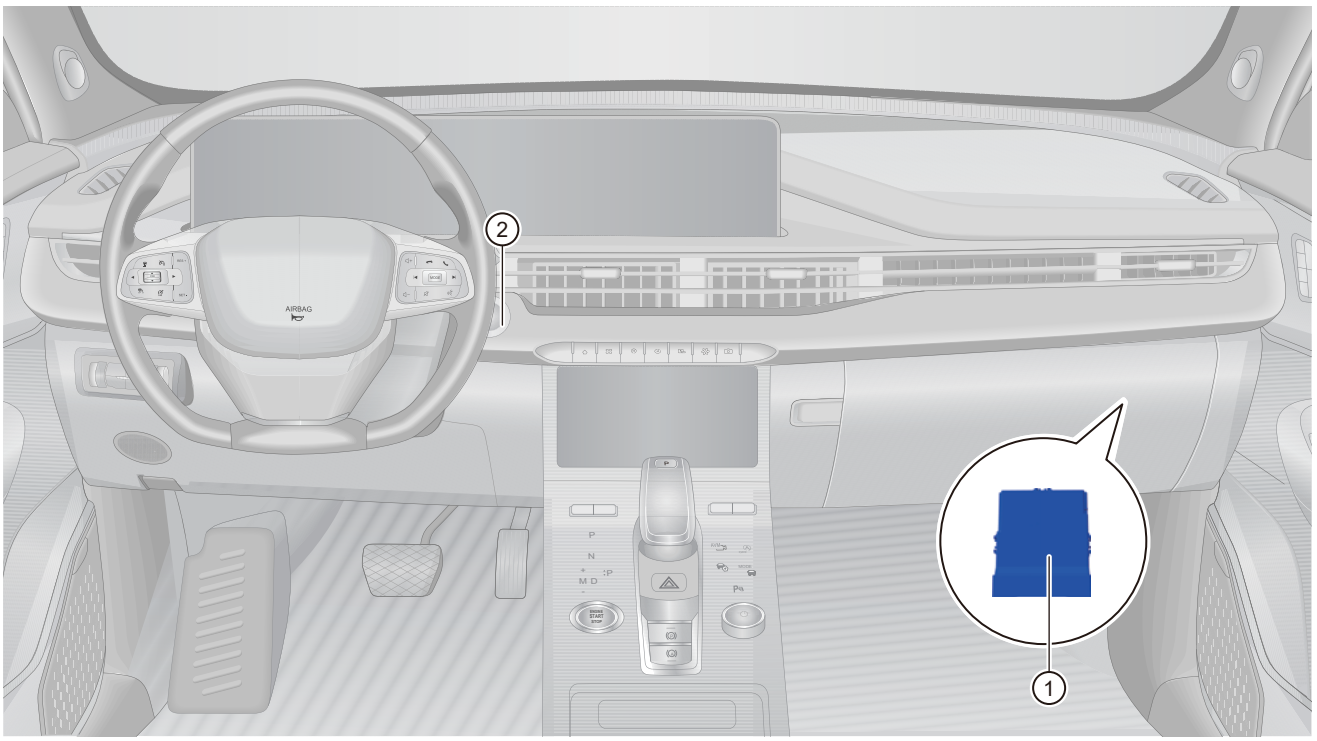
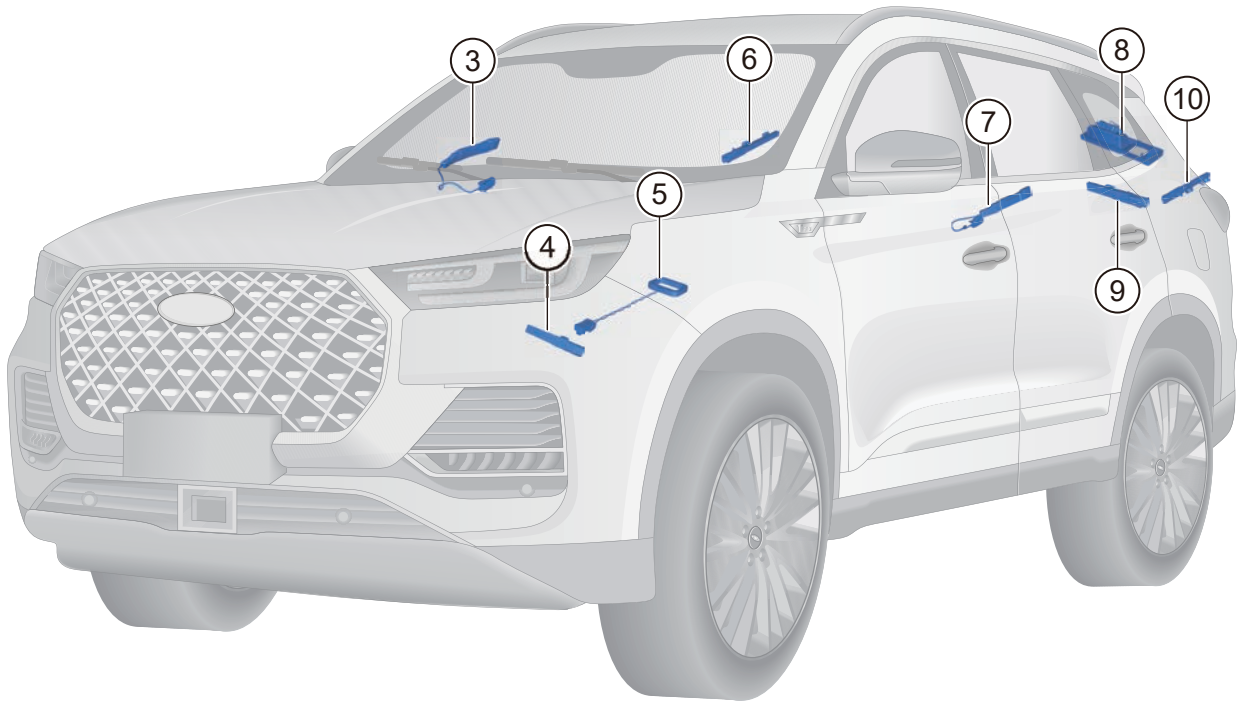
# PEPS SYSTEM

# GENERAL INFORMATION

## System Overview

### Description



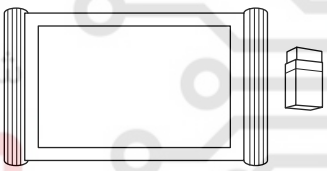
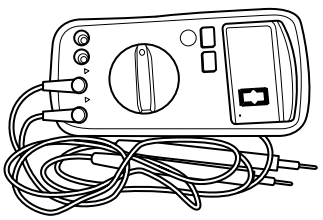




PE0010

| | | | |
|---|---|---|---|
| 1 | PEPS Module | 2 | ENGINE START STOP Switch |
| 3 | Front Right Door Outside Handle Sensor | 4 | Front Interior Low Frequency Antenna |
| 5 | Anti-theft Coil | 6 | High Performance Antenna |
| 7 | Front Left Door Outside Handle Sensor | 8 | Back Door Release Switch |
| 9 | Rear Low Frequency Antenna (on Rear Bumper Crossmember Body) | 10 | High Performance Antenna |

PEPS system consists of PEPS controller, ENGINE START STOP switch, built-in low frequency antenna (A total of 2 low-frequency antennas and 1 high-performance antenna are equipped in vehicle to detect key position), immobilizer coil for back up starting, front left/right door handle sensor (front left/right door handle), ESCL module (for MT models), back door microswitch, smart bracelet and remote controller (also called smart key).

## Tools

| Tool Name | Tool Drawing |
|---|---|
| X-431 PAD Diagnostic Tester |  RCH0001006 |
| Digital Multimeter |  RCH0002006 |

## Torque Specifications

| Description | Torque (N•m) |
|---|---|
| Hexagon Flange Nut | 7 ± 1 |

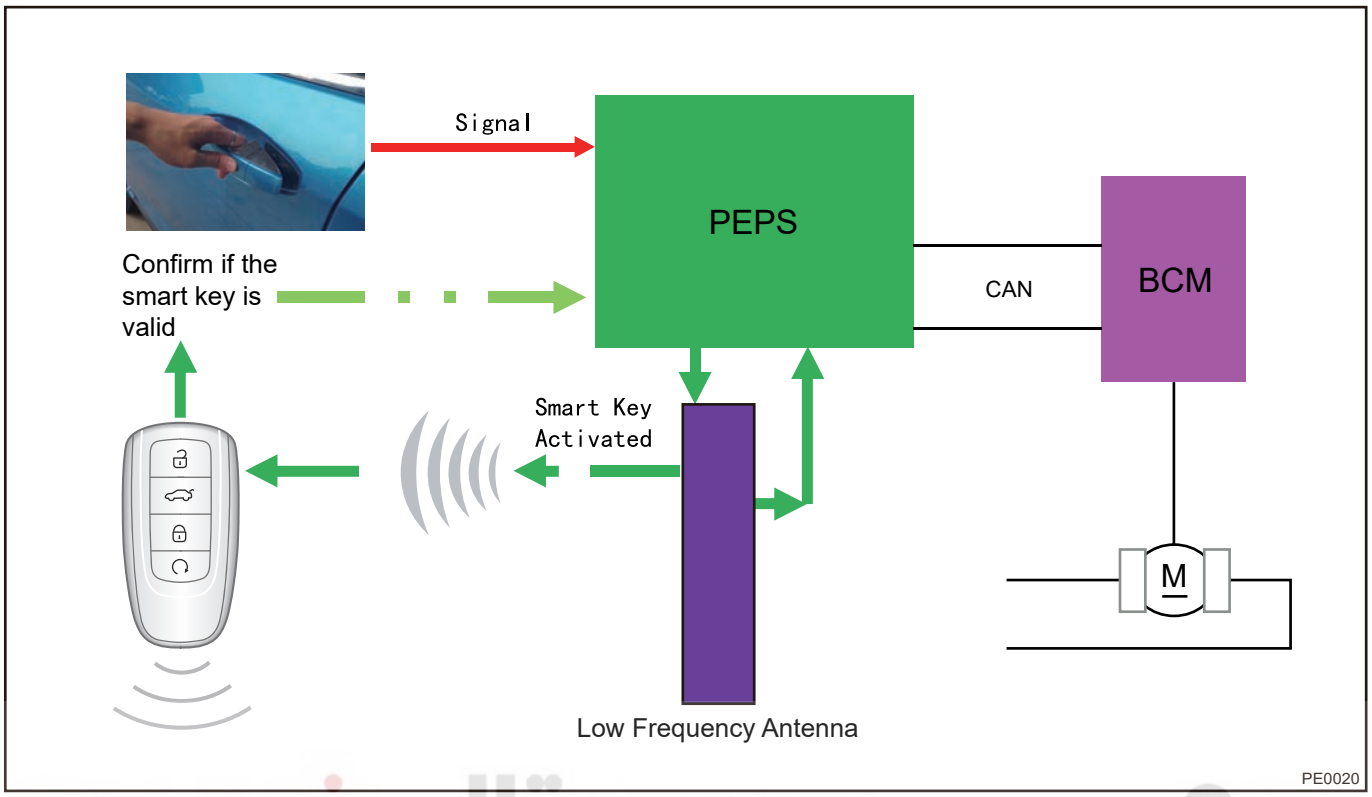
## Function Introduction

| Function | |
|---|---|
| 1 - Smart Entry Function | 2 - Keyless Entry Function |
| 3 - Mechanical Entry Function | 4 - One-button Start Function |
| 5 - One-button Stop Function | 6 - Emergency Stop Function |
| 7 - Back Up Start Function | 8 - Emergency Start Function |
| 9 - Starting Times Limit Function | 10 - Electric Steering Column Lock Control Function |
| 11 - Prompt Function | 12 - Engine Immobilizer Function |

### Smart Entry Function

**CAUTION**

- For safety, when remote control/central control or mechanical control is used to lock vehicle, if there is a smart key inside vehicle, system will disable door handle switch while remote control still can be used.
- In order to successfully perform door handle switch operation, do not rapidly operate door handle switch in succession within 0.5 second. and also do not rapidly operate luggage compartment external electronic switch.
- Smart keyless unlock and lock are only valid when power supply is shut off and four doors are closed properly, or system will not operate.
- Smart keyless unlock and lock are only valid when power supply is shut off and four doors are closed properly, or system will not operate.
- For power saving purpose, after vehicle is parked for 15 days, smart entry for front right door handle will be invalid, only smart entry for front left door handle can be used (it will return to normal if performing remote control unlock once or front left door HSU (door handle sensor) unlock once).
- In some particular situations, such as smart key is too close to door, system may determine the key is inside vehicle, induced door handle to be disabled. In this case, keyless entry function will not operate normally. At this time, it is necessary to use remote control to lock and unlock vehicle.

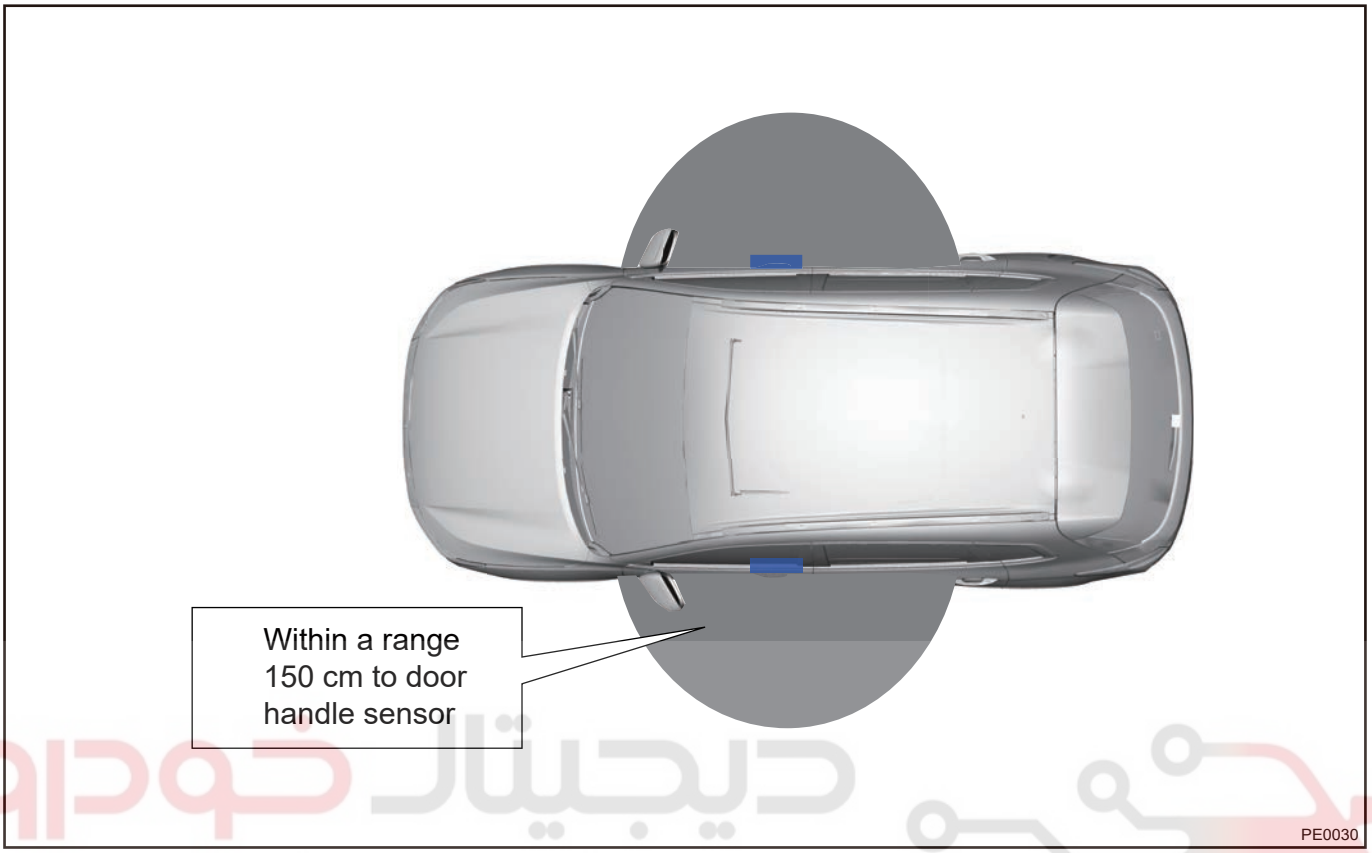



**Smart Door Unlock (Keyless Fortifying Deactivation)**

1. When the doors are locked, carry the smart key and touch the unlock sensing area of the door outside handle with four fingers. The system automatically recognizes the legitimacy of the smart key and the doors are automatically unlocked.

   **Hint:**
   Only front left and front right doors are equipped with sensing outside handle.
2. When bringing a smart key close to vehicle, the courtesy light turns on, the system automatically recognizes the legitimacy of the smart key and the doors are automatically unlocked.
3. No matter where the smart key is (put in pocket, hang in the belt or put in bag), as long as the key is within approximately 2.5 m of door handle, touch the sensing area of the door handle with four fingers, vehicle will enter fortifying deactivation mode (turn signal lights will flash twice and four doors will be unlocked).
4. If any of following operations is not performed within 30 seconds after touching the sensing area (-fortifying deactivation) of the door handle under fortifying mode, all doors will be locked automatically.
   - Open any door
   - Press the ENGINE START STOP switch
   - ENGINE START STOP switch is in ACC or ON position

**Smart Door Lock (Keyless Fortifying)**




1. When the doors are unlocked, carry the smart key and touch the lock sensing area with fingers. The system automatically recognizes the legitimacy of the smart key and the doors are automatically locked.
2. When exiting vehicle with smart key, the system automatically recognizes the legitimacy of the smart key and the doors are automatically locked.

