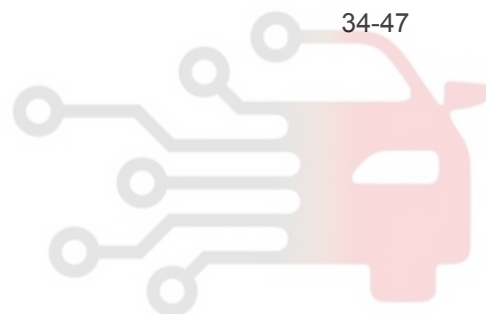


## PEPS SYSTEM

|                                     |              |                                                 |              |
|-------------------------------------|--------------|-------------------------------------------------|--------------|
| <b>GENERAL INFORMATION</b>          | <b>34-3</b>  | <b>ON-VEHICLE SERVICE</b>                       | <b>34-42</b> |
| Description                         | 34-3         | <b>PEPS Low Frequency Antenna</b>               | <b>34-42</b> |
| Operation                           | 34-7         | Removal                                         | 34-42        |
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| Problem Symptoms Table              | 34-15        | Removal                                         | 34-44        |
| Diagnosis Procedure                 | 34-15        | Installation                                    | 34-44        |
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| B1506-00                            | 34-19        | Removal                                         | 34-46        |
| B1507-00                            | 34-24        | Installation                                    | 34-46        |
| B1508-00                            | 34-29        | <b>Front Low Frequency Antenna</b>              | <b>34-47</b> |
| B150D-00                            | 34-33        | Removal                                         | 34-47        |
| B150E-00                            | 34-33        | Installation                                    | 34-47        |
| B150F-00                            | 34-33        |                                                 |              |
| B1511-00                            | 34-33        |                                                 |              |
| B1512-00                            | 34-33        |                                                 |              |
| B1513-00                            | 34-33        |                                                 |              |



اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

# دیجیتال خودرو

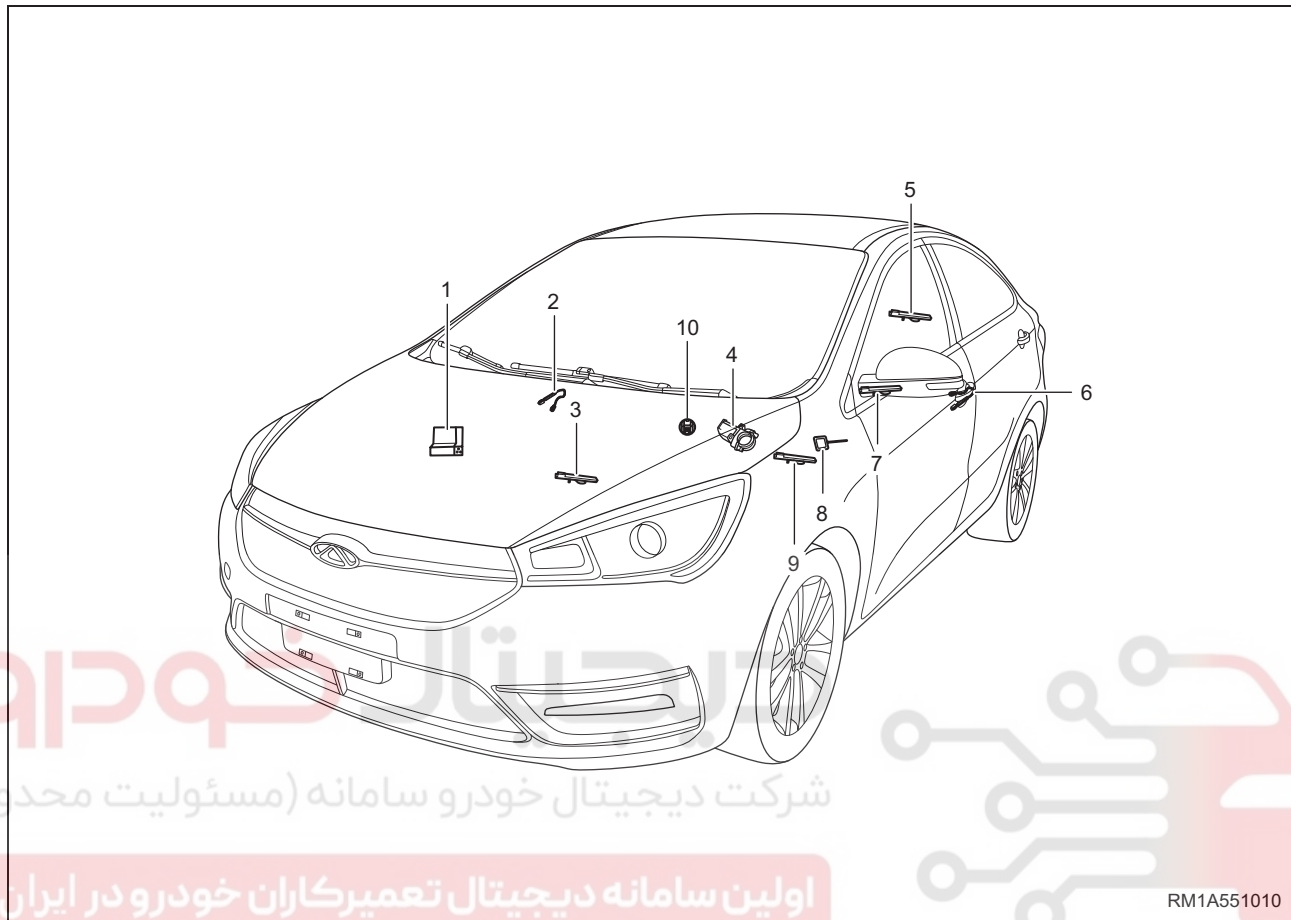
شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



## GENERAL INFORMATION

### Description



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RM1A551010

|                                                          |                                           |
|----------------------------------------------------------|-------------------------------------------|
| 1 - PEPS Module                                          | 2 - Front Right Door Handle Sensor        |
| 3 - Front Internal Low Frequency Antenna                 | 4 - Electronic Steering Column Lock       |
| 5 - Rear Low Frequency Antenna                           | 6 - Front Left Door Handle Sensor         |
| 7 - Rear Low Frequency Antenna (Rear Bumper Crossmember) | 8 - Immobilizer Coil                      |
| 9 - Center Low Frequency Antenna                         | 10 - Passive Entry & Passive Start Switch |

PEPS system consists of passive entry & passive start controller, passive entry & passive start switch, built-in low frequency antenna (3 antennas are equipped in vehicle to sense where the key is), immobilizer coil, front left/right door handle sensor (if equipped), ESCL module (for MT model) and smart key.

System has 5 functions as followings:

1. Keyless entry function;
2. Compatible general remote function;
3. One-button keyless start function;
4. Luggage compartment door smart open function;
5. Engine immobilizer function.
  - a. PEPS matching process

**Note:**

It is necessary to wait for 10 seconds to enter again when inputting wrong security code twice continuously. If wrong security code is input again after 10 seconds, wrong numbers cannot be accumulated. For example, if inputting wrong security code twice continuously, but wrong security code is input again within 10 seconds, internal counter will not record the current number and keep original number. If turning off ignition switch without waiting specified time, the waiting time will be reset and recount, so be sure to turn ignition switch to ON and wait.

**PEPS system menu operation instruction on X-431 3G diagnostic tester**

- X-431 3G main function menu

- Read DTCs

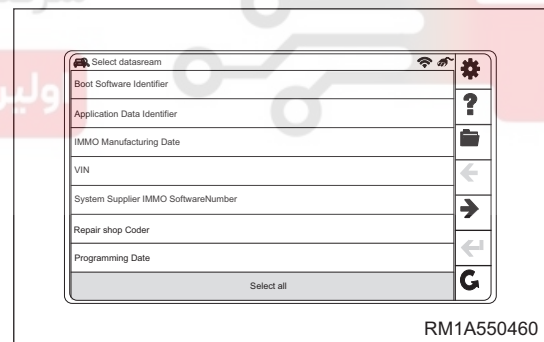
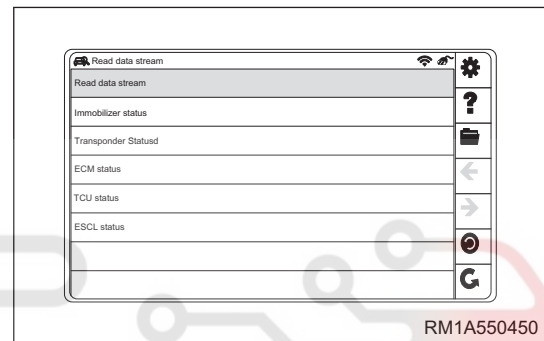
As shown in illustration 5, check current DTCs for immobilizer system by reading Diagnostic Trouble Codes (DTCs).

- Clear DTCs

If DTCs are read, DTC clearing can be used. If the DTC can be read again after clearing, find out the cause of malfunction. As shown in illustration 5, perform DTC clearing after clearing DTC, read DTC again to confirm whether the DTC has been repaired.

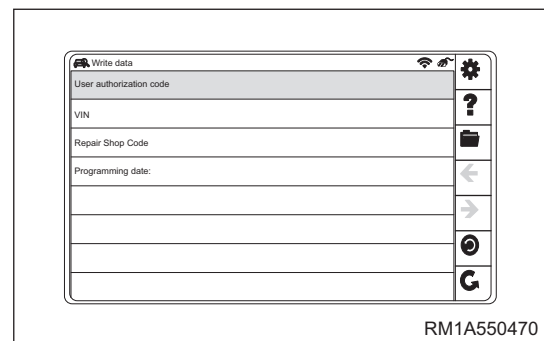
- Read Datastream

As shown in illustrations 6 and 7, dynamic datastream for immobilizer system, immobilizer controller status, key status, engine ECU status, transmission TCU status and ESCL status can be checked by reading datastream.

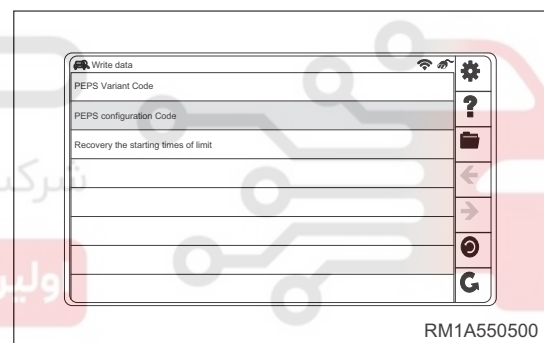
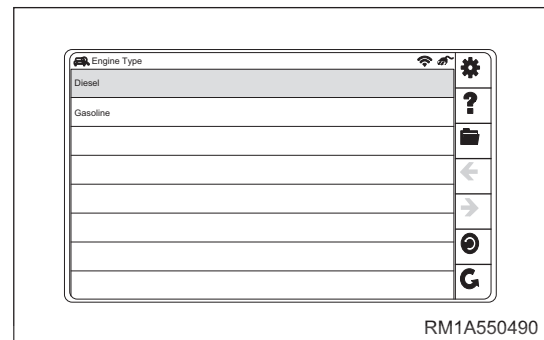
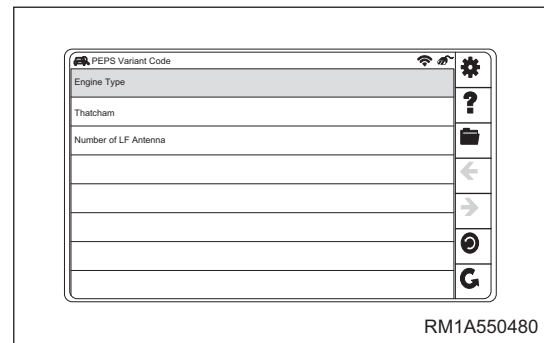


- Write Datastream

As shown in illustration 8, select Write Datastream and enter Write data screen. User authorization code, VIN, Repair Shop Code and Programming date can be written.



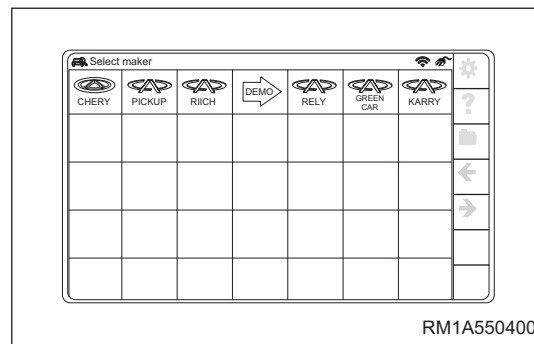
- PEPS Matching (Immobilizer System Matching)  
As shown in illustrations 9, 10 and 11, select PEPS matching and enter PEPS Variant Code screen.



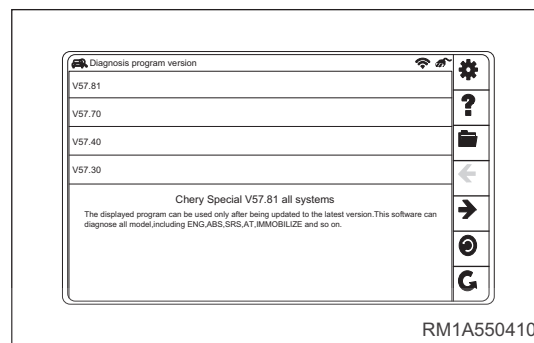
- As shown in illustration 9, PEPS matching also called immobilizer system matching, and perform matching in this menu for engine immobilizer system (w/ PEPS and w/o PEPS).
- Matching for engine immobilizer system and body anti-theft system (for MIA model equipped with PEPS system) is synchronous, in other words, perform matching for engine immobilizer key in this menu. Also, matching for body anti-theft system is completed simultaneously.
- When performing matching for engine immobilizer key, it is necessary to put key in cup holder on auxiliary fascia console with key front side facing upward, then perform matching (key matching for engine immobilizer (w/ PEPS)).
- Matching method for engine immobilizer system and body anti-theft system (for MIA model not equipped with PEPS system) is the same as that of conventional model, and difference with MIA model equipped with PEPS system: matching for engine immobilizer system and body anti-theft system is not synchronous, perform matching for engine immobilizer system in its diagnostic menu, while performing remote key matching in BCM system menu for body anti-theft system, regardless of order.

