
CONSTANT SPEED CRUISE SYSTEM

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GENERAL INFORMATION

Description

Turn on the constant speed cruise control switch after vehicle reaches a certain speed. The set vehicle speed can be maintained by constant speed cruise control, without accelerator depressed. Cruise control system consists of the following components:

- Constant speed cruise control indicator
- Constant speed cruise control switch (multi-function switch)

Do not use cruise control in the following situations. Otherwise, it may result in a loss of vehicle control and cause an accident, resulting in serious injury or even death.

- In traffic congestion areas.
- On roads with sharp bends.
- On winding roads.
- On wet and slippery roads, such as those covered with rain, ice or snow.
- On steep hills. Vehicle speed may be higher (or lower) than the set speed.
- In emergency lanes.

Operation

The constant speed cruise system mainly consists of constant speed cruise control switch and constant speed cruise control indicator.

With constant speed cruise control switch on, press the SET/- button of cruise control switch when vehicle speed is within the range of 40 km/h to 130 km/h, then the constant speed cruise system starts to operate.

Cruise control switch is connected with BCM, which monitors and outputs different input states to ECU via CAN system. Based on current vehicle speed, ECU controls the electronic throttle valve opening angle, so as to enable normal driving without depressing accelerator pedal.

Specifications

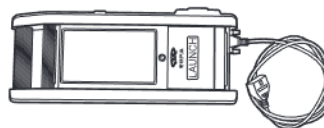
Torque Specifications

Description	Torque (N·m)
Ground Wire Harness Fixing Screw	0.7 ± 0.2
Steering Wheel Quick Button Trim Cover Fixing Screw	0.7 ± 0.2

