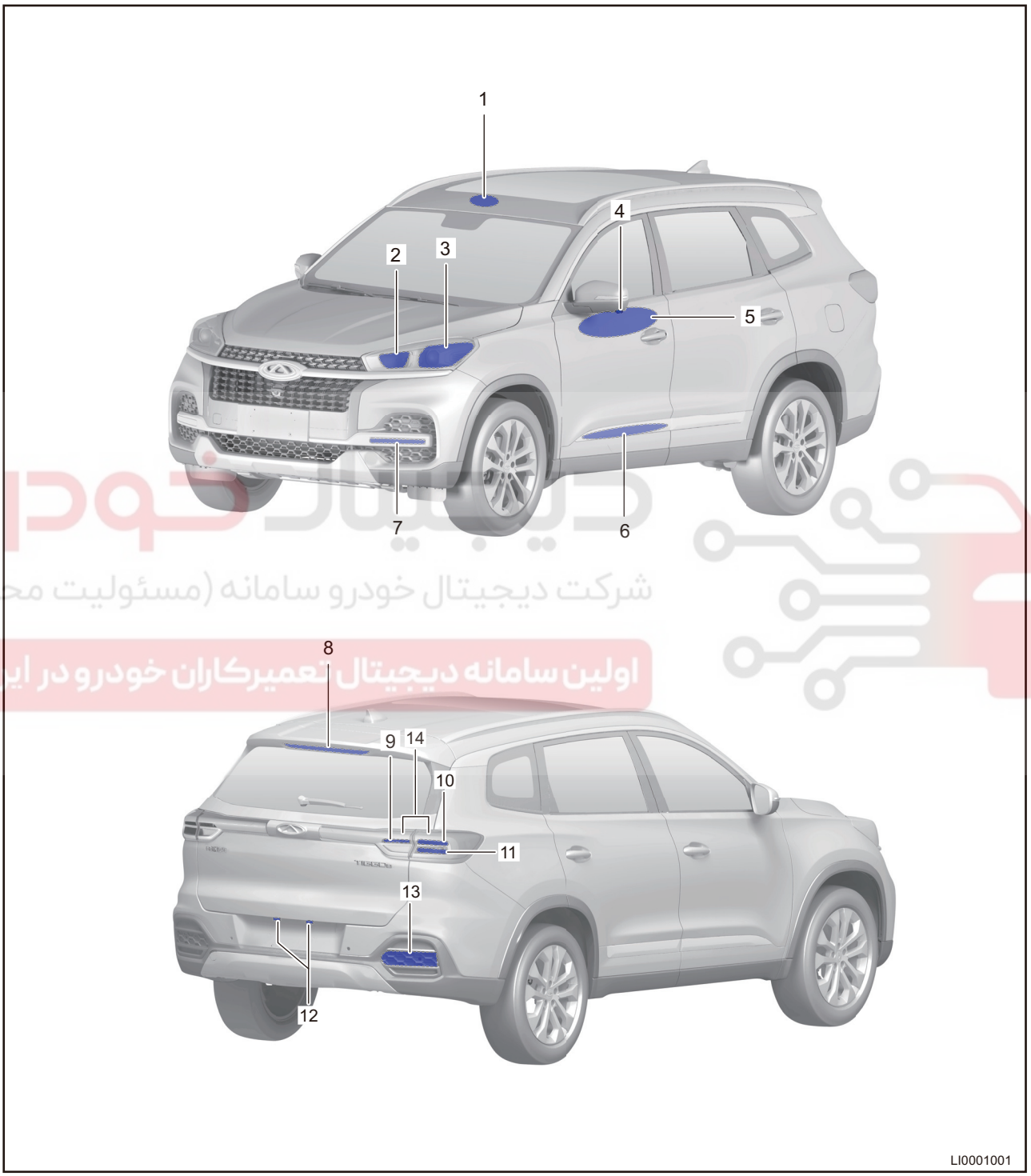
LIGHTING SYSTEM

30

GENERAL INFORMATION

Overview

Light Position Diagram



1 - Dome Light	2 - Turn Signal Light
3 - Low / High Beam Light	4 - Shadow Light
5 - Door Protector Atmosphere Light	6 - Courtesy Pedal Light
7 - Daytime Running Light	8 - High Mounted Stop Light
9 - Back-up Light	10 - Turn Signal Light

11 - Brake Light	12 - License Plate Light
13 - Rear Fog Light	14 - Position Light

System Assembly Diagram

1 - Body Control Module (BCM)	2 - Headlight Adjustment Switch
3 - Instrument Panel Relay Box	4 - Combination Switch
5 - Hazard Warning Light Switch	6 - Dome Light Switch

Lighting system on this model consists of vehicle lighting device and light signal device, which are used for normal operation of vehicle and ensuring safety when driving at night or in fog.
Lighting system consists of headlight assembly (including headlight (high beam (assist high beam light) / low beam), front position light, turn signal light, daytime running light), side turn signal light, front dome light, shadow light, doorsill light, instrument panel backlight, rear tail light assembly (including turn signal light, rear position light, brake light), rear fog light (rear fog light and reflector), back-up light, license plate light, high mounted stop light and luggage compartment light. Headlight assembly and rear tail light assembly use semi-closed structure for easy inspection and repair.

Bulb Specifications

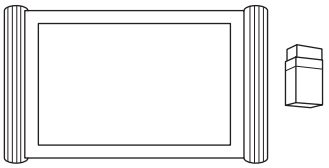
Bulb Name	Standard Light Source (Model / Type)
Headlight	12 V HB3 (Halogen Light)/ 12 V LED
Rear Fog Light	12V P21W
Front Position Light	12V LED
Rear Position Light	13.5V LED
Brake Light	12V P21W
High Mounted Stop Light	13.5V LED
Back-up Light	12V W16W
Front Turn Signal Light	12 V PY21W (Halogen Light)/ 12 V LED
Rear Turn Signal Light	12V PY21W
Side Turn Signal Light	13.5 V LED
License Plate Light	12V LED
Daytime running light	12V LED

Torque Specifications

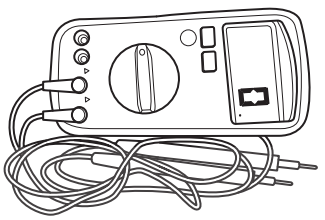
Description	Torque (N·m)
Headlight Assembly Fixing Bolt	3.5 ± 0.5
Daytime Running Light	1.5 ± 0.5
High Mounted Stop Light Fixing Nut	2.0 ± 0.5
Rear Fog Light Fixing Screw	1.5 ± 0.5
Interior Front Dome Light Fixing Screw	2.5 ± 0.5
Rear Combination Light Movable Part Nut	3.5 ± 0.5
Rear Tail Light Fixed Part Nut	1.5 ± 0.5
Back Door Trim Light Fixing Nut	3.5 ± 0.5
License Plate Light Protector Fixing Screw	1.5 ± 0.5

Tools

Special Tool

Diagnostic Tester	 001

General Tool

Digital Multimeter	 002

DIAGNOSIS & TESTING

Diagnostic Content

Problem Symptoms Table

Hint:

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

Rear combination light fixed part consists of 2 brake light bulbs and 2 position light bulbs. If one Damaged bulb and the other does not come on, you need to check the two bulbs simultaneously and contact CHERY service station to check and repair if necessary.

Symptom	Suspected Area
Low beam light does not come on (one side)	Fuse
	Headlight bulb
	Wire harness or connector
Low beam lights do not come on (both sides)	Fuse
	Headlight bulb
	Combination light switch assembly
	Low beam relay
	Wire harness or connector
	Body Control Module (BCM)
High beam light does not come on (one side)	Fuse
	Headlight bulb
	Wire harness or connector
High beam light does not come on (both sides)	Fuse
	Headlight bulb
	Combination light switch assembly
	High beam relay
	Wire harness and connector
	Body Control Module (BCM)
Position light does not come on (one side)	Position light bulb
	Wire harness or connector
Position lights do not come on (both sides)	Position light bulbs (all)
	Wire harness or connector
	Combination light switch assembly
	Body Control Module (BCM)

Daytime running light

Symptom	Suspected Area
Daytime running light does not come on	Headlight bulb
	Wire harness or connector
	Body Control Module (BCM)

Rear Fog Light

Symptom	Suspected Area
Rear fog light does not come on	Rear fog light bulb
	Combination light switch
	Wire harness or connector
	Body Control Module (BCM)

Turn Signal Light and Hazard Warning Light

Symptom	Suspected Area
Hazard warning light and turn signal light do not come on	Bulb
	Combination light switch
	Wire harness or connector
	Body Control Module (BCM)
	Hazard warning light switch
Hazard warning light does not come on (turn signal light is normal)	Hazard warning light switch
	Wire harness or connector
	Body Control Module (BCM)
Turn signal light does not come on (hazard warning light is normal)	Combination light switch
	Wire harness or connector
	Body Control Module (BCM)

License Plate Light

Symptom	Suspected Area
License plate light does not come on	Combination light switch assembly
	Wire harness or connector
	Body Control Module (BCM)

Luggage Compartment Light

Symptom	Suspected Area
Luggage compartment light does not come on	Luggage compartment light bulb
	Luggage compartment lock assembly
	Wire harness or connector
	Body Control Module (BCM)

Brake Light

Symptom	Suspected Area
Brake lights do not come on (all)	Fuse
	Brake light bulbs (all)
	Brake Light Switch
	Wire harness connector
	Body Control Module (BCM)
Only one brake light does not come on	Brake light bulb
	Wire harness or connector

Front Dome Light

Symptom	Suspected Area
Front dome light does not come on	Front dome light bulb
	Wire harness or connector
	Front dome light assembly
	Body Control Module (BCM)

Back-up Light

Symptom	Suspected Area
Back-up lights do not come on (all)	Transmission Control Unit (TCU)
	Back-up light bulb
	Back-up light switch (MT)
	Body Control Module (BCM)
	Wire harness or connector
	Gear switch

Diagnosis Tools

Diagnostic Tester

When connecting the diagnostic tester:

- Connect the diagnostic tester (the latest software) to data link connector for communication with vehicle.
- Diagnostic tester connector is located on instrument panel left lower protector.
- Diagnostic tester connector uses a trapezoidal design which can hold 16 terminals.

Digital Multimeter

When using digital multimeter:

- Troubleshoot electrical malfunctions and wire harness system.
- Look for basic malfunction.
- Measure voltage, current and resistance.

Diagnostic Help

When using digital multimeter:

1. Connect the diagnostic tester (the latest software) to data link connector, and make it communicate with vehicle electronic module through data network.
2. Confirm that malfunction is current, and carry out diagnostic test and repair procedures.
3. If DTC cannot be deleted, malfunction is current.
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 lighting system grounds related to the latest BCM.
8. If multiple trouble codes were set, use circuit diagrams and look for any common ground circuit or power supply circuit applied to DTC.

DTC Confirmation Procedure

Confirm that battery voltage is no less than 12 V before performing following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software) to data link connector.
- Turn ENGINE START STOP switch to ON.
- Use the diagnostic tester to record and clear DTCs stored in lighting system.
- Turn ENGINE START STOP switch to OFF and wait for a few seconds.
- Turn ENGINE START STOP switch to ON and then select Read DTC.
- If DTC is detected, it indicates current malfunction. Go to inspection procedure - Step 1.
- If no DTC is detected, malfunction indicated by the DTC is intermittent.

System Diagnosis

1. Description
   (a) Lighting system data and Diagnostic Trouble Codes can be read from Data Link Connector of vehicle. When system seems to be malfunctioning, use diagnostic tester to check for a malfunction and perform repairs.
2. Check battery voltage
   (a) Standard voltage:
   Not less than 12 V
   If voltage is below 12 V, inspect the battery before proceeding to next step.

DTC Check/Clear

1. Check for DTCs
   (a) Connect the diagnostic tester to data link connector.
   (b) Turn the ENGINE START STOP switch to ON, and turn on the diagnostic tester.
   (c) Select following menu items to read the current malfunctions: T18 / Body Control Module System / Read DTC.
   (d) Read DTCs by following indications on tester screen.
2. Clear DTCs
   (a) Connect the diagnostic tester to data link connector.
   (b) Turn the ENGINE START STOP switch to ON, and turn on the diagnostic tester.
   (c) Select following menu items: T18 / Body Control Module / Clear DTC
   (d) Clear DTCs by following the directions on tester screen.

Intermittent DTC Troubleshooting

Intermittent DTC Troubleshooting

- If malfunction is intermittent, perform the followings:
- Check if connector is loose.
- Check if wire harness is worn, pierced, pinched or partially broken.
- Wiggle related wire harness and connector and observe if signal in related circuit is interrupted.
- If possible, try to duplicate the conditions under which DTC was set.
- Look for data that has changed or DTC to reset during wiggle test.
- Look for broken, bent, protruded or corroded terminals.
- Inspect the mounting conditions of lighting system, wire harness or wire harness connector and so on for damage, foreign matter, etc. that will cause incorrect signals.
- Check and clean all wire harness connectors and ground parts related to DTC.
- Remove the Body Control Module (BCM) from malfunctioning vehicle, then install it to a new vehicle and perform a test. If DTC cannot be cleared, the Body Control Module (BCM) is malfunctioning. If DTC can be cleared, reinstall the Body Control Module (BCM) to original vehicle.
- 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

Groundings are very important to entire circuit system, which are normal or not can seriously affect the entire circuit system. Ground points are often exposed to moisture, dirt and other corrosive environments. Corrosion (rust) and oxidation may increase load resistance. This case will seriously affect normal operation of circuit. Check the ground points as follows:

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

Lighting Control Principle

1. Turn signal light function
   (a) Left turn signal light operating conditions: IGN-ON; left turn signal light switch is activated.
   (b) When left turn signal light is operating: left turn signal light loading flash frequency is ON/OFF every 400 ms.
   - When left turn signal light is operating: key is switched from ON to OFF, left turn signal light stops operating and meter stops flashing.

   (c) When left turn signal light is operating: the corresponding lamp bulb is in good condition, BCM sends LHTurnLightSts (Bcan) and is adjusted to the consistent loading operation frequency with left turn signal light; if the corresponding 21W light bulb is damaged, BCM will send LHTurnLightSts and the frequency is twice as high as that when the bulb works normally. Whether the bulb is damaged or not, BCM sends DirectionIndLeft (Bcan) signal continuously.
   (d) Right turn signal light operating conditions: IGN-ON; right turn signal light switch is activated.
   (e) When right turn signal light is operating: right turn signal light loading flash frequency is ON/OFF every 400 ms.
   - When right turn signal light is operating: key is switched from ON to OFF, right turn signal light stops operating and meter stops flashing.

   (f) When right turn signal light is operating: the corresponding light bulb is in good condition, BCM sends RHTurnsignalSts and is adjusted to the consistent loading operation frequency with right turn signal light; if the corresponding 21W light bulb is damaged, BCM will send RHTurnsignalSts and the frequency is twice as high as that when the bulb works normally. Whether the bulb is damaged or not, BCM sends DirectionIndRight signal continuously.
   (g) When left/Right turn signal light is is operating: left/right turn signal light input cancel is activated and left/right turn signal light should be stopped operating immediately.
   (h) When left/right turn signal light is operating: key is switched from IGN ON to ACC or OFF, and left/right turn signal light stops operating immediately.
2. Lane change function
   (a) Left lane change operating conditions: IGN-ON; left turn signal light switch is activated shortly (50 ms ~ 1000 ms).
   (b) When left lane change is operating: left turn signal light flashes 3 times at a frequency of ON/OFF every 400 ms.
   (c) When left lane change is operating: the corresponding light bulb is in good condition, BCM sends LHTurnsignalSts and is adjusted to the consistent loading operation frequency with right turn signal light; if the corresponding 21W light bulb is damaged, BCM will send LHTurnsignalSts and the frequency is twice as high as that when the bulb works normally.Whether the bulb is damaged or not, BCM sends DirectionIndLeft signal continuously.
   (d) During left lane change operation: left turn signal light switch is reactivated shortly (50 ms ~ 1000 ms), and left turn signal light flashes 3 times again.
   (e) When left lane change is operating: left turn signal switch remains active (> 1000 ms) and automatically switches to left turn signal light operating logic.
   (f) When left lane change is operating: key is switched from IGN ON to ACC or OFF, and left turn signal light should stop operating immediately.
   (g) When left lane change is operating: after flashing 3 times, left turn signal light should stop operating immediately.
   (h) Right lane change operating conditions: IGN-ON; right turn signal light switch is activated shortly (50 ms ~ 1000 ms).
   (i) When right lane change is operating: right turn signal light flashes 3 times at a frequency of ON/OFF every 400 ms.

(j) When right lane change is operating: the corresponding lamp bulb is in good condition, BCM sends RHTurnsignalSts and is adjusted to the consistent loading operation frequency with right turn signal light; if the corresponding light bulb is damaged, BCM will send RHTurnsignalSts and the frequency is twice as high as that when the bulb works normally.Whether the bulb is damaged or not, BCM sends DirectionIndRight signal continuously.

(k) During right lane change operation: right turn signal light switch is activated shortly again (50 ms ~ 1000 ms), and right turn signal flashes 3 times again.

(l) When right lane change is operating: right turn signal switch remains active (> 1000 ms) and automatically switches to right turn signal light operating logic.

(m) When right lane change is operating: key is switched from IGN ON to ACC or OFF, and right turn signal light stops operating immediately.

(n) When right lane change is operating: after flashing 3 times, right turn signal light should stop operating immediately.

3. Hazard warning light function

(a) Hazard warning light activation conditions: hazard warning light switch is activated when hazard warning light is not activated.

(b) When hazard warning light is activated: left and right turn signal light loading and hazard warning light indicators flash at a frequency of ON/OFF every 400 ms.

(c) When hazard warning light is activated: the corresponding lamp bulb is in good condition, BCM sends BCM sends and RHTurnsignalSts and is adjusted to the consistent loading operation frequency with right turn signal light; if any 21W light bulb is damaged, the frequency of turn signal light CAN signal (LHTurnsignalSts and RHTurnsignalSts) and hazard warning light indicator is twice as high as that when the bulb is in good condition.

(d) When hazard warning light is activated: hazard warning light function is turned off and left and right turn signal lights stop operating immediately.

(e) When ABM sends a collision signal, hazard warning light function should be activated automatically (left/right turn signal light, indicator and turn signal light CAN signal).The hazard warning light function which will be automatically activated due to collision can be canceled as key is switched to OFF, then to ON or hazard warning light button is pressed.

(f) When turn signal light function and hazard warning light function are both effective, BCM should perform the next action.

(g) Note: In one ignition cycle, BCM will only respond collision signal once.

4. Position light

(a) Position light activation conditions: IGN ON or ACC; small light input or low beam light input is activated.

(b) When position light is operating: BCM should send ParkLightSts = 1(Bcan)

(c) When position light is operating: when position light input and low beam input are deactivated, small light stops operating.

(d) When position light is operating: when key is switched to OFF, small light stops sending ParkLightSts = 0(Bcan).

5. Parking light

(a) Parking light activation conditions: key is switched to OFF; small light switch is activated.

(b) Parking light is activated: small light comes on and BCM should send ParkLightSts = 1(Bcan).

(c) When parking light is activated: position light switch is deactivated, small light is turned off and BCM should send ParkLightSts=0(Bcan).

6. Low beam light

(a) Low beam light activating conditions: IGN ON; low beam light switch is activated.

(b) When low beam light is activated: BCM sends LowBeamSts = 1.

(c) When low beam light is activated: when low beam switch input is canceled, low beam light goes off immediately.

(d) When low beam light is activated: key is switched from IGN ON to ACC or OFF, low beam light turns off immediately.

7. Follow me home
   (a) Light is in manual mode
      (1) FMH function activation condition: Flash switch is activated within 2 minutes after key is switched to OFF, and it can be activated again within 2 minutes regardless of whether FMH function is manually turned off or automatically turned off due to overtime.
      (2) When FMH function is activated: low beam light and small light come on, LowBeamSts=1, ParkTailLightSts=1(Bcan) and FMH time (FollowMeTime) is sent.
      (3) When FMH function is activated: default duration is 30S. Activating Flash switch again for a short time will increase duration of FMH function by 30 S each time, but no more than 8 times.
      (4) When FMH function is activated: Flash switch is activated for 2 seconds, FMH function will be manually turned off - low beam light and small light will turn off immediately and cumulative duration of FMH will be reset.
      (5) When FMH function is activated: key is switched to ACC or IGN ON, FMH function will be turned off - low beam light and small light will go off immediately and cumulative duration of FMH will be reset.
      (6) When FMH function is activated: FMH function will be automatically turned off after FMH set working time is reached: low beam light and small light will go off immediately.
   (b) Light is in automatic mode
      (1) The vehicle has fortification condition, light combination switch is in AUTO, remote controller lock button is pressed, and BCM receives valid signal sent from light sensor, and low beam light and position light automatically comes on for 30 S.
      (2) After 30S or ignition key is switched to OFF/ON/ACC or light combination switch is switched from AUTO, low beam light and position light go off.
8. Lead me to car
   (a) Light is in manual mode
      (1) LMC function activation condition: IGN OFF; FMH is activated in this same ignition cycle (ON->ACC->OFF) and automatically turns off due to overtime; remote control unlock signal is received; four doors are closed.
      (2) When LMC function is activated: low beam and small light come on and ParkTailLightSts=1(Bcan) is sent.
      (3) When LMC function is activated: FMH function cannot be activated, low beam light and small light operate in LMC mode.
      (4) When LMC function is activated: remote control lock signal (four doors are closed) is received, LMC function is turned off - low beam light and small light are turned off.
      (5) When LMC function is activated: any door is opened, LMC function is turned off -- low beam light and small light are turned off.
      (6) When LMC function is activated: any key is switched to ACC or IGN ON, LMC function is turned off -- low beam light and small light are turned off.
      (7) When LMC function is activated: after receiving remote control unlock signal, LMC function delays 60S (subject to the time as remote control unlock signal received).
      (8) When LMC function is activated: longest duration is 60S, LMC function will turn off automatically after overtime.
   (b) Light is in automatic mode
      (1) With key in OFF, Unlock button on remote controller is pressed when light combination switch is in AUTO, and BCM receives valid signal sent from light sensor, and low beam light and position light come on for 30S.
      (2) After 30S or ignition key is switched to ACC, low beam light and position light go off.
      (3) When the function of Lead me to the car is activated, if activation conditions are met again or Follow me home function is activated, the time is accounted again for 30S and the light doesn't flash.

