

ACCESSORIES & EQUIPMENT

Safety Connect System (Diagnostic Codes & Symptom Tests) - Sienna

SAFETY CONNECT SYSTEM

DTC B1570: MANUAL (SOS) SWITCH RED INDICATOR MALFUNCTION

DESCRIPTION

This DTC is set when the DCM (Telematics Transceiver) detects an open or short in the manual (SOS) switch red indicator circuit of the manual (SOS) switch.

The manual (SOS) switch red indicator illuminates for 2 seconds and goes off when the ignition switch is turned ON. If a malfunction in the Safety Connect system is detected, the manual (SOS) switch red indicator will illuminate.

However, the manual (SOS) switch red indicator may not illuminate when this DTC is set.

HINT:

The manual (SOS) switch red indicator will not operate to indicate another DTC is set, therefore a voice guidance will be heard.

DTC No.	DTC Detection Condition	Trouble Area
B1570	Current for manual (SOS) switch red indicator reaches malfunction criteria for 10 seconds when ignition switch is ON.	• Roof console box assembly • Wire harness or connector • DCM (Telematics Transceiver)

WIRING DIAGRAM

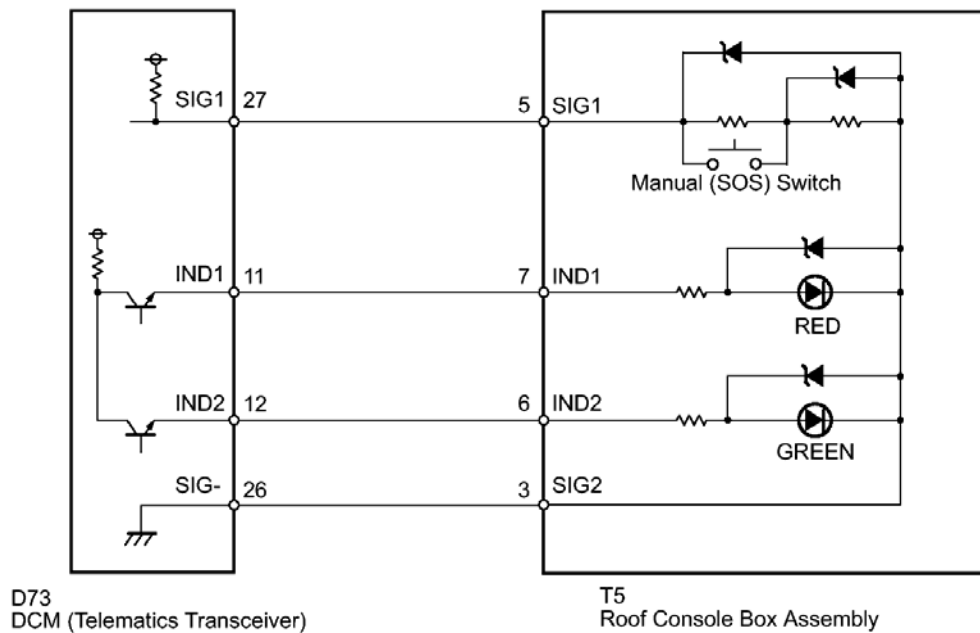


Fig. 1: Roof Console Box Assembly - Wiring Diagram
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

PROCEDURE

1. CHECK DTC

- Turn the ignition switch off.
- Connect the Techstream to the DLC3.
- Turn the ignition switch to ON and wait for 10 seconds.
- Turn the Techstream on.
- Perform "HEALTH CHECK" and check for current DTCs. Refer to **HEALTH CHECK** .

RESULT

Result	Proceed to
DTC B1570, B1571 and B15C5 are output	A
DTC	

B1570 is output (DTC B1571 and B15C5 are not output)	B
--	---

B --> See step 5

A: Go to next step

2. INSPECT ROOF CONSOLE BOX ASSEMBLY (RED INDICATOR)

- a. Disconnect the T5 roof console box assembly connector.

***1**

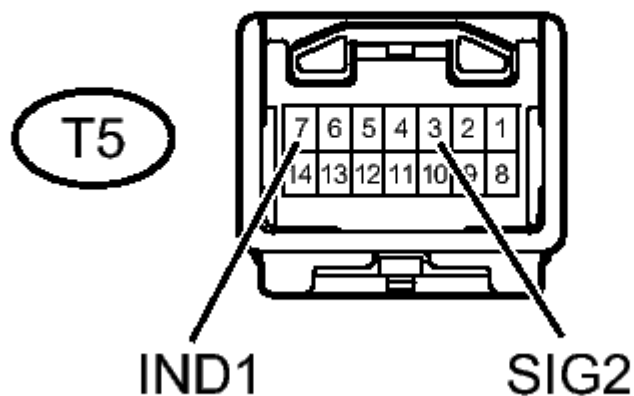


Fig. 2: Checking T5 Roof Console Box Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Connect 2 dry-cell batteries (1.5 V each) in series.
- c. Connect the positive (+) lead to terminal T5-7 (IND1) and the negative (-) lead to terminal T5-3 (SIG2) of the roof console box assembly connector.
- d. Check if the illumination for the manual (SOS) switch red indicator comes on.

OK

Red indicator comes on.

TEXT IN ILLUSTRATION

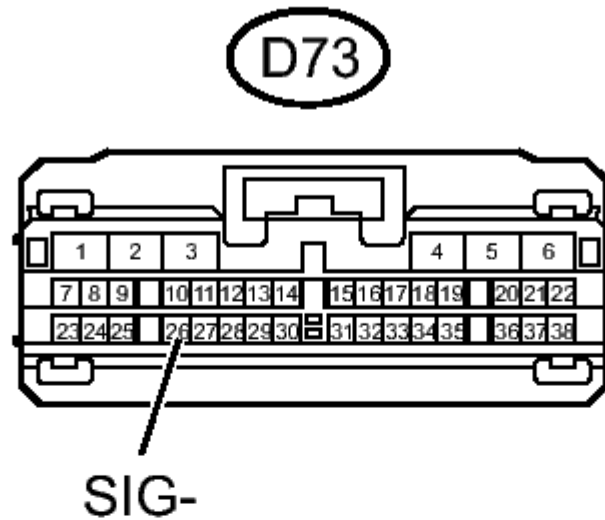
*1	Component without harness connected (Roof Console Box Assembly)
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NG --> See step 10

OK: Go to next step

3. **CHECK HARNESS AND CONNECTOR (DCM - ROOF CONSOLE BOX)**
 - a. Remove the D73 DCM (Telematics Transceiver) connector.

*1



*2

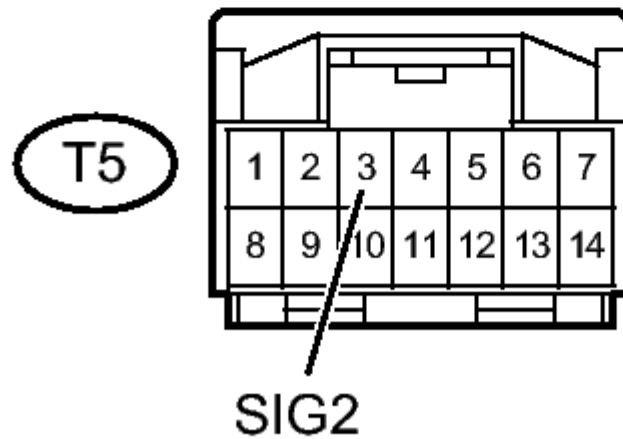


Fig. 3: Checking Harness And Connector (DCM - Roof Console Box)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Disconnect the T5 roof console box assembly connector.
- c. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
D73-26 (SIG-) - T5-3 (SIG2)	Always	Below 1 ohms
D73-26 (SIG-) - Body ground	Always	10 kohms or higher

TEXT IN ILLUSTRATION

*1	Front view of wire harness connector (to DCM (Telematics Transceiver))
*2	Front view of wire harness connector (to Roof Console Box Assembly)

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

OK: Go to next step

4. REPLACE DCM (TELEMATICS TRANSCEIVER)

- Replace the DCM (Telematics Transceiver). Refer to **REMOVAL** .

NOTE:

- The ignition switch must be off.
- Do not swap the DCM (Telematics Transceiver) with one from another vehicle.

NEXT --> See step 11

5. INSPECT ROOF CONSOLE BOX ASSEMBLY (MANUAL (SOS) SWITCH RED INDICATOR CONDITION)

- Confirm the red indicator status after the ignition switch to ON. Refer to **SYSTEM DESCRIPTION** .

RESULT

Result	Proceed to
Red indicator remains off.	A
Red indicator remains on.	B

B --> See step 9

A: Go to next step

6. INSPECT ROOF CONSOLE BOX ASSEMBLY (RED INDICATOR INPUT VOLTAGE)

- Remove the roof console box assembly but do not disconnect the connectors. Refer to REMOVAL .

***1**

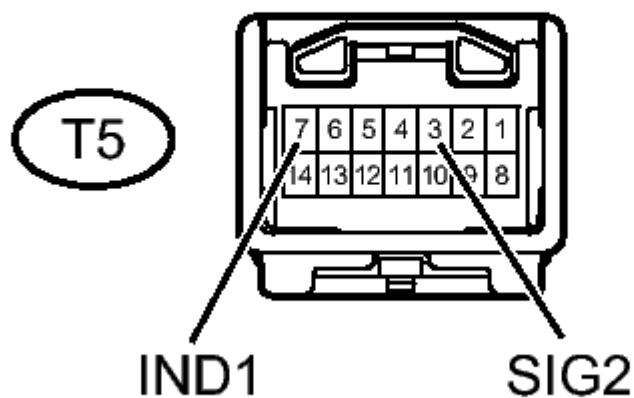


Fig. 4: Checking T5 Roof Console Box Assembly

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

- Connect the positive lead of a voltmeter to terminal T5-7 (IND1), and the negative lead to terminal T5-3 (SIG2).
- Measure the voltage.

Standard

1.0 to 8.5 V in 2 seconds, after the ignition switch is ON.

0 V when the ignition switch is off.

TEXT IN ILLUSTRATION

*1	Component with harness connected (Roof Console Box Assembly)
----	---

NG --> See step 7

OK --> See step 12

7. INSPECT DCM (TELEMATICS TRANSCEIVER) (RED INDICATOR OUTPUT VOLTAGE)

- Remove the DCM (Telematics Transceiver) but do not disconnect the connectors. Refer to **REMOVAL** .

*1

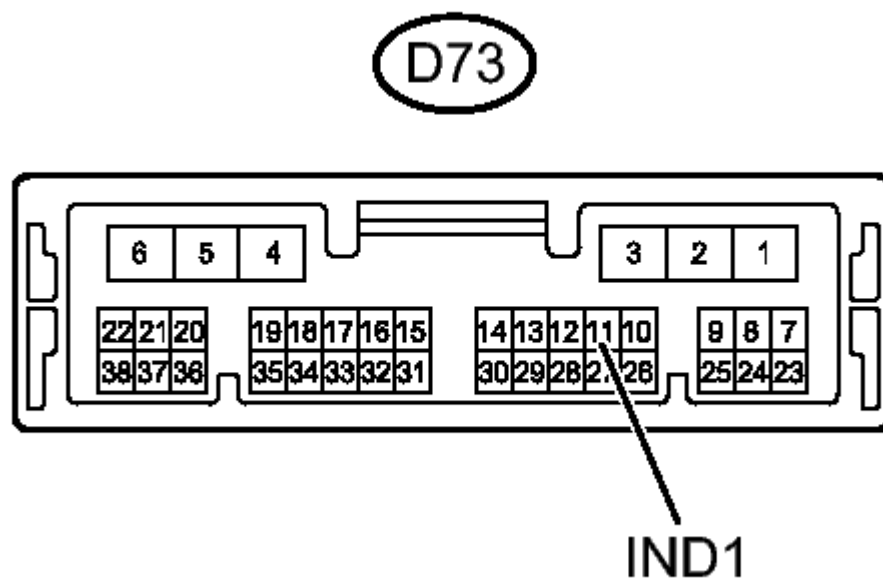


Fig. 5: Checking D73 DCM (Telematics Transceiver)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Connect the positive lead of a voltmeter to terminal D73-11 (IND1), and the negative lead to body ground.
- c. Measure the voltage.

Standard

1.0 to 8.5 V in 2 seconds, after the ignition switch is ON.

0 V when the ignition switch is off.

TEXT IN ILLUSTRATION

*1	Component with harness connected (DCM (Telematics Transceiver))
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NG --> See step 8

OK --> REPAIR OR REPLACE HARNESS OR CONNECTOR

8. CHECK HARNESS AND CONNECTOR (DCM - BODY GROUND)

- a. Remove the DCM (Telematics Transceiver) but do not disconnect the connectors. Refer to REMOVAL .

*1

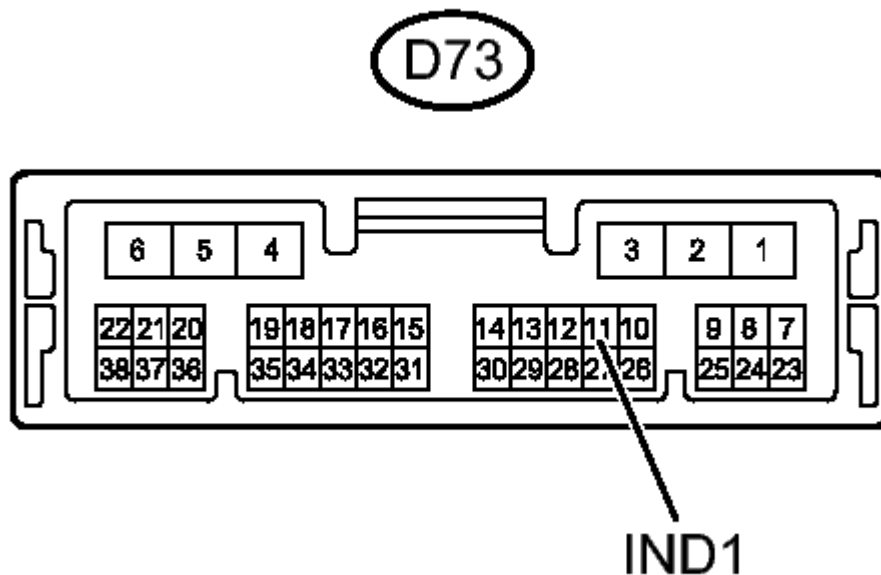


Fig. 6: Checking D73 DCM (Telematics Transceiver)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
D73-11 (IND1) - Body ground	Always	10 kohms or higher

TEXT IN ILLUSTRATION

*1	Component with harness connected (DCM (Telematics Transceiver))
----	--

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to next step

9. REPLACE DCM (TELEMATICS TRANSCEIVER)

- a. Replace the DCM (Telematics Transceiver). Refer to REMOVAL .

NOTE:

- The ignition switch must be off.
- Do not swap the DCM (telematics transceiver) with one from another vehicle.

NEXT --> See step 13

10. REPLACE ROOF CONSOLE BOX ASSEMBLY. Refer to REMOVAL

11. PERFORM DCM ACTIVATION. Refer to DCM ACTIVATION

12. REPLACE ROOF CONSOLE BOX ASSEMBLY. Refer to REMOVAL

13. PERFORM DCM ACTIVATION. Refer to DCM ACTIVATION

DTC B1571: MANUAL (SOS) SWITCH GREEN INDICATOR MALFUNCTION

DESCRIPTION

This DTC is set when the DCM (Telematics Transceiver) detects an open or short in the manual (SOS) switch

green indicator circuit of the manual (SOS) switch. The manual (SOS) switch green indicator illuminates after the ignition switch is turned ON.

If the Safety Connect System is not active, the manual (SOS) switch green indicator will turn off.

If the Safety Connect System is active, the manual (SOS) switch green indicator will blink while communicating with the call center.

DTC No.	DTC Detection Condition	Trouble Area
B1571	Current for manual (SOS) switch green indicator reaches malfunction criteria for 10 seconds when ignition switch is ON.	- Roof console box assembly - Wire harness or connector - DCM (Telematics Transceiver)

WIRING DIAGRAM

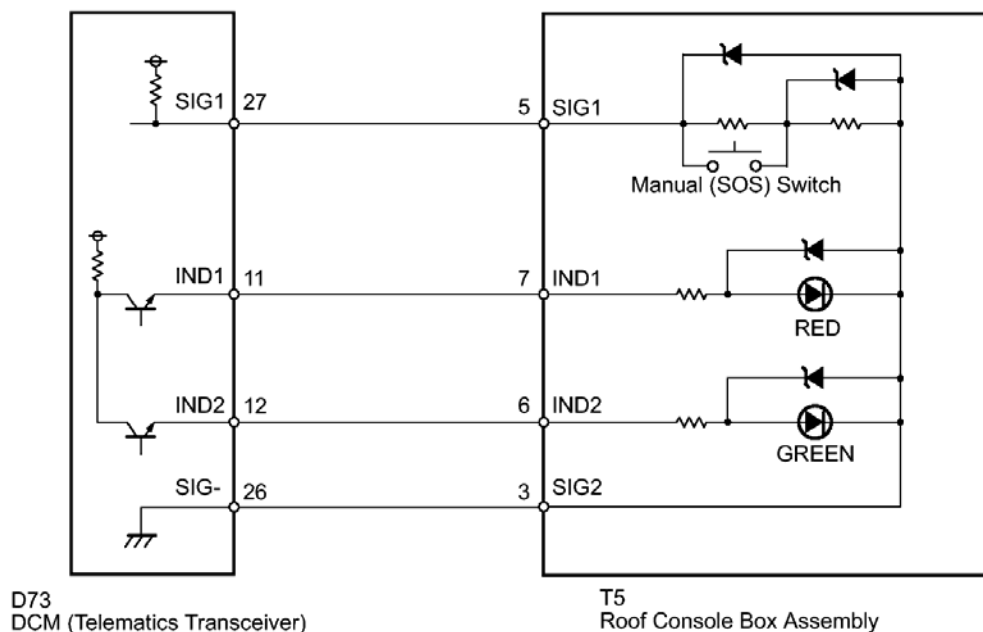


Fig. 7: Roof Console Box Assembly - Wiring Diagram
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

PROCEDURE

1. CHECK DTC

- Turn the ignition switch off.

- b. Connect the Techstream to the DLC3.
- c. Turn the ignition switch to ON and wait for 10 seconds.
- d. Turn the Techstream on.
- e. Perform "HEALTH CHECK" and check for current DTCs. Refer to **HEALTH CHECK** .

RESULT

Result	Proceed to
DTC B1570, B1571 and B15C5 are output	A
DTC B1571 is output (DTC B1570 and B15C5 are not output)	B

B --> See step 5

A: Go to next step

2. INSPECT ROOF CONSOLE BOX ASSEMBLY (GREEN INDICATOR)

- a. Disconnect the T5 roof console box assembly connector.

*1

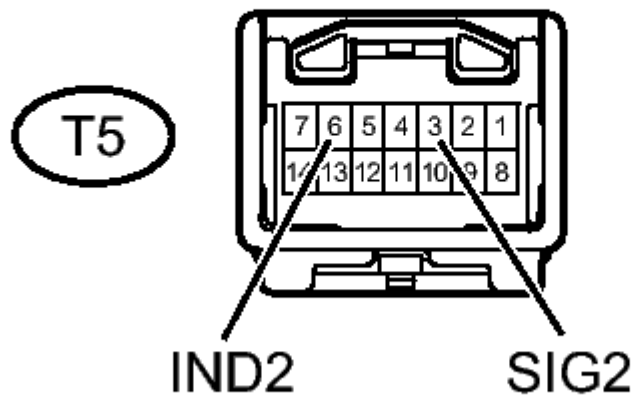


Fig. 8: Checking T5 Roof Console Box Assembly Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Connect 2 dry-cell batteries (1.5 V each) in series.
- c. Connect the positive (+) lead to terminal T5-6 (IND2) and the negative (-) lead to terminal T5-3 (SIG2) of the roof console box assembly connectors.
- d. Check if the illumination for the manual (SOS) switch green indicator comes on.

OK

Green indicator comes on.

TEXT IN ILLUSTRATION

*1	Component without harness connected (Roof Console Box Assembly)
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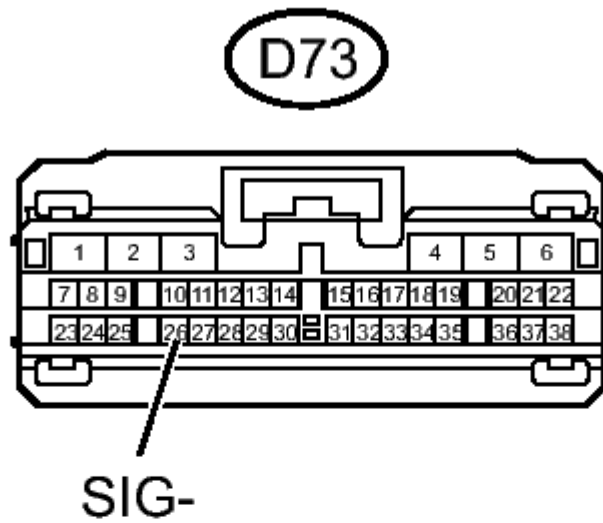
NG --> See step 10

OK: Go to next step

3. CHECK HARNESS AND CONNECTOR (DCM - ROOF CONSOLE BOX)

- a. Remove the D73 DCM (Telematics Transceiver) connector.