Tools

Special Tool

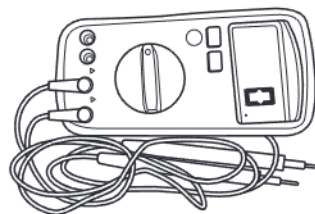
X-431 3G Diagnostic Tester



RCH0000001

General Tool

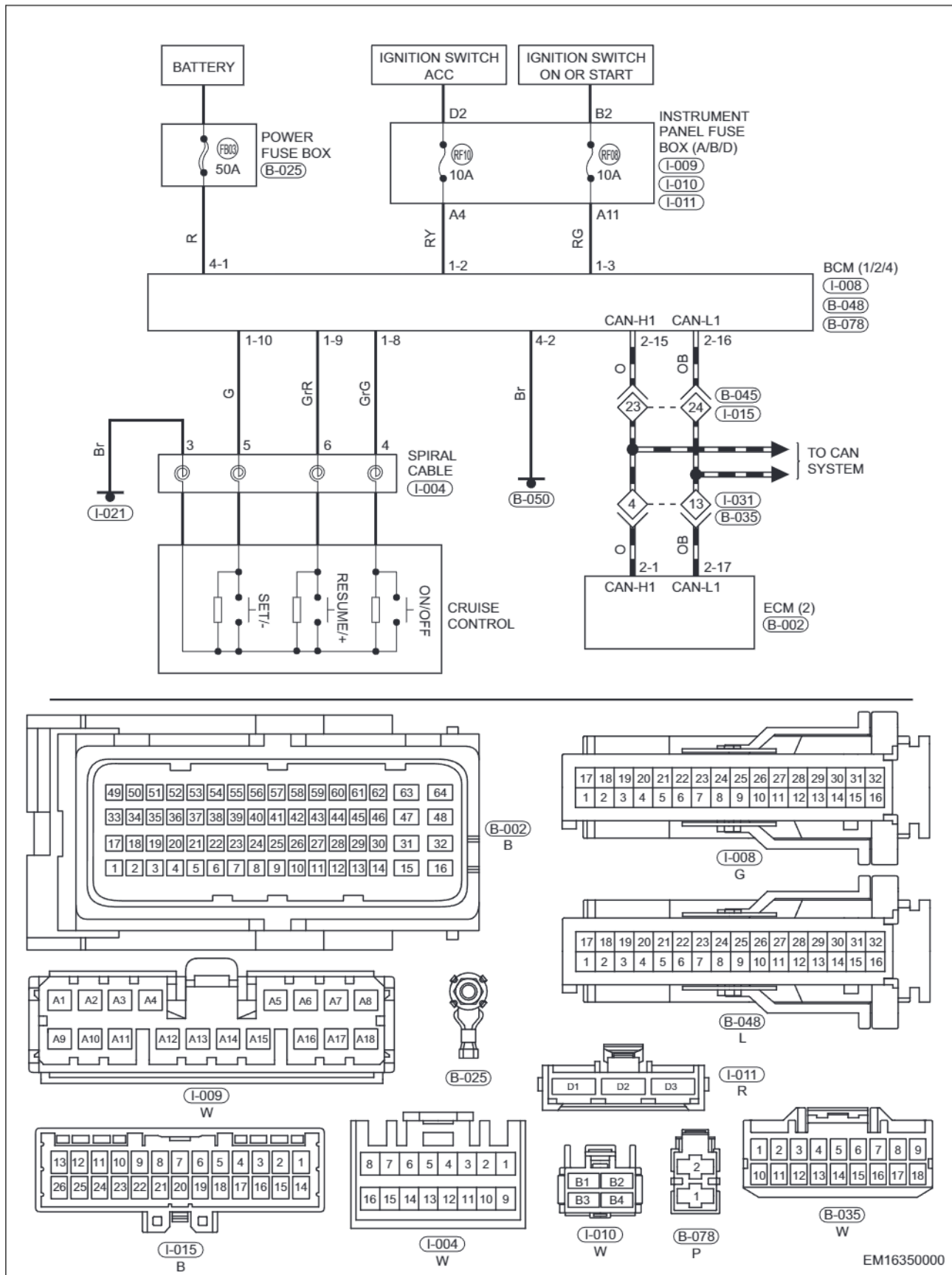
Digital Multimeter



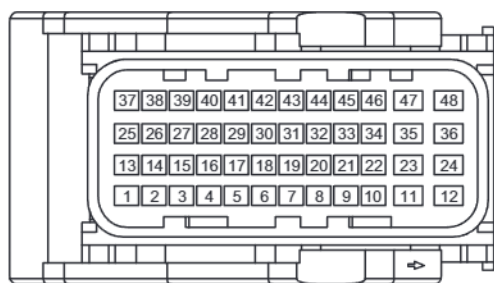
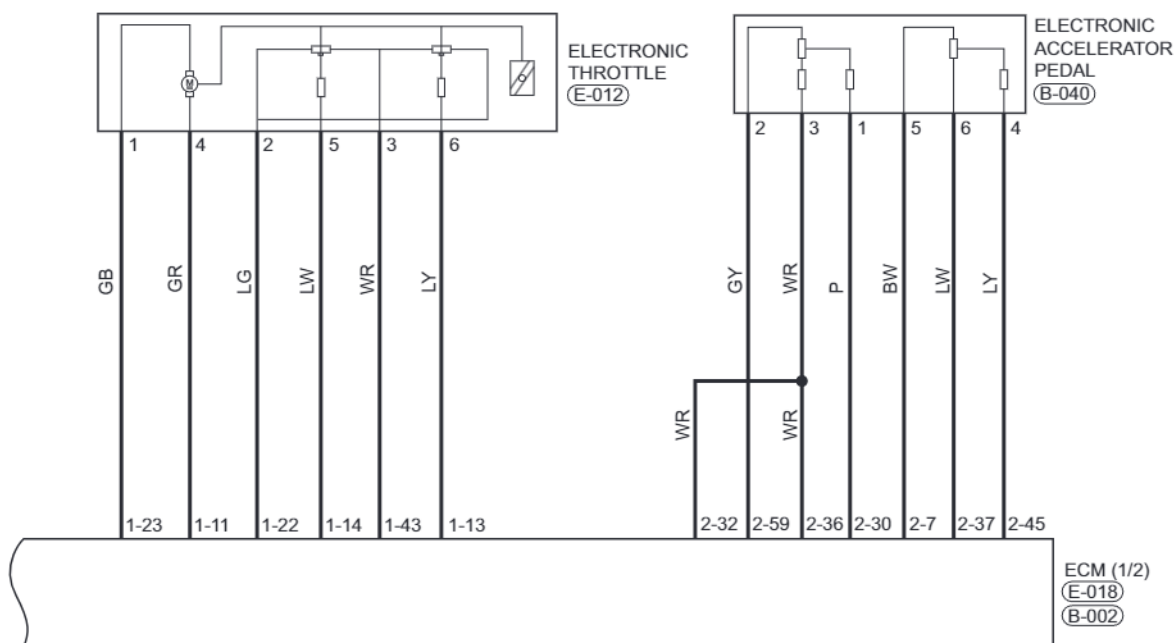
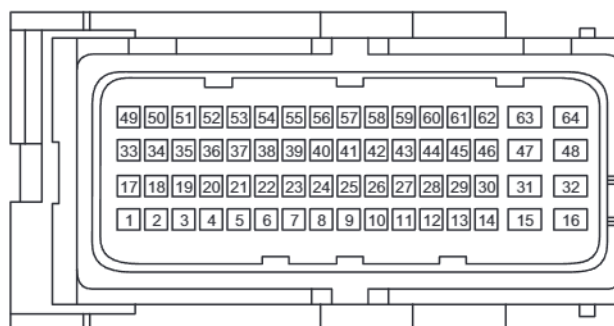
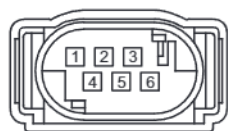
RCH0000002

Circuit Diagram

Constant Speed Cruise System (Page 1 of 2)



Constant Speed Cruise System (Page 2 of 2)

(E-018)
B(B-002)
B(E-012)
B(B-040)
B

EM16350010

DIAGNOSIS & TESTING

Problem Symptoms Table

HINT:

Use symptoms table below to help determine cause of problem. Check each suspected area in sequence. Repair or adjust faulty components, or replace as necessary.

Symptom	Suspected Area	See page
Vehicle speed cannot be set (cruise control indicator turns off)	Constant speed cruise control switch	35-21
	Wire harness or connector	-
	Body Control Module (BCM)	-
Vehicle speed cannot be set (cruise control indicator turns on)	Constant speed cruise control switch	35-21
	Wire harness or connector	-
	Instrument cluster	-
	Body Control Module (BCM)	-
Turning off cruise control switch does not cancel cruise control	Constant speed cruise control switch	35-21
	Wire harness or connector	-
	Body Control Module (BCM)	-
	Engine Control Module (ECM)	06-281
Depressing brake pedal does not cancel cruise control	Wire harness or connector	-
	Body Control Module (BCM)	-
	Engine Control Module (ECM)	06-281

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Diagnosis Tools

X-431 3G Diagnostic Tester

When connecting X-431 3G diagnostic tester:

- Connect X-431 3G diagnostic tester (the latest software) to Data Link Connector (DLC) for communication with vehicle.
- DLC is located at the driver side instrument panel crossmember.
- DLC uses a trapezoidal design which can hold 16 terminals.