## 34 - PEPS SYSTEM

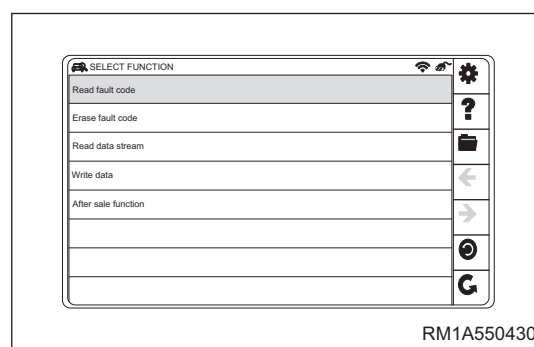
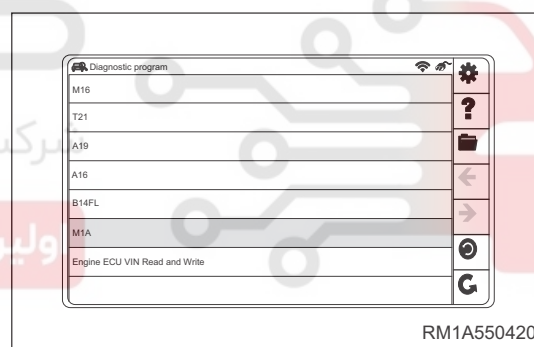
- Diagnosis procedure and menu instruction  
Use X-431 3G to enter PEPS system, first select Chery model as shown in illustration 1.



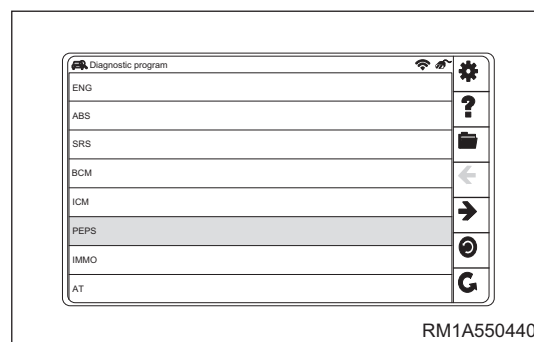
Select Diagnosis program version as shown in illustration 2.



Enter model select menu and select MIA model. Click and enter Diagnostic program for this model as shown in illustrations 3 and 4.



Click and enter PEPS and its function menu is shown as illustration 5.



b. Wireless key match (See page 38-6)

## Operation

Low frequency wakeup signal from sensing antenna on door handle is sent to PEPS, low frequency certification signal is sent to remote key by PEPS after a signal is sensed to confirm if the key is legal. If legal, PEPS sends corresponding signal to body controller, then body controller controls each actuator to perform corresponding operations.

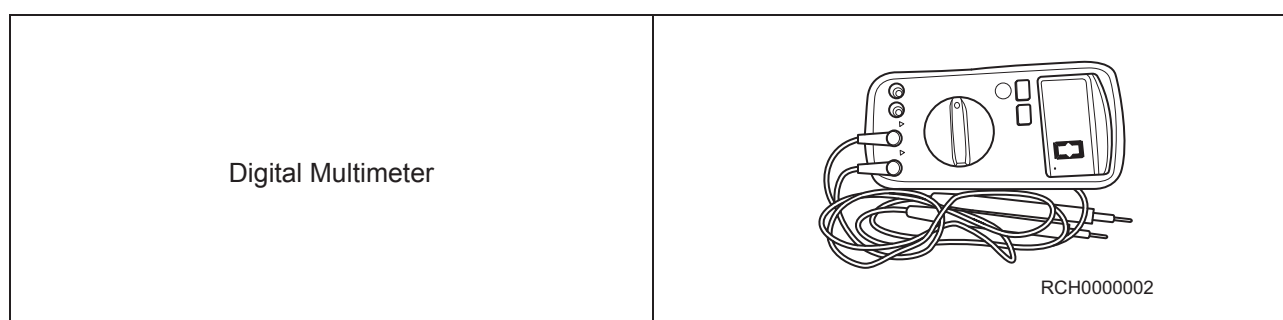
34

## Tools

### Special Tool



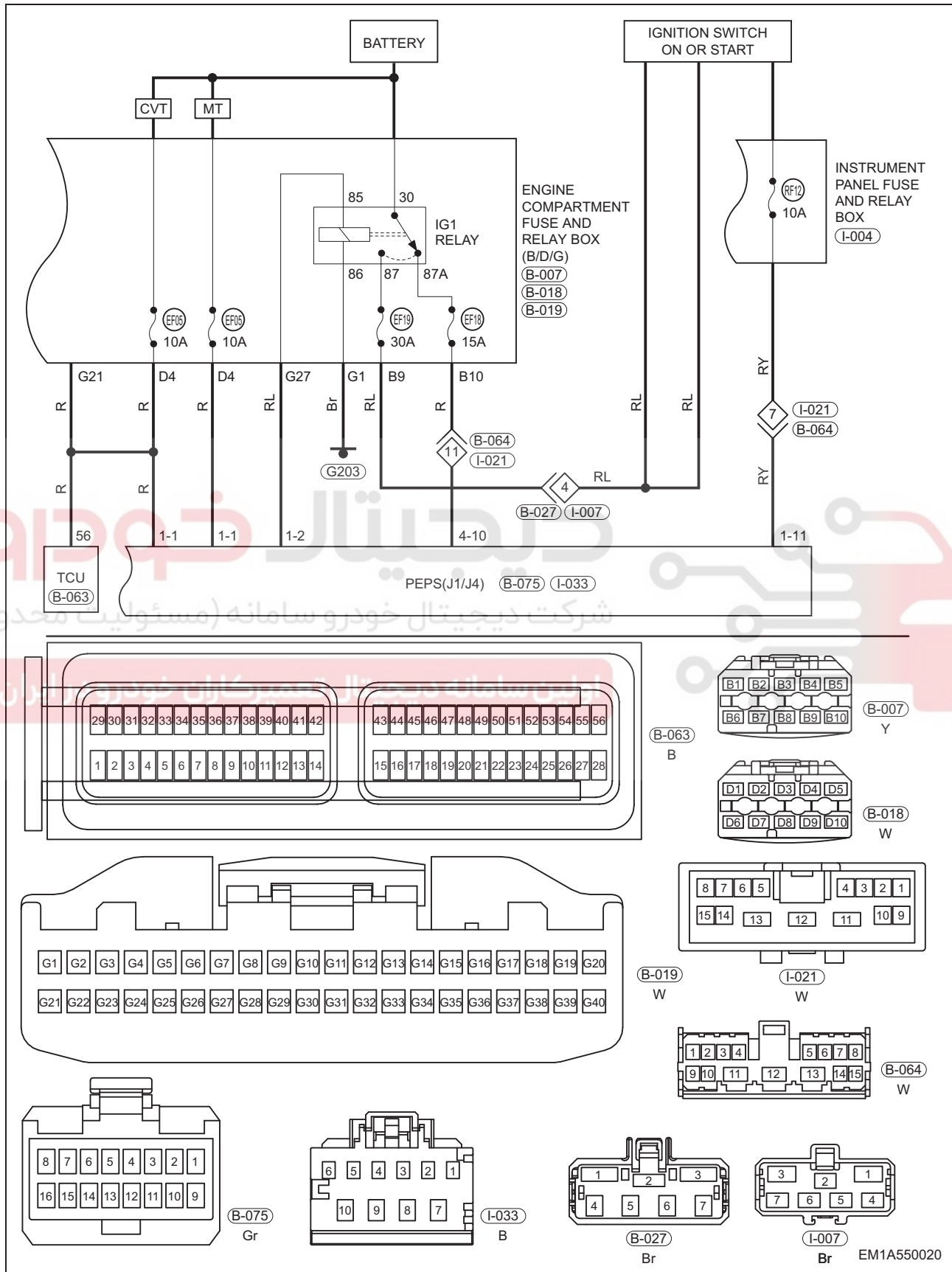
### General Tool



# Circuit Diagram

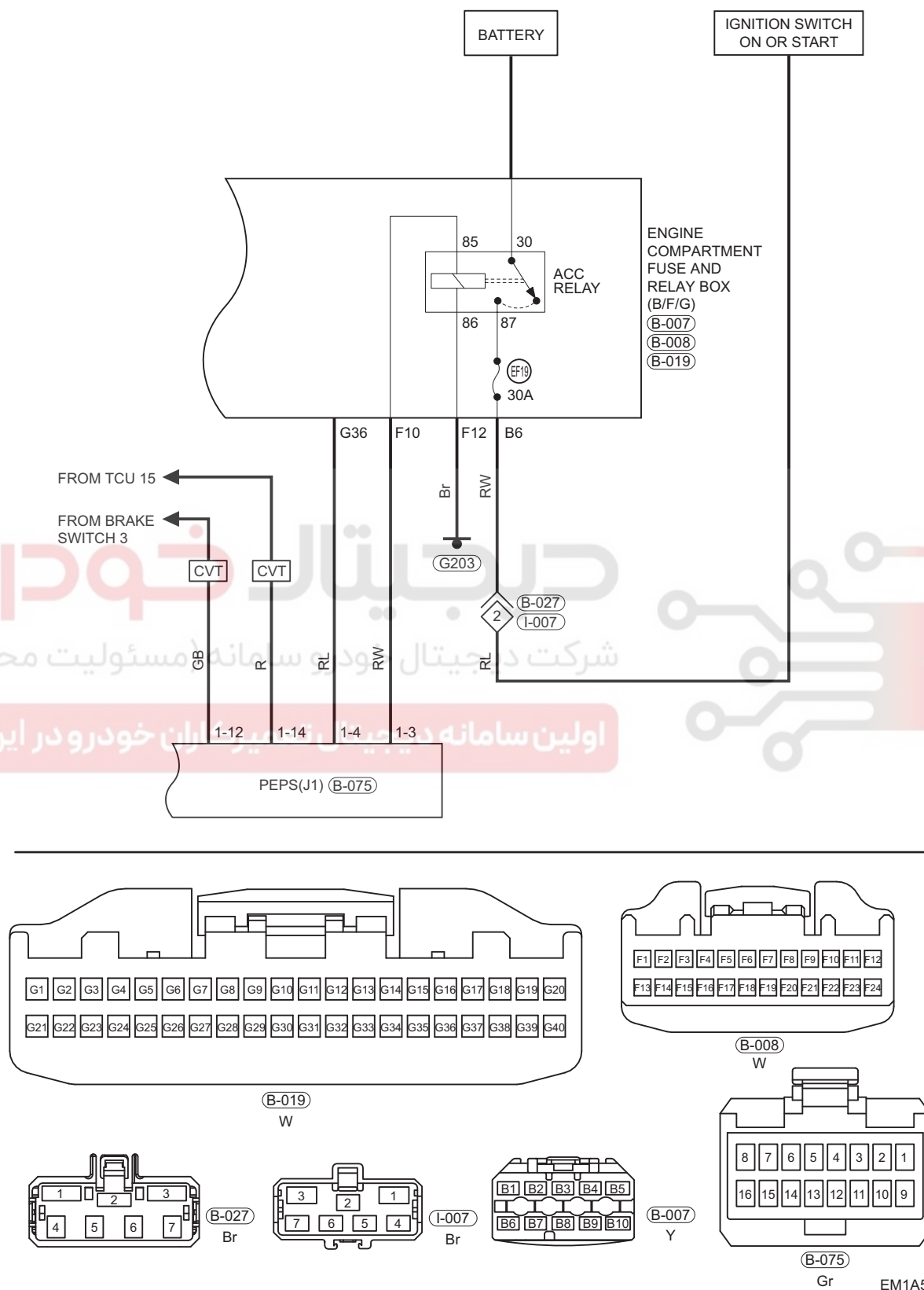
PEPS System (Page 1 of 5)

