

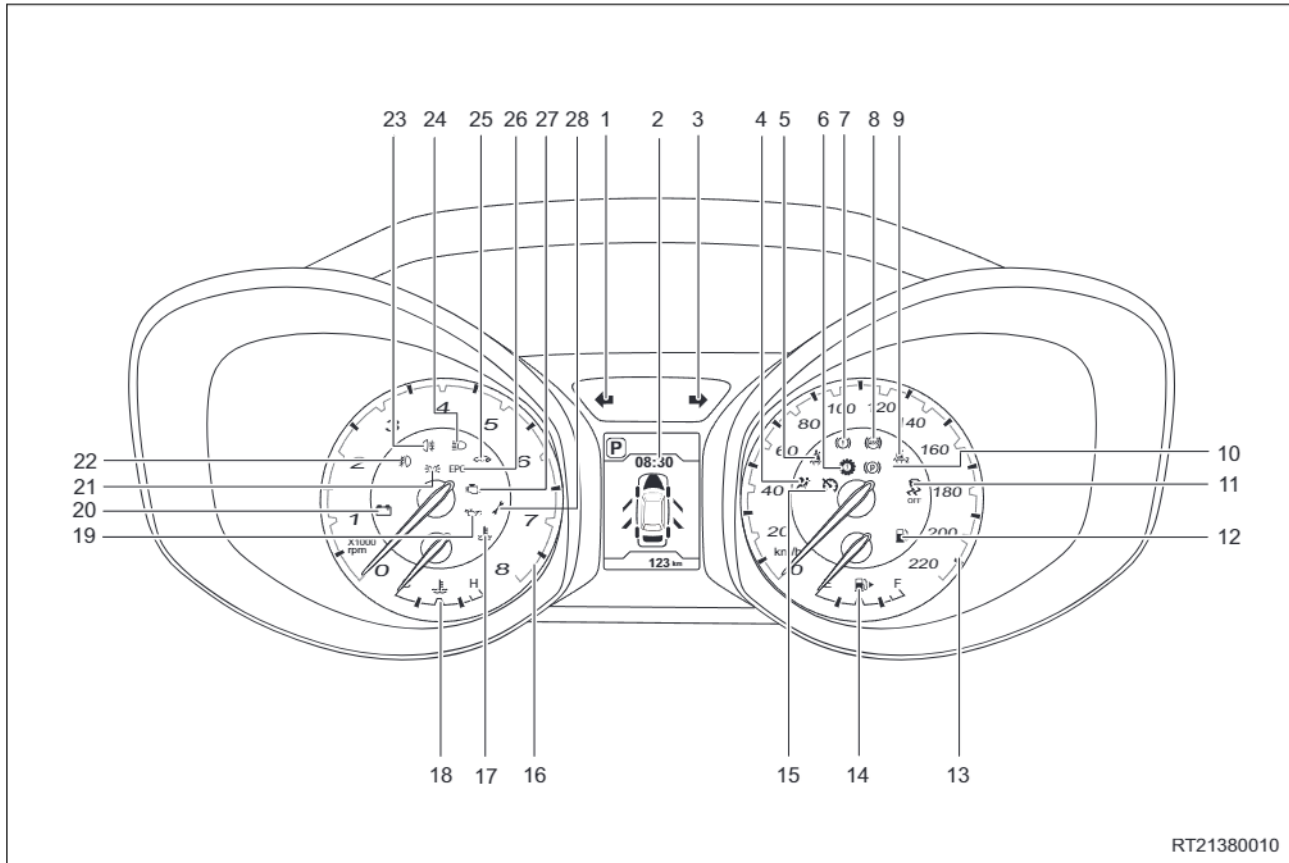
INSTRUMENT CLUSTER

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GENERAL INFORMATION

Description

Instrument Cluster



38

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 (if equipped)	12 - Low Fuel Level Warning Light
13 - Speedometer	14 - Fuel Gauge
15 - Cruise Indicator (if equipped)	16 - Tachometer
17 - High Coolant Temperature Warning Light	18 - Engine Coolant Temperature Gauge
19 - Low Engine Oil Pressure Warning Light	20 - Charging System Warning Light
21 - Position Indicator	22 - Front Fog Indicator
23 - Rear Fog Indicator	24 - Headlight High Beam Indicator
25 - Engine Immobilizer System Warning Light	26 - EPC Warning Light
27 - Engine Malfunction Warning Light	28 - 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 meter, multi-information display, indicator 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.

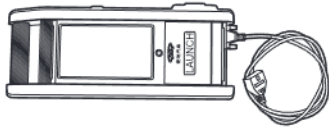
Specification

Torque Specification

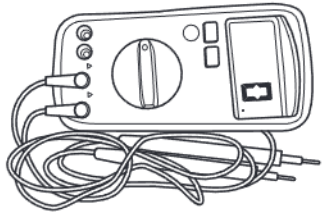
Description	Torque (N·m)
Instrument Cluster Fixing Screw	1.5 ± 0.5

Tools

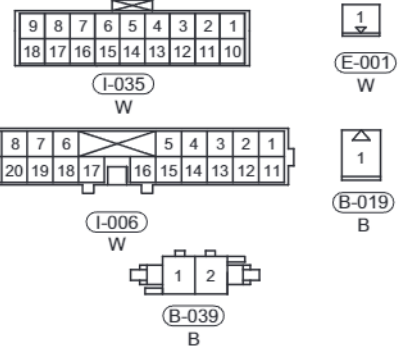
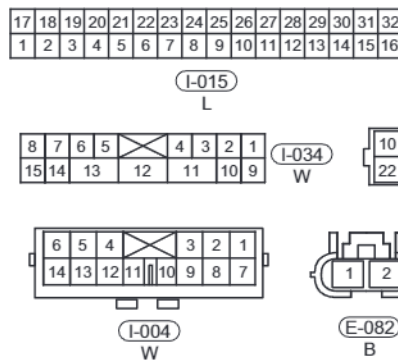
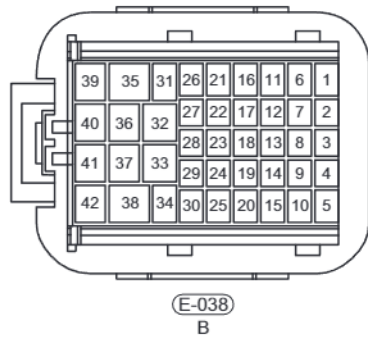
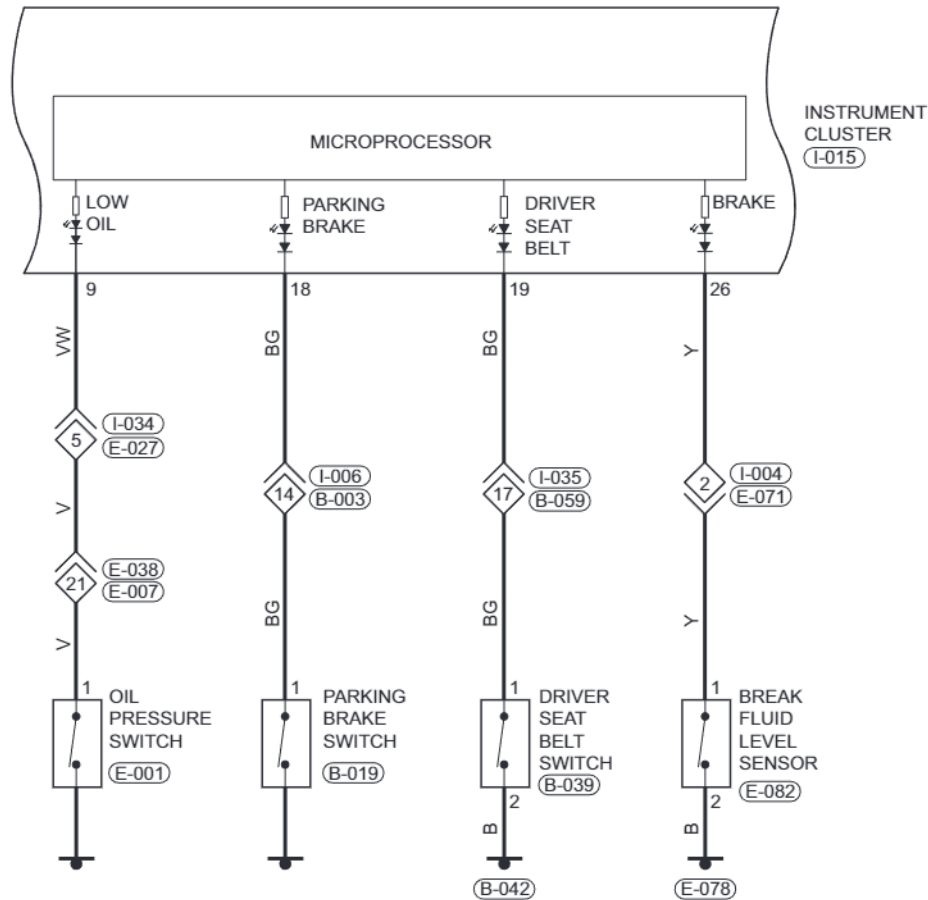
38 Special Tool

X-431 3G Diagnostic Tester	 RCH0000001
----------------------------	--

General Tool

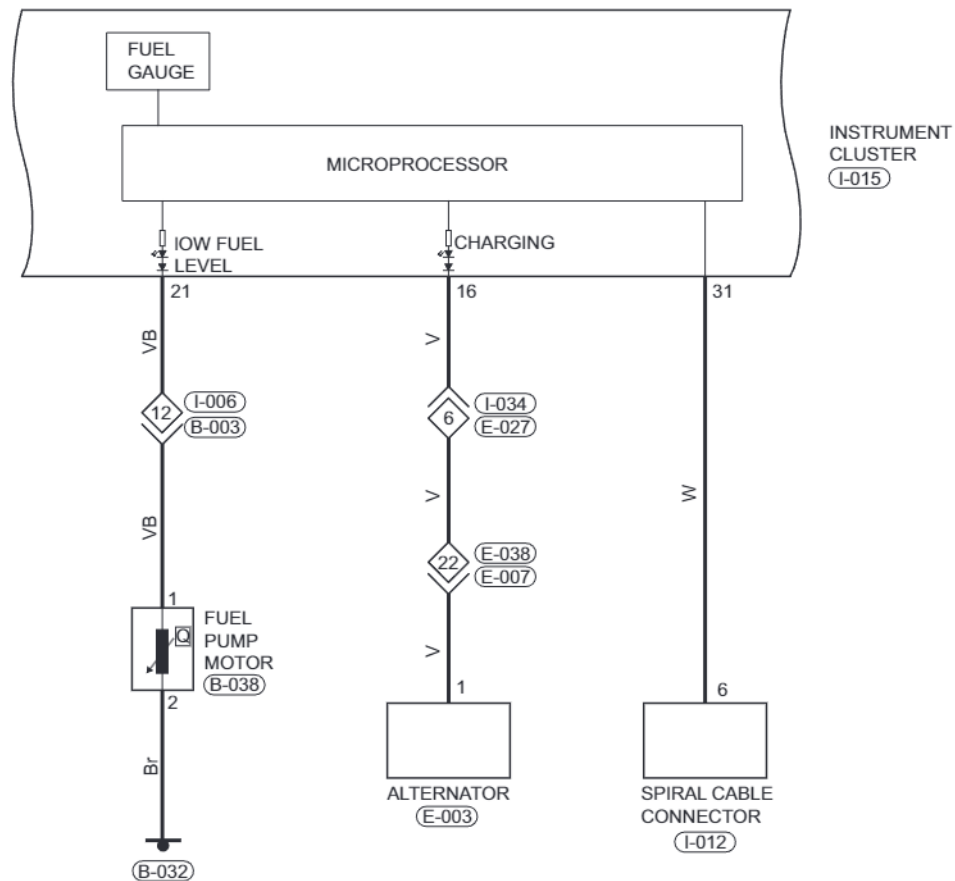
Digital Multimeter	 RCH0000002
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Instrument Cluster (Page 2 of 5)



