

2017 ACCESSORIES & EQUIPMENT

Lighting - Diagnostic Information and Procedures - Encore, Trax

DIAGNOSTIC INFORMATION AND PROCEDURES

DTC B1395: CONTROL MODULE VOLTAGE REFERENCE OUTPUT 1 CIRCUIT LOW/HIGH VOLTAGE

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptors

DTC B1395 03

Control Module Voltage Reference Output 1 Circuit Low Voltage

DTC B1395 07

Control Module Voltage Reference Output 1 Circuit High Voltage

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Instrument Panel Dimmer Switch B+ Reference	B1395 03, B3600 03	B3600 03	B1395 07, B3600 07	-
Instrument Panel Dimmer Switch Signal	B1395 03, B3600 03	B3600 03	B1395 07, B3600 07	-
Instrument Panel Dimmer Switch Low Reference	1	1	1	-
1. Interior Backlighting Malfunction				

Circuit/System Description

The instrument panel dimmer switch is used to increase and decrease the brightness of the interior backlighting components. The instrument panel dimmer switch provides a voltage signal to the body control module (BCM) that will increase as the brightness of the lights are increased and decrease as the brightness of the lights are decreased. The BCM provides a low reference, signal, and B+ voltage reference to the instrument panel dimmer switch. When the instrument panel dimmer switch is placed in the desired position, the dimmed voltage setting is applied from the instrument panel dimmer switch through the instrument panel dimmer switch signal circuit to the BCM. The BCM interprets the signal and applies a pulse width modulated voltage through the LED dimming 1 and dimming 2 control circuits illuminating the interior backlighting to the requested level of brightness.

Conditions for Running the DTC

- Battery voltage must be between 9-16 V.
- Park Lamps ON.

Conditions for Setting the DTC

DTC B1395 03

- The BCM detects a short to ground in the instrument panel dimmer switch B+ reference circuit.

- The BCM detects a short to ground in the instrument panel dimmer switch signal circuit.

DTC B1395 07

- The BCM detects a short to voltage in the instrument panel dimmer switch B+ reference circuit.
- The BCM detects a short to voltage in the instrument panel dimmer switch signal circuit.

Actions Taken When the DTC Sets

The BCM will not dim any interior backlighting. All interior backlighting will default to the FULL bright.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear once 100 consecutive malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

[Interior Lights Dimming Schematics \(Buick\)](#), [Interior Lights Dimming Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#), [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

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- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

Circuit/System Testing

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the S30 Headlamp Switch, ignition ON.
2. Test for B+ between the B+ circuit terminal 12 and ground.
 - **If less than B+**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module.
 2. 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
 3. 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+**
3. Verify a test lamp illuminates between B+ and the low reference circuit terminal 7.
 - **If the test lamp does not illuminate**

1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.
2. Test for less than 1 V between the low reference circuit terminal 7 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
3. Test for less than 2 Ω in the low reference 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 the test lamp illuminates**
4. Verify a test lamp does not illuminate between B+ and the signal circuit terminal 11.
 - **If the test lamp illuminates**
 1. Ignition OFF, disconnect the X2 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
 - **If the test lamp does not illuminate**
5. Test for B+ between the B+ circuit terminal 12 and the signal circuit terminal 11.
 - **If less than B+**
 1. Ignition OFF, disconnect the X2 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the signal circuit terminal 11 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
 3. Test for less than 2 Ω in the signal 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+**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the B+ circuit terminal 12 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
6. Test or replace the S30 Headlamp Switch.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Headlamp Switch Replacement](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DTC B1480: BATTERY RUNDOWN PROTECTION CIRCUIT SHORT TO GROUND

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptor

DTC B1480 02

Battery Rundown Protection Circuit Short to Ground

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Courtesy Lamps Control - Terminal 2 X7	B1480 02	1	1	-
Dome/Reading Lamps Ground	-	1	-	-
Dome Lamp Ground	-	1	-	-
Sunshade - Left Ground	-	1	-	-
Sunshade - Right Ground	-	1	-	-
1. Courtesy Lamps Malfunction				

Circuit/System Description

The body control module (BCM) supplies battery voltage to the reading lamps and sunshade mirror lamps via the courtesy lamp control circuit. The front reading lamps are controlled by an individual switch that is activated by the operator when additional cabin lighting is required. In the event that the reading lamps or sunshade lamps were to remain illuminated for more than 10 min with the ignition switch in the OFF position and no doors opened, the BCM will deactivate the courtesy lamp control circuit to prevent total battery discharge.

Conditions for Running the DTC

Battery voltage must be between 9-16 V.

Conditions for Setting the DTC

The BCM detects a short to ground in the courtesy lamps control circuit terminal 2 X7.