Digital Multimeter

When using digital multimeter:

- Troubleshoot electrical malfunctions and wire harness system.
- Look for basic fault.
- Measure voltage, current and resistance.

Diagnostic Help

1. Connect X-431 3G diagnostic tester (the latest software) to Data Link Connector (DLC), and make it communicate with vehicle electronic module through data network.
2. Confirm that the malfunction is current, and carry out diagnostic test and repair procedures.
3. If DTC cannot be deleted, the malfunction is current.
4. Only use a digital multimeter to measure the voltage of electronic system.
5. Refer to any Technical Bulletin that may apply to the malfunction.



6. Visually check the related wire harness.
7. Check and clean all DVD system grounds related to the latest DTC.
8. If multiple trouble codes were set, use circuit diagrams and look for any common ground circuit or power supply circuit applied to the DTC.

Intermittent DTC Troubleshooting

If malfunction is intermittent, perform the followings:

- Check if connectors are loose.
- Check if wire harnesses are worn, pierced, pinched or partially broken.
- Wiggle related wire harnesses and connectors and observe if signal is interrupted in the related circuit.
- If possible, try to duplicate the conditions under which the DTC was set.
- Look for the data that has changed or the DTC to reset during the wiggle test.
- Look for broken, bent, protruded or corroded terminals.
- Inspect the mounting areas of Engine Control Module (ECM), wire harness or wire harness connector and so on for damage, foreign matter, etc. that will cause incorrect signals.
- Check and clean all wire harness connectors and grounding parts related to the current DTC.
- Remove the Engine Control Module (ECM) from malfunctioning vehicle and install it on a new vehicle to perform test. If this DTC cannot be cleared, there is malfunction in the Engine Control Module (ECM). If this DTC can be cleared, reinstall the Engine Control Module (ECM) to original vehicle.
- If multiple trouble codes were set, refer to the circuit diagrams to look for any common ground circuit or power supply circuit applied to the DTC.
- Refer to Technical Bulletin that is applied to the malfunction.

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Ground Inspection

Groundings are very important to entire circuit system, which are normal or not can seriously affect the entire circuit system. Ground points are often exposed to moisture, dirt and other corrosive environments. Corrosion (rust) and oxidation may increase load resistance. This situation will seriously affect the normal operation of circuit. The operations to check ground points are as follows:

1. Remove the ground bolt or nut.
2. Check all contact surfaces for tarnish, dirt and rust, etc.
3. Clean as necessary to ensure that contacting is in good condition.
4. Reinstall the ground bolt or nut securely.
5. Check if add-on accessories interfere with the ground circuit.
6. If several wire harnesses are crimped into one ground terminal, check if they are installed correctly. Make sure all wire harnesses are clean, securely fastened and providing a good ground path.

Diagnosis Procedure

HINT:

Use following procedures to troubleshoot the constant speed cruise system.

1	Vehicle brought to workshop
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NEXT

2 Check battery voltage**Standard voltage: 11 to 14 V**

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

NEXT**3** Customer problem analysis**NEXT****4** Check for DTCs (current DTC and history DTC)**DTC
occurs**

For current DTC, go to step 6

35**No
DTC**

For history DTC, go to step 7

5 Problem repair (no DTC), then go to step 8**NEXT****6** Troubleshoot according to Diagnostic Trouble Code (DTC) chart, then go to step 8**NEXT****7** Troubleshoot according to Problem Symptoms Table, then go to step 8**NEXT****8** Adjust, repair or replace**NEXT****9** Conduct test and confirm malfunction has been repaired**NEXT****10** End

Diagnostic Trouble Code (DTC) Chart

DTC Code	DTC Definition
P0568-00	Cruise Control Signal (CVT Only)
P1811-13	Manufacturer Controlled Computer and Auxiliary Outputs
P1812-11	Manufacturer Controlled Computer and Auxiliary Outputs
P1813-12	Manufacturer Controlled Computer and Auxiliary Outputs

DTC	P0568-00	Cruise Control Signal (CVT Only)
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Self-diagnosis Detection Logic

DTC Code	DTC Definition	DTC Detection Condition	Possible Cause
P0568-00	Cruise Control Signal (CVT Only)	Ignition switch ON	- Cruise control switch - Engine Control Module (ECM)

DTC Confirmation Procedure

Confirm that battery voltage is between 11 V and 14 V before performing the following procedures.

- Turn ignition switch to LOCK.
- Connect X-431 3G diagnostic tester (the latest software) to Data Link Connector (DLC), and make it communicate with vehicle electronic module through data network.
- Turn ignition switch to ON.
- Use X-431 3G diagnostic tester to record and clear DTCs stored in the Engine Control Module (ECM).
- Turn ignition switch to LOCK and wait for a few seconds.
- Turn ignition switch to ON, and then select Read Code.
- If DTC is detected, malfunction indicated by DTC is current. Go to diagnosis procedure - Step 1.
- If DTC is not detected, malfunction indicated by DTC is intermittent ([See page 35-8](#)).