34



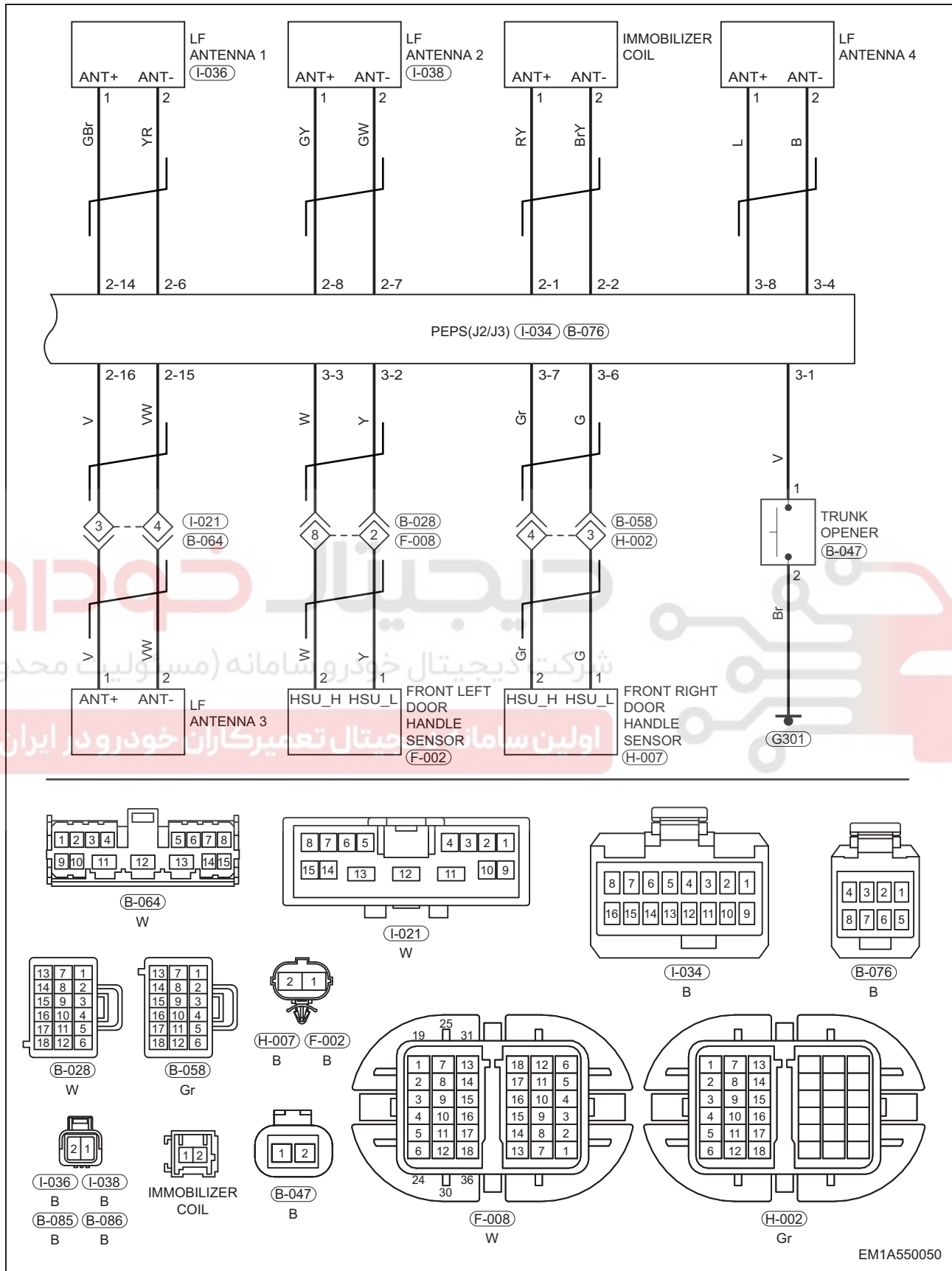
## PEPS System (Page 2 of 5)

34



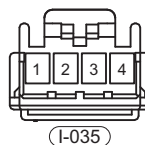
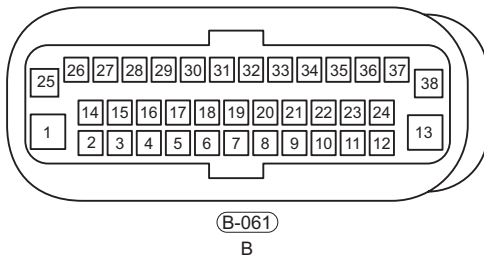
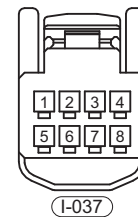
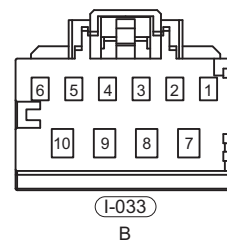
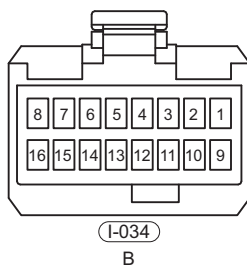
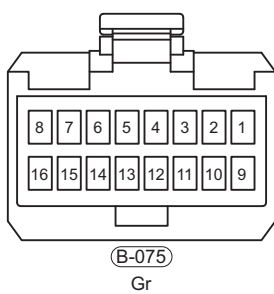
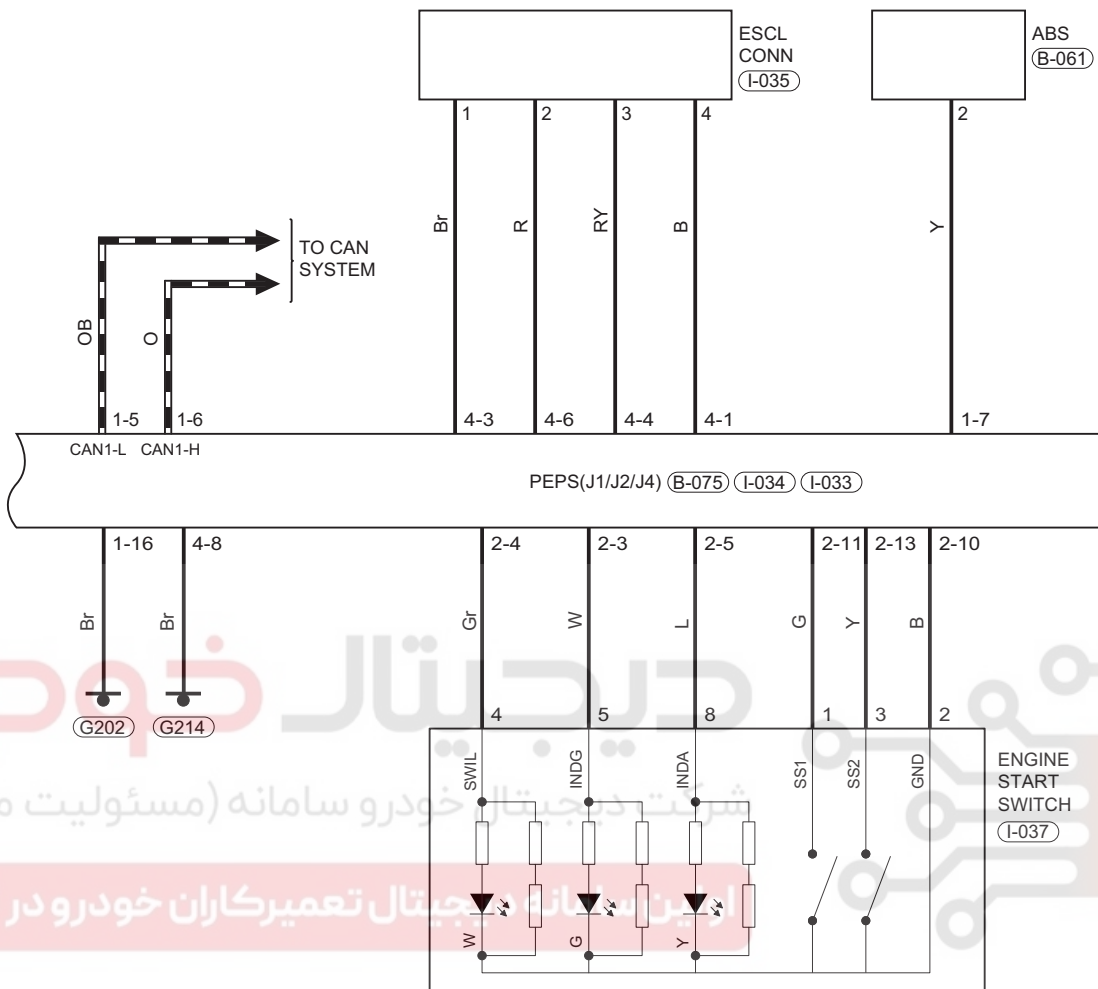


PEPS System (Page 4 of 5)

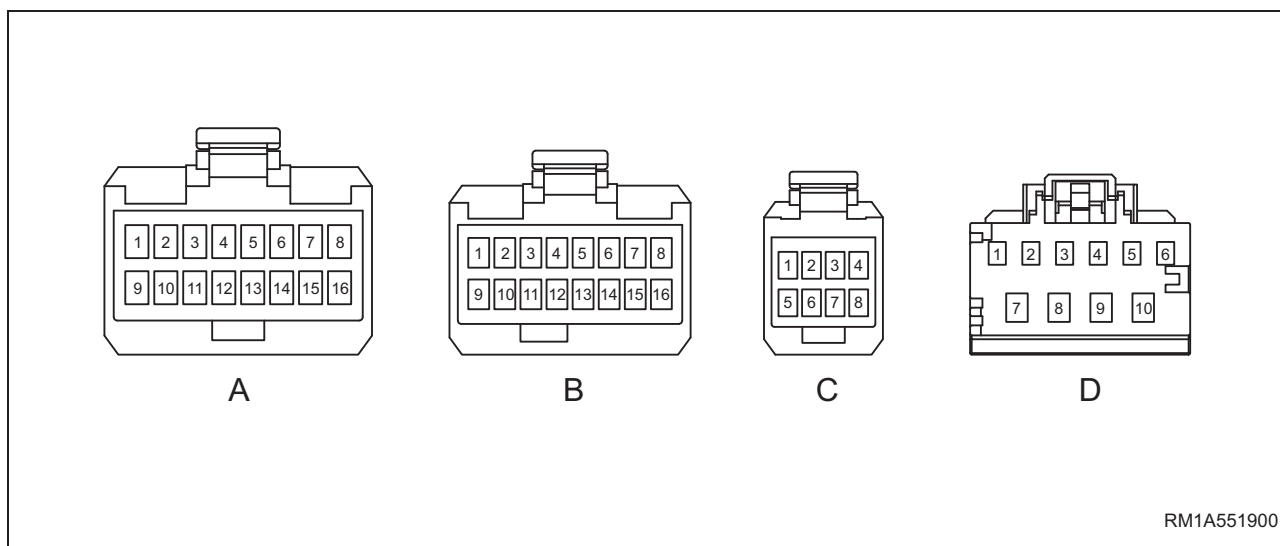


PEPS System (Page 5 of 5)

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EM1A550060



## PEPS Terminal Definition

34

| Terminal No. | Terminal Definition     | Terminal No. | Terminal Definition                                                              |
|--------------|-------------------------|--------------|----------------------------------------------------------------------------------|
| A1           | Battery Power Supply    | B10          | Ground                                                                           |
| A2           | IG1 Relay Drive (High)  | B11          | Starting Switch 1                                                                |
| A3           | ACC Relay Drive (High)  | B12          | Reserved (Ant6-)                                                                 |
| A4           | IG2 Relay Drive (High)  | B13          | Starting Switch 2                                                                |
| A5           | High-speed CAN Low      | B14          | Low Frequency Antenna 1 Positive Frequency Signal                                |
| A6           | High-speed CAN High     | B15          | Low Frequency Antenna 3 Negative Frequency Signal                                |
| A7           | ABS (ESP)               | B16          | Low Frequency Antenna 3 Positive Frequency Signal                                |
| A8           | -                       | C1           | Luggage Compartment Unlock Signal                                                |
| A9           | Clutch Switch Signal    | C2           | -                                                                                |
| A10          | Starter Relay Detection | C3           | Front Left Door Handle Sensor (Low Frequency Antenna) Positive Frequency Signal  |
| A11          | Ignition Signal         | C4           | Luggage Compartment (Low Frequency Antenna) Negative Frequency Signal            |
| A12          | -                       | C5           | -                                                                                |
| A13          | Starter Relay High      | C6           | Front Right Door Handle Sensor (Low Frequency Antenna) Negative Frequency Signal |
| A14          | -                       | C7           | Front Right Door Handle Sensor (Low Frequency Antenna) Positive Frequency Signal |

## 34 - PEPS SYSTEM

| Terminal No. | Terminal Definition                               | Terminal No. | Terminal Definition                                                   |
|--------------|---------------------------------------------------|--------------|-----------------------------------------------------------------------|
| A15          | -                                                 | C8           | Luggage Compartment (Low Frequency Antenna) Positive Frequency Signal |
| A16          | Ground                                            | D1           | Electric Steering Column Lock Module Control Ground                   |
| B1           | Backup Antenna Positive Frequency Signal          | D2           | -                                                                     |
| B2           | Backup Antenna Negative Frequency Signal          | D3           | Electronic Steering Column Lock Ground                                |
| B3           | Starting Switch Indicator (Green)                 | D4           | Electric Steering Column Lock Control Line                            |
| B4           | Starting Switch Indicator (White)                 | D5           | -                                                                     |
| B5           | Starting Switch Indicator (Amber)                 | D6           | Electric Steering Column Lock Power Supply                            |
| B6           | Low Frequency Antenna 1 Negative Frequency Signal | D7           | -                                                                     |
| B7           | Low Frequency Antenna 2 Negative Frequency Signal | D8           | Ground                                                                |
| B8           | Low Frequency Antenna 2 Positive Frequency Signal | D9           | -                                                                     |
| B9           | -                                                 | D10          | Power Supply                                                          |

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شرکت دیجیتال خودرو (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

## 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 |
|-------------------------|----------------------------|----------|
| Unable to start vehicle | Immobilizer coil           | 33-30    |
|                         | Key assembly               | 38-56    |
|                         | Immobilizer control module | 33-28    |
|                         | ECM                        | -        |
|                         | Wire harness and connector | -        |

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### Diagnosis Procedure

#### HINT:

Use following procedures to troubleshoot the brake control 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 and clear DTCs |
|---|----------------------|

NEXT

|   |                                                                                                                               |
|---|-------------------------------------------------------------------------------------------------------------------------------|
| 5 | Confirm and duplicate malfunction: accelerate vehicle to 15 km/h or more, simulate malfunction conditions and read DTCs again |
|---|-------------------------------------------------------------------------------------------------------------------------------|

DTC  
occurs

For current DTC, go to step 7

## 34 - PEPS SYSTEM

No  
DTC

For history DTC, go to step 8

6

Problem repair (no DTC), then go to step 9

NEXT

7

Troubleshoot according to Diagnostic Trouble Code (DTC) chart, then go to step 9

NEXT

34

8

Troubleshoot according to Problem Symptoms Table, then go to step 9

NEXT

9

Conduct test and confirm malfunction has been repaired

NEXT

10

End

## Problem Repair (No DTC)

If there is a problem in PEPS system, but no DTC is stored in PEPS system, it is called a problem without DTC. Problem without DTC is divided to following types:

Indicator on instrument cluster does not come on or remains on (error occurs when connecting wire harness or indicator on instrument cluster may be damaged).

