

## PEPS SYSTEM

|                                  |             |                                         |              |
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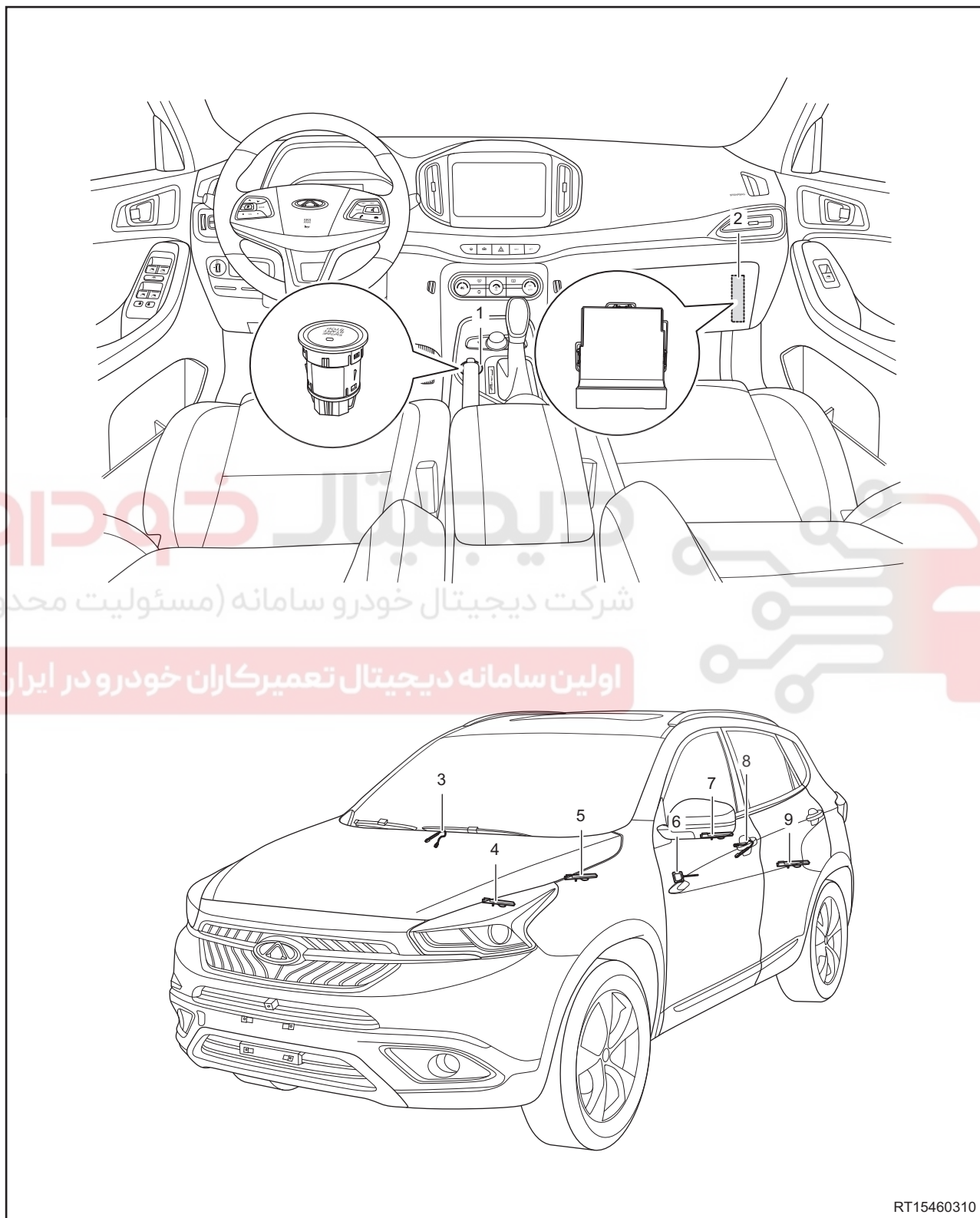
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## GENERAL INFORMATION

### Description



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|                                                          |                                          |
|----------------------------------------------------------|------------------------------------------|
| 1 - Engine Switch                                        | 2 - PEPS Module                          |
| 3 - Front Right Door Handle Sensor                       | 4 - Front Internal Low Frequency Antenna |
| 5 - Center Internal Low Frequency Antenna                | 6 - Immobilizer Coil                     |
| 7 - Rear Low Frequency Antenna                           | 8 - Front Left Door Handle Sensor        |
| 9 - Rear Low Frequency Antenna (Rear Bumper Crossmember) |                                          |

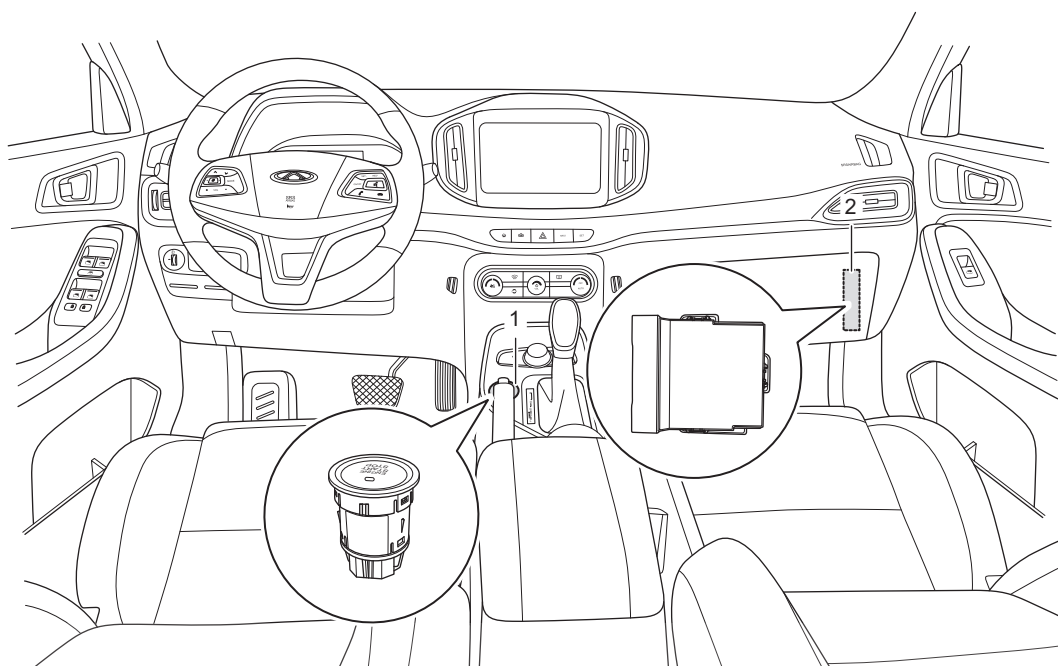
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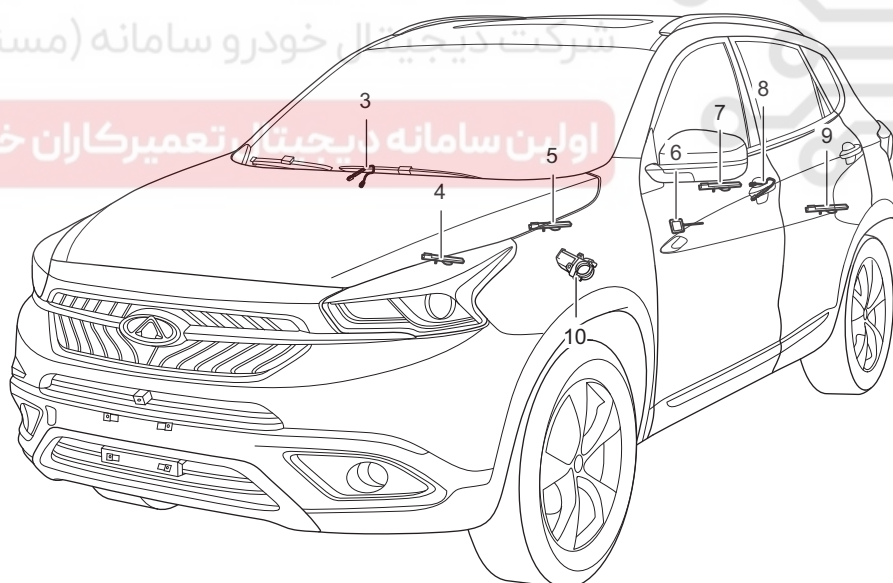
MT



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## 47 - PEPS SYSTEM

|                                                          |                                          |
|----------------------------------------------------------|------------------------------------------|
| 1 - Engine Switch                                        | 2 - PEPS Module                          |
| 3 - Front Right Door Handle Sensor                       | 4 - Front Internal Low Frequency Antenna |
| 5 - Center Internal Low Frequency Antenna                | 6 - Immobilizer Coil                     |
| 7 - Rear Low Frequency Antenna                           | 8 - Front Left Door Handle Sensor        |
| 9 - Rear Low Frequency Antenna (Rear Bumper Crossmember) | 10 - ESCL Module (for MT model)          |

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

## 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 key is legal. If legal, PEPS sends corresponding signal to body control module, then body control module control each actuator to perform corresponding operations.

## Specification

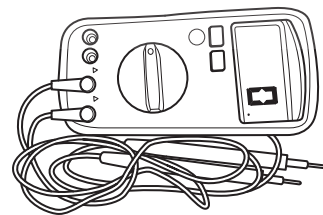
### Torque Specification

| Description        | Torque (N·m) |
|--------------------|--------------|
| Hexagon flange nut | 7 ± 1        |

## Tools

### General Tool

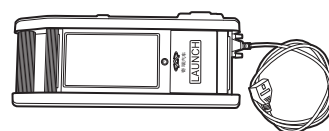
Digital Multimeter



RCH0000002

### Special Tool

X-431 3G Diagnostic Tester



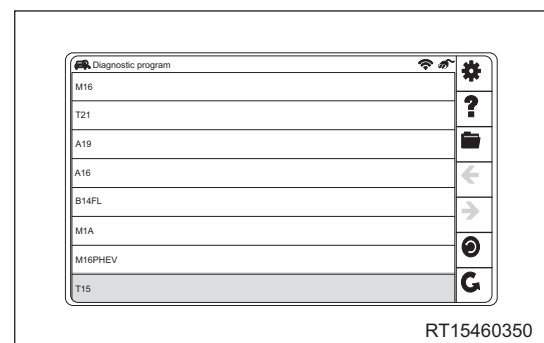
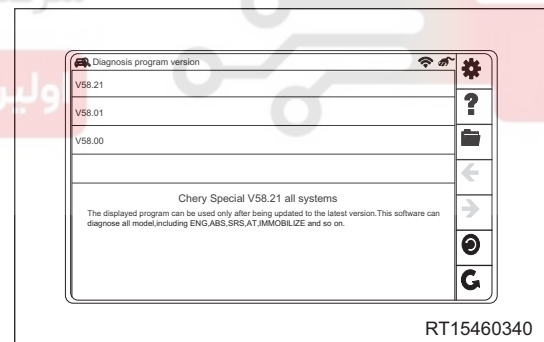
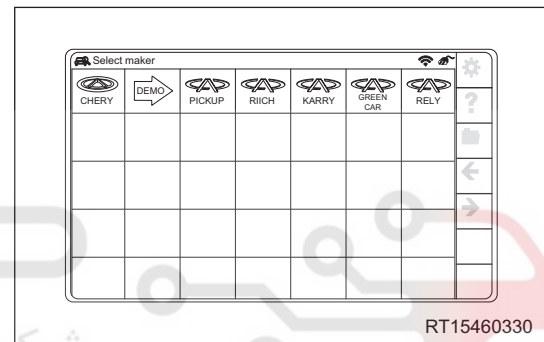
RCH0000001

## PEPS Match

Note: It is necessary to wait for 10 seconds to enter again when entering wrong security code twice continuously. If wrong security code is entered again after 10 seconds, wrong numbers cannot be accumulated. For example, if entering wrong security code twice continuously, but wrong security code is entered again after 10 seconds, internal counter will not record current number and keep original number. If turning engine switch to OFF without waiting specified time, waiting time will be reset to 0 and recount, so be sure to wait and turn engine switch to ON.

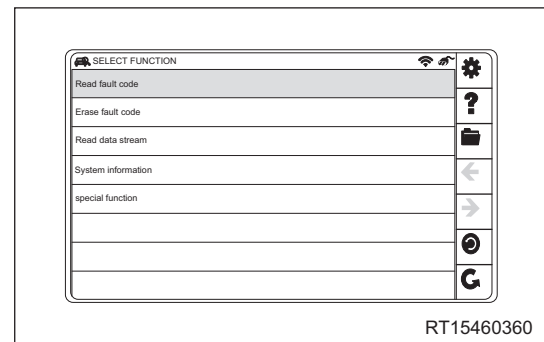
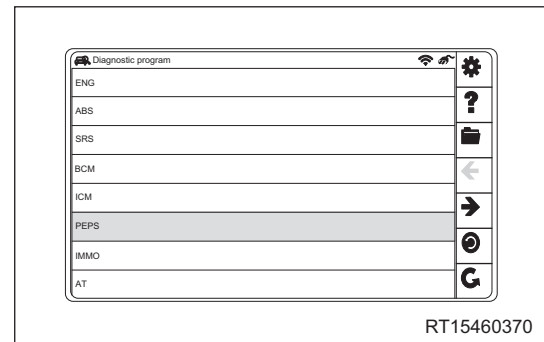
PEPS system menu operation instruction on X-431 3G diagnostic tester

1. X-431 3G main function menu
  - a. Read DTCs
  - b. Clear DTCs
  - c. Read DTCs
  - d. Write datastream
  - e. PEPS match
2. Diagnosis procedure and menu description
  - a. Use X-431 3G diagnostic tester to enter PEPS system, first select Chery model as shown in illustration.
  - b. Enter Diagnosis program version menu, and select the highest version as shown in illustration.
  - c. Enter Diagnostic program menu and select T15 model. Click and enter Diagnostic program for this model as shown in illustrations.



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- d. Click and enter PEPS, SELECT FUNCTION menu is shown as illustration.



## 3. Read DTCs

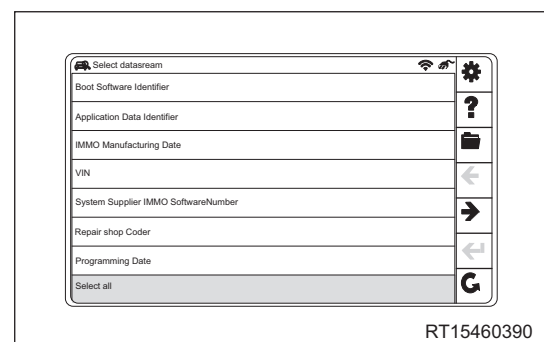
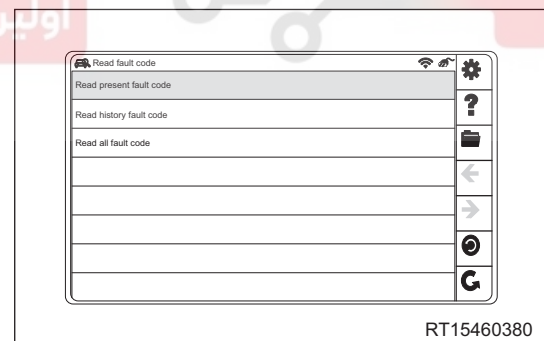
As shown in illustration, check current DTCs for immobilizer system by reading Diagnostic Trouble Codes (DTCs).