CAUTION

- When performing circuit diagnosis and test, always refer to the circuit diagram for specific circuit and component information.

Diagnosis Procedure

1	Check constant speed cruise control switch
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- Remove the constant speed cruise control switch from malfunctioning vehicle, and install it to a new vehicle and perform a test.
- Connect all connectors.
- Connect the negative battery cable, and turn ignition switch to ON.
- Check the constant speed cruise control switch operation.

NG**Replace constant speed cruise switch****OK**

2	Reconfirm DTCs
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- Connect all connectors.
- Connect the negative battery cable.
- Turn ignition switch to ON.
- Use X-431 3G diagnostic tester (the latest software) to record and clear DTCs stored in the Engine Control Module (ECM).
- Turn ignition switch to LOCK and wait for a few seconds.



- f. Turn ignition switch to ON.
- g. Use X-431 3G diagnostic tester (the latest software) to read DTCs stored in the Engine Control Module (ECM).
- h. Read DTCs.

Result	Proceed to
DTC P0568-00 is output	NG
No DTC is output	OK

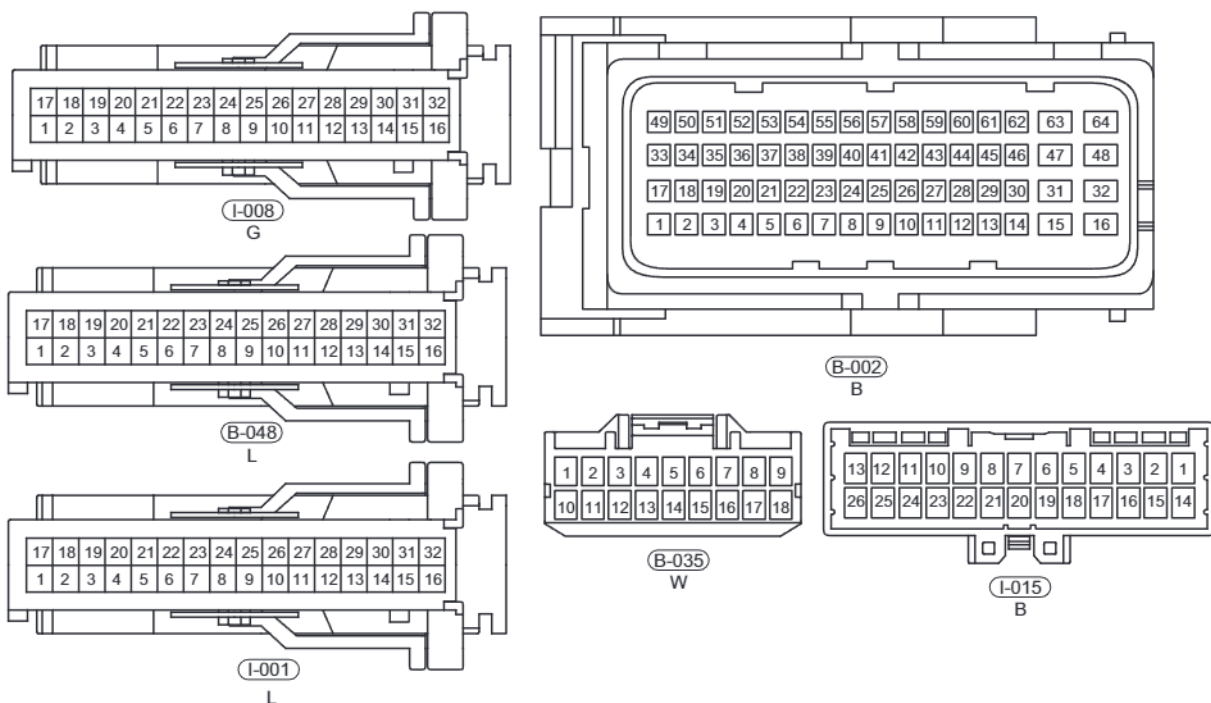
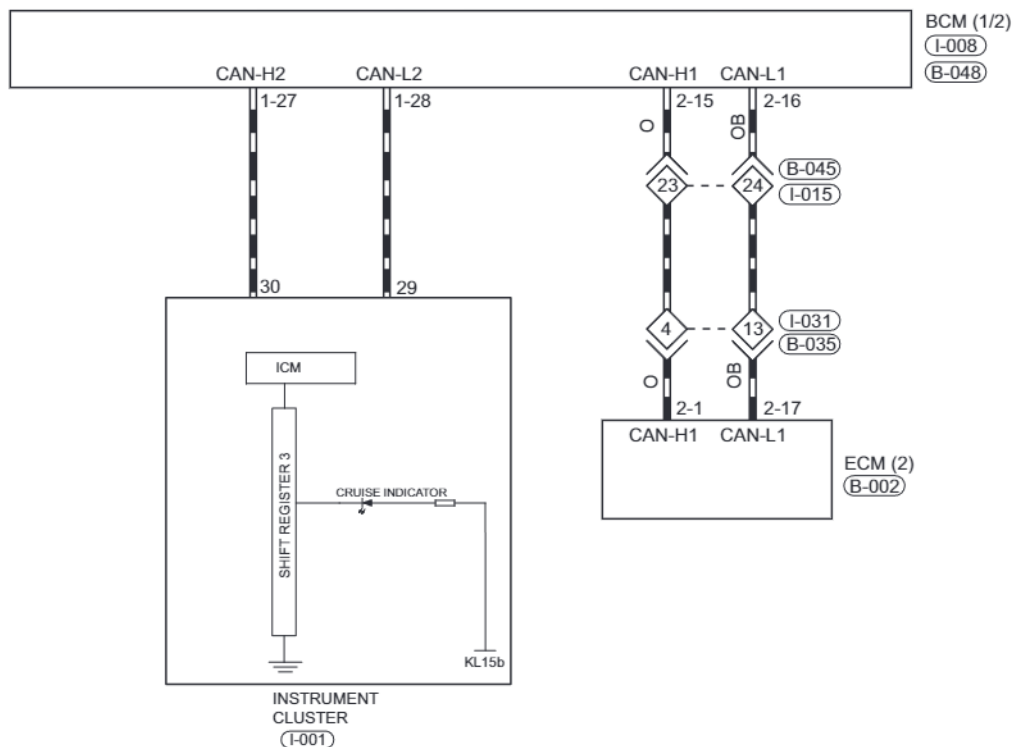
NG

