Component Procedures: Fog/Driving Lamp

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Component Procedures: Fog/Driving Lamp

Parts and Labor (itype_189)

Parts

Qualifier	Part #	Name	Price	Note
Fog Lamp Assembly	15839896	Fog Lamp Assy	0.00	

Front Fog Lamp Aiming (Base/SS) (Article 10387)

Adjustment Procedure
Proper road illumination and safety require the fog lamps to be aimed. The front fog lamp aim should be checked when a new front fog lamp assembly is installed, or if any service repairs have been performed to the vehicle which disturb the front fog lamp mounting or the vehicle ride height.
There are no horizontal adjustments for aiming the front fog lamp assemblies on this vehicle.
- To ensure accurate vertical front fog lamp aiming, first perform the following steps to prepare the vehicle.
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- Make sure that all the components are in place on the vehicle, the tires are properly inflated, and there is not any mud or snow clinging to the vehicle.
- Stop all other operations of work on the vehicle.
- Make sure the fuel level is 1/2 full or more.
- Jounce the vehicle to settle the suspension.
- Place the vehicle on a level surface 7.6 m (25 ft) from the target screen.
- Measure the distance from the floor to the center of the fog lamp (5).
- Using this measurement, mark the horizontal centerline of the fog lamp (1) on the target screen directly in front of the vehicle.
- Start the vehicle in order to level the electronic suspension.
- Turn off the vehicle.
- Turn the front fog lamps ON.
- Loosen the lower portion of the front wheelhouse liner in order to access and adjust the fog lamp projector aim beam.
- Adjust the fog lamp up or down until the top edge of the high intensity zone on the screen is 102 mm (4 in) below the horizontal centerline.
- Turn OFF the front fog lamps.
- Secure the lower front portion of the front wheelhouse liner.

Front Fog Lamp Replacement (Base/SS) (Article 10390)

Callout Component Name
Preliminary Procedures Remove the front wheel liner. Refer to Front Wheelhouse Liner Replacement . Remove the fog lamp bezel. Refer to Front Fog Lamp Bezel Replacement . Using a blunt tool, push outward and release the fog lamp from the three ball retainers securing the fog lamp to the front bumper fascia.
Preliminary Procedures
- Remove the front wheel liner. Refer to Front Wheelhouse Liner Replacement .
- Remove the fog lamp bezel. Refer to Front Fog Lamp Bezel Replacement .
- Using a blunt tool, push outward and release the fog lamp from the three ball retainers securing the fog lamp to the front bumper fascia.
1 Forward Lamp Harness Electrical Connector Warning: Refer to Halogen Bulb Warning .
2 Front Fog Lamp Assembly Tip: Reset the ball retainers into the front bumper fascia prior to installing the fog lamp.

Front Fog Lamp Replacement (ZL1) (Article 10391)

Callout Component Name
Preliminary Procedure Remove the front fog lamp bezel. Refer to Front Fog Lamp Bezel Replacement .
Preliminary Procedure
Remove the front fog lamp bezel. Refer to Front Fog Lamp Bezel Replacement .
1 Front Fog Lamp Warning: Refer to Halogen Bulb Warning . Procedure Disconnect the electrical connector from the front fog lamp bulb . Using a suitable plastic flat bladed tool release the front fascia tabs and pull front fog lamp rearward.
Procedure
- Disconnect the electrical connector from the front fog lamp bulb .

- Using a suitable plastic flat bladed tool release the front fascia tabs and pull front fog lamp rearward.

All Technical Service Bulletins (itype_100)

Tsbs
- Lighting - Fog Lamp Information (PIC5287D, 2014/05/08)

Repair Tips (itype_110)

Tsbs
- Lighting - Fog Lamp Information (PIC5287D, 2014/05/08)

Front Fog Lamps Malfunction (Article 10349)

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 Switch B+ B1405 03, B1529 03, B257B 03 B257B 03 — —
Headlamp Switch Signal B257B 03 B257B 03 B257B 07 —
Front Fog Lamp Relay Control B2530 02 B2530 04 B2530 01 —
Front Fog Lamp Control 1 1 1 —
Front Fog Lamp Ground – Left — 1 — —
Front Fog Lamp Ground – Right — 1 — —

1. Front Fog Lamps Malfunction

Circuit/System Description

The front fog lamp relay is supplied with battery voltage at all times. The front fog lamp switch signal circuit is grounded through a resistor momentarily when the front fog lamp switch is pressed. The body control module (BCM) energizes the front fog lamp relay by applying ground to the front fog lamp relay control circuit. When the front fog lamp relay is energized, the relay contacts close and battery voltage is applied through the front fog lamp fuse to the front fog lamp control circuit which illuminates the front fog lamps.