## 4. Clear DTCs

If DTC is read, it can be cleared using diagnostic tester. If DTC can be read again after clearing, find out the cause of malfunction. As shown in illustration, perform DTC clearing after clearing DTC, read DTC again to confirm whether the DTC has been repaired.

## 5. Read datastream

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



## 6. Write datastream

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

RT15460400

## 7. PEPS Match (Immobilizer System Match)

- a. As shown in illustrations, select special function and enter PEPS configuration information.

RT15460410

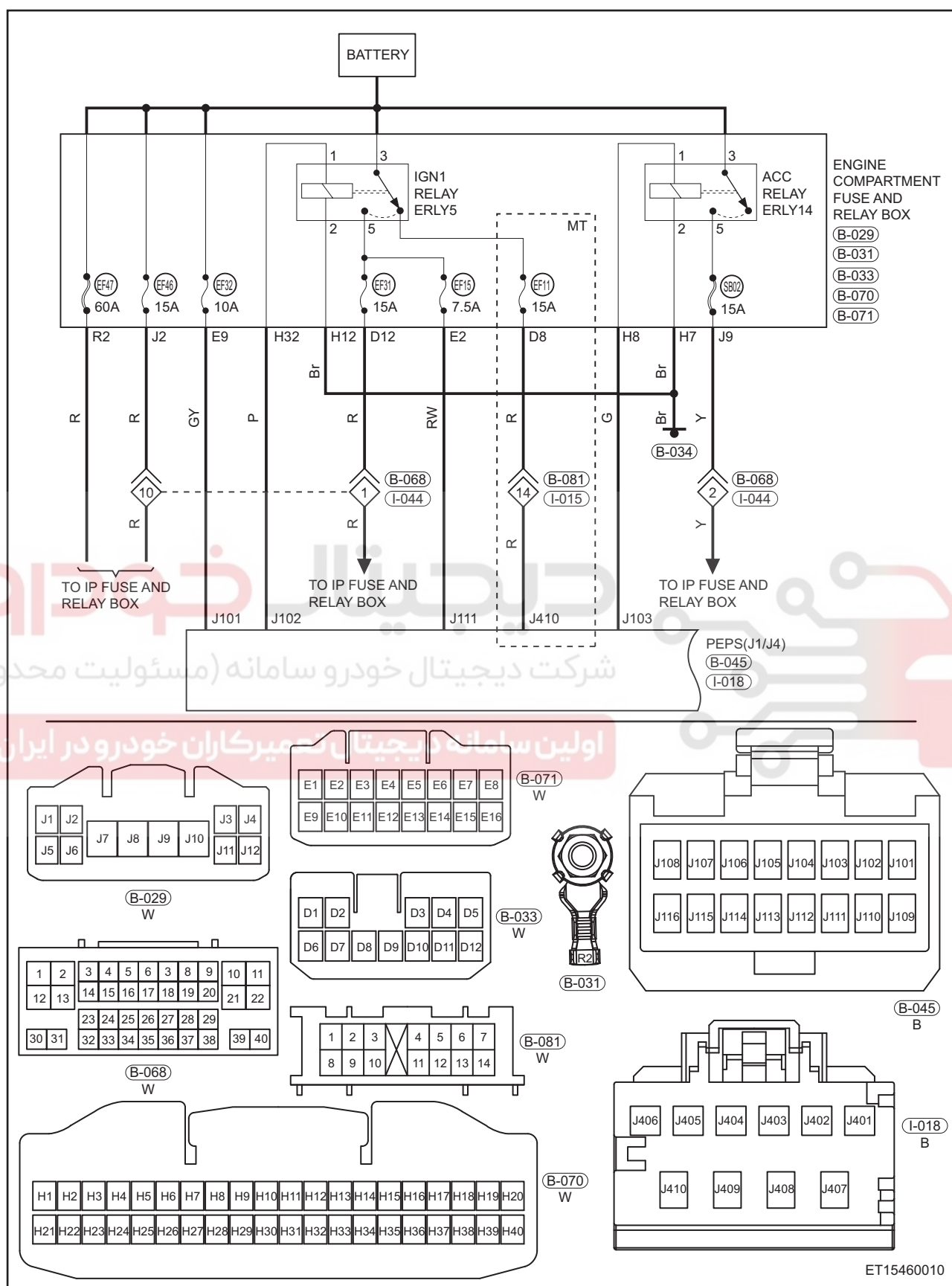
RT15460420

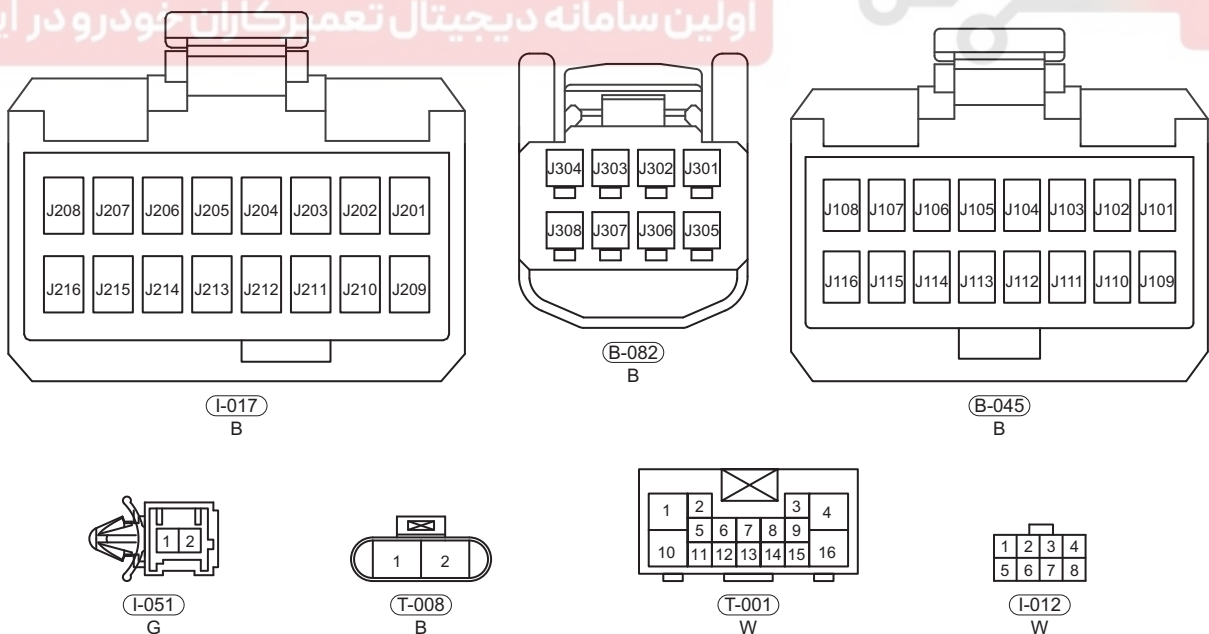
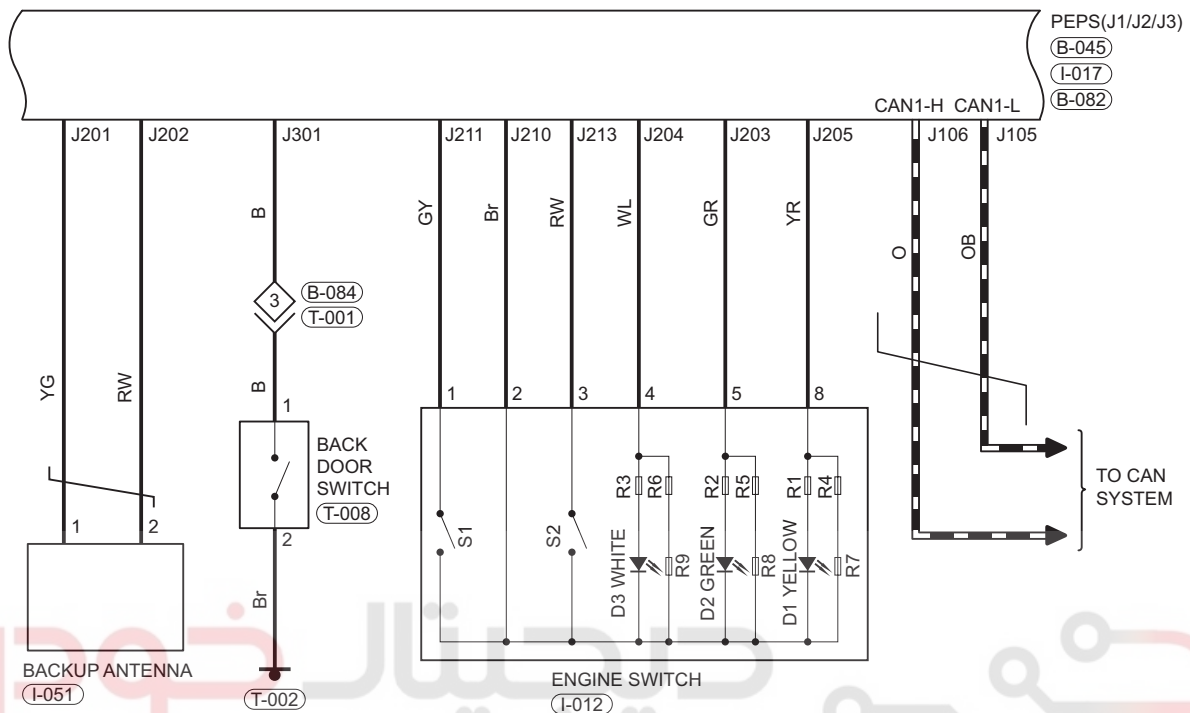
RT15460430

## CAUTION

- PEPS matching is also called anti-theft and immobilizer system matching, PEPS and engine immobilizer system matching are completed in this menu.
- For T15 models with PEPS system, matching of engine immobilizer system and body anti-theft system is synchronous, that is, engine anti-theft key matching is completed in this menu. At the same time, body anti-theft system matching is also completed.