   **Hint:**
   If any door is not closed properly, it will be unlocked automatically after locking to avoid leaving key inside vehicle.
3. Operation range:
   - Only distance between smart key and door outside handle is within specified operation range, smart key function can be used.
   - When smart key battery is discharged or there is strong radio wave in operation position, smart key system also will not operate normally.
   - It is recommended that do not place smart key together with mobile phone and other radio equipment.
   - Operation range is within about 250cm from sensing areas of two front door handles.
   - If smart key is too close to door glass, handle or rear bumper, door handle sensor cannot be used.
   - When smart key is within operation range, any one even without carrying smart key can press door handle sensing area on corresponding side to lock/unlock door.
4. When using smart key system, door handle sensor will not function in following conditions:
   - When ENGINE START STOP switch is in following positions (ACC or ON position).
   - Smart key is left in cab or luggage compartment (at this time, alarm will sound, turn signal lights will flash and “Smart Key inside Vehicle” will be prompted on instrument cluster if pressing door handle sensor.)
   - When smart key is not within exterior operation range.

- When any door is opened or not closed properly.
- When the smart key battery is discharged.

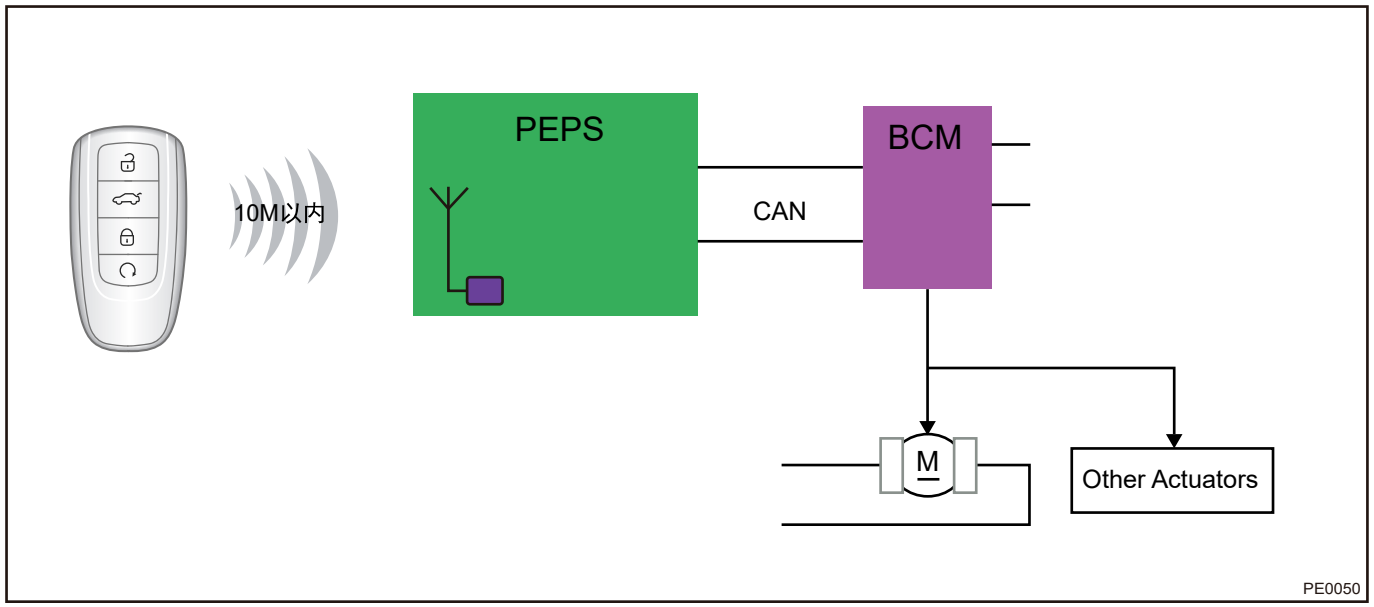
**Smart Keyless Luggage Compartment Open**

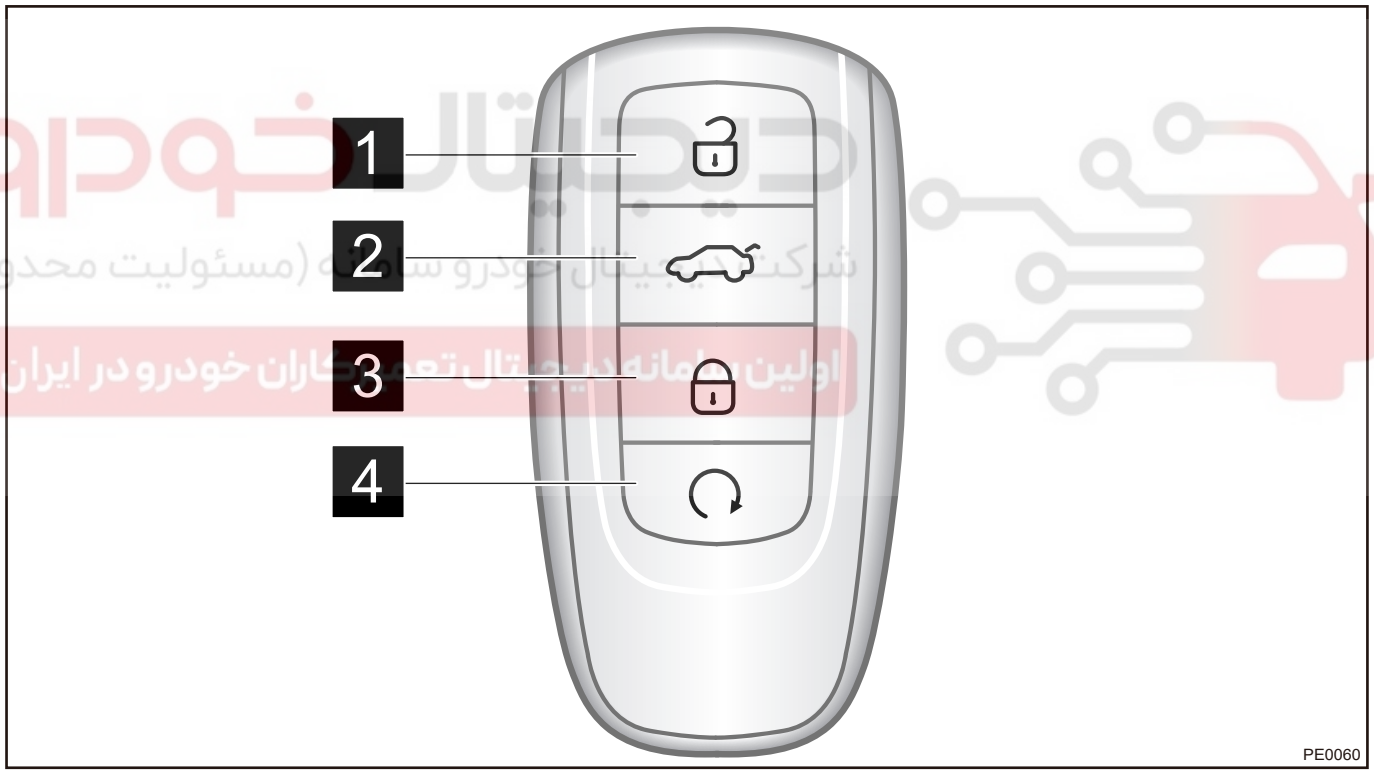

1. If all doors are unlocked, the luggage compartment external electronic switch is activated. At this time, press the switch to open luggage compartment without necessity of carrying smart key.
2. If door is under central lock state, luggage compartment external electronic switch will be disabled. At this time, it is necessary to bring smart key close to rear of vehicle and press electronic switch to open luggage compartment.

**CAUTION**

- For safety, when remote control/central control or mechanical control is used to lock vehicle, if there is a smart key inside vehicle, system will disable door handle switch while remote control still can be used.
- In order to successfully perform door handle switch operation, do not rapidly operate door handle switch in succession within 0.5 second. and also do not rapidly operate luggage compartment external electronic switch.
- Smart keyless unlock and lock are only valid when power supply is shut off and four doors are closed properly, or system will not operate.
- For power saving purpose, after vehicle is parked for 15 days, smart entry for front right door handle will be invalid, only smart entry for front left door handle can be used (it will return to normal if performing remote control unlock once or front left door HSU (door handle sensor) unlock once).
- In some particular situations, such as smart key is too close to door, system may determine the key is inside vehicle, induced door handle to be disabled. In this case, keyless entry function will not operate normally. At this time, it is necessary to use remote control to lock and unlock vehicle.

## Remote Entry Function




| | | | |
|---|---|---|---|
| 1 | Unlock Button | 2 | Back Door Open Button |
| 3 | Lock Button | 4 | Remote Start Button |

**Remote Lock (Fortifying) Function**
Press lock button on smart key with power supply OFF, door will be locked, turn signal lights will flash (-once), horn will sound (once) and vehicle will enter fortifying mode.

1. Press lock button with four doors & two covers closed properly, door will be locked, body anti-theft system will be turned on and vehicle will enter fortifying mode.
2. If any door is not closed properly, lock system will not operate.
3. If power supply is in ACC or ON position, remote lock function will not operate to avoid misoperation.

4. If doors are closed properly while hood or luggage compartment door is not closed properly, lock system will lock doors, but body anti-theft system cannot be turned on and vehicle will not enter fortifying mode.

**Remote Lock (Fortifying Deactivation) Function**
Press the remote control unlock button, 4 door locks are unlocked, and turn signal lights flash twice, the vehicle enters the fortifying deactivation state.

**Hint:**
If any of following operations is not performed within 30 seconds after pressing remote unlock button (-fortifying deactivation) under fortifying mode, all doors will be locked automatically.

1. Open any door
2. Press the ENGINE START STOP switch
3. ENGINE START STOP switch is in ACC or ON position

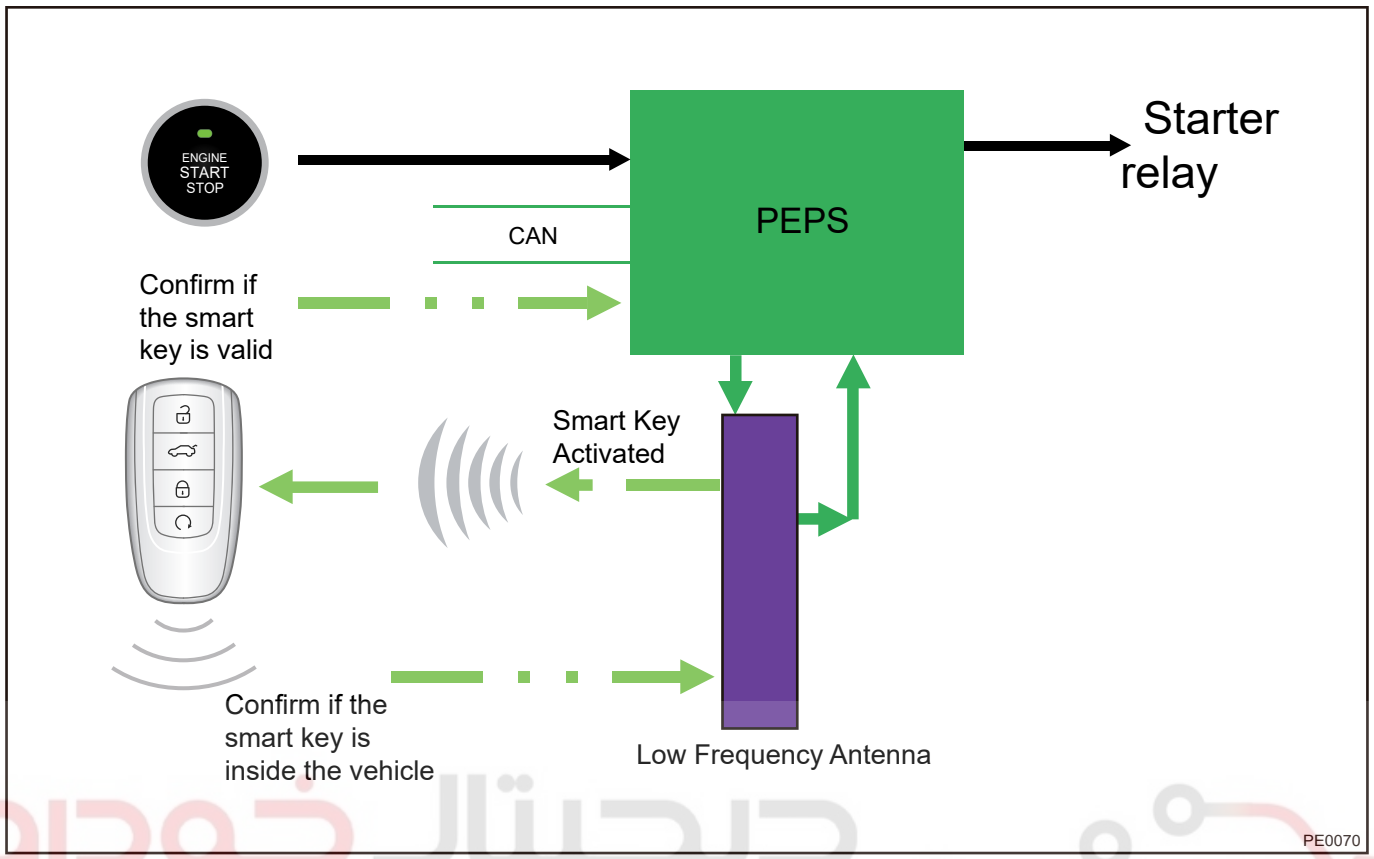
| Description |
| --- |
| • Press unlock button, so that door will be unlocked and luggage compartment door external switch will be activated (at this time, press luggage compartment external switch to open luggage compartment even if user does not bring valid key).<br>• Under fortifying or anti-theft alarm mode, press unlock button to cancel body anti-theft alarm system. |

**Remote Back Door Function**
Long press remote luggage compartment button (about 1.5 seconds), luggage compartment door will be unlocked, at this time, it is still necessary to press back door release switch to open back door (for vehicles without power back door). For vehicles with power back door, the back door will be unlocked automatically.

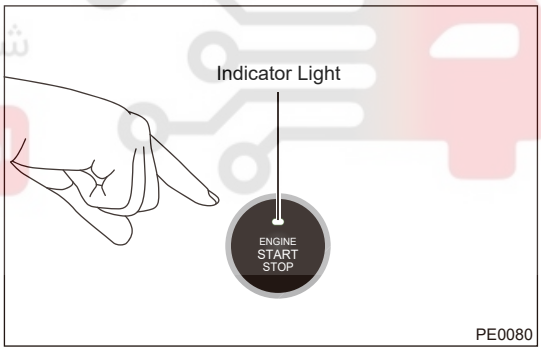
**Hint:**
Opening back door by remote control cannot cancel vehicle fortifying.

## One-button Start Function

| CAUTION |
| --- |
| • For MT models: If clutch pedal is not depressed fully, system will not perform starting operation. For DCT models, if it is not in P or N position, system will not perform starting operation.<br>• During starting, if brake pedal (for DCT models) or clutch pedal (for MT models) is released halfway, system will suspend starting.<br>• Press ENGINE START STOP switch then release it when starting, system will judge if starting is successful and stop starting properly.<br>• For AT models, if it is not in P position, vehicle power supply state (ACC, IGN) will not return to OFF state. |

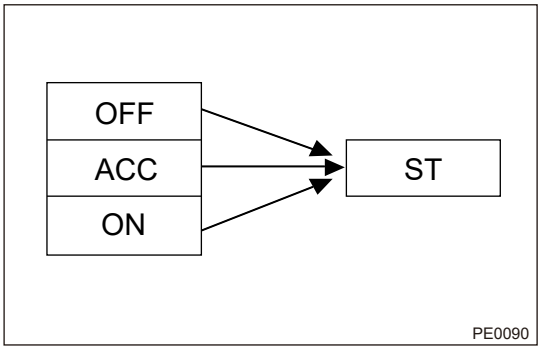



1. Indicator does not come on
   a. Power supply is OFF and brake pedal (for DCT models) or clutch pedal (for MT models) is not depressed, or engine has been started.

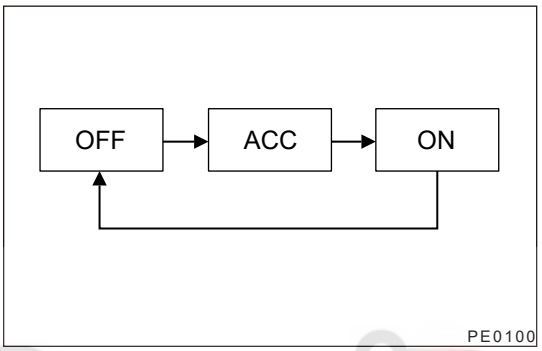



2. Amber
   a. Power supply state: ACC or ON, brake pedal (for DCT models) or clutch pedal (for MT models) is not depressed.
3. Green
   a. Brake pedal (for DCT models) or clutch pedal (for MT models) is depressed, and engine will start once pressing the button.
4. One-button start function: It can be activated at any power supply state (OFF, ACC, IGN) with legal smart key inside vehicle. Depress brake pedal (for DCT models) or clutch pedal (for MT models), press ENGINE START STOP switch to start engine.

a. Power supply state switching




5. There are four positions for vehicle power supply: OFF, ACC, ON, ST (ignition). With brake pedal (for DCT models) or clutch pedal (for MT models) not depressed, press ENGINE START STOP switch:
   a. Power supply state switching




## One-button Stop Function

For common engine stop mode, 4 km/h of vehicle speed must be met.

**Hint:**

- For DCT models, if it is not in P position, vehicle power supply mode cannot return to OFF, you must shift to P position before leaving vehicle after stopping. And check if power supply state is in OFF. Make sure that vehicle power supply is in OFF state and then leave vehicle. Otherwise, door cannot be locked.
- Simple method for distinguishing power supply in ACC or OFF:
  1. Judged by color of indicator on ignition switch.
  2. Under ACC state, instrument cluster will illuminate center display edge of LCD.
  3. Operate buttons on remote controller, if lock operation is failed and unlock operation is successful, it indicates that vehicle power supply is not in OFF position.

## Emergency Stop Function

In order to stop engine in emergency, this system has emergency stop mode.

