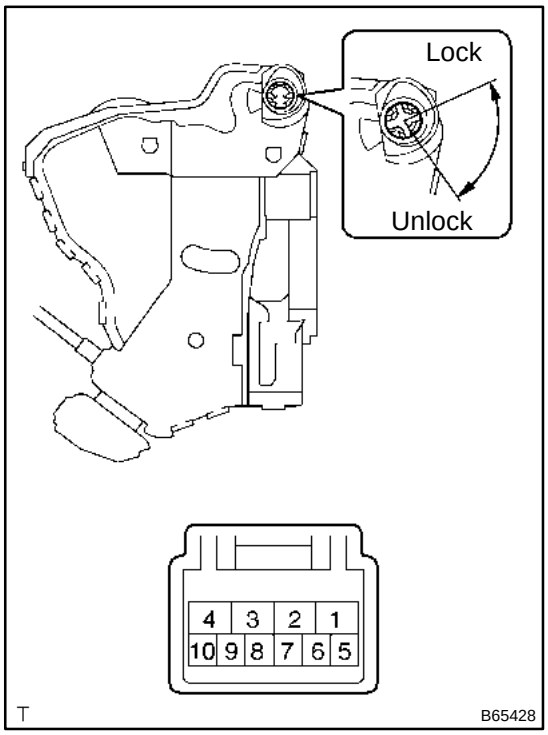
If operation is not as specified, replace the door lock assy.

(b) Inspect the resistance of the position switch.

**Standard:**

| Terminal No. | Door Lock Position | Specified Condition |
|---|---|---|
| 7 - 8 | Lock | 10 kΩ or higher |
| | Unlock | Below 1 Ω |

If the result is not as specified, replace the door lock assy.

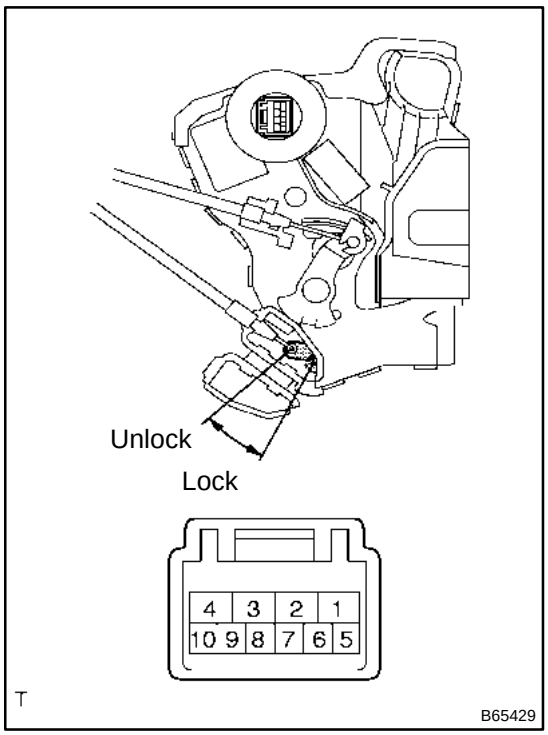



(c) Inspect the resistance of the door lock and unlock switch.

**Standard:**

| Terminal No. | Door Lock Position | Specified Condition |
|---|---|---|
| 7 - 9 | Lock | Below 1 Ω |
| 7 - 9, 7 - 10 | OFF | - |
| 7 - 10 | Unlock | Below 1 Ω |

If the result is not as specified, replace the door lock assy.




**2. INSPECT FRONT DOOR W/MOTOR LOCK ASSY RH**

(a) Apply battery voltage and inspect operation of the door lock motor.

**Standard:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 4<br>Battery negative (-) → Terminal 1 | Lock |
| Battery positive (+) → Terminal 1<br>Battery negative (-) → Terminal 4 | Unlock |

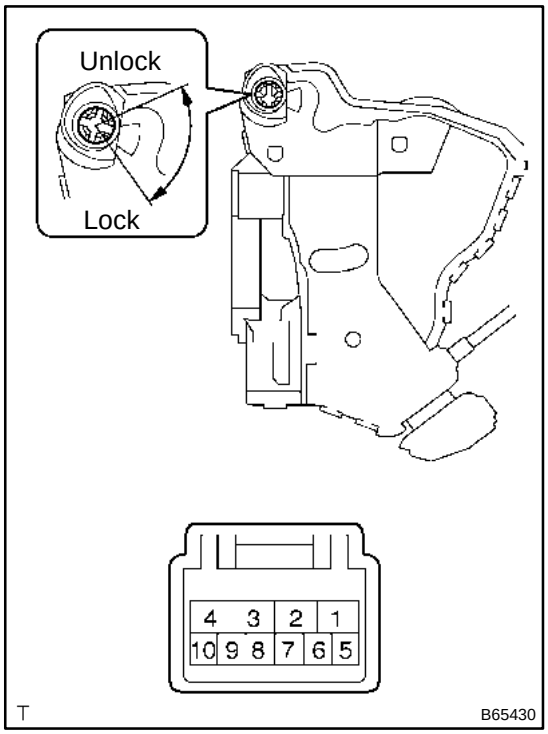
If operation is not as specified, replace the door lock assy.

(b) Inspect the resistance of the position switch.

**Standard:**

| Terminal No. | Door Lock Position | Specified Condition |
|---|---|---|
| 7 - 8 | Lock | 10 kΩ or higher |
| | Unlock | Below 1 Ω |

If the result is not as specified, replace the door lock assy.

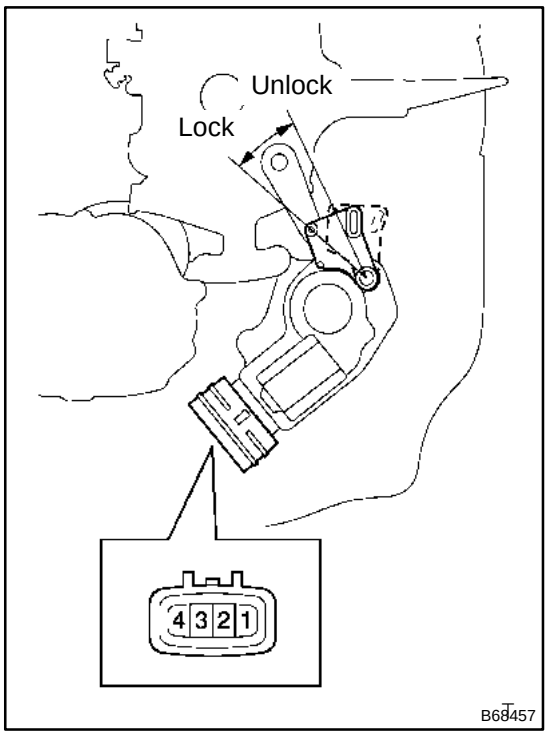



(c) Inspect the resistance of the door lock and unlock switch.

**Standard:**

| Terminal No. | Door Lock Position | Specified Condition |
|---|---|---|
| 6 - 8 | Lock | Below 1 Ω |
| 5 - 8, 6 - 8 | OFF | - |
| 5 - 8 | Unlock | Below 1 Ω |

If the result is not as specified, replace the door lock assy.




### 3. INSPECT REAR DOOR LOCK ACTUATOR ASSY LH

(a) Apply battery voltage and inspect operation of the door lock motor.

**Standard:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 2<br>Battery negative (-) → Terminal 3 | Lock |
| Battery positive (+) → Terminal 3<br>Battery negative (-) → Terminal 2 | Unlock |

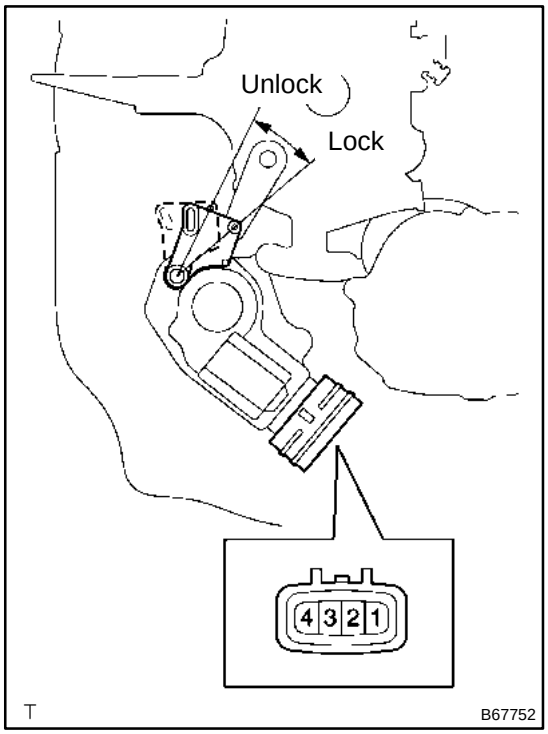
If operation is not as specified, replace the door lock assy.

(b) Inspect the resistance of the position switch.

**Standard:**

| Terminal No. | Door Lock Position | Specified Condition |
|---|---|---|
| 1 - 4 | Lock | 10 kΩ or higher |
| | Unlock | Below 1 Ω |

If the result is not as specified, replace the door lock assy.




### 4. INSPECT REAR DOOR LOCK ACTUATOR ASSY RH

(a) Apply battery voltage and inspect operation of the door lock motor.

**Standard:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 2<br>Battery negative (-) → Terminal 3 | Lock |
| Battery positive (+) → Terminal 3<br>Battery negative (-) → Terminal 2 | Unlock |

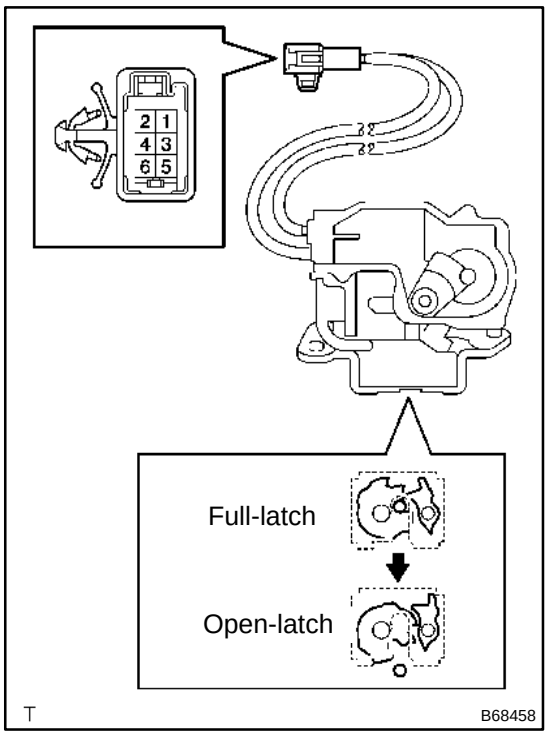
If operation is not as specified, replace the door lock assy.

(b) Inspect the resistance of the position switch.

**Standard:**

| Terminal No. | Door Lock Position | Specified Condition |
|---|---|---|
| 1 - 4 | Lock | 10 kΩ or higher |
| | Unlock | Below 1 Ω |

If the result is not as specified, replace the door lock assy.




**5. INSPECT BACK DOOR LOCK ASSY (W/O CLOSER)**

(a) Check operation of the door lock.

(1) Using a screwdriver, push the latch in order to put the back door lock in the locked condition (full-latch position).

(2) Connect the battery positive (+) lead to terminal 3 and the battery negative (-) lead to terminal 1. Then, check operation of the latch.

**Standard: The latch turns to the open-latch position**

If operation is not as specified, replace the door lock assy.

(3) Inspect motor operation when battery voltage is applied to the terminals.

**Standard:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 3<br>Battery negative (-) → Terminal 1 | Clockwise (Motor in normal rotation) |
| Battery positive (+) → Terminal 1<br>Battery negative (-) → Terminal 3 | Counterclockwise (Motor in reverse rotation) |

If operation is not as specified, replace the door lock assy.

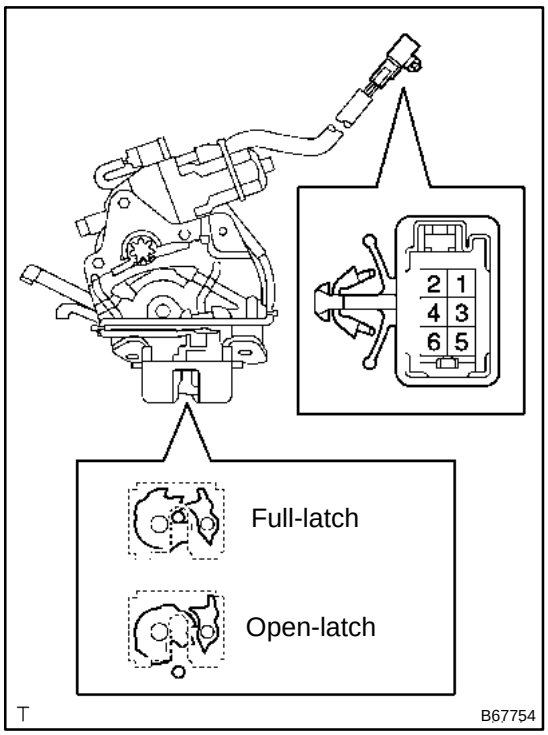
(b) Check the back door courtesy switch resistance.

(1) Check the resistance between the terminals of the courtesy switch.

**Standard:**

| Door Lock Latch Position | Terminal No. | Specified Condition |
|---|---|---|
| Open-latch position | 5 - 6 | Below 1 Ω |
| Full-latch position | | 10 kΩ or higher |

If the result is not as specified, replace the door lock assy.




## 6. INSPECT BACK DOOR LOCK ASSY (W/ CLOSER)

(a) Check operation of the door lock.

(1) Using a screwdriver, push the latch in order to put the back door lock in the locked condition (full-latch position).

(2) Connect the battery positive (+) lead to terminal 1 and the battery negative (-) lead to terminal 2. Then, check operation of the latch.

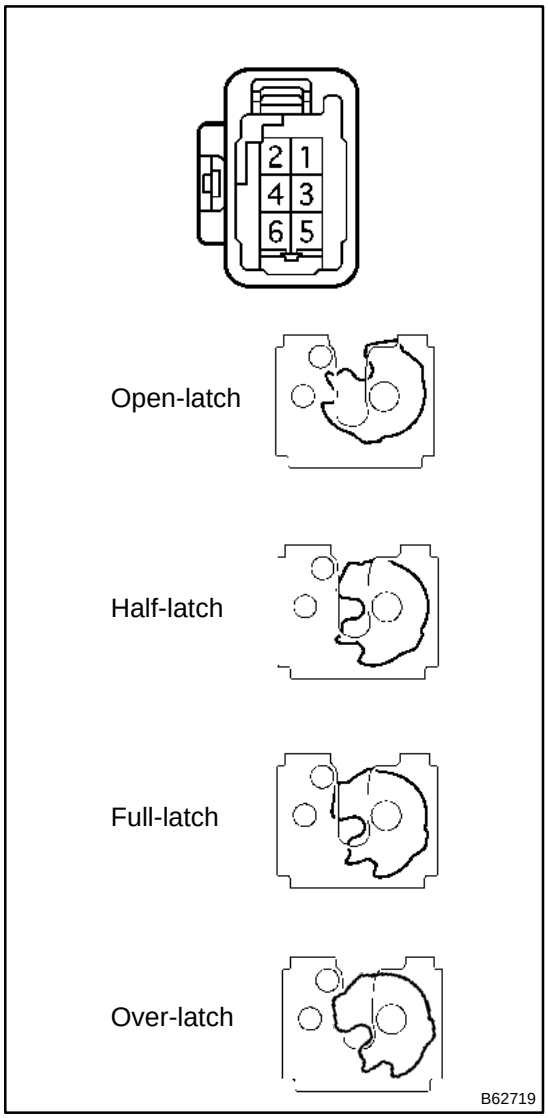
**Standard: The latch turns to the open-latch position**

(3) Inspect motor operation when battery voltage is applied to the terminals.

**Standard:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → Terminal 2<br>Battery negative (-) → Terminal 1 | Clockwise (Motor in normal rotation) |
| Battery positive (+) → Terminal 1<br>Battery negative (-) → Terminal 2 | Counterclockwise (Motor in reverse rotation) |

If operation is not as specified, replace the door lock assy.




(b) Check the back door courtesy switch resistance.

(1) Check the resistance between the terminals of the courtesy switch.

**Standard:**

| Door Lock Latch Position | Terminal No. | Specified Condition |
|---|---|---|
| Open-latch position, Half-latch position | 3 - 4 | Below 1 Ω |
| Full-latch position, Over-latch position | | 10 kΩ or higher |

If the result is not as specified, replace the door lock assy.

(c) Check the back door latch switch resistance.

(1) Check the resistance between the terminals of the latch switch.

**Standard:**

| Door Lock Latch Position | Terminal No. | Specified Condition |
|---|---|---|
| Open-latch position, Over-latch position | 4 - 5 | Below 1 Ω |
| Half-latch position, Full-latch position | | 10 kΩ or higher |

If the result is not as specified, replace the door lock assy.

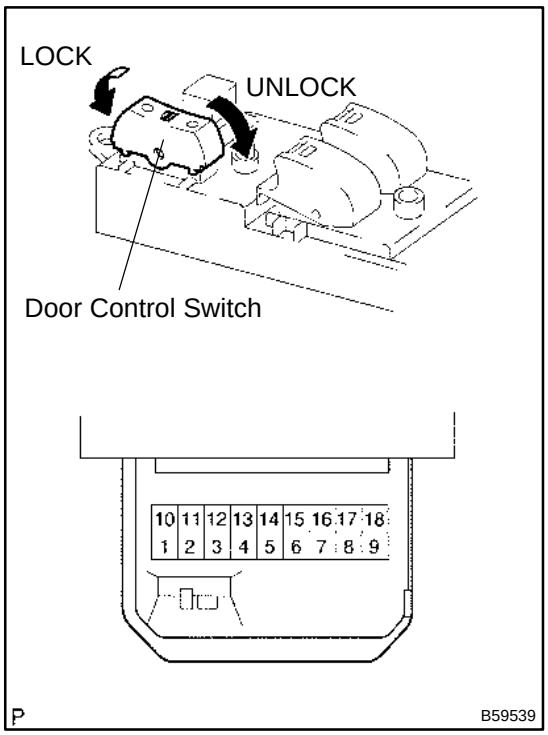
(d) Check the position switch resistance.

(1) Connect the battery positive (+) lead to connector terminal 1 and the negative (-) lead to connector terminal 2.

**Standard:**

| Door Lock Latch Position | Terminal No. | Specified Condition |
|---|---|---|
| Any position other than motor stop position (Motor in operation) | 4 - 6 | Below 1 Ω |
| Motor stop position (Gear in original position | | 10 kΩ or higher |

If the result is not as specified, replace the door lock assy.



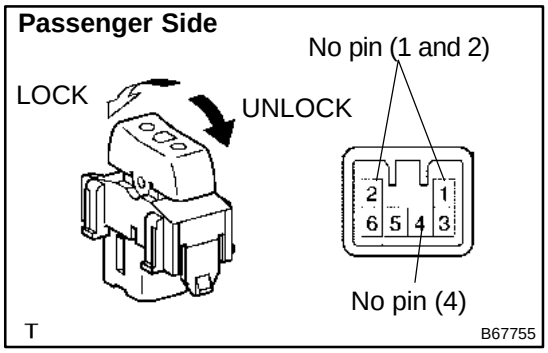

**7. INSPECT POWER WINDOW REGULATOR MASTER SWITCH ASSY**

(a) Inspect the resistance of the switch.

**Standard:**

| Terminal No. | Switch Position | Specified Condition |
|---|---|---|
| 1 - 5 | Lock | Below 1 Ω |
| 1 - 5, 1 - 8 | OFF | 10 kΩ or higher |
| 1 - 8 | Unlock | Below 1 Ω |

If the result is not as specified, replace the switch assy.




**8. INSPECT DOOR CONTROL SWITCH ASSY**

(a) Inspect the resistance of the switch.

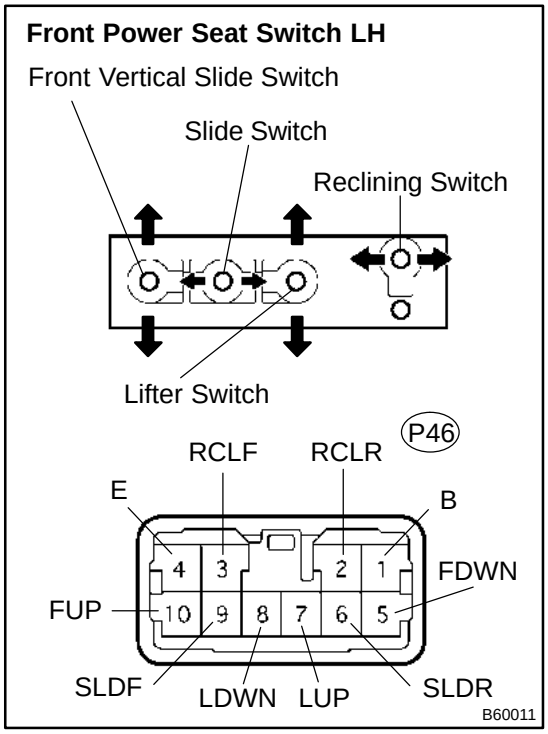
**Standard:**

| Terminal No. | Switch Position | Specified Condition |
|---|---|---|
| 3 - 6 | Lock | Below 1 Ω |
| 3 - 5, 3 - 6 | OFF | 10 kΩ or higher |
| 3 - 5 | Unlock | Below 1 Ω |

If the result is not as specified, replace the switch assy.

720Z2-01

# INSPECTION




**1. INSPECT FRONT POWER SEAT SWITCH**

(a) Inspect the driver side front power seat switch assy.

(1) Measure the resistance between the terminals when each switch is operated.

**Standard:**

**Slide switch**

| Tester Connection | Switch Operation | Specified Condition |
|---|---|---|
| 1 (B) - 9 (SLDF) | FRONT | Below 1 Ω |
| 4 (E) - 6 (SLDR) | FRONT | Below 1 Ω |
| 4 (E) - 6 (SLDR) | OFF | Below 1 Ω |
| 4 (E) - 9 (SLDF) | OFF | Below 1 Ω |
| 1 (B) - 6 (SLDR) | REAR | Below 1 Ω |
| 4 (E) - 9 (SLDF) | REAR | Below 1 Ω |

**Front vertical switch**

| Tester Connection | Switch Operation | Specified Condition |
|---|---|---|
| 1 (B) - 10 (FUP) | UP | Below 1 Ω |
| 4 (E) - 5 (FDWN) | UP | Below 1 Ω |
| 4 (E) - 5 (FDWN) | OFF | Below 1 Ω |
| 4 (E) - 10 (FUP) | OFF | Below 1 Ω |
| 1 (B) - 5 (FDWN) | DOWN | Below 1 Ω |
| 4 (E) - 10 (FUP) | DOWN | Below 1 Ω |

**Lifter vertical switch**

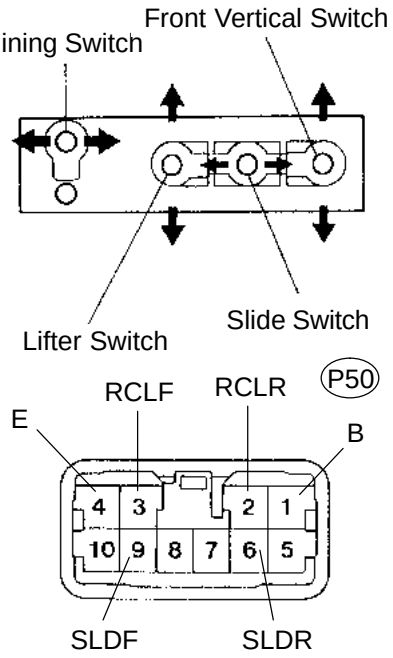
| Tester Connection | Switch Operation | Specified Condition |
|---|---|---|
| 1 (B) - 7 (LUP) | UP | Below 1 Ω |
| 4 (E) - 8 (LDWN) | UP | Below 1 Ω |
| 4 (E) - 7 (LUP) | OFF | Below 1 Ω |
| 4 (E) - 8 (LDWN) | OFF | Below 1 Ω |
| 1 (B) - 8 (LDWN) | DOWN | Below 1 Ω |
| 4 (E) - 7 (LUP) | DOWN | Below 1 Ω |

**Reclining switch**

| Tester Connection | Switch Operation | Specified Condition |
|---|---|---|
| 1 (B) - 3 (RCLF) | FRONT | Below 1 Ω |
| 2 (RCLR) - 4 (E) | FRONT | Below 1 Ω |
| 2 (RCLR) - 4 (E) | OFF | Below 1 Ω |
| 3 (RCLF) - 4 (E) | OFF | Below 1 Ω |
| 1 (B) - 2 (RCLR) | REAR | Below 1 Ω |
| 3 (RCLF) - 4 (E) | REAR | Below 1 Ω |

If the result is not as specified, replace the switch.

**Front Power Seat Switch RH**




(b) Inspect the front passenger side front power seat switch assy.

(1) Measure the resistance between the terminals when each switch is operated.

**Standard:**

**Slide switch**

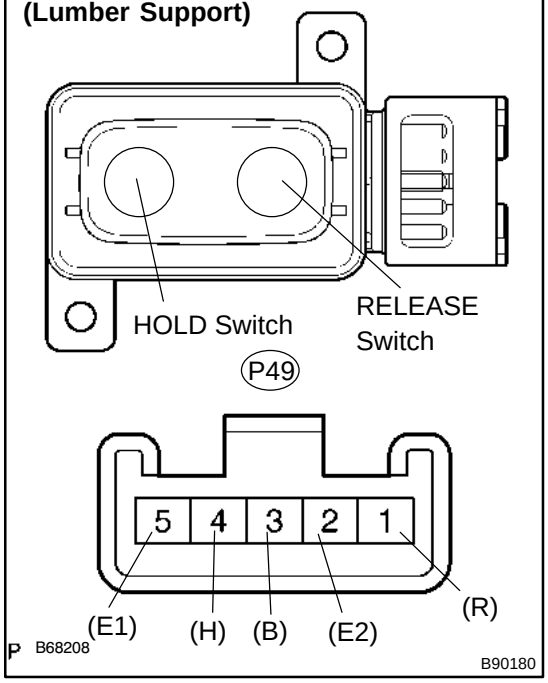
| Tester Connection | Switch Operation | Specified Condition |
|---|---|---|
| 1 (B) - 9 (SLDF) | FRONT | Below 1 Ω |
| 4 (E) - 6 (SLDR) | FRONT | Below 1 Ω |
| 4 (E) - 6 (SLDR) | OFF | Below 1 Ω |
| 4 (E) - 9 (SLDF) | OFF | Below 1 Ω |
| 1 (B) - 6 (SLDR) | REAR | Below 1 Ω |
| 4 (E) - 9 (SLDF) | REAR | Below 1 Ω |

**Reclining switch**

| Tester Connection | Switch Operation | Specified Condition |
|---|---|---|
| 1 (B) - 3 (RCLF) | FRONT | Below 1 Ω |
| 2 (RCLR) - 4 (E) | FRONT | Below 1 Ω |
| 2 (RCLR) - 4 (E) | OFF | Below 1 Ω |
| 3 (RCLF) - 4 (E) | OFF | Below 1 Ω |
| 1 (B) - 2 (RCLR) | REAR | Below 1 Ω |
| 3 (RCLF) - 4 (E) | REAR | Below 1 Ω |

If the result is not as specified, replace the switch.

**Power Seat Switch Assy (Lumber Support)**




**2. INSPECT POWER SEAT SWITCH**

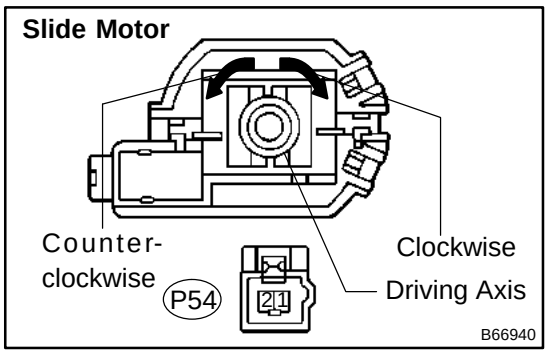
(a) Inspect the lumber support switch assy.

(1) Measure the resistance between the terminals when each switch is operated.

**Standard:**

| Tester Connection | Switch Operation | Specified Condition |
|---|---|---|
| 1 (R) - 2 (E2) | HOLD switch pushed | Below 1 Ω |
| 3 (B) - 4 (H) | HOLD switch pushed | Below 1 Ω |
| 1 (R) - 2 (E2) | Off | Below 1 Ω |
| 4 (H) - 5 (E1) | Off | Below 1 Ω |
| 1 (R) - 3 (B) | RELEASE switch pushed | Below 1 Ω |
| 4 (H) - 5 (E1) | RELEASE switch pushed | Below 1 Ω |

If the result is not as specified, replace the switch.




### 3. INSPECT FRONT SEAT ADJUSTER ASSY LH

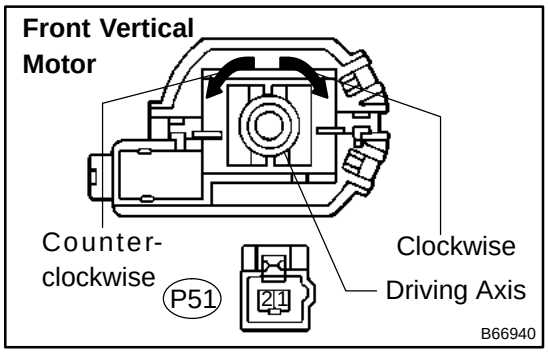
(a) Check slide motor operation.

(1) Check if the motor rotates smoothly when the battery is connected to the slide motor connector terminals.

**OK:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → 2<br>Battery negative (-) → 1 | Counterclockwise |
| Battery positive (+) → 1<br>Battery negative (-) → 2 | Clockwise |

If the result is not as specified, replace the front seat adjuster assy LH.



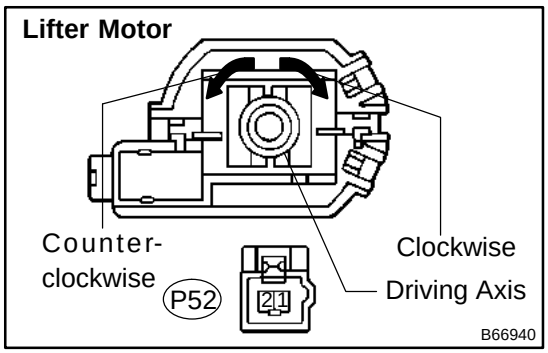

(b) Check front vertical motor operation.

(1) Check if the motor rotates smoothly when the battery is connected to the front vertical motor connector terminals.

**OK:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → 2<br>Battery negative (-) → 1 | Counterclockwise |
| Battery positive (+) → 1<br>Battery negative (-) → 2 | Clockwise |

If the result is not as specified, replace the front seat adjuster assy LH.



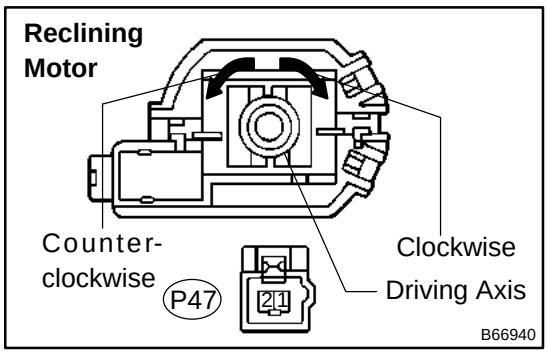

(c) Check lifter motor operation.

(1) Check if the motor rotates smoothly when the battery is connected to the lifter motor connector terminals.

**OK:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → 2<br>Battery negative (-) → 1 | Counterclockwise |
| Battery positive (+) → 1<br>Battery negative (-) → 2 | Clockwise |

If the result is not as specified, replace the front seat adjuster assy LH.



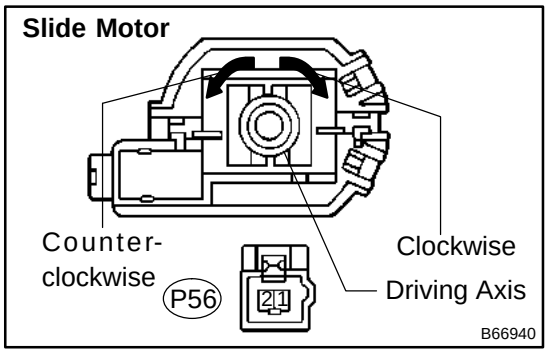

(d) Check reclining motor operation.

(1) Check if the motor rotates smoothly when the battery is connected to the reclining motor connector terminals.

**OK:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → 2<br>Battery negative (-) → 1 | Counterclockwise |
| Battery positive (+) → 1<br>Battery negative (-) → 2 | Clockwise |

If the result is not as specified, replace the front seat adjuster assy LH.




**4. INSPECT FRONT SEAT ADJUSTER ASSY RH**

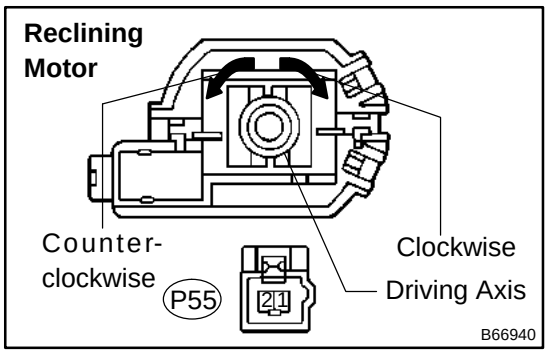
(a) Check slide motor operation.

(1) Check if the motor rotates smoothly when the battery is connected to the slide motor connector terminals.

**OK:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → 2<br>Battery negative (-) → 1 | Counterclockwise |
| Battery positive (+) → 1<br>Battery negative (-) → 2 | Clockwise |

If the result is not as specified, replace the front seat adjuster assy RH.



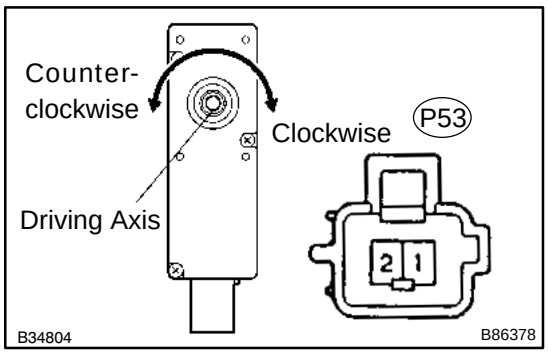

(b) Check reclining motor operation.

(1) Check if the motor rotates smoothly when the battery is connected to the reclining motor connector terminals.

**OK:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → 2<br>Battery negative (-) → 1 | Counterclockwise |
| Battery positive (+) → 1<br>Battery negative (-) → 2 | Clockwise |

If the result is not as specified, replace the front seat adjuster assy RH.




**5. INSPECT LUMBAR SUPPORT ADJUSTER ASSY LH**

(a) Check lumbar support motor operation.

(1) Check if the motor rotates smoothly when the battery is connected to the lumbar support motor connector terminals.

**OK:**

| Measurement Condition | Specified Condition |
|---|---|
| Battery positive (+) → 2<br>Battery negative (-) → 1 | Counterclockwise |
| Battery positive (+) → 1<br>Battery negative (-) → 2 | Clockwise |

If the result is not as specified, replace the lumber support adjuster assy LH.

# TERMS

01047-08

## ABBREVIATIONS USED IN THIS MANUAL

| Abbreviations | Meaning |
|---|---|
| ABS | Anti-Lock Brake System |
| A/C | Air Conditioner |
| AC | Alternating Current |
| ACC | Accessory |
| ACIS | Acoustic Control Induction System |
| ACSD | Automatic Cold Start Device |
| A.D.D. | Automatic Disconnecting Differential |
| A/F | Air-Fuel Ratio |
| AFS | Adaptive Front-Lighting System |
| AHC | Active Height Control Suspension |
| ALR | Automatic Locking Retractor |
| ALT | Alternator |
| AMP | Amplifier |
| ANT | Antenna |
| APPROX. | Approximately |
| ASSY | Assembly |
| A/T, ATM | Automatic Transmission (Transaxle) |
| ATF | Automatic Transmission Fluid |
| AUTO | Automatic |
| AUX | Auxiliary |
| AVG | Average |
| AVS | Adaptive Variable Suspension |
| B+ | Battery Voltage |
| BA | Brake Assist |
| BACS | Boost Altitude Compensation System |
| BAT | Battery |
| BDC | Bottom Dead Center |
| B/L | Bi-Level |
| B/S | Bore-Stroke Ratio |
| BTDC | Before Top Dead Center |
| BVSV | Bimetallic Vacuum Switching Valve |
| CAN | Controller Area Network |
| Calif. | California |
| CB | Circuit Breaker |
| CCo | Catalytic Converter For Oxidation |
| CD | Compact Disc |
| CF | Cornering Force |
| CG | Center Of Gravity |
| CH | Channel |
| CKD | Complete Knock Down |
| COMB. | Combination |
| CPE | Coupe |
| CPS | Combustion Pressure Sensor |
| CPU | Central Processing Unit |
| CRS | Child Restraint System |
| CTR | Center |
| C/V | Check Valve |
| CV | Control Valve |

| Abbreviations | Meaning |
|---|---|
| CW | Curb Weight |
| DC | Direct Current |
| DEF | Defogger |
| DFL | Deflector |
| DIFF. | Differential |
| DIFF. LOCK | Differential Lock |
| D/INJ | Direct Injection |
| DLC | Data Link Connector |
| DLI | Distributorless Ignition |
| DOHC | Double Overhead Camshaft |
| DP | Dash Pot |
| DS | Dead Soak |
| DSP | Digital Signal Processor |
| DTC | Diagnostic Trouble Code |
| DVD | Digital Versatile Disc |
| EBD | Electric Brake Force Distribution |
| ECAM | Engine Control And Measurement System |
| ECD | Electronically Controlled Diesel |
| ECDY | Eddy Current Dynamometer |
| ECT | Electronic Control Transmission |
| ECU | Electronic Control Unit |
| ED | Electro-Deposited Coating |
| EDU | Electronic Driving Unit |
| EDIC | Electric Diesel Injection Control |
| EFI | Electronic Fuel Injection |
| E/G | Engine |
| EGR | Exhaust Gas Recirculation |
| EGR-VM | EGR-V acuum Modulator |
| ELR | Emergency Locking Retractor |
| EMPS | Electric Motor Power Steering |
| ENG | Engine |
| ES | Easy & Smooth |
| ESA | Electronic Spark Advance |
| ETCS-i | Electronic Throttle Control System-intelligent |
| EVAP | Evaporative Emission Control |
| EVP | Evaporator |
| E-VR V | Electric Vacuum Regulating Valve |
| EX | Exhaust |
| FE | Fuel Economy |
| FF | Front-Engine Front-Wheel-Drive |
| F/G | Fuel Gauge |
| FIPG | Formed In Place Gasket |
| FL | Fusible Link |
| F/P | Fuel Pump |
| FPU | Fuel Pressure Up |
| Fr | Front |
| F/W | Flywheel |
| FW/D | Flywheel Damper |
| FWD | Front-Wheel-Drive |
| GAS | Gasoline |
| GND | Ground |

| Abbreviations | Meaning |
|---|---|
| GSA | Gear Shift Actuator |
| GPS | Global Positioning System |
| HAC | High Altitude Compensator |
| H/B | Hatchback |
| H-FUSE | High Current Fuse |
| HI | High |
| HID | High Intensity Discharge (Head Lamp) |
| HPU | Hydraulic Power Unit |
| HSG | Housing |
| HT | Hard Top |
| HV | Hybrid Vehicle |
| HWS | Heated Windshield System |
| IC | Integrated Circuit |
| IDI | Indirect Diesel Injection |
| IFS | Independent Front Suspension |
| IG | Ignition |
| IIA | Integrated Ignition Assembly |
| IN | Intake (Manifold, Valve) |
| INT | Intermittent |
| I/P | Instrument Panel |
| IRS | Independent Rear Suspension |
| ISC | Idle Speed Control |
| J/B | Junction Block |
| J/C | Junction Connector |
| KD | Kick-Down |
| LAN | Local Area Network |
| LB | Liftback |
| LCD | Liquid Crystal Display |
| LED | Light Emitting Diode |
| LH | Left-Hand |
| LHD | Left-Hand Drive |
| L/H/W | Length, Height, Width |
| LLC | Long-Life Coolant |
| LNG | Liquified Natural Gas |
| LO | Low |
| LPG | Liquified Petroleum Gas |
| LSD | Limited Slip Differential |
| LSP & PV | Load Sensing Proportioning And Bypass Valve |
| LSPV | Load Sensing Proportioning Valve |
| MAP | Manifold Absolute Pressure |
| MAX. | Maximum |
| MIC | Microphone |
| MIL | Malfunction Indicator Lamp |
| MIN. | Minimum |
| MG1 | Motor Generator No.1 |
| MG2 | Motor Generator No.2 |
| MMT | Multi-mode Manual Transmission |
| MP | Multipurpose |
| MPI | Multipoint Electronic Injection |
| MPX | Multiplex Communication System |
| M/T, MTM | Manual Transmission (Transaxle) |

| Abbreviations | Meaning |
|---|---|
| MT | Mount |
| MTG | Mounting |
| N | Neutral |
| NA | Natural Aspiration |
| No. | Number |
| O2S | Oxygen Sensor |
| OC | Oxidation Catalyst |
| OCV | Oil Control Valve |
| O/D | Overdrive |
| OEM | Original Equipment Manufacturing |
| OHC | Overhead Camshaft |
| OHV | Overhead Valve |
| OPT | Option |
| ORVR | On-board Refilling Vapor Recovery |
| O/S | Oversize |
| PBD | Power Back Door |
| P & BV | Proportioning And Bypass Valve |
| PCS | Power Control System |
| PCV | Positive Crankcase Ventilation |
| PKB | Parking Brake |
| PPS | Progressive Power Steering |
| PROM | Programmable Read Only Memory |
| PS | Power Steering |
| PSD | Power Slide Door |
| PTO | Power Take-Off |
| P/W | Power Window |
| PZEV | Partial Zero Emission Vehicle |
| R & P | Rack And Pinion |
| RAM | Random Access Memory |
| R/B | Relay Block |
| RBS | Recirculating Ball Type Steering |
| R/F | Reinforcement |
| RFS | Rigid Front Suspension |
| RH | Right-Hand |
| RHD | Right-Hand Drive |
| RLY | Relay |
| ROM | Read Only Memory |
| Rr | Rear |
| RRS | Rigid Rear Suspension |
| RSE | Rear Seat Entertainment |
| RWD | Rear-Wheel Drive |
| SC | Supercharger |
| SCV | Swirl Control Valve |
| SDN | Sedan |
| SEN | Sensor |
| SICS | Starting Injection Control System |
| SOC | State Of Charge |
| SOHC | Single Overhead Camshaft |
| SPEC | Specification |
| SPI | Single Point Injection |
| SRS | Supplemental Restraint System |

| Abbreviations | Meaning |
|---|---|
| SSM | Special Service Materials |
| SST | Special Service Tools |
| STD | Standard |
| STJ | Cold-Start Fuel Injection |
| SW | Switch |
| SYS | System |
| T/A | Transaxle |
| TACH | Tachometer |
| TBI | Throttle Body Electronic Fuel Injection |
| TC | Turbocharger |
| TCCS | TOYOTA Computer-Controlled System |
| TCV | Timing Control Valve |
| TDC | Top Dead Center |
| TEMP. | Temperature |
| TEMS | TOYOTA Electronically Modulated Suspension |
| TFT | Toyota Free-Tronic |
| TIS | Total Information System For Vehicle Development |
| T/M | Transmission |
| TMC | TOYOTA Motor Corporation |
| TMMK | TOYOTA Motor Manufacturing Kentucky, Inc. |
| TRAC | Traction Control System |
| TURBO | Turbocharge |
| TWC | Three-Way Catalyst |
| U/D | Underdrive |
| U/S | Undersize |
| VCV | Vacuum Control Valve |
| VENT | Ventilator |
| VGRS | Variable Gear Ratio Steering |
| VIN | Vehicle Identification Number |
| VPS | Variable Power Steering |
| VSC | Vehicle Stability Control |
| VSV | Vacuum Switching Valve |
| VTV | Vacuum Transmitting Valve |
| VVT-i | Variable Valve Timing-intelligent |
| w/ | With |
| WGN | Wagon |
| W/H | Wire Harness |
| w/o | Without |
| WU-TWC | Warm Up Three-way Catalytic Converter |
| WU-OC | Warm Up Oxidation Catalytic Converter |
| 1st | First |
| 2nd | Second |
| 2WD | Two Wheel Drive Vehicle (4 x 2) |
| 3rd | Third |
| 4th | Fourth |
| 4WD | Four Wheel Drive Vehicle (4 x 4) |
| 4WS | Four Wheel Steering System |
| 5th | Fifth |

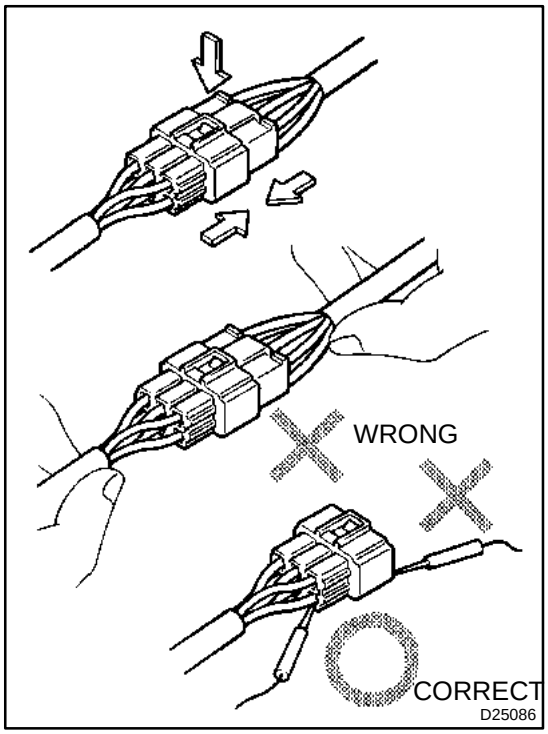
01046-08

# ELECTRONIC CIRCUIT INSPECTION PROCEDURE

## 1. BASIC INSPECTION

(a) RESISTANCE MEASURING CONDITION OF ELECTRONIC PARTS

(1) Unless stated, all resistance is measured at an ambient temperature of 20°C (68°F). As the resistance may be outside the specifications if measured at high temperatures immediately after the vehicle has been running, measurements should be made when the engine has cooled down.




(b) HANDLING OF CONNECTOR

(1) When removing the connector with lock, press the connector in the direction of the engagement and remove the lock by lightly pressing the lock claw.

(2) When removing the connector, do not hold the harness, but hold the connector.

(3) Before connecting the connector, check that there is no deformation, damage or missing terminals.

(4) The connector with a lock should be securely connected until it makes a ”click” sound.

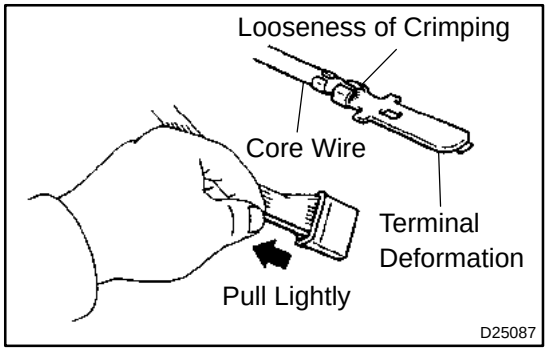
(5) When checking the connector with a Toyota electrical tester, check it from the backside (harness side) of the connector using a mini test lead.

**NOTICE:**

- **As a water proof connector cannot be checked from the backside, check by connecting the sub-harness.**
- **Do not damage the terminals by moving the inserted tester needle.**

(c) CONNECTOR CHECKING POINTS

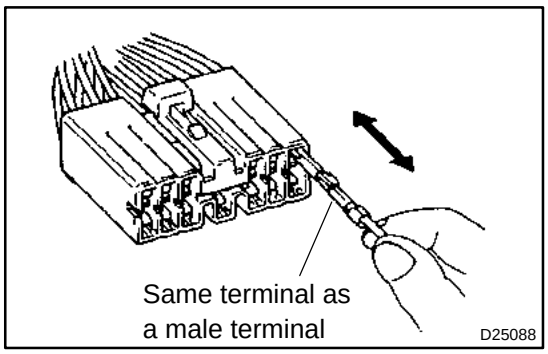
(1) Checking when the connector is connected:
By holding the connector, check the inserted condition and locking efficiency (engaged condition).



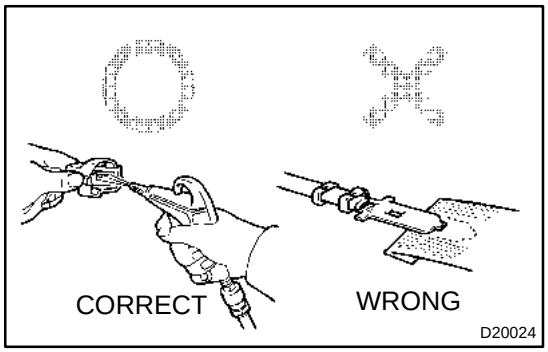

(2) Checking when the connector is removed:
Check by lightly pulling the wire harness (missing terminal, terminal crimping condition, core wire break).
Check visually for is any rust, metal particles, water and bent terminals (rust, mixing of foreign object, terminal deformation).

**NOTICE:**

**When testing a gold-plated female terminal, always use a gold-plated male terminal.**



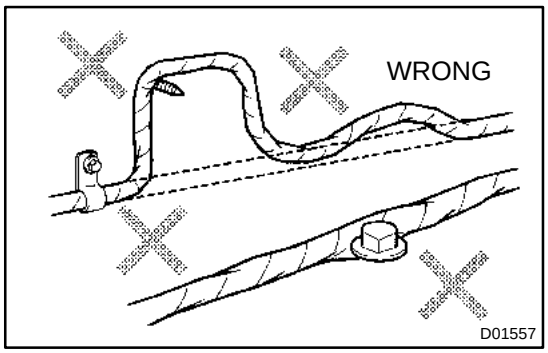

(3) Checking of the contact pressure of the terminal:
Prepare a spare male terminal.
Insert it into a female terminal, check the engaged condition and sliding resistance.




(d) REPAIR METHOD OF CONNECTOR TERMINAL

(1) If there is on the contact point, clean the contact point using an air gun or shop rag. However, never polish the contact point using sand paper as the platings may come off.

(2) In case of abnormal contact pressure, replace the female terminal. However, if a male terminal is gold-plated (gold color), use gold-plated female terminal and if it is silver-plated (silver color), use silver-plated female terminal.




(e) HANDLING OF WIRE HARNESS

(1) When removing the wire harness, check the positioning of the wiring and clamping before starting work in order to be able to restore it correctly.

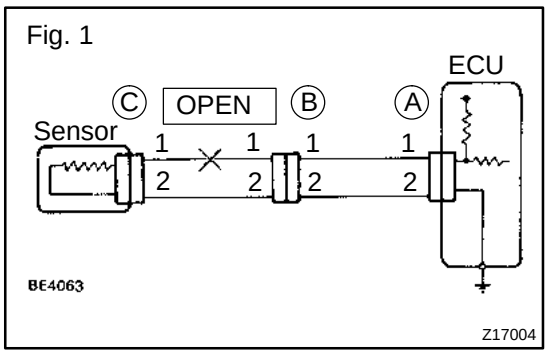
(2) Never twist, pull or loosen the wire harness more than necessary.

(3) Never allow the wire harness to come into contact with a high-temperature, rotating, moving, vibrating or sharp (edge of the panel, tip of the screw, etc.) part.

(4) When installing parts, never let the wire harness be interfered with.

(5) Never cut or break the cover of the wire harness. If one is cut or broken, replace it or securely repair it with electrical tape.

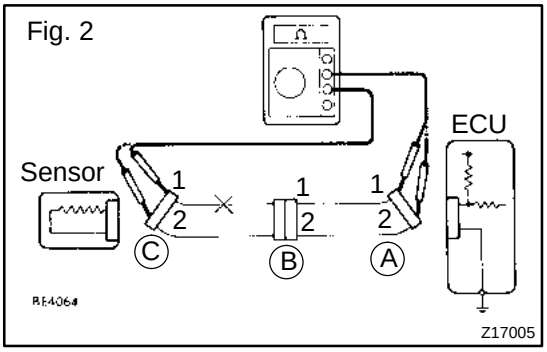
Fig. 1




**2. CHECK OPEN CIRCUIT**

(a) For the open circuit in the wire harness in Fig. 1, perform a continuity check in step (b) or a voltage check in step (c) to locate the section.

Fig. 2




(b) Check the continuity.

(1) Disconnect connectors A and C and measure the resistance between them.

**Resistance: 1 Ω or less**

HINT:

Measure the resistance while lightly shaking the wire harness vertically and horizontally.

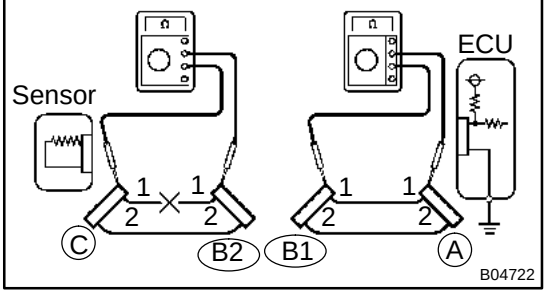
In the case of Fig. 2:

Between terminal 1 of connector A and terminal 1 of connector C → No continuity (open)

Between terminal 2 of connector A and terminal 2 of connector C → Continuity

Therefore, the cause is an open circuit between terminal 1 of connector A and terminal 1 of connector C.

Fig. 3




(2) Disconnect connector B and measure the resistance between the connectors.

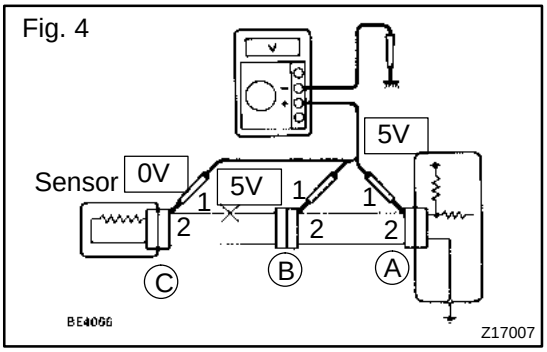
In the case of Fig. 3:

Between terminal 1 of connector A and terminal 1 of connector B1 → Continuity

Between terminal 1 of connector B2 and terminal 1 of connector C → No continuity (open)

Therefore, the cause is an open circuit between terminal 1 of connector B2 and terminal 1 of connector C.

Fig. 4




(c) Check the voltage.

(1) In a circuit in which voltage is applied (to the ECU connector terminal), an open circuit can be checked by conducting a voltage check.

As shown in Fig. 4, with each connector still connected, measure the voltage between the body ground and terminal 1 of connector A at the ECU 5 V output terminal, terminal 1 of connector B, and terminal 1 of connector C, in that order.

(2) If the results are:

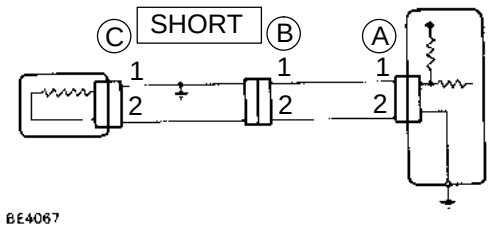
5 V: Between terminal 1 of connector A and body ground

5 V: Between terminal 1 of connector B and body ground

0 V: Between terminal 1 of connector C and body ground

Therefore, the cause is an open circuit in the wire harness between terminal 1 of connector B and terminal 1 of connector C.

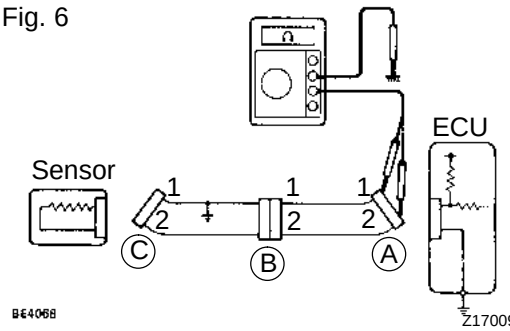
Fig. 5




**3. CHECK SHORT CIRCUIT**

(a) If the wire harness is ground shorted as shown in Fig. 5, locate the section by conducting a continuity check with the body ground in step (b).

Fig. 6




(b) Check the continuity with the body ground.

(1) Disconnect connectors A and C and measure the resistance between terminals 1 and 2 of connector A and the body ground.

**Resistance: 10 kΩ or higher**

HINT:

Measure the resistance while lightly shaking the wire harness vertically and horizontally.

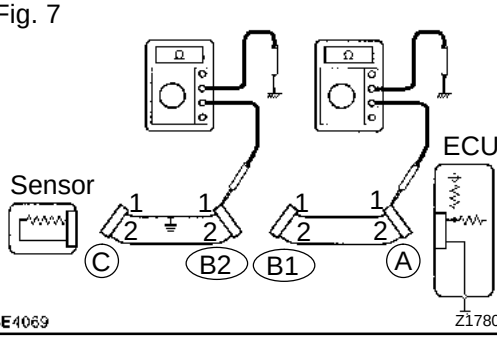
In the case of Fig. 6:

Between terminal 1 of connector A and body ground → Continuity (short)

Between terminal 2 of connector A and body ground → No continuity

Therefore, the cause is a short circuit between terminal 1 of connector A and terminal 1 of connector C.

Fig. 7




(2) Disconnect connector B and measure the resistance between terminal 1 of connector A and the body ground, and terminal 1 of connector B2 and the body ground.

In the case of Fig. 7:

Between terminal 1 of connector A and body ground → No continuity

Between terminal 1 of connector B2 and body ground → Continuity (short)

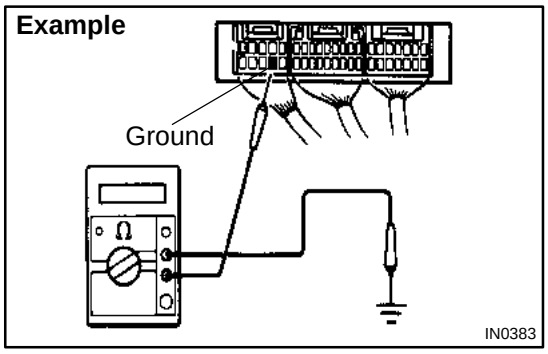
Therefore, the cause is a short circuit between terminal 1 of connector B2 and terminal 1 of connector C.

**4. CHECK AND REPLACE ECU**

**NOTICE:**

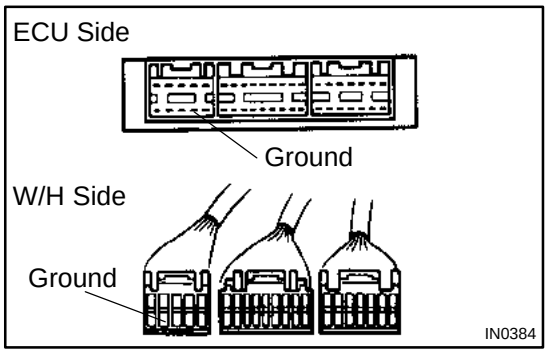
- **Start an inspection of the connector from the backside of the connector on the wire harness side with the connector connected to the ECU.**
- **When no measurement condition is specified, perform the inspection with the engine stopped and also the ignition switch ON.**

(a) First check the ECU ground circuit. If it is faulty, repair it. If it is normal, the ECU could be faulty. In this case, replace the ECU with one that functions normally and check if the symptoms appear.




(1) Measure the resistance between the ECU ground terminal and body ground.

**Resistance: 1 Ω or less**

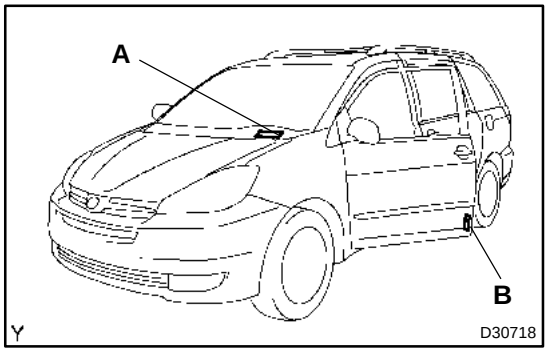



(2) Disconnect the ECU connector, check the ground terminals on the ECU side and wire harness side for bends and check the contact pressure.

# IDENTIFICATION INFORMATION

01041-09

## VEHICLE IDENTIFICATION AND SERIAL NUMBERS

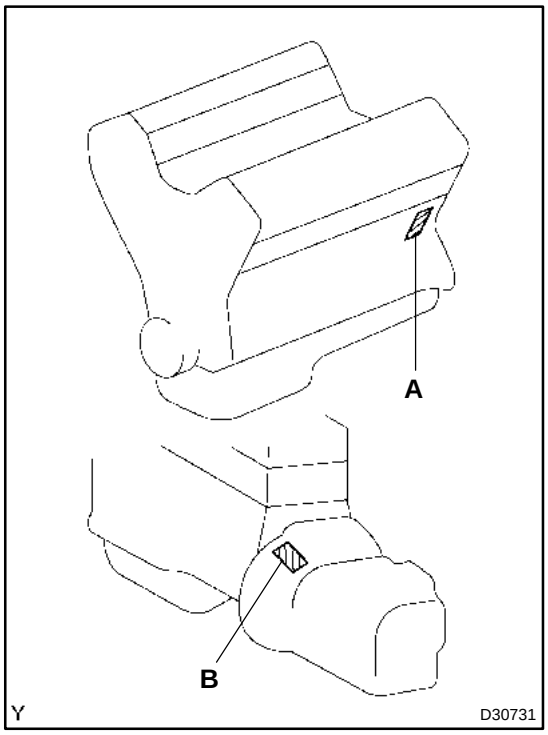



**1. VEHICLE IDENTIFICATION NUMBER**

(a) The vehicle identification number is stamped on the vehicle identification number plate and the certification label, as shown in the illustration.

**A: Vehicle Identification Number Plate**

**B: Certification Label**




**2. ENGINE SERIAL NUMBER AND TRANSAXLE SERIAL NUMBER**

(a) The engine serial number is stamped on the cylinder block of the engine and the transaxle serial number is stamped on the housing as shown in the illustration.

**A: Engine Serial Number**

**B: Transaxle Serial Number**

# HOW TO TROUBLESHOOT ECU CONTROLLED SYSTEMS

01044-23

## GENERAL INFORMATION

There are many ECU controlled systems used in the SIENNA. In general, ECU controlled systems are considered to be very intricate and require a high level of technical knowledge and expert skill to troubleshoot. The fact is, however, that if you proceed by inspecting the circuits one by one, troubleshooting of these systems is not complex. If you have adequate understanding of the system and basic knowledge of electricity, the problem can be accurately diagnosed and fixed. This manual is designed based on the above principle to help service technicians perform accurate and effective troubleshooting, and is compiled for the following major ECU controlled systems:

The troubleshooting procedures are described on the following pages.


| System | Page |
|---|---|
| 1. SFI System | 05-1 |
| 2. Tire Pressure Warning System | 05-344 |
| 3. ABS with EBD System | 05-383 |
| 4. ABS with EBD & BA & TRAC & VSC System | 05-431 |
| 5. Electronically Controlled Automatic Transmission [ECT] | 05-528 |
| 6. Air Conditioning System | 05-634 |
| 7. Supplemental Restraint System | 05-758 |
| 8. Lighting System | 05-1117 |
| 9. Audio System | 05-1186 |
| 10. Navigation System | 05-1256 |
| 11. Rear Seat Audio System | 05-1403 |
| 12. Rear Seat Entertainment System | 05-1417 |
| 13. Back Monitor System | 05-1472 |
| 14. TOYOTA Park Assist System | 05-1484 |
| 15. Combination Meter | 05-1525 |
| 16. Power Window Control System (w/ jam protection) | 05-1553 |
| 17. Power Door Lock Control System | 05-1586 |
| 18. Slide Door Closer System | 05-1627 |
| 19. Power Slide Door System | 05-1647 |
| 20. Back Door Closer System | 05-1732 |
| 21. Power Back Door System | 05-1749 |
| 22. Wireless Door Lock Control System | 05-1790 |
| 23. Key Reminder Warning System | 05-1817 |
| 24. Engine Immobilizer System | 05-1831 |
| 25. Theft Deterrent System | 05-1858 |
| 26. Multiplex Communication System | 05-1876 |
| 27. CAN Communication System | 05-1931 |
| 28. Cruise Control System | 05-1961 |
| 29. Dynamic Laser Cruise Control System | 05-1985 |

**FOR USING OBDII SCAN TOOL OR HAND-HELD TESTER**

- Before using the scan tool or tester, the scan tool's instruction book or tester's operator manual should be read thoroughly.
- If the scan tool or tester cannot communicate with the ECU controlled systems when you have connected the cable of the tester to the DLC3 with the ignition switch and tester turned ON, there is a problem on the vehicle side or tester side.
  (1) If the communication is normal when the tester is connected to another vehicle, inspect the diagnosis data link line (Bus⊕line) or ECU power circuit of the vehicle.
  (2) If communication is still impossible when the tester is connected to another vehicle, the problem is probably in the tester itself, so perform the self test procedures outlined in the Tester Operator's Manual.

# HOW TO USE THIS MANUAL

0108G-09

## GENERAL INFORMATION

### 1. GENERAL DESCRIPTION

(a) This manual is made in accordance with SAE J2008.

(b) Generally, repair operations can be separated in the following 3 main processes:
1. Diagnosis
2. Removing/Installing, Replacing, Disassembling/Reassembling, Checking and Adjusting
3. Final Inspection

(c) This manual explains the 1st process of "Diagnosis" (found in the "Diagnostics" section), the 2nd process of "Removing and Installing, Replacing, Disassembling, Installing and Checking, and Adjusting", but the 3rd process of "Final Inspection" is omitted.

(d) The following essential operations are not written in this manual. However, these operations must be performed in actual situations.
(1) Operations with a jack or lift
(2) Cleaning of a removed part when necessary
(3) Visual check

### 2. INDEX

(a) An alphabetical INDEX section is provided at the end of the book as a reference to help you find the item to be repaired.

### 3. PREPARATION

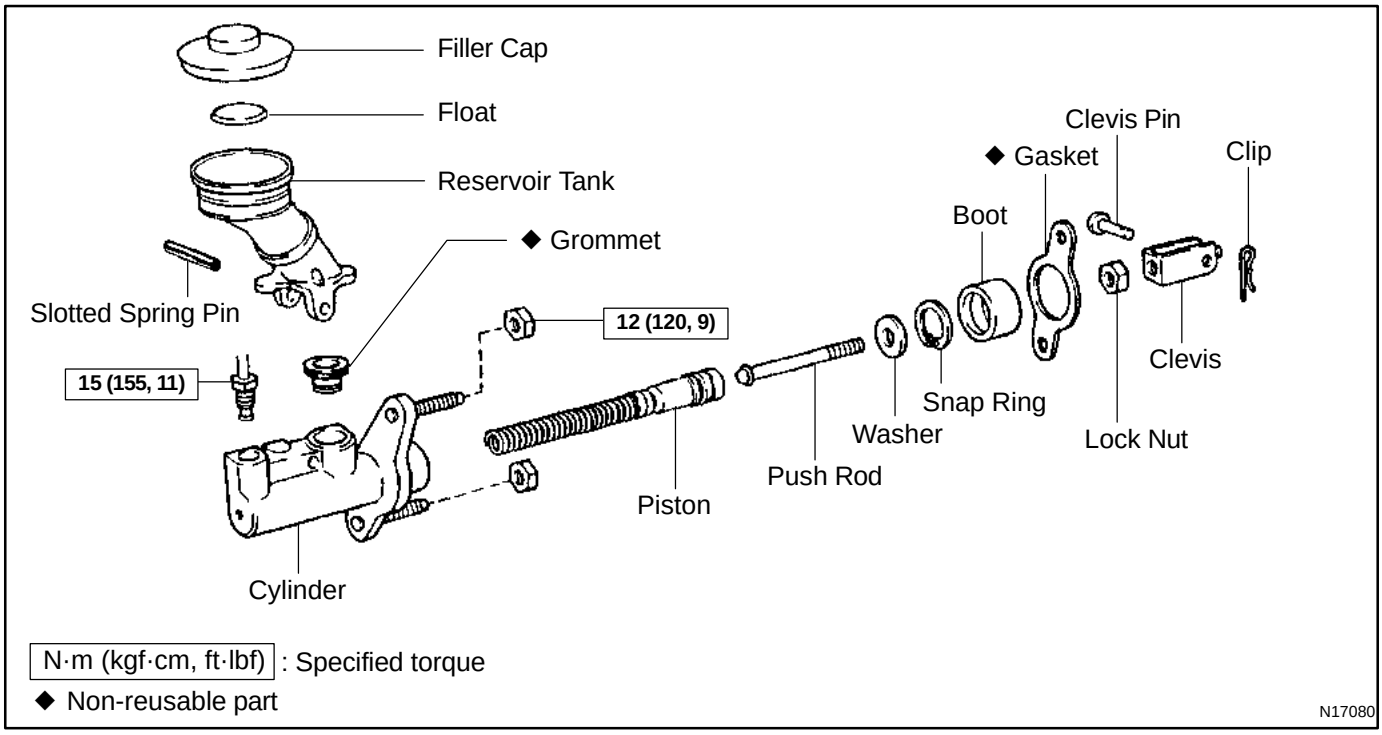
(a) Use of special service tools (SST) and special service materials (SSM) may be required, depending on the repair situation. Be sure to use SST and SSM when they are required and follow the working procedure properly. A list of SST and SSM is in the Preparation section of this manual.

### 4. REPAIR PROCEDURES

(a) Component drawing is placed under the title where necessary.

(b) Non-reusable parts, grease application area, precoated parts and tightening torque are specified in the component drawings.

**Example:**



(c) Tightening torque, grease application area, and non-reusable parts are described as important points in the procedures.

**NOTICE:**

**There are cases where such information can only be explained by using an illustration. In these cases, all the information such as torque, oil, etc. are described in the illustration.**

(d) Installing procedures are performed in the reverse order of the removal and only the important points are described.

(e) Only items with points are described in the procedure, and the operational portion and content are placed using an illustration. In the explanations, details of the operational method, standard value and notices are placed.

(f) There may be a case where the illustrations of similar models are used. In that case, specific details may be different from the actual vehicle.

(g) The procedures are presented in a step-by-step format:

(1) The illustration shows what to do and where to do it.

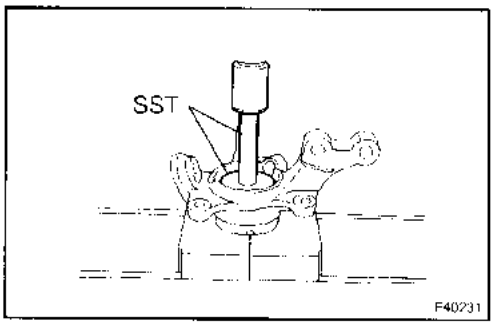
(2) The task heading tells what to do.

(3) The explanation text tells how to perform the task and gives other information such as specifications and warnings.

**Example:**

*Illustration:*

*what to do and where*




*Task heading: what to do*

**14. INSTALL FRONT AXLE HUB LH BEARING**

(a) Using SST and a press, install a new bearing to the steering knuckle. ← *Detailed text: how to perform task*

SST 09950–60020 (09951–00720), 09950–70010 (09951–07100)

*Set part No*

*Component part No.*

D31009

HINT:

This format provides an experienced technician with a FAST TRACK to the necessary information. The task heading can be read at a glance when necessary and the text below provides detailed information. Important specifications and warnings are always written in bold type to stand out from the rest of the text.

## 5. SERVICE SPECIFICATIONS

(a) Specifications are presented in bold type throughout the manual. You never have to leave the procedure to look up your specifications. The specifications are also found in the Service Specifications section for quick reference.

## 6. TERMS DEFINITION

| | |
|---|---|
| CAUTION | Indicates the possibility of injury to you or other people. |
| NOTICE | Indicates the possibility of damage to the components being repaired. |
| HINT | Provides additional information to help you to perform the repair efficiently. |

## 7. SI UNIT

(a) The units given in this manual are primarily expressed according to the SI UNIT (International System of Units), and alternately expressed in the metric system and in the English System.

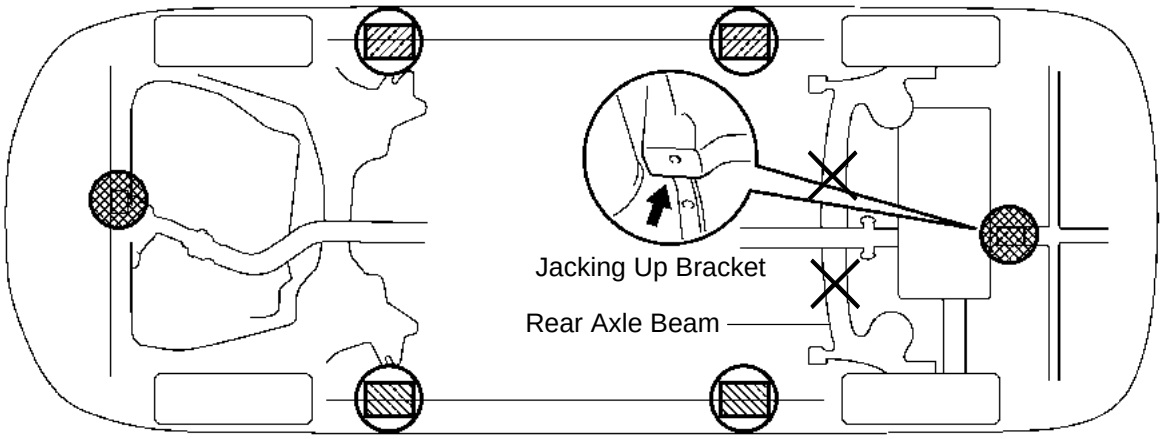
**Example:**

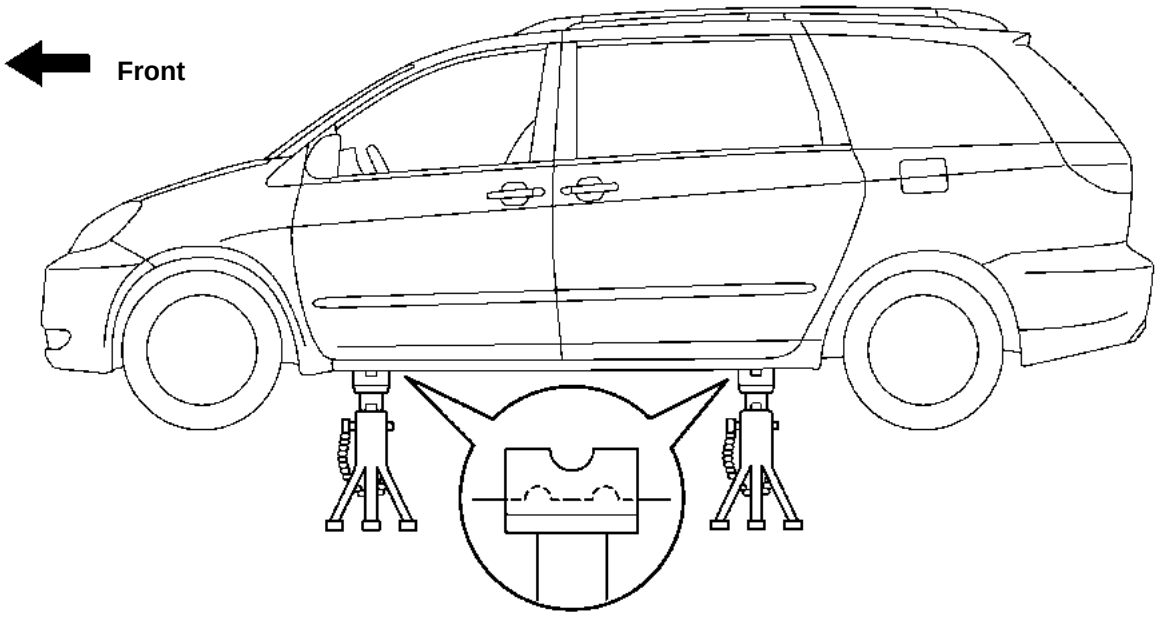
**Torque: 30 N·m (310 kgf·cm, 22 ft·lbf)**

010L2-01

# VEHICLE LIFT AND SUPPORT LOCATIONS

**2WD**




**JACK POSITION**

Front - - - - - - - - - Front suspension member
Rear - - - - - - - - - Jacking up bracket

**CAUTION : When jacking up the front and rear, make sure the vehicle is not carrying any extra weight.**

**NOTICE :**

**Do not jack up at the center of the rear axle beam. If the vehicle is lifted at the center of the rear axle beam, the rear axle beam will be damaged.**

**PANTOGRAPH JACK POSITION**

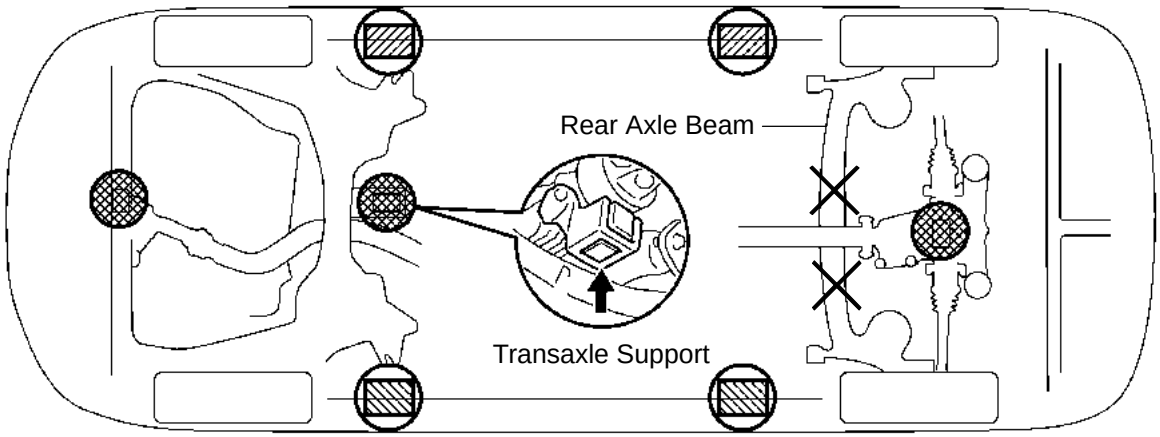
**SUPPORT POSITION**

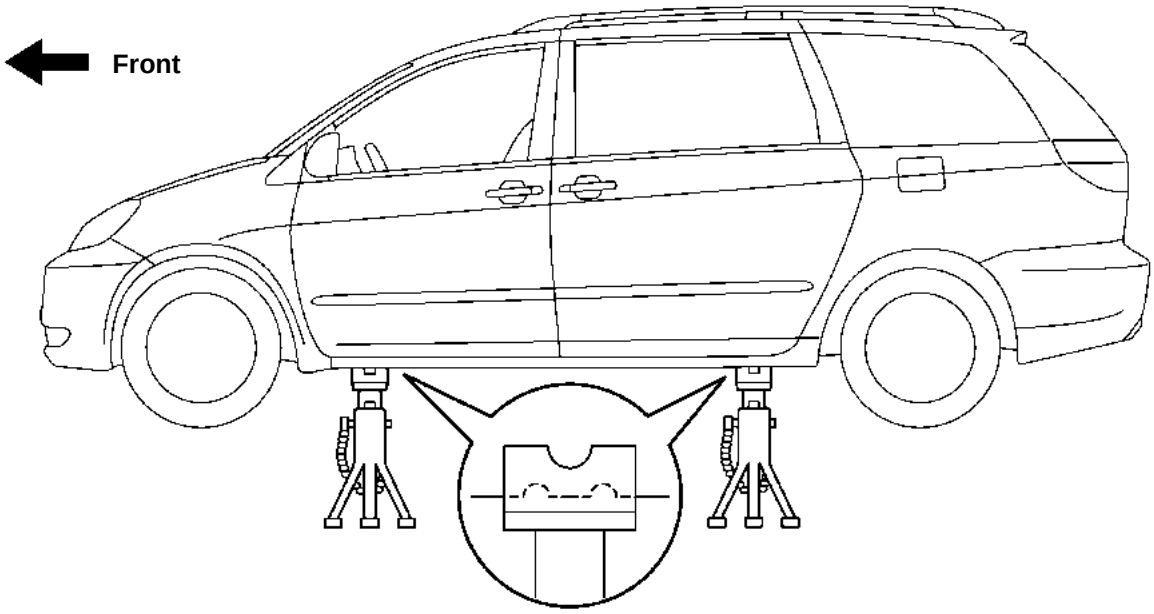
Safety stand and swing arm type lift - - - - - - - - - - - - - - - - - -

Y

D30725

**4WD**




**JACK POSITION**

Front - - - - - - - - - - Front suspension member and/or transaxle support
Rear - - - - - - - - - - Rear differential support

**CAUTION : When jacking up the front and rear, make sure the vehicle is not carrying any extra weight.**

**NOTICE :**

**Do not jack up at the center of the rear axle beam. If the vehicle is lifted at the center of the rear axle beam, the rear axle beam will be damaged.**

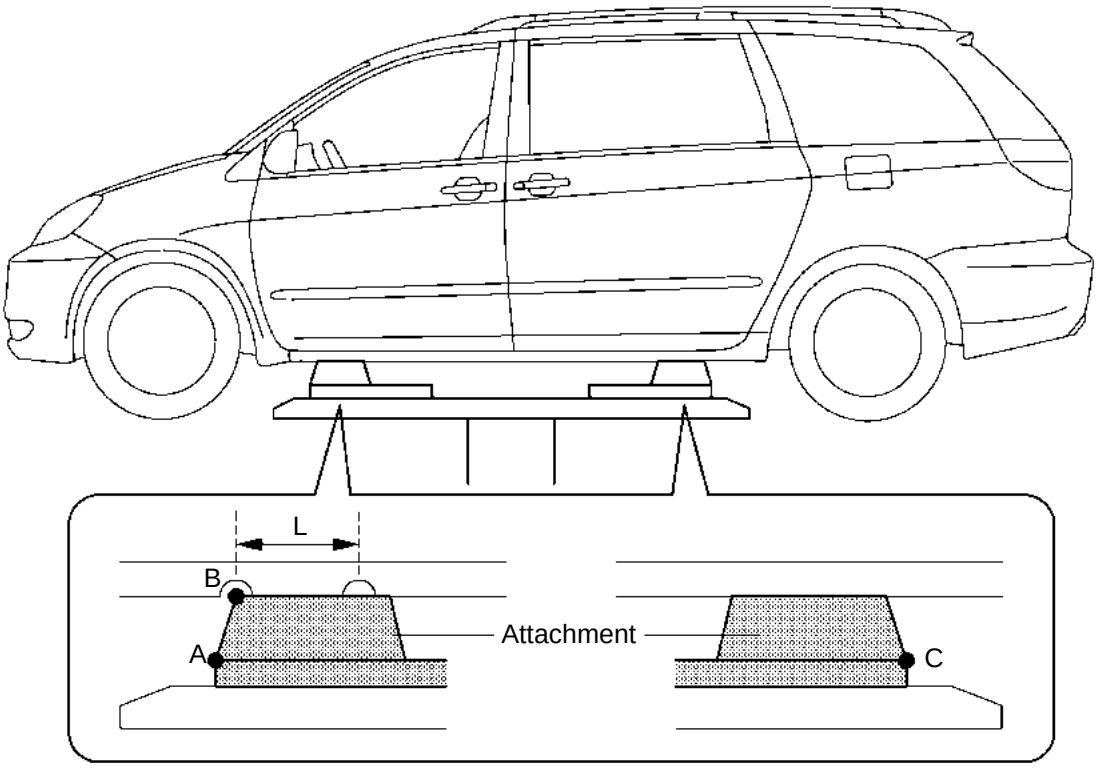
**PANTOGRAPH JACK POSITION**

**SUPPORT POSITION**

Safety stand and swing arm type lift - - - - - - - - - - - - - - - - - -

Y D30726

**Plate Type Lift**



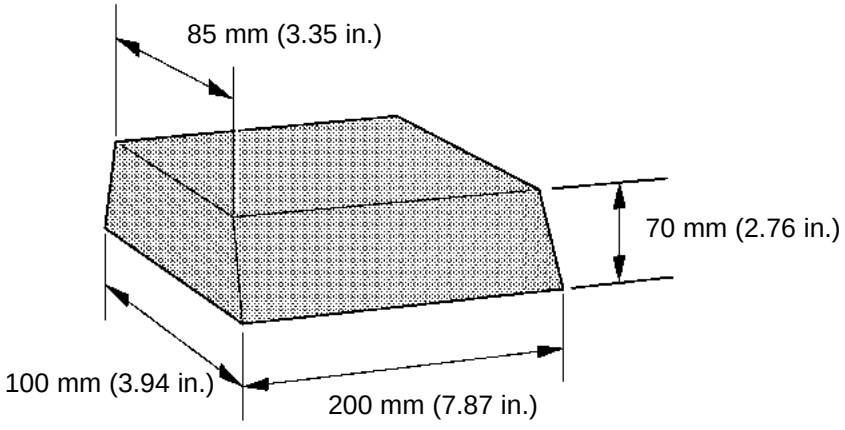

**NOTICE:**

**Set the rear side attachment so that it is behind the parting line between front door and sliding door.**

HINT:

| | |
|---|---|
| Left and right set position | Place the vehicle over the center of the lift. |
| Front and rear set position | ● Align the cushion gum ends of the plate with the attachment lower ends (A, C).<br>● Align the attachment upper end (B) with the front jack supporting point (L). |

Attachment dimensions




Y D30724

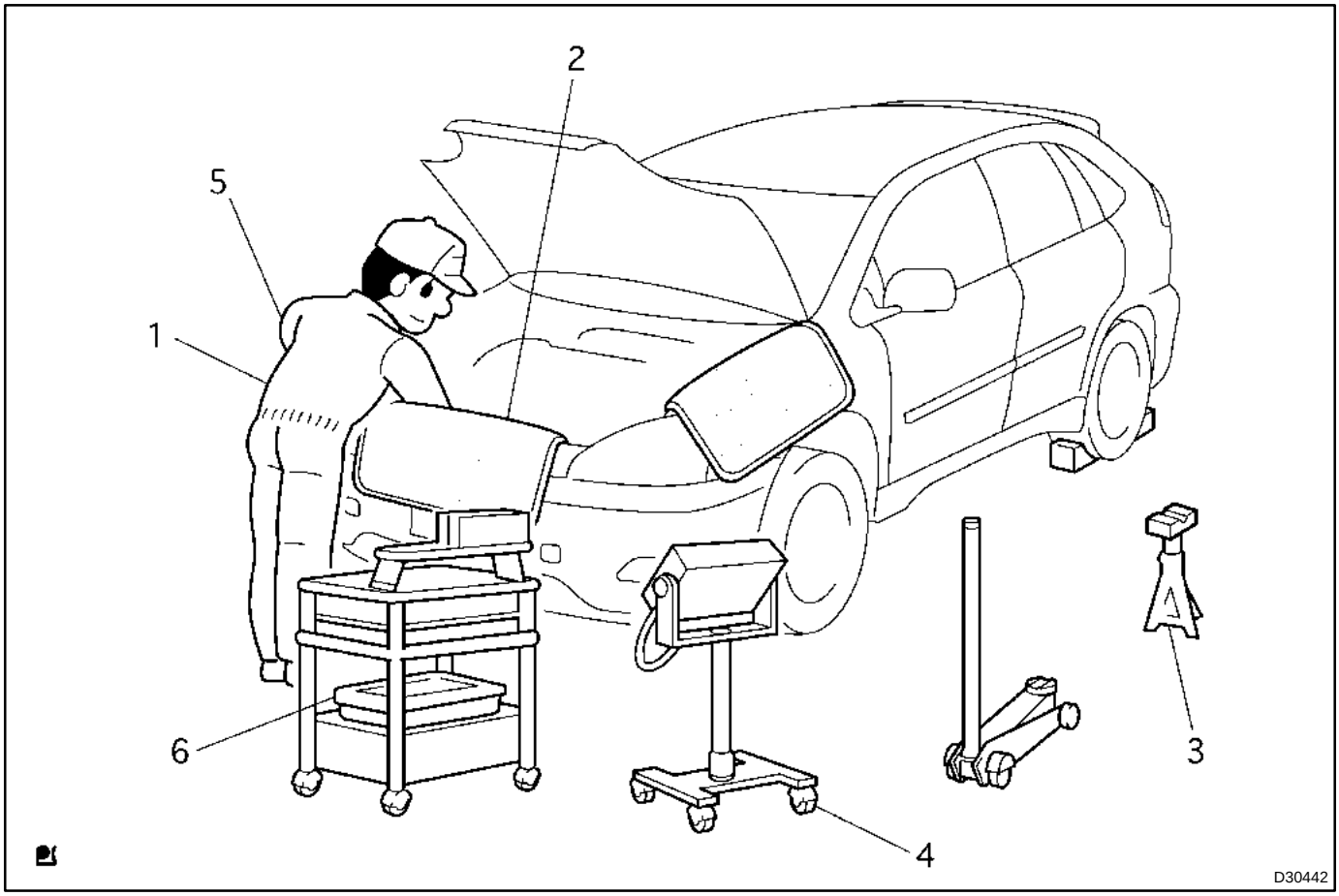
# REPAIR INSTRUCTION

010L3-02

## PRECAUTION

### 1. BASIC REPAIR HINT

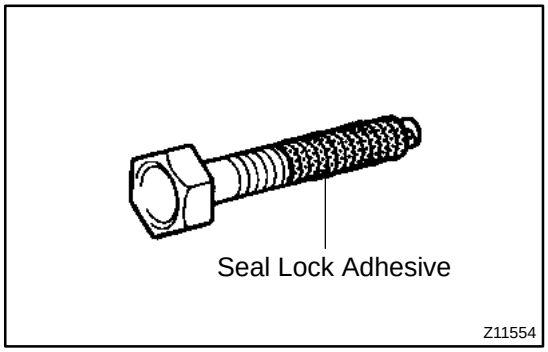
(a) HINTS ON OPERATIONS




| | | |
|---|---|---|
| 1 | Looks | • Always wear a clean uniform.<br>• Hat and safety shoes must be worn. |
| 2 | Vehicle protection | • Set a grill cover, fender cover, seat cover and floor mat before starting operation. |
| 3 | Safe operation | • When working with 2 or more persons, be sure to check the safety of one another.<br>• When working with the engine running, pay attention to providing ventilation for exhaust fumes in the workshop.<br>• When working with high-temperatures, rotating, moving or vibrating parts, be careful not to burn or injure yourself.<br>• When jacking up the vehicle, be sure to support the specified location with a safety stand.<br>• When lifting up the vehicle, use safety equipment. |
| 4 | Preparation of tools and measuring gauge | • Before starting repairs, prepare the tool stand, SST, gauge, oil, shop rag and parts for replacement. |
| 5 | Removal and installation, disassembly and assembly operations | • Diagnose with a thorough understanding of the trouble condition and perform effective operation.<br>• Before removing the parts, check the general condition of the assembly, and for deformation and damage.<br>• When the structure is complicated, take a notes or make matchmarks as not to make mistakes that affect the function of the parts.<br>• Clean and wash the removed parts if necessary and assemble them after a thorough check. |
| 6 | Removed parts | • Place the removed parts in the correct order to avoid mixing them up or making them dirty.<br>• As for non-reusable parts such as gaskets, O-rings, and self-locking nuts, replace them with new ones following the instructions in this manual.<br>• Organize the parts that were replaced in a box and show them to the customer. |

(b) JACKING UP AND SUPPORTING VEHICLE

(1) Care must be taken when jacking up and supporting the vehicle. Be sure to lift and support the vehicle at the proper locations (See page 01-22 ).




(c) PRECOATED PARTS

(1) Precoated parts such as bolts, nuts, etc., are coated with a seal lock adhesive at the factory.

(2) If a precoated part is retightened, loosened or caused to move in any way, it must be recoated with the specified adhesive.

(3) When reusing precoated parts, clean off the old adhesive and dry the part with compressed air. Then apply the specified seal lock adhesive to the bolt, nut or threads.

**NOTICE:**

**Check the torque with the lower limit value of the torque tolerance.**

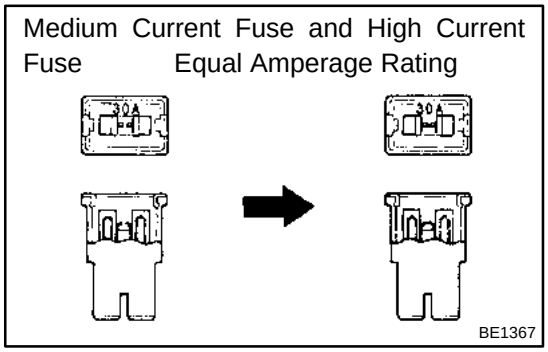
(4) Depending on the seal lock agent to be applied, there may be cases where it is necessary to leave it for a specified time until it hardens.

(d) GASKETS

(1) When necessary, use a sealer on gaskets to prevent leaks.

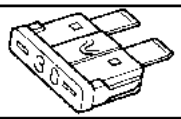
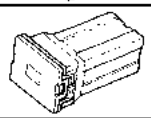
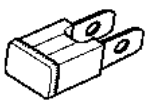
(e) BOLTS, NUTS AND SCREWS

(1) Carefully follow all the specifications for tightening torques. Always use a torque wrench.




(f) FUSES

(1) When replacing fuses, be sure that a new fuse has the correct amperage rating. DO NOT exceed the rating, or use one with a lower rating.

| Illustration | Symbol | Part Name | Abbreviation |
|---|---|---|---|
|  BE5594 |  IN0365 | FUSE | FUSE |
|  BE5595 |  IN0366 | MEDIUM CURRENT FUSE | M-FUSE |
|  D27353 |  IN0367 | HIGH CURRENT FUSE | H-FUSE |

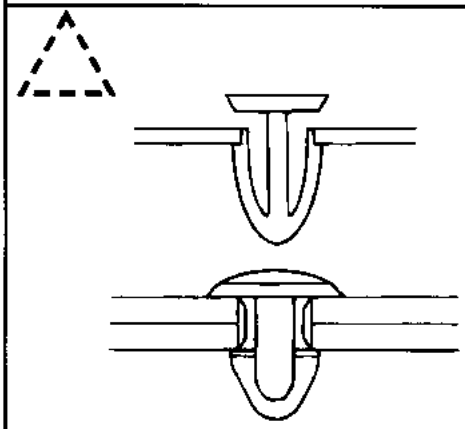
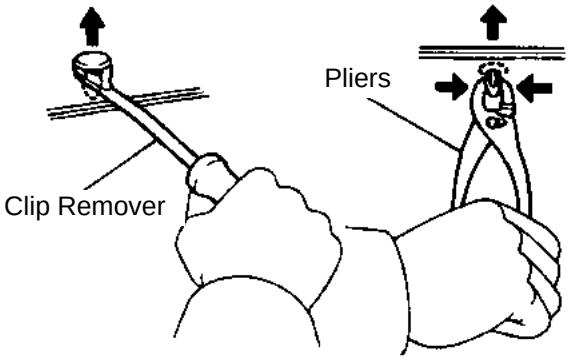
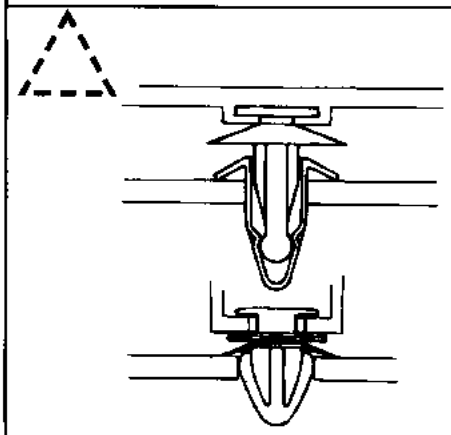
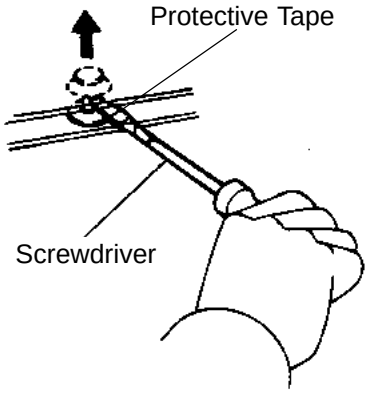
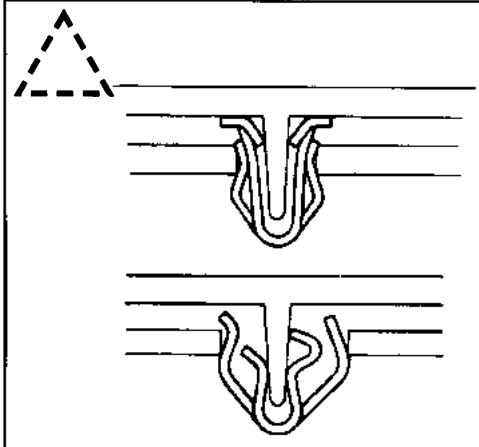
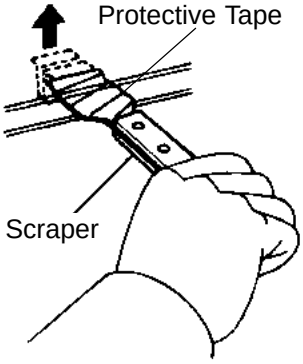
V35002

(g) CLIPS

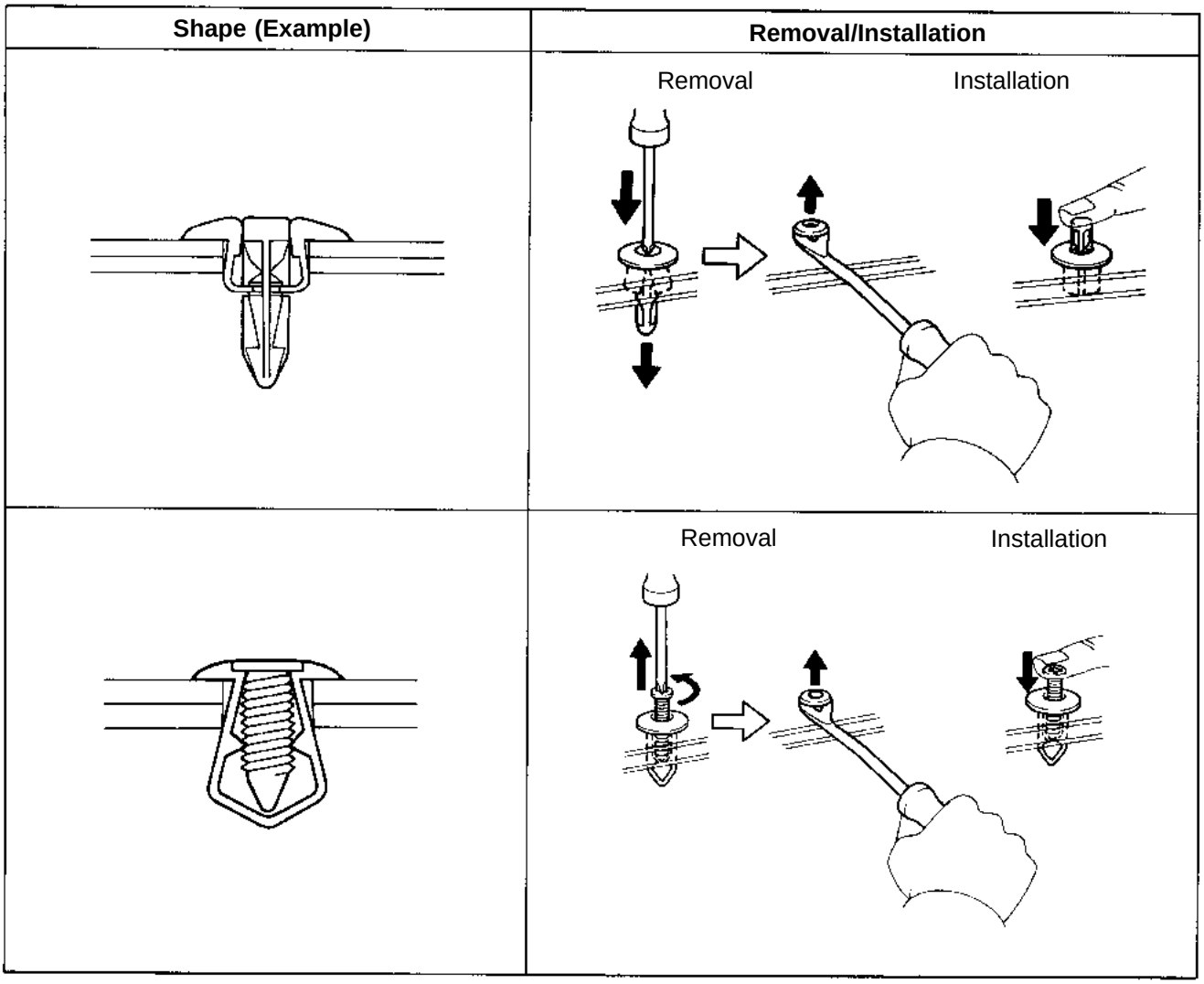
(1) The removal and installation methods of typical clips used in body parts are shown in the table below.

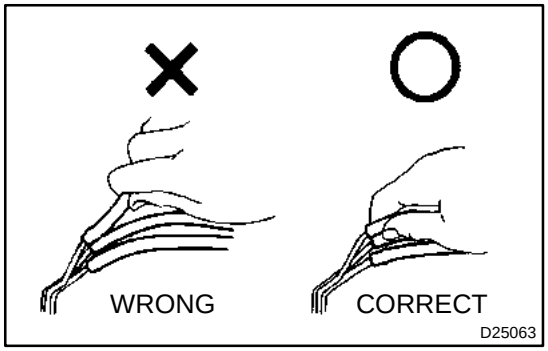
HINT:

If the clip is damaged during a procedure, always replace it with a new clip.

| Shape (Example) | Removal/Installation |
|---|---|
|  |  |
|  |  |
|  |  |

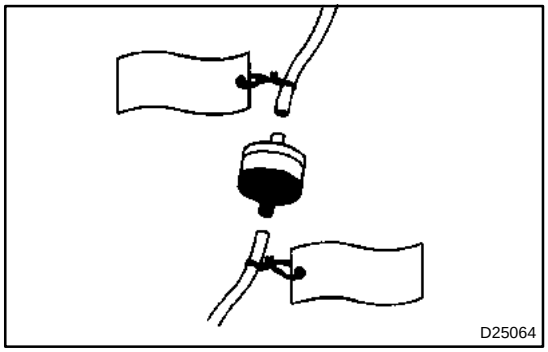
D25786




(h) REMOVAL AND INSTALLATION OF VACUUM HOSES

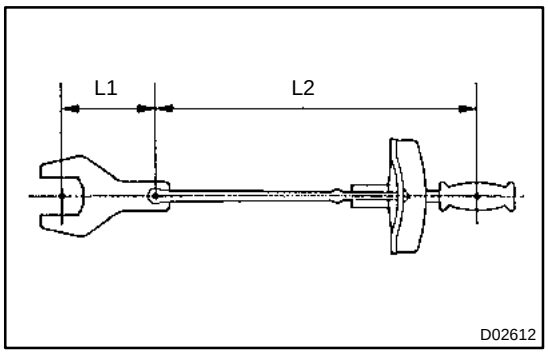
(1) To disconnect vacuum hoses, pull them by holding the end, not the middle of the hose.

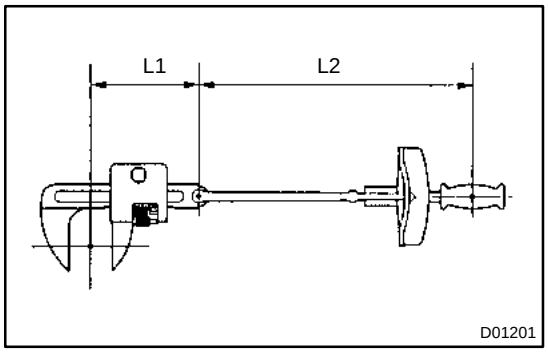



(2) When disconnecting vacuum hoses, use tags to identify where they should be reconnected.

(3) After completing the job, double check that the vacuum hoses are properly connected. The label under the hood shows the proper layout.

(4) When using a vacuum gauge, never force the hose onto a connector that is too large. Use a step-down adapter for adjustment. Once the hose has been stretched, it may leak air.




(i) TORQUE WHEN USING TORQUE WRENCH WITH EXTENSION TOOL

(1) When the torque wrench is combined with SST or an extension tool to extend the length, and you tighten until the torque wrench reads the specified torque value, the actual torque becomes excessive.

(2) In this manual, only the specified torque is described. In case of using SST or extension tool, calculate the reading of the torque wrench by the following formula.

(3) Formula T'=T x L2/(L1 + L2)

| | |
|---|---|
| T' | Reading of torque wrench {N·m (kgf·cm, ft·lbf)} |
| T | Torque {N·m (kgf·cm, ft·lbf)} |
| L1 | Length of SST or extension tool (cm) |
| L2 | Length of torque wrench (cm) |

## 2. FOR VEHICLES EQUIPPED WITH SRS AIRBAG AND SEAT BELT PRETENSIONER

HINT:

The SIENNA is equipped with an SRS (Supplemental Restraint System), which includes the driver airbag, front passenger airbag, side airbag, curtain shield airbag and seat belt pretensioner.

Failure to carry out the service operations in the correct sequence could cause the supplemental restraint system to unexpectedly deploy while servicing. This could cause a serious accident.

Furthermore, if a mistake is made when servicing the supplemental restraint system, it is possible that the SRS will fail to operate when required. Before servicing (including removal or installation of parts, inspection or replacement), be sure to read the following items carefully. Then follow the correct procedures described in this manual.

(a) GENERAL NOTICE

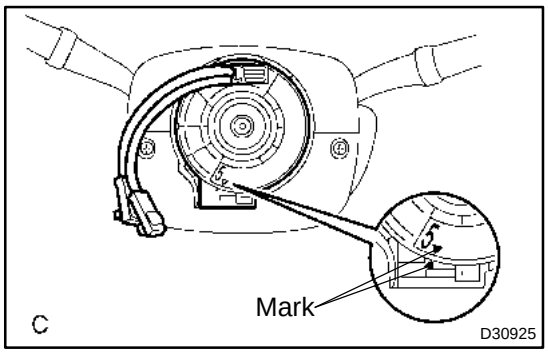
(1) Malfunction symptoms of the supplemental restraint system are difficult to confirm so the diagnostic trouble codes become the most important source of information when troubleshooting. When troubleshooting the supplemental restraint system, always check the diagnostic trouble codes before disconnecting the battery (See page 05-758 ).

(2) Work must be started after 90 seconds from the time that the ignition switch is turned to the LOCK position and the negative (-) terminal cable is disconnected from the battery.

(The supplemental restraint system is equipped with a back-up power source. So, if work is started within 90 seconds after disconnecting the negative (-) terminal cable from the battery, the SRS may deploy).

When the negative (-) terminal cable is disconnected from the battery, memory of the clock and audio systems is cancelled. So, before starting work, make a record of the contents recorded in each memory system. Then, when work is finished, reset the clock and audio systems as before.

(3) Even in the case of a minor collision where the SRS does not deploy, the horn button assembly (See page 60-21 ), instrument panel passenger airbag assembly (See page 60-33 ), front seat airbag assembly (See page 60-49 ), curtain shield airbag assembly (See page 60-43 ) and seat belt pretensioner (See page 61-9 ) should be inspected.
(4) Never use the SRS related parts from another vehicle. When replacing the parts, replace them with new parts.
(5) Before repairs, remove the airbag sensor if there is a possibility of shock during repairs.
(6) Never disassemble and repair the airbag sensor assembly, horn button assembly, instrument panel passenger airbag assembly, front seat airbag assembly, curtain shield airbag assembly or seat belt pretensioner.
(7) If the airbag sensor assembly, the side airbag sensor assembly, the horn button assembly, the instrument panel passenger airbag assembly, the front seat airbag assembly or the curtain shield airbag assembly have been dropped, or if there are cracks, dents or other defects in the case, bracket or connector, replace them with new ones.
(8) Do not directly expose the airbag sensor assembly, the side airbag sensor assembly, the horn button assembly, the instrument panel passenger airbag assembly, the front seat airbag assembly, the curtain shield airbag assembly or the seat belt pretensioner to hot air or flames.
(9) Use a volt/ohmmeter with high impedance (10 kΩ/V minimum) for troubleshooting electrical circuits.
(10) Information labels are attached to the SRS components. Follow the instructions on the notices.
(11) After work on the supplemental restraint system is completed, check the SRS warning light (See page 05-780 ).

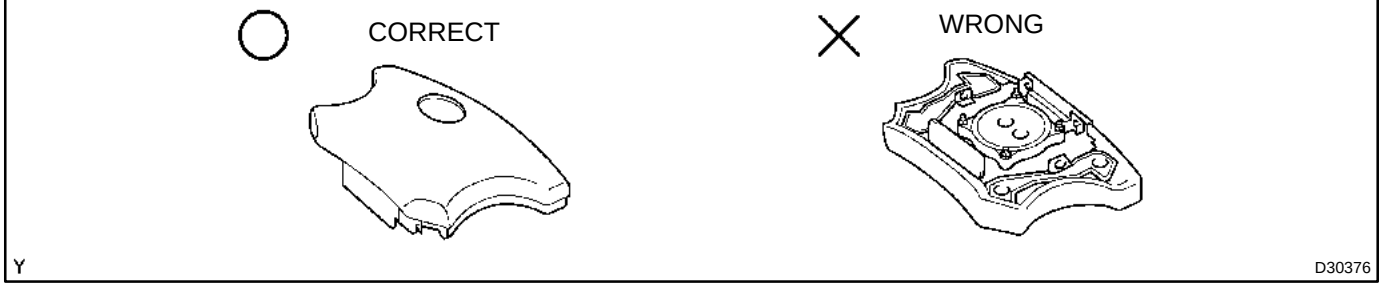



(b) SPIRAL CABLE (in Combination Switch)
(1) The steering wheel must be fitted correctly to the steering column with the spiral cable at the neutral position, otherwise cable disconnection and other troubles may occur. Refer to page 60-28 of this manual concerning the correct installation of the steering wheel.

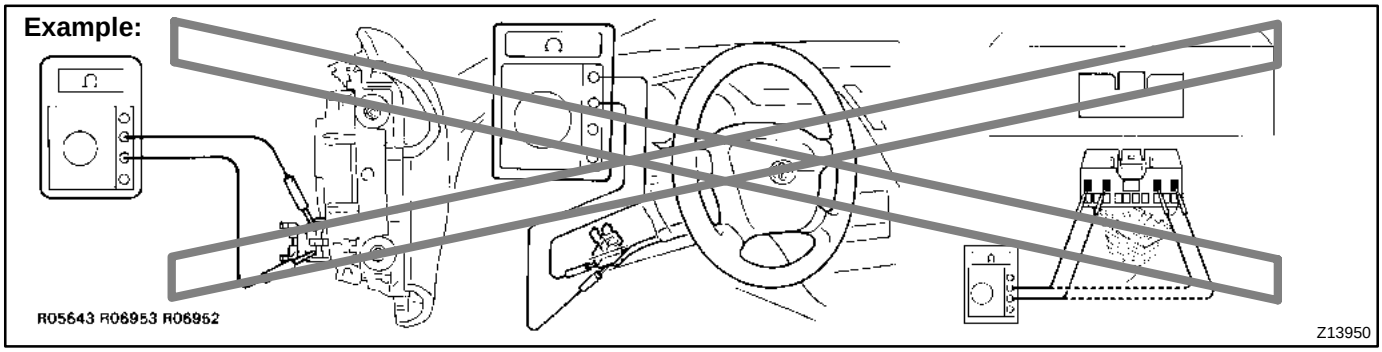
(c) HORN BUTTON ASSEMBLY (with Airbag)
(1) When removing the horn button assembly or handling a new horn button, it should be placed with the top of the pad surface facing upward. Placing it with the pad surface facing downward may lead to a serious accident if the airbag deploys for some reasons. Also, do not place anything on the top of the horn button.
(2) Never measure the resistance of the airbag squib (This may cause the airbag to inflate, which is very dangerous).
(3) Grease should not be applied to the horn button assembly and the pad should not be cleaned with any type of detergent.
(4) Store the horn button assembly where the ambient temperature remains below 93˚C (200˚F), without high humidity and away from electrical noise.
(5) When using electric welding, disconnect the airbag connector (4 yellow pins) under the steering column near the combination switch connector before starting work.

(6) When disposing of the vehicle or the horn button assembly unit, the airbag should be deployed using SST before disposal (See page 60-21 ).
Activate in a safe place away from electrical noise.

**Example:**




**Example:**




(d) INSTRUMENT PANEL PASSENGER AIRBAG ASSEMBLY

(1) Always place a removed or new instrument panel passenger airbag assembly with the airbag inflation direction facing upward. Placing the airbag assembly with the airbag inflation direction facing downward could cause a serious accident if the airbag deploys.

(2) Never measure the resistance of the airbag squib (This may cause the airbag to inflate, which is very dangerous).

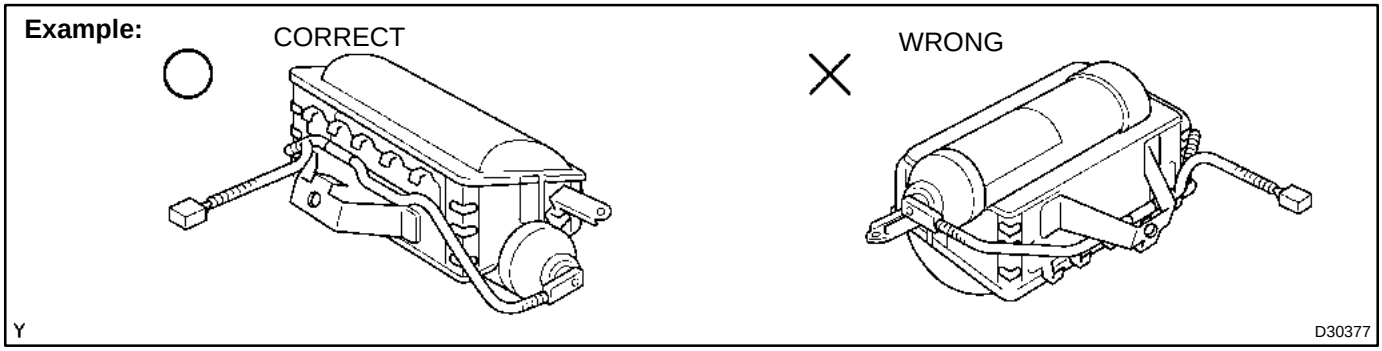
(3) Grease should not be applied to the instrument panel passenger airbag assembly and the airbag door should not be cleaned with detergents of any kind.

(4) Store the airbag assembly where the ambient temperature remains below 93˚C (200˚F), without high humidity and away from electrical noise.

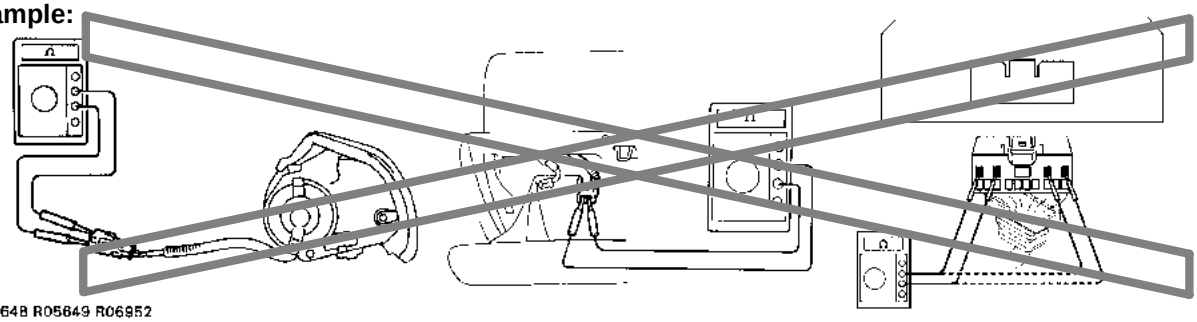
(5) When using electric welding, disconnect the airbag connector (4 yellow pins) installed on the assembly before starting work.

(6) When disposing of a vehicle or the airbag assembly unit, the airbag should be deployed using SST before disposal (See page 60-33 ).
Activate in a safe place away from electrical noise.

**Example:**



**Example:**




(e) FRONT SEAT AIRBAG ASSEMBLY

(1) Always place a removed or new front seat airbag assembly with the airbag inflation direction facing upward. Placing the airbag assembly with the airbag inflation direction facing downward could cause a serious accident if the airbag deploys.

(2) Never measure the resistance of the airbag squib (This may cause the airbag to inflate, which is very dangerous).

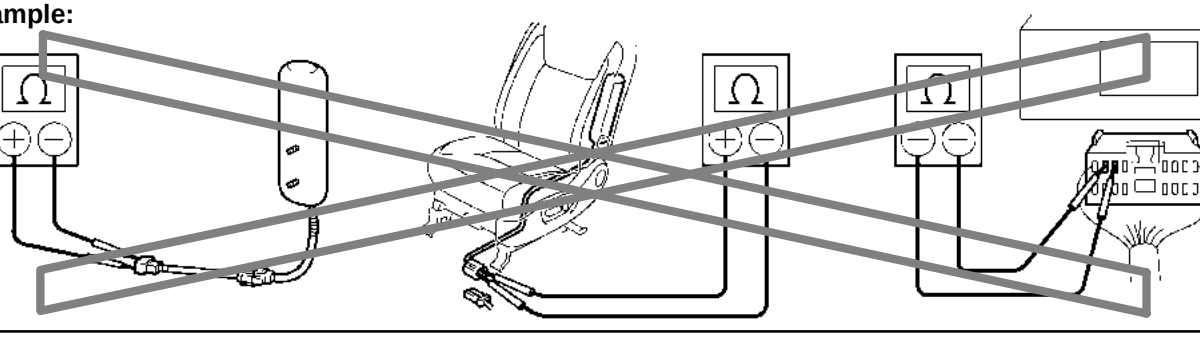
(3) Grease should not be applied to the front seat airbag assembly, and the airbag door should not be cleaned with detergents of any kind.

(4) Store the airbag assembly where the ambient temperature remains below 93˚C (200˚F), without high humidity and away from electrical noise.

(5) When using electric welding, disconnect the airbag connector (2 yellow pins) installed on the assembly before starting work.

(6) When disposing of a vehicle or the airbag assembly unit, the airbag should be deployed using SST before disposal (See page 60-49 ).
Activate in a safe place away from electrical noise.

**Example:**



(f) CURTAIN SHIELD AIRBAG ASSEMBLY

(1) Always place the removed or new curtain shield airbag assembly in a clear plastic bag, and keep it in a safe place.

**NOTICE:**

**Protective bag is not re-useable.**

**CAUTION:**

**Never disassemble the curtain shield airbag assembly.**

(2) Never measure the resistance of the airbag squib (This may cause the airbag to inflate, which is very dangerous).

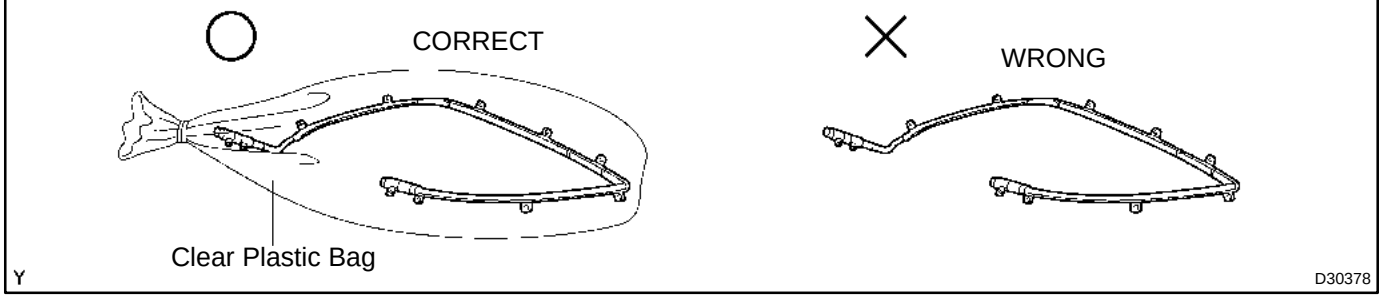
(3) Grease should not be attached to the curtain shield airbag assembly, and the surface should not be cleared with detergents of any kind.

(4) Store the airbag assembly where the ambient temperature remains below 93˚C (200˚F), without high humidity and away from electrical noise.

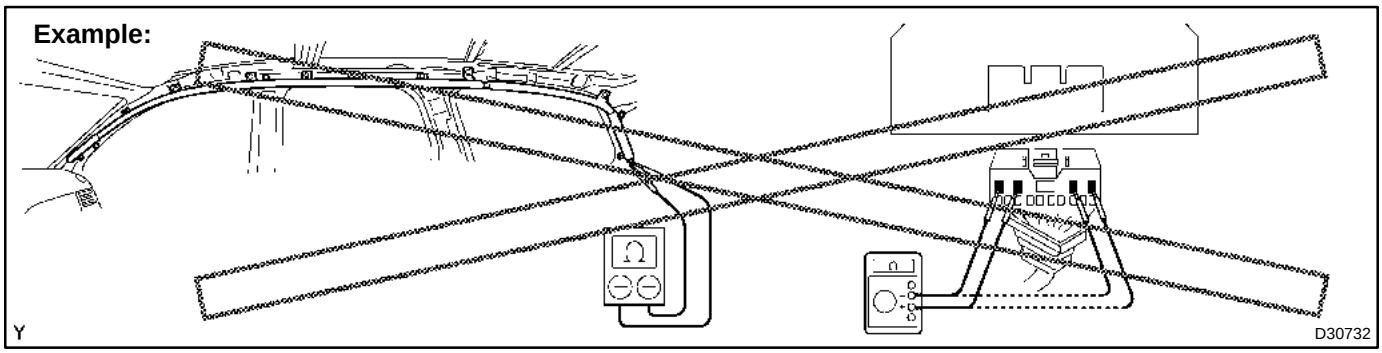
(5) When using electric welding, disconnect the airbag connector (2 yellow pins) into the instrument panel before starting work.

(6) When disposing of a vehicle or the curtain shield airbag assembly unit, the airbag should be deployed using SST before disposal (See page 60-43 ).
Activate in a safe place away from electrical noise.

**Example:**



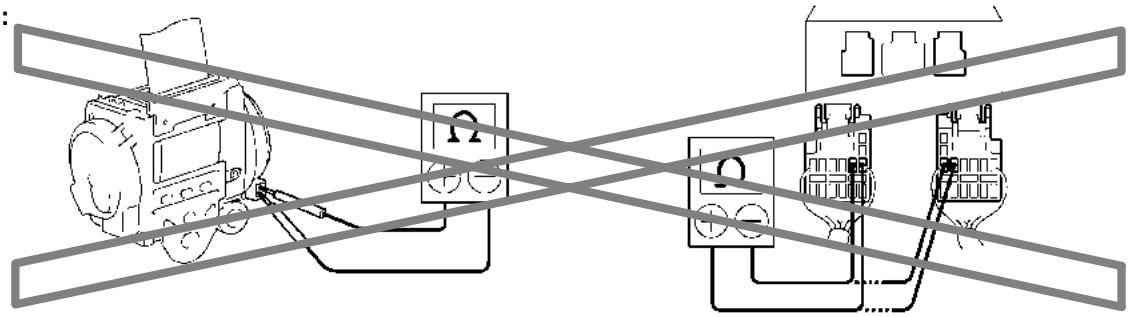

**Example:**



(g) SEAT BELT PRETENSIONER

(1) Never measure the resistance of the seat belt pretensioner (This may cause the seat belt pretensioner to activate, which is very dangerous).
(2) Never disassemble the seat belt pretensioner.
(3) Never install the seat belt pretensioner on another vehicle.
(4) Store the seat belt pretensioner where the ambient temperature remains below 80˚C (176˚F) without high humidity and away from electrical noise.
(5) When using electric welding, disconnect the connector (2 yellow pins) before starting work.
(6) When disposing of a vehicle or the seat belt pretensioner unit, the seat belt pretensioner should be activated before disposal (See page 61-9 ). Perform the operation in a safe place away from electrical noise.
(7) The seat belt pretensioner is hot after being activated so allow some time for it to cool down sufficiently before disposal. Never apply water to cool down the seat belt pretensioner.
(8) Oil or water should not be put on the front seat outer belt and the front seat outer belt should not be cleaned with detergents of any kind.

**Example:**



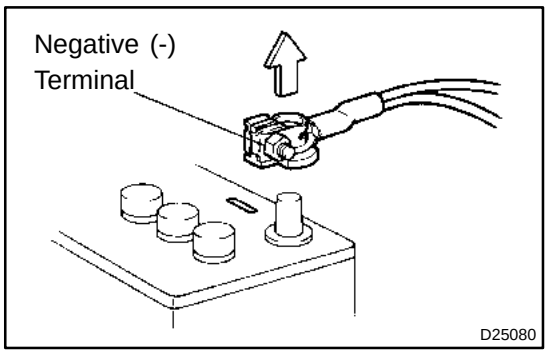
Y D30370

(h) AIRBAG SENSOR ASSEMBLY

(1) Never reuse an airbag sensor assembly involved in a collision where the SRS has deployed.
(2) The connectors to the airbag sensor assembly should be connected or disconnected with the sensor mounted on the floor. If the connectors are connected or disconnected while the airbag sensor assembly is not mounted to the floor, it could cause the supplemental restraint system to deploy potentially resulting in injury.
(3) Work must be started after 90 seconds from the time that the ignition switch is turned to the LOCK position and the negative (-) terminal cable is disconnected from the battery, even if only loosening the set bolts of the airbag sensor assembly.

(i) WIRE HARNESS AND CONNECTOR

(1) The SRS wire harness is integrated with the instrument panel wire harness assembly. All the connectors in the system are a standard yellow color. If the SRS wire harness becomes disconnected or the connector becomes broken due to an accident, etc., repair or replace it.




## 3. ELECTRONIC CONTROL

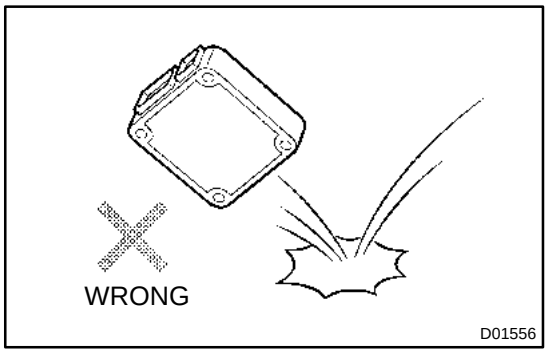
(a) REMOVAL AND INSTALLATION OF BATTERY TERMINAL

(1) Before performing electronic work, disconnect the battery negative (-) terminal cable beforehand in order to prevent it from shorting and burning out.

(2) When disconnecting and installing the terminal cable, turn the ignition switch and lighting switch OFF and loosen the terminal nut completely. Perform these operations without twisting or prying the terminal.

(3) When the battery terminal cable is removed, the memories of the clock, radio, DTCs, etc. are erased. So before removing it, check them and make a note.

(4) When the battery negative (-) terminal cable is disconnected, memories of various systems are erased. Therefore, refer to the PRE-CHECK for each system to make sure whether or not the system needs to be initialized after the battery negative (-) terminal cable is disconnected. If necessary, be sure to initialize the system.




(b) HANDLING OF ELECTRONIC PARTS

(1) Do not open the cover or case of the ECU unless absolutely necessary (If the IC terminals are touched, the IC may be rendered inoperative by static electricity).

(2) To disconnect electronic connectors, pull the connector itself, not the wires.

(3) Be careful not to drop electronic components, such as sensors or relays. If they are dropped on a hard floor, they should be replaced and not be reused.

(4) When cleaning the engine with steam, protect the electronic components, air filter and emission-related components from water.

(5) Never use an impact wrench to remove or install temperature switches or temperature sensors.

(6) When checking the continuity at the wire connector, insert the tester probe carefully to prevent terminals from bending.

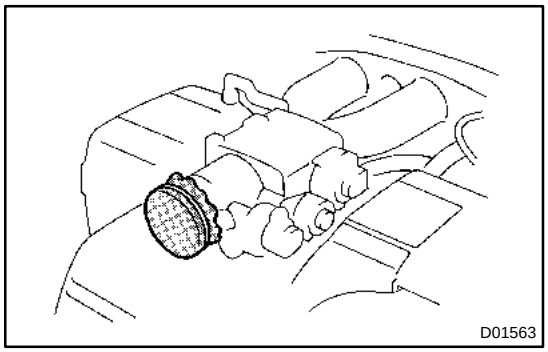
## 4. REMOVAL AND INSTALLATION OF FUEL CONTROL PARTS

(a) PLACE FOR REMOVING AND INSTALLING OF FUEL SYSTEM PARTS

(1) Work in a place with good air ventilation and without anything that could cause combustion around you such as a welder, grinder, drill, electric motor or stove.

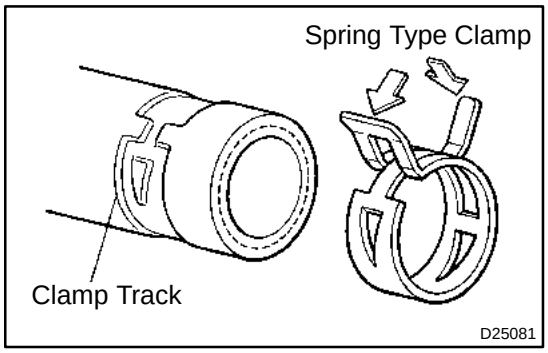
(2) Never work in a place such as a pit or nearby a pit, as there is a possibility that vaporized fuel will collect in those places.

(b) REMOVING AND INSTALLING OF FUEL SYSTEM PARTS
  (1) Prepare a fire extinguisher before starting operation.
  (2) To prevent static electricity, install a ground on the fuel changer, vehicle and fuel tank, and do not spray much water so as to prevent slipping.
  (3) Never use any electric equipment like an electric motor or a working light, as they may create sparks or a high temperature.
  (4) Never use an iron hammer, as it may create sparks.
  (5) Dispose of shop rags containing fuel deposits separately.


D01563

**5. REMOVAL AND INSTALLATION OF ENGINE INTAKE PARTS**

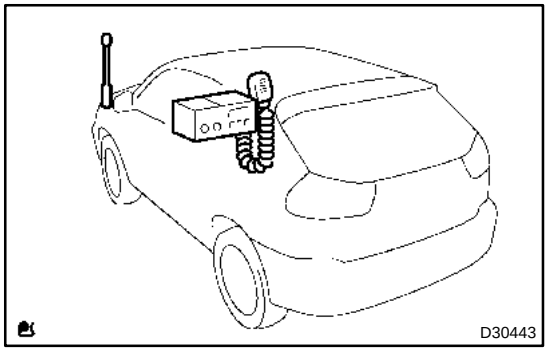
(a) If any metal particle enters the inlet pass, it may have a bad effect on the engine and turbocharger.
(b) When removing and installing the inlet system parts, close the opening of the removed inlet system parts and the engine with a clean shop rag or gum tape.
(c) When installing the inlet system parts, check that no metal particles have entered.



D25081

**6. HANDLING OF HOSE CLAMPS**

(a) Before removing the hose, check the clamp position to ensure that it can be restored securely.
(b) Replace a deformed or dented clamp with a new one.
(c) When reusing a hose, attach the clamp on the clamp track portion of the hose.
(d) For a spring type clamp, make an adjustment after installation by pushing in the direction of the arrow mark.


D30443

**7. FOR VEHICLES EQUIPPED WITH MOBILE COMMUNICATION SYSTEMS**

(a) Install the antenna as far away from the ECU and sensors of the vehicle electronic systems as possible.
(b) Install an antenna feeder at least 20 cm (7.87 in.) away from the ECU and sensors of the vehicle electronic systems. For details of the ECU and sensors locations, refer to the section on applicable components.
(c) Prevent the antenna feeder from getting entangled with the other wiring, and keep the antenna feeder separate from other wiring as much as possible.
(d) Check that the antenna and feeder are correctly adjusted.
(e) Do not install any high-powered mobile communication systems.

## 8. WHEN SERVICING FULL-TIME 4WD VEHICLES

The full-time 4WD SIENNA is equipped with the open center differential system.

If incorrect preparations or test procedures are used, the test will not only be unsuccessful, but may be dangerous as well.

Therefore, before beginning any such servicing or test, be sure to check the following items:

- Whether wheels should be touching ground or jacked up
- Transaxle gear position
- Maximum testing vehicle speed
- Maximum testing time

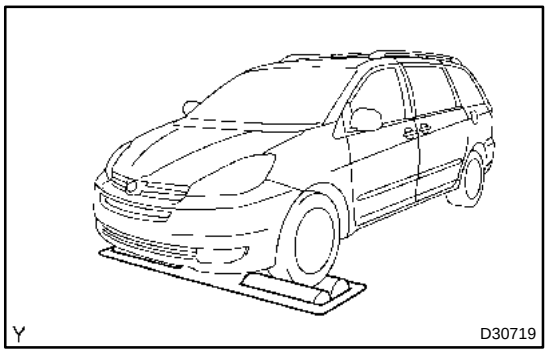
**CAUTION:**

- **Never accelerate or decelerate the vehicle suddenly**
- **Observe the other cautions given for each individual test**

(a) Before Beginning Test

This vehicle does not have a center diff. lock mode or 4WD (Normal) Mode to allow only the front or rear wheel to be rotated.

The test method for this vehicle is different from that for vehicles equipped with the center diff. lock mode or 4WD (Normal) Mode, so make sure to use the correct test method.




(b) Braking Force Test

(Vehicle Speed: Below 0.5 km/h or 0.3 mph)

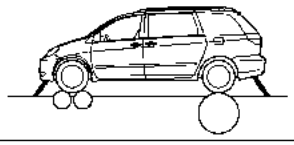
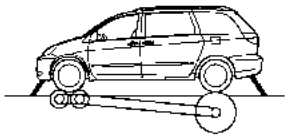
When performing low-speed type brake tester measurements, observe the following instructions.

(1) Position the wheels to be tested (front or rear) on the tester.

(2) Shift the transaxle shift lever to ”N” position.

(3) Idle the engine, operate the brake booster and perform the test.

(c) Speedometer Test or Other Tests
(Using Speedometer Tester or Chassis Dynamometer)
When performing test at high speed or high load, use the methods shown below.

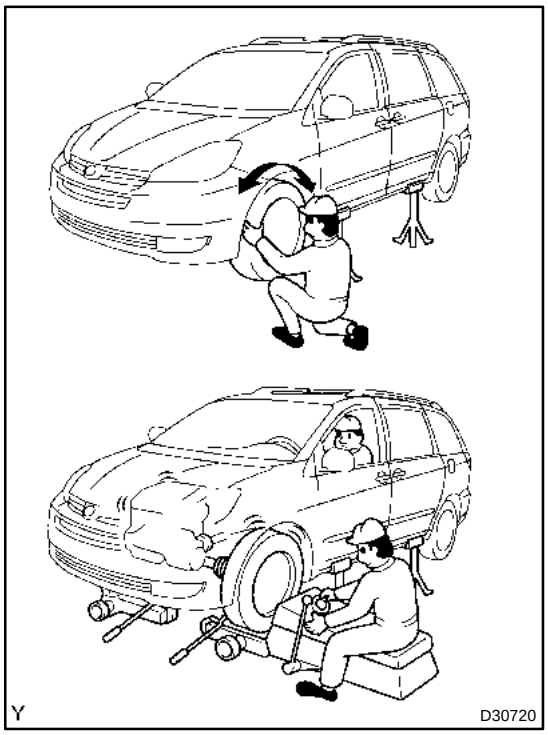
| No. | Chassis Dynamometer Type | Vehicle Condition | Vehicle Speed and Test Time |
|---|---|---|---|
| 1 | 2-Wheel Chassis Dynamometer |  | * Low speed (50 km/h or less) and 1 minute or less |
| 2 | 4-Wheel Free Chassis Dynamometer |  | * Low speed (50 km/h or less) and 1 minute or less |
| 3 | 4-Wheel Driven Chassis Dynamometer |  | No restriction on vehicle speed or duration of test |

Y D30721

*: This is to avoid damaging the center differential.

**NOTICE:**

- **Confirm that the vehicle is securely immobilized.**
- **Never operate the brakes to drive the wheels or stop them suddenly.**



Y D30720

(d) On-V ehicle Wheel Balancing
When doing on-vehicle wheel balancing on a full-time 4WD vehicle, to prevent the wheels from rotating at different speeds in different directions from each other (which could damage the center differential), always be sure to observe the following precautions:

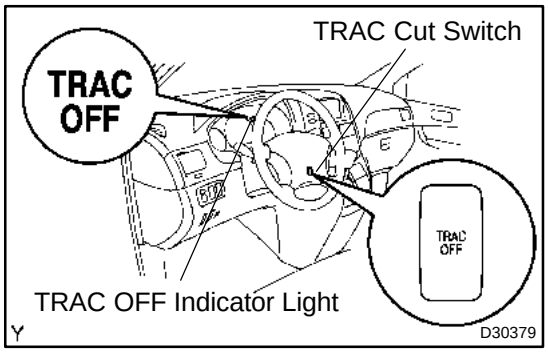
(1) All 4 wheels should be jacked up, clearing the ground completely.
(2) The parking brake lever should be fully released.
(3) None of the brakes should be allowed to drag.
(4) The wheels should be driven on the wheel balancer with the engine running.

HINT:
When doing this, be careful of the other wheels, which will rotate at the same time.

(5) Avoid sudden acceleration, deceleration and braking.
(6) Carry out wheel balancing with the transaxle in D position.

**9. FOR VEHICLES EQUIPPED WITH TRACTION CONTROL (TRAC) SYSTEM**

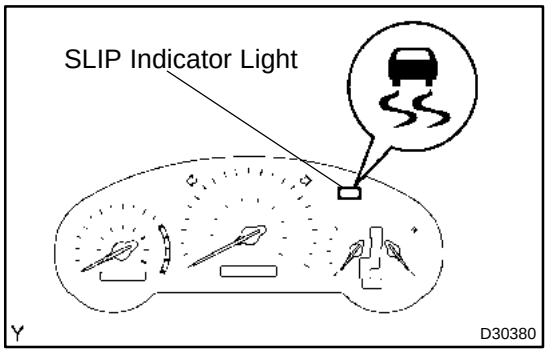
When using a 2-wheel drum tester such as a speedometer tester or chassis dynamometer, etc., or jacking up the front wheels and driving the wheels, always push in the TRAC cut ("TRAC OFF") switch and turn the TRAC system OFF.




(a) Confirm TRAC system is OFF
  (1) Press the TRAC cut ("TRAC OFF") switch.
  (2) Check that the TRAC OFF indicator light comes on when the TRAC system is turned OFF by the TRAC cut switch.

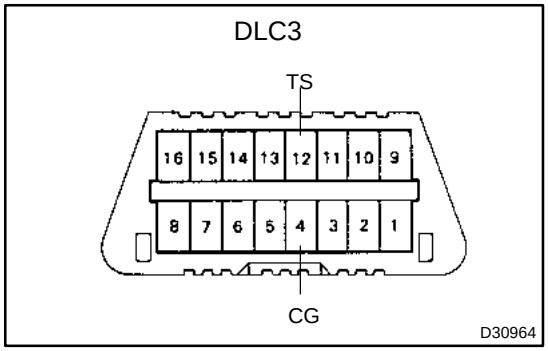
HINT:
The SLIP indicator light should always operate right after the engine is restarted.

  (3) Begin measurements.




  (4) Press the TRAC cut switch to turn the TRAC to the operative mode and check that the TRAC OFF indicator light goes off.

HINT:
The SLIP indicator light blinks when the TRAC system in operating.




**10. FOR VEHICLES EQUIPPED WITH VEHICLE STABILITY CONTROL (VSC) SYSTEM**

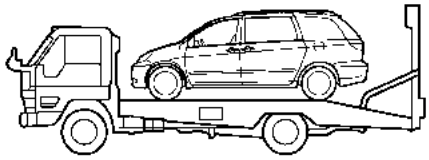
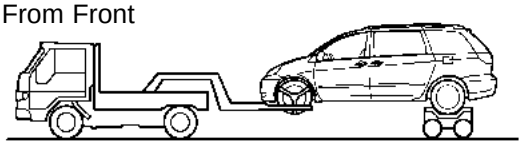
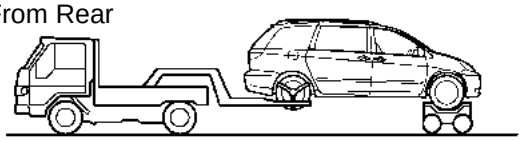
(a) Notices when using drum tester
  (1) When using a drum tester, be sure to start the engine with the ignition switch OFF, and connect SST to the terminals TS and CG of the DLC3 before the measurement in order to cancel the VSC operation.
  SST 09843-18040

**NOTICE:**
- **Confirm that the VSC warning light blinks.**
- **The VSC system is reset when the engine is restarted.**
- **Fasten the vehicle with lock chains.**

(b) Notice of related operations to VSC
  (1) Do not carry out unnecessary installation and removal as it might disorder the adjustment of the parts related to the VSC.
  (2) Be sure to carry out the preparation for operation and the confirmation of operation completion in accordance with the instructions of the text and when the operations related to the VSC are performed.

## 11. WHEN TOWING FULL-TIME 4WD VEHICLES

- Use one of the methods shown below to tow the vehicle.
- If the vehicle has trouble with the chassis or drive train, use method 1 (flat bed truck).

| Towing Method \ Conditions | Parking Brake | Transaxle Shift Lever Position |
|---|---|---|
| **1. Flat Bed Truck**  | Applied | Any Position |
| **2. Wheel Lift Type Truck**<br>From Front  <br>From Rear  | Applied | Any Position |

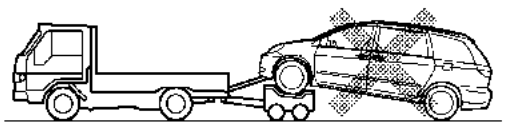
Y D30722

**NOTICE:**

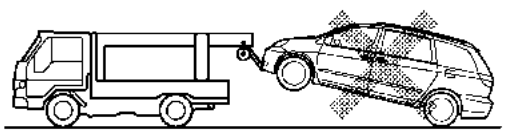
**Do not use any towing method other than those shown above.**

- The towing methods shown below are dangerous and can damage the vehicle, so do not use them.

NO



NO



- Never tow the vehicle using a method in which the wheels that are lifted up cannot rotate.
- Do not use the sling type towing method either from the front or rear.
- If this towing method is used, either from the front or rear:

(a) The drive train may heat up and be damaged and the wheels may fly off the dolly.

(b) In addition, if the vehicle is equipped with the VSC & TRAC system, the system will apply an internal brake to the rotating wheels when the engine is not shut off.

Y D30723

## 12. FOR VEHICLES EQUIPPED WITH CATALYTIC CONVERTER

**CAUTION:**

**If a large amount of unburned gasoline flows into the converter, it may cause overheating and is a fire hazard. To prevent this, observe the following precautions.**

(a) Use only unleaded gasoline.

(b) Avoid prolonged idling.
Avoid idling the engine for more than 20 minutes.

(c) Avoid a spark jump test.
   (1) Perform a spark jump test only when absolutely necessary. Perform this test as rapidly as possible.
   (2) While testing, never race the engine.

(d) Avoid a prolonged engine compression measurement.
Engine compression measurements must be performed as rapidly as possible.

(e) Do not run the engine when the fuel tank is nearly empty. This may cause the engine to misfire and create an extra load on the converter.

01048-08

# GLOSSARY OF SAE AND TOYOTA TERMS

This glossary lists all SAE-J1930 terms and abbreviations used in this manual in compliance with SAE recommendations, as well as their TOYOTA equivalents.

| SAE ABBREVIATIONS | SAE TERMS | TOYOTA TERMS ( )--ABBREVIATIONS |
|---|---|---|
| A/C | Air Conditioning | Air Conditioner |
| ACL | Air Cleaner | Air Cleaner (A/CL) |
| AIR | Secondary Air Injection | Air Injection (AI) |
| AP | Accelerator Pedal | - |
| B+ | Battery Positive Voltage | Battery Voltage (+B) |
| BARO | Barometric Pressure | High Altitude Compensator (HAC) |
| CAC | Charge Air Cooler | Intercooler |
| CARB | Carburetor | Carburetor |
| CFI | Continuous Fuel Injection | - |
| CKP | Crankshaft Position | Crank Angle |
| CL | Closed Loop | Closed Loop |
| CMP | Camshaft Position | Cam Angle |
| CPP | Clutch Pedal Position | - |
| CTOX | Continuous Trap Oxidizer | - |
| CTP | Closed Throttle Position | LL ON, Idle ON |
| DFI | Direct Fuel Injection (Diesel) | Direct Injection (D/INJ) |
| DI | Distributor Ignition | - |
| DLC1<br>DLC2<br>DLC3 | Data Link Connector 1<br>Data Link Connector 2<br>Data Link Connector 3 | 1: Check Connector<br>2: Total Diagnosis Communication Link (TDCL)<br>3: OBD II Diagnostic Connector |
| DTC | Diagnostic Trouble Code | Diagnostic Trouble Code |
| DTM | Diagnostic Test Mode | - |
| ECL | Engine Control Level | - |
| ECM | Engine Control Module | Engine ECU (Electronic Control Unit) |
| ECT | Engine Coolant Temperature | Coolant Temperature, Water Temperature (THW) |
| EEPROM | Electrically Erasable Programmable Read Only Memory | Electrically Erasable Programmable Read Only Memory (EEPROM),<br>Erasable Programmable Read Only Memory (EPROM) |
| EFE | Early Fuel Evaporation | Cold Mixture Heater (CMH), Heat Control Valve (HCV) |
| EGR | Exhaust Gas Recirculation | Exhaust Gas Recirculation (EGR) |
| EI | Electronic Ignition | Distributorless Ignition (DLI) |
| EM | Engine Modification | Engine Modification (EM) |
| EPROM | Erasable Programmable Read Only Memory | Programmable Read Only Memory (PROM) |
| EVAP | Evaporative Emission | Evaporative Emission Control (EVAP) |
| FC | Fan Control | - |
| FEEPROM | Flash Electrically Erasable Programmable Read Only Memory | - |
| FEPROM | Flash Erasable Programmable Read Only Memory | - |
| FF | Flexible Fuel | - |
| FP | Fuel Pump | Fuel Pump |
| GEN | Generator | Alternator |
| GND | Ground | Ground (GND) |

| | | |
|---|---|---|
| HO2S | Heated Oxygen Sensor | Heated Oxygen Sensor ($HO_2S$) |
| IAC | Idle Air Control | Idle Speed Control (ISC) |
| IAT | Intake Air Temperature | Intake or Inlet Air Temperature |
| ICM | Ignition Control Module | - |
| IFI | Indirect Fuel Injection | Indirect Injection (IDL) |
| IFS | Inertia Fuel-Shutoff | - |
| ISC | Idle Speed Control | - |
| KS | Knock Sensor | Knock Sensor |
| MAF | Mass Air Flow | Air Flow Meter |
| MAP | Manifold Absolute Pressure | Manifold Pressure Intake Vacuum |
| MC | Mixture Control | Electric Bleed Air Control Valve (EBCV)<br>Mixture Control Valve (MCV)<br>Electric Air Control Valve (EACV) |
| MDP | Manifold Differential Pressure | - |
| MFI | Multiport Fuel Injection | Electronic Fuel Injection (EFI) |
| MIL | Malfunction Indicator Lamp | Check Engine Lamp |
| MST | Manifold Surface Temperature | - |
| MVZ | Manifold Vacuum Zone | - |
| NVRAM | Non-Volatile Random Access Memory | - |
| O2S | Oxygen Sensor | Oxygen Sensor, $O_2$ Sensor ($O_2S$) |
| OBD | On-Board Diagnostic | On-Board Diagnostic System (OBD) |
| OC | Oxidation Catalytic Converter | Oxidation Catalyst Convert (OC)<br>Catalytic Converter for Oxidation (CCo) |
| OP | Open Loop | Open Loop |
| PAIR | Pulsed Secondary Air Injection | Air Suction (AS) |
| PCM | Powertrain Control Module | - |
| PNP | Park/Neutral Position | - |
| PROM | Programmable Read Only Memory | - |
| PSP | Power Steering Pressure | - |
| PTOX | Periodic Trap Oxidizer | Diesel Particulate Filter (DPF)<br>Diesel Particulate Trap (DPT) |
| RAM | Random Access Memory | Random Access Memory (RAM) |
| RM | Relay Module | - |
| ROM | Read Only Memory | Read Only Memory (ROM) |
| RPM | Engine Speed | Engine Speed |
| SC | Supercharger | Supercharger |
| SCB | Supercharger Bypass | Electronic Air Bypass Valve (E-ABV) |
| SFI | Sequential Multiport Fuel Injection | Electronic Fuel Injection (EFI), Sequential Injection |
| SPL | Smoke Puff Limiter | - |
| SRI | Service Reminder Indicator | - |
| SRT | System Readiness Test | - |
| ST | Scan Tool | - |
| TB | Throttle Body | Throttle Body |
| TBI | Throttle Body Fuel Injection | Single Point Injection<br>Central Fuel Injection (Ci) |
| TC | Turbocharger | Turbocharger |

| | | |
|---|---|---|
| TCC | Torque Converter Clutch | Torque Converter |
| TCM | Transmission Control Module | Transmission ECU, ECT ECU |
| TP | Throttle Position | Throttle Position |
| TR | Transmission Range | - |
| TVV | Thermal Vacuum Valve | Bimetallic Vacuum Switching Valve (BVSV)<br>Thermostatic Vacuum Switching Valve (TVSV) |
| TWC | Three-Way Catalytic Converter | Three-Way Catalytic (TWC)<br>Manifold Converter<br>$CC_{RO}$ |
| TWC+OC | Three-Way + Oxidation Catalytic Converter | $CC_R$ + CCo |
| VAF | Volume Air Flow | Air Flow Meter |
| VR | Voltage Regulator | Voltage Regulator |
| VSS | Vehicle Speed Sensor | Vehicle Speed Sensor |
| WOT | Wide Open Throttle | Full Throttle |
| WU-OC | Warm Up Oxidation Catalytic Converter | - |
| WU-TWC | Warm Up Three-Way Catalytic Converter | - |
| 3GR | Third Gear | - |
| 4GR | Fourth Gear | - |

01045-20

# HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

Carry out troubleshooting in accordance with the procedures on the following page. Here, only the basic procedures are shown. Details are provided in the Diagnostics Section, showing the most effective methods for each circuit. Confirm the troubleshooting procedures first for the relevant circuit before beginning troubleshooting of that circuit.

| 1 | Vehicle brought to workshop |
|---|---|

| 2 | Customer problem analysis |
|---|---|

(a) Ask the customer about the conditions and environment when the problem occurred.

| 3 | Symptom confirmation and DTC (and freeze frame data) check |
|---|---|

(a) Check the battery positive voltage.
**Voltage: 11 to 14 V (Engine stopped)**

(b) Visually check the wire harness, connectors and fuses for open and short, etc.

(c) Warm up the engine to the normal operating temperature.

(d) Confirm the problem symptoms and conditions, and check for DTCs according to the related chart.

**OK** → **Go to step 5**

**NG**

| 4 | DTC chart |
|---|---|

(a) Check the results obtained in step 3, then confirm the inspection procedures for the system or the part which should be checked using the DTC chart.

→ **Go to step 6**

| 5 | Problem symptoms chart |
|---|---|

(a) Check the results obtained in step 3, then confirm the inspection procedures for the system or the part which should be checked using the problem symptoms table.

| 6 | Circuit inspection or parts inspection |
|---|---|

(a) Confirm the circuit for the system or the part which should be checked using the problem symptoms table or the results obtained in step 4.

| 7 | Repair |
|---|---|

(a) Repair the affected system or part in accordance with the instructions in step 6.

| 8 | Confirmation test |
|---|---|

(a) After completing repairs, confirm that the problem has been solved (If the problem does not recur, perform a confirmation test under the same conditions and in the same environment as when it occurred for the first time).

**END**

# CUSTOMER PROBLEM ANALYSIS

HINT:

- In troubleshooting, the problem symptoms must be confirmed accurately, meaning that all preconceptions must be set aside in order to make an accurate judgement. To ascertain what the problem symptoms are, it is extremely important to ask the customer about the problem and conditions when it occurred.
- The following 5 items are important points in the problem analysis. Past problems which are thought to be unrelated and the repair history, etc. may also help in some cases. Therefore, as much information as possible should be gathered and its relationship with the problem symptoms should be correctly ascertained for use as a reference in troubleshooting. A customer problem analysis table is provided for your use in the Diagnostics Section for each system.

**Important Points with Customer Problem Analysis**

- What ----- Vehicle model, system name
- When ----- Date, time, occurrence frequency
- Where ----- Road conditions
- Under what conditions? ----- Running conditions, driving conditions, weather conditions
- How did it happen? ----- Problem symptoms

**(Sample) Supplemental restraint system check sheet.**

## CUSTOMER PROBLEM ANALYSIS CHECK

**Supplemental Restraint System Check Sheet**

**Inspector's Name** _____

| | | | |
|---|---|---|---|
| **Customer's Name** | | **Registration No.** | |
| | | **Registration Year** | / / |
| | | **Frame No.** | |
| **Date Vehicle Brought In** | / / | **Odometer Reading** | **km miles** |

| | |
|---|---|
| **Date Problem First Occurred** | / / |
| **Weather** | ☐ Fine ☐ Cloudy ☐ Rainy ☐ Snowy ☐ Other |
| **Temperature** | **Approx.** |

| | |
|---|---|
| **Vehicle Operation** | ☐ Starting ☐ Idling<br>☐ Driving [ ☐ Constant speed ☐ Acceleration ☐ Deceleration<br>☐ Other ] |
| | |

# SYMPTOM CONFIRMATION AND DIAGNOSTIC TROUBLE CODE

HINT:

- The diagnostic system in SIENNA has various functions. The first function is the Diagnostic Trouble Code (DTC) Check, in which a malfunction in the signal circuits to the ECU is stored in code form in the ECU memory. Another function is the Input Signal Check, which checks if the signals from various switches are sent to the ECU correctly. By using these check functions, it is possible to quickly narrow down potential problem areas and troubleshooting can be performed effectively. The diagnostic functions are incorporated in the following systems in the SIENNA.

| System | Diagnostic Trouble Code Check | Input Signal Check (Sensor Check) | Diagnostic Test Mode (Active Test) |
|---|---|---|---|
| SFI System | ○ (with Check Mode) | ○ | ○ |
| Tire Pressure Warning System | ○ | | ○ |
| ABS with EBD System | ○ | ○ | ○ |
| ABS with EBD & BA & TRAC & VSC System | ○ | ○ | ○ |
| Electronically Controlled Automatic Transmission [ECT] | ○ (with Check Mode) | ○ | ○ |
| Air Conditioning System | ○ | | ○ |
| Supplemental Restraint System | ○ | | |
| Lighting System | ○ | | ○ |
| Audio System | ○ | | |
| Combination Meter | | | ○ |
| Power Window Control System (w/ jam protection) | | | ○ |
| Power Door Lock Control System | | | ○ |
| Power Slide Door System | ○ | | ○ |
| Back Door Closer System | ○ | | ○ |
| Power Back Door System | ○ | | ○ |
| Wireless Door Lock Control System | ○ | | ○ |
| Engine Immobiliser System | ○ | | ○ |
| Multiplex Communication System | ○ | | |
| CAN Communication System | ○ | | |
| Cruise Control System | ○ | ○ | |
| Dynamic Laser Cruise Control System | ○ | ○ | ○ |

- In the DTC check, it is very important to determine whether the problem indicated by the DTC is still occurring or has occurred in the past but returned to normal at present. In addition during the problem symptom check, a check must be made on whether the malfunction indicated by the DTC is directly related to the problem symptom or not. For this reason, the DTC should be checked before and after symptom confirmation to determine the current conditions. If this is not done, it may, depending on the case, result in unnecessary troubleshooting for systems that are operating normally. This would make more difficult to detect the problem area or to try to repair irrelevant areas. Therefore, always follow procedures in the correct order and perform the DTC check.
- A flow chart showing how to proceed with troubleshooting using the diagnostic trouble code (DTC) check is shown on the next page. This flow chart shows how to utilize the DTC check effectively. Then, by carefully checking the results, this chart indicates how to proceed either to the DTC troubleshooting or to the troubleshooting of the problem symptoms table.

| | |
|---|---|
| **1** | **DTC check** |

**2 Make a note of the DTCs displayed and then clear the memory**

**3 Symptom confirmation**

| | |
|---|---|
| | Symptoms exist |
| | No symptoms exist |

**a** → **Go to step 5**

**b**

**4 Simulation test using symptom simulation methods**

**5 DTC check**

| | |
|---|---|
| | DTC displayed |
| | Normal code displayed |

**a** → **Troubleshooting of problem indicated by DTC**

**b**

**6 Symptom confirmation**

| | |
|---|---|
| | No symptoms exist |
| | Symptoms exist |

If a DTC is displayed in the initial DTC check, it indicates that a trouble may have occurred in a wire harness or connector in that circuit in the past. Therefore, check the wire harness and connectors (See page 01-37 ).

**a** → **System normal**

**b**

**Troubleshooting of each problem symptom**

The problem is still occurring in a place other than the diagnostic circuit (The DTC displayed first is either for a past problem or a secondary problem).

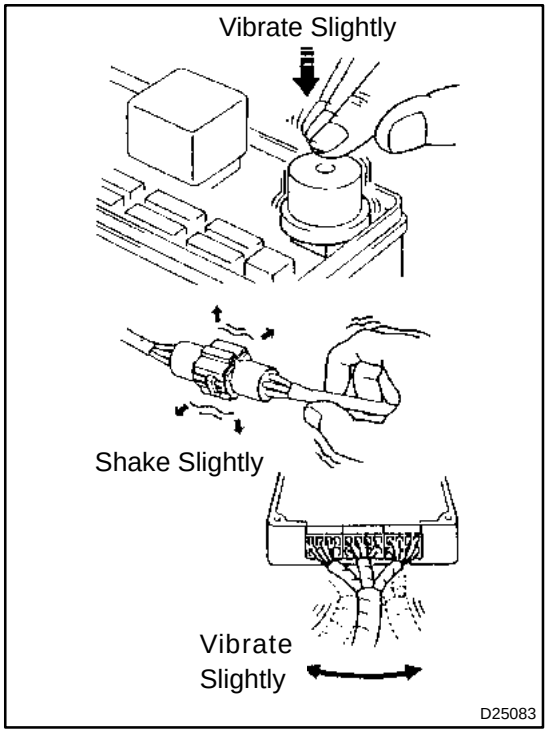
## SYMPTOM SIMULATION

HINT:

The most difficult case in troubleshooting is when no symptoms occur. In such cases, a thorough customer problem analysis must be carried out. Then the same or similar conditions and environment in which the problem occurred in the customer's vehicle should be simulated. No matter how much experience a technician has, or how skilled he may be, if he proceeds to troubleshoot without confirming the problem symptoms, he will tend to overlook something important in the repair operation and make a wrong guess somewhere, which will only lead to a standstill. For example, for a problem which only occurs when the engine is cold, or for a problem which occurs due to vibration caused by the road during driving, etc., the problem can never be determined when the engine is hot or when the vehicle at is a standstill. Since vibration, heat or water penetration (moisture) is a likely cause for the problem which is difficult to reproduce, the symptom simulation tests introduced here are effective measures in a point that the external causes are applied to the vehicle in a stationary condition.

Important points in the symptom simulation test:

In the symptom simulation test, the problem symptoms should be confirmed, and the problem area or parts must also be discovered. To do so, reduce the possible problem circuits according to the symptoms before starting this type of test and have the hand-held tester connected beforehand. After that, carry out the symptom simulation test, judging whether the circuit being tested is defective or normal and also confirming the problem symptoms at the same time. Refer to the problem symptoms table of each system to narrow down the possible causes of the symptom.




**1. VIBRATION METHOD: When vibration seems to be the major cause.**

(a) PART AND SENSOR

(1) Apply slight vibration with your finger to the part of the sensor considered to be the problem cause and check whether the malfunction occurs.

HINT:

Applying strong vibration to relays may result in open relays.

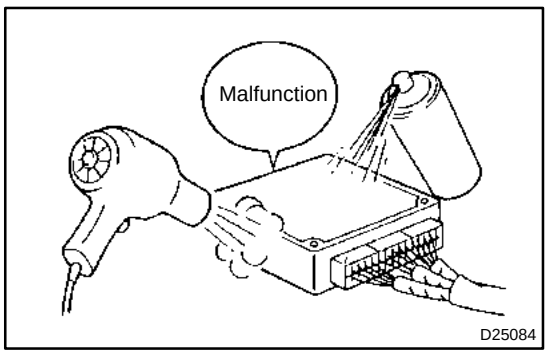
(b) CONNECTORS

(1) Slightly shake the connector vertically and horizontally.

(c) WIRE HARNESS

(1) Slightly shake the wire harness vertically and horizontally.

The connector joint and fulcrum of the vibration are the major areas that should be checked thoroughly.



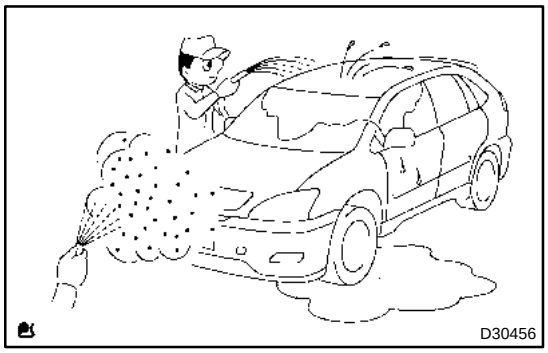

**2. HEAT METHOD: If the problem seems to occur when the area in question is heated.**

(a) Heat the component that is the possible cause of the malfunction with a hair dryer or similar object. Check if the malfunction occurs.

**NOTICE:**

- **Do not heat the components to more than 60°C (140°F) (Temperature is limited to keep the components from being damaged).**

- **Do not apply heat directly to the parts in the ECU.**




**3. WATER SPRINKLING METHOD: When the malfunction seems to occur on a rainy day or in high-humidity.**

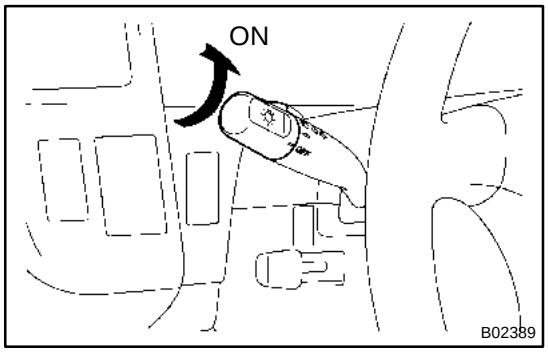
(a) Sprinkle water onto the vehicle and check if the malfunction occurs.

**NOTICE:**

- **Never sprinkle water directly onto the engine compartment, but indirectly change the temperature and humidity by spraying a mist of water onto the radiator front surface.**
- **Never apply water directly onto the electronic components.**

HINT:

If a vehicle is subject to water leakage, the leaking water may contaminate the ECU. When testing a vehicle with a water leakage problem, this factor must also be considered.




**4. OTHERS: If the malfunction seems to occur when electrical load is excessive.**

(a) Turn on all the electrical equipment including the heater blower, headlights, rear window defogger, etc., and check if the malfunction occurs.

# DIAGNOSTIC TROUBLE CODE CHART

The inspection procedures are shown in the table below. This table allows efficient and accurate trouble-shooting using the diagnostic trouble codes displayed in the diagnostic trouble code chart. Proceed with troubleshooting in accordance with the inspection procedures listed in the diagnostic chart corresponding to the diagnostic trouble codes displayed. The diagnostic trouble code chart for the Supplemental Restraint System is shown below as an example.

- DTC No.
  Indicates the diagnostic trouble code.
- Page or Instructions
  Indicates the page where the inspection procedures for each circuit is to be found, or gives instructions for checking and repairs.

- Trouble Area
  Indicates the suspect areas of the problem.

- Detection Item
  Indicates the system or details of the problem.

## DIAGNOSTIC TROUBLE CODE CHART

If a malfunction code is displayed during the DTC check, check the circuit for that code listed in the table below (Proceed to the page given for that circuit).

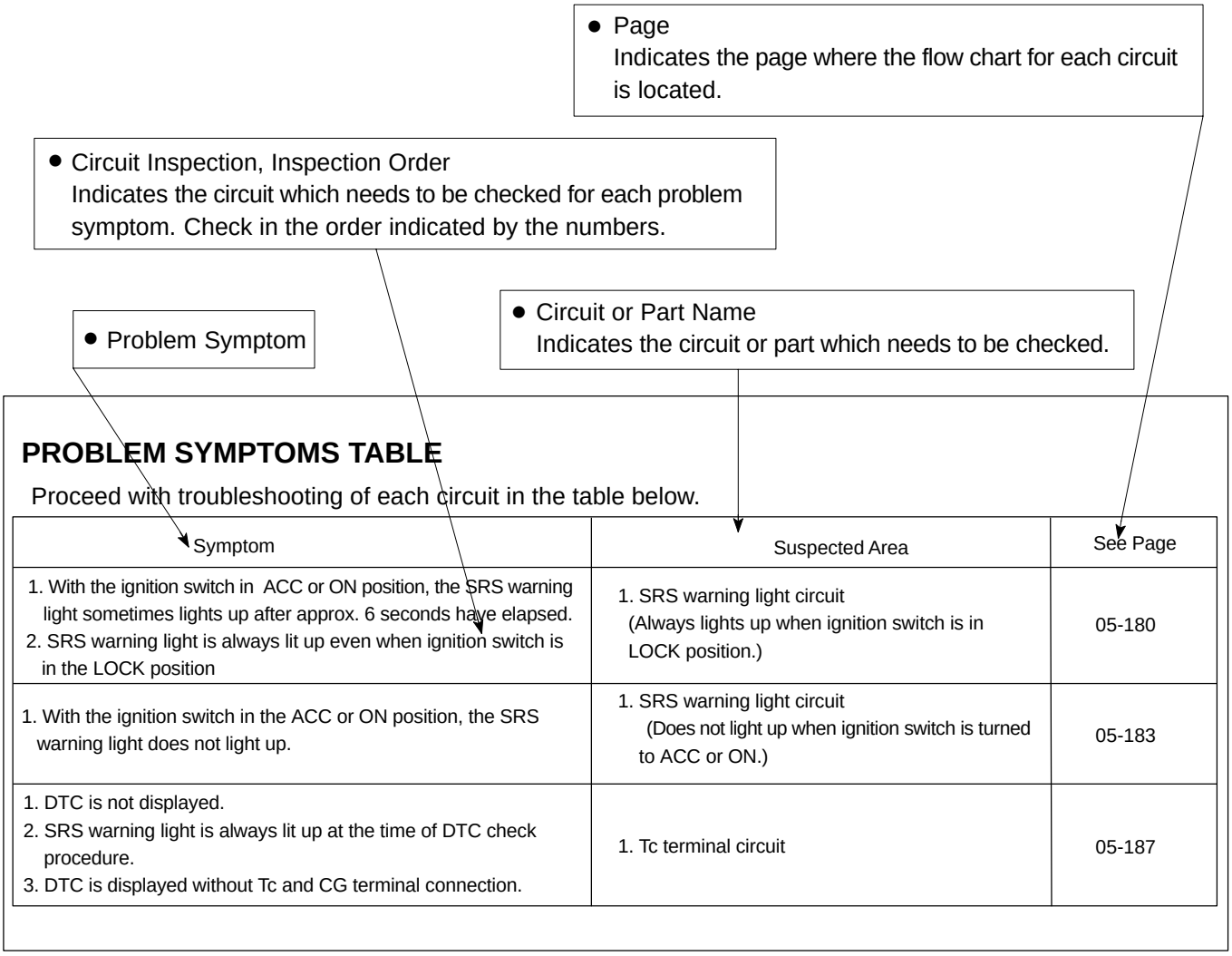
| DTC No. (See page) | Detection Item | Trouble Area | SRS Warning Light |
|---|---|---|---|
| B0100/13 (05-119) | ● Short in D squib circuit | ● Steering wheel pad (squib)<br>● Spiral cable<br>● Airbag sensor assembly<br>● Wire harness | ON |
| B0101/14 (05-124) | ● Open in D squib circuit | ● Steering wheel pad (squib)<br>● Spiral cable<br>● Airbag sensor assembly<br>● Wire harness | ON |
| B0102/11 (05-128) | ● Short in D squib circuit (to ground) | ● Steering wheel pad (squib)<br>● Spiral cable<br>● Airbag sensor assembly<br>● Wire harness | ON |
| B0103/12 (05-132) | ● Short in D squib circuit (to B+) | ● Steering wheel pad (squib)<br>● Spiral cable<br>● Airbag sensor assembly<br>● Wire harness | ON |
| B0105/53 (05-136) | ● Short in P squib circuit | ● Front passenger airbag assembly (squib)<br>● Airbag sensor assembly<br>● Wire harness | ON |
| B0106/54 | ● Open in P squib circuit | ● Front passenger airbag assembly (squib)<br>● Airbag sensor assembly<br>● Wire harness | |
| | b circuit (to Ground) | ● Front passenger airbag assembly (squib)<br>● Airbag sensor assembly<br>● Wire harness | |

## PROBLEM SYMPTOMS TABLE

The suspected circuits or parts for each problem symptom are shown in the table below. Use this table to troubleshoot the problem when a Normal code is displayed in the diagnostic trouble code chart but the problem is still occurring. Numbers in the table indicate the inspection order in which the circuits or parts should be checked.

HINT:

When the problem is not detected by the diagnostic system even though the problem symptom is present, it may be that the problem is occurring outside the detection range of the diagnostic system.



# CIRCUIT INSPECTION

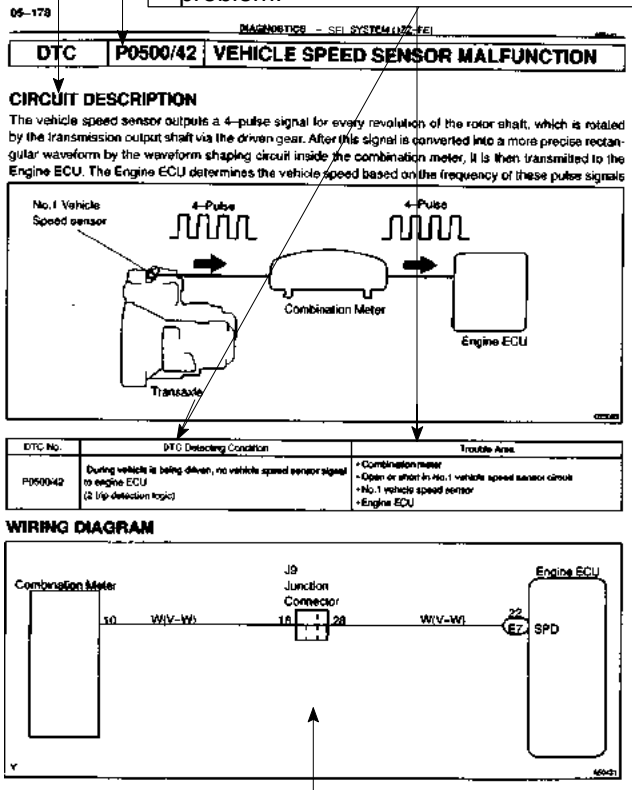
How to read and use each page is shown below.

● Circuit Description
The major role and operation of the circuit and its component parts are explained.

● Diagnostic Trouble Code No. and Detection Item

● Indicates the diagnostic trouble codes, diagnostic trouble code settings and suspect areas for a problem.

● Inspection Procedures
Use the inspection procedures to determine if the circuit is normal or abnormal. If it is abnormal, use it to determine whether the problem is located in the sensors, actuators, wire harness or ECU.



05–178

DIAGNOSTICS – SFI SYSTEM (1ZZ–FE)

**DTC P0500/42 VEHICLE SPEED SENSOR MALFUNCTION**

**CIRCUIT DESCRIPTION**

The vehicle speed sensor outputs a 4–pulse signal for every revolution of the rotor shaft, which is rotated by the transmission output shaft via the driven gear. After this signal is converted into a more precise rectangular waveform by the waveform shaping circuit inside the combination meter, it is then transmitted to the Engine ECU. The Engine ECU determines the vehicle speed based on the frequency of these pulse signals

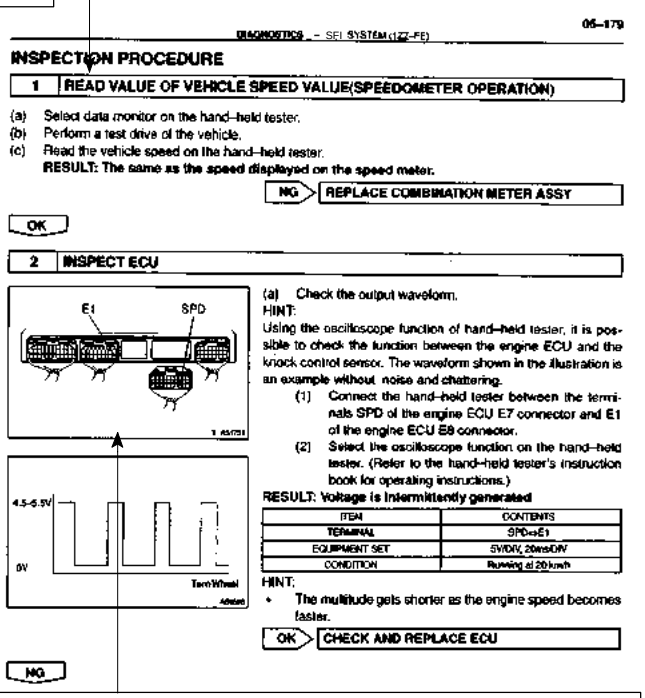


| DTC No. | DTC Detecting Condition | Trouble Area |
|---|---|---|
| P0500/42 | During vehicle is being driven, no vehicle speed sensor signal to engine ECU (2 trip detection logic) | • Combination meter<br>• Open or short in No.1 vehicle speed sensor circuit<br>• No.1 vehicle speed sensor<br>• Engine ECU |

**WIRING DIAGRAM**



● Wiring Diagram
This shows a wiring diagram of the circuit.
Use this diagram together with ELECTRICAL WIRING DIAGRAM to thoroughly understand the circuit.
Wire colors are indicated by an alphabetical code.
B = Black, L = Blue, R = Red, BR = Brown,
LG = Light Green, V = Violet, G = Green,
O = Orange, W = White, GR = Gray, P = Pink,
Y = Yellow, SB = Sky Blue
The first letter indicates the basic wire color and the second letter indicates the color of the stripe.



05–179

DIAGNOSTICS – SFI SYSTEM (1ZZ–FE)

**INSPECTION PROCEDURE**

**1 READ VALUE OF VEHICLE SPEED VALUE(SPEEDOMETER OPERATION)**

(a) Select data monitor on the hand–held tester.
(b) Perform a test drive of the vehicle.
(c) Read the vehicle speed on the hand–held tester.
**RESULT: The same as the speed displayed on the speed meter.**

NG → REPLACE COMBINATION METER ASSY

OK

**2 INSPECT ECU**



(a) Check the output waveform.
HINT:
Using the oscilloscope function of hand–held tester, it is possible to check the function between the engine ECU and the knock control sensor. The waveform shown in the illustration is an example without noise and chattering.
(1) Connect the hand–held tester between the terminals SPD of the engine ECU E7 connector and E1 of the engine ECU E8 connector.
(2) Select the oscilloscope function on the hand–held tester. (Refer to the hand–held tester's instruction book for operating instructions.)
**RESULT: Voltage is intermittently generated**

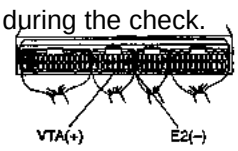
| ITEM | CONTENTS |
|---|---|
| TERMINAL | SPD↔E1 |
| EQUIPMENT SET | 5V/DIV, 20ms/DIV |
| CONDITION | Running at 20 km/h |

HINT:
• The multitude gets shorter as the engine speed becomes faster.

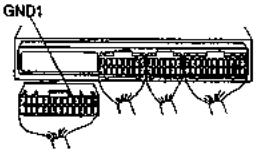
OK → CHECK AND REPLACE ECU

NG

● Indicates the condition of the connector of the ECU during the check.




Connector being checked is connected.
Connections of tester are indicated by (+), (-) after terminals name.

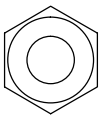
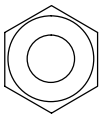
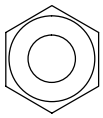
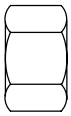
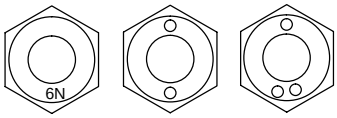
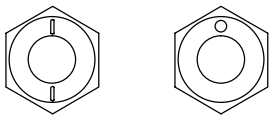
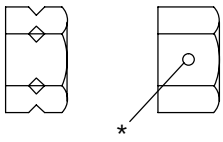
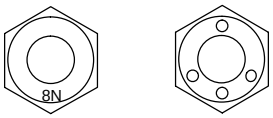
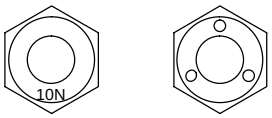
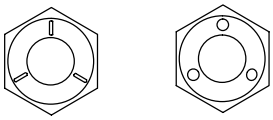
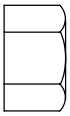
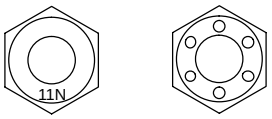
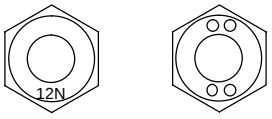



Connector being checked is disconnected.
For inspection of connector with body ground, there is nothing about the body ground written down.

D25842

0313Q-02

# HOW TO DETERMINE NUT STRENGTH

| Nut Type | | | Class |
|---|---|---|---|
| Present Standard Hexagon Nut | Old Standard Hexagon Nut | | |
| | Cold Forging Nut | Cutting Processed Nut | |
|  No Mark | | | 4N |
|  No Mark (w/ Washer) |  No Mark (w/ Washer) |  No Mark | 5N (4T) |
|  6N | | | 6N |
| |  |  * | 7N (5T) |
|  8N | | | 8N |
|  10N |  |  No Mark | 10N (7T) |
|  11N | | | 11N |
|  12N | | | 12N |

*: Nut with 1 or more marks on one side surface of the nut.

B06432

HINT:

Use the nut with the same number of the nut strength classification or the greater than the bolt strength classification number when tightening parts with a bolt and nut.

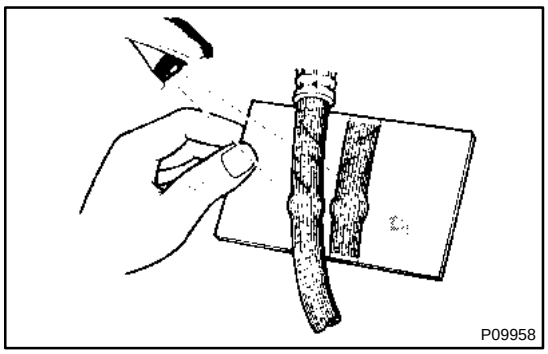
Example: Bolt = 4T

Nut = 4N or more

# BRAKE

9901M-03

## ON-VEHICLE INSPECTION




### 1. INSPECT BRAKE LINE PIPES AND HOSES

HINT:

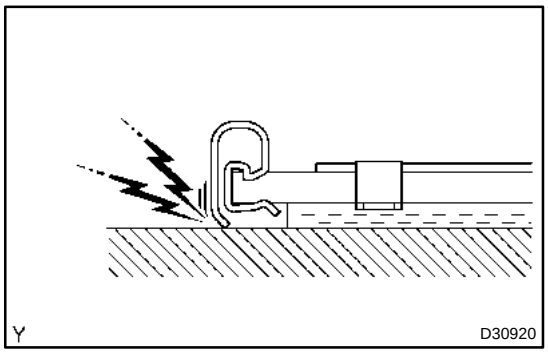
Check the entire circumference and length of the brake hoses using a mirror as required in a well-lighted area. Turn the front wheels fully right or left before checking the front brakes.

(a) Check all the brake lines and hoses for:
- Damage
- Wear
- Deformation
- Cracks
- Corrosion
- Leaks
- Bends
- Twists

(b) Check all the clamps for tightness and connections for leakage.

(c) Check that the hoses and lines are clear of sharp edges, moving parts and the exhaust system.