ET21380020

Instrument Cluster (Page 3 of 5)



17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

I-015
L

10	9	8	7	6			5	4	3	2	1	
22	21	20	19	18	17		16	15	14	13	12	11

I-006
W

8	7	6	5	4	3	2	1
15	14	13	12	11	10	9	

I-034
W

1	2	3	4
---	---	---	---

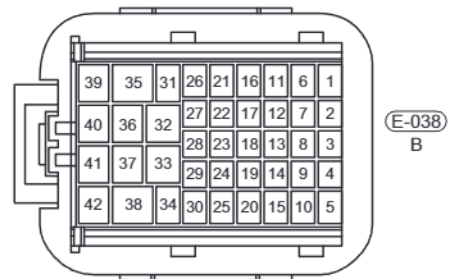
B-038
B

1	2	3
---	---	---

E-003
B

9	10	11	12	13	14	15	16
1	2	3	4	5	6	7	8

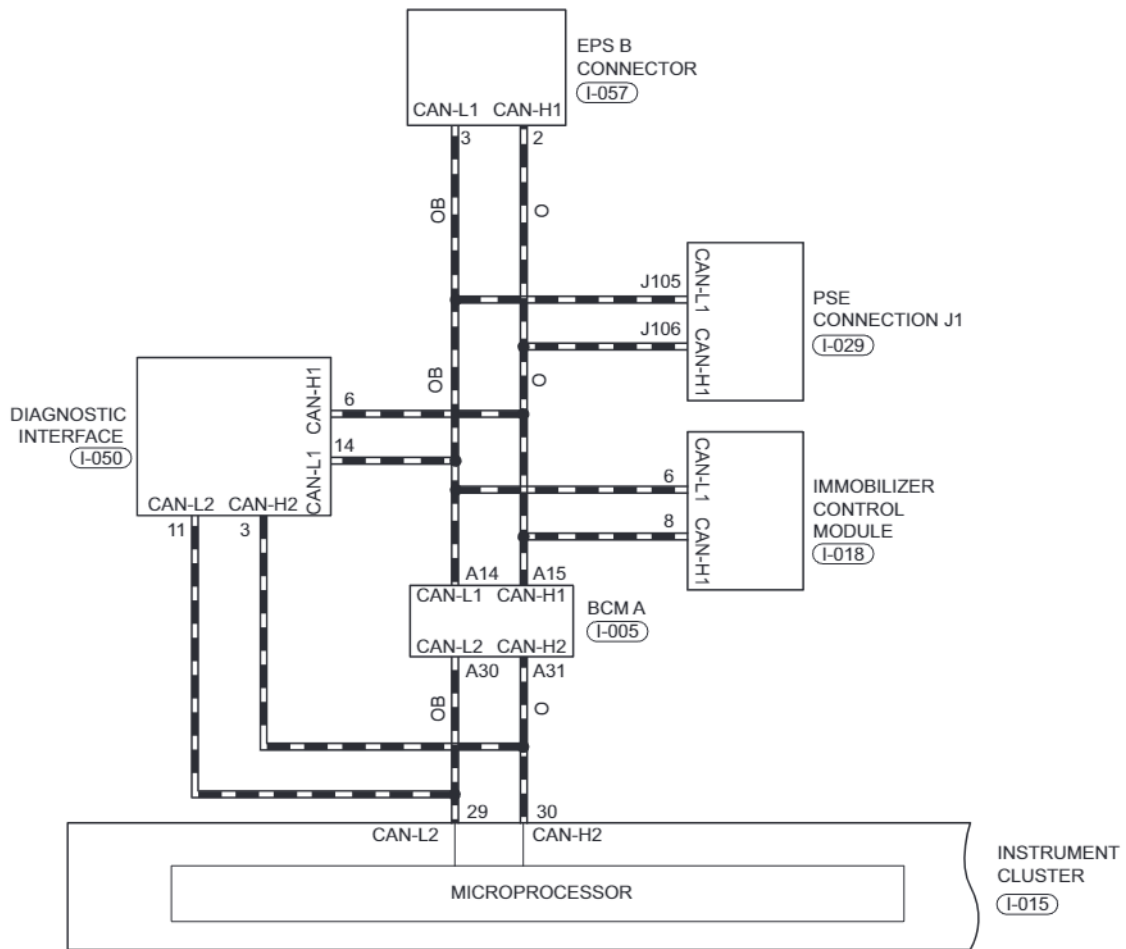
I-012
W



E-038
B

ET21380030

Instrument Cluster (Page 4 of 5)



17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	I-015 L
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	

1	3	5	7	I-018 B
2	4	6	8	

16	15	14	13	12	11	10	9	I-050 B
8	7	6	5	4	3	2	1	

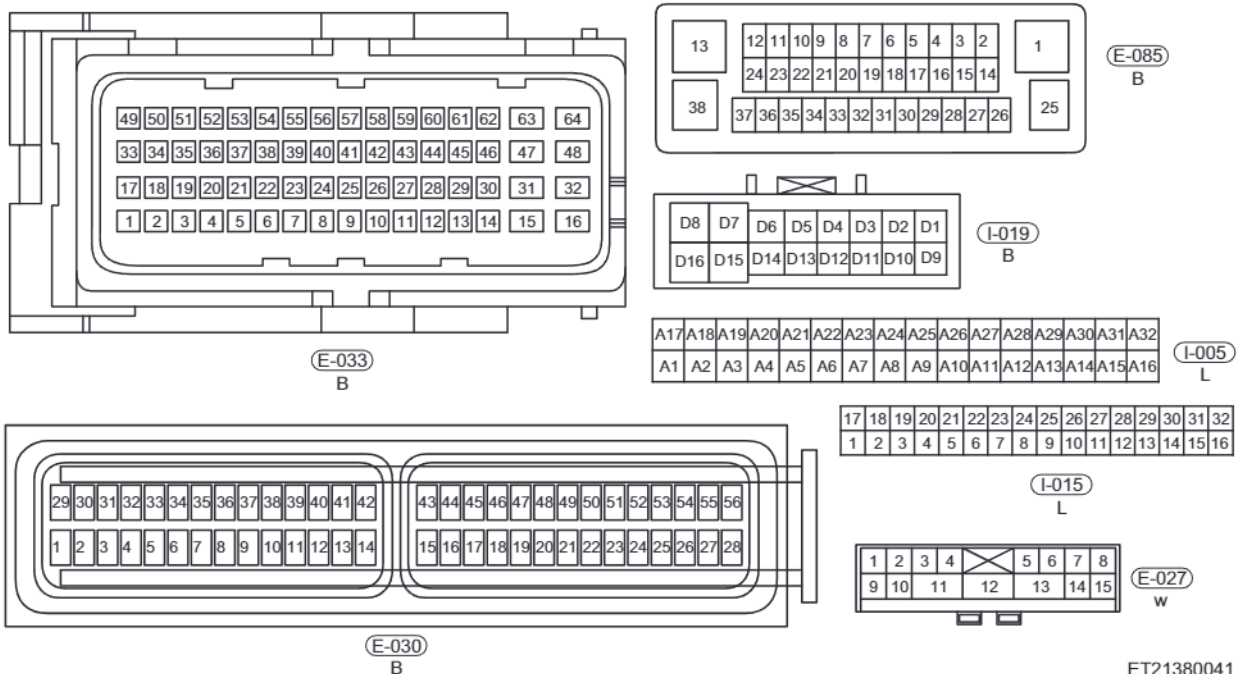
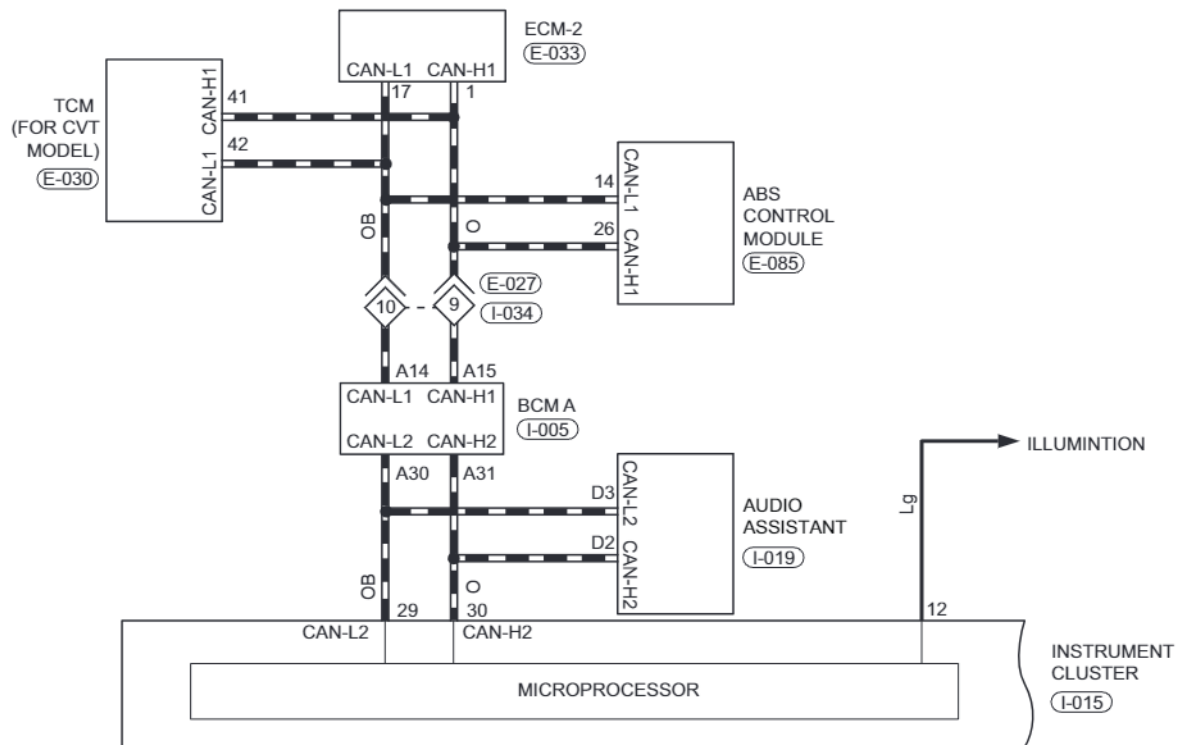
J108	J107	J106	J105	J104	J103	J102	J101	I-029 Gr
J116	J115	J114	J113	J112	J111	J110	J109	

A17	A18	A19	A20	A21	A22	A23	A24	A25	A26	A27	A28	A29	A30	A31	A32	I-005 L
A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	