*1



*2

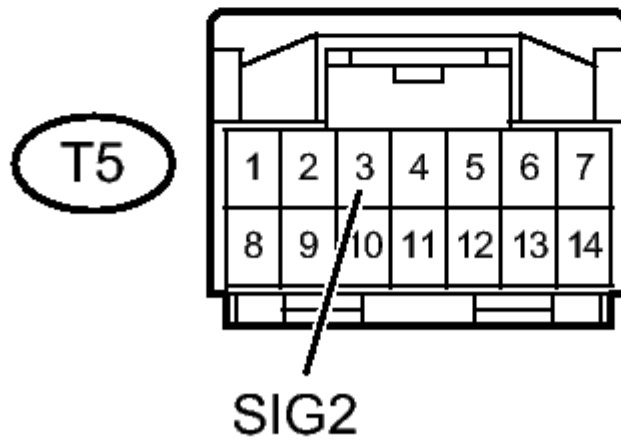


Fig. 9: Checking Harness And Connector (DCM - Roof Console Box)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the T5 roof console box assembly connector.
- c. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
D73-26 (SIG-) - T5-3 (SIG2)	Always	Below 1 ohms
D73-26 (SIG-) - Body ground	Always	10 kohms or higher

TEXT IN ILLUSTRATION

*1	Front view of wire harness connector (to DCM (Telematics Transceiver))
*2	Front view of wire harness connector (to Roof Console Box Assembly)

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to next step

4. REPLACE DCM (TELEMATICS TRANSCEIVER)

- a. Replace the DCM (Telematics Transceiver. Refer to **REMOVAL** .

NOTE:

- The ignition switch must be off.
- Do not swap the DCM (Telematics Transceiver) with one from another vehicle.

NEXT --> See step 11

5. INSPECT ROOF CONSOLE BOX ASSEMBLY (MANUAL (SOS) SWITCH GREEN

INDICATOR CONDITION)

- a. Confirm the green indicator status after the ignition switch to ON. Refer to **SYSTEM DESCRIPTION** .

RESULT

Result	Proceed to
Green indicator remains off.	A
Green indicator remains on.	B

B --> See step 9

A: Go to next step

6. INSPECT ROOF CONSOLE BOX ASSEMBLY (GREEN INDICATOR INPUT VOLTAGE)

- a. Remove the roof console box assembly but do not disconnect the connectors. Refer to **REMOVAL** .

***1**

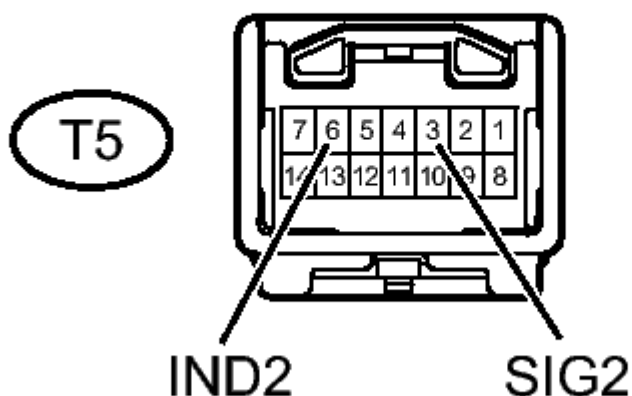


Fig. 10: Checking T5 Roof Console Box Assembly Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Connect the positive lead of a voltmeter to terminal T5-6 (IND2), and the negative lead to terminal T5-3 (SIG2).
- c. Measure the voltage.

Standard

After ignition switch to ON and red indicator has subsequently turned off, 1.0 to 8.5 V in 2 seconds.

0 V when the ignition switch is off.

TEXT IN ILLUSTRATION

*1	Component with harness connected (Roof Console Box Assembly)
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NG --> See step 7

OK --> See step 12

7. INSPECT DCM (TELEMATICS TRANSCEIVER) (GREEN INDICATOR OUTPUT VOLTAGE)

- a. Remove the DCM (Telematics Transceiver) but do not disconnect the connectors. Refer to **REMOVAL** .

*1

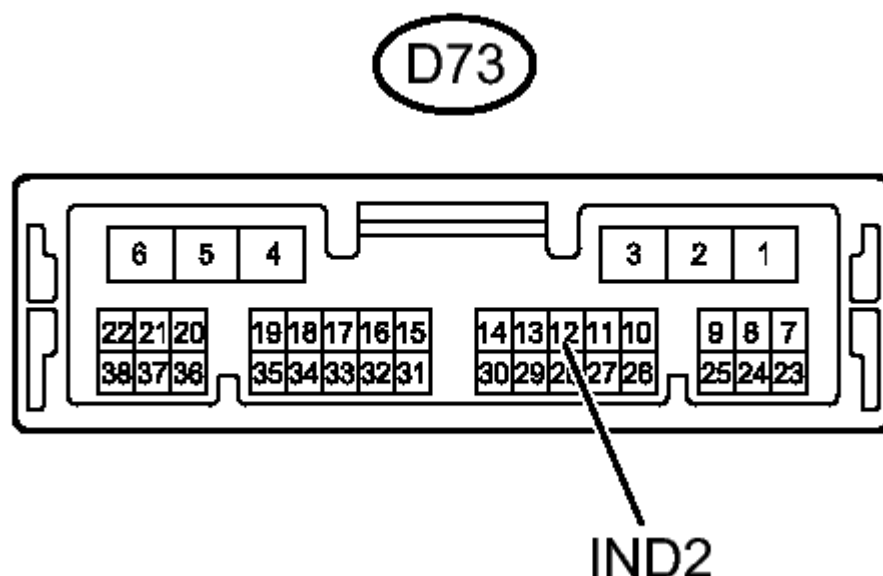


Fig. 11: Checking D73 DCM (Telematics Transceiver) Connector
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Connect the positive lead of a voltmeter to terminal D73-12 (IND2), and the negative lead to body ground.
- c. Measure the voltage.

Standard

After ignition switch to ON and red indicator has subsequently turned off, 1.0 to 8.5 V in 2 seconds.

0 V when the ignition switch is off.

TEXT IN ILLUSTRATION

*1	Component with harness connected (DCM (Telematics Transceiver))
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NG --> See step 8

OK --> REPAIR OR REPLACE HARNESS OR CONNECTOR

8. CHECK HARNESS AND CONNECTOR (DCM - BODY GROUND)

- a. Remove the DCM (Telematics Transceiver) but do not disconnect the connectors. Refer to **REMOVAL** .

*1

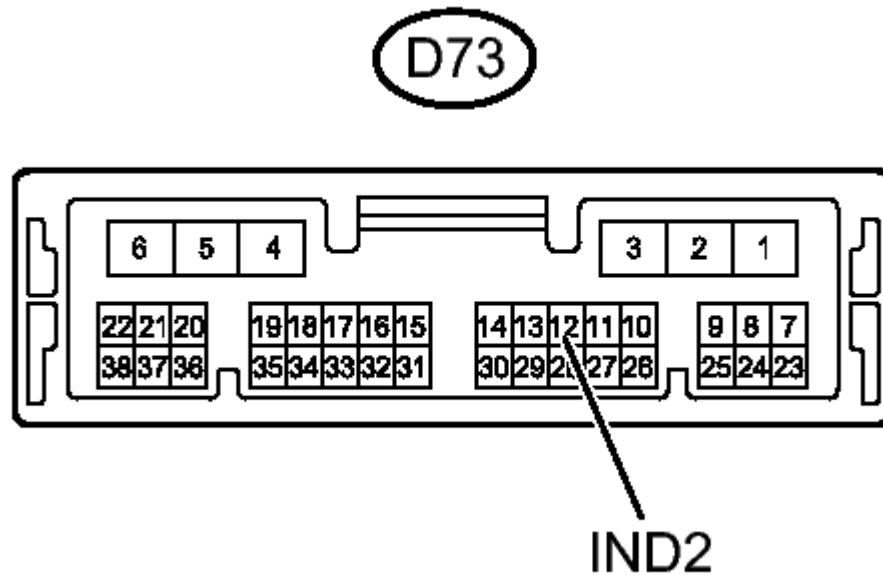


Fig. 12: Checking D73 DCM (Telematics Transceiver) Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
D73-12 (IND2) - Body ground	Always	10 kohms or higher

TEXT IN ILLUSTRATION

*1	Component with harness connected (DCM (Telematics Transceiver))
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NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to next step

9. REPLACE DCM (TELEMATICS TRANSCEIVER)

- a. Replace the DCM (Telematics Transceiver). Refer to **REMOVAL** .

NOTE:

- The ignition switch must be off.
- Do not swap the DCM (Telematics Transceiver) with one from another vehicle.

NEXT --> See step 13

10. REPLACE ROOF CONSOLE BOX ASSEMBLY. Refer to REMOVAL

11. PERFORM DCM ACTIVATION. Refer to DCM ACTIVATION

12. REPLACE ROOF CONSOLE BOX ASSEMBLY. Refer to REMOVAL

13. PERFORM DCM ACTIVATION. Refer to DCM ACTIVATION

DTC B1572: TELEPHONE MICROPHONE ERROR

DESCRIPTION

This DTC is set when the DCM (Telematics Transceiver) detects a malfunction in the telephone microphone assembly circuit.

DTC No.	DTC Detection Condition	Trouble Area
B1572	Current of MCVD reaches malfunction criteria for 10 seconds while ignition switch is ON.	• Wire harness or connector • Telephone microphone assembly • Roof console box assembly • DCM (Telematics Transceiver)

WIRING DIAGRAM

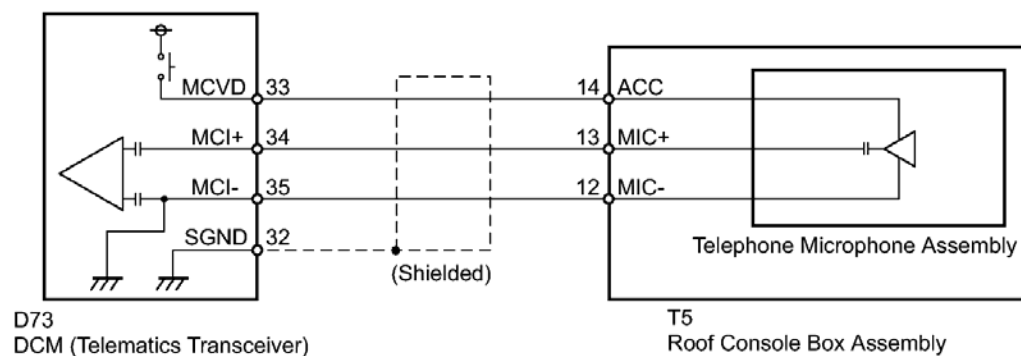


Fig. 13: Telephone Microphone Assembly - Wiring Diagram

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

INSPECTION PROCEDURE

PROCEDURE

1. CHECK DTC

- a. Turn the ignition switch off.
- b. Connect the Techstream to the DLC3.
- c. Turn the ignition switch to ON and wait for 10 seconds.
- d. Turn the Techstream on.
- e. Perform "HEALTH CHECK" and check for current DTCs. Refer to HEALTH CHECK .

RESULT

Result	Proceed to
DTC B1572 is output	A
DTC B1572 is not output	B

B --> See step 7

A: Go to next step

2. INSPECT ROOF CONSOLE BOX ASSEMBLY (TELEPHONE MICROPHONE POWER SOURCE)

- a. Remove the roof console box assembly but do not disconnect the connectors. Refer to REMOVAL .

*1

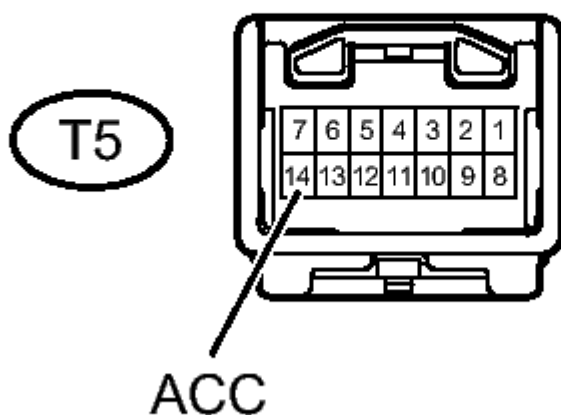


Fig. 14: Inspecting Roof Console Box Assembly (Telephone Microphone Power Source)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Voltage

Tester Connection	Switch Condition	Specified Condition
T5-14 (ACC) - Body Ground	Ignition switch ACC	4 to 6 V

TEXT IN ILLUSTRATION

*1	Component with harness connected (Roof Console Box Assembly)
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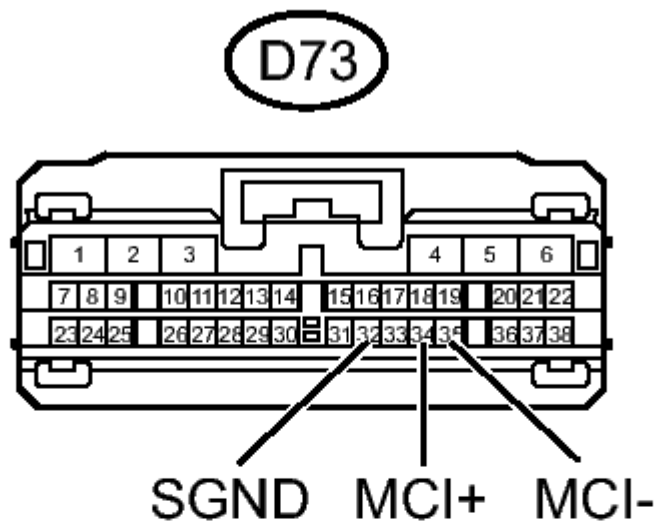
NG --> See step 5

OK: Go to next step

3. **CHECK HARNESS AND CONNECTOR (DCM - ROOF CONSOLE BOX)**

- a. Disconnect the D73 DCM (Telematics Transceiver) connector.

*1



*2

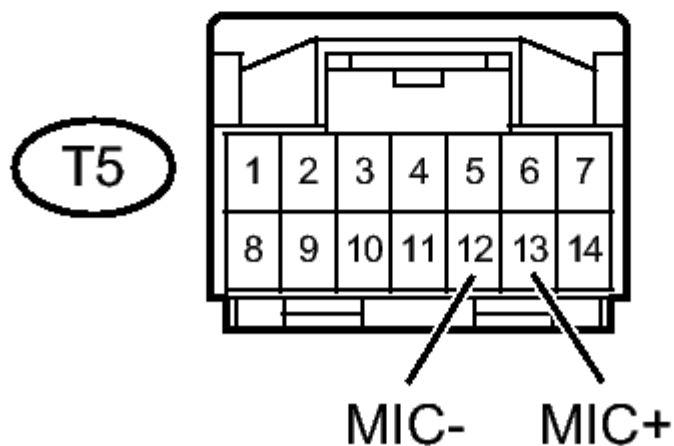


Fig. 15: Checking Harness And Connector (DCM - Roof Console Box)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Disconnect the T5 roof console box assembly connector.
- c. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
D73-34 (MCI+) - T5-13 (MIC+)	Always	Below 1 ohms
D73-35 (MCI-) - T5-12 (MIC-)	Always	Below 1 ohms
D73-34 (MCI+) - Body Ground	Always	10 kohms or higher
D73-35 (MCI-) - Body Ground	Always	10 kohms or higher
D73-32 (SGND) - Body Ground	Always	10 kohms or higher

TEXT IN ILLUSTRATION

*1	Front view of wire harness connector (to DCM (Telematics Transceiver))
*2	Front view of wire harness connector (to Roof Console Box Assembly)

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to next step

4. REPLACE TELEPHONE MICROPHONE ASSEMBLY

- a. Replace the telephone microphone assembly with a normal one and check if the same problem occurs again.

OK

The system returns to normal.

NG --> See step 8

OK --> END

5. INSPECT DCM (TELEMATICS TRANSCEIVER) (TELEPHONE MICROPHONE POWER SOURCE)

- a. Remove the DCM (Telematics Transceiver) but do not disconnect the connectors. Refer to REMOVAL .

*1

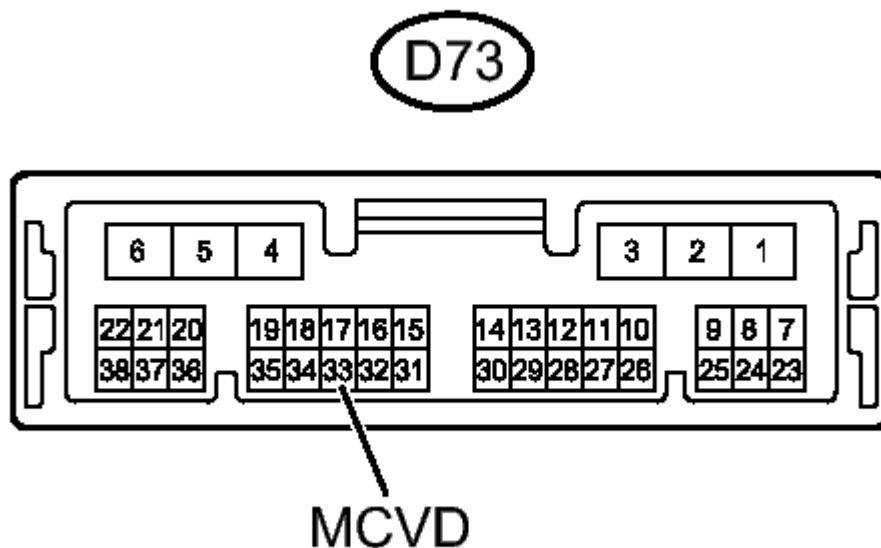


Fig. 16: Checking D73 DCM (Telematics Transceiver) Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Voltage

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Tester Connection	Switch Condition	Specified Condition
D73-33 (MCVD) - Body Ground	Ignition switch ACC	4 to 6 V

TEXT IN ILLUSTRATION

*1	Component with harness connected (DCM (Telematics Transceiver))
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NG --> See step 6

OK --> REPAIR OR REPLACE HARNESS OR CONNECTOR

6. REPLACE DCM (TELEMATICS TRANSCEIVER)

- Replace the DCM (Telematics Transceiver). Refer to **REMOVAL** .

NOTE:

- The ignition switch must be off.
- Do not swap the DCM (Telematics Transceiver) with one from another vehicle.

NEXT --> See step 9

7. CHECK FOR INTERMITTENT PROBLEMS. Refer to **HOW TO PROCEED WITH TROUBLESHOOTING**

8. REPLACE ROOF CONSOLE BOX ASSEMBLY. Refer to **REMOVAL**

9. PERFORM DCM ACTIVATION. Refer to **DCM ACTIVATION**

DTC B1573: SHORT IN TELEPHONE ANTENNA CIRCUIT; DTC B15CB: TELEMATICS TRANSCEIVER ANTENNA DISCONNECTED

DESCRIPTION

This DTC is set when the DCM (Telematics Transceiver) detects an open or a short in the telephone and GPS antenna assembly circuit. The DCM (Telematics Transceiver) oscillates and receives 824 - 894 MHz or 1850 - 1990 MHz radio-frequency through the telephone and GPS antenna assembly.

DTC No.	DTC Detection Condition	Trouble Area
	Telephone and GPS antenna assembly impedance is lower	• DCM (Telematics Transceiver)

B1573	than malfunction criterion for 10 seconds when ignition switch is ON. (Short circuit)	• Telephone and GPS antenna assembly • Wire harness or connector (Telephone and GPS antenna cord)
B15CB	Telephone and GPS antenna assembly impedance is higher than malfunction criterion for 10 seconds when ignition switch is ON. (Open circuit)	• DCM (Telematics Transceiver) • Telephone and GPS antenna assembly • Wire harness or connector (Telephone and GPS antenna cord)

HINT:

Refer to "PARTS LOCATION" for the installation location of telephone and GPS antenna cord. Refer to **PARTS LOCATION** .

INSPECTION PROCEDURE

PROCEDURE

1. CHECK DTC

- Turn the ignition switch off.
- Connect the Techstream to the DLC3.
- Turn the ignition switch to ON and wait for 10 seconds.
- Perform "HEALTH CHECK" and check for current DTCs. Refer to **HEALTH CHECK** .

