

RESTRAINTS

Pre-Collision (Preparation) - Sienna

PRE-COLLISION

RECOMMENDED TOOLS

RECOMMENDED TOOLS

	09080-1C110	Toyota Electrical Tester Set	
	09080-2C100	Test Lead Set	

EQUIPMENT

EQUIPMENT

Protective Tape	
Ohmmeter	

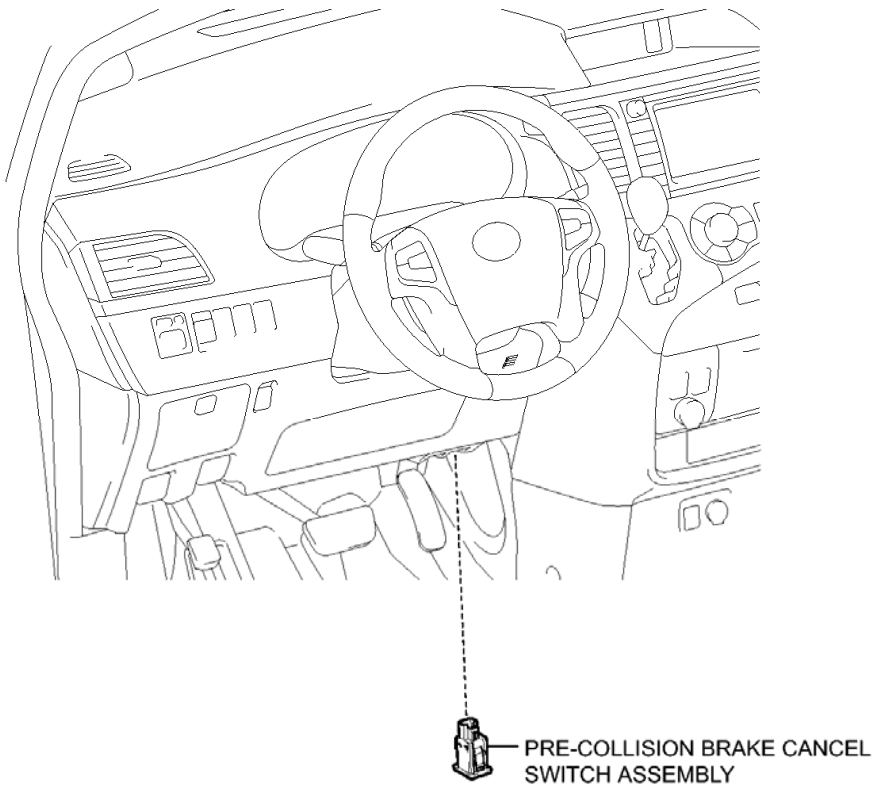
RESTRAINTS

Pre-Collision (Service Information) - Sienna

PRE-COLLISION BRAKE CANCEL SWITCH

COMPONENTS

ILLUSTRATION



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Fig. 1: Pre-Collision Brake Cancel Switch Replacement Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. REMOVE PRE-COLLISION BRAKE CANCEL SWITCH ASSEMBLY

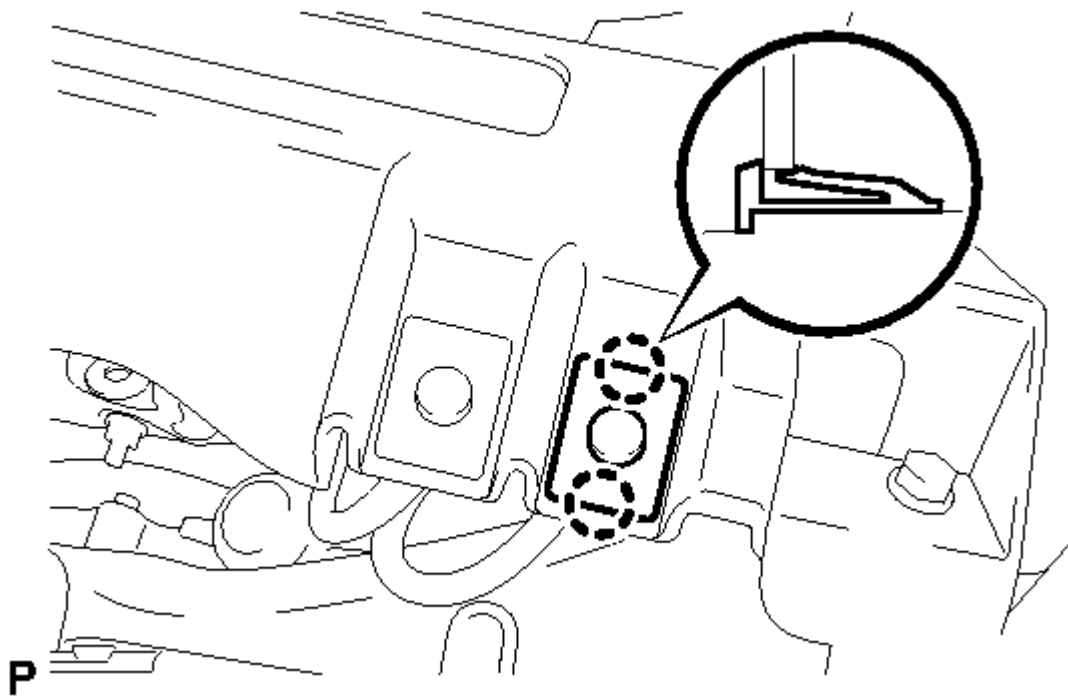


Fig. 2: Disengaging Pre-Collision Brake Cancel Switch Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

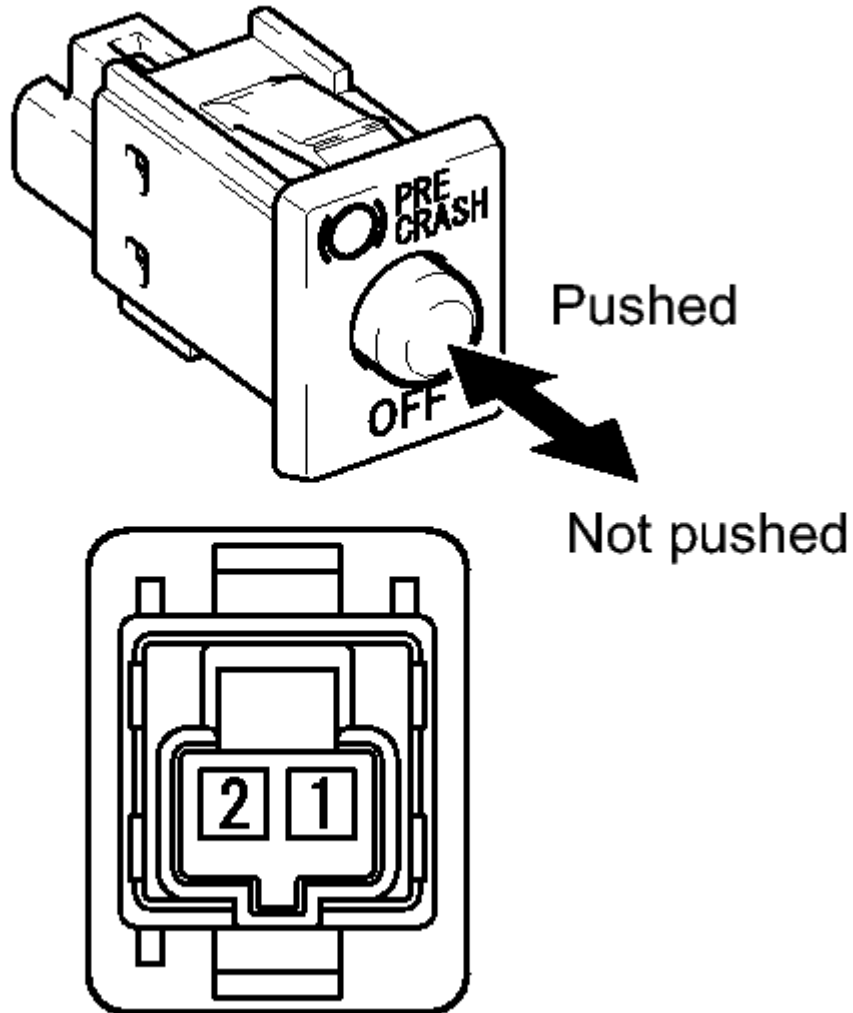
- a. Disengage the 2 claws and remove the pre-collision brake cancel switch.
- b. Disconnect the connector.

INSPECTION

INSPECTION

1. INSPECT PRE-COLLISION BRAKE CANCEL SWITCH ASSEMBLY

*a



P

Fig. 3: Inspecting Pre-Collision Brake Cancel Switch
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Check the resistance of the pre-collision brake cancel switch.

TEXT IN ILLUSTRATION

*a	Component without harness connected (Pre- collision Brake Cancel Switch Assembly)
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1. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Switch Condition	Specified Condition
1 - 2	on (Pressed)	Below 1 ohms
	off (Not pressed)	10 kohms or higher

If the result is not as specified, replace the pre-collision brake cancel switch.

INSTALLATION

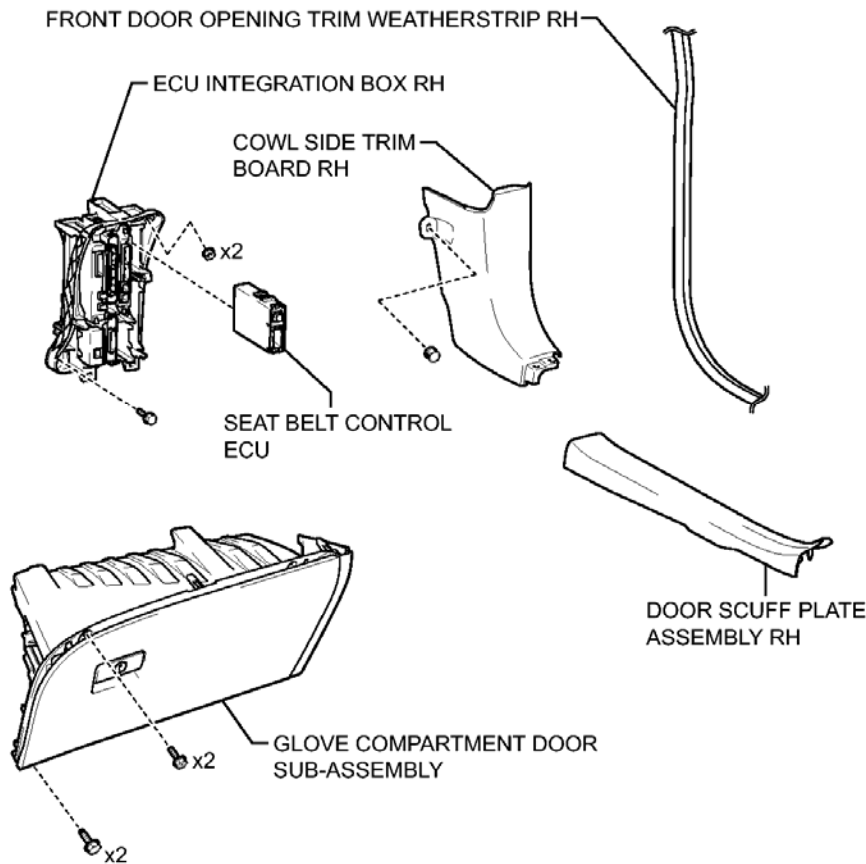
INSTALLATION

1. **INSTALL PRE-COLLISION BRAKE CANCEL SWITCH ASSEMBLY**
 - a. Connect the connector.
 - b. Engage the 2 claws and install the pre-collision brake cancel switch.

SEAT BELT CONTROL ECU

COMPONENTS

ILLUSTRATION



P

Fig. 4: Seat Belt Control ECU Replacement Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTE: When disconnecting the cable, some systems need to be initialized after the cable is reconnected. Refer to INITIALIZATION .

2. REMOVE DOOR SCUFF PLATE ASSEMBLY RH . Refer to REMOVAL - Step 3

3. REMOVE COWL SIDE TRIM BOARD RH . Refer to REMOVAL - Step 5

4. SEPARATE FRONT DOOR OPENING TRIM WEATHERSTRIP RH

5. REMOVE GLOVE COMPARTMENT DOOR SUB-ASSEMBLY . Refer to REMOVAL - Step 34

6. REMOVE ECU INTEGRATION BOX RH . Refer to REMOVAL - Step 6
7. REMOVE SEAT BELT CONTROL ECU

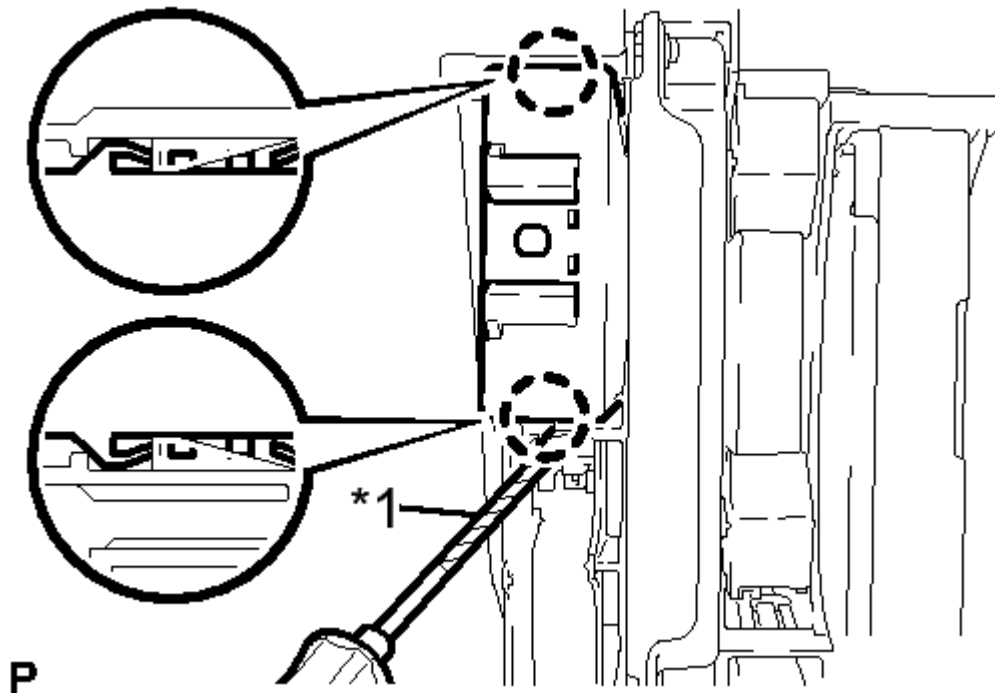


Fig. 5: Disengaging Seat Belt Control ECU Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Using a screwdriver with its tip wrapped in protective tape, disengage the 2 claws and remove the seat belt control ECU.

TEXT IN ILLUSTRATION

*1	Protective Tape
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INSTALLATION

INSTALLATION

1. INSTALL SEAT BELT CONTROL ECU
 - a. Engage the 2 claws and install the seat belt control ECU.
2. INSTALL ECU INTEGRATION BOX RH . Refer to INSTALLATION - Step 2
3. INSTALL GLOVE COMPARTMENT DOOR SUB-ASSEMBLY . Refer to INSTALLATION - Step 24
4. INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP RH
5. INSTALL COWL SIDE TRIM BOARD RH . Refer to INSTALLATION - Step 35
6. INSTALL DOOR SCUFF PLATE ASSEMBLY RH . Refer to INSTALLATION - Step 37

7. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

NOTE: When disconnecting the cable, some systems need to be initialized after the cable is reconnected. Refer to INITIALIZATION .

RESTRAINTS

Pre-Collision (Service Specifications) - Sienna

PRE-COLLISION

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS

Part Tightened	N*m	kgf*cm	ft.*lbf
Negative battery terminal x Battery	5.4	55	48 in.*lbf

RESTRAINTS

Pre-Collision System (Diagnostic Codes & Circuit Tests) - Sienna

PRE-COLLISION SYSTEM

DTC B2000: SHORT TO B+ IN SEAT BELT MOTOR RH CIRCUIT

DESCRIPTION

The seat belt control ECU receives information from the driving support ECU using CAN communication and tightens the seat belt by operating the motor in the front seat outer belt assembly RH.

DTC No.	DTC Detection Condition	Trouble Area
B2000	Short to B+ in the seat belt motor RH circuit continues for 1 second or more.	• Front seat outer belt assembly RH • Harness or connector • Seat belt control ECU

WIRING DIAGRAM

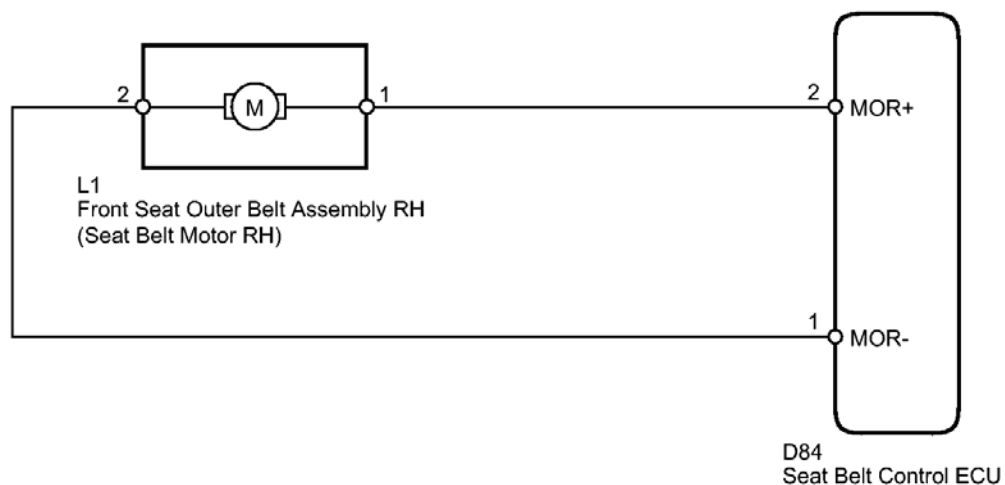


Fig. 1: Seat Belt Motor RH Circuit - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

WARNING: The pretensioner is built into the front seat outer belt assembly RH. Be sure to follow the correct inspection procedure, as failure to follow the correct procedure (such as inspection of incorrect connectors) may deploy the pretensioner.

PROCEDURE

1. INSPECT FRONT SEAT OUTER BELT ASSEMBLY RH

- a. Disconnect the L1 front seat outer belt assembly RH connector.

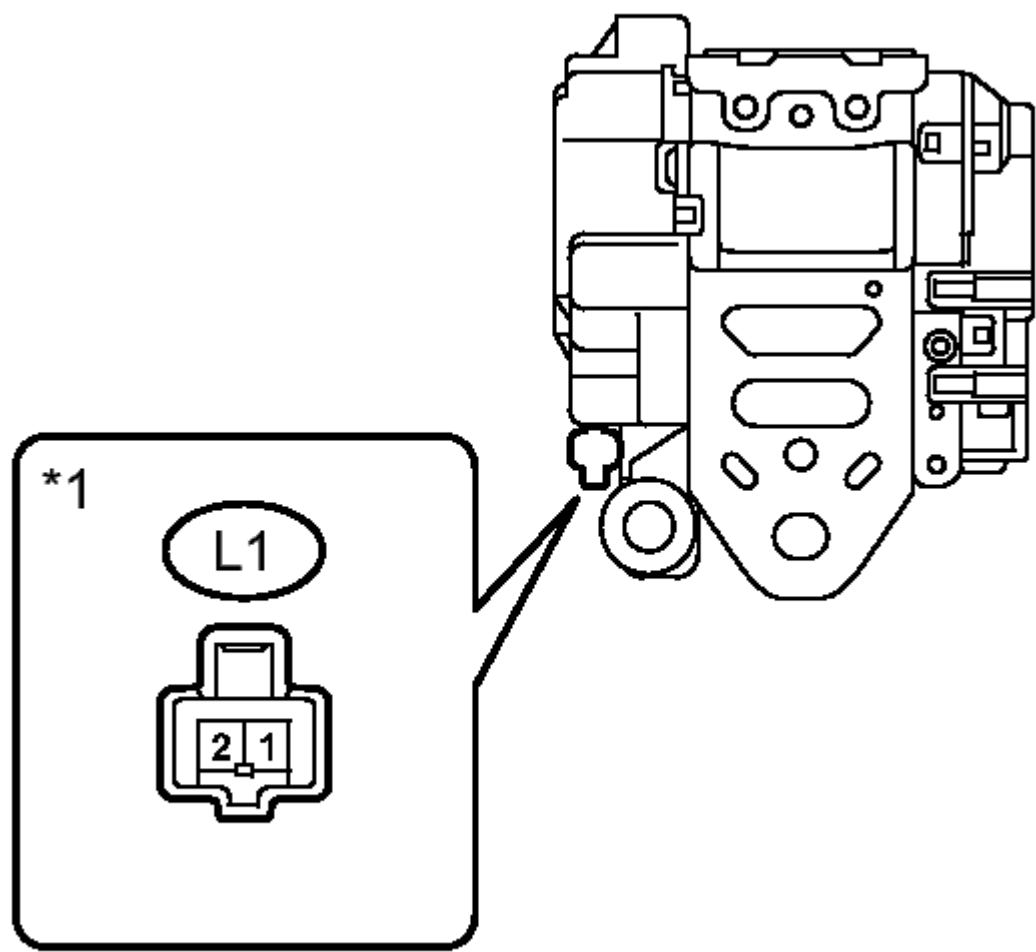


Fig. 2: Front Seat Outer Belt Assembly RH Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Turn the ignition switch to ON.
- c. Measure the voltage according to the value(s) in the table below.

Standard Voltage

Tester Connection	Switch Condition	Specified Condition

L1-1 - Body ground	Ignition switch ON	Below 1 V
L1-2 - Body ground	Ignition switch ON	Below 1 V

TEXT IN ILLUSTRATION

*1	Component without harness connected (Front Seat Outer Belt Assembly RH)
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- d. Reconnect the front seat outer belt assembly RH connector.

NG --> See step 4

OK: Go to next step

2. **CHECK HARNESS AND CONNECTOR (FRONT SEAT OUTER BELT ASSEMBLY RH - SEAT BELT CONTROL ECU)**
 - a. Disconnect the cable from the negative (-) battery terminal.

*1

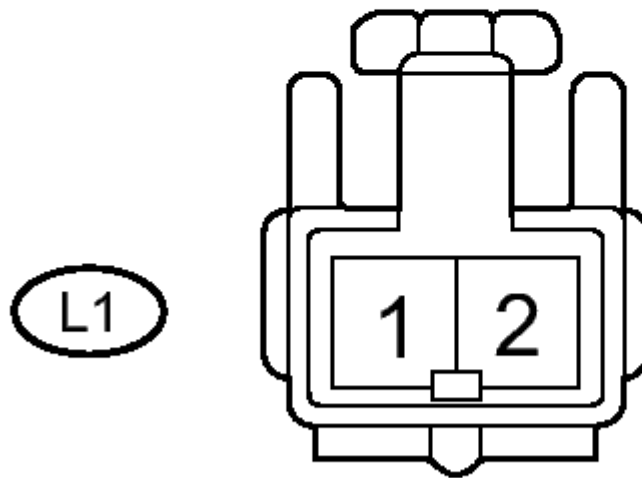


Fig. 3: Front Seat Outer Belt Assembly RH Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

WARNING: Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

- b. Disconnect the L1 front seat outer belt assembly RH connector.
- c. Disconnect the D84 seat belt control ECU connector.
- d. Connect the cable to the negative (-) battery terminal.
- e. Turn the ignition switch to ON.
- f. Measure the voltage according to the value(s) in the table below.

Standard Voltage

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Tester Connection	Switch Condition	Specified Condition
L1-1 - Body ground	Ignition switch ON	Below 1 V
L1-2 - Body ground	Ignition switch ON	Below 1 V

TEXT IN ILLUSTRATION

*1	Front view of wire harness connector (to Front Seat Outer Belt Assembly RH)
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- g. Disconnect the cable from the negative (-) battery terminal.
- h. Reconnect the seat belt control ECU and front seat outer belt assembly RH connectors.
- i. Connect the cable to the negative (-) battery terminal.

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK --> See step 3

3. REPLACE SEAT BELT CONTROL ECU. Refer to REMOVAL

4. REPLACE FRONT SEAT OUTER BELT ASSEMBLY RH. Refer to REMOVAL

DTC B2001: SHORT TO GND IN SEAT BELT MOTOR RH CIRCUIT

DESCRIPTION

The seat belt control ECU receives information from the driving support ECU using CAN communication and tightens the seat belt by operating the motor in the front seat outer belt assembly RH.

DTC No.	DTC Detection Condition	Trouble Area
B2001	Short to ground in the seat belt motor RH circuit continues for 1 second or more.	• Front seat outer belt assembly RH • Harness or connector • Seat belt control ECU

WIRING DIAGRAM

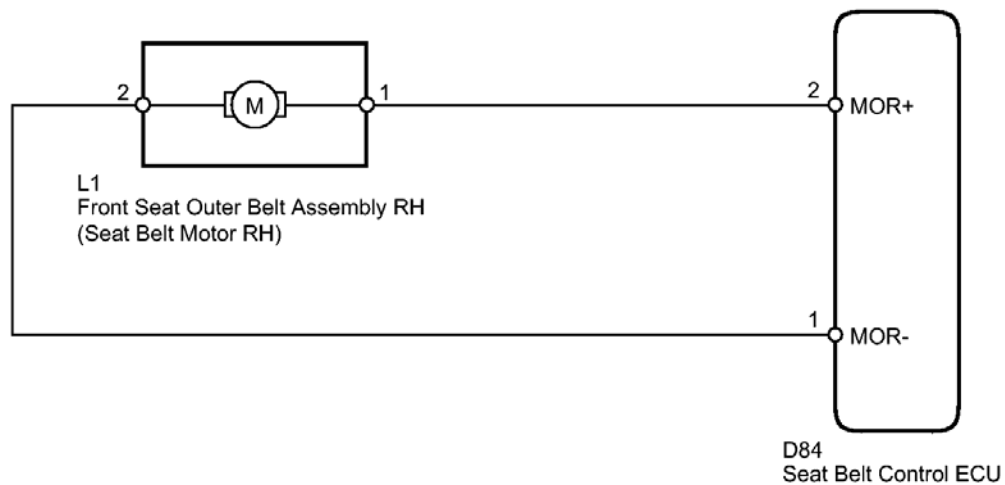


Fig. 4: Seat Belt Motor RH Circuit - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

WARNING: The pretensioner is built into the front seat outer belt assembly RH. Be sure to follow the correct inspection procedure, as failure to follow the correct procedure (such as inspection of incorrect connectors) may deploy the pretensioner.

