Lighting

cardiagn.com

Description and Operation

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. DESCRIPTION AND OPERATION
4.

Exterior Lighting Systems Description and Operation

Exterior Lamps

The exterior lighting system consists of the following lamps if equipped:

- Headlamps
- Front fog lamps
- Rear fog lamps
- Park, tail and license lamps
- Turn signal lamps
- Hazard warning lamps
- Repeater lamps
- Stop lamps
- Backup lamps

Low Beam Headlamps

The headlamps consist of 1â€‰single bulb which provides low and high beam. The I/Pâ€‰fuse block controls the headlamps based on the inputs explained above. When a low beam request is received, the I/Pâ€‰fuse block grounds the headlamp low beam relay control circuit illuminating the low beam headlamps. When the turn signal/multi-function switch is placed in the high beam position, the turn signal/multi-function switch grounds the headlamp high beam relay control circuit.

Flash to Pass

When the low beam headlamps are on and the turn signal/multi-function switch is momentarily placed in the flash to pass position. The turn signal/multi-function switch applies ground to the high beam relay control circuit. This energizes the high beam relay, closing the switch side contacts of the high beam relay, applying battery voltage to the high beam fuse. Battery voltage is applied from the high beam fuse through the high beam voltage supply circuit to the high beam headlamp assemblies. This causes the high beam headlamps to illuminate at full brightness momentarily or until the flash to pass switch is released.

Front Fog Lamps

The front fog lamp relay is supplied with battery voltage at all times. The front fog lamp switch energizes the front fog lamp by applying voltage to the front fog lamp control circuit. When the front fog lamp relay is energized, the relay switch contacts close and battery voltage is applied through the front fog lamp fuse to the front fog lamp supply voltage circuit which illuminates the front fog lamps.

Rear Fog Lamps

The rear fog lamp switch signal circuit is grounded through a resistor momentarily by pressing the rear fog lamp switch. The I/Pâ€‰fuse block energizes the rear fog lamp supply voltage circuit which illuminates the rear fog lamp and rear fog indicator.

Park, Tail and License Lamps

Battery voltage is supplied at all times to the coil and switch sides of the park lamp relay located in the underhood fuse block. When the headlamps are turned ON, I/P fuse block energizes the park lamp relay by applying ground to the park lamp relay control circuit. When the park lamp relay is energized, the relay switch contacts close and battery voltage is applied through the park lamp fuses to the park lamp supply voltage circuit which illuminates the park, license, and tail lamps.

When the headlamp switch is placed in the PARK LIGHT or LOW BEAM position, I/Pâ€‰fuse block energizes the park lamp relay by applying ground to the park lamp relay control circuit. When the park lamp relay is energized, the relay switch contacts close and battery voltage is applied through the park lamp fuses to the park lamp supply voltage circuit which illuminates the park, license, and tail lamps.

The park lamps, tail lamps and license plate lamps are turned ON when the headlamp switch is placed in the PARK LIGHT or LOW BEAM

carjiagh.com

position. When the headlamp switch is placed in the PARK LIGHT or LOW BEAM position, I/P fuse block energizes the park lamp relay by applying ground to the park lamp relay control circuit. When the park lamp relay is energized, the relay switch contacts close and battery voltage is applied through the park lamp fuses to the park lamp supply voltage circuit which illuminates the park, license, and tail lamps.

Turn Signal Lamps

Turn signal/multi-function switch provides a pulsating voltage to the turn signal lamps with the switch in the left or right position. The turn signal lamps may only be activated with the ignition switch in the ON or START position. When the turn signal/multifunction switch is placed in either the TURN RIGHT or TURN LEFT position, the turn signal/hazard flasher module then applies a pulsating voltage to the front and rear turn signal lamps and instrument cluster indicators through there respective voltage supply circuits.

Repeater Lamps

The repeater lamps are located in the front fender. The repeater lamps are used as additional turn signal lamps, and operate as described in the Turn Signal/Hazard Flasher Lamps description.

Hazard Flasher Lamps

The hazard flashers may be activated in any power mode. The turn signal hazard flasher module controls the vehicle turn signals and hazard warning flashers based on inputs from the turn signal/multifunction switch. When the hazard switch is activated, ground from G302 is applied through the turn signal hazard flasher module ground circuits to the turn signal hazard flasher module indicating the hazard flasher ON request. The module will then apply a pulsating battery voltage to the left and right turn signal lamp control circuits, cycling all turn signal lamps, and both instrument panel clusterâ€‰(IPC) turn signal indicators ON and OFF.

Stop Lamps

Battery voltage is supplied at all times to the stop lamp switch. When the brake pedal is pressed, battery voltage is applied through the stop lamp switch and the stop lamp control circuit illuminating the stop lamps.

Backup Lamps

When the transmission is placed in the REVERSE position, the backup lamp switchâ€‰(MT) or park/neutral positionâ€‰(PNP) switchâ€‰(AT) contacts close providing battery voltage to the backup lamps. The backup lamps are permanently grounded. With both power and ground the backup lamps illuminate. Once the driver moves the gear selector out of the REVERSE position, the switch contacts open and the backup lamps turn OFF.

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. DESCRIPTION AND OPERATION
4.

Interior Lighting Systems Description and Operation

The courtesy lamp is located on the headliner just before the front seats. The lamp switch has 3â€‰positions. If the switch is in the center position, the lamp will go ON whenever a door is opened and go OFF when it is closed. In the ON position, the lamp will stay ON until it is turned OFF. In the OFF position, the lamp will not come ON, even when a door is opened.

cardiagn.com

Diagnostic Information and Procedures

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. DIAGNOSTIC INFORMATION AND PROCEDURES
4.

DTC P0703

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

DTC Descriptors

DTCâ€‰P0703

Brake Switch Circuitâ€‰2

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Stop Lamp Switch Signal	P0572, P0703	P0572, P0703	P0573, P0703	â€”

Circuit/System Description

The stop lamp switch signal circuits are direct hardwire inputs to the engine control module (ECM), automatic transmission and shift lock controls. These modules monitor the stop lamp switch signal circuit to detect when the brake pedal has been applied. The ECM monitors both switch signal circuits to determine when the brake pedal is applied.

Conditions for Running the DTC

The ignition is ON.

Conditions for Setting the DTC

The ECM receives an invalid stop lamp switch signal.

Action Taken When the DTC Sets

The cruise control system becomes disabled.

Conditions for Clearing the DTC

The condition responsible for setting the DTC no longer exists.

Reference Information

Schematic Reference

Cruise Control Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

Cruise Control Description and Operation

Electrical Information Reference

- Circuit Testing
- Connector Repairs

cardiagn.com

- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

Ignition ON, observe the Stop Lamp Switch signal and TCC/Cruise Brake Pedal Switch parameters. The data parameters should display Released and change to Applied when the brake pedal is pressed.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the stop lamp switch.
2. Verify that a test lamp illuminates between the B+ circuit terminalâ€‰4 and ground.
3.
    - If the test lamp does not illuminate test the B+ circuit for an open/high resistance or short to ground.
4. Ignition ON, verify that a test lamp illuminates between the ignition circuit terminalâ€‰1 and ground.
5.
    - If the test lamp does not illuminate test the ignition circuit for an open/high resistance or short to ground.
6. Connect the harness connector at the stop lamp switch.
7. Ignition OFF, disconnect the harness connectors at the ECM.
8. Connect a test lamp between the appropriate brake switch signal circuit terminal and ground.
9. Ignition ON, press and release the brake pedal. Verify the test lamp turns ON and OFF when pressing and releasing the brake pedal.
10.
    - If the test lamp is always ON, test the signal circuit for a short to voltage. If the circuit tests normal, replace the stop lamp switch.
    - If the test lamp is always OFF, test the signal circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the stop lamp switch.
11. If all circuits test normal, replace the ECM.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

- Brake Pedal Position Sensor Replacement
- Control Module References for ECM replacement, programming and setup.

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. DIAGNOSTIC INFORMATION AND PROCEDURES
4.

Symptoms - Lighting

Note:

The following steps must be completed before using a symptom table.

- Perform the Diagnostic System Check - Vehicle before using a symptom table in order to verify that all of the following conditions are true:
-
    - There are no DTCs set.
    - The control modules can communicate via the serial data link.
- Review the system description and operation in order to familiarize yourself with the system functions. Refer to the following:
-
    - Exterior Lighting Systems Description and Operation
    - Interior Lighting Systems Description and Operation

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the lighting system. Refer to Checking Aftermarket Accessories.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

Intermittent

Thoroughly inspect the wiring and connectors. An incomplete inspection of the wiring and connectors may result in misdiagnosis causing part replacement with the reappearance of the malfunction. If an intermittent malfunction exists, refer to Testing for Intermittent Conditions and Poor Connections.

Symptom List

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

- Backup Lamps Malfunction
- Cargo Lamps Malfunction
- Dome Lamps Malfunction
- Front Fog Lamps Malfunction
- Rear Fog Lamps Malfunction
- Hazard Lamps Malfunction
- Headlamps Malfunction
- Headlamp Leveling Malfunction
- Interior Backlighting Malfunction
- Park, License, and/or Tail Lamps Malfunction
- Stop Lamps Malfunction
- Turn Signal Lamps and/or Indicators Malfunction

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. DIAGNOSTIC INFORMATION AND PROCEDURES
4.

Backup Lamps Malfunction (Automatic Transmission)

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Park/Neutral Position (PNP) Switch B+	1	1	1	â€”
Backup Lamps Control	1	1	1	â€”
Backup Lamp â€“ Left Ground	â€”	1	â€”	â€”
Backup Lamp â€“ Right Ground	â€”	1	â€”	â€”
1. Backup Lamps Malfunction				

Circuit/System Description

Battery voltage is applied from the F19DAâ€‰fuse located in the I/Pâ€‰fuse block to the park/neutral position (PNP) switch when the ignition switch is in the RUN or CRANK positions. When the transmission is placed in the REVERSE position, the park/neutral position (PNP) switch contacts close providing battery voltage to the backup lamps. The backup lamps are permanently grounded at G401 for the left and G400 for the right. With both power and ground the backup lamps illuminate. Once the driver moves the gear selector out of the REVERSE position, the park/neutral position (PNP) switch contacts open and the backup lamps turn OFF.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the inoperative backup lamp.
2. Ignition OFF, exterior lamps OFF, test for less than 5â€‰â„¦ between the ground circuit terminalâ€‰1 and ground.
3.
    - If greater than the specified range, test the ground circuit for an open/high resistance.
4. Connect the harness connector at the inoperative backup lamp.
5. Ignition OFF, disconnect the harness connector at the park/neutral position (PNP) switch.
6. Ignition ON, verify that a test lamp illuminates between the B+ circuit terminalâ€‰1 and ground.
7.
    - If the test lamp does not illuminate, test the B+ circuit for a short to ground or an open/high resistance.
8. Verify that a test lamp does not illuminate between the control circuit terminalâ€‰5 and ground.
9.
    - If the test lamp illuminates, test the control circuit for a short to voltage.
10. Connect a 10â€‰Aâ€‰fused jumper between the B+ circuit terminalâ€‰1 and the control circuit terminalâ€‰5. Ignition ON, verify the backup lamps are illuminated.
11.
    - If the backup lamps do not illuminate, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, test or replace the inoperative backup lamp.
12. If all circuits test normal, replace the park/neutral position (PNP) switch.

cardiagn.com

Repair Instructions

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

- Tail Lamp Replacement

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. DIAGNOSTIC INFORMATION AND PROCEDURES
4.

Backup Lamps Malfunction (Manual Transmission)

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Backup Lamp Switch B+	1	1	1	â€”
Backup Lamps Control	1	1	1	â€”
Backup Lamp â€“ Left Ground	â€”	1	â€”	â€”
Backup Lamp â€“ Right Ground	â€”	1	â€”	â€”
1. Backup Lamps Malfunction				

Circuit/System Description

Battery voltage is applied from the F19DAâ€‰fuse located in the I/Pâ€‰fuse block to the backup lamp switch when the ignition switch is in the RUN or CRANK positions. When the transmission is placed in the REVERSE position, the backup lamp switch contacts close providing battery voltage to the backup lamps. The backup lamps are permanently grounded at G401 for the left and G400 for the right. With both power and ground the backup lamps illuminate. Once the driver moves the gear selector out of the REVERSE position, the backup lamp switch contacts open and the backup lamps turn OFF.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the inoperative backup lamp.
2. Ignition OFF, exterior lamps OFF, test for less than 5â€‰â„¦ between the ground circuit terminalâ€‰1 and ground.
3.
    - If greater than the specified range, test the ground circuit for an open/high resistance.
4. Connect the harness connector at the inoperative backup lamp.
5. Ignition OFF, disconnect the harness connector at the backup lamp switch.
6. Ignition ON, verify that a test lamp illuminates between the B+ circuit terminalâ€‰1 and ground.
7.
    - If the test lamp does not illuminate, test the B+ circuit for a short to ground or an open/high resistance.
8. Verify that a test lamp does not illuminate between the control circuit terminalâ€‰2 and ground.
9.
    - If the test lamp illuminates, test the control circuit for a short to voltage.
10. Connect a 10â€‰Aâ€‰fused jumper between the B+ circuit terminalâ€‰1 and the control circuit terminalâ€‰2. Ignition ON, verify the backup lamps are illuminated.
11.
    - If the backup lamps do not illuminate, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, test or replace the inoperative backup lamp.
12. If all circuits test normal, replace the backup lamp switch.

cardiagn.com

Repair Instructions

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

- Tail Lamp Replacement
- Backup Lamp Switch Replacement

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. DIAGNOSTIC INFORMATION AND PROCEDURES
4.

Cargo Lamps Malfunction

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Cargo Lamp Control	B2570â€‰02	1	2	â€”
1. Cargo lamp inoperative 2. Cargo lamp always ON				

Circuit/System Description

When the body control module (BCM) receives a trunk open signal, the BCM supplies B+ to the cargo lamp control circuit. This will illuminate the cargo lamp.

Reference Information

Schematic Reference

Interior Lights Schematics

Connector End View Reference

Master Electrical Component List

Description and Operation

Interior Lighting Systems Description and Operation

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Testing

Cargo Lamp Malfunction

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector the E33â€‰Cargo Lamp. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10â€‰â„¦ between the ground circuit terminalâ€‰2 and ground.
3.
    - **If 10â€‰â„¦ or greater**

cardiagn.com

4.
    1. Ignition OFF.
    2. Test for less than 2â€‰â„¦ in the ground circuit end to end.
    3.
        - If 2â€‰â„¦ or greater, repair the open/high resistance in the circuit.
        - If less than 2â€‰â„¦, repair the open/high resistance in the ground connection.
5.
    - **If less than 10â€‰â„¦**
6. Connect a test lamp between the control circuit terminalâ€‰1 and ground.
7. Verify the test lamp turns ON and OFF when connecting the test lamp to ground and disconnecting to ground.
8.
    - **If the test lamp is always OFF**
9.
    1. Ignition OFF, remove the test lamp, disconnect the harness connector at the X51Aâ€‰Fuse Block â€“ Instrument Panel.
    2. Test for less than 2â€‰â„¦ in the control circuit end to end.
    3.
        - If 2â€‰â„¦ or greater, repair the open/high resistance in the circuit.
        - If less than 2â€‰â„¦, replace the X51Aâ€‰Fuse Block â€“ Instrument Panel.
10.
    - **If the test lamp is always ON**
11.
    1. Ignition OFF, remove the test lamp, disconnect the harness connector at the X51Aâ€‰Fuse Block â€“ Instrument Panel, Ignition ON.
    2. Test for less than 1 V between the control circuit and ground.
    3.
        - If 1 V or greater, repair the short to voltage on the circuit.
        - If less than 1 V, replace the X51Aâ€‰Fuse Block â€“ Instrument Panel.
12.
    - **If the test lamp turns ON and OFF**
13. Test or replace the E33â€‰Cargo Lamp.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

- Control Module References for BCM, HVAC control module, and radio replacement, setup, and programming

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. DIAGNOSTIC INFORMATION AND PROCEDURES
4.

Dome Lamps Malfunction

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Dome Lamp Supply Voltage	1	1	â€”	â€”
Dome Lamp Control	2	1	â€”	â€”
1. Dome lamp inoperative 2. Dome lamps always ON				

Circuit/System Description

Battery voltage is supplied at all times to the dome lamps from the F1DA located in the I/P fuse block. The dome lamp can be turned ON in 2 different ways; when any door is opened and dome lamp switch. Inputs from the dome lamp switch and the door ajar switches are monitored by the I/P fuse block. When a door ajar switch is closed, and the dome lamp switch is turned to the DOOR position, the I/P fuse block supplies the ground for the courtesy lamps.

Circuit/System Testing

Dome Lamp Switch Malfunction

1. Ignition OFF, disconnect the harness connector at the E36AH Dome Lamp.
2. Test for less than 10â€‰â„¦ between the ground circuit terminalâ€‰4 and ground.
3.
    - If greater than the specified range, test the ground circuit for an open/high resistance.
4. Connect a test lamp between the voltage supply circuit terminalâ€‰2 and the control circuit terminalâ€‰3.
5. Open and Close any door. The test lamp should turn ON and OFF when changing between the door states.
6.
    - If the test lamp is always ON, test the control circuit for a short to ground. If the circuit tests normal, replace the X51Aâ€‰I/P Fuse Block.
    - If the test lamp is always OFF, test the control circuit for a short to voltage or open/high resistance. If the circuit tests normal, replace the X51Aâ€‰I/P Fuse Block.
7. If all circuits test normal, test or replace the E36AH Dome Lamp.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

- Dome Lamp Replacement
- Instrument Panel Wiring Harness Junction Block Replacement

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. DIAGNOSTIC INFORMATION AND PROCEDURES
4.

Front Fog Lamps Malfunction

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Front Fog Lamp Signal	1	1	2	â€”
Right Front Fog Lamp Ground	â€”	3	â€”	â€”
Left Front Fog Lamp Ground	â€”	4	â€”	â€”
1. Front Fog Lamps Inoperative 2. Front Fog Lamps Always ON 3. Right Front Fog Lamp Inoperative 4. Left Front Fog Lamp Inoperative				

Circuit/System Description

The front fog lamp relay is supplied with battery voltage at all times. The front fog lamp switch energizes the front fog lamp by applying voltage to the front fog lamp control circuit. When the front fog lamp relay is energized, the relay switch contacts close and battery voltage is applied through the front fog lamp fuse to the front fog lamp supply voltage circuit which illuminates the front fog lamps.

Circuit/System Verification

Ignition ON, perform the Front Fog Lamps Relay test. The front fog lamps should be ON/OFF.

Circuit/System Testing

1. Ignition OFF, disconnect the appropriate harness connector at the front fog lamps listed below:
2.
    - E29LFâ€‰Fog Lamp â€“ Left Front
    - E29RFâ€‰Fog Lamp â€“ Right Front
3. Test for less than 5â€‰Î© between the appropriate front fog lamp ground circuit harness connector terminalâ€‰A and ground.
4.
    - If greater than the specified value, test the ground circuit for an open/high resistance.
5. Connect the harness connector to the fog lamps.
6. Ignition ON, connect a test lamp between B+ circuit terminalâ€‰16 at the I/P Fuse Block X3 connector and ground.
7.
    - If the test lamp illuminates, test the control circuit for a short to voltage.
8. Connect a 5â€‰A fused jumper wire between B+ and B+ circuit terminalâ€‰16 at the I/P Fuse Block X3 connector contact.
9.
    - If the front fog lamps illuminate, test the B+ circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace

cardiagn.com

the X50Aâ€‰Fuse Block â€“ Underhood.

- If the front fog lamps do not illuminate, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the X50Aâ€‰Fuse Block â€“ Underhood.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

- Relay Replacement
- Fuse Block Replacement

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. DIAGNOSTIC INFORMATION AND PROCEDURES
4.

Rear Fog Lamps Malfunction

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Rear Fog Lamp Relay Control	2	1	1	â€”
Rear Fog Lamp Switch Signal	B2540â€‰00	1	1	â€”
Headlamp Switch Ground	â€”	1	â€”	â€”
Rear Fog Lamp Control	1	1	2	â€”
Rear Fog Lamp Ground	â€”	1	â€”	â€”
1. Rear Fog Lamps Inoperative 2. Rear Fog Lamps always ON				

Circuit/System Description

The body control module (BCM) controls the rear fog lamps based on inputs from the headlamp switch. When the rear fog lamp switch is pressed, a ground path is provided on the rear fog lamp switch signal circuit to the BCM, indicating the rear fog lamps ON command. In response to this signal, the BCM grounds the rear fog lamp relay control circuit energizing the Rear Fog Lamp Relay. With the rear fog lamp relay energized, battery voltage is applied through the RR FOG Fuse and the rear fog lamp control circuits illuminating the rear fog lamps.

Reference Information

Schematic Reference

Fog Lights Schematics

Connector End View Reference

Master Electrical Component List

Description and Operation

Exterior Lighting Systems Description and Operation

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition ON, observe the scan tool Rear Fog Lamp Switch parameter while pressing and releasing the rear fog lamp switch. The parameter should change between Active and Inactive.

cardiagn.com

2.
    - If the parameter does not change between the selected states, refer to the Rear Fog Lamp Switch Malfunction.
3. Ignition ON, command the Rear Fog Lamps ON and OFF with a scan tool. Verify the rear fog lamps turn on and off.
4.
    - If the front fog lamps are always on or always off, refer to Rear Fog Lamps Malfunction.

Circuit/System Testing

Rear Fog Lamp Switch Malfunction

1. Ignition OFF, all doors closed, all accessories OFF, disconnect the harness connector at the S19Bâ€‰Fog Lamp Switch â€“ Rear. It may take up to 2â€‰min for all vehicle systems to power down.
2. Test for less than 15â€‰â„¦ between the ground circuit terminalâ€‰2 and ground.
3.
    - **If 15â€‰â„¦ or greater**
4.
    1. Ignition OFF.
    2. Test for less than 2â€‰â„¦ in the ground circuit end to end.
    3.
        - If 2â€‰â„¦ or greater, repair the open/high resistance in the circuit.
        - If less than 2â€‰â„¦, repair the open/high resistance in the ground connection.
5.
    - **If less than 15â€‰â„¦**
6. Ignition ON.
7. Verify the scan tool Rear Fog Lamp Switch parameter is Inactive.
8.
    - **If not Inactive**
9.
    1. Ignition OFF, disconnect the harness connector at the X51Aâ€‰Fuse Block â€“ Instrument Panel.
    2. Test for infinite resistance between the signal circuit terminalâ€‰1 and ground.
    3.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance, replace the X51Aâ€‰Fuse Block â€“ Instrument Panel.
10.
    - **If Inactive**
11. Install a 3â€‰A fused jumper wire between the signal circuit terminalâ€‰1 and the ground circuit terminalâ€‰2.
12. Verify the scan tool Rear Fog Lamp Switch parameter is Active.
13.
    - **If not Active**
14.

cardiagn.com

1. Ignition OFF, disconnect the harness connector at the X51Aâ€‰Fuse Block â€“ Instrument Panel, ignition ON.
2. Test for less than 1â€‰V between the signal circuit terminalâ€‰1 and ground.
3.
    - If 1â€‰V or greater, repair the short to voltage on the circuit.
4.
    - If less than 1â€‰V
5. Test for less than 2â€‰â„¦ in the signal circuit end to end.
6.
    - If 2â€‰â„¦ or greater, repair the open/high resistance in the circuit.
    - If less than 2â€‰â„¦, replace the X51Aâ€‰Fuse Block â€“ Instrument Panel.

15.
    - **If Active**
16. Test or replace the S19Bâ€‰Fog Lamp Switch â€“ Rear.

Rear Fog Lamps Malfunction

1. Ignition OFF, disconnect the KR57â€‰Rear Fog Lamp Relay, ignition ON
2. Verify a test lamp illuminates between the B+ circuit terminalâ€‰85 and ground.
3.
    - **If the test lamp does not illuminate**
    - Replace the X51Aâ€‰Fuse Block â€“ Instrument Panel.
4.
    - **If the test lamp illuminates**
5. Verify a test lamp illuminates between the B+ circuit terminalâ€‰30 and ground.
6.
    - **If the test lamp does not illuminate**
    - Replace the X51Aâ€‰Fuse Block â€“ Instrument Panel.
7.
    - **If the test lamp illuminates**
8. Connect a test lamp between the control circuit terminalâ€‰86 and B+, ignition ON.
9. Verify the test lamp turns ON and OFF when commanding the appropriate Rear Fog Lamps ON and OFF with a scan tool.
10.
    - **If the test lamp is always OFF**
    - Replace the X51Aâ€‰Fuse Block â€“ Instrument Panel.
11.
    - **If the test lamp is always ON**
    - Replace the X51Aâ€‰Fuse Block â€“ Instrument Panel.
12.
    - **If the test lamp turns ON and OFF**

cardiagn.com

- **If the test lamp turns ON and OFF**

13. Ignition OFF, exterior lamps OFF, connect the KR57â€‰Rear Fog Lamp Relay.
14. Disconnect the appropriate harness connector at the appropriate E29â€‰Fog Lamp â€“ Rear.
15. Test for less than 15â€‰â„¦ between the ground circuit terminalâ€‰1 and ground.
16.
    - **If 15â€‰â„¦ or greater**
17.
    1. Ignition OFF.
    2. Test for less than 2â€‰â„¦ in the ground circuit end to end.
    3.
        - If 2â€‰â„¦ or greater, repair the open/high resistance in the circuit.
        - If less than 2â€‰â„¦, repair the open/high resistance in the ground connection.
18.
    - **If less than 15â€‰â„¦**
19. Connect a test lamp between the control circuit terminalâ€‰2 and ground, ignition ON.
20. Verify the test lamp turns ON and OFF when commanding the appropriate Rear Fog Lamps ON and OFF with a scan tool.
21.
    - **If the test lamp is always OFF**
22.
    1. Ignition OFF, disconnect the harness connector at the X51Aâ€‰Fuse Block â€“ Instrument Panel.
    2. Test for infinite resistance between the control circuit and ground.
    3.
        - If less than infinite resistance, repair the short to ground on the circuit.
    4.
        - If infinite resistance
    5. Test for less than 2â€‰â„¦ in the control circuit end to end.
    6.
        - If 2â€‰â„¦ or greater, repair the open/high resistance in the circuit.
        - If less than 2â€‰â„¦, replace the KR57â€‰Rear Fog Lamp Relay.
23.
    - **If the test lamp is always ON**
24.
    1. Ignition OFF, disconnect the harness connector at the X51Aâ€‰Fuse Block â€“ Instrument Panel, ignition ON.
    2. Test for less than 1â€‰V between the control circuit terminal and ground.
    3.
        - If 1â€‰V or greater, repair the short to voltage on the circuit.
        - If less than 1â€‰V, replace the KR57â€‰Rear Fog Lamp Relay.

cardiagn.com

25.

- **If the test lamp turns ON and OFF**

26. Test or replace the appropriate E29â€‰Fog Lamp â€“ Rear bulb.

Rear Fog Lamp Indicator Malfunction

1. Ignition ON.
2. Verify the rear fog lamp indicator turns ON and OFF when commanding the Instrument Cluster All Indicators Test ON and OFF with a scan tool.
3.

- **If the front fog lamp indicator is always OFF or remains ON**
- Replace the P16â€‰Instrument Cluster.

4.

- **If the front fog lamp indicator turns ON and OFF**

5. Replace the X51Aâ€‰Fuse Block â€“ Instrument Panel.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

- Relay Replacement
- Control Module References for BCM replacement, programming, and setup

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. DIAGNOSTIC INFORMATION AND PROCEDURES
4.

Hazard Lamps Malfunction

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

Circuit/System Description

The hazard flashers may be activated in any power mode. The turn signal hazard flasher module controls the vehicle turn signals and hazard warning flashers based on inputs from the turn signal/multifunction switch. When the hazard switch is activated, ground from G302 is applied through the turn signal hazard flasher module ground circuits to the turn signal hazard flasher module indicating the hazard flasher ON request. The module will then apply a pulsating battery voltage to the left and right turn signal lamp control circuits, cycling all turn signal lamps, and both instrument panel cluster (IPC) turn signal indicators ON and OFF.