(d) Check that the lines are installed in grommets passing through the center of the grommets.




### 2. INSPECT FRONT BRAKE PADS AND DISCS (See page 32-22 )

HINT:

If a squealing or scraping noise is heard from the brakes while driving, check the pad wear indicator.

If there are traces of the indicator contacting the disc rotor, the disc pad should be replaced.

### 3. INSPECT REAR BRAKE PADS AND DISCS (See page 32-37 )

### 4. INSPECT REAR BRAKE LININGS AND DRUMS (See page 32-29 )

# COOLING FAN SYSTEM

160M7-02

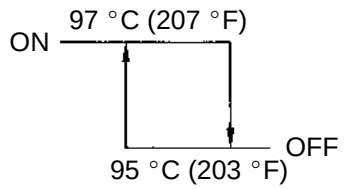
## ON-VEHICLE INSPECTION

**1. INSPECT COOLING FAN OPERATION WHEN COOLANT TEMPERATURE IS 95°C (203°F) BELOW**

(a) Check that the cooling fan does not operate when turning the ignition switch ON with A/C switch OFF.

(b) Check that the cooling fan operates when turning the ignition switch ON with disconnecting the engine coolant temperature sensor connector.

**Cooling Fan Operation**




Z13471

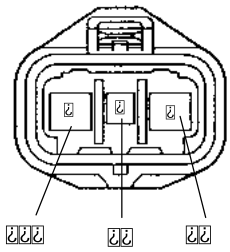
**2. INSPECT COOLING FAN OPERATION WHEN COOLANT TEMPERATURE IS 97°C (207°F) ABOVE**

(a) Warm up the engine and turn the A/C switch OFF.

(b) Check that the cooling fan operates when coolant temperature is 97°C (207°F) above.

(c) Check that the cooling fan stops when coolant temperature is 95°C (203°F) below.

**Cooling Fan ECU Connector**



A50564

**3. INSPECT COOLING FAN ECU**

(a) Check the cooling fan ECU power source.

(1) Disconnect the cooling fan ECU connector.

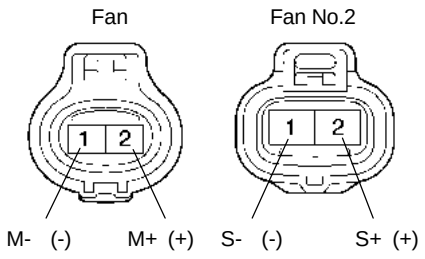
(2) Measure the voltage between the terminals +B and GND.

**Voltage: 9 to 14 V**

If the voltage is not specified, check the fusible link, fuse, wire harness and fan relay.

(3) Reconnect the connectors.

**Cooling Fan Connector**




A79212

(b) Check the cooling fan operation.

(1) Disconnect the cooling fan connectors.

(2) Check thet the fan operates when applying battery positive to terminal M+ and and battery negative to terminal M-.

(3) Measure the amperage.

**Fan operation amperage: 10.6 to 16.6 A**

(4) Disconnect the cooling fan No.2 connector.

(5) Check thet the fan operates when applying battery positive to terminal S+ and and battery negative to terminal S-.

(6) Measure the amperage.

**Fan No. 2 operation amperage: 5.6 to 11.6 A**

It is not as specified, replace the fan motor(s).

(7) Reconnect the cooling fan connectors.

(c) Check the wire harness continuity (ECM - cooling fan ECU).
(1) Disconnect the ECM connector and cooling fan ECU connector SI.
(2) Check the wire harness continuity.

If it is not specified, repair or replace the wire harness.

HINT:

Wire harness condition is diagnosed by cooling fan operartion.

| Cooling fan operation | Wire harness condition |
|---|---|
| Not operate | Short |
| Operate continuously | Open |

(d) Check the ECM power source.

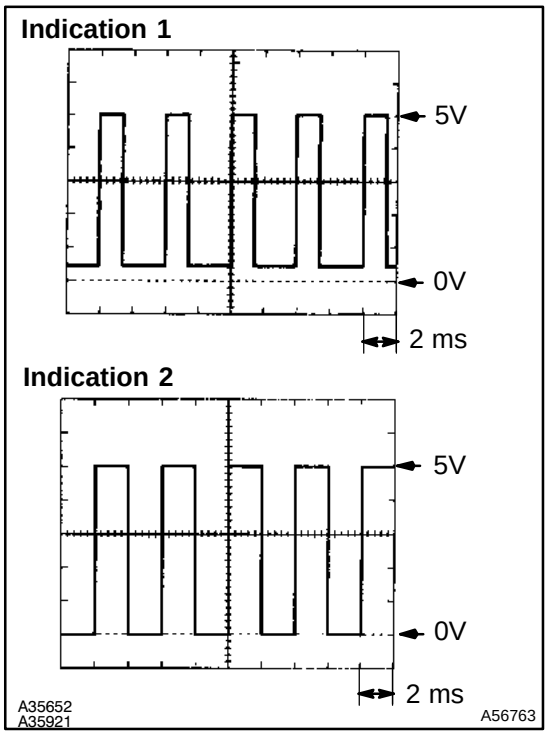
(e) Check RFC signal generation.

**NOTICE:**

**Perform this inspection when coolant temperature is 82°C (180°F) below.**

(1) Connect SST to M+ wire.
SST 09082-00040, 09083-00350
(2) Connect an oscilloscope to terminals RFC and E1 of the ECM.
(3) Check the signal generation and measure fan amperage under the condition.

| Condition | RFC signal generation | Fan amperage | Fan operation |
|---|---|---|---|
| Engine stopped, IG switch ON | - | - | Not operate |
| Engine idling, A/C OFF | - | - | Not operate |
| Engine idling, A/C ON | Indication 1 | 7 to 11 A | Operate |
| Engine idling, Disconnect engine coolant temperature sensor connector | Indication 2 | 10 to 19 A | Operate (High speed) |




**Oscilloscope indication:**

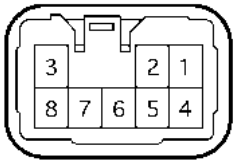
HINT:

- If RFC signal is not specified, replace the ECM.
- When the fan amperage has a problem in spite that the RFC signal has no problem, replace the cooling fan ECU.

670RH-02

# ON-VEHICLE INSPECTION

## 1. INSPECT VOLTAGE INVERTER ASSY



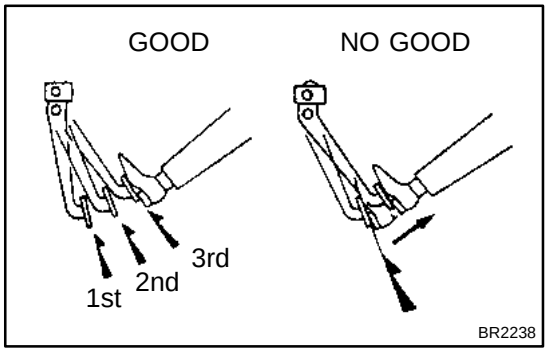

B33333

| Tester connection | Condition | Specified condition |
|---|---|---|
| 1 - 4 | IG switch ON | 10 to 16 V |
| 3 - 4 | IG switch ON, main switch ON | Pulse generation |
| 4 - Body Ground | Always | Continuity |
| 7 - 4 | IG switch ON, main switch ON | Pulse generation |

# W/MASTER CYLINDER BRAKE BOOSTER ASSY

3203F-15

## ON-VEHICLE INSPECTION




**1. INSPECT BRAKE BOOSTER**

(a) Air tightness check.

(1) Start the engine and stop it after 1 or 2 minutes. Depress the brake pedal several times slowly.

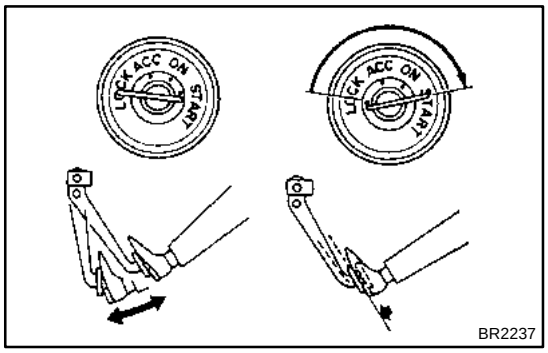
HINT:

If the pedal goes down farthest at the 1st time, and gradually rises at the 2nd or 3rd time, the booster is airtight.

(2) Depress the brake pedal while the engine is running, and stop the engine with the pedal depressed.

HINT:

If there is no change in the pedal reserve distance after holding the pedal for 30 seconds, the booster is airtight.




(b) Operating check.

(1) Depress the brake pedal several times with the ignition switch OFF and check that there is no change in the pedal reserve distance.

(2) Depress the brake pedal and start the engine.

HINT:

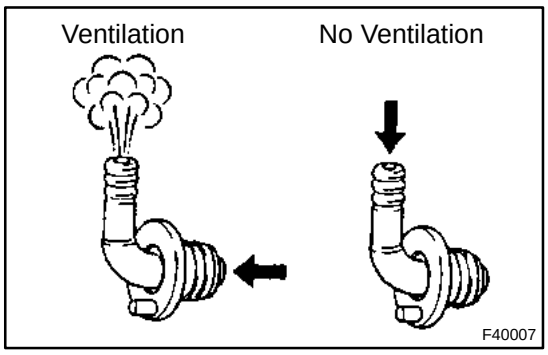
If the pedal goes down slightly, the operation is normal.

**2. INSPECT VACUUM CHECK VALVE**

(a) Check the vacuum check valve.

(1) Slide the clip and disconnect the vacuum hose.

(2) Remove the vacuum check valve.



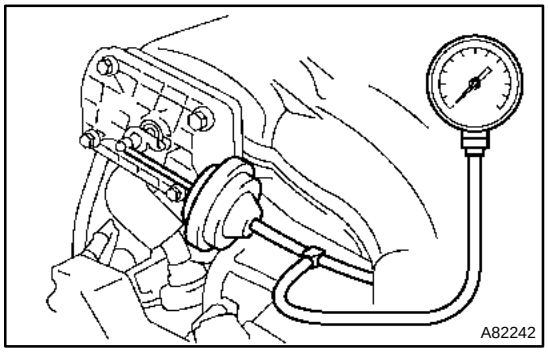

(3) Check that there is ventilation from the booster to the engine, and no ventilation from the engine to the booster.

(4) If any fault is found, replace the vacuum check valve.

# INTAKE AIR CONTROL SYSTEM

1306T-01

## ON-VEHICLE INSPECTION




**1. INSPECT INTAKE AIR CONTROL SYSTEM**

(a) Using a three-way connector, connect vacuum gauge to the actuator hose.

(b) Connect the hand-held tester to the DLC 3.

(c) Start the engine.

(d) Select the active test mode according to the message on the hand-held tester.

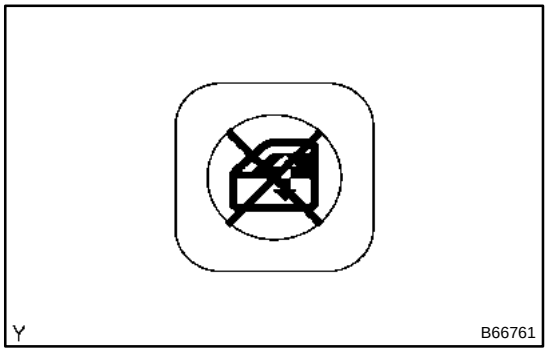
**Vacuum:**

| | |
|---|---|
| VSV ON | Approx. 27 kPa (200 mm Hg, 7.9 in. Hg) |
| VSV OFF | 0 kPa (0 mm Hg, 0 in. Hg.) |

# POWER WINDOW CONTROL SYSTEM (W/O JAM PROTECTION)

700SG-01

## ON-VEHICLE INSPECTION




**1. CHECK WINDOW LOCK SWITCH**

(a) Check that the passenger side power window and slide door power windows operation is disabled when the window lock switch of the power window master switch is pressed.

(b) Check that the passenger side power window and slide door power windows can be operated when the window lock switch is pressed again.

**2. CHECK MANUAL UP/DOWN FUNCTION**

(a) Check that the driver side power window can be operated using the AUTO (driver side) switch of the power window master switch as follows:

**Standard:**

| Condition | Master Switch | Switch Operation | Power Window |
|---|---|---|---|
| Ignition switch ON | AUTO (driver side) | Pull up | UP (Closed) |
| | | Push halfway down | DOWN (Open) |

(b) Check that the passenger side power window and slide door power windows can be operated using each power window regulator switch as follows:

**Standard:**

| Condition | Regulator Switch | Switch Operation | (Slide Door) Power Window |
|---|---|---|---|
| • Ignition switch ON<br>• Window lock switch OFF | Passenger side | Pull up | UP (Closed) |
| | | Push down | DOWN (Open) |
| | Rear LH | Pull UP | UP (Closed) |
| | | Push down | DOWN (Open) |
| | Rear RH | Pull up | UP (Closed) |
| | | Push down | DOWN (Open) |

**3. CHECK AUTO DOWN FUNCTION**

(a) Check that the driver side power window can be operated using the AUTO (driver side) switch of the power window master switch as follows:

**Standard:**

| Condition | Master Switch | Switch Operation | Power Window |
|---|---|---|---|
| Ignition switch ON | AUTO (driver side) | Pull fully down | AUTO DOWN (Fully open) |

**4. CHECK REMOTE UP/DOWN FUNCTION**

(a) Check that the passenger side power window and slide door power window can be operated using each switch of the power window master switch as follows:

**Standard:**

| Condition | Master Switch | Switch Operation | (Slide Door) Power Window |
|---|---|---|---|
| • Ignition switch ON<br>• Window lock switch OFF | Passenger side | Pull up | UP (Closed) |
| | | Push down | DOWN (Open) |
| | Rear LH | Pull up | UP (Closed) |
| | | Push down | DOWN (Open) |
| | Rear RH | Pull up | UP (Closed) |
| | | Push down | DOWN (Open) |

**5. CHECK MANUAL UP/DOWN FUNCTION VIA TRANSMITTER**

(a) Check that the front power windows and slide door power windows operate as follows when operating the transmitter.

**Standard:**

| Condition | Transmitter Operation | Power Window |
|---|---|---|
| • No key in ignition key cylinder<br>• Any door UNLOCK | Press UNLOCK switch for 2.4 sec. or more | All power windows go DOWN |
| • No key in ignition key cylinder<br>• All doors CLOSE<br>• All doors LOCK | Press LOCK switch for 2.4 sec. or more | All power windows go UP |

HINT:

- If the vehicle falls out of the conditions listed above while the power windows are operating, they will immediately stop operation.
- For a sign to start operation, the wireless door lock buzzer sounds once (answer-back).

**6. CHECK POWER WINDOW OPERATION FUNCTION AFTER IGNITION SWITCH IS TURNED OFF**

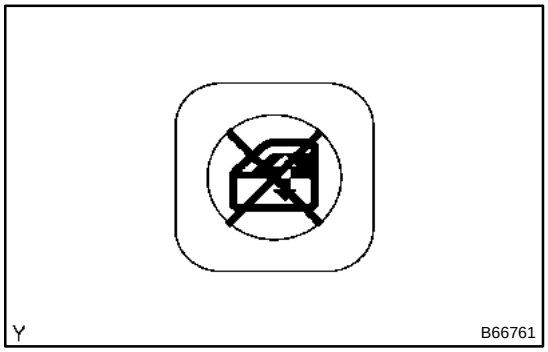
(a) When both of the following conditions are fulfilled, check that the power windows can be operated even after the ignition switch is turned OFF:

- Within 45 seconds after the ignition switch is turned OFF
- The front doors are closed

# POWER WINDOW CONTROL SYSTEM (W/ JAM PROTECTION)

700SF-01

## ON-VEHICLE INSPECTION




**1. CHECK WINDOW LOCK SWITCH**

(a) Check that the passenger side power window and slide door power windows operation is disabled when the window lock switch of the power window master switch is pressed.

(b) Check that the passenger side power window and slide door power windows can be operated when the window lock switch is pressed again.

**2. CHECK MANUAL UP/DOWN FUNCTION**

(a) Check that the driver side power window can be operated using the AUTO (driver side) switch of the power window master switch as follows:

**Standard:**

| Condition | Master Switch | Switch Operation | Power Window |
|---|---|---|---|
| Ignition switch ON | AUTO (driver side) | Pull halfway up | UP (Closed) |
| | | Push halfway down | DOWN (Open) |

(b) Check that the passenger side power window and slide door power windows can be operated using each power window regulator switch as follows:

**Standard:**

| Condition | Regulator Switch | Switch Operation | Power Window |
|---|---|---|---|
| • Ignition switch ON<br>• Window lock switch OFF | Passenger side | Pull up | UP (Closed) |
| | | Push down | DOWN (Open) |
| | Rear LH | Pull up | UP (Closed) |
| | | Push down | DOWN (Open) |
| | Rear RH | Pull up | UP (Closed) |
| | | Push down | DOWN (Open) |

**3. CHECK AUTO UP/DOWN FUNCTION**

(a) Check that the driver side power window can be operated using the AUTO (driver side) switch of the power window master switch as follows:

**Standard:**

| Condition | Master Switch | Switch Operation | Power Window |
|---|---|---|---|
| Ignition switch ON | AUTO (driver side) | Pull fully up | AUTO UP (Fully closed) |
| | | Push fully down | AUTO DOWN (Fully open) |

**4. CHECK REMOTE UP/DOWN FUNCTION**

(a) Check that the passenger side power window and slide door power window can be operated using each switch of the power window master switch as follows:

**Standard:**

| Condition | Master Switch | Switch Operation | Power Window |
|---|---|---|---|
| • Ignition switch ON<br>• Window lock switch OFF | Passenger | Pull UP | UP (Closed) |
| | | Push DOWN | DOWN (Open) |
| | Rear LH | Pull UP | UP (Closed) |
| | | Push DOWN | DOWN (Open) |
| | Rear RH | Pull UP | UP (Closed) |
| | | Push DOWN | DOWN (Open) |

**5. CHECK MANUAL UP/DOWN FUNCTION VIA TRANSMITTER**

(a) Check that the front power windows and slide power windows operate as follows when operating the transmitter.

**Standard:**

| Condition | Transmitter Operation | Power Window |
|---|---|---|
| • No key in ignition key cylinder<br>• Any door UNLOCK | Press UNLOCK switch for 2.4 sec. or more | All power windows go DOWN |
| • No key in ignition key cylinder<br>• All doors CLOSE<br>• All doors LOCK | Press LOCK switch for 2.4 sec. or more | All power windows go UP |

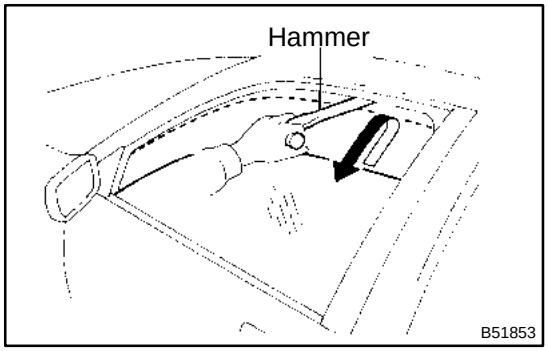
HINT:

For a sign to start operation, the wireless door lock buzzer sounds once (answer-back).

**6. CHECK POWER WINDOW OPERATION FUNCTION AFTER IGNITION SWITCH OFF**

(a) When both of the following conditions are fulfilled, check that the power windows can be operated even after the ignition switch is turned OFF.

- Within 45 seconds after the ignition switch is turned OFF
- The front doors are closed




**7. CHECK JAM PROTECTION FUNCTION (DRIVER SIDE)**

HINT:

The jam protection function prevents any part of your body from getting caught by accident between the door frame and the door glass during power window operation.

(a) Check that the door glass goes down by approximately 50 mm (1.97 in.) right when something gets caught between the door frame and door glass during power window operation. However, when the opening between the door frame and the door glass is less than 200 mm (7.87 in.), the door glass keeps going down until the opening reaches 200 mm (7.87 in.) and stops there.

**Operative conditions:**

- AUTO UP
- AUTO UP operation after the ignition switch OFF
- MANUAL UP operation after the ignition switch OFF

## 8. CHECK POWER WINDOW FAIL-SAFE FUNCTION

(a) If there is a malfunction in the pulse sensor of the power window motor, the power window function will be restricted to partial operation.

| Power Window Function (Switch Operation) | Ignition Switch ON | Ignition Switch OFF |
|---|---|---|
| Manual UP (Pull halfway up) | Disabled* | Disabled |
| Manual DOWN (Push halfway down) | Operative | Disabled |
| AUTO UP (Pull fully up) | Disabled | Disabled |
| AUTO DOWN (Push fully down) | Disabled | Disabled |

*: However, manual UP function of the power window is operative when fully pulling up the power window switch.

710FS-01

# ON-VEHICLE INSPECTION

## 1. INSPECT SPEEDOMETER

(a) Check the operation.

(1) Using a speedometer tester, inspect the speedometer for acceptable indication error and check the operation of the odometer.

**Reference: km/h (Canade)**

| Standard indication | Acceptable range |
|---|---|
| 20 km/h | 17.5 - 21.5 km/h |
| 40 km/h | 38.0 - 42.0 km/h |
| 60 km/h | 58.0 - 63.0 km/h |
| 80 km/h | 78.0 - 84.0 km/h |
| 100 km/h | 98.5 - 104.5 km/h |
| 120 km/h | 119.0 - 125.0 km/h |
| 140 km/h | 139.0 - 146.0 km/h |
| 160 km/h | 159.0 - 167.0 km/h |

**Reference: MPH (U.S.)**

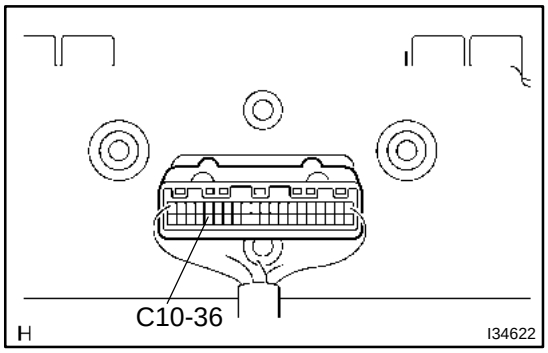
| Standard indication | Acceptable range |
|---|---|
| 20 mph | 20.0 - 23.0 mph |
| 40 mph | 40.0 - 43.5 mph |
| 60 mph | 60.0 - 64.0 mph |
| 80 mph | 80.0 - 84.5 mph |
| 100 mph | 100.0 - 105.0 mph |

**NOTICE:**

**Tire wear and over or under inflation will affect the indication error.**

(2) Check the deflection width of the speed meter indicator.

**Reference: Below 0.5 km/h (0.3 mph)**




## 2. INSPECT OUTPUT SIGNAL OF VEHICLE SPEED

(a) Check for the signal.

(1) While driving the vehicle at the speed of 10 km/h, check the voltage between the terminal C10-36 of the combination meter assy and the body ground.

**Standard: Fluctuation between 10 to 14 V or less is repeated 7 times within 1 sec.**

**NOTICE:**

**Check it with the ignition switch ON and the connector connected.**

## 3. INSPECT TACHOMETER

(a) Check the operation

(1) Connect the tune-up test tachometer, and start the engine.

**NOTICE:**

- **Reversing the connection of the tachometer will damage the transistors and the insides of the diodes.**
- **When removing or installing the tachometer, be careful not to drop or subject it to heavy shocks.**

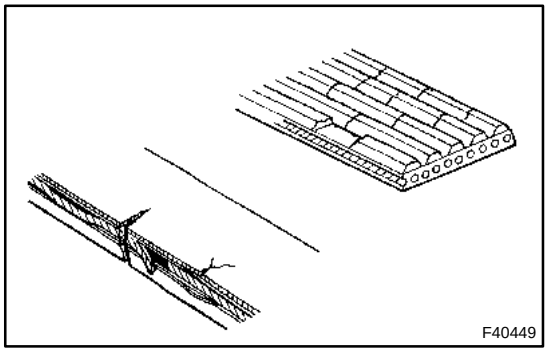
(2) Compare the result of the test with standard indication.

**DC 13.5 V, 25 °C at (77 °F)**

| Standard indication (r/min) | Acceptable range (r/min)<br>Data in ( ) are for reference |
|---|---|
| 700 | 630 - 770 |
| 1,000 | (900 - 1100) |
| 2,000 | (1850 - 2150) |
| 3,000 | 2800 - 3200 |
| 4,000 | (3800 - 4200) |
| 5,000 | 4800 - 5200 |
| 6,000 | (5750 - 6250) |
| 7,000 | 6700 - 7300 |

5105M-08

# ON-VEHICLE INSPECTION




**1. INSPECT DRIVE BELT**

(a) Visually check the belt for excessive wear, frayed cords, etc.

If any defect is found, replace the drive belt.

HINT:

Cracks on the rib side of a belt are considered acceptable. If the missing chunks from the ribs are found on the belt, it should be replaced.

**2. BLEED POWER STEERING SYSTEM**

(a) Check the fluid level.

(b) Jack up the front of the vehicle and support it with the stands.

(c) Turn the steering wheel.

(1) With the engine stopped, turn the wheel slowly from lock to lock several times.

(d) Lower the vehicle.

(e) Start the engine.

(1) Run the engine at idle for a few minutes.

(f) Turn the steering wheel.

(1) With the engine idling, turn the wheel to left or right full lock position and keep it there for 2 - 3 seconds, then turn the wheel to the opposite full lock position and keep it there for 2 - 3 seconds.

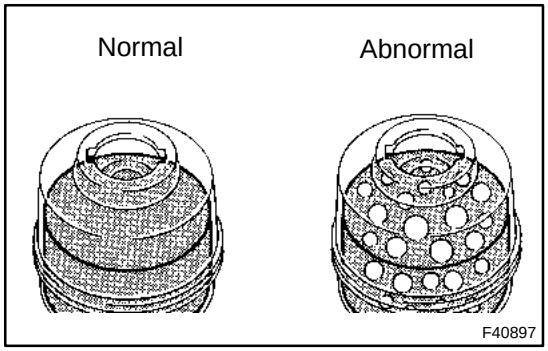
(2) Repeat (1) several times.

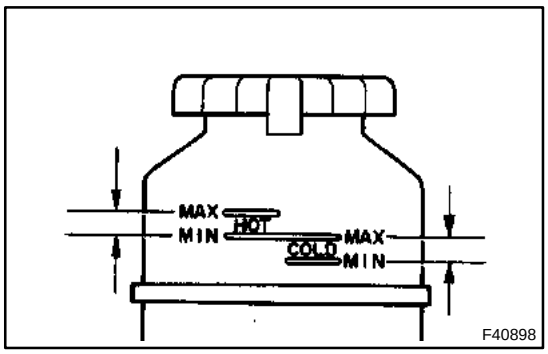
(g) Stop the engine.

(h) Check for foaming or emulsification.

If the system has to be bled twice especially because of foaming or emulsification, check for fluid leaks in the system.

(i) Recheck the fluid level.






**3. CHECK FLUID LEVEL**

(a) Keep the vehicle level.

(b) With the engine stopped, check the fluid level in the oil reservoir.

If necessary, add fluid.

**Fluid: ATF DEXRON® II or III**

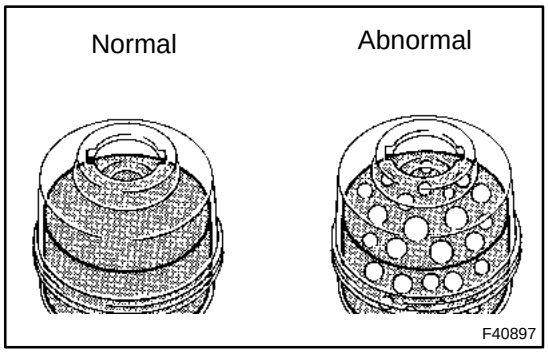
HINT:

If the fluid is not, check that the fluid level is within the HOT LEVEL range on the reservoir cap. If the fluid is cold, check that it is within the COLD LEVEL range.

(c) Start the engine and run it at idle.

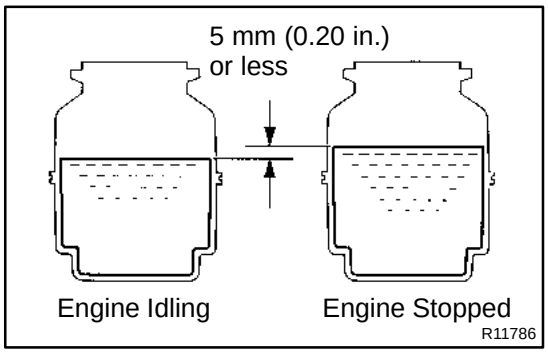
(d) Turn the steering wheel from lock to lock several times to raise fluid temperature.

**Fluid temperature: 75 to 80˚C (167 to 176˚F)**




(e) Check for foaming or emulsification.

If foaming or emulsification is identified, bleed the power steering system.




(f) With the engine idling, measure the fluid level in the oil reservoir.

(g) Stop the engine.

(h) Wait a few minutes and remeasure the fluid level in the oil reservoir.

**Maximum fluid level rise: 5 mm (0.20 in.)**

If a problem is found, bleed the power steering system.

(i) Check the fluid level.

**4. CHECK STEERING FLUID PRESSURE**

(a) Disconnect the pressure feed tube assy from the rack & pinion power steering gear assy (See page 51-19 ).

(b) Connect SST, as shown in the illustration on the next page.

SST 09640-10010 (09641-01010, 09641-01020, 09641-01030)

**NOTICE:**

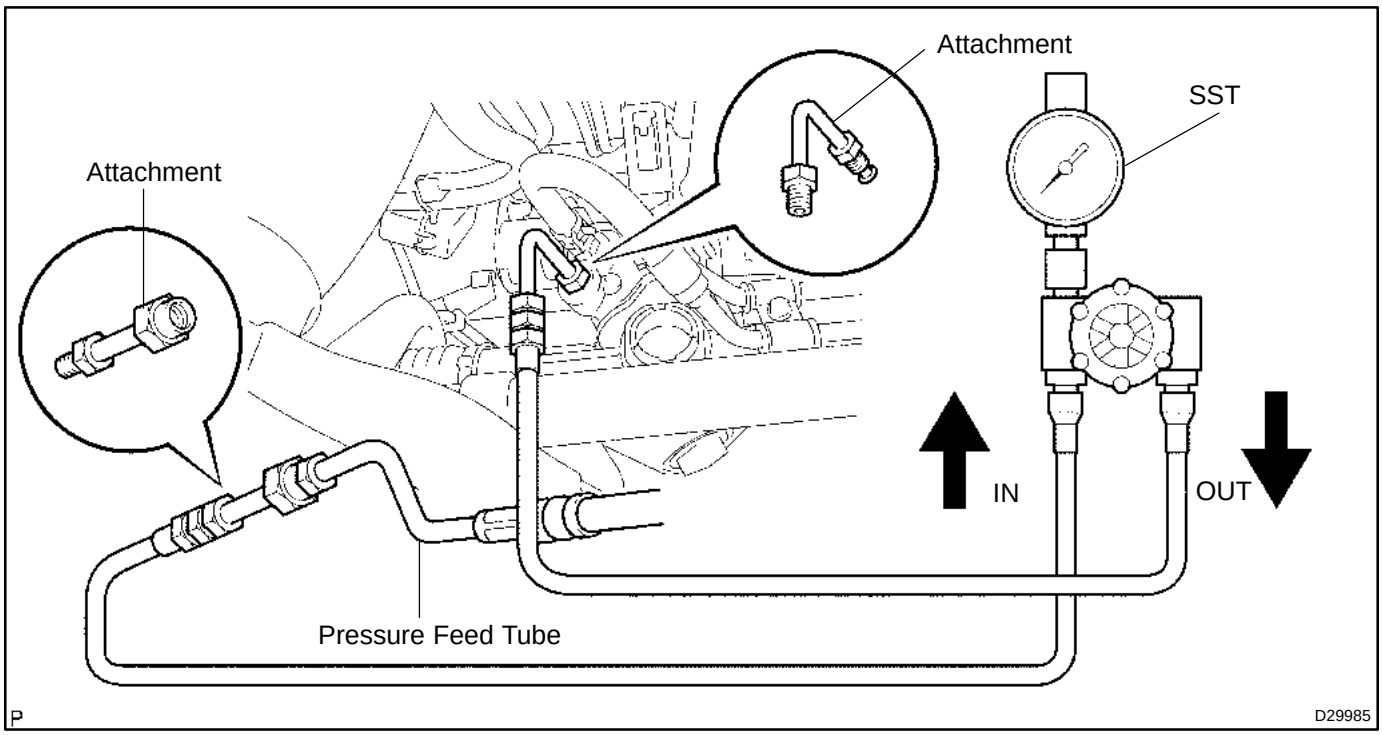
**Check that the valve of the SST is in the open position.**

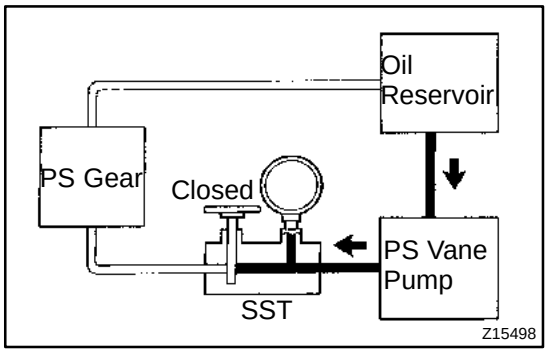
(c) Bleed the power steering system.

(d) Start the engine and run it at idle.

(e) Turn the steering wheel from lock to lock several times to raise fluid temperature.

**Fluid temperature: 75 to 80 ˚C (167 to 176 ˚F)**



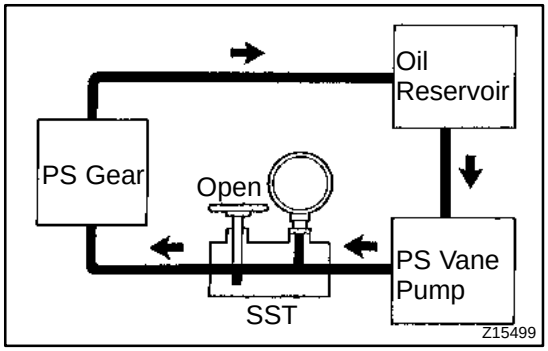

(f) With the engine idling, close the valve of the SST and observe the reading on the SST.

**Fluid pressure:**

**7,800 to 8,300 kPa (80 to 85 kgf/cm$^2$, 1,138 to 1,209 psi)**

**NOTICE:**

- **Do not keep the valve closed for more than 10 seconds.**
- **Do not let the fluid temperature become too high.**




(g) With the engine idling, open the valve fully.

(h) Measure the fluid pressure at engine speeds of 1,000 rpm and 3,000 rpm.

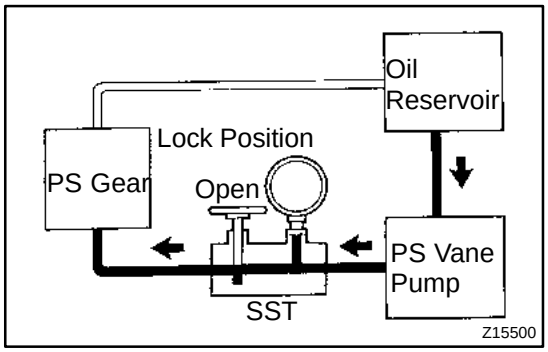
**Fluid pressure difference:**

**490 kPa (5 kgf/cm$^2$, 71 psi) or less**

**NOTICE:**

**Do not turn the steering wheel.**

If necessary, replace the vane pump assy.




(i) With the engine idling and valve fully opened, turn the steering wheel to full lock position.

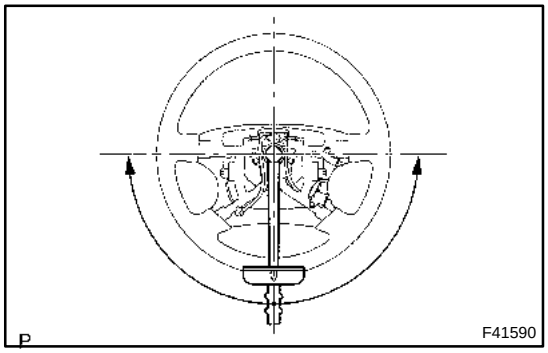
**Fluid pressure:**

**7,800 to 8,300 kPa (80 to 85 kgf/cm$^2$, 1,138 to 1,209 psi)**

**NOTICE:**

- **Do not maintain lock position for more than 10 seconds.**
- **Do not let the fluid temperature become too high.**

(j) Disconnect the SST.
(k) Connect the pressure feed tube assy to the rack & pinion power steering gear assy (See page 51-19 ).
(l) Bleed the power steering system.




**5. CHECK STEERING EFFORT**

(a) Center the steering wheel assy.
(b) Remove the horn button assy (See page 60-19 ).
(c) Start the engine and run it at idle.
(d) Using a torque wrench, measure the steering effort in both directions.
**Steering effort (Reference):**
**6.0 N·m (60 kgf·cm, 53 in.·lbf) or less**

HINT:
Take the tire type, pressure and contact surface into consideration before making your diagnosis.

(e) Install the steering wheel assy set nut.
**Torque: 50 N·m (510 kgf·cm, 37 ft·lbf)**
(f) Install the horn button assy (See page 60-19 ).

# BRAKE ACTUATOR ASSY (W/O VSC)

3203J-06

## ON-VEHICLE INSPECTION

**1. CONNECT HAND-HELD TESTER**

(a) Connect the hand-held tester to the DLC3.
(b) Start the engine and run it at idle.
(c) Select the ACTIVE TEST mode on the hand-held tester.

HINT:
Please refer to the hand-held tester operator's manual for further details.

**2. INSPECT ACTUATOR MOTOR OPERATION**

(a) With the motor relay ON, check the actuator motor operation noise.
(b) Turn the motor relay OFF.
(c) Depress the brake pedal and hold it for about 15 seconds. Check that the brake pedal cannot be depressed.
(d) With the motor relay ON, check that the pedal does not pulsate.

**NOTICE:**
**Do not keep the motor relay ON for more than 5 seconds continuously. When operating it continuously, set the interval of more than 20 seconds.**

(e) Turn the motor relay OFF and release the brake pedal.

**3. INSPECT RIGHT FRONT WHEEL OPERATION**

**NOTICE:**
**Never turn ON the solenoid which is not described below.**

(a) With the brake pedal depressed, perform the following operations.
(b) Turn the SFRH and SFRR solenoid ON simultaneously, and check that the pedal cannot be depressed.

**NOTICE:**
**Do not keep the solenoids ON for more than 5 seconds continuously. When operating them continuously, set the interval of more than 20 seconds.**

(c) Turn the SFRH and SFRR solenoid OFF simultaneously, and check that the pedal can be depressed.
(d) Turn the motor relay ON, and check that the pedal returns.

**NOTICE:**
**Do not keep the motor relay ON for more than 5 seconds continuously. When operating it continuously, set the interval of more than 20 seconds.**

(e) Turn the motor relay OFF and release the brake pedal.

**4. INSPECT OTHER WHEEL OPERATION**

(a) Using the same procedure, check the solenoids of other wheels.

HINT:
Left front wheel: SFLH, SFLR
Right rear wheel: SRRH, SRRR
Left rear wheel: SRLH, SRLR

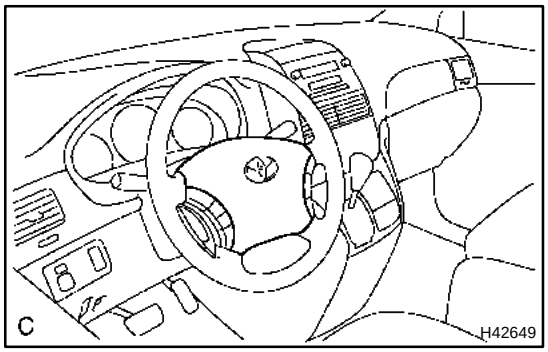
6010C-01

# ON-VEHICLE INSPECTION

**CAUTION:**

**Be sure to perform the initialization of the occupant classification ECU if any of the following conditions occur (see page 05-767 ). If the initialization is not performed, the SRS may not operate properly.**

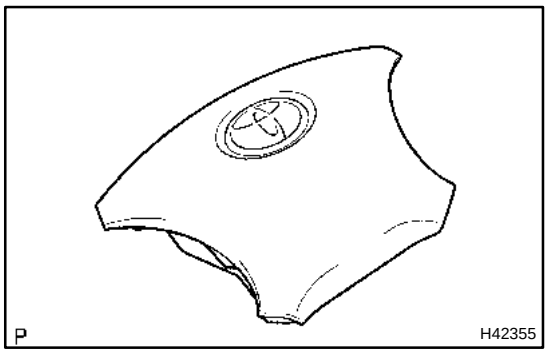
- **The occupant classification ECU is replaced.**
- **Accessories (seatback tray, seat cover, etc.) are installed to the vehicle.**
- **The passenger seat is removed from the vehicle, and then reinstalled or replaced.**
- **The passenger airbag ON/OFF indicator light ("OFF") comes on when the passenger seat is not occupied.**
- **The vehicle is brought to the workshop for repair due to an accident or collision.**




**1. HORN BUTTON ASSY (VEHICLE NOT INVOLVED IN COLLISION)**

(a) Perform a diagnostic system check (see page 05-777 ).

(b) With the horn button assy installed on the vehicle, perform a visual check. If there are any defects as mentioned below, replace the horn button assy with a new one:
Cuts, minute cracks or marked discoloration on the horn button assy top surface or in the grooved portion.

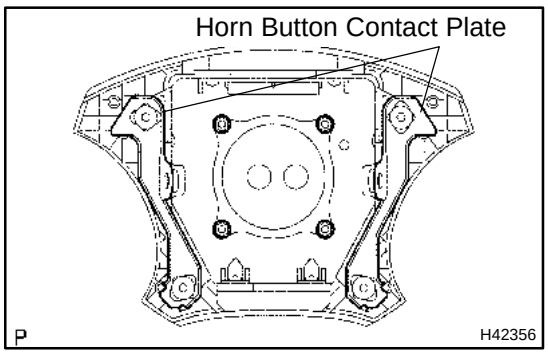



**2. HORN BUTTON ASSY (VEHICLE INVOLVED IN COLLISION AND AIRBAG IS NOT DEPLOYED)**

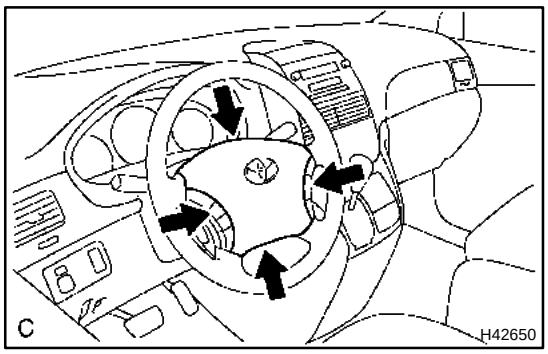
(a) Perform a diagnostic system check (see page 05-777 ).

(b) With the horn button assy removed from the vehicle, perform a visual check. If there are any defects as mentioned below, replace the horn button assy or steering wheel assy with a new one:

- Cuts, minute cracks or marked discoloration on the horn button assy top surface or in the grooved portion.
- Cracks or other damage to the connectors.
- Deformation of the steering wheel assy.



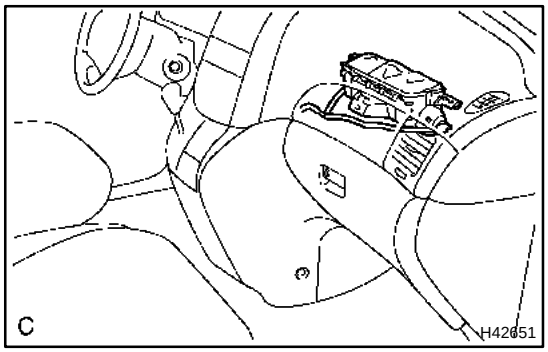

- Deformation of the horn button contact plate of the horn button assy.




- There should be no interference between the horn button assy and steering wheel assy, and the clearance should be uniform all the way around when the new horn button assy is installed on the steering wheel assy.

**CAUTION:**

**For removal and installation procedures of the horn button assy, see page 60-19 . Be sure to follow the correct procedure.**

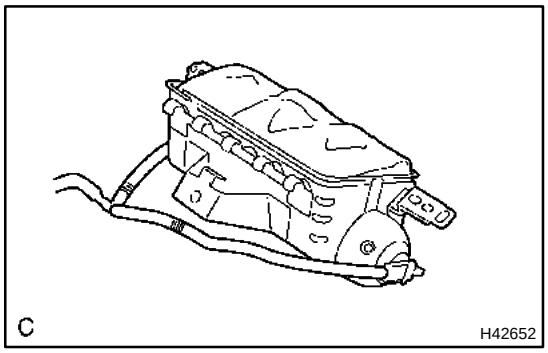



**3. INSTR PNL PASS L/DOOR AIRBAG ASSY (VEHICLE NOT INVOLVED IN COLLISION)**

(a) Perform a diagnostic system check (see page 05-777 ).

(b) With the instr pnl pass l/door airbag assy installed on the vehicle, perform a visual check. If there are any defects as mentioned below, replace the instrument panel with a new one:

Cuts, minute cracks or marked discoloration on the instrument panel around the instr pnl pass l/door airbag assy.

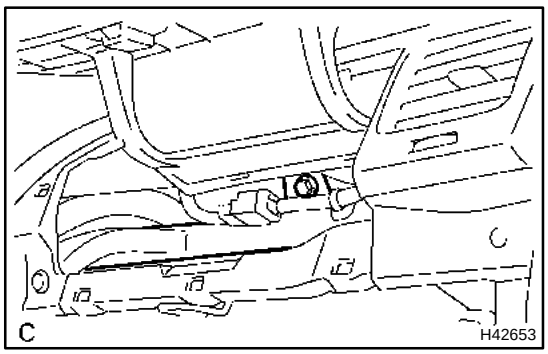



**4. INSTR PNL PASS L/DOOR AIRBAG ASSY (VEHICLE INVOLVED IN COLLISION AND AIRBAG IS NOT DEPLOYED)**

(a) Perform a diagnostic system check (see page 05-777 ).

(b) With the instr pnl pass l/door airbag assy removed from the vehicle, perform a visual check. If there are any defects as mentioned below, replace the instr pnl pass l/door airbag assy, instrument panel or instrument panel reinforcement with a new one:

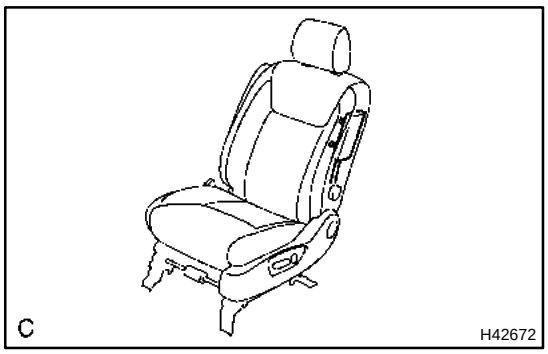
- Cuts, minute cracks or marked discoloration on the instr pnl pass l/door airbag assy.
- Cracks or other damage to the wire harness or connector.




- Deformation or cracks on the instrument panel or instrument panel reinforcement.

**CAUTION:**

**For removal and installation procedures of the instr pnl pass l/door airbag assy, see page 60-31 . Be sure to follow the correct procedure.**

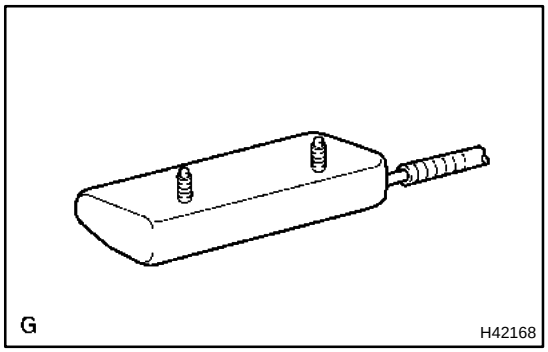



**5. FRONT SEAT AIRBAG ASSY (VEHICLE NOT INVOLVED IN COLLISION)**

(a) Perform a diagnostic system check (see page 05-777 ).

(b) With the front seat airbag assy installed on the vehicle, perform a visual check. If there are any defects as mentioned below, replace the front seatback assy with a new one:

Cuts, minute cracks or marked discoloration on the front seatback assy around the front seat airbag assy.




**6. FRONT SEAT AIRBAG ASSY (VEHICLE INVOLVED IN COLLISION AND AIRBAG IS NOT DEPLOYED)**

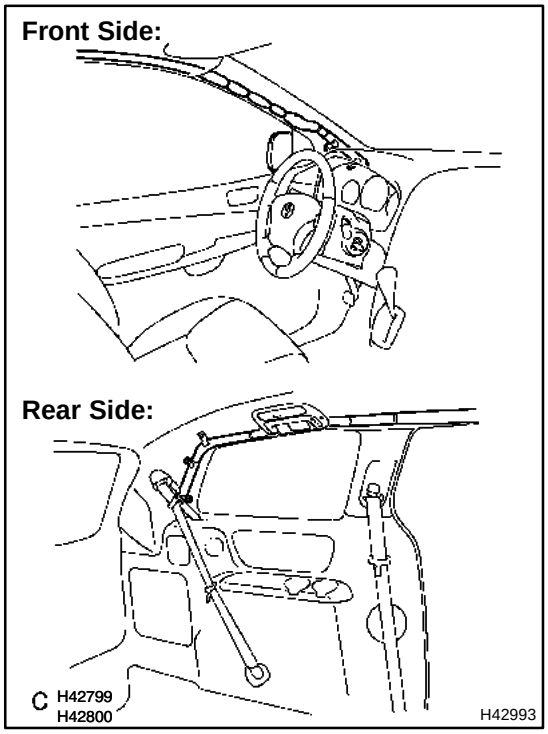
(a) Perform a diagnostic system check (see page 05-777 ).

(b) With the front seat airbag assy removed from the vehicle, perform a visual check. If there are any defects as mentioned below, replace the front seat airbag assy with a new one:

- Cuts, minute cracks or marked discoloration on the front seat airbag assy.
- Cracks or other damage to the wire harness or connector.

**CAUTION:**

**For removal and installation procedures of the front seat airbag assy, see page 72-12 (power seat) or 72-22 (manual seat). Be sure to follow the correct procedure.**

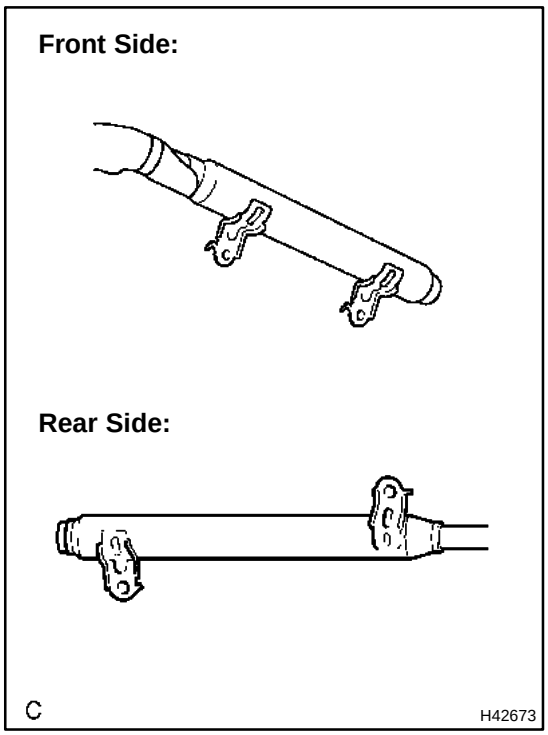



**7. CURTAIN SHIELD AIRBAG ASSY (VEHICLE NOT INVOLVED IN COLLISION)**

(a) Perform a diagnostic system check (see page 05-777 ).

(b) With the curtain shield airbag assy installed on the vehicle, perform a visual check. If there are any defects as mentioned below, replace the front pillar garnish, RR window side garnish assy No.2 or roof headlining assy with a new one:

Cuts, minute cracks or marked discoloration on the front pillar garnish, RR window side garnish assy No.2 or roof headlining assy around the curtain shield airbag assy.




**8. CURTAIN SHIELD AIRBAG ASSY (VEHICLE INVOLVED IN COLLISION AND AIRBAG IS NOT DEPLOYED)**

(a) Perform a diagnostic system check (see page 05-777 ).

(b) With the curtain shield airbag assy removed from the vehicle, perform a visual check. If there are any defects as mentioned below, replace the curtain shield airbag assy with a new one:

- Cuts, minute cracks or marked discoloration on the curtain shield airbag assy.
- Cracks or other damage to the connectors.

**CAUTION:**

**For removal and installation procedures of the curtain shield airbag assy, see page 60-40 . Be sure to follow the correct procedure.**

**9. AIRBAG SENSOR ASSY CENTER (VEHICLE NOT INVOLVED IN COLLISION)**

(a) Perform a diagnostic system check (see page 05-777 ).

**10. AIRBAG SENSOR ASSY CENTER (VEHICLE INVOLVED IN COLLISION AND AIRBAG IS NOT DEPLOYED)**

(a) Perform a diagnostic system check (see page 05-777 ).

**11. AIRBAG SENSOR ASSY CENTER (VEHICLE INVOLVED IN COLLISION AND AIRBAG IS DEPLOYED)**

(a) Replace the airbag sensor assy center (see page 60-56 ).

**CAUTION:**

**For removal and installation procedures of the airbag sensor assy center, see page 60-56 . Be sure to follow the correct procedure.**

HINT:

The airbag sensor assy center should be replaced after any of the airbags has deployed, as it has been subjected to the impact.

**12. AIRBAG SENSOR FRONT (VEHICLE NOT INVOLVED IN COLLISION)**

(a) Perform a diagnostic system check (see page 05-777 ).

**13. AIRBAG SENSOR FRONT (VEHICLE INVOLVED IN COLLISION AND AIRBAG IS NOT DEPLOYED)**

(a) Perform a diagnostic system check (see page 05-777 ).

(b) When the front bumper of the vehicle or its periphery is damaged, check if there is any damage to the airbag sensor front. If any of the airbag sensor front have defects as mentioned below, replace it with a new one:

- Cracks, dents or chips in the case.
- Cracks or other damage to the connector.
- Peeling off of the label or damage to the serial number.

**CAUTION:**

**For removal and installation procedures of the airbag sensor front, see page 60-58 . Be sure to follow the correct procedure.**

**14. AIRBAG SENSOR FRONT (VEHICLE INVOLVED IN COLLISION AND AIRBAG IS DEPLOYED)**

(a) Replace the airbag sensor front (see page 60-58 ).

**CAUTION:**

**For removal and installation procedures of the airbag sensor front, see page 60-58 . Be sure to follow the correct procedure.**

HINT:

The airbag sensor front on the impacted side should be replaced after the horn button assy or instr pnl pass l/door airbag assy has deployed.

**15. SIDE AIRBAG SENSOR ASSY (VEHICLE NOT INVOLVED IN COLLISION)**

(a) Perform a diagnostic system check (see page 05-777 ).

**16. SIDE AIRBAG SENSOR ASSY (VEHICLE INVOLVED IN COLLISION AND AIRBAG IS NOT DEPLOYED)**

(a) Perform a diagnostic system check (see page 05-777 ).

(b) When the center pillar of the vehicle or its periphery is damaged, check if there is any damage to the side airbag sensor assy. If there are any defects as mentioned below, replace the side airbag sensor assy with a new one:

- Cracks, dents or chips in the case.
- Cracks or other damage to the connector.
- Peeling off of the label or damage to the serial number.

**CAUTION:**

**For removal and installation procedures of the side airbag sensor assy, see page 60-60 . Be sure to follow the correct procedure.**

**17. SIDE AIRBAG SENSOR ASSY (VEHICLE INVOLVED IN COLLISION AND AIRBAG IS DEPLOYED)**

(a) Replace the side airbag sensor assy (see page 60-60 ).

**CAUTION:**

**For removal and installation procedures of the side airbag sensor assy, see page 60-60 . Be sure to follow the correct procedure.**

HINT:

The side airbag sensor assy on the impacted side should be replaced after the front seat airbag assy and curtain shield airbag assy have deployed.

**18. AIRBAG SENSOR REAR (VEHICLE NOT INVOLVED IN COLLISION)**

(a) Perform a diagnostic system check (see page 05-777 ).

**19. AIRBAG SENSOR REAR (VEHICLE INVOLVED IN COLLISION AND AIRBAG IS NOT DEPLOYED)**

(a) Perform a diagnostic system check (see page 05-777 ).

(b) When the quarter panel of the vehicle or its periphery is damaged, check if there is any damage to the airbag sensor rear. If there are any defects as mentioned below, replace the airbag sensor rear with a new one:

- Cracks, dents or chips in the case.
- Cracks or other damage to the connector.
- Peeling off of the label or damage to the serial number.

**CAUTION:**

**For removal and installation procedures of the airbag sensor rear, see page 60-62 . Be sure to follow the correct procedure.**

**20. AIRBAG SENSOR REAR (VEHICLE INVOLVED IN COLLISION AND AIRBAG IS DEPLOYED)**

(a) Replace the airbag sensor rear (see page 60-62 ).

**CAUTION:**

**For removal and installation procedures of the airbag sensor rear, see page 60-62 . Be sure to follow the correct procedure.**

HINT:

The airbag sensor rear on the impacted side should be replaced after the curtain shield airbag assy has deployed.

**21. SEAT POSITION AIRBAG SENSOR (VEHICLE NOT INVOLVED IN COLLISION)**

(a) Perform a diagnostic system check (see page 05-777 ).

**22. SEAT POSITION AIRBAG SENSOR (VEHICLE INVOLVED IN COLLISION)**

(a) Perform a diagnostic system check (see page 05-777 ).

(b) Even if the airbag was not deployed, perform a visual check for damage to the seat position airbag sensor including the following:

- Cracks, dents or chips in the case.
- Cracks or other damage to the connector.

**CAUTION:**

**For removal and installation procedures of the seat position airbag sensor, see page 60-64 . Be sure to follow the correct procedure.**

**23. OCCUPANT CLASSIFICATION ECU (VEHICLE NOT INVOLVED IN COLLISION)**

(a) Perform a diagnostic system check (see page 05-777 ).

**24. OCCUPANT CLASSIFICATION ECU (VEHICLE INVOLVED IN COLLISION)**

(a) Perform a diagnostic system check (see page 05-777 ).

(b) Even if the airbag was not deployed, perform a visual check for damage to the occupant classification ECU including the following:

- Cracks, dents or chips in the case.
- Cracks or other damage to the connectors.

**CAUTION:**

**For removal and installation procedures of the occupant classification ECU, see page 60-67 . Be sure to follow the correct procedure.**

**25. WIRE HARNESS AND CONNECTOR (VEHICLE NOT INVOLVED IN COLLISION)**

(a) Perform a diagnostic system check (see page 05-777 ).

**26. WIRE HARNESS AND CONNECTOR (VEHICLE INVOLVED IN COLLISION)**

(a) Perform a diagnostic system check (see page 05-777 ).

(b) Check for breaks in all wires of the SRS wire harness and exposed conductors.

(c) Check to see if the SRS wire harness connectors are cracked or chipped.

HINT:

The SRS wire harness is integrated with the engine room main wire, instrument panel wire, instrument panel wire No.2, seat wire No.1, floor wire, floor wire No.2 and roof wire No.2.

# BRAKE ACTUATOR ASSY (W/ VSC)

3203L-05

## ON-VEHICLE INSPECTION

**1. CONNECT HAND-HELD TESTER**

(a) Connect the hand-held tester to the DLC3.

(b) Start the engine and run it at idle.

(c) Select the ACTIVE TEST mode on the hand-held tester.

HINT:

Please refer to the hand-held tester operator's manual for further details.

**2. INSPECT ACTUATOR MOTOR OPERATION**

(a) With the motor relay ON, check the actuator motor operation noise.

(b) Turn the motor relay OFF.

(c) Depress the brake pedal and hold it for about 15 seconds. Check that the brake pedal cannot be depressed.

(d) With the motor relay ON, check that the pedal does not pulsate.

**NOTICE:**

**Do not keep the motor relay ON for more than 5 seconds continuously. When operating it continuously, set the interval of more than 20 seconds.**

(e) Turn the motor relay OFF and release the brake pedal.

**3. INSPECT RIGHT FRONT WHEEL OPERATION**

**NOTICE:**

**Never turn ON the solenoid which is not described below.**

(a) With the brake pedal depressed, perform the following operations.

(b) Turn the SFRH and SFRR solenoid ON simultaneously, and check that the pedal cannot be depressed.

**NOTICE:**

**Do not keep the solenoids ON for more than 5 seconds continuously. When operating them continuously, set the interval of more than 20 seconds.**

(c) Turn the SFRH and SFRR solenoid OFF simultaneously, and check that the pedal can be depressed.

(d) Turn the motor relay ON, and check that the pedal returns.

**NOTICE:**

**Do not keep the motor relay ON for more than 5 seconds continuously. When operating it continuously, set the interval of more than 20 seconds.**

(e) Turn the motor relay OFF and release the brake pedal.

**4. INSPECT OTHER WHEEL OPERATION**

(a) Using the same procedure, check the solenoids of other wheels.

HINT:

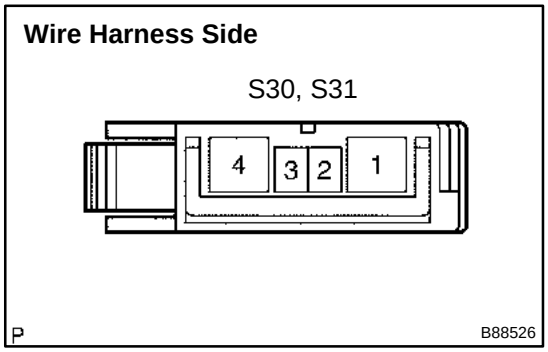
Left front wheel: SFLH, SFLR

Right rear wheel: SRRH, SRRR

Left rear wheel: SRLH, SRLR

720IW-01

# ON-VEHICLE INSPECTION




**1. CHECK SEAT HEATER CONTROL (WIRE HARNESS SIDE)**

(a) Disconnect the connector from the seat heater control.

(b) Measure the voltage and resistance of each terminal of the wire harness side connector.

**Standard:**

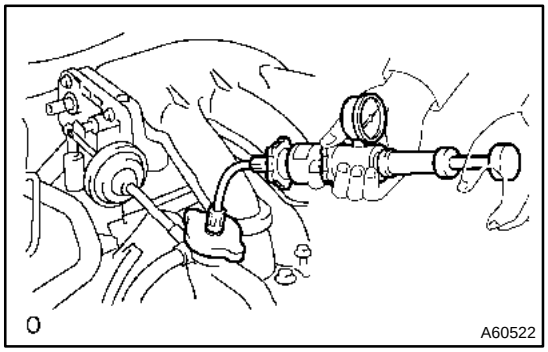
| Terminal Connection | Condition | Specified Condition |
|---|---|---|
| 1 - Body ground | Always | Below 1 Ω |
| 1 - 3 | Seat heater switch OFF → ON (Ignition switch ON) | 0 V → 11 to 14 V |
| 1 - 4 | Always | 11 to 14 V |

If the result is not as specified, there may be a malfunction on the wire harness side or the seat heater switch.

# COOLING SYSTEM

## ON-VEHICLE INSPECTION

160M5-02




**1. INSPECT COOLING SYSTEM FOR LEAKS**

**CAUTION:**

**To avoid the danger of being burned, do not remove the radiator cap while the engine and radiator are still hot. Thermal expansion will cause hot engine coolant and steam to blow out from the radiator.**

(a) Fill the radiator with coolant and attach a radiator cap tester.

(b) Warm up the engine.

(c) Pump it to 118 kPa (1.2 kgf/cm$^2$, 17.1 psi) and check that the pressure does not drop.

HINT:

If the pressure drops, check the hoses, radiator and water pump for leaks. If the coolant has not leaked outside, check the heater core, the cylinder block and the cylinder head.

**2. CHECK ENGINE COOLANT LEVEL AT RESERVOIR**

(a) Check that the engine coolant level is between the ”LOW” and ”FULL” lines when the engine is cold.

HINT:

If it is below the ”LOW” line, check for leaks and add ”Toyota Super Long Life Coolant” or similar high quality ethylene glycol based non-silicate, non-amine, non-nitrite, and non-borate coolant with long-life hybrid organic acid technology up to the ”FULL” line.

**3. CHECK ENGINE COOLANT QUALITY**

(a) Remove the radiator cap.

**CAUTION:**

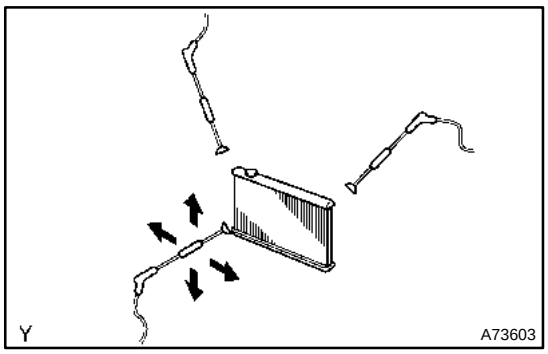
**To avoid the danger of being burned, do not remove the radiator cap while the engine and radiator are still hot. Thermal expansion will cause hot engine coolant and steam to blow out from the radiator.**

(b) Check around the radiator cap and radiator filler hole for any excessive deposits of rust or scale, and that the coolant is free from oil.

HINT:

If excessively dirty, replace the coolant.

(c) Reinstall the radiator cap.




**4. INSPECT FINS BLOCKAGE**

(a) If fins are clogged, wash them with water or a steam cleaner and dry with compressed air.

**NOTICE:**

- **If the distance between the steam cleaner and the core is too close, there is a possibility of damaging the fins, so keep the following injection distance.**

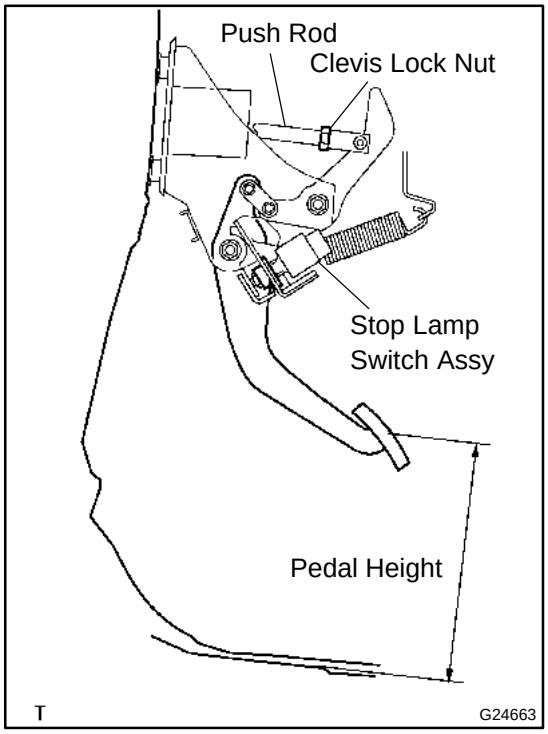
| Injection Pressure kPa (kgf/cm$^2$, psi) | Injection Distance mm (in.) |
|---|---|
| 2,942 to 4,903 (30 to 50, 427 to 711) | 300 (11.811) |
| 4,903 to 7,845 (50 to 80, 711 to 1,138) | 500 (19.685) |

- **If the fins are bent, straighten them with a screwdriver or pliers.**
- **Be careful not to expose electronic components to water.**

# BRAKE PEDAL SUPPORT ASSY

320UW-02

## ON-VEHICLE INSPECTION



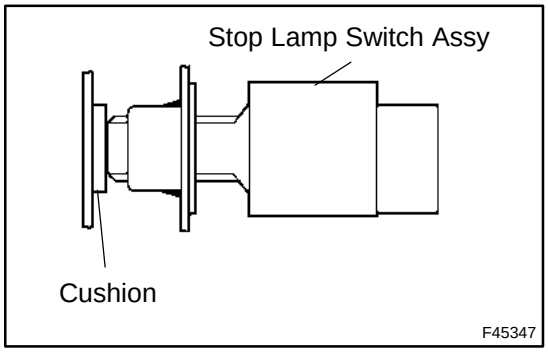

**1. INSPECT BRAKE PEDAL HEIGHT**

(a) Check the brake pedal height.

**Pedal height from dash panel:**
**150.3 to 160.3 mm (5.917 to 6.311 in.)**

**NOTICE:**

**Do not adjust the pedal height. Doing so by changing the push rod length will structurally change the pedal ratio.**




**2. CHECK AND ADJUST STOP LAMP SWITCH**

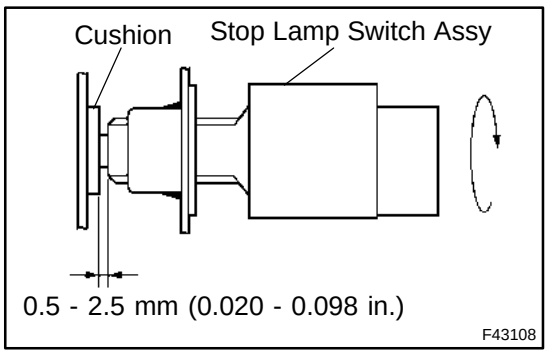
(a) Disconnect the stop lamp switch assy connector from the stop lamp switch assy.

(b) Turn the stop lamp switch assy counterclockwise and remove the stop lamp switch assy.

(c) Insert the stop lamp switch assy until the body hits the cushion.

**NOTICE:**

**When inserting the stop lamp switch assy, support the pedal from behind so that the pedal is not pushed in.**




(d) Make a quarter turn clockwise to install the stop lamp switch assy.

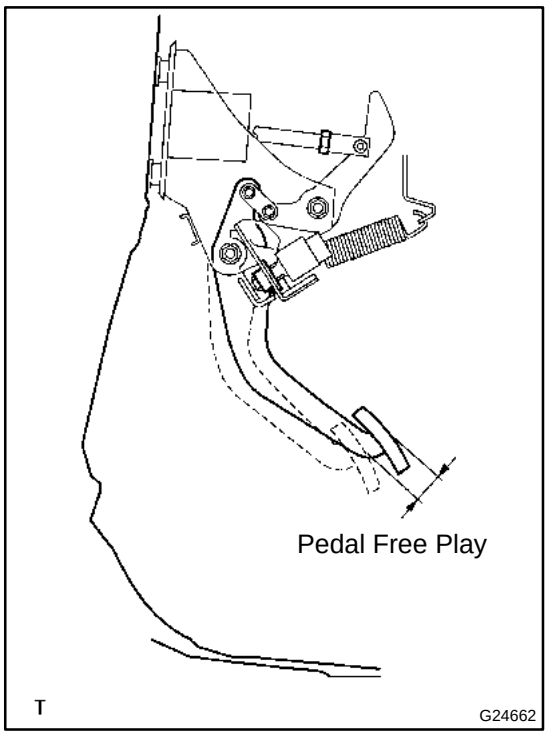
**NOTICE:**

- **When inserting the stop lamp switch assy, support the pedal from behind so that the pedal is not pushed in.**
- **The turning torque for installing the stop lamp switch assy.**
  **Torque: 1.5 N·m (15 kgf·cm, 13 in.·lbf) or less**

(e) Connect the stop lamp switch connector to the stop lamp switch assy.

(f) Check the protrusion of the rod.

**Protrusion of the rod: 0.5 to 2.5 mm (0.020 to 0.098 in.)**

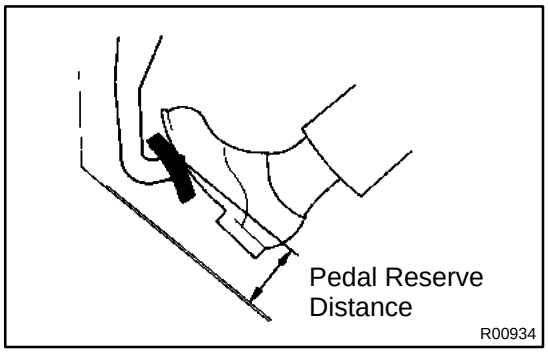



**3. CHECK PEDAL FREE PLAY**

(a) Stop the engine and depress the brake pedal several times until there is no more vacuum left in the booster.

(b) Push in the pedal until the beginning of the resistance is felt. Measure the distance, as shown.

**Pedal free play: 1 to 6 mm (0.04 to 0.24 in.)**




**4. CHECK PEDAL RESERVE DISTANCE**

(a) Release the parking brake pedal.

With the engine running, depress the pedal and measure the pedal reserve distance, as shown.

**Pedal reserve distance from asphalt sheet at 490 N (50 kgf, 110 lbf): More than 52 mm (2.0 in.)**

If the distance is out of the specification, roubleshoot the brake system.

# LUBRICATION SYSTEM

17020-08

## ON-VEHICLE INSPECTION

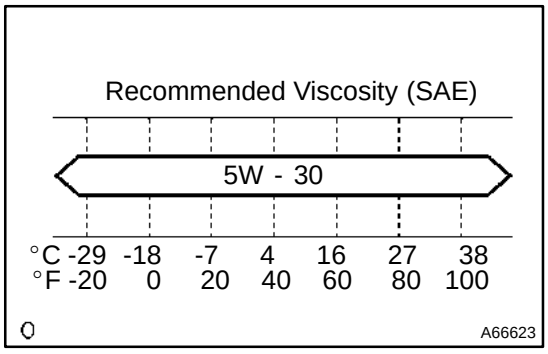
**1. CHECK ENGINE OIL LEVEL**

(a) After warm up the engine and then 5 minutes after the engine stop, oil level should be between the low level and full level marks of the dipstick.

If low, check for leakage and add oil up to the full level mark.

**NOTICE:**

**Do not fill with engine oil above the full level mark.**




**2. CHECK ENGINE OIL QUALITY**

(a) Check the oil for deterioration, entry of water, discoloring or thinning.

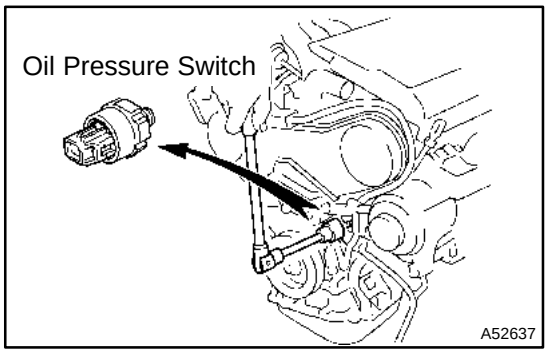
If the quality is visibly poor, replace the oil.

**Oil grade:**

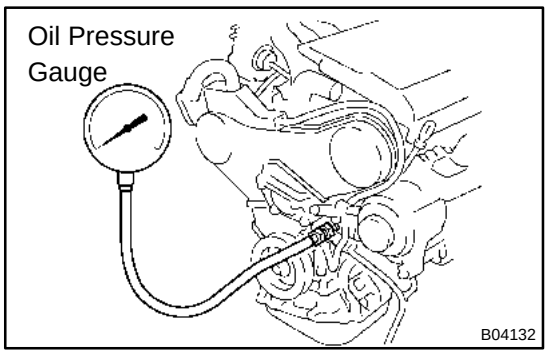
**API grade "SL" Energy-Conserving or ILSAC multi-grade engine oil. Recommended viscosity is as shown in the illustration.**

**3. REMOVE OIL PRESSURE SWITCH ASSY**

(a) Disconnect the oil pressure switch connector.




(b) Using a deep socket wrench 27mm, remove the oil pressure switch.




**4. INSTALL OIL PRESSURE GAUGE**

(a) Install the oil pressure gauge.

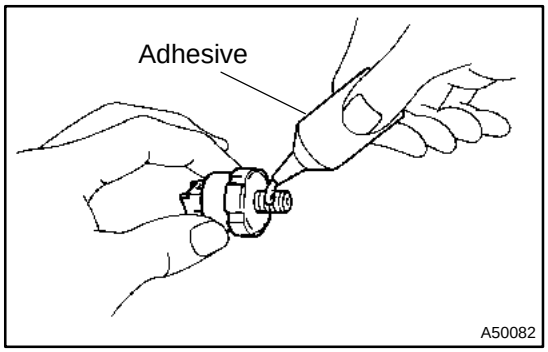
**5. WARM UP ENGINE**

**6. CHECK OIL PRESSURE**

**Oil pressure:**

| | |
|---|---|
| At idle | 29 kPa (0.3 kgf/cm$^2$, 4.3 psi) or more |
| At 3,000 rpm | 294 to 539 kPa (3.0 to 5.5 kgf/cm$^2$, 43 to 78 psi) |

**7. REMOVE OIL PRESSURE GAUGE**




**8. INSTALL OIL PRESSURE SWITCH ASSY**

(a) Apply adhesive to 2 or 3 threads of the oil pressure switch.

**Adhesive:**

**Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent**

(b) Using a deep socket wrench 27mm, install the oil pressure switch.

**Torque: 15 N·m (153 kgf·cm, 11 ft·lbf)**

**NOTICE:**

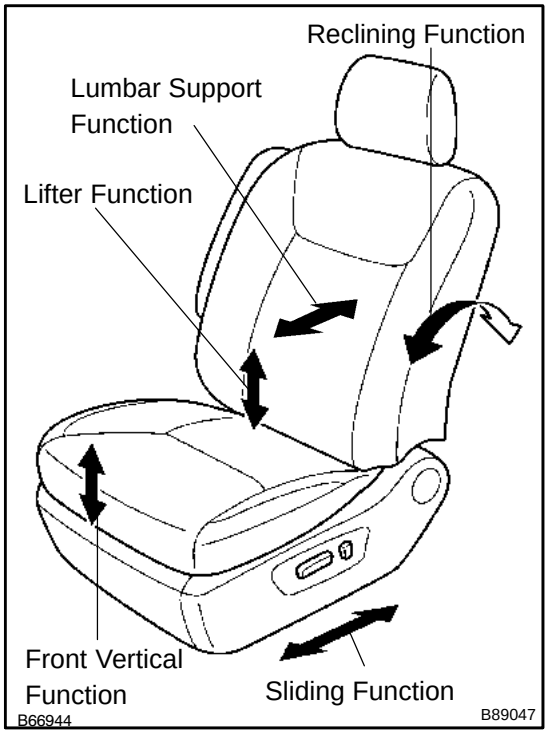
**Do not start the engine within 1 hour after the installation.**

(c) Connect the oil pressure switch connector.

**9. START ENGINE AND CHECK FOR LEAKS**

7207I-03

# ON-VEHICLE INSPECTION




**1. CHECK POWER SEAT FUNCTION**

(a) Check the basic functions.

(1) Operate the power seat switches and check that the following seat functions work:

- Sliding
- Front vertical (Driver side seat only)
- Lifter (Driver side seat only)
- Reclining
- Lumbar support (Driver side seat only)

**2. CHECK POWER SEAT MOTOR ASSY (SLIDING, FRONT VERTICAL, REAR VERTICAL AND RECLINING FUNCTIONS)**

(a) Check PTC operation inside the power seat motor.

HINT:

The PTC thermistor's resistance increases when the power seat switch is held down even after the power seat has been moved to the maximum in one direction. After the resistance increases, current is shut off to prevent a short circuit.

**NOTICE:**

**Perform steps (1) to (4) for the full range of motion for each power seat function.**

(1) Choose a power seat function. Operate the power seat switch and move the seat to the maximum in one direction. Keep the seat in that position for approximately 60 seconds.

(2) Operate the power seat switch again and continue to try to move the seat in the same direction as in step (1). Measure the amount of time elapsed before the electrical current is automatically cut. Check if the electrical current has shut off by making sure the sound of the motor has stopped.

**Standard: 4 to 90 seconds**

(3) After the current has stopped, release the power seat switch and wait for approximately 60 seconds.

(4) Operate the same power seat switch and move the seat to the opposite extreme of the direction in step (1). Check that the motor operates.

(5) Repeat steps (1) to (4) for the remaining power seat functions.

### 3. CHECK LUMBAR SUPPORT ADJUSTER ASSY LH

(a) Inspect PTC operation inside the power seat motor.

**NOTICE:**

**The inspection should be performed with the seat installed in the vehicle.**

(1) Move the lumbar support to either the foremost or rearmost position by operating the lumbar support switch, and hold it there for approx. 60 seconds.

(2) Try to move the lumbar support past the maximum position using the switch and measure the time until the electrical current is shut off (motor operation sound will stop, inspection of current shut-of f).

**Standard: 4 to 90 seconds**

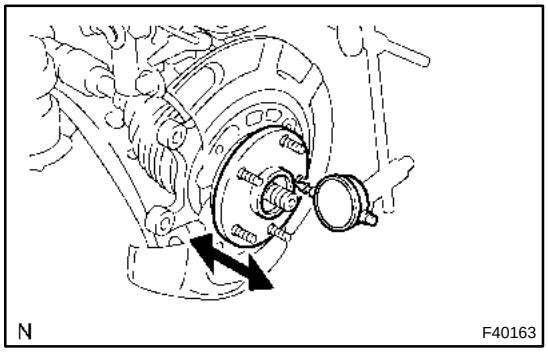
(3) Turn off the lumbar support switch after the inspection of current shut-off, and keep that condition for approx. 60 seconds.

(4) Operate the lumbar support switch to move the lumbar support to the opposite position and check that the motor operates.

3001V-05

# ON-VEHICLE INSPECTION

1. **REMOVE FRONT WHEEL**
2. **DISCONNECT FRONT DISC BRAKE CALIPER ASSY LH (See page 30-39 )**
3. **REMOVE FRONT DISC**

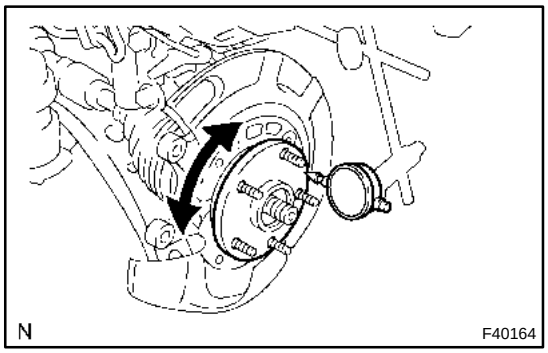



4. **INSPECT FRONT AXLE HUB BEARING BACKLASH**

(a) Using a dial indicator, check the backlash near the center of the axle hub.

**Maximum: 0.05 mm (0.0020 in.)**

If the backlash exceeds the maximum, replace the bearing.



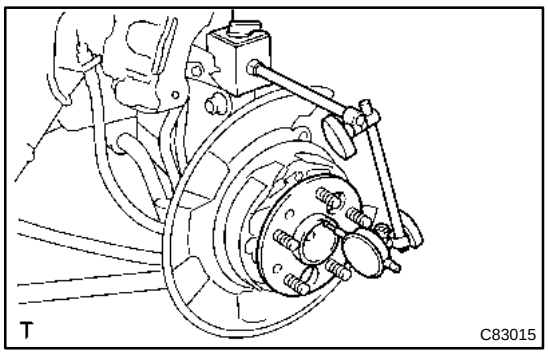

5. **INSPECT FRONT AXLE HUB DEVIATION**

(a) Using a dial indicator, check the deviation at the surface of the axle hub outside the hub bolt.

**Maximum: 0.05 mm (0.0020 in.)**

If the backlash exceeds the maximum, replace the axle hub.

6. **INSTALL FRONT DISC**
7. **INSTALL FRONT DISC BRAKE CALIPER ASSY LH (See page 30-39 )**
8. **INSTALL FRONT WHEEL**
   **Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)**
9. **REMOVE REAR WHEEL**
10. **DISCONNECT REAR DISC BRAKE CALIPER ASSY LH(DISC REAR BRAKE TYPE) (See page 30-46 )**
11. **REMOVE REAR DISC(DISC REAR BRAKE TYPE)**
12. **REMOVE REAR BRAKE DRUM SUB-ASSY(DRUM REAR BRAKE TYPE)**

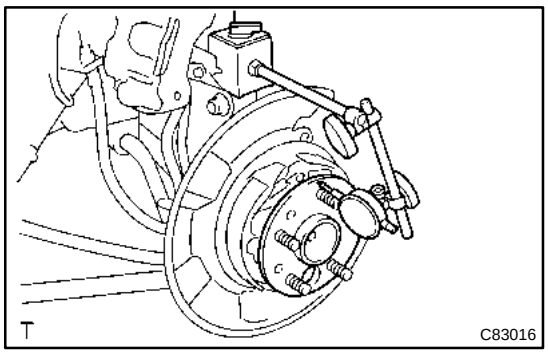



13. **INSPECT REAR AXLE HUB BEARING BACKLASH**

(a) Using a dial indicator, check the backlash near the center of the axle hub.

**Maximum: 0.05 mm (0.0020 in.)**

If the backlash exceeds the maximum, replace the axle hub assembly.




**14. INSPECT REAR AXLE HUB DEVIATION**

(a) Using a dial indicator, check the deviation at the surface of the axle hub outside the hub bolt.

**Maximum: 0.07 mm (0.0027 in.)**

If the backlash exceeds the maximum, replace the axle hub assembly.

**15. INSTALL REAR DISC(DISC REAR BRAKE TYPE)**

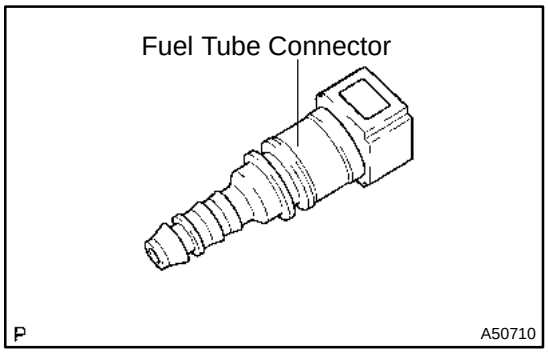
**16. INSTALL REAR DISC BRAKE CALIPER ASSY LH(DISC REAR BRAKE TYPE)**
**(See page 30-46 )**

**17. INSTALL REAR BRAKE DRUM SUB-ASSY(DRUM REAR BRAKE TYPE)**

**18. INSTALL REAR WHEEL**
**Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)**

110SX-01

# ON-VEHICLE INSPECTION




**1. CHECK FUEL PRESSURE**

(a) Discharge fuel system pressure.
(See page 11-1 )

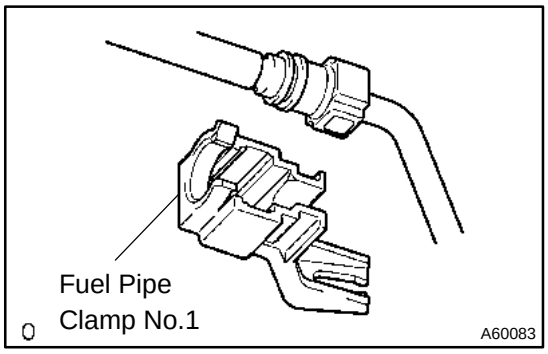
(b) Check that the battery voltage is above 12 V.

(c) Disconnect the negative (-) battery cable.

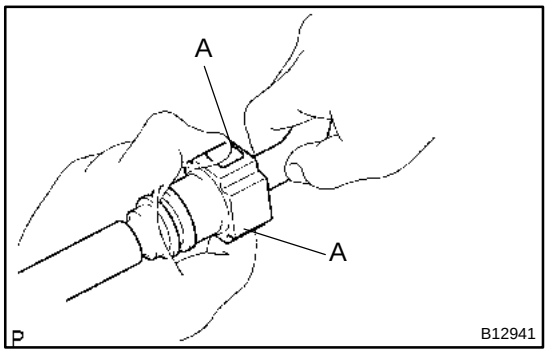
(d) Pull out the connecter from a new fuel tube.

HINT:

Part No. 23801-20171



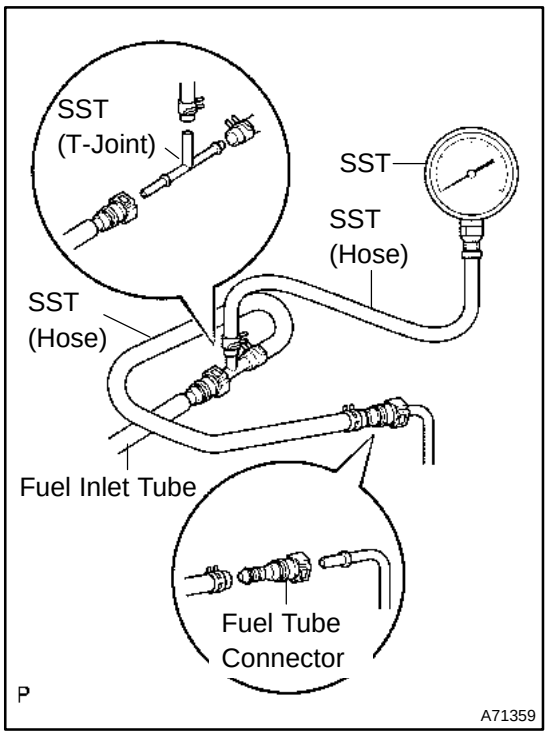

(e) Disconnect the fuel tube clamp from the fuel tube connector.




(f) Disconnect the fuel tube connector from the fuel pipe while pinching part A with fingers as shown in the illustration.

**CAUTION:**

- **After taking the precautions, disconnect the fuel tube connector (quick type).**
- **As there is retained pressure in the fuel line, prevent it from splashing inside the vehicle compartment.**




(g) Install SST (pressure gauge) using SST and a fuel tube connector as shown in the illustration.
SST 09268-41047(95366-08070),09268-45014 (09268-41250, 09268-41200, 09268-41220)
(h) Wipe up any gasoline.
(i) Reconnect the negative (-) battery cable.
(j) Connect the hand-hand tester to the DLC3.
(k) Measure the fuel pressure.
**Fuel pressure:**
**304 to 343 kPa (3.1 to 3.5 kgf/cm$^2$, 44 to 50 psi)**

If the pressure is high, replace the fuel pressure regulator.
If the pressure is low, check the fuel hoses connections, the fuel pump, the fuel filter and the fuel pressure regulator.

(l) Disconnect the hand-held tester from the DLC3.
(m) Start the engine.
(n) Measure the fuel pressure at idle.
**Fuel pressure:**
**304 to 343 kPa (3.1 to 3.5 kgf/cm$^2$, 44 to 50 psi)**
(o) Stop the engine.
(p) Check that the fuel pressure remains as specified for 5 minutes after the engine has stopped.
**Fuel pressure: 147 kPa (1.5 kgf/cm$^2$, 21psi)**

If the pressure is not as specified, check the fuel pump, the pressure regulator and/or the injectors.

(q) After checking the fuel pressure, disconnect the negative (-) battery cable and carefully remove SST and the fuel tube connector to prevent gasoline from splashing.
(r) Reconnect the fuel inlet tube (fuel tube connector).

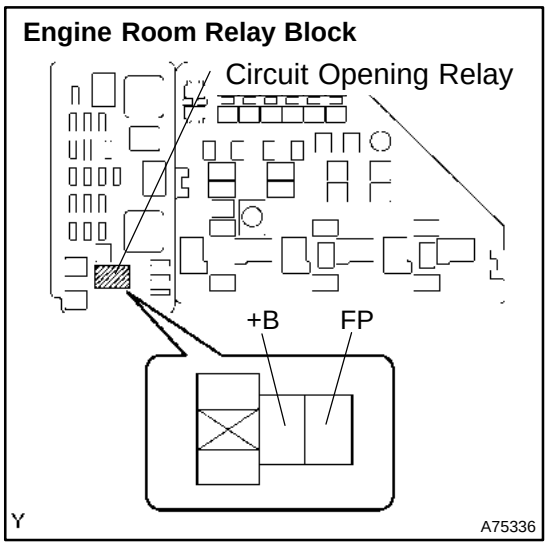
**CAUTION:**
**After taking the precautions, connect the fuel tube connecter (quick type).**

**2. CHECK FUEL PUMP OPERATION AND FUEL LEAK**

(a) When using hand-held tester.
(1) Connect the hand-held tester to the DLC3.
(2) Turn the ignition switch ON and hand-held tester main switch ON.

**NOTICE:**
**Do not start the engine.**

(3) Select the ACTIVE TEST mode on the hand-held tester. If you need a help to select the ACTIVE TEST mode, refer to the hand-held tester user's manual.




(b) When not using hand-held tester.
   (1) Remove the circuit opening relay.
   (2) Using a service wire, connect terminals FP and +B of the relay block.

**NOTICE:**

**Pay due attention to the terminal connecting position to avoid a malfunction.**

   (3) Turn the ignition switch ON and check that the fuel pump operates.

**NOTICE:**

**Do not start the engine.**

(c) Check that there are no fuel leaks after doing maintenance anywhere on the fuel system.

# IGNITION SYSTEM

1807F-02

## ON-VEHICLE INSPECTION

**NOTICE:**

**"Cold" and "Hot" in this section mean the temperature of the coils themselves."Cold" is from -10°C (14°F) to 50 °C (122 °F) and "Hot" is from 50 °C (122 °F) to 100 °C (212 °F).**

**1. INSPECT IGNITION COIL (WITH IGNITER) AND SPARK TEST**

(a) Check for DTCs.

**NOTICE:**

**If DTC is present, perform a troubleshooting in accordance with a procedure for that DTC.**

(b) Check that spark occurs.

(1) Remove the V-bank cover sub-assy. (See page 10-13 )

(2) Remove the ignition coils (with igniter).

(3) Using a 16mm (0.63 in) plug wrench, remove the spark plugs.

(4) Install the spark plugs to each ignition coil (with igniter) and connect the ignition coil connectors.

(5) Disconnect the 6 injector connectors.

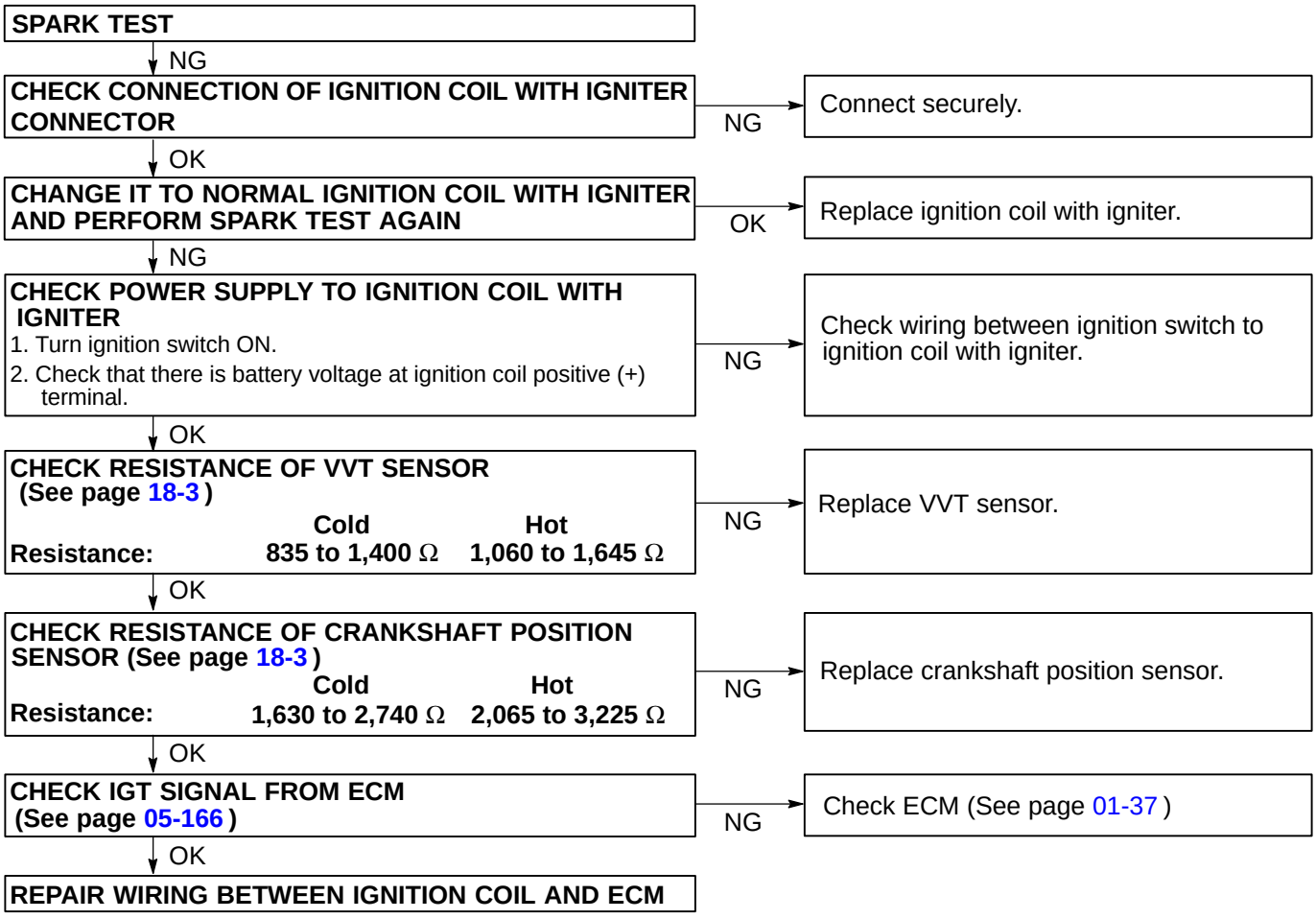
(6) Ground the spark plugs.

(7) Check if spark occurs at each spark plug while engine is being cranked.

**NOTICE:**

- **Be sure to ground the spark plug when checking.**
- **Replace the ignition coil when it is given physical impact.**
- **Do not crank the engine for more than 2 seconds.**

If the sparks do not occur, do the following test:



(c) Using a 16 mm (0.63 in.) plug wrench, install the spark plugs.
**Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)**

(d) Install the ignition coil with igniter.
**Torque: 8.0 N·m (82 kgf·cm, 71 in.·lbf)**

(e) Install the V-bank cover sub-assy. (See page 10-13 )

730E6-02

# ON-VEHICLE INSPECTION

## 1. CHECK WIRELESS REMOTE CONTROL FUNCTIONS

HINT:

- The switch described in this text is a switch for transmitting signals, which is built into the door control transmitter.
- All the functions listed below must be checked in the remote control operational area.

(a) Put the vehicle under the conditions that allow the wireless control function to be operated (See PRECAUTION on page 73-9 ).

(b) Check the basic function.
  (1) Check that all the doors lock when the LOCK switch is pressed.
  (2) Check that only the driver side door unlocks when the UNLOCK switch is pressed once and the other doors unlock when the UNLOCK switch is pressed again within 3 seconds.
  (3) Check that the power slide door opens or closes when the power slide door switch is held down for 0.8 seconds or more.
  (4) Check that the power slide door reverses right when the power slide door switch is pressed while the door is automatically moving (no delay).
  (5) Check that the power back door opens or closes when the power back door switch is held down for 0.8 seconds or more.
  (6) Check that the power back door reverses right when the back door switch is pressed while the door is automatically moving (no delay).
  (7) Check that all the power windows close when the LOCK switch is held down for 2.4 seconds and they stop operation when the switch is released (manual operation).
  (8) Check that all the power windows open when the UNLOCK switch is held down for 2.4 seconds and they stop operation when the switch is released (manual operation).

(c) Check the chattering prevention function.
  (1) Check that the corresponding operation occurs only once and is not repeated continuously while the switch is held. However, when the switch is operated repeatedly at 1 second intervals, check that the corresponding operation is carried out.

(d) Check the automatic locking function.
  (1) Check that all the doors lock automatically as long as none of the doors have been opened or all the doors have not been locked within approximately 30 seconds after all the doors are unlocked by pressing the UNLOCK switch.
  (2) Check that the automatic locking function does not operate when any door has been opened or all the doors have been locked within approximately 30 seconds after all the doors are unlocked by pressing the UNLOCK switch.

(e) Check the switch operation fail-safe function.
  (1) Check that the doors can not be locked by the switch while the key is in the ignition key cylinder. However, this does not apply when the system is in the recognition code registration mode.

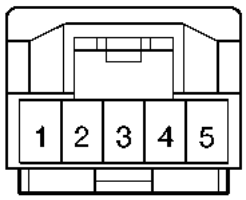
(f) Check the operation stop function when a door is open or not completely closed.
  (1) Check that the doors are not locked by the switch while any door is open or not completely closed and the wireless door lock buzzer sounds for 10 seconds.

(g) Check the repeat function.
  (1) Check that all the doors attempt to automatically lock once again 1 second after the LOCK switch has been pressed while the movement of the driver side door control knob, which is in the unlocked state, is being restricted.

(h) Check the hazard warning lamps flashing and warning buzzer sounding functions (answer-back).
  (1) When the LOCK switch is pressed, check that the lamps flash once and the buzzer sounds once, simultaneously with the locking operation of all the doors.
  (2) When the UNLOCK switch is pressed once, check that the lamps flash twice and the buzzer sounds twice, simultaneously with the unlocking operation of the driver side door.
  (3) When the UNLOCK switch is pressed again within 3 seconds, check that the lamps flash twice and the buzzer sounds twice, simultaneously with the unlocking operation of all the doors.
  (4) When the LOCK switch is held down for 2.4 seconds, check that the buzzer sounds once and all the power windows start closing operation.
  (5) When the UNLOCK switch is held down for 2.4 seconds, check that the buzzer sounds once and all the power windows start opening operation.
  (6) When the power back door switch is held down for 0.8 seconds or more, check that the lamps flash twice and the buzzer sounds twice, simultaneously with the operation of the power back door.

(i) Check the remote panic function.
  (1) Check that the horn sounds, the headlights and taillights flash and the interior light remains on (when the light switch is turned to the DOOR position) for 60 seconds by the theft alarm function, when the PANIC switch is held down for 0.8 seconds or more. Also, check that the horn stops sounding and the lights stop flashing when either switch of the transmitter is pressed.

**Wire Harness Side**




Door Control Receiver

B59092

**2. CHECK DOOR CONTROL RECEIVER**

(a) Disconnect the receiver connector.

(b) Check the voltage and resistance between the terminals of the wire harness side connector and the receiver and the body ground.

**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 5 (+B) - Body ground | Constant | 10 to 14 V |
| 1 (GND) - Body ground | Constant | Below 1 Ω |

If the result is not as specified, there may be a malfunction on the wire harness side.

(c) Reconnect the connector and check the voltage between the terminal and body ground.

**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 2 (RDA) - Body ground | No key in ignition key cylinder, all doors closed and each transmitter switch OFF → ON | Below 1 V → Approx. 6 to 7 V → Below 1 V |

If the result is not as specified, the receiver may have a malfunction.

# KEY REMINDER WARNING SYSTEM

730GN-01

## ON-VEHICLE INSPECTION

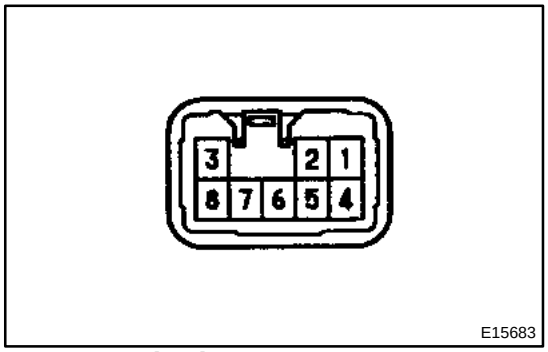
### 1. CHECK FUNCTION

(a) Check that the key reminder warning buzzer sounds.
   (1) With the driver side door closed, insert the key into the ignition key cylinder and then turn the key to LOCK or ACC.
   (2) Then, check that the buzzer sounds intermittently if the driver side door is opened.

(b) Check that the key reminder warning buzzer stops.
   (1) Check that the buzzer stops sounding if any of the following operations are performed while the buzzer is sounding:
      - Close the driver side door (front door courtesy lamp switch is off).
      - Turn the ignition switch ON.
      - Pull out the key from the ignition key cylinder.

650PE-02

# ON-VEHICLE INSPECTION




**1. INSPECT TURN SIGNAL FLASHER CIRCUIT**

(a) Measure voltage between the terminals as shown in the chart below.

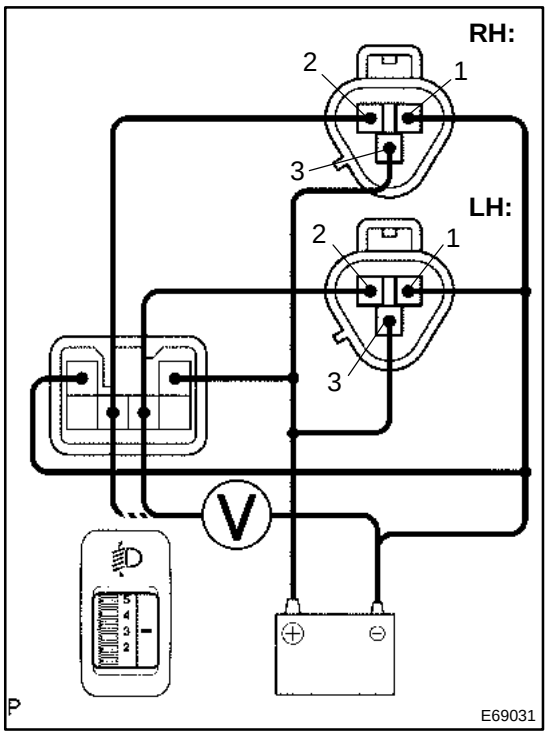
**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| 1 - body ground | Turn ignition switch ON | 10 to 14 V |
| 1 - body ground | Turn ignition switch OFF | No voltage |
| 4 - body ground | Always | 10 to 14 V |
| 7 - body ground | Always | Continuity |

(b) Connect the connector to turn the signal flasher and turn the ignition switch ON, and inspect the wire harness side connector from the back side as shown in the chart.

**Standard:**

| Tester connection | Condition | Specified condition |
|---|---|---|
| 2 - body ground | Hazard switch OFF → ON | 0V → 10 to 14 V (60 to 120 time per minutes) |
| 2 - body ground | Turn signal switch (right turn) OFF → ON | 0V → 10 to 14 V (60 to 120 time per minutes) |
| 3 - body ground | Hazard switch OFF → ON | 0V → 10 to 14 V (60 to 120 time per minutes) |
| 3 - body ground | Turn signal switch (left turn) OFF → ON | 0V → 10 to 14 V (60 to 120 time per minutes) |
| 5 - body ground | Turn signal switch (left turn) OFF → ON | 10 to 14 V → 0 V |
| 6 - body ground | Turn signal switch (right turn) OFF → ON | 10 to 14 V → 0 V |
| 8 - body ground | Hazard switch OFF → ON | 10 to 14 V → 0 V |




**2. INSPECT HEADLAMP ASSEMBLY (HEADLIGHT BEAM LEVEL CONTROL ACTUATOR OPERATION)**

(a) Disconnect the connector from the headlamp assy.

(b) Connect the positive (+) lead from the battery to the terminal 3 of each of the headlight beam level control actuator and negative (-) lead from the battery to the terminal 1 of each of the headlight beam level control actuator.

(c) Connect the positive (+) lead from the battery to the terminal 1 of the headlamp levering switch and negative (-) lead from the battery to the terminal 2 of the headlamp levering switch.

(d) Connect the terminal 4 of the headlamp leveling switch and the terminal 2 of the headlight beam level control actuator LH, and connect the terminal 5 of the headlamp leveling switch and the terminal 2 of the headlight beam level control actuator RH.

(e) Measure voltage between each of the headlight beam level control actuator and battery negative (-) terminal when headlamp levering switch is operated.

**Standard:**

| Switch position | Specified voltage (V) |
|---|---|
| 0 | 9.0 to 12.6 |
| 1 | 7.9 to 11.1 |
| 2 | 6.9 to 9.6 |
| 3 | 5.8 to 8.2 |
| 4 | 4.7 to 6.6 |
| 5 | 3.7 to 5.1 |

# POWER DOOR LOCK CONTROL SYSTEM

730GP-01

## ON-VEHICLE INSPECTION

**1. DOOR LOCK FAIL-SAFE**

(a) When a malfunction in the door control switch (manual switch, interlocked with key operation) has been detected, door lock/unlock operation becomes disabled.

**2. CHECK ELECTRICAL DOOR LOCK OPERATION**

(a) Check the basic function.

(1) Check that all doors lock when the door control switch (for manual operation) is turned to LOCK and all doors unlock when turned to UNLOCK.

(2) Check that all doors lock when the driver or passenger side door lock key cylinder is turned to LOCK using the key.

(3) Check that only the driver side door unlocks when the driver side door lock key cylinder is turned to UNLOCK and all doors unlock when turned to UNLOCK once again within 3 seconds using the key (2-step unlocking function).

(b) Check the key lock-in prevention function.

**NOTICE:**

**In order to prevent the key from actually being locked-in, the inspection should be made with the driver side door glass open.**

(1) Have the key inserted into the ignition key cylinder.

(2) With the driver side door open, check that all doors unlock immediately after the door lock knob for the driver side door is turned to LOCK.

(3) With the driver side door open, check that all doors unlock immediately after the door control switch (for manual operation) is turned to LOCK.

(4) With the driver side door open, turn the driver side door lock knob to LOCK and hold it for 2 seconds or more and then close the driver side door. Then check that all doors unlock.

(c) Check the security function.

(1) Close all doors with the driver side door window open so that the door control switch can be operated from outside the vehicle

(2) Pull out the key, open the driver side door and then close and lock the door without using the key. Under this condition, check that all doors do not unlock when the door control switch (for manual operation) is turned to UNLOCK from outside the vehicle.

(3) Pull out the key, close and lock the driver side door by key operation. Under this condition, check that all doors do not unlock when the door control switch (for manual operation) is turned to UNLOCK from outside the vehicle.

(4) Pull out the key, close the driver side door and lock the door by wireless door lock operation. Under this condition, check that all doors do not unlock when the door control switch (for manual operation) is turned to UNLOCK from outside the vehicle.

HINT:

Check that the security function is canceled under the following conditions.

- The ignition switch is turned ON.
- The driver side door is unlocked using the key.
- The door control switch (for manual operation) is turned to UNLOCK after the door control knob is turned to UNLOCK manually.
- The doors are unlocked with wireless operation.

(d) Check the illumination function.
  (1) Set the room light switch in the DOOR position.
  (2) With all doors locked, check that all doors unlock when the driver side door lock cylinder is turned to UNLOCK using the key. At the same time, the room light comes on.
  (3) Check that the room light goes off in approximately 15 seconds if doors have not been opened for a while.

(e) Check the automatic locking function interlocked with the shift lever.
  (1) When any door is unlocked with all doors closed and the engine started, check that all doors automatically lock when the shift lever is moved into any position from the P position.
  (2) When any door is unlocked after all doors automatically lock, check that all doors attempt to automatically lock once again (retry function). The retry function is canceled when any of the following conditions is fulfilled:
    - All doors are locked.
    - Any door is opened.
    - The shift lever is moved into the P position.
    - The doors are locked or unlocked by the user.
    - The ignition switch is turned OFF.
    - The engine is stopped.

# THEFT DETERRENT SYSTEM

730G7-02

## ON-VEHICLE INSPECTION

### 1. OUTLINE OF THEFT DETERRENT SYSTEM

(a) When the theft deterrent system detects that the vehicle is being tampered with, the system sets off the alarm, causing the horns to sound and the lights to light up or blink in order to alert people around the vehicle to the theft.

(b) The theft deterrent system has 2 modes; one is active arming mode and the other is passive arming mode. Passive arming mode can be switched ON/OFF by the specified method (See step 4).

(c) Each mode has 4 states; disarmed state, arming preparation state, armed state, alarm sounding state.

(1) Disarmed state:
- The alarm function is not operating.
- The theft deterrent system is not operating.

(2) Arming preparation state:
- The time until the system goes into the armed state.
- The theft deterrent system is not operating.

(3) Armed state:
- The theft deterrent system is operating.

**Alarm time: 60 ± 5 sec.**

(4) Alarm sounding state:
When the theft deterrent system detects that the vehicle is being tampered with while in the armed state, the system causes the horns to sound and the lights to light up or blink in order to alert people around the vehicle to the theft.

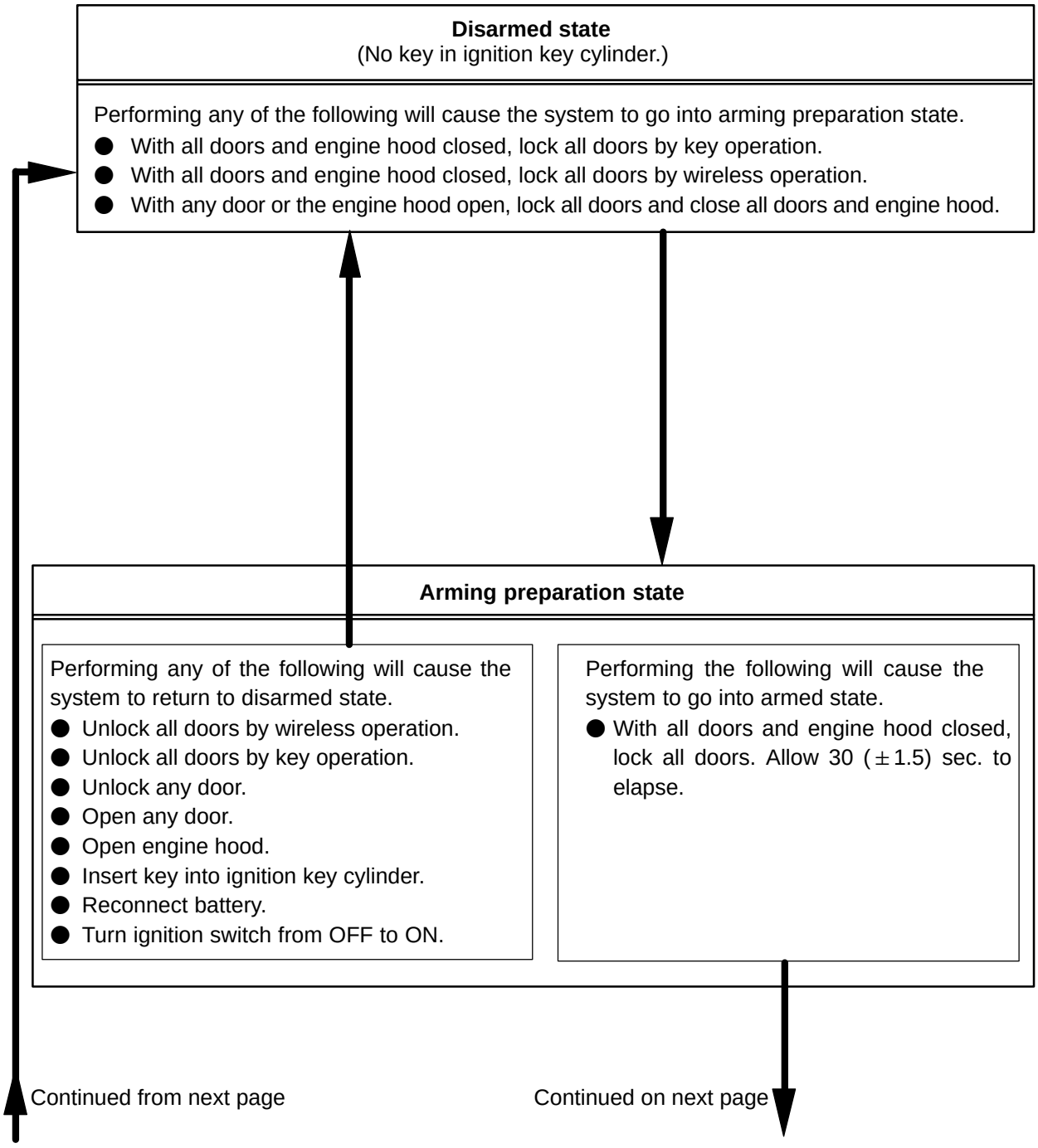
**Refer to table below for alarm method and time:**

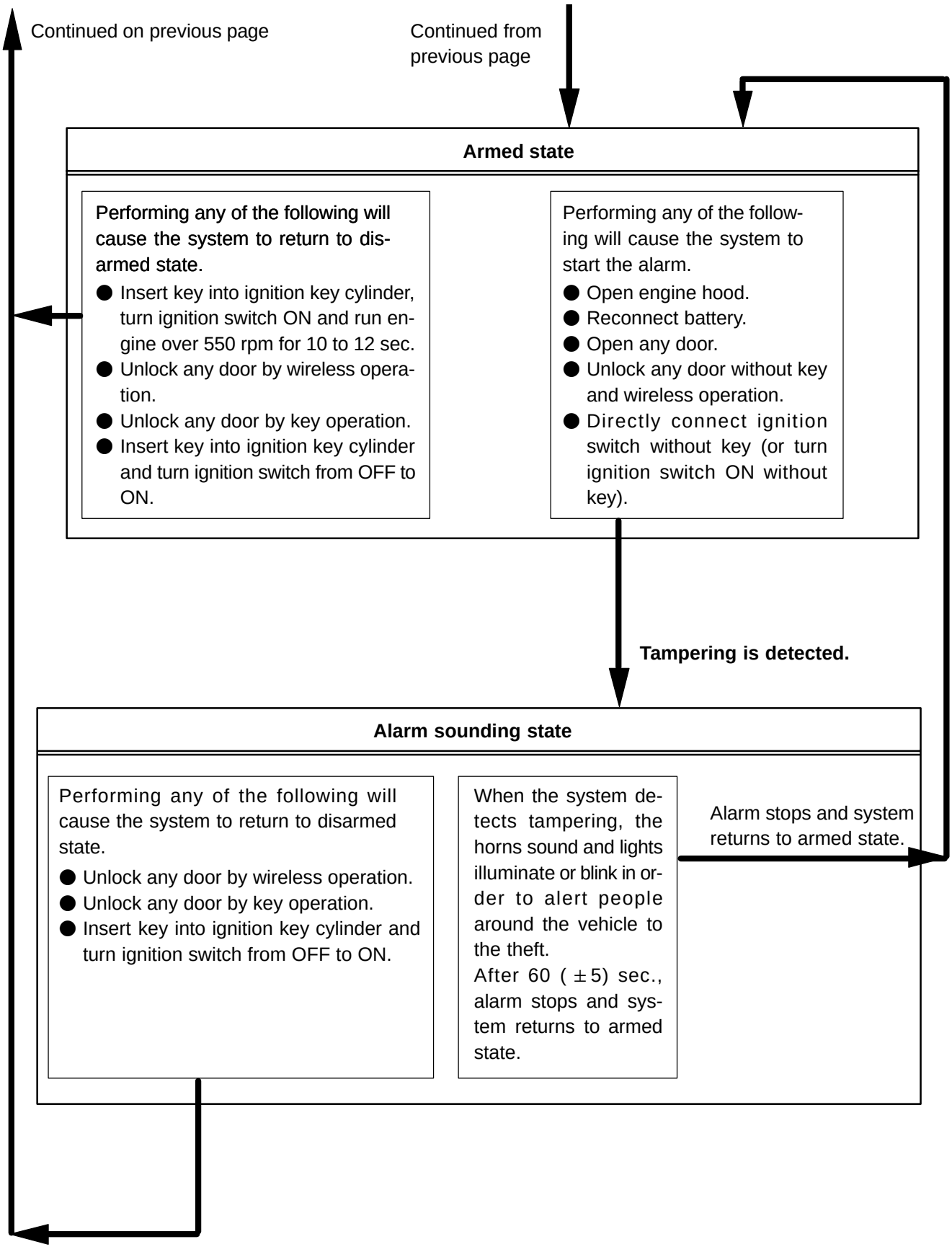
| | | |
|---|---|---|
| Alarm Method | Headlamp | Blinking (Cycle of 0.4 sec.) |
| | Taillamp | Blinking (Cycle of 0.4 sec.) |
| | Hazard Warning Lamp | Blinking (Cycle of flasher relay) |
| | Room Lamp | Illuminating |
| | Vehicle Horn | Sounding (Cycle of 0.4 sec.) |
| | Security Horn | Sounding (Cycle of 0.4 sec.) |
| Alarm Time | 60 ± 5 sec. | |

HINT:
If any of the doors is unlocked and there is also no key in the ignition key cylinder during the armed state, a forced door lock signal will be output (See step 5).

## 2. ACTIVE ARMING MODE

- Active arming mode starts the alarm control immediately after the doors are locked.

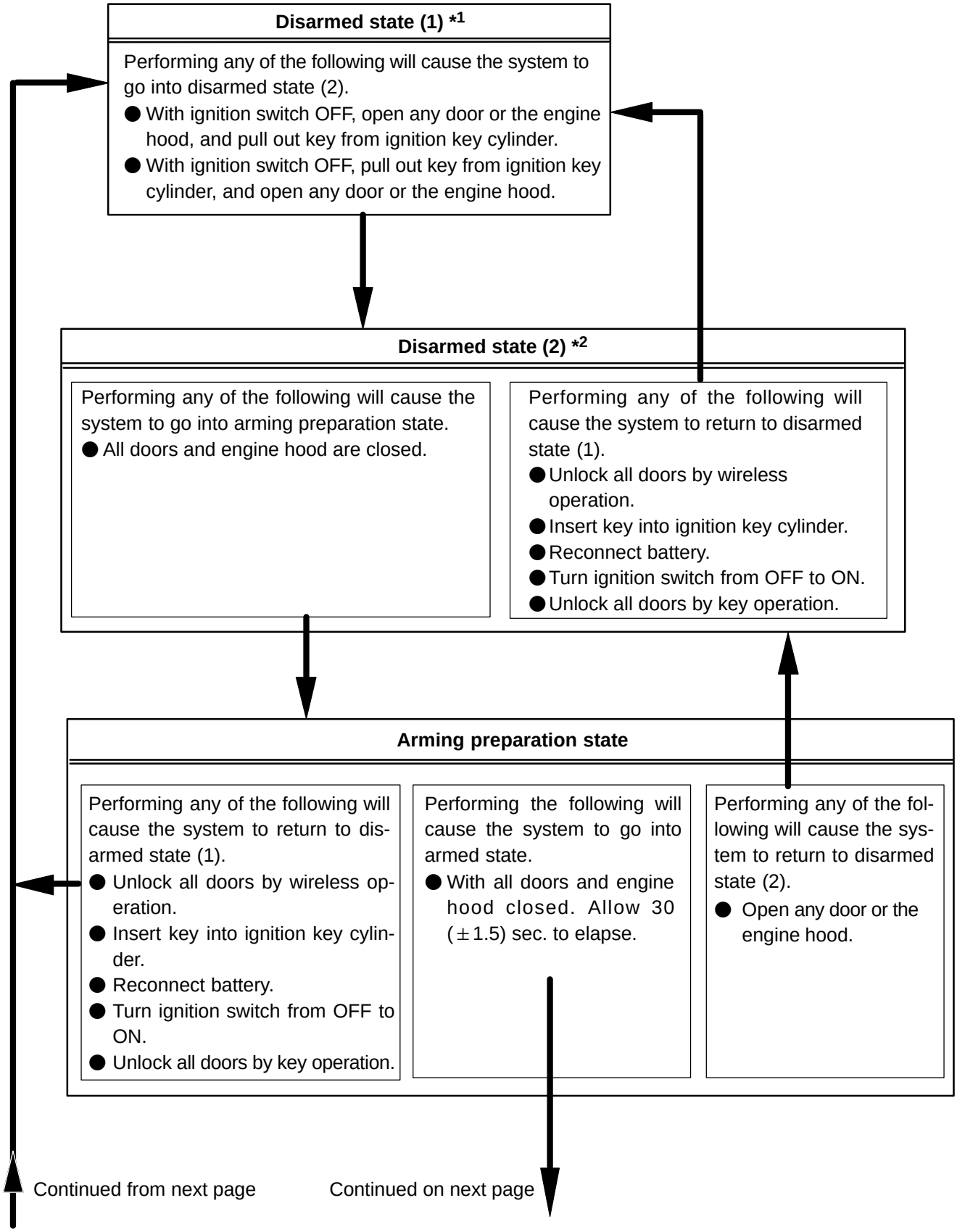


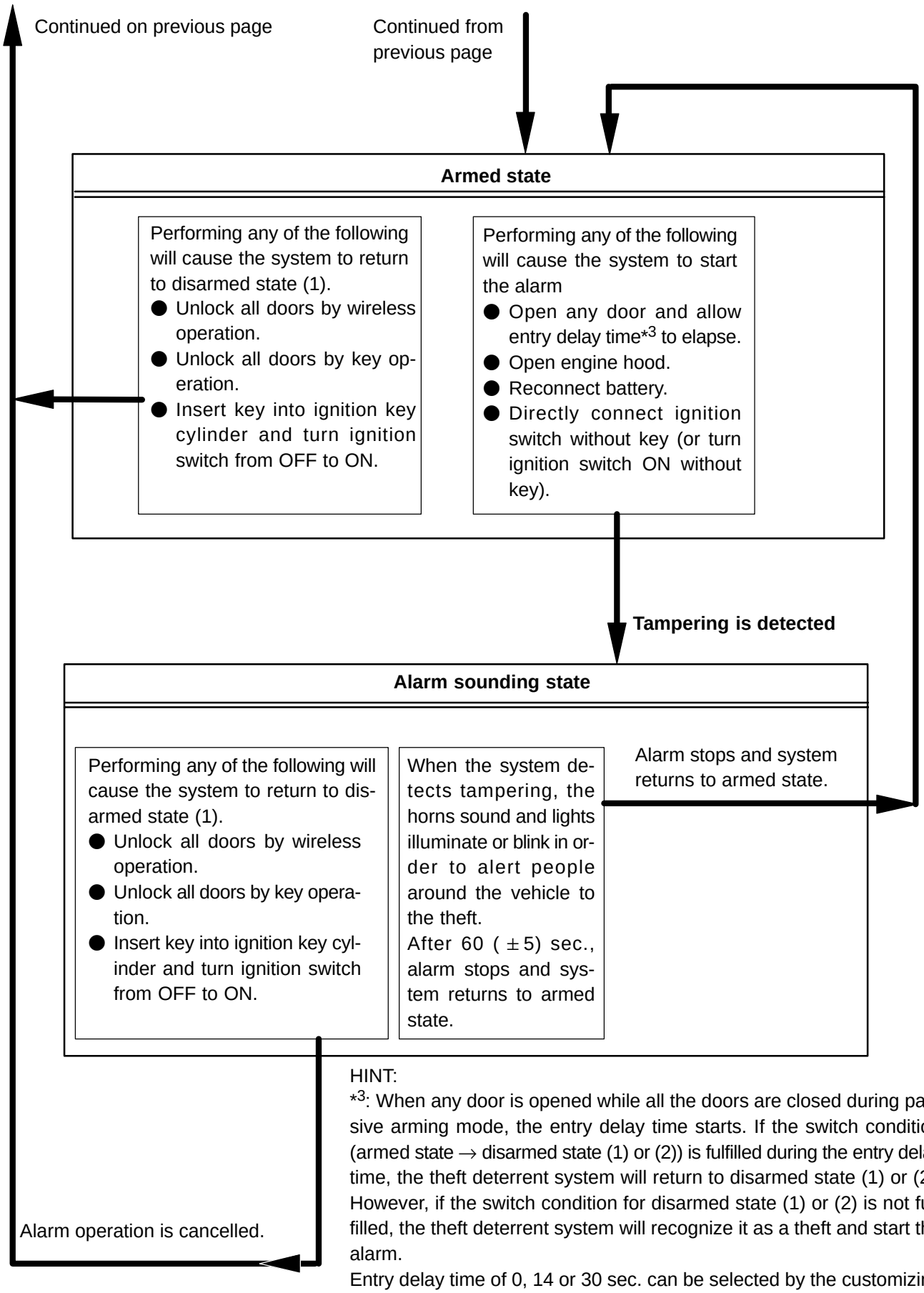

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Armed state
Performing any of the following will cause the system to return to disarmed state.
● Insert key into ignition key cylinder, turn ignition switch ON and run engine over 550 rpm for 10 to 12 sec.
● Unlock any door by wireless operation.
● Unlock any door by key operation.
● Insert key into ignition key cylinder and turn ignition switch from OFF to ON.
Performing any of the following will cause the system to start the alarm.
● Open engine hood.
● Reconnect battery.
● Open any door.
● Unlock any door without key and wireless operation.
● Directly connect ignition switch without key (or turn ignition switch ON without key).
Tampering is detected.
Alarm sounding state
Performing any of the following will cause the system to return to disarmed state.
● Unlock any door by wireless operation.
● Unlock any door by key operation.
● Insert key into ignition key cylinder and turn ignition switch from OFF to ON.
When the system detects tampering, the horns sound and lights illuminate or blink in order to alert people around the vehicle to the theft.
After 60 (±5) sec., alarm stops and system returns to armed state.
Alarm stops and system returns to armed state.
Alarm operation is cancelled.

## 3. PASSIVE ARMING MODE

- Passive arming mode can be switched ON/OFF by the specified method (See step 4).
- The alarm is initially set (when shipped from factory) to active arming mode (not passive arming mode).
- During passive arming mode, the theft deterrent system goes into the armed state even if the doors are not locked.
- Passive arming mode starts the alarm control after the key is removed from the ignition key cylinder and the doors are closed.
- Detecting that the doors are unlocked does not set off the alarm during passive arming mode.
- A forced door lock signal is not output during passive arming mode (See step 5).
- When the theft deterrent system detects that the doors are opened during passive arming mode, the alarm is not set off immediately because an entry delay time is set.
- If any of the following conditions is fulfilled during passive arming mode, the theft deterrent system will switch to active arming mode.
  - With all doors and engine hood closed, lock all doors by key operation.
  - With all doors and engine hood closed, lock all doors by wireless operation.
  - With any door or the engine hood open, lock all doors and close all doors and engine hood.

HINT:
*1: Disarmed state (1) is the normal disarmed state.
*2: Disarmed state (2) is set from either the disarmed state (1) or the arming preparation state.



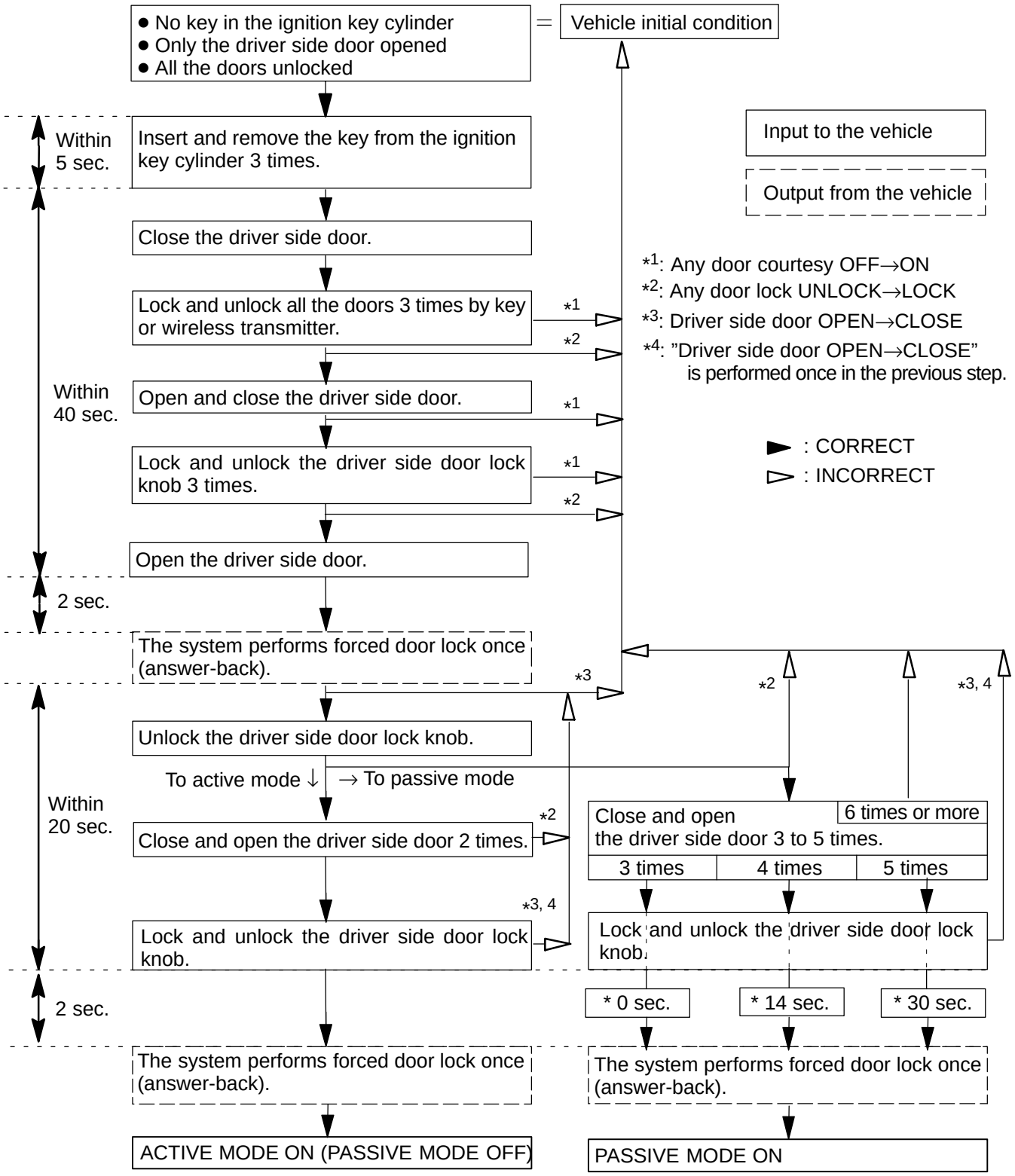



HINT:

*3: When any door is opened while all the doors are closed during passive arming mode, the entry delay time starts. If the switch condition (armed state → disarmed state (1) or (2)) is fulfilled during the entry delay time, the theft deterrent system will return to disarmed state (1) or (2). However, if the switch condition for disarmed state (1) or (2) is not fulfilled, the theft deterrent system will recognize it as a theft and start the alarm.

Entry delay time of 0, 14 or 30 sec. can be selected by the customizing function.

## 4. METHOD FOR CHANGING OF PASSIVE MODE (ON OR OFF)




HINT:
- Initial mode is PASSIVE MODE OFF.
- If the ignition switch is turned ON, change will be cancelled.

*: Entry delay time

**5. FORCED DOOR LOCK CONTROL**

(a) The forced door lock control prevents the vehicle from being tampered with. Immediately after a door is unlocked (alarm starts), the door is forced to lock by a forced door lock signal.

(1) Conditions that force the doors to lock:

When no key is in the ignition key cylinder and 0.4 seconds have elapsed after the previous output of a forced door lock signal, the doors will be forced to lock if any of the following conditions is fulfilled.

- The theft deterrent system is in the armed state of active arming mode.
- All the doors are locked. ¿ Any door is unlocked.
- Any door is unlocked.

**6. ALARM MEMORY FUNCTION**

(a) If the alarm is set off (tampering is detected) while the theft deterrent system is armed, the alarm memory function will record it. Whenever you cancel the theft deterrent system, the alarm memory function causes the taillamps to light up for 2 seconds in order to inform you that the alarm has been set off.

(1) Conditions of the alarm memory function that cause the taillamps to light up:

When the theft deterrent system has entered into the alarm sounding state (tampering has been detected) even once, the taillamps will light up for 2 seconds if any of the following conditions is fulfilled.

- Switched to the disarmed state from the armed state during active arming mode.
- Switched to the disarmed state (1) from the armed state during passive arming mode.

HINT:

Active arming mode: See step 2

Passive arming mode: See step 3

**7. PANIC ALARM CONTROL**

(a) The panic alarm control makes it possible for you to voluntarily set off the panic alarm by pressing the PANIC switch on the wireless transmitter. However, this control operates independently from the alarm control by the theft deterrent system (switched to the alarm sounding state from the armed state).

(1) Conditions that cause the panic alarm control to set off the panic alarm:

The panic alarm control sets off the panic alarm by pressing the PANIC switch on the wireless transmitter for over 2.4 seconds under the following conditions.

- The ignition switch is OFF.
- The theft deterrent system is not in the alarm sounding state (common to active arming mode and passive arming mode).
- The panic alarm control is not operating (the alarm is not set off).

(2) Conditions that cause the panic alarm control to shut off the alarm:

The panic alarm control shuts off the panic alarm when any of the following conditions is fulfilled during panic alarm operation.

- The ignition switch is turned ON.
- Either of the switches on the wireless transmitter (LOCK/UNLOCK) is pressed.
- The panic alarm ends (60 ± 5 sec. have passed).
- The theft deterrent system switches to the alarm sounding state (common to active arming mode and passive arming mode). However, the alarm is still sounding, because the theft deterrent system has switched to the alarm sounding state. Conditions for canceling the panic alarm are the same as for the alarm control.

HINT:

Active arming mode: See step 2

Passive arming mode: See step 3

## 8. SECURITY INDICATOR OUTPUT

(a) The multiplex network body ECU outputs a signal to light up the security indicator, according to the state of the theft deterrent system. However, some of the actual lighting conditions of the security indicator are different from the output signals of the multiplex network body ECU.

**Output:**

| State of Theft Deterrent System* | Security Indicator | |
|---|---|---|
| | Output Signals from Body ECU | Actual Lighting Condition |
| Disarmed state (1), (2) | OFF | OFF (Immobiliser system unset)<br>BLINKING (Immobiliser system set) |
| Arming preparation state | ON | ON |
| Armed state | OFF | BLINKING |
| Alarm sounding state | ON | ON |

**Blinking cycle:**

| Time | Security Indicator |
|---|---|
| 0.2 sec. | ON |
| 1.8 sec. | OFF |

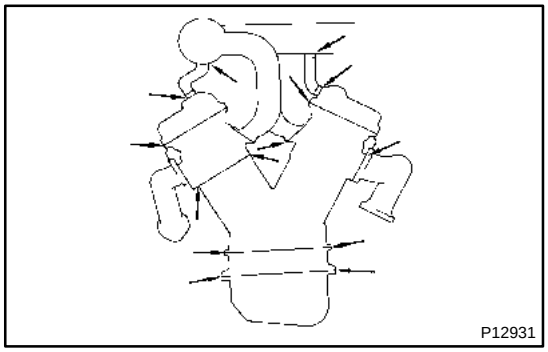
HINT:

- *: Common to active arming mode and passive arming mode.
- When the immobiliser system is set, the security indicator blinks during the disarmed state and the armed state, due to the output signals from the immobiliser system.

# EMISSION CONTROL SYSTEM

## ON-VEHICLE INSPECTION

1209K-03

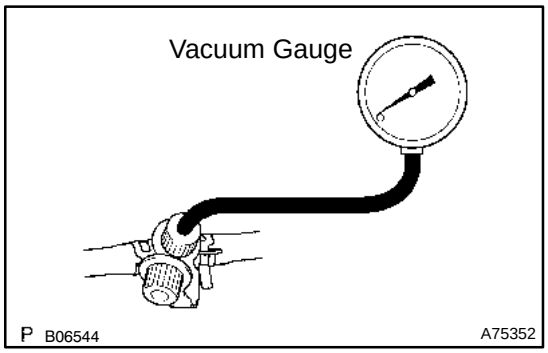



**1. VISUALLY INSPECT HOSES, CONNECTIONS AND GASKETS**

(a) Check for cracks, leaks or damage.

HINT:

Separation of the engine oil dipstick, oil filler cap, PCV hose, etc. may cause the engine to run improperly. Disconnection, looseness or cracks in the parts of the air induction system between the throttle body and the cylinder head will allow air suction and cause the engine to run improperly.

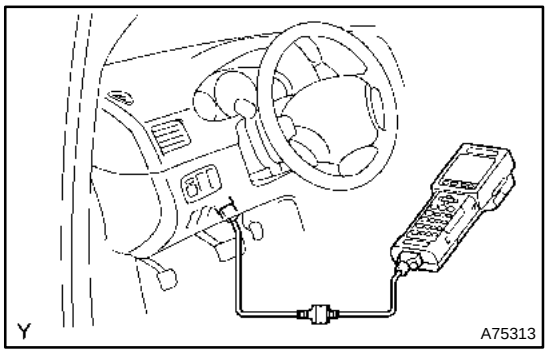



**2. INSPECT EVAP SYSTEM LINE**

(a) Warm up the engine to normal operating temperature.

(b) Turn the engine OFF.

(c) Connect the vacuum gauge (EVAP control system test equipment vacuum gauge) to the EVAP service port on the purge line.




(d) If you have the hand-held tester:

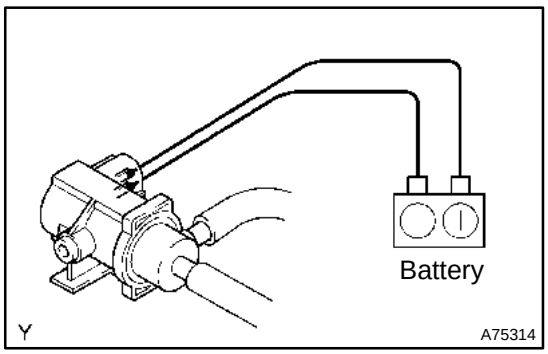
Turn on the VSV for EVAP using the hand-held tester.

(1) Connect the hand-held tester to the DLC3.

(2) Start the engine.

(3) Push the hand-held tester main switch ON.

(4) Use the ACTIVE TEST mode on the hand-held tester to operate the VSV for EVAP.



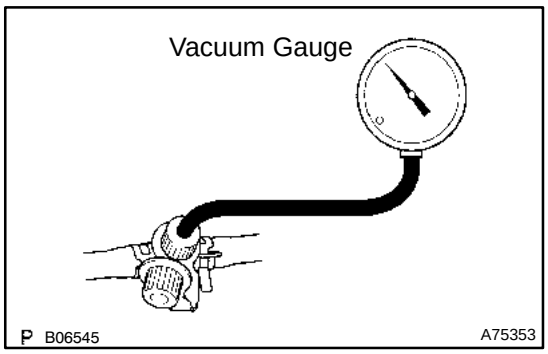

(e) If you have no hand-held tester:

Turn on the VSV for EVAP using the lead wires.

(1) Disconnect the VSV for EVAP connector.

(2) Connect the positive (+) and negative (-) leads from the battery to the VSV for EVAP terminals.

(3) Start the engine.



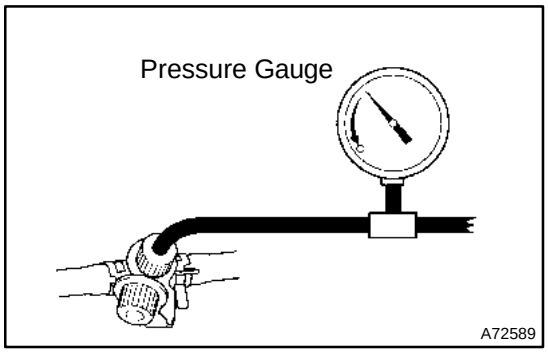

(f) Check the vacuum at idle.
**Vacuum:**
**Maintain at 0.368 to 19.713 in.Hg (5 to 268 in.Aq) for over 5 seconds**

HINT:
If the vacuum does not change, you can conclude that the hose connecting the VSV to the service port has become loose or is blocked, or the VSV is malfunctioning.

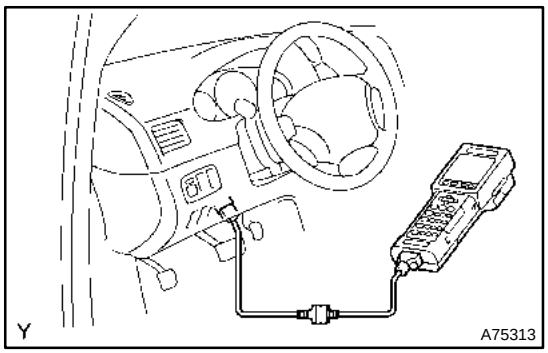
(g) If you have the hand-held tester:
Return to normal the VSV for EVAP operation.
(1) Stop the engine.
(2) Disconnect the hand-held tester from the DLC3.

(h) If you have no hand-held tester:
Return to normal the VSV for EVAP operation.
(1) Stop the engine.
(2) Disconnect the positive (+) and negative (-) leads from the VSV for EVAP terminals.
(3) Reconnect the VSV for EVAP connector.

(i) Disconnect the vacuum gauge from the EVAP service port on the purge line.



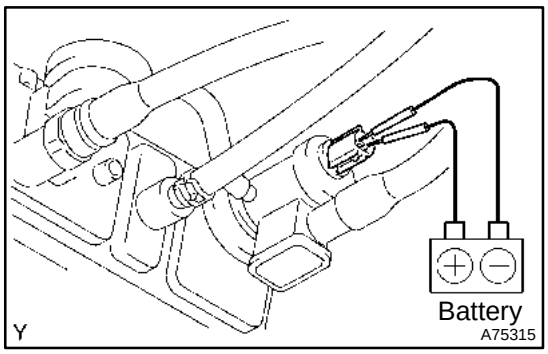

(j) Connect the pressure gauge to the EVAP service port on the purge line.



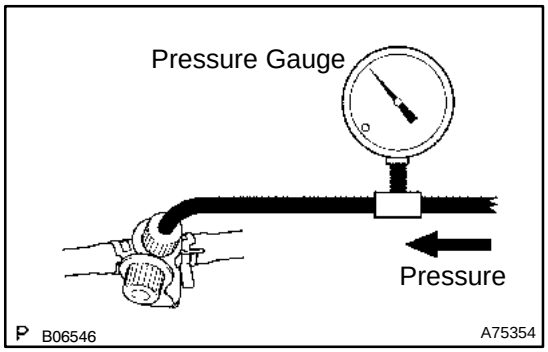

(k) If you have the hand-held tester:
Turn on the VSV for CCV using the hand-held tester.
(1) Connect the hand-held tester to the DLC3.
(2) Turn the ignition switch ON.
(3) Push the hand-held tester main switch ON.
(4) Use the ACTIVE TEST mode on the hand-held tester to operate the VSV for CCV.

**NOTICE:**
**Do not start the engine.**

HINT:
If the check is not completed within 10 minutes, the forced close of VSV for CCV will be reset.



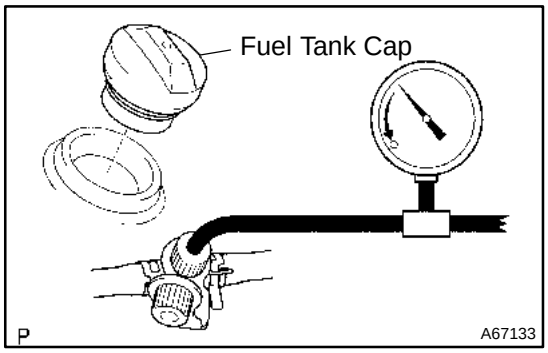

(l) If you have no hand-held tester:
Turn on the VSV for the CCV using the lead wires.
(1) Disconnect the VSV for CCV connector.
(2) Connect the positive (+) and negative (-) leads from the battery to the VSV for CCV terminals.




(m) Check the pressure.
(1) Add the pressure (13.5 to 15.5 in.Aq) from the EVAP service port.
**Pressure:**
**2 minutes after the pressure is added, the gauge should be over 7.7 to 8.8 in.Aq.**

HINT:
If you can not add pressure, you can conclude that the hose connecting the VSV for EVAP canister fuel tank has slipped off or the VSV is open.

(2) Check if the pressure decreases when the fuel tank cap is removed while adding pressure.

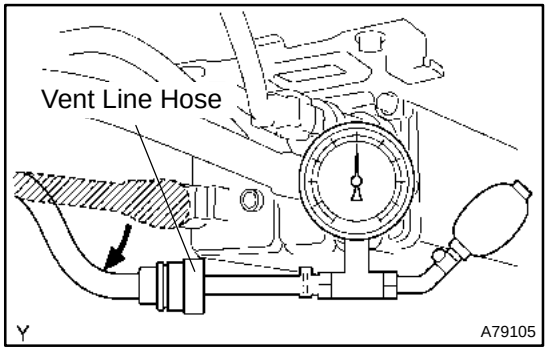



HINT:
If the pressure does not decrease when the fuel tank cap is removed, you can conclude that the hose connecting the service port to the fuel tank is blocked, etc.

(n) If you have the hand-held tester:
Turn to normal VSV for CCV operation.
(1) Turn ignition switch OFF.
(2) Disconnect the hand-held tester from the DLC3.

(o) If you have no hand-held tester:
Turn to normal VSV for CCV operation.
(1) Disconnect the positive (+) and negative (-) leads from the VSV for CCV terminals.
(2) Reconnect the VSV for CCV connector.

(p) Disconnect the pressure gauge from the EVAP service port on the purge line.



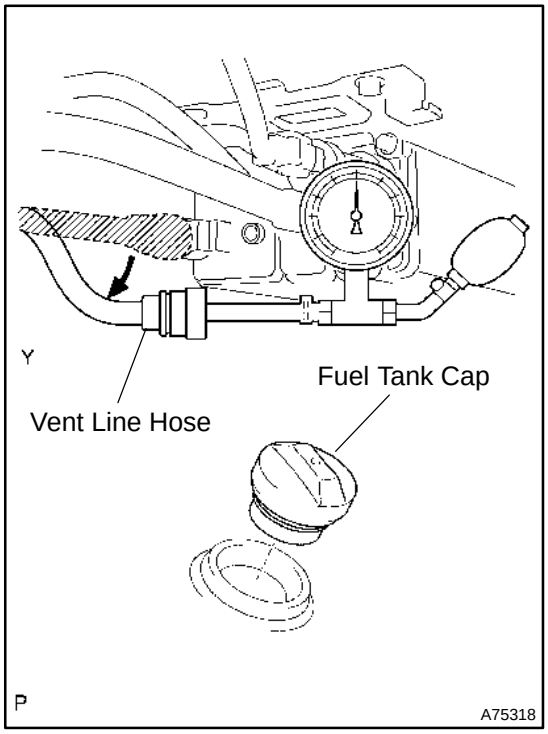

**3. CHECK AIR TIGHTNESS IN FUEL TANK AND FILLER PIPE**

(a) Disconnect the vent line hose from the charcoal canister.
(b) Apply pressure to fuel tank and make the internal pressure of the fuel tank 4 kPa (41 gf/cm$^2$, 0.58 psi).
(c) Check that the internal pressure of the fuel tank remains stable for 1 minute.
(d) Check the connected portions of each hose and pipe.

(e) Check the installed parts on the fuel tank.

If they are OK, replace the fuel tank and filler pipe.

(f) Reconnect the vent line hose to the fuel tank.




**4. INSPECT FUEL CUTOFF VALVE AND FILL CHECK VALVE**

(a) Disconnect the vent line hose from the charcoal canister.

(b) Apply pressure of 4 kPa (41 gf/cm$^2$, 0.58 psi) to the vent port of the fuel tank.

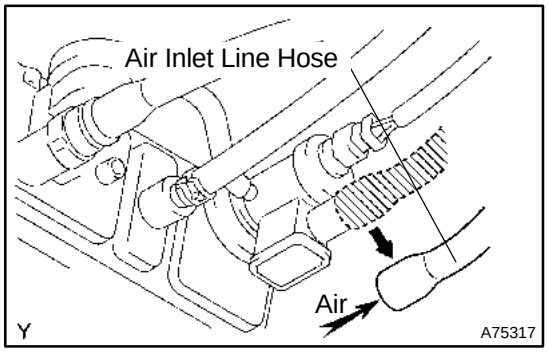
HINT:

In the condition that the fuel is full, as the float value of the fill check valve is closed and has no ventilation, it is necessary to check the fuel amount (volume).

(c) Remove the fuel tank cap, and check that pressure drops.

If pressure does not drop, replace the fuel tank assembly.

(d) Reconnect the vent line hose to the fuel tank.

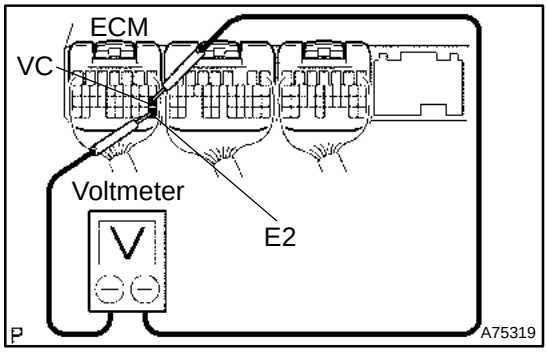



**5. CHECK AIR INLET LINE**

(a) Disconnect the air inlet line hose from the charcoal canister.

(b) Check that there is ventilation in the air inlet line.

(c) Reconnect the air inlet line hose to the charcoal canister.




**6. INSPECT VAPOR PRESSURE SENSOR**

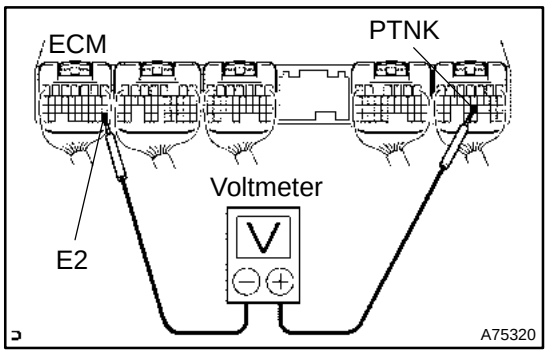
(a) Inspect power source voltage of the vapor pressure sensor.

(1) Turn the ignition switch ON.

(2) Using a voltmeter, measure the voltage between connector terminals VC and E2 of the wiring harness side.

**Voltage: 4.5 to 5.5 V**

(3) Turn the ignition switch OFF.




(b) Inspect power output of the vapor pressure sensor.
(1) Turn the ignition switch ON.
(2) Remove the fuel tank cap.
(3) Using a voltmeter, measure the voltage between connector terminals PTNK and E2 of the wiring harness side.

**Voltage: 3.0 to 3.6 V**

(4) Reinstall the fuel tank cap.

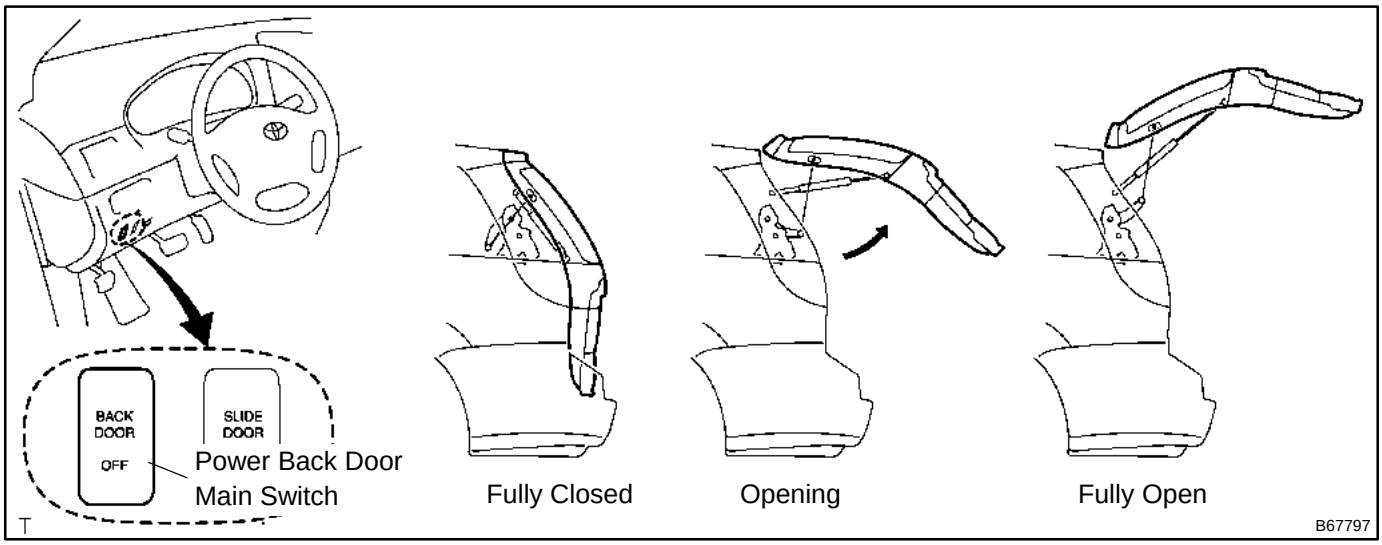
750MH-03

# ON-VEHICLE INSPECTION

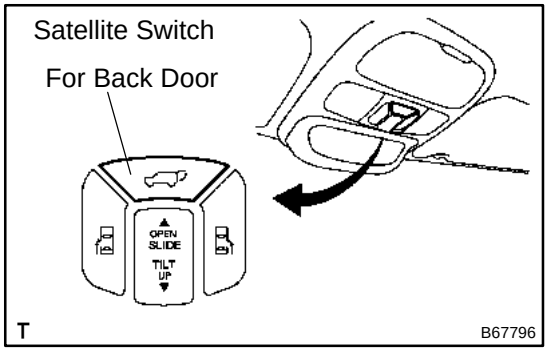
**NOTICE:**

**Inspection should be started after conforming that the items listed in the "CUSTOMIZE PARAMETER" for the power back door system have defaulted to the initial settings (See page 05-1756 ).**

## 1. CHECK OPENING OPERATION




(a) Conditions necessary for the power back door to open:
  (1) Power back door main switch is in the ON position.
  (2) Back door is positioned between the fully closed position and the half-open position (When the back door is fully closed, the door must be unlocked).
  (3) Shift lever is in the P position when the ignition switch is ON (When the ignition switch is OFF, power back door can operate in any position of the shift lever).
  (4) No key is inserted into the ignition key cylinder when the transmitter is used.

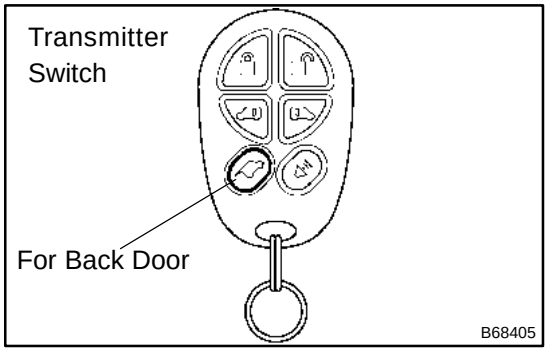



(b) Press the satellite switch for the power back door.
  (1) Check that the power back door is unlatched and then opens when the switch has been pressed for more than 0.8 seconds.

HINT:

The power back door stops its operation at the specified position that is slightly short of the fully open position. However, the damper stay allows the back door to move to the fully open position.

  (2) Check that the power back door reverses operation and moves to the fully closed position when the same switch is pressed again during opening operation.



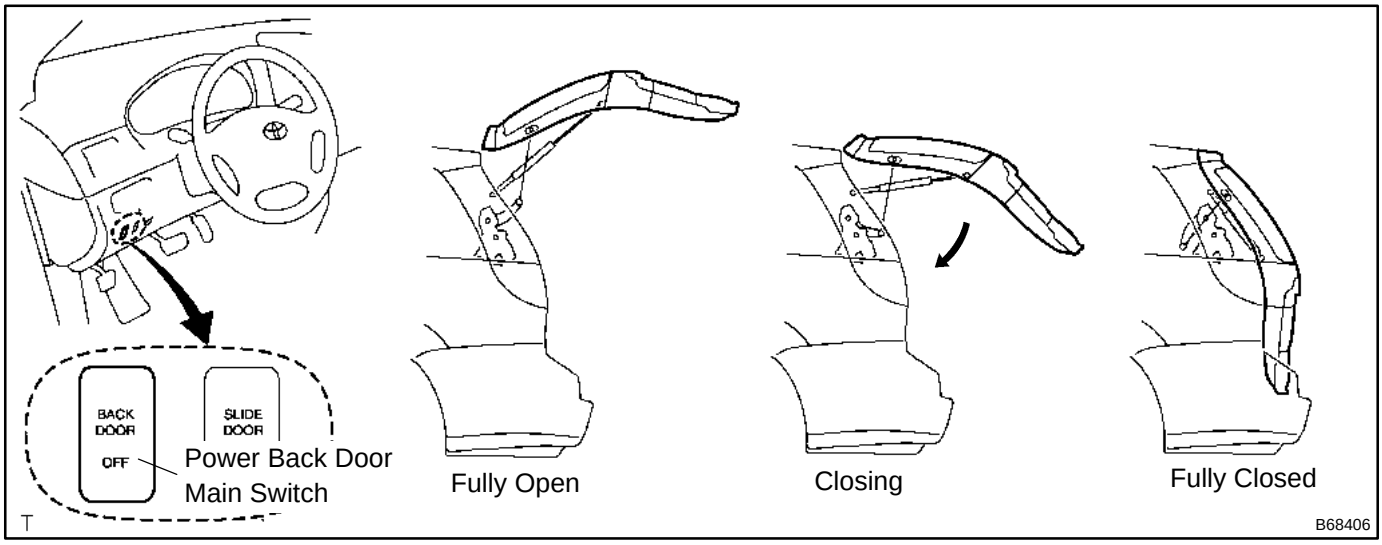

(c) Press the transmitter switch for the power slide door.
   (1) Check that the power back door is unlatched and then opens when the switch has been pressed for more than 0.8 seconds.

HINT:
The power back door stops its operation at the specified position that is slightly short of the fully open position However, the damper stay allows the back door to move to the fully open position.

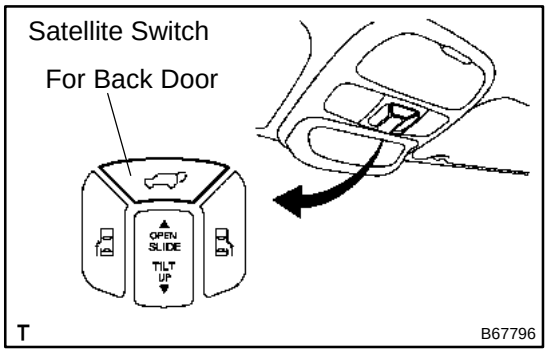
   (2) Check that the power back door reverses operation and moves to the fully closed position when the same switch is pressed again during opening operation.

(d) Pull the outside handle for the power back door.
   (1) Open the back door and pull the handle while it is opening. Check that the power back door immediately reverses operation and moves to the fully closed position.

## 2. CHECK CLOSING OPERATION



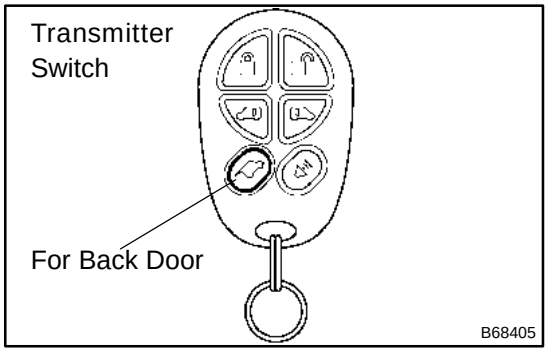

(a) Conditions necessary for the power back door to close:
  (1) Power back door main switch is in the ON position.
  (2) Back door is positioned between the fully open position and the half-open position.
  (3) No key is inserted into the ignition key cylinder when the transmitter is used.




(b) Press the satellite switch for the power back door.
  (1) Check that the power back door closes when the switch has been pressed for more than 0.8 seconds.

HINT:
The power back door stops its operation at the specified position that is slightly short of the fully closed position. However, the back door closer system is activated to completely close the back door.

  (2) Check that the power back door reverses operation and moves to the fully open position when the same switch is pressed again during closing operation.




(c) Press the transmitter switch for the power back door.
  (1) Check that the power back door closes when the switch has been pressed for more than 0.8 seconds.

HINT:
The power back door stops its operation at the specified position that is slightly short of the fully closed position, however the back door closer system is activated to completely close the back door.

  (2) Check that the power back door reverses operation and moves to the fully open position when the same switch is pressed again during closing operation.

(d) Pull the strap on the power back door.
   (1) Check that the power back door starts closing when the back door is manually moved approximately 12 cm (4.7 in.) within 0.5 seconds by pulling the strap and continues to move to the fully closed position.
   (2) Check that the power back door reverses operation and moves to he fully open position when the outside handle is pulled during closing operation.

### 3. CHECK JAM PROTECTION FUNCTION

HINT:

- The power back door drive unit detects changes in the operating speed of the back door while the power back door is moving. If a change in the operating speed is out of the normal range, it will be judged to be a jam and foreign object detection in the direction that the power back door is moving and the direction of movement will be reversed.
- When the power back door touch sensor built into the both sides of the back door is compressed, it is judged to be a jam and foreign object detection in the direction that the power back door is moving and the power back door reverses the movement.
- The power back door touch sensor operates only while the back door is closing. It does not operate while the back door is opening.

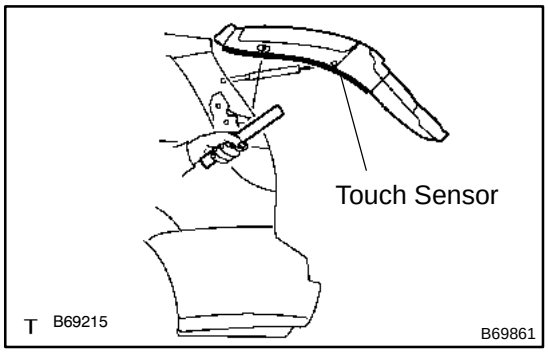
(a) Check the jam protection function while the power back door is closing.

**CAUTION:**

**Do not check this function using a part of your body such as your hand. Also pay thorough attention that nothing gets caught by accident during this process.**

(1) Fully open the back door.

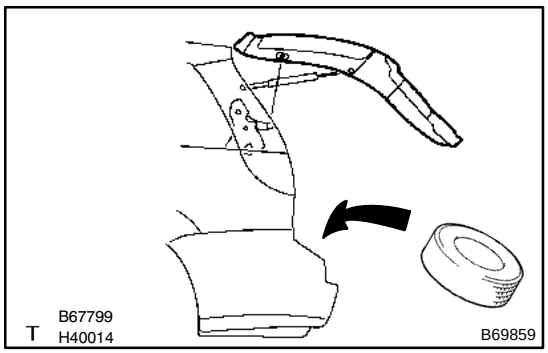
(2) Press the switch that operates the power back door to activate it to close, and perform steps (3), (4) and (5) respectively.




(3) While the back door is closing, press the touch sensor using the handle of a hammer or the equivalent, as shown in the illustration.

HINT:

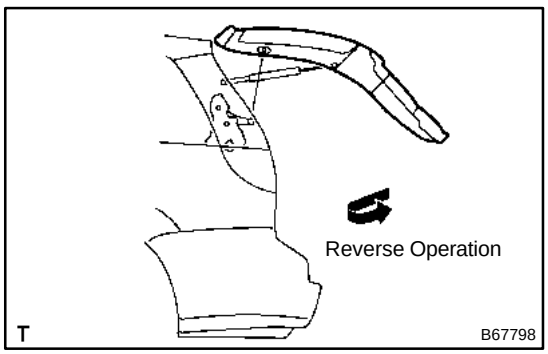
Skip step (4) and go to step (5).




(4) While the back door is closing, insert a tire or equivalent between the door panel and vehicle body, as shown in the illustration, in order to interrupt closing operation.

HINT:

After step (2), skip step (3) and perform this step. Then, go to step (5).




(5) Check that the jam protection function is immediately activated and the power back door reverses operation to the fully open position.

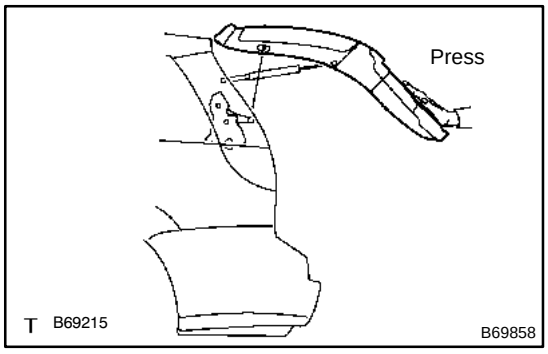
(b) Check the jam protection function while the power back door is opening.

**CAUTION:**

**Pay thorough attention that your body, clothes, etc. do not get involved in accidentally during this process.**

(1) Fully close the back door.

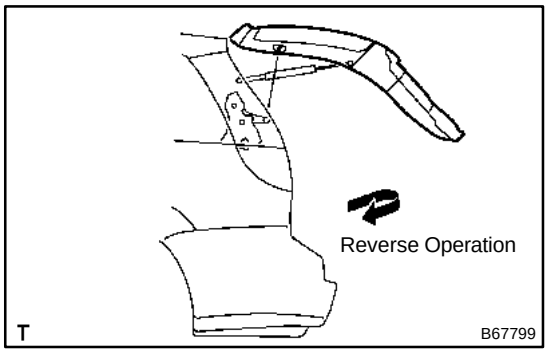
(2) Press the switch that operates the power back door to activate it to open.



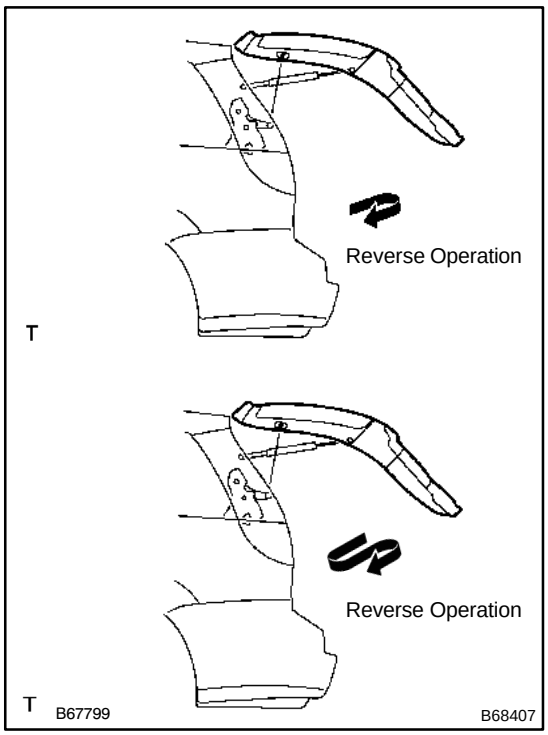

(3) While the back door is opening, press the outside surface of the back door panel that is moving by hand so that the operating speed decreases, as shown in the illustration.

**CAUTION:**

**When pressing the door panel, do not hold the ends of the door panel. Be sure to put your hands on the surface.**




(4) Check that the jam protection function is immediately activated and the power back door reverses operation to the fully closed position.




(c) Check operation of the power back door when the jam protection function is activated consecutively.
   (1) Check that power back door operation is cancelled and switched to manual operation mode (not electrically controlled) when the jam protection function has been activated 2 or more consecutive times and when the 2nd or most recent activation has occurred during closing.

HINT:
Refer to steps (a) and (b) for the conditions that activates the jam protection function.

**NOTICE:**
**In order to restore the power back door system to normal operation mode, perform either of the following: manually close the back door fully or press the satellite switch for the power back door.**

**4. CHECK WARNING BUZZER**

(a) Check the warning buzzer sounding function that notifies that the power back door is open or is opening while the vehicle is moving (when the shift lever is moved into any position except the P position).
   (1) While the back door is open, check that the warning buzzer sounds at a cycle of 0.3 seconds if the shift lever is moved into any position except the P position with the ignition switch ON.
   (2) Turn the ignition switch ON and move the shift lever into any position except the P position. Check that the warning buzzer sounds at a cycle of 0.3 seconds when the power back door system is activated to open using the switches.
   (3) Check that the warning buzzer stops sounding when the back door is fully closed or the shift lever is moved into the P position.

(b) Check that the warning buzzer that notifies the start of opening of the power back door sounds at 2 cycles of 0.5 seconds when the power back door is activated to open.

HINT:

At the start of opening of the power back door, the wireless door lock buzzer (built into the engine room) also sounds.

**5. DOOR LOCK**

(a) When the battery is reconnected:
   The back door is locked and cannot be opened. Therefore, it is necessary to unlock the back door using the door control switch or transmitter switch.

**6. RESET**

(a) When the back door w/ motor lock is replaced:
   The ECU cannot receive a switch signal from the lock. This may cause the power back door system to enter fail-safe mode and DTC B2215 to set and also may make the system disabled.
   When the lock is replaced, be sure to perform the following: first properly connect the lock, second clear the DTC using the hand-held tester and finally recheck that no DTC is output.

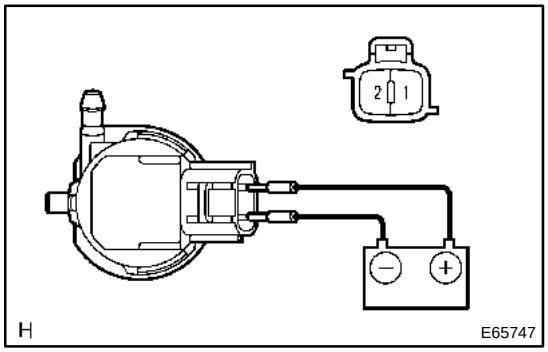
(b) Reset the power back door system:
   The power back door ECU records the fully open position and the fully closed position of the power back door in its memory and the power back door fully opens and fully closed based on this memory. The power back door cannot operate without this memory. In the case where the battery has been removed, manually close the back door fully to reset the power back door system. However, if the battery is removed/installed when the back door is fully open, the power back door operates normally, thus the resetting the system is unnecessary.
   Replacing drive unit will also cause the memory of the door positions to be last. Therefore, in such a case resetting the system is necessary.
   Reset the power back door system as follows:
   (1) Fully close the power back door if opened.
   (2) Check that the back door fully open and fully close.
      - Unlock the power back door using the transmitter switch or the door control switch.
      - Turn the ignition switch to the ”OFF” position.
      - Check that the power back door main switch is in the ”ON” position.
      - Check that the back door fully open and fully close by pushing the power back door satellite switch or PBD button briefly.

HINT:

The jam protection function is enabled through the above initialization procedure.

660CA-01

# ON-VEHICLE INSPECTION

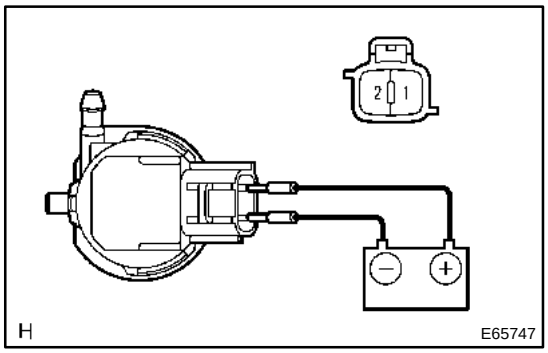



**1. INSPECT WINDSHIELD WASHER MOTOR ASSY**

(a) Operation Check

(1) Pour the water into the washer jar with the windshield washer motor and pump assy installed to the washer jar assy.

(2) Connect the battery (+) to the terminal 1 of the windshield washer motor and pump assy, the battery (-) to the terminal 2 of the windshield washer motor and pump assy. Check that the water comes out from the washer jar.




**2. INSPECT REAR WASHER MOTOR ASSY**

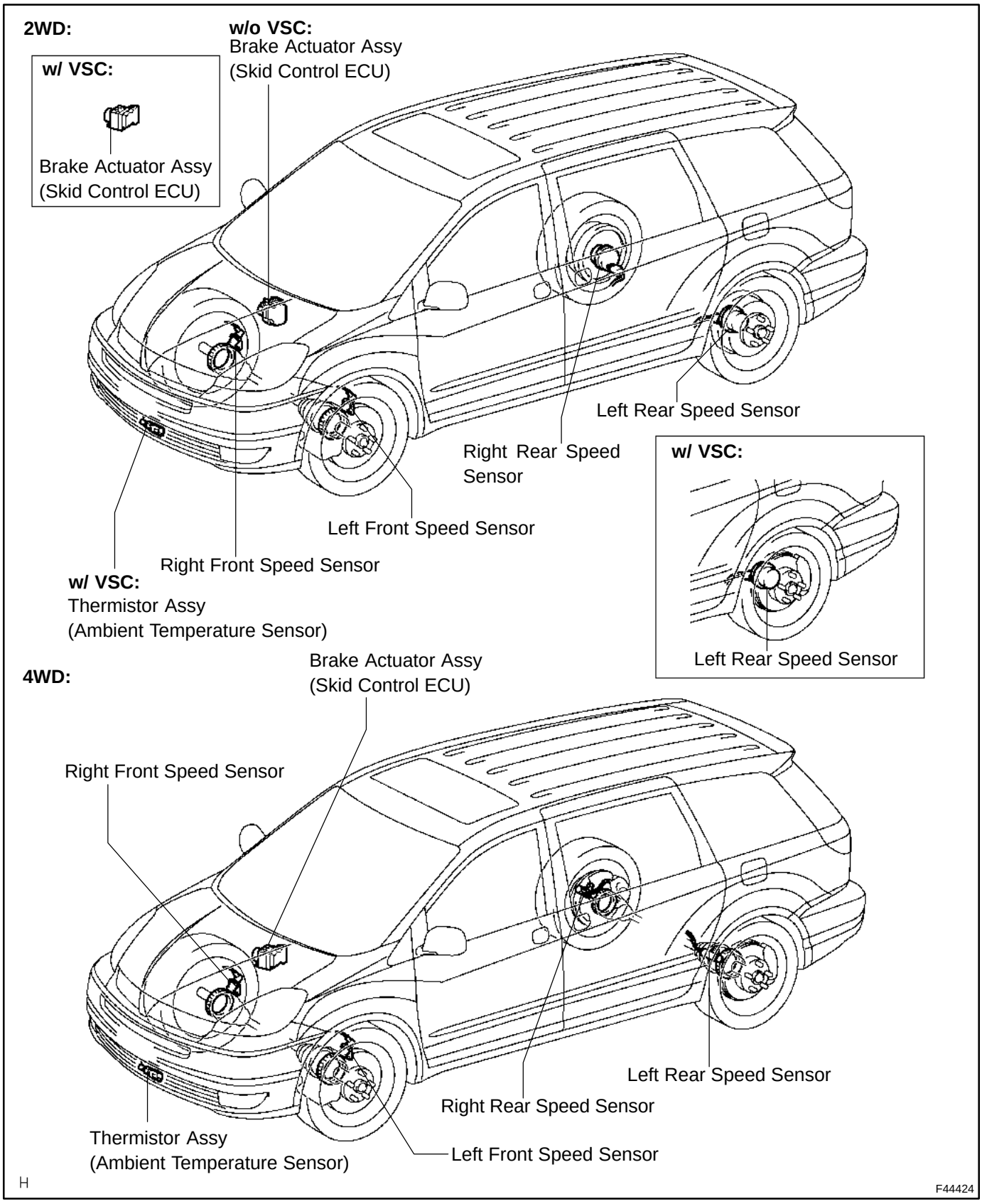
(a) Operation Check

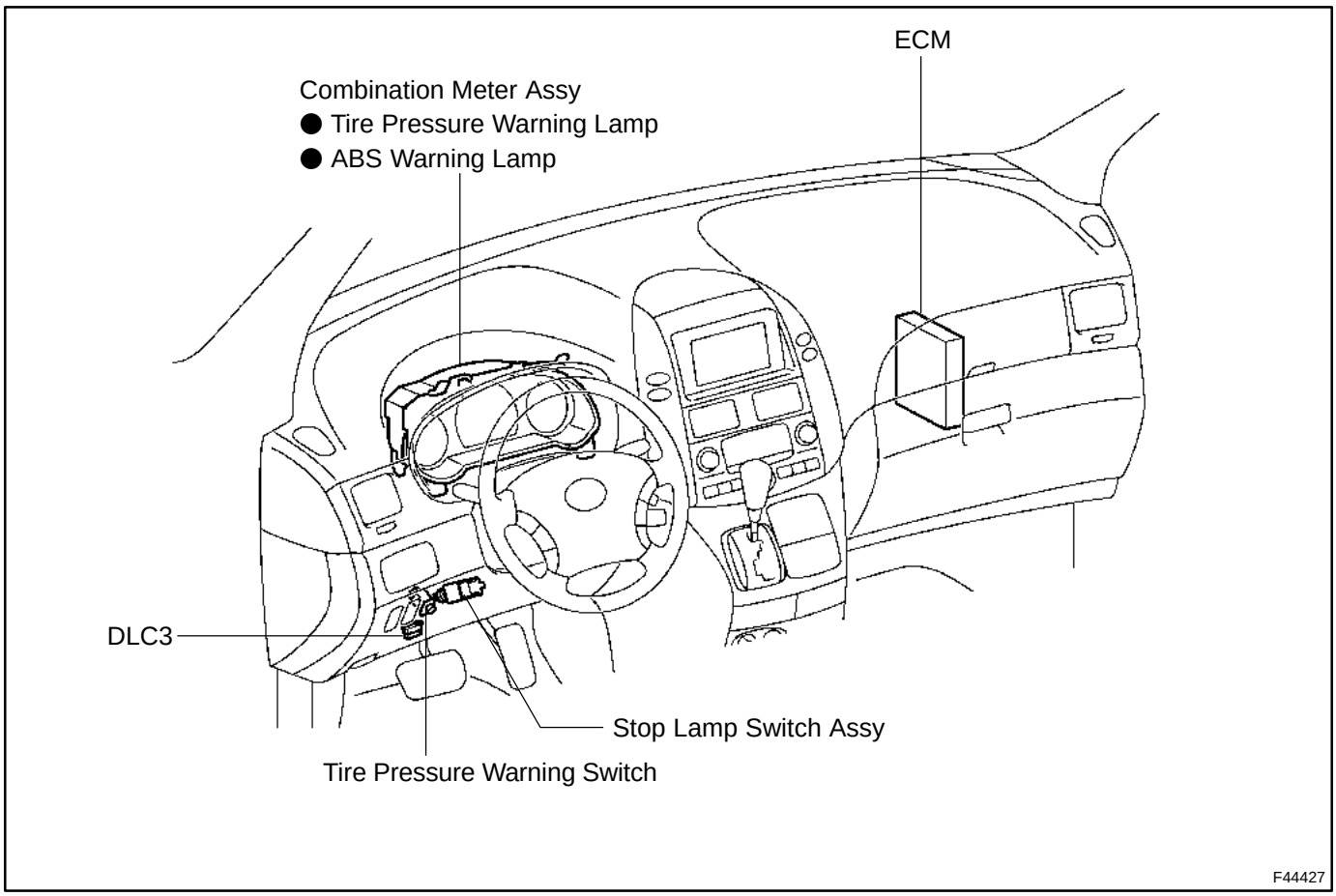
(1) Pour the water into the washer jar with the rear washer motor assy installed to the washer jar assy.