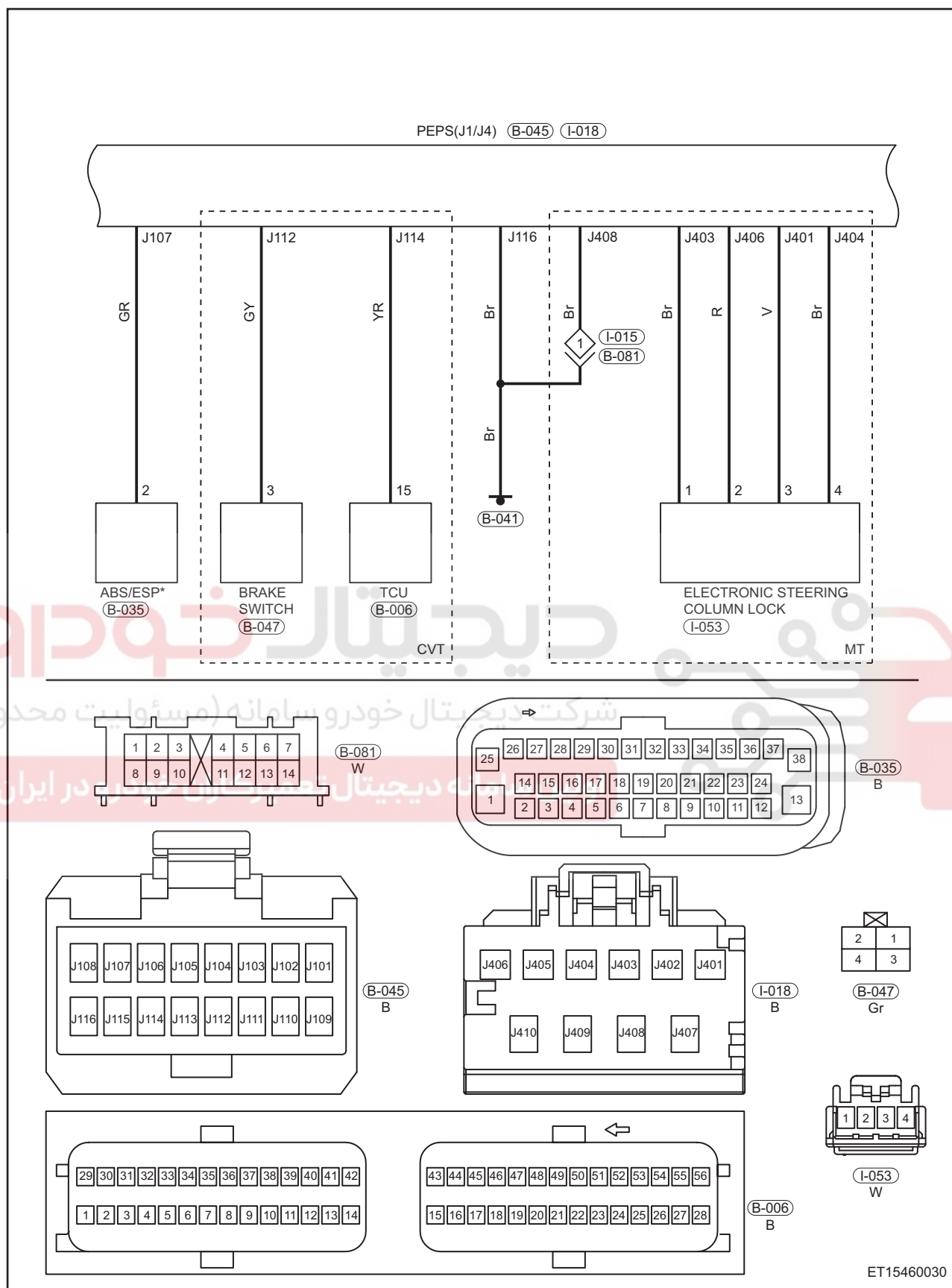
## Circuit Diagram

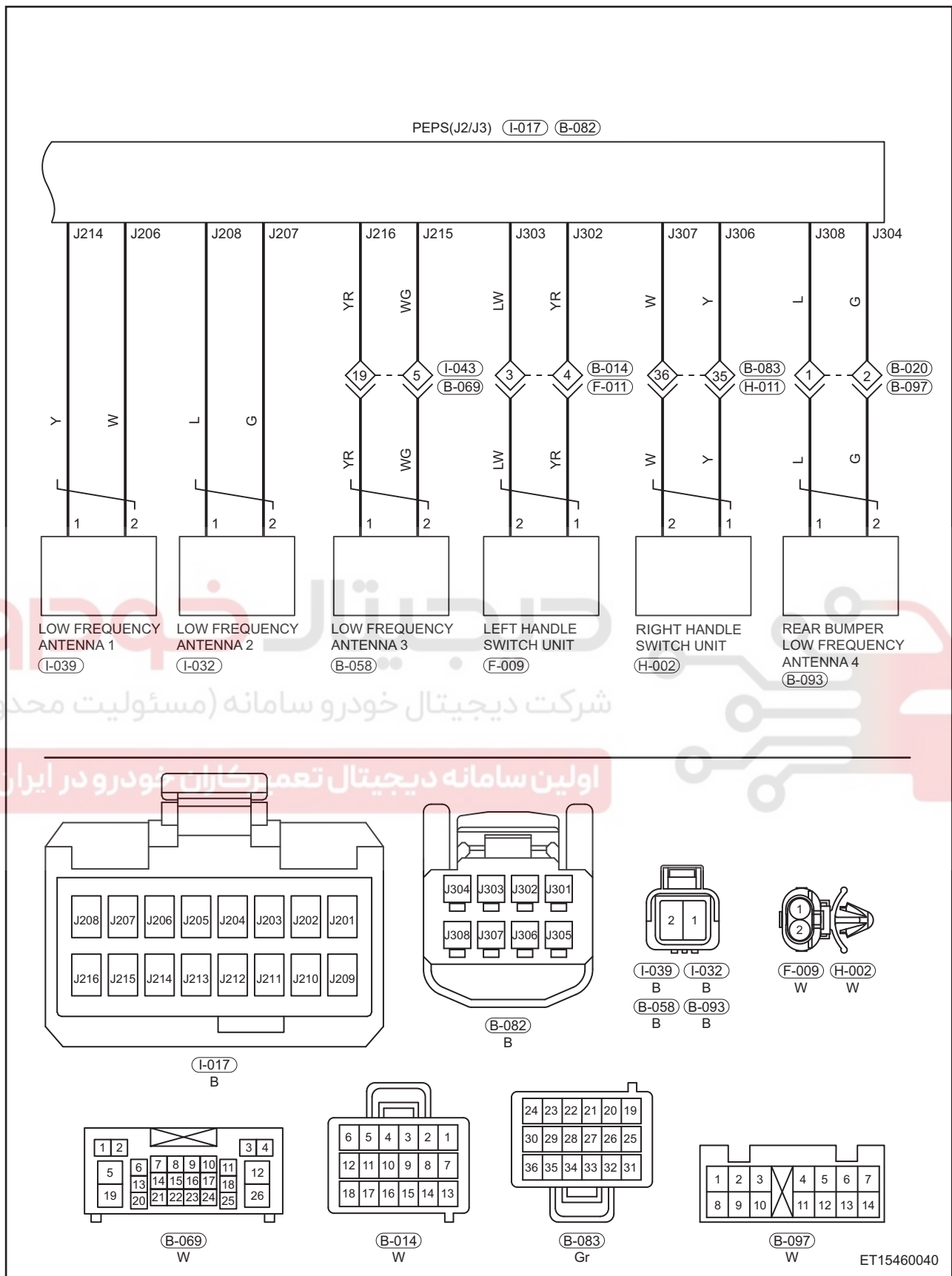




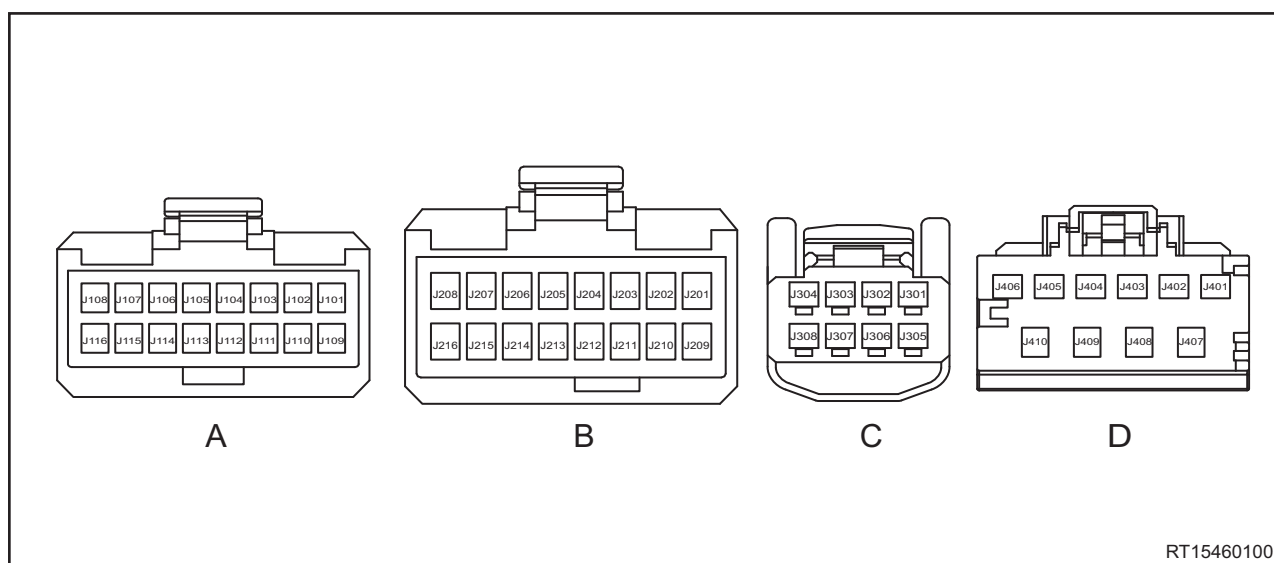
ET15460020

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## PEPS Terminal Definition



## Connector J1 Terminal Definition

| Terminal No. | Terminal Definition    | Terminal No. | Terminal Definition      |
|--------------|------------------------|--------------|--------------------------|
| J101         | Battery Power Supply   | J109         | -                        |
| J102         | IG1 Relay Drive (High) | J110         | Starter Relay Inspection |
| J103         | ACC Relay Drive (High) | J111         | Ignition Signal          |
| J104         | IG2 Relay Drive (High) | J112         | Brake Switch Signal      |
| J105         | CAN-L                  | J113         | Starter Relay (High)     |
| J106         | CAN-H                  | J114         | Gear Position Signal     |
| J107         | Hard Wire Speed Signal | J115         | -                        |
| J108         | -                      | J116         | GND                      |

## Connector J2 Terminal Definition

| Terminal No. | Terminal Definition              | Terminal No. | Terminal Definition              |
|--------------|----------------------------------|--------------|----------------------------------|
| J201         | Immobilizer Coil Positive        | J209         | -                                |
| J202         | Immobilizer Coil Negative        | J210         | Engine Switch Ground             |
| J203         | Engine Switch Indicator (Green)  | J211         | Engine Switch 1                  |
| J204         | Engine Switch Backlight (White)  | J212         | -                                |
| J205         | Engine Switch Indicator (Amber)  | J213         | Engine Switch 2                  |
| J206         | Low Frequency Antenna 1 Negative | J214         | Low Frequency Antenna 1 Positive |
| J207         | Low Frequency Antenna 2 Negative | J215         | Low Frequency Antenna 3 Negative |
| J208         | Low Frequency Antenna 2 Positive | J216         | Low Frequency Antenna 3 Positive |

## Connector J3 Terminal Definition

| Terminal No. | Terminal Definition                                            | Terminal No. | Terminal Definition                                             |
|--------------|----------------------------------------------------------------|--------------|-----------------------------------------------------------------|
| J301         | Back Door Unlock Signal                                        | J305         | -                                                               |
| J302         | Front Left Door Handle Sensor (Low Frequency Antenna) Negative | J306         | Front Right Door Handle Sensor (Low Frequency Antenna) Negative |
| J303         | Front Left Door Handle Sensor (Low Frequency Antenna) Positive | J307         | Front Right Door Handle Sensor (Low Frequency Antenna) Positive |
| J304         | Back Door Low Frequency Antenna Negative                       | J308         | Back Door Low Frequency Antenna Positive                        |

## Connector J4 Terminal Definition

| Terminal No. | Terminal Definition                                 | Terminal No. | Terminal Definition                        |
|--------------|-----------------------------------------------------|--------------|--------------------------------------------|
| J401         | Electric Steering Column Lock Module Control Ground | J406         | Electric Steering Column Lock Power Source |
| J402         | -                                                   | J407         | -                                          |
| J403         | Electric Steering Column Lock Ground                | J408         | Ground                                     |
| J404         | Electric Steering Column Lock Control Line          | J409         | -                                          |
| J405         | -                                                   | J410         | IG1 Power Supply                           |

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## DIAGNOSIS & TESTING

### Diagnostic Help

1. Connect X-431 3G diagnostic tester (the latest software) to Data Link Connector (DLC), and make it communicate with vehicle electronic module through data network.
2. Confirm that malfunction is current, and carry out diagnostic test and repair procedures.
3. If DTC cannot be deleted, the malfunction is current.
4. Visually check related wire harness and connector.
5. Check and clean all wire harness connectors and grounds related to current DTC.
6. If multiple trouble codes were set, refer to circuit diagrams to look for any common ground circuit or power supply circuit applied to DTC.
7. Refer to any Technical Bulletin that may apply to malfunction.

### Intermittent DTC Troubleshooting

If malfunction is intermittent, perform the followings:

1. Check if connectors are loose.
2. Check if wire harnesses are worn, pierced, pinched or partially broken.
3. Wiggle related wire harnesses and connectors and observe if signal is interrupted in related circuit.
4. If possible, try to duplicate the conditions under which DTC was set.
5. Look for data that has changed or the DTC to be reset during wiggle test.
6. Look for broken, bent, protruded or corroded terminals.
7. Check and clean all wire harness connectors and grounding parts related to current DTC.
8. Remove PEPS controller from malfunctioning vehicle and install it to a new vehicle and perform a test. If DTC cannot be cleared, PEPS controller is malfunctioning. If DTC can be cleared, reinstall PEPS controller to original vehicle.
9. If multiple trouble codes were set, refer to circuit diagrams to look for any common ground circuit or power supply circuit applied to DTC.
10. Refer to Technical Bulletin that is applied to malfunction.

### Ground Inspection

Groundings are often exposed to moisture, dirt or other corrosive environments. Corrosion (rust) can increase resistance which will change the way in which a circuit works. A loose or corroded ground can drastically affect electronically controlled circuit. Perform following operations:

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1. Remove ground bolt or nut.
2. Check all contact surfaces for tarnish, dirt, rust, etc.
3. Clean as necessary to ensure that contacting is in a good condition.
4. Reinstall bolt or nut securely.
5. Check if add-on accessories interfere with ground circuit.
6. If several wire harnesses are crimped into one ground eyelet terminal, check if they are installed correctly. Make sure that all wires are clean, securely fastened and good contacted without crimping any excessive insulation coat.

## Diagnostic Trouble Code (DTC) Chart

| Failure Type Byte (Hex) | Description                     |
|-------------------------|---------------------------------|
| 00                      | No subtype information          |
| 13                      | Circuit open                    |
| 19                      | Circuit current above threshold |
| 88                      | Bus Off CAN                     |
| 87                      | Missing message                 |
| 55                      | Not configured                  |

|          |                                                         |
|----------|---------------------------------------------------------|
| B1500-13 | Driver Door Outside LF Antenna                          |
| B1501-13 | Passenger Door Outside LF Antenna                       |
| B1502-13 | Front Internal LF Antenna                               |
| B1503-13 | Middle Internal LF Antenna                              |
| B1504-13 | Rear Internal LF Antenna                                |
| B1505-13 | Bumper LF Antenna                                       |
| B1506-00 | Abnormality on Switches of Engine Switch                |
| B1507-00 | Abnormality in IG Circuit                               |
| B1508-00 | Abnormality in ACC Circuit                              |
| B1509-00 | Abnormality in Brake Signal                             |
| B150A-00 | Abnormality in Vehicle Speed Signal                     |
| B150C-00 | Clutch Switch Signal Error                              |
| B150D-00 | Abnormality on ESCL LCK_GND                             |
| B150E-00 | Abnormality on ESCL LCK_PS                              |
| B150F-00 | ESCL Anti-scanning                                      |
| B1510-00 | Abnormality on Wheel Speed Signal                       |
| B1511-00 | Abnormality in ESCL Lock                                |
| B1512-00 | Abnormality in ESCL Unlock                              |
| B1513-00 | ESCL External Failure                                   |
| B1514-00 | Abnormality on STAR Power Supply                        |
| B1515-45 | ROM Checksum Failure                                    |
| B1516-19 | HSU Overload                                            |
| B1517-23 | HSU Switch Continuously Pressed                         |
| B1518-23 | Trunk/Back Door Unlock Switch Stuck Failure             |
| B1519-23 | Back Door Lock Switch Continuously Pressed              |
| U0073-88 | CAN Bus Off                                             |
| U0100-87 | Lost of Communication with Engine Control System Module |
| U0101-87 | Lost of Communication with Transmission Control Unit    |

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|          |                                                         |
|----------|---------------------------------------------------------|
| U0129-87 | Lost Communication with Brake System Module             |
| U0140-87 | Lost Communication with Body Control Module             |
| U0329-87 | Lost Communication with Electronic Steering Column Lock |
| U1300-55 | Software Configuration Error                            |

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|     |          |                                  |
|-----|----------|----------------------------------|
| DTC | B1507-00 | Abnormality in IG Circuit        |
| DTC | B1508-00 | Abnormality in ACC Circuit       |
| DTC | B1514-00 | Abnormality on STAR Power Supply |