Actions Taken When the DTC Sets

The BCM will disable the circuit and the reading/sunshade lamps will be inoperative.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear once 100 consecutive malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

- [Interior Lights Schematics \(Buick\)](#) [Interior Lights Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#) [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

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- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

1. Ignition OFF, exterior lamps OFF, disconnect the harness connectors at the components listed below.
 - E37A Dome/Reading Lamps
 - E36AH Dome Lamp
 - A3L Sunshade - Left
 - A3R Sunshade - Right
2. Connect a test lamp between the appropriate control circuit terminal listed below and ground.
 - E37A Dome/Reading Lamps - terminal 1
 - E36AH Dome Lamp - terminal 4
 - A3L Sunshade - Left terminal A
 - A3R Sunshade - Right terminal A
3. Verify the test lamp turns ON and OFF when commanding the Inadvertent Load ON and OFF with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the X7 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control 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 the test lamp is always ON**
 1. Ignition OFF, disconnect the X7 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**
4. Test or replace the inoperative courtesy lamp.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Dome Lamp Bulb Replacement](#)
- Refer to [Center Reading Lamp Replacement](#)
- Refer to [Center Reading Lamp Bulb Replacement](#)
- Refer to [Sunshade Illuminated Mirror Lamp Bulb Replacement \(Buick\)](#), [Sunshade Illuminated Mirror Lamp Bulb Replacement \(Chevrolet\)](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DTC B2530: FRONT FOG LAMPS CONTROL CIRCUIT

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptors

DTC B2530 01

DTC B2530 02

Front Fog Lamps Control Circuit Short to Ground

DTC B2530 04

Front Fog Lamps Control Circuit Open

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Front Fog Lamp Relay Control	B2530 02, B2530 04	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 momentarily by pressing the front fog lamp switch. 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 switch 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.

Conditions for Running the DTC

- Battery voltage must be between 9-16 V.
- Front fog lamps ON.

Conditions for Setting the DTC**DTC B2530 01**

The BCM detects a short to voltage in the front fog lamp relay control circuit for 5 s or greater.

DTC B2530 02

The BCM detects a short to ground in the front fog lamp relay control circuit.

DTC B2530 04

The BCM detects an open in the front fog lamp relay control circuit.

Actions Taken When the DTC Sets**DTC B2530 01 and B2530 04**

The front fog lamps will not operate when the park lamps are ON and the front fog lamp switch is active.

DTC B2530 02

The front fog lamps always ON.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear once 100 consecutive malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

[Fog Lights Schematics \(Buick\)](#), [Fog Lights Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#), [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

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Scan Tool Reference

[Control Module References](#) for scan tool information

Circuit/System Testing

1. Ignition OFF, disconnect the X5 harness connector at the K9 Body Control Module, ignition ON.
2. Verify a test lamp illuminates between the appropriate control circuit terminal listed below and ground.
 - Terminal 13 (Buick)
 - Terminal 10 (Chevrolet)
 - **If the test lamp does not illuminate**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood.
 2. Test for infinite resistance between the control circuit terminal and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the X50A Fuse Block - Underhood.
 - **If the test lamp illuminates**
3. Ignition OFF, connect a 3 A fused jumper between the appropriate control circuit terminal listed below and ground.
 - Terminal 13 (Buick)
 - Terminal 10 (Chevrolet)
4. Remove the front fog lamp fuse at the X50A Fuse Block - Underhood, ignition ON.
5. Verify a test lamp illuminates between the front fog lamp fuse B+ switch control terminal and ground.
 - **If the test lamp does not illuminate**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood, ignition ON.
 2. Test for less than 1 V between the appropriate control circuit terminal listed below and ground.

- Terminal 13 (Buick)
- Terminal 10 (Chevrolet)
- If 1 V or greater, repair the short to voltage on the circuit.
- If less than 1 V, replace the X50A Fuse Block - Underhood.

- **If the test lamp illuminates**

6. Test or replace the K9 Body Control Module.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Front Compartment Fuse Block Replacement](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DTC B2545: BACKUP LAMPS CIRCUIT

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptors

DTC B2545 01

Backup Lamps Circuit Short to Battery

DTC B2545 02

Backup Lamps Circuit Short to Ground

DTC B2545 04

Backup Lamps Circuit Open

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Backup Lamps Control	B127B 08, B2545 02	B127B 08	1	-
Backup Lamp Ground - Left	-	1	-	-
Backup Lamp Ground - Right	-	1	-	-
1. Backup Lamps Malfunction				

Circuit/System Description

Automatic Transmission

With the engine running and the transmission in the reverse position, the transmission control module (TCM) sends a serial data message to the body control module (BCM). The message indicates that the gear selector is in the reverse position. The BCM applies battery voltage to the backup lamps control circuit illuminating the backup lamps. Once the driver moves the gear selector out of the reverse position, a message is sent by the TCM via serial data requesting the BCM to remove battery voltage from the backup lamps control circuit. The engine must be running for the backup lamps to operate.