9. High beam light
   (a) High beam light operating conditions: IGN ON; low beam lights are in activating status, high beam light switch is activated.
   (b) When high beam light is operating: high beam light comes on and HighBeamSts=1 is sent.
   (c) When high beam light is operating: when vehicle is in Crank condition, high beam light temporarily stop operating and resume operation after Crank, but CAN data will not stop sending.
   (d) When high beam light is operating: high beam light switch is deactivated and high beam light is turned off.
   (e) When high beam light is operating: low beam light switch is deactivated and high beam light is turned off.
   (f) When high beam light is operating: key is switched from IGN ON to ACC or OFF, high beam light is turned off.
10. Flash function
   (a) Flash operating conditions: IGN-ON; Flash switch is activated.
   (b) When Flash is operating: high beam light comes on and HighBeamSts=1 is sent.
   (c) When Flash is operating: when vehicle is in Crank condition, high beam lights temporarily stop operating and resume operation after Crank, but CAN data will not stop sending.
   (d) When Flash is operating: when Flash switch is deactivated, high beam light is turned off.
   (e) When Flash is operating: key is switched from IGN ON to ACC or OFF, high beam light is turned off.
11. Front fog light control
   (a) Front fog light operating conditions: IGN ON; small light is in activating status; front fog light is activated.
   (b) When front fog light is operating: front fog light comes on and FrontFogLightSts=1 is sent.
   (c) When front fog light is operating: front fog light switch is canceled and front fog light goes off.
   (d) When front fog light is operating: key is switched from IGN ON to ACC or OFF, front fog light goes off.
   (e) When front fog light is operating: small light is turned off, front fog light goes off and FrontFogLightSts=0 is sent.
12. Rear fog light control
   (a) Rear fog light operating conditions: IGN-ON; front fog light or low beam light load is activated; rear fog light switch is activated.
   (b) When rear fog light is operating: rear fog light comes on and RearFogLightSts=1 is sent.
   (c) When rear fog light is operating: when rear fog light switch is activated again, rear fog lights turn off.
   (d) When rear fog light is operating: key is switched from IGN ON to ACC or OFF, rear fog light is turned off.
   (e) When rear fog light is operating: when low beam light or front fog light load is turned off, the rear fog light will go off at the same time.
13. Daytime running light
   (a) Daytime running light operating conditions: engine is started; low and high beam lights and front fog light are not activated.
   (b) When daytime running light is operating: when engine is stopped operating, daytime running light function is turned off.
   (c) When daytime running light is operating: The activation of small light, low beam light and front fog light will cause daytime running lights to be turned off.
   (d) When daytime running light is operating: Flash function does not affect the operation of daytime running light.

14. Battery save
    (a) Battery save function remains active during IGN ON or IGN ACC.
    (b) Battery save function remains active without other wake-up sources within 15 minutes after IGN OFF.
    (c) Battery save timing within 15 minutes after key OFF: Any door or back door opened, remote unlocking signal received, key insertion or removal will reset timing to 15 minutes.
    Warning:
    • Battery save load includes: key light, dome light and luggage compartment light.
    (d) Fortifying is successful and BCM will enter sleeping condition after 3 minutes.
    Warning:
    • Note: Battery Save can be woken up by central control unlock or mechanical unlock after Battery Save is turned off.
15. Dome light
    (a) Key insertion and removal, dome light and key light control:
        (1) When key is removed, BCM illuminates dome light and key light is on for 3 minutes (fades in and fades out).
        (2) Within 3 minutes of dome light operation: key insertion does not affect the operation time of dome light and key light.
        (3) Within 3 minutes of dome light operation: when key is turned to ON, dome light and key light will fade out immediately.
        (4) Within 3 minutes of dome light operation: if all doors are closed after any door is opened, dome light and key light continue to work for 8 s, and then fade out.
    (b) Door status, dome light and key light control
        (1) If any of doors is opened and remains open, dome light comes on for 3 minutes (fades in and fades out).
        (2) Within 3 minutes of dome light operation: if another door is opened while one door remains open, dome light continues to come on for 3 minutes, and then fads out.
        (3) Within 3 minutes of dome light operation: when key is turned to ON, all doors are closed, dome light will fade out immediately.
        (4) Within 3 minutes of dome light operation: when key is turned to OFF or ACC and all doors are closed, dome light will fade out after 8 s; if key is turned to IGN ON within 8 s, dome light will fade out immediately.
    (c) Remote control key, dome light and key light control:
        (1) When BCM receives unlock signal from remote controller: no matter what status the door is in, dome light comes on for 15 S (fades in and fades out).
        (2) Within 15 s of dome light operation: key is turned to ING ON and dome light fades out immediately.
        (3) Within 15 s of dome light operation: when fortifying is successful, dome light will go off immediately.
        (4) Within 15 s of dome light operation: when any door is opened, dome light enters into mode 2.
    (d) Collision signal, dome light and key light control:
        (1) In IGN-ON, regardless of door status, BCM illuminates dome light for 30 minutes if CAN signal 'CrashOutputSts' value is not '00'. There is no fade-in process, including fade-out process.
        (2) Within 30 minutes of dome light illumination: if key is switched to OFF, dome light will fade out immediately.
        (3) Within 30 minutes of dome light illumination: if BCM receives RF key lock signal, dome light will go off immediately and there is no fade-out process.
        Warning:
        • Turn rear dome light switch to above function logics for DOOR test.

Warning:

- During dome light illumination triggered by any of above conditions (key insertion and removal, door status, remote control key), another event is triggered again, and dome light illumination time is reset.

16. Third row dome light
    (a) Third row dome light operating condition: back door is closed and back door light remains on for 15 minutes.
    (b) When third row dome light is operating: back door is closed and back door light goes off immediately.

17. Rear view mirror shadow light
    (a) Remote control and shadow light function
        (1) OFF/ACC, unlocked by key or remote control, shadow light comes on for 15s
        (2) OFF, BCM receives remote control fortifying/remote control fortifying/PLG fortifying signal and entire vehicle fortifying is successful, the shadow light comes on for 15s.
        (3) When key is switched to ON or 15s timing ends, the shadow light goes off.
    (b) Door condition signal control shadow light function
        (1) OFF/ACC/ON, any door is opened, BCM control shadow light comes on for 3 minutes.
        (2) Within 3 minutes of shadow light activation: if another door is opened while one door remains open, shadow light remains on for 3 minutes, and then fades out.
        (3) OFF/ACC, shadow light comes on, four door are closed and BCM control shadow light coming on for 8s and then going off; within 8s of shadow light coming on, key is switched to ON and then shadow light goes off immediately.
        (4) When shadow light comes on, if key is in ON, shadow light will goes off immediately after four doors are closed.

        Warning:

        - When shadow light comes on, if any door is opened, BCM enters door condition signal control shadow light logic.
        - Back door opens, but shadow light cannot be illuminated.
        - When shadow light comes on, BCM fortifying is successful or is deactivated, and then BCM enter remote control signal/PEPS

18. Back-up light control
    (a) Back-up light operating condition: IGN=ON
    (b) BCM receives back-up light switch signal or receives CAN signal from TCU to illuminate back-up light.
    (c) If there is no switch signal and CAN signal, turn off back-up light.
19. Emergency brake double flashing light warning function
    (a) If the following conditions are met, hazard warning light is activated (left/right turn signal light, indicator light and turn signal light CAN signal flash at a frequency of 140 ms ON/140 ms OFF):
        (1) Key is in ON
        (2) CAN signal from ESP is received (HLRequestController=1)
    (b) If any following condition is met, make hazard warning light (left/right turn signal light, indicator and turn signal light CAN signal) stop flashing.
        (1) CAN signal from ESP is received (HLRequestController=0)
        (2) Key is switched to OFF

        Warning:

        - When hazard warning light operates by this function, if hazard warning light switch is operated, this function immediately stops.

        Warning:

        - During this operation, this function stops immediately if BCM receives crash signal (CrashOutputSt $\neq$ 00).

20. Steering assist illumination
    (a) The fog light assist illumination function is turned on if the following conditions are met:
        (1) IGN=ON
        (2) Turn signal light is turned on or steering column is turned over 45° (corresponding CAN signal is SteeringAngle)
        (3) Low beam light is turned on
        (4) Vehicle speed is below 40 km/h
    (b) The fog light assist illumination function is turned off if the following conditions are met:
        (1) IGN=ACC or OFF
        (2) Turn signal light is turned off or steering column is turned less than 10° (corresponding CAN signal is SteeringAngle)
        (3) Low beam light is turned on
        (4) Vehicle speed is more than 40km/h
    (c) Meter indicator light is not activated when the fog light assist illumination is activated
    (d) This function can be configured online
21. Brake light control
    (a) Brake light function is turned on when any following function is met
        (1) Brake switch is depressed and brake switch is high-level self-locking switch
        (2) CAN signal 'BrakeLightsRequest=1' from EPB is received
        (3) CAN signal 'BLRequestController=1' from ESP is received
    (b) When brake light function is turned on, left and right brake lights and high mounted stop light come on simultaneously
    (c) When all above conditions are not met, left and right brake lights and high mounted stop light go off simultaneously
22. LIN atmosphere light
    (a) Initial condition
        After the vehicle is powered on first time after leaving factory or powered on again after the battery is disconnected, atmosphere light function defaults as ON; after that, system turns on/off according to DVD setting
    (b) Atmosphere light ON/OFF
        When all following conditions are met, BCM sends LIN signal TheaterDimmingRequest=01 (ON) (atmosphere light ON)
        Position light input is in activating condition
        DVD setting is ON
        When position light output cancellation is activated or DVD setting is OFF, atmosphere light goes off
    (c) Door control logic linked with atmosphere light
        (1) When all following conditions are met, BCM sends LIN signal TheaterDimmingRequest=01 (ON) (atmosphere light ON)
        (2) Position light output is not activated
        (3) The entire vehicle is in fortifying deactivated condition
        (4) Any door is opened
        (5) DVD setting is ON
    (d) Atmosphere light is ON for 3 minutes
    (e) If all the doors are closed within 3 minutes of atmosphere light illumination, the light will remains on for 8s and then goes off
    (f) If any other door is opened within 3 minutes of atmosphere light illumination, the time is accounted for 3 minutes from that when the last door is opened.
    (g) When position light output is not activated, if any condition is met, BCM will immediately send LIN signal TheaterDimmingRequest=00 (OFF) (atmosphere light OFF)
        (1) The entire vehicle fortifying is successful
        (2) DVD setting is OFF
    (h) Atmosphere light color

(1) Initial condition
(2) After the vehicle is powered on first time after leaving factory or powered on again after the battery is disconnected, the drive mode default as OFF. After that, the mode is turned ON/OFF according to DVD setting
(3) When linked drive mode is turned off: atmosphere light color default as blue, after that different color can be selected according to DVD setting
(4) Linked drive mode is turned on
(5) In ECO mode, atmosphere light is green
(6) In SPORT mode, atmosphere light is red
(7) In NORMAL mode, atmosphere light is blue

(i) Atmosphere light brightness (music rhythm)
(1) Initial condition
(2) After the vehicle is powered on first time after leaving factory or powered on again after the battery is disconnected, the music rhythm mode default as OFF.
(3) When music rhythm mode is turned off: brightness level of atmosphere light is 3, after that different brightness can be selected according to DVD setting
(4) When music rhythm mode is turned on: brightness changes from 0 with music rhythm according to different brightness level signal sent from IHU

Diagnosis Procedure

Hint:
Use following procedures to troubleshoot the lighting system.

1	Vehicle brought to workshop

Result

Proceed to
Next

Next

2	Check battery voltage

Check if battery voltage is normal.

OK
Standard voltage: not less than 12 V.

Result

Proceed to
OK
NG

NG → Recharge or replace battery

OK

3	Customer problem analysis

Result

Proceed to
Next

Next

4	Check for DTCs (current DTC and history DTC)

Result

Proceed to
No DTC
Current DTC
History DTC

History DTC

5	Problem repair (no DTC), then go to step 8

Result

Proceed to
Next

Next → Go to step 7

6	Troubleshoot according to Diagnostic Trouble Code (DTC) chart, then go to step 8

Result

Proceed to
Next

Next → Go to step 7

7	Troubleshoot according to Problem Symptoms Table, then go to step 8

Result

Proceed to
Next

Next

8	Conduct test and confirm malfunction has been repaired

Result

Proceed to
Next

Next → End

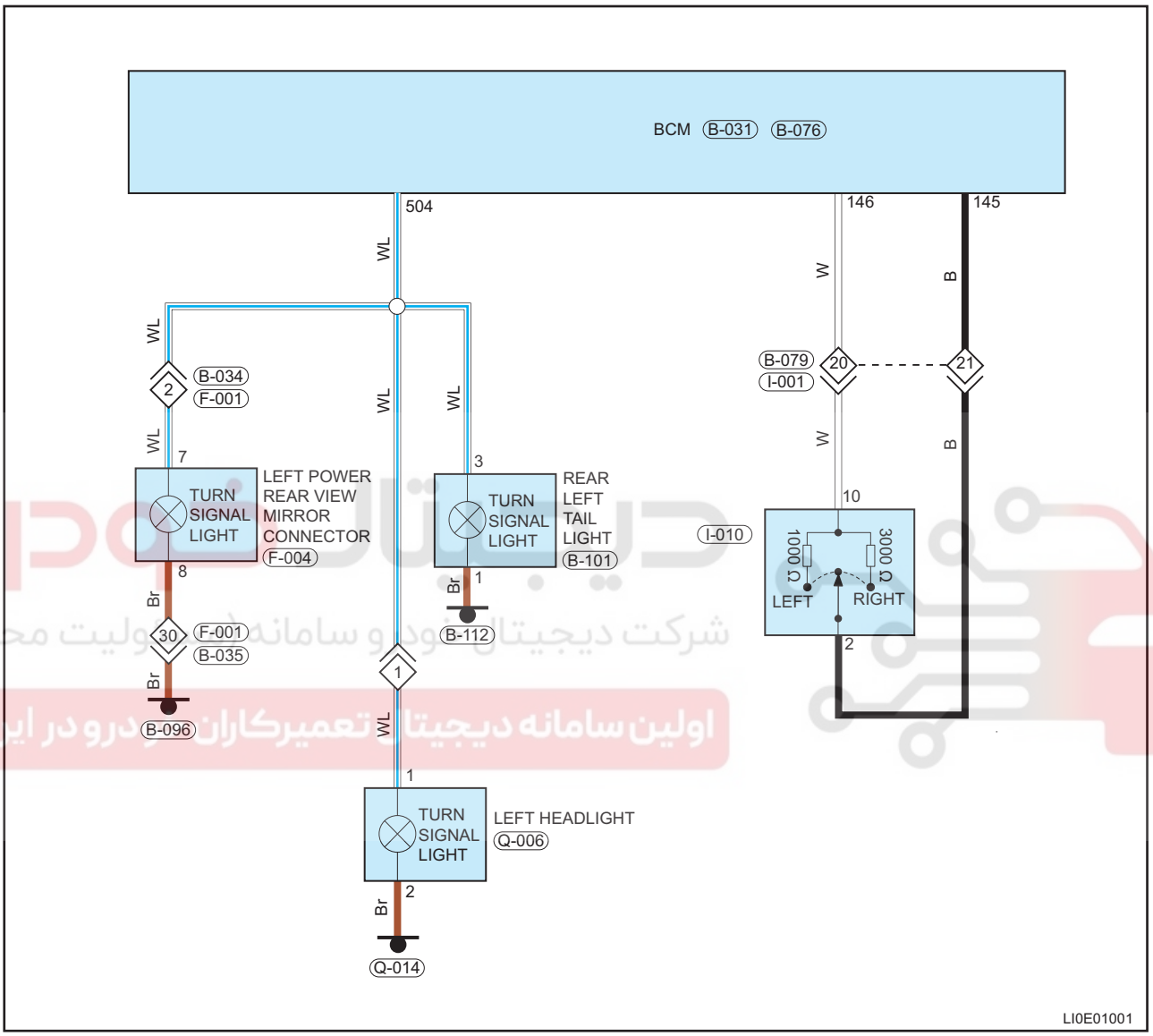
Diagnostic Trouble Code (DTC) Chart

DTC	DTC Definition
B1001-11	Left Side Turn Lamp Control Circuit
B1001-13	Left Side Turn Lamp Control Circuit
B1002-11	Right Side Turn Lamp Control Circuit
B1002-13	Right Side Turn Lamp Control Circuit
B1005-11	Front Park Light Output Control Circuit
B1005-13	Front Park Light Output Control Circuit
B100A-11	Fixed Part of the Rear Left Park Light Output Control Circuit
B100A-13	Fixed Part of the Rear Left Park Light Output Control Circuit
B101A-11	Movable Part of the Rear Left Park Light Output Control Circuit
B101A-13	Movable Part of the Rear Left Park Light Output Control Circuit
B100B-11	Fixed Part of the Rear Right Park Light Output Control Circuit
B100B-13	Fixed Part of the Rear Right Park Light Output Control Circuit
B101B-11	Movable Part of the Rear Right Park Light Output Control Circuit
B101B-13	Movable Part of the Rear Right Park Light Output Control Circuit
B1006-11	Rear Park Light Output Control Circuit
B1006-13	Rear Park Light Output Control Circuit
B1008-11	Rear Fog Control Circuit
B1008-71	Rear Fog Control Circuit
B101E-11	L-DRL Control Circuit
B101E-13	L-DRL Control Circuit
B101F-11	R-DRL Control Circuit
B101F-13	R-DRL Control Circuit
B1036-11	H-Brake Light Control Circuit
B1036-13	H-Brake Light Control Circuit
B1035-11	Brake Light Control Circuit
B1035-13	Brake Light Control Circuit
B1037-11	Left Brake Light Control Circuit
B1037-13	Left Brake Light Control Circuit
B1038-11	Right Brake Light Control Circuit
B1038-13	Right Brake Light Control Circuit

DTC	B1001-11	Left Side Turn Lamp Control Circuit

DTC	B1001-13	Left Side Turn Lamp Control Circuit

Circuit Diagram



Description

DTC	DTC Definition	DTC Detection Condition	Possible Cause
B1001-11	Left Side Turn Lamp Control Circuit	ENGINE START STOP switch is in ON and engine is running	• Damaged Wire harness or connector • Damaged bulb • Turn signal light switch • BCM
B1001-13	Left Side Turn Lamp Control Circuit		

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) to data link connector.
- Turn ENGINE START STOP switch to ON.
- Use the diagnostic tester to record and clear DTCs stored in lighting system.
- Turn ENGINE START STOP switch to OFF and wait for several seconds.
- Turn ENGINE START STOP switch to ON, select "Read DTC".
- If DTC is detected, malfunction indicated by DTC is current. Go to diagnosis procedure - Step 1.
- If DTC is not detected, malfunction indicated by DTC is intermittent.

Warning/Caution/Hint

Caution:

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

Diagnosis Procedure

1	Check left turn signal light bulb

(a) Turn off all electrical equipment and the ENGINE START STOP switch.
(b) Disconnect the negative battery cable.
(c) Remove the left turn signal light bulb, and check if left turn signal light bulb filament is blown.

Result

Proceed to
OK
NG

NG → **Replace left turn signal light bulb**

OK

2	Using the diagnostic tester to perform Active Test

(a) Turn ENGINE START STOP switch to ON.
(b) Connect the diagnostic tester, perform active test for left turn signal light.

Result

Proceed to
OK
NG

NG → **Check actuator circuit wire harness**

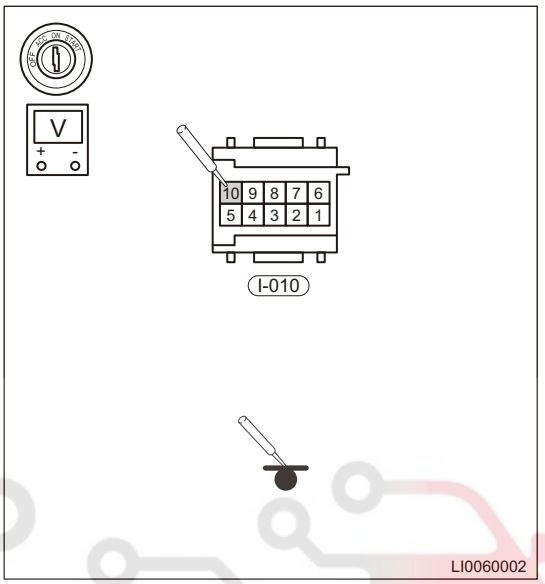
OK

3	Check left side turn signal light control circuit

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the combination switch connector I-010.
(d) Connect the negative battery cable.
(e) Turn ENGINE START STOP switch to ON.
(f) Using a digital multimeter, measure the voltage between combination switch connector I-010 (10) and body ground according to table below.