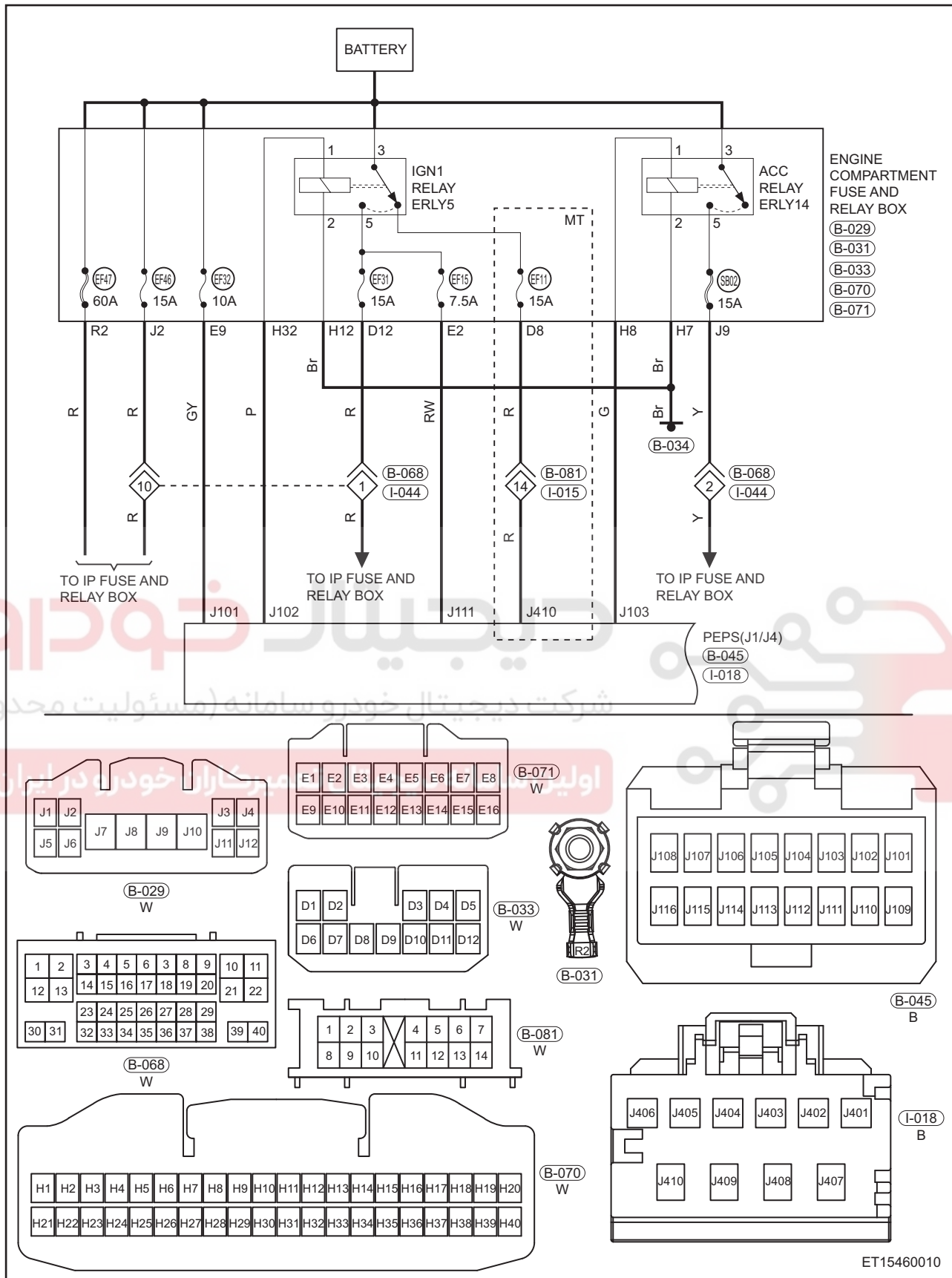
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ET15460010

| DTC      | DTC Definition                   | DTC Detection Condition              | Possible Cause                                                                                                                                                                                                                                                                   |
|----------|----------------------------------|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| B1507-00 | Abnormality in IG Circuit        | Engine switch ON, engine not running | <ul style="list-style-type: none"> <li>• Wire harness or connector damaged</li> <li>• Fuse</li> <li>• IGN1 relay</li> <li>• IGN2 relay</li> <li>• ACC relay</li> <li>• Engine switch</li> <li>• Passive Entry &amp; Passive Start (PEPS) controller</li> <li>• Ground</li> </ul> |
| B1508-00 | Abnormality in ACC Circuit       |                                      |                                                                                                                                                                                                                                                                                  |
| B1514-00 | Abnormality on STAR Power Supply |                                      |                                                                                                                                                                                                                                                                                  |

**CAUTION**

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

**1 Check battery voltage**

- Connect negative battery cable, turn engine switch to ON, and engine runs normally.
- Using voltage band of multimeter, check battery voltage.

**Standard Condition**

| Multimeter Connection                       | Condition        | Specified Condition |
|---------------------------------------------|------------------|---------------------|
| Battery positive (+) - Battery negative (-) | Engine switch ON | 12 V to 13.8 V      |

**NG****Check battery charging system****OK****Go to next step****NEXT****47****2 Check fuse**

- Turn engine switch to OFF.
- Using voltage band of multimeter, check if fuses EF15 (7.5 A), EF11 (10 A) and EF32 (10 A) are normal.

**NG****Replace fuse****OK****Go to next step****NEXT**

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**3****Check ground**

- a. Turn engine switch to OFF.
- b. Disconnect the negative battery cable and check PEPES ground point ([See page 47-16](#)).

**NG****Repair or replace ground point****OK****End**

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|     |          |                                   |
|-----|----------|-----------------------------------|
| DTC | B1500-13 | Driver Door Outside LF Antenna    |
| DTC | B1501-13 | Passenger Door Outside LF Antenna |
| DTC | B1516-19 | HSU Overload                      |
| DTC | B1517-23 | HSU Switch Continuously Pressed   |

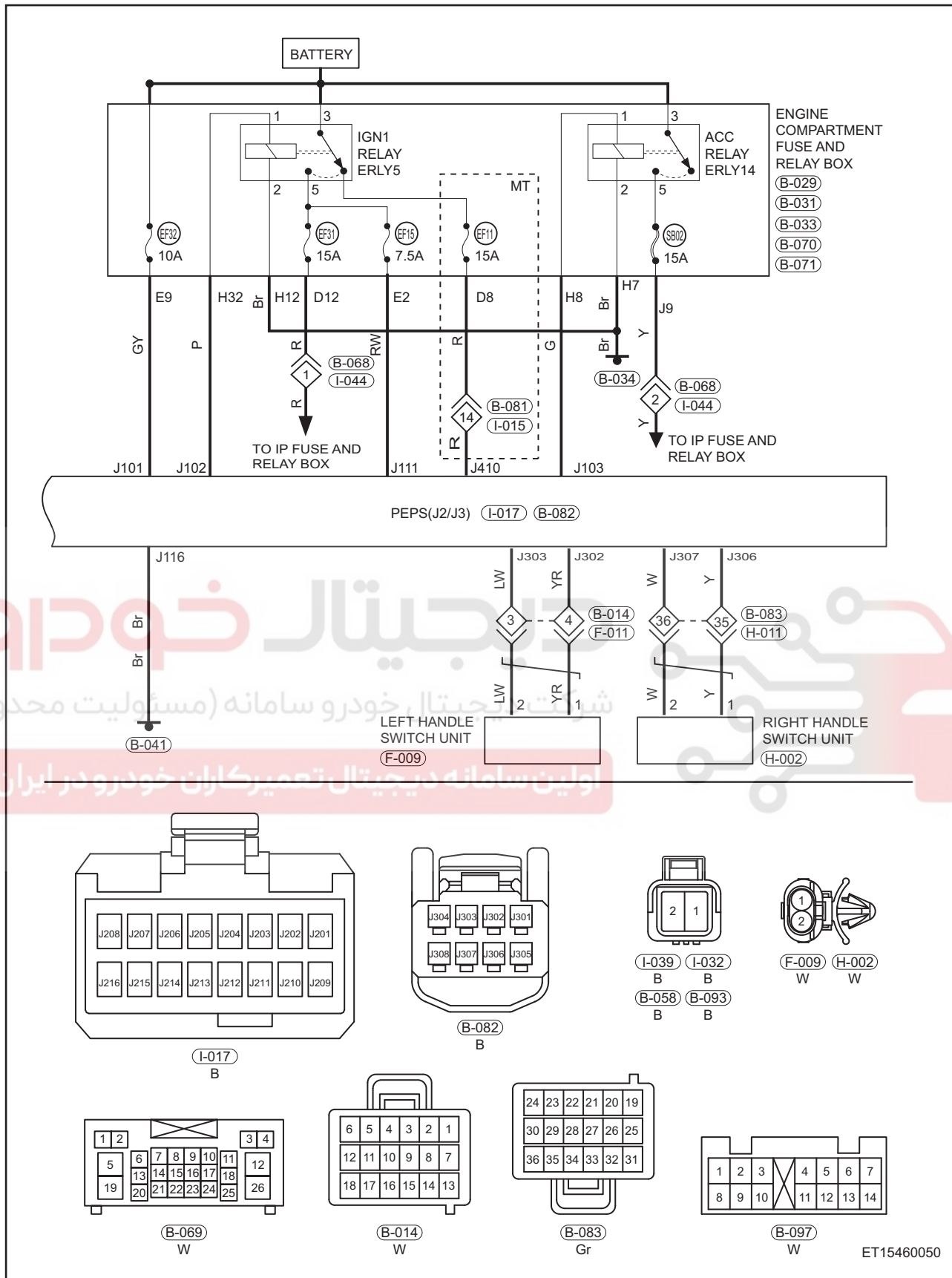
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| DTC      | DTC Definition                    | DTC Detection Condition                 | Possible Cause                                                                                                                                                                                                                                                          |
|----------|-----------------------------------|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| B1500-13 | Driver Door Outside LF Antenna    | Engine switch ON,<br>engine not running | <ul style="list-style-type: none"> <li>• Wire harness or connector damaged</li> <li>• Outside low frequency antenna on driver side</li> <li>• Outside low frequency antenna on passenger side</li> <li>• Passive Entry &amp; Passive Start (PEPS) controller</li> </ul> |
| B1501-13 | Passenger Door Outside LF Antenna |                                         |                                                                                                                                                                                                                                                                         |
| B1516-19 | HSU Overload                      |                                         |                                                                                                                                                                                                                                                                         |
| B1517-23 | HSU Switch Continuously Pressed   |                                         |                                                                                                                                                                                                                                                                         |

**CAUTION**

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

**1 Check ground point**

- Disconnect negative battery cable, and turn engine switch to OFF.
- Check the PEPS module ground point.

**NG****Repair or replace ground wire harness or ground point****OK****Go to next step****NEXT****2 Check wire harness and connector**

- Turn engine switch to OFF.
- Disconnect front left door handle connector F-009, front right door handle connector H-002 and PEPS module connector B-082.

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- c. Using ohm band of multimeter, check for continuity between F-009 (2) and ground, continuity between F-009 (1) and ground, continuity between H-002 (2) and ground, and continuity between H-002 (1) and ground.

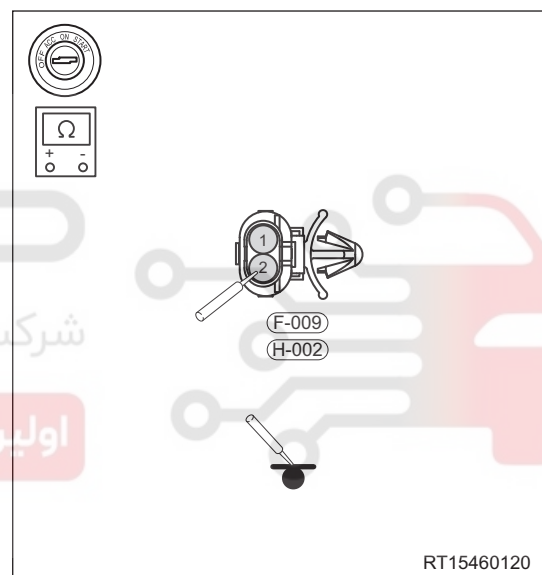
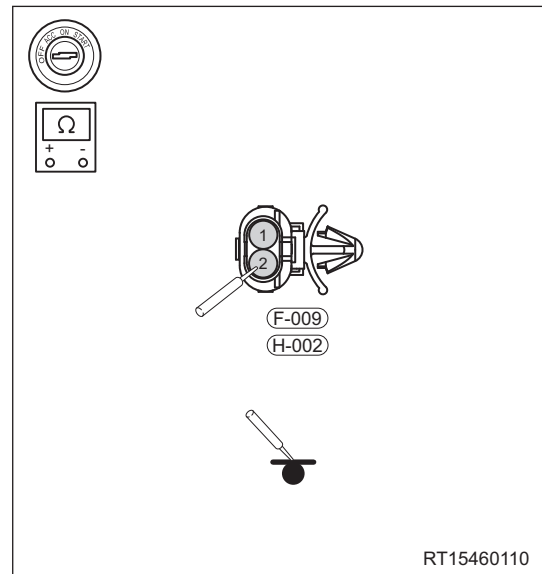
**Check for Short**

| Multimeter Connection | Condition         | Specified Condition |
|-----------------------|-------------------|---------------------|
| F-009 (2) - Ground    | Engine switch OFF | No continuity       |
| F-009 (1) - Ground    | Engine switch OFF | No continuity       |
| H-002 (2) - Ground    | Engine switch OFF | No continuity       |
| H-002 (1) - Ground    | Engine switch OFF | No continuity       |

- d. Using ohm band of multimeter, check for continuity between F-009 (2) and battery positive (+), continuity between F-009 (1) and battery positive (+), continuity between H-002 (2) and battery positive (+), and continuity between H-002 (1) and battery positive (+).

**Check for Short**

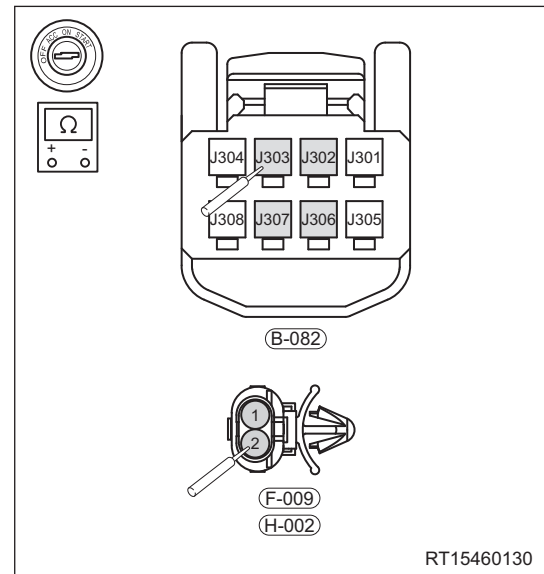
| Multimeter Connection            | Condition         | Specified Condition |
|----------------------------------|-------------------|---------------------|
| F-009 (2) - Battery positive (+) | Engine switch OFF | No continuity       |
| F-009 (1) - Battery positive (+) | Engine switch OFF | No continuity       |
| H-002 (2) - Battery positive (+) | Engine switch OFF | No continuity       |
| H-002 (1) - Battery positive (+) | Engine switch OFF | No continuity       |



- e. Using ohm band of multimeter, check for continuity between B-082 (J303) and F-009 (2), continuity between B-082 (J302) and F-009 (1), continuity between B-082 (J307) and H-002 (2), and continuity between B-082 (J306) and H-002 (1).

#### Check for Open

| Multimeter Connection    | Condition         | Specified Condition |
|--------------------------|-------------------|---------------------|
| B-082 (J303) - F-009 (2) | Engine switch OFF | Continuity          |
| B-082 (J302) - F-009 (1) | Engine switch OFF | Continuity          |
| B-082 (J307) - H-002 (2) | Engine switch OFF | Continuity          |
| B-082 (J306) - H-002 (1) | Engine switch OFF | Continuity          |



NG

Repair or replace control circuit wire harness and connector

3

### Replace front door handle assembly

- Turn engine switch to OFF.
- Replace front door handle assembly, and perform a test after matching PEPS.

