

INSTRUMENT CLUSTER CONTROL SYSTEM

| | | | |
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دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

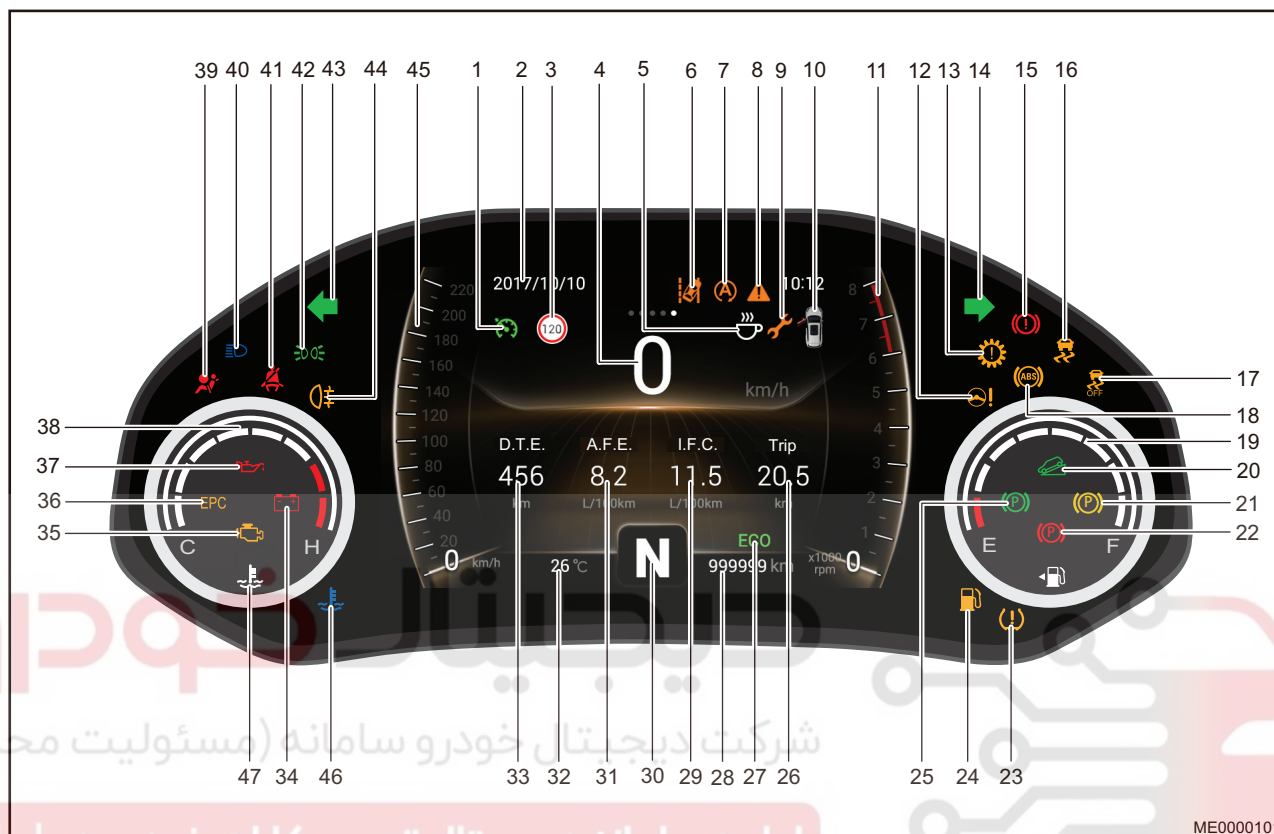
اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



GENERAL INFORMATION

Overview

Description



ME0000101

| | |
|--|---|
| 1 - Constant Speed Cruise Indicator | 2 - Date Display |
| 3 - Overspeed Warning | 4 - Vehicle Speed |
| 5 - Fatigue Driving | 6 - Lane Departure |
| 7 - Start and Stop System Indicator | 8 - Graphic Warning Message |
| 9 - Maintenance Indication | 10 - Door Open Indication |
| 11 - Engine Tachometer | 12 - Electric Steering System Malfunction Indicator |
| 13 -Transmission Malfunction Warning Indicator | 14 - Right Turn Signal Indicator |
| 15 - Brake System Malfunction Indicator | 16 - ESP Malfunction Indicator |
| 17 - ESP OFF Indicator | 18 - ABS Malfunction Indicator |
| 19 - Fuel Level Indicator | 20 - Hill Descent Control Indicator |
| 21 - EPB Malfunction Indicator | 22 - Parking Brake Indicator |
| 23 - Tire Pressure Malfunction Indicator | 24 - Low Fuel Level Warning Indicator |
| 25 - Automatic Parking Indicator | 26 - Trip Mileage Indicator |
| 27 - ECO Indicator | 28 - Odometer |
| 29 - Instaneous Fuel Consumption | 30 - Gear Position Indicator |
| 31 - Average Fuel Consumption | 32 - Outside Temperature |
| 33 - Driving Mileage | 34 - Charging System Warning Indicator |
| 35 - Engine Malfunction Indicator | 36 - EPC Malfunction Indicator |
| 27 - ECO Indicator | 28 - Odometer |
| 29 - Instaneous Fuel Consumption | 30 - Gear Position Indicator |
| 31 - Average Fuel Consumption | 32 - Outside Temperature |

| | |
|--|---|
| 33 - Driving Mileage | 34 - Charging System Warning Indicator |
| 35 - Engine Malfunction Indicator | 36 - EPC Malfunction Indicator |
| 37 - Low Engine Oil Pressure Warning Indicator | 38 - Engine Coolant Temperature Indicator |
| 39 - SRS Malfunction Indicator | 40 - Headlight High Beam Indicator |
| 41 - Driver Seat Belt Reminder Light | 42 - Position Indicator |
| 43 - Left Turn Signal Indicator | 44 - Rear Fog Indicator |
| 45 - Speedometer Indicator | 46 - Warm-up Indicator |
| 47 - Coolant Temperature Indicator | |

This vehicle is equipped with virtual 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 and instantaneous fuel consumption.

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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.

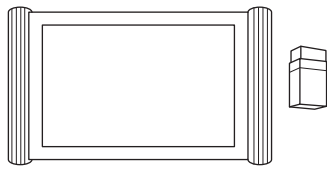
Specifications

Torque Specifications

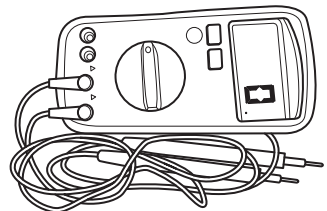
| Description | Torque (N·m) |
|---------------------------------|--------------|
| Instrument Cluster Fixing Screw | 1.5 ± 0.5 |

Tools

Special Tool

| | |
|-------------------|---|
| Diagnostic Tester |  001 |
|-------------------|---|

General Tool

| | |
|--------------------|---|
| Digital Multimeter |  002 |
|--------------------|---|

DIAGNOSIS & TESTING

Diagnostic Content

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 |
|---|--|
| Entire instrument cluster does not operate | Fuse |
| | Instrument cluster |
| | Wire harness or connector |
| Vehicle speed displays abnormally | Wheel speed sensor |
| | Wire harness or connector |
| | Instrument cluster |
| Tachometer is abnormal | Engine speed sensor |
| | Instrument cluster |
| | Wire harness or connector |
| | Engine Control Module (ECM) |
| Fuel gauge is abnormal | Fuel level sensor |
| | Instrument cluster |
| | Wire harness or connector |
| Position indicator is abnormal | Position light switch (combination light switch assembly) |
| | Wire harness or connector |
| | Instrument cluster |
| | Body Control Module (BCM) |
| Turn signal indicator is abnormal | Turn signal light switch (combination light switch assembly) |
| | Body Control Module (BCM) |
| | Instrument cluster |
| | Wire harness or connector |
| High beam indicator is abnormal | High beam switch (combination light switch assembly) |
| | Body Control Module (BCM) |
| | Instrument cluster |
| | Wire harness or connector |
| Rear fog indicator is abnormal | Rear fog light switch (combination light switch assembly) |
| | Body Control Module (BCM) |
| | Instrument cluster |
| | Wire harness or connector |
| Charging system warning light is abnormal | Alternator |
| | Instrument cluster |
| | Wire harness or connector |
| Low engine oil pressure warning light is abnormal | Engine oil level |
| | Engine oil pressure switch |
| | Wire harness or connector |
| | Instrument cluster |
| ABS warning light is abnormal | ABS control unit assembly |
| | CAN line or connector |
| | Instrument cluster |