Manual Transmission

The engine control module (ECM) provides a signal circuit to the backup lamp switch which is permanently grounded. With the ignition ON and the transmission in the reverse position, the backup lamp switch signal circuit is pulled low and the ECM responds by sending a serial data message to the body control module (BCM). The message indicates that the gear selector is in the reverse position. The BCM applies battery voltage to the backup lamps control circuit illuminating the backup lamps. Once the driver moves the gear selector out of the reverse position, a message is sent by the ECM via serial data requesting the BCM to remove battery voltage from the backup lamps control circuit.

Conditions for Running the DTC

- Battery voltage must be between 9-16 V.
- Engine RUNNING.
- Transmission placed in REVERSE gear.

Conditions for Setting the DTC

DTC B2545 01

The BCM detects a short to voltage in the backup lamps control circuit.

DTC B2545 02

The BCM detects a short to ground in the backup lamps control circuit.

DTC B2545 04

The BCM detects an open/high resistance in the backup lamps control circuit.

Actions Taken When the DTC Sets

DTC B2545 02 and B2545 04

The backup lamps will not operate.

DTC B2545 01

The backup lamps are always ON.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear once 100 consecutive malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

- [Exterior Lights Schematics \(Buick\)](#), [Exterior Lights Schematics \(Chevrolet\)](#)

Connector End View Reference

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- [Wiring Repairs](#)

[Control Module References](#) for scan tool information

Circuit/System Testing

1. Ignition OFF, exterior lamps OFF, rear hatch latch latched, remove the appropriate E5 Backup Lamp bulb at the appropriate E42 Tail Lamp Assembly.
2. Test for less than 5 Ω between the ground circuit at the socket terminal and ground.
 - **If 5 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 5 Ω**
3. Connect a test lamp between the control circuit at the socket terminal and ground, ignition ON.
4. Verify the test lamp turns ON and OFF when commanding the Backup Lamps ON and OFF with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the X7 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control 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 the test lamp is always ON**
 1. Ignition OFF, disconnect the X7 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**
5. Test or replace the appropriate E5 Backup Lamp.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Backup Bulb Replacement \(Chevrolet with UGE\)](#), [Backup Bulb Replacement \(Buick with UGE\)](#), [Backup Bulb Replacement \(Chevrolet with TVM\)](#).
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DTC B2570: REAR COMPARTMENT COURTESY LAMP CONTROL CIRCUIT SHORT TO GROUND

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptor

DTC B2570 02

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Rear Compartment Courtesy Lamp Control	B2570 02	1	1	-
Rear Compartment Courtesy Lamp Ground	-	1	-	-
1. Rear Compartment Lamp Malfunction				

Circuit/System Description

The body control module (BCM) applies battery voltage to the rear compartment courtesy lamp through the rear compartment lamp control circuit. When the BCM receives a rear compartment lid open input from the rear compartment lid latch, the BCM applies battery voltage to the rear compartment lamp control circuit illuminating the rear compartment courtesy lamp. In the event that the rear compartment lamp were to remain illuminated for more than 10 minutes with the ignition switch in the OFF position and no doors opened, the BCM will deactivate the rear compartment lamp control circuit to prevent total battery discharge.

Conditions for Running the DTC

- Battery voltage must be between 9-16 V.
- Rear compartment OPEN.

Conditions for Setting the DTC

The BCM detects a short to ground on the rear compartment courtesy lamp control circuit.

Actions Taken When the DTC Sets

The rear compartment lamp is inoperative.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear once 100 consecutive malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

[Interior Lights Schematics \(Buick\)](#), [Interior Lights Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#), [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

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Scan Tool Reference

Circuit/System Testing

1. Ignition OFF, exterior lamps OFF, rear hatch latch latched, disconnect the harness connector at the E8S Rear Compartment Courtesy Lamp.
2. Test for less than 5 Ω between the ground circuit terminal 2 and ground.
 - **If 5 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 5 Ω**
3. Connect a test lamp between the control circuit terminal 1 and ground, ignition ON.
4. Verify the test lamp turns ON and OFF when commanding the Cargo Lamp ON and OFF with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the X7 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control 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 the test lamp is always ON**
 1. Ignition OFF, disconnect the X7 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**
5. Test or replace the E8S Rear Compartment Courtesy Lamp.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Cargo Lamp Replacement](#)
- Refer to [Cargo Center Courtesy Lamp Bulb Replacement](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DTC B2575 OR B2699: HEADLAMP CONTROL CIRCUIT

