

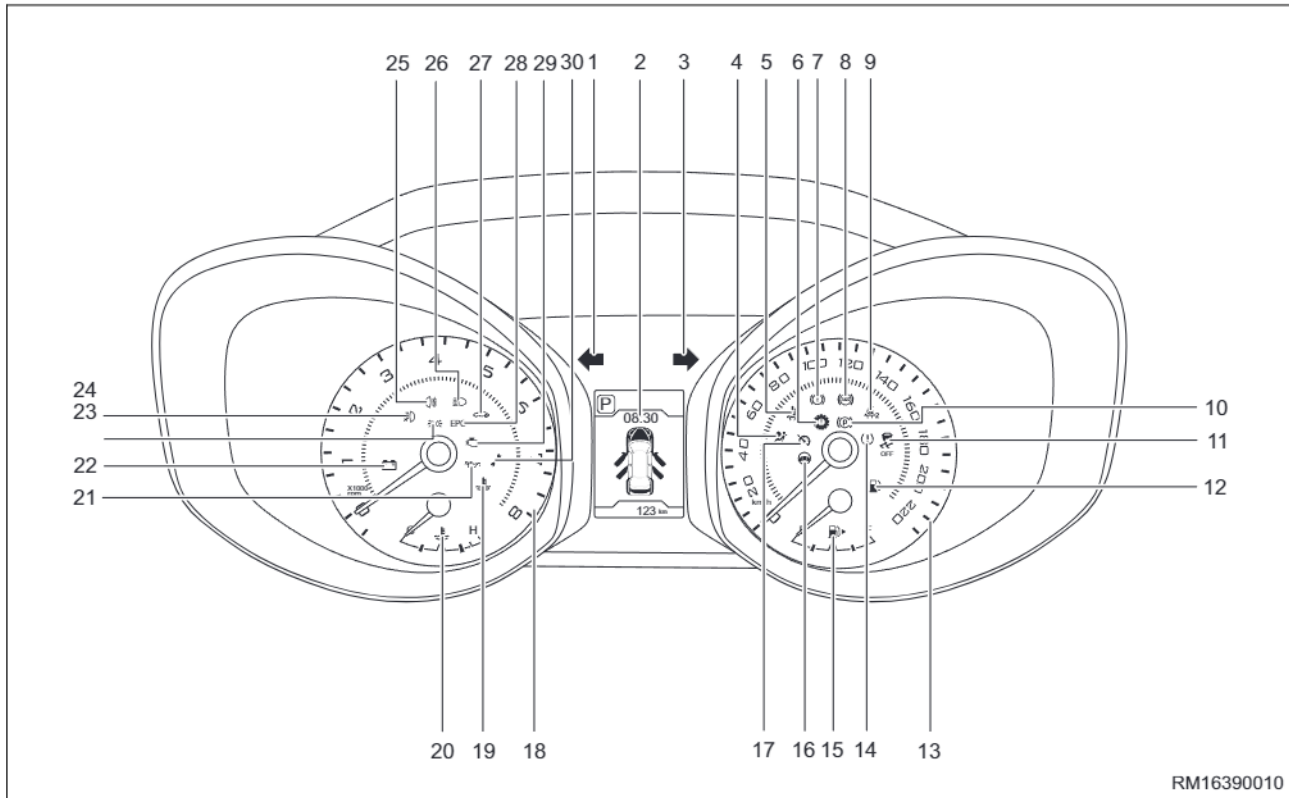
# INSTRUMENT CLUSTER

|                                  |             |                           |              |
|----------------------------------|-------------|---------------------------|--------------|
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# GENERAL INFORMATION

## Description



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|                                              |                                                            |
|----------------------------------------------|------------------------------------------------------------|
| 1 - Left Turn Signal Indicator               | 2 - Multi-information Display                              |
| 3 - Right Turn Signal Indicator              | 4 - SRS Warning Light                                      |
| 5 - Driver Seat Belt Reminder Light          | 6 - Transmission Malfunction Warning Light (for CVT Model) |
| 7 - Brake System Warning Light               | 8 - ABS Warning Light                                      |
| 9 - Front Passenger Seat Belt Reminder Light | 10 - Parking Brake Indicator                               |
| 11 - ESP OFF Indicator                       | 12 - Low Fuel Level Warning Light                          |
| 13 - Speedometer                             | 14 - Low Tire Pressure Warning Light                       |
| 15 - Fuel Gauge                              | 16 - Electric Steering System Warning Light (if equipped)  |
| 17 - Cruise Indicator (if equipped)          | 18 - Tachometer                                            |
| 19 - High Coolant Temperature Warning Light  | 20 - Engine Coolant Temperature Gauge                      |
| 21 - Low Engine Oil Pressure Warning Light   | 22 - Charging System Warning Light                         |
| 23 - Position Indicator                      | 24 - Front Fog Indicator                                   |
| 25 - Rear Fog Indicator                      | 26 - Headlight High Beam Indicator                         |
| 27 - Engine Immobilizer System Warning Light | 28 - EPC Warning Light                                     |
| 29 - Engine Malfunction Warning Light        | 30 - Maintenance Indicator                                 |

This vehicle is equipped with pointer type instrument cluster. The instrument cluster is a highly integrated electronic instrument display system and mainly consists of engine coolant temperature gauge, tachometer, fuel gauge, speedometer, multi-information display and warning indication symbols. The multi-information display mainly displays vehicle information, which contains the following items: clock, trip, total mileage, instantaneous fuel consumption and speed.

## Operation

Instrument cluster is located above the upper left of instrument panel assembly, which is used to monitor and display the operation status of each system and component in vehicle. Instrument cluster receives signals from each sensor and switch, and displays the operation status of each system through meters, multi-information display, indicators and warning lights. It also reminds and informs driver by flashing lights and sounding buzzer. As a result, it will be helpful for driver to eliminate possible troubles in time, thus avoiding malfunctions or accidents efficiently.

## Specifications

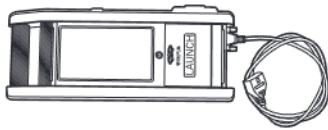
### Torque Specifications

| Description                                         | Torque (N·m)  |
|-----------------------------------------------------|---------------|
| Instrument Cluster Fixing Screw                     | $1.5 \pm 0.5$ |
| Instrument Cluster Trim Cover Assembly Fixing Screw | $2 \pm 0.5$   |

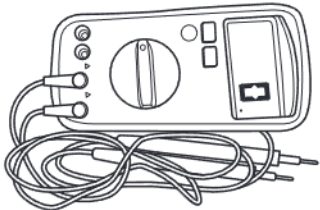
## Tools

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### Special Tool

|                            |                                                                                                    |
|----------------------------|----------------------------------------------------------------------------------------------------|
| X-431 3G Diagnostic Tester | <br>RCH0000001 |
|----------------------------|----------------------------------------------------------------------------------------------------|

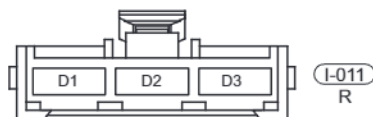
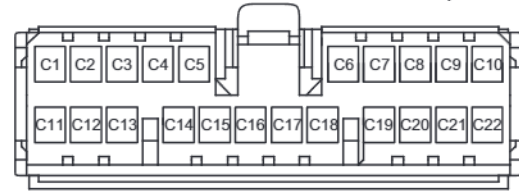
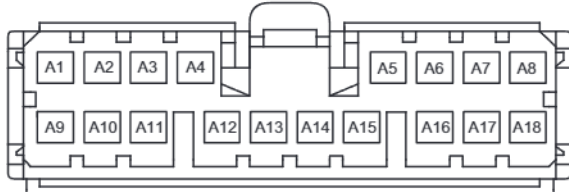
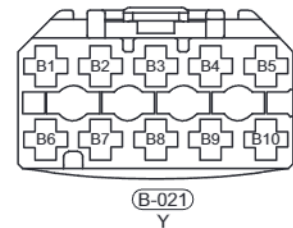
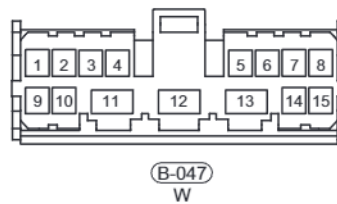
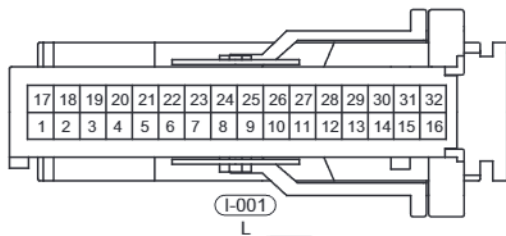
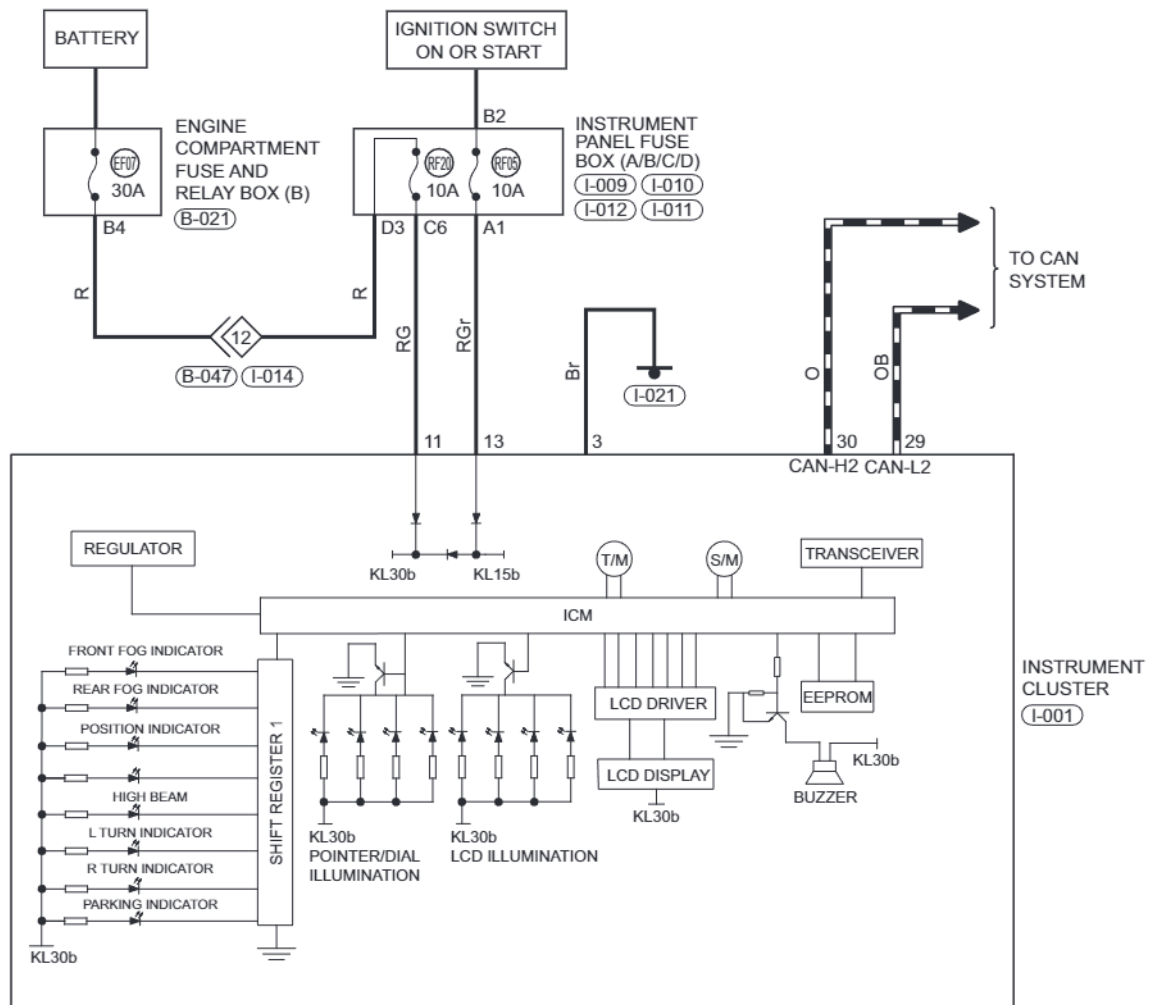
### General Tool

|                    |                                                                                                    |
|--------------------|----------------------------------------------------------------------------------------------------|
| Digital Multimeter | <br>RCH0000002 |
|--------------------|----------------------------------------------------------------------------------------------------|



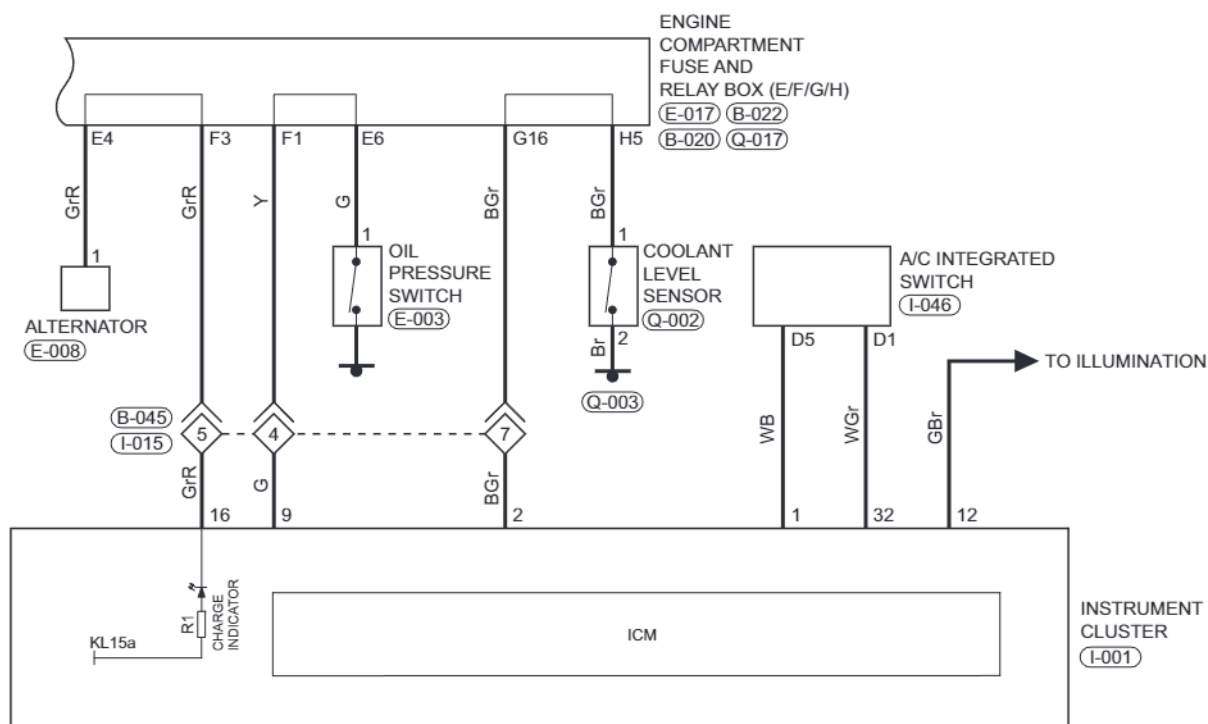
# Circuit Diagram

## Instrument Cluster (Page 1 of 3)

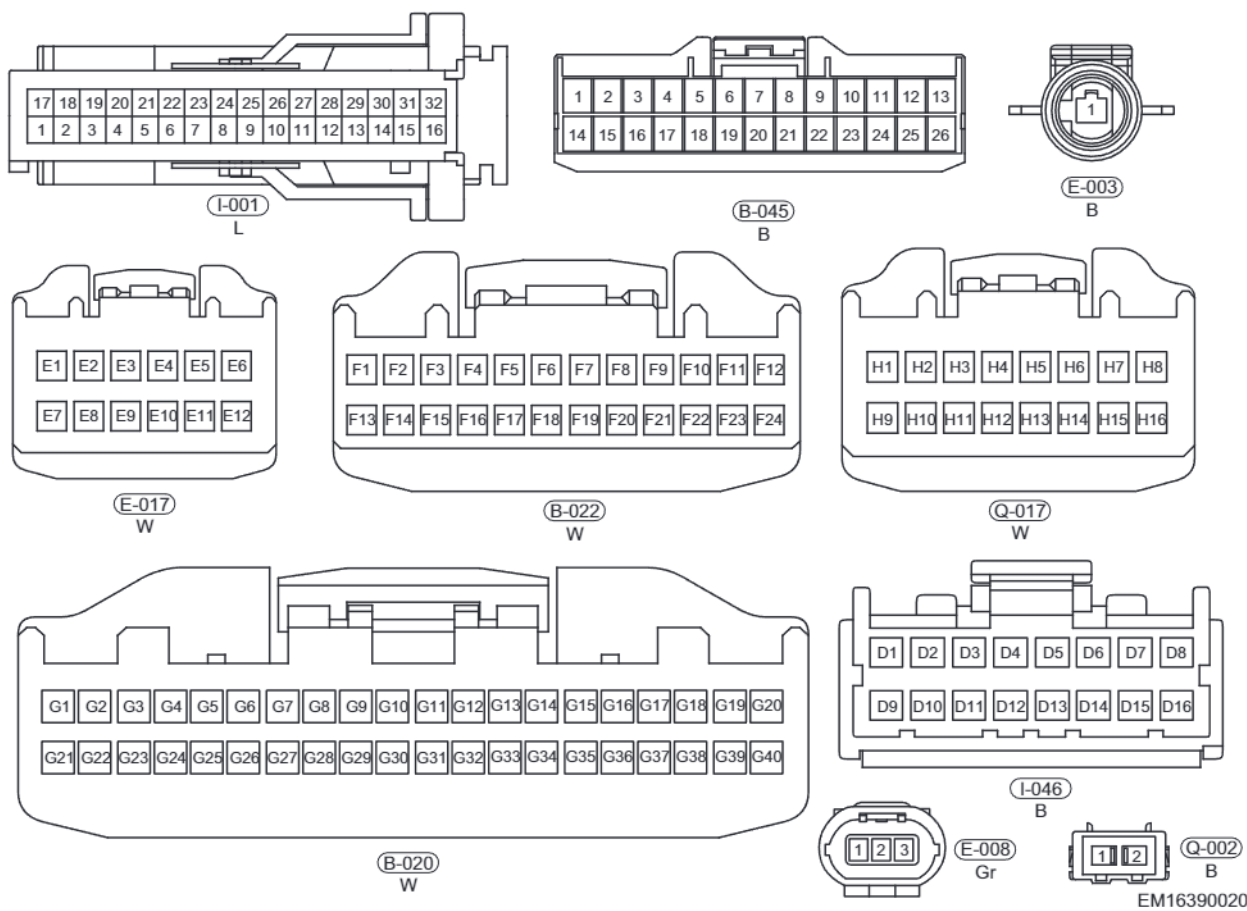


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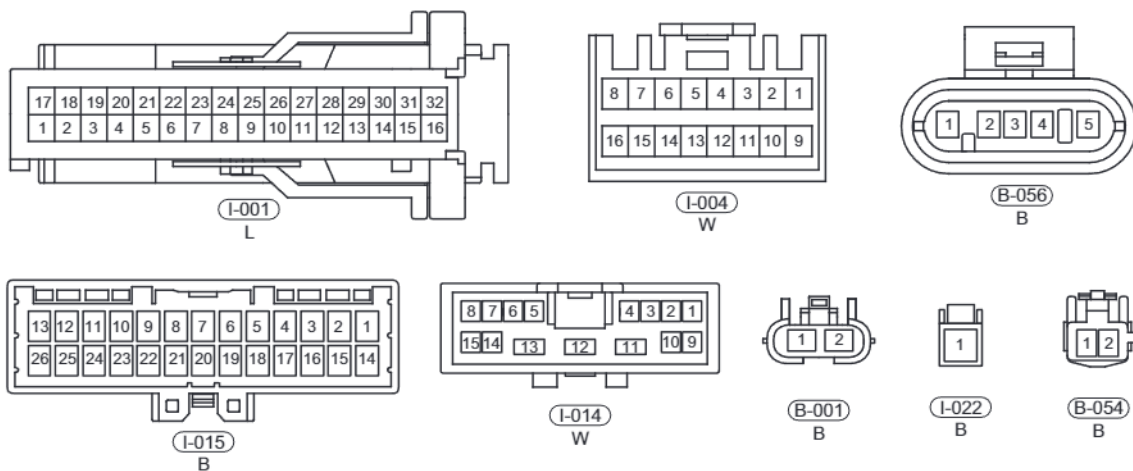
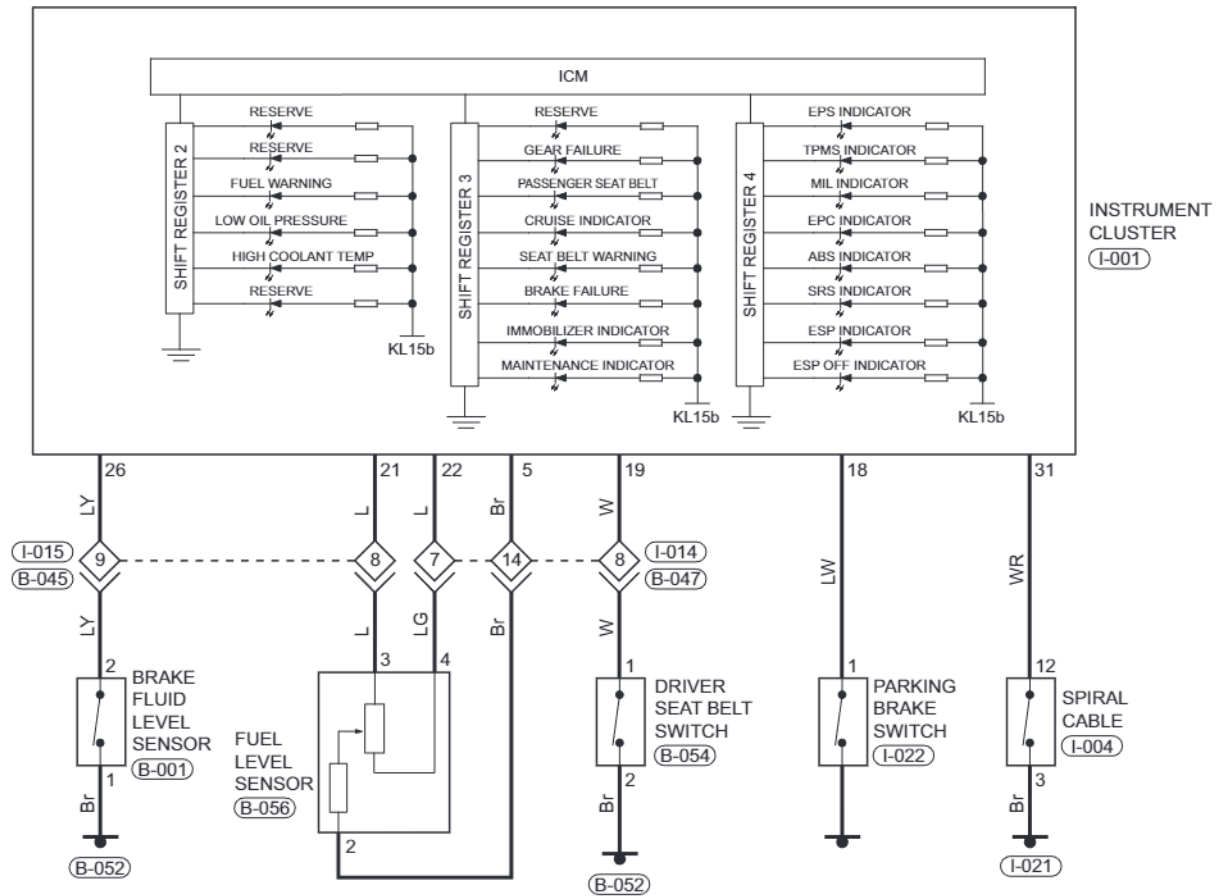
## Instrument Cluster (Page 2 of 3)