| Symptom | Suspected Area |
|--|---|
| Low fuel level warning light is abnormal | Fuel amount in tank |
| | Fuel level sensor |
| | Wire harness or connector |
| | Instrument cluster |
| Coolant temperature warning light is abnormal | Coolant level |
| | Extremely high engine coolant temperature |
| | Coolant Temperature Sensor |
| | Wire harness or connector |
| | Instrument cluster |
| | Body Control Module (BCM) |
| Engine malfunction warning light is abnormal | CAN line or connector |
| | Engine Control Module (ECM) |
| | Instrument cluster |
| SRS warning light is abnormal | CAN line or connector |
| | Airbag control module (SRS) |
| | Instrument cluster |
| Driver seat belt reminder light is abnormal | Driver seat belt buckle switch |
| | Wire harness or connector |
| | Instrument cluster |
| Front passenger seat belt reminder light is abnormal (if equipped) | Front passenger seat belt buckle switch |
| | Wire harness or connector |
| | Instrument cluster |
| Brake system warning light is abnormal | Low brake fluid level |
| | Parking brake switch assembly |
| | Instrument cluster |
| Cruise indicator (if equipped) is abnormal | Cruise switch (multi-function switch) |
| | Wire harness or connector |
| | Instrument cluster |
| Transmission malfunction warning light is abnormal | Transmission Control Unit (TCU) |
| | CAN line or connector |
| | Instrument cluster |
| Low tire pressure warning light is abnormal (if equipped) | Low or high tire pressure (tire pressure is not within specified range) |
| | Instrument cluster |

Diagnosis Procedure

Hint

Use following procedure to troubleshoot the instrument cluster system.

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

Result

| |
|------------|
| Proceed to |
| Next |

Next

2 Check battery voltage

Check if battery voltage is normal.

OK

Standard voltage: Not less than 12 V

Result

| |
|------------|
| Proceed to |
| OK |
| NG |

NG

Check and repair battery

OK

33

3 Customer problem analysis

Result

| |
|------------|
| Proceed to |
| Next |

Next

4 Check and clear DTCs

Result

| |
|------------|
| Proceed to |
| Next |

Next

5 Confirm and reappear problem

Result

| |
|-------------|
| Proceed to |
| No DTC |
| Current DTC |
| History DTC |

History DTC

6 Problem Repair (No DTC)

Result

| |
|------------|
| Proceed to |
| Next |

Next Go to step 8

7 Troubleshoot according to Diagnostic Trouble Code (DTC) chart

Result

| |
|------------|
| Proceed to |
| Next |

Next Go to step 8

8 Troubleshoot according to Problem Symptoms Table

Result

| |
|------------|
| Proceed to |
| Next |

Next

9 Conduct test and confirm malfunction has been repaired

Result

| |
|------------|
| Proceed to |
| Next |

Next End

DTC Confirmation Procedure

Confirm that battery voltage is normal before performing following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect diagnostic tester (the latest software) to diagnostic interface.
- Turn ENGINE START STOP switch to ON.
- Use the diagnostic tester to record and clear stored DTCs.
- Turn ENGINE START STOP switch to OFF and wait several seconds.
- Using the diagnostic tester, select Read DTCs.
- If DTC is detected, malfunction indicated by DTC is current. Go to diagnosis procedure - Step 1.
- If no DTC is detected, malfunction indicated by DTC is intermittent Please refer to Intermittent DTC Troubleshooting.

System Diagnostic

1. Description
 - (a) Instrument cluster data and Diagnostic Trouble Code (DTC) can be read from OBD diagnostic interface of vehicle. When system seems to be malfunctioning, use diagnostic tester to check for a malfunction and perform repairs.
2. Check battery voltage
 - (a) Standard Voltage:
Not less than 12 V
If voltage is below 12 V, check and repair battery before proceeding to next step.

DTC Check/Clear

1. Check for DTCs
 - (a) Connect diagnostic tester to diagnostic interface.
 - (b) Turn the ENGINE START STOP switch to ON, and turn on the diagnostic tester.
 - (c) Select following menu items to read the current malfunctions: Tiggo 8 / T18 / Instrument Cluster System / Read DTC.
 - (d) Read DTCs by following indications on tester screen.
2. Clear DTCs
 - (a) Connect diagnostic tester to diagnostic interface.
 - (b) Turn the ENGINE START STOP switch to ON, and turn on the diagnostic tester.
 - (c) Select following menu items: Tiggo 8 / T18 / Instrument Cluster System / Clear DTC.
 - (d) Clear DTCs by following the directions on tester screen.

Intermittent DTC Troubleshooting

If malfunction is intermittent, perform the followings:

- Check if connector is loose.
- Check if wire harness is worn, pierced, pinched or partially broken.
- Wiggle related wire harness and connector and observe if signal in related circuit is interrupted.
- If possible, try to duplicate conditions under which DTC was set.
- Look for data that has changed or DTC to reset during wiggle test.
- Check for broken, bent, protruded or corroded terminals.
- Inspect wheel speed sensors and mounting areas for damage, foreign matter, etc. that will cause incorrect signals.
- Check and clean all wire harness connectors and ground parts related to DTC.
- If multiple trouble codes were set, refer to circuit diagrams to look for any common ground circuit or power supply circuit applied to DTC.
- Refer to any Technical Bulletin that may apply to this malfunction.

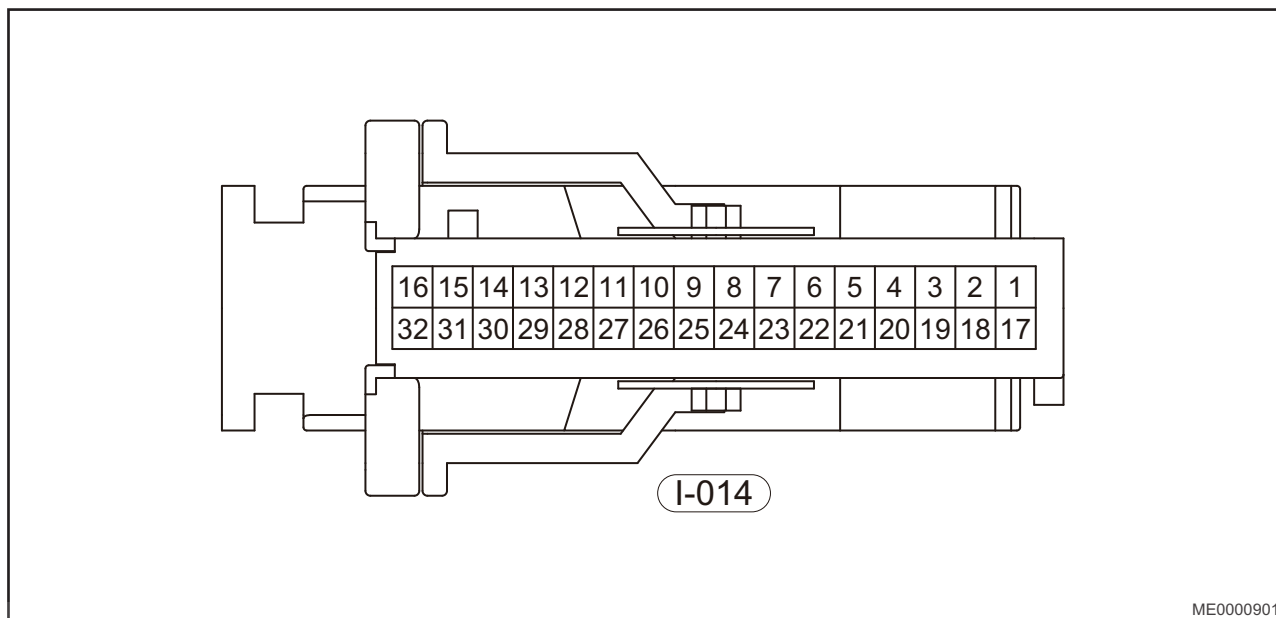
Ground Inspection

Ground points are very important to the proper operation of circuits. Ground points are often exposed to moisture, dirt and other corrosive environments. Corrosion (rust) may increase load resistance. This situation may change the way in which a circuit works. Circuits are very sensitive to proper grounding. A loose or corroded ground can affect the control circuit. Check the ground points as follows:

1. Remove ground bolt or nut.
2. Check all contact surfaces for tarnish, dirt and rust, etc.
3. Clean as necessary to ensure that contacting is in good condition.
4. Reinstall 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 terminal, check for proper crimps. Make sure that all wire harnesses are clean and securely fastened while providing a good ground path.

Instrument Cluster Terminal List

Terminal list of instrument cluster connector I-014 on instrument panel wire harness.