Standard Condition

Multimeter Connection	Condition	Specified Condition
I-010 (10) - Body ground	Always	Not less than 12 V



Result

Proceed to
OK
NG

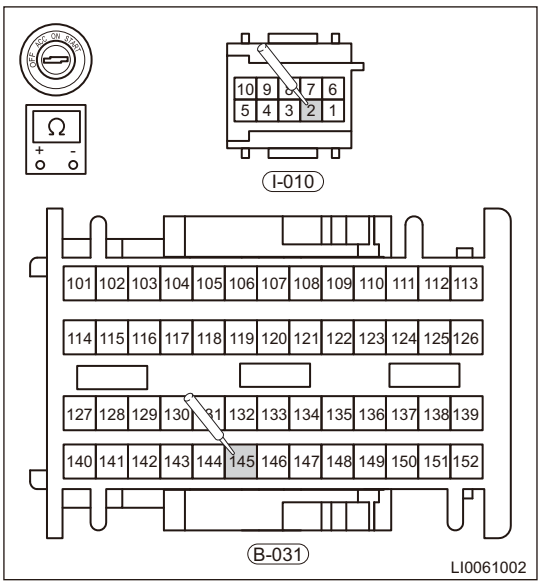
NG → **Repair or replace faulty wire harness**

OK →

4	Check combination switch control circuit

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the body control module connector B-031.
(d) Disconnect the combination switch connector I-010.

(e) Using a digital multimeter, measure if resistance between connectors I-010 (2) - B-031 (1-45) is normal according to table below.



Standard Condition

Multimeter Connection	Condition	Specified Condition
I-010 (2) - B-031 (1-45)	Always	≤ 1 Ω

Result

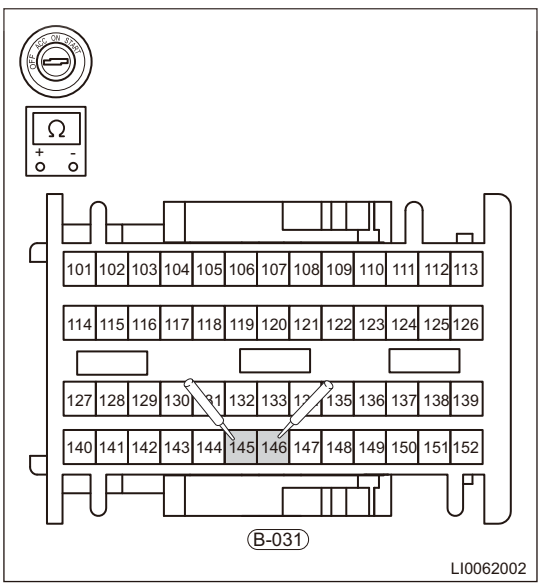
Proceed to
OK
NG

NG → **Repair or replace faulty wire harness**

OK

5	Check combination switch

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the body control module connector B-031.
(d) Using a digital multimeter, measure if resistance between connectors B-031 (1-46) - B-031 (1-45) is normal when left turn signal light is turned on according to table below.



Standard Condition

Multimeter Connection	Condition	Specified Condition
B-031 (1-46) - B-031 (1-45)	Always	1000 Ω

Result

Proceed to
OK

Proceed to
NG

NG → Replace combination switch

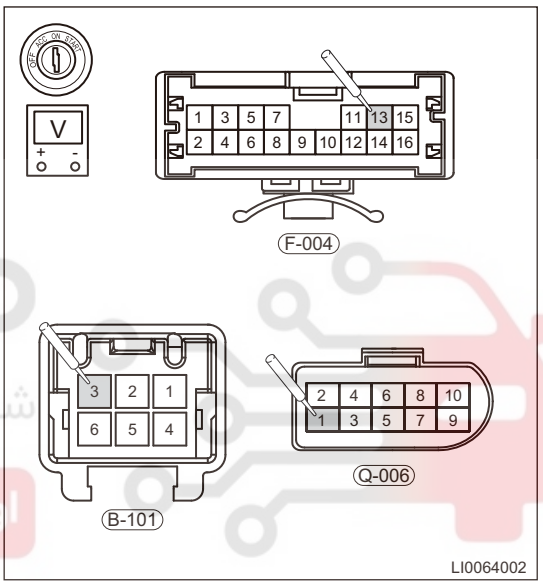
OK

6 Check left turn signal light output circuit

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect left turn signal light connectors Q-006, F-004, B-101.
(d) Connect the negative battery cable.
(e) Turn ENGINE START STOP switch to ON.
(f) Using a digital multimeter, measure the voltage between left turn signal light connectors Q-006 (1), F-004 (7), B-101 (3) and body ground according to table below.

Standard Condition

Multimeter Connection	Condition	Specified Condition
Q-006 (1) - Body ground	Always	Not less than 12 V
F-004 (7) - Body ground	Always	Not less than 12 V
B-101 (3) - Body ground	Always	Not less than 12 V



Result

Proceed to
OK
NG

NG → Repair or replace faulty wire harness

OK

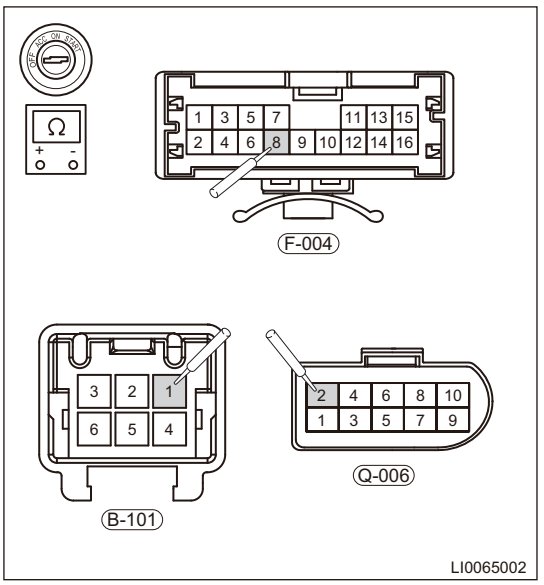
7 Check if output line ground is conductive

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect left turn signal light connectors Q-006, F-004, B-101.

(d) Using a digital multimeter, measure if left turn signal light connectors Q-006 (2), F-004 (8), B-101 (1) and body ground are conductive according to table below.

Standard Condition

Multimeter Connection	Condition	Specified Condition
Q-006 (2) - Body ground	Always	≤ 1 Ω
F-004 (8) - Body ground	Always	≤ 1 Ω
B-101 (1) - Body ground	Always	≤ 1 Ω



Result

Proceed to
OK
NG

NG → **Repair or replace faulty wire harness**

OK

8 Reconfirm DTCs

(a) Connect all connectors.
(b) Connect the negative battery cable.
(c) Turn ENGINE START STOP switch to ON.
(d) Check if same DTCs or same problem symptoms are output.

Result

Proceed to
OK
NG

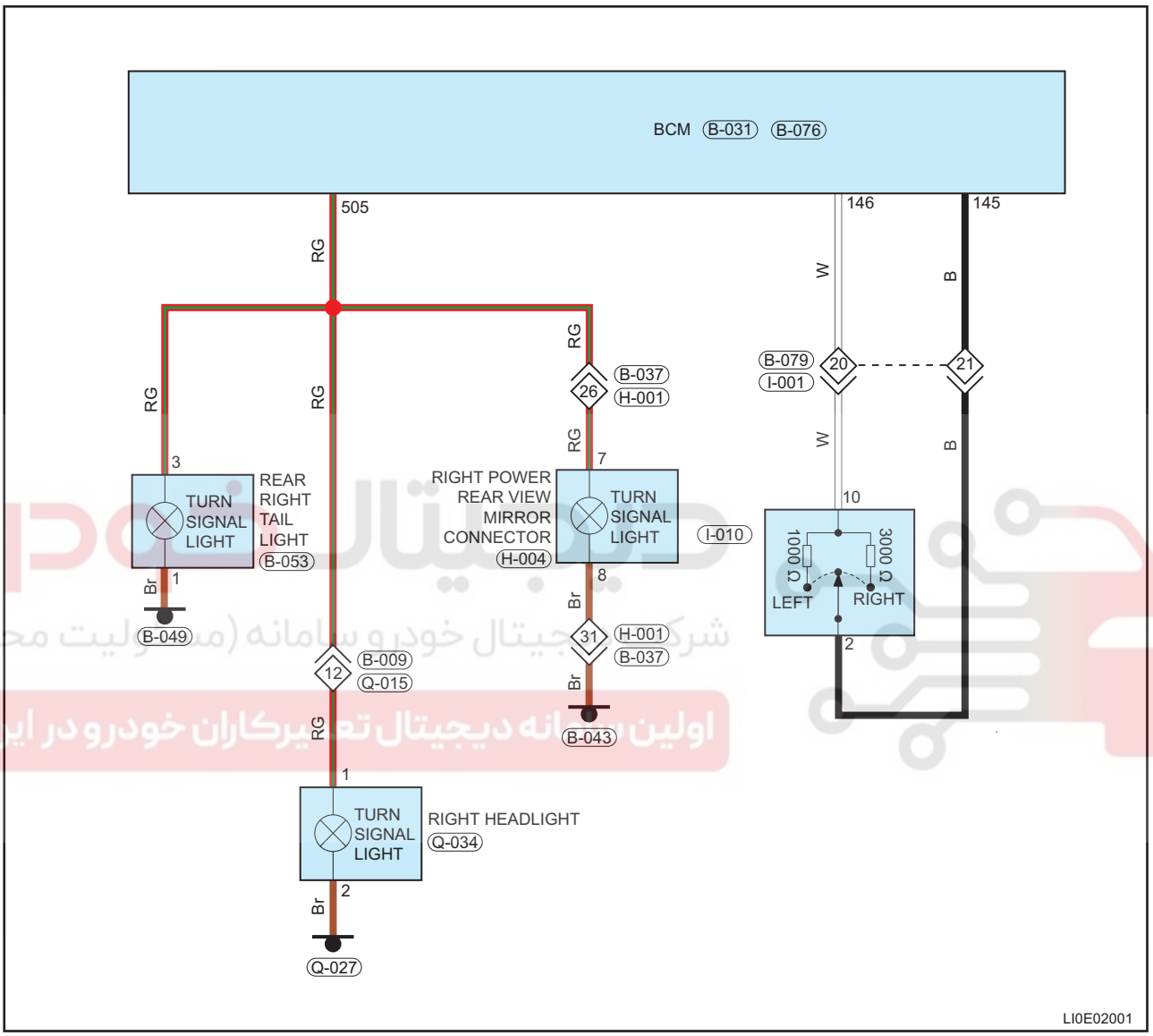
OK → **System operates normally**

NG → **Replace body control module**

DTC	B1002-11	Right Side Turn Lamp Control Circuit

DTC	B1002-13	Right Side Turn Lamp Control Circuit

Circuit Diagram



Description

DTC	DTC Definition	DTC Detection Condition	Possible Cause
B1002-11	Right Side Turn Lamp Control Circuit	ENGINE START STOP switch is in ON and engine is running.	• Damaged Wire harness or connector • Damaged bulb • Turn signal light switch • BCM
B1002-13	Right Side Turn Lamp Control Circuit		

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) to data link connector.
- Turn ENGINE START STOP switch to ON.
- Use the diagnostic tester to record and clear DTCs stored in lighting system.
- Turn ENGINE START STOP switch to OFF and wait for several seconds.
- Turn ENGINE START STOP switch to ON, select "Read DTC".
- If DTC is detected, malfunction indicated by DTC is current. Go to diagnosis procedure - Step 1.
- If DTC is not detected, malfunction indicated by DTC is intermittent.

Warning/Caution/Hint

Caution:

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

Diagnosis Procedure

1 Check right turn signal light bulb

(a) Turn off all electrical equipment and the ENGINE START STOP switch.
(b) Disconnect the negative battery cable.
(c) Remove right turn signal light bulb, and check if right turn signal light bulb filament is blown.

Result

Proceed to
OK
NG

NG → **Replace right turn signal light bulb**

OK

2 Using the diagnostic tester to perform Active Test

(a) Turn ENGINE START STOP switch to ON.
(b) Connect the diagnostic tester, perform active test for right turn signal light.

Result

Proceed to
OK
NG

NG → **Check actuator circuit wire harness**

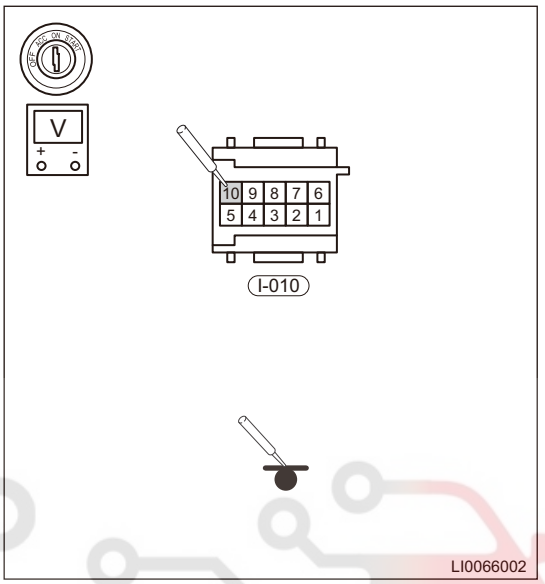
OK

3	Check control circuit output voltage

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the combination switch connector I-010.
(d) Connect the negative battery cable.
(e) Turn ENGINE START STOP switch to ON.
(f) Using a digital multimeter, measure the voltage between combination switch connector I-010 (10) and body ground according to table below.

Standard Condition

Multimeter Connection	Condition	Specified Condition
I-010 (10) - Body ground	Always	Not less than 12 V



Result

Proceed to
OK
NG

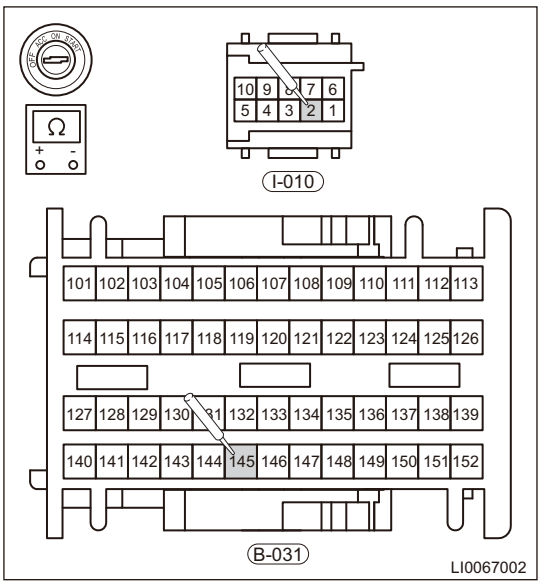
NG → **Repair or replace faulty wire harness**

OK →

4	Check combination switch control circuit

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the body control module connector B-031.
(d) Disconnect the combination switch connector I-010.

(e) Using a digital multimeter, measure if resistance between connectors I-010 (2) - B-031 (1-45) is normal according to table below.



Standard Condition

Multimeter Connection	Condition	Specified Condition
I-010 (2) - B-031 (1-45)	Always	≤ 1 Ω

Result

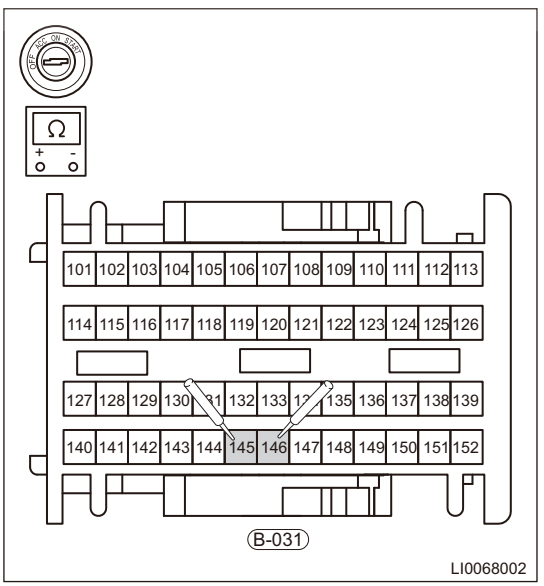
Proceed to
OK
NG

NG → **Repair or replace faulty wire harness**

OK

5	Check combination switch

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the body control module connector B-031.
(d) Using a digital multimeter, measure if resistance between connectors B-023 (1-46) - B-031 (1-45) is normal when right turn signal light is turned on according to table below.



Standard Condition

Multimeter Connection	Condition	Specified Condition
B-031 (1-46) - B-031 (1-45)	Always	3000 Ω

Result

Proceed to
OK

Proceed to
NG

NG → Replace combination switch

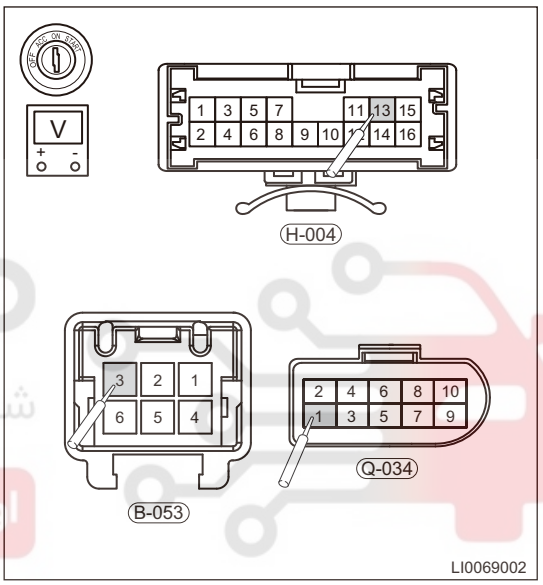
OK

6 Check right turn signal light output circuit

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect right turn signal light connectors Q-034, H-004, B-053.
(d) Disconnect the negative battery cable.
(e) Turn ENGINE START STOP switch to ON.
(f) Using a digital multimeter, measure the voltage between right turn signal light connectors Q-034 (1), H-004 (7), B-053 (3) and body ground according to table below.

Standard Condition

Multimeter Connection	Condition	Specified Condition
Q-034 (1) - Body ground	Always	Not less than 12 V
H-004 (7) - Body ground	Always	Not less than 12 V
B-053 (3) - Body ground	Always	Not less than 12 V



Result

Proceed to
OK
NG

NG → Repair or replace faulty wire harness

OK

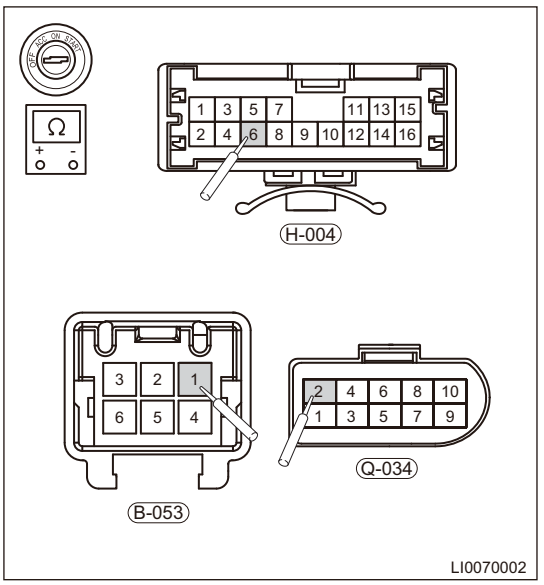
7 Check if output line ground is conductive

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect right turn signal light connectors Q-034, H-004, B-053.

(d) Using a digital multimeter, measure if right turn signal light connectors Q-034 (2), H-004 (8), B-053 (1) and body ground is conductive according to table below.

Standard Condition

Multimeter Connection	Condition	Specified Condition
Q-034 (2) - Body ground	Always	≤ 1 Ω
H-004 (8) - Body ground	Always	≤ 1 Ω
B-053 (1) - Body ground	Always	≤ 1 Ω



Result

Proceed to
OK
NG

NG → **Repair or replace faulty wire harness**

OK →

8	Reconfirm DTCs

(a) Connect all connectors.
(b) Connect the negative battery cable.
(c) Turn ENGINE START STOP switch to ON.
(d) Check if same DTCs or same problem symptoms are output.