5	4	3	2	1	I-057 B
10	9	8	7	6	

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Instrument Cluster (Page 5 of 5)



ET21380041

Instrument Cluster Terminal List

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

DIAGNOSIS & TESTING

Problem Symptoms Table

HINT:

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

Symptom	Suspected Area	See page
Entire instrument cluster does not operate	Fuse	51-36
	Wire harness or connector	-
	Instrument cluster	38-42
Speed display abnormal	Wheel speed	-
	Wire harness or connector	-
	Instrument cluster	38-42
Tachometer abnormal	Engine speed sensor	-
	Wire harness and connector	-
	Instrument cluster	38-42
	Engine Control Module (ECM)	06-256
Fuel gauge abnormal	Fuel level sensor	-
	Wire harness or connector	-
	Instrument cluster	38-42
Position indicator abnormal	Position light switch (combination switch)	35-65
	Wire harness or connector	-
	Body Control Module (BCM)	-
	Instrument cluster	38-42
Turn signal indicator abnormal	Turn light switch (combination switch)	35-65
	Wire harness or connector	-
	Body Control Module (BCM)	-
	Instrument cluster	38-42
High beam indicator abnormal	High beam switch (combination switch)	35-65
	Wire harness or connector	-
	Body Control Module (BCM)	-
	Instrument cluster	38-42
Rear fog indicator abnormal	Rear fog light switch (combination switch)	35-65
	Wire harness or connector	-
	Body Control Module (BCM)	-
	Instrument cluster	38-42

Symptom	Suspected Area	See page
Front fog indicator abnormal	Front fog light switch (combination switch)	35-65
	Wire harness or connector	-
	Body Control Module (BCM)	-
	Instrument cluster	38-42
Charging system warning light abnormal	Alternator	16-10
	Wire harness or connector	-
	Instrument cluster	38-42
Low engine oil pressure warning light abnormal	Engine oil level	-
	Engine oil pressure switch	13-16
	Wire harness or connector	-
	Instrument cluster	38-42
ABS warning light abnormal	Wire harness or connector	-
	Instrument cluster	38-42
	ABS control module assembly	25-71
Low fuel level warning light abnormal	Fuel amount in tank	-
	Fuel level sensor	-
	Wire harness or connector	-
	Instrument cluster	38-42
Coolant temperature warning light abnormal	High engine coolant temperature	-
	Coolant temperature sensor	06-243
	Wire harness or connector	-
	Instrument cluster	38-42
	Engine Control Module (ECM)	06-256
Engine malfunction warning light abnormal	Communication line or connector	-
	Instrument cluster	38-42
	Engine Control Module (ECM)	06-256
SRS warning light abnormal	Communication line or connector	-
	Instrument cluster	38-42
	SRS control module assembly	32-72
Driver seat belt reminder light abnormal	Driver seat belt buckle switch	33-11
	Wire harness or connector	-
	Instrument cluster	38-42
Front passenger seat belt reminder light abnormal	Front passenger seat belt buckle switch	-
	Wire harness or connector	-
	Instrument cluster	38-42

Symptom	Suspected Area	See page
Brake system warning light abnormal	Low brake fluid level	-
	Parking brake switch assembly	26-26
	Wire harness or connector	-
	Instrument cluster	38-42

Diagnosis Tools

X-431 3G Diagnostic Tester

When connecting X-431 3G diagnostic tester:

- Connect X-431 3G diagnostic tester (the latest software) to Data Link Connector (DLC) for communication with vehicle.
- DLC is Located on the instrument panel crossmember of driver side.
- DLC uses trapezium design and can accommodate up to 16 terminals.

Digital Multimeter

When using digital multimeter:

- Troubleshoot electrical problems and wiring systems.
- Look for basic fault.
- Measure voltage, current and resistance.

DTC Confirmation Procedure

Confirm that battery voltage is normal before performing the following procedures.

- Turn ignition switch to LOCK.
- Connect the X-431 3G diagnostic tester (the latest software) to Data Link Connector (DLC), and make it communicate with vehicle electronic module by data network.
- Turn ignition switch to ON.
- Using X-431 3G diagnostic tester to record and clear the DTCs stored in the Body Control Module (BCM).
- Turn ignition switch to LOCK and wait for a few seconds.
- Turn ignition switch to ON and select "Read Code".
- If DTC is detected, the malfunction indicated by the DTC is current. Go to the diagnosis procedure - Step 1.
- If the DTC is not detected, the malfunction indicated by the DTC is intermittent. Please refer to "Intermittent DTC Troubleshooting".

Intermittent DTC Troubleshooting

If malfunction is intermittent, perform the followings:

- Check if connectors are loose.
- Check if wire harnesses are worn, pierced, pinched or partially broken.
- Wiggle related wire harnesses and connectors and observe if signal is interrupted in the related circuit.
- If possible, try to duplicate the conditions under which the DTC was set.
- Look for the data that has changed or the DTC to reset during the wiggle test.
- Look for broken, bent, protruded or corroded terminals.
- Inspect the mounting areas of 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 grounding parts related to the current 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 the DTC can be cleared, reinstall the instrument cluster to original vehicle.
- 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.
- Refer to Technical Bulletin that is applied to the malfunction.

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. This situation will seriously affect the normal operation of the circuit. The operations to check the ground points are as follows:

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

38

HINT:

Use the following procedures to troubleshoot the instrument cluster.

1	Vehicle brought to workshop
----------	------------------------------------

NEXT

2	Check battery voltage
----------	------------------------------

Standard voltage: 11 to 14 V

If the 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

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	Confirm troubleshooting and perform test
---	--

NEXT

10	End
----	-----

38

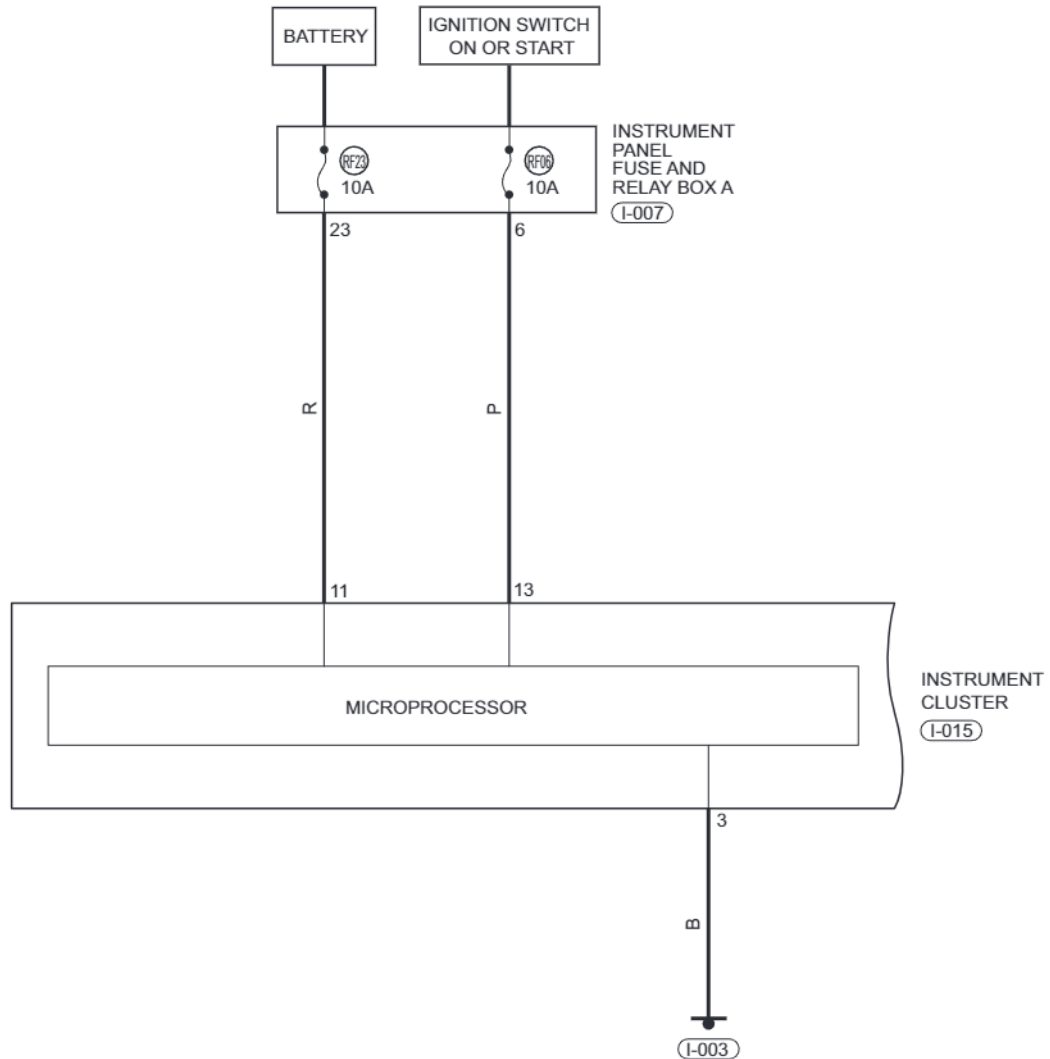
Diagnostic Trouble Code (DTC) Chart

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

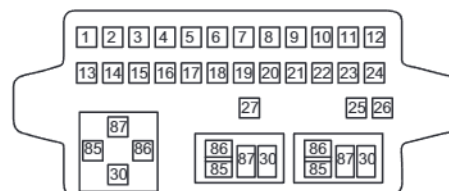
DTC	B1100-13	Power Supply Circuit Open
-----	----------	---------------------------

DTC	B1100-16	Power Supply Circuit Voltage Below Threshold
-----	----------	--

DTC	B1100-17	Power Supply Circuit Voltage Above Threshold
-----	----------	--



(I-015)
L



(I-007)
B

ET21380050

Self-diagnosis Detection Logic

DTC Code	DTC Definition	DTC Detection Condition	Possible Cause
B1100-13	Power Supply Circuit Open	Ignition switch ON	• Charging system • Wire harness or connector • Instrument cluster
B1100-16	Power Supply Circuit Voltage Below Threshold		
B1100-17	Power Supply Circuit Voltage Above Threshold		

** CAUTION**

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

Diagnosis Procedure

1 Check battery

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

NG

Recharge or replace battery

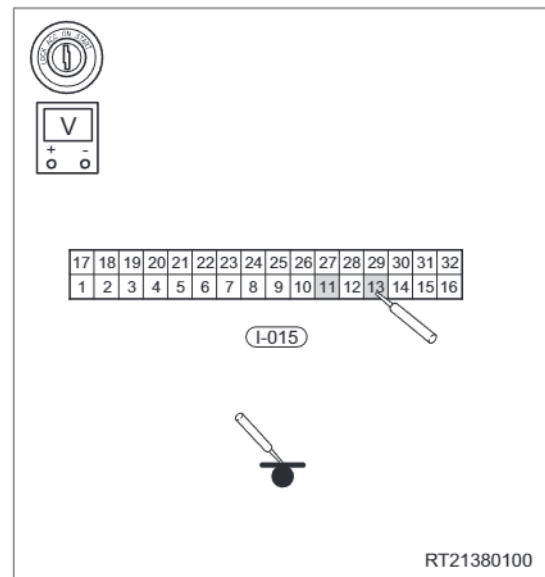
OK

2 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-015.
- Connect the negative battery cable.
- Turn ignition switch to ON.
- Using a digital multimeter, measure the supply voltage between instrument panel wire harness connector I-015 and body ground according to the value(s) in the table below to check if system power source control circuit is normal.