RESULT

Result	Proceed to
DTC B1573 or B15CB is output	A
DTC B1573 or B15CB is not output	B

B --> See step 6

A: Go to next step

2. **INSPECT TELEPHONE AND GPS ANTENNA ASSEMBLY (DCM - TELEPHONE AND GPS ANTENNA)**

- a. Disconnect the A telephone and GPS antenna cord (Antenna Cord Sub-assembly) connector from the DCM (Telematics Transceiver).

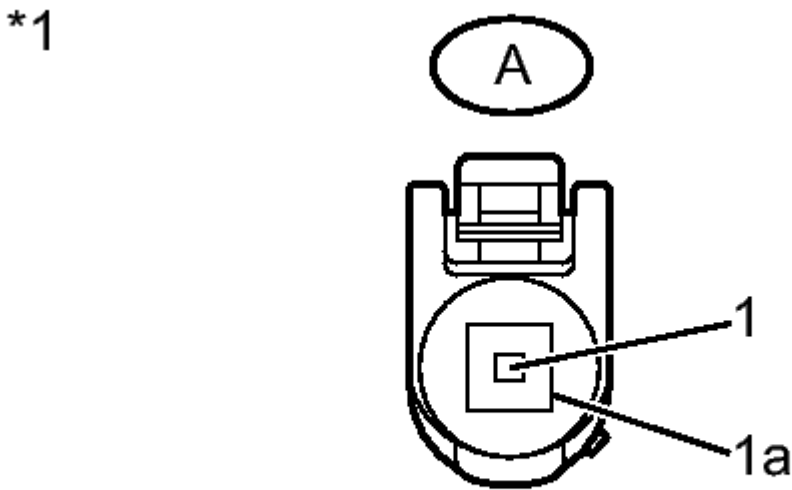


Fig. 17: Inspecting Telephone And GPS Antenna Assembly (DCM - Telephone And GPS Antenna)

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
A-1 - A-1a	Always	4 to 11 kohms

TEXT IN ILLUSTRATION

*1	Front view of telephone and GPS antenna cord (Antenna cord sub-assembly)
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connector (to DCM (Telematics Transceiver)) Connector color: Blue
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NG --> See step 4

OK: Go to next step

3. REPLACE DCM (TELEMATICS TRANSCEIVER)

- a. Replace the DCM (Telematics Transceiver). Refer to REMOVAL .

NOTE:

- The ignition switch must be off.
- Do not swap the DCM (Telematics Transceiver) with one from another vehicle.

NEXT --> See step 7

4. INSPECT TELEPHONE AND GPS ANTENNA ASSEMBLY

- a. Disconnect the D telephone and GPS antenna assembly connector.

*1

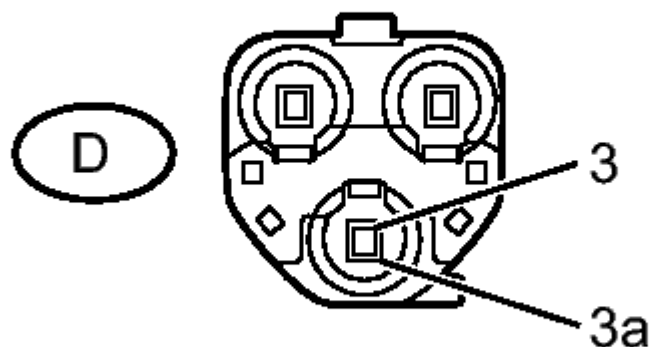


Fig. 18: Inspecting Telephone And GPS Antenna Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
D-3 - D-3a	Always	4 to 11 kohms

TEXT IN ILLUSTRATION

	Telephone and GPS Antenna
*1	Assembly Connector color: Blue

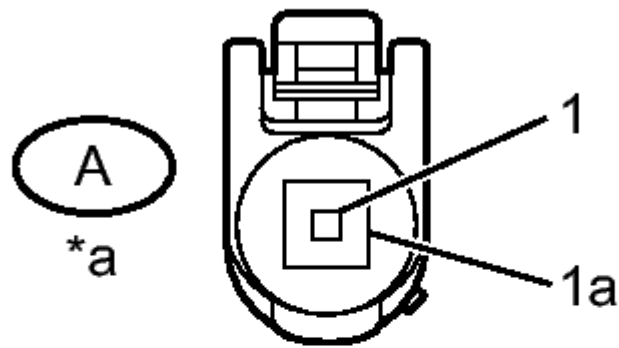
NG --> See step 8

OK: Go to next step

5. INSPECT TELEPHONE AND GPS ANTENNA CORD (ANTENNA CORD SUB-ASSEMBLY)

- a. Disconnect the A DCM (Telematics Transceiver) connector.

*1



*2

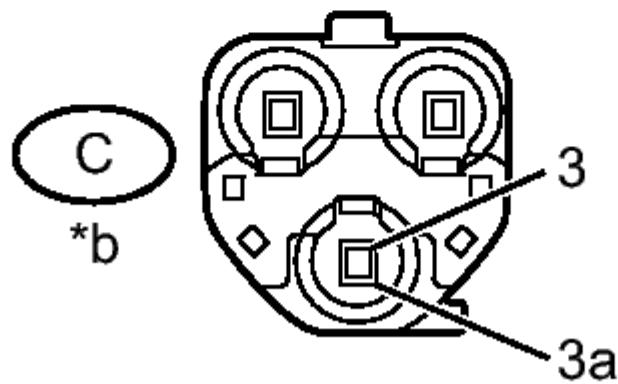


Fig. 19: Inspecting Telephone And GPS Antenna Cord (Antenna Cord Sub-Assembly)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Disconnect the C telephone and GPS antenna cord (Vehicle's wire harness) connector.
- c. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
A-1 - C-3	Always	Below 1 ohms
A-1a - C-3a	Always	Below 1 ohms
A-1 - Body	Always	10 kohms

ground		or higher
A-1a - Body ground	Always	10 kohms or higher

TEXT IN ILLUSTRATION

*1	Telephone and GPS Antenna Cord (Antenna Cord Sub- Assembly)
*2	Telephone and GPS Antenna Cord (Vehicle's Wire Harness)
*a	A Connector Color: Blue
*b	C Connector Color: Blue

NG --> See step 9

OK --> REPLACE TELEPHONE AND GPS ANTENNA CORD (VEHICLE'S WIRE HARNESS)

6. **CHECK FOR INTERMITTENT PROBLEMS. Refer to HOW TO PROCEED WITH TROUBLESHOOTING**
7. **PERFORM DCM ACTIVATION. Refer to DCM ACTIVATION**
8. **REPLACE TELEPHONE AND GPS ANTENNA ASSEMBLY. Refer to REMOVAL**
9. **REPLACE TELEPHONE AND GPS ANTENNA CORD (ANTENNA CORD SUB-ASSEMBLY). Refer to REMOVAL**

DTC B1583: GPS SIGNAL UNRECEIVED

DESCRIPTION

If GPS satellite signals cannot be acquired for 15 consecutive miles, this DTC is set.

DTC No.	DTC Detection Condition	Trouble Area
B1583	GPS signal is not received for 24 km (15 miles)	• Telephone and GPS antenna assembly • DCM (Telematics Transceiver)

INSPECTION PROCEDURE

HINT:

If either DTC B15C0 or B15C1 is output at the same time, perform troubleshooting for DTC B15C0 or B15C1 first.

PROCEDURE

1. CHECK TELEPHONE AND GPS ANTENNA ASSEMBLY

- Check that there are no problems with the telephone and GPS antenna assembly.

OK

The antenna is not excessively dirty, and there are no objects blocking signal reception.

NG --> REMOVE FOREIGN OBJECT

OK: Go to next step

2. REPLACE TELEPHONE AND GPS ANTENNA ASSEMBLY

- Replace the telephone and GPS antenna assembly. Refer to **REMOVAL** .

NEXT: Go to next step

3. CLEAR DTC

- Clear the current and historic DTC. Refer to **DTC CHECK / CLEAR** .

NEXT: Go to next step

4. CHECK DTC

- Drive the vehicle for at least 15 miles, manual (SOS) switch red indicator will illuminate at approximately 10 miles if problem still exists.
- Turn the ignition switch off.
- Connect the Techstream to the DLC3.
- Turn the ignition switch to ON and wait for 10 seconds.
- Turn the Techstream on.
- Perform "HEALTH CHECK" and check current and historic DTCs. Refer to **HEALTH CHECK** .

HINT:

Basically turning ignition switch off will clear the current DTC until vehicle is driven about 10 miles again with the issue.

RESULT

Result	Proceed to
DTC B1583 is output	A
DTC B1583 is not output	B

B --> END

A: Go to next step

5. REPLACE DCM (TELEMATICS TRANSCEIVER)

- Replace the DCM (Telematics Transceiver). Refer to **REMOVAL** .

NOTE:

- The ignition switch must be off.
- Do not swap the DCM (Telematics Transceiver) with one from another vehicle.

NEXT --> See step 6

6. PERFORM DCM ACTIVATION. Refer to **DCM ACTIVATION**

DTC B15A8: TELEMATICS TRANSCEIVER MALFUNCTION

DESCRIPTION

This DTC is set when an error in the EEPROM or PLL IC is detected on the DCM (Telematics Transceiver) self-check. The EEPROM (Electrically Erasable Programmable Read-Only Memory) stores the various data to operate the Safety Connect system. The PLL IC (Phase-Locked Loop Integrated Circuit) oscillates telephone radio frequency.

DTC No.	DTC Detection Condition	Trouble Area
B15A8	Error in EEPROM or PLL IC is detected.	DCM (Telematics Transceiver)

INSPECTION PROCEDURE

NOTE: Regardless of whether DTC B15A8 has been output as a present DTC, the DCM (Telematics Transceiver) should be replaced.

PROCEDURE

1. REPLACE DCM (TELEMATICS TRANSCEIVER)

- a. Replace the DCM (Telematics Transceiver). Refer to **REMOVAL** .

NOTE:

- The ignition switch must be off.
- Do not swap the DCM (Telematics Transceiver) with one from another vehicle.

NEXT --> See step 2

2. PERFORM DCM ACTIVATION. Refer to DCM ACTIVATION

DTC B15C0: SHORT IN GPS ANTENNA; DTC B15C1: OPEN IN GPS ANTENNA

DESCRIPTION

This DTC is set when the DCM (Telematics Transceiver) detects an open or a short in the telephone and GPS antenna circuit. The DCM (Telematics Transceiver) receives 1574.42 - 1576.42 MHz radio frequency signals from satellites through the telephone and GPS antenna assembly. The cable is a 50 ohms coaxial cable.

DTC No.	DTC Detection Condition	Trouble Area
B15C0	Current for telephone and GPS antenna assembly is lower (ohms) malfunction criterion for 10 seconds when ignition switch is ON. (Short circuit)	• DCM (Telematics Transceiver) • Wire harness or connector (Telephone and GPS antenna cord) • Telephone and GPS antenna assembly
B15C1	Current for telephone and GPS antenna assembly is higher (ohms) malfunction criterion for 10 seconds when ignition switch is ON. (Open circuit)	

HINT:

Refer to "PARTS LOCATION" for the installation location of telephone and GPS antenna cord. Refer to **PARTS LOCATION** .

INSPECTION PROCEDURE

PROCEDURE

1. CHECK DTC

- a. Turn the ignition switch off.
- b. Connect the Techstream to the DLC3.
- c. Turn the ignition switch to ON and wait for 10 seconds.
- d. Turn the Techstream on.
- e. Perform "HEALTH CHECK" and check for current DTCs. Refer to **HEALTH CHECK** .

RESULT

Result	Proceed to
DTC B15C0 or B15C1 is output	A
DTC B15C0 or B15C1 is not output	B

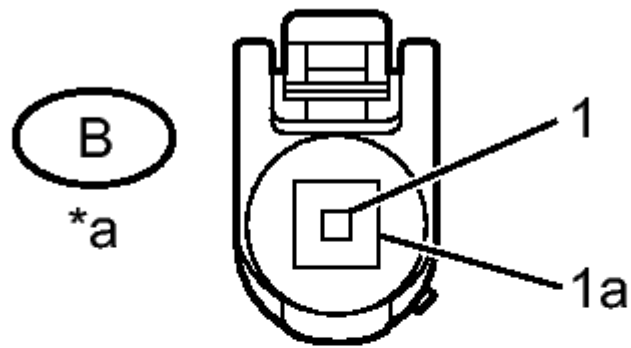
B --> See step 6

A: Go to next step

2. INSPECT TELEPHONE AND GPS ANTENNA CORD (ANTENNA CORD SUB-ASSEMBLY - VEHICLE'S WIRE HARNESS)

- a. Disconnect the B DCM (Telematics Transceiver) connector.

*1



*2

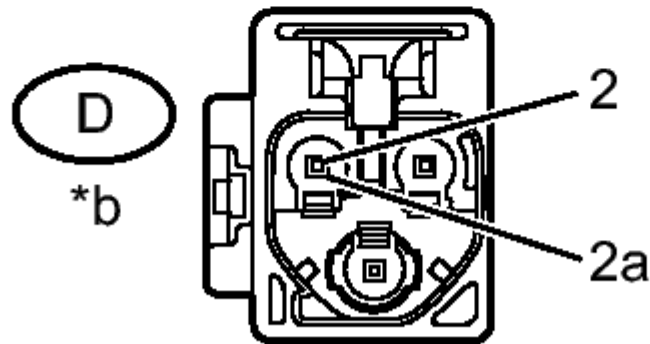


Fig. 20: Inspecting Telephone And GPS Antenna Cord (Antenna Cord Sub-Assembly - Vehicle's Wire Harness)

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

- b. Disconnect the D telephone and GPS antenna assembly connector.
- c. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
B-1 - D-2	Always	Below 1 ohms
B-1a - D-2a	Always	Below 1 ohms

B-1 - Body ground	Always	10 kohms or higher
B-1a - Body ground	Always	10 kohms or higher

TEXT IN ILLUSTRATION

*1	Telephone and GPS Antenna Cord (Antenna Cord Sub-Assembly)
*2	Telephone and GPS Antenna Cord (Vehicle's Wire Harness)
*a	B Connector Color: Gray
*b	D Connector Color: Blue

NG --> See step 5

OK: Go to next step

3. INSPECT TELEPHONE AND GPS ANTENNA ASSEMBLY

- a. Replace the telephone and GPS antenna assembly with a normal one and check if the same problem occurs again. Refer to **REMOVAL** .

OK

The system returns to normal.

NG --> See step 4

OK --> END

4. **REPLACE DCM (TELEMATICS TRANSCEIVER)**

- a. Replace the DCM (Telematics Transceiver). Refer to **REMOVAL** .

NOTE:

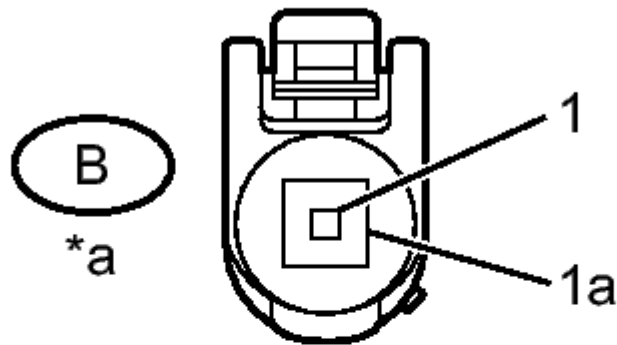
- The ignition switch must be off.
- Do not swap the DCM (Telematics Transceiver) with one from another vehicle.

NEXT --> See step 7

5. **INSPECT TELEPHONE AND GPS ANTENNA CORD (ANTENNA CORD SUB-ASSEMBLY)**

- a. Disconnect the B DCM (Telematics Transceiver) connector.

*1



*2

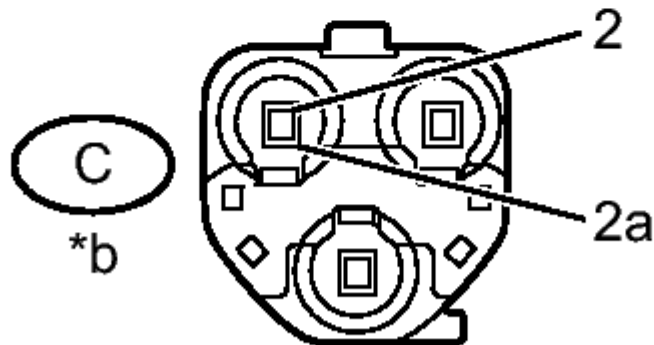


Fig. 21: Inspecting Telephone And GPS Antenna Cord (Antenna Cord Sub-Assembly)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Disconnect the C telephone and GPS antenna cord (Vehicle's wire harness) connector.
- c. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
B-1 - C-2	Always	Below 1 ohms
B-1a - C-2a	Always	Below 1 ohms
B-1 - Body ground	Always	10 kohms or higher
B-1a - Body ground	Always	10 kohms or higher

TEXT IN ILLUSTRATION

*1	Telephone and GPS Antenna Cord (Antenna Cord Sub-Assembly)
*2	Telephone and GPS Antenna Cord (Vehicle's Wire Harness)
*a	B Connector Color: Gray
*b	C Connector Color: Blue

NG --> See step 8

OK --> REPLACE TELEPHONE AND GPS ANTENNA CORD (VEHICLE'S WIRE HARNESS)

6. CHECK FOR INTERMITTENT PROBLEMS. Refer to HOW TO PROCEED WITH

TROUBLESHOOTING

7. **PERFORM DCM ACTIVATION.** Refer to **DCM ACTIVATION**
8. **REPLACE TELEPHONE AND GPS ANTENNA CORD (ANTENNA CORD SUB-ASSEMBLY).**
Refer to **REMOVAL**

DTC B15C4: AIRBAG SIGNAL MALFUNCTION/NOT INPUT

DESCRIPTION

If the DCM (Telematics Transceiver) detects an error in communication between the DCM (Telematics Transceiver) and the center airbag sensor assembly as a result of the DCM (Telematics Transceiver) self check, this DTC will be set.

DTC No.	DTC Detection Condition	Trouble Area
B15C4	DCM (Telematics Transceiver) detects an error in signals from center airbag sensor assembly when ignition switch is ON.	• Airbag system • Wire harness or connector • Center airbag sensor assembly • DCM (Telematics Transceiver)

WIRING DIAGRAM

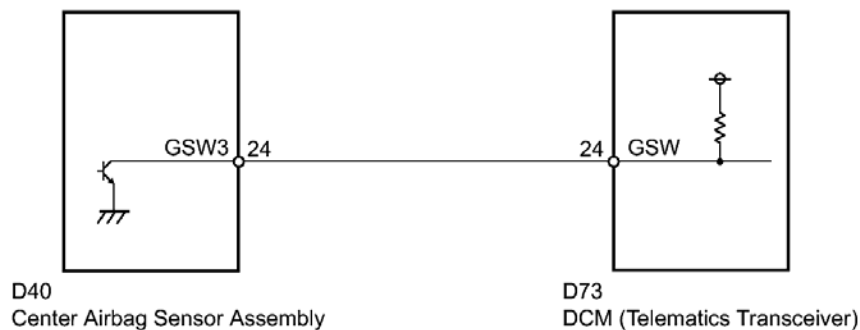


Fig. 22: Center Airbag Sensor Assembly - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

PROCEDURE

1. **CHECK DTC (AIRBAG SYSTEM)**
 - a. Turn the ignition switch off.
 - b. Connect the Techstream to the DLC3.
 - c. Turn the ignition switch to ON and wait for 10 seconds.

- d. Turn the Techstream on.
- e. Check the DTC of "AIRBAG SYSTEM". Refer to **DTC CHECK / CLEAR** .

RESULT

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

B --> See step 7

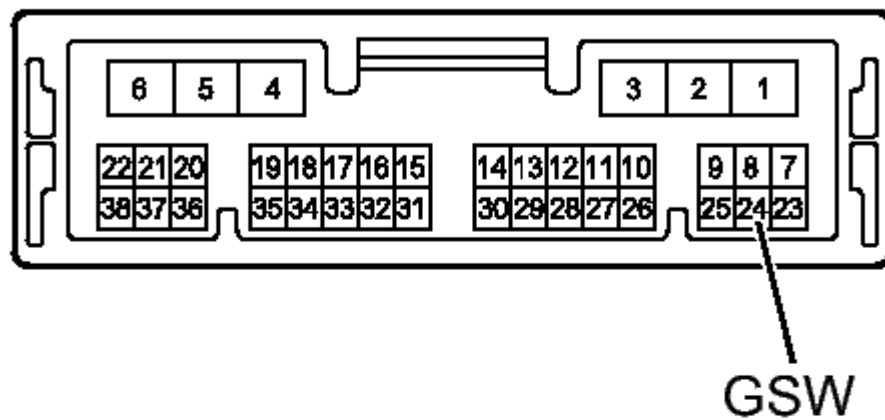
A: Go to next step

2. INSPECT DCM (TELEMATICS TRANSCEIVER) (GSW SIGNAL)

- a. Remove the DCM (Telematics Transceiver) but do not disconnect the connectors. Refer to **REMOVAL** .