Result

Proceed to
OK
NG

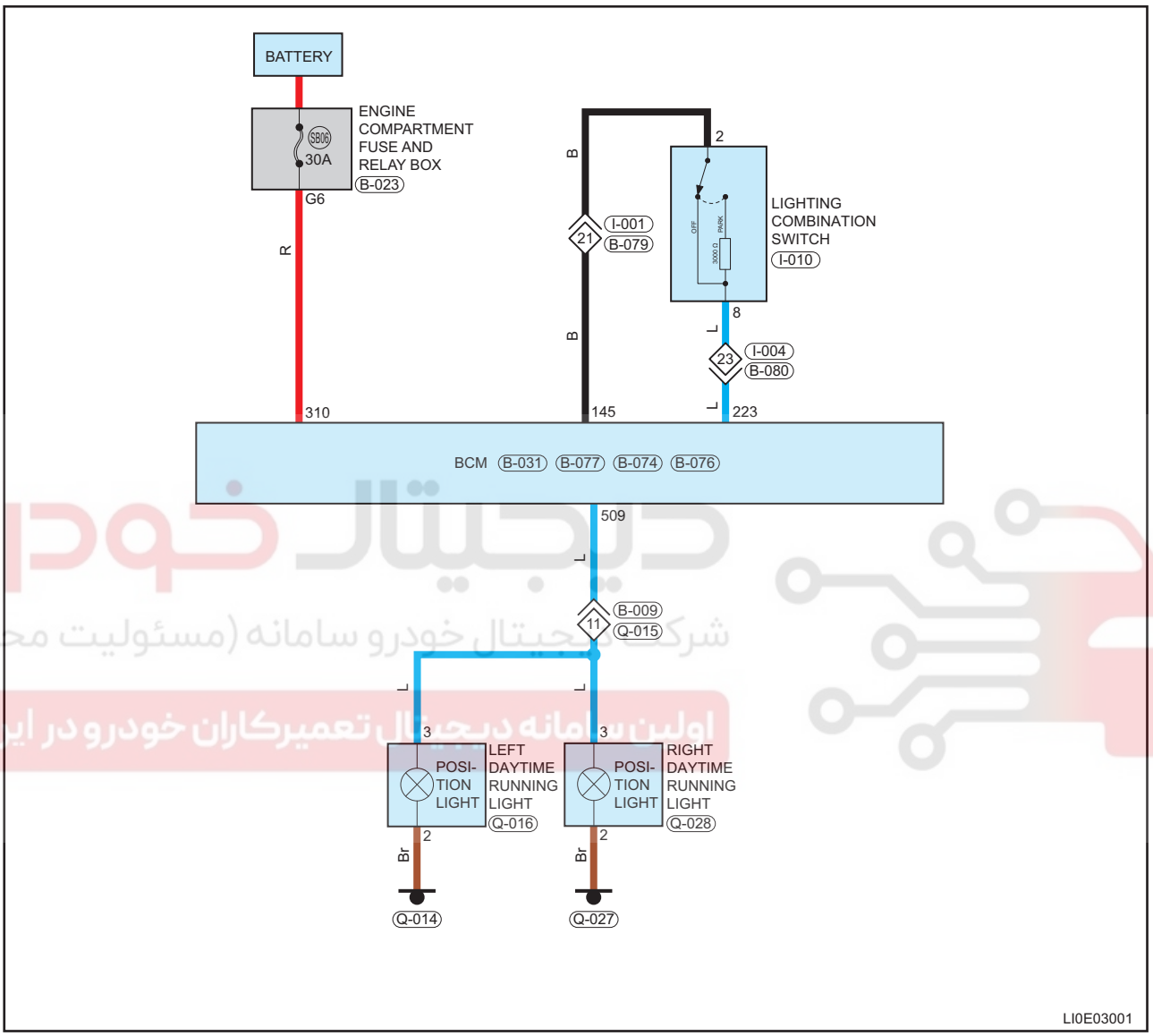
OK → **System operates normally**

NG → **Replace body control module**

DTC	B1005-11	Front Park Light Output Control Circuit

DTC	B1005-13	Front Park Light Output Control Circuit

Circuit Diagram



Description

DTC	DTC Definition	DTC Detection Condition	Possible Cause
B1005-11	Front Park Light Output Control Circuit	ENGINE START STOP switch is in ON and engine is running.	• Damaged Wire harness or connector • Damaged bulb • Front position light switch • BCM
B1005-13	Front Park Light Output Control Circuit		

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) to data link connector.
- Turn ENGINE START STOP switch to ON.
- Use the diagnostic tester to record and clear DTCs stored in lighting system.
- Turn ENGINE START STOP switch to OFF and wait for several seconds.
- Turn ENGINE START STOP switch to ON, select "Read DTC".
- If DTC is detected, malfunction indicated by DTC is current. Go to diagnosis procedure - Step 1.
- If DTC is not detected, malfunction indicated by DTC is intermittent.

Warning/Caution/Hint

Caution:

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

Diagnosis Procedure

1	Check front position light bulb

(a) Turn off all electrical equipment and the ENGINE START STOP switch.
(b) Disconnect the negative battery cable.
(c) Remove the front position light bulb, and check if front position light bulb filament is blown.

Result

Proceed to
OK
NG

NG → **Replace the front position light bulb**

OK

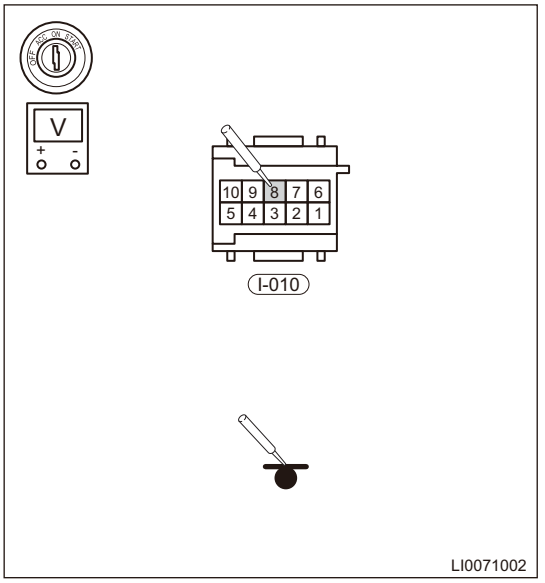
2	Check front position light control circuit

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the combination switch connector I-010.
(d) Disconnect the negative battery cable.
(e) Turn ENGINE START STOP switch to ON.

(f) Using a digital multimeter, measure the voltage between combination switch connector I-010 (8) and body ground according to table below.

Standard Condition

Multimeter Connection	Condition	Specified Condition
I-010 (8) - Body ground	Always	Not less than 12 V



Result

Proceed to
OK
NG

NG → **Repair or replace faulty wire harness**

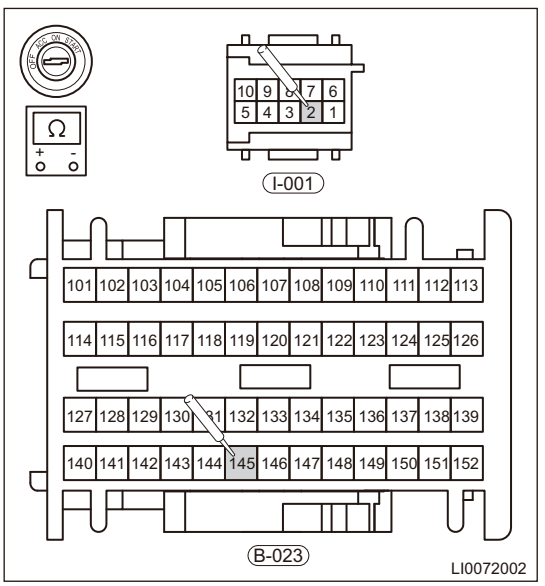
OK →

3	Check combination switch control circuit

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the body control module connector B-031.
(d) Disconnect the combination switch connector I-010.
(e) Using a digital multimeter, measure if resistance between connectors I-010 (2) - B-031 (1-45) is normal according to table below.

Standard Condition

Multimeter Connection	Condition	Specified Condition
I-010 (2) - B-031 (1-45)	Always	≤ 1 Ω



Result

Proceed to
OK
NG

NG → **Repair or replace faulty wire harness**

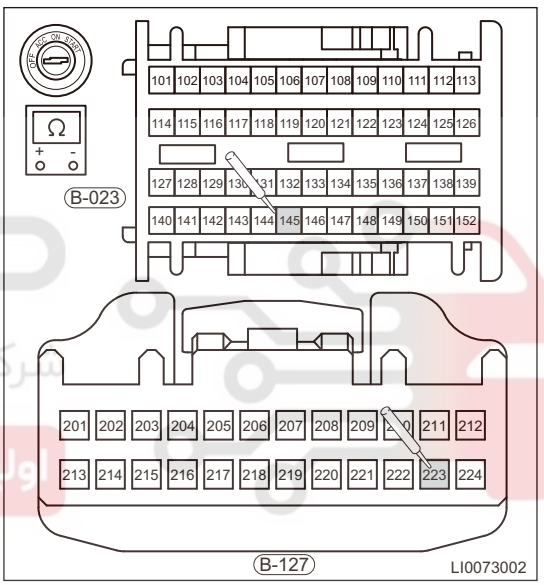
OK

4	Check combination switch

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the body control module connector B-031.
(d) Disconnect the body control module connector B-007.
(e) Using a digital multimeter, measure if resistance between connectors B-007 (2-23) - B-031 (1-45) is normal when position light is turned on according to table below.

Standard Condition

Multimeter Connection	Condition	Specified Condition
B-077 (2-23) - B-031 (1-45)	Always	3000 Ω



Result

Proceed to
OK
NG

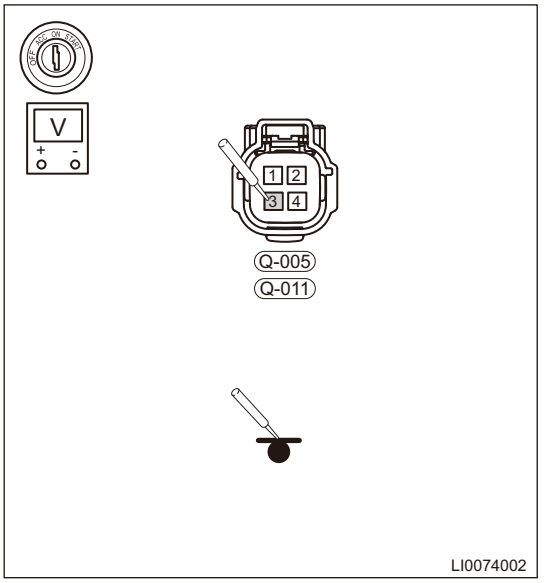
NG → **Replace combination switch**

OK

5	Check front position light output circuit

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the front position light connectors Q-016, Q-028.
(d) Disconnect the negative battery cable.
(e) Turn ENGINE START STOP switch to ON, and turn position light on.

(f) Using a digital multimeter, measure the voltage between front position light connectors Q-016 (3), Q-028 (3) and body ground according to table below.



Standard Condition

Multimeter Connection	Condition	Specified Condition
Q-016 (3) - Body ground	Always	Not less than 12 V
Q-028 (3) - Body ground	Always	Not less than 12 V

Result

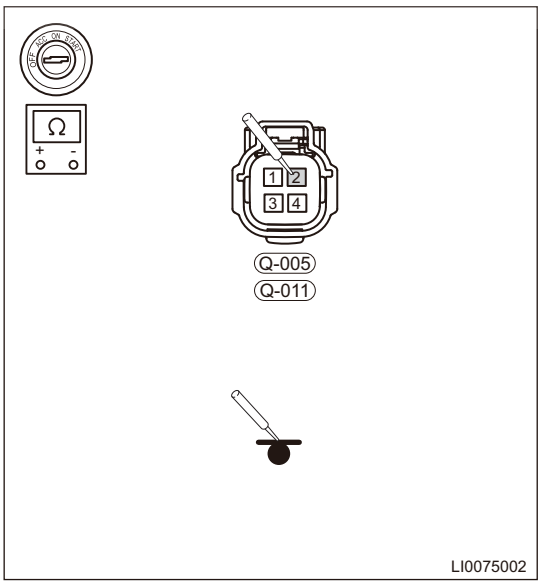
Proceed to
OK
NG

NG → **Repair or replace faulty wire harness**

OK

6 Check if output line ground is conductive

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the front position light connectors Q-016, Q-028.
(d) Using a digital multimeter, measure if front position light connectors Q-016 (2), Q-028 (2) and body ground are conductive according to table below.



Standard Condition

Multimeter Connection	Condition	Specified Condition
Q-016 (2) - Body ground	Always	≤ 1 Ω
Q-028 (2) - Body ground	Always	≤ 1 Ω

Result

Proceed to
OK

Proceed to
NG

NG → Repair or replace faulty wire harness

OK

7 Reconfirm DTCs

(a) Connect all connectors.
(b) Connect the negative battery cable.
(c) Turn ENGINE START STOP switch to ON.
(d) Check if same DTCs or same problem symptoms are output.

Result

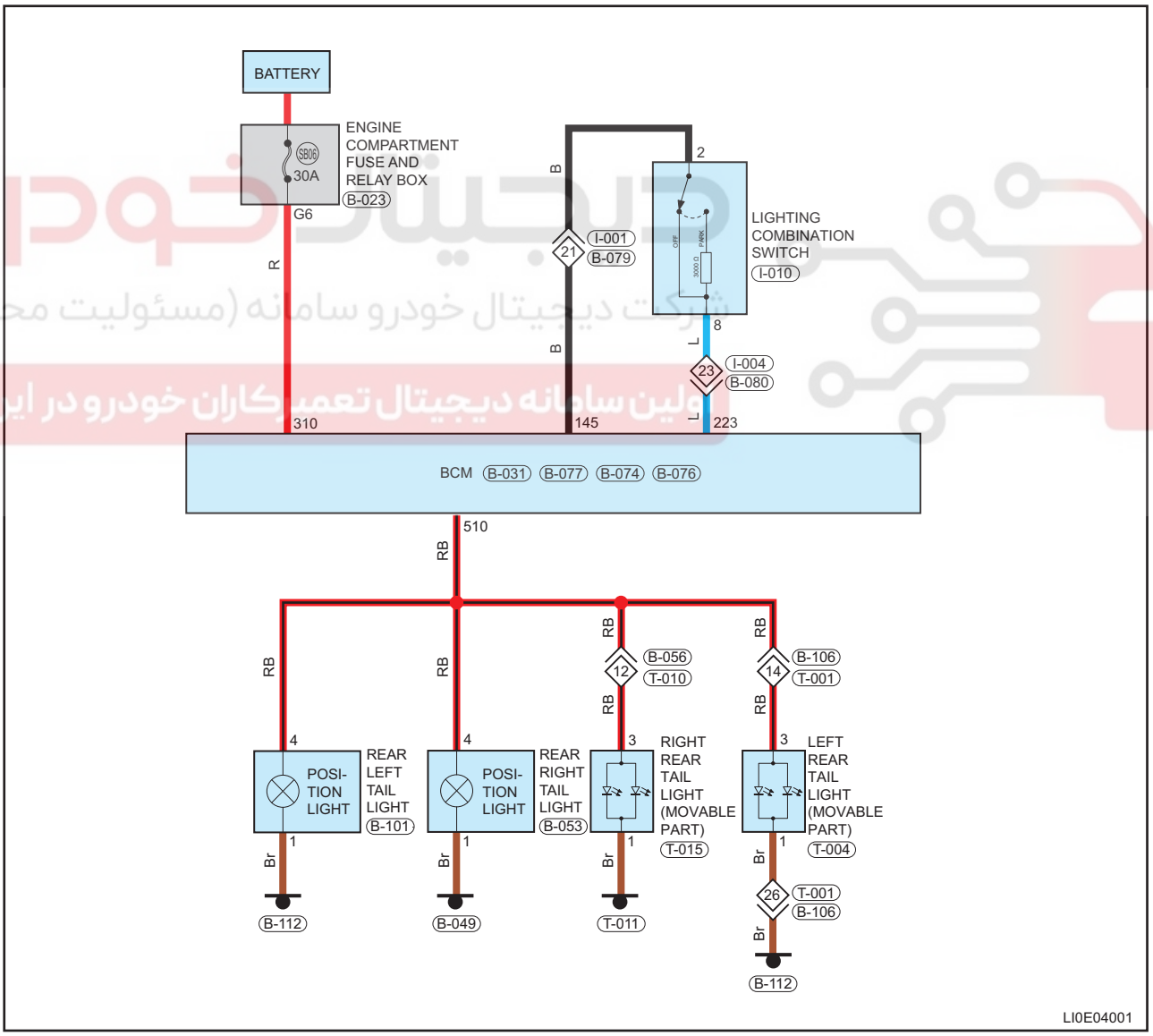
Proceed to
OK
NG

OK → System operates normally

NG → Replace body control module

DTC	B100A-11	Fixed Part of the Rear Left Park Light Output Control Circuit
DTC	B100A-13	Fixed Part of the Rear Left Park Light Output Control Circuit
DTC	B101A-11	Movable Part of the Rear Left Park Light Output Control Circuit
DTC	B101A-13	Movable Part of the Rear Left Park Light Output Control Circuit

Circuit Diagram



Description

DTC	DTC Definition	DTC Detection Condition	Possible Cause
B100A-11	Fixed Part of the Rear Left Park Light Output Control Circuit	ENGINE START STOP switch is in ON and engine is running.	• Damaged Wire harness or connector • Damaged bulb • Position light switch • BCM
B100A-13	Fixed Part of the Rear Left Park Light Output Control Circuit		
B101A-11	Movable Part of the Rear Left Park Light Output Control Circuit		
B101A-13	Movable Part of the Rear Left Park Light Output Control Circuit		

DTC Confirmation Procedure

Confirm that battery voltage is no less than 12 V before performing following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software) to data link connector.
- Turn ENGINE START STOP switch to ON.
- Use the diagnostic tester to record and clear DTCs stored in lighting system.
- Turn ENGINE START STOP switch to OFF and wait for several seconds.
- Turn ENGINE START STOP switch to ON, select "Read DTC".
- If DTC is detected, malfunction indicated by DTC is current. Go to diagnosis procedure - Step 1.
- If DTC is not detected, malfunction indicated by DTC is intermittent.

Warning/Caution/Hint

Caution:

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

Diagnosis Procedure

1	**Check rear left position light bulb**

(a) Turn off all electrical equipment and the ENGINE START STOP switch.
(b) Disconnect the negative battery cable.
(c) Remove the rear left position light bulb, and check if rear left position light bulb filament is blown.

Result

Proceed to
OK
NG

NG → **Replace rear left position light bulb**

OK

2	**Using the diagnostic tester to perform Active Test**

(a) Turn ENGINE START STOP switch to ON.
(b) Connect the diagnostic tester, perform active test for rear left position light.

Result

Proceed to
OK

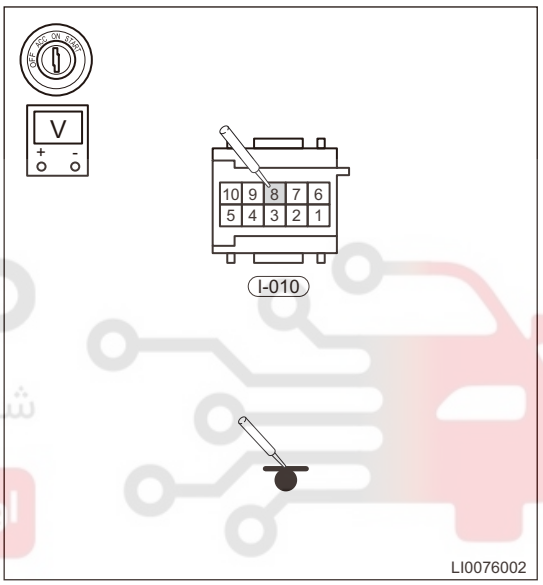
Proceed to
NG

NG → Check actuator circuit wire harness

OK

3 Check rear left position light control circuit

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the combination switch connector I-010.
(d) Disconnect the negative battery cable.
(e) Turn ENGINE START STOP switch to ON.
(f) Using a digital multimeter, measure the voltage between combination switch connector I-010 (8) and body ground according to table below.



Standard Condition

Multimeter Connection	Condition	Specified Condition
I-010 (8) - Body ground	Always	Not less than 12 V

Result

Proceed to
OK
NG

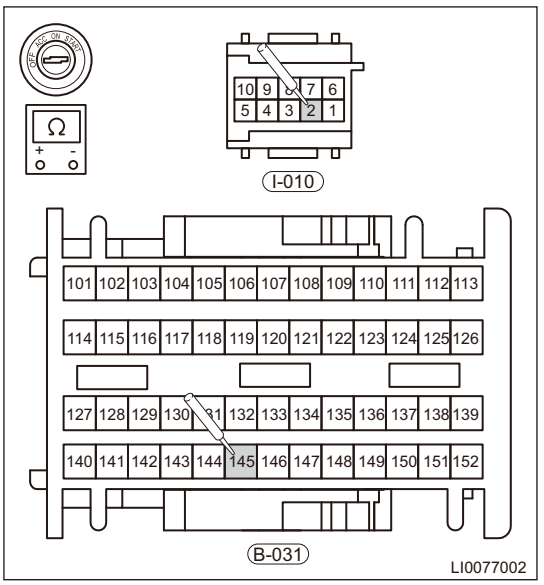
NG → Repair or replace faulty wire harness

OK

4 Check combination switch control circuit

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the body control module connector B-031.
(d) Disconnect the combination switch connector I-010.

(e) Using a digital multimeter, measure if resistance between connectors I-010 (2) - B-031 (1-45) is normal according to table below.



Standard Condition

Multimeter Connection	Condition	Specified Condition
I-010 (2) - B-031 (1-45)	Always	≤ 1 Ω

Result

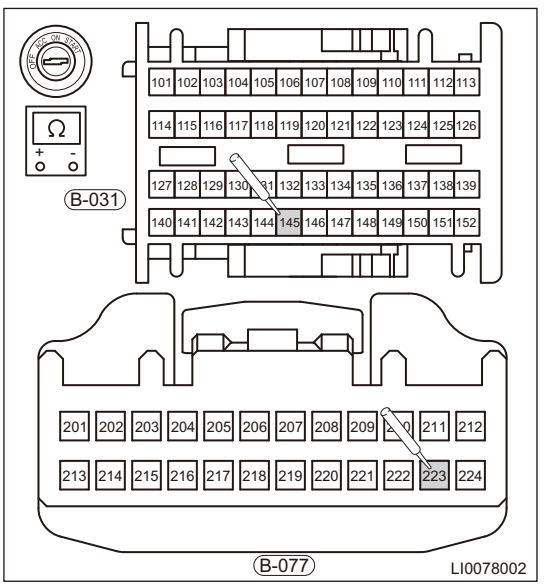
Proceed to
OK
NG

NG → **Repair or replace faulty wire harness**

OK →

5	Check combination switch

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the body control module connector B-031.
(d) Disconnect the body control module connector B-077.
(e) Using a digital multimeter, measure if resistance between connectors B-077 (2-23) - B-031 (1-45) is normal when position light is turned on according to table below.