(2) Connect the battery (+) to the terminal 1 of the rear washer motor assy, the battery (-) to the terminal 2 of the rear washer motor assy. Check that the water comes out from the washer jar.

05BWA-01

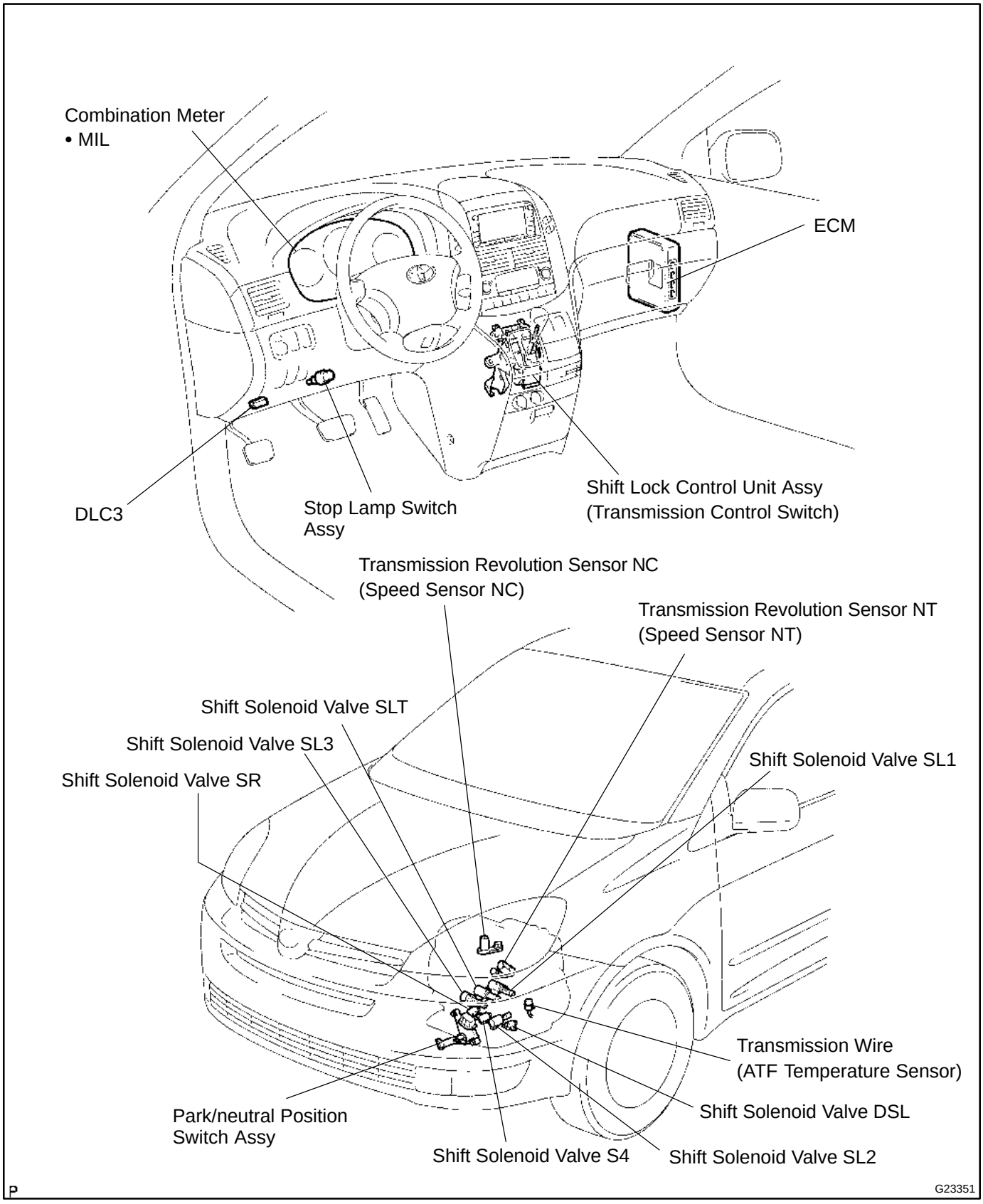
# LOCATION




ECM
Combination Meter Assy
● Tire Pressure Warning Lamp
● ABS Warning Lamp
DLC3
Stop Lamp Switch Assy
Tire Pressure Warning Switch
F44427

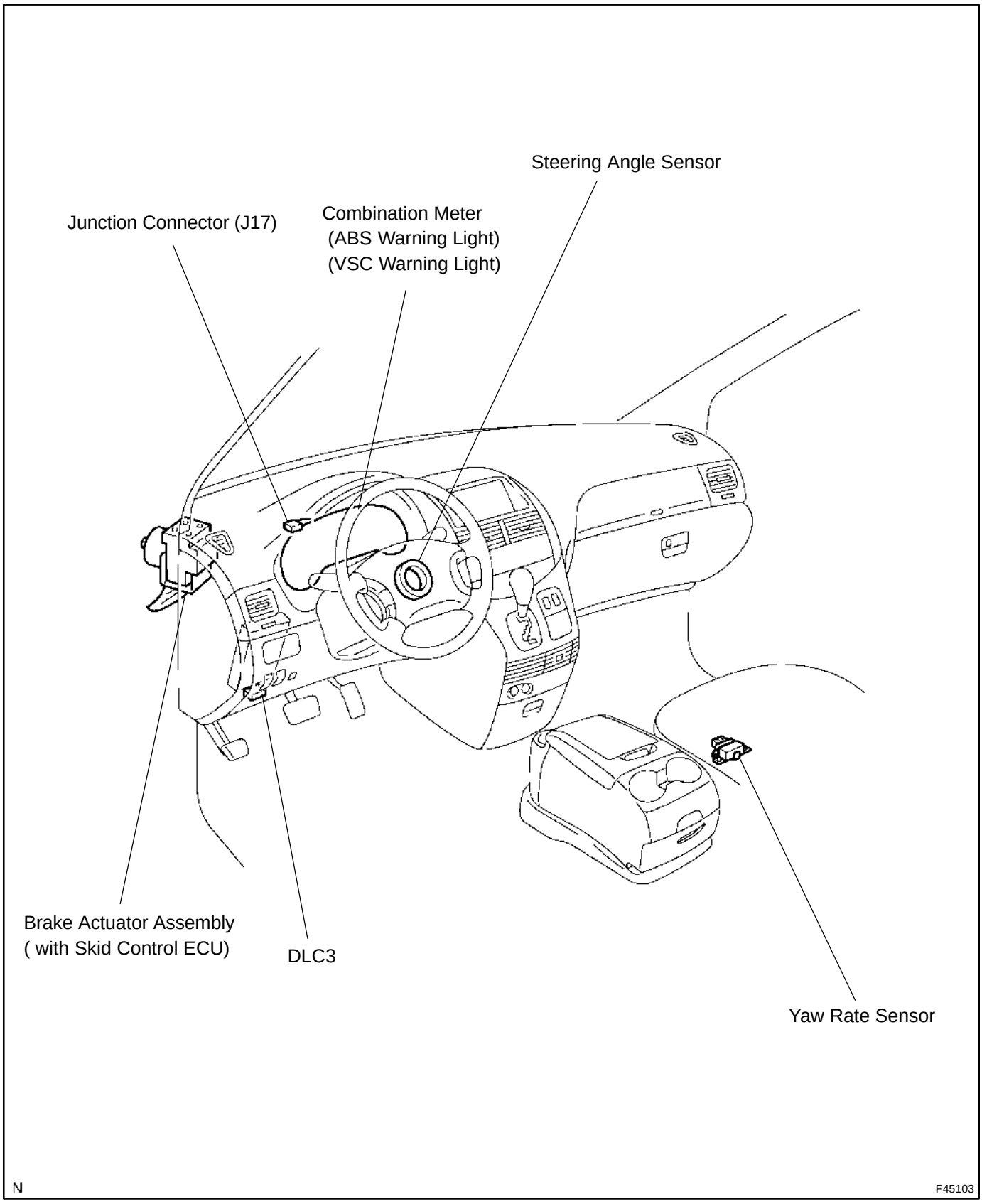
0527L-50

# LOCATION



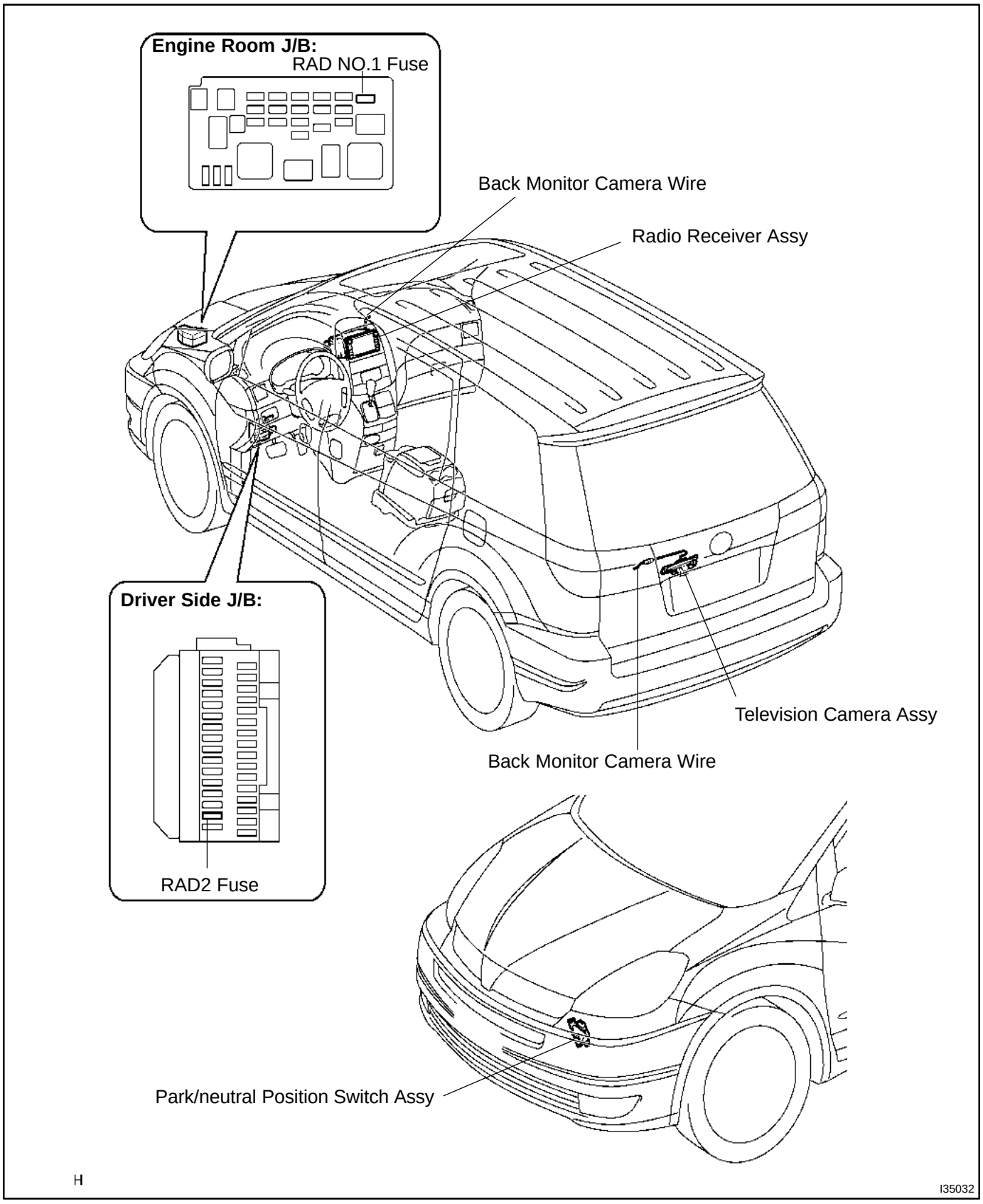
05BYM-01

# LOCATION



059FB-03

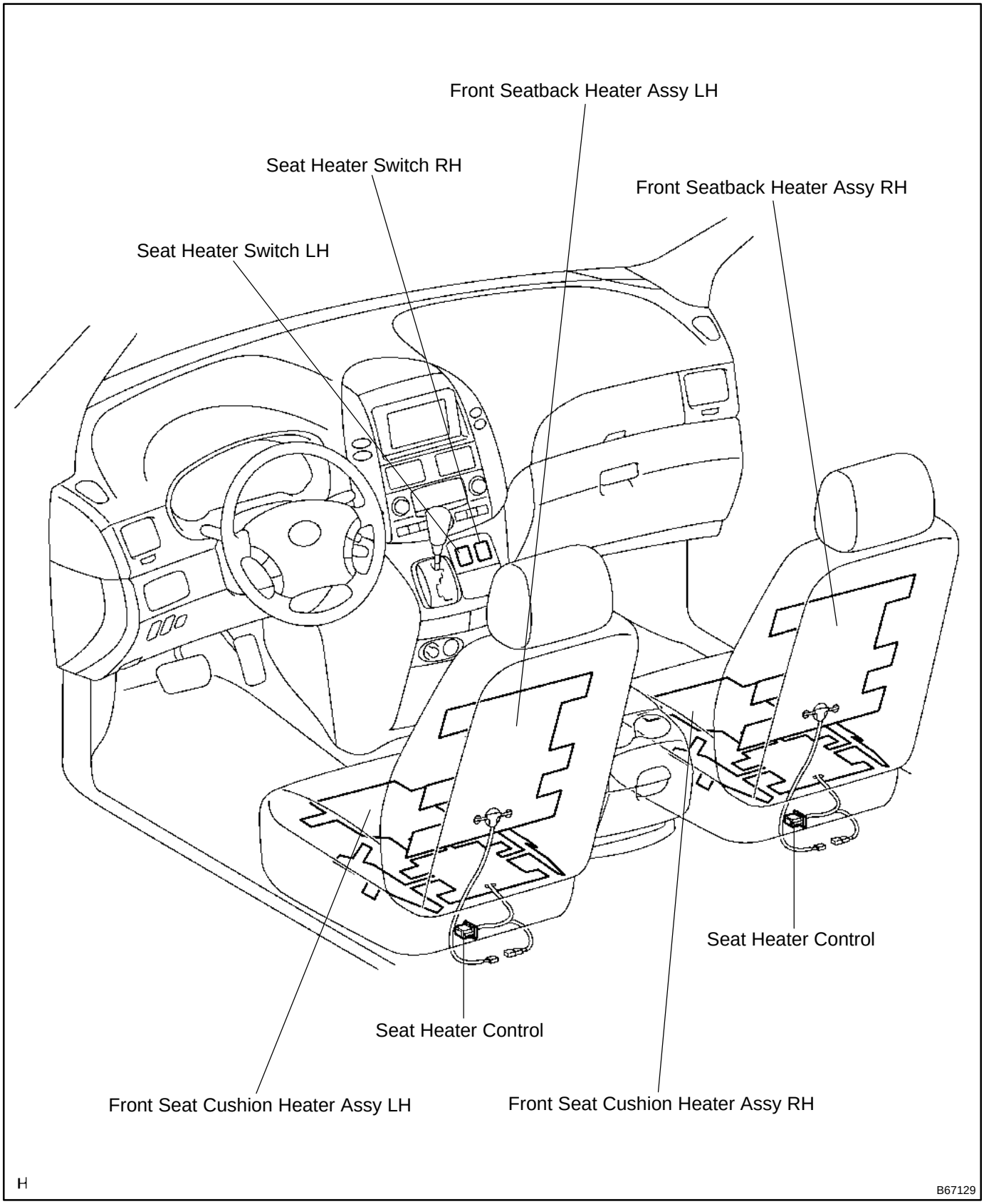
# LOCATION



# SEAT HEATER SYSTEM

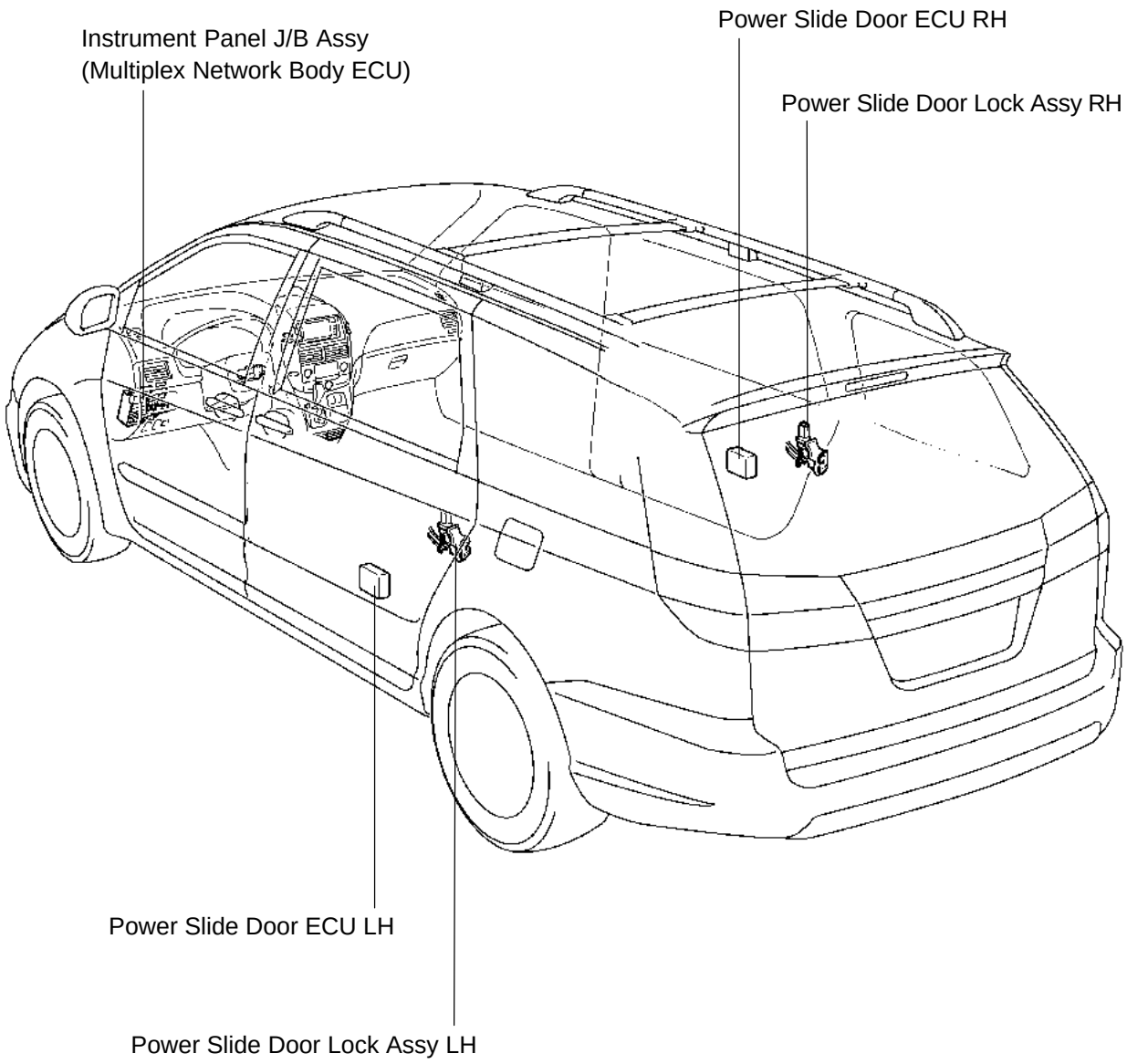
720IU-01

## LOCATION



05C0E-01

# LOCATION

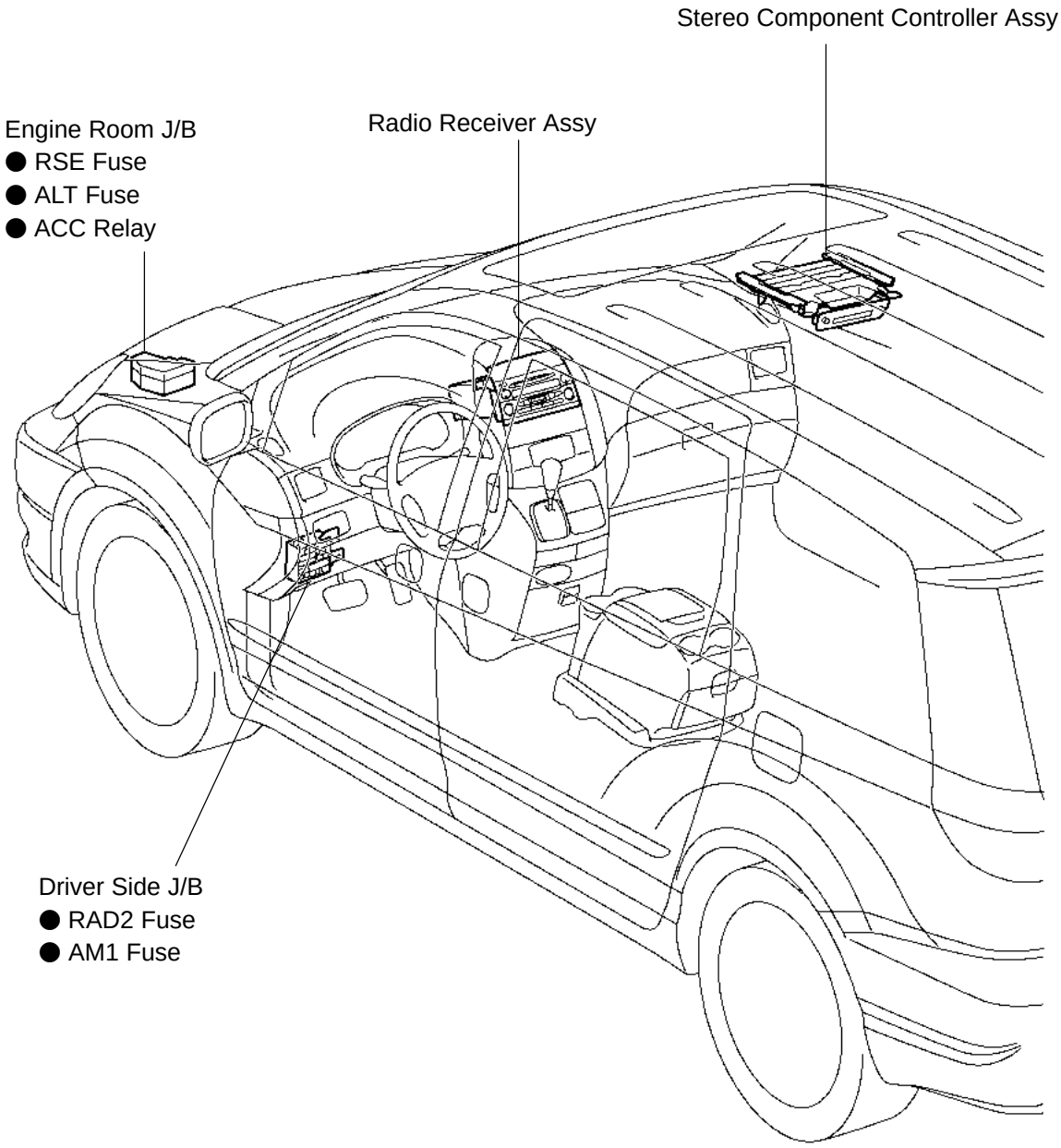



Y

B68925

05ATE-02

# LOCATION

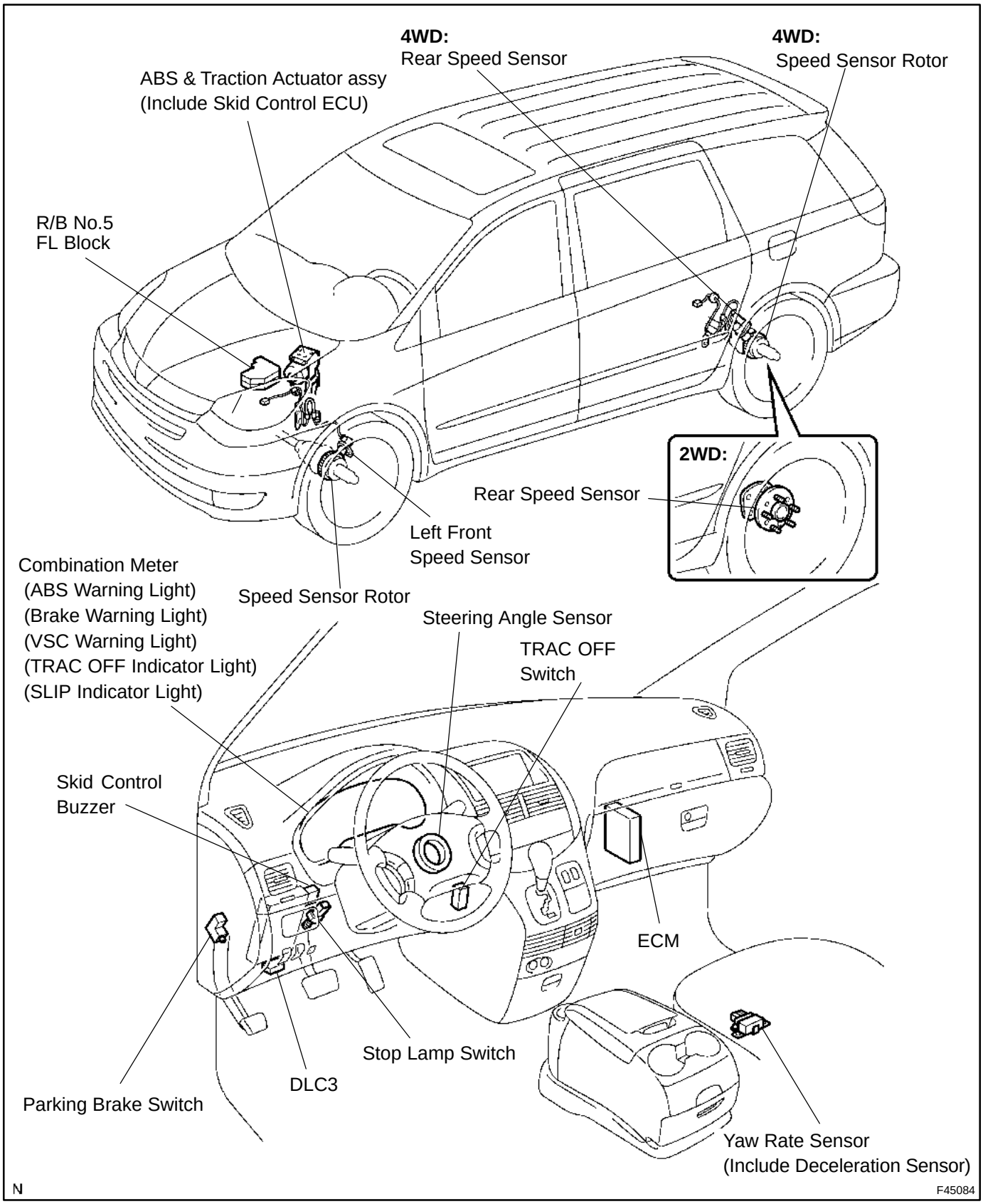



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I35012

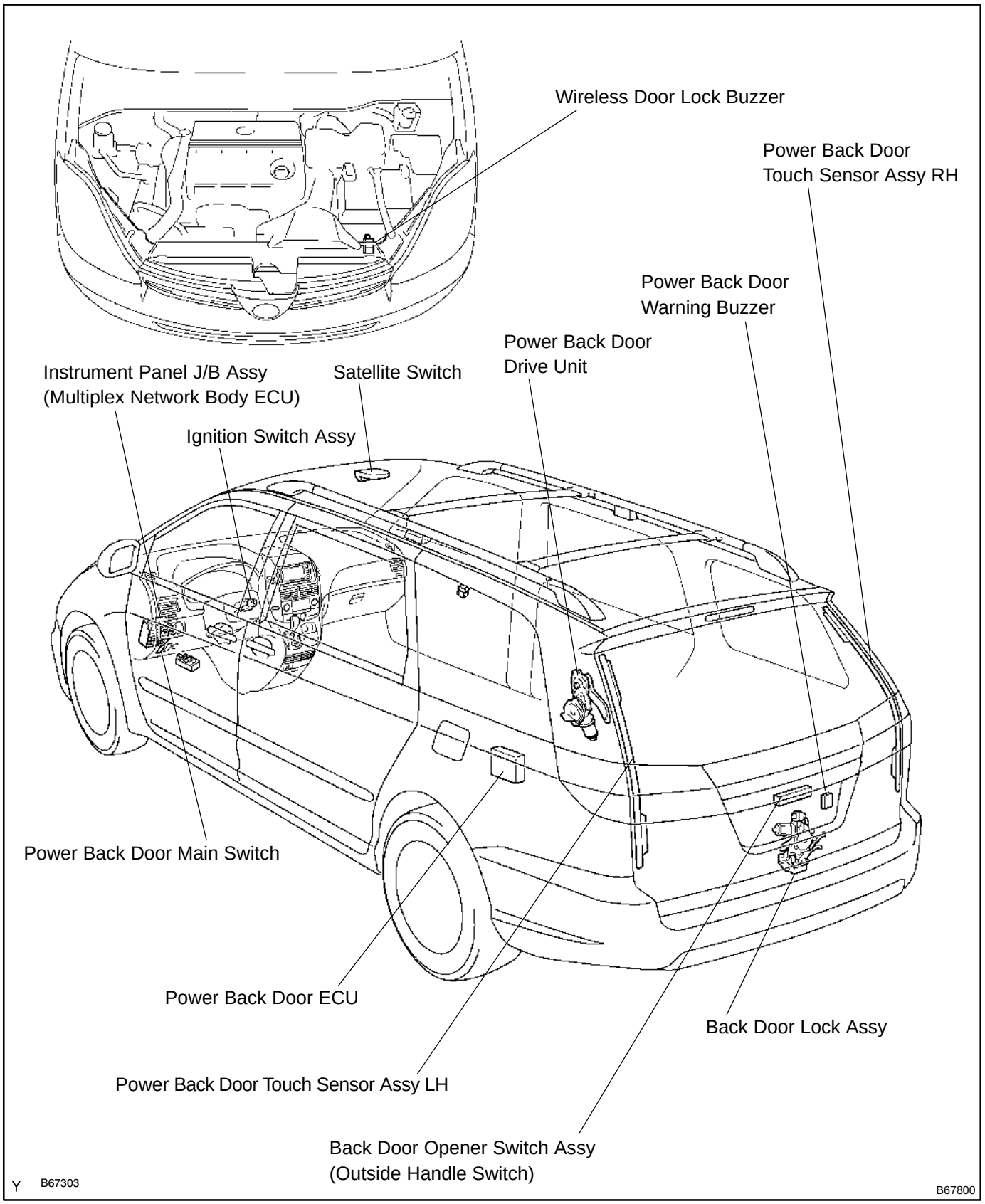
05BX6-01

# LOCATION



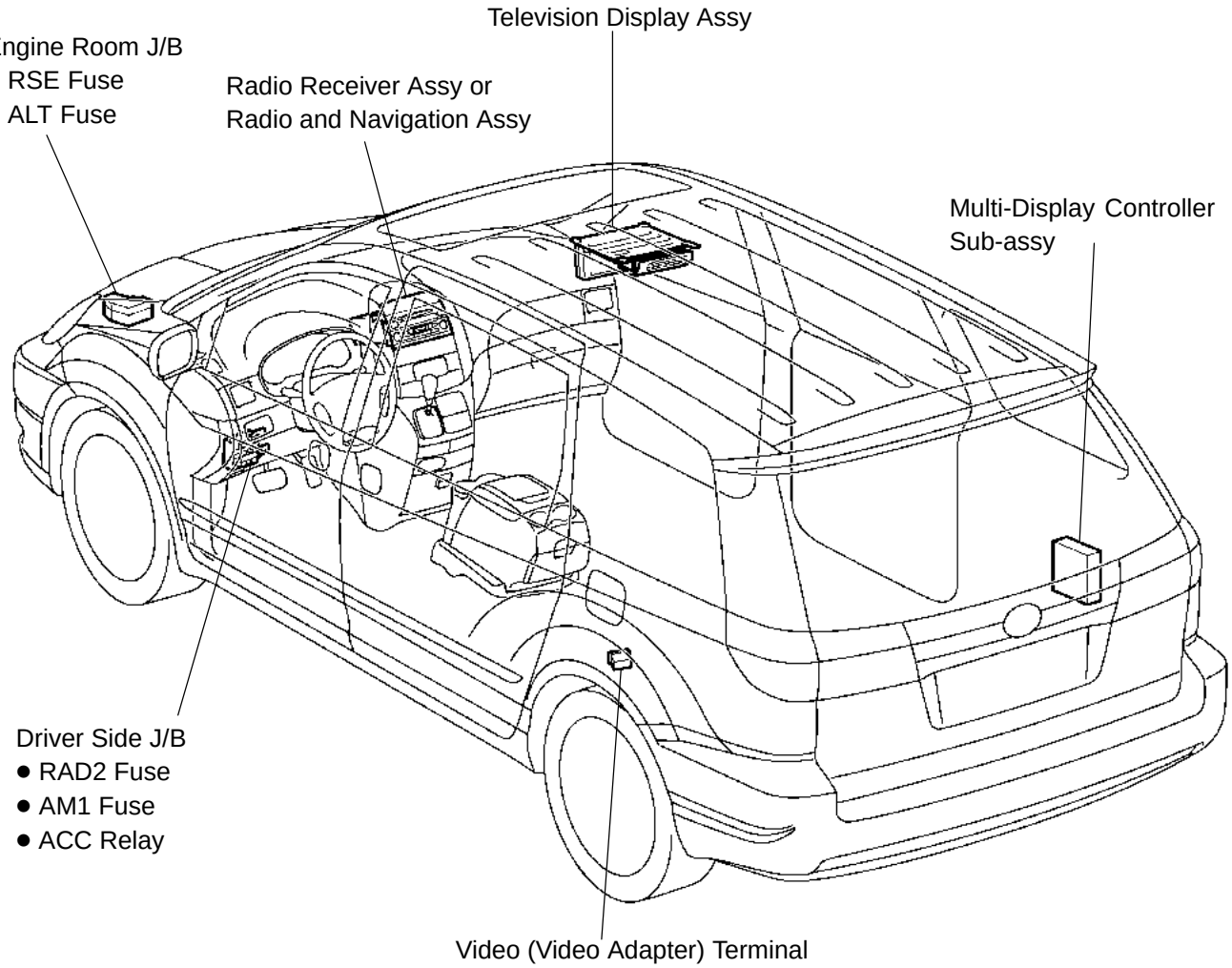
05BZQ-01

# LOCATION



05ATQ-06

# LOCATION



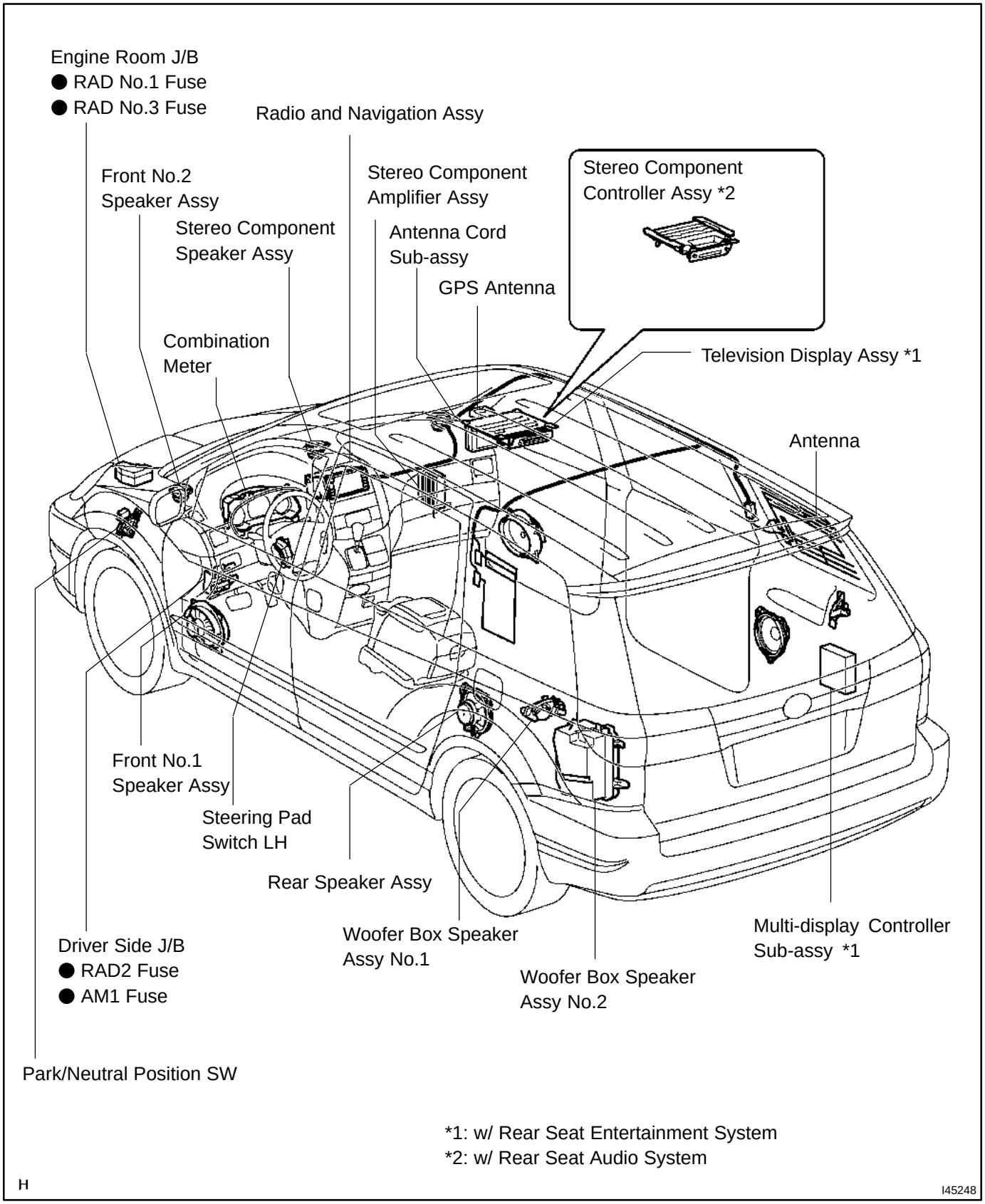

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I35013

# NAVIGATION SYSTEM

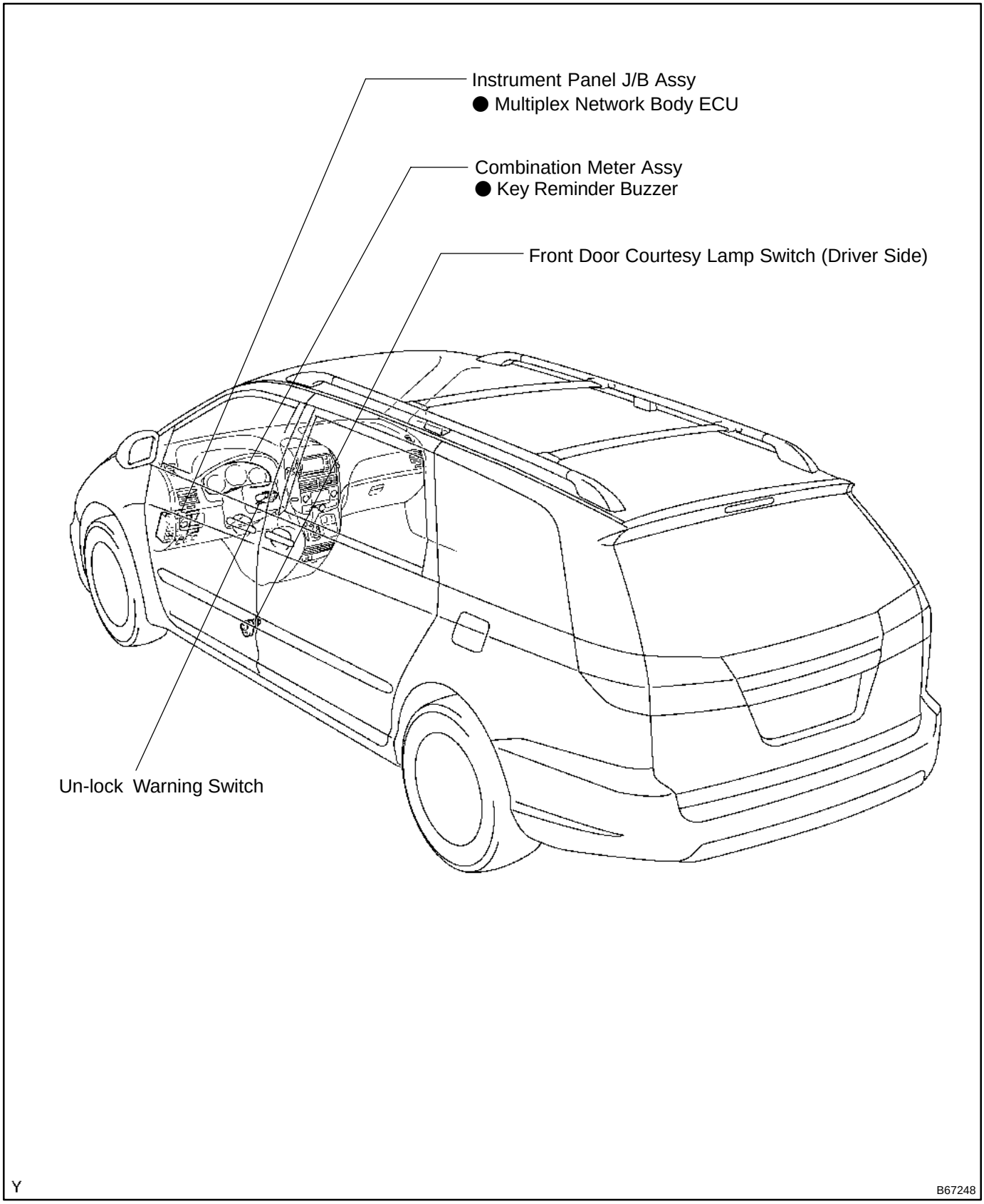
## LOCATION

05CE7-11



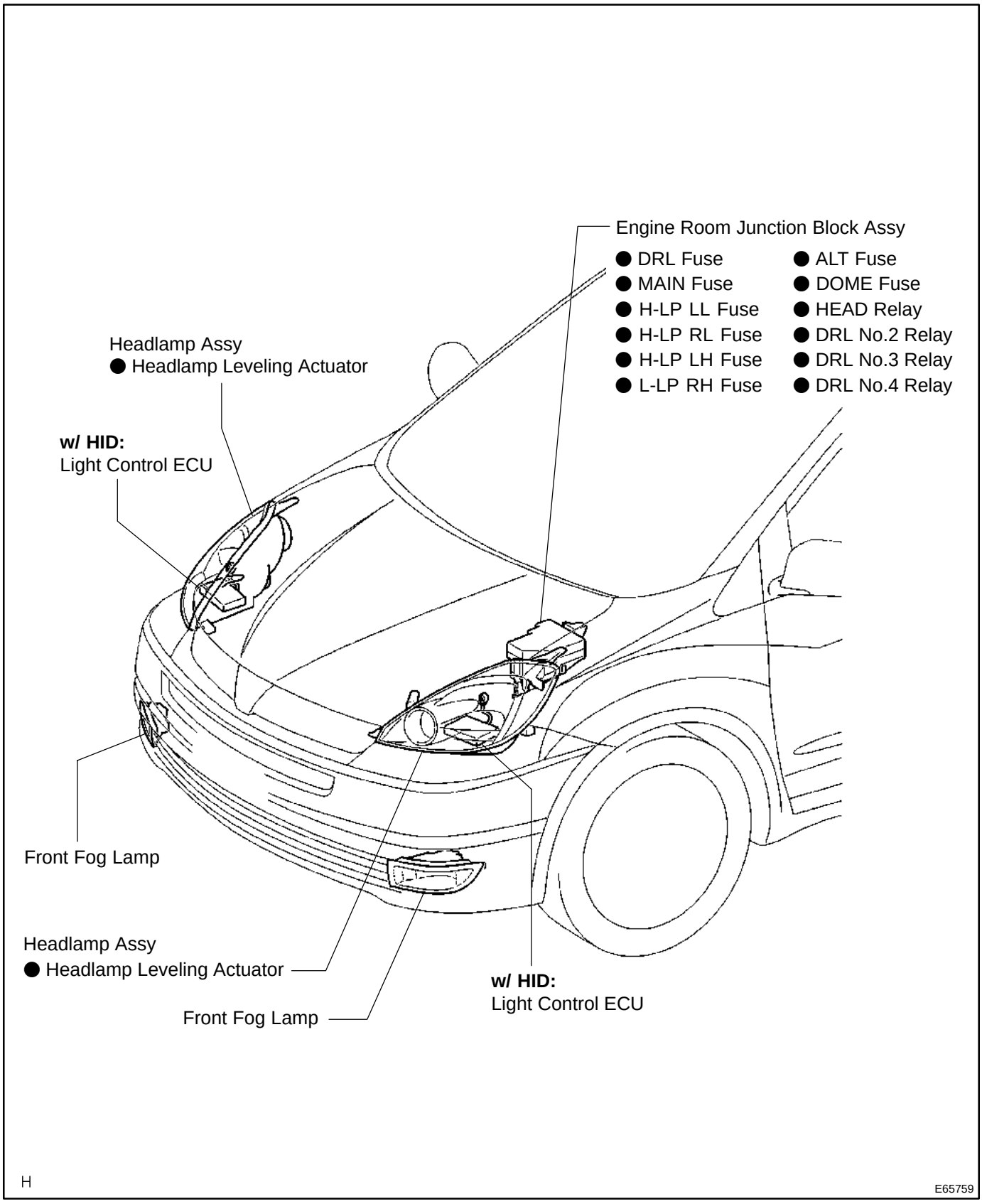
05BTP-01

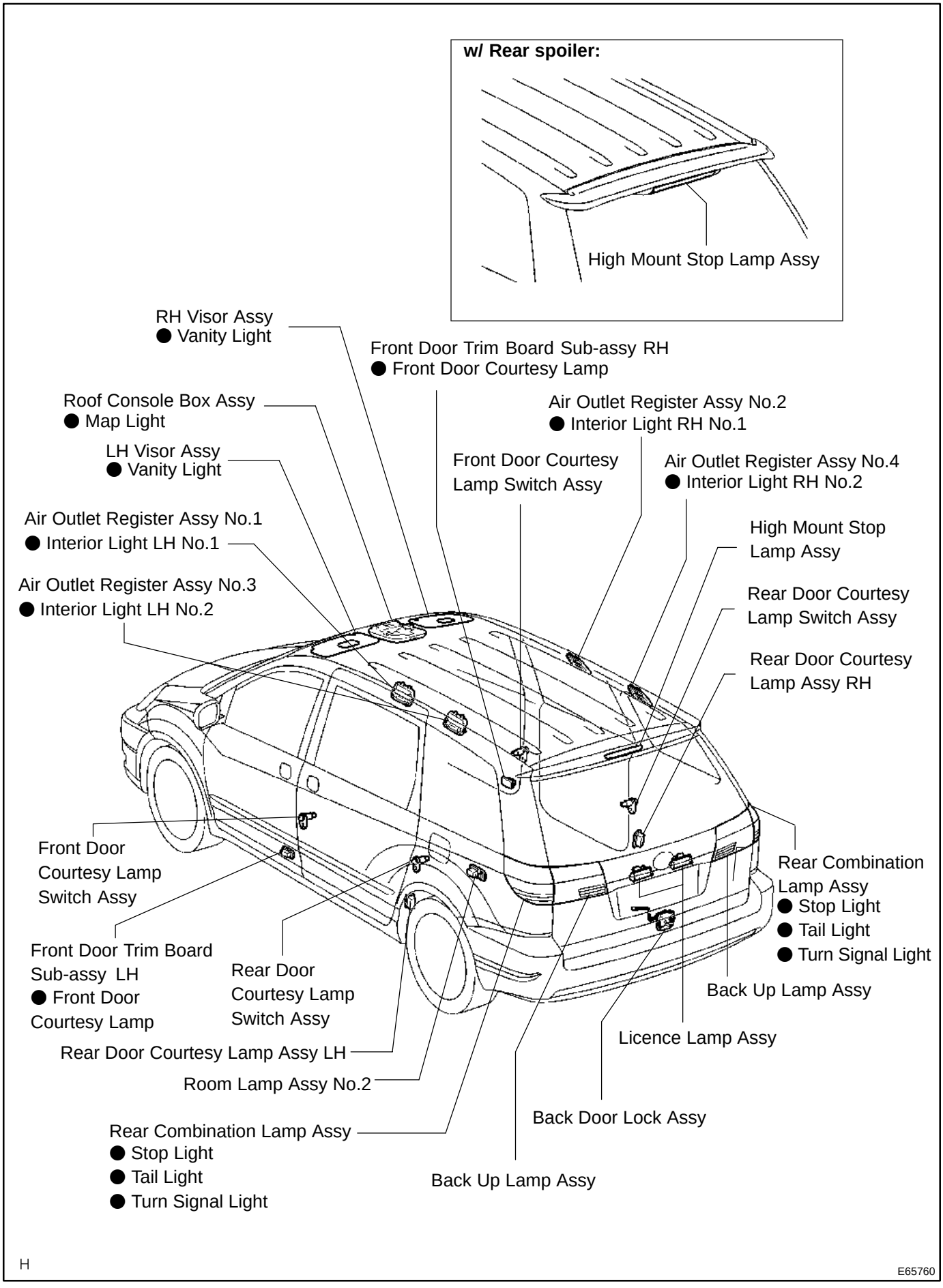
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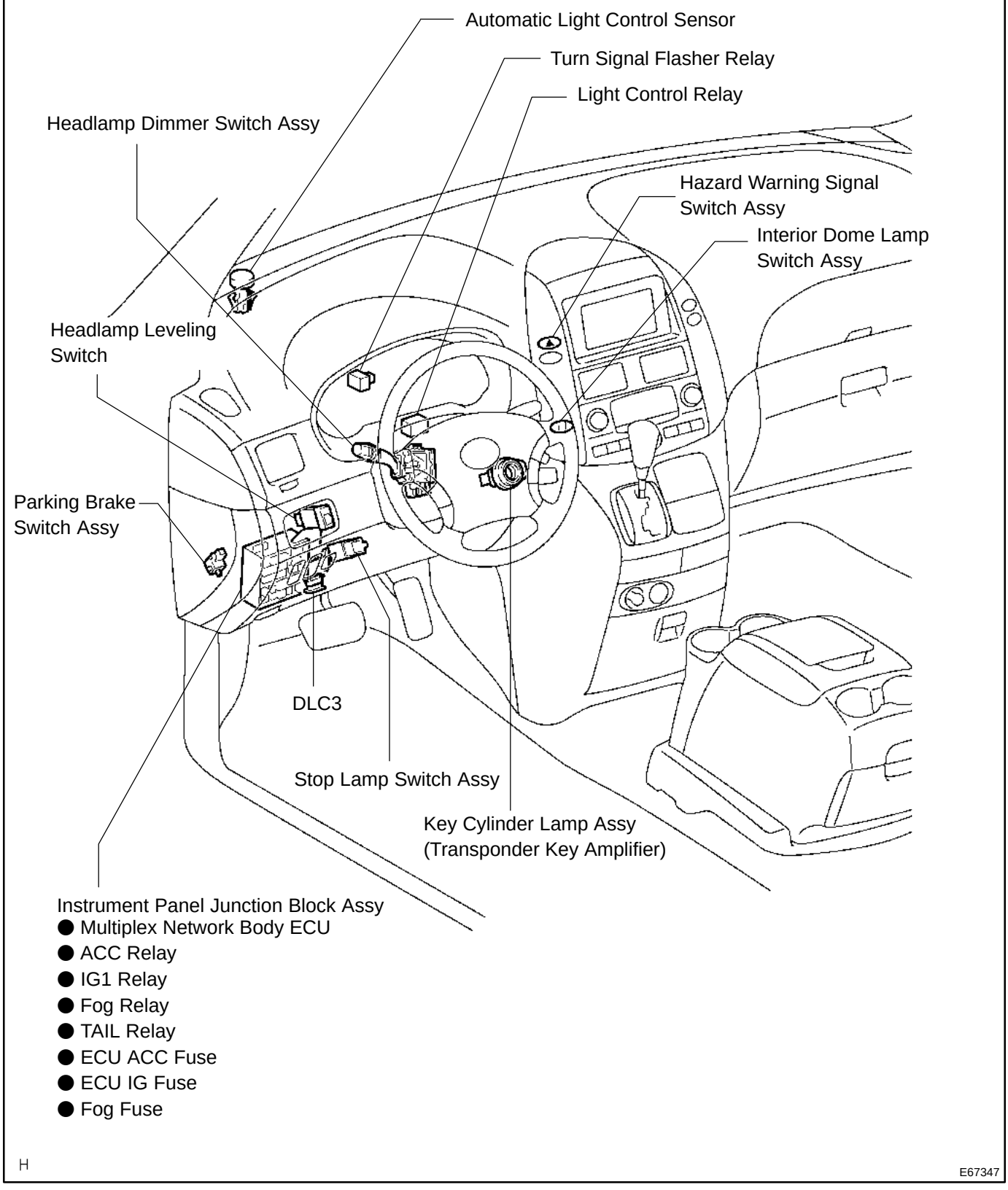


05BVK-01

# LOCATION

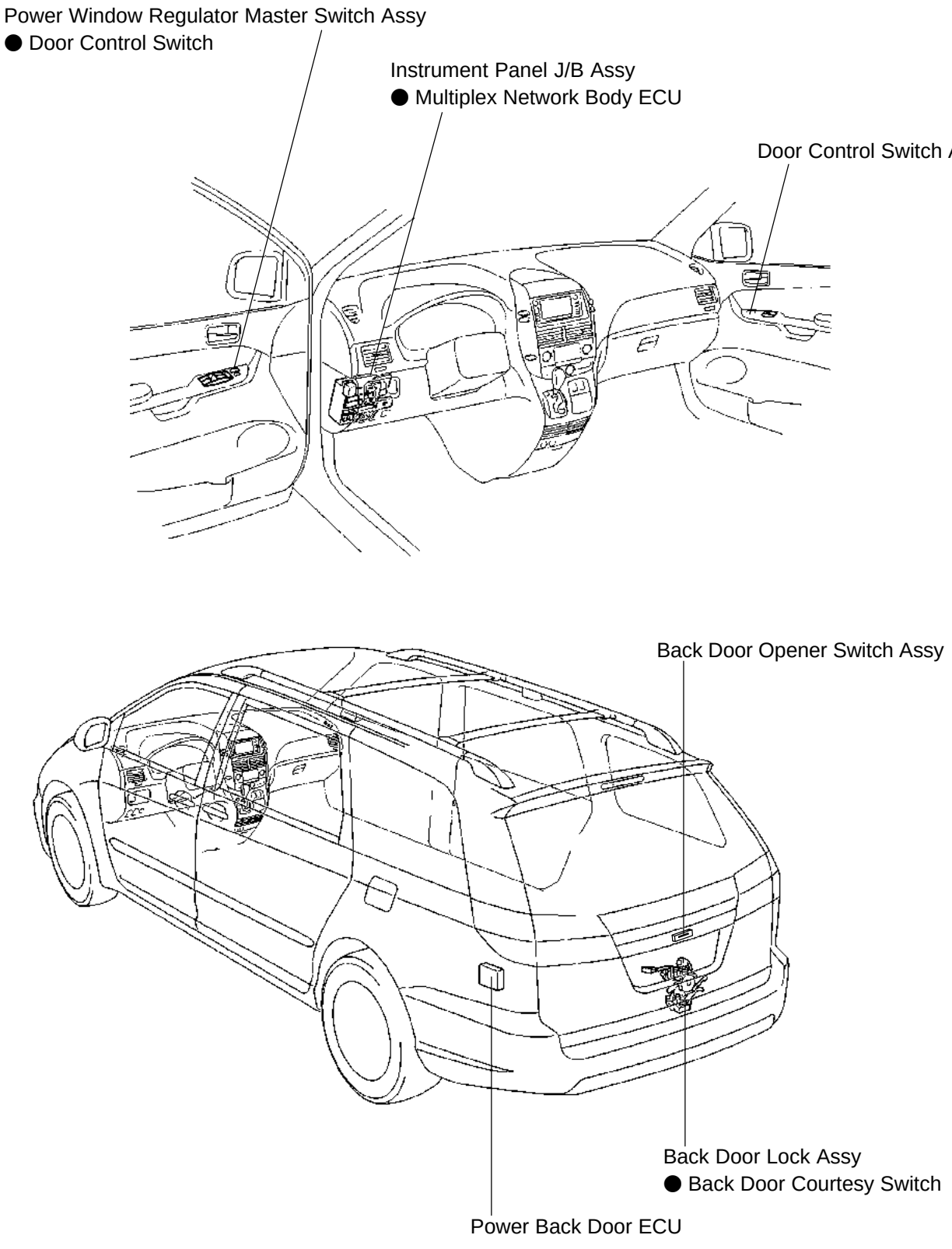



w/ Rear spoiler:
High Mount Stop Lamp Assy
RH Visor Assy
● Vanity Light
Front Door Trim Board Sub-assy RH
● Front Door Courtesy Lamp
Roof Console Box Assy
● Map Light
Air Outlet Register Assy No.2
● Interior Light RH No.1
LH Visor Assy
● Vanity Light
Front Door Courtesy
Lamp Switch Assy
Air Outlet Register Assy No.4
● Interior Light RH No.2
Air Outlet Register Assy No.1
● Interior Light LH No.1
High Mount Stop
Lamp Assy
Air Outlet Register Assy No.3
● Interior Light LH No.2
Rear Door Courtesy
Lamp Switch Assy
Rear Door Courtesy
Lamp Assy RH
Front Door
Courtesy Lamp
Switch Assy
Rear Combination
Lamp Assy
● Stop Light
● Tail Light
● Turn Signal Light
Front Door Trim Board
Sub-assy LH
● Front Door
Courtesy Lamp
Rear Door
Courtesy Lamp
Switch Assy
Back Up Lamp Assy
Licence Lamp Assy
Rear Door Courtesy Lamp Assy LH
Room Lamp Assy No.2
Back Door Lock Assy
Rear Combination Lamp Assy
● Stop Light
● Tail Light
● Turn Signal Light
Back Up Lamp Assy
H
E65760


Automatic Light Control Sensor
Turn Signal Flasher Relay
Light Control Relay
Headlamp Dimmer Switch Assy
Hazard Warning Signal Switch Assy
Interior Dome Lamp Switch Assy
Headlamp Leveling Switch
Parking Brake Switch Assy
DLC3
Stop Lamp Switch Assy
Key Cylinder Lamp Assy (Transponder Key Amplifier)
Instrument Panel Junction Block Assy
● Multiplex Network Body ECU
● ACC Relay
● IG1 Relay
● Fog Relay
● TAIL Relay
● ECU ACC Fuse
● ECU IG Fuse
● Fog Fuse
H
E67347

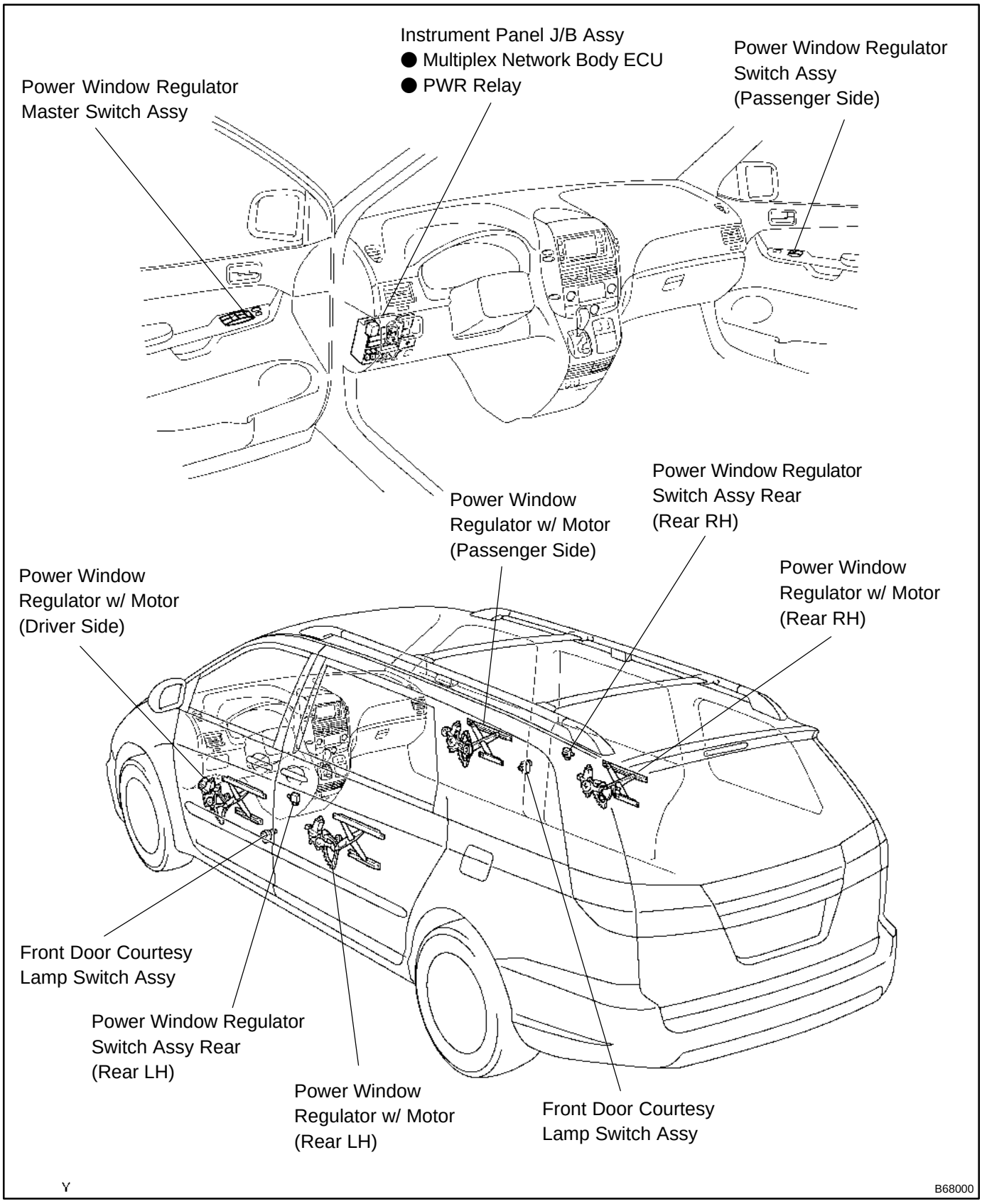
05C02-01

# LOCATION



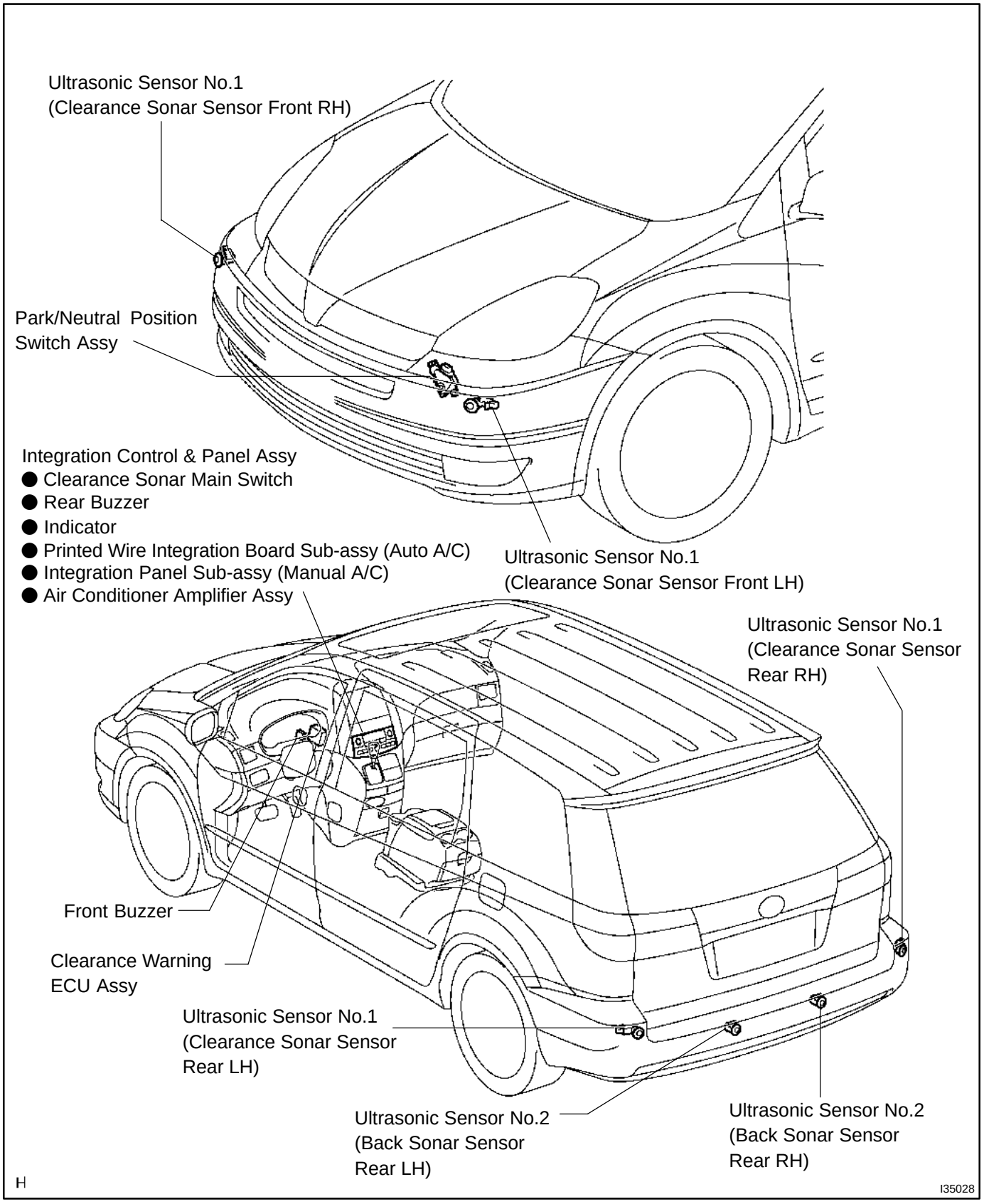
700SH-01

# LOCATION



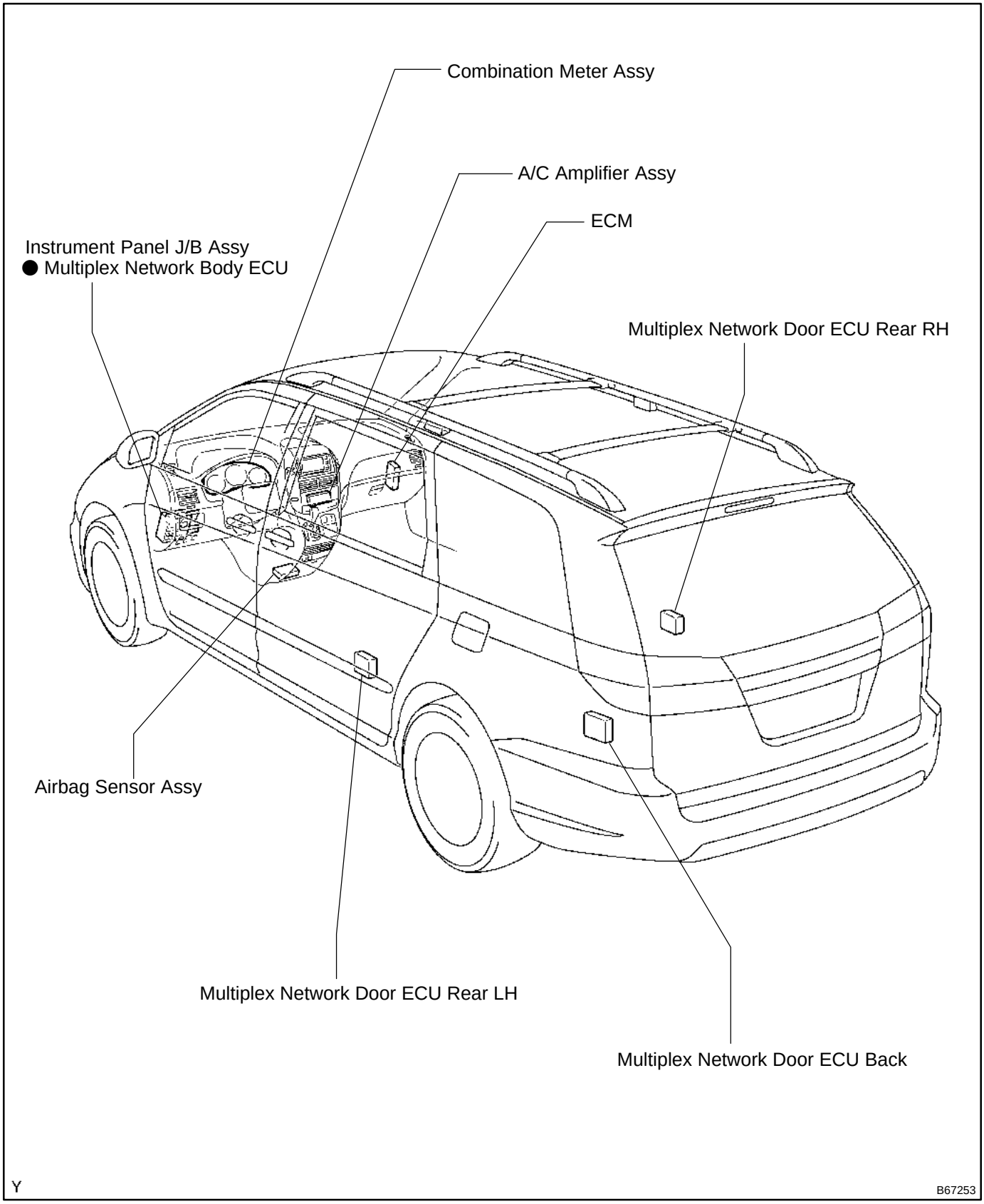
05BUV-01

# LOCATION



05BTC-01

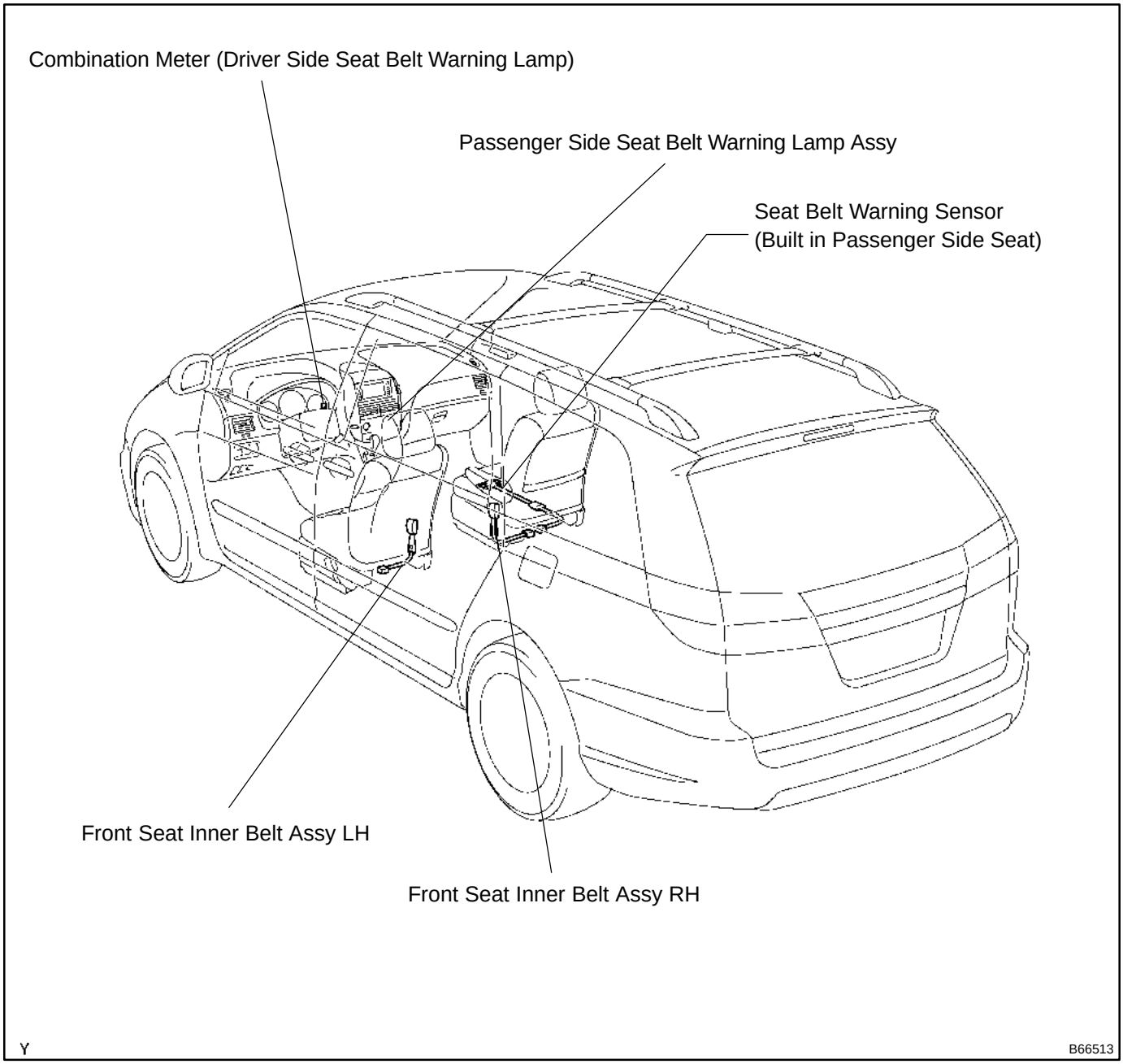
# LOCATION



# SEAT BELT WARNING SYSTEM

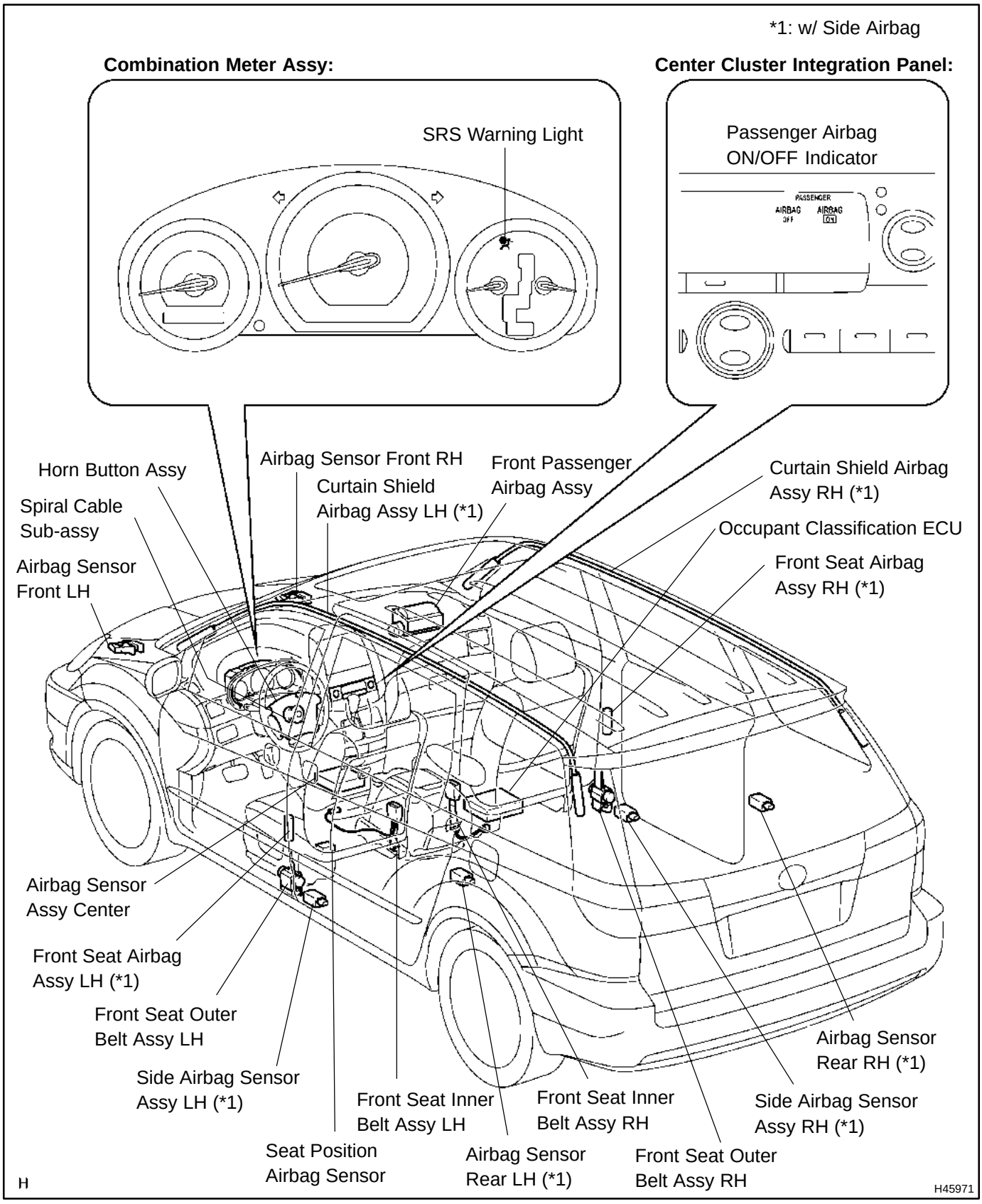
610AU-02

## LOCATION



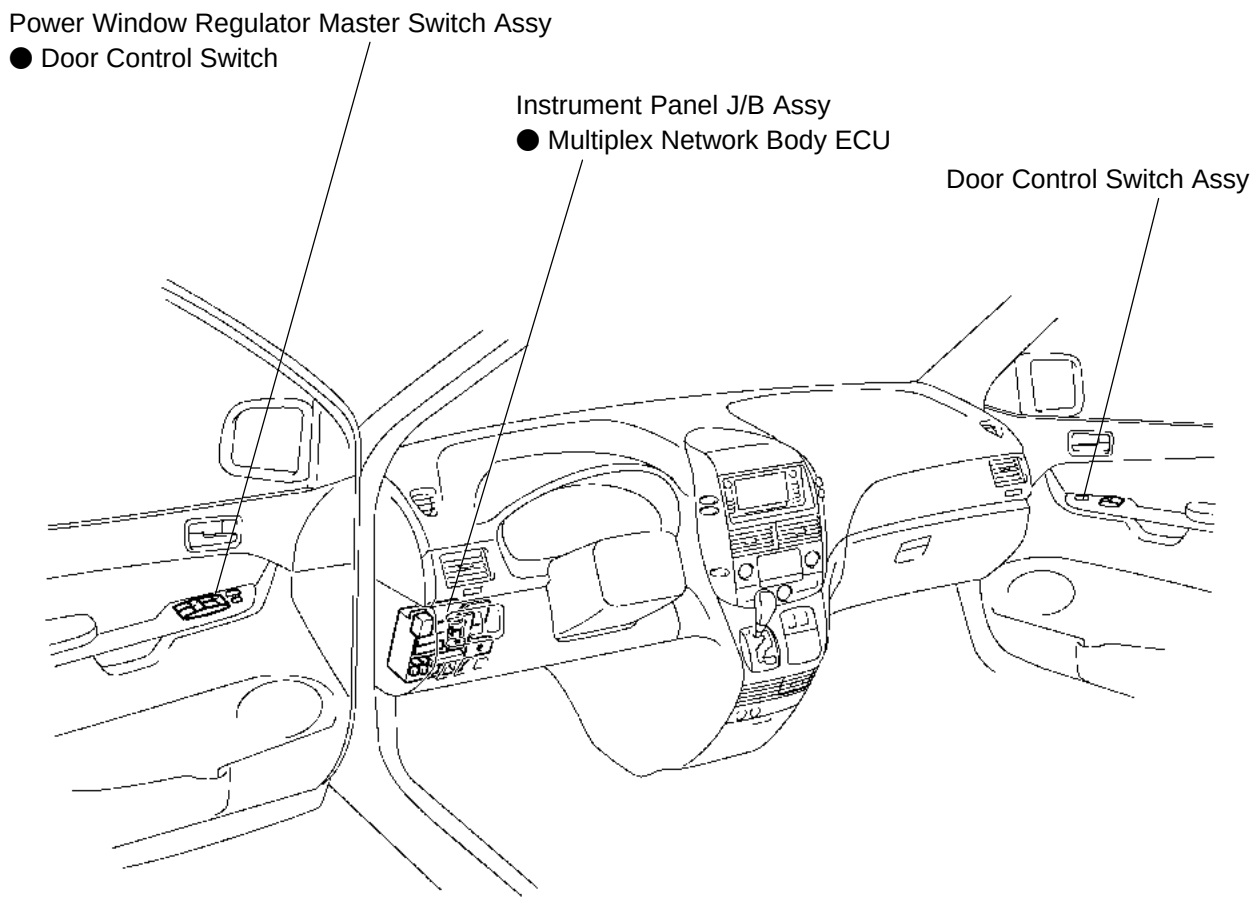
0525A-33

# LOCATION

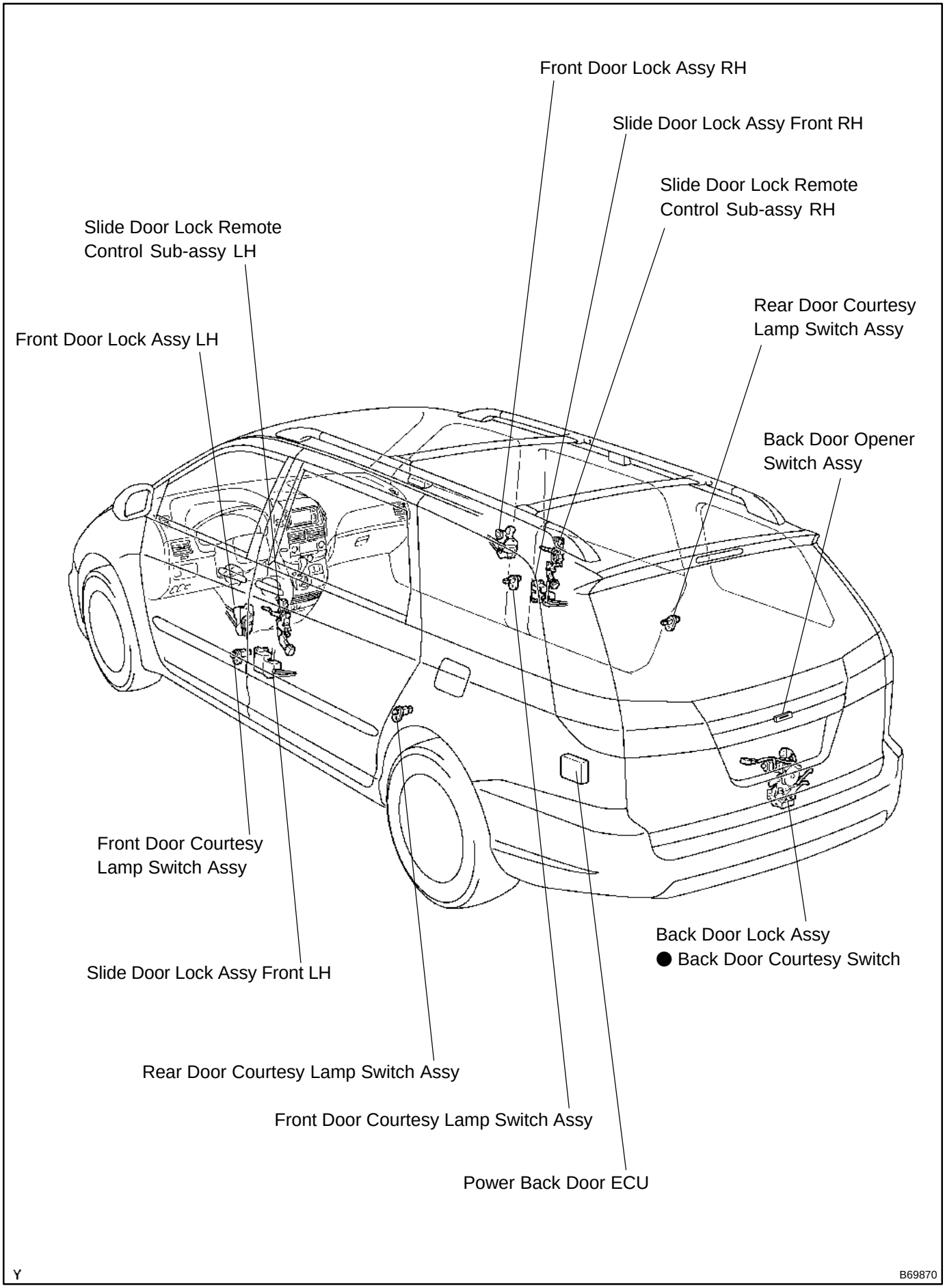


05BYW-01

# LOCATION

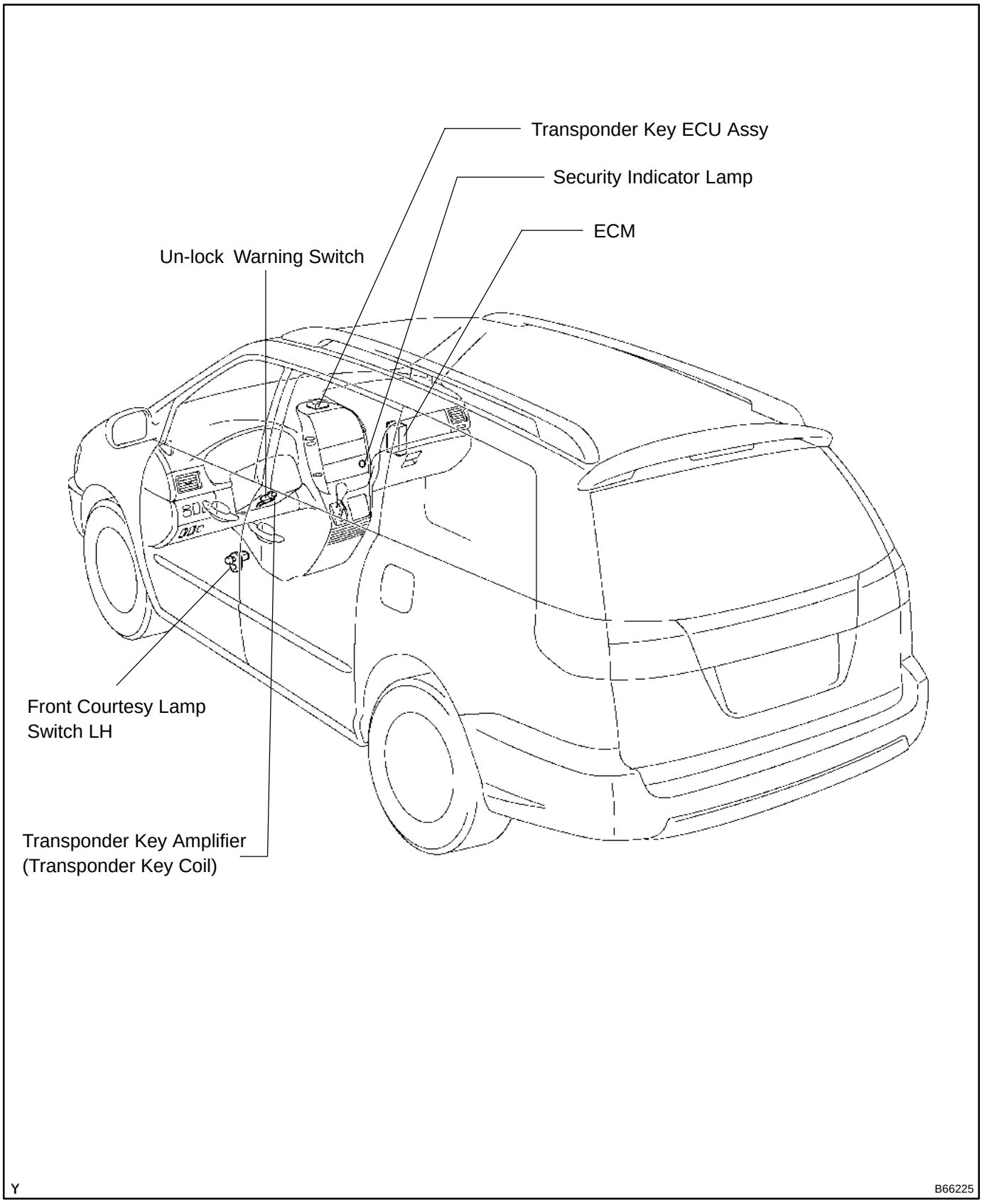



B68429


Front Door Lock Assy RH
Slide Door Lock Assy Front RH
Slide Door Lock Remote Control Sub-assy RH
Slide Door Lock Remote Control Sub-assy LH
Rear Door Courtesy Lamp Switch Assy
Front Door Lock Assy LH
Back Door Opener Switch Assy
Front Door Courtesy Lamp Switch Assy
Back Door Lock Assy
● Back Door Courtesy Switch
Slide Door Lock Assy Front LH
Rear Door Courtesy Lamp Switch Assy
Front Door Courtesy Lamp Switch Assy
Power Back Door ECU
Y
B69870

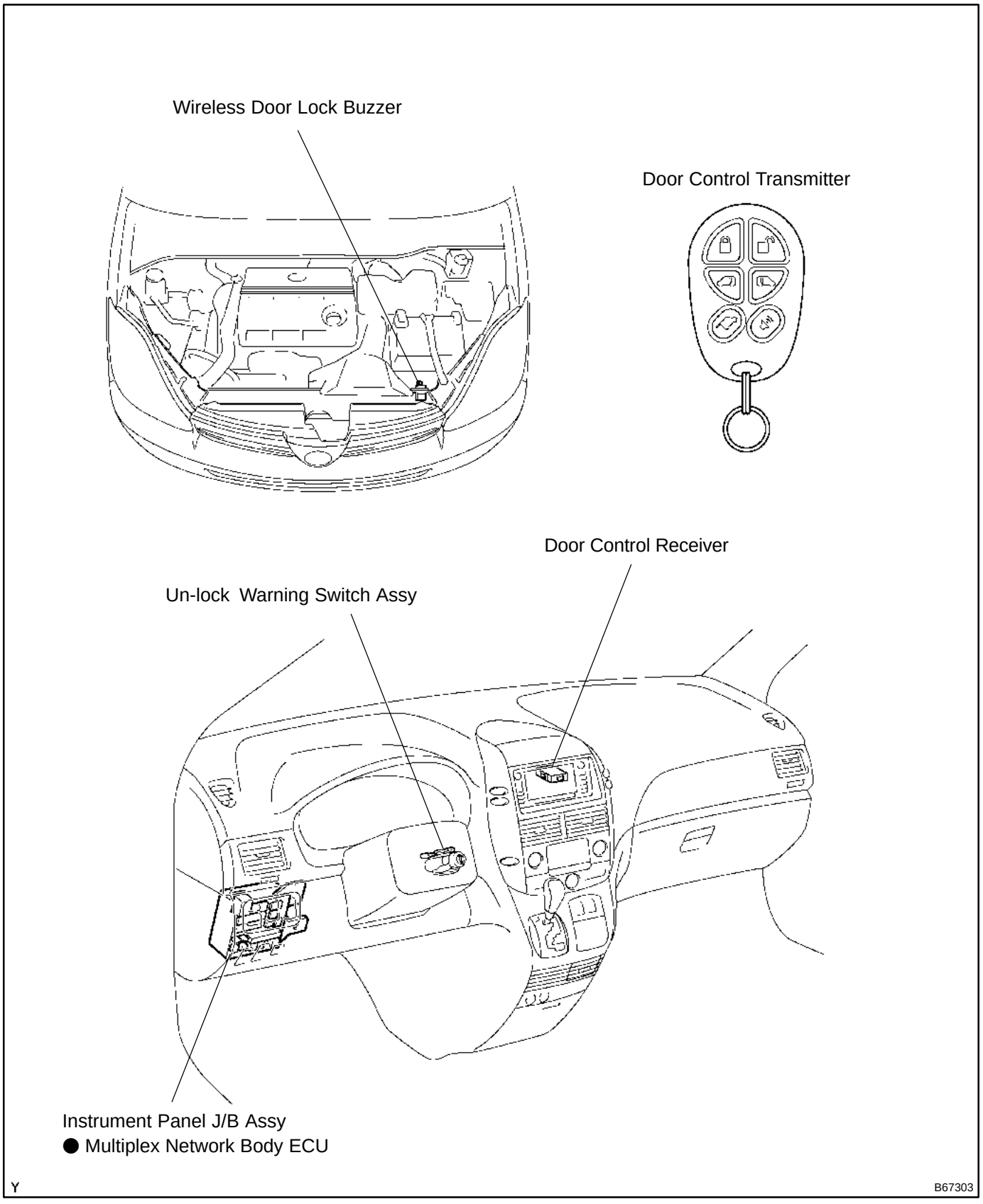
052IE-04

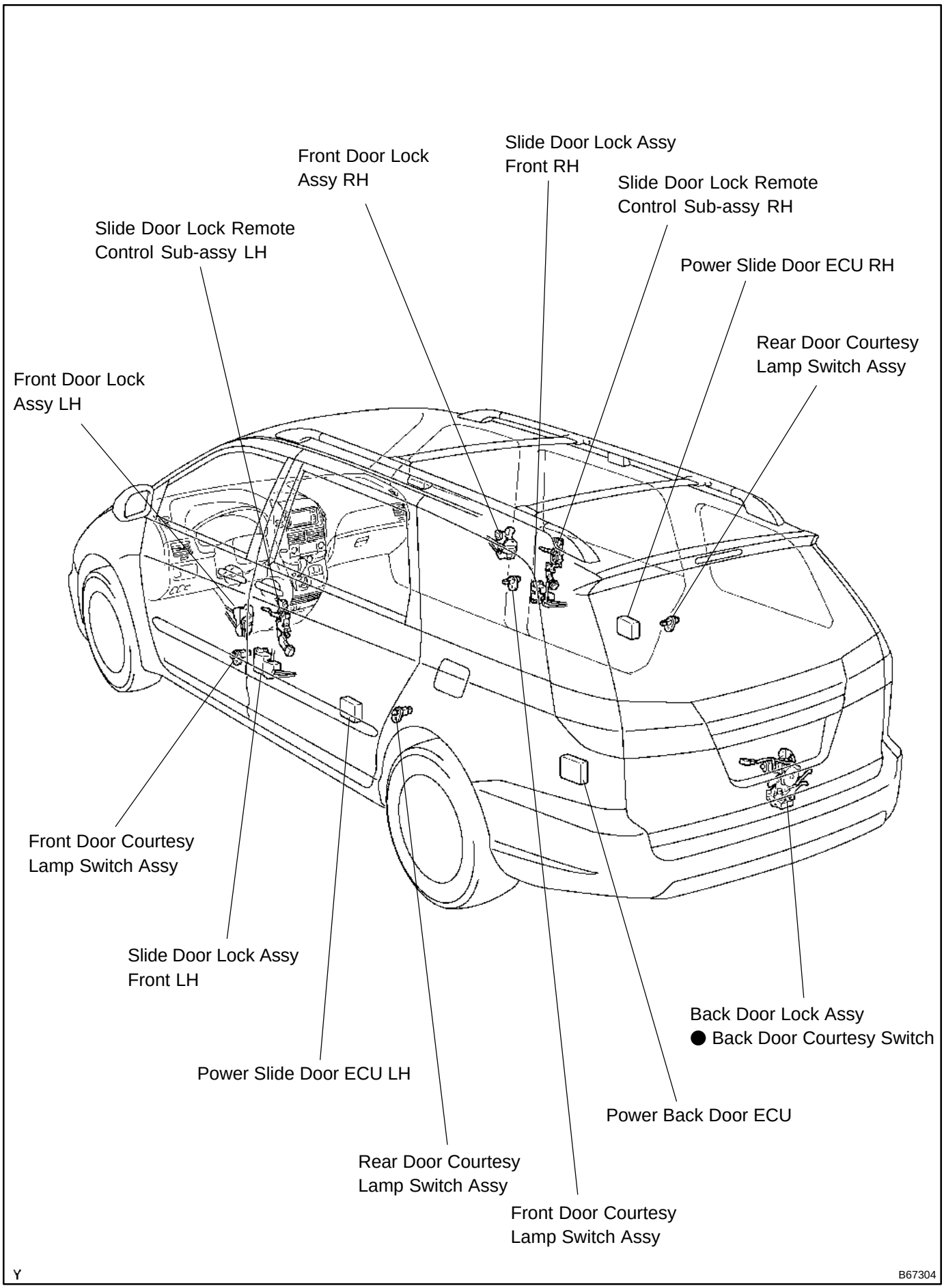
# LOCATION



05BQ2-02

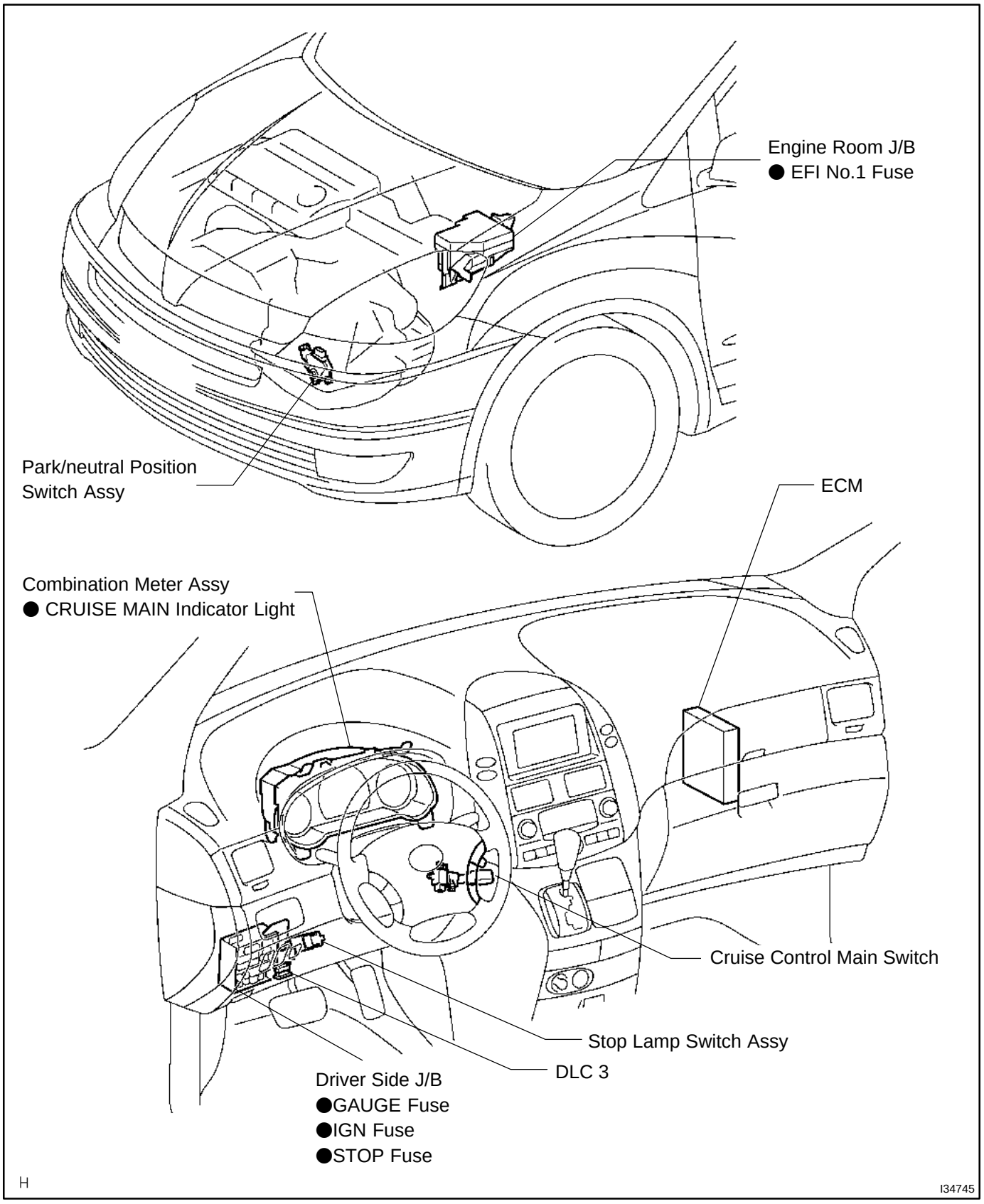
# LOCATION




Front Door Lock Assy RH
Slide Door Lock Assy Front RH
Slide Door Lock Remote Control Sub-assy RH
Slide Door Lock Remote Control Sub-assy LH
Power Slide Door ECU RH
Rear Door Courtesy Lamp Switch Assy
Front Door Lock Assy LH
Front Door Courtesy Lamp Switch Assy
Slide Door Lock Assy Front LH
Back Door Lock Assy
● Back Door Courtesy Switch
Power Slide Door ECU LH
Power Back Door ECU
Rear Door Courtesy Lamp Switch Assy
Front Door Courtesy Lamp Switch Assy
Y
B67304

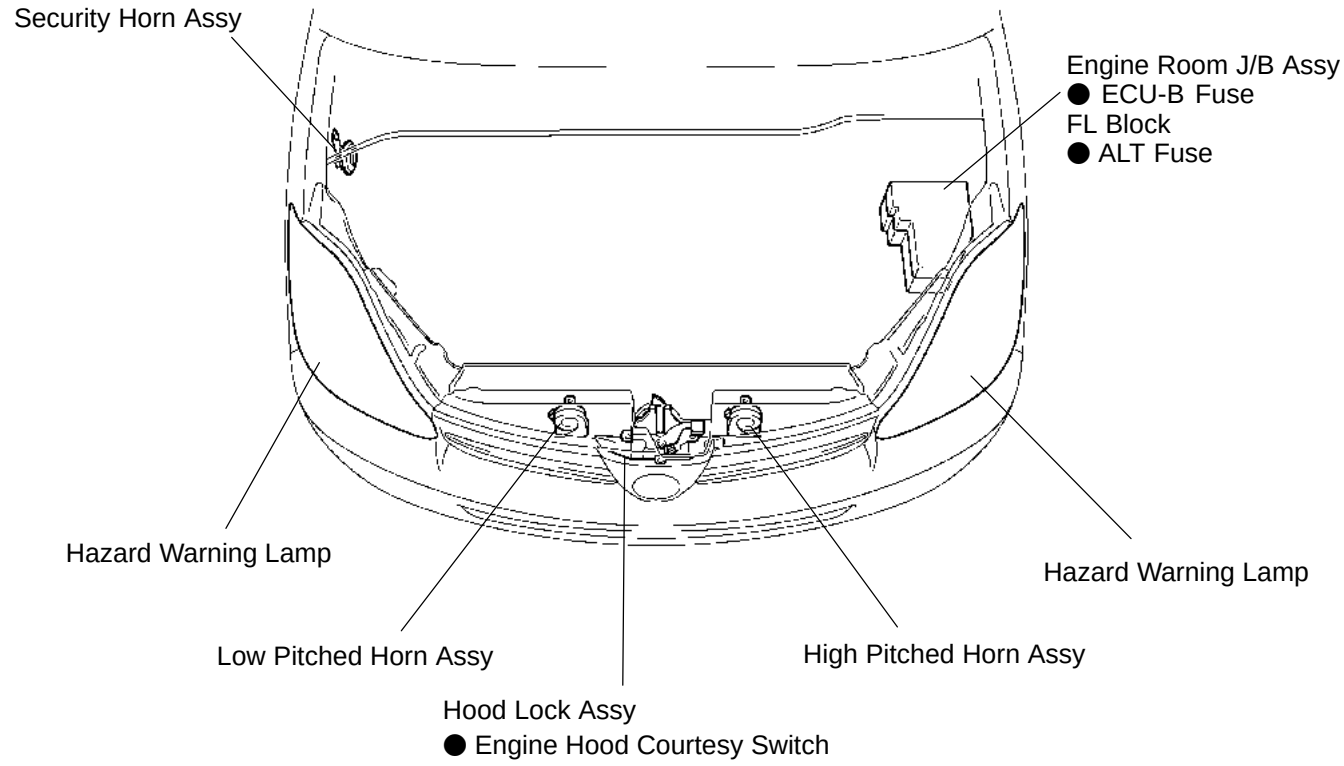
05B30-06

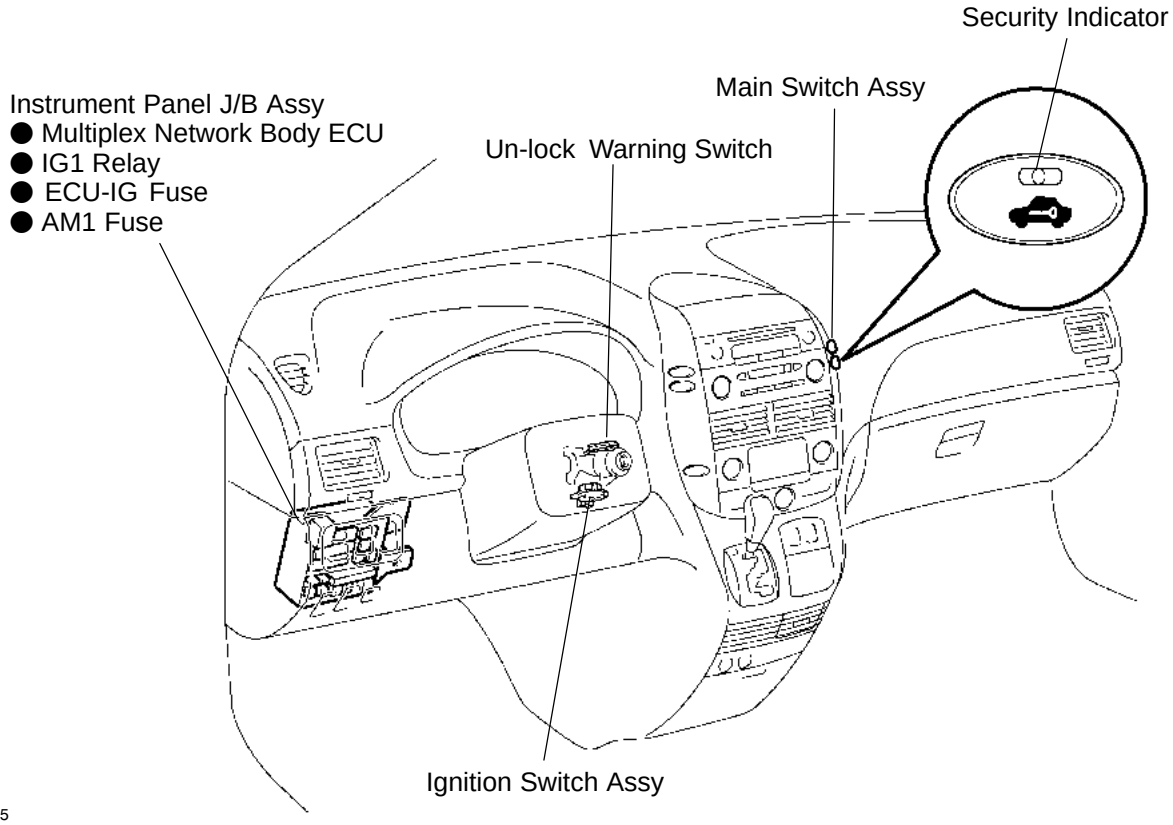
# LOCATION



05B9Y-01

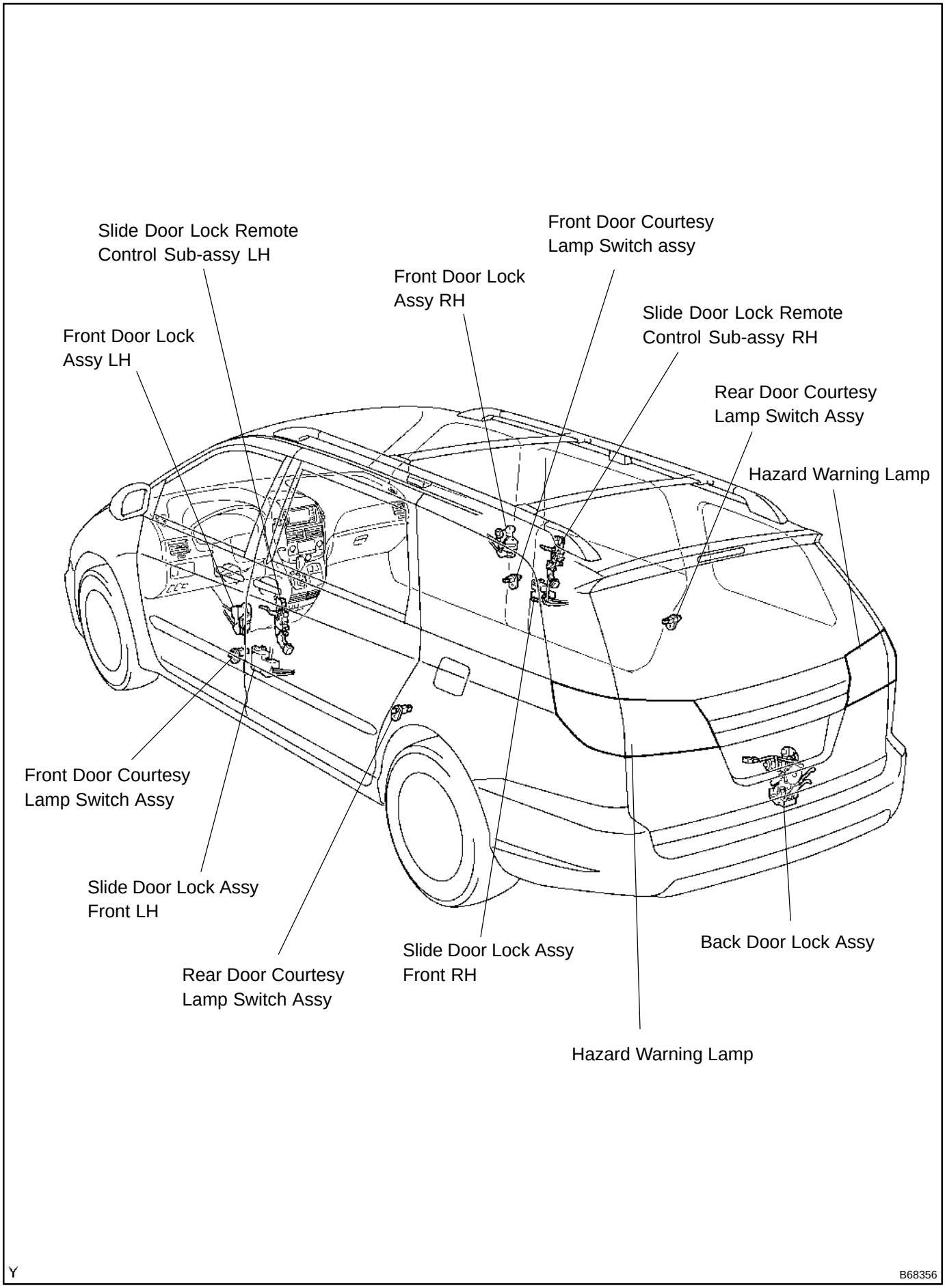
# LOCATION



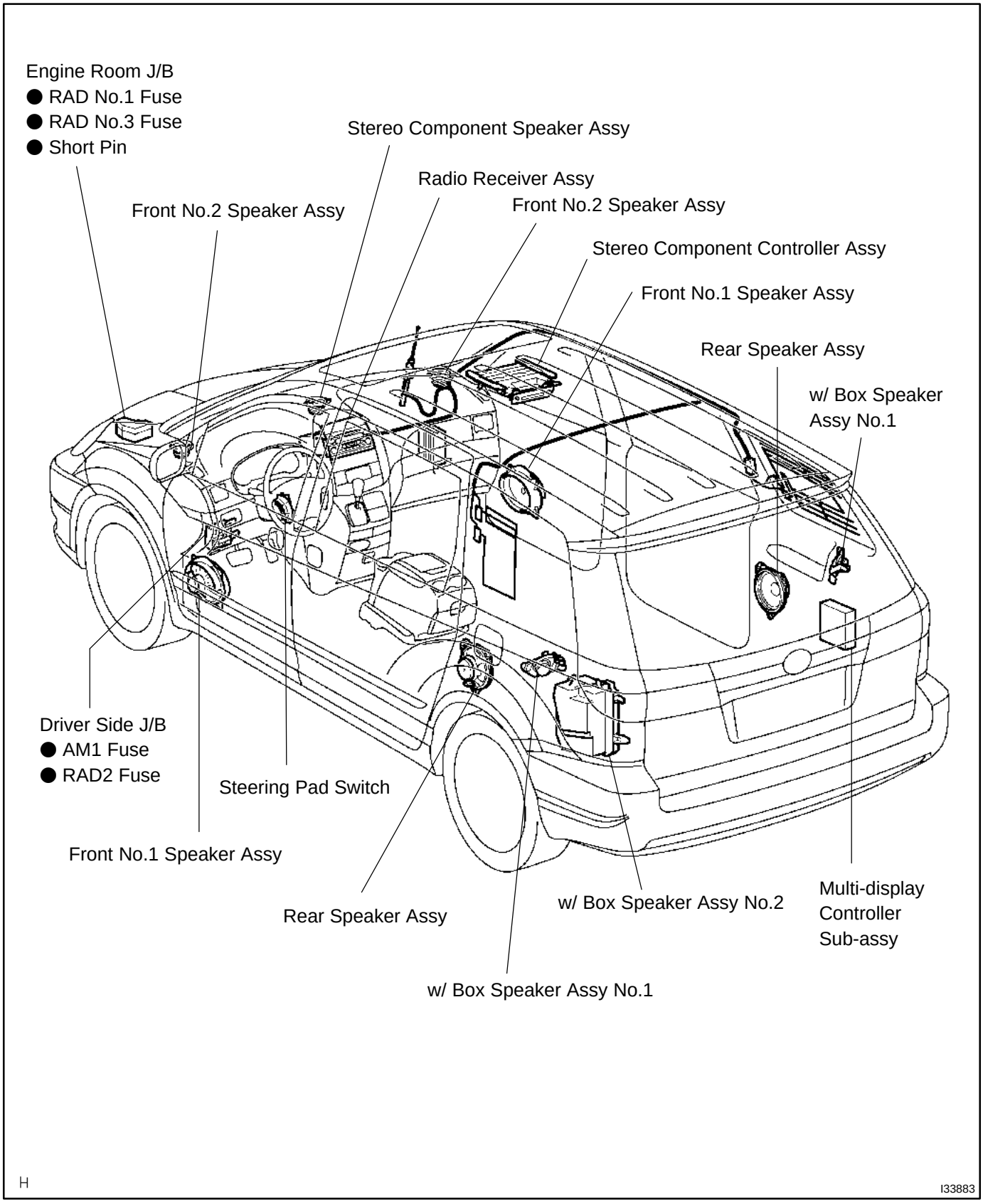

B67845
B67844

B68355


Slide Door Lock Remote Control Sub-assy LH
Front Door Courtesy Lamp Switch assy
Front Door Lock Assy RH
Slide Door Lock Remote Control Sub-assy RH
Front Door Lock Assy LH
Rear Door Courtesy Lamp Switch Assy
Hazard Warning Lamp
Front Door Courtesy Lamp Switch Assy
Slide Door Lock Assy Front LH
Back Door Lock Assy
Slide Door Lock Assy Front RH
Rear Door Courtesy Lamp Switch Assy
Hazard Warning Lamp
Y
B68356

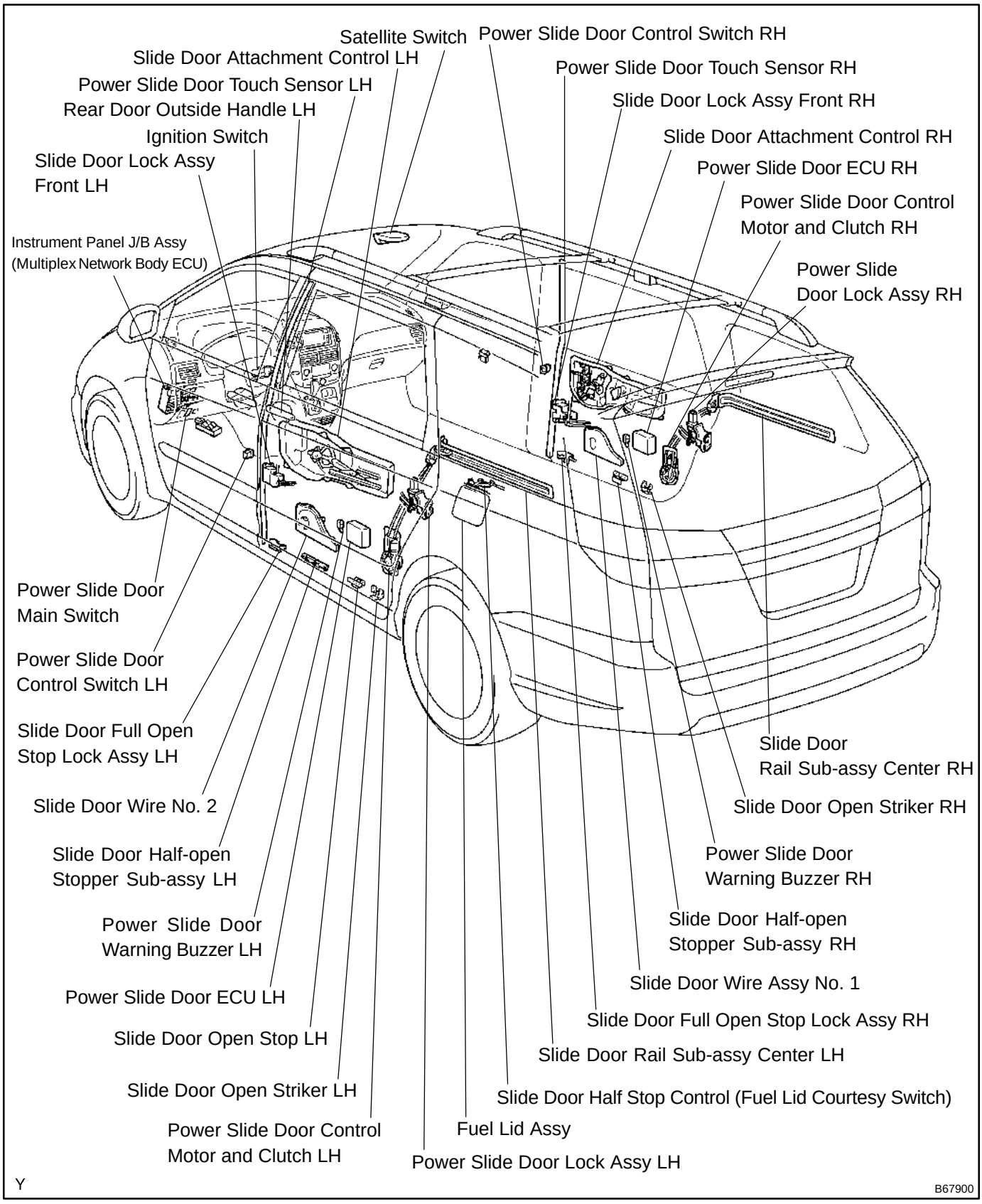
055LK-05

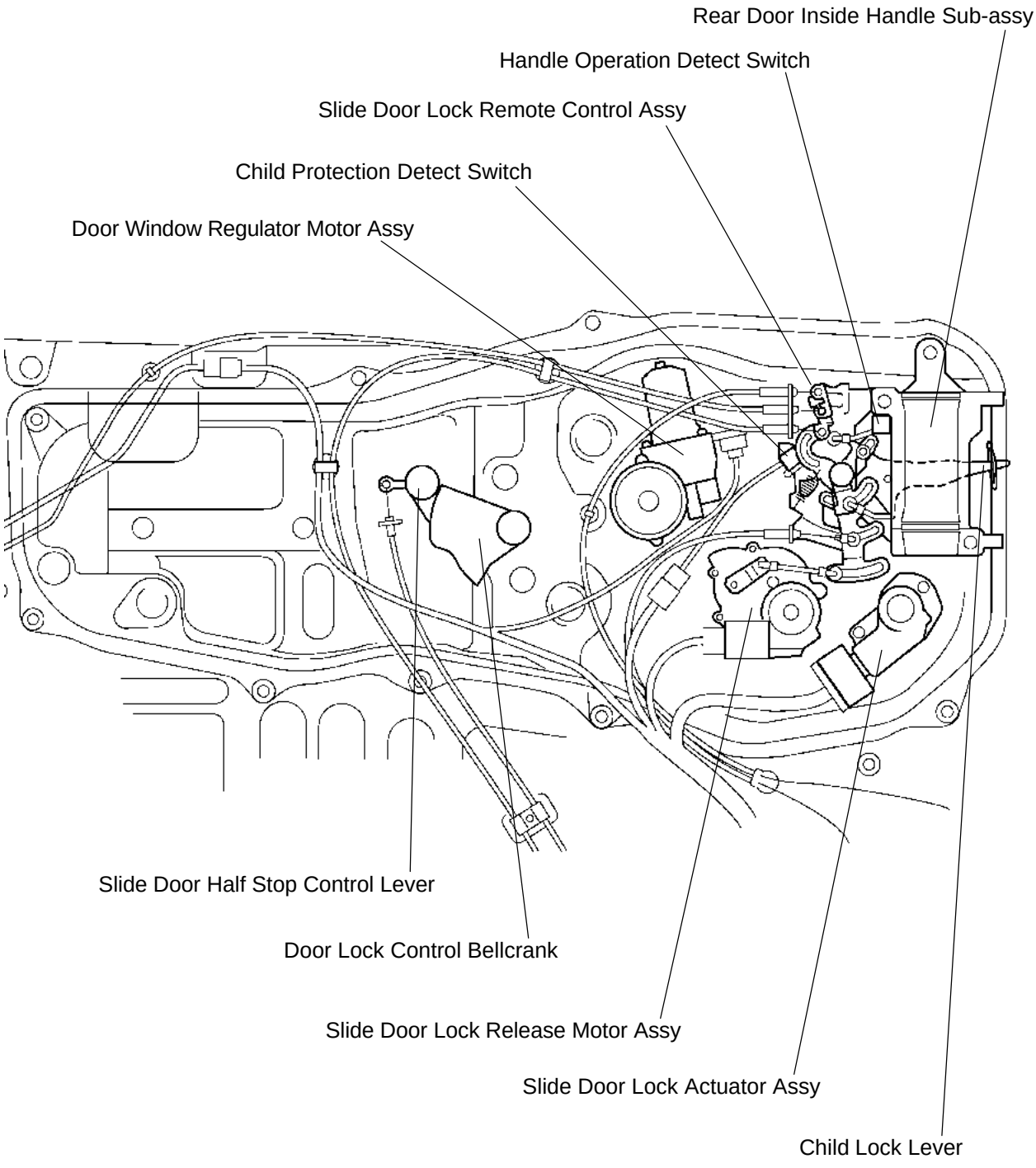
# LOCATION



05BZ7-01

# LOCATION





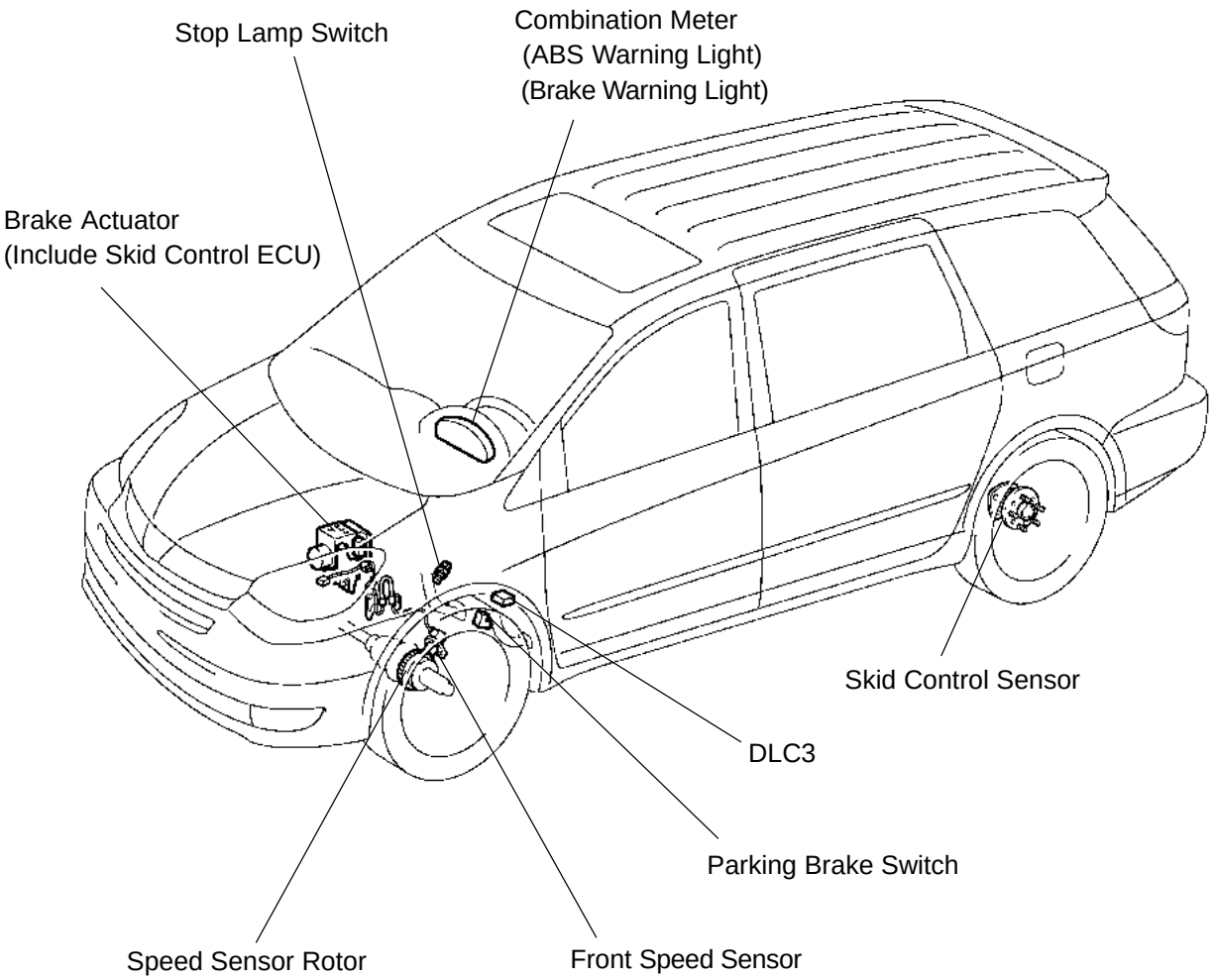

HINT:
In the RH door, look at the same location on the opposite side as compared to the LH door.

T

B68396

057UB-03

# LOCATION

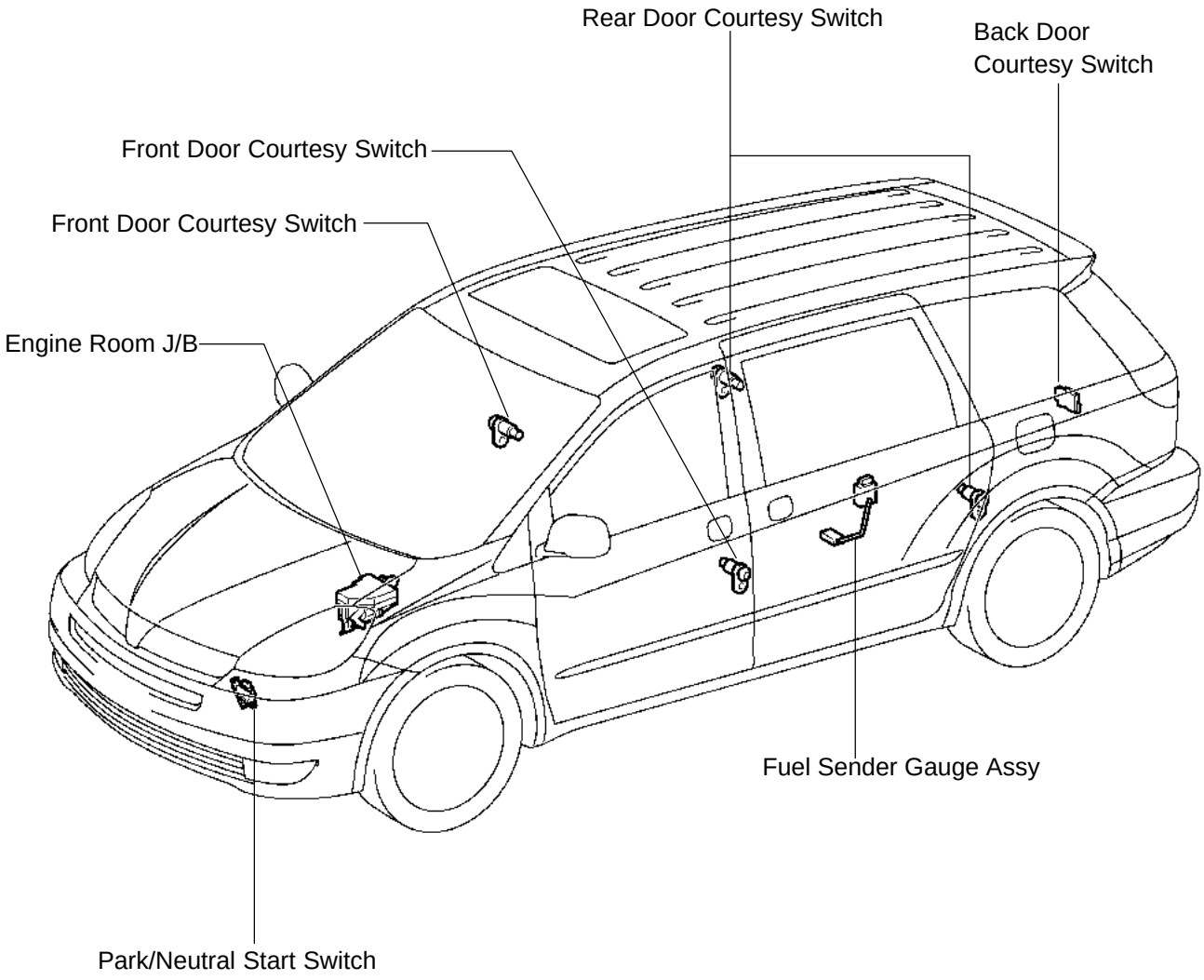



N

F45083

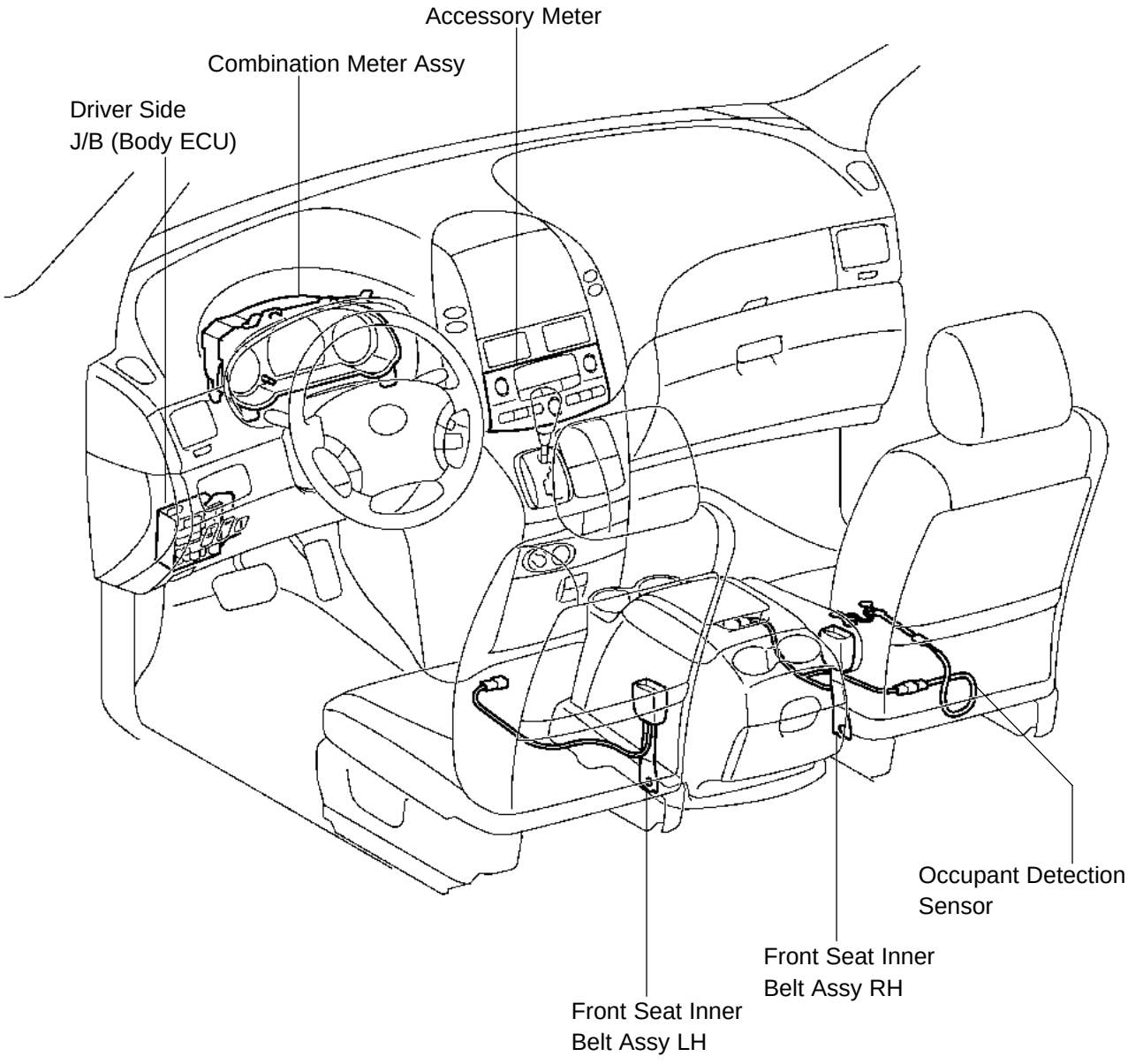
056E9-03

# LOCATION



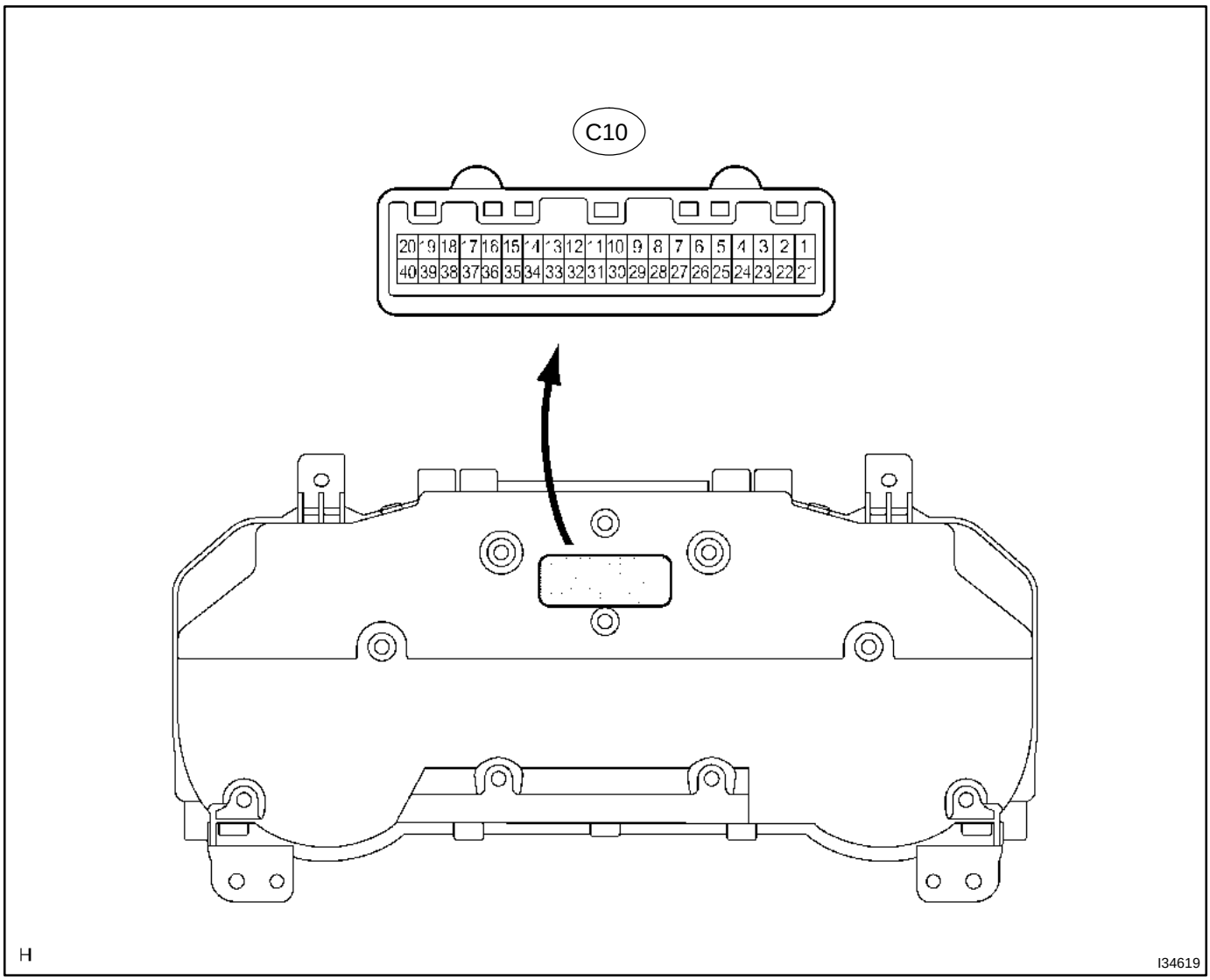

H

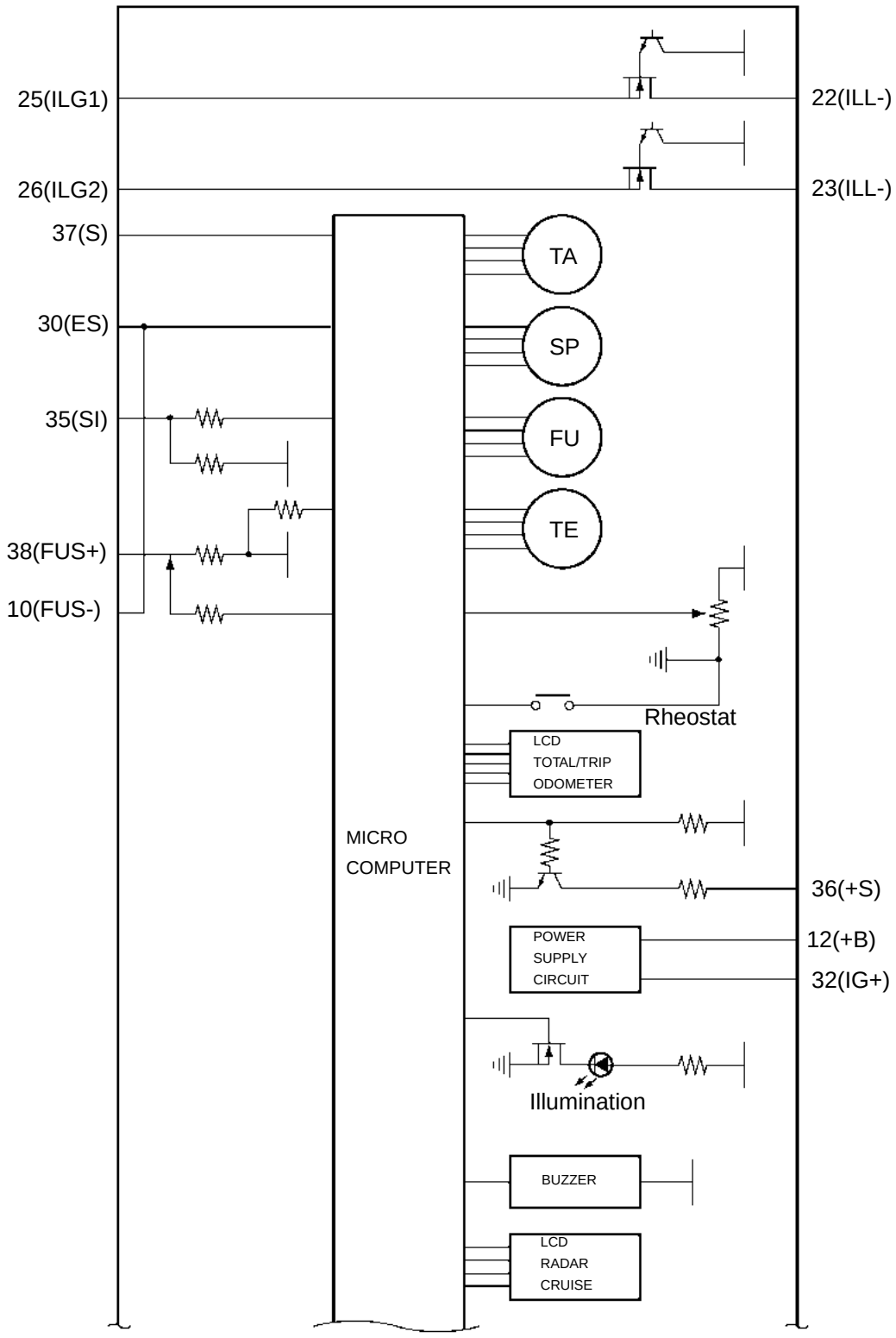
I34617


Accessory Meter
Combination Meter Assy
Driver Side
J/B (Body ECU)
Occupant Detection
Sensor
Front Seat Inner
Belt Assy RH
Front Seat Inner
Belt Assy LH

H

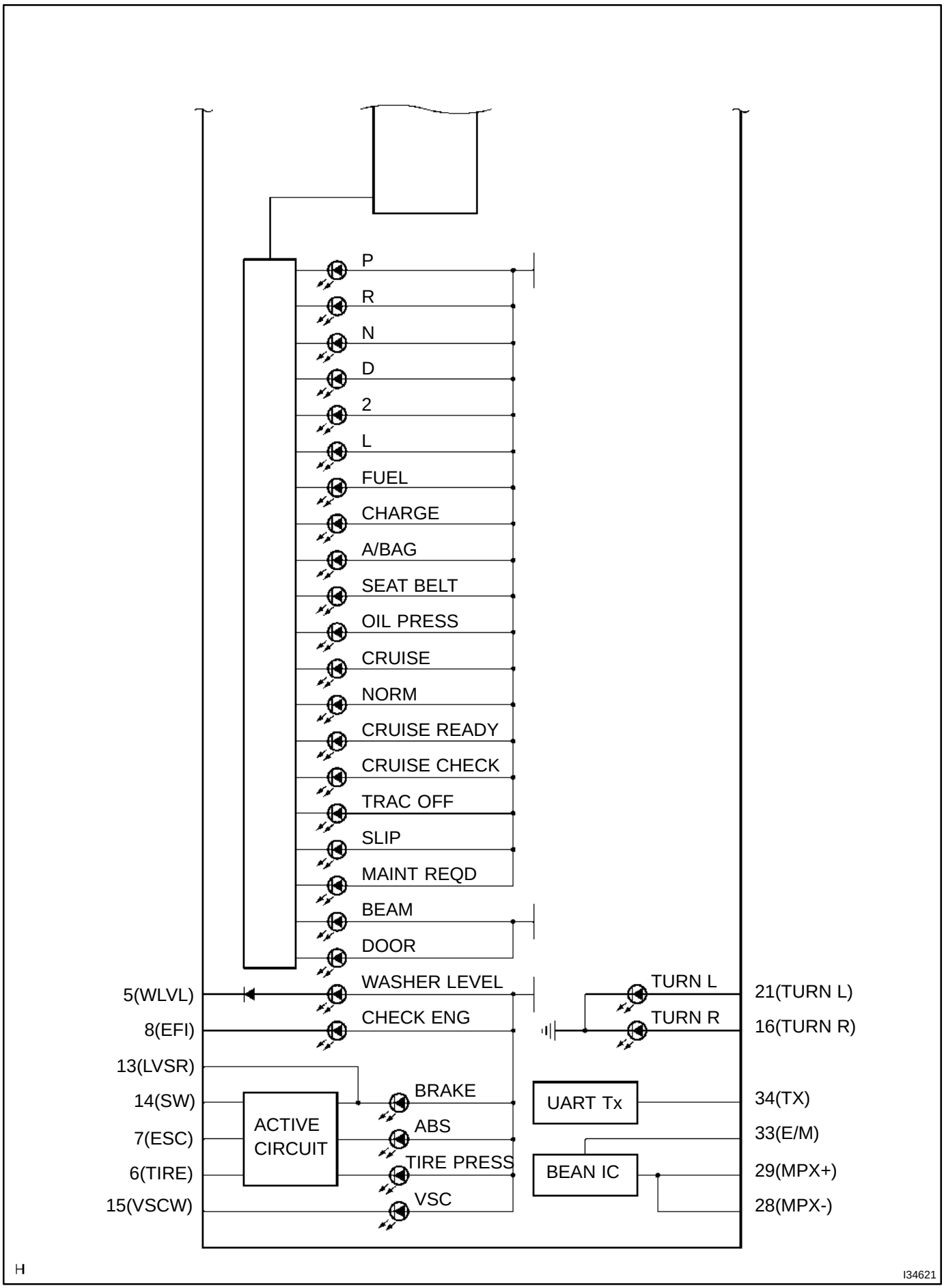
I34618


C10
20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21
H
I34619


25(ILG1)
26(ILG2)
37(S)
30(ES)
35(SI)
38(FUS+)
10(FUS-)
22(ILL-)
23(ILL-)
TA
SP
FU
TE
Rheostat
LCD
TOTAL/TRIP
ODOMETER
MICRO
COMPUTER
36(+S)
POWER
SUPPLY
CIRCUIT
12(+B)
32(IG+)
Illumination
BUZZER
LCD
RADAR
CRUISE

H

I34620

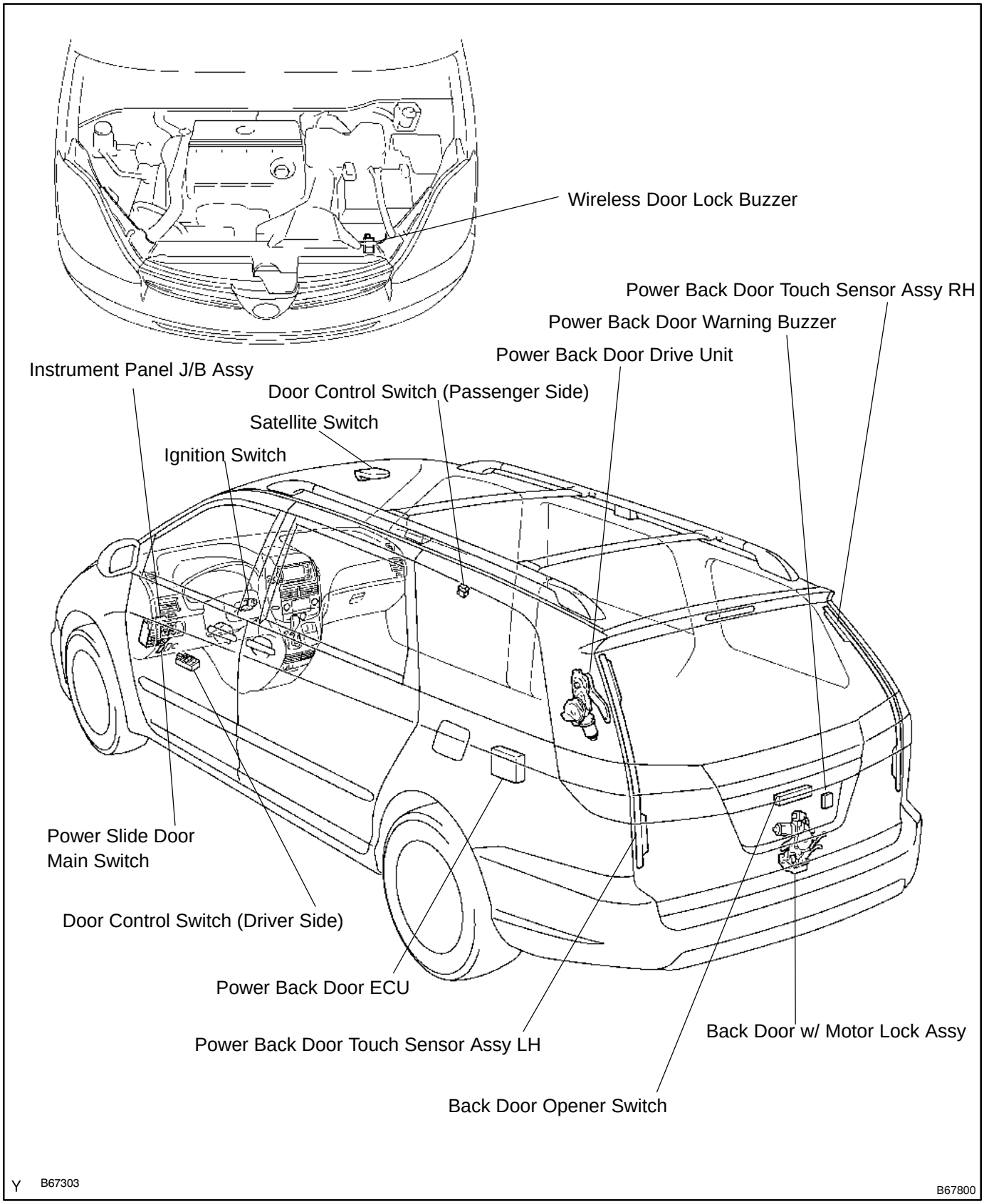

P
R
N
D
2
L
FUEL
CHARGE
A/BAG
SEAT BELT
OIL PRESS
CRUISE
NORM
CRUISE READY
CRUISE CHECK
TRAC OFF
SLIP
MAINT REQD
BEAM
DOOR
WASHER LEVEL
CHECK ENG
5(WLVL)
8(EFI)
13(LVSR)
14(SW)
7(ESC)
6(TIRE)
15(VSCW)
ACTIVE CIRCUIT
BRAKE
ABS
TIRE PRESS
VSC
TURN L
TURN R
21(TURN L)
16(TURN R)
UART Tx
34(TX)
33(E/M)
BEAN IC
29(MPX+)
28(MPX-)
H
I34621

| Terminal No. | | Wire harness side |
|---|---|---|
| C10 | 1 | - |
| | 2 | - |
| | 3 | - |
| | 4 | - |
| | 5 | Washer Level Switch |
| | 6 | Skid Control ECU |
| | 7 | Skid Control ECU |
| | 8 | ECM |
| | 9 | - |
| | 10 | Fuel Sender Gauge |
| | 11 | - |
| | 12 | ECU-B Fuse |
| | 13 | Brake Level Switch |
| | 14 | Skid Control ECU |
| | 15 | Skid Control ECU |
| | 16 | Flasher Relay |
| | 17 | - |
| | 18 | - |
| | 19 | - |
| | 20 | - |
| | 21 | Flasher Relay |
| | 22 | PANEL Fuse |
| | 23 | PANEL Fuse |
| | 24 | - |
| | 25 | GND |
| | 26 | GND |
| | 27 | - |
| | 28 | ECM |
| | 29 | Body ECU |
| | 30 | GND |
| | 31 | - |
| | 32 | GAUGE Fuse |
| | 33 | Accessory Meter |
| | 34 | Accessory Meter |
| | 35 | Skid Control ECU |
| | 36 | ECM |
| | 37 | ECM |
| | 38 | Fuel Sender Gauge |
| | 39 | - |
| | 40 | - |

# POWER BACK DOOR SYSTEM

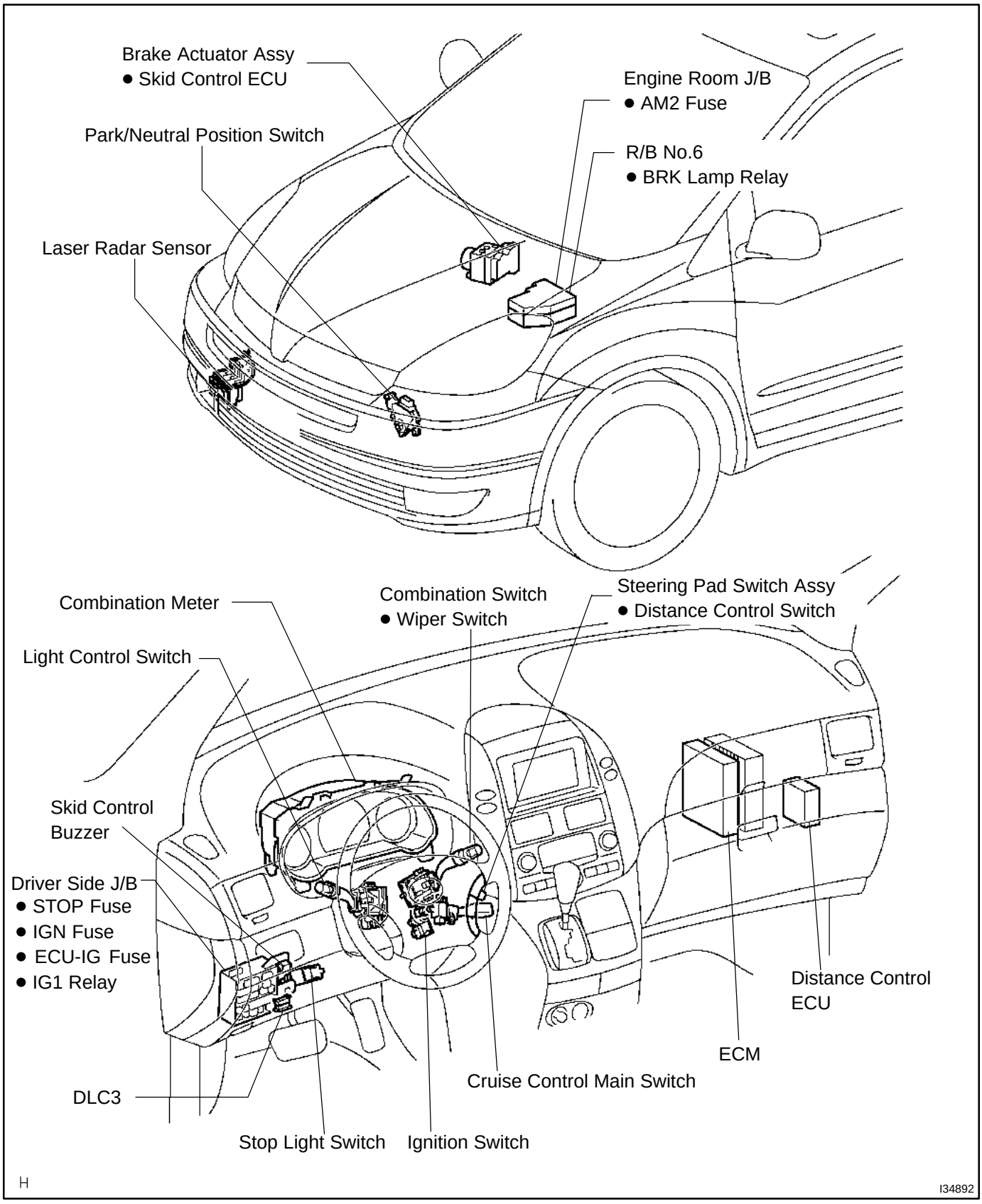
750ME-01

## LOCATION

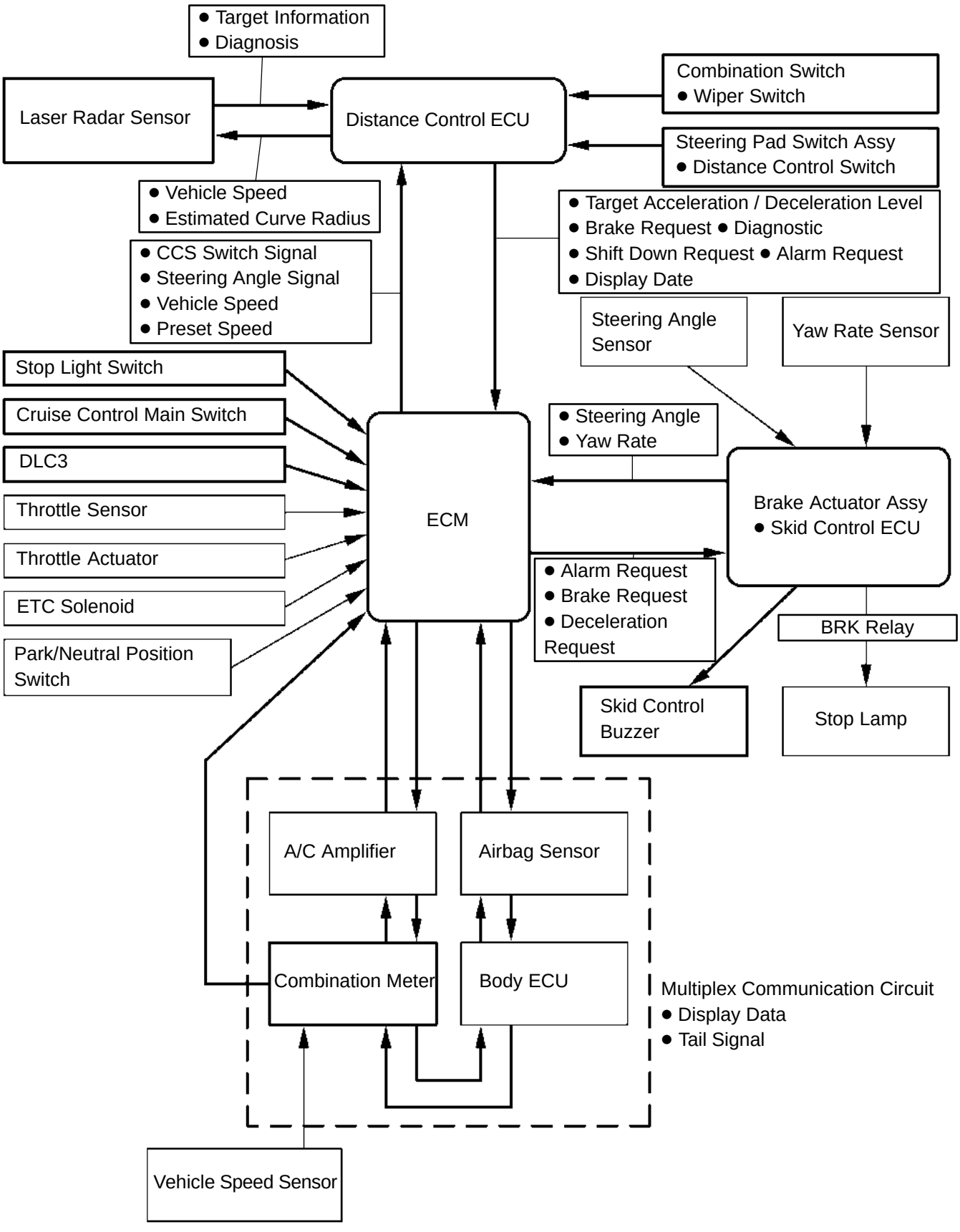


05BE3-02

# LOCATION



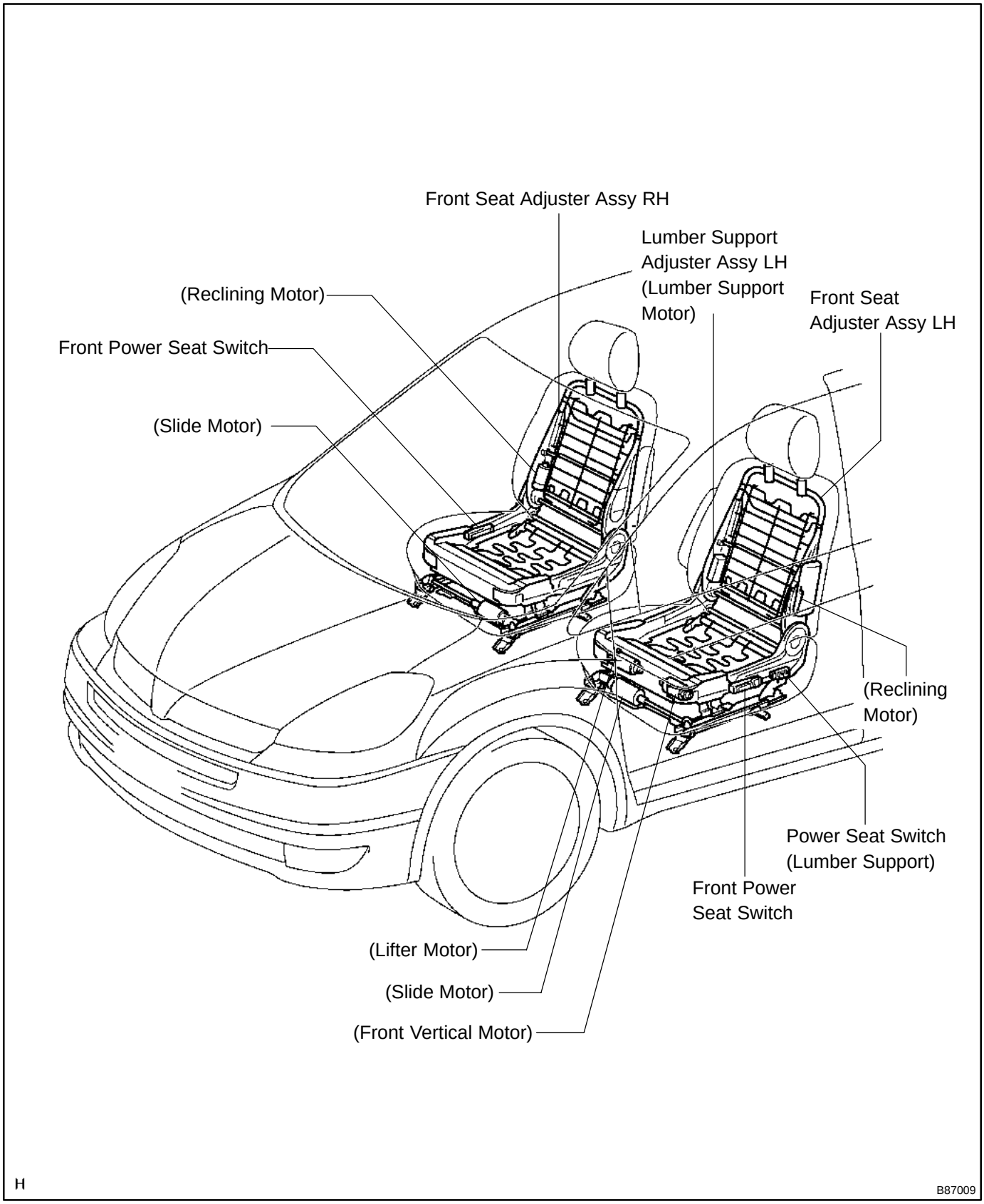
**Dynamic Laser Cruise Control System:**

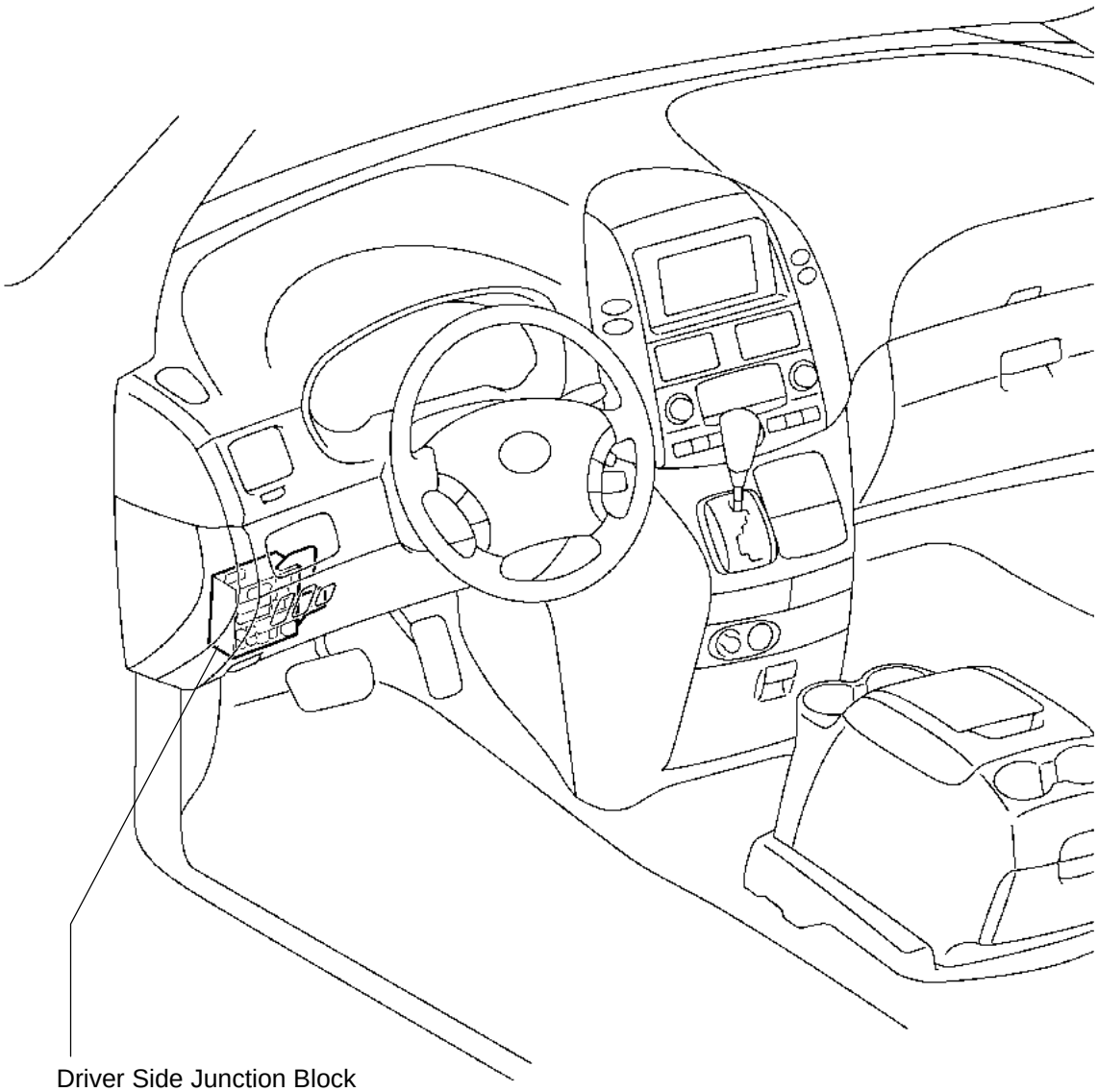


# FRONT POWER SEAT CONTROL SYSTEM

720Z1-01

## LOCATION



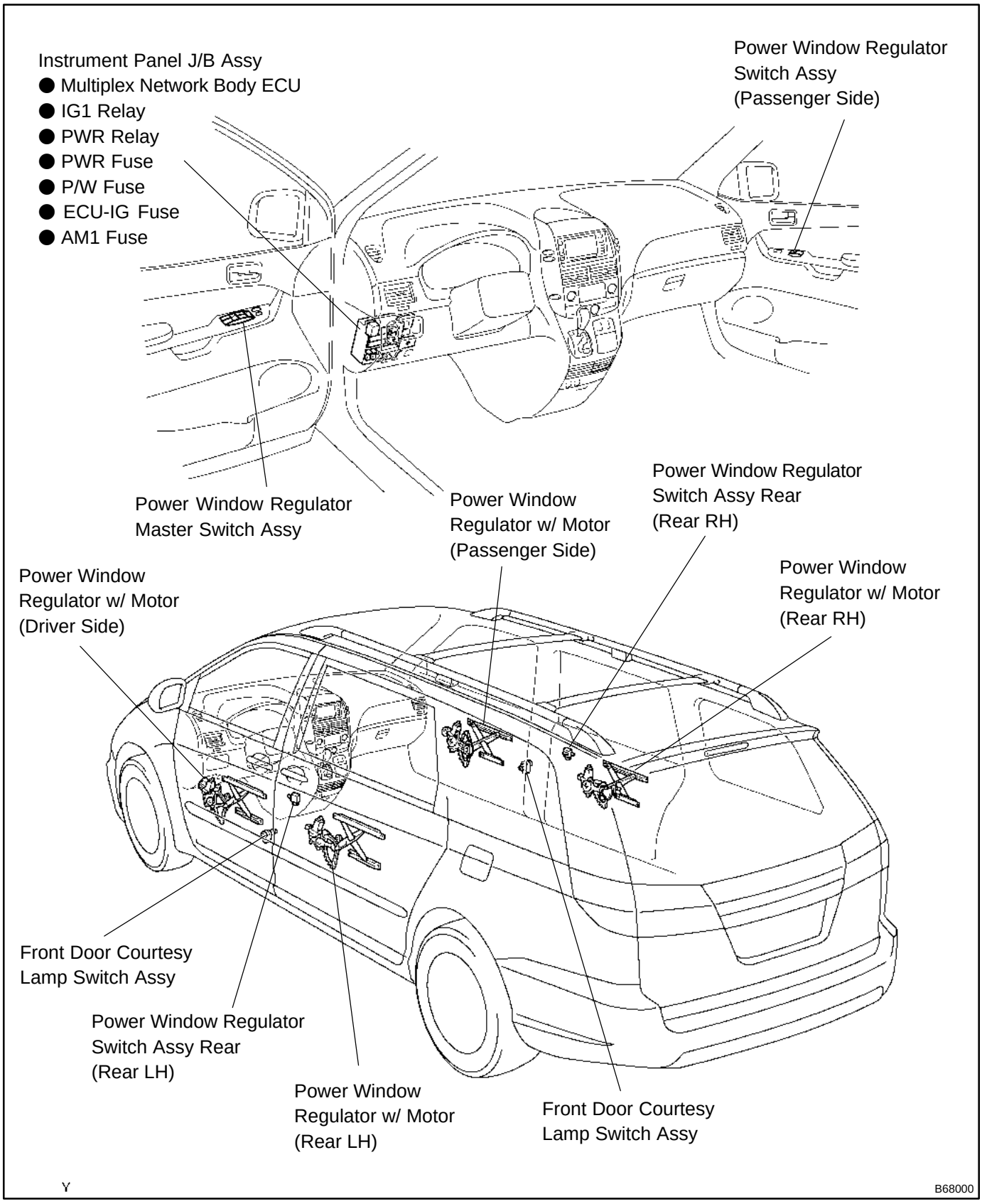



H

B87008

059YO-02

# LOCATION



# TRANSFER SYSTEM (4WD)

3100Q-02

## PRECAUTION

- **Before disassembly, clean the transfer assy and remove any deposited sand or mud to prevent it from entering the inside of the transfer during disassembly and assembly.**
- **When removing any light alloy part such as a transfer cover, do not pry it off with a tool like a screwdriver but tap it out with a plastic hammer.**
- **Always organize the removed parts properly and protect them from dust.**
- **Before installation, clean all parts and dry them completely and then, apply hypoid gear oil to each part. Do not use alkaline chemicals when cleaning aluminum or rubber parts and ring gear set bolts. Also, do not use any cleansing oil (ex. white gasoline) to clean the rubber parts such as O rings and oil seals.**
- **Apply hypoid gear oil to any sliding surface or rotating part.**
- **Do not directly hold a part by a vise. Make sure that you put an aluminum sheet between them.**
- **Replace any damaged or deformed snap ring with a new one.**
- **If there is a scratch on the mating surface of the case, it may cause oil leakage. Therefore, be careful not to damage the contact surface when handling it.**
- **Before applying a sealant, completely remove old sealant stuck on sealed parts and clean them with white gasoline.**
- **Do not supply oil immediately after installing sealed parts. Leave 1 hour or more.**
- **Scratches on a contact surface of an oil seal, O ring or gasket may cause oil leakage. Be careful not to damage the contact surface when handling it.**
- **When press-fitting an oil seal, be careful not to damage the oil seal lip and its periphery.**
- **When replacing a bearing , replace both outer and inner races as one set.**

# POWER STEERING SYSTEM

510D9-02

## PRECAUTION

### 1. HANDLING PRECAUTIONS ON STEERING SYSTEM

(a) Care must be taken to when replacing parts. Incorrect replacement could affect the performance of the steering system and result in a driving hazard.

### 2. HANDLING PRECAUTIONS ON SRS AIRBAG SYSTEM

(a) The vehicle is equipped with SRS (Supplemental Restraint System) such as the driver airbag and front passenger airbag. Failure to carry out service operation in correct sequence could cause the SRS to unexpectedly deploy during servicing, possibly leading to a serious accident. Before servicing (including removal or installation of parts, inspection or replacement), be sure to read the precautionary notice for the supplemental restraint system (See page 60-1 ).

# FUEL SYSTEM

110SW-01

## PRECAUTION

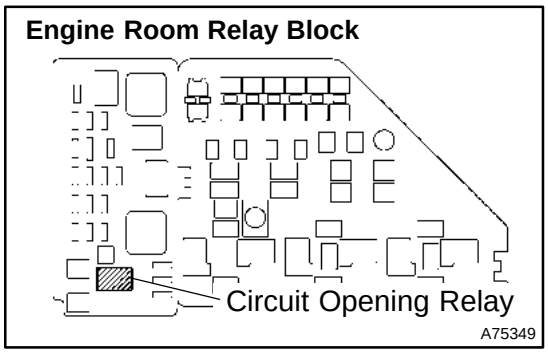
**1. PRECAUTION**

(a) Before working on fuel system, disconnect negative (-) battery cable.
(b) Do not smoke or work near fire when handling the fuel system.
(c) Keep gasoline away from rubber or leather parts.
(d) Replace the fuel tank with a new one if the vehicle has been damaged, resulting in airbag deployment.

**2. DISCHARGE FUEL SYSTEM PRESSURE**

**CAUTION:**

- **Do not disconnect any part of the fuel system until you have discharged the fuel system pressure.**
- **Even after discharging the fuel pressure, place a shop rag over fittings as you separate them to reduce risk of fuel spray on yourself or in the engine compartment.**




(a) Remove the circuit opening relay from the engine room relay block.
(b) Start the engine. After the engine stopped, turn the ignition switch OFF.

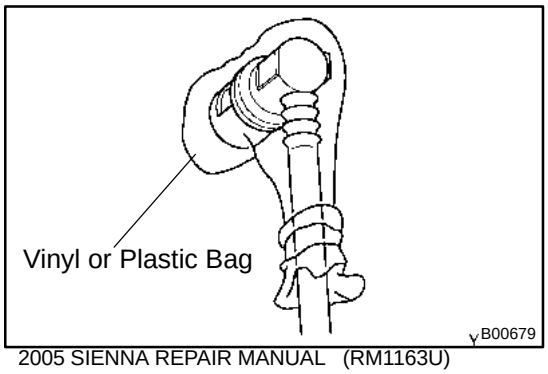
HINT:

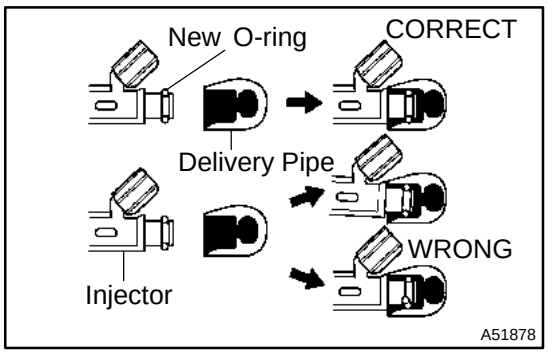
It is possible that DTC P0171 (system too lean) will be set.

(c) Check that the engine does not start.
(d) Remove the fuel tank cap, and let the air out of the fuel tank.
(e) Disconnect the negative (-) battery cable.
(f) Reinstall the circuit opening relay.

**3. FUEL SYSTEM**

(a) When disconnecting the high fuel pressure line, a large amount of gasoline will spill out, so observe these procedures.
  (1) Discharge fuel system pressure. (See step 2)
  (2) Disconnect the fuel pump tube.
  (See page 11-21 )
  (3) Drain the fuel that remained inside the fuel pump tube.
  (4) Cover the disconnected fuel pump tubes with a vinyl or a plastic bag to prevent damage and dirt.
  (5) Place a tray under the vehicle or point of disconnection to catch any fuel that may spill.





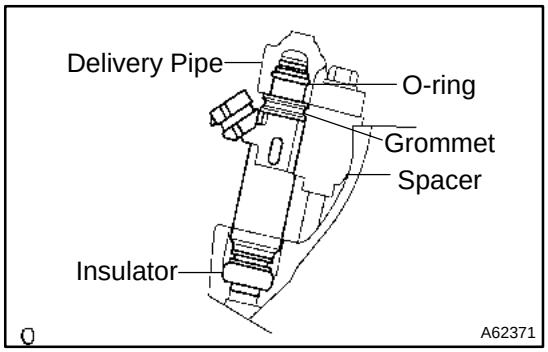

(b) Observe the following precautions when removing and installing fuel injectors.

**NOTICE:**

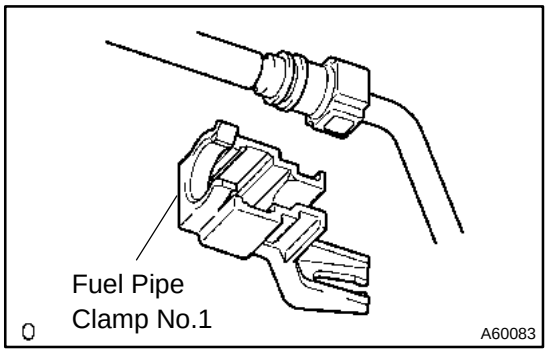
**Never reuse the O-ring.**

(1) When installing a new O-ring to the injector, be careful not to damage the injector.

(2) Coat the new O-ring with grease or gasoline before installing. Never use engine oil, gear oil or brake oil.



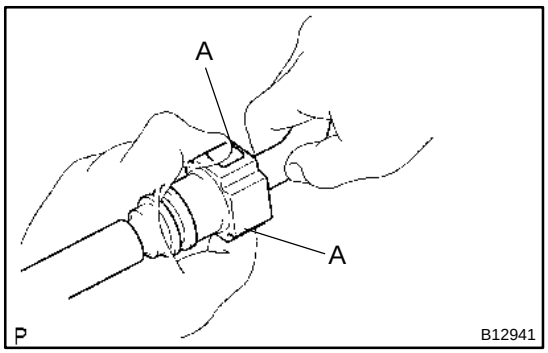

(c) Install the injector to the delivery pipe and the cylinder head as shown in the illustration. Before installing the injector, be sure to apply grease or gasoline on the place where the delivery pipe contacts the O-ring of the injector.



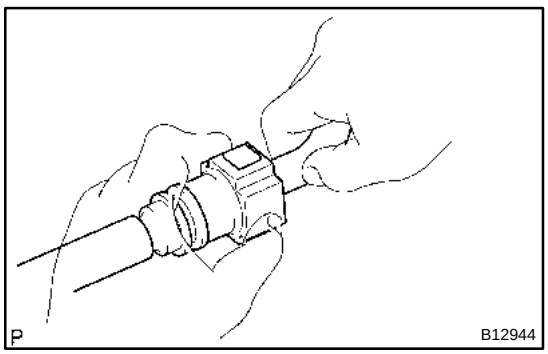

(d) Observe these precautions when disconnecting the fuel tube connector.