*1

D73



*a

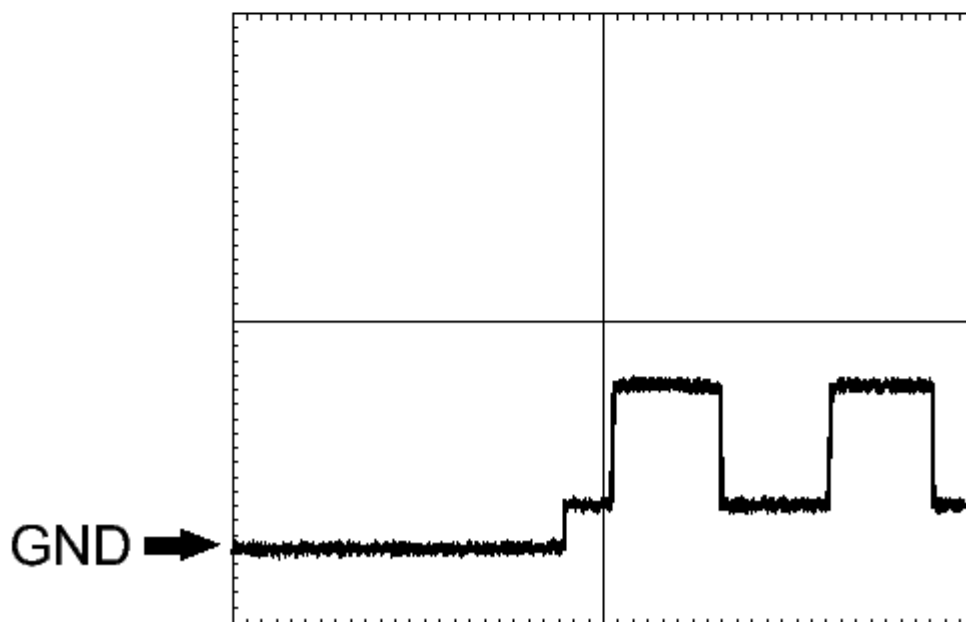


Fig. 23: Inspecting DCM (Telematics Transceiver) (GSW Signal)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Voltage

Tester Connection	Switch Condition	Specified Condition
D73-24 (GSW) - Body ground	Ignition switch ON	6.5 to 8.5 V

TEXT IN ILLUSTRATION

*1	Component with harness connected (DCM (Telematics Transceiver))
*a	Waveform

REFERENCE WAVEFORM

Item	Condition
Tester connection	D73-24 (GSW) - Body ground
Tool setting	5.0 V/DIV., 20 ms/DIV.
Vehicle condition	Ignition switch ON

RESULT

Result	Proceed to
8.5 V or higher	A
Below 6.5 V	B
6.5 V to 8.5 V	C

B --> See step 4

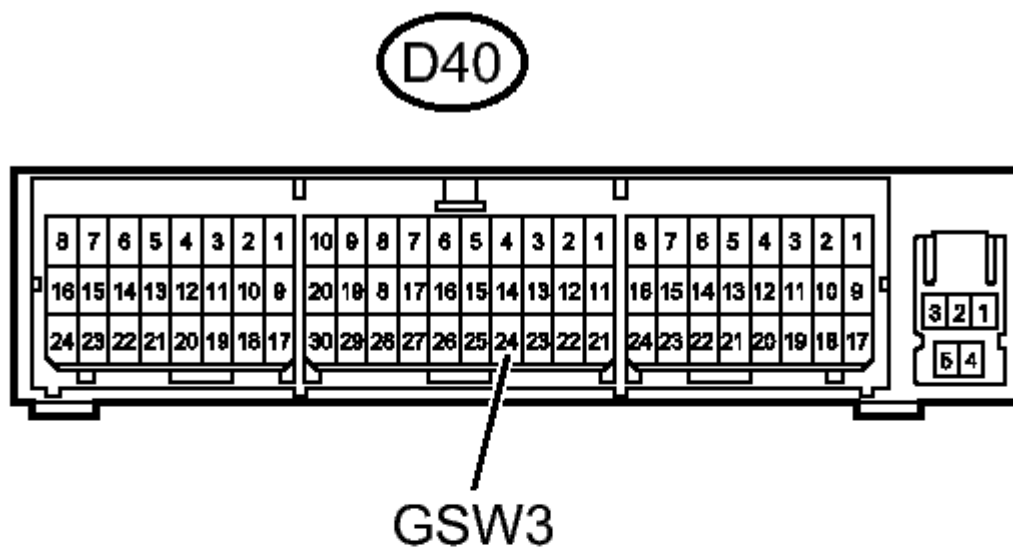
C --> See step 5

A: Go to next step

3. CHECK HARNESS AND CONNECTOR (FOR OPEN CIRCUIT)

- a. Remove the center airbag sensor assembly but do not disconnect the connectors. Refer to **REMOVAL** .

*1



*a

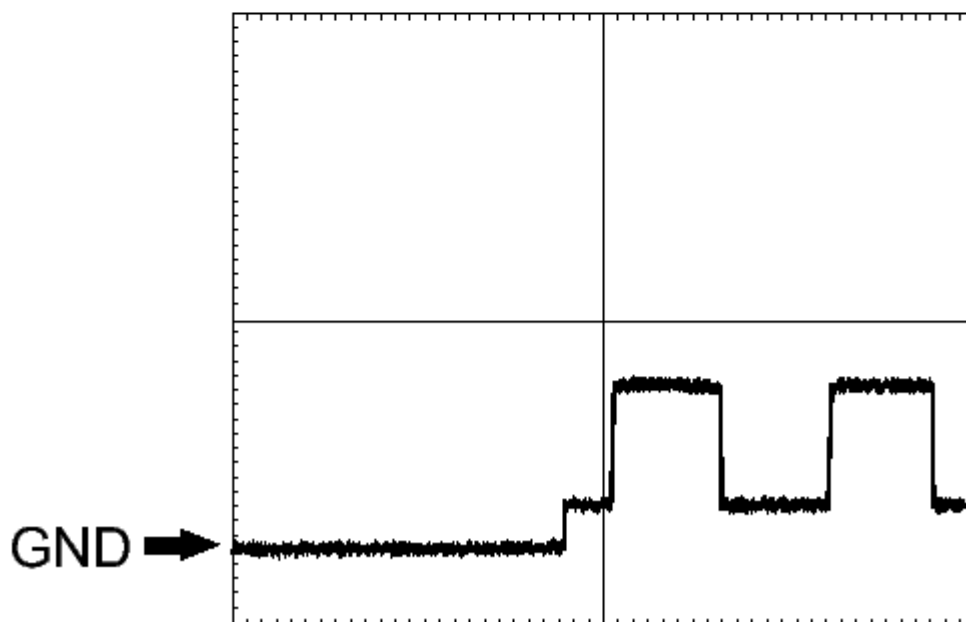


Fig. 24: Checking Harness And Connector (For Open Circuit)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Voltage

Tester Connection	Switch Condition	Specified Condition
D40-24 (GSW3) - Body ground	Ignition switch ON	8.5 V or higher

TEXT IN ILLUSTRATION

*1	Component with harness connected (Center Airbag Sensor Assembly)
*a	Waveform

REFERENCE WAVEFORM

Item	Condition
Tester connection	D40-24 (GSW3) - Body ground
Tool setting	5.0 V/DIV., 20 ms/DIV.
Vehicle condition	Ignition switch ON

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK --> See step 8

4. CHECK HARNESS AND CONNECTOR (FOR SHORT CIRCUIT)

- a. Disconnect the D73 DCM (Telematics Transceiver) connector.

*1

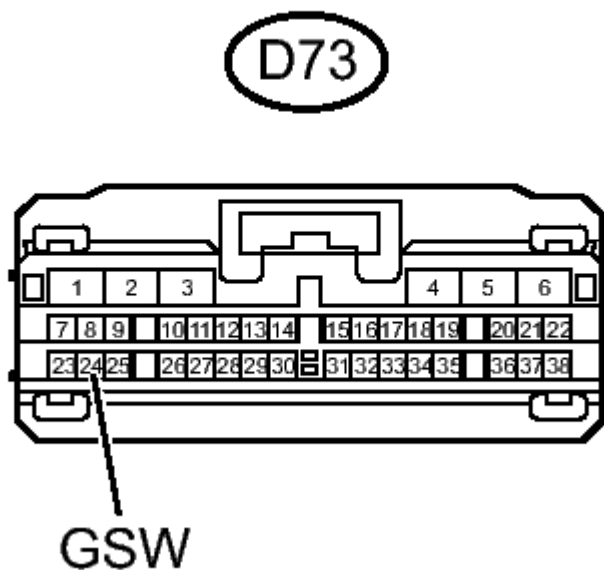


Fig. 25: Checking Harness And Connector (For Short Circuit)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
D73-24 (GSW) - Body ground	Always	10 kohms or higher

TEXT IN ILLUSTRATION

*1	Front view of wire harness connector (DCM (Telematics Transceiver))
----	---

NG --> See step 6

OK: Go to next step

5. REPLACE DCM (TELEMATICS TRANSCEIVER)

- a. Replace the DCM (Telematics Transceiver). Refer to **REMOVAL** .

NOTE:

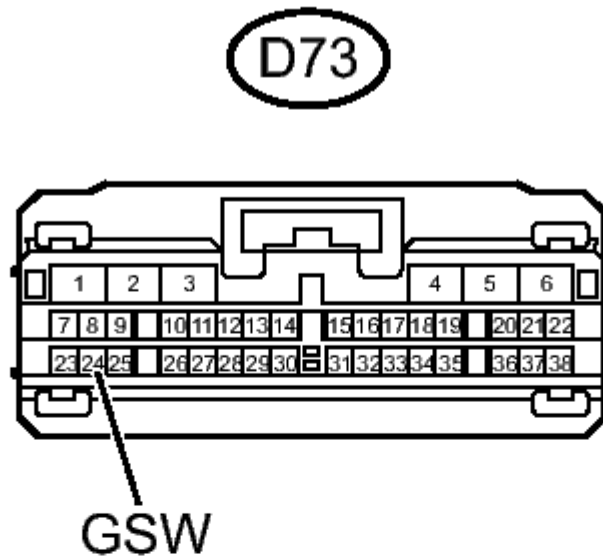
- The ignition switch must be off.
- Do not swap the DCM (Telematics Transceiver) with one from another vehicle.

NEXT --> See step 9

6. CHECK HARNESS AND CONNECTOR (DCM - CENTER AIRBAG SENSOR ASSEMBLY)

- a. Disconnect the D73 DCM (Telematics Transceiver) connector.

*1



*2

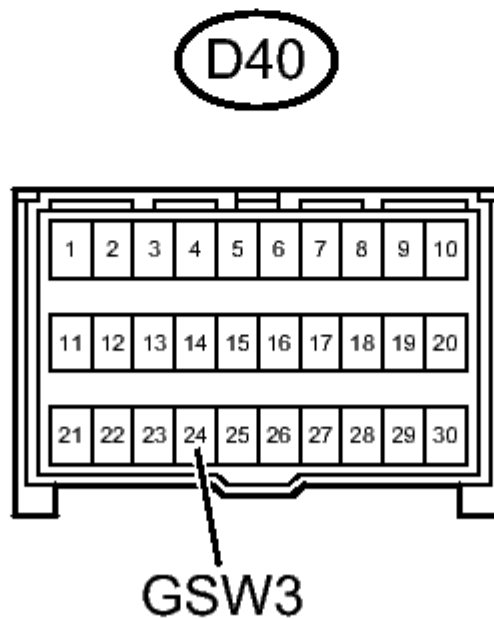


Fig. 26: Checking Harness And Connector (DCM - Center Airbag Sensor Assembly)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Disconnect the D40 center airbag sensor assembly connector.
- c. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
D73-24 (GSW) - D40-24 (GSW3)	Always	Below 1 ohms
D73-24 (GSW) - Body ground	Always	10 kohms or higher

TEXT IN ILLUSTRATION

*1	Front view of wire harness connector (to DCM (Telematics Transceiver))
*2	Front view of wire harness connector (to Center Airbag Sensor Assembly)

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK --> See step 10

7. **GO TO AIRBAG SYSTEM. Refer to DIAGNOSTIC TROUBLE CODE CHART**
8. **REPLACE CENTER AIRBAG SENSOR ASSEMBLY. Refer to REMOVAL**
9. **PERFORM DCM ACTIVATION. Refer to DCM ACTIVATION**
10. **REPLACE CENTER AIRBAG SENSOR ASSEMBLY. Refer to REMOVAL**

DTC B15C5: MANUAL BUTTON MALFUNCTION

DESCRIPTION

This DTC is set when the DCM (Telematics Transceiver) detects an open or short circuit in the manual (SOS) switch.

DTC No.	DTC Detection Condition	Trouble Area
B15C5	Open or short circuit in manual (SOS) switch is detected.	• DCM (Telematics Transceiver) • Roof console box assembly • Wire harness or connector

WIRING DIAGRAM

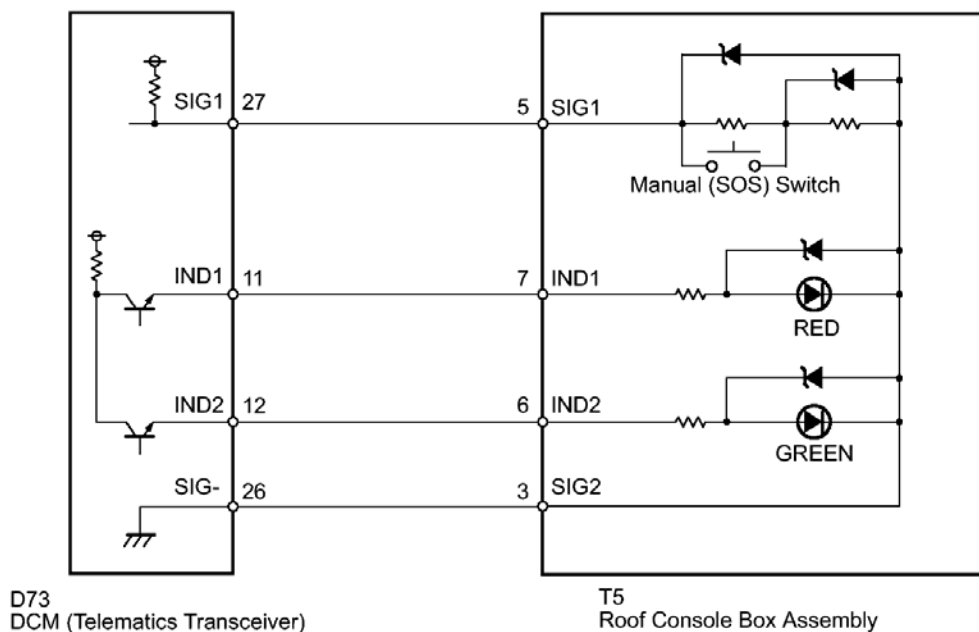


Fig. 27: Roof Console Box Assembly - Wiring Diagram
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

PROCEDURE

1. CHECK DTC

- Turn the ignition switch off.
- Connect the Techstream to the DLC3.
- Turn the ignition switch to ON and wait for 10 seconds.
- Turn the Techstream on.
- Perform "HEALTH CHECK" and check current DTC. Refer to **HEALTH CHECK**.

RESULT

Result	Proceed to
--------	------------

DTC B1570, B1571 and B15C5 are output	A
DTC B15C5 is output (DTC B1570 and B1571 are not output)	B

B --> See step 5

A: Go to next step

2. INSPECT ROOF CONSOLE BOX ASSEMBLY (MANUAL (SOS) SWITCH)

- a. Disconnect the T5 roof console box assembly connector.

***1**

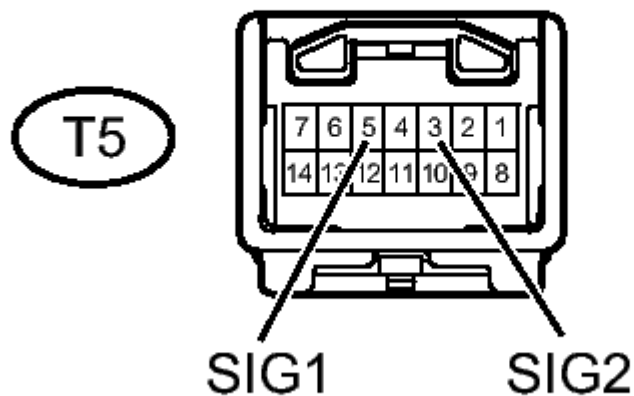


Fig. 28: Checking T5 Roof Console Box Assembly Connector
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Switch Condition	Specified Condition
T5-5 (SIG1) - T5-3 (SIG2)	Manual (SOS) switch not pressed	410 to 414 ohms
T5-5 (SIG1) - T5-3 (SIG2)	Manual (SOS) switch pressed	81 to 83 ohms

TEXT IN ILLUSTRATION

*1	Component without harness connected (Roof Console Box Assembly)
----	---

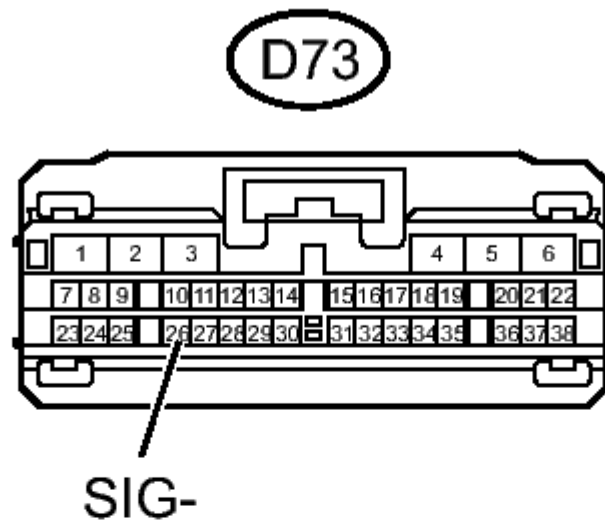
NG --> See step 12

OK: Go to next step

3. CHECK HARNESS AND CONNECTOR (DCM - ROOF CONSOLE BOX)

- a. Disconnect the D73 DCM (Telematics Transceiver) connector.

*1



*2

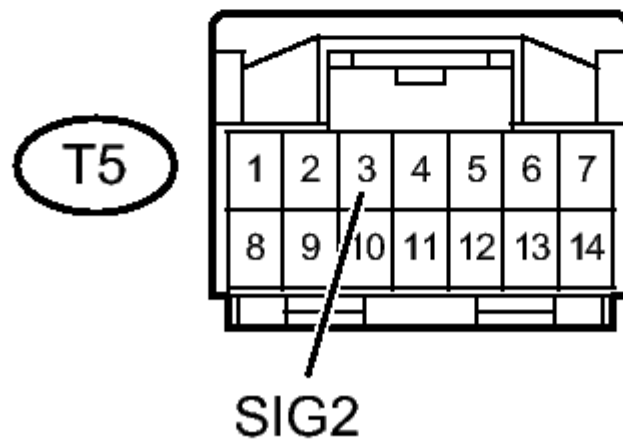


Fig. 29: Checking Harness And Connector (DCM - Roof Console Box)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Disconnect the T5 roof console box assembly connector.
- c. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
D73-26 (SIG-) - T5-3 (SIG2)	Always	Below 1 ohms
D73-26 (SIG-) - Body ground	Always	10 kohms or higher

TEXT IN ILLUSTRATION

*1	Front view of wire harness connector (to DCM (Telematics Transceiver))
*2	Front view of wire harness connector (to Roof Console Box Assembly)

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

OK: Go to next step

4. REPLACE DCM (TELEMATICS TRANSCEIVER)

- Replace the DCM (Telematics Transceiver). Refer to **REMOVAL** .

NOTE:

- The ignition switch must be off.
- Do not swap the DCM (Telematics Transceiver) with one from another vehicle.

NEXT --> See step 13

5. READ VALUE USING TECHSTREAM (MANUAL (SOS) SWITCH OPERATION)

- Turn the ignition switch off.
- Connect the Techstream to the DLC3.
- Turn the ignition switch to ON and wait for 10 seconds.

- d. Turn the Techstream on.
- e. Enter the following menus: Body Electrical / Telematics / Data List.
- f. Check that the manual (SOS) switch condition observed on the Techstream changes according to manual (SOS) switch operation.