PROCEDURE

1. **INSPECT FRONT SEAT OUTER BELT ASSEMBLY RH**
 - a. Disconnect the L1 front seat outer belt assembly RH connector.

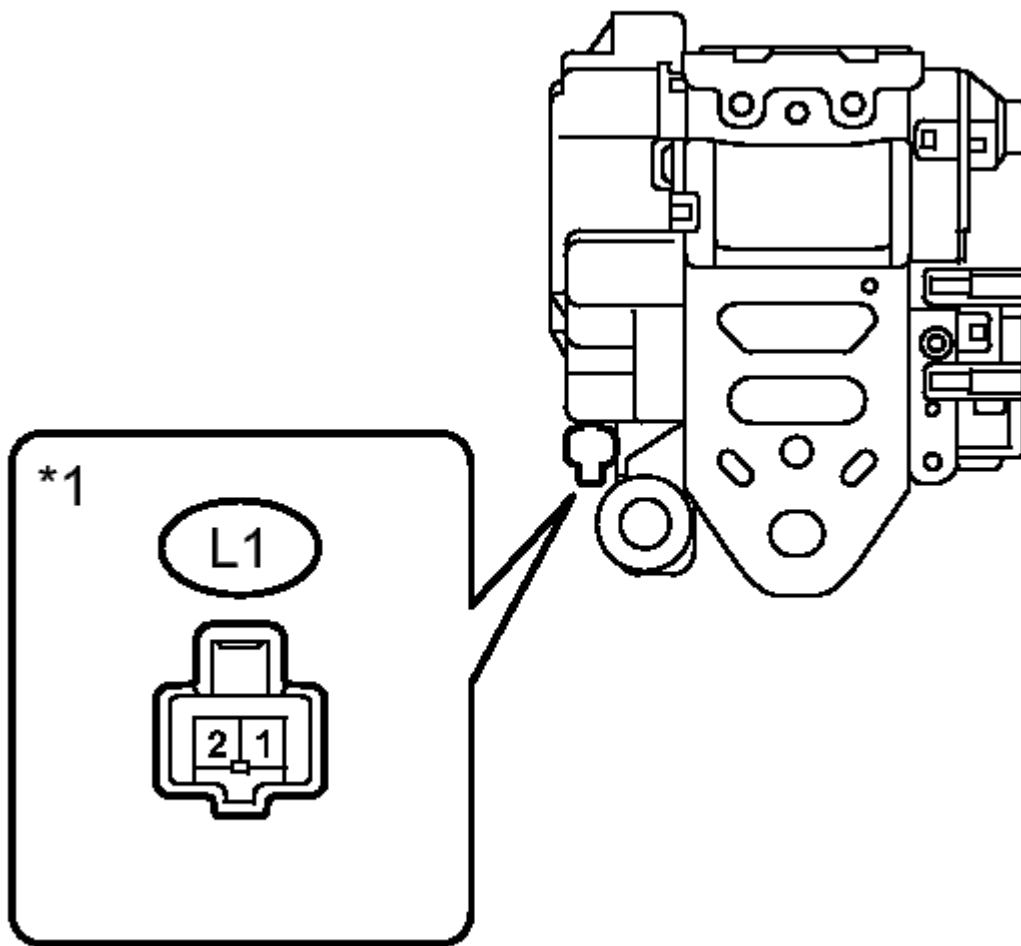


Fig. 5: Front Seat Outer Belt Assembly RH Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
L1-1 - Body ground	Always	1 Mohms or higher
L1-2 - Body ground	Always	1 Mohms or higher

TEXT IN ILLUSTRATION

*1	Component without harness connected (Front Seat Outer Belt Assembly RH)
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- c. Reconnect the front seat outer belt assembly RH connector.

NG --> See step 4

OK: Go to next step

2. CHECK HARNESS AND CONNECTOR (FRONT SEAT OUTER BELT ASSEMBLY RH - SEAT BELT CONTROL ECU)

- a. Disconnect the cable from the negative (-) battery terminal.

WARNING: Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

- b. Disconnect the L1 front seat outer belt assembly RH connector.
- c. Disconnect the D84 seat belt control ECU connector.
- d. Measure the resistance according to the value(s) in the table below.

*1

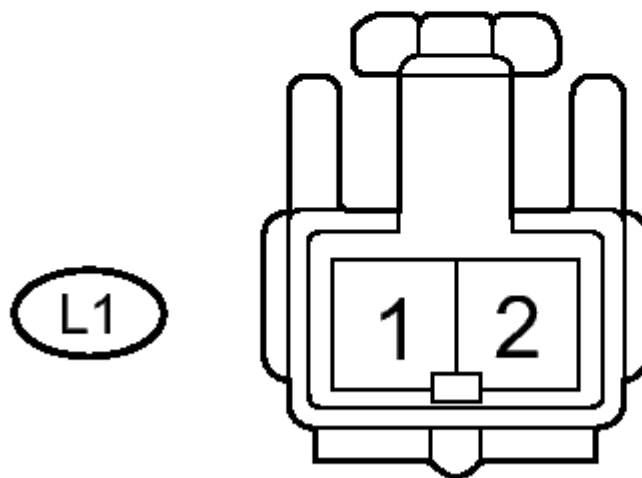


Fig. 6: Front Seat Outer Belt Assembly RH Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard Resistance

Tester Connection	Condition	Specified Condition
L1-1 - Body ground	Always	1 Mohms or higher
L1-2 - Body ground	Always	1 Mohms or higher
L1-1 - L1-2	Always	1 Mohms or higher

TEXT IN ILLUSTRATION

	Front view of wire harness connector
*1	(to Front Seat Outer Belt Assembly RH)

- e. Reconnect the seat belt control ECU and front seat outer belt assembly RH connectors.
- f. Connect the cable to the negative (-) battery terminal.

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK --> See step 3

3. **REPLACE SEAT BELT CONTROL ECU. Refer to REMOVAL**
4. **REPLACE FRONT SEAT OUTER BELT ASSEMBLY RH. Refer to REMOVAL**

DTC B2002: OPEN IN SEAT BELT MOTOR RH CIRCUIT

DESCRIPTION

The seat belt control ECU receives information from the driving support ECU using CAN communication and tightens the seat belt by operating the motor in the front seat outer belt assembly RH.

DTC No.	DTC Detection Condition	Trouble Area
B2002	Open in the seat belt motor RH circuit continues for 1 second or more.	• Front seat outer belt assembly RH • Harness or connector • Seat belt control ECU

WIRING DIAGRAM

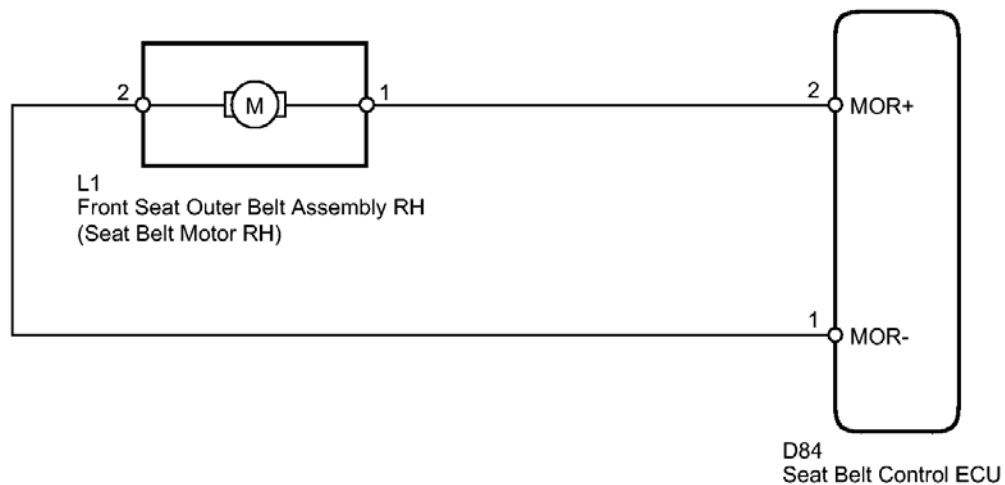


Fig. 7: Seat Belt Motor RH Circuit - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

WARNING: The pretensioner is built into the front seat outer belt assembly RH. Be sure to follow the correct inspection procedure, as failure to follow the correct procedure (such as inspection of incorrect connectors) may deploy the pretensioner.

PROCEDURE

1. **INSPECT FRONT SEAT OUTER BELT ASSEMBLY RH**
 - a. Disconnect the L1 front seat outer belt assembly RH connector.

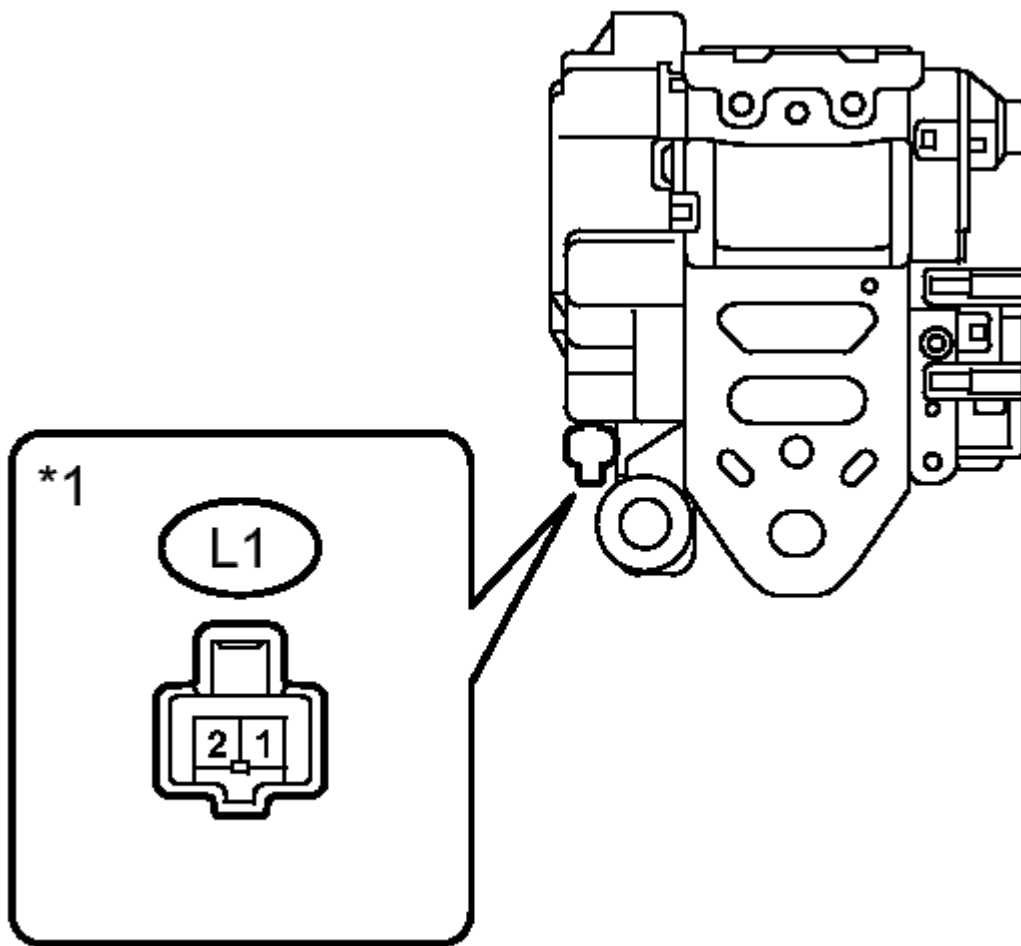


Fig. 8: Front Seat Outer Belt Assembly RH Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
L1-1 - L1-2	Always	Below 20 ohms

TEXT IN ILLUSTRATION

Component without

*1	harness connected (Front Seat Outer Belt Assembly RH)
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- c. Reconnect the front seat outer belt assembly RH connector.

NG --> See step 4

OK: Go to next step

2. CHECK HARNESS AND CONNECTOR (FRONT SEAT OUTER BELT ASSEMBLY RH - SEAT BELT CONTROL ECU)

- a. Disconnect the cable from the negative (-) battery terminal.

WARNING: Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

- b. Disconnect the L1 front seat outer belt assembly RH connector.
- c. Disconnect the D84 seat belt control ECU connector.
- d. Using a service wire, connect 1 and 2 of the L1 connector on the front seat outer belt assembly RH.

NOTE: Do not forcibly insert the service wire into the terminals of the connector.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
D84-1 (MOR-) - D84-2 (MOR+)	Always	Below 20 ohms

- f. Reconnect the seat belt control ECU and front seat outer belt assembly RH connectors.
- g. Connect the cable to the negative (-) battery terminal.

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK --> See step 3

3. **REPLACE SEAT BELT CONTROL ECU.** Refer to **REMOVAL**

4. **REPLACE FRONT SEAT OUTER BELT ASSEMBLY RH.** Refer to **REMOVAL**

DTC B2005: SHORT TO B+ IN SEAT BELT MOTOR LH CIRCUIT

DESCRIPTION

The seat belt control ECU receives information from the driving support ECU using CAN communication and tightens the seat belt by operating the motor in the front seat outer belt assembly LH.

DTC No.	DTC Detection Condition	Trouble Area
B2005	Short to B+ in the seat belt motor LH circuit continues for 1 second or more.	• Front seat outer belt assembly LH • Harness or connector • Seat belt control ECU

WIRING DIAGRAM

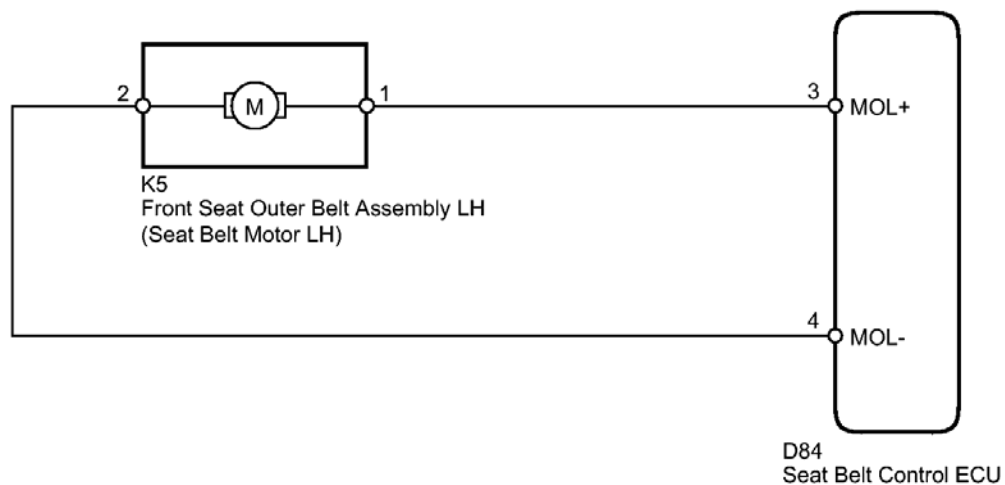


Fig. 9: Seat Belt Motor LH Circuit - Wiring Diagram

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

WARNING: The pretensioner is built into the front seat outer belt assembly LH. Be sure to follow the correct inspection procedure, as failure to follow the correct procedure (such as inspection of incorrect connectors) may deploy the pretensioner.

PROCEDURE

1. **INSPECT FRONT SEAT OUTER BELT ASSEMBLY LH**

- a. Disconnect the K5 front seat outer belt assembly LH connector.

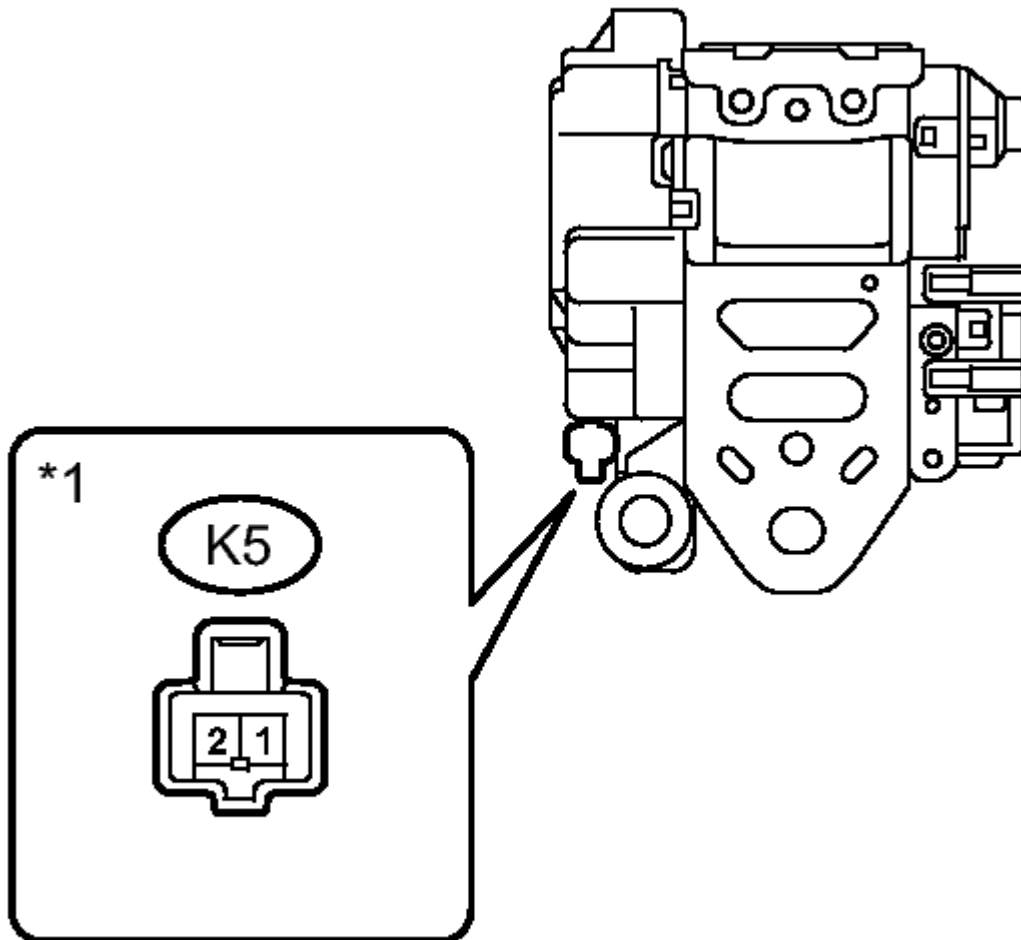


Fig. 10: Checking Front Seat Outer Belt Assembly LH Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Turn the ignition switch to ON.
c. Measure the voltage according to the value(s) in the table below.

Standard Voltage

Tester Connection	Switch Condition	Specified Condition
K5-1 - Body	Ignition switch	Below 1

ground	ON	V
K5-2 - Body ground	Ignition switch ON	Below 1 V

TEXT IN ILLUSTRATION

*1	Component without harness connected (Front Seat Outer Belt Assembly LH)
----	--

- d. Reconnect the front seat outer belt assembly LH connector.

NG --> See step 4

OK: Go to next step

2. **CHECK HARNESS AND CONNECTOR (FRONT SEAT OUTER BELT ASSEMBLY LH - SEAT BELT CONTROL ECU)**
 - a. Disconnect the cable from the negative (-) battery terminal.

*1

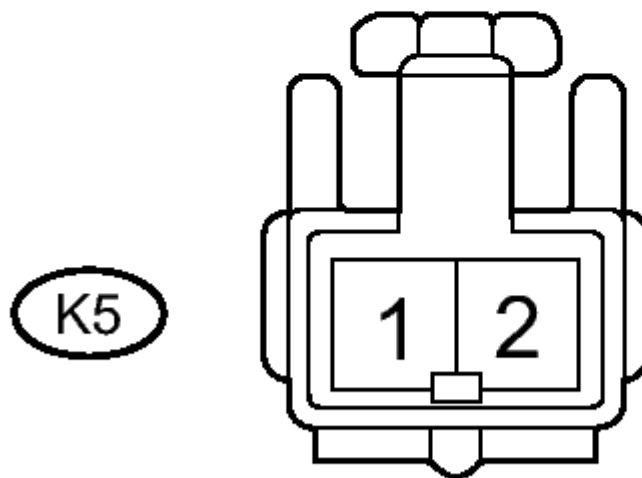


Fig. 11: Front Seat Outer Belt Assembly LH Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

WARNING: Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

- Disconnect the K5 front seat outer belt assembly LH connector.
- Disconnect the D84 seat belt control ECU connector.
- Connect the cable to the negative (-) battery terminal.
- Turn the ignition switch to ON.
- Measure the voltage according to the value(s) in the table below.

Standard Voltage

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Tester Connection	Switch Condition	Specified Condition
K5-1 - Body ground	Ignition switch ON	Below 1 V
K5-2 - Body ground	Ignition switch ON	Below 1 V

TEXT IN ILLUSTRATION

*1	Front view of wire harness connector (to Front Seat Outer Belt Assembly LH)
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- g. Disconnect the cable from the negative (-) battery terminal.
- h. Reconnect the seat belt control ECU and front seat outer belt assembly LH connectors.
- i. Connect the cable to the negative (-) battery terminal.

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK --> See step 3

3. REPLACE SEAT BELT CONTROL ECU. Refer to REMOVAL

4. REPLACE FRONT SEAT OUTER BELT ASSEMBLY LH. Refer to REMOVAL

DTC B2006: SHORT TO GND IN SEAT BELT MOTOR LH CIRCUIT

DESCRIPTION

The seat belt control ECU receives information from the driving support ECU using CAN communication and tightens the seat belt by operating the motor in the front seat outer belt assembly LH.

DTC No.	DTC Detection Condition	Trouble Area
B2006	Short to ground in the seat belt motor LH circuit continues for 1 second or more.	• Front seat outer belt assembly LH • Harness or connector • Seat belt control ECU

WIRING DIAGRAM

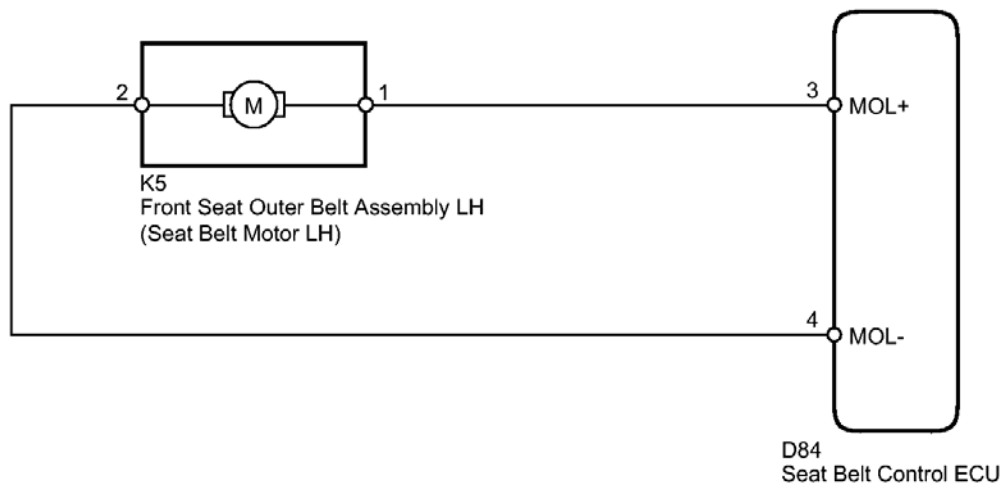


Fig. 12: Seat Belt Motor LH Circuit - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

WARNING: The pretensioner is built into the front seat outer belt assembly LH. Be sure to follow the correct inspection procedure, as failure to follow the correct procedure (such as inspection of incorrect connectors) may deploy the pretensioner.

PROCEDURE

1. **INSPECT FRONT SEAT OUTER BELT ASSEMBLY LH**
 - a. Disconnect the K5 front seat outer belt assembly LH connector.

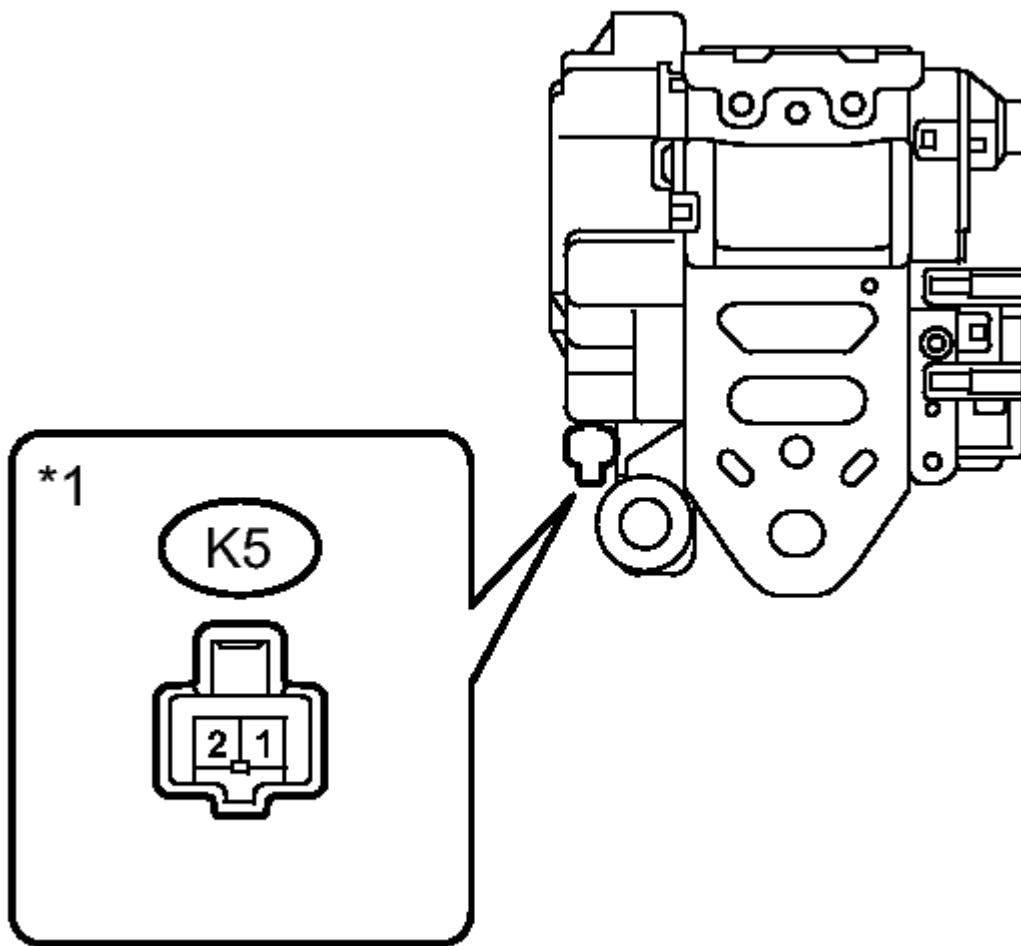


Fig. 13: Checking Front Seat Outer Belt Assembly LH Connector
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
K5-1 - Body ground	Always	1 Mohms or higher
K5-2 - Body ground	Always	1 Mohms or higher

TEXT IN ILLUSTRATION

*1	Component without harness connected (Front Seat Outer Belt Assembly LH)
----	--

- c. Reconnect the front seat outer belt assembly LH connector.