**Hint:**

- When vehicle speed is more than 4 km/h, press ENGINE START STOP switch for more than 3 seconds in succession.
- If pressing ENGINE START STOP switch for 3 times within 2 seconds with vehicle speed more than 4 km/h, engine will stop and power supply will return to ACC.

| CAUTION |
| --- |
| • If this condition is not met, engine will not shut down and ignition switch is kept in ON.<br>• During driving, emergency stop will seriously affect normal driving. Do not use this function unless in emergency. |

## Back Up Start Function

1. If key cannot be recognized by system due to weak battery or interference, PEPS system will not operate normally. At this time, system provides a method to back up engine start, following method can be used to start engine or turn on power supply.
   a. Lay key on bottom of rear cup holder with face up, and do not depress brake pedal (for DCT models) or clutch pedal (for MT models).
   b. Press the ENGINE START STOP switch once. Power supply state will switch to ON, and "Verification is Successful, it is Possible to Start" is displayed on instrument cluster.
   c. Depress brake pedal (for DCT/CVT models) or clutch pedal (for MT models) fully, press ENGINE START STOP switch to start engine.

**Hint:**
For MT models, communication between ESCL and PEPS is failed or verification does not pass, electric steering column lock cannot be unlocked successfully, power supply cannot switch to ON, engine cannot be started, so back up start function is invalid.

## Emergency Start Function

1. To prevent engine cannot be started due to signal failure of brake pedal position (for DCT models) or clutch pedal position (For MT models) detected, this system has emergency start mode.

**Hint:**
Please contact service station for inspection and repair as soon as possible.

## Starting Times Limit Function

| CAUTION |
| --- |
| • Only MT models have this function.<br>• Keyless entry and PEPS system obtains wheel speed signal from brake controller (ABS/ESP), if any wheel speed signal is malfunctioning, ABS/ESP system warning light in instrument cluster will come on.<br>• If malfunction does not be repaired and maximum start times is reached, it is not allowed to start vehicle. Please contact Chery service station for repair immediately and reset "rest start times" with diagnostic tester. Otherwise, if same malfunction occurs next time, start times offered by system will be less than 10 times. (Specific value depends on residual times last time malfunction occurs.) |

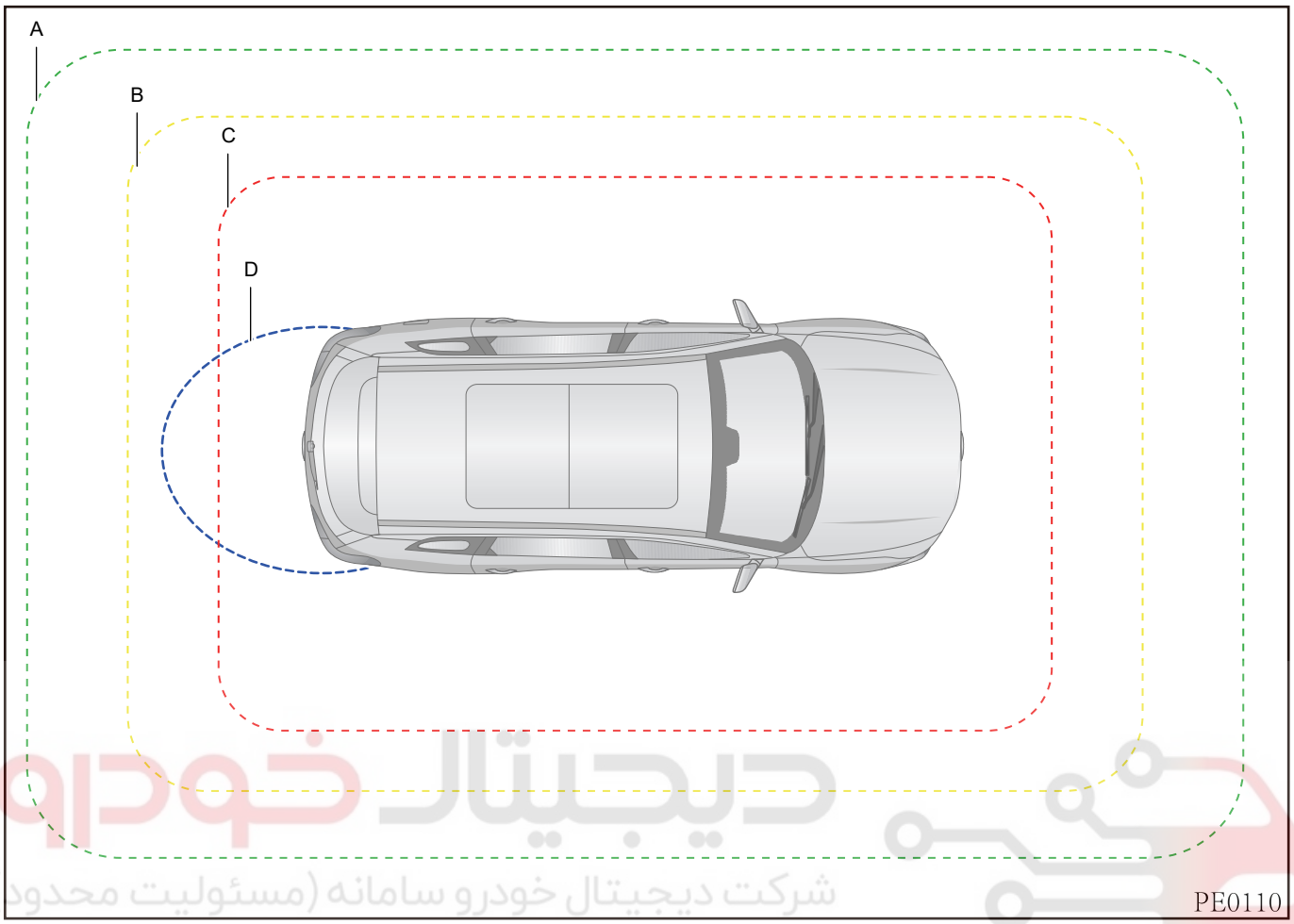
When serious damage occurs in system, in order to ensure driving safety and prevent steering system locking incorrectly, system will not allow user to start engine limitlessly and engine only can be started for 10 time. And each time engine starts successfully and travel, rest times will reduce one. Please contact Chery service station for repair as soon as possible.

**Hint:**
This system malfunction may be caused by any or several of the following reasons:

- Serious malfunction in the electric steering column lock
- Speed signal malfunction of front right wheel
- Speed signal malfunction of other three wheels

## Intelligent Searching Function

This part includes three functions: Welcome function, approach unlocking function, exit locking function.




1. Welcome function
   - Customer enters into area A, PEPS controls courtesy light on the vehicle to turn on, realizing welcome function.
2. Approach unlocking function
   - Customer enters into area C, PEPS controls the vehicle to unlock.

     **Hint:**
     PEPS search strategy for enter unlocking: Within 3 days, if the vehicle searches a legal key, the search cycle is 400 ms; if the vehicle does not search a legal key, the search cycle is 1000 ms; 3 days later, the search stops.
3. Exit locking function
   - After customer gets off the vehicle and closes all doors, if there is no key in the vehicle, PEPS controls the vehicle to lock when customer gets off enters the yellow area.

     **Hint:**
     PEPS search strategy for exit locking: Within 3 days, if the vehicle searches a legal key, the search cycle is 400 ms; if the vehicle does not search a legal key, the search cycle is 1000 ms; 3 days later, the search stops.

## Prompt Function

To reduce misunderstanding of PEPS features from users and to facilitate the daily diagnosis of simple problems, system will prompt corresponding message to users through instrument cluster display, buzzer and external horn. Regardless of power supply state (OFF, ACC or ON), once PEPS sends information, instrument cluster will handle and display it.

| Text Message Prompt | Buzzer | External Horn | Possible Cause |
|---|---|---|---|
| Smart key is not detected | Sound | \ | There is no key in vehicle |
| Smart key is not detected | Sound | \ | If you are in vehicle, find smart key and place it in vehicle, or check if passenger brings the key outside |
| System malfunction, it is allowed to start X times | Sound | \ | Please contact Chery Service Station for repair immediately |
| Please check and repair PEPS system | Sound | \ | Please contact Chery Service Station for repair immediately |
| Please shift to P or N to start | Sound | \ | If you want to start engine, please shift to P or N. |
| If you want to start engine, depress brake pedal | Sound | \ | If you want to start engine, depress brake pedal (for DCT models). |
| Please shift to P | Sound | \ | Please shift to P and press ENGINE START STOP switch to turn off power supply. |
| Please pay attention that smart key is in vehicle | Sound | Sound 6 times | Be sure to carry smart key on person when leaving vehicle. Caution: Door handle switch will be disabled by system temporarily, please use remote controller to lock and unlock. |
| Verification is successful and it is possible to start | Sound | \ | It is displayed only when performing back up start and verification passed, and key battery is fully discharged usually |
| Please turn off power supply | Sound | \ | User may leave vehicle with shift position not in P and power supply not in OFF |
| Smart key battery is low | Sound | \ | Key battery still can be used, but it comes to failure due to low voltage, it is necessary to replace battery |

## Engine and Vehicle Anti-theft Function

1. Anti-theft for models with PEPS can be divided into two types.
2. For DCT models, anti-theft can be divided into two separate parts - “PEPS and ECU encryption engine immobilizer”.
3. For MT models, anti-theft can be divided into two separate parts - “PEPS and ECU encryption engine immobilizer” and “PEPS and ESCL encryption steering column lock anti-theft”.

a. For DCT models

- After power supply is turned to ON, ECU will send one frame of validation data to PEPS via CAN bus to verify. Then PEPS will feedback one frame of validation data as response and send to ECU. If response from PEPS is correct, ECU determines that anti-theft is released. Otherwise, ECU will not inject fuel and ignite.

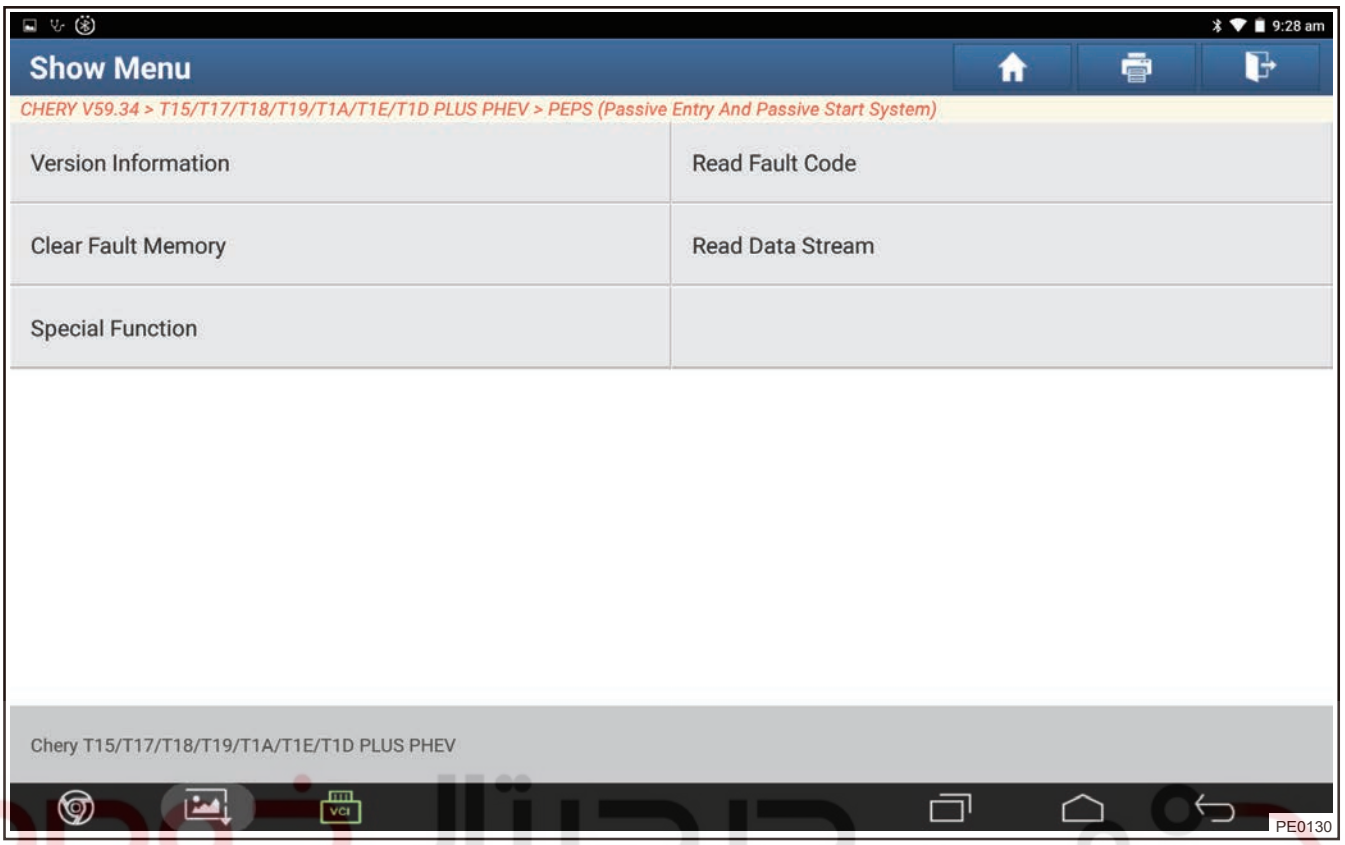
b. For MT models

- After power supply is turned to ACC, PEPS will perform encrypted anti-theft validation with ESCL via special LIN line. If validation passes, ESCL will unlock, or ESCL keeps locking and steering wheel cannot be turned. And power supply cannot be turned to ON.
- After power supply is turned to ON, ECU will send one frame of validation data to PEPS via CAN bus to verify. Then PEPS will feedback one frame of validation data as response and send to ECU. If response from PEPS is correct, ECU will determine anti-theft can be canceled. Otherwise, ECU will not inject fuel and ignite.