Replace Engine Control Module (ECM)

OK

System is normal

DTC	P1811-13	Manufacturer Controlled Computer and Auxiliary Outputs
DTC	P1812-11	Manufacturer Controlled Computer and Auxiliary Outputs
DTC	P1813-12	Manufacturer Controlled Computer and Auxiliary Outputs



EM16350020

Self-diagnosis Detection Logic

DTC Code	DTC Definition	DTC Detection Condition	Possible Cause
P1811-13	Manufacturer Controlled Computer and Auxiliary Outputs	Ignition switch ON	• Wire harness or connector • Instrument cluster • Body Control Module (BCM) • Engine Control Module (ECM)
P1812-11	Manufacturer Controlled Computer and Auxiliary Outputs		
P1813-12	Manufacturer Controlled Computer and Auxiliary Outputs		

DTC Confirmation Procedure

Confirm that battery voltage is between 11 V and 14 V before performing the following procedures.

- Turn ignition switch to LOCK.
- Connect X-431 3G diagnostic tester (the latest software) to Data Link Connector (DLC), and make it communicate with vehicle electronic module through data network.
- Turn ignition switch to ON.
- Use X-431 3G diagnostic tester to record and clear DTCs stored in the Engine Control Module (ECM).
- Turn ignition switch to LOCK and wait for a few seconds.
- Turn ignition switch to ON, and then select Read Code.
- If DTC is detected, malfunction indicated by DTC is current. Go to diagnosis procedure - Step 1.
- If DTC is not detected, malfunction indicated by DTC is intermittent ([See page 35-8](#)).

CAUTION

- When performing circuit diagnosis and test, always refer to the circuit diagram for specific circuit and component information.

Diagnosis Procedure**1 Check instrument cluster**

- Remove the instrument cluster from malfunctioning vehicle, and install it to a new vehicle and perform a test.
- Connect all connectors.
- Connect the negative battery cable, and turn ignition switch to ON.
- Check the system operation.

NG**Replace instrument cluster****OK**

2 Check Body Control Module (BCM)

- Remove the Body Control Module (BCM) from malfunctioning vehicle, and install it to a new vehicle and perform a test.
- Connect all connectors.
- Connect the negative battery cable, and turn ignition switch to ON.
- Check the system operation.

NG

Replace Body Control Module (BCM)

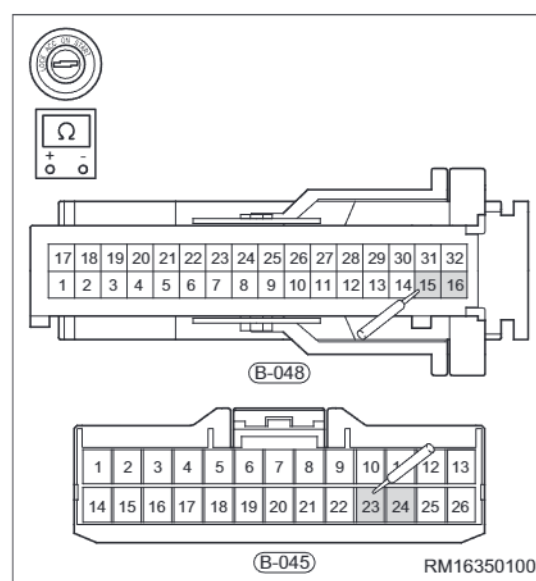
OK

3 Check body wire harness and connector

- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the body wire harness connectors B-048 and B-045.
- Using a digital multimeter, check for continuity between body wire harness connectors B-048 and B-045 according to the table below.