Troubleshooting recommendation: check corresponding components according to problem symptom, and troubleshoot following the vehicle repair manual.

## Problem Repair (Random)

For electronic system, momentary poor contact may occur in electric circuit and input/output signal, thus causing random problem. Sometimes, the problem may disappear automatically, so it is difficult to find out the cause. When random problem occurs, simulate problem symptom according to following method and check if the same problem occurs again.

| No. | Possible Cause                       | Problem Simulation                                                                                                                               | Note                                                                          |
|-----|--------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| 1   | When vibration may be the main cause | 1 - Gently wiggle connectors of PEPS system up, down, left and right<br>2 - Gently wiggle wire harnesses of PEPS system up, down, left and right | If wire harness has break or cracks due to too tight, replace with a new one. |

| No. | Possible Cause                                  | Problem Simulation                                                                                               | Note |
|-----|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------|
| 2   | When temperature may be the main cause          | 1 - Heat suspected malfunction part with heater<br>2 - Check if there is cold welding phenomenon with cold spray |      |
| 3   | When high electrical load may be the main cause | 1 - Turn on all electric switches (including headlight and wiper), operate vehicle in high power supply load     |      |

## DTC Confirmation Procedure

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Confirm that battery voltage is normal before performing following procedures.

- Turn ignition switch to LOCK.
- Connect X-431 3G diagnostic tester (the latest software) to Data Link Connector (DLC).
- Turn ignition switch to ON.
- Use X-431 3G diagnostic tester to record and clear DTCs stored in ABS/ESP control module assembly.
- Turn ignition switch to LOCK and wait for a few seconds.
- Start engine, drive vehicle at 20 km/h or more and perform road test with X-431 3G diagnostic tester connected to Data Link Connector (DLC).
- Use X-431 3G diagnostic tester to read DTCs.
- 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. 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 related circuit.
- 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 grounding parts related to the current DTC.
- If multiple trouble codes were set, refer to circuit diagrams to look for any common ground circuit or power supply circuit applied to the DTC.
- Refer to any Technical Bulletin that may apply to the malfunction.

## Ground Inspection

Ground points are very important to proper operation of circuits. Ground points are often exposed to moisture, dirt or other corrosive environments. Corrosion (rust) may increase load resistance. This situation may change the way in which a circuit works.

## 34 - PEPS SYSTEM

Circuits are very sensitive to proper grounding. A loose or corroded ground can affect control circuit. Check 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 if they are installed correctly. Make sure all wire harnesses are clean, securely fastened and providing a good ground path.

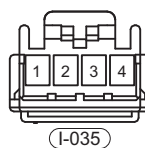
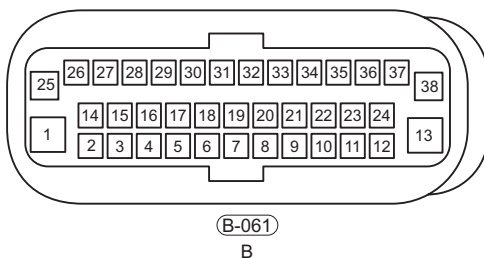
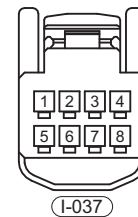
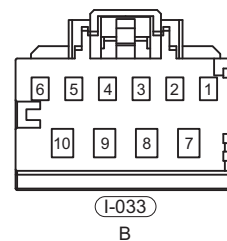
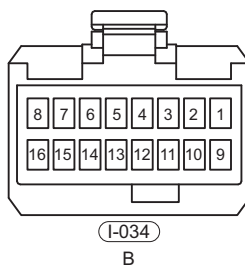
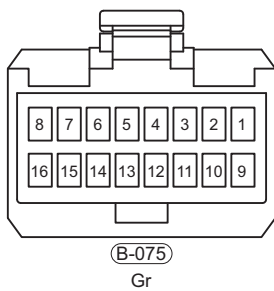
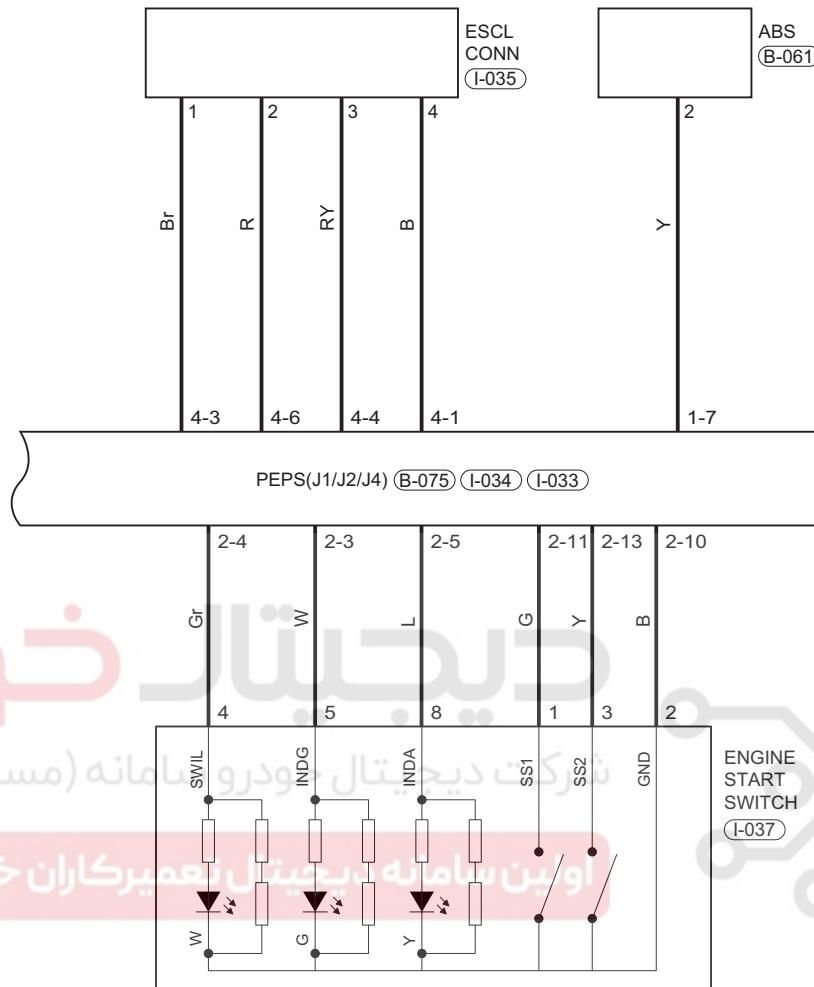
## Diagnostic Trouble Code (DTC) Chart

| DTC      | DTC Definition                                                  |
|----------|-----------------------------------------------------------------|
| B1503-13 | Middle Internal LF Antenna Circuit Open                         |
| B1504-13 | Rear Internal LF Antenna Circuit Open                           |
| B1505-13 | Bumper LF Antenna Circuit Open                                  |
| B1506-00 | Abnormality on Switches of Engine Switch No Subtype Information |
| B1507-00 | Abnormality in IG Circuit No Subtype Information                |
| B1508-00 | Abnormality in ACC Circuit No Subtype Information               |
| B1509-00 | Abnormality in Brake Signal No Subtype Information              |
| B150A-00 | Abnormality in Vehicle Speed Signal No Subtype Information      |
| B150C-00 | Clutch Switch Signal Error No Subtype Information               |
| B150D-00 | Abnormality on ESCL LCK_GND No Subtype Information              |
| B150E-00 | Abnormality on ESCL LCK_PS No Subtype Information               |
| B150F-00 | ESCL Anti-scanning No Subtype Information                       |
| B1510-00 | Abnormality on Wheel Speed Signal No Subtype Information        |
| B1511-00 | Abnormality in ESCL Lock No Subtype Information                 |
| B1512-00 | Abnormality in ESCL Unlock No Subtype Information               |
| B1513-00 | ESCL External Failure No Subtype Information                    |
| B1514-00 | Abnormality on STAR Power Supply No Subtype Information         |
| B1515-45 | ROM for Checksum Failure                                        |
| B1516-19 | HSU Overload                                                    |
| B1517-23 | HSU Switch Continuously Pressed Failure                         |
| U0073-88 | Control Module Communication Bus Off Bus Off                    |
| U0100-87 | Lost Communication With EMS Missing Message                     |
| U0101-87 | Lost Communication With TCM Missing Message                     |
| U0129-87 | Lost Communication With BSM Missing Message                     |
| U0140-87 | Lost Communication With BCM Missing Message                     |
| U0329-87 | Lost Communication with ESCL Missing Message                    |
| U1300-55 | Software Configuration Error Not Configured                     |

DTC

B1506-00

Abnormality on Switches of Engine Switch No Subtype Information



EM1A550070

## 34 - PEPS SYSTEM

| DTC Definition | DTC Definition                                                  | DTC Detection Condition | Possible Cause                                                                                                              |
|----------------|-----------------------------------------------------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| B1506-00       | Abnormality on Switches of Engine Switch No Subtype Information | Ignition switch ON      | <ul style="list-style-type: none"> <li>Wire harness or connector</li> <li>Engine switch</li> <li>PEPS controller</li> </ul> |

**DTC Confirmation Procedure**

Confirm that battery voltage is normal before performing following procedures.

- Turn ignition switch to LOCK.
- Connect X-431 3G diagnostic tester (the latest software) to Data Link Connector (DLC).
- Turn ignition switch to ON.
- Use X-431 3G diagnostic tester to record and clear DTCs stored in PEPS system.
- Turn ignition switch to LOCK and wait for a few seconds.
- Use X-431 3G diagnostic tester to read DTCs.
- 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 34-17](#)).

**CAUTION**

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

**Diagnosis Procedure****1 Check PEPS controller ground**

- Turn ignition switch to LOCK.
- Check the PEPS controller ground point G-202.

**NG**

**Repair or replace PEPS controller ground wire harness or ground point**

**OK****2 Check wire harness and connector**

- Disconnect the negative battery cable.
- Disconnect the PEPS controller connector I-034.
- Disconnect the engine switch connector I-037.
- Check if wire harnesses are worn, pierced, pinched or partially broken.
- Look for broken, bent, protruded or corroded terminals.
- Check if related connector pins are in good condition.

**NG**

**Repair or replace related wire harness and connector**

OK

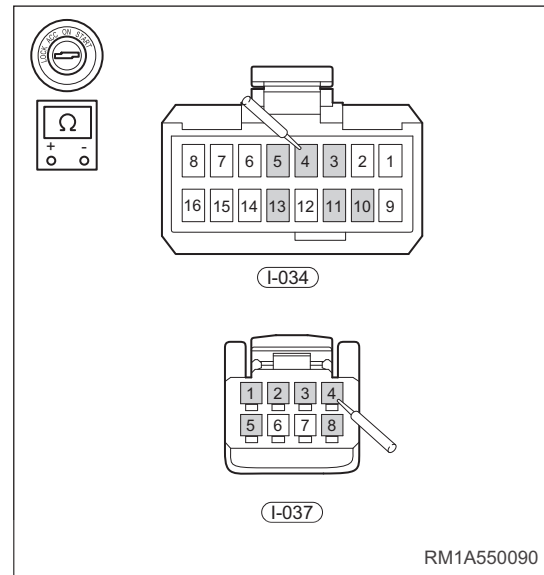
3

**Check instrument panel wire harness and connector**

- a. Check wire harness between instrument panel wire harness connectors I-034 and I-037.

**Check for Open**

| Multimeter Connection  | Condition | Specified Condition |
|------------------------|-----------|---------------------|
| I-034 (4) - I-037 (4)  | Always    | Continuity          |
| I-034 (3) - I-037 (5)  | Always    | Continuity          |
| I-034 (5) - I-037 (8)  | Always    | Continuity          |
| I-034 (11) - I-037 (1) | Always    | Continuity          |
| I-034 (13) - I-037 (3) | Always    | Continuity          |
| I-034 (10) - I-037 (2) | Always    | Continuity          |



34

**Check for Short**

| Multimeter Connection                                   | Condition | Specified Condition |
|---------------------------------------------------------|-----------|---------------------|
| I-034 (4) or I-037 (4) - Body ground/ battery positive  | Always    | No continuity       |
| I-034 (3) or I-037 (5) - Body ground/ battery positive  | Always    | Continuity          |
| I-034 (5) or I-037 (8) - Body ground/ battery positive  | Always    | Continuity          |
| I-034 (11) or I-037 (1) - Body ground/ battery positive | Always    | Continuity          |
| I-034 (13) or I-037 (3) - Body ground/ battery positive | Always    | Continuity          |
| I-034 (10) or I-037 (2) - Body ground/ battery positive | Always    | Continuity          |

NG

**Repair or replace instrument panel wire harness and connector**

OK

#### 4 Check engine switch

##### a. Check the engine switch

- Using a digital multimeter, check continuity of engine switch according to table below.

| Multimeter Connection   | Switch Condition | Specified Condition |
|-------------------------|------------------|---------------------|
| Terminal 1 - Terminal 2 | Not pushed       | No continuity       |
| Terminal 3 - Terminal 2 | Not pushed       | No continuity       |
| Terminal 1 - Terminal 2 | Pushed           | Continuity          |
| Terminal 3 - Terminal 2 | Pushed           | Continuity          |

- Apply battery voltage to terminals of engine switch and check illumination condition of engine switch.