Standard Condition

Multimeter Connection	Condition	Specified Condition
B-077 (2-23) - B-031 (1-45)	Always	3000 Ω

Result

Proceed to
OK
NG

NG → **Replace combination switch**

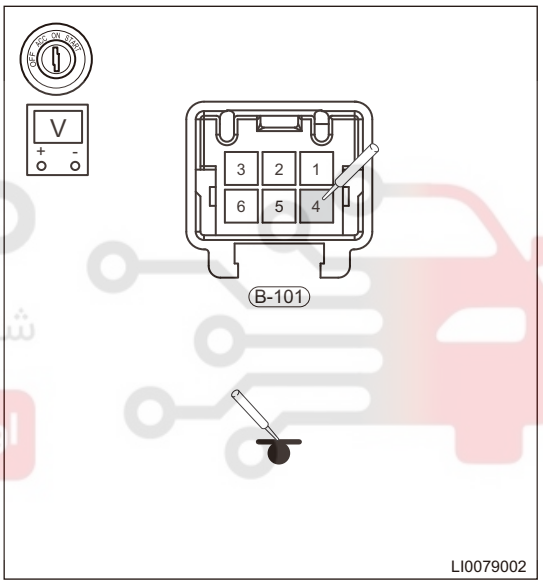
OK

6 Check rear left position light output circuit

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect rear left position light connector B-101.
(d) Disconnect the negative battery cable.
(e) Turn ENGINE START STOP switch to ON.
(f) Using a digital multimeter, measure the voltage between rear left position light connector B-101 (4) and body ground according to table below.

Standard Condition

Multimeter Connection	Condition	Specified Condition
B-101 (4) - Body ground	Always	Not less than 12 V



Result

Proceed to
OK
NG

NG → **Repair or replace faulty wire harness**

OK

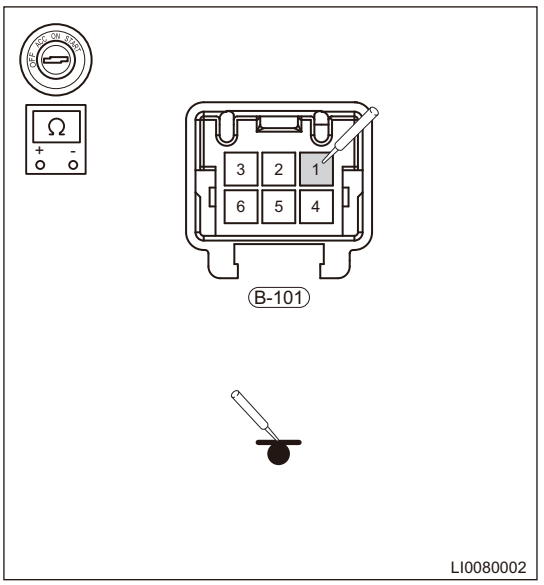
7 Check if output line ground is conductive

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect rear left position light connector B-101.

(d) Using a digital multimeter, measure if rear left position light connector B-101 (1) and body ground are conductive according to table below.

Standard Condition

Multimeter Connection	Condition	Specified Condition
B-101 (1) - Body ground	Always	≤ 1 Ω



Result

Proceed to
OK
NG

NG → **Repair or replace faulty wire harness**

OK

8	Reconfirm DTCs

(a) Connect all connectors.
(b) Connect the negative battery cable.
(c) Turn ENGINE START STOP switch to ON.
(d) Check if same DTCs or same problem symptoms are output.

Result

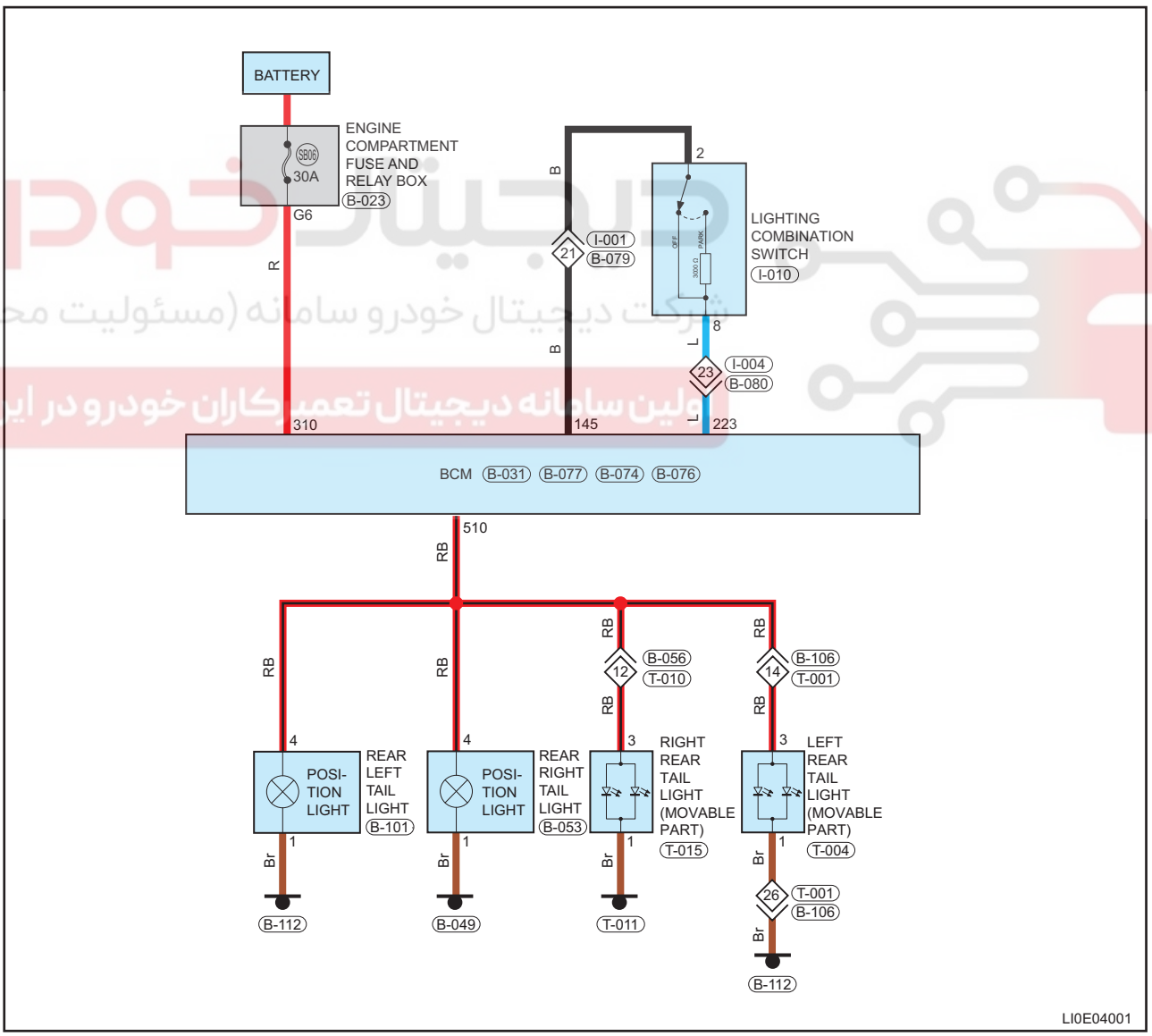
Proceed to
OK
NG

OK → **System operates normally**

NG → **Replace body control module**

DTC	B100B-11	Fixed Part of the Rear Right Park Light Output Control Circuit
DTC	B100B-13	Fixed Part of the Rear Right Park Light Output Control Circuit
DTC	B101B-11	Movable Part of the Rear Right Park Light Output Control Circuit
DTC	B101B-13	Movable Part of the Rear Right Park Light Output Control Circuit

Circuit Diagram



Description

DTC	DTC Definition	DTC Detection Condition	Possible Cause
B100B-11	Fixed Part of the Rear Right Park Light Output Control Circuit	ENGINE START STOP switch is in ON and engine is running.	• Damaged Wire harness or connector • Damaged bulb • Position light switch • BCM
B100B-13	Fixed Part of the Rear Right Park Light Output Control Circuit		
B101B-11	Movable Part of the Rear Right Park Light Output Control Circuit		
B101B-13	Movable Part of the Rear Right Park Light Output Control Circuit		

DTC Confirmation Procedure

Confirm that battery voltage is no less than 12 V before performing following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software) to data link connector.
- Turn ENGINE START STOP switch to ON.
- Use the diagnostic tester to record and clear DTCs stored in lighting system.
- Turn ENGINE START STOP switch to OFF and wait for several seconds.
- Turn ENGINE START STOP switch to ON, select "Read DTC".
- If DTC is detected, malfunction indicated by DTC is current. Go to diagnosis procedure - Step 1.
- If DTC is not detected, malfunction indicated by DTC is intermittent.

Warning/Caution/Hint

Caution:

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

Diagnosis Procedure

1 Check rear right position light bulb

(a) Turn off all electrical equipment and the ENGINE START STOP switch.
(b) Disconnect the negative battery cable.
(c) Remove the rear position light bulb, and check if rear right position light bulb filament is blown.

Result

Proceed to
OK
NG

NG → **Replace rear right position light bulb**

OK

2 Using the diagnostic tester to perform Active Test

(a) Turn ENGINE START STOP switch to ON.
(b) Connect the diagnostic tester, perform active test for rear right position light.

Result

Proceed to
OK

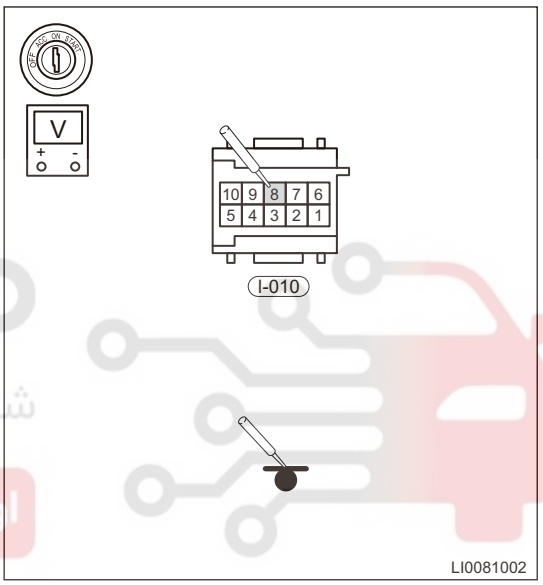
Proceed to
NG

NG → Check actuator circuit wire harness

OK

3 Check rear right position light control circuit

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the combination switch connector I-010.
(d) Disconnect the negative battery cable.
(e) Turn ENGINE START STOP switch to ON.
(f) Using a digital multimeter, measure the voltage between combination switch connector I-010 (8) and body ground according to table below.



Standard Condition

Multimeter Connection	Condition	Specified Condition
I-010 (8) - Body ground	Always	Not less than 12 V

Result

Proceed to
OK
NG

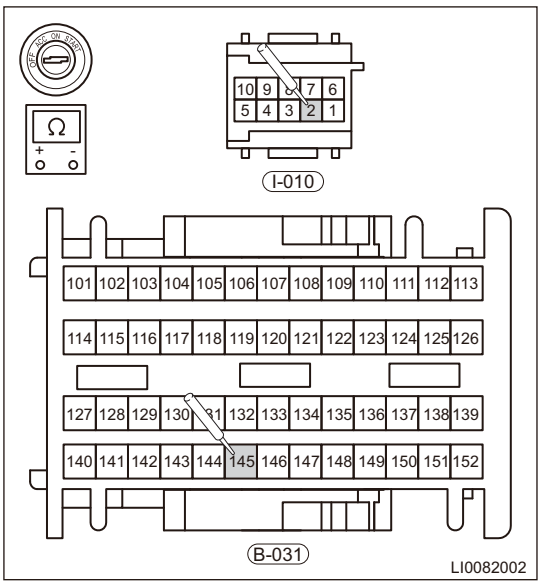
NG → Repair or replace faulty wire harness

OK

4 Check combination switch control circuit

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the body control module connector B-031.
(d) Disconnect the combination switch connector I-010.

(e) Using a digital multimeter, measure if resistance between connectors I-010 (2) - B-031 (1-45) is normal according to table below.



Standard Condition

Multimeter Connection	Condition	Specified Condition
I-010 (2) - B-031 (1-45)	Always	≤ 1 Ω

Result

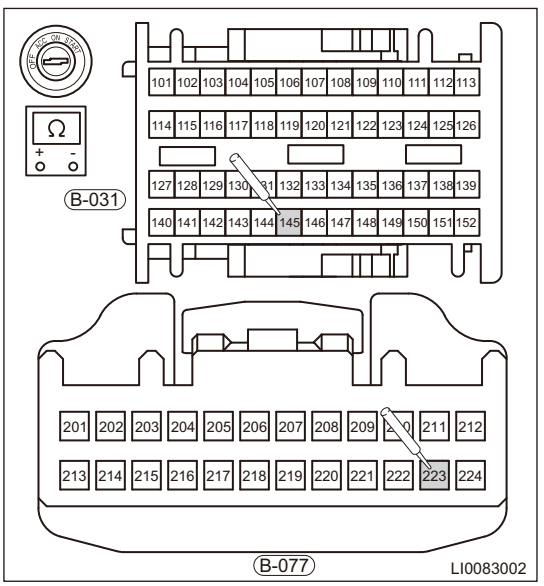
Proceed to
OK
NG

NG → **Repair or replace faulty wire harness**

OK

5 Check combination switch

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the body control module connector B-031.
(d) Disconnect the body control module connector B-077.
(e) Using a digital multimeter, measure if resistance between connector B-077 (2-23) - B-031 (1-45) is normal when position light is turned on according to table below.



Standard Condition

Multimeter Connection	Condition	Specified Condition
B-077 (2-23) - B-031 (1-45)	Always	3000 Ω

Result

Proceed to
OK
NG

NG → **Replace combination switch**

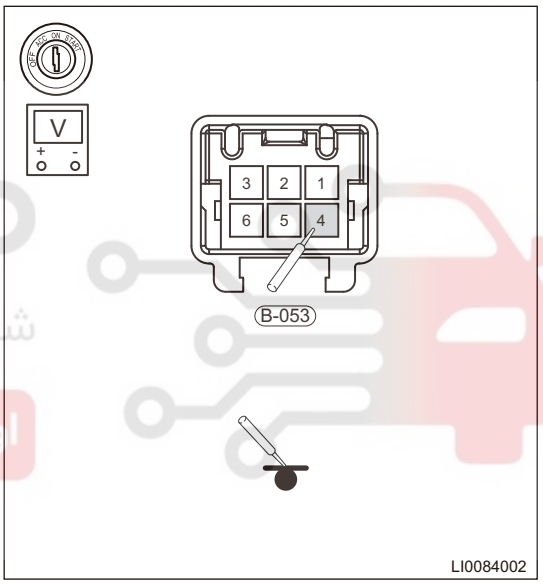
OK

6 Check rear right position light output circuit

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect rear right position light connector B-053.
(d) Disconnect the negative battery cable.
(e) Turn ENGINE START STOP switch to ON.
(f) Using a digital multimeter, measure the voltage between rear right position light connector B-053 (4) and body ground according to table below.

Standard Condition

Multimeter Connection	Condition	Specified Condition
B-053 (4) - Body ground	Always	Not less than 12 V



Result

Proceed to
OK
NG

NG → **Repair or replace faulty wire harness**

OK

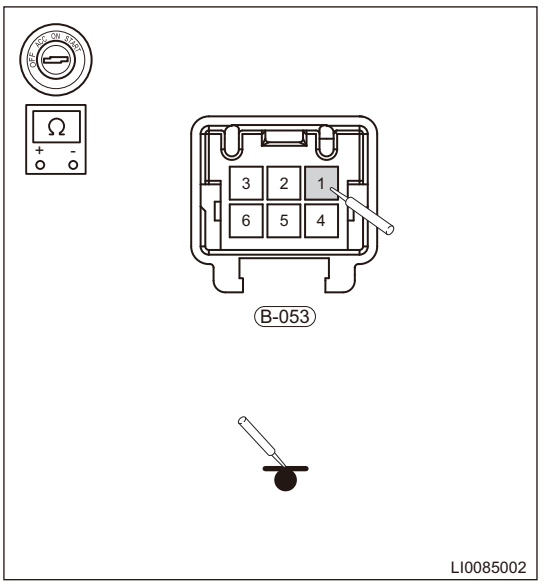
7 Check if output line ground is conductive

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect rear right position light connector B-053.

(d) Using a digital multimeter, measure if rear right position light connector B-053 (1) and body ground are conductive according to table below.

Standard Condition

Multimeter Connection	Condition	Specified Condition
B-053 (1) - Body ground	Always	≤ 1 Ω



Result

Proceed to
OK
NG

NG → **Repair or replace faulty wire harness**

OK

8	Reconfirm DTCs

(a) Connect all connectors.
(b) Connect the negative battery cable.
(c) Turn ENGINE START STOP switch to ON.
(d) Check if same DTCs or same problem symptoms are output.

Result

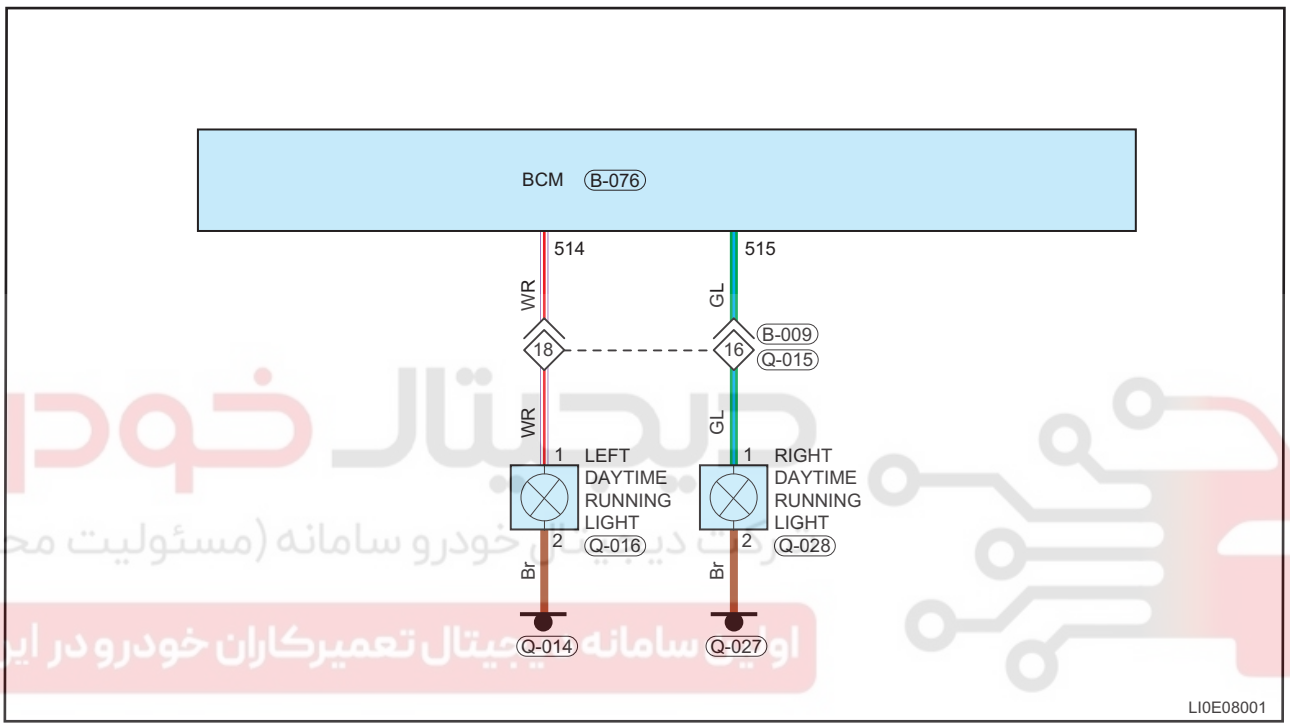
Proceed to
OK
NG

OK → **System operates normally**

NG → **Replace body control module**

DTC	B101E-11	L-DRL Control Circuit
DTC	B101E-13	L-DRL Control Circuit
DTC	B101F-11	R-DRL Control Circuit
DTC	B101F-13	R-DRL Control Circuit

Circuit Diagram



Description

DTC	DTC Definition	DTC Detection Condition	Possible Cause
B101E-11	L-DRL Control Circuit	ENGINE START STOP switch is in ON and engine is running.	• Damaged Wire harness or connector • Damaged daytime running light • BCM
B101E-13	L-DRL Control Circuit		
B101F-11	R-DRL Control Circuit		
B101F-13	R-DRL Control Circuit		

DTC Confirmation Procedure

Confirm that battery voltage is no less than 12 V before performing following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software) to data link connector.
- Turn ENGINE START STOP switch to ON.
- Use the diagnostic tester to record and clear DTCs stored in lighting system.
- Turn ENGINE START STOP switch to OFF and wait for several seconds.
- Turn ENGINE START STOP switch to ON, select "Read DTC".
- If DTC is detected, malfunction indicated by DTC is current. Go to diagnosis procedure - Step 1.
- If DTC is not detected, malfunction indicated by DTC is intermittent.

Warning/Caution/Hint

Caution:

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

Diagnosis Procedure

1	Check for output voltage of daytime running light

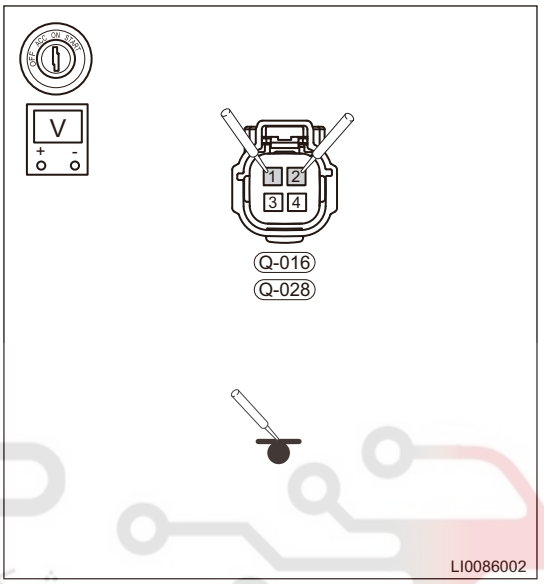
(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the daytime running light connectors Q-016, Q-028.
(d) Disconnect the negative battery cable.
(e) Turn ENGINE START STOP switch to ON.
(f) Using a digital multimeter, measure daytime running light connectors Q-016, Q-028 and check output voltage and ground of daytime running light according to table below.