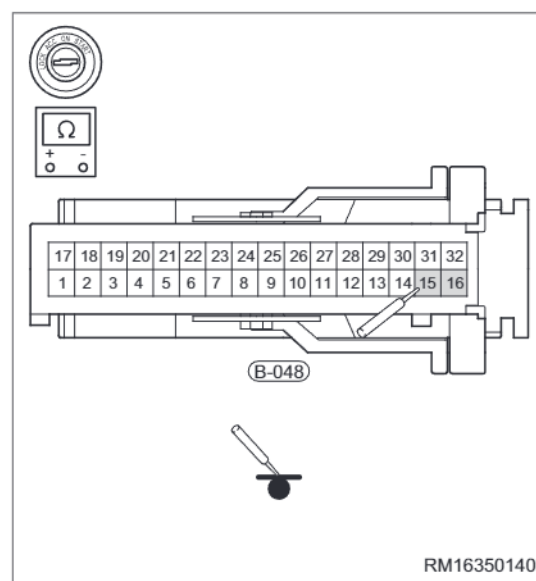
Normal Condition (Open Circuit Test):

Multimeter Connection	Condition	Specified Condition
B-048 (15) - B-045 (23)	Always	Continuity
B-048 (16) - B-045 (24)	Always	Continuity



Normal Condition (Short Circuit Test):

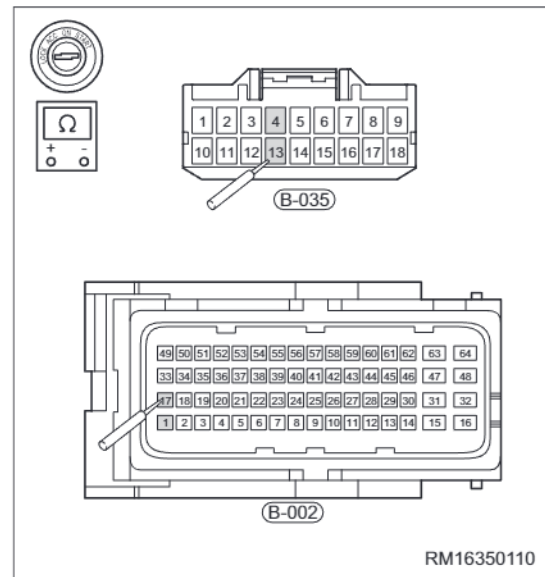
Multimeter Connection	Condition	Specified Condition
B-048 (15) - Body ground	Always	No continuity
B-048 (16) - Body ground	Always	No continuity



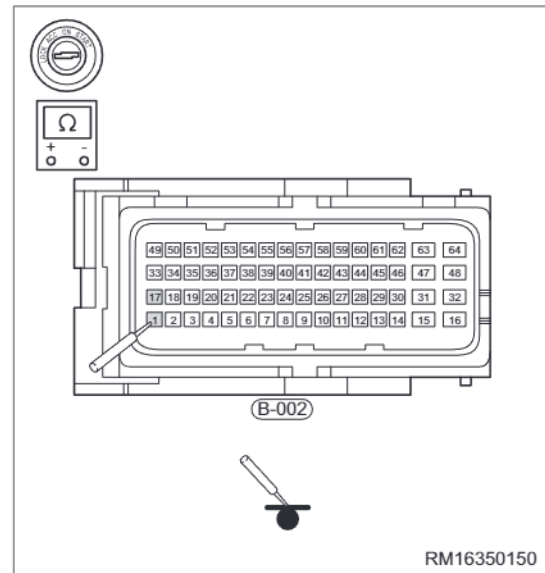
- e. Disconnect the body wire harness connectors B-035 and B-002.
- f. Using a digital multimeter, check for continuity between body wire harness connectors B-035 and B-002 according to the table below.

Normal Condition (Open Circuit Test):

Multimeter Connection	Condition	Specified Condition
B-035 (4) - B-002 (1)	Always	Continuity
B-035 (13) - B-002 (17)	Always	Continuity

**Normal Condition (Short Circuit Test):**

Multimeter Connection	Condition	Specified Condition
B-002 (1) - Body ground	Always	No continuity
B-002 (17) - Body ground	Always	No continuity

NG**Replace body wire harness and connector****OK****35**

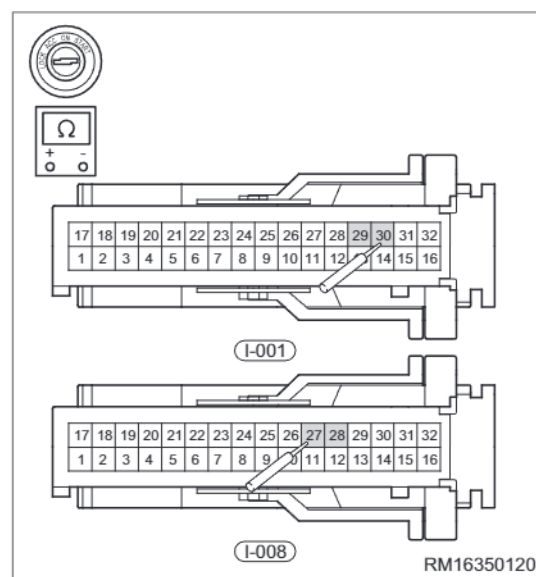
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Check instrument panel wire harness and connector

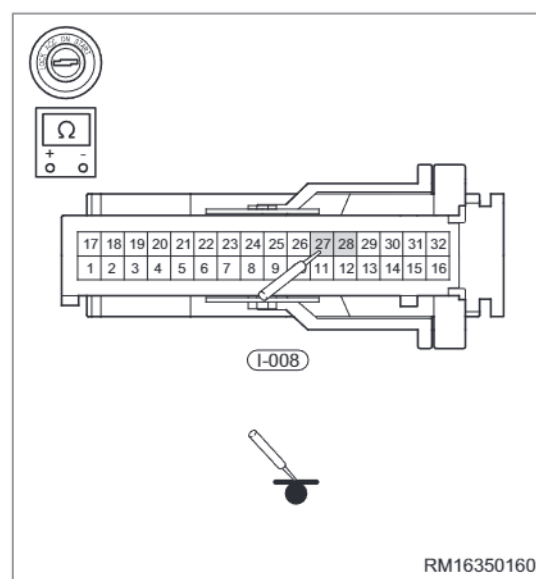
- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the instrument panel wire harness connectors I-008 and I-001.
- Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-008 and I-001 according to the table below.