Circuit/System Verification

1. Ignition ON, command the left and right turn signals ON and OFF using the turn signal/multi-function switch. The exterior turn signal lamps and the IPC turn signal indicators should turn ON and OFF when changing between commanded states.
2.
    - If the system does not perform as specified, refer to Turn Signal Lamps and/or Indicators Malfunction.
3. Activate the hazard warning flasher switch. All turn signal lamps should cycle ON and OFF until the hazard switch is turned OFF.
4.
    - If hazard lamps are always ON or always OFF, replace the turn signal/multi-function switch.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

Turn Signal Switch Replacement

Related Part Information

Part Name	Catalog Name	Part Code
Hazard Lamp	LAMP,HAZARD	6710A

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. DIAGNOSTIC INFORMATION AND PROCEDURES
4.

Headlamps Malfunction

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure
- Review Strategy Based Diagnosis for an overview of the diagnostic approach
- Diagnostic Procedure Instructions provides an overview of each diagnostic category

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Low Beam Headlamp Supply Voltage	1	1	3	â€”
High Beam Headlamp Supply Voltage	2	2	4	â€”
Headlamp Low Beam Relay Control	3	1	1	â€”
Headlamp High Beam Relay Control	4	2	2	â€”
Headlamp Switch Headlamps On Signal	â€”	1	1	â€”
Park Lamp Switch On Signal	â€”	1	1	â€”
Low Beam Headlamp Ground	â€”	1	â€”	â€”
High Beam Headlamp Ground	â€”	2	â€”	â€”
Turn Signal/Multifunction Switch Ground	â€”	1, 2	â€”	â€”
1. Low Beam Headlamp(s) Inoperative 2. High Beam Headlamp(s) Inoperative 3. Low Beam Headlamp(s) Always ON 4. High Beam Headlamp(s) Always ON				

Circuit/System Description

Low Beam

The vehicle headlamps are controlled by the I/P fuse block based on inputs from the turn signal/multi-function switch. The headlamp switch has three positions: Off, Parking light, and Low beam. The Park position of the turn signal/multi-function switch will only illuminate the vehicle parking lamps. The Headlamp position of the turn signal/multi-function switch will illuminate both the parking lamps, as well has the headlamps. With the turn signal/multi-function switch in the Headlamp position, the turn signal/multi-function switch headlamps on signal circuit is grounded, prompting the I/P fuse block to turn on the headlamps.

High Beam

The headlamp high beams are controlled through the flash to pass switch and the headlamp dimmer switch, both located in the turn signal/multi-function switch. The flash to pass switch is a momentary type switch, designed to illuminate the high beams as long as the switch is held. With the switch closed, the high beam relay control circuit is grounded, this energizes the high beam relay, closing the switch side contacts of the high beam relay, applying battery voltage to the high beam fuses. The headlamp dimmer switch allows the operator to select between full time high or low beam operation. Unlike the flash to pass switch, it is not a momentary switch.

Circuit/System Verification

1. Ignition ON, observe the headlamps while cycling the headlamp switch between the ON and OFF positions. The headlamps should cycle between ON and OFF.
2.
    - If the headlamps do not cycle between ON and OFF, refer to Headlamp Switch Malfunction.
3. With the low beams ON, observe the headlamp high beams while pulling and releasing the turn signal/multifunction switch. The headlamp high beams should cycle between ON and OFF.

carddiagn.com

4.

- If the headlamp high beams do not cycle between ON and, refer to Turn Signal/Multifunction Switch Malfunction.

5. With the low beams ON, observe the headlamp high beams scan tool High Beam Select Switch parameter while switching the Turn Signal/Multifunction Switch between the low and high beam positions. The headlamp high beams should cycle between ON and OFF.

6.

- If the headlamp high beams do not cycle between ON and OFF, refer to Turn Signal/Multifunction Switch Malfunction.

Circuit/System Testing

Headlamp Switch Malfunction

1. Ignition OFF, disconnect the harness connector at the S78â€‰Turn Signal/Multi-Function Switch.
2. Verify that a test lamp illuminates between the ground circuit terminalâ€‰7â€‰(X1) and B+.
3.

- If the test lamp does not illuminate, test the ground circuit for an open/high resistance.

4. Verify that a test lamp illuminates between the ground circuit terminalâ€‰4â€‰(X2) and B+.
5.

- If the test lamp does not illuminate, test the ground circuit for an open/high resistance.

6. Ignition ON, test for B+ between the signal circuit terminals listed below and ground:
7.

- Headlamp switch low beams ON signal terminalâ€‰5â€‰(X1)
- Park lamp switch ON signal terminalâ€‰1â€‰(X2)

8.

- If less than the specified value, test the signal circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the I/P Fuse Block

9. Install a 3â€‰A fused jumper wire between the park lamp ON signal circuit terminalâ€‰1â€‰(X2) and ground. Verify that a park lamp illuminates.
10.

- If the park lamp does not illuminate, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the I/P Fuse Block.
- If the park lamp does illuminate, test the signal circuit for a short to ground. If the circuit tests normal, replace the I/P Fuse Block.

11. Install a 3â€‰A fused jumper wire between the low beams ON signal circuit terminalâ€‰5â€‰(X1) and ground. Verify that headlamp low beams illuminate.
12.

- If the headlamp low beams do not illuminate, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the I/P Fuse Block.
- If the headlamp low beams do illuminate, test the signal circuit for a short to ground. If the circuit tests normal, replace the I/P Fuse Block.

13. If all circuits test normal, replace the S78â€‰Turn Signal/Multi-Function Switch.

Low Beam Headlamp Malfunction

1. Ignition OFF, disconnect the harness connector at the appropriate head lamp.
2. Test for less than 5.0â€‰Î© between the appropriate head lamp ground circuit harness connector listed below and ground.

cardiagn.com

3.
    - E13L Headlamp Assembly â€“ Left ground circuit harness connector terminalâ€‰1
    - E13R Headlamp Assembly â€“ Right ground circuit harness connector terminalâ€‰1
4.
    - If greater than the specified range, test the ground circuit for an open/high resistance.
5. Connect a test lamp between the appropriate head lamp control circuit harness connector listed below and ground.
6.
    - E13L Headlamp Assembly â€“ Left signal circuit harness connector terminalâ€‰2
    - E13R Headlamp Assembly â€“ Right signal circuit harness connector terminalâ€‰2
7. Turn the headlamps ON and OFF. The test lamp should turn ON and OFF when changing between ON and OFF.
8.
    - If the test lamp is always ON, test the signal circuit for a short to voltage. If the circuit tests normal, replace the I/P Fuse Block.
    - If the test lamp is always OFF, test the Signal circuit for a short to ground or an open/high resistance. If the circuits test normal, replace the I/P Fuse Block.
9. If all the circuits test normal, replace the appropriate headlamp.

High Beam Headlamp Malfunction

1. Ignition OFF, disconnect the appropriate harness connector at headlamp lamp listed below:
2.
    - E13Lâ€‰Headlamp Assembly â€“ Left
    - E13Râ€‰Headlamp Assembly â€“ Right
3. Disconnect the negative terminal of the C1â€‰Battery.
4. Test for less than 5â€‰Î© between the appropriate headlamp ground circuit harness connector terminalâ€‰1 and ground.
5.
    - If greater than the specified value, test the ground circuit for an open/high resistance.
6. Reconnect the negative terminal to the C1â€‰Battery.
7. Remove the F12UB High Beam fuse. Verify that the headlamp does not illuminate.
8.
    - If the headlamp does illuminate, test the signal circuit for a short to voltage.
9. Install a 10â€‰A fused jumper wire between appropriate fuse output contact and B+ Verify that the appropriate high beam illuminates.
10.
    - If the high beam lamp does not illuminate, test the signal circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the appropriate bulb.
11. Disconnect the X1 harness connector at the X50A Fuse Block â€“ Underhood.
12. Connect a test lamp between the signal circuit terminalâ€‰13â€‰(X2) and B+.
13. Ignition ON, switch the high beam lamps ON and OFF by using the S78 Turn Signal/Multi-Function Switch. The test lamp should go ON and OFF.
14.
    - If the test lamp is always ON, test the signal circuit for a short to ground. If the circuit tests normal, replace the S78 Turn

cardiagn.com

Signal/Multi-Function Switch.

- If the test lamp is always OFF, test the signal circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the S78â€‰Turn Signal/Multi-Function Switch.

15. If all circuits test normal, replace the X50A Fuse Block â€“ Underhood.

Component Testing

Static Test â€“ Headlamp Switch

1. Ignition OFF, disconnect the harness connector at the S78â€‰Turn Signal/Multi-Function Switch.
2. Test for infinite resistance between the signal terminalâ€‰1â€‰(X2) and the ground terminalâ€‰7â€‰(X1), 4â€‰(X2) with the switch in the OFF position.
3.
   - If not the specified value, replace the S78â€‰Turn Signal/Multi-Function Switch.
4. Test for infinite resistance between the signal terminalâ€‰5â€‰(X1) and the ground terminalâ€‰7â€‰(X1), 4â€‰(X2) with the switch in the OFF position.
5.
   - If not the specified value, replace the S78â€‰Turn Signal/Multi-Function Switch.
6. Test for infinite resistance between the signal terminalâ€‰4â€‰(X1) and the ground terminalâ€‰7â€‰(X1) with the headlamp dimmer switch in the low beam position.
7. Test for less than 2â€‰Î© between the signal terminalâ€‰1â€‰(X2) and the ground terminalâ€‰4â€‰(X2) with the switch in the Park position.
8.
   - If not the specified value, replace the S78â€‰Turn Signal/Multi-Function Switch.
9. Test for less than 2â€‰Î© between the signal terminalâ€‰5â€‰(X1) and the ground terminalâ€‰4â€‰(X2) with the switch in the Low beam position.
10.
    - If not the specified value, replace the S78â€‰Turn Signal/Multi-Function Switch.
11. Test for less than 2â€‰Î© between the signal terminalâ€‰4â€‰(X1) and the ground terminalâ€‰7â€‰(X1) with the headlamp dimmer switch in the high beam position.
12.
    - If not the specified value, replace the S78â€‰Turn Signal/Multi-Function Switch.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

- Turn Signal Switch Replacement
- Headlamp Bulb Replacement
- Relay Replacement
- Front Headlamp Replacement

Related Part Information

Part Name	Catalog Name	Part Code
Headlamp	HEADLAMP,(HIGH BEAM)	0010A
Headlamp	HEADLAMP,(LOW BEAM)	0015A

cardiagn.com

Part Name	Catalog Name	Part Code
Headlamp	HEADLAMP,(W/LVLG ACTR)	0022A
Headlamp	HEADLAMP,(RPR)	0022B
Headlamp	HEADLAMP,(W/PARK & T/SIG LP)	0023A
Headlamp	HEADLAMP,(W/ FRT FOG LP)	0023B
Headlamp	HEADLAMP,(W/COR LP)	0023C
Headlamp	HEADLAMP,(W/PARK & FRT SI MKR & T/SIG LP)	0023D
Headlamp	HEADLAMP,(W/T/SIG LP)	0023E
Headlamp	HEADLAMP,(W/FRT SI MKR & COR LP)	0023F
Headlamp	HEADLAMP,(W/FRT SI MKR LP)	0023G
Headlamp	HEADLAMP,(W/ FOG & FRT SI MKR & PARK & T/SIG LP)	0023H
Headlamp	HEADLAMP,(W/ FRT SI MKR & COR & PARK & T/SIG LP)	0023J
Headlamp	HEADLAMP,(W/OPG DR ACTR)	0024A
Headlamp	HEADLAMP,(W/OPG HSG ACTR)	0024B
Headlamp	HEADLAMP,(W/OPG HSG ACTR)	0024C
Headlamp	HEADLAMP KIT,	0024Y
Headlamp	HEADLAMP PKG,	0024Z
Headlamp	HEADLAMP,	0025A
Headlamp	HEADLAMP,(W/O BULB)	0025B
Headlamp	HEADLAMP,(W/ LVLG & DIRECTIONAL ACTR)	9767A

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. DIAGNOSTIC INFORMATION AND PROCEDURES
4.

Headlamp Leveling Malfunction

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Headlamp Leveling Actuator â€“ Left B+	1	1	â€”	â€”
Headlamp Leveling Actuator â€“ Right B+	1	1	â€”	â€”
Headlamp Leveling Switch B+	1	1	â€”	â€”
Headlamp Leveling Control	1	1	1	â€”
Headlamp Leveling Actuator â€“ Left Ground	â€”	1	â€”	â€”
Headlamp Leveling Actuator â€“ Right Ground	â€”	1	â€”	â€”
Headlamp Switch Ground	â€”	1	â€”	â€”
1. Headlamp Leveling Malfunction				

Circuit/System Description

Each headlamp assembly contains a headlamp leveling actuator that is controlled by the headlamp leveling switch. The headlamp leveling switch is supplied with ignition voltage and ground and contains a resistor ladder with 4â€‰positions for adjusting the headlamps up or down. When the headlamp leveling switch is activated to the desired position, voltage from the B+ ignition circuit is pulled down through the resistor ladder and the voltage is applied to the left and right headlamp leveling actuators via the headlamp leveling control circuits. The headlamp leveling actuators are supplied with B+ and ground. When the headlamp leveling switch is activated, the left and right headlamp leveling actuators respond by moving the headlamps to the desired position.

Diagnostic Aids

For testing purposes, the vehicle battery must be fully charged.

Reference Information

Schematic Reference

Headlights/Daytime Running Lights (DRL) Schematics

Connector End View Reference

Master Electrical Component List

Description and Operation

Exterior Lighting Systems Description and Operation

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

cardiagn.com

Control Module References for scan tool information

Circuit/System Testing

Headlamp Leveling Malfunction (TR6)

1. Ignition OFF, exterior lamps OFF, disconnect the harness connector at the appropriate M29â€‰Headlamp Leveling Actuator. It may take up to 2â€‰min for all vehicle systems to power down.
2. Test for less than 5â€‰â„¦ between the ground circuit terminalâ€‰3 and ground.
3.
   - **If 5â€‰â„¦ or greater**
4.
   1. Ignition OFF.
   2. Test for less than 2â€‰â„¦ in the ground circuit end to end.
   3.
      - If 2â€‰â„¦ or greater, repair the open/high resistance in the circuit.
      - If less than 2â€‰â„¦, repair the open/high resistance in the ground connection.
5.
   - **If less than 5â€‰â„¦**
6. Ignition ON.
7. Verify a test lamp illuminates between the B+ ignition circuit terminalâ€‰1 and ground.
8.
   - **If the test lamp does not illuminate**
9.
   1. Ignition OFF, disconnect the X3 harness connector at the X50Aâ€‰Fuse Block â€“ Underhood.
   2. Test for infinite resistance between the B+ ignition circuit and ground.
   3.
      - If less than infinite resistance, repair the short to ground on the circuit.
   4.
      - If infinite resistance
   5. Test for less than 2â€‰â„¦ in the B+ circuit end to end.
   6.
      - If 2â€‰â„¦ or greater, repair the open/high resistance in the circuit.
      - If less than 2â€‰â„¦, replace the X50Aâ€‰Fuse Block â€“ Underhood.
10.
    - **If the test lamp illuminates**
11. Ignition OFF, scan tool disconnected, all doors closed, all accessories OFF, disconnect the harness connector at the S42â€‰Headlamp Leveling Switch. It may take up to 2â€‰min for all vehicle systems to power down.
12. Test for less than 15â€‰â„¦ between the ground circuit terminalâ€‰3 and ground.
13.

cardiagn.com

- **If 15â€‰â„¦ or greater**

14.

1. Ignition OFF.
2. Test for less than 2â€‰â„¦ in the ground circuit end to end.
3.
   - If 2â€‰â„¦ or greater, repair the open/high resistance in the circuit.
   - If less than 2â€‰â„¦, repair the open/high resistance in the ground connection.

15.

- **If less than 15â€‰â„¦**

16. Ignition ON.
17. Verify a test lamp illuminates between the B+ ignition circuit terminalâ€‰5 and ground.
18.

- **If the test lamp does not illuminate**

19.

1. Ignition OFF, remove the F13UB fuse at the X50Aâ€‰Fuse Block â€“ Underhood.
2. Test for infinite resistance between the B+ circuit and ground.
3.
   - If less than infinite resistance, repair the short to ground on the circuit.
4.
   - If infinite resistance
5. Test for less than 2â€‰â„¦ in the B+ circuit end to end.
6.
   - If 2â€‰â„¦ or greater, repair the open/high resistance in the circuit.
   - If less than 2â€‰â„¦, replace the X50Aâ€‰Fuse Block â€“ Underhood.

20.

- **If the test lamp illuminates**

21. Ignition OFF, connect the harness connector at the S42â€‰Headlamp Leveling Switch.
22. Ignition ON, exterior lights OFF.
23. Test the voltage between the control circuit terminalâ€‰2 and ground for each headlamp leveling switch position listed below.
24.

- Headlamp leveling switch positionâ€‰0 â€“ 10â€‰V â€“ 11â€‰V
- Headlamp leveling switch positionâ€‰1 â€“ 8.5â€‰V â€“ 9.9â€‰V
- Headlamp leveling switch positionâ€‰2 â€“ 8â€‰V â€“ 9â€‰V
- Headlamp leveling switch positionâ€‰3 â€“ 6â€‰V â€“ 7â€‰V

25.

- **If less than the specified voltage range for each headlamp leveling switch position**

cardiagn.com

26.

1. Ignition OFF, disconnect the harness connector at the S42â€‰Headlamp Leveling Switch.
2. Test for infinite resistance between the control circuit and ground.
3.
   - If less than infinite resistance, repair the short to ground on the circuit.
4.
   - If infinite resistance
5. Test for less than 2â€‰â„¦ in the control circuit end to end.
6.
   - If 2â€‰â„¦ or greater, repair the open/high resistance in the circuit.
   - If less than 2â€‰â„¦, replace the S42â€‰Headlamp Leveling Switch.

27.

- **If greater than the specified voltage range for each headlamp leveling switch position**

28.

1. Ignition OFF, disconnect the harness connector at the S42â€‰Headlamp Leveling Switch, ignition ON.
2. Test for less than 1â€‰V between the control circuit terminal and ground.
3.
   - If 1â€‰V or greater, repair the short to voltage on the circuit.
   - If less than 1â€‰V, replace the S42â€‰Headlamp Leveling Switch.

29.

- **If within the specified voltage range for each headlamp leveling switch position**

30. Test or replace the appropriate M29â€‰Headlamp Leveling Actuator.

Headlamp Leveling Malfunction (TR6 with CL4 without CZ3)

1. Ignition OFF, exterior lamps OFF, disconnect the harness connector at the appropriate M29â€‰Headlamp Leveling Actuator. It may take up to 2â€‰min for all vehicle systems to power down.
2. Test for less than 5â€‰â„¦ between the ground circuit terminalâ€‰2 and ground.
3.
   - **If 5â€‰â„¦ or greater**
4.
   1. Ignition OFF.
   2. Test for less than 2â€‰â„¦ in the ground circuit end to end.
   3.
      - If 2â€‰â„¦ or greater, repair the open/high resistance in the circuit.
      - If less than 2â€‰â„¦, repair the open/high resistance in the ground connection.
5.
   - **If less than 5â€‰â„¦**
6. Ignition ON.

cardiagn.com

7. Verify a test lamp illuminates between the B+ ignition circuit terminalâ€‰3 and ground.
8.
    - **If the test lamp does not illuminate**
9.
    1. Ignition OFF, disconnect the X3 harness connector at the X50Aâ€‰Fuse Block â€“ Underhood.
    2. Test for infinite resistance between the B+ ignition circuit and ground.
    3.
        - If less than infinite resistance, repair the short to ground on the circuit.
    4.
        - If infinite resistance
    5. Test for less than 2â€‰â„¦ in the B+ circuit end to end.
    6.
        - If 2â€‰â„¦ or greater, repair the open/high resistance in the circuit.
        - If less than 2â€‰â„¦, replace the X50Aâ€‰Fuse Block â€“ Underhood.
10.
    - **If the test lamp illuminates**
11. Ignition OFF, scan tool disconnected, all doors closed, all accessories OFF, disconnect the harness connector at the S42â€‰Headlamp Leveling Switch. It may take up to 2â€‰min for all vehicle systems to power down.
12. Test for less than 15â€‰â„¦ between the ground circuit terminalâ€‰3 and ground.
13.
    - **If 15â€‰â„¦ or greater**
14.
    1. Ignition OFF.
    2. Test for less than 2â€‰â„¦ in the ground circuit end to end.
    3.
        - If 2â€‰â„¦ or greater, repair the open/high resistance in the circuit.
        - If less than 2â€‰â„¦, repair the open/high resistance in the ground connection.
15.
    - **If less than 15â€‰â„¦**
16. Ignition ON.
17. Verify a test lamp illuminates between the B+ ignition circuit terminalâ€‰5 and ground.
18.
    - **If the test lamp does not illuminate**
19.
    1. Ignition OFF, remove the F13UB fuse at the X50Aâ€‰Fuse Block â€“ Underhood.
    2. Test for infinite resistance between the B+ circuit and ground.
    3.

cardiagn.com

- If less than infinite resistance, repair the short to ground on the circuit.

4.

- If infinite resistance

5. Test for less than 2â€‰â„¦ in the B+ circuit end to end.

6.

- If 2â€‰â„¦ or greater, repair the open/high resistance in the circuit.
- If less than 2â€‰â„¦, replace the X50Aâ€‰Fuse Block â€“ Underhood.

20.

- **If the test lamp illuminates**

21. Ignition OFF, connect the harness connector at the S42â€‰Headlamp Leveling Switch.
22. Ignition ON, exterior lights OFF.
23. Test the voltage between the control circuit terminalâ€‰4 and ground for each headlamp leveling switch position listed below.
24.

- Headlamp leveling switch positionâ€‰0 â€“ 10â€‰V â€“ 11â€‰V
- Headlamp leveling switch positionâ€‰1 â€“ 8.5â€‰V â€“ 9.9â€‰V
- Headlamp leveling switch positionâ€‰2 â€“ 8â€‰V â€“ 9â€‰V
- Headlamp leveling switch positionâ€‰3 â€“ 6â€‰V â€“ 7â€‰V

25.

- **If less than the specified voltage range for each headlamp leveling switch position**

26.

1. Ignition OFF, disconnect the harness connector at the S42â€‰Headlamp Leveling Switch.
2. Test for infinite resistance between the control circuit and ground.
3.

- If less than infinite resistance, repair the short to ground on the circuit.

4.

- If infinite resistance

5. Test for less than 2â€‰â„¦ in the control circuit end to end.
6.

- If 2â€‰â„¦ or greater, repair the open/high resistance in the circuit.
- If less than 2â€‰â„¦, replace the S42â€‰Headlamp Leveling Switch.

27.

- **If greater than the specified voltage range for each headlamp leveling switch position**

28.

1. Ignition OFF, disconnect the harness connector at the S42â€‰Headlamp Leveling Switch, ignition ON.
2. Test for less than 1â€‰V between the control circuit terminal and ground.
3.

cardiagn.com

- If 1â€‰V or greater, repair the short to voltage on the circuit.
- If less than 1â€‰V, replace the S42â€‰Headlamp Leveling Switch.

29.

- **If within the specified voltage range for each headlamp leveling switch position**

30. Test or replace the appropriate M29â€‰Headlamp Leveling Actuator.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.

- Headlamp Bulb Replacement

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. DIAGNOSTIC INFORMATION AND PROCEDURES
4.

Interior Backlighting Malfunction

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Interior Park Lamps Supply Voltage	1	1	2	â€”
Dimming PWM Supply Voltage	1	1	2	â€”
I/P Dimmer Switch Ground	â€”	1	1	â€”
IPC Ground	â€”	1	1	â€”
1. Backlighting Lamps Always OFF 2. Backlighting Lamps Always ON				

Circuit/System Description

When the headlamp switch is turned to either the PARK or HEAD position, I/P fuse block energizes the park lamp relay by applying ground to the park lamp relay control circuit. With the relay energized, battery voltage is applied through the switch side of the relay and fuseâ€‰F11UB. This voltage is then applied through the I/P fuse block illuminating all instrument panel clusterâ€‰(IPC) lamps and components.

Circuit/System Verification

Observe the operation of the I/P lamps while turning the park lamps ON and OFF. The I/P lamps should turn ON and OFF as the park lamp switch is turned ON and OFF.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the S36â€‰Instrument Panel Dimmer Switch.
2. Test for less than 1.0â€‰â„¦ between ground circuit terminalâ€‰2 and ground.
3.
    - If greater than the specified value, test the ground circuit for an open/high resistance.
4. Connect a test lamp between the control circuit terminalâ€‰3 and ground.
5. Ignition ON, turn the park lamps ON and OFF. The test lamp should turn ON and OFF, when switching between the commanded states.
6.
    - If the test lamp is always OFF, test the control circuit for short to ground or an open/high resistance.
    - If the test is always ON, test the control circuit for a short to B+.
7. Ignition OFF, connect the harness connector at the dimmer switch and disconnect the harness connector at the appropriate component.
8. Test for less than 1.0â€‰â„¦ between the ground circuit terminal of the appropriate component listed below and ground:
9.
    - P16â€‰Instrument Cluster ground circuit terminalâ€‰5.
    - S34â€‰HVAC Controls Switch Assembly ground circuit terminalâ€‰4â€‰(X2).

cardiagn.com

- K33â€‰HVAC Control Module ground circuit terminalâ€‰10.
- A11â€‰Radio ground circuit terminalâ€‰26â€‰(X1)â€‰(UH7,UM7,UCH), A6â€‰(X1)â€‰(UO5,-2GB), 11â€‰(X1)â€‰(UO5,2GB).
- S26â€‰Hazard Warning Switch ground circuit terminalâ€‰3.
- S42â€‰Headlamp Leveling Switch ground circuit terminalâ€‰6.
- S3â€‰Transmission Shift Lever ground circuit terminalâ€‰8.
- S104â€‰Fuel Type Select Switch ground circuit terminalâ€‰1.
-
    - If greater than the specified range, test the ground circuit for an open/high resistance.

10. Ignition ON, park lamps ON, verify that a test lamp illuminates between the control circuit terminal of the appropriate component listed below and ground:
11.

- P16â€‰Instrument Cluster control circuit terminalâ€‰4.
- S34â€‰HVAC Controls Switch Assembly control circuit terminalâ€‰3â€‰(X2).
- K33â€‰HVAC Control Module ground circuit terminalâ€‰9.
- A11â€‰Radio control circuit terminalâ€‰25â€‰(X1)â€‰(UH7,UM7,UCH), A1â€‰(X1)â€‰(UO5,-2GB), 3â€‰(X1)â€‰(UO5,2GB).
- S26â€‰Hazard Warning Switch control circuit terminalâ€‰2.
- S42â€‰Headlamp Leveling Switch control circuit terminalâ€‰3.
- S3â€‰Transmission Shift Lever control circuit terminalâ€‰5.
- S104â€‰Fuel Type Select Switch control circuit terminalâ€‰2.
-
    - If the test lamp does not illuminate, test the control circuit for a short to ground or an open/high resistance.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

- Airbag Steering Wheel Module Replacement
- Turn Signal Switch Replacement
- Parking Brake Indicator Switch Replacement
- Hazard Warning Switch Replacement
- Instrument Panel Wiring Harness Junction Block Replacement

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. DIAGNOSTIC INFORMATION AND PROCEDURES
4.

Park, License, and/or Tail Lamps Malfunction

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Park Lamp Relay Coil Control	1	1	1	â€”
Front/Rear Park Lamp Control	1	1	1	â€”
Front/Rear Park Lamp Ground	â€”	1	â€”	â€”
License Plate Lamp Control	1	1	1	â€”
License Plate Lamp Ground	â€”	1	â€”	â€”
Turn Signal/Multifunction Switch Signal	2	2	2	â€”
Turn Signal/Multifunction Switch Ground	â€”	2	â€”	â€”
1. Park, License, and/or Tail Lamps Malfunction 2. Park Lamp Switch Malfunction				

Circuit/System Description

Battery voltage is supplied at all times to the coil and switch sides of the park lamp relay located in the underhood fuse block. When the headlamp switch is placed in the PARK LIGHT or LOW BEAM position, I/P fuse block energizes the park lamp relay by applying ground to the park lamp relay control circuit. When the park lamp relay is energized, the relay switch contacts close and battery voltage is applied through the park lamp fuses to the park lamp supply voltage circuit which illuminates the park, license, and tail lamps.