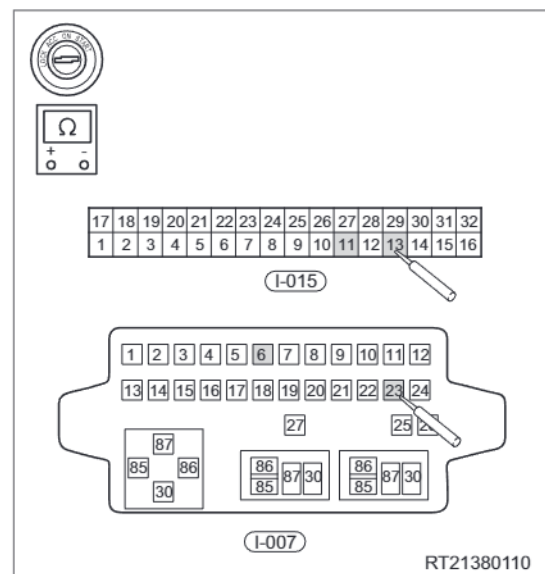
Standard Voltage

Multimeter Connection	Condition	Specified Condition
I-015 (11) - Body ground	Ignition switch ON	11 to 14 V
I-015 (13) - Body ground	Ignition switch ON	11 to 14 V



- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the instrument panel wire harness connectors I-015 and I-007.
- Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-015 and I-007 according to the table below.

Multimeter Connection	Condition	Specified Condition
I-015 (11) - I-007 (23)	Always	Continuity
I-015 (13) - I-007 (6)	Always	Continuity

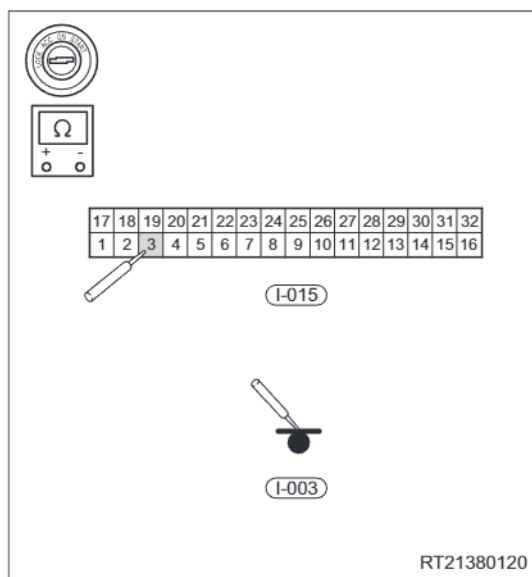


- k. Disconnect the instrument panel wire harness connector I-015 and ground I-003.
- l. Using a digital multimeter, check for continuity between instrument panel wire harness connector I-015 and ground I-003 according to the table below.

Multimeter Connection	Condition	Specified Condition
I-015 (3) - I-003	Always	Continuity

NG

Repair or replace instrument panel wire harness and connector



OK

3

Reconfirm DTCs

38

- 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 the DTCs stored in the instrument panel 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 the DTCs in the instrument cluster control system again.
- Read the DTCs.

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

NG

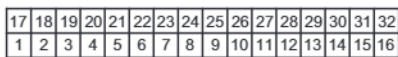
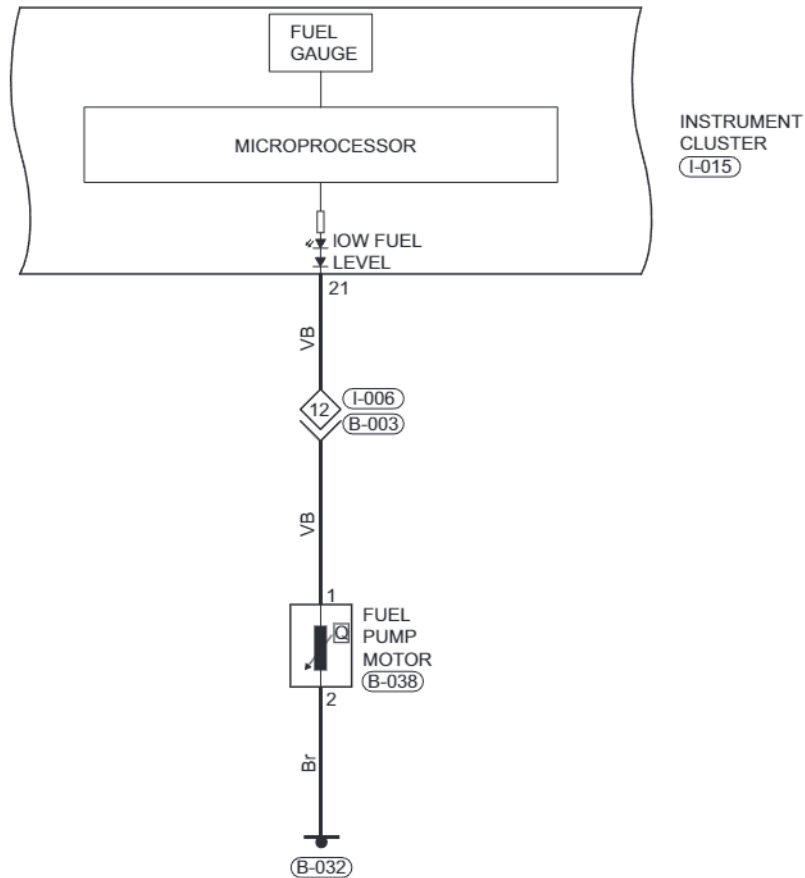
Replace instrument cluster

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
-----	----------	--



(I-015)
L



(B-038)
B



(I-006)
W

ET21380060

Self-diagnosis Detection Logic

DTC Code	DTC Definition	DTC Detection Condition	Possible Cause
B1101-11	Fuel Sensor Fault Circuit Short to Ground	Ignition switch ON	- Charging system - Wire harness or connector - Instrument cluster
B1101-15	Fuel Sensor Fault Circuit Short to Battery or Open		

 CAUTION

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

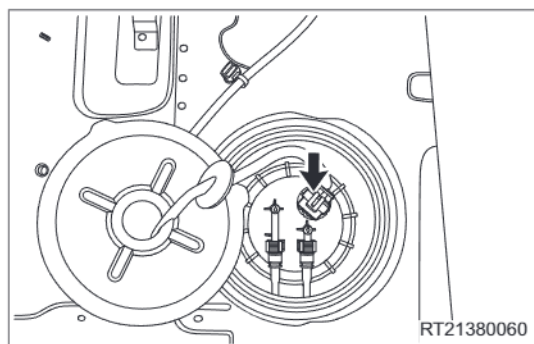
Diagnosis Procedure

1 Check fuel level sensor wire harness and connector**38**

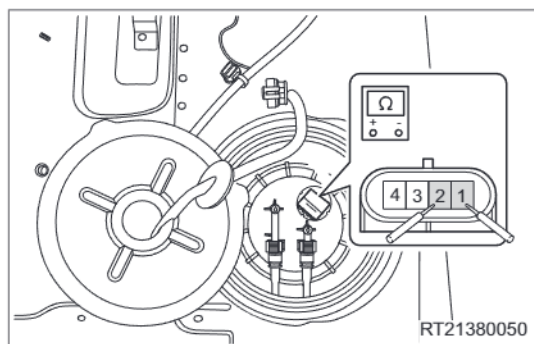
- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the fuel level sensor and fuel pump connector B-038.
- Check the wire harness, connector and terminals for deformation, bend or damage.

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.
- Check the remaining oil 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 connector B-038.
- Using a digital multimeter, measure the resistance between terminal 1 and terminal 2 of fuel level sensor.
- Check if fuel level sensor is normal according to the correspondence between fuel amount segments and standard resistance of fuel level sensor as shown in the table below.



Fuel Gauge Position	Multimeter Connection	Specification (Ω)
E	1 - 2	275 ± 5
1/4	1 - 2	165 ± 5
1/2	1 - 2	97 ± 4
3/4	1 - 2	79 ± 3
F	1 - 2	32 ± 3

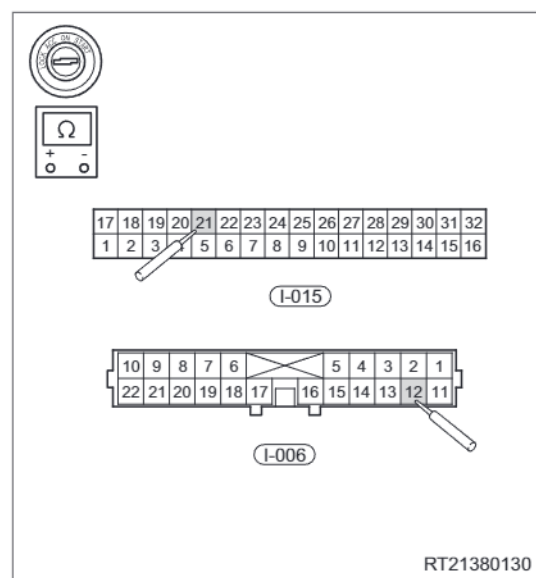
3 Check instrument panel wire harness and connector

- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the instrument panel wire harness connectors I-015 and I-006.
- Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-015 and I-006 according to the table below.

Multimeter Connection	Condition	Specified Condition
I-015 (21) - I-006 (12)	Always	Continuity

NG

Repair or replace instrument panel wire harness and connector

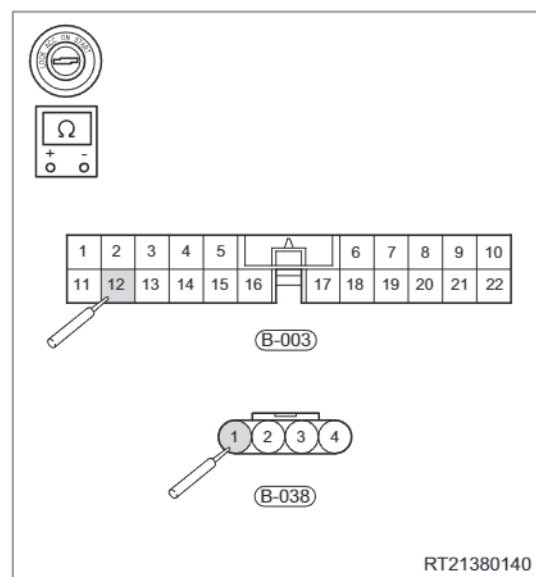


OK

4 Check body wire harness and connector

- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the body wire harness connectors B-003 and B-038.
- Using a digital multimeter, check for continuity between body wire harness connectors B-003 and B-038 according to the table below.