OK

Replace front door handle assembly

NG

Replace PEPS module

## 47 - PEPS SYSTEM

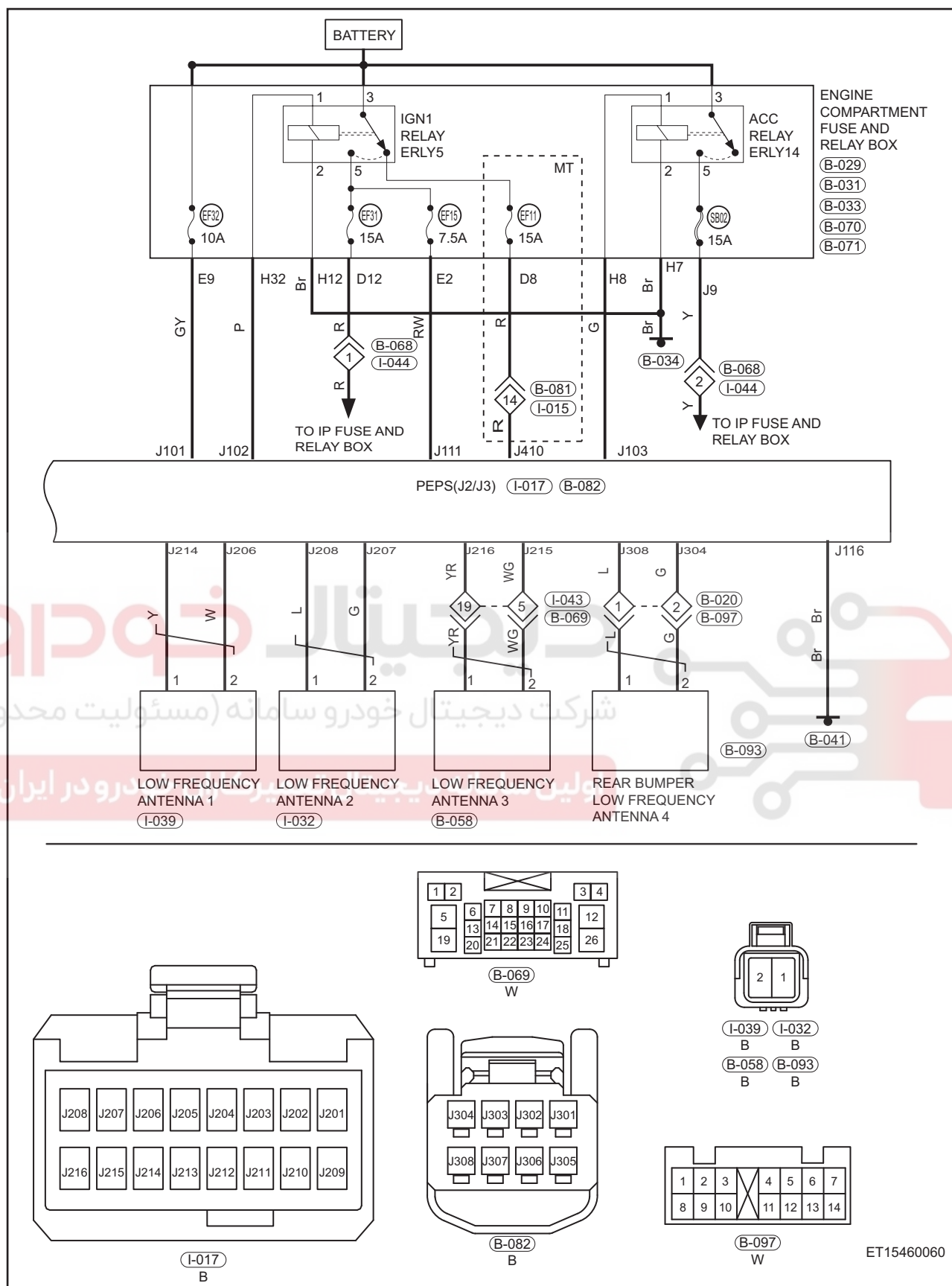
|     |          |                            |
|-----|----------|----------------------------|
| DTC | B1502-13 | Front Internal LF Antenna  |
| DTC | B1503-13 | Middle Internal LF Antenna |
| DTC | B1504-13 | Rear Internal LF Antenna   |
| DTC | B1505-13 | Bumper LF antenna          |

# دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران





## 47 - PEPS SYSTEM

| DTC      | DTC Definition             | DTC Detection Condition                 | Possible Cause                                                                                                                                                                                                                                                                                       |
|----------|----------------------------|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| B1502-13 | Front Internal LF Antenna  | Engine switch ON,<br>engine not running | <ul style="list-style-type: none"> <li>• Wire harness or connector damaged</li> <li>• Front internal low frequency antenna</li> <li>• Middle internal low frequency antenna</li> <li>• Rear internal low frequency antenna</li> <li>• Passive Entry &amp; Passive Start (PEPS) controller</li> </ul> |
| B1503-13 | Middle Internal LF Antenna |                                         |                                                                                                                                                                                                                                                                                                      |
| B1504-13 | Rear Internal LF Antenna   |                                         |                                                                                                                                                                                                                                                                                                      |
| B1505-13 | Bumper LF Antenna          |                                         |                                                                                                                                                                                                                                                                                                      |

 CAUTION

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

**1** Check ground point

- Disconnect negative battery cable, and turn engine switch to OFF.
- Check the PEPS module ground point.

NG

Repair or replace ground wire harness or ground point

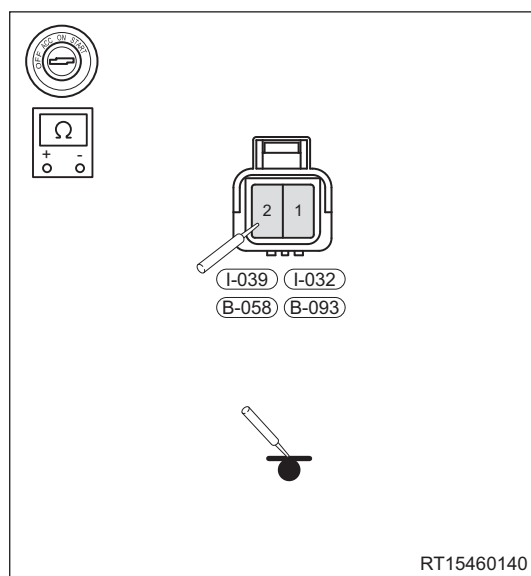
OK

Go to next step

NEXT

**2** Check wire harness and connector

- Turn engine switch to OFF.
- Disconnect 4 low frequent antenna connectors I-039, I-032, B-058 and B-093.
- Using ohm band of multimeter, check for continuity between I-039 (2) and ground, continuity between I-039 (1) and ground, continuity between I-032 (2) and ground, continuity between I-032 (1) and ground, continuity between B-058 (2) and ground, continuity between B-058 (1) and ground, continuity between B-093 (2) and ground, and continuity between B-093 (1) and ground.



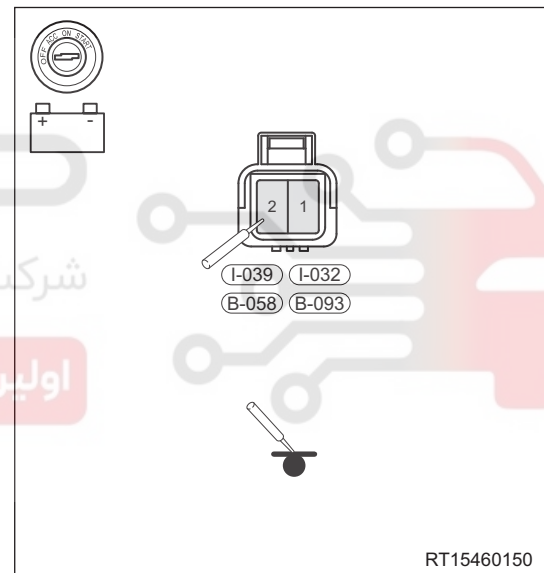
**Check for Short**

| Multimeter Connection | Condition         | Specified Condition |
|-----------------------|-------------------|---------------------|
| I-039 (2) - Ground    | Engine switch OFF | No continuity       |
| I-039 (1) - Ground    |                   |                     |
| I-032 (2) - Ground    |                   |                     |
| I-032 (1) - Ground    |                   |                     |
| B-058 (2) - Ground    |                   |                     |
| B-058 (1) - Ground    |                   |                     |
| B-093 (2) - Ground    |                   |                     |
| B-093 (1) - Ground    |                   |                     |

- d. Using ohm band of multimeter, check for continuity between I-039 (2) and battery positive (+), continuity between I-039 (1) and battery positive (+), continuity between I-032 (2) and battery positive (+), continuity between I-032 (1) and battery positive (+), continuity between B-058 (2) and battery positive (+), continuity between B-058 (1) and battery positive (+), continuity between B-093 (2) and battery positive (+), and continuity between B-093 (1) and battery positive (+).

**Check for Short**

| Multimeter Connection            | Condition         | Specified Condition |
|----------------------------------|-------------------|---------------------|
| I-039 (2) - Battery positive (+) | Engine switch OFF | No continuity       |
| I-039 (1) - Battery positive (+) | Engine switch OFF | No continuity       |
| I-032 (2) - Battery positive (+) | Engine switch OFF | No continuity       |
| I-032 (1) - Battery positive (+) | Engine switch OFF | No continuity       |
| B-058 (2) - Battery positive (+) | Engine switch OFF | No continuity       |
| B-058 (1) - Battery positive (+) | Engine switch OFF | No continuity       |
| B-093 (2) - Battery positive (+) | Engine switch OFF | No continuity       |



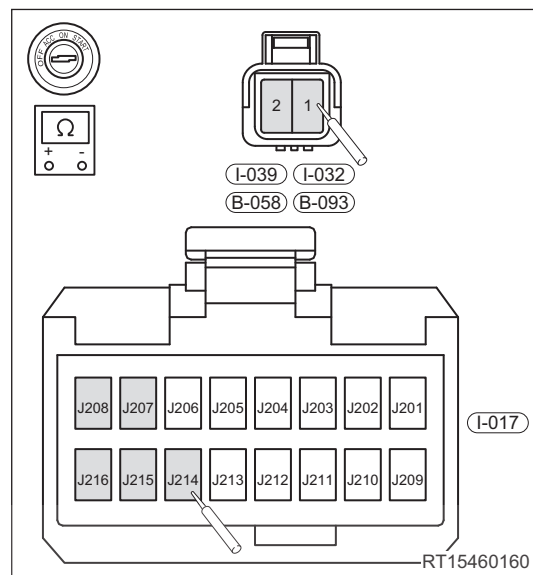
## 47 - PEPS SYSTEM

| Multimeter Connection            | Condition         | Specified Condition |
|----------------------------------|-------------------|---------------------|
| B-093 (1) - Battery positive (+) | Engine switch OFF | No continuity       |

- e. Using ohm band of multimeter, check for continuity between I-017 (J214) and I-039 (1), continuity between I-017 (J216) and I-039 (2), continuity between I-017 (J208) and I-032 (1), continuity between I-017 (J207) and I-032 (2), continuity between I-017 (J216) and B-058 (1), continuity between I-017 (J215) and B-058 (2), continuity between I-017 (J304) and B-093 (2), and continuity between B-082 (J302) and F-009 (1).

## Check for Open

| Multimeter Connection    | Condition         | Specified Condition |
|--------------------------|-------------------|---------------------|
| I-017 (J214) - I-039 (1) | Engine switch OFF | Continuity          |
| I-017 (J216) - I-039 (2) | Engine switch OFF | Continuity          |
| I-017 (J208) - I-032 (1) | Engine switch OFF | Continuity          |
| I-017 (J207) - I-032 (2) | Engine switch OFF | Continuity          |
| I-017 (J216) - B-058 (1) | Engine switch OFF | Continuity          |
| I-017 (J215) - B-058 (2) | Engine switch OFF | Continuity          |
| I-017 (J304) - B-093 (2) | Engine switch OFF | Continuity          |
| B-082 (J302) - F-009 (1) | Engine switch OFF | Continuity          |



NG

Repair or replace control circuit wire harness and connector

OK

Go to next step

NEXT

3

Replace low frequency antenna

- a. Turn engine switch to OFF.  
b. Replace low frequency antenna, and perform a test after performing self-learning again.