Circuit/System Verification

1. Ignition ON.
2. Verify the operation of Left/Right parameter turns on and off/clicks when commanding the Left/Right Park Lamp control function On and Off with a scan tool.
3.
   - **If the Left/Right Park Lamp Control Function does not change**
   - Refer to Circuit/System Testing.
4.
   - **If the Left/Right Park Lamp Control Function changes**
5. All OK.

Circuit/System Testing

Park Lamp Switch Malfunction

1. Ignition OFF, all doors closed, all accessories OFF, disconnect the harness connector at the S78â€‰Turn Signal/Multifunction Switch. It may take up to 2â€‰min for all vehicle systems to power down.
2. Test for less than 10â€‰â„¦ between the ground circuit terminalâ€‰â€‰X2-4 and ground.
3.
   - **If 10â€‰â„¦ or greater**

cardiagn.com

- **If 10â€‰â„¦ or greater**

4.

1. Ignition OFF.
2. Test for less than 2â€‰â„¦ in the ground circuit end to end.
3.
   - If 2â€‰â„¦ or greater, repair the open/high resistance in the circuit.
   - If less than 2â€‰â„¦, repair the open/high resistance in the ground connection.

5.

- **If less than 10â€‰â„¦**

6. Connect the test lamp between the signal circuit terminalâ€‰X2-1 and ground.
7. Verify the park lamp turns ON and OFF when connecting the test lamp to ground and disconnecting to ground.
8.

- **If the park lamp always illuminates**

9.

1. Ignition OFF, disconnect the test lamp.
2. Test for infinite resistance between the signal circuit terminalâ€‰X2-1 and ground.
3.
   - If less than infinite resistance, repair the short to ground on the circuit.
   - If infinite resistance, replace the X51Aâ€‰Fuse Block â€“ Instrument Panel.

10.

- **If the park lamp always does not illuminate**

11.

1. Ignition OFF, disconnect the test lamp.
2. Test for less than 2â€‰â„¦ in the signal circuit end to end.
3.
   - If 2â€‰â„¦ or greater, repair the open/high resistance in the circuit.
   - If less than 2â€‰â„¦, replace the X51Aâ€‰Fuse Block â€“ Instrument Panel.

12.

- **If the park lamp illuminates and does not illuminate**

13.

1. Ignition OFF, disconnect the Test Lamp. Ignition ON.
2. Test for less than 1â€‰V between the signal circuit and ground.
3.
   - If 1â€‰V or greater, repair the short to voltage on the circuit.
4.
   - If less than 1â€‰V

14. Test or replace the S78â€‰Turn Signal/Multifunction Switch.

cardiagn.com

Park Lamps Malfunction

1. Ignition OFF, disconnect the X1 harness connector at the X50Aâ€‰Fuse Block â€“ Underhood.
2. Connect a test lamp between the control circuit terminal 19 and B+, ignition ON.
3. Verify the test lamp turns ON and OFF when connecting the test lamp to ground and disconnecting to ground.
4.
    - **If the test lamp is always OFF**
5.
    1. Ignition OFF, remove the test lamp, disconnect the harness connector at the X51Aâ€‰Fuse Block â€“ Instrument Panel, ignition ON.
    2. Test for less than 1 V between the control circuit and ground.
    3.
        - If 1 V or greater, repair the short to voltage on the circuit.
    4.
        - If less than 1 V
    5. Ignition OFF.
    6. Test for less than 2â€‰â„¦ in the control circuit end to end.
    7.
        - If 2â€‰â„¦ or greater, repair the open/high resistance in the circuit.
        - If less than 2â€‰â„¦, replace the X51Aâ€‰Fuse Block â€“ Instrument Panel.
6.
    - **If the test lamp is always ON**
7.
    1. Ignition OFF, remove the test lamp, disconnect the harness connector at the X51Aâ€‰Fuse Block â€“ Instrument Panel.
    2. Test for infinite resistance between the control circuit and ground.
    3.
        - If less than infinite resistance, repair the short to ground on the circuit.
        - If infinite resistance, replace the X51Aâ€‰Fuse Block â€“ Instrument Panel.
8.
    - **If the test lamp turns ON and OFF**
9. Ignition OFF and all vehicle systems OFF, connect the harness connector at the X50Aâ€‰Fuse Block â€“ Underhood. Disconnect the harness connector the appropriate park lamp. It may take up to 2â€‰min for all vehicle systems to power down.
10. Test for less than 10â€‰â„¦ between the appropriate ground circuit terminal listed below and ground.
11.
    - E4Nâ€‰Park/Turn Signal Lamp â€“ Left terminalâ€‰2
    - E4Pâ€‰Park/Turn Signal Lamp â€“ Right terminalâ€‰2
    - E4Jâ€‰Park Lamp â€“ Left Front socket terminal
    - E4Kâ€‰Park Lamp â€“ Right Front socket terminal

cardiagn.com

- E5AAâ€‰Tail/Stop Lamp â€“ Left terminalâ€‰1
- E5ABâ€‰Tail/Stop Lamp â€“ Right terminalâ€‰1
- E7â€‰License Plate Lamp terminalâ€‰1

12.

- **If 10â€‰â„¦ or greater**

13.

1. Ignition OFF.
2. Test for less than 2â€‰â„¦ in the ground circuit end to end.
3.
   - If 2â€‰â„¦ or greater, repair the open/high resistance in the circuit.
   - If less than 2â€‰â„¦, repair the open/high resistance in the ground connection.

14.

- **If less than 10â€‰â„¦**

15. Connect a test lamp between the appropriate control circuit terminal listed below and ground.

16.

- E4Nâ€‰Park/Turn Signal Lamp â€“ Left terminalâ€‰3
- E4Pâ€‰Park/Turn Signal Lamp â€“ Right terminalâ€‰3
- E4Jâ€‰Park Lamp â€“ Left Front socket terminal
- E4Kâ€‰Park Lamp â€“ Right Front socket terminal
- E5AAâ€‰Tail/Stop Lamp â€“ Left terminalâ€‰3
- E5ABâ€‰Tail/Stop Lamp â€“ Right terminalâ€‰3
- E7â€‰License Plate Lamp terminalâ€‰2

17. Verify the test lamp turns ON and OFF when connecting the test lamp to ground and disconnecting to ground.

18.

- **If the test lamp is always OFF and the circuit fuse is good**

19.

1. Ignition OFF, remove the test lamp, disconnect the X1 and X3 harness connectors at the X50Aâ€‰Fuse Block â€“ Underhood.
2. Test for less than 2â€‰â„¦ in the control circuit end to end.
3.
   - If 2â€‰â„¦ or greater, repair the open/high resistance in the circuit.
   - If less than 2â€‰â„¦, replace the X50Aâ€‰Fuse Block â€“ Underhood.

20.

- **If the test lamp is always OFF and the circuit fuse is open**

21.

1. Ignition OFF, remove the test lamp.
2. Test for infinite resistance between the control circuit and ground.

cardiagn.com

3.

- If less than infinite resistance, repair the short to ground on the circuit.
- If infinite resistance, test or replace the appropriate park lamp.

22.

- **If the test lamp is always ON**

23.

1. Ignition OFF, remove the test lamp, disconnect the X1 and X3 harness connectors at the X50Aâ€‰Fuse Block â€“ Underhood, Ignition ON.
2. Test for less than 1 V between the control circuit and ground.
3.

- If 1 V or greater, repair the short to voltage on the circuit.
- If less than 1 V, replace the X50Aâ€‰Fuse Block â€“ Underhood.

24.

- **If the test lamp turns ON and OFF**

25. Test or replace the appropriate park lamp.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

- Turn Signal Switch Replacement
- Parking and Turn Signal Lamp Bulb Replacement
- Tail Lamp Replacement
- Stop and Tail Lamp Bulb Replacement

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. DIAGNOSTIC INFORMATION AND PROCEDURES
4.

Stop Lamps Malfunction

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Stop Lamp Switch B+	1	1	â€”	â€”
Stop Lamps Control	1	1	1	â€”
Stop Lamp â€“ Left Ground	â€”	1	â€”	â€”
Stop Lamp â€“ Right Ground	â€”	1	â€”	â€”
1. Stop Lamps Malfunction				

Circuit/System Description

Battery voltage is supplied at all times to the stop lamp switch. When the brake pedal is pressed, battery voltage is applied through the stop lamp switch and the stop lamp control circuit illuminating the stop lamps.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the inoperative stop lamp.
2. Ignition OFF, test for less than 5â€‰Î© between the ground circuit terminal and ground.
3.
    - If greater than the specified range, test the ground circuit for an open/high resistance.
4. Connect the harness connector at the inoperative stop lamp.
5. Ignition OFF, disconnect the harness connector at the stop lamp switch.
6. Verify that a test lamp illuminates between the B+ circuit terminalâ€‰4 and ground.
7.
    - If the test lamp does not illuminate, test the B+ circuit for a short to ground or an open/high resistance.
8. Verify that a test lamp does not illuminate between the control circuit terminalâ€‰2 and ground.
9.
    - If the test lamp illuminates, test the control circuit for a short to voltage.
10. Connect a 10â€‰A fused jumper between the B+ circuit terminalâ€‰4 and the control circuit terminalâ€‰2. Ignition ON, verify the stop lamps are illuminated.
11.
    - If the stop lamps do not illuminate, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, test or replace the inoperative stop lamp.
12. If all circuits test normal, replace the stop lamp switch.

Repair Instructions

cardiagn.com

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

- Tail Lamp Replacement
- Stop Lamp Switch Replacement

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. DIAGNOSTIC INFORMATION AND PROCEDURES
4.

Turn Signal Lamps and/or Indicators Malfunction

Diagnostic Instructions

- Perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions provides an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Turn Signal/Hazard Flasher Module B+	1, 2	1, 2	â€”	â€”
Turn Signal/Hazard Flasher Module Ground	â€”	1, 2	1, 2	â€”
Left Front Turn Signal Lamp Supply Voltage	1	1	3	â€”
Right Front Turn Signal Lamp Supply Voltage	2	2	4	â€”
Left Rear Turn/Stop Lamps Supply Voltage	1	1	3	â€”
Right Rear Turn/Stop Lamps Supply Voltage	2	2	4	â€”
1. Left turn signal is inoperative 2. Right turn signal is inoperative 3. Left turn signal is always ON 4. Right turn signal is always ON				

Circuit/System Description

Turn signal/multi-function switch provides a pulsating voltage to the turn signal lamps with the switch in the left or right position. The turn signal lamps may only be activated with the ignition switch in the ON or START position. When the turn signal/multifunction switch is placed in either the TURN RIGHT or TURN LEFT position, the turn signal/hazard flasher module then applies a pulsating voltage to the front and rear turn signal lamps and instrument cluster indicators through their respective voltage supply circuits.

Circuit/System Verification

Ignition ON, observe the turn signal lamps while switching the Turn Signal/Multi-Function Switch between the left and right positions. The lamps should turn ON and OFF.

- If the lamps do not turn ON and OFF when changing between the commanded states, refer to Turn Signal/Hazard Flasher Module Malfunction.
- If the lamps do turn ON and OFF between the commanded states and the instrument cluster turn signal indicators are inoperative, refer to Turn Signal Indicators Malfunction.

Circuit/System Testing

Turn Signal/Hazard Flasher Module Malfunction

1. Ignition OFF, disconnect the harness connector at the K72â€‰Turn Signal/Hazard Flasher Module.
2. Ignition OFF, verify that a test lamp illuminates between B+ and the ground circuit terminalâ€‰8.
3.
    - If the test lamp does not illuminate, test the ground circuit for an open/high resistance.
4. Ignition ON, verify that a test lamp illuminates between B+ circuit terminalâ€‰2 and ground.
5.
    - If the test lamp does not illuminate, test the B+ circuit for a short to ground or an open/high resistance. If the circuit tests normal, test

carmagn.com

or replace K72â€‰Turn Signal/Hazard Flasher Module.

Turn Signal Lamps Malfunction

1. Ignition OFF, disconnect the harness connector at the inoperative turn signal lamp.
2. Disconnect the negative terminal of the C1â€‰Battery.
3. Ignition OFF, exterior lamps OFF, test for less than 5â€‰â„¦ between the appropriate ground circuit terminal listed below and ground.
4.
   - E4LFâ€‰Turn Signal Lamp â€“ Left Front ground circuit terminalâ€‰2
   - E4RFâ€‰Turn Signal Lamp â€“ Right Front ground circuit terminalâ€‰2
   - E4LRâ€‰Turn Signal Lamp â€“ Left Rear ground circuit terminalâ€‰1
   - E4RRâ€‰Turn Signal Lamp â€“ Right Rear ground circuit terminalâ€‰1
   - E4Yâ€‰Turn Signal Repeater Lamp â€“ Left ground circuit terminalâ€‰1
   - E4Zâ€‰Turn Signal Repeater Lamp â€“ Right ground circuit terminalâ€‰1
   - E4Nâ€‰Park/Turn Signal Lamp â€“ Left ground circuit terminalâ€‰B
   - E4Pâ€‰Park/Turn Signal Lamp â€“ Right ground circuit terminalâ€‰B
5.
   - If greater than the specified range, test the ground circuit for an open/high resistance.
6. Reconnect the negative terminal to the C1â€‰Battery.
7. Connect a test lamp between the appropriate control circuit terminal listed below and ground.
8.
   - E4LFâ€‰Turn Signal Lamp â€“ Left Front ground circuit terminalâ€‰2
   - E4RFâ€‰Turn Signal Lamp â€“ Right Front ground circuit terminalâ€‰2
   - E4LRâ€‰Turn Signal Lamp â€“ Left Rear ground circuit terminalâ€‰1
   - E4RRâ€‰Turn Signal Lamp â€“ Right Rear ground circuit terminalâ€‰1
   - E4Yâ€‰Turn Signal Repeater Lamp â€“ Left ground circuit terminalâ€‰1
   - E4Zâ€‰Turn Signal Repeater Lamp â€“ Right ground circuit terminalâ€‰1
   - E4Nâ€‰Park/Turn Signal Lamp â€“ Left ground circuit terminalâ€‰B
   - E4Pâ€‰Park/Turn Signal Lamp â€“ Right ground circuit terminalâ€‰B
9. Command the appropriate Turn Signal Lamp ON and OFF with turn Signal/Multi-Function Switch. The test lamp should turn ON and OFF when changing between the commanded states.
10.
    - If the test lamp is always ON, test the control circuit for a short to voltage. If the circuit tests normal, replace the K72â€‰Turn Signal/Hazard Flasher Module.
    - If the test lamp is always OFF, test the control circuit for a short to ground or an open/high resistance. If the circuit tests normal, replace the K72â€‰Turn Signal/Hazard Flasher Module.
11. If all circuits test normal, replace the appropriate turn signal lamp assembly.

Turn Signal Indicators Malfunction

Ignition ON, command the All Indicators ON and OFF with the hazard warning switch, verify both turn signal indicators changes between turn ON and OFF.

cardiagn.com

- If both turn signal indicators changes between illuminate and not illuminate during the test, replace the K72â€‰Turn Signal/Hazard Flasher Module.
- If one or both turn signal indicators do not illuminate during the test or remain illuminated at all times, replace the P16â€‰Instrument Cluster.

Component Testing

Static Test â€“ Turn Signal Switch

1. Ignition OFF, disconnect the harness connector at the S78â€‰Turn Signal/Multi-Function Switch.
2. Remove S78â€‰Turn Signal/Multi-Function Switch.
3. Test for greater than 500â€‰Kâ€‰â„¦ between terminalâ€‰1â€‰(X1) and terminalâ€‰2â€‰(X1).
4.
    - If less than the specified value, replace the S78â€‰Turn Signal/Multi-Function Switch.
5. Test for greater than 500â€‰Kâ€‰â„¦ between terminalâ€‰3â€‰(X1) and ground terminalâ€‰2â€‰(X1).
6.
    - If less than the specified value, replace the S78â€‰Turn Signal/Multi-Function Switch
7. Push the S78â€‰Turn Signal/Multi-Function Switch turn left. Test for less than 5â€‰â„¦ between signal terminalâ€‰1â€‰(X1) and ground terminalâ€‰2â€‰(X1).
8.
    - If greater than the specified value, replace the S78â€‰Turn Signal/Multi-Function Switch.
9. Push the S78â€‰Turn Signal/Multi-Function Switch turn right. Test for less than 5â€‰â„¦ between signal terminalâ€‰3â€‰(X1) and ground terminalâ€‰2â€‰(X1).
10.
    - If greater than the specified value, replace the S78â€‰Turn Signal/Multi-Function Switch.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

- Front Headlamp Replacement
- Tail Lamp Replacement

cardiagn.com

Repair Instructions

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Stop Lamp Switch Adjustment

1. Disconnect the stop lamp switch connector.
2. Remove the stop lamp switch. Refer to Stop Lamp Switch Replacement.
3. Pull out the plunger of the stop lamp switch to its maximum setting point.
4. Install the stop lamp switch to the brake pedal bracket by twisting. Refer to Stop Lamp Switch Replacement.
5. Depress the brake pedal to the bottom.
6. Release the brake pedal slowly until reaching the end of the stop lamp switch plunger and the stop lamp switch will be adjusted of itself by the reaction force of the brake pedal.
7. Connect the stop lamp switch connector.

Related Part Information

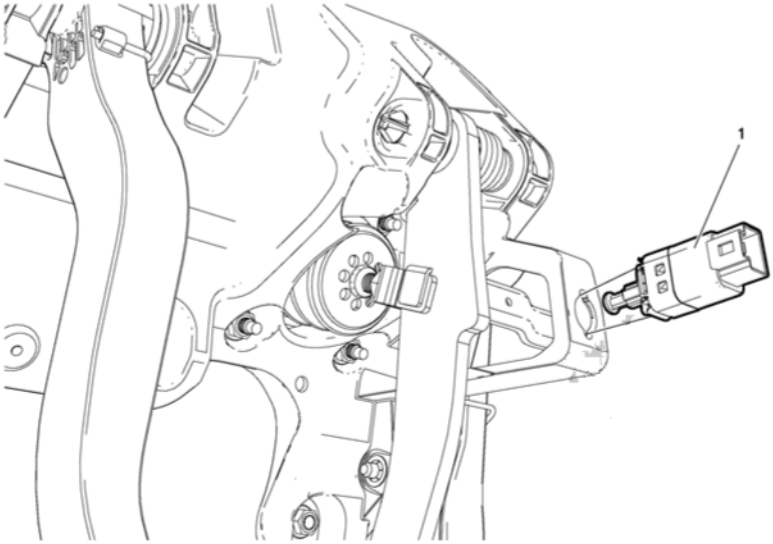
Part Name	Catalog Name	Part Code
Stop Lamp Switch	SWITCH KIT,S/LP	1749Z
Stop Lamp Switch	SWITCH,S/LP	1750A

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Stop Lamp Switch Replacement

cardiagn.com





cardiagn.com

Click here for full size

Callout	Component Name
Preliminary Procedure Remove the steering column opening filler. Refer to Steering Column Opening Filler Replacement.	
1	Stop Lamp Switch Procedure 1. Disconnect the electrical connector. 2. Rotate the stop lamp switch counterclockwise to remove from the bracket. 3. Rotate the stop lamp switch clockwise to install to the bracket. 4. Adjust the stop lamp switch. Refer to Stop Lamp Switch Adjustment.

Related Part Information

Part Name	Catalog Name	Part Code

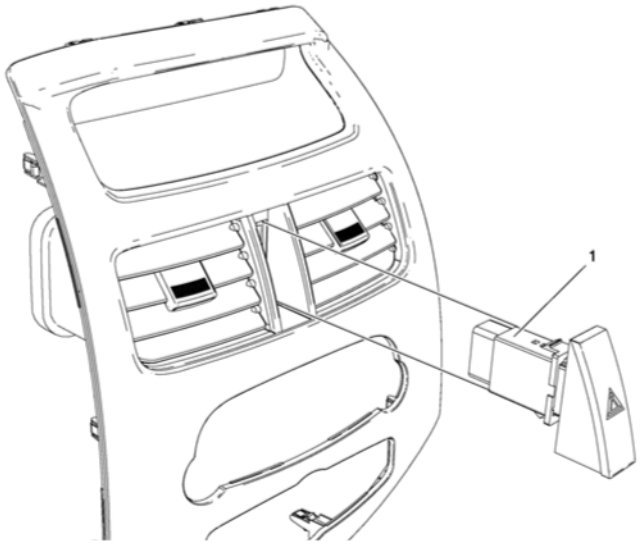
Part Name	Catalog Name	Part Code
Stop Lamp Switch	SWITCH KIT,S/LP	1749Z
Stop Lamp Switch	SWITCH,S/LP	1750A

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Hazard Warning Switch Replacement

cardiagn.com





cardiagn.com

Click here for full size

Callout	Component Name
Preliminary Procedure Remove the instrument panel center molding. Refer to Instrument Panel Center Molding Replacement	
1	Hazard Warning Switch Procedure 1. Disconnect the electrical connector. 2. Squeeze tabs on switch to unsnap from housing bracket.

1. **BODY SYSTEMS**
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Center Courtesy Lamp Replacement

Click here for full size

Callout	Component Name
1	Center Courtesy Lamp Fasteners (Qty:â€‰2) Caution: Refer to Fastener Caution.
2	Center Courtesy Lamp Procedure Disconnect the electrical connections.

Related Part Information

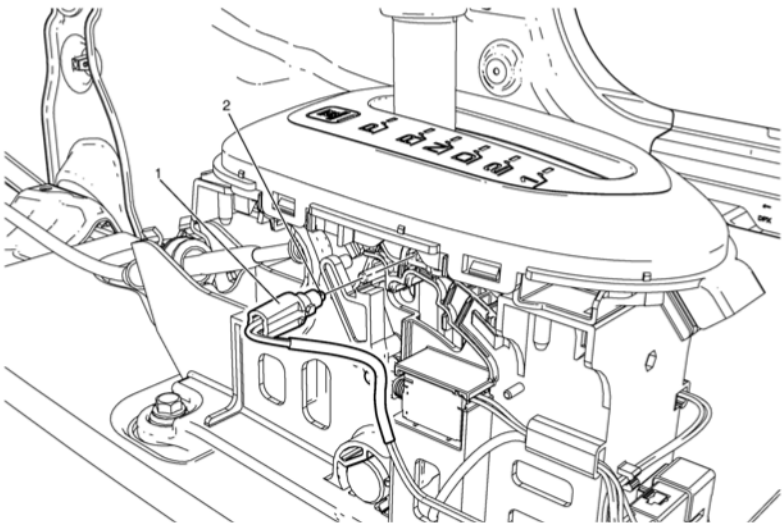
Part Name	Catalog Name	Part Code
Center Courtesy Lamp	LAMP,CTR CTSY	3081A

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Transmission Control Position Indicator Bulb Replacement

cardiagn.com





cardiagn.com

Click here for full size

Callout	Component Name
Preliminary Procedure Remove floor console. Refer to Front Floor Console Replacement.	
1	Transmission Control Position Indicator Socket Warning: Refer to Halogen Bulb Warning. Note: Rotate counterclockwise and remove the socket from the transmission control assembly.
2	Transmission Control Position Indicator Bulb Procedure Pull the bulb straight from the lamp harness socket.

Related Part Information

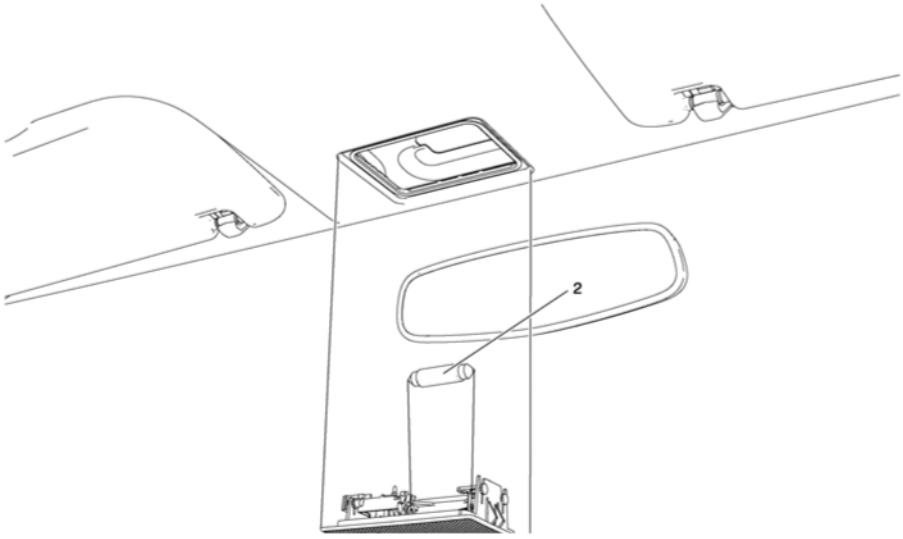
Part Name	Catalog Name	Part Code
Automatic Transmission Control Position Indicator Bulb	BULB,A/TRNS CONT POSN IND	0760A

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Dome Lamp Replacement

cardiagn.com





cardiagn.com

Click here for full size

Callout	Component Name
1	Dome Lamp
2	Dome Lamp Bulb (Qty:â€‰1)

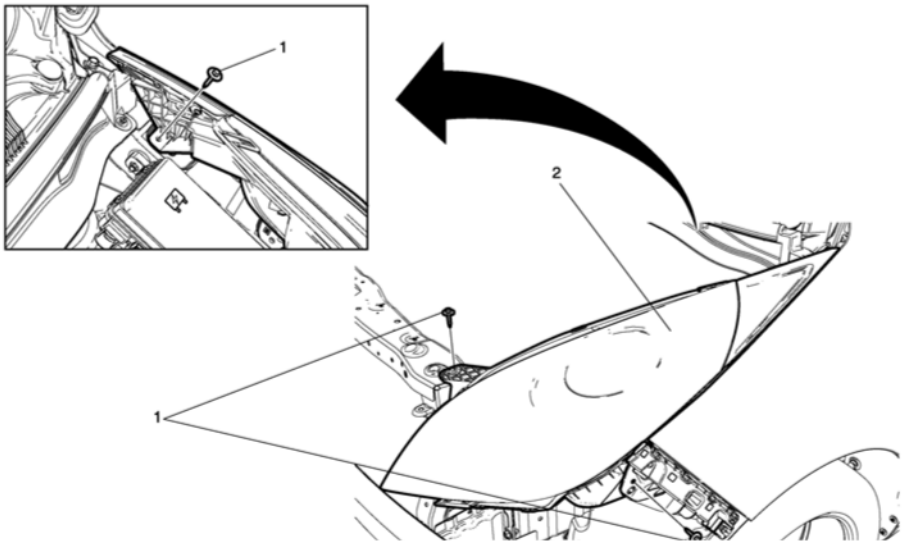
Related Part Information

Part Name	Catalog Name	Part Code
Dome Lamp	LAMP KIT,DM	2989Z
Dome Lamp	LAMP,DM	2990A

1. BODY SYSTEMS
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Front Headlamp Replacement

cardiagn.com





cardiagn.com

Click here for full size

Callout	Component Name
Preliminary Procedure Remove the front bumper fascia. Refer to Front Bumper Fascia Replacement.	
1	Headlamp Screw (Qty:â€‰3) Caution: Refer to Fastener Caution. Tighten 2.5â€‰N-m (22â€‰lbâ€‰in)

Callout	Component Name
2	Headlamp Assembly Procedure 1. Pull the headlamp assembly forward far enough to access the electrical connection. 2. Disconnect the headlamp electrical connector from the forward lamp harness connector. 3. Remove the headlamp assembly. 4. Aim the headlamps after installation. Refer to Front Headlamp Aiming.