Multimeter Connection	Condition	Specified Condition
B-003 (12) - B-038 (1)	Always	Continuity

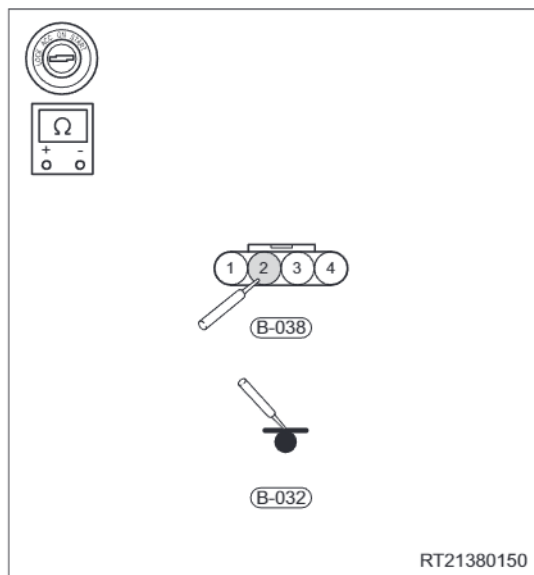


- e. Disconnect the body wire harness connector B-038 and ground B-032.
- f. Using a digital multimeter, check for continuity between body wire harness connector B-038 and ground B-032 according to the table below.

Multimeter Connection	Condition	Specified Condition
B-038 (2) - B-032	Always	Continuity

NG

Repair or replace body wire harness and connector



OK

5

Reconfirm DTCs

38

- 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 the DTCs stored in the instrument panel 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 the DTCs in the instrument cluster system again.
- h. Read the DTCs.

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

NG

Replace instrument cluster

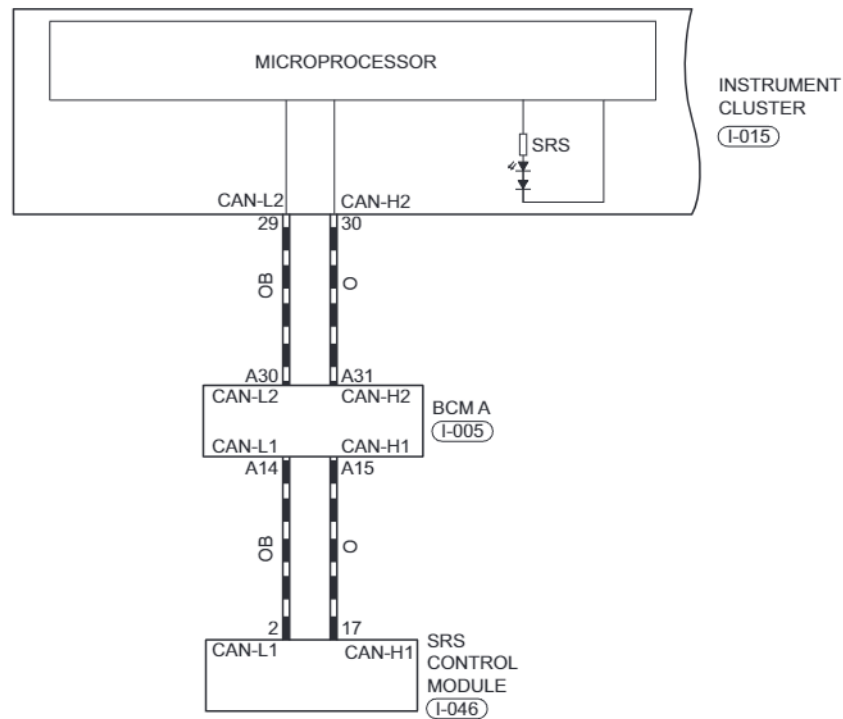
OK

System is normal

DTC

B1103-00

LED Airbag Fault No Subtype Information



17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	(I-015)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	L

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	(I-046)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Gr

A17	A18	A19	A20	A21	A22	A23	A24	A25	A26	A27	A28	A29	A30	A31	A32	(I-005)
A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	L

ET21380080

Self-diagnosis Detection Logic

DTC Code	DTC Definition	DTC Detection Condition	Possible Cause
B1103-00	LED Airbag Fault No Subtype Information	Ignition switch ON	- Airbag system - Wire harness or connector - Instrument cluster

CAUTION

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

Diagnosis Procedure

1 Check driver airbag

- a. Remove the driver airbag from the malfunctioning vehicle. Install it to a new vehicle and perform a test.

NG

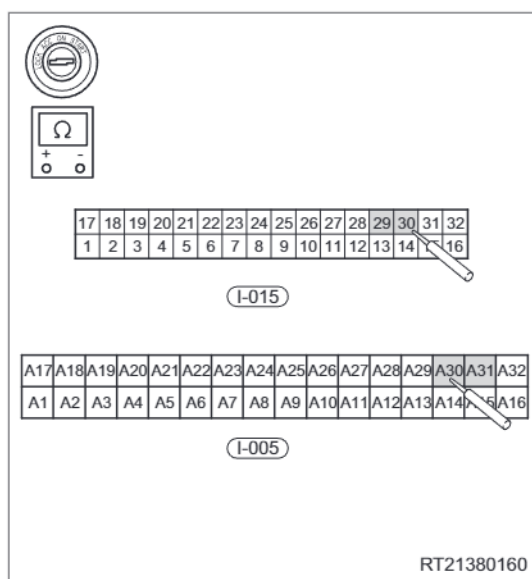
Repair or replace driver airbag

OK

2 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-015 and I-005.
 d. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-015 and I-005 according to the table below.

Multimeter Connection	Condition	Specified Condition
I-015 (29) - I-005 (A30)	Always	Continuity
I-015 (30) - I-005 (A31)	Always	Continuity

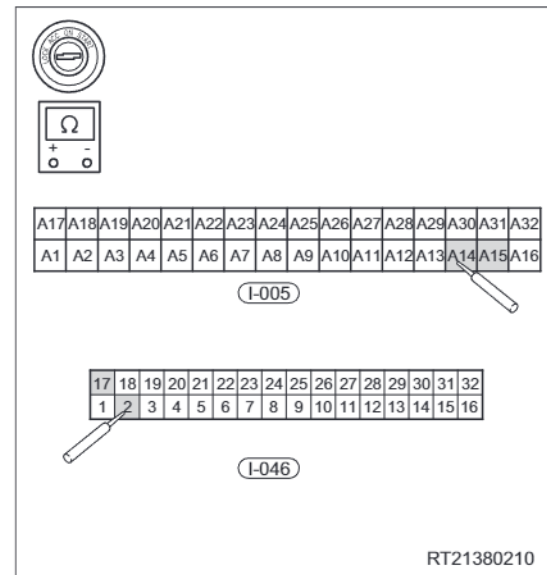


- e. Disconnect the instrument panel wire harness connectors I-005 and I-046.
- f. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-015 and I-046 according to the table below.

Multimeter Connection	Condition	Specified Condition
I-015 (A14) - I-046 (2)	Always	Continuity
I-015 (A15) - I-046 (17)	Always	Continuity

NG

Repair or replace instrument panel wire harness and connector



OK

3

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 the DTCs stored in the instrument panel 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 the DTCs in the instrument cluster control system again.
- h. Read the DTCs.

Result	Proceed to
DTC B1103-00 is output	NG
No DTC is output	OK

NG

Replace instrument cluster

OK

System is normal

38

DTC	B1104-41	EEPROM Checksum Error
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Self-diagnosis Detection Logic

DTC Code	DTC Definition	DTC Detection Condition	Possible Cause
B1104-41	EEPROM Checksum Error	Ignition switch ON	Instrument cluster

CAUTION

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

Diagnosis Procedure**1 Reconfirm DTCs**

- Use X-431 3G diagnostic tester (the latest software) to clear the DTCs stored in the 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 the DTCs in the instrument cluster control system again.
- Read the DTCs.

Result	Proceed to
DTC B1103-00 is output	NG
No DTC is output	OK

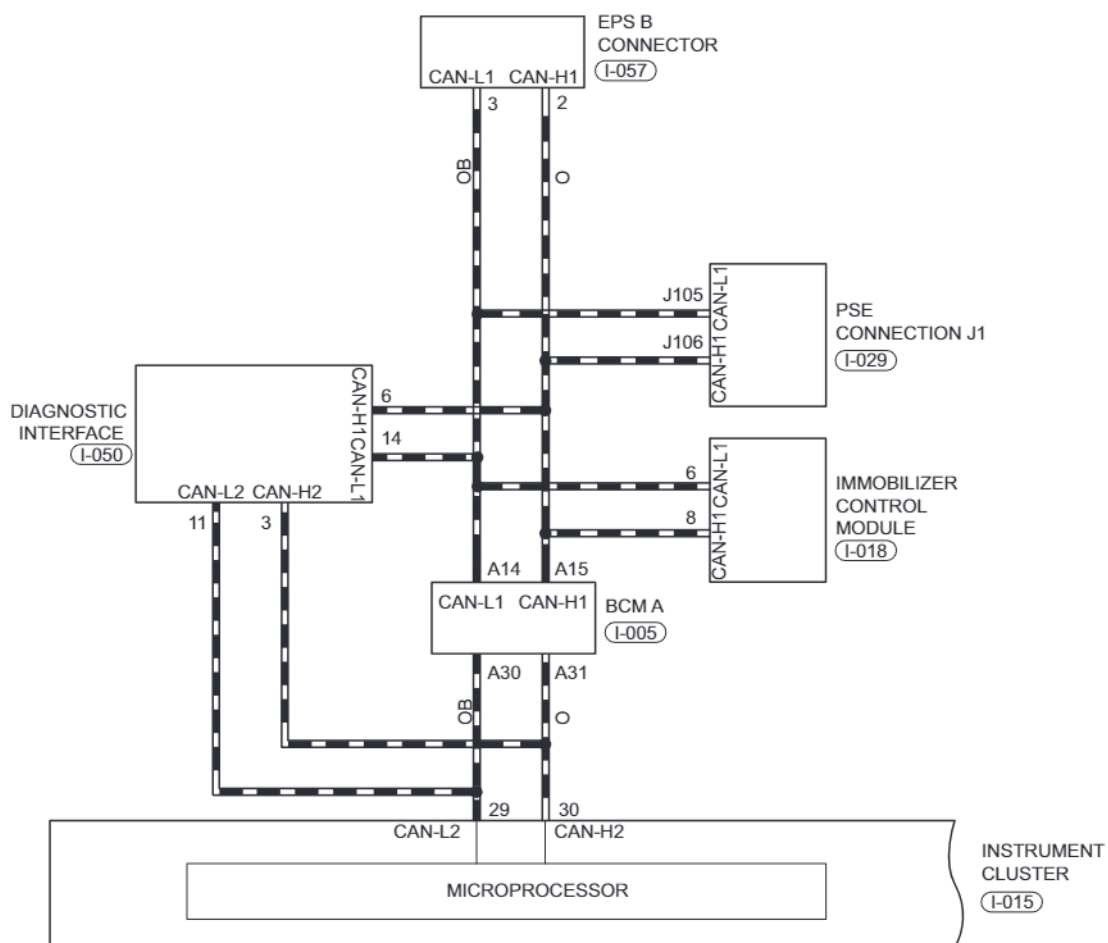
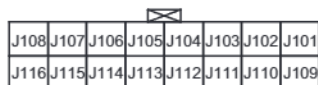
NG