##### HINT:

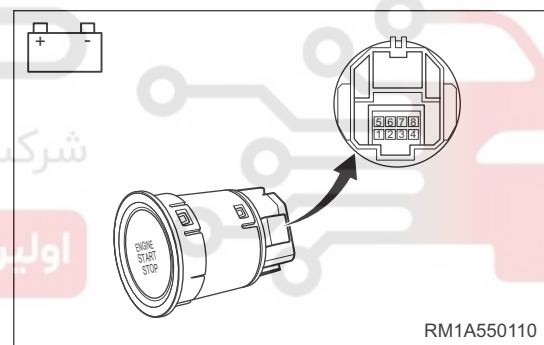
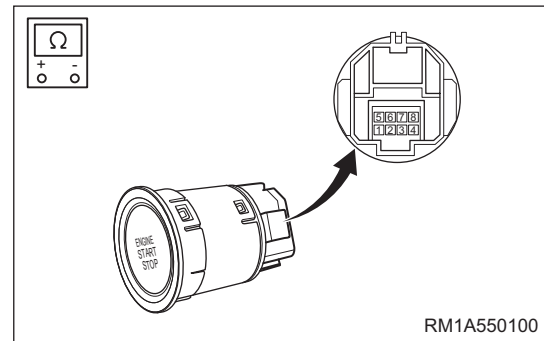
- If positive (+) lead and negative (-) lead are incorrectly connected, engine switch indicator will not illuminate.
- If battery voltage is too low, engine switch indicator will not illuminate.

| Multimeter Connection                                                  | Switch Condition | Specified Condition                |
|------------------------------------------------------------------------|------------------|------------------------------------|
| Battery positive (+) - Terminal 4<br>Battery negative (-) - Terminal 2 | Always           | Illuminate (printed words come on) |
| Battery positive (+) - Terminal 5<br>Battery negative (-) - Terminal 2 | Always           | Illuminate (green)                 |
| Battery positive (+) - Terminal 8<br>Battery negative (-) - Terminal 2 | Always           | Illuminate (amber)                 |

NG

Repair or replace engine switch

OK



**5****Confirm DTCs**

- a. Connect the related wire harness connectors.
- b. Connect the negative battery cable.
- c. Turn ignition switch to ON.
- d. Connect X-431 3G diagnostic tester to Data Link Connector, check if any DTC is detected.

**NG****Repair or replace PEPS controller****OK****System operates normally****34**

# دیجیتال خودرو

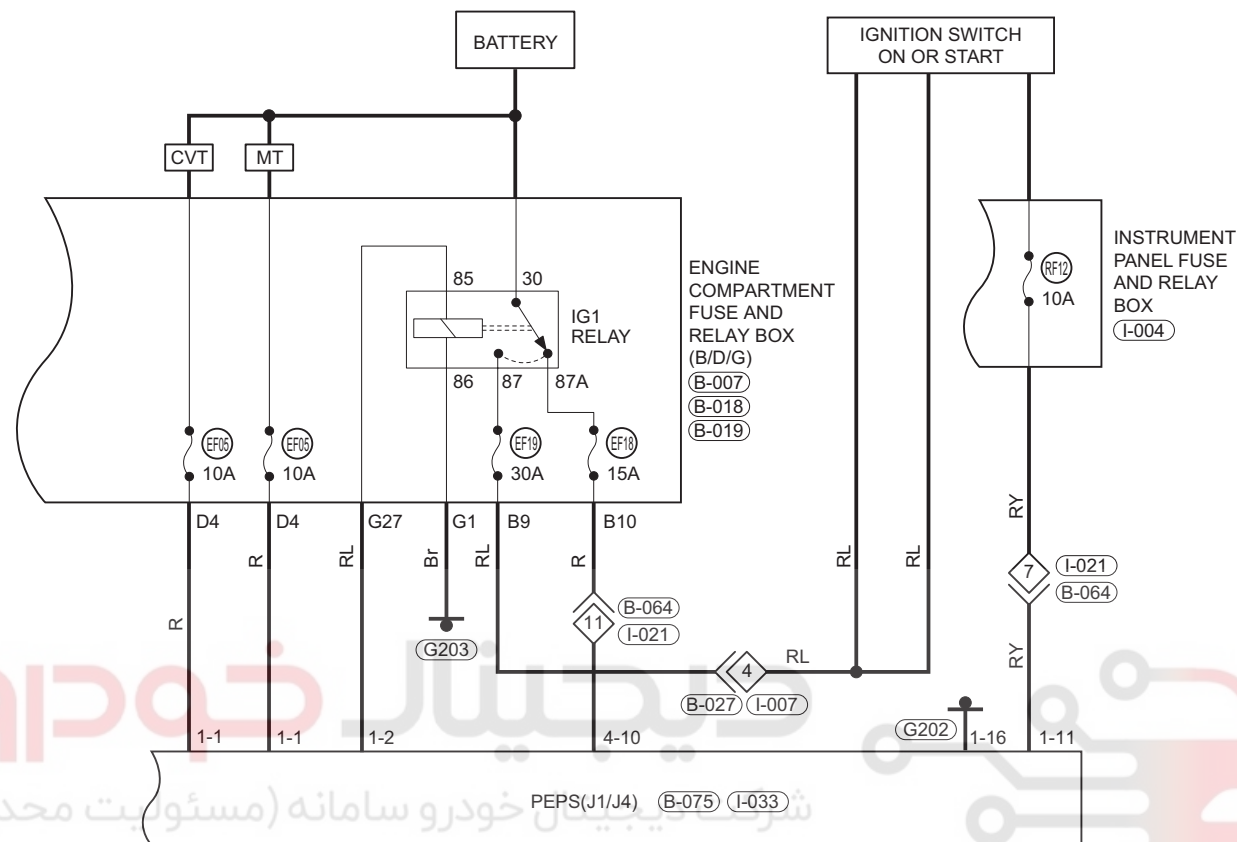
شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

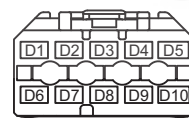


DTC B1507-00 Abnormality in IG Circuit No Subtype Information

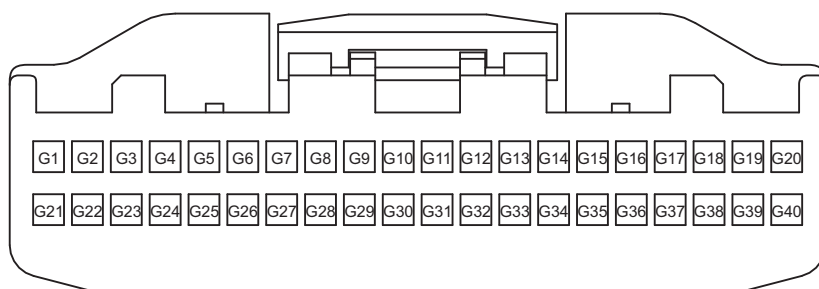
34



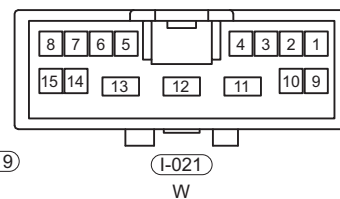
B-007  
Y



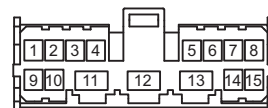
B-018  
W



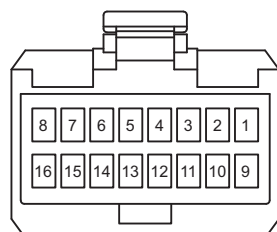
B-019  
W



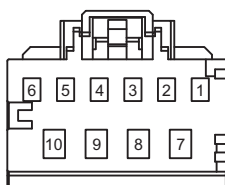
I-021  
W



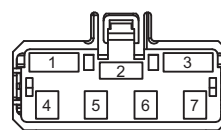
B-064  
W



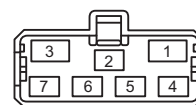
B-075  
Gr



I-033  
B



B-027  
Br



I-007  
Br

EM1A550080

| DTC      | DTC Definition                                   | DTC Detection Condition | Possible Cause                                                                                                                                                          |
|----------|--------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| B1507-00 | Abnormality in IG Circuit No Subtype Information | Ignition switch ON      | <ul style="list-style-type: none"> <li>• Wire harness or connector</li> <li>• Fuse</li> <li>• IGN1 relay</li> <li>• Engine switch</li> <li>• PEPS controller</li> </ul> |

### DTC Confirmation Procedure

Confirm that battery voltage is normal before performing following procedures.

- Turn ignition switch to LOCK.
- Connect X-431 3G diagnostic tester (the latest software) to Data Link Connector (DLC).
- Turn ignition switch to ON.
- Use X-431 3G diagnostic tester to record and clear DTCs stored in PEPS system.
- Turn ignition switch to LOCK and wait for a few seconds.
- Use X-431 3G diagnostic tester to read DTCs.
- 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 34-17](#)).

34

#### CAUTION

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

### Diagnosis Procedure

1

Check fuse and relay

- Turn off all electrical equipment and the ignition switch.
- Disconnect the negative battery cable.
- Remove fuses EF19 (30A), EF05 (10A) (for MT model) and EF06 (10A) (for CVT model) from engine compartment fuse and relay box.
- Remove IGN1 relay from engine compartment fuse and relay box.
- Remove fuse RF12 (10A) from instrument panel fuse box.
- Check if fuse and relay are blown or damaged.

NG

Repair or replace damaged fuse and relay

OK

**2****Check engine compartment fuse and relay box ground point and PEPS controller ground point**

- Check engine compartment fuse and relay box ground point B-051.
- Check the PEPS controller ground point B-039.

**NG****Repair or replace ground wire harness or ground point****OK****3****Check wire harness between battery and engine compartment fuse and relay box**

- Remove ING1 relay from engine compartment fuse and relay box.
- Connect the negative battery cable.
- Turn digital multimeter to DC voltage band, and check that output voltage at terminal 30 of relay is 12 V.

**NG****Repair or replace wire harness between battery and engine compartment fuse and relay box****OK****4****Check body wire harness**

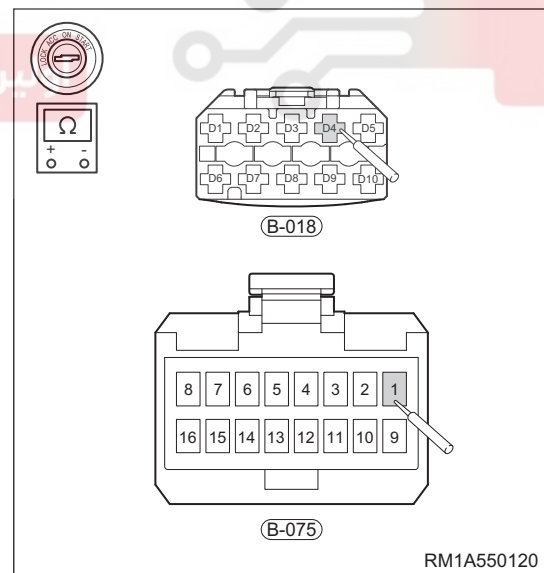
- Check wire harness between engine compartment fuse and relay box connector B-018 and PEPS controller connector J1 (B-075).

**Check for Open**

| Multimeter Connection  | Condition | Specified Condition |
|------------------------|-----------|---------------------|
| B-018 (D4) - B-075 (1) | Always    | Continuity          |

**Check for Short**

| Multimeter Connection                      | Condition | Specified Condition |
|--------------------------------------------|-----------|---------------------|
| B-018 (D4) or B-075 (1) - Body ground      | Always    | No continuity       |
| B-018 (D4) or B-075 (1) - Battery positive | Always    | No continuity       |



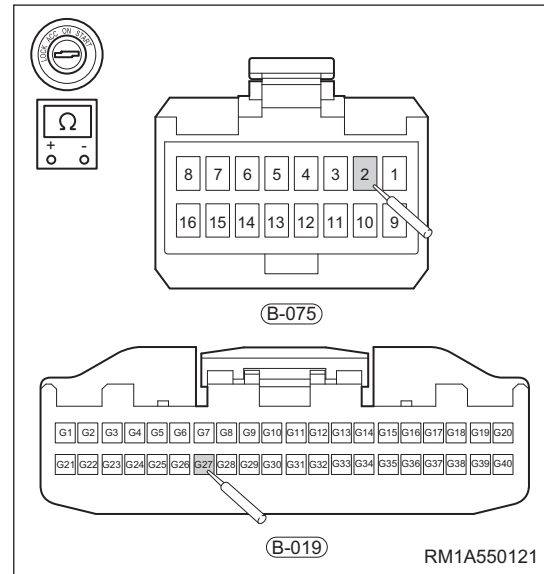
- b. Check wire harness between engine compartment fuse and relay box connector B-019 and PEPS controller connector J1 (B-075).