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## Instrument Cluster (Page 3 of 3)



EM16390030

## Instrument Cluster Terminal List

| Terminal No. | Definition                                  | Terminal No. | Definition                                  |
|--------------|---------------------------------------------|--------------|---------------------------------------------|
| 1            | SLD Input                                   | 17           | -                                           |
| 2            | Coolant Level Signal Input                  | 18           | Parking Brake Switch Signal                 |
| 3            | Power Ground                                | 19           | Driver Seat Belt Unfasten Indication Signal |
| 4            | -                                           | 20           | -                                           |
| 5            | Fuel Level Sensor Ground                    | 21           | Fuel Level Signal Input                     |
| 6            | -                                           | 22           | Fuel Level Auxiliary Signal Input           |
| 7            | -                                           | 23           | -                                           |
| 8            | -                                           | 24           | -                                           |
| 9            | Engine Oil Pressure Indication Signal Input | 25           | -                                           |
| 10           | -                                           | 26           | Brake Fluid Level Signal Input              |
| 11           | Battery Power Supply                        | 27           | -                                           |
| 12           | Backlight Illumination Input                | 28           | -                                           |
| 13           | Ignition Switch Power Supply                | 29           | CAN-L2                                      |
| 14           | -                                           | 30           | CAN-H2                                      |
| 15           | -                                           | 31           | Steering Wheel Key Input                    |
| 16           | Charging System Indication Signal Input     | 32           | SLD OFF Indication Output                   |

# 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 |
|--------------------------------------------|-----------------------------------------------------------|----------|
| Entire instrument cluster does not operate | Fuse                                                      | 53-36    |
|                                            | Wire harness or connector                                 | -        |
|                                            | Instrument cluster                                        | 39-77    |
| Vehicle speed display abnormal             | Wheel speed sensor                                        | -        |
|                                            | Wire harness or connector                                 | -        |
|                                            | Instrument cluster                                        | 39-77    |
| Tachometer abnormal                        | Engine speed sensor                                       | -        |
|                                            | Wire harness or connector                                 | -        |
|                                            | Instrument cluster                                        | 39-77    |
|                                            | Engine Control Module (ECM)                               | 06-281   |
| Fuel gauge abnormal                        | Fuel level sensor                                         | -        |
|                                            | Wire harness or connector                                 | -        |
|                                            | Instrument cluster                                        | 39-77    |
| Position indicator abnormal                | Position light switch (combination light switch assembly) | 36-90    |
|                                            | Wire harness or connector                                 | -        |
|                                            | Body Control Module (BCM)                                 | -        |
|                                            | Instrument cluster                                        | 39-77    |
| Turn signal indicator abnormal             | Turning light switch (combination light switch assembly)  | 36-90    |
|                                            | Wire harness or connector                                 | -        |
|                                            | Body Control Module (BCM)                                 | -        |
|                                            | Instrument cluster                                        | 39-77    |
| High beam indicator abnormal               | High beam switch (combination light switch assembly)      | 36-90    |
|                                            | Wire harness or connector                                 | -        |
|                                            | Body Control Module (BCM)                                 | -        |
|                                            | Instrument cluster                                        | 39-77    |
| Rear fog indicator abnormal                | Rear fog light switch (combination light switch assembly) | 36-90    |
|                                            | Wire harness or connector                                 | -        |
|                                            | Body Control Module (BCM)                                 | -        |
|                                            | Instrument cluster                                        | 39-77    |



| Symptom                                           | Suspected Area                                             | See page |
|---------------------------------------------------|------------------------------------------------------------|----------|
| Front fog indicator abnormal                      | Front fog light switch (combination light switch assembly) | 36-90    |
|                                                   | Wire harness or connector                                  | -        |
|                                                   | Body Control Module (BCM)                                  | -        |
|                                                   | Instrument cluster                                         | 39-77    |
| Charging system warning light abnormal            | Alternator                                                 | 16-12    |
|                                                   | Wire harness or connector                                  | -        |
|                                                   | Instrument cluster                                         | 39-77    |
| Low engine oil pressure warning light abnormal    | Engine oil level                                           | -        |
|                                                   | Oil pressure switch                                        | 13-16    |
|                                                   | Wire harness or connector                                  | -        |
|                                                   | Instrument cluster                                         | 39-77    |
| ABS warning light abnormal                        | ABS/ESP control module assembly                            | 25-88    |
|                                                   | CAN line or connector                                      | -        |
|                                                   | Instrument cluster                                         | 39-77    |
| Low fuel level warning light abnormal             | Fuel amount in tank                                        | -        |
|                                                   | Fuel level sensor                                          | -        |
|                                                   | Wire harness or connector                                  | -        |
|                                                   | Instrument cluster                                         | 39-77    |
| Coolant temperature warning light abnormal        | Coolant level                                              | -        |
|                                                   | Extremely high engine coolant temperature                  | -        |
|                                                   | Coolant temperature sensor                                 | -        |
|                                                   | Wire harness or connector                                  | -        |
|                                                   | Engine Control Module (ECM)                                | 06-281   |
|                                                   | Instrument cluster                                         | 39-77    |
| Engine malfunction warning light abnormal         | CAN line or connector                                      | -        |
|                                                   | Engine Control Module (ECM)                                | 06-281   |
|                                                   | Instrument cluster                                         | 39-77    |
| SRS warning light abnormal                        | CAN line or connector                                      | -        |
|                                                   | SRS control module assembly                                | 32-96    |
|                                                   | Instrument cluster                                         | 39-77    |
| Driver seat belt reminder light abnormal          | Driver seat belt buckle switch                             | -        |
|                                                   | Wire harness or connector                                  | -        |
|                                                   | Instrument cluster                                         | 39-77    |
| Front passenger seat belt reminder light abnormal | Front passenger seat belt buckle switch                    | -        |
|                                                   | Wire harness or connector                                  | -        |
|                                                   | Instrument cluster                                         | 39-77    |

| Symptom                                                        | Suspected Area                                                          | See page |
|----------------------------------------------------------------|-------------------------------------------------------------------------|----------|
| Brake system warning light abnormal                            | Low brake fluid level                                                   | -        |
|                                                                | Parking brake switch assembly                                           | 27-10    |
|                                                                | Wire harness or connector                                               | -        |
|                                                                | Instrument cluster                                                      | 39-77    |
| Cruise indicator (if equipped) abnormal                        | constant speed cruise control switch (multi-function switch)            | 35-21    |
|                                                                | Wire harness or connector                                               | -        |
|                                                                | Instrument cluster                                                      | 39-77    |
| Transmission malfunction warning light abnormal                | TCU                                                                     | 18-118   |
|                                                                | CAN line or connector                                                   | -        |
|                                                                | Instrument cluster                                                      | 39-77    |
| Low tire pressure warning light abnormal                       | Low or high tire pressure (tire pressure is not within specified range) | -        |
|                                                                | Instrument cluster                                                      | 39-77    |
| Electric steering system warning light (if equipped) abnormal  | Electric Power Steering (EPS)                                           | -        |
|                                                                | CAN line or connector                                                   | -        |
|                                                                | Instrument cluster                                                      | 39-77    |
| Engine immobilizer system warning light (if equipped) abnormal | CAN line or connector                                                   | -        |
|                                                                | Engine Control Module (ECM)                                             | 06-281   |
|                                                                | Instrument cluster                                                      | 39-77    |

## 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 the vehicle.
- DLC is located on 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 malfunction.
- 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 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 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 instrument cluster control system ground related to the latest DTC.
8. If multiple trouble codes were set, use the circuit diagrams to 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 DTC was set.
- Look for the data that has changed or the DTC to reset during wiggle test.
- Look for broken, bent, protruded or corroded terminals.
- Inspect the mounting areas of instrument cluster, 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 ground points related to DTC.
- Remove the instrument cluster from the malfunctioning vehicle and install it to a new vehicle and perform a test. If DTC cannot be cleared, the instrument cluster is malfunctioning. If DTC can be cleared, reinstall the instrument cluster to original vehicle.
- If multiple trouble codes were set, use circuit diagrams to look for any common ground circuit or power supply circuit applied to the DTC.
- Refer to any Technical Bulletin that is applied to the malfunction.

## 39 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 can increase load resistance. In such cases, the normal circuit operation will be seriously affected. Check the ground points 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 the contacting is in good condition.
4. Reinstall the ground bolt or nut securely.
5. Check if add-on accessories interfere with ground circuit.
6. If several wire harnesses are crimped into one ground eyelet 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 instrument cluster system.

1

Vehicle brought to workshop

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

**No DTC**

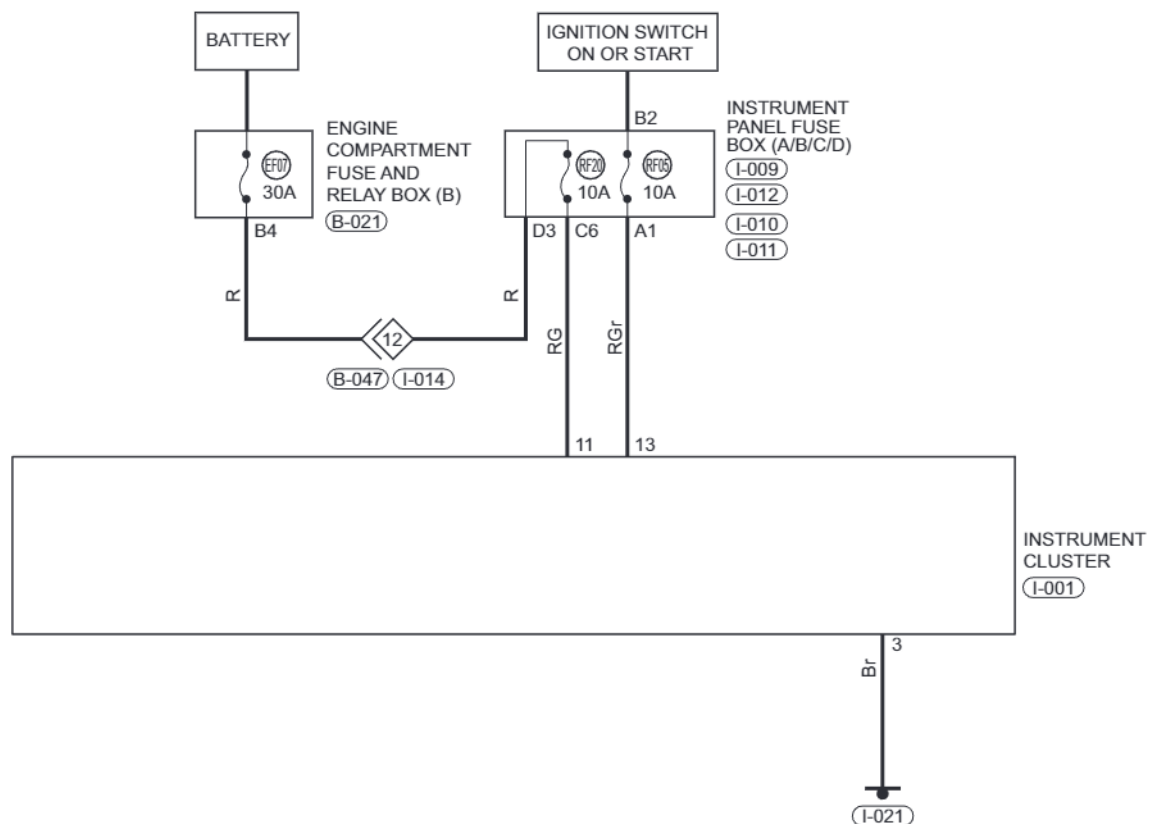
For history DTC, go to step 7

**5** Problem repair (no DTC), then go to step 8**NEXT****39****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

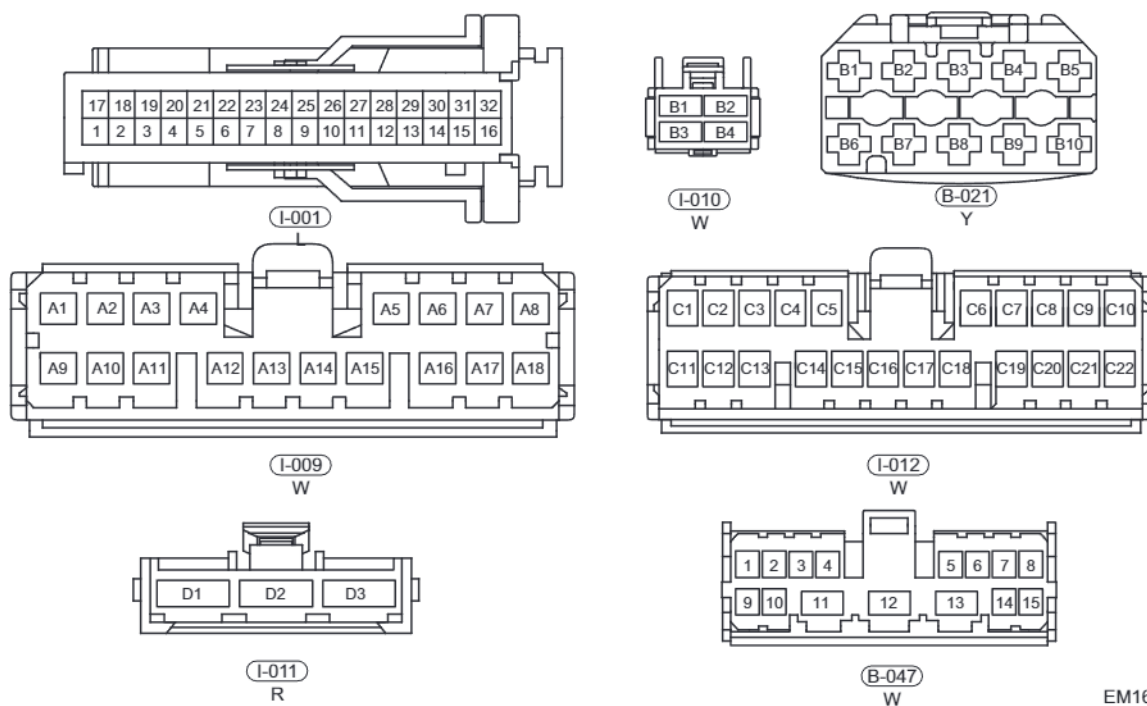
## Diagnostic Trouble Code (DTC) Chart

| DTC Code | DTC Definition                                     |
|----------|----------------------------------------------------|
| B1100-13 | Power Supply Circuit Open                          |
| B1100-16 | Power Supply Circuit Voltage Below Threshold       |
| B1100-17 | Power Supply Circuit Voltage Above Threshold       |
| B1101-11 | Fuel Sensor Fault Circuit Short to Ground          |
| B1101-15 | Fuel Sensor Fault Circuit Short to Battery or Open |
| B1103-00 | LED Airbag Fault No Subtype Information            |
| B1104-41 | EEPROM Checksum Error                              |
| U0100-87 | Lost Communication with EMS                        |
| U0101-87 | Lost Communication with TCM                        |
| U0114-87 | Lost Communication with TMM                        |
| U0126-87 | Lost Communication with SAM                        |
| U0127-87 | Lost Communication with TPM                        |
| U0129-87 | Lost Communication with BSM                        |
| U0131-87 | Lost Communication with EPS                        |
| U0140-87 | Lost Communication with BCM                        |
| U0151-87 | Lost Communication with ICM                        |
| U0167-87 | Lost Communication with IMMO                       |
| U0214-87 | Lost Communication with PEPS                       |
| U0073-88 | CAN Bus Off                                        |
| U1300-55 | Software Configuration Error, Not Configured       |

|     |          |                                              |
|-----|----------|----------------------------------------------|
| DTC | B1100-13 | Power Supply Circuit Open                    |
| DTC | B1100-16 | Power Supply Circuit Voltage Below Threshold |
| DTC | B1100-17 | Power Supply Circuit Voltage Above Threshold |



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EM16390040

## Self-diagnosis Detection Logic

| DTC Code | DTC Definition                               | DTC Detection Condition | Possible Cause                                                                                                                   |
|----------|----------------------------------------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| B1100-13 | Power Supply Circuit Open                    | Ignition switch ON      | <ul style="list-style-type: none"> <li>Charging system</li> <li>Wire harness or connector</li> <li>Instrument cluster</li> </ul> |
| B1100-16 | Power Supply Circuit Voltage Below Threshold |                         |                                                                                                                                  |
| B1100-17 | Power Supply Circuit Voltage Above Threshold |                         |                                                                                                                                  |

## DTC Confirmation Procedure

Confirm that battery voltage is 11 to 14 V before performing 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.
- Using X-431 3G diagnostic tester, record and clear DTCs stored in instrument cluster control system.
- 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 39-12](#)).

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### CAUTION

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

## Diagnosis Procedure

### 1 Check battery voltage

- Using a digital multimeter, measure voltage between positive battery terminal and negative battery terminal.
- Battery voltage should be between 11 and 14 V.

NG

Recharge or replace battery

OK

### 2 Check battery terminals

- Check if battery terminals are loose or corroded.

NG

Tighten or replace battery terminals



OK

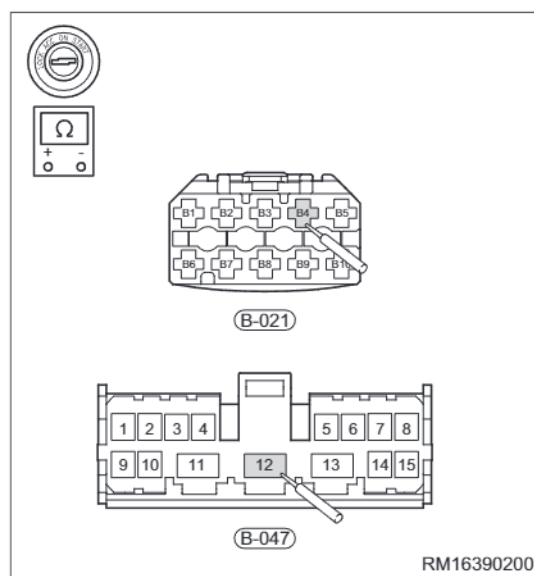
**3 Check body wire harness and connector**

- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the body wire harness connectors B-021 and B-047.
- Using a digital multimeter, check for continuity between body wire harness connectors B-021 and B-047 according to the table below.

| Multimeter Connection   | Condition | Specified Condition |
|-------------------------|-----------|---------------------|
| B-021 (B4) - B-047 (12) | Always    | Continuity          |

NG

Repair or replace body wire harness and connector



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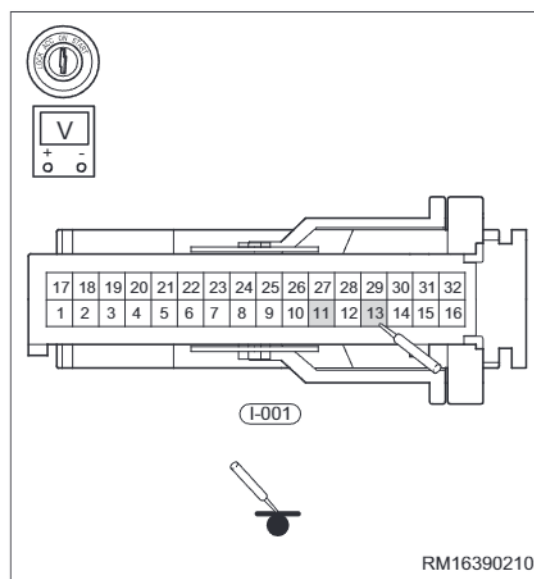
OK

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**4 Check instrument panel wire harness and connector**

- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the instrument panel wire harness connector I-001.
- Connect the negative battery cable.
- Turn ignition switch to ON.
- Using a digital multimeter, measure the voltage between instrument panel wire harness connector I-001 and body ground according to the table below to check whether the system power supply control circuit is normal.