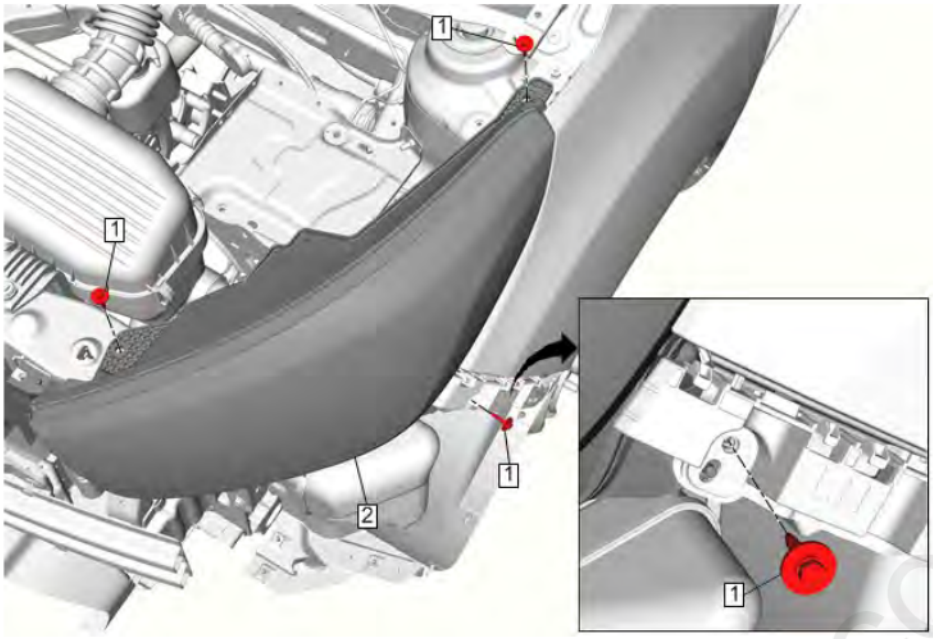
Related Part Information

Part Name	Catalog Name	Part Code
Headlamp	HEADLAMP,(HIGH BEAM)	0010A
Headlamp	HEADLAMP,(LOW BEAM)	0015A
Headlamp	HEADLAMP,(W/LVLG ACTR)	0022A
Headlamp	HEADLAMP,(RPR)	0022B
Headlamp	HEADLAMP,(W/PARK & T/SIG LP)	0023A
Headlamp	HEADLAMP,(W/ FRT FOG LP)	0023B
Headlamp	HEADLAMP,(W/COR LP)	0023C
Headlamp	HEADLAMP,(W/PARK & FRT SI MKR & T/SIG LP)	0023D
Headlamp	HEADLAMP,(W/T/SIG LP)	0023E
Headlamp	HEADLAMP,(W/FRT SI MKR & COR LP)	0023F
Headlamp	HEADLAMP,(W/FRT SI MKR LP)	0023G
Headlamp	HEADLAMP,(W/ FOG & FRT SI MKR & PARK & T/SIG LP)	0023H
Headlamp	HEADLAMP,(W/ FRT SI MKR & COR & PARK & T/SIG LP)	0023J
Headlamp	HEADLAMP,(W/OPG DR ACTR)	0024A
Headlamp	HEADLAMP,(W/OPG HSG ACTR)	0024B
Headlamp	HEADLAMP,(W/OPG HSG ACTR)	0024C
Headlamp	HEADLAMP KIT,	0024Y
Headlamp	HEADLAMP PKG,	0024Z
Headlamp	HEADLAMP,	0025A
Headlamp	HEADLAMP,(W/O BULB)	0025B
Headlamp	HEADLAMP,(W/ LVLG & DIRECTIONAL ACTR)	9767A

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Front Headlamp Replacement (PMC)



Click here for full size

Callout	Component Name
Preliminary Procedure Front Bumper Fascia Replacement	
1	Headlamp Bolt [3>x] Caution: Refer to Fastener Caution. Tighten 2.5N-m (22 lb in)
2	Headlamp Procedure 1. Disconnect the electrical connector. 2. Perform the headlamp aiming procedure. Front Headlamp Aiming

Related Part Information

Part Name	Catalog Name	Part Code
Headlamp	HEADLAMP,(HIGH BEAM)	0010A
Headlamp	HEADLAMP,(LOW BEAM)	0015A
Headlamp	HEADLAMP,(W/LVLG ACTR)	0022A
Headlamp	HEADLAMP,(RPR)	0022B
Headlamp	HEADLAMP,(W/PARK & T/SIG LP)	0023A
Headlamp	HEADLAMP,(W/ FRT FOG LP)	0023B
Headlamp	HEADLAMP,(W/COR LP)	0023C
Headlamp	HEADLAMP,(W/PARK & FRT SI MKR & T/SIG LP)	0023D
Headlamp	HEADLAMP,(W/T/SIG LP)	0023E

cardiagn.com

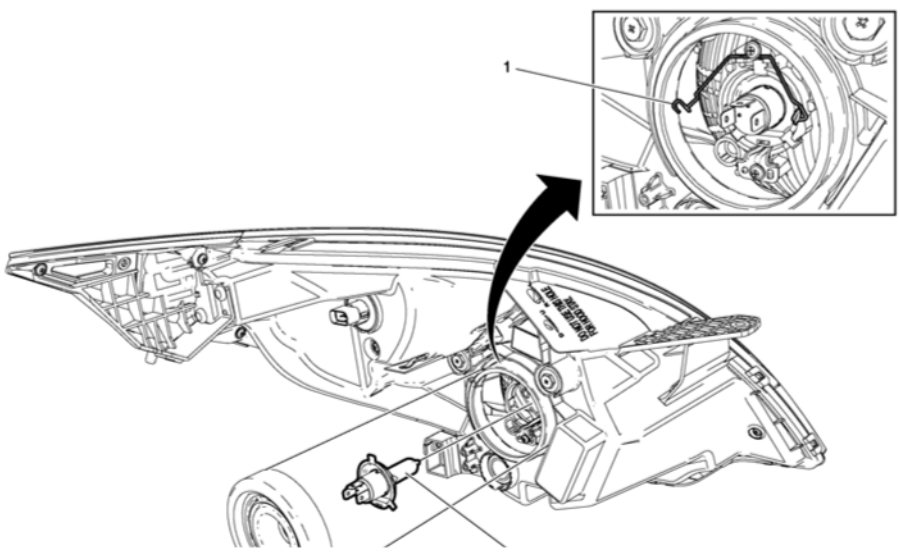
Part Name	Catalog Name	Part Code
Headlamp	HEADLAMP,(W/FRT SI MKR & COR LP)	0023F
Headlamp	HEADLAMP,(W/FRT SI MKR LP)	0023G
Headlamp	HEADLAMP,(W/ FOG & FRT SI MKR & PARK & T/SIG LP)	0023H
Headlamp	HEADLAMP,(W/ FRT SI MKR & COR & PARK & T/SIG LP)	0023J
Headlamp	HEADLAMP,(W/OPG DR ACTR)	0024A
Headlamp	HEADLAMP,(W/OPG HSG ACTR)	0024B
Headlamp	HEADLAMP,(W/OPG HSG ACTR)	0024C
Headlamp	HEADLAMP KIT,	0024Y
Headlamp	HEADLAMP PKG,	0024Z
Headlamp	HEADLAMP,	0025A
Headlamp	HEADLAMP,(W/O BULB)	0025B
Headlamp	HEADLAMP,(W/ LVLG & DIRECTIONAL ACTR)	9767A

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Headlamp Bulb Replacement

cardiagn.com





cardiagn.com

Click here for full size

Callout	Component Name
Preliminary Procedure Remove the headlamp bulb dust cover.	
1	Headlamp Bulb Socket Bracket Tip Disconnect the electrical connector.
2	Headlamp Bulb Warning: Refer to Halogen Bulb Warning. Procedure Remove the bulb from the lamp socket.

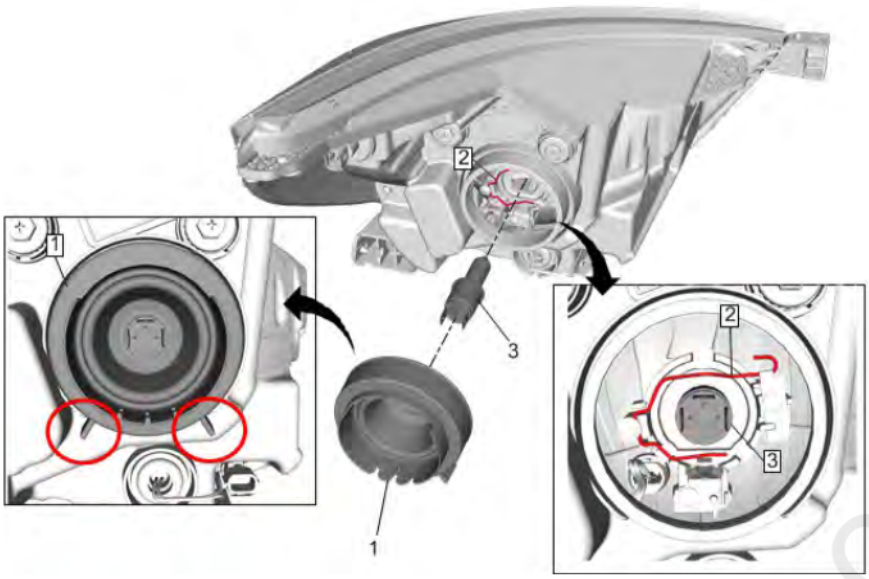
Related Part Information

Part Name	Catalog Name	Part Code
Headlamp Bulb	BULB,HDLP	0075A
Headlamp Bulb	BULB,HDLP(LOW BEAM)	0075B
Headlamp Bulb	BULB,HDLP(HIGH BEAM)	0075C
High Beam Headlamp Bulb	BULB,HIGH BEAM HDLP	0075D
Low Beam Headlamp Bulb	BULB,LOW BEAM HDLP	0075E
Headlamp Bulb	BULB,HDLP	0075F

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Headlamp Bulb Replacement (PMC)



Click here for full size

Callout	Component Name
1	Headlamp Bulb Dust Cover Procedure 1. Disconnect the electrical connector. 2. Inspect the proper installation of dust cover.
2	Headlamp Bulb Socket Bracket
3	Headlamp Bulb Warning : Halogen Bulb Warning

Related Part Information

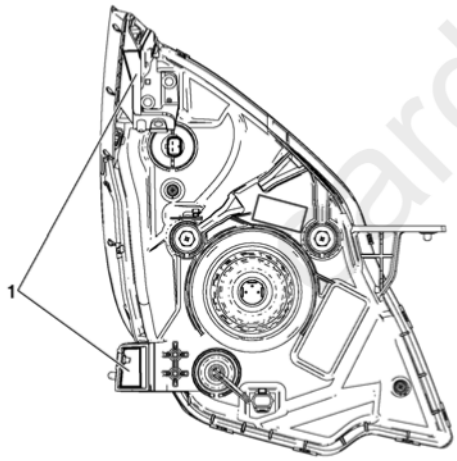
Part Name	Catalog Name	Part Code
Headlamp Bulb	BULB,HDLP	0075A
Headlamp Bulb	BULB,HDLP(LOW BEAM)	0075B
Headlamp Bulb	BULB,HDLP(HIGH BEAM)	0075C
High Beam Headlamp Bulb	BULB,HIGH BEAM HDLP	0075D
Low Beam Headlamp Bulb	BULB,LOW BEAM HDLP	0075E
Headlamp Bulb	BULB,HDLP	0075F

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Headlamp Bracket Replacement

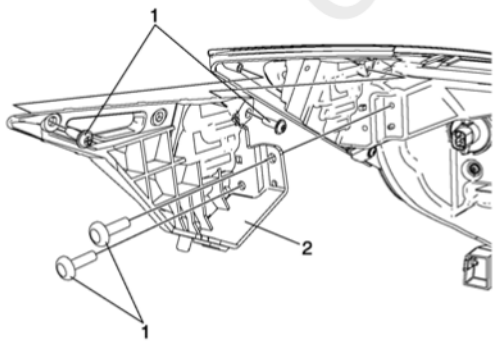
Removal Procedure



ardiagn.com

1. Click here for full size
2. Remove the headlamp. Refer to Front Headlamp Replacement.
3. There are 2 replacement brackets (1) on each headlamp.

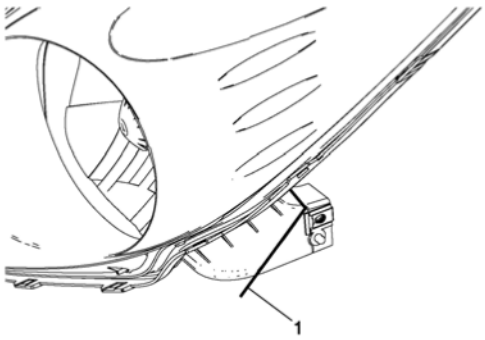
cardiagn.com



4.
Click here for full size

5. For bracket , 1 remove the screwsâ€‰(1) and bracket 1â€‰(2).

cardiagn.com

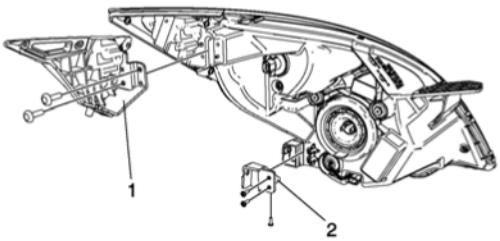


6.
Click here for full size

7. For bracket 2, cut the bracket along the marked lineâ€‰(1).

Installation Procedure

cardiagn.com



1. Click here for full size
2. For bracket 1, install the bracket (1) with the specified attachments.
3. For bracket 2, install the bracket (2) with the specified attachments.
4. Install the headlamp. Refer to Front Headlamp Replacement.

Related Part Information

Part Name	Catalog Name	Part Code
Headlamp Bracket	BRACKET KIT,HDLP	0354Z
Headlamp Bracket	BRACKET,HDLP	0355A
Headlamp Bracket	BRACKET,HDLP (RPR)	0355B
Headlamp Bracket	BRACKET,HDLP	0360A

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Front Headlamp Aiming

Visual Aiming Preparation Procedure

Note**:**

Some state and local laws specify requirements for headlamp aim. Comply with all of these laws when performing any headlamp aiming operations.

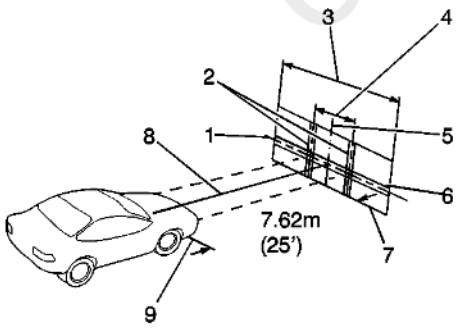
Headlamp aim should be checked:

- When a new headlamp capsule is installed.
- If service or repairs to the front end area have, or may have, disturbed the headlamps or their mounting.

The aiming screen should meet the following criteria:

- The area will consist of a level surface large enough to allow for a vehicle and an additional 7.62â€‰mâ€‰(25 ft) measured from face of lamps to the front of the aiming screen.
- The screen will be 1.52â€‰mâ€‰(5 ft) high x 3.66â€‰mâ€‰(12 ft) wide with a matte white surface well shaded from extraneous light, and properly adjusted to the floor on which the vehicle stands. Provisions should be made to align the aiming screen parallel with the vehicle.
- The screen shall be provided with a fixed vertical centerline, two laterally adjustable vertical tapes, and one vertically adjustable horizontal tape.
- If a regular commercial aiming screen is not available, the screen may consist of a vertical wall having a clear uninterrupted area approximately 1.83â€‰mâ€‰(6 ft) high and 3.66â€‰mâ€‰(12 ft) wide. The surface should be finished with a washable non-gloss white paint.

cardiagn.com



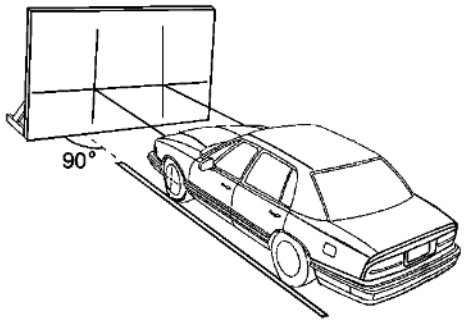
- Click here for full size

- After the aiming screen has been set up in a permanent location, paint a reference line on the floor directly under the lens of the lamps to indicate the proper location of the headlamps when they are being aimed:
-
    - Distance between headlampsâ€‰(1)
    - Center line of screenâ€‰(2)
    - Adjustable vertical pointerâ€‰(3)
    - Adjustable horizontal tapeâ€‰(4)
    - Diagram of light screenâ€‰(5)
    - Vertical center line ahead of right headlamp pointer positionâ€‰(6)
    - 7.62â€‰mâ€‰(25 ft)â€‰(7)
    - Car axisâ€‰(8)
    - Adjustable vertical pointer
    - Horizontal center line of lamps
    - Vertical center line ahead of left headlamp

Prior to aiming the headlamps, the following steps must be taken:

1. Remove any snow, ice or mud from the vehicle.
2. The vehicle must have a full tank of gas.
3. Stop all other work on the vehicle.
4. If any service has been performed on the vehicle, make sure that all of the components are back in their original place.
5. The vehicle must be on a level surface.

cardiagn.com

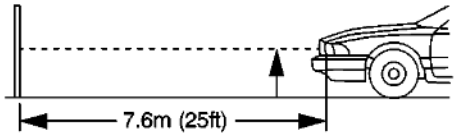


6. Click here for full size
7. The vehicle left tires must be aligned with the reference line extending from the screen with the headlamps aligned with the reference line.
8. Do not load any cargo in the vehicle.
9. The vehicle must contain approximately 75â€‰kg (165â€‰lb) on the driver seat.
10. Inflate the tires to the proper pressure.
11. Simulate the vehicle loads if the intended use of the vehicle is for hauling heavy loads or towing a trailer.
12. Rock the vehicle in order to stabilize the suspension.
13. Turn on the headlamps to low beam and observe the left and the top edges of the high intensity zone on the screen. The edges of the high intensity zone should fall within the specifications.

Headlamp Aiming Procedure

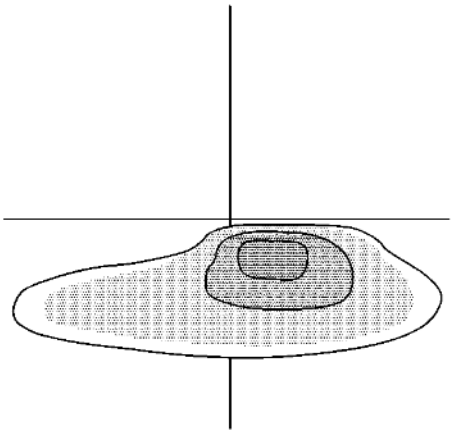
1. Open the hood.

cardiagn.com



2. Click here for full size
3. Measure from the floor to the center of the headlamp bulb. Some headlamps have an aim dot marked on the headlamp lens.
4. At the screen, measure from the floor and place the horizontal tape at the measured distance.
5. Measure from the reference line on the floor to the left headlamp bulb centerline.
6. At the screen, measure from the reference line and place the vertical tape at the measured distance.
7. Measure from the reference line on the floor to the right headlamp bulb centerline.
8. At the screen, measure from the reference line and place the vertical tape at the measured distance.

cardiagn.com

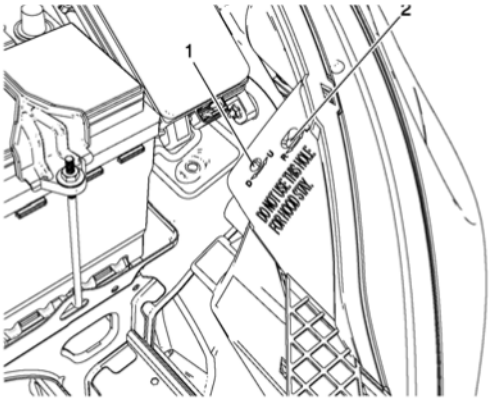


9. [Click here for full size]
10. Note:

    DO NOT cover the headlamp. This may cause excessive heat build up.

11. Turn ON the low beam headlamps. Block the light from projecting onto the screen from the passenger side headlamp.

cardiagn.com



12. Click here for full size
13. Adjust the vertical aim screwâ€‰(1) and horizontal aim screwâ€‰(2) of the headlamps to the specifications required by the state and the local authorities, or as shown in step numberâ€‰8.
14. Repeat the aiming procedure for the passenger side headlamp while blocking the light from projecting onto the screen from the driver side headlamp.
15. Turn the headlamps OFF.
16. Close the hood.

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Front Headlamp Aiming (PMC)

General

Directive 76/756 EEC and ECE-Regulation 48 cover checking and aiming of headlamps on vehicle. Correct aiming of headlamps of vehicles should enable optimal road illumination by the low beam-, with minimal glare to oncoming traffic. For this purpose the inclination of the light beam in relation to the road surface and the angle of the beam to the vertical longitudinal plane running through the vehicle centre must comply with the requirements laid down in the ECE regulation and EEC directive.

Glaring of the low beam is considered eliminated if the intensity of the illumination at a distance of 25â€‰mâ€‰(82â€‰ft) from each individual headlamp on the plane perpendicular to the road and at the height of the headlamp as well as above, is not greater than 1 lux. This requirement is generally satisfied if the headlamp aiming is carried out according to these aiming guidelines.

For the nondazzling high beam (Intelilux) special attention must be turned to the correct lateral alignment of the headlamps (low beam).

If a non-railed adjustment device will be used, the lateral orientation of the adjustment device has to be checked separately in front of each single headlamp.

The measurement of adjustment for the basic headlamp aiming is displayed in % on the headlamp housing.

cardiagn.com



cardiagn.com

Click here for full size

Example: Label for a headlamp inclination of 1.0% for the low beam on the headlamp.

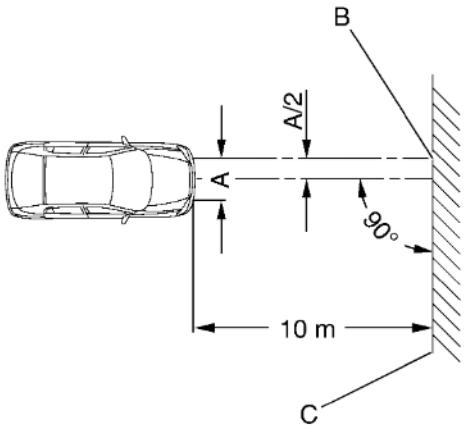
Reference 1.0â€‰percent corresponds to the adjustment dimension of the headlamp with reference to the inclination of the light beam. The inclination at a distance of 10â€‰mâ€‰(33â€‰ft) from vehicle headlamp is therefore 10â€‰cmâ€‰(4â€‰in). The inclination of the low beam headlamp is indicated by its light/dark boundary (cut-off line).

Depending on the specific inner design of the headlamps, the movement of the lightbeam on the measurement screen is not exactly vertical or horizontal during the aiming on the aiming screws. This is caused by the technical solution of the suspension of the reflectors in the headlamp housing. After aiming of one axis the aiming of the other axis should be rechecked. For instance the vertical aiming could be changed a bit after the aiming of the horizontal axis. Therefore the vertical axis must be checked and if necessary aimed again after the aiming of the horizontal axis.

If a headlamp shows a significant deviation from the correct aiming for both horizontal and vertical direction the aiming operation must be performed step by step for the two directions. This means that in such a case the aiming of horizontal and vertical direction must be done alternately in small steps. Not more than one turn of an aiming screw shall be performed at once. After one turn change to the other aiming screw. Repeat this procedure until the headlamp is correctly aimed.

Headlamp Beam Setter / Inspection Station

cardiagn.com



cardiagn.com

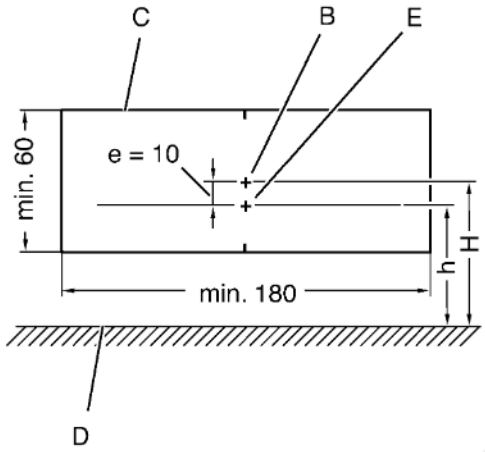
Click here for full size

Abbreviations used:

A = Horizontal distance between headlamp centres

B = Central marking

C = Test surface



cardiagn.com

Click here for full size

C = Test surface

D = Road surface

E = Break point (kink of cut-off line)

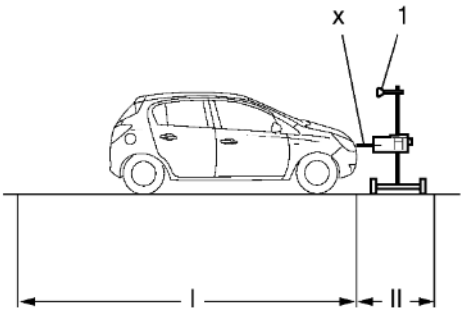
e = Aiming dimension in cm, e = H â€“ h (aiming dimension, low beam headlamps usually at 1.0â€‰percent, e = 10â€‰cmâ€‰(4â€‰in), front fog lamps 2.0â€‰percent, e = 20â€‰cmâ€‰(8â€‰in), high beam headlamps (if separately amiable) at 0â€‰percent, e = 0â€‰cmâ€‰(0â€‰in).

H = Height of centre of headlamp over road surface

h = Height of light/dark boundary line (cut-off line) of low beam above road surface

The headlamp aiming is performed according to the specifications, as shown in the illustrations, using an adjuster. When using a headlamp adjuster, set up the height and position of the adjuster according to the instructions in the operation manual. Ensure that the vehicle tire surface that is in contact with the road and the surface for setting up the adjuster are at the same level and parallel with each another.

cardiagn.com



cardiagn.com

Click here for full size

X = Center of adjuster lens (see arrow mark on adjuster housing) must be aligned on the same level as the low beam headlamp and must be parallel to the ground.

1 = Use marking of the control mirrorâ€‰(1) to align the adjuster system in the correct angle to the vehicle, based on the information shown in the owner operating instructions.

The distance between the adjuster lens and the headlamp must be max. 0,9 meters (refer to operation instructions of the adjuster system)

The surface on which the measuring instrument (adjuster system) and the vehicle stand must be flat. See follow table.

I difference utility space from vehicle	
longitudinal direction	**lateral direction**
Â±â€‰3â€‰mmâ€‰/â€‰m	Â±â€‰0â€‰mmâ€‰/â€‰1â€‰m
Â±â€‰5â€‰mmâ€‰/â€‰2m	Â±â€‰0â€‰mmâ€‰/â€‰2â€‰m
Â±â€‰7â€‰mmâ€‰/3â€‰m	Â±â€‰0â€‰mmâ€‰/â€‰3â€‰m
Â±â€‰9â€‰mmâ€‰/â€‰4â€‰m	Â±â€‰0â€‰mmâ€‰/â€‰4â€‰m
Â±â€‰10â€‰mmâ€‰/â€‰6â€‰m	Â±â€‰0â€‰mmâ€‰/â€‰6â€‰m
Â±â€‰11â€‰mmâ€‰/â€‰8â€‰m	Â±â€‰0â€‰mmâ€‰/â€‰8â€‰m

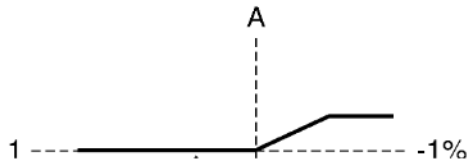
II difference utility space from vehicle	
longitudinal direction	**lateral direction**
Â±â€‰1â€‰mmâ€‰/â€‰1â€‰m	Â±â€‰1â€‰mmâ€‰/â€‰1â€‰m

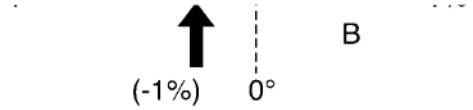
Vehicle tires must have specified air pressure. Blackened bulbs must be replaced before adjusting.

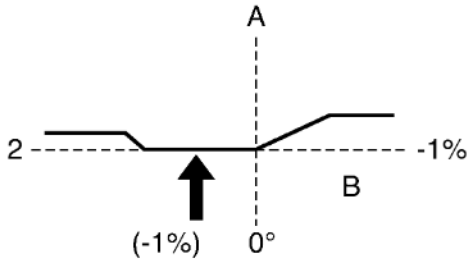
The adjustment is performed at vehicle curb weight plus one person or 75â€‰kgâ€‰(165â€‰lb) on the driver's seat. (Curb weight = weight of vehicle ready for use with 90% filled fuel tank plus the weight of all equipment carried during use, e.g. spare wheel, tools, jack, first aid kit, emergency warning triangle, etc.).