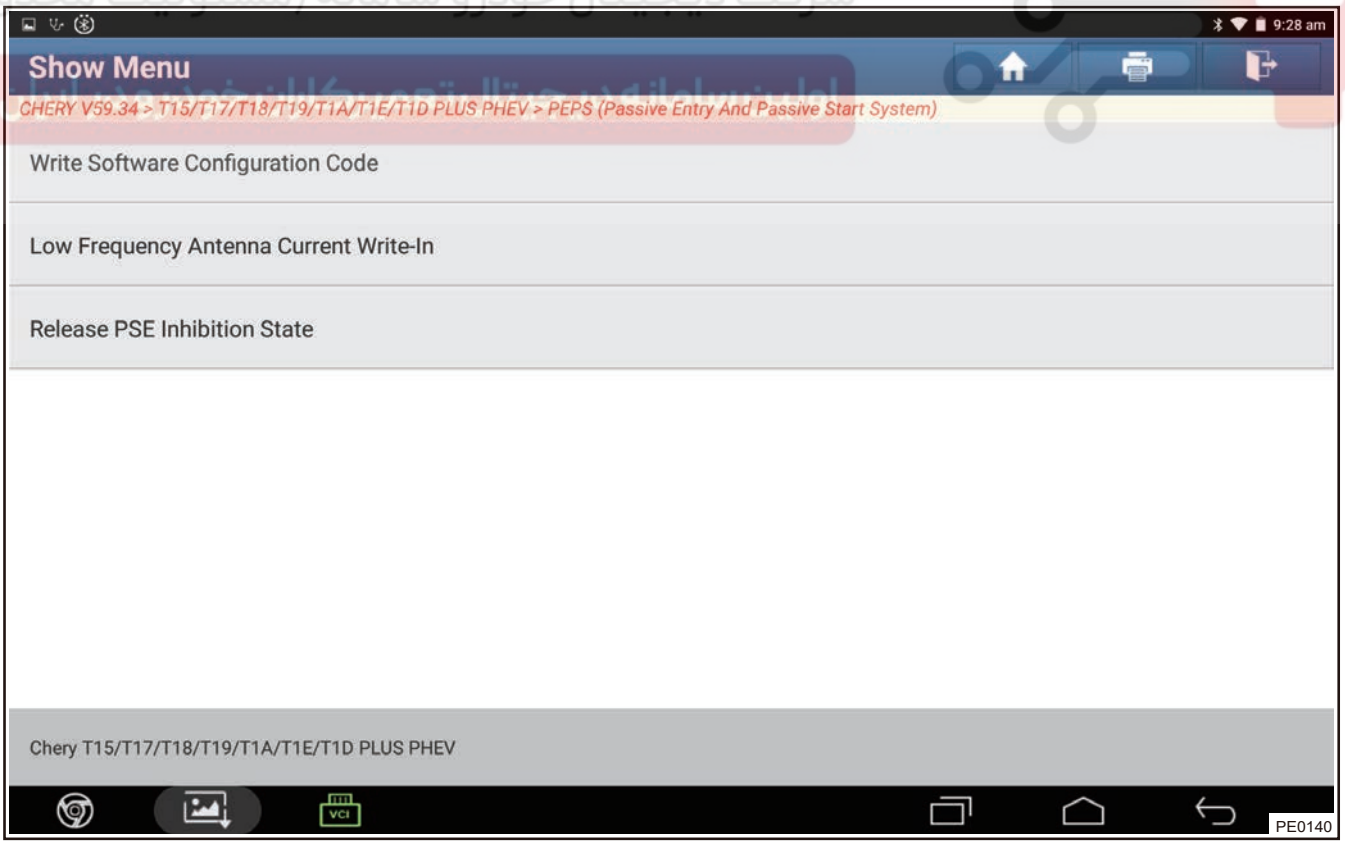
# Anti-theft Matching

## Software Configuration Code Writing

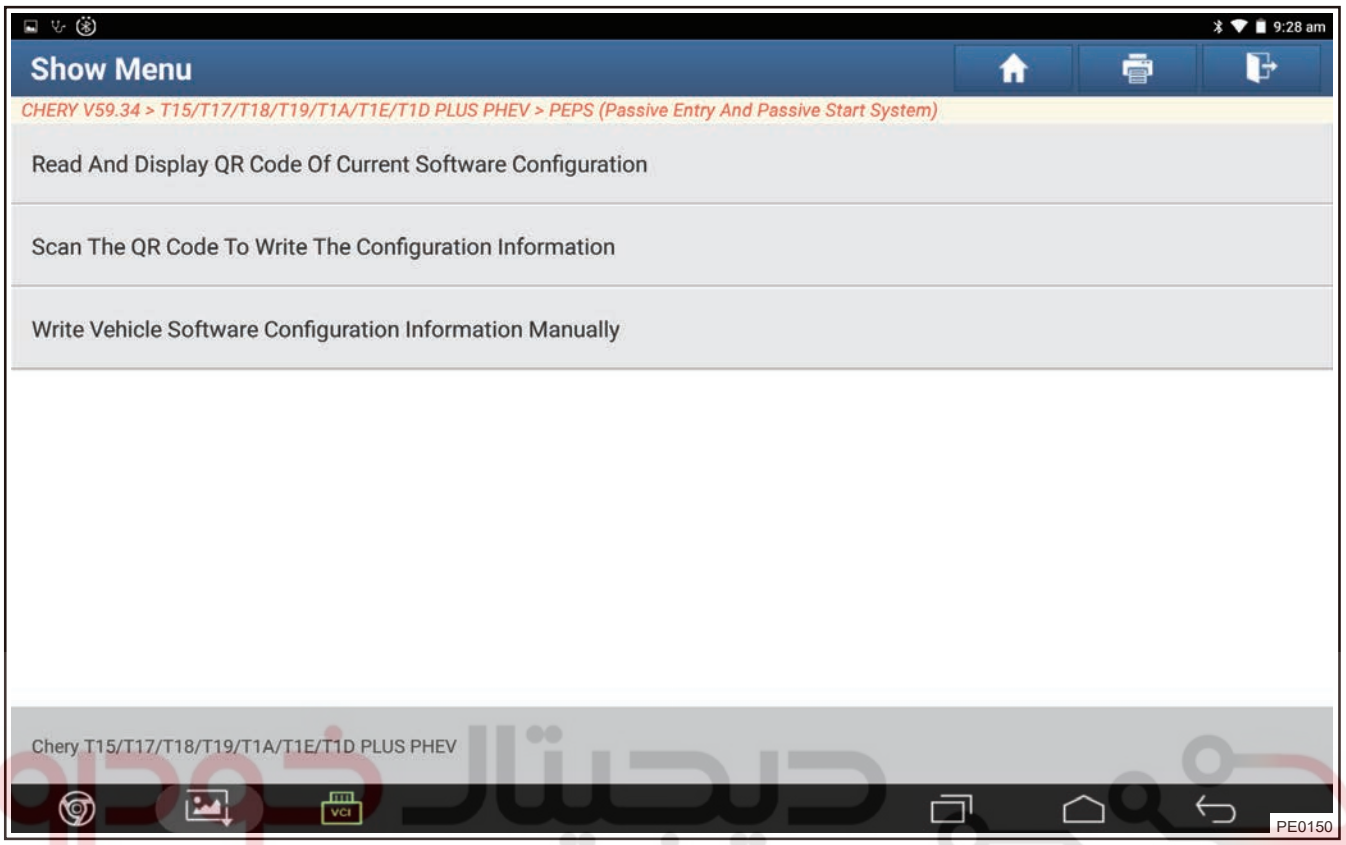
1. Click “PEPS (Passive Entry And Passive Start System)”.
2. Select and click “Special Function”.



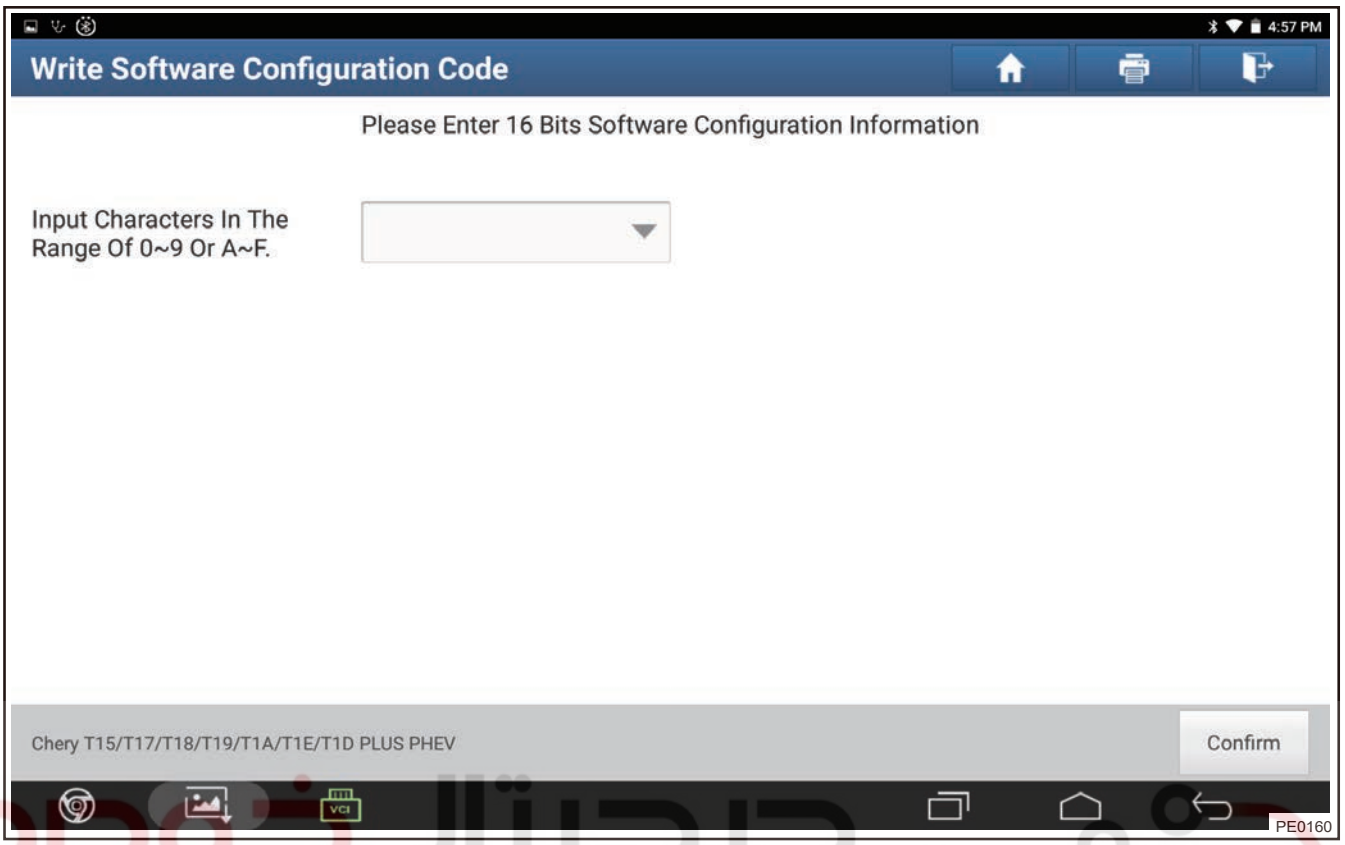

3. Click “Write Software Configuration Code”.



4. Click “Write Vehicle Software Configuration Information Manually”.




5. Input corresponding configuration information and click “Confirm”.




## Remote Control Troubleshooting Chart

| Description | | Remote control button failure, vehicle cannot enter fortifying deactivation/fortifying mode | | | | |
|---|---|---|---|---|---|---|
| **Inspection Sequence** | **Problem Symptom** | **Troublesh-ooting Items** | **Test Result** | **Subsequent Step** | **Step Description** | **Step Instruction** |
| 1 | One wireless key fails | Put the invalid wireless key into cup holder (the cup holder with key mark), and use a diagnostic tester to read if a legal transponder is searched through anti-theft system status detection. | No | It detects that the transponder is illegal, indicating that the key does not match with the vehicle, which may be caused by mixed installation. | \ | Add a new key with another key. |
| | | | Yes | It detects that the transponder is legal, indicating that the key matches | \ | Add a new key with another key. |

| Description | | Remote control button failure, vehicle cannot enter fortifying deactivation/fortifying mode | | | | |
|---|---|---|---|---|---|---|
| **Inspection Sequence** | **Problem Symptom** | **Troublesh-ooting Items** | **Test Result** | **Subsequent Step** | **Step Description** | **Step Instruction** |
| | | | | with the vehicle, and it is determined as a quality problem in remote controller itself. | | |
| 2 | Two wireless keys fail | Disconnect and reconnect the first connector of PEPS module, and check if fault disappears. | Yes | It is determined that the connector is not connected properly, disconnect and reconnect J1 connector. | \ | \ |
| | | | No | Eliminate the interference occurred after installation, and test the remote controller in an open area. If fault still exists, apply for replacing the PEPS module. | Consider the PEPS module fault. | Replace PEPS module, if fault still exists after replacement, contact the technical support department for on-site system troubleshoo-ting. |
| 3 | Remote control distance between two keys is very short | Confirm if there is interference source when fault occurs. (If electrical appliances are installed on vehicle, if there are interference sources on site, and if there are | Yes | Eliminate the interference source (- remove installed electrical appliances, move vehicle to an open area, and remove metal trims on the | \ | Eliminate the external interference. |

| Description | | Remote control button failure, vehicle cannot enter fortifying deactivation/fortifying mode | | | | |
|---|---|---|---|---|---|---|
| **Inspection Sequence** | **Problem Symptom** | **Troublesh-ooting Items** | **Test Result** | **Subsequent Step** | **Step Description** | **Step Instruction** |
| | | metal trims on the remote controller) | | remote controller). | | |
| | | Confirm if vehicle is equipped with 360 panoramic view monitor. | Yes | Unplug 360 module connector, and confirm if fault disappears. | Fault disappears, it is considered as interference problem in 360 module. | Replace the 360 module. |
| | | | | | Fault still exists, it is considered as problem in PEPS module. | Replace PEPS module, if fault still exists after replacement, contact the technical support department for on-site system troubleshoo-ting. |
| | | | No | Test remote control distance in an open area. If fault still exists, take replacing PEPS module into consideratio-n. | After replacing PEPS module, if fault disappears, reason is searched; if fault still exists, it is necessary to perform on-site system troubleshoo-ting. | Replace PEPS module, if fault still exists after replacement, contact the technical support department for on-site system troubleshoo-ting. |

## Smart Key Replacement After Vehicle Sold

### Description

| CAUTION |
| --- |
| If user lost a smart key with one key left, when replacing with a new smart key, perform as follows to replace with a new one: Learn the new key by “Add new key” service, delete all smart keys by “Delete all keys” service, then learn the remain two smart keys in order by “Add old key” service. If user finds the lost key, it can be reactivated by “Add old key” service on diagnostic tester. If not, even if the lost one is found, it cannot be used normally. |

There are two match methods between smart key and system: “Replace with new key” and “Add old key”.

1. “Add new key” refers to match blank key (never match with any system) with system. It usually happens when user would have additional new key on the basis of the old ones.
2. “Add old key” refers to rematch learned key with system (it must be previous system).

### Match Operation

| CAUTION |
| --- |
| Perform “Add new key” and “Add old key” when the ignition switch is in OFF position. |

1. Anti-theft match description for “Add new key” is as follows:
   a. Technician reads VIN in EMS of user’s vehicle with diagnostic tester, then obtain PIN through VIN.
   b. Place the smart key to be matched on the key mark in cup holder, enter anti-theft control system program on diagnostic tester, select “Add new key” menu, input PIN, diagnostic tester will perform “Add new key” program automatically.
   c. After that, press unlock button and check if left and right turn signal light indicators on instrument cluster blink. If the indicators blink, new key is matched successfully, otherwise, new key is not matched successfully.
2. Anti-theft match description for “Add old key” is as follows:
   a. Technician reads VIN in EMS of user’s vehicle with diagnostic tester, then obtain PIN through VIN.
   b. Enter anti-theft control system program on diagnostic tester, select “Delete all keys” menu.
   c. Place the smart key to be matched on the key mark in cup holder, enter anti-theft control system program on diagnostic tester, select “Add old key” menu, input PIN, diagnostic tester will perform “Add old key” program automatically.
   d. After that, press unlock button and check if left and right turn signal light indicators on instrument cluster blink. If the indicators blink, new key is matched successfully, otherwise, new key is not matched successfully.

| CAUTION |
| --- |
| • When performing “Add old key”, it is necessary to carry previous matched smart key and perform match operation one by one according to match procedures, or previous matched key will be disabled.<br>• Regardless of “Add new key” or “Add old key”, only one smart key can be kept in vehicle and keep key on key mark in cup holder. Make sure that there is no other key in vehicle. If there is other key, bring it to a position 2 m away from vehicle. |

## PEPS Module Replacement After Vehicle Sold

| CAUTION |
| --- |
| • Please contact Chery service station to obtain PIN.<br>• Unmatched smart keyless entry and PEPS can switch power supply from IGN OFF to IGN ON for 50 times. Once it exceeds 50 times, PEPS cannot be used. So, do not turn on and off power supply at will with PEPS unmatched.<br>• If ESCL accidentally enters “Anti-scanning” safe mode , it is necessary to perform “Delete ESCL". |

1. Technician reads VIN in EMS with diagnostic tester, then obtains PIN through VIN.
2. If vehicle is equipped with ESCL, make sure that ESCL is unlocked. After new PEPS is assembled successfully, press ignition switch (IG) to turn on power supply.
3. Enter anti-theft control system program on diagnostic tester, select “Program IMMO” menu; input PIN according to prompt on diagnostic tester, after “Program IMMO” is performed successfully, it will display “Program IMMO is successful”.
4. Then match previous keys one by one according to instructions of “Add old key”.
5. If vehicle is equipped with ESCL, enter anti-theft control system program on diagnostic tester and complete “Add old key”, then keep power supply in OFF position, check state of ESCL with diagnostic tester, if ESCL is not in Anti-scanning state, replacement is completed, if ESCL is in Anti-scanning state, select “Delete ESCL”, input PIN according to prompt on diagnostic tester, ESCL will be deleted successfully after about 10 minutes, then match ESCL according to description for ESCL replacement.

## Engine Management System (EMS) Replacement After Vehicle Sold

1. Technician reads VIN in old EMS or smart keyless entry and PEPS unit with diagnostic tester, then obtains PIN through VIN.
2. After new EMS is assembled successfully, press ignition switch (IG) to turn on power supply.
3. Enter anti-theft control system program on diagnostic tester, select “Program EMS” menu; input VIN and PIN according to prompts on diagnostic tester. After “Program EMS” is performed successfully, it will display “Match EMS is successful”.
4. Depress brake pedal (for DCT models)/clutch pedal (for MT models), press ignition switch once to check if vehicle can be started successfully. If vehicle can be started successfully, EMS replacement is completed, if vehicle cannot be started successfully, EMS replacement is not completed.

## Electric Steering Column Lock (ESCL) Replacement After Vehicle Sold

| CAUTION |
| --- |
| • Only apply to PEPS + MT models<br>• Please contact Chery service station to obtain PIN. |

1. Technician reads VIN in old EMS or smart keyless entry and PEPS unit with diagnostic tester, then obtains PIN through VIN.
2. After new ESCL is assembled successfully, keep power supply in OFF position.
3. Enter immobilizer control system program on diagnostic tester, select Program ESCL menu; Input PIN according to prompt on diagnostic tester, after Program ESCL is successful, “ESCL matching is successful” will be displayed on diagnostic tester.
4. Press ignition switch to switch power supply to IGN OFF state, open driver door and close it again, check if lock sound can be heard, then check if steering wheel can be turned. If lock sound can be heard and steering wheel cannot be turned, electric steering column lock is locked successfully.

5. Press ignition switch to switch vehicle power supply to IGN ON state, check if unlock sound can be heard, then check if steering wheel can be turned. If unlock sound can be heard and steering wheel can be turned, electronic steering column lock is unlocked successfully, ESCL matching is successful, or matching fails.

# DIAGNOSIS & TESTING

## Diagnosis Contents

## Problem Symptoms Table

| Symptom | Suspected Area |
|---|---|
| Luggage compartment cannot be opened | Back door switch fails (open, water leakage or sticking) |
| | Back door lock malfunction |
| | PEPS malfunction |
| | Short or open in wire harness |
| | BCM malfunction |
| Vehicle cannot be started (PEPS) (starter runs) | Anti-theft verification does not pass |
| Vehicle cannot be started (PEPS) (starter does not run) | Gear position is not in P/N (for DCT models) |
| | Clutch (for MT models)/brake switch (for DCT models) is abnormal |
| | ENGINE START STOP switch malfunction |
| | Circuit or starter relay is abnormal |
| | Starter malfunction |
| | Start times limit is activated |
| ESCL cannot be locked or unlocked | Vehicle is parked on slope (lock pin is stuck) |
| | Door signal is abnormal |
| | ENGINE START STOP switch cannot be turned on or off |
| | Short or open in wire harness |
| | Anti-theft verification fails |
| | Network communication malfunction |

## Problem Repair (No DTC)

If PEPS system has problems, but no DTC is stored in PEPS system, this problem is called a problem without DTC. Problems without DTC for PEPS system are divided into following types:

1. Indicator in instrument cluster does not come on or illuminates constantly (incorrect wire harness connection or indicator is damaged).
2. Troubleshooting recommendation: Check corresponding components according to problem symptom, and troubleshoot by following the vehicle repair manual.

## Diagnostic Help

1. Connect diagnostic tester X-431 3G (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 Diagnostic Trouble Code (DTC) cannot be cleared, it indicates that there is a current malfunction.
4. Only use a digital multimeter to measure voltage of electronic system.
5. Refer to any Technical Bulletin that may apply to this malfunction.
6. Visually check related wire harness and connector.
7. Check and clean all CD system grounds related to the latest DTCs.
8. If numerous trouble codes are set, refer to circuit diagram and look for any common ground circuit or power supply circuit applied to DTC.