TELEMATICS

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Emergency Switch	Manual (SOS) switch / OFF or ON	OFF: Manual (SOS) switch not pressed	-
		ON: Manual (SOS) switch pressed	-

RESULT

Result	Proceed to
Techstream display changes when turning the manual (SOS) switch ON/OFF.	A
Techstream display does not change when turning the manual (SOS) switch ON/OFF.	B

B --> See step 7

A: Go to next step

6. **REPLACE DCM (TELEMATICS TRANSCEIVER)**

- a. Replace the DCM (Telematics Transceiver). Refer to **REMOVAL** .

NOTE:

- The ignition switch must be off.
- Do not swap the DCM (Telematics Transceiver) with one from another vehicle.

NEXT --> See step 14

7. **INSPECT DCM (TELEMATICS TRANSCEIVER) (SIG1 VOLTAGE)**

- a. Remove the DCM (Telematics Transceiver) but do not disconnect the connectors. Refer to **REMOVAL** .

*1

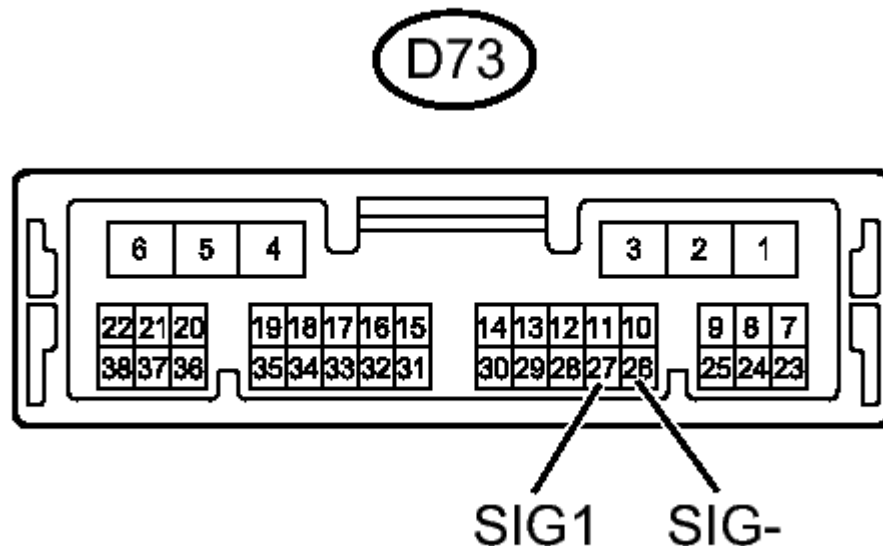


Fig. 30: Inspecting DCM (Telematics Transceiver) (SIG1 Voltage)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Voltage

Tester Connection	Switch Condition	Specified Condition
D73-27 (SIG1) -	Ignition switch ON,	1.4 to 1.8

D73-26 (SIG-)	manual (SOS) switch not pressed	V
------------------	--	---

TEXT IN ILLUSTRATION

*1	Component with harness connected (DCM (Telematics Transceiver))
----	--

NG --> See step 9

OK: Go to next step

8. REPLACE DCM (TELEMATICS TRANSCEIVER)

- Replace the DCM (Telematics Transceiver). Refer to **REMOVAL** .

NOTE:

- The ignition switch must be off.
- Do not swap the DCM (Telematics Transceiver) with one from another vehicle.

NEXT --> See step 15

9. INSPECT ROOF CONSOLE BOX ASSEMBLY (MANUAL (SOS) SWITCH)

- Disconnect the T5 roof console box assembly connector.

*1

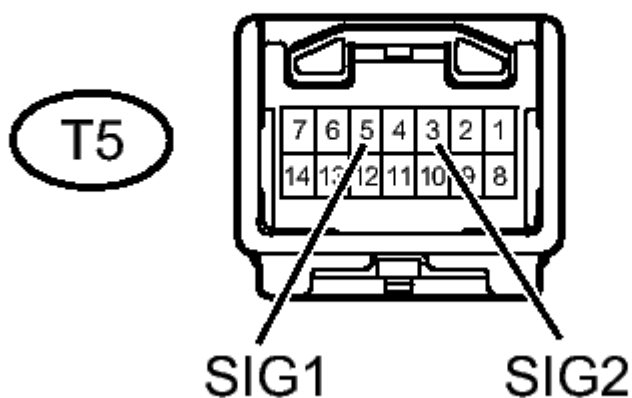


Fig. 31: Identifying T5 Roof Console Box Assembly Connector Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Switch Condition	Specified Condition
T5-5 (SIG1) - T5-3 (SIG2)	Manual (SOS) switch not pressed	410 to 414 ohms
T5-5 (SIG1) - T5-3 (SIG2)	Manual (SOS) switch pressed	81 to 83 ohms

TEXT IN ILLUSTRATION

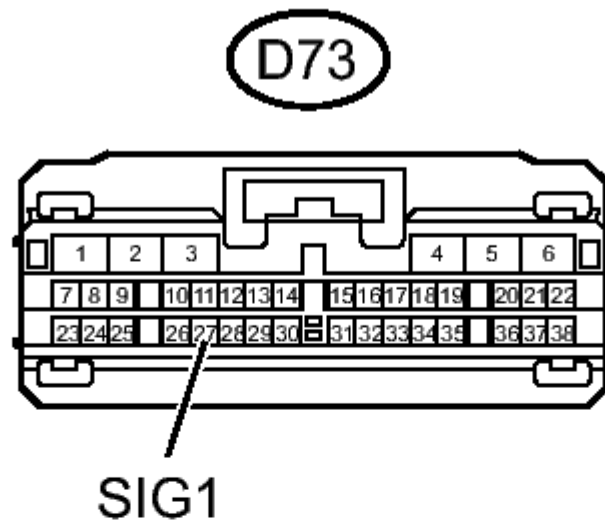
*1	Component without harness connected (Roof Console Box Assembly)
----	---

NG --> REPLACE ROOF CONSOLE BOX ASSEMBLY

OK: Go to next step

- 10. CHECK HARNESS AND CONNECTOR (DCM - ROOF CONSOLE BOX)**
 - a. Disconnect the D73 DCM (Telematics Transceiver) connector.

*1



*2

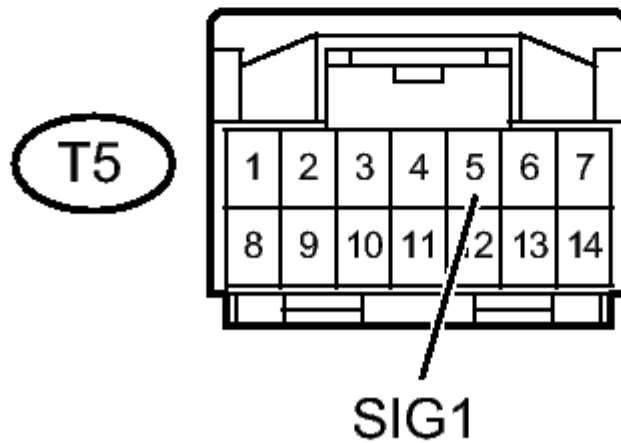


Fig. 32: Checking Harness And Connector (DCM - Roof Console Box)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Disconnect the T5 roof console box assembly connector.
- c. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
D73-27 (SIG1) - T5-5 (SIG1)	Always	Below 1 ohms
D73-27 (SIG1) - Body ground	Always	10 kohms or higher

TEXT IN ILLUSTRATION

*1	Front view of wire harness connector (to DCM (Telematics Transceiver))
*2	Front view of wire harness connector (to Roof Console Box Assembly)

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to next step

11. REPLACE DCM (TELEMATICS TRANSCEIVER)

- Replace the DCM (Telematics Transceiver). Refer to **REMOVAL** .

NOTE:

- The ignition switch must be off.
- Do not swap the DCM (Telematics Transceiver) with one from another vehicle.

NEXT --> See step 16

12. REPLACE ROOF CONSOLE BOX ASSEMBLY. Refer to **REMOVAL**

13. PERFORM DCM ACTIVATION. Refer to **DCM ACTIVATION**

14. PERFORM DCM ACTIVATION. Refer to **DCM ACTIVATION**

15. **PERFORM DCM ACTIVATION. Refer to DCM ACTIVATION**

16. **PERFORM DCM ACTIVATION. Refer to DCM ACTIVATION**

DTC B15CC: BACKUP BATTERY FAILURE

DESCRIPTION

This DTC is set when the DCM (Telematics Transceiver) detects one of the following:

- Open or short in the BUB (Back-Up Battery) circuit.
- The BUB (Back-Up Battery) voltage drops or the BUB (Back-Up Battery) malfunctions.
- The BUB (Back-Up Battery) temperature is (temporarily) high.

DTC No.	DTC Detection Condition	Trouble Area
B15CC	BUB (Back-Up Battery) malfunction	• Wire harness or connector • BUB (Back-Up Battery) • DCM (Telematics Transceiver)

WIRING DIAGRAM

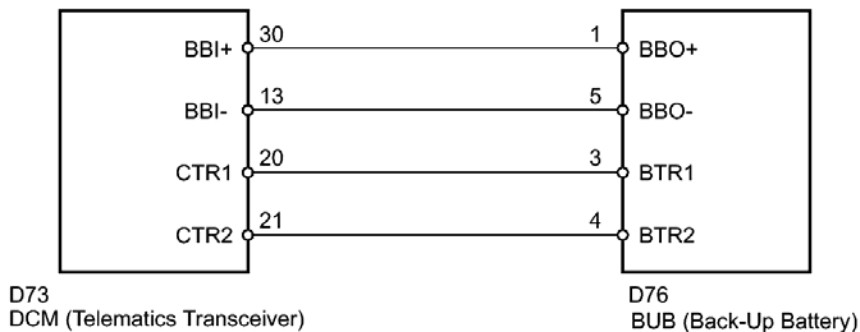


Fig. 33: Backup Battery - Wiring Diagram

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

INSPECTION PROCEDURE

PROCEDURE

1. CHECK DTC

- Turn the ignition switch off.
- Connect the Techstream to the DLC3.
- Turn the ignition switch to ON and wait for 10 seconds.
- Turn the Techstream on.

- e. Perform "HEALTH CHECK" and check for current DTCs. Refer to **HEALTH CHECK** .

RESULT

Result	Proceed to
DTC B15CC is output	A
DTC B15CC is not output	B

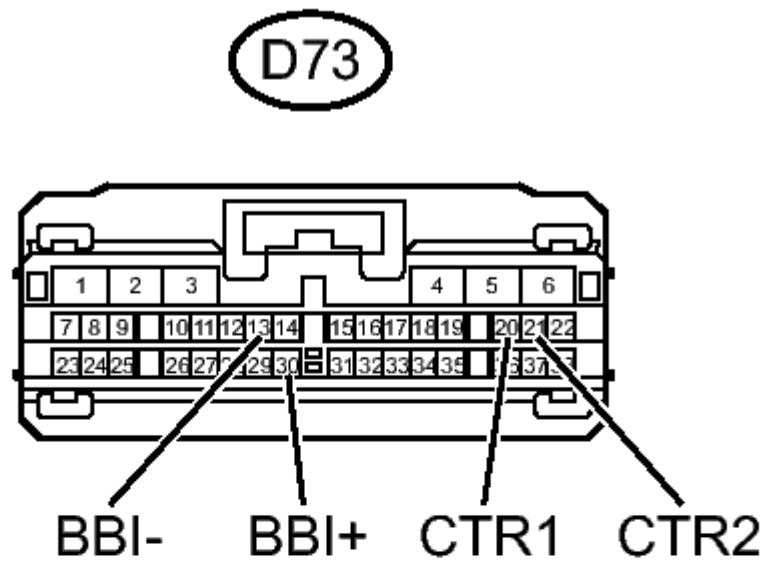
B --> See step 7

A: Go to next step

2. CHECK HARNESS AND CONNECTOR (DCM - BUB)

- a. Disconnect the D73 DCM (Telematics Transceiver) connector.

*1



*2

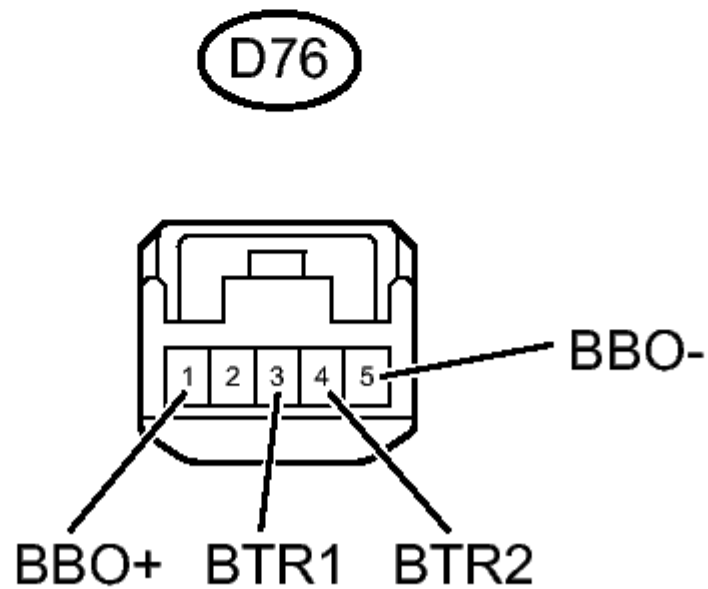


Fig. 34: Checking Harness And Connector (DCM - BUB)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Disconnect the D76 BUB (Back-Up Battery) connector.
- c. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
D73-30 (BBI+) - D76-1 (BBO+)	Always	Below 1 ohms
D73-13 (BBI-) - D76-5 (BBO-)	Always	Below 1 ohms
D73-20 (CTR1) - D76-3 (BTR1)	Always	Below 1 ohms
D73-21 (CTR2) - D76-4 (BTR2)	Always	Below 1 ohms
D73-30 (BBI+) - Body ground	Always	10 kohms or higher
D73-13 (BBI-) - Body ground	Always	10 kohms or higher
D73-20 (CTR1) - Body ground	Always	10 kohms or higher
D73-21 (CTR2) - Body ground	Always	10 kohms or higher

TEXT IN ILLUSTRATION

*1	Front view of wire harness connector (to DCM (Telematics Transceiver))
	Front view

*2	of wire harness connector (to BUB (Back-Up Battery))
----	---

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to next step

3. REPLACE BUB (BACK-UP BATTERY)

- Replace the BUB (Back-Up Battery) with a normal one and check if the same problem occurs again. Refer to **REMOVAL** .

NOTE: **The BUB (Back-Up Battery) must not be replaced while an ACN call is in progress. Refer to ACN CALL END .**

NEXT: Go to next step

4. CLEAR DTC

- Clear the DTC. Refer to **DTC CHECK / CLEAR** .

NEXT: Go to next step

5. RECHECK DTC

- Recheck for DTCs and check if the same trouble occurs again. Refer to **HEALTH CHECK** .

OK

No DTC is output.

NG --> See step 6

OK --> END

6. REPLACE DCM (TELEMATICS TRANSCEIVER)

- Replace the DCM (Telematics Transceiver). Refer to **REMOVAL** .

NOTE:

- **The ignition switch must be off.**
- **Do not swap the DCM (Telematics Transceiver) with one from another vehicle.**

NEXT --> See step 8

7. **CHECK FOR INTERMITTENT PROBLEMS. Refer to HOW TO PROCEED WITH TROUBLESHOOTING**
8. **PERFORM DCM ACTIVATION. Refer to DCM ACTIVATION**

DTC B15EC: BACKUP BATTERY DEGRADATION

DESCRIPTION

This DTC is set when the DCM (Telematics Transceiver) detects either of the following conditions.

- The BUB (Back-Up Battery) charge level becomes less than the criteria.
- Automatic Collision Notification (ACN) occurred.

When this DTC is set, the BUB (Back-Up Battery) must be replaced.

BUB (Back-Up Battery) degradation DTC B15EC is not reported in deactive mode.

DTC No.	DTC Detection Condition	Trouble Area
B15EC	BUB (Back-Up Battery) is deteriorated.	BUB (Back-Up Battery)

INSPECTION PROCEDURE

NOTE:

- If this DTC is set, be certain to replace the BUB (Back-Up Battery) with a new one.
- After the BUB (Back-Up Battery) is replaced, it is necessary to clear this DTC.
- The BUB (Back-Up Battery) must not be replaced while an ACN call is in progress. Refer to ACN CALL END .

PROCEDURE

1. CHECK DTC

- a. Turn the ignition switch off.
- b. Connect the Techstream to the DLC3.
- c. Turn the ignition switch to ON and wait for 10 seconds.
- d. Turn the Techstream on.
- e. Perform "HEALTH CHECK" and check for current DTCs. Refer to HEALTH CHECK .

RESULT

Result	Proceed to
DTC B15EC	A

is output	
DTC B15EC is not output	B

B --> See step 3

A --> See step 2

2. **REPLACE BUB (BACK-UP BATTERY). Refer to REMOVAL**
3. **CHECK FOR INTERMITTENT PROBLEMS. Refer to HOW TO PROCEED WITH TROUBLESHOOTING**

CIRCUIT TESTS

DCM POWER SOURCE CIRCUIT

DESCRIPTION

This is the power source circuit to operate the DCM (Telematics Transceiver).

WIRING DIAGRAM

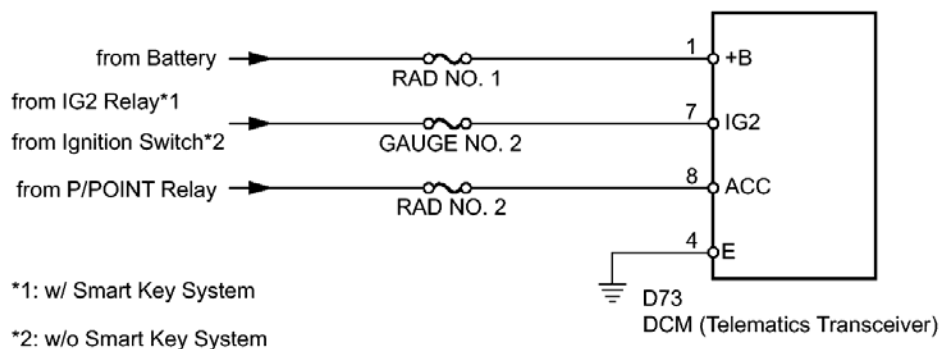


Fig. 35: DCM Power Source Circuit - Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

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

PROCEDURE

1. **CHECK HARNESS AND CONNECTOR (DCM - BATTERY AND BODY GROUND)**

- a. Disconnect the D73 DCM (Telematics Transceiver) connector.

*1

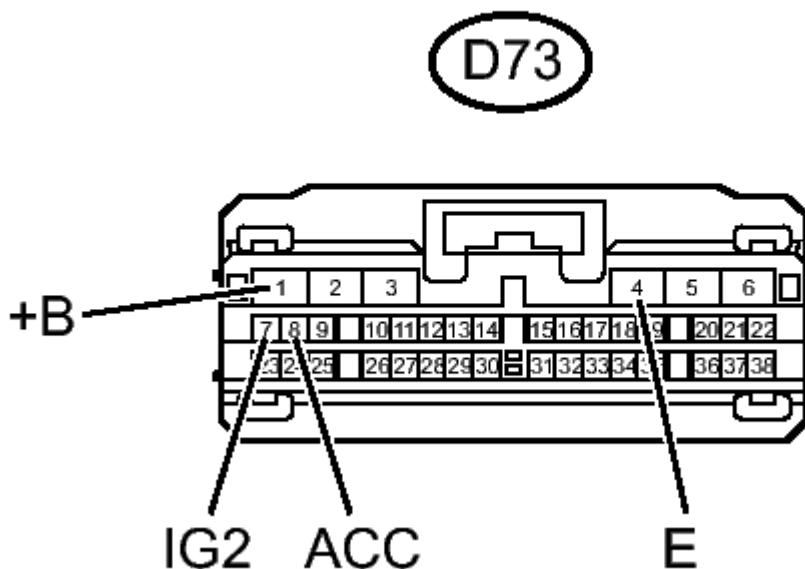


Fig. 36: Checking Harness And Connector (DCM - Battery And Body Ground)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
D73-4 (E) - Body ground	Always	Below 1 ohms

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

Standard Voltage

Tester Connection	Switch Condition	Specified Condition
D73-1 (+B) - D73-4 (E)	Always	11 to 14 V
D73-7 (IG2) -	Ignition switch	11 to 14 V

D73-4 (E)	ON	
D73-8 (ACC) - D73-4 (E)	Ignition switch ACC	11 to 14 V

TEXT IN ILLUSTRATION

*1	Front view of wire harness connector (to DCM (Telematics Transceiver))
----	--

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

OK --> See step 2

2. **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE**

SYMPTOM TESTS

GREEN AND RED INDICATORS BLINK SIMULTANEOUSLY

DESCRIPTION

After the ignition switch to ON, the DCM (Telematics Transceiver) will enter into a self check mode. The manual (SOS) switch red indicator will illuminate for 2 seconds and turn off followed by the manual (SOS) switch green indicator illuminating and remaining on under normal operation.