Light Pattern / Scheme of Headlamps

cardiagn.com







cardiagn.com

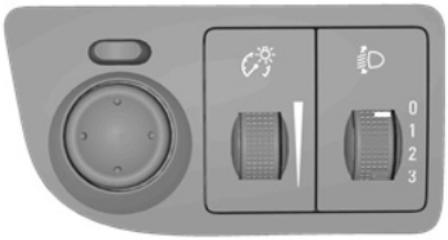
Click here for full size

A = Kink of cut-off line for the left/right setting

B = Horizontal area of the cut-off line for up/down setting

1 and 2 = Depending on the headlamp setup the outer sections will be straight or increasing.

Headlamp Aiming



Click here for full size

The headlamp switch must be turned on manual low beam if equipped, the manual headlamp range adjustment has to be in the zero position.

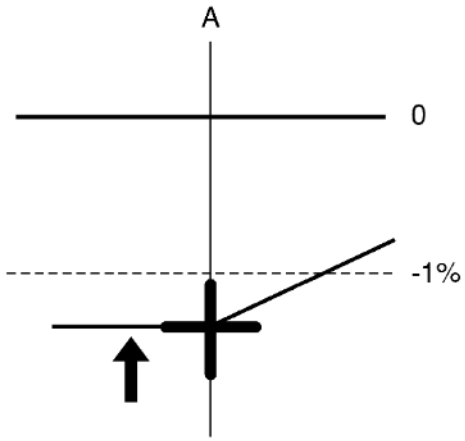


Click here for full size

Halogen Headlamp

- (1) Aiming screw for vertical adjustment
- (2) Aiming screw for horizontal adjustment

cardiagn.com



cardiagn.com

Click here for full size

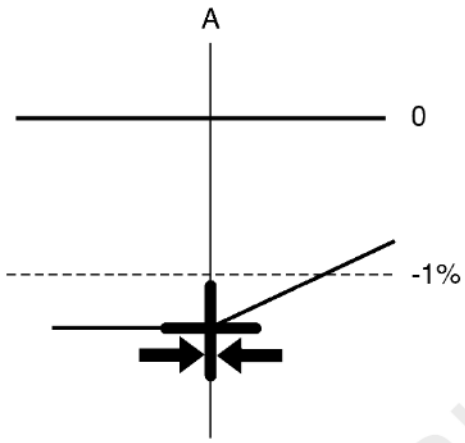
Note:

Guide and adjust the headlamps always from below to the horizontal area of the separation line

For the vertical adjustment (adjustment of the height), the separation line has to be on the left side of the adjustment cross parallel to the horizontal adjustment lineâ€‰(1).

Note:

At first perform the verticalâ€‰(1) and then the lateral adjustment. Check the vertical adjustment again after the lateral adjustment.



cardiagn.com

Click here for full size

To assure the correct lateral adjustment the horizontal increase (inflection point) must lay on the vertical separation line A (0 degree).

Note:

This description is valid for right hand traffic. For left hand traffic the light pattern of left and right side is mirrored.

Related Part Information

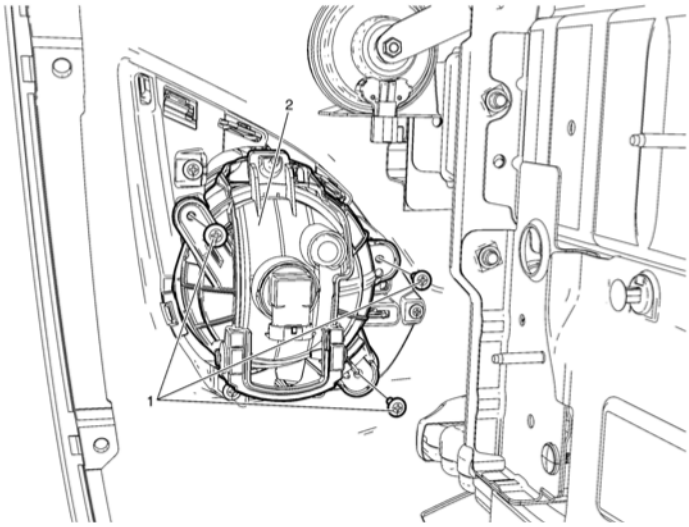
Part Name	Catalog Name	Part Code
Headlamp	HEADLAMP,(HIGH BEAM)	0010A
Headlamp	HEADLAMP,(LOW BEAM)	0015A
Headlamp	HEADLAMP,(W/LVLG ACTR)	0022A
Headlamp	HEADLAMP,(RPR)	0022B
Headlamp	HEADLAMP,(W/PARK & T/SIG LP)	0023A
Headlamp	HEADLAMP,(W/ FRT FOG LP)	0023B
Headlamp	HEADLAMP,(W/COR LP)	0023C
Headlamp	HEADLAMP,(W/PARK & FRT SI MKR & T/SIG LP)	0023D
Headlamp	HEADLAMP,(W/T/SIG LP)	0023E
Headlamp	HEADLAMP,(W/FRT SI MKR & COR LP)	0023F
Headlamp	HEADLAMP,(W/FRT SI MKR LP)	0023G
Headlamp	HEADLAMP,(W/ FOG & FRT SI MKR & PARK & T/SIG LP)	0023H
Headlamp	HEADLAMP,(W/ FRT SI MKR & COR & PARK & T/SIG LP)	0023J
Headlamp	HEADLAMP,(W/OPG DR ACTR)	0024A
Headlamp	HEADLAMP,(W/OPG HSG ACTR)	0024B
Headlamp	HEADLAMP,(W/OPG HSG ACTR)	0024C
Headlamp	HEADLAMP KIT,	0024Y
Headlamp	HEADLAMP PKG,	0024Z
Headlamp	HEADLAMP,	0025A
Headlamp	HEADLAMP,(W/O BULB)	0025B
Headlamp	HEADLAMP,(W/ LVLG & DIRECTIONAL ACTR)	9767A

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Front Fog Lamp Replacement (Base)

cardiagn.com





cardiagn.com

Click here for full size

Callout	Component Name
	Preliminary Procedures 1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle. 2. Remove the front wheelhouse liner. Refer to Front Wheelhouse Liner Replacement. 3. Disconnect fog lamp bulb socket electrical connector.
1	Front Fog Lamp Screw (Qty:â€‰3)
2	Front Fog Lamp Assembly Procedure 1. Remove the lamp assembly from the fog lamp bracket. 2. Aim the fog lamp after installation. Refer to Fog Lamp Aiming.

Related Part Information

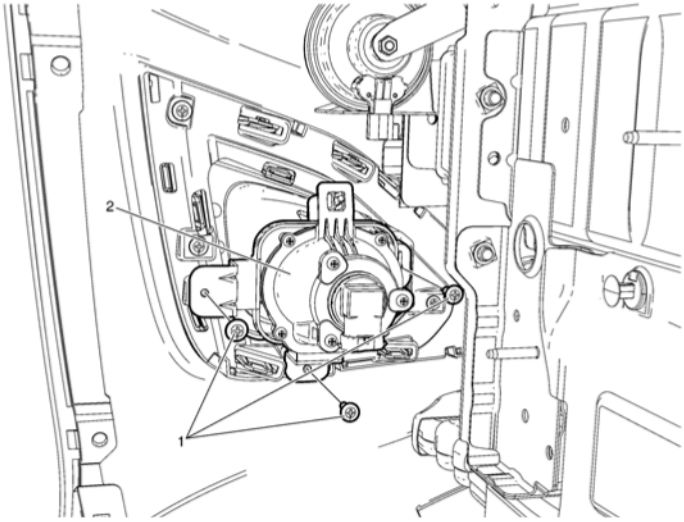
Part Name	Catalog Name	Part Code
Front Fog Lamp	LAMP KIT,FRT FOG	9049Z
Front Fog Lamp	LAMP,FRT FOG	9050A
Front Fog Lamp	LAMP,FRT FOG (RH PROC)	9050B
Front Fog Lamp	LAMP,FRT FOG (W/O BULB)	9050M
Front Fog Lamp	LAMP PKG,FRT FOG	9051A
Front Fog Lamp	LAMP PKG,FRT FOG	SS274

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Front Fog Lamp Replacement (Projection)

cardiagn.com





cardiagn.com

Click here for full size

Callout	Component Name
	Preliminary Procedures 1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle. 2. Remove the front wheelhouse liner. Refer to Front Wheelhouse Liner Replacement. 3. Disconnect fog lamp bulb socket electrical connector.
1	Front Fog Lamp Screw (Qty:â€‰3)
2	Front Fog Lamp Assembly Procedure 1. Remove the lamp assembly from the fog lamp bracket. 2. Aim the fog lamp after installation. Refer to Fog Lamp Aiming.

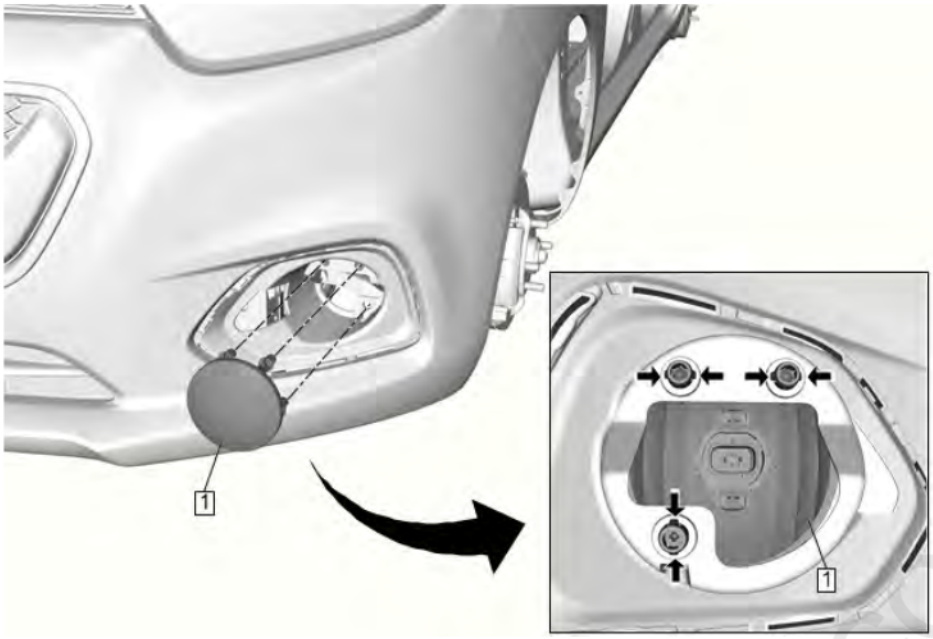
Related Part Information

Part Name	Catalog Name	Part Code
Front Fog Lamp	LAMP KIT,FRT FOG	9049Z
Front Fog Lamp	LAMP,FRT FOG	9050A
Front Fog Lamp	LAMP,FRT FOG (RH PROC)	9050B
Front Fog Lamp	LAMP,FRT FOG (W/O BULB)	9050M
Front Fog Lamp	LAMP PKG,FRT FOG	9051A
Front Fog Lamp	LAMP PKG,FRT FOG	SS274

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Front Fog Lamp Replacement (PMC)



Click here for full size

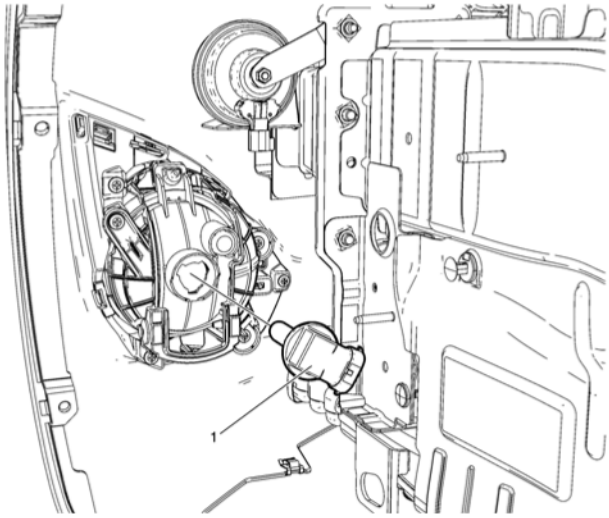
Callout	Component Name
	Preliminary Procedures 1. Front Wheelhouse Front Liner >> Remove - Front Wheelhouse Liner Replacement 2. Front Fog Lamp Bezel Replacement
1	Front Fog Lamp Procedure 1. Disconnect the electrical connector. 2. Press the retaining tabs and remove the fog lamp from the front bumper fascia. 3. Perform the fog lamp aiming procedure. Fog Lamp Aiming

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Front Fog Lamp Bulb Replacement (Base)

cardiagn.com





cardiagn.com

Click here for full size

Callout	Component Name
	Preliminary Procedures 1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle. 2. Remove the front wheelhouse liner. Refer to Front Wheelhouse Liner Replacement. 3. Disconnect fog lamp bulb socket electrical connector.
1	Front Fog Lamp Projector Bulb Warning: Refer to Halogen Bulb Warning. Procedure Rotate the bulb socket counterclockwise to remove from the lamp housing.

Related Part Information

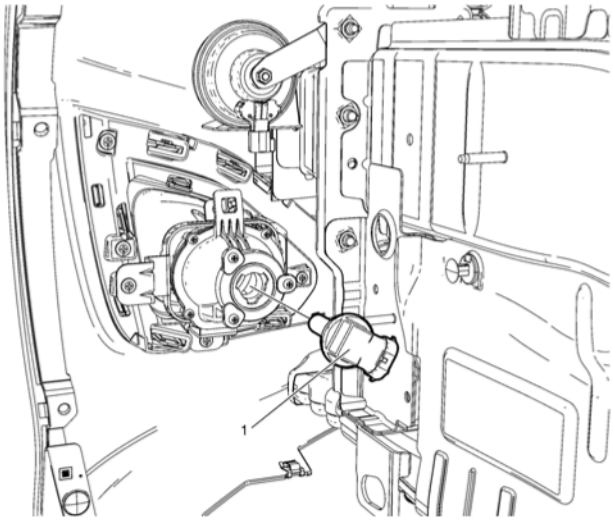
Part Name	Catalog Name	Part Code
Front Fog Lamp Bulb	BULB,FRT FOG LP	9050D
Front Fog Lamp Bulb	BULB,FRT FOG LP	9101Z
Front Fog Lamp Bulb	BULB,FRT FOG LP	9102A

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Front Fog Lamp Bulb Replacement (Projection)

cardiagn.com





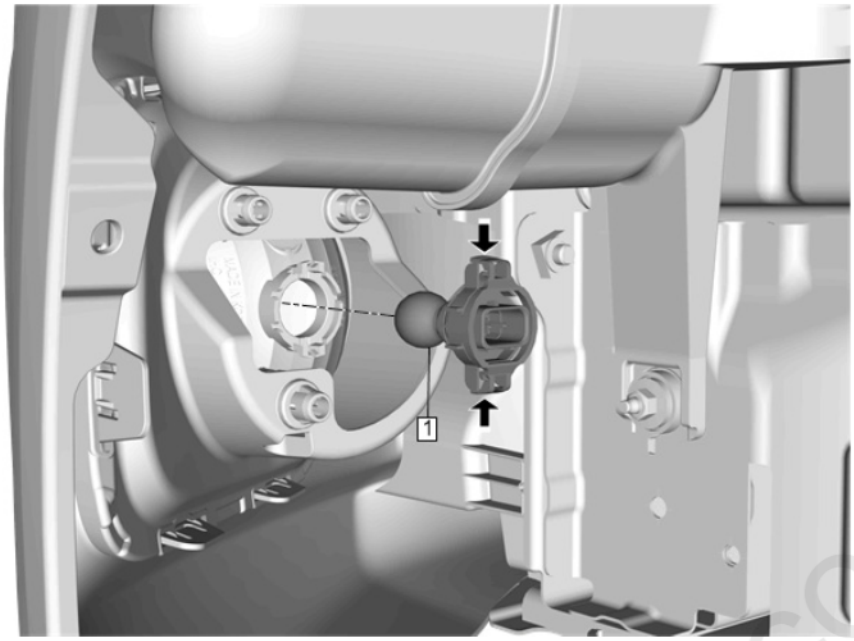
cardiagn.com

Click here for full size

Callout	Component Name
	Preliminary Procedures 1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle. 2. Remove the front wheelhouse liner. Refer to Front Wheelhouse Liner Replacement. 3. Disconnect fog lamp bulb socket electrical connector.
1	Front Fog Lamp Projector Bulb Warning: Refer to Halogen Bulb Warning. Procedure Rotate the bulb socket counterclockwise to remove from the lamp housing.

1. BODY SYSTEMS
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Front Fog Lamp Bulb Replacement (PMC)



Click here for full size

Callout	Component Name
Warning : Halogen Bulb Warning Preliminary Procedure Front Wheelhouse Front Liner >> Remove - Front Wheelhouse Liner Replacement	
1	Front Fog Lamp Bulb Procedure 1. Disconnect the electrical connector. 2. Press the retaining tabs and remove the fog lamp bulb from the lamp housing.

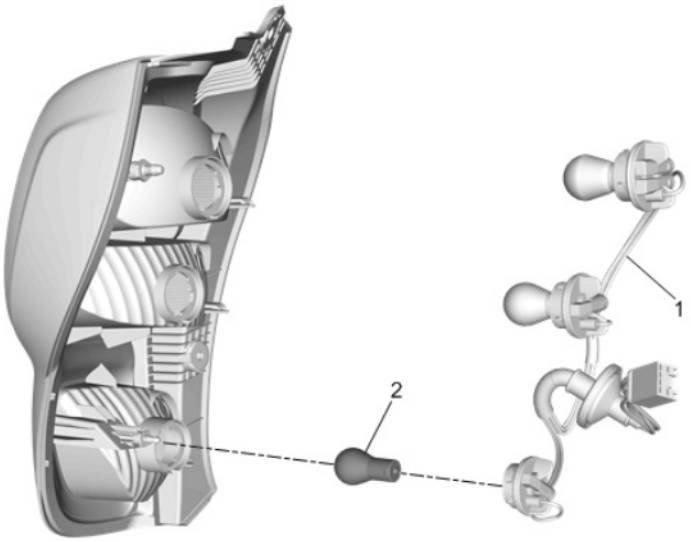
Related Part Information

Part Name	Catalog Name	Part Code
Front Fog Lamp Bulb	BULB,FRT FOG LP	9050D
Front Fog Lamp Bulb	BULB,FRT FOG LP	9101Z
Front Fog Lamp Bulb	BULB,FRT FOG LP	9102A

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Rear Fog Bulb Replacement (Hatchback)



Click here for full size

Callout	Component Name
Warning : Halogen Bulb Warning Preliminary Procedure Tail Lamp Replacement	
1	Tail Lamp Wiring Harness Procedure Rotate the bulb socket counterclockwise to remove it from the lamp housing.
2	Rear Fog Bulb Procedure Push and rotate the bulb counterclockwise to remove it from the bulb socket.

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Fog Lamp Aiming

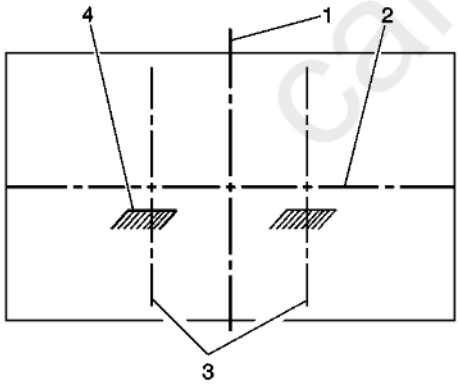
Preparation Procedure

Note**:**

Horizontal aim is not adjustable on this vehicle. Vertical aim is done by an adjusting nut located on the rear of the fog lamp. Prior to aiming the fog lamps, perform the following steps:

1. Completely assemble all of the components on the vehicle.
2. Place the vehicle on a level surface.
3. Stop all unnecessary operations or work that could affect the ride height of the vehicle.
4. Close the doors and verify that the luggage compartment is empty.
5. Stabilize the suspension by rocking the vehicle sideways.
6. Ensure that the fuel level is full.
7. Ensure that the tires are inflated to the proper pressure.
8. Ensure that the driver or a similar weight , approximately 75â€‰kg (165â€‰lb), is in the vehicle driver seat.

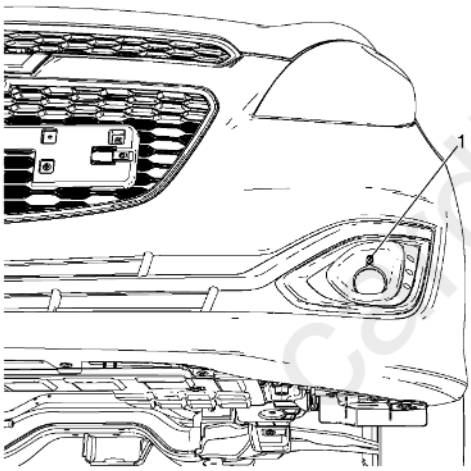
Aiming Procedure



1. Click here for full size
2. Park the vehicle 7.6â€‰m (25â€‰ft) away from the target screen.

cardiagn.com

3. Measure from the center of the fog lamp to the ground line. Using this measurement, mark the horizontal centerlineâ€‰(2) of the fog lamp on the target screen directly in front of the vehicle.
4. Turn ON the fog lamps. The top of the fog lamp beam imageâ€‰(4) on the target screen should be 102â€‰mm (4â€‰in) below the center of the fog lamp lens height.



cardiagn.com

5. Click here for full size
6. Adjust the fog lamp as required using the adjusting screwâ€‰(1) above the projector lens on the outside of the front bumper fascia.
7. Turn OFF the fog lamps.

Related Part Information

Part Name	Catalog Name	Part Code
Front Fog Lamp	LAMP KIT,FRT FOG	9049Z
Front Fog Lamp	LAMP,FRT FOG	9050A
Front Fog Lamp	LAMP,FRT FOG (RH PROC)	9050B
Front Fog Lamp	LAMP,FRT FOG (W/O BULB)	9050M
Front Fog Lamp	LAMP PKG,FRT FOG	9051A
Front Fog Lamp	LAMP PKG,FRT FOG	SS274

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Fog Lamp Aiming (PMC)

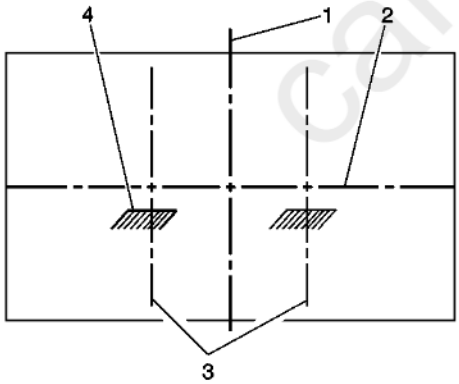
Preparation Procedure

Note**:**

Horizontal aim is not adjustable on this vehicle. Adjust the fog lamp as required using the adjusting screw above the projector lens on the outside of the front bumper fascia. Prior to aiming the fog lamps, perform the following steps:

1. Completely assemble all of the components on the vehicle.
2. Place the vehicle on a level surface.
3. Stop all unnecessary operations or work that could affect the ride height of the vehicle.
4. Close the doors and verify that the luggage compartment is empty.
5. Stabilize the suspension by rocking the vehicle sideways.
6. Ensure that the fuel level is full.
7. Ensure that the tires are inflated to the proper pressure.
8. Ensure that the driver or a similar weight, approximately 75â€‰kg (165â€‰lb), is in the vehicle driver seat.

Aiming Procedure



1. Click here for full size
2. Park the vehicle 7.6â€‰m (25â€‰ft) away from the target screenâ€‰(a).

cardiagn.com

3. Measure from the center of the fog lamp to the ground line. Using this measurement, mark the horizontal center lineâ€‰(2) of the fog lamp on the target screen directly in front of the vehicle.
4. Turn ON the fog lamps. The top of the fog lamp beam imageâ€‰(4) on the target screen should be 102â€‰mm (4â€‰in) below the center of the fog lamp lens height.
5. 

Click here for full size
6. Adjust the fog lamp as required using the adjusting screwâ€‰(1). To access the adjusting screw, refer to Front Fog Lamp Bulb Replacement.
7. Turn OFF the fog lamps.

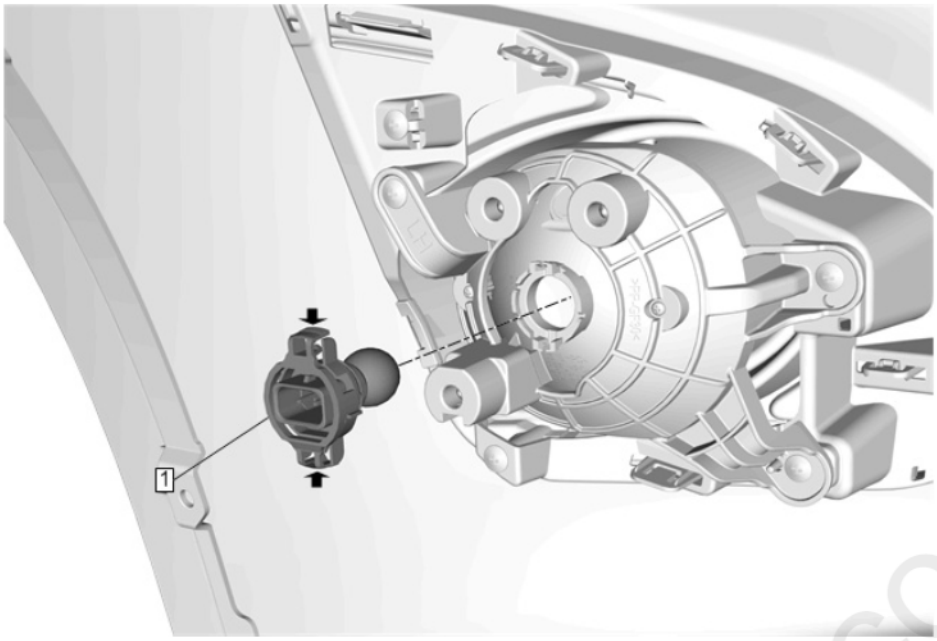
Related Part Information

Part Name	Catalog Name	Part Code
Front Fog Lamp	LAMP KIT,FRT FOG	9049Z
Front Fog Lamp	LAMP,FRT FOG	9050A
Front Fog Lamp	LAMP,FRT FOG (RH PROC)	9050B
Front Fog Lamp	LAMP,FRT FOG (W/O BULB)	9050M
Front Fog Lamp	LAMP PKG,FRT FOG	9051A
Front Fog Lamp	LAMP PKG,FRT FOG	SS274

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Daytime Running Lamp Bulb Replacement



Click here for full size

Callout	Component Name
	Preliminary Procedures 1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle. 2. Remove the front wheelhouse liner. Refer to Front Wheelhouse Liner Replacement. 3. Disconnect daytime running lamp bulb electrical connector.
1	Daytime Running Lamp Bulb Warning: Refer to Halogen Bulb Warning. Procedure Push the retaining tab and remove from the lamp housing.