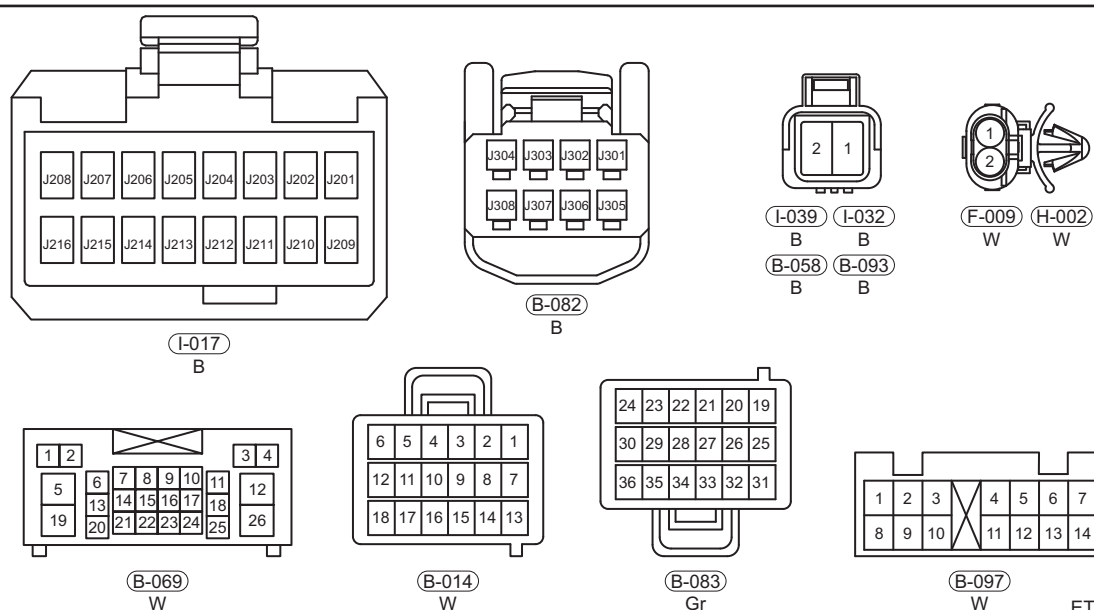
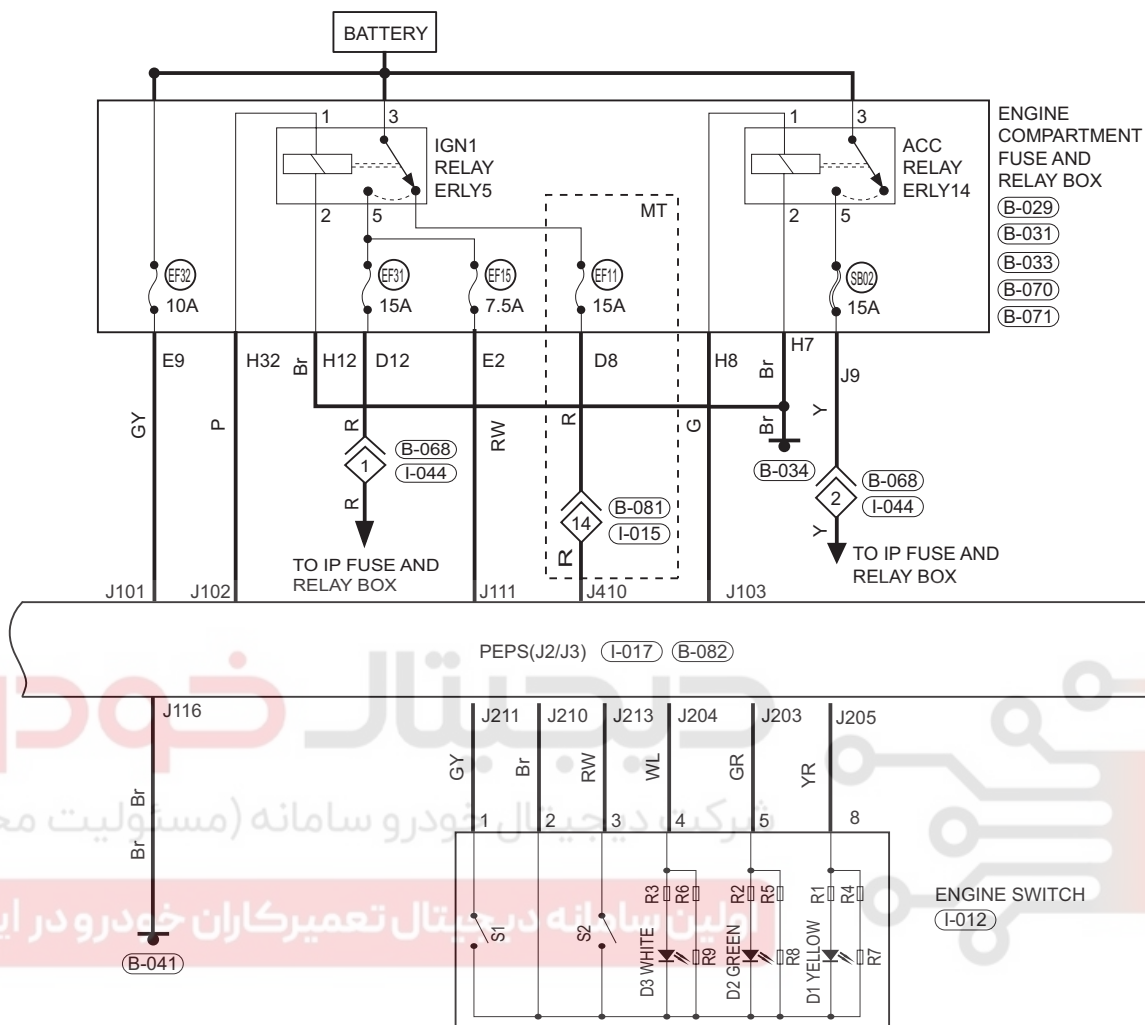
OK

Replace low frequency antenna

NG

Replace PEPS module

|     |          |                                          |
|-----|----------|------------------------------------------|
| DTC | B1506-00 | Abnormality on Switches of Engine Switch |
|-----|----------|------------------------------------------|



ET15460080

## 47 - PEPS SYSTEM

| DTC      | DTC Definition                           | DTC Detection Condition | Possible Cause                                                                                                                                                      |
|----------|------------------------------------------|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| B1506-00 | Abnormality on Switches of Engine Switch | Engine switch ON        | <ul style="list-style-type: none"> <li>Wire harness or connector damaged</li> <li>Connector</li> <li>Passive Entry &amp; Passive Start (PEPS) controller</li> </ul> |

 CAUTION

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

**1 Check ground point**

- Disconnect negative battery cable, and turn engine switch to OFF.
- Check the PEPS module ground point.

NG

Repair or replace ground wire harness or ground point

OK

Go to next step

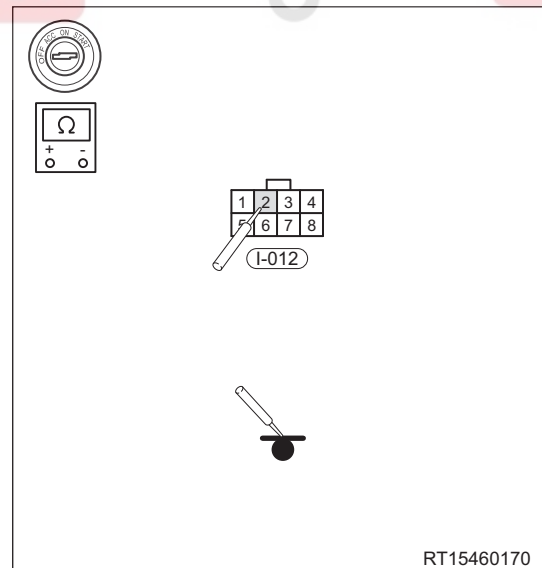
NEXT

**2 Check wire harness and connector**

- Turn engine switch to OFF.
- Disconnect the engine switch connector I-012.
- Using ohm band of multimeter, check for continuity between I-012 (2) and ground.

**Check for Short**

| Multimeter Connection | Condition         | Specified Condition |
|-----------------------|-------------------|---------------------|
| I-012 (2) - Ground    | Engine switch OFF | No continuity       |



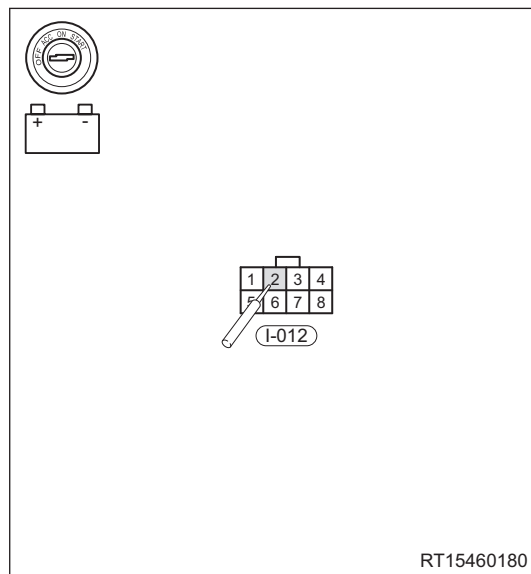
RT15460170

## 47 - PEPS SYSTEM

- d. Using ohm band of multimeter, check for continuity between I-012 (2) and battery positive (+).

**Check for Short**

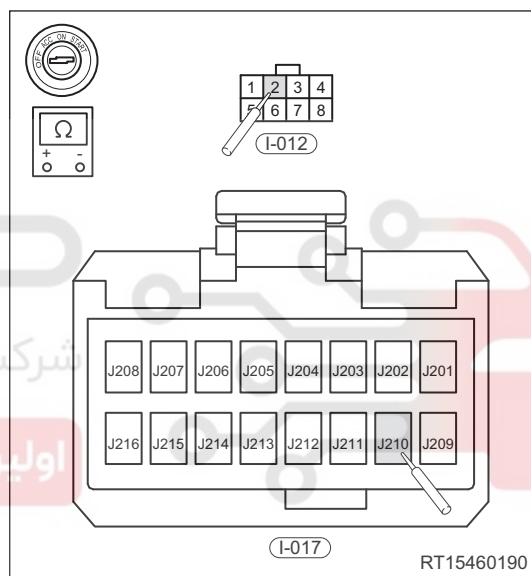
| Multimeter Connection            | Condition         | Specified Condition |
|----------------------------------|-------------------|---------------------|
| I-012 (2) - Battery positive (+) | Engine switch OFF | No continuity       |



- e. Using ohm band of multimeter, check for continuity between I-012 (2) and I-017 (210).

**Check for Open**

| Multimeter Connection   | Condition         | Specified Condition |
|-------------------------|-------------------|---------------------|
| I-012 (2) - I-017 (210) | Engine switch OFF | Continuity          |

**NG****Repair or replace control circuit wire harness and connector****OK****Go to next step****NEXT****3****Replace engine switch with a new one**

- a. Turn engine switch to OFF.  
b. Replace engine switch with a new one. Turn engine switch to ON and perform a test.

**OK****Replace engine switch****NG****Replace PEPS module**

## 47 - PEPS SYSTEM

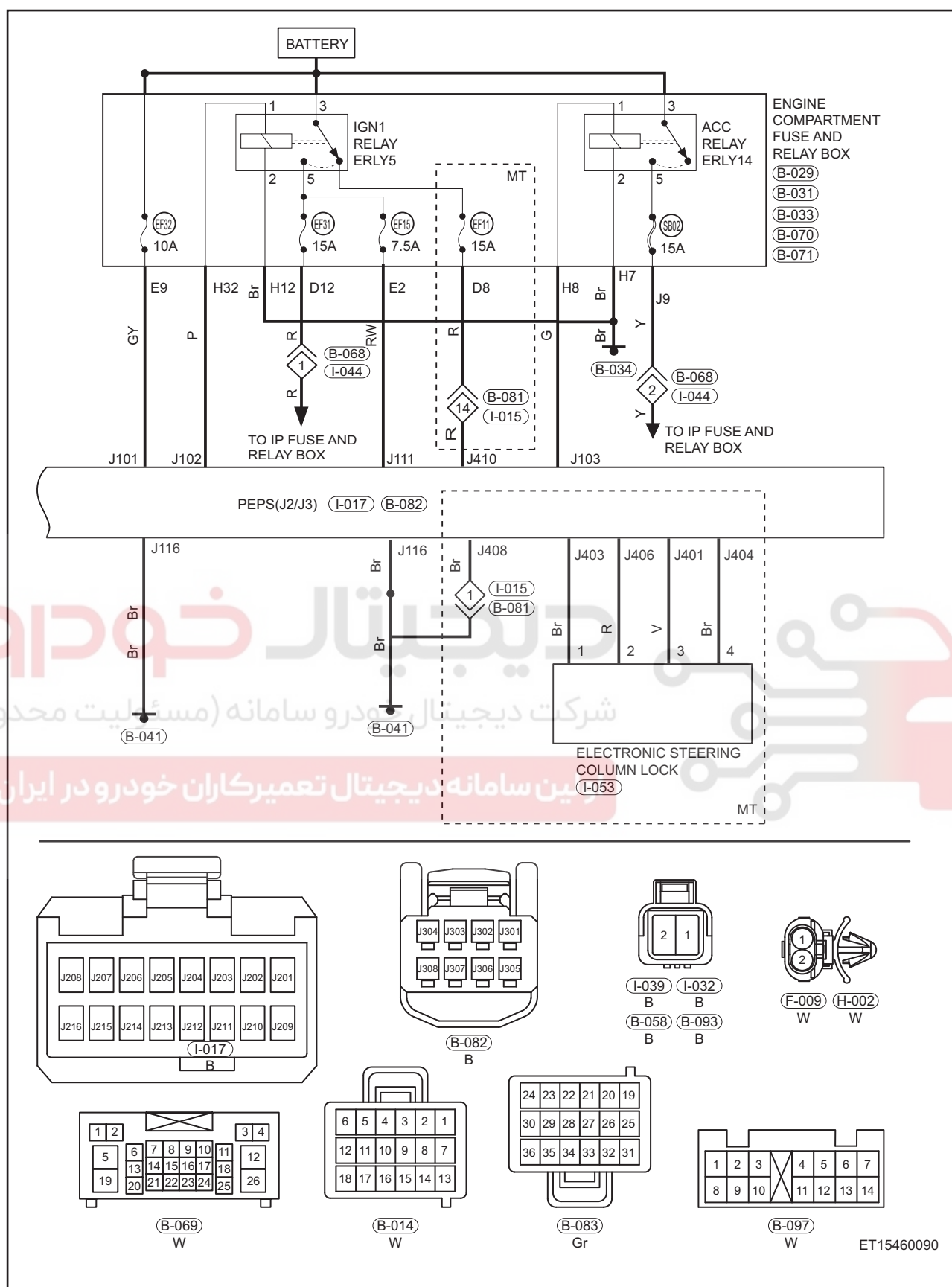
|     |          |                             |
|-----|----------|-----------------------------|
| DTC | B150D-00 | Abnormality on ESCL LCK_GND |
| DTC | B150E-00 | Abnormality on ESCL LCK_PS  |
| DTC | B150F-00 | ESCL Anti-scanning          |
| DTC | B1511-00 | Abnormality in ESCL Lock    |
| DTC | B1512-00 | Abnormality in ESCL Unlock  |
| DTC | B1513-00 | ESCL External Failure       |
| DTC | B1515-45 | ROM Checksumm Failure       |

# دیجیتال خودرو

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## 47 - PEPS SYSTEM

| DTC      | DTC Definition              | DTC Detection Condition              | Possible Cause                                                                                                                                                                                  |
|----------|-----------------------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| B150D-00 | Abnormality on ESCL LCK_GND | Engine switch ON, engine not running | <ul style="list-style-type: none"> <li>• Wire harness or connector damaged</li> <li>• Electronic steering column lock</li> <li>• Passive Entry &amp; Passive Start (PEPS) controller</li> </ul> |
| B150E-00 | Abnormality on ESCL LCK_PS  |                                      |                                                                                                                                                                                                 |
| B150F-00 | ESCL Anti-scanning          |                                      |                                                                                                                                                                                                 |
| B1511-00 | Abnormality in ESCL Lock    |                                      |                                                                                                                                                                                                 |
| B1512-00 | Abnormality in ESCL Unlock  |                                      |                                                                                                                                                                                                 |
| B1513-00 | ESCL External Failure       |                                      |                                                                                                                                                                                                 |
| B1515-45 | ROM Checksum Failure        |                                      |                                                                                                                                                                                                 |

 CAUTION

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

**1** Check ground point

- Disconnect negative battery cable, and turn engine switch to OFF.
- Check the PEPS module ground point.

NG

Repair or replace ground wire harness or ground point

OK

Go to next step

NEXT

47

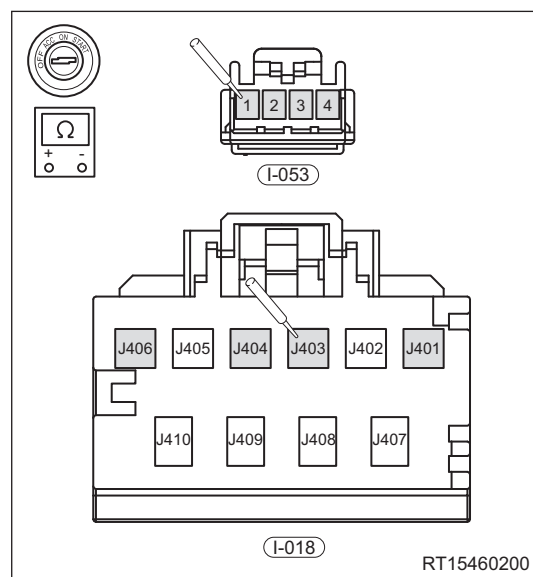
**2** Check wire harness and connector

- Turn engine switch to OFF.
- Disconnect the electronic steering column lock connector I-053.