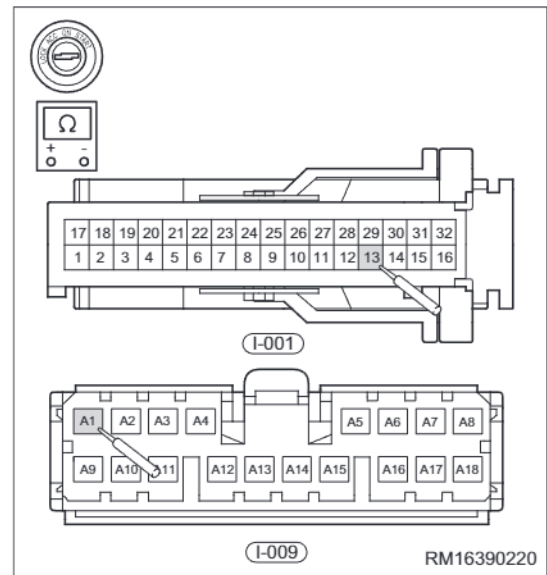
| Multimeter Connection    | Condition          | Specified Condition |
|--------------------------|--------------------|---------------------|
| I-001 (11) - Body ground | Ignition switch ON | 11 to 14 V          |
| I-001 (13) - Body ground | Ignition switch ON | 11 to 14 V          |



RM16390210

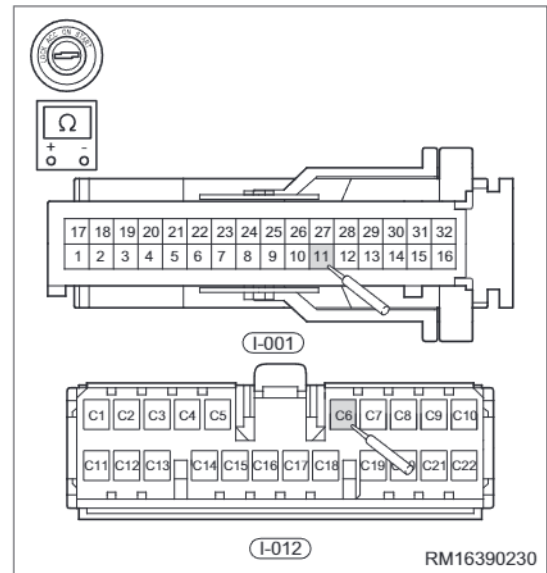
- g. Turn ignition switch to LOCK.
- h. Disconnect the negative battery cable.
- i. Disconnect the instrument panel wire harness connectors I-001 and I-009.
- j. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-001 and I-009 according to the table below.

| Multimeter Connection   | Condition | Specified Condition |
|-------------------------|-----------|---------------------|
| I-001 (13) - I-009 (A1) | Always    | Continuity          |



- k. Disconnect the instrument panel wire harness connectors I-001 and I-012.
- l. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-001 and I-012 according to the table below.

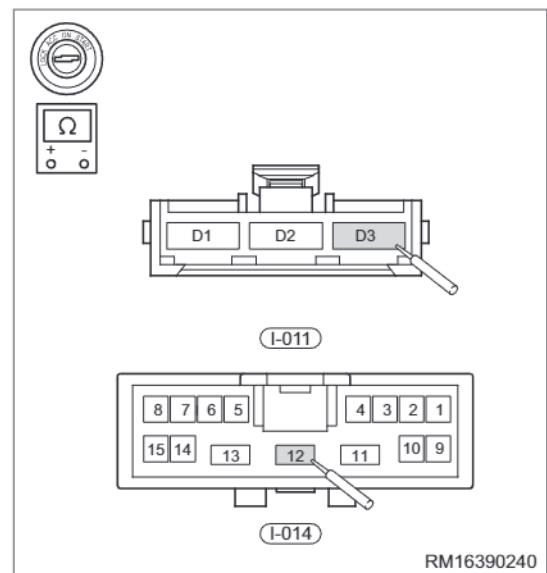
| Multimeter Connection   | Condition | Specified Condition |
|-------------------------|-----------|---------------------|
| I-001 (11) - I-012 (C6) | Always    | Continuity          |



39

- m. Disconnect the instrument panel wire harness connectors I-011 and I-014.
- n. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-011 and I-014 according to the table below.

| Multimeter Connection   | Condition | Specified Condition |
|-------------------------|-----------|---------------------|
| I-011 (D3) - I-014 (12) | Always    | Continuity          |

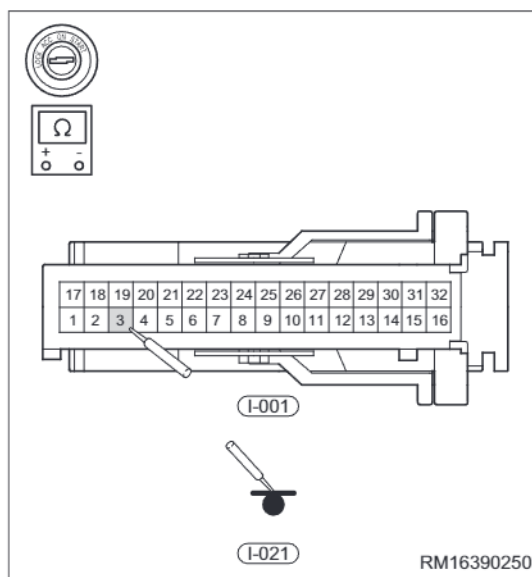


- o. Disconnect the instrument panel wire harness connector I-001 and ground point I-021.
- p. Using a digital multimeter, check for continuity between instrument panel wire harness connector I-001 and ground point I-021 according to the table below.

| Multimeter Connection | Condition | Specified Condition |
|-----------------------|-----------|---------------------|
| I-001 (3) - I-021     | Always    | Continuity          |

NG

Repair or 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 instrument cluster control system.
- 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 instrument cluster control system again.
- h. Read DTC.

| Result                                       | Proceed to |
|----------------------------------------------|------------|
| DTCs B1100-13, B1100-16, B1100-17 are output | NG         |
| No DTC is output                             | OK         |

NG

Replace instrument cluster

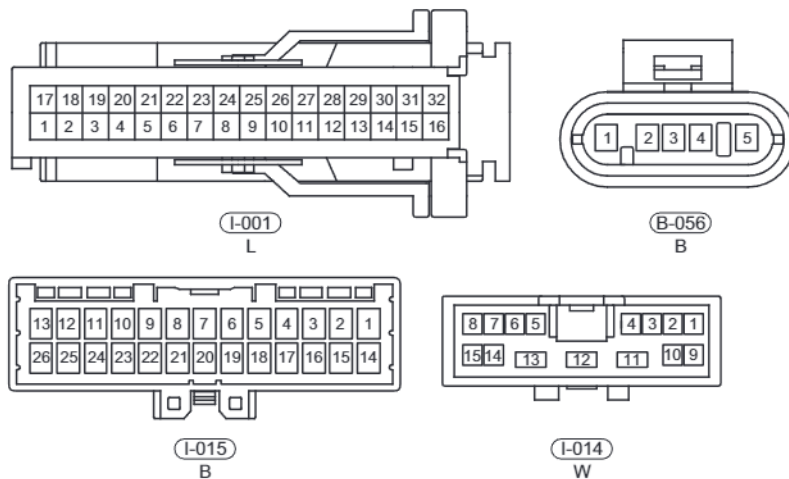
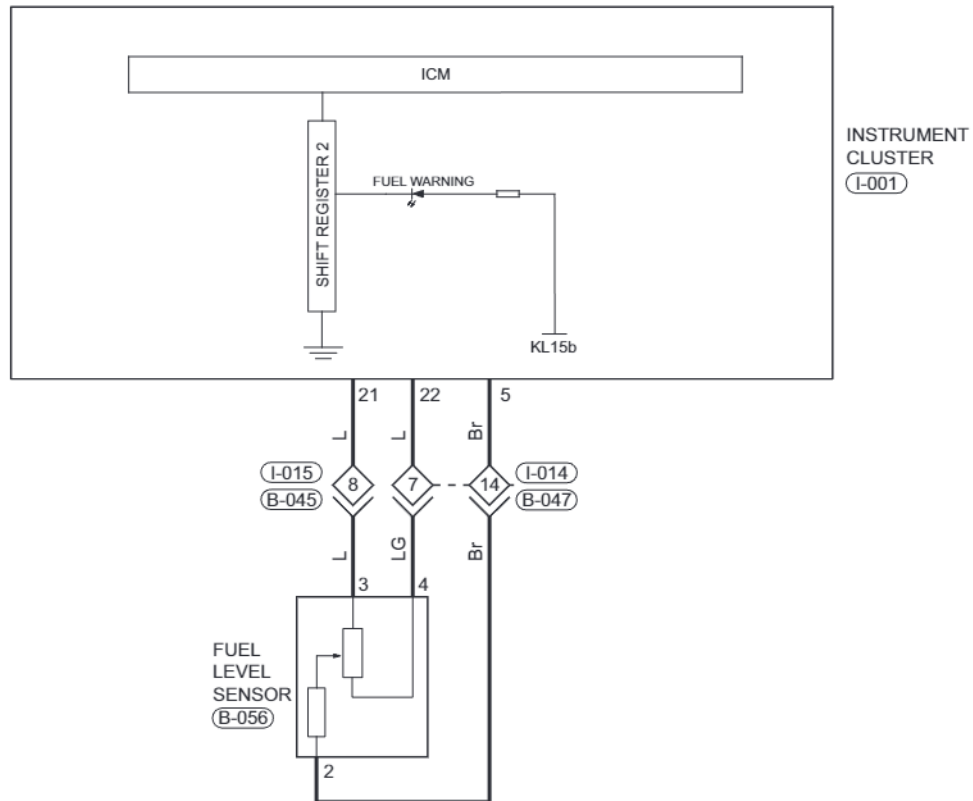
OK

System is normal



|     |          |                                           |
|-----|----------|-------------------------------------------|
| DTC | B1101-11 | Fuel Sensor Fault Circuit Short to Ground |
|-----|----------|-------------------------------------------|

|     |          |                                                    |
|-----|----------|----------------------------------------------------|
| DTC | B1101-15 | Fuel Sensor Fault Circuit Short to Battery or Open |
|-----|----------|----------------------------------------------------|



EM16390050



## Self-diagnosis Detection Logic

| DTC Code | DTC Definition                                           | DTC Detection Condition | Possible Cause                                                                                                                     |
|----------|----------------------------------------------------------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| B1101-11 | Fuel Sensor Fault<br>Circuit Short to Ground             | Ignition switch ON      | <ul style="list-style-type: none"> <li>Fuel level sensor</li> <li>Wire harness or connector</li> <li>Instrument cluster</li> </ul> |
| B1101-15 | Fuel Sensor Fault<br>Circuit Short to Battery<br>or Open |                         |                                                                                                                                    |

## DTC Confirmation Procedure

Confirm that battery voltage is 11 to 14 V before performing 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.
- Using X-431 3G diagnostic tester, record and clear DTCs stored in instrument cluster control system.
- 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 39-12](#)).

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## CAUTION

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

## Diagnosis Procedure

1

Check fuel level sensor wire harness and connector

- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the fuel level sensor and fuel pump assembly connector B-056.
- Check wire harness, connector and terminal for deformation, bend or damage.

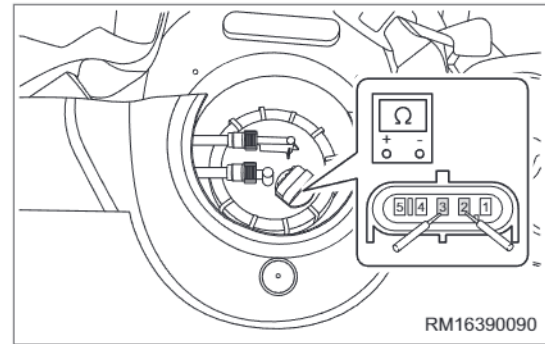
NG

Repair or replace fuel level sensor wire harness and connector

OK

## 2 Check fuel level sensor

- Connect the negative battery cable.
- Turn ignition switch to ON.
- Read the remaining fuel amount segments from fuel gauge in the instrument cluster.
- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the fuel level sensor and fuel pump assembly connector B-056.
- Using a digital multimeter, measure the resistance between fuel level sensor terminals 2 and 3.
- Check if fuel level sensor is normal according to the correspondence between oil amount segments and standard resistance of fuel level sensor shown in the table below.



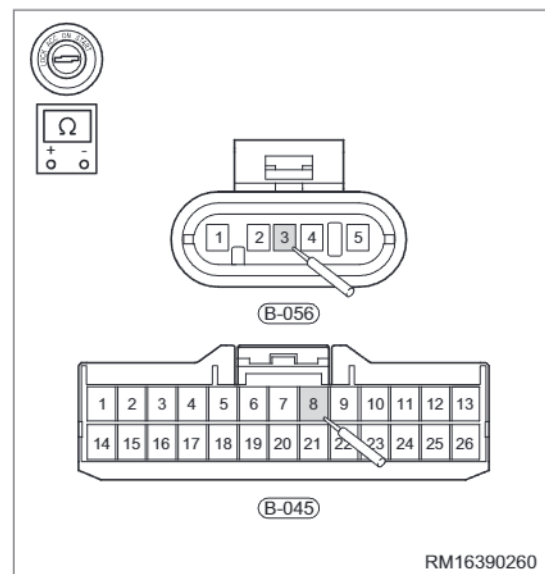
| Fuel Gauge Display | Multimeter Connection   | Specification ( $\Omega$ ) |
|--------------------|-------------------------|----------------------------|
| E                  | Terminal 3 - Terminal 2 | $275 \pm 5$                |
| 1/4                | Terminal 3 - Terminal 2 | $165 \pm 4$                |
| 1/2                | Terminal 3 - Terminal 2 | $97 \pm 4$                 |
| 3/4                | Terminal 3 - Terminal 2 | $79 \pm 3$                 |
| F                  | Terminal 3 - Terminal 2 | $32 \pm 3$                 |

39

## 3 Check body wire harness and connector

- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the body wire harness connectors B-045 and B-056.
- Using a digital multimeter, check for continuity between body wire harness connectors B-045 and B-056 according to the table below.

| Multimeter Connection | Condition | Specified Condition |
|-----------------------|-----------|---------------------|
| B-045 (8) - B-056 (3) | Always    | Continuity          |

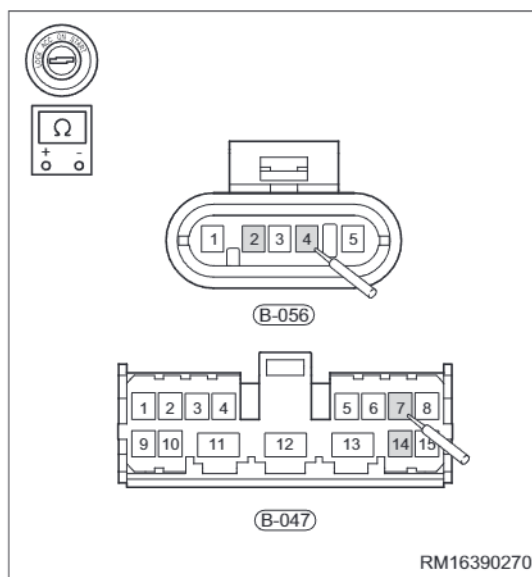


- e. Disconnect the body wire harness connectors B-047 and B-056.
- f. Using a digital multimeter, check for continuity between body wire harness connectors B-047 and B-056 according to the table below.

| Multimeter Connection  | Condition | Specified Condition |
|------------------------|-----------|---------------------|
| I-047 (7) - B-056 (4)  | Always    | Continuity          |
| I-047 (14) - B-056 (2) | Always    | Continuity          |

NG

Repair or replace body wire harness and connector



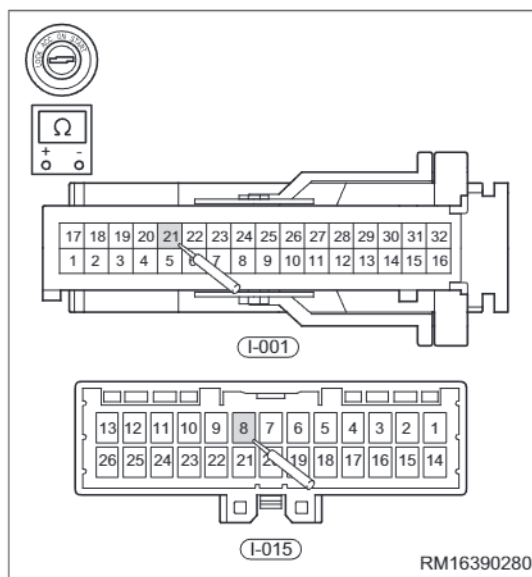
OK

## 4

## Check instrument panel wire harness and connector

- a. Turn ignition switch to LOCK.
- b. Disconnect the negative battery cable.
- c. Disconnect the instrument panel wire harness connectors I-001 and I-015.
- d. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-001 and I-015 according to the table below.

| Multimeter Connection  | Condition | Specified Condition |
|------------------------|-----------|---------------------|
| I-001 (21) - I-015 (8) | Always    | Continuity          |

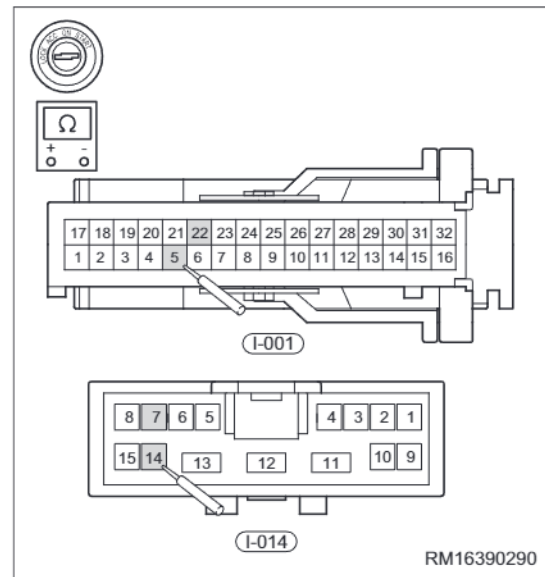


- e. Disconnect the instrument panel wire harness connectors I-001 and I-014.
- f. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-001 and I-014 according to the table below.

| Multimeter Connection  | Condition | Specified Condition |
|------------------------|-----------|---------------------|
| I-001 (5) - I-014 (14) | Always    | Continuity          |
| I-001 (22) - I-014 (7) | Always    | Continuity          |

NG

Repair or 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 instrument cluster control system.em.
- 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 instrument cluster control system again.
- h. Read DTC.

| Result                                | Proceed to |
|---------------------------------------|------------|
| DTCs B1101-11 and B1101-15 are output | NG         |
| No DTC is output                      | OK         |