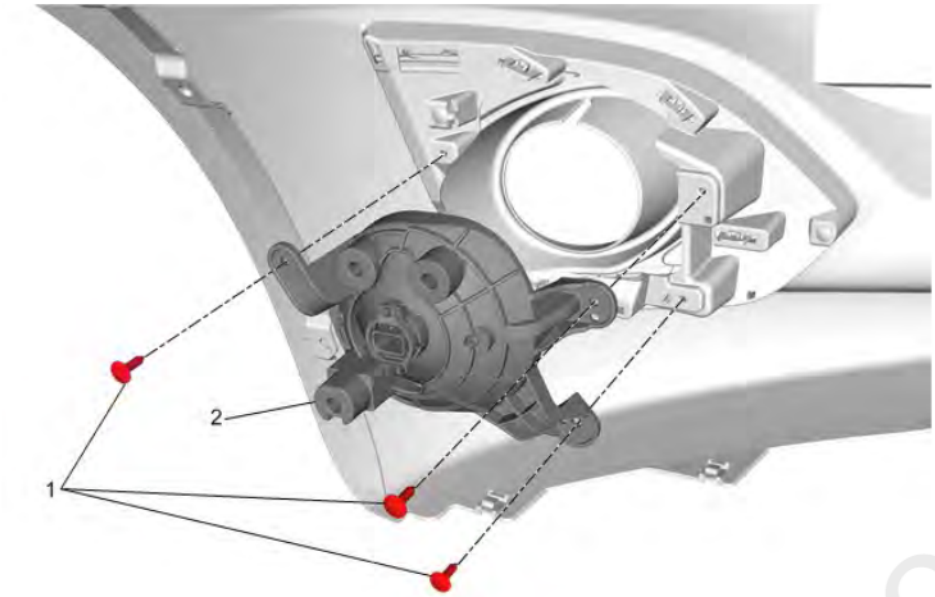
Related Part Information

Part Name	Catalog Name	Part Code
Daytime Running Lamp Bulb	BULB,DAYTIME RUNNING LP	4115R

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Daytime Running Lamp Replacement



Click here for full size

Callout	Component Name
	Preliminary Procedures 1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle. 2. Remove the front wheelhouse liner. Refer to Front Wheelhouse Liner Replacement. 3. Disconnect daytime running lamp bulb electrical connector.
1	Daytime Running Lamp Screw (Qty:â€‰3) Caution: Refer to Fastener Caution . Tighten 2>N-m (18 lb in)
2	Daytime Running Lamp

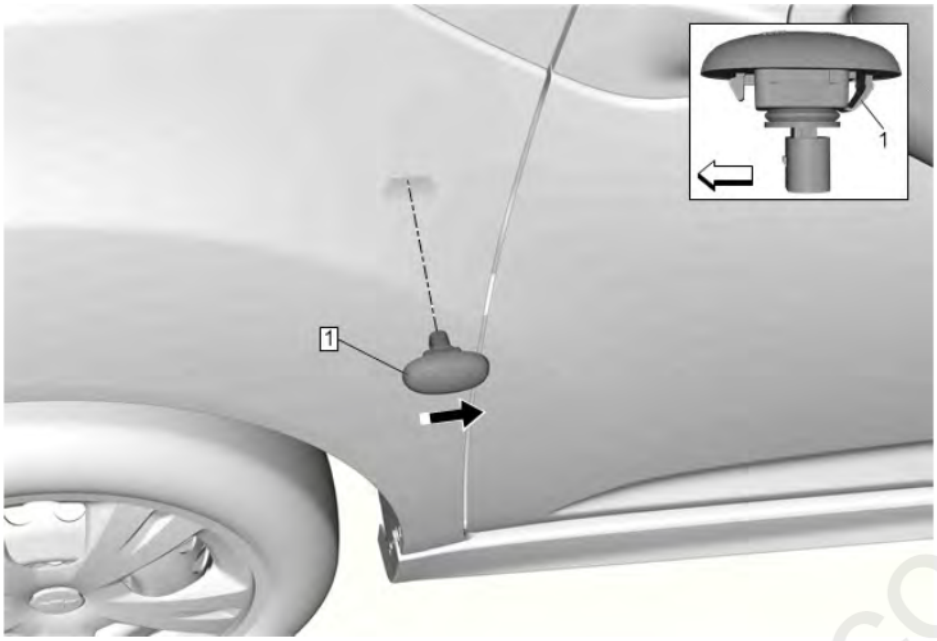
Related Part Information

Part Name	Catalog Name	Part Code
Daytime Running Lamp	LAMP KIT,DAYTIME RUNNING	8800Z
Daytime Running Lamp	LAMP,DAYTIME RUNNING	8801A

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Front Side Turn Signal Lamp Replacement



Click here for full size

Callout	Component Name
1	Front Side Turn Signal Lamp Procedure 1. Slide lamp to the rear and lift up the front end of lamp to remove it. 2. Disconnect electrical connector. 3. Replace the bulb, as needed.

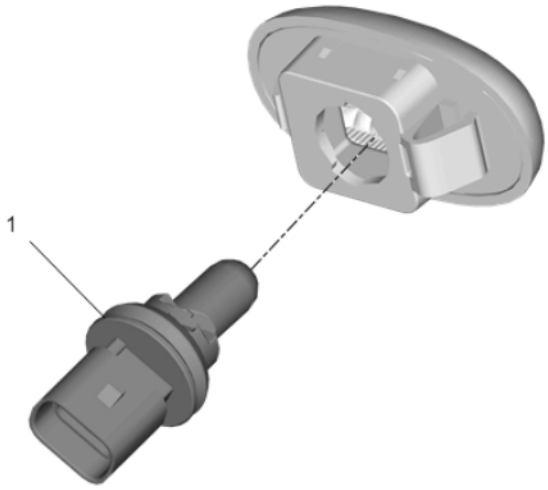
Related Part Information

Part Name	Catalog Name	Part Code
Front Side Turn Signal Lamp	LAMP,FRT SI T/SIG	8795A

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Front Side Turn Signal Lamp Bulb Replacement



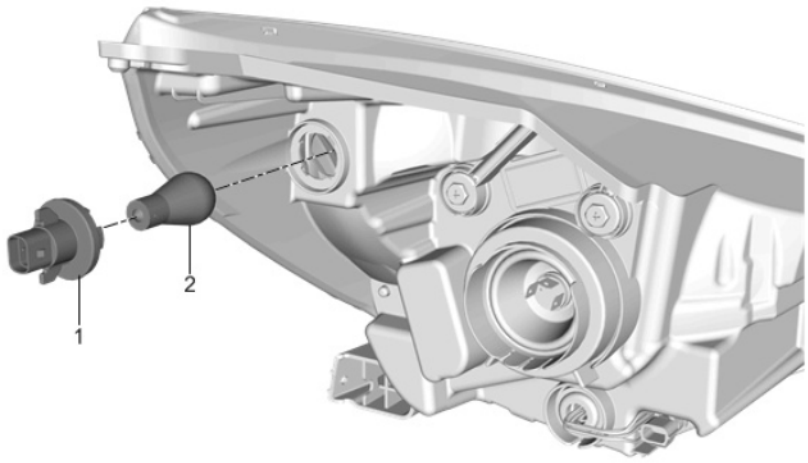
Click here for full size

Callout	Component Name
Preliminary Procedure Front Side Turn Signal Lamp Replacement	
1	Front Side Turn Signal Lamp Bulb

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Front Turn Signal Lamp Bulb Replacement (PMC)



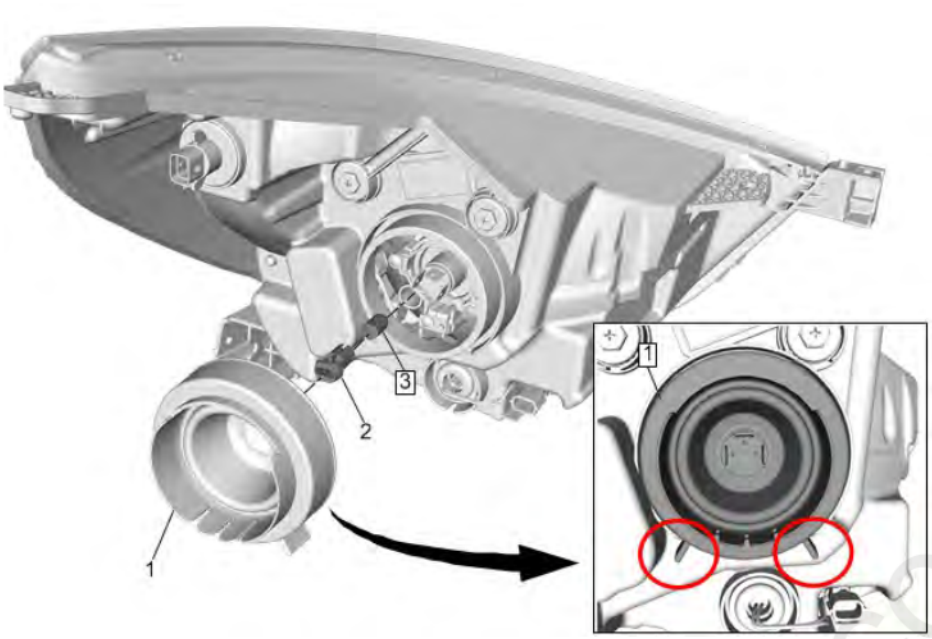
Click here for full size

Callout	Component Name
1	Front Turn Signal Bulb Socket Procedure 1. Disconnect the electrical connector. 2. Rotate counterclockwise and remove the socket from the headlamp.
2	Front Turn Signal Bulb Warning : Halogen Bulb Warning Procedure Remove the bulb from the lamp socket.

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Parking Lamp Bulb Replacement (PMC)



Click here for full size

Callout	Component Name
1	Headlamp Bulb Dust Cover Procedure 1. Disconnect the electrical connector. 2. Inspect the proper installation of dust cover.
2	Parking Lamp Bulb Socket Procedure Using a small flat bladed tool, remove the bulb socket.
3	Parking Lamp Bulb Warning : Halogen Bulb Warning

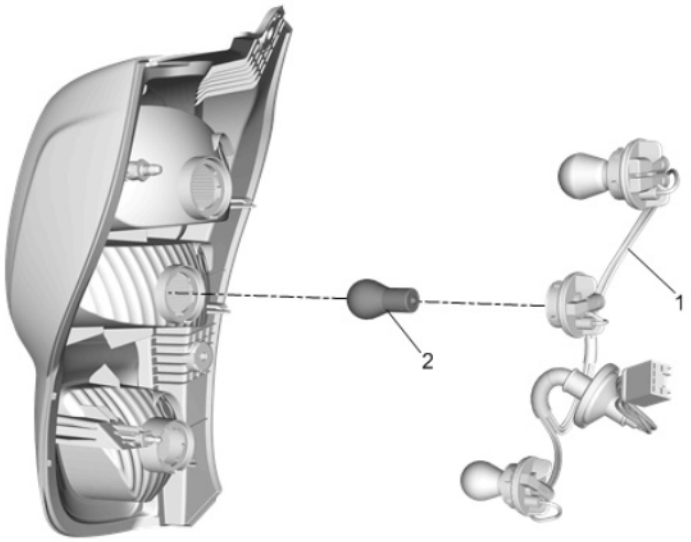
Related Part Information

Part Name	Catalog Name	Part Code
Parking Lamp Bulb	BULB,PARK LP	6637A

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Turn Signal Bulb Replacement (Hatchback)



Click here for full size

Callout	Component Name
Warning : Halogen Bulb Warning Preliminary Procedure Tail Lamp Replacement	
1	Tail Lamp Wiring Harness Procedure Rotate the bulb socket counterclockwise to remove it from the lamp housing.
2	Turn Signal Bulb Procedure Push and rotate the bulb counterclockwise to remove it from the bulb socket.

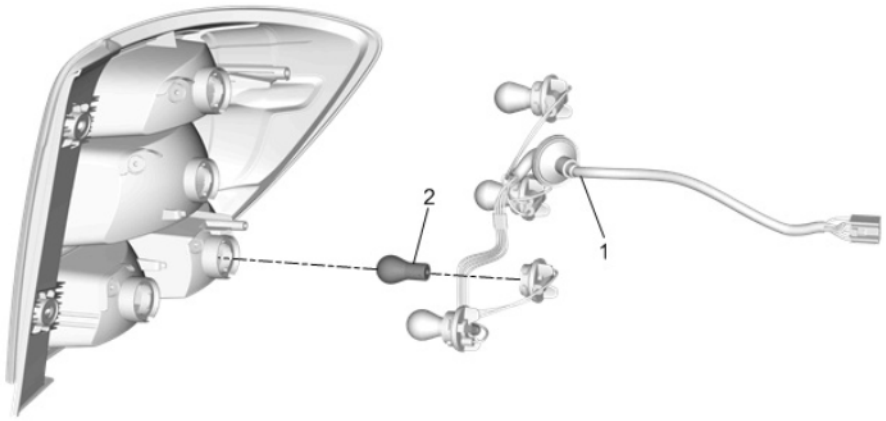
Related Part Information

Part Name	Catalog Name	Part Code
Turn Signal Bulb	BULB,T/SIG	2405A

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Turn Signal Bulb Replacement (Notchback)



Click here for full size

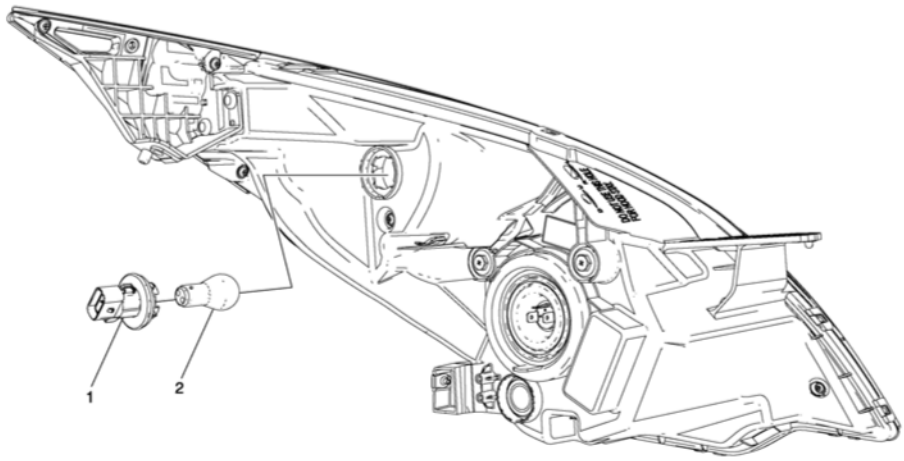
Callout	Component Name
Warning : Halogen Bulb Warning Preliminary Procedure Tail Lamp Replacement	
1	Tail Lamp Wiring Harness Procedure Rotate the bulb socket counterclockwise to remove it from the lamp housing.
2	Turn Signal Bulb Procedure Push and rotate the bulb counterclockwise to remove it from the bulb socket.

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Parking and Turn Signal Lamp Bulb Replacement

cardiagn.com



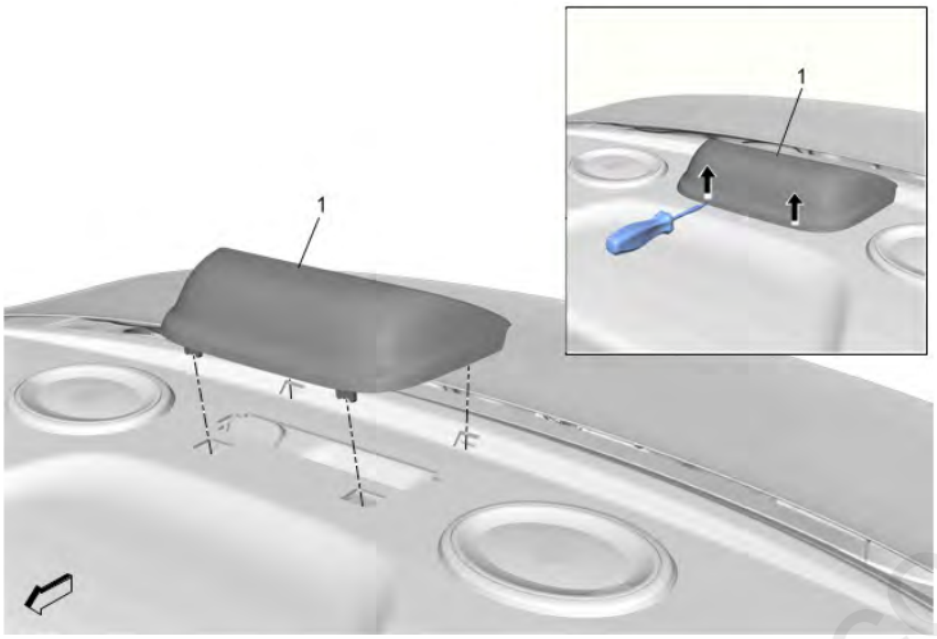
cardiagn.com

Click here for full size

Callout	Component Name
1	Park/Turn Signal Bulb Socket Warning: Refer to Halogen Bulb Warning. Tip Rotate counterclockwise and remove the socket from the headlamp assembly.
2	Park/Turn Signal Bulb Procedure Remove the bulb from the bulb socket.

1. **BODY SYSTEMS**
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

High Mount Stop Lamp Replacement (Notchback)



Click here for full size

Callout	Component Name
1	High Mount Stop Lamp Procedure 1. Using a flat-bladed tool, lift up the high mount stop lamp bottom to detach the integral retainers from rear window panel trim. 2. Disconnect the electrical connector.

Related Part Information

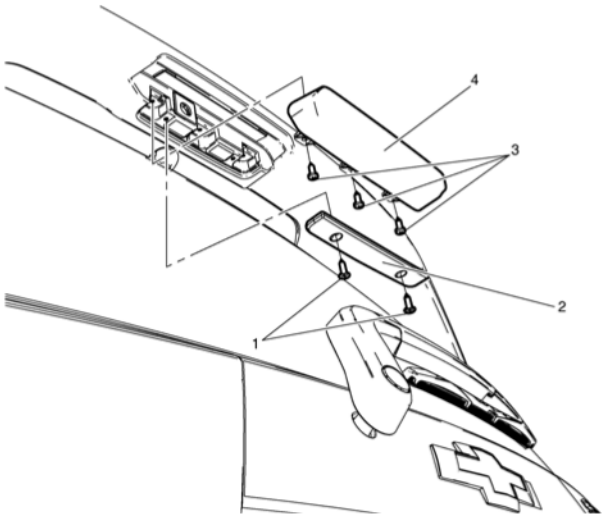
Part Name	Catalog Name	Part Code
High Mount Stop Lamp	LAMP KIT,HIGH MT STOP	1709W
High Mount Stop Lamp	LAMP PKG,HIGH MT STOP	1709Y
High Mount Stop Lamp	LAMP,HIGH MT STOP(NON-FUNCTIONAL)	1709Z
High Mount Stop Lamp	LAMP,HIGH MT STOP	1710A

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

High Mount Stop Lamp Replacement (Hatchback)

cardiagn.com





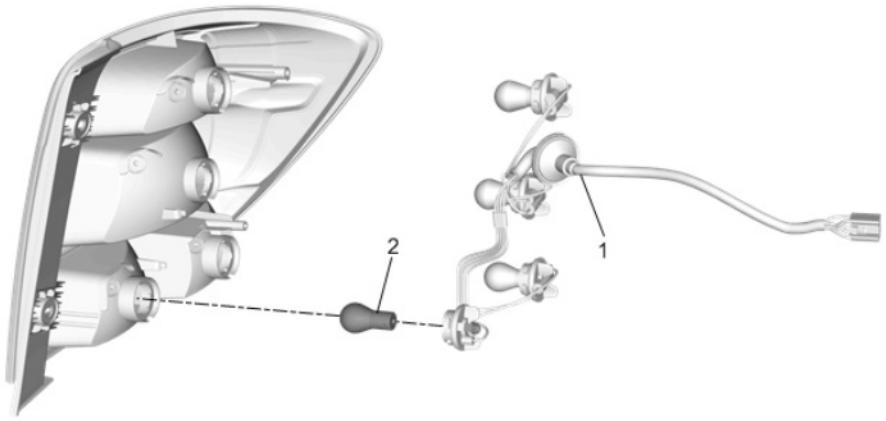
cardiagn.com

Click here for full size

Callout	Component Name
1	High Mount Stop Lamp Cover Screw (Qty:â€‰2)
2	High Mount Stop Lamp Cover
3	High Mount Stop Lamp Screw (Qty:â€‰3)
4	High Mount Stop Lamp Assembly Procedure Disconnect the electrical connector at the high mount stop lamp.

1. **BODY SYSTEMS**
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Backup Bulb Replacement (Notchback)



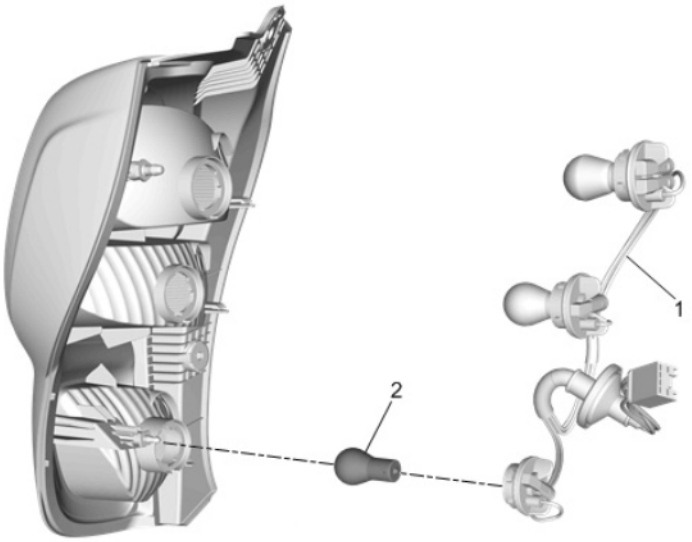
Click here for full size

Callout	Component Name
Warning : Halogen Bulb Warning Preliminary Procedure Tail Lamp Replacement	
1	Tail Lamp Wiring Harness Procedure Rotate the bulb socket counterclockwise to remove it from the lamp housing.
2	Backup Bulb Procedure Push and rotate the bulb counterclockwise to remove it from the bulb socket.

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Backup Bulb Replacement (Hatchback)



Click here for full size

Callout	Component Name
Warning : Halogen Bulb Warning Preliminary Procedure Tail Lamp Replacement	
1	Tail Lamp Wiring Harness Procedure Rotate the bulb socket counterclockwise to remove it from the lamp housing.
2	Backup Bulb Procedure Push and rotate the bulb counterclockwise to remove it from the bulb socket.

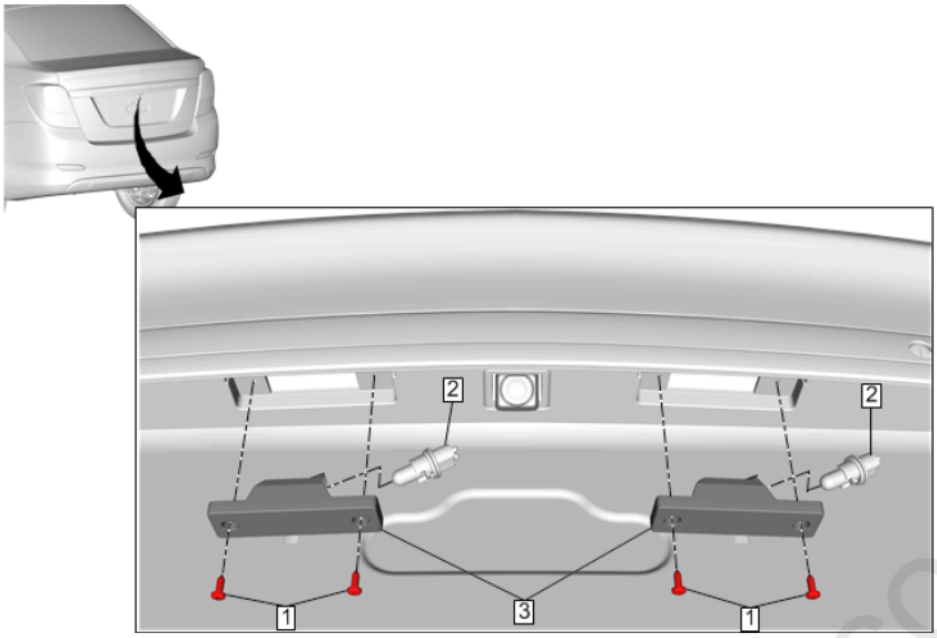
Related Part Information

Part Name	Catalog Name	Part Code
Backup Bulb	BULB,BACKUP	8058B

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Rear License Plate Lamp Replacement (Notchback)



Click here for full size

Callout	Component Name
1	Rear License Plate Lamp Bolt [4>x] Caution : Fastener Caution Tighten 2>N-m (18 lb in)
2	Rear License Plate Lamp Bulb Procedure Rotate the bulb sockets counterclockwise to remove it from the lamp housing.
3	Rear License Plate Lamp

Related Part Information

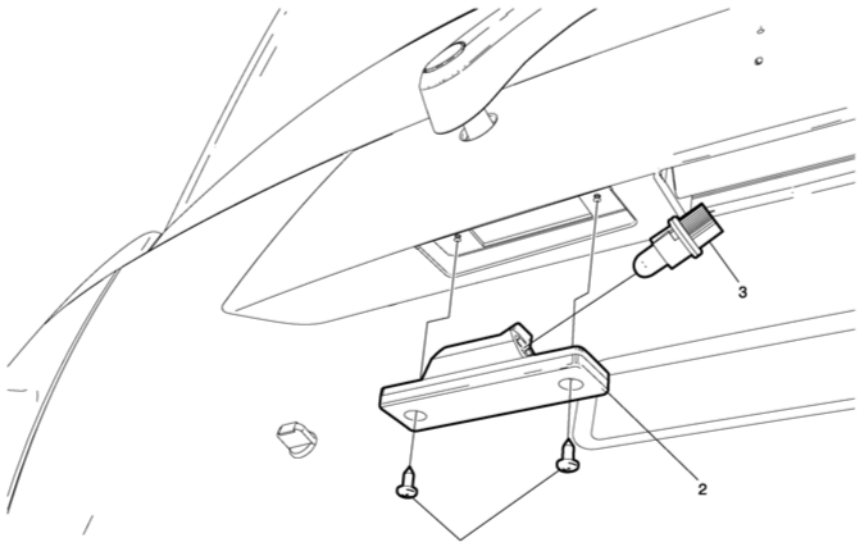
Part Name	Catalog Name	Part Code
Rear License Plate Lamp	LAMP,RR LIC PLT(W/RR LIC PLT PKT)	3449A
Rear License Plate Lamp	LAMP,RR LIC PLT	3450A

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Rear License Plate Lamp Replacement

cardiagn.com



cardiagn.com

Click here for full size

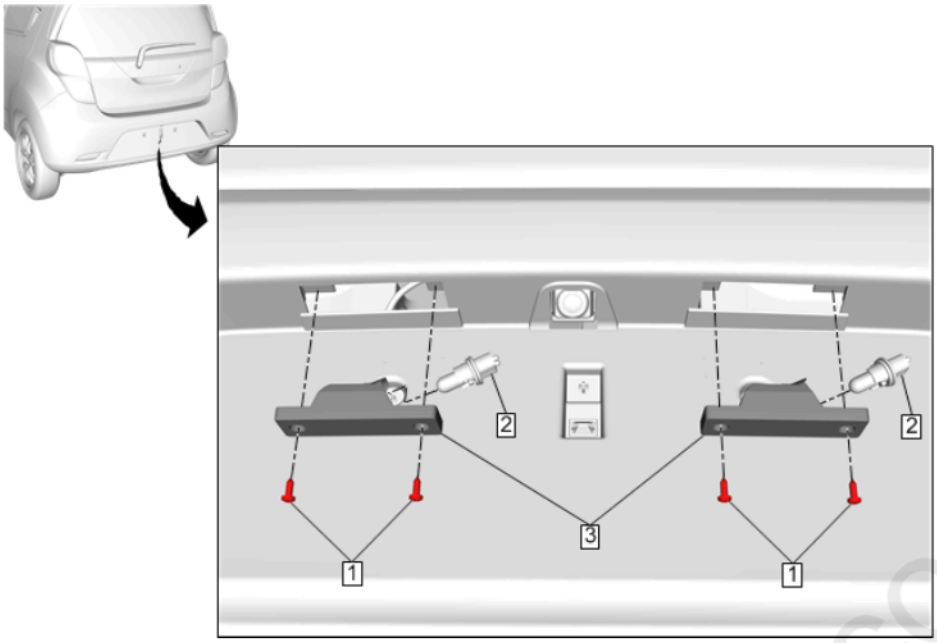
Callout	Component Name
1	Rear License Plate Lamp Screw (Qty:â€‰2) Caution: Refer to Fastener Caution. Tighten 2.0â€‰N-m (18â€‰lbâ€‰in)
2	Rear License Plate Lamp
3	Rear License Plate Lamp Socket

Related Part Information

Part Name	Catalog Name	Part Code
Rear License Plate Lamp	LAMP,RR LIC PLT(W/RR LIC PLT PKT)	3449A
Rear License Plate Lamp	LAMP,RR LIC PLT	3450A