ME0000901

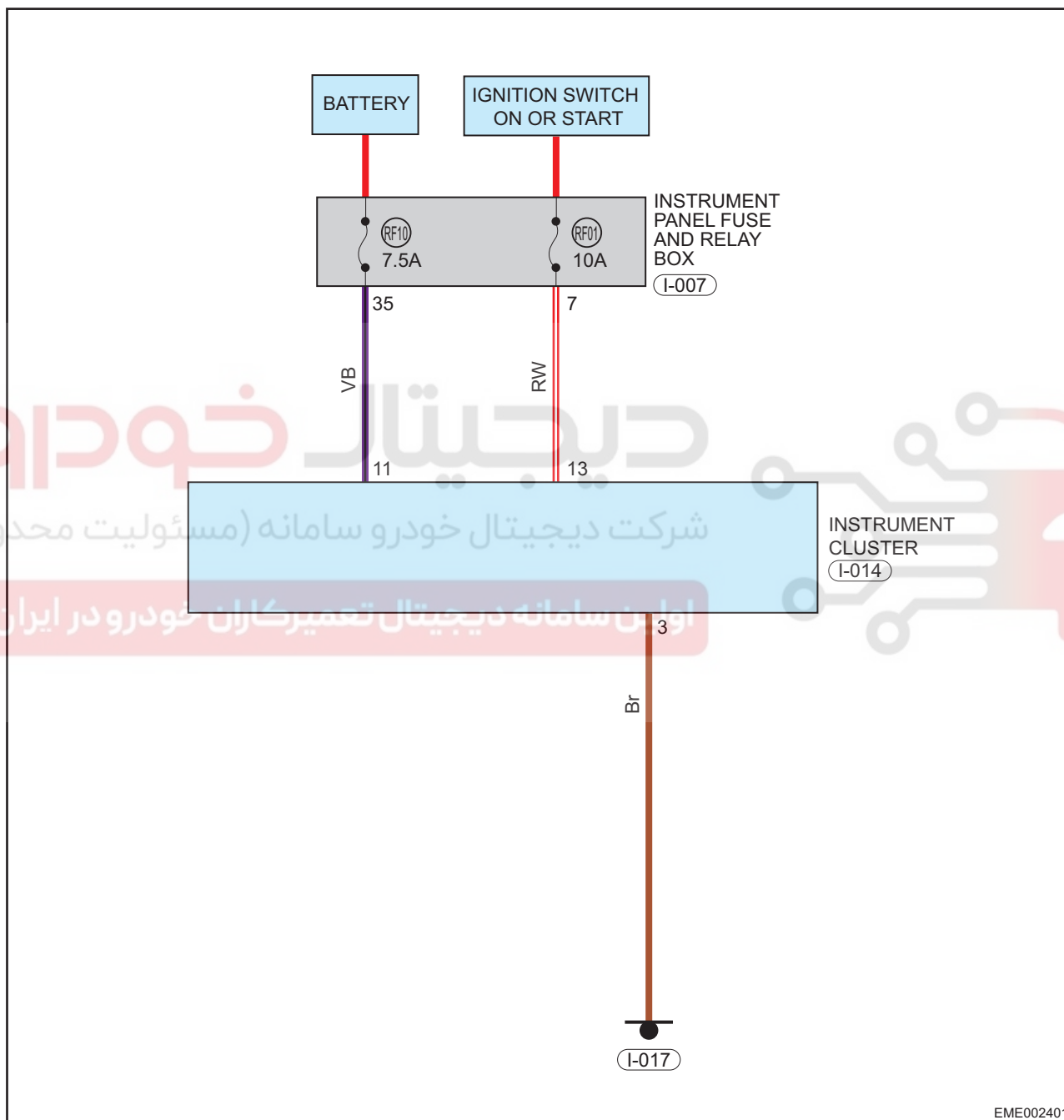
| Terminal No. | Terminal Definition | Terminal No. | Terminal Definition |
|--------------|--------------------------------------|--------------|--|
| 1 | / | 17 | Rear Left Seat Belt Warning |
| 2 | / | 18 | Parking Brake Signal Input |
| 3 | Power Supply Ground | 19 | Driver Seat Belt Signal Input |
| 4 | ECO Switch Input | 20 | Rear Center Seat Belt Warning |
| 5 | Fuel Level Sensor Ground | 21 | Fuel Signal Input |
| 6 | / | 22 | Fuel Level Auxiliary Signal Input |
| 7 | Speed Output | 23 | Rear Right Seat Belt Warning |
| 8 | / | 24 | / |
| 9 | Low Oil Pressure Signal Input | 25 | / |
| 10 | PTC Output (Starting State) | 26 | Brake Fluid Level Signal Input |
| 11 | KL30 | 27 | Speed Signal Input |
| 12 | Light Illumination Input | 28 | / |
| 13 | KL15 | 29 | CAN-L |
| 14 | LDW Switch Input | 30 | CAN-H |
| 15 | Drive LDW Switch Operation Indicator | 31 | Steering Wheel Button Input (Mode/Set) |
| 16 | Battery Charging/Discharging Signal | 32 | / |

Diagnostic Trouble Code (DTC) Chart

| DTC | DTC Definition |
|----------|--|
| U0100-87 | Lost Communication With Engine Control System Module |
| U0101-87 | Lost Communication With Transmission Control Unit |
| U0245-87 | Lost Communication With Radio Receiver Module |
| U0129-87 | Lost Communication With Brake System Module |
| U0131-87 | Lost Communication With Electronic Power Steering Module |
| U0151-87 | Lost Communication With Air Bag Module |
| U0140-87 | Lost Communication With BCM |
| U0214-87 | Lost Communication With PEPS |
| U0164-87 | Lost Communication With Climate Module |
| U0141-87 | Lost Communication With RADAR |
| U0142-87 | Lost Communication With Around View Monitor Module |
| U1157-87 | Lost Communication With Blind Spot Detection |
| U0230-87 | Lost Communication With PLG |
| U1162-87 | Lost Communication With FCM |
| U1163-87 | Lost Communication With FRM |
| U1300-55 | Software Configuration Error |
| B1100-13 | Power Supply Fault |
| B1100-16 | Power Supply Fault |
| B1100-17 | Power Supply Fault |
| B1101-11 | ICM Fuel System Fault |
| B1101-15 | ICM Fuel System Fault |
| B1103-00 | Airbag Warning Light Fault |
| B1104-41 | EEPROM Checksum Error |
| B110A-00 | Wheel Button Fault |
| B110C-11 | ICM Fuel Master Detect Circuit Fault |
| B110C-13 | ICM Fuel Master Detect Circuit Fault |
| B110D-11 | ICM Fuel Assistant Detect Circuit Fault |

| | | |
|-----|----------|--------------------|
| DTC | B1100-13 | Power Supply Fault |
| DTC | B1100-16 | Power Supply Fault |
| DTC | B1100-17 | Power Supply Fault |

Circuit Diagram



EME002401

| DTC | DTC Definition | DTC Detection Condition | Possible Cause |
|----------|--------------------|--|---|
| B1100-13 | Power Supply Fault | This malfunction occurs when any of following conditions is met: | <ul style="list-style-type: none"> Disconnection or poor connection between battery and instrument panel after engine starting Power supply is not stable, and some loads may decrease suddenly Power supply is not stable, and load fails suddenly Instrument cluster wire harness and connector fault Instrument cluster fault |
| B1100-16 | Power Supply Fault | | |
| B1100-17 | Power Supply Fault | | |

Caution:

When performing electrical equipment diagnosis and test, always refer to circuit diagram for related circuit and component information.

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Procedure**1 Confirm DTCs**

- Turn ENGINE START STOP switch to OFF.
- Disconnect the instrument panel wire harness connector I-014.
- Check if wire harnesses are worn, pierced, pinched or partially broken.
- Check for broken, bent, protruded or corroded terminals.
- Check if related connector pins are in good condition.

Result

| |
|------------|
| Proceed to |
| Yes |
| No |

No

Repair or replace wire harness and connector

Yes

2 Check instrument panel power supply voltage

- Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- Disconnect the instrument panel wire harness connector I-014.
- Connect negative battery cable, and turn ENGINE START STOP switch to ON.