Replace instrument cluster

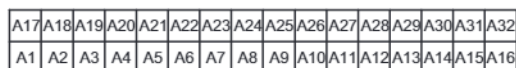
OK

System is normal

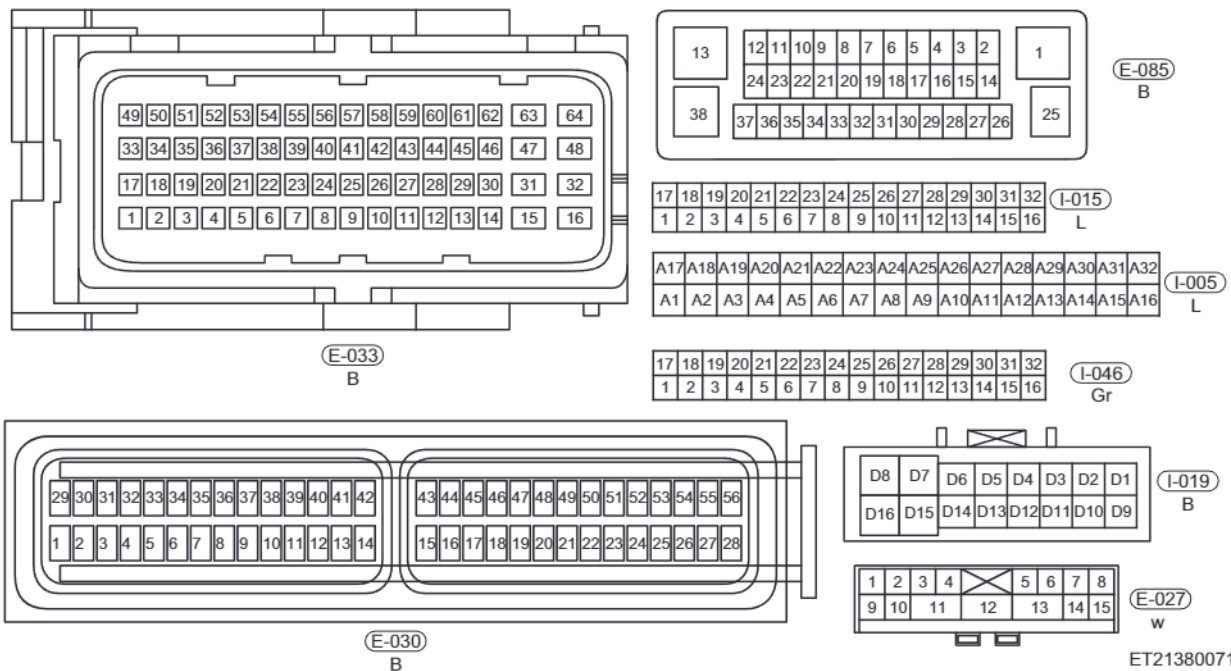
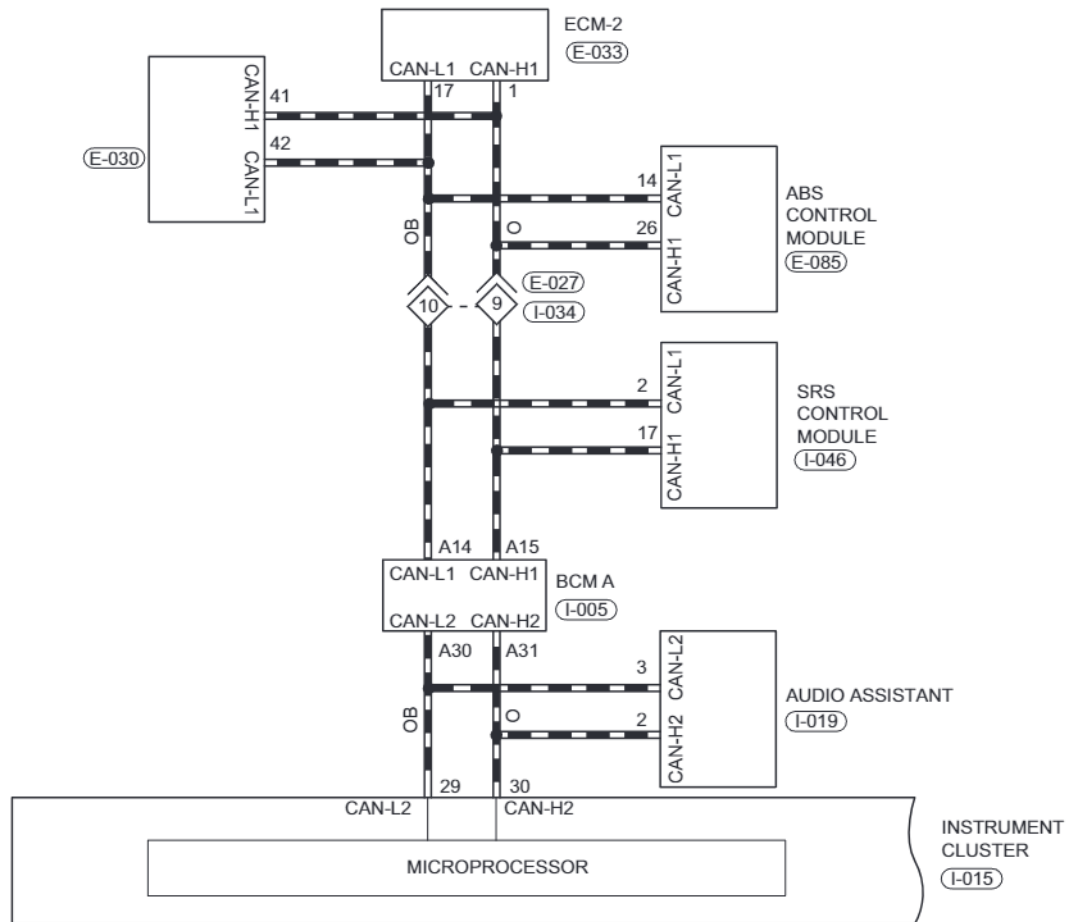
DTC	U0100-87	Lost Communication with EMS
DTC	U0101-87	Lost Communication with TCM
DTC	U0129-87	Lost Communication with BSM
DTC	U0131-87	Lost Communication with EPS
DTC	U0140-87	Lost Communication with BCM
DTC	U0151-87	Lost Communication with ICM
DTC	U0167-87	Lost Communication with IMMO
DTC	U0214-87	Lost Communication with PEPS
DTC	U0073-88	CAN Bus Off

I-057
B

I-029

I-005
LI-050
BI-018
BI-015
L

ET21380070



ET21380071

Self-diagnosis Detection Logic

DTC Code	DTC Definition	DTC Detection Condition	Possible Cause
U0100-87	Lost Communication with EMS	Ignition switch ON	• Engine Control Module (ECM) • Transmission Control Module (TCM) • ABS control module • EPS control module • Body Control Module (BCM) • SRS control module • Anti-theft control module • Instrument cluster • CAN line communication
U0101-87	Lost Communication with TCM		
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		

38

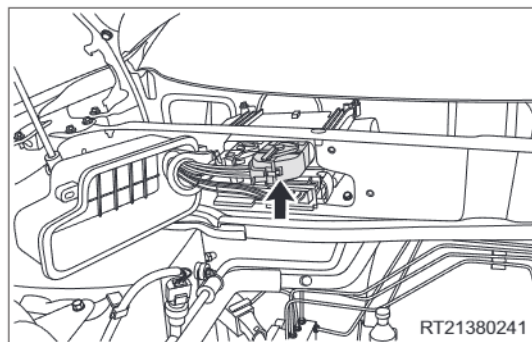
 CAUTION

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

Diagnosis Procedure

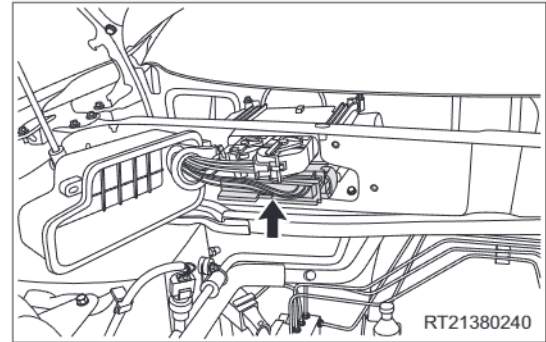
1 Check connector and terminal

- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the Engine Control Module (ECM) connector E-033.
- Check the wire harness, connector and terminals for deformation, bend or damage.



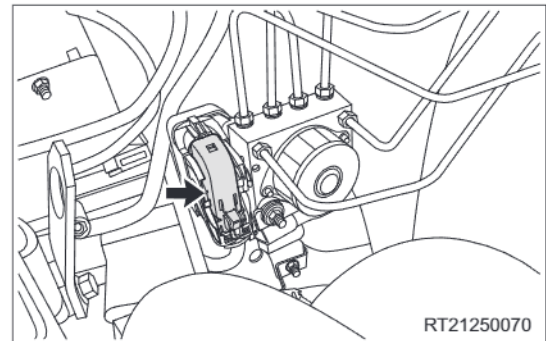
2 Check connector and terminal

- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the Transmission Control Module (TCM) connector E-030.
- Check the wire harness, connector and terminals for deformation, bend or damage.



3 Check connector and terminal

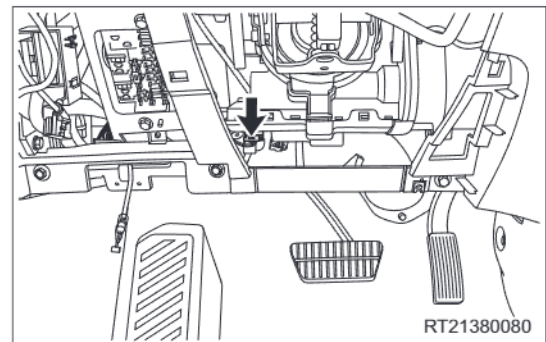
- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the ABS control module connector E-085.
- Check the wire harness, connector and terminals for deformation, bend or damage.



38

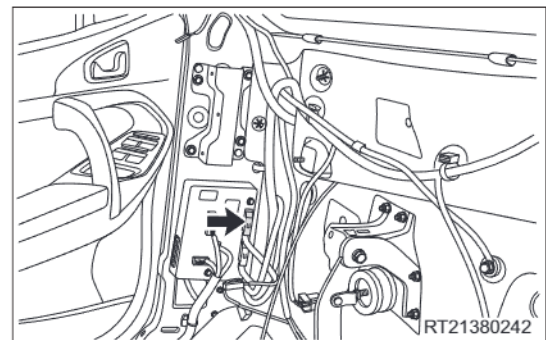
4 Check connector and terminal

- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the EPS control module connector I-057.
- Check the wire harness, connector and terminals for deformation, bend or damage.



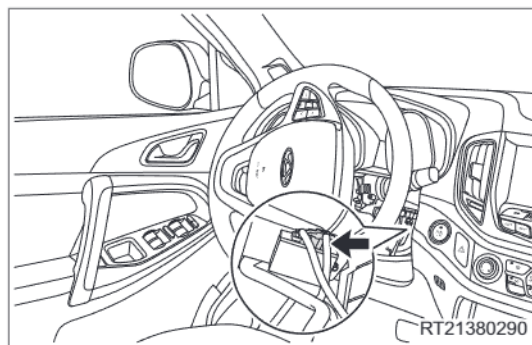
5 Check connector and terminal

- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect the Body Control Module (BCM) connector B-047.
- Check the wire harness, connector and terminals for deformation, bend or damage.