NG --> See step 4

OK: Go to next step

2. CHECK HARNESS AND CONNECTOR (FRONT SEAT OUTER BELT ASSEMBLY LH - SEAT BELT CONTROL ECU)

- a. Disconnect the cable from the negative (-) battery terminal.

WARNING: Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

- b. Disconnect the K5 front seat outer belt assembly LH connector.
- c. Disconnect the D84 seat belt control ECU connector.
- d. Measure the resistance according to the value(s) in the table below.

*1

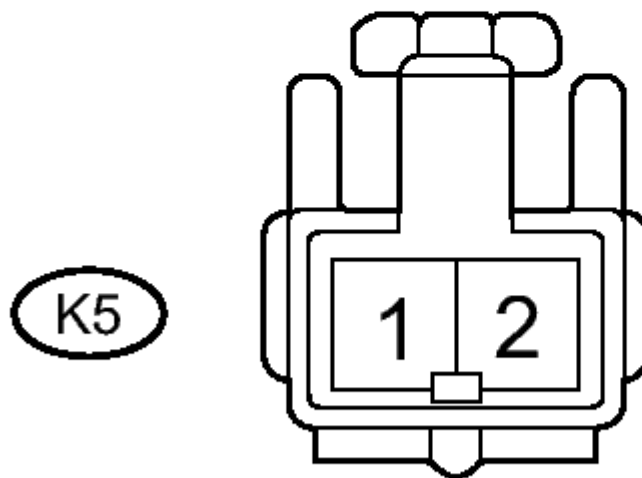


Fig. 14: Front Seat Outer Belt Assembly LH Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard Resistance

Tester Connection	Condition	Specified Condition
K5-1 - Body ground	Always	1 Mohms or higher
K5-2 - Body ground	Always	1 Mohms or higher
K5-1 - K5-2	Always	1 Mohms or higher

TEXT IN ILLUSTRATION

	Front view of wire harness connector
*1	(to Front Seat Outer Belt Assembly LH)

- e. Reconnect the front seat outer belt assembly LH and seat belt control ECU connectors.
- f. Connect the cable to the negative (-) battery terminal.

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK --> See step 3

3. **REPLACE SEAT BELT CONTROL ECU. Refer to REMOVAL**
4. **REPLACE FRONT SEAT OUTER BELT ASSEMBLY LH. Refer to REMOVAL**

DTC B2007: OPEN IN SEAT BELT MOTOR LH CIRCUIT

DESCRIPTION

The seat belt control ECU receives information from the driving support ECU using CAN communication and tightens the seat belt by operating the motor in the front seat outer belt assembly LH.

DTC No.	DTC Detection Condition	Trouble Area
B2007	Open in the seat belt motor LH circuit continues for 1 second or more.	• Front seat outer belt assembly LH • Harness or connector • Seat belt control ECU

WIRING DIAGRAM

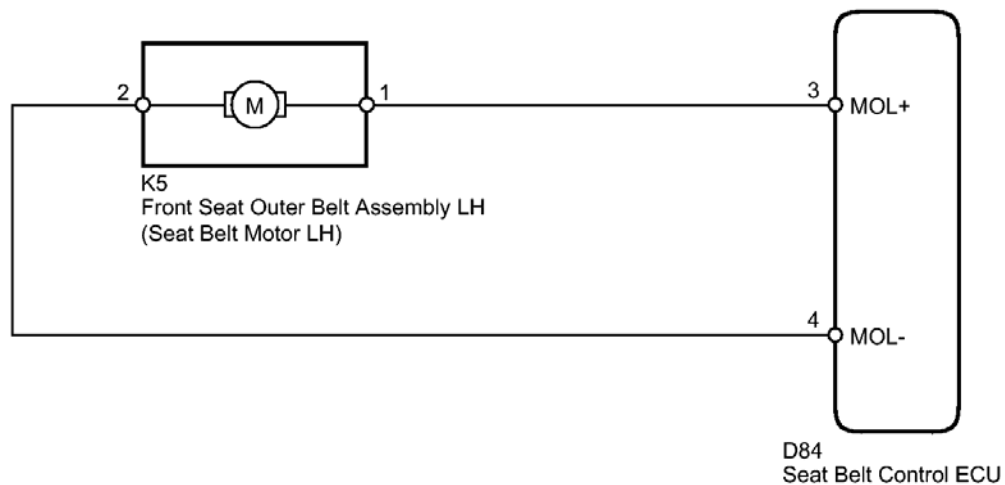


Fig. 15: Seat Belt Motor LH Circuit - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

WARNING: The pretensioner is built into the front seat outer belt assembly LH. Be sure to follow the correct inspection procedure, as failure to follow the correct procedure (such as inspection of incorrect connectors) may deploy the pretensioner.

PROCEDURE

1. **INSPECT FRONT SEAT OUTER BELT ASSEMBLY LH**
 - a. Disconnect the K5 front seat outer belt assembly LH connector.

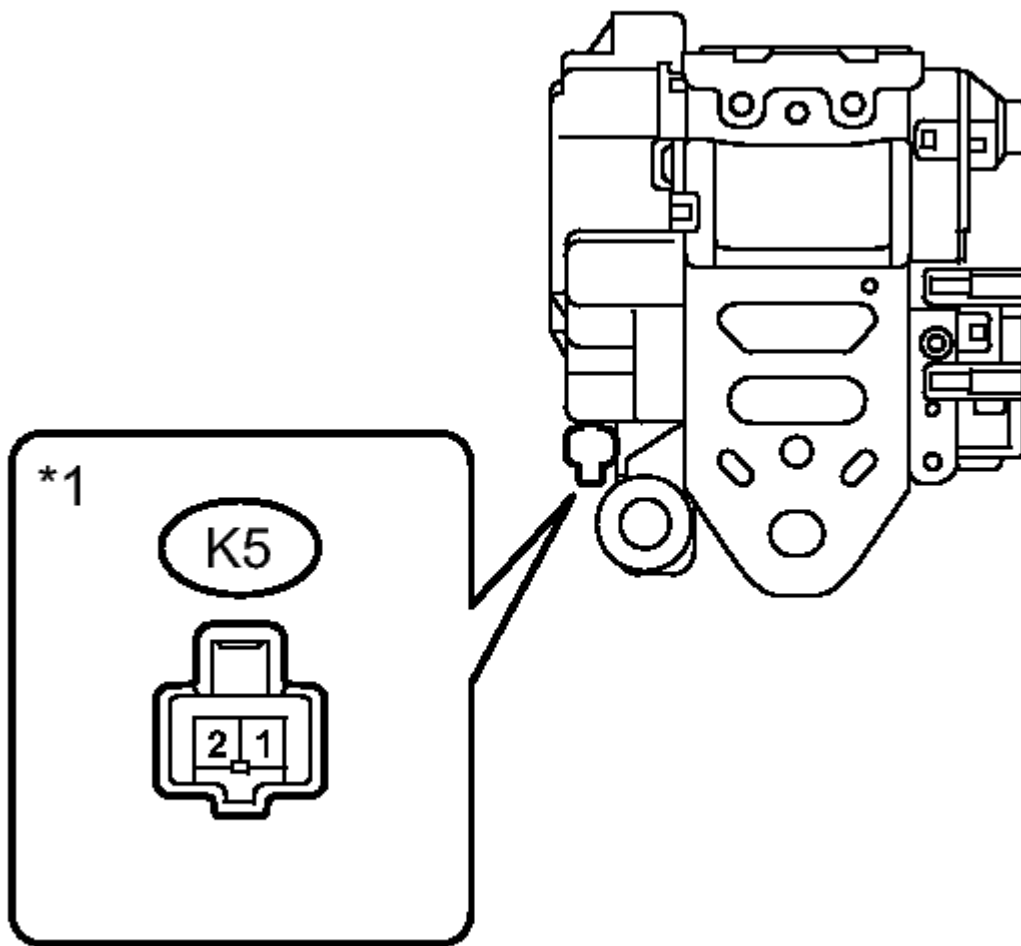


Fig. 16: Checking Front Seat Outer Belt Assembly LH Connector
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
K5-1 - K5-2	Always	Below 20 ohms

TEXT IN ILLUSTRATION

Component without

*1	harness connected (Front Seat Outer Belt Assembly LH)
----	--

- c. Reconnect the front seat outer belt assembly LH connector.

NG --> See step 4

OK: Go to next step

2. CHECK HARNESS AND CONNECTOR (FRONT SEAT OUTER BELT ASSEMBLY LH - SEAT BELT CONTROL ECU)

- a. Disconnect the cable from the negative (-) battery terminal.

WARNING: Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

- b. Disconnect the K5 front seat outer belt assembly LH connector.
c. Disconnect the D84 seat belt control ECU connector.
d. Using a service wire, connect 1 and 2 of the K5 connector on the front seat outer belt assembly LH.

NOTE: Do not forcibly insert the service wire into the terminals of the connector.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
D84-3 (MOL+) - D84-4 (MOL-)	Always	Below 20 ohms

- f. Reconnect the seat outer belt assembly LH and seat belt control ECU connectors.
g. Connect the cable to the negative (-) battery terminal.

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK --> See step 3

3. REPLACE SEAT BELT CONTROL ECU. Refer to REMOVAL

4. REPLACE FRONT SEAT OUTER BELT ASSEMBLY LH. Refer to REMOVAL

DTC B2015: OPEN IN RIGHT SIDE UPPER MOS; DTC B2016: OPEN IN RIGHT SIDE LOWER MOS; DTC B2020: OPEN IN LEFT SIDE UPPER MOS; DTC B2021: OPEN IN LEFT SIDE LOWER MOS; DTC B2025: RIGHT SIDE CURRENT DETECTION CIRCUIT MALFUNCTION HI; DTC B2026: RIGHT SIDE CURRENT DETECTION CIRCUIT MALFUNCTION LO; DTC B2027: RIGHT SIDE OVER-CURRENT MALFUNCTION; DTC B2030: LEFT SIDE CURRENT DETECTION CIRCUIT MALFUNCTION HI; DTC B2031: LEFT SIDE CURRENT DETECTION CIRCUIT MALFUNCTION LO; DTC B2032: LEFT SIDE OVER-CURRENT MALFUNCTION; DTC B2035: POWER SUPPLY RELAY ADHERENCE MALFUNCTION; DTC B2040: EEPROM MALFUNCTION; DTC B2041: FALL OF RAISED VOLTAGE; DTC B2043: FALL OF B+ VOLTAGE; DTC B2047: SEAT BELT CONTROL ECU INNER CIRCUIT MALFUNCTION

DESCRIPTION

The DTCs above are stored during seat belt control ECU self diagnosis.

HINT:

- When DTC B2015 or B2016 is detected, DTCs B2026 and B2027 will not be detected.
- When DTC B2020 or B2021 is detected, DTCs B2031 and B2032 will not be detected.

DTC No.	DTC Detection Condition	Trouble Area
B2015	While initial check is running and the ignition switch to ON, the seat belt control ECU detects an internal malfunction for 1 second.	• Seat belt control ECU
B2016	While initial check is running and ignition switch to ON, seat belt control ECU detects an internal malfunction for 1 second.	• Seat belt control ECU
B2020	While initial check is running and ignition switch to ON, seat belt control ECU detects an internal malfunction for 1 second.	• Seat belt control ECU
B2021	While initial check is running and ignition switch to ON, seat belt control ECU detects an internal malfunction for 1 second.	• Seat belt control ECU
B2025	While initial check is running and ignition switch to ON, seat belt control ECU detects an internal malfunction for 1 second.	• Seat belt control ECU
	While initial check is running and ignition switch to ON, seat belt control	

B2026	ECU detects an internal malfunction for 1 second.	• Seat belt control ECU
B2027	While initial check is running and ignition switch to ON, seat belt control ECU detects an internal malfunction for 1 second.	• Seat belt control ECU
B2030	While initial check is running and ignition switch to ON, seat belt control ECU detects an internal malfunction for 1 second.	• Seat belt control ECU
B2031	While initial check is running and ignition switch to ON, seat belt control ECU detects an internal malfunction for 1 second.	• Seat belt control ECU
B2032	While initial check is running and ignition switch to ON, seat belt control ECU detects an internal malfunction for 1 second.	• Seat belt control ECU
B2035	While initial check is running and ignition switch to ON, seat belt control ECU detects an internal malfunction for 1 second.	• Seat belt control ECU
B2040	While initial check is running and ignition switch to ON, seat belt control ECU detects an internal malfunction for 1 second.	• Seat belt control ECU
B2041	While initial check is running and ignition switch to ON, seat belt control ECU detects an internal malfunction for 1 second.	• Seat belt control ECU
B2043	While initial check is running and ignition switch to ON, seat belt control ECU detects an internal malfunction for 1 second.	• Seat belt control ECU
B2047	While initial check is running and ignition switch to ON, seat belt control ECU detects an internal malfunction for 1 second.	• Seat belt control ECU

INSPECTION PROCEDURE

PROCEDURE

1. CHECK FOR DTC

- Using the Techstream, enter the following menus: Body Electrical / Pre-Collision / Trouble Codes.
- Clear the DTCs. Refer to **DTC CHECK / CLEAR**.

- c. Turn the ignition switch off.
- d. Turn the ignition switch to ON.
- e. Check for DTCs. Refer to **DTC CHECK / CLEAR**.

OK

DTCs are not output.

NG --> See step 3

OK --> See step 2

2. **CHECK FOR INTERMITTENT PROBLEMS (SYMPTOM SIMULATION).** Refer to **HOW TO PROCEED WITH TROUBLESHOOTING**
3. **REPLACE SEAT BELT CONTROL ECU.** Refer to **REMOVAL**

DTC B2036: POWER SUPPLY RELAY MALFUNCTION OPEN

DESCRIPTION

If the seat belt control ECU judges that there is a malfunction in its internal circuit as a result of self-diagnosis, or if the power source voltage (+B) is not input to the seat belt control ECU, this DTC will be stored.

DTC No.	DTC Detection Condition	Trouble Area
B2036	• Malfunction in seat belt control ECU • Power source voltage (+B) is not input to the seat belt control ECU.	• Harness or connector • PSB fuse • Seat belt control ECU

WIRING DIAGRAM

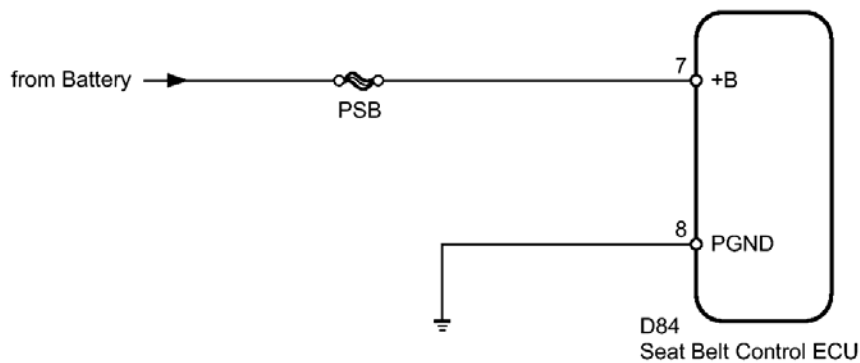


Fig. 17: Seat Belt Control ECU Circuit - Wiring Diagram
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

NOTE: Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1. INSPECT SEAT BELT CONTROL ECU (+B TERMINAL VOLTAGE)

- a. Disconnect the cable from the negative (-) battery terminal.

*1

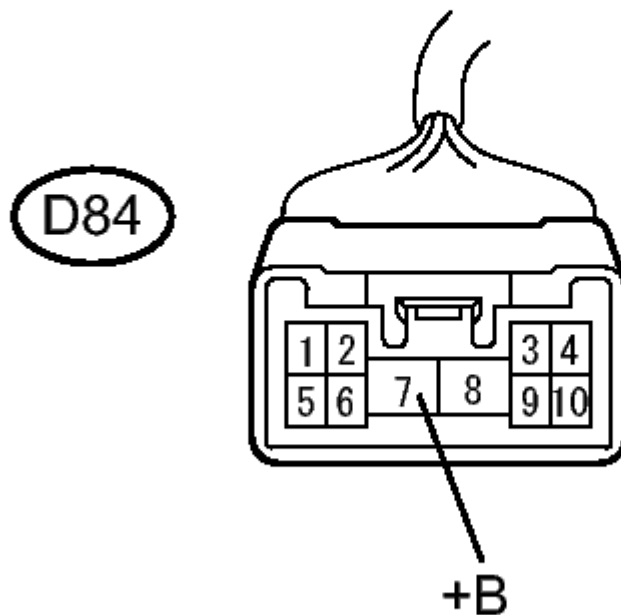


Fig. 18: Measuring Voltage Of Seat Belt Control ECU (+B Terminal Voltage)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

WARNING: Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

- b. Disconnect the D84 seat belt control ECU connector.
- c. Connect the cable to the negative (-) battery terminal.
- d. Measure the voltage according to the value(s) in the table below.

Standard Voltage

Tester Connection	Switch Condition	Specified Condition
D84-7 (+B) - Body ground	Ignition switch off	11 to 14 V

TEXT IN ILLUSTRATION

*1	Front view of wire harness connector (to Seat Belt Control ECU)
----	---

- e. Disconnect the cable from the negative (-) battery terminal.
- f. Reconnect seat belt control ECU connector.
- g. Connect the cable to the negative (-) battery terminal.

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR (+B CIRCUIT)

OK: Go to next step

2. CHECK FOR DTC

- a. Using the Techstream, enter the following menus: Body Electrical / Pre-Collision / Trouble Codes.
- b. Clear the DTCs. Refer to **DTC CHECK / CLEAR** .
- c. Check for DTCs. Refer to **DTC CHECK / CLEAR** .

OK

DTC B2036 is not output.

NG --> See step 3

OK --> See step 4

3. REPLACE SEAT BELT CONTROL ECU. Refer to **REMOVAL**

4. **CHECK FOR INTERMITTENT PROBLEMS (SYMPTOM SIMULATION).** Refer to **HOW TO PROCEED WITH TROUBLESHOOTING**

DTC B2060: ABS MALFUNCTION

DESCRIPTION

This DTC is stored when a malfunction in the vehicle stability control system is detected. This circuit consists of the skid control ECU and seat belt control ECU. Signals are sent from the skid control ECU using the CAN communication.

DTC No.	DTC Detection Condition	Trouble Area
B2060	Malfunction in the brake control system (vehicle stability control system) is detected.	• CAN communication system • Vehicle stability control system • Seat belt control ECU

INSPECTION PROCEDURE

HINT:

This circuit uses CAN communication. Therefore, be sure to check that the CAN communication system is normal before performing inspection. Refer to **HOW TO PROCEED WITH TROUBLESHOOTING** .

PROCEDURE

1. **CHECK FOR DTC (CAN COMMUNICATION SYSTEM)**

- Clear the DTCs. Refer to **HOW TO PROCEED WITH TROUBLESHOOTING** .
- Check for DTCs. Refer to **HOW TO PROCEED WITH TROUBLESHOOTING** .

OK

CAN communication system DTC is not output.

NG --> See step 6

OK: Go to next step

2. **CHECK FOR DTC (VEHICLE STABILITY CONTROL SYSTEM)**

- Check DTCs for the vehicle stability control system. Refer to **DTC CHECK / CLEAR** .

OK

Vehicle stability control system DTC is not output.

NG --> See step 4

OK: Go to next step

3. CHECK FOR DTC (PRE-COLLISION SYSTEM)

- a. Using the Techstream, enter the following menus: Body Electrical / Pre-Collision / Trouble Codes.
- b. Clear the DTCs. Refer to **DTC CHECK / CLEAR** .
- c. Check for DTCs. Refer to **DTC CHECK / CLEAR** .

OK

DTC B2060 is not output.

NG --> See step 5

OK --> See step 7

4. **GO TO VEHICLE STABILITY CONTROL SYSTEM. Refer to DIAGNOSTIC TROUBLE CODE CHART**
5. **REPLACE SEAT BELT CONTROL ECU. Refer to REMOVAL**
6. **GO TO CAN COMMUNICATION SYSTEM. Refer to HOW TO PROCEED WITH TROUBLESHOOTING**
7. **CHECK FOR INTERMITTENT PROBLEMS (SYMPTOM SIMULATION). Refer to HOW TO PROCEED WITH TROUBLESHOOTING**

DTC B2064: VEHICLE TYPE SIGNAL MALFUNCTION

DESCRIPTION

The seat belt control ECU is connected to the main body ECU using CAN communication.

The seat belt control ECU receives vehicle model information from the main body ECU and determines whether the seat belt buckle switch information from the center airbag sensor assembly is for the driver seat or the passenger seat.

DTC B2064 is stored when the CAN communication frame with the main body ECU is normal and communication is available, but the steering wheel position information is not set or varies.

DTC No.	DTC Detection Condition	Trouble Area
B2064	Communication with the main body ECU is normal and received steering wheel position information is not set (three times in succession).	• CAN communication system • Main body ECU • Seat belt control ECU

INSPECTION PROCEDURE

HINT:

This circuit uses CAN communication. Therefore, be sure to check that the CAN communication system is normal before performing inspection. Refer to **HOW TO PROCEED WITH TROUBLESHOOTING** .

PROCEDURE

1. CHECK FOR DTC (CAN COMMUNICATION SYSTEM)

- a. Clear the DTCs. Refer to **HOW TO PROCEED WITH TROUBLESHOOTING** .
- b. Check for DTCs. Refer to **HOW TO PROCEED WITH TROUBLESHOOTING** .

OK

CAN communication system DTC is not output.

NG --> See step 7

OK: Go to next step

2. CHECK FOR DTC (PRE-COLLISION SYSTEM)

- a. Using the Techstream, enter the following menus: Body Electrical / Pre-Collision / Trouble Codes.
- b. Clear the DTCs. Refer to **DTC CHECK / CLEAR** .
- c. Check for DTCs. Refer to **DTC CHECK / CLEAR** .

OK

DTC B2064 is not output.

NG --> See step 3

OK --> See step 6

3. REPLACE MAIN BODY ECU

- a. Replace the main body ECU. Refer to **REMOVAL** .

NEXT: Go to next step

4. CHECK FOR DTC (PRE-COLLISION SYSTEM)

- a. Using the Techstream, enter the following menus: Body Electrical / Pre-Collision / Trouble Codes.
- b. Clear the DTCs. Refer to **DTC CHECK / CLEAR** .
- c. Check for DTCs. Refer to **DTC CHECK / CLEAR** .

OK

DTC B2064 is not output.

NG --> See step 5

OK --> END

5. **REPLACE SEAT BELT CONTROL ECU. Refer to REMOVAL**
6. **CHECK FOR INTERMITTENT PROBLEMS (SYMPTOM SIMULATION). Refer to HOW TO PROCEED WITH TROUBLESHOOTING**
7. **GO TO CAN COMMUNICATION SYSTEM. Refer to HOW TO PROCEED WITH TROUBLESHOOTING**

DTC B2074: DRIVER SIDE SEAT BELT BUCKLE SWITCH CIRCUIT MALFUNCTION; DTC B2075: PASSENGER SIDE SEAT BELT BUCKLE SWITCH CIRCUIT MALFUNCTION

DESCRIPTION

These DTCs are stored when a malfunction is detected in the driver side buckle switch circuit or passenger side buckle switch circuit.