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptors

DTC B2575 01

Headlamps Control Circuit Short to Battery

DTC B2575 02

DTC B2575 04

Headlamps Control Circuit Open

DTC B2699 01

Right Headlamp Control Circuit Short to Battery

DTC B2699 02

Right Headlamp Control Circuit Short to Ground

DTC B2699 04

Right Headlamp Control Circuit Open

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
F2DA (BCM 2) Fuse B+	B2575 01, B2575 04	B2575 01, B2575 04	-	-
F3DA (BCM 3) Fuse B+	B2699 01, B2699 04	B2699 01, B2699 04	-	-
Low Beam Headlamp Control - Left	B2575 02	B2575 04	B2575 01, B2575 04	-
Low Beam Headlamp Control - Right	B2699 02	B2699 04	B2699 01, B2699 04	-
Headlamp Ground - Left	-	1	-	-
Headlamp Ground - Right	-	1	-	-
1. Headlamps Malfunction				

Circuit/System Description

With the headlamp switch in the ON position, the headlamp switch headlamp ON signal circuit is grounded through the headlamp switch. The body control module (BCM) responds by applying battery positive voltage to the left and right low beam headlamp control circuits illuminating the low beam headlamps.

Conditions for Running the DTC

- Battery voltage must be between 9-16 V.
- Low beam headlamps ON.

Conditions for Setting the DTC**DTC B2575 01 and B2575 04**

- The BCM detects a short to voltage or an open/high resistance in the left low beam headlamp control circuit.
- The BCM detects a short to ground or an open/high resistance in the F2DA (BCM 2) fuse B+ circuit.

DTC B2575 02

The BCM detects a short to ground in the left low beam headlamp control circuit.

DTC B2699 01 and B2699 04

- The BCM detects a short to voltage or an open/high resistance in the right low beam headlamp control circuit.

- The BCM detects a short to ground or an open/high resistance in the F3DA (BCM 3) fuse B+ circuit.

DTC B2699 02

The BCM detects a short to ground in the right low beam headlamp control circuit.

Actions Taken When the DTC Sets

- When DTC B2575 sets, the left low beam headlamp will be inoperative.
- When DTC B2699 sets, the right low beam headlamp will be inoperative.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear once 100 consecutive malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

- [Headlights/Daytime Running Lights \(DRL\) Schematics \(Buick\)](#) [Headlights/Daytime Running Lights \(DRL\) Schematics \(Chevrolet\)](#)
- [Body Control System Schematics \(Buick\)](#) [Body Control System Schematics \(Chevrolet\)](#)

Connector End View Reference

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Scan Tool Reference

[Control Module References](#) for scan tool information

Circuit/System Testing

DTC B2575

1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.
2. Verify a test lamp illuminates between the B+ circuit terminal 4 and ground.
 - **If the test lamp does not illuminate and the circuit fuse is good**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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 , verify the fuse is not open and there is voltage at the fuse.
 - **If the test lamp does not illuminate and the circuit fuse is open**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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, replace the K9 Body Control Module.
 - **If the test lamp illuminates**
3. Ignition OFF, connect the X1 harness connector at the K9 Body Control Module.
 4. Ignition OFF, exterior lamps OFF, remove the E4G Headlamp - Left Low Beam at the E13LA Headlamp Assembly - Left.
 5. Test for less than 5 Ω between the ground circuit at the socket terminal and ground.
 - **If 5 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 5 Ω**
 6. Connect a test lamp between the control circuit at the socket terminal and ground, ignition ON.
 7. Verify the test lamp turns ON and OFF when commanding the Left Headlamp Low Beam ON and OFF with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control 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 the test lamp is always ON**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**
 8. Test or replace the E4G Headlamp - Left Low Beam bulb.

DTC B2699

1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.
2. Verify a test lamp illuminates between the B+ circuit terminal 3 and ground.
 - **If the test lamp does not illuminate and the circuit fuse is good**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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 , verify the fuse is not open and there is voltage at the fuse.
 - **If the test lamp does not illuminate and the circuit fuse is open**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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, replace the K9 Body Control Module.
 - **If the test lamp illuminates**
3. Ignition OFF, connect the X1 harness connector at the K9 Body Control Module.
4. Ignition OFF, exterior lamps OFF, remove the E4H Headlamp - Right Low Beam at the E13RA Headlamp Assembly - Right.

5. Test for less than 5 Ω between the ground circuit at the socket terminal and ground.

- **If 5 Ω or greater**

1. Ignition OFF.

2. Test for less than 2 Ω in the ground circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , repair the open/high resistance in the ground connection.