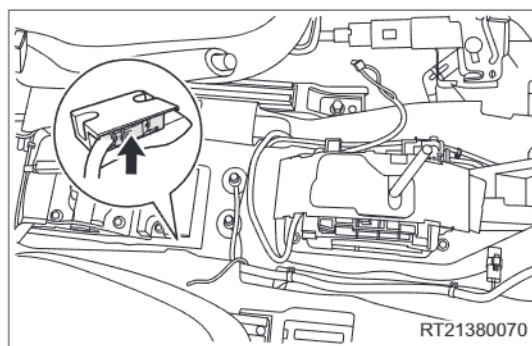


6 Check connector and terminal

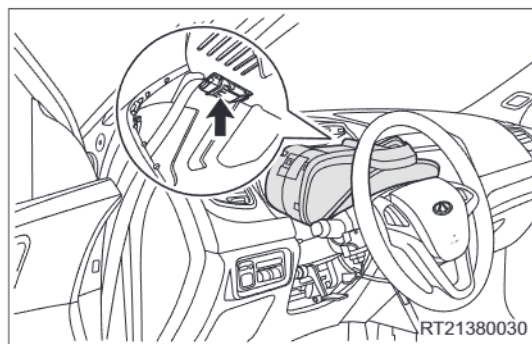
- a. Turn ignition switch to LOCK.
- b. Disconnect the negative battery cable.
- c. Disconnect the immobilizer control module connector I-018.
- d. Check the wire harness, connector and terminals for deformation, bend or damage.

**7 Check connector and terminal**

- a. Turn ignition switch to LOCK.
- b. Disconnect the negative battery cable.
- c. Disconnect the SRS control module connector I-046.
- d. Check the wire harness, connector and terminals for deformation, bend or damage.

**8 Check connector and terminal**

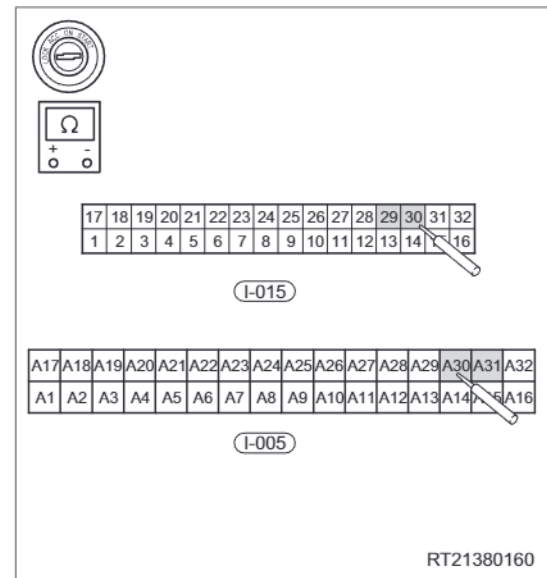
- a. Turn ignition switch to LOCK.
- b. Disconnect the negative battery cable.
- c. Disconnect instrument panel wire harness connector I-015.
- d. Check wire harness, connector and terminals for deformation, bend or damage.



9 Check instrument panel wire harness and connector

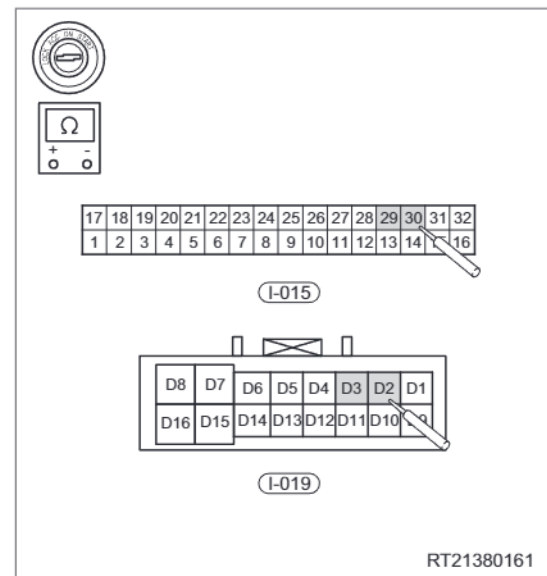
- Turn ignition switch to LOCK.
- Disconnect the negative battery cable.
- Disconnect instrument panel wire harness connectors I-015 and I-005.
- Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-015 and I-005 according to the table below.

Multimeter Connection	Condition	Specified Condition
I-015 (29) - I-005 (A30)	Always	Continuity
I-043 (30) - I-005 (A31)	Always	Continuity



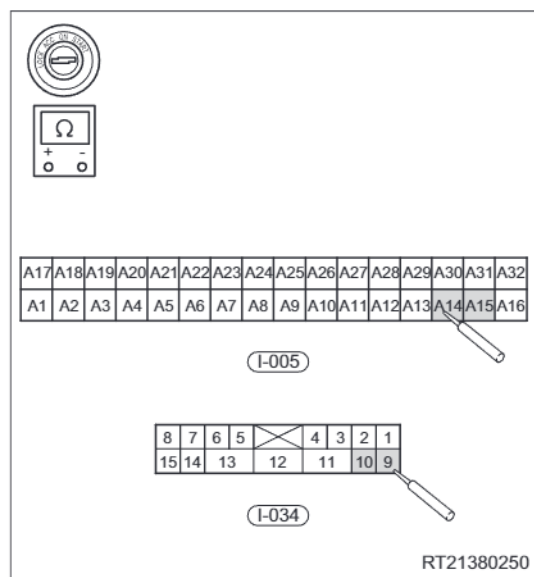
- Disconnect instrument panel wire harness connectors I-015 and I-019.
- Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-015 and I-019 according to the table below.

Multimeter Connection	Condition	Specified Condition
I-015 (29) - I-019 (D3)	Always	Continuity
I-015 (30) - I-019 (D2)	Always	Continuity



- g. Disconnect instrument panel wire harness connectors I-005 and I-034.
- h. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-005 and I-034 according to the table below.

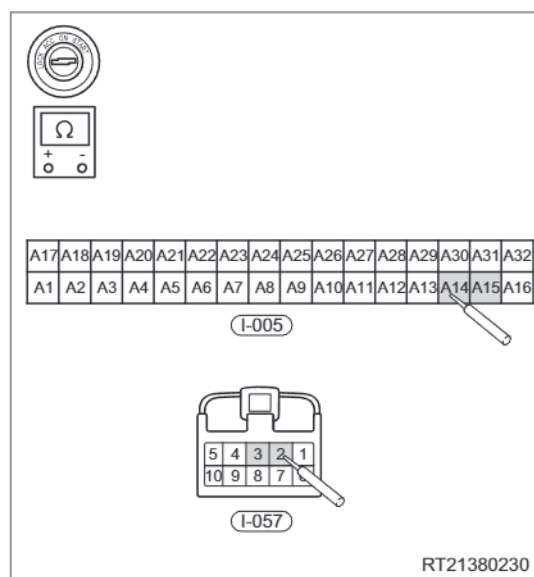
Multimeter Connection	Condition	Specified Condition
I-005 (A14) - I-034 (10)	Always	Continuity
I-005 (A15) - I-034 (9)	Always	Continuity



- i. Disconnect instrument panel wire harness connectors I-005 and I-057.
- j. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-005 and I-057 according to the table below.

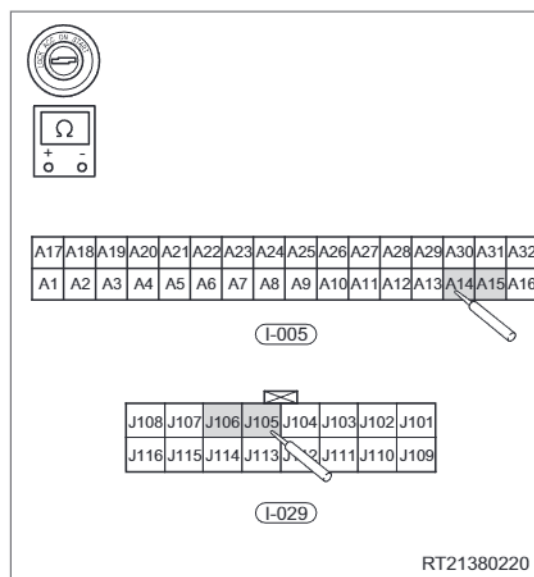
38

Multimeter Connection	Condition	Specified Condition
I-005 (A14) - I-057 (3)	Always	Continuity
I-005 (A15) - I-057 (2)	Always	Continuity



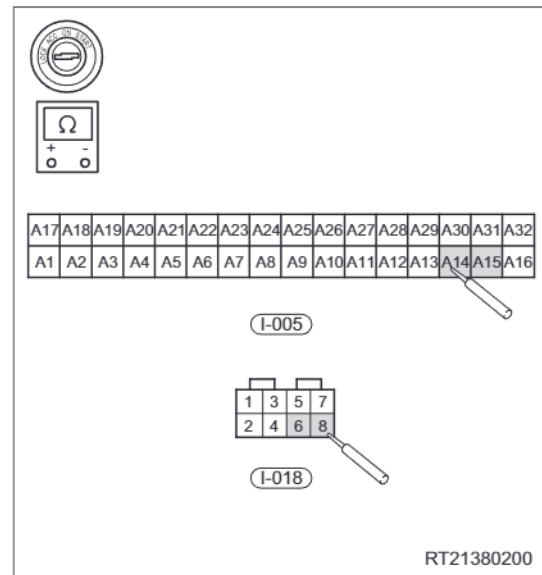
- k. Disconnect instrument panel wire harness connectors I-005 and I-029.
- l. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-005 and I-029 according to the table below.

Multimeter Connection	Condition	Specified Condition
I-005 (A14) - I-029 (J105)	Always	Continuity
I-005 (A15) - I-029 (J106)	Always	Continuity



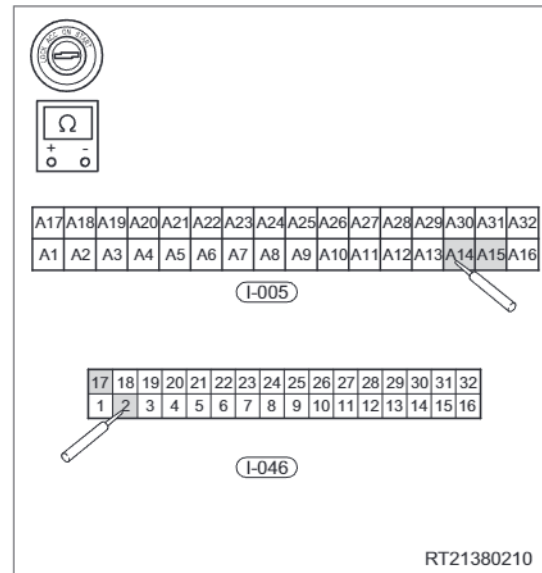
- m. Disconnect instrument panel wire harness connectors I-005 and I-018.
- n. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-005 and I-018 according to the table below.