DTC No.	DTC Detection Condition	Trouble Area
B2074	Malfunction in front seat belt inner LH	• Wire harness • Front seat inner belt LH assembly • Center airbag sensor assembly • Seat belt control ECU • Power management control ECU*1 • Network gateway ECU*2
B2075	Malfunction in front seat belt inner RH	• Wire harness • Front seat inner belt RH assembly • Occupant classification ECU • Center airbag sensor assembly • Seat belt control ECU • Power management control ECU*1 • Network gateway ECU*2

*1: w/ Smart Key System

*2: w/o Smart Key System

WIRING DIAGRAM

w/ Smart Key System:

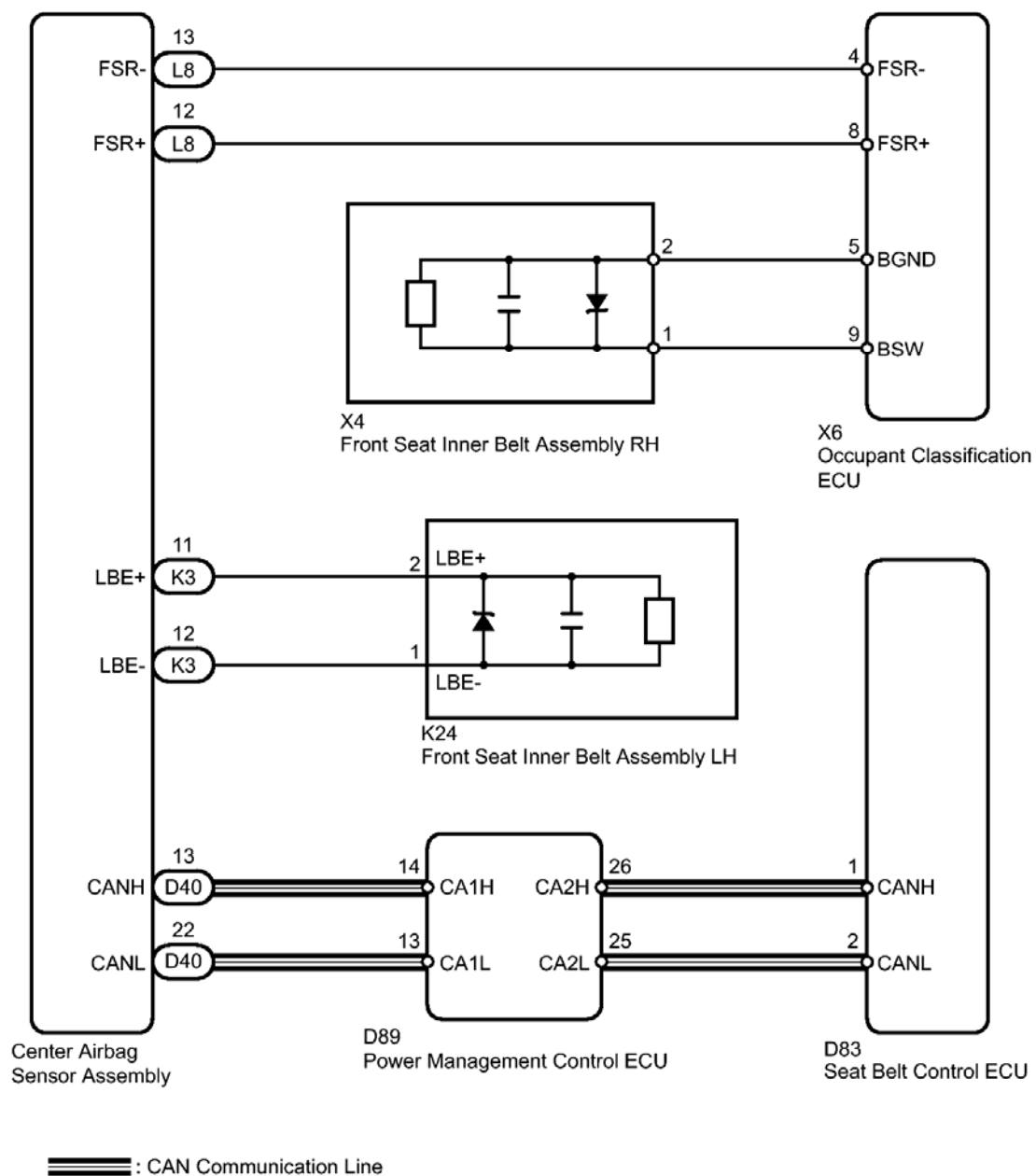


Fig. 19: Seat Belt Buckle Switch Circuit - Wiring Diagram (w/ Smart Key System)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

w/o Smart Key System:

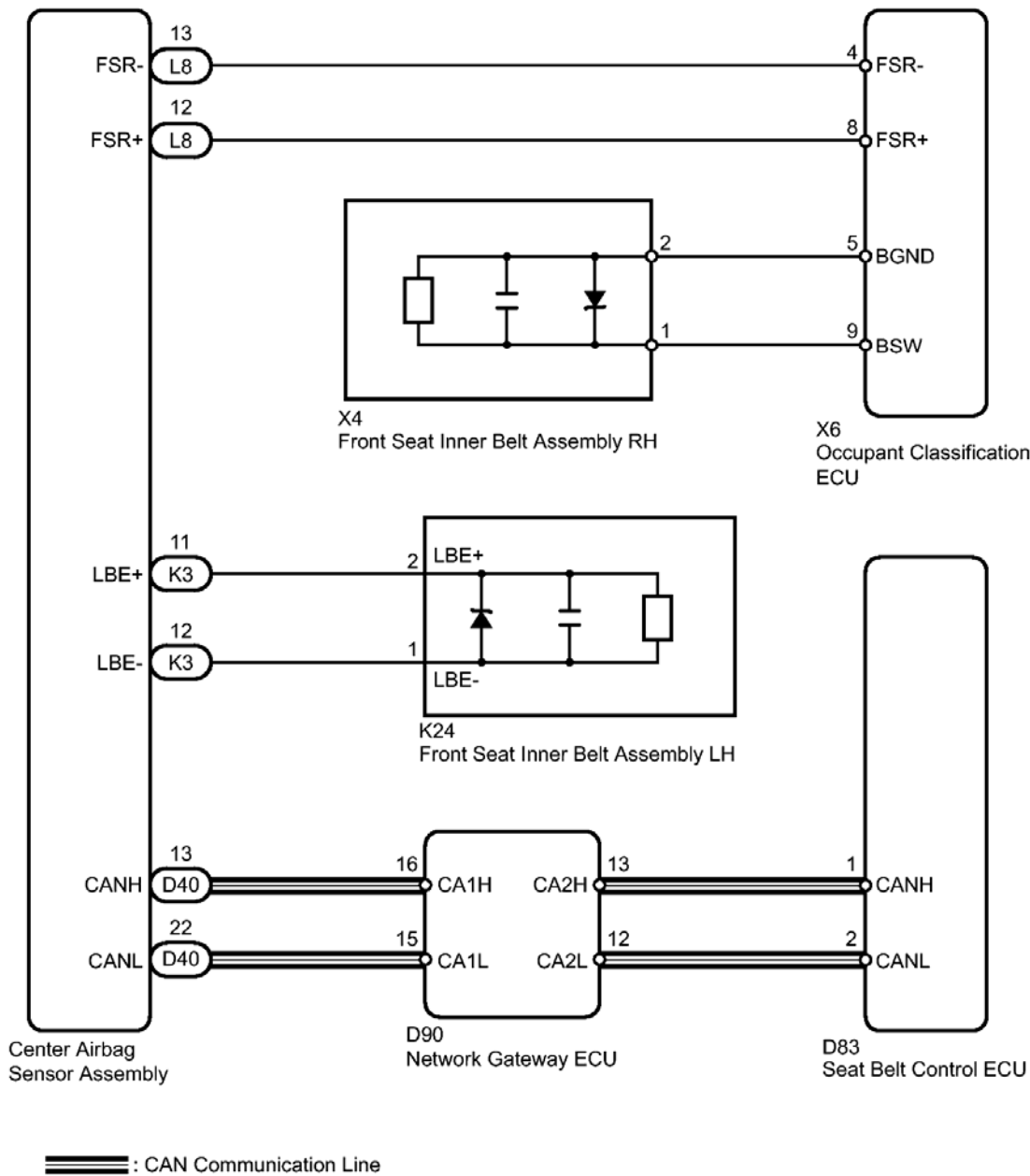


Fig. 20: Seat Belt Buckle Switch Circuit - Wiring Diagram (w/o Smart Key System)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

HINT:

This circuit uses CAN communication. Therefore, be sure to check that the CAN communication system is normal before performing inspection. Refer to **HOW TO PROCEED WITH TROUBLESHOOTING** .

PROCEDURE

1. CHECK FOR DTC (CAN COMMUNICATION SYSTEM)

- a. Clear the DTCs. Refer to HOW TO PROCEED WITH TROUBLESHOOTING .
- b. Check for DTCs. Refer to HOW TO PROCEED WITH TROUBLESHOOTING .

OK

CAN communication system DTC is not output.

NG --> See step 8

OK: Go to next step

2. CHECK FOR DTC (AIRBAG SYSTEM)

- a. Check DTCs for the airbag system. Refer to DTC CHECK / CLEAR .

OK

Airbag system DTC is not output.

NG --> See step 9

OK: Go to next step

3. CHECK FOR DTC (OCCUPANT CLASSIFICATION SYSTEM)

- a. Check DTCs for the occupant classification system. Refer to DTC CHECK / CLEAR .

OK

DTC B1771 is not output.

RESULT

Result	Proceed to
DTC B1771 is not output (w/ Smart Key System)	A
DTC B1771 is not	

output (w/o Smart Key System)	B
DTC B1771 is output	C

B --> See step 6

C --> See step 10

A: Go to next step

4. REPLACE POWER MANAGEMENT CONTROL ECU

- Replace the power management control ECU. Refer to **REMOVAL** .

NEXT: Go to next step

5. CHECK FOR DTC (PRE-COLLISION SYSTEM)

- Using the Techstream, enter the following menus: Body Electrical / Pre-Collision / Trouble Codes.
- Clear the DTCs. Refer to **DTC CHECK / CLEAR** .
- Check for DTCs. Refer to **DTC CHECK / CLEAR** .

OK

DTC B2074 or B2075 is not output.

NG --> See step 11

OK --> END

6. REPLACE NETWORK GATEWAY ECU

- Replace the network gateway ECU. Refer to **REMOVAL** .

NEXT: Go to next step

7. CHECK FOR DTC (PRE-COLLISION SYSTEM)

- Using the Techstream, enter the following menus: Body Electrical / Pre-Collision / Trouble Codes.
- Clear the DTCs. Refer to **DTC CHECK / CLEAR** .
- Check for DTCs. Refer to **DTC CHECK / CLEAR** .

OK

DTC B2074 or B2075 is not output.

NG --> See step 11

OK --> END

8. **GO TO CAN COMMUNICATION SYSTEM.** Refer to HOW TO PROCEED WITH TROUBLESHOOTING
9. **GO TO AIRBAG SYSTEM.** Refer to DIAGNOSTIC TROUBLE CODE CHART
10. **GO TO OCCUPANT CLASSIFICATION SYSTEM.** Refer to DIAGNOSTIC TROUBLE CODE CHART
11. **REPLACE SEAT BELT CONTROL ECU.** Refer to REMOVAL

DTC B2085: COMMUNICATION ERROR FROM DRIVING SUPPORT ECU TO VSC ECU

DESCRIPTION

This DTC is stored when CAN communication between the driving support ECU and skid control ECU is interrupted.

This circuit consists of the driving support ECU, skid control ECU and seat belt control ECU. DTC B2085 is stored when the seat belt control ECU detects an interruption in CAN communication between the driving support ECU and skid control ECU.

DTC No.	DTC Detection Condition	Trouble Area
B2085	The skid control ECU detects an interruption in CAN communication between the driving support ECU and skid control ECU for 1 second or more.	• CAN Communication system • Seat belt control ECU

INSPECTION PROCEDURE

HINT:

This circuit uses CAN communication. Therefore, be sure to check that the CAN communication system is normal before performing inspection. Refer to HOW TO PROCEED WITH TROUBLESHOOTING .

PROCEDURE

1. **CHECK FOR DTC (CAN COMMUNICATION SYSTEM)**
 - a. Clear the DTCs. Refer to HOW TO PROCEED WITH TROUBLESHOOTING .
 - b. Check for DTCs. Refer to HOW TO PROCEED WITH TROUBLESHOOTING .

OK

CAN communication system DTC is not output.

NG --> See step 4

OK: Go to next step

2. CHECK FOR DTC (PRE-COLLISION SYSTEM)

- Using the Techstream, enter the following menus: Body Electrical / Pre-Collision / Trouble Codes.
- Clear the DTCs. Refer to **DTC CHECK / CLEAR** .
- Check for DTCs. Refer to **DTC CHECK / CLEAR** .

OK

DTC B2085 is not output.

NG --> See step 5

OK --> See step 3

- CHECK FOR INTERMITTENT PROBLEMS (SYMPTOMS SIMULATION). Refer to HOW TO PROCEED WITH TROUBLESHOOTING**
- GO TO CAN COMMUNICATION SYSTEM. Refer to HOW TO PROCEED WITH TROUBLESHOOTING**
- REPLACE SEAT BELT CONTROL ECU. Refer to REMOVAL**

DTC B2090: DRIVING SUPPORT SYSTEM MALFUNCTION

DESCRIPTION

The seat belt control ECU receives collision information from the driving support ECU and skid control ECU via CAN communication, and tightens the seat belt by operating the motor inside the front seat outer belt.

When the driving support ECU detects a malfunction in the dynamic radar cruise control system and pre-collision 2 system, the malfunction information is sent to the seat belt control ECU, which outputs this DTC.

When DTC B2090 is detected, other DTCs are also stored by the driving support ECU (dynamic radar cruise control system and pre-collision 2 system).

DTC No.	DTC Detection Condition	Trouble Area
B2090	While initial check is running, the ignition switch to ON and the pre-collision system is operating, the driving support ECU detects a malfunction in the dynamic radar cruise control system or pre-collision 2 system for 1 second.	- Dynamic radar cruise control system - Driving support ECU - Seat belt control ECU

INSPECTION PROCEDURE

HINT:

When clearing the DTCs, first clear the DTC output from the driving support ECU (Pre-Collision 2), and then clear the DTC output from the seat belt control ECU.

PROCEDURE

1. CHECK FOR DTC (DYNAMIC RADAR CRUISE CONTROL SYSTEM)

- a. Check DTCs for dynamic radar cruise control system. Refer to **DTC CHECK / CLEAR** .

OK

Dynamic radar cruise control system DTCs are not output.

NG --> See step 4

OK: Go to next step

2. CHECK FOR DTC (PRE-COLLISION 2 SYSTEM)

- a. Using the Techstream, enter the following menus: Body Electrical / Pre-Collision 2 / Trouble Codes.
- b. Check for DTCs. Refer to **DTC CHECK / CLEAR** .

OK

"Pre-Collision 2" DTC is not output.

NG --> See step 5

OK: Go to next step

3. CHECK FOR DTC (PRE-COLLISION SYSTEM)

- a. Using the Techstream, enter the following menus: Body Electrical / Pre-Collision / Trouble Codes.
- b. Clear the DTCs. Refer to **DTC CHECK / CLEAR** .
- c. Check for DTCs.

OK

DTC B2090 is not output.

NG --> See step 6

OK --> See step 7

4. **GO TO DYNAMIC RADAR CRUISE CONTROL SYSTEM. Refer to DIAGNOSTIC TROUBLE CODE CHART**
5. **GO TO DIAGNOSTIC TROUBLE CODE CHART. Refer to DIAGNOSTIC TROUBLE CODE CHART**
6. **REPLACE SEAT BELT CONTROL ECU. Refer to REMOVAL**
7. **USE SIMULATION METHOD TO CHECK (SYMPTOMS SIMULATION). Refer to HOW TO PROCEED WITH TROUBLESHOOTING**

DTC C1A01: DRIVING SUPPORT ECU

DESCRIPTION

The driving support ECU uses the millimeter wave radar sensor to detect obstacles in front of the vehicle.

Based on this information, the driving support ECU calculates the risk of a collision and operates the pre-collision system when it determines that the risk is high.

DTC No.	DTC Detection Condition	Trouble Area
C1A01	When the ignition switch is ON, the driving support ECU detects an internal malfunction for approx. 1 second.	Driving support ECU

INSPECTION PROCEDURE

PROCEDURE

1. CHECK FOR DTC

- a. Using the Techstream, enter the following menus: Body Electrical / Pre-Collision 2 / Trouble Codes.
- b. Clear the DTCs. Refer to **DTC CHECK / CLEAR** .
- c. Check for DTCs. Refer to **DTC CHECK / CLEAR** .

OK

DTC C1A01 is not output.

NG --> See step 2

OK --> See step 3

2. **REPLACE DRIVING SUPPORT ECU. Refer to REMOVAL**
3. **CHECK FOR INTERMITTENT PROBLEMS (SYMPTOM SIMULATION). Refer to HOW TO PROCEED WITH TROUBLESHOOTING**

DTC C1A02: VEHICLE INFORMATION NOT OBTAINED

DESCRIPTION

When a new driving support ECU is installed, it receives vehicle specification information (destination, steering wheel position, 2WD or AWD information, etc.) from the main body ECU and ECM and memorizes the information.

DTC C1A02 is stored when the driving support ECU receives the vehicle specification information from the main body ECU but cannot record it.

DTC No.	DTC Detection Condition	Trouble Area
C1A02	Inconsistent vehicle specification information between the main body ECU and driving support ECU continues for 1 second or more.	Driving support ECU

INSPECTION PROCEDURE

HINT:

This circuit uses CAN communication. Therefore, be sure to check that the CAN communication system is normal before performing inspection. Refer to **HOW TO PROCEED WITH TROUBLESHOOTING** .

PROCEDURE

1. CHECK FOR DTC (CAN COMMUNICATION SYSTEM)

- Clear the DTCs. Refer to **HOW TO PROCEED WITH TROUBLESHOOTING** .
- Check for DTCs. Refer to **HOW TO PROCEED WITH TROUBLESHOOTING** .

OK

CAN communication system DTC is not output.

NG --> See step 3

OK: Go to next step

2. CHECK FOR DTC (PRE-COLLISION 2 SYSTEM)

- Using the Techstream, enter the following menus: Body Electrical / Pre-Collision 2 / Trouble Codes.
- Clear the DTCs. Refer to **DTC CHECK / CLEAR** .
- Check for DTCs. Refer to **DTC CHECK / CLEAR** .

OK

DTC C1A02 is not output.

NG --> See step 4

OK --> See step 5

3. **GO TO CAN COMMUNICATION SYSTEM. Refer to HOW TO PROCEED WITH TROUBLESHOOTING**
4. **REPLACE DRIVING SUPPORT ECU. Refer to REMOVAL**
5. **CHECK FOR INTERMITTENT PROBLEMS (SYMPTOM SIMULATION). Refer to HOW TO PROCEED WITH TROUBLESHOOTING**

DTC C1A0A: FRONT RADAR SENSOR REGION CODE MISMATCH

DESCRIPTION

The driving support ECU uses the millimeter wave radar sensor to detect obstacles in front of the vehicle.

Based on this information, the driving support ECU sends pre-collision control operation signals.

When the millimeter wave radar sensor is replaced with a new one, it acquires the country specification information from the driving support ECU. Also, when the driving support ECU is replaced with a new one, it receives country specification information from the main body ECU. When country specification information in the sensor, ECU and/or main body ECU do not match, DTC C1A0A is stored.

DTC No.	DTC Detection Condition	Trouble Area
C1A0A	When the ignition switch is ON, the country code of the driving support ECU and millimeter wave radar sensor do not match for approx. 1 second.	• Millimeter wave radar sensor • Driving support ECU

INSPECTION PROCEDURE

NOTE: When the millimeter wave radar sensor is replaced with a new one, adjustment of the radar sensor beam axis must be performed. Refer to ADJUSTMENT .

PROCEDURE

1. **CHECK MILLIMETER WAVE RADAR SENSOR**
 - a. Change the millimeter wave radar sensor to aiming adjustment mode. Refer to ADJUSTMENT .

HINT:

Aiming adjustment does not need to be performed. When the millimeter wave radar sensor assembly is changed to aiming adjustment mode, specification information is acquired from the driving support ECU.

NEXT: Go to next step

2. CHECK FOR DTC (PRE-COLLISION 2 SYSTEM)

- a. Using the Techstream, enter the following menus: Body Electrical / Pre-Collision 2 / Trouble Codes.
- b. Clear the DTCs. Refer to **DTC CHECK / CLEAR** .
- c. Check for DTCs. Refer to **DTC CHECK / CLEAR** .

OK

DTC C1A0A is not output.

NG --> See step 3

OK --> END

3. REPLACE MILLIMETER WAVE RADAR SENSOR

- a. Replace the millimeter wave radar sensor. Refer to **REMOVAL** .

NEXT: Go to next step

4. ADJUST MILLIMETER WAVE RADAR SENSOR

- a. Adjust the millimeter wave radar sensor. Refer to **ADJUSTMENT** .

NEXT: Go to next step

5. CHECK FOR DTC (PRE-COLLISION 2 SYSTEM)

- a. Using the Techstream, enter the following menus: Body Electrical / Pre-Collision 2 / Trouble Codes.
- b. Clear the DTCs. Refer to **DTC CHECK / CLEAR** .
- c. Check for DTCs. Refer to **DTC CHECK / CLEAR** .

OK

DTC C1A0A is not output.

NG --> See step 6

OK --> END

6. REPLACE DRIVING SUPPORT ECU. Refer to **REMOVAL**

DTC C1A10: FRONT RADAR SENSOR

DESCRIPTION

The driving support ECU uses the millimeter wave radar sensor to detect obstacles in front of the vehicle.

Based on this information, the driving support ECU sends pre-collision control operation signals.

When the driving support ECU receives information that there is a malfunction in the millimeter wave radar sensor, DTC C1A10 is stored.

DTC No.	DTC Detection Condition	Trouble Area
C1A10	When the ignition switch is ON, the driving support ECU receives information that there is a malfunction in the millimeter wave radar sensor for approx. 1 second.	• Millimeter wave radar sensor • Driving support ECU

INSPECTION PROCEDURE

NOTE: When the millimeter wave radar sensor is replaced with a new one, adjustment of the radar sensor beam axis must be performed. Refer to ADJUSTMENT .

PROCEDURE

1. REPLACE MILLIMETER WAVE RADAR SENSOR

- Replace the millimeter wave radar sensor. Refer to REMOVAL .

NEXT: Go to next step

2. ADJUST MILLIMETER WAVE RADAR SENSOR

- Adjust the millimeter wave radar sensor. Refer to ADJUSTMENT .

NEXT: Go to next step

3. CHECK FOR DTC

- Using the Techstream, enter the following menus: Body Electrical / Pre-Collision 2 / Trouble Codes.
- Clear the DTCs. Refer to DTC CHECK / CLEAR .
- Check for DTCs. Refer to DTC CHECK / CLEAR .

OK

DTC C1A10 is not output.

NG --> See step 4

OK --> END

4. REPLACE DRIVING SUPPORT ECU. Refer to REMOVAL

DTC C1A11: FRONT RADAR SENSOR INCORRECT AXIAL GAP; DTC C1A14: FRONT RADAR SENSOR BEAM AXIS NOT ADJUSTED

DESCRIPTION

The driving support ECU uses the millimeter wave radar sensor to detect obstacles in front of the vehicle.

Based on this information, the driving support ECU sends pre-collision control operation signals.

When the vehicle is determined to be driving in a straight line or on a slow curve based on signals from the yaw rate sensor etc., the millimeter wave radar sensor performs a self diagnosis to check if the sensor beam axis is deviated from the vehicle movement direction. When the millimeter wave radar sensor beam axis is deviated, the driving support ECU detects this, and stores DTC C1A11.

After installing a new millimeter wave radar sensor, if the sensor beam axis adjustment is not performed, DTC C1A14 is stored.

DTC No.	DTC Detection Condition	Trouble Area
C1A11	When the ignition switch is ON, misalignment of the millimeter wave radar sensor is detected for approx. 1 second.	• Millimeter wave radar sensor • Driving support ECU
C1A14	When the ignition switch is ON, an unadjusted millimeter wave radar sensor beam axis is detected for approx. 1 second.	• Millimeter wave radar sensor • Driving support ECU

INSPECTION PROCEDURE

NOTE: When the millimeter wave radar sensor is replaced with a new one, adjustment of the radar sensor beam axis must be performed. Refer to **ADJUSTMENT** .

PROCEDURE

1. CHECK MILLIMETER WAVE RADAR SENSOR

- Check the millimeter wave radar sensor installation. Refer to **INSTALLATION** .

NEXT: Go to next step

2. ADJUST MILLIMETER WAVE RADAR SENSOR

- Adjust the millimeter wave radar sensor. Refer to **ADJUSTMENT** .

NEXT: Go to next step

3. CHECK FOR DTC (PRE-COLLISION 2 SYSTEM)

- Using the Techstream, enter the following menus: Body Electrical / Pre-Collision 2 / Trouble

Codes.

- b. Clear the DTCs. Refer to **DTC CHECK / CLEAR** .
- c. Check for DTCs. Refer to **DTC CHECK / CLEAR** .

OK

DTC C1A11 or C1A14 is not output.

NG --> See step 4

OK --> END

4. REPLACE MILLIMETER WAVE RADAR SENSOR

- a. Replace the millimeter wave radar sensor. Refer to **REMOVAL** .

NEXT: Go to next step

5. ADJUST MILLIMETER WAVE RADAR SENSOR

- a. Adjust the millimeter wave radar sensor. Refer to **ADJUSTMENT** .

NEXT: Go to next step

6. CHECK FOR DTC (PRE-COLLISION 2 SYSTEM)

- a. Using the Techstream, enter the following menus: Body Electrical / Pre-Collision 2 / Trouble Codes.
- b. Clear the DTCs. Refer to **DTC CHECK / CLEAR** .
- c. Check for DTCs. Refer to **DTC CHECK / CLEAR** .

OK

DTC C1A11 or C1A14 is not output.

HINT:

After performing the radar beam axis adjustment, if the same DTC is output again after the DTC detection conditions are met, replace the driving support ECU.

NG --> See step 7

OK --> END

7. REPLACE DRIVING SUPPORT ECU. Refer to REMOVAL

DTC C1A46: YAW RATE SENSOR

DESCRIPTION

The skid control ECU receives vehicle stability signals from the yaw rate sensor and sends the signals to the driving support ECU and ECM. If the skid control ECU detects that the yaw rate sensor is malfunctioning, the skid control ECU sends a malfunction signal to the driving support ECU, and the driving support ECU stores DTC C1A46.

DTC No.	DTC Detection Condition	Trouble Area
C1A46	When the vehicle speed is 5 km/h (3 mph) or more, a yaw rate sensor malfunction signal is received from the skid control ECU.	• Vehicle stability control system • Driving support ECU

INSPECTION PROCEDURE

HINT:

This circuit uses CAN communication. Therefore, be sure to check that the CAN communication system is normal before performing inspection. Refer to **HOW TO PROCEED WITH TROUBLESHOOTING** .

PROCEDURE

1. CHECK FOR DTC (VEHICLE STABILITY CONTROL SYSTEM)

- Check DTCs for the vehicle stability control system. Refer to **DTC CHECK / CLEAR** .

OK

Vehicle stability control system DTCs are not output.

NG --> See step 3

OK: Go to next step

2. CHECK FOR DTC (PRE-COLLISION 2 SYSTEM)

- Using the Techstream, enter the following menus: Body Electrical / Pre-Collision 2 / Trouble Codes.
- Clear the DTCs. Refer to **DTC CHECK / CLEAR** .
- Check for DTCs. Refer to **DTC CHECK / CLEAR** .

OK

DTC C1A46 is not output.

NG --> See step 4

OK --> See step 5

3. **GO TO VEHICLE STABILITY CONTROL SYSTEM. Refer to DIAGNOSTIC TROUBLE CODE CHART**
4. **REPLACE DRIVING SUPPORT ECU. Refer to REMOVAL**
5. **CHECK FOR INTERMITTENT PROBLEMS (SYMPTOM SIMULATION). Refer to HOW TO PROCEED WITH TROUBLESHOOTING**

DTC C1A47: STEERING ANGLE SENSOR

DESCRIPTION

The skid control ECU receives steering rotation angle information from the steering angle sensor, and sends the information to the driving support ECU through the CAN communication line.

If the skid control ECU detects a malfunction of the steering angle sensor, it sends a malfunction signal to the driving support ECU and records a DTC.

DTC No.	DTC Detection Condition	Trouble Area
C1A47	When the vehicle speed is 50 km/h (30 mph) or more, a steering angle sensor malfunction signal is received from the skid control ECU.	• Vehicle stability control system • Driving support ECU

INSPECTION PROCEDURE

HINT:

This circuit uses CAN communication. Therefore, be sure to check that the CAN communication system is normal before performing inspection. Refer to **HOW TO PROCEED WITH TROUBLESHOOTING** .

PROCEDURE

1. **CHECK FOR DTC (VEHICLE STABILITY CONTROL SYSTEM)**
 - a. Check DTCs for the vehicle stability control system. Refer to **DTC CHECK / CLEAR** .

OK

Vehicle stability control system DTCs are not output.