If both indicators illuminate and begin to blink simultaneously, this indicates that the DCM (Telematics Transceiver) is in "Shipping Mode." If no DTCs are present, both the green and red indicators will turn off after blinking. The activation sequence must be performed.

HINT:

In shipping mode, the system will attempt to activate to shell mode automatically at each ignition switch to ON.

INSPECTION PROCEDURE

PROCEDURE

1. CHANGE SUBSCRIPTION MODE

- a. Turn the ignition switch to ON.
- b. Push the manual (SOS) switch.
- c. The vehicle will issue a voice prompt: "Safety Connect is not initialized. To activate, please press

the button again within 5 seconds."

- d. Push the manual (SOS) switch and a beep will be emitted.
- e. The telematics service provider will send an End Call command and the manual (SOS) switch green indicator will illuminate.
- f. A voice prompt will state: "Activation Complete" (This may take up to 3 minutes)
- g. Turn the ignition switch off.

NEXT: Go to next step

2. CHECK SUBSCRIPTION MODE

- a. Turn the ignition switch to ON.
- b. Confirm the manual (SOS) switch red indicator illuminates for 2 seconds and turns off and the manual (SOS) switch green indicator illuminates and remains on. Refer to **SYSTEM DESCRIPTION** .

NEXT --> END

GREEN AND RED INDICATORS DO NOT COME ON WHEN IG-ON

DESCRIPTION

If the red and green indicators fail to illuminate after the ignition switch to ON, the vehicle does not recognize the DCM (Telematics Transceiver). The DCM (Telematics Transceiver) connectors may have been disconnected or the DCM (Telematics Transceiver) is malfunctioning.

INSPECTION PROCEDURE

PROCEDURE

1. HEALTH CHECK

- a. Turn the ignition switch off.
- b. Connect the Techstream to the DLC3.
- c. Turn the ignition switch to ON and wait for 10 seconds.
- d. Turn the Techstream on.
- e. Perform "Health Check" using the Techstream and check that Telematics (Safety Connect) is listed on "Health Check Result". Refer to **HEALTH CHECK** .

RESULT

Result	Proceed to
"Telematics" is displayed on the Techstream	A
"Telematics"	

is not displayed on the Techstream	B
---	---

B --> See step 3

A: Go to next step

2. CHECK DTC

- Turn the ignition switch off.
- Connect the Techstream to the DLC3.
- Turn the ignition switch to ON and wait for 10 seconds.
- Turn the Techstream on.
- Check current DTC and history DTCs. Refer to **HEALTH CHECK** .

RESULT

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

B --> See step 5

A --> See step 4

- PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to **PROBLEM SYMPTOMS TABLE****
- CHECK FOR INTERMITTENT PROBLEMS. Refer to **HOW TO PROCEED WITH TROUBLESHOOTING****
- GO TO DIAGNOSTIC TROUBLE CODE CHART. Refer to **DIAGNOSTIC TROUBLE CODE CHART****

GREEN INDICATOR REMAINS OFF

DESCRIPTION

After the ignition switch to ON, the DCM (Telematics Transceiver) will enter into a self check mode. The manual (SOS) switch red indicator will illuminate for 2 seconds and turn off followed by the manual (SOS) switch green indicator illuminating and remaining on under normal operation. If neither the red nor green indicators remain on, verification of the subscription should be performed.

INSPECTION PROCEDURE

PROCEDURE

1. CONFIRM GREEN INDICATOR COMES ON

- a. After the ignition switched to ON and the manual (SOS) switch red indicator has come on for 2 seconds, confirm that the manual (SOS) switch green indicator comes on for 2 seconds.

OK

Green indicator comes on.

NG --> See step 6

OK: Go to next step

2. CONFIRM SUBSCRIPTION MODE

- a. Confirm the indicator status at 5 seconds after ignition switch to ON.

RESULT

Result	Proceed to
Green indicator remains on	A
Green indicator remains off	B
Red and Green indicators both flash (1 second intervals, for 20 seconds)	C

HINT:

If red and green indicator are flashing, the system is in shipping mode, so the system should be changed to either active mode or deactive mode.

B --> See step 3

C --> See step 9

A --> See step 8

3. INPUT VIN WITH TECHSTREAM

- a. Turn the ignition switch off.
- b. Connect the Techstream to the DLC3.
- c. Turn the ignition switch to ON and wait for 10 seconds.
- d. Turn the Techstream on.
- e. Select "Vehicle Inquiry" and input VIN.

NEXT: Go to next step

4. CONFIRM SUBSCRIPTION MODE

- a. Confirm the indicator status at 5 seconds after ignition switch to ON.

RESULT

Result	Proceed to
Green indicator remains on	A
Green indicator remains off	B

B --> See step 5

A --> END

5. REPLACE DCM (TELEMATICS TRANSCEIVER)

- a. Replace the DCM (Telematics Transceiver). Refer to **REMOVAL** .

NOTE:

- The ignition switch must be off.
- Do not swap the DCM (Telematics Transceiver) with one from another vehicle.

NEXT --> See step 10

6. CHECK DTC

- a. Turn the ignition switch off.
- b. Connect the Techstream to the DLC3.

- c. Turn the ignition switch to ON and wait for 10 seconds.
- d. Turn the Techstream on.
- e. Perform "HEALTH CHECK" and check for current DTCs. Refer to HEALTH CHECK .

RESULT

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

B --> See step 11

A: Go to next step

7. REPLACE DCM (TELEMATICS TRANSCEIVER)

- a. Replace the DCM (Telematics Transceiver). Refer to REMOVAL .

NOTE:

- The ignition switch must be off.
- Do not swap the DCM (Telematics Transceiver) with one from another vehicle.

NEXT --> See step 12

8. **CHECK FOR INTERMITTENT PROBLEMS.** Refer to HOW TO PROCEED WITH TROUBLESHOOTING
9. **CHANGE SUBSCRIPTION MODE.** Refer to GREEN AND RED INDICATORS BLINK SIMULTANEOUSLY
10. **PERFORM DCM ACTIVATION.** Refer to DCM ACTIVATION
11. **GO TO DIAGNOSTIC TROUBLE CODE CHART.** Refer to DIAGNOSTIC TROUBLE CODE CHART
12. **PERFORM DCM ACTIVATION.** Refer to DCM ACTIVATION

RED INDICATOR REMAINS ON

DESCRIPTION

When the red indicator remains on, this means that the DCM (Telematics Transceiver) has detected a malfunction in the Safety Connect system and set a DTC.

INSPECTION PROCEDURE

PROCEDURE

1. CHECK DTC

- a. Turn the ignition switch off.
- b. Connect the Techstream to the DLC3.
- c. Turn the ignition switch to ON and wait for 10 seconds.
- d. Turn the Techstream on.
- e. Perform "HEALTH CHECK" and check for current DTCs. Refer to HEALTH CHECK .

RESULT

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

B --> See step 3

A: Go to next step

2. REPLACE DCM (TELEMATICS TRANSCEIVER)

- a. Replace the DCM (Telematics Transceiver). Refer to REMOVAL .

NOTE:

- The ignition switch must be off.
- Do not swap the DCM (Telematics Transceiver) with one from another vehicle.

NEXT --> See step 4

3. **GO TO DIAGNOSTIC TROUBLE CODE CHART. Refer to DIAGNOSTIC TROUBLE CODE CHART**
4. **PERFORM DCM ACTIVATION. Refer to DCM ACTIVATION**

UNABLE TO CONNECT TO CALL CENTER

DESCRIPTION

This may occur when the intensity of telephone radio frequency was very weak, PRL updates are required, or the Safety Connect system has a malfunction and a DTC is set.

INSPECTION PROCEDURE

PROCEDURE

1. CHECK COMMUNICATION SERVICE CONDITION

- a. Move the vehicle.
 1. If the vehicle is outside the communication service area, move the vehicle to a communication service area, wait for a while and perform the operation again.

OK

Same problem does not occur.

NG --> See step 2

OK --> END

2. CHECK DTC

- a. Turn the ignition switch off.
- b. Connect the Techstream to the DLC3.
- c. Turn the ignition switch to ON and wait for 10 seconds.
- d. Turn the Techstream on.
- e. Perform "HEALTH CHECK" and check current DTC. Refer to HEALTH CHECK.

RESULT

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

B --> See step 6

A: Go to next step

3. CHECK PRL UPDATE

- a. Check for PRL update. Refer to PRL UPDATE.
- b. Check if the same problem occurs again.

OK

Same problem does not occur.

NG --> See step 4

OK --> END

4. CHECK DCM OPERATION HISTORY

- a. Check "DCM OPERATION HISTORY". Refer to **DCM OPERATION HISTORY** .

RESULT

Result	Proceed to
Signal strength is weak (0 or 1)	A
Communication indicates "Fail"	
No problems with signal strength or communication	B

HINT:

If there was a communication problem in the past but the communications are working correctly now, it is possible that the source of the problem was temporary radio interference, or the vehicle may have been outside the service area.

B --> END

A: Go to next step

5. REPLACE DCM (TELEMATICS TRANSCEIVER)

- a. Replace the DCM (Telematics Transceiver). Refer to **REMOVAL** .

NOTE:

- The ignition switch must be off.
- Do not swap the DCM (Telematics Transceiver) with one from another vehicle.

NEXT --> See step 7

6. GO TO DIAGNOSTIC TROUBLE CODE CHART. Refer to **DIAGNOSTIC TROUBLE CODE CHART**

7. PERFORM DCM ACTIVATION. Refer to **DCM ACTIVATION**

ACCESSORIES & EQUIPMENT

Safety Connect System (Diagnostics - Introduction) - Sienna

SAFETY CONNECT SYSTEM

PRECAUTION

PRECAUTION

1. 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

2. WHEN AUTOMATIC COLLISION NOTIFICATION HAS ACTIVATED

- a. Perform "ACN CALL END" with Techstream to terminate ACN (Automatic Collision Notification) with the call center. Refer to **ACN CALL END**.
- b. The BUB (Back-Up Battery) must be replaced.

3. WHEN DISCONNECTING CONNECTORS FROM TELEMATICS DATA COMMUNICATION MODULE (DCM (TELEMATICS TRANSCEIVER))

- a. The power switch must be off.

4. WHEN REPLACING THE DCM (TELEMATICS TRANSCEIVER)

- a. After installing a new DCM (Telematics Transceiver), perform "DCM ACTIVATION" with the Techstream. Refer to **DCM ACTIVATION**. This allows the Telematics service provider to register the new DCM (Telematics Transceiver) and to delete the old DCM (Telematics Transceiver) information from its database.

NOTE: Do not swap the DCM (telematics transceiver) with one from another vehicle.

5. WHEN UNABLE TO CONTACT WITH CALL CENTER BUT NO DTC

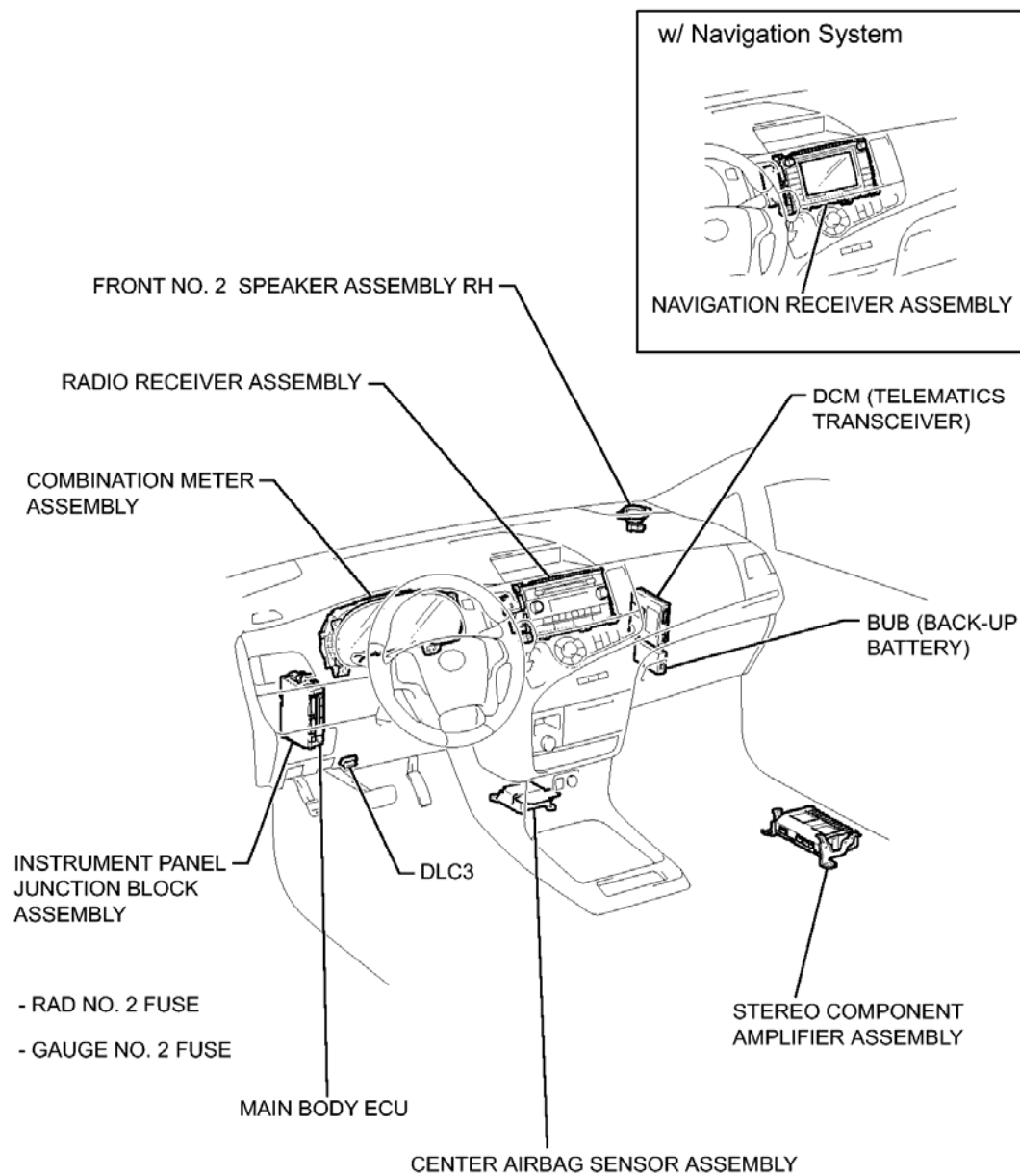
- a. This may occur when the cellular signal strength was very weak. Check "DCM OPERATION HISTORY" with the Techstream. Refer to **DCM OPERATION HISTORY**.

6. WHEN DIAGNOSING DCM (TELEMATICS TRANSCEIVER)

- a. While attempting to diagnose the DCM (Telematics Transceiver), do NOT use a DCM (Telematics Transceiver) from another vehicle. Each DCM (Telematics Transceiver) is registered to a specific VIN and should not be tested in another vehicle.

PARTS LOCATION

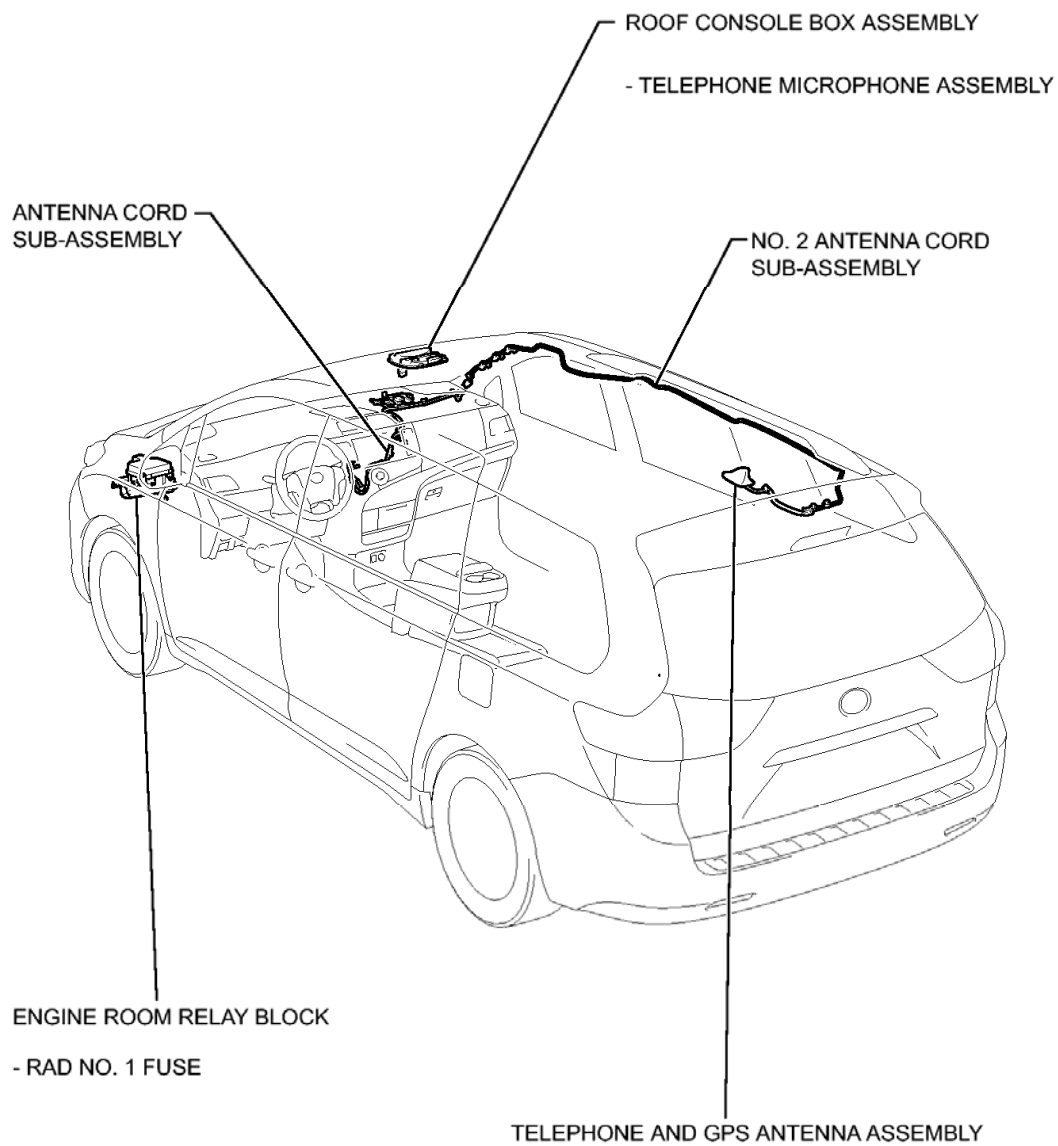
ILLUSTRATION



P

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

ILLUSTRATION



P

Fig. 2: Safety Connect System Components Location (2 Of 2)

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

SYSTEM DIAGRAM

SYSTEM DIAGRAM

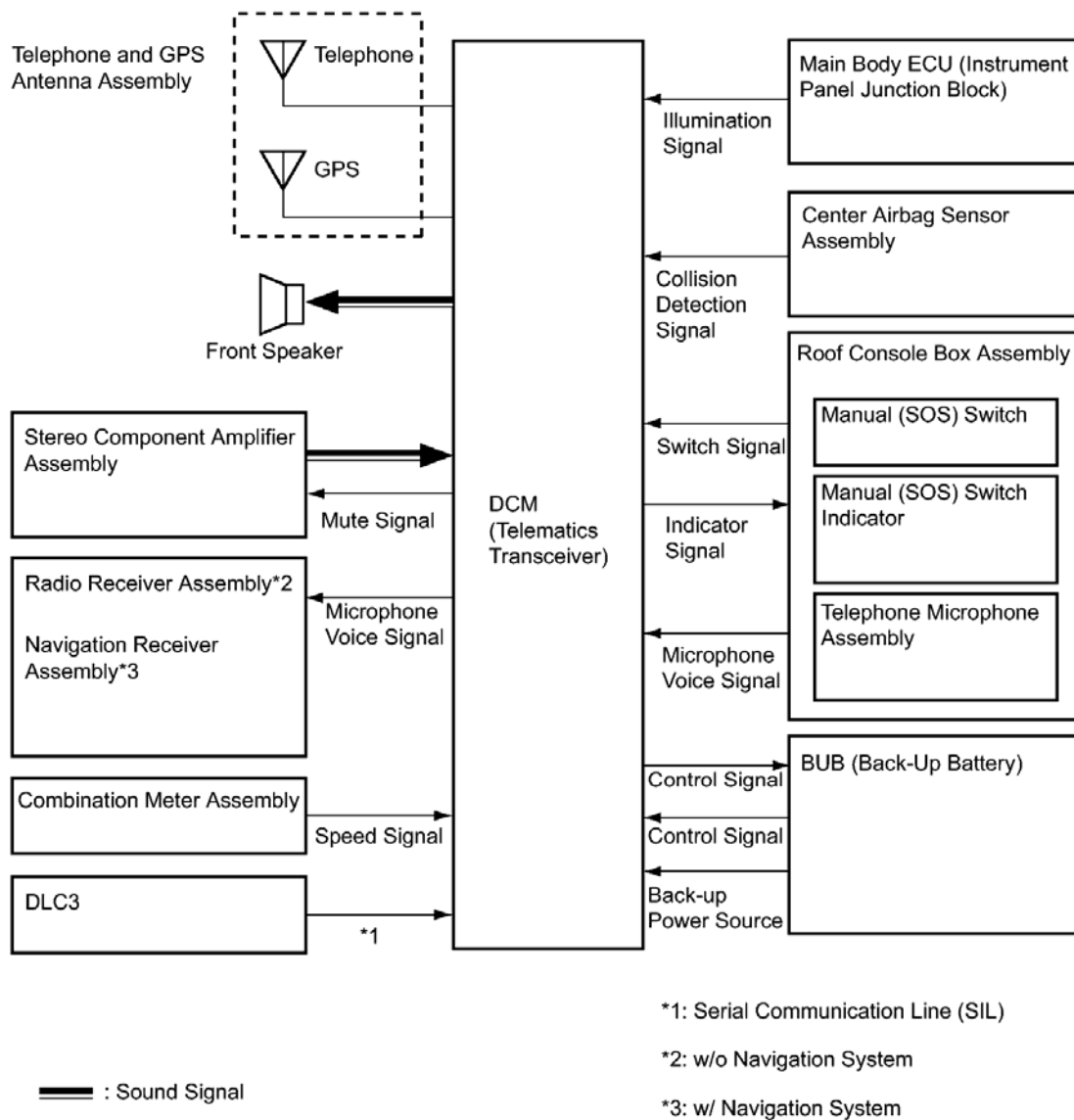


Fig. 3: Safety Connect System Diagram

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

SYSTEM DESCRIPTION

SYSTEM DESCRIPTION

1. DESCRIPTION

- a. Safety Connect performs ACN (Automatic Collision Notification), manual emergency calling and stolen vehicle tracking, roadside assistance services, by audio and data communications between the vehicle and call center through a cellular phone network. As shown in the illustration, when a

collision is detected, the vehicle sends its location calculated based on GPS signals and the identification code of the DCM (Telematics Transceiver) to a call center. After the necessary information has been gathered, the call center will relay this information to emergency services.