Standard Condition

Multimeter Connection	Condition	Specified Condition
Q-016 (1) - Q-016 (2)	Always	Not less than 12 V
Q-028 (1) - Q-028 (2)	Always	Not less than 12 V

Result

Proceed to
OK
NG



OK → Replace the daytime running light

NG

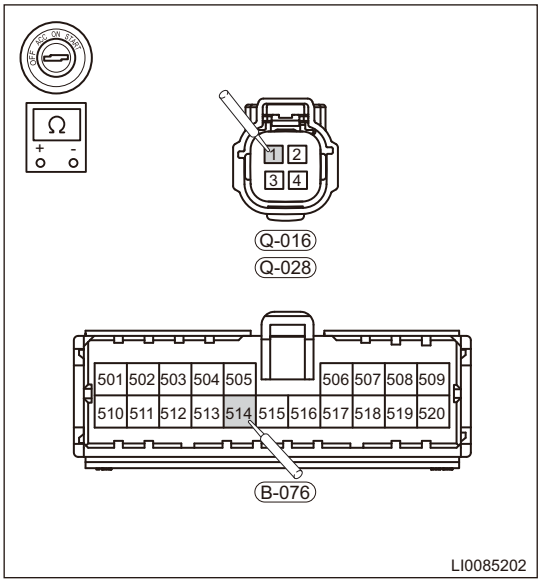
2	Check the daytime running light wire harness

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the body control module B-076.
(d) Disconnect the daytime running light connectors Q-016, Q-028.

(e) Using a digital multimeter, measure if resistance between connectors B-076 (5-14), B-076 (5-15) and daytime running light connectors Q-028 (1), Q-016 (1) are normal according to table below.

Standard Condition

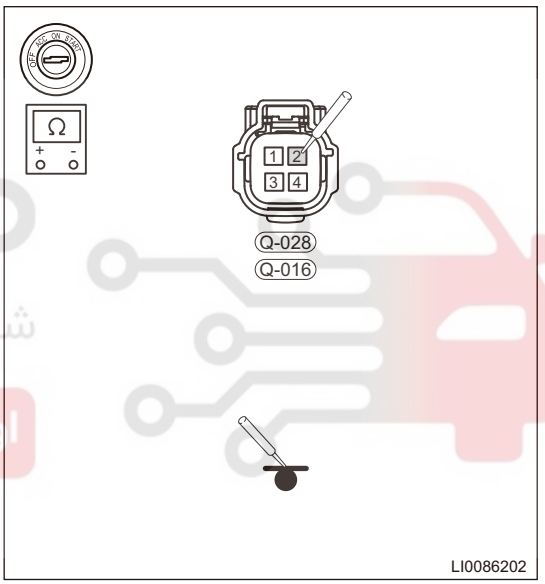
Multimeter Connection	Condition	Specified Condition
B-076 (5-14) - Q-016 (1)	Always	≤ 1 Ω
B-076 (5-15) - Q-028 (1)	Always	≤ 1 Ω



(f) Using a digital multimeter, measure if daytime running light connectors Q-016 (2), Q-028 (2) and body ground are conductive according to table below.

Standard Condition

Multimeter Connection	Condition	Specified Condition
Q-016 (2) - Body ground	Always	≤ 1 Ω
Q-028 (2) - Body ground	Always	≤ 1 Ω



Result

Proceed to
OK
NG

NG → **Repair or replace faulty wire harness**

OK

3	Reconfirm DTCs

(a) Connect all connectors.
(b) Connect the negative battery cable.
(c) Turn ENGINE START STOP switch to ON.
(d) Check if same DTCs or same problem symptoms are output.

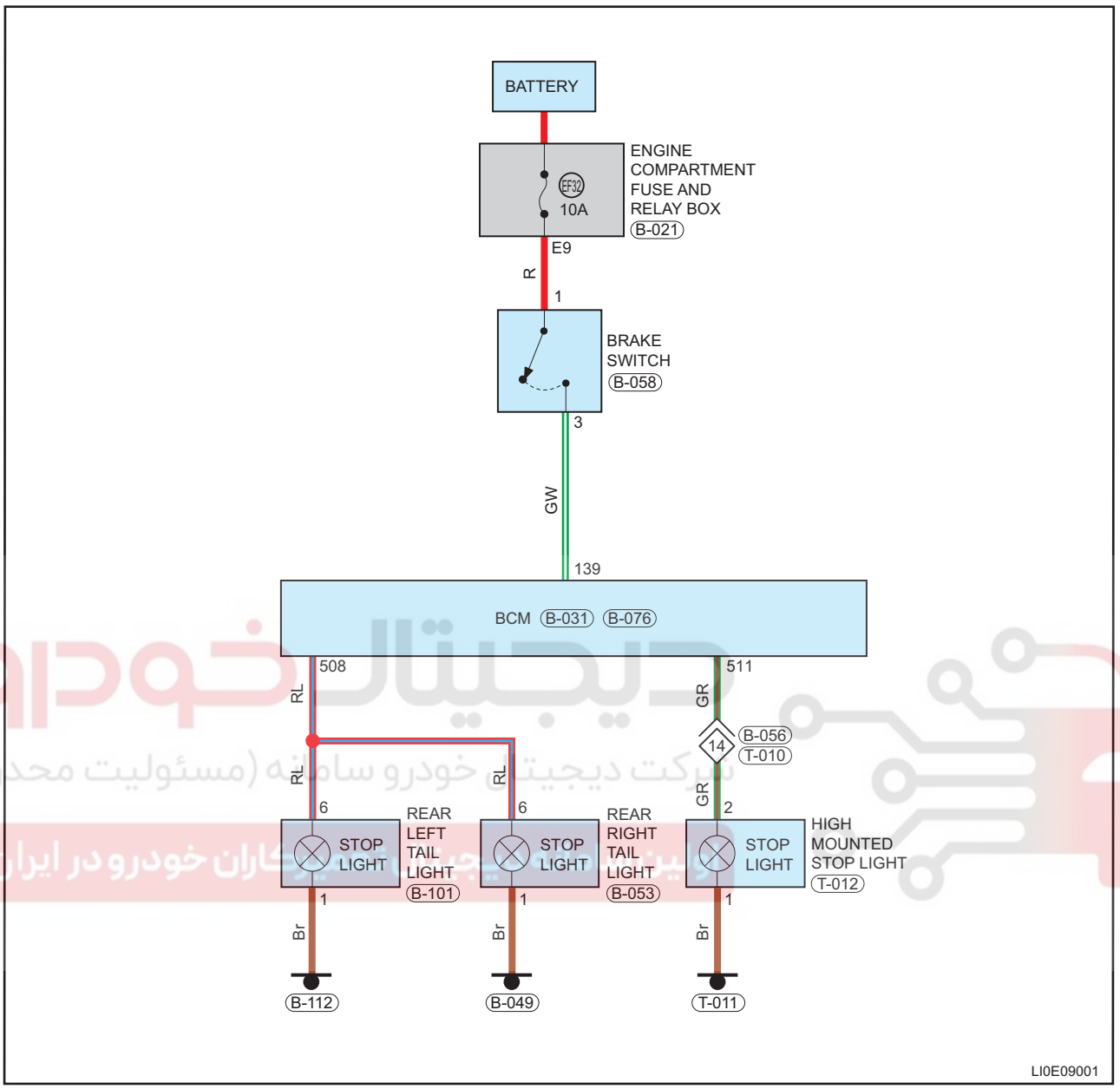
Result

Proceed to
OK
NG

OK	System operates normally
NG	Replace body control module assembly

DTC	B1036-11	H-Brake Light Control Circuit
DTC	B1036-13	H-Brake Light Control Circuit
DTC	B1035-11	Brake Light Control Circuit
DTC	B1035-13	Brake Light Control Circuit
DTC	B1037-11	Left Brake Light Control Circuit
DTC	B1037-13	Left Brake Light Control Circuit
DTC	B1038-11	Right Brake Light Control Circuit
DTC	B1038-13	Right Brake Light Control Circuit

Circuit Diagram



Description

DTC	DTC Definition	DTC Detection Condition	Possible Cause
B1036-11	H-Brake Light Control Circuit	ENGINE START STOP switch is in ON and engine is running.	• Damaged Wire harness or connector • Damaged brake light • Damaged brake light switch • BCM • Fuse
B1036-13	H-Brake Light Control Circuit		
B1035-11	Brake Light Control Circuit		
B1035-13	Brake Light Control Circuit		
B1037-11	Left Brake Light Control Circuit		
B1037-13	Left Brake Light Control Circuit		
B1038-11	Right Brake Light Control Circuit		
B1038-13	Right Brake Light Control Circuit		

DTC Confirmation Procedure

Confirm that battery voltage is no less than 12 V before performing following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software) to data link connector.
- Turn ENGINE START STOP switch to ON.
- Use the diagnostic tester to record and clear DTCs stored in lighting system.
- Turn ENGINE START STOP switch to OFF and wait for several seconds.
- Turn ENGINE START STOP switch to ON, select "Read DTC".
- If DTC is detected, malfunction indicated by DTC is current. Go to diagnosis procedure - Step 1.
- If DTC is not detected, malfunction indicated by DTC is intermittent.

Warning/Caution/Hint

Caution:

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

Diagnosis Procedure

1	Check fuse

(a) Turn ENGINE START STOP switch to OFF
(b) Disconnect the negative battery cable.
(c) Remove the fuse EF32 (10 A) from engine compartment fuse box.
(d) Check if fuse is blown.

Result

Proceed to
OK
NG

NG → **Replace fuse**

OK →

2	Check brake light bulb

(a) Turn off all electrical equipment and the ENGINE START STOP switch.
(b) Disconnect the negative battery cable.
(c) Remove the brake light bulb, and check if bulb filament is blown.

Result

Proceed to
OK
NG

NG → **Replace brake light bulb**

OK

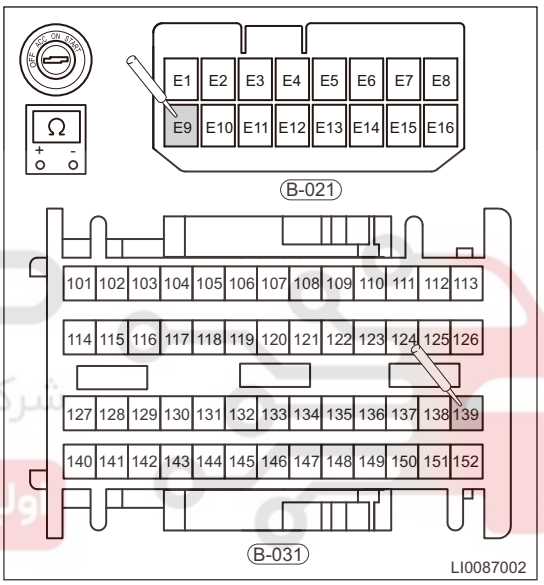
30

3	Check brake switch

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the body control module connectors B-031, B-021.
(d) Using a digital multimeter, measure if resistance between connectors B-031 (1-39) - B-021 (E9) is normal when depressing brake pedal according to table below.

Standard Condition

Multimeter Connection	Condition	Specified Condition
B-031 (1-39) - B-021 (E9)	Always	≤ 1 Ω



Result

Proceed to
OK
NG

NG → **Replace brake switch**

OK

4	Using the diagnostic tester to perform Active Test

(a) Turn ENGINE START STOP switch to ON.
(b) Connect the diagnostic tester, perform active test for brake light.

Result

Proceed to
OK
NG

NG → **Check actuator circuit wire harness**

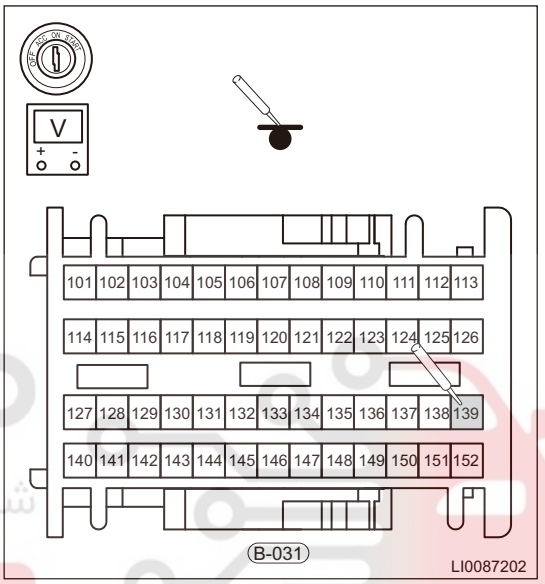
OK

5 Check brake light control circuit

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the body control module connector B-031.
(d) Connect the negative battery cable.
(e) Turn ENGINE START STOP switch to ON, depress brake pedal.
(f) Using a digital multimeter, measure the voltage between body control module connector B-031 (1-39) and body ground according to table below.

Standard Condition

Multimeter Connection	Condition	Specified Condition
B-031 (1-39) - Body ground	Always	Not less than 12 V



Result

Proceed to
OK
NG

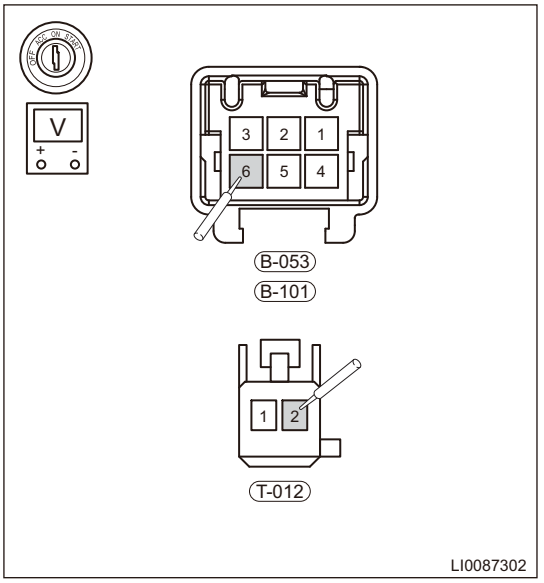
NG → **Repair or replace faulty wire harness**

OK

6 Check brake light output circuit

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the brake light connectors T-012, B-101, B-053.
(d) Connect the negative battery cable.
(e) Turn ENGINE START STOP switch to ON, depress brake pedal.

(f) Using a digital multimeter, measure the voltage between brake light connectors T-012 (2), B-101 (6), B-053 (6) and body ground according to table below.



Standard Condition

Multimeter Connection	Condition	Specified Condition
T-012 (2) - Body ground	Always	Not less than 12 V
B-101 (6) - Body ground	Always	Not less than 12 V
B-053 (6) - Body ground	Always	Not less than 12 V

30

Result

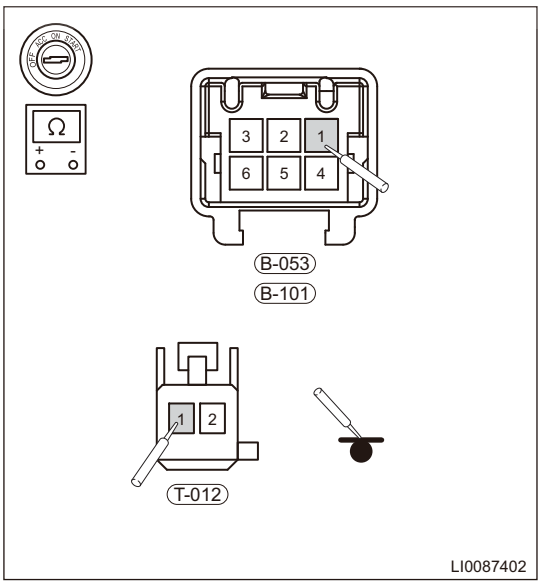
Proceed to
OK
NG

NG → **Repair or replace faulty wire harness**

OK

7	Check if output line ground is conductive

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the brake light connectors T-012, B-101, B-053.
(d) Using a digital multimeter, measure if brake light connectors T-012 (1), B-101 (1), B-053 (1) and body ground are conductive according to table below.



Standard Condition

Multimeter Connection	Condition	Specified Condition
T-012 (1) - Body ground	Always	≤ 1 Ω
B-101 (1) - Body ground	Always	≤ 1 Ω
B-053 (1) - Body ground	Always	≤ 1 Ω

Result

Proceed to
OK

Proceed to
NG

NG → Repair or replace faulty wire harness

OK

8	Reconfirm DTCs

(a) Connect all connectors.
(b) Connect the negative battery cable.
(c) Turn ENGINE START STOP switch to ON.
(d) Check if same DTCs or same problem symptoms are output.

Result

Proceed to
OK
NG

OK → System operates normally

NG → Replace body control module assembly

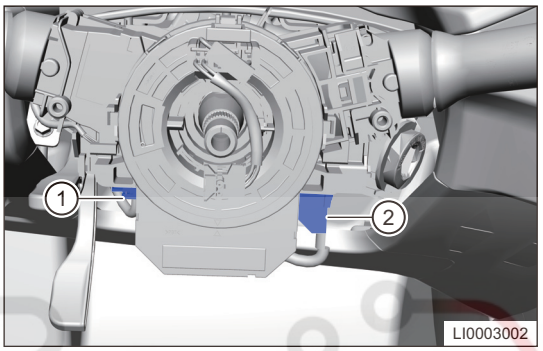
ON-VEHICLE SERVICE

Combination Light Switch Assembly

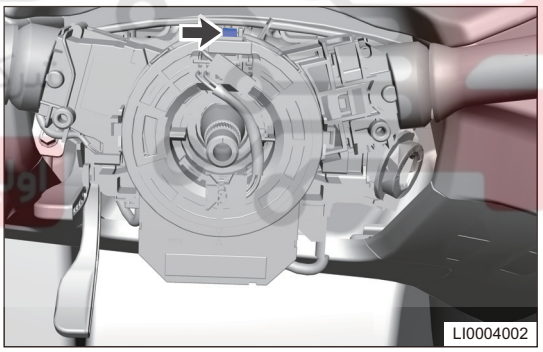
Removal

1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the driver airbag (See page 26-53).
4. Remove the steering wheel (See page 24-20).
5. Remove the combination switch cover (See page 30-62).
6. Remove the spiral cable assembly.
7. Remove the combination switch assembly.

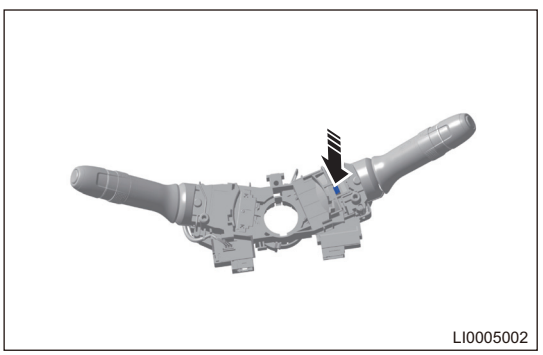
(a) Disconnect the combination light switch connector (1) and wiper switch connector (2).



(b) Loosen the combination switch fixing clamp (arrow), pull combination switch outward, then disconnect the combination switch from steering column to remove the combination switch.



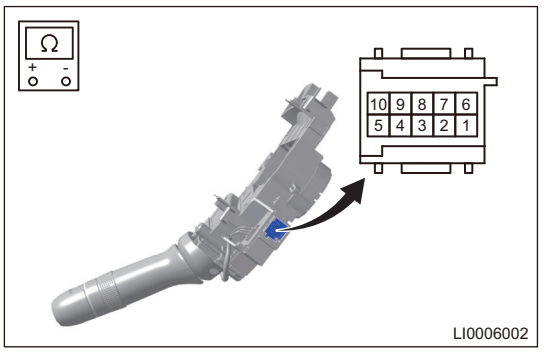
(c) Loosen wiper switch fixing clip (arrow) and remove the combination light switch.



Inspection

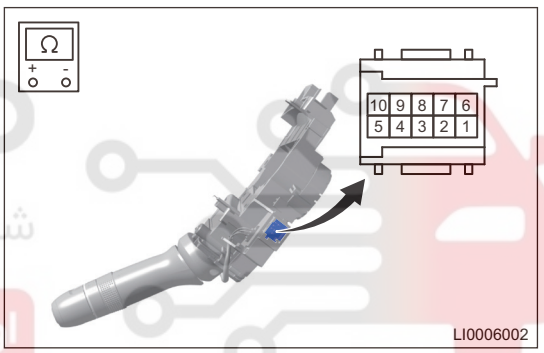
1. Check combination light switch.

(a) Using the ohm band of digital multimeter, measure the resistance between terminals as shown in the table. Combination light switch assembly (position light / low beam light / high beam light switch)



Multimeter Connection	Condition	Specified Condition
Terminal 8 - Terminal 2	Switch in OFF position	∞
Terminal 8 - Terminal 2	Switch in position light position	3000 Ω
Terminal 8 - Terminal 2	Switch in low beam position	1000 Ω
Terminal 9 - Terminal 2	Switch in high beam position	1000 Ω
Terminal 9 - Terminal 2	Switch in overtaking light position	3000 Ω

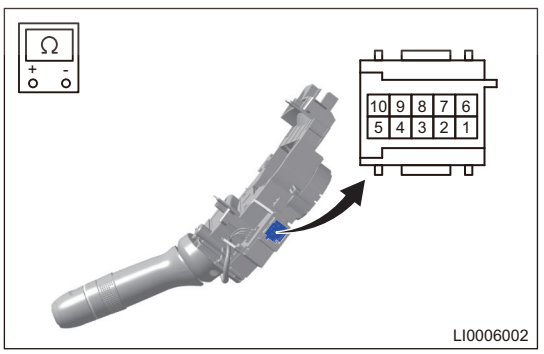
(b) Using the ohm band of digital multimeter, check for continuity between terminals as shown in the table. Combination light switch assembly (rear fog light switch)



Multimeter Connection	Condition	Specified Condition
Terminal 3 - Terminal 2	Switch in rear fog light position	≤ 1 Ω
Terminal 3 - Terminal 2	Switch in OFF position	∞

If result is not as specified, replace combination light switch assembly.