- **If less than 5 Ω**

6. Connect a test lamp between the control circuit at the socket terminal and ground, ignition ON.

7. Verify the test lamp turns ON and OFF when commanding the Right Headlamp Low Beam ON and OFF with a scan tool.

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

1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module.

2. Test for infinite resistance between the control circuit and ground.

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

3. Test for less than 2 Ω in the control 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 the test lamp is always ON**

1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module, ignition ON.

2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**

8. Test or replace the E4H Headlamp - Right Low Beam bulb.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Headlamp Bulb Replacement - Left Side \(Chevrolet with SBV\)](#), [Headlamp Bulb Replacement - Left Side \(SBM with High Beam\)](#), [Headlamp Bulb Replacement - Left Side \(SBM with Low Beam\)](#).
- Refer to [Headlamp Bulb Replacement - Right Side \(Chevrolet with 2H0 and SBV\)](#), [Headlamp Bulb Replacement - Right Side \(Chevrolet with LUV and SBV\)](#), [Headlamp Bulb Replacement - Right Side \(LUV with SBM Low Beam\)](#), [Headlamp Bulb Replacement - Right Side \(2H0 with SBM Low Beam\)](#), [Headlamp Bulb Replacement - Right Side \(LUV with SBM High Beam\)](#), [Headlamp Bulb Replacement - Right Side \(2H0 with SBM High Beam\)](#).
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DTC B257A: HEADLAMP SWITCH INPUT SIGNALS CORRELATION 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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptor

DTC B257A 00

Headlamp Switch Input Signals Correlation Malfunction

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Headlamp Switch Park Lamps ON Signal	2	B257A 00	2	-
Headlamp Switch Headlamps OFF Signal	B257A 00	1	1	-
Headlamp Switch Headlamps ON Signal	B257A 00	1	1	-
Headlamp Switch Ground	-	1	-	-
1. Headlamps Malfunction 2. Park, License, and/or Tail Lamps Malfunction				

Circuit/System Description

For headlamp operation, the body control module (BCM) monitors three signal circuits from the headlamp switch. When the headlamp switch is in the AUTO position, the three signal circuits are unaffected and the BCM relies on the ambient light sensor input to turn the headlamps and daytime running lamps ON and OFF. When the headlamp switch is placed in the OFF position, the headlamp switch headlamps OFF signal circuit is grounded, indicating to the BCM that the exterior lamps should be turned OFF. With the headlamp switch in the PARK LAMPS position, the headlamp switch park lamps ON signal circuit is grounded, indicating that the park lamps have been requested. When the headlamp switch is in the HEADLAMP position, both the headlamp switch park lamps ON signal circuit and the headlamp switch headlamps ON signal circuit are grounded. The BCM responds by commanding the park lamps and headlamps ON.

Conditions for Running the DTC

Battery voltage must be between 9-16 V.

Conditions for Setting the DTC

- The BCM detects an open/high resistance in the headlamp switch park lamps ON signal circuit.
- The BCM detects a short to ground in the headlamp switch headlamps ON signal circuit.
- The BCM detects a short to ground in the headlamp switch headlamps OFF signal circuit.

Actions Taken When the DTC Sets

- When DTC B257A 00 is present on the headlamp switch headlamps OFF signal circuit, the park lamps are always ON in the AUTO position. The headlamp switch operates in all positions other than AUTO. The AUTO headlamp defeat is inoperative.
- When DTC B257A 00 is present on the headlamp switch headlamps ON signal circuit, the park lamps are always ON. The low and high beam headlamps operate normally.
- When DTC B257A 00 is present on the headlamp switch park lamps ON signal circuit, the low and high beam headlamps are inoperative in the PARK and HEAD positions. The automatic headlamps disable switch will turn the park lamps ON and OFF. The park lamps are always ON or always OFF in the AUTO, PARK, and HEAD positions.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear once 100 consecutive malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

[Headlights/Daytime Running Lights \(DRL\) Schematics \(Buick\)](#) [Headlights/Daytime Running Lights \(DRL\) Schematics \(Chevrolet\)](#)

Connector End View Reference

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 Testing

1. Ignition OFF, all doors closed, all accessories OFF, disconnect the harness connector at the S30 Headlamp Switch. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 8 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Ignition ON.
4. Verify the scan tool Automatic Headlamps Disable Switch parameter is Inactive.
 - **If not Inactive**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal circuit terminal 3 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
 - **If Inactive**
5. Install a 3 A fused jumper wire between the signal circuit terminal 3 and ground.
6. Verify the scan tool Automatic Headlamps Disable Switch parameter is Active.
 - **If not Active**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the signal circuit terminal 3 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
 3. Test for less than 2 Ω in the signal 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 Active**
7. Verify the scan tool Park Lamps Switch parameter is Inactive.
 - **If not Inactive**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal circuit terminal 5 and ground.