Reference Information

Schematic Reference
Fog Lights Schematics
Connector End View Reference
Component Connector End Views
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
- Ignition ON, headlamps ON.
- Verify the scan tool Front Fog Lamps Switch parameter changes between Active and Inactive while commanding the front fog lamps ON and OFF with the front fog lamp switch.
- If the parameter does not change Refer to Front Fog Lamp Switch Malfunction.
- If the parameter changes
- Verify the front fog lamps turn ON and OFF when commanding the Front Fog Lamps ON and OFF with a scan tool.
- If the front fog lamps do not turn ON and OFF Refer to Front Fog Lamps Malfunction.
- If the front fog lamps turn ON and OFF
- Verify the front fog lamp indicator on the instrument cluster turns ON and OFF while commanding the front fog lamps ON and OFF with the front fog lamp switch.
- If the front fog lamp indicator does not turn ON and OFF Refer to Front Fog Lamp Indicator Malfunction.
- If the front fog lamp indicator turns ON and OFF
- All OK.

Circuit/System Testing

Front Fog Lamp Switch Malfunction
- Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the S30 headlamp switch, ignition ON.
- Test for B+ between the B+ circuit terminal 1 and ground.
- If less than B+
- Ignition OFF, disconnect the X3 harness connector at the K9 body control module.
- Test for infinite resistance between the B+ circuit and ground.
- If less than infinite resistance, repair the short to ground on the circuit.
- If infinite resistance
- Test for less than 2 Ω in the B+ circuit end to end.
- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω, replace the K9 body control module.
- If B+
- Verify the scan tool LED Backlight Dimming Command parameter is greater than 40%.
- If 40% or less
- Ignition OFF, disconnect the X1 harness connector at the K9 body control module, ignition ON.
- Test for less than 1 V between the signal circuit terminal 12 and ground.
- If 1 V or greater, repair the short to voltage on the circuit.
- If less than 1 V, replace the K9 body control module.
- If greater than 40%
- Install a 3 A fused jumper wire between the signal circuit terminal 12 and the B+ circuit terminal 1.
- Verify the scan tool LED Backlight Dimming Command parameter is less than 30%.
- If 30% or greater
- Ignition OFF, disconnect the X1 harness connector at the K9 body control module.
- Test for infinite resistance between the signal circuit and ground.
- Test for less than 2 Ω in the signal circuit end to end.
- If less than 30%
- Test or replace the S30 headlamp switch.
Front Fog Lamps Malfunction
- Ignition OFF, disconnect the X2 harness connector at the X50A fuse block – underhood.
- Connect a test lamp between the control circuit terminal 19 and B+, ignition ON.
- Verify the test lamp turns ON and OFF when commanding the Front Fog Lamps ON and OFF with a scan tool.
- If the test lamp is always OFF
- Ignition OFF, disconnect the appropriate harness connector listed below at the K9 body control module, ignition ON.
- X3 – without T3U
- X5 – with T3U
- Test for less than 1 V between the control circuit terminal and ground.
- If less than 1 V
- Ignition OFF.
- Test for less than 2 Ω in the control circuit end to end.
- If the test lamp is always ON
- Test for infinite resistance between the control circuit terminal and ground.
- If infinite resistance, replace the K9 body control module.
- If the test lamp turns ON and OFF
- Ignition OFF, connect the X2 harness connector at the X50A fuse block – underhood.
- Ignition OFF, exterior lamps OFF, disconnect the harness connector at the appropriate E29 fog lamp.
- Test for less than 5 Ω between the ground circuit terminal A and ground.
- If 5 Ω or greater
- Test for less than 2 Ω in the ground circuit end to end.
- If less than 2 Ω, repair the open/high resistance in the ground connection.
- If less than 5 Ω
- Connect a test lamp between the control circuit terminal B and ground, ignition ON.
- Ignition OFF, disconnect the X1 harness connector at the X50A fuse block – underhood.
- Test for infinite resistance between the control circuit and ground.
- If less than 2 Ω, replace the X50A fuse block – underhood.
- Ignition OFF, disconnect the X1 harness connector at the X50A fuse block – underhood, ignition ON.
- Test for less than 1 V between the control circuit and ground.
- If less than 1 V, replace the X50A fuse block – underhood.
- Test or replace the appropriate E29 fog lamp.

Front Fog Lamp Indicator Malfunction
- Ignition ON.
- Verify the front fog lamp indicator turns ON and OFF when commanding the Instrument Cluster All Indicators Test ON and OFF with a scan tool.
- If the front fog lamp indicator is always OFF or remains ON Replace the P16 instrument cluster.
- Replace the K9 body control module.
Repair Instructions
Perform the Diagnostic Repair Verification after completing the repair.
- Front Fog Lamp Replacement
- Accessory Wiring Junction Block Replacement
- Headlamp, Instrument Panel Lamp Dimmer, and Fog Lamp Switch Replacement
- Control Module References for BCM and instrument cluster replacement, programming, and setup

Rear Fog Lamps Malfunction (Article 10368)