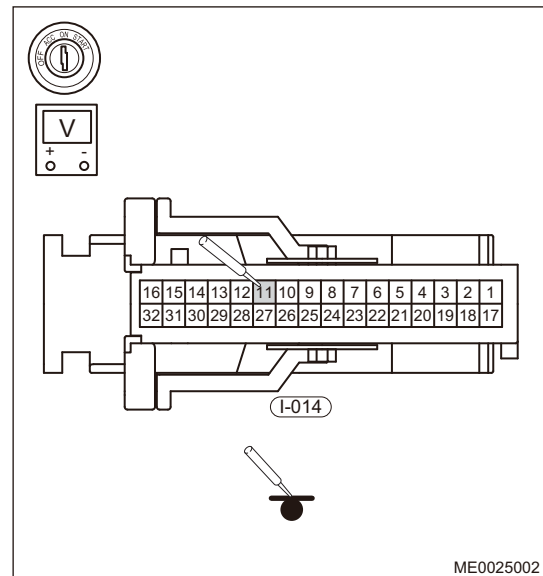
- (d) Using a digital multimeter, check for voltage between the terminals of connector I-014 to check if there is an open in instrument panel power supply circuit according to the table below.

OK

| Multimeter Connection | Specified Voltage |
|-----------------------|--------------------|
| I-014 (11) - Ground | Not less than 12 V |

Result

| Proceed to |
|------------|
| OK |
| NG |



33

NG

Check if instrument panel fuse RF10 10 A is burnt

OK

3 Using a 21 W test lamp, test power supply voltage

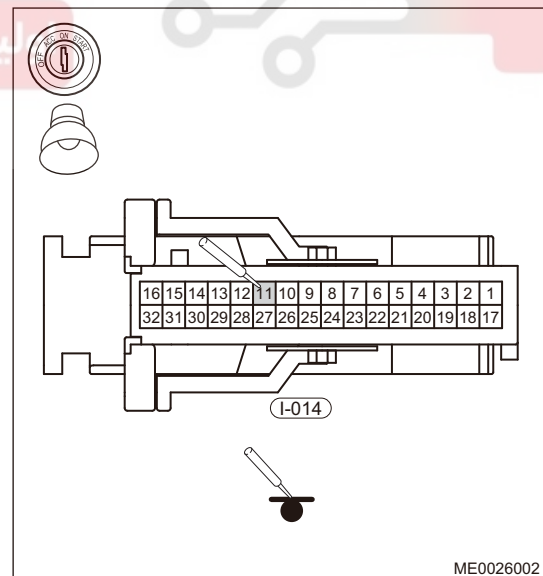
- Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- Disconnect the instrument panel wire harness connector I-014.
- Connect negative battery cable, and turn ENGINE START STOP switch to ON.
- Using a 21 W test lamp, check for voltage between the terminals of connector I-014 to check if power supplying of instrument panel power supply voltage according to the table below.

Result

| Multimeter Connection | Specified Condition |
|-----------------------|------------------------------|
| I-014 (11) - Ground | Test light comes on normally |

Result

| Proceed to |
|------------|
| OK |
| NG |



NG

Check and replace wire harness or connector between instrument relay box and instrument cluster

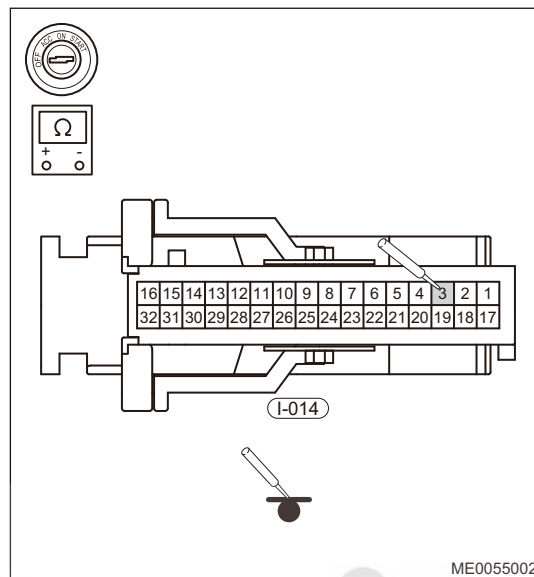
OK

4 Check instrument panel ground

- Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- Disconnect the instrument panel wire harness connector I-014.
- Measure and check if resistance between terminal 3 of connector I-014 and ground is open.

Standard Condition

| Multimeter Connection | Condition | Specified Condition |
|-------------------------|-----------|---------------------|
| I-014 (3) - Body ground | Always | $\leq 1 \Omega$ |

**Result**

| |
|------------|
| Proceed to |
| OK |
| NG |

NG

Check and repair instrument panel ground wire harness and ground point I-017.

OK**5 Reconfirm DTCs**

- Use diagnostic tester to clear DTCs.
- Start the engine.
- Check if the same DTCs are still output.

Result

| |
|------------|
| Proceed to |
| OK |
| NG |

OK

System operates normally

NG

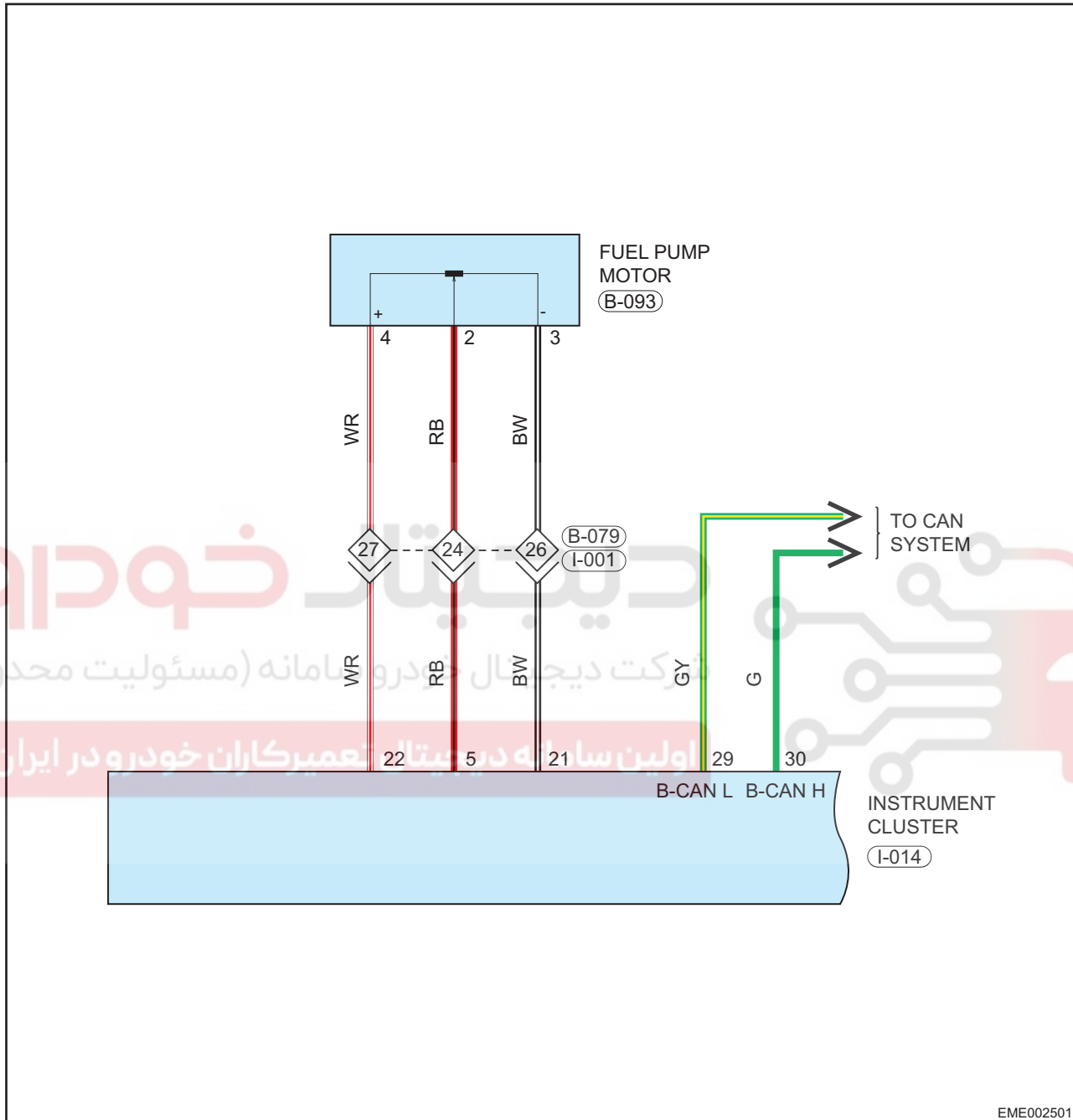
Replace instrument panel assembly

DTC

B1101-11

ICM Fuel System Fault

Circuit Diagram



| DTC | DTC Definition | DTC Detection Condition | Possible Cause |
|----------|-----------------------|---|---|
| B1101-15 | ICM Fuel System Fault | <ul style="list-style-type: none"> System input resistance \leq 25 ohm for more than 20 s System input resistance \geq 400 ohm for more than 20 s | <ul style="list-style-type: none"> Instrument cluster fault Fuel pump fault Fuel pump wire harness fault |
| B1101-11 | ICM Fuel System Fault | | |

Caution:

When performing electrical equipment diagnosis and test, always refer to circuit diagram for related circuit and component information.