- c. Using ohm band of multimeter, check for continuity between I-018 (J403) and I-053 (1), continuity between I-018 (J406) and I-053 (2), continuity between I-018 (J401) and I-053 (3), and continuity between I-018 (J404) and I-053 (4).

#### Check for Short

| Multimeter Connection    | Condition         | Specified Condition |
|--------------------------|-------------------|---------------------|
| I-018 (J403) - I-053 (1) | Engine switch OFF | Continuity          |
| I-018 (J406) - I-053 (2) | Engine switch OFF | Continuity          |
| I-018 (J401) - I-053 (3) | Engine switch OFF | Continuity          |
| I-018 (J404) - I-053 (4) | Engine switch OFF | Continuity          |



NG

Repair or replace control circuit wire harness and connector

OK

Go to next step

NEXT

3

Replace steering column lock

- a. Turn engine switch to OFF.  
b. Replace steering column lock with a new one, and perform a test after performing self-learning again.

OK

Replace steering column lock

NG

Replace PEPS module

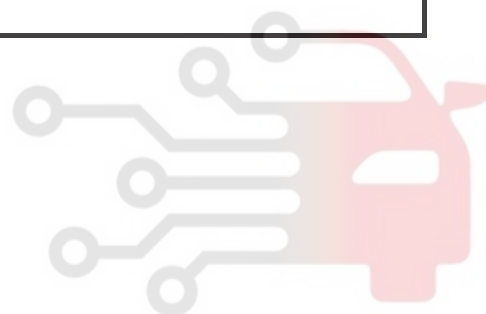
## 47 - PEPS SYSTEM

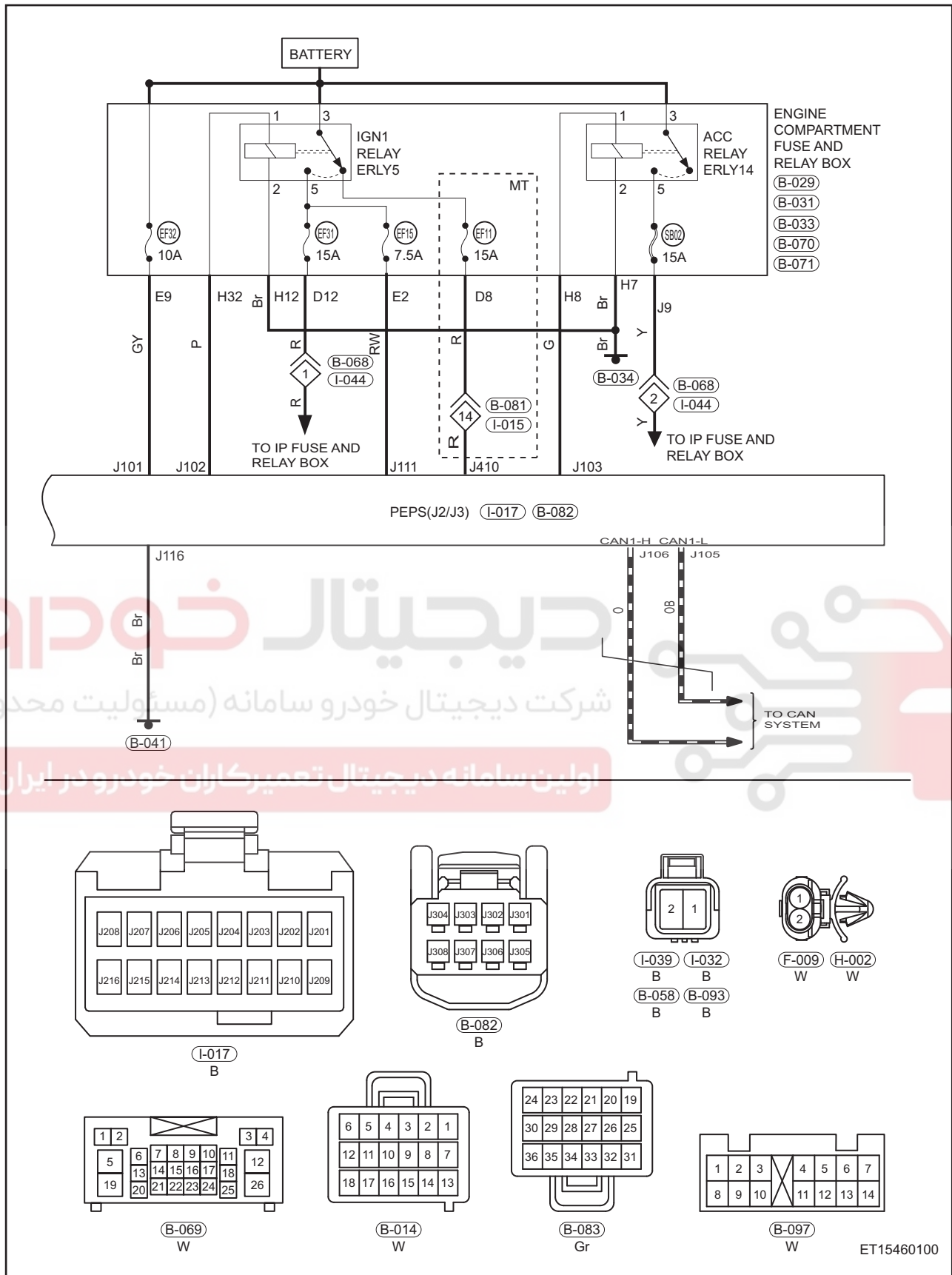
|     |          |                                                         |
|-----|----------|---------------------------------------------------------|
| DTC | U0073-88 | CAN Bus Off                                             |
| DTC | U0100-87 | Lost of Communication with Engine Control System Module |
| DTC | U0101-87 | Lost of Communication with Transmission Control Unit    |
| DTC | U0129-87 | Lost Communication with Brake System Module             |
| DTC | U0140-87 | Lost Communication with Body Control Module             |
| DTC | U0329-87 | Lost Communication with Electronic Steering Column Lock |
| DTC | U1300-55 | Software Configuration Error                            |
| DTC | B1509-00 | Abnormality in Brake Signal                             |
| DTC | B150C-00 | Clutch Switch Signal Error                              |

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

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## 47 - PEPS SYSTEM

| DTC      | DTC Definition                                          | DTC Detection Condition                 | Possible Cause                                                                                                        |
|----------|---------------------------------------------------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| U0073-88 | CAN Bus Off                                             | Engine switch ON,<br>engine not running | <ul style="list-style-type: none"> <li>CAN network failure</li> <li>Module failure</li> <li>Ground failure</li> </ul> |
| U0100-87 | Lost of Communication with Engine Control System Module |                                         |                                                                                                                       |
| U0101-87 | Lost of Communication with Transmission Control Unit    |                                         |                                                                                                                       |
| U0129-87 | Lost Communication with Brake System Module             |                                         |                                                                                                                       |
| U0140-87 | Lost Communication with Body Control Module             |                                         |                                                                                                                       |
| U0329-87 | Lost Communication with Electronic Steering Column Lock |                                         |                                                                                                                       |
| U1300-55 | Software Configuration Error                            |                                         |                                                                                                                       |
| B1509-00 | Abnormality in Brake Signal                             |                                         |                                                                                                                       |
| B150C-00 | Clutch Switch Signal Error                              |                                         |                                                                                                                       |

 CAUTION

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

**1** Check ground point

- Disconnect negative battery cable, and turn engine switch to OFF.
- Check the PEPS module ground point.

NG

Repair or replace ground wire harness or ground point

OK

Go to next step

NEXT

**2** Check CAN network

- Turn engine switch to OFF.
- Disconnect the PEPS module connector B-045.

## 47 - PEPS SYSTEM

- c. Using ohm band of multimeter, check resistance between terminals B-045 (J106) and B-045 (J105) of PEPS module.

**Standard Condition**

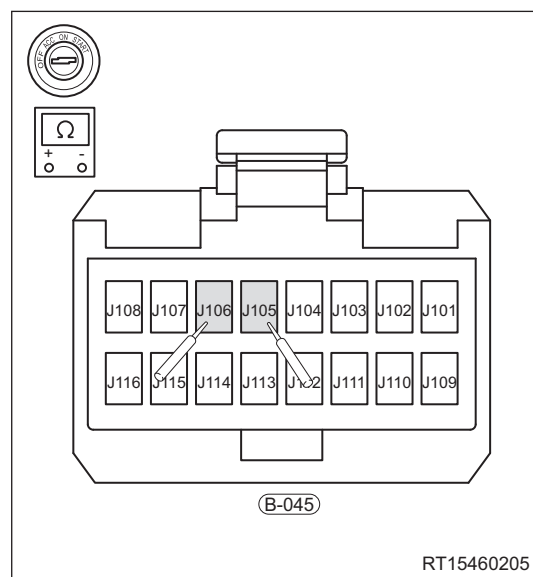
| Multimeter Connection       | Condition         | Specified Condition |
|-----------------------------|-------------------|---------------------|
| B-045 (J106) - B-045 (J105) | Engine switch OFF | 120 $\Omega$        |

NG

Replace PEPS module

OK

Replace CAN network wire harness



# دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



## 47 - PEPS SYSTEM

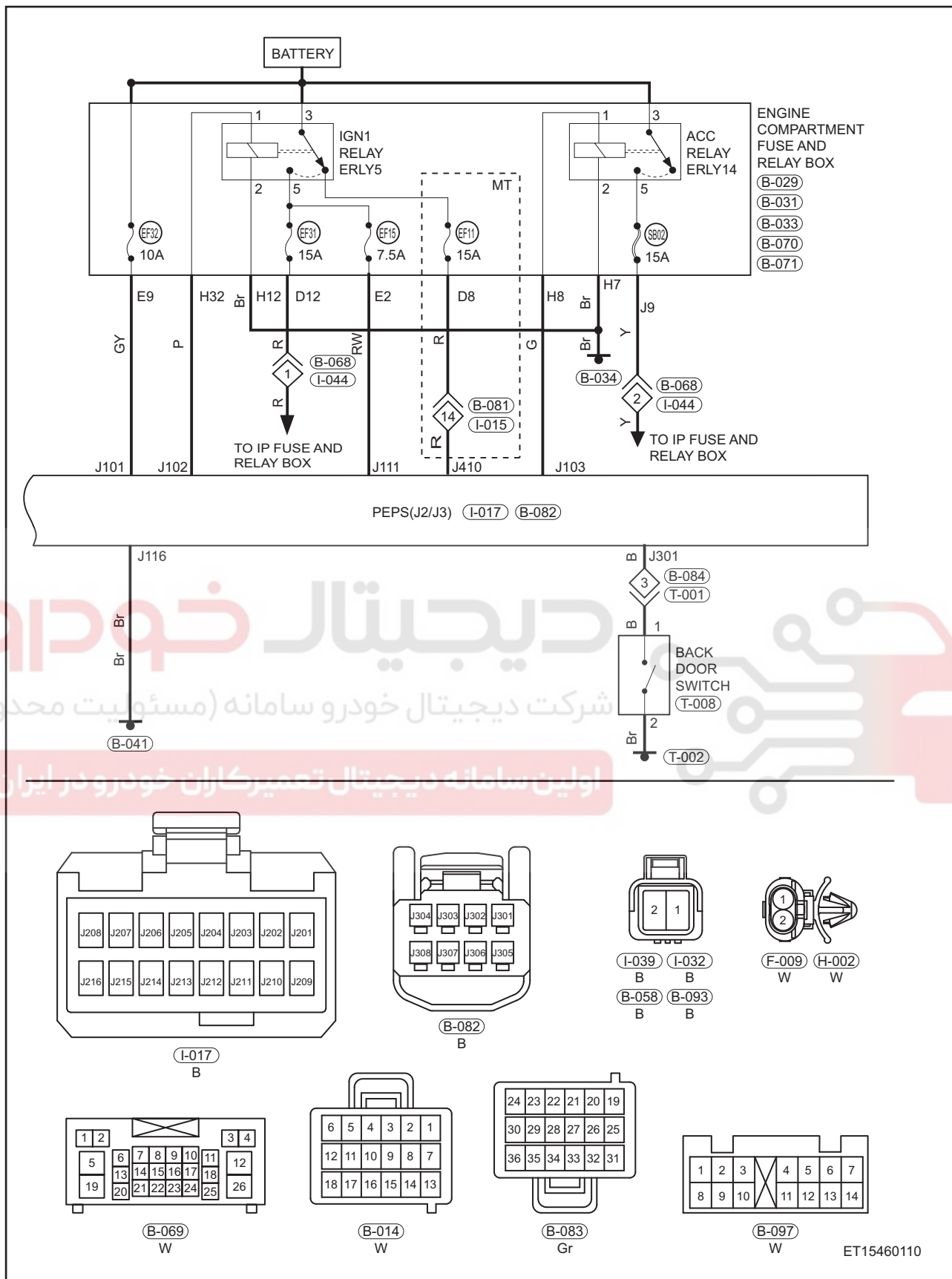
|     |          |                                              |
|-----|----------|----------------------------------------------|
| DTC | B1518-23 | Trunk/Back Door Unclock Switch Stuck Failure |
| DTC | B1519-23 | Back Door Lock Switch Continuously Pressed   |

# دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران





## 47 - PEPS SYSTEM

| DTC      | DTC Definition                              | DTC Detection Condition              | Possible Cause                                                                                   |
|----------|---------------------------------------------|--------------------------------------|--------------------------------------------------------------------------------------------------|
| B1518-23 | Trunk/Back Door Unlock Switch Stuck Failure | Engine switch ON, engine not running | <ul style="list-style-type: none"> <li>Wire harness and connector</li> <li>Lock latch</li> </ul> |
| B1519-23 | Back Door Lock Switch Continuously Pressed  | Engine switch ON, engine not running |                                                                                                  |

**CAUTION**

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

**1 Check ground point**

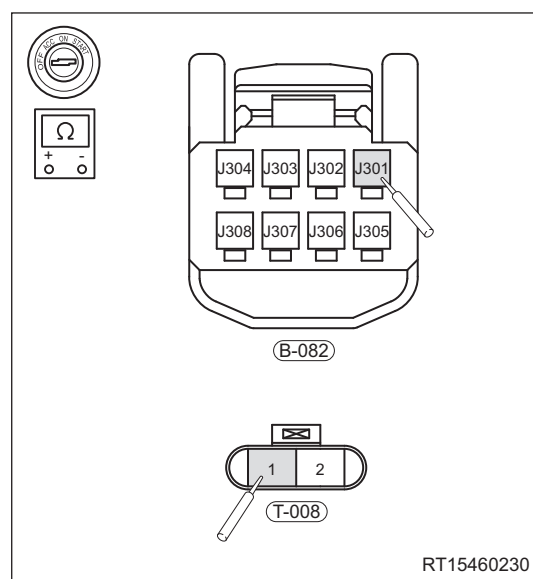
- Disconnect negative battery cable, and turn engine switch to OFF.
- Check the PEPS module ground point.

**NG****Repair or replace ground wire harness or ground point****OK****Go to next step****NEXT****2 Check wire harness and connector**

- Turn engine switch to OFF.
- Disconnect PEPS module connector B-082 and luggage compartment door connector T-008.
- Using ohm band of multimeter, check for continuity between terminals B-082 (J301) and T-008 (1) of PEPS module.

**Standard Condition**

| Multimeter Connection    | Condition         | Specified Condition |
|--------------------------|-------------------|---------------------|
| B-082 (J301) - T-008 (1) | Engine switch OFF | Continuity          |

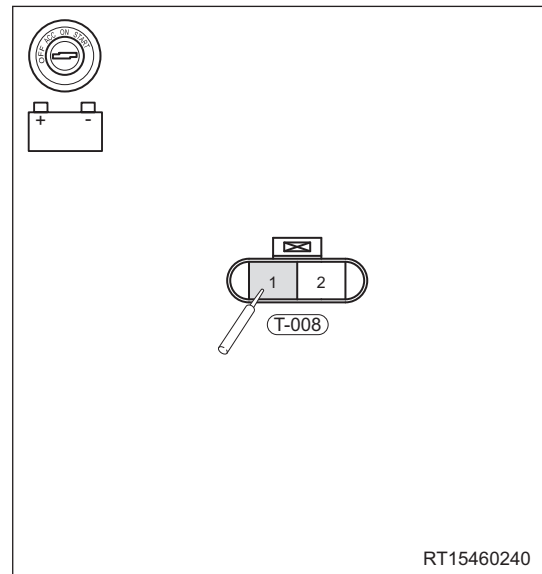


## 47 - PEPS SYSTEM

- d. Using ohm band of multimeter, check for continuity between luggage compartment door switch T-008 (1) and battery positive (+).

**Check for Short**

| Multimeter Connection            | Condition         | Specified Condition |
|----------------------------------|-------------------|---------------------|
| T-008 (1) - Battery positive (+) | Engine switch OFF | No continuity       |

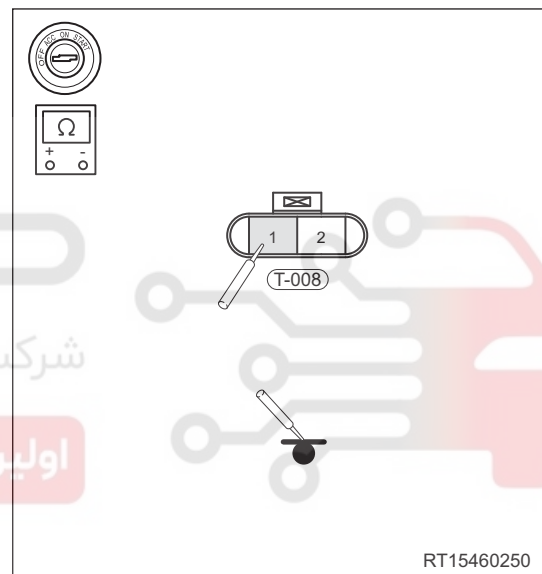


- e. Using ohm band of multimeter, check for continuity between luggage compartment door switch T-008 (1) and ground.

**Check for Short**

| Multimeter Connection | Condition         | Specified Condition |
|-----------------------|-------------------|---------------------|
| T-008 (1) - Ground    | Engine switch OFF | No continuity       |

|    |                                    |
|----|------------------------------------|
| NG | Replace wire harness and connector |
| OK | Go to next step                    |

**NEXT****3****Replace luggage compartment door switch****47**

- a. Turn engine switch to OFF.  
b. Replace luggage compartment door switch with a new one and perform a test.

|    |                                         |
|----|-----------------------------------------|
| OK | Replace luggage compartment door switch |
| NG | Replace PEPS module                     |

## 47 - PEPS SYSTEM

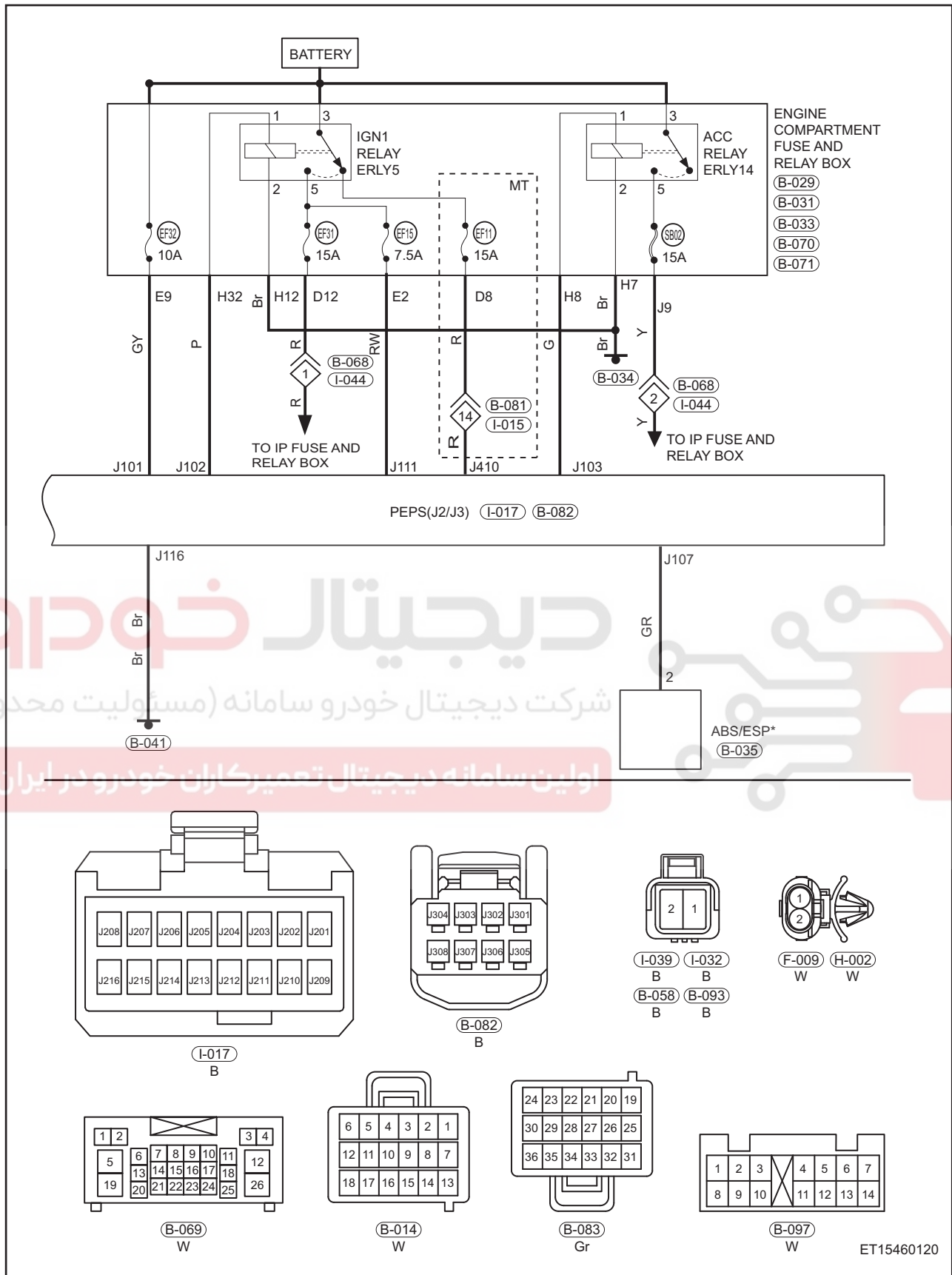
|     |          |                                     |
|-----|----------|-------------------------------------|
| DTC | B150A-00 | Abnormality in Vehicle Speed Signal |
| DTC | B1510-00 | Abnormality on Wheel Speed Signal   |

# دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران





## 47 - PEPS SYSTEM

| DTC      | DTC Definition                      | DTC Detection Condition                 | Possible Cause                                                                         |
|----------|-------------------------------------|-----------------------------------------|----------------------------------------------------------------------------------------|
| B150A-00 | Abnormality in Vehicle Speed Signal | Engine switch ON,<br>engine not running | <ul style="list-style-type: none"> <li>Module failure</li> <li>PEPS failure</li> </ul> |
| B1510-00 | Abnormality on Wheel Speed Signal   |                                         |                                                                                        |

**CAUTION**

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

**1 Check ground point**

- Disconnect negative battery cable, and turn engine switch to OFF.
- Check the PEPS module ground point.

NG

Repair or replace ground wire harness or ground point

OK

Go to next step

NEXT

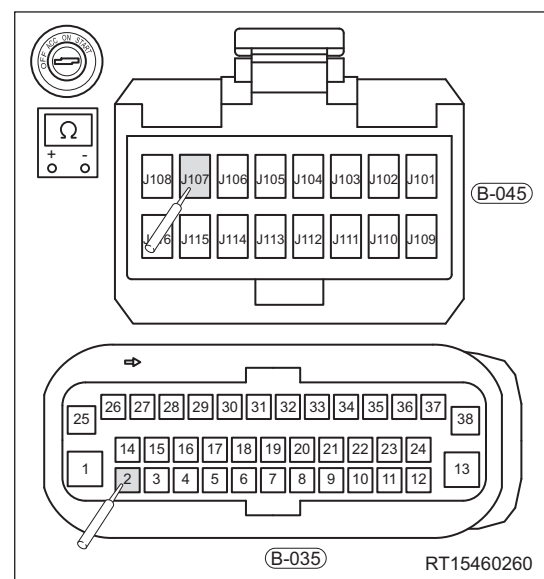
**2 Check wire harness and connector**

- Turn engine switch to OFF.
- Disconnect PEPS module connector B-045 and ESP module connector B-035.
- Using ohm band of multimeter, check for continuity between terminals B-045 (J107) and B-035 (2) of PEPS module.

**Standard Condition**

47

| Multimeter Connection    | Condition         | Specified Condition |
|--------------------------|-------------------|---------------------|
| B-045 (J107) - B-035 (2) | Engine switch OFF | Continuity          |

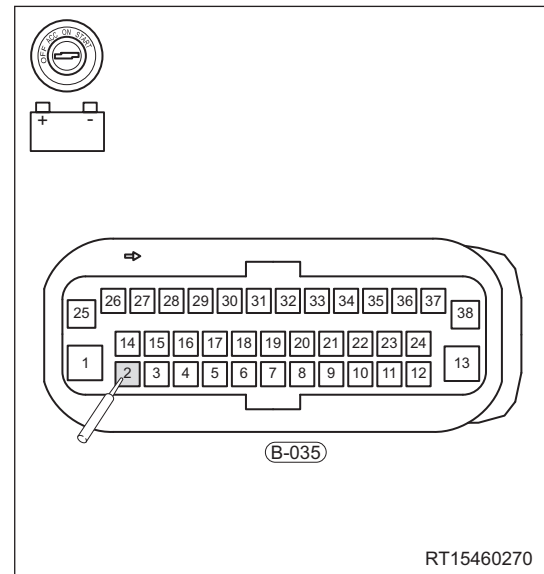


## 47 - PEPS SYSTEM

- d. Using ohm band of multimeter, check for continuity between luggage compartment door switch B-035 (2) and battery positive (+).

**Check for Short**

| Multimeter Connection            | Condition         | Specified Condition |
|----------------------------------|-------------------|---------------------|
| B-035 (2) - Battery positive (+) | Engine switch OFF | No continuity       |

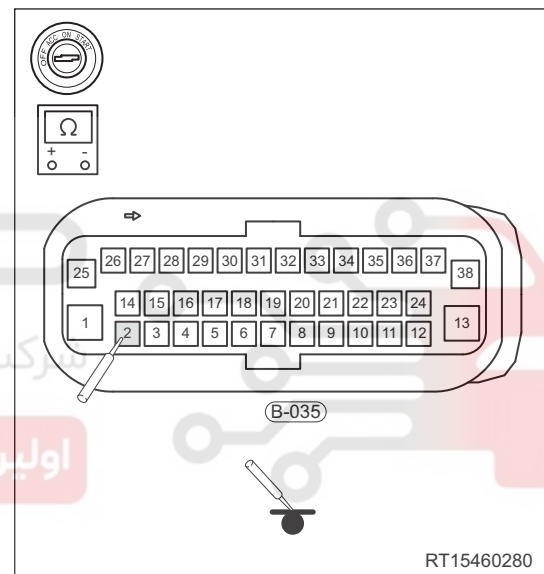


- e. Using ohm band of multimeter, check for continuity between luggage compartment door switch B-035 (2) and ground.

**Check for Short**

| Multimeter Connection | Condition         | Specified Condition |
|-----------------------|-------------------|---------------------|
| B-035 (2) - Ground    | Engine switch OFF | No continuity       |

|    |                                    |
|----|------------------------------------|
| NG | Replace wire harness and connector |
| OK | Go to next step                    |

**NEXT****3 Replace PEPS module**

- a. Turn engine switch to OFF.  
b. Replace PEPS module, and perform inspection.

|    |                              |
|----|------------------------------|
| OK | Replace PEPS module          |
| NG | Replace EPS module assembly. |

## ON-VEHICLE SERVICE

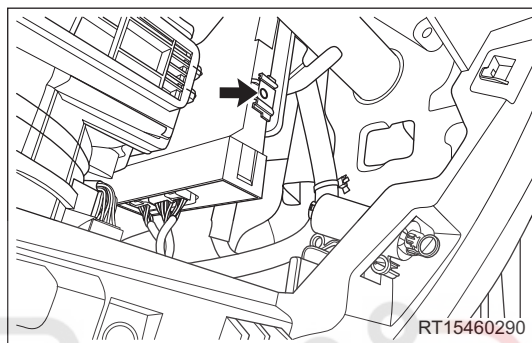
### PEPS Control Module

#### Removal

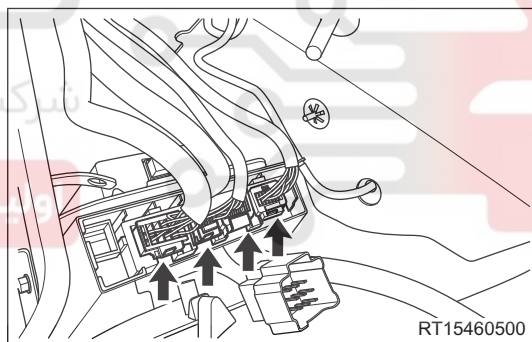
##### HINT:

- 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 (See page 60-14).
2. Remove the PEPS control module.
  - a. Using a screwdriver wrapped with protective tape, pry out clip (arrow) from PEPS module fixing bracket.



- b. Unplug PEPS control module connectors and remove module.



#### Installation

Installation is in the reverse order of removal.

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