(c) Using the ohm band of digital multimeter, measure the resistance between terminals as shown in the table. Combination light switch assembly (turn signal light switch)



Multimeter Connection	Condition	Specified Condition
Terminal 10 - Terminal 2	Switch in left turn position	1000 Ω
Terminal 10 - Terminal 2	Switch in right turn position	3000 Ω

If result is not as specified, replace combination light switch assembly.

Installation

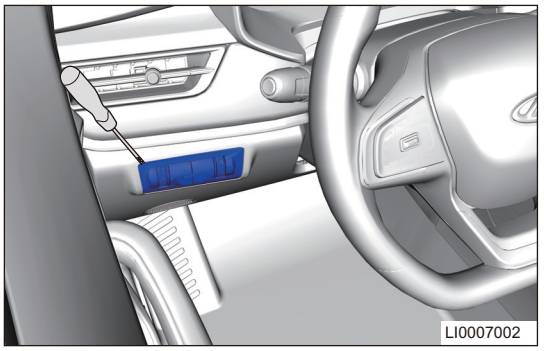
1. Installation is in the reverse order of removal.

   Caution:
   - Always install spiral cable correctly according to specified operating instructions.
   - Check that horn operates normally after installation.
   - Check SRS warning light after installation, and make sure that supplemental restraint system operates normally.

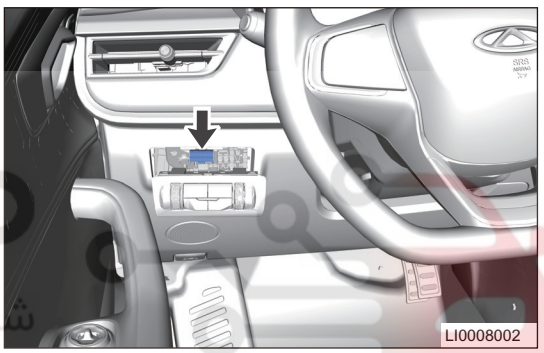
Adjustment Switch Assembly

Removal

1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the adjustment switch assembly.
   (a) Using a screwdriver wrapped with protective tape, pry up adjustment switch assembly.



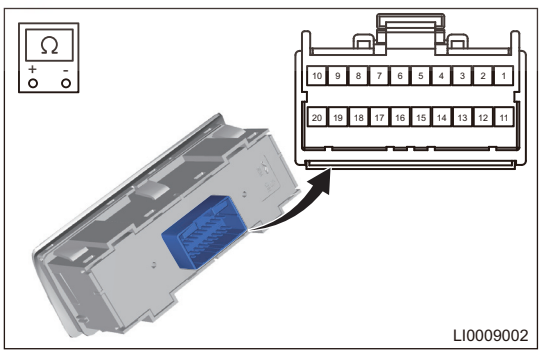
   (b) Disconnect adjustment switch wire harness connector (arrow), and remove adjustment switch assembly.



Inspection

1. Check headlight leveling switch.
   (a) Check the resistance of headlight leveling switch.
   Standard Condition

Multimeter Connection	Condition	Specified Condition
Terminal 2 - Terminal 13	Headlight leveling switch (0 to 3 levels) turned	Resistance value increases gradually
Terminal 13 - Terminal 12		Resistance value decreases gradually
Terminal 2 - Terminal 12		Resistance value does not change



Installation

1. Installation is in the reverse order of removal.

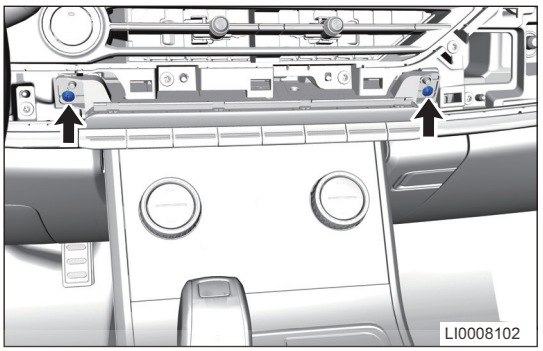
Warning Light Switch

Removal

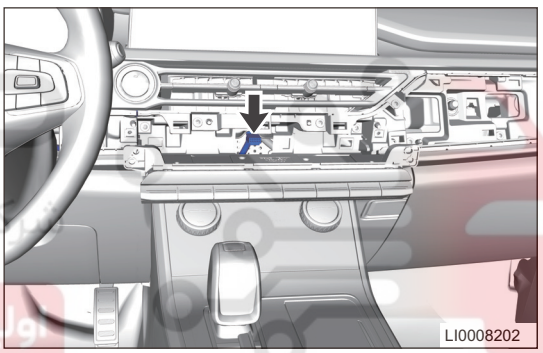
Hint:

Warning light switch is installed on center console switch assembly, which cannot be disassembled.

1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the center control trim panel assembly.
4. Remove the warning light switch.
   (a) Remove 2 fixing screws (arrow) from center console assembly.



   (b) Disconnect the center console switch assembly connector (arrow).

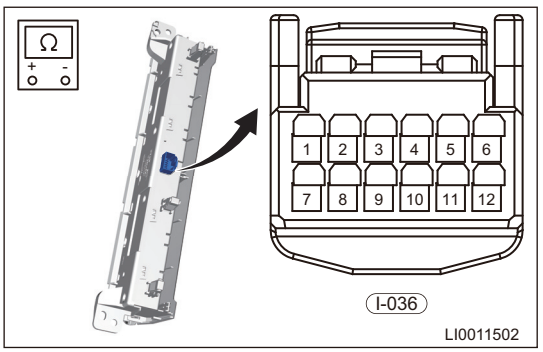


   (c) Remove the center console switch assembly.

Inspection

1. Check the warning light switch.
   (a) Using the ohm band of digital multimeter, check for continuity between terminals of warning light switch as shown in the table.

Multimeter Connection	Condition	Specified Condition
Terminal 3 - Terminal 7	Switch pressed	≤ 1 Ω
Terminal 3 - Terminal 7	Switch released	∞



Installation

1. Installation is in the reverse order of removal.

Headlight Assembly

Removal

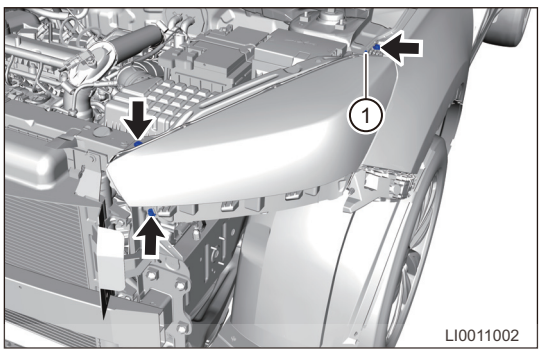
Hint:

Use same procedures for right and left sides. Removal procedures listed below are for left side.

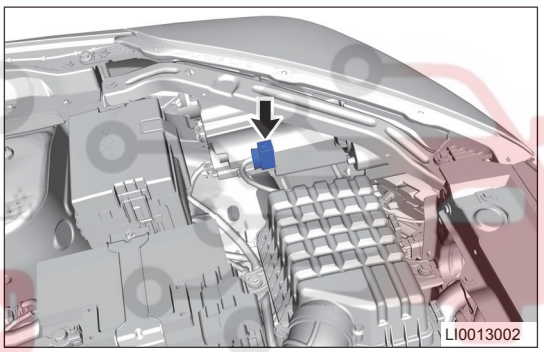
1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the front bumper (See page 45-11).
4. Remove the headlight assembly.
   (a) Remove 3 fixing bolts from upper part of headlight assembly, then remove the headlight position clip (1) with a cross screwdriver.

   Tightening torque

   5.0 ± 0.5 N·m



   (b) Disconnect the headlight assembly wire harness connector (1), and remove headlight assembly.



Installation

1. Installation is in the reverse order of removal.

   Caution:

   - When installing headlight assembly, make sure headlight assembly is well fitted with hood, front wing and front bumper. Adjust it as necessary.

Adjustment

1. Preparations:
   (a) Tire inflation pressure comes up to standard.
   (b) Vehicle is unloaded (besides spare tire and tool kit, it is generally specified to include the weight of driver).
   (c) Park vehicle on a level ground or workplace.
   (d) Keep lens surface of headlight free from dirt.
   (e) Check if power supply operates normally and bulbs are installed correctly.
   Headlight beam can be adjusted up and down by using headlight leveling switch or adjustment area at the rear of headlight. Always perform adjustment according to the international standard.

No.	Item	Standard
1	Low beam left and right values	Left ≤ 60 mm. Right ≤ 90 mm
2	Low beam up and down values	760 mm to 796 mm
3	High beam light intensity detection	Light intensity is higher than 15000 cd

If result is not as specified, replace the warning light switch.

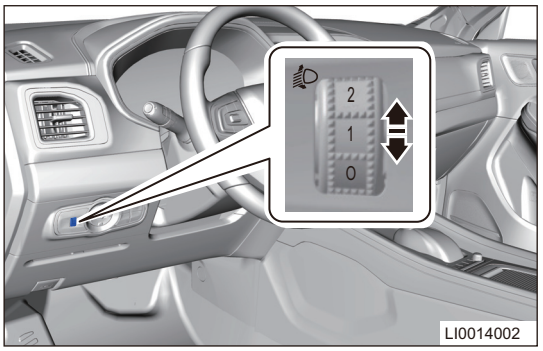
(f) Headlight leveling can be adjusted according to the number of passengers and loading condition. There are 4 adjustment bands to select on headlight leveling knob: 0, 1, 2 and 3.

(1) Turn up: Raise headlight beam.

(2) Turn down: Lower headlight beam.

(3) Adjust the light according to the table below.

Occupant and Luggage Loading Condition		Knob Position
Occupant	Luggage Load	
Driver	None	0
Driver + Front Passenger	None	1
Full Occupied	None	2
Full Occupied	Full-loaded Luggage	3
Driver	Full-loaded Luggage	2



Warning:

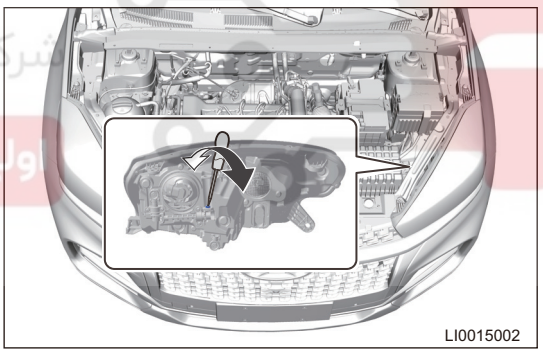
- Whether headlight leveling is correct or not will directly affects driving safety. Be sure to adjust the beam with special tool according to related specification.

2. Manual headlight leveling: the headlight leveling can be changed by adjusting the following areas manually as shown in the illustration. Adjustment method for left headlight.

(a) Low beam left/right adjustment

(1) When rotating inner hexagon clockwise: beam moves upward;

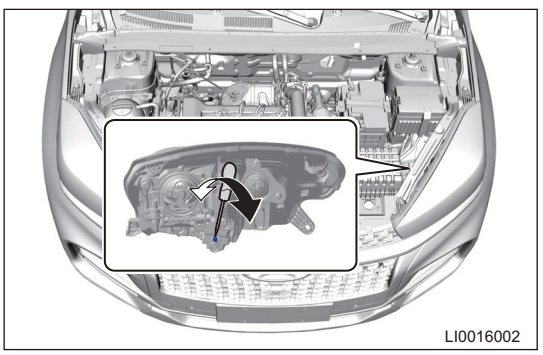
(2) When rotating inner hexagon counterclockwise: beam moves downward.



(b) Low beam up/down adjustment

(1) When rotating inner hexagon clockwise: beam moves right;

(2) When rotating inner hexagon counterclockwise: beam moves left.



Rear Combination Light Assembly (Fixed Part)

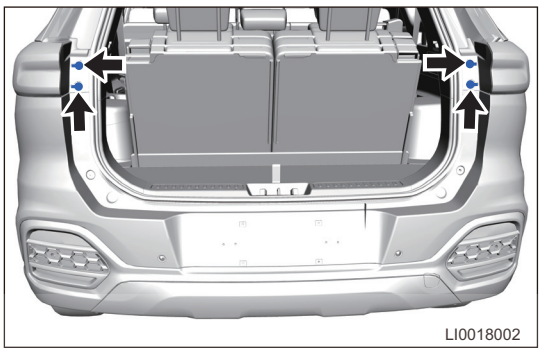
Removal

Hint:

- Use same procedures for rear right combination light assembly (fixed part) and rear left combination light assembly (fixed part).
- Procedures listed below are for rear left combination light assembly (fixed part).

1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the rear combination light assembly (fixed part).

(a) Using a screwdriver wrapped with protective tape, pry off rear left combination light plug (arrow).



(b) Remove 2 fixing screws from rear left combination light assembly, disconnect rear left combination light connector.

Tightening torque

3.5 ± 0.5 N·m

(c) Remove the rear left combination light assembly (fixed part).

Installation

Caution:

- When installing rear combination light assembly (fixed part), make sure rear combination light assembly is well fitted with luggage compartment and rear bumper. Adjust it as necessary.

1. Installation is in the reverse order of removal.

Rear Combination Light Assembly (Movable Part)

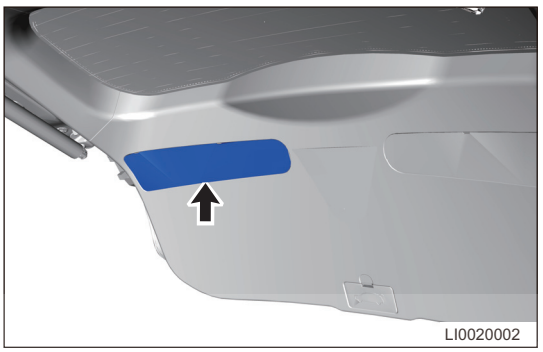
Removal

Hint:

- Use same procedures for rear right combination light assembly (fixed part) and rear left combination light assembly (fixed part).
- Procedures listed below are for rear left combination light assembly (fixed part).

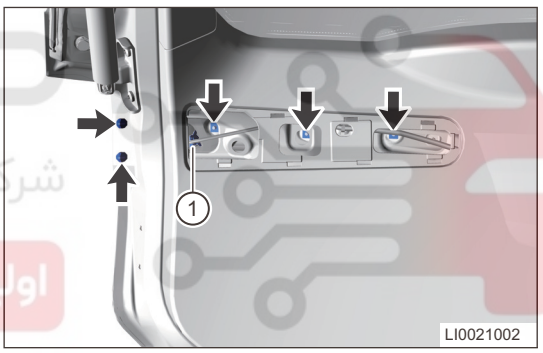
1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the rear combination light assembly (movable part).

(a) Using a screwdriver wrapped with protective tape, pry off the plug (arrow) from back door.



(b) Remove 3 fixing nuts (arrow) from rear left combination light assembly (movable part), and disconnect rear combination light assembly (movable part) wire harness connector (1).

Tightening torque
3.5 ± 0.5 N·m



(c) Remove rear left combination light assembly (movable part).

Installation

Caution:

- When installing rear combination light assembly (movable part), make sure rear combination light assembly is well fitted with luggage compartment and rear bumper. Adjust it as necessary.

1. Installation is in the reverse order of removal.

Daytime Running Light Assembly

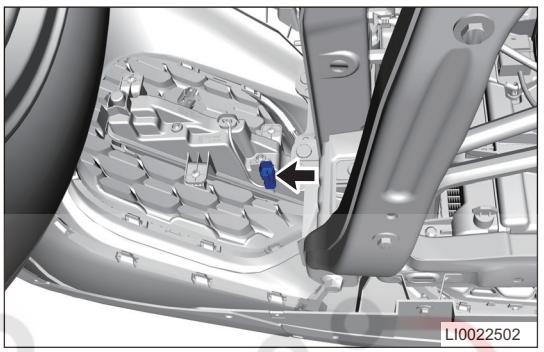
Removal

Hint:

- Use same removal procedures for right daytime running light assembly and left daytime running light assembly.
- Removal procedures listed below are for left daytime running light assembly.

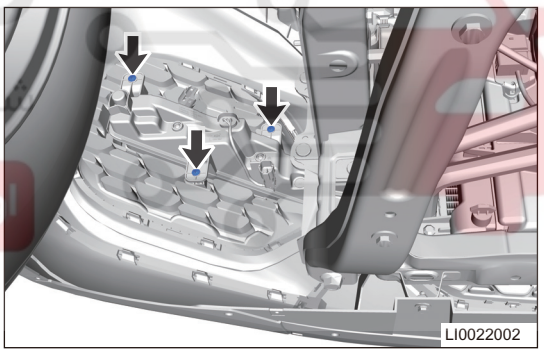
1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Raise vehicle on a lift.
4. Remove the engine lower protector assembly (See page 45-23).
5. Remove the left daytime running light assembly.

(a) Disconnect the left daytime running light connector (arrow).



(b) Remove 3 fixing screws (arrow) from front left fog light assembly.

Tightening torque
1.5 ± 0.5 N·m



(c) Remove the left daytime running light assembly.

Installation

1. Installation is in the reverse order of removal.

Rear Fog Light Assembly

Removal

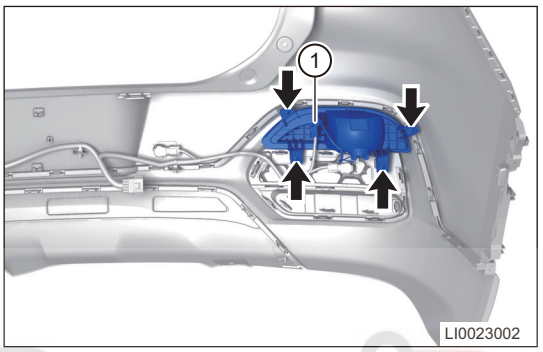
Hint:

- Use same removal procedures for rear left fog light assembly and rear right fog light assembly.
- Removal procedures listed below are for rear left fog light assembly.

1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Raise vehicle on a lift.
4. Remove the rear bumper assembly.
5. Remove the rear left fog light assembly.

(a) Disconnect rear left fog light connector (1) and remove 4 fixing screws (arrow) from rear left fog light assembly.

Tightening torque
1.5 ± 0.5 N·m



(b) Remove rear left fog light assembly.

Installation

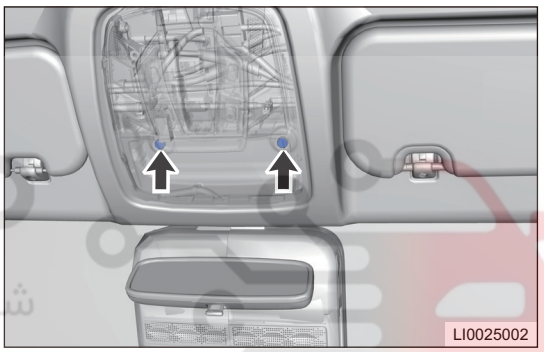
1. Installation is in the reverse order of removal.

Front Dome Light Assembly

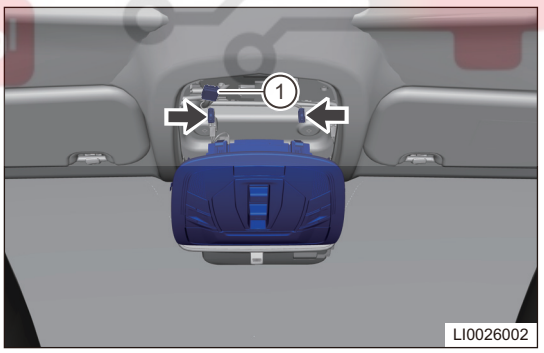
Removal

1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the front dome light assembly.
   (a) Open the glasses box on front dome light as shown in illustration.

   (b) Remove 2 fixing screws (arrow) from front dome light assembly.
   Tightening torque
   3 ± 0.5 N·m



   (c) Remove front dome light assembly, disconnect the front dome light assembly wire harness connector (1) and 2 microphone connectors (arrow).

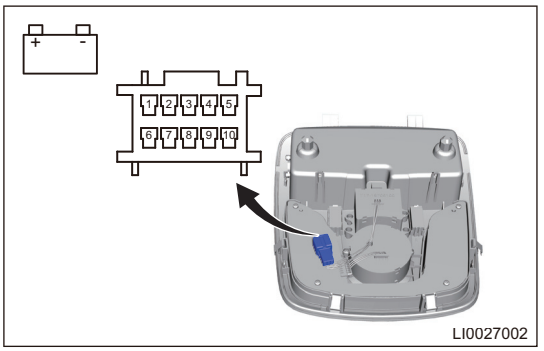


Inspection

1. Check the front dome light assembly.

   (a) Measure the front dome light assembly as shown in the table.

Multimeter Connection	Condition	Specified Condition
Battery positive (+) → Terminal 4 Battery negative (-) → Terminal 10	Dome light switch in DOOR position	Dome light comes on
Battery positive (+) → Terminal 4 Battery negative (-) → Terminal 10	Dome light switch in ON position	Dome light comes on



If result is not as specified, replace front dome light assembly.