Normal Condition (Open Circuit Test):

Multimeter Connection	Condition	Specified Condition
I-008 (27) - I-001 (30)	Always	Continuity
I-008 (28) - I-001 (29)	Always	Continuity

**Normal Condition (Short Circuit Test):**

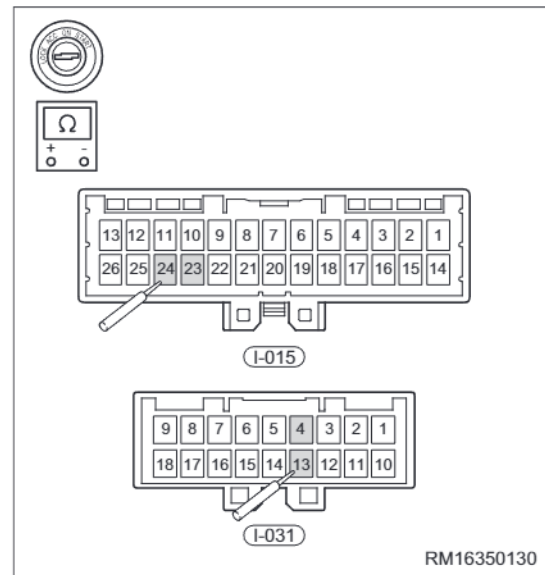
Multimeter Connection	Condition	Specified Condition
I-008 (27) - Body ground	Always	No continuity
I-008 (28) - Body ground	Always	No continuity



- e. Disconnect the instrument panel wire harness connectors I-015 and I-031.
- f. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-015 and I-031 according to the table below.

Normal Condition (Open Circuit Test):

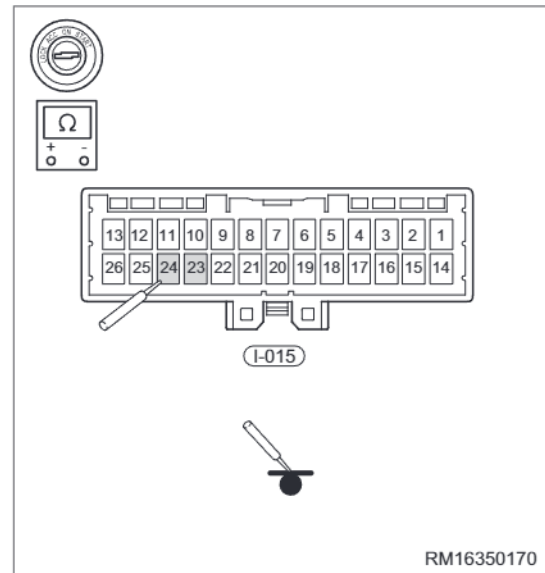
Multimeter Connection	Condition	Specified Condition
I-015 (23) - I-031 (4)	Always	Continuity
I-015 (24) - I-031 (13)	Always	Continuity

**Normal Condition (Short Circuit Test):**

Multimeter Connection	Condition	Specified Condition
I-015 (23) - Body ground	Always	No continuity
I-015 (24) - Body ground	Always	No continuity

NG

Replace instrument panel wire harness and connector

**OK****5****Reconfirm DTCs**

- a. Connect all connectors.
- b. Connect the negative battery cable.
- c. Turn ignition switch to ON.
- d. Use X-431 3G diagnostic tester (the latest software) to record and clear DTCs stored in the Engine Control Module (ECM).
- e. Turn ignition switch to LOCK and wait for a few seconds.
- f. Turn ignition switch to ON.
- g. Use X-431 3G diagnostic tester (the latest software) to read DTCs stored in the Engine Control Module (ECM).
- h. Read DTCs.

Result	Proceed to
DTCs P1811-13, P1812-11, P1813-12 are output	NG
No DTCs are output	OK

NG

Replace Engine Control Module (ECM)

OK

System is normal

ON-VEHICLE SERVICE

Constant Speed Cruise Control Switch

Removal

HINT:

Constant speed cruise control switch is located on the multi-function switch.

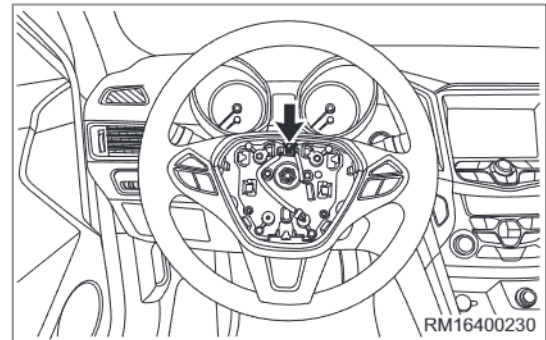
CAUTION

- Be sure to read the precautions for SRS airbag before removing steering wheel quick button (See page 32-85).