Procedure

1 Confirm DTCs

- (a) Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- (b) Disconnect fuel pump wire harness connector B-093 and instrument panel wire harness connector I-014.
- (c) Check if wire harnesses are worn, pierced, pinched or partially broken.
- (d) Check for broken, bent, protruded or corroded terminals.
- (e) Check if related connector pins are in good condition.

Result

| Proceed to |
|------------|
| Yes |
| No |

No**Repair or replace wire harness and connector****Yes****2 Check fuel pump level sensor resistance**

- (a) Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- (b) Disconnect fuel pump wire harness connector B-093.
- (c) Turn fuel float multimeter from low to high to check if resistance between terminal 2 and terminal 3 of fuel pump changes continuously.

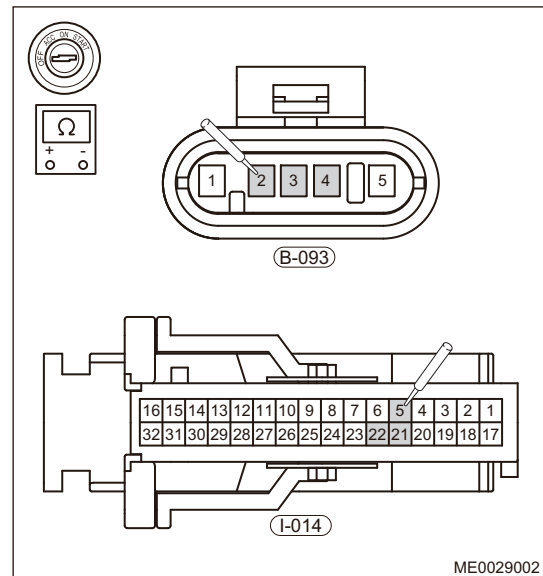
Result

| Proceed to |
|------------|
| OK |
| NG |

NG**Replace fuel pump assembly****OK****3 Check fuel pump wire harness**

- (a) Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- (b) Disconnect fuel pump wire harness connector B-093.

- (c) Using a digital multimeter, check for resistance between connector B-093 and the terminals of instrument wire harness connector I-014 to check if there is an open circuit in fuel pump wire harness according to the table below.



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Result

| Multimeter Connection | Standard Resistance |
|------------------------|---------------------|
| B-093 (2) - I-014 (5) | $\leq 1 \Omega$ |
| B-093 (3) - I-014 (21) | $\leq 1 \Omega$ |
| B-093 (4) - I-014 (22) | $\leq 1 \Omega$ |

Result

| Proceed to |
|------------|
| OK |
| NG |

| | |
|----|---|
| NG | Repair or replace instrument panel wire harness |
|----|---|

OK

4 Reconfirm DTCs

- (a) Use diagnostic tester to clear DTCs.
(b) Start the engine.
(c) Check if the same DTCs are still output.

Result

| Proceed to |
|------------|
| OK |
| NG |

| | |
|----|-----------------------------------|
| OK | System operates normally |
| NG | Replace instrument panel assembly |

| | | |
|------------|-----------------|------------------------------|
| DTC | B1104-41 | EEPROM Checksum Error |
|------------|-----------------|------------------------------|

| DTC | DTC Definition | DTC Detection Condition | Possible Cause |
|----------|-----------------------|---|---|
| B1104-41 | EEPROM Checksum Error | <ul style="list-style-type: none"> ENGINE START STOP switch ON | <ul style="list-style-type: none"> Instrument panel internal fault |

Caution:

When performing electrical equipment diagnosis and test, always refer to circuit diagram for related circuit and component information.

Procedure

| | |
|----------|---------------------------|
| 1 | Cycle dropout test |
|----------|---------------------------|

33

- Turn ENGINE START STOP switch to OFF.
- Disconnect the negative battery cable and wait for 3 minutes to check if it recovers.

Result

| |
|------------|
| Proceed to |
| Yes |
| No |

No

Clear DTCs

Yes

| | |
|----------|-----------------------|
| 2 | Reconfirm DTCs |
|----------|-----------------------|

- Use diagnostic tester to clear DTCs.
- Start the engine.
- Check if the same DTCs are still output.

Result

| |
|------------|
| Proceed to |
| OK |
| NG |

OK

System operates normally

NG

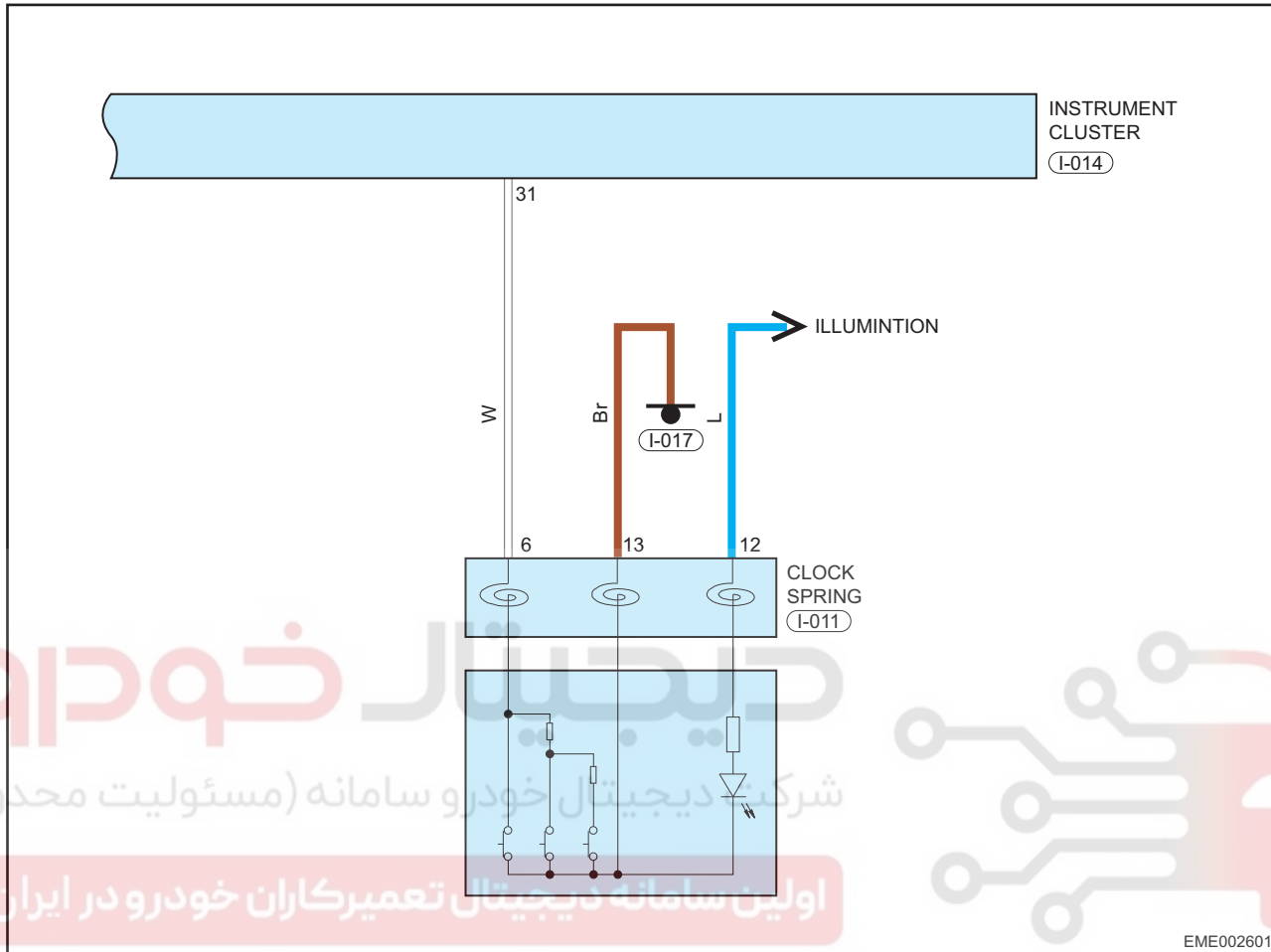
Replace instrument panel assembly

DTC

B110A-00

Wheel Button Fault

Circuit Diagram



| DTC | DTC Definition | DTC Detection Condition | Possible Cause |
|----------|--------------------|---|--|
| B110A-00 | Wheel Button Fault | <ul style="list-style-type: none"> When pressing and holding any button for more than 60 s | <ul style="list-style-type: none"> Button malfunction Spiral cable malfunction Ground malfunction |

Caution:

When performing electrical equipment diagnosis and test, always refer to circuit diagram for related circuit and component information.