- If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
 - **If Inactive**
8. Install a 3 A fused jumper wire between the signal circuit terminal 5 and ground.
 9. Verify the scan tool Park Lamps Switch parameter is Active.
 - **If not Active**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the signal circuit terminal 5 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
 3. Test for less than 2 Ω in the signal 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 Active**
 10. Verify the scan tool Headlamps On Switch parameter is Inactive.
 - **If not Inactive**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal circuit terminal 1 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
 - **If Inactive**
 11. Install a 3 A fused jumper wire between the signal circuit terminal 1 and ground.
 12. Verify the scan tool Headlamps On Switch parameter is Active.
 - **If not Active**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the signal circuit terminal 1 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
 3. Test for less than 2 Ω in the signal 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 Active**
 13. Test or replace the S30 Headlamp Switch.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Headlamp Switch Replacement](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DTC B2580: HIGH BEAM CONTROL CIRCUIT

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptors

DTC B2580 01

High Beam Control Circuit Short to Battery

DTC B2580 02

High Beam Control Circuit Short to Ground

DTC B2580 04

High Beam Control Circuit Open

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Headlamp High Beam Relay Control	B2580 02, B2580 04	B2580 02, B2580 04	B2580 01	-
High Beam Headlamp Control - Left	1	1	1	-
High Beam Headlamp Control - Right	1	1	1	-
Headlamp Ground - Left	-	1	-	-
Headlamp Ground - Right	-	1	-	-
1. Headlamps Malfunction				

Circuit/System Description

The high beam and flash to pass functions are contained within the turn signal/multifunction switch. The BCM provides the turn signal/multifunction switch with two signal circuits, the high beam signal circuit and the flash to pass signal circuit. When the low beam headlamps are ON and the turn signal/multifunction switch is placed in the high beam position, ground is applied to the BCM through the high beam signal circuit. The BCM responds to the high beam request by applying ground to the high beam relay control circuit which energizes the high beam relay. With the high beam relay energized, the switch contacts close allowing battery voltage to flow through the high beam fuses to the high beam control circuits illuminating the high beam headlamps.

Conditions for Running the DTC

- Battery voltage must be between 9-16 V.
- High beam headlamps ON.

Conditions for Setting the DTC

DTC B2580 01

The BCM detects a short to voltage in the headlamp high beam relay control circuit.

DTC B2580 02

The BCM detects a short to ground in the headlamp high beam relay control circuit.

DTC B2580 04

The BCM detects an open in the headlamp high beam relay control circuit.

Actions Taken When the DTC Sets

The high beam headlamps and flash to pass will not operate.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.

- A history DTC will clear once 100 consecutive malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

[Headlights/Daytime Running Lights \(DRL\) Schematics \(Buick\)](#), [Headlights/Daytime Running Lights \(DRL\) Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#), [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

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 Testing

1. Ignition OFF, disconnect the X5 harness connector at the K9 Body Control Module, ignition ON.
2. Verify a test lamp illuminates between the control circuit terminal 18 and ground.
 - **If the test lamp does not illuminate**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood.
 2. Test for infinite resistance between the control circuit terminal and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the X50A Fuse Block - Underhood.
 - **If the test lamp illuminates**
3. Ignition OFF, connect a 3 A fused jumper between the control circuit terminal 18 and ground.
4. Verify the high beam headlamps illuminate.
 - **If the high beam headlamps do not illuminate**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 18 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V, replace the X50A Fuse Block - Underhood.
 - **If the high beam headlamps illuminate**
5. Test or replace the K9 Body Control Module.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Front Compartment Fuse Block Replacement](#)

- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DTC B2585 OR B3867: LEFT/RIGHT PARK LAMPS CONTROL CIRCUIT

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptors

DTC B2585 01

Left Park Lamps Control Circuit Short to Battery

DTC B2585 02

Left Park Lamps Control Circuit Short to Ground

DTC B2585 04

Left Park Lamps Control Circuit Open

DTC B3867 01

Right Park Lamps Control Circuit Short to Battery

DTC B3867 02

Right Park Lamps Control Circuit Short to Ground

DTC B3867 04

Right Park Lamps Control Circuit Open

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Left Park Lamps Control	B2585 02	1	1	-
Right Park Lamps Control	B3867 02	1	1	-
Park Lamp Ground - Left Front	-	1	-	-
Park Lamp Ground - Right Front	-	1	-	-
Tail Lamp Ground - Left	-	1	-	-
Tail Lamp Ground - Right	-	1	-	-
Side Marker Lamp Ground - Left Front	-	1	-	-
Side Marker Lamp Ground - Right Front	-	1	-	-
Side Marker Lamp Ground - Left Rear	-	1	-	-
Side Marker Lamp Ground - Right Rear	-	1	-	-
1. Park, License, and/or Tail Lamps Malfunction				

Circuit/System Description

When the headlamp switch is placed in the HEAD or PARK position, ground is applied to the park lamp switch ON signal circuit to the body control module (BCM). The BCM responds by applying voltage to

the park lamps, tail lamps, and license lamps control circuits illuminating the park, tail, and license lamps.