## Intermittent DTC Troubleshooting

If malfunction is intermittent, perform the followings:

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

## Ground Inspection

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

1. Remove ground bolt or nut.
2. Check all contact surfaces for tarnish, dirt and rust, etc.
3. Clean as necessary to ensure that contact is in good condition.
4. Reinstall ground bolt or nut securely.
5. Check if any additional accessories interfere with ground circuit.
6. If several wire harnesses are crimped into one ground terminal, check for proper crimp condition. Make sure that all wire harnesses are clean and securely fastened while providing a proper ground path.

## Diagnostic Trouble Code (DTC) Chart

| DTC | DTC Definition |
|---|---|
| B1300 | Internal Control Module EEPROM Error |
| B1301 | Immobilizer and ECM Authentication Failed |
| B1302 | VIN Not Programmed |
| B1305 | Immobilizer with No Key Stored |
| B1306 | Security Code Not Programmed |

| DTC | DTC Definition |
|---|---|
| B1500 | Open Circuit of Driver Door Outside LF Antenna |
| B1501 | Open Circuit of Passenger Door Outside LF Antenna |
| B1502 | Open Circuit of Front Internal LF Antenna |
| B1505 | Open Circuit of Bumper LF Antenna |
| B1521 | Open Circuit of Backup Antenna |
| B1522 | Open Circuit on Drive Door PSU |
| B1523 | Open Circuit on Passenger Door PSU |
| B1524 | Short Circuit of (Driver Side) Rear Left LF Antenna |
| B1525 | Short Circuit of (Passenger Side) Rear Right LF Antenna |
| B1526 | Short Circuit of Front Internal LF Antenna |
| B1527 | Short Circuit of Bumper LF Antenna |
| B1528 | Short Circuit of Backup Antenna |
| B1529 | Short Circuit on Driver Door HSU/PSU |
| B152A | Short Circuit on Passenger Door HSU/PSU |
| B152B | Stuck on Driver Door HSU/PSU |
| B152C | Stuck on Passenger Door HSU/PSU |
| B1518 | Trunk/Back Door Unclock Switch Stuck Failure |
| B152D | SSB Stuck |
| B1506 | Abnormality on Switches of Engine Switch |
| B1507 | Abnormality in IG Circuit |
| B1508 | Abnormality in ACC Circuit |
| B152E | START Fail |
| B1509 | Abnormality in Brake Signal |
| B150C | Clutch Switch Signal Error |
| B1515 | ROM Checksumm Failure |
| B152F | Battery Voltage Low Detection |
| B1530 | Battery Voltage High Detection |
| U0073 | CAN Bus Off |
| U0100 | Lost of communication with EMS |
| U0101 | Lost of Communication with Transmission Control Unit |
| U0129 | Lost communication with BSM |

| DTC | DTC Definition |
|---|---|
| U0140 | Lost communication with BCM |
| U1190 | Lost Communication with ESCL |
| U0155 | Lost Communication with ICM |
| U0230 | Lost Communication with PLG |
| U0531 | Invalid Data Received From PLG |
| U0401 | Invalid Data Received From EMS |
| U0418 | Invalid Data Received From BSM |
| U0402 | Invalid Data Received From TCU |
| U059C | Invalid Data Received From ESCL |
| U1300 | Software Configuration Error |

## DTC Diagnosis Procedure

| DTC | B1300 | Internal Control Module EEPROM Error |
|---|---|---|

| DTC | DTC Definition | Possible Causes |
|---|---|---|
| B1300-00 | Internal Control Module EEPROM Error | PEPS module |

**DTC Confirmation Procedure**

Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

**Hint:**

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

| 1 | Check for DTCs |
|---|---|

(a) Using diagnostic tester, clear DTC and read DTC again.

(b) Check if DTC occurs again.

NG → **Turn off vehicle power supply (-disconnect negative battery cable), then clear DTCs again.**

OK

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

(a) Connect diagnostic tester and clear DTCs.

(b) Run the vehicle as specified procedure. The operating way should meet the conditions for corresponding fault diagnosis.

(c) Read the fault information and confirm that the fault has been solved.

| | |
|---|---|
| NG | **Replace with a new PEPS module to check if fault reoccurs.** |
| OK | **Conduct test and confirm malfunction has been repaired** |

| | | |
|---|---|---|
| **DTC** | **B1301** | **Immobilizer and ECM Authentication Failed** |
| **DTC** | **B1515** | **ROM Checksum Failure** |

| DTC | DTC Definition | Possible Causes |
|---|---|---|
| B1301-00 | Immobilizer and ECM Authentication Failed | It may be necessary to perform anti-theft match for PEPS and ECU module again |
| B1515-45 | ROM Checksum Failure | |

**DTC Confirmation Procedure**

Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

**Hint:**

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

| | |
|---|---|
| **1** | **Check for DTCs** |

(a) Using diagnostic tester, clear DTC and read DTC again.
(b) Check if DTC occurs again.

| | |
|---|---|
| NG | **It may be necessary to perform anti-theft match for PEPS and EMS module again.** |

OK

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

Use circuit diagram as a guide to perform the following inspection procedures:

(a) Connect diagnostic tester and clear DTCs.
(b) Run the vehicle as specified procedure. The operating way should meet the conditions for corresponding fault diagnosis.
(c) Read the fault information and confirm that the fault has been solved.

| | |
|---|---|
| NG | **Replace with a new PEPS module to check if fault reoccurs.** |
| OK | **Conduct test and confirm malfunction has been repaired** |

| | | |
|---|---|---|
| **DTC** | **B1302** | **VIN Not Programmed** |

| DTC | DTC Definition | Possible Causes |
|---|---|---|
| B1302 | VIN Not Programmed | It may be necessary to input VIN into PEPS again |

**DTC Confirmation Procedure**
Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

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

| | |
|---|---|
| **1** | **Check for DTCs** |

(a) Using diagnostic tester, clear DTC and read DTC again.
(b) Check if DTCs occur again.

NG → **Turn off vehicle power supply (- disconnect the negative battery cable), then clear DTC**

OK

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

Use circuit diagram as a guide to perform the following inspection procedures:
(a) Connect diagnostic tester and clear DTCs.
(b) Run the vehicle as specified procedure. The operating way should meet the conditions for corresponding fault diagnosis.
(c) Read the fault information and confirm that the fault has been solved.

NG → **Input VIN into PEPS again**

OK → **Conduct test and confirm malfunction has been repaired**

| DTC | B1305 | Immobilizer with No Key Stored |
|---|---|---|

| DTC | DTC Definition | Possible Causes |
|---|---|---|
| B1305-00 | Immobilizer with No Key Stored | PEPS control module assembly is damaged |

**DTC Confirmation Procedure**
Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

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

| | |
|---|---|
| 1 | **Check for DTCs** |

(a) Using diagnostic tester, clear DTC and read DTC again.
(b) Check if DTCs occur again.

NG → **Enter anti-theft system and add key**

OK

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

Use circuit diagram as a guide to perform the following inspection procedures:
(a) Connect diagnostic tester and clear DTCs.
(b) Run the vehicle as specified procedure. The operating way should meet the conditions for corresponding fault diagnosis.
(c) Read the fault information and confirm that the fault has been solved.

NG → **Replace with a new PEPS control module to check if fault reoccurs**

OK → **Conduct test and confirm malfunction has been repaired**

| DTC | B1306 | Security Code Not Programmed |
|---|---|---|

| DTC | DTC Definition | Possible Causes |
|---|---|---|
| B1306 | Security Code Not Programmed | PEPS control module assembly is damaged |

**DTC Confirmation Procedure**
Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

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

| | |
|---|---|
| 1 | **Check for DTCs** |

(a) Using diagnostic tester, clear DTC and read DTC again.
(b) Check if DTCs occur again.

NG → **Rematch PEPS module**

OK

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

Use circuit diagram as a guide to perform the following inspection procedures:

(a) Connect diagnostic tester and clear DTCs.

(b) Run the vehicle as specified procedure. The operating way should meet the conditions for corresponding fault diagnosis.

(c) Read the fault information and confirm that the fault has been solved.

NG → **Replace with a new PEPS control module to check if fault reoccurs**

OK → **Conduct test and confirm malfunction has been repaired**

| | | |
|---|---|---|
| **DTC** | **B1500** | **Open Circuit of Driver Door Outside LF Antenna** |
| **DTC** | **B1501** | **Open Circuit of Passenger Door Outside LF Antenna** |
| **DTC** | **B1522** | **Open Circuit on Drive Door PSU** |
| **DTC** | **B1523** | **Open Circuit on Passenger Door PSU** |
| **DTC** | **B1529** | **Short Circuit on Driver Door HSU/PSU** |
| **DTC** | **B152A** | **Short Circuit on Passenger Door HSU/PSU** |
| **DTC** | **B152B** | **Stuck on Driver Door HSU/PSU** |
| **DTC** | **B152C** | **Stuck on Passenger Door HSU/PSU** |

| DTC | DTC Definition | Possible Causes |
|---|---|---|
| B1500 | Open Circuit of Driver Door Outside LF Antenna | PEPS control module or interior wire harness is damaged |
| B1501 | Open Circuit of Passenger Door Outside LF Antenna | |
| B1522 | Open Circuit on Drive Door PSU | |
| B1523 | Open Circuit on Passenger Door PSU | |
| B1529 | Short Circuit on Driver Door HSU/PSU | |
| B152A | Short Circuit on Passenger Door HSU/PSU | |
| B152B | Stuck on Driver Door HSU/PSU | |
| B152C | Stuck on Passenger Door HSU/PSU | |

**DTC Confirmation Procedure**

Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.

- If DTC is not detected, malfunction is intermittent.

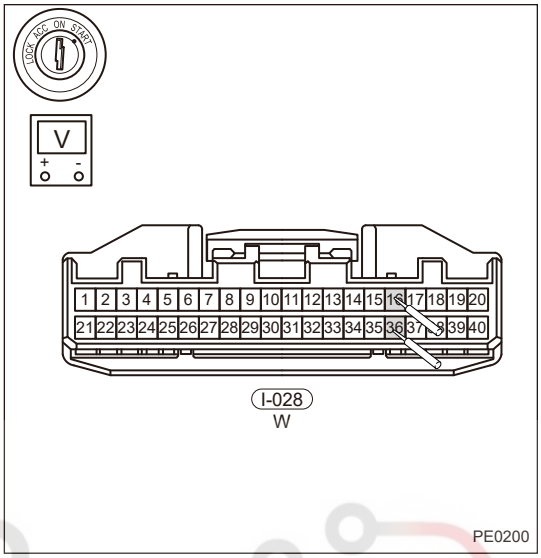
**Hint:**

- Take driver side micro switch as an example to explain troubleshooting procedures for reference.
- When performing circuit diagnosis and test, always refer to the circuit diagram for specific circuit and component information.

| 1 | Check if PEPS module output voltage is normal |
|---|---|

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the PEPS module connector I-028.
(d) Check if wire harnesses are worn, pierced, pinched or partially broken.
(e) Check for broken, bent, protruded or corroded terminals.
(f) Check if related connector pins are in good condition.
(g) Connect the negative battery cable, turn ENGINE START STOP switch to ON, use DC voltage band of digital multimeter to measure if voltage between terminals 16 and 36 of PEPS connector I-028 is normal.

| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| I-028 (16) - I-028 (36) | Always | 12V |



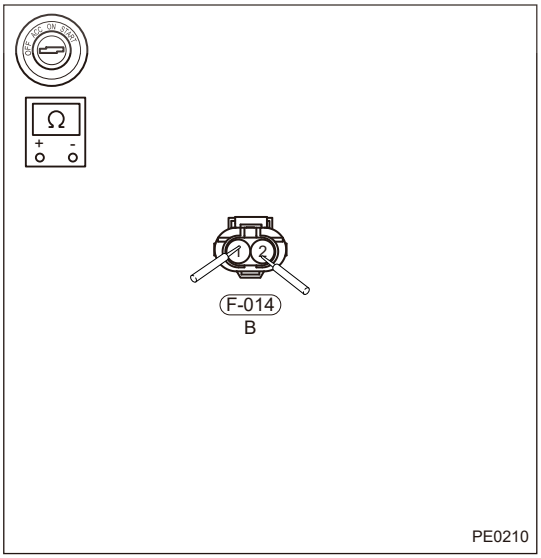

NG → **Replace PEPS control module assembly**

OK

| 2 | Check door handle sensor |
|---|---|

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the front left door sensor connector F-014.
(d) Check if wire harnesses are worn, pierced, pinched or partially broken.
(e) Check for broken, bent, protruded or corroded terminals.
(f) Check if related connector pins are in good condition.
(g) The outside handle is capacitive sensing type. Using ohm band of digital multimeter, measure the resistance of front left door outside handle.

| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| F-014 (1) - F-014 (2) | OK | No continuity |




NG → **Replace left door handle sensor**

OK

| 3 | Check front left door wire harness for open or short |
|---|---|

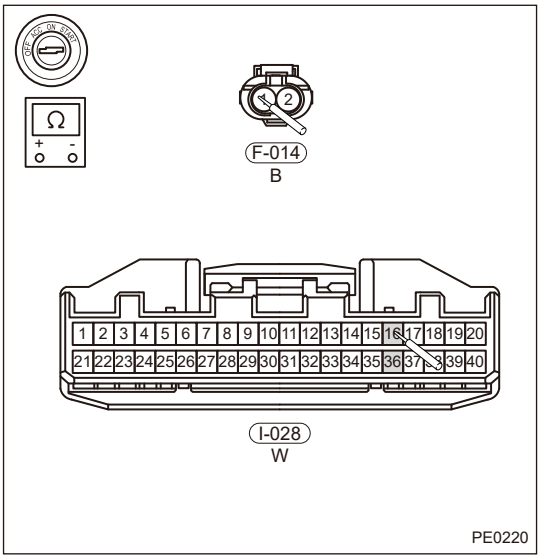
(a) Disconnect the front left door outside handle wire harness connector F-014.

(b) Check if wire harnesses are worn, pierced, pinched or partially broken.

(c) Check for broken, bent, protruded or corroded terminals.

(d) Check if related connector pins are in good condition.

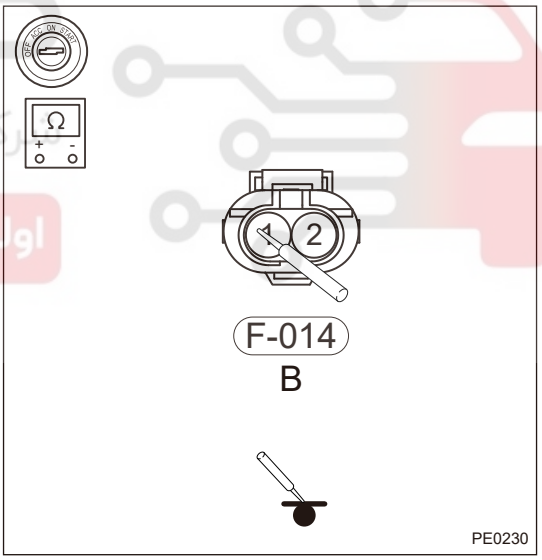
(e) Using ohm band of digital multimeter, check for continuity between terminals 1, 2 of connector F-014 and terminals 16, 36 of PEPS module connector I-028 to check for open in front left door wire harness.




| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| F-014 (1) - I-028 (16) | Always | ⩽ 1 Ω |
| F-014 (2) - I-028 (36) | Always | ⩽ 1 Ω |

NG → **Repair or replace ground circuit of front left door handle sensor**

(f) Using ohm band of digital multimeter, measure resistance between terminals 1, 2 of front left door wire harness connector F-014 and body ground separately to check for short to body ground in front left door wire harness.




| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| F-014 (1) - Body ground | Always | No continuity |
| F-014 (2) - Body ground | Always | No continuity |

NG → **Replace interior wire harness**

OK

| 4 | Reconfirm DTCs |
|---|---|

Use circuit diagram as a guide to perform the following inspection procedures:

(a) Connect diagnostic tester and clear DTCs.

(b) Run the vehicle as specified procedure. The operating way should meet the conditions for corresponding fault diagnosis.

(c) Read the fault information and confirm that the fault has been solved.

| | |
|---|---|
| NG | **Replace PEPS module.** |
| OK | **Conduct test and confirm malfunction has been repaired** |

| | | |
|---|---|---|
| **DTC** | **B1502** | **Open Circuit of Front Internal LF Antenna** |
| **DTC** | **B1526** | **Short Circuit of Front Internal LF Antenna** |

| DTC | DTC Definition | Possible Causes |
|---|---|---|
| B1502-13 | Open Circuit of Front Internal LF Antenna | Front internal low frequency antenna or interior wire harness is damaged |
| B1526 | Short Circuit of Front Internal LF Antenna | |

**DTC Confirmation Procedure**

Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

**Hint:**

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

| | |
|---|---|
| **1** | **Check if PEPS module software configuration code is correct** |

(a) Use diagnostic tester to enter PEPS system.

(b) Read software configuration code and check if it is correct.

| | |
|---|---|
| NG | **Write configuration code again and clear DTC** |

OK

| | |
|---|---|
| **2** | **Measure resistance of front low frequency antenna** |

Use circuit diagram as a guide to perform the following inspection procedures:

(a) Turn ENGINE START STOP switch to OFF.

(b) Disconnect the negative battery cable.

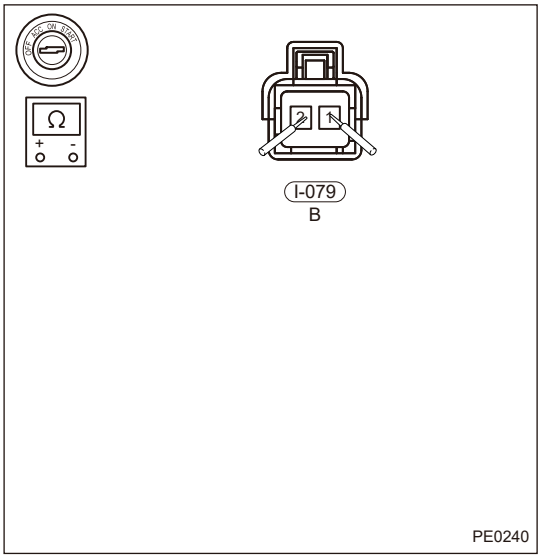
(c) Disconnect the front low frequency antenna connector I-079.