NG --> See step 3

OK: Go to next step

2. **CHECK FOR DTC (PRE-COLLISION 2 SYSTEM)**
 - a. Using the Techstream, enter the following menus: Body Electrical / Pre-Collision 2 / Trouble Codes.
 - b. Clear the DTCs. Refer to **DTC CHECK / CLEAR** .

- c. Check for DTCs. Refer to **DTC CHECK / CLEAR** .

OK

DTC C1A47 is not output.

NG --> See step 4

OK --> See step 5

3. **GO TO VEHICLE STABILITY CONTROL SYSTEM. Refer to DIAGNOSTIC TROUBLE CODE CHART**
4. **REPLACE DRIVING SUPPORT ECU. Refer to REMOVAL**
5. **CHECK FOR INTERMITTENT PROBLEMS (SYMPTOM SIMULATION). Refer to HOW TO PROCEED WITH TROUBLESHOOTING**

DTC C1A4A: SKID CONTROL BUZZER CIRCUIT

DESCRIPTION

Based on pre-collision control, the driving support ECU communicates to the driver to be careful. The driving support ECU performs this by sending a sounding signal to the skid control ECU to sound the skid control buzzer.

When the skid control ECU detects a malfunction in the VSC warning buzzer circuit, a malfunction signal is sent to the driving support ECU, and a DTC is stored. Although the skid control ECU sends a malfunction signal to the driving support ECU, the vehicle stability control system does not stored a relevant malfunction detection DTC.

DTC No.	DTC Detection Condition	Trouble Area
C1A4A	When the ignition switch is ON, a skid control buzzer circuit malfunction signal is received from the skid control ECU.	• Vehicle stability control system • Brake actuator (skid control ECU) • Driving support ECU

INSPECTION PROCEDURE

NOTE: If beam axis adjustment using the Techstream is completed by pressing "Finish", it will be necessary to perform adjustment of the radar sensor assembly.

HINT:

This circuit uses CAN communication. Therefore, be sure to check that the CAN communication system is normal before performing inspection. Refer to **HOW TO PROCEED WITH TROUBLESHOOTING** .

PROCEDURE

1. CHECK BUZZER

- a. Connect the Techstream to the DLC3.
- b. Turn the ignition switch to ON.
- c. Turn the Techstream main switch on, and turn the cruise control main switch on.
- d. Enter the following menus: Radar Cruise / Utility / Beam Axis Adjustment.

NOTE: Completing beam axis adjustment by pressing "Finish" will use the learning values to be reset, so be sure to cancel beam axis adjustment by pressing "Exit" immediately after the buzzer sounds.

- e. Follow the instructions on the Techstream display, and proceed to the next screen.

OK

A buzzer will sound for 1 second.

- f. Press "Exit" to cancel beam axis adjustment.

NG --> See step 4

OK: Go to next step

2. CHECK FOR DTC (PRE-COLLISION 2 SYSTEM)

- a. Using the Techstream, enter the following menus: Body Electrical / Pre-Collision 2 / Trouble Codes.
- b. Clear the DTCs. Refer to **DTC CHECK / CLEAR** .
- c. Check for DTCs. Refer to **DTC CHECK / CLEAR** .

OK

DTC C1A4A is not output.

NG --> See step 5

OK --> See step 3

3. USE SIMULATION METHOD TO CHECK. Refer to **HOW TO PROCEED WITH TROUBLESHOOTING**

4. GO TO VEHICLE STABILITY CONTROL SYSTEM. Refer to **Skid Control Buzzer Circuit**

5. REPLACE DRIVING SUPPORT ECU. Refer to **REMOVAL**

DTC C1A4B: STOP LIGHT RELAY CIRCUIT

DESCRIPTION

The stop light switch assembly outputs a brake pedal operation signal to the driving support ECU. Based on the signal, the driving support ECU cancels cruise control.

DTC No.	DTC Detection Condition	Trouble Area
C1A4B	When the ignition switch is ON, a stop light relay malfunction signal is received from the skid control ECU.	• Vehicle stability control system • Brake actuator (skid control ECU) • Driving support ECU

INSPECTION PROCEDURE

NOTE: When this DTC is output, malfunction in the lighting system is suspected. Check if the lighting system is functioning normally. Refer to HOW TO PROCEED WITH TROUBLESHOOTING .

HINT:

This circuit uses CAN communication. Therefore, be sure to check that the CAN communication system is normal before performing inspection. Refer to HOW TO PROCEED WITH TROUBLESHOOTING .

PROCEDURE

1. CHECK FOR DTC (VEHICLE STABILITY CONTROL SYSTEM)

- Check DTCs for the vehicle stability control system. Refer to DTC CHECK / CLEAR .

OK

Vehicle stability control system DTC is not output.

NG --> See step 4

OK: Go to next step

2. REPLACE BRAKE ACTUATOR (SKID CONTROL ECU)

- Replace the brake actuator (skid control ECU). Refer to REMOVAL .

NEXT: Go to next step

3. CHECK FOR DTC (PRE-COLLISION 2 SYSTEM)

- Using the Techstream, enter the following menus: Body Electrical / Pre-Collision 2 / Trouble Codes.
- Clear the DTCs. Refer to DTC CHECK / CLEAR .
- Check for DTCs. Refer to DTC CHECK / CLEAR .

OK

DTC U1A4B is not output.

NG --> See step 5

OK --> END

4. **GO TO VEHICLE STABILITY CONTROL SYSTEM. Refer to DIAGNOSTIC TROUBLE CODE CHART**
5. **REPLACE DRIVING SUPPORT ECU. Refer to REMOVAL**

DTC U0122: LOST COMMUNICATION WITH VEHICLE DYNAMICS CONTROL MODULE; DTC U0123: LOST COMMUNICATION WITH YAW RATE SENSOR MODULE; DTC U0126: LOST COMMUNICATION WITH STEERING ANGLE SENSOR MODULE; DTC U0140: LOST COMMUNICATION WITH MAIN BODY ECU; DTC U0151: LOST COMMUNICATION WITH AIRBAG ECU; DTC U0235: LOST COMMUNICATION WITH CRUISE CONTROL FRONT DISTANCE RANGE SENSOR; DTC U1100: LOST COMMUNICATION WITH SEAT BELT CONTROL ECU; DTC U1104: LOST COMMUNICATION WITH DRIVING SUPPORT ECU

DESCRIPTION

- The driving support ECU uses the millimeter wave radar sensor to detect obstacles in front of the vehicle. Based on this information, the driving support ECU sends pre-collision control operation signals. These DTCs are stored when a communication malfunction occurs between the sensors and ECUs that detect collisions, or between ECUs that perform the pre-collision control.
- The driving support ECU sends vehicle speed and vehicle condition information to the millimeter wave radar sensor. The millimeter wave radar sensor then sends information on the presence, distance, and relative speed of objects ahead to the driving support ECU. The driving support ECU sends this information to the ECM and performs pre-collision system (DTC U1104).

DTC No.	DTC Detection Condition	Trouble Area
U0122	• When the ignition switch is ON, a communication error between the skid control ECU and the driving support ECU is detected for approx. 1 second. • When the	• Brake actuator (skid control ECU) • CAN communication

	ignition switch is ON, a communication error between the skid control ECU assembly and the seat belt control ECU is detected for approx. 1 second.	system • Seat belt control ECU • Driving support ECU
U0123	When the ignition switch is ON, a communication error between the yaw rate sensor and the driving support ECU is detected for approx. 1 second.	• Yaw rate sensor • CAN communication system • Driving support ECU
U0126	When the ignition switch is ON, a communication error between the steering sensor and the driving support ECU is detected for approx. 1 second.	• Steering angle sensor • CAN communication system • Driving support ECU
U0140	While ignition switch is ON, communication stop between main body ECU and seat belt control ECU continues for 1 second or more.	• Main body ECU • CAN communication system • Seat belt control ECU
U0151	While ignition switch is ON, communication stop between center airbag sensor and seat belt control ECU continues for 1 second or more.	• Center airbag sensor assembly • CAN communication system • Seat belt control ECU
	When the ignition switch is ON, a	• Communication

U0235	communication error between the millimeter wave radar sensor and the driving support ECU is detected for approx. 1 second.	circuit • Millimeter wave radar sensor • Driving support ECU
U1100	When the ignition switch is ON, a communication error between the seat belt control ECU and the driving support ECU is detected for approx. 1 second.	• Seat belt control ECU • CAN communication system • Driving support ECU
U1104	When the ignition switch is ON, a communication error between the driving support ECU and the millimeter wave radar sensor is detected for approx. 1 second.	• Communication circuit • Millimeter wave radar sensor • Driving support ECU • CAN communication system

WIRING DIAGRAM

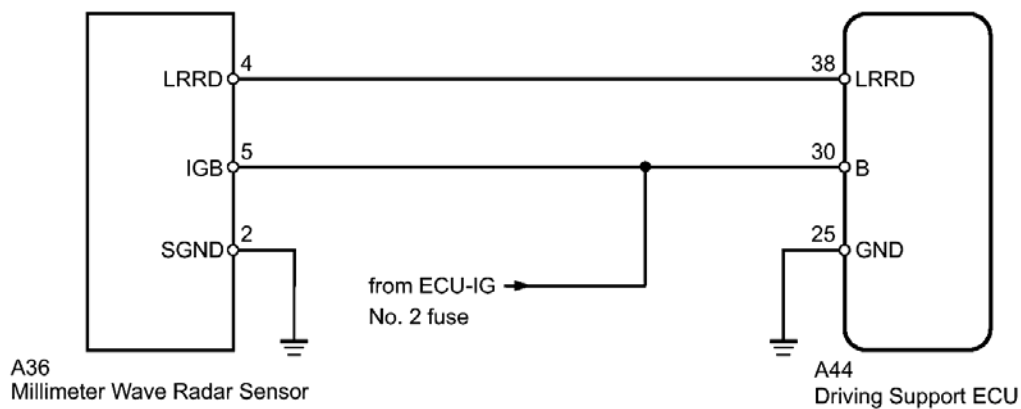


Fig. 21: Driving Support ECU Circuit - Wiring Diagram

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

NOTE:

- When replacing the millimeter wave radar sensor with a new one, make sure to perform Adjust Millimeter Wave Radar Sensor. Refer to ADJUSTMENT .
- Inspect the fuses for circuits related to this system between performing the following inspection procedure.
- Confirm that the connector is securely connected, as a partially connected connector is suspected for the cause of this DTC.

PROCEDURE

1. CHECK FOR DTC

- a. Connect the Techstream to the DLC3.
- b. Turn the ignition switch to ON.
- c. Turn the Techstream on.
- d. Enter the following menus: Body Electrical / Pre-Collision and Pre-Collision 2 / Trouble Codes.
- e. Check for DTCs.

RESULT

Result	Proceed to
DTC U1104 is output	A
DTC U1104 is not output	B

B --> See step 8

A: Go to next step

2. CHECK HARNESS AND CONNECTOR (DRIVING SUPPORT ECU - MILLIMETER WAVE RADAR SENSOR)

- a. Disconnect the A44 driving support ECU and A36 millimeter wave radar sensor connectors.
- b. Measure the resistance according to the value(s) in the table below.

Standard Resistance

--	--	--	--

Tester Connection	Condition	Specified Condition
A44-38 (LRRD) - A36-4 (LRRD)	Always	Below 1 ohms
A36-4 (LRRD) - Body ground	Always	10 kohms or higher
A44-38 (LRRD) - Body ground	Always	10 kohms or higher

- c. Reconnect the driving support ECU and millimeter wave radar sensor connectors.

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to next step

3. CHECK MILLIMETER WAVE RADAR SENSOR (IGB VOLTAGE)

- a. Disconnect the A36 millimeter wave radar sensor connector.

*1

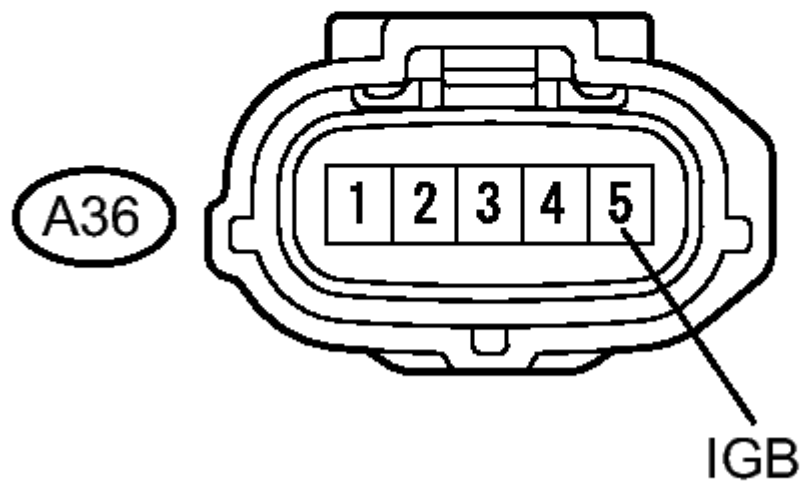


Fig. 22: Measuring Voltage Of Millimeter Wave Radar Sensor (IGB Voltage)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Turn the ignition switch to ON.
- c. Measure the voltage according to the value(s) in the table below.

Standard Voltage

Tester Connection	Switch Condition	Specified Condition
A36-5 (IGB) - Body ground	Ignition switch ON	11 to 14 V

TEXT IN ILLUSTRATION

*1	Front view of wire harness connector (to Millimeter Wave Radar Sensor)
----	---

- d. Reconnect the millimeter wave radar sensor connector.

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR (IGB CIRCUIT)

OK: Go to next step

4. CHECK MILLIMETER WAVE RADAR SENSOR (SGND CIRCUIT)

- a. Disconnect the A36 millimeter wave radar sensor connector.

*1

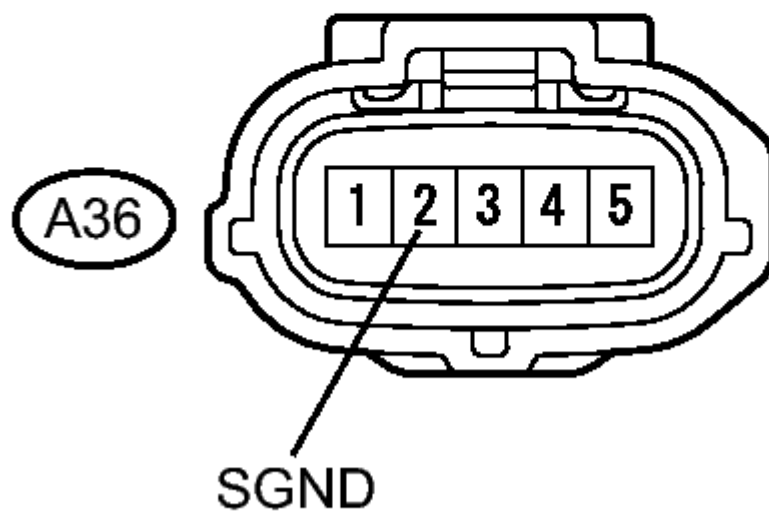


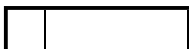
Fig. 23: Measuring Resistance Of Millimeter Wave Radar Sensor (SGND Circuit)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
A36-2 (SGND) - Body ground	Always	Below 1 ohms

TEXT IN ILLUSTRATION



*1	Front view of wire harness connector (to Millimeter Wave Radar Sensor)
----	---

- c. Reconnect the millimeter wave radar sensor connector.

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR (SGND CIRCUIT)

OK: Go to next step

5. INSPECT DRIVING SUPPORT ECU (LRRD OUTPUT VOLTAGE)

- a. Turn the ignition switch to ON.

*1

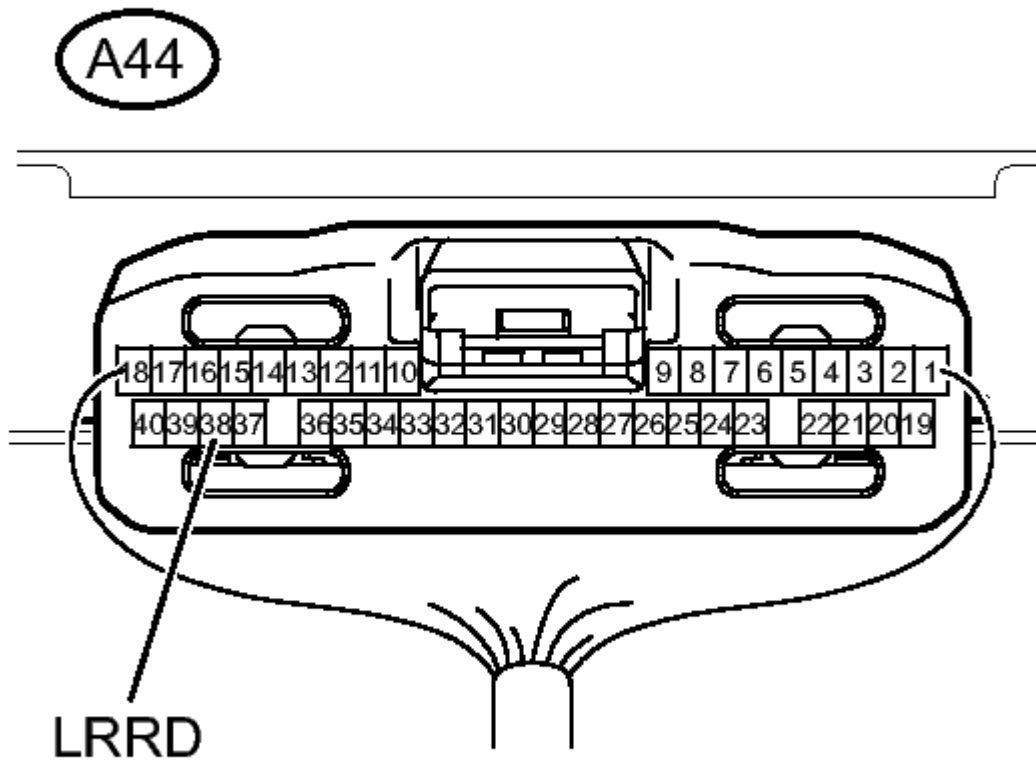


Fig. 24: Inspecting Driving Support ECU (LRRD Output Voltage)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Voltage

Tester Connection	Switch Condition	Specified Condition
A44-38 (LRRD) - Body ground	Ignition switch ON	4.5 to 5.5 V

TEXT IN ILLUSTRATION

--	--

*1	Component with harness connected (Driving Support ECU)
----	--

NG --> See step 9

OK: Go to next step

6. REPLACE MILLIMETER WAVE RADAR SENSOR

- Replace the millimeter wave radar sensor. Refer to REMOVAL .
- Adjust the millimeter wave radar sensor. Refer to ADJUSTMENT .

NEXT: Go to next step

7. CHECK FOR DTC

- Clear the DTCs. Refer to DTC CHECK / CLEAR .
- Check for DTCs. Refer to DTC CHECK / CLEAR .

RESULT

Result	Proceed to
DTC U1104 is not output	A
DTC U1104 is output	B

B --> See step 9

A --> END

8. GO TO CAN COMMUNICATION SYSTEM. Refer to HOW TO PROCEED WITH TROUBLESHOOTING

9. REPLACE DRIVING SUPPORT ECU. Refer to REMOVAL

CIRCUIT TESTS

Pre-Collision Brake Cancel Switch Circuit

DESCRIPTION

The driving support ECU receives pre-collision brake on/off signal from pre-collision system cancel switch.

WIRING DIAGRAM

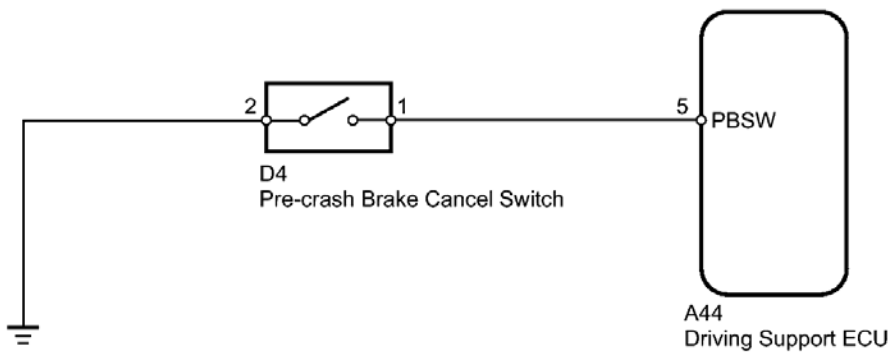


Fig. 25: Pre-Collision Brake Cancel Switch Circuit - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

PROCEDURE

- 1. **READ VALUE USING TECHSTREAM (PRE-COLLISION BRAKE CANCEL SWITCH)**
 - a. Use the Data List to check if the pre-collision brake cancel switch is functioning properly.

PRE-COLLISION 2

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Pre-Collision Brake OFF Switch	Pre-collision system cancel switch status/ON or OFF	ON: Pre-collision brake cancel switch on OFF: Pre-collision brake cancel switch off	-

OK

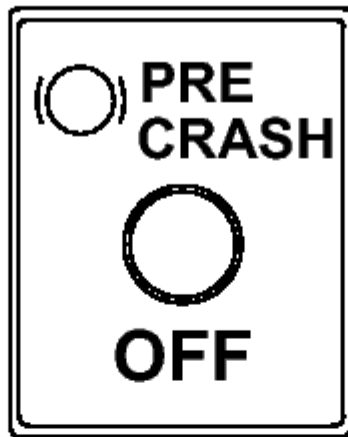
On screen, each item changes between ON and OFF according to above chart.

NG --> See step 2

OK --> See step 5

2. INSPECT PRE-COLLISION BRAKE CANCEL SWITCH

- a. Remove the pre-collision brake cancel switch. Refer to REMOVAL .



*1

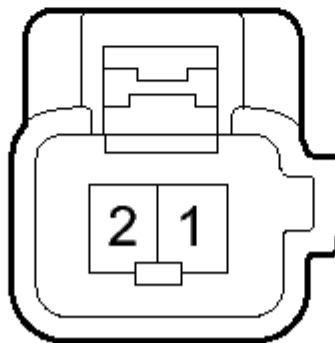


Fig. 26: Inspecting Pre-Collision Brake Cancel Switch
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Switch Condition	Specified Condition
	Pressed	Below 1

1 - 2		ohms
	Not pressed	10 kohms or higher

TEXT IN ILLUSTRATION

*1	Component without harness connected (Pre-collision Brake Cancel Switch)
----	---

- c. Reinstall the pre-collision brake cancel switch. Refer to **INSTALLATION** .

NG --> See step 6

OK: Go to next step

3. CHECK HARNESS AND CONNECTOR (PRE-COLLISION BRAKE CANCEL SWITCH - DRIVING SUPPORT ECU)

- Disconnect the D4 pre-collision brake cancel switch connector.
- Disconnect the A44 driving support ECU connector.
- Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
D4-1 - A44-5 (PBSW)	Always	Below 1 ohms
D4-1 - Body ground	Always	10 kohms or higher

- Reconnect the driving support ECU connector.
- Reconnect the pre-collision brake cancel switch connector.

NG --> **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK: Go to next step

4. **CHECK HARNESS AND CONNECTOR (PRE-COLLISION BRAKE CANCEL SWITCH - BODY GROUND)**

- a. Disconnect the D4 pre-collision brake cancel switch connector.

*1

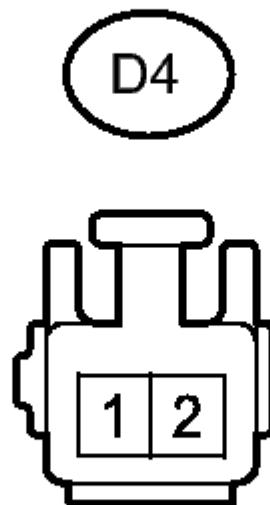


Fig. 27: Pre-Collision Brake Cancel Switch Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
D4-2 - Body	Always	Below 1 ohms

ground		
--------	--	--

TEXT IN ILLUSTRATION

*1	Front view of wire harness connector (to Pre- collision Brake Cancel Switch)
----	---

- c. Reconnect the pre-collision brake cancel switch connector.

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK --> See step 7

5. **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE**
6. **REPLACE PRE-COLLISION BRAKE CANCEL SWITCH. Refer to REMOVAL**
7. **REPLACE DRIVING SUPPORT ECU. Refer to REMOVAL**

Power Source Circuit

DESCRIPTION

This circuit supplies power to the seat belt control ECU.

WIRING DIAGRAM

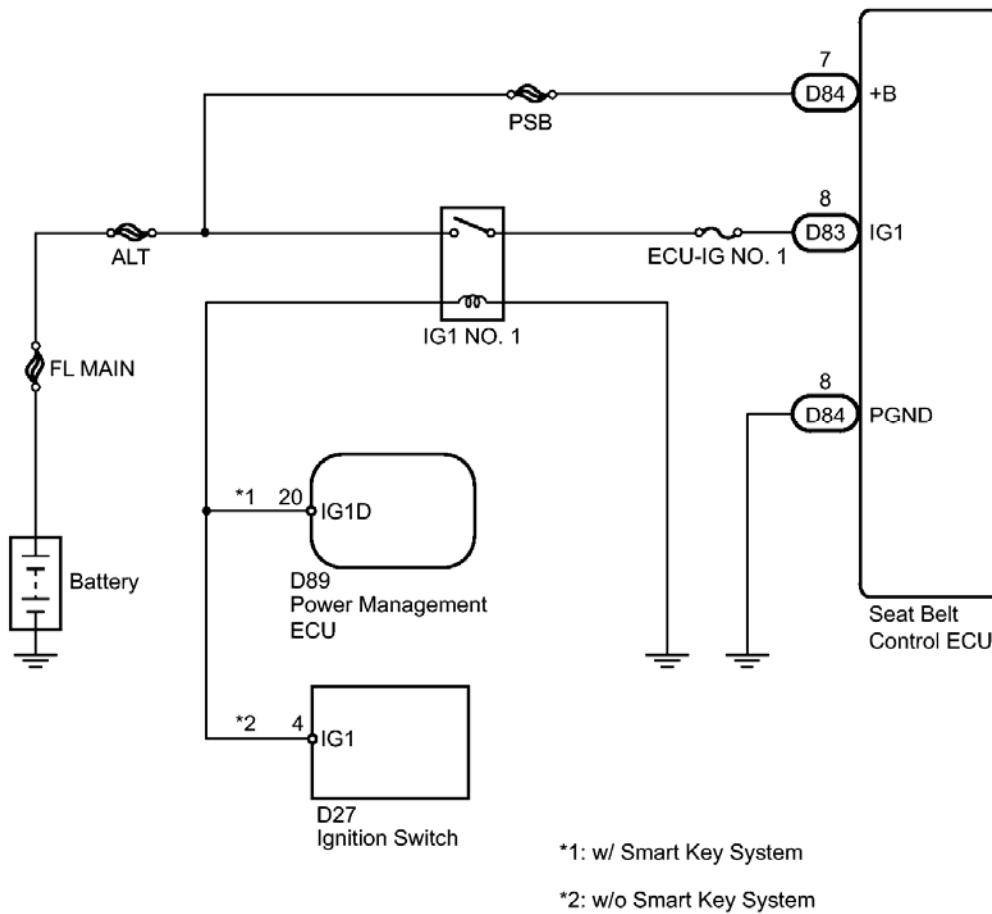


Fig. 28: Power Source Circuit Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

NOTE: Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1. **CHECK HARNESS AND CONNECTOR (GND CIRCUIT)**
 - a. Disconnect the D84 seat belt control ECU connectors.