NG

Replace instrument cluster

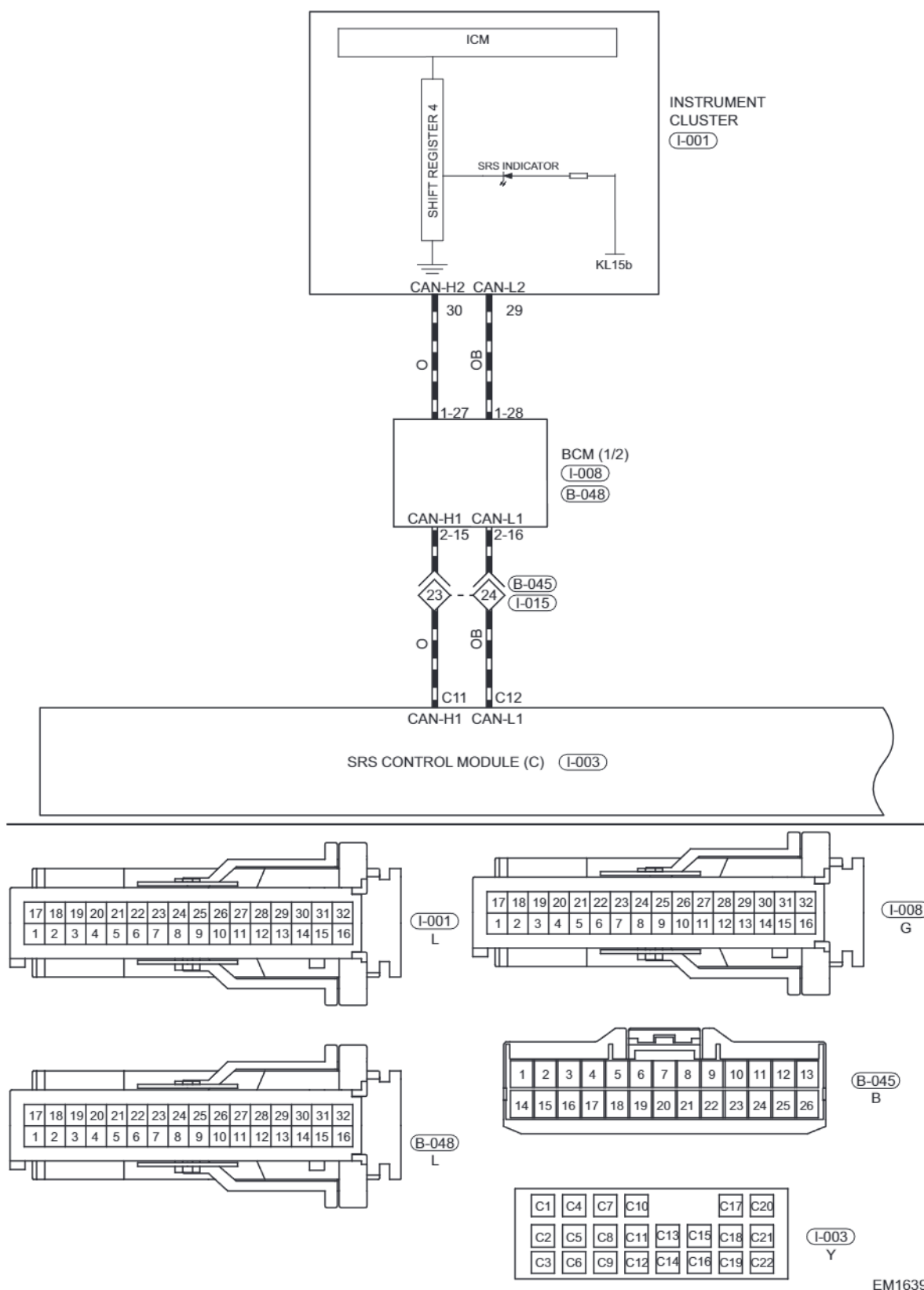
OK

System is normal

39

|     |          |                                         |
|-----|----------|-----------------------------------------|
| DTC | B1103-00 | LED Airbag Fault No Subtype Information |
|-----|----------|-----------------------------------------|

|     |          |                             |
|-----|----------|-----------------------------|
| DTC | U0151-87 | Lost Communication with ICM |
|-----|----------|-----------------------------|



EM16390060

## Self-diagnosis Detection Logic

| DTC Code | DTC Definition                          | DTC Detection Condition | Possible Cause                                                                                                                 |
|----------|-----------------------------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| B1103-00 | LED Airbag Fault No Subtype Information | Ignition switch ON      | <ul style="list-style-type: none"> <li>Airbag system</li> <li>Wire harness or connector</li> <li>Instrument cluster</li> </ul> |
| U0151-87 | Lost Communication with ICM             |                         |                                                                                                                                |

## DTC Confirmation Procedure

Confirm that battery voltage is 11 to 14 V before performing 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.
- Using X-431 3G diagnostic tester, record and clear DTCs stored in instrument cluster control system.
- 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 39-12](#)).

### CAUTION

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

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## Diagnosis Procedure

### 1 Check airbag

- Remove the airbag from the 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 operation of airbag.

NG

Replace airbag

OK

### 2 Check SRS control module assembly

- Remove the SRS control module assembly from the 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 operation of SRS control module assembly.

NG

Replace SRS control module assembly



OK

**3 Check connector and terminal**

- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the SRS control module assembly connector I-003.
- Check wire harness, connector and terminal for deformation, bend or damage.

NG

Repair or replace connector and terminal

OK

**4 Check CAN line (instrument cluster - BCM)**

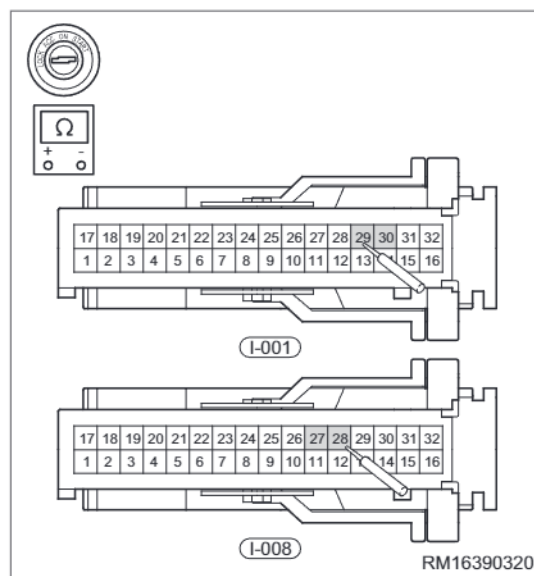
- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the instrument panel wire harness connectors I-001 and I-008.
- Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-001 and I-008 according to the table below.

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

NG

Repair or replace CAN line



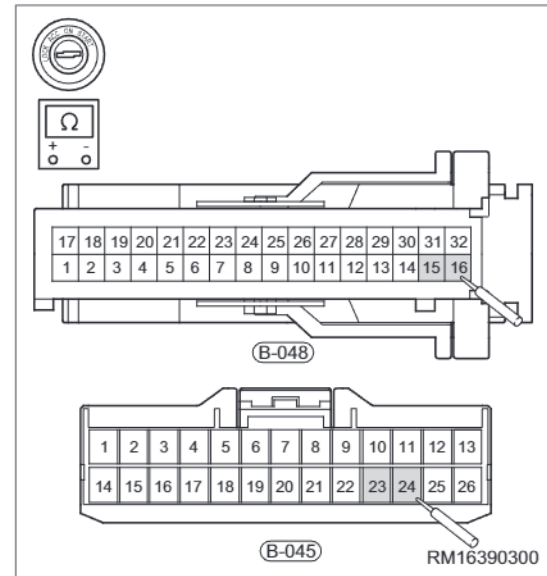
OK



## 5 Check CAN line (BCM - SRS control module assembly)

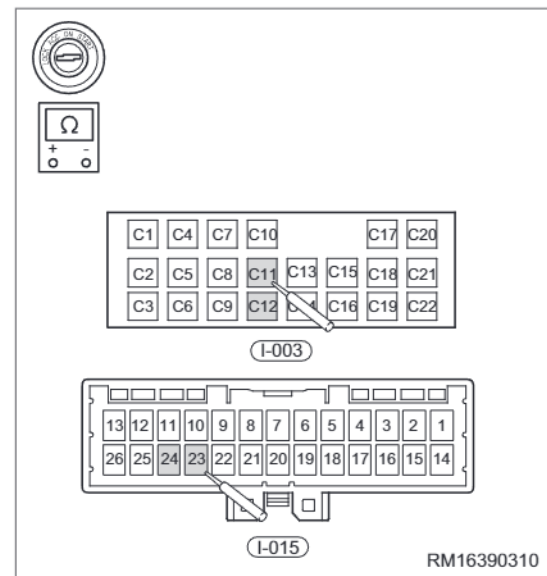
- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the body wire harness connectors B-048 and B-045.
- Using a digital multimeter, check for continuity between body wire harness connectors B-048 and B-045 according to the table below.

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



- Disconnect the instrument panel wire harness connectors I-015 and I-003.
- Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-015 and I-003 according to the table below.

| Multimeter Connection    | Condition | Specified Condition |
|--------------------------|-----------|---------------------|
| I-015 (23) - I-003 (C11) | Always    | Continuity          |
| I-015 (24) - I-003 (C12) | Always    | Continuity          |



NG

Repair or replace CAN line

OK

## 6 Reconfirm DTCs

- 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 instrument cluster control system.em.
- Turn ignition switch to LOCK and wait for a few seconds.
- Turn ignition switch to ON.
- Use X-431 3G diagnostic tester (the latest software) to read DTCs stored in instrument cluster control system again.



h. Read DTC.

| Result                                | Proceed to |
|---------------------------------------|------------|
| DTCs B1103-00 and U0151-87 are output | NG         |
| No DTCs are output                    | OK         |

NG

Replace instrument cluster

OK

System is normal

|            |                 |                              |
|------------|-----------------|------------------------------|
| <b>DTC</b> | <b>B1104-41</b> | <b>EEPROM Checksum Error</b> |
|------------|-----------------|------------------------------|

**Self-diagnosis Detection Logic**

| DTC Code | DTC Definition        | DTC Detection Condition | Possible Cause                                                       |
|----------|-----------------------|-------------------------|----------------------------------------------------------------------|
| B1104-41 | EEPROM Checksum Error | Ignition switch ON      | <ul style="list-style-type: none"> <li>Instrument cluster</li> </ul> |

**DTC Confirmation Procedure**

Confirm that battery voltage is 11 to 14 V before performing 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.
- Using X-431 3G diagnostic tester, record and clear DTCs stored in instrument cluster control system.
- 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 39-12](#)).

**CAUTION**

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

**39****Diagnosis Procedure****1 Reconfirm DTCs**

- Use X-431 3G diagnostic tester (the latest software) to clear DTCs stored in instrument cluster control system.
- Turn ignition switch to LOCK and wait for a few seconds.
- Turn ignition switch to ON.
- Use X-431 3G diagnostic tester (the latest software) to read DTCs stored in instrument cluster control system again.
- Read DTC.

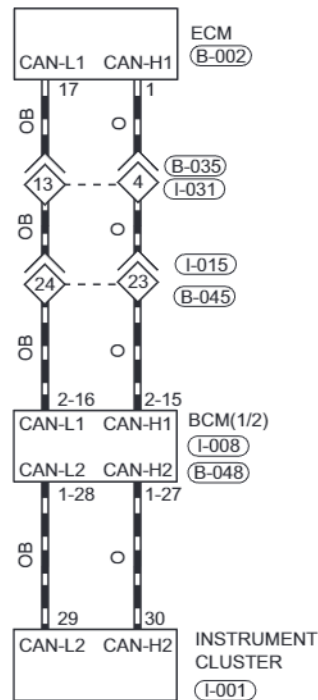
| Result                 | Proceed to |
|------------------------|------------|
| DTC B1104-41 is output | NG         |
| No DTC is output       | OK         |

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

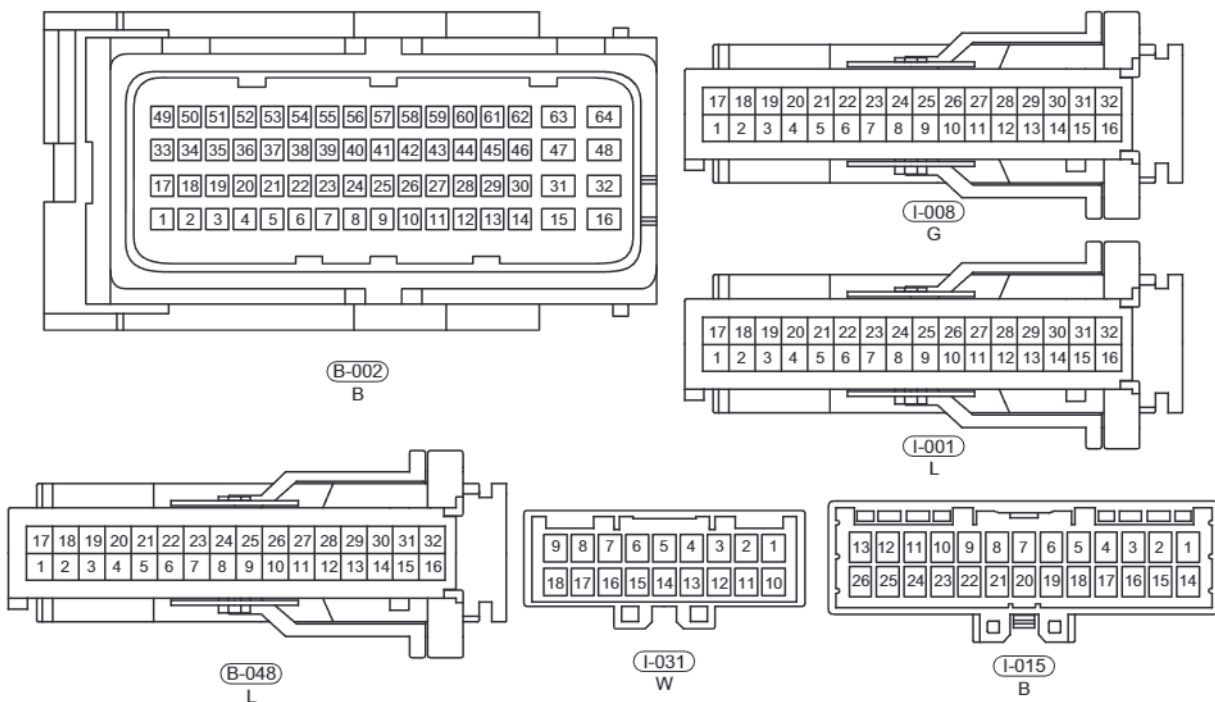
OK

System is normal

|     |          |                             |
|-----|----------|-----------------------------|
| DTC | U0100-87 | Lost Communication with EMS |
|-----|----------|-----------------------------|



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EM16390070

## Self-diagnosis Detection Logic

| DTC Code | DTC Definition              | DTC Detection Condition | Possible Cause                                                                                                                       |
|----------|-----------------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| U0100-87 | Lost Communication with EMS | Ignition switch ON      | <ul style="list-style-type: none"> <li>Engine Control Module (ECM)</li> <li>Instrument cluster</li> <li>CAN communication</li> </ul> |

## DTC Confirmation Procedure

Confirm that battery voltage is 11 to 14 V before performing 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.
- Using X-431 3G diagnostic tester, record and clear DTCs stored in instrument cluster control system.
- 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 39-12](#)).

 CAUTION

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

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## Diagnosis Procedure

**1** Check Engine Control Module (ECM)

- Remove the Engine Control Module (ECM) from the 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 operation of Engine Control Module (ECM).

NG

Replace Engine Control Module (ECM)

OK

**2** Check connector and terminal

- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the Engine Control Module (ECM) connector B-002.
- Check wire harness, connector and terminal for deformation, bend or damage.

NG

Repair or replace connector and terminal

OK

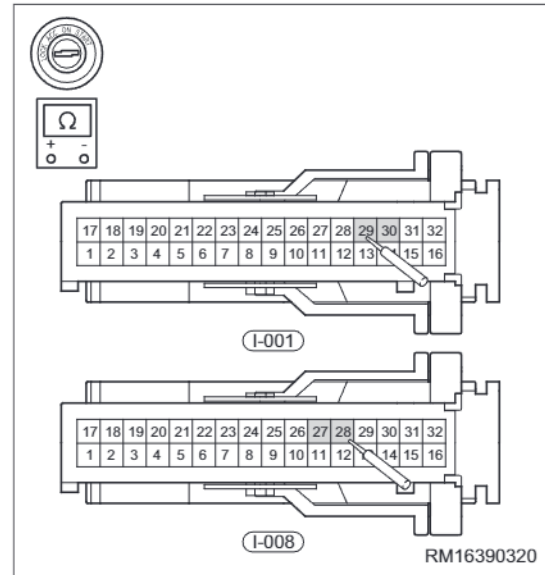
**3 Check CAN line (instrument cluster - BCM)**

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

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

NG

Repair or replace CAN line

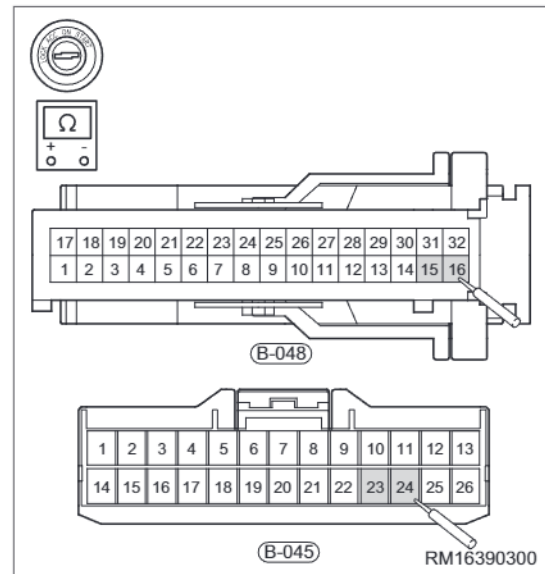


OK

**4 Check CAN line (BCM - ECM)**

- 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.

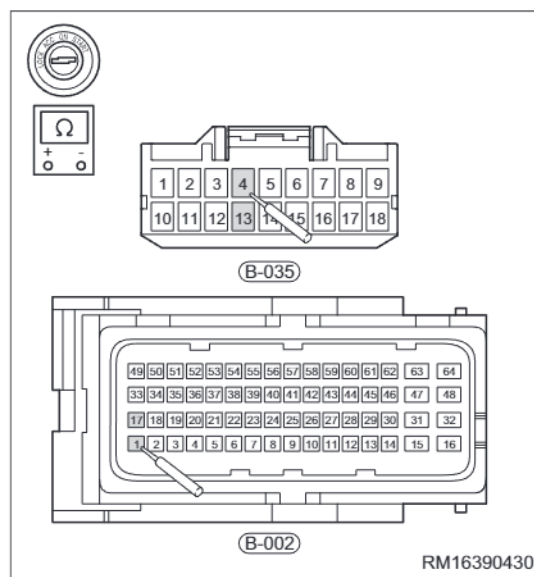
| Multimeter Connection   | Condition | Specified Condition |
|-------------------------|-----------|---------------------|
| B-048 (15) - B-045 (23) | Always    | Continuity          |
| B-048 (16) - B-045 (24) | Always    | Continuity          |



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

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



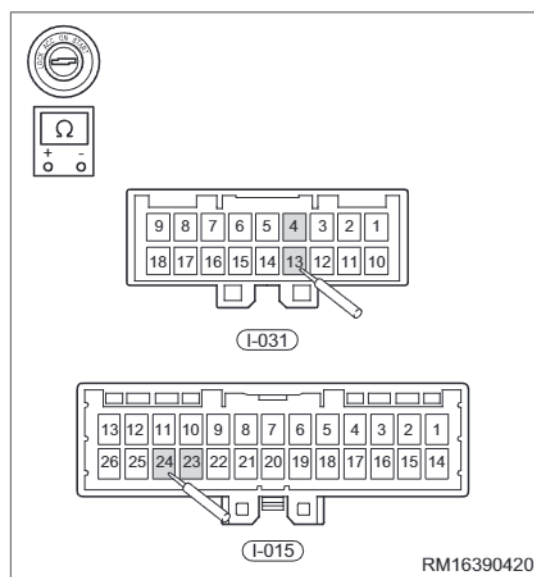
- g. Disconnect the instrument panel wire harness connectors I-015 and I-031.
- h. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-015 and I-031 according to the table below.

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

39

NG

Repair or replace CAN line



OK

5

Reconfirm DTCs

- 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 instrument cluster control system.
- Turn ignition switch to LOCK and wait for a few seconds.
- Turn ignition switch to ON.
- Use X-431 3G diagnostic tester (the latest software) to read DTCs stored in instrument cluster control system again.
- Read DTC.