**Check for Open**

| Multimeter Connection   | Condition | Specified Condition |
|-------------------------|-----------|---------------------|
| B-019 (G27) - B-075 (2) | Always    | Continuity          |

**Check for Short**

| Multimeter Connection                       | Condition | Specified Condition |
|---------------------------------------------|-----------|---------------------|
| B-019 (G27) or B-075 (2) - Body ground      | Always    | No continuity       |
| B-019 (G27) or B-075 (2) - Battery positive | Always    | No continuity       |



34

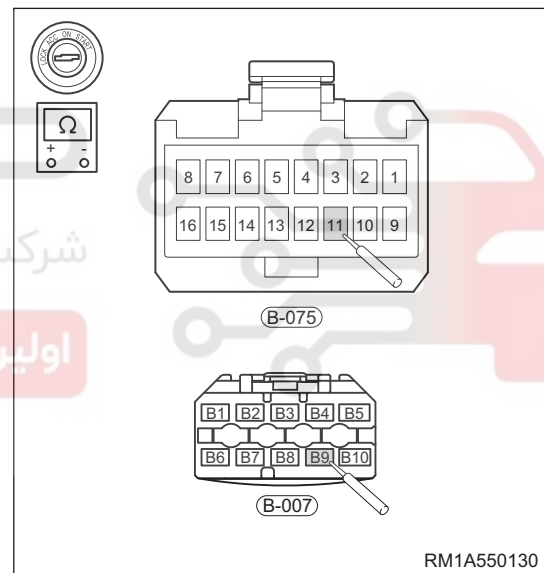
- c. Check wire harness between body wire harness connector B-007 and PEPS controller connector J1 (B-075).

**Check for Open**

| Multimeter Connection   | Condition | Specified Condition |
|-------------------------|-----------|---------------------|
| B-007 (B9) - B-075 (11) | Always    | Continuity          |

**Check for Short**

| Multimeter Connection                       | Condition | Specified Condition |
|---------------------------------------------|-----------|---------------------|
| B-007 (B9) or B-075 (11) - Body ground      | Always    | No continuity       |
| B-007 (B9) or B-075 (11) - Battery positive | Always    | No continuity       |



NG

Repair or replace body wire harness

OK

5

Check ignition starting switch (See page 15-13)

NG

Repair or replace ignition starting switch

OK

## 34 - PEPS SYSTEM

6

Confirm DTCs

- a. Connect the related wire harness connectors.
- b. Connect the negative battery cable.
- c. Turn ignition switch to ON.
- d. Connect X-431 3G diagnostic tester to Data Link Connector, check if any DTC is detected.

NG

Repair or replace PEPS controller

OK

System operates normally

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

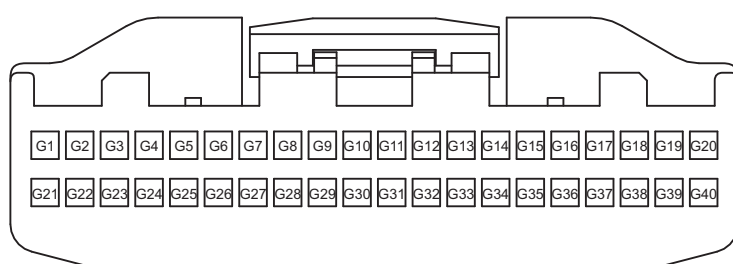
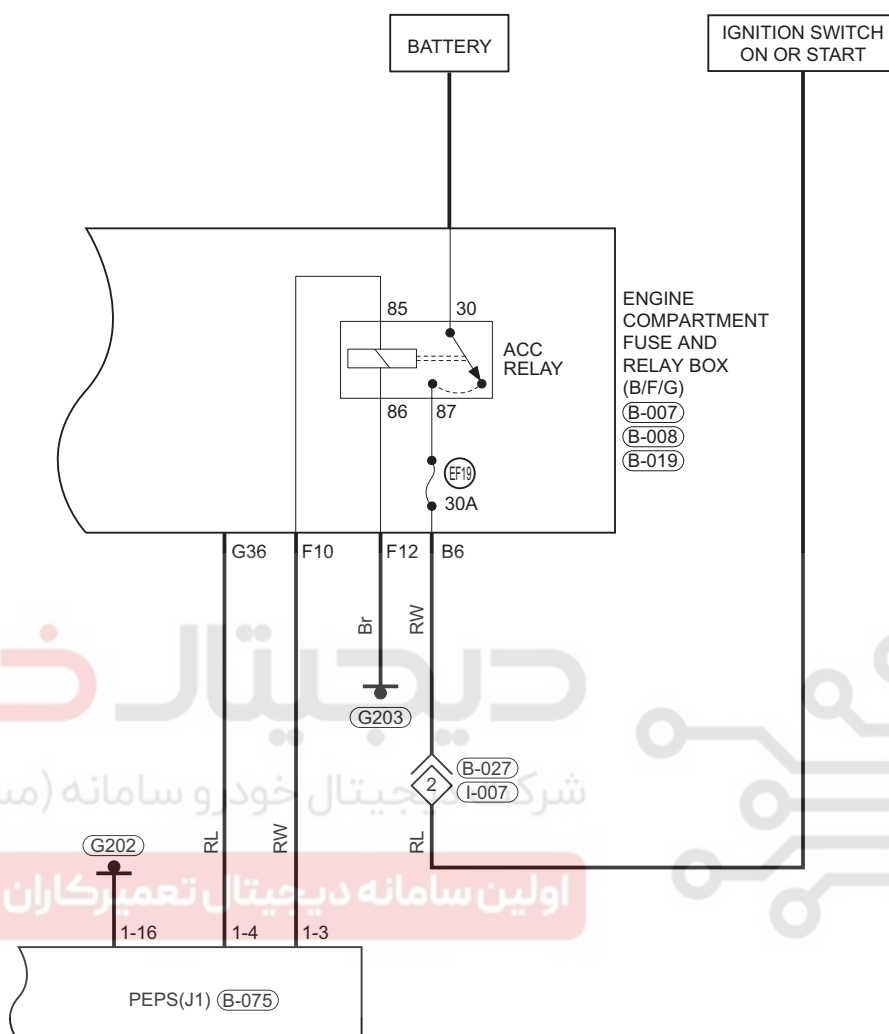
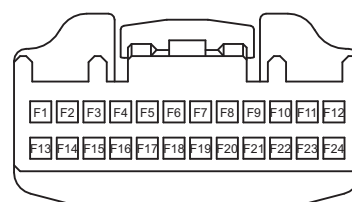
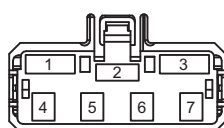
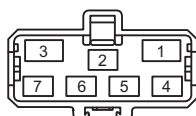
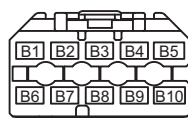
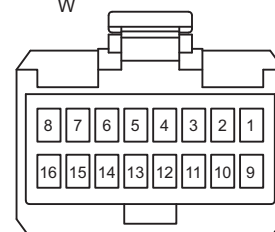


DTC

B1508-00

Abnormality in ACC Circuit No Subtype Information

34

(B-019)  
W(B-008)  
W(B-027)  
Br(I-007)  
Br(B-007)  
Y(B-075)  
Gr

EM1A550090

## 34 - PEPS SYSTEM

| DTC      | DTC Definition                                    | DTC Detection Condition | Possible Cause                                                                                                                                                         |
|----------|---------------------------------------------------|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| B1508-00 | Abnormality in ACC Circuit No Subtype Information | Ignition switch ON      | <ul style="list-style-type: none"> <li>• Wire harness or connector</li> <li>• Fuse</li> <li>• ACC relay</li> <li>• Engine switch</li> <li>• PEPS controller</li> </ul> |

**DTC Confirmation Procedure**

Confirm that battery voltage is normal before performing following procedures.

- Turn ignition switch to LOCK.
- Connect X-431 3G diagnostic tester (the latest software) to Data Link Connector (DLC).
- Turn ignition switch to ON.
- Use X-431 3G diagnostic tester to record and clear DTCs stored in PEPS system.
- Turn ignition switch to LOCK and wait for a few seconds.
- Use X-431 3G diagnostic tester to read DTCs.
- 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 34-17](#)).

**CAUTION**

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

**Diagnosis Procedure****1****Check fuse and relay**

- Turn off all electrical equipment and the ignition switch.
- Disconnect the negative battery cable.
- Remove fuse EF19 (30A) from engine compartment fuse and relay box.
- Remove ACC relay from engine compartment fuse and relay box.
- Check if fuse and relay are blown or damaged.

**NG****Repair or replace damaged fuse and relay****OK**

2

Check engine compartment fuse and relay box ground point and PEPS controller ground point

- Check engine compartment fuse and relay box ground point G-203.
- Check the PEPS controller ground point G-202.

NG

Repair or replace ground wire harness or ground point

OK

3

Check wire harness between battery and engine compartment fuse and relay box

- Remove ACC relay from engine compartment fuse and relay box.
- Connect the negative battery cable.
- Turn digital multimeter to DC voltage band, and check that output voltage at terminal 30 of relay is 12 V.

NG

Repair or replace wire harness between battery and engine compartment fuse and relay box

OK

4

Check body wire harness

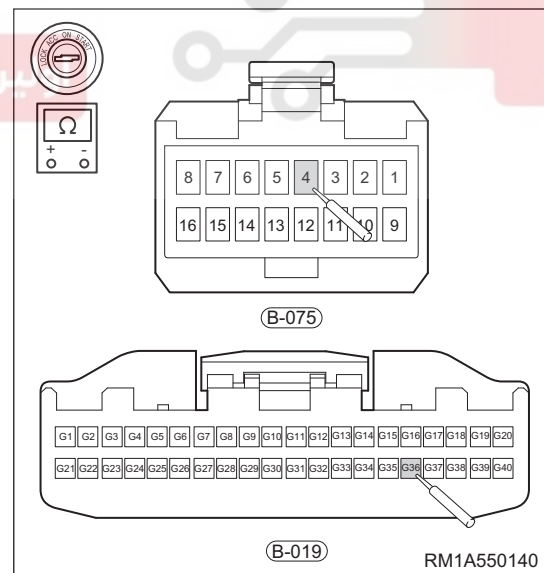
- Check wire harness between engine compartment fuse and relay box connector B-019 and PEPS controller connector J1 (B-075).

Check for Open

| Multimeter Connection   | Condition | Specified Condition |
|-------------------------|-----------|---------------------|
| B-019 (G36) - B-075 (4) | Always    | Continuity          |

Check for Short

| Multimeter Connection                       | Condition | Specified Condition |
|---------------------------------------------|-----------|---------------------|
| B-019 (G36) or B-075 (4) - Body ground      | Always    | No continuity       |
| B-019 (G36) or B-075 (4) - Battery positive | Always    | No continuity       |



RM1A550140

## 34 - PEPS SYSTEM

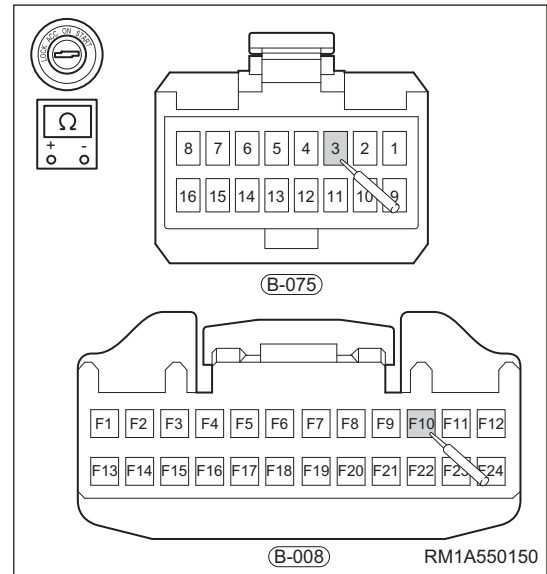
- b. Check wire harness between engine compartment fuse and relay box connector B-008 and PEPS controller connector J1 (B-075).

**Check for Open**

| Multimeter Connection   | Condition | Specified Condition |
|-------------------------|-----------|---------------------|
| B-008 (F10) - B-075 (3) | Always    | Continuity          |

**Check for Short**

| Multimeter Connection                       | Condition | Specified Condition |
|---------------------------------------------|-----------|---------------------|
| B-008 (F10) or B-075 (3) - Body ground      | Always    | No continuity       |
| B-008 (F10) or B-075 (3) - Battery positive | Always    | No continuity       |



NG

Repair or replace body wire harness

OK

5

Check ignition starting switch (See page 15-13)

NG

Repair or replace ignition starting switch

OK

6

Confirm DTCs

- Connect the related wire harness connectors.
- Connect the negative battery cable.
- Turn ignition switch to ON.
- Connect X-431 3G diagnostic tester to Data Link Connector, check if any DTC is detected.