(1) Disconnect the fuel pipe clamp from the connector.

(2) Check that there is no dirt or mud on the pipe and around the connector before disconnecting them. Clean them if necessary.

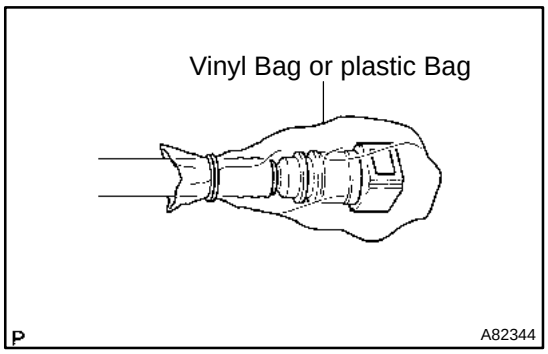



(3) Disconnect the connector from the hose while pinching part A with fingers as shown in the illustration.

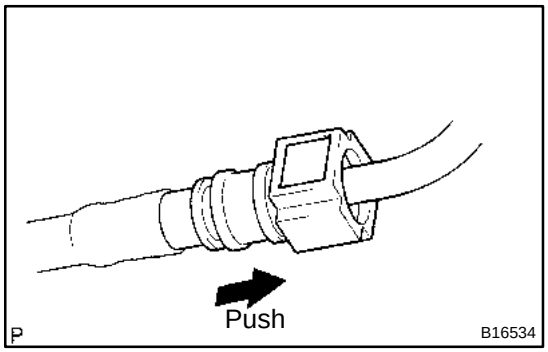


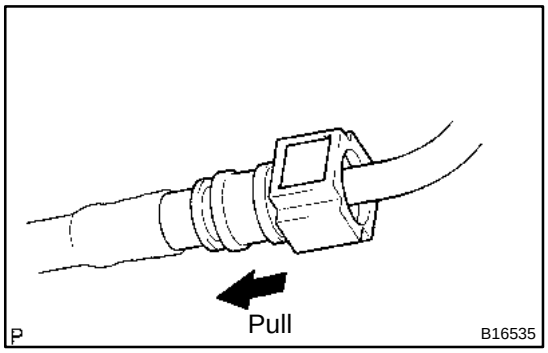

(4) When the connector and the pipe are stuck, push and pull the connector to release and pull the connector out from the pipe carefully.

(5) Inspect that there is no dirt or mud on the sealing surface of the disconnected pipe. Clean it away if necessary.




(6) To prevent the disconnected pipe and connector from being damaged and foreign objects from being introduced,cover them with a vinyl or plastic bag.




(e) Observe these precautions when connecting the fuel tube connectors (Quick Type):
(1) Check that there is no damage or foreign objects in the connected part of the pipe.
(2) Match the axis of the connector with the axis of the pipe, and push into the connector until the connector makes a ”click” sound. If the connection is tight, apply little amount of fresh engine oil on the tip of the pipe.
(3) After having finished connection, check if the pipe and the connector are securely connected by pulling on them.
(4) Check for fuel leaks.

**4. CHECK FOR FUEL LEAKS**

(a) Check that there are no fuel leaks after doing maintenance anywhere on the fuel system.
(See page 11-4 )

# DRIVE SHAFT, PROPELLER SHAFT, AXLE

300J6-01

## PRECAUTION

### 1. NOTICE OF REMOVING AND INSTALLING FRONT DRIVE SHAFT ASSY RH

(a) When removing and installing the front drive shaft assy RH in the 4WD vehicle, drain all the transaxle oil and transfer oil. If the removal and installation is performed without draining these oils, the transfer oil will flow into the transaxle side, which will mix these 2 different oils. In this case, cleaning the inside of the transaxle and the transfer is required.

# BRAKE SYSTEM

32038-06

## PRECAUTION

- **Care must be taken to replace each part properly as it could affect the performance of the brake system and result in a driving hazard. Replace the parts with parts having the same part number or equivalent.**
- **It is very important to keep parts and the area clean when repairing the brake system.**
- **If the vehicle is equipped with a mobile communication system, refer to the precaution in the INTRODUCTION.**

# LIGHTING SYSTEM

059VY-02

## PRECAUTION

### 1. PRECAUTION OF HEADLIGHT BULB REPLACEMENT

(a) When any defects such as deformation, crack, dent, chipping, etc. are identified on the discharge headlight (especially, on the light control ECU), replace it with a new one.

(b) Even if the operation seems to be normal, the fail-safe function may be defective.

(c) Be careful not to scratch or drop bulbs of the discharge headlight and halogen bulbs (for headlights and fog lights) as they have pressurized gas inside and can be easily broken.

(d) Touching the HV socket of the discharge headlight with the headlight dimmer switch ON could generate momentary high voltage of 20,000 V and lead to a serious injury.

(e) Never connect a tester to the high voltage socket of the discharge headlight for measurement, as this leads to a serious injury because of high voltage.

(f) When performing operation related to the discharge headlight, keep it away from water including rain, turn off the light control switch, and disconnect the battery terminal and the connector of the light control ECU in advance to avoid electric shock.

(g) When performing operation related to the discharge headlight, start it after assembling is completed and never turn the lights without a bulb installed.

(h) Do not turn the discharge headlight on using another power source except vehicle's.

# SUPPLEMENTAL RESTRAINT SYSTEM

05IV0-04

## PRECAUTION

### 1. HANDLING PRECAUTIONS AIRBAG SENSOR

HINT:

In this section, the airbag sensor assy center, airbag sensor front LH, airbag sensor front RH, side airbag sensor assy LH, side airbag sensor assy RH, airbag sensor rear LH, airbag sensor rear RH and seat position airbag sensor are collectively referred to as the airbag sensor.

(a) Before starting the following operations, wait at least 90 seconds after disconnecting the negative (-) terminal of the battery:
  (1) Replacement of the airbag sensor.
  (2) Adjustment of the front/rear door of the vehicle equipped with the side airbag and curtain shield airbag (fitting adjustment).

(b) When connecting or disconnecting the airbag sensor connector, ensure that all of the sensors are installed in the vehicle.

(c) Do not use an airbag sensor which has been dropped during the operation or transportation.

(d) Do not disassemble the airbag sensor.

### 2. INSPECTION PROCEDURE FOR VEHICLE INVOLVED IN ACCIDENT

(a) When the airbag has not deployed, confirm the DTC by checking the SRS warning light. If there is any malfunction in the SRS airbag system, perform troubleshooting.

(b) When any of the airbags have deployed, replace the airbag sensor and check the installation condition.

(c) Perform the zero point calibration and sensitivity check if any of the following conditions occur.
- The occupant classification ECU is replaced.
- Accessories (seatback tray and seat cover, etc.) are installed.
- The passenger seat is removed from the vehicle.
- The passenger airbag ON/OFF indicator (”OFF”) comes on when the passenger seat is not occupied.
- The vehicle is brought to the workshop for repair due to an accident or collision.

**NOTICE:**

**When an accident vehicle is brought into the workshop for repair, check the flatness of the body side that is equipped with the passenger seat. If the flatness is not within ± 3.0 mm (0.118 in.), adjust it to the specified range (within ± 3.0 mm (0.118 in.)).**

# DIFFERENTIAL SYSTEM (4WD)

2900W-02

## PRECAUTION

1. **Before disassembly, clean the outside of the rear differential assy and remove any sand or mud to prevent it from entering the inside of the assembly during disassembly and installation.**
2. **When removing a connected part made of light alloy such as a rear differential carrier cover, tap it off with a plastic hammer. Do not attempt to pry it off with a screwdriver.**
3. **Always arrange disassembled parts in order and protect them from dust.**
4. **Before installation, thoroughly clean and dry each part and then apply hypoid gear oil LSD to it. Do not use alkaline cleaner for aluminum or rubber parts and ring gear set bolts. Also, do not clean rubber parts such as O-rings or oil seals with white gasoline.**
5. **Coat any sliding surface and rotating part with hypoid gear oil LSD.**
6. **When holding a component part by a vise, be sure to place an aluminum sheet under the part. Do not put it directly on the vise.**
7. **Be careful not to damage the contact surfaces of the case. Such damage may cause oil leakage.**
8. **Before applying sealant, remove deposited oil sealant and clean the part to be sealed using white gasoline.**
9. **Do not supply oil immediately after installing sealed parts. Leave it for at least an hour.**
10. **Damage on the surface of an oil seal, O-ring or gasket may cause oil leakage. Special attention should be paid.**
11. **When press-fitting an oil seal, be careful not to damage the oil seal lip and outside periphery.**
12. **When replacing a bearing, replace the inner and outer races as a set.**

# WIRELESS DOOR LOCK CONTROL SYSTEM

730E5-02

## PRECAUTION

**1. NOTICES WHEN CHECKING**

(a) Power door LOCK/UNLOCK function:

The wireless remote control function operates only when the following 3 conditions are satisfied.

(1) No key is inserted into the ignition key cylinder.

(2) All the doors are closed.

(3) The power door lock system operates normally.

HINT:

The UNLOCK function operates even when a door is open.

(b) Power slide door and power back door OPEN function:

The wireless remote control function operates only when the following 4 conditions are satisfied.

(1) No key is inserted into the ignition key cylinder.

(2) The power slide door or power back door main switch is ON (switch free: orange paint on the top of the switch appears).

(3) The slide door or back door is between the fully closed position and the half-open position (When the door is in the fully closed position, the door should be unlocked).

(4) The power slide door system and power back door system operate normally.

(c) Power slide door and power back door CLOSE function:

The wireless remote control function operates only when the following 4 conditions are satisfied.

(1) No key is inserted into the ignition key cylinder.

(2) The power slide door or power back door main switch is ON (switch free: orange paint on the top of the switch appears).

(3) The slide door or back door is between the half-open position and the fully open position.

(4) The power slide door system and power back door system operate normally.

(d) Power window OPEN function:

The wireless remote control function operates only when the following 3 conditions are satisfied.

(1) No key is inserted into the ignition key cylinder.

(2) Any door is unlocked.

(3) The power window system operates normally.

(e) Power window CLOSE function:

The wireless remote control function operates only when the following 4 conditions are satisfied.

(1) No key is inserted into the ignition key cylinder.

(2) All the doors are closed.

(3) All the doors are locked.

(4) The power window system operates normally.

(f) Remote panic function:

The wireless remote control function operates only when the following condition is satisfied.

(1) The ignition switch is OFF.

HINT:

The key can be inserted, however it must be in the OFF position.

(g) The wireless door lock remote control operational area differs depending on the situation.

(1) The operational area differs depending on the operators and the ways the transmitter is held.

(2) In some places, the operational area will be reduced due to the vehicle body shape and the influence of the surrounding environment, or the remote control function will only operate partially.

(3) Since the transmitter uses faint electric waves, strong electric waves or noise in the frequency used may reduce the operational area or the remote control may not function.

(4) When the battery weakens, the operational area is reduced or the remote control may not function.

HINT:

If the door control transmitter has been left in a place that is exposed to direct sunlight, such as on the instrument panel, it may cause the battery to weaken or such problems.

# WIPER AND WASHER SYSTEM

6605A-10

## PRECAUTION

### 1. PRECAUTION OF WASHER NOZZLE ADJUSTMENT

(a) Do not clean or adjust the washer nozzle with a safety pin, etc. because;
  (1) the washer nozzle tip is made of resin and could be damaged.
  (2) adjustment is not necessary because the washer nozzle is a spray type.

(b) In case the washer nozzle is clogged with wax etc., remove it and clean the nozzle hole with a soft resin brush, etc.

# LIGHTING SYSTEM

650PD-02

## PRECAUTION

### 1. PRECAUTION OF HEADLIGHT BULB REPLACEMENT

(a) When any defects such as deformation, crack, dent, chipping, etc. are identified on the discharge headlight (especially, on the light control ECU), replace it with a new one.

(b) Even if the operation seems to be normal, the fail-safe function may be defective.

(c) Be careful not to scratch or drop bulbs of the discharge headlight and halogen bulbs (for headlights and fog lights) as they have pressurized gas inside and can be easily broken.

(d) Touching the HV socket of the discharge headlight with the headlight dimmer switch ON could generate momentary high voltage of 20,000 V and lead to a serious injury.

(e) Never connect a tester to the high voltage socket of the discharge headlight for measurement, as this leads to a serious injury because of high voltage.

(f) When performing operation related to the discharge headlight, keep it away from water including rain, turn off the light control switch, and disconnect the battery terminal and the connector of the light control ECU in advance to avoid electric shock.

(g) When performing operation related to the discharge headlight, start it after assembling is completed and never turn the lights without a bulb installed.

(h) Do not turn the discharge headlight on using another power source except vehicle's.

# FRONT SEAT BELT

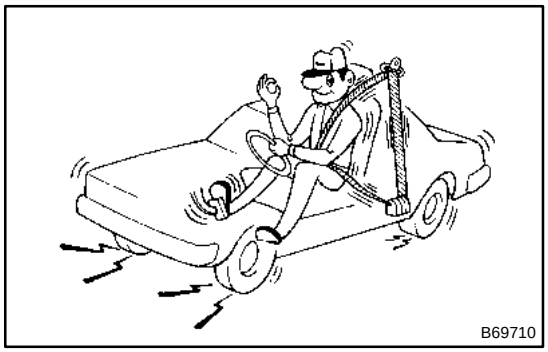
610DP-01

## PRECAUTION

**CAUTION:**

**Replace the faulty parts of the seat belt systems (outer belt, inner belt, bolts, nuts, adjustable shoulder anchor, tether anchor hardware, sill-bar, etc.)**

**Seat belt systems not in use at the time of a collision should also be inspected and replaced if found to be damaged or working improperly.**




**1. RUNNING TEST (IN SAFE AREA)**

(a) Fasten the front seat belts.

(b) Drive the car at 16 km/h (10 mph) and slam on the brakes. Check the belt locks and cannot be extended at this time.

HINT:

Conduct this test in a safe area. If the belt does not lock, remove the belt assembly and perform the following static check. Also whenever installing a new belt assembly, verify the proper operation before installation.

05BUH-02

# PRECAUTION

**CAUTION:**

**Perform the RESET MEMORY (AT initialization) when replacing the automatic transaxle assy, engine assy or ECM.**

HINT:

Initialization can not be completed by only removing the battery.

# AUDIO & VISUAL SYSTEM

670RJ-02

## PRECAUTION

### 1. OBSERVE HANDLING AND OPERATIONAL PRECAUTIONS

(a) Please explain to the customer that when the negative terminal is disconnected from the battery, the channel information memory of the AM/FM broadcast stations in the radio receiver is cleared. If necessary, make a note of the recorded channel information before the negative terminal is disconnected, then reset the information after the negative terminal is reconnected.

(b) The removal/installation of the radio receiver should be performed after all the cassette tapes and audio CDs are ejected from the radio receiver.

HINT:

If cassette tapes and audio CDs cannot be ejected due to the malfunction of the radio receiver, do not try to remove them drag then out by force. Bring the vehicle to the repair plant.

(c) Fasten the earth bolt securely when the antenna cord is removed or installed.

HINT:

Failing to fasten the earth bolt securely causes noise at the time of radio wave reception.

(d) Do not touch the cone paper of the speaker.

# SUPPLEMENTAL RESTRAINT SYSTEM

6010B-01

## PRECAUTION

**CAUTION:**

- **The vehicle is equipped with SRS, which consists of a driver airbag, front passenger airbag, side airbag and curtain shield airbag. Failure to carry out service operations in the correct sequence could cause the SRS to unexpectedly deploy during servicing, possibly leading to a serious accident. Further, if a mistake is made in servicing the SRS, it is possible that the SRS may fail to operate when required. Before performing servicing (including removal or installation of parts, inspection or replacement), be sure to read the following items carefully, then follow the correct procedures indicated in the repair manual.**
- **Wait at least 90 seconds after the ignition switch is turned to the "LOCK" position and the negative (-) terminal cable is disconnected from the battery before starting the operation.**
  **(The SRS is equipped with a back-up power source, so that if work is started within 90 seconds after disconnecting the negative (-) terminal cable of the battery, the SRS may be deployed.)**
- **Do not expose the horn button assy, instr pnl pass l/door airbag assy, airbag sensor assy center, airbag sensor front, front seat airbag assy, side airbag sensor assy, curtain shield airbag assy, airbag sensor rear, seat position airbag sensor or occupant classification ECU directly to hot air or flames.**
- **Be sure to perform the initialization of the occupant classification ECU if any of the following conditions occur (see page 05-767 ). If the initialization is not performed, the SRS may not operate properly.**
  - **The occupant classification ECU is replaced.**
  - **Accessories (seatback tray, seat cover, etc.) are installed to the vehicle.**
  - **The passenger seat is removed from the vehicle, and then reinstalled or replaced.**
  - **The passenger airbag ON/OFF indicator light ("OFF") comes on when the passenger seat is not occupied.**
  - **The vehicle is brought to the workshop for repair due to an accident or collision.**

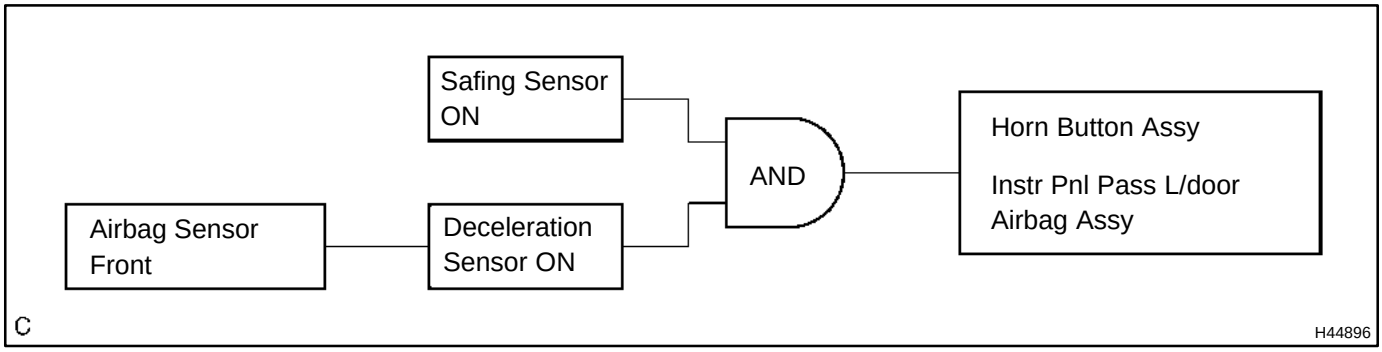
**NOTICE:**

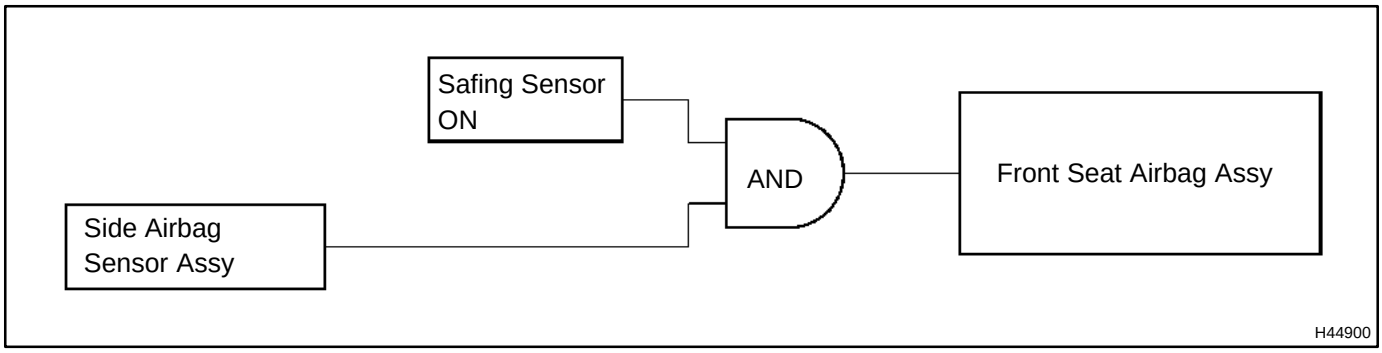
- **Malfunction symptoms of the SRS are difficult to confirm, so DTCs are the most important source of information when troubleshooting. When troubleshooting the SRS, always inspect DTCs before disconnecting the battery.**
- **Even in the case of a minor collision when the SRS does not deploy, the horn button assy, instr pnl pass l/door airbag assy, airbag sensor assy center, airbag sensor front, front seat airbag assy, side airbag sensor assy, curtain shield airbag assy, airbag sensor rear, seat position airbag sensor and occupant classification ECU should be inspected (see page 60-12 ).**
- **Before repair work, remove the airbag sensor if any kind of shock is likely to occur to the airbag sensor during the operation.**
- **Never use SRS parts from another vehicle. When replacing the parts, replace them with new ones.**
- **Never disassemble or repair the horn button assy, instr pnl pass l/door airbag assy, airbag sensor assy center, airbag sensor front, front seat airbag assy, side airbag sensor assy, curtain shield airbag assy, airbag sensor rear, seat position airbag sensor or occupant classification ECU in order to reuse it.**
- **If the horn button assy, instr pnl pass l/door airbag assy, airbag sensor assy center, airbag sensor front, front seat airbag assy, side airbag sensor assy, curtain shield airbag assy, airbag sensor rear, seat position airbag sensor or occupant classification ECU has been dropped, or if there are any cracks, dents or other defects in the case, bracket or connector, replace it with a new one.**

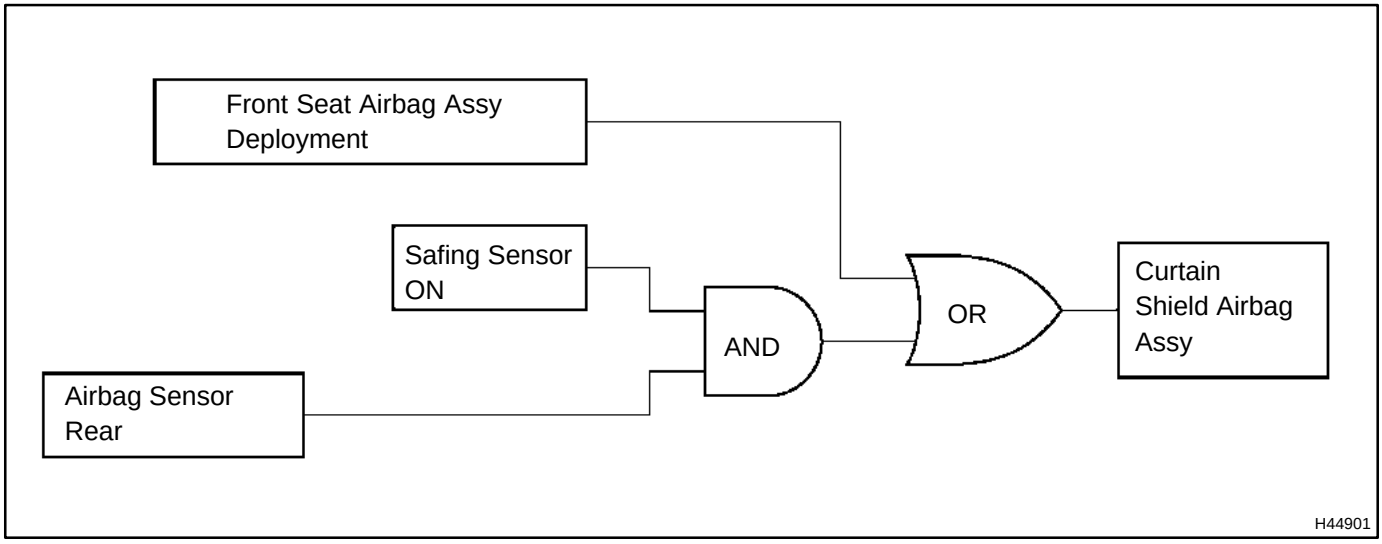
- **Use a volt/ohmmeter with high impedance (10 kΩ/V minimum) for troubleshooting the electrical circuits.**
- **Information labels are attached to the periphery of the SRS components. Follow the instructions in the caution.**
- **After work on the SRS is completed, perform the SRS warning light check (see page 05-770 ).**
- **When the negative (-) terminal cable is disconnected from the battery, the memory will be cleared. Because of this, be sure to make a record of the contents memorized in each system before starting work. When work is finished, adjust each system as it was before. Never use a back-up power supply from outside the vehicle to avoid erasing the memory in any system.**
- **If the vehicle is equipped with a mobile communication system, see page 01-5 .**

## 1. DEPLOYMENT CONDITION

(a) When the vehicle collides and the shock is greater than the specified value, the SRS is activated automatically. The airbag sensor assy center includes the safing sensor and deceleration sensor. The safing sensor was designed to be turned on at a smaller deceleration rate than the deceleration sensor. The deceleration sensor determines whether or not ignition is necessary based on signals from the airbag sensor front. Current flows to the squibs to deploy the SRS when the conditions shown in the illustrations below are met.



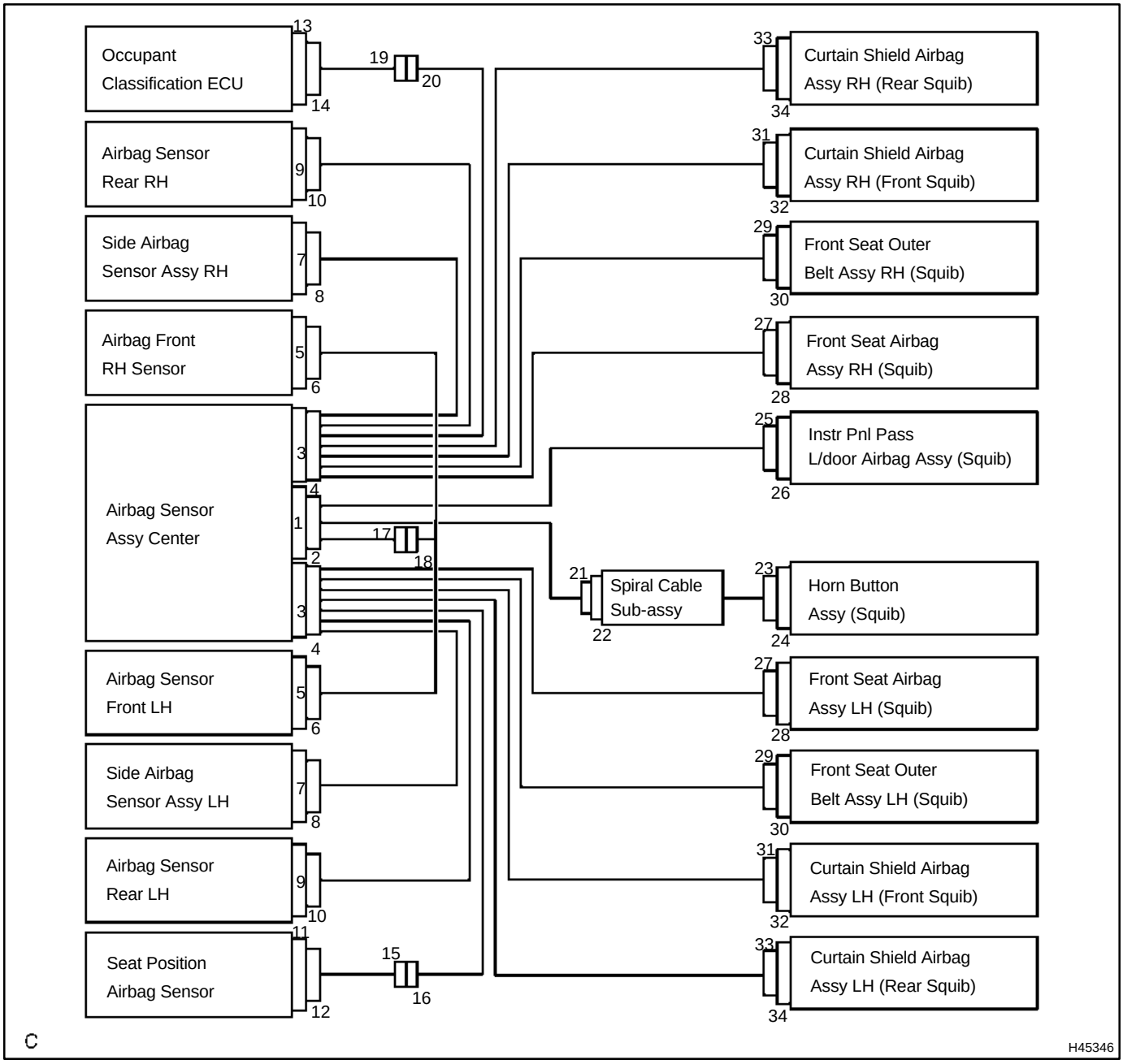



## 2. SRS CONNECTORS

HINT:

SRS connectors are located as shown in the following illustration.



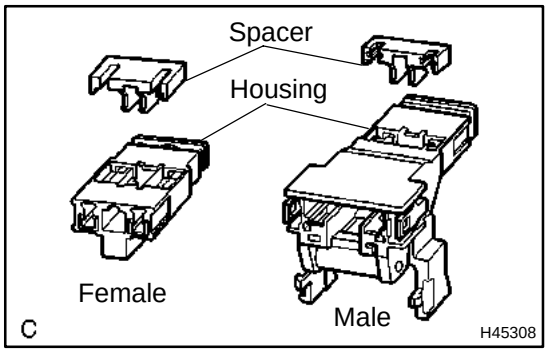

| No. | Connector Type | Application |
|---|---|---|
| (1) | Terminal Twin-Lock Mechanism | Connectors 2, 4, 6, 8, 10, 12, 15, 16, 17, 18, 20*, 21, 25, 27, 28 |
| (2) | Activation Prevention Mechanism | Connectors 2, 4, 22, 24, 26, 28, 30, 32, 34 |
| (3) | Electrical Connection Check Mechanism | Connectors 1, 2, 3, 4 |
| (4) | Half Connection Prevention Mechanism | Connectors 6, 8, 10, 18, 21, 25, 27 |
| (5) | Connector Lock Mechanism | Connectors 23, 29, 31, 33 |

*: Manual Seat



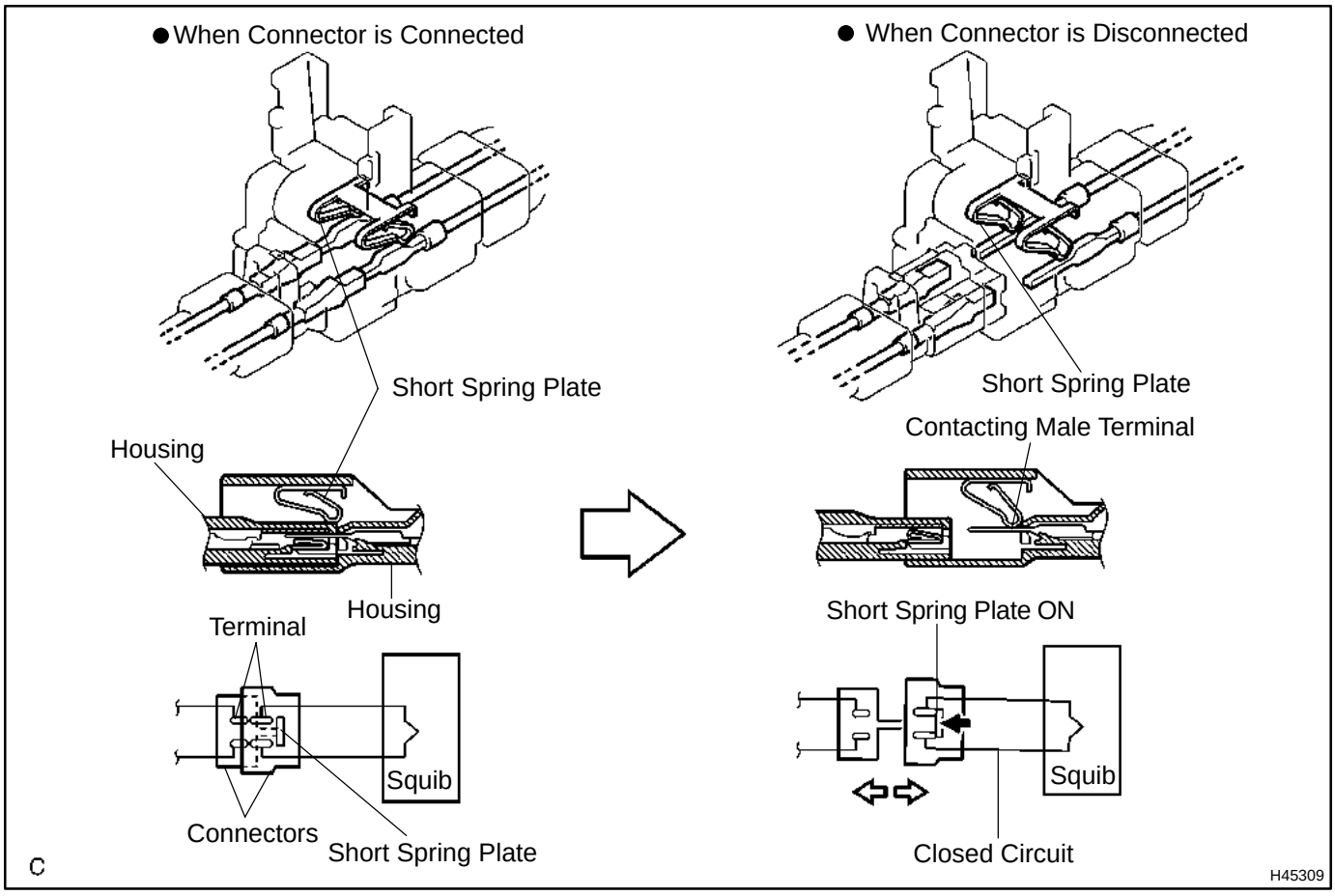
Author : Date : 2999

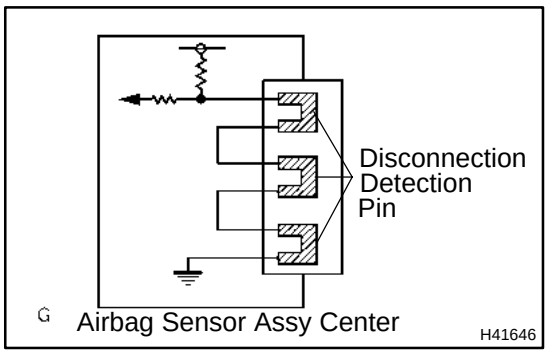
(a) All connectors in the SRS, except the seat position airbag sensor connector and the occupant classification ECU connectors, are colored yellow to distinguish them from other connectors. These connectors have special functions, and are specially designed for the SRS. All SRS connectors use durable gold-plated terminals, and are placed in the locations shown on the previous page to ensure high reliability.



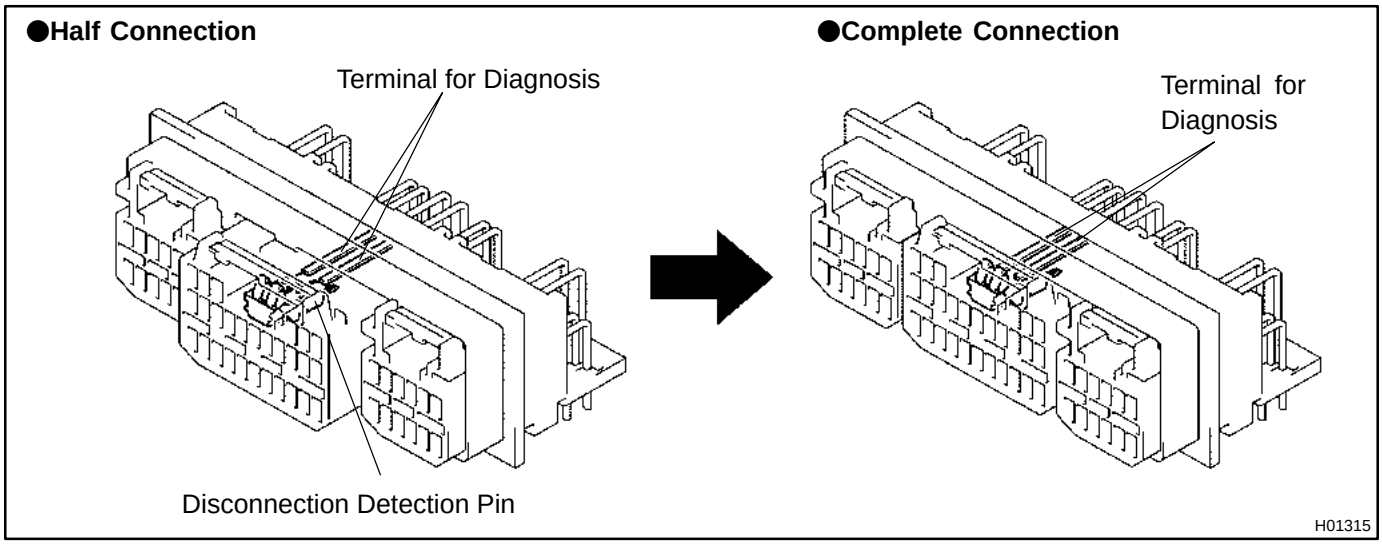

(1) Terminal twin-lock mechanism:
Each connector has a two-piece component consisting of a housing and a spacer. This design enables the terminal to be locked securely by two locking devices (the retainer and the lance) to prevent terminals from coming out.

(2) Activation prevention mechanism:
Each connector contains a short spring plate. When the connector is disconnected, the short spring plate automatically connects the positive (+) terminal and the negative (-) terminal of the squib.

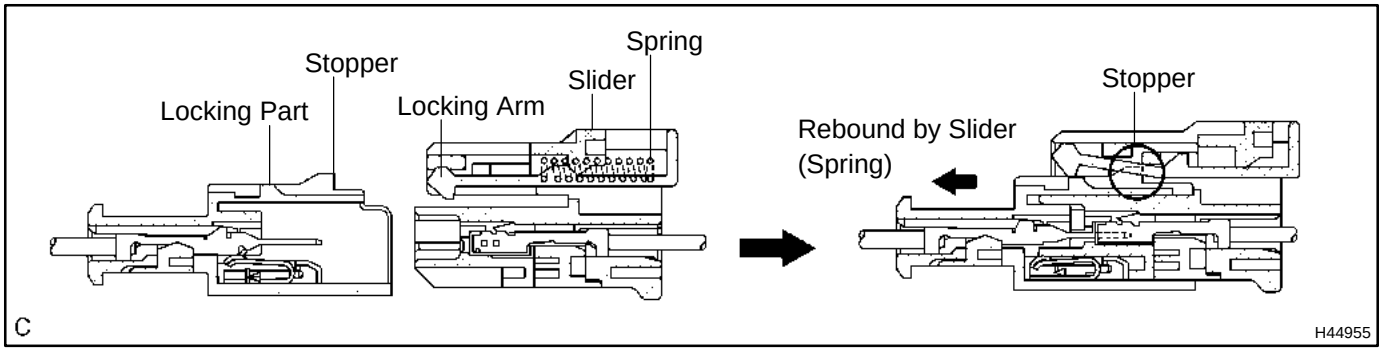




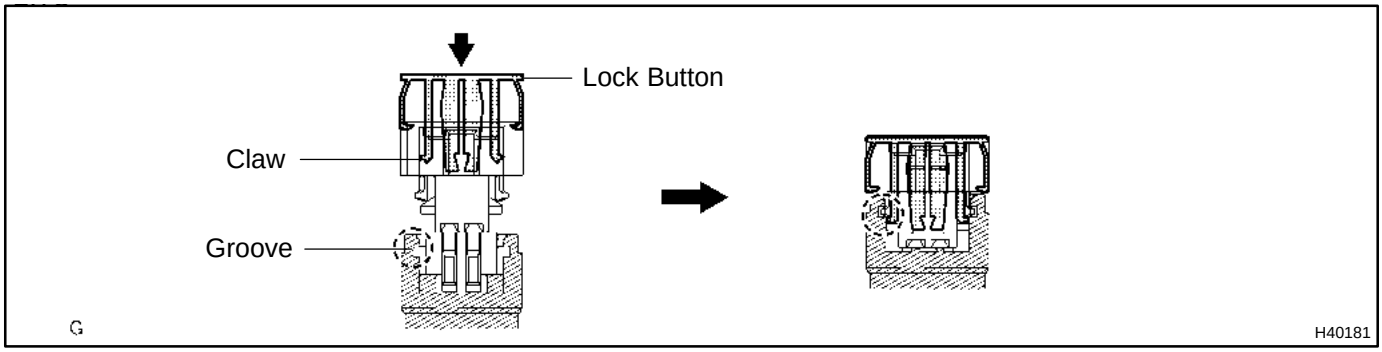

(3) Electrical connection check mechanism:
This mechanism electrically checks that the connectors are connected correctly and completely. The electrical connection check mechanism is designed so that the disconnection detection pin connects with the diagnosis terminals when the connector housing lock is locked.




(4) Half connection prevention mechanism:
If the connector is not completely connected, the connector is disconnected due to the spring operation so that no continuity exists.



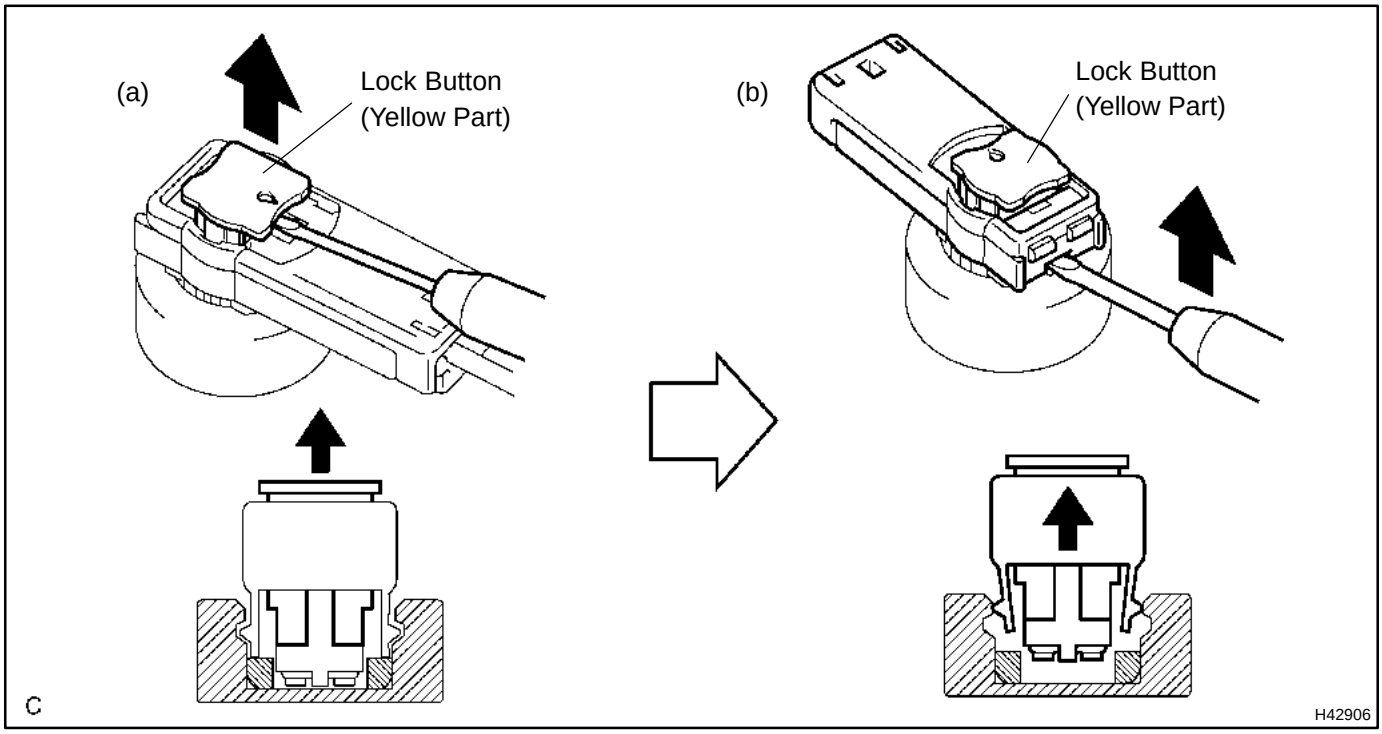
(5) Connector lock mechanism:
Locking the connector lock button connects the connector securely.



**3. DISCONNECTION OF CONNECTORS FOR HORN BUTTON ASSY AND CURTAIN SHIELD AIRBAG ASSY**

(a) Release the lock button (yellow part) of the connector using a screwdriver.

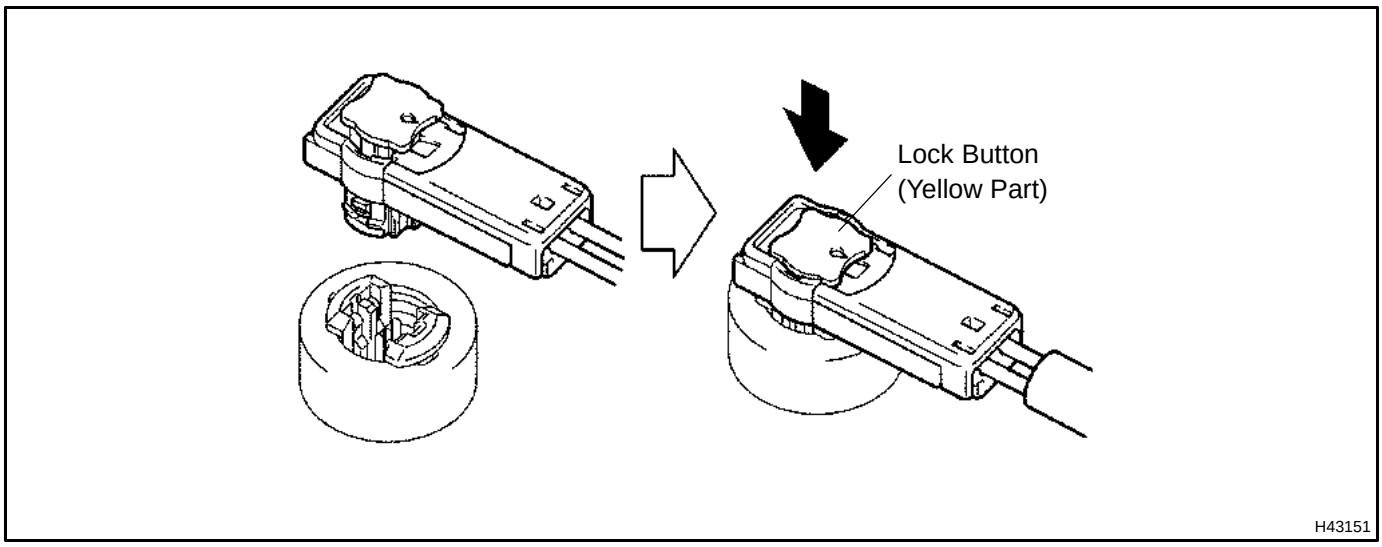
(b) Insert the screwdriver tip between the connector and the base, and then raise the connector.




**4. CONNECTION OF CONNECTORS FOR HORN BUTTON ASSY AND CURTAIN SHIELD AIRBAG ASSY**

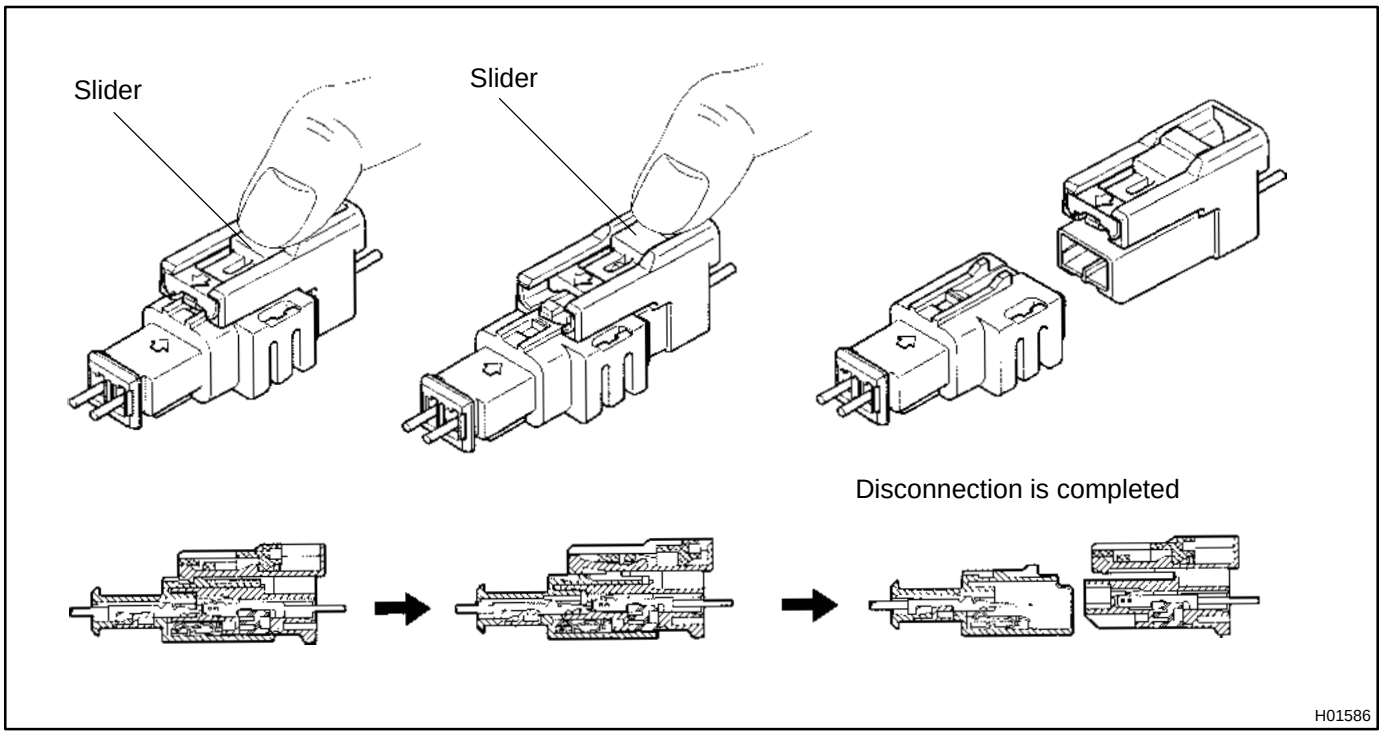
(a) Connect the connector.

(b) Push down securely on the lock button (yellow part) of the connector. (When locking, a click sound can be heard.)



**5. DISCONNECTION OF CONNECTOR FOR INSTR PNL PASS L/DOOR AIRBAG ASSY**

(a) Place a finger on the slider, slide the slider to release the lock, and then disconnect the connector.

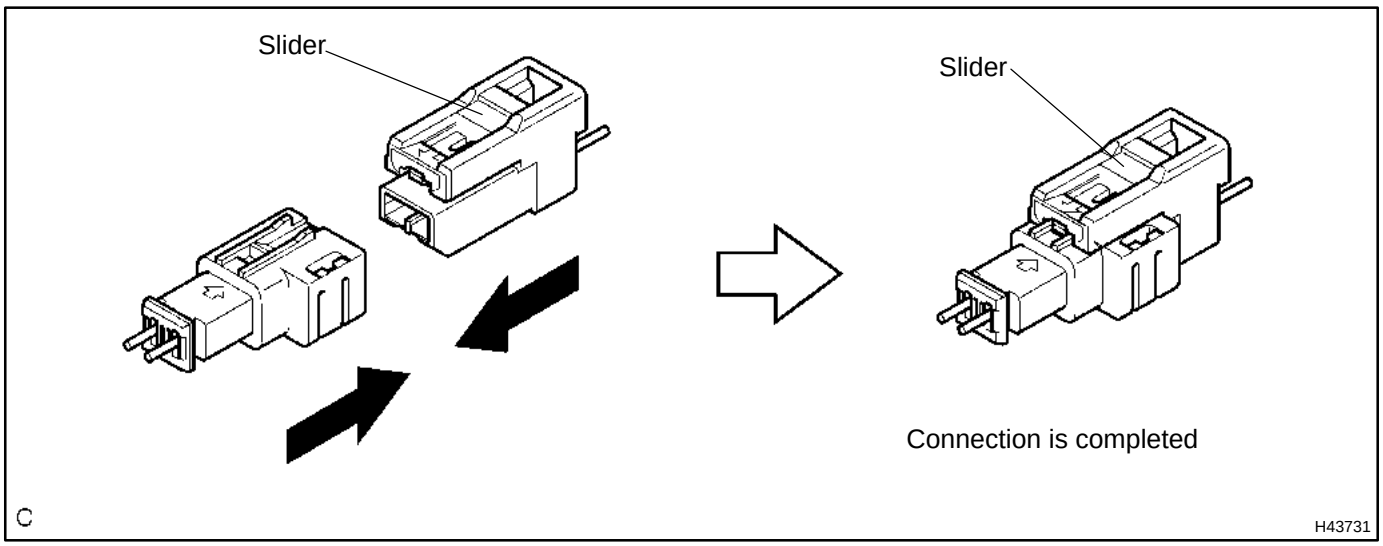



**6. CONNECTION OF CONNECTOR FOR INSTR PNL PASS L/DOOR AIRBAG ASSY**

(a) Connect the connector as shown in the illustration. (When locking, make sure that the slider returns to its original position and a click sound can be heard.)

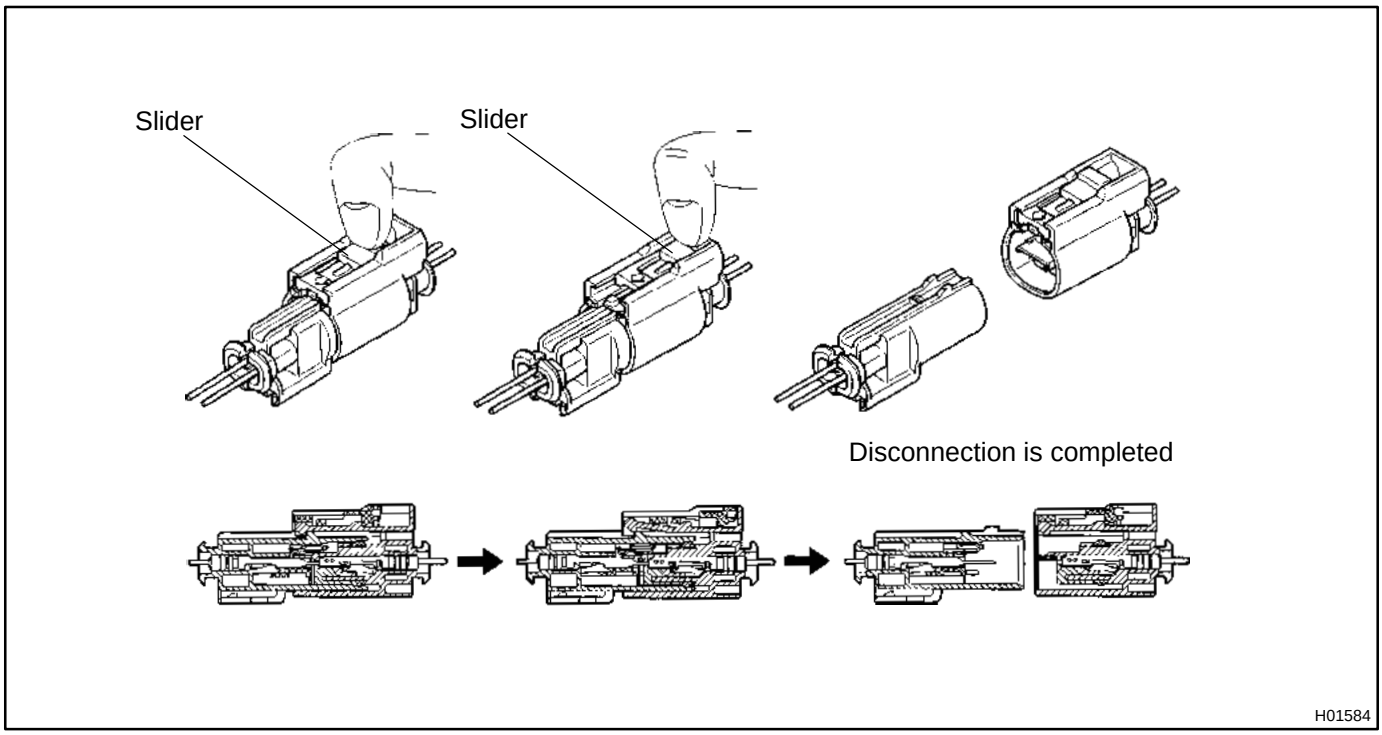
HINT:

When connecting, the slider will slide. Be sure not to touch the slider while connecting, as it may result in an insecure fit.



**7. DISCONNECTION OF CONNECTOR FOR FRONT SEAT AIRBAG ASSY**

(a) Place a finger on the slider, slide the slider to release the lock, and then disconnect the connector.

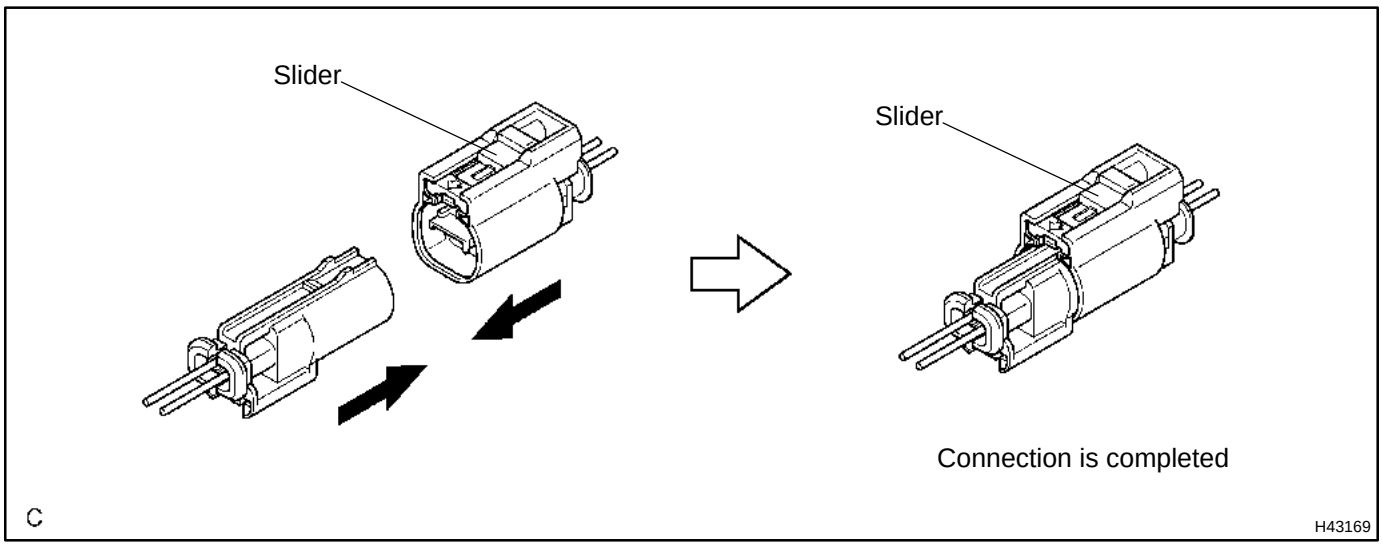


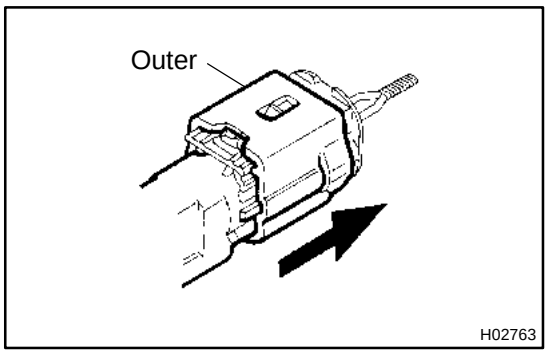

**8. CONNECTION OF CONNECTOR FOR FRONT SEAT AIRBAG ASSY**

(a) Connect the connector as shown in the illustration. (When locking, make sure that the slider returns to its original position and a click sound can be heard.)

HINT:

When connecting, the slider will slide. Be sure not to touch the slider while connecting, as it may result in an insecure fit.





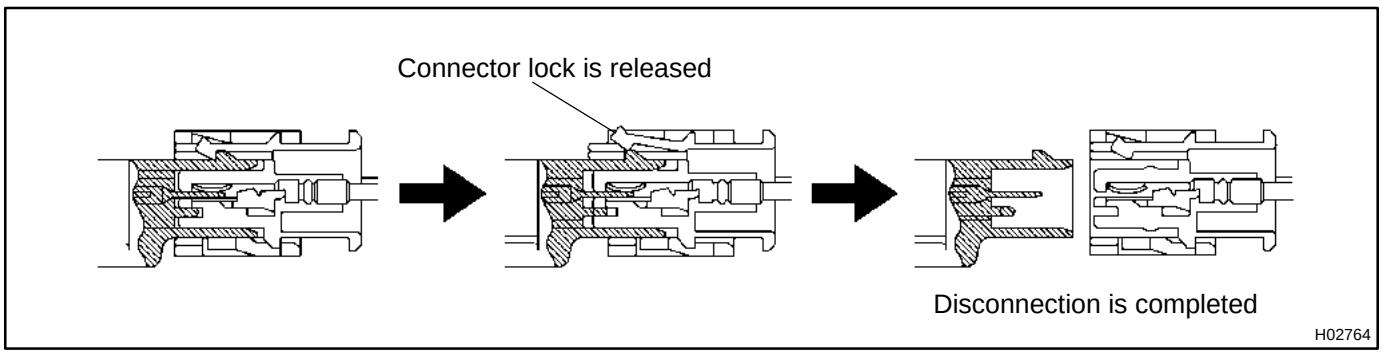

**9. DISCONNECTION OF CONNECTORS FOR AIRBAG SENSOR FRONT, SIDE AIRBAG SENSOR ASSY AND AIRBAG SENSOR REAR**

(a) While holding both outer flank sides, slide the outer in the direction shown by the arrow.

(b) When the connector lock is released, the connectors are disconnected.

HINT:

Be sure to hold both outer flank sides. Holding the top and bottom will make disconnection difficult.

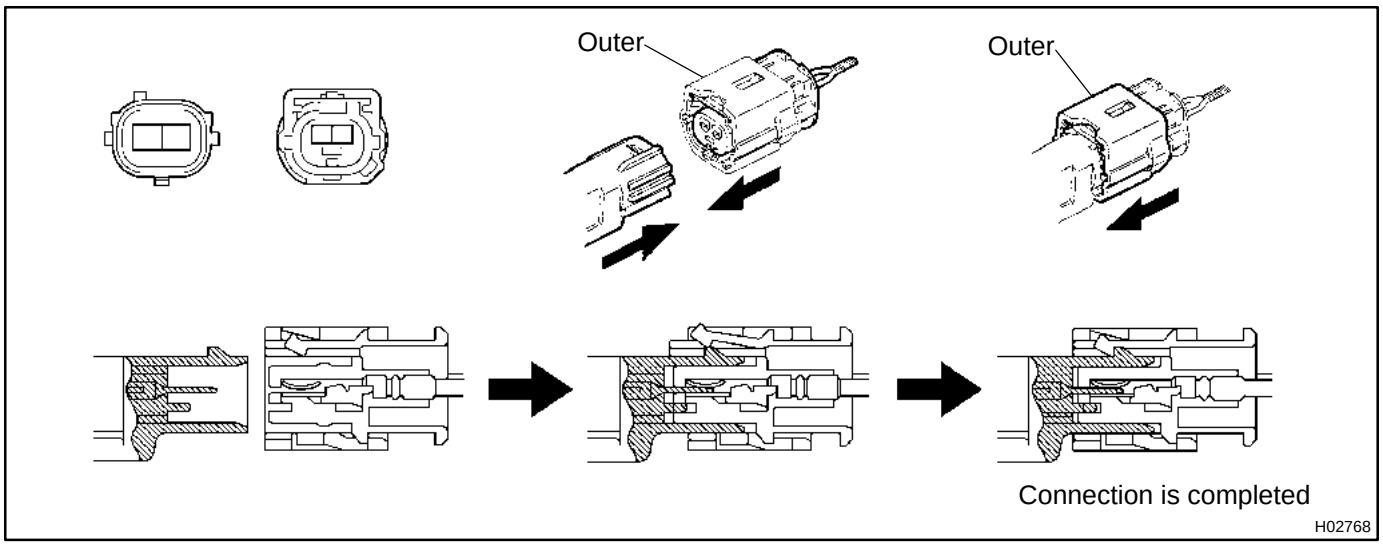



**10. CONNECTION OF CONNECTORS FOR AIRBAG SENSOR FRONT, SIDE AIRBAG SENSOR ASSY AND AIRBAG SENSOR REAR**

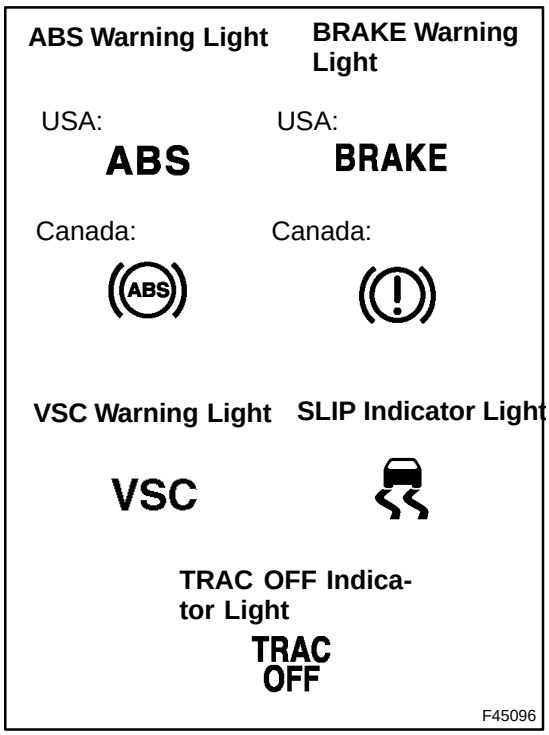
(a) Connect the connector as shown in the illustration. (When locking, make sure that the outer returns to its original position and a click sound can be heard.)

HINT:

When connecting, the outer will slide. Be sure not to hold the outer while connecting, as it may result in an insecure fit.



05BX4-02




# PRE-CHECK

## 1. DIAGNOSIS SYSTEM

(a) Check the warning lights.

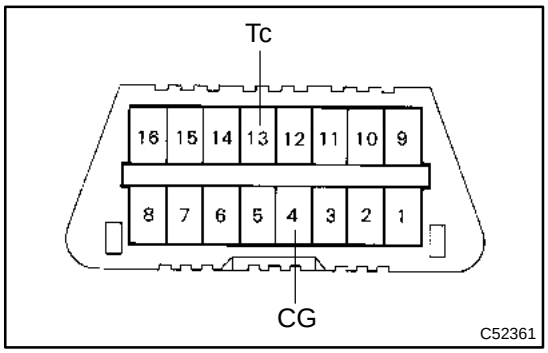
(1) Release the parking brake pedal.

(2) When the ignition switch is turned ON, check that the ABS warning light, VSC warning light, TRAC OFF indicator light, BRAKE warning light and SLIP indicator light come on for approx. 3 seconds.

HINT:

- When the parking brake is applied or the level of the brake fluid is low, the BRAKE warning light comes on.
- If the indicator check result is not normal, proceed to troubleshooting for the ABS warning light circuit, TRAC warning light circuit, TRAC OFF indicator light circuit, BRAKE warning light circuit or SLIP indicator light circuit.

| Trouble Area | See page |
|---|---|
| ABS warning light circuit | 05-509 |
| BRAKE warning light circuit | 05-513 |
| VSC warning light circuit | 05-511 |
| TRAC OFF indicator light circuit | 05-516 |
| SLIP indicator light circuit | 05-520 |




## 2. DTC CHECK (USING SST CHECK WIRE)

(a) Checking DTCs using a SST check wire.

SST 09843-18040

(1) Using SST, connect terminals Tc and CG of DLC3.

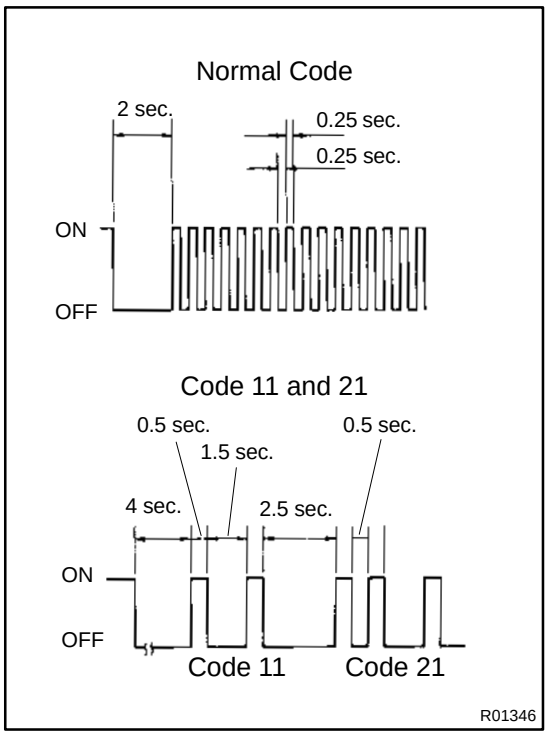
(2) Turn the ignition switch ON.

(3) Read the DTC from the ABS warning light and VSC warning light on the combination meter.

HINT:

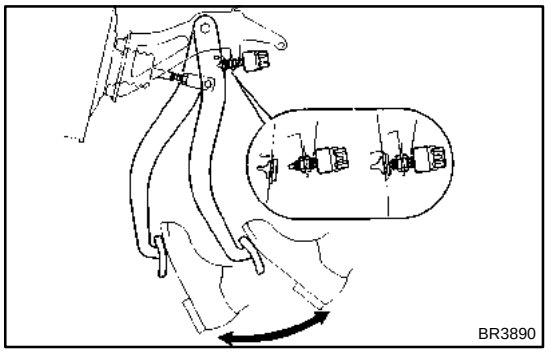
- If no code appears, inspect the diagnostic circuit, ABS warning light circuit or VSC warning light circuit.

| Trouble Area | See page |
|---|---|
| Tc terminal circuit | 05-524 |
| ABS warning light circuit | 05-509 |
| VSC warning light circuit | 05-511 |




- As an example, the blinking patterns for normal code and codes 11 and 21 are shown on the left.
  (4) Codes are explained in the code table on page 05-447 .
  (5) After completing the check, disconnect terminals Tc and CG of DLC3, and turn off the display.

If 2 or more are DTCs are detected at the same time, the DTCs will be displayed in ascending order.




(b) Clearing the DTCs using the SST check wire.
SST 09843-18040
(1) Using SST, connect terminals Tc and CG of DLC3.
(2) Turn the ignition switch ON.
(3) Clear the DTCs stored in ECU by depressing the brake pedal 8 times or more within 5 seconds.
(4) Check that the warning light indicates the normal code.
(5) Remove the SST from the terminals of DLC3.

HINT:
Clearing the DTCs cannot be performed by removing the battery cable or ECU-IG fuse.

**3. DTC CHECK (USING HAND-HELD TESTER)**

(a) Checking DTCs using the Hand-held tester.
(1) Connect the hand-held tester to the DLC3.
(2) Turn the ignition switch ON.
(3) Read the DTC by following the prompts on the tester screen.

HINT:
Refer to the hand-held tester operator's manual for further details.

(b) Clearing the DTCs using the hand-held tester.
(1) Connect the hand-held tester to the DLC3.
(2) Turn the ignition switch ON.
(3) Operate the hand-held tester to erase the codes.

HINT:
Refer to the hand-held tester operator's manual for further details.

## 4. DATA LIST

With the hand-held tester connected to DLC3 and the ignition turned to ON, the ABS , TRAC and VSC data list can be displayed. Follow the prompts on the tester screen to access the Data List.

| Item | Measurement Item / Range (Display) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| ABS MOT RELAY | ABS motor relay / ON or OFF | ON : Motor relay ON | - |
| SOL RELAY | Solenoid relay / ON or OFF | ON : Solenoid relay ON | - |
| VSC / TRAC OFF SW* | VSC / TRAC OFF switch / ON or OFF | ON : TRAC OFF switch ON | - |
| IDLE SW | Main idle switch / ON or OFF | ON : Accelerator pedal released<br>OFF : Accelerator pedal depressed | - |
| STOP LIGHT SW | Stop light switch / ON or OFF | OFF : Brake pedal depressed<br>ON : Brake pedal released | - |
| PKB SW | Parking brake switch / ON or OFF | ON : Parking brake applied<br>OFF : Parking brake released | - |
| ABS OPERT FR | ABS operation (FR) / BEFORE or OPERATE | BEFORE : No ABS operation (FR)<br>OPERATE : During ABS operation (FR) | - |
| ABS OPERT FL | ABS operation (FL) / BEFORE or OPERATE | BEFORE : No ABS operation (FL)<br>OPERATE : During ABS operation (FL) | - |
| ABS OPERT RR | ABS operation (RR) / BEFORE or OPERATE | BEFORE : No ABS operation (RR)<br>OPERATE : During ABS operation (RR) | - |
| ABS OPERT RL | ABS operation (RL) / BEFORE or OPERATE | BEFORE : No ABS operation (RL)<br>OPERATE : During ABS operation (RL) | - |
| WHEEL SPD FR | Wheel speed sensor (FR) reading / min.: 0 km/h (0 MPH, max.: 326 km/h (202 MPH) | Actual wheel speed | Speed indicated on speedometer |
| WHEEL SPD FL | Wheel speed sensor (FL) reading / min.: 0 km/h (0 MPH, max.: 326 km/h (202 MPH) | Actual wheel speed | Speed indicated on speedometer |
| WHEEL SPD RR | Wheel speed sensor (RR) reading / min.: 0 km/h (0 MPH, max.: 326 km/h (202 MPH) | Actual wheel speed | Speed indicated on speedometer |
| WHEEL SPD RL | Wheel speed sensor (RL) reading / min.: 0 km/h (0 MPH, max.: 326 km/h (202 MPH) | Actual wheel speed | Speed indicated on speedometer |
| DECELERAT SENS | Deceleration sensor 1 reading / min.: -1.869 G, max.: 1.869 G | Approximately 0 ± 0.13G at still condition | Reading changes when vehicle is bounced |
| DECELERAT SENS2 | Deceleration sensor 2 reading / min.: -1.869 G, max.: 1.869 G | Approximately 0 ± 0.13G at still condition | Reading changes when vehicle is bounced |

| Item | Measurement Item / Range (Display) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| IG VOLTAGE | ECU power supply voltage / NORMAL or TOO LOW | NORMAL : 9.5 V or over<br>TOO LOW : Below 9.5 V | - |
| SFRR | ABS solenoid (SFRR) / ON or OFF | ON : Operate | - |
| SFRH | ABS solenoid (SFRH) / ON or OFF | ON : Operate | - |
| SFLR | ABS solenoid (SFLR) / ON or OFF | ON : Operate | - |
| SFLH | ABS solenoid (SFLH) / ON or OFF | ON : Operate | - |
| SRRR (SRR) | ABS solenoid (SRRR (SRR)) / ON or OFF | ON : Operate | - |
| SRRH (SRH) | ABS solenoid (SRRH (SRH)) / ON or OFF | ON : Operate | - |
| SRLR | ABS solenoid (SRLR) / ON or OFF | ON : Operate | - |
| SRLH | ABS solenoid (SRLH) / ON or OFF | ON : Operate | - |
| SMF (BA-SOL) | TRAC solenoid (SMF) / ON or OFF | ON : Operate | - |
| SMR | TRAC solenoid (SMR) / ON or OFF | ON : Operate | - |
| THROTTLE | Throttle position sensor/ Min.: 0 deg, Max.: 125 deg | Release accelerator pedal: Approx. 0 deg.<br>Depress accelerator pedal: Approx. 90 deg. | - |
| ENGINE SPD | Engine Speed/ Min.: 0 rpm, Max.: 6000 rpm | Actual engine speed | - |
| VEHICLE SPD | Maximum wheel speed sensor reading / min.: 0 km/h (0 MPH), max.: 326 km/h (202 MPH) | Actual vehicle speed | Speed indicated on speedometer |
| YAW RATE | Yaw rate sensor/ Min.: -128 deg/s, Max.: 128 deg/s | Min.: -128 deg/s<br>Max.: 128 deg/s | - |
| YAW ZERO VALUE | Memorized zero value/ Min.: -128 deg/s, Max.: 128 deg/s | Min.: -128 deg/s<br>Max.: 128 deg/s | - |
| STEERING ANG | Steering sensor/ Min.: -1152 deg, Max.: 1150.875 deg | Left turn: Increase<br>Right turn: Decrease | - |
| MAS CYL PRESS 1 | Master cylinder pressure sensor 1 reading / min.: 0 V, max.: 5 V | When brake pedal is released : 0.3 to 0.9 V | Reading increases when brake pedal is depressed |
| AIR BLD SUPPORT | Air bleed support/ NOT SUP or SUPPORT | Not supported | - |
| SPD SEN FR | FR speed sensor open detection/ OPN DET/NORMAL | NORMAL | - |
| SPD SEN FL | FL speed sensor open detection/ OPN DET/NORMAL | NORMAL | - |
| SPD SEN RR | RR speed sensor open detection/ OPN DET/NORMAL | NORMAL | - |

| Item | Measurement Item / Range (Display) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| SPD SEN RL | RL speed sensor open detection/ OPN DET/NORMAL | NORMAL | - |
| EFI COM | EFI communication open detection/ OPN DET/NORMAL | NORMAL | - |
| YAWRATE SEN | Yaw rate sensor open detection/ OPN DET/NORMAL | NORMAL | - |
| DECELE SEN | Deceleration sensor open detection/ OPN DET/NORMAL | NORMAL | - |
| STEERING SEN | Steering sensor open detection/ OPN DET/NORMAL | NORMAL | - |
| TEST MODE | Test mode / NORMAL or TEST | NORMAL : Normal mode TEST : During test mode | - |
| #CODES | Number of DTC recorded / min.: 0, max.: 255 | Min.: 0, max.: 39 | - |

*: 2WD only

## 5. ACTIVE TEST

HINT:

Performing the ACTIVE TEST using the hand-held tester allows the relay, VSV, actuator and so on to operate without removing any parts. Performing the ACTIVE TEST as a first step of troubleshooting is one of the methods to reduce troubleshooting time.

It is possible to display the DATA LIST during the ACTIVE TEST.

(a) Connect the hand-held tester to the DLC3.

(b) Turn the ignition switch ON.

(c) From to the display on the tester, select the ”ACTIVE TEST”.

HINT:

IG must be turned ON to proceed Active Test using a hand-held tester.

| Item | Vehicle Condition / Test Details | Diagnostic Note |
|---|---|---|
| SFRR | Turns ABS solenoid (SFRR) ON / OFF | Operation of solenoid (clicking sound) can be heard |
| SFRH | Turns ABS solenoid (SFRH) ON / OFF | Operation of solenoid (clicking sound) can be heard |
| SFLR | Turns ABS solenoid (SFLR) ON / OFF | Operation of solenoid (clicking sound) can be heard |
| SFLH | Turns ABS solenoid (SFLH) ON / OFF | Operation of solenoid (clicking sound) can be heard |
| SRRR | Turns ABS solenoid (SRRR) ON / OFF | Operation of solenoid (clicking sound) can be heard |

| Item | Vehicle Condition / Test Details | Diagnostic Note |
|---|---|---|
| SRRH | Turns ABS solenoid (SRRH) ON / OFF | Operation of solenoid (clicking sound) can be heard |
| SRLR | Turns ABS solenoid (SRLR) ON / OFF | Operation of solenoid (clicking sound) can be heard |
| SRLH | Turns ABS solenoid (SRLH) ON / OFF | Operation of solenoid (clicking sound) can be heard |
| SMF (BA-SOL) | Turns TRAC solenoid SMF (BA-SOL) ON / OFF | Operation of solenoid (clicking sound) can be heard |
| SMR | Turns TRAC solenoid SMR ON / OFF | Operation of solenoid (clicking sound) can be heard |
| SOL RELAY | Turns ABS solenoid relay ON / OFF | Operation of solenoid (clicking sound) can be heard |
| ABS MOT RELAY | Turns ABS motor relay ON / OFF | Operation of motor can be heard |
| ABS WARN LIGHT | Turns ABS warning light ON / OFF | Observe combination meter |
| VSC WARN LIGHT | Turns VSC warning light ON / OFF | Observe combination meter |
| VSC / TRC OFF IND | Turns VSC / TRAC OFF indicator ON / OFF | Observe combination meter |
| SLIP INDI LIGHT | Turns SLIP indicator light ON / OFF | Observe combination meter |
| BRAKE WRN LIGHT | Turns BRAKE warning light ON / OFF | Observe combination meter |
| VSC / BR WARN BUZ | Turns VSC / BRAKE warning buzzer ON / OFF | Buzzer can be heard |

## 6. FREEZE FRAME DATA

(a) The vehicle (sensor) status stored during ABS and/or VSC operation or at the time of error code detection can be displayed by the hand-held tester.

(b) Only one record of the freeze frame data is stored and the freeze frame data generated during ABS and/or VSC operation are updated whenever the vehicle status is changed. Also, the number of the operation of the ignition switch ”ON” after the freeze frame data is stored can be stored up to 31 and it can be displayed.

HINT:

If the ignition switch ”ON” operation exceeds 31 times, ”31” appears on the display.

(c) If the diagnosis code malfunction occurs, the freeze frame data at the occurrence of the malfunction is stored but the ABS actuation data is deleted.

| Hand-held tester display | Measurement Item | Reference Value*1 |
|---|---|---|
| VEHICLE SPD | Wheel speed sensor reading | Speed indicated on speedometer |
| STOP LIGHT SW | Stop light switch signal | Stop light switch ON: ON, OFF: OFF |
| # IG ON | Number of operations of ignition switch ON after memorizing freeze frame data | 0 to 31 |
| MAS CYL PRESS | Master cylinder pressure sensor reading | Brake pedal release : 0.3 to 0.9 V<br>Brake pedal depress: 0.8 to 4.5 V |
| MASS PRESS GRADE | Master cylinder pressure sensor change | -30 - 200 MPa/s |

| Hand-held tester display | Measurement Item | Reference Value*1 |
|---|---|---|
| SYSTEM | System status | ABS activated: ABS<br>VSC/TRAC activated: VSC/TRAC<br>BA activated: BA<br>Fail safe mode activated: FAIL SF<br>No system activated: NO SYS |
| YAW RATE | Yaw rate angle sensor reading | -100 to 100 |
| STEERING ANG | Steering sensor reading | Left turn: Increase<br>Right turn: Decrease |
| THROTTLE | Throttle position sensor reading | Release accelerator pedal: Approx. 0 deg.<br>Depress accelerator pedal: Approx. 90 deg. |
| G (RIGHT & LEFT) | Right and left G | -1.869 to 1.869 |
| G (BACK & FORTH) | Back and forth G | -1.869 to 1.869 |
| VSC (TRAC) OFF SW*2 | VSC OFF switch signal | TRAC OFF SW ON: ON<br>OFF: OFF |
| SHIFT POSITION | Shift lever position | FAIL<br>P,N<br>R<br>D<br>4<br>3<br>2<br>L |

*1: If no conditions are specifically stated for ”Idling”, it means the shift lever is at N or P position, the A/C switch is OFF and all accessory switches are OFF.
*2: 2WD only

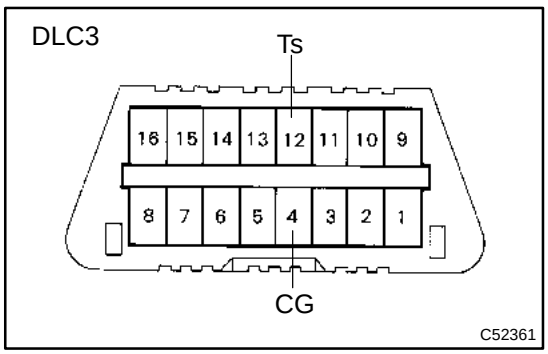
**7. SENSOR SIGNAL CHECK (TEST MODE) (USING SST CHECK WIRE)**

**NOTICE:**

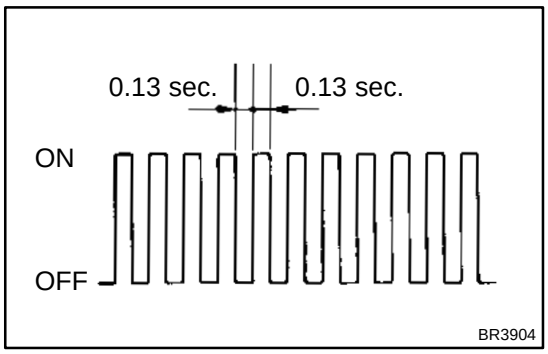
**Afrer replacing the yaw rate sensor and/or brake actuator assembly (skid control ECU), perform zero point calibration of the yaw rate sensor (See step 9.).**

HINT:

If the ignition switch is turned from ON to ACC or LOCK during test mode, the DTCs will be erased.




(a) Procedures for the test mode:
  (1) Turn the ignition switch OFF.
  (2) Using SST, it connects terminal Ts and CG of DLC3.
  SST 09843-18040
  (3) Check that the steering wheel is in the straight-ahead position and shift the shift lever to P range.
  (4) Turn the ignition switch to ON.




(5) Check that the ABS warning light and VSC warning light blink.

HINT:

If the ABS warning light does not blink, inspect the ABS warning light circuit or Ts terminal circuit.

| Trouble area | See Page |
|---|---|
| Ts terminal circuit | 05-526 |
| ABS warning light circuit | 05-509 |
| VSC warning light circuit | 05-511 |

(b) Check the master cylinder pressure sensor.

(1) Leaving the vehicle in a stationary condition and the brake pedal in free condition for 1 sec. or more, continue to quickly depress the brake pedal with a force of 98 N (10 kgf, 22 lbf) or more for 1 sec. or more.

HINT:

At this time, the ABS warning light goes on for 3 sec.

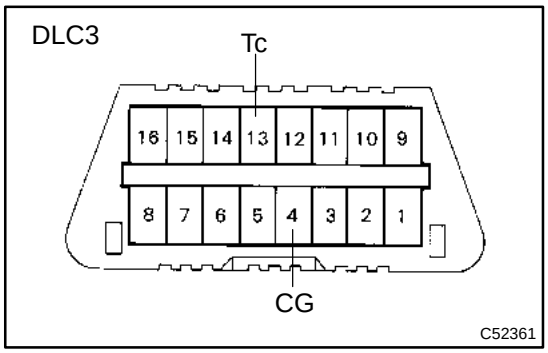
(c) Check the speed sensor signal.

(1) Drive the vehicle straight forward at the speed of 45 km/h (28 mph) or over for several seconds and check that the ABS warning light comes off.

HINT:

The sensor check may not be completed if the wheels spin or the steering wheels are steered during this check.

(2) Stop the vehicle.



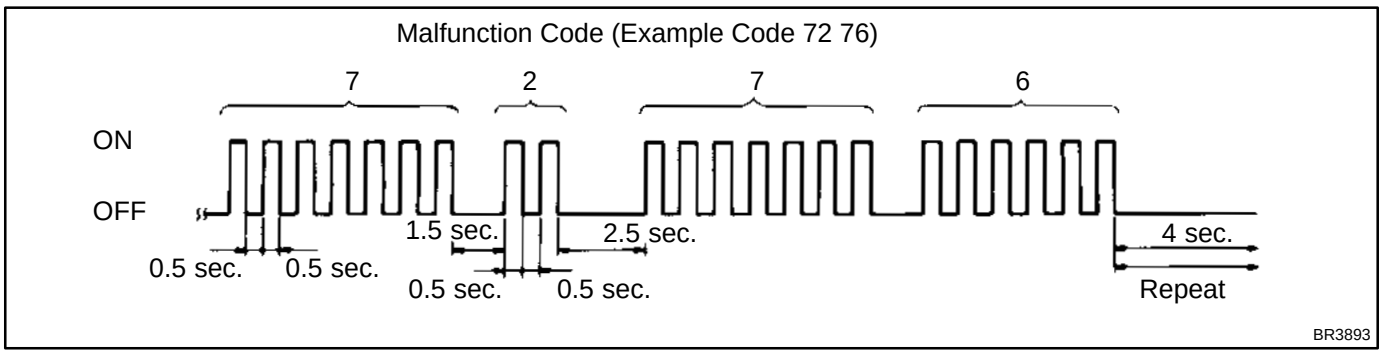

(3) Using SST, it connects terminal Tc and CG of DLC3.

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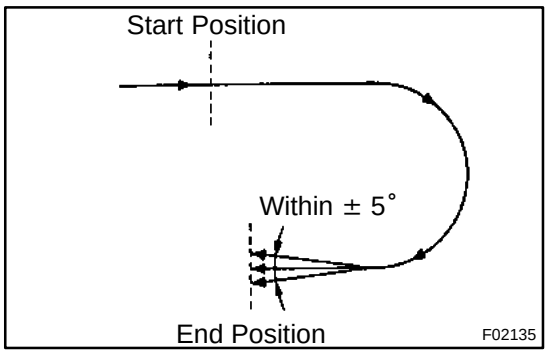
(4) Read the number of blinks of the ABS warning light.

HINT:

- See the list of DTC on page 05-447 .
- If every sensors are normal, the normal code is output (A cycle of 0.25 sec. ON and 0.25 sec. OFF is repeated).
- If more than 1 malfunctions are detected at the same time, the lowest numbered code will be displayed first.




(5) After the check, disconnect the SST from terminal Tc and CG of the DLC3.




(d) Check the yaw rate sensor.

(1) Shift the shift lever to the D range and drive the vehicle at the vehicle speed of approx. 5 km/h (3 mph), turn the steering wheel either to left or right 90˚ or more, and maintain 180˚ circular drive for the vehicle.

(2) Stop the vehicle and shift the shift lever to the P position, check that the skid control buzzer sounds for 3 sec.

HINT:

- If the skid control buzzer sounds, the sensor check is completed normally.
- If the skid control buzzer does not sound, check the skid control buzzer circuit (See page 05-522 ), then perform the sensor check again.
- If the skid control buzzer still won't sound, there is a malfunction in the VSC sensor, so check the DTC.
- Drive the vehicle in a 180˚ circle. At the end of the turn, the direction of the vehicle should be within 180˚±5˚ of its start position.
- Do not spin the wheels.

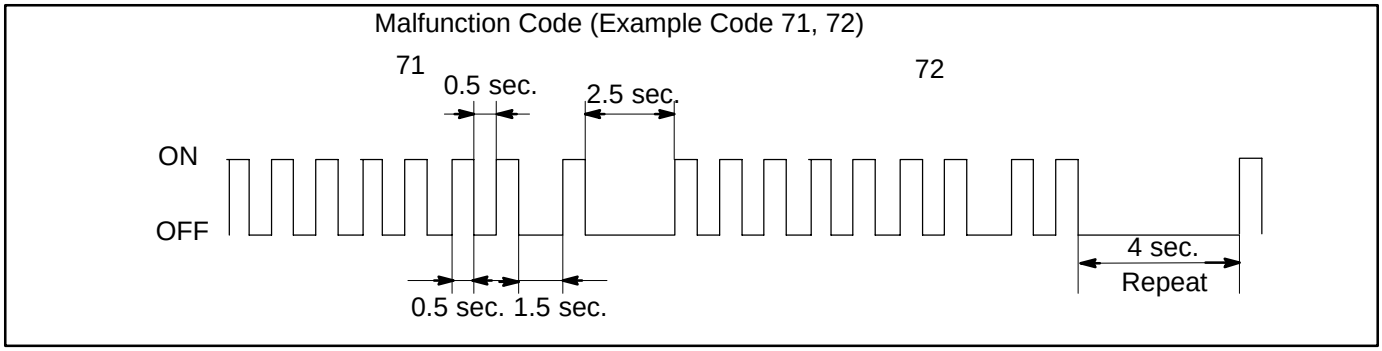
(3) Using SST, connect terminals Tc and CG of DLC3.

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(4) Read the number of blinks of the VSC warning light.

HINT:

- See the list of DTC (See page 05-447 ).
- If every sensor is normal, there is a normal code output. (A cycle of 0.25 sec. ON and 0.25 sec. OFF is repeated.)
- If 2 or more malfunctions are indicated at the same time, the lowest numbered code will be displayed 1st.




(5) After performing the check, disconnect the SST from terminals Ts and CG, Tc and CG of DLC3 and turn the ignition switch OFF.

**8. SENSOR SIGNAL CHECK (TEST MODE) (USING HAND-HELD TESTER)**

**NOTICE:**

**After replacing the yaw rate sensor and/or brake actuator assembly (skid control ECU), perform zero point calibration of the yaw rate sensor (See step 10.).**

HINT:

If the ignition switch is turned from ON to ACC or LOCK during test mode, DTC will be erased.

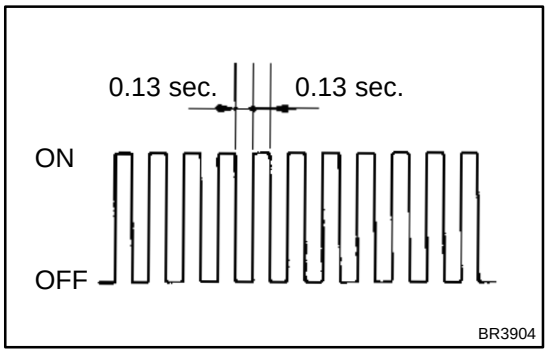
(a) Procedures for test mode:

(1) Turn the ignition switch OFF.

(2) Check that the shift lever position is at P position.

(3) Connect the hand-held tester to the DLC3.

(4) Operate the hand-held tester to test mode.




(5) Check that the ABS warning light and VSC warning light blink.

HINT:

If the ABS warning light and VSC warning light do not blink, inspect the ABS warning light circuit and VSC warning light circuit (See page 05-509 and 05-51 1).

(b) Check the master cylinder pressure sensor.

(1) Keep the vehicle in the stationary condition on the level place for 1 sec. or more.

(2) Keeping the vehicle in the stationary condition and the brake pedal in free condition for 1 sec. or more. Depress the brake pedal with 98 N (10 kgf, 22 lbf) or more for 0.1 sec. and keep depressing the brake pedal with the same force for 1 sec.

HINT:

At this time, ABS warning light comes on for 3 seconds.

(c) Check the speed sensor.

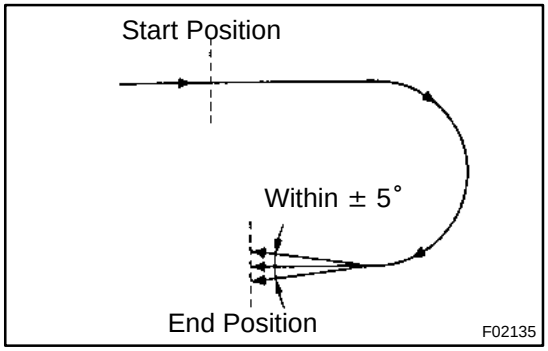
(1) Drive vehicle straight forward.

When driving the vehicle at the speed of 45 km/h (28 mph) or higher for several seconds, check that the ABS warning light goes off.

HINT:

The sensor check may not be completed if the vehicle has its wheel spin or its steering wheel steered during this check.

(2) Stop the vehicle.




(d) Check the yaw rate.

Shift the shift lever to the D position and drive the vehicle at the vehicle speed of approx. 5 km/h (3 mph), turn the steering wheel either to left or right for 90° or more, and maintain 180° circular drive for the vehicle.

Stop the vehicle and shift the shift lever to the P position, check that the VSC buzzer sounds for 3 sec.

HINT:

- If the VSC buzzer sounds, the sensor check is in normal completion.

- If the VSC buzzer does not sound, check the VSC buzzer circuit (See page 05-522 ), then perform the sensor check again.
- Drive the vehicle circularly by 180˚. At the end of the turn, the direction of the vehicle should be within 180˚ ± 5˚ of its start position.
- Do not spin the wheels.

(e) Read the DTC by following the tester screen.

HINT:

Please refer to the hand-held tester operator's manual for further details.

**9. IF NECESSARY, PERFORM ZERO POINT CALIBRATION OF YAW RATE SENSOR AND DECELERATION SENSOR(USING SST CHECK WIRE)**

HINT:

After replacing the yaw rate sensor and/or the brake actuator assembly, make sure to perform yaw rate sensor and deceleration sensor zero point calibration.

**NOTICE:**

- **While obtaining the zero point, do not give any vibration to the vehicle by tilting, moving or shaking it and keep it in a stationary condition. (Do not start the engine.)**
- **Be sure to perform this on a level surface (within an inclination of 1 %).**

(a) Shift the shift lever to P position.

(b) Clearing the zero point calibration using the SST check wire.

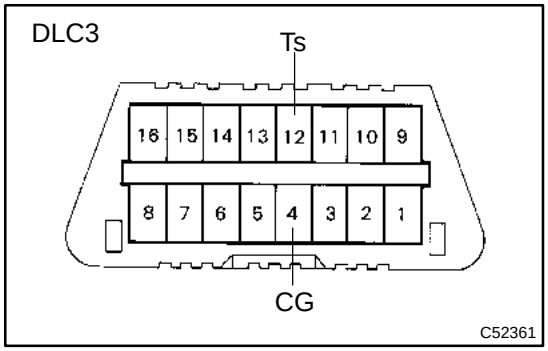
SST 09843-18040

(1) Turn the ignition switch ON.

(2) Using SST, connect and disconnect terminals Ts and CG of DLC3 4 times or more within 8 seconds.

(3) Check that the warning light indicates the normal code.

(4) Remove the SST from the terminals of DLC3.




(c) Procedures for test mode:

(1) Turn the ignition switch to OFF.

(2) Using SST, it connects terminal Ts and CG of DLC3.

SST 09843-18040

(3) Check that the steering wheel is in the straight-ahead position and shift the shift lever to P range.

(4) Turn the ignition switch to ON.

(d) Keep the vehicle in the stationary condition on the level surface for 2 sec. or more.

(e) Check that the VSC warning light blink.

HINT:

If the VSC warning light does not blink, perform the zero point calibration again.

**10. IF NECESSARY, PERFORM ZERO POINT CALIBRATION OF YAW RATE SENSOR AND DECELERATION SENSOR(USING HAND-HELD TESTER)**

HINT:

When having replaced the yaw rate sensor and/or the brake actuator assembly, make sure to perform yaw rate sensor and deceleration sensor zero point calibration.

**NOTICE:**

- **While obtaining the zero point, do not give any vibration to the vehicle by tilting, moving or shaking it and keep it in a stationary condition. (Do not start the engine.)**
- **Be sure to do this on a level surface (within an inclination of 1 %).**

(a) Shift the shift lever to P position.

(b) Hook up the hand-held tester to the DLC3.

(c) Operate the hand-held tester to clear zero point calibration.

(d) Operate the hand-held tester to test mode.

(e) Turn the ignition switch ON.

(f) Keep the vehicle in the stationary condition on the level surface for 2 sec. or more.

(g) Check that the VSC warning light blink.

HINT:

If the VSC warning light does not blink, perform the zero point calibration again.

(h) Turn the ignition switch OFF.

05BYK-01

# PRE-CHECK

## 1. DTCS COMBINATION TABLE

| Mode | U0121/94 | U0123/62 | U0124/95 | U0126/63 |
|---|---|---|---|---|
| Skid control ECU communication stop mode | ○ | ○ | ○ | ○ |
| Yaw rate sensor communication stop mode | - | ○ | ○ | - |
| Steering angle sensor communication stop mode | - | - | - | ○ |

| Output Code | Suspect Area | See page |
|---|---|---|
| Skid control ECU communication stop mode<br>(U0121/, U0123/62, U0124/95 and U0126/63 are output simultaneously) | • Open circuit for between skid control ECU and junction connector<br>• Short circuit between CANL circuit and CANH circuit<br>• Short (GND) circuit in CANL circuit<br>• Short (+B) circuit in CANL circuit<br>• Skid control ECU | 05-1939 |
| Yaw rate sensor communication stop mode<br>(U0123/62 and U0124/95 are output simultaneously) | • Open circuit for between yaw rate sensor and junction connector<br>• Yaw rate sensor | 05-1953 |
| Steering angle sensor communication stop mode<br>(U0126/63 only) | • Open circuit for between steering angle sensor and junction connector<br>• Steering angle sensor | 05-1957 |

056B9-04

# PRE-CHECK

## 1. USING HAND-HELD TESTER

(a) Connect the hand-held tester to the DLC3.

(b) Monitor the ECU data by following the prompts on the tester screen.

HINT:

The hand-held tester has a ”Snapshot” function which records the monitored data.

Refer to the hand-held tester operator’s manual for further details.

## 2. DATA LIST

HINT:

Using the DATA LIST displayed by the hand-held tester, you can read the value of the switch, sensor, actuator, etc. without parts removal. Reading the DATA LIST as the first step of troubleshooting is one way to shorten the labor time.

(a) Connect the hand-held tester to the DLC3.

(b) Turn the ignition switch ON.

(c) Read the DATA LIST according to the display on the tester.

**Standard (Multiplex network body ECU):**

| Item | Measurement Item/ Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| IG SW | Ignition switch signal/ ON or OFF | ON: Key is in ON or START position<br>OFF: Key is in OFF or ACC position | - |
| KEY UNLK WRN SW | Un-lock warning switch signal/ON or OFF | ON: Key is in ignition key cylinder<br>OFF: No key is in ignition key cylinder | - |
| WIRELESS OPER | Wireless door lock control function signal/ON or OFF | ON: Wireless door lock function operates<br>OFF: Wireless door lock function does not operate | - |
| HAZARD ANS BACK | Hazard answer-back of wireless signal/ON or OFF | ON: Hazard answer-back of wireless operates<br>OFF: Hazard answer-back of wireless does not operate | - |
| OPEN DOOR WARN | Open door warning signal/ON or OFF | ON: Open door warning operates<br>OFF: Open door warning does not operate | - |
| AUTO LOCK DELAY | Auto lock time signal/60s or 30s | 60s: Door auto locking time is 60 sec.<br>30s: Door auto locking time is 30 sec. | - |
| UNLOCK/2 OPER | 2 times operation wireless unlock signal/ ON or OFF | ON: All doors unlock when wireless UNLOCK switch pressed twice<br>OFF: All doors unlock when wireless UNLOCK switch pressed once | - |
| ALARM FUNCTION | Panic function signal/ ON or OFF | ON: Panic function operates<br>OFF: Panic function does not operate | - |
| WIRLS BUZZ RESP | Wireless buzzer response signal/ON or OFF | ON: Wireless buzzer response operates<br>OFF: Wireless buzzer response does not operate | - |

## 3. ACTIVE TEST

HINT:

Performing the ACTIVE TEST using the hand-held tester allows you to operate the relay, VSV, actuator, etc. without parts removal. Performing the ACTIVE TEST as the first step of troubleshooting is one way to shorten the labor time.

It is possible to display the DATA LIST during the ACTIVE TEST.

(a) Connect the hand-held tester to the DLC3.

(b) Turn the ignition switch ON.

(c) Perform the ACTIVE TEST according to the display on the tester.

### Standard (Multiplex network body ECU):

| Item | Test Detail | Diagnostic Note |
|---|---|---|
| HAZARD | Turns turn signal flasher relay ON/OFF | - |
| BUZZ RESP SOUND | Turns wireless buzzer ON/OFF | - |

05BUU-01

# PRE-CHECK

**1. DETECTION RANGE MEASUREMENT AND INDICATOR CHECK**

(a) Turn the IG switch ON.

(b) Move the shift lever to the R position (when the back sonar and rear clearance sonar is checked).

(c) w/ Front clearance sonar:
Move the shift lever to the N position (when the front clearance sonar is checked).

**NOTICE:**

**Apply the parking brake securely so that the vehicle does not move.**

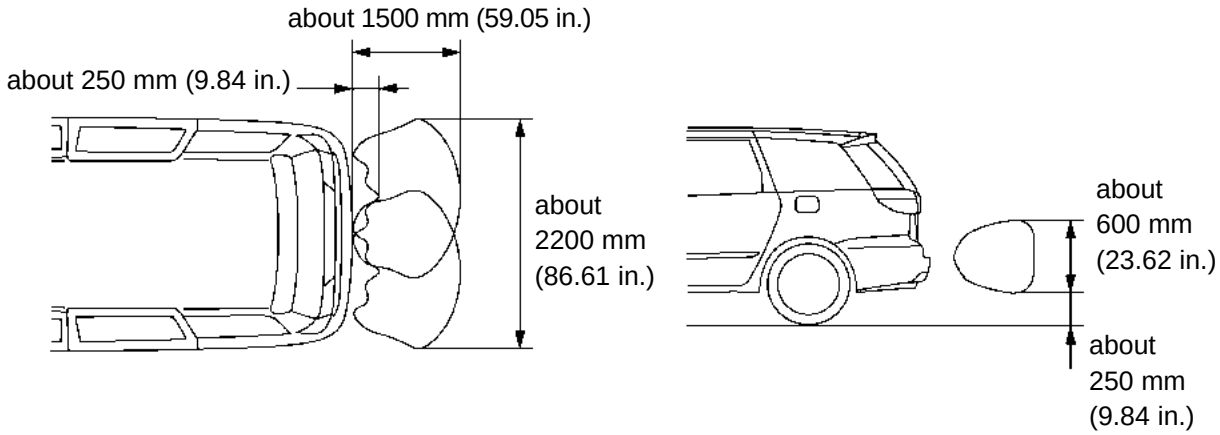
(d) Turn the clearance sonar main switch ON.

(e) Move the ø 60 mm (2.36 in.) pole around the sensor to measure the detection range of the sensor.

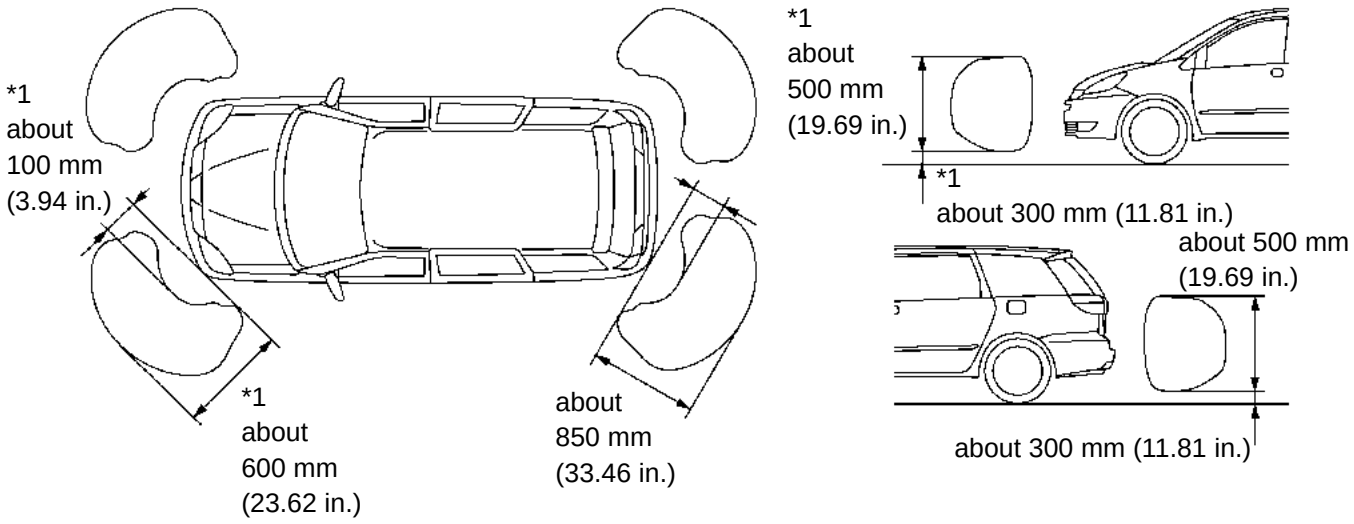
**NOTICE:**

**The measured detection range is for the ø 60 mm (2.36 in.) pole. The detection range for wall and other obstacles is different.**

**Back sonar detection range:**




**Clearance sonar detection range:**




*1: w/ Front clearance sonar

H

I35051

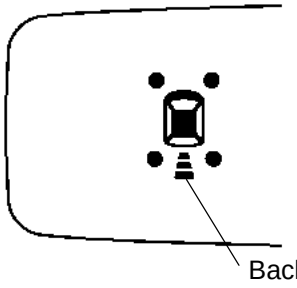
(f) Check the indicator and the buzzer sounding condition when the back sonar sensor detects an obstacle.

**Operation condition:**

| Ignition switch | Clearance sonar main switch | Shift position | Vehicle speed |
|---|---|---|---|
| ON | ON | R position | 10 km/h (6 mph) or less |

HINT:
Since sound wave is used for the detection range measurement, the detection range may vary a little due to the outside air temperature.

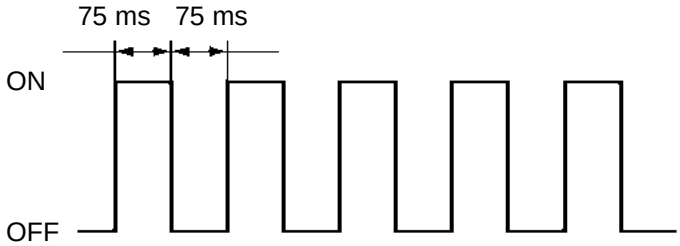
**Back sonar indicator:**



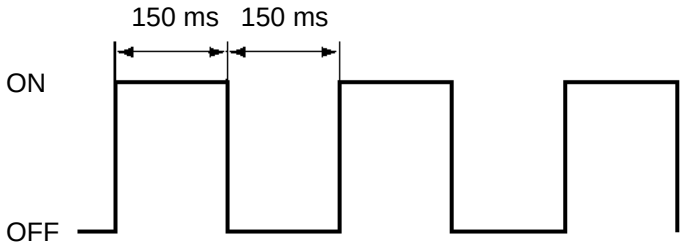

Detection at the near point
within 550 ± 60 mm (21.65 ± 2.36 in.)




Detection at the middle distance point
From 550 ± 60 mm (21.65 ± 2.36 in.)
to 900 ± 90 mm (35.43 ± 3.54 in.)




Detection at the far point
From 900 ± 90 mm (35.43 ± 3.54 in.)
to 1800 ± 180 mm (70.87 ± 7.09 in.)




H

I35029

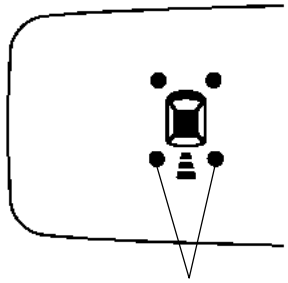
(g) Check the indicator and the buzzer sounding condition when the rear clearance sonar sensor detects obstacle.

**Operation condition:**

| Ignition switch | Clearance sonar main switch | Shift position | Vehicle speed |
|---|---|---|---|
| ON | ON | R position | 10 km/h (6 mph) or less |

HINT:
Since sound wave is used for the detection range measurement, the detection range may vary a little due to the outside air temperature.

**Rear clearance sonar indicator:**

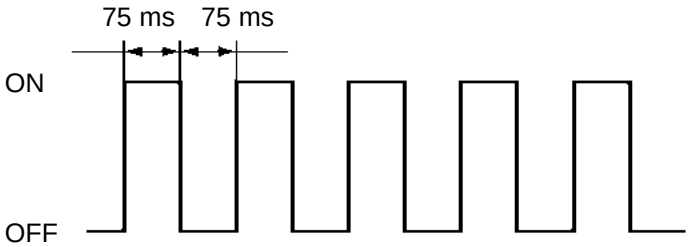


Rear Clearance Sonar Indicator

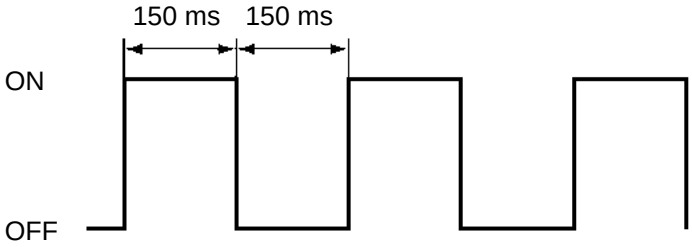
Detection at the near point
within 250 ± 30 mm (9.84 ± 1.18in.)




Detection at the middle distance point
From 250 ± 30 mm (9.84 ± 1.18 in.)
to 520 ± 60 mm (20.47 ± 2.36 in.)




Detection at the far point
From 520 ± 60 mm (20.47 ± 2.36 in.)
to 850 ± 90 mm (33.46 ± 3.54 in.)




H

I35029

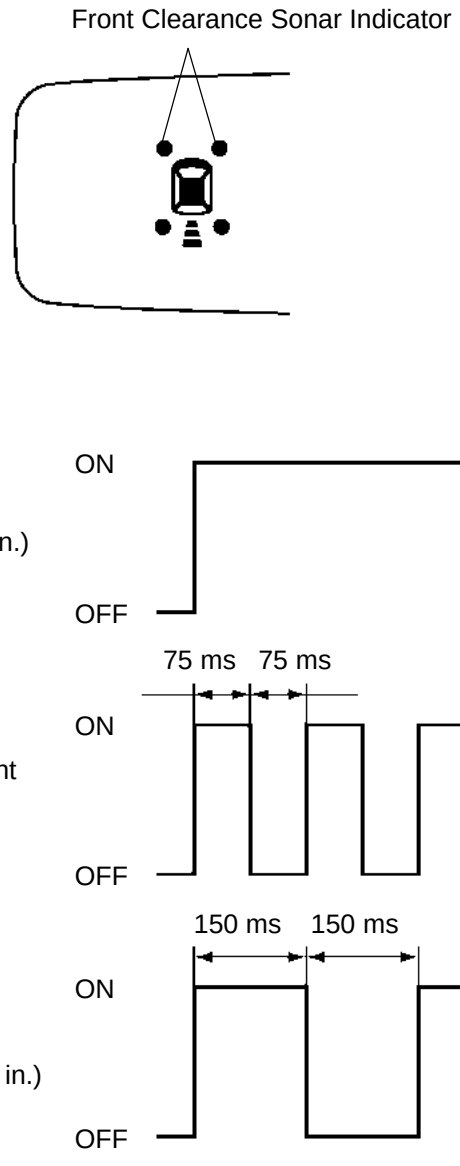
(h) w/ Front clearance sonar:
Check the indicator and the buzzer sounding condition when the front clearance sonar sensor detects obstacle.

**Operation condition:**

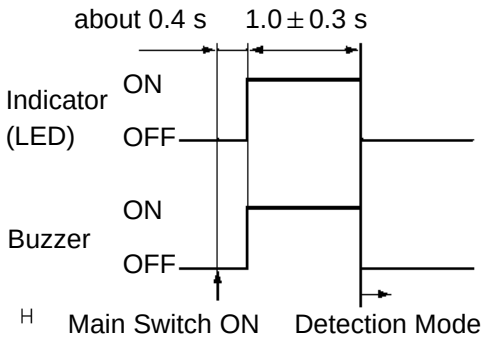
| Ignition switch | Clearance sonar main switch | Shift position | Vehicle speed |
|---|---|---|---|
| ON | ON | except P position | 10 km/h (6 mph) or less |

HINT:
Since sound wave is used for the detection range measurement, the detection range may vary a little due to the outside air temperature.

**Front clearance sonar indicator (w/ Front clearance sonar):**



**Initial check for LED and buzzer:**



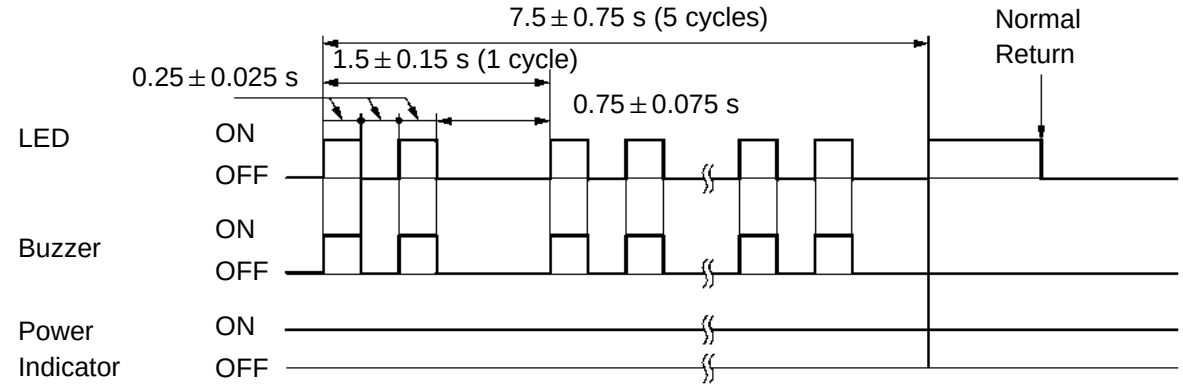

I32797

## 2. CHECKING INITIAL CHECK FUNCTION

(a) Check the initial check function for the LED and buzzer. Turn the ignition switch and clearance main switch ON. Regardless of vehicle speed and shift position, approx. 0.4 sec. after the main switch is turned ON, operate each LED and buzzer for about 1.0 ± 0.3 sec. Then move on to normal detecting operation.

If the LED or buzzer is faulty, the concerned LED and buzzer become as shown in the illustration below.

**Fault display:**

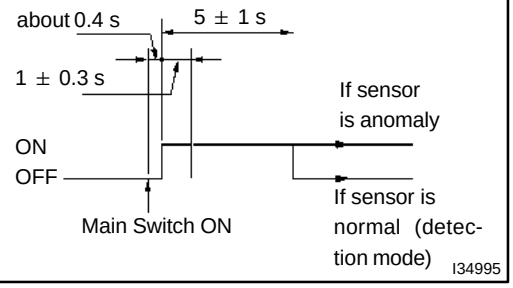



I35031

HINT:

- If each LED, power indicator and buzzer is not turned on continuously when power is turned on, the wire is judged broken.
- However, after the system returns to be normal, it conducts normal operation.

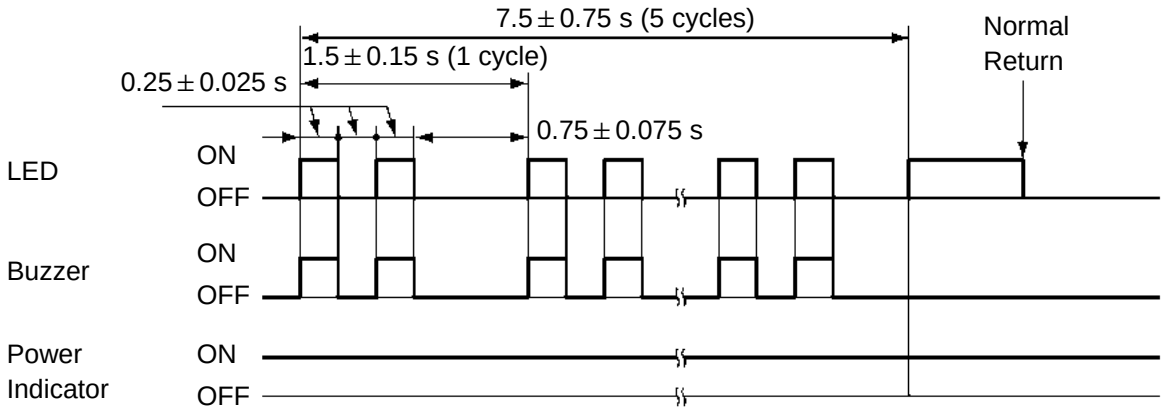
**Initial check for sensor:**



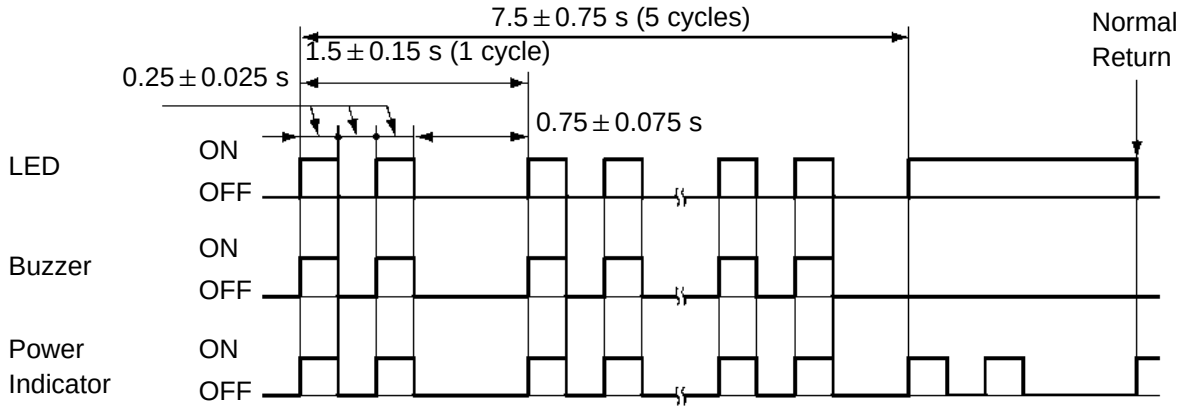

(b) Check the initial check function for the sensor.
Turn the ignition switch and clearance main switch ON. Regardless of vehicle speed and shift position, approx. 0.4 sec. after the main switch is turned ON, the ECU starts sensor checks for all the sensors.
After 1 ± 0.3 sec., the checking operation suspends if the ECU detects a vehicle speed of 15 km/h or higher. Then, the operation shifts to the normal detecting operation when the ECU detects a shift position other than P position. If there is no changes in the vehicle speed, the checking operation halts after 5 ± 0.3 sec. have elapsed.

- If even one sensor is found to have anomalies within 5 ± 1 sec., the checking operation for all the sensors continues (w/ Front clearance sonar).
- If the sensor is found to have anomalous due to open or freezing for approx. 5 sec. or more, indications as shown in the illustration appear.

**Fault display:**




**Freeze display:**

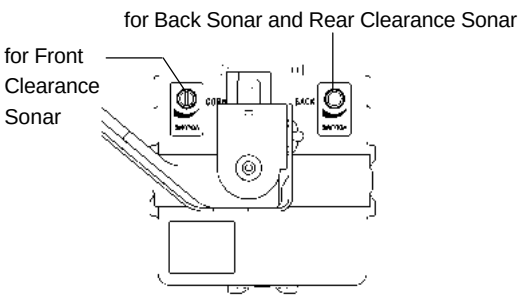



I35016

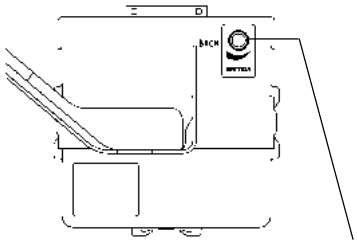
HINT:

- However, after the system returns to normal, it conducts normal operation.
- If one of the back sonar sensors detects a trouble, the other sensor does not perform detection any more.

**w/ Front clearance sonar:**




**w/o Front Clearance Sonar:**




I34996

**3. ADJUST BUZZER VOLUME**

(a) Turn the knob for the clearance warning ECU Assy to adjust the volume.

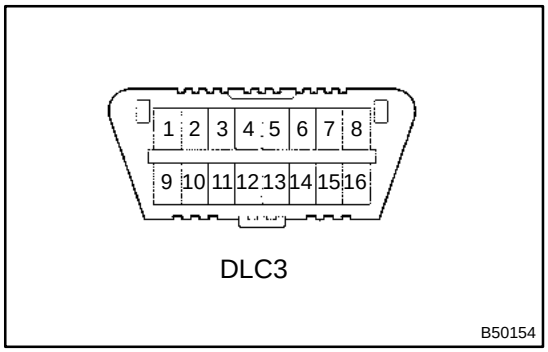
05A23-02

# PRE-CHECK

## 1. DIAGNOSIS SYSTEM

(a) Description

(1) The ECM controls the function of the immobiliser system on the vehicle.
Data of the immobiliser system and the Diagnostic Trouble Code (DTC) can be read in the Data Link Connector 3 (DLC3) of the vehicle. When trouble occurs in the immobiliser system, even though the security Indicator lamp does not come on, DTCs can be checked.
Therefore, when the immobiliser system seems to be malfunctioning, use the hand-held tester to check for a malfunction and repair it.




(b) Inspect the DLC3.
The vehicle's ECM uses the ISO 9141-2 communication protocol. The terminal arrangement of the DLC3 complies with the SAE J1962 and matches the ISO 9141-2 format.

**Standard:**

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 7 (Bus + Line) - 5 (Signal ground) | During communication | Pulse generation |
| 4 (Chassis Ground) - Body ground | Always | Below 1 Ω |
| 5 (Signal Ground) - Body ground | Always | Below 1 Ω |
| 16 (B+) - Body ground | Always | 10 to 14 V |

HINT:
If the screen displays UNABLE TO CONNECT TO VEHICLE after you have connected the cable of the hand-held tester to the DLC3, turned the ignition switch ON and used the hand-held tester, the problem may be on the vehicle side or the tester side.

- If communication is normal when the tester is connected to other vehicle, inspect the DLC3 of the original vehicle.
- If communication is still impossible when the tester is connected to another vehicle, the problem may be in the tester itself, so consult the Service Department listed in the tester's instruction manual.

## 2. Using hand-held tester:

**CHECK DTC**

(a) Checking DTCs.

(1) Connect the hand-held tester to DLC3.
(2) Turn the ignition switch ON.
(3) Read DTCs by following the prompts on the tester screen.

HINT:
Refer to the hand-held tester operator's manual for further details.

(b) Clear the DTCs from memory.

(1) Connect the hand-held tester to DLC 3.
(2) Turn the ignition switch ON.
(3) Erase DTCs by following the prompts on the tester screen.

HINT:
Refer to the hand-held tester operator's manual for further details.

### 3. CHECK DIAGNOSIS

(a) Using the hand-held tester, check for DTCs.

**NOTICE:**

**Hand-held tester only:**

**When the diagnosis system is switched from normal mode to check mode, all the DTCs and freeze frame data recorded in the normal mode are erased. So before switching modes, always check the DTCs and freeze frame data, and make a note of them.**

(1) Prepare the hand-held tester.
(2) Connect the hand-held tester to the DLC3 under the instrument panel lower pad.
(3) Turn the ignition switch ON and push the hand-held tester switch ON.
(4) Use the hand-held tester to check for DTCs and freeze frame data, and make a note of them (For operating instructions, see the hand-held tester instruction book).
(5) Confirm the details of the DTCs.

(b) Either of the following procedures will erase the DTCs and freeze frame data.
(1) Operating the hand-held tester to erase the codes (See the hand-held tester instruction book for operating instructions).
(2) Disconnecting the battery terminals or ECU-B fuse.

### 4. DATA LIST

HINT:

Using to the DATA LIST displayed on the hand-held tester, you can read the value of the switch, sensor, actuator, etc. without parts removal. Reading the DATA LIST as the first step of troubleshooting is one way to shorten the labor time.

(a) Connect the hand-held tester to the DLC3.
(b) Turn the ignition switch ON.
(c) Read the DATA LIST, according to the display on the tester.

**Transponder key ECU assy:**

| Item | Measurement Item/ Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| KEY SW | Un-lock warning SW signal/ ON or OFF | OFF: Key is in IG key cylinder<br>ON: No key is in IG key cylinder | - |
| IG SW | IG SW signal/ ON or OFF | OFF: IG SW is ON or START position<br>ON: IG SW is OFF or ON position | - |
| IMMOBILISER | Immobiliser system status/ SET or UNSET | UNSET: Without key<br>SET: Ignition switch ON | - |
| RESPONSE | Transponder chip data/ NG or OK | NG: Data error<br>OK: Data OK | - |
| FRAME | Transponder chip data/ NG or OK | NG: Data error<br>OK: Data OK | - |
| SERIAL NUMBER | Transponder chip data/ NG or OK | NG: Data error<br>OK: Data OK | - |
| ENCRYPT CODE | Transponder chip data/ NG or OK | NG: Data error<br>OK: Data OK | - |
| STATUS | Transponder chip data/ NG or OK | NG: Data error<br>OK: Data OK | - |
| BCC | Transponder chip signal/ NG or OK | NG: Incorrect data sending<br>OK: Correct data sending | - |
| SUB KEY | Sub key code signal/ NOMATCH or MATCH | NOMATCH: Nomatch sub key code is sent<br>MATCH: Sub key code is sent | - |
| MASTER KEY | Master key code signal/ NOMATCH or MATCH | NOMATCH: Nomatch Master key code is sent<br>MATCH: Master key code is sent | - |

| Item | Measurement Item/ Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| REGIST SUB CODE | Number of registered sub-key/ min. 0, max. 15 | Number of registered sub-key | - |
| REGIST MAS CODE | Number of registered master key/ min. 0, max. 15 | Number of registered master key | - |
| REG CODE SPACE | Memory space for key codes registration/ NOT FUL or FULL | NOT FUL: Possible to resister more key code<br>FULL: Impossible to register key code any more | - |
| ANTENNA COIL | Antenna coil condition/ NORMAL or FAIL | Normal: Antenna coil is normal<br>FAIL: Antenna coil is abnormal | - |

## 5. ACTIVE TEST

HINT:

Performing the ACTIVE TEST using the hand-held tester allows you to operate the relay, VSV, actuator, etc. without parts removal. Performing the ACTIVE TEST as the first step of troubleshooting is one way to shorten the labor time.

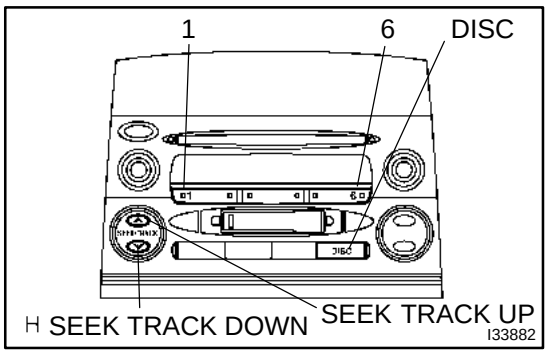
(a) Connect the hand-held tester to the DLC3.

(b) Turn the ignition switch ON.

(c) Perform the ACTIVE TEST, according to the display on the tester.

**Transponder key ECU assy:**

| Item | Test Details | Diagnostic Note |
|---|---|---|
| SECURITY INDIC | Turn security indicator ON/OFF | - |




055LI-05

# PRE-CHECK

## 1. DIAGNOSIS CHECK

(a) Starting Diagnosis Mode (All elements are lighting in the SW check mode).

(1) Turn off the audio system and turn the IG switch to ACC. While pressing the preset switches "1" and "6" at the same time, press "DISC" 3 times.

(2) Reference:

- When the system enters the Diagnosis Mode, a "beep" tone is emitted 3 times and all the elements are lighting in the SW check mode.
- It takes about 40 seconds to complete the check.
- Turn all the elements in the LCD on.
- When pressing the switch, confirm a beep tone is emitted.
- Press the "SEEK TRACK UP" button to enter the "Service Check Screen".

(b) Service Check Screen.

(1) Reference:

In the service check mode, the system check and the diagnosis memory check are performed, and the check results are displayed in ascending order of the device codes (physical address.)

| Terms | Meaning |
|---|---|
| Component code (Physical address) | Three-digit code (In hexadecimal) given to each device comprising AVC-LAN. Corresponding to its function, individual symbol is provided. |
| Logical address | Two-digit code (In hexadecimal) given to each function and device unit in each device comprising AVC-LAN. |

**Code No. (physical address) List**

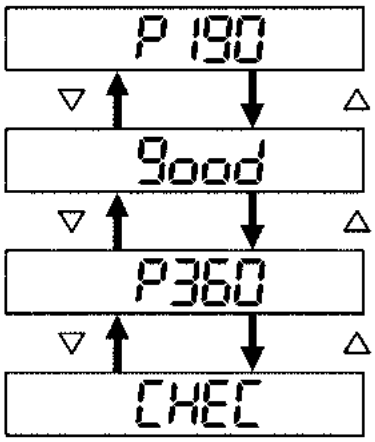
| Code No. (physical address) | Equipment name |
|---|---|
| 190 | Radio receiver assy (Audio head unit) |
| 440 | Stereo component amplifier |
| 1F6, 16C | Multi-display Controller Sub-assy |
| 1F4 | Stereo Component Controller Assy |

(c) Finishing Diagnosis Mode.

(1) Press "DISC" for 2 seconds or more, or turn the IG switch OFF.

(d) Service Check Mode Result Display (for checking the current and the past system conditions).

(1) Press the ”SEEK TRACK” switch to see the check result of each device.




P---indicates physical address
190---physical address

good---”The component is normal”.

P---indicates physical address
360---physical address

CHEC---”Check needed”.

△ : SEEK TRACK UP

▽ : SEEK TRACK DOWN

The illustration shows the case that the system has 2 devices with codes 190 and 360, and the device (code 360) requires a check.
The check result is displayed in ascending order of device code. The device code is displayed first, and then the check result.

P I34696

(2) Check Result Display.

| Display | Original Language | Meaning | Action to be taken |
|---|---|---|---|
| good | Good (normal) | No DTCs are detected in both ”System Check Mode” and ”Diagnosis Memory Mode”. | - |
| NCON | No connection | The system recognized the component when it was registered, but the component gives no response to the ”Diagnosis Mode ON Request”. | Check the power source circuit and the communication circuit of the device indicated by the device code (physical address). |
| ECHN | Exchange | One or more DTC for ”Exchange” is detected in either ”System Check Mode” or ”Diagnosis Memory Mode”. | Go to the detail information mode to check the trouble area referring to the DTC list. |
| CHEC | Check | When no DTCs are detected for ”Exchange”, one or more DTC for ”Check is detected in either ”System Check Mode” or ”Diagnosis Memory Mode”. | Go to the detail information mode to check the trouble area referring to the DTC list. |

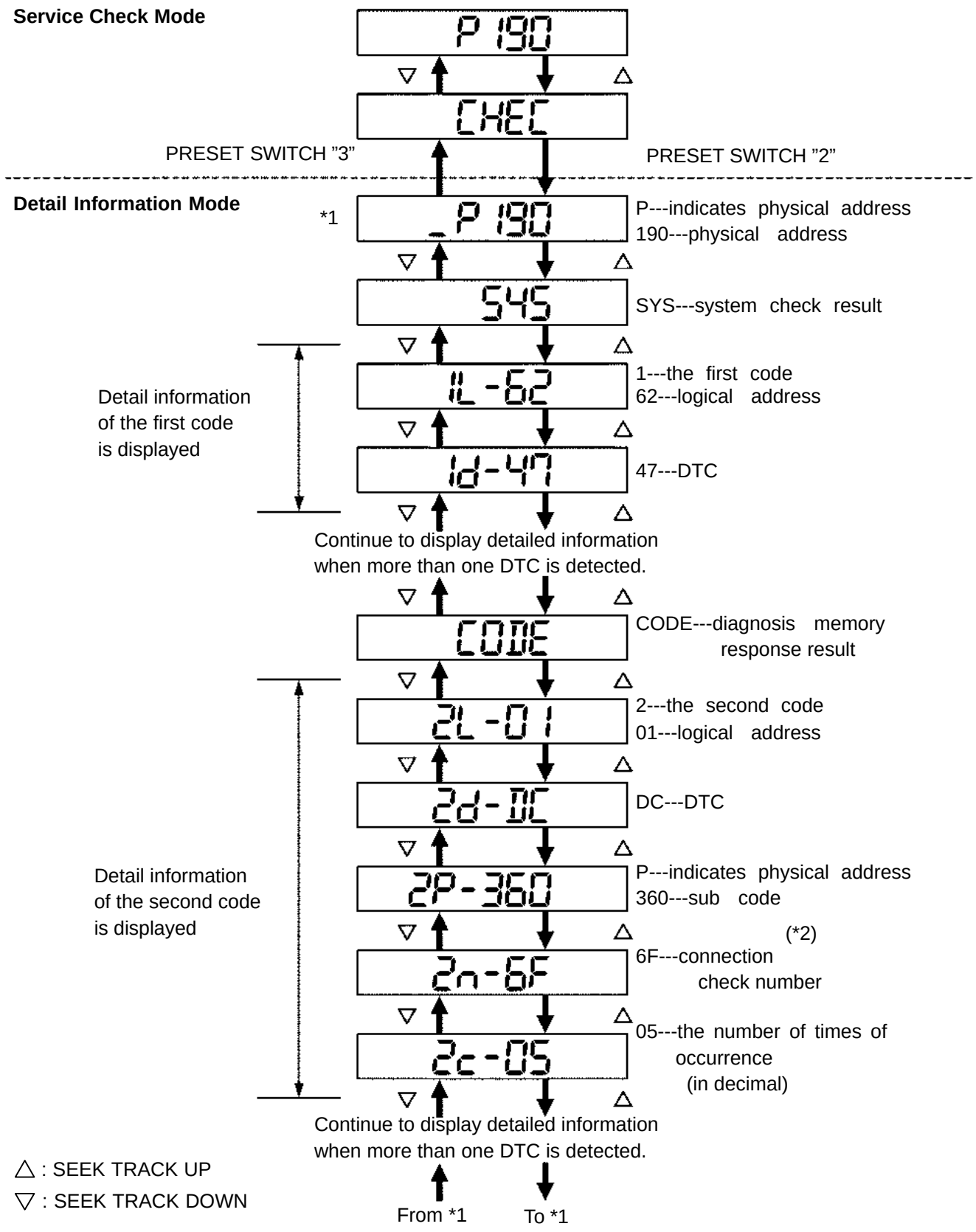
| Display | Original Language | Meaning | Action to be taken |
|---|---|---|---|
| OLD | Old version | Old DTC application is identified and DTC is detected in either ”System Check Mode” or ”Diagnosis Memory Mode”. | - |
| NRES | No response | The device gives no response to any one of ”System Check Mode ON Request”, ”System Check Result Request” and ”Diagnosis Memory Request”. | Check the power source circuit and the communication circuit of the device indicated by the device code (physical code). |

(3) To perform the Service Check again, press the preset switch ”1”.

(e) Detailed information Mode (when displaying the troubled device’s DTC)

(1) With ”CHEC” or ”ECHN” being displayed, press the preset switch ”2” to go to the detailed information mode.

(2) Press the ”SEEK TRACK” switch to display ”System Check Result (SYS)” and ”Diagnosis Memory Response (CODE)”.




The illustration shows the case that the component with code 190 has DTC "47" and "dC" as a result of the system check and the diagnosis memory response.
The detailed information mode shows the system check result first, then the diagnosis memory response result.
(*2): As for the DTCs that do not have any sub code, sub code is not displayed.

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(3) Displayed Items in Detailed Information Mode

| Division Code for DTC display | Meaning | The order of detailed information displayed when the "TUNE UP" switch is pressed. (The order is reversed when the "TUNE DOWN" switch is pressed.) |
|---|---|---|
| SYS | System check result is displayed. | Logical address →<br>DTC |
| CODE | Diagnosis memory check result is displayed. | Logical address→<br>DTC→<br>Sub code→<br>Connection confirmation number→<br>The number of times of occurrence |

(4) Check the trouble area referring to the DTC list.

(5) To return to the service check mode, press the preset switch "3".

(f) Clearing Individual DTC Memory (when clearing the memory of the DTC detected in the past individually)

(1) Press the preset switch "5" for 2 seconds or more while the "ECHN" is displayed in the service check mode or during the detailed information mode.

HINT:

- Beep sound is emitted once when the DTC memory is completely cleared.
- When the DTC memory is cleared, only the component code (physical address) is displayed for the target component.
- To check DTCs, press the preset switch "1" and perform the service check again.

(g) Clearance of all the DTC memory (when clearing all the memory of the DTCs detected in the past)

(1) Start the diagnosis mode after repairing the trouble area.

(2) Press the preset switch "5" for 2 seconds or more. ("CLR" is displayed at this time.)

HINT:

- Beep sound is emitted once when the DTCs memory is completely cleared.
- When the DTCs memory for all the device is cleared, only the component codes (physical address) are displayed.

(3) Press the preset switch "1" to perform the service check again, and check that no DTCs are displayed for all the component codes (physical address).

## 2. IDENTIFICATION OF NOISE SOURCE

(a) Identify the condition under which the noise occurs, and check the noise filter on the related part.

| Condition in which noise occurs | Noise Source |
|---|---|
| Depressing the acceleration pedal increases noise, and stopping the engine erases the noise immediately. | Generator |
| Noise occurs during the A/C or the heater operation. | Blower motor |
| Rapid acceleration while driving on the unpaved road or after the IG switch is turned ON makes noise. | Fuel pump |
| Pressing and then releasing the horn switch, and keeping pressing the horn switch makes unusual noise. | Horn |
| Stopping the engine erases small noise that has been heard. | Ignition |
| Noise occurs synchronously with the turn signal flash. | Flasher |
| Noise occurs during the window washer operation. | Washer |
| Noise occurs during the engine running, and it continues after the engine stops. | Engine coolant temperature sensor |
| Noise occurs during the wiper operation. | Wiper |
| Noise occurs when the brake pedal is depressed. | Stop light switch |
| Others. | Static electricity stored on the vehicle |

(b) Reference:

- Make sure first that there is no noise from outside. Failing to do so makes the noise source detection difficult and leads to misunderstanding.
- The noise should be removed in descending order of loudness.
- Setting the radio untuned makes noise noticeable, making the recognition of the phenomenon easier.

05BVI-01

# PRE-CHECK

## 1. USING HAND-HELD TESTER

(a) Hook up the hand-held tester to the DLC3.

(b) Monitor the ECU data by following the prompts on the tester screen.

HINT:

Hand-held tester has ”Snapshot” function which records the monitored data.

Please refer to the hand-held tester operator’s manual for further details.

## 2. DTC CLEAR

(a) DTC and freeze frame data can be erased by operating the hand-held tester.

## 3. DATA LIST

HINT:

By the DATA LIST displayed by the hand-held tester, you can read the value of the switch, sensor, actuator and so on without removing any part. Reading the DATA LIST as the first step in troubleshooting is one of the methods to shorten the labor time.

(a) Connect the hand-held tester to DLC3.

(b) Turn the ignition switch ON.

(c) According to the display on the tester, read the ”DATA LIST”.

**BODY NO.1:**

| Item | Measurement Item/ Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| ACC SW | ACC SW signal/ ON or OFF | ON: Ignition key is in ACC, ON or START position<br>OFF: Ignition key is in OFF position | - |
| IG SW | IG SW signal/ ON or OFF | ON: Ignition key is in ON or START position<br>OFF: Ignition key is in OFF or ACC position | - |
| PARKING BRAKE SW | Parking brake SW signal/ON or OFF | ON: Parking brake pedal is ON<br>OFF: Parking brake pedal is OFF | - |
| D DOR CTY SW | Driver’s door courtesy SW signal/ON or OFF | ON: Driver’s door is open<br>OFF: Driver’s door is closed | - |
| P DOR CYT SW | Passenger’s door courtesy SW signal/ ON or OFF | ON: Front passenger’s door is open<br>OFF: Front passenger’s door is closed | - |
| Rr DOR CTY SW | Rear slide door courtesy SW signal/ON or OFF | ON: Either right or left rear slide door is open<br>OFF: Both the right and left slide doors are closed | - |
| P LOCK POS SW | Front passenger’s door lock position SW signal/ON or OFF | ON: Front passenger’s door lock is in unlock position<br>OFF: Front passenger’s door lock is in lock position | - |
| Rr. LOCK POS SW | Rear slide door lock position SW signal/ON or OFF | ON: Rear slide door lock is in unlock position<br>OFF: Rear slide door lock is in lock position | - |
| DIMMER SW | Headlight dimmer SW signal/ON or OFF | ON: Headlight dimmer switch is in HI or FLASH position<br>OFF: Headlight dimmer switch is in LO position | - |
| HIGH FLASHER SW | Headlight dimmer SW signal/ON or OFF | ON: Headlight dimmer switch is in FLASH position<br>OFF: Headlight dimmer switch is in except FLASH position | - |
| F FOG LIGHT SW | Front fog light SW signal/ON or OFF | ON: Front fog light switch is ON position<br>OFF: Front fog light switch is OFF position | - |
| AUTO LIGHT SW | Auto light SW signal/ ON or OFF | ON: Headlight dimmer switch is in AUTO position<br>OFF: Headlight dimmer switch is in except AUTO position | - |
| HEAD LIGHT SW | Head light control SW signal/ON or OFF | ON: Light control switch is in HEAD position<br>OFF: Light control switch is in except HEAD position | - |
| TAIL LIGHT SW | Taillight SW signal/ ON or OFF | ON: Light control switch is in TAIL or HEAD position<br>OFF: Light control switch is in OFF position | - |
| ILLUMINATE RATE | Illuminate rate/ ON or OFF | ON: Illuminate rate ON<br>OFF: Illuminate rate OFF | - |

| Item | Measurement Item/ Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| D LOCK POS SW | Driver's door lock position SW signal/ ON or OFF | ON: Door lock is in unlock position<br>OFF: Door lock is in lock position | - |
| LIGHTING TIME | Lighting time/7.5 s, 15 s or 30 s | Customized value can be displayed. | - |
| I/L ON/ACC OFF | Light the I/L when ACC OFF/ON or OFF | Customized sign can be displayed. | - |
| I/L ON/UNLOCK | Interior light ON w/un-lock/ON or OFF | Customized sign can be displayed. | - |
| LIGHT CTRL TYPE | Light control type/ CRNT or OLD | Customized sign can be displayed. | - |
| LIGHT OFF DELAY | Light auto OFF delay/ OFF, 30 s, 60 s, 90 s | Customized value can be displayed. | - |

**BACK DOOR:**

| Item | Measurement Item/ Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| COURTESY SW | Back door courtesy SW signal/ ON or OFF | ON: Back door is open<br>OFF: Back door is closed | - |

## 4. ACTIVE TEST

HINT:

Performing the ACTIVE TEST using the hand-held tester allows the relay, VSV, actuator and so on to operate without removing any part. Performing the ACTIVE TEST as the first step of troubleshooting is one of the methods to shorten the labor time. The DATA LIST can be displayed during the ACTIVE TEST.

(a) Connect the hand-held tester to DLC3.

(b) Turn the ignition switch ON.

(c) According to the display on the tester, perform the "ACTIVE TEST".

**BODY NO.1:**

| Item | Test Details | Diagnostic Note |
|---|---|---|
| HAZARD | Turn Hazard light flasher relay ON/OFF | - |
| F FOG LIGHT RLY | Turn Front fog light relay ON/OFF | - |
| HEAD LIGHT | Turn Headlight relay ON/OFF | - |
| HEAD LIGHT (HI) | Turn Headlight dimmer relay (Headlight dimmer switch HI position) ON/OFF | - |
| TAIL LIGHT | Turn Tail light relay ON/OFF | - |
| DRL RELAY | (Test Details)<br>Turn daytime running light relay ON/OFF<br>(Vehicle Condition)<br>Ignition SW is ON, engine is stopped and light control SW is in OFF position. | - |
| DIMMER SIG | Turn Dimmer relay ON/OFF | - |
| ILLUMI OUTPUT | (Test Details)<br>Turn Interior light and Key illumination ON/OFF<br>(Vehicle Condition)<br>Interior light SW is in Door position and all doors are closed | - |

## 5. ILLUMINATED ENTRY SYSTEM OPERATION CHECK

(a) The illuminated entry system is explained below:

(1) Turn the ignition switch OFF, close all the doors, and set them in the lock condition.

(2) Unlock any door and open any other doors and check that the room light comes on. Close the door and check that the room light goes off in about 15 seconds.

(3) Turn the ignition switch ON and open and close any other of the doors. Check that the room light immediately goes off.
(4) Turn the ignition switch OFF.
(5) Open and close any of the door to turn the room light on. Before the room light goes off in about 15 seconds, turn the ignition switch ON. Check that the room light goes off immediately.
(6) Turn the ignition switch OFF.
(7) Open and close any of the doors to turn the room light come on. Before the light goes off in about 15 seconds, lock all the door. Check that the light goes off immediately.

**6. LAMP AUTO CUT OPERATION CHECK**

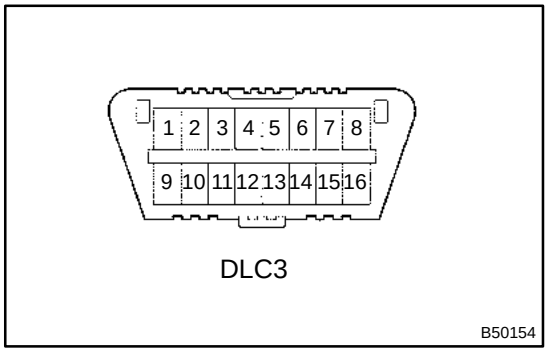
(a) Turn the ignition switch ON, and switch headlight into TAIL or HEAD position.
(b) Turn the ignition switch OFF and open the driver door, and check that the headlight goes off in about 30 seconds.
(c) Turn the ignition switch ON, and switch headlight into TAIL or HEAD position.
(d) Turn the ignition switch OFF and open the driver door. Before the headlight goes off in about 30 seconds, lock all the door. Check that the headlight goes off immediately.

**7. BATTERY SAVER OPERATION CHECK**

(a) Remove the ignition key and close all the doors.
(b) Open any door to light the room light, and leave it open. Check that the light goes off in about 20 minutes.
(c) After the room light goes off, close the driver door.
(d) Open any door to turn the room light on, and then open another door. Check that the room light goes off within 20 minutes. after opening the doors.
(e) Close all the doors. With the ignition key inserted, open any door to light the room light and then, remove the ignition key. Check that the room light goes off within 20 minutes.

05BYU-03

# PRE-CHECK




**1. DIAGNOSIS SYSTEM**

(a) Inspect the DLC3.

HINT:

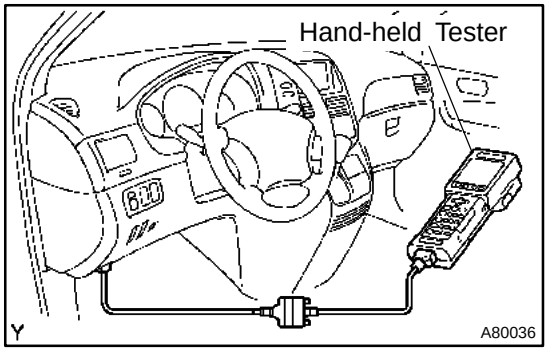
The vehicle's ECM uses ISO 9141-2 for communication. The terminal arrangement of DLC3 complies with SAE J1962 and matches the ISO 9141-2 format.

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 7 (Bus + line) - 5 (Signal ground) | During communication | Pulse generation |
| 4 (Chassis ground) - Body ground | Constant | Below 1 Ω |
| 5 (Signal ground) - Body ground | Constant | Below 1 Ω |
| 16 (B+) - Body ground | Constant | 9 to 14 V |

HINT:

If the screen displays UNABLE TO CONNECT TO VEHICLE after you have connected the cable of the hand-held tester to the DLC3, turned the ignition switch ON and used the hand-held tester, there is a problem on the vehicle side or tester side.

- If communication is normal when the tester is connected to another vehicle, inspect the DLC3 of the original vehicle.
- If communication is still impossible when the tester is connected to another vehicle, the problem is probably in the tester itself, so consult the Service Department listed in the tester's manual.




**2. CHECK DTC (USING HAND-HELD TESTER)**

(a) Checking DTCs.

(1) Connect the hand-held tester to the DLC3.

(2) Turn the ignition switch ON.

(3) Read DTCs by following the prompts on the tester screen.

HINT:

Refer to the hand-held tester operator's manual for further details.

**3. CLEAR DTC (USING HAND-HELD TESTER)**

(a) Clearing the DTCs from memory.

(1) Connect the hand-held tester to the DLC3.

(2) Turn the ignition switch ON.

(3) Erase the DTCs following the prompts on the tester screen.

HINT:

Refer to the hand-held tester operator's manual for further details.

## 4. DATA LIST

HINT:

Using the DATA LIST displayed on the hand-held tester, you can read the value of the switch, sensor, actuator, etc. without parts removal. Reading the DATA LIST as the first step of troubleshooting is one way to shorten the labor time.

(a) Connect the hand-held tester to the DLC3.

(b) Turn the ignition switch ON.

(c) Read the DATA LIST according to the display on the tester.

**Standard (Multiplex network body ECU):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| KEY UNLK WRN SW | Un-lock warning switch signal /ON or OFF | ON: Key is in ignition key cylinder<br>OFF: No key is in ignition key cylinder | - |
| IG SW | Ignition switch signal /ON or OFF | ON: Key is in ON or START position<br>OFF: Key is in OFF or ACC position | - |
| BACK DOR OPEN | Back door open judgment /PROHIBT or PERMIT | PROHIBT: Back door opening is impossible<br>PERMIT: Back door opening is possible | - |
| D DOR CTY SW | Driver side door courtesy switch signal /ON or OFF | ON: Driver side door is open<br>OFF: Driver side door is closed | - |
| P DOR CYT SW | Passenger side door courtesy switch signal /ON or OFF | ON: Passenger side door is open<br>OFF: Passenger side door is closed | - |
| Rr DOR CTY SW | Rear door courtesy switch signal /ON or OFF | ON: Either right or left rear door is open<br>OFF: Both right and left rear doors are closed | - |
| P LOCK POS SW | Passenger side door lock position switch signal /ON or OFF | ON: Passenger side door lock is in unlocked position<br>OFF: Passenger side door lock is in locked position | - |
| Rr LOCK POS SW | Rear door lock position switch signal /ON or OFF | ON: Rear door lock is in unlocked position<br>OFF: Rear door lock is in locked position | - |
| B DOR OPEN SW | Back door opener switch signal /ON or OFF | ON: Back door opener switch is pushed<br>OFF: Back door opener switch is not pushed | - |
| D LOCK POS SW | Driver side door lock position switch signal /ON or OFF | ON: Driver side door lock is in unlock position<br>OFF: Driver side door lock is in lock position | - |
| B DOE OPER SW | Power back door MAIN switch signal /ON or OFF | ON: Power back door MAIN switch is pushed<br>OFF: Power back door MAIN switch is not pushed | - |
| D PSD SW | Power slide door MAIN switch signal /ON or OFF | ON: Power slide door MAIN switch is pushed<br>OFF: Power slide door MAIN switch is not pushed | - |
| AUTO LOCK DELAY | Door courtesy switch signal /60s or 30s | 60s: Door auto locking time is 60 sec.<br>30s: Door auto locking time is 30 sec. | - |
| UNLOCK/2 OPER | 2 times operation wireless unlock signal /ON or OFF | ON: All doors unlock when wireless UNLOCK switch pressed twice<br>OFF: All doors unlock when wireless UNLOCK switch pressed once | - |
| AUTO LOCK | Vehicle speed signal /ON or OFF | ON: Doors lock in relation to vehicle speed<br>OFF: Doors do not lock in relation to vehicle speed | - |
| UNLK/KEY TWICE | Key operation driver door 2-step unlock switch signal /ON or OFF | ON: All doors are unlocked when driver side door key cylinder is turned to unlock twice (2-step unlocking function)<br>OFF: Only driver side door is unlocked when driver side door key cylinder is turned to unlock once | - |
| ALL UNLK/OPN-CL | Driver side door courtesy switch signal /ON or OFF | ON: All doors unlock when driver side door is opened<br>OFF: Other doors do not unlock when driver side door is opened | - |

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| UNLOCK/PARK | Ignition switch ON, shift lever P position, vehicle speed 0 km/h signal /ON or OFF | ON: All doors unlock when shift lever is shifted to P position from any position other than P while the ignition switch is ON<br>OFF: No door unlocks even when shift lever is shifted to P position from any position other than P while ignition switch is ON | - |
| AUTO LOCK/SHIFT | Shift lever in any position other than P position signal /ON or OFF | ON: All doors lock when shift lever is shifted to any position other than P from P position<br>OFF: No door locks when shift lever is shifted to any position other than P from P position | - |

## 5. ACTIVE TEST

HINT:

Performing the ACTIVE TEST using the hand-held tester allows you to operate the relay, VSV, actuator, etc. without parts removal. Performing the ACTIVE TEST as the first step of troubleshooting is one way to shorten the labor time. It is possible to display the DATA LIST during the ACTIVE TEST.

(a) Connect the hand-held tester to the DLC3.

(b) Turn the ignition switch ON.

(c) Perform the ACTIVE TEST according to the display on the tester.

**Standard (Multiplex network body ECU):**

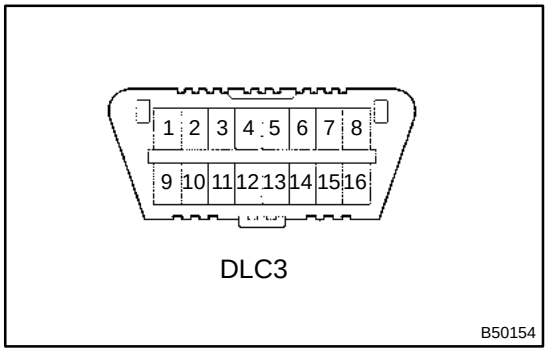
| Item | Test Details | Diagnostic Note |
|---|---|---|
| TRUNK/BDOR OPEN | Open back door<br>OFF/ON | - |
| DOOR LOCK | Operate door lock motor for all doors<br>OFF/LOCK/UNLOCK | - |

## 6. BACK DOOR LOCK

(a) When the battery is reconnected:

The back door is locked and therefore cannot be opened. Therefore, it is necessary to unlock the back door using the door control switch or transmitter switch.

# PRE-CHECK




**1. DIAGNOSIS SYSTEM**

(a) Inspect the DLC3.

HINT:

The vehicle's ECM uses ISO 9141-2 for communication.

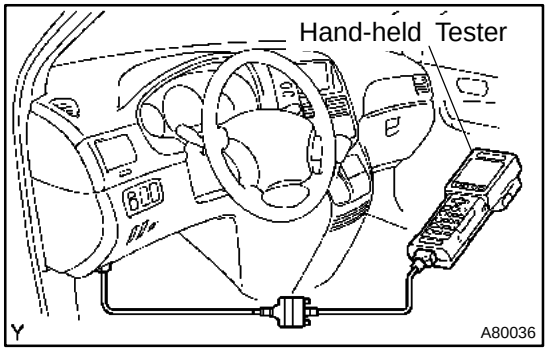
The terminal arrangement of the DLC3 complies with SAE J1962 and matches the ISO 9141-2 format.

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 7 (Bus + Line) - 5 (Signal Ground) | During communication | Pulse generation |
| 4 (Chassis Ground) - Body Ground | Constant | Below 1 Ω |
| 5 (Signal Ground) - Body Ground | Constant | Below 1 Ω |
| 16 (B+) - Body Ground | Constant | 9 to 14 V |

HINT:

If the screen displays "UNABLE TO CONNECT TO VEHICLE" after you have connected the cable of the hand-held tester to the DLC3, turned the ignition switch ON and used the hand-held tester, there is a problem on the vehicle side or tester side.

- If communication is normal when the tester is connected to another vehicle, inspect the DLC3 of the original vehicle.
- If communication is still impossible when the tester is connected to another vehicle, the problem is probably in the tester itself, so consult the Service Department listed in the tester's manual.




**2. CHECK DTC (USING HAND-HELD TESTER)**

(a) Checking DTCs.

(1) Connect the hand-held tester to the DLC3.

(2) Turn the ignition switch ON.

(3) Read DTCs by following the prompts on the tester screen.

HINT:

Refer to the hand-held tester operator's manual for further details.

**3. CLEAR DTC (USING HAND-HELD TESTER)**

(a) Clearing the DTCs from memory.

(1) Connect the hand-held tester to the DLC3.

(2) Turn the ignition switch ON.

(3) Erase the DTCs following the prompts on the tester screen.

HINT:

Refer to the hand-held tester operator's manual for further details.

## 4. DATA LIST

HINT:

Using the DATA LIST displayed a the hand-held tester, you can read the value of the switch, sensor, actuator, etc. without parts removal. Reading the DATA LIST as the first step of troubleshooting is one way to shorten the labor time.

(a) Connect the hand-held tester to the DLC3.

(b) Turn the ignition switch ON.

(c) Read the DATA LIST according to the display on the tester.

**Standard (Power back door ECU):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| HALF LATCH SW | Back door lock half-latch switch signal /ON or OFF | ON: Back door is not completely closed<br>OFF: Back door is closed | - |
| FULL LATCH SW | Back door lock full-latch switch signal /ON or OFF | ON: Back door is open<br>OFF: Back door is closed | - |
| LOCK STATUS | Back door position switch signal /UNLOCK or LOCK | UNLOCK: Back door is unlocked<br>LOCK: Back door is locked | - |
| PBD SW OPEN | Power back door switch operation (Satellite switch) /0.8s or 0.0s* | 0.8s: Satellite switch 0.8 sec.-press (long press) operates power back door<br>0.0s*: Satellite switch 1-press operates power back door | - |

* ”0.0s” appearing on the display of the hand-held tester means that a 1-press of the satellite switch operates the power back door.

## 5. ACTIVE TEST

HINT:

Performing the ACTIVE TEST using the hand-held tester allows you to operate the relay, VSV, actuator, etc. without parts removal. Performing the ACTIVE TEST as the first step of troubleshooting is one way to shorten the labor time. It is possible to display the DATA LIST during the ACTIVE TEST.

(a) Connect the hand-held tester to the DLC3.

(b) Turn the ignition switch ON.

(c) Perform the ACTIVE TEST according to the display on the tester.

**Standard (Power back door ECU):**

| Item | Test Details | Diagnostic Note |
|---|---|---|
| LATCH RELEASE | Back door lock latch is release OFF/ON | - |

## 6. BACK DOOR LOCK

(a) When the battery is reconnected:

The back door is locked and therefore cannot be opened. Therefore, it is necessary to unlock the back door using the door control switch or transmitter switch.

## 7. RESET

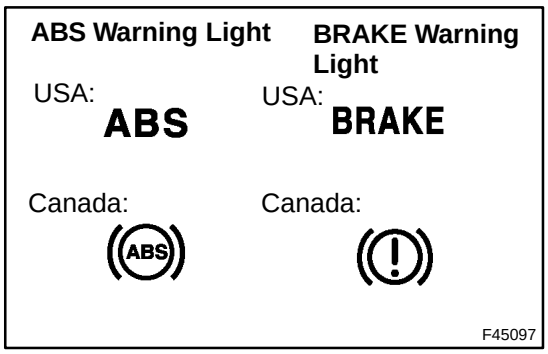
(a) When the battery is reconnected:

The back door is locked and therefore cannot be opened. Therefore, it is necessary to unlock the back door using the door control switch or transmitter switch.

(b) Reset the power back door system:

The power back door ECU records the fully open position and the fully closed position of the power back door in its memory and the power back door fully opens and closes based on this memory. The power back door cannot operate without this memory. In the case where the battery has been removed, manually close the back door fully to reset the power back door system. However, if the battery is removed/installed when the back door is fully open, the power back door operates normally, thus the resetting the system is unnecessary.

057U9-05




# PRE-CHECK

## 1. DIAGNOSIS SYSTEM

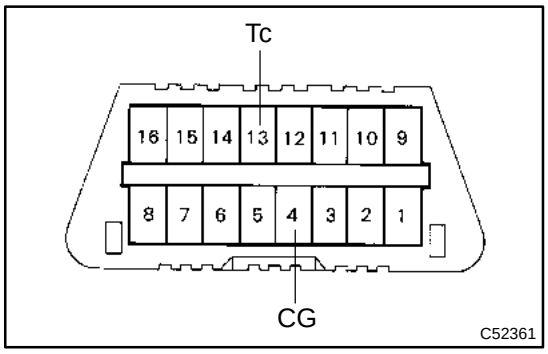
(a) Release the parking brake pedal.

(b) Check the warning lights.

When the ignition switch is turned ON, check that the ABS warning light and brake warning light come on for 3 sec.

HINT:

- When the parking brake is applied or the level of the brake fluid is low, the brake warning light comes on.
- If the indicator check result is not normal, proceed to troubleshooting for the ABS warning light circuit (See page 05-419 or 05-423 ) or brake warning light circuit (See page 05-425 ).




## 2. DTC CHECK (USING SST CHECK WIRE)

(a) Checking DTCs using a SST check wire.

SST 09843-18040

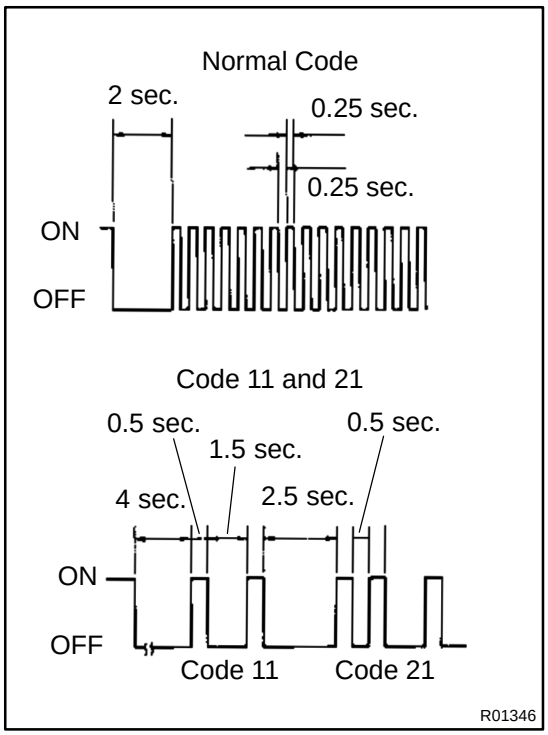
(1) Using SST, connect terminal Tc and CG of the DLC3.

(2) Turn the ignition switch ON.

(3) Read the DTC from the ABS warning light on the combination meter.

HINT:

- If no code appears, inspect the diagnostic circuit or ABS warning light circuit (See page 05-419 or 05-423 ).

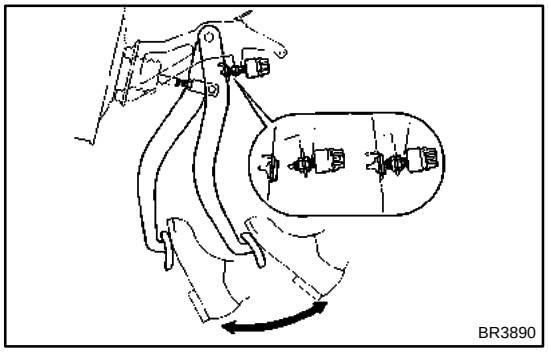



- As an example, the blinking patterns for normal code and codes 11 and 21 are shown on the left.

(4) Codes are explained in the code table on page 05-392

If 2 or more DTCs are detected at the same time, the lowest numbered DTC is displayed 1st.

(5) After completing the check, remove the SST from the DLC3.




(b) Clearing the DTCs using the SST check wire.
SST 09843-18040
(1) Using SST, connect the terminal Tc and CG of the DLC3.
(2) Turn the ignition switch ON.
(3) Clear DTC stored in ECU by depressing the brake pedal 8 or more times within 5 sec.
(4) Check that the ABS warning light shows the normal code.
(5) Remove the SST from the DLC3.

HINT:
Disconnect the battery cable during repairs will not erase the DTC in the ECU.

**3. DTC CHECK (USING HAND-HELD TESTER)**

(a) Checking DTCs using the Hand-held tester.
(1) Read the DTC by following the prompts on the tester screen.

HINT:
Please refer to the hand-held tester operator's manual for further details.

(b) Clearing the DTCs using the hand-held tester.
(1) Turn the ignition switch to ON.
(2) Operate the hand-held tester to erase the codes.

HINT:
Please refer to the hand-held tester operator's manual for further details.

**4. DATA LIST**

With the hand-held tester connected to DLC3 and the ignition turned to ON, the ABS data list can be displayed. Follow the prompts on the tester screen to access the Data List.

| Item | Measurement Item / Range (Display) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| ABS MOT RELAY | ABS motor relay / ON or OFF | ON : Motor relay ON | - |
| SOL RELAY | Solenoid relay / ON or OFF | ON : Solenoid relay ON | - |
| STOP LIGHT SW | Stop light switch / ON or OFF | ON : Brake pedal depressed<br>OFF : Brake pedal released | - |
| PKB SW | Parking brake switch / ON or OFF | ON : Parking brake applied<br>OFF : Parking brake released | - |
| ABS OPERT FR | ABS operation (FR) / BEFORE or OPERATE | BEFORE : No ABS operation (FR)<br>OPERATE : During ABS operation (FR) | - |
| ABS OPERT FL | ABS operation (FL) / BEFORE or OPERATE | BEFORE : No ABS operation (FL)<br>OPERATE : During ABS operation (FL) | - |

| Item | Measurement Item / Range (Display) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| ABS OPERT RR | ABS operation (RR) / BEFORE or OPERATE | BEFORE : No ABS operation (RR)<br>OPERATE : During ABS operation (RR) | - |
| ABS OPERT RL | ABS operation (RL) / BEFORE or OPERATE | BEFORE : No ABS operation (RL)<br>OPERATE : During ABS operation (RL) | - |
| WHEEL SPD FR | Wheel speed sensor (FR) reading / min.: 0 km/h (0 MPH, max.: 326 km/h (202 MPH) | Actual wheel speed | Speed indicated on speedometer |
| WHEEL SPD FL | Wheel speed sensor (FL) reading / min.: 0 km/h (0 MPH, max.: 326 km/h (202 MPH) | Actual wheel speed | Speed indicated on speedometer |
| WHEEL SPD RR | Wheel speed sensor (RR) reading / min.: 0 km/h (0 MPH, max.: 326 km/h (202 MPH) | Actual wheel speed | Speed indicated on speedometer |
| WHEEL SPD RL | Wheel speed sensor (RL) reading / min.: 0 km/h (0 MPH, max.: 326 km/h (202 MPH) | Actual wheel speed | Speed indicated on speedometer |
| IG VOLTAGE | ECU power supply voltage / NORMAL or TOO LOW | NORMAL : 9.5 V or over<br>TOO LOW : Below 9.5 V | - |
| SFRR | ABS solenoid (SFRR) ON / OFF | ON : Operate | - |
| SFRH | ABS solenoid (SFRH) ON / OFF | ON : Operate | - |
| SFLR | ABS solenoid (SFLR) ON / OFF | ON : Operate | - |
| SFLH | ABS solenoid (SFLH) ON / OFF | ON : Operate | - |
| SRRR | ABS solenoid (SRRR) ON / OFF | ON : Operate | - |
| SRRH | ABS solenoid (SRRH) ON / OFF | ON : Operate | - |
| SRLR | ABS solenoid (SRLR) ON / OFF | ON : Operate | - |
| SRLH | ABS solenoid (SRLH) ON / OFF | ON : Operate | - |
| VEHICLE SPD | Maximum wheel speed sensor reading / min.: 0 km/h (0 MPH), max.: 326 km/h (202 MPH) | Actual vehicle speed | Speed indicated on speedometer |
| TEST MODE | Test mode / NORMAL or TEST | NORMAL : Normal mode<br>TEST : During test mode | - |
| #CODES | Number of DTC recorded / min.: 0, max.: 255 | Min.: 0, max.: 19 | - |

## 5. ACTIVE TEST

HINT:

Performing the ACTIVE TEST using the Hand-held tester allows the relay, actuator and so on to operate without parts removal. Performing the ACTIVE TEST as a first step of troubleshooting is one of the methods to shorten the labor time.

It is possible to display the DATA LIST during the ACTIVE TEST.

(a) Connect the Hand-held tester to the DLC3.

(b) Turn the ignition switch to ON.

(c) From the display on the tester, select the ”ACTIVE TEST”.

| Item | Vehicle Condition / Test Details | Diagnostic Note |
|---|---|---|
| SFRR | Turns ABS solenoid (SFRR) ON / OFF | Operation of solenoid (clicking sound) can be heard |
| SFRH | Turns ABS solenoid (SFRH) ON / OFF | Operation of solenoid (clicking sound) can be heard |
| SFLR | Turns ABS solenoid (SFLR) ON / OFF | Operation of solenoid (clicking sound) can be heard |
| SFLH | Turns ABS solenoid (SFLH) ON / OFF | Operation of solenoid (clicking sound) can be heard |
| SRRR | Turns ABS solenoid (SRRR) ON / OFF | Operation of solenoid (clicking sound) can be heard |
| SRRH | Turns ABS solenoid (SRRH) ON / OFF | Operation of solenoid (clicking sound) can be heard |
| SRLR | Turns ABS solenoid (SRLR) ON / OFF | Operation of solenoid (clicking sound) can be heard |
| SRLH | Turns ABS solenoid (SRLH) ON / OFF | Operation of solenoid (clicking sound) can be heard |
| SOL RELAY | Turns ABS solenoid relay ON / OFF | Operation of solenoid (clicking sound) can be heard |
| ABS MOT RELAY | Turns ABS motor relay ON / OFF | Operation of motor can be heard |
| ABS WARN LIGHT | Turns ABS warning light ON / OFF | Observe combination meter |
| BRAKE WRN LIGHT | Turns BRAKE warning light ON / OFF | Observe combination meter |

## 6. FREEZE FRAME DATA

(a) The vehicle (sensor) status memorized during ABS operation or at the time of malfunction code detection can be displayed using the hand-held tester.

(b) Only one record of the freeze frame data is stored and the freeze frame data generated during ABS operation are constantly updated. Also, the number of the operations of the ignition switch ”ON” after the freeze frame data is stored can be memorized up to 31 and it can be displayed.

HINT:

If the ignition switch ”ON” operation exceeds 31 times, ”31” appears on the display.

(c) If the diagnosis code malfunction occurs, the freeze frame data at the occurrence of the malfunction is stored but the ABS actuation data is deleted.

| Hand-held tester display | Measurement Item | Reference Value* |
|---|---|---|
| VEHICLE SPD | Vehicle speed | Speed indication of a meter |
| STOP LIGHT SW | Stop light switch signal | Stop light switch ON: ON, OFF: OFF |
| # IG ON | Numbers of operations of ignition switch ON after memorizing freeze frame data | 0 to 31 |
| SYSTEM | Operate system | ABS operate: ABS |

*: If no conditions are specifically stated for ”Idling”, it means the shift lever is at N or P position, the A/C switch is OFF and all accessory switches are OFF.

## 7. SPEED SENSOR SIGNAL CHECK

HINT:

If the ignition switch is turned from ON to ACC or LOCK during test mode, the DTCs will be erased.

(a) Procedure for speed sensor signal check using a SST check wire.

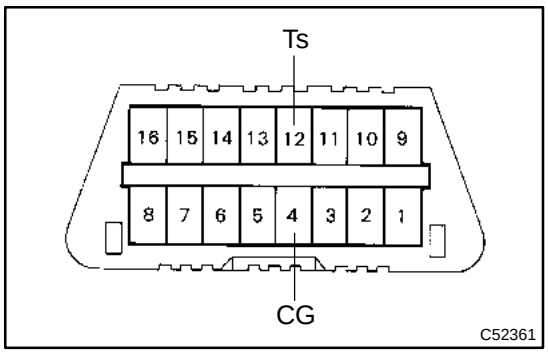
SST 09843-18040

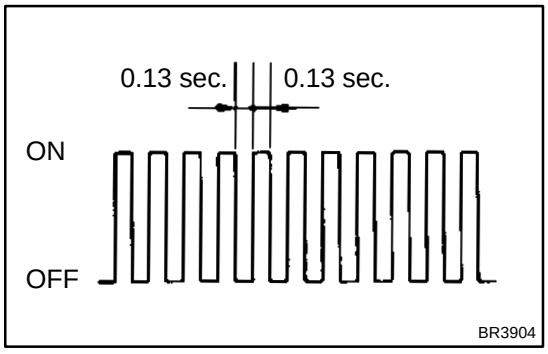
(1) Turn the ignition switch to OFF.

(2) Using SST, it connects the terminal Ts and CG of DLC3.

SST 09843-18040

(3) Start the engine.




(4) Check that the ABS warning light blinks.

HINT:

If the ABS warning light does not blink, inspect the ABS warning light circuit and Ts circuit (See page 05-419 or 05-423 and 05-429 ).

(5) Drive the vehicle straight forward at the speed of 45 km/h (28 mph) or over for several seconds and check that the ABS warning light goes off.

HINT:

The sensor check may not be completed if the wheels spin or the steering wheel steered during the check.

(6) Stop the vehicle.

(7) Using SST, it connects the terminal Tc and CG of the DLC3.

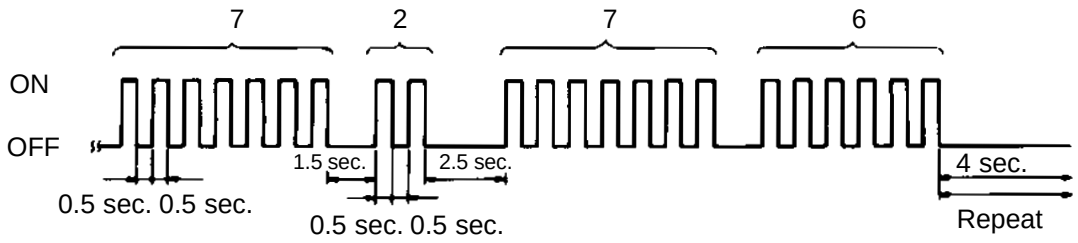
SST 09843-18040

(8) Read the number of blinks of the ABS warning light.

HINT:

- See the list of DTCs shown on the 05-392 .
- If every sensor is normal, a normal code is output (A cycle of 0.25 sec. ON and 0.25 sec. OFF is repeated).
- If 2 or more DTCs are detected at the same time, the lowest numbered code will be displayed.

Malfunction Code (Example Code 72, 76)




(9) After performing the check, turn the ignition switch OFF, and remove the SST from the DLC3.

SST 09843-18040

(b) Procedure for speed sensor signal check using the hand-held tester.

(1) Connect the hand-held tester.

(2) Turn the ignition switch ON.

(3) Perform the step (3) to (6) on the previous page.

(4) Read the DTC by following the prompts on the tester screen.

(5) After completing the check disconnect the tester and turn the ignition switch OFF.

HINT:

Please refer to the hand-held tester operator's manual for further details.

05BW8-04

# PRE-CHECK

## 1. TIRE PRESSURE WARNING SYSTEM DESCRIPTION

(a) The tire pressure warning system warns decline of the tire air pressure to the driver. When the tire pressure warning system detects the low air pressure which disturbs safe driving from any of 4 wheels, the tire pressure warning lamp comes on.

HINT:

When the ignition switch is OFF, the tire pressure warning lamp goes off. However, when the ignition switch is turned ON again, and the vehicle is driven at more than 30 km/h (19 mph), the tire pressure warning lamp comes on again.

## 2. TIRE PRESSURE WARNING SYSTEM PRECAUTION

(a) When the tire pressure warning lamp comes on, immediately check the air pressure of the tire and adjust it to the specified pressure (See page 28-1 ). When the ignition switch is turned OFF, the tire pressure warning lamp goes off.

(b) This system needs initializing after changing tires or wheels and rotating the tires.

(c) In the following cases, the system does not operate normally.

- When vehicle speed is 30 km/h (19 mph) or less.
- When tires size is different from that which is specified.
- When tires of different sizes or types are used simultaneously.
- When the spare tire or snow tires are used, or when chains are used.
- When the vehicle is driven on unpaved, extremely rough or slippery roads.
- When one of the tires on the vehicle is extremely worn or new.

(d) When the run-flat tires are used, replace the tire if the pressure is 100 kPa (1 kgf/cm, 14 psi) or less. (if the tire is reused, it could damaged.)

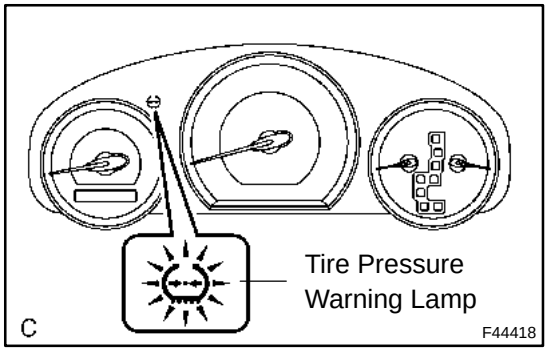
## 3. FAIL-SAFE FUNCTION

(a) When a system malfunction occurs in the tire pressure warning system, the tire pressure warning lamp blinks.

**NOTICE:**

**If the malfunction returns to normal, the tire pressure warning lamp does not blink.**

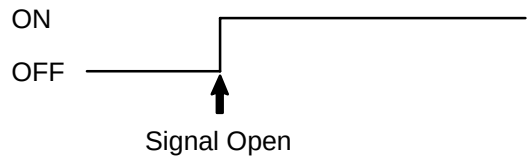
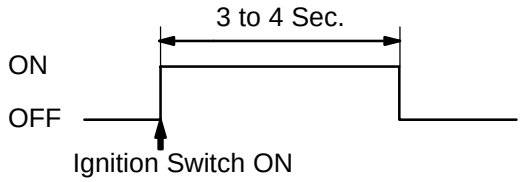
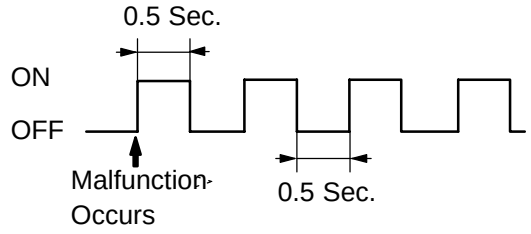
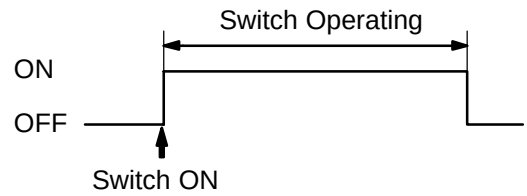
(b) The result of this diagnosis is stored in the skid control ECU.