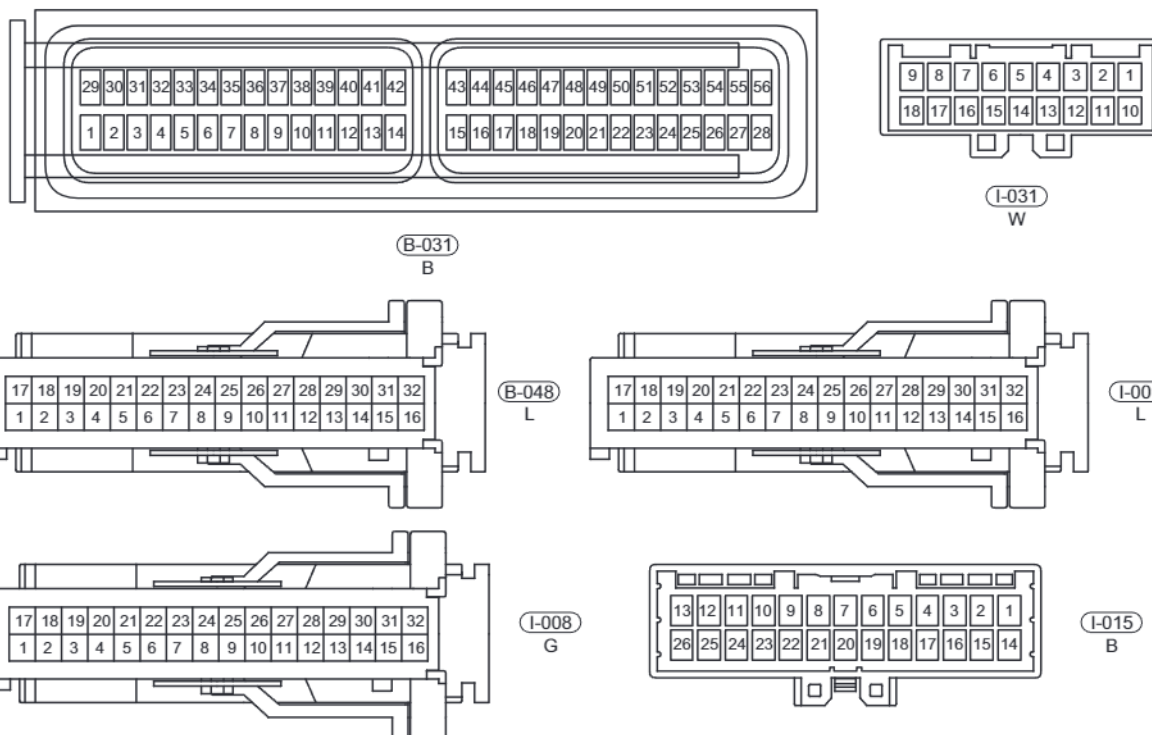
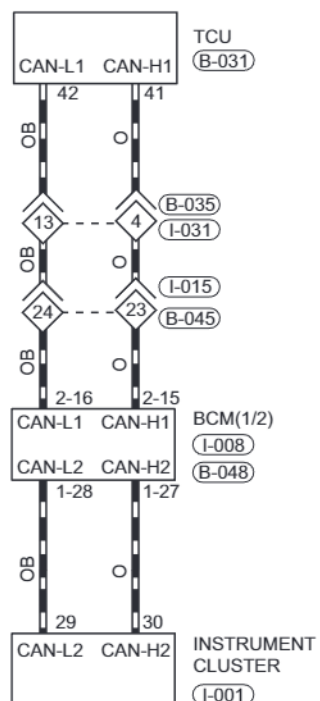
| Result                 | Proceed to |
|------------------------|------------|
| DTC U0100-87 is output | NG         |
| No DTC is output       | OK         |

**NG****Replace instrument cluster****OK****System is normal**

DTC

U0101-87

Lost Communication with TCM



EM16390080

## Self-diagnosis Detection Logic

| DTC Code | DTC Definition              | DTC Detection Condition | Possible Cause                                                                                                                           |
|----------|-----------------------------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| U0101-87 | Lost Communication with TCM | Ignition switch ON      | <ul style="list-style-type: none"> <li>Transmission Control Unit (TCU)</li> <li>Instrument cluster</li> <li>CAN communication</li> </ul> |

## DTC Confirmation Procedure

Confirm that battery voltage is 11 to 14 V before performing 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.
- Using X-431 3G diagnostic tester, record and clear DTCs stored in instrument cluster control system.
- 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 39-12](#)).

### CAUTION

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

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## Diagnosis Procedure

### 1 Check Transmission Control Unit (TCU)

- Remove the Transmission Control Unit (TCU) from the 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 operation of Transmission Control Unit (TCU).

NG

Replace Transmission Control Unit (TCU)

OK

### 2 Check connector and terminal

- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the Transmission Control Unit (TCU) connector B-031.
- Check wire harness, connector and terminal for deformation, bend or damage.

NG

Repair or replace connector and terminal



OK

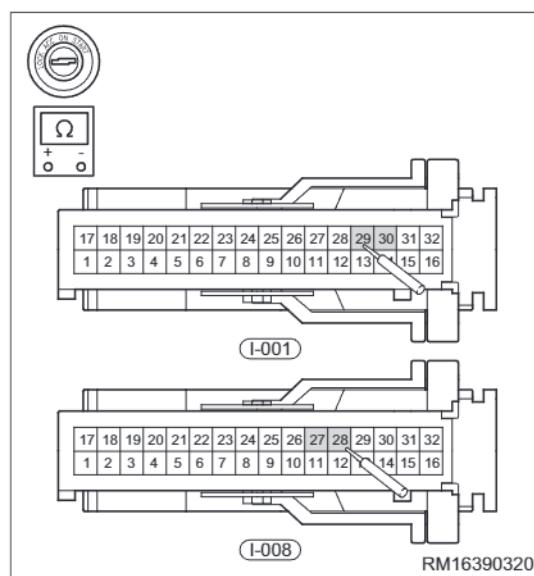
**3 Check CAN line (instrument cluster - BCM)**

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

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

NG

Repair or replace CAN line



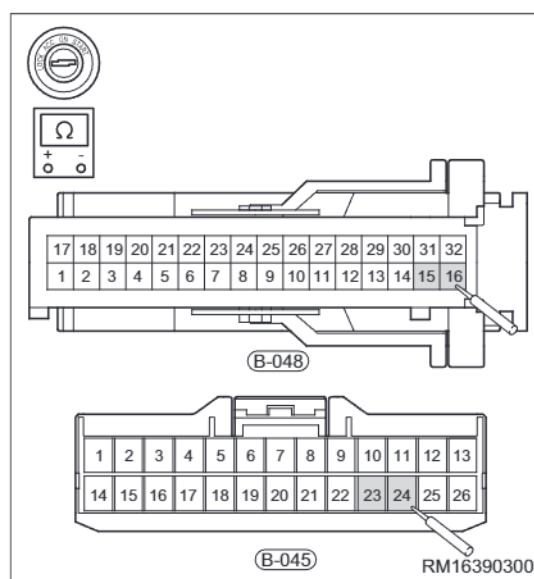
OK

39

**4 Check CAN line (BCM - TCU)**

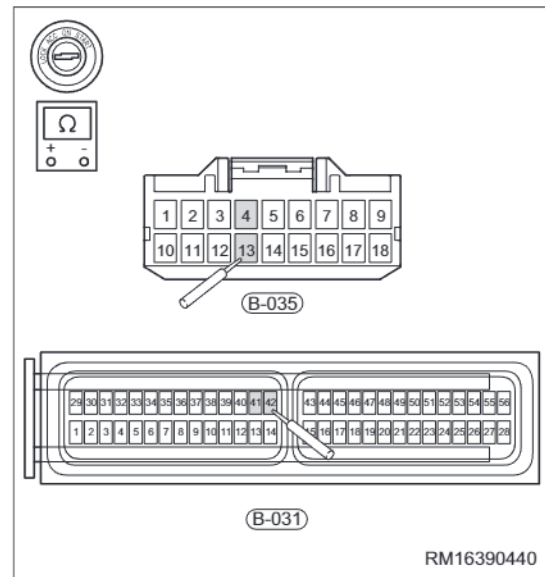
- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the body wire harness connectors B-048 and B-045.
- Using a digital multimeter, check for continuity between body wire harness connectors B-048 and B-045 according to the table below.

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



- e. Disconnect the body wire harness connectors B-031 and B-035.
- f. Using a digital multimeter, check for continuity between body wire harness connectors B-031 and B-035 according to the table below.

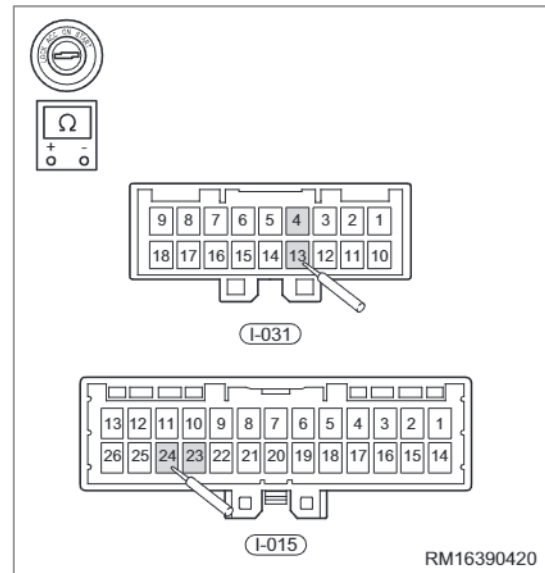
| Multimeter Connection   | Condition | Specified Condition |
|-------------------------|-----------|---------------------|
| B-031 (41) - B-035 (4)  | Always    | Continuity          |
| B-031 (42) - B-035 (13) | Always    | Continuity          |



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

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

**NG** → **Repair or replace CAN line**



**OK**

## 5 Reconfirm DTCs

- 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 instrument cluster control system.
- Turn ignition switch to LOCK and wait for a few seconds.
- Turn ignition switch to ON.
- Use X-431 3G diagnostic tester (the latest software) to read DTCs stored in instrument cluster control system again.
- Read DTC.

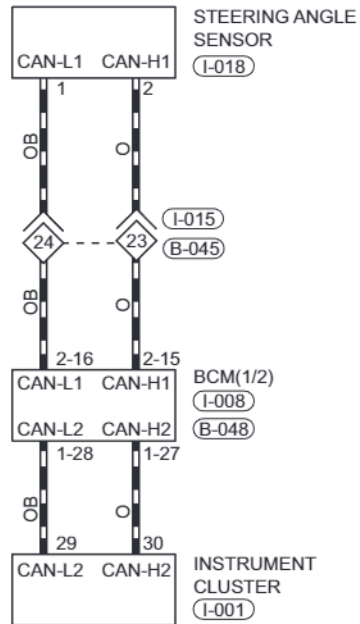
| Result                 | Proceed to |
|------------------------|------------|
| DTC U0101-87 is output | NG         |
| No DTC is output       | OK         |

**NG****Replace instrument cluster****OK****System is normal**

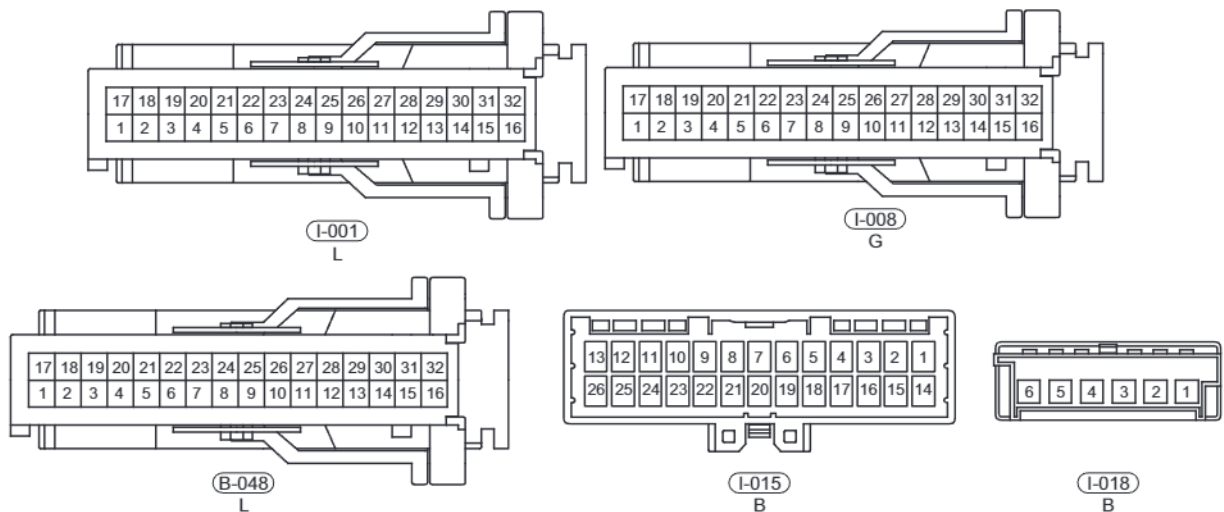
DTC

U0126-87

Lost Communication with SAM



39



EM16390090



## Self-diagnosis Detection Logic

| DTC      | DTC Definition              | DTC Detection Condition | Possible Cause                                                                                                        |
|----------|-----------------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------|
| U0126-87 | Lost Communication with SAM | Ignition switch ON      | <ul style="list-style-type: none"> <li>Spiral cable</li> <li>Instrument cluster</li> <li>CAN communication</li> </ul> |

## DTC Confirmation Procedure

Confirm that battery voltage is 11 to 14 V before performing 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.
- Using X-431 3G diagnostic tester, record and clear DTCs stored in instrument cluster control system.
- 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 39-12](#)).

 CAUTION

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

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## Diagnosis Procedure

**1** Check spiral cable

- Remove the spiral cable from the 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 operation of spiral cable.

NG

Replace spiral cable

OK

**2** Check connector and terminal

- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the angle sensor connector I-018.
- Check wire harness, connector and terminal for deformation, bend or damage.

NG

Repair or replace connector and terminal



OK

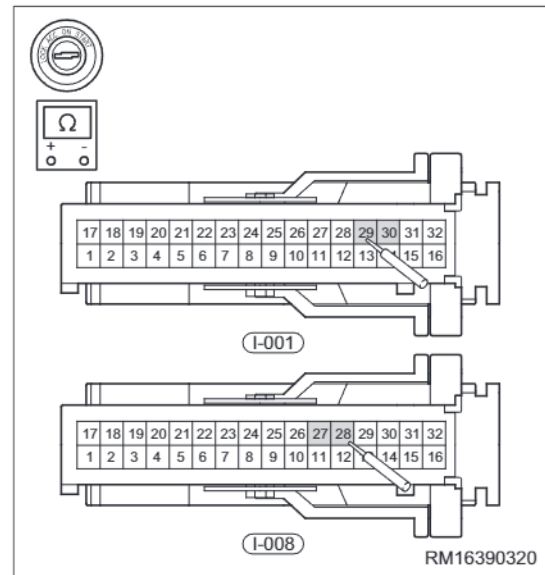
**3 Check CAN line (instrument cluster - BCM)**

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

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

NG

Repair or replace CAN line

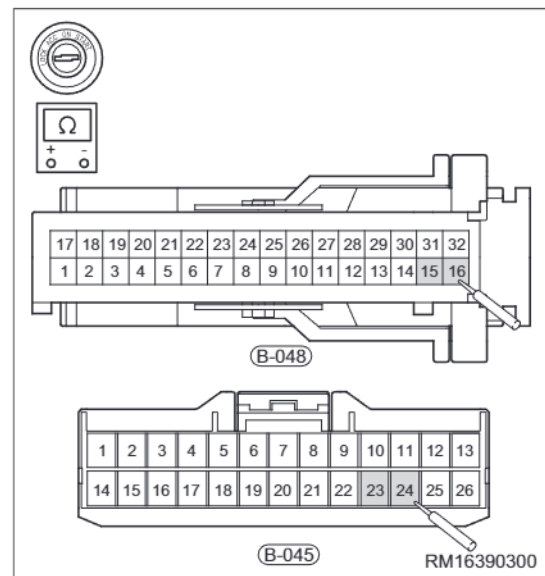


OK

**4 Check CAN line (BCM - angle sensor)**

- 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.

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



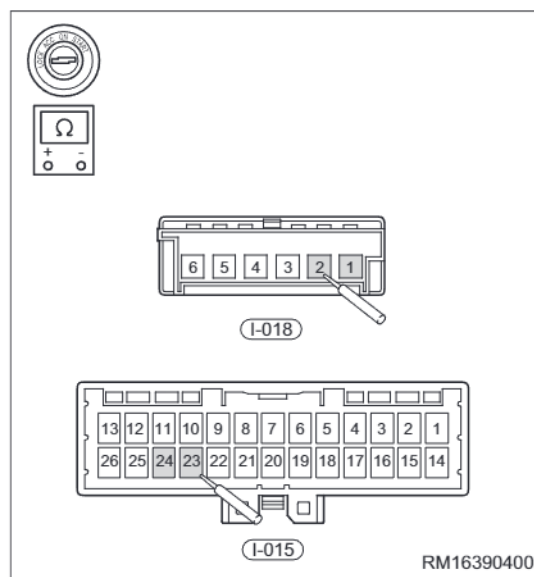
39

- e. Disconnect the instrument panel wire harness connectors I-015 and I-018.
- f. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-015 and I-018 according to the table below.

| Multimeter Connection  | Condition | Specified Condition |
|------------------------|-----------|---------------------|
| I-015 (23) - I-018 (2) | Always    | Continuity          |
| I-015 (24) - I-018 (1) | Always    | Continuity          |

NG

Repair or replace CAN line



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 instrument cluster control system.em.
- 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 instrument cluster control system again.
- h. Read DTC.

| Result                 | Proceed to |
|------------------------|------------|
| DTC U0126-87 is output | NG         |
| No DTC is output       | OK         |

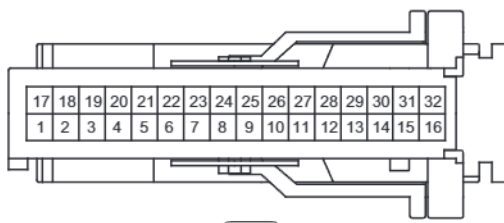
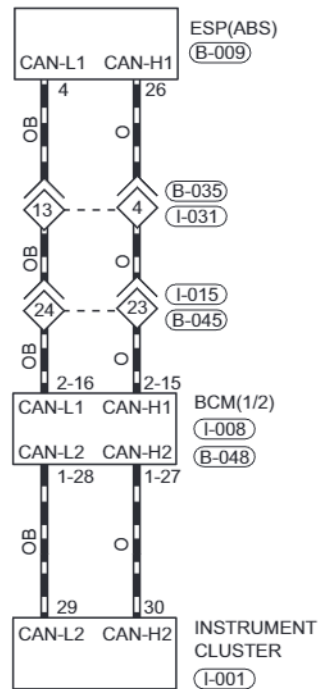
NG

Replace instrument cluster

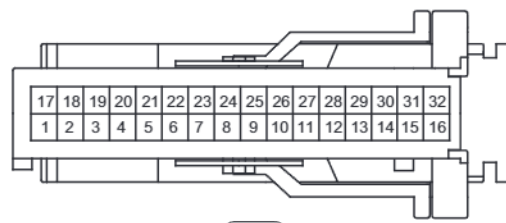
OK

System is normal

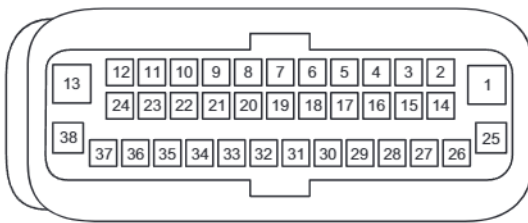
|     |          |                             |
|-----|----------|-----------------------------|
| DTC | U0129-87 | Lost Communication with BSM |
|-----|----------|-----------------------------|



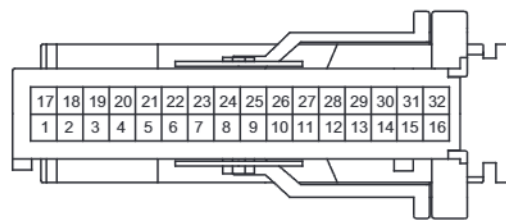
I-008  
G



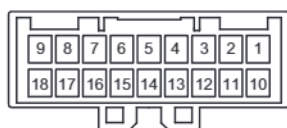
I-001  
L



B-009  
B



B-048  
L



I-031  
W



I-015  
B

EM16390100

## Self-diagnosis Detection Logic

| DTC      | DTC Definition              | DTC Detection Condition | Possible Cause                                                                                                                    |
|----------|-----------------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| U0129-87 | Lost Communication with BSM | Ignition switch ON      | <ul style="list-style-type: none"> <li>ESP (ABS) control module</li> <li>Instrument cluster</li> <li>CAN communication</li> </ul> |

## DTC Confirmation Procedure

Confirm that battery voltage is 11 to 14 V before performing 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.
- Using X-431 3G diagnostic tester, record and clear DTCs stored in instrument cluster control system.
- 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 39-12](#)).

 CAUTION

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

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## Diagnosis Procedure

**1** Check ESP (ABS) control module

- Remove the ESP (ABS) control module from the 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 operation of ESP (ABS) control module.

NG

Replace ESP (ABS) control module

OK

**2** Check connector and terminal

- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect ESP (ABS) control module connector B-009.
- Check the wire harness, connector and terminal for deformation, bend or damage.

NG

Repair or replace connector and terminal

OK

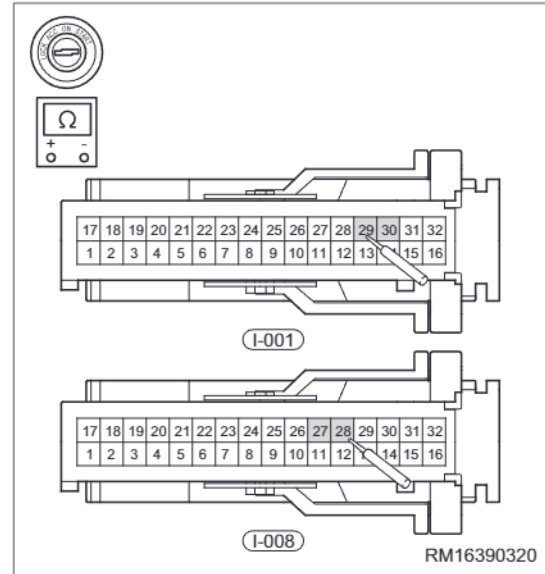
**3 Check CAN line (instrument cluster - BCM)**

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

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

NG

Repair or replace CAN line

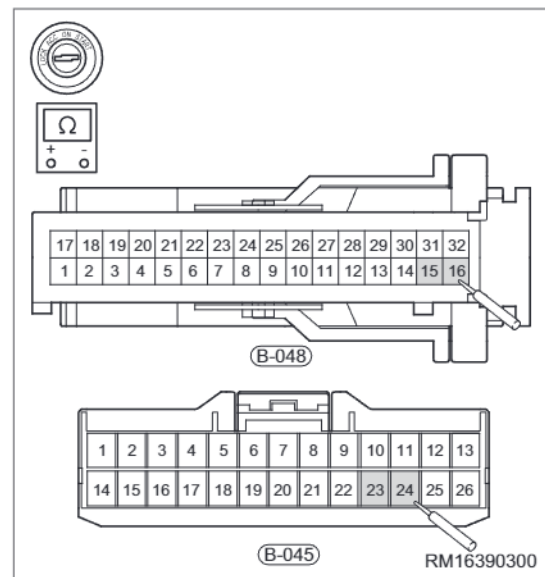


OK

**4 Check CAN line (BCM - ESP (ABS))**

- 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.