1. **BODY SYSTEMS**
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Rear License Plate Lamp Replacement (PMC with Hatchback)



Click here for full size

Callout	Component Name
Preliminary Procedure Raise and support the vehicle. Lifting and Jacking the Vehicle	
1	Rear License Plate Lamp Bolt [4>x] Caution : Fastener Caution Tighten 2>N-m (18 lb in)
2	Rear License Plate Lamp Bulb Procedure Rotate the bulb sockets counterclockwise to remove it from the lamp housing.
3	Rear License Plate Lamp Procedure 1. Slide the lamp from outside to inside the bumper and remove it. 2. Lower the vehicle. Lifting and Jacking the Vehicle

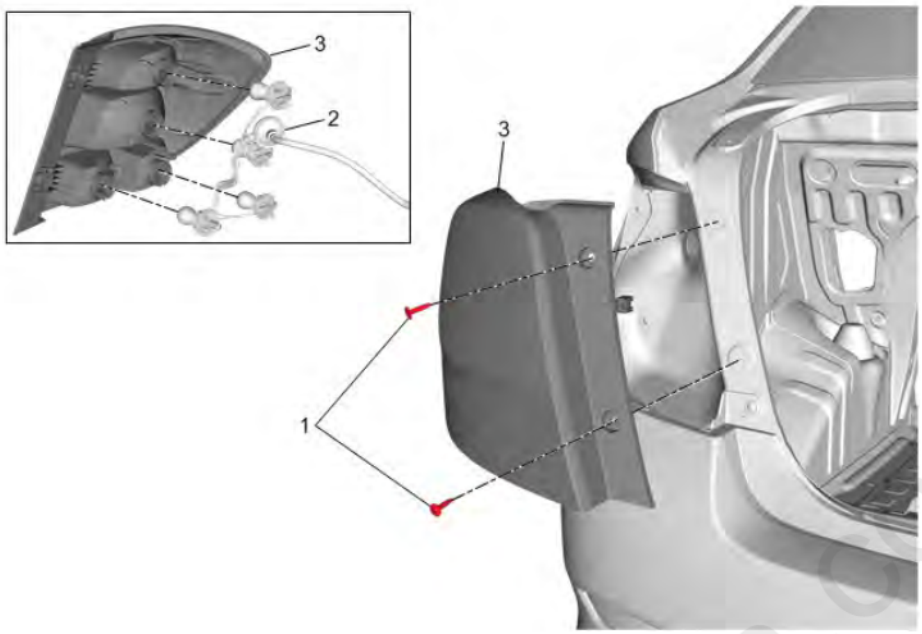
Related Part Information

Part Name	Catalog Name	Part Code
Rear License Plate Lamp	LAMP,RR LIC PLT(W/RR LIC PLT PKT)	3449A
Rear License Plate Lamp	LAMP,RR LIC PLT	3450A

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Tail Lamp Replacement (Notchback)



Click here for full size

Callout	Component Name
1	Tail Lamp Screw [2>x] Caution : Fastener Caution Tighten 2.5â€‰N-m (22â€‰lbâ€‰in)
2	Tail Lamp Wiring Harness Warning : Halogen Bulb Warning Procedure Rotate the bulb sockets counterclockwise to remove it from the lamp housing.
3	Tail Lamp

Related Part Information

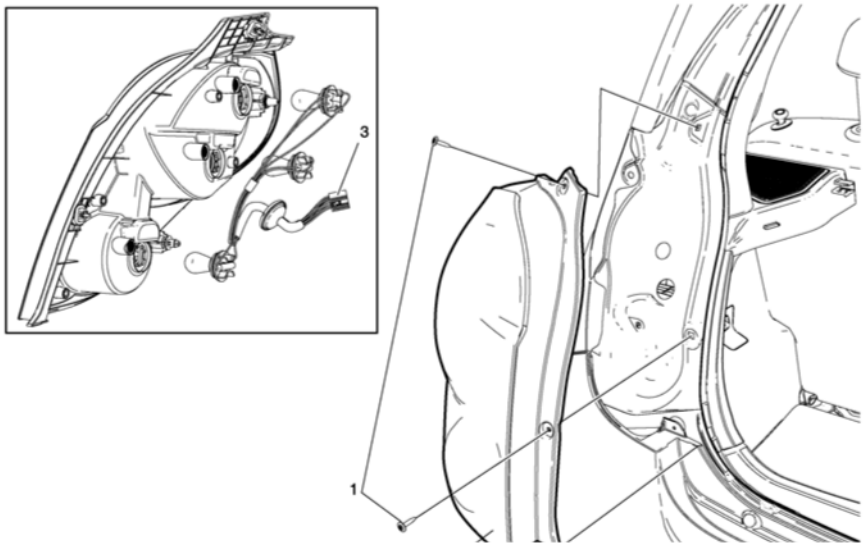
Part Name	Catalog Name	Part Code
Tail Lamp	LAMP KIT,TAIL	0049A
Tail Lamp	LAMP KIT,TAIL	0049Z
Tail Lamp	LAMP,TAIL	0050A
Tail Lamp	LAMP,TAIL (BODY SI)	0083A
Tail Lamp	LAMP,TAIL (L/GATE SI)	0084A
Tail Lamp	LAMP PKG,TAIL	SJ637
Tail Lamp	LAMP,TAIL	SJ925

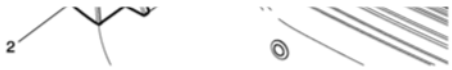
cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Tail Lamp Replacement (Hatchback)

cardiagn.com





cardiagn.com

Click here for full size

Callout	Component Name
1	Tail Lamp Screw (Qty:â€‰2) Caution: Refer to Fastener Caution. Tighten 2.5â€‰N-m (22â€‰lbâ€‰in)
2	Tail Lamp Assembly Procedure 1. Using a blunt tool, tap gently on the tail lamp studs before attempting to remove the tail lamp assembly from the lamp pocket. 2. Pull the tail lamp assembly rearward. 3. Disconnect the tail lamp bulbs assembly electrical connector.

Callout	Component Name
3	Tail Lamp Wiring Harness and Bulb Assembly Warning: Refer to Halogen Bulb Warning. Tip Rotate the bulbs counterclockwise and remove from the tail lamp housing.

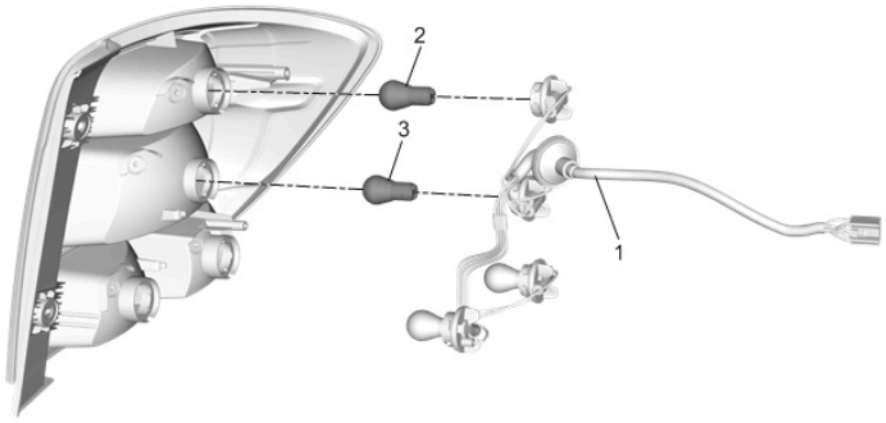
Related Part Information

Part Name	Catalog Name	Part Code
Tail Lamp	LAMP KIT,TAIL	0049A
Tail Lamp	LAMP KIT,TAIL	0049Z
Tail Lamp	LAMP,TAIL	0050A
Tail Lamp	LAMP,TAIL (BODY SI)	0083A
Tail Lamp	LAMP,TAIL (L/GATE SI)	0084A
Tail Lamp	LAMP PKG,TAIL	SJ637
Tail Lamp	LAMP,TAIL	SJ925

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Stop and Tail Lamp Bulb Replacement (Notchback)



Click here for full size

Callout	Component Name
Warning : Halogen Bulb Warning Preliminary Procedure Tail Lamp Replacement	
1	Tail Lamp Wiring Harness Procedure Rotate the bulb sockets counterclockwise to remove it from the lamp housing.
2	Tail Bulb Procedure Push and rotate the bulb counterclockwise and remove it from the bulb socket.
3	Stop and Tail Bulb Procedure Push and rotate the bulb counterclockwise to remove it from the bulb socket.

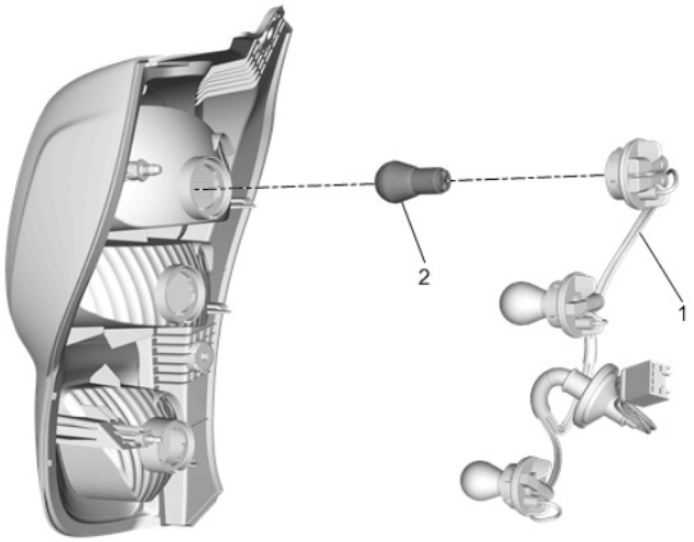
Related Part Information

Part Name	Catalog Name	Part Code
Stop and Tail Lamp Bulb	BULB,STOP & T/LP	8064A

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Stop and Tail Lamp Bulb Replacement (Hatchback)



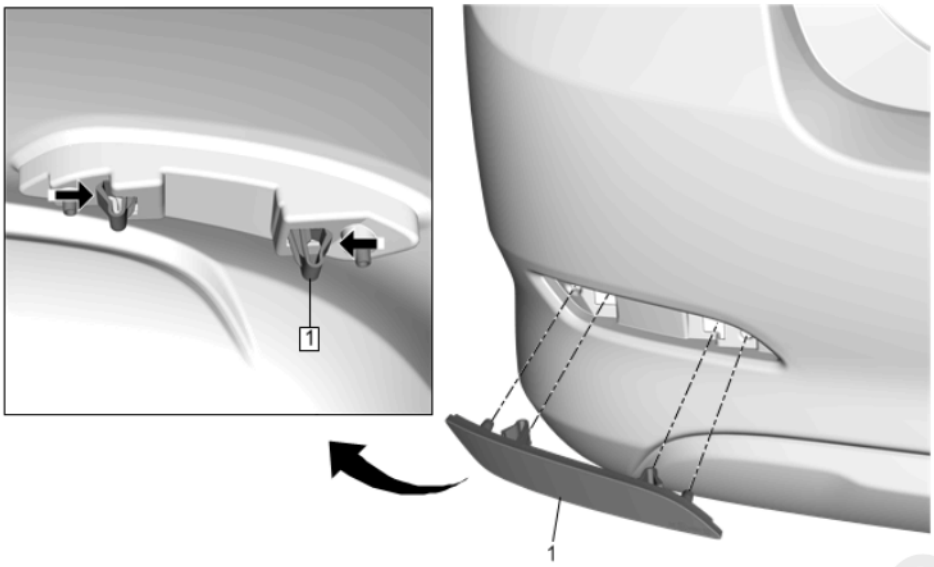
Click here for full size

Callout	Component Name
Warning : Halogen Bulb Warning Preliminary Procedure Tail Lamp Replacement	
1	Tail Lamp Wiring Harness Procedure Rotate the bulb sockets counterclockwise to remove it from the lamp housing.
2	Stop and Tail Bulb Procedure Push and rotate the bulb counterclockwise to remove it from the bulb socket.

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Rear Fascia Lower Signal Lamp Replacement (Notchback)



Click here for full size

Callout	Component Name
Preliminary Procedure Rear Bumper Fascia Replacement	
1	Rear Fascia Lower Signal Lamp Procedure Press the retaining tabs on the rear fascia lower signal lamp and remove it from the rear bumper fascia.

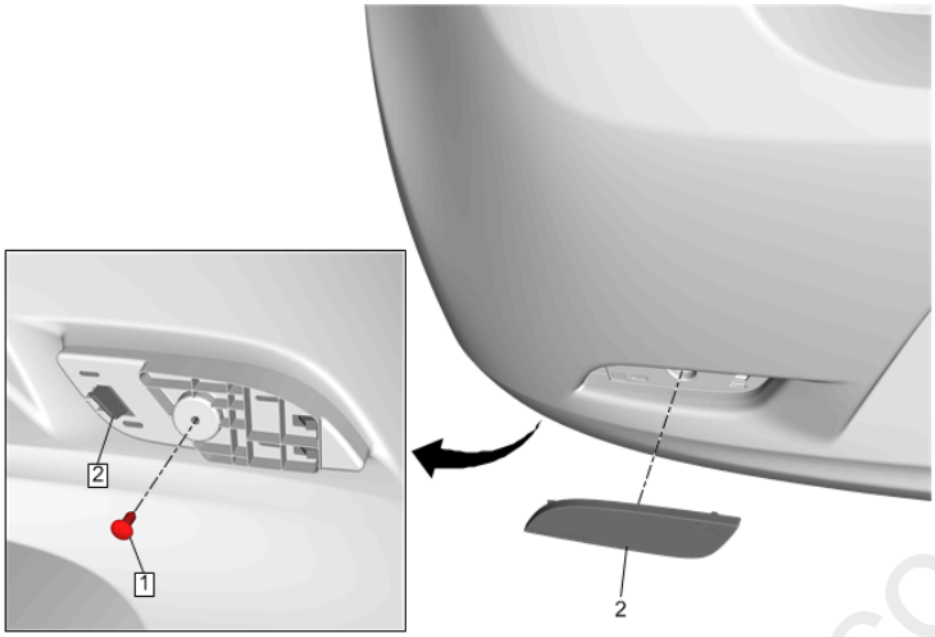
Related Part Information

Part Name	Catalog Name	Part Code
Rear Fascia Lower Signal Lamp	LAMP,RR FASCIA LWR SIG	8431A

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Rear Fascia Lower Signal Lamp Replacement (PMC, Hatchback)



Click here for full size

Callout	Component Name
Preliminary Procedure Raise and support the vehicle. Lifting and Jacking the Vehicle	
1	Rear Fascia Lower Signal Lamp Bolt Caution : Fastener Caution Tighten 2>N-m (18 lb in)
2	Rear Fascia Lower Signal Lamp Procedure Lower the vehicle. Lifting and Jacking the Vehicle

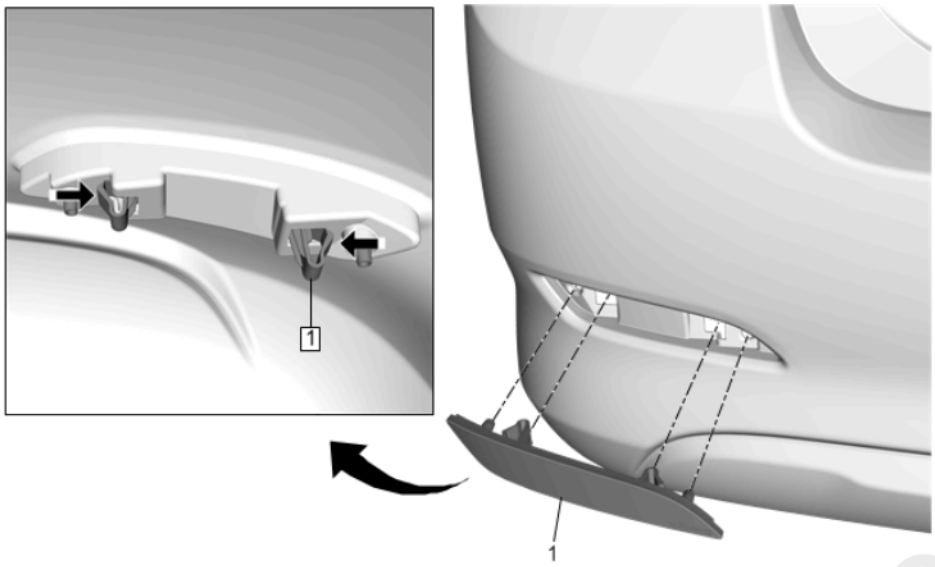
Related Part Information

Part Name	Catalog Name	Part Code
Rear Fascia Lower Signal Lamp	LAMP,RR FASCIA LWR SIG	8431A

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Rear Fascia Lower Signal Lamp Replacement (Activ)



Click here for full size

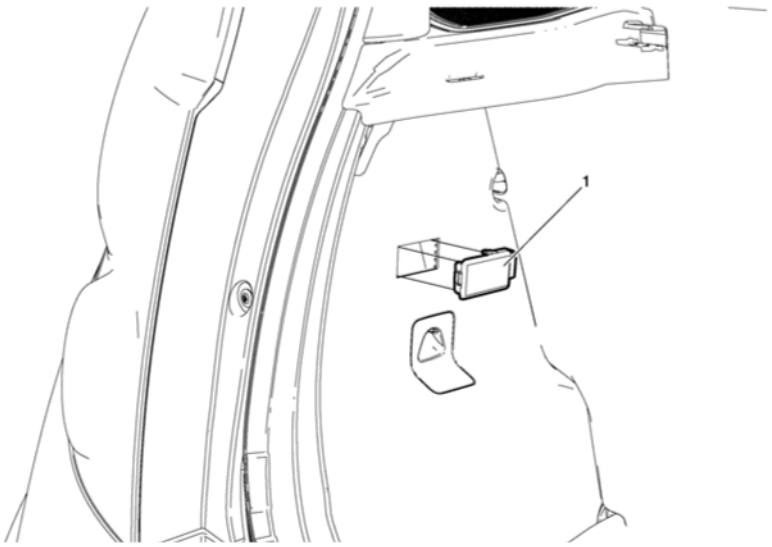
Callout	Component Name
Preliminary Procedure Raise and support the vehicle. Lifting and Jacking the Vehicle	
1	Rear Fascia Lower Signal Lamp Procedure 1. Press the retaining tabs on the rear fascia lower signal lamp and remove it from the rear bumper fascia. 2. Lower the vehicle. Lifting and Jacking the Vehicle

cardiagn.com

1. BODY SYSTEMS
2. LIGHTING
3. REPAIR INSTRUCTIONS
4.

Rear Compartment Courtesy Lamp Replacement

cardiagn.com





cardiagn.com

Click here for full size

Callout	Component Name
1	Rear Compartment Courtesy Lamp Warning: Refer to Halogen Bulb Warning.

Related Part Information

Part Name	Catalog Name	Part Code
Rear Compartment Courtesy Lamp	LAMP,R/CMPT CTSY	6400A

Specifications

cardiagn.com

1. **BODY SYSTEMS**
2. LIGHTING
3. SPECIFICATIONS
4.

Fastener Specifications

Reusable Threaded Fastener Tightening Specifications

Application	Specification
	Metric (English)
Note: All fasteners listed in this table can be reused after removal.	
Daytime Running Lamp Screw	2â€‰N-mâ€‰(18â€‰lbâ€‰in)
Headlamp Bolt	2.5â€‰N-mâ€‰(22â€‰lbâ€‰in)
Headlamp Screw	2.5â€‰N-mâ€‰(22â€‰lbâ€‰in)
Rear Fascia Lower Signal Lamp Bolt	2â€‰N-mâ€‰(18â€‰lbâ€‰in)
Rear License Plate Lamp Bolt	2â€‰N-mâ€‰(18â€‰lbâ€‰in)
Rear License Plate Lamp Screw	2â€‰N-mâ€‰(18â€‰lbâ€‰in)
Tail Lamp Screw	2.5â€‰N-mâ€‰(22â€‰lbâ€‰in)

cardiagn.com

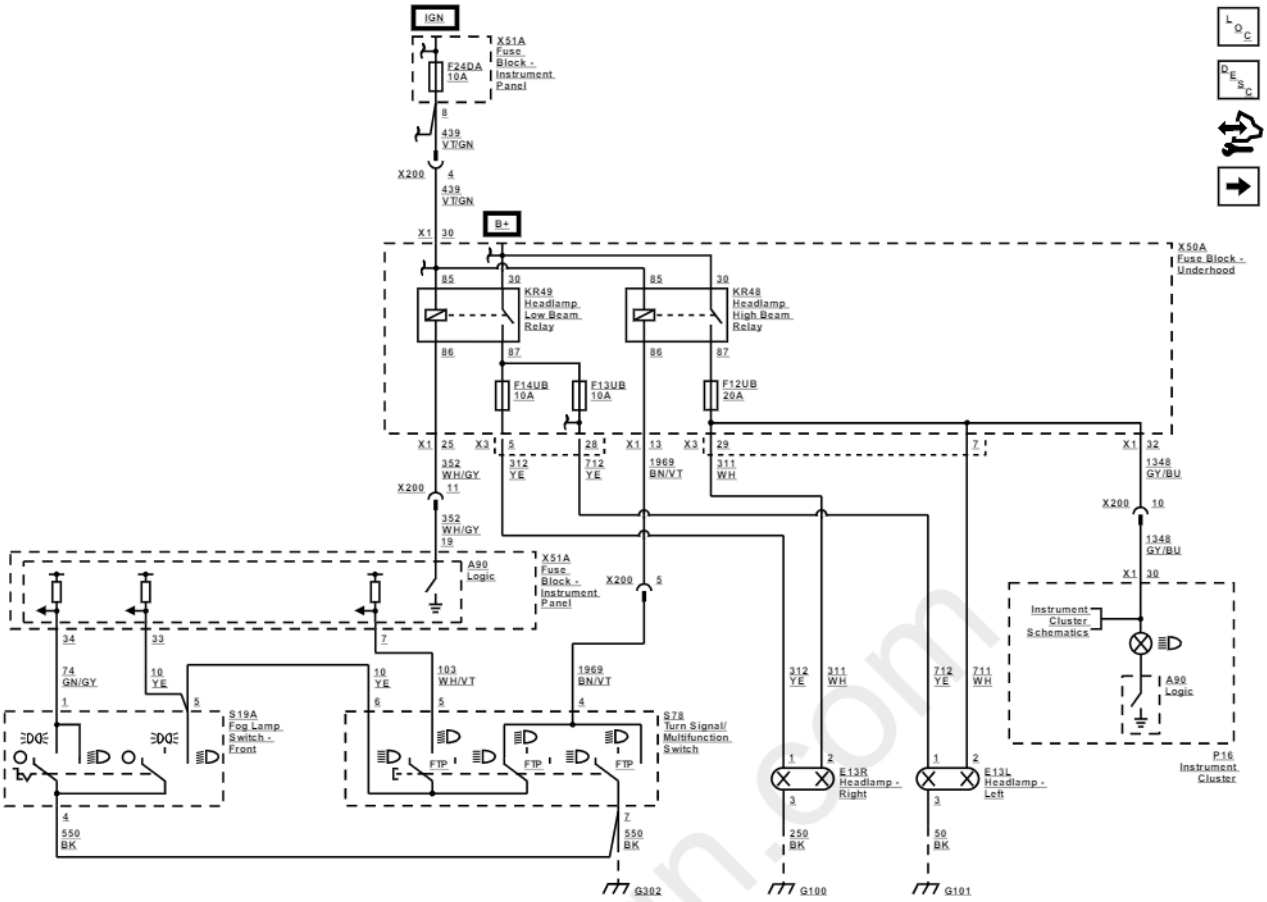
Schematic and Routing Diagrams

cardiagn.com

Headlights|Daytime Running Lights (DRL) Schematics

cardiagn.com

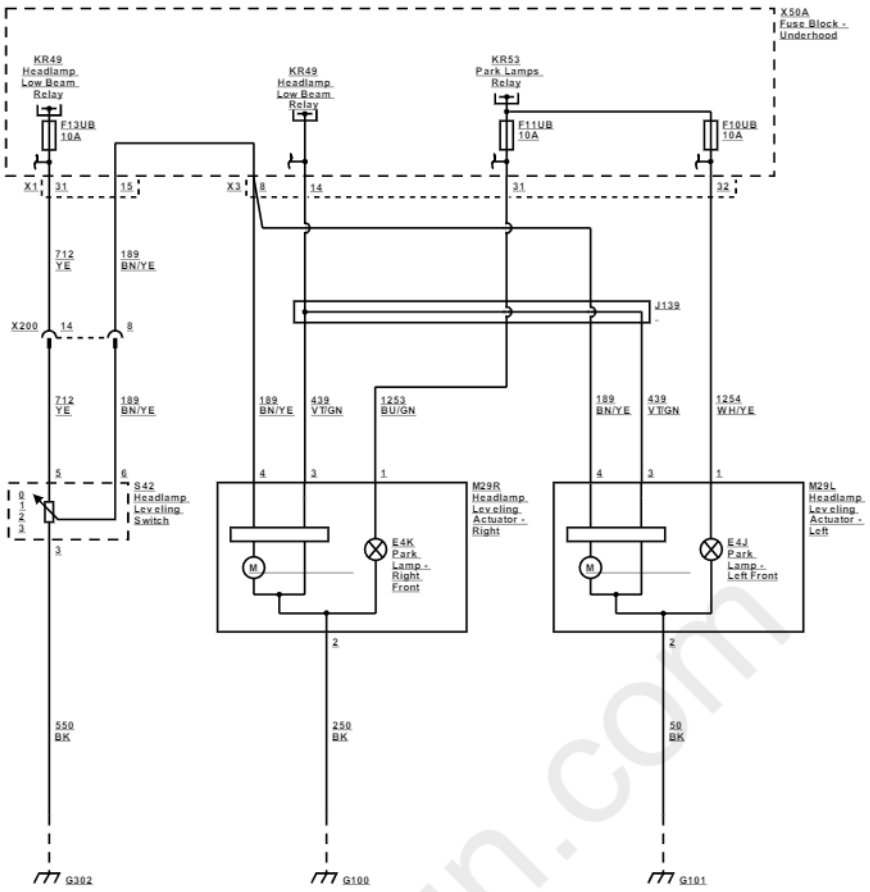
Headlights



Click here for full size

cardiagn.com

Headlight Leveling (TR6)