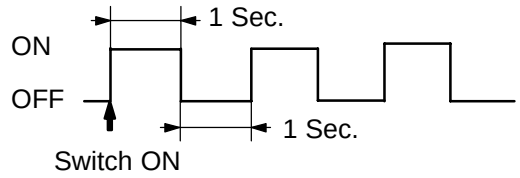
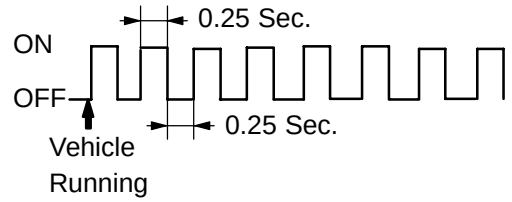
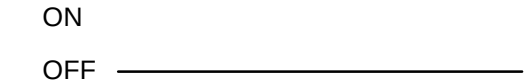
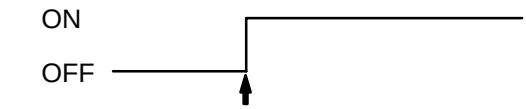



## 4. TIRE PRESSURE WARNING DISPLAY FUNCTION

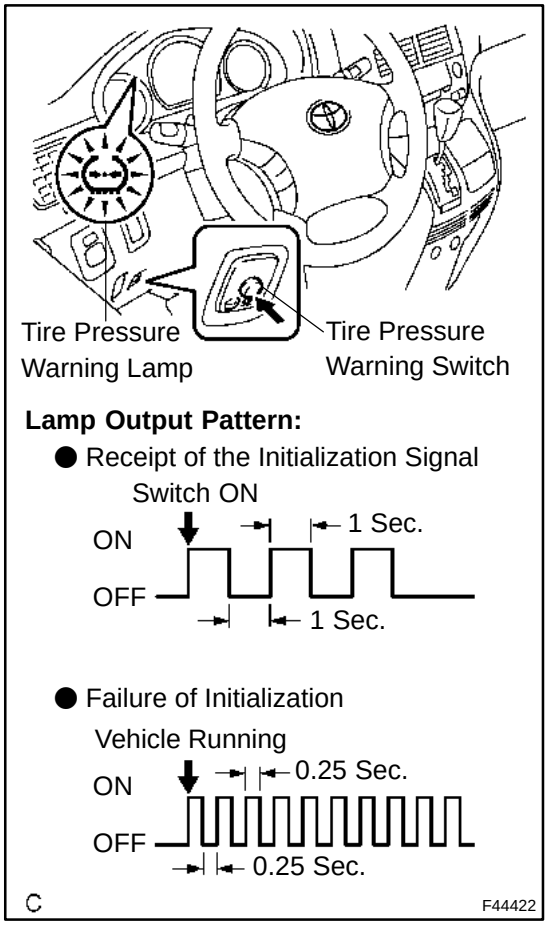
(a) Based on the tire pressure warning system condition, turn the tire pressure warning lamp on as shown in the table.

## TIRE PRESSURE WARNING LAMP CHART:

| Priority | Condition | Tire Pressure Warning Lamp Output Pattern |
|---|---|---|
| 1 | **While detecting the system abnormal 1**<br>Tire pressure warning lamp signal is opened.<br>HINT:<br>When the tire pressure warning lamp drive signal circuit opens due to the skid control ECU malfunction, communication error, open circuit in the wire harness, etc. the tire pressure warning lamp comes on as system malfunction 1. | Tire pressure warning lamp comes on<br>  |
| 2 | When the ignition switch is ON. | Tire pressure warning lamp comes on for 3 seconds once the ignition switch is turned ON. (However, during initialization, the lamp comes on for 4 seconds.)<br>  |
| 3 | **While detecting the system abnormal 2**<br>(ABS system malfunction)<br>(Speed sensor malfunction)<br>(Stop lamp switch assy malfunction)<br>HINT:<br>When the skid control ECU monitors the speed sensor signal and the stop lamp switch signal and judges that the tire pressure warning lamp is not functioning properly, the tire pressure warning lamp blink as system malfunction 2. | Tire pressure warning lamp blinks<br>(Turning on and off repeatedly at 0.5 second intervals.)<br>  <br>HINT:<br>(When the skid control ECU detects the system malfunction 2, check the DTCs and proceed to the pages which the DTCs are described.) |
| 4<br>(When TEST mode) | When the tire pressure warning switch is ON during TEST mode. | Tire pressure warning lamp comes on when the tire pressure warning switch operates.<br>  |

| Priority | Condition | Tire Pressure Warning Lamp Output Pattern |
|---|---|---|
| 5 | When the initialization mode is received. | Tire pressure warning lamp blinks 3 times (Turning on and off repeatedly at 1 second intervals.)<br>  |
| 6 | When the initialize signal is sent. | Tire pressure warning lamp blinks (Turning on and off repeatedly at 0.25 second intervals.)<br>  |
| 7 | Outputting the result. | When tire air pressure is judged to be normal:<br>Not come on:<br>  <br>When tire air pressure is judged to be low:<br>Come on:<br>  <br>Determination of Decrease of the Tire Air Pressure |

HINT:
When the skid control ECU does not operate properly, the ABS warning lamp comes on as ABS system malfunction.




**5. INITIAL SETTING OF TIRE PRESSURE WARNING SYSTEM**

(a) Check and adjust the tire air pressure to the specified value (See page 28-1 ).

(b) With the vehicle stopped, turn the ignition switch ON.

(c) Press the tire pressure warning switch until the tire pressure warning lamp blinks 3 times at a 1 second interval. (Continue pressing the tire pressure warning switch for approximately 3 to 4 seconds.) (Receipt of the initialization signal.)

HINT:

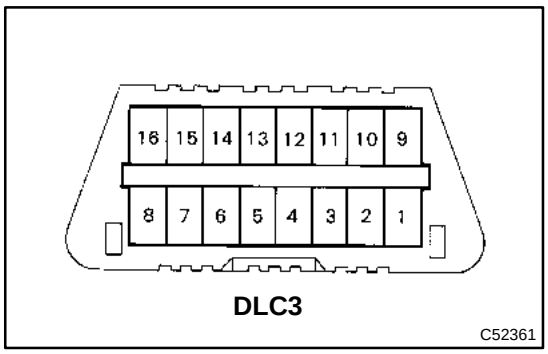
When the tire pressure warning lamp does not blink, perform initialization again. (with the ignition switch off, perform the procedure above starting at step 5-(b).)

(d) Drive the vehicle and speed it up at 30 km/h (19 mph) or more, and then initialize when the skid control ECU to its initial condition. (It takes about 0.5 to 1.0 hour to complete the initialization depends on.)

HINT:

If the tire pressure warning lamp blinks at 0.25 second intervals while the vehicle is being driven, the initialization may be failed, so perform the initialization again. (Turn the ignition switch OFF and retry from step 5-(b).)

(e) After initialization, the skid control ECU monitors the decrease of the tire air pressure.




## 6. DIAGNOSIS SYSTEM

(a) Inspect the battery voltage.

**Battery voltage: 11 to 14 V**

If voltage is below 11 V, recharge the battery before proceeding.

(b) Check DLC3.

The vehicle's skid control ECU uses ISO 9141-2 for communication. The terminal arrangement of DLC3 complies with SAE J1962 and matches with the ISO 9141-2 format.

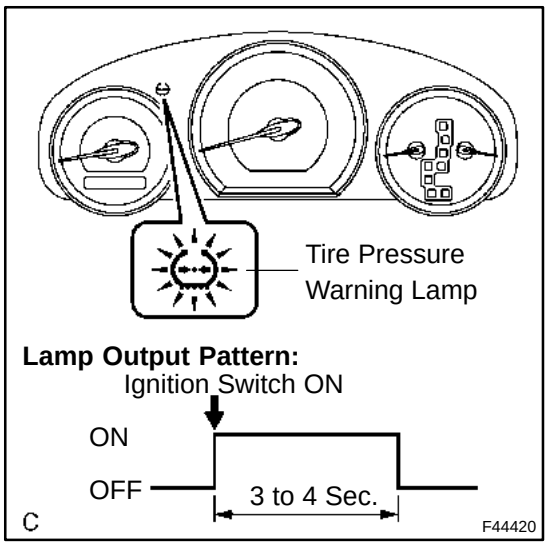
Verify conditions listed in table below:

| Terminal No. | Connection / Voltage or Resistance | Condition |
|---|---|---|
| 7 | Bus + Line / Pulse generation | During transmission |
| 4 | Chassis Ground to Body Ground / 1 Ω or less | Always |
| 16 | Battery Positive to Body Ground / 9 to 14 V | Always |

HINT:

If the hand-held tester display shows UNABLE TO CONNECT TO VEHICLE when the cable of the hand-held tester is connected to DLC3, the ignition switch is turned ON and the tester is operated, there is a problem on the vehicle side or tester side.

- If communication is normal when the tester is connected to another vehicle, inspect DLC3 on the original vehicle.
- If communication is still not possible when the tool is connected to another vehicle, the problem is probably in the tester itself, so consult the Service Department listed in the tester's instruction manual.



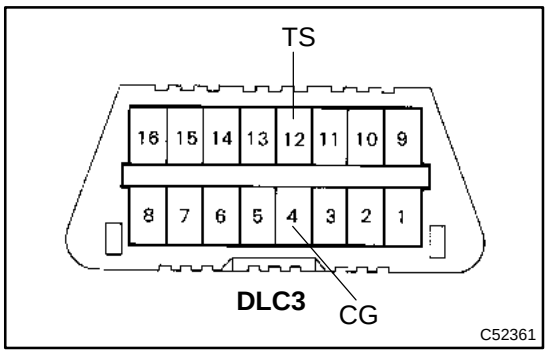

## 7. CHECK WARNING LAMP

(a) Turn the ignition switch OFF.

(b) With the ignition switch ON, the lamp should illuminate for 3 seconds and then go out.

HINT:

- However, during initialization, the tire pressure warning lamp comes on for 4 seconds.
- If the tire pressure warning lamp has a defect, check the tire pressure warning lamp output patterns (See the tire pressure warning lamp display function, step 4) and the problem symptoms table (See page 05-364 ).

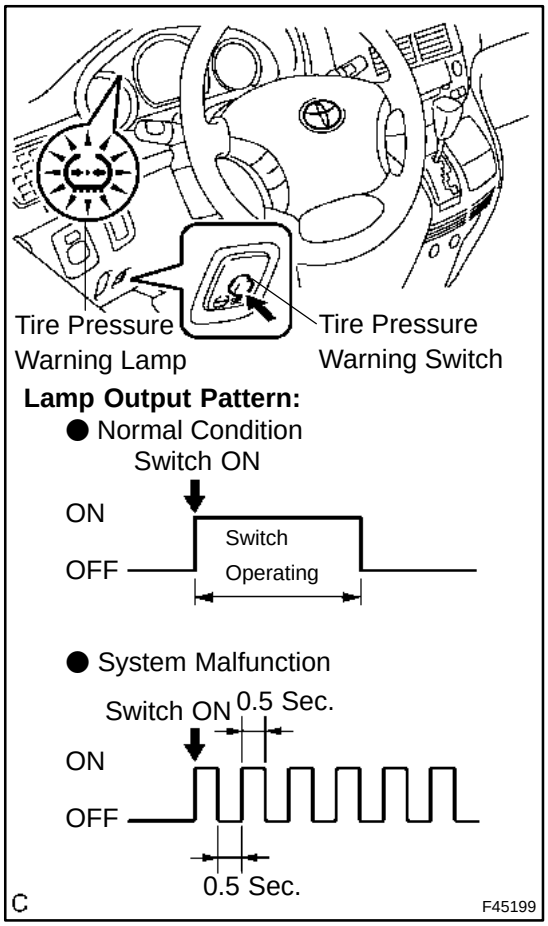



**8. CHECK TIRE PRESSURE WARNING SWITCH FUNCTION (USING SST CHECK WIRE)**

(a) Make sure the ignition switch is OFF.

(b) Using the SST, connect the terminals TS and CG of DLC3.
SST 09843-18040

(c) Turn the ignition switch ON (The mode switches to TEST mode).




(d) Press the tire pressure warning switch is ON.

(e) Check that the tire pressure warning lamp comes on.

HINT:

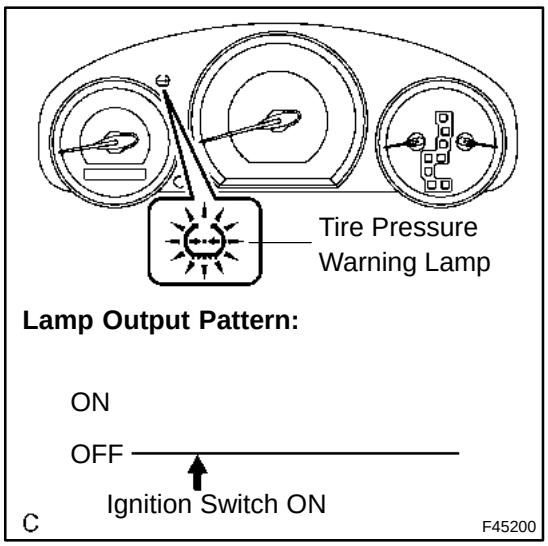
- Unless the above operation including (d) is performed, the tire pressure warning lamp remains off while TEST mode.
- When the tire pressure warning system has any problem, the tire pressure warning lamp blinks at 0.5 second interval.

If the indicator check result is not normal, proceed to the problem symptoms table or TS terminal circuit.

| Item | See page |
|---|---|
| Problem symptoms table | 05-364 |
| TS terminal circuit (w/o VSC) | 05-429 |
| TS terminal circuit (w/ VSC) | 05-526 |

(f) Turn the ignition switch OFF.

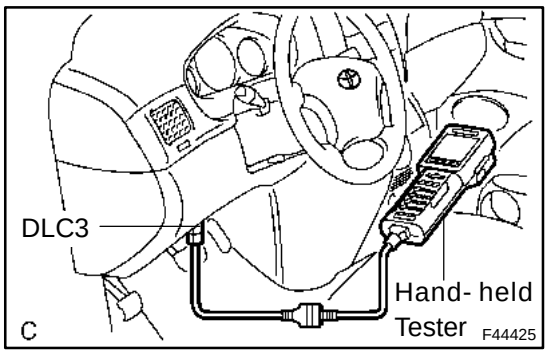
(g) Remove the SST from the DLC3.
SST 09843-18040




(h) Turn the ignition switch ON.

(i) Check that the tire pressure warning lamp go off.

(j) Initial setting of the tire pressure warning system (See step 5.).

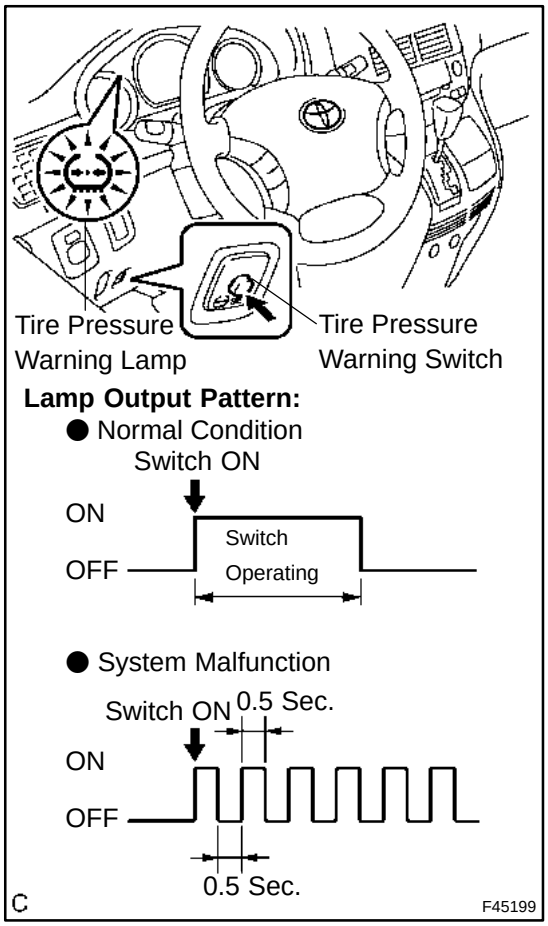



**9. CHECK TIRE PRESSURE WARNING SWITCH FUNCTION (USING HAND-HELD TESTER)**

(a) Connect the hand-held tester to DLC3.

(b) Turn the ignition switch ON.

(c) Select the "TEST MODE", and operate it the with hand-held tester.




(d) Press the tire pressure warning switch is ON.

(e) Check that the tire pressure warning lamp comes on.

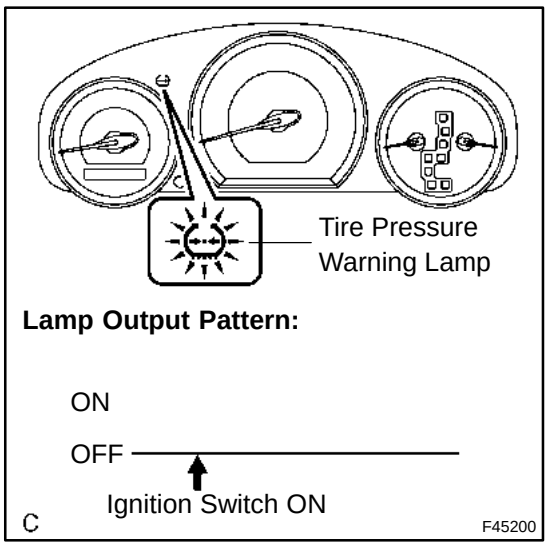
HINT:

- Unless the above operation including (d) is performed, the tire pressure warning lamp remains off while TEST mode.
- When the tire pressure warning system has any problem, the tire pressure warning lamp blinks at 0.5 second interval.

If the indicator check result is not normal, proceed to the problem symptoms table or TS terminal circuit.

| Item | See page |
|---|---|
| Problem symptoms table | 05-364 |
| TS terminal circuit (w/o VSC) | 05-429 |
| TS terminal circuit (w/ VSC) | 05-526 |

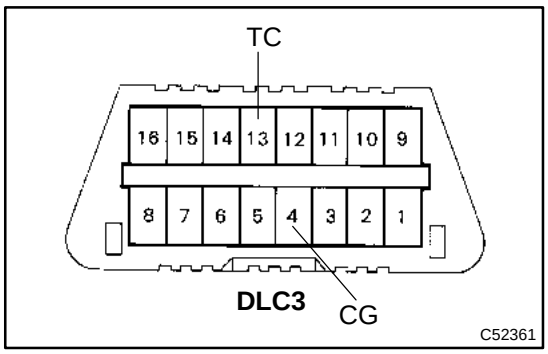
(f) Turn the ignition switch OFF.

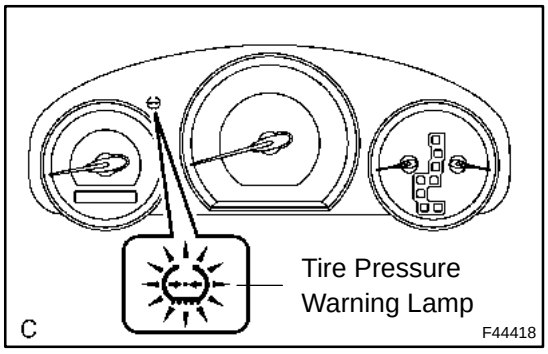


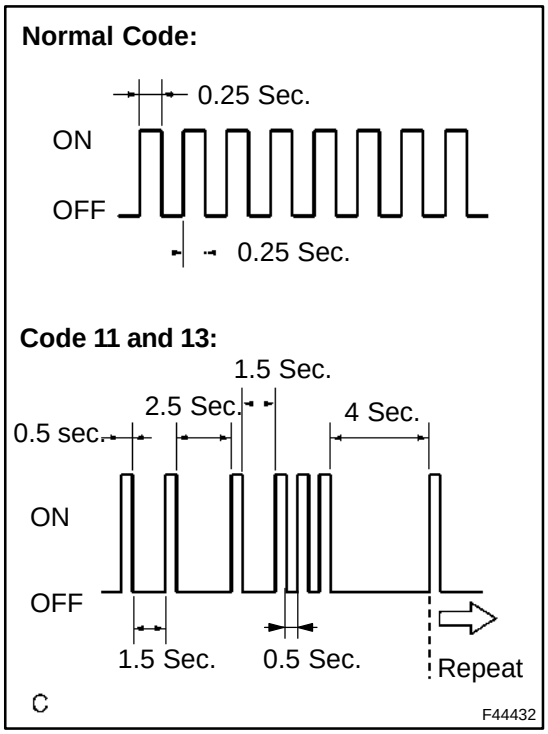

(g) Turn the ignition switch ON.

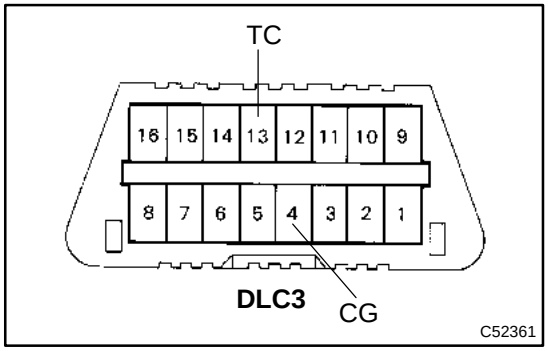
(h) Check that the tire pressure warning lamp goes off.

(i) Initial setting of the tire pressure warning system (See step 5.).




## 10. DTC CHECK (USING SST CHECK WIRE)

HINT:

When the ABS warning lamp comes on while ignition switch is ON, check the DTCs for the ABS system first.

(a) Checking DTCs.

(1) Using the SST, connect terminals TC and CG of DLC3.

SST 09843-18040

(2) Turn the ignition switch ON.

(3) Read and record any DTCs from the tire pressure warning lamp on the combination meter. Refer to the illustration on the left for examples of a normal code and codes 11 and 13.

HINT:

- If the tire pressure warning lamp does not blink any DTC codes or the normal code, inspect the tire pressure warning lamp circuit or TC terminal circuit.

| Trouble Area | See page |
|---|---|
| Tire pressure warning lamp circuit | 05-373 |
| TC terminal circuit (w/o VSC) | 05-427 |
| TC terminal circuit (w/ VSC) | 05-524 |

- If 2 or more malfunctions are indicated at the same time, the lowest numbered DTC is displayed first.

(4) Refer to the Diagnostic Trouble Code Chart (See page 05-358 ) for DTC information.

(5) After completing the check, remove SST from DLC3.

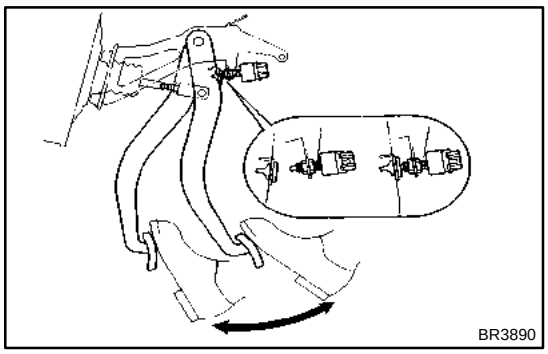
SST 09843-18040

(b) Clearing the DTCs.

(1) Using the SST, connect terminals TC and CG of DLC3.

SST 09843-18040

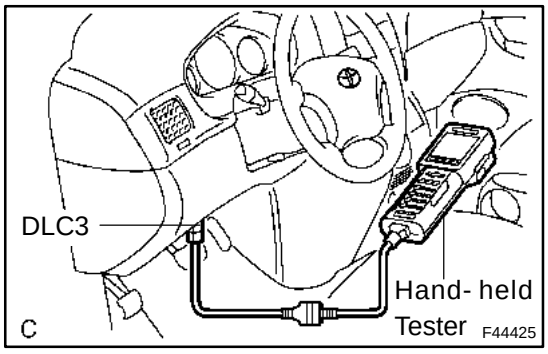
(2) Turn the ignition switch ON.




(3) Clear DTC stored in ECU by depressing the brake pedal 8 times or more within 5 sec.
(4) Check that the tire pressure warning lamp shows the normal code.
(5) Remove SST from DLC3.

SST 09843-18040

HINT:
Disconnect the battery cable during the operation will not erase DTC in ECU.




**11. DTC CHECK (USING HAND-HELD TESTER)**

HINT:
When the ABS warning lamp comes on while ignition switch is ON, check the DTCs for the ABS system first.

(a) Checking DTCs using the Hand-held tester.
(1) Connect the hand-held tester to DLC3.
(2) Turn the ignition switch ON.
(3) Read DTCs by following the prompts on the tester screen.

HINT:
Refer to the hand-held tester operator's manual for further details.

(b) Clearing the DTCs using the Hand-held tester.
(1) Connect the hand-held tester to DLC3.
(2) Turn the ignition switch ON.
(3) Erase the DTCs following the prompts on the tester screen.

HINT:
Refer to the hand-held tester operator's manual for further details.

## 12. DATA LIST

HINT:

By accessing the DATA LIST displayed by the hand-held tester, you can read the value of the switches and sensors and so on without removing any parts. Reading the DATA LIST is the first step of troubleshooting and is one method to shorten labor time.

(a) Connect the hand-held tester to DLC3.

(b) Turn the ignition switch ON.

(c) Following the display on the tester, read the ”DATA LIST”.

**w/o VSC:**

| Item | Measurement Item / Range (Display) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| STOP LIGHT SW | Stop light switch / ON or OFF | ON: Brake pedal depressed<br>OFF: Brake pedal released | - |
| WHEEL SPD FR | Front right wheel speed reading / min.: 0 km/h (0 mph)<br>max.: 326 km/h (202 mph) | Actual wheel speed | Speed indicated on speedometer |
| WHEEL SPD FL | Front left wheel speed reading / min.: 0 km/h (0 mph)<br>max.: 326 km/h (202 mph) | Actual wheel speed | Speed indicated on speedometer |
| WHEEL SPD RR | Rear right wheel speed reading / min.: 0 km/h (0 mph)<br>max.: 326 km/h (202 mph) | Actual wheel speed | Speed indicated on speedometer |
| WHEEL SPD RR | Rear left wheel speed reading / min.: 0 km/h (0 mph)<br>max.: 326 km/h (202 mph) | Actual wheel speed | Speed indicated on speedometer |
| VEHICLE SPD | Vehicle speed reading / min.: 0 km/h (0 mph)<br>max.: 255 km/h (158 mph) | Actual vehicle speed | Speed indicated on speedometer |
| TEST MODE | Test mode / NORMAL or TEST | NORMAL: Normal mode<br>TEST: During test mode | - |
| #CODES | Number of DTC recorded / min.: 0, max.: 255 | Min.: 0, Max.: - | - |

**w/ VSC:**

| Item | Measurement Item / Range (Display) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| STOP LIGHT SW | Stop light switch / ON or OFF | ON: Brake pedal depressed<br>OFF: Brake pedal released | - |
| WHEEL SPD FR | Front right wheel speed reading / min.: 0 km/h (0 mph)<br>max.: 326 km/h (202 mph) | Actual wheel speed | Speed indicated on speedometer |
| WHEEL SPD FL | Front left wheel speed reading / min.: 0 km/h (0 mph)<br>max.: 326 km/h (202 mph) | Actual wheel speed | Speed indicated on speedometer |
| WHEEL SPD RR | Rear right wheel speed reading / min.: 0 km/h (0 mph)<br>max.: 326 km/h (202 mph) | Actual wheel speed | Speed indicated on speedometer |
| WHEEL SPD RR | Rear left wheel speed reading / min.: 0 km/h (0 mph)<br>max.: 326 km/h (202 mph) | Actual wheel speed | Speed indicated on speedometer |
| VEHICLE SPD | Vehicle speed reading / min.: 0 km/h (0 mph)<br>max.: 255 km/h (158 mph) | Actual vehicle speed | Speed indicated on speedometer |
| EFI COM | EFI communication open detection / Open detection, Normal | Normal | - |

| Item | Measurement Item / Range (Display) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| TEST MODE | Test mode / NORMAL or TEST | NORMAL: Normal mode<br>TEST: During test mode | - |
| #CODES | Number of DTC recorded / min.: 0, max.: 255 | Min.: 0, Max.: - | - |

## 13. ACTIVE TEST LIST

HINT:

Perform the ACTIVE TEST using the hand-held tester to operate the ABS warning light without removing any parts. Performing the ACTIVE TEST is the first step of troubleshooting is one of the methods to shorten labor time. It is possible to display the DATA LIST during the ACTIVE TEST.

(a) Connect the hand-held tester to DLC3.

(b) Turn the ignition switch ON.

(c) Following the display on tester, perform the ”ACTIVE TEST”.

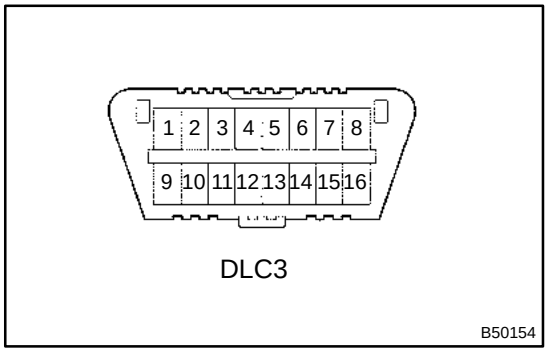
**w/o VSC:**

| Item | Vehicle Condition / Test Details | Diagnostic Note |
|---|---|---|
| ABS WARN LIGHT | ABS warning light / ON or OFF | - |

**w/ VSC:**

| Item | Vehicle Condition / Test Details | Diagnostic Note |
|---|---|---|
| ABS WARN LIGHT | ABS warning light / ON or OFF | - |

# PRE-CHECK




**1. DIAGNOSIS SYSTEM**

(a) Inspect the DLC3.

HINT:

The vehicle's ECM uses ISO 9141-2 for communication.

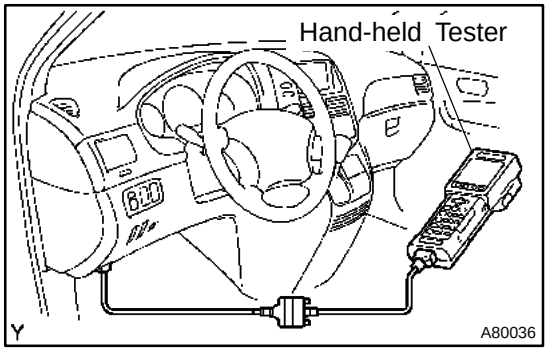
The terminal arrangement of the DLC3 complies with SAE J1962 and matches the ISO 9141-2 format.

| Terminal No. | Condition | Specified condition |
|---|---|---|
| 7 (Bus + line) - 5 (Signal ground) | During communication | Pulse generation |
| 4 (Chassis ground) - Body ground | Always | 1 Ω or less |
| 5 (Signal ground) - Body ground | Always | 1 Ω or less |
| 16 (B+) - Body ground | Always | 9 to 14 V |

HINT:

If the screen displays UNABLE TO CONNECT TO VEHICLE after you have connected the cable of the hand-held tester to the DLC3, turned the ignition switch ON and used the hand-held tester, there is a problem on the vehicle side or tool side.

- If the communication is normal when the tool is connected to another vehicle, inspect the DLC3 of the original vehicle.
- If the communication is still impossible when the tool is connected to another vehicle, the problem is probably in the tool itself, so consult the Service Department listed in the tool's instruction manual.




**2. CHECK DTC (USING HAND-HELD TESTER)**

(a) Checking DTCs.

(1) Connect the hand-held tester to the DLC3.

(2) Turn the ignition switch ON.

(3) Read DTCs by following the prompts on the tester screen.

HINT:

Refer to the hand-held tester operator's manual for further details.

**3. CLEAR DTC (USING HAND-HELD TESTER)**

(a) Clearing the DTCs from memory.

(1) Connect the hand-held tester to the DLC3.

(2) Turn the ignition switch ON.

(3) Erase the DTCs following the prompts on the tester screen.

HINT:

Refer to the hand-held tester operator's manual for further details.

## 4. DATA LIST

HINT:

Using the DATA LIST displayed on the hand-held tester, you can read the value of the switch, sensor, actuator, etc. without parts removal. Reading the DATA LIST as the first step of troubleshooting is one way to shorten the labor time.

(a) Connect the hand-held tester to the DLC3.

(b) Turn the ignition switch ON.

(c) According to the display on the tester, read the DATA LIST.

**Standard (Power slide door ECU LH/RH):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| POLE* SW | Power slide door lock pawl* position switch signal /ON or OFF | ON: Slide door is unlatched<br>OFF: Slide door is latched | - |
| HALF SW | Power slide door lock half-latch switch signal /ON or OFF | ON: Slide door is not completely closed<br>OFF: Slide door is closed | - |
| FULL SW | Power slide door lock full-latch switch signal /ON or OFF | ON: Slide door is open<br>OFF: Slide door is closed | - |
| CLOSER POS SW | Power slide door lock closer position switch signal /ON or OFF | ON: Closer is not in the initial position and inside/outside handle is not pulled<br>OFF: Closer is in the initial position and inside/outside handle is pulled | - |

* ”POLE” appears on the display of the hand-held tester, however the name of the part corresponding to the display of the tester is ”pawl”.

## 5. RESET

(a) Reset the power slide door system:

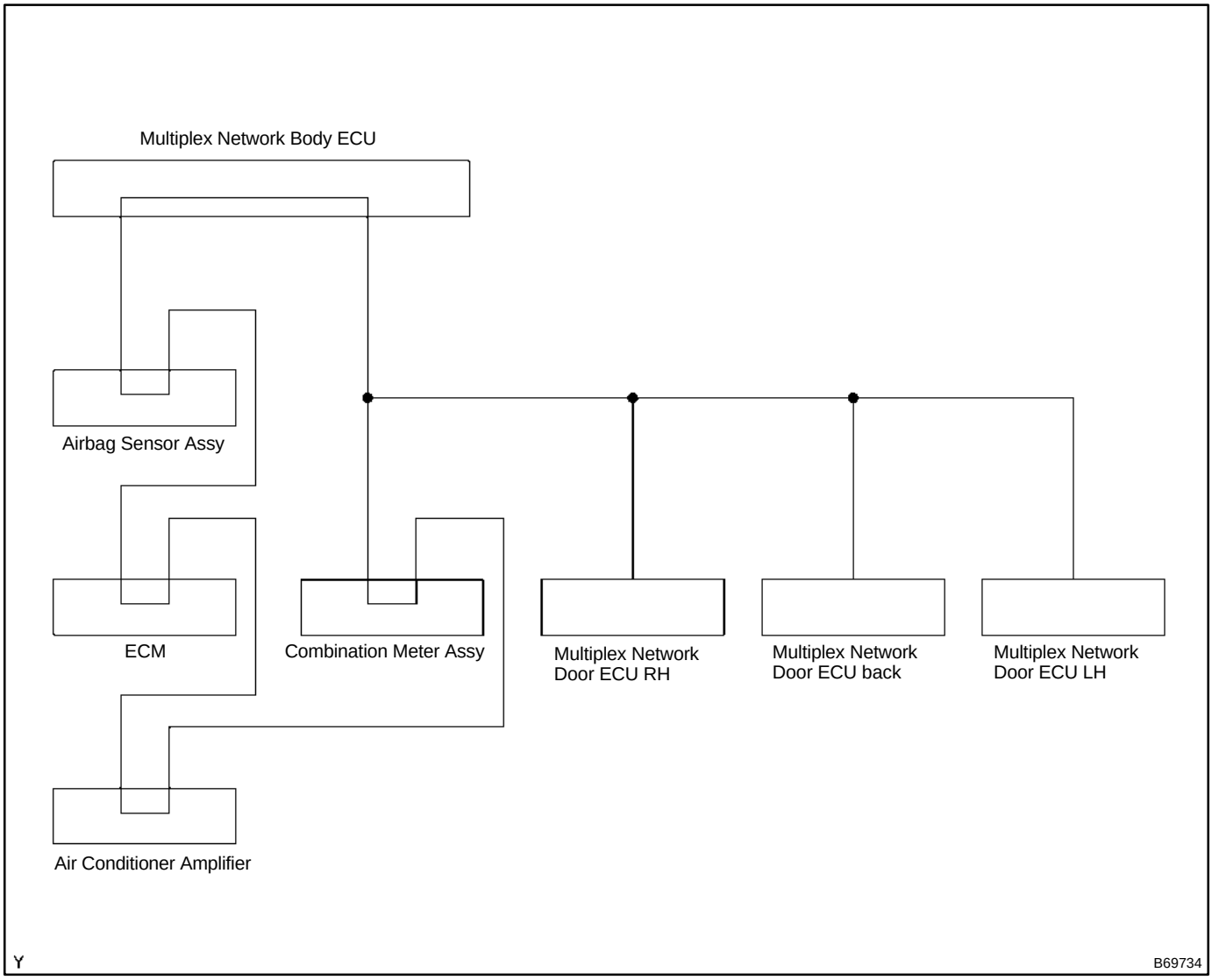
The power slide door ECU records the fully open position and the fully closed position of the power slide door in its memory and the power slide door fully opens and closes based on this memory. The power slide door cannot operate without this memory. In the case where the battery has been removed, manually close the slide door fully to reset the power slide door system. However, if the battery is removed/installed when the slide door is fully open, the power slide door operates normally, thus the resetting the system is unnecessary.

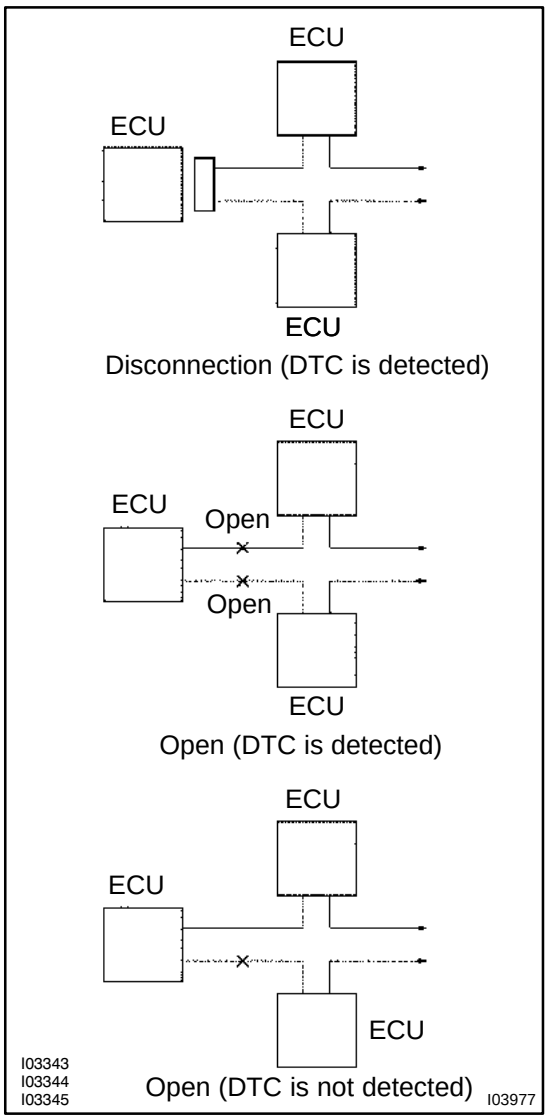
05BTA-05

# PRE-CHECK

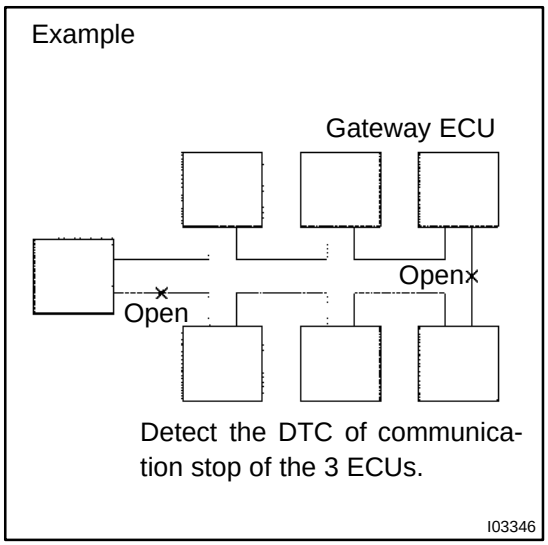
## 1. MULTIPLEX COMMUNICATION SYSTEM (BEAN)

(a) The BEAN communication line is used to control the airbag sensor assy center (airbag ECU), the Engine Control Module (ECM), the air conditioner amplifier (A/C ECU), the combination meter assy, the multiplex network door ECU rear RH (power slide door ECU RH), the multiplex network door ECU back (power back door ECU) and the multiplex network door ECU rear LH (power slide door ECU LH). If there is a short-circuit (bus-down) in the line, the communication to the system that has a short-circuit (bus-down) will be disabled and the DTC concerning the system will be output from the multiplex network body ECU.






(b) If DTC of ECU communication stop is output, connectors may be disconnected, or communication buses may be open at 2 points. It will not become abnormal with only 1 communication bus open.




(c) If 2 communication buses are open at the position as shown in the illustration, DTC of ECU communication stop between those 2 buses is output.

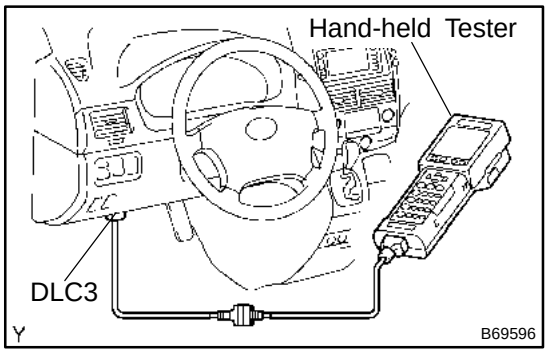
**2. CHECK COMMUNICATION FUNCTION**

(a) Check the battery voltage.
**Standard: 10 to 14 V**

(b) Inspect the DTC output.
(1) Check a DTC concerning the multiplex network body ECU by connecting the hand-held tester to the DLC3 and turning the ignition switch ON.

HINT:
- When DTC check is impossible, check the following items.
- The display shows communication error (refer to new diagnosis system and the operations when an error occurred).
(2) When the display shows DTCs concerning the ECU unconnected and the communication bus defective, perform the inspection depending on the troubleshooting procedures.

HINT:
When another DTC is output, refer to the DTC table and check the applicable section.




**3. Using hand-held tester:**
**CHECK DTC**

(a) Prepare the hand-held tester.
(b) Connect the hand-held tester to DLC3.
(c) Turn the ignition switch ON and push the hand-held tester main switch ON.
(d) Use the hand-held tester to check the DTCs, note them down (For opening instructions, see the hand-held tester's instruction book.).
(e) See page 05-1880 to confirm the details of the DTCs.

**4. CLEAR DTC**

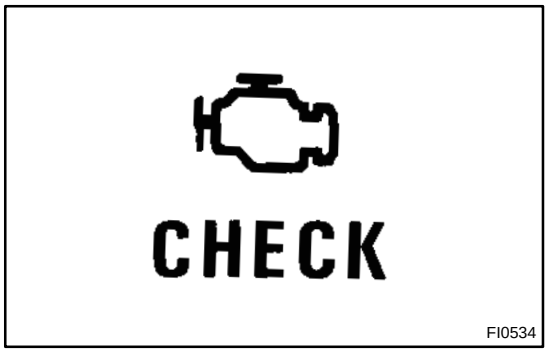
(a) DTC will be cleared when the malfunction output to DTC is recovered normally.

05NPC-01

# PRE-CHECK

## 1. DIAGNOSIS SYSTEM

(1) When troubleshooting OBD II vehicles, the only difference from the usual troubleshooting procedure is that you need to connect an OBD II scan tool complying with SAE J1987 or a hand-held tester to the vehicle, and read off various data output from the vehicle's ECM.




(2) OBD II regulations require that the vehicle's on-board computer illuminate the Malfunction Indicator Lamp (MIL) on the instrument panel when the computer detects a malfunction in the computer itself or in the drive system components which affect the vehicle emissions. In addition to the MIL illuminating when a malfunction is detected, the applicable DTCs prescribed by SAE J2012 are recorded in the ECM memory (See page 05-555 ).

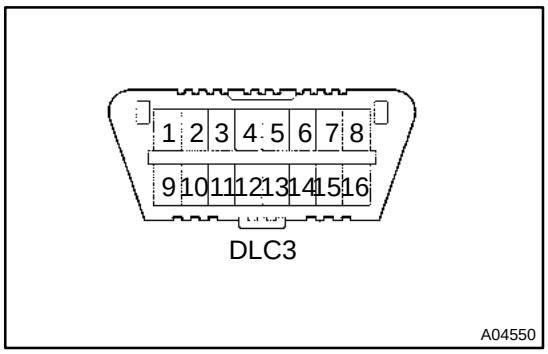
If the malfunction does not occur in 3 consecutive trips, the MIL goes off but the DTCs remain in the ECM memory.

(3) To check the DTCs, connect the OBD II scan tool or hand-held tester to the DLC3 of the vehicle. The OBD II scan tool or hand-held tester also enables you to erase the DTCs and check freeze frame data and various forms of engine data (For instruction book).

(4) The DTCs include SAE controlled codes and Manufacturer controlled codes. SAE controlled codes must be set as prescribed by the SAE, while Manufacturer controlled codes can be set freely by a manufacturer within the prescribed limits (See the DTC chart on page 05-555 ).

(5) The diagnosis system operates in the normal mode during the normal vehicle use, and also has a check mode for technicians to simulate malfunction symptoms and perform troubleshooting. Most DTCs use 2 trip detection logic(*) to prevent erroneous detection. By switching the ECM to the check mode when troubleshooting, technicians can cause the MIL to illuminate for a malfunction that is only detected once or momentarily. (hand-held tester).

(6) *2 trip detection logic:
When a malfunction is first detected, the malfunction is temporarily stored in the ECM memory. If the same malfunction is detected again during the second test drive, this second detection causes the MIL to illuminate.




(a) Inspect the DLC3.
The vehicle's ECM uses ISO 9141-2 for communication. The terminal arrangement of DLC3 complies with SAE J1962 and matches the ISO 9141-2 format.

| Tester connection | Condition | Specified condition |
|---|---|---|
| 7 (Bus ⊕ Line) - 5 (Signal ground) | During communication | Pulse generation |
| 4 (Chassis Ground) - Body | Always | 1 Ω or less |
| 5 (Signal Ground) - Body | Always | 1 Ω or less |
| 16 (B+) - Body | Always | 9 to 14 V |

HINT:
If your display shows UNABLE TO CONNECT TO VEHICLE when you have connected the cable of the OBD II scan tool or hand-held tester to the DLC3, turned the ignition switch ON and operated the scan tool, there is a problem on the vehicle side or tool side.

- If the communication is normal when the tool is connected to another vehicle, inspect the DLC3 on the original vehicle.
- If the communication is still impossible when the tool is connected to another vehicle, the problem is probably in the tool itself, so consult the Service Department listed in the tool's instruction manual.

(b) Inspect the battery voltage.
**Battery Voltage: 11 to 14 V**

If voltage is below 11 V, recharge the battery before proceeding.

(c) Check the MIL.
(1) The MIL comes on when the ignition switch is turned ON and the engine is not running.

HINT:
If the MIL does not light up, troubleshoot the combination meter (See page 05-1538 ).

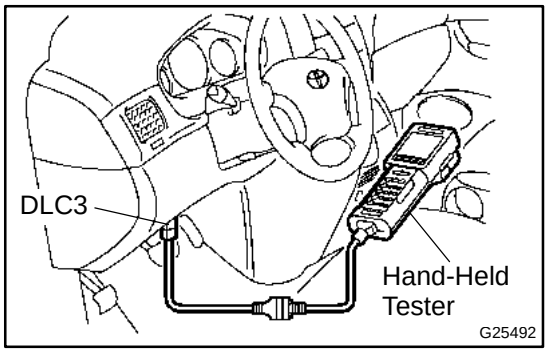
(2) When the engine is started, the MIL should go off. If the lamp remains on, it means that the diagnosis system has detected a malfunction or abnormality in the system.

**2. Normal Mode:**
**DTC CHECK**

**NOTICE:**

**Hand-held tester only:**

**When the diagnostic system is switched from the normal mode to the check mode, all the DTCs and freeze frame data recorded in the normal mode will be erased. So before switching modes, always check the DTCs and freeze frame data, and note them down.**




(a) Checking DTCs using the OBD II scan tool or hand-held tester.
  (1) Connect the OBD II scan tool or hand-held tester to DLC3.
  (2) Turn the ignition switch ON.
  (3) Use the OBD II scan tool or hand-held tester to check the DTCs and freeze frame data and note them down (For operating instructions, see the OBD II scan tool's instruction book).
  (4) See page 05-555 to confirm the details of the DTCs.

**NOTICE:**

**When simulating symptoms with an OBD II scan tool (excluding hand-held tester) to check the DTCs, use the normal mode. For codes on the DTCs chart subject to "2 trip detection logic", turn the ignition switch OFF after the symptom is simulated once. Then repeat the simulation process again. When the problem has been simulated twice, the MIL is indicated on the instrument panel and DTCs are recorded in the ECM.**

(b) When using the OBD II scan tool or hand-held tester:
Clearing the DTCs.
  (1) Connect the OBD II scan tool or hand-held tester to DLC3.
  (2) Turn the ignition switch ON.
  (3) When operating an OBD II scan tool (complying with SAE J1978) or hand-held tester to erase the codes, the DTCs and freeze frame data will be erased. (See the OBD II scan tool's instruction book for operating instructions.)

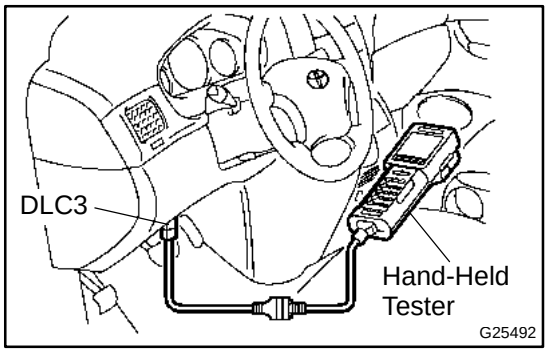
(c) When not using the OBD II scan tool or hand-held tester:
Clearing the DTCs.
  (1) Disconnecting the battery terminal or remove the EFI and ETCS fuse from engine room J/B for 60 seconds or more.

**3. Check Mode:**
**DTC CHECK**

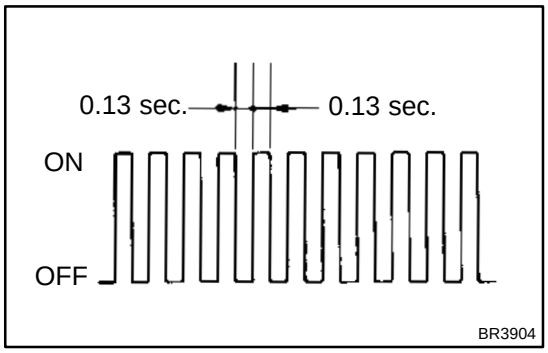
HINT:

Hand-held tester only:

Compared to the normal mode, the check mode has more sensing ability to detect malfunctions. Furthermore, the same diagnostic items which are detected in the normal mode can also be detected in the check mode.




(a) Procedure for Check Mode using the hand-held tester.
  (1) Check the initial conditions.
    - Battery positive voltage 11 V or more
    - Throttle valve fully closed
    - Transaxle in P or N position
    - A/C switched OFF
  (2) Turn the ignition switch OFF.
  (3) Connect the hand-held tester to the DLC3.
  (4) Turn the ignition switch ON.




  (5) Switch the hand-held tester from the normal mode to the check mode (Check that the MIL flashes).

**NOTICE:**

**If the hand-held tester switches the ECM from the normal mode to the check mode or vice-versa, or if the ignition switch is turned from ON to ACC or OFF during the check mode, the DTC and freeze frame data will be erased.**

  (6) Start the engine (MIL goes off after the engine starts).
  (7) Simulate the conditions of the malfunction described by the customer.

**NOTICE:**

**Leave the ignition switch ON until you have checked the DTCs, etc.**

  (8) After simulating the malfunction conditions, use the hand-held tester diagnosis selector to check the DTCs and freeze frame data, etc.

HINT:

Be sure not to turn the ignition switch OFF, as turning it OFF switches the diagnosis system from the check mode to the normal mode, which erases all the DTCs, etc.

  (9) After checking the DTC, inspect the applicable circuit.

(b) When using the OBD II scan tool or hand-held tester:
Clearing the DTCs.
  (1) Connect the OBD II scan tool or hand-held tester to DLC3.
  (2) Turn the ignition switch ON.

(3) When operating an OBD II scan tool (complying with SAE J1978) or hand-held tester to erase the codes, the DTCs and freeze frame data will be erased. (See the OBD II scan tool's instruction book for operating instructions.)

(c) When not using the OBD II scan tool or hand-held tester: Clearing the DTCs.

(1) Disconnecting the battery terminal or remove the EFI and ETCS fuse from engine room J/B for 60 seconds or more.

## 4. DATA LIST

HINT:

According to the DATA LIST displayed by the OBD II scan tool or Hand-held tester, you can read the value of the switch, sensor, actuator and so on without parts removal. Reading the DATA LIST as the first step of troubleshooting is one method to shorten work time.

(a) Warm up the engine.

(b) Turn the ignition switch OFF.

(c) Connect the OBD II scan tool or hand-held tester to the DLC3.

(d) Turn the ignition switch ON.

(e) According to the display on tester, read the "DATA LIST".

| Item | Measurement Item/ Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| STOP LIGHT SW | Stop light SW Status/ ON or OFF | • Brake Pedal is depressed: ON<br>• Brake Pedal is released: OFF | - |
| SHIFT | Actual Gear Position/ 1st, 2nd, 3rd, 4th or 5th | Shift Lever Position is;<br>• L: 1st<br>• 2: 1st or 2nd<br>• 3: 1st, 2nd or 3rd<br>• 4: 1st, 2nd, 3rd or 4th<br>• D: 1st, 2nd, 3rd, 4th or 5th | - |
| PNP SW [NSW] | PNP SW Status/ ON or OFF | Shift lever position is;<br>P or N: ON<br>Except P or N: OFF | The shift lever position and these values are different, there are failures of the PNP switch or shift cable adjustment.<br>HINT:<br>When the failure still occurs even after adjusting these parts,<br>(See page 05-566). |
| REVERSE | PNP SW Status/ ON or OFF | Shift lever position is;<br>R: ON<br>Except R: OFF | |
| DRIVE | PNP SW Status/ ON or OFF | Shift lever position is;<br>D and 4: ON<br>Except D and 4: OFF | |
| 4TH/DRIVE | PNP SW Status/ ON or OFF | Shift lever position is;<br>4: ON<br>Except 4: OFF | |
| 3RD | PNP SW Status/ ON or OFF | Shift lever position is;<br>3: ON<br>Except 3: OFF | |
| 2ND | PNP SW Status/ ON or OFF | Shift lever position is;<br>2 and L: ON<br>Except 2 and L: OFF | |
| LOW | PNP SW Status/ ON or OFF | Shift lever position is;<br>L: ON<br>Except L: OFF | |
| SOLENOID (SLT) | Shift Solenoid SLT Status/ ON or OFF | IG SW ON: ON | - |

| | | | |
|---|---|---|---|
| AT FLUID TEMP | ATF Temp. Sensor Value/ min.: -40 °C (-40 °F) max.: 225 °C (437 °F) | 80 °C (176 °F) (After Stall Test) | If the value is "-40 °C (-40 °F)" or "225 °C (437 °F)", ATF temp. sensor circuit is opened or shorted. |
| SPD (NC) | Counter Gear Speed display: 50 r/min | D Position is warmed up, 3rd; Same as input shaft speed | - |

## 5. ACTIVE TEST

HINT:

Performing the ACTIVE TEST using the hand-held tester allows the relay, VSV, actuator and so on to operate without parts removal. Performing the ACTIVE TEST as the first step of troubleshooting is one method to shorten work time.

It is possible to display the DATA LIST during the ACTIVE TEST.

(a) Warm up the engine.
(b) Turn the ignition switch OFF.
(c) Connect the hand-held tester to the DLC3.
(d) Turn the ignition switch ON.
(e) According to the display on tester, perform the "ACTIVE TEST".

| Item | Test Details | Diagnostic Note |
|---|---|---|
| SHIFT | [Test Details]<br>Operate the shift solenoid valve and set the each shift position by yourself.<br>[Vehicle Condition]<br>Less than 50 km/h (31 mph)<br>[Others]<br>• Press → button: Shift up<br>• Press ← button: Shift down | Possible to check the operation of the shift solenoid valves. |
| LOCK UP | [Test Details]<br>Control the shift solenoid DSL to set the ATM to the lock-up condition.<br>[Vehicle Condition]<br>Vehicle Speed: 58 km/h (36 mph) or more | Possible to check the DSL operation. |
| LINE PRESS UP * | [Test Details]<br>Operate the shift solenoid SLT and raise the line pressure.<br>[Vehicle Condition]<br>• Vehicle Stopped.<br>• IDL: ON<br>[Others]<br>OFF: Line pressure up.<br>ON: No action (normal operation) | - |

*: "LINE PRESS UP" in ACTIVE TEST is performed to check the line pressure changes by connecting the SST to the automatic transaxle same as used in HYDRAULIC TEST.

HINT:

The pressure values in ACTIVE TEST and HYDRAULIC TEST are different from each other.

## 6. DEFINITION OF TERMS

| Term | Definition |
|---|---|
| Monitor description | Description of what the ECM monitors and how it detects malfunctions (monitoring purpose and its details). |
| Related DTCs | A group of diagnostic trouble codes that are output by the ECM based on the same malfunction detection logic. |
| Typical enabling condition | Preconditions that allow the ECM to detect malfunctions.<br>With all preconditions satisfied, the ECM sets the DTC when the monitored value(s) exceeds the malfunction threshold(s). |
| Sequence of operation | The priority order that is applied to monitoring, if multiple sensors and components are used to detect the malfunction.<br>While another sensor is being monitored, the next sensor or component will not be monitored until the previous monitoring has concluded. |
| Required sensor/components | The sensors and components that are used by the ECM to detect malfunctions. |
| Frequency of operation | The number of times that the ECM checks for malfunctions per driving cycle.<br>”Once per driving cycle” means that the ECM detects malfunction only one time during a single driving cycle.<br>”Continuous” means that the ECM detects malfunction every time when enabling condition is met during a single driving cycle. |
| Duration | The minimum time that the ECM must sense a continuous deviation in the monitored value(s) before setting a DTC. This timing begins after the ”typical enabling conditions” are met. |
| Malfunction thresholds | Beyond this value, the ECM will conclude that there is a malfunction and set a DTC. |
| MIL operation | MIL illumination timing after a defect is detected.<br>”Immediately” means that the ECM illuminates MIL the instant the ECM determines that there is a malfunction.<br>”2 driving cycle” means that the ECM illuminates MIL if the same malfunction is detected again in the 2 nd driving cycle. |

## 7. TOYOTA/LEXUS PART AND SYSTEM NAME LIST

This reference list indicates the part names used in this manual along with their definitions.

| TOYOTA/LEXUS name | Definition |
|---|---|
| Toyota HCAC system, Hydrocarbon adsorptive Catalyst (HCAC) system, HC adsorptive three-way catalyst | HC adsorptive three-way catalytic converter |
| Variable Valve Timing sensor, VVT sensor | Camshaft position sensor |
| Variable valve timing system, VVT system | Camshaft timing control system |
| Camshaft timing oil control valve, Oil control valve OCV, VVT, VSV | Camshaft timing oil control valve |
| Variable timing and lift, VVTL | Camshaft timing and lift control |
| Crankshaft position sensor ”A” | Crankshaft position sensor |
| Engine speed sensor | Crankshaft position sensor |
| THA | Intake air temperature |
| Knock control module | Engine knock control module |
| Knock sensor | Engine knock sensor |
| Mass or volume air flow circuit | Mass air flow sensor circuit |
| Vacuum sensor | Manifold air pressure sensor |
| Internal control module, Control module, Engine control ECU, PCM | Power train control module |
| FC idle | Deceleration fuel cut |
| Idle air control valve | Idle speed control |
| VSV for CCV, Canister close valve VSV for canister control | Evaporative emissions canister vent valve |
| VSV for EVAP, Vacuum switching valve assembly No. 1, EVAP VAV, Purge VSV | Evaporative emissions canister purge valve |
| VSV for pressure switching valve, Bypass VSV | Evaporative emission pressure switching valve |
| Vapor pressure sensor, EVAP pressure sensor, Evaporative emission control system pressure sensor | Fuel tank pressure sensor |
| Charcoal canister | Evaporative emissions canister |
| ORVR system | On-boad refueling vapor recovery system |
| Intake manifold runner control | Intake manifold tuning system |
| Intake manifold runner valve, IMRV, IACV (runner valve) | Intake manifold tuning valve |

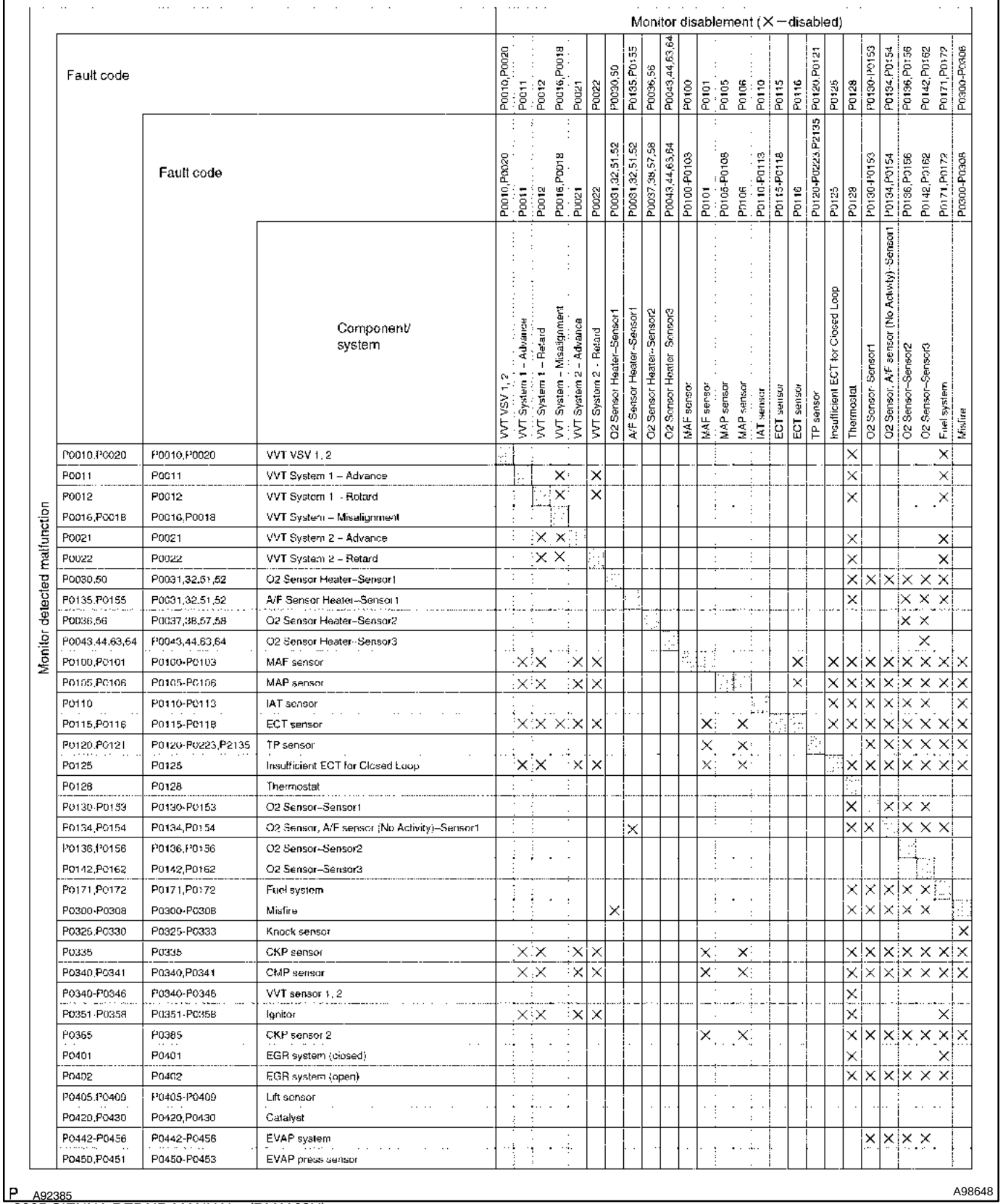
| TOYOTA/LEXUS name | Definition |
|---|---|
| Intake control VSV | Intake manifold tuning solenoid valve |
| AFS | Air fuel ratio sensor |
| O2 sensor | Heater oxygen sensor |
| Oxygen sensor pumping current circuit | Oxygen sensor output signal |
| Oxygen sensor reference ground circuit | Oxygen sensor signal ground |
| Accel position sensor | Accelerator pedal position sensor |
| Throttle actuator control motor, Actuator control motor, Electronic throttle motor, Throttle control motor | Electronic throttle actuator |
| Electronic throttle control system, Throttle actuator control system | Electronic throttle control system |
| Throttle/pedal position sensor, Throttle/pedal position switch, Throttle position sensor/switch | Throttle position sensor |
| Turbo press sensor | Turbocharger pressure sensor |
| Turbo VSV | Turbocharger pressure control solenoid valve |
| P/S pressure switch | Power-steering pressure switch |
| VSV for ACM | Active control engine mount |
| Speed sensor, Vehicle speed sensor ”A”, Speed sensor for skid control ECU | Vehicle speed sensor |
| ATF temperature sensor, Trans. fluid temp. sensor, ATF temperature sensor ”A” | Transmission fluid temperature sensor |
| Electronic controlled automatic transmission, ECT | Electronically controlled automatic |
| Intermediate shaft speed sensor ”A” | Couter gear speed sensor |
| Output speed sensor | Output shaft speed sensor |
| Input speed sensor, Input turbine speed sensor ”A”, Speed sensor (NT), Turbine speed sensor | Input turbine speed sensor |
| PNP switch, NSW | Park/neutral position switch |
| Pressure control solenoid | Transmission pressure control solenoid |
| Shift solenoid | Transmission shift solenoid valve |
| Transmission control switch, Shift lock control unit | Shift lock control module |
| Engine immobilizer system, Immobilizer system | Vehicle anti-theft system |

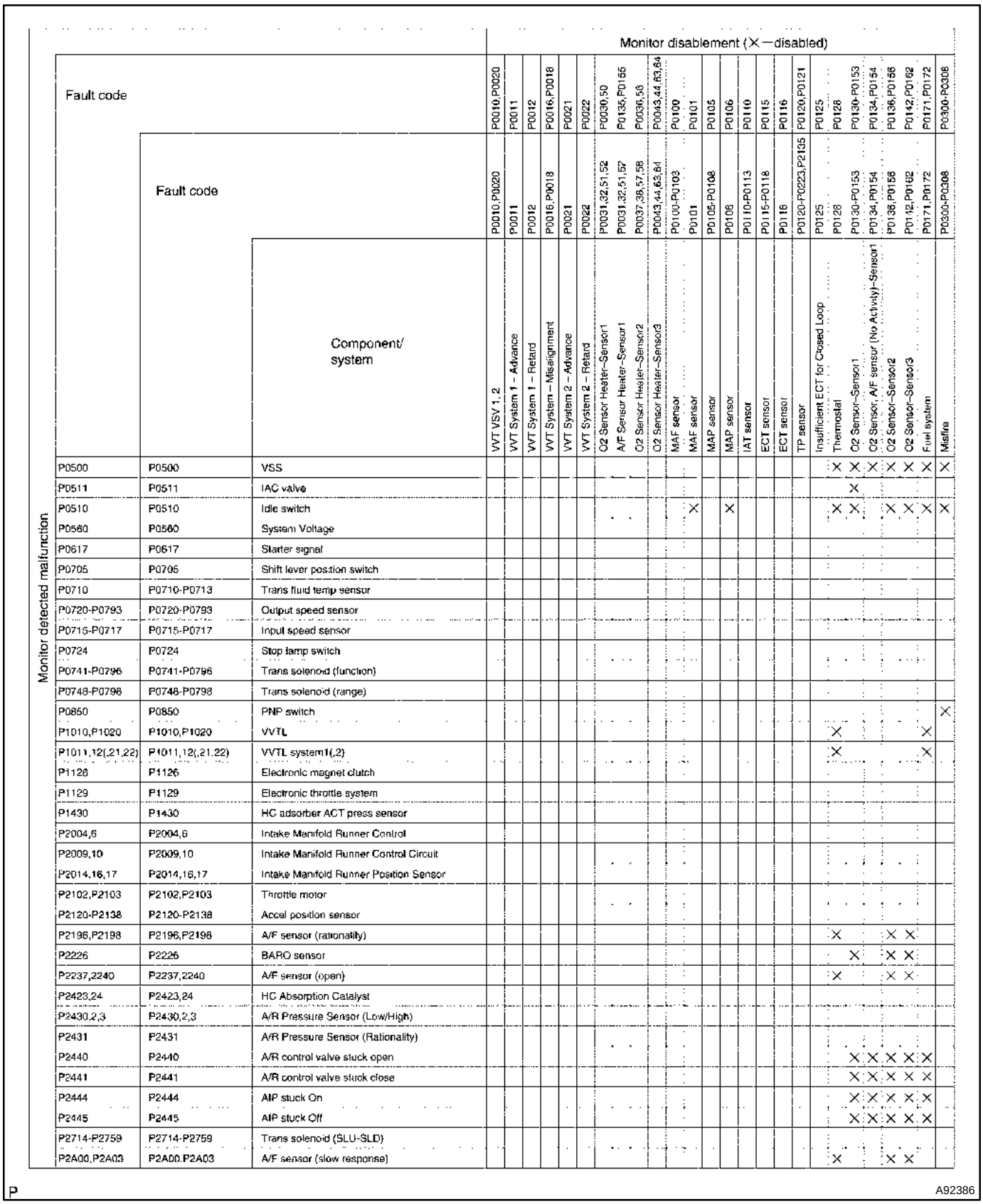
## 8. The monitor will run whenever the following DTCs are not present (Monitor disablement List)

HINT:

This table indicates ECM monitoring status for the items in the upper columns if the DTCs in each line on the left are being set.

As for the ”X” mark, when the DTC on the left is stored, detection of the DTC in the upper column is not performed



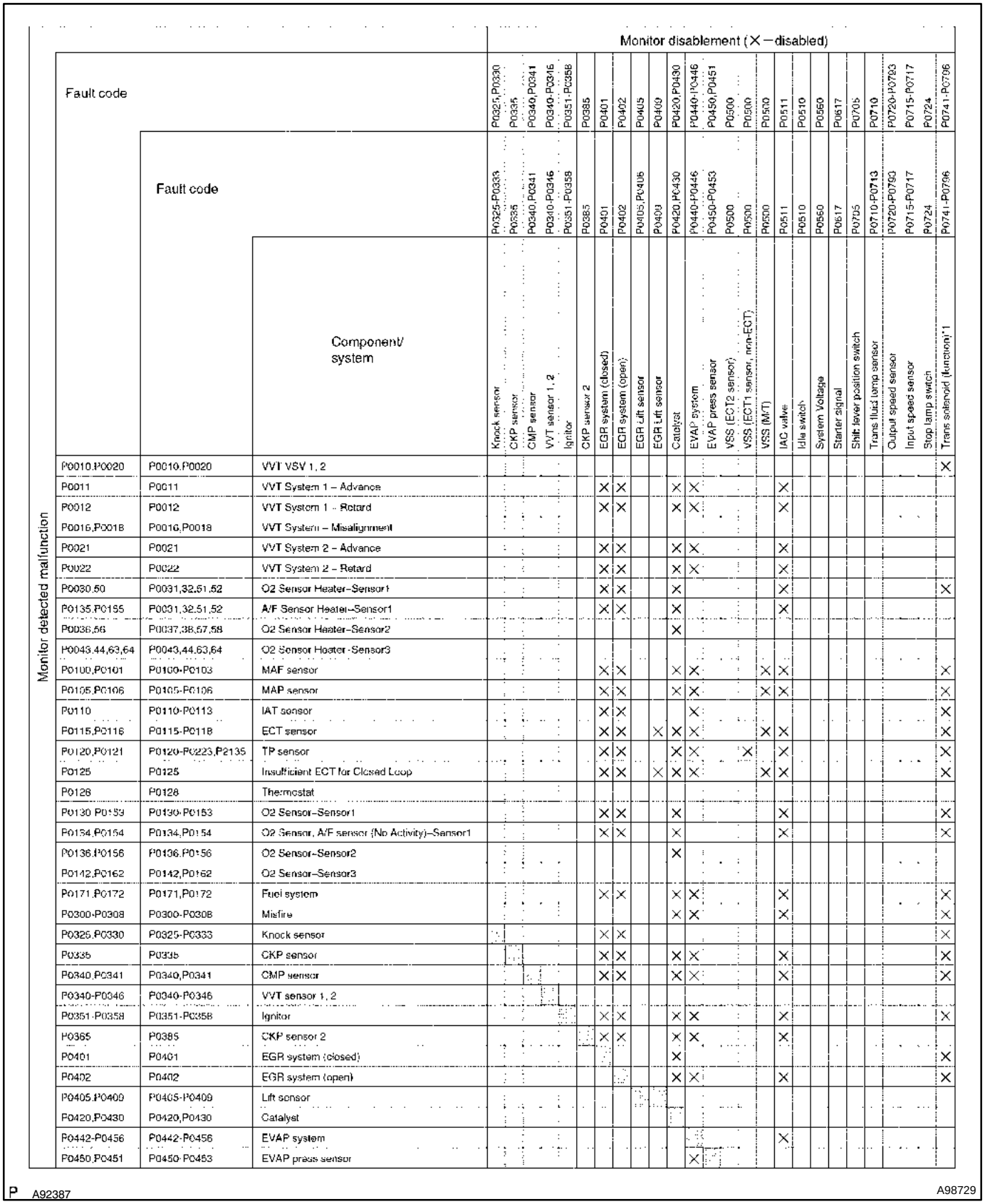


Monitor detected malfunction

| Fault code | Fault code | Component/ system | Monitor disablement (×—disabled) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | P0010,P0020 | P0011 | P0012 | P0016,P0018 | P0021 | P0022 | P0030,50 | P0031,32,51,52 | P0135,P0155 | P0036,56 | P0043,44,63,64 | P0100 | P0101 | P0105 | P0106 | P0110 | P0115 | P0116 | P0120,P0121 | P0125 | P0128 | P0130-P0153 | P0134,P0154 | P0136,P0156 | P0142,P0162 | P0171,P0172 | P0300-P0308 | |
| | | | P0010,P0020 | P0011 | P0012 | P0016,P0018 | P0021 | P0022 | P0031,32,51,52 | P0031,32,51,52 | P0037,38,57,58 | P0037,38,57,58 | P0043,44,63,64 | P0100-P0103 | P0101 | P0105-P0108 | P0106 | P0110-P0113 | P0115-P0118 | P0116 | P0120-P0223,P2135 | P0125 | P0128 | P0130-P0153 | P0134,P0154 | P0136,P0156 | P0142,P0162 | P0171,P0172 | P0300-P0308 | |
| | | | VVT VSV 1, 2 | VVT System 1 – Advance | VVT System 1 – Retard | VVT System – Misalignment | VVT System 2 – Advance | VVT System 2 – Retard | O2 Sensor Heater–Sensor1 | A/F Sensor Heater–Sensor1 | O2 Sensor Heater–Sensor2 | O2 Sensor Heater–Sensor3 | MAF sensor | MAF sensor | MAP sensor | MAP sensor | IAT sensor | ECT sensor | ECT sensor | TP sensor | Insufficient ECT for Closed Loop | Thermostat | O2 Sensor–Sensor1 | O2 Sensor, A/F sensor (No Activity)–Sensor1 | O2 Sensor–Sensor2 | O2 Sensor–Sensor3 | Fuel system | Misfire | |
| P0500 | P0500 | VSS | | | | | | | | | | | | | | | | | | | | × | × | × | × | × | × | × | | |
| P0511 | P0511 | IAC valve | | | | | | | | | | | | | | | | | | | | | × | | | | | | | |
| P0510 | P0510 | Idle switch | | | | | | | | | | | | | × | | × | | | | | × | × | | | × | × | × | × | |
| P0560 | P0560 | System Voltage | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P0617 | P0617 | Starter signal | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P0705 | P0705 | Shift lever position switch | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P0710 | P0710-P0713 | Trans fluid temp sensor | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P0720-P0793 | P0720-P0793 | Output speed sensor | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P0715-P0717 | P0715-P0717 | Input speed sensor | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P0724 | P0724 | Stop lamp switch | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P0741-P0796 | P0741-P0796 | Trans solenoid (function) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P0748-P0798 | P0748-P0798 | Trans solenoid (range) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P0850 | P0850 | PNP switch | | | | | | | | | | | | | | | | | | | | | | | | | | | × | |
| P1010,P1020 | P1010,P1020 | VVTL | | | | | | | | | | | | | | | | | | | | × | | | | | × | | | |
| P1011,12(,21,22) | P1011,12(,21,22) | VVTL system1(,2) | | | | | | | | | | | | | | | | | | | | × | | | | | × | | | |
| P1126 | P1126 | Electronic magnet clutch | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P1129 | P1129 | Electronic throttle system | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P1430 | P1430 | HC adsorber ACT press sensor | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P2004,6 | P2004,6 | Intake Manifold Runner Control | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P2009,10 | P2009,10 | Intake Manifold Runner Control Circuit | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P2014,16,17 | P2014,16,17 | Intake Manifold Runner Position Sensor | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P2102,P2103 | P2102,P2103 | Throttle motor | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P2120-P2138 | P2120-P2138 | Accel position sensor | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P2196,P2198 | P2196,P2198 | A/F sensor (rationality) | | | | | | | | | | | | | | | | | | | | × | | | × | × | | | | |
| P2226 | P2226 | BARO sensor | | | | | | | | | | | | | | | | | | | | | × | | × | × | | | | |
| P2237,2240 | P2237,2240 | A/F sensor (open) | | | | | | | | | | | | | | | | | | | | × | | | × | × | | | | |
| P2423,24 | P2423,24 | HC Absorption Catalyst | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P2430,2,3 | P2430,2,3 | A/R Pressure Sensor (Low/High) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P2431 | P2431 | A/R Pressure Sensor (Rationality) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P2440 | P2440 | A/R control valve stuck open | | | | | | | | | | | | | | | | | | | | | × | × | × | × | × | | | |
| P2441 | P2441 | A/R control valve stuck close | | | | | | | | | | | | | | | | | | | | | × | × | × | × | × | | | |
| P2444 | P2444 | AIP stuck On | | | | | | | | | | | | | | | | | | | | | × | × | × | × | × | | | |
| P2445 | P2445 | AIP stuck Off | | | | | | | | | | | | | | | | | | | | | × | × | × | × | × | | | |
| P2714-P2759 | P2714-P2759 | Trans solenoid (SLU-SLD) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P2A00,P2A03 | P2A00,P2A03 | A/F sensor (slow response) | | | | | | | | | | | | | | | | | | | | × | | | × | × | | | | |

P

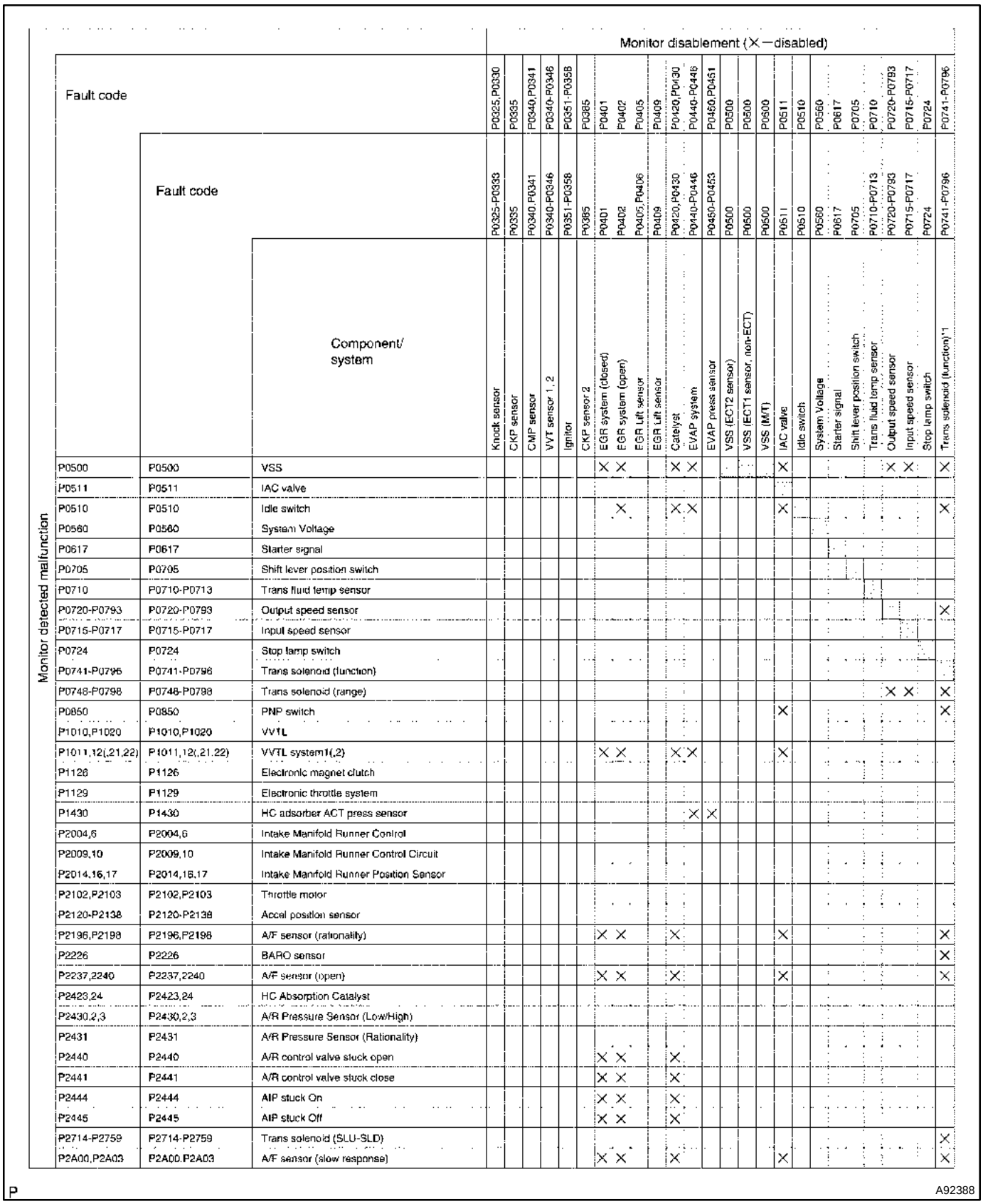
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| Monitor detected malfunction | Fault code | Fault code | Component/ system | Monitor disablement (X=disabled) | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P0325,P0330 | P0335 | P0340,P0341 | P0340-P0346 | P0351-P0358 | P0385 | P0401 | P0402 | P0405 | P0409 | P0420,P0430 | P0440-P0446 | P0450,P0451 | P0500 | P0500 | P0560 | P0511 | P0510 | P0560 | P0617 | P0705 | P0710-P0713 | P0720-P0793 | P0715-P0717 | P0724 | P0741-P0796 |
| | | | | Knock sensor | CKP sensor | CMP sensor | VVT sensor 1, 2 | Ignitor | CKP sensor 2 | EGR system (closed) | EGR system (open) | EGR Lift sensor | EGR Lift sensor | Catalyst | EVAP system | EVAP press sensor | VSS (ECT2 sensor) | VSS (ECT1 sensor, non-ECT) | VSS (M/T) | IAC valve | Idle switch | System Voltage | Starter signal | Shift lever position switch | Trans fluid temp sensor | Output speed sensor | Input speed sensor | Stop lamp switch | Trans solenoid (function)*1 |
| | P0010,P0020 | P0010,P0020 | VVT VSV 1, 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | X |
| | P0011 | P0011 | VVT System 1 – Advance | | | | | | | X | X | | | X | X | | | | | X | | | | | | | | | | |
| | P0012 | P0012 | VVT System 1 – Retard | | | | | | | X | X | | | X | X | | | | | X | | | | | | | | | | |
| | P0016,P0018 | P0016,P0018 | VVT System – Misalignment | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P0021 | P0021 | VVT System 2 – Advance | | | | | | | X | X | | | X | X | | | | | X | | | | | | | | | | |
| | P0022 | P0022 | VVT System 2 – Retard | | | | | | | X | X | | | X | X | | | | | X | | | | | | | | | | |
| | P0030,50 | P0031,32,51,52 | O2 Sensor Heater–Sensor1 | | | | | | | X | X | | | X | | | | | | X | | | | | | | | | | X |
| | P0135,P0155 | P0031,32,51,52 | A/F Sensor Heater–Sensor1 | | | | | | | X | X | | | X | | | | | | X | | | | | | | | | | |
| | P0036,56 | P0037,38,57,58 | O2 Sensor Heater–Sensor2 | | | | | | | | | | | X | | | | | | | | | | | | | | | | |
| | P0043,44,63,64 | P0043,44,63,64 | O2 Sensor Heater–Sensor3 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P0100,P0101 | P0100-P0103 | MAF sensor | | | | | | | X | X | | | X | X | | | X | | X | | | | | | | | | | X |
| | P0105,P0106 | P0105-P0106 | MAP sensor | | | | | | | X | X | | | X | X | | | X | | X | | | | | | | | | | X |
| | P0110 | P0110-P0113 | IAT sensor | | | | | | | X | X | | | | X | | | | | | | | | | | | | | | X |
| | P0115,P0116 | P0115-P0118 | ECT sensor | | | | | | | X | X | | X | X | X | | | X | | X | | | | | | | | | | X |
| | P0120,P0121 | P0120-P0223,P2135 | TP sensor | | | | | | | X | X | | | X | X | | X | | | X | | | | | | | | | | X |
| | P0125 | P0125 | Insufficient ECT for Closed Loop | | | | | | | X | X | | X | X | X | | | X | | X | | | | | | | | | | X |
| | P0128 | P0128 | Thermostat | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P0130,P0153 | P0130-P0153 | O2 Sensor–Sensor1 | | | | | | | X | X | | | X | | | | | | X | | | | | | | | | | X |
| | P0134,P0154 | P0134,P0154 | O2 Sensor, A/F sensor (No Activity)–Sensor1 | | | | | | | X | X | | | X | | | | | | X | | | | | | | | | | X |
| | P0136,P0156 | P0136,P0156 | O2 Sensor–Sensor2 | | | | | | | | | | | X | | | | | | | | | | | | | | | | |
| | P0142,P0162 | P0142,P0162 | O2 Sensor–Sensor3 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P0171,P0172 | P0171,P0172 | Fuel system | | | | | | | X | X | | | X | X | | | | | X | | | | | | | | | | X |
| | P0300-P0308 | P0300-P0308 | Misfire | | | | | | | X | X | | | X | X | | | | | X | | | | | | | | | | X |
| | P0325,P0330 | P0325-P0333 | Knock sensor | | | | | | | X | X | | | | | | | | | | | | | | | | | | | X |
| | P0335 | P0335 | CKP sensor | | | | | | | X | X | | | X | X | | | | | X | | | | | | | | | | X |
| | P0340,P0341 | P0340,P0341 | CMP sensor | | | | | | | X | X | | | X | X | | | | | X | | | | | | | | | | X |
| | P0340-P0346 | P0340-P0346 | VVT sensor 1, 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P0351-P0358 | P0351-P0358 | Ignitor | | | | | | | X | X | | | X | X | | | | | X | | | | | | | | | | X |
| | P0365 | P0385 | CKP sensor 2 | | | | | | | X | X | | | X | X | | | | | X | | | | | | | | | | |
| | P0401 | P0401 | EGR system (closed) | | | | | | | | | | | X | | | | | | | | | | | | | | | | X |
| | P0402 | P0402 | EGR system (open) | | | | | | | | | | | X | X | | | | | X | | | | | | | | | | X |
| | P0405,P0409 | P0405-P0409 | Lift sensor | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P0420,P0430 | P0420,P0430 | Catalyst | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P0442-P0456 | P0442-P0456 | EVAP system | | | | | | | | | | | | | | | | | X | | | | | | | | | | |
| | P0450,P0451 | P0450-P0453 | EVAP press sensor | | | | | | | | | | | | X | | | | | | | | | | | | | | | |

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A98729



| Monitor detected malfunction | Fault code | Fault code | Component/ system | Monitor disablement (×—disabled) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | P0325,P0330 | P0335 | P0340,P0341 | P0340-P0346 | P0351-P0358 | P0385 | P0401 | P0402 | P0405 | P0409 | P0420,P0430 | P0440-P0446 | P0450,P0451 | P0500 | P0500 | P0500 | P0511 | P0510 | P0560 | P0617 | P0705 | P0710 | P0720-P0793 | P0715-P0717 | P0724 | P0741-P0796 | | | |
| | | P0325-P0333 | Knock sensor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | P0335 | CKP sensor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | P0340,P0341 | CMP sensor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | P0340-P0346 | VVT sensor 1, 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | P0351-P0358 | Ignitor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | P0385 | CKP sensor 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P0500 | P0500 | VSS | | | | | | | × | × | | | × | × | | | | | × | | | | | | × | × | | × | | | |
| | P0511 | P0511 | IAC valve | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P0510 | P0510 | Idle switch | | | | | | | | × | | | × | × | | | | | × | | | | | | | | | × | | | |
| | P0560 | P0560 | System Voltage | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P0617 | P0617 | Starter signal | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P0705 | P0705 | Shift lever position switch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P0710 | P0710-P0713 | Trans fluid temp sensor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P0720-P0793 | P0720-P0793 | Output speed sensor | | | | | | | | | | | | | | | | | | | | | | | | | | | × | | |
| | P0715-P0717 | P0715-P0717 | Input speed sensor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P0724 | P0724 | Stop lamp switch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P0741-P0796 | P0741-P0796 | Trans solenoid (function) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P0748-P0798 | P0748-P0798 | Trans solenoid (range) | | | | | | | | | | | | | | | | | | | | | | | | | | | × | | |
| | P0850 | P0850 | PNP switch | | | | | | | | | | | | | | | | | × | | | | | | | | | | × | | |
| | P1010,P1020 | P1010,P1020 | VVTL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P1011,12(,21,22) | P1011,12(,21,22) | VVTL system1(,2) | | | | | | | × | × | | | × | × | | | | | × | | | | | | | | | | | | |
| | P1126 | P1126 | Electronic magnet clutch | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P1129 | P1129 | Electronic throttle system | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P1430 | P1430 | HC adsorber ACT press sensor | | | | | | | | | | | | × | × | | | | | | | | | | | | | | | | |
| | P2004,6 | P2004,6 | Intake Manifold Runner Control | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P2009,10 | P2009,10 | Intake Manifold Runner Control Circuit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P2014,16,17 | P2014,16,17 | Intake Manifold Runner Position Sensor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P2102,P2103 | P2102,P2103 | Throttle motor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P2120-P2138 | P2120-P2138 | Accel position sensor | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P2196,P2198 | P2196,P2198 | A/F sensor (rationality) | | | | | | | × | × | | | × | | | | | | × | | | | | | | | | | × | | |
| | P2226 | P2226 | BARO sensor | | | | | | | | | | | | | | | | | | | | | | | | | | | × | | |
| | P2237,2240 | P2237,2240 | A/F sensor (open) | | | | | | | × | × | | | × | | | | | | × | | | | | | | | | | × | | |
| | P2423,24 | P2423,24 | HC Absorption Catalyst | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P2430,2,3 | P2430,2,3 | A/R Pressure Sensor (Low/High) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P2431 | P2431 | A/R Pressure Sensor (Rationality) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | P2440 | P2440 | A/R control valve stuck open | | | | | | | × | × | | | × | | | | | | | | | | | | | | | | | | |
| | P2441 | P2441 | A/R control valve stuck close | | | | | | | × | × | | | × | | | | | | | | | | | | | | | | | | |
| | P2444 | P2444 | AIP stuck On | | | | | | | × | × | | | × | | | | | | | | | | | | | | | | | | |
| | P2445 | P2445 | AIP stuck Off | | | | | | | × | × | | | × | | | | | | | | | | | | | | | | | | |
| | P2714-P2759 | P2714-P2759 | Trans solenoid (SLU-SLD) | | | | | | | | | | | | | | | | | | | | | | | | | | | × | | |
| | P2A00,P2A03 | P2A00,P2A03 | A/F sensor (slow response) | | | | | | | × | × | | | × | | | | | | × | | | | | | | | | | × | | |

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Monitor disablement (× – disabled)

| Fault code (Monitor detected malfunction) | Fault code | Component/ system | P0741-P0796 | P0748-P0798 | P0850 | P1010,P1020 | P1011,12(21,22) | P1126 | P1129 | P1430 | P2004,6 | P2009,P2010 | P2014,16,17 | P2102,P2103 | P2120-P2138 | P2196,P2198 | P2226 | P2237,P2240 | P2423,24 | P2430,2,3 | P2431 | P2440 | P2441 | P2444 | P2445 | P2714-P2759 | P2A00,P2A03 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Fault code | | P0741-P0796 | P0748-P0799 | P0850 | P1010,P1020 | P1011,12(21,22) | P1126 | P1129 | P1430 | P2004,6 | P2009,10 | P2014,16,17 | P2102,P2103 | P2120-P2138 | P2196,P2198 | P2226 | P2237,P2240 | P2423,24 | P2430,2,3 | P2431 | P2440 | P2441 | P2444 | P2445 | P2714-P2759 | P2A00,P2A03 |
| | | Component/ system | Trans solenoid (function) *2 | Trans solenoid (range) | PNP switch | VVTL | VVTL system1(2) | Electronic magnet clutch | Electronic throttle system | HC adsorber ACT press sensor | Intake Manifold Runner Control | Intake Manifold Runner Control Circuit | Intake Manifold Runner Position Sensor | Throttle motor | Accel position sensor | A/F Sensor (Rationality) -Sensor1 | BARO sensor | A/F Sensor (Open) -Sensor1 | HC Absorption Catalyst | A/R Pressure Sensor (Low/High) | A/R Pressure Sensor (Rationality) | A/R control valve stuck open | A/R control valve stuck close | AIP stuck On | AIP stuck Off | Trans solenoid (SLU-SLD) | A/F sensor (Slow response) -Sensor1 |
| P0010,P0020 | P0010,P0020 | VVT VSV 1, 2 | | | | | | | | | | | | | | | | | | | | × | × | × | × | | |
| P0011 | P0011 | VVT System 1 – Advance | | | | | | | | | | | | | | | | | | | | × | × | × | × | | |
| P0012 | P0012 | VVT System 1 – Retard | | | | | | | | | | | | | | | | | | | | × | × | × | × | | |
| P0016,P0018 | P0016,P0018 | VVT System – Misalignment | | | | | | | | | | | | | | | | | | | | × | × | × | × | | |
| P0021 | P0021 | VVT System 2 – Advance | | | | | | | | | | | | | | | | | | | | × | × | × | × | | |
| P0022 | P0022 | VVT System 2 – Retard | | | | | | | | | | | | | | | | | | | | × | × | × | × | | |
| P0030,50 | P0031,32,51,52 | O2 Sensor Heater–Sensor1 | | | | | | | | | | | | | | | | | × | | | × | × | × | × | | |
| P0135,P0155 | P0031,32,51,52 | A/F Sensor Heater–Sensor1 | | | | | | | | | | | | | | × | | × | × | | | × | × | × | × | | × |
| P0036,56 | P0037,38,57,58 | O2 Sensor Heater–Sensor2 | | | | | | | | | | | | | | × | | | × | | | | | | | | |
| P0043,44,63,64 | P0043,44,63,64 | O2 Sensor Heater–Sensor3 | | | | | | | | | | | | | | | | | × | | | | | | | | |
| P0100,P0101 | P0100-P0103 | MAF sensor | | | | × | × | | | | | | | | | × | | × | × | | | × | × | × | × | | × |
| P0105,P0106 | P0105-P0108 | MAP sensor | | | | × | × | | | | | | | | | × | | × | × | | | × | × | × | × | | × |
| P0110 | P0110-P0113 | IAT sensor | | | | | | | | | × | | | | | × | | × | | | | × | × | × | × | | × |
| P0115,P0116 | P0115-P0118 | ECT sensor | × | | | × | × | | | | × | | | | | × | | × | × | | | × | × | × | × | | × |
| P0120,P0121 | P0120-P0223,P2135 | TP sensor | | | | | | | | | | | | | | × | | × | × | | | × | × | × | × | | × |
| P0125 | P0125 | Insufficient ECT for Closed Loop | × | | | × | | | | | | | | | | × | | × | × | | | × | × | × | × | | × |
| P0128 | P0128 | Thermostat | | | | | | | | | | | | | | | | | | | | | | | | | |
| P0130-P0153 | P0130-P0153 | O2 Sensor–Sensor1 | | | | | | | | | | | | | | | | | × | | | × | × | × | × | | |
| P0134,P0154 | P0134,P0154 | O2 Sensor, A/F sensor (No Activity)–Sensor1 | | | | | | | | | | | | | | × | | × | × | | | × | × | × | × | | × |
| P0136,P0156 | P0136,P0156 | O2 Sensor–Sensor2 | | | | | | | | | | | | | | × | | | × | | | | | | | | |
| P0142,P0162 | P0142,P0162 | O2 Sensor–Sensor3 | | | | | | | | | | | | | | | | | × | | | | | | | | |
| P0171,P0172 | P0171,P0172 | Fuel system | | | | | | | | | | | | | | × | | × | × | | | × | × | × | × | | × |
| P0300-P0308 | P0300-P0308 | Misfire | | | | | | | | | | | | | | × | | × | × | | | × | × | × | × | | × |
| P0325,P0330 | P0325-P0333 | Knock sensor | | | | | | | | | | | | | | | | | | | | × | × | × | × | | |
| P0335 | P0335 | CKP sensor | | | | × | × | | | | | | | | | × | | × | × | | | × | × | × | × | | × |
| P0340,P0341 | P0340,P0341 | CMP sensor | | | | × | × | | | | | | | | | × | | × | × | | | × | × | × | × | | × |
| P0340-P0346 | P0340-P0346 | VVT sensor 1, 2 | | | | | | | | | | | | | | | | | | | | × | × | × | × | | |
| P0351-P0358 | P0351-P0358 | Ignitor | | | | | | | | | | | | | | | | | × | | | × | × | × | × | | |
| P0365 | P0385 | CKP sensor 2 | | | | × | × | | | | | | | | | × | | × | × | | | × | × | × | × | | × |
| P0401 | P0401 | EGR system (closed) | | | | | | | | | | | | | | | | | × | | | | | | | | |
| P0402 | P0402 | EGR system (open) | | | | | | | | | | | | | | × | | × | × | | | × | × | × | × | | × |
| P0405,P0409 | P0405-P0409 | Lift sensor | | | | | | | | | | | | | | | | | | | | | | | | | |
| P0420,P0430 | P0420,P0430 | Catalyst | | | | | | | | | | | | | | | | | | | | | | | | | |
| P0442-P0456 | P0442-P0456 | EVAP system | | | | | | | | | | | | | | × | | × | | | | × | × | × | × | | × |
| P0450,P0451 | P0450-P0453 | EVAP press sensor | | | | | | | | | | | | | | | | | | | | × | × | × | × | | |

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Monitor disablement (X－disabled)

| Monitor detected malfunction: Fault code | Fault code | Component/ system | P0741-P0796 | P0748-P0798 | P0850 | P1010,P1020 | P1011,12(,21,22) | P1126 | P1129 | P1430 | P2004,6 | P2009,P2010 | P2014,16,17 | P2102,P2103 | P2120-P2138 | P2196,P2198 | P2226 | P2237,P2240 | P2423,24 | P2430,2,3 | P2431 | P2440 | P2441 | P2444 | P2445 | P2714-P2759 | P2A00,P2A03 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Fault code | | P0741-P0796 | P0748-P0799 | P0850 | P1010,P1020 | P1011,12(,21,22) | P1126 | P1129 | P1430 | P2004,6 | P2009,10 | P2014,16,17 | P2102,P2103 | P2120-P2138 | P2196,P2198 | P2226 | P2237,P2240 | P2423,24 | P2430,2,3 | P2431 | P2440 | P2441 | P2444 | P2445 | P2714-P2759 | P2A00,P2A03 |
| | | Component/ system | Trans solenoid (function) *2 | Trans solenoid (range) | PNP switch | VVTL | VVTL system1(,2) | Electronic magnet clutch | Electronic throttle system | HC adsorber ACT press sensor | Intake Manifold Runner Control | Intake Manifold Runner Control Circuit | Intake Manifold Runner Position Sensor | Throttle motor | Accel position sensor | A/F Sensor (Rationality) -Sensor1 | BARO sensor | A/F Sensor (Open) -Sensor1 | HC Absorption Catalyst | A/R Pressure Sensor (Low/High) | A/R Pressure Sensor (Rationality) | A/R control valve stuck open | A/R control valve stuck close | AIP stuck On | AIP stuck Off | Trans solenoid (SLU-SLD) | A/F sensor (Slow response) -Sensor1 |
| P0500 | P0500 | VSS | X | | | | | | | | | | | | | X | | X | X | | | X | X | X | X | | X |
| P0511 | P0511 | IAC valve | | | | | | | | | | | | | | X | | X | | | | | | | | | X |
| P0510 | P0510 | Idle switch | | | | | | | | | | | | | | X | | X | X | | | | | | | | X |
| P0560 | P0560 | System Voltage | | | | | | | | | | | | | | | | | | | | | | | | | |
| P0617 | P0617 | Starter signal | | | | | | | | | | | | | | | | | | | | | | | | | |
| P0705 | P0705 | Shift lever position switch | | | | | | | | | | | | | | | | | | | | | | | | | |
| P0710 | P0710-P0713 | Trans fluid temp sensor | | | | | | | | | | | | | | | | | | | | | | | | | |
| P0720-P0793 | P0720-P0793 | Output speed sensor | | | | | | | | | | | | | | | | | | | | | | | | | |
| P0715-P0717 | P0715-P0717 | Input speed sensor | | | | | | | | | | | | | | | | | | | | | | | | | |
| P0724 | P0724 | Stop lamp switch | | | | | | | | | | | | | | | | | | | | | | | | | |
| P0741-P0796 | P0741-P0796 | Trans solenoid (function) | | | | | | | | | | | | | | | | | | | | | | | | | |
| P0748-P0798 | P0748-P0798 | Trans solenoid (range) | X | | | | | | | | | | | | | | | | | | | | | | | | |
| P0850 | P0850 | PNP switch | | | | | | | | | | | | | | | | | | | | | | | | | |
| P1010,P1020 | P1010,P1020 | VVTL | | | | | | | | | | | | | | | | | | | | X | X | X | X | | |
| P1011,12(,21,22) | P1011,12(,21,22) | VVTL system1(,2) | | | | | | | | | | | | | | | | | | | | X | X | X | X | | X |
| P1126 | P1126 | Electronic magnet clutch | | | | | | | | | | | | | | | | | | | | | | | | | |
| P1129 | P1129 | Electronic throttle system | | | | | | | | | | | | | | | | | | | | | | | | | |
| P1430 | P1430 | HC adsorber ACT press sensor | | | | | | | | | | | | | | | | | | | | | | | | | |
| P2004,6 | P2004,6 | Intake Manifold Runner Control | | | | | | | | | | | | | | | | | | | | | | | | | |
| P2009,10 | P2009,10 | Intake Manifold Runner Control Circuit | | | | | | | | | | | | | | | | | | | | | | | | | |
| P2014,16,17 | P2014,16,17 | Intake Manifold Runner Position Sensor | | | | | | | | | | | | | | | | | | | | | | | | | |
| P2102,P2103 | P2102,P2103 | Throttle motor | | | | | | | | | | | | | | | | | | | | | | | | | |
| P2120-P2138 | P2120-P2138 | Accel position sensor | | | | | | | | | | | | | | | | | | | | | | | | | |
| P2196,P2198 | P2196,P2198 | A/F sensor (rationality) | | | | | | | | | | | | | | | | | X | | | X | X | X | X | | X |
| P2226 | P2226 | BARO sensor | | | | | | | | | | | | | | X | | X | | | | X | X | X | X | | X |
| P2237,2240 | P2237,2240 | A/F sensor (open) | | | | | | | | | | | | | | | | | X | | | X | X | X | X | | X |
| P2423,24 | P2423,24 | HC Absorption Catalyst | | | | | | | | | | | | | | | | | | | | | | | | | |
| P2430,2,3 | P2430,2,3 | A/R Pressure Sensor (Low/High) | | | | | | | | | | | | | | | | | | | X | X | X | X | X | | |
| P2431 | P2431 | A/R Pressure Sensor (Rationality) | | | | | | | | | | | | | | | | | | | | X | X | X | X | | |
| P2440 | P2440 | A/R control valve stuck open | | | | | | | | | | | | | | X | | X | X | | | | | | | | X |
| P2441 | P2441 | A/R control valve stuck close | | | | | | | | | | | | | | X | | X | X | | | | | | | | X |
| P2444 | P2444 | AIP stuck On | | | | | | | | | | | | | | X | | X | X | | | | | | | | X |
| P2445 | P2445 | AIP stuck Off | | | | | | | | | | | | | | X | | X | X | | | | | | | | X |
| P2714-P2759 | P2714-P2759 | Trans solenoid (SLU-SLD) | | | | | | | | | | | | | | | | | | | | | | | | | |
| P2A00,P2A03 | P2A00,P2A03 | A/F sensor (slow response) | | | | | | | | | | | | | | | | | X | | | X | X | X | X | | |

P

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**9. PROBLEM SYMPTOM CONFIRMATION**

(a) Taking into consideration the results of the customer problem analysis, try to reproduce the symptoms. If the problem is that the transaxle does not shift up, shift down, or the shift point is too high or too low, conduct the following road test referring to the automatic shift schedule and simulate the problem symptoms.

**10. ROAD TEST**

**NOTICE:**

**Perform the test at the ATF temperature 50 to 80˚C (122 to 176˚F) in the normal operation.**

(a) D position test:

Shift into the D position and fully depress the accelerator pedal and check the following points.

(1) Check up-shift operation.

Check that 1 → 2, 2 → 3, 3 → 4 and 4 → 5th up-shifts take place, and that the shift points conform to the automatic shift schedule (See page 03-45 ).

HINT:

5th Gear Up-shift Prohibition Control

- Coolant temp. is 68 ˚C (154 ˚F) or less and vehicle speed is 70 km/h (43 mph) or less.
- ATF temp. is -2 ˚C (28 ˚F) or less.

4th Gear Up-shift Prohibition Control

- Coolant temp. is 65 ˚C (149 ˚F) or less and vehicle speed is 55 km/h (34 mph) or less.

5th and 4th Gear Lock-up Prohibition Control

- Brake pedal is depressed.
- Accelerator pedal is released.
- Coolant temp. is 60 ˚C (140 ˚F) or less.

(2) Check for shift shock and slip.

Check for shock and slip at the 1 → 2, 2 → 3, 3 → 4 and 4 → 5th up-shifts.

(3) Check for abnormal noise and vibration.

Drive in the D position lock-up or 5th gear and check for abnormal noises and vibration.

HINT:

The check for the cause of abnormal noise and vibration must be done very thoroughly as it could also be due to loss of balance in the differential, torque converter clutch, etc.

(4) Check kick-down operation.

While running in the D position, 2nd, 3rd, 4th and 5th gears, check that the possible kick-down vehicle speed limits for 2 → 1, 3 → 2, 4 → 3 and 5th → 4 kick-downs conform to those indicated on the automatic shift schedule (See page 03-45 ).

(5) Check abnormal shock and slip at kick-down.

(6) Check the lock-up mechanism.

- Drive in D position 5th gear, at a steady speed (lock-up ON).
- Lightly depress the accelerator pedal and check that the engine speed does not change abruptly.

HINT:

- There is no lock-up in the 1st and 2nd gear.
- 4th lock-up operates while uphill-downhill control is active in D position.
- 3rd lock-up operates while uphill-downhill control is active.
- If there is a big jump in engine speed, there is no lock-up.

(b) 4 position test:

Shift into the 4 position and fully depress the accelerator pedal and check the following points.

(1) Check up-shift operation.

Check that the 1 → 2, 2 → 3 and 3 → 4 up-shift take place and that the shift point conforms to the automatic shift schedule (See page 03-45 ).

HINT:

There is no 5th up-shift in the 4 position.

(2) Check engine braking.

While driving in the 4 position and 4th gear, release the accelerator pedal and check the engine braking effect.

(3) Check for abnormal noise during acceleration and deceleration, and for shock at up-shift and down-shift.

(c) 3 position test:

Shift into the 3 position and fully depress the accelerator pedal and check the following points.

(1) Check up-shift operation.

Check that the 1 → 2 and 2 → 3 up-shift take place and that the shift point conforms to the automatic shift schedule (See page 03-45 ).

HINT:

There is no 4th up-shift and lock-up in the 3 position.

(2) Check engine braking.

While running in the 3 position and 3rd gear, release the accelerator pedal and check the engine braking effect.

(3) Check for abnormal noise during acceleration and deceleration, and for shock at up-shift and down-shift.

(d) 2 position test:

Shift into the 2 position and fully depress the accelerator pedal and check the following points.

(1) Check up-shift operation.

Check that the 1 → 2 up-shift takes place and that the shift point conforms to the automatic shift schedule (See page 03-45 ).

HINT:

There is no 3rd up-shift and lock-up in the 2 position.

(2) Check engine braking.

While running in the 2 position and 2nd gear, release the accelerator pedal and check the engine braking effect.

(3) Check for abnormal noise during acceleration and deceleration, and for shock at up-shift and down-shift.

(e) L position test:

Shift into the L position and fully depress the accelerator pedal and check the following points.

(1) Check no up-shift.

While running in the L position, check that there is no up-shift to 2nd gear.

HINT:

There is no lock-up in the L position.

(2) Check engine braking.

While running in the L position, release the accelerator pedal and check the engine braking effect.

(3) Check for abnormal noise during acceleration and deceleration.

(f) R position test:
Shift into the R position and fully depress the accelerator pedal and check for slipping.

**CAUTION:**
**Before conducting this test ensure that the test area is free from people and obstruction.**

(g) P position test:
Stop the vehicle on a grade (more than 5˚) and after shifting into the P position, release the parking brake. Then, check that the parking lock pawl holds the vehicle in place.

(h) Uphill/downhill control function test:
(1) Check that the gear does not up-shift to the 4th or 5th gear while the vehicle is driving uphill.
(2) Check that the gear automatically down-shifts from 5th to 4th or from the 4th to 3rd gear when brake is applied while the vehicle is driving downhill.

**11. MECHANICAL SYSTEM TESTS**

(a) Measure the stall speed.
The object of this test is to check the overall performance of the transaxle and engine by measuring the stall speeds in the D position.

**NOTICE:**
- **Do the test at the normal operating fluid temperature of 50 to 80˚C (122 to 176˚F).**
- **Do not continuously run this test longer than 5 seconds.**
- **To ensure safety, conduct this test in a wide, clear and level area which provide good traction.**
- **The stall test should always be carried out in pairs. One technician should observe the conditions of wheels or wheel stoppers outside the vehicle while the other is doing the test.**

(1) Chock all 4 wheels.
(2) Fully apply the parking brake.
(3) Keep your left foot pressed firmly on the brake pedal.
(4) Start the engine.
(5) Shift into the D position. Press all the way down on the accelerator pedal with your right foot. Quickly read the stall speed at this time.

**Stall speed:**
**U151E: 2,050 ± 150 rpm**
**U151F: 2,550 ± 150 rpm**

**Evaluation:**

| Problem | Possible cause |
|---|---|
| (a) Stall speed low in D position | • Engine output may be insufficient<br>• Stator one-way clutch is not operating properly<br>HINT:<br>If the value is larger or smaller than the specified value by 600 rpm or more, the torque converter could be faulty. |
| (b) Stall speed high in D position | • Line pressure too low<br>• Forward clutch slipping<br>• U/D brake slipping<br>• U/D one-way clutch not operating properly<br>• No. 1 one-way clutch not operating properly<br>• Line pressure too low<br>• Improper fluid level |

(b) Measure the time lag.

When the shift lever is shifted while the engine is idling, there will be a certain time lapse or lag before the shock can be felt. This is used for checking the conditions of the U/D direct clutch, forward clutch, and 1st and reverse brake.

**NOTICE:**

- **Do the test at the normal operating fluid temperature of 50 to 80˚C (122 to 176˚F).**
- **Be sure to allow 1 minute interval between the tests.**
- **Take 3 measurements and take the average value.**

(1) Fully apply the parking brake.

(2) Start the engine and check idle speed.

**Idle speed: 700 ± 50 rpm (In N position and A/C OFF)**

(3) Shift the shift lever from the N to D position. Using a stop watch, measure the time from when the lever is shifted until the shock is felt.

Measure the time lag of N → R in the same way.

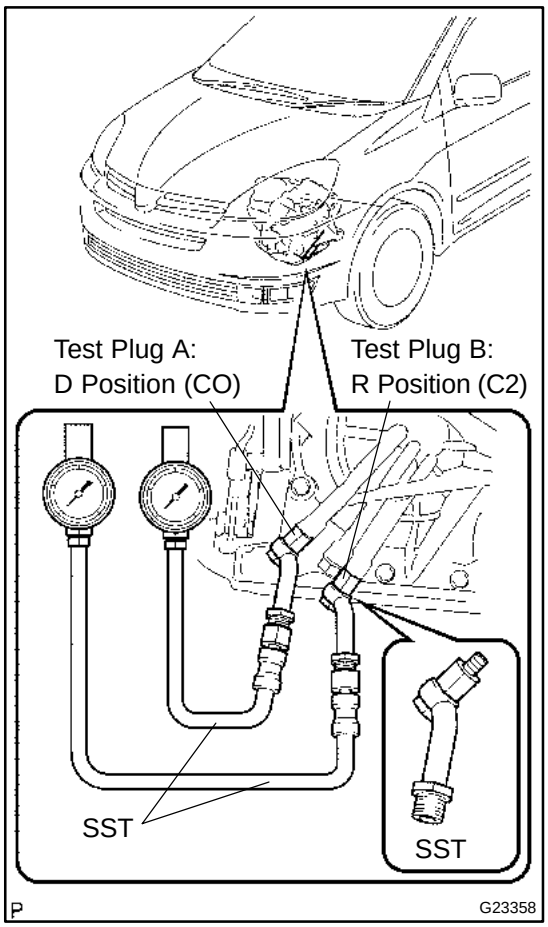
**Time lag:**

**N → D Less than 1.2 seconds**

**N → R Less than 1.5 seconds**

**Evaluation (If N → D time or N → R time lag is longer than specified):**

| Problem | Possible cause |
|---|---|
| N → D time lag is longer | • Line pressure too low<br>• Forward clutch worn<br>• No. 1 one-way clutch not operating properly<br>• U/D one-way clutch not operating<br>• U/D brake worn |
| N → R time lag is longer | • Line pressure too low<br>• Reverse clutch worn<br>• 1st and reverse brake worn<br>• U/D brake worn |




**12. HYDRAULIC TEST**

(a) Measure the line pressure.

**NOTICE:**

- **Do the test at the normal operation fluid temperature the 50 to 80˚C (122 to 176˚F)**
- **The line pressure test should always be carried out in pairs. One technician should observe the conditions of wheels or wheel stoppers outside the vehicle while the other is doing the test.**
- **Be careful to prevent SST's hose from interfering with the exhaust pipe.**
- **This check must be conducted after checking and adjusting engine.**
- **Perform under condition that A/C is OFF.**
- **When conducting stall test, do not continue more than 10 seconds.**

(1) Warm up the ATF.

(2) Lift the vehicle up.

(3) Remove the engine under cover.

(4) Connect hand-held tester to DLC3.

(5) Remove the test plug A on the transaxle case front left side and install the SST.

SST 09992-00095 (09992- 00231, 09992-00271)

**NOTICE:**

**There is a difference in installation point between D position and R position.**

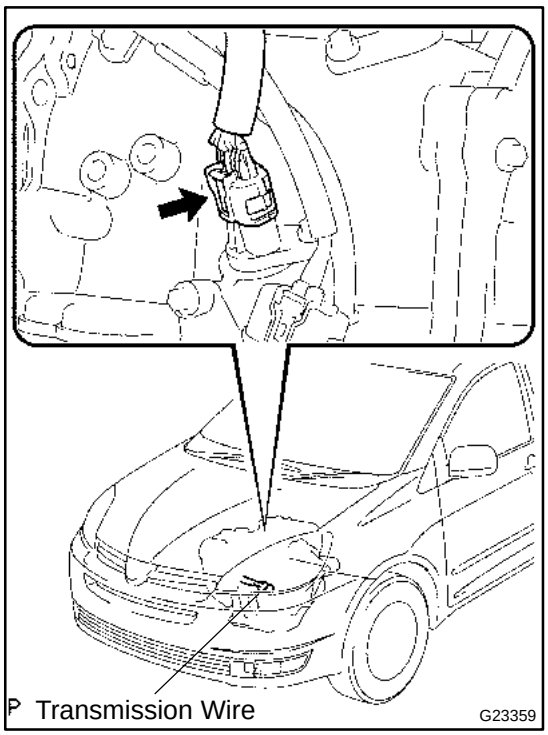
(6) Start the engine.

(7) Using hand-held tester, shift to D position and hold 3rd by active test, and measure the line pressure in idling.

**Specified line pressure:**

| Condition | D position kPa (kgf/cm$^2$, psi) |
|---|---|
| Idling | 372 to 412 (3.8 to 4.2, 54 to 60) |

(8) Turn the ignition switch OFF.




(9) Disconnect connector of transmission wire.

HINT:

Disconnect the connector only when performing the D position stall test.

(10) Start the engine.

(11) Depress the brake pedal strongly, shift to D position, depress the accelerator pedal all the way down and check the line pressure in being stalled.

**Specified line pressure:**

| Condition | D position kPa (kgf/cm$^2$, psi) |
|---|---|
| Stall | 931 to 1,031 (9.5 to 10.5, 135 to 149) |

(12) Turn the ignition switch OFF.

(13) Remove the SST, install the test plug A.

(14) Remove the test plug B, install the SST and start engine.

SST 09992-00095 (09992- 00231, 09992-00271)

(15) Connect connector of transmission wire, depress the brake pedal strongly, shift to R position and check the line pressure in idling and being stalled.

**Specified line pressure:**

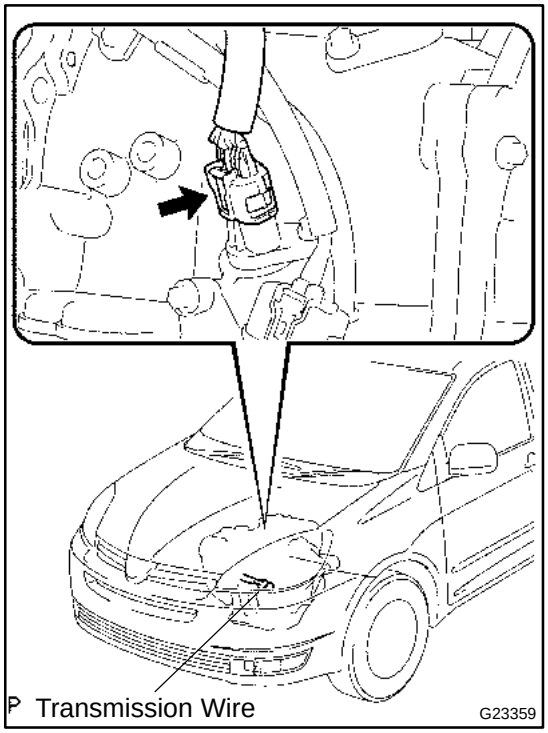
| Condition | R position kPa (kgf/cm$^2$, psi) |
|---|---|
| Idling | 672 to 742 (6.9 to 7.6, 98 to 108) |
| Stall | 1,768 to 1,968 (18.0 to 20.1, 256 to 286) |

(16) Remove the SST, install the test plug B.

(17) Clear the DTC.

**Evaluation:**

| Problem | Possible cause |
|---|---|
| If the measured values at all position are higher | • Shift solenoid valve (SLT) defective<br>• Regulator valve defective |
| If the measured values at all position are lower | • Shift solenoid valve (SLT) defective<br>• Regulator valve defective<br>• Oil pump defective<br>• U/D direct clutch defective |
| If pressure is low in the D position only | • D position circuit fluid leak<br>• Forward clutch defective |
| If pressure is low in the R position only | • R position circuit fluid leak<br>• Reverse clutch defective<br>• 1st and reverse brake defective |




## 13. MANUAL SHIFTING TEST

HINT:

- With this test, it can be determined whether the trouble occurs in the electrical circuit or is a mechanical problem in the transaxle.
- If any abnormalities are found in the following test, the problem is in the transaxle itself.

(a) Disconnect connector of transmission wire.

(b) Drive with the transmission wire disconnected.
Shifting the shift lever in the order of L, 2, 3, 4 and D to check whether the shifting condition changes the table below.

| Shift Position | Shifting Condition |
|---|---|
| L ⇔ 2 | No Shift (Not Change) |
| 2 ⇔ 3 | Down Shift ⇔ Up Shift |
| 3 ⇔ 4 ⇔ D | No Shift (Not Change) |

HINT:

When driving with the transmission wire disconnected, the shift lever position is in L or 2, the gear position is held in 3rd and the shift lever position is in 3, 4 or D, the gear position is held in 4th. However, when the shift position is in R or P, the operation is same as usual.

(c) Connect connector of transmission wire.

(d) Clear the DTC.

**14. RESET MEMORY**

**CAUTION:**

**Perform the RESET MEMORY (AT initialization) when replacing the automatic transaxle assy, engine assy or ECM.**

**NOTICE:**

**Hand-held tester only**

(a) Turn the ignition switch OFF.

(b) Connect the hand-held tester to the DLC3.

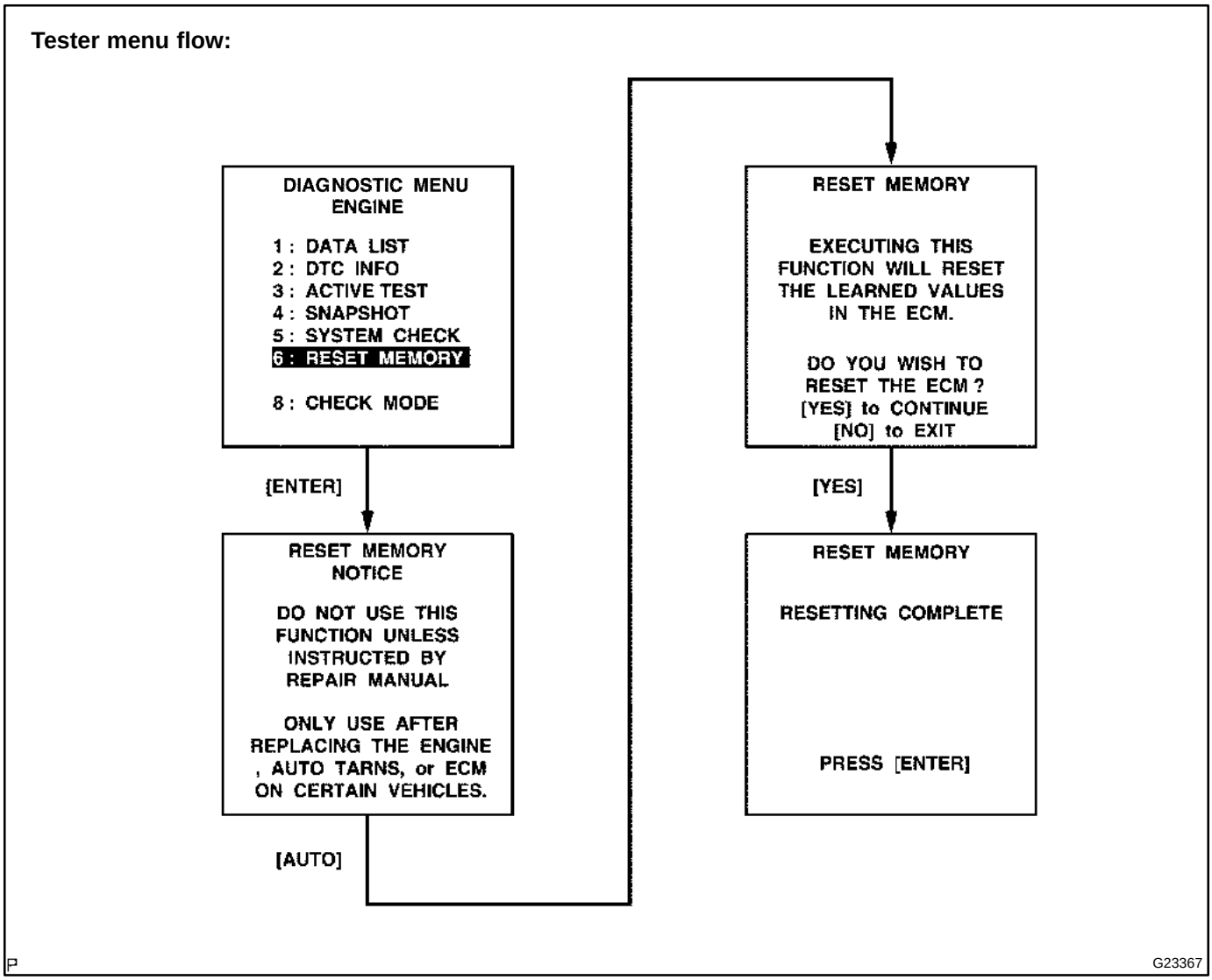
(c) Turn the ignition switch ON.

(d) Perform the reset memory procedure from the ENGINE menu.

**CAUTION:**

**After performing the RESET MEMORY, be sure to perform the ROAD TEST described earlier.**

**Tester menu flow:**



05BTO-02

# PRE-CHECK

## 1. USING HAND-HELD TESTER

(a) Connect the hand-held tester to the DLC3.

(b) Monitor the ECU data by following the prompts on the tester screen.

HINT:

The hand-held tester has a ”Snapshot” function which records the monitored data.

Refer to the hand-held tester operator’s manual for further details.

## 2. DATA LIST

HINT:

Using the DATA LIST displayed on the hand-held tester, you can read the value of the switch, sensor, actuator, etc. without parts removal. Reading the DATA LIST as the first step of troubleshooting is one way to shorten the labor time.

(a) Connect the hand-held tester to the DLC3.

(b) Turn the ignition switch ON.

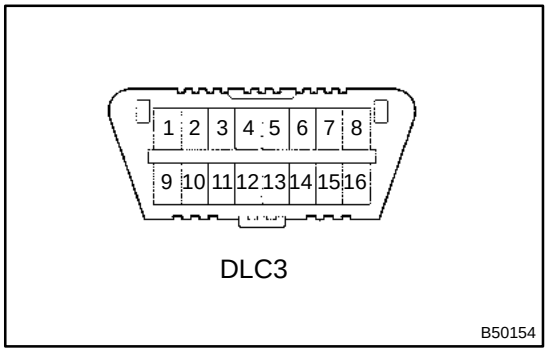
(c) Read the DATA LIST according to the display on tester.

**Standard (Multiplex network body ECU):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| KEY UNLK WRN SW | Key unlock warning switch signal/ ON or OFF | ON: Key is in ignition key cylinder<br>OFF: No key is in ignition key cylinder | - |
| D DOOR CTY SW | Driver’s door courtesy switch signal/ ON or OFF | ON: Driver’s door is open<br>OFF: Driver’s door is closed | - |

05BZX-03

# PRE-CHECK




**1. DIAGNOSIS SYSTEM**

(a) Inspect the DLC3.

HINT:

The vehicle's ECM uses ISO 9141-2 for communication.

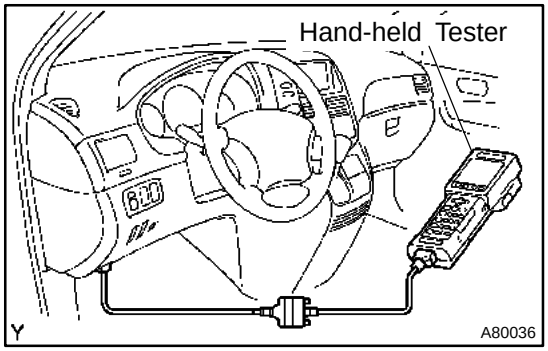
The terminal arrangement of the DLC3 complies with SAE J1962 and matches the ISO 9141-2 format.

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 7 (Bus + line) - 5 (Signal ground) | During communication | Pulse generation |
| 4 (Chassis ground) - Body ground | Constant | Below 1 Ω |
| 5 (Signal ground) - Body ground | Constant | Below 1 Ω |
| 16 (B+) - Body ground | Constant | 9 to 14 V |

HINT:

If the screen displays UNABLE TO CONNECT TO VEHICLE after you have connected the cable of the hand-held tester to the DLC3, turned the ignition switch ON and used the hand-held tester, there is a problem on the vehicle side or tester side.

- If communication is normal when the tester is connected to another vehicle, inspect the DLC3 of the original vehicle.
- If communication is still impossible when the tester is connected to another vehicle, the problem is probably in the tester itself, so consult the Service Department listed in the tester's instruction manual.




**2. CHECK DTC (USING HAND-HELD TESTER)**

(a) Checking DTCs.

(1) Connect the hand-held tester to the DLC3.

(2) Turn the ignition switch ON.

(3) Read DTCs by following the prompts on the tester screen.

HINT:

Refer to the hand-held tester operator's manual for further details.

**3. CLEAR DTC (USING HAND-HELD TESTER)**

(a) Clearing the DTCs from memory.

(1) Connect the hand-held tester to the DLC3.

(2) Turn the ignition switch ON.

(3) Erase the DTCs following the prompts on the tester screen.

HINT:

Refer to the hand-held tester operator's manual for further details.

## 4. DATA LIST

HINT:

Using the DATA LIST displayed by the hand-held tester, you can read the value of the switch, sensor, actuator, etc. without parts removal. Reading the DATA LIST as the first step of troubleshooting is one way to shorten the labor time.

(a) Connect the hand-held tester to the DLC3.

(b) Turn the ignition switch ON.

(c) Read the DATA LIST according to the display on the tester.

**Standard (Power back door ECU):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| HALF LATCH SW | Back door lock half-latch switch signal /ON or OFF | ON: Back door is not completely closed<br>OFF: Back door is closed | - |
| FULL LATCH SW | Back door lock full-latch switch signal /ON or OFF | ON: Back door is open<br>OFF: Back door is closed | - |
| DOOR HANDLE SW | Back door opener switch signal /ON or OFF | ON: Back door opener switch is pushed<br>OFF: Back door opener switch is not pushed | - |
| LOCK STATUS | Back door position switch signal /UNLOCK or LOCK | UNLOCK: Back door is unlocked<br>LOCK: Back door is locked | - |
| DOOR POS-1/4 | Back door position (Full close - 1/4 open) /CAUTION or OK | CAUTION: Back door position is not full closed - 1/4 opened<br>OK: Back door position is full closed - 1/4 opened | *1 |
| DOOR POS-2/4 | Back door position (1/4 open - 2/4 open) /CAUTION or OK | CAUTION: Back door position is not 1/4 opened - 2/4 opened<br>OK: Back door position is 1/4 opened - 2/4 opened | *1 |
| DOOR POS-3/4 | Back door position (2/4 open - 3/4 open) /CAUTION or OK | CAUTION: Back door position is not 2/4 opened - 3/4 opened<br>OK: Back door position is 2/4 opened - 3/4 opened | *1 |
| DOOR POS-OPEN | Back door position (3/4 open - full open) /CAUTION or OK | CAUTION: Back door position is not 3/4 opened - full opened<br>OK: Back door position is 3/4 opened - full opened | *1 |
| PBD SW OPEN | Power back door switch operation (Satellite switch) /0.8s or 0.0s*2 | 0.8s: Satellite switch 0.8 sec.-press (long press) operates power back door<br>0.0s*2: Satellite switch 1-press operates power back door | - |
| PBD BUZZ VOL | Warning buzzer volume during power back operation /OFF, SMALL or LARGE | OFF: Warning buzzer that indicates power back door is operating does not sound<br>SMALL: Warning buzzer that indicates power back door is operating sounds at small volume<br>LARGE: Warning buzzer that indicates power back door is operating sounds at large volume | - |
| WIRELS PBD OPER | Wireless power back door switch operation (Transmitter switch operation) /1TIME, 2TIMES, 0.8sPR or OFF | 1TIME: Transmitter switch 1-press operates power back door<br>2TIMES: Transmitter switch 2-presses operates power back door<br>0.8sPR: Transmitter switch 0.8s.-press operates power back door<br>OFF: Transmitter switch operation is disabled | - |
| PBD ASSIST CLS | Power back door assist-close operation /ON or OFF | ON: Back door is assist-closing<br>OFF: Back door is opened or closed | - |
| PBD ASSIST OPN | Power back door assist-open operation /ON or OFF | ON: Back door is assist-opening<br>OFF: Back door is opened or closed | - |
| PBD TOUCH SEN R | Power back door touch sensor RH signal /OFF, ON or OPEN | OFF: Power back door touch sensor RH is free<br>ON: Power back door touch sensor RH is pressed<br>OPEN: Power back door touch sensor RH is opened | - |

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| PBD TOUCH SEN L | Power back door touch sensor LH signal /OFF, ON or OPEN | OFF: Power back door touch sensor LH is free<br>ON: Power back door touch sensor LH is pressed<br>OPEN: Power back door touch sensor LH is opened | - |
| PBD MAIN SW | Power back door main switch signal /ON or OFF | ON: Orange paint on the top of the switch appears<br>OFF: Orange paint on the top of the switch does not appear | - |

*1 In case that the ”CAUTION” is displayed even without applying resistance in each range, there must be a foreign object caught in that range.
*2 ”0.0s” appearing on the display of the hand-held tester means that a 1-press of the satellite switch operates the power back door.

## 5. ACTIVE TEST

HINT:
Performing the ACTIVE TEST using the hand-held tester allows you to operate the relay, VSV, actuator, etc. without parts removal. Performing the ACTIVE TEST as the first step of troubleshooting is one way to shorten the labor time. It is possible to display the DATA LIST during the ACTIVE TEST.

(a) Connect the hand-held tester to the DLC3.
(b) Turn the ignition switch ON.
(c) Perform the ACTIVE TEST according to the display on the tester.
**Standard (Back door ECU):**

| Item | Test Details | Diagnostic Note |
|---|---|---|
| LATCH RELEASE | Back door lock latch is release<br>OFF/ON | - |
| PBD MOTOR | Power back door motor is operate<br>OFF/FORWARD/REVERSE | Clutch is OFF while power back door motor is operating |
| PBD CLUTCH | Power back door clutch is operate<br>OFF/ON | Power back door motor is OFF when clutch is ON |
| PBD BUZZER | Power back door buzzer is sound<br>OFF/ON | - |

## 6. BACK DOOR LOCK

(a) When the battery is reconnected:
The back door is locked and therefore cannot be opened. Therefore, it is necessary to unlock the back door using the door control switch or transmitter switch.

**7. RESET**

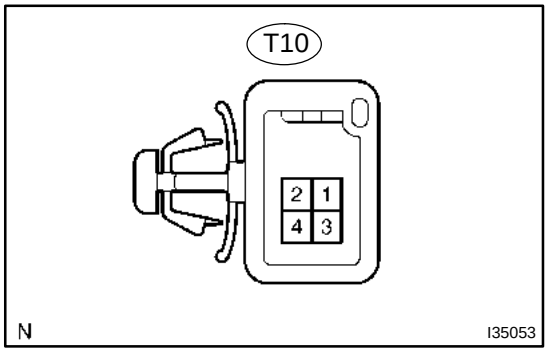
(a) When the back door lock is replaced:
The power back door ECU cannot receive a switch signal from the lock. This may cause the power back door system to enter fail-safe mode and DTC B2215 to set, and also make the system disabled. When the lock is replaced, be sure to perform the following: first properly connect the lock, second clear the DTC using the hand-held tester and finally recheck that no DTC is output.

(b) Reset the power back door system:
The power back door ECU records the fully open position and the fully closed position of the power back door in its memory and the power back door fully opens and fully closed based on this memory. The power back door cannot operate without this memory. In the case where the battery has been removed, manually close the back door fully to reset the power back door system. However, if the battery is removed/installed when the back door is fully open, the power back door operates normally, thus the resetting the system is unnecessary.
Replacing drive unit will also cause the memory of the door positions to be last. Therefore, in such a case resetting the system is necessary.
Reset the power back door system as follows:
(1) Fully close the power back door if opened.
(2) Check that the back door fully open and fully close.
- Unlock the power back door using the transmitter switch or the door control switch.
- Turn the ignition switch to the ”OFF” position.
- Check that the power back door main switch is in the ”ON” position.
- Check that the back door fully open and fully close by pushing the power back door satellite switch or PBD button briefly.

HINT:
The jam protection function is enabled through the above initialization procedure.

059FA-04

# PRE-CHECK




**1. INSPECT TELEVISION CAMERA ASSY**

(a) Standard signal check.

(1) Using the tester, measure the voltage and check the continuity between terminals.

HINT:

Leave the connector being connected.

(2) Using the oscilloscope, check waveforms between terminals.

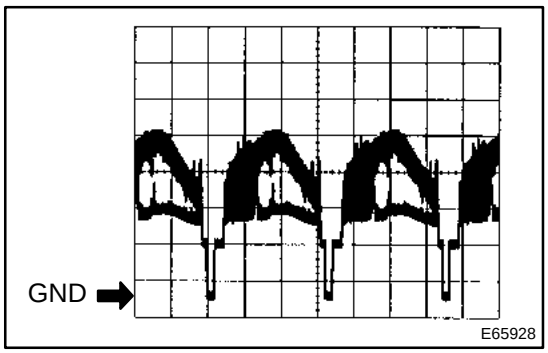
HINT:

- Leave the connector being connected.
- The waveform shown is merely an example.
  Noise waveform and chattering waveform are omitted.

**Standard:**

**Connector T10**

| Terminal No. | Terminal symbol | Input/Output | Tester connection (Wiring color) | Item | Condition | specified condition | Problem symptom when open circuit is detected. / Problem symptom when short circuit is detected. |
|---|---|---|---|---|---|---|---|
| 1 | CV- | Output | T10-1 - Body ground (Shielded - Body ground) | Continuity | IG SW ON, Shift lever R position | Continuity | Back monitor dose not display images |
| 2 | CV+ | Output | T10-2 - T10-1 (B - Shielded) | Waveform | IG SW ON, Shift lever R position | Approx. 0.65 V (Waveform1) | Back monitor dose not display images |
| 3 | CGND | Output | T10-3 - Body ground (W - Body ground) | Continuity | Always | Continuity | Back monitor dose not display images |
| 4 | CB2 | Input | T10-4 - T10-3 (R - W) | Voltage | IG SW ON, Shift lever R position | 6 V | Fuse blows out |




**<Reference>**

(b) Oscilloscope waveform.

(1) Waveform 1.

**Standard:**

| Item | Content |
|---|---|
| Terminal | CV+ - CV- |
| Tool setting | 0.2 V/DIV, 0.2 μs/DIV |
| Condition | IG SW ON, shift lever R position |

**2. INSPECT RADIO RECEIVER ASSY (BACK MONITOR CONTROLLER)**

(a) Standard signal check.

(1) Using the tester, measure the voltage and check the continuity between terminals.

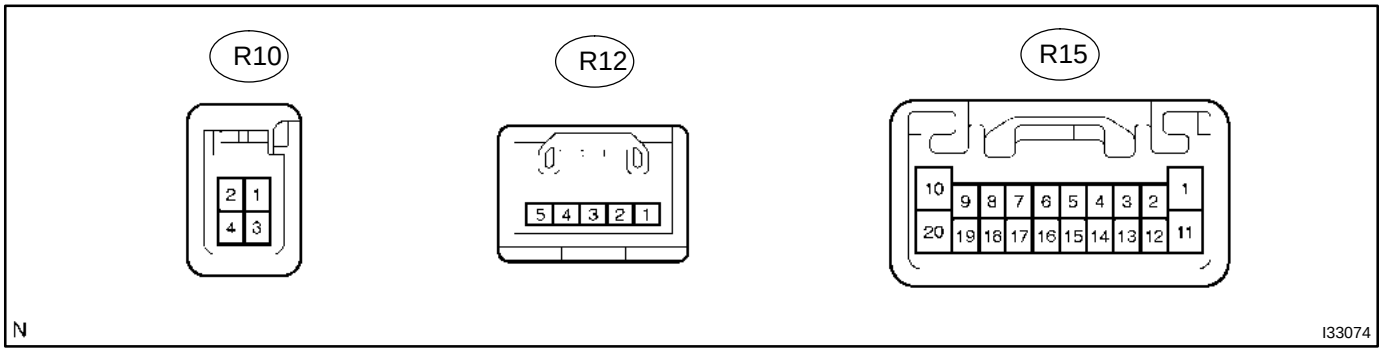
HINT:

Leave the connectors being connected.

(2) Check waveforms between terminals.

HINT:

- Leave the connectors being connected.
- The waveform shown is merely an example. Noise waveform and chattering waveform are omitted.




**Standard:**

**Connector R15**

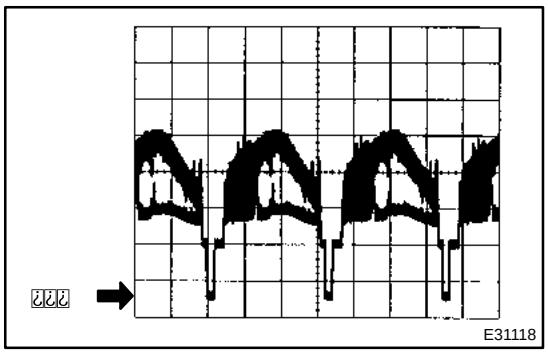
| Terminal No. | Terminal symbol | Input/Output | Tester connection | Item | Condition | specified condition | Problem symptom when open circuit is detected. |
|---|---|---|---|---|---|---|---|
| | | | | | | | Problem symptom when short circuit is detected. |
| 1 | +B | Input | R15-1 - R15-20 (L-Y - W-B) | Voltage | Always | 10 to 14 V | Radio receiver assy does not operate. |
| | | | | | | | Fuse blow out. |
| 11 | ACC | Input | R15-11 - R15-20 (GR - W-B) | Voltage | IG SW ACC | 10 to 14 V | Radio receiver assy does not operate. |
| | | | | | | | Fuse blow out. |
| 20 | GND | Output | R15-20 - Body ground (W-B - Body ground) | Continuity | Always | Continuity | Back monitor dose not display images. |

## Connector R12

| Terminal No. | Terminal symbol | Input/Output | Tester connection (Wiring color) | Item | Condition | Specified condition | Problem symptom when open circuit is detected. / Problem symptom when short circuit is detected. |
|---|---|---|---|---|---|---|---|
| 5 | REV | Input | R12-5 - R15-20 (R-B - W-B) | Voltage | Except R position → R position | Less than 1 V → 10 to 14 V | Back monitor does not display images. |

## Connector R10

| Terminal No. | Terminal symbol | Input/Output | Tester connection (Wiring color) | Item | Condition | Specified condition | Problem symptom when open circuit is detected. / Problem symptom when short circuit is detected. |
|---|---|---|---|---|---|---|---|
| 1 | V+ | Input | R10-1 - R10-3 (B - Shielded) | Waveform | IG SW ON, shift lever R position | Approx. 0.65 V (Waveform 1) | Back monitor does not display images. |
| 2 | CA+ | Output | R10-2 - R10-4 (R - W) | Voltage | IG SW ON, shift lever R position | 6 V | Back monitor does not display images. / Fuse blows out. |
| 3 | V- | Input | R10-3 - R10-4 (Shielded - W) | Continuity | IG SW ON, shift lever R position | Continuity | Back monitor dose not display images. |
| 4 | GND | Input | R10-4 - Body ground (W - Body ground) | Continuity | Always | Continuity | Back monitor dose not display images. |




**<Reference>**

(b) Oscilloscope waveform.

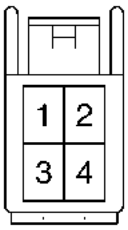
(1) Waveform 1.

**Standard:**

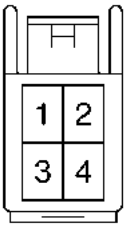
| Item | Content |
|---|---|
| Terminal | V+ - V- |
| Tool setting | 0.2 V / DIV, 0.2 μS / DIV |
| Condition | IG SW ON, shift lever R position |

**Wire harness side connector:**

Radio receiver ASSY side
(Connector A)




Television camera ASSY side
(Connector B)




I35956

### 3. INSPECT BACK MONITOR CAMERA WIRE

(a) Continuity check.

(1) Using the tester, check the continuity between terminals.

**Standard:**

| Tester Connection | Specified Condition |
|---|---|
| A-1 (Radio receiver ASSY side) - B-2 (Television camera ASSY side) | Continuity |
| A-2 (Radio receiver ASSY side) - B-4 (Television camera ASSY side) | Continuity |
| A-3 (Radio receiver ASSY side) - B-1 (Television camera ASSY side) | Continuity |
| A-4 (Radio receiver ASSY side) - B-3 (Television camera ASSY side) | Continuity |

05BME-02

# PRE-CHECK

## 1. USING HAND-HELD TESTER

(a) Connect the hand-held tester to the DLC3.

(b) Monitor the ECU data by following the prompts on the tester screen.

HINT:

The hand-held tester has a ”Snapshot” function which records the monitored data.

Refer to the hand-held tester operator’s manual for further details.

## 2. DATA LIST

HINT:

Using the DATA LIST displayed by the hand-held tester, you can read the values of the switch, sensor, actuator, etc. without parts removal. Reading the DATA LIST as the first step of troubleshooting is one way to shorten the labor time.

(a) Connect the hand-held tester to the DLC3.

(b) Turn the ignition switch ON.

(c) Read the DATA LIST according to the display on the tester.

**Standard (Multiplex network body ECU):**

| Item | Measurement Item/ Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| IG SW | Ignition switch signal/ ON or OFF | ON: Key is in ON or START position<br>OFF: Key is in OFF or ACC position | - |
| D DOR CTY SW | Driver side door courtesy switch signal/ ON or OFF | ON: Driver side door is open<br>OFF: Driver side door is closed | - |
| P DOR CYT SW | Passenger side door courtesy switch signal/ ON or OFF | ON: Passenger side door is open<br>OFF: Passenger side door is closed | - |

## 3. ACTIVE TEST

HINT:

Performing the ACTIVE TEST using the hand-held tester allows you to operate the relay, VSV, actuator, etc. without parts removal. Performing the ACTIVE TEST as the first step of troubleshooting is one way to shorten the labor time.

It is possible to display the DATA LIST during the ACTIVE TEST.

(a) Connect the hand-held tester to the DLC3.

(b) Turn the ignition switch ON.

(c) Perform the ACTIVE TEST according to the display on the tester.

**Standard (Multiplex network body ECU):**

| Item | Test Detail | Diagnostic Note |
|---|---|---|
| IG OFF P/W | Ignition switch OFF power window control permission output ON/OFF | - |

056E8-04

# PRE-CHECK

## 1. ACTIVE TEST

HINT:

According to the ACTIVE TEST displayed by the hand-held tester, you can read the value of the switch, sensor, actuator and so on without parts removal. Performing the ACTIVE TEST as the first step of trouble-shooting is one method to shorten work time.

(a) Warm up the engine.
(b) Turn the ignition switch to OFF.
(c) Connect the hand-held tester to DLC3.
(d) Turn the ignition switch to ON.
(e) Operate the hand-held tester according to the steps on the display and perform the ”ACTIVE TEST”.

| Item | Test Details | Diagnostic Note |
|---|---|---|
| SPEED METER | 0 / 40 / 80 / 120 / 160 | - |
| TACHOMETER | 0rpm / 1000rpm / 2000rpm / 3000rpm / 4000rpm / 5000rpm / 6000rpm / 7000rpm | - |
| FUEL GAUGE | EMPTY, 1/2, FULL | - |
| COOLANT TEMP | LOW / NORM / HIGH | - |
| SHIFT INDIC | L / 2 / 3 / 4 / D / N / R / P | - |
| LOW FUEL WARN | Fuel warning light is OFF / ON | - |
| OPEN DOOR WARN | Open door indicator is OFF / ON | - |
| D-BELT REMIND | D-belt indicator is OFF / ON | - |
| OIL PRESS WARN | Oil pressure warning is OFF / ON | - |
| DISCHARGE WARN | Discharge warning is OFF / ON | - |
| CRUISE INDIC | ”CRUISE” indicator is OFF / ON | - |
| SRS WARN | ”SRS” is OFF / ON | - |
| HIGH BEAM INDIC | Hi-beam indicator is OFF / ON | - |
| TRC OFF INDIC | ”TRC-OFF” indicator is OFF / ON | - |
| SLIP INDIC | ”SLIP” indicator is OFF / ON | - |
| ODO/TRIP DISP | ODO/TRIP display is OFF / ON | - |
| L-CRUISE DISP | L-Cruise display is OFF / ON | - |
| L-CRS CHECK IND | L-Cruise indicator is OFF / ON | - |
| L-READY IND | ”READY” indicator is OFF / ON | - |
| L-CRS NORMAL | ”NORM” indicator is OFF / ON | - |
| KEY REMIND BUZZR | Key reminder Buzzer is OFF / ON | - |
| SEAT BELT BUZZR | Seat belt buzzer is OFF / ON | - |

## 2. DATA LIST

HINT:

According to the DATA LIST displayed by the hand-held tester, you can read the value of the switch, sensor, actuator and so on without parts removal. Reading the DATA LIST as the first step of troubleshooting is one method to shorten work time.

(a) Warm up the engine.
(b) Turn the ignition switch to OFF.
(c) Connect the hand-held tester to DLC3.
(d) Turn the ignition switch to ON.
(e) Operate the hand-held tester according to the steps on the display and select ”DATA LIST”.

| Item | Test Details | Diagnostic Note |
|---|---|---|
| SPEED METER | Vehicle speed / Min.: 0 km/h, Max.: 255 km/h | Almost same at the meter speed (When driving) |
| TACHO METER | Engine speed / Min.: 0 rpm, Max.: 12,750 rpm | Almost same at the meter rpm (When engine is running) |

| Item | Test Details | Diagnostic Note |
|---|---|---|
| FUEL GAUGE | Fuel gauge indicates ”F”<br>Fuel gauge indicates ”3/4”<br>Fuel gauge indicates ”1/2”<br>Fuel gauge indicates ”1/4”<br>Fuel gauge indicates ”E”<br>(Fuel input / Min.: 0 , Max.: 255) | 53<br>97<br>151<br>190<br>208 |
| COOLANT | Coolant Temperature / Min.: -40°C, Max.: 140°C | - |
| LIGHT RHEOSTAT | Light control rheostat / Min.: 0 , Max.: 255 | - |
| ODO / TRIP SW | ODO / TRIP switch is OFF / ON | - |

05BE1-04

# PRE-CHECK

## 1. DYNAMIC LASER CRUISE CONTROL SYSTEM DESCRIPTION

(a) This system maintains the vehicle running at the fixed speed that the driver has set, as long as there are no vehicles ahead in the same lane. Then, the system maintains the vehicle distance that has been set by the driver.

If the system detects a front vehicle moving slower speed than one's own vehicle while the driver is driving at a fixed speed, it closes the throttle valve to decelerate. If additional deceleration is necessary, it shifts the gears down to decelerate. If further deceleration is required, the system controls the brake actuator in order to apply the brakes. Thereafter, if there are no front vehicles within the set vehicle-to-vehicle distance because either the vehicle in front or the driver has changed lanes, the system accelerates slowly to reach the set vehicle speed and resumes driving at the fixed speed.

(b) (fixed speed) cruise control mode that effects control only to maintain a fixed cruising speed. The vehicle-to-vehicle distance control mode that effects cruising at a fixed speed function, deceleration cruising function, follow-up cruising function, and acceleration cruising function. These two modes can be switched by operating the cruise control main switch.

(c) A steering pad switch (Distance control switch) for setting the distance to the front vehicle is provided on the steering wheel pad.

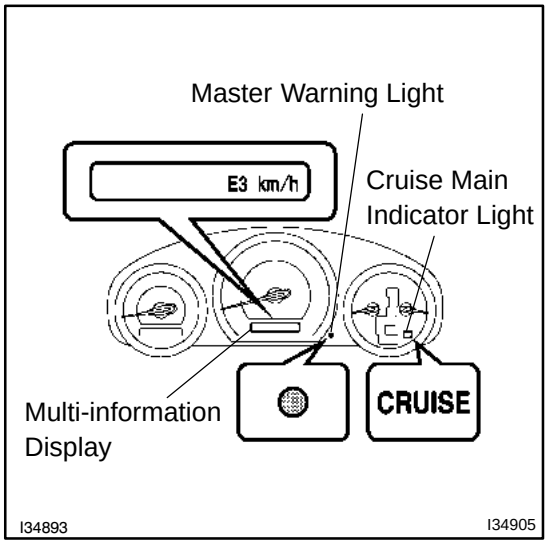
With this switch, the vehicle distance can be set in the following three stages: LONG, MIDDLE, and SHORT.

## 2. LASER BEAM AXIS ADJUSTMENT

Use the hand-held tester to adjust to the optical axis (see page 82-3 for the optical axis adjusting operation).

HINT:

While adjusting the optical axis of the laser radar sensor, the CRUISE main indicator light illuminates and FC is displayed on the multi-information display.

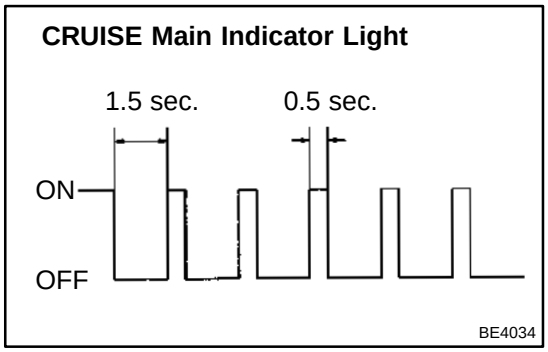



## 3. DIAGNOSIS FUNCTION

(a) The diagnosis function makes the master warning light and the multi- information display to come on, and CRUISE main indicator light blinks as shown in the illustration, when a malfunction occurs in the dynamic laser cruise control system, and store the diagnosed result in the ECM.

**NOTICE:**

- **The master warning light goes off if the system returns to normal condition.**
- **Since the stored data in the ECM is erased by disconnecting the EFI fuse and the battery terminal, do not disconnect them until finishing the inspection.**



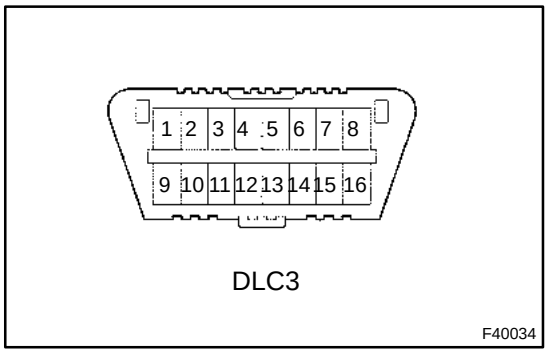
## 4. DIAGNOSING SYSTEM

(a) Description

The ECM controls the function of cruise control and dynamic laser cruise control on a vehicle. Data on the cruise control system, dynamic laser cruise control system and the DTCs can be read from DLC3 on the vehicle. If the CRUISE main indicator does not come on after the DTC check, there is a malfunction on the cruise control and dynamic laser cruise control system.

Use the hand-held tester or SST check wire to check and solve the problem.

SST 09843-18040




DLC3

(b) Check the DLC3.

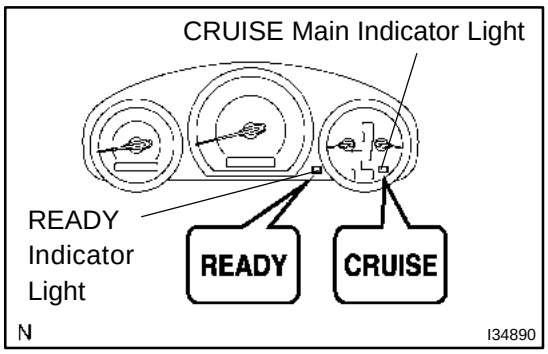
The vehicle's ECM uses ISO 9141-2 for communication. The terminal arrangement of DLC3 complies with SAE J1962 and matches the ISO 9141-2 format.

| Terminal No. | Connection/Specified Condition | Condition |
|---|---|---|
| 4 | Chassis Ground ↔ Body Ground/1 Ω or less | Always |
| 7 | Bus ⊕ Line/Pulse Generation | During Communication |
| 16 | Battery Positive ↔ Body Ground/9 to 14 V | Always |

HINT:

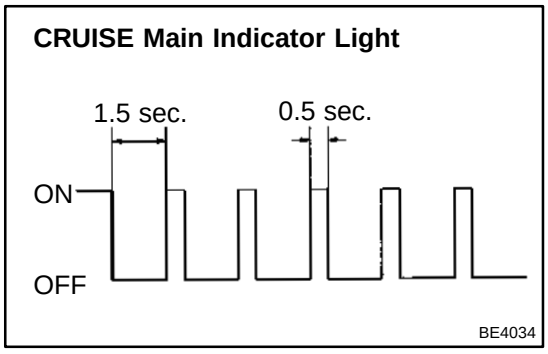
If the display shows "UNABLE TO CONNECT TO VEHICLE" when the hand-held tester is connected to the DLC3 and the ignition switch is ON, there is a problem on either the vehicle or the tool.

- If communication is normal when the tool is connected to another vehicle, check DLC3 on the original vehicle.
- If communication is still not possible when the tool is connected to another vehicle, the problem is probably in the tool itself. Consult with the Service Department listed in the tool's instruction manual.



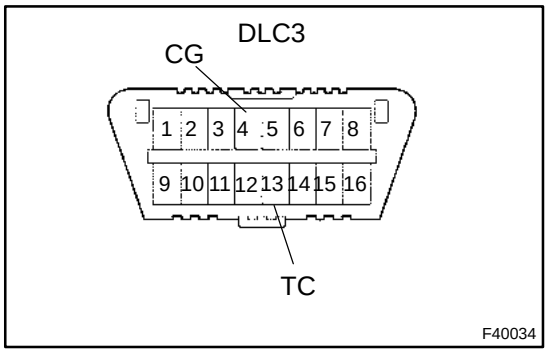

(c) Check the indicator.
(1) Turn the ignition switch ON.
(2) Check that the CRUISE main indicator light and READY indicator light comes on when the cruise control main switch is turned on. Then, the indicator light goes off when the main switch is turned off.

HINT:
If the indicator check result shows problem, proceed to trouble-shooting (See page 05-1525 ) for the combination meter section.

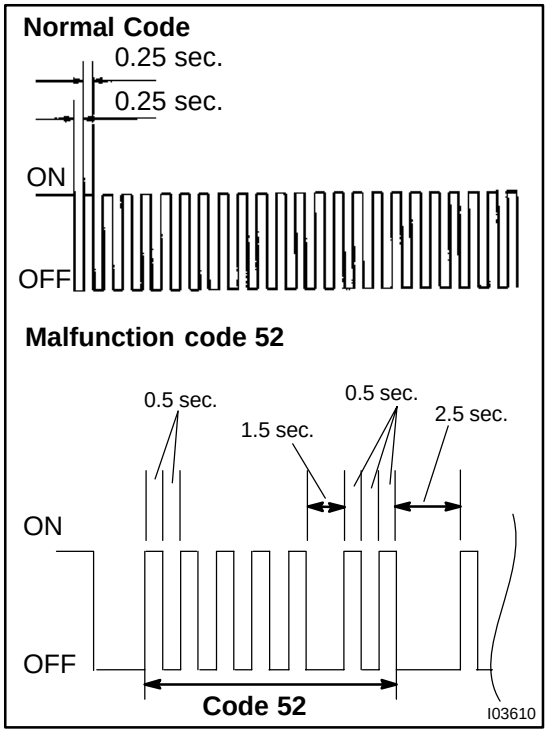



(d) Check the DTCs.

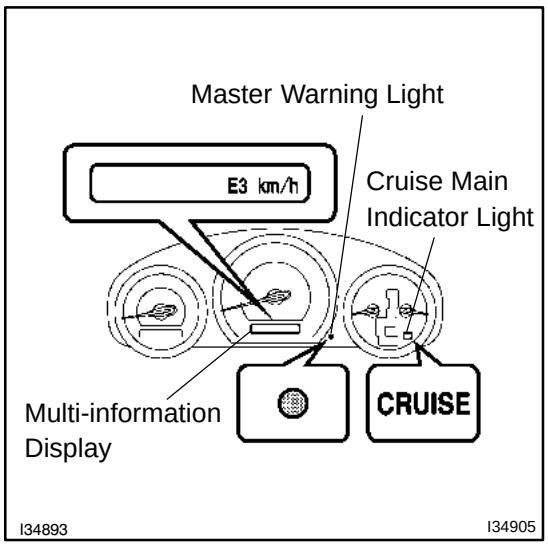
HINT:
If a malfunction occurs in the vehicle speed sensors or the stop lamp switch, etc. during cruise control driving, the ECU actuates AUTO CANCEL of the cruise control and blinks CRUISE main indicator light. This indicator light inform malfunction to the driver. At the same time, the malfunction date is stored as a diagnostic trouble code.




(e) Check the output of the DTCs using diagnosis check wire.
(1) Turn the ignition switch ON.
(2) Using SST check wire, connect terminals TC and CG of DLC3.
SST 09843-18040
(3) Read the DTC on the CRUISE main indicator light.




HINT:
If the DTCs are not indicated, inspect the cruise main indicator light circuit (See page 05-2043 ) and the diagnosis circuit (See page 05-2047 ).
For example, the blinking patterns of normal code and code 52 are shown in the illustration.




## 5. AUTO CANCEL FUNCTION (FAIL-SAFE FUNCTION)

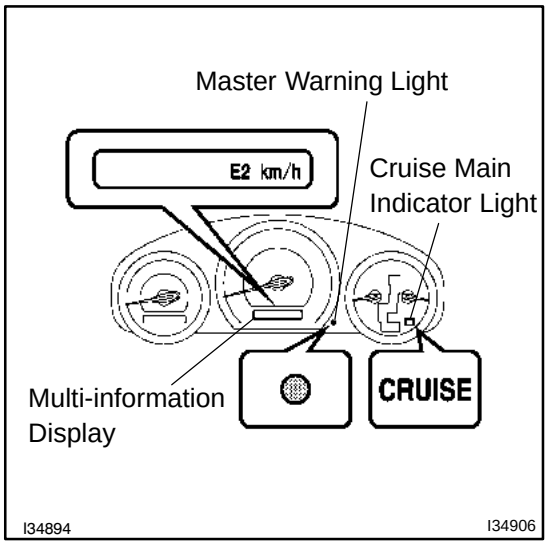
HINT:

If a system malfunction occurs, the applicable DTCs (Diagnostic Trouble Codes) will appear on the multi-information display.

(a) The cruise main indicator keeps blinking until turning the main switch off, the master warning light comes on with the warning sound ”Pop”, and the display shows ”E3”. The cruise control operation is suspended until turning the main switch to ON again. The auto cancel function deletes the stored vehicle speed and cancels the cruise control operation in the following conditions.

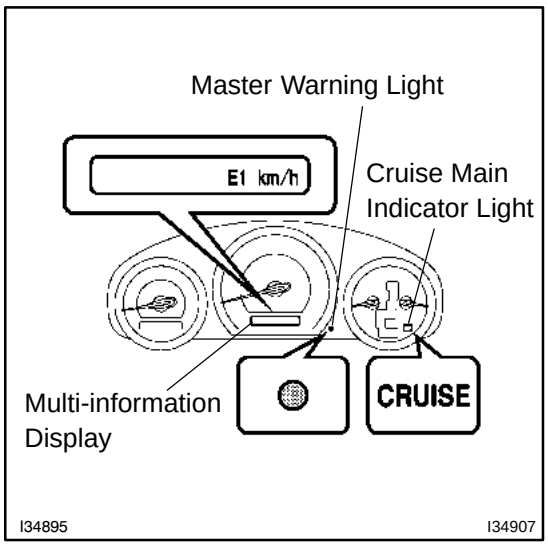
(1) When the vehicle speed signal malfunctions.
(2) When the electronic throttle parts malfunction.
(3) When the stop lamp switch is open or short circuit.
(4) When the laser radar sensor malfunctions. (*1)
(5) When the light axis of the laser radar sensor is off the position. (*1)

*1: Only in the Vehicle- to- vehicle Distance Control Mode.




(b) The cruise main indicator blinks, the master warning light comes on with the warning sound ”Pop”, and the display shows ”E2”. The cruise control operation is suspended until the canceling condition is resolved (in the Vehicle-to vehicle Distance Control Mode only). The auto cancel function cancels the cruise control operation in the following conditions.

(1) When the wipers (Hi, Lo) operate (including the auto wiper).
(2) When the pattern select switch is in the ”SNOW” mode.
(3) When the laser radar sensor receives strong light, such as sunlight, from the front side.
(4) When the Vehicle-to-vehicle distance measurement is extremely unstable because of a bad weather.

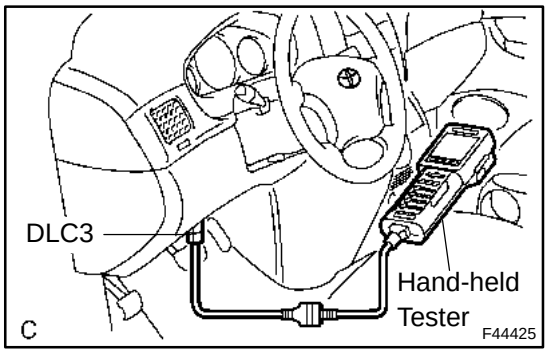



(c) The auto cancel function cancels the cruise control operation in the following conditions. At this time, the cruise main indicator blinks, the master warning light comes on with the warning sound ”Pop” and the display shows ”E1”. The cruise control operation is suspended until the canceling condition is resolved (in the Vehicle-to vehicle Distance Control Mode only).

(1) When the laser radar sensor has dirt on it.

HINT:

While the dynamic laser cruise control is operated, the ECM outputs a malfunction code when it detects dirt for 0.15 sec. or more.




**6. USING HAND-HELD TESTER**

(a) Hook up the hand-held tester to the DLC3.

(b) Monitor the ECU data by following the prompts on the tester screen.

HINT:

The hand-held tester has the ”Snapshot” function which records the monitored data.

Refer to the hand-held tester operator’s manual for further details.

## 7. DATA LIST

HINT:

From the DATA LIST displayed by the hand-held tester, you can read the value of the switch, sensor, actuator and so on without parts removal. Reading the DATA LIST as the first step of troubleshooting is one of the way to shorten labor time.

(a) Connect the Hand-held tester to the DLC3.

(b) Turn the ignition switch ON.

(c) According to the display on the tester, read the ”DATA LIST”.

**ECM:**

| Item | Measurement Item / Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| ACCEL REQUEST | Accel request signal / min.: -2621.44 k/h/s, max.: 2621.36 k/h/s | 0.8 k/h/s: No vehicle in front | - |
| VEHICLE DISTANCE | Laser radar sensor / min.: 0 m (0 ft), max.: 255 m (836.65 ft) | Distance to the vehicle in front | - |
| STEERING ANGLE | Steering angle sensor / min.: -36864 deg, max.: 36862.88 deg | Approx. 0 deg: When driving straight | - |
| ALARM RQST | Alarm request signal / NOT REQ, REQUEST | REQUEST: When beeping<br>NOT REQ: When not beeping | - |
| SHIFT DOWN RQST | Shift down request signal / NOT REQ, REQUEST | NOT REQ: Always | - |
| O/D CUT RQST | O/D cut request / NOT REQ, REQUEST | REQUEST: When driving in 4 th gear on an uphill slope<br>NOT REQ: In the situation other than mentioned above | - |
| L/C OPTION FLAG | Laser cruise option flag / NO, YES | YES: Vehicle to vehicle distance mode | - |
| DISTANCE TIME | Car distance time setting condition /SHRT, MID, LONG, NO | The vehicle select by distance control switch | - |
| YAW RATE | Yaw rate date / min.: -7999.98 deg/s, max.: 7999.74 deg/s | Approx. 0 deg: When driving straight | - |
| MAIN SW (MAIN) | Main SW signal (Main CPU) / ON or OFF | ON : Main SW ON (Pushed in)<br>OFF Main SW OFF (Pushed out) | ”3” |
| MAIN SW (SUB) | Main SW signal (Sub CPU) / ON or OFF | ON : Main SW ON (Pushed in)<br>OFF Main SW OFF (Pushed out) | ”3” |
| CCS READY M | Cruise control system stand by condition (Main CPU) / ON or OFF | ON ⇔ OFF : Change ON/OFF each time Main SW is Pushed in. | ”1” |
| CCS READY S | Cruise control system stand by condition (Sub CPU) / ON or OFF | ON ⇔ OFF : Change ON/OFF each time Main SW is Pushed in. | ”1” |
| CCS INDICATOR M | Cruise indicator signal (Main CPU) / ON or OFF | ON : ”CCS READY” ON<br>OFF : ”CCS READY” OFF | ”2” |
| CCS INDICATOR S | Cruise indicator signal (Sub CPU) / ON or OFF | ON : ”CCS READY” ON<br>OFF : ”CCS READY” OFF | ”2” |
| CRUISE CONTROL | Cruise control system active condition / ON or OFF | ON : Cruise control activated<br>OFF : Cruise control inactivated | - |
| SHIFT D POS | PNP SW signal (D position) / ON or OFF | ON : Shift D position<br>OFF : Except shift D position | - |
| STP LIGHT SW1-S | Stop light SW signal (Sub CPU) / ON or OFF | ON : Brake pedal depressed<br>OFF : Brake pedal released | - |
| STP LIGHT SW2-S | Stop light SW signal (Sub CPU) / ON or OFF | ON : Brake pedal depressed<br>OFF : Brake pedal released | - |

| Item | Measurement Item / Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| STP LIGHT SW2-M | Stop light SW signal (Main CPU) / ON or OFF | ON : Brake pedal depressed<br>OFF : Brake pedal released | - |
| RES/ACC SW | +/RES SW signal / ON or OFF | ON : +/RES SW ON<br>OFF : +/RES OFF | - |
| SET/COAST SW | -/SET SW signal / ON or OFF | ON : -/SET SW ON<br>OFF : -/SET SW OFF | - |
| CANCEL SW | CANCEL SW signal / ON or OFF | ON : CANCEL SW ON<br>OFF : CANCEL SW OFF | - |
| VEHICLE SPD | Vehicle speed sensor/ min.: 0 km/h (0 mph), max.: 255 km/h (158 mph) | Actual vehicle speed | - |
| MEMORY SPD | Cruise control memorized speed / min.: 0 km/h (0 mph), max.: 255 km/h (158 mph) | Memorized speed : Cruise control activated | - |
| THROTTLE | Required throttle opening angle / min.: 0 deg, max.: 125 deg | Required throttle opening angle (0° - 84°) : Cruise control activated | - |

HINT:

”3” is OK, but ”1” is NG → ECM failure

”1” is OK, but ”2” is NG → DTC output or ECM failure

”3” is OK, but cruise indicator does not turn on → Indicator or W/H or ECM failure

**8. ACTIVE TEST**

HINT:

Performing the ACTIVE TEST using the hand-held tester allows the relay, VSV, actuator and so on to operate without parts removal. Performing the ACTIVE TEST as a first step of troubleshooting is one of the method to shorten the labor time.

It is possible to display the DATA LIST during the ACTIVE TEST.

(a) Connect the hand-held tester to the DLC3.

(b) Turn the ignition switch ON.

(c) According to the display on tester, perform the ”ACTIVE TEST”.

HINT:

IG must be turned ON to proceed Active Test using a hand-held tester.

**SKID CONTROL ECU:**

| Item | Vehicle Condition / Test Details | Diagnostic Note |
|---|---|---|
| VSC / BR WARN BUZ | Turns VSC / BRAKE warning buzzer ON / OFF | Buzzer can be heard |
| STP LIGHT RELAY | Turns BRK relay ON / OFF | - |

**9. DTC CLEAR**

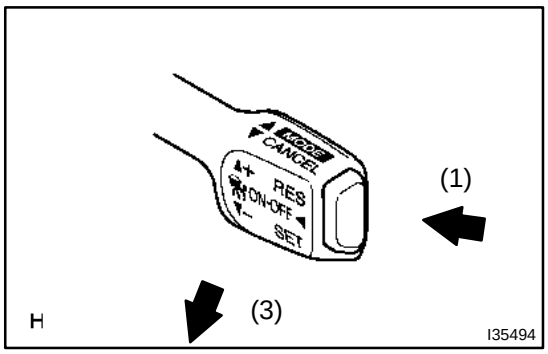
(a) Following actions will erase the DTCs and the freeze frame data.

  (1) Hand-held Tester:
  Operating the hand-held tester to erase the codes.

  (2) Except hand-held Tester:
  Disconnecting the battery terminals or EFI fuse.

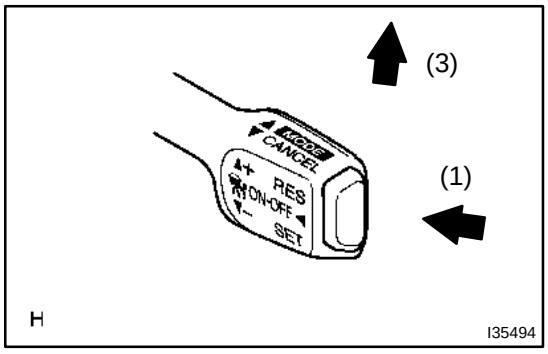
(b) After completing repairs, stored DTCs in the memory can be cleared by removing the EFI fuse for 1 minutes or more with the ignition switch off.

(c) Check that the normal code is displayed after connecting the fuse.




**10. PROBLEM SYMPTOM CONFIRMATION (ROAD TEST)**

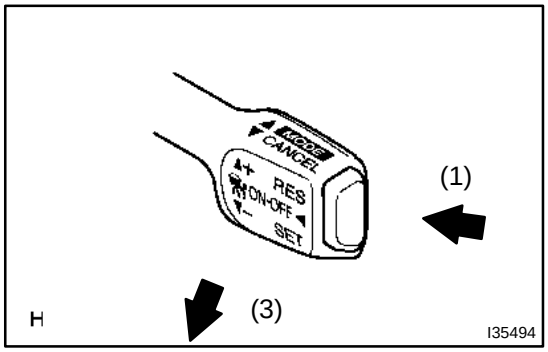
(a) Inspect the SET switch.
- (1) Push the main switch to ON.
- (2) Drive at a desired speed (40 km/h (25 mph) or higher).
- (3) Press the control switch towards the - SET.
- (4) After releasing the switch, check that the vehicle cruises at the desired speed.




(b) Inspect the + (ACCEL) switch.
- (1) Push the main switch to ON.
- (2) Drive at a desired speed (40 km/h (25 mph) or higher).
- (3) Check that the vehicle speed increase while the control switch is pressed towards + RES, and that the vehicle cruises at the set speed when the switch is released.
- (4) Momentarily press the control switch towards the + RES and then immediately release it. Check that the vehicle speed increases about 1.6 km/h (1.0 mph) (Tap-up function).

HINT:

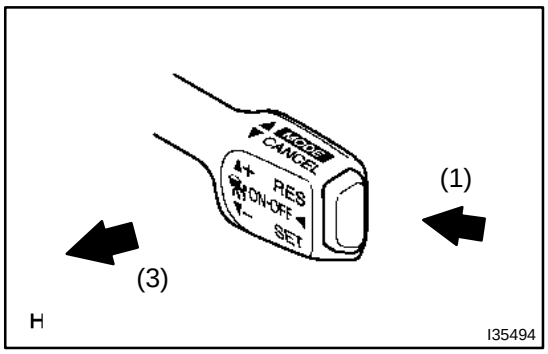
Tap-up/T ap-down function can be used only in the fixed-speed Control Mode.



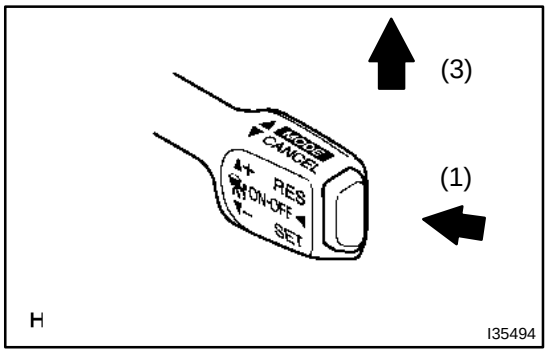

(c) Inspect the - (COAST) switch.
- (1) Push the main switch to ON.
- (2) Drive at a desired speed (40 km/h (25 mph) or higher).
- (3) Check that the vehicle speed decrease while the control switch is pressed towards to - SET, and the vehicle cruises at the set speed when the switch is released.
- (4) Momentarily press the control switch towards to - SET, and then immediately release it. Check that the vehicle speed decrease about 1.6 km/h (1.0 mph) (Tap-down function).

HINT:

Tap-up/T ap-down function can be used only in the fixed-speed Control Mode.




(d) Inspect the CANCEL switch.
(1) Push the main switch to ON.
(2) Drive at a desired speed (40 km/h (25 mph) or higher).
(3) When operating one of the followings, check that the cruise control system is cancelled and that the normal driving mode is reset.
- Depress the brake pedal
- Shift to except D position
- Push the main switch button to OFF
- Pull the cruise control switch to CANCEL

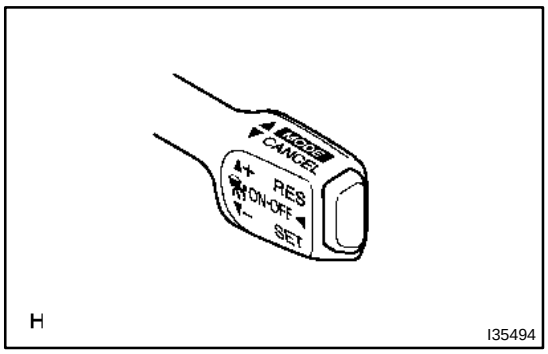



(e) Inspect the + (RESUME) switch.
(1) Push the main switch button to ON.
(2) Drive at desired speed (40 km/h (25 mph) or higher).
(3) When operating one of the followings, check that the cruise control system is cancelled and that the normal driving mode is reset.
- Depress the brake pedal
- Shift to except D position
- Pull the cruise control switch to CANCEL

(4) After pressing up the control switch towards + RES at the driving speed of more than 40 km/h (25 mph), check that the vehicle restores the speed prior to the cancellation.

(5) RESUME (in the Vehicle-to-vehicle Distance Control Mode only.)

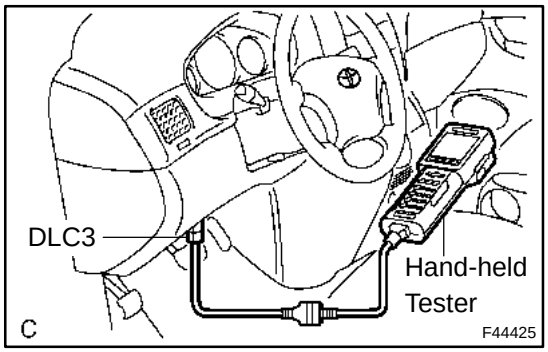
HINT:
The stored vehicle speed is retained even if the vehicle speed becomes less than 40 km/h (25 mph) once. The previously stored vehicle speed can be resumed by pressing the cruise control main switch assy towards the "+ RES" when vehicle speed returned to approx. 40 km/h (25 mph) or more.

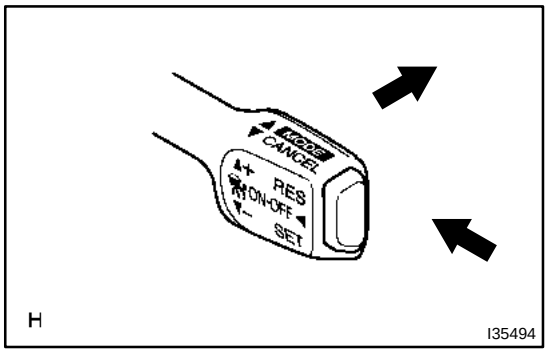



**11. INPUT SIGNAL CHECK (Using hand-held tester)**

(a) Connect the hand-held tester to DLC3

(b) Check the cruise control main switch using the DATA LIST function in hand-held tester (MAIN, CANCEL, -SET, +RES, MODE).