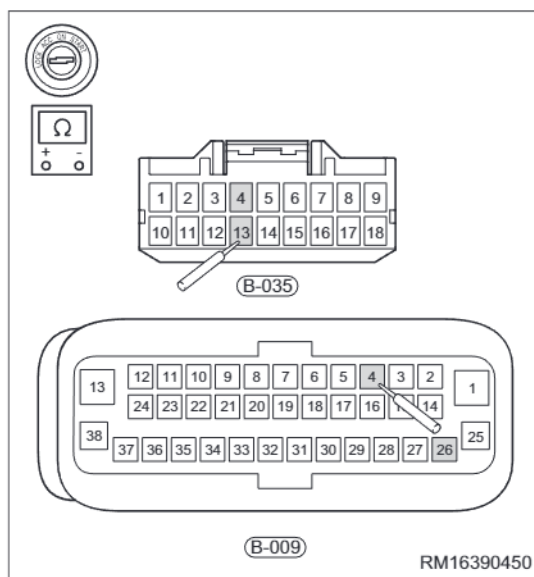
| Multimeter Connection   | Condition | Specified Condition |
|-------------------------|-----------|---------------------|
| B-048 (15) - B-045 (23) | Always    | Continuity          |
| B-048 (16) - B-045 (24) | Always    | Continuity          |



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- e. Disconnect the body wire harness connectors B-009 and B-035.
- f. Using a digital multimeter, check for continuity between body wire harness connectors B-009 and B-035 according to the table below.

| Multimeter Connection  | Condition | Specified Condition |
|------------------------|-----------|---------------------|
| B-009 (26) - B-035 (4) | Always    | Continuity          |
| B-009 (4) - B-035 (13) | Always    | Continuity          |



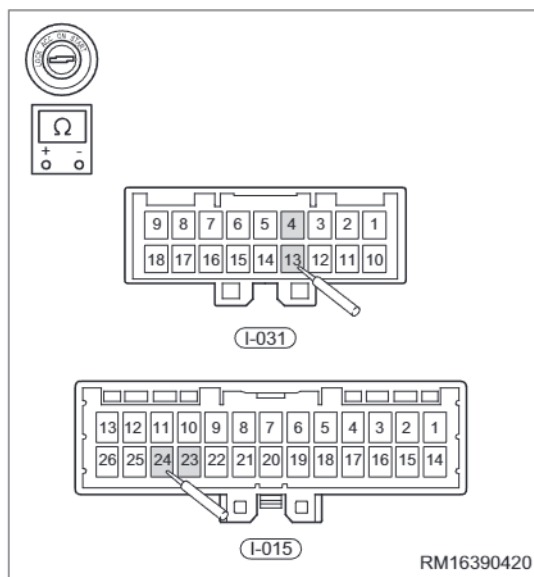
- g. Disconnect the instrument panel wire harness connectors I-015 and I-031.
- h. Using a digital multimeter, check for continuity between instrument pane wire harness connectors I-015 and I-031 according to the table below.

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

39

NG

Repair or replace CAN line



OK

5

Reconfirm DTCs

- 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 instrument cluster control system.em.
- Turn ignition switch to LOCK and wait for a few seconds.
- Turn ignition switch to ON.
- Use X-431 3G diagnostic tester (the latest software) to read DTCs stored in instrument cluster control system again.
- Read DTC.

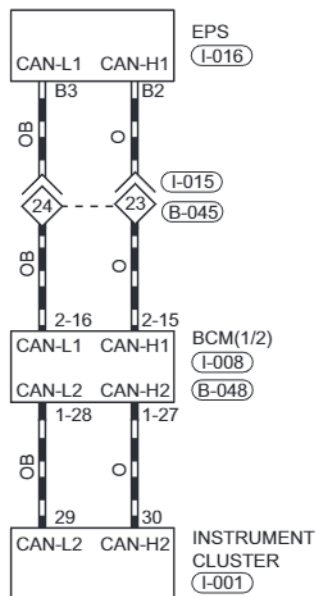
| Result                 | Proceed to |
|------------------------|------------|
| DTC U0129-87 is output | NG         |
| No DTC is output       | OK         |

**NG****Replace instrument cluster****OK****System is normal**

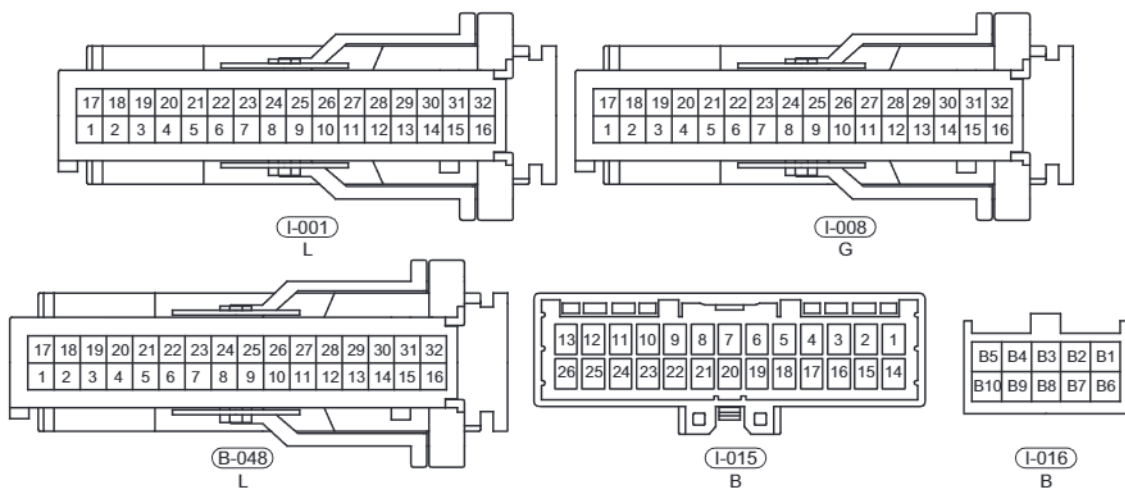
DTC

U0131-87

Lost Communication with EPS



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EM16390110



## Self-diagnosis Detection Logic

| DTC      | DTC Definition              | DTC Detection Condition | Possible Cause                                                                                                                           |
|----------|-----------------------------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| U0131-87 | Lost Communication with EPS | Ignition switch ON      | <ul style="list-style-type: none"> <li>Electronic Power Steering (EPS)</li> <li>CAN communication</li> <li>Instrument cluster</li> </ul> |

## DTC Confirmation Procedure

Confirm that battery voltage is 11 to 14 V before performing 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.
- Using X-431 3G diagnostic tester, record and clear DTCs stored in instrument cluster control system.
- 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 39-12](#)).

### CAUTION

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

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## Diagnosis Procedure

### 1 Check Electronic Power Steering (EPS)

- Remove the Electronic Power Steering (EPS) from the 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 operation of Electronic Power Steering (EPS).

NG

Replace Electronic Power Steering (EPS)

OK

### 2 Check connector and terminal

- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the Electronic Power Steering (EPS) connector I-016.
- Check wire harness, connector and terminal for deformation, bend or damage.

NG

Repair or replace connector and terminal



OK

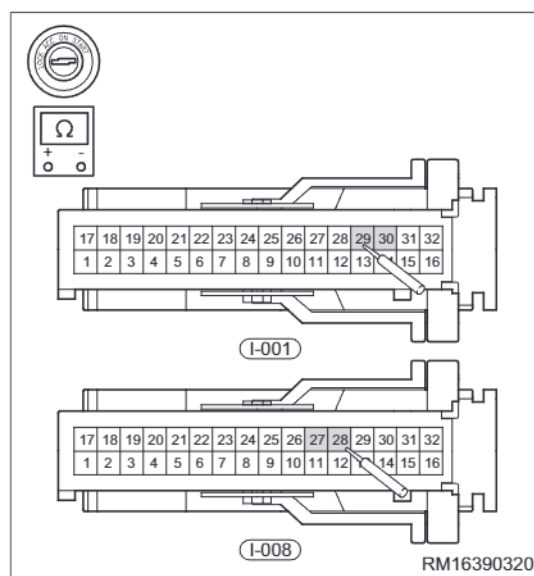
**3 Check CAN line (instrument cluster - BCM)**

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

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

NG

Repair or replace CAN line



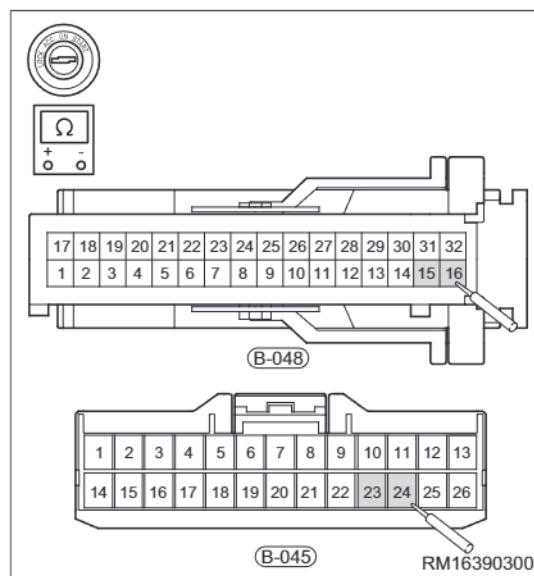
OK

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**4 Check CAN line (BCM - EPS)**

- 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.

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

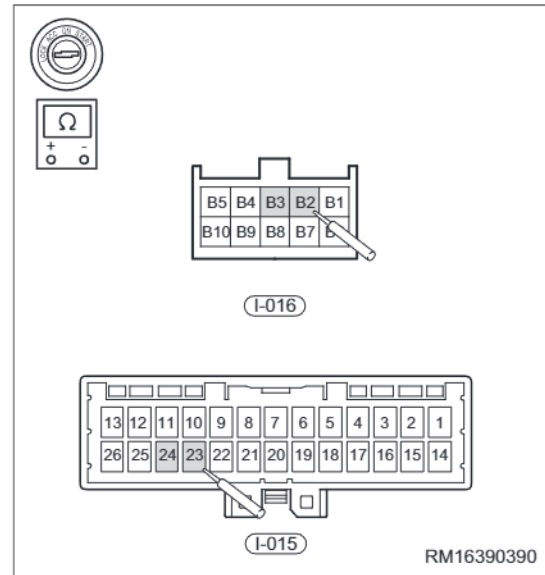


- e. Disconnect the instrument panel wire harness connectors I-015 and I-016.
- f. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-015 and I-016 according to the table below.

| Multimeter Connection   | Condition | Specified Condition |
|-------------------------|-----------|---------------------|
| I-015 (23) - I-016 (B2) | Always    | Continuity          |
| I-015 (24) - I-016 (B3) | Always    | Continuity          |

NG

Repair or replace CAN line



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 instrument cluster control system.em.
- 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 instrument cluster control system again.
- h. Read DTC.

| Result                 | Proceed to |
|------------------------|------------|
| DTC U0131-87 is output | NG         |
| No DTC is output       | OK         |

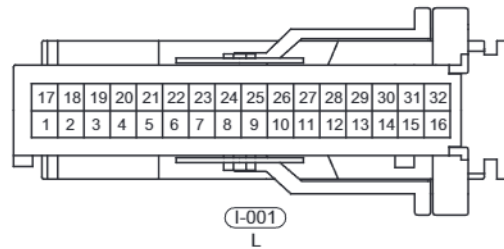
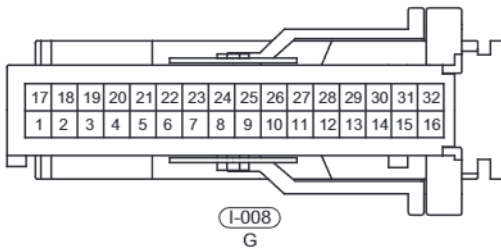
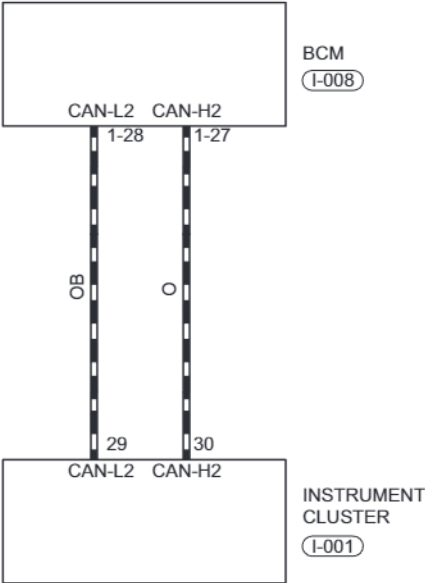
NG

Replace instrument cluster

OK

System is normal

|     |          |                             |
|-----|----------|-----------------------------|
| DTC | U0140-87 | Lost Communication with BCM |
|-----|----------|-----------------------------|



EM16390120

## Self-diagnosis Detection Logic

| DTC      | DTC Definition              | DTC Detection Condition | Possible Cause                                                                                                                     |
|----------|-----------------------------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| U0140-87 | Lost Communication with BCM | Ignition switch ON      | <ul style="list-style-type: none"> <li>Body Control Module (BCM)</li> <li>CAN communication</li> <li>Instrument cluster</li> </ul> |

## DTC Confirmation Procedure

Confirm that battery voltage is 11 to 14 V before performing 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.
- Using X-431 3G diagnostic tester, record and clear DTCs stored in instrument cluster control system.
- 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 39-12](#)).

### CAUTION

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

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## Diagnosis Procedure

### 1 Check Body Control Module (BCM)

- Remove the Body Control Module (BCM) from the 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 operation of Body Control Module (BCM).

NG

Replace Body Control Module (BCM)

OK

### 2 Check connector and terminal

- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the Body Control Module (BCM) connector I-008.
- Check wire harness, connector and terminal for deformation, bend or damage.

NG

Repair or replace connector and terminal



OK

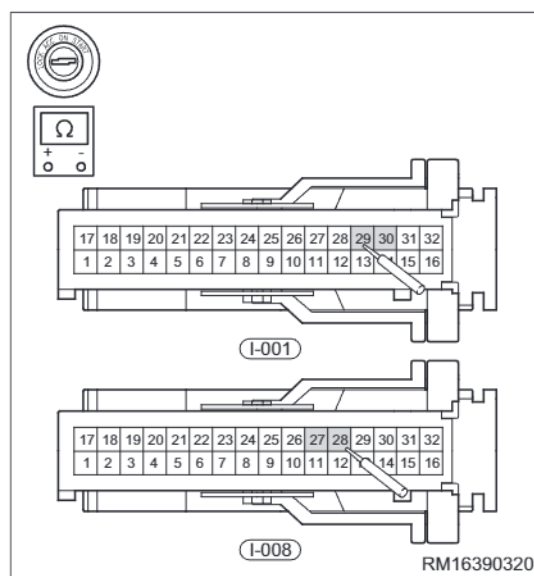
**3 Check CAN line (instrument cluster - BCM)**

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

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

NG

Repair or replace CAN line



OK

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**4 Reconfirm DTCs**

- 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 instrument cluster control system.
- Turn ignition switch to LOCK and wait for a few seconds.
- Turn ignition switch to ON.
- Use X-431 3G diagnostic tester (the latest software) to read DTCs stored in instrument cluster control system again.
- Read DTC.

| Result                 | Proceed to |
|------------------------|------------|
| DTC U0140-87 is output | NG         |
| No DTC is output       | OK         |

NG

Replace instrument cluster

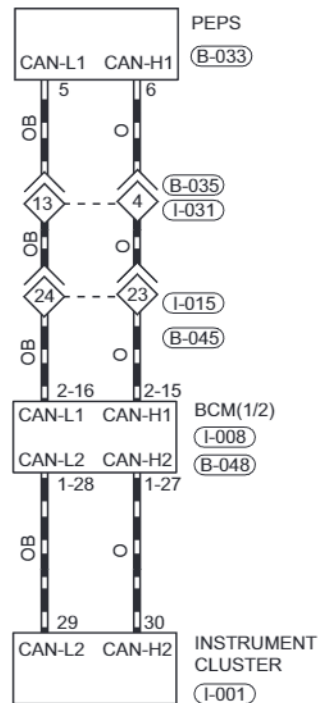
OK

System is normal

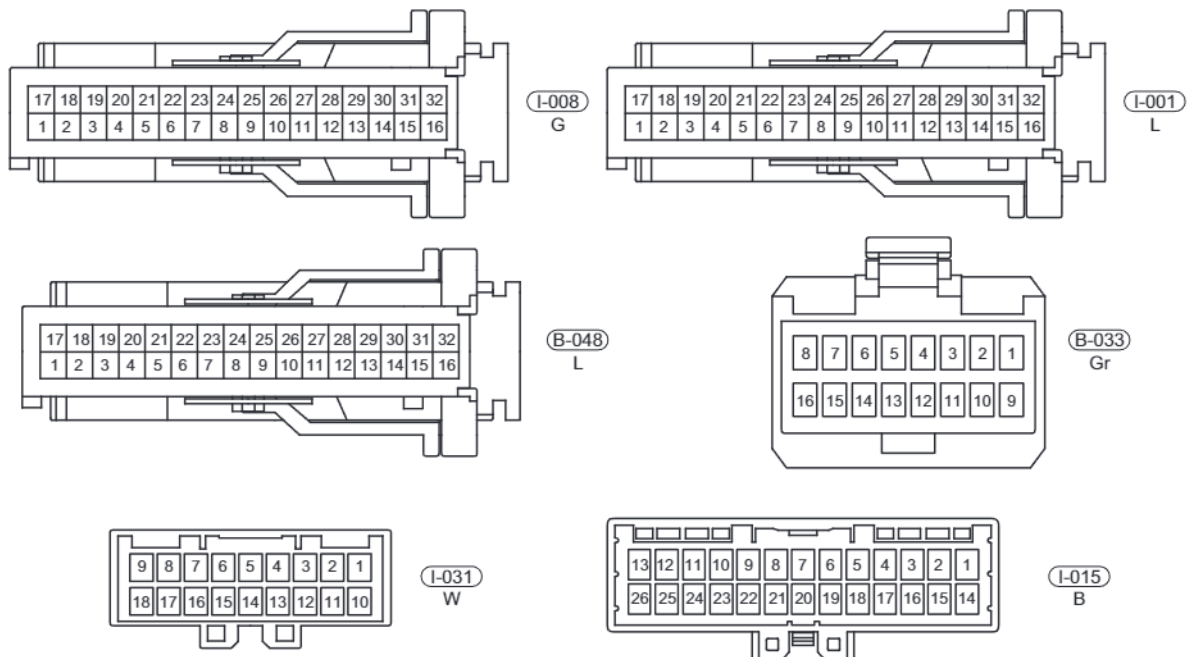
DTC

U0214-87

Lost Communication with PEPS



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EM16390130



## Self-diagnosis Detection Logic

| DTC      | DTC Definition               | DTC Detection Condition | Possible Cause                                                                                                      |
|----------|------------------------------|-------------------------|---------------------------------------------------------------------------------------------------------------------|
| U0214-87 | Lost Communication with PEPS | Ignition switch ON      | <ul style="list-style-type: none"> <li>• PEPS</li> <li>• Instrument cluster</li> <li>• CAN communication</li> </ul> |

## DTC Confirmation Procedure

Confirm that battery voltage is 11 to 14 V before performing 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.
- Using X-431 3G diagnostic tester, record and clear DTCs stored in instrument cluster control system.
- 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 39-12](#)).

 CAUTION

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

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## Diagnosis Procedure

**1** Check PEPS

- Remove the PEPS from the 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 operation of PEPS.

NG

Replace PEPS

OK

**2** Check connector and terminal

- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the PEPS connector B-033.
- Check wire harness, connector and terminal for deformation, bend or damage.

NG

Repair or replace connector and terminal



OK

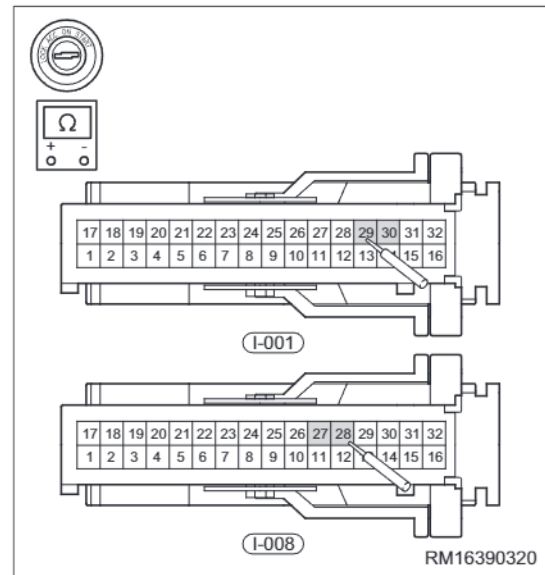
**3 Check CAN line (instrument cluster - BCM)**

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

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

NG

Repair or replace CAN line

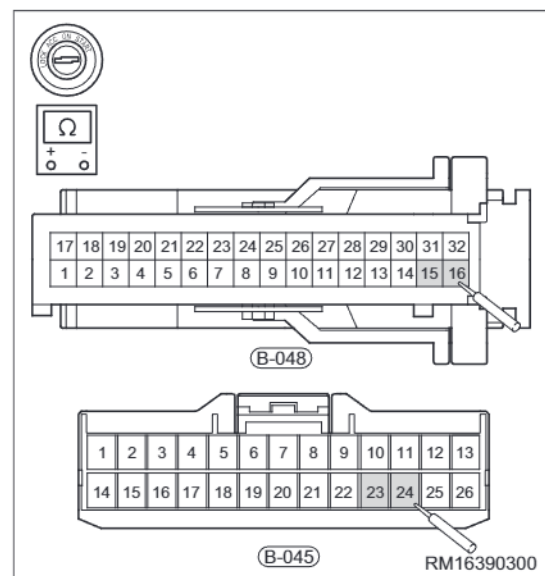


OK

**4 Check CAN line (BCM - PEPS)**

- 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.