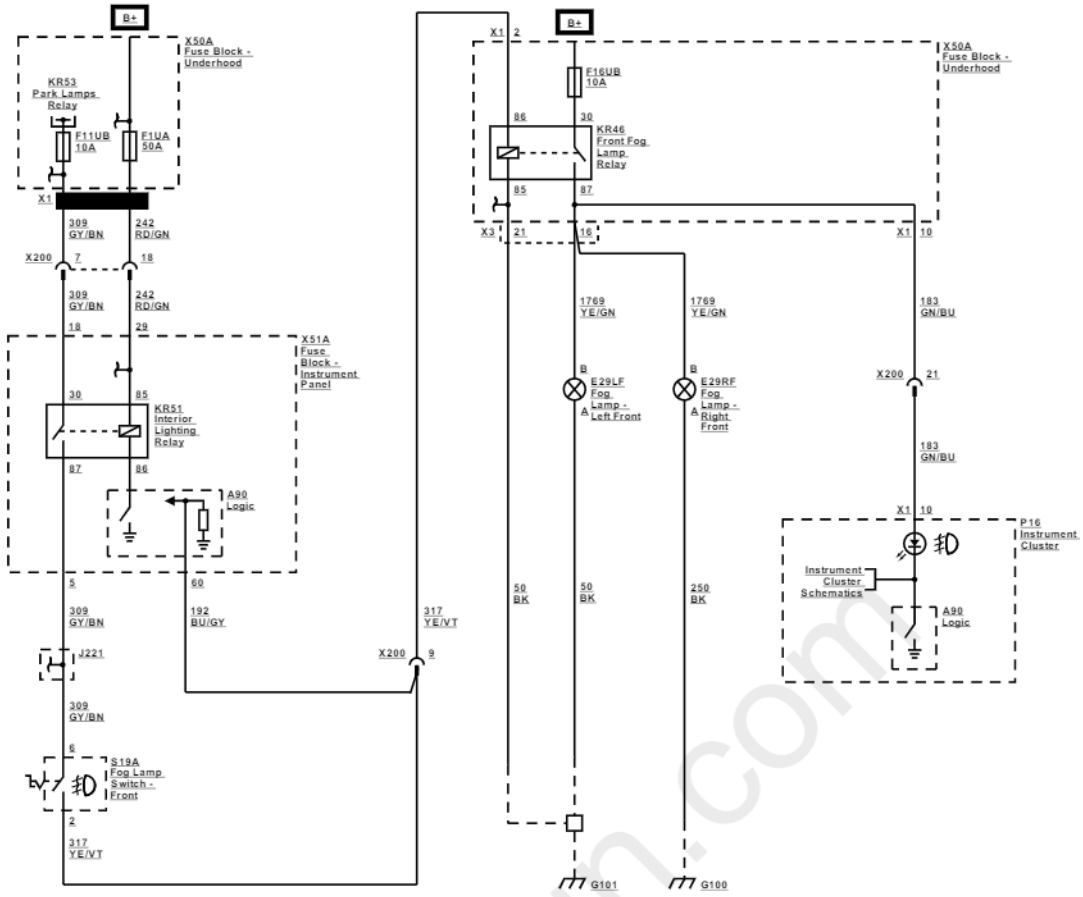
Click here for full size

cardiagn.com

Fog Lights Schematics

cardiagn.com

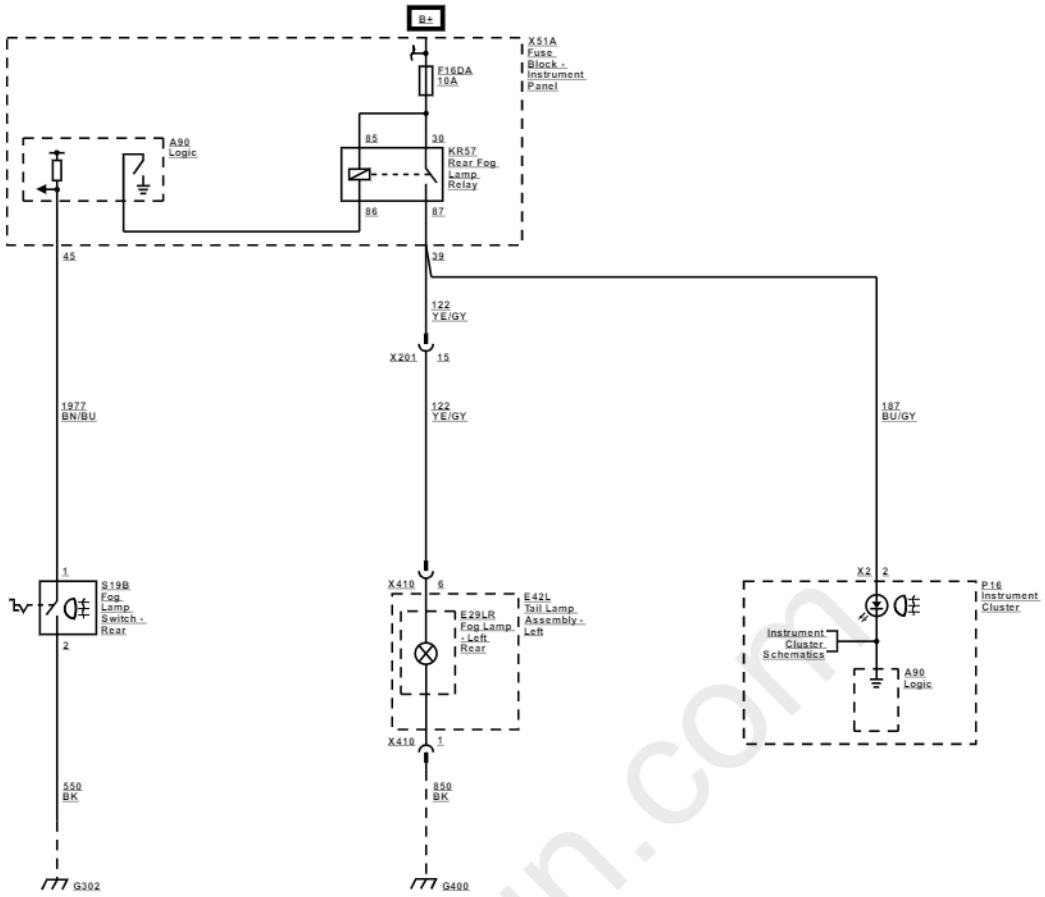
Front Fog Lamps (T3U)



Click here for full size

cardiagn.com

Rear Fog Lamps (T79)



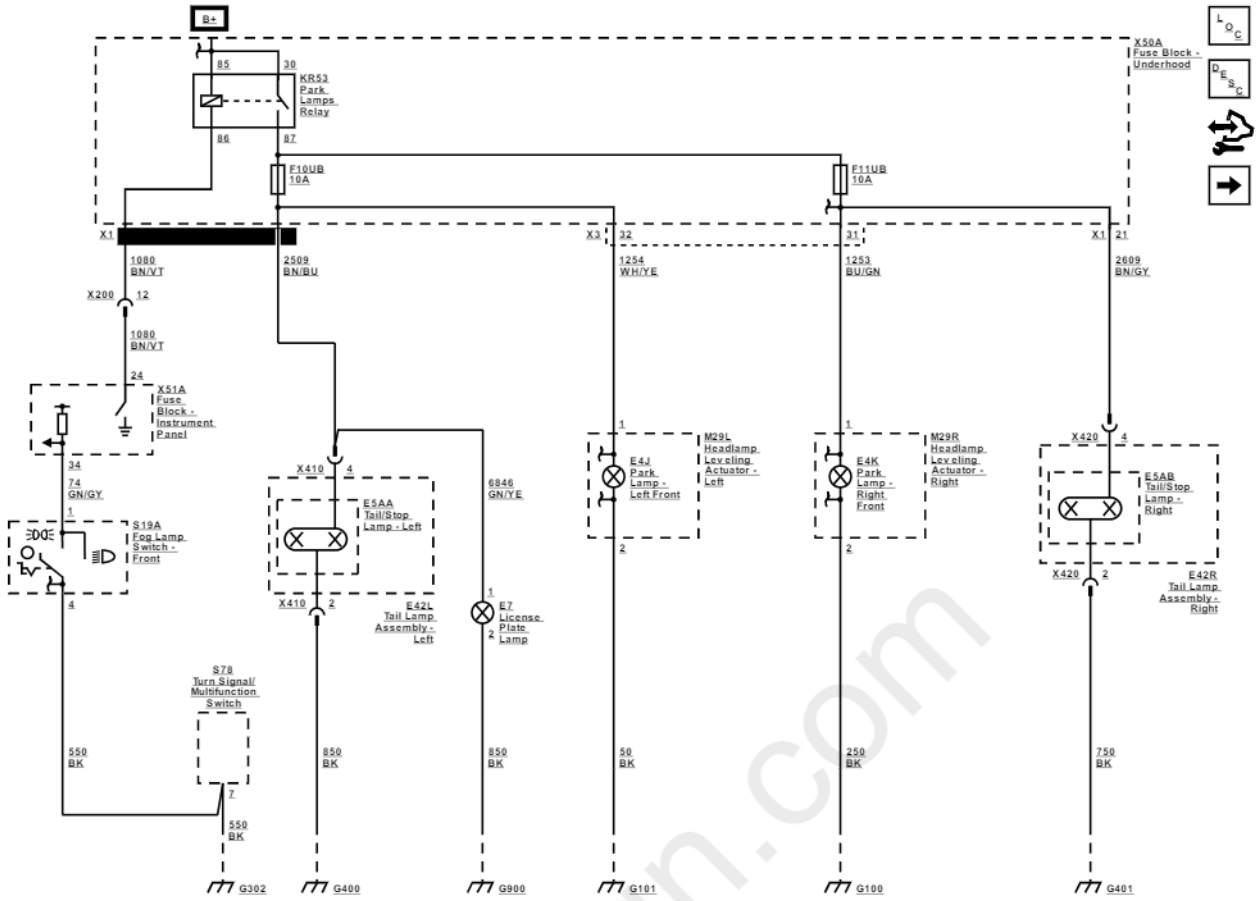
Click here for full size

cardiagn.com

Exterior Lights Schematics

cardiagn.com

License, Park, and Tail/Stop Lamps

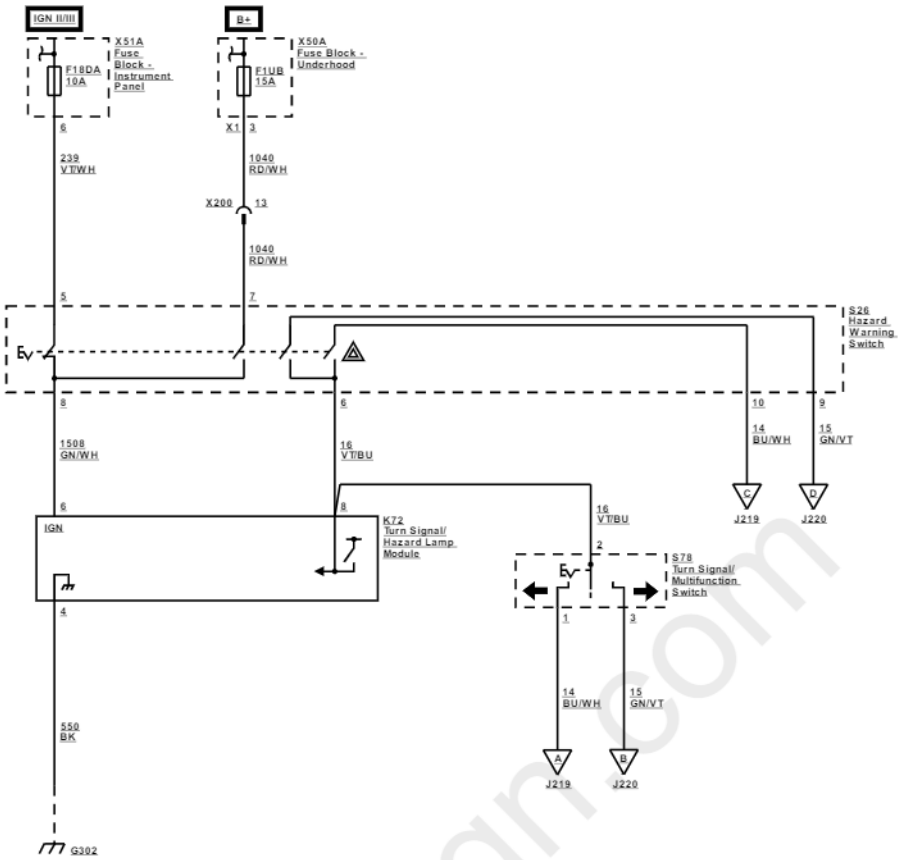


Click here for full size

cardiagn.com

Turn Signal and Hazard Lamps

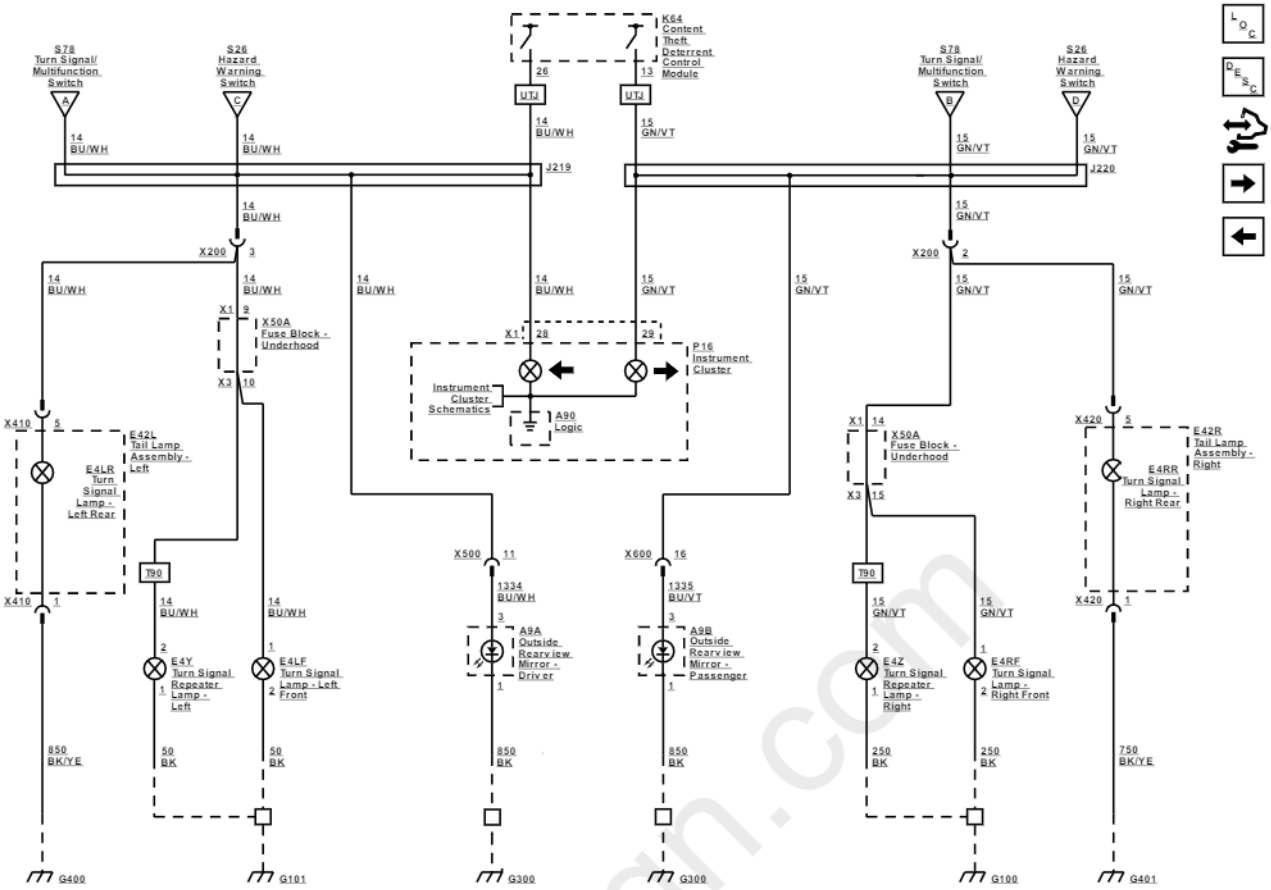
Ð»¿



Click here for full size

cardiagn.com

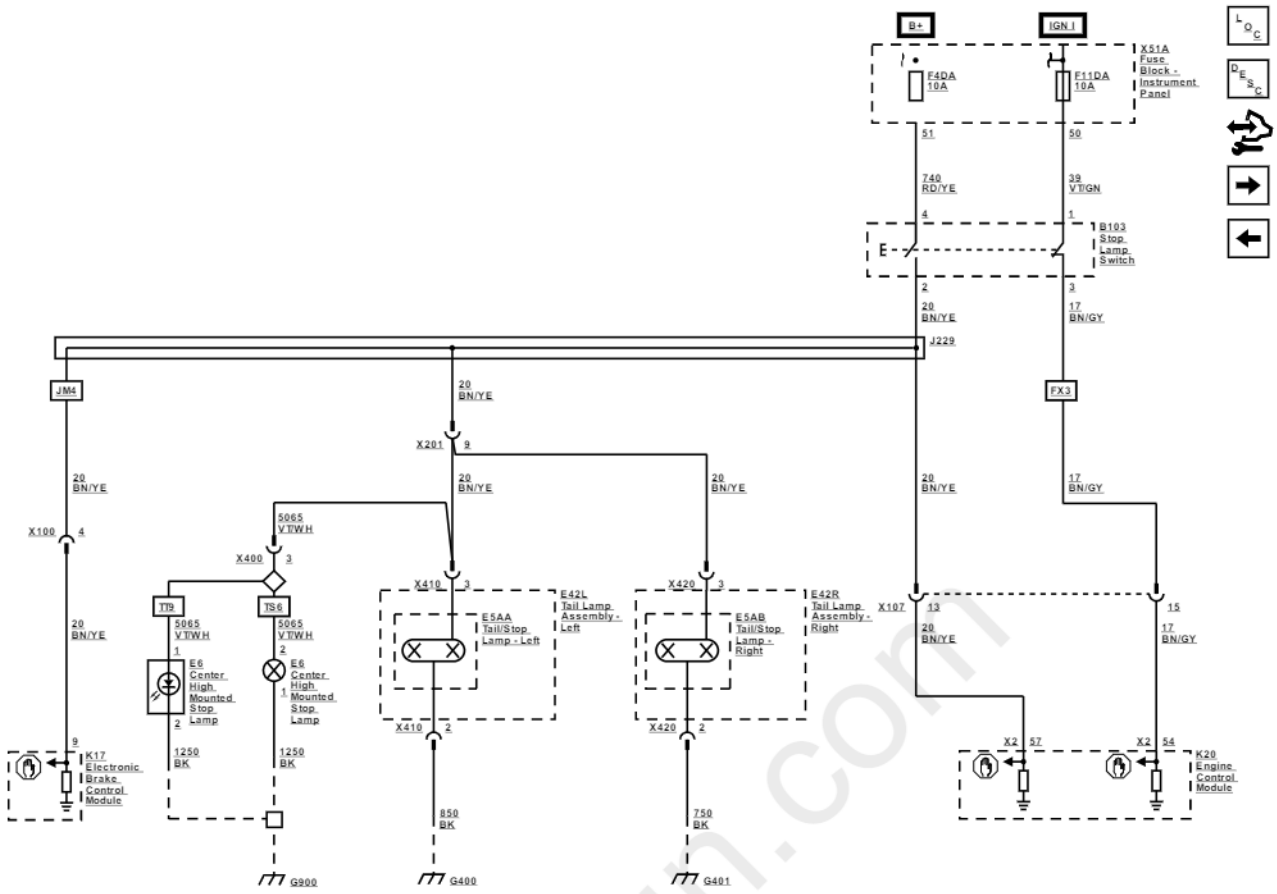
Park/Turn Signal and Repeater Lamps



Click here for full size

cardiagn.com

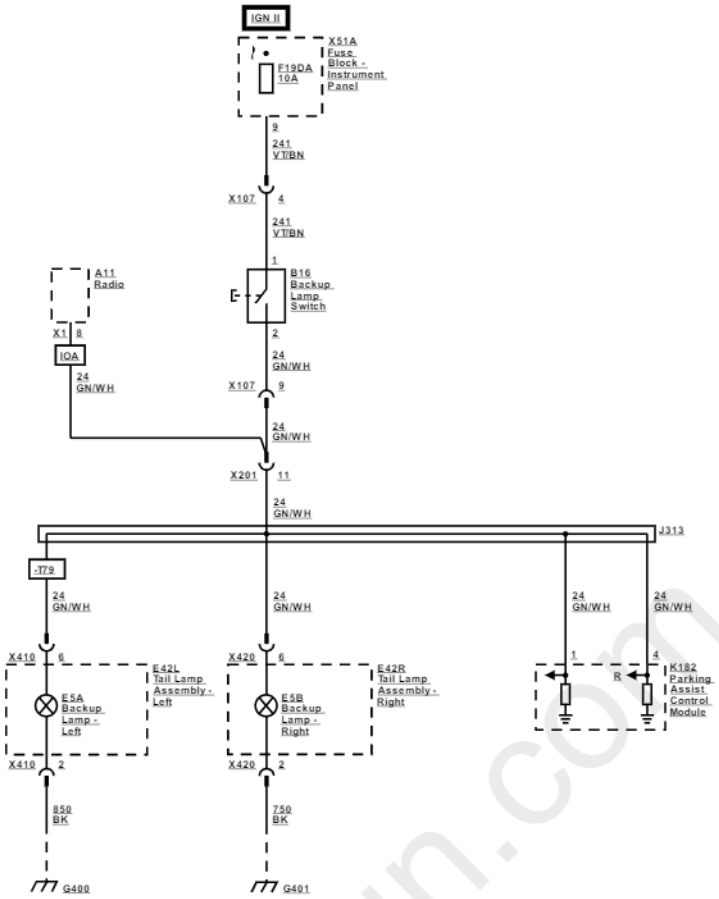
Stop Lamps



Click here for full size

cardiagn.com

Backup Lamps



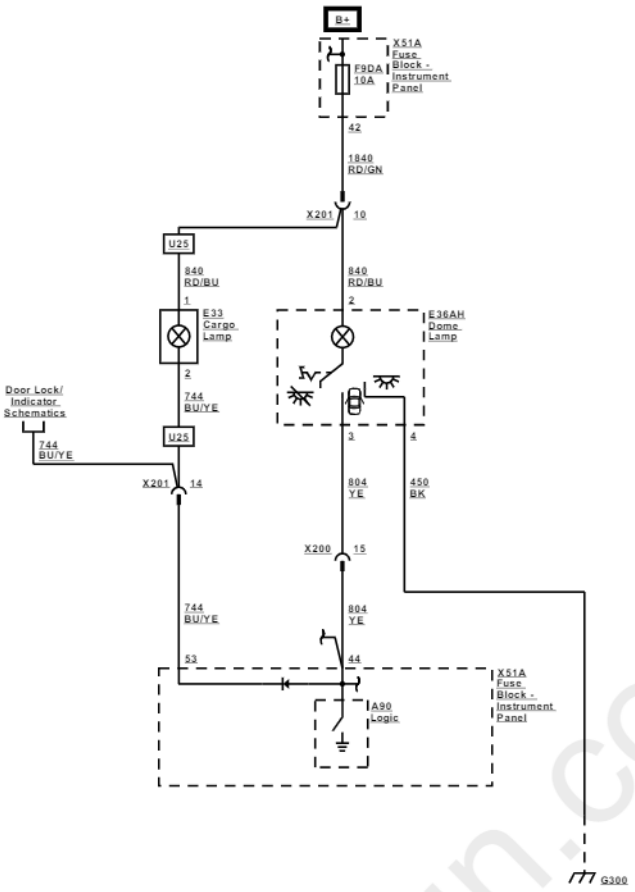
Click here for full size

cardiagn.com

Interior Lights Schematics

cardiagn.com

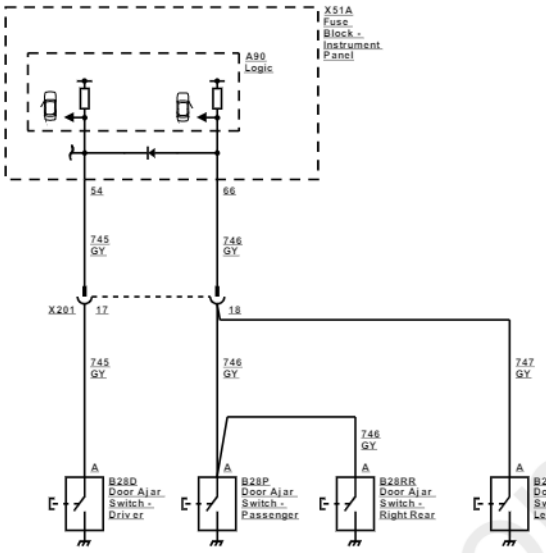
Dome Lamp and Cargo Lamp (U25)



Click here for full size

cardiagn.com

Door Ajar Switches



Click here for full size

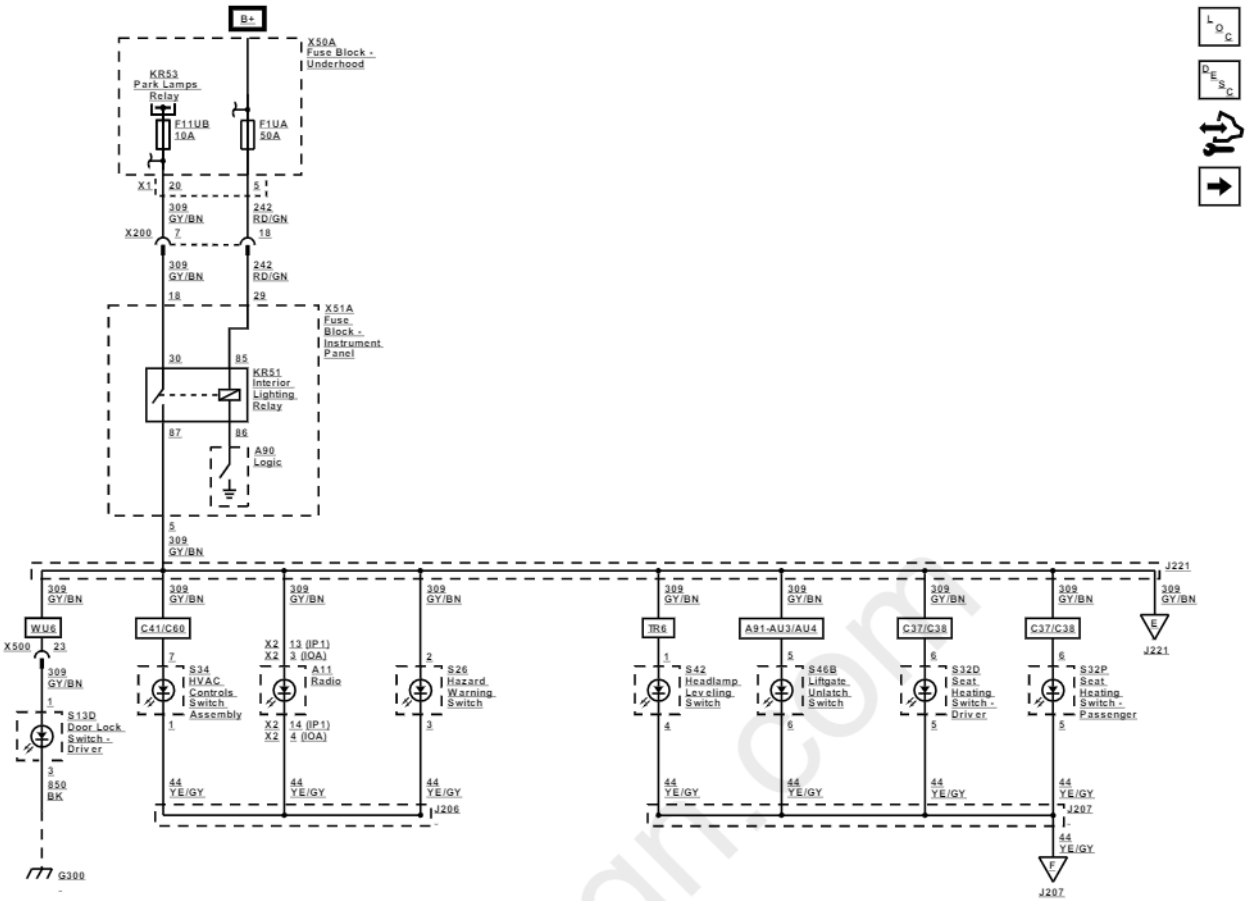
cardiagn.com

Interior Lights Dimming Schematics

cardiagn.com

Dimming (1 of 2)

Ð»¿

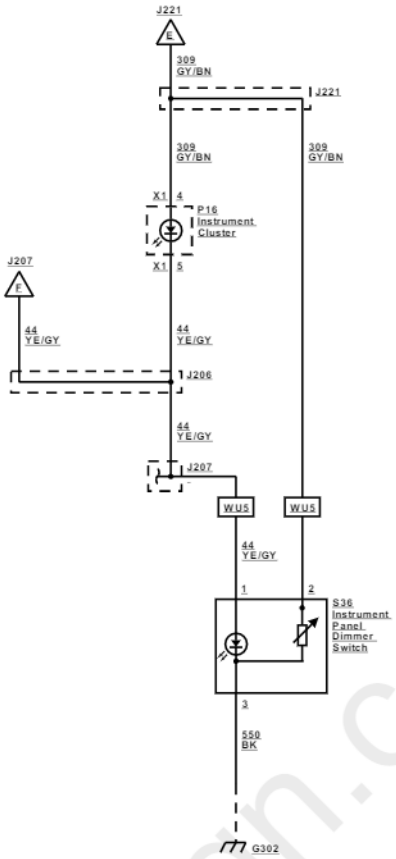


Click here for full size

cardiagn.com

Dimming (2 of 2)

Ð»¿



Click here for full size

cardiagn.com