**12. INSPECT MODE SWITCH**

(a) Turn the ignition switch ON.

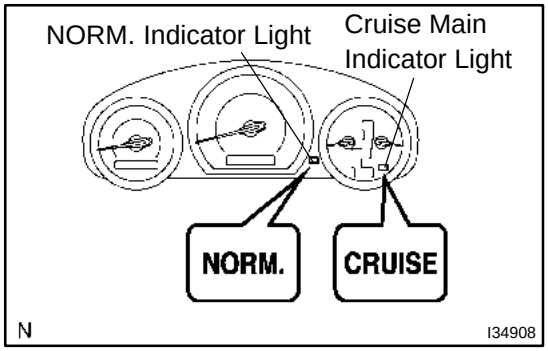
(b) After pressing on the main switch of the cruise control main switch, press the cruise control main switch towards the MODE position for at least 1 second without any other control. After no indication is shown in the display, make sure that ”NORM. (set vehicle speed)” is indicated.

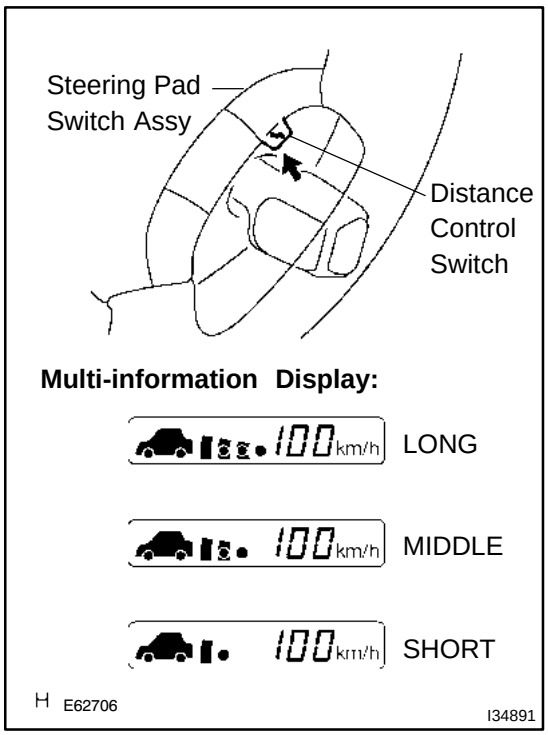
**NOTICE:**

**When performing other operations (setting) after turning the main switch on, the system cancels the constant speed control mode and cannot return to the mode again.**

HINT:

If the system cannot switch to the constant speed control mode, turn the main switch off once, and perform the same procedures as shown above. If a malfunction is still detected in the system, and then start the engine again and perform the above procedure.






**13. INSPECT STEERING PAD SWITCH ASSY**

(a) Turn the ignition switch ON.

(b) Press the main switch of the cruise control main switch.

(c) Press the distance control switch of the steering pad switch.

(d) Check that the indication of distance between vehicles, which are shown on the multi-information display of the combination meter, changes from ”LONG”, ”MIDDLE” to ”SHORT” in order.

HINT:

The indication is immediately set to (LONG) after starting the engine.

056BJ-06

# PRE-CHECK

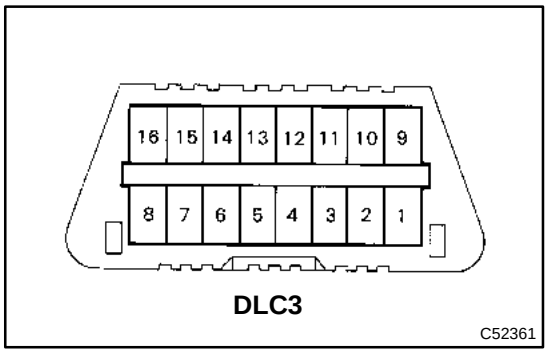
## 1. DIAGNOSIS SYSTEM

(a) Description

ECM controls of the cruise control the function on a vehicle.

Data stored in the cruise control memory and on the DTC can be read from the DLC3 on the vehicle. If CRUISE MAIN indicator light does not come on after the DTC check, there is a malfunction of the cruise control.

Use the hand-held tester or SST to check and solve the problem.




**DLC3**

(b) Check the DLC3.

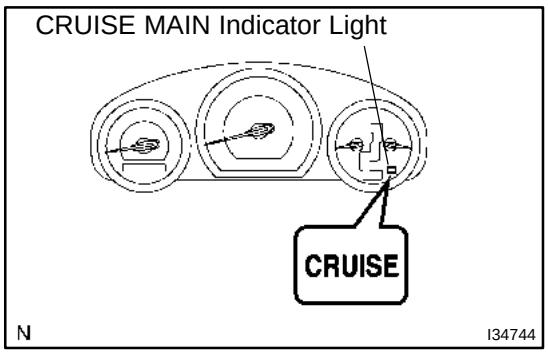
The vehicle's ECM uses ISO 9141-2 for communication. The terminal arrangement of DLC3 complies with SAE J1962 and matches the ISO 9141-2 format.

| Terminal No. | Connection/Specified Condition | Condition |
|---|---|---|
| 4 | Chassis Ground ↔ Body Ground / 1 Ω or less | Always |
| 7 | Bus ⊕ Line / Pulse Generation | During Communication |
| 16 | Battery Positive ↔ Body Ground / 9 - 14 V | Always |

HINT:

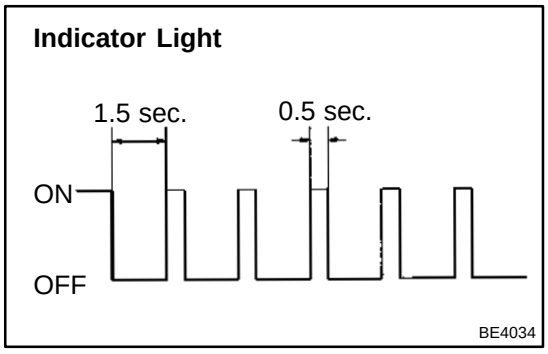
If the display shows "UNABLE TO CONNECT TO VEHICLE" after connecting the hand-held tester to the DLC3 and turning the ignition ON, there is a problem either with the vehicle or with the tool.

- If communication is normal when connecting the tool to another vehicle, inspect the DLC3 on the original vehicle.
- If communication is still not possible when connecting the tool to another vehicle, the problem is probably in the tool itself. Consult the Service Department listed in the tool's instruction manual.



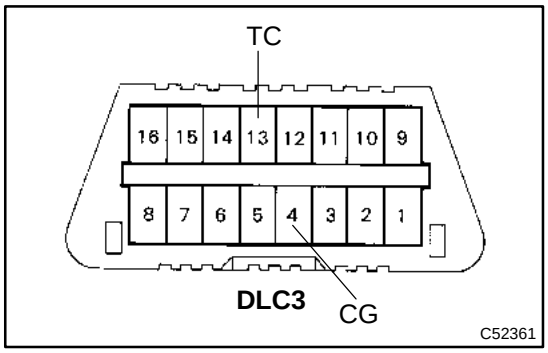

(c) Check the indicator.
(1) Turn the ignition switch ON.
(2) Check that the CRUISE MAIN indicator light comes on when the main switch button is turned ON, and that the indicator light goes off when the main switch is turned OFF.

HINT:
If there is a problem with the indicator, inspect the cruise main indicator lamp circuit (See page 05-1981 ).

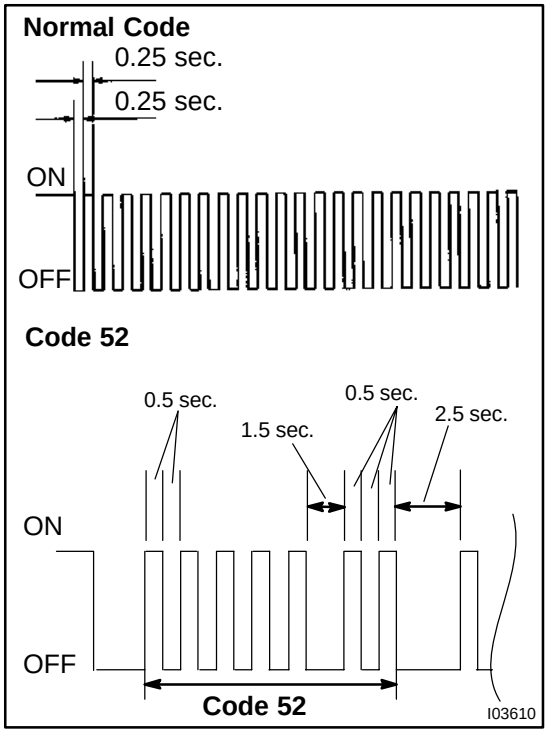



(d) Check the DTC.

HINT:
If a malfunction occurs in the vehicle speed sensors or stop lamp switch assy, etc. during cruise control driving, the ECM actuates AUTO CANCEL of the cruise control and then the CRUISE MAIN indicator light will start to blink, informing the driver of a malfunction. At the same time, data of the malfunction is stored as a diagnostic trouble code, or DTC.




(e) Output of DTC using diagnosis check wire.
(1) Using SST, connect terminals TC and CG of DLC3.
SST 09843-18040
(2) Turn the ignition switch ON.
(3) Read the DTC on the CRUISE MAIN indicator light.




HINT:
If the DTC is not output, inspect the cruise main indicator light circuit (See page 05-1981 ) and diagnosis circuit (See page 05-1982 ).
As an example, the normal blinking pattern and the blinking pattern for code 52 are shown in the illustration.

## 2. USING HAND-HELD TESTER

(a) Connect the hand-held tester to DLC3.
(b) Monitor the ECU data by following the prompts on the tester screen.

HINT:
Hand-held tester has a ”Snapshot” function which records the monitored data.
Refer to the hand-held tester operator’s manual for further details.

## 3. DATA LIST

HINT:
From the DATA LIST displayed on the the hand-held tester, you can read the value of the switch, the sensor and so on without removing parts. Reading the DATA LIST as the first step to troubleshooting is one way to shorten labor time.

(a) Connect the hand-held tester to DLC3.
(b) Turn the ignition switch ON.
(c) According to the display on the tester, read the ”DATA LIST”.

| Item | Measurement Item / Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| VEHICLE SPD | Vehicle speed / min.: 0 km/h (0 mph), max.: 255 km/h (158 mph) | Actual vehicle speed | - |
| MEMORY SPD | Stored vehicle speed / min.: 36 km/h (22 mph), max.: 200 km/h (124 mph) | Actual stored vehicle speed | - |
| THROTTLE | Required throttle opening angle / min.: 0°, max.: 125° | Actual required throttle opening | - |
| CRUISE CONTROL | Cruise control system active condition / ON or OFF | ON : Cruise control activated<br>OFF : Cruise control inactivated | - |
| MAIN SW (MAIN) | Main SW signal (Main CPU) / ON or OFF | ON : Main SW ON (Pushed in)<br>OFF: Main SW OFF (Pushed out) | ”3” |
| MAIN SW (SUB) | Main SW signal (Sub CPU) / ON or OFF | ON : Main SW ON Pushed in<br>OFF: Main SW OFF Pushed out | ”3” |
| CCS READY M | Cruise control system standby condition (Main CPU) / ON or OFF | ON - OFF : Change ON/OFF each time Main SW is pushed in. | ”1” |
| CCS READY S | Cruise control system standby condition (Sub CPU) / ON or OFF | ON - OFF : Change ON/OFF each time Main SW is pushed in. | ”1” |
| CCS INDICATOR M | Cruise indicator signal (Main CPU) / ON or OFF | ON : ”CCS READY” ON<br>OFF : ”CCS READY” OFF | ”2” |
| CCS INDICATOR S | Cruise indicator signal (Sub CPU) / ON or OFF | ON : ”CCS READY” ON<br>OFF : ”CCS READY” OFF | ”2” |
| CANCEL SW | CANCEL SW signal / ON or OFF | ON : CANCEL SW ON<br>OFF : CANCEL SW OFF | - |
| SET/COAST SW | -/SET SW signal / ON or OFF | ON : -/SET SW ON<br>OFF : -/SET SW OFF | - |
| RES/ACC SW | +/RES SW signal / ON or OFF | ON : +/RES SW ON<br>OFF : +/RES SW OFF | - |
| STP LIGHT SW2 M | Stop light SW signal (Main CPU) / ON or OFF | ON : Brake pedal depressed<br>OFF : Brake pedal released | - |
| STP LIGHT SW2 S | Stop light SW signal (Sub CPU) / ON or OFF | ON : Brake pedal depressed<br>OFF : Brake pedal released | - |

| | | | |
|---|---|---|---|
| STP LIGHT SW1 S | Stop light SW signal (Sub CPU) / ON or OFF | ON : Brake pedal depressed<br>OFF : Brake pedal released | - |
| SHIFT D POS | PNP SW signal (D position) / ON or OFF | ON : Shift D position<br>OFF : Except shift D position | - |

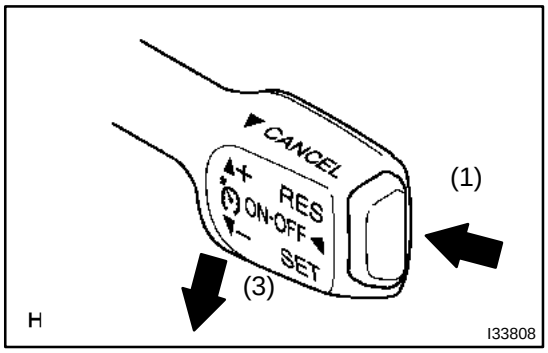
HINT:
”3” is OK but ”1” is NG → ECM failure
”1” is OK but ”2” is NG → DTC output or ECM failure
”3” is OK but cruise indicator does not turn on → CRUISE MAIN indicator or wire harness or ECM failure

**4. DTC CLEAR**

(a) The following methods will erase the DTCs and freeze frame data.
  (1) The hand-held tester can be used to erase the codes.
  (2) Disconnecting the battery terminals or EFI No.1 fuse can also erase the codes.

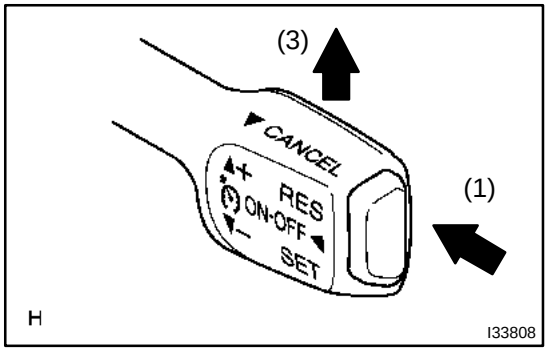
(b) After completing repairs, the DTC retained in the memory can be cleared by removing the EFI No.1 fuse for 1 minute or more with the ignition switch OFF.

(c) Check that the normal code is displayed after connecting the fuse.

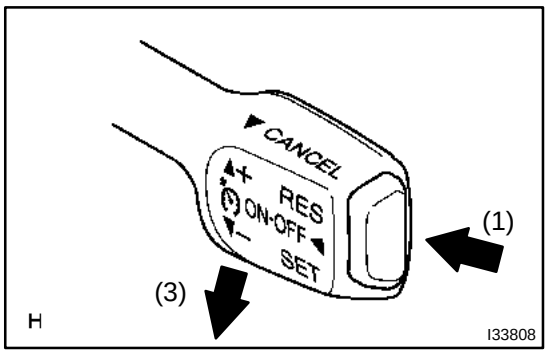



**5. PROBLEM SYMPTOM CONFIRMATION (ROAD TEST)**

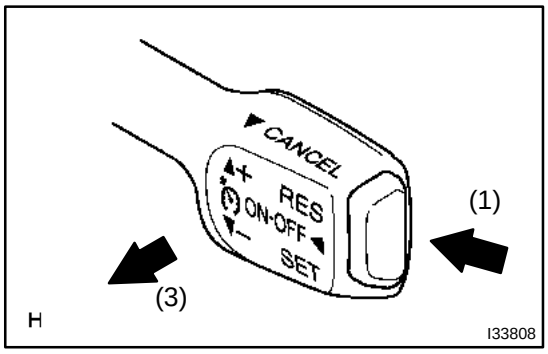
(a) Inspect the SET switch.
  (1) Push the main switch button ON.
  (2) Drive at a desired speed (40 km/h (25 mph) or higher).
  (3) Push down the control switch to the -/SET position.
  (4) After releasing the switch, check that the vehicle cruises at the desired speed.



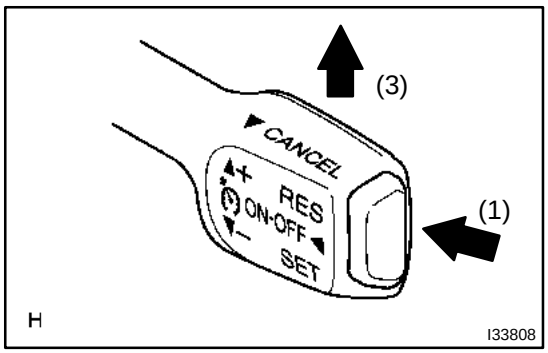

(b) Inspect the ’+’ switch.
  (1) Push the main switch button ON.
  (2) Drive at a desired speed (40 km/h (25 mph) or higher).
  (3) Check that the vehicle speed increases when the control switch is pushed up to +/RES, and that the vehicle cruises at the set speed when the switch is released.
  (4) Push the control switch to +/RES, and then immediately release it. Check that the vehicle speed increases by about 1.6 km/h (Tap-up function).




(c) Inspect the '-' switch.
(1) Push the main switch button ON.
(2) Drive at a desired speed (40 km/h (25 mph) or higher).
(3) Check that the vehicle speed decreases while the control switch is pushed down to -/SET, and the vehicle cruises at the set speed when the switch is released.
(4) Push the control switch to -/SET, and then immediately release it. Check that the vehicle speed decreases by about 1.6 km/h (Tap-down function).




(d) Inspect the CANCEL switch.
(1) Push the main switch button ON.
(2) Drive at a desired speed (40 km/h (25 mph) or higher).
(3) After doing one of the following, check that the cruise control system is cancelled and that the normal driving mode is reset.
- Depressing the brake pedal.
- Shift to any gear besides D.
- Pushing the main switch button OFF.
- Pulling the control switch CANCEL.

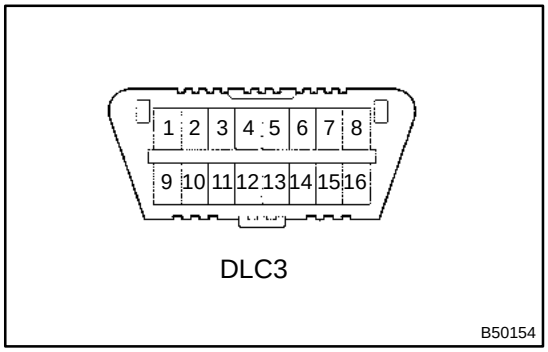



(e) Inspect the RES switch.
(1) Push the main switch button ON.
(2) Drive at a desired speed (40 km/h (25 mph) or higher).
(3) After doing one of the following, check that the cruise control system is cancelled and that the normal driving mode is reset.
- Depressing the brake pedal.
- Shift to any gear besides D.
- Pulling the control switch CANCEL.

(4) After the control switch is pulled up to +/RES at the driving speed of more than 40 km/h (25 mph), check that the vehicle resumes the same speed maintained before the cancellation.

05BZJ-01

# PRE-CHECK




**1. DIAGNOSIS SYSTEM**

(a) Inspect the DLC3.

HINT:

The vehicle's ECM uses ISO 9141-2 for communication.

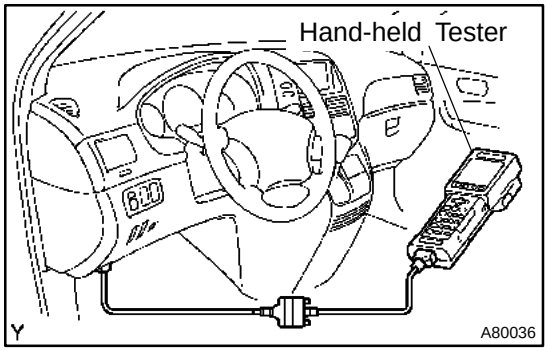
The terminal arrangement of the DLC3 complies with SAE J1962 and matches the ISO 9141-2 format.

| Terminal No. | Condition | Specified Condition |
|---|---|---|
| 7 (Bus + line) - 5 (Signal ground) | During communication | Pulse generation |
| 4 (Chassis ground) - Body ground | Constant | Below 1 Ω |
| 5 (Signal ground) - Body ground | Constant | Below 1 Ω |
| 16 (B+) - Body ground | Constant | 9 to 14 V |

HINT:

If the screen displays UNABLE TO CONNECT TO VEHICLE after you have connected the cable of the hand-held tester to the DLC3, turned the ignition switch ON and used the hand-held tester, there is a problem on the vehicle side or tester side.

- If communication is normal when the tester is connected to another vehicle, inspect the DLC3 of the original vehicle.
- If communication is still impossible when the tester is connected to another vehicle, the problem is probably in the tester itself, so consult the Service Department listed in the tester's manual.




**2. CHECK DTC (USING HAND-HELD TESTER)**

(a) Checking DTCs.

(1) Connect the hand-held tester to the DLC3.

(2) Turn the ignition switch ON.

(3) Read DTCs by following the prompts on the tester screen.

HINT:

Refer to the hand-held tester operator's manual for further details.

**3. CLEAR DTC (USING HAND-HELD TESTER)**

(a) Clearing the DTCs from memory.

(1) Connect the hand-held tester to the DLC3.

(2) Turn the ignition switch ON.

(3) Erase the DTCs following the prompts on the tester screen.

HINT:

Refer to the hand-held tester operator's manual for further details.

## 4. DATA LIST

HINT:

Using the DATA LIST displayed on the hand-held tester, you can read the value of the switch, sensor, actuator, etc. without parts removal. Reading the DATA LIST as the first step of troubleshooting is one way to shorten the labor time.

(a) Connect the hand-held tester to the DLC3.

(b) Turn the ignition switch ON.

(c) Read the DATA LIST according to the display on the tester.

**Standard (Power slide door ECU LH/RH):**

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| POLE*1 SW | Power slide door lock pawl*1 position switch signal /ON or OFF | ON: Slide door is unlatched<br>OFF: Slide door is latched | - |
| HALF SW | Power slide door lock half latch switch signal /ON or OFF | ON: Slide door is not completely closed<br>OFF: Slide door is closed | - |
| FULL SW | Power slide door lock full latch switch signal /ON or OFF | ON: Slide door is open<br>OFF: Slide door is closed | - |
| PSD SW OPER | Power slide door switch operation (Satellite switch) /0.8s or 0.0s*2 | 0.8s: Satellite switch 0.8 sec.-press (long press) operates power slide door<br>0.0s*2: Satellite switch 1-press operates power slide door | - |
| PSD BUZZ VOL | Warning buzzer volume during power slide door operation /OFF, SMALL or LARGE | OFF: Warning buzzer that notifies power slide door is operating does not sound<br>SMALL: Warning buzzer that notifies power slide door is operating sounds at small volume<br>LARGE: Warning buzzer that notifies power slide door is operating sounds at large volume | - |
| WIRELS PSD OPER | Wireless power slide door switch operation (Transmitter switch operation) /1TIME, 2TIMES, 0.8sPR or OFF | 1TIME: Transmitter switch 1-press operates power slide door<br>2TIMES: Transmitter switch 2-presses operates power slide door<br>0.8sPR: Transmitter switch 0.8s.-press operates power slide door<br>OFF: Transmitter switch operation is disabled | - |
| PSD TOUCH SEN | Power slide door touch sensor signal /OFF, ON or OPEN | OFF: Power slide door touch sensor is not pressed<br>ON: Power slide door touch sensor is pressed<br>OPEN: Power slide door touch sensor is opened | - |
| CLOSER POS SW | Power slide door lock closer position switch signal /ON or OFF | ON: Closer is not in initial position and inside/outside handle is not pulled<br>OFF: Closer is in initial position and inside/outside handle is pulled | - |
| HANDLE SW | Handle operation detect switch signal /ON or OFF | ON: Slide door inside/outside handle is pulled<br>OFF: Slide door inside/outside handle is not pulled | - |
| PSD MAIN SW | Power slide door main switch signal /ON or OFF | ON: Orange paint on top of switch appears<br>OFF: Orange paint on top of switch does not appear | - |
| B PILLAR SW*3 | Power slide door control switch*3 signal /ON or OFF | ON: Power slide door control switch*3 is pushed<br>OFF: Power slide door control switch*3 is not pushed | - |
| CHILD LOCK SW | Child protection detect switch signal /ON or OFF | ON: Child lock lever is LOCK<br>OFF: Child lock lever is UNLOCK | - |
| FUEL LID SW*4 | Fuel lid courtesy switch signal /ON or OFF | ON: Fuel lid is closed<br>OFF: Fuel lid is open | - |
| DOOR POS-1/4 | Slide door position (Full close - 1/4 open) /CAUTION or OK | CAUTION: Slide door position is not fully closed - 1/4 opened<br>OK: Slide door position is fully closed - 1/4 opened | *5 |
| DOOR POS-2/4 | Slide door position (1/4 open - 2/4 open) /CAUTION or OK | CAUTION: Slide door position is not 1/4 opened - 2/4 opened<br>OK: Slide door position is 1/4 opened - 2/4 opened | *5 |

| Item | Measurement Item/Display (Range) | Normal Condition | Diagnostic Note |
|---|---|---|---|
| DOOR POS-3/4 | Slide door position<br>(2/4 open - 3/4 open)<br>/CAUTION or OK | CAUTION: Slide door position is not 2/4 opened - 3/4 opened<br>OK: Slide door position is 2/4 opened - 3/4 opened | *5 |
| DOOR POS-OPEN | Slide door position<br>(3/4 open - full open)<br>/CAUTION or OK | CAUTION: Slide door position is not 3/4 opened - fully opened<br>OK: Slide door position is 3/4 opened - fully opened | *5 |

*1 ”POLE” appears on the display of the hand-held tester, however the name of the part corresponding to the display of the tester is ”pawl”.
*2 ”0.0s” appearing on the display of the hand-held tester means that a 1-press of the satellite switch operates the power slide door.
*3 ”B PILLAR SW” appears on the display of the hand-held tester, however the name of the part corresponding to the display of the tester is ”Power slide door control switch”.
*4 Power slide door ECU LH only
*5 In case that the ”CAUTION” is displayed even without resistance applied in each range, there must be a foreign object caught somewhere in that range.

## 5. ACTIVE TEST

HINT:
Performing the ACTIVE TEST using the hand-held tester allows you to operate the relay, VSV, actuator, etc. without parts removal. Performing the ACTIVE TEST as the first step of troubleshooting is one way to shorten the labor time. It is possible to display the DATA LIST during the ACTIVE TEST.

(a) Connect the hand-held tester to the DLC3.
(b) Turn the ignition switch ON.
(c) Perform the ACTIVE TEST according to the display on the tester.

**Standard (Power Slide Door ECU LH/RH):**

| Item | Test Details | Diagnostic Note |
|---|---|---|
| PSD MOTOR | Power slide door control motor is operation<br>OFF/FORWARD/REVERAE | Clutch is OFF while power slide door motor is operating |
| PSD CLUTCH | Power slide door control clutch is release<br>OFF/ON | Power slide door motor is OFF when clutch is ON |
| PSD BUZZER | Power slide door warning buzzer sound<br>OFF/ON | - |
| RELEASE ACT | Slide door lock release motor is release<br>OFF/ON | - |

## 6. RESET

(a) When the control motor and clutch is replaced:
The power slide door ECU cannot receive a switch signal from the control motor and clutch. This may cause the power slide door system to enter fail-safe mode and DTC (B2224 (LH) or B2223 (RH)) to set, and also make the system disabled.
When the motor and clutch is replaced, be sure to perform the following: first, properly connect the motor and clutch; second, clear the DTC using the hand-held tester and finally recheck that no DTC is output.

(b) Reset the power slide door system:
The power slide door ECU records the fully open position and the fully closed position of the power slide door in its memory and the power slide door fully opens and closes based on this memory. The power slide door cannot operate without this memory. In the case where the battery has been removed, manually close the slide door fully to reset the power slide door system. However, if the battery is removed/installed when the slide door is fully open, the power slide door operates normally, thus the resetting the system is unnecessary.

057UD-12

# PROBLEM SYMPTOMS TABLE

If a normal code is displayed during the DTC check but the problem still occurs, check the circuits for each problem symptom in the order given in the table below and proceed to the relevant troubleshooting page.

**NOTICE:**

**When replacing the brake actuator assy, sensor or etc., turn the ignition switch to OFF.**

| Symptom | Suspect Area | See page |
|---|---|---|
| ABS does not operate | 1. Check the DTC reconfirming that the normal code is output.<br>2. IG power source circuit<br>3. Speed sensor circuit<br>4. Check the brake actuator with a hand-held tester. If there is malfunction, check the hydraulic circuit for leakage.<br>5. When the above areas (1. to 4.) are all normal but the problem is still occurring, replace the brake actuator assy. | 05-386<br>05-412<br>05-397<br>05-401<br>32-42 |
| ABS does not operate efficiently | 1. Check the DTC reconfirming that the normal code is output.<br>2. Speed sensor circuit<br>3. Stop light switch circuit<br>4. Check the brake actuator with a hand-held tester. If there is malfunction, check the hydraulic circuit for leakage.<br>5. When the above areas (1. to 4.) are all normal but the problem is still occurring, replace the brake actuator assy. | 05-386<br>05-397<br>05-401<br>05-415<br>32-42 |
| ABS warning light abnormality | 1. ABS warning light circuit<br>2. Brake actuator assy | 05-419<br>05-423<br>- |
| DTC check cannot be done | 1. ABS warning light circuit<br>2. Tc terminal circuit<br>3. When the above areas (1. to 2.) are all normal but the problem is still occurring, replace the brake actuator assy. | 05-419<br>05-423<br>05-427 |
| Speed sensor signal check cannot be done | 1. Ts terminal circuit<br>2. Brake actuator assy | 05-429<br>- |

05BE5-03

# PROBLEM SYMPTOMS TABLE

If a normal code is displayed during the DTC check but the problem still occurs, check the circuits for each problem symptom in the order given in the table below and proceed to the relevant troubleshooting page.
HINT:
Inspect each malfunction circuit in numerical order for the corresponding symptom.
If the malfunction still exist even after checking and confirming that all the circuit are normal, replace the ECM.

| Symptom | Suspect Area | See page |
|---|---|---|
| Main switch cannot be turned ON.<br>(Cruise indicator light in combination meter does not come on.) | 1. Cruise control switch circuit<br>2. Cruise main indicator light circuit<br>3. ECM | 05-2038<br>05-2043<br>- |
| Vehicle speed setting cannot be done.<br>(Although indicator light in combination meter come on when the main switch is turned ON, it goes off when vehicle speed is set.) | 1. Cruise control switch circuit<br>2. ECM | 05-2038<br>- |
| Setting cannot be done.<br>(Indicator light in combination meter come on when the main switch is turned ON and it remains ON while setting.) | 1. Cruise control switch circuit<br>2. Stop lamp switch circuit<br>3. Park/Neutral position switch circuit<br>4. Combination meter system<br>5. ECM | 05-2038<br>05-2011<br>05-566<br>05-2043<br>- |
| While the vehicle is driving with cruise control, the set control is canceled.<br>(Indicator light and CRUISE remain ON.) | 1. Cruise control switch circuit<br>2. Vehicle speed sensor circuit<br>3. Stop lamp switch circuit<br>4. Cruise main indicator light circuit<br>5. Park/Neutral position switch circuit<br>6. ECM | 05-2038<br>05-2010<br>05-2011<br>05-2043<br>05-566<br>- |
| Hunting<br>(Speed is not constant.) | 1. Vehicle speed sensor circuit<br>2. Malfunction in speedometer circuit<br>3. Laser radar sensor circuit<br>4. Distance control ECU circuit<br>5. ECM | 05-2010<br>05-1525<br>05-2018<br>-<br>- |
| Setting cannot be cancelled.<br>(When Coast, Acceleration, Resume, Set speed change and Control switch are operated.) | 1. Cruise control switch circuit<br>2. ECM | 05-2038<br>- |
| Erroneous detection or lost sight of the vehicle ahead. | 1. Clean laser radar sensor<br>2. Improper aiming of laser sensor beam axis | -<br>82-3 |
| Alarm buzzer does not sound. | 1. Buzzer circuit<br>2. VSC system<br>3. Laser radar sensor circuit<br>4. Distance control ECU<br>5. ECM | 05-2020<br>05-431<br>05-2018<br>-<br>- |
| Set distance cannot be changed. | 1. Combination meter system<br>2. Distance control switch<br>3. ECM | 05-1525<br>05-2041<br>- |
| No display. | 1. Combination meter system<br>2. ECM | 05-1525<br>- |
| No brake control<br>(when decelerating) | 1. ABS solenoid circuit<br>2. VSC system<br>3. Distance control ECU<br>4. ECM | 05-472<br>05-431<br>-<br>- |
| Constant speed mode cannot be ON. | 1. Cruise control switch circuit<br>2. Wire harness<br>3. ECM<br>4. Combination meter system | 05-2038<br>-<br>-<br>05-1525 |

| | | |
|---|---|---|
| Vehicle speed setting cannot be cancelled with wiper Lo/Hi. (Including automatic wiper) | 1. Rain sensor system<br>2. Wiper system<br>3. Distance control ECU<br>4. ECM | 66-4<br>66-5<br>-<br>- |
| Setting cannot be cancelled in SNOW mode. | 1. Pattern select switch circuit<br>2. Automatic transmission system<br>3. ECM | 05-431<br>05-431<br>- |

05BTR-02

# PROBLEM SYMPTOMS TABLE

| Symptom | Suspected Area | See Page |
|---|---|---|
| Key reminder buzzer does not sound | 1. Un-lock warning switch assy | 05-1825 |
| | 2. Front door courtesy lamp switch (Driver side) | 05-1825 |
| | 3. Instrument panel J/B assy (Multiplex network body ECU) | 05-1825 |
| | 4. Combination meter | - |
| | 5. Wire harness | - |

05BA0-01

# PROBLEM SYMPTOMS TABLE

Proceed to the reference page shown in the table below for each malfunction symptom and troubleshoot each circuit.

HINT:

Troubleshooting of the theft deterrent system is based on the premise that the door lock control system and the wireless door lock control system are operating normally. Accordingly, before troubleshooting the theft deterrent system, first make certain that the door lock control system and the wireless door lock control system are operating normally.

| Symptom | Suspected Area | See Page |
|---|---|---|
| Theft deterrent system cannot be set | 1. Security indicator circuit<br>2. ECU power source circuit<br>3. Un-lock warning switch circuit<br>4. Door key lock and unlock switch<br>5. Door courtesy switch circuit<br>6. Back door courtesy switch circuit<br>7. Engine hood courtesy switch circuit | 05-1866<br>05-1868<br>05-1825<br>73-3<br>05-1863<br>05-1863<br>05-1872 |
| Security indicator does not blink when theft deterrent system is set | 1. Security indicator circuit | 05-1866 |
| Alarm sounding state can not be canceled when ignition switch is turned ON-OFF 10 times within 15 seconds | 1. Ignition switch circuit<br>2. Un-lock warning switch circuit | 05-1870<br>05-1825 |
| Theft deterrent system can be set even when a door is open | 1. Door courtesy switch circuit | 05-1863 |
| Horns (low pitched, high pitched) do not sound while theft deterrent system is in warning operation | 1. Horn (low pitched, high pitched) circuit | - |
| Headlamps do not flash while theft deterrent system is in warning operation | 1. Headlamp circuit | 05-1139 |
| Taillamps do not flash while theft deterrent system is in warning operation | 1. Taillamp circuit | 05-1150 |
| Hazard warning lamps do not flash while theft deterrent system is in warning operation | 1. Hazard warning circuit | 65-4 |
| Room lamp does not blink while theft deterrent system is in warning operation | 1. Room lamp circuit | 05-1181 |
| Theft deterrent horn does not sound while theft deterrent system is in warning operation | 1. Theft deterrent horn circuit | 05-1874 |
| Headlamps flash even when theft deterrent system is not set | 1. Headlamp circuit | 05-1139 |
| Taillamps flash even when theft deterrent system is not set | 1. Taillamp circuit | 05-1150 |
| Hazard warning lamps flash even when theft deterrent system is not set | 1. Hazard warning switch circuit | 65-4 |
| Room lamp flashes even when theft deterrent system is not set | 1. Room lamp circuit | 05-1181 |

056BD-04

# PROBLEM SYMPTOMS TABLE

| Symptom | Suspected Area | See Page |
|---|---|---|
| Only wireless control function does not operate<br>(Prepare new or normal transmitter of the same type vehicle) | 4. Transmitter battery<br>5. Door control transmitter<br>6. Door control receiver<br>7. Un-lock warning switch assy<br>8. Wire harness<br>9. Multiplex network body ECU<br>10. Instrument panel J/B assy | 05-1804 |
| No answer-back<br>(Hazard warning lamp and wireless door lock buzzer) | 1. Wireless door lock buzzer<br>2. Lighting system<br>3. Wire harness<br>4. Multiplex network body ECU | 05-1812 |

05BWC-11

# PROBLEM SYMPTOMS TABLE

Check the circuits for each problem symptom in the order given in the table below and proceed to the relevant troubleshooting page.

HINT:

- Inspect each malfunction circuit in numerical order for the corresponding symptom.
  If the malfunction still exist even after checking and confirming that all the circuit are normal, replace the brake actuator assy.
- When a malfunction is found in the skid control ECU, replace the brake actuator assy.
- When the tire pressure warning lamp blinks and the ABS warning lamp comes on, check the ABS system first.

| Symptom | Suspect Area | See page |
|---|---|---|
| The tire pressure warning lamp does not come on right after the ignition switch is turned ON. | 3. Tire pressure warning lamp circuit<br>4. Brake actuator assy | 05-373<br>- |
| The tire pressure warning lamp remains on right after the ignition switch is ON.<br>HINT: System abnormal 1 is detected. | 1. Tire pressure warning lamp circuit<br>2. Brake actuator assy | 05-373<br>- |
| The tire pressure warning lamp is blinking at the 0.5 seconds interval.<br>HINT: System abnormal 2 is detected. | 1. Check the DTCs for the ABS system.<br>w/o VSC<br>w/ VSC<br>2. Check the DTCs for the tire pressure warning system.<br>3. Brake actuator assy | <br>05-386<br>05-435<br>05-347<br>- |
| Tire pressure warning lamp is blinking at the 0.25 second interval.<br>HINT: The ECU requires the initialization. | 1. Initialize the tire pressure warning system (step 5.)<br>2. Brake actuator assy | 05-347<br>- |
| The ECU is initialized (the tire pressure warning switch is ON), but the tire pressure warning lamp does not blink. | 1. Tire pressure warning switch circuit<br>2. Brake actuator assy | 05-376<br>- |
| The tire pressure warning lamp comes on while driving, but the lamp goes off without supplying tire air pressure. | 1. Check tire pressure warning lamp (step 7.)<br>2. Tire pressure warning lamp circuit<br>3. Brake actuator assy<br>HINT:<br>The varied tire pressure is detected depending on the driving environment.<br>Since any of the detected pressure reaches the standard tire pressure value, the warning lamp may goes off. | 05-347<br>05-373<br>- |
| The tire pressure warning lamp comes on, but the tire air pressure is in the standard value. | 1. Check that the vehicle wears whether the appropriate size tire or not.<br>2. Ambient temperature sensor circuit w/ VSC<br>3. Tire pressure warning lamp circuit<br>4. Brake actuator assy<br>HINT:<br>• Wearing the inappropriate size tire, or not using the indicated tire.<br>• The tire air pressure may not be standard value at the time of the initialization. | -<br>05-380<br>05-373<br>- |

| | | |
|---|---|---|
| The tire pressure warning lamp remains off, even when the tire air pressure decreased. | 1. Check that the vehicle wears whether the appropriate size tire or not.<br>2. Ambient temperature sensor circuit w/ VSC<br>3. Tire pressure warning lamp circuit<br>4. Brake actuator assy<br>HINT:<br>• Wearing the inappropriate size tire, or not using the indicated tire.<br>• The varied tire pressure is detected depending on the driving environment. Since the tire air pressure decreases further, the pressure warning lamp may come on.<br>• The air pressure may not be standard value at time of the initialization. | -<br><br>05-380<br>05-373<br>- |
| The tire pressure warning lamp comes on while driving, but the lamp remains lit after supplying the tire air pressure. | 1. Check tire pressure warning lamp (step 7.)<br>2. Tire pressure warning lamp circuit<br>3. Ambient temperature sensor circuit w/ VSC<br>4. Brake actuator assy | 05-347<br>05-373<br>05-380<br>- |
| DTC check cannot be completed. | 1. Check the DTCs for the ABS system.<br>w/o VSC<br>w/ VSC<br>2. TC terminal circuit w/o VSC<br>w/ VSC<br>3. Tire pressure warning lamp circuit<br>4. Brake actuator assy | <br>05-386<br>05-435<br>05-427<br>05-526<br>05-373<br>- |
| Test mode cannot be completed. | 1. Check the DTCs for the ABS system.<br>w/o VSC<br>w/ VSC<br>2. TS terminal circuit w/o VSC<br>w/ VSC<br>3. Brake actuator assy | <br>05-386<br>05-435<br>05-429<br>05-526<br>- |

05BYY-03

# PROBLEM SYMPTOMS TABLE

| Symptom | Suspected Area | See Page |
|---|---|---|
| All doors cannot be locked/unlocked at once | 4. DR/LCK fuse<br>5. ECU-B fuse<br>6. Power window regulator master switch assy<br>7. Door control switch (Passenger side)<br>8. Front door lock assy LH (Driver side)<br>9. Front door lock assy RH (Passenger side)<br>10. Instrument panel J/B assy (Multiplex network body ECU)<br>11. Wire harness | 05-1600 |
| Key lock-in prevention function does not work properly (Manual operation and operation interlocked with key are active) | 1. Un-lock warning switch assy<br>2. Front door courtesy lamp switch assy (Driver side)<br>3. Instrument panel J/B assy (Multiplex network body ECU)<br>4. Wire harness | 05-1611 |
| Only back door cannot be opened (Unlocked) (w/ Power back door) | 1. Back door opener switch assy<br>2. Back door lock w/ motor assy<br>3. Power back door ECU<br>4. Instrument panel J/B assy (Multiplex network body ECU)<br>5. Wire harness | 05-1615 |
| Only back door cannot be opened (Unlocked) (w/o Power back door) | 1. Back door opener switch assy<br>2. Back door lock assy<br>3. Instrument panel J/B assy (Multiplex network body ECU)<br>4. Wire harness | 05-1622 |

05BZS-01

# PROBLEM SYMPTOMS TABLE

| Symptom | Suspected Area | See Page |
|---|---|---|
| Power back door does not operate when switch* is pressed (* "Switch" indicates the satellite switch for power back door) | 1. ECU-B fuse<br>2. Power back door main switch<br>3. Satellite switch<br>4. Power back door touch sensor LH<br>5. Power back door touch sensor RH<br>6. Power back door drive unit<br>7. Back door lock assy<br>8. Power back door ECU<br>9. Instrument panel J/B assy (multiplex network body ECU)<br>10. Wire harness | 05-1765 |
| Jam protection function is activated while power back door is operating (for some reasons*)<br>(* It may be caused by ill-fitting back door, faulty touch sensor or faulty pulse sensor) | 1. Fitting condition of back door<br>2. Power back door touch sensor LH<br>3. Power back door touch sensor RH<br>4. Power back door ECU<br>5. Wire harness | 05-1780 |
| Power back door warning buzzer does not sound | 1. Power back door warning buzzer<br>2. Power back door ECU<br>3. Wire harness | 05-1787 |

052IG-05

# PROBLEM SYMPTOMS TABLE

| Problem Symptom | Suspected Area | See Page |
|---|---|---|
| Engine does not start | 1. Key | 05-1849<br>05-1850<br>05-1851<br>05-1852<br>05-1855<br>05-1856 |
| | 2. Transponder key amplifier | 05-1847<br>05-1852<br>05-1855<br>05-1856 |
| | 3. Transponder key ECU assy | 05-1844<br>05-1847<br>05-1852<br>05-1855<br>05-1856 |

0527M-55

# PROBLEM SYMPTOMS TABLE

HINT:

If a normal code is displayed during the diagnostic trouble code check although the trouble still occurs, check the electrical circuits for each symptom in the order given in the charts on the following pages and proceed to the page given for troubleshooting.

The Matrix Chart is divided into 3 chapters.

- If the instruction "Proceed to next circuit inspection shown on matrix chart" is given in the flow chart of each circuit, proceed to the circuit with the next highest number in the table to continue the check.
- If the trouble still occurs even though there are no abnormalities in any of the other circuits, check and replace the ECM.

## 1. Chapter 1: Electronic Circuit Matrix Chart

HINT:

*1: When the circuit on which mark *1 is attached is a malfunction, DTC could be output (See page 05-533 ).

| Symptom | Suspect Area | See page |
|---|---|---|
| No down-shift<br>(A particular gear, from 1st to 4th gear, is not down-shifted) | 1. Shift solenoid valve (SL1) circuit *1<br>2. Shift solenoid valve (SL2) circuit *1<br>3. Shift solenoid valve (SL3) circuit *1<br>4. Shift solenoid valve (SR) circuit *1<br>5. ECM | 05-590<br>05-615<br>05-622<br>05-610<br>01-37 |
| No down-shift (5th → 4th) | 1. Transmission control switch circuit *1<br>2. Shift solenoid valve (S4) circuit *1<br>3. ECM | 05-566<br>05-606<br>01-37 |
| No up-shift<br>(A particular gear, from 1st to 4th gear, is not up-shifted) | 1. Shift solenoid valve (SL1) circuit *1<br>2. Shift solenoid valve (SL2) circuit *1<br>3. ECM | 05-590<br>05-615<br>01-37 |
| No up-shift (4th → 5th) | 1. Transmission control switch circuit *1<br>2. Shift solenoid valve (S4) circuit *1<br>3. ECM | 05-566<br>05-606<br>01-37 |
| No lock-up | 1. Shift solenoid valve (DSL) circuit *1<br>2. Stop light switch circuit *1<br>3. Engine coolant temp. sensor circuit *1<br>4. ECM | 05-585<br>05-582<br>05-43<br>01-37 |
| No lock-up off | 1. Shift solenoid valve (DSL) circuit *1<br>2. ECM | 05-585<br>01-37 |
| Shift point too high or too low | 1. Throttle position sensor circuit *1<br>2. Shift solenoid valve (SLT) circuit *1<br>3. ECM | 05-43<br>05-626<br>01-37 |
| Up-shift to 5th from 4th while shift lever is 4 position | 1. Transmission control switch circuit *1<br>2. ECM | 05-566<br>01-37 |
| Up-shift to 5th from 4th while engine is cold | 1. Engine coolant temp. sensor circuit *1<br>2. ECM | 05-43<br>01-37 |
| Up-shift to 2nd from 1st while shift lever is L position | 1. Transmission control switch circuit *1<br>2. ECM | 05-566<br>01-37 |
| Harsh engagement (N → D) | 1. Shift solenoid valve (SL1) circuit *1<br>2. ECM | 05-590<br>01-37 |
| Harsh engagement (Lock-up) | 1. Shift solenoid valve (SL2) circuit *1<br>2. ECM | 05-615<br>01-37 |
| Harsh engagement (Any driving position) | 1. Shift solenoid valve (SLT) circuit *1<br>2. ECM | 05-626<br>01-37 |
| Poor acceleration | 1. Shift solenoid valve (SLT) circuit *1<br>2. ECM | 05-626<br>01-37 |

| | | |
|---|---|---|
| No kick-down | ECM | 01-37 |
| Engine stalls when starting off or stopping | 1. Shift solenoid valve (DSL) circuit *1<br>2. ECM | 05-585<br>01-37 |
| Malfunction in shifting | 1. Park/neutral position switch circuit *1<br>2. Transmission control switch circuit *3<br>3. ECM | 05-566<br>05-566<br>01-37 |

## 2. Chapter 2: On-Vehicle Repair (★: U151E, U151F AUTOMATIC TRANSAXLE Repair Manual Pub. No. RM1021U)

| Symptom | Suspect Area | See page |
|---|---|---|
| Vehicle does not move in any forward position and reverse positions | 1. Valve body assy<br>2. Off-vehicle repair matrix chart | 40-25<br>- |
| Vehicle does not move in R position | 1. Valve body assy<br>2. Off-vehicle repair matrix chart | 40-25<br>- |
| No up-shift (1st → 2nd) | 1. Valve body assy<br>2. Off-vehicle repair matrix chart | 40-25<br>- |
| No up-shift (2nd → 3rd) | 1. Valve body assy<br>2. Off-vehicle repair matrix chart | 40-25<br>- |
| No up-shift (3rd → 4th) | 1. Valve body assy<br>2. Off-vehicle repair matrix chart | 40-25<br>- |
| No up-shift (4th → 5th) | 1. Valve body assy<br>2. Off-vehicle repair matrix chart | 40-25<br>- |
| No down-shift (5th → 4th) | 1. Valve body assy<br>2. Off-vehicle repair matrix chart | 40-25<br>- |
| No down-shift (4th → 3rd) | 1. Valve body assy<br>2. Off-vehicle repair matrix chart | 40-25<br>- |
| No down-shift (3rd → 2nd) | 1. Valve body assy<br>2. Off-vehicle repair matrix chart | 40-25<br>- |
| No down-shift (2nd → 1st) | 1. Valve body assy<br>2. Off-vehicle repair matrix chart | 40-25<br>- |
| No lock-up or No lock-up off | 1. Valve body assy<br>2. Off-vehicle repair matrix chart | 40-25<br>- |
| Harsh engagement (N → D) | 1. Valve body assy<br>2. $C_1$ accumulator<br>3. Off-vehicle repair matrix chart | 40-25<br>★<br>- |
| Harsh engagement (Lock-up) | 1. Valve body assy<br>2. Off-vehicle repair matrix chart | 40-25<br>- |
| Harsh engagement (N → R) | 1. Valve body assy<br>2. $C_2$ accumulator<br>3. Off-vehicle repair matrix chart | 40-25<br>★<br>- |
| Harsh engagement (1st →2nd → 3rd → 4th → 5th) | Valve body assy | 40-25 |
| Harsh engagement (1st → 2nd) | 1. Valve body assy<br>2. Off-vehicle repair matrix chart | 40-25<br>- |
| Harsh engagement (2nd → 3rd) | 1. Valve body assy<br>2. $C_0$ accumulator<br>3. Off-vehicle repair matrix chart | 40-25<br>★<br>- |
| Harsh engagement (3rd → 4th) | 1. Valve body assy<br>2. Off-vehicle repair matrix chart | 40-25<br>- |
| Harsh engagement (4th → 5th) | 1. Valve body assy<br>2. $C_3$ accumulator<br>3. Off-vehicle repair matrix chart | 40-25<br>★<br>- |
| Harsh engagement (5th → 4th) | 1. Valve body assy<br>2. $B_3$ accumulator<br>3. Off-vehicle repair matrix chart | 40-25<br>★<br>- |
| Slip or shudder (Forward and reverse) | 1. Valve body assy<br>2. Oil strainer<br>3. Off-vehicle repair matrix chart | 40-25<br>40-25<br>- |

| | | |
|---|---|---|
| No engine braking (1st: L position) | 1. Valve body assy<br>2. Off-vehicle repair matrix chart | 40-25<br>- |
| No engine braking (2nd: 2 position) | 1. Valve body assy<br>2. Off-vehicle repair matrix chart | 40-25<br>- |
| No kick-down | Valve body assy | 40-25 |

## 3. Chapter 3: Off-Vehicle Repair (★: U151E, U151F AUTOMATIC TRANSAXLE Repair Manual Pub. No. RM1021U)

| Symptom | Suspect Area | See page |
|---|---|---|
| Vehicle does not move in any forward position and reverse positions | 1. U/D brake ($B_3$)<br>2. Torque converter clutch | ★<br>40-18 |
| Vehicle does not move in R position | 1. Reverse clutch ($C_2$)<br>2. 1st & reverse brake ($B_2$) | ★<br>★ |
| No up-shift (1st → 2nd) | 2nd & O/D brake ($B_1$) | ★ |
| No up-shift (2nd → 3rd) | Direct and O/D clutch ($C_0$) | ★ |
| No up-shift (3rd → 4th) | 2nd & O/D brake ($B_1$) | ★ |
| No up-shift (4th → 5th) | U/D clutch ($C_3$) | ★ |
| No lock-up or No lock-up off | Torque converter clutch | 40-18 |
| Harsh engagement (N → D) | 1. Forward clutch ($C_1$)<br>2. One-way clutch No.1 ($F_1$)<br>3. U/D one-way clutch ($F_2$) | ★<br>★<br>★ |
| Harsh engagement (N → R) | 1. Reverse clutch ($C_2$)<br>2. 1st & reverse brake ($B_2$) | ★<br>★ |
| Harsh engagement (1 → 2) | 2nd & O/D brake ($B_1$) | ★ |
| Harsh engagement (2 → 3) | Direct and O/D clutch ($C_0$) | ★ |
| Harsh engagement (3 → 4) | 2nd & O/D brake ($B_1$) | ★ |
| Harsh engagement (4 → 5th) | U/D clutch ($C_3$) | ★ |
| Harsh engagement (Lock-up) | Torque converter clutch | 40-18 |
| Slip or shudder (Forward and reverse: After warm-up) | 1. Direct and O/D clutch ($C_0$)<br>2. Forward clutch ($C_1$)<br>3. U/D clutch ($C_3$)<br>4. 2nd & O/D brake ($B_1$)<br>5. U/D brake ($B_3$)<br>6. One-way clutch No.1 ($F_1$)<br>7. U/D one-way clutch ($F_2$)<br>8. Torque converter clutch | ★<br>★<br>★<br>★<br>★<br>★<br>★<br>40-18 |
| Slip or shudder (Particular position: Just after engine starts) | Torque converter clutch | 40-18 |
| Slip or shudder (R position) | 1. Reverse clutch ($C_2$)<br>2. 1st & reverse brake ($B_2$) | ★<br>★ |
| Slip or shudder (1st) | 1. Forward clutch ($C_1$)<br>2. One-way clutch No.1 ($F_1$)<br>3. U/D one-way clutch ($F_2$) | ★<br>★ |
| Slip or shudder (2nd) | 2nd & O/D brake ($B_1$) | ★ |
| Slip or shudder (3rd) | Direct and O/D clutch ($C_0$) | ★ |
| Slip or shudder (4th) | 2nd & O/D brake ($B_1$) | ★ |
| Slip or shudder (5th) | U/D clutch ($C_3$) | ★ |
| No engine braking (1st – 4th: D position) | U/D brake ($B_3$) | ★ |
| No engine braking (1st: L position) | 1st & reverse brake ($B_2$) | ★ |
| No engine braking (2nd: 2 position) | 2nd & O/D brake ($B_1$) | ★ |
| No engine braking (3rd: 3 position) | U/D brake ($B_3$) | ★ |
| Poor acceleration (All positions) | Torque converter clutch | 40-18 |
| Poor acceleration (5th) | 1. U/D clutch ($C_3$)<br>2. U/D planetary gear unit | ★<br>★ |
| Engine stalls when starting off or stopping | Torque converter clutch | 40-18 |

05ATF-04

# PROBLEM SYMPTOMS TABLE

HINT:

Inspect the ”Fuse” and ”Relay” before confirming the suspected area in the charts below (See page 05-141 1 ).

## RSA SYSTEM

| Symptom | Suspected Areas | See page |
|---|---|---|
| RSA system cannot be powered. | 1. Power source circuit (stereo component controller assy) | 05-1411 |
| Quality of sound is poor or no sound can be heard. | 1. Power source circuit (stereo component controller assy)<br>2. Quality of sound is poor or no sound can be heard | 05-1411<br>05-1413 |

## REMOTE CONTROL

| Symptom | Suspected Areas | See page |
|---|---|---|
| A remote control system does not operate. | 1. Power source circuit (stereo component controller assy)<br>2. A remote control system does not operate<br>3. AVC-LAN circuit | 05-1411<br>05-1416<br>05-1379<br>05-1222 |

0525C-32

# PROBLEM SYMPTOMS TABLE

HINT:

Proceed with troubleshooting of each circuit in the table below.

| Symptom | Suspected Area | See Page |
|---|---|---|
| The front passenger seat condition differs from the indication by the passenger airbag ON/OFF indicator (DTC is not output). | Trouble in indicator of passenger airbag ON/OFF indicator | 05-1104 |
| When the ignition switch is in the ON position, the SRS warning light sometimes comes on after approximately 6 seconds. | SRS warning light circuit malfunction (Always lights up, when DTC is not output). | 05-1108 |
| SRS warning light always comes on even when DTC is not output. | SRS warning light circuit malfunction (Always lights up, when DTC is not output). | 05-1108 |
| With the ignition switch in the ON position, the SRS warning light does not come on. | SRS warning light circuit malfunction (Does not light up, when the ignition switch is turned to the ON position). | 05-1112 |
| Although the SRS warning light operates normal, DTC or a normal system code is not displayed. | TC Terminal Circuit | 05-1113 |
| Although terminals TC and CG are not connected, DTC or a normal system code is displayed. | TC Terminal Circuit | 05-1113 |

059FC-02

# PROBLEM SYMPTOMS TABLE

| Chart No. | Problem Symptom | See page |
|---|---|---|
| 1 | Back monitor system does not display images when the shift lever is in R position. | 05-1480 |
| 2 | Back monitor system displays images even if the shift lever is not in R position. | 05-1481 |
| 3 | Images become faint. | 05-1482 |
| 4 | Images change too slow. | 05-1483 |

05FGA-04

# PROBLEM SYMPTOMS TABLE

HINT:

- Before performing verification listed in the table below, check the fuse and relay.
- Methods used to verify the cause of the problem are listed in order of probability in the verification column.

## Display function

| Symptom | Verification | See page |
|---|---|---|
| Pressing PWR switch does not turn on system. | 1. "PRESSING POWER SWITCH DOES NOT TURN ON SYSTEM"<br>2. Power source circuit (radio and navigation assy)<br>3. Replace radio and navigation assy | 05-1310<br>05-1354<br>67-9 |
| Black screen (No image appears on navigation/audio screen). | 1. "BLACK SCREEN (NO IMAGE APPEARS ON NAVIGATION AND AUDIO SCREEN)"<br>2. Dimmer signal circuit<br>3. Power source circuit (radio and navigation assy)<br>4. Replace radio and navigation assy | 05-1311<br>05-1360<br>05-1354<br>67-9 |
| Illumination for panel switch does not come on with TAIL switch on. | 1. "ILLUMINATION FOR PANEL SWITCH DOES NOT COME ON WITH TAIL SWITCH ON"<br>2. Dimmer signal circuit<br>3. Replace radio and navigation assy | 05-1312<br>05-1360<br>67-9 |
| Display does not dim (Night Screen) with TAIL switch on. | 1. "DISPLAY DOES NOT DIM (NIGHT SCREEN) WITH TAIL SWITCH ON"<br>2. Dimmer signal circuit<br>3. Replace radio and navigation assy | 05-1313<br>05-1360<br>67-9 |
| Power does not turn off (The screen remains on). | 1. Power source circuit (radio and navigation assy)<br>2. Replace radio and navigation assy | 05-1354<br>67-9 |
| Panel switch does not function. | 1. "PANEL SWITCH DOES NOT FUNCTION"<br>2. Power source circuit (radio and navigation assy)<br>3. Steering pad switch circuit<br>4. Replace radio and navigation assy | 05-1314<br>05-1354<br>05-1366<br>67-9 |
| Touch panel switch does not function. | 1. "TOUCH PANEL SWITCH DOES NOT FUNCTION"<br>2. Power source circuit (radio and navigation assy)<br>3. Steering pad switch circuit<br>4. Replace radio and navigation assy | 05-1315<br>05-1354<br>05-1366<br>67-9 |
| Display panel does not open, tilt, or tilts improperly. | 1. "DISPLAY PANEL DOES NOT OPEN, TILT, OR TILTS IMPROPERLY"<br>2. Power source circuit (radio and navigation assy)<br>3. Replace radio and navigation assy | 05-1316<br>05-1354<br>67-9 |
| Screen is distorted. | 1. Power source circuit (radio and navigation assy)<br>2. Replace radio and navigation assy | 05-1354<br>67-9 |
| Screen flicker or color distortion. | 1. "SCREEN FLICKER OR COLOR DISTORTION"<br>2. Power source circuit (radio and navigation assy)<br>3. Replace radio and navigation assy | 05-1317<br>05-1354<br>67-9 |
| DVD image cannot be displayed on front screen. (Parking brake is on.) (*1) | 1. Display signal circuit (from multi-display controller sub-assy)<br>2. Parking brake switch circuit<br>3. Replace radio and navigation assy | 05-1397<br>05-1400<br>67-9 |

*1: w/ Rear Seat Entertainment System

## Audio function

| Symptom | Verification | See page |
|---|---|---|
| No sound can be heard from speakers (audio is mute). | 1. "NO SOUND CAN BE HEARD FROM SPEAKERS (AUDIO IS MUTE)"<br>2. Mute signal circuit (radio and navigation assy - stereo component amplifier assy)<br>3. Mute signal circuit (from stereo component controller assy) (*2)<br>4. Mute signal circuit (from multi-display controller sub-assy) (*1)<br>5. Sound signal circuit (radio and navigation assy - stereo component amplifier assy)<br>6. Speaker circuit<br>7. Power source circuit (stereo component amplifier assy)<br>8. Replace stereo component amplifier assy<br>9. Replace radio and navigation assy | 05-1319<br>05-1383<br>05-1381<br>05-1385<br>05-1393<br>05-1387<br>05-1348<br>67-23<br>67-9 |
| Radio broadcast cannot be received (poor reception). | 1. "RADIO BROADCAST CANNOT BE RECEIVED (POOR RECEPTION)"<br>2. Repair antenna assy<br>3. Replace radio and navigation assy | 05-1320<br>67-40<br>67-9 |
| CD cannot be inserted/played or CD is ejected right after insertion. | 1. "CD CANNOT BE INSERTED/PLAYED OR CD IS EJECTED RIGHT AFTER INSERTION"<br>2. Power source circuit (radio and navigation assy)<br>3. Replace radio and navigation assy | 05-1322<br>05-1354<br>67-9 |
| CD cannot be ejected. | 1. "CD CANNOT BE EJECTED"<br>2. Power source circuit (radio and navigation assy)<br>3. Replace radio and navigation assy | 05-1324<br>05-1354<br>67-9 |
| Abnormal noise occurs. | 1. "ABNORMAL NOISE OCCURS"<br>2. Mute signal circuit (radio and navigation assy - stereo component amplifier assy)<br>3. Mute signal circuit (from stereo component controller assy) (*2)<br>4. Mute signal circuit (from multi-display controller sub-assy) (*1)<br>5. Power source circuit (stereo component amplifier assy)<br>6. Power source circuit (radio and navigation assy)<br>7. Replace stereo component amplifier assy<br>8. Replace radio and navigation assy | 05-1325<br>05-1383<br>05-1381<br>05-1385<br>05-1348<br>05-1354<br>67-23<br>67-9 |
| CD sound skips. | 1. "CD SOUND SKIPS"<br>2. Replace radio and navigation assy | 05-1326<br>67-9 |
| Poor sound quality in all modes (low volume). | 1. "POOR SOUND QUALITY IN ALL MODES (LOW VOLUME)"<br>2. Mute signal circuit (radio and navigation assy - stereo component amplifier assy)<br>3. Mute signal circuit (from stereo component controller assy) (*2)<br>4. Mute signal circuit (from multi-display controller sub-assy) (*1)<br>5. Power source circuit (stereo component amplifier assy)<br>6. Power source circuit (radio and navigation assy)<br>7. Replace stereo component amplifier assy<br>8. Replace radio and navigation assy | 67-11<br>05-1383<br>05-1381<br>05-1385<br>05-1348<br>05-1354<br>67-23<br>67-9 |

*1: w/ Rear Seat Entertainment System
*2: w/ Rear Seat Audio System

## Navigation function

| Symptom | Verification | See page |
|---|---|---|
| Map disc cannot be inserted. | 1. "MAP DISC CANNOT BE INSERTED"<br>2. Power source circuit (radio and navigation assy)<br>3. Replace radio and navigation assy | 05-1329<br>05-1354<br>67-9 |
| Map disc cannot be ejected. | 1. "MAP DISC CANNOT BE EJECTED"<br>2. Power source circuit (radio and navigation assy)<br>3. Replace radio and navigation assy | 05-1330<br>05-1354<br>67-9 |
| Vehicle position mark deviates greatly. | 1. "VEHICLE POSITION MARK DEVIATES GREATLY"<br>2. Replace GPS antenna assy<br>3. Replace radio and navigation assy | 05-1331<br>67-22<br>67-9 |
| Cursor or map rotates when vehicle is stopped. | 1. "CURSOR OR MAP ROTATES WHEN VEHICLE IS STOPPED"<br>2. Replace radio and navigation assy | 05-1333<br>67-9 |
| Vehicle position mark is not updated. | 1. "VEHICLE POSITION MARK IS NOT UPDATED"<br>2. Replace map disc<br>3. Replace radio and navigation assy | 05-1334<br>-<br>67-9 |
| Current position display does not appear. | 1. "CURRENT POSITION DISPLAY DOES NOT APPEAR"<br>2. Replace map disc<br>3. Replace radio and navigation assy | 05-1335<br>-<br>67-9 |
| GPS mark is not displayed. | 1. "GPS MARK IS NOT DISPLAYED"<br>2. Replace GPS antenna assy<br>3. Replace radio and navigation assy | 05-1336<br>67-22<br>67-9 |
| Voice guidance does not function. | 1. "VOICE GUIDANCE DOES NOT FUNCTION"<br>2. Speaker circuit (navigation voice)<br>3. Replace map disc<br>4. Replace radio and navigation assy | 05-1338<br>05-1371<br>-<br>67-9 |
| Map display incomplete. | 1. "MAP DISPLAY INCOMPLETE"<br>2. Replace map disc<br>3. Replace radio and navigation assy | 05-1341<br>-<br>67-9 |
| Route cannot be calculated. | 1. "ROUTE CANNOT BE CALCULATED"<br>2. Replace map disc<br>3. Replace radio and navigation assy | 05-1342<br>-<br>67-9 |

## Steering pad switch function

| Symptom | Verification | See page |
|---|---|---|
| The system cannot be operated by the steering pad switch. | 1. Steering pad switch circuit<br>2. Replace radio and navigation assy | 05-1366<br>67-9 |
| Illumination for steering pad switch does not come on with tail switch on. | 1. Dimmer signal circuit<br>2. Replace radio and navigation assy | 05-1360<br>67-9 |

056BN-12

# PROBLEM SYMPTOMS TABLE

If a normal code is displayed during the DTC check but the problem still occurs, check the circuits for each problem symptom in the order given in the table below and proceed to the relevant troubleshooting page.

| Symptom | Suspect Area | See page |
|---|---|---|
| Main switch cannot be turned ON.<br>(Cruise indicator light in combination meter is not lit.) | 2. Cruise control switch circuit<br>3. CRUISE MAIN indicator light circuit<br>4. ECM | 05-1978<br>05-1981<br>01-37 |
| Setting of vehicle speed cannot be done.<br>(Although indicator light in combination meter is lit when the main switch is turned ON, it goes off when vehicle speed is set.) | 1. Cruise control switch circuit<br>2. ECM | 05-1978<br>01-37 |
| Setting cannot be done.<br>(Indicator light in combination meter is lit when the main switch is turned ON and it remains ON while setting.) | 1. Cruise control switch circuit<br>2. Stop lamp switch circuit<br>3. PNP switch circuit<br>4. Combination meter system<br>5. ECM | 05-1978<br>05-1974<br>05-566<br>05-1525<br>01-37 |
| While the vehicle is driving with cruise control, the set control is canceled.<br>(Indicator light and CRUISE remain ON.) | 1. Cruise control switch circuit<br>2. Vehicle speed sensor circuit<br>3. Stop lamp switch circuit<br>4. CRUISE MAIN indicator light circuit<br>5. PNP switch circuit<br>6. ECM | 05-1978<br>05-1973<br>05-1974<br>05-1981<br>05-566<br>01-37 |
| Hunting<br>(Speed is not constant.) | 1. Vehicle speed sensor circuit<br>2. ECM | 05-1973<br>01-37 |
| Setting cannot be cancelled.<br>(When Coast, Acceleration, Resume, Set speed change and Control switch are operated.) | 1. Cruise control switch circuit<br>2. ECM | 05-1978<br>01-37 |
| DTC is not output, or is output when should not be. | 1. Diagnosis circuit<br>2. ECM | 05-1982<br>01-37 |
| CRUISE MAIN indicator light does not light up. | 1. Cruise control switch circuit<br>2. CRUISE MAIN indicator light circuit<br>3. ECM<br>4. Combination Meter System | 05-1978<br>05-1981<br>01-37<br>05-1525 |

059YP-02

# PROBLEM SYMPTOMS TABLE

| Symptoms | Suspected Area | See Page |
|---|---|---|
| AUTO UP/DOWN function does not operate | 1. Power window regulator motor assy (Driver side)<br>2. Wire harness<br>3. Power window regulator master switch assy | 05-1559 |
| Remote UP/DOWN function does not operate | 1. Power window regulator motor assy (Driver side)<br>2. Power window regulator master switch assy<br>3. Wire harness | 05-1562 |
| Manual UP/DOWN function does not operate (Driver side) | 1. P/W fuse<br>2. Power window regulator master switch assy<br>3. Power window regulator motor assy (Driver side)<br>4. Wire harness | 05-1565 |
| Manual UP/DOWN function does not operate (Passenger side) | 1. Power window regulator switch assy (Passenger side)<br>2. Power window regulator motor assy (Passenger side)<br>3. Wire harness | 05-1568 |
| Manual UP/DOWN function does not operate (Rear LH) | 1. Power window regulator switch assy rear (Rear LH)<br>2. Power window regulator motor assy LH (Rear LH)<br>3. Wire harness | 05-1571 |
| Manual UP/DOWN function does not operate (Rear RH) | 1. Power window regulator switch assy rear (Rear RH)<br>2. Power window regulator motor assy RH (Rear RH)<br>3. Wire harness | 05-1574 |
| Power windows do not operate at all | 1. PWR fuse<br>2. ECU-IG fuse<br>3. P/W relay<br>4. IG1 relay<br>5. Power window regulator master switch assy<br>6. Wire harness<br>7. Instrument panel J/B assy (Multiplex network body ECU) | 05-1577 |
| Power window can be operated after ignition switch is turned OFF even if operative conditions are not fulfilled | 1. Front door courtesy lamp switch<br>2. Wire harness<br>3. Multiplex network body ECU | 05-1581 |
| Power window can be operated by wireless operation | 1. Multiplex network body ECU | 05-1584 |
| AUTO UP operation does not fully close power window (Jam protection function is activated) | 1. Front door glass run LH<br>2. Front door window glass LH<br>3. Front door window regulator sub-assy LH | 05-1585 |

05C0A-02

# PROBLEM SYMPTOMS TABLE

| Symptom | Suspected Area | See Page |
|---|---|---|
| Slide door closer LH does not operate | 1. ECU-B fuse<br>2. Power slide door lock assy LH<br>3. Power slide door ECU LH<br>4. Wire harness | 05-1635 |
| Slide door closer RH does not operate | 1. ECU-B fuse<br>2. Power slide door lock assy RH<br>3. Power slide door ECU RH<br>4. Wire harness | 05-1641 |

05BUX-01

# PROBLEM SYMPTOMS TABLE

| Symptom | Suspect Area | See page |
|---|---|---|
| Entirely inoperative (Self check does not function). | 1. Power source of clearance warning ECU circuit<br>2. Clearance Warning ECU Assy | 05-1510<br>- |
| Only back sonar does not function (Self check function normally). | 1. Back sonar sensor LH circuit<br>2. Back sonar sensor RH circuit<br>3. Clearance Warning ECU Assy | 05-1498<br>05-1500<br>- |
| Only clearance sonar does not function (Self check function normally). | 1. Clearance sonar Front LH circuit<br>2. Clearance sonar Front RH circuit<br>3. Clearance sonar rear LH circuit<br>4. Clearance sonar rear RH circuit<br>5. Clearance Warning ECU Assy | 05-1502<br>05-1504<br>05-1506<br>05-1508<br>- |
| Although detection can be done, no buzzer sounds sometimes (Back sonar, Rear clearance sonar). | 1. Rear buzzer circuit<br>2. Clearance Warning ECU Assy | 05-1513<br>- |
| Although detection can be done, no buzzer sounds sometimes (Front clearance sonar). | 1. Front buzzer circuit<br>2. Clearance Warning ECU Assy | 05-1516<br>- |
| Although detection can be done, the indicator does not light sometimes. | 1. Indicator circuit<br>2. Clearance Warning ECU Assy | 05-1518<br>- |
| ”Disconnected” or ”Frozen” is displayed in the self check function. | 1. Back sonar sensor LH circuit<br>2. Back sonar sensor RH circuit<br>3. Clearance sonar Front LH circuit<br>4. Clearance sonar Front RH circuit<br>5. Clearance sonar rear LH circuit<br>6. Clearance sonar rear RH circuit<br>7. Clearance Warning ECU Assy<br>8. Sensor is wetted or frozen | 05-1498<br>05-1500<br>05-1502<br>05-1504<br>05-1506<br>05-1508<br>-<br>- |
| The system operates with the shift lever not in R position, or does not operate with the shift lever in R position (Back sonar and rear clearance sonar). | 1. Park/Neutral Position switch signal circuit<br>2. Clearance Warning ECU Assy | 05-1521<br>- |
| The system operates with the shift lever in P position, or does not operate with the shift lever not in P position (Front clearance sonar). | 1. Park/Neutral Position switch signal circuit<br>2. Clearance Warning ECU Assy | 05-1521<br>- |
| Detection can be done although the vehicle speed is 10km/h (6 mph) or more. | 1. Speed signal circuit<br>2. Clearance Warning ECU Assy | 05-1523<br>- |
| Buzzer volume is too low. | 1. Adjust buzzer volume | 05-1487 |

05BX8-01

# PROBLEM SYMPTOMS TABLE

If a normal code is displayed during the DTC check but the problem still occurs, check the circuits for each problem symptom in the order given in the table below and proceed to the relevant troubleshooting page.

**NOTICE:**

**When replacing the skid control ECU, sensor or etc., turn the ignition switch OFF.**

| Symptom | Suspect Area | See page |
|---|---|---|
| ABS does not operate<br>BA does not operate<br>EBD does not operate | If the symptoms still occur even after the following circuits in suspect areas are inspected and proved to be normal, replace the skid control ECU.<br>1. Check the DTC again and make sure that the normal code is output.<br>2. IG power source circuit and ground circuit<br>3. Speed sensor circuit<br>4. Check the ABS & Traction actuator with a hand-held tester.<br>If abnormal, check the hydraulic circuit for leakage. | <br><br><br><br>05-435<br><br>05-491<br>05-455<br>05-460<br>32-45 |
| ABS does not operate efficiently<br>BA does not operate efficiently<br>EBD does not operate efficiently | If the symptoms still occur even after the following circuits in suspect areas are inspected and proved to be normal, replace the skid control ECU.<br>1. Check the DTC again and make sure that the normal code is output.<br>2. IG power source circuit and ground circuit<br>3. Speed sensor circuit<br>4. Stop light switch circuit<br>5. Check the ABS & Traction actuator with a hand-held tester.<br>If abnormal, check the hydraulic circuit for leakage. | <br><br><br><br>05-435<br><br>05-491<br>05-455<br>05-460<br>05-496<br>32-45 |
| ABS warning light abnormal | 1. ABS warning light circuit<br>2. Skid control ECU | 05-509 |
| DTC of ABS check cannot be done | If the symptoms still occur even after the following circuits in suspect areas are inspected and proved to be normal, replace the skid control ECU.<br>1. Check the DTC again and make sure that the normal code is output.<br>2. Tc terminal circuit | <br><br><br>05-435<br><br>05-524 |
| Sensor signal check cannot be done | 1. Ts terminal circuit<br>2. Skid control ECU | 05-526 |
| VSC does not operate<br>TRAC does not operate | If the symptoms still occur even after the following circuits in suspect areas are inspected and proved to be normal, replace the skid control ECU.<br>1. Check the DTC again and make sure that the normal code is output.<br>2. IG power source circuit<br>3. Check the hydraulic circuit for leakage.<br>4. Speed sensor circuit<br>5. Deceleration sensor circuit<br>6. Yaw rate sensor circuit<br>7. Steering sensor circuit | <br><br><br><br>05-435<br><br>05-491<br>-<br>05-455<br>05-460<br>05-488<br>05-488<br>05-485 |
| SLIP indicator light abnormal | 1. SLIP indicator light circuit<br>2. Skid control ECU | 05-520 |

| | | |
|---|---|---|
| TRAC OFF indicator abnormal | If the symptoms still occur even after the following circuits in suspect areas are inspected and proved to be normal, replace the skid control ECU.<br>1. Check the DTC again and make sure that the normal code is output.<br>2. TRAC OFF switch circuit | 05-435<br>05-516 |
| DTC of VSC check cannot be done | If the symptoms still occur even after the following circuits in suspect areas are inspected and proved to be normal, replace the skid control ECU.<br>1. Check the DTC again and make sure that the normal code is output.<br>2. Tc terminal circuit | 05-435<br>05-524 |
| VSC warning light abnormal | If the symptoms still occur even after the following circuits in suspect areas are inspected and proved to be normal, replace the skid control ECU.<br>1. Check the DTC again and make sure that the normal code is output.<br>2. VSC warning circuit | 05-435<br>05-505 |

056EB-04

# PROBLEM SYMPTOMS TABLE

| Chart No. | Symptom | See page |
|---|---|---|
| 1 | Malfunction in speedometer | 05-1539 |
| 2 | Malfunction in tachometer | 05-1541 |
| 3 | Malfunction in water temperature receiver gauge | 05-1543 |
| 4 | Malfunction in fuel receiver gauge | 05-1545 |
| 5 | Entire combination meter does not operate | 05-1547 |
| 6 | Seat belt warning lamp for driver's seat does not operate | 05-1549 |
| 7 | Operating light control rheostat does not change light brightness | 05-1551 |

05ATS-06

# PROBLEM SYMPTOMS TABLE

HINT:

Inspect the "Fuse" and "Relay" before confirming the suspected area in the charts below (See page 05-1440 ).

## TELEVISION DISPLAY ASSY:

| Symptom | Suspected Area | See page |
|---|---|---|
| Black screen. | 4. Power source circuit (multi-display controller sub-assy)<br>5. Power source circuit (television display assy)<br>6. AVC-LAN circuit | 05-1440<br>05-1442<br>05-1444 |
| Display screen not stabilized (Synchronous error). | 1. Power source circuit (multi-display controller sub-assy)<br>2. Power source circuit (television display assy)<br>3. Display screen not stabilized (Synchronous error) | 05-1440<br>05-1442<br>05-1446 |
| Color on display screen is unusual (RGB signal error). | - | 05-1450 |

## DISC PLAYER CONTROLLER (Built in "TELEVISION DISPLAY ASSY"):

| Symptom | Suspected Area | See page |
|---|---|---|
| Only DVD screen is not displayed or not stabilized. | 1. Power source circuit (multi-display controller sub-assy)<br>2. Power source circuit (television display assy)<br>3. DVD screen is not displayed | 05-1440<br>05-1442<br>05-1452 |
| Only DVD is not heard or the sound quality is poor. | 1. Power source circuit (multi-display controller sub-assy)<br>2. Power source circuit (television display assy)<br>3. DVD is not heard or the sound quality is poor. | 05-1440<br>05-1442<br>05-1454 |

## VIDEO (VIDEO ADAPTER) TERMINAL:

| Symptom | Suspected Area | See page |
|---|---|---|
| Only display screen input from the external device not displayed or not stabilized. | 1. Power source circuit (multi-display controller sub-assy)<br>2. Power source circuit (television display assy)<br>3. Display screen input from the external device not stabilized | 05-1440<br>05-1442<br>05-1448 |
| Only sound quality input from the external device is poor or no sound. | 1. Power source circuit (multi-display controller sub-assy)<br>2. Power source circuit (television display assy)<br>3. Sound quality input from the external device is poor or no sound | 05-1440<br>05-1442<br>05-1467 |
| The operation to the external apparatus cannot be performed | 1. Power source circuit (multi-display controller sub-assy)<br>2. Power source circuit (television display assy)<br>3. The operation to the external device cannot be performed | 05-1440<br>05-1442<br>05-1469 |

## RSE SYSTEM:

| Symptom | Suspected Area | See page |
|---|---|---|
| Quality of sound from wireless headphone is poor or no sound can be heard. | 1. Power source circuit (multi-display controller sub-assy)<br>2. Power source circuit (television display assy)<br>3. Quality of sound from wireless headphone is poor or no sound can be heard | 05-1440<br>05-1442<br>05-1457 |
| Quality of sound from headphone connected to headphone terminal is poor or no sound can be heard. | 1. Power source circuit (multi-display controller sub-assy)<br>2. Power source circuit (television display assy)<br>3. Quality of sound from headphone connected to headphone terminal is poor or no sound can be heard | 05-1440<br>05-1442<br>05-1462 |

## REMOTE CONTROL:

| Symptom | Suspected Area | See page |
|---|---|---|
| A remote control system does not operate. | 1. Power source circuit (multi-display controller sub-assy)<br>2. Power source circuit (television display assy)<br>3. A remote control system does not operate<br>4. AVC-LAN circuit | 05-1440<br>05-1442<br>05-1471<br>05-1444 |

05BVM-01

# PROBLEM SYMPTOMS TABLE

HINT:

Proceed to troubleshooting of each circuit in the table below.

## 1. HEADLAMP AND TAIL LAMP SYSTEM

| Symptom | Suspect Area | See page |
|---|---|---|
| Only one headlamp comes on. | 1. Bulb<br>2. H-LP LL, H-LP RL fuse<br>3. Light control ECU (w/ HID)<br>4. Harness or connector | -<br>-<br>-<br>- |
| Headlamp does not come on. | 1. H-LP LL, H-LP RL fuse<br>2. Headlight relay circuit<br>3. Light control switch circuit<br>4. Ignition switch circuit<br>5. Door lock position circuit<br>6. Door courtesy switch circuit<br>7. Wireless door lock system<br>8. Instrument panel junction block assy | -<br>05-1139<br>05-1142<br>05-1160<br>05-1172<br>05-1166<br>05-1790<br>- |
| ”HI-Beam” does not come on (All). | 1. Bulb<br>2. H-LP LH, H-LP RH fuse<br>3. DRL fuse<br>4. DRL relay circuit<br>5. Light control switch circuit<br>6. Instrument panel junction block assy | -<br>-<br>-<br>05-1146<br>05-1142<br>- |
| ”HI-Beam” does not come on (One side). | 1. Bulb<br>2. Harness or connector | -<br>- |
| ”Flash” does not come on.<br>(Headlamp and Hi-Beam is normal) | 1. Light control switch circuit<br>2. Instrument panel junction block assy | 05-1142<br>- |
| Headlamp is dark. | 1. Bulb<br>2. Harness or connector | -<br>- |
| Tail lamp does not come on (All). | 1. TAIL fuse<br>2. Light control switch circuit<br>3. TAIL relay circuit<br>4. Ignition switch circuit<br>5. Door courtesy switch circuit<br>6. Door lock position circuit<br>7. Wireless door lock system<br>8. Instrument panel junction block assy | -<br>05-1142<br>05-1150<br>05-1160<br>05-1166<br>05-1172<br>05-1790<br>- |
| Only one tail lamp comes on. | 1. Bulb<br>2. Harness or connector | -<br>- |
| Rear combination light does not come on. | 1. Bulb<br>2. Harness or connector | -<br>- |
| Daytime running light system does not operate. | 1. Light control switch circuit<br>2. Generator signal circuit<br>3. Parking brake switch circuit<br>4. Ignition switch circuit<br>5. DRL relay circuit<br>6. Instrument panel junction block assy | 05-1142<br>05-1155<br>05-1157<br>05-1160<br>05-1146<br>- |

## 2. AUTOMATIC LIGHT CONTROL SYSTEM

| Symptom | Suspect Area | See page |
|---|---|---|
| Automatic light control system does not operate. | 1. Light control switch circuit<br>2. Ignition switch circuit<br>3. Automatic light control sensor circuit<br>4. Instrument panel junction block assy | 05-1142<br>05-1160<br>05-1137<br>- |

## 3. LIGHT AUTO TURN OFF SYSTEM

| Symptom | Suspect Area | See page |
|---|---|---|
| Light auto turn off system does not operate. | 1. Light control switch circuit<br>2. Ignition switch circuit<br>3. Door lock position circuit<br>4. Door courtesy switch circuit<br>5. Wireless door lock system<br>6. Instrument panel junction block assy | 05-1142<br>05-1160<br>05-1172<br>05-1166<br>05-1790<br>- |

## 4. FOG LAMP SYSTEM

| Symptom | Suspect Area | See page |
|---|---|---|
| Front fog lamp does not come on with light control switch in HEAD position. | 1. FOG fuse<br>2. FOG relay<br>3. Light control switch circuit<br>4. Front fog light circuit<br>5. Instrument panel junction block assy | -<br>-<br>05-1142<br>05-1176<br>- |
| Only one front fog lamp does not come on. | 1. Bulb<br>2. Harness or connector | -<br>- |

## 5. TURN SIGNAL AND HAZARD WARNING SYSTEM

| Symptom | Suspect Area | See page |
|---|---|---|
| ”Hazard” and ”Turn” do not come on. | 1. HAZ fuse<br>2. GAUGE fuse<br>3. IG1 relay<br>4. Ignition switch<br>5. Turn signal flasher relay<br>6. Harness or connector | -<br>-<br>-<br>-<br>65-2<br>- |
| Hazard warning light does not come on.<br>(Turn is normal) | 1. Hazard warning switch<br>2. Harness or connector | 65-4<br>- |
| Turn signal does not come on.<br>(Hazard is normal) | 1. Headlamp dimmer switch (turn signal switch)<br>2. Harness or connector | 65-4<br>- |
| Turn signal does not come on in one direction. | 1. Headlamp dimmer switch (turn signal switch)<br>2. Harness or connector | 65-4<br>- |
| Only one bulb does not come on. | 1. Bulb<br>2. Harness or connector | -<br>- |

## 6. ILLUMINATED ENTRY SYSTEM

| Symptom | Suspect Area | See page |
|---|---|---|
| Illumination lamp of Multiplex body ECU control does not come on. | 1. Ignition switch circuit<br>2. Door lock position circuit<br>3. Door courtesy switch circuit<br>4. Illumination circuit<br>5. Instrument panel junction block assy | 05-1160<br>05-1172<br>05-1166<br>05-1181<br>- |
| Illumination lamp of Multiplex body ECU control does not go off. | 1. Ignition switch circuit<br>2. Door lock position circuit<br>3. Door courtesy switch circuit<br>4. Illumination circuit<br>5. Instrument panel junction block assy | 05-1160<br>05-1172<br>05-1166<br>05-1181<br>- |

## 7. OTHERS

| Symptom | Suspect Area | See page |
|---|---|---|
| Vanity light does not operate. | 1. Bulb<br>2. Harness or connector | -<br>- |
| Instrument panel illumination does not operate (All). | 1. TAIL relay<br>2. PANEL fuse<br>3. Harness or connector | -<br>-<br>- |
| Stop light does not operate (All). | 1. STOP fuse<br>2. Stop light switch<br>3. BRK relay (w/ Dynamic loser cruise control system)<br>4. Harness or connector | -<br>-<br>-<br>- |
| Back up lamp does not come on (All). | 1. GAUGE fuse<br>2. IG1 relay<br>3. Park/neutral position switch<br>4. Harness or connector | -<br>-<br>-<br>- |

05C04-01

# PROBLEM SYMPTOMS TABLE

| Symptom | Suspected Area | See Page |
|---|---|---|
| Back door closer does not operate | 1. Back door lock assy<br>2. Power back door ECU<br>3. Wire harness | 05-1745 |

05BZ9-01

# PROBLEM SYMPTOMS TABLE

| Symptom | Suspected Area | See Page |
|---|---|---|
| Power slide door LH does not operate when switch* is pressed<br>(* "switch" indicates satellite switch for power slide door LH and power slide door control switch LH) | 1. ECU-B fuse<br>2. Power slide door main switch<br>3. Satellite switch<br>4. Power slide door control switch LH<br>5. Power slide door touch sensor LH<br>6. Fuel lid courtesy switch<br>7. Power slide door motor and clutch LH<br>8. Power slide door lock assy LH<br>9. Slide door release actuator assy LH<br>10. Power slide door ECU LH<br>11. Instrument panel J/B assy (Multiplex network body ECU)<br>12. Wire harness | 05-1669 |
| Power slide door RH does not operate when switch* is pressed<br>(* "switch" indicates satellite switch for power slide door RH and power slide door control switch RH) | 1. ECU-B fuse<br>2. Power slide door main switch<br>3. Satellite switch<br>4. Power slide door control switch RH<br>5. Power slide door touch sensor RH<br>6. Power slide door motor and clutch RH<br>7. Power slide door lock assy RH<br>8. Slide door release actuator assy RH<br>9. Power slide door ECU RH<br>10. Instrument panel J/B assy (Multiplex network body ECU)<br>11. Wire harness | 05-1688 |
| Power slide door LH does not operate when using inside/outside handle (normally operates when using switch*)<br>(*"switch" indicates satellite switch for power slide door LH and power slide door control switch LH) | 1. Power slide door lock assy LH<br>2. Handle operation detect switch LH<br>3. Child protection detect switch LH<br>4. Fuel lid switch<br>5. Power slide door ECU LH<br>6. Wire harness | 05-1704 |
| Power slide door RH does not operate when using inside/outside handle (normally operates when using switch*)<br>(* "switch" indicates satellite switch for power slide door RH and power slide door control switch RH) | 1. Power slide door lock assy RH<br>2. Handle operation detect switch RH<br>3. Child protection detect switch RH<br>4. Power slide door ECU RH<br>5. Wire harness | 05-1709 |
| Jam protection function is activated while power slide door LH is operating. (for some reasons*)<br>(* It may be caused by ill-fitting slide door, faulty touch sensor or faulty pulse sensor) | 1. Fitting condition of slide door<br>2. Power slide door touch sensor LH<br>3. Power slide door motor and clutch LH<br>4. Power slide door ECU LH<br>5. Wire harness | 05-1714 |
| Jam protection function is activated while power slide door RH is operating. (for some reasons*)<br>(* It may be caused by ill-fitting slide door, faulty touch sensor or faulty pulse sensor) | 1. Fitting condition of slide door<br>2. Power slide door touch sensor RH<br>3. Power slide door motor and clutch RH<br>4. Power slide door ECU RH<br>5. Wire harness | 05-1719 |
| Power slide door does not fully open (stops operation at approx. 105 mm from fully open position) | 1. Slide door half stop control<br>2. Power window regulator<br>3. Slide door half-open stopper cable | 05-1724 |
| Power slide door warning buzzer LH does not sound | 1. Power slide door warning buzzer LH<br>2. Power slide door ECU LH<br>3. Wire harness | 05-1726 |
| Power slide door warning buzzer RH does not sound | 1. Power slide door warning buzzer RH<br>2. Power slide door ECU RH<br>3. Wire harness | 05-1729 |

055LM-05

# PROBLEM SYMPTOMS TABLE

## RADIO RECEIVER ASSY

| Symptom | Suspect Area | See page |
|---|---|---|
| Pressing power switch does not start system. | 5. Power source circuit (radio receiver assy) | 05-1214 |
| Sound quality is bad in all modes. (volume is too low) | 1. Power source circuit (radio receiver assy)<br>2. Power source circuit (stereo component amplifier assy)<br>3. Sound quality is bad in all modes (volume is too low) | 05-1214<br>05-1218<br>05-1228 |
| Sound quality is bad. (DVD sound) | 1. Power source circuit (radio receiver assy)<br>2. Power source circuit (multi-display controller sub-assy)<br>3. Sound quality is bad (DVD sound) | 05-1214<br>05-1220<br>05-1238 |
| Noise occurs. | - | 05-1240 |
| Radio broadcast cannot be received. (bad reception) | - | 05-1241 |
| CD cannot be inserted or is ejected right after insertion. | 1. Power source circuit (radio receiver assy)<br>2. CD cannot be inserted or is ejected right after insertion | 05-1214<br>05-1243 |
| CD cannot be ejected. | 1. Power source circuit (radio receiver assy)<br>2. CD cannot be ejected | 05-1214<br>05-1245 |
| Sound quality is bad only when CD is played.(volume is too low) | - | 05-1246 |
| CD sound skips. | - | 05-1247 |
| Cassette tape cannot be inserted or played. | 1. Power source circuit (radio receiver assy)<br>2. Cassette tape cannot be inserted or played | 05-1214<br>05-1249 |
| Cassette tape cannot be ejected. | 1. Power source circuit (radio receiver assy)<br>2. Cassette tape cannot be ejected | 05-1214<br>05-1250 |
| Sound quality is bad only when playing tape. | - | 05-1251 |
| Tape is tangled due to incorrect tape speed or auto-reverse mal-function. | - | 05-1252 |

## STEERING PAD SWITCH

| Symptom | Suspect Area | See page |
|---|---|---|
| A audio system cannot be operated with steering pad switch | - | 05-1253 |

# COMBINATION METER

710E0-04

## PROBLEM SYMPTOMS TABLE

### Warning Lights:

| Symptom | Suspect Area | See page |
|---|---|---|
| Check Engine warning light does not come on. | 4. Refer to troubleshooting<br>5. Wire Harness or Connector<br>6. ECM<br>7. Combination Meter Assy | 05-5<br>-<br>-<br>- |
| Discharge warning light does not come on. | 1. Perform ACTIVE TEST with hand-held tester<br>2. Wire Harness or Connector<br>3. ECM<br>4. Combination Meter Assy | 05-1527<br>-<br>-<br>- |
| Brake warning light does not come on. | 1. Wire Harness or Connector<br>2. Skid control ECU<br>3. Combination Meter Assy | -<br>-<br>- |
| ABS warning light does not come on. | 1. Refer to troubleshooting<br>2. Wire Harness or Connector<br>3. Combination Meter Assy | 05-383<br>-<br>- |
| SRS warning light does not come on. | 1. Perform ACTIVE TEST with hand-held tester<br>2. Refer to troubleshooting<br>3. Wire Harness or Connector<br>4. Combination Meter Assy | 05-1527<br>05-431<br>-<br>- |
| Open Door warning light does not come on. | 1. Perform ACTIVE TEST with hand-held tester<br>2. Wire Harness or Connector<br>3. Door Courtesy Switch<br>4. Body ECU<br>5. Combination Meter Assy | 05-1527<br>-<br>05-1131<br>-<br>- |
| Fuel Level warning light does not come on. | 1. Perform ACTIVE TEST with hand-held tester<br>2. Wire Harness or Connector<br>3. Fuel Sender Gauge<br>4. Combination Meter Assy | 05-1527<br>-<br>-<br>- |
| Low Oil Pressure warning light does not come on. | 1. Perform ACTIVE TEST with hand-held tester<br>2. Wire Harness or Connector<br>3. Low Oil Pressure Warning Switch<br>4. Combination Meter Assy | 05-1527<br>-<br>-<br>- |
| Driver's seat belt warning light does not come on. | 1. Perform ACTIVE TEST with hand-held tester<br>2. Wire Harness or Connector<br>3. Body ECU<br>4. Front Inner Belt Assy<br>5. Combination Meter Assy | 05-1527<br>-<br>-<br>-<br>- |
| VSC warning light does not come on. | 1. Refer to troubleshooting<br>2. Wire Harness or Connector<br>3. Combination Meter Assy | 05-431<br>-<br>- |

### Indicator Lights:

| Symptom | Suspect Area | See page |
|---|---|---|
| Shift indicator light does not come on. | 1. Perform ACTIVE TEST with hand-held tester<br>2. Wire Harness or Connector<br>3. Neutral Start Switch Circuit<br>4. Combination Meter Assy | 05-1527<br>-<br>-<br>- |
| Turn indicator light does not come on. | 1. Wire Harness or Connector<br>2. Turn Signal and Hazard Warning System<br>3. Combination Meter Assy | -<br>05-1131<br>- |

| | | |
|---|---|---|
| TRC off indicator light does not come on. | 1. Perform ACTIVE TEST with hand-held tester<br>2. Refer to troubleshooting<br>3. Wire Harness or Connector<br>4. Combination Meter Assy | 05-1527<br>05-431<br>-<br>- |
| SLIP indicator light does not come on. | 1. Perform ACTIVE TEST with hand-held tester<br>2. Wire Harness or Connector<br>3. Refer to troubleshooting<br>4. Combination Meter Assy | 05-1527<br>-<br>05-431<br>- |
| CRUISE indicator light does not come on. | 1. Perform ACTIVE TEST with hand-held tester<br>2. Wire Harness or Connector<br>3. ECM<br>4. Combination Meter Assy | 05-1527<br>-<br>-<br>- |
| ”NORM” ”READY” indicator light does not come on. | 1. Perform ACTIVE TEST with hand-held tester<br>2. Refer to troubleshooting<br>3. Wire Harness or Connector<br>4. ECM<br>5. Combination Meter Assy | 05-1527<br>05-1985<br>-<br>-<br>- |
| High Beam indicator light does not come on. | 1. Wire Harness or Connector<br>2. Headlight Dimmer Switch<br>3. Combination Meter Assy | -<br>05-1131<br>- |
| Tire pressure indicator light does not come on. | 1. Refer to troubleshooting<br>2. Wire Harness or Connector<br>3. Skid Control ECU<br>4. Combination Meter Assy | 05-344<br>-<br>-<br>- |
| Washer level indicator light does not come on. | 1. Wire Harness or Connector<br>2. Combination Meter Assy<br>3. Washer Level Sensor | -<br>-<br>- |
| Key reminder buzzer does not operate. | 1. Perform ACTIVE TEST with hand-held tester<br>2. Wire Harness or Connector<br>3. Door Courtesy Switch<br>4. Key Unlock Warning Switch<br>5. Combination Meter Assy | 05-1527<br>-<br>-<br>05-1817<br>- |
| Seat belt Warning buzzer does not operate (Driver side). | 1. Perform ACTIVE TEST with hand-held tester<br>2. Wire Harness or Connector<br>3. Front Seat Inner Belt Assy<br>4. Combination Meter Assy | 05-1527<br>-<br>71-4<br>- |

## Meter Gauges:

| Symptom | Suspect Area | See page |
|---|---|---|
| Speedometer does not operate. | 1. Refer to troubleshooting | 05-1539 |
| Water temperature does not operate. | 1. Refer to troubleshooting | 05-1543 |
| Tachometer does not operate. | 1. Refer to troubleshooting | 05-1541 |
| Fuel Gauge does not operate or operates abnormally. | 1. Refer to troubleshooting | 05-1545 |

## Accessory Meter:

| Symptom | Suspect Area | See page |
|---|---|---|
| Indicated ”Distance to empty” is in excessive error (Other meters operate normally). | 1. Wire Harness or Connector<br>2. Accessory Meter<br>3. Combination Meter Assy | -<br>-<br>- |
| Indicated average fuel consumption and instantaneous fuel consumption are in excessive error (Other meters operate normally). | 1. Accessory Meter | - |
| Incomplete display (Does not indicate numbers, some digital segments are missing). | 1. Accessory Meter | - |

| | | |
|---|---|---|
| Outside temperature indicator shows ”--”. | 1. Ambient Temperature Sensor<br>2. Accessory Meter<br>3. A/C ECU<br>4. Combination Meter Assy | -<br>-<br>-<br>- |
| Indicated direction is in excessive error. | 1. Accessory Meter | - |

700S5-01

# PROBLEM SYMPTOMS TABLE

| Symptom | Suspected Area | See Page |
|---|---|---|
| All power windows do not operate | 6. PWR fuse | - |
| | 7. Power window relay (Marking: P/W) | 70-6 |
| | 8. Ignition switch | 80-2 |
| | 9. Power window regulator master switch | 70-6 |
| | 10. Power window regulator motor assy | 70-6 |
| | 11. Wire harness | - |
| Only one power window does not operate | 1. Power window regulator master switch | 70-6 |
| | 2. Power window regulator switch | 70-6 |
| | 3. Power window regulator motor assy | 70-6 |
| | 4. Wire harness | - |
| AUTO DOWN function does not operate | 1. Power window regulator master switch | 70-6 |
| | 2. Power window regulator motor assy | 70-6 |
| Window lock system does not operate | 1. Power window master switch | 70-6 |
| Windw cannot be operated after ignition switch OFF | 1. Front door courtesy lamp switch assy | 70-6 |
| | 2. Multiplex network body ECU | - |

# REAR SUSPENSION SYSTEM

270DQ-01

## PROBLEM SYMPTOMS TABLE

**Use the table below to help you find the cause of the problem. The numbers indicate the priority of the likely cause of the problem. Check each part in order. If necessary, replace these parts.**

| Symptom | Suspect Area | See page |
|---|---|---|
| Wander/pulls | 1. Tire (Worn or improperly inflated)<br>2. Wheel alignment (Incorrect)<br>3. Steering linkage (Loose or worn)<br>4. Hub bearing (Worn)<br>5. Suspension parts (Worn) | 28-1<br>26-7<br>27-4<br>-<br>30-3<br>- |
| Bottoming | 1. Vehicle (Overloaded)<br>2. Spring (Weak)<br>3. Shock absorber (Worn) | -<br>27-10<br>27-5 |
| Sways/pitches | 1. Tire (Worn or improperly inflated)<br>2. Stabilizer bar (Bent or broken)<br>3. Shock absorber (Worn) | 28-1<br>26-21<br>26-24<br>27-5 |
| Rear wheel shimmy | 1. Tire (Worn or improperly inflated)<br>2. Wheel (Out of balance)<br>3. Shock absorber (Worn)<br>4. Wheel alignment (Incorrect)<br>5. Hub bearing (Worn) | 28-1<br>28-1<br>27-5<br>26-7<br>27-4<br>30-3 |
| Abnormal tire wear | 1. Tire (Worn or improperly inflated)<br>2. Wheel alignment (Incorrect)<br>3. Shock absorber (Worn)<br>4. Suspension parts (Worn) | 28-1<br>27-4<br>27-4<br>27-5<br>- |

# PARKING BRAKE SYSTEM

330BU-01

## PROBLEM SYMPTOMS TABLE

Use the table below to help you find the cause of the problem. The numbers indicate the likelihood of the cause in the descending order. Check each part in the order shown. Replace these parts as necessary.

| Symptom | Suspect Area | See page |
|---|---|---|
| Brake drag | 1. Parking brake pedal travel (Out of adjustment) | 33-2 |
| | 2. Parking brake wire (Sticking) | 33-8<br>33-12 |
| | 3. Parking brake shoe clearance (Out of adjustment) | 33-17 |
| | 4. Parking brake shoe lining (Cracked or distorted) | 33-17 |
| | 5. Tension or return spring (Damaged) | 33-17 |

720IV-01

# PROBLEM SYMPTOMS TABLE

HINT:

Use the table below to help determine the cause of the problem symptom. The potential causes of the symptoms are listed in order of probability in the ”Suspected Area” column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

| Symptom | Suspected Area | See Page |
|---|---|---|
| Seat heaters do not operate<br>(Seat does not warmed up) | 1. S-HTR fuse | 68-1 |
| | 2. ECU-IG fuse | 68-1 |
| | 3. IG1 relay | 68-1 |
| | 4. Front seat cushion heater assy LH | 72-60 |
| | 5. Front seat cushion heater assy RH | 72-60 |
| | 6. Front seatback heater assy LH | 72-60 |
| | 7. Front seatback heater assy RH | 72-60 |
| | 8. Seat heater switch LH | 72-60 |
| | 9. Seat heater switch RH | 72-60 |
| | 10. Seat heater control | ⍰ |
| | 11. Wire harness | ⍰ |
| Temperature of seat heater cannot be adjusted | 1. Seat heater switch LH | 72-60 |
| | 2. Seat heater switch RH | 72-60 |
| | 3. Seat heater control | ⍰ |
| | 4. Wire harness | ⍰ |

7207J-03

# PROBLEM SYMPTOMS TABLE

HINT:

Use the table below, with suspected areas listed in numerical order, to determine the cause of the problem. Inspect and repair or replace parts as necessary according to the steps on the following pages.

## 1. FRONT POWER SEAT CONTROL SYSTEM

| Symptom | Suspected Area | See Page |
|---|---|---|
| Power seat does not operate. | 1. P/SEAT fuse<br>2. Front power seat switch<br>3. Wire harness or connector | -<br>72-6<br> |
| Only slide operation function does not operate. | 1. Front power seat switch<br>2. Front seat adjuster assy LH or front seat adjuster assy RH (Slide motor)<br>3. Wire harness or connector | 72-6<br>72-6<br> |
| Only front vertical operation function does not operate (Driver seat only). | 1. Front power seat switch<br>2. Front seat adjuster assy LH (Front vertical motor)<br>3. Wire harness or connector | 72-6<br>72-6<br> |
| Only lifter operation function does not operate (Driver seat only). | 1. Front power seat switch<br>2. Front seat adjuster assy LH (Lifter motor)<br>3. Wire harness or connector | 72-6<br>72-6<br> |
| Only reclining operation function does not operate. | 1. Front power seat switch<br>2. Front seat adjuster assy LH or front seat adjuster assy RH (Reclining motor)<br>3. Wire harness or connector | 72-6<br>72-6<br> |
| Only lumbar support operation function does not operate (Driver seat only). | 1. Power seat switch (Lumbar support switch)<br>2. Lumbar support adjuster motor<br>3. Wire harness or connector | 72-6<br>72-6<br> |

660C9-02

# PROBLEM SYMPTOMS TABLE

## 1. FRONT WIPER AND WASHER SYSTEM

| Symptom | Suspect Area | See page |
|---|---|---|
| Front wipers do not operate. | 1. IG1 relay<br>2. WIP fuse<br>3. Windshield wiper switch assy<br>4. Windshield wiper motor assy<br>5. Wire harness or connector | -<br>-<br>66-5<br>66-5<br>- |
| Front wipers do not operate in LO or HI. | 1. Windshield wiper switch assy<br>2. Windshield wiper motor assy<br>3. Wire harness or connector | 66-5<br>66-5<br>- |
| Front wipers do not operate in INT. | 1. Windshield wiper switch assy<br>2. Windshield wiper motor assy<br>3. Wire harness or connector | 66-5<br>66-5<br>- |
| Front washer motor does not operate. | 1. IG1 relay<br>2. WSH fuse<br>3. Windshield wiper switch assy<br>4. Front washer motor<br>5. Wire harness or connector | -<br>-<br>66-5<br>66-4<br>- |
| Front wipers do not operate when front washer switch is in the ON position. | 1. Windshield wiper switch assy<br>2. Windshield wiper motor assy<br>3. Wire harness or connector | 66-5<br>66-5<br>- |
| Front washer fluid is not injected. | 1. Washer hose and nozzle | - |
| • When the wiper switch is OFF, the wiper blade does not retract or the retract position is wrong.<br>• The wiper blade is in contact with the body. | 1. Windshield wiper motor assy (Wiper arm and blade set position)<br>2. Windshield wiper motor assy (Automatic stop position) | 66-8<br>66-5 |

## 2. REAR WIPER AND WASHER SYSTEM

| Symptom | Suspect Area | See page |
|---|---|---|
| Rear wiper does not operate. | 1. IG1 relay<br>2. RR WIP fuse<br>3. Windshield wiper switch assy<br>4. Rear wiper motor and bracket assy<br>5. Wire harness or connector | -<br>-<br>66-5<br>66-5<br>- |
| Rear wiper does not operate in ON or INT. | 1. Windshield wiper switch assy<br>2. Rear wiper motor and bracket assy<br>3. Wire harness or connector | 66-5<br>66-5<br>- |
| Rear washer motor does not operate. | 1. IG1 relay<br>2. WSH fuse<br>3. Windshield wiper switch assy<br>4. Rear washer motor<br>5. Wire harness or connector | -<br>-<br>66-5<br>66-4<br>- |
| Rear wiper does not operate when rear washer switch is in the ON position (Rear wiper switch is ON side). | 1. Windshield wiper switch assy<br>2. Rear wiper motor and bracket assy<br>3. Wire harness or connector | 66-5<br>66-5<br>- |
| Rear washer fluid is not injected. | 1. Washer hose and nozzle | - |
| • When the wiper switch is OFF, the wiper blade does not retract or the retract position is wrong.<br>• The wiper blade is in contact with the body. | 1. Rear wiper motor and bracket assy (Rear wiper blade set position).<br>2. Rear wiper motor and bracket (Automatic stop position). | 66-11<br>66-5 |

## 3. WASHER FLUID LEVEL WARNING SYSTEM

| Symptom | Suspect Area | See page |
|---|---|---|
| Washer level warning light comes on (Washer fluid level is normal). | 1. Level warning switch assy<br>2. Combination meter assy<br>3. Wire harness or connector | -<br>71-1<br>- |
| Washer level warning light does not come on (Empty the washer fluid in washer tank assy). | 1. Level warning switch assy<br>2. Combination meter assy<br>3. Wire harness or connector | -<br>71-1<br>- |

2900X-05

# PROBLEM SYMPTOMS TABLE

Use the table below to help find the cause of the problem. The numbers indicate the likelihood of the cause in the decending order. Check each part in the order shown. Replace these parts as necessary.

| Symptom | Suspect Area | See page |
|---|---|---|
| Oil leak from rear differential | 1. Oil level (Too high or wrong grade)<br>2. Rear differential front oil seal (Worn or damaged)<br>3. Side gear oil seal (Worn or damaged)<br>4. Companion flange (Loose or damaged)<br>5. Side gear shaft (Damaged) | 29-6<br>29-7<br>29-10<br>29-10<br>29-10 |
| Oil leak from drive pinion shaft | 1. Oil level (Too high or wrong grade)<br>2. Rear differential front oil seal (Worn or damaged)<br>3. Companion flange (Loose or damaged) | 29-6<br>29-7<br>29-10 |
| Oil leak from side gear shaft | 1. Oil level (Too high or wrong grade)<br>2. Side gear shaft oil seal (Worn or damaged)<br>3. Side gear shaft (Damaged) | 29-6<br>29-10<br>29-10 |

# FRONT SUSPENSION SYSTEM

2601D-15

## PROBLEM SYMPTOMS TABLE

**Use the table below to help you find the cause of the problem. The numbers indicate the priority of the likely cause of the problem. Check each part in order. If necessary, replace these parts.**

| Symptom | Suspect Area | See page |
|---|---|---|
| Bottoming | 1. Vehicle (Overloaded)<br>2. Spring (Weak)<br>3. Shock absorber (Worn) | -<br>26-11<br>26-11 |
| Sways/pitches | 1. Tire (Worn or improperly inflated)<br>2. Stabilizer bar (Bent or broken)<br>3. Shock absorber (Worn) | 28-1<br>26-21<br>26-24<br>26-11 |
| Front wheel shimmy | 1. Tire (Worn or improperly inflated)<br>2. Wheel (Out of balance)<br>3. Shock absorber (Worn)<br>4. Wheel alignment (Incorrect)<br>5. Ball joint (Worn)<br>6. Hub bearing (Worn)<br>7. Steering linkage (Loose or worn) | 28-1<br>28-1<br>26-11<br>26-7<br>26-19<br>30-3<br>- |
| Abnormal tire wear | 1. Tire (Worn or improperly inflated)<br>2. Wheel alignment (Incorrect)<br>3. Shock absorber (Worn)<br>4. Suspension parts (Worn) | 28-1<br>26-7<br>26-11<br>- |

32039-21

# PROBLEM SYMPTOMS TABLE

Use the table below to help you find the cause of the problem. The numbers indicate the priority of the likely cause of the problem. Check each part in order. If necessary, replace these parts.

| Symptom | Suspect Area | See page |
|---|---|---|
| Low pedal or spongy pedal | 3. Fluid leaks for brake system | - |
| | 4. Air in brake system | 32-4 |
| | 5. Piston seals (Worn or damaged) | 32-22<br>32-29 |
| | 6. Brake Master cylinder (Faulty) | 32-13 |
| Brake drag | 1. Brake pedal freeplay (Minimal) | 32-6 |
| | 2. Parking brake pedal travel (Out of adjustment) | 33-2 |
| | 3. Parking brake wire (Sticking) | 33-8<br>33-12 |
| | 4. Parking brake shoe clearance (Out of adjustment) | 33-17 |
| | 5. Pad (Cracked or distorted) | 32-22<br>32-37 |
| | 6. Shoe (Cracked or distorted) | 32-29 |
| | 7. Piston (Stuck or Frozen) | 32-22<br>32-29<br>32-37 |
| | 8. Tension or return spring (Faulty) | 32-29 |
| | 9. Vacuum leaks for booster system | 32-16 |
| | 10.Master cylinder (Faulty) | 32-13 |
| Brake pull | 1. Piston (Stuck or Frozen) | 32-22<br>32-29<br>32-37 |
| | 2. Pad (Oily) | 32-22<br>32-37 |
| | 3. Disc (Scored) | 32-22<br>32-37 |
| | 4. Pad (Cracked or distorted) | 32-22<br>32-37 |
| | 5. Drum (Scored) | 32-29 |
| | 6. Shoe (Cracked or distorted) | 32-29 |
| Hard pedal but brake inefficient | 1. Fluid leaks for brake system | - |
| | 2. Air in brake system | 32-4 |
| | 3. Pad (Worn) | 32-22<br>32-37 |
| | 4. Pad (Cracked or distorted) | 32-22<br>32-37 |
| | 5. Pad (Oily) | 32-22<br>32-37 |
| | 6. Pad (Glazed or Scored) | 32-22<br>32-37 |
| | 7. Vacuum leaks for booster system | 32-13 |

| | | |
|---|---|---|
| Noise from brakes | 1. Pad (Cracked or distorted) | 32-22<br>32-37 |
| | 2. Installation bolt (Loose) | 32-22<br>32-37 |
| | 3. Disc (Scored) | 32-22<br>32-37 |
| | 4. Pad support plate (Loose) | 32-22<br>32-37 |
| | 5. Sliding pin (Worn) | 32-22<br>32-37 |
| | 6. Pad (dirty or Glazed) | 32-22<br>32-37 |
| | 7. Tension or return spring (Faulty) | 32-29 |
| | 8. Anti-squeal shim (Damaged) | 32-22<br>32-37 |
| | 9. Shoe hold-down spring (Damaged) | 32-29 |

5105L-04

# PROBLEM SYMPTOMS TABLE

HINT:

Use the table below to help you find the cause of the problem. The numbers indicate the likelihood of the cause in the descending order. Check each part in the order shown. Replace parts if necessary.

| Symptom | Suspect Area | See page |
|---|---|---|
| Hard steering | 1. Tires (Improperly inflated) | 28-1 |
| | 2. Power steering fluid level (Low) | 51-3 |
| | 3. Drive belt (Loose) | 14-5 |
| | 4. Front wheel alignment (Incorrect) | 26-7 |
| | 5. Steering system joints (Worn) | - |
| | 6. Suspension arm ball joints (Worn) | 26-19 |
| | 7. Steering column (Binding) | - |
| | 8. Power steering vane pump | 51-8 |
| | 9. Power steering gear | 51-19 |
| Poor return | 1. Tires (Improperly inflated) | 28-1 |
| | 2. Front wheel alignment (Incorrect) | 26-7 |
| | 3. Steering column (Binding) | - |
| | 4. Power steering gear | 51-19 |
| Excessive play | 1. Steering system joints (Worn) | - |
| | 2. Suspension arm ball joints (Worn) | 26-19 |
| | 3. Intermediate shaft, Sliding yoke (Worn) | - |
| | 4. Front wheel bearing (Worn) | 26-7 |
| | 5. Power steering gear | 51-19 |
| Abnormal noise | 1. Power steering fluid level (Low) | 51-3 |
| | 2. Steering system joints (Worn) | - |
| | 3. Power steering vane pump | 51-8 |
| | 4. Power steering gear | 51-19 |

610AV-02

# PROBLEM SYMPTOMS TABLE

| Symptom | Suspected Area | See Page |
|---|---|---|
| Driver side seat belt warning lamp does not light up | 1. Fuse<br>2. Combination meter<br>3. Airbag sensor assy center<br>4. Front seat inner belt assy LH<br>5. Wire harness | <br>71-20<br>60-56<br>61-3<br> |
| Passenger side seat belt warning lamp does not light up | 1. Fuse<br>2. Passenger side seat belt warning lamp assy<br>3. Front seat inner belt assy RH<br>4. Wire harness | <br>61-3<br>61-3<br> |

3001U-16

# PROBLEM SYMPTOMS TABLE

**Use the table below to help you find the cause of the problem. The numbers indicate the priority of the likely cause of the problem. Check each part in order. If necessary, replace these parts.**

| Symptom | Suspect Area | See page |
|---|---|---|
| Wander | 4. Wheel | 28-1 |
| | 5. Front wheel alignment | 26-7 |
| | 6. Rear wheel alignment | 27-4 |
| | 7. Hub bearing (Worn) | 30-39 |
| | 8. Front shock absorber | 26-11 |
| | 9. Rear shock absorber | 27-5 |
| Front wheel shimmy | 1. Wheel (imbalance) | 28-1 |
| | 2. Hub bearing (Worn) | 30-39 |
| | 3. Lower suspension arm | 26-17 |
| | 4. Lower ball joint (Worn) | 26-19 |
| | 5. Front shock absorber | 26-11 |
| Noise (Front) | 1. Front drive shaft | 30-18 |
| | 2. Front shock absorber | 26-11 |
| | 3. Hub bearing (Worn) | 30-39 |
| | 4. Lower ball joint (Worn) | 26-19 |
| Noise (Rear) | 1. Rear drive shaft | 30-32 |
| | 2. Hub & bearing (Worn) FF: | 30-46 |
| | 4WD: | 30-49 |
| | 3. Rear shock absorber | 27-5 |
| Vibration or noise (Propeller w/center bearing shaft) | 1. Center support bearing | 30-6 |
| | 2. Propeller and intermediate shafts (Runout) | 30-6 |

3100P-02

# PROBLEM SYMPTOMS TABLE

| Symptom | Suspect Area | See page |
|---|---|---|
| Noise | 1. Oil (Level low) | 31-4 |
| | 2. Backlash adjustment | 31-9 |
| | 3. Preload adjustment | 31-9 |
| | 4. Tooth contact adjustment | 31-9 |
| | 5. Transfer driven pinion bearing (Worn) | 31-9 |
| | 6. Ring gear mounting case bearing (Worn) | 31-9 |
| Oil leakage | 1. Oil (Level high) | 31-4 |
| | 2. Oil seal (Worn or damaged) Right bearing retainer | 31-5 |
| | 3. Oil seal (Worn or damaged) Transfer case | 31-7 |
| | 4. Oil seal (Worn or damaged) Extension housing | 31-8 |
| | 5. Gasket (Damaged) | 31-9 |
| | 6. Seal (Damaged) | 31-9 |

2803K-01

# REPAIR

## 1. INTRODUCTION

(a) This section introduces the procedures to determine whether the run-flat tire is repairable or not. Repair must be performed by following the appropriate procedures.

If a flat tire occurs, it is possible to drive a maximum of 160 km (100 mile) at a speed below 90 km/h (55 mph) due to the reinforced sidewalls. However, if the customer continues to drive with low inflation pressure (less than about 150 kPa (1.5 kgf/cm$^2$, 22 psi) and Tire Pressure Warning Lamp On, the inside of the sidewall will gradually deteriorate and the run-flat performance may be reduced. Therefore, the tire(s) may require replacement.

However, there are some cases where it is possible to repair a run-flat tire using the same repair method as for normal tires. Please use the following flowchart to determine if a run-flat tire is repairable.

**NOTICE:**

- **Follow the repair procedures of RMA (Rubber Manufacturers Association) if a repair is performed.**
- **The inflation pressure detected by this system during initialization and detection, may vary depending on the respective driving conditions, surroundings and tires.**
- **The above is the standard value when driving on a paved road in dry condition.**

## 2. REPAIR PROCEDURE (CUSTOMER INTERVIEW)

(a) The tire pressure warning system can help determine the history of the tire's use. The driving conditions the tire was subjected to while the tire pressure warning lamp was illuminated, should be obtained from the customer. The following questions may be pertinent in gathering the required information.

(1) Was the vehicle driven at a speed over 90 km/h (55 mph) with the tire pressure warning lamp On (yes or no)?

(2) Was the vehicle driven over 160 km (100 mile) with the tire pressure warning lamp On (yes or no)?

A "Yes" response to either of the above will greatly reduce the chance of tire repairability.

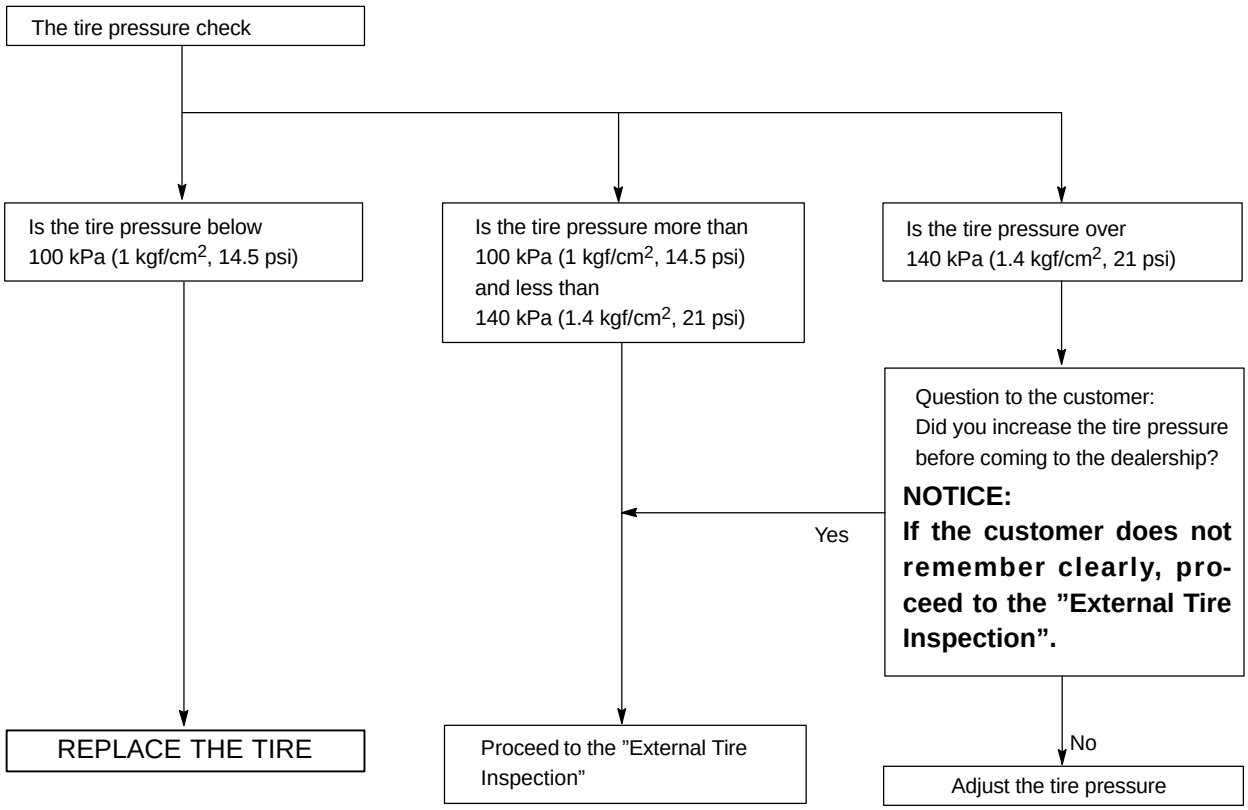
## 3. TECHNICIAN TIRE INSPECTION

(a) After the customer interview, it will be necessary to conduct a thorough inspection of the tire removed from the wheel. It is difficult to identify a tire with low pressure visually; therefore, check the pressure of each tire on the vehicle to determine the tire(s) causing the low-pressure warning. If the tire is found to be repairable, follow the repair procedures of RMA (Rubber Manufacturers Association).

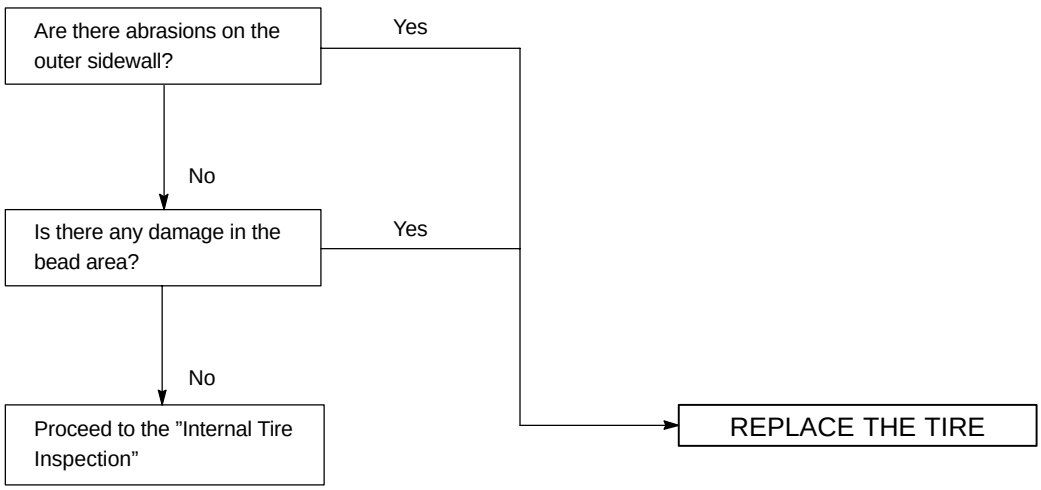
**CAUTION:**

**The deflated tire may be extremely hot and causing injury, so allow the tire to cool prior to handling.**

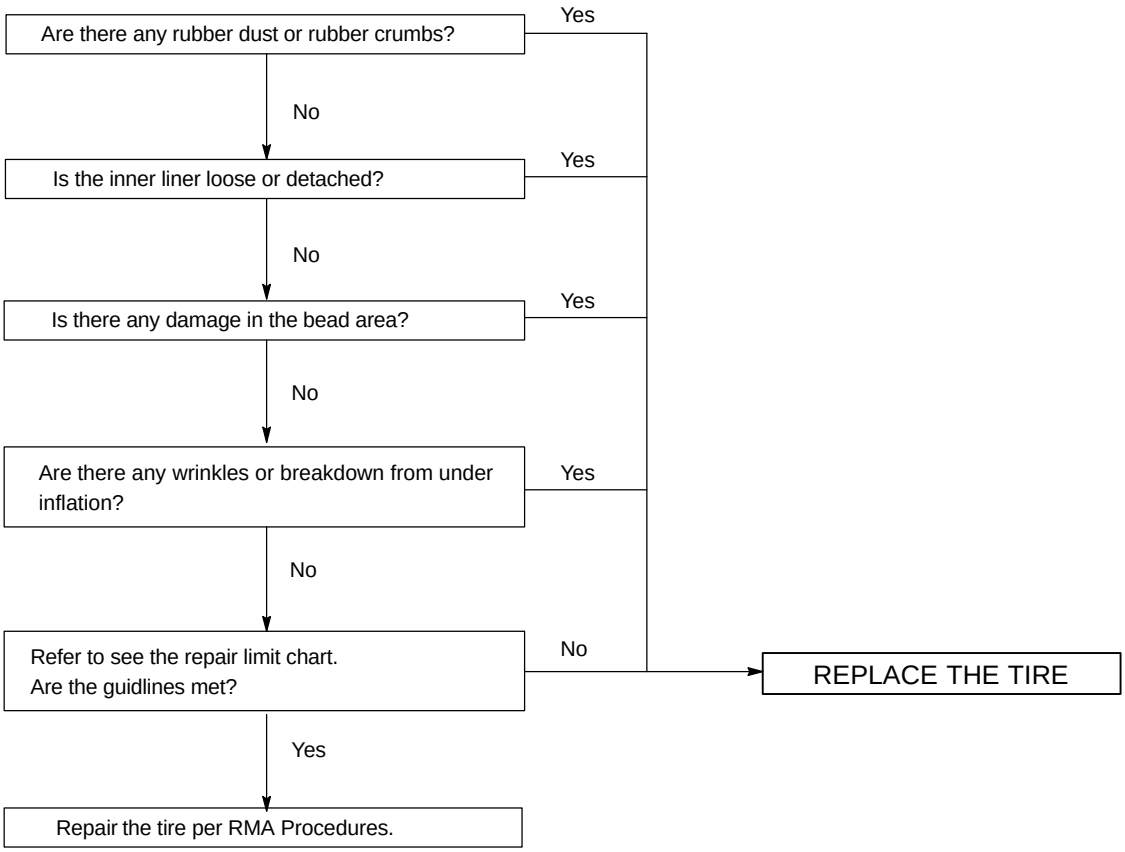
## 4. TIRE PRESSURE INSPECTION




## 5. EXTERNAL TIRE INSPECTION



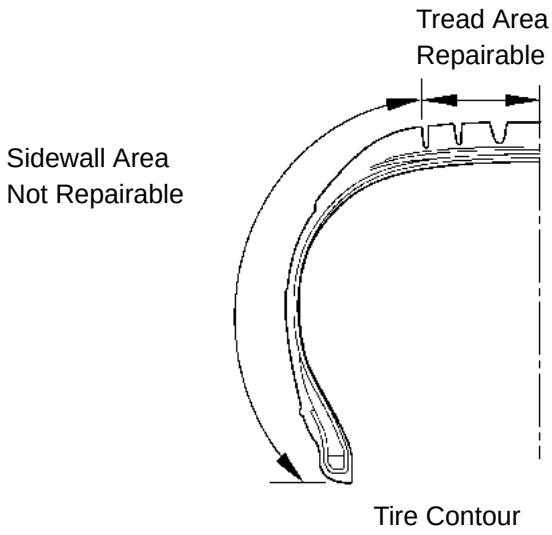
## 6. INTERNAL TIRE INSPECTION




RFT Repair Limit Chart

Tires that suffer a penetration in the tread area and meet the above inspection criteria may be repaired if the guidlines listed below are also met.

| Puncture Condition - Tread Area Only | | |
|---|---|---|
| **Maximum** Diameter | **Maximum** Number | **Maximum** Distance Between Holes |
| 6.4 mm (0.25 in.) | 2 | 406 mm (16 in.) |




G27609

700S4-01

# RESET

**NOTICE:**

- **Resetting the driver's power window motor (initializing the pulse sensor) is necessary when the battery terminal is disconnected; when the master switch, wire harness, power window regulator and power window motor are replaced or removed/installed; or when the fuses are replaced. AUTO operation function, jam protection function and remote operation function via the power window master switch do not operate without resetting.**
- **If the AUTO switch (driver side switch) of the master switch has been continuously operated for a long time, the power window motor will stop so that no additional load can be applied to the motor. Continuing to operate the switch even after the motor has stopped will cause the switch to blink while restricting the AUTO UP/DOWN function and the remote UP/DOWN function. If this happens, reset the motor again after several minutes have passed.**
- **Whenever disconnecting the battery terminal, reset all the other systems besides the power window control system.**

**1. RESET POWER WINDOW REGULATOR MOTOR (DRIVER SIDE)**

(a) Turn the ignition switch ON.
(b) Halfway open the power window by pressing the master switch.
(c) Fully pull up the master switch until the power window is fully closed and continue to hold the switch for approx. 1 second after the power window is fully closed.
(d) Check that the AUTO UP/DOWN function operates normally.

If operation is normal, reset operations have been completed at this time. If not normal, follow steps (e) to (g) below.

(e) Disconnect the negative battery terminal for 10 seconds.
(f) Connect the battery terminal.
(g) Perform the above steps (a) to (d) again.

If operation is normal, reset operations have been completed at this time. If not normal, follow steps (h) to (k) below.

(h) Turn the ignition switch ON.
(i) Halfway open the power window by pressing the master switch.
(j) Fully pull up the master switch until the power window is fully closed and continue to hold the switch for approx. 12 seconds after the power window is fully closed.
(k) Check that the AUTO UP/DOWN function operates normally.

# PARKING BRAKE

031CZ-01

## SERVICE DATA

| | | |
|---|---|---|
| Parking brake pedal travel at 294 N (30 kgf, 66.0 lbf): | | 3 - 5 clicks |
| Rear brake disc inside diameter | Standard inside diameter:<br>Maximum inside diameter: | 190 mm (7.48 in.)<br>191 mm (7.52 in.) |
| Parking brake shoe lining thickness | Standard thickness:<br>Minimum thickness: | 2.5 mm (0.098 in.)<br>1.0 mm (0.039 in.) |
| Parking brake shoe clearance between rear shoe and lever | | Less than 0.35 mm (0.0138 in.) |

# DRIVE SHAFT / PROPELLER SHAFT / AXLE

031ER-01

## SERVICE DATA

| | | |
|---|---|---|
| Propeller shaft runout | Max. | 0.8 mm (0.031 in.) |
| Intermediate shaft runout | Max. | 0.8 mm (0.031 in.) |
| Intermediate shaft front flange runout | Max. | 0.1 mm (0.004 in.) |
| Intermediate shaft rear flange runout (horizontal direction) | Max. | 0.1 mm (0.004 in.) |
| Intermediate shaft rear flange runout (vertical direction) | Max. | 0.1 mm (0.004 in.) |
| Front axle hub bearing | Backlash | Maximum: 0.05 mm (0.0020 in.) |
| Front axle hub bearing | Deviation | Maximum: 0.05 mm (0.0020 in.) |
| Rear axle hub bearing | Backlash | Maximum: 0.05 mm (0.0020 in.) |
| Rear axle hub bearing | Deviation | Maximum: 0.07 mm (0.0027 in.) |

# TIRE & WHEEL

## SERVICE DATA

030E6-02

| | | | |
|---|---|---|---|
| Cold tire inflation pressure | Tire size: P215/65R16 96T<br>Tire size: P225/60R17 98T | Front, Rear<br>Front, Rear | 240 kPa (2.4 kgf/cm$^2$, 35 psi) |
| Tire & Wheel | Tire runout | | 1.0 mm (0.039 in.) or less |
| | Imbalance after adjustment | | 8.0 g (0.018 lb) or less |

# DIFFERENTIAL

## SERVICE DATA

031FB-01

| | | |
|---|---|---|
| Rear differential | Carrier oil seal drive in depth | 2.0 ± 0.3 mm (0.079 ± 0.012 in.) |
| | Side gear shaft oil seal drive in depth | 0 ± 0.5mm (0 ± 0.019 in.) |
| | Companion flange vertical runout | 0.10 mm (0.0039 in.) or less |
| | Companion flange horizontal runout | 0.10 mm (0.0039 in.) or less |
| | Ring gear runout | 0.07 mm (0.0028 in.) or less |
| | Side gear backlash | 0.05 - 0.20 mm (0.0020 - 0.0079 in.) |
| | Drive pinion to ring gear backlash | 0.13 - 0.18 mm (0.0051 - 0.0071 in.) |
| | Drive pinion preload (at starting) New bearing<br>Reused bearing | 1.1 - 1.7 N·m (11 - 17 kgf·cm, 9.6 - 14.8 in.·lbf)<br>0.6 - 0.9 N·m (6 - 9 kgf·cm, 5.2 - 7.8 in.·lbf) |
| | Total preload (Drive pinion preload plus) | 0.3 - 0.5 N·m (3 - 5 kgf·cm, 2.6 - 4.3 in.·lbf) |
| | Right and left side gear shafts standard distance | 242 mm (9.528 in.) |
| | Side gear thrust washer thickness mm (in.) | 0.93 - 0.97 (0.0366 - 0.0382)<br>0.98 - 1.02 (0.0386 - 0.0402)<br>1.03 - 1.07 (0.0406 - 0.0421)<br>1.08 - 1.12 (0.0425 - 0.0441)<br>1.13 - 1.17 (0.0445 - 0.0461)<br>1.18 - 1.22 (0.0465 - 0.0480)<br>1.23 - 1.27 (0.0484 - 0.0500)<br>1.28 - 1.32 (0.0504 - 0.0520)<br>1.33 - 1.37 (0.0524 - 0.0539)<br>1.38 - 1.42 (0.0543 - 0.0559) |
| | Drive pinion plate washer thickness mm (in.) | 2.26 - 2.28 (0.0890 - 0.0898)<br>2.29 - 2.31 (0.0902 - 0.0909)<br>2.32 - 2.34 (0.0913 - 0.0921)<br>2.35 - 2.37 (0.0925 - 0.0933)<br>2.38 - 2.40 (0.0937 - 0.0945)<br>2.41 - 2.43 (0.0949 - 0.0957)<br>2.44 - 2.46 (0.0961 - 0.0969)<br>2.47 - 2.49 (0.0972 - 0.0980)<br>2.50 - 2.52 (0.0984 - 0.0992)<br>2.53 - 2.55 (0.0996 - 0.1004)<br>2.56 - 2.58 (0.1008 - 0.1016)<br>2.59 - 2.61 (0.1020 - 0.1028)<br>2.62 - 2.64 (0.1031 - 0.1039)<br>2.65 - 2.67 (0.1043 - 0.1051)<br>2.68 - 2.70 (0.1055 - 0.1063) |

| | | |
|---|---|---|
| Rear differential | Side gear shaft plate washer thickness mm (in.) | 2.21 - 2.23 (0.0870 - 0.0878)<br>2.24 - 2.26 (0.0882 - 0.0890)<br>2.27 - 2.29 (0.0894 - 0.0902)<br>2.30 - 2.32 (0.0906 - 0.0913)<br>2.33 - 2.35 (0.0917 - 0.0925)<br>2.36 - 2.38 (0.0929 - 0.0937)<br>2.39 - 2.41 (0.0941 - 0.0949)<br>2.42 - 2.44 (0.0953 - 0.0961)<br>2.45 - 2.47 (0.0965 - 0.0972)<br>2.48 - 2.50 (0.0976 - 0.0984)<br>2.51 - 2.53 (0.0988 - 0.0996)<br>2.54 - 2.56 (0.1000 - 0.1008)<br>2.57 - 2.59 (0.1012 - 0.1020)<br>2.60 - 2.62 (0.1024 - 0.1031)<br>2.63 - 2.65 (0.1035 - 0.1043)<br>2.66 - 2.68 (0.1047 - 0.1055)<br>2.69 - 2.71 (0.1059 - 0.1067)<br>2.72 - 2.74 (0.1071 - 0.1079)<br>2.75 - 2.77 (0.1083 - 0.1091)<br>2.78 - 2.80 (0.1094 - 0.1102)<br>2.81 - 2.83 (0.1106 - 0.1114)<br>2.84 - 2.86 (0.1118 - 0.1126)<br>2.87 - 2.89 (0.1130 - 0.1138)<br>2.90 - 2.92 (0.1142 - 0.1150)<br>2.93 - 2.95 (0.1154 - 0.1161)<br>2.96 - 2.98 (0.1165 - 0.1173)<br>2.99 - 3.01 (0.1177 - 0.1185)<br>3.02 - 3.04 (0.1189 - 0.1197)<br>3.05 - 3.07 (0.1201 - 0.1209)<br>3.08 - 3.10 (0.1213 - 0.1220)<br>3.11 - 3.13 (0.1224 - 0.1232)<br>3.14 - 3.16 (0.1236 - 0.1244)<br>3.17 - 3.19 (0.1248 - 0.1256)<br>3.20 - 3.22 (0.1260 - 0.1268) |

# FRONT SUSPENSION

030E9-04

## SERVICE DATA

| | | | |
|---|---|---|---|
| Front wheel alignment | Vehicle height | | |
| | FF | Front: A - B | 114 mm (4.48 in.) |
| | | Rear: D - C | -18 mm (-0.7 in.) |
| | 4WD | Front: A - B | 116 mm (4.57 in.) |
| | | Rear: D - C | -53.5 mm (-21 in.) |
| | Toe-in (total) | | 0° ± 12' (0° ± 0.2°) 0 ± 2 mm (0 ± 0.08 in.) |
| | | Rack end length difference | 1.5 mm (0.059 in.) or less |
| | Wheel angle | | |
| | FF | Inside wheel | 42°45' ± 2° (42.75° ± 2°) |
| | | Outside wheel: Reference | 36°21' (36.35°) |
| | 4WD | Inside wheel | 42°42' ± 2° (42.70° ± 2°) |
| | | Outside wheel: Reference | 36°16' (36.27°) |
| | Camber | | -0°17' ± 45' (-0.28° ± 0.75°) |
| | | Right-left error | 30' (0.5°) or less |
| | Caster | FF: | 2°48' ± 45' (2.80° ± 0.75°) |
| | | 4WD: | 2°40' ± 45' (2.67° ± 0.75°) |
| | | Right-left error | 30' (0.5°) or less |
| | Steering axis inclination | FF: | 10°25' ± 45' (10.42° ± 0.75°) |
| | | 4WD: | 10°12' ± 45' (10.02° ± 0.75°) |
| | | Right-left error | 30' (0.5°) or less |
| Front suspension | Lower ball joint turning torque | | 0.98 - 3.43 N·m (10 - 35 kgf·cm, 8.7 - 30 in.·lbf) |
| | Stabilizer bar link ball joint turning torque | | 0.05 - 1.96 N·m (0.5 - 20 kgf·cm, 0.4 - 17.4 in.·lbf) |

**A: Ground clearance of front wheel center**

**B: Ground clearance of lower suspension arm No. 2 set bolt center**

**C: Ground clearance of rear axle carrier bush set bolt center**

**D: Ground clearance of rear wheel center**

# TRANSFER

## SERVICE DATA

031DF-01

| | | |
|---|---|---|
| Driven pinion preload (For use with SST) | New bearig | 1.1 - 1.6 N·m (11 - 16 kgf·cm, 9.7 - 14.2 in.·lbf) |
| | Used bearing | 0.9 - 1.4 N·m (9 - 14 kgf·cm, 8.0 - 12.4 in.·lbf) |
| Total preload (For use with SST) | New bearing | 1.30 - 1.98 N·m (13.3 - 20.2 kgf·cm, 11.5 - 17.5 in.·lbf) |
| | Used bearing | 1.07 - 1.68 N·m (10.9 - 17.1 kgf·cm, 9.5 - 14.9 in.·lbf) |
| Ring gear | Backlash | 0.10 - 0.15 mm (0.0039 - 0.0059 in.) |
| Ring gear runout | Maximum | 0.1 mm (0.004 in.) |
| Ring gear mounting case | Maximum | 0.03 mm (0.0012 in.) |
| Washer thickness LH side | Mark | |
| | AA | 2.07 mm (0.0814 in.) |
| | AB | 2.10 mm (0.0826 in.) |
| | AC | 2.13 mm (0.0838 in.) |
| | BA | 2.16 mm (0.0850 in.) |
| | BB | 2.19 mm (0.0862 in.) |
| | BC | 2.22 mm (0.0874 in.) |
| | CA | 2.25 mm (0.0885 in.) |
| | CB | 2.28 mm (0.0897 in.) |
| | CC | 2.31 mm (0.0909 in.) |
| | DA | 2.34 mm (0.0921 in.) |
| | DB | 2.37 mm (0.0933 in.) |
| | DC | 2.40 mm (0.0944 in.) |
| | EA | 2.43 mm (0.0956 in.) |
| | EB | 2.46 mm (0.0968 in.) |
| | EC | 2.49 mm (0.0980 in.) |
| | FA | 2.52 mm (0.0992 in.) |
| | FB | 2.55 mm (0.1003 in.) |
| | FC | 2.58 mm (0.1015 in.) |
| | GA | 2.61 mm (0.1027 in.) |
| | GB | 2.64 mm (0.1039 in.) |
| | GC | 2.67 mm (0.1051 in.) |
| | HA | 2.70 mm (0.1062 in.) |
| | HB | 2.73 mm (0.1074 in.) |
| | HC | 2.76 mm (0.1086 in.) |
| | JA | 2.79 mm (0.1098 in.) |
| | JB | 2.82 mm (0.1110 in.) |
| | JC | 2.85 mm (0.1122 in.) |
| | KA | 2.88 mm (0.1133 in.) |
| | KB | 2.91 mm (0.1145 in.) |
| | KC | 2.94 mm (0.1157 in.) |
| | LA | 2.97 mm (0.1169 in.) |
| | LB | 3.00 mm (0.1181 in.) |

| | | |
|---|---|---|
| Driven pinion bearing waasher thickness front side | Mark | |
| | AA | 1.20 mm (0.0472 in.) |
| | AC | 1.22 mm (0.0480 in.) |
| | BB | 1.24 mm (0.0488 in.) |
| | CA | 1.26 mm (0.0496 in.) |
| | CC | 1.28 mm (0.0503 in.) |
| | DB | 1.30 mm (0.0511 in.) |
| | EA | 1.32 mm (0.0519 in.) |
| | EC | 1.34 mm (0.0527 in.) |
| | FB | 1.36 mm (0.0535 in.) |
| | GA | 1.38 mm (0.0543 in.) |
| | GC | 1.40 mm (0.0551 in.) |
| | HB | 1.42 mm (0.0559 in.) |
| | JA | 1.44 mm (0.0566 in.) |
| | JC | 1.46 mm (0.0574 in.) |
| | KB | 1.48 mm (0.0582 in.) |
| | LA | 1.50 mm (0.0590 in.) |
| | LC | 1.52 mm (0.0598 in.) |
| | MB | 1.54 mm (0.0606 in.) |
| | NA | 1.56 mm (0.0614 in.) |
| | NC | 1.58 mm (0.0622 in.) |
| | PB | 1.60 mm (0.0629 in.) |
| | QA | 1.62 mm (0.0637 in.) |
| | QC | 1.64 mm (0.0645 in.) |
| Washer thickness RH side | Mark | |
| | AA | 1.47 mm (0.0578 in.) |
| | AB | 1.50 mm (0.0590 in.) |
| | AC | 1.53 mm (0.0602 in.) |
| | BA | 1.56 mm (0.0614 in.) |
| | BB | 1.59 mm (0.0625 in.) |
| | BC | 1.62 mm (0.0637 in.) |
| | CA | 1.65 mm (0.0649 in.) |
| | CB | 1.68 mm (0.0661 in.) |
| | CC | 1.71 mm (0.0673 in.) |
| | DA | 1.74 mm (0.0685 in.) |
| | DB | 1.77 mm (0.0696 in.) |
| | DC | 1.80 mm (0.0708 in.) |
| | EA | 1.83 mm (0.0720 in.) |
| | EB | 1.86 mm (0.0732 in.) |
| | EC | 1.89 mm (0.0744 in.) |
| | FA | 1.92 mm (0.0755 in.) |
| | FB | 1.95 mm (0.0767 in.) |
| | FC | 1.98 mm (0.0779 in.) |
| | GA | 2.01 mm (0.0790 in.) |
| | GB | 2.04 mm (0.0803 in.) |
| | GC | 2.07 mm (0.0814 in.) |
| | HA | 2.10 mm (0.0826 in.) |
| | HB | 2.13 mm (0.0838 in.) |
| | HC | 2.16 mm (0.0850 in.) |
| | JA | 2.19 mm (0.0862 in.) |
| | JB | 2.22 mm (0.0874 in.) |
| | JC | 2.25 mm (0.0885 in.) |
| | KA | 2.28 mm (0.0897 in.) |
| | KB | 2.31 mm (0.0909 in.) |
| | KC | 2.34 mm (0.0921 in.) |
| | LA | 2.37 mm (0.0933 in.) |
| | LB | 2.40 mm (0.0944 in.) |
| | LC | 2.43 mm (0.0956 in.) |
| | MA | 2.46 mm (0.0968 in.) |
| | MB | 2.49 mm (0.0980 in.) |
| | MC | 2.52 mm (0.0992 in.) |
| | NA | 2.55 mm (0.1003 in.) |
| | NB | 2.58 mm (0.1015 in.) |

# POWER STEERING

## SERVICE DATA

0304W-02

| | | |
|---|---|---|
| POWER STEERING FLUID | | |
| Fluid level rise | Maximum | 5 mm (0.20 in.) |
| Fluid pressure at idle speed with valve closed | | 7,800 to 8,300 kPa (80 to 85 kgf/cm$^2$, 1,138 to 1,209 psi) |
| STEERING WHEEL | | |
| Steering effort at idle speed | (Reference) | 6.0 N·m (60 kgf·cm, 53 in.·lbf) |
| VANE PUMP ASSY | | |
| Vane pump rotating torque | | 0.27 N·m (2.8 kgf·cm, 2.4 in.·lbf) or less |
| Vane pump shaft and vane pump housing oil clearance | STD<br>Maximum | 0.027 to 0.054 mm (0.00106 to 0.00213 in.)<br>0.07 mm (0.0028 in.) |
| Vane plate thickness | Minimum | 1.397 - 1.403 mm (0.0550 - 0.05524 in.) |
| Clearance between the rotor groove and plate | Maximum | 0.03 mm (0.0012 in.) |
| Spring free length | Minimum | 32.24 mm (1.2693 in.) |
| RACK & PINION POWER STEERING GEAR ASSY | | |
| Tie rod assy stad bolt torque | (Turning) | 0.83 - 3.43 N·m (8.5 - 35.0 kgf·cm, 7.3 - 30.4 in.·lbf) |
| Steering rack runout | Maximum | 0.3 mm (0.012 in.) |
| Total preload (Control valve rotating torque) | (Turning) | 1.2 - 1.5 N·m (12.2 - 15.3 kgf·cm, 10.6 - 13.3 in.·lbf) |
| Rack boot clamp clearance | | 3.0 mm (0.118 in.) or less |

# BRAKE

## SERVICE DATA

031F0-01

| | | |
|---|---|---|
| Brake pedal height (from dash panel) | | 150.3 - 160.3 mm (5.917 - 6.311 in.) |
| Brake Pedal free play | | 1 - 6 mm (0.04 - 0.24 in.) |
| Stop light switch clearance | | 0.5 - 2.5 mm (0.020 - 0.098 in.) |
| Pedal reserve distance from asphalt sheet at 490 N (50 kgf, 110 lbf) | | More than 52 mm (2.0 in.) |
| Front disc brake pad thickness | Standard<br>Minimum | 12.0 mm (0.472 in.)<br>1.0 mm (0.039 in.) |
| Front brake disc thickness | Standard<br>Minimum | 28.0 mm (1.102 in.)<br>26.0 mm (1.024 in.) |
| Front disc runout | Maximum | 0.05 mm (0.0020 in.) |
| Rear drum brake lining thickmess | Standard<br>Minimum | 5.0 mm (0.197 in.)<br>1.0 mm (0.039 in.) |
| Rear drum | Standard<br>Maximum | 254.0 mm (10.00 in.)<br>256.0 mm (10.08 in.) |
| Rear shoe clearance | | 0.5 mm (0.020 in.) |
| Rear disc brake pad thickness | Standard<br>Minimum | 11.0 mm (0.433 in.)<br>1.0 mm (0.039 in.) |
| Rear disc thickness | Standard<br>Minimum | 12.0 mm (0.472 in.)<br>10.5 mm (0.413 in.) |
| Rear disc runout | Maximum | 0.10 mm (0.0039 in.) |

# AUTOMATIC TRANSMISSION / TRANSAXLE

0305K-12

## SERVICE DATA

| | | |
|---|---|---|
| U151E | | |
| Line pressure (Wheel locked) | | |
| | Engine idling | |
| | D position | 370 - 410 kPa (3.8 - 4.2 kgf·cm$^2$, 54 - 60 psi) |
| | R position | 670 - 740 kPa (6.8 - 7.5 kgf·cm$^2$, 97 - 106 psi) |
| | AT stall (Throttle valve fully opened) | |
| | D position | 931 - 1,031 kPa (9.5 - 10.5 kgf·cm$^2$, 135 - 150 psi) |
| | R position | 1,768 - 1,968 kPa (18.0 - 20 kgf·cm$^2$, 256 - 285 psi) |
| Engine stall revolution | D and R positions | 2,100 ± 150 rpm |
| Time lag | N → D position | Less than 1.2 seconds |
| | N → R position | Less than 1.5 seconds |
| Engine idle speed (A/C OFF) | N position | 650 ± 50 rpm |
| Drive plate runout | Max. | 0.20 mm (0.0079 in.) |
| Torque converter runout | Max. | 0.30 mm (0.0118 in.) |
| Differential oil seal drive in depth | LH side | 0 ± 0.5 mm (0 ± 0.020 in.) |
| | RH side | 0 ± 0.5 mm (0 ± 0.020 in.) |
| U151E TIRE: 215/65R16 | | |
| Shift schedule | | |
| D position | | |
| (Throttle valve fully opened) | 1 → 2 | 43 - 49 km/h (27 - 30 mph) |
| | 2 → 3 | 86 - 92 km/h (53 - 57 mph) |
| | 3 → 4 | 141 - 152 km/h (88 - 94 mph) |
| | 4 → 5 | 208 - 219 km/h (129 - 136 mph) |
| | 5 → 4 | 200 - 211 km/h (124 - 131 mph) |
| | 4 → 3 | 136 - 147 km/h (85 - 91 mph) |
| | 3 → 2 | 81 - 87 km/h (50 - 54 mph) |
| | 2 → 1 | 39 - 44 km/h (24 - 27 mph) |
| (Throttle valve fully closed) | 4 → 5 | 52 - 57 km/h (32 - 35 mph) |
| | 5 → 4 | 38 - 43 km/h (24 - 27 mph) |
| 3 position | | |
| (Throttle valve fully opened) | 1 → 2 | 43 - 49 km/h (27 - 30 mph) |
| | 2 → 3 | 86 - 92 km/h (53 - 57 mph) |
| | 4 → 3 | 141 - 152 km/h (88 - 94 mph) |
| | 3 → 2 | 91 - 97 km/h (57 - 60 mph) |
| | 2 → 1 | 39 - 44 km/h (24 - 27 mph) |
| 2 position | | |
| (Throttle valve fully opened) | 1 → 2 | 43 - 49 km/h (27 - 30 mph) |
| | 3 → 2 | 91 - 97 km/h (57 - 60 mph) |
| | 2 → 1 | 39 - 44 km/h (24 - 27 mph) |
| L position | | |
| (Throttle valve fully opened) | 2 → 1 | 43 - 48 km/h (27 - 30 mph) |
| Lock-up point | Throttle valve opening 5 % | |
| D position | | |
| 5th gear | Lock-up ON | 65 - 71 km/h (40 - 44 mph) |
| | Lock-up OFF | 63 - 69 km/h (39 - 43 mph) |
| 4th gear | Lock-up ON | 104 - 110 km/h (65 - 68 mph) |
| | Lock-up OFF | 100 - 106 km/h (62 - 66 mph) |
| 3th gear | Lock-up ON | 69 - 76 km/h (43 - 47 mph) |
| | Lock-up OFF | 66 - 72 km/h (41 - 45 mph) |
| 4 position | | |
| 4th gear | Lock-up ON | 104 - 110 km/h (65 - 68 mph) |
| | Lock-up OFF | 100 - 106 km/h (62 - 66 mph) |
| 3th gear | Lock-up ON | 69 - 76 km/h (43 - 47 mph) |
| | Lock-up OFF | 66 - 72 km/h (41 - 45 mph) |

| | | |
|---|---|---|
| U151E TIRE: 225/60R17 | | |
| Shift schedule | | |
| D position | | |
| (Throttle valve fully opened) | 1 → 2 | 44 - 52 km/h (27 - 32 mph) |
| | 2 → 3 | 89 - 97 km/h (55 - 60 mph) |
| | 3 → 4 | 147 - 159 km/h (91 - 99 mph) |
| | 4 → 5 | 216 - 230 km/h (134 - 143 mph) |
| | 5 → 4 | 208 - 222 km/h (130 - 138 mph) |
| | 4 → 3 | 142 - 154 km/h (88 - 96 mph) |
| | 3 → 2 | 84 - 91 km/h (52 - 57 mph) |
| | 2 → 1 | 40 - 46 km/h (25 - 29 mph) |
| (Throttle valve fully closed) | 5 → 4 | 54 - 60 km/h (34 - 37 mph) |
| | 4 → 3 | 39 - 45 km/h (24 - 28 mph) |
| 3 position | | |
| (Throttle valve fully opened) | 1 → 2 | 44 - 52 km/h (27 - 32 mph) |
| | 2 → 3 | 89 - 97 km/h (55 - 60 mph) |
| | 4 → 3 | 147 - 159 km/h (91 - 99 mph) |
| | 3 → 2 | 84 - 91 km/h (52 - 57 mph) |
| | 2 → 1 | 40 - 46 km/h (25 - 29 mph) |
| 2 position | | |
| (Throttle valve fully opened) | 1 → 2 | 44 - 52 km/h (27 - 32 mph) |
| | 3 → 2 | 95 - 102 km/h (59 - 63 mph) |
| | 2 → 1 | 40 - 46 km/h (25 - 29 mph) |
| L position | | |
| (Throttle valve fully opened) | 2 → 1 | 44 - 51 km/h (27 - 32 mph) |
| Lock-up point | Throttle valve opening 5 % | |
| D position | | |
| 5th gear | Lock-up ON | 68 - 75 km/h (42 - 47 mph) |
| | Lock-up OFF | 66 - 72 km/h (41 - 45 mph) |
| 4th gear | Lock-up ON | 108 - 116 km/h (67 - 72 mph) |
| | Lock-up OFF | 104 - 111 km/h (65 - 69 mph) |
| 3th gear | Lock-up ON | 72 - 80 km/h (45 - 50 mph) |
| | Lock-up OFF | 69 - 76 km/h (43 - 47 mph) |
| 4 position | | |
| 4th gear | Lock-up ON | 108 - 116 km/h (67 - 72 mph) |
| | Lock-up OFF | 104 - 111 km/h (65 - 69 mph) |
| 3th gear | Lock-up ON | 72 - 80 km/h (45 - 50 mph) |
| | Lock-up OFF | 69 - 76 km/h (43 - 47 mph) |
| U151F | | |
| Line pressure (Wheel locked) | | |
| | Engine idling | |
| | D position | 370 - 410 kPa (3.8 - 4.2 kgf·cm$^2$, 54 - 60 psi) |
| | R position | 670 - 740 kPa (6.8 - 7.5 kgf·cm$^2$, 97 - 106 psi) |
| | AT stall (Throttle valve fully opened) | |
| | D position | 931 - 1,031 kPa (9.5 - 10.5 kgf·cm$^2$, 135 - 150 psi) |
| | R position | 1,768 - 1,968 kPa (18.0 - 20 kgf·cm$^2$, 256 - 285 psi) |
| Engine stall revolution | D and R positions | 2,550 ± 150 rpm |
| Time lag | N → D position | Less than 1.2 seconds |
| | N → R position | Less than 1.5 seconds |
| Engine idle speed | | |
| (A/C OFF) | N position | 650 ± 50 rpm |
| Drive plate runout | Max. | 0.20 mm (0.0079 in.) |
| Torque converter runout | Max. | 0.30 mm (0.0118 in.) |
| Differential oil seal drive in depth | LH side | 0 ± 0.5 mm (0 ± 0.020 in.) |
| | RH side | 6.0 ± 0.236 mm (0 ± 0.020 in.) |

| | | |
|---|---|---|
| Shift schedule | | |
| D position | | |
| (Throttle valve fully opened) | 1 → 2 | 42 - 48 km/h (26 - 30 mph) |
| | 2 → 3 | 84 - 91 km/h (52 - 57 mph) |
| | 3 → 4 | 137 - 149 km/h (85 - 93 mph) |
| | 4 → 5 | 202 - 215 km/h (126 - 134 mph) |
| | 5 → 4 | 195 - 208 km/h (121 - 129 mph) |
| | 4 → 3 | 132 - 144 km/h (82 - 89 mph) |
| | 3 → 2 | 79 - 85 km/h (49 - 53 mph) |
| | 2 → 1 | 38 - 43 km/h (24 - 27 mph) |
| (Throttle valve fully closed) | 4 → 5 | 50 - 56 km/h (31 - 35 mph) |
| | 5 → 4 | 37 - 42 km/h (23 - 26 mph) |
| 3 position | | |
| (Throttle valve fully opened) | 1 → 2 | 42 - 48 km/h (26 - 30 mph) |
| | 2 → 3 | 84 - 91 km/h (52 - 57 mph) |
| | 4 → 3 | 137 - 149 km/h (85 - 93 mph) |
| | 3 → 2 | 79 - 85 km/h (49 - 53 mph) |
| | 2 → 1 | 38 - 43 km/h (24 - 27 mph) |
| 2 position | | |
| (Throttle valve fully opened) | 1 → 2 | 42 - 48 km/h (26 - 30 mph) |
| | 3 → 2 | 88 - 95 km/h (55 - 59 mph) |
| | 2 → 1 | 38 - 43 km/h (24 - 27 mph) |
| L position | | |
| (Throttle valve fully opened) | 2 → 1 | 42 - 47 km/h (26 - 29 mph) |
| Lock-up point | Throttle valve opening 5 % | |
| D position | | |
| 5th gear | Lock-up ON | 64 - 70 km/h (40 - 43 mph) |
| | Lock-up OFF | 62 - 68 km/h (39 - 42 mph) |
| 4th gear | Lock-up ON | 101 - 108 km/h (63 - 67 mph) |
| | Lock-up OFF | 97 - 104 km/h (60 - 65 mph) |
| 3th gear | Lock-up ON | 67 - 75 km/h (42 - 47 mph) |
| | Lock-up OFF | 65 - 71 km/h (40 - 44 mph) |
| 4 position | | |
| 4th gear | Lock-up ON | 101 - 108 km/h (63 - 67 mph) |
| | Lock-up OFF | 97 - 104 km/h (60 - 65 mph) |
| 3th gear | Lock-up ON | 67 - 75 km/h (42 - 47 mph) |
| | Lock-up OFF | 65 - 71 km/h (40 - 44 mph) |

# LUBRICATION

## SERVICE DATA

031EW-01

| | | |
|---|---|---|
| Oil pressure | at idle speed | 29 kPa (0.3 kgf/cm$^2$, 4.3 psi) or more |
| | at 3,000 rpm | 294 to 539 kPa (3.0 to 5.5 kgf·cm$^2$, 43 to 78 psi) or more |
| Oil pump assy | | |
| Tip clearance | Standard | 0.11 to 0.24 mm (0.0043 to 0.0094 in.) |
| | Maximum | 0.35 mm (0.0138 in.) |
| Body clearance | Standard | 0.125 to 0.162 mm (0.0050 to 0.0064 in.) |
| | Maximum | 0.30 mm (0.0118 in.) |
| Side clearance | Standard | 0.03 to 0.09 mm (0.0012 to 0.0035 in.) |
| | Maximum | 0.15 mm (0.0059 in.) |

# COOLING

031EY-01

## SERVICE DATA

| | | |
|---|---|---|
| Thermostat | | |
| Valve opening temperature | | 80 to 84°C (176 to 183°F) |
| Valve lift | at 95°C (205°F) | 10 mm (0.394 in.) or more |
| Radiator cap sub-assy | | |
| Standard opening pressure | | 83 to 113 kPa (0.85 to 1.15 kgf/cm2, 12.1 to 16.4 psi) |
| Minimum opening pressure | | 69 kPa (0.7 kgf/cm$^2$, 10.0 psi) |
| Cooling fan | | |
| Standard amperage | No.1 | 10.6 to 16.6A |
| | No.2 | 5.6 to 11.6 A |
| Cooling fan relay | | |
| Specified condition | Between terminals 1 and 2 | Continuity |
| | Between terminals 3 and 5 | No continuity |
| | | Continuity (Apply battery voltage terminals 1 and 2) |

# ENGINE MECHANICAL

## SERVICE DATA

031F2-01

| | | |
|---|---|---|
| Battery specific gravity | at 20°C (68°F) | 1.25 to 1.29 |
| New drive belt deflection | Pressing force: 98 N (10 kgf, 22 lbf) | |
| | For fan and generator | 9.1 to 10.5 mm (0.358 to 0.413 in.) |
| | For vane pump | 7.0 to 9.0 mm (0.276 to 0.354 in.) |
| Used drive belt deflection | Pressing force: 98 N (10 kgf, 22 lbf) | |
| | For fan and generator | 11.0 to 13.5 mm (0.433 to 0.531 in.) |
| | For vane pump | 10.0 to 12.0 mm (0.394 to 0.472 in.) |
| New drive belt tension | | |
| | For fan and generator | 617 to 853 N (63 to 87 kgf, 139 to 192 lbf) |
| | For vane pump | 647 to 843 N (66 to 86 kgf, 146 to 190 lbf) |
| Used drive belt tension | | |
| | For fan and generator | 294 to 490 N (30 to 50 kgf, 66 to 110 lbf) |
| | For vane pump | 323 to 519 N (33 to 53 kgf, 73 to 117 lbf) |
| Ignition timing | Terminals TC and CG of DLC3 connected | 8 to 12° BTDC |
| | Terminals TC and CG of DLC3 disconnected | 7 to 24° BTDC |
| Idle speed | | 550 to 650 r/min |
| Compression | Compression pressure | 1.5 MPa (15.3 kgf/cm$^2$, 218 psi) or more |
| | Minimum pressure | 1.0 MPa (10.2 kgf/cm$^2$, 145 psi) |
| | Difference between each cylinder | 100 kPa (1.0 kgf/cm$^2$, 15 psi) or less |
| Valve clearance at cold | Intake | 0.15 to 0.25 mm (0.006 to 0.010 in.) |
| | Exhaust | 0.25 to 0.35 mm (0.010 to 0.014 in.) |
| Camshaft circle runout | Maximum | 0.06 mm (0.0024 in.) |
| Camshaft cam lobe height | Standard Intake | 43.132 to 43.232 mm (16981 to 1.7020 in.) |
| | Exhaust | 43.010 to 43.110 mm (1.6933 to 1.6972 in.) |
| | Minimum Intake | 42.98 mm (1.6921 in.) |
| | Exhaust | 42.86 mm (1.6874 in.) |
| | Camshaft Journal diameter | 26.959 to 26.975 mm (1.0614 to 1.0620 in.) |
| 12 pointed head cylinder head set bolt diameter at tension portion | | |
| | Standard | 8.95 to 9.05 mm (0.3524 to 0.3563 in.) |
| | Minimum | 8.75 mm (0.3445 in.) |
| Cylinder head warpage | Maximum Cylinder block surface | 0.05 mm (0.0020 in.) |
| | Intake manifold surface | 0.10 mm (0.0039 in.) |
| | Exhaust manifold surface | 0.10 mm (0.0039 in.) |
| Intake valve overall length | Standard | 95.45 mm (3.7579 in.) |
| | Minimum | 94.95 mm (3.7382 in.) |
| Intake valve stem diameter | Standard | 5.470 to 5.485 mm (0.2154 to 0.2159 in.) |
| Intake valve margin thickness | Standard | 1.0 mm (0.039 in.) |
| | Minimum | 0.5 mm (0.020 in.) |
| Exhaust valve overall length | Standard | 95.40 mm (3.7559 in.) |
| | Minimum | 94.90 mm (3.7362 in.) |
| Exhaust valve stem diameter | Standard | 5.465 to 5.480 mm (0.2152 to 0.2157 in.) |
| Exhaust valve margin thickness | Standard | 1.0 mm (0.039 in.) |
| | Minimum | 0.5 mm (0.020 in.) |
| Valve spring free length | | 45.50 mm (1.7913 in.) |
| Valve spring deviation | Maximum | 2.0 mm (0.079 in.) |
| Valve spring installed tension at 33.8 mm (1.331 in.) | | 186 to 206 N (19.0 to 21.0 kgf, 41.9 to 46.3 lbf) |

| | | |
|---|---|---|
| Bushing inside diameter | | 5.510 to 5.530 mm (0.2169 to 0.2177 in.) |
| Valve guide bushing oil clearance | Standard Intake | 0.025 to 0.060 mm (0.0010 to 0.0024 in.) |
| | Exhaust | 0.030 to 0.065 mm (0.0012 to 0.0026 in.) |
| | Maximum Intake | 0.08 mm (0.0031 in.) |
| | Exhaust | 0.10 mm (0.0039 in.) |
| Cylinder head valve guide bushing bore diameter | STD | 10.295 to 10.313 mm (0.4053 to 0.4060 in.) |
| | O/S 0.05 | 10.345 to 10.363 mm (0.4073 to 0.4080 in.) |
| Bushing diameter | STD | 10.333 to 10.344 mm (0.4068 to 0.4072 in.) |
| | O/S 0.05 | 10.383 to 10.394 mm (0.4088 to 0.4092 in.) |
| Bushing length | Intake | 34.5 mm (1.358 in.) |
| | Exhaust | 40.5 mm (1.594 in.) |
| Bushing protrusion height | Intake | 11.1 to 11.5 mm (0.437 to 0.453 in.) |
| | Exhaust | 8.9 to 9.3 mm (0.350 to 0.366 in.) |
| Lifter diameter | | 30.966 to 30.976 mm (1.2191 to 1.2195 in.) |
| Lifter bore diameter | | 31.009 to 31. 025 mm (1.2208 to 1.2215 in.) |
| Oil clearance | Standard | 0.033 to 0.059 mm (0.0013 to 0.0023 in.) |
| | Maximum | 0.07 mm (0.0028 in.) |
| Camshaft gear backlash | Standard | 0.020 to 0.200 mm (0.0008 to 0.0079 in.) |
| | Maximum | 0.30 mm (0.0118 in.) |
| Camshaft thrust clearance | Standard | 0.040 to 0.090 mm (0.0016 to 0.0035 in.) |
| | Maximum | 0.12 mm (0.0047 in.) |
| Camshaft oil clearance | Standard Intake #4, #5 journals | 0.025 to 0.057 mm (0.0010 to 0.0022 in.) |
| | Other journals | 0.025 to 0.062 mm (0.0010 to 0.0024 in.) |
| | Maximum | 0.10 mm (0.0039 in.) |
| Connecting rod thrust clearance | Standard | 0.15 to 0.30 mm (0.0059 to 0.0118 in.) |
| | Maximum | 0.35 mm (0.0138 in.) |
| Connecting rod oil clearance | Standard | 0.038 to 0.066 mm (0.0015 to 0.0026 in.) |
| | Maximum | 0.08 mm (0.0031 in.) |
| Crankshaft thrust clearance | Standard | 0.04 to 0.24 mm (0.0016 to 0.0094 in.) |
| | Maximum | 0.30 mm (0.0118 in.) |
| Cylinder block warpage | Maximum | 0.05 mm (0.0020 in.) |
| Cylinder bore diameter | Standard | 92.000 to 92.012 mm (3.6220 to 3.6225 in.) |
| | Maximum | 92.080 mm (3.6252 in.) |
| Piston diameter | at 13.0 mm (0.512 in.) from piston bottom | 91.953 to 91.967 mm (3.6202 to 3.6207 in.) |
| Piston oil clearance | Standard | 0.033 to 0.059 mm (0.0013 to 0.0023 in.) |
| | Maximum | 0.13 mm (0.0051 in.) |
| Connecting rod out-of alignment | Maximum per 100 mm (3.94 in.) | 0.05 mm (0.0020 in.) |
| Connecting rod twist | Maximum per 100 mm (3.94 in.) | 0.15 mm (0.0059 in.) |
| Connecting rod bushing inside diameter | | 22.005 to 22.014 mm (0.8663 to 0.8667 in.) |
| Piston pin diameter | | 21.997 to 22.006 mm (0.8660 to 0.8664 in.) |
| Oil clearance | Standard | 0.005 to 0.011 mm (0.0002 to 0.0004 in.) |
| | Maximum | 0.05 mm (0.0020 in.) |
| Piston ring groove clearance | No.1 | 0.03 to 0.08 mm (0.0012 to 0.0031 in.) |
| | No.2 | 0.02 to 0.06 mm (0.0008 to 0.0024 in.) |
| | Oil | 0.03 to 0.11 mm (0.0012 to 0.0043 in.) |
| Piston ring end gap | Standard No.1 | 0.30 to 0.40 mm (0.0118 to 0.0157 in.) |
| | No.2 | 0.50 to 0.60 mm (0.0197 to 0.0236 in.) |
| | Oil (Side rail) | 0.15 to 0.40 mm (0.0059 to 0.0157 in.) |
| | Maximum No. 1 | 0.95 mm (0.0374 in.) |
| | No.2 | 1.05 mm (0.0413 in.) |
| | Oil (Side rail) | 1.00 mm (0.0394 in.) |
| Connecting rod bolt diameter | Standard | 7.2 to 7.3 mm (0.283 to 0.287 in.) |
| | Minimum | 7.0 mm (0.276 in.) |
| Crankshaft bearing cap set bolt diameter | Standard | 7.5 to 7.6 mm (0.295 to 0.299 in.) |
| | Minimum | 7.2 mm (0.283 in.) |

| | | |
|---|---|---|
| Crankshaft circle runout | Maximum | 0.06 mm (0.0024 in.) |
| Main journal diameter | | 60.988 to 61.000 mm (2.4011 to 2.4016 in.) |
| Main journal taper and out-of-round | Maximum | 0.02 mm (0.0008 in.) |
| Crank pin diameter | | 52.992 to 53.000 mm (2.0863 to 2.0866 in.) |
| Crank pin taper and out-of-round | Maximum | 0.02 mm (0.0008 in.) |
| Crankshaft oil clearance | Standard No. 1 and No. 2 journals | 0.014 to 0.031 mm (0.0006 to 0.0012 in.) |
| | No. 3 and No. 4 journals | 0.028 to 0.041 mm (0.0011 to 0.0016 in.) |
| | Maximum No. 1 and No. 2 journals | 0.05 mm (0.0020 in.) |
| | No. 3 and No. 4 journals | 0.06 mm (0.0024 in.) |

# SLIDING ROOF/CONVERTIBLE

031EU-01

## SERVICE DATA

| | | |
|---|---|---|
| Sliding roof | Difference in level between sliding roof weatherstrip and roof glass<br>Difference: | 0 ± 2.0 mm (0 ± 0.072 in.) |

# STARTING & CHARGING

031DU-01

## SERVICE DATA

| | | |
|---|---|---|
| Starter assy | | |
| Specified current | | 90 A or less at 11.5 V |
| Starter relay | | |
| Specified condition | 1 - 2 | Continuity |
| | 3 - 5 | No continuity |
| | | Continuity(Applying battery voltage terminals 1 and 2) |
| Battery | | |
| Except maintenance-free battery | Standard specific gravity | 1.25 to 1.29 at 20 ˚C (68 ˚F) |
| Voltage | at 20 ˚C (68 ˚F) | 12.6 to 12.8 V |
| Voltage regulator | Regulating voltage | 13.2 to 14.8 V |
| | Standard amperage | 10 A or less |
| Starter armature assy | | |
| Circuit runout | Maximum | 0.05 mm (0.0020 in.) |
| Depth | Standard | 3.3 mm (0.1299 in.) |
| | Maximum | 4.0 mm (0.1575 in.) |
| Starter commutator end frame assy | | |
| Brush length | Standard | 9.0 mm (0.354 in.) |
| | Minimum | 4.0 mm (0.158 in.) |
| Generator brush holder assy | | |
| Brush length | Standard | 10.5 mm (0.413 in.) |
| | Minimum | 4.5 mm (0.177 in.) |
| Generator rotor assy | | |
| Open circuit | Resistance | 2.3 to 2.7 Ω at 20°C (68°F) for 130A |
| | | 1.5 to 1.9 Ω at 20°C (68°F) for 130A |
| Slip ring diameter | Standard | 14.2 to 14.4 mm (0.559 to 0.567 in.) |
| | Minimum | 14.0 mm (0.551 in.) |

# IGNITION

## SERVICE DATA

031DS-01

| | | |
|---|---|---|
| Spark plug | | |
| Recommended spark plug | DENSO made | SK20R11 |
| | NGK made | IFR6A11 |
| Electrode gap | Correct electrode gap for new spark plug | 1.0 - 1.1 mm (0.039 - 0.043 in.) |
| | Maximum electrode gap for used spark plug | 1.3 mm (0.051 in.) |
| VVT sensor | | |
| Resistance | Cold | 835 to 1,400 Ω |
| | Hot | 1,060 - 1,645 Ω |
| Crankshaft position sensor | | |
| Resistance | Cold | 1,630 - 2,740 Ω |
| | Hot | 2,065 - 3,225 Ω |

# EXHAUST

## SERVICE DATA

031DQ-01

| | |
|---|---|
| Compression spring<br>Free length (Exhaust pipe assy front x Exhaust pipe assy center) (2WD)<br>Minimum | <br><br>38.86 mm (1.5299 in.) |

# INTAKE

## SERVICE DATA

031DO-01

| | | |
|---|---|---|
| Intake air control valve No.3 (VSV)<br>Resistance | at 20°C (68°F) | 37 to 44 Ω |
| Vacuum switching valve assy No.1<br>Resistance | at 20°C (68°F) | 33 to 39 Ω |

# EMISSION CONTROL

## SERVICE DATA

031DM-01

| | | |
|---|---|---|
| VSV for canister closed valve | | |
| Resistance | at 20°C (68°F) | 25 to 30 Ω |
| | at 100°C (212°F) | 32 to 42 Ω |
| VSV for EVAP | | |
| Resistance | at 20 °C (68 °F) | 26 to 30 Ω |
| Air fuel ratio sensor | | |
| Resistance | 1 (TH) - 2 (+B) | 0.8 - 1.4 Ω at 20 °C (68 °F) |
| | 1 (TH) - 2 (+B) | 1.8 - 3.2 Ω at 800 °C (1,472 °F) |
| | 1 (HT) - 4 (E1) | No continuity |
| Heated oxygen sensor (Bank 1 oxygen sensor No. 2) | | |
| Resistance | 1 (HT) - 2 (+B) | 11 to 16 Ω at 20 °C (68 °F) |
| | 1 (HT) - 4 (E1) | No continuity |
| Heated oxygen sensor (Bank 2 oxygen sensor No. 2) | | |
| Resistance | 1 (HT) - 2 (+B) | 11 to 16 Ω at 20 °C (68 °F) |
| | 1 (HT) - 4 (E1) | No continuity |

# FUEL

## SERVICE DATA

031DW-02

| | | |
|---|---|---|
| Fuel pressure | | 304 to 343 kPa (3.1 to 3.5 kgf/cm$^2$, 44 to 50 psi) |
| Fuel pressure | | 147 kPa (1.5 kgf/cm$^2$, 21 psi) or more |
| Fuel injector | | |
| Resistance | at 20°C (68°F) | 13.4 to 14.2Ω |
| Injection volume | | 60 to 73 cm$^2$ (3.7 to 4.5 cu in.) in 15 seconds |
| Difference between each cylinder | | 13 cm$^3$ (0.8 cu in.) or less |
| Fuel leakage | | 1 drop or less in 12 minutes |
| Fuel pump | | |
| Resistance | at 20°C (68°F) | 0.2 to 3.0 Ω |

# ENGINE CONTROL SYSTEM

031DK-01

## SERVICE DATA

| | | |
|---|---|---|
| Throttle body | | |
| | Standard throttle valve opening percentage | 60 % or more |
| Accelerator pedal position sensor | | |
| | Standard voltage | 0.6 to 1.0 V |
| Intake air flow meter assy | | |
| Resistance | 4 (THA) - 5 (E2) | |
| | at -20°C (-4°F) | 13.6 to 18.4 kΩ |
| | at 20°C (68°F) | 2.21 to 2.69 kΩ |
| | at 60°C (140°F) | 0.493 to 0.667 kΩ |
| Camshaft timing oil control valve assy | | |
| Resistance | as 20°C (68°F) | 6.9 to 7.9 Ω |
| Accelerator pedal rod assy | | |
| Resistance | 3 (VPA2) - 5 (EP1) | 5.0 kΩ or less |
| | 6 (VPA1) - 2 (EP2) | 5.0 kΩ or less |
| | 4 (VCP1) - 5 (EP1) | 2.25 to 4.75 kΩ |
| | 1 (VCP2) - 2 (EP2) | 2.25 to 4.75 kΩ |
| Throttle body assy | | |
| Resistance | 2 (M+) - 1 (M-) | |
| | at 20°C (68°F) | 0.3 to 100 kΩ |
| E.F.I. engine coolant temperature sensor | | |
| Resistance | Approx. 20°C (68°F) | 2.32 to 2.59 kΩ |
| | Approx. 80°C (176°F) | 0.310 to 0.326 kΩ |
| Knock sensor | | |
| Resistance | at 20°C (68°F) | 120 to 280 kΩ |

# REAR SUSPENSION

## SERVICE DATA

031F9-01

| | | | |
|---|---|---|---|
| Rear wheel alignment | Toe-in (total) | | |
| | | 2WD: 215/65R16 | 0°15' ± 17' (0.25° ± 0.28°, 2.7 ± 3.0 mm, 0.11 ± 0.12 in.) |
| | | 225/60R17 | 0°15' ± 17' (0.25° ± 0.28°, 2.8 ± 3.0 mm, 0.11 ± 0.12 in.) |
| | | 4WD: 225/60R17 | 0°07' ± 17' (0.12° ± 0.28°, 1.3 ± 3.0 mm, 0.05 ± 0.12 in.) |
| | Camber | 2WD: | -1 °22' ± 30' (-1.37° ± 0.5°) |
| | | Right-left error | 30' (0.5°) or less |
| | | 4WD: | -1 °25' ± 30' (-1.42° ± 0.5°) |
| | | Right-left error | 30' (0.5°) or less |

| | | |
|---|---|---|
| Length of shock absorber | | |
| | 2WD: | 234 mm (9.22 in.) |
| | 4WD: | 258 mm (10.16 in.) |