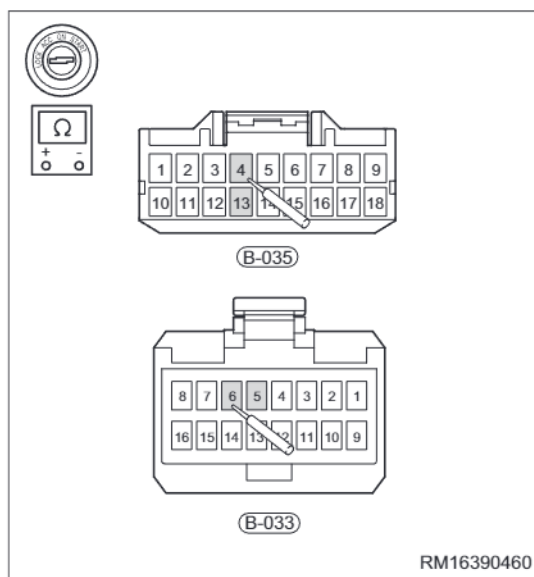
| Multimeter Connection   | Condition | Specified Condition |
|-------------------------|-----------|---------------------|
| B-048 (15) - B-045 (23) | Always    | Continuity          |
| B-048 (16) - B-045 (24) | Always    | Continuity          |



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- e. Disconnect the body wire harness connectors B-033 and B-035.
- f. Using a digital multimeter, check for continuity between body wire harness connectors B-033 and B-035 according to the table below.

| Multimeter Connection  | Condition | Specified Condition |
|------------------------|-----------|---------------------|
| B-033 (6) - B-035 (4)  | Always    | Continuity          |
| B-033 (5) - B-035 (13) | Always    | Continuity          |



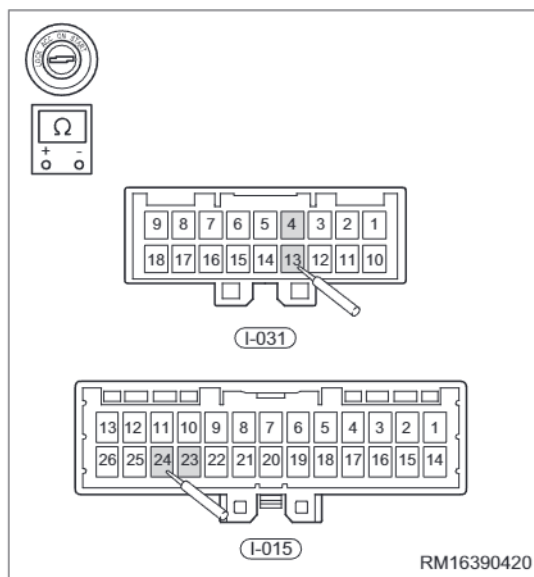
- g. Disconnect the instrument panel wire harness connectors I-015 and I-031.
- h. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-015 and I-031 according to the table below.

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

39

NG

Repair or replace CAN line



OK

5

## Reconfirm DTCs

- 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 instrument cluster control system.
- Turn ignition switch to LOCK and wait for a few seconds.
- Turn ignition switch to ON.
- Use X-431 3G diagnostic tester (the latest software) to read DTCs stored in instrument cluster control system again.
- Read DTC.

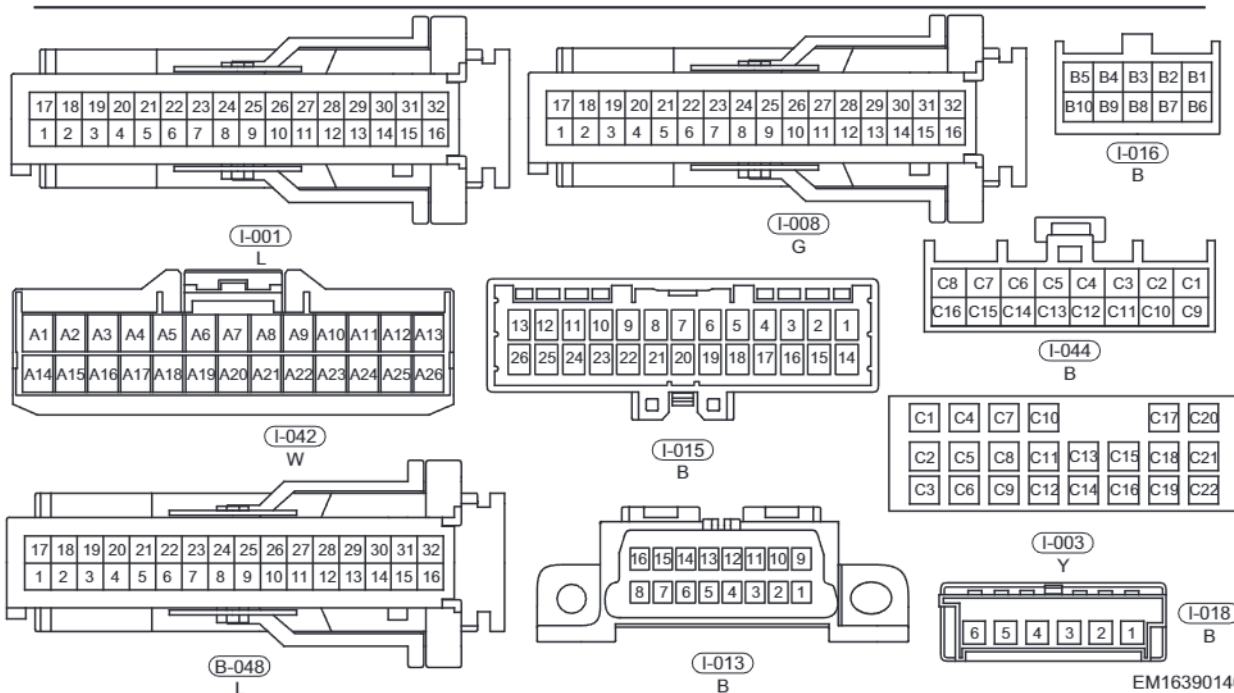
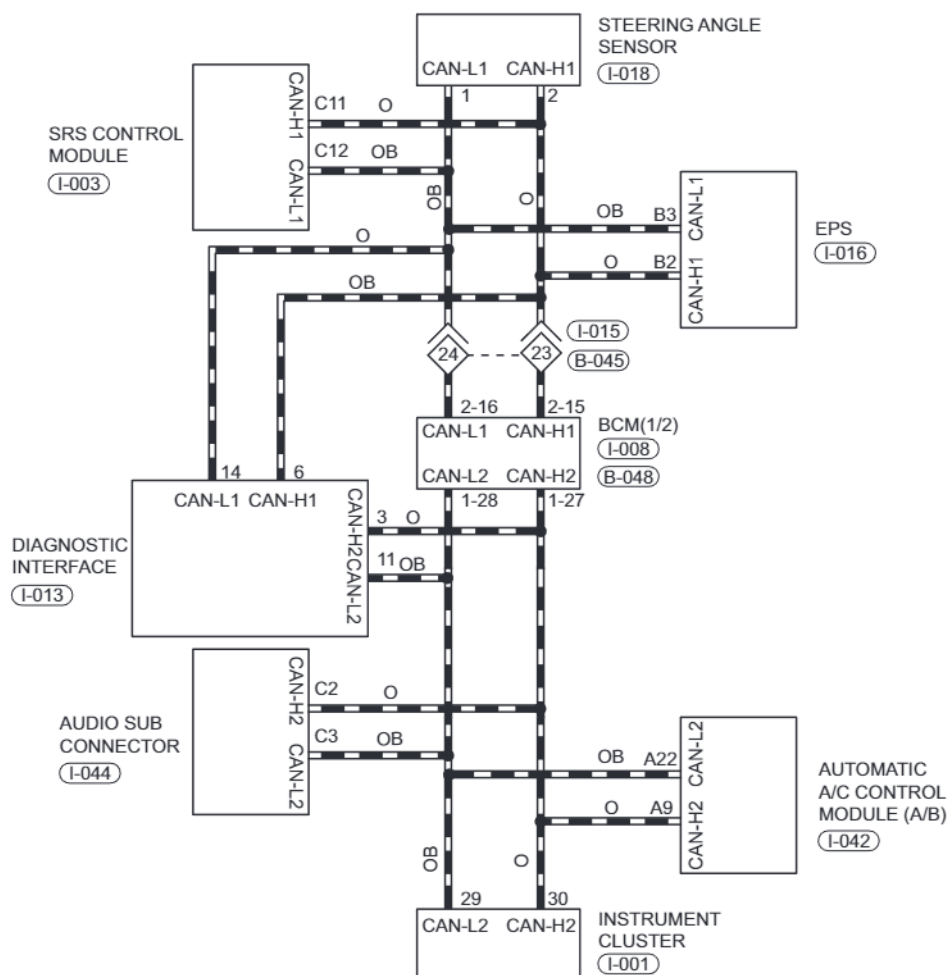
| Result                 | Proceed to |
|------------------------|------------|
| DTC U0214-87 is output | NG         |
| No DTC is output       | OK         |

**NG****Replace instrument cluster****OK****System is normal**

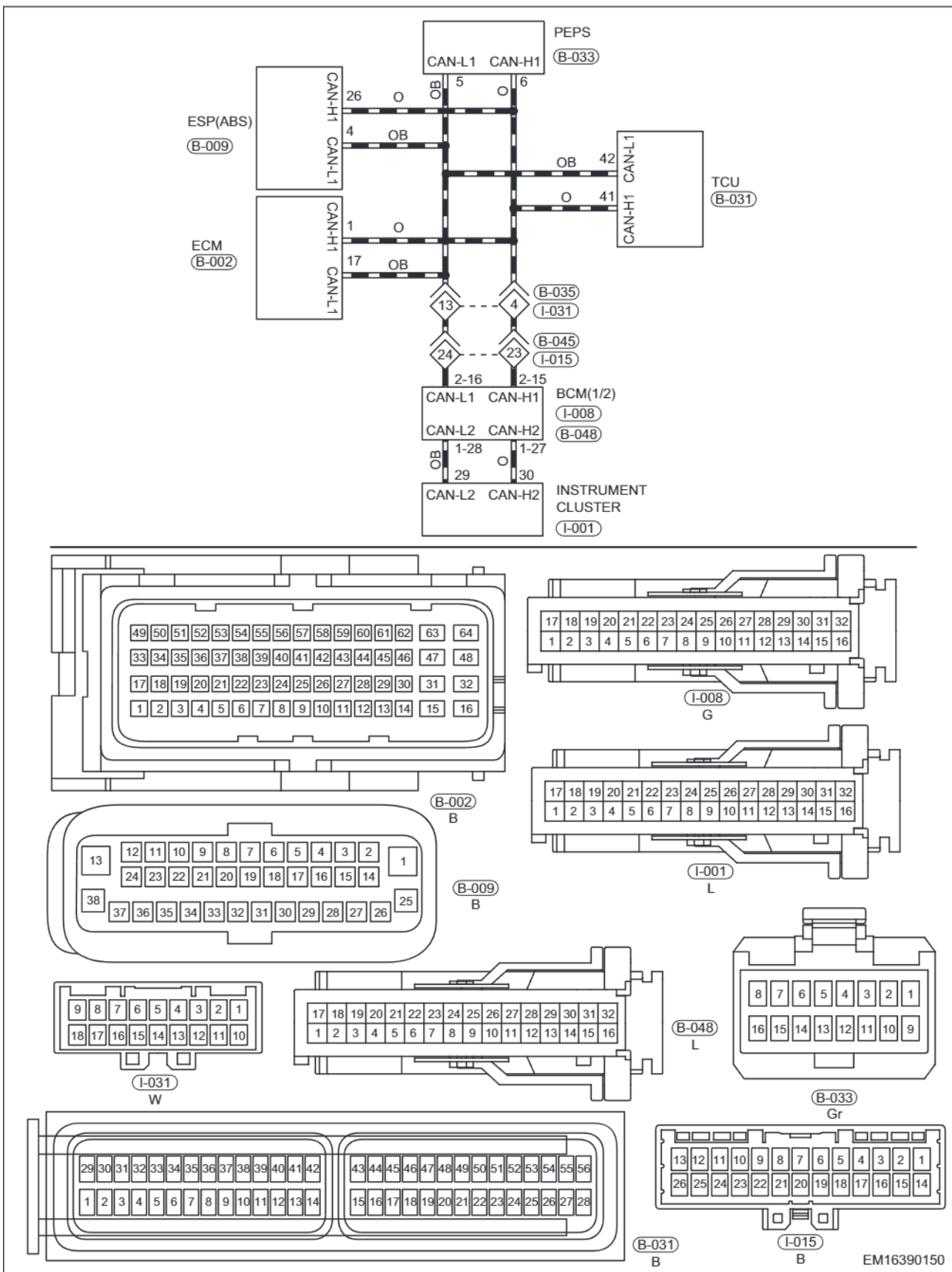
DTC

U0073-88

CAN Bus Off



EM16390140



## Self-diagnosis Detection Logic

| DTC      | DTC Definition | DTC Detection Condition | Possible Cause                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------|----------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| U0073-88 | CAN Bus Off    | Ignition switch ON      | <ul style="list-style-type: none"> <li>• Engine Control Module (ECM)</li> <li>• Transmission Control Unit (TCU)</li> <li>• ESP (ABS) control module</li> <li>• Electronic Power Steering (EPS)</li> <li>• Body Control Module (BCM)</li> <li>• SRS control module assembly</li> <li>• Spiral cable</li> <li>• PEPS</li> <li>• Automatic A/C module</li> <li>• No disc DVD</li> <li>• Instrument cluster</li> <li>• CAN communication</li> </ul> |

## DTC Confirmation Procedure

Confirm that battery voltage is 11 to 14 V before performing 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.
- Using X-431 3G diagnostic tester, record and clear DTCs stored in instrument cluster control system.
- 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 39-12](#)).

 CAUTION

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

## Diagnosis Procedure

1

## Check Engine Control Module (ECM)

- Remove the Engine Control Module (ECM) from the 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 Engine Control Module (ECM) operation.

NG

Replace Engine Control Module (ECM)

OK

**2 Check SRS control module assembly**

- Remove the SRS control module assembly from the 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 operation of SRS control module assembly.

**NG****Replace SRS control module assembly****OK****3 Check Transmission Control Unit (TCU)**

- Remove the Transmission Control Unit (TCU) from the 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 operation of Transmission Control Unit (TCU).

**NG****Replace Transmission Control Unit (TCU)****OK****39****4 Check spiral cable**

- Remove the spiral cable from the 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 operation of spiral cable.

**NG****Replace spiral cable****OK****5 Check ESP (ABS) control module**

- Remove the ESP (ABS) control module from the 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 operation of ESP (ABS) control module.

**NG****Replace ESP (ABS) control module****OK**

**6 Check Electronic Power Steering (EPS)**

- Remove the Electronic Power Steering (EPS) from the 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 operation of Electronic Power Steering (EPS).

**NG****Replace Electronic Power Steering (EPS)****OK****7 Check Body Control Module (BCM)**

- Remove the Body Control Module (BCM) from the 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 operation of Body Control Module (BCM).

**NG****Replace Body Control Module (BCM)****OK****39****8 Check PEPS**

- Remove the PEPS from the 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 operation of PEPS.

**NG****Replace PEPS****OK****9 Check automatic A/C module**

- Remove the automatic A/C module from the 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 operation of automatic A/C module.

**NG****Replace automatic A/C module****OK**



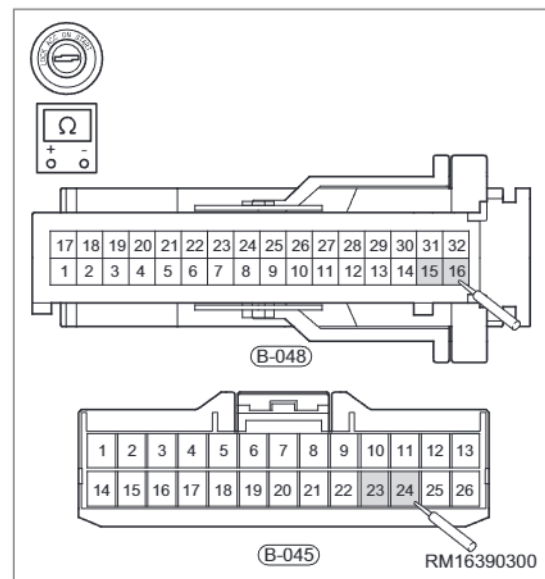
**10 Check No Disc DVD**

- Remove the No Disc DVD from the 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 operation of No Disc DVD.

**NG****Replace No Disc DVD****OK****11 Check body wire harness and connector**

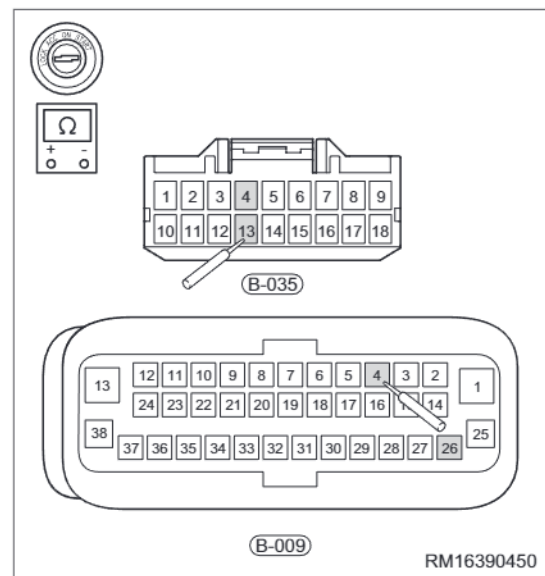
- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the body wire harness connectors B-048 and B-045.
- Using a digital multimeter, check for continuity between body wire harness connectors B-048 and B-045 according to the table below.

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



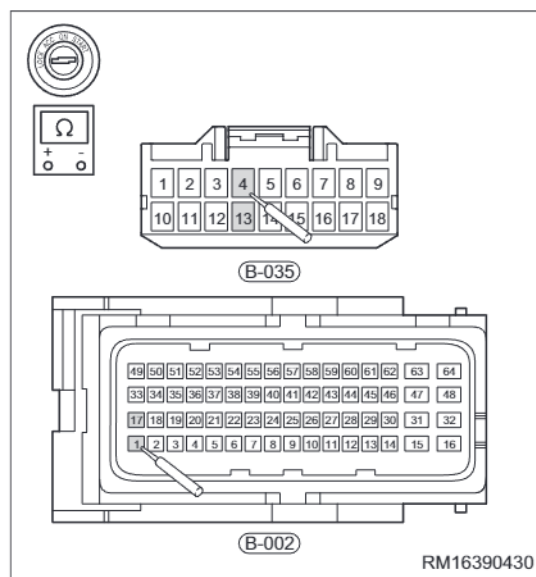
- Disconnect the body wire harness connectors B-009 and B-035.
- Using a digital multimeter, check for continuity between body wire harness connectors B-009 and B-035 according to the table below.

| Multimeter Connection  | Condition | Specified Condition |
|------------------------|-----------|---------------------|
| B-009 (26) - B-035 (4) | Always    | Continuity          |
| B-009 (4) - B-035 (13) | Always    | Continuity          |



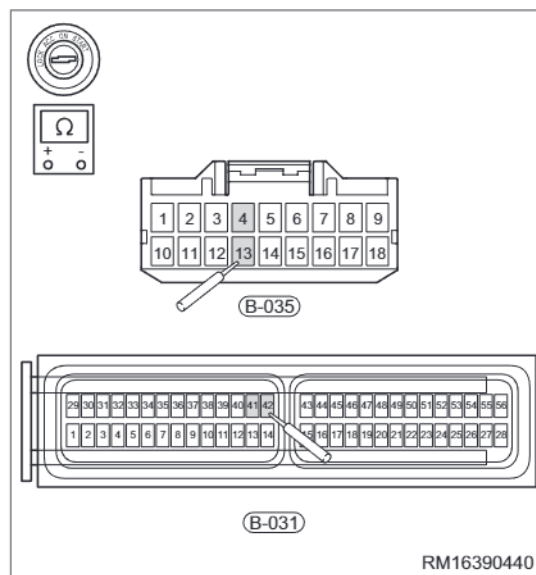
- g. Disconnect the body wire harness connectors B-002 and B-035.
- h. Using a digital multimeter, check for continuity between body wire harness connectors B-002 and B-035 according to the table below.