Procedure

| | |
|---|----------------------------------|
| 1 | Check wire harness and connector |
|---|----------------------------------|

- Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- Spiral cable wire harness connector I-011 and ground point I-017.
- Check if wire harnesses are worn, pierced, pinched, poorly connected or partially broken.
- Check for broken, bent, protruded or corroded terminals.
- Check if related connector pins are in good condition.

Result

| |
|------------|
| Proceed to |
| Yes |
| No |

No

Repair or replace wire harness, connector and ground

Yes**2 Check button resistance**

- Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- Disconnect spiral cable wire harness connector I-011.
- Using a digital multimeter, check for resistance between the terminals of spiral cable wire harness connector I-011 to check if steering wheel button is normal according to the table below.

OK

| Button Position | Multimeter Connection | Standard Resistance (k Ω) |
|-----------------------------------|------------------------|-----------------------------------|
| Press OK/SEEK button | I-011 (6) - I-011 (13) | 0 |
| Press and hold SEEK (UP) button | I-011 (6) - I-011 (13) | Approx. 0.47 |
| Press and hold SEEK (DOWN) button | I-011 (6) - I-011 (13) | Approx. 1.29 |

Result

| |
|------------|
| Proceed to |
| OK |
| NG |

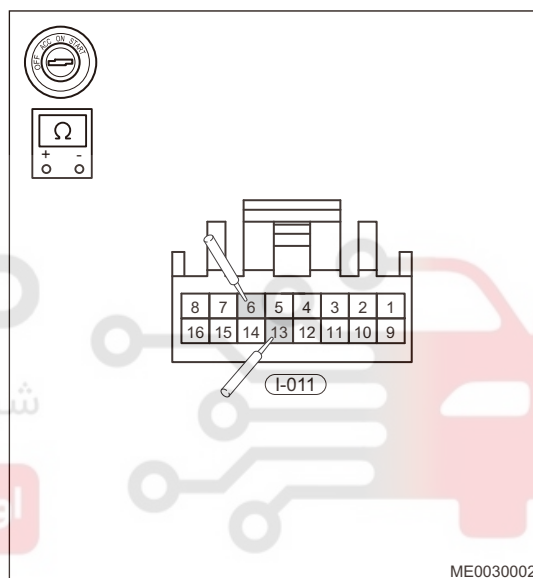
NG

Check steering wheel button and spiral cable

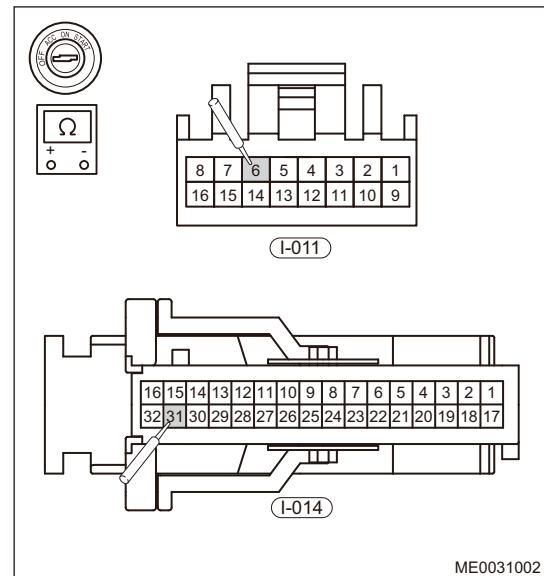
OK**3 Check instrument panel wire harness**

- Turn ENGINE START STOP switch to OFF, disconnect the negative battery cable.
- Disconnect the instrument wire harness connector I-014.

33



- (c) Using a digital multimeter, check for resistance between instrument cluster connector I-014 and the terminals of spiral cable connector I-011 to check if wire harness is normal according to the table below.

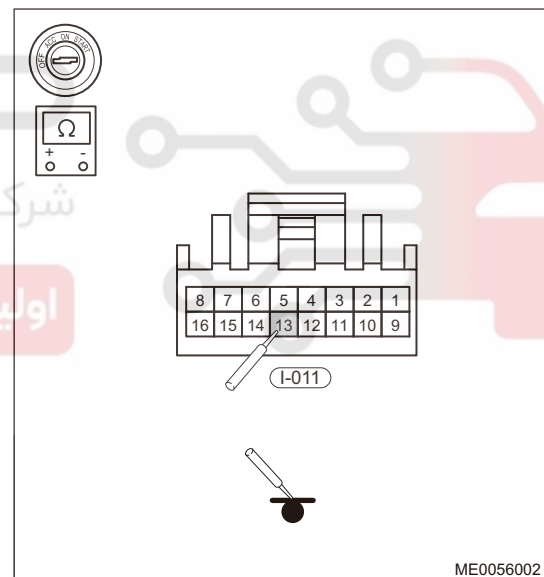


33

Standard Condition

| Multimeter Connection | Standard Resistance (Ω) |
|------------------------|----------------------------------|
| I-014 (6) - I-014 (31) | $\leq 1 \Omega$ |

- (d) Using a digital multimeter, check spiral cable connector I-011 circuit ground according to the table below.



Standard Condition

| Multimeter Connection | Standard Resistance (Ω) |
|--------------------------|----------------------------------|
| I-011 (13) - Body ground | $\leq 1 \Omega$ |

Result

| Proceed to |
|------------|
| OK |
| NG |

NG

Repair or replace instrument panel wire harness

OK

4 Reconfirm DTCs

- (a) Use diagnostic tester to clear DTCs.
- (b) Start the engine.
- (c) Check if the same DTCs are still output.

Result

| Proceed to |
|------------|
| OK |
| NG |

OK**System operates normally****NG****Replace instrument panel assembly****33****Instrument CAN Network DTCs**

| DTC | DTC Definition |
|----------|--|
| U0100-87 | Lost Communication With Engine Control System Module |
| U0101-87 | Lost Communication With Transmission Control Unit |
| U0245-87 | Lost Communication With Radio Receiver Module |
| U0129-87 | Lost Communication With Brake System Module |
| U0131-87 | Lost Communication With Electronic Power Steering Module |
| U0151-87 | Lost Communication With Air Bag Module |
| U0140-87 | Lost Communication With Body Control Module, Missing message |
| U0214-87 | Lost Communication With PEPS |
| U0164-87 | Lost Communication With Climate Module |
| U0141-87 | Lost Communication With RADAR |
| U0142-87 | Lost Communication With Around View Monitor Module |
| U1157-87 | Lost Communication With Blind Spot Detection |
| U0230-87 | Lost Communication With PLG |
| U1162-87 | Lost Communication With FCM |
| U1163-87 | Lost Communication With FRM |
| U1300-55 | Software Configuration Error |

Refer to Chapter 47 CAN Communication System for CAN network DTCs.

ON-VEHICLE SERVICE

Instrument Cluster

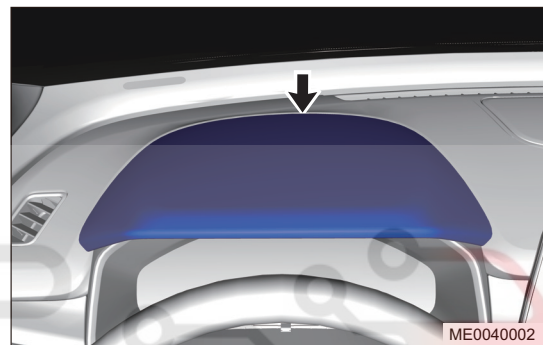
Removal

Warning/Caution/Hint

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.

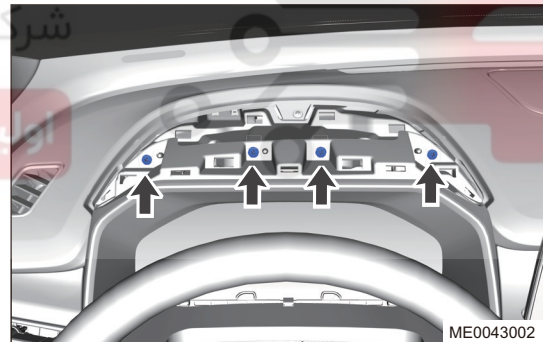
1. Turn ENGINE START STOP switch to OFF.
2. Disconnect the negative battery cable.
3. Remove combination switch lower cover.
4. Remove the instrument cluster.
 - (a) Pry and remove instrument cluster front cover (arrow) with interior crow plate.