Conditions for Running the DTC

- Battery voltage must be between 9-16 V.
- Park lamps ON.

Conditions for Setting the DTC

DTC B2585 01 and B2585 04

The BCM detects a short to voltage or an open/high resistance in the left front park lamps control circuit.

DTC B2585 02

The BCM detects a short to ground in the left front park lamps control circuit.

DTC B3867 01 and B3867 04

The BCM detects a short to voltage or an open/high resistance in the right front park lamps control circuit.

DTC B3867 02

The BCM detects a short to ground in the right front park lamps control circuit.

Actions Taken When the DTC Sets

DTC B2585 01

The left park lamps are always ON.

DTC B2585 02 and B2585 04

The left park lamps are always OFF.

DTC B3867 01

The right park lamps are always ON.

DTC B3867 02 and B3867 04

The right park lamps are always OFF.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear once 100 consecutive malfunction-free ignition cycles have occurred.

Diagnostic Aids

When testing at the park lamp bulb socket, make sure all measurements and test lamp connections are in the correct terminal location and do not come in contact with each other during testing.

Reference Information

Schematic Reference

[Exterior Lights Schematics \(Buick\)](#), [Exterior Lights Schematics \(Chevrolet\)](#)

Connector End View Reference

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 Testing

DTC B2585

1. Ignition OFF, exterior lamps OFF, rear hatch latch latched, disconnect the appropriate park lamp.
2. Test for less than 10 Ω between the appropriate ground circuit terminal listed below and ground.
 - E4J Park Lamp - Left Front socket terminal (Chevrolet with SBM)
 - E13LA Headlamp Assembly - Left terminal 4 (Chevrolet with SBV)
 - E13LA Headlamp Assembly - Left terminal 10 (Chevrolet)
 - E13LA Headlamp Assembly - Left terminal 11 (Buick with SGM)
 - E13LA Headlamp Assembly - Left terminal 8 (Buick with T4L)
 - E42L Tail Lamp Assembly - Left terminal 5 (Chevrolet with UGE)
 - E42L Tail Lamp Assembly - Left terminal 7 (Chevrolet with SBM)
 - E42L Tail Lamp Assembly - Left terminal 3 (Buick with T4L)
 - E42L Tail Lamp Assembly - Left terminal 3 (Buick with SGM)
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Connect a test lamp between the appropriate control circuit terminal listed below and ground, ignition ON.
 - E4J Park Lamp - Left Front socket terminal (Chevrolet with SBM)
 - E13LA Headlamp Assembly - Left terminal 7 (Chevrolet with SBV)
 - E13LA Headlamp Assembly - Left terminal 9 (Chevrolet)
 - E13LA Headlamp Assembly - Left terminal 10 (Buick with SGM)
 - E13LA Headlamp Assembly - Left terminal 6 (Buick with T4L)
 - E42L Tail Lamp Assembly - Left terminal 4 (Chevrolet with UGE)
 - E42L Tail Lamp Assembly - Left terminal 3 (Chevrolet with SBM)
 - E42L Tail Lamp Assembly - Left terminal 1 (Buick with T4L)
 - E42L Tail Lamp Assembly - Left terminal 1 (Buick with SGM)
4. Verify the test lamp turns ON and OFF when commanding the Left Front Park Lamp ON and OFF with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module.

2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
3. Test for less than 2 Ω in the control 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 the test lamp is always ON**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**
5. Test or replace the appropriate left park lamp.