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



- i. Disconnect the body wire harness connectors B-031 and B-035.
- j. Using a digital multimeter, check for continuity between body wire harness connectors B-031 and B-035 according to the table below.

| Multimeter Connection   | Condition | Specified Condition |
|-------------------------|-----------|---------------------|
| B-031 (41) - B-035 (4)  | Always    | Continuity          |
| B-031 (42) - B-035 (13) | Always    | Continuity          |

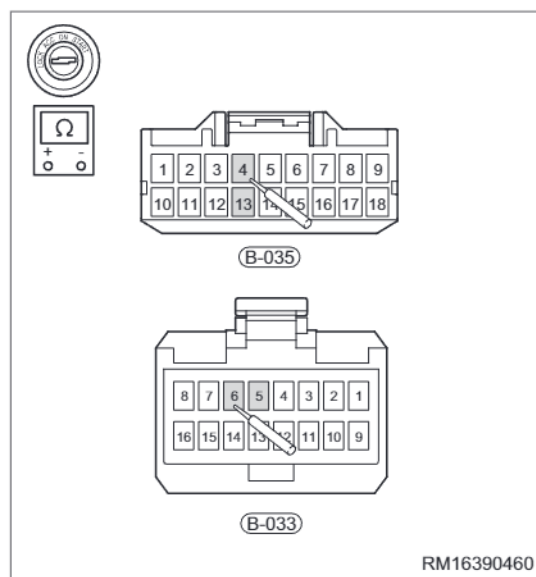


- k. Disconnect the body wire harness connectors B-033 and B-035.
- l. Using a digital multimeter, check for continuity between body wire harness connectors B-033 and B-035 according to the table below.

| Multimeter Connection  | Condition | Specified Condition |
|------------------------|-----------|---------------------|
| B-033 (6) - B-035 (4)  | Always    | Continuity          |
| B-033 (5) - B-035 (13) | Always    | Continuity          |

NG

Repair or replace body wire harness and connector

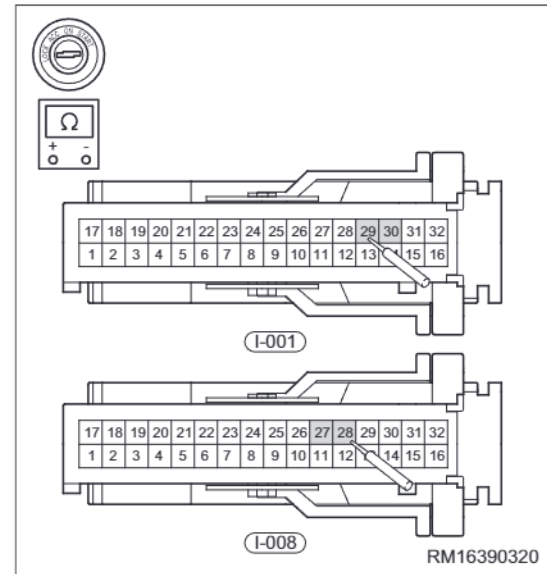


OK

**12 Check instrument panel wire harness and connector**

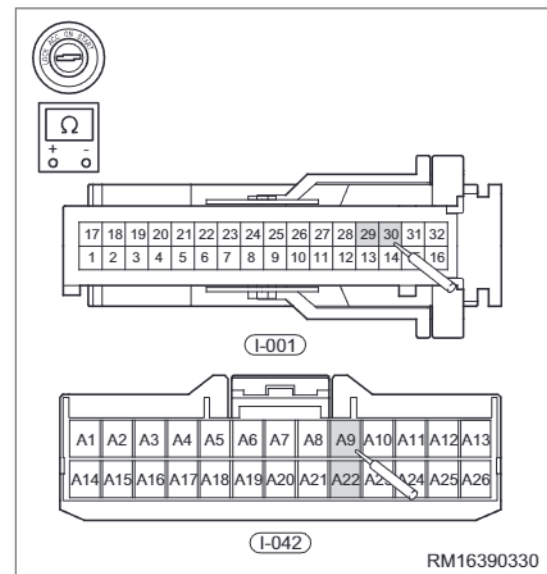
- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the instrument panel wire harness connectors I-001 and I-008.
- Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-001 and I-008 according to the table below.

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



- Disconnect the instrument panel wire harness connectors I-001 and I-042.
- Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-001 and I-042 according to the table below.

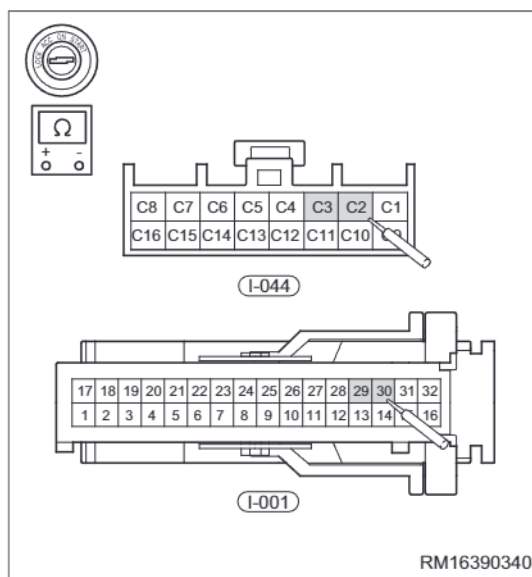
| Multimeter Connection    | Condition | Specified Condition |
|--------------------------|-----------|---------------------|
| I-001 (29) - I-042 (A22) | Always    | Continuity          |
| I-001 (30) - I-042 (A9)  | Always    | Continuity          |



39

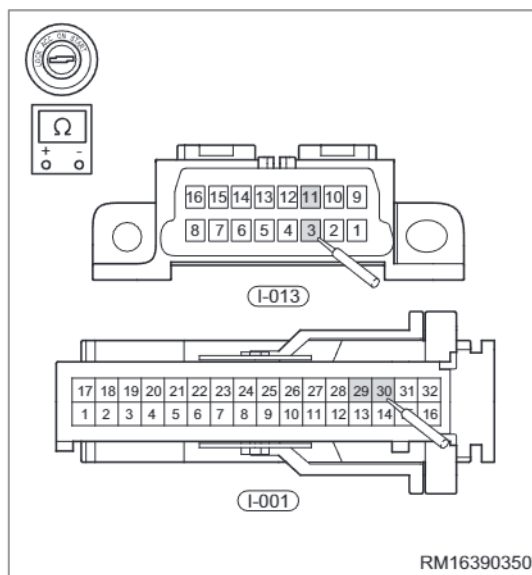
- g. Disconnect the instrument panel wire harness connectors I-001 and I-044.
- h. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-001 and I-044 according to the table below.

| Multimeter Connection   | Condition | Specified Condition |
|-------------------------|-----------|---------------------|
| I-001 (29) - I-044 (C3) | Always    | Continuity          |
| I-001 (30) - I-044 (C2) | Always    | Continuity          |



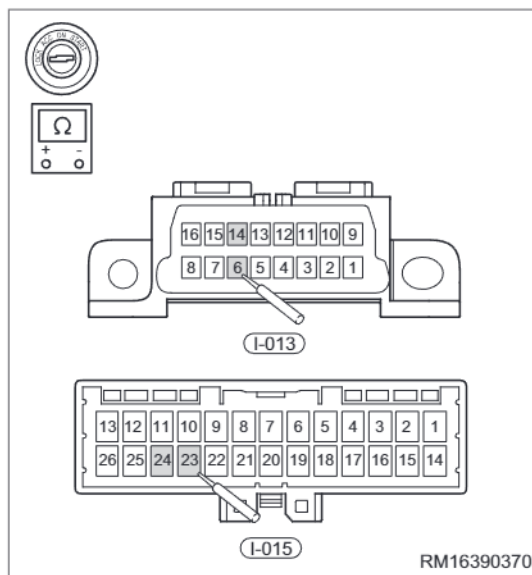
- i. Disconnect the instrument panel wire harness connectors I-001 and I-013.
- j. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-001 and I-013 according to the table below.

| Multimeter Connection   | Condition | Specified Condition |
|-------------------------|-----------|---------------------|
| I-001 (29) - I-013 (11) | Always    | Continuity          |
| I-001 (30) - I-013 (3)  | Always    | Continuity          |



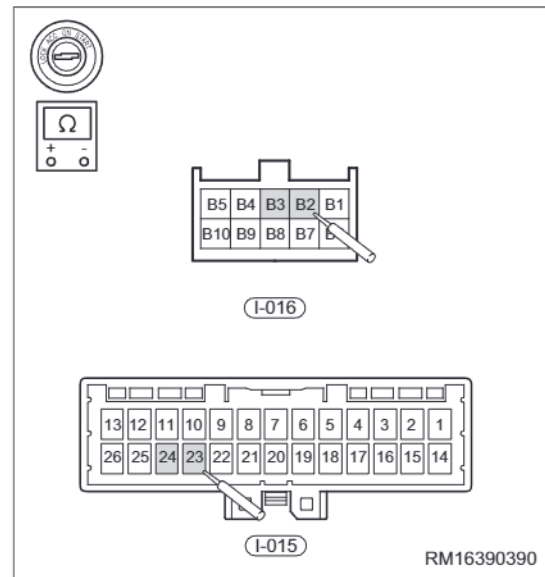
- k. Disconnect the instrument panel wire harness connectors I-015 and I-013.
- l. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-015 and I-013 according to the table below.

| Multimeter Connection   | Condition | Specified Condition |
|-------------------------|-----------|---------------------|
| I-015 (23) - I-013 (6)  | Always    | Continuity          |
| I-015 (24) - I-013 (14) | Always    | Continuity          |



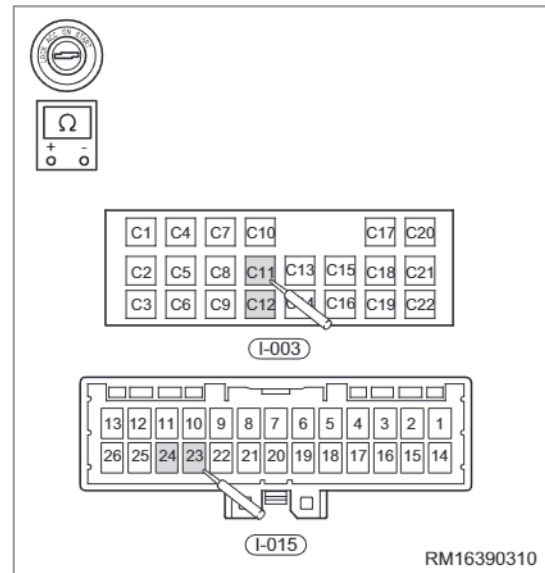
- m. Disconnect the instrument panel wire harness connectors I-015 and I-016.
- n. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-015 and I-016 according to the table below.

| Multimeter Connection   | Condition | Specified Condition |
|-------------------------|-----------|---------------------|
| I-015 (23) - I-016 (B2) | Always    | Continuity          |
| I-015 (24) - I-016 (B3) | Always    | Continuity          |



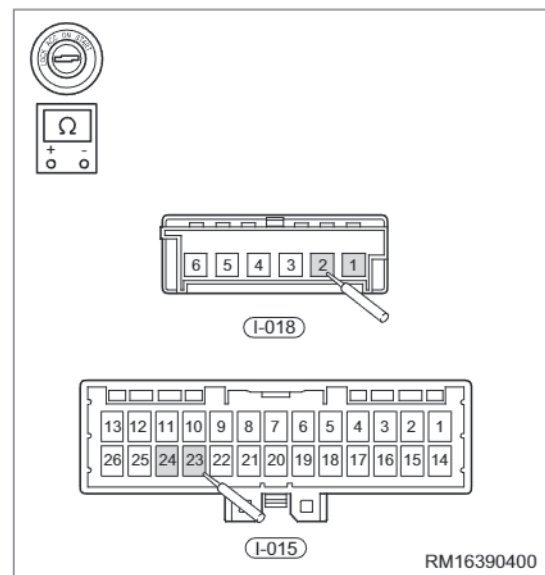
- o. Disconnect the instrument panel wire harness connectors I-015 and I-003.
- p. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-015 and I-003 according to the table below.

| Multimeter Connection    | Condition | Specified Condition |
|--------------------------|-----------|---------------------|
| I-015 (23) - I-003 (C11) | Always    | Continuity          |
| I-015 (24) - I-003 (C12) | Always    | Continuity          |



- q. Disconnect the instrument panel wire harness connectors I-015 and I-018.
- r. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-015 and I-018 according to the table below.

| Multimeter Connection  | Condition | Specified Condition |
|------------------------|-----------|---------------------|
| I-015 (23) - I-018 (2) | Always    | Continuity          |
| I-015 (24) - I-018 (1) | Always    | Continuity          |

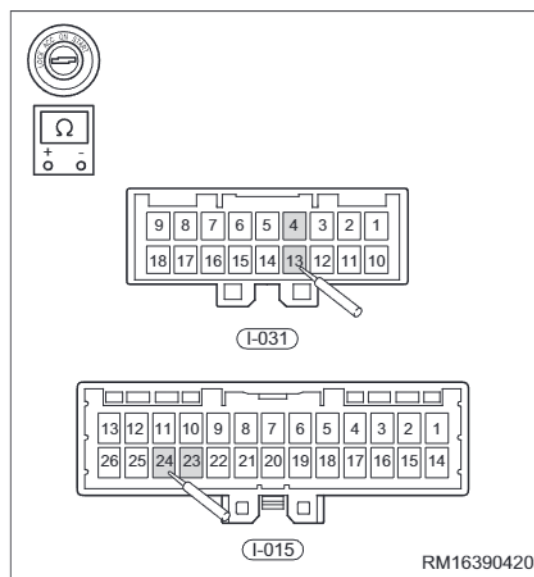


- s. Disconnect the instrument panel wire harness connectors I-015 and I-031.
- t. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-015 and I-031 according to the table below.

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

NG

Repair or replace instrument panel wire harness and connector



OK

## 13

## 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 instrument cluster control system.em.
- 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 instrument cluster control system again.
- h. Read DTC.

| Result                 | Proceed to |
|------------------------|------------|
| DTC U0073-88 is output | NG         |
| No DTC is output       | OK         |

NG

Replace instrument cluster

OK

System is normal

|            |                 |                                                     |
|------------|-----------------|-----------------------------------------------------|
| <b>DTC</b> | <b>U1300-55</b> | <b>Software Configuration Error, Not Configured</b> |
|------------|-----------------|-----------------------------------------------------|

**Self-diagnosis Detection Logic**

| DTC      | DTC Definition                               | DTC Detection Condition | Possible Cause                                                       |
|----------|----------------------------------------------|-------------------------|----------------------------------------------------------------------|
| U1300-55 | Software Configuration Error, Not Configured | Ignition switch ON      | <ul style="list-style-type: none"> <li>Instrument cluster</li> </ul> |

**DTC Confirmation Procedure**

Confirm that battery voltage is 11 to 14 V before performing 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.
- Using X-431 3G diagnostic tester, record and clear DTCs stored in instrument cluster control system.
- 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 39-12](#)).

**CAUTION**

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



## Diagnosis Procedure

**1****Reconfirm DTCs**

- a. Use X-431 3G diagnostic tester (the latest software) to clear DTCs stored in instrument cluster control system.
- b. Turn ignition switch to LOCK and wait for a few seconds.
- c. Turn ignition switch to ON.
- d. Use X-431 3G diagnostic tester (the latest software) to read DTCs stored in instrument cluster control system again.
- e. Read DTC.

| Result                 | Proceed to |
|------------------------|------------|
| DTC U1300-55 is output | NG         |
| No DTC is output       | OK         |

**NG****Replace instrument cluster****OK****System is normal**



# ON-VEHICLE SERVICE

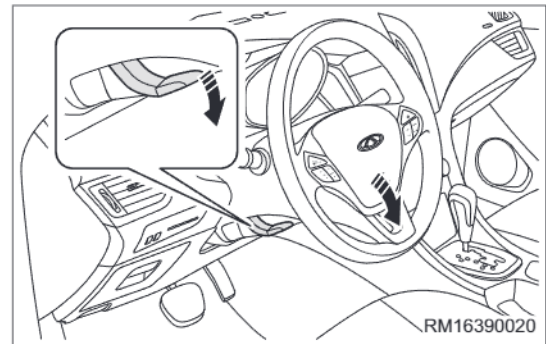
## Instrument Cluster

### Removal

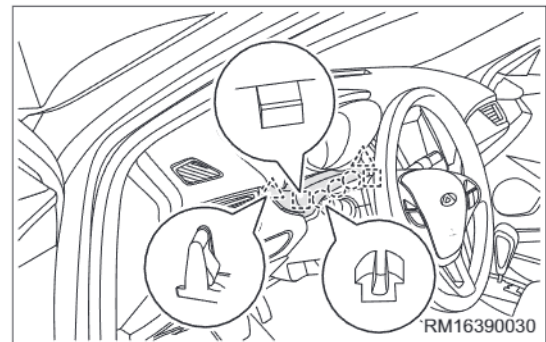
#### CAUTION

- Be sure to wear necessary safety equipment to prevent accidents, when removing instrument cluster.
- Operate carefully to prevent components from being damaged, when removing instrument cluster.
- DO NOT scratch interior and body paint when removing instrument cluster.

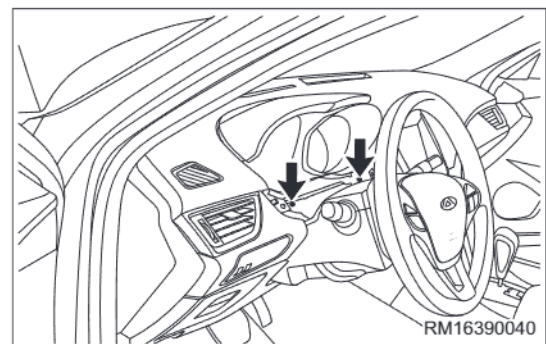
1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Lower the steering wheel and steering column to the limit positions in the direction of arrow as shown in the illustration.



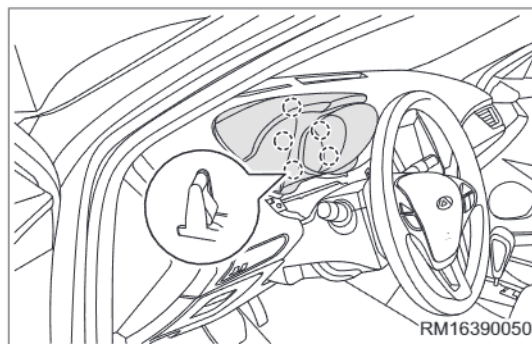
4. Remove the instrument cluster cover assembly.
  - a. Using a screwdriver wrapped with protective tape, pry up the clips on instrument cluster cover assembly and remove the instrument cluster cover assembly.



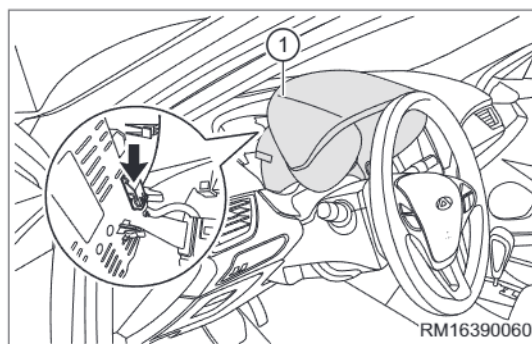
5. Remove the instrument cluster.
  - a. Remove 2 fixing screws (arrow) from instrument cluster.  
(Tightening torque:  $1.5 \pm 0.5$  N·m)



- b. Using a screwdriver wrapped with protective tape, pry off the clips from instrument cluster.

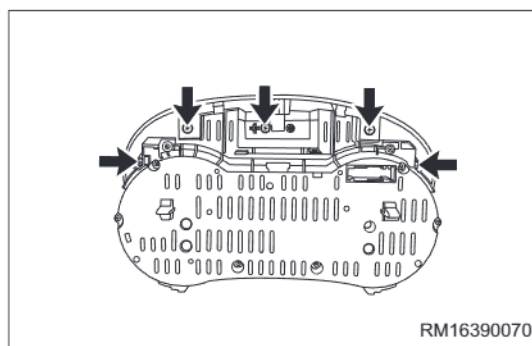


- c. Disconnect the instrument cluster connector (arrow), and remove the instrument cluster (1).



6. Remove the instrument cluster trim cover assembly.

- a. Remove 5 fixing screws (arrow) from instrument cluster trim cover assembly, and remove the instrument cluster trim cover assembly. (Tightening torque:  $2 \pm 0.5$  N·m)



## Installation

Installation is in the reverse order of removal.

### CAUTION

- When installing instrument cluster, be sure to align instrument cluster positioning hole with instrument panel dowel pin, and clamp clips in place.
- When installing instrument cluster, be sure to install connector in place.
- When installing instrument cluster, be sure to tighten fixing screws in place.
- Operate carefully to prevent other components from being damaged, when installing instrument cluster.

**HINT:**

When installing instrument cluster trim cover assembly, install the fixing screw (3) on the middle of instrument cluster trim cover assembly first, then install the fixing screw (2), (4), (1) and (5). Install the fixing screws from inside to outside, so that instrument cluster and instrument cluster trim cover assembly will be fitted closely.