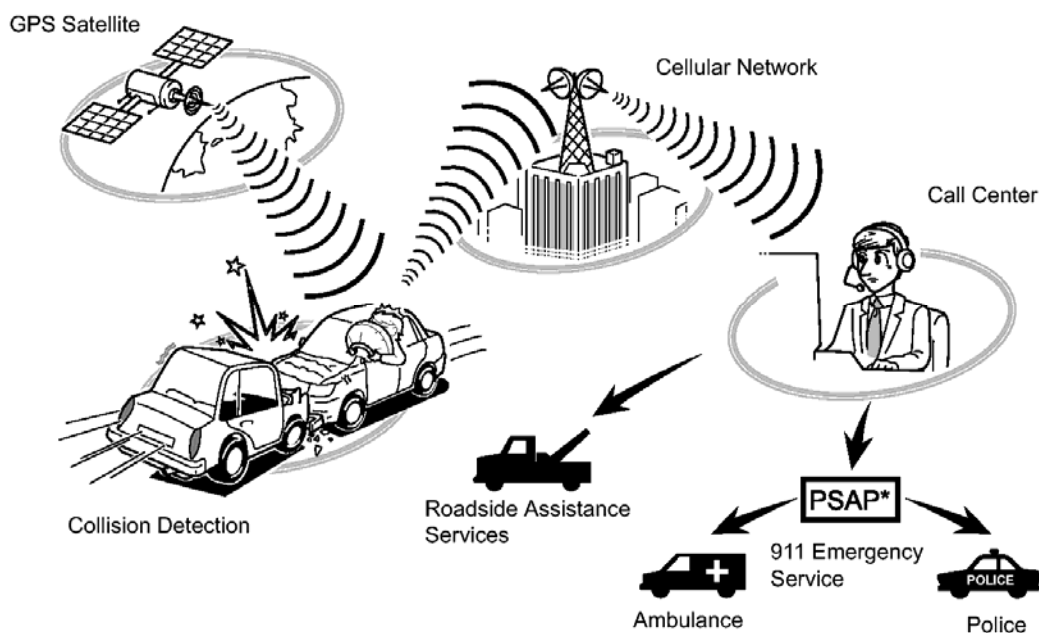


Fig. 4: Identifying Function Of ACN
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

*: Public Safety Answering Point

2. SYSTEM FUNCTION

Function	Outline
ACN (Automatic Collision Notification)	When a collision is detected, the vehicle connects to the call center automatically and reports the vehicle location and vehicle information by data communication. The operator

Notification)	will connect to the vehicle and communicate with the occupant. Even if the occupant does not answer, the operator can notify emergency services.
Manual Emergency Call	After pressing the manual (SOS) switch, the occupant can talk to an operator from the call center to seek assistance.
Stolen Vehicle Locator	After the vehicle has been reported stolen to the police, the customer can contact the call center to begin the stolen vehicle locator process. The operator locates the vehicle by GPS and provides information to the police.
Roadside Assistance Service	Pressing the manual (SOS) switch will contact the call center, and a wide range of help, such as towing, flat tire, fuel delivery,

	etc, can be provided.
--	-----------------------

*: Public Safety Answering Point

HINT:

The shape of the manual (SOS) switch shown in the illustration is an example, and may differ from that of an actual vehicle.

3. VOICE GUIDANCE FUNCTION

HINT:

The system plays back the following voice prompts in the situations shown.

Voice Prompt	Usage Condition
Safety Connect failure detected, please contact your dealer.	When system detects LED failure (Red only), and another DTC is set. Message is played once at each ignition switch to ON until the problem is fixed.
Connecting to the Call Center.	DCM Activation start.
Safety Connect Activation failed.	DCM Activation fails for some reason.
Safety Connect Activation complete.	DCM Activation completed successfully.
Please	This prompt will follow

make sure you are in an area with good cellular coverage and try again. If you continue to receive this message, contact your dealer.	an unsuccessful activation attempt or reactivation attempt in the case that the call cannot connect to the call center or call connects but is dropped and retry fails.
Unable to Connect to the Call Center.	Possible cellular network connection issue.
Impact detected.	When DCM (Telematics Transceiver) receives collision detection signal.
Connecting to the Emergency Call Center.	Call initiated to call center.
Unable to Connect to the Emergency Call Center.	DCM (Telematics Transceiver) cannot connect to Emergency Call Center for some reason.
To cancel, please press the button again.	To end the call manually.
Emergency	Confirmation the call has

call cancelled.	been canceled.
The system will try again.	Could not connect to call center, the system will redial.
Welcome to Safety Connect.	This voice prompt is short version for activation.
To activate, please press the button again within 5 seconds.	This voice prompt is instruction for activation.
Safety Connect is not initialized.	Reserve for activation.
Safety Connect is not active.	When DCM (Telematics Transceiver) is in Deactive mode.
For information on setting up a new subscription or to initialize a subscription you've already set up, please press the button again within 5 seconds.	When DCM (Telematics Transceiver) is in Deactive mode.

4. BUB (BACK-UP BATTERY) OUTLINE

- a. The BUB (Back-Up Battery) is a non-rechargeable battery.

- b. When ACN (Automatic Collision Notification) is performed, the BUB (Back-Up Battery) provides power to the DCM (Telematics Transceiver).

NOTE:

- After ACN is performed, the BUB (Back-Up Battery) must be replaced.
- The BUB (Back-Up Battery) must not be replaced while an ACN call is in progress.

HINT:

When a Manual Emergency Call is made, the BUB (Back-Up Battery) is not used as the power source.

- c. When it is time to replace the BUB (Back-Up Battery), the manual (SOS) switch red indicator will come on. The DCM (Telematics Transceiver) will also store a DTC.

5. INDICATOR CONTROL FUNCTION DURING DCM (TELEMATICS TRANSCEIVER) SELF CHECK MODE

HINT:

Every time after the ignition switch is turned to ON, the DCM (Telematics Transceiver) will enter into a self check mode. The manual (SOS) switch red indicator will illuminate for 2 seconds and then turn off and then the manual (SOS) switch green indicator will illuminate and will stay on throughout normal operation. The following chart indicates the possible scenarios.

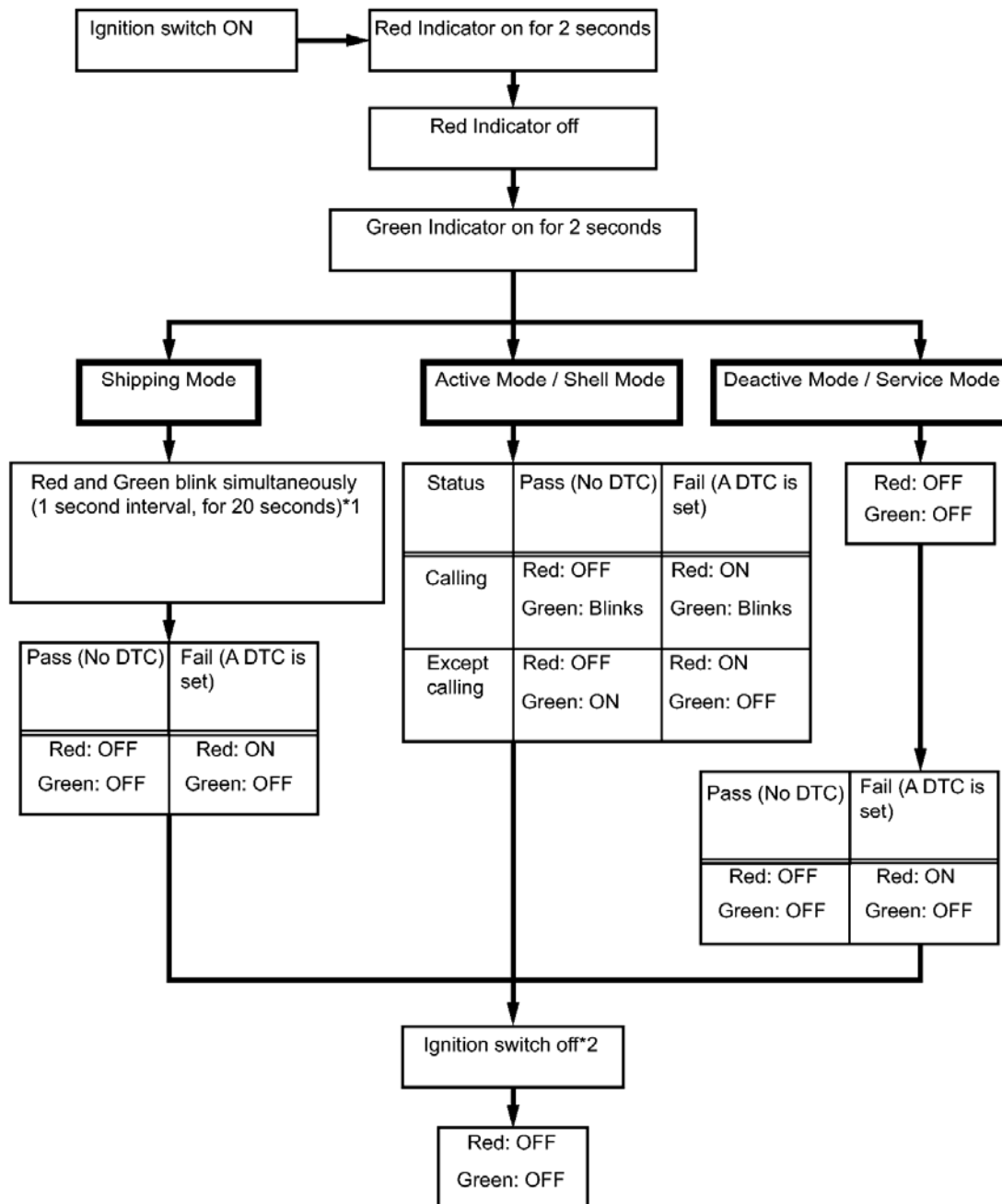


Fig. 5: Identifying DCM (Telematics Transceiver) Self Check Mode
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

*1: System will automatically switch to shell mode if auto activation is successful.

*2: If a call is in progress during ignition switch off, the call will continue and LED function will not change.

6. SWITCHING THE CONTRACT MODES

Contract Modes	Description
Shipping Mode	Mode the DCM (Telematics Transceiver) is in from the factory and during shipping. In this mode, when ignition switch is turned ON, the system will automatically attempt to activate into shell mode.
Shell Mode	This mode begins after vehicle has been automatically activated (into shell mode) after arriving at port or leaving the manufacturing plant line. ACN and stolen vehicle locator are available.
Active Mode	This mode begins when the owner's information is provided to telematics and customer signs contract for Safety Connect. All functions

	of Safety Connect are available.
Service Mode	This mode applies to a service part DCM (Telematics Transceiver) that has not been activated after replacing DCM (Telematics Transceiver) in vehicle. DCM (Telematics Transceiver) has no associated phone numbers.
Deactive Mode	The mode occurs when Safety Connect subscription has been cancelled.

HOW TO PROCEED WITH TROUBLESHOOTING

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use the following to troubleshoot the Safety Connect system.
- *: Use the Techstream.

1. VEHICLE BROUGHT TO WORKSHOP

NEXT: Go to next step

2. CUSTOMER PROBLEM ANALYSIS CHECK AND SYMPTOM CHECK

- In troubleshooting, confirm that the problem symptoms have been accurately identified. Preconceptions should be discarded in order to make an accurate judgment. To clearly understand

what the problem symptoms are, it is extremely important to ask the customer about the problem and the conditions at the time the malfunction occurred.

- Gather as much information as possible for reference. Past problems that seem unrelated may also help in some cases.
- The following 5 items are important points in the problem analysis:

What	Vehicle model, system name
When	Date, time, occurrence frequency
Where	Road conditions
Under what conditions?	Driving conditions, weather conditions
How did it happen?	Problem symptoms

NEXT: Go to next step

3. INSPECT BATTERY VOLTAGE

- a. Measure the 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.

NEXT: Go to next step

4. VERIFY CUSTOMER SUBSCRIPTION IS ACTIVE*

- a. Enter the VIN into Vehicle Inquiry on the Techstream and verify subscription type and expiration date.

NEXT: Go to next step

5. PERFORM HEALTH CHECK*

- a. Perform "Health Check" and check for current DTCs. Refer to **HEALTH CHECK**.

RESULT

--

Result	Proceed to
No DTC is present.	A
DTC is present.	B
PRL update required.	C

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

C --> PERFORM PRL UPDATE. Refer to PRL UPDATE

A: Go to next step

6. 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

HINT:

If the symptom does not recur and no DTC is output, perform the symptom reproduction method. Refer to **HOW TO PROCEED WITH TROUBLESHOOTING .**

B --> Go to step 8

A: Go to next step

7. OVERALL ANALYSIS AND TROUBLESHOOTING*

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

NEXT: Go to next step

8. REPAIR OR REPLACE

- a. Check if the DCM (Telematics Transceiver) has been replaced.

RESULT

Result	Proceed to
The DCM (Telematics Transceiver) has been replaced.	A
The DCM (Telematics Transceiver) has not been replaced.	B

B --> Go to step 10

A: Go to next step

9. PERFORM DCM ACTIVATION*

- a. Perform "DCM ACTIVATION". Refer to **DCM ACTIVATION**.

NEXT: Go to next step

10. CONFIRMATION TEST

NEXT --> END

DCM OPERATION HISTORY

DCM OPERATION HISTORY

1. DCM OPERATION HISTORY

This function shows the telematics network status when the DCM (Telematics Transceiver) was operated. Use this when no DTC is present but this telematics system was unable to connect to the call center. This symptom may occur if cell phone signal strength was very weak.

- a. Connect the Techstream to the DLC3.

- b. Turn the ignition switch to ON.
- c. Turn the Techstream on.
- d. Choose "Telematics" from the System Selection Menu, and then click "Utility".
- e. Click "DCM Operation History" on the Utility Selection Menu.
- f. Follow the instructions on the Techstream.

Example:

DCM Operation History (DCM-02-002)

Select an item for more details

Occurrence time	Signal strength	Comm
02/05/2009 14:42	5	Ni
12/17/2008 14:52	5	Ni
12/13/2008 19:22	4	Ni
12/05/2008 17:08	5	Ni
12/05/2008 16:36	5	Ni
12/04/2008 00:28	4	Ni
12/02/2008 16:40	5	Ni
11/17/2008 19:30	5	Ni
11/14/2008 22:08	3	Ni

Current Exit

DCM Operation History (DCM-02-004)

Occurrence time
02/05/2009 14:42

Communication area
Network

Signal strength
5

Communication
Fail

OK

Fig. 6: Identifying DCM Operation History
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

- "Occurrence time" indicates date of the DCM (Telematics Transceiver) operation.
- "Communication area" indicates which communication network was used: Network (Verizon) or Roaming.
- "Signal strength" indicates the strength of the cellular signal received by the vehicle: 0 (no signal) to 5 (strong).
- "Communication" indicates connecting to the call center: Success or Fail.

Result	Description
Success	A successfully call made using the manual (SOS) switch.

Fail*	A call that was unsuccessful.
-------	-------------------------------

NOTE: *: A failure can also be caused by manually ending an SOS call, and does not necessarily indicate a device malfunction.

DCM ACTIVATION

DCM ACTIVATION

1. DCM ACTIVATION

This function should be used to activate the DCM (Telematics Transceiver) after a new DCM (Telematics Transceiver) has been installed. During the DCM Activation process, Techstream automatically provides the telematics service provider with the new DCM (Telematics Transceiver) information and deletes the old DCM (Telematics Transceiver) information associated with the vehicle. The DCM (Telematics Transceiver) that was replaced should be returned to the parts department.

- a. Connect the Techstream to the DLC3.
- b. Turn the ignition switch to ON.
- c. Press SOS button 1 time to confirm Service part is currently defective ("Safety Connect is not initialized." voice prompt should be heard).
- d. Turn the Techstream on.
- e. Choose "Telematics" from the System Selection Menu, and then click "Utility".
- f. Click "DCM Service" on the Utility Selection Menu.
- g. Choose "Activate DCM" and then click "Next" on the DCM Service Utility.

Example:



Fig. 7: View Of DCM Service History
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- h. Follow the instructions on the Techstream.

HINT:

- If PRL is not latest version, utility will report that a PRL update must be performed before DCM Activation can be completed.
- If a fault occurs during DCM Activation, a specific fault message will be displayed with procedure guidelines.
- The manual (SOS) switch green indicator will turn on if activation is successful.

Fault Code	Reason
20	System timeout.
61	DCM (Telematics Transceiver) has been identified as a previously used part.
62	VIN is not recognized by telematics

	provider.
63	DCM (Telematics Transceiver) already associated with a vehicle. Use another authorized service part.
64	DCM (Telematics Transceiver) is not recognized.
66	DCM (Telematics Transceiver) is not a service part. Use only an authorized service part.
67	Unable to activate at this time.

HINT:

If the one these fault code is present, follow the procedure indicated in the following list.

- Fault 20: Try DCM Activation again.
 - Fault 61: Replace the DCM (Telematics Transceiver) with a new service part and perform DCM Activation.
 - Fault 62*: Verify VIN is correct in ECM. Run Vehicle Inquiry and verify VIN. Confirm DCM service part by pressing SOS button 1 time and listening for "Safety Connect is not initialized." voice prompt, and then try activation again.
 - Fault 63: Replace the DCM (Telematics Transceiver) with a new service part and perform DCM Activation.
 - Fault 64*: Verify that the DCM (Telematics Transceiver) is a new service part.
 - Fault 66*: Replace the DCM (Telematics Transceiver) with a new service part. Press SOS button to confirm the new service part is deactive. Perform DCM Activation.
 - Fault 67: Try DCM Activation again. If the fault occurs again, wait and try again later.
- *: As the fault could also be caused by a problem in communicating with the call

center, before replacing the DCM (Telematics Transceiver), check with the call center to determine if there is a database or communication problem.

- i. Push the manual (SOS) switch to call an operator and confirm that the DCM (Telematics Transceiver) is activated.

HEALTH CHECK

HEALTH CHECK

1. HEALTH CHECK

Health Check provides an overall view of vehicle status including telematics. Health Check will provide DCM (Telematics Transceiver) software version, PRL version, and applicable DTCs and fault codes related to telematics.