# STEERING COLUMN

## SERVICE DATA

031D1-01

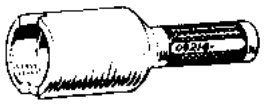
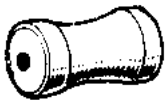
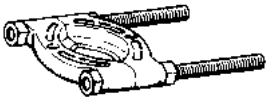
| | | |
|---|---|---|
| Steering wheel freeplay | Maximum | 30 mm (1.18 in.) |

# BRAKE

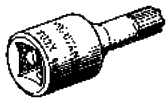
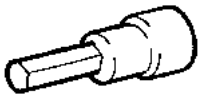
022H8-03

## PREPARATION

### SST

| | | | |
|---|---|---|---|
|  | 09023-00101 | Union Nut Wrench 10 mm | BRAKE FLUID<br>FRONT BRAKE<br>BRAKE MASTER CYLINDER ASSY<br>REAR DRUM BRAKE<br>REAR DISC BRAKE<br>BRAKE MASTER LESS RESERVOIR TANK CYLINDER SUB-ASSY<br>BRAKE ACTUATOR ASSY (W/ VSC)<br>BRAKE ACTUATOR ASSY (W/O VSC) |
|  | 09023-12701 | Union Nut Wrench 17 mm | REAR DISC BRAKE |
|  | 09214-7601 1 | Crankshaft Pulley Replacer | SKID CONTROL SENSOR(FF) |
|  | 09520-00031 | Rear Axle Shaft Puller | SKID CONTROL SENSOR(FF) |
|  | (09520-00040) | Shocker | SKID CONTROL SENSOR(FF) |
|  | 09521-00020 | Drive Shaft Boot Clamping Tool | SKID CONTROL SENSOR(FF) |
|  | 09703-30010 | Brake Shoe Return Spring Tool | REAR DRUM BRAKE |
|  | 09718-00010 | Shoe Hold Down Spring Driver | REAR DRUM BRAKE |
|  | 09950-00020 | Bearing Remover | SKID CONTROL SENSOR(FF) |

## Recomended Tools

| | | | |
|---|---|---|---|
|  | 09042-00010 | Torx Socket T30 | STEERING SENSOR |
|  | (09043-20080) | Socket Hexagon Wrench 8 | REAR DISC BRAKE |

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## Equipment

| | |
|---|---|
| Slide calipers | |
| Torque wrench | |

## Lubricant

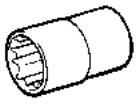
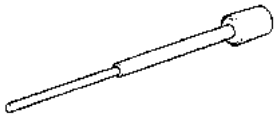
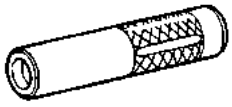
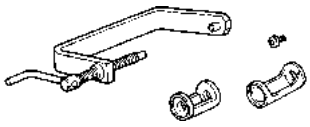
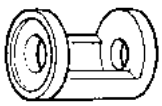
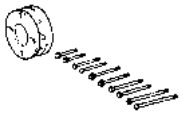
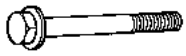
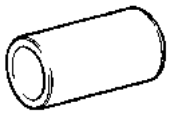
| Item | Capacity | Classification |
|---|---|---|
| Brake fluid | - | SAE J1703 or FMVSS No. 116 DOT3 |

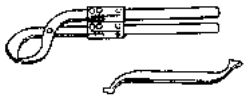
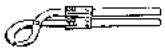
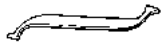
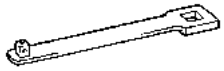
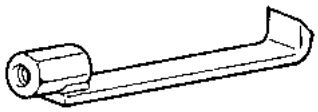
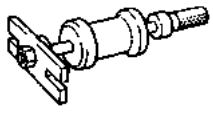
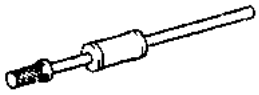
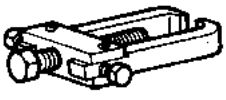
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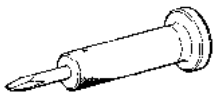
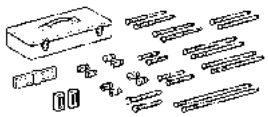
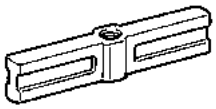
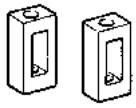
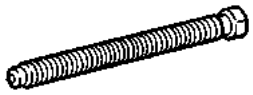
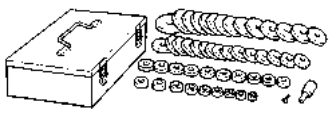
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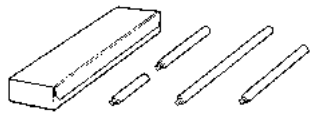
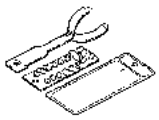
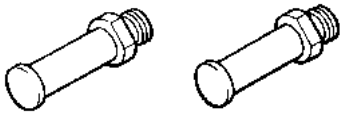
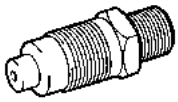
## PREPARATION

### SST

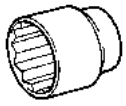
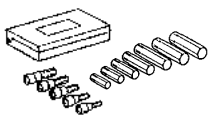
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|---|---|---|---|
|  | 09011-38121 | 12 mm Socket Wrench for 12 Pointed Head | CYLINDER BLOCK ASSY<br>PARTIAL ENGINE ASSY<br>CYLINDER HEAD GASKET<br>CYLINDER HEAD GASKET NO.2 |
|  | 09032-00100 | Oil Pan Seal Cutter | PARTIAL ENGINE ASSY |
|  | 09201-01055 | Valve Guide Bushing Remover & Replacer 5.5 | CYLINDER HEAD ASSY |
|  | 09201-10000 | Valve Guide Bushing Remover & Replacer Set | CYLINDER HEAD ASSY |
|  | 09201-41020 | Valve Stem Oil Seal Replacer | CYLINDER HEAD ASSY |
|  | 09202-70020 | Valve Spring Compressor | CYLINDER HEAD ASSY |
|  | (09202-00010) | Attachment | CYLINDER HEAD ASSY |
|  | 09213-54015 | Crankshaft Pulley Holding Tool | ENGINE REAR OIL SEAL<br>PARTIAL ENGINE ASSY<br>TIMING BELT<br>CAMSHAFT (RH BANK)<br>CAMSHAFT (LH BANK)<br>OIL PUMP SEAL<br>CYLINDER HEAD GASKET<br>CYLINDER HEAD GASKET NO.2 |
|  | (91651-60855) | Bolt | ENGINE REAR OIL SEAL<br>PARTIAL ENGINE ASSY<br>TIMING BELT<br>CAMSHAFT (RH BANK)<br>CAMSHAFT (LH BANK)<br>OIL PUMP SEAL<br>CYLINDER HEAD GASKET<br>CYLINDER HEAD GASKET NO.2 |
|  | 09222-30010 | Connecting Rod Bushing Remover & Replacer | CYLINDER BLOCK ASSY |
|  | 09223-00010 | Cover & Seal Replacer | PARTIAL ENGINE ASSY<br>OIL PUMP SEAL |

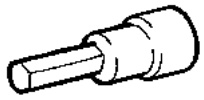
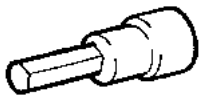
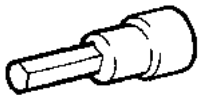
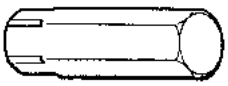
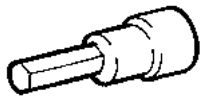
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|---|---|---|---|
|  | 09223-15030 | Oil Seal & Bearing Replacer | ENGINE REAR OIL SEAL<br>PARTIAL ENGINE ASSY |
|  | 09228-07501 | Oil Filter Wrench | PARTIAL ENGINE ASSY |
|  | 09248-55040 | Valve Clearance Adjust Tool Set | VALVE CLEARANCE<br>PARTIAL ENGINE ASSY<br>CAMSHAFT (RH BANK)<br>CAMSHAFT (LH BANK) |
|  | (09248-05410) | Valve Lifter Press | VALVE CLEARANCE<br>PARTIAL ENGINE ASSY<br>CAMSHAFT (RH BANK)<br>CAMSHAFT (LH BANK) |
|  | (09248-05420) | Valve Lifter Stopper | VALVE CLEARANCE<br>PARTIAL ENGINE ASSY<br>CAMSHAFT (RH BANK)<br>CAMSHAFT (LH BANK) |
|  | 09249-63010 | Torque Wrench Adaptor | CAMSHAFT (RH BANK)<br>CAMSHAFT (LH BANK)<br>CYLINDER HEAD GASKET<br>CYLINDER HEAD GASKET NO.2 |
|  | 09325-20010 | Transmission Oil Plug | ENGINE REAR OIL SEAL<br>PARTIAL ENGINE ASSY<br>CYLINDER HEAD GASKET |
|  | 09330-00021 | Companion Flange Holding Tool | ENGINE REAR OIL SEAL<br>PARTIAL ENGINE ASSY<br>TIMING BELT<br>CAMSHAFT (RH BANK)<br>CAMSHAFT (LH BANK)<br>OIL PUMP SEAL<br>CYLINDER HEAD GASKET<br>CYLINDER HEAD GASKET NO.2 |
|  | 09520-01010 | Drive Shaft Remover Attachment | ENGINE REAR OIL SEAL<br>PARTIAL ENGINE ASSY |
|  | 09520-24010 | Differential Side Gear Shaft Puller | ENGINE REAR OIL SEAL<br>PARTIAL ENGINE ASSY |
|  | (09520-32040) | Shocker Set | ENGINE REAR OIL SEAL<br>PARTIAL ENGINE ASSY |
|  | 09628-6201 1 | Boll Joint Puller | ENGINE REAR OIL SEAL<br>PARTIAL ENGINE ASSY |

| | | | |
|---|---|---|---|
|  | 09843-18040 | Diagnosis Check Wire No.2 | ENGINE<br>ENGINE REAR OIL SEAL<br>PARTIAL ENGINE ASSY<br>CYLINDER HEAD GASKET<br>CYLINDER HEAD GASKET NO.2 |
|  | 09930-00010 | Drive Shaft Nut Chisel | ENGINE REAR OIL SEAL<br>PARTIAL ENGINE ASSY |
|  | 09950-50013 | Puller C Set | PARTIAL ENGINE ASSY<br>TIMING BELT<br>CAMSHAFT (RH BANK)<br>CAMSHAFT (LH BANK)<br>OIL PUMP SEAL<br>CYLINDER HEAD GASKET<br>CYLINDER HEAD GASKET NO.2 |
|  | (09951-05010) | Hanger 150 | PARTIAL ENGINE ASSY<br>TIMING BELT<br>CAMSHAFT (RH BANK)<br>CAMSHAFT (LH BANK)<br>OIL PUMP SEAL<br>CYLINDER HEAD GASKET<br>CYLINDER HEAD GASKET NO.2 |
|  | (09952-05010) | Slide Arm | PARTIAL ENGINE ASSY<br>TIMING BELT<br>CAMSHAFT (RH BANK)<br>CAMSHAFT (LH BANK)<br>OIL PUMP SEAL<br>CYLINDER HEAD GASKET<br>CYLINDER HEAD GASKET NO.2 |
|  | (09953-05020) | Center Bolt 150 | PARTIAL ENGINE ASSY<br>TIMING BELT<br>CAMSHAFT (RH BANK)<br>CAMSHAFT (LH BANK)<br>OIL PUMP SEAL<br>CYLINDER HEAD GASKET<br>CYLINDER HEAD GASKET NO.2 |
|  | (09954-0501 1) | Claw No.1 | PARTIAL ENGINE ASSY<br>OIL PUMP SEAL |
|  | (09954-05031) | Claw No.3 | PARTIAL ENGINE ASSY<br>TIMING BELT<br>CAMSHAFT (RH BANK)<br>CAMSHAFT (LH BANK)<br>OIL PUMP SEAL<br>CYLINDER HEAD GASKET<br>CYLINDER HEAD GASKET NO.2 |
|  | 09950-60010 | Replacer Set | PARTIAL ENGINE ASSY |
|  | (09951-00430) | Replacer 43 | PARTIAL ENGINE ASSY |

| | | | |
|---|---|---|---|
|  | 09950-70010 | Handle Set | CYLINDER HEAD ASSY<br>ENGINE REAR OIL SEAL<br>PARTIAL ENGINE ASSY |
|  | (09951-07100) | Handle 100 | CYLINDER HEAD ASSY<br>ENGINE REAR OIL SEAL<br>PARTIAL ENGINE ASSY |
|  | 09960-10010 | Variable Pin Wrench Set | PARTIAL ENGINE ASSY<br>TIMING BELT<br>CAMSHAFT (RH BANK)<br>CAMSHAFT (LH BANK)<br>OIL PUMP SEAL<br>CYLINDER HEAD GASKET<br>CYLINDER HEAD GASKET NO.2 |
|  | (09962-01000) | Variable Pin Wrench Arm Assy | PARTIAL ENGINE ASSY<br>TIMING BELT<br>CAMSHAFT (RH BANK)<br>CAMSHAFT (LH BANK)<br>OIL PUMP SEAL<br>CYLINDER HEAD GASKET<br>CYLINDER HEAD GASKET NO.2 |
|  | (09963-00500) | Pin 5 | PARTIAL ENGINE ASSY<br>CAMSHAFT (RH BANK)<br>CAMSHAFT (LH BANK) |
|  | (09963-01000) | Pin 10 | PARTIAL ENGINE ASSY<br>TIMING BELT<br>CAMSHAFT (RH BANK)<br>CAMSHAFT (LH BANK)<br>OIL PUMP SEAL<br>CYLINDER HEAD GASKET<br>CYLINDER HEAD GASKET NO.2 |
|  | 09992-00500 | Compression Gauge Attachment | ENGINE<br>CYLINDER HEAD GASKET<br>CYLINDER HEAD GASKET NO.2 |

## Recomended Tools

| | | | |
|---|---|---|---|
|  | 09011-12301 | Socket Wrench 30 mm | ENGINE REAR OIL SEAL<br>PARTIAL ENGINE ASSY |
|  | 09040-0001 1 | Hexagon Wrench Set | CYLINDER HEAD ASSY<br>CYLINDER BLOCK ASSY<br>ENGINE REAR OIL SEAL<br>VALVE CLEARANCE<br>PARTIAL ENGINE ASSY<br>CAMSHAFT (RH BANK)<br>CAMSHAFT (LH BANK)<br>CYLINDER HEAD GASKET<br>CYLINDER HEAD GASKET NO.2 |

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|---|---|---|---|
|  | (09043-20050) | Socket Hexagon Wrench 5 | ENGINE REAR OIL SEAL<br>VALVE CLEARANCE<br>PARTIAL ENGINE ASSY<br>CAMSHAFT (RH BANK)<br>CAMSHAFT (LH BANK)<br>CYLINDER HEAD GASKET<br>CYLINDER HEAD GASKET NO.2 |
|  | (09043-20080) | Socket Hexagon Wrench 8 | VALVE CLEARANCE<br>PARTIAL ENGINE ASSY<br>CAMSHAFT (RH BANK)<br>CYLINDER HEAD GASKET<br>CYLINDER HEAD GASKET NO.2 |
|  | (09043-20100) | Socket Hexagon Wrench 10 | CYLINDER BLOCK ASSY<br>ENGINE REAR OIL SEAL<br>PARTIAL ENGINE ASSY |
|  | (09043-20120) | Socket Hexagon Wrench 12 | PARTIAL ENGINE ASSY |
|  | (09043-30140) | Straight Hexagon Wrench 14 | CYLINDER HEAD ASSY |
|  | (09043-20060) | Socket Hexagon Wrench 6 | ENGINE REAR OIL SEAL<br>PARTIAL ENGINE ASSY |
|  | 09090-04020 | Engine Sling Device | ENGINE REAR OIL SEAL<br>PARTIAL ENGINE ASSY |
|  | 09216-00021 | Belt Tension Gauge | ENGINE<br>ENGINE REAR OIL SEAL<br>DRIVE BELT<br>PARTIAL ENGINE ASSY<br>TIMING BELT<br>CAMSHAFT (RH BANK)<br>CAMSHAFT (LH BANK)<br>OIL PUMP SEAL<br>CYLINDER HEAD GASKET<br>CYLINDER HEAD GASKET NO.2 |
|  | (09857-00031) | Spark Plug Gap Gauge | ENGINE |
|  | 09904-00010 | Expander Set | PARTIAL ENGINE ASSY<br>CAMSHAFT (RH BANK)<br>CAMSHAFT (LH BANK) |
|  | (09904-00040) | No. 3 Claw | PARTIAL ENGINE ASSY<br>CAMSHAFT (RH BANK)<br>CAMSHAFT (LH BANK) |

## Equipment

| | |
|---|---|
| V-block | |
| Piston ring compressor | |
| Piston ring expander | |
| Valve seat cutter | |
| CO/HC meter | |
| Connecting rod aligner | |
| Cylinder gauge | |
| Feeler gauge | |
| Micrometer | |
| Precision straight edge | |
| Radiator cap tester | |
| Steel square | |
| Tachometer | |
| Torque wrench | |
| Vernier calipers | |
| Dial indicator with magnetic base | |
| Slide calipers | |
| Chain Block | |
| Spark plug cleaner | |
| Spring tester | |
| Plastigage | |
| Heater | |
| Universal engine lifter | |

## SSM

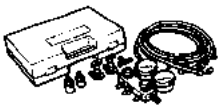
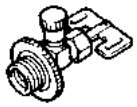
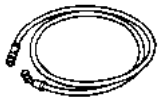
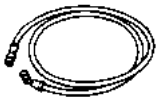
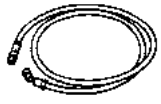
| | | | |
|---|---|---|---|
| | 08826-00080 | Seal Packing Black or equivalent<br>(FIPG) | CYLINDER HEAD ASSY<br>VALVE CLEARANCE<br>PARTIAL ENGINE ASSY<br>CAMSHAFT (RH BANK)<br>CAMSHAFT (LH BANK)<br>CYLINDER HEAD GASKET<br>CYLINDER HEAD GASKET NO.2 |
| | 08826-00100 | ”Seal Packing 1282B,”<br>THREE BOND 1282B or equivalent<br>(FIPG) | CYLINDER BLOCK ASSY<br>PARTIAL ENGINE ASSY |
| | 08833-00070 | ”Adhesive 1324,”<br>THREE BOND 1324 or equivalent | CYLINDER HEAD ASSY<br>CYLINDER BLOCK ASSY<br>ENGINE REAR OIL SEAL<br>PARTIAL ENGINE ASSY |
| | 08833-00080 | Adhesive 1344<br>THREE BOND 1344<br>LOCTITE 242 or equivalent | PARTIAL ENGINE ASSY |

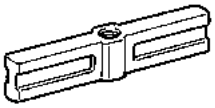
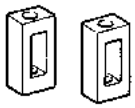
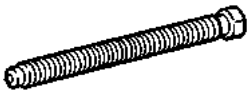
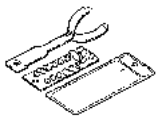
# HEATER & AIR CONDITIONER

022IY-02

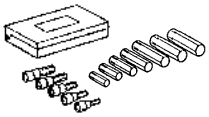
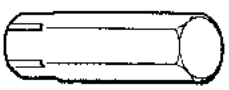
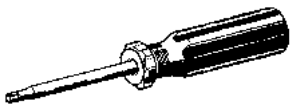
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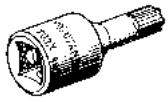
### SST

| | | | |
|---|---|---|---|
|  | 07110-58060 | Air Conditioner Service Tool Set | REFRIGERANT<br>AIR CONDITIONING RADIATOR ASSY<br>AIR CONDITIONING BLOWER ASSY<br>COOLER COMPRESSOR ASSY<br>COOLER CONDENSER CORE |
|  | (07117-58060) | Refrigerant Drain Service Valve | REFRIGERANT<br>AIR CONDITIONING RADIATOR ASSY<br>AIR CONDITIONING BLOWER ASSY<br>COOLER COMPRESSOR ASSY<br>COOLER CONDENSER CORE |
|  | (07117-58070) | T-Joint | REFRIGERANT<br>AIR CONDITIONING RADIATOR ASSY<br>AIR CONDITIONING BLOWER ASSY<br>COOLER COMPRESSOR ASSY<br>COOLER CONDENSER CORE |
|  | (07117-58080) | Quick Disconnect Adapter | REFRIGERANT<br>AIR CONDITIONING RADIATOR ASSY<br>AIR CONDITIONING BLOWER ASSY<br>COOLER COMPRESSOR ASSY<br>COOLER CONDENSER CORE |
|  | (07117-58090) | Quick Disconnect Adapter | REFRIGERANT<br>AIR CONDITIONING RADIATOR ASSY<br>AIR CONDITIONING BLOWER ASSY<br>COOLER COMPRESSOR ASSY<br>COOLER CONDENSER CORE |
|  | (07117-78050) | Refrigerant Charging Gauge | REFRIGERANT<br>AIR CONDITIONING RADIATOR ASSY<br>AIR CONDITIONING BLOWER ASSY<br>COOLER COMPRESSOR ASSY<br>COOLER CONDENSER CORE |
|  | (07117-88060) | Refrigerant Charging Hose | REFRIGERANT<br>AIR CONDITIONING RADIATOR ASSY<br>AIR CONDITIONING BLOWER ASSY<br>COOLER COMPRESSOR ASSY<br>COOLER CONDENSER CORE |
|  | (07117-88070) | Refrigerant Charging Hose | REFRIGERANT<br>AIR CONDITIONING RADIATOR ASSY<br>AIR CONDITIONING BLOWER ASSY<br>COOLER COMPRESSOR ASSY<br>COOLER CONDENSER CORE |
|  | (07117-88080) | Refrigerant Charging Hose | REFRIGERANT<br>AIR CONDITIONING RADIATOR ASSY<br>AIR CONDITIONING BLOWER ASSY<br>COOLER COMPRESSOR ASSY<br>COOLER CONDENSER CORE |

| | | | |
|---|---|---|---|
|  | 09870-00015 | A/C Quick Joint Puller No.1 | AIR CONDITIONING RADIATOR ASSY |
|  | 09870-00025 | A/C Quick Joint Puller No.2 | AIR CONDITIONING RADIATOR ASSY |
|  | 09950-50013 | Puller C Set | AIR CONDITIONING RADIATOR ASSY<br>BLOWER ASSY |
|  | (09951-05010) | Hanger 150 | AIR CONDITIONING RADIATOR ASSY<br>BLOWER ASSY |
|  | (09952-05010) | Slide Arm | AIR CONDITIONING RADIATOR ASSY<br>BLOWER ASSY |
|  | (09953-05020) | Center Bolt 150 | AIR CONDITIONING RADIATOR ASSY<br>BLOWER ASSY |
|  | (09954-05021) | Claw No.2 | AIR CONDITIONING RADIATOR ASSY<br>BLOWER ASSY |
|  | 09960-10010 | Variable Pin Wrench Set | COOLER COMPRESSOR ASSY |
|  | (09962-01000) | Variable Pin Wrench Arm Assy | COOLER COMPRESSOR ASSY |
|  | (09963-00500) | Pin 5 | COOLER COMPRESSOR ASSY |

## Recomended Tools

| | | | |
|---|---|---|---|
|  | 09040-0001 1 | Hexagon Wrench Set | COOLER CONDENSER CORE |
|  | (09043-30140) | Straight Hexagon Wrench 14 | COOLER CONDENSER CORE |
|  | 09041-00030 | Torx Driver T30 | AIR CONDITIONING RADIATOR ASSY<br>BLOWER ASSY |

| | | | |
|---|---|---|---|
|  | 09042-00010 | Torx Socket T30 | AIR CONDITIONING RADIATOR ASSY<br>BLOWER ASSY |
|  | 09070-20010 | Moulding Remover | INTEGRATION CONTROL & PANEL ASSY<br>AIR CONDITIONING RADIATOR ASSY<br>BLOWER ASSY |
|  | 09904-00010 | Expander Set | COOLER COMPRESSOR ASSY |
|  | (09904-00050) | No. 4 Claw | COOLER COMPRESSOR ASSY |
|  | 95416-00140 | Gas Leak Detector<br>(Halogen Leak Detector)<br>(DENSO Part No.) | REFRIGERANT<br>AIR CONDITIONING RADIATOR ASSY<br>AIR CONDITIONING BLOWER ASSY<br>COOLER COMPRESSOR ASSY<br>COOLER CONDENSER CORE |

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## Equipment

| | |
|---|---|
| Voltmeter | |
| Anmeter | |
| Ohmmeter | |
| Vinyl tape | |
| Hexagon wrench 4 mm (0.15 in.) | |
| Hexagon wrench 14 mm (0.55 in.) | |
| Gas leak detector | |
| Dial indicator with magnetic base | |
| Radiator cap tester | |
| Torque wrench | |

## Lubricant

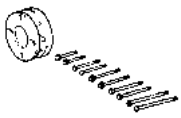
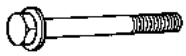
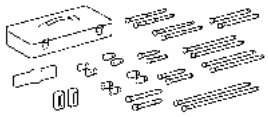
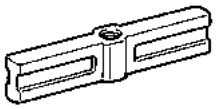
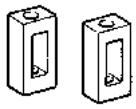
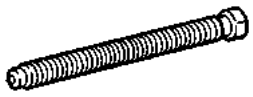
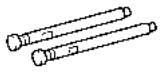
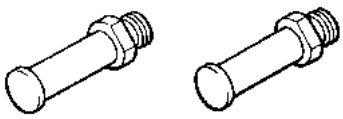
| Item | Capacity | Classification |
|---|---|---|
| Compressor oil | - | ND-OIL 8 or equivalent |

# COOLING

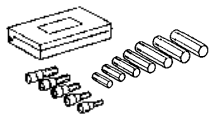
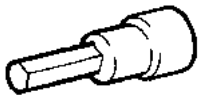
022ID-02

## PREPARATION

### SST

| | | | |
|---|---|---|---|
|  | 09213-54015 | Crankshaft Pulley Holding Tool | WATER PUMP ASSY |
|  | (91651-60855) | Bolt | WATER PUMP ASSY |
|  | 09249-63010 | Torque Wrench Adaptor | WATER PUMP ASSY |
|  | 09330-00021 | Companion Flange Holding Tool | WATER PUMP ASSY |
|  | 09950-50013 | Puller C Set | WATER PUMP ASSY |
|  | (09951-05010) | Hanger 150 | WATER PUMP ASSY |
|  | (09952-05010) | Slide Arm | WATER PUMP ASSY |
|  | (09953-05020) | Center Bolt 150 | WATER PUMP ASSY |
|  | (09954-05031) | Claw No.3 | WATER PUMP ASSY |
|  | 09960-10010 | Variable Pin Wrench Set | WATER PUMP ASSY |
|  | (09962-01000) | Variable Pin Wrench Arm Assy | WATER PUMP ASSY |
|  | (09963-01000) | Pin 10 | WATER PUMP ASSY |

## Recommended Tools

| | | | |
|---|---|---|---|
|  | 09040-0001 1 | Hexagon Wrench Set | WATER PUMP ASSY |
|  | (09043-20100) | Socket Hexagon Wrench 10 | WATER PUMP ASSY |
|  | 09216-00021 | Belt Tension Gauge | WATER PUMP ASSY |

## SSM

| | | | |
|---|---|---|---|
| | 08826-00080 | Seal Packing Black or equivalent (FIPG) | WATER PUMP ASSY |

## Equipment

| | |
|---|---|
| Ohmmeter | |
| Radiator cap tester | |
| Thermometer | |
| Torque wrench | |
| Slide calipers | |
| Heater | |

## Coolant

| Item | Capacity | Classification |
|---|---|---|
| Engine coolant | 11.7 liters (12.4 US qts, 10.3 lmp. qts) | ”TOYOTA Super Long Life Coolant”,”TOYOTA Long Life Coolant” or equivalent |

# EXHAUST

022IL-01

# PREPARATION

## Equipment

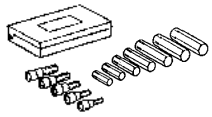
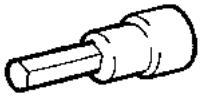
| | |
|---|---|
| Torque wrench | |
| Vernier calipers | |

# INTAKE

022IK-01

## PREPARATION

### Recomended Tools

| | | | |
|---|---|---|---|
|  | 09040-0001 1 | Hexagon Wrench Set | INTAKE AIR CONTROL VALVE ASSY NO.2 |
|  | (09043-20050) | Socket Hexagon Wrench 5 | INTAKE AIR CONTROL VALVE ASSY NO.2 |
|  | (09043-20080) | Socket Hexagon Wrench 8 | INTAKE AIR CONTROL VALVE ASSY NO.2 |

### Equipment

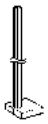
| | |
|---|---|
| Hand-held vacuum pump | |
| Ohmmeter | |
| Radiator cap tester | |
| Torque wrench | |

# CRUISE CONTROL

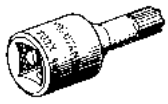
022G6-02

## PREPARATION

### SST

| | | | |
|---|---|---|---|
|  | 09870-60000 | LAZER RADAR ADJUSTING REFLECTOR | LASER RADAR SENSOR |
|  | (09870-60010) | BASE STAND | LASER RADAR SENSOR |
|  | (09870-60020) | REFLECTOR A | LASER RADAR SENSOR |

### Recomended Tools

| | | | |
|---|---|---|---|
|  | 09042-00010 | Torx Socket T30 | CRUISE CONTROL MAIN SWITCH |

**Torx is a registered trademark of Textron Inc.**

### Equipment

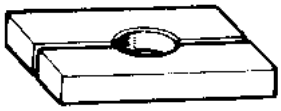
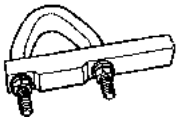
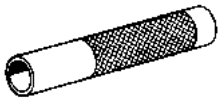
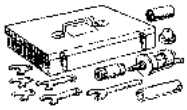
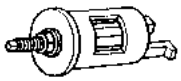
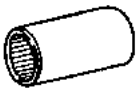
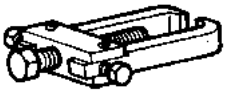
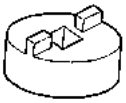
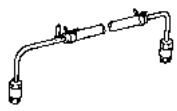
| | |
|---|---|
| Torque wrench | |
| Tape | To avoid surface damage |

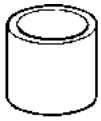
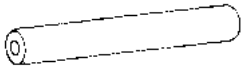
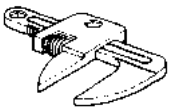
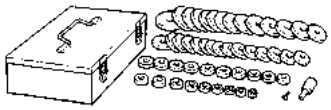
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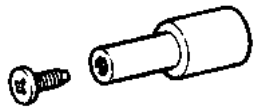
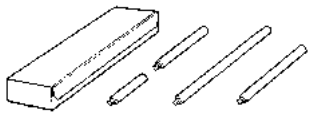
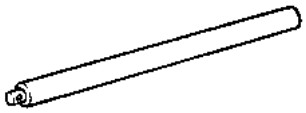
022GU-02

## PREPARATION

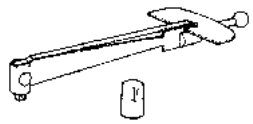
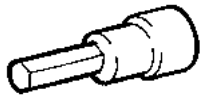
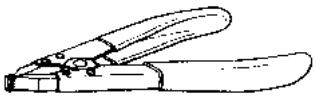
### SST

| | | | |
|---|---|---|---|
|  | 09023-12701 | Union Nut Wrench 17 mm | RACK & PINION POWER STEERING GEAR ASSY |
|  | 09023-38201 | Union Nut Wrench 12mm | RACK & PINION POWER STEERING GEAR ASSY |
|  | 09521-24010 | Rear Axle Shaft Puller | RACK & PINION POWER STEERING GEAR ASSY |
|  | 09527-2101 1 | Rear Axle Shaft Bearing Remover | RACK & PINION POWER STEERING GEAR ASSY |
|  | 09612-00012 | Rack & Pinion Steering Rack Housing Stand | RACK & PINION POWER STEERING GEAR ASSY |
|  | 09612-2201 1 | Tilt Handle Bearing Replacer | RACK & PINION POWER STEERING GEAR ASSY |
|  | 09612-24014 | Steering Gear Housing Overhaul Tool Set | RACK & PINION POWER STEERING GEAR ASSY |
|  | (09613-2201 1) | Steering Rack Shaft Bushing Puller | RACK & PINION POWER STEERING GEAR ASSY |
|  | 09616-0001 1 | Steering Worm Bearing Adjusting Socket | RACK & PINION POWER STEERING GEAR ASSY |
|  | 09628-6201 1 | Boll Joint Puller | RACK & PINION POWER STEERING GEAR ASSY |
|  | 09631-10021 | Rack Stopper Wrench | RACK & PINION POWER STEERING GEAR ASSY |
|  | 09631-12071 | Steering Rack Oil Seal Test Tool | RACK & PINION POWER STEERING GEAR ASSY |

| | | | |
|---|---|---|---|
|  | (09633-00010) | Packing | RACK & PINION POWER STEERING GEAR ASSY |
|  | 09631-20081 | Seal Ring Tool | RACK & PINION POWER STEERING GEAR ASSY |
|  | 09631-33010 | Steering Rack Cover "I" | RACK & PINION POWER STEERING GEAR ASSY |
|  | 09922-10010 | Variable Open Wrench | RACK & PINION POWER STEERING GEAR ASSY |
|  | 09950-60010 | Replacer Set | RACK & PINION POWER STEERING GEAR ASSY<br>VANE PUMP ASSY |
|  | (09951-00180) | Replacer 18 | RACK & PINION POWER STEERING GEAR ASSY |
|  | (09951-00250) | Replacer 25 | RACK & PINION POWER STEERING GEAR ASSY |
|  | (09951-00290) | Replacer 29 | RACK & PINION POWER STEERING GEAR ASSY |
|  | (09951-00320) | Replacer 32 | RACK & PINION POWER STEERING GEAR ASSY |
|  | (09951-00330) | Replacer 33 | VANE PUMP ASSY |
|  | (09951-00340) | Replacer 34 | RACK & PINION POWER STEERING GEAR ASSY |
|  | (09951-00400) | Replacer 40 | RACK & PINION POWER STEERING GEAR ASSY |
|  | (09951-00420) | Replacer 42 | RACK & PINION POWER STEERING GEAR ASSY |

| | | | |
|---|---|---|---|
|  | (09952-06010) | Adapter | RACK & PINION POWER STEERING GEAR ASSY |
|  | 09950-70010 | Handle Set | RACK & PINION POWER STEERING GEAR ASSY<br>VANE PUMP ASSY |
|  | (09951-07100) | Handle 100 | RACK & PINION POWER STEERING GEAR ASSY<br>VANE PUMP ASSY |
|  | (09951-07150) | Handle 150 | RACK & PINION POWER STEERING GEAR ASSY |
|  | (09951-07360) | Handle 360 | RACK & PINION POWER STEERING GEAR ASSY |

## Recomended Tools

| | | | |
|---|---|---|---|
|  | 09025-00010 | Torque Wrench (30 kgf-cm) | RACK & PINION POWER STEERING GEAR ASSY |
|  | (09043-20060) | Socket Hexagon Wrench 6 | RACK & PINION POWER STEERING GEAR ASSY |
|  | 09905-00012 | Snap Ring No.1 Expander | VANE PUMP ASSY |

## Equipment

| | |
|---|---|
| Caliper gauge | Vane pump assy |
| Belt tension gauge | Vane pump assy |
| Vernier calipers | Vane pump assy |
| Dial indicator | Steering gear assy |
| Feeler gauge | Vane pump assy |
| Micrometer | Vane pump assy |
| Torque wrench | |

## Lubricant

| Item | Capacity | Classification |
|---|---|---|
| Power steering fluid (Total) | 1.0 liters (1.1 US qts, 0.9 lmp.qts) | ATF DEXRON® II or III |

## SSM

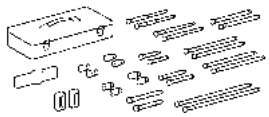
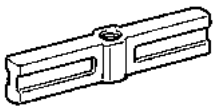
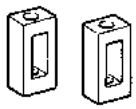
| | | | |
|---|---|---|---|
| | 08833-00080 | Adhesive 1344<br>THREE BOND 1344<br>LOCTITE 242 or equivalent | RACK & PINION POWER STEERING GEAR ASSY |

# STEERING COLUMN

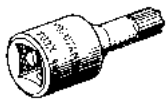
022F6-02

## PREPARATION

### SST

| | | | |
|---|---|---|---|
|  | 09950-50013 | Puller C Set | STEERING COLUMN ASSY |
|  | (09951-05010) | Hanger 150 | STEERING COLUMN ASSY |
|  | (09952-05010) | Slide Arm | STEERING COLUMN ASSY |
|  | (09953-05020) | Center Bolt 150 | STEERING COLUMN ASSY |
|  | (09954-05021) | Claw No.2 | STEERING COLUMN ASSY |

### Recomended Tools

| | | | |
|---|---|---|---|
|  | 09042-00010 | Torx Socket T30 | STEERING COLUMN ASSY |

**Torx is a registered trademark of Textron Inc.**

### Equipment

| | |
|---|---|
| Torque wrench | |
| Screw extractor | |

# VEHICLE CONTROL SYSTEM

022I8-01

## PREPARATION

### Recomended Tools

| | | | |
|---|---|---|---|
|  | 09082-00040 | TOYOTA Electrical Tester | IGNITION OR STARTER SWITCH ASSY |

# PARKING BRAKE

022F7-01

## PREPARATION

### SST

| | | | |
|---|---|---|---|
|  | 09703-30010 | Brake Shoe Return Spring Tool | PARKING BRAKE CABLE ASSY NO.3 |
|  | 09718-00010 | Shoe Hold Down Spring Driver | PARKING BRAKE CABLE ASSY NO.3 |

### Equipment

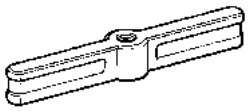
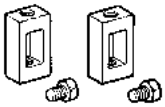
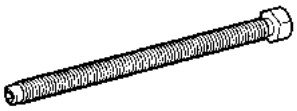
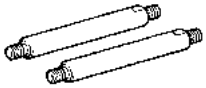
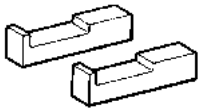
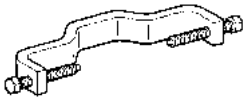
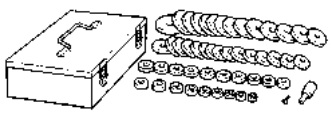
| | |
|---|---|
| Torque wrench | |
| Slide calipers | |

# REAR SUSPENSION

022I9-02

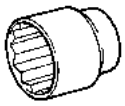
## PREPARATION

### SST

| | | | |
|---|---|---|---|
|  | 09023-00101 | Union Nut Wrench 10 mm | COIL SPRING REAR LH<br>REAR AXLE BEAM ASSY |
|  | 09710-04101 | Base | REAR AXLE BEAM ASSY |
|  | 09950-4001 1 | Puller B Set | REAR AXLE BEAM ASSY |
|  | (09951-04020) | Hanger 200 | REAR AXLE BEAM ASSY |
|  | (09952-04010) | Slide Arm | REAR AXLE BEAM ASSY |
|  | (09953-04030) | Center Bolt 200 | REAR AXLE BEAM ASSY |
|  | (09954-04020) | Arm 100 | REAR AXLE BEAM ASSY |
|  | (09955-04051) | Claw No.5 | REAR AXLE BEAM ASSY |
|  | (09957-04010) | Attachment | REAR AXLE BEAM ASSY |
|  | (09958-0401 1) | Holder | REAR AXLE BEAM ASSY |
|  | 09950-60010 | Replacer Set | REAR AXLE BEAM ASSY |
|  | (09951-00620) | Replacer 62 | REAR AXLE BEAM ASSY |

| | | |
|---|---|---|
|  | (09951-00630) Replacer 63 | REAR AXLE BEAM ASSY |

## Recomended Tools

| | | |
|---|---|---|
|  | 09011-12301 Socket Wrench 30 mm | REAR AXLE BEAM ASSY |

## Equipment

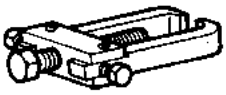
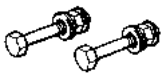
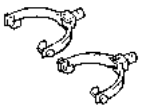
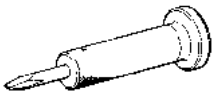
| | |
|---|---|
| Torque wrench | |
| Dial indicator with magnetic base | |
| Wheel balancer | |
| Tire pressure gauge | |
| Alignment tester | |
| Camber-caster-kingpin gauge | |
| Toe-in gauge | |
| Drill | |
| Hexagon wrench (6 mm) | |
| Slide calipers | |
| Wooden block | |

# FRONT SUSPENSION

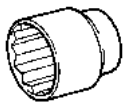
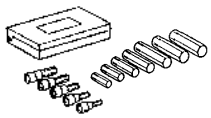
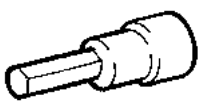
## PREPARATION

024CQ-01

### SST

| | | | |
|---|---|---|---|
|  | 09023-12701 | Union Nut Wrench 17 mm | STABILIZER BAR FRONT(4WD)<br>STABILIZER BAR FRONT(FF) |
|  | 09628-6201 1 | Ball Joint Puller | FRONT SUSPENSION ARM SUB-ASSY LOWER NO.1 LH<br>LOWER BALL JOINT ASSY FRONT LH<br>STABILIZER BAR FRONT(4WD)<br>STABILIZER BAR FRONT(FF) |
|  | 09727-30021 | Coil Spring Compressor | FRONT SHOCK ABSORBER WITH COIL SPRING |
|  | (09727-00010) | Bolt Set | FRONT SHOCK ABSORBER WITH COIL SPRING |
|  | (09727-00021) | Arm Set | FRONT SHOCK ABSORBER WITH COIL SPRING |
|  | (09727-00031) | Compressor | FRONT SHOCK ABSORBER WITH COIL SPRING |
|  | 09930-00010 | Drive Shaft Nut Chisel | FRONT SUSPENSION ARM SUB-ASSY LOWER NO.1 LH<br>LOWER BALL JOINT ASSY FRONT LH |

### Recommended Tools

| | | | |
|---|---|---|---|
|  | 09011-12301 | Socket Wrench 30 mm | FRONT SUSPENSION ARM SUB-ASSY LOWER NO.1 LH<br>LOWER BALL JOINT ASSY FRONT LH |
|  | 09040-0001 1 | Hexagon Wrench Set | FRONT SUSPENSION ARM SUB-ASSY LOWER NO.1 LH<br>STABILIZER BAR FRONT(4WD)<br>STABILIZER BAR FRONT(FF)<br>FRONT SHOCK ABSORBER WITH COIL SPRING |
|  | (09043-20060) | Socket Hexagon Wrench 6 | FRONT SUSPENSION ARM SUB-ASSY LOWER NO.1 LH<br>STABILIZER BAR FRONT(4WD)<br>STABILIZER BAR FRONT(FF)<br>FRONT SHOCK ABSORBER WITH COIL SPRING |

## Equipment

| | |
|---|---|
| Torque wrench | |
| Dial indicator with magnetic base | |
| Tire pressure gauge | |
| Alignment tester | |
| Toe-in gauge | |
| Angle gauge | |
| Plastic hammer | |
| Engine Sling Device | |
| Universal Engine Lifter | |
| Chain Block | |

# TIRE & WHEEL

022J0-01

## PREPARATION

### Equipment

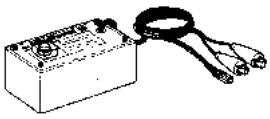
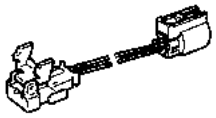
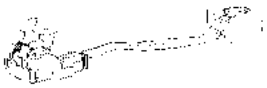
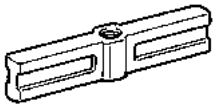
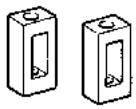
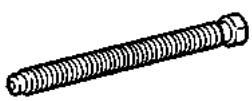
| | |
|---|---|
| Tire pressure gauge | |
| Dial indicator with magnetic base | |
| Wheel balancer | |

# SUPPLEMENTAL RESTRAINT SYSTEM

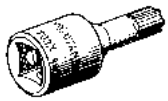
024E0-01

## PREPARATION

### SST

| | | | |
|---|---|---|---|
|  | 09082-00700 | SRS Airbag Deployment Tool | HORN BUTTON ASSY<br>INSTR PNL PASS L/DOOR AIR BAG ASSY<br>CURTAIN SHIELD AIR BAG ASSY LH<br>FRONT SEAT AIRBAG ASSY LH |
|  | 09082-00750 | Airbag Deployment Wire Sub-harness No.3 | FRONT SEAT AIRBAG ASSY LH |
|  | 09082-00780 | Airbag Deployment Wire Sub-harness No.6 | HORN BUTTON ASSY<br>INSTR PNL PASS L/DOOR AIR BAG ASSY |
|  | 09082-00802 | Airbag Deployment Wire Sub-Harness No. 8 | HORN BUTTON ASSY<br>CURTAIN SHIELD AIR BAG ASSY LH |
|  | (09082-10801) | Wire A | HORN BUTTON ASSY<br>CURTAIN SHIELD AIR BAG ASSY LH |
|  | (09082-20801) | Wire B | CURTAIN SHIELD AIR BAG ASSY LH |
|  | (09082-30801) | Wire C | HORN BUTTON ASSY |
|  | 09950-50013 | Puller C Set | SPIRAL CABLE SUB-ASSY<br>INSTR PNL PASS L/DOOR AIR BAG ASSY |
|  | (09951-05010) | Hanger 150 | SPIRAL CABLE SUB-ASSY<br>INSTR PNL PASS L/DOOR AIR BAG ASSY |
|  | (09952-05010) | Slide Arm | SPIRAL CABLE SUB-ASSY<br>INSTR PNL PASS L/DOOR AIR BAG ASSY |
|  | (09953-05020) | Center Bolt 150 | SPIRAL CABLE SUB-ASSY<br>INSTR PNL PASS L/DOOR AIR BAG ASSY |
|  | (09954-05021) | Claw No. 2 | SPIRAL CABLE SUB-ASSY<br>INSTR PNL PASS L/DOOR AIR BAG ASSY |

## Recommended Tools

| | | |
|---|---|---|
|  | 09042-00010 Torx Socket T30 | HORN BUTTON ASSY<br>SPIRAL CABLE SUB-ASSY<br>INSTR PNL PASS L/DOOR AIR BAG ASSY<br>SEAT POSITION AIR BAG SENSOR |

Torx is a registered trademark of Textron Inc.

## Equipment

| | |
|---|---|
| Torque wrench | |
| Feeler gauge | |
| Bolt<br>Length: 35.0 mm (1.378 in.)<br>Pitch: 1.0 mm (0.039 in.)<br>Diameter: 6.0 mm (0.236 in.) | Airbag disposal |
| Tire<br>Width: 185 mm (7.28 in.)<br>Inner diameter: 360 mm (14.17 in.) | Airbag disposal |
| Tire with disc wheel<br>Width: 185 mm (7.28 in.)<br>Inner diameter: 360 mm (14.17 in.) | Airbag disposal |
| Plastic bag | Airbag disposal |

# LIGHTING

022IF-01

# PREPARATION

## Recomended Tools

| | | | |
|---|---|---|---|
|  | 09082-00040 | TOYOTA Electrical Tester | LIGHTING SYSTEM |
|  | (09083-00150) | Test Lead Set | LIGHTING SYSTEM |

## Equipment

| | |
|---|---|
| Voltmeter | |
| Anmeter | |
| Ohmmeter | |
| Strap | |

# COMMUNICATION SYSTEM

022I7-01

## PREPARATION

### Recomended Tools

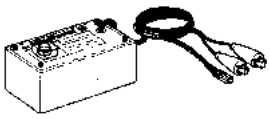
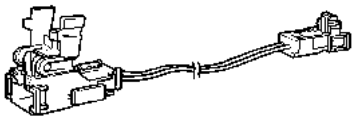
| | | | |
|---|---|---|---|
|  | 09082-00040 | TOYOTA Electrical Tester | HORN SYSTEM |

# SEAT BELT

022J3-01

## PREPARATION

### SST

| | | | |
|---|---|---|---|
|  | 09082-00700 | SRS Airbag Deployment Tool | FRONT SEAT BELT |
|  | 09082-00770 | Airbag Deployment Wire Sub-harness No.5 | FRONT SEAT BELT |

### Recomended Tools

| | | | |
|---|---|---|---|
|  | 09082-00040 | TOYOTA Electrical Tester | SEAT BELT WARNING SYSTEM |

### Equipment

| | |
|---|---|
| Torque wrench | |

# WIPER & WASHER

022GI-01

# PREPARATION

## Recomended Tools

| | | | |
|---|---|---|---|
|  | 09082-00040 | TOYOTA Electrical Tester | WIPER AND WASHER SYSTEM |
|  | (09083-00150) | Test Lead Set | WIPER AND WASHER SYSTEM |

## Equipment

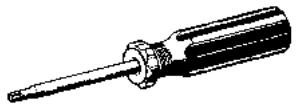
| | |
|---|---|
| Torque wrench | |

# SLIDING ROOF/CONVERTIBLE

022H7-02

## PREPARATION

### Recomended Tools

| | | | |
|---|---|---|---|
|  | 09041-00020 | Torx Driver T25 | SLIDING ROOF |
|  | 09082-00040 | TOYOTA Electrical Tester | SLIDING ROOF SYSTEM |

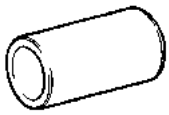
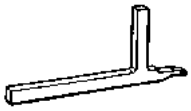
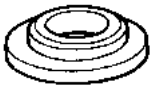
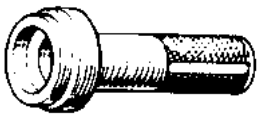
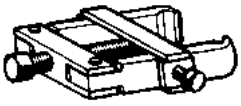
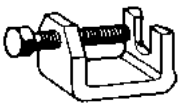
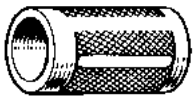
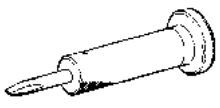
**Torx is a registered trademark of Textron Inc.**

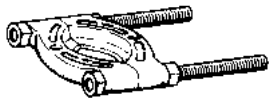
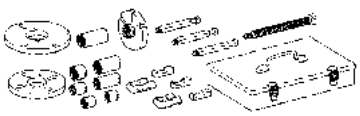
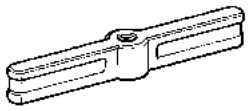
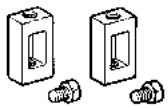
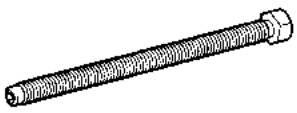
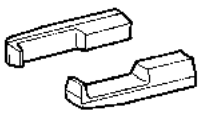
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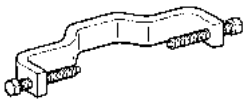
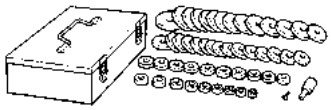
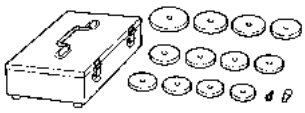
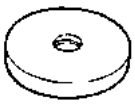
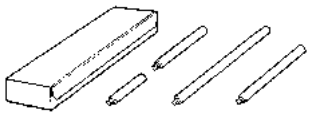
022IA-01

## PREPARATION

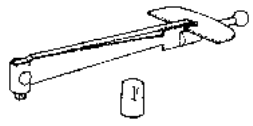
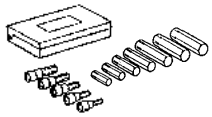
### SST

| | | | |
|---|---|---|---|
|  | 09223-00010 | Cover & Seal Replacer | DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | 09308-00010 | Oil Seal Puller | DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | 09308-10010 | Oil Seal Puller | REAR DIFFERENTIAL CARRIER OIL SEAL(4WD)<br>DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | 09330-00021 | Companion Flange Holding Tool | REAR DIFFERENTIAL CARRIER OIL SEAL(4WD)<br>DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | 09504-22011 | Differential Side Bearing Replacer | DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | 09506-30012 | Differential Drive Pinion Rear Bearing Cone Replacer | DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | 09550-00032 | Replacer | DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | 09554-22010 | Differential Oil Seal Replacer | REAR DIFFERENTIAL CARRIER OIL SEAL(4WD)<br>DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | 09556-22010 | Drive Pinion Front Bearing Remover | REAR DIFFERENTIAL CARRIER OIL SEAL(4WD)<br>DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | 09611-12010 | Tie Rod End Puller | REAR DIFFERENTIAL SIDE GEAR SHAFT BOLT(4WD) |
|  | 09636-20010 | Upper Ball Joint Dust Cover Replacer | DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | 09930-00010 | Drive Shaft Nut Chisel | REAR DIFFERENTIAL CARRIER OIL SEAL(4WD)<br>DIFFERENTIAL CARRIER ASSY REAR(4WD) |

| | | | |
|---|---|---|---|
|  | 09950-00020 | Bearing Remover | DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | 09950-30012 | Puller A Set | REAR DIFFERENTIAL CARRIER OIL SEAL(4WD)<br>DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | (09951-03010) | Upper Plate | REAR DIFFERENTIAL CARRIER OIL SEAL(4WD)<br>DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | (09953-03010) | Center Bolt | REAR DIFFERENTIAL CARRIER OIL SEAL(4WD)<br>DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | (09954-03010) | Arm | REAR DIFFERENTIAL CARRIER OIL SEAL(4WD)<br>DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | (09955-03030) | Lower Plate 130 | REAR DIFFERENTIAL CARRIER OIL SEAL(4WD)<br>DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | (09956-03020) | Adapter 18 | REAR DIFFERENTIAL CARRIER OIL SEAL(4WD)<br>DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | 09950-4001 1 | Puller B Set | DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | (09951-04020) | Hanger 200 | DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | (09952-04010) | Slide Arm | DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | (09953-04030) | Center Bolt 200 | DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | (09954-04010) | Arm 25 | DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | (09955-04061) | Claw No.6 | DIFFERENTIAL CARRIER ASSY REAR(4WD) |

| | | | |
|---|---|---|---|
|  | (09957-04010) | Attachment | DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | (09958-0401 1) | Holder | DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | 09950-60010 | Replacer Set | DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | (09951-00360) | Replacer 36 | DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | (09951-00620) | Replacer 62 | DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | 09950-60020 | Replacer Set No.2 | DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | (09951-00710) | Replacer 71 | DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | 09950-70010 | Handle Set | DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | (09951-07150) | Handle 150 | DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | (09951-07200) | Handle 200 | DIFFERENTIAL CARRIER ASSY REAR(4WD) |

## Recomended Tools

| | | | |
|---|---|---|---|
|  | 09025-00010 | Torque Wrench (30 kgf-cm) | DIFFERENTIAL CARRIER ASSY REAR(4WD) |
|  | 09040-0001 1 | Hexagon Wrench Set | REAR DIFFERENTIAL CARRIER OIL SEAL(4WD)<br>DIFFERENTIAL CARRIER ASSY REAR(4WD) |

## Equipment

| | |
|---|---|
| Torque wrench | |
| Dial indicator | |
| Micrometer | |
| Vernier caliper | |

## Lubricant

| Item | Capacity | Classification |
|---|---|---|
| Differential oil | 0.90 ± 0.05 liters<br>(0.95 ± 0.05 US qts, 0.75 ± 0.04 lmp.qts) | Hypoid gear oil API GL-5<br>Above -18°C (0°F)<br>SAE 90<br>Below -18°C (0°F)<br>SAE 80W or 80W-90 |

## SSM

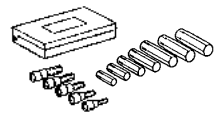
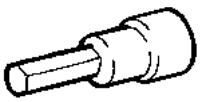
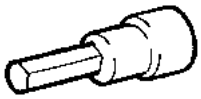
| | | |
|---|---|---|
| | 08826-00090 ”Seal Packing 1281,”<br>THREE BOND 1281 or equivalent<br>(FIPG) | |

# ENGINE CONTROL SYSTEM

022IH-01

# PREPARATION

## Recomended Tools

| | | | |
|---|---|---|---|
|  | 09040-0001 1 | Hexagon Wrench Set | KNOCK SENSOR<br>THROTTLE BODY ASSY |
|  | (09043-20050) | Socket Hexagon Wrench 5 | KNOCK SENSOR<br>THROTTLE BODY ASSY |
|  | (09043-20080) | Socket Hexagon Wrench 8 | KNOCK SENSOR |
|  | 09082-00040 | TOYOTA Electrical Tester | SFI SYSTEM |
|  | (09083-00150) | Test Lead Set | SFI SYSTEM |

## Equipment

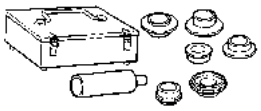
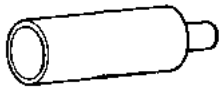
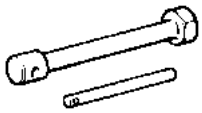
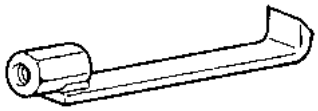
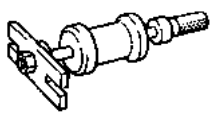
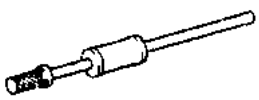
| | |
|---|---|
| Ohmmeter | |
| Radiator cap tester | |
| Torque wrench | |

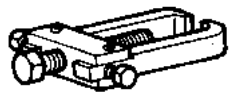
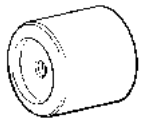
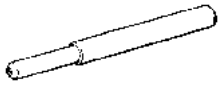
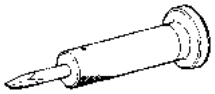
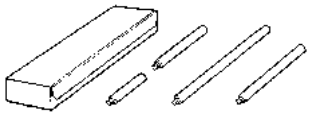
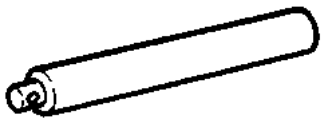
# AUTOMATIC TRANSMISSION / TRANS

022IB-02

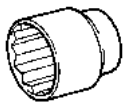
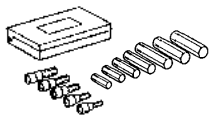
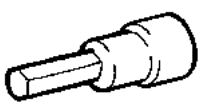
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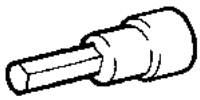
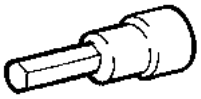
### SST

| | | | |
|---|---|---|---|
|  | 09023-12701 | Union Nut Wrench 17 mm | AUTOMATIC TRANSAXLE ASSY (U151E/U151F) |
|  | 09223-15020 | Oil Seal & Bearing Replacer | FRONT DIFFERENTIAL OIL SEAL(U151E)<br>FRONT DIFFERENTIAL OIL SEAL(U151F) |
|  | 09308-00010 | Oil Seal Puller | FRONT DIFFERENTIAL OIL SEAL(U151E)<br>FRONT DIFFERENTIAL OIL SEAL(U151F) |
|  | 09316-6001 1 | Transmission & Transfer Bearing Replacer | FRONT DIFFERENTIAL OIL SEAL(U151E) |
|  | (09316-0001 1) | Replacer Pipe | FRONT DIFFERENTIAL OIL SEAL(U151E) |
|  | 09325-20010 | Transmission Oil Plug | AUTOMATIC TRANSAXLE ASSY(U151E/U151F) |
|  | 09350-32014 | TOYOTA Automatic Transmission Tool Set | TORQUE CONVERTER CLUTCH AND DRIVE PLATE(ATM)<br>AUTOMATIC TRANSAXLE ASSY(U151E/U151F) |
|  | (09351-32010) | One-way Clutch Test Tool | TORQUE CONVERTER CLUTCH AND DRIVE PLATE(ATM)<br>AUTOMATIC TRANSAXLE ASSY(U151E/U151F) |
|  | (09351-32020) | Stator Stopper | TORQUE CONVERTER CLUTCH AND DRIVE PLATE(ATM)<br>AUTOMATIC TRANSAXLE ASSY(U151E/U151F) |
|  | 09520-01010 | Drive Shaft Remover Attachment | AUTOMATIC TRANSAXLE ASSY(U151E/U151F) |
|  | 09520-24010 | Differential Side Gear Shaft Puller | AUTOMATIC TRANSAXLE ASSY(U151E/U151F) |
|  | (09520-32040) | Shocker Set | AUTOMATIC TRANSAXLE ASSY(U151E/U151F) |

| | | | |
|---|---|---|---|
|  | 09628-6201 1 | Boll Joint Puller | AUTOMATIC TRANSAXLE ASSY(U151E/U151F) |
|  | 09649-17010 | Steering Knuckle Tool | FRONT DIFFERENTIAL OIL SEAL(U151F) |
|  | 09670-00010 | Front Crossmember Guide Tool | FRONT DIFFERENTIAL OIL SEAL(U151F) |
|  | 09843-18040 | Diagnosis Check Wire No.2 | AUTOMATIC TRANSAXLE ASSY(U151E/U151F) |
|  | 09930-00010 | Drive Shaft Nut Chisel | AUTOMATIC TRANSAXLE ASSY(U151E/U151F) |
|  | 09950-70010 | Handle Set | FRONT DIFFERENTIAL OIL SEAL(U151E)<br>FRONT DIFFERENTIAL OIL SEAL(U151F) |
|  | (09951-07150) | Handle 150 | FRONT DIFFERENTIAL OIL SEAL(U151E)<br>FRONT DIFFERENTIAL OIL SEAL(U151F) |
|  | (09951-07200) | Handle 200 | FRONT DIFFERENTIAL OIL SEAL(U151F) |

## Recomended Tools

| | | | |
|---|---|---|---|
|  | 09011-12301 | Socket Wrench 30 mm | AUTOMATIC TRANSAXLE ASSY(U151E/U151F) |
|  | 09040-0001 1 | Hexagon Wrench Set | TRANSMISSION WIRE(U151E/U151F)<br>TRANSMISSION VALVE BODY ASSY(U151E/U151F)<br>AUTOMATIC TRANSAXLE ASSY(U151E/U151F)<br>FRONT DIFFERENTIAL OIL SEAL(U151F) |
|  | (09043-20050) | Socket Hexagon Wrench 5 | AUTOMATIC TRANSAXLE ASSY(U151E/U151F) |

| | | | |
|---|---|---|---|
|  | (09043-20100) | Socket Hexagon Wrench 10 | FRONT DIFFERENTIAL OIL SEAL(U151E)<br>TRANSMISSION WIRE(U151E/U151F)<br>TRANSMISSION VALVE BODY ASSY(U151E/U151F)<br>AUTOMATIC TRANSAXLE ASSY(U151E/U151F)<br>FRONT DIFFERENTIAL OIL SEAL(U151F) |
|  | (09043-20060) | Socket Hexagon Wrench 6 | AUTOMATIC TRANSAXLE ASSY(U151E/U151F) |
|  | 09070-20010 | Moulding Remover | SHIFT LEVER ASSY |
|  | 09090-04020 | Engine Sling Device | AUTOMATIC TRANSAXLE ASSY(U151E/U151F)<br>FRONT DIFFERENTIAL OIL SEAL(U151F) |
|  | 09216-00021 | Belt Tension Gauge | AUTOMATIC TRANSAXLE ASSY(U151E/U151F) |

## SSM

| | | | |
|---|---|---|---|
| | 08833-00070 | "Adhesive 1324,"<br>THREE BOND 1324 or equivalent | AUTOMATIC TRANSAXLE ASSY(U151E/U151F) |
| | 08833-00080 | Adhesive 1344<br>THREE BOND 1344<br>LOCTITE 242 or equivalent | TRANSMISSION WIRE(U151E/U151F)<br>TRANSMISSION VALVE BODY ASSY(U151E/U151F) |

## Equipment

| | |
|---|---|
| Straight edge | Automatic transaxle assy |
| Torque wrench | |
| Vernier calipers | Automatic transaxle assy |
| Dial indicator with magnetic base | Torque converter and drive plate |
| Slide calipers | Automatic transaxle assy |
| Chain block | Automatic transaxle assy |

## Lubricant

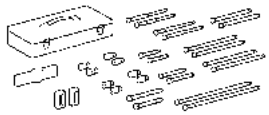
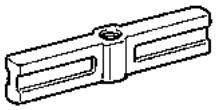
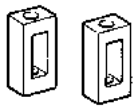
| | | |
|---|---|---|
| U151E<br>Automatic transaxle fluid<br>Dry fill<br>Drain and refill | <br><br>8.8 liter (9.3 USqts, 7.7 lmp.qts)<br>3.5 liter (3.7 USqts, 3.1 lmp.qts) | ATF type T-IV |
| U151F<br>Automatic transaxle fluid<br>Dry fill<br>Drain and refill | <br><br>9.0 liter (9.5 USqts, 7.9 lmp.qts)<br>3.6 liter (3.8 USqts, 3.2 lmp.qts) | ATF type T-IV |

# INSTRUMENT PANEL/METER

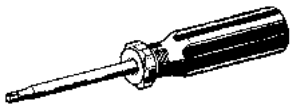
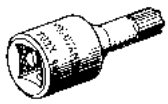
022G5-02

## PREPARATION

### SST

| | | | |
|---|---|---|---|
|  | 09950-50013 | Puller C Set | INSTRUMENT PANEL SAFETY PAD SUB-ASSY |
|  | (09951-05010) | Hanger 150 | INSTRUMENT PANEL SAFETY PAD SUB-ASSY |
|  | (09952-05010) | Slide Arm | INSTRUMENT PANEL SAFETY PAD SUB-ASSY |
|  | (09953-05020) | Center Bolt 150 | INSTRUMENT PANEL SAFETY PAD SUB-ASSY |
|  | (09954-05021) | Claw No.2 | INSTRUMENT PANEL SAFETY PAD SUB-ASSY |

### Recomended Tools

| | | | |
|---|---|---|---|
|  | 09082-00040 | TOYOTA Electrical Tester | COMBINATION METER |
|  | (09083-00150) | Test Lead Set | COMBINATION METER |
|  | 09041-00030 | Torx Driver T30 | INSTRUMENT PANEL SAFETY PAD SUB-ASSY |
|  | 09042-00010 | Torx Socket T30 | INSTRUMENT PANEL SAFETY PAD SUB-ASSY |
|  | 09070-20010 | Moulding Remover | INSTRUMENT PANEL SAFETY PAD SUB-ASSY |

**Torx is a registered trademark of Textron Inc.**

### Equipment

| | |
|---|---|
| Torque wrench | |
| Tape | To avoid surface damage |

# SEAT

022I6-02

# PREPARATION

## Recomended Tools

| | | | |
|---|---|---|---|
|  | 09082-00040 | TOYOTA Electrical Tester | FRONT POWER SEAT CONTROL SYSTEM<br>SEAT HEATER SYSTEM |

## Equipment

| | |
|---|---|
| Hog ring | |
| Hog ring pliers | |
| Tape | To avoid surface damage |
| Torque wrench | |

# ENGINE HOOD/DOOR

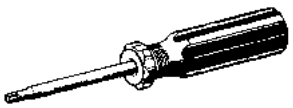
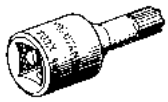
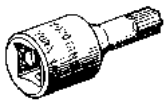
022IP-02

## PREPARATION

### SST

| | | | |
|---|---|---|---|
|  | 09812-00010 | Door Hinge Set Bolt Wrench | FRONT DOOR<br>SLIDE DOOR<br>POWER SLIDE DOOR |
|  | 09812-00020 | Door Hinge Set Bolt Wrench | FRONT DOOR<br>SLIDE DOOR<br>POWER SLIDE DOOR |

### Recomended Tools

| | | | |
|---|---|---|---|
|  | 09041-00020 | Torx Driver T25 | POWER SLIDE DOOR |
|  | 09042-00010 | Torx Socket T30 | FRONT DOOR<br>SLIDE DOOR<br>POWER SLIDE DOOR<br>POWER BACK DOOR |
|  | 09042-00020 | Torx Socket T40 | FRONT DOOR<br>SLIDE DOOR<br>BACK DOOR<br>POWER SLIDE DOOR<br>POWER BACK DOOR |
|  | 09082-00040 | TOYOTA Electrical Tester | SLIDE DOOR SYSTEM<br>POWER BACK DOOR SYSTEM |

**Torx is a registered trademark of Textron Inc.**

### SSM

| | | | |
|---|---|---|---|
| | 08833-00070 | "Adhesive 1324,"<br>THREE BOND 1324 or equivalent | FRONT DOOR<br>SLIDE DOOR<br>POWER SLIDE DOOR |

### Equipment

| | |
|---|---|
| Clip remover | |
| Plastic-faced hammer | |
| Tape | To avoid surface damage |
| Tire | |
| Torque wrench | |

# EXTERIOR/INTERIOR TRIM

022IU-01

## PREPARATION

### Recomended Tools

| | | |
|---|---|---|
|  09070-20010 Moulding Remover | | FRONT DOOR WINDOW FRAME MOULDING REAR LH<br>ROOF HEADLINING ASSY |

### Equipment

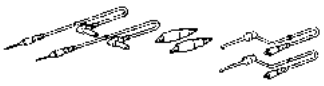
| | |
|---|---|
| Clip remover | |
| Double-sided tape | |
| Heat light | Moulding |
| Protective tape | To avoid surface damage. |
| Piano wire | |
| Torque wrench | |
| Wooden block or similar object | For tying both piano wire ends |

# WINDSHIELD/WINDOWGLASS/MIRROR

022IQ-01

## PREPARATION

### Recomended Tools

| | | | |
|---|---|---|---|
|  | 09082-00040 | TOYOTA Electrical Tester | WINDOW DEFOGGER SYSTEM<br>POWER MIRROR CONTROL SYSTEM<br>POWER WINDOW CONTROL SYSTEM(W/O JAM PROTECTION) |
|  | (09083-00150) | Test Lead Set | POWER WINDOW CONTROL SYSTEM(W/O JAM PROTECTION) |

### Equipment

| | |
|---|---|
| Knife | |
| Piano wire | Windshield |
| Plastic sheet | To avoid surface damage. |
| Sealer gun | |
| Tape | To avoid surface damage. |
| Torque wrench | |
| Wooden block or similar object | For tying both piano wire ends |

### SSM

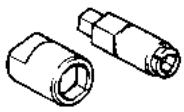
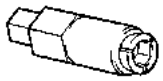
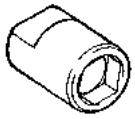
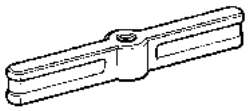
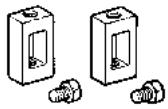
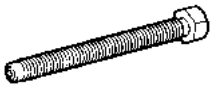
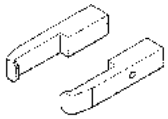
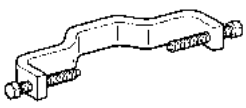
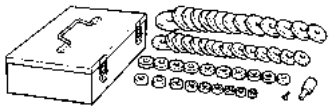
| | | | |
|---|---|---|---|
| | 08850-00801 | Windshield Glass Adhesive Set<br>or equivalent | WINDSHIELD GLASS<br>BACK DOOR GLASS |

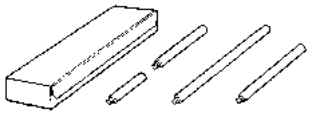
# STARTING & CHARGING

022IN-01

## PREPARATION

### SST

| | | | |
|---|---|---|---|
|  | 09820-63010 | Alternator Pulley Set Nut Wrench Set | GENERATOR ASSY |
|  | (09820-06010) | Alternator Rotor Shaft Wrench | GENERATOR ASSY |
|  | (09820-06020) | Alternator Pulley Set Nut 22 mm Wrench | GENERATOR ASSY |
|  | 09950-4001 1 | Puller B Set | GENERATOR ASSY |
|  | (09951-04020) | Hanger 200 | GENERATOR ASSY |
|  | (09952-04010) | Slide Arm | GENERATOR ASSY |
|  | (09953-04020) | Center Bolt 150 | GENERATOR ASSY |
|  | (09954-04010) | Arm 25 | GENERATOR ASSY |
|  | (09955-04071) | Claw No.7 | GENERATOR ASSY |
|  | (09957-04010) | Attachment | GENERATOR ASSY |
|  | (09958-0401 1) | Holder | GENERATOR ASSY |
|  | 09950-60010 | Replacer Set | GENERATOR ASSY |

| | | | |
|---|---|---|---|
|  | (09951-00250) | Replacer 25 | GENERATOR ASSY |
|  | (09951-00470) | Replacer 47 | GENERATOR ASSY |
|  | 09950-70010 | Handle Set | GENERATOR ASSY |
|  | (09951-07100) | Handle 100 | GENERATOR ASSY |

## Recomended Tools

| | | | |
|---|---|---|---|
|  | 09082-00040 | TOYOTA Electrical Tester | GENERATOR ASSY |
|  | (09083-00150) | Test Lead Set | GENERATOR ASSY |
|  | 09216-00021 | Belt Tension Gauge | GENERATOR ASSY |
|  | 09904-00010 | Expander Set | STARTER ASSY |
|  | (09904-00050) | No. 4 Claw | STARTER ASSY |

## Equipment

| | |
|---|---|
| Ammeter(A) | |
| Dial indicator | |
| Ohmmeter | |
| Service Wire Harness | |
| Torque wrench | |
| Vernier calipers | |

# EMISSION CONTROL

022IJ-01

# PREPARATION

## Equipment

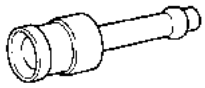
| | |
|---|---|
| Ohmmeter | |
| Torque wrench | |

# FUEL

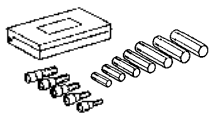
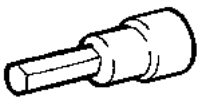
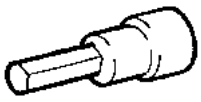
## PREPARATION

022II-01

### SST

| | | | |
|---|---|---|---|
|  | 09268-41047 | Injection Measuring Tool Set | FUEL SYSTEM |
|  | (09268-41 110) | Adaptor | FUEL SYSTEM |
|  | (09268-41300) | Clamp | FUEL SYSTEM |
|  | (95336-08070) | Hose | FUEL SYSTEM |
|  | 09842-30070 | Wire ”F” EFI Inspection | FUEL SYSTEM |

### Recomended Tools

| | | | |
|---|---|---|---|
|  | 09040-0001 1 | Hexagon Wrench Set | FUEL INJECTOR ASSY |
|  | (09043-20050) | Socket Hexagon Wrench 5 | FUEL INJECTOR ASSY |
|  | (09043-20080) | Socket Hexagon Wrench 8 | FUEL INJECTOR ASSY |
|  | 09082-00040 | TOYOTA Electrical Tester | FUEL SYSTEM |
|  | (09083-00150) | Test Lead Set | FUEL SYSTEM |

### Equipment

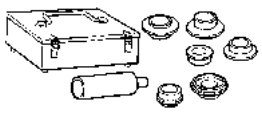
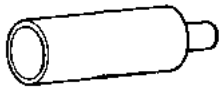
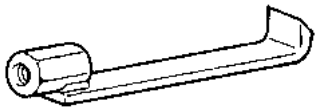
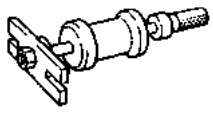
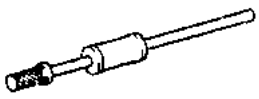
| | |
|---|---|
| Clip | |
| Measuring Flask | |
| Ohmmeter | |
| Radiator cap tester | |
| Stopwatch | |
| Torque wrench | |

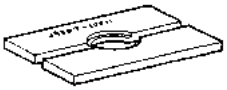
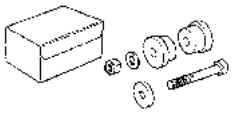
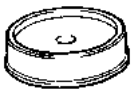
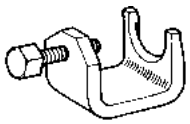
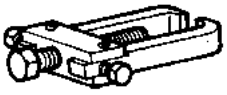
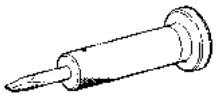
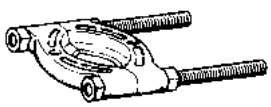
# DRIVE SHAFT / PROPELLER SHAFT

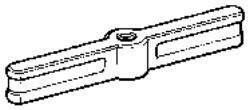
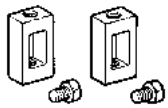
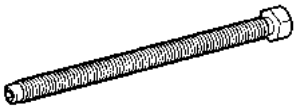
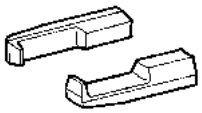
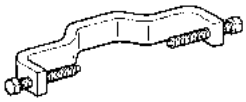
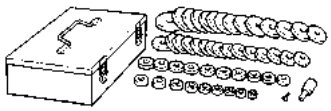
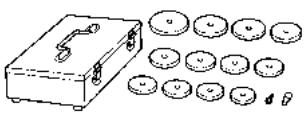
022GJ-01

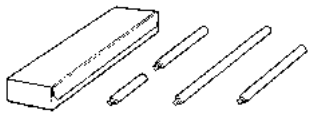
## PREPARATION

### SST

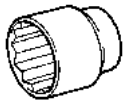
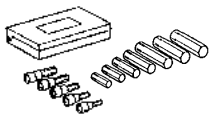
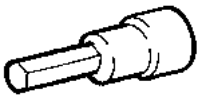
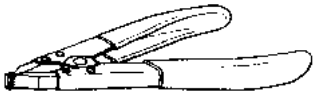
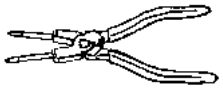
| | | | |
|---|---|---|---|
|  | 09240-00020 | Wire Gauge Set | FRONT DRIVE SHAFT<br>REAR DRIVE SHAFT(4WD) |
|  | 09316-6001 1 | Transmission & Transfer Bearing Replacer | FRONT AXLE HUB SUB-ASSY LH |
|  | (09316-0001 1) | Replacer Pipe | FRONT AXLE HUB SUB-ASSY LH |
|  | (09316-00031) | Replacer ”B” | FRONT AXLE HUB SUB-ASSY LH |
|  | 09325-20010 | Transmission Oil Plug | PROPELLER W/CENTER BEARING SHAFT ASSY(4WD) |
|  | 09330-00021 | Companion Flange Holding Tool | PROPELLER W/CENTER BEARING SHAFT ASSY(4WD) |
|  | 09370-50010 | Drive Line Angle Gauge | PROPELLER W/CENTER BEARING SHAFT ASSY(4WD) |
|  | 09520-00031 | Rear Axle Shaft Puller | FRONT AXLE HUB SUB-ASSY LH |
|  | 09520-01010 | Drive Shaft Remover Attachment | FRONT DRIVE SHAFT |
|  | 09520-24010 | Differential Side Gear Shaft Puller | FRONT DRIVE SHAFT |
|  | (09520-32040) | Shocker Set | FRONT DRIVE SHAFT |
|  | 09521-24010 | Rear Axle Shaft Puller | FRONT DRIVE SHAFT<br>REAR DRIVE SHAFT(4WD) |

| | | | |
|---|---|---|---|
|  | 09527-1001 1 | Rear Axle Shaft Bearing Remover | FRONT DRIVE SHAFT |
|  | 09527-1701 1 | Rear Axle Shaft Bearing Remover | FRONT AXLE HUB SUB-ASSY LH |
|  | 09608-16042 | Front Hub Bearing Adjusting Tool | FRONT DRIVE SHAFT<br>REAR DRIVE SHAFT(4WD) |
|  | (09608-02021) | Bolt & Nut | FRONT DRIVE SHAFT<br>REAR DRIVE SHAFT(4WD) |
|  | (09608-02041) | Retainer | FRONT DRIVE SHAFT<br>REAR DRIVE SHAFT(4WD) |
|  | 09608-32010 | Steering Knuckle Oil Seal Replacer | FRONT AXLE HUB SUB-ASSY LH |
|  | 09628-1001 1 | Ball Joint Puller | FRONT AXLE LH HUB BOLT<br>REAR AXLE LH HUB BOLT |
|  | 09628-6201 1 | Boll Joint Puller | FRONT AXLE HUB SUB-ASSY LH<br>FRONT DRIVE SHAFT |
|  | 09710-30021 | Suspension Bushing Tool Set | FRONT DRIVE SHAFT |
|  | (09710-03141) | Bushing Remover Base | FRONT DRIVE SHAFT |
|  | 09726-40010 | Lower Control Shaft Bearing Replacer | FRONT DRIVE SHAFT |
|  | 09930-00010 | Drive Shaft Nut Chisel | FRONT AXLE HUB SUB-ASSY LH<br>FRONT DRIVE SHAFT<br>REAR DRIVE SHAFT(4WD)<br>REAR AXLE HUB & BEARING ASSY LH(4WD) |
|  | 09950-00020 | Bearing Remover | FRONT AXLE HUB SUB-ASSY LH<br>FRONT DRIVE SHAFT |

| | | | |
|---|---|---|---|
|  | 09950-4001 1 | Puller B Set | PROPELLER W/CENTER BEARING SHAFT ASSY(4WD) |
|  | (09951-04020) | Hanger 200 | PROPELLER W/CENTER BEARING SHAFT ASSY(4WD) |
|  | (09952-04010) | Slide Arm | PROPELLER W/CENTER BEARING SHAFT ASSY(4WD) |
|  | (09953-04030) | Center Bolt 200 | PROPELLER W/CENTER BEARING SHAFT ASSY(4WD) |
|  | (09954-04010) | Arm 25 | PROPELLER W/CENTER BEARING SHAFT ASSY(4WD) |
|  | (09955-04061) | Claw No.6 | PROPELLER W/CENTER BEARING SHAFT ASSY(4WD) |
|  | (09957-04010) | Attachment | PROPELLER W/CENTER BEARING SHAFT ASSY(4WD) |
|  | (09958-0401 1) | Holder | PROPELLER W/CENTER BEARING SHAFT ASSY(4WD) |
|  | 09950-60010 | Replacer Set | FRONT AXLE HUB SUB-ASSY LH |
|  | (09951-00430) | Replacer 43 | FRONT AXLE HUB SUB-ASSY LH |
|  | (09951-00600) | Replacer 60 | FRONT AXLE HUB SUB-ASSY LH |
|  | 09950-60020 | Replacer Set No.2 | FRONT AXLE HUB SUB-ASSY LH |
|  | (09951-00810) | Replacer 81 | FRONT AXLE HUB SUB-ASSY LH |

| | | | |
|---|---|---|---|
|  | 09950-70010 | Handle Set | FRONT AXLE HUB SUB-ASSY LH |
|  | (09951-07100) | Handle 100 | FRONT AXLE HUB SUB-ASSY LH |

## Recomended Tools

| | | | |
|---|---|---|---|
|  | 09011-12301 | Socket Wrench 30 mm | FRONT AXLE HUB SUB-ASSY LH<br>FRONT DRIVE SHAFT<br>REAR DRIVE SHAFT(4WD)<br>REAR AXLE HUB & BEARING ASSY LH(4WD) |
|  | 09040-0001 1 | Hexagon Wrench Set | FRONT DRIVE SHAFT<br>PROPELLER W/CENTER BEARING SHAFT ASSY(4WD) |
|  | (09043-20060) | Socket Hexagon Wrench 6 | FRONT DRIVE SHAFT<br>PROPELLER W/CENTER BEARING SHAFT ASSY(4WD) |
|  | 09904-00010 | Expander Set | REAR DRIVE SHAFT(4WD) |
|  | (09904-00050) | No. 4 Claw | REAR DRIVE SHAFT(4WD) |
|  | 09905-00012 | Snap Ring No.1 Expander | FRONT DRIVE SHAFT |
|  | 09905-00013 | Snap Ring Pliers | FRONT AXLE HUB SUB-ASSY LH |

## Equipment

| | |
|---|---|
| Torque wrench | |
| Dial Indicator with magnetic base | |

## Lubricant

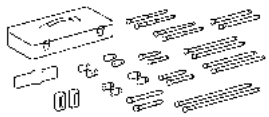
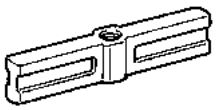
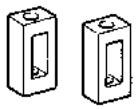
| Item | | Capacity |
|---|---|---|
| Front drive shaft | | |
| 2WD | Outboard joint grease | 35 - 55 g (1.2 - 1.9 oz.) |
| | Inboard joint grease | 95 - 115 g (3.4 - 4.1 oz.) |
| 4WD | Outboard joint grease | 40 - 60 g (1.4 - 2.1 oz.) |
| | Inboard joint grease | 110 - 130 g (3.9 - 4.6 oz.) |
| Rear drive shaft | | |
| | Outboard joint grease | 90 - 110 g (3.2 - 3.9 oz.) |
| | Inboard joint grease | 130 - 150 g (4.6 - 5.3 oz.) |

# AUDIO & VISUAL SYSTEM

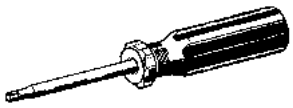
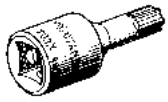
022IG-02

## PREPARATION

### SST

| | | | |
|---|---|---|---|
|  | 09950-50013 | Puller C Set | ANTENNA CORD SUB-ASSY<br>NAVIGATION ANTENNA ASSY |
|  | (09951-05010) | Hanger 150 | ANTENNA CORD SUB-ASSY<br>NAVIGATION ANTENNA ASSY |
|  | (09952-05010) | Slide Arm | ANTENNA CORD SUB-ASSY<br>NAVIGATION ANTENNA ASSY |
|  | (09953-05020) | Center Bolt 150 | ANTENNA CORD SUB-ASSY<br>NAVIGATION ANTENNA ASSY |
|  | (09954-05021) | Claw No.2 | ANTENNA CORD SUB-ASSY<br>NAVIGATION ANTENNA ASSY |

### Recomended Tools

| | | | |
|---|---|---|---|
|  | 09041-00030 | Torx Driver T30 | ANTENNA CORD SUB-ASSY<br>NAVIGATION ANTENNA ASSY |
|  | 09042-00010 | Torx Socket T30 | STEERING PAD SWITCH LH<br>ANTENNA CORD SUB-ASSY<br>NAVIGATION ANTENNA ASSY |
|  | 09070-20010 | Moulding Remover | CIGARETTE LIGHTER ASSY<br>POWER POINT SOCKET ASSY<br>RADIO RECEIVER ASSY<br>RADIO RECEIVER ASSY<br>STEREO COMPONENT SPEAKER ASSY<br>ANTENNA CORD SUB-ASSY<br>NAVIGATION ANTENNA ASSY<br>W/HOLDER ANTENNA ASSY |

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### Equipment

| | |
|---|---|
| Voltmeter | |
| Anmeter | |
| Ohmmeter | |
| Strap | |
| Torque wrench | |

# IGNITION

022IM-01

## PREPARATION

### Recomended Tools

| | | | |
|---|---|---|---|
|  | 09082-00040 | TOYOTA Electrical Tester | IGNITION SYSTEM |
|  | (09083-00150) | Test Lead Set | IGNITION SYSTEM |
|  | 09200-00010 | Engine Adjust Kit | IGNITION SYSTEM |
|  | (09857-00031) | Spark Plug Gap Gauge | IGNITION SYSTEM |

### Equipment

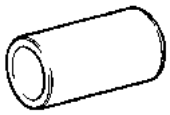
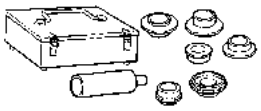
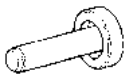
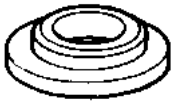
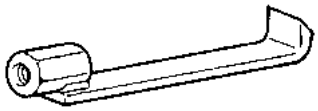
| | |
|---|---|
| Torque wrench | |
| Ohmmeter | |

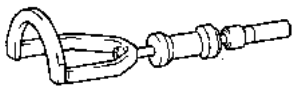
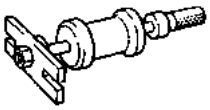
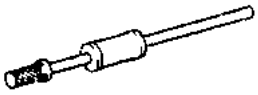
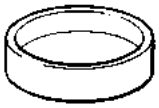
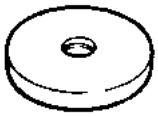
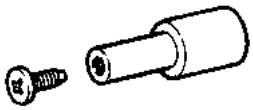
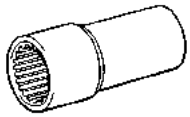
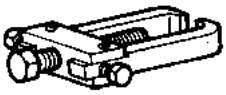
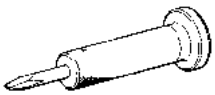
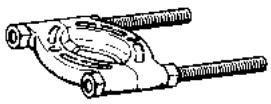
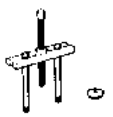
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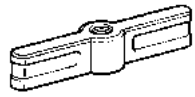
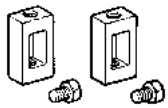
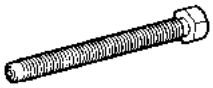
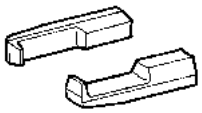
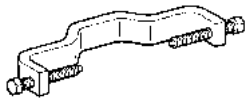
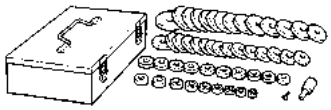
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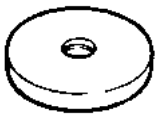
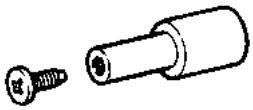
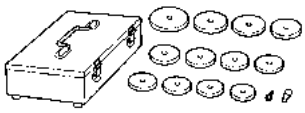
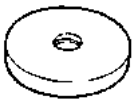
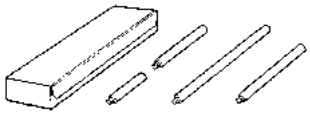
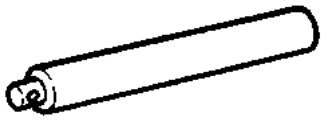
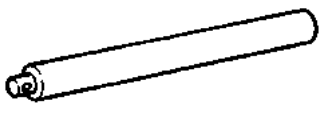
## PREPARATION

### SST

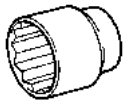
| | | | |
|---|---|---|---|
|  | 09223-00010 | Cover & Seal Replacer | TRANSFER ASSY(4WD) |
|  | 09223-4601 1 | Crankshaft Front Oil Seal Replacer | TRANSFER RH BEARING RETAINER OIL SEAL(4WD)<br>TRANSFER ASSY(4WD) |
|  | 09308-00010 | Oil Seal Puller | TRANSFER RH BEARING RETAINER OIL SEAL(4WD)<br>TRANSFER CASE OIL SEAL(4WD)<br>TRANSFER EXTENSION HOUSING TYPE T OIL SEAL(4WD)<br>TRANSFER ASSY(4WD) |
|  | 09316-6001 1 | Transmission & Transfer Bearing Replacer | TRANSFER ASSY(4WD) |
|  | (09316-00021) | Replacer "A" | TRANSFER ASSY(4WD) |
|  | (09316-00041) | Replacer "C" | TRANSFER ASSY(4WD) |
|  | (09316-00061) | Replacer "E" | TRANSFER ASSY(4WD) |
|  | 09326-2001 1 | Output Shaft Bearing Lock Nut Wrench | TRANSFER ASSY(4WD) |
|  | 09387-00010 | Transfer Oil Seal Replacer | TRANSFER CASE OIL SEAL(4WD)<br>TRANSFER ASSY(4WD) |
|  | 09387-00090 | Senter Differential Sentering Tool | TRANSFER ASSY(4WD) |
|  | 09506-35010 | Differential Drive Pinion Rear Bearing Replacer | TRANSFER ASSY(4WD) |
|  | 09520-01010 | Drive Shaft Remover Attachment | TRANSFER RH BEARING RETAINER OIL SEAL(4WD) |

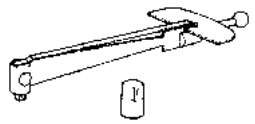
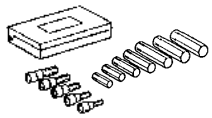
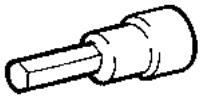
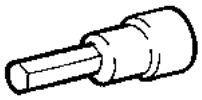
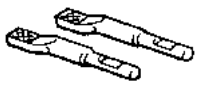
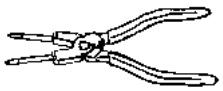
| | | | |
|---|---|---|---|
|  | 09520-10021 | Drive Shaft Remover & Replacer | TRANSFER ASSY(4WD) |
|  | 09520-24010 | Differential Side Gear Shaft Puller | TRANSFER RH BEARING RETAINER OIL SEAL(4WD) |
|  | (09520-32040) | Shocker Set | TRANSFER RH BEARING RETAINER OIL SEAL(4WD) |
|  | 09550-60010 | Differential Side Bearing Replacer | TRANSFER EXTENSION HOUSING TYPE T OIL SEAL(4WD) |
|  | (09951-00380) | Replacer 38 | TRANSFER EXTENSION HOUSING TYPE T OIL SEAL(4WD)<br>TRANSFER ASSY(4WD) |
|  | (09951-00580) | Replacer 58 | TRANSFER EXTENSION HOUSING TYPE T OIL SEAL(4WD)<br>TRANSFER ASSY(4WD) |
|  | (09952-06010) | Adapter | TRANSFER EXTENSION HOUSING TYPE T OIL SEAL(4WD)<br>TRANSFER ASSY(4WD) |
|  | 09556-16030 | Differential Drive Pinion Holding Tool 28 | TRANSFER ASSY(4WD) |
|  | 09628-6201 1 | Boll Joint Puller | TRANSFER RH BEARING RETAINER OIL SEAL(4WD) |
|  | 09930-00010 | Drive Shaft Nut Chisel | TRANSFER RH BEARING RETAINER OIL SEAL(4WD)<br>TRANSFER ASSY(4WD) |
|  | 09950-00020 | Bearing Remover | TRANSFER ASSY(4WD) |
|  | 09950-00030 | Bearing Remover Attachment | TRANSFER ASSY(4WD) |
|  | 09950-4001 1 | Puller B Set | TRANSFER ASSY(4WD) |

| | | | |
|---|---|---|---|
|  | (09951-04010) | Hanger 150 | TRANSFER ASSY(4WD) |
|  | (09952-04010) | Slide Arm | TRANSFER ASSY(4WD) |
|  | (09953-04020) | Center Bolt 150 | TRANSFER ASSY(4WD) |
|  | (09954-04010) | Arm 25 | TRANSFER ASSY(4WD) |
|  | (09955-04061) | Claw No.6 | TRANSFER ASSY(4WD) |
|  | (09957-04010) | Attachment | TRANSFER ASSY(4WD) |
|  | (09958-0401 1) | Holder | TRANSFER ASSY(4WD) |
|  | 09950-60010 | Replacer Set | TRANSFER ASSY(4WD) |
|  | (09951-00360) | Replacer 36 | TRANSFER ASSY(4WD) |
|  | (09951-00380) | Replacer 38 | TRANSFER EXTENSION HOUSING TYPE T OIL SEAL(4WD)<br>TRANSFER ASSY(4WD) |
|  | (09951-00420) | Replacer 42 | TRANSFER ASSY(4WD) |
|  | (09951-00430) | Replacer 43 | TRANSFER ASSY(4WD) |
|  | (09951-00540) | Replacer 54 | TRANSFER ASSY(4WD) |

| | | | |
|---|---|---|---|
|  | (09951-00580) | Replacer 58 | TRANSFER EXTENSION HOUSING TYPE T OIL SEAL(4WD)<br>TRANSFER ASSY(4WD) |
|  | (09951-00610) | Replacer 61 | TRANSFER ASSY(4WD) |
|  | (09951-00620) | Replacer 62 | TRANSFER ASSY(4WD) |
|  | (09951-00750) | Replacer 75 | TRANSFER ASSY(4WD) |
|  | (09951-00770) | Replacer 77 | TRANSFER ASSY(4WD) |
|  | (09951-00810) | Replacer 81 | TRANSFER ASSY(4WD) |
|  | (09952-06010) | Adapter | TRANSFER EXTENSION HOUSING TYPE T OIL SEAL(4WD)<br>TRANSFER ASSY(4WD) |
|  | 09950-60020 | Replacer Set No.2 | TRANSFER ASSY(4WD) |
|  | (09951-00710) | Replacer 71 | TRANSFER ASSY(4WD) |
|  | 09950-70010 | Handle Set | TRANSFER CASE OIL SEAL(4WD)<br>TRANSFER EXTENSION HOUSING TYPE T OIL SEAL(4WD)<br>TRANSFER ASSY(4WD) |
|  | (09951-07150) | Handle 150 | TRANSFER CASE OIL SEAL(4WD)<br>TRANSFER EXTENSION HOUSING TYPE T OIL SEAL(4WD)<br>TRANSFER ASSY(4WD) |
|  | (09951-07200) | Handle 200 | TRANSFER ASSY(4WD) |

## Recomended Tools

| | | | |
|---|---|---|---|
|  | 09011-12301 | Socket Wrench 30 mm | TRANSFER RH BEARING RETAINER OIL SEAL(4WD) |

| | | | |
|---|---|---|---|
|  | 09025-00010 | Torque Wrench (30 kgf-cm) | TRANSFER ASSY(4WD) |
|  | 09040-0001 1 | Hexagon Wrench Set | TRANSFER RH BEARING RETAINER OIL SEAL(4WD)<br>TRANSFER EXTENSION HOUSING TYPE T OIL SEAL(4WD) |
|  | (09043-20060) | Socket Hexagon Wrench 6 | TRANSFER RH BEARING RETAINER OIL SEAL(4WD)<br>TRANSFER EXTENSION HOUSING TYPE T OIL SEAL(4WD) |
|  | (09043-20060) | Socket Hexagon Wrench 6 | TRANSFER RH BEARING RETAINER OIL SEAL(4WD)<br>TRANSFER EXTENSION HOUSING TYPE T OIL SEAL(4WD) |
|  | 09904-00010 | Expander Set | TRANSFER ASSY(4WD) |
|  | (09904-00020) | No. 1 Claw | TRANSFER ASSY(4WD) |
|  | 09905-00013 | Snap Ring Pliers | TRANSFER ASSY(4WD) |
|  | (09904-00090) | Claw Set | TRANSFER ASSY(4WD) |

## SSM

| | | | |
|---|---|---|---|
| | 08826-00090 | "Seal Packing 1281,"<br>THREE BOND 1281 or equivalent<br>(FIPG) | TRANSFER ASSY(4WD) |

## Equipment

| | |
|---|---|
| V-block | Transfer assy(4WD) |
| Hexagon wrench (6 mm) | Transfer RH bearing retaner oil seal(4WD) |
| Torque wrench | |
| Tire pressure gauge | |
| Alignment tester | |
| Toe-in gauge | |
| Anglr gauge | |
| Universal engine lifter | |
| Dial indicator with magnetic base | |

## Lubricant

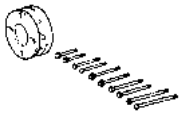
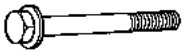
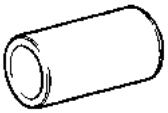
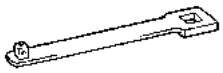
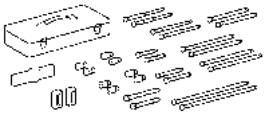
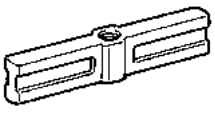
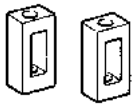
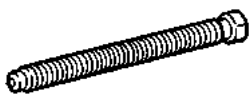
| Item | Caapcity | Classification |
|---|---|---|
| Transfer oil | 0.9 liters (0.95 US qts, 0.71 lmp.qts) | Hypoid gear oil SAE 90 (GL-5) |

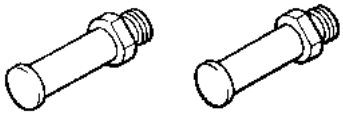
# LUBRICATION

022IE-01

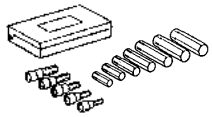
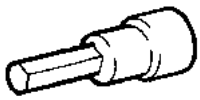
## PREPARATION

### SST

| | | | |
|---|---|---|---|
|  | 09032-00100 | Oil Pan Seal Cutter | OIL PUMP ASSY |
|  | 09213-54015 | Crankshaft Pulley Holding Tool | OIL PUMP ASSY |
|  | (91651-60855) | Bolt | OIL PUMP ASSY |
|  | 09223-00010 | Cover & Seal Replacer | OIL PUMP ASSY |
|  | 09228-07501 | Oil Filter Wrench | OIL FILTER SUB-ASSY |
|  | 09249-63010 | Torque Wrench Adaptor | OIL PUMP ASSY |
|  | 09330-00021 | Companion Flange Holding Tool | OIL PUMP ASSY |
|  | 09950-50013 | Puller C Set | OIL PUMP ASSY |
|  | (09951-05010) | Hanger 150 | OIL PUMP ASSY |
|  | (09952-05010) | Slide Arm | OIL PUMP ASSY |
|  | (09953-05020) | Center Bolt 150 | OIL PUMP ASSY |
|  | (09954-0501 1) | Claw No.1 | OIL PUMP ASSY |

| | | | |
|---|---|---|---|
|  | (09954-05031) | Claw No.3 | OIL PUMP ASSY |
|  | 09960-10010 | Variable Pin Wrench Set | OIL PUMP ASSY |
|  | (09962-01000) | Variable Pin Wrench Arm Assy | OIL PUMP ASSY |
|  | (09963-01000) | Pin 10 | OIL PUMP ASSY |

## Recomended Tools

| | | | |
|---|---|---|---|
|  | 09040-0001 1 | Hexagon Wrench Set | OIL PUMP ASSY |
|  | (09043-20100) | Socket Hexagon Wrench 10 | OIL PUMP ASSY |
|  | 09216-00021 | Belt Tension Gauge | OIL PUMP ASSY |

## Equipment

| | |
|---|---|
| Feeler gauge | |
| Precision straight edge | |
| Torque wrench | |
| Slide calipers | |

## SSM

| | | | |
|---|---|---|---|
| | 08826-00080 | Seal Packing Black or equivalent (FIPG) | OIL PUMP ASSY |

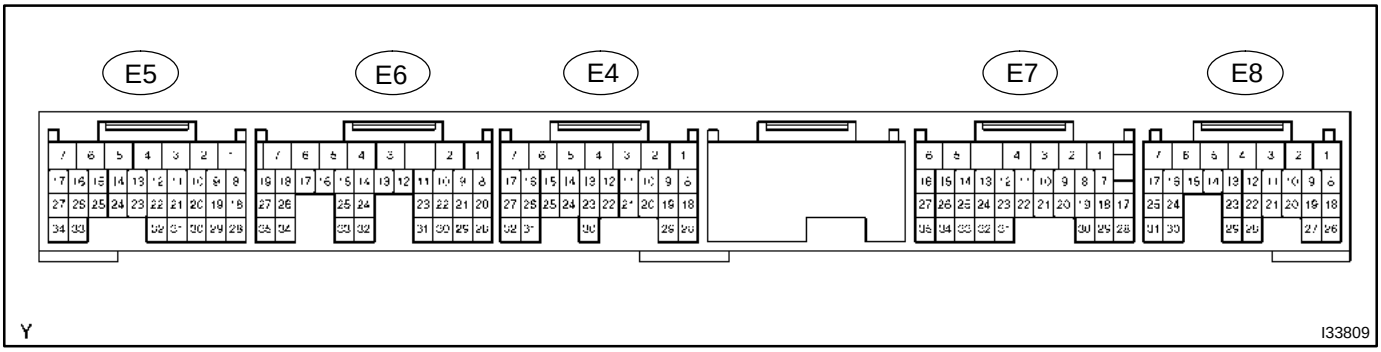
0313P-02

# SPECIFIED TORQUE FOR STANDARD BOLTS

| Class | Diameter mm | Pitch mm | Specified torque | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Hexagon head bolt | | | Hexagon flange bolt | | |
| | | | N·m | kgf·cm | ft·lbf | N·m | kgf·cm | ft·lbf |
| 4T | 6 | 1 | 5 | 55 | 48 in.·lbf | 6 | 60 | 52 in.·lbf |
| | 8 | 1.25 | 12.5 | 130 | 9 | 14 | 145 | 10 |
| | 10 | 1.25 | 26 | 260 | 19 | 29 | 290 | 21 |
| | 12 | 1.25 | 47 | 480 | 35 | 53 | 540 | 39 |
| | 14 | 1.5 | 74 | 760 | 55 | 84 | 850 | 61 |
| | 16 | 1.5 | 115 | 1,150 | 83 | - | - | - |
| 5T | 6 | 1 | 6.5 | 65 | 56 in.·lbf | 7.5 | 75 | 65 in.·lbf |
| | 8 | 1.25 | 15.5 | 160 | 12 | 17.5 | 175 | 13 |
| | 10 | 1.25 | 32 | 330 | 24 | 36 | 360 | 26 |
| | 12 | 1.25 | 59 | 600 | 43 | 65 | 670 | 48 |
| | 14 | 1.5 | 91 | 930 | 67 | 100 | 1,050 | 76 |
| | 16 | 1.5 | 140 | 1,400 | 101 | - | - | - |
| 6T | 6 | 1 | 8 | 80 | 69 in.·lbf | 9 | 90 | 78 in.·lbf |
| | 8 | 1.25 | 19 | 195 | 14 | 21 | 210 | 15 |
| | 10 | 1.25 | 39 | 400 | 29 | 44 | 440 | 32 |
| | 12 | 1.25 | 71 | 730 | 53 | 80 | 810 | 59 |
| | 14 | 1.5 | 110 | 1,100 | 80 | 125 | 1,250 | 90 |
| | 16 | 1.5 | 170 | 1,750 | 127 | - | - | - |
| 7T | 6 | 1 | 10.5 | 110 | 8 | 12 | 120 | 9 |
| | 8 | 1.25 | 25 | 260 | 19 | 28 | 290 | 21 |
| | 10 | 1.25 | 52 | 530 | 38 | 58 | 590 | 43 |
| | 12 | 1.25 | 95 | 970 | 70 | 105 | 1,050 | 76 |
| | 14 | 1.5 | 145 | 1,500 | 108 | 165 | 1,700 | 123 |
| | 16 | 1.5 | 230 | 2,300 | 166 | - | - | - |
| 8T | 8 | 1.25 | 29 | 300 | 22 | 33 | 330 | 24 |
| | 10 | 1.25 | 61 | 620 | 45 | 68 | 690 | 50 |
| | 12 | 1.25 | 110 | 1,100 | 80 | 120 | 1,250 | 90 |
| 9T | 8 | 1.25 | 34 | 340 | 25 | 37 | 380 | 27 |
| | 10 | 1.25 | 70 | 710 | 51 | 78 | 790 | 57 |
| | 12 | 1.25 | 125 | 1,300 | 94 | 140 | 1,450 | 105 |
| 10T | 8 | 1.25 | 38 | 390 | 28 | 42 | 430 | 31 |
| | 10 | 1.25 | 78 | 800 | 58 | 88 | 890 | 64 |
| | 12 | 1.25 | 140 | 1,450 | 105 | 155 | 1,600 | 116 |
| 11T | 8 | 1.25 | 42 | 430 | 31 | 47 | 480 | 35 |
| | 10 | 1.25 | 87 | 890 | 64 | 97 | 990 | 72 |
| | 12 | 1.25 | 155 | 1,600 | 116 | 175 | 1,800 | 130 |

05B31-09

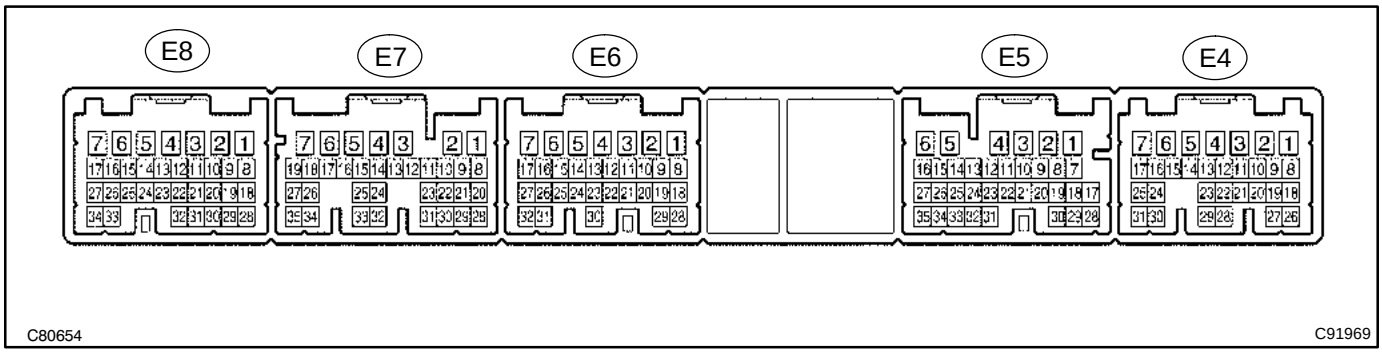
# TERMINALS OF ECM




| Symbols (Terminals No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| TC - E1<br>(E4-20 - E6-1) | P-B - BR | Ignition switch ON | 10 to 14 V |
| | | Ignition switch ON<br>Connect terminals TC and CG of DLC3 | Below 2 V |
| ST1- - E1<br>(E5-12 - E6-1) | LG-R - BR | Ignition switch ON<br>Depress brake pedal | Below 1 V |
| | | Ignition switch ON<br>Release brake pedal | 10 to 14 V |
| IGSW - E1<br>(E4-9 - E6-1) | B-O - BR | Ignition switch ON<br>Cruise control main switch ON | 0 to 3 V |
| | | Ignition switch ON<br>Cruise control main switch OFF | 10 to 14 V |
| STP - E1<br>(E5-19 - E6-1) | G-W - BR | Ignition switch ON<br>Depress brake pedal | 10 to 14 V |
| | | Ignition switch ON<br>Release brake pedal | Below 1 V |
| CCS - E1<br>(E5-24 - E6-1) | B - BR | Ignition switch ON | 10 to 14 V |
| | | Ignition switch ON<br>CANCEL switch hold ON | 6.6 to 11.4 V |
| | | Ignition switch ON<br>-/SET switch hold ON | 4.5 to 8.1 V |
| | | Ignition switch ON<br>+/RES switch hold ON | 2.3 to 4.5 V |
| | | Ignition switch ON<br>MAIN switch hold ON | Below 1 V |

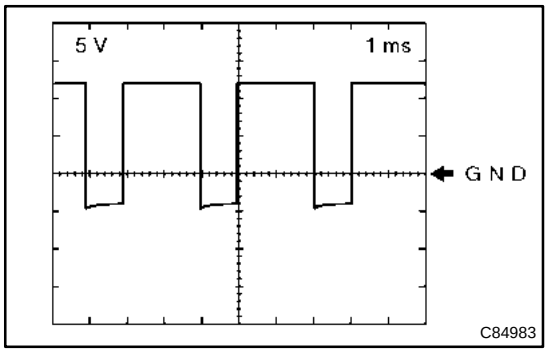
0585V-05

# TERMINALS OF ECM




| Symbols (Terminal No.) | Wiring Color | Condition | STD Voltage (V) |
|---|---|---|---|
| L (E5-8) - E1 (E6-1) | L - BR | IG switch ON and shift lever L position | 10 to 14 |
| | | IG switch ON and shift lever other than L position | Below 1 |
| 2 (E5-9) - E1 (E6-1) | Y-G - BR | IG switch ON and shift lever 2 and L position | 10 to 14 |
| | | IG switch ON and shift lever other than 2 and L position | Below 1 |
| D (E5-10) - E1 (E6-1) | L-W - BR | IG switch ON and shift lever D and 4 position | 10 to 14 |
| | | IG switch ON and shift lever other than D and 4 position | Below 1 |
| R (E5-11) - E1 (E6-1) | R-B - BR | IG switch ON and shift lever R position | 10 to 14 |
| | | IG switch ON and shift lever other than R position | Below 1 |
| SPD (E5-17) - E1 (E6-1) | V-W - BR | Vehicle speed 20 km/h (12 mph) | Pulse generation 8 reference |
| STP (E5-19) - E1 (E6-1) | G-W - BR | Brake pedal is depressed | 7.5 to 14 |
| | | Brake pedal is released | Below 1.5 |
| 3 (E5-20) - E1 (E6-1) | G - BR | IG switch ON and shift lever 3 position | 10 to 14 |
| | | IG switch ON and shift lever other than 3 position | Below 1 |
| 4 (E5-23) - E1 (E6-1) | B-W - BR | IG switch ON and shift lever 4 position | 10 - 14 |
| | | IG switch ON and shift lever other than 4 position | Below 1 |
| NSW (E8-16) - E1 (E6-1) | B-Y - BR | IG switch ON and shift lever P and N position | Below 1 |
| | | IG switch ON and shift lever other than P and N position | 10 to 14 |
| DSL (E7-11) - E1 (E6-1) | Y-G - BR | Vehicle speed 65 km/h (40 mph), lock-up (ON to OFF) | Pulse generation 2 reference |
| SR (E7-9) - E1 (E6-1) | GR - BR | IG switch ON | Below 1 |
| | | 3rd, 4th or 5th gear | 10 to 14 |
| | | 1st or 2nd gear | Below 1 |
| S4 (E7-10) - E1 (E6-1) | LG-B - BR | IG switch ON | Below 1 |
| | | 5th gear | 10 to 14 |
| | | Except 5th gear | Below 1 |
| SL3+ (E7-17) - SL3- (E7-16) | G-B - G-R | Engine idle speed | Pulse generation 3 reference |
| SL2+ (E7-15) - SL2- (E7-14) | L-Y - L-R | Engine idle speed | Pulse generation 4 reference |
| SL1+ (E7-19) - SL1- (E7-18) | R-B - B-W | Engine idle speed | Pulse generation 5 reference |
| NC+ (E7-26) - NC- (E7-34) | R - W-G | Vehicle speed 30 km/h (19 mph): (3rd gear)<br>Engine speed 1,400 rpm | Pulse generation 6 reference |
| NT+ (E7-27) - NT- (E7-35) | W-R - LG | Vehicle speed 20 km/h (12 mph) | Pulse generation 7 reference |

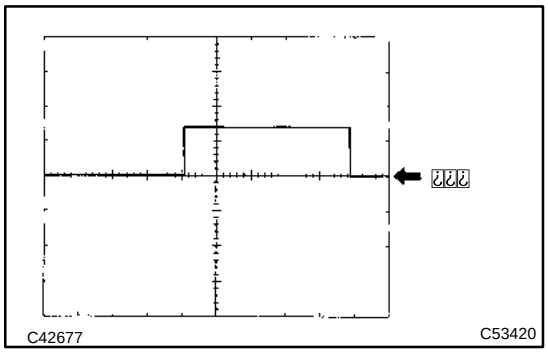
| | | | |
|---|---|---|---|
| SLT+ (E7-13) - SLT- (E7-12) | Y-R - Y-B | Engine idle speed | Pulse generation 1 reference |
| THO1 (E7-32) - E2 (E8-28) | G-W - BR | ATF temperature: 115 °C (239 °F) or more | Below 1.5 |




## Pulse generation 1

**Reference:**

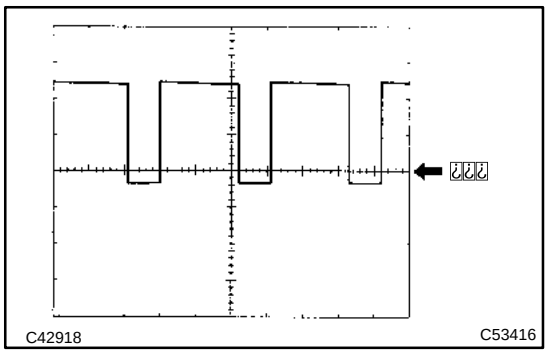
| Item | Condition |
|---|---|
| Terminal | SLT+ - SLT- |
| Tool setting | 5V/DIV, 1ms/DIV |
| Vehicle condition | Engine idle speed |




## Pulse generation 2

**Reference:**

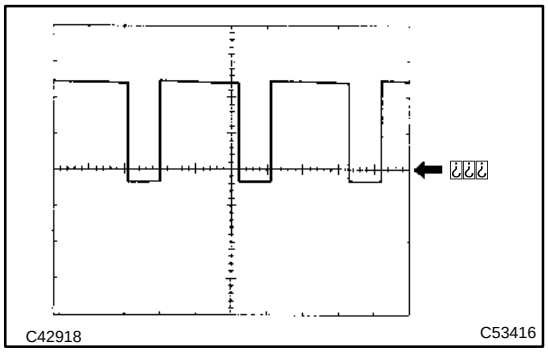
| Item | Condition |
|---|---|
| Terminal | DSL - E1 |
| Tool setting | 10V/DIV, 100ms/DIV |
| Vehicle condition | Vehicle speed 65 km/h (40 mph), lock-up (ON to OFF) |




## Pulse generation 3

**Reference:**

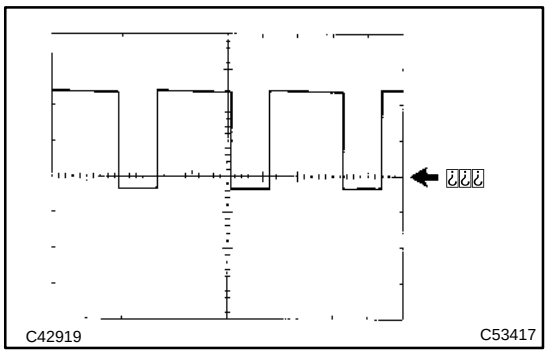
| Item | Condition |
|---|---|
| Terminal | SL3+ - SL3- |
| Tool setting | 5V/DIV, 1ms/DIV |
| Vehicle condition | Engine idle speed |




## Pulse generation 4

**Reference:**

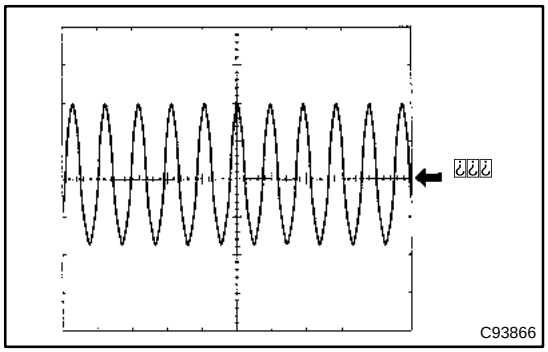
| Item | Condition |
|---|---|
| Terminal | SL2+ - SL2- |
| Tool setting | 5V/DIV, 1ms/DIV |
| Vehicle condition | Engine idle speed |




## Pulse generation 5

**Reference:**

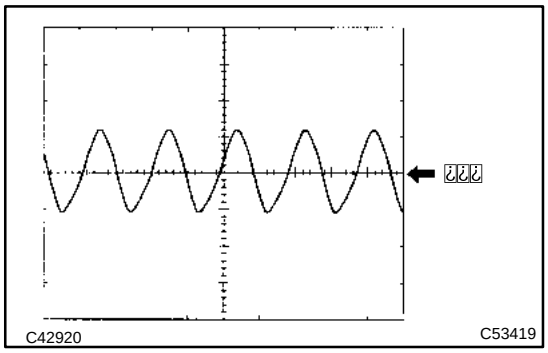
| Item | Condition |
|---|---|
| Terminal | SL1+ - SL1- |
| Tool setting | 5V/DIV, 1ms/DIV |
| Vehicle condition | Engine idle speed |




## Pulse generation 6

**Reference:**

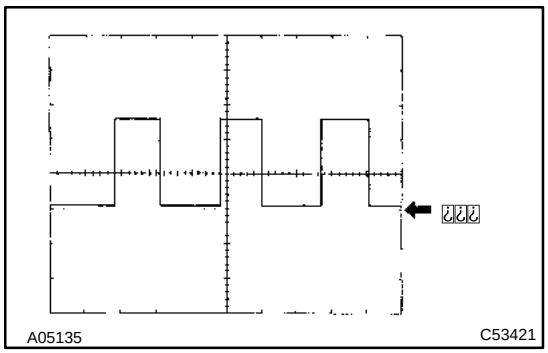
| Item | Condition |
|---|---|
| Terminal | NC+ - NC- |
| Tool setting | 1V/DIV, 1ms/DIV |
| Vehicle condition | Vehicle speed 30 km/h (19 mph): (3rd gear)<br>Engine speed 1,400 rpm |




## Pulse generation 7

**Reference:**

| Item | Condition |
|---|---|
| Terminal | NT+ - NT- |
| Tool setting | 5V/DIV, 0.5ms/DIV |
| Vehicle condition | Vehicle speed 20 km/h (12 mph) |




## Pulse generation 8

**Reference:**

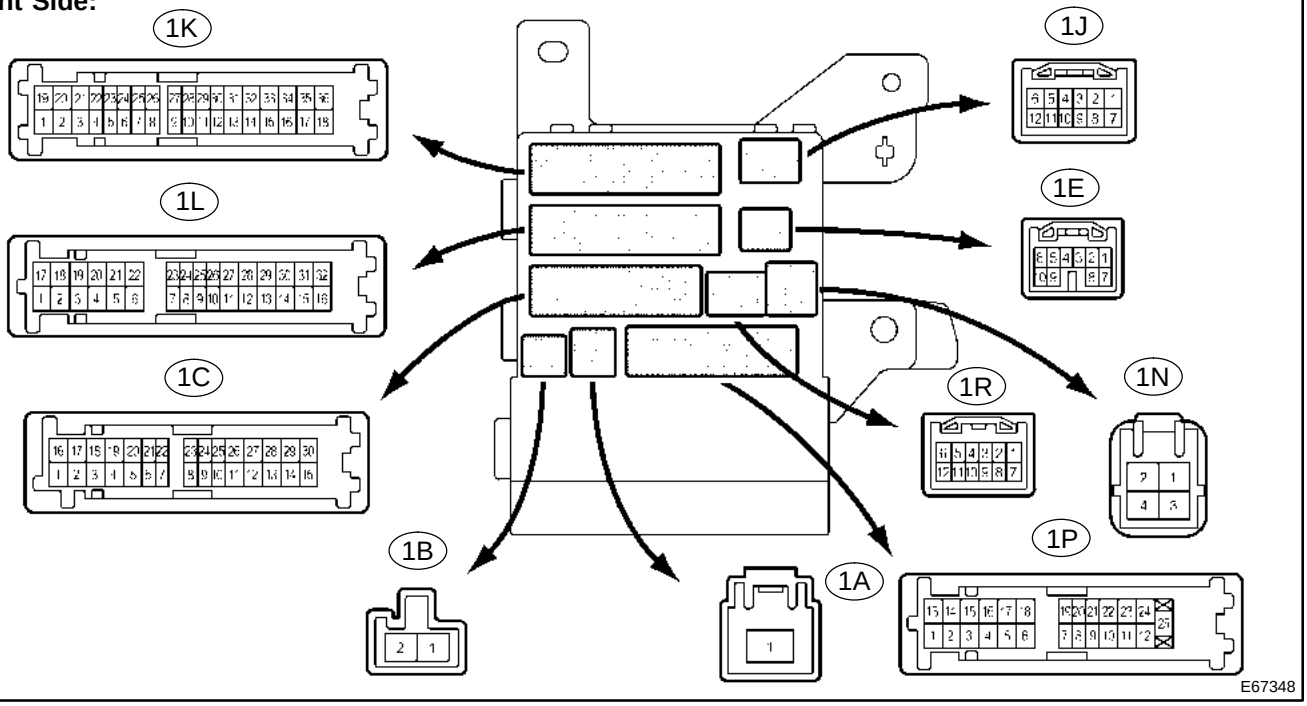
| Item | Condition |
|---|---|
| Terminal | SPD - E1 |
| Tool setting | 5V/DIV, 20ms/DIV |
| Vehicle condition | Vehicle speed 20 km/h (12 mph) |

05BVL-02

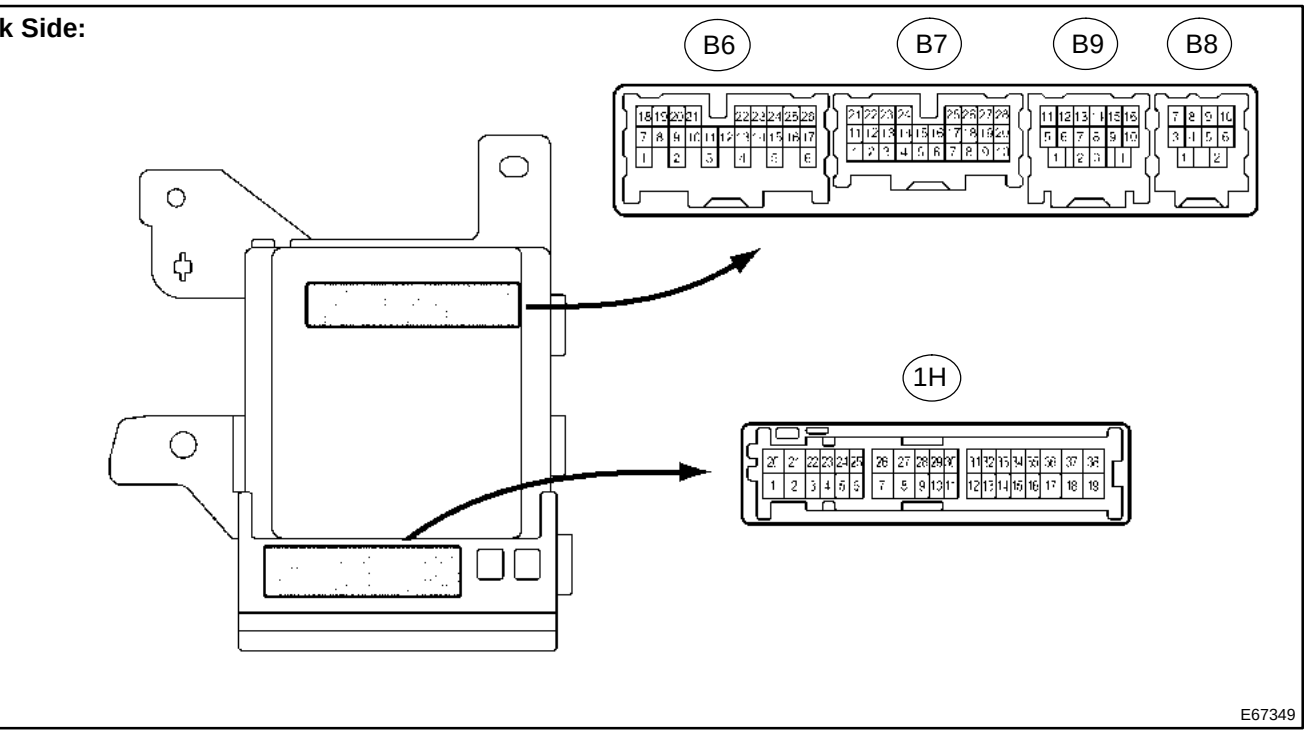
# TERMINALS OF ECU

## 1. Instrument Panel Junction Block Assy

**Front Side:**




**Back Side:**



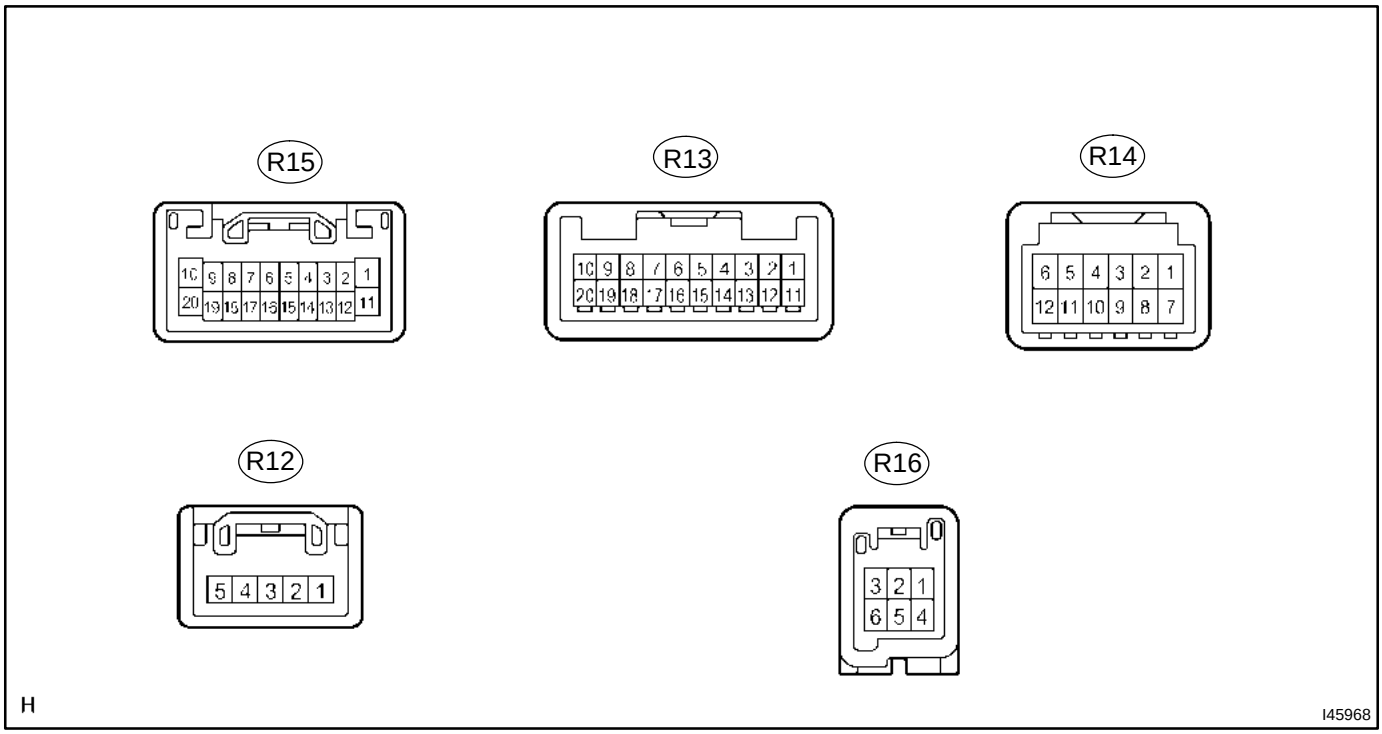
| Terminal No. (Symbols) | Wiring color | Condition | Specified condition |
|---|---|---|---|
| 1A-1 - 1L-16<br>(ACC, IG - GND1) | W - W-B | Always | 10 to 14 V |
| 1C-1 - 1L-16<br>(TRLY - GND1) | R-W - W-B | Light control switch is OFF<br>Light control switch is TAIL and fog lamp switch is ON | Below 1 V<br>10 to 14 V |
| 1C-10 - 1L-16<br>(HRLY - GND1) | O - W-B | Light control switch is OFF or TAIL<br>Light control switch is HEAD | 10 to 14 V<br>Below 1 V |
| 1C-12 - 1L-16<br>(TRLY - GND1) | R-W - W-B | Light control switch is OFF<br>Light control switch is TAIL and fog lamp switch is ON | Below 1 V<br>10 to 14 V |
| 1C-23 - 1L-16<br>(DRL - GND1) | G-R - W-B | Headlamp dimmer switch is OFF<br>Headlamp dimmer switch is ON | 10 to 14 V<br>Below 1 V |
| 1C-24 - 1L-16<br>(BECU - GND1) | W-L - W-B | Always | 10 to 14 V |
| 1C-30 - 1L-16<br>(ALTB - GND1) | B - W-B | Always | 10 to 14 V |
| 1E-7 - 1L-16<br>(MPX1 - GND1) | R-L - W-B | Ignition switch is OFF<br>Ignition switch is ON | Below 1 V<br>Plus generation |
| 1H-30 - 1L-16<br>(ILE - GND1) | L - W-B | Key cylinder illumination, room lamp is OFF<br>Key cylinder illumination, room lamp is ON | 10 to 14 V<br>Below 1 V |
| 1K-10 - 1L-16<br>(PKB - GND1) | R-W - W-B | Parking brake is ON<br>Parking brake is released | Below 1 V<br>10 to 14 V |
| 1K-17 - 1L-16<br>(GND2 - GND1) | W-B - W-B | Always | Below 1 V |
| 1L-7 - 1L-16<br>(BECU - GND1) | W-L - W-B | Always | 10 to 14 V |
| 1L-16 - Body ground<br>(GND1 - Body ground) | W-B - - | Always | Below 1 V |
| 1N-2 - 1L-16<br>(HU - GND1) | R-W - W-B | Headlamp dimmer switch is OFF<br>Headlamp dimmer switch is HIGH or Flash | 10 to 14 V<br>Below 1 V |
| 1P-5 - 1L-16<br>(LSWL - GND1) | L-R - W-B | Rear left slide door is in unlock position<br>Rear left slide door is in lock position | Below 1 V<br>10 to 14 V |
| 1P-19 - 1L-16<br>(LCTY - GND1) | GR - W-B | Rear left slide door is open<br>Rear left slide door is closed | Below 1 V<br>10 to 14 V |
| B6-4 - 1L-16<br>(CLTE - GND1) | LG - W-B | Always | Below 1 V |
| B6-5 - 1L-16<br>(CLTS - GND1) | G-B - W-B | Ignition switch is ON | Signal wave form |
| B6-6 - 1L-16<br>(CLTB - GND1) | R - W-B | Ignition switch is OFF<br>Ignition switch is ON | Below 1 V<br>10 to 14 V |
| B6-15 - 1L-16<br>(HF - GND1) | O - W-B | Headlamp dimmer switch is OFF<br>Headlamp dimmer switch is Flash | 10 to 14 V<br>Below 1 V |
| B6-16 - 1L-16<br>(A - GND1) | V - W-B | Light control switch is OFF<br>Light control switch is AUTO | 10 to 14 V<br>Below 1 V |
| B6-17 - 1L-16<br>(TAIL - GND1) | G-B - W-B | Light control switch is OFF<br>Light control switch is TAIL | 10 to 14 V<br>Below 1 V |
| B6-22 - 1L-16<br>(FFOG - GND1) | G-R - W-B | Fog lamp switch is OFF<br>Fog lamp switch is ON | 10 to 14 V<br>Below 1 V |
| B6-23 - 1L-16<br>(HEAD - GND1) | R-G - W-B | Light control switch is OFF<br>Light control switch is HEAD | 10 to 14 V<br>Below 1 V |
| B7-5 - 1L-16<br>(LSWR - GND1) | L-R - W-B | Rear right slide door is in unlock position<br>Rear right slide door is in lock position | Below 1 V<br>10 to 14 V |

| | | | |
|---|---|---|---|
| B7-21 - 1L-16<br>(MPX2 - GND1) | R-L - W-B | Ignition switch is OFF<br>Ignition switch is ON | Below 1 V<br>Plus generation |
| B7-23 - 1L-16<br>(PCTY GND1) | R-Y - W-B | Front right door is open<br>Front right door is closed | Below 1 V<br>10 to 14 V |
| B7-24 - 1L-16<br>(PCYL - GND1) | R-G - W-B | Front right courtesy lamp is OFF<br>Front right courtesy lamp is ON | 10 to 14 V<br>Below 1 V |
| B7-25 - 1L-16<br>(BCTY - GND1) | G-W - W-B | Back door is open<br>Back door is closed | Below 1 V<br>10 to 14 V |
| B7-27 - 1L-16<br>(LSWP - GND1) | Y - W-B | Front right door is in unlock position<br>Front right door is in lock position | Below 1 V<br>10 to 14 V |
| B8-7 - 1L-16<br>(FFGO - GND1) | G - W-B | Front fog lamp is OFF<br>Front fog lamp is ON | 10 to 14 V<br>Below 1V |
| B9-7 - 1L-16<br>(LSWD - GND1) | BR-R - W-B | Front left door is in unlock position<br>Front left door is in lock position | Below 1 V<br>10 to 14 V |
| B9-13 - 1L-16<br>(DCYL - GND1) | R-W - W-B | Front left courtesy lamp is OFF<br>Front left courtesy lamp is ON | 10 to 14 V<br>Below 1V |
| B9-14 - 1L-16<br>(DCTY - GND1) | R-Y - W-B | Front left door is open<br>Front left door is closed | Below 1 V<br>10 to 14 V |
| B9-16 - 1L-16<br>(RCTY - GND1) | R-W - W-B | Rear right slide door is open<br>Rear right slide door is closed | Below 1 V<br>10 to 14 V |
| B7-9 - 1L-16<br>(RCUT - GND1) | G - W-B | Interior light switch is in DOOR position, all of the rear courtesy lamps and the luggage compartment lamp are OFF<br>Interior light switch is in DOOR position, each of the rear courtesy lamps and the luggage compartment lamp are ON | 10 to 14 V<br>Below 1 V |

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# TERMINALS OF ECU

## 1. RADIO AND NAVIGATION ASSY



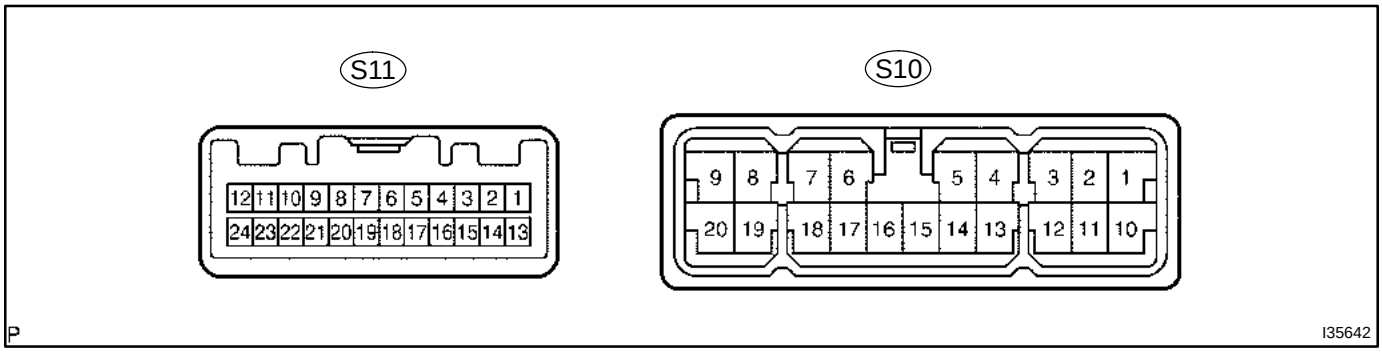

| Symbols (Terminal No.) | Wiring Color | Terminal Description | Condition | Specification |
|---|---|---|---|---|
| PKB (R12-1) - GND (R15-20) | R-W - W-B | Parking brake signal | See "Vehicle Signal Check" (See page 05-1298) | - |
| SPD (R12-3) - GND (R15-20) | V-W - W-B | Speed signal from combination meter | See "Vehicle Signal Check" (See page 05-1298) | - |
| REV (R12-5) - GND (R15-20) | R-B - W-B | Reverse signal from combination meter | See "Vehicle Signal Check" (See page 05-1298) | - |
| SWG (R13-6) - Body ground | Y - Body ground | Steering pad switch signal | Always | Below 1 V |
| SW1 (R13-7) - SWG (R13-6) | LG - Y | Steering pad switch signal | No switch is pushed<br>→ SEEK+ switch pushed<br>→ SEEK- switch pushed<br>→ VOL+ switch pushed<br>→ VOL- switch pushed | 4 V or more<br>→ Approx. 0.5 V<br>→ Approx. 0.9 V<br>→ Approx. 2.0 V<br>→ Approx. 3.4 V |
| SW2 (R13-8) - SWG (R13-6) | L - Y | Steering pad switch signal | Steering pad switch not operated<br>→ MODE switch pushed | 4 V or more →<br>Below 2.5 V |
| IVO+ (R13-11) - GND (R15-20) | R - W-B | Voice guidance signal | Voice guidance is provided | A wave form synchronized with sounds is output |
| IVO- (R13-12) - GND (R15-20) | G - W-B | Voice guidance signal | Voice guidance is provided | A wave form synchronized with sounds is output |
| SLD1 (R13-13) - Body ground | Shielded - Body ground | Voice sound signal shielded ground | Always | Below 1 V |
| RSLD (R13-14) - Body ground | Shielded - Body ground | Shielded ground | Always | Below 1 V |
| R-R+ (R13-15) - GND (R15-20) | B - W-B | RSE or RSA system sound signal | RSE or RSA system is playing | A wave form synchronized with sounds is output |
| R-R- (R13-16) - GND (R15-20) | W - W-B | RSE or RSA system sound signal | RSE or RSA system is playing | A wave form synchronized with sounds is output |

| | | | | |
|---|---|---|---|---|
| R-L+ (R13-17) - GND (R15-20) | R - W-B | RSE or RSA system sound signal | RSE or RSA system is playing | A wave form synchronized with sounds is output |
| R-L- (R13-18) - GND (R15-20) | G - W-B | RSE or RSA system sound signal | RSE or RSA system is playing | A wave form synchronized with sounds is output |
| RMUT (R13-19) - GND (R15-20) | P-L - W-B | Mute signal | Audio system is playing → Changing mode | Above 3.5 V → Below 1 V |
| (*1) CSLD (R14-1) - Body ground | Shielded - Body ground | Shielded ground | Always | Below 1 V |
| (*1) CDR+ (R14-2) - GND (R15-20) | B - W-B | Sound signal (Right input) | Rear seat entertainment system is playing | A wave form synchronized with sound is output |
| (*1) CDR- (R14-3) - GND (R15-20) | W - W-B | Sound signal (Right input) | Rear seat entertainment system is playing | A wave form synchronized with sound is output |
| (*1) CDL+ (R14-4) - GND (R15-20) | R - W-B | Sound signal (Left input) | Rear seat entertainment system is playing | A wave form synchronized with sound is output |
| (*1) CDL- (R14-5) - GND (R15-20) | G - W-B | Sound signal (Left input) | Rear seat entertainment system is playing | A wave form synchronized with sound is output |
| MUTE (R14-6) - GND (R15-20) | R-W - W-B | Mute signal | RSE or RSA system is playing → Changing mode | Above 3.5 V → Below 1 V |
| TXM+ (R14-9) - GND (R15-20) | P - W-B | AVC-LAN communication signal | Turn ignition switch to ACC | 2 to 3 V |
| TXM- (R14-10) - GND (R15-20) | V - W-B | AVC-LAN communication signal | Turn ignition switch to ACC | 2 to 3 V |
| B (R15-1) - GND (R15-20) | L-Y - W-B | Battery | Always | 10 to 14 V |
| ILL+ (R15-2) - GND (R15-20) | G-W - W-B | Illumination signal | Turn ignition switch ON<br>Light control switch OFF → TAIL or ON | Below 1 V → 10 to 14 V |
| ATX+ (R15-5) - GND (R15-20) | LG-B - W-B | AVC-LAN communication signal | Turn ignition switch to ACC | 2 to 3 V |
| MUTE (R15-7) - GND (R15-20) | GR-B - W-B | Mute signal | Audio system is playing → Changing mode | Above 3.5 V → Below 1 V |
| R+ (R15-8) - GND (R15-20) | W - W-B | Sound signal (Right) | Audio system is playing | A wave form synchronized with sounds is output |
| L+ (R15-9) - GND (R15-20) | G - W-B | Sound signal (Left) | Audio system is playing | A wave form synchronized with sounds is output |
| SLD (R15-10) - Body ground | Shielded - Body ground | Shielded ground | Always | Below 1 V |
| ACC (R15-11) - GND (R15-20) | GR - W-B | Accessory (ON) | Turn ignition switch OFF → ACC or ON | Below 1 V → 10 to 14 V |
| ILL- (R15-12) - GND (R15-20) | W-G - W-B | Illumination signal | Turn ignition switch ON<br>Light control switch OFF → TAIL or ON | Below 1 V → 10 to 14 V |
| ANT (R15-13) - GND (R15-20) | P-L - W-B | Power source of antenna | Radio switch ON and AM or FM | 10 to 14 V |
| ATX- (R15-15) - GND (R15-20) | LG-R - W-B | AVC-LAN communication signal | Turn ignition switch to ACC | 2 to 3 V |
| R- (R15-18) - GND (R15-20) | B - W-B | Sound signal (Right) | Audio system is playing | A wave form synchronized with sounds is output |

| | | | | |
|---|---|---|---|---|
| L- (R15-19) - GND (R15-20) | R - W-B | Sound signal (Left) | Audio system is playing | A wave form synchronized with sounds is output |
| GND (R15-20) - Body ground | W-B - Body ground | Ground | Always | Below 1 V |
| (*1) NTSC (R16-1) - GND (R15-20) | Y - W-B | Display signal (From multi-display controller sub-assy) | Navigation display is ON | Pulse generation |
| (*1) SGD1 (R16-4) - Body ground | BR - Body ground | Ground | Always | Below 1 V |
| (*1) SGND (R16-5) - Body ground | Shielded - Body ground | Shielded ground | Always | Below 1 V |

*1: w/ Rear Seat Entertainment System

## 2. STEREO COMPONENT AMPLIFIER ASSY




| Symbols (Terminal No.) | Wiring Color | Terminal Description | Condition | Specification |
|---|---|---|---|---|
| MUTE (S11-1) - GND2 (S10-15) | GR-B - W-B | Mute signal from radio receiver | Audio system is playing → Changing mode | Above 3.5 V → Below 1 V |
| L- (S11-2) - GND2 (S10-15) | R - W-B | Sound signal (Left) | Audio system is playing | A wave form synchronized with sounds is output |
| L+ (S11-3) - GND2 (S10-15) | G - W-B | Sound signal (Left) | Audio system is playing | A wave form synchronized with sounds is output |
| R- (S11-4) - GND2 (S10-15) | B - W-B | Sound signal (Right) | Audio system is playing | A wave form synchronized with sounds is output |
| R+ (S11-5) - GND2 (S10-15) | W - W-B | Sound signal (Right) | Audio system is playing | A wave form synchronized with sounds is output |
| TX- (S11-7) - GND2 (S10-15) | LG-R - W-B | AVC-LAN communication signal | Turn ignition switch to ACC | 2 to 3 V |
| TX+ (S11-8) - GND2 (S10-15) | LG-B - W-B | AVC-LAN communication signal | Turn ignition switch to ACC | 2 to 3 V |
| ACC (S11-12) - GND2 (S10-15) | GR - W-B | Accessory (ON) | Turn ignition switch OFF → ACC | Below 1 V → 10 to 14 V |
| INT- (S11-22) - GND2 (S10-15) | G - W-B | Voice guidance signal | Voice guidance is provided | A wave form synchronized with sounds is output |
| INT+ (S11-23) - GND2 (S10-15) | R - W-B | Voice guidance signal | Voice guidance is provided | A wave form synchronized with sounds is output |
| B+ (S10-1) - GND2 (S10-15) | L-R - W-B | Battery | Always | 10 to 14 V |
| SUR+ (S10-2) - GND2 (S10-15) | W - W-B | Sound signal (Rear) | Audio system is playing | A wave form synchronized with sound is output |

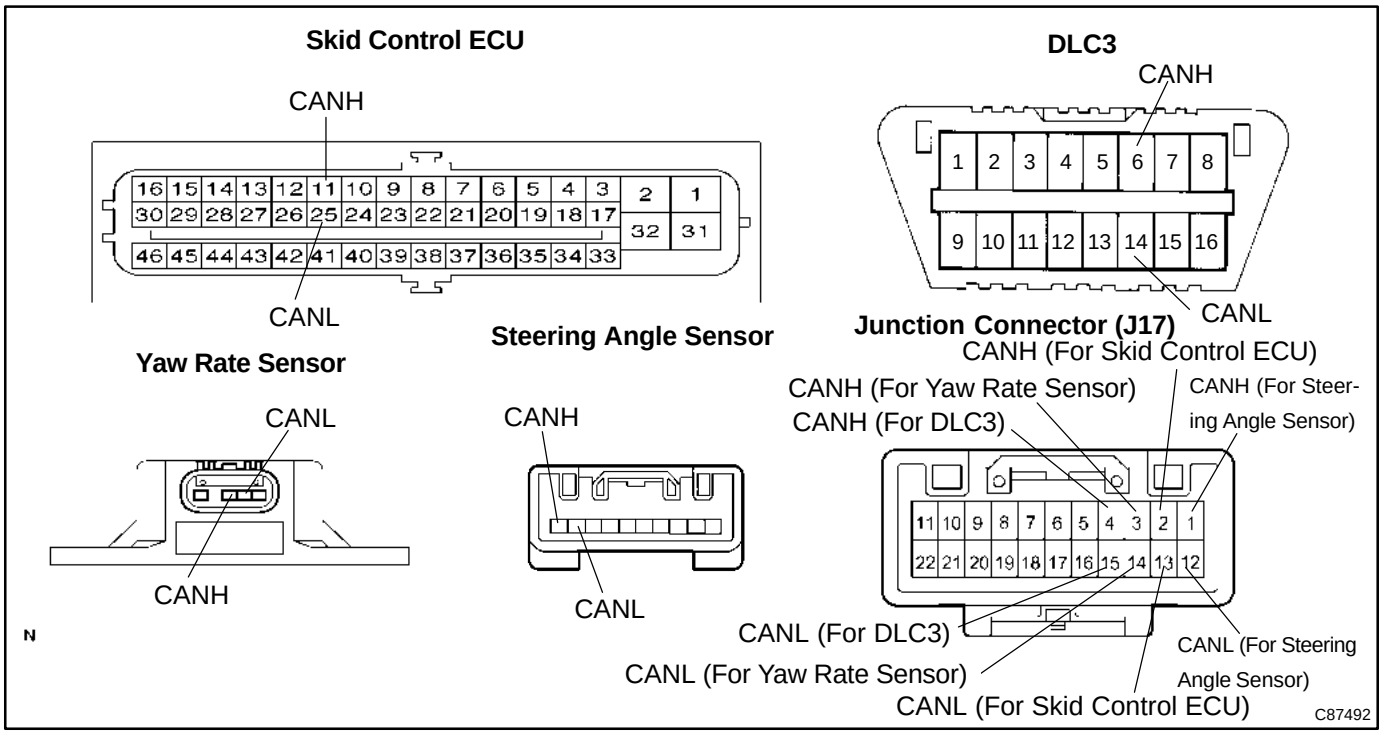
| | | | | |
|---|---|---|---|---|
| CTR+ (S10-3) - GND2 (S10-15) | L-B - W-B | Sound signal (Front Center) | Audio system is playing | A wave form synchronized with sounds is output |
| RL+ (S10-4) - GND2 (S10-15) | B - W-B | Sound signal (Rear Left) | Audio system is playing | A wave form synchronized with sounds is output |
| RR+ (S10-5) - GND2 (S10-15) | R - W-B | Sound signal (Rear Right) | Audio system is playing | A wave form synchronized with sounds is output |
| FL+ (S10-6) - GND2 (S10-15) | P - W-B | Sound signal (Front Left) | Audio system is playing | A wave form synchronized with sounds is output |
| FR+ (S10-7) - GND2 (S10-15) | LG - W-B | Sound signal (Front Right) | Audio system is playing | A wave form synchronized with sounds is output |
| WF2+ (S10-8) - GND2 (S10-15) | R-L - W-B | Sound signal (Woofer Box) | Audio system is playing | A wave form synchronized with sounds is output |
| WF1+ (S10-9) - GND2 (S10-15) | L-Y - W-B | Sound signal (Woofer Box) | Audio system is playing | A wave form synchronized with sounds is output |
| B2+ (S10-10) - GND2 (S10-15) | L-R - W-B | Battery | Always | 10 to 14 V |
| SUR- (S10-11) - GND2 (S10-15) | L - W-B | Sound signal (Rear) | Audio system is playing | A wave form synchronized with sound is output |
| CTR- (S10-12) - GND2 (S10-15) | L-R - W-B | Sound signal (Front Center) | Audio system is playing | A wave form synchronized with sounds is output |
| RL- (S10-13) - GND2 (S10-15) | Y - W-B | Sound signal (Rear Left) | Audio system is playing | A wave form synchronized with sounds is output |
| RR- (S10-14) - GND2 (S10-15) | W - W-B | Sound signal (Rear Right) | Audio system is playing | A wave form synchronized with sounds is output |
| GND2 (S10-15) - Body ground | W-B - Body ground | Ground | Always | Below 1 V |
| GND (S10-16) - Body ground | W-B - Body ground | Ground | Always | Below 1 V |
| FL - (S10-17) - GND2 (S10-15) | V - W-B | Sound signal (Front Left) | Audio system is playing | A wave form synchronized with sounds is output |
| FR - (S10-18) - GND2 (S10-15) | L - W-B | Sound signal (Front Right) | Audio system is playing | A wave form synchronized with sounds is output |
| WF2- (S10-19) - GND2 (S10-15) | W-L - W-B | Sound signal (Woofer Box) | Audio system is playing | A wave form synchronized with sounds is output |
| WF1- (S10-20) - GND2 (S10-15) | L-W - W-B | Sound signal (Woofer Box) | Audio system is playing | A wave form synchronized with sounds is output |

**3. MULTI-DISPLA Y CONTROLLER SUB-ASSY (See page 05-1426 )**

**4. STEREO COMPONENT CONTROLLER ASSY (See page 05-1409 )**

05BYP-02

# TERMINALS OF ECU




### Skid Control ECU, DLC3, Yaw Rate Sensor and Steering Angle Sensor:

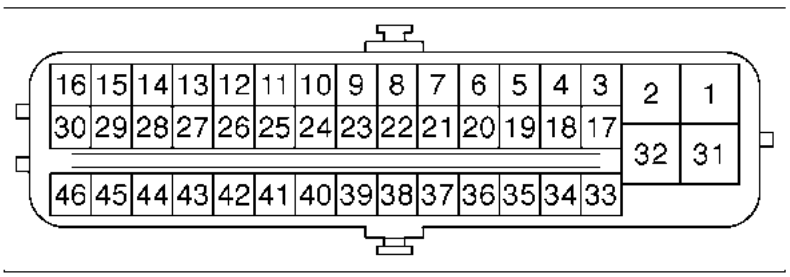
| Symbols (Terminals No.) | Wiring Color | Condition | STD Resistance |
|---|---|---|---|
| CANH - CANL | B - W | IG switch OFF | 54 to 66 Ω |
| CANL - Body ground | W | IG switch OFF | 3 kΩ or more |
| CANH - Body ground | B | IG switch OFF | 3 kΩ or more |
| CANL - +B | W | IG switch OFF | 1 MΩ or more |
| CANH - +B | B | IG switch OFF | 1 MΩ or more |

### Junction Connector (J14):

| Symbols (Terminals No.) | Wiring Color | Condition | STD Resistance |
|---|---|---|---|
| CANH (4, 5, 6, 7) - CANL (15, 16, 17, 18) | - | IG switch OFF | 1 MΩ or more |
| CANL (4, 5, 6, 7) - Body ground | - | IG switch OFF | 1 MΩ or more |
| CANH (15, 16, 17, 18) - Body ground | - | IG switch OFF | 1 MΩ or more |
| CANL (4, 5, 6, 7) - +B | - | IG switch OFF | 1 MΩ or more |
| CANH (15, 16, 17, 18) - +B | - | IG switch OFF | 1 MΩ or more |
| CANL (4) - CANL (7) | - | IG switch OFF | 1 Ω or less |
| CANH (15) - CANH (18) | - | IG switch OFF | 1 Ω or less |

05BX7-05

# TERMINALS OF ECU




N

F45080

| Symbols (Terminals No.) | Wiring Color | Condition | STD Voltage (V) |
|---|---|---|---|
| BM (S3 - 2) - GND (S3 - 1, 32) | B-Y - W-B | IG switch ON, pump motor running | 10 to 14 |
| FR+ (S3 - 3) - FR- (S3 - 17) | B - Y | IG switch ON, slowly turn right front wheel | AC generation |
| FL+ (S3 - 18) - FL- (S3 - 4) | L-W - O | IG switch ON, slowly turn left front wheel | AC generation |
| RR+ (S3 - 5) - RR- (S3 - 19) | LG - L | IG switch ON, slowly turn right rear wheel | AC generation |
| RL+ (S3 - 20) - RL- (S3 - 6) | R - G | IG switch ON, slowly turn left rear wheel | AC generation |
| TRC+ (S3 - 8) - TRC- (S3 - 22) | LG-B - LG-R | IG switch ON | Pulse generation |
| ENG+ (S3 - 9) - ENG - (S3 - 23) | P - V | IG switch ON | Pulse generation |
| NEO (S3 - 10) - GND (S3 - 1, 32) | G-R - W-B | Engine idling | Pulse generation |
| CANH (S3 - 11) - CANL (S3 - 25) | B - W | IG switch ON | Pulse generation |
| D/G (S3 - 13) - GND (S3 - 1, 32) | GR-R - W-B | IG switch ON | 10 to 14 |
| MRF (S3 - 14) - R+ (S3 - 45) | Y-R - V-Y | IG switch ON | 10 to 14 |
| MR (S3 - 15) - R+ (S3 - 45) | V-R - V-Y | IG switch ON, pump motor running | 10 to 14 |
| +BS (S3 - 31) - GND (S3 - 1, 32) | W - W-B | Always | 10 to 14 |
| STP1 (S3 - 27) - GND (S3 - 1, 32) | G-W - W-B | Stop light switch ON (Brake pedal pushed) | 8 to 14 |
| | | Stop light switch OFF (Brake pedal released) | Below 1.5 |
| PKB (S3 - 28) - GND (S3 - 1, 32) | R-L - W-B | IG switch ON, parking brake switch ON | Below 1.5 |
| | | IG switch ON, parking brake switch OFF | 10 to 14 |
| WA (S3 - 29) - GND (S3 - 1, 32) | R-W - W-B | IG switch ON, ABS warning light ON | 10 to 14 |
| | | IG switch ON, ABS warning light OFF | Below 2.0 |
| BZ (S3 - 30) - GND (S3 - 1, 32) | G-O - W-B | IG switch ON, VSC buzzer sounds | Below 1.0 ↔ 10 to 14 |
| | | IG switch ON, VSC buzzer does not sound | 10 to 14 |
| VSCW (S3 - 36) - GND (S3 - 1, 32) | P-G - W-B | IG switch ON, VSC warning light ON | Below 2.0 |
| | | IG switch ON, VSC warning light OFF | 10 to 14 |
| WFSE (S3 - 42) - GND (S3 - 1, 32) | W-L - W-B | IG switch ON | 10 to 14 |
| CSW (S3 - 43) - GND (S3 - 1, 32) | P-L - W-B | TRAC OFF switch OFF | 10 to 14 |
| BRL (S3 - 44) - GND (S3 - 1, 32) | Y-B - W-B | IG switch ON, BRAKE warning light ON | 10 to 14 |
| | | IG switch ON, BRAKE warning light OFF | Below 2.0 |

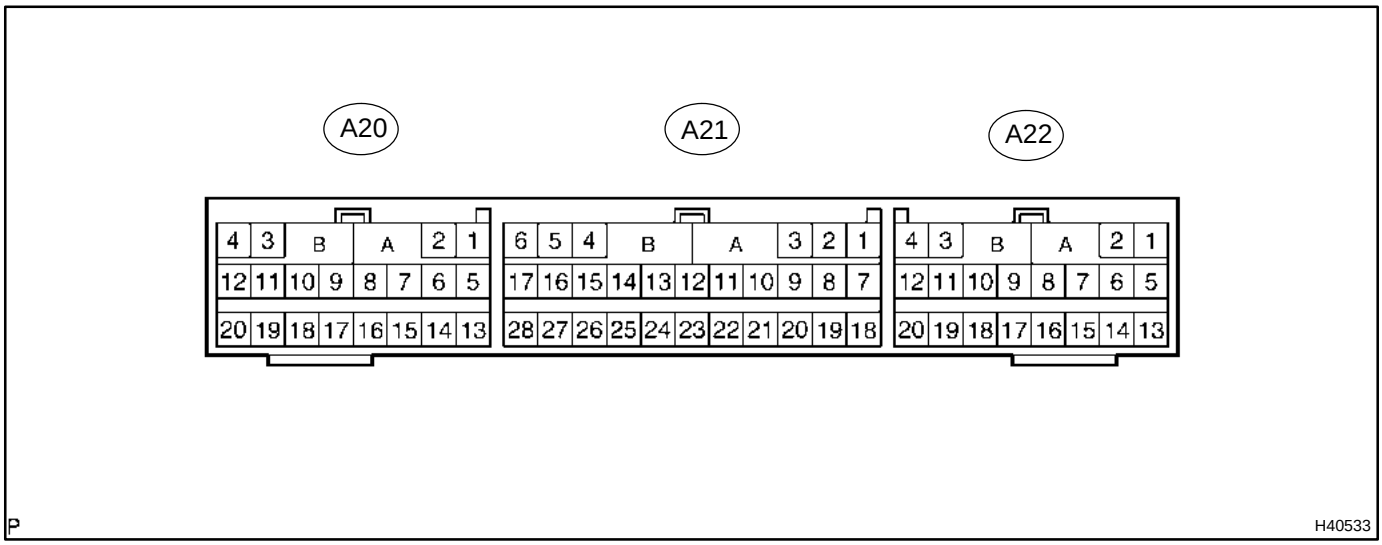
| | | | |
|---|---|---|---|
| R+ (S3 - 45) - GND (S3 - 1, 32) | V-Y - W-B | IG switch ON, ABS warning light OFF | 10 to 14 |
| IG1 (S3 - 46) - GND (S3 - 1, 32) | B-R - W-B | IG switch ON | 10 to 14 |

05IV9-04

# TERMINALS OF ECU

## 1. w/ Side airbag:

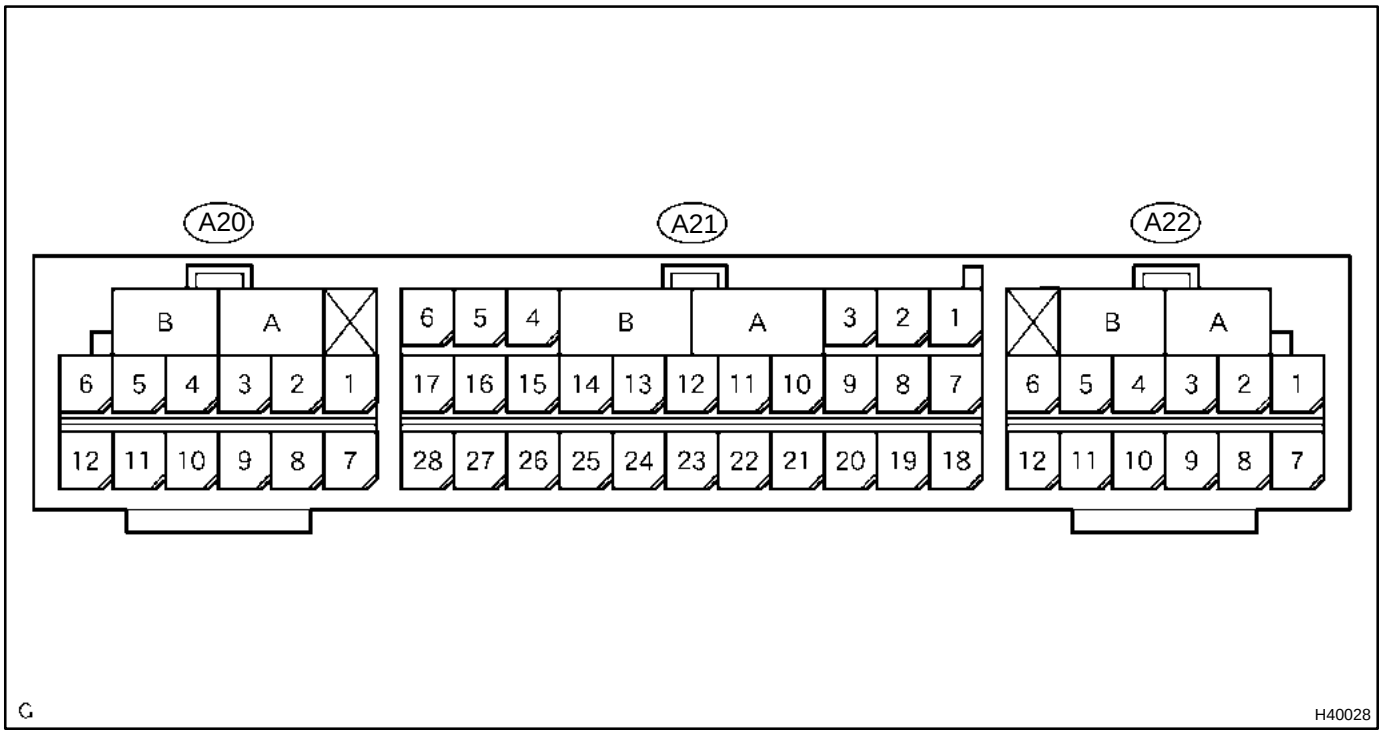
### AIRBAG SENSOR ASSY CENTER




| No. | Symbol | Destination |
|---|---|---|
| A | - | Electrical Connector Check Mechanism |
| B | - | Electrical Connector Check Mechanism |
| A20-1 | CSL- | Airbag Sensor Rear LH |
| A20-2 | LBE- | Front Seat Inner Belt Assy LH (Buckle SW) |
| A20-3 | LSP- | Seat Position Airbag Sensor |
| A20-4 | LSP+ | Seat Position Airbag Sensor |
| A20-5 | CL2+ | Curtain Shield Airbag Assy LH (Curtain Shield Squib Rear LH) |
| A20-6 | CL2- | Curtain Shield Airbag Assy LH (Curtain Shield Squib Rear LH) |
| A20-7 | PL- | Front Seat Outer Belt Assy LH (P/T Squib LH) |
| A20-8 | PL+ | Front Seat Outer Belt Assy LH (P/T Squib LH) |
| A20-9 | ICL+ | Curtain Shield Airbag Assy LH (Curtain Shield Squib Front LH) |
| A20-10 | ICL- | Curtain Shield Airbag Assy LH (Curtain Shield Squib Front LH) |
| A20-11 | SFL- | Front Seat Airbag Assy LH (Side Squib LH) |
| A20-12 | SFL+ | Front Seat Airbag Assy LH (Side Squib LH) |
| A20-13 | ESCL | Airbag Sensor Rear LH |
| A20-14 | VUCL | Airbag Sensor Rear LH |
| A20-15 | CSL+ | Airbag Sensor Rear LH |
| A20-16 | VUPL | Side Airbag Sensor Assy LH |
| A20-17 | SSL+ | Side Airbag Sensor Assy LH |
| A20-18 | ESL | Side Airbag Sensor Assy LH |
| A20-19 | LBE+ | Front Seat Inner Belt Assy LH (Buckle SW) |
| A20-20 | SSL- | Side Airbag Sensor Assy LH |
| A21-1 | P-AB | Passenger Airbag ON/OFF Indicator |
| A21-5 | IG2 | IGN Fuse |
| A21-7 | P2- | Front Passenger Airbag Assy (P Squib, Dual stage - 2nd step) |
| A21-8 | P2+ | Front Passenger Airbag Assy (P Squib, Dual stage - 2nd step) |
| A21-9 | +SR | Airbag Sensor Front RH |
| A21-10 | P+ | Front Passenger Airbag Assy (P Squib) |

| No. | Symbol | Destination |
|---|---|---|
| A21-11 | P- | Front Passenger Airbag Assy (P Squib) |
| A21-12 | SIL | Diagnosis |
| A21-13 | D- | Horn Button Assy (D Squib) |
| A21-14 | D+ | Horn Button Assy (D Squib) |
| A21-15 | +SL | Airbag Sensor Front LH |
| A21-16 | D2+ | Horn Button Assy (D Squib, Dual stage - 2nd step) |
| A21-17 | D2- | Horn Button Assy (D Squib, Dual stage - 2nd step) |
| A21-20 | -SR | Airbag Sensor Front RH |
| A21-22 | MPX2 | Combination Meter Assy |
| A21-24 | MPX1 | Combination Meter Assy |
| A21-25 | PAON | Passenger Airbag ON/OFF Indicator |
| A21-26 | -SL | Airbag Sensor Front LH |
| A21-27 | E1 | Ground |
| A21-28 | E2 | Ground |
| A22-1 | FSR+ | Occupant Classification ECU |
| A22-2 | FSR- | Occupant Classification ECU |
| A22-4 | CSR- | Airbag Sensor Rear RH |
| A22-5 | SFR+ | Front Seat Airbag Assy RH (Side Squib RH) |
| A22-6 | SFR- | Front Seat Airbag Assy RH (Side Squib RH) |
| A22-7 | ICR- | Curtain Shield Airbag Assy RH (Curtain Shield Squib Front RH) |
| A22-8 | ICR+ | Curtain Shield Airbag Assy RH (Curtain Shield Squib Front RH) |
| A22-9 | PR+ | Front Seat Outer Belt Assy RH (P/T Squib RH) |
| A22-10 | PR- | Front Seat Outer Belt Assy RH (P/T Squib RH) |
| A22-11 | CR2- | Curtain Shield Airbag Assy RH (Curtain Shield Squib Rear RH) |
| A22-12 | CR2+ | Curtain Shield Airbag Assy RH (Curtain Shield Squib Rear RH) |
| A22-13 | SSR- | Side Airbag Sensor Assy RH |
| A22-15 | ESR | Side Airbag Sensor Assy RH |
| A22-16 | SSR+ | Side Airbag Sensor Assy RH |
| A22-17 | VUPR | Side Airbag Sensor Assy RH |
| A22-18 | CSR+ | Airbag Sensor Rear RH |
| A22-19 | VUCR | Airbag Sensor Rear RH |
| A22-20 | ESCR | Airbag Sensor Rear RH |

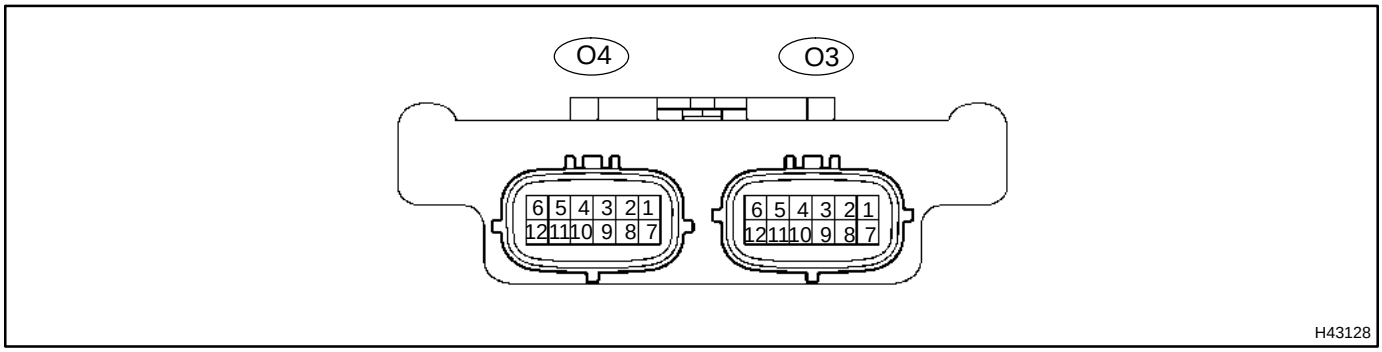
## 2. w/o Side airbag:
## AIRBAG SENSOR ASSY CENTER




| No. | Symbol | Destination |
|---|---|---|
| A | - | Electrical Connector Check Mechanism |
| B | - | Electrical Connector Check Mechanism |
| A20-1 | PL- | Front Seat Outer Belt Assy LH (P/T Squib LH) |
| A20-2 | PL+ | Front Seat Outer Belt Assy LH (P/T Squib LH) |
| A20-3 | LSP+ | Seat Position Airbag Sensor |
| A20-6 | LBE- | Front Seat Inner Belt Assy LH (Buckle SW) |
| A20-8 | LSP- | Seat Position Airbag Sensor |
| A20-11 | LBE+ | Front Seat Inner Belt Assy LH (Buckle SW) |
| A21-1 | P-AB | Passenger Airbag ON/OFF Indicator |
| A21-5 | IG2 | IGN Fuse |
| A21-7 | P2- | Front Passenger Airbag Assy (P Squib, Dual stage - 2nd step) |
| A21-8 | P2+ | Front Passenger Airbag Assy (P Squib, Dual stage - 2nd step) |
| A21-9 | +SR | Airbag Sensor Front RH |
| A21-10 | P+ | Front Passenger Airbag Assy (P Squib) |
| A21-11 | P- | Front Passenger Airbag Assy (P Squib) |
| A21-12 | SIL | Diagnosis |
| A21-13 | D- | Horn Button Assy (D Squib) |
| A21-14 | D+ | Horn Button Assy (D Squib) |
| A21-15 | +SL | Airbag Sensor Front LH |
| A21-16 | D2+ | Horn Button Assy (D Squib, Dual stage - 2nd step) |
| A21-17 | D2- | Horn Button Assy (D Squib, Dual stage - 2nd step) |
| A21-20 | -SR | Airbag Sensor Front RH |
| A21-22 | MPX2 | Combination Meter Assy |
| A21-24 | MPX1 | Combination Meter Assy |
| A21-25 | PAON | Passenger Airbag ON/OFF Indicator |
| A21-26 | -SL | Airbag Sensor Front LH |

| No. | Symbol | Destination |
|---|---|---|
| A21-27 | E1 | Ground |
| A21-28 | E2 | Ground |
| A22-3 | FSR+ | Occupant Classification ECU |
| A22-5 | PR+ | Front Seat Outer Belt Assy RH (P/T Squib RH) |
| A22-6 | PR- | Front Seat Outer Belt Assy RH (P/T Squib RH) |
| A22-10 | FSR- | Occupant Classification ECU |

## 3. OCCUPANT CLASSIFICATION ECU



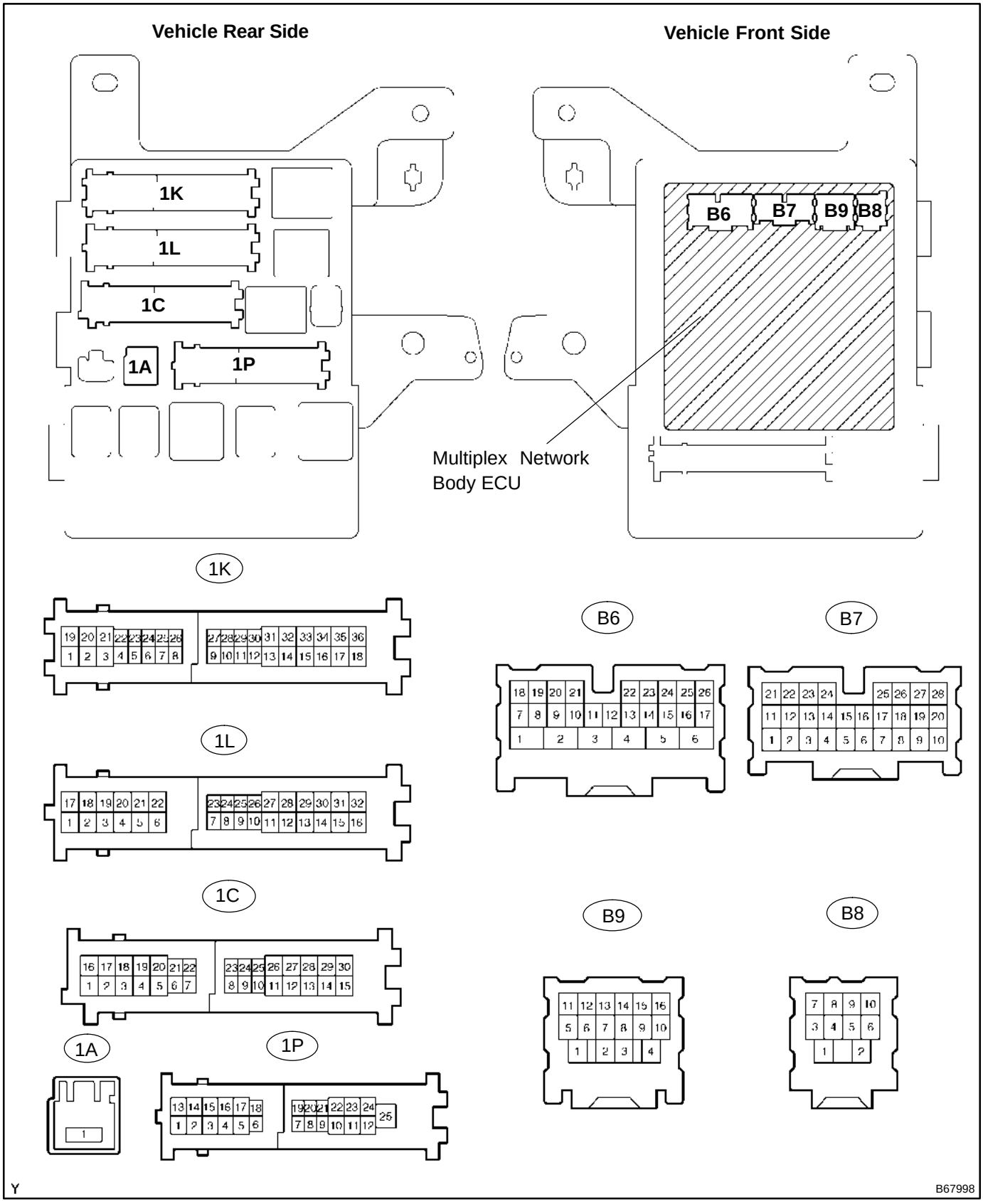

| Symbols (Terminal No.) | Wiring Color | Terminal Description | Condition | Specification |
|---|---|---|---|---|
| +B (O3-1) - GND (O3-3) | W-L - W-B | Power Source | IG switch ON | 10 to 14 V |
| DIA (O3-2) - GND (O3-3) | W - W-B | Diagnosis (DLC3) | IG switch ON | Pulse generation |
| GND (O3-3) - Body ground | W-B - Body ground | Ground | Always | Below 1 Ω |
| FSR- (O3-4) - GND (O3-3) | G-B - W-B | Airbag sensor assy center communication line (-) | Always | Below 1 Ω |
| BGND (O3-5) - GND (O3-3) | L - W-B | Passenger side buckle switch ground line | Always | Below 1 Ω |
| IG (O3-7) - GND (O3-3) | B-O - W-B | Power Source | IG switch ON | 10 to 14 V |
| FSR+ (O3-8) - FSR- (O3-4) | G-R - G-B | Airbag sensor assy center communication line | IG switch ON | Pulse generation |
| BSW (O3-9) - BGND (O3-5) | R - L | Passenger side buckle switch line | Buckle switch ON<br>Buckle switch OFF | 10 to 14 V<br>Below 1 V |
| SGD1 (O4-1) - GND (O3-3) | O - W-B | Passenger side buckle switch circuit | Always | Below 1 Ω |
| SGD2 (O4-2) - GND (O3-3) | B-Y - W-B | Occupant classification sensor front RH ground line | Always | Below 1 Ω |
| SGD3 (O4-3) - GND (O3-3) | R-B - W-B | Occupant classification sensor rear LH ground line | Always | Below 1 Ω |
| SGD4 (O4-4) - GND (O3-3) | R-W - W-B | Occupant classification sensor rear RH ground line | Always | Below 1 Ω |
| SVC3 (O4-5) - SGD3 (O4-3) | Y-B - R-B | Occupant classification sensor rear LH power supply line | IG switch ON, a load is applied to occupant classification sensor rear LH | 4.5 to 5.1 V |
| SVC4 (O4-6) - SGD4 (O4-4) | Y - R-W | Occupant classification sensor rear RH power supply line | IG switch ON, a load is applied to occupant classification sensor rear RH | 4.5 to 5.1 V |
| SIG1 (O4-7) - SGD1 (O4-1) | G - O | Occupant classification sensor front LH signal line | IG switch ON, a load is applied to occupant classification sensor front LH | 0.2 to 4.9 V |
| SIG2 (O4-8) - SGD2 (O4-2) | LG - B-Y | Occupant classification sensor rear RH signal line | IG switch ON, a load is applied to occupant classification sensor front RH | 0.2 to 4.9 V |

| Symbols (Terminal No.) | Wiring Color | Terminal Description | Condition | Specification |
|---|---|---|---|---|
| SIG3 (O4-9) - SGD3 (O4-3) | G-B - R-B | Occupant classification sensor rear LH signal line | IG switch ON, a load is applied to occupant classification sensor rear LH | 0.2 to 4.9 V |
| SIG4 (O4-10) - SGD4 (O4-4) | L-W - R-W | Occupant classification sensor front RH signal line | IG switch ON, a load is applied to occupant classification sensor rear RH | 0.2 to 4.9 V |
| SVC1 (O4-11) - SGD1 (O4-1) | V - O | Occupant classification sensor rear LH power supply line | IG switch ON, a load is applied to occupant classification sensor front LH | 4.5 to 5.1 V |
| SVC2 (O4-12) - SGD2 (O4-2) | P - B-Y | Occupant classification sensor rear LH power supply line | IG switch ON, a load is applied to occupant classification sensor front RH | 4.5 to 5.1 V |

059TQ-02

# TERMINALS OF ECU

## 1. CHECK INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU)



(a) Disconnect the B6, B7 and B9 ECU connectors.
(b) Disconnect the 1A, 1C, 1K,1L and 1P J/B connectors.
(c) Check the voltage and resistance between each terminal of the wire harness side connectors and body ground.