- (b) Remove 4 fixing screws (arrow) from instrument cluster trim frame assembly.

Tightening torque

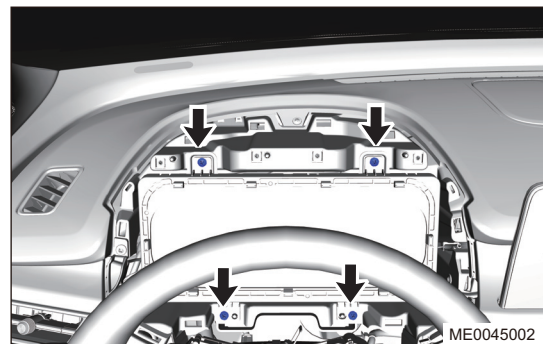
$1.5 \pm 0.5 \text{ N}\cdot\text{m}$



- (c) Remove 4 fixing screws (arrow) from instrument cluster.

Tightening torque

$1.5 \pm 0.5 \text{ N}\cdot\text{m}$



- (d) Disconnect the instrument panel wire harness connector plug.
- (e) Remove instrument cluster assembly.

Installation

1. 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 connectors 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.

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



Meter Information Setting and Adjustment

1. Timer setting.
2. Turn ENGINE START STOP switch to ON.
 - (a) Press left button "◀"/right button "▶" of steering wheel combination buttons to switch to the setting menu, shortly press the "⏏" to enter the time setting screen.

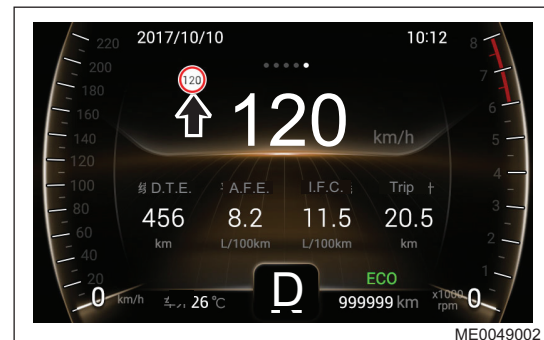


- (b) Press right button "▶"/left button "◀" of steering wheel combination buttons shortly to increase/decrease by 1 on initial data.
- (c) Long press right button "▶"/left button "◀" of steering wheel combination buttons to increase/decrease continuously on initial data.
- (d) After "hour" adjustment is completed, shortly press "⏏" to enter "minute" adjustment. After setting is completed, shortly press "⏏" to exit setting or it will automatically exit after 5 s if there is no operation.

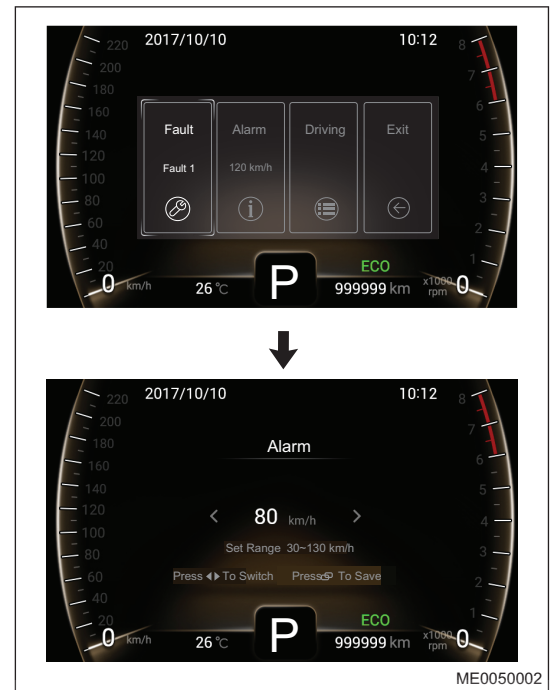
Caution:

- Meter time can also be set by audio and entertainment system. For more details, refer to "Audio and Entertainment System".

3. Adjustable overspeed alarm setting (if equipped)
 - (a) When speed reaches the set value, LCD display will display the red vehicle speed value and alarm buzzer sounds (specific set speed will be displayed in the icon). Warning icon will hide only when speed is lower than the setting value by -5 km/h. If speed reaches the set value again, it will alarm again.



- (b) Press left button "◀"/right button "▶" of steering wheel combination buttons to switch to the setting menu, shortly press the "⏏" to enter the overspeed alarm setting.



- (c) Press right button "▶"/left button "◀" of steering wheel combination buttons shortly to increase/decrease by 5 on initial data.
- (d) After setting is complete, press "⏏" shortly to exit the setting.

Caution:

- Overspeed alarm can also be set by audio and entertainment system. More details, refer to "Audio and Entertainment System".
- The speed limit is changed by 5km/h.
- The speed limit can be set circularly between 30km/h to 130 km/h and OFF.

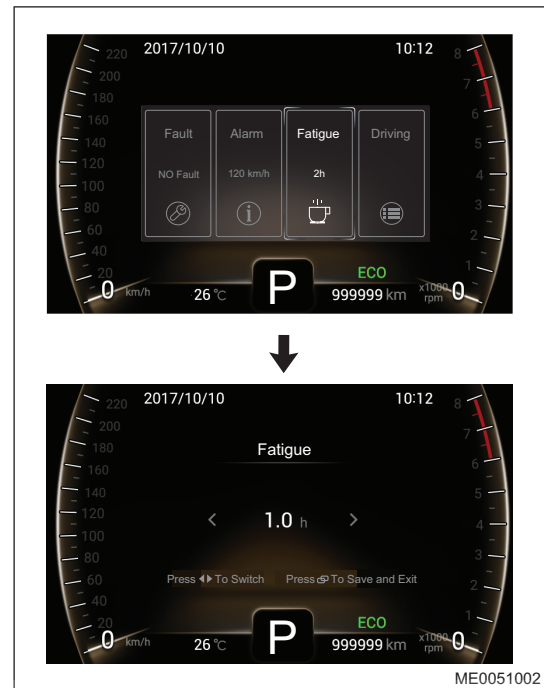
4. Non-adjustable overspeed alarm

- (a) When speed reaches 120 km/h, LCD display will display the red vehicle speed value and alarm buzzer sounds (specific set will be displayed in the icon).
- (b) Warning icon will hide only when speed is lower than 115 km/h. If speed reaches 120 km/h, it will alarm again.

5. Fatigue driving setting

- (a) When driving time exceeds the set time, "Driving time exceeds--h, take a rest" will be displayed on LCD display screen + sound alarm (1 s) + fatigue driving icon displays to inform the driver to rest.

- (b) Fatigue driving can be set by operating steering wheel combination buttons:



- (c) Select fatigue driving option and shortly press "⏏" to enter the setting.
(d) Press right button "▶"/left button "◀" of steering wheel combination buttons shortly to increase/decrease by 0.5 h on initial data.
(e) After setting is complete, press "⏏" shortly to exit the setting.

Caution:

- The fatigue driving time value can be set circularly between 1 h to 4 h and OFF. Fatigue driving reminder opening time is 1 h on the system by default.

6. Language setting

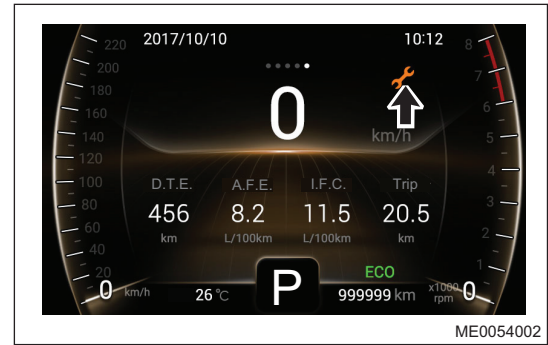
- (a) Language can be set by operating steering wheel combination buttons:



- (b) Select language option and shortly press "⏏" to enter the setting.
(c) Press left button "◀"/right button "▶" of steering wheel combination buttons shortly to switch languages between Chinese and English.
(d) After setting is complete, press "⏏" shortly to exit the setting.

7. Maintenance reminder

- (a) It prompts vehicle need to be maintained.



- (b) When maintenance is not reset, it compares maintenance mileage with the first maintenance mileage. When it reaches the first maintenance mileage, "Maintenance" will be displayed on LCD display.
- (c) After resetting the maintenance, it compares maintenance mileage with maintenance intervals. When it reaches maintenance interval, "Maintenance" will be displayed on LCD display.