- a. Connect the Techstream to the DLC3.
- b. Turn the ignition switch to ON.
- c. Turn the Techstream on.
- d. Click "Health Check".

Fault Code	Reason
62	VIN is not recognized by telematics provider.
64	DCM (Telematics Transceiver) is not recognized.
65	VIN mismatch with DCM (Telematics Transceiver).

HINT:

- If Health Check results in a telematics issue, a specific Fault Code will be displayed.
- If a fault code occurs, follow the procedure.
- Fault 62*: Press manual (SOS) switch and inform operator of error message.
- Fault 64: Press manual (SOS) switch and inform operator of error message.
- Fault 65: Contact the call center and request that they correct the DCM/VIN registration information in their database.

*: Verify VIN is correct in ECM. Run Vehicle Inquiry on the Techstream and verify VIN is correct.

e. Data is displayed under "Telematics".

Example:

Health Check Results
 -Health Check does not display live data
 -Changes in vehicle condition will not update, automatically
 -To update Health Check, click the Refresh button

System	Current	Pending	History	Permanent	Monitor Status	Calibration	Update?
Air Conditioner	0	0	0	0	0	0	0
Main Body	0	0	0	0	0	0	0
Telematics	0	0	1	0	0	000000000003 31 05 18	0
Engine and ECT	0	0	0	0	0	000000000003 31 05 18	No
Cruise Control	0	0	0	0	0	000000000003 31 05 18	No
VSC	0	0	0	0	0	000000000003 31 05 18	No
ABS/ESP/FRAG	0	0	0	0	0	000000000003 31 05 18	No
AHCS	0	0	0	0	0	000000000003 31 05 18	No
Tire Pressure Monitor	0	0	0	0	0	000000000003 31 05 18	No
Occupant Detection	0	0	0	0	0	000000000003 31 05 18	No
Combination Meter	0	0	0	0	0	000000000003 31 05 18	No
DCM Motor	0	0	0	0	0	000000000003 31 05 18	No
Smart Access	0	0	0	0	0	000000000003 31 05 18	No
P-Door Motor	0	0	0	0	0	000000000003 31 05 18	No
RH-Door Motor	0	0	0	0	0	000000000003 31 05 18	No
RL-Door Motor	0	0	0	0	0	000000000003 31 05 18	No
Sliding Roof	0	0	0	0	0	000000000003 31 05 18	No
Master Switch	0	0	0	0	0	000000000003 31 05 18	No
Gateway	0	0	0	0	0	000000000003 31 05 18	No
Back Door	0	0	0	0	0	000000000003 31 05 18	No
Driver Seat	0	0	0	0	0	000000000003 31 05 18	No

Fig. 8: Identifying Health Check Results
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ACN CALL END

ACN CALL END

1. ACN CALL END

This function terminates the ACN (Automatic Collision Notification) to the telematics provider. After a collision in which the DCM receives "Collision Detection Signal", the vehicle will send the emergency call notification to the telematics provider until the ACN call end utility has been run, or the BUB (Back-Up Battery) (if equipped) is depleted. Use the ACN Call End utility to stop the ACN call.

NOTE: The BUB (Back-Up Battery) must not be replaced while an ACN call is in progress.

HINT:

After ACN call end utility has been completed, BUB (Back-Up Battery) must be replaced.

- Connect the Techstream to the DLC3.
- Turn the ignition switch to ON.
- Turn the Techstream on.
- Choose "Telematics" from the System Selection Menu, and then click "Utility".
- Click "DCM Service" on the Utility Selection Menu.
- Choose "ACN call end" and then click "Next" on the DCM Service Utility.

Example:



Fig. 9: Identifying ACN Call End

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

- g. Follow the instructions on the Techstream.

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.

VOICE GUIDANCE

Symptom	Suspected Area	See
"Safety Connect failure detected, please contact your dealer" message is played.	Refer to HEALTH CHECK.	Refer to <u>HEALTH CHECK</u>
	Refer to Diagnostic Trouble Code Chart.	Refer to <u>DIAGNOSTIC TROUBLE CODE CHART</u>
"Safety Connect Activation Failed" message is played.	Wait for some time, then move to different location and retry (try to find location with better signal reception).	-
	Refer to HEALTH CHECK.	Refer to <u>HEALTH CHECK</u>
	Refer to Diagnostic Trouble	Refer to <u>DIAGNOSTIC TROUBLE</u>

	Code Chart.	<u>CODE CHART</u>
	Contact Telematics Service Provider to verify any network problems.	-
"Unable to Connect the Emergency Call Center" or "Unable to Connect to the Call Center" message is played.	Wait for some time, then move to different location and retry (try to find location with better signal reception).	-
	Perform Vehicle Inquiry on the Techstream and verify subscription status.	-
	Refer to UNABLE TO CONNECT TO CALL CENTER.	Refer to <u>UNABLE TO CONNECT TO CALL CENTER</u>
"Safety Connect is not active" message is played.	Perform Vehicle Inquiry on the Techstream and verify subscription status.	-
	Explain to the customer that the system is in deactive mode, and confirm whether or not they would like to change to active mode.	-

INDICATOR CONDITION

Symptom	Suspected Area	See
Green indicator abnormal (Remains OFF)	Refer to DCM POWER SOURCE CIRCUIT	Refer to <u>DCM POWER SOURCE CIRCUIT</u>
	Refer to GREEN INDICATOR REMAINS OFF	Refer to <u>GREEN INDICATOR REMAINS OFF</u>
Red indicator abnormal (Remains ON)	Refer to RED INDICATOR REMAINS ON	Refer to <u>RED INDICATOR REMAINS ON</u>
Green and red indicators abnormal (Remains OFF)	Refer to GREEN AND RED INDICATORS DO NOT COME ON WHEN IG-ON	Refer to <u>GREEN AND RED INDICATORS DO NOT COME ON WHEN IG-ON</u>
	Refer to DCM POWER SOURCE CIRCUIT	Refer to <u>DCM POWER SOURCE CIRCUIT</u>
	DCM (Telematics Transceiver)	Refer to <u>REMOVAL</u>
Green and red indicators blink simultaneously	Refer to GREEN AND RED INDICATORS BLINK SIMULTANEOUSLY	Refer to <u>GREEN AND RED INDICATORS BLINK SIMULTANEOUSLY</u>

TERMINALS OF ECU

TERMINALS OF ECU

1. DCM (TELEMATICS TRANSCEIVER)

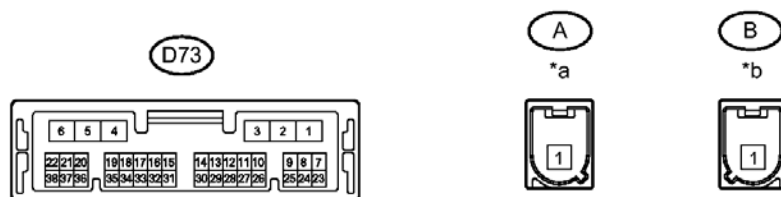


Fig. 10: DCM (Telematics Transceiver) Connector Terminal Identification
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Connector color: Blue (to Telephone antenna)	*b	Connector color: Grey (to GPS antenna)
----	---	----	--

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
D73-1 (+B) - D73-4 (E)	SB - BR	Vehicle battery power supply	Always	11 to 14 V
D73-2 (SPI+) - D73-4 (E)	W - BR	Sound signal	Audio system is playing	A waveform synchronized with sound is input
D73-3 (SPI-) - D73-4 (E)	R - BR	Sound signal	Audio system is playing	A waveform synchronized with sound is input
D73-4 (E) - Body ground	BR - Body ground	Ground	Always	Below 1 V
D73-5 (SPO+) - D73-4 (E)	L - BR	Sound signal	Audio system is playing, or Emergency call mode	A waveform synchronized with sound is output
D73-6 (SPO-) -			Audio system is playing, or	A waveform synchronized

D73-4 (E)	LG - BR	Sound signal	Emergency call mode	with sound is output
D73-7 (IG2) - D73-4 (E)	GR - BR	IG power supply	Ignition switch ON	11 to 14 V
			Ignition switch off	Below 1 V
D73-8 (ACC) - D73-4 (E)	GR - BR	ACC power supply	Ignition switch ACC	11 to 14 V
			Ignition switch off	Below 1 V
D73-10 (SPDP) - D73-4 (E)	LG - BR	Vehicle speed signal	See "Vehicle Signal Check Mode". Refer to <u>OPERATION CHECK</u>	-
D73-11 (IND1) - D73-4 (E)	P - BR	Manual (SOS) switch red indicator illumination signal	For 2 seconds after turning the ignition switch ON	1 to 8.5 V
			Ignition switch off	Below 1 V
D73-12 (IND2) - D73-4 (E)	W - BR	Manual (SOS) switch green indicator illumination signal	For 2 seconds after turning the ignition switch ON	1 to 8.5 V
			Ignition switch off	Below 1 V
D73-13 (BBI-)	W	BUB (Back-Up Battery) power supply	-	-
D73-17 (MUTE) - D73-4 (E)	R - BR	Mute signal	Audio system is playing	3.5 V or higher
			Emergency call mode	Below 1 V
D73-18 (MCO+) - D73-4 (E)	B - BR	Sent microphone voice signal	See "Microphone & Voice Recognition Check". Refer to <u>OPERATION CHECK</u>	-
			See "Microphone & Voice	

D73-19 (MCO-) - D73-4(E)	W - BR	Sent microphone voice signal	Recognition Check". Refer to <u>OPERATION</u> <u>CHECK</u>	-
D73-20 (CTR1)	B	BUB (Back- Up Battery) control line	-	-
D73-21 (CTR2)	Y	BUB (Back- Up Battery) control line	-	-
D73-23 (ILL+) - D73-4 (E)	G - BR	Illumination signal	Light control switch off	Below 1 V
			Light control switch tail or ON	11 to 14 V
D73-24 (GSW) - D73-4 (E)	B - BR	Collision detection line	Ignition switch ON	Pulse generation (Refer to <u>Fig. 11</u>)
D73-25 (SIL)	W	Serial communication line	-	-
D73-26 (SIG-) - D73-4 (E)	R - BR	Ground	Always	Below 1 V
D73-27 (SIG1) - D73-4 (E)	B - BR	Manual (SOS) switch condition signal	Manual (SOS) switch not pressed	1.4 to 1.8 V
			Manual (SOS) switch pressed	0.5 to 0.9 V
D73-30 (BBI+)	R	BUB (Back- Up Battery) power supply	-	-
D73-32 (SGND) - D73-4 (E)	Shield - BR	Shield ground	Always	Below 1 V
D73-33 (MCVD) - D73-4 (E)	R - BR	Telephone microphone assembly power supply	Ignition switch off	Below 1 V
			Ignition switch ACC	4 to 6 V
D73-34			See "Microphone & Voice	

(MCI+) - D73-4 (E)	B - BR	Receive microphone voice signal	Recognition Check". Refer to <u>OPERATION</u> <u>CHECK</u>	-
D73-35 (MCI-) - D73-4 (E)	W - BR	Receive microphone voice signal	See "Microphone & Voice Recognition Check". Refer to <u>OPERATION</u> <u>CHECK</u>	-

a. Oscilloscope waveform:

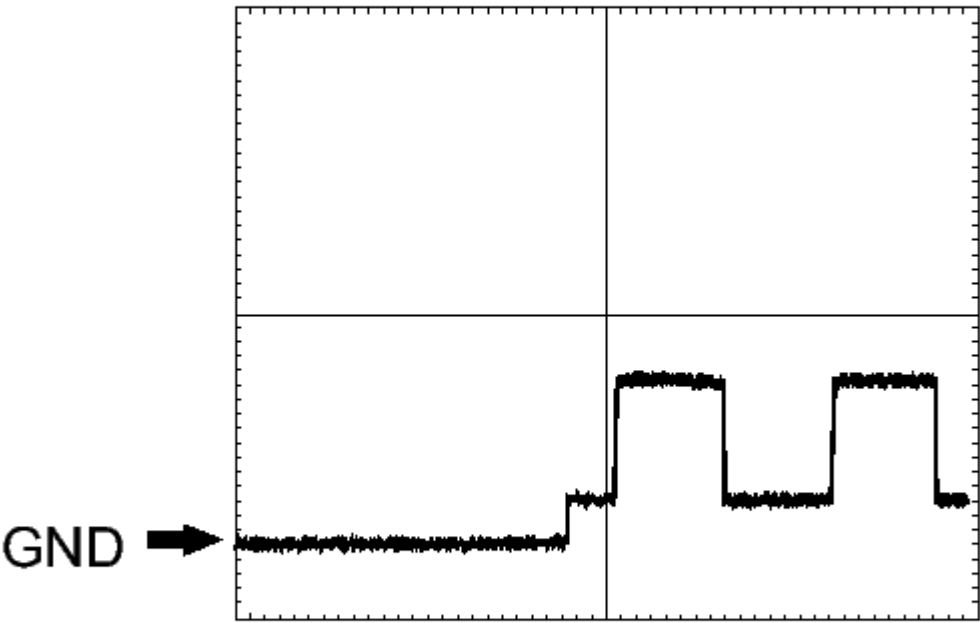


Fig. 11: Identifying Waveform 1

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

1. Waveform 1

Item	Condition
Tester Connection	D73-24 (GSW) - D73-4 (E)
Tool setting	5.0 V/DIV., 20 ms/DIV.
Vehicle condition	Ignition switch ON

DIAGNOSIS SYSTEM

DIAGNOSIS SYSTEM

1. DESCRIPTION

- a. The DCM (Telematics Transceiver) controls the vehicle Safety Connect system functions. Safety Connect system data and Diagnostic Trouble Codes (DTCs) can be read through the vehicle Data Link Connector 3 (DLC3). In some cases, a malfunction may be occurring in the Safety Connect system. When the system seems to be malfunctioning, use the Techstream to check for malfunctions and perform repairs.

2. CHECK DLC3

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

3. INSPECT BATTERY VOLTAGE

- a. Measure the battery voltage.

Standard Voltage

11 to 14 V

If the voltage is below 11 V, recharge or replace the battery.

4. CHECK INDICATOR

- a. When a malfunction is detected in the Safety Connect system, the manual (SOS) switch red indicator on the manual (SOS) switch illuminates to inform the driver of the malfunction. Refer to **SYSTEM DESCRIPTION**.

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 / Telematics / Trouble Codes.
- e. Check the details of the DTC(s). Refer to **DIAGNOSTIC TROUBLE CODE CHART**.

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 / Telematics / Trouble Codes.
- e. Clear the DTCs.

PRL UPDATE

PRL UPDATE

1. PRL UPDATE

This function updates the PRL (Preferred Roaming List) of the DCM (Telematics Transceiver). The PRL is a large set of phone numbers the DCM (Telematics Transceiver) can utilize to make an emergency call when outside (roaming) the telematics service area. The PRL update utility could be used in the following scenarios:

- PRL update is required after "Health Check"
 - DCM Activation Utility requires a PRL update before activation
- a. Connect the Techstream to the DLC3.
 - b. Turn the ignition switch to ON.
 - c. Turn the Techstream on.
 - d. Click "Health Check".
 - e. Verify if updates are available for the currently installed PRL version (Yes or No).
 - f. If "Yes" is listed, click it. A TIS webpage will open with Calibration Search Results.
 - g. Click on the latest service bulletin (TSB) link.
 - h. Save the file (.CUW) from the TSB.
 - i. Exit from Techstream application.
 - j. Run the file to launch Calibration Update Wizard (CUW).
 - k. Follow the CUW steps.

Example:

Health Check Results
 -Health Check does not display live data
 -Changes in vehicle condition will not update, automatically
 -To update Health Check, click the Refresh button

System	Current	Pending	History	Permanent	Monitor Status	Calibration	Update?
Air Conditioner	0	0	0	0	0	0	0
Main Body	0	0	0	0	0	000000000003 21.05.10	0
Engine and ECU	0	0	0	0	0	59108	No
Cruise Control	0	0	0	0	0	2004400	No
VCMIS	0	0	0	0	0	A0001000	No
ABS/ASR/TRAC	0	0	0	0	0	0	0
APAC	0	0	0	0	0	0	0
Tire Pressure Monitor	0	0	0	0	0	0	0
Occupant Detection	0	0	0	0	0	0	0
Combination Meter	0	0	0	0	0	0	0
D-Door Motor	0	0	0	0	0	0	0
Smart Access	0	0	0	0	0	0	0
P-Door Motor	0	0	0	0	0	0	0
RH-Door Motor	0	0	0	0	0	0	0
RL-Door Motor	0	0	0	0	0	0	0
Sliding Door	0	0	0	0	0	0	0
Master Switch	0	0	0	0	0	0	0
Gateway	0	0	0	0	0	0	0
Black Door	0	0	0	0	0	0	0
Driver Seat	0	0	0	0	0	0	0

Fig. 12: Identifying Health Check Results
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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 / Telematics / Data List.
- According to the display on the Techstream, read the "Data List".

TELEMATICS

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
	Manual (SOS)	OFF: Manual (SOS) switch not	-

Emergency Switch	switch / OFF or ON	pressed ON: Manual (SOS) switch pressed	-
Current Com Back-Up Battery	BUB (Back-Up Battery) installation history / with or without	with: BUB (Back-Up Battery) was connected at some point (does not guarantee that BUB (Back-Up Battery) is currently connected)	-
		without: This DCM (telematics transceiver) has no record of a BUB (Back-Up Battery) ever being connected	-
Number of Trouble Codes	The number of the DTC which is currently output	-	-

DIAGNOSTIC TROUBLE CODE CHART

DIAGNOSTIC TROUBLE CODE CHART

DTC Code	Detection Item	Trouble Area	See
B1570	Manual (SOS) Switch Red Indicator Malfunction	- Roof console box assembly - Wire harness or connector - DCM (Telematics)	Refer to <u>DTC B1570: Manual (SOS) Switch Red Indicator Malfunction</u>

		Transceiver)	
B1571	Manual (SOS) Switch Green Indicator Malfunction	- Roof console box assembly - Wire harness or connector - DCM (Telematics Transceiver)	Refer to <u>DTC B1571: Manual (SOS) Switch Green Indicator Malfunction</u>
B1572	Telephone Microphone Error	- Wire harness or connector - Telephone microphone assembly - Roof console box assembly - DCM (Telematics Transceiver)	Refer to <u>DTC B1572: Telephone Microphone Error</u>
B1573	Short in Telephone Antenna Circuit	- DCM (Telematics Transceiver) - Telephone and GPS antenna assembly - Wire harness or connector (Telephone and GPS antenna assembly cord)	Refer to <u>DTC B1573: Short in Telephone Antenna Circuit; DTC B15CB: Telematics Transceiver Antenna Disconnected</u>
B15CB	Telematics Transceiver Antenna Disconnected	- DCM (Telematics Transceiver) - Telephone and GPS antenna assembly - Wire harness or connector (Telephone and GPS antenna assembly cord)	Refer to <u>DTC B1573: Short in Telephone Antenna Circuit; DTC B15CB: Telematics Transceiver Antenna Disconnected</u>
B1583	GPS Signal Unreceived	- Telephone and GPS antenna assembly - DCM (Telematics Transceiver)	Refer to <u>DTC B1583: GPS Signal Unreceived</u>
B15A8	Telematics Transceiver Malfunction	DCM (Telematics Transceiver)	Refer to <u>DTC B15A8: Telematics Transceiver Malfunction</u>
B15C0	Short in GPS Antenna	- DCM (Telematics Transceiver) - Wire harness or connector (Telephone and GPS antenna assembly cord) - Telephone and GPS antenna assembly	Refer to <u>DTC B15C0: Short in GPS Antenna; DTC B15C1: Open in GPS Antenna</u>
		- DCM (Telematics	

B15C1	Open in GPS Antenna	Transceiver) - Wire harness or connector (Telephone and GPS antenna assembly cord) - Telephone and GPS antenna assembly	Refer to <u>DTC B15C0: Short in GPS Antenna; DTC B15C1: Open in GPS Antenna</u>
B15C4	Airbag Signal Malfunction/Not Input	- Airbag system - Wire harness or connector - Center airbag sensor assembly - DCM (Telematics Transceiver)	Refer to <u>DTC B15C4: Airbag Signal Malfunction/Not Input</u>
B15C5	Manual Button Malfunction	- DCM (Telematics Transceiver) - Roof console box assembly - Wire harness or connector	Refer to <u>DTC B15C5: Manual Button Malfunction</u>
B15CC	Backup Battery Failure	- Wire harness or connector - BUB (Back-up battery) - DCM (Telematics Transceiver)	Refer to <u>DTC B15CC: Backup Battery Failure</u>
B15EC	Backup Battery Degradation	BUB (Back-up battery)	Refer to <u>DTC B15EC: Backup Battery Degradation</u>