DTC B3867

1. Ignition OFF, exterior lamps OFF, rear hatch latch latched, disconnect the appropriate park lamp.
2. Test for less than 10 Ω between the appropriate ground circuit terminal listed below and ground.
 - E4K Park Lamp - Right Front socket terminal (Chevrolet with SBM)
 - E13RA Headlamp Assembly - Right terminal 4 (Chevrolet with SBV)
 - E13RA Headlamp Assembly - Right terminal 10 (Chevrolet)
 - E13RA Headlamp Assembly - Right terminal 11 (Buick with SGM)
 - E13RA Headlamp Assembly - Right terminal 8 (Buick with T4L)
 - E42R Tail Lamp Assembly - Right terminal 5 (Chevrolet with UGE)
 - E42R Tail Lamp Assembly - Right terminal 7 (Chevrolet with SBM)
 - E42R Tail Lamp Assembly - Right terminal 3 (Buick with T4L)
 - E42R Tail Lamp Assembly - Right terminal 3 (Buick with SGM)
- **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
- **If less than 10 Ω**
3. Connect a test lamp between the appropriate control circuit terminal listed below and ground, ignition ON.
 - E4K Park Lamp - Right Front socket terminal (Chevrolet with SBM)
 - E13RA Headlamp Assembly - Right terminal 7 (Chevrolet with SBV)
 - E13RA Headlamp Assembly - Right terminal 9 (Chevrolet)
 - E13RA Headlamp Assembly - Right terminal 10 (Buick with SGM)
 - E13RA Headlamp Assembly - Right terminal 6 (Buick with T4L)
 - E42R Tail Lamp Assembly - Right terminal 4 (Chevrolet with UGE)
 - E42R Tail Lamp Assembly - Right terminal 3 (Chevrolet with SBM)
 - E42R Tail Lamp Assembly - Right terminal 1 (Buick with T4L)
 - E42R Tail Lamp Assembly - Right terminal 1 (Buick with SGM)
4. Verify the test lamp turns ON and OFF when commanding the Right Front Park Lamp ON and OFF with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.

- If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
3. Test for less than 2 Ω in the control 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 the test lamp is always ON**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**
5. Test or replace the appropriate right park/marker lamp.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Headlamp Replacement \(SBM\)](#), [Headlamp Replacement \(T4L, Buick\)](#), [Headlamp Replacement \(SBV, Chevrolet\)](#)
- Refer to [Stop and Tail Lamp Bulb Replacement \(Chevrolet with TVM\)](#)
- Refer to [Daytime Running and Parking/Position Lamp Bulb Replacement \(Right Side with 2H0 and SBM\)](#), [Daytime Running and Parking/Position Lamp Bulb Replacement \(Right Side with LUV and SBM\)](#), [Daytime Running and Parking/Position Lamp Bulb Replacement \(Left Side with SBM\)](#)
- Refer to [Rear Combination Lamp Module Replacement \(Chevrolet with UGE\)](#), [Rear Combination Lamp Module Replacement \(Buick with UGE\)](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DTC B259A OR B259B: LEFT/RIGHT CORNERING LAMP RELAY CONTROL CIRCUIT OPEN

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptors

DTC B259A 04

Left Cornering Lamp Relay Control Circuit Open

DTC B259B 04

Right Cornering Lamp Relay Control Circuit Open

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Daytime Running Lamp - Left Control	1	B259A 04	B259A 04	-
Daytime Running Lamp - Right Control	1	B259B 04	B259B 04	-
Daytime Running Lamp - Left Ground	-	1	-	-

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Daytime Running Lamp - Right Ground	-	1	-	-
1. Daytime Running Lamps Malfunction				

Circuit/System Description

The rain/ambient light sensor module is used to monitor outside lighting conditions. The rain/ambient light sensor module provides a serial data message to the body control module (BCM) based on outside lighting conditions to determine if outside lighting conditions are correct for either daytime running lamps or automatic lamp control when the headlamp switch is in the AUTO position. In daylight conditions the BCM will command the designated daytime running lamps ON. During low light conditions the BCM will command the low beam headlamps ON. Any function or condition that turns on the headlamps will cancel daytime running lamps operation.

Conditions for Running the DTC

- Battery voltage must be between 9-16 V.
- Engine ON.
- Headlamp switch in AUTO position.
- Ambient light is day.

Conditions for Setting the DTC

DTC B259A 04

The BCM detects a short to voltage or an open/high resistance in the left daytime running lamp control circuit.

DTC B259B 04

The BCM detects a short to voltage or an open/high resistance in the right daytime running lamp control circuit.

Actions Taken When the DTC Sets

The appropriate daytime running lamp is inoperative.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists and the ignition is cycled.
- A history DTC will clear once 100 consecutive malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

[Headlights/Daytime Running Lights \(DRL\) Schematics \(Buick\)](#) [Headlights/Daytime Running Lights \(DRL\) Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#) [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

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 Testing](#)

DTC B259A

1. Ignition OFF, exterior lamps OFF, disconnect the harness connector at the E13LA Headlamp Assembly - Left. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 4 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Connect the harness connector at the E13LA Headlamp Assembly - Left.
4. Disconnect the X2 harness connector at the X50A Fuse Block - Underhood.
5. Test for less than 10 Ω between the ground circuit terminal G3 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
6. Disconnect the X1 harness connector at the X50A Fuse Block - Underhood.
7. Connect a 3 A fused jumper between the control circuit terminal H1 and B+.
8. Verify the E4C Daytime Running Lamp - Left illuminates.
 - **If the daytime running lamp does not illuminate**
 1. Ignition OFF, disconnect the harness