**Standard:**

| Symbols (Terminal No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| IG (1A-1) - Body ground | W - Body ground | Constant | 10 to 14 V |
| ACC (1A-1) - Body ground | W - Body ground | Constant | 10 to 14 V |
| BECU (1C-24) - Body ground | W-L - Body ground | Constant | 10 to 14 V |
| ALTB (1C-30) - Body ground | B - Body ground | Constant | 10 to 14 V |
| KSW (B6-21) - Body ground | L-B - Body ground | No key in ignition key cylinder → Key inserted | 10 kΩ or higher → Below 1 Ω |
| DCTY (B9-14) - Body ground | R-Y - Body ground | Driver side door CLOSED → OPEN | 10 kΩ or higher → Below 1 Ω |
| PCTY (B7-23) - Body ground | R-Y - Body ground | Passenger side door CLOSED → OPEN | 10 kΩ or higher → Below 1 Ω |
| RCTY (B9-16) - Body ground | R-W - Body ground | Rear door RH CLOSED → OPEN | 10 kΩ or higher → Below 1 Ω |
| LCTY (1P-19) - Body ground | GR - Body ground | Rear door LH CLOSED → OPEN | 10 kΩ or higher → Below 1 Ω |
| BCTY (B7-25) - Body ground | G-W - Body ground | Back door CLOSED → OPEN | 10 kΩ or higher → Below 1 Ω |
| GND1 (1L-16) - Body ground | W-B - Body ground | Constant | Below 1 Ω |
| GND2 (1K-17) - Body ground | W-B - Body ground | Constant | Below 1 Ω |

If the result is not as specified, there may be a malfunction on the wire harness side.

(d) Reconnect the B6, B7 and B9 ECU connectors.
(e) Reconnect the 1A, 1C, 1K,1L and 1P J/B connectors.
(f) Check the voltage between each terminal of the connectors and the body ground.

**Standard:**

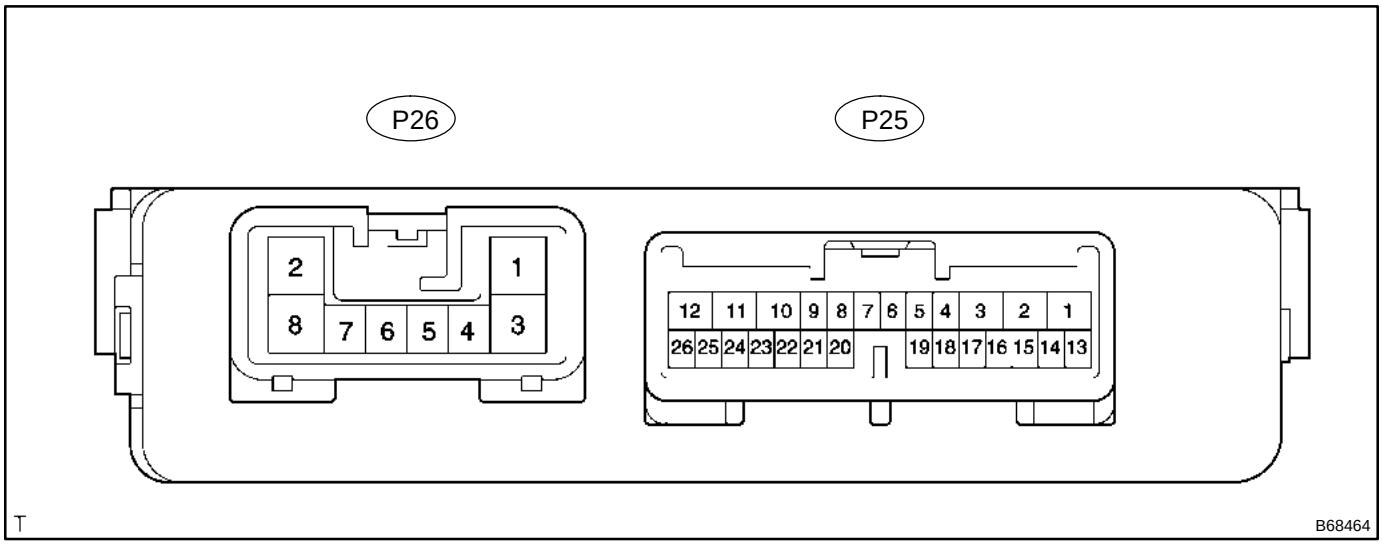
| Symbols (Terminal No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| HAZ (B6-2) - Body ground | G-O - Body ground | Answer-back OFF → Answer-back ON | Below 1 V → Pulse generation |
| BZR (B8-2) - Body ground | G - Body ground | Wireless buzzer OFF → ON | Below 1 V → Pulse generation |
| RDA (B9-12) - Body ground | P-L - Body ground | No key in ignition key cylinder, all doors closed and transmitter switch OFF → ON | Below 1 V → Approx. 6 to 7 V → Below 1 V |

If the result is not as specified, the J/B assy (body ECU) may have a malfunction.

05BZ8-01

# TERMINALS OF ECU

## 1. CHECK POWER SLIDE DOOR ECU LH




(a) Disconnect the P25 and P26 ECU connectors, and check the voltage and resistance of each terminal of the wire harness side connectors.

**Standard:**

| Terminal No. | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| P26-2 (B) - Body ground | B-W - Body ground | Constant | 10 to 14 V |
| P25-10 (ECUB) - Body ground | W - Body ground | Constant | 10 to 14 V |
| P26-8 (GND) - Body ground | W-B - Body ground | Constant | Below 1 Ω |
| P25-4 (CSW) - Body ground | L - Body ground | Power slide door control switch LH<br>OFF → ON | 10 kΩ or higher → Below 1 Ω |
| P25-3 (HSW) - Body ground | W-R - Body ground | Rear door inside/outside handle<br>NOT PULLED→ PULLED | 10 kΩ or higher → Below 1 Ω |
| P25-18 (CPSW) - Body ground | P-B - Body ground | Child lock lever LH<br>UNLOCK → LOCK | 10 kΩ or higher → Below 1 Ω |
| P25-17 (FLSW) - Body ground | R-W - Body ground | Fuel lid<br>CLOSED → OPEN | 10 kΩ or higher → Below 1 Ω |
| P25-16 (OS) - P25-15 (OSG) | W-L - W-G | Power slide door touch sensor LH<br>FREE → PRESSED | Approx. 1 kΩ → Less than 100 Ω |
| P25-22 (MPX1) - Body ground | R - Body ground | BEAN line | 10 kΩ or higher |

If the result is not as specified, there may be a malfunction on the wire harness side.

(b) Reconnect the ECU connectors, and check the voltage of each terminal of the connectors.

**Standard:**

| Terminal No. | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| P25-6 (MSW) - Body ground | P - Body ground | Power slide door main switch OFF → ON | 0 V → Pulse generation |
| P26-5 (RACT) - Body ground | B - Body ground | Slide door fully closed and A*1, B*2 or C*3 switch turned ON →<br>Slide door in opening operation →<br>Slide door fully open | 0 V →<br>10 to 14 V →<br>0 V |
| P25-2 (BZR+) - Body ground | B-R - Body ground | All conditions necessary for warning buzzer to sound*4 are met →<br>Any condition necessary for sounding warning buzzer to stop*5 is met | 10 to 14 V (a cycle of approx. 0.3 sec.) →<br>0 V |
| P25-1 (BZR-) - Body ground | R-Y - Body ground | | |
| P25-13 (SEL*6) - Body ground | W-B - Body ground | Constant | 0 V |
| P25-26 (DSV) - P25-23 (DSG) | W-G - Y-B | Constant | 10 to 14 V |
| P25-25 (DS1) - P25-23 (DSG) | R-G - Y-B | Slide door fully closed and A, B or C switch turned ON →<br>Slide door in opening operation →<br>Slide door fully open | 0 V →<br>Alternating between 10 to 14 V and 0 V →<br>0 V |
| P25-24 (DS2) - P25-23 (DSG) | G-W - Y-B | | |
| P26-7 (CL+) - Body ground | V-W - Body ground | Slide door fully open and A, B or C switch turned ON →<br>Slide door in closing operation →<br>Slide door fully closed | 0 V →<br>10 to 14 V →<br>0 V |
| P26-6 (CL-) - Body ground | B-Y - Body ground | Slide door fully closed and A, B or C switch turned ON →<br>Slide door in opening operation →<br>Slide door fully open | 0 V →<br>10 to 14 V →<br>0 V |
| P26-1 (SD+) - Body ground | G - Body ground | Slide door fully closed and A, B or C switch turned ON →<br>Slide door in opening operation →<br>Slowdown point →<br>Slide door fully open | 0 V →<br>10 to 14 V →<br>Alternating between 10 to 14 V and 0 V →<br>0 V |
| P26-3 (SD-) - Body ground | Y - Body ground | Slide door fully open and A, B or C switch turned ON →<br>Slide door in closing operation →<br>Slowdown point →<br>Slide door fully closed | 0 V →<br>10 to 14 V →<br>Alternating between 10 to 14 V and 0 V →<br>0 V |

*1 Satellite switch (Slide door LH)

*2 Power slide door control switch LH

*3 Transmitter switch (Slide door LH)

*4 When all the conditions listed below are met, the warning buzzer sounds.

- Ignition switch is turned ON
- Shift lever is moved into any position except P position
- Slide door is open or power slide door system is activated to open

*5 When any condition listed below is met, the sounding warning buzzer stops.

- Shift lever is moved into P position
- Slide door is fully closed

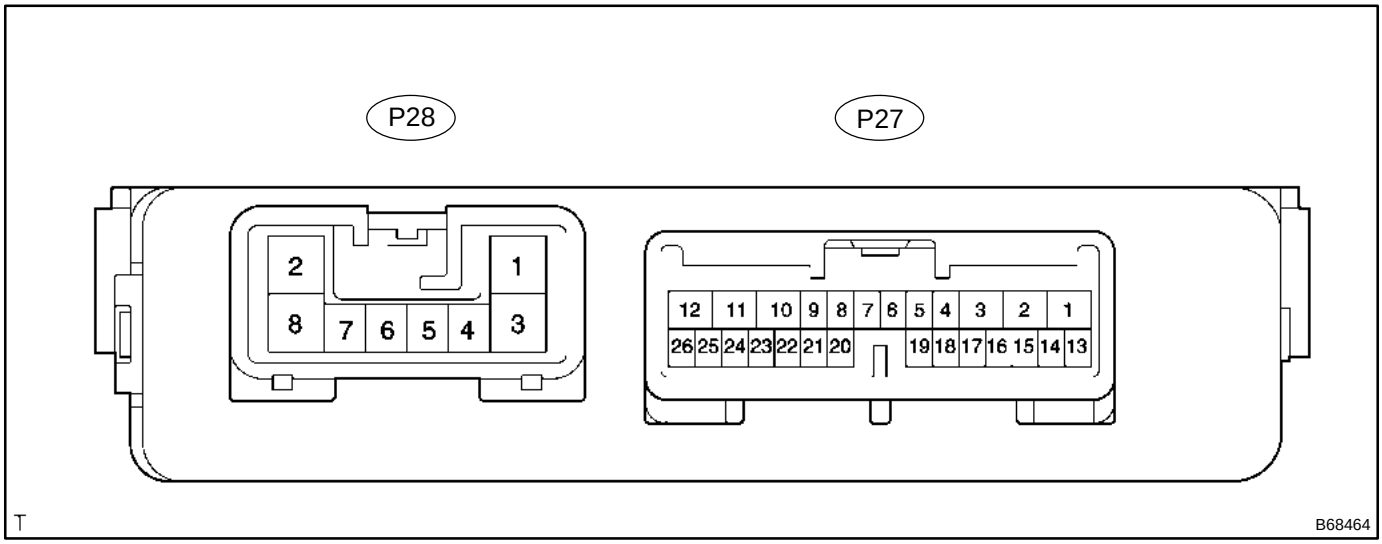
*6 Terminal SEL is used for distinction between the power slide door ECU LH and RH. Only terminal SEL of the power slide door ECU LH is grounded.

HINT:

Use an oscilloscope to check the output voltages of the power slide door main switch, buzzer and pulse sensor.

If the result is not as specified, the ECU may have a malfunction.

## 2. CHECK POWER SLIDE DOOR ECU RH




(a) Disconnect the P27 and P28 ECU connectors, and check the voltage or resistance of each terminal of the wire harness side connectors.

**Standard:**

| Terminal No. | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| P28-2 (B) - Body ground | B - Body ground | Constant | 10 to 14 V |
| P27-10 (ECUB) - Body ground | W - Body ground | Constant | 10 to 14 V |
| P28-8 (GND) - Body ground | W-B - Body ground | Constant | Below 1 Ω |
| P27-4 (CSW) - Body ground | L - Body ground | Power slide door control switch RH<br>OFF → ON | 10 kΩ or higher → Below 1 Ω |
| P27-3 (HSW) - Body ground | W-R - Body ground | Rear door Inside/outside handle<br>NOT PULLED→ PULLED | 10 kΩ or higher → Below 1 Ω |
| P27-18 (CPSW) - Body ground | P-B - Body ground | Child lock lever RH<br>UNLOCK → LOCK | 10 kΩ or higher → Below 1 Ω |
| P27-16 (OS) - P27-15 (OSG) | W-L - W-G | Power slide door touch sensor RH<br>FREE → PRESSED | Approx. 1 kΩ → Less than 100 Ω |
| P27-22 (MPX1) - Body ground | R - Body ground | BEAN line | 10 kΩ or higher |

If the result is not as specified, there may be a malfunction on the wire harness side.

(b) Reconnect the ECU connectors, and check the voltage of each terminal of the connectors.
**Standard:**

| Terminal No. | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| P27-6 (MSW) - Body ground | P - Body ground | Power slide door main switch OFF → ON | 0 V → Pulse generation |
| P27-5 (MSE) - Body ground | R-W - Body ground | | |
| P28-5 (RACT) - Body ground | B - Body ground | Slide door fully closed and A*1, B*2 or C*3 switch turned ON →<br>Slide door in opening operation →<br>Slide door fully open | 0 V →<br>10 to 14 V →<br>0 V |
| P27-2 (BZR+) - Body ground | B-R - Body ground | All conditions necessary for warning buzzer to sound*4 are met → | 10 to 14 V (a cycle of approx. 0.3 sec.) → |
| P27-1 (BZR-) - Body ground | R-Y - Body ground | Any condition necessary for sounding warning buzzer to stop*5 is met | 0 V |
| P27-26 (DSV) - P27-23 (DSG) | W-G - Y-B | Constant | 10 to 14 V |
| P27-25 (DS1) - P27-23 (DSG) | R-G - Y-B | Slide door fully closed and A, B or C switch turned ON →<br>Slide door in opening operation →<br>Slide door fully open | 0 V →<br>Alternating between10 to 14 V and 0 V →<br>0 V |
| P27-24 (DS2) - P27-23 (DSG) | G-W - Y-B | | |
| P28-7 (CL+) - Body ground | V-W - Body ground | Slide door fully open and A, B or C switch turned ON →<br>Slide door in closing operation →<br>Slide door fully closed | 0 V →<br>10 to 14 V →<br>0 V |
| P28-6 (CL-) - Body ground | B-Y - Body ground | Slide door fully closed and A, B or C switch turned ON →<br>Slide door in opening operation →<br>Slide door fully open | 0 V →<br>10 to 14 V →<br>0 V |
| P28-1 (SD+) - Body ground | G - Body ground | Slide door fully closed and A, B or C switch turned ON →<br>Slide door in opening operation →<br>Slowdown point →<br>Slide door fully open | 0 V →<br>10 to 14 V →<br>Alternating between 10 to 14 V and 0 V →<br>0 V |
| P28-3 (SD-) - Body ground | Y - Body ground | Slide door fully open and A, B or C switch turned ON →<br>Slide door in closing operation →<br>Slowdown point →<br>Slide door fully closed | 0 V →<br>10 to 14 V →<br>Alternating between 10 to 14 V and 0 V →<br>0 V |

*1 Satellite switch (Slide door RH)
*2 Power slide door control switch RH
*3 Transmitter switch (Slide door RH)
*4 When all the conditions listed below are met, the warning buzzer sounds.
- Ignition switch is turned ON
- Shift lever is moved into any position except P position
- Slide door is open or power slide door system is activated to open

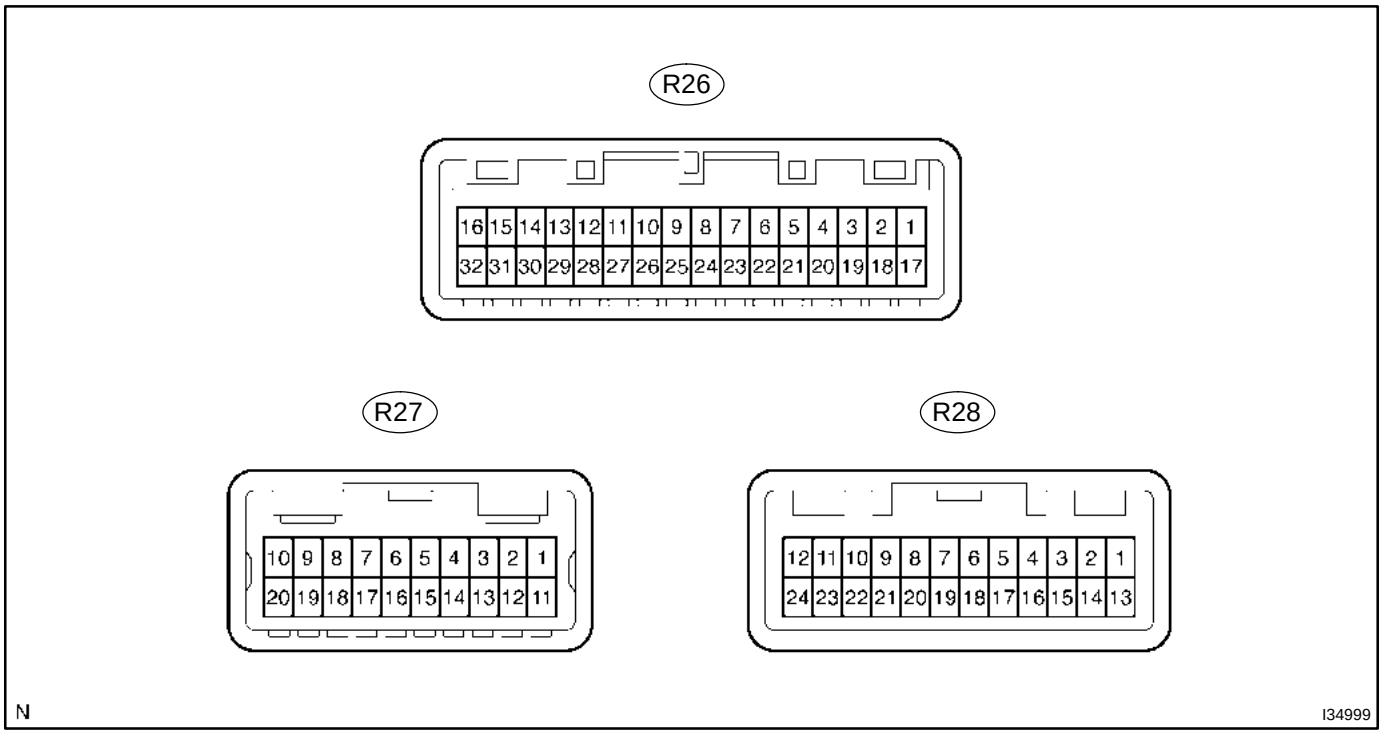
*5 When any condition listed below is met, the sounding warning buzzer stops.
- Shift lever is moved into P position
- Slide door is fully closed

HINT:
Use an oscilloscope to check the output voltages of the power slide door main switch, buzzer and pulse sensor.
If the result is not as specified, the ECU may have a malfunction.

05BVC-02

# TERMINALS OF ECU

## 1. MULTI-DISPLA Y CONTROLLER SUB-ASSY




| Symbols (Terminals No.) | Wiring Color | Condition | Specification |
|---|---|---|---|
| R26-7 - R26-29 (L- - GND) | W - Y | DVD system is playing (Front display) | A waveform synchronized with sound is output |
| R26-8 - R26-29 (L+ - GND) | W - Y | DVD system is playing (Front display) | A waveform synchronized with sound is output |
| R26-9 - R26-29 (R- - GND) | W - Y | DVD system is playing (Front display) | A waveform synchronized with sound is output |
| R26-10 - R26-29 (R+ - GND) | W - Y | DVD system is playing (Front display) | A waveform synchronized with sound is output |
| R26-11 - Body ground (SG1 - Body ground) | Shielded - Body ground | Always | Below 1 V |
| R26-12 - R26-29 (LMUT - GND) | LG - Y | DVD system is changing (Front display) | Below 1 V |
| R26-16 - R26-29 (+B1 - GND) | Y - Y | Always | 10 to 14 V |
| R26-17 (TX3+) - Body ground | LG - Body ground | Ignition switch to ACC | 2 to 3 V |
| R26-18 (TX3-) - Body ground | W - Body ground | Ignition switch to ACC | 2 to 3 V |
| R26-19 - Body ground (SGN1 - Body ground) (*1) | Shielded - Body ground | Always | Below 1 V |
| R26-20 - Body ground (SG3 - Body ground) (*1) | GR - Body ground | Always | Below 1 V |
| R26-21 - R26-29 (NTS1 - GND) (*1) | W - Y | DVD system is displayed (Front display) | Pulse generation |
| R26-23 - R26-29 (R-L- - GND) | W - Y | Audio system is playing | A waveform synchronized with sound is output |

| Symbols (Terminals No.) | Wiring Color | Condition | Specification |
|---|---|---|---|
| R26-24 - R26-29 (R-L+ - GND) | W - Y | Audio system is playing | A waveform synchronized with sound is output |
| R26-25 - R26-29 (R-R- - GND) | W - Y | Audio system is playing | A waveform synchronized with sound is output |
| R26-26 - R26-29 (R-R+ - GND) | W - Y | Audio system is playing | A waveform synchronized with sound is output |
| R26-27 - Body ground (SG2 - Body ground) | Shielded - Body ground | Always | Below 1 V |
| R26-28 - R26-29 (RMUT - GND) | LG - Y | Audio system is changing | Below 1 V |
| R26-29 - Body ground (GND - Body ground) | Y - Body ground | Always | Below 1 V |
| R26-32 - R26-29 (ACC - GND) | LG - Y | Ignition switch to ACC | 10 to 14 V |
| R27-1 - R26-29 (MUTE - GND) | LG - Y | DVD system is changing | Below 1 V |
| R27-2 - R26-29 (AL- - GND) | W - Y | DVD system is playing | A waveform synchronized with sound is output |
| R27-3 - R26-29 (AL+ - GND) | W - Y | DVD system is playing | A waveform synchronized with sound is output |
| R27-4 - R26-29 (AR- - GND) | W - Y | DVD system is playing | A waveform synchronized with sound is output |
| R27-5 - R26-29 (AR+ - GND) | W - Y | DVD system is playing | A waveform synchronized with sound is output |
| R27-6 - Body ground (SG4 - Body ground) | Shielded - Body ground | Always | Below 1 V |
| R27-7 - Body ground (SELD - Body ground) | LG - Body ground | Always | Below 1 V |
| R27-8 - R26-29 (NTS2 - GND) | W - Y | DVD system is displayed | Pulse generation |
| R27-9 - Body ground (SGN2 - Body ground) | GR - Body ground | Always | Below 1 V |
| R27-10 - Body ground (SG9 - Body ground) (*1, *3) (SG8 - Body ground) (*2) | Shielded - Body ground | Always | Below 1 V |
| R27-16 - R26-29 (HPL- - GND) | W - Y | RSE system is playing | A waveform synchronized with sound is output |
| R27-17 - R26-29 (HPL+ - GND) | W - Y | RSE system is playing | A waveform synchronized with sound is output |
| R27-18 - R26-29 (HPR- - GND) | W - Y | RSE system is playing | A waveform synchronized with sound is output |
| R27-19 - R26-29 (HPR+ - GND) | W - Y | RSE system is playing | A waveform synchronized with sound is output |

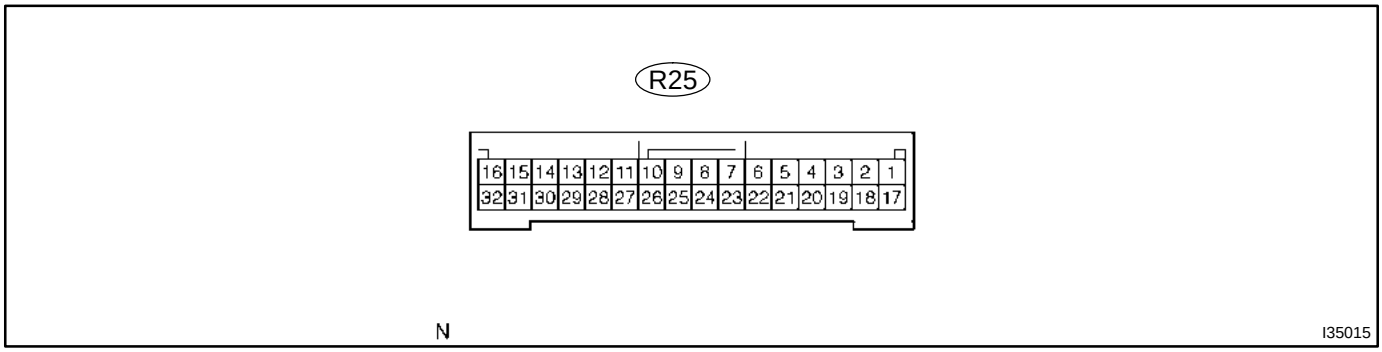
| Symbols (Terminals No.) | Wiring Color | Condition | Specification |
|---|---|---|---|
| R27-20 - Body ground (SLD1 - Body ground) | Shielded - Body ground | Always | Below 1 V |
| R28-1 - R26-29 (+B2 - GND) | Y - Y | Always | 10 to 14 V |
| R28-2 - R26-29 (ACC2 - GND) | LG - Y | Ignition switch ON | 10 to 14 V |
| R28-3 - R26-29 (GAUX - GND) | LG - Y | External device system is playing (At that time of VTR jack use) | A waveform synchronized with sound is output |
| R28-4 (TX2-) - Body ground | W - Body ground | Ignition switch to ACC | 2 to 3 V |
| R28-5 (TX2+) - Body ground | LG - Body ground | Ignition switch to ACC | 2 to 3 V |
| R28-6 - Body ground (GND1 - Body ground) | Y - Body ground | Always | Below 1 V |
| R28-7 - Body ground (SG5 - Body ground) | Shielded - Body ground | Always | Below 1 V |
| R28-8 - R26-29 (HP1L - GND) | W - Y | RSE system is playing | A waveform synchronized with sound is output |
| R28-9 - R26-29 (HP1R - GND) | W - Y | RSE system is playing | A waveform synchronized with sound is output |
| R28-10 - Body ground (SG7 - Body ground) | Shielded - Body ground | Always | Below 1 V |
| R28-11 - R26-29 (AUXL - GND) | W - Y | External device system is playing (At that time of VTR jack use) | A waveform synchronized with sound is output |
| R28-12 - R26-29 (AUXR - GND) | W - Y | External device system is playing (At that time of VTR jack use) | A waveform synchronized with sound is output |
| R28-13 - R26-29 (R2 - GND) | W - Y | Rear display is displayed (Television display assy) | Pulse generation |
| R28-14 - R26-29 (G2 - GND) | W - Y | Rear display is displayed (Television display assy) | Pulse generation |
| R28-15 - R26-29 (B2 - GND) | W - Y | Rear display is displayed (Television display assy) | Pulse generation |
| R28-16 - R26-29 (SYN2 - GND) | W - Y | Rear display is displayed (Television display assy) | Pulse generation |
| R28-17 - Body ground (VR2 - Body ground) | GR - Body ground | Always | Below 1 V |
| R28-18 - Body ground (VG2 - Body ground) | Shielded - Body ground | Always | Below 1 V |
| R28-19 - Body ground (SG6 - Body ground) | Shielded - Body ground | Always | Below 1 V |
| R28-20 - R26-29 (HP2L - GND) | W - Y | RSE system is playing | A waveform synchronized with sound is output |
| R28-21 - R26-29 (HP2R - GND) | W - Y | RSE system is playing | A waveform synchronized with sound is output |
| R28-22 - Body ground (SG6 - Body ground) | Shielded - Body ground | Always | Below 1 V |

| Symbols (Terminals No.) | Wiring Color | Condition | Specification |
|---|---|---|---|
| R28-23 - Body ground<br>(SGN5 - Body ground) | GR - Body ground | Always | Below 1 V |
| R28-24 - R26-29<br>(NTS4 - GND) | W - Y | External device system displayed<br>(At that time of VTR jack use) | Pulse generation |

HINT:

- *1: 10 Speaker w/ Navigation system
- *2: 10 Speaker w/o Navigation system
- *3: 6 Speaker

## 2. TELEVISION DISPLAY ASSY



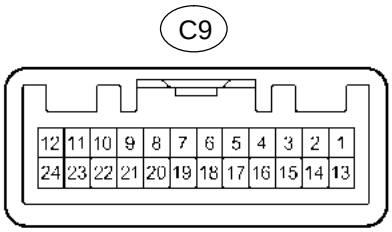

| Symbols (Terminals No.) | Wiring Color | Condition | Specification |
|---|---|---|---|
| R25-1 - R25-6<br>(+B - GND) | Y - Y | Always | 10 to 14 V |
| R25-2 - R25-6<br>(ACC - GND) | LG - Y | Ignition switch ON | 10 to 14 V |
| R25-4 (TX-) - Body ground | W - Body ground | Ignition switch to ACC | 2 to 3 V |
| R25-5 (TX+) - Body ground | LG - Body ground | Ignition switch to ACC | 2 to 3 V |
| R25-6 - Body ground<br>(GND - Body ground) | Y - Body ground | Always | Below 1 V |
| R25-7 - R25-6<br>(HP1R - GND) | W - Y | While voice sound is being produced | A waveform synchronized with sound is output |
| R25-8 - R25-6<br>(HP1L - GND) | W - Y | While voice sound is being produced | A waveform synchronized with sound is output |
| R25-9 - Body ground<br>(S. GND - Body ground) | Shielded - Body ground | Always | Below 1 V |
| R25-10 - Body ground<br>(SLD - Body ground) | Shielded - Body ground | Always | Below 1 V |
| R25-11 - R25-6<br>(R+ - GND) | W - Y | DVD system is playing | A waveform synchronized with sound is output |
| R25-12 - R25-6<br>(R- - GND) | W - Y | DVD system is playing | A waveform synchronized with sound is output |
| R25-13 - R25-6<br>(L+ - GND) | W - Y | DVD system is playing | A waveform synchronized with sound is output |

| Symbols (Terminals No.) | Wiring Color | Condition | Specification |
|---|---|---|---|
| R25-14 - R25-6 (L- - GND) | W - Y | DVD system is playing | A waveform synchronized with sound is output |
| R25-15 - R25-6 (MUTE - GND) | LG - Y | DVD system is changing | Below 1 V |
| R25-17 - Body ground (VG - Body ground) | Shielded - Body ground | Always | Below 1 V |
| R25-18 - Body ground (VR - Body ground) | GR - Body ground | Always | Below 1 V |
| R25-19 - R25-18 (SYNC - VR) | W - GR | Rear display is displayed | Pulse generation |
| R25-20 - R25-18 (B - VR) | W - GR | Rear display is displayed | Pulse generation |
| R25-21 - R25-18 (G - VR) | W - GR | Rear display is displayed | Pulse generation |
| R25-22 - R25-18 (R - VR) | W - GR | Rear display is displayed | Pulse generation |
| R25-23 - R25-6 (HP2R - GND) | W - Y | While voice sound is being produced | A waveform synchronized with sound is output |
| R25-24 - R25-6 (HP2L - GND) | W - Y | While voice sound is being produced | A waveform synchronized with sound is output |
| R25-25 - Body ground (SLD - Body ground) | Shielded - Body ground | Always | Below 1 V |
| R25-26 - R25-6 (HPR+ - GND) | W - Y | While voice sound is being produced | A waveform synchronized with sound is output |
| R25-27 - R25-6 (HPR- - GND) | W - Y | While voice sound is being produced | A waveform synchronized with sound is output |
| R25-28 - R25-6 (HPL+ - GND) | W - Y | While voice sound is being produced | A waveform synchronized with sound is output |
| R25-29 - R25-6 (HPL- - GND) | W - Y | While voice sound is being produced | A waveform synchronized with sound is output |
| R25-30 - Body ground (SLD - Body ground) | Shielded - Body ground | Always | Below 1 V |
| R25-31 - Body ground (S. GND - Body ground) | GR - Body ground | Always | Below 1 V |
| R25-32 - R25-6 (NTSC - GND) | W - Y | DVD system is displayed | Pulse generation |

05BUW-02

# TERMINALS OF ECU

## 1. CLEARANCE WARNING ECU ASSY




E60185

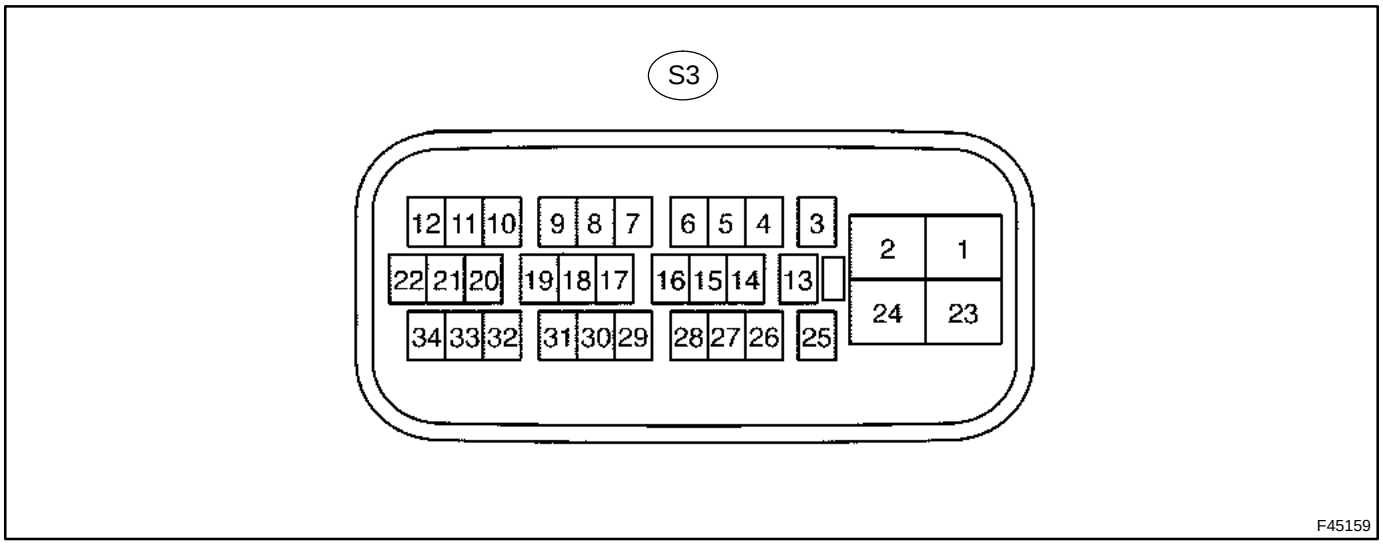
| Terminal No. (Symbols) | Wiring Color | Condition | Specified condition |
|---|---|---|---|
| C9-3 (RL) - C9-7 (E) | R-B - W-B | Ignition switch ON, shift position is except R position | Below 1.5 V |
| | | Ignition switch ON, shift position is R position | Above 7 V |
| C9-4 (CBZ) (*1) - C9-7 (E) | Y-R (*1) - W-B | Clearance sonar sounding (when the front clearance sonar senses something) | Pulse generation |
| C9-5 (L5) - C9-7 (E) | L-B - W-B | Back sonar indicator comes on | Below 3 V |
| C9-6 (L3) - C9-7 (E) | O - W-B | Clearance sonar indicator rear LH comes on | Below 3 V |
| C9-7 (E) - Body ground | W-B - Body ground | Always | Below 1 V |
| C9-8 (SPD) - C9-7 (E) | V-W - W-B | Ignition switch ON, when driving in low speed | Pulse generation |
| C9-9 (E1) (*1) - C9-7 (E) | P-L (*1) - W-B | Always | Below 1 V |
| C9-10 (S5) - C9-21 (E2) | G-O - LG | When signals are transmitted from the ECU to the back sonar sensor RH | Pulse generation |
| C9-11 (S3) - C9-21 (E2) | G-B - LG | When signals are transmitted from the ECU to the clearance sonar sensor rear LH | Pulse generation |
| C9-12 (S1) - C9-21 (E2) | G-W - LG | When signals are transmitted from the ECU to the clearance sonar sensor rear RH | Pulse generation |
| C9-13 (+B) - C9-7 (E) | LG-B - W-B | Ignition switch ON, clearance main switch OFF | Below 1 V |
| | | Ignition switch ON, clearance main switch ON | 10 - 14 V |
| C9-15 (PL) - C9-7 (E) | L-Y - W-B | Ignition switch ON, shift position is except P position | Below 1.5 V |
| | | Ignition switch ON, shift position is P position | Above 7 V |
| C9-16 (BBZ) - C9-7 (E) | R - W-B | Back sonar sounding (when the back sonar senses something) and/or clearance sonar sounding (when the rear clearance sonar senses something) | Pulse generation |
| C9-17 (L6) - C9-7 (E) | BR-W - W-B | Ignition switch ON, clearance main switch ON | Below 3 V |
| C9-18 (L4) - C9-7 (E) | P - W-B | Clearance sonar indicator front LH comes on | Below 3 V |
| C9-19 (L2) - C9-7 (E) | V-R - W-B | Clearance sonar indicator front RH comes on | Below 3 V |
| C9-20 (L1) - C9-7 (E) | R-L - W-B | Clearance sonar indicator rear RH comes on | Below 3 V |
| C9-21 (E2) - C9-7 (E) | LG - W-B | Always | Below 1 V |
| C9-22 (S6) - C9-21 (E2) | G-Y - LG | When signals are transmitted from the ECU to the back sonar sensor LH | Pulse generation |
| C9-23 (S4) (*1) - C9-9 (E1) (*1) | V (*1) - P-L (*1) | When signals are transmitted from the ECU to clearance sonar sensor front LH | Pulse generation |
| C9-24 (S2) (*1) - C9-9 (E1) (*1) | L (*1) - P-L (*1) | When signals are transmitted from the ECU to clearance sonar sensor front RH | Pulse generation |

*1: 6 sensor

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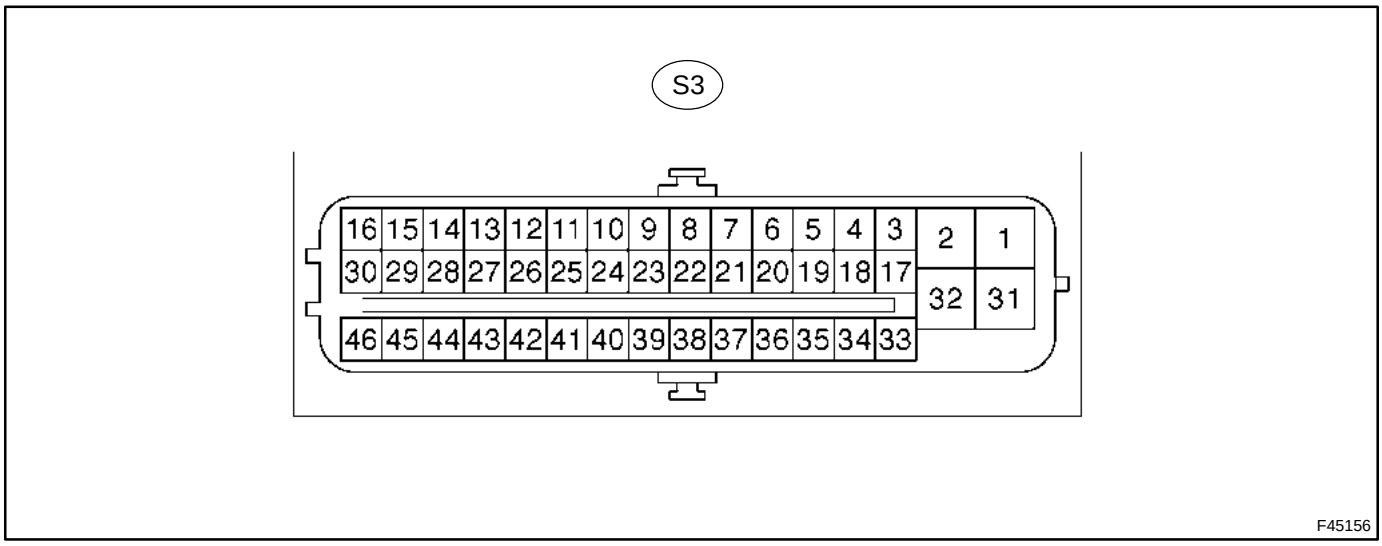
# TERMINALS OF ECU

**w/o VSC:**

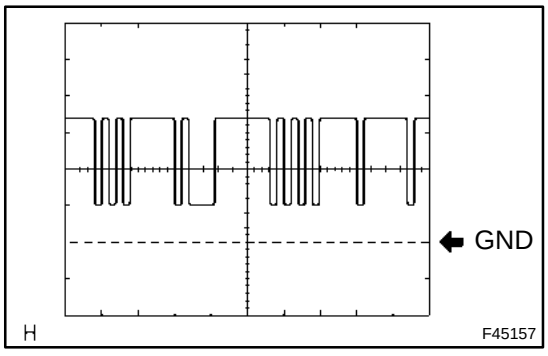



| Symbols (Terminals No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| GND1 (1) - Body ground | W-B - Body ground | Always | Below 1 Ω |
| TC (8) - GND1 (1) | P-B - W-B | Ignition switch ON and terminals TC - CG connected | Below 1.0 V |
| | | Ignition switch ON and terminals TC - CG not connected | 10 to 14 V |
| STP (16) - GND1 (1) | G-W - W-B | Brake pedal depressed | 10 to 14 V |
| | | Brake pedal released | Below 1.5 V |
| WTIR (21) - GND 1 (1) | GR-L - W-B | Ignition switch ON and tire pressure warning lamp ON | 10 to 14 V |
| | | Ignition switch ON and tire pressure warning lamp OFF | Below 1.5 V |
| INIT (22) - GND 1 (1) | L-O - W-B | Ignition switch ON and tire pressure warning switch ON | Below 3 V |
| | | Ignition switch ON and tire pressure warning switch OFF | 10 to 14 V |

**w/ VSC:**

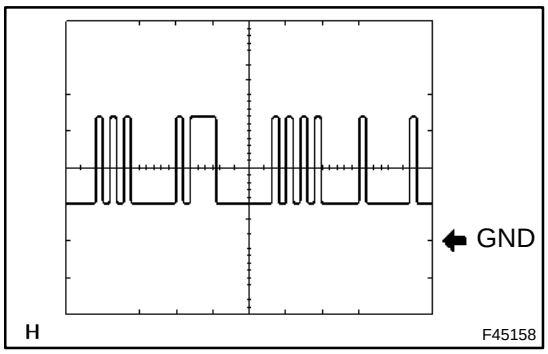



| Symbols (Terminals No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| ENG+ (9) - GND1 (32) | P - W-B | Ignition switch ON and vehicle speed 30 km/h (19 mph) or more | Pulse generation 1 reference |
| ENG- (23) - GND1 (32) | V - W-B | Ignition switch ON and engine idle speed | Pulse generation 2 reference |
| WTIR (26) - GND1 (32) | GR-L - W-B | Ignition switch ON and tire pressure warning lamp ON | 10 to 14 V |
| | | Ignition switch ON and tire pressure warning lamp OFF | Below 1.5 V |
| STP1 (27) - GND1 (32) | G-W - W-B | Brake pedal depressed | 10 to 14 V |
| | | Brake pedal released | Below 1.5 V |
| GND1 (32) - Body ground | W-B - Body ground | Always | Below 1 Ω |
| INIT (41) - GND1 (32) | L-O - W-B | Ignition switch ON and tire pressure warning switch ON | Below 3 V |
| | | Ignition switch ON and tire pressure warning switch OFF | 10 to 14 V |




**Pulse generation 1: Reference**

| Item | Condition |
|---|---|
| Terminal | ENG+ - GND1 |
| Tool setting | 1 V / DIV, 0.5 ms / DIV |
| Vehicle condition | Engine idle speed |



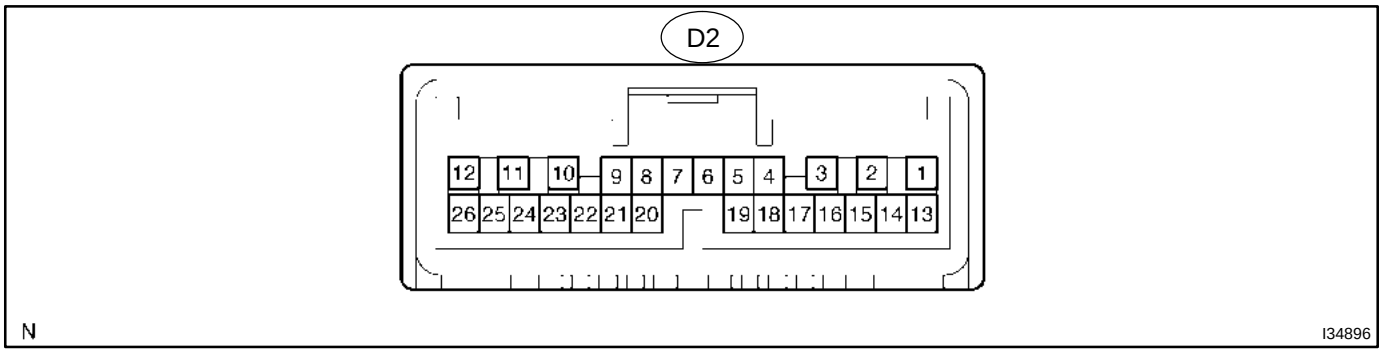

## Pulse generation 2: Reference

| Item | Condition |
|---|---|
| Terminal | ENG- - GND1 |
| Tool setting | 1 V / DIV, 0.5 ms / DIV |
| Vehicle condition | Engine idle speed |

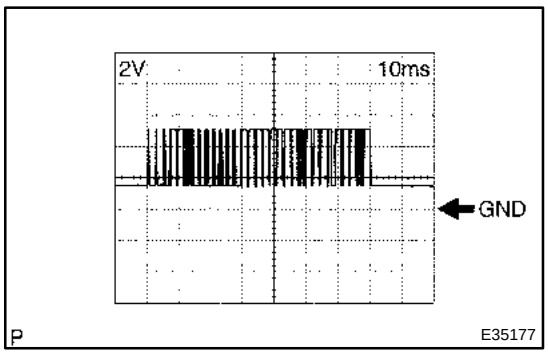
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# TERMINALS OF ECU

## 1. DISTANCE CONTROL ECU



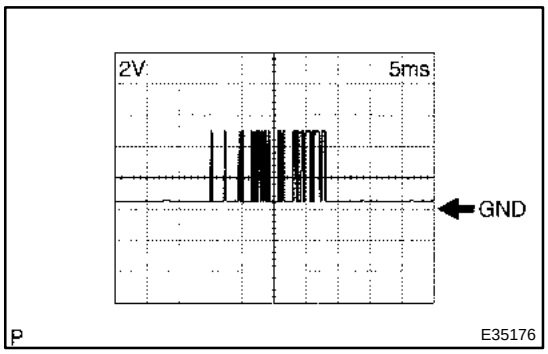

| Symbols (Terminals No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| D2-1 - D2-12<br>(B - GND) | B-R - BR | Always | 10 to 14 V |
| D2-2 - D2-12<br>(WIP2 - GND) | L-O - BR | Ignition switch ON<br>Wiper switch OFF → HI | Below 1 V →<br>10 to 14 V |
| D2-3 - D2-12<br>(WASH - GND) | L-Y - BR | Ignition switch ON<br>Washer switch OFF → ON | 10 to 14 V →<br>Below 1 V |
| D2-10 - Body ground<br>(SGND - Body ground) | BR -<br>Body ground | Always | Below 1 Ω |
| D2-12 - Body ground<br>(GND - Body ground) | BR -<br>Body ground | Always | Below 1 Ω |
| D2-13 - D2-12<br>(IGB - GND) | W-L - BR | Ignition switch ON | 10 to 14 V |
| D2-16 - D2-12<br>(MODE - GND) | W - BR | Ignition switch ON<br>Distance control switch OFF → ON | 10 to 14 V →<br>Below 1 V |
| D2-22 - D2-12<br>(LRDD - GND) | G - BR | Ignition switch ON | Pulse generation (*1) |
| D2-23 - D2-12<br>(LRRD - GND) | Y - BR | Ignition switch ON | Pulse generation (*2) |
| D2-24 - D2-12<br>(ELC - GND) | B-W - BR | Ignition switch ON | Pulse generation (*3) |
| D2-25 - D2-12<br>(LCS - GND) | W-R - BR | Ignition switch ON | Pulse generation (*4) |



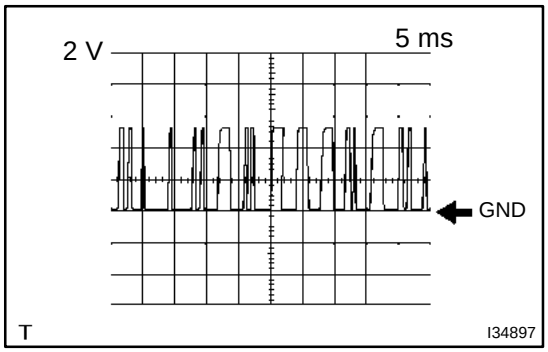

(a) Reference: Oscilloscope wave form (*1)

HINT:

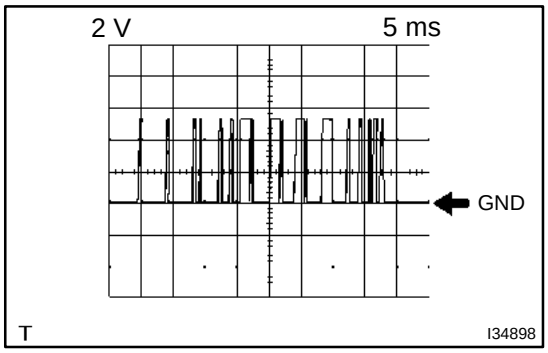
- Terminal: LRDD - GND
- Gauge set: 2 V/DIV, 10 ms/DIV
- Condition: Ignition switch ON




(b) Reference: Oscilloscope wave form (*2)
HINT:
- Terminal: LRRD - GND
- Gauge set: 2 V/DIV, 5 ms/DIV
- Condition: Ignition switch ON

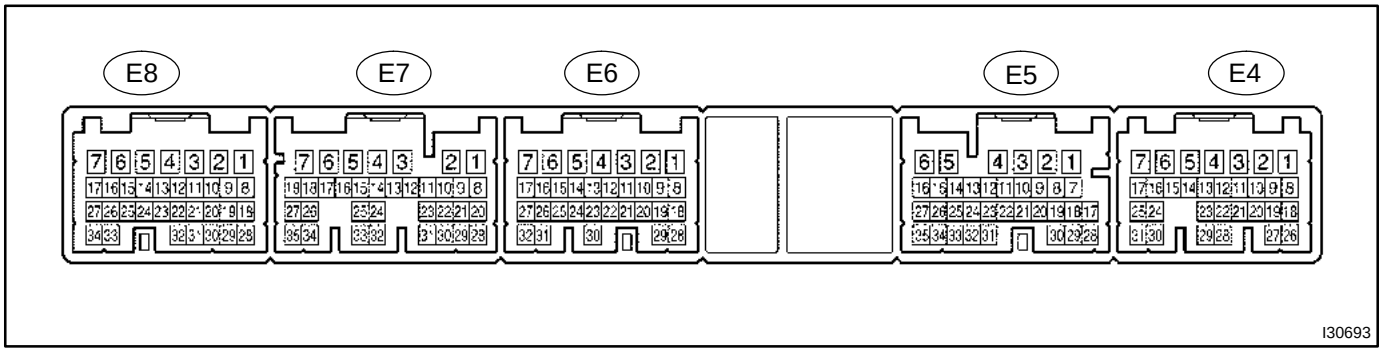



(c) Reference: Oscilloscope wave form (*3)
HINT:
- Terminal: ELC - GND
- Gauge set: 2 V/DIV, 5 ms/DIV
- Condition: Ignition switch ON



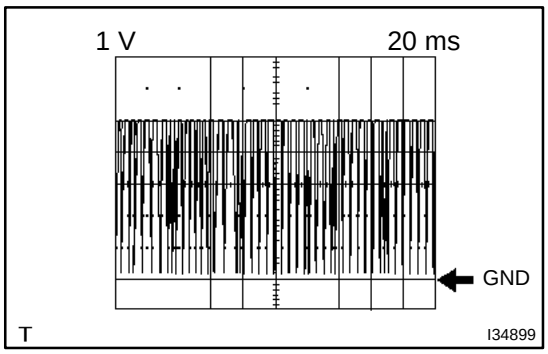

(d) Reference: Oscilloscope wave form (*4)
HINT:
- Terminal: LCS - GND
- Gauge set: 2 V/DIV, 5 ms/DIV
- Condition: Ignition switch ON

## 2. ECM

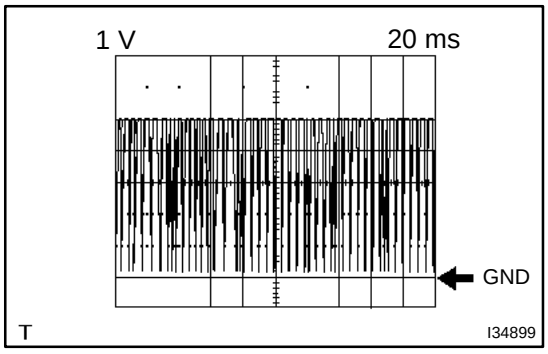



| Symbols (Terminals No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| E1 - Body ground<br>(E6-1 - Body ground) | BR - Body ground | Always | Below 1 Ω |
| LGND - Body ground<br>(E6-18 - Body ground) | Y - Body ground | Always | Below 1 Ω |
| LCS - E1<br>(E6-19 - E6-1) | W-R - BR | Ignition switch ON | Pulse generation (*1) |
| CCHG - E1<br>(E6-28 - E6-1) | P - BR | Ignition switch ON<br>Cruise control main switch ON<br>MODE switch ON | Below 1 V |
| | | Ignition switch ON<br>Cruise control main switch ON<br>MODE switch OFF | 10 to 14 V |
| ELC - E1<br>(E6-29 - E6-1) | B-W - BR | Ignition switch ON | Pulse generation (*2) |
| ST1- - E1<br>(E5-12 - E6-1) | LG-R - BR | Brake pedal depressed<br>(Stop lamp switch ON) | Below 1 V |
| | | Brake pedal released<br>(Stop lamp switch OFF) | 10 to 14 V |
| SPD - E1<br>(E5-17 - E6-1) | V-W - BR | Engine start → Car stoppage | Below 1.5 V<br>→ 4.7 to 16 V |
| | | During driving (Pulse generated) | 3 to 7 V |
| STP - E1<br>(E5-19 - E6-1) | G-W - BR | Brake pedal released<br>(Stop lamp switch OFF) | Below 1 V |
| | | Brake pedal depressed<br>(Stop lamp switch ON) | 10 to 14 V |
| CCS - E1<br>(E5-24 - E6-1) | B - BR | Ignition switch ON<br>CANCEL switch ON<br>-/SET switch ON<br>+/RES switch ON<br>Main switch ON | 10 to 16 V<br>6.6 to 10.1 V<br>4.5 to 7.1 V<br>2.3 to 4.0 V<br>Below 1 V |
| ENG+ - ENG-<br>(E4-24 - E4-30) | P - V | Ignition switch ON | Pulse generation |
| TRC+ - TRC-<br>(E4-25 - E4-31) | LG-B - LG-R | Ignition switch ON | Pulse generation |

If the value is not within the standard range, some defects on the vehicle is suspected.

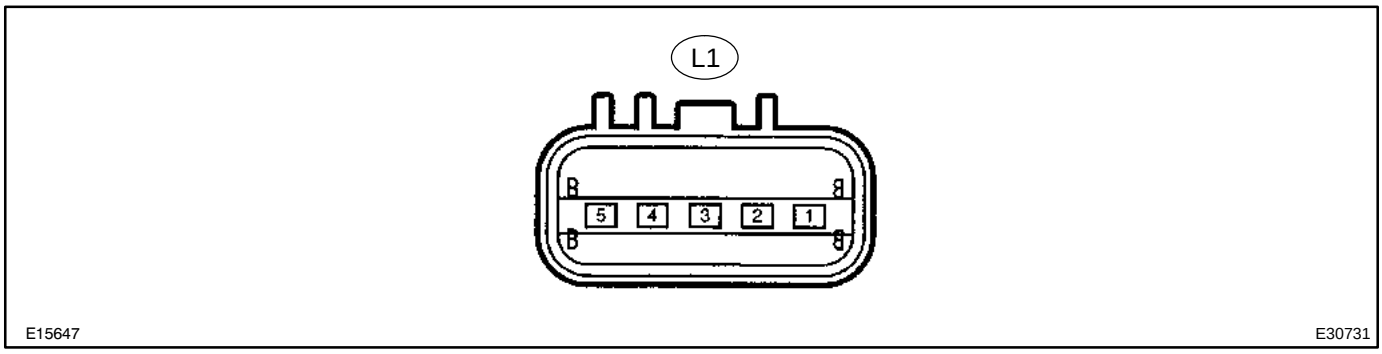



(a) Reference: Oscilloscope wave form (*1)
HINT:
- Terminal: LCS - E1
- Gauge set: 1 V/DIV, 20 ms/DIV
- Condition: Ignition switch ON

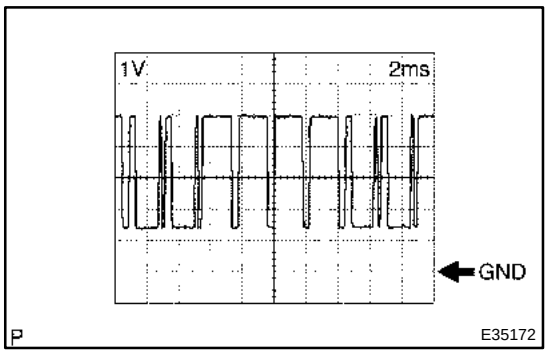



(b) Reference: Oscilloscope wave form (*2)
HINT:
- Terminal: ELC - E1
- Gauge set: 1 V/DIV, 20 ms/DIV
- Condition: Ignition switch ON

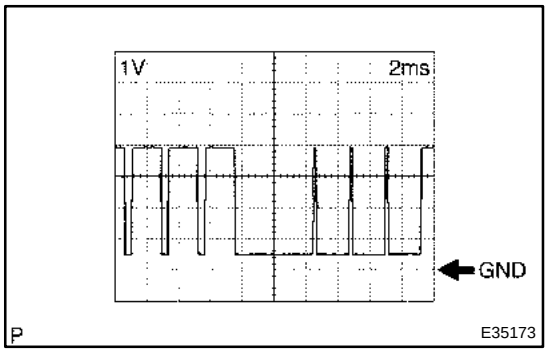
## 3. LASER RADAR SENSOR




| Symbols (Terminal No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| LGND - Body ground<br>(L1-1 - Body ground) | R - Body ground | Always | Below 1 Ω |
| SGND - Body ground<br>(L1-2 - Body ground) | BR -<br>Body ground | Always | Below 1 Ω |
| LRDD - SGND<br>(L1-3 - L1-2) | G - BR | Ignition switch ON | Pulse generation (*1) |
| LRRD - SGND<br>(L1-4 - L1-2) | Y - BR | Ignition switch ON | Pulse generation (*2) |
| IGB - SGND<br>(L1-5 - L1-2) | W-L - BR | Ignition switch ON | 10 to 14 V |

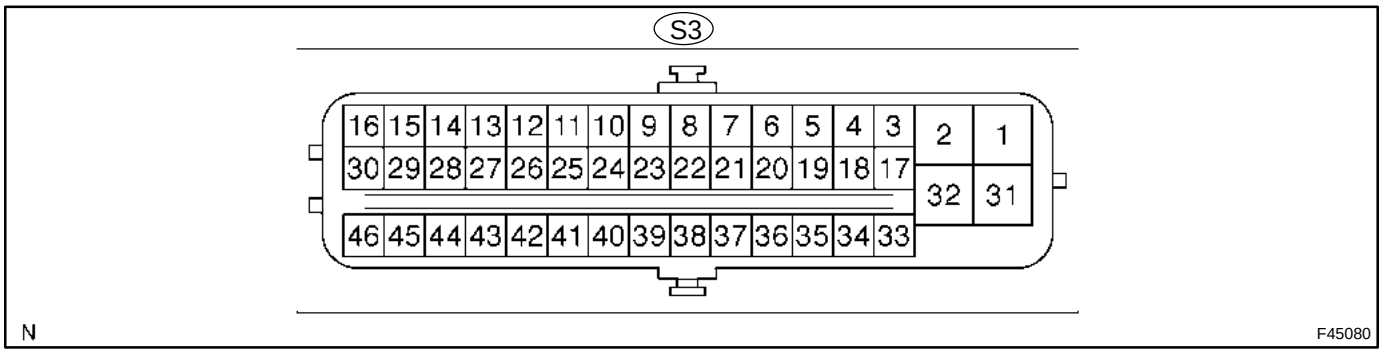



(a) Reference: Oscilloscope wave form (*1)
HINT:
- Terminal: LRDD - SGND
- Gauge set: 1 V/DIV, 2 ms/DIV
- Condition: Ignition switch ON




(b) Reference: Oscilloscope wave form (*2)
HINT:
- Terminal: LRRD - SGND
- Gauge set: 1 V/DIV, 2 ms/DIV
- Condition: Ignition switch ON

## 4. BRAKE ACTUATOR ASSY (SKID CONTROL ECU)

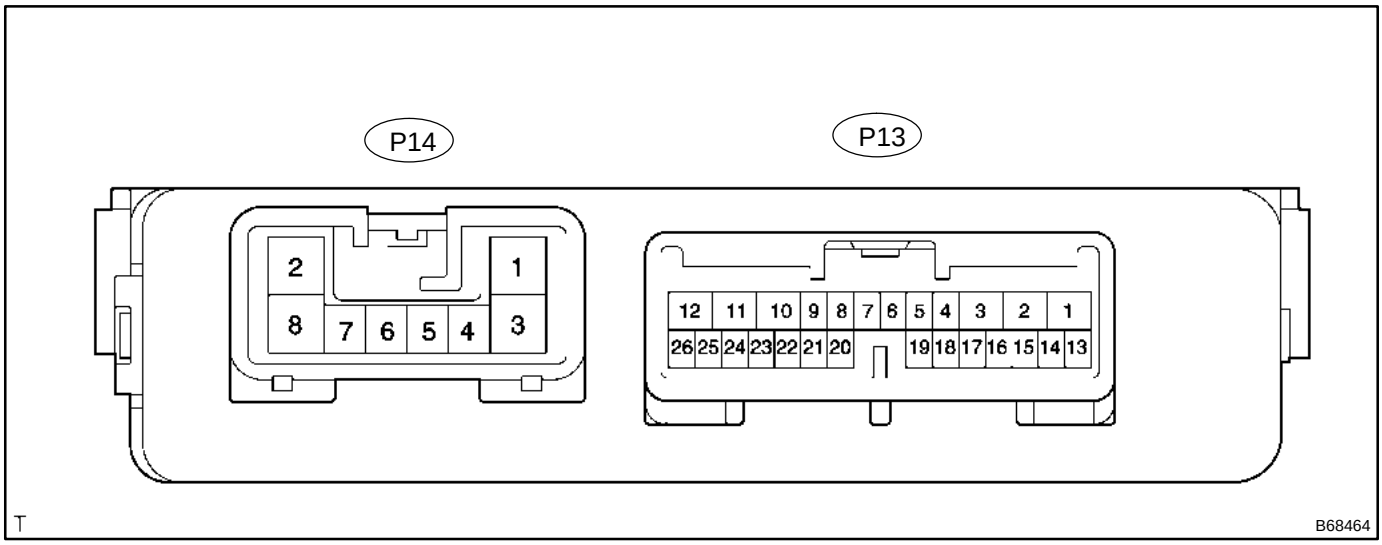



| Symbols (Terminals No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| BZ (S3 - 30) - GND1 (S3 - 32) | G-O - W-B | Ignition switch ON<br>Skid control buzzer is sounded | Below 1.0 V↔<br>10 to 14 V |
| | | Ignition switch ON<br>Skid control buzzer is not sounded | 10 to 14 V |
| ENG+ (S3 - 9) - ENG- (S3 - 23) | P - V | Ignition switch ON | Pulse generation |
| TRC+ (S3 - 8) - TRC- (S3 - 22) | LG-B - LG-R | Ignition switch ON | Pulse generation |
| STPO (S3 - 16) - GND1- (S3 - 32) | W-R - W-B | Ignition switch ON | 10 to 14 V |
| STP2 (S3 - 21) - GND1 (S3 - 32) | G-Y - W-B | Brake pedal released<br>(Stop lamp switch OFF) | Below 1.0 V |
| | | Brake pedal depressed<br>(Stop lamp switch ON) | 10 to 14 V |
| STP1 (S3 - 27) - GND1 (S3 - 32) | G-W - W-B | Ignition switch OFF → ON | Below 1.0 V →<br>10 to 14 V |
| | | Ignition switch OFF<br>Brake pedal depressed (Stop lamp switch ON) | 10 to 14 V |

05C03-01

# TERMINALS OF ECU

## 1. CHECK POWER BACK DOOR ECU




(a) Disconnect the P13 and P14 ECU connectors, and check the voltage and resistance of each terminal of the wire harness side connectors.

**Standard:**

| Terminal No. | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| P14-2 (B) - Body ground | B-R - Body ground | Constant | 10 to 14 V |
| P13-10 (ECUB) - Body ground | W-L - Body ground | Constant | 10 to 14 V |
| P13-9 (IG) - Body ground | B-R - Body ground | Ignition switch OFF → ON | 0 V → 10 to 14 V |
| P14-8 (GND) - Body ground | W-B - Body ground | Constant | Below 1 Ω |
| P13-3 (HSW) - Body ground | G-B - Body ground | Back door opener switch OFF → ON | 10 kΩ or higher → Below 1 Ω |

If the result is not as specified, there may be a malfunction on the wire harness side.

(b) Reconnect the ECU connectors, and check the voltage of each terminal of the connectors.

**Standard:**

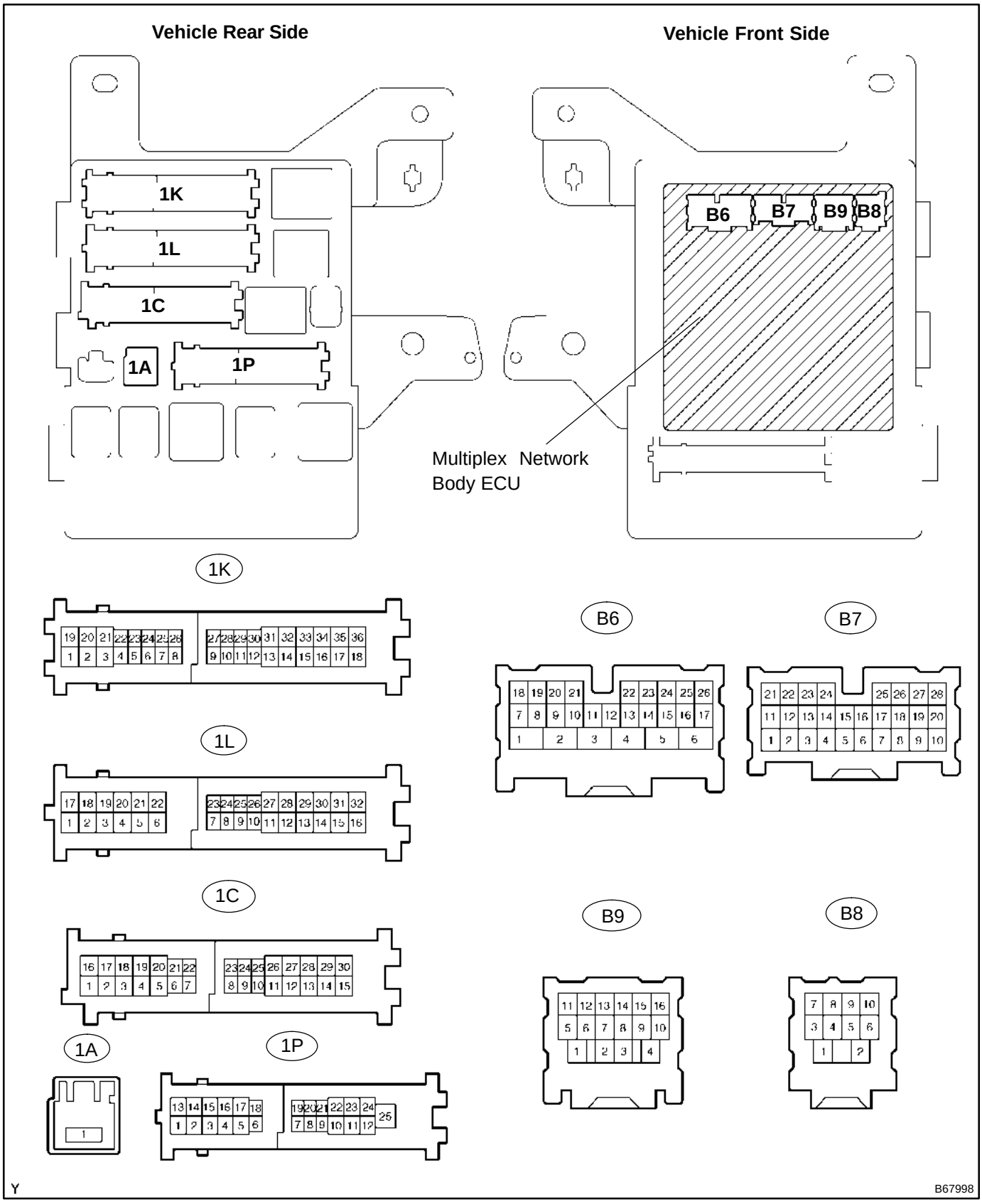
| Terminal No. | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| P14-4 (CTYO) - Body ground | G-W - Body ground | Back door CLOSED → OPEN | 10 to 14 V → Below 1 V |
| P13-7 (HAF) - Body ground | R - Body ground | Back door OPEN →<br>Closer in operation<br>Back door CLOSED | Below 1 V<br>10 to 14 V →<br>Below 1 V |
| P13-21 (POS) - Body ground | V - Body ground | Back door OPEN →<br>Closer in operation<br>CLOSED | Below 1 V<br>10 to 14 V →<br>Below 1 V |
| P13-8 (FUL) - Body ground | B-W - Body ground | Back door CLOSED → OPEN | 10 to 14 V → Below 1 V |
| P13-12 (DC+) - Body ground | L-W - Body ground | Back door OPEN<br>Not completely closed<br>Motor in normal rotation (Right turn)<br>Motor in reverse rotation (Left turn)<br>Operation completed (Back door CLOSED) | Below 1 V →<br>Below 1 V →<br>10 to 14 V →<br>Below 1 V →<br>Below 1 V |
| P13-11 (DC-) - Body ground | G - Body ground | Back door OPEN<br>Not completely closed<br>Motor in normal rotation (Right turn)<br>Motor in reverse rotation (Left turn)<br>Operation completed (Back door CLOSED) | Below 1 V →<br>Below 1 V →<br>Below 1 V →<br>10 to 14 V→<br>Below 1 V |

If the result is not as specified, the ECU may have a malfunction.

05B9Z-01

# TERMINALS OF ECU

## 1. CHECK INSTRUMENT PANEL J/B ASSY (MULTIPLEX NETWORK BODY ECU)



(a) Disconnect the B6, B7 and B9 ECU connectors.
(b) Disconnect the 1A, 1C, 1L and 1K J/B connectors.
(c) Check the voltage and resistance between each terminal of the wire harness side connectors and body ground.

**Standard:**

| Symbols (Terminal No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| IG (1A-1) - Body ground | W - Body ground | Constant | 10 to 14 V |
| ACC (1A-1) - Body ground | W - Body ground | Constant | 10 to 14 V |
| BECU (1C-24) - Body ground | W-L - Body ground | Constant | 10 to 14 V |
| ALTB (1C-30) - Body ground | B - Body ground | Constant | 10 to 14 V |
| KSW (B6-21) - Body ground | L-B - Body ground | No key in ignition key cylinder → Key inserted | 10 kΩ or higher → Below 1 Ω |
| HCTY (B8-10) - Body ground | R-W - Body ground | Engine hood CLOSED → OPEN | 10 kΩ or higher → Below 1 Ω |
| DCTY (B9-14) - Body ground | R-Y - Body ground | Driver side door CLOSED → OPEN | 10 kΩ or higher → Below 1 Ω |
| PCTY (B7-23) - Body ground | R-Y - Body ground | Passenger side door CLOSED → OPEN | 10 kΩ or higher → Below 1 Ω |
| RCTY (B9-16) - Body ground | R-W - Body ground | Rear door RH CLOSED → OPEN | 10 kΩ or higher → Below 1 Ω |
| LCTY (1P-19) - Body ground | GR - Body ground | Rear door LH CLOSED → OPEN | 10 kΩ or higher → Below 1 Ω |
| BCTY (B7-25) - Body ground | G-W - Body ground | Back door CLOSED → OPEN | 10 kΩ or higher → Below 1 Ω |
| GND1 (1L-16) - Body ground | W-B - Body ground | Constant | Below 1 Ω |
| GND2 (1K-17) - Body ground | W-B - Body ground | Constant | Below 1 Ω |

If the result is not as specified, there may be a malfunction on the wire harness side.

(d) Reconnect the B6, B7 and B9 ECU connectors.
(e) Reconnect the 1A, 1C, 1L and 1K J/B connectors.
(f) Check the voltage between each terminal of the connectors and the body ground.

**Standard:**

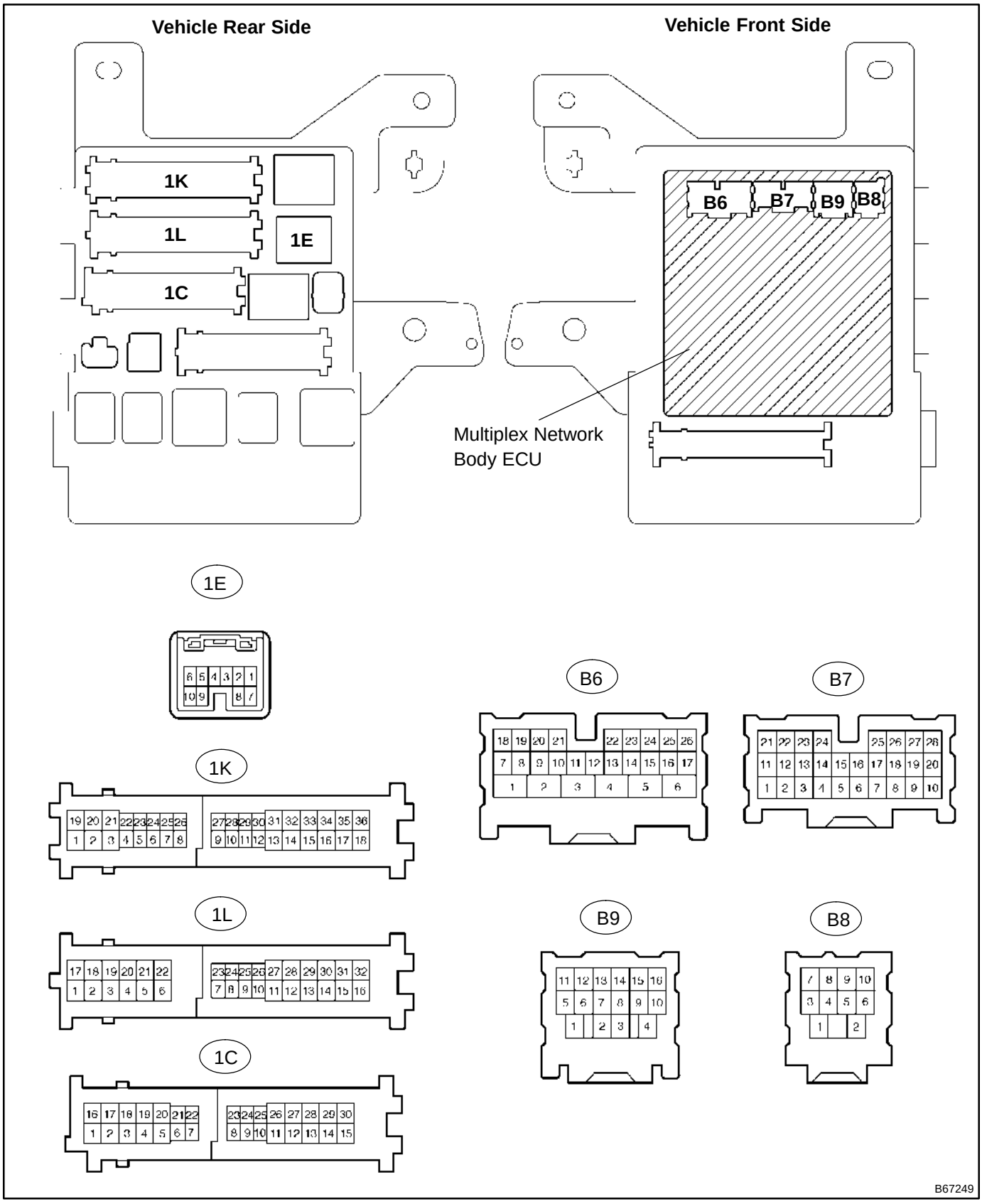
| Symbols (Terminal No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| IND (B6-24) - Body ground | B - Body ground | Security indicator lights up<br>(It lights up only for 30 sec. in alarm sounding state<br>It flashes when immobiliser system is operating) | 3 to 6 V |
| SH (B8-1) - Body ground | GR - Body ground | Security horn is sounding<br>(Theft deterrent system is in alarm sounding state) | Pulse generation → 0 V |
| HAZ (B6-2) - Body ground | G-O - Body ground | Answer-back OFF → Answer-back ON | Pulse generation |

If the result is not as specified, the J/B assy (body ECU) may have a malfunction.

05BTD-04

# TERMINALS OF ECU

## 1. INSPECT INSTRUMENT PANEL J/B ASSY (MULTIPLEX NETWORK BODY ECU)



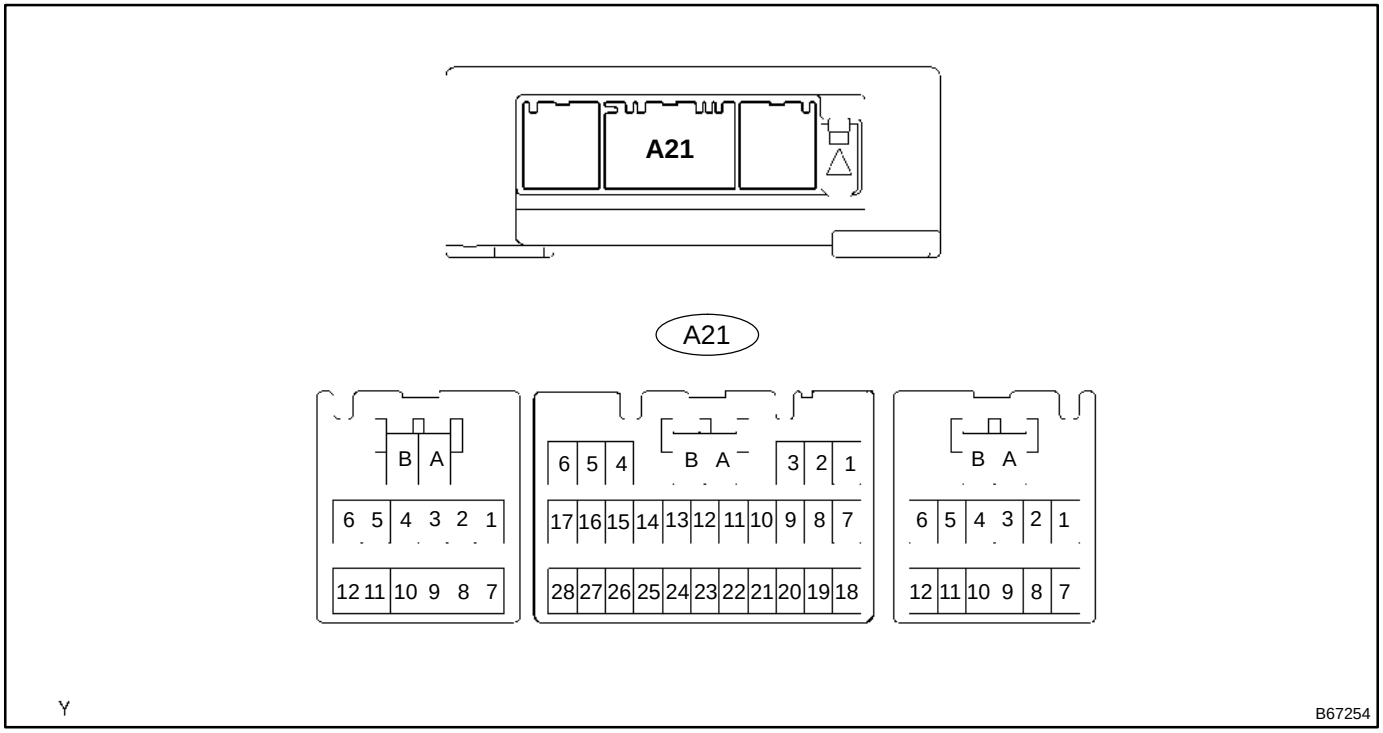
(a) Disconnect the B7 ECU, 1C, 1E, 1K and 1L and 1C J/B connectors.
(b) Check the voltage and resistance between each terminal of the wire harness side connectors and body ground.

**Standard:**

| Symbols (Terminal No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| BECU (1C-24) - Body ground | W-L - Body ground | Constant | 10 to 14 V |
| BECU (1L-7) - Body ground | W-L - Body ground | | |
| MPX1 (1E-7) - Body ground | R-L - Body ground | Constant | 10 kΩ or higher |
| MPX2 (B7-21) - Body ground | R-L - Body ground | Constant | 10 kΩ or higher |
| GND1 (1L-16) - Body ground | W-B - Body ground | Constant | Below 1 Ω |
| GND2 (1K-17) - Body ground | W-B - Body ground | Constant | Below 1 Ω |

If the result is not as specified, there may be a malfunction on the wire harness side.

**2. CHECK AIRBAG SENSOR ASSY (AIRBAG ECU)**




(a) Disconnect the A21 ECU connector.
(b) Check the voltage and resistance of each terminal of the wire harness side.

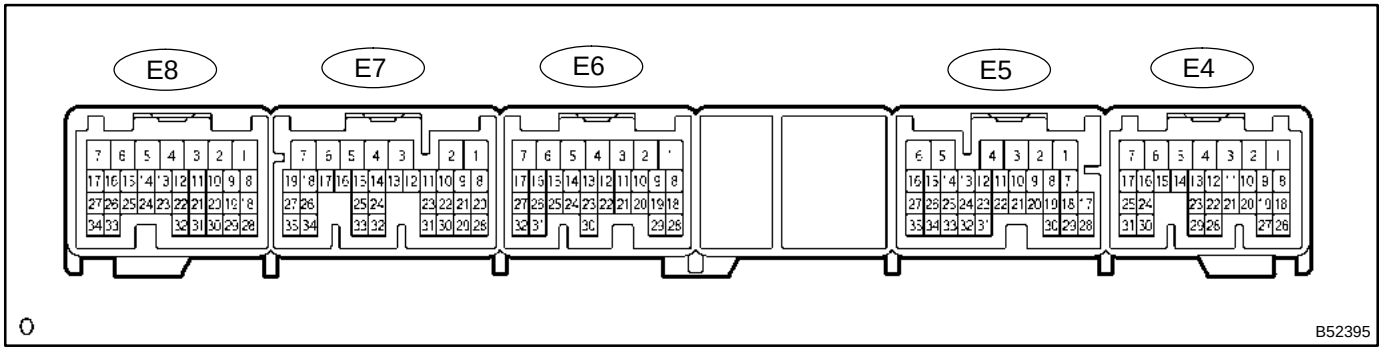
**Standard:**

| Symbols (Terminal No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| IG2 (A21-5) - E1 (A21-27) | B-O - W-B | Ignition Switch OFF → ON | 10 to 14 V |
| IG2 (A21-5) - E2 (A21-28) | B-O - W-B | Ignition Switch OFF → ON | 10 to 14 V |
| MPX1 (A21-24) - Body ground | R-L - Body ground | Constant | 10 kΩ or higher |
| MPX2 (A21-22) - Body ground | R-L - Body ground | Constant | 10 kΩ or higher |

| Symbols (Terminal No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| E1 (A21-27) - Body ground | W-B - Body ground | Constant | Below 1 Ω |
| E2 (A21-28) - Body ground | W-B - Body ground | Constant | Below 1 Ω |

If the result is not as specified, there may be a malfunction on the wire harness side.

**3. CHECK ECM**




(a) Disconnect the E4, E5 and E6 ECM connectors.

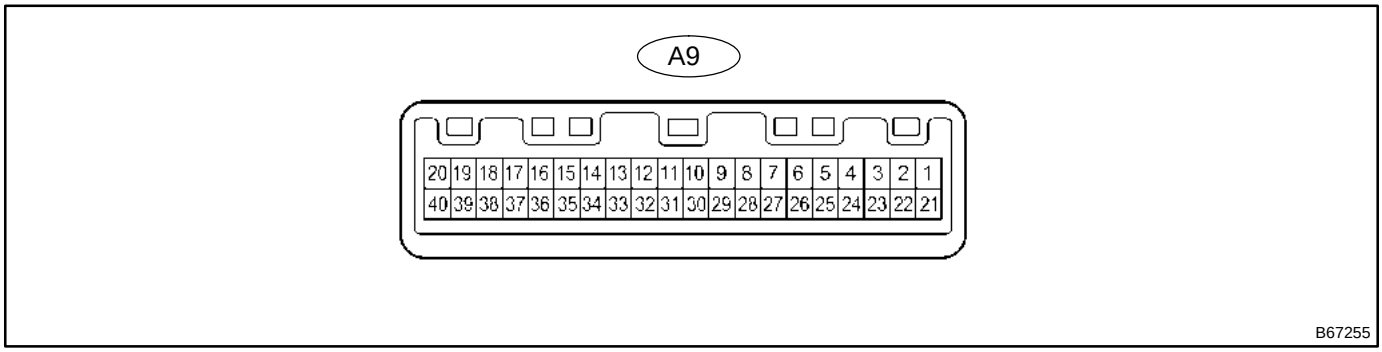
(b) Check the voltage and resistance of each terminal of the wire harness side connector.

**Standard:**

| Symbols (Terminal No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| BATT (E4-3) - E1 (E6-1) | B-W - BR | Constant | 10 to 14 V |
| +BM ⟨E5-6) - ME01 (E6-4) | R - W-B | Constant | 10 to 14 V |
| IGSW (E4-9) - E1 (E6-1) | B-O - BR | Ignition Switch OFF → ON | 10 to 14 V |
| +B ⟨E4-1) - E1 (E6-1) | B-R - BR | Ignition Switch OFF → ON | 10 to 14 V |
| +B2 ⟨E4-2) - E1 (E6-1) | B-R - BR | Ignition Switch OFF → ON | 10 to 14 V |
| MPX1 (E5-18) - Body ground | R-L - Body ground | Constant | 10 kΩ or higher |
| MPX2 (E5-29) - Body ground | V - Body ground | Constant | 10 kΩ or higher |
| E1 ⟨E6-1) - Body ground | BR - Body ground | Constant | Below 1 Ω |
| ME01 ⟨E6-4) - Body ground | W-B - Body grond | Constant | Below 1 Ω |

If the result is not as specified, there may be a malfunction on the wire harness side.

## 4. CHECK A/C AMPLIFIER ASSY (A/C ECU)

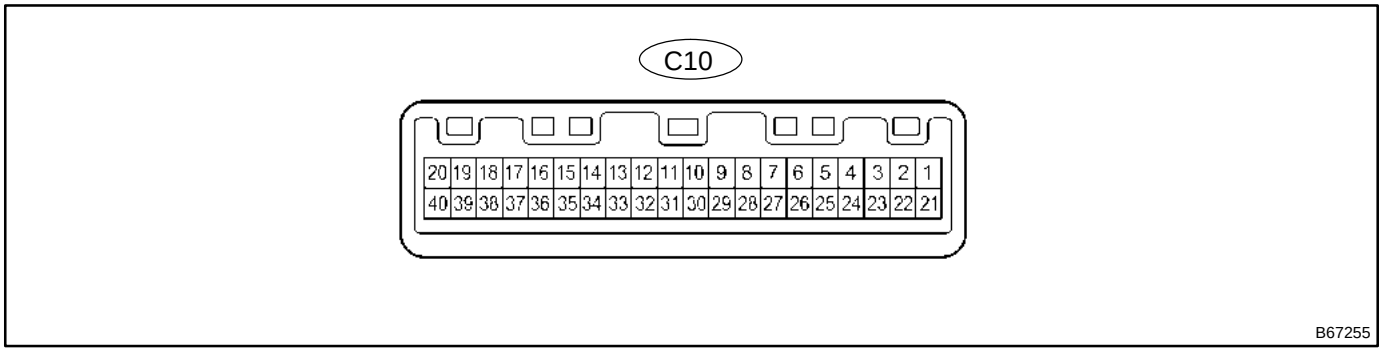



(a) Disconnect the A9 ECU connector.
(b) Check the voltage and resistance of each terminal of the wire harness side connector.
**Standard:**

| Symbols (Terminal No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| +B (A9-11) - GND (A9-1) | W-L - W-B | Constant | 10 to 14 V |
| IG (A9-40) - GND (A9-1) | R-Y - W-B | Ignition Switch OFF → ON | 10 to 14 V |
| ACC (A9-12) - GND (A9-1) | P - W-B | Ignition Switch OFF → ACC or ON | 10 to 14 V |
| MPX+ (A9-2) - Body ground | V - Body ground | Constant | 10 kΩ or higher |
| MPX- (A9-3) - Body ground | R-L - Body ground | Constant | 10 kΩ or higher |
| GND (A9-1) - Body ground | W-B - Body grond | Constant | Below 1 Ω |

If the result is not as specified, there may be a malfunction on the wire harness side.

## 5. CHECK COMBINATION METER



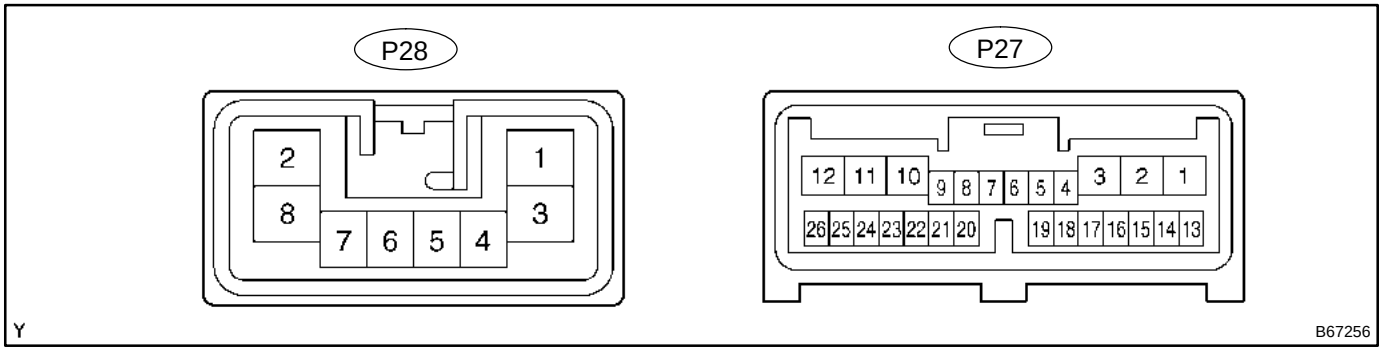

(a) Disconnect the C10 meter connector.
(b) Check the voltage and resistance of each terminal of the wire harness side connector.
**Standard:**

| Symbols (Terminal No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| +B (C10-12) - ES (C10-30) | W-L - BR | Constant | 10 to 14 V |
| IG+ (C10-32) - ES (C10-30) | B-R - BR | Ignition Switch OFF → ON | 10 to 14 V |
| MPX1 (C10-29) - Body ground | R-L - Body ground | Constant | 10 kΩ or higher |

| Symbols (Terminal No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| MPX2 (C10-28) - Body ground | V - Body ground | Constant | 10 kΩ or higher |
| ES (C10-30) - Body ground | BR - Body ground | Constant | Below 1 Ω |

If the result is not as specified, there may be a malfunction on the wire harness side.

**6. CHECK MULTIPLEX NETWORK DOOR ECU REAR RH (POWER SLIDE DOOR ECU RH)**

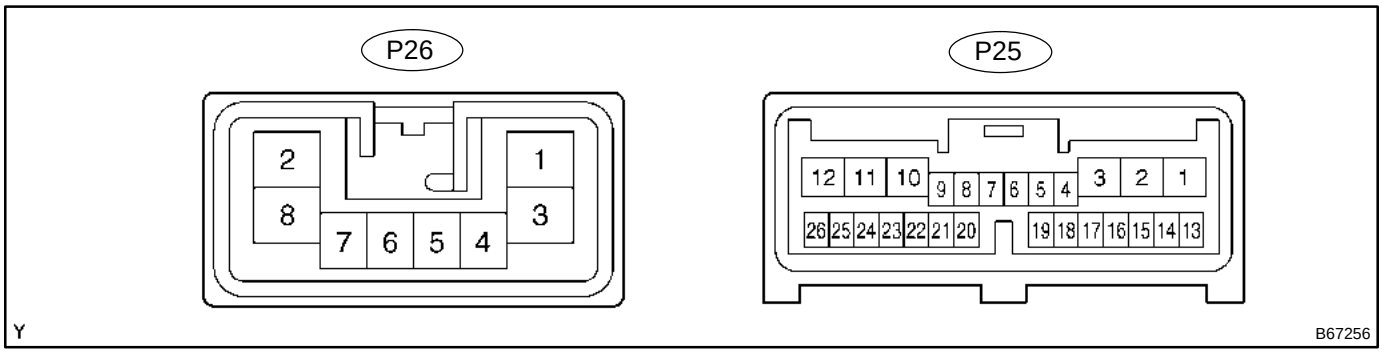



(a) Disconnect the P27 and P28 ECU connectors.
(b) Check the voltage and resistance of each terminal of the wire harness side connectors.
**Standard:**

| Symbols (Terminal No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| B (P28-2) - GND (P28-8) | B - W-B | Constant | 10 to 14 V |
| ECUB (P27-10) - GND (P28-8) | W - W-B | Constant | 10 to 14 V |
| MPX1 (P27-22) - Body ground | R - Body ground | Constant | 10 kΩ or higher |
| GND (P28-8) - Body ground | W-B - Body ground | Constant | Below 1 Ω |

If the result is not as specified, there may be a malfunction on the wire harness side.

**7. CHECK MULTIPLEX NETWORK DOOR ECU REAR LH (POWER SLIDE DOOR ECU LH)**



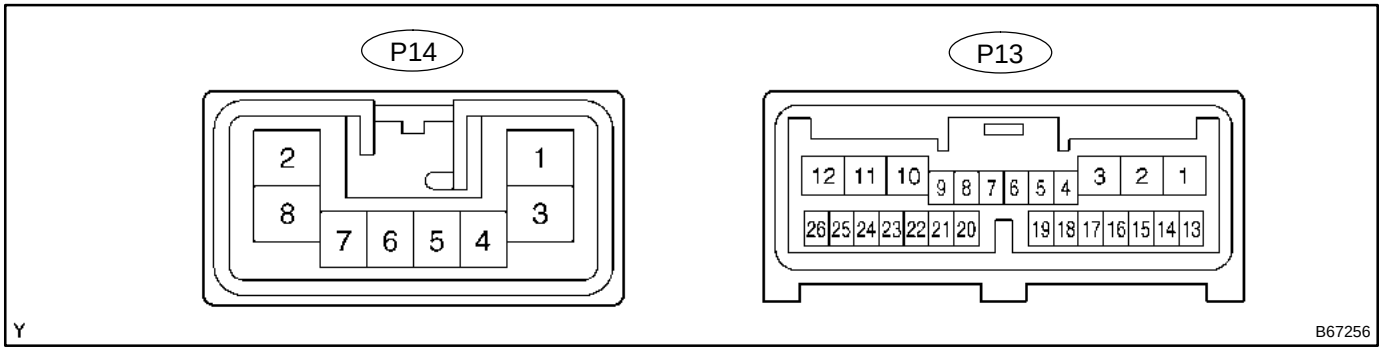

(a) Disconnect the P25 and P26 ECU connectors.
(b) Check the voltage and resistance of each terminal of the wire harness side connectors.
**Standard:**

| Symbols (Terminal No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| B (P26-2) - GND (P26-8) | B-W - W-B | Constant | 10 to 14 V |
| ECUB ⟨P25-10) - GND (P26-8) | W - W-B | Constant | 10 to 14 V |

| Symbols (Terminal No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| MPX1 (P25-22) - Body ground | R - Body ground | Constant | 10 kΩ or higher |
| GND (P26-8) - Body ground | W-B - Body ground | Constant | Below 1 Ω |

If the result is not as specified, there may be a malfunction on the wire harness side.

**8. CHECK MULTIPLEX NETWORK DOOR ECU BACK (POWER BACK DOOR ECU)**




(a) Disconnect the P13 and P14 ECU connectors.

(b) Check the voltage and resistance of each terminal of the wire harness side connectors.

**Standard:**

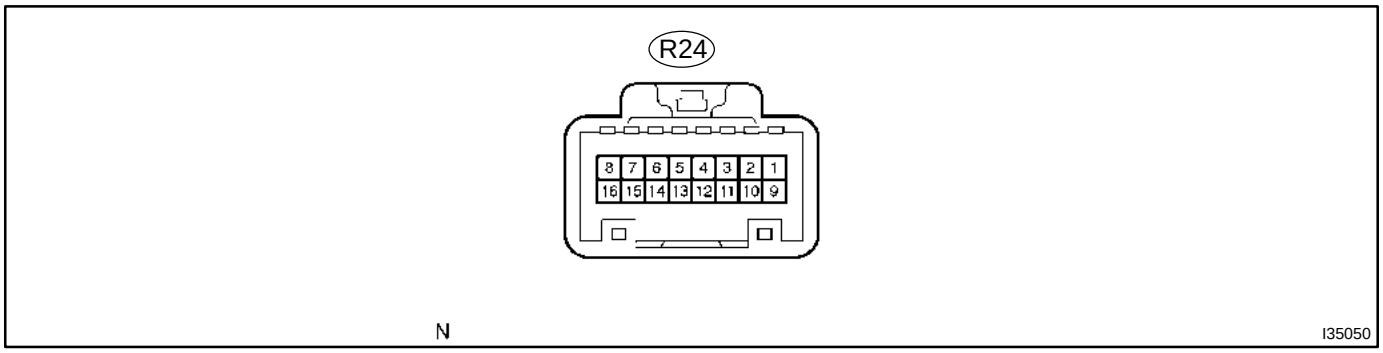
| Symbols (Terminal No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| B (P14-2) - GND (P14-8) | B-R - W-B | Constant | 10 to 14 V |
| ECUB (P13-10) - GND (P14-8) | W-L - W-B | Constant | 10 to 14 V |
| IG (P13-9) - GND (P14-8) | B-R - W-B | Ignition Switch OFF → ON | 10 to 14 V |
| MPX1 (P13-22) - Body ground | R-L - Body ground | Constant | 10 kΩ or higher |
| GND (P14-8) - Body ground | W-B - Body ground | Constant | Below 1 Ω |

If the result is not as specified, there may be a malfunction on the wire harness side.

05BUF-01

# TERMINALS OF ECU

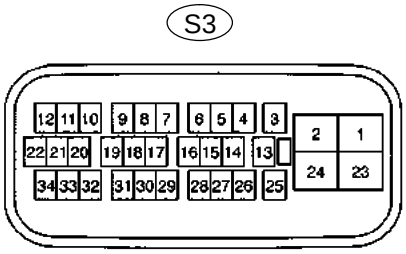
## 1. STEREO COMPONENT CONTROLLER ASSY




| Terminals No. | Wiring Color | Condition | Specification |
|---|---|---|---|
| R24-2 - R24-9 | W - LG | RSA system is playing | A waveform synchronized with sounds is output |
| R24-3 - R24-9 | W - LG | RSA system is playing | A waveform synchronized with sounds is output |
| R24-4 - R24-9 | W - LG | RSA system is playing | A waveform synchronized with sounds is output |
| R24-5 - R24-9 | W - LG | RSA system is playing | A waveform synchronized with sounds is output |
| R24-6 - Body ground | Shielded - Body ground | Always | Below 1 V |
| R24-7 - R24-9 | LG - LG | RSA system is changing | Below 1 V |
| R24-8 - R24-9 | LG - LG | Always | 10 to 14 V |
| R24-9 - Body ground | LG - Body ground | Always | Below 1 V |
| R24-13 - R24-9 | LG - LG | RSA system is changing | Below 1 V |
| R24-14 | LG | See "Service Check Mode" | - |
| R24-15 | W | See "Service Check Mode" | - |
| R24-16 - R24-9 | LG - LG | Ignition switch ON | 10 to 14 V |

057UC-07

# TERMINALS OF ECU



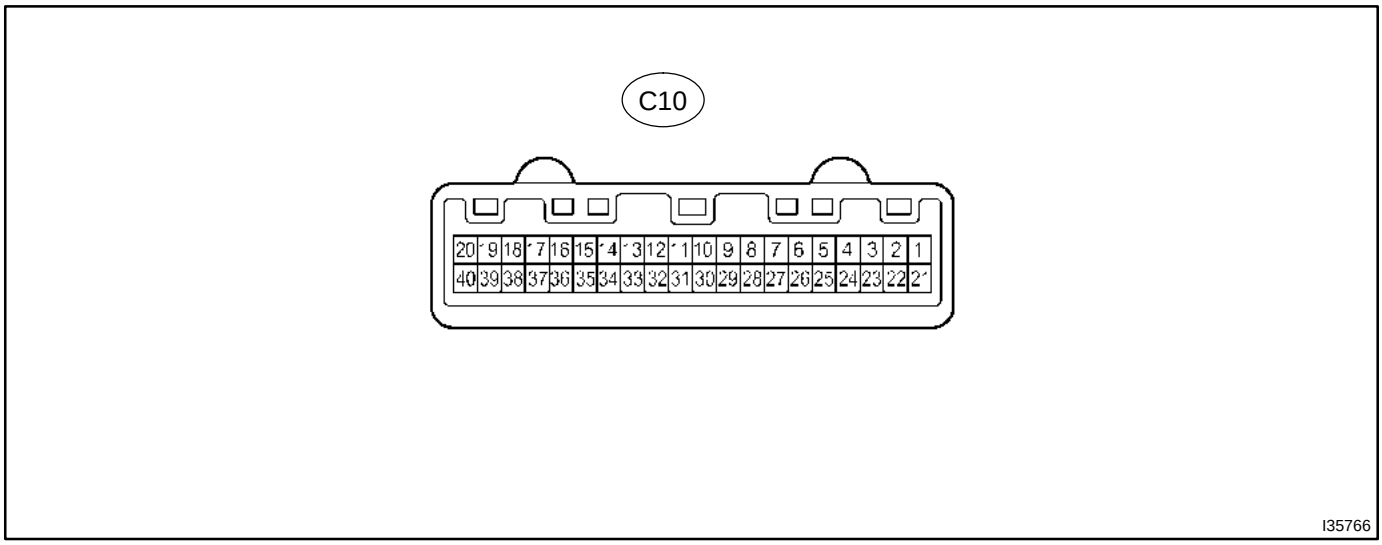

F07812

| Symbols (Terminal No.) | Wiring Color | Condition | STD Voltage (V) |
|---|---|---|---|
| +BS (2) - GND (1, 23) | W - W-B | Always | 10 to 14 |
| FL+ (13) - FL- (26) | L-W - O | IG switch ON, slowly turn left front wheel | AC generation |
| RL+ (7) - RL- (6) | R - G | IG switch ON, slowly turn left rear wheel | AC generation |
| BRL (19) - GND (1, 23) | Y-B - W-B | IG switch ON, brake warning light ON | 8 to 14 |
| D/G (11) - GND (1, 23) | GR-R - W-B | IG switch ON | 10 to 14 |
| TS (10) - GND (1,23) | Y-G - W-B | IG switch ON | 10 to 14 |
| TC (8) - GND (1, 23) | P-B - W-B | IG switch ON | 10 to 14 |
| STP (16) - GND (1, 23) | G-W - W-B | Stop light switch ON | 8 to 14 |
| +BM (24) - GND (1, 23) | B-R - W-B | Always | 10 to 14 |
| IG1 (3) - GND (1, 23) | B-R - W-B | IG switch ON | 10 to 14 |
| WA (30) - GND (1, 23) | R-W - W-B | IG switch ON, ABS warning light ON | 8 to 14 |
| FR+ (27) - FR- (28) | B - Y | IG switch ON, slowly turn right front wheel | AC generation |
| RR+ (5) - RR- (4) | LG - L | IG switch ON, slowly turn right rear wheel | AC generation |
| SP1 (17) - GND (1, 23) | GR - W-B | Vehicle driving at about 20 km/h (12 mph) | AC generation |
| PKB (12) - GND (1, 23) | R-L - W-B | IG switch ON, parking brake switch ON | Below 1.5 |
| | | IG switch ON, parking brake switch OFF | 10 to 14 |

05BW0-02

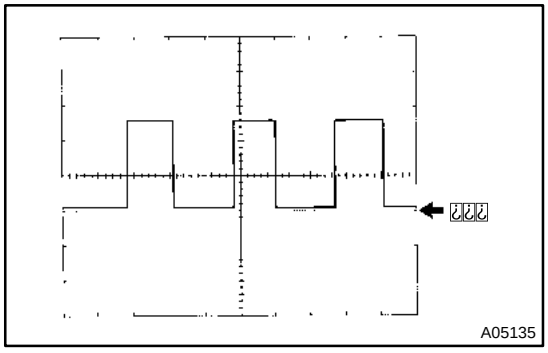
# TERMINALS OF ECU

## COMBINATION METER ASSY



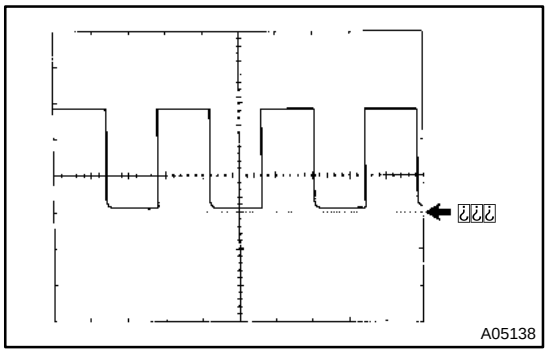

| Terminal No. | Wiring color | Condition | Specified condition |
|---|---|---|---|
| C10-5 - Body ground (WLVL - Body ground) | L-R - Body ground | Washer level switch ON | Below 1 V |
| C10-6 - Body ground (TIRE - Body ground) | GR-L - Body ground | TIRE PRESSURE indicator OFF | Below 1 V |
| C10-7 - Body ground (ESC - Body ground) | R-W - Body ground | ABS indicator OFF | Below 1 V |
| C10-8 - Body ground (EFI - Body ground) | B-Y - Body ground | Engine running and CHECK ENGINE indicator OFF | 9 to 14 V |
| C10-10 - Body ground (FUS- - Body ground) | BR-B - Body ground | Constant | Continuity |
| C10-12 - Body ground (+B - Body ground) | W-L - Body ground | Any Contents | 10 to 14 V |
| C10-13 - Body ground (LVSR - Body ground) | Y-R - Body ground | Brake fluid level warning switch ON | Below 1 V |
| C10-14 - Body ground (SW - Body ground) | Y-B - Body ground | BRAKE (PKB, Skid Control ECU) warning light ON | Below 1 V |
| C10-15 - Body ground (VSCW - Body ground) | P-G - Body ground | VSC indicator ON | Below 1 V |
| C10-16 - Body ground (TURN R - Body ground) | G-Y - Body ground | Turn signal RH indicator light OFF → ON | Below 1 V → 10 to 14 V |
| C10-21 - Body ground (TURN L - Body ground) | G-B - Body ground | Turn signal LH indicator light OFF → ON | Below 1 V → 10 to 14 V |
| C10-25 - Body ground (ILG1 - Body ground) | W-B - Body ground | Constant | Continuity |
| C10-26 - Body ground (ILG2 - Body ground) | W-B - Body ground | Constant | Continuity |
| C10-28 - Body ground (MPX- - Body ground) | V - Body ground | Communication circuit | - |
| C10-29 - Body ground (MPX+ - Body ground) | R-L - Body ground | Communication circuit | - |
| C10-30 - Body ground (ES - Body ground) | BR - Body ground | Constant | Continuity |
| C10-32 - Body ground (IG+ - Body ground) | B-R - Body ground | Ignition switch OFF → ON | Below 1 V → 10 to 14 V |

| | | | |
|---|---|---|---|
| C10-33 - Body ground (E/M - Body ground) | W - Body ground | Communication circuit | - |
| C10-34 - Body ground (TX - Body ground) | R - Body ground | Communication circuit | - |
| C10-35 - Body ground (SI - Body ground) | GR-R - Body ground | Ignition switch ON and turn the wheel slowly | Puls generation (*1) |
| C10-37 - Body ground (S - Body ground) | B-O - Body ground | Ignition switch OFF → ON, Engine idle speed | Puls generation (*2) |
| C10-38 - Body ground (FUS+ - Body ground) | Y-G - Body ground | Fuel sender gauge is F position → E position | 4.0 Ω → 110.0 Ω |




*1: Reference: Using oscilloscope:

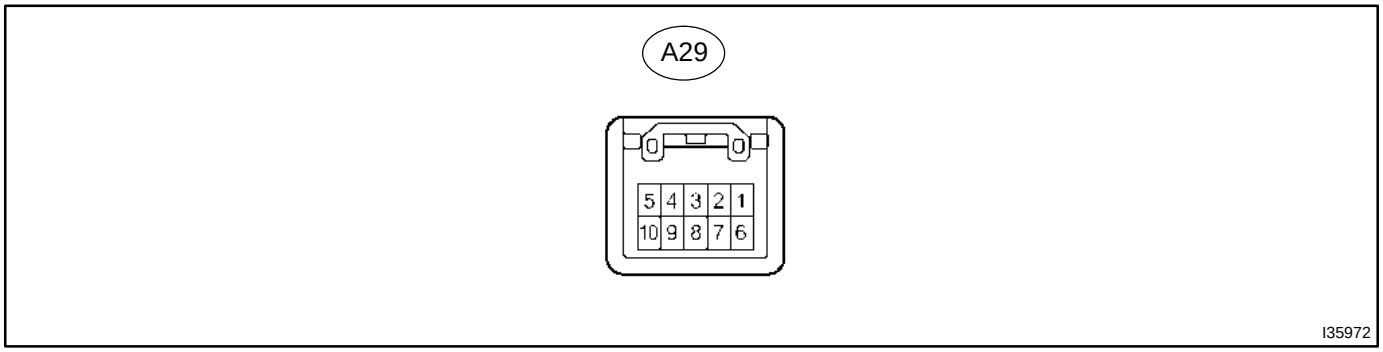
| Item | Contents |
|---|---|
| Tool setting | 5 V/ DIV, 20 ms/ DIV |
| Vehicle condition | Driving at approx. 20Km/h |




*2: Reference: Using oscilloscope:

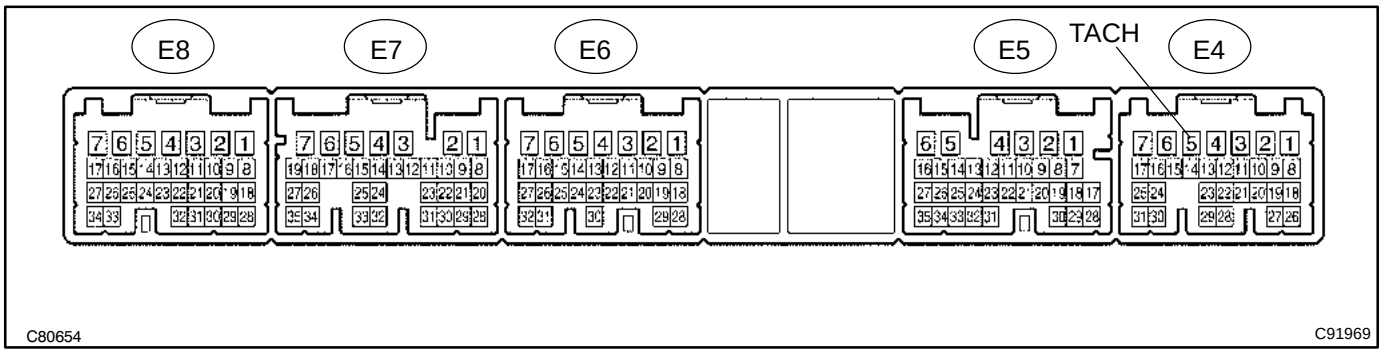
| Item | Contents |
|---|---|
| Tool setting | 5 V/ DIV, 10 ms/ DIV |
| Vehicle condition | Engine idle speed |

## ACCESSORY METER




| Terminal No. | Wiring color | Condition | Specified condition |
|---|---|---|---|
| A29-1 - Body ground (+B1 - Body ground) | R - Body ground | Any Contents | 10 to 14 V |
| A29-7 - Body ground (ILL- - Body ground) | W-R - Body ground | Combination switch OFF → ON | Below 1 V → 10 to 14 V |
| A29-4 - Body ground (GND - Body ground) | W-B - Body ground | Constant | Continuity |
| A29-5 - Body ground (IG+ - Body ground) | B-R - Body ground | Ignition switch OFF → ON | Below 1 V → 10 to 14 V |

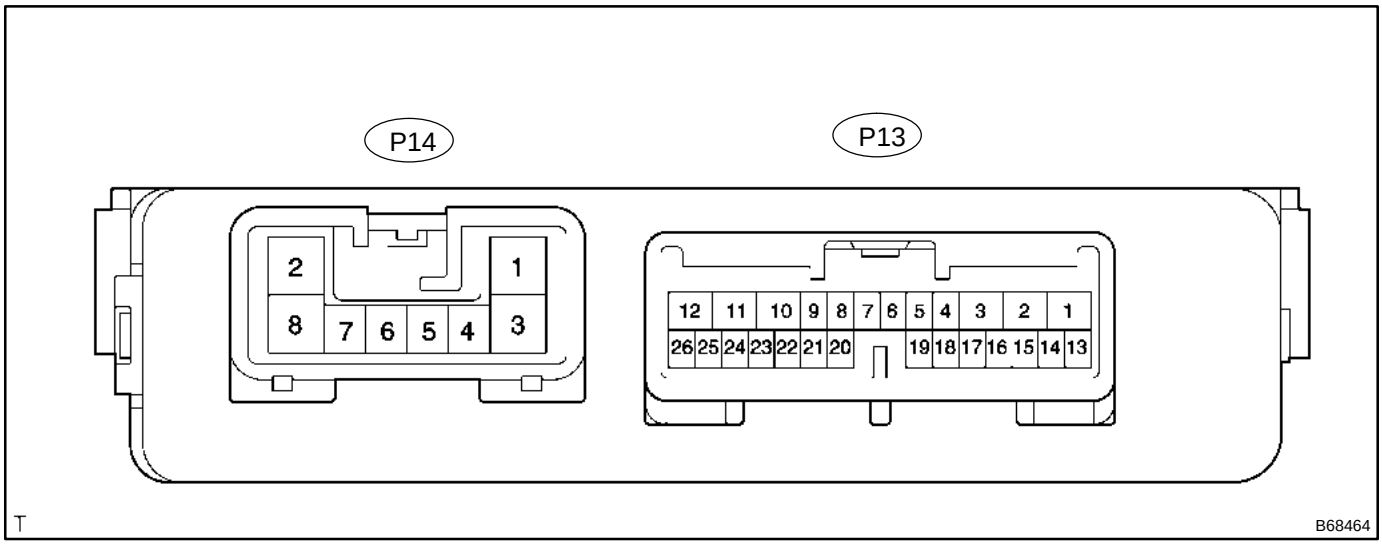
## ECM



05BZR-01

# TERMINALS OF ECU

## 1. CHECK POWER BACK DOOR ECU




(a) Disconnect the P13 and P14 ECU connectors, and check the voltage or resistance of each terminal of the wire harness side connectors.

**Standard:**

| Terminal No. | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| P14-2 (B) - Body ground | B-R - Body ground | Constant | 10 to 14 V |
| P13-10 (ECUB) - Body ground | W-L - Body ground | Constant | 10 to 14 V |
| P13-9 (IG) - Body ground | B-R - Body ground | Ignition switch OFF → ON | 0 V → 10 to 14 V |
| P14-8 (GND) - Body ground | W-B - Body ground | Constant | Below 1 Ω |
| P13-6 (MSW) - P13-5 (MSE) | L - W | Power back door main switch OFF → ON | Below 1 Ω → 10 kΩ or higher |
| P13-3 (HSW) - Body ground | G-B - Body ground | Back door opener switch OFF → ON | 10 kΩ or higher → Below 1 Ω |
| P13-14 (OSL) - P13-15 (OSE) | G-W - Y-B | Power back door touch sensor LH<br>FREE → PRESSED | Approx. 1 kΩ → Less than 100 Ω |
| P13-16 (OSR) - P13-15 (OSE) | BR-Y - Y-B | Power back door touch sensor RH<br>FREE → PRESSED | Approx. 1 kΩ → Less than 100 Ω |
| P13-22 (MPX1) - Body ground | R-L - Body ground | BEAN line | 10 kΩ or higher |

If the result is not as specified, there may be a malfunction on the wire harness side.

(b) Reconnect the ECU connectors, and check the voltage of each terminal of the connectors.
**Standard:**

| Terminal No. | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| P14-4 (CTYO) - Body ground | G-W - Body ground | Back door CLOSED → OPEN | 10 to 14 V → Below 1 V |
| P13-2 (BZR+) - Body ground | O - Body ground | • Buzzer that notifies the start of opening operation sounds at 2 cycles of approx. 0.5 sec. when A*1 or B*2 switch is pressed so that the power back door starts opening operation<br>• All conditions necessary for warning buzzer to sound*3 are met → Any condition necessary for warning buzzer to stop*4 is met | • 10 to 14 V (2 cycles of approx. 0.5 sec.)<br>• 10 to 14 V (a cycle of approx. 0.3 sec.) → 0 V |
| P13-1 (BZR-) - Body ground | LG - Body ground | | |
| P13-26 (DSV) - P13-23 (DSG) | Y - GR | Constant | 10 to 14 V |
| P13-25 (DS1) - P13-23 (DSG) | BR - GR | Back door fully closed and A or B switch turned ON → Back door in opening operation → Back door fully open | 0 V → Alternating between 10 to 14 V and 0 V → 0 V |
| P13-24 (DS2) - P13-23 (DSG) | L-B - GR | | |
| P14-1 (BD+) - Body ground | B - Body ground | Back door fully closed and A or B switch turned ON → Back door in opening operation → Back door fully open | 0 V → 10 to 14 V → 0 V |
| P14-3 (BD-) - Body ground | W - Body ground | Back door fully open and A or B switch turned ON → Back door in closing operation → Back door fully closed | 0 V → 10 to 14 V → 0 V |
| P14-7 (CL+) - Body ground | P - Body ground | Back door fully open and A or B switch turned ON → Back door in closing operation → Back door fully closed | 0 V → Alternating between 10 to 14 V and 0 V → 0 V |
| P14-6 (CL-) - Body ground | O - Body ground | Back door fully closed and A or B switch turned ON → Back door in opening operation → Back door fully open | 0 V → Alternating between 10 to 14 V and 0 V → 0 V |

*1 Satellite switch (Back door)
*2 Transmitter switch (Back door)
*3 When all the conditions listed below are met, the warning buzzer sounds.
- Ignition switch is turned ON
- Shift lever is moved into any position except P position
- Back door is open or power back door system is activated to open

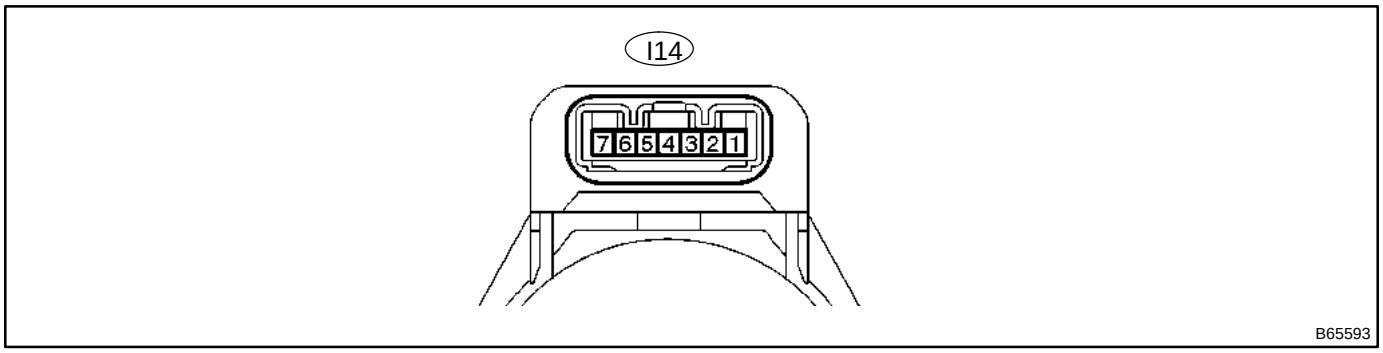
*4 When any condition listed below is met, the warning buzzer turns off.
- Shift lever is moved into P position
- Back door is fully closed

HINT:
Use an oscilloscope to check the output voltages of the power back door main switch, buzzer and pulse sensor.
If the result is not as specified, the ECU may have a malfunction.

05A27-25

# TERMINALS OF ECU

## 1. CHECK TRANSPONDER KEY AMPLIFIER (COIL)




(a) Disconnect the I14 amplifier connector, and check the resistance between the terminal of the wire harness side connector and body ground.

**Standard:**

| Symbols (Terminal No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| GND (I14-7) - Body ground | BR-R - Body ground | Constant | Below 1 Ω |

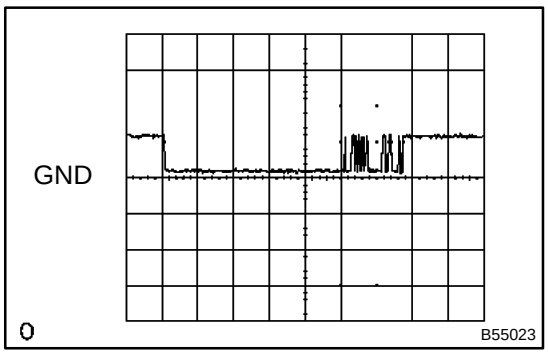
If the result is not as specified, there may be a malfunction on the wire harness side.

(b) Reconnect the I14 amplifier connector, and check the resistance or voltage of each terminal of the connector.

**Standard:**

| Symbols (Terminal No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| VC5 (I14-1) - GND (I14-7) | Y-B - BR-R | No key in ignition key cylinder → With key | 0 V → 10 to 14 V |
| CODE(I14-4) - GND (I14-7) | Y - BR-R | No key in ignition key cylinder → With key | Waveform 1 |
| TXCT (I14-5) - GND (I14-7) | Y-R - BR-R | No key in ignition key cylinder → With key | Waveform 2 |
| GND (I14-7) - Body ground | BR-R - Body ground | Constant | Below 1 Ω |

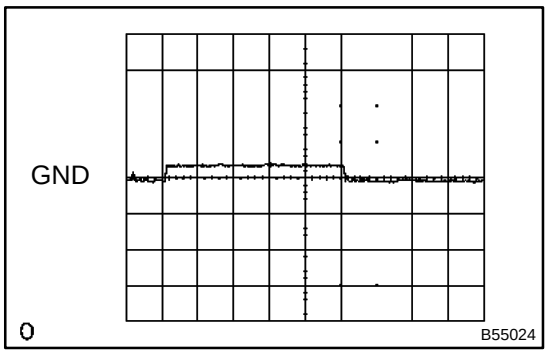
If the result is not as specified, the amplifier may have a malfunction.




(c) Inspect using an oscilloscope.

**Waveform 1 (Reference):**

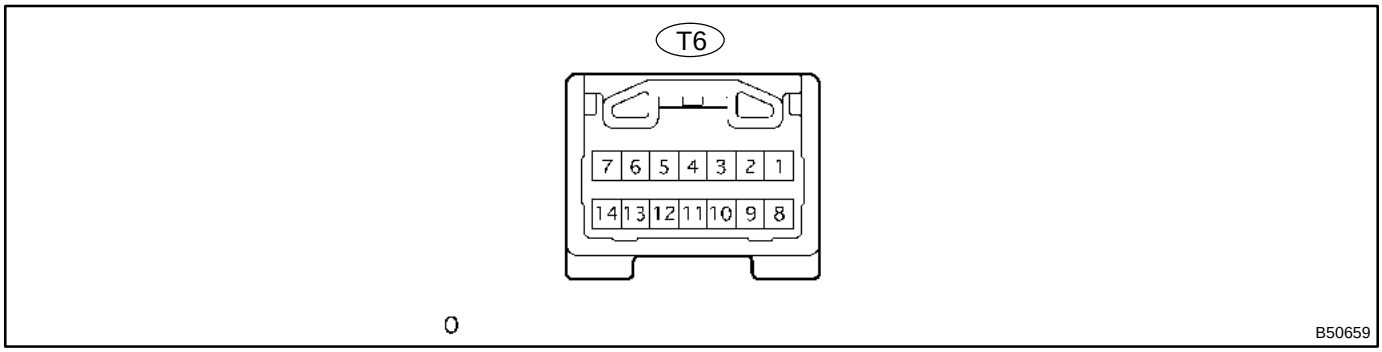
| Terminal | CODE - GND |
|---|---|
| Tool Setting | 10 V/DIV., 10 ms/DIV. |
| Condition | Ignition switch ON |




**Waveform 2 (Reference):**

| Terminal | TXCT - GND |
|---|---|
| Tool Setting | 10 V/DIV., 10 ms/DIV. |
| Condition | Ignition switch ON |

## 2. CHECK TRANSPONDER KEY ECU ASSY




(a) Disconnect the T6 ECU connector, and check the voltage and resistance between each terminal of the wire harness side connector.

**Standard:**

| Symbols (Terminal No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| AGND (T6-13) - Body ground | BR-R - Body ground | Constant | Below 1 Ω |
| +B (T6-1) - GND (T6-14) | W-L - W-B | Constant | 10 to 14 V |
| IG (T6-2) - AGND (T6-13) | B-O - BR-R | Ignition switch OFF → ON | 0 V → 10 to 14 V |
| KSW (T6-10) - AGND (T6-13) | L-W - BR-R | No key in ignition key cylinder → With key | 10 kΩ or higher → Below 1 Ω |

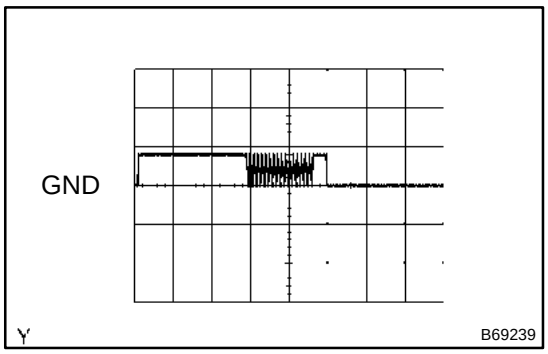
If the result is not as specified, there may be a malfunction on the wire harness side.

(b) Reconnect the T6 ECU connector, and check the voltage between each terminal of the connector.

**Standard:**

| Symbols (Terminal No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| KSW (T6-10) - AGND (T6-13) | L-W - BR-R | No key in ignition key cylinder → With key | 10 to 14 V → 0 V |
| VC5 (T6-8) - AGND (T6-13) | Y-B - BR-R | Ignition switch OFF → ON | 0 V → 4.6 to 5.4 V |
| TXCT (T6-12) - AGND (T6-13) | Y-R - BR-R | Ignition switch OFF → ON | Waveform 1 |
| CODE (T6-11) - AGND (T6-13) | Y - BR-R | Ignition switch OFF → ON | Waveform 2 |
| EFIO (T6-6) - AGND (T6-13) | BR-R - BR-R | Ignition switch OFF → ON | Waveform 3 |
| EFII (T6-7) - AGND (T6-13) | BR-W - BR-R | Ignition switch OFF → ON | Waveform 4 |

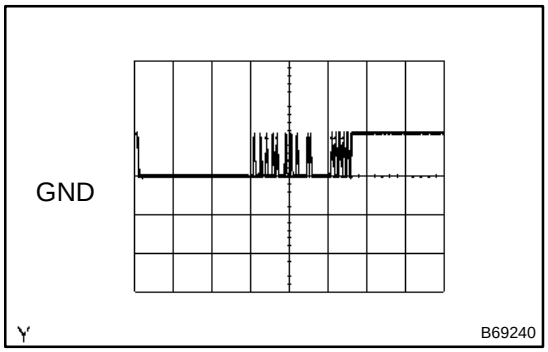
If the result is not as specified, the ECU may have a malfunction.




(c) Inspect using an oscilloscope.

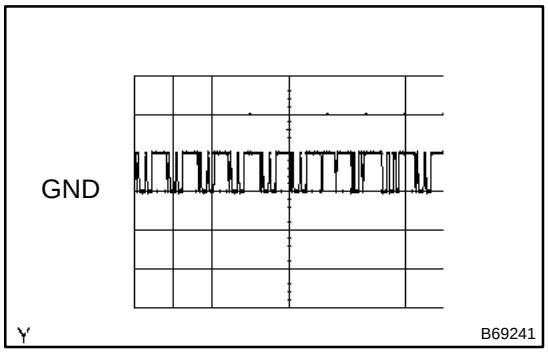
**Waveform 1 (Reference):**

| | |
|---|---|
| Terminal | TXCT - GND |
| Tool Setting | 5 V/DIV., 20 ms/DIV. |
| Condition | Ignition switch ON |



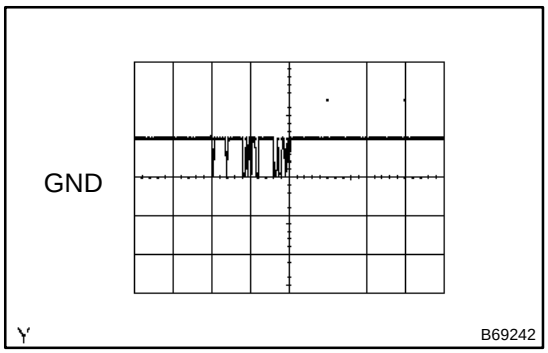

**Waveform 2 (Reference):**

| | |
|---|---|
| Terminal | CODE - GND |
| Tool Setting | 10 V/DIV., 20 ms/DIV. |
| Condition | Ignition switch ON |




**Waveform 3 (Reference):**

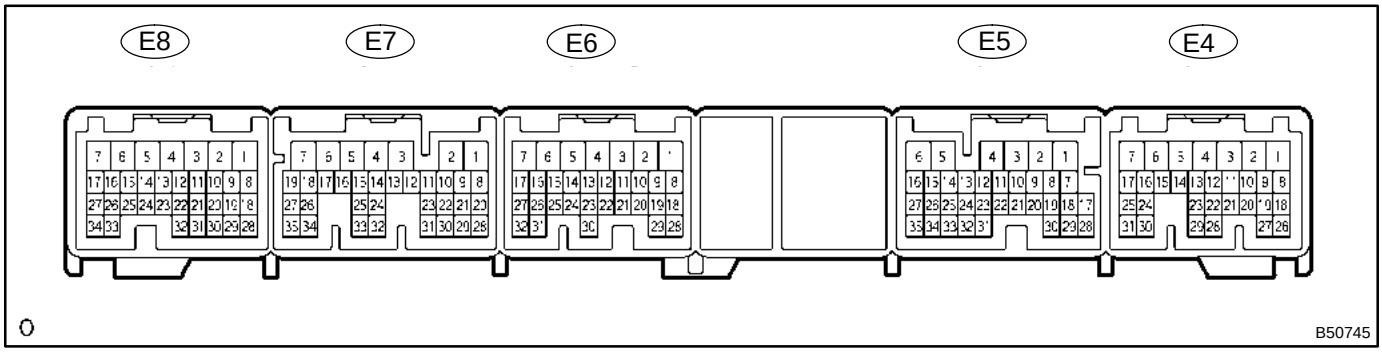
| | |
|---|---|
| Terminal | EFIO - GND |
| Tool Setting | 5 V/DIV., 50 ms/DIV. |
| Condition | Ignition switch ON |




**Waveform 4 (Reference):**

| | |
|---|---|
| Terminal | EFII - GND |
| Tool Setting | 5 V/DIV., 50 ms/DIV. |
| Condition | Constant |

### 3. CHECK ECM

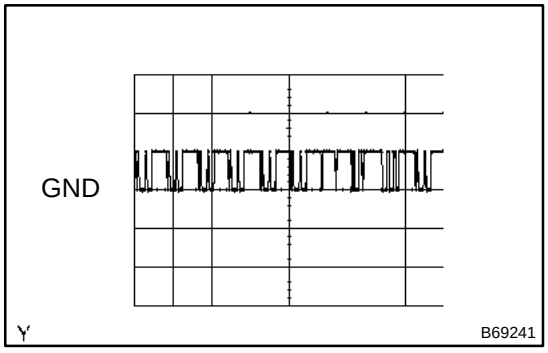



(a) Disconnect the E6 and E7 ECM connectors, and check the voltage or resistance between each terminal of the wire harness side connectors.

**Standard:**

| Symbols (Terminal No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| IMI (E5-27) - E1 (E6-1) | BR-R - BR | No key in ignition key cylinder → With key | Waveform 1 |
| IMO (E5-26) - E1 (E6-1) | BR-W - BR | No key in ignition key cylinder → With key | Waveform 2 |
| E1 (E6-1) - Body ground | BR - Body ground | Constant | Below 1 Ω |

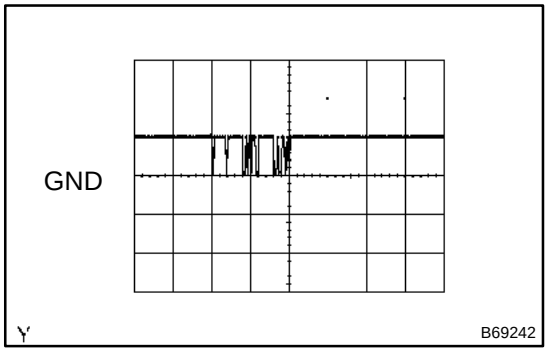
If the result is not as specified, there may be a malfunction on the wire harness side.




(b) Inspect using an oscilloscope.

**Waveform 1 (Reference):**

| Terminal | IMI - GND |
|---|---|
| Tool Setting | 5 V/DIV., 50 ms/DIV. |
| Condition | Ignition switch ON |



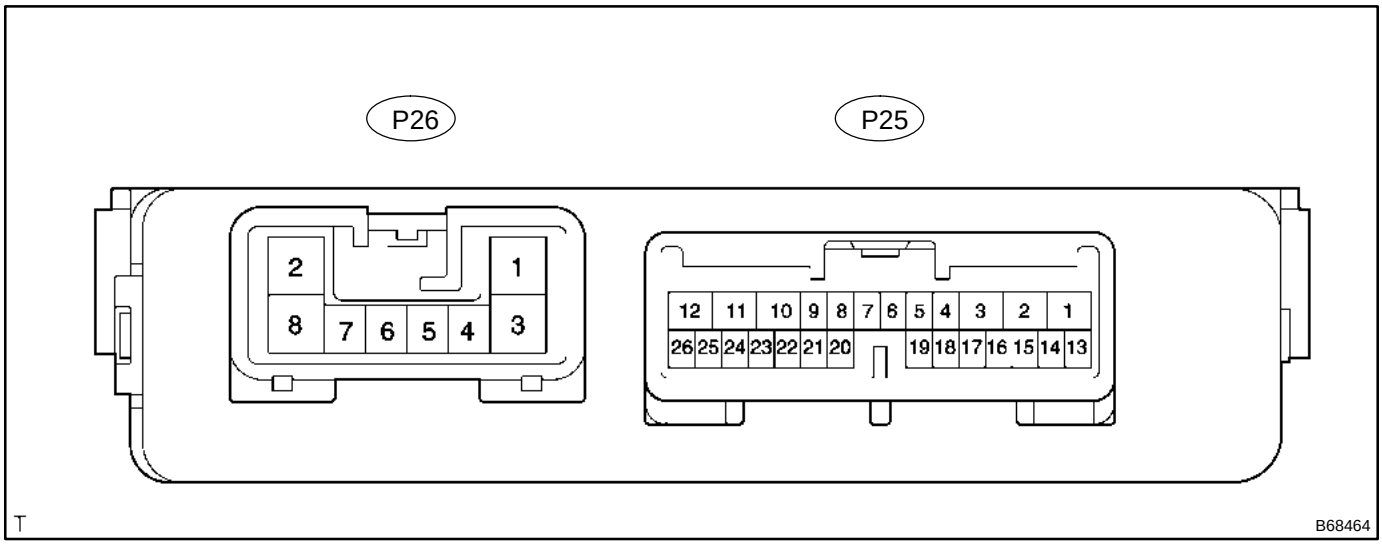

**Waveform 2 (Reference):**

| Terminal | IMO - GND |
|---|---|
| Tool Setting | 5 V/DIV., 50 ms/DIV. |
| Condition | Constant |

05C0D-01

# TERMINALS OF ECU

## 1. CHECK POWER SLIDE DOOR ECU LH




(a) Disconnect the P25 and P26 ECU connectors, and check the voltage and resistance of each terminal of the wire harness side connectors.

**Standard:**

| Terminal No. | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| P26-2 (B) - Body ground | B-W - Body ground | Constant | 10 to 14 V |
| P25-10 (ECUB) - Body ground | W - Body ground | Constant | 10 to 14 V |
| P26-8 (GND) - Body ground | W-B - Body ground | Constant | Below 1 Ω |
| P25-3 (HSW) - Body ground | W-R - Body ground | Rear door inside/outside handle NOT PULLED→ PULLED | 10 kΩ or higher → Below 1 Ω |
| P25-7 (HAF) - Body ground | GR-B - Body ground | Slide door OPEN → CLOSED | Below 1 Ω → 10 kΩ or higher |
| P25-8 (FUL) - Body ground | Y-R - Body ground | Slide door OPEN → CLOSED | Below 1 Ω → 10 kΩ or higher |
| P25-20 (POL) - Body ground | L-W - Body ground | NOT COMPLETELY CLOSED | 10 kΩ or higher |
| | | SLide door OPEN → CLOSED | 10 kΩ or higher → 10 kΩ or higher after momentarily being 1 Ω |
| P25-21 (POS) - Body ground | BR-W - Body ground | Slide door OPEN → Closer in operation → CLOSED | 10 kΩ or higher → Below 1 Ω → 10 kΩ or higher |

If the result is not as specified, there may be a malfunction on the wire harness side.

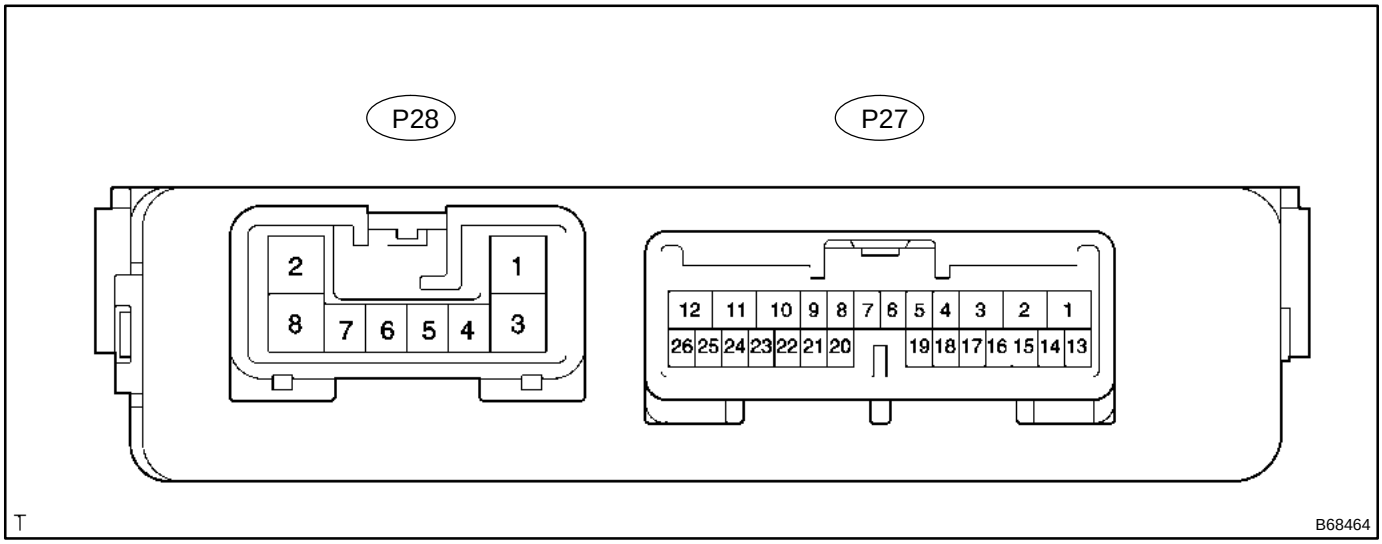
(b) Reconnect the ECU connectors, and check the voltage of each terminal of the connectors.

**Standard:**

| Terminal No. | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| P25-12 (DC+) - Body Ground | R - Body ground | Slide door OPEN →<br>NOT COMPLETELY CLOSED →<br>Motor in normal rotation (Right turn) →<br>Motor in reverse rotation (Left turn) →<br>Operation completed (Back door CLOSED) | Below 1 V →<br>Below 1 V →<br>10 to 14 V →<br>Below 1 V →<br>Below 1 V |
| P25-11 (DC-) - Body Ground | W - Body ground | Slide door OPEN →<br>NOT COMPLETELY CLOSED →<br>Motor in normal rotation (Right turn) →<br>Motor in reverse rotation (Left turn) →<br>Operation completed (Back door CLOSED) | Below 1 V →<br>Below 1 V →<br>Below 1 V →<br>10 to 14 V→<br>Below 1 V |

If the result is not as specified, the ECU may have a malfunction.

## 2. CHECK POWER SLIDE DOOR ECU RH




(a) Disconnect the P27 and P28 ECU connectors, and check the voltage and resistance of each terminal of the wire harness side connectors.

**Standard:**

| Terminal No. | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| P28-2 (B) - Body ground | B - Body ground | Constant | 10 to 14 V |
| P27-10 (ECUB) - Body ground | W - Body ground | Constant | 10 to 14 V |
| P28-8 (GND) - Body ground | W-B - Body ground | Constant | Below 1 Ω |
| P27-3 (HSW) - Body ground | W-R - Body ground | Rear door Inside/outside handle NOT PULLED→ PULLED | 10 kΩ or higher → Below 1 Ω |
| P27-7 (HAF) - Body ground | GR-B - Body ground | Slide door OPEN → CLOSED | Below 1 Ω → 10 kΩ or higher |
| P27-8 (FUL) - Body ground | Y-R - Body ground | Slide door OPEN → CLOSED | Below 1 Ω → 10 kΩ or higher |
| P27-20 (POL) - Body ground | L-W - Body ground | NOT COMPLETELY CLOSED | 10 kΩ or higher |
| | | SLide door OPEN → CLOSED | 10 kΩ or higher → 10 kΩ or higher after momentarily being 1 Ω |
| P27-21 (POS) - Body ground | BR-W - Body ground | Slide door OPEN → Closer in operation → CLOSED | 10 kΩ or higher → Below 1 Ω → 10 kΩ or higher |

If the result is not as specified, there may be a malfunction on the wire harness side.

(b) Reconnect the ECU connectors, and check the voltage of each terminal of the connectors.

**Standard:**

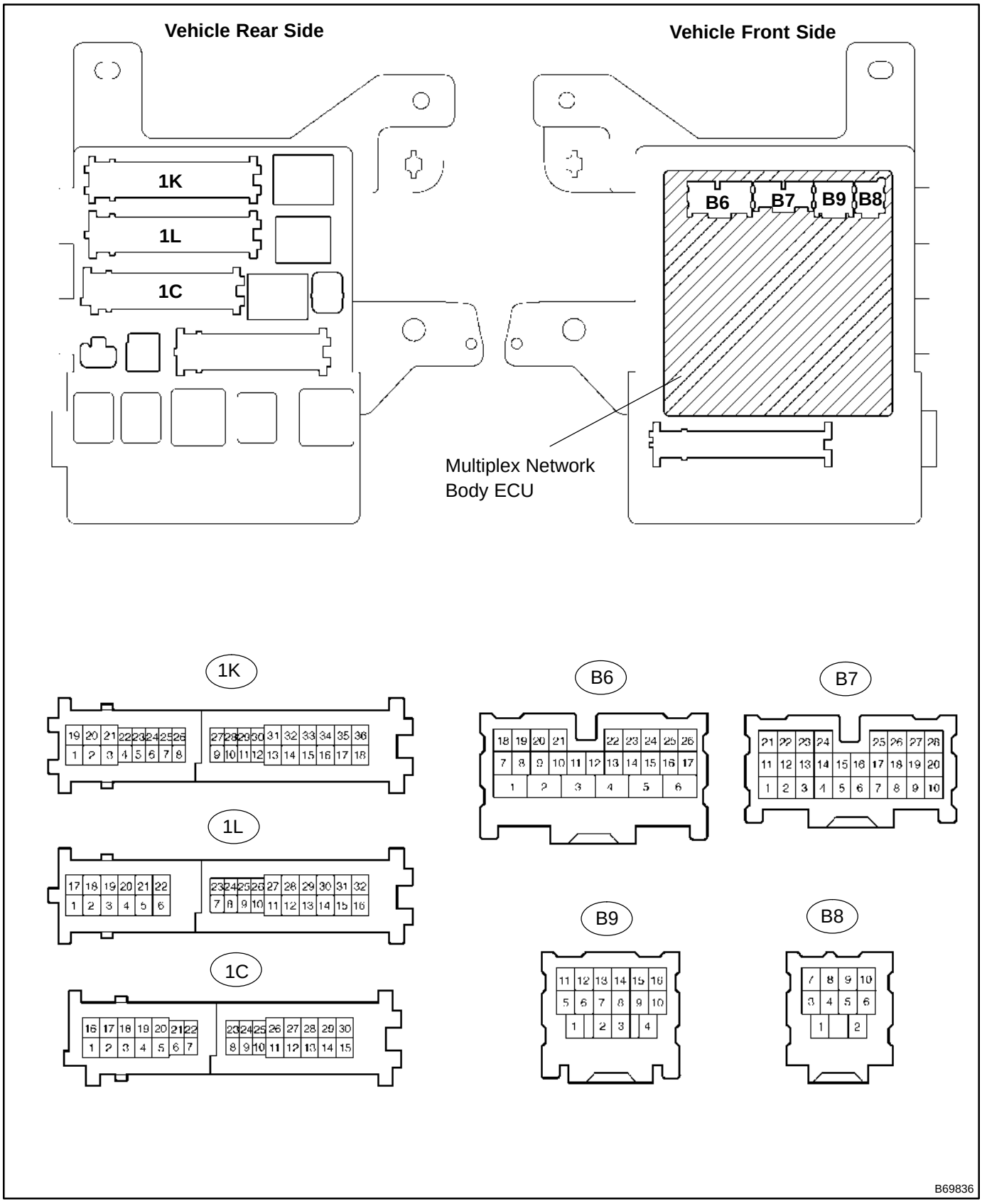
| Terminal No. | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| P27-12 (DC+) - Body Ground | R - Body ground | Slide door OPEN →<br>NOT COMPLETELY CLOSED →<br>Motor in normal rotation (Right turn) →<br>Motor in reverse rotation (Left turn) →<br>Operation completed (Back door CLOSED) | Below 1 V →<br>Below 1 V →<br>10 to 14 V →<br>Below 1 V →<br>Below 1 V |
| P27-11 (DC-) - Body Ground | W - Body ground | Slide door OPEN →<br>NOT COMPLETELY CLOSED →<br>Motor in normal rotation (Right turn) →<br>Motor in reverse rotation (Left turn) →<br>Operation completed (Back door CLOSED) | Below 1 V →<br>Below 1 V →<br>Below 1 V →<br>10 to 14 V→<br>Below 1 V |

If the result is not as specified, the ECU may have a malfunction.

05BTQ-04

# TERMINALS OF ECU

## 1. INSPECT INSTRUMENT PANEL J/B ASSY (MULTIPLEX NETWORK BODY ECU)



(a) Disconnect the B6 ECU connector.
(b) Disconnect the 1C, 1K and 1L J/B connectors.
(c) Check the voltage and resistance between each terminal of the wire harness side connectors and body ground.

**Standard:**

| Symbols (Terminal No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| BECU (1C-24) - Body ground | W-L - Body ground | Constant | 10 to 14 V |
| BECU (1L-7) - Body ground | W-L - Body ground | | |
| GND 1 (1L-16) - Body ground | W-B - Body ground | Constant | Below 1 Ω |
| GND 2 (1K-17) - Body ground | W-B - Body ground | | |
| KSW (B6-21) - Body ground | L-B - Body ground | No key in ignition key cylinder → Yes | 10 kΩ or higher → Below 1 Ω |

If the result is not as specified, there may be a malfunction on the wire harness side.

(d) Reconnect the B6 ECU connector.
(e) Reconnect the 1C, 1K and 1L J/B connectors, and check the voltage between the terminal of the connector and body ground.

**Standard:**

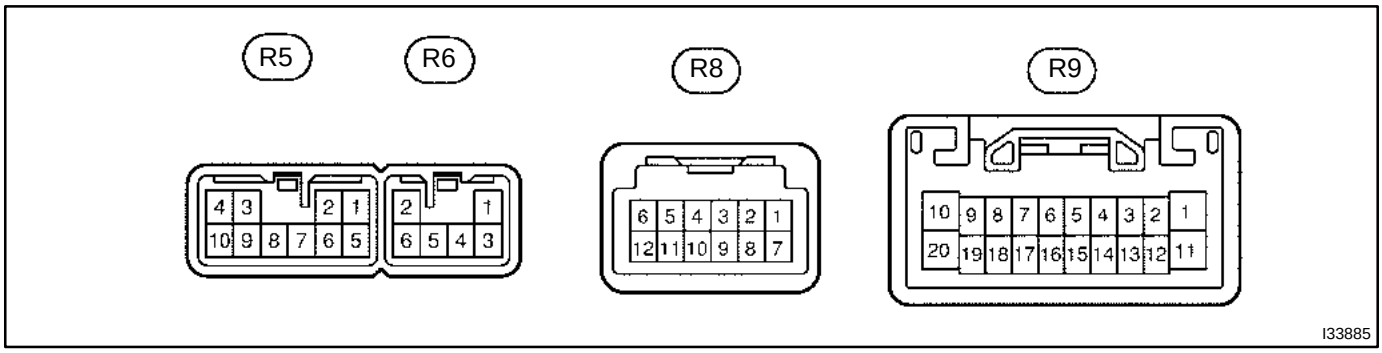
| Symbols (Terminal No.) | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| DCTY (B9-14) - Body ground | R-Y - Body ground | Drive side door CLOSED → OPEN | 10 to 14V → 0 V |

If the result is not as specified, the J/B assy (body ECU) may have a malfunction.

05BPU-02

# TERMINALS OF ECU

## 1. RADIO RECEIVER ASSY (6 SPEAKER)

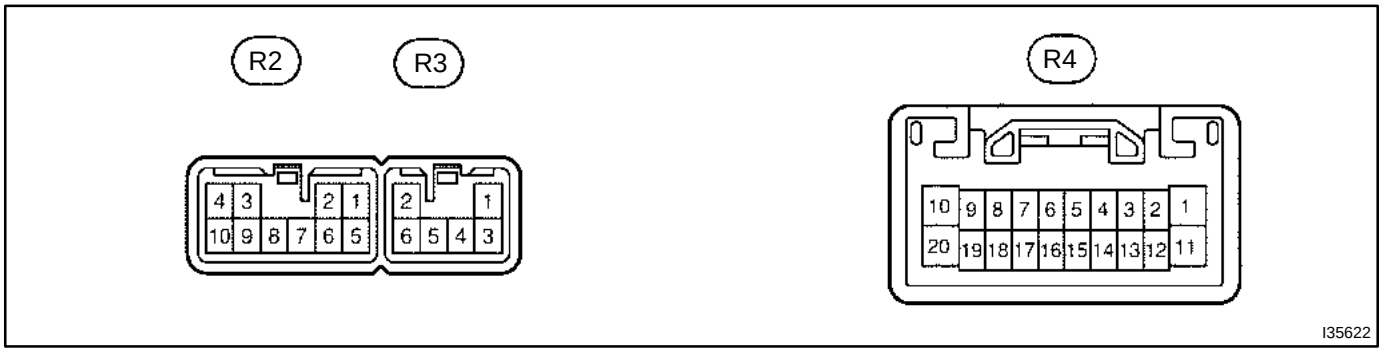



| Terminal No. (Symbols) | Wiring Color | Condition | STD Voltage (V) |
|---|---|---|---|
| R5-1 (FR+) - R5-7 (GND) | LG - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| R5-2 (FL+) - R5-7 (GND) | P - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| R5-3 (ACC+B) - R5-7 (GND) | GR - W-B | Ignition switch ACC | 10 to 14 |
| R5-4 (BU+B) - R5-7 (GND) | L-Y - W-B | Constant | 10 to 14 |
| R5-5 (FR-) - R5-7 (GND) | L - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| R5-6 (FL-) - R5-7 (GND) | V - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| R5-7 (GND) - Body ground | W-B - - | Constant | Continuity |
| R5-10 (ILL+) - R5-7 (GND) | G - W-B | Light control switch TAIL or HEAD | 10 to 14 |
| R6-1 (RR+) - R5-7 (GND) | R - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| R6-2 (RL+) - R5-7 (GND) | B - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| R6-3 (RR-) - R5-7 (GND) | W - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| R6-6 (RL-) - R5-7 (GND) | Y - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| R8-1 (SLD*1) - Body ground | Shielded - Body ground | Always | Continuity |
| R8-2 (R+*1) - R5-7 (GND) | B - W-B | RSE system is playing | A waveform synchronized with sounds is output |
| R8-3 (R-*1) - R5-7 (GND) | W - W-B | RSE system is playing | A waveform synchronized with sounds is output |
| R8-4 (L+*1) - R5-7 (GND) | R - W-B | RSE system is playing | A waveform synchronized with sounds is output |
| R8-5 (L-*1) - R5-7 (GND) | G - W-B | RSE system is playing | A waveform synchronized with sounds is output |
| R8-6 (MUTE) - R5-7 (GND) | R-W - W-B | RSA, RSE is changing | Below 1 |

| | | | |
|---|---|---|---|
| R8-9 (TX+) | P | See "Service Check Mode" | - |
| R8-10 (TX-) | V | See "Service Check Mode" | - |
| R9-6 (GND) - R5-7 (GND) | Y - W-B | Always | Below 1 |
| R9-7 (SW1) - R5-7 (GND) | LG - W-B | Steering pad switch is not operating.<br>→SEEK+ switch push<br>→SEEK- switch push<br>→VOL+ switch push<br>→VOL- switch push | 4 or more<br>→Approx. 0.5<br>→Approx. 0.9<br>→Approx. 2.0<br>→Approx. 3.4 |
| R9-8 (SW2) - R5-7 (GND) | L - W-B | Steering pad switch is not operating<br>→MODE switch push | 4 or more →<br>Below 2.5 |
| R9-14 (SLD) - Body ground | Shielded - Body ground | Always | Continuity |
| R9-15 (RSR+) - R5-7 (GND) | B - W-B | RSA, RSE system is playing | A waveform synchronized with sounds is output |
| R9-16 (RSR-) - R5-7 (GND) | W - W-B | RSA, RSE system is playing | A waveform synchronized with sounds is output |
| R9-17 (RSL+) - R5-7 (GND) | R - W-B | RSA, RSE system is playing | A waveform synchronized with sounds is output |
| R9-18 (RSL-) - R5-7 (GND) | G - W-B | RSA, RSE system is playing | A waveform synchronized with sounds is output |
| R9-19 (RMU) - R5-7 (GND) | P-L - W-B | RSA, RSE is changing | Above 3.5 |

*1: w/ RSE

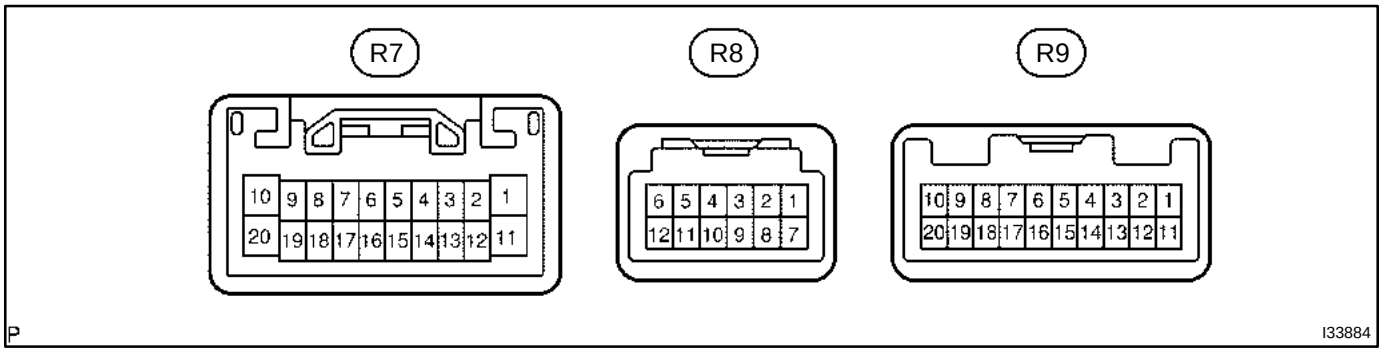
## 2. RADIO RECEIVER ASSY (6 SPEAKER, w/o RSA, RSE system)




| Terminal No. (Symbols) | Wiring Color | Condition | STD Voltage (V) |
|---|---|---|---|
| R2-1 (FR+) - R2-7 (GND) | LG - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| R2-2 (FL+) - R2-7 (GND) | P - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| R2-3 (ACC+B) - R2-7 (GND) | GR - W-B | Ignition switch ACC | 10 to 14 |
| R2-4 (BU+B) - R2-7 (GND) | L-Y - W-B | Always | 10 to 14 |
| R2-5 (FR-) - R2-7 (GND) | L - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| R2-6 (FL-) - R2-7 (GND) | V - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| R2-7 (GND) - Body ground | W-B - - | Always | Continuity |
| R2-10 (ILL+) - R2-7 (GND) | G - W-B | Light control switch TAIL or HEAD | 10 to 14 |

| | | | |
|---|---|---|---|
| R3-1 (RR+) - R2-7 (GND) | R - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| R3-2 (RL+) - R2-7 (GND) | B - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| R3-3 (RR-) - R2-7 (GND) | W - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| R3-6 (RL-) - R2-7 (GND) | Y - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| R4-6 (GND) - R2-7 (GND) | Y - W-B | Always | Below 1 |
| R4-7 (SW1) - R2-7 (GND) | LG - W-B | Steering pad switch is not operating.<br>→SEEK+ switch push<br>→SEEK- switch push<br>→VOL+ switch push<br>→VOL- switch push | 4 or more<br>→Approx. 0.5<br>→Approx. 0.9<br>→Approx. 2.0<br>→Approx. 3.4 |
| R4-8 (SW2) - R2-7 (GND) | L - W-B | Steering pad switch is not operating<br>→MODE switch push | 4 or more →<br>Below 2.5 |

## 3. RADIO RECEIVER ASSY (10 SPEAKER)

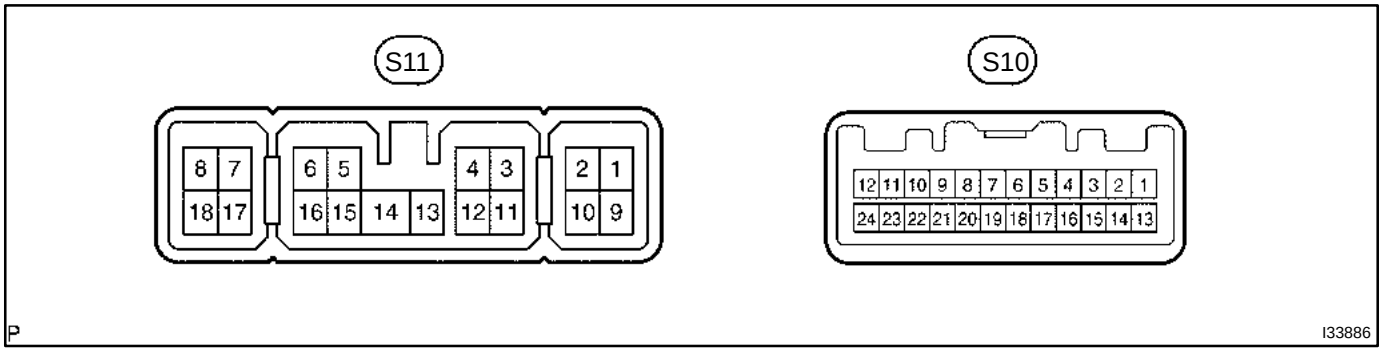



| Terminal No. (Symbols) | Wiring Color | Condition | STD Voltage (V) |
|---|---|---|---|
| R7-1 (BU+B) - R7-20 (GND) | L-Y - W-B | Always | 10 to 14 |
| R7-5 (TX+) | LG-B | See "Service Check Mode" | - |
| R7-7 (MUTE) - R7-20 (GND) | GR-B - W-B | Audio system is changing | Above 3.5 |
| R7-8 (R+) - R7-20 (GND) | W - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| R7-9 (L+) - R7-20 (GND) | G - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| R7-11 (ACC+B) - R7-20 (GND) | GR - W-B | Ignition switch to ACC | 10 to 14 |
| R7-13 (ANT+B) - R7-20 (GND) | P-L - W-B | Radio switch ON and AM or FM | 10 to 14 |
| R7-15 (TX-) | LG-R | See "Service Check Mode" | - |
| R7-18 (R-) - R7-20 (GND) | B - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| R7-19 (L-) - R7-20 (GND) | R - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| R7-20 (GND) - Body ground | W-B - Body ground | Always | Continuity |
| R8-1 (SLD*1) - Body ground | Shielded - Body ground | Always | Continuity |

| | | | |
|---|---|---|---|
| R8-2 (R+*1) - R7-20 (GND) | B - W-B | RSE system is playing | A waveform synchronized with sounds is output |
| R8-3 (R-*1) - R7-20 (GND) | W - W-B | RSE system is playing | A waveform synchronized with sounds is output |
| R8-4 (L+*1) - R7-20 (GND) | R - W-B | RSE system is playing | A waveform synchronized with sounds is output |
| R8-5 (L-*1) - R7-20 (GND) | G - W-B | RSE system is playing | A waveform synchronized with sounds is output |
| R8-6 (MUTE) - R7-20 (GND) | R-W - W-B | RSA, RSE is changing | Below 1 |
| R8-9 (TX+) | P | See "Service Check Mode" | - |
| R8-10 (TX-) | V | See "Service Check Mode" | - |
| R9-6 (GND) - R7-20 (GND) | Y - W-B | Always | Below 1 |
| R9-7 (SW1) - R7-20 (GND) | LG - W-B | Steering pad switch is not operating.<br>→SEEK+ switch push<br>→SEEK- switch push<br>→VOL+ switch push<br>→VOL- switch push | 4 or more<br>→Approx. 0.5<br>→Approx. 0.9<br>→Approx. 2.0<br>→Approx. 3.4 |
| R9-8 (SW2) - R7-20 (GND) | L - W-B | Steering pad switch is not operating<br>→MODE switch push | 4 or more →<br>Below 2.5 |
| R9-15 (RSR+) - R7-20 (GND) | B - W-B | RSA, RSE system is playing | A waveform synchronized with sounds is output |
| R9-16 (RSR-) - R7-20 (GND) | W - W-B | RSA, RSE system is playing | A waveform synchronized with sounds is output |
| R9-17 (RSL+) - R7-20 (GND) | R - W-B | RSA, RSE system is playing | A waveform synchronized with sounds is output |
| R9-18 (RSL-) - R7-20 (GND) | G - W-B | RSA, RSE system is playing | A waveform synchronized with sounds is output |
| R9-19 (RMU) - R7-20 (GND) | P-L - W-B | RSA, RSE is changing | Above 3.5 |

*1: w/ RSE

## 4. STEREO COMPONENT AMPLIFIER




| Terminal No. (Symbols) | Wiring Color | Condition | STD Voltage (V) |
|---|---|---|---|
| S10-1 (B+) - S10-16 (GND) | L-R - W-B | Always | 10 to 14 |
| S10-2 (SUR+) - S10-16 (GND) | W - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| S10-3 (CTR+) - S10-16 (GND) | L-B - W-B | Audio system is playing | A waveform synchronized with sounds is output |

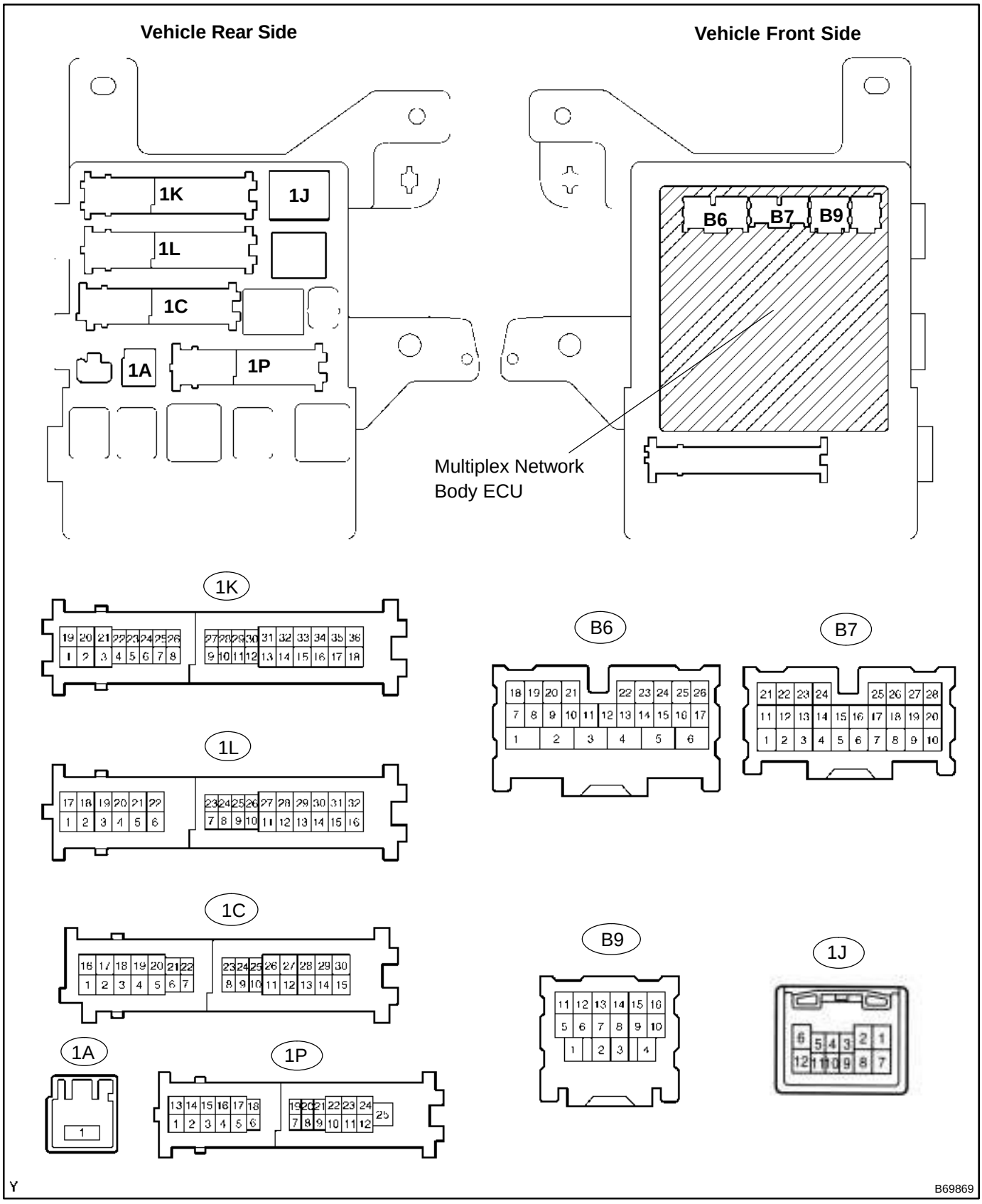
| | | | |
|---|---|---|---|
| S10-4 (RL+) - S10-16 (GND) | B - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| S10-5 (RR+) - S10-16 (GND) | R - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| S10-6 (FL+) - S10-16 (GND) | P - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| S10-7 (FR+) - S10-16 (GND) | LG - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| S10-8 (WF2+) - S10-16 (GND) | R-L - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| S10-9 (WF1+) - S10-16 (GND) | L-Y - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| S10-10 (B2+) - S10-16 (GND) | L-R - W-B | Always | 10 to 14 |
| S10-11 (SUR-) - S10-16 (GND) | L - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| S10-12 (CTR-) - S10-16 (GND) | L-R - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| S10-13 (RL-) - S10-16 (GND) | Y - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| S10-14 (RR-) - S10-16 (GND) | W - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| S10-15 (GND2) - Body ground | W-B - Body ground | Always | Continuity |
| S10-16 (GND) - Body ground | W-B - Body ground | Always | Continuity |
| S10-17 (FL-) - S10-16 (GND) | V - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| S10-18 (FR-) - S10-16 (GND) | L - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| S10-19 (WF2-) - S10-16 (GND) | W-L - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| S10-20 (WF1-) - S10-16 (GND) | L-W - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| S11-1 (MUTE) - S10-16 (GND) | GR-B - W-B | Audio system is changing | A waveform synchronized with sounds is output |
| S11-2 (L-) - S10-16 (GND) | R - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| S11-3 (L+) - S10-16 (GND) | G - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| S11-4 (R-) - S10-16 (GND) | B - W-B | Audio system is playing | A waveform synchronized with sounds is output |

| | | | |
|---|---|---|---|
| S11-5 (R+) - S10-16 (GND) | W - W-B | Audio system is playing | A waveform synchronized with sounds is output |
| S11-7 (TX-) | LG-R | See "Service Check Mode" | - |
| S11-8 (TX+) | LG-B | See "Service Check Mode" | - |
| S11-12 (ACC) - S10-16 (GND) | GR - W-B | Ignition switch ACC | 10 to 14 |

05BYX-02

# TERMINALS OF ECU

## 1. CHECK INSTRUMENT PANEL JUNCTION BLOCK ASSY (MULTIPLEX NETWORK BODY ECU)



(a) Disconnect the 1C, 1J, 1L, 1K, 1P, B6, B7 and B9 J/B connectors.
(b) Check the voltage and resistance between each terminal of the wire harness side connectors and the body ground.

**Standard:**

| Terminal No. | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| 1L-7 (BECU) - Body ground | W-L - Body ground | Constant | 10 to 14 V |
| 1C-24 (BECU) - Body ground | W-L - Body ground | Constant | 10 to 14 V |
| 1C-30 (ALTB) - Body ground | B - Body ground | Constant | 10 to 14 V |
| 1L-16 (GND1) - Body ground | W-B - Body ground | Constant | Below 1 Ω |
| 1K-17 (GND2) - Body ground | W-B - Body ground | Constant | Below 1 Ω |
| 1K-25, 1J-3 (L1) - Body ground | R-Y - Body ground | Door control switch (Master switch or passenger side) OFF → LOCK | 10 kΩ or higher → Below 1 Ω |
| 1K-22, 1J-4 (UL1) - Body ground | G - Body ground | Door control switch (Master switch or passenger side) OFF → UNLOCK | 10 kΩ or higher → Below 1 Ω |
| 1K-26 (L2) - Body ground | LG - Body ground | Driver side door key cylinder OFF → LOCK | 10 kΩ or higher → Below 1 Ω |
| 1J-5 (L2) - Body ground | LG - Body ground | Passenger side door key cylinder OFF → LOCK | 10 kΩ or higher → Below 1 Ω |
| B9-8 (UL3) - Body ground | L - Body ground | Driver side door key cylinder OFF → UNLOCK | 10 kΩ or higher → Below 1 Ω |
| B7-4 (UL2) - Body ground | L-Y - Body ground | Passenger side door key cylinder OFF → UNLOCK | 10 kΩ or higher → Below 1 Ω |
| B9-14 (DCTY) - Body ground | R-Y - Body ground | Driver side door CLOSED → OPEN | 10 kΩ or higher → Below 1 Ω |
| B7-23 (PCTY) - Body ground | R-Y - Body ground | Passenger side door CLOSED → OPEN | 10 kΩ or higher → Below 1 Ω |
| B9-16 (RCTY) - Body ground | R-W - Body ground | Rear door RH CLOSED → OPEN | 10 kΩ or higher → Below 1 Ω |
| 1P-19 (LCTY) - Body ground | GR - Body ground | Rear door LH CLOSED → OPEN | 10 kΩ or higher → Below 1 Ω |
| B7-25 (BCTY) - Body ground | G-W - Body ground | Back door CLOSED → OPEN | 10 kΩ or higher → Below 1 Ω |
| B6-21 (KSW) - Body ground | L-B - Body ground | No key in ignition key cylinder → Key inserted | 10 kΩ or higher → Below 1 Ω |
| B7-3 (BDSU)* - Body ground | G-B - Body ground | Back door opener switch OFF → ON | 10 kΩ or higher → Below 1 Ω |

* w/o Power back door

If the result is not as specified, there may be a malfunction on the wire harness side.

(c) Reconnect the connectors, and check the voltage between each terminal of the connectors and the body ground.

**Standard:**

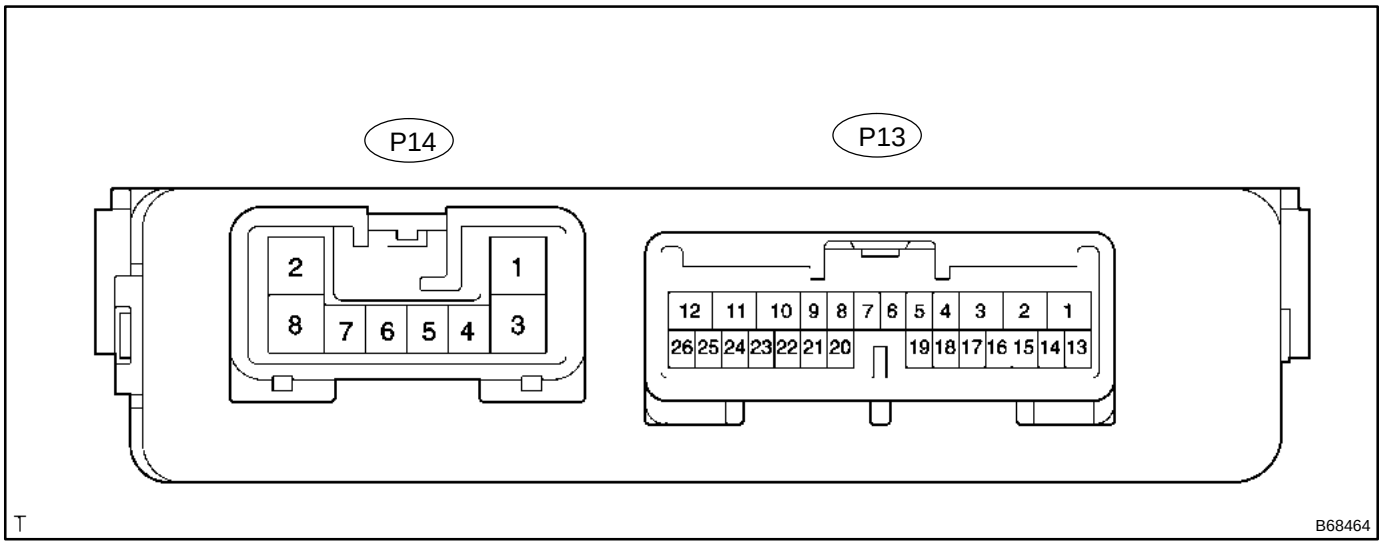
| Terminal No. | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| 1A-1 (IG) - Body ground | W - Body ground | Ignition switch OFF → ON | 10 to 14 V → Below 1 V |
| 1K-2 (ACT+) - Body ground | L-R - Body ground | Door control switch (Master switch or passenger side switch) or door key cylinder (Driver side)<br>OFF →<br>LOCK →<br>OFF | Below 1 V →<br>10 to 14 V →<br>Below 1 V |
| 1J-1 (ACT+) - Body ground | L-R - Body ground | | |
| 1P-17 (ACT+) - Body ground | L-R - Body ground | | |
| B6-1 (* TR+) - Body ground | L-B - Body ground | | |
| 1J-2 - (ACT-) - Body ground | L-B - Body ground | Door control switch (Master switch or passenger side switch) or door key cylinder (Driver side)<br>OFF →<br>LOCK →<br>OFF | Below 1 V →<br>10 to 14 V →<br>Below 1 V |
| 1P-6 - (ACT-) - Body ground | L-B - Body ground | | |
| B9-4 (ACTD) - Body ground | W-R - Body ground | Driver side door UNLOCK → LOCK | Below 1 V → 10 to 14 V |
| B9-7 (LSWD) - Body ground | BR-R - Body ground | Driver side door<br>UNLOCK →<br>LOCK | Below 1 V →<br>10 to 14 V (or Pulse generation) |
| B7-27 (LSWP) - Body ground | Y - Body ground | Passenger side door<br>UNLOCK →<br>LOCK | Below 1 V →<br>10 to 14 V (or Pulse generation) |
| 1P-5 (LSWL) - Body ground | L-R - Body ground | Rear left door<br>UNLOCK →<br>LOCK | Below 1 V →<br>10 to 14 V (or Pulse generation) |
| B7-5 (LSWR) - Body ground | L-R - Body ground | Rear right door<br>UNLOCK →<br>LOCK | Below 1 V →<br>10 to 14 V (or Pulse generation) |

* w/o Power Back Door

HINT:

Use an oscilloscope to check the output voltages of the terminals LSWD, LSWP, LSWL and LSWR.
If the result is not as specified, the J/B assy (body ECU) may have a malfunction.

**2. w/ Power back door:**
**CHECK POWER BACK DOOR ECU**




(a) Disconnect the P13 and P14 ECU connectors, and check the voltage or resistance of each terminal of the wire harness side connectors.
**Standard:**

| Terminal No. | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| P14-2 (B) - Body ground | B-R - Body ground | Constant | 10 to 14 V |
| P13-10 (ECUB) - Body ground | W-L - Body ground | Constant | 10 to 14 V |
| P13-9 (IG) - Body ground | B-R - Body ground | Ignition switch OFF → ON | 0 V → 10 to 14 V |
| P14-8 (GND) - Body ground | W-B - Body ground | Constant | Below 1 Ω |
| P13-3 (HSW) - Body ground | G-B - Body ground | Back door opener switch OFF → ON | 10 kΩ or higher → Below 1 Ω |

If the result is not as specified, there may be a malfunction on the wire harness side.

(b) Reconnect the ECU connectors, and check the voltage of each terminal of the connectors.
**Standard:**

| Terminal No. | Wiring Color | Condition | Specified Condition |
|---|---|---|---|
| CTYO (P14-4) - Body ground | G-W - Body ground | Back door CLOSED → OPEN | 10 to 14 V → Below 1 V |
| FUL (P13-8) - Body ground | B-W - Body ground | | |

If the result is not as specified, the ECU may have a malfunction.