8. Methods for resetting the maintenance reminder:

- (a) In ON mode, enter the setting screen, select the driving information screen, enter the maintenance mileage option, long press "Confirmation Button" to clear maintenance mileage count.



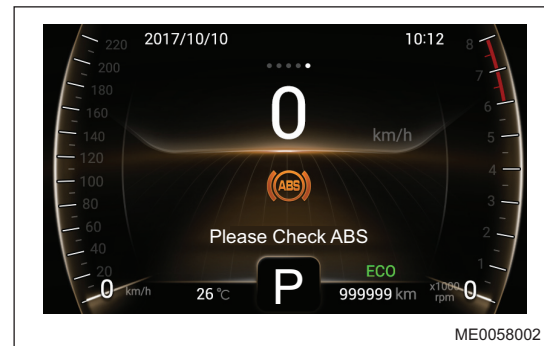
- (b) Maintenance mileage value: it indicates the distance from next maintenance.

Caution:

- The maintenance mileage must be reset after each maintenance, and the maintenance mileage will not be lost due to power failure.
- After maintenance mileage is cleared, display 5000 of value. The value will be decreased as driving mileage increases. Normally adjust the view it by adjustment button. When the value is close to zero, the vehicle should be maintained timely.

9. Fault inquiry

- (a) If there are fault and abnormal information in the system detected by vehicle on-board computer, after engine start stop switch is turned on, LCD display immediately displays the alarm information one by one and records it on the fault inquiry screen. During daily driving, you can perform the fault information inquiry on fault inquiry screen.

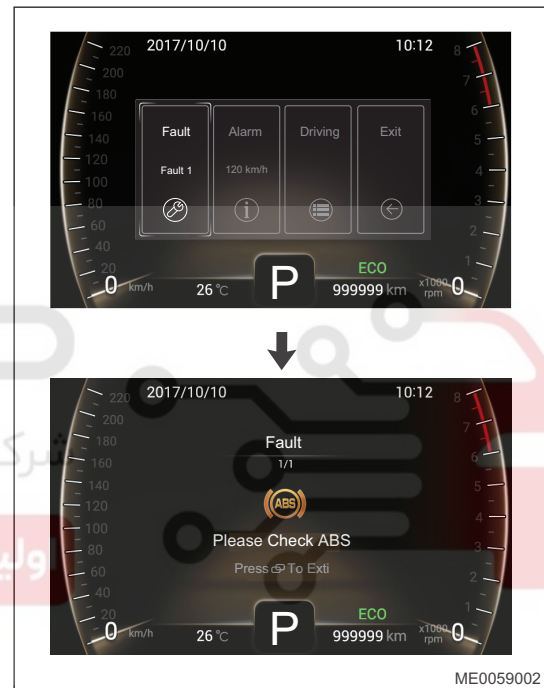


- (b) On the inquiry setting screen, press left button "◀"/right button "▶" of steering wheel combination buttons to switch to the setting menu, shortly press the "⏏" to enter the fault inquiry screen.

- (c) If there are multiple abnormal informations in the system, the informations will be displayed in the central area of LCD display, operate left button "◀"/right button "▶" to view different abnormal information.

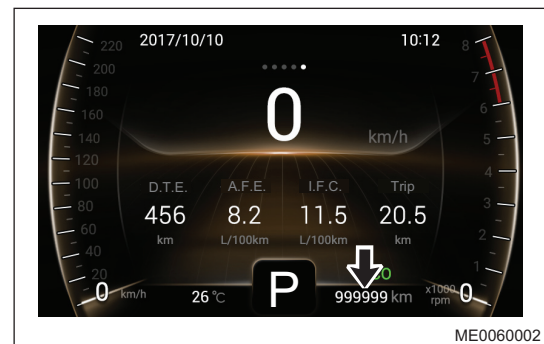
Caution:

- If the vehicle appears an abnormal alarm prompt, please check the vehicle according to the prompt information.



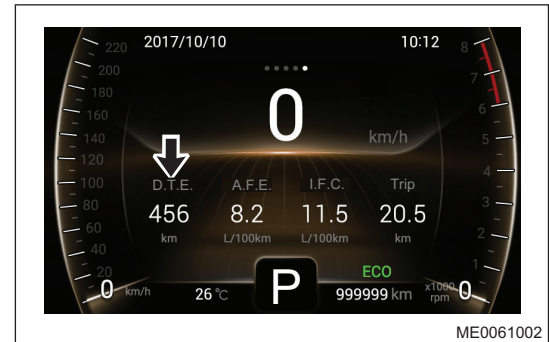
10. Total mileage

- (a) Display total mileage of the vehicle. The displayed range of the total mileage is 0 - 999999 km. It will always display "999999" km if beyond the range.



11. Driving mileage

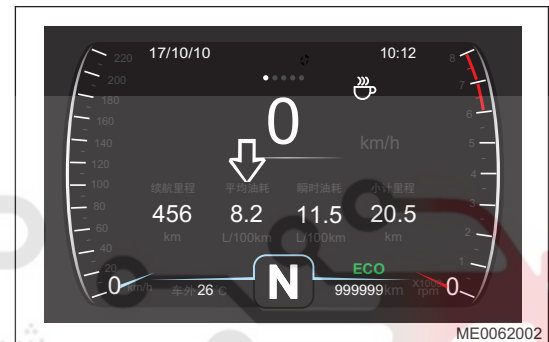
- (a) Display estimated maximum distance that can be driven with current remaining fuel.



- (b) This distance is calculated based on the average fuel consumption. Driving mileage is calculated by the on-board computer, it can only be used as a reference.
- (c) Therefore, actual driving mileage may differ from displayed distance. If only a small amount of fuel is added to the fuel tank, the display may not be updated.

12. Average fuel consumption

- (a) Display average fuel consumption of the vehicle. Display average fuel consumption after engine starts. Before that, it displays current value. Displayed data is updated approximately every 10 s. Average fuel consumption is calculated by the on-board computer, it can only be used as a reference.



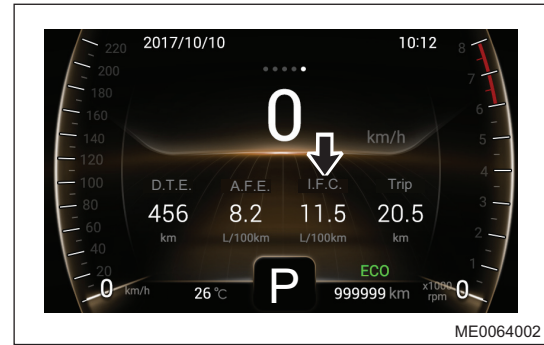
- (b) On the inquiry setting screen, average fuel consumption reset can be set by operating steering wheel combination buttons:

- (1) Select driving information option and shortly press "⏏" to enter the setting.
- (2) Shortly press right button "▶"/left button "◀" of steering wheel combination buttons to enter the average fuel consumption reset screen.
- (3) On the average fuel consumption reset screen, long press "⏏" to reset.



13. Instantaneous fuel consumption

- (a) Display vehicle instantaneous fuel consumption value (arrow). After cold engine is started, the instantaneous fuel consumption of engine is extremely high. After driving the vehicle for several kilometers, fuel consumption can be restored to normal level when engine reaches the normal operating temperature. Instantaneous fuel consumption is calculated by the on-board computer, it can only be used as a reference.



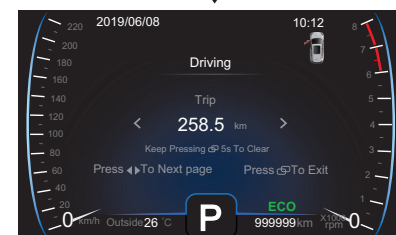
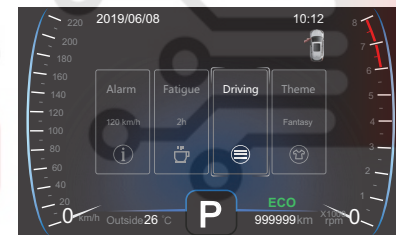
14. Trip mileage

- (a) Display the trip mileage of vehicle (arrow). Trip mileage display range: 0.0 ~ 9999.9 km. When it exceeds 9999.9 km, it will reset and recalculated.



- (b) It can be used to calculate distance between two locations after trip mileage is reset. On the inquiry setting screen, trip mileage reset can be set by operating steering wheel combination buttons:

- (1) Select driving information option and shortly press "☰" to enter the setting.
- (2) Shortly press right button "▶"/left button "◀" of steering wheel combination buttons to enter the trip mileage reset screen.
- (3) On the trip mileage reset screen, long press "☰" to reset.



ME0066002