*1

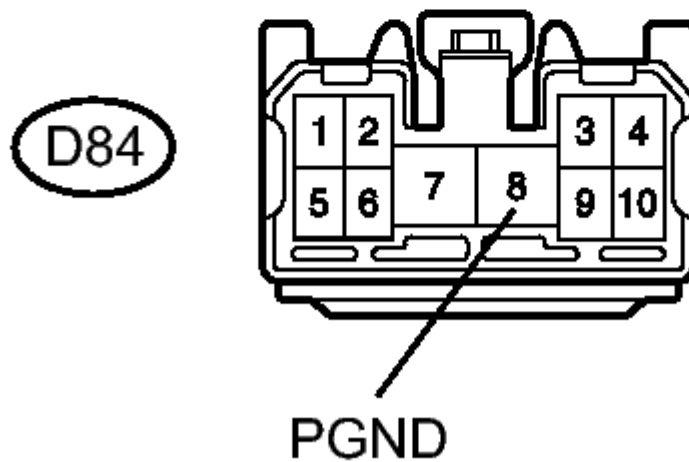


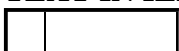
Fig. 29: Measuring Resistance Of Seat Belt Control ECU (GND Circuit)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

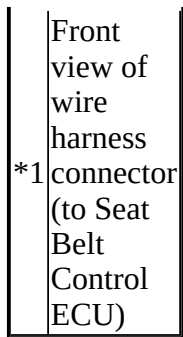
- b. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
D84-8 (PGND) - Body ground	Always	Below 1 ohms

TEXT IN ILLUSTRATION





- c. Reconnect the seat belt control ECU connector.

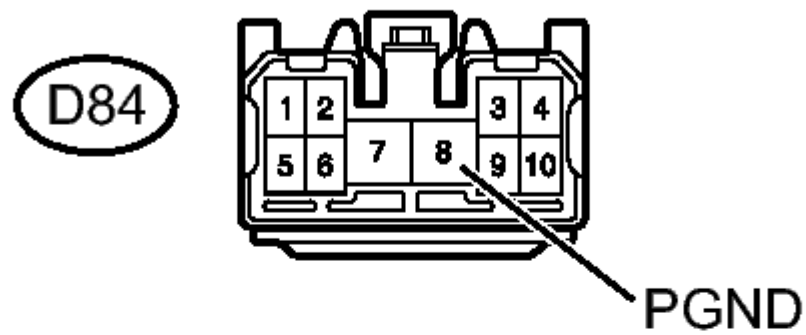
NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR (GND CIRCUIT)

OK: Go to next step

2. CHECK HARNESS AND CONNECTOR (IG1 CIRCUIT)

- a. Disconnect the D83 and D84 seat belt control ECU connectors.

*1



*1

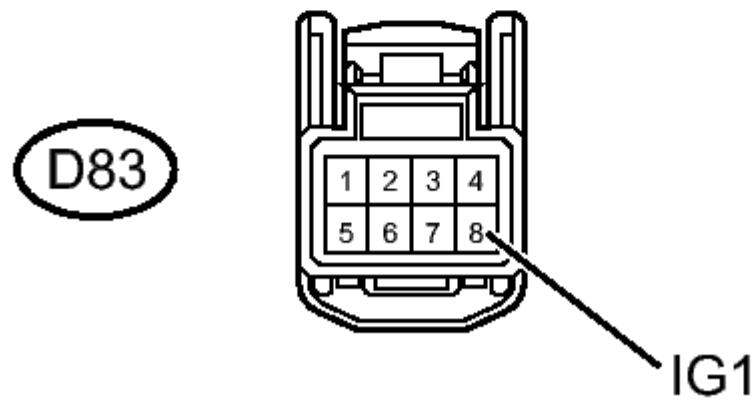


Fig. 30: Measuring Voltage Of Seat Belt Control ECU (IG1 Circuit)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Turn the ignition switch to ON.
- c. Measure the voltage according to the value(s) in the table below.

Standard Voltage

Tester Connection	Switch Condition	Specified Condition
D83-8 (IG1) - D84-8 (PGND)	Ignition switch ON	11 to 14 V

TEXT IN ILLUSTRATION

*1	Front view of wire harness connector (to Seat Belt Control ECU)
----	---

- d. Reconnect the seat belt control ECU connector.

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR (IG1 CIRCUIT)

OK: Go to next step

3. CHECK HARNESS AND CONNECTOR (+B CIRCUIT)

- a. Disconnect the D84 seat belt control ECU connectors.

*1

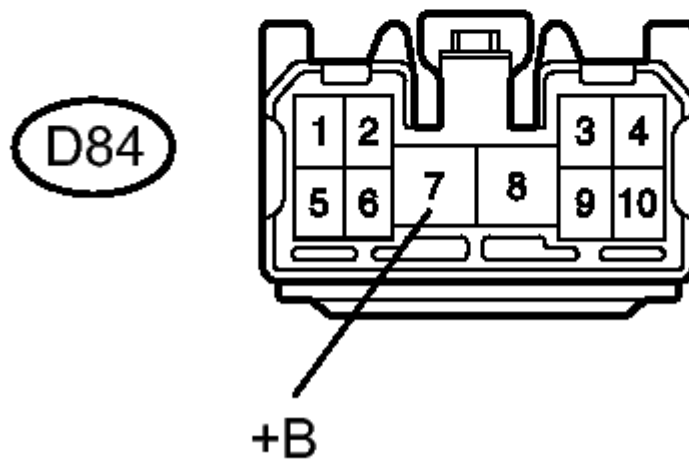


Fig. 31: Measuring Voltage Of Seat Belt Control ECU (+B Circuit)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Voltage

Tester Connection	Condition	Specified Condition
D84-7 (+B) - Body ground	Always	11 to 14 V

TEXT IN ILLUSTRATION

Front

*1	view of wire harness connector (to Seat Belt Control ECU)
----	--

c. Reconnect the seat belt control ECU connector.

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR (+B CIRCUIT)

OK --> See step 4

4. REPLACE SEAT BELT CONTROL ECU. Refer to REMOVAL

RESTRAINTS

Pre-Collision System (Diagnostics - Introduction) - Sienna

PRE-COLLISION SYSTEM

PRECAUTION

PRECAUTION

1. TROUBLESHOOTING PRECAUTIONS

- a. If a terminal contact point malfunction or part installation problem occurs, removal and reinstallation of the suspected part may return the system to normal. However, be aware that the normal condition may only be temporary.
- b. Before disconnecting connectors or removing/installing parts, determine the malfunctioning area by checking and writing down the vehicle condition at the time of the malfunction (DTC outputs etc.).
- c. Be sure to check for DTCs related to other systems. The pre-collision system may be influenced by malfunctions in other systems.

2. HANDLING PRECAUTIONS

- a. When removing and installing the ECU, sensor, switch or other pre-collision system related parts, perform the following:
 - Make sure the ignition switch is off unless otherwise specified in the inspection procedure.
 - After the removal/installation, check for DTCs and confirm that a normal system code is output.

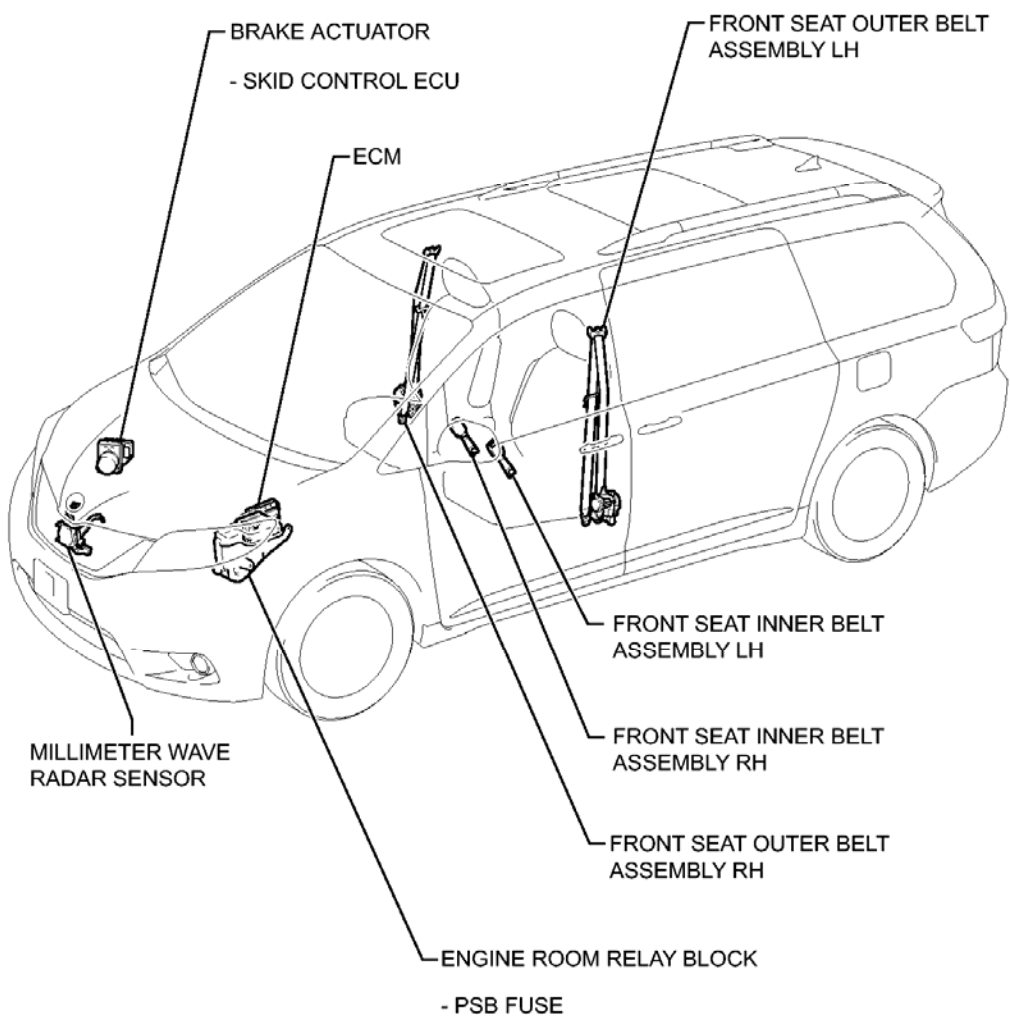
3. IGNITION SWITCH EXPRESSIONS

- a. The type of ignition switch used on this model differs according to the specifications of the vehicle. The expressions listed in the table below are used in this information.

Expression	Ignition Switch (Position)	Engine Switch (Condition)
Ignition switch off	LOCK	Off
Ignition switch ACC	ACC	On (ACC)
Ignition switch ON	ON	On (IG)
Engine start	START	Start

PARTS LOCATION

ILLUSTRATION



P

Fig. 1: Pre-Collision System Components Location (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

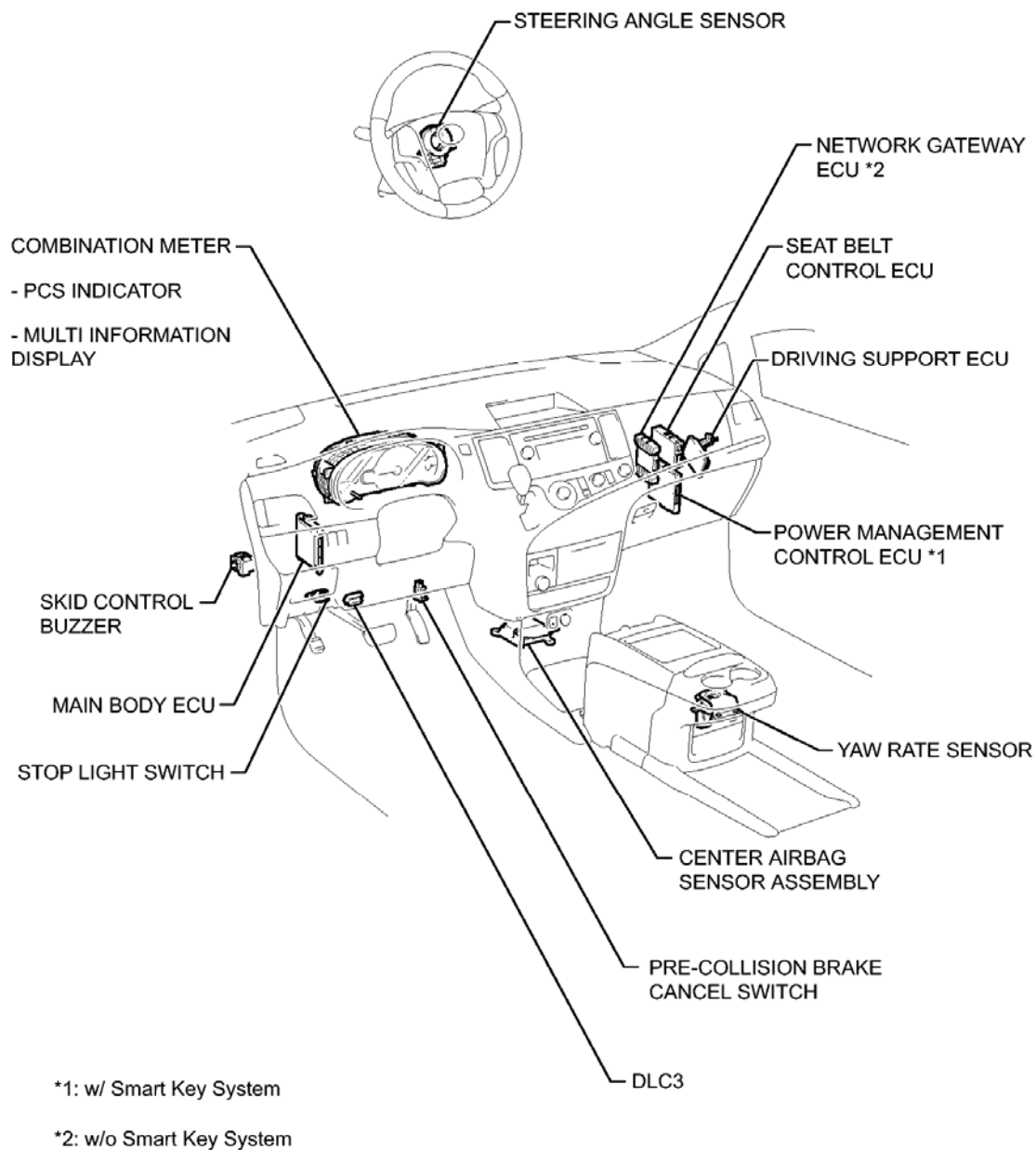


Fig. 2: Pre-Collision System Components Location (2 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SYSTEM DIAGRAM

SYSTEM DIAGRAM

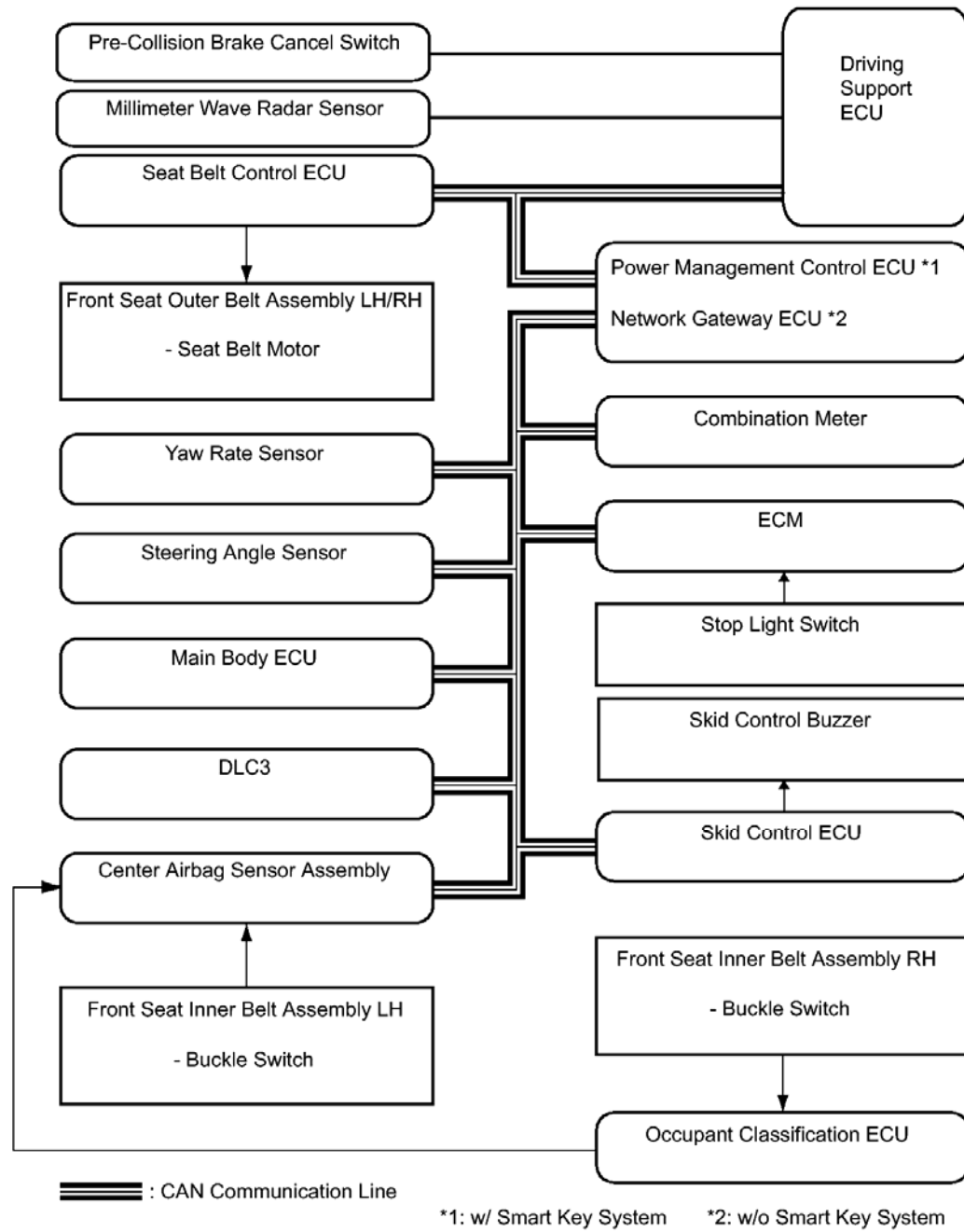


Fig. 3: Pre-Collision System Diagram
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

COMMUNICATION TABLE

Sender	Receiver	Signal	Line
Driving Support ECU	Seat Belt Control ECU	- Pre-collision seat belt operation signal - Pre-collision system malfunction	CAN

		signal	
Driving Support ECU	Skid Control ECU	• Pre-collision brake assist standby signal • Pre-collision braking operation signal • Pre-collision alarm signal	CAN
Driving Support ECU	Combination Meter	• Pre-collision system malfunction signal • Warning signal	CAN
Seat Belt Control ECU	Combination Meter	Pre-collision system malfunction signal	CAN
Skid Control ECU	Driving Support ECU	Vehicle speed signal	CAN
Skid Control ECU	Seat Belt Control ECU	• Vehicle speed signal • Seat belt operation signal	CAN
Yaw Rate Sensor	Driving Support ECU	Vehicle yaw rate sensor signal	CAN
Seat Belt Control ECU	Driving Support ECU	Pre-collision system malfunction signal	CAN
Main Body ECU	Seat Belt Control ECU	Vehicle type signal (Steering wheel position)	CAN
Main Body ECU	Driving Support ECU	Vehicle specification information (destination, steering wheel position)	CAN
Steering Angle Sensor	Driving Support ECU	Steering angle sensor signal	CAN
Center Airbag Sensor Assembly	Seat Belt Control ECU	Buckle switch signal	CAN
ECM	Driving Support ECU	• Shift position signal (D, R) • Engine type information signal • Vehicle specification information (2WD/AWD information)	CAN

SYSTEM DESCRIPTION

SYSTEM DESCRIPTION

1. PRE-COLLISION SYSTEM

- The pre-collision system optimizes and activates occupant protection equipment (see below) to attempt to reduce damage due to a collision.

2. OUTLINE OF PRE-COLLISION SYSTEM

Operating Condition	Control	Transmitting ECU	Receiving ECU	Part Operated
Operates				

according to sensor detection	Pre-collision seat belt	Driving support ECU	Seat belt control ECU	Front seat outer belts
Operates according to sensor detection	Pre-collision brake assist	Driving support ECU	Skid control ECU	Brake assist system
Operates when sudden braking occurs	Pre-collision seat belt	Skid control ECU	Seat belt control ECU	Front seat outer belts
Operates according to sensor detection	Pre-collision braking	Driving support ECU	Skid control ECU	Brake system

a. When operating according to sensor detection:

The millimeter wave radar sensor detects vehicles and other objects on the road in front of the user's vehicle. The driving support ECU determines if a collision is unavoidable based on object position, speed and track information. If the driving support ECU determines that a collision is unavoidable, it transmits this information to the following areas using CAN communication:

- Seat belt control ECU (initiates control of pre-collision seat belts)
- Skid control ECU (activates pre-collision brake assist system)
- Skid control ECU (activates pre-collision braking)

b. When operating as a result of sudden braking:

The skid control ECU uses brake pressure information and other data to determine if the driver has suddenly applied the brakes. (Even when a judgment has been made that the vehicle is out of control, the skid control ECU continues to output operation commands.) If so, the skid control ECU sends a signal to the seat belt control ECU through CAN communication and the pre-collision seat belts activate.

3. OUTLINE OF PRE-COLLISION SEAT BELT CONTROL

- The pre-collision seat belts operate depending on what the sensor detects, or whether sudden braking has occurred. (Even when a judgment has been made that the vehicle is out of control, the skid control ECU continues to output operation commands.) The pre-collision seat belt motor tightens the seat belt to optimize occupant restraint performance.
- Operative condition
 - Refer to the sensor and sudden braking descriptions under "Outline of Pre-Collision System" (see above).

4. OUTLINE OF PRE-COLLISION BRAKE ASSIST CONTROL

- The pre-collision brake assist operates depending on what the sensor detects. The system then

enters standby mode before a collision. When the driver depresses the brake pedal, brake fluid pressure is increased to improve fluid pressure response and improve the rate of deceleration.

b. Operative condition

1. Refer to the sensor description under "Outline of Pre-Collision System" (see above).
2. When the driver depresses the brake pedal after the driving support ECU determines that a collision is unavoidable:

Brake fluid pressure is increased at the same time the driver depresses the brake pedal.

3. When the driver depresses the brake pedal before the driving support ECU determines that a collision is unavoidable:

Brake fluid pressure is increased at the same time that the driving support ECU receives a pre-collision sensor signal (indicating that other vehicles or objects are in front of the vehicle).

5. OUTLINE OF PRE-COLLISION BRAKING CONTROL

- a. The pre-collision braking operates depending on what the sensor detects. This system can be canceled by the pre-collision brake cancel switch.

HINT:

While the pre-collision brake is canceled, the PCS indicator light on the combination meter turns on.

b. Operative condition

1. Refer to the sensor description under "Outline of Pre-Collision System" (see above).
2. When the driving support ECU determines that a crash is unavoidable, the system performs brake control to reduce the vehicle speed.

6. OPERATIVE CONDITION AND INOPERATIVE CONDITION OF EACH CONTROL (REVIEW)

	Pre-Collision Seat Belt*1	Pre-Collision Seat Belt*2	Pre-Collision Brake Assist*2	Pre-Collision Braking*2
Ignition switch off or ACC	-	-	-	-
When a warning message is displayed on the multi-	*3	*3	*3	*3

information display				
When seat belt(s) is/are fastened	*4	*4	0	0
Operates when the vehicle speed is 30 km/h (18 mph) or more, regardless of relative speed	0	-	-	-
Operates when the vehicle speed is 5 km/h (3 mph) or more and relative speed is 30 km/h (18 mph)	-	0	-	-
Operates when the vehicle speed is 15 km/h (9 mph) or more and relative speed is 15 km/h (9 mph)	-	-	-	0
Operates when the vehicle speed is 30 km/h (18 mph) or more and relative speed is 30	-	-	0	-

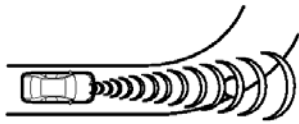
km/h (18 mph)				
When the vehicle collides with an object outside the detection range of the millimeter wave radar sensor (side crash, rear crash, etc.)	o	-	-	-
When the millimeter wave radar sensor cannot detect a possible crash object	o	-	-	-

- *1: During emergency braking, or when the vehicle is judged to be out of control. (During emergency braking.)
- *2: Operates according to sensor detection. (When a collision is imminent.)
- *3: Inoperative parts are different depending on malfunction areas.
- *4: Only operates when seat belt is fastened.
- o: Main basis for operation
- -: Does not operate, or not main basis for operation

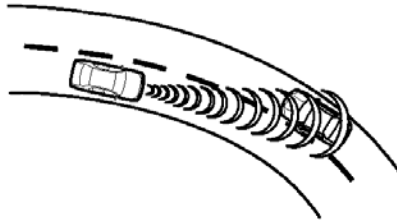
7. PRECAUTION FOR PRE-COLLISION SYSTEM OPERATION

- When the millimeter wave radar sensor detects an object in front of the vehicle under the conditions described below, the driving support ECU may determine that a collision is unavoidable, and activate the pre-collision system. This activation of the system is not abnormal.