NG

Repair or replace PEPS controller

OK

System operates normally

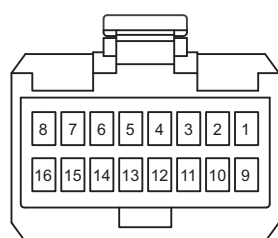
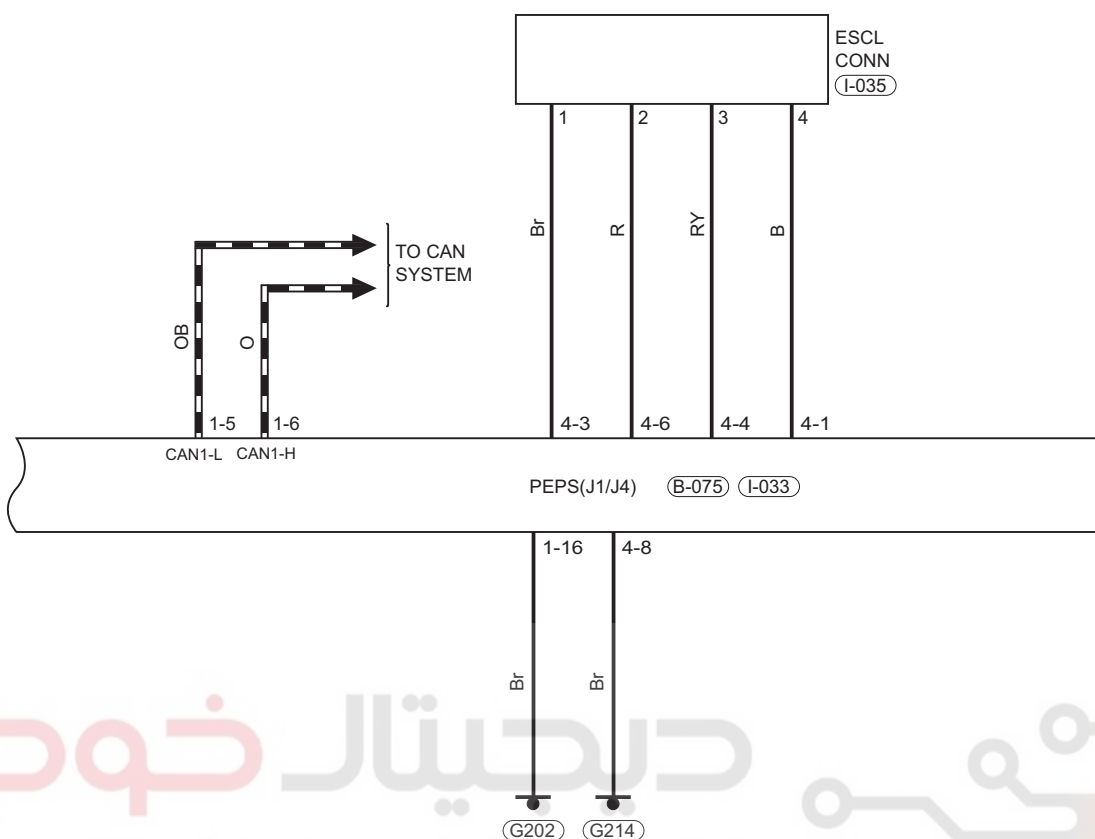
|     |          |                                                    |
|-----|----------|----------------------------------------------------|
| DTC | B150D-00 | Abnormality on ESCL LCK_GND No Subtype Information |
| DTC | B150E-00 | Abnormality on ESCL LCK_PS No Subtype Information  |
| DTC | B150F-00 | ESCL Anti-scanning No Subtype Information          |
| DTC | B1511-00 | Abnormality in ESCL Lock No Subtype Information    |
| DTC | B1512-00 | Abnormality in ESCL Unlock No Subtype Information  |
| DTC | B1513-00 | ESCL External Failure No Subtype Information       |

# دیجیتال خودرو

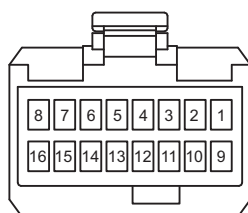
شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

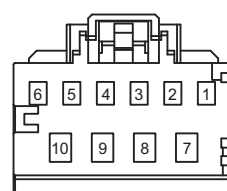




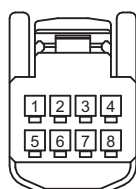
(B-075)  
Gr



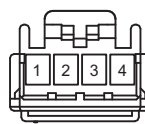
(I-034)  
B



(I-033)  
B



(I-037)



(I-035)

EM1A550110

| DTC      | DTC Definition                                     | DTC Detection Condition | Possible Cause                                                                                                                                                                            |
|----------|----------------------------------------------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| B150D-00 | Abnormality on ESCL LCK_GND No Subtype Information | Ignition switch ON      | <ul style="list-style-type: none"> <li>• Wire harness or connector</li> <li>• Fuse</li> <li>• IGN1 relay</li> <li>• Electronic steering column lock</li> <li>• PEPS controller</li> </ul> |
| B150E-00 | Abnormality on ESCL LCK_PS No Subtype Information  |                         |                                                                                                                                                                                           |
| B150F-00 | ESCL Anti-scanning No Subtype Information          |                         |                                                                                                                                                                                           |
| B1511-00 | Abnormality in ESCL Lock No Subtype Information    |                         |                                                                                                                                                                                           |
| B1512-00 | Abnormality in ESCL Unlock No Subtype Information  |                         |                                                                                                                                                                                           |
| B1513-00 | ESCL External Failure No Subtype Information       |                         |                                                                                                                                                                                           |
| U0329-87 | Lost Communication with ESCL Missing Message       | Ignition switch ON      | <ul style="list-style-type: none"> <li>• Wire harness or connector</li> <li>• PEPS controller</li> </ul>                                                                                  |

### DTC Confirmation Procedure

Confirm that battery voltage is normal before performing following procedures.

- Turn ignition switch to LOCK.
- Connect X-431 3G diagnostic tester (the latest software) to Data Link Connector (DLC).
- Turn ignition switch to ON.
- Use X-431 3G diagnostic tester to record and clear DTCs stored in PEPS system.
- Turn ignition switch to LOCK and wait for a few seconds.
- Use X-431 3G diagnostic tester to read DTCs.
- 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.

### CAUTION

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

## 34 - PEPS SYSTEM

## Diagnosis Procedure

**1 Check PEPS control module power supply circuit (PEPS control module assembly - battery)**

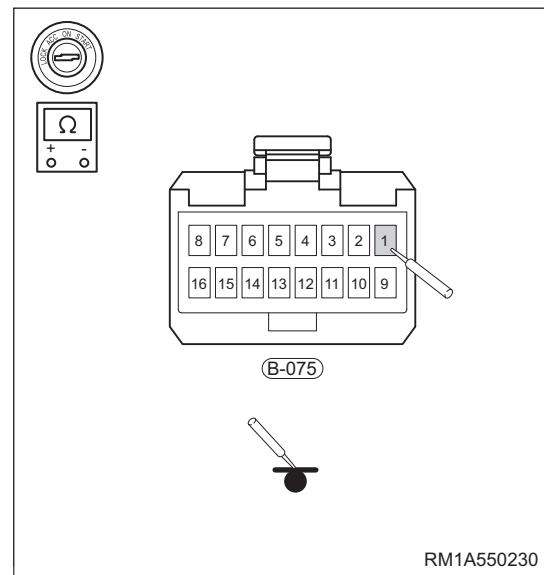
- Connect the negative battery cable.
- Turn ignition switch to LOCK.
- Disconnect the PEPS control module assembly connector B-075.
- Using a digital multimeter, measure voltage between PEPS control module assembly terminal 1 and body ground to check if power supply circuit is normal according to table below.

**Standard Voltage**

| Multimeter Connection   | Condition | Specified Condition |
|-------------------------|-----------|---------------------|
| B-075 (1) - Body ground | Always    | 9 to 16 V           |

NG

Repair or replace body wire harness and connector



OK

**2 Check fuse and relay**

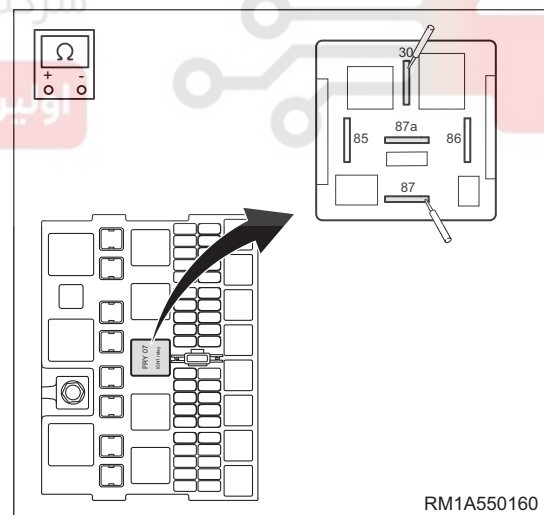
- Turn off all electrical equipment and the ignition switch.
- Disconnect the negative battery cable.
- Remove fuse EF18 (15A) from engine compartment fuse and relay box.
- Remove IGN1 relay from engine compartment fuse and relay box, and check IGN1 relay.

| Multimeter Connection      | Specified Condition                                                                 |
|----------------------------|-------------------------------------------------------------------------------------|
| Terminal 30 - Terminal 87  | No continuity                                                                       |
| Terminal 30 - Terminal 87a | Continuity                                                                          |
| Terminal 30 - Terminal 87  | Continuity (when battery voltage is applied between terminal 85 and terminal 86)    |
| Terminal 30 - Terminal 87a | No continuity (when battery voltage is applied between terminal 85 and terminal 86) |

- Check if fuse and relay are blown or damaged.

NG

Repair or replace damaged fuse and relay



OK

3

**Check connector and wire harness**

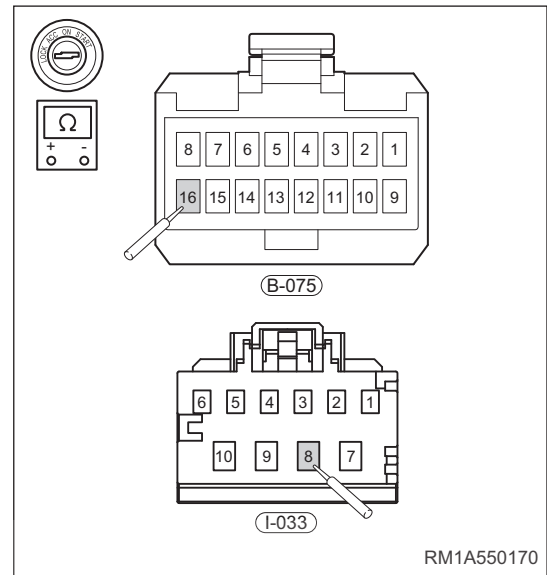
- a. Check PEPS controller ground points G214 and G202.

**Check for Open**

| Multimeter Connection    | Condition | Specified Condition |
|--------------------------|-----------|---------------------|
| B-075 (16) - Body ground | Always    | Continuity          |
| I-033 (8) - Body ground  | Always    | Continuity          |

**Check for Short**

| Multimeter Connection                      | Condition | Specified Condition |
|--------------------------------------------|-----------|---------------------|
| B-075 (16) or I-033 (8) - Battery positive | Always    | No continuity       |



34

- b. Disconnect PEPS controller connector I-033 and electronic steering column lock connector I-035.
- c. Disconnect engine compartment fuse and relay box connector B-018.
- d. Disconnect connector B-007/B-075/B-019 between instrument panel wire harness and body wire harness.
- e. Check if wire harnesses are worn, pierced, pinched or partially broken.
- f. Look for broken, bent, protruded or corroded terminals.
- g. Check if related connector pins are in good condition.

NG

**Repair or replace related connector or wire harness**

OK

## 4

## Check body wire harness

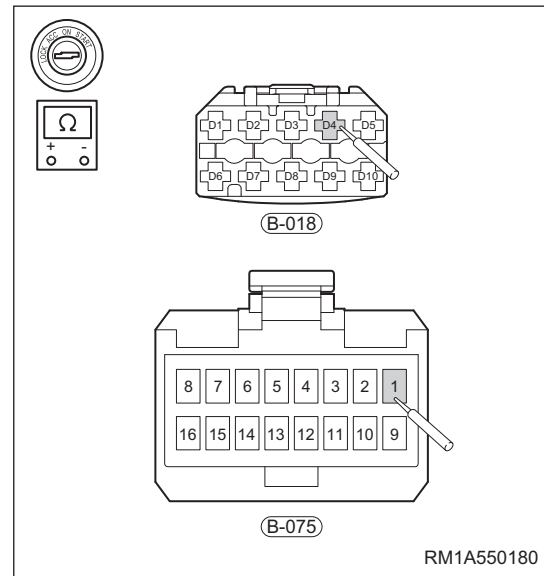
- a. Check wire harness between engine compartment fuse and relay box connector B-018 and body wire harness connector B-075.

## Check for Open

| Multimeter Connection  | Condition | Specified Condition |
|------------------------|-----------|---------------------|
| B-018 (D4) - B-075 (1) | Always    | Continuity          |

## Check for Short

| Multimeter Connection                      | Condition | Specified Condition |
|--------------------------------------------|-----------|---------------------|
| B-018 (D4) or B-075 (1) - Body ground      | Always    | No continuity       |
| B-018 (D4) or B-075 (1) - Battery positive | Always    | No continuity       |



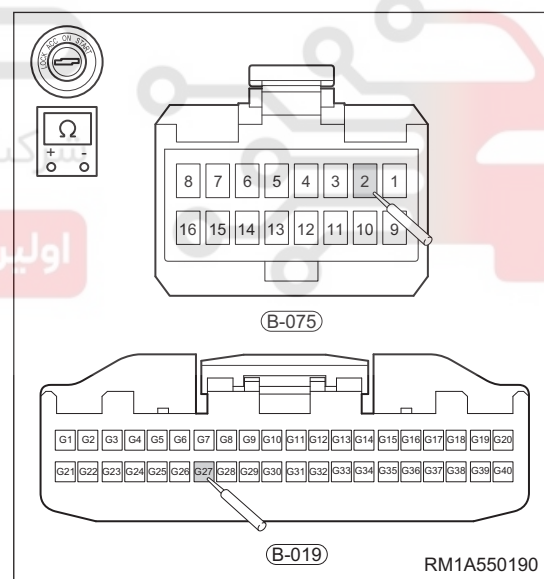
- b. Check wire harness between engine compartment fuse and relay box connector B-019 and body wire harness connector B-075.