Installation

1. Installation is in the reverse order of removal.

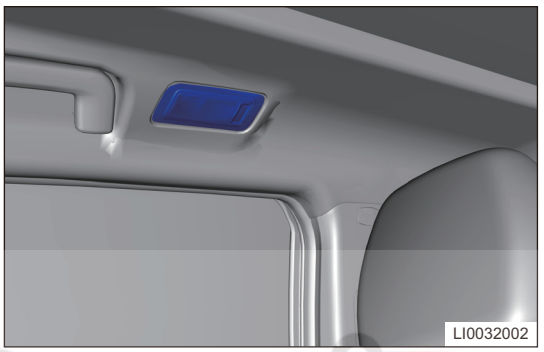
Second Row Dome Light

Removal

Hint:

Use same removal procedures for left second row dome light and right second row dome light. Removal procedures listed below are for left second row dome light.

1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the second row dome light.
   (a) Push the light to the direction of switch with force, so as to disengage clips on one side and remove rear dome light.
   (b) Disconnect second row dome light connector and remove second row dome light.



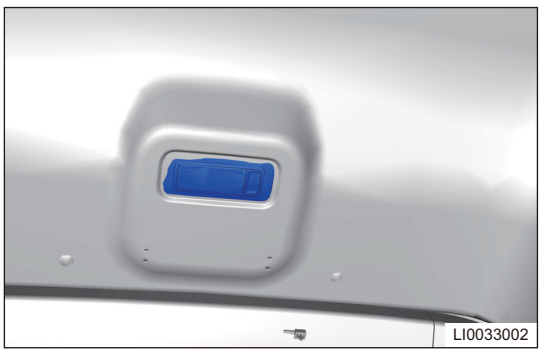
Installation

1. Installation is in the reverse order of removal.

Third Row Dome Light

Removal

1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the third row dome light.
   (a) Separate the light from the side near front of vehicle with force and disengage clips on the other side to remove rear dome light.
   (b) Disconnect third row dome light connector and remove third row dome light.



Installation

1. Installation is in the reverse order of removal.

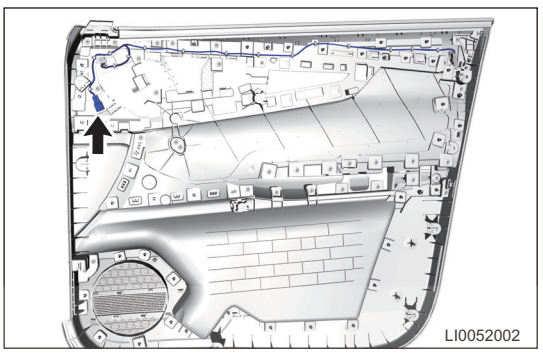
Front Door Atmosphere Light

Removal

Hint:

- Use same removal procedures for front left door atmosphere light and front right door atmosphere light. Removal procedures listed below are for front left door atmosphere light.

1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the front door protector assembly.
4. Remove the front left door atmosphere light.
   (a) Disconnect 1 atmosphere light connector from front left door and disengage the clip.



   (b) Remove the front left door atmosphere light.

Installation

1. Installation is in the reverse order of removal.

Back-up Light Switch Assembly

Removal

Caution:

- Be sure to wear necessary safety equipment to prevent accidents, when removing back-up light switch.
- Check if safety lock of lift is locked when repairing or inspecting the lifted vehicle.

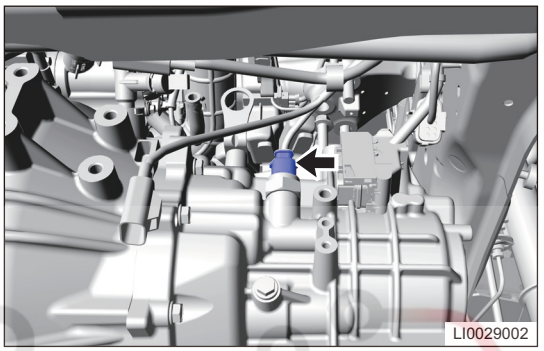
1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Raise the vehicle with a lift.
4. Remove the back-up light switch assembly.
   (a) Disconnect the back-up light switch assembly wire harness connector (arrow).
   (b) Remove the back-up light switch assembly.

Tightening torque
44 ± 8.8 N·m

Hint:
Transmission oil may flow out when removing back-up light switch assembly. Use a container to collect the oil.

Warning:

- Drained transmission oil should be collected with a recovering tool.

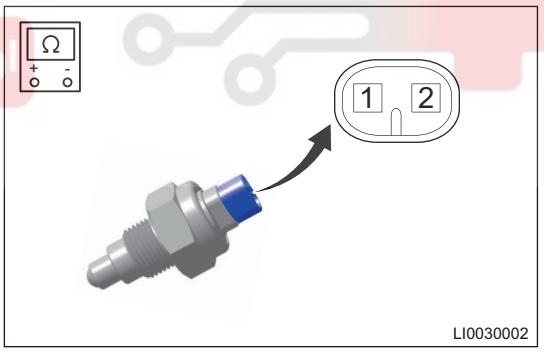


Inspection

1. Check back-up light switch assembly.
   (a) Using ohm band of digital multimeter, check for continuity between terminals of back-up light switch assembly as shown in the table.

Multimeter Connection	Condition	Specified Condition
Terminal 1 - Terminal 2	Switch pressed	≤ 1 Ω
Terminal 1 - Terminal 2	Switch released	∞

If result is not as specified, replace back-up light switch assembly.



Installation

1. Apply thread locker to threads of back-up light switch assembly, and clean transmission oil on the area between transmission and back-up light switch assembly, before installing the back-up light switch assembly. Then install the back-up light switch assembly securely.

License Plate Light Assembly

Removal

Hint:

Use same procedures for right and left sides. Procedures listed below are for left side.

1. Open the back door.
2. Turn off all electrical equipment and the ENGINE START STOP switch.
3. Disconnect the negative battery cable.
4. Remove the license plate light assembly.

(a) Using a screwdriver wrapped with protective tape, pry off left license plate light. Disconnect left license plate light connector, remove left license plate light assembly.

(b) Remove the left license plate light assembly.

Installation

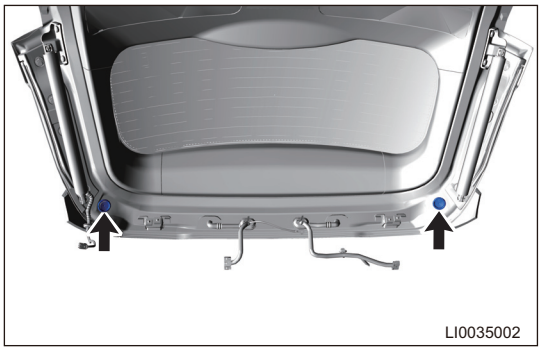
1. Installation is in the reverse order of removal.

High Mounted Stop Light Assembly

Removal

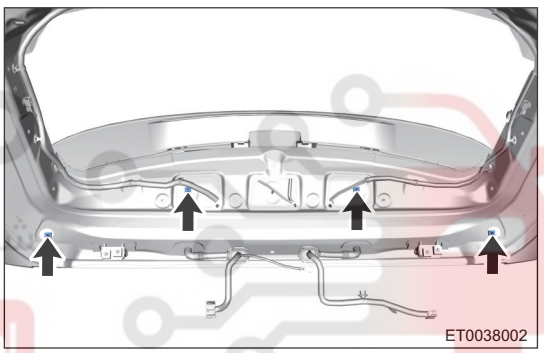
1. Open the back door.
2. Turn off all electrical equipment and the ENGINE START STOP switch.
3. Disconnect the negative battery cable.
4. Remove back door upper protector assembly.
5. Remove the high mounted stop light assembly.

(a) Remove 2 rubber plugs (arrow) from back door.

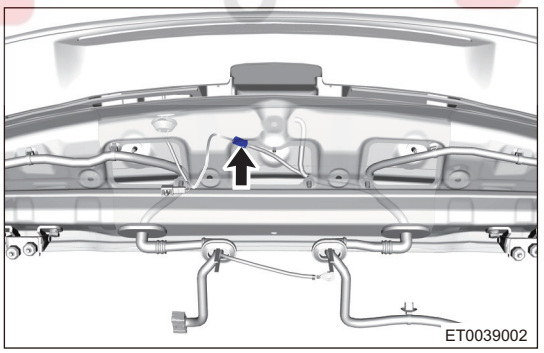


(b) Remove 4 spoiler fixing nuts (arrow) from back door.

Tightening torque
2 ± 0.5 N·m

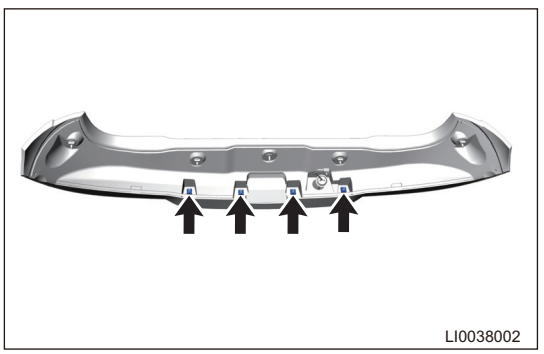


(c) Disconnect the high mounted stop light connector (arrow).



(d) Remove rear spoiler plate from back door.

(e) Remove 4 high mounted stop light fixing screws (arrow) from rear spoiler plate, and remove high mounted stop light.



Installation

1. Installation is in the reverse order of removal.

Low/High Beam Light Bulb

Removal

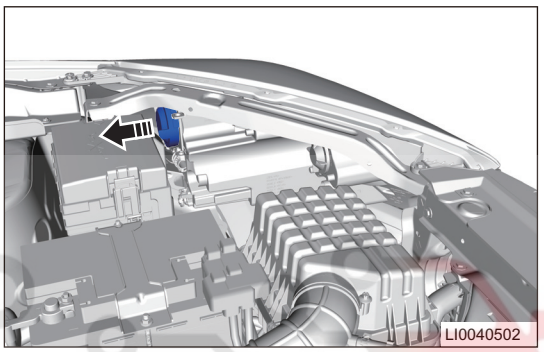
Warning/Caution/Hint

- Operation steps of right front low/high beam light bulb is same as front left low/high beam light bulb.
- The following are removal steps for front left low/high beam light bulb.

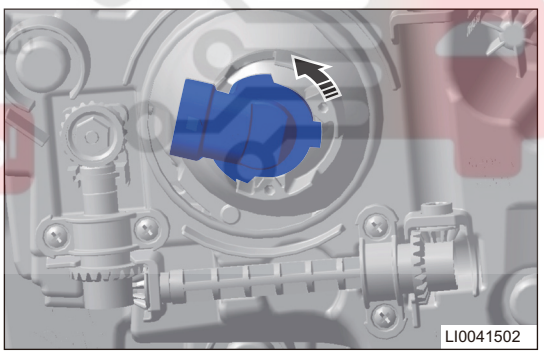
Caution:

- Please use bulb recommended by Chery.
- Do not touch new bulb directly with hands when replacing bulb. Otherwise, the bulb will be dirty, causing bulb life will be shortened.
- After replacing bulb, be sure the light dust boot is installed in place to prevent water leakage.

1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the low/high beam light bulb
   (a) Remove the low/high beam light dust boot (arrow).



   (b) Turn bulb holder counterclockwise.



   (c) After removing bulb, install it in place in reverse order.
   Caution:
   - Check that low/high beam light bulb operates normally after installation.

Installation

1. Installation is in the reverse order of removal, make sure bulb is in place.
   Caution:
   - Check that low/high beam light bulb operates normally after installation.

Front Turn Signal Light Bulb

Removal

Warning/Caution/Hint

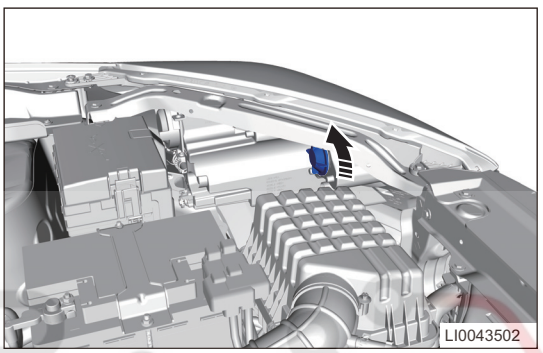
- Operation steps of front right turn signal light bulb is same as front left turn signal light bulb.
- Removal procedures listed below are for front left turn signal light bulb.

Caution:

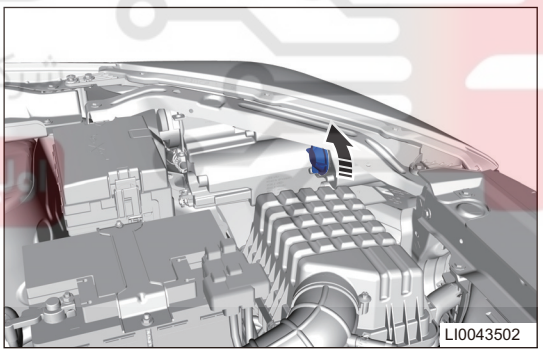
- Please use bulb recommended by Chery.
- Do not touch new bulb directly with hands when replacing bulb. Otherwise, the bulb will be dirty, causing bulb life will be shortened.

1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the right turn signal light bulb

   (a) Turn the light socket counterclockwise.



   (b) Remove the front turn signal light bulb (arrow)



   (c) After removing bulb, install it in place in reverse order.

   Caution:

   - Check that low/high beam light bulb operates normally after installation.

Installation

1. Installation is in the reverse order of removal, make sure bulb is in place.

   Caution:

   - Check that front turn signal light operates normally after installation.

Side Turn Signal Light

Removal

Warning/Caution/Hint

- Operation step of right side turn signal light is same as left side turn signal light.
- Side turn signal light is integrated into outside rear view mirror. Removal and installation for left side turn signal light, refer to rear view mirror in the section.

Front Door Atmosphere Light

Removal

1. Front door atmosphere light refers to removal and installation for front door atmosphere light in the section.

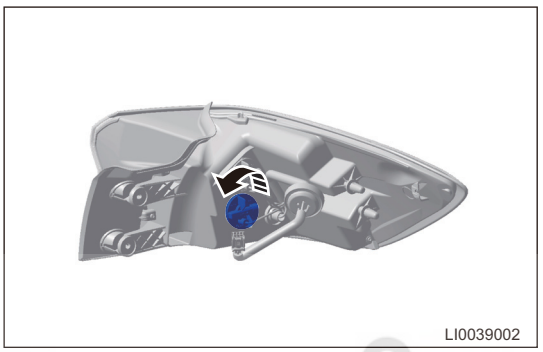
Rear Combination Light (Fixed Part) Brake Light

Removal

Warning/Caution/Hint

- Operation steps of rear right combination light (fixed part) brake light/position light bulb are same as rear left combination light (fixed part) brake light/position light bulb.
- Operation steps listed below are for rear left combination light (fixed part) brake light/position light.

1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the rear combination light (fixed part) brake light
   (a) Remove the rear left combination light fixed part.
   (b) Turn brake light counterclockwise and remove brake light socket.


LI0039002

   (c) Lightly press and rotate bulb to remove bulb.

   Caution:
   - Do not touch glass part of bulb directly with your hands. Hold only plastic or metal part of bulb. If bulb is scratched or dropped, it may crack or break.


LI0040002

Installation

1. Installation is in the reverse order of removal, make sure bulb is in place.
   Caution:
   - Check that brake light/position light operates normally after installation.

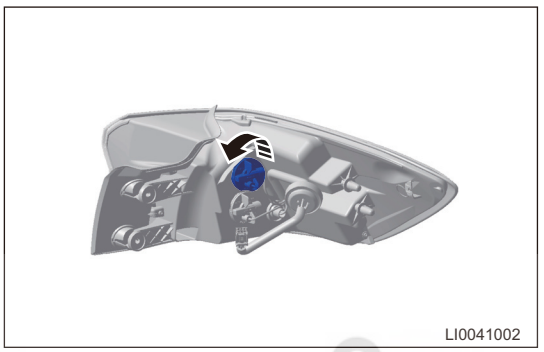
Rear Combination Light (Fixed Part) Turn Signal Light Bulb

Removal

Warning/Caution/Hint

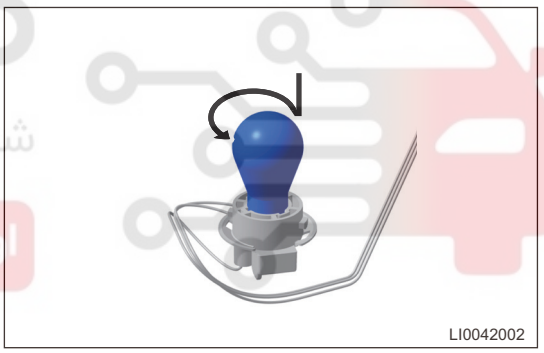
- Operation steps of rear right combination light (fixed part) turn signal light bulb are same as rear left combination light (fixed part) turn signal light bulb.
- Operation steps listed below are for rear left combination light (fixed part) turn signal light.

1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the rear combination light (fixed part) turn signal light bulb
   (a) Remove the rear left combination light fixed part.
   (b) Turn rear turn signal light socket counterclockwise and remove turn signal light socket.


LI0041002

   (c) Lightly press and rotate bulb to remove bulb.

   Caution:
   - Do not touch glass part of bulb directly with your hands. Hold only plastic or metal part of bulb. If bulb is scratched or dropped, it may crack or break.


LI0042002

Installation

1. Installation is in the reverse order of removal, make sure bulb is in place.
   Caution:
   - Check that rear left combination light and turn signal light operate normally after installation.

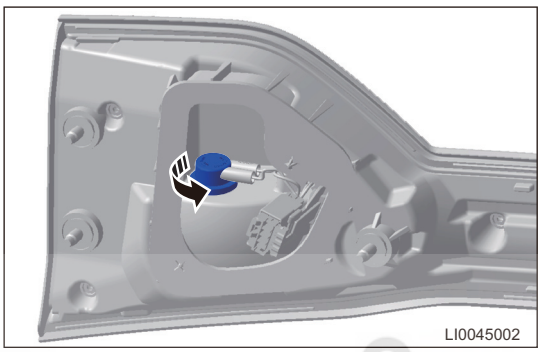
Rear Back-up Light Bulb (Movable Part)

Removal

Warning/Caution/Hint

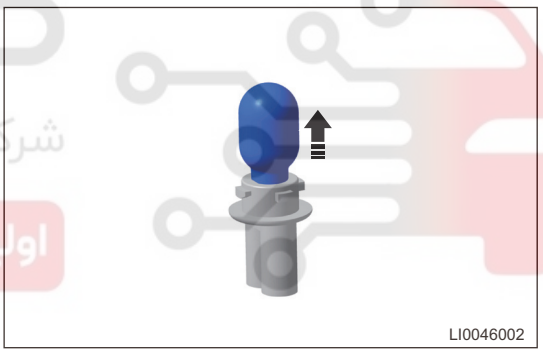
- Use same procedures for rear rear left back-up light bulb (movable part) and rear rear right back-up light bulb (movable part).
- Operation steps listed below are for rear rear left back-up light bulb (movable part).

1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the rear back-up light bulb (movable part)
   (a) Remove the rear left combination light movable part.
   (b) Turn back-up light socket counterclockwise and remove back-up light socket.


LI0045002

   (c) Lightly pull out bulb in the direction of arrow.

   Caution:
   - Do not touch glass part of bulb directly with your hands. Hold only plastic or metal part of bulb. If bulb is scratched or dropped, it may crack or break.


LI0046002

Installation

1. Installation is in the reverse order of removal, make sure bulb is in place.
   Caution:
   - Check that rear rear left back-up light bulb (movable part) operates normally after installation.

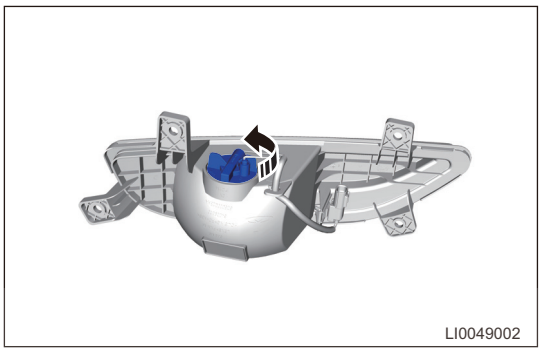
Rear Fog Light Bulb

Removal

Warning/Caution/Hint

- Operation steps of rear right fog light bulb are same as rear left fog light bulb.
- Operation steps listed below are for rear left fog light bulb.

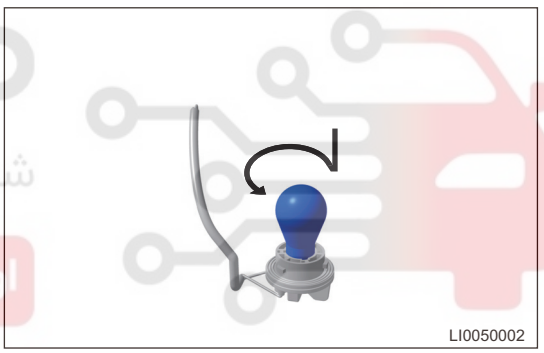
1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the rear fog light bulb.
   (a) Remove the rear fog light assembly.
   (b) Turn rear fog light socket counterclockwise and remove rear fog light socket.


LI0049002

   (c) Lightly press and rotate bulb to remove bulb.

Caution:

- Do not touch glass part of bulb directly with your hands. Hold only plastic or metal part of bulb. If bulb is scratched or dropped, it may crack or break.


LI0050002

Installation

1. Installation is in the reverse order of removal, make sure bulb is in place.

Caution:

- Check that rear rear left fog light bulb operates normally after installation.

- MEMO -