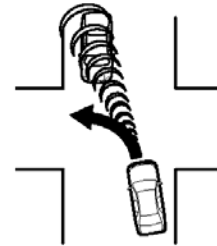
Object near outer edge of a curved road
(Guard rail, street light, signboard)



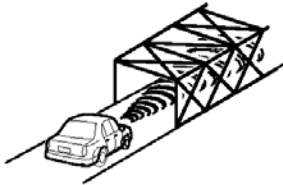
Oncoming traffic on a curved road



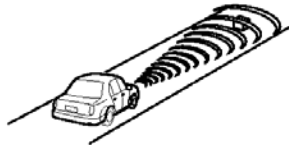
Opposing traffic at an intersection



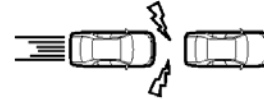
Narrow iron bridge



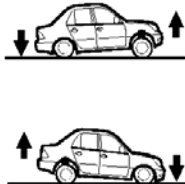
Metal object, steel plate, or bump on the road



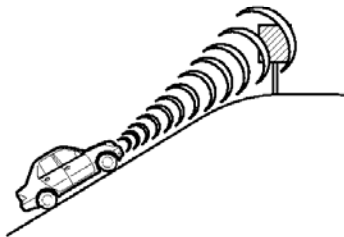
Rapid approach to the preceding vehicle



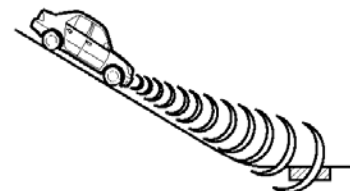
Vehicle front and rear extremely unbalanced



Metal object such as sign board in front of the vehicle on an uphill slope



Metal object or steel plate in the ground at the base of a downhill slope



The millimeter wave radar sensor assembly beam axis is misaligned

There is an overpass or road signs near the vehicle

Fig. 4: Precaution For Pre-Collision System Operation
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

- The pre-collision system will not activate when approaching safety cones or other plastic objects as they cannot be detected by the pre-collision sensor.
- The pre-collision system may or may not activate when the pre-collision sensor detects the

following objects: people, bicycles, motorcycles, trees, animals and snow fences.

Object Type	Example
Objects that cannot be detected	Plastic items (safety cones)
Objects that cannot be detected in a stable manner	People, bicycles, motorcycles, trees, animals, snow fences, etc.

HOW TO PROCEED WITH TROUBLESHOOTING

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use the following procedure to troubleshoot the pre-collision system.
- Use the Techstream.

1. VEHICLE BROUGHT TO WORKSHOP

NEXT: Go to next step

2. INSPECT BATTERY VOLTAGE*

Standard voltage

11 to 14 V

If the voltage is below 11 V, recharge or replace the battery before proceeding to the next step.

NG --> CHARGE OR REPLACE BATTERY

OK: Go to next step

3. CHECK CAN COMMUNICATION SYSTEM*

- a. Use the Techstream to check if the CAN communication system is functioning normally. Refer to **HOW TO PROCEED WITH TROUBLESHOOTING** .

RESULT

Result	Proceed to
CAN DTC is not output	A
CAN DTC is output	B

B --> GO TO CAN COMMUNICATION SYSTEM. Refer to HOW TO PROCEED WITH TROUBLESHOOTING

A: Go to next step

4. CHECK FOR DTC*

- a. Check for DTCs. Refer to DTC CHECK / CLEAR.
 1. Record the DTCs.
- b. Clear the DTCs.
- c. Recheck for DTCs.
 1. Attempt to duplicate the malfunction and check if the DTCs are output again. Refer to DTC CHECK / CLEAR.

RESULT

Result	Proceed to
DTC is not output	A
DTC is output	B
No DTC is output, and malfunction cannot be duplicated or checked	C

B --> GO TO DTC CHART. Refer to DIAGNOSTIC TROUBLE CODE CHART

C --> GO TO SYMPTOM SIMULATION. Refer to HOW TO PROCEED WITH TROUBLESHOOTING

A: Go to next step

5. PROBLEM SYMPTOMS TABLE

Refer to **PROBLEM SYMPTOMS TABLE**.

RESULT

Result	Proceed to
Fault is not listed in Problem Symptoms Table	A
Fault is listed in Problem Symptoms Table	B

B --> Go to step 7

A: Go to next step

6. OVERALL ANALYSIS AND TROUBLESHOOTING*

- Data List / Active Test. Refer to **DATA LIST / ACTIVE TEST**
- Terminals of ECU. Refer to **TERMINALS OF ECU**

NEXT: Go to next step

7. ADJUST, REPAIR OR REPLACE

NEXT: Go to next step

8. CONFIRMATION TEST

NEXT --> END

PROBLEM SYMPTOMS TABLE

PROBLEM SYMPTOMS TABLE

HINT:

- Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, 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.

- Inspect the fuses and relays related to this system before inspecting the suspected areas below.

PRE-COLLISION SYSTEM

Symptom	Suspected Area	See
"CHECK PCS SYSTEM" is displayed	Combination meter	Refer to <u>REMOVAL</u>
	Seat belt control ECU	Refer to <u>REMOVAL</u>
	Driving support ECU	Refer to <u>REMOVAL</u>
"PCS TEMPORARILY NOT AVAILABLE" is displayed	System determines millimeter wave radar sensor cannot detect obstacles due to bad weather. If weather recovers, normal control returns. (Bad weather history can be checked using Data List.)	Refer to <u>SYSTEM DESCRIPTION</u>
	Overheating protection fail-safe of seat belt control ECU operates. If ECU temperature drops, normal control returns.	-
	Millimeter wave radar sensor	Refer to <u>REMOVAL</u>
	Seat belt control ECU	Refer to <u>REMOVAL</u>
	Driving support ECU	Refer to <u>REMOVAL</u>
Although there is possibility of collision, pre-collision control (all front collision controls) do not operate ("PCS TEMPORARILY NOT AVAILABLE" is not displayed)	Vehicle condition/environment does not match pre-collision control operation conditions (Confirm control operation conditions)	Refer to <u>SYSTEM DESCRIPTION</u>
	Check installation condition of millimeter wave radar sensor	Refer to <u>INSTALLATION</u>
	Perform millimeter wave radar sensor adjustment	Refer to <u>ADJUSTMENT</u>
	Millimeter wave radar sensor	Refer to <u>REMOVAL</u>
	Driving support ECU	Refer to <u>REMOVAL</u>
Although there is no possibility of collision, pre-collision control (all front collision controls) operates	Vehicle condition/environment does not match pre-collision control operation conditions (Confirm control operation conditions)	Refer to <u>SYSTEM DESCRIPTION</u>
	Check installation condition of millimeter wave radar sensor	Refer to <u>INSTALLATION</u>
	Perform millimeter wave radar sensor adjustment	Refer to <u>ADJUSTMENT</u>
	Millimeter wave radar sensor	Refer to <u>REMOVAL</u>
	Driving support ECU	Refer to <u>REMOVAL</u>
Neither normal system code nor DTC is output	Power source circuit	Refer to <u>Power Source Circuit</u>
	Seat belt control ECU	Refer to <u>REMOVAL</u>
System does not operate	Power source circuit	Refer to <u>Power Source Circuit</u>

normally even when normal system code is output and DTCs are not output	Seat belt control ECU	Refer to <u>REMOVAL</u>
Only pre-collision seat belt does not operate	Buckle switch error (malfunction in which DTC is not output)	-
	Seat belt control ECU	Refer to <u>REMOVAL</u>
Only pre-collision brake does not operate	Pre-collision brake cancel switch	Refer to <u>INSPECTION</u>
	Pre-collision brake cancel switch circuit	Refer to <u>Pre-Collision Brake Cancel Switch Circuit</u>
	Driving support ECU	Refer to <u>REMOVAL</u>

TERMINALS OF ECU

TERMINALS OF ECU

1. CHECK SEAT BELT CONTROL ECU

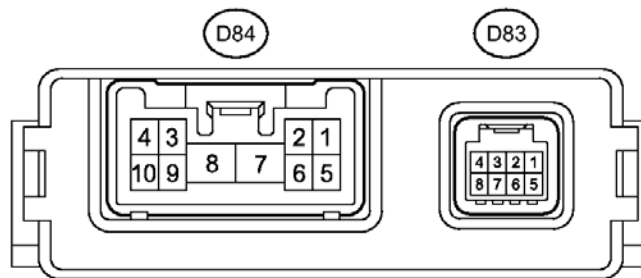


Fig. 5: Seat Belt Control ECU Connector Terminal Identification
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- Disconnect the seat belt control ECU connectors.
- Measure the resistance and voltage according to the value(s) in the table below.

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
D84-7 (+B) - Body ground	R - Body ground	Battery voltage	Always	11 to 14 V
D84-8 (PGND) - Body	W-B - Body ground	Body ground	Always	Below 1 ohms

ground				
D83-8 (IG1) - Body ground	L - Body ground	Seat belt control ECU power supply	Ignition switch ON	11 to 14 V
			Ignition switch off	Below 1 V

If the result is not as specified, there may be a malfunction on the wire harness side.

- c. Reconnect the connectors.
- d. Measure the voltage according to the value(s) in the table below.

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
D84-2 (MOR+) - D84-1 (MOR-)	G - W	Seat belt motor RH power supply	Ignition switch ON	4.0 to 8.5 V
			Ignition switch off	Below 1 V
D84-3 (MOL+) - D84-4 (MOL-)	Y - B	Seat belt motor LH power supply	Ignition switch ON	4.0 to 8.5 V
			Ignition switch off	Below 1 V

If the result is not as specified, the ECU may be malfunctioning.

2. CHECK DRIVING SUPPORT ECU

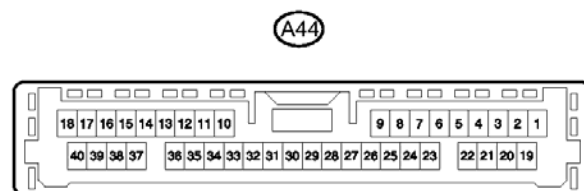


Fig. 6: Driving Support ECU Connector Terminal Identification
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disconnect the driving support ECU connector.
- b. Measure the voltage and resistance according to the value(s) in the table below.

Terminal	Wiring	Terminal		Specified
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No. (Symbol)	Color	Description	Condition	Condition
A44-30 (B) - Body ground	L - Body ground	Power supply	Ignition switch ON	11 to 14 V
			Ignition switch off	Below 1 V
A44-25 (GND) - Body ground	BR - Body ground	Body ground	Always	Below 1 ohms
A44-5 (PBSW) - Body ground	P - Body ground	Pre- collision brake cancel switch	Pre- collision brake cancel switch on	Below 1 ohms
			Pre- collision brake cancel switch off	10 kohms or higher

If the result is not as specified, there may be a malfunction on the wire harness side.

- c. Reconnect the connector.
- d. Measure the voltage according to the value(s) in the table below.

Terminal No. (Symbols)	Wiring Color	Terminal Description	Condition	Specified Condition
A44-17 (CA2L) - A44-25 (GND)	W - BR	CAN communication signal	Ignition switch ON	Pulse generation (See Fig. 7)
A44-16 (LRDD) - Body ground*1	B - Body ground	Driving support ECU communication signal	Ignition switch ON	4.5 to 5.5 V
A44-38 (LRRD) - Body ground*1	W - Body ground	Driving support ECU communication signal	Ignition switch ON	4.5 to 5.5 V
A44-39 (CA2H) - A44-25 (GND)	R - BR	CAN communication signal	Ignition switch ON	Pulse generation (See Fig. 8)

*1: w/ Dynamic Radar Cruise Control System

e. WAVEFORM 1 (Reference)

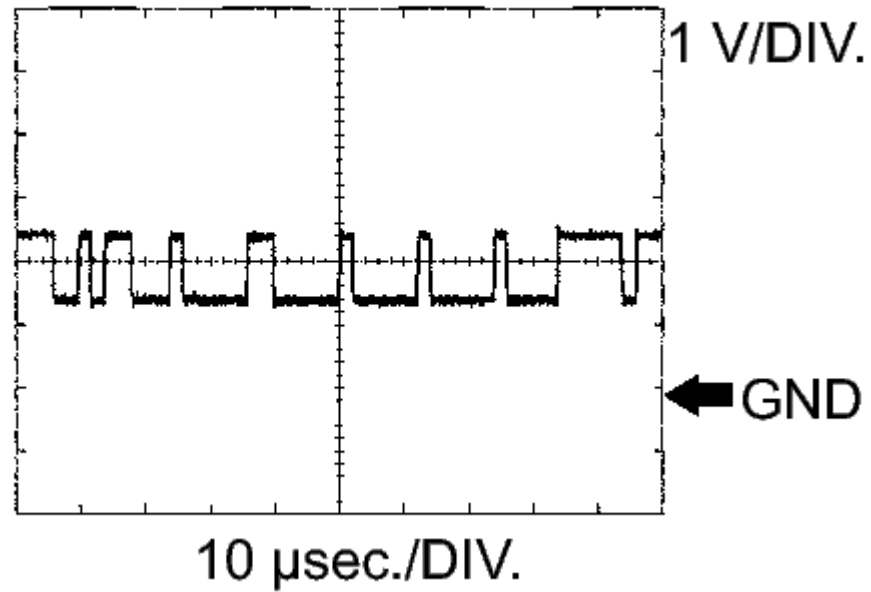


Fig. 7: Identifying Waveform 1

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. CAN communication signal

Driving support ECU Terminal Name	Between CA2L and GND
Tester Range	1 V/DIV., 10 μsec./DIV.
Condition	Ignition switch ON

HINT:

The waveform varies depending on the CAN communication signal.

f. WAVEFORM 2 (Reference)

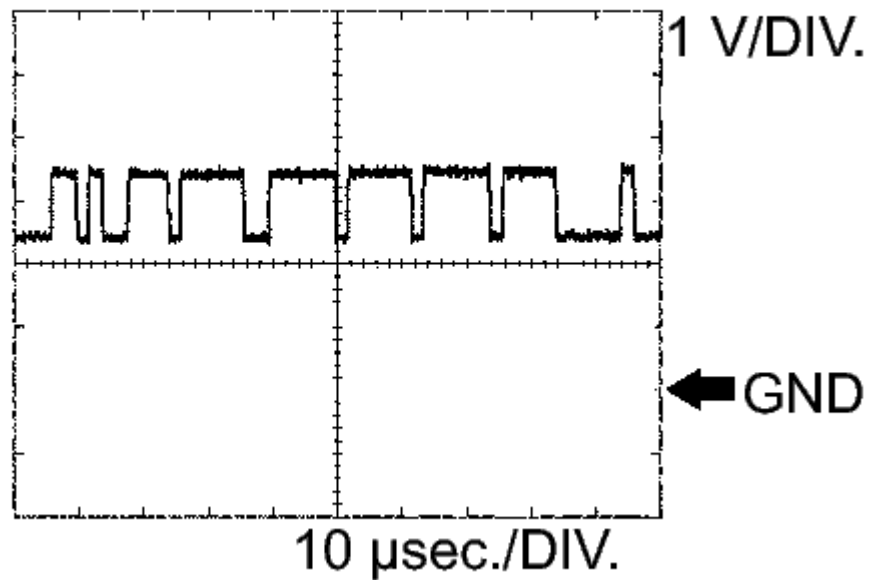


Fig. 8: Identifying Waveform 2
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. CAN communication signal

Driving support ECU Terminal Name	Between CA2H and GND
Tester Range	1 V/DIV., 10 μsec./DIV.
Condition	Ignition switch ON

DIAGNOSIS SYSTEM

DIAGNOSIS SYSTEM

1. CHECK DLC3

- a. Check the DLC3. Refer to **GENERAL INFORMATION** .

2. FUNCTION OF WARNING INDICATOR AND MESSAGE

- a. If the pre-collision system is not functioning properly, the driver is warned by the master warning indicator and multi-information display warning message on the combination meter.

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Master Warning Indicator	Warning Message	Detail	DTC	PCS Warning Indicator
ON	CHECK PCS SYSTEM	This message appears when the seat belt control ECU detects a system malfunction.	o	Blinking
OFF	PCS TEMPORARILY NOT AVAILABLE	This message appears when the seat belt control ECU is in fail-safe mode. Refer to <u>FAIL-SAFE CHART</u> .	-	ON

b. Initial check

1. The initial check occurs when the ignition switch is off for more than 2 seconds, and then turned to ON. The initial check consists of a pre-collision system diagnostic check with a duration of approximately 3 seconds.
2. If a malfunction is detected during the initial check, the multi-information display will output "CHECK PCS SYSTEM " or "PCS TEMPORARILY NOT AVAILABLE".

c. Constant check

1. The seat belt control ECU and driving support ECU constantly monitor the pre-collision system for malfunctions after the ignition switch is turned to ON and initial check (approximately 3 seconds) completed.
2. "CHECK PCS SYSTEM" or "PCS TEMPORARILY NOT AVAILABLE" is displayed on the multi-information display in the combination meter when the constant check detects malfunctions in the pre-collision system.

DTC CHECK / CLEAR

DTC CHECK / CLEAR

1. CHECK DTC

- a. Connect the Techstream to the DLC3.
- b. Turn the ignition switch to ON.
- c. Turn the Techstream on.
- d. Enter the following menus: Body Electrical / Pre-Collision / Trouble Codes.
- e. Enter the following menus: Body Electrical / Pre-Collision 2 / Trouble Codes.
- f. Check the details of the DTC(s). Refer to **DIAGNOSTIC TROUBLE CODE CHART**.

HINT:

As the driving support ECU and seat belt control ECU output DTCs for the pre-collision system, be sure to check the Pre-Collision and Pre-Collision 2 DTCs.

2. CLEAR DTC

- a. Connect the Techstream to the DLC3.
- b. Turn the ignition switch to ON.
- c. Turn the Techstream on.
- d. Enter the following menus: Body Electrical / Pre-Collision / Trouble Codes.
- e. Enter the following menus: Body Electrical / Pre-Collision 2 / Trouble Codes.
- f. Clear the DTCs.

HINT:

As the driving support ECU and seat belt control ECU output DTCs for the pre-collision system, be sure to clear the Pre-Collision and Pre-Collision 2 DTCs.

FAIL-SAFE CHART

FAIL-SAFE CHART

HINT:

The pre-collision system fail-safe function and details are indicated in the table below.

Cause	Warning Message	Fail-safe Operation	Conditions to Return to Normal Condition
A malfunction exists in part of pre-collision system	"CHECK PCS SYSTEM " to "PCS TEMPORARILY NOT AVAILABLE"	Depending on malfunction part, pre-collision seat belt or brake assist system may stop operating*2	Repair malfunctioning part
Radiator grille or millimeter wave radar sensor is dirty	"PCS TEMPORARILY NOT AVAILABLE"	Depending on dirty part, pre-collision seat belt or brake assist system may	Clean radiator grille or millimeter wave radar sensor

		stop operating*2	
Pre-collision sensor cannot detect objects because of bad weather, such as snow	"PCS TEMPORARILY NOT AVAILABLE"	Depending on dirty part, pre-collision seat belt or brake assist system may stop operating*2	Sensor can detect objects
Overheating prevention function of seat belt control ECU operates*1	"PCS TEMPORARILY NOT AVAILABLE"	Pre-collision seat belt may stop operating	Temperature of seat belt goes down, and seat belt control ECU becomes operative

*1: The overheating prevention function operates when the seat belt control ECU detects a rise in seat belt temperature because of excessive seat belt operation.

*2: The pre-collision seat belts operate only with sudden braking.

DATA LIST / ACTIVE TEST

DATA LIST / ACTIVE TEST

1. DATA LIST

HINT:

Using the Techstream to read the Data List allows the values or states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the Data List information early in troubleshooting is one way to save diagnostic time.

NOTE: In the table below, the values listed under "Normal Condition" are reference values. Do not depend solely on these reference values when deciding whether a part is faulty or not.

- Connect the Techstream to the DLC3.
- Turn the ignition switch to ON.
- Turn the Techstream on.
- Enter the following menus: Body Electrical / Pre-Collision / Data List.
- Enter the following menus: Body Electrical / Pre-Collision 2 / Data List.
- Read the Data List according to the display on the Techstream.

HINT:

As the driving support ECU and seat belt control ECU have Data List for pre-collision system, be sure to check the Pre-Collision and Pre-Collision 2 Data Lists.

PRE-COLLISION

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Driver Buckle SW	Buckle switch status of driver side seat/ UNSET / SET / NG	UNSET: Driver side seat belt unfastened SET: Driver side seat belt fastened NG: Indeterminate data	-
Passenger Buckle SW	Buckle switch status of passenger side seat/ UNSET / SET / NG	UNSET: Passenger side seat belt unfastened SET: Passenger side seat belt fastened NG: Indeterminate data	-
Drive Belt Control	Seat belt control status of driver side seat/ STOP / ON / ERROR	STOP: Control stopped ON: Controlled ERROR: Indeterminate data	Seat belt (driver side) is fastened
Passenger Belt Control	Seat belt control status of passenger side seat/ STOP / ON / ERROR	STOP: Control stopped ON: Controlled ERROR: Indeterminate data	Seat belt (passenger side) is fastened
Number of Trouble Codes	Number of past trouble codes/min: 0, max: 255	Number of DTCs will be displayed	-

PRE-COLLISION2

Tester	Measurement	Normal	Diagnostic
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Display	Item/Range	Condition	Note
Wiper Information	Wiper operational status/ Unoperat, Oil off, Mist, Washer, Unknown, Intermittent, Lo, Hi	The respective operational status displayed	-
Pre-Collision Brake OFF Switch	Pre-collision brake cancel switch status/ ON or OFF	ON: Pre-collision brake cancel switch on OFF: Pre-collision brake cancel switch off	-
Pre-Collision System	Pre-collision system control/ Valid or Inval	Valid: Pre-collision system control possible Inval: Pre-collision system control not possible	-
PCS Indicator	"CHECK PCS SYSTEM" display request signal/ ON or OFF	ON: "CHECK PCS SYSTEM" display requested OFF: "CHECK PCS SYSTEM" display not requested	-
PCS Disabled Indicator	"PCS TEMPORARILY NOT AVAILABLE" display request signal/ ON or OFF	ON: "PCS TEMPORARILY NOT AVAILABLE" display requested OFF: "PCS TEMPORARILY NOT AVAILABLE" display not requested	-
Pre-Collision Safety Warning Ind	PCS system warning status/ ON or OFF	ON: Pre-collision warning indicator on OFF: Pre-collision warning indicator off	-

Pre-Collision Safety Brake Ind	PCS system "BRAKE!" alert status/ ON or OFF	ON: Pre-collision system "BRAKE!" alert on OFF: Pre-collision system "BRAKE!" alert off	-
Pre-Collision Safety Warning Buz	PCS system warning buzzer/ Valid or Inval	Valid: Pre-collision system warning buzzer operation possible Inval: Pre-collision system warning buzzer operation not possible	-
Pre-Collision Brake	Pre-collision braking function/ Valid or Inval	Valid: Pre-collision braking operation possible Inval: Pre-collision braking operation not possible	-
Front Radar PSB	Front radar-linked pre-collision seat belt activation signal/ ON or OFF	ON: Front radar-linked pre-collision seat belt activated OFF: Front radar-linked pre-collision seat belt not activated	Status changes when the pre-collision seat belt is activated before a collision
PBA Start	Pre-collision brake assist activation signal/ ON or OFF	ON: Pre-collision brake assist activated OFF: Pre-collision brake assist not activated	Signal status changes when the pre-collision brake assist is activated before a collision (Pre-collision brake will activate only in situations

			where the driver depresses the brake pedal)
Brake Assist Standby	Supplemental brake pressure signal/ ON or OFF	ON: Supplemental brake pressure being provided OFF: Supplemental brake pressure not being provided	Signal status changes when supplemental brake pressure is being provided after a collision is judged as unavoidable and before the brake pedal is depressed
Pre-Collision Brake Control	Pre-collision braking operational status/ ON or OFF	ON: Pre-collision braking operate OFF: Pre-collision braking function not operating	Status changes when pre-collision braking operates before a collision
CCS Cancel	Automatic cancellation of cruise control during pre-collision brake activation/ ON or OFF	ON: Cruise control automatically canceled OFF: Cruise control not automatically canceled	-
Front Radar-Dirt History	Millimeter wave radar sensor assembly dirt history/ ON or OFF	ON: History of excessive dirt OFF: No history of excessive dirt	-
Front Radar-Environment Hist	Millimeter wave radar sensor temperature condition history/ Good or Bad	Good: No history of excessive temperature Bad: History of excessive temperature	-

Curr Com Night View ECU	Night view ECU connection status/ without or with	with: Night view ECU connected without: Night view ECU not connected	Not Supported
Country# (DSS)	Destination country for driving support computer/ JPN, NA, EURO, AUS, SAFC, OTHER, TWN, CHINA, THAI, GCC, NOFIX	Actual country code	-
The Number of DTCs	Number of DTCs/ 0 to 255	When system is normal: 0 When a malfunction is detected: More than 0	-

2. ACTIVE TEST

HINT:

Using the Techstream to perform Active Tests allows relays, VSVs, actuators and other items to be operated without removing any parts. This non-intrusive functional inspection can be very useful because intermittent operation may be discovered before parts or wiring is disturbed. Performing Active Tests early in troubleshooting is one way to save diagnostic time. Data List information can be displayed while performing Active Tests.

- Connect the Techstream to the DLC3.
- Turn the ignition switch to ON.
- Turn the Techstream on.
- Enter the following menus: Body Electrical / Pre-Collision / Active Test.
- Perform Active Test according to the display on the Techstream.

HINT:

The ignition switch must be turned to ON to proceed with the Active Test using the Techstream.

PRE-COLLISION

Tester Display	Test Part	Control Range	Diagnostic Note
		ON: Seat	

Driver Seat Belt Motor	Driver seat belt motor	belt motor operates OFF: Seat belt motor does not operate	Seat belt (driver side) is fastened
Passenger Seat Belt Motor	Passenger seat belt motor	ON: Seat belt motor operates OFF: Seat belt motor does not operate	Seat belt (passenger side) is fastened
Driver and Passenger Seat Belt Motor	Driver and passenger seat belt motors	ON: Seat belt motors operate OFF: Seat belt motors do not operate	Seat belts (driver and passenger sides) are fastened

NOTE:

- The seat belt motor will only operate when the tongue plate is inserted into the buckle (seat belt fastened).
- To prevent overheating the belt motor, this test cannot be activated continuously. Operate it using at least a 30-second interval.

DIAGNOSTIC TROUBLE CODE CHART

DIAGNOSTIC TROUBLE CODE CHART

If a trouble code is displayed during the DTC check, inspect the trouble areas listed for that code in the table below and proceed to the appropriate information.