(d) Check if wire harnesses are worn, pierced, pinched or partially broken.

(e) Check for broken, bent, protruded or corroded terminals.

(f) Check if related connector pins are in good condition.

(g) Using ohm band of digital multimeter, measure if resistance between terminals 1 and 2 of front low frequency antenna connector I-079 is normal.




| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| I-079 (1) - I-079 (2) | Always | Always ≈ 10 KΩ |

NG → **Replace low frequency antenna**

OK →

| 3 | Check interior wire harness for open or short |
|---|---|

Use circuit diagram as a guide to perform the following inspection procedures:

(a) Turn ENGINE START STOP switch to OFF.

(b) Disconnect the negative battery cable.

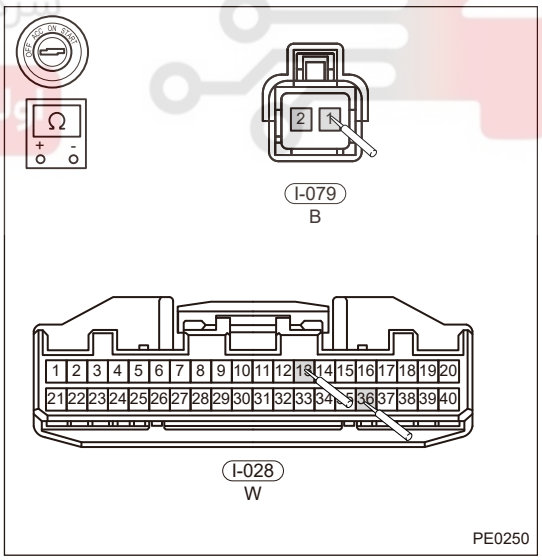
(c) Disconnect front low frequency antenna connector I-079 and PEPS module connector I-028.

(d) Check if wire harnesses are worn, pierced, pinched or partially broken.

(e) Check for broken, bent, protruded or corroded terminals.

(f) Check if related connector pins are in good condition.

(g) Using ohm band of digital multimeter, check for continuity between terminals 1, 2 of connector I-079 and terminals 13, 33 of connector I-028 to check for open in instrument panel wire harness.

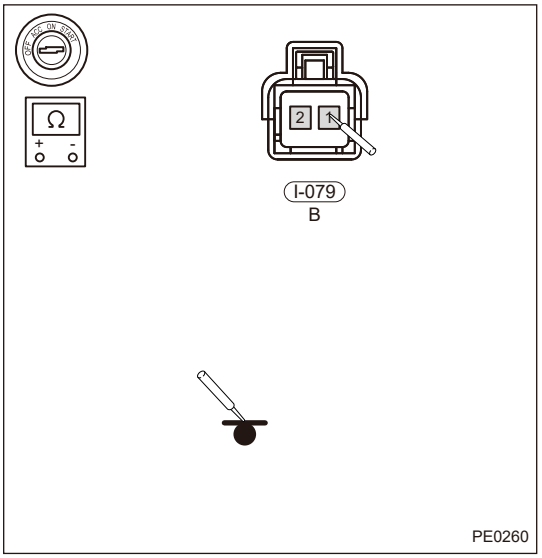



| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| I-079 (1) - I-028 (13) | Always | ⩽ 1 Ω |
| I-079 (2) - I-028 (33) | Always | ⩽ 1 Ω |

Use circuit diagram as a guide to perform the following inspection procedures:

(h) Using ohm band of digital multimeter, check for continuity between terminals 1, 2 of connector I-079 and body ground to check for short to ground in instrument panel wire harness.

| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| I-079 (1) - Body ground | Always | No continuity |
| I-079 (2) - Body ground | Always | No continuity |




NG → **Replace instrument panel wire harness**

OK

| 4 | Reconfirm DTCs |
|---|---|

Use circuit diagram as a guide to perform the following inspection procedures:

(a) Connect diagnostic tester and clear DTCs.

(b) Run the vehicle as specified procedure. The operating way should meet the conditions for corresponding fault diagnosis.

(c) Read the fault information and confirm that the fault has been solved.

NG → **Replace PEPS module**

OK → **Conduct test and confirm malfunction has been repaired**

| DTC | B1505 | Open Circuit of Bumper LF Antenna |
|---|---|---|
| DTC | B1527 | Short Circuit of Bumper LF Antenna |

| DTC | Description | Possible Causes |
|---|---|---|
| B1505 | Open Circuit of Bumper LF Antenna | Low frequency antenna or wire harness is damaged |
| B1527 | Short Circuit of Bumper LF Antenna | |

**DTC Confirmation Procedure**

Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

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

| | |
|---|---|
| 1 | **Check if PEPS module software configuration code is correct** |

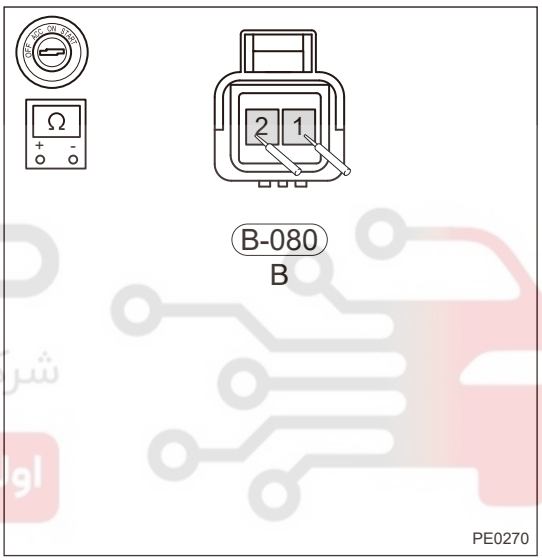
(a) Use diagnostic tester to enter PEPS system.
(b) Read software configuration code and check if it is correct.

NG → **Input configuration code again and clear DTC**

OK

| | |
|---|---|
| 2 | **Measure resistance of bumper low frequency antenna** |

Use circuit diagram as a guide to perform the following inspection procedures:
(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the bumper low frequency antenna connector B-080.
(d) Check if wire harnesses are worn, pierced, pinched or partially broken.
(e) Check for broken, bent, protruded or corroded terminals.
(f) Check if related connector pins are in good condition.
(g) Using ohm band of digital multimeter, measure if resistance between terminals 1 and 2 of front low frequency antenna connector B-080 is normal.




| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| B-080 (1) - B-080 (2) | Always | ≈ 10 KΩ |

NG → **Replace bumper low frequency antenna**

OK

| | |
|---|---|
| 3 | **Check interior wire harness for open or short** |

Use circuit diagram as a guide to perform the following inspection procedures:

(a) Turn ENGINE START STOP switch to OFF.

(b) Disconnect the negative battery cable.

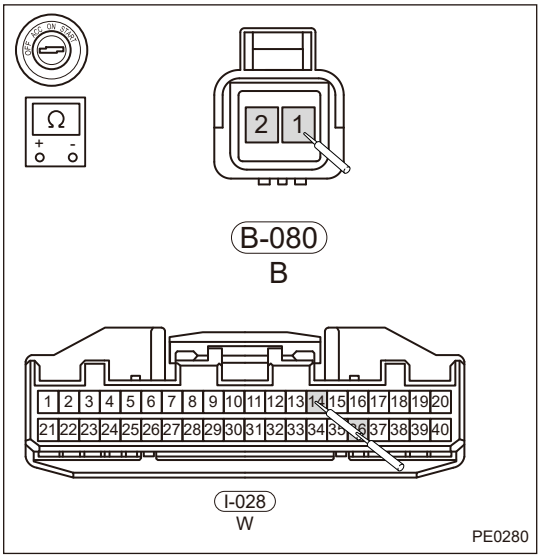
(c) Disconnect bumper low frequency antenna connector B-080 and PEPS module connector I-028.

(d) Check if wire harnesses are worn, pierced, pinched or partially broken.

(e) Check for broken, bent, protruded or corroded terminals.

(f) Check if related connector pins are in good condition.

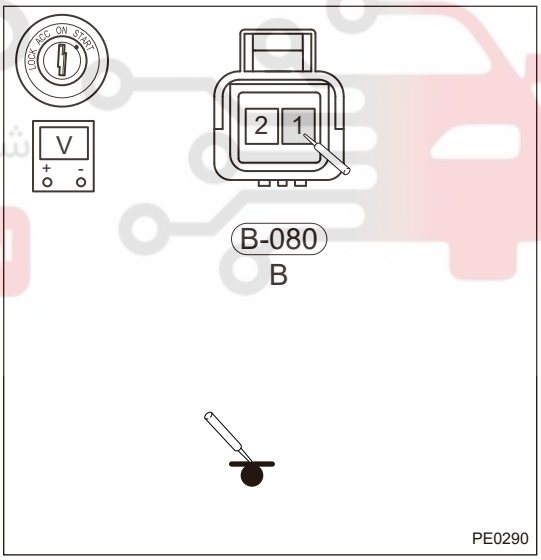
(g) Using ohm band of digital multimeter, check for continuity between terminals 1 and 2 of B-080 and terminals 14 and 34 of I-028 to check for open in instrument panel wire harness.




| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| B-080 (1) - I-028 (14) | Always | ⩽ 1 Ω |
| B-080 (2) - I-028 (34) | Always | ⩽ 1 Ω |

Use circuit diagram as a guide to perform the following inspection procedures:

(h) Using digital multimeter, measure voltage between terminal 1 of bumper low frequency antenna B-080 and body ground, to check if the PEPS module has power output.

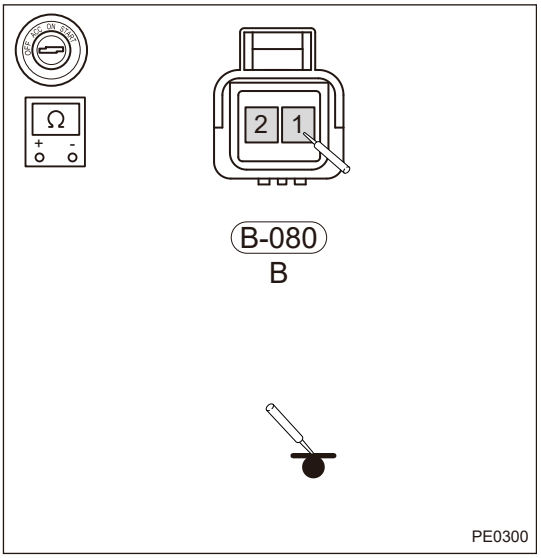



| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| B-080 (1) - Body ground | Always | 12 V |

Use circuit diagram as a guide to perform the following inspection procedures:

(i) Using ohm band of digital multimeter, check for continuity between terminals 1, 2 of connector I-080 and body ground to check for short to ground in instrument panel wire harness.

| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| B-080 (1) - Body ground | Always | No continuity |
| B-080 (2) - Body ground | Always | No continuity |




NG → **Replace instrument panel wire harness**

OK →

| 4 | Reconfirm DTCs |
|---|---|

Use circuit diagram as a guide to perform the following inspection procedures:

(a) Connect diagnostic tester and clear DTCs.

(b) Run the vehicle as specified procedure. The operating way should meet the conditions for corresponding fault diagnosis.

(c) Read the fault information and confirm that the fault has been solved.

NG → **Replace PEPS module**

OK → **Conduct test and confirm malfunction has been repaired**

| | | |
|---|---|---|
| **DTC** | **B152D** | **SSB Stuck** |
| **DTC** | **B1506** | **Abnormality on Switches of Engine Switch** |
| **DTC** | **B1507** | **Abnormality in IG Circuit** |
| **DTC** | **B152E** | **START Fail** |

| DTC | Description | Possible Causes |
|---|---|---|
| B152D | SSB Stuck | PEPS control module is damaged, ignition switch has failed, wire harness is damaged |
| B1506 | Abnormality on Switches of Engine Switch | |
| B1507 | Abnormality in IG Circuit | |
| B152E | START Fail | |

**DTC Confirmation Procedure**

Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

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

| | |
|---|---|
| **1** | **Enter PEPS system and read related datastream** |

(a) Read datastream “Power Supply Management and Starting State” and “Engine Switch Backlight State”.

(b) Press ENGINE START STOP switch, check datastream conversion activation state and backlight illumination state, To determine whether the ENGINE START STOP switch input is normal.

OK → **Turn off vehicle power supply (-disconnect the negative battery cable), then clear DTC again**

NG

| | |
|---|---|
| **2** | **Check ENGINE START STOP switch** |

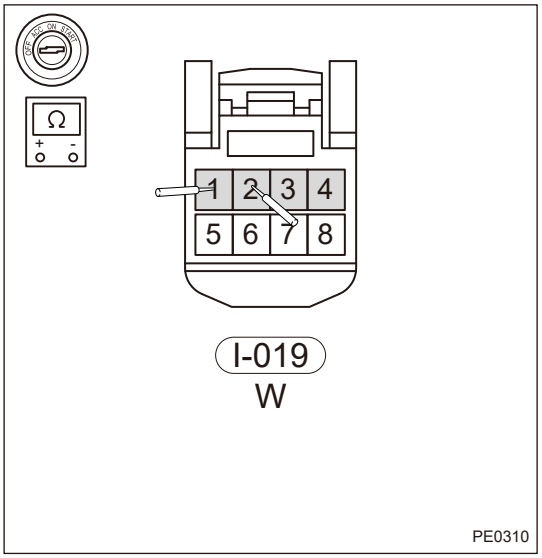
Use circuit diagram as a guide to perform the following inspection procedures:

(a) Turn ENGINE START STOP switch to OFF.

(b) Disconnect the negative battery cable.

(c) Disconnect the ENGINE START STOP switch connector I-019.

(d) Using ohm band of digital multimeter, measure resistance of ENGINE START STOP switch to check if ENGINE START STOP switch is normal.




| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| ENGINE START STOP switch terminal 2 - 1 | Not pressed | No continuity |
| ENGINE START STOP switch terminal 2 - 1 | Pressed | ⩽ 1 Ω |
| ENGINE START STOP switch terminal 2 - 3 | Not pressed | No continuity |
| ENGINE START STOP switch terminal 2 - 3 | Pressed | ⩽ 1 Ω |
| ENGINE START STOP switch terminal 1 - 3 | Not pressed | No continuity |
| ENGINE START STOP switch terminal 1 - 3 | Pressed | ⩽ 1 Ω |
| ENGINE START STOP switch terminal 4 - 2 | Not pressed | ≈ 6.33 KΩ |

NG → **Replace ENGINE START STOP switch**

OK →

| | |
|---|---|
| **3** | **Check instrument cluster wire harness for open or short** |

Use circuit diagram as a guide to perform the following inspection procedures:

(a) Turn ENGINE START STOP switch to OFF.

(b) Disconnect the negative battery cable.

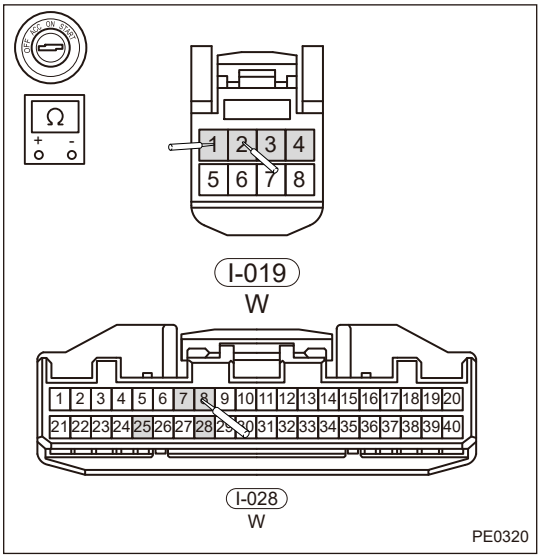
(c) Disconnect ENGINE START STOP switch connector I-019 and PEPS module connector I-028.

(d) Check if wire harnesses are worn, pierced, pinched or partially broken.

(e) Check for broken, bent, protruded or corroded terminals.

(f) Check if related connector pins are in good condition.