## Check for Open

| Multimeter Connection   | Condition | Specified Condition |
|-------------------------|-----------|---------------------|
| B-019 (G27) - B-075 (2) | Always    | Continuity          |

## Check for Short

| Multimeter Connection                       | Condition | Specified Condition |
|---------------------------------------------|-----------|---------------------|
| B-019 (G27) or B-075 (2) - Body ground      | Always    | No continuity       |
| B-019 (G27) or B-075 (2) - Battery positive | Always    | No continuity       |



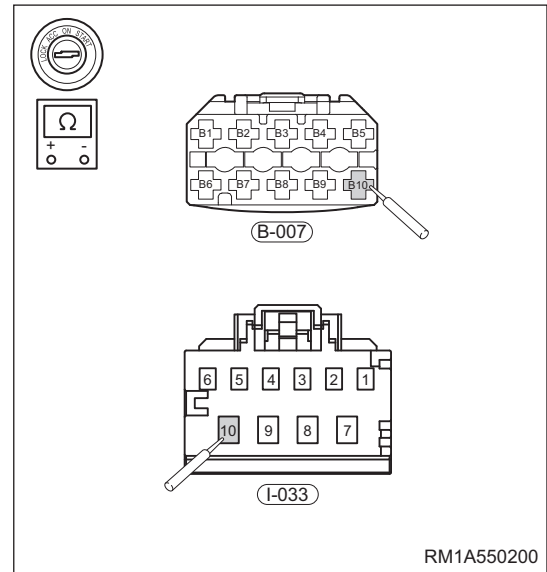
- c. Check wire harness between engine compartment fuse and relay box connector B-007 and body wire harness connector I-033.

#### Check for Open

| Multimeter Connection    | Condition | Specified Condition |
|--------------------------|-----------|---------------------|
| B-007 (B10) - I-033 (10) | Always    | Continuity          |

#### Check for Short

| Multimeter Connection                        | Condition | Specified Condition |
|----------------------------------------------|-----------|---------------------|
| B-007 (B10) or I-033 (10) - Body ground      | Always    | No continuity       |
| B-007 (B10) or I-033 (10) - Battery positive | Always    | No continuity       |



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NG

Repair or replace body wire harness

OK

5

#### Check instrument panel wire harness

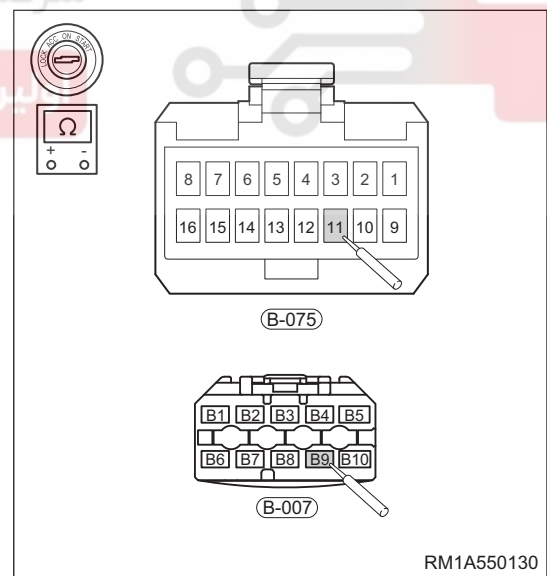
- a. Check wire harness between body wire harness connector B-075 and engine compartment fuse and relay box connector B-007.

#### Check for Open

| Multimeter Connection   | Condition | Specified Condition |
|-------------------------|-----------|---------------------|
| B-007 (B9) - B-075 (11) | Always    | Continuity          |

#### Check for Short

| Multimeter Connection                       | Condition | Specified Condition |
|---------------------------------------------|-----------|---------------------|
| B-007 (B9) or B-075 (11) - Body ground      | Always    | No continuity       |
| B-007 (B9) or B-075 (11) - Battery positive | Always    | No continuity       |

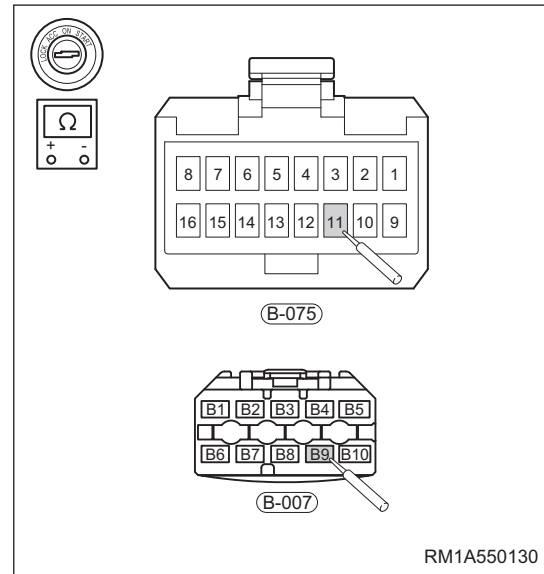


## 34 - PEPS SYSTEM

- b. Check wire harness between PEPS controller connector I-033 and electronic steering column lock connector I-035.

**Check for Open**

| Multimeter Connection | Condition | Specified Condition |
|-----------------------|-----------|---------------------|
| I-033 (3) - I-035 (1) | Always    | Continuity          |
| I-033 (6) - I-035 (2) | Always    | Continuity          |
| I-033 (4) - I-035 (3) | Always    | Continuity          |
| I-033 (1) - I-035 (4) | Always    | Continuity          |



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**Check for Short**

| Multimeter Connection                                 | Condition | Specified Condition |
|-------------------------------------------------------|-----------|---------------------|
| I-033 (3/6/4/1) or I-035 (1/2/3/4) - Body ground      | Always    | No continuity       |
| I-033 (3/6/4/1) or I-035 (1/2/3/4) - Battery positive | Always    | No continuity       |

NG

Repair or replace instrument panel wire harness

OK

6

Check if electronic steering column lock is locked

- Connect the related wire harness connectors.
- Connect the negative battery cable.
- Perform lock and unlock procedures for electronic steering column lock, check if electronic steering column lock can be locked and unlocked.

NG

Go to next step

OK

System operates normally

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## Reconfirm DTCs

- Use X-431 3G diagnostic tester to clear DTC.
- Start the engine.
- Use X-431 3G diagnostic tester to read DTCs stored in PEPS control module assembly again.
- Check if same DTC is output.

NO

System operates normally

OK

## Replace PEPS control module assembly

Inspection Procedure for DTC B1503-13, B1504-13, B1505-13, B1515-45, B1516-19 and B1517-23  
(See page 38-32)

Inspection Procedure for DTC U0100-87, U0140-87 (See page 31-82), U0329-87, U1300-55, U0073-88 and U0101-87 (See page 39-38)

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# دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



## ON-VEHICLE SERVICE

### PEPS Low Frequency Antenna

#### Removal

##### CAUTION

- Be sure to wear safety equipment to prevent accidents, when removing PEPS low frequency antenna.
- Be careful not to damage antenna, when removing PEPS low frequency antenna.
- Be careful not to damage components, when removing PEPS components.

1. Remove the PEPS low frequency antenna ([See page 38-53](#)).

## 34 Installation

Installation is in the reverse order of removal.

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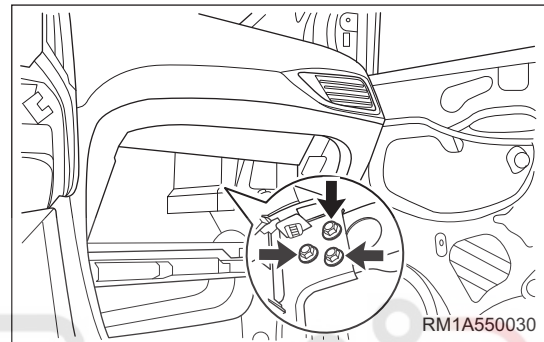
## PEPS Control Module

### Removal

#### CAUTION

- Be sure to wear safety equipment to prevent accidents, when removing PEPS low frequency antenna.
- Be careful not to damage antenna, when removing PEPS low frequency antenna.
- Be careful not to damage components, when removing PEPS components.

1. Remove the instrument panel assembly (See page 46-13).
2. Remove the PEPS control module.
  - a. Disconnect 4 connectors from PEPS control module and remove 3 fixing bolts (arrow).



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- b. Remove the PEPS control module.

### Installation

Installation is in the reverse order of removal.

#### CAUTION

- When installing PEPS control module, make sure connectors on PEPS control module are well fitted with body wire harness.
- Check if functions are normal after installing PEPS control module.

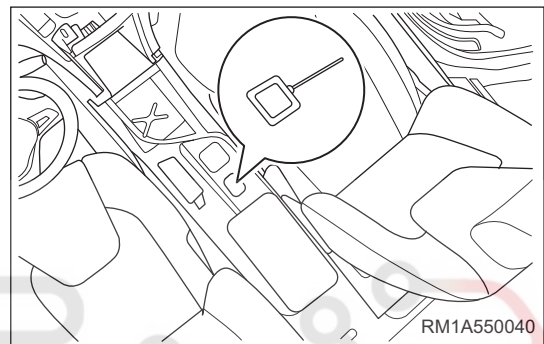
## Immobilizer Coil

### Removal

#### CAUTION

- Be sure to wear safety equipment to prevent accidents, when removing immobilizer coil.
- Be careful not to damage coil, when removing immobilizer coil.

1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the auxiliary fascia console assembly (See page 46-8).
4. Remove the immobilizer coil.
  - a. Disconnect connector, remove fixing bolt and immobilizer coil.



### Installation

Installation is in the reverse order of removal.

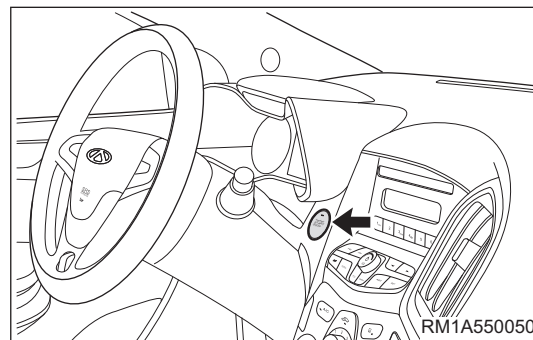
#### CAUTION

- Tighten fixing bolt to specified torque, when installing immobilizer coil.
- Install connector in place, when installing immobilizer coil.
- Check PEPS system for proper operation, after installing immobilizer coil.

## Passive Entry & Passive Start Button

### Removal

1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the instrument panel assembly ([See page 46-13](#)).
4. Remove the passive entry & passive start button.
  - a. As shown in illustration, disconnect connector and remove passive entry & passive start button (arrow).



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### Installation

Installation is in the reverse order of removal.

#### CAUTION

- Install fixing clamp to specified position, when installing passive entry & passive start button.
- Install connector in place, when installing passive entry & passive start button.
- Check PEPS system for proper operation, after installing passive entry & passive start button.

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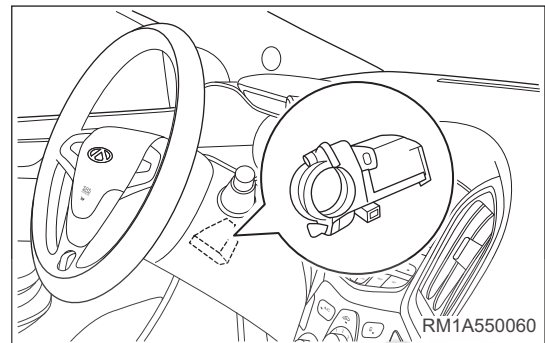
## Electronic Steering Column Lock

### Removal

#### CAUTION

- Be sure to wear safety equipment to prevent accidents, when removing steering column.
- Be careful not to damage steering column during removal.

1. Remove the steering column (See page 28-15).
2. Remove the electronic steering column lock.
  - a. As shown in illustration, remove electronic steering column lock from steering column.



### Installation

Installation is in the reverse order of removal.

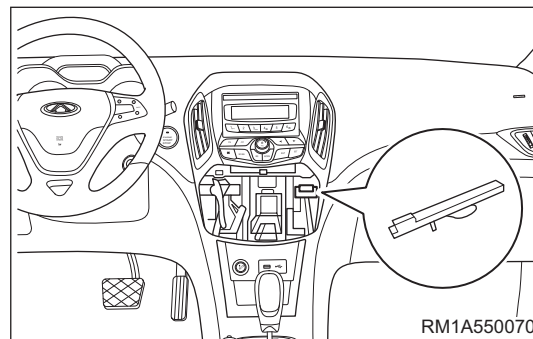
#### CAUTION

- Tighten fixing bolt to specified torque, when installing electronic steering column lock.
- Install connector in place, when installing electronic steering column lock.
- Check PEPS system for proper operation, after installing electronic steering column lock.

## Front Low Frequency Antenna

### Removal

1. Remove the A/C control panel assembly (See page 30-28).
2. Remove the front low frequency antenna.
  - a. Disconnect connector and remove front low frequency antenna.



### Installation

Installation is in the reverse order of removal.

#### CAUTION

- Install connector in place, when installing front low frequency antenna.
- Check PEPS system for proper operation, after installing front low frequency antenna.

# دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