PRE-COLLISION SYSTEM

DTC Code	Detection Item	Trouble Area	See
B2000	Short to B+ in Seat Belt Motor RH Circuit	- Front seat outer belt assembly RH - Harness or connector - Seat belt control ECU	Refer to <u>DTC B2000: Short to B+ in Seat Belt Motor RH Circuit</u>
B2001	Short to GND in Seat Belt Motor RH Circuit	- Front seat outer belt assembly RH - Harness or connector - Seat belt control ECU	Refer to <u>DTC B2001: Short to GND in Seat Belt Motor RH Circuit</u>
B2002	Open in Seat Belt Motor RH Circuit	- Front seat outer belt assembly RH - Harness or connector - Seat belt control ECU	Refer to <u>DTC B2002: Open in Seat Belt Motor RH Circuit</u>
B2005	Short to B+ in Seat Belt Motor LH Circuit	- Front seat outer belt assembly LH - Harness or connector - Seat belt control ECU	Refer to <u>DTC B2005: Short to B+ in Seat Belt Motor LH Circuit</u>
B2006	Short to GND in Seat Belt Motor LH Circuit	- Front seat outer belt assembly LH - Harness or connector - Seat belt control ECU	Refer to <u>DTC B2006: Short to GND in Seat Belt Motor LH Circuit</u>
B2007	Open in Seat Belt Motor LH Circuit	- Front seat outer belt assembly LH - Harness or connector - Seat belt control ECU	Refer to <u>DTC B2007: Open in Seat Belt Motor LH Circuit</u>
B2015	Open in Right Side Upper MOS	- Seat belt control ECU	Refer to <u>DTC B2015: Open in Right Side Upper MOS; DTC B2016: Open in Right Side Lower MOS; DTC B2020: Open in Left Side Upper MOS; DTC B2021: Open in Left Side Lower MOS; DTC B2025: Right Side Current Detection Circuit Malfunction Hi; DTC B2026: Right Side Current Detection Circuit Malfunction Lo; DTC B2027: Right Side Over-Current Malfunction; DTC B2030: Left Side Current Detection Circuit Malfunction Hi; DTC B2031: Left Side Current Detection Circuit Malfunction Lo; DTC B2032: Left Side Over-</u>

			<u>Current Malfunction; DTC B2035: Power Supply Relay Adherence Malfunction; DTC B2040: EEPROM Malfunction; DTC B2041: Fall of Raised Voltage; DTC B2043: Fall of B+ Voltage; DTC B2047: Seat Belt Control ECU Inner Circuit Malfunction</u>
B2016	Open in Right Side Lower MOS	- Seat belt control ECU	Refer to <u>DTC B2015: Open in Right Side Upper MOS; DTC B2016: Open in Right Side Lower MOS; DTC B2020: Open in Left Side Upper MOS; DTC B2021: Open in Left Side Lower MOS; DTC B2025: Right Side Current Detection Circuit Malfunction Hi; DTC B2026: Right Side Current Detection Circuit Malfunction Lo; DTC B2027: Right Side Over-Current Malfunction; DTC B2030: Left Side Current Detection Circuit Malfunction Hi; DTC B2031: Left Side Current Detection Circuit Malfunction Lo; DTC B2032: Left Side Over-Current Malfunction; DTC B2035: Power Supply Relay Adherence Malfunction; DTC B2040: EEPROM Malfunction; DTC B2041: Fall of Raised Voltage; DTC B2043: Fall of B+ Voltage; DTC B2047: Seat Belt Control ECU Inner Circuit Malfunction</u>
			Refer to <u>DTC B2015: Open in Right Side Upper MOS; DTC B2016: Open in Right Side Lower MOS; DTC B2020: Open in Left Side Upper MOS; DTC B2021: Open in Left Side Lower</u>

B2020	Open in Left Side Upper MOS	- Seat belt control ECU	<u>MOS; DTC B2025: Right Side Current Detection Circuit Malfunction Hi;</u> <u>DTC B2026: Right Side Current Detection Circuit Malfunction Lo; DTC B2027: Right Side Over-Current Malfunction; DTC B2030: Left Side Current Detection Circuit Malfunction Hi; DTC B2031: Left Side Current Detection Circuit Malfunction Lo;</u> <u>DTC B2032: Left Side Over-Current Malfunction; DTC B2035: Power Supply Relay Adherence Malfunction;</u> <u>DTC B2040: EEPROM Malfunction; DTC B2041: Fall of Raised Voltage; DTC B2043: Fall of B+ Voltage; DTC B2047: Seat Belt Control ECU Inner Circuit Malfunction</u>
B2021	Open in Left Side Lower MOS	- Seat belt control ECU	Refer to <u>DTC B2015: Open in Right Side Upper MOS;</u> <u>DTC B2016: Open in Right Side Lower MOS; DTC B2020: Open in Left Side Upper MOS; DTC B2021: Open in Left Side Lower MOS; DTC B2025: Right Side Current Detection Circuit Malfunction Hi;</u> <u>DTC B2026: Right Side Current Detection Circuit Malfunction Lo; DTC B2027: Right Side Over-Current Malfunction; DTC B2030: Left Side Current Detection Circuit Malfunction Hi; DTC B2031: Left Side Current Detection Circuit Malfunction Lo;</u> <u>DTC B2032: Left Side Over-Current Malfunction; DTC B2035: Power Supply Relay Adherence Malfunction;</u>

			<u>DTC B2040: EEPROM Malfunction; DTC B2041: Fall of Raised Voltage; DTC B2043: Fall of B+ Voltage; DTC B2047: Seat Belt Control ECU Inner Circuit Malfunction</u>
B2025	Right Side Current Detection Circuit Malfunction Hi	- Seat belt control ECU	Refer to <u>DTC B2015: Open in Right Side Upper MOS; DTC B2016: Open in Right Side Lower MOS; DTC B2020: Open in Left Side Upper MOS; DTC B2021: Open in Left Side Lower MOS; DTC B2025: Right Side Current Detection Circuit Malfunction Hi; DTC B2026: Right Side Current Detection Circuit Malfunction Lo; DTC B2027: Right Side Over-Current Malfunction; DTC B2030: Left Side Current Detection Circuit Malfunction Hi; DTC B2031: Left Side Current Detection Circuit Malfunction Lo; DTC B2032: Left Side Over-Current Malfunction; DTC B2035: Power Supply Relay Adherence Malfunction; DTC B2040: EEPROM Malfunction; DTC B2041: Fall of Raised Voltage; DTC B2043: Fall of B+ Voltage; DTC B2047: Seat Belt Control ECU Inner Circuit Malfunction</u>
			Refer to <u>DTC B2015: Open in Right Side Upper MOS; DTC B2016: Open in Right Side Lower MOS; DTC B2020: Open in Left Side Upper MOS; DTC B2021: Open in Left Side Lower MOS; DTC B2025: Right Side Current Detection Circuit Malfunction Hi;</u>

B2026	Right Side Current Detection Circuit Malfunction Lo	- Seat belt control ECU	<u>DTC B2026: Right Side Current Detection Circuit Malfunction Lo; DTC B2027: Right Side Over-Current Malfunction; DTC B2030: Left Side Current Detection Circuit Malfunction Hi; DTC B2031: Left Side Current Detection Circuit Malfunction Lo; DTC B2032: Left Side Over-Current Malfunction; DTC B2035: Power Supply Relay Adherence Malfunction; DTC B2040: EEPROM Malfunction; DTC B2041: Fall of Raised Voltage; DTC B2043: Fall of B+ Voltage; DTC B2047: Seat Belt Control ECU Inner Circuit Malfunction</u>
B2027	Right Side Over-Current Malfunction	- Seat belt control ECU	Refer to <u>DTC B2015: Open in Right Side Upper MOS; DTC B2016: Open in Right Side Lower MOS; DTC B2020: Open in Left Side Upper MOS; DTC B2021: Open in Left Side Lower MOS; DTC B2025: Right Side Current Detection Circuit Malfunction Hi; DTC B2026: Right Side Current Detection Circuit Malfunction Lo; DTC B2027: Right Side Over-Current Malfunction; DTC B2030: Left Side Current Detection Circuit Malfunction Hi; DTC B2031: Left Side Current Detection Circuit Malfunction Lo; DTC B2032: Left Side Over-Current Malfunction; DTC B2035: Power Supply Relay Adherence Malfunction; DTC B2040: EEPROM Malfunction; DTC B2041: Fall of Raised Voltage; DTC</u>

			<u>B2043: Fall of B+ Voltage;</u> <u>DTC B2047: Seat Belt</u> <u>Control ECU Inner Circuit</u> <u>Malfunction</u>
B2030	Left Side Current Detection Circuit Malfunction Hi	- Seat belt control ECU	Refer to <u>DTC B2015: Open in</u> <u>Right Side Upper MOS;</u> <u>DTC B2016: Open in Right</u> <u>Side Lower MOS; DTC</u> <u>B2020: Open in Left Side</u> <u>Upper MOS; DTC B2021:</u> <u>Open in Left Side Lower</u> <u>MOS; DTC B2025: Right</u> <u>Side Current Detection</u> <u>Circuit Malfunction Hi;</u> <u>DTC B2026: Right Side</u> <u>Current Detection Circuit</u> <u>Malfunction Lo; DTC</u> <u>B2027: Right Side Over-</u> <u>Current Malfunction; DTC</u> <u>B2030: Left Side Current</u> <u>Detection Circuit</u> <u>Malfunction Hi; DTC B2031:</u> <u>Left Side Current Detection</u> <u>Circuit Malfunction Lo;</u> <u>DTC B2032: Left Side Over-</u> <u>Current Malfunction; DTC</u> <u>B2035: Power Supply Relay</u> <u>Adherence Malfunction;</u> <u>DTC B2040: EEPROM</u> <u>Malfunction; DTC B2041:</u> <u>Fall of Raised Voltage; DTC</u> <u>B2043: Fall of B+ Voltage;</u> <u>DTC B2047: Seat Belt</u> <u>Control ECU Inner Circuit</u> <u>Malfunction</u>
			Refer to <u>DTC B2015: Open in</u> <u>Right Side Upper MOS;</u> <u>DTC B2016: Open in Right</u> <u>Side Lower MOS; DTC</u> <u>B2020: Open in Left Side</u> <u>Upper MOS; DTC B2021:</u> <u>Open in Left Side Lower</u> <u>MOS; DTC B2025: Right</u> <u>Side Current Detection</u> <u>Circuit Malfunction Hi;</u> <u>DTC B2026: Right Side</u> <u>Current Detection Circuit</u> <u>Malfunction Lo; DTC</u>

B2031	Left Side Current Detection Circuit Malfunction Lo	- Seat belt control ECU	<u>B2027: Right Side Over-Current Malfunction; DTC B2030: Left Side Current Detection Circuit Malfunction Hi; DTC B2031: Left Side Current Detection Circuit Malfunction Lo; DTC B2032: Left Side Over-Current Malfunction; DTC B2035: Power Supply Relay Adherence Malfunction; DTC B2040: EEPROM Malfunction; DTC B2041: Fall of Raised Voltage; DTC B2043: Fall of B+ Voltage; DTC B2047: Seat Belt Control ECU Inner Circuit Malfunction</u>
B2032	Left Side Over-Current Malfunction	- Seat belt control ECU	Refer to <u>DTC B2015: Open in Right Side Upper MOS; DTC B2016: Open in Right Side Lower MOS; DTC B2020: Open in Left Side Upper MOS; DTC B2021: Open in Left Side Lower MOS; DTC B2025: Right Side Current Detection Circuit Malfunction Hi; DTC B2026: Right Side Current Detection Circuit Malfunction Lo; DTC B2027: Right Side Over-Current Malfunction; DTC B2030: Left Side Current Detection Circuit Malfunction Hi; DTC B2031: Left Side Current Detection Circuit Malfunction Lo; DTC B2032: Left Side Over-Current Malfunction; DTC B2035: Power Supply Relay Adherence Malfunction; DTC B2040: EEPROM Malfunction; DTC B2041: Fall of Raised Voltage; DTC B2043: Fall of B+ Voltage; DTC B2047: Seat Belt Control ECU Inner Circuit</u>

			<u>Malfunction</u>
B2035	Power Supply Relay Adherence Malfunction	- Seat belt control ECU	Refer to <u>DTC B2015: Open in Right Side Upper MOS;</u> <u>DTC B2016: Open in Right Side Lower MOS;</u> <u>DTC B2020: Open in Left Side Upper MOS;</u> <u>DTC B2021: Open in Left Side Lower MOS;</u> <u>DTC B2025: Right Side Current Detection Circuit Malfunction Hi;</u> <u>DTC B2026: Right Side Current Detection Circuit Malfunction Lo;</u> <u>DTC B2027: Right Side Over-Current Malfunction;</u> <u>DTC B2030: Left Side Current Detection Circuit Malfunction Hi;</u> <u>DTC B2031: Left Side Current Detection Circuit Malfunction Lo;</u> <u>DTC B2032: Left Side Over-Current Malfunction;</u> <u>DTC B2035: Power Supply Relay Adherence Malfunction;</u> <u>DTC B2040: EEPROM Malfunction;</u> <u>DTC B2041: Fall of Raised Voltage;</u> <u>DTC B2043: Fall of B+ Voltage;</u> <u>DTC B2047: Seat Belt Control ECU Inner Circuit Malfunction</u>
B2036	Power Supply Relay Malfunction Open	- Harness or connector - PSB fuse - Seat belt control ECU	Refer to <u>DTC B2036: Power Supply Relay Malfunction Open</u>
			Refer to <u>DTC B2015: Open in Right Side Upper MOS;</u> <u>DTC B2016: Open in Right Side Lower MOS;</u> <u>DTC B2020: Open in Left Side Upper MOS;</u> <u>DTC B2021: Open in Left Side Lower MOS;</u> <u>DTC B2025: Right Side Current Detection Circuit Malfunction Hi;</u> <u>DTC B2026: Right Side Current Detection Circuit</u>

B2040	EEPROM Malfunction	- Seat belt control ECU	<u>Malfunction Lo; DTC B2027: Right Side Over-Current Malfunction; DTC B2030: Left Side Current Detection Circuit Malfunction Hi; DTC B2031: Left Side Current Detection Circuit Malfunction Lo; DTC B2032: Left Side Over-Current Malfunction; DTC B2035: Power Supply Relay Adherence Malfunction; DTC B2040: EEPROM Malfunction; DTC B2041: Fall of Raised Voltage; DTC B2043: Fall of B+ Voltage; DTC B2047: Seat Belt Control ECU Inner Circuit Malfunction</u>
B2041	Fall of Raised Voltage	- Seat belt control ECU	Refer to <u>DTC B2015: Open in Right Side Upper MOS; DTC B2016: Open in Right Side Lower MOS; DTC B2020: Open in Left Side Upper MOS; DTC B2021: Open in Left Side Lower MOS; DTC B2025: Right Side Current Detection Circuit Malfunction Hi; DTC B2026: Right Side Current Detection Circuit Malfunction Lo; DTC B2027: Right Side Over-Current Malfunction; DTC B2030: Left Side Current Detection Circuit Malfunction Hi; DTC B2031: Left Side Current Detection Circuit Malfunction Lo; DTC B2032: Left Side Over-Current Malfunction; DTC B2035: Power Supply Relay Adherence Malfunction; DTC B2040: EEPROM Malfunction; DTC B2041: Fall of Raised Voltage; DTC B2043: Fall of B+ Voltage; DTC B2047: Seat Belt</u>

			<u>Control ECU Inner Circuit Malfunction</u>
B2043	Fall of B+ Voltage	- Seat belt control ECU	Refer to <u>DTC B2015: Open in Right Side Upper MOS;</u> <u>DTC B2016: Open in Right Side Lower MOS;</u> <u>DTC B2020: Open in Left Side Upper MOS;</u> <u>DTC B2021: Open in Left Side Lower MOS;</u> <u>DTC B2025: Right Side Current Detection Circuit Malfunction Hi;</u> <u>DTC B2026: Right Side Current Detection Circuit Malfunction Lo;</u> <u>DTC B2027: Right Side Over-Current Malfunction;</u> <u>DTC B2030: Left Side Current Detection Circuit Malfunction Hi;</u> <u>DTC B2031: Left Side Current Detection Circuit Malfunction Lo;</u> <u>DTC B2032: Left Side Over-Current Malfunction;</u> <u>DTC B2035: Power Supply Relay Adherence Malfunction;</u> <u>DTC B2040: EEPROM Malfunction;</u> <u>DTC B2041: Fall of Raised Voltage;</u> <u>DTC B2043: Fall of B+ Voltage;</u> <u>DTC B2047: Seat Belt Control ECU Inner Circuit Malfunction</u>
			Refer to <u>DTC B2015: Open in Right Side Upper MOS;</u> <u>DTC B2016: Open in Right Side Lower MOS;</u> <u>DTC B2020: Open in Left Side Upper MOS;</u> <u>DTC B2021: Open in Left Side Lower MOS;</u> <u>DTC B2025: Right Side Current Detection Circuit Malfunction Hi;</u> <u>DTC B2026: Right Side Current Detection Circuit Malfunction Lo;</u> <u>DTC B2027: Right Side Over-Current Malfunction;</u> <u>DTC</u>

B2047	Seat Belt Control ECU Inner Circuit Malfunction	- Seat belt control ECU	<u>B2030: Left Side Current Detection Circuit Malfunction Hi; DTC B2031: Left Side Current Detection Circuit Malfunction Lo; DTC B2032: Left Side Over-Current Malfunction; DTC B2035: Power Supply Relay Adherence Malfunction; DTC B2040: EEPROM Malfunction; DTC B2041: Fall of Raised Voltage; DTC B2043: Fall of B+ Voltage; DTC B2047: Seat Belt Control ECU Inner Circuit Malfunction</u>
B2060	ABS Malfunction	- CAN communication system - Vehicle stability control system - Seat belt control ECU	Refer to <u>DTC B2060: ABS Malfunction</u>
B2064	Vehicle Type Signal Malfunction	- CAN communication system - Main body ECU - Seat belt control ECU	Refer to <u>DTC B2064: Vehicle Type Signal Malfunction</u>
B2074	Driver Side Seat Belt Buckle Switch Circuit Malfunction	- Wire harness - Front seat inner belt LH assembly - Center airbag sensor assembly - Seat belt control ECU - Power management control ECU*1 - Network gateway ECU*2	Refer to <u>DTC B2074: Driver Side Seat Belt Buckle Switch Circuit Malfunction; DTC B2075: Passenger Side Seat Belt Buckle Switch Circuit Malfunction</u>
B2075	Passenger Side Seat Belt Buckle Switch Circuit Malfunction	- Wire harness - Front seat inner belt RH assembly - Occupant classification ECU - Center airbag sensor assembly - Seat belt control ECU - Power management control ECU*1 - Network gateway ECU*2	Refer to <u>DTC B2074: Driver Side Seat Belt Buckle Switch Circuit Malfunction; DTC B2075: Passenger Side Seat Belt Buckle Switch Circuit Malfunction</u>
B2085	Communication Error from Driving Support ECU to	- CAN communication system	Refer to <u>DTC B2085: Communication Error from</u>

	VSC ECU	- Seat belt control ECU	<u>Driving Support ECU to VSC ECU</u>
B2090	Driving Support System Malfunction	- Dynamic radar cruise control system - Driving support ECU - Seat belt control ECU	Refer to <u>DTC B2090: Driving Support System Malfunction</u>
C1A01	Driving Support ECU	- Driving support ECU	Refer to <u>DTC C1A01: Driving Support ECU</u>
C1A02	Vehicle Information Not Obtained	- Driving support ECU	Refer to <u>DTC C1A02: Vehicle Information Not Obtained</u>
C1A0A	Front Radar Sensor Region Code Mismatch	- Millimeter wave radar sensor - Driving support ECU	Refer to <u>DTC C1A0A: Front Radar Sensor Region Code Mismatch</u>
C1A10	Front Radar Sensor	- Millimeter wave radar sensor - Driving support ECU	Refer to <u>DTC C1A10: Front Radar Sensor</u>
C1A11	Front Radar Sensor Incorrect Axial Gap	- Millimeter wave radar sensor - Driving support ECU	Refer to <u>DTC C1A11: Front Radar Sensor Incorrect Axial Gap; DTC C1A14: Front Radar Sensor Beam Axis Not Adjusted</u>
C1A14	Front Radar Sensor Beam Axis Not Adjusted	- Millimeter wave radar sensor - Driving support ECU	Refer to <u>DTC C1A11: Front Radar Sensor Incorrect Axial Gap; DTC C1A14: Front Radar Sensor Beam Axis Not Adjusted</u>
C1A46	Yaw Rate Sensor	- Vehicle stability control system - Driving support ECU	Refer to <u>DTC C1A46: Yaw Rate Sensor</u>
C1A47	Steering Angle Sensor	- Vehicle stability control system - Driving support ECU	Refer to <u>DTC C1A47: Steering Angle Sensor</u>
C1A4A	Skid Control Buzzer Circuit	- Vehicle stability control system - Brake actuator (skid control ECU) - Driving support ECU	Refer to <u>DTC C1A4A: Skid Control Buzzer Circuit</u>
C1A4B	Stop Light Relay Circuit	- Vehicle stability control system - Brake actuator (skid control ECU) - Driving support ECU	Refer to <u>DTC C1A4B: Stop Light Relay Circuit</u>
			Refer to <u>DTC U0122: Lost Communication with Vehicle Dynamics Control Module; DTC U0123: Lost</u>

U0122	Lost Communication with Vehicle Dynamics Control Module	- Brake actuator (skid control ECU) - CAN communication system - Seat belt control ECU - Driving support ECU	<u>Communication with Yaw Rate Sensor Module; DTC U0126: Lost Communication with Steering Angle Sensor Module; DTC U0140: Lost Communication with Main Body ECU; DTC U0151: Lost Communication with Airbag ECU; DTC U0235: Lost Communication with Cruise Control Front Distance Range Sensor; DTC U1100: Lost Communication with Seat Belt Control ECU; DTC U1104: Lost Communication with Driving Support ECU</u>
U0123	Lost Communication with Yaw Rate Sensor Module	- Yaw rate sensor - CAN communication system - Driving support ECU	Refer to <u>DTC U0122: Lost Communication with Vehicle Dynamics Control Module; DTC U0123: Lost Communication with Yaw Rate Sensor Module; DTC U0126: Lost Communication with Steering Angle Sensor Module; DTC U0140: Lost Communication with Main Body ECU; DTC U0151: Lost Communication with Airbag ECU; DTC U0235: Lost Communication with Cruise Control Front Distance Range Sensor; DTC U1100: Lost Communication with Seat Belt Control ECU; DTC U1104: Lost Communication with Driving Support ECU</u>
	Lost Communication with	- Steering angle sensor	Refer to <u>DTC U0122: Lost Communication with Vehicle Dynamics Control Module; DTC U0123: Lost Communication with Yaw Rate Sensor Module; DTC U0126: Lost Communication with Steering Angle Sensor Module; DTC U0140: Lost Communication with Main</u>

U0126	Steering Angle Sensor Module	- CAN communication system - Driving support ECU	<u>Body ECU; DTC U0151: Lost Communication with Airbag ECU; DTC U0235: Lost Communication with Cruise Control Front Distance Range Sensor; DTC U1100: Lost Communication with Seat Belt Control ECU; DTC U1104: Lost Communication with Driving Support ECU</u>
U0140	Lost Communication with Main Body ECU	- Main body ECU - CAN communication system - Seat belt control ECU	Refer to <u>DTC U0122: Lost Communication with Vehicle Dynamics Control Module; DTC U0123: Lost Communication with Yaw Rate Sensor Module; DTC U0126: Lost Communication with Steering Angle Sensor Module; DTC U0140: Lost Communication with Main Body ECU; DTC U0151: Lost Communication with Airbag ECU; DTC U0235: Lost Communication with Cruise Control Front Distance Range Sensor; DTC U1100: Lost Communication with Seat Belt Control ECU; DTC U1104: Lost Communication with Driving Support ECU</u>
U0151	Lost Communication with Airbag ECU	- Center airbag sensor assembly - CAN communication system - Seat belt control ECU	Refer to <u>DTC U0122: Lost Communication with Vehicle Dynamics Control Module; DTC U0123: Lost Communication with Yaw Rate Sensor Module; DTC U0126: Lost Communication with Steering Angle Sensor Module; DTC U0140: Lost Communication with Main Body ECU; DTC U0151: Lost Communication with Airbag ECU; DTC U0235: Lost Communication with Cruise Control Front Distance Range Sensor; DTC</u>

			<u>U1100: Lost Communication with Seat Belt Control ECU;</u> <u>DTC U1104: Lost Communication with Driving Support ECU</u>
U0235	Lost Communication with Cruise Control Front Distance Range Sensor	- Communication circuit - Millimeter wave radar sensor - Driving support ECU	Refer to <u>DTC U0122: Lost Communication with Vehicle Dynamics Control Module;</u> <u>DTC U0123: Lost Communication with Yaw Rate Sensor Module;</u> <u>DTC U0126: Lost Communication with Steering Angle Sensor Module;</u> <u>DTC U0140: Lost Communication with Main Body ECU;</u> <u>DTC U0151: Lost Communication with Airbag ECU;</u> <u>DTC U0235: Lost Communication with Cruise Control Front Distance Range Sensor;</u> <u>DTC U1100: Lost Communication with Seat Belt Control ECU;</u> <u>DTC U1104: Lost Communication with Driving Support ECU</u>
U1100	Lost Communication with Seat Belt Control ECU	- Seat belt control ECU - CAN communication system - Driving support ECU	Refer to <u>DTC U0122: Lost Communication with Vehicle Dynamics Control Module;</u> <u>DTC U0123: Lost Communication with Yaw Rate Sensor Module;</u> <u>DTC U0126: Lost Communication with Steering Angle Sensor Module;</u> <u>DTC U0140: Lost Communication with Main Body ECU;</u> <u>DTC U0151: Lost Communication with Airbag ECU;</u> <u>DTC U0235: Lost Communication with Cruise Control Front Distance Range Sensor;</u> <u>DTC U1100: Lost Communication with Seat Belt Control ECU;</u> <u>DTC U1104: Lost Communication with Driving Support ECU</u>

U1104	Lost Communication with Driving Support ECU	- Communication circuit - Millimeter wave radar sensor - Driving support ECU - CAN communication system	Refer to <u>DTC U0122: Lost Communication with Vehicle Dynamics Control Module;</u> <u>DTC U0123: Lost Communication with Yaw Rate Sensor Module;</u> <u>DTC U0126: Lost Communication with Steering Angle Sensor Module;</u> <u>DTC U0140: Lost Communication with Main Body ECU;</u> <u>DTC U0151: Lost Communication with Airbag ECU;</u> <u>DTC U0235: Lost Communication with Cruise Control Front Distance Range Sensor;</u> <u>DTC U1100: Lost Communication with Seat Belt Control ECU;</u> <u>DTC U1104: Lost Communication with Driving Support ECU</u>
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*1: w/ Smart Key System

*2: w/o Smart Key System