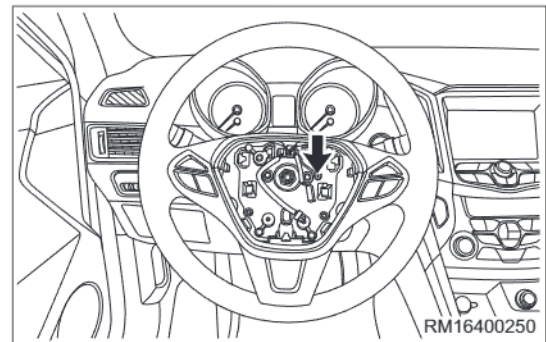
CAUTION

- Be sure to wear necessary safety equipment to prevent accidents when removing constant speed cruise control switch.
- DO NOT damage the clip on steering wheel quick button trim cover when removing constant speed cruise control switch.

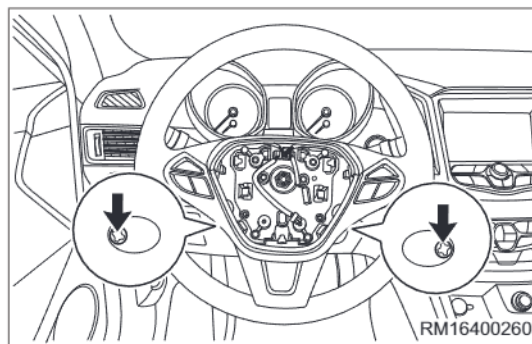
1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the driver airbag assembly (See page 32-84).
4. Remove the steering wheel quick button trim cover.
 - a. Disconnect the steering wheel quick button connector (arrow).



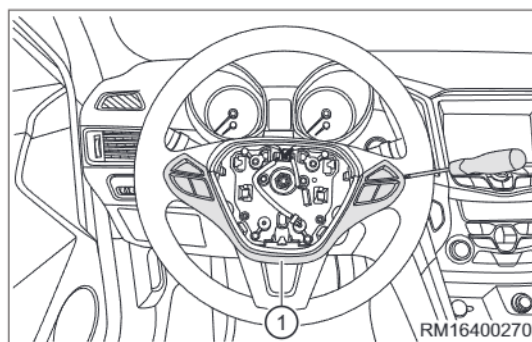
- b. Remove the fixing screw (arrow) from ground wire. (Tightening torque: 0.7 ± 0.2 N·m)



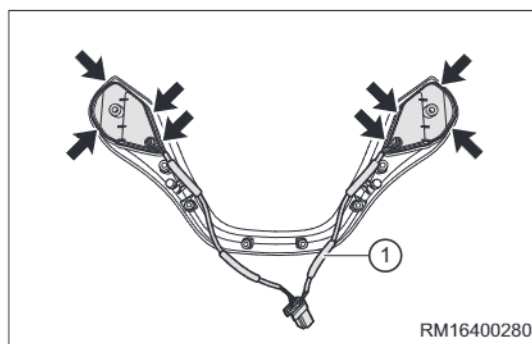
- c. Remove 2 fixing screws (arrow) from steering wheel quick button trim cover.
(Tightening torque: 0.7 ± 0.2 N·m)



- d. Using a screwdriver wrapped with protective tape, pry the clips on steering wheel quick button trim cover, and remove the steering wheel quick button trim cover (1).



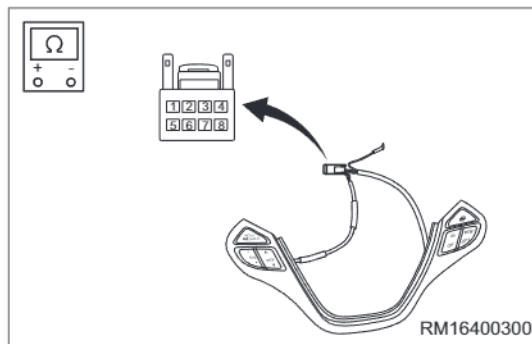
5. Remove the constant speed cruise control switch.
- a. Using a screwdriver wrapped with protective tape, detach the claws (arrow) on constant speed cruise control switch, and remove the constant speed cruise control switch (1).



Inspection

1. Check the constant speed cruise control switch.
- Check constant speed cruise control switch for damage. Replace if necessary.
 - Check constant speed cruise control switch connector for damage or poor terminal connection. Replace it if necessary.
 - Using digital multimeter, check for continuity between the terminals of constant speed cruise control switch according to the table below.

Multimeter Connection	Switch Condition	Specified Condition
Terminal 1 - Terminal 2	ON	Continuity
Terminal 1 - Terminal 3	Press RES/+ when in ON position	Continuity



Multimeter Connection	Switch Condition	Specified Condition
Terminal 1 - Terminal 4	Press RES/- when in ON position	Continuity
Terminal 1 - Terminal 6	Press  when in ON position	Continuity

If result is not as specified, replace the steering wheel quick button.

Installation

Installation is in the reverse order of removal.

CAUTION

- Operate carefully to prevent damage to other components, when installing the constant speed cruise control switch.
- Install each connector into place when installing constant speed cruise control switch.
- Tighten fixing screw to the specified torque when installing constant speed cruise control switch.
- Check steering wheel quick button for proper operation, after installing constant speed cruise control switch.