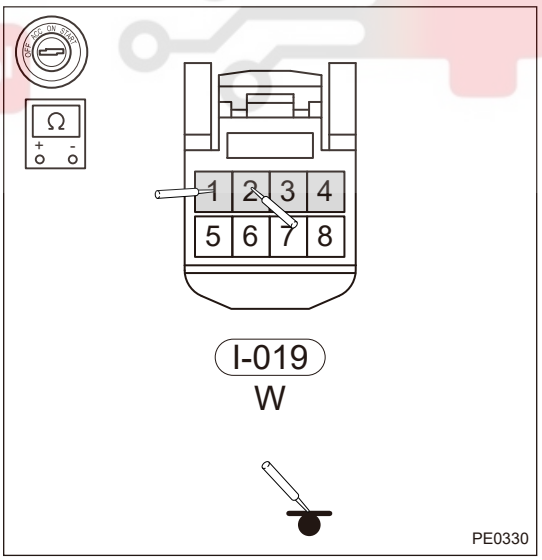
(g) Using ohm band of digital multimeter, check for continuity between I-019 (1) and I－028 (8), I-019 (2) and I-028 (28), I-019 (3) and I-028 (7), I-019 (4) and I-028 (25) to check for open circuit.




| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| I-019 (1) - I-028 (8) | Always | ⩽ 1 Ω |
| I-019 (2) - I-028 (28) | Always | ⩽ 1 Ω |
| I-019 (3) - I-028 (7) | Always | ⩽ 1 Ω |
| I-019 (4) - I-028 (25) | Always | ⩽ 1 Ω |

Use circuit diagram as a guide to perform the following inspection procedures:

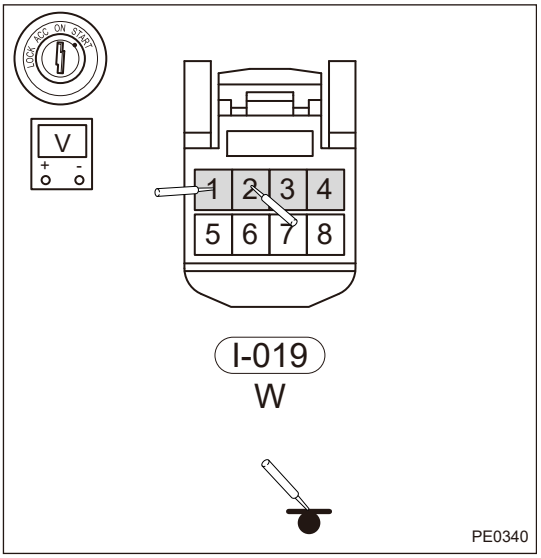
(h) Using ohm band of digital multimeter, check for continuity between terminals 1, 2, 3 and 4 of connector I-019 and body ground to check for short to ground in instrument panel wire harness.




| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| I-019 (1) - Body ground | Always | No continuity |
| I-019 (2) - Body ground | Always | No continuity |
| I-019 (3) - Body ground | Always | No continuity |
| I-019 (4) - Body ground | Always | No continuity |

Use circuit diagram as a guide to perform the following inspection procedures:

(i) Connect the negative battery cable (confirm that connectors I-019 and I-028 are disconnected). Bridge joint ACC relay and IGN1 relay (ENGINE START STOP switch is disabled). Using DC voltage band of digital multimeter, measure voltage between terminals 1, 2, 3 and 4 of connector I-019 and body ground to check for short to power supply in instrument panel wire harness.




| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| I-019 (1) - Body ground | Always | 0V |
| I-019 (2) - Body ground | Always | 0V |
| I-019 (3) - Body ground | Always | 0V |
| I-019 (4) - Body ground | Always | 0V |

NG → **Replace instrument panel wire harness**

OK →

| | |
|---|---|
| **4** | **Reconfirm DTCs** |

Use circuit diagram as a guide to perform the following inspection procedures:

(a) Connect diagnostic tester and clear DTCs.

(b) Run the vehicle as specified procedure. The operating way should meet the conditions for corresponding fault diagnosis.

(c) Read the fault information and confirm that the fault has been solved.

NG → **Replace PEPS module**

OK → **Conduct test and confirm malfunction has been repaired**

| DTC | B1508 | Abnormality in ACC Circuit |
|---|---|---|

| DTC | DTC Definition | Possible Causes |
|---|---|---|
| B1508 | Abnormality in ACC Circuit | ACC relay, body ground and wire harness malfunction |

**DTC Confirmation Procedure**

Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

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

| | |
|---|---|
| 1 | **Check fuse** |

(a) Use circuit diagram as a guide to perform the following inspection procedures:

(b) Check if fuse SB02 15A is blown or no power.

NG → **Replace fuse or check the cause for no power**

OK

| | |
|---|---|
| 2 | **Check if fuse base jack is abnormal** |

Use circuit diagram as a guide to perform the following inspection procedures:

(a) Remove fuse SB02-15A in engine compartment fuse and relay box, and check fuse base jack for excessive clearance.

NG → **Adjust fuse base jack**

OK

| | |
|---|---|
| 3 | **Exchange ACC relay** |

NG → **Replace ACC relay**

OK

| | |
|---|---|
| 4 | **Check if relay switch power supply is normal** |

Use circuit diagram as a guide to perform the following inspection procedures:

(a) Unplug ERLY14 relay in engine compartment fuse box.

(b) Using 21 W test light or digital multimeter, measure if power supply of ACC relay base No.30 jack is normal.

| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| ACC relay base 30 - Body ground (digital multimeter) | Always | Not less than 12 V |
| ACC relay base 30 - Body ground (21 W test light) | Always | ON |

NG → **Replace front bumper wire harness**

OK

| 5 | **Short connect the ACC relay base jack control switch** |
|---|---|

Use circuit diagram as a guide to perform the following inspection procedures:

(a) Use a wire to bridge joint jacks 30 and 87 of ERLY14 relay base in engine compartment fuse and relay box, and check for open in engine compartment fuse and relay box.

NG → **Replace front bumper wire harness**

OK

| 6 | **Check ACC relay control body ground** |
|---|---|

Use circuit diagram as a guide to perform the following inspection procedures:

(a) Using ohm band of digital multimeter, check for continuity between jack 86 of ACC relay base and terminal H8 of engine compartment fuse and relay box B-024 to check for open in engine compartment fuse and relay box.

| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| ACC relay base 86 - B-024 (H8) 4 | Always | ⩽ 1 Ω |

Use circuit diagram as a guide to perform the following inspection procedures:

(b) Using ohm band of digital multimeter, check for continuity between terminal H7 of engine compartment fuse and relay box B-024 and ground point GB-603 to check if ground circuit is normal.

| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| B-024 (H7) - GB-603 | Always | ⩽ 1 Ω |

NG → **Adjust GB-603 ground position or replace front pumper wire harness**

OK

| 7 | **Check ACC relay control power supply terminal** |
|---|---|

Use circuit diagram as a guide to perform the following inspection procedures:

(a) Disconnect the negative battery cable.

(b) Disconnect the PEPS module connector I-028.

(c) Check if wire harnesses are worn, pierced, pinched or partially broken.

(d) Check for broken, bent, protruded or corroded terminals.

(e) Check if related connector pins are in good condition.

(f) Using ohm band of digital multimeter, measure resistance between terminal H8 of engine compartment fuse and relay box B-024 and terminal 40 of I-028.

| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| B-024 (H8) - I-028 (40) | Always | ⩽ 1 Ω |

NG → **Replace wire harness**

OK

| 8 | Reconfirm DTCs |
|---|---|

Use circuit diagram as a guide to perform the following inspection procedures:

(a) Connect diagnostic tester and clear DTCs.

(b) Run the vehicle as specified procedure. The operating way should meet the conditions for corresponding fault diagnosis.

(c) Read the fault information and confirm that the fault has been solved.

NG → **Replace PEPS module**

OK → **Conduct test and confirm malfunction has been repaired**

| DTC | B1509 | Abnormality in Brake Signal |
|---|---|---|

| DTC | Description | Possible Causes |
|---|---|---|
| B1509 | Abnormality in Brake Signal | Wire harness, PEPS controller or brake switch is damaged |

**DTC Confirmation Procedure**

Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

**Hint:**

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

| 1 | Check for DTCs |
|---|---|

(a) Using diagnostic tester, clear DTC and read PEPS control module assembly DTC again.

(b) Check if DTCs occur again.

OK → **System is normal**

NG

| 2 | Using diagnostic tester, enter other system |
|---|---|

(a) Using diagnostic tester, enter other system (such as ESP module, TCU) and check if same DTC occurs.

NG

| 3 | Check interior wire harness and connector |
|---|---|

Use circuit diagram as a guide to perform the following inspection procedures:

(a) Turn ENGINE START STOP switch to OFF.

(b) Disconnect the negative battery cable.

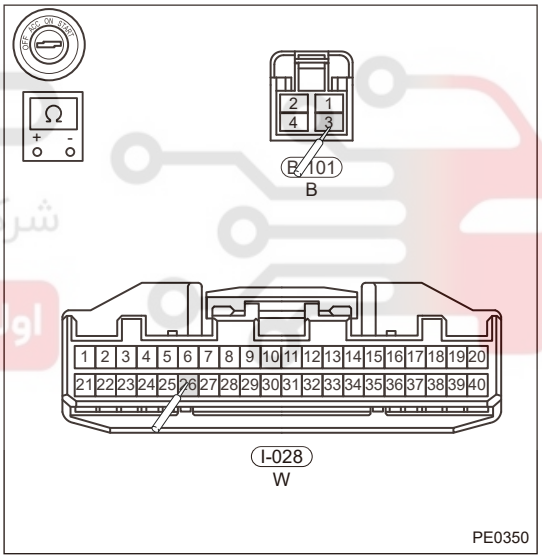
(c) Disconnect instrument panel wire harness connector, interior wire harness connector and PEPS module connector I-028.

(d) Check if wire harnesses are worn, pierced, pinched or partially broken.

(e) Check for broken, bent, protruded or corroded terminals.

(f) Check if related connector pins are in good condition.

(g) Using ohm band of digital multimeter, check for continuity between terminal 26 of connector I-028 and terminal 3 of brake switch connector B-101 to check for open.

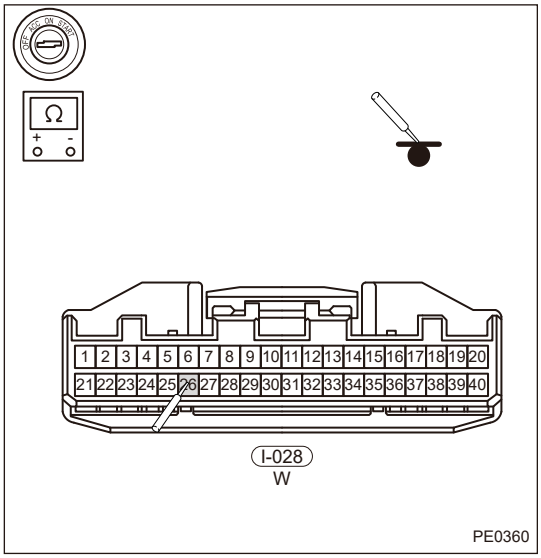



| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| I-028 (26) - B-101 (3) | Always | ⩽ 1 Ω |

Use circuit diagram as a guide to perform the following inspection procedures:

(h) Using ohm band of digital multimeter, check for continuity between terminal 26 of connector I-028 and body ground to check for short to body ground.

| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| I-028 (26) - Body ground | Always | No continuity |




NG → **Replace interior wire harness**

OK → **Replace PEPS module**

| 4 | Check fuse |
|---|---|

Use circuit diagram as a guide to perform the following inspection procedures:

(a) Measure fuse EF32-10A in engine compartment fuse and relay box with 21 W test light.

NG → **Replace fuse**

OK

| 5 | Check brake switch |
|---|---|

Use circuit diagram as a guide to perform the following inspection procedures:

(a) Turn ENGINE START STOP switch to OFF.

(b) Disconnect the negative battery cable.

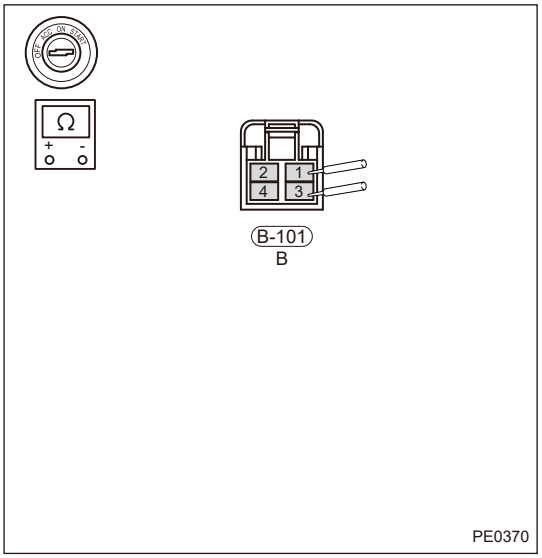
(c) Disconnect the connector B-101.

(d) Check if wire harnesses are worn, pierced, pinched or partially broken.

(e) Check for broken, bent, protruded or corroded terminals.

(f) Check if related connector pins are in good condition.

(g) Using digital multimeter, measure internal resistance of brake switch to check if brake switch is abnormal




| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| B-101(1) - B-101 (3) | Brake pedal not depressed | No continuity |
| B-101(1) - B-101 (3) | Brake pedal depressed | ⩽ 1 Ω |
| B-101(2) - B-101 (4) | Brake pedal not depressed | ⩽ 1 Ω |
| B-101(2) - B-101 (4) | Brake pedal depressed | No continuity |

NG → **Replace brake switch**

OK → **Turn on power supply again and clear DTC**

| 6 | Check fuse base jack |
|---|---|

Use circuit diagram as a guide to perform the following inspection procedures:

(a) Turn ENGINE START STOP switch to OFF.

(b) Disconnect the negative battery cable.

(c) Remove fuse EF32-10A in engine compartment fuse and relay box and check base jack for excessive clearance.

NG → **Adjust fuse jack clearance**

OK

| 7 | Check fuse base jack input power supply |
|---|---|

Use circuit diagram as a guide to perform the following inspection procedures:

(a) Connect the negative battery cable.

(b) Turn ignition switch to ON.

(c) Measure fuse jack input power supply with 21 W test light and check if test light comes on.

| | |
|---|---|
| NG | **Replace fuse EF32-10A** |

| | |
|---|---|
| **8** | **Check brake switch power supply voltage** |

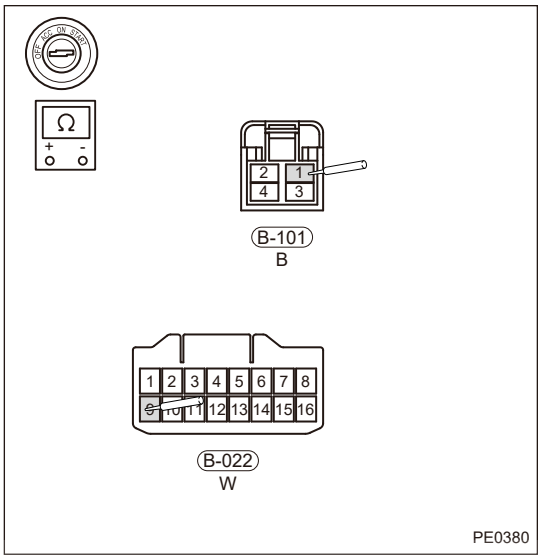
Use circuit diagram as a guide to perform the following inspection procedures:

(a) Connect the negative battery cable.

(b) Turn ignition switch to ON.

(c) Using digital multimeter, check if there is 12 V voltage between terminal E9 of engine compartment fuse and relay box B-022 and body ground.

(d) Using digital multimeter, check for continuity between terminal E9 of engine compartment fuse and relay box B-022 and terminal 1 of brake light switch B-101 to check for open in wire harness.




| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| B-022 (E9) - B-101 (1) | Brake pedal not depressed | ⩽ 1 Ω |

| | |
|---|---|
| NG | **Replace interior wire harness** |
| OK | **Replace PEPS module** |

| | | |
|---|---|---|
| **DTC** | **B1518** | **Trunk/Back Door Unlock Switch Stuck Failure** |

| DTC | Description | Possible Causes |
|---|---|---|
| B1518 | Trunk/Back Door Unlock Switch Stuck Failure | Back door lock button, wire harness or PEPS control module is damaged |

**DTC Confirmation Procedure**

Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

**Hint:**

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

| | |
|---|---|
| **1** | **Check vehicle malfunction condition** |

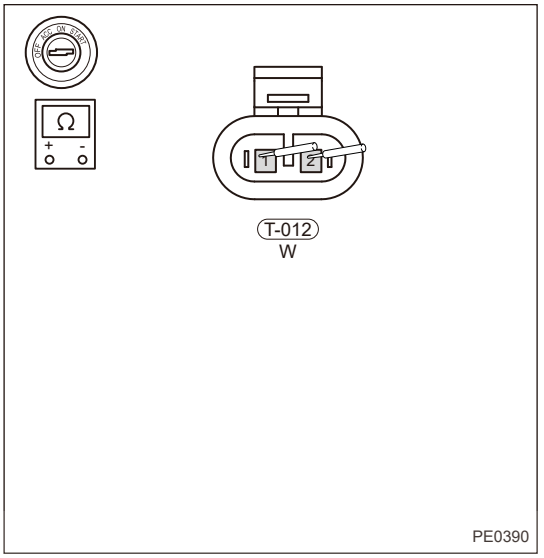
(a) Press back door release switch to check if back door is open.

| | |
|---|---|
| NG | **Turn off vehicle power supply (- disconnect the negative battery cable), then turn on power supply again and clear DTC.** |

OK

| 2 | Check back door release switch |
|---|---|

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the back door release switch connector T-012.
(d) Check if wire harnesses are worn, pierced, pinched or partially broken.
(e) Check for broken, bent, protruded or corroded terminals.
(f) Check if related connector pins are in good condition.
(g) Using ohm band of digital multimeter, measure resistance of back door release switch to check if back door release switch is damaged.




| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| T-012 (1) - T-012 (2) | Not pressed | No continuity |
| T-012 (1) - T-012 (2) | Pressed | ⩽ 1 Ω |

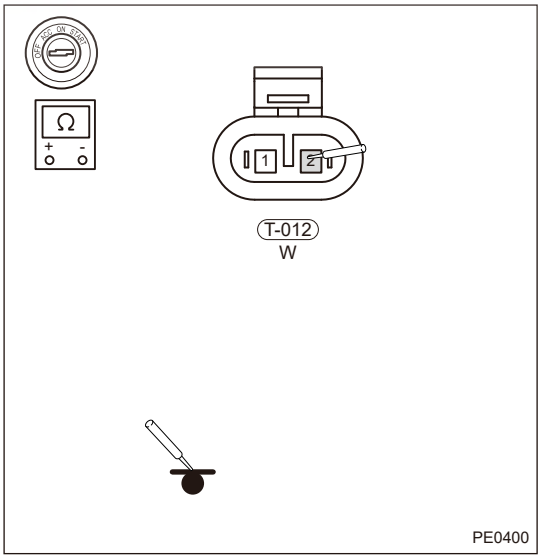
NG → **Replace back door release switch**

OK

| 3 | Check back door release switch ground side |
|---|---|

Use circuit diagram as a guide to perform the following inspection procedures:

(a) Using ohm band of digital multimeter, check for continuity between terminal 2 of connector T-012 and ground point GB-608 to check if ground side is normal.




| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| T-012 (2) - GB-608 | Always | ⩽ 1 Ω |

NG → **Handle GB-608 ground point**

OK

| 4 | Check back door release switch circuit signal voltage |
|---|---|

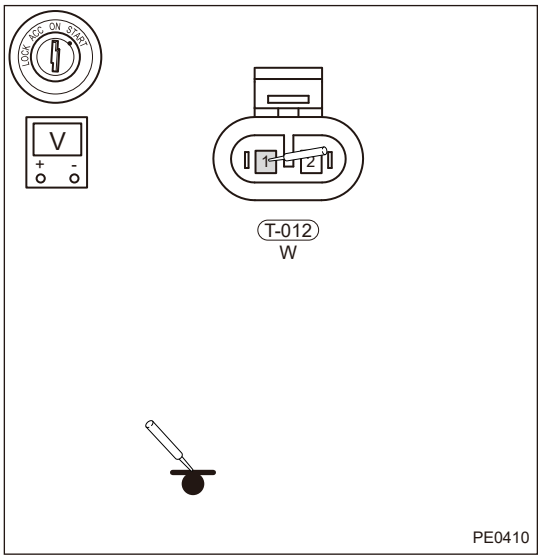
Use circuit diagram as a guide to perform the following inspection procedures:

(a) Connect the negative battery cable.