Multimeter Connection	Condition	Specified Condition
I-005 (A14) - I-018 (6)	Always	Continuity
I-005 (A15) - I-018 (8)	Always	Continuity



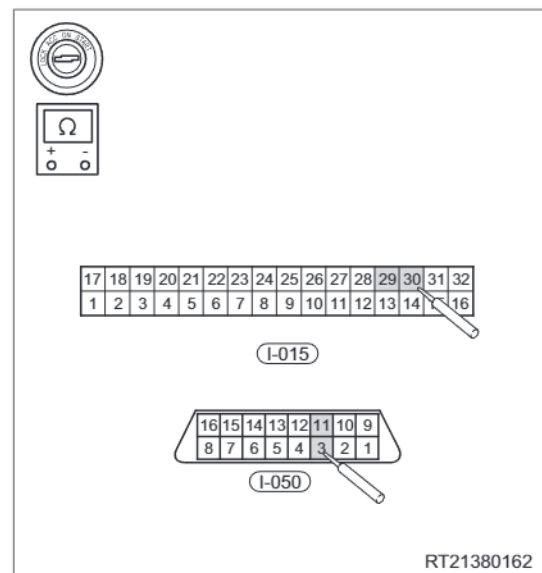
- o. Disconnect instrument panel wire harness connectors I-005 and I-046.
- p. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-005 and I-046 according to the table below.

Multimeter Connection	Condition	Specified Condition
I-005 (A14) - I-046 (2)	Always	Continuity
I-005 (A15) - I-046 (17)	Always	Continuity



- q. Disconnect instrument panel wire harness connectors I-015 and I-050.
- r. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-015 and I-050 according to the table below.

Multimeter Connection	Condition	Specified Condition
I-015 (29) - I-050 (11)	Always	Continuity
I-015 (30) - I-050 (3)	Always	Continuity

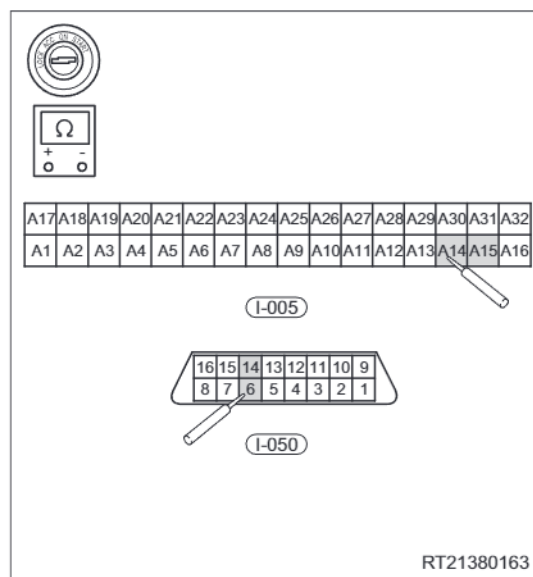


- s. Disconnect instrument panel wire harness connectors I-005 and I-050.
- t. Using a digital multimeter, check for continuity between instrument panel wire harness connectors I-005 and I-050 according to the table below.

Multimeter Connection	Condition	Specified Condition
I-005 (A14) - I-050 (14)	Always	Continuity
I-005 (A15) - I-050 (6)	Always	Continuity

NG

Repair or replace instrument panel wire harness and connector



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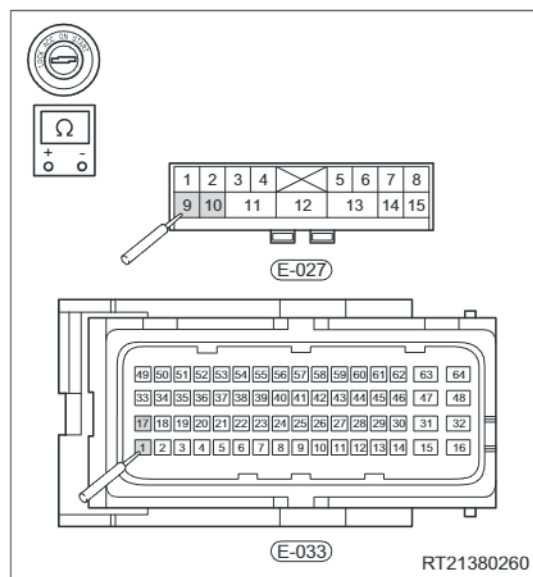
OK

10 Check engine compartment wire harness and connector

38

- a. Turn ignition switch to LOCK.
- b. Disconnect the negative battery cable.
- c. Disconnect engine compartment wire harness connectors E-027 and E-033.
- d. Using a digital multimeter, check for continuity between engine compartment wire harness connectors E-027 and E-033 according to the table below.

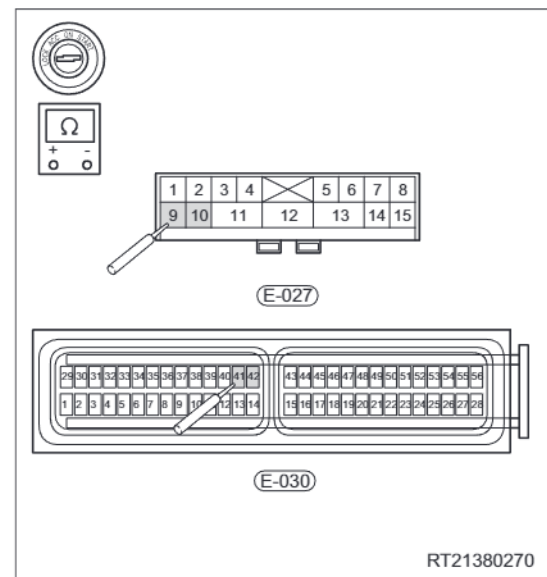
Multimeter Connection	Condition	Specified Condition
E-027 (10) - E-033 (17)	Always	Continuity
E-027 (9) - E-033 (1)	Always	Continuity



RT21380260

- e. Disconnect engine compartment wire harness connectors E-027 and E-030.
- f. Using a digital multimeter, check for continuity between engine compartment wire harness connectors E-027 and E-030 according to the table below.

Multimeter Connection	Condition	Specified Condition
E-027 (10) - E-030 (42)	Always	Continuity
E-027 (9) - E-030 (41)	Always	Continuity

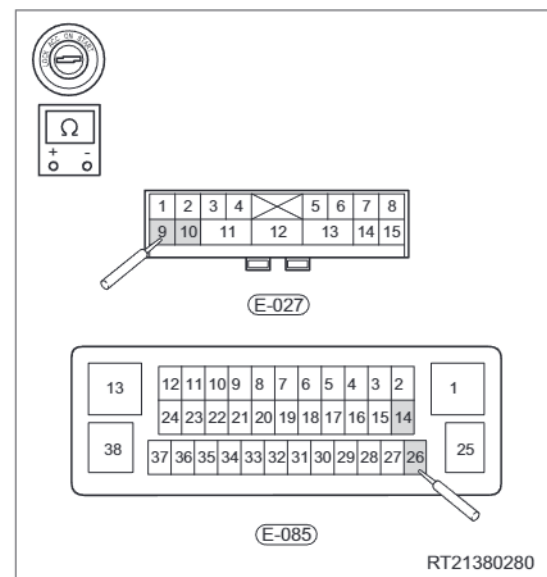


- g. Disconnect engine compartment wire harness connectors E-027 and E-085.
- h. Using a digital multimeter, check for continuity between engine compartment wire harness connectors E-027 and E-085 according to the table below.

Multimeter Connection	Condition	Specified Condition
E-027 (10) - E-085 (14)	Always	Continuity
E-027 (9) - E-085 (26)	Always	Continuity

NG

Replace or repair engine compartment wire harness and connector



OK

11 Reconfirm DTCs

- Connect all connectors.
- Connect the negative battery cable.
- Turn ignition switch to ON.
- Use the X-431 3G diagnostic tester (the latest software) to record and clear the DTCs stored in the instrument panel 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 the DTCs in the instrument cluster control system again.
- Read the DTCs.

Result	Proceed to
DTC U0100-87, U0101-87, U0129-87, U0131-87, U0140-87, U0151-87, U0167-87, U0214-87 and U0073-88 are output	NG
No DTC is output	OK

NG

Replace instrument cluster

OK

System is normal

DTC	U1300-55	Software Configuration Error, Not Configured
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Self-diagnosis Detection Logic

DTC Code	DTC Definition	DTC Detection Condition	Possible Cause
U1300-55	Software Configuration Error, Not Configured	Ignition switch ON	Instrument cluster

CAUTION

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

Diagnosis Procedure**1 Reconfirm DTCs**

- Use X-431 3G diagnostic tester (the latest software) to clear the DTCs stored in the 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 the DTCs in the instrument cluster control system again.
- Read the DTCs.

38

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

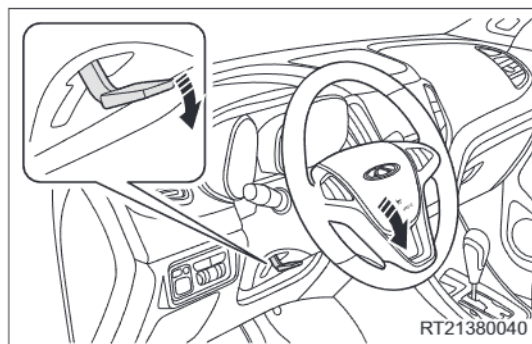
Instrument Cluster

Removal

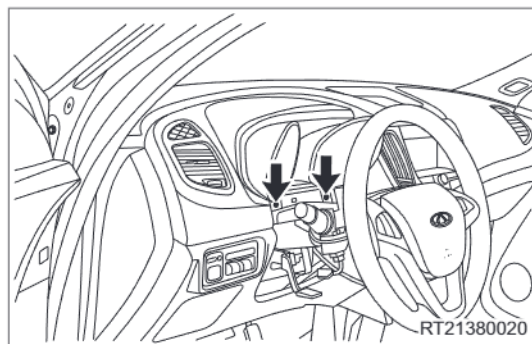
CAUTION

- Be sure to wear 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.

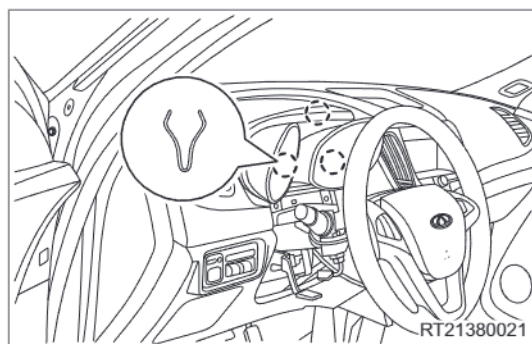
1. Turn off all the electrical equipment and ignition switch.
2. Disconnect the negative battery cable.
3. Lower the steering wheel in the direction of arrow as shown in the illustration.



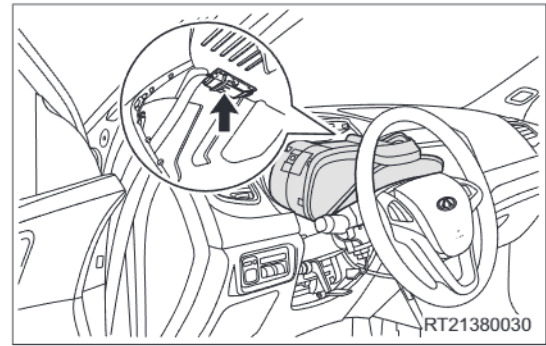
4. Remove the combination switch cover ([See page 28-13](#)).
5. Remove the instrument cluster.
 - a. Remove 2 fixing screws (arrow) from instrument cluster.
(Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$)



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



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



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 clips are clamped 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.