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 Switch B+ B1405 03, B1529 03, B257B 03 B257B 03 — —
Headlamp Switch Signal B257B 03 B257B 03 B257B 07 —
Rear Fog Lamps Control B2540 02 B2540 04 B2540 01 —
Rear Fog Lamp Switch Indicator Control 1 1 1 —
Headlamp Switch Ground — 1 — —
Rear Fog Lamp Ground – Left — 1 — —
Rear Fog Lamp Ground – Right — 1 — —
1. Rear Fog Lamps Malfunction
Circuit/System Description
The rear fog lamp switch signal circuit is grounded momentarily by pressing the rear fog lamp switch. The body control module (BCM) responds to the rear fog lamp request by applying voltage to the rear fog lamps control circuit which illuminates the rear fog lamps.
Reference Information
Schematic Reference
Fog Lights Schematics
Connector End View Reference
Component Connector End Views
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
- Ignition ON, park lamp s ON.
- Verify the scan tool Rear Fog Lamp Switch parameter changes between Active and Inactive while commanding the rear fog lamp ON and OFF with the rear fog lamp switch.
- If the parameter does not change Refer to Rear Fog Lamp Switch Malfunction.
- If the parameter changes
- Verify the rear fog lamps turn ON and OFF when commanding the Rear Fog Lamp ON and OFF with a scan tool.
- If the rear fog lamps do not turn ON and OFF Refer to Rear Fog Lamp Malfunction.
- If the rear fog lamps turn ON and OFF
- Verify the rear fog lamp indicator on the headlamp switch turns ON and OFF while commanding the rear fog lamp ON and OFF with the rear fog lamp switch.
- If the rear fog lamp indicator does not turn ON and OFF Refer to Rear Fog Lamp Indicator Malfunction.
- If the rear fog lamp indicator turns ON and OFF
- All OK.

Circuit/System Testing

Rear Fog Lamp Switch Malfunction

- Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the S30 headlamp switch, ignition ON.
- Test for B+ between the B+ circuit terminal 1 and ground.
- If less than B+
- Ignition OFF, disconnect the X3 harness connector at the K9 body control module.
- Test for infinite resistance between the B+ circuit and ground.
- If less than infinite resistance, repair the short to ground on the circuit.
- If infinite resistance
- Test for less than 2 Ω in the B+ circuit end to end.
- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω, replace the K9 body control module.
- If B+
- Verify the scan tool LED Backlight Dimming Command parameter is greater than 40%.
- If 40% or less
- Ignition OFF, disconnect the X1 harness connector at the K9 body control module, ignition ON.
- Test for less than 1 V between the signal circuit terminal 12 and ground.
- If 1 V or greater, repair the short to voltage on the circuit.
- If less than 1 V, replace the K9 body control module.
- If greater than 40%
- Install a 3 A fused jumper wire between the signal circuit terminal 12 and the B+ circuit terminal 1.
- Verify the scan tool LED Backlight Dimming Command parameter is less than 30%.
- If 30% or greater
- Ignition OFF, disconnect the X1 harness connector at the K9 body control module.
- Test for infinite resistance between the signal circuit and ground.
- Test for less than 2 Ω in the signal circuit end to end.
- If less than 30%
- Test or replace the S30 headlamp switch.

Rear Fog Lamps Malfunction

- Ignition OFF, exterior lamps OFF, disconnect the harness connector at the appropriate component listed below.
- E29LR fog lamp – left rear with CZ2
- E42LR tail lamp assembly – left without CZ2
- E42RR tail lamp assembly – right without CZ2
- Test for less than 5 Ω between the appropriate ground circuit terminal listed below and ground.
- E29LR fog lamp – left rear terminal 2
- E42LR tail lamp assembly – left terminal 1
- E42RR tail lamp assembly – right terminal 1
- If 5 Ω or greater
- Ignition OFF.
- Test for less than 2 Ω in the ground circuit end to end.
- If less than 2 Ω, repair the open/high resistance in the ground connection.
- If less than 5 Ω
- Connect a test lamp between the appropriate control circuit terminal listed below and ground, ignition ON.
- E29LR fog lamp – left rear terminal 1
- E42LR tail lamp assembly – left terminal 5
- E42RR tail lamp assembly – right terminal 7
- Verify the test lamp turns ON and OFF when commanding the Rear Fog Lamps ON and OFF with a scan tool.
- If the test lamp is always OFF
- Ignition OFF, disconnect the X5 harness connector at the K9 body control module.
- Test for infinite resistance between the control circuit and ground.
- Test for less than 2 Ω in the control circuit end to end.
- If the test lamp is always ON
- Ignition OFF, disconnect the X5 harness connector at the K9 body control module, ignition ON.
- Test for less than 1 V between the control circuit terminal and ground.
- If the test lamp turns ON and OFF
- Test or replace the appropriate E29 fog lamp - rear.

Rear Fog Lamp Indicator Malfunction

- Ignition OFF, all doors closed, all accessories OFF, disconnect the harness connector at the S30 headlamp

switch. It may take up to 2 minutes for all vehicle systems to power down.
- Test for less than 15 Ω between the ground circuit terminal 6 and ground.
- If 15 Ω or greater
- If less than 15 Ω
- Connect a test lamp between the control circuit terminal 2 and ground, ignition ON.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair.
- Tail Lamp Bulb Replacement
- Tail Lamp Replacement - Outboard
- Headlamp, Instrument Panel Lamp Dimmer, and Fog Lamp Switch Replacement
- Control Module References for BCM replacement, programming, and setup