(b) Turn ENGINE START STOP switch to ON.

(c) Using DC voltage band of digital multimeter, measure if signal voltage at terminal 1 of connector T-012 is normal.

| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| T-012 (1) - Body ground | ON state | Approximately 12 V |




NG → **Repair or replace back door wire harness**

OK

| 5 | Check interior wire harness for open or short |
|---|---|

Use circuit diagram as a guide to perform the following inspection procedures:

(a) Disconnect the PEPS module connector I-028.

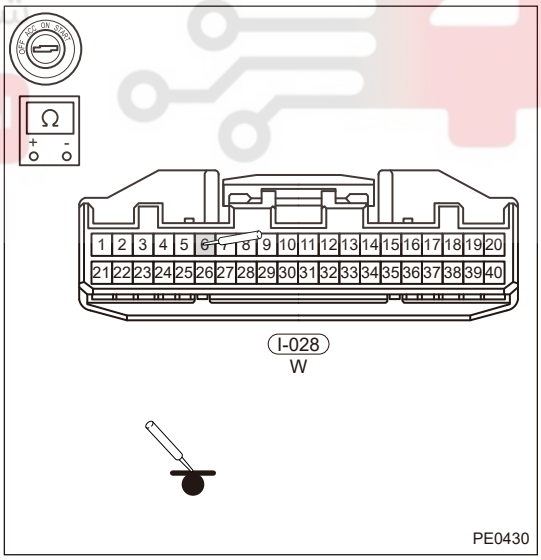
(b) Check if wire harnesses are worn, pierced, pinched or partially broken.

(c) Check for broken, bent, protruded or corroded terminals.

(d) Check if related connector pins are in good condition.

(e) Using ohm band of digital multimeter, measure resistance between terminal 6 of PEPS module connector I-028 and body ground to check for short to ground in interior wire harness.

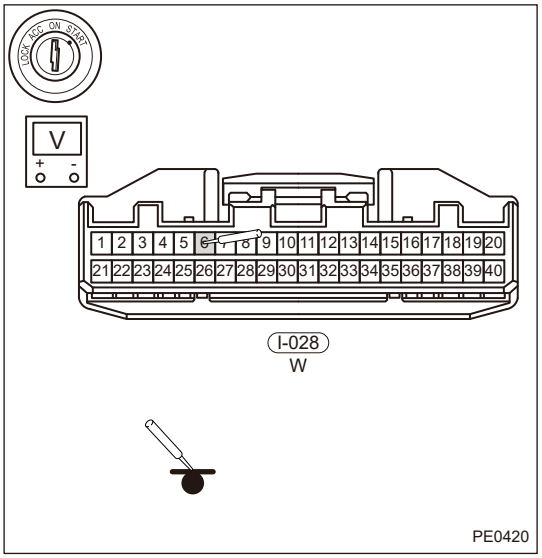
| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| I-028 (6) - Body ground | Always | No continuity |



Use circuit diagram as a guide to perform the following inspection procedures:

(f) Using voltage band of digital multimeter, measure voltage between terminal 6 of PEPS module connector I-028 and body ground to check for short to power supply in interior wire harness.

| Multimeter Connection | Condition | Specified Condition |
|---|---|---|
| I-028 (6) - Body ground | Always | Approx. 0V |




NG → **Replace interior wire harness**

OK

| 6 | Reconfirm DTCs |
|---|---|

Use circuit diagram as a guide to perform the following inspection procedures:

(a) Connect diagnostic tester and clear DTCs.

(b) Run the vehicle as specified procedure. The operating way should meet the conditions for corresponding fault diagnosis.

(c) Read the fault information and confirm that the fault has been solved.

NG → **Replace PEPS module**

OK → **Conduct test and confirm malfunction has been repaired**

| | | |
|---|---|---|
| **DTC** | **B152F** | **Battery Voltage Low Detection** |
| **DTC** | **B1530** | **Battery Voltage High Detection** |

| DTC | Description | Possible Causes |
|---|---|---|
| B152F | Battery Voltage Low Detection | Battery, wire harness or PEPS control module is damaged |
| B1530 | Battery Voltage High Detection | |

**DTC Confirmation Procedure**

Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

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

| | |
|---|---|
| 1 | **Check battery voltage** |

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Check battery voltage (not less than 12 V) with a digital multimeter.

NG → **Replace battery**

OK ↓

| | |
|---|---|
| 2 | **Check charging system** |

Use circuit diagram as a guide to perform the following inspection procedures:
(a) Turn ENGINE START STOP switch to OFF.
(b) Check positive and negative battery cables for broken or damage.
(c) Turn ENGINE START STOP switch to ON.
(d) Start the engine.
(e) Check if voltage of positive and negative battery is normal with a digital multimeter (13.5V-14.8V).

NG → **Repair or replace positive and negative battery cables and alternator**

OK ↓

| | |
|---|---|
| 3 | **Check PEPS module power supply fuse** |

Use circuit diagram as a guide to perform the following inspection procedures:
(a) Turn ENGINE START STOP switch to OFF.
(b) Check if PEPS module power supply fuses RF01 10A and RF21 7.5A are blown.

NG → **Replace power supply fuse**

OK ↓

| | |
|---|---|
| 4 | **Check engine compartment fuse and relay box** |

Use circuit diagram as a guide to perform the following inspection procedures:

(a) Turn ENGINE START STOP switch to OFF.

(b) Disconnect the engine compartment fuse and relay box connector.

(c) Using digital multimeter, check for continuity between fuse RF01 and Pin 7 of fuse and relay box.

(d) Using digital multimeter, check for continuity between fuse RF21 and Pin 50 of engine compartment fuse and relay box.

| Multimeter Connection | Condition | Normal Condition |
|---|---|---|
| RF01 - Fuse and relay box (7) | Always | ⩽ 1 Ω |
| RF21 - Fuse and relay box (50) | Always | ⩽ 1 Ω |

NG → **Replace engine compartment fuse and relay box**

OK

| | |
|---|---|
| **5** | **Check PEPS module power wire harness** |

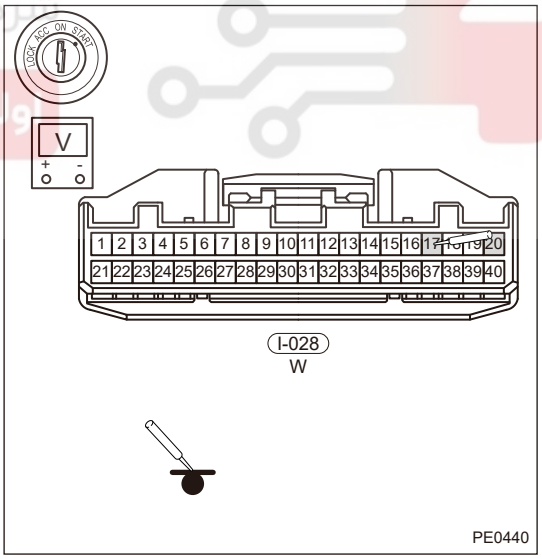
Use circuit diagram as a guide to perform the following inspection procedures:

(a) Turn ENGINE START STOP switch to ON.

(b) Disconnect the PEPS connector I-028.

(c) Using digital multimeter, check if voltage between terminals 17 and 20 of connector I-028 and body ground is normal.

| Multimeter Connection | Condition | Normal Condition |
|---|---|---|
| I-028 (17) - Body ground | Always | Not less than 12 V |
| I-028 (20) - Body ground | Always | Not less than 12 V |



Use circuit diagram as a guide to perform the following inspection procedures:

(d) Using digital multimeter, check for continuity between terminal 17 of PEPS module connector I-028 and terminal 7 of instrument panel fuse and relay box, terminal 20 of connector I-028 and terminal 50 of instrument panel fuse and relay box to check for open in power supply wire harness.

| Multimeter Connection | Condition | Normal Condition |
|---|---|---|
| I-028 (17)- Instrument panel fuse and relay box terminal 7 | Always | ⩽ 1 Ω |
| I-028 (20)- Instrument panel fuse and relay box terminal 50 | Always | ⩽ 1 Ω |

NG → **Repair or replace instrument panel wire harness**

OK

| 6 | **Check the PEPS module ground circuit** |
|---|---|

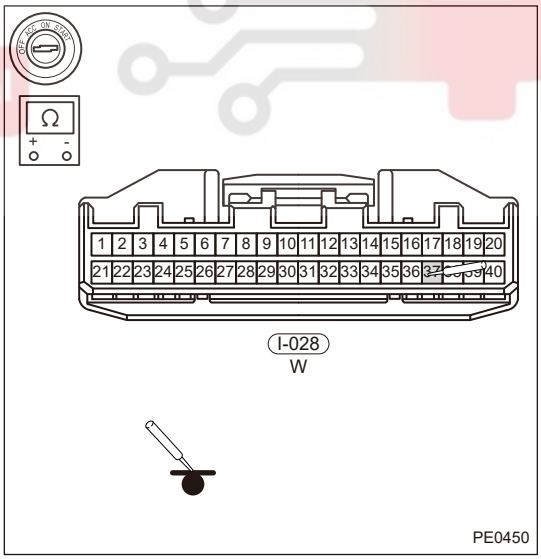
Use circuit diagram as a guide to perform the following inspection procedures:

(a) Turn ENGINE START STOP switch to ON.

(b) Disconnect the PEPS module connector.

(c) Using digital multimeter, check for continuity between terminal 37 of connector I-028 and ground wire harness connector GI-502 to check for open in ground wire harness.

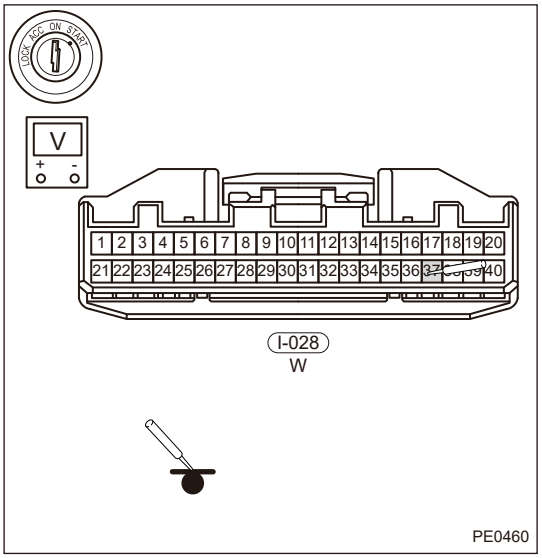
| Multimeter Connection | Condition | Normal Condition |
|---|---|---|
| I-028 (37) - GI-502 | Always | ⩽ 1 Ω |



Use circuit diagram as a guide to perform the following inspection procedures:

(d) Using voltage band of digital multimeter, measure voltage between terminal 37 of connector I-028 and body ground to check for short to power supply.

| Multimeter Connection | Condition | Normal Condition |
|---|---|---|
| I-028 (37) - Body ground | Always | 0V |




| | |
|---|---|
| NG | **Replace instrument panel wire harness** |
| OK | **Replace PEPS module** |

| DTC | B150F | ESCL Anti Scanning (Only for MT) |
|---|---|---|

| DTC | Description | Possible Causes |
|---|---|---|
| U1300-55 | Software Configuration Error | Configuration has error. |

**DTC Confirmation Procedure**

Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

**Hint:**

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

| | |
|---|---|
| 1 | **Electric steering column lock enters anti-scanning state** |

(a) Enter anti-theft control system, delete and learn ESCL.

| | | |
|---|---|---|
| **DTC** | **U0100** | **Lost of Communication with Engine Control System Module** |
| **DTC** | **U0129** | **Lost Communication with Brake System Module** |
| **DTC** | **U0140** | **Lost Communication with Body Control Module** |
| **DTC** | **U0329** | **Lost Communication with Electronic Steering Column Lock** |
| **DTC** | **U0101** | **Lost of Communication with TCM** |
| **DTC** | **U0155** | **Lost Communication with ICM** |
| **DTC** | **U0230** | **Lost Communication with PLG** |

**DTC Confirmation Procedure**
Refer to CAN communication system

# ON-VEHICLE SERVICE

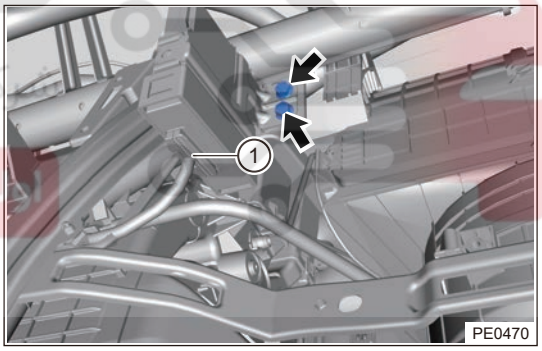
## PEPS Control Module Assembly

### Removal

| CAUTION |
| --- |
| • DO NOT separate PEPS controller and fixing bracket at will, or clamping structure of controller will be damaged, unless controller malfunction is confirmed by troubleshooting result, it can be removed and cannot be reused.<br>• DO NOT replace PCB board of PEPS controller at will, or it cannot be traced back and may make abnormal sound.<br>• After replacing PEPS controller assembly, before performing key learning and anti-theft matching, do not press ENGINE START STOP switch at will if nor necessary, to prevent PEPS controller from being locked and causing vehicle power supply not to be turned on. |

1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the glove box assembly.
4. Remove the PEPS module.
   a. Remove 2 coupling bolts (arrow) between PEPS module mounting bracket and instrument panel crossmember, and disconnect PEPS module connector (1).

      **Tightening torque**
      7 ± 1 N·m




   b. Carefully remove the PEPS module and mounting bracket assembly.

### Installation

1. Installation is in the reverse order of removal.

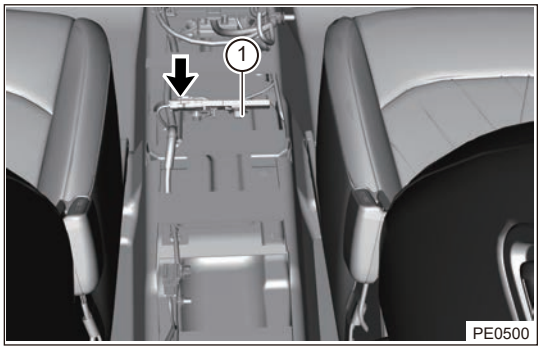
## Front Low Frequency Antenna

### Removal

1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the auxiliary fascia console assembly.
4. Remove the front low frequency antenna.

a. Disconnect the connector (arrow) from front low frequency antenna.

b. Using an interior crow plate, detach low frequency antenna fixing clip from mounting bracket, and remove low frequency antenna assembly (1).




**Hint:**
DO NOT repeatedly remove and install it, and dispose it if it becomes loosen.

### Installation

1. Installation is in the reverse order of removal.

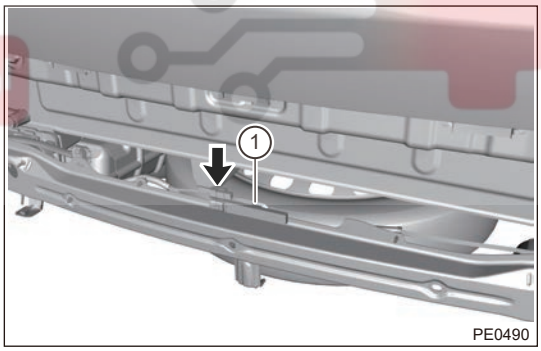
## Rear Bumper Low Frequency Antenna

### Removal

1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the rear bumper assembly.
4. Remove the rear low frequency antenna assembly.

a. Disconnect the connector (arrow) from rear bumper low frequency antenna.

b. Using a tool, detach low frequency antenna fixing clip (1) from rear bumper crossmember.




**Hint:**
DO NOT repeatedly remove and install it, and dispose it if it becomes loosen.

### Installation

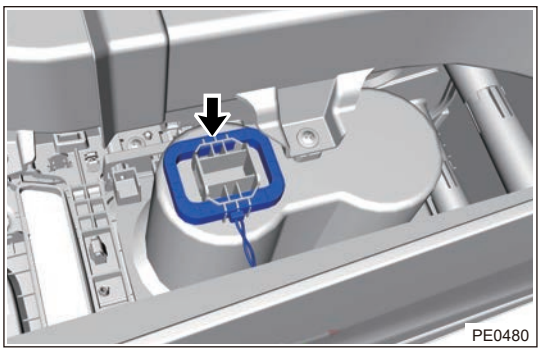
1. Installation is in the reverse order of removal.

## Anti-theft Coil

### Removal

1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the auxiliary fascia console assembly.

4. Remove the anti-theft coil.
   a. Disconnect the anti-theft coil connector.
   b. Press two clips with left hand while holding coil with right hand, and unplug it in opposite direction of installation direction with large force to remove anti-theft coil (arrow).




## Installation

| CAUTION |
| --- |
| The anti-theft coil must be installed with a smooth surface against the mounting surface, and ensure it is installed in place, otherwise it may fall off from the bracket, thus failing to carry out normal key learning and anti-theft matching. |

1. Installation is in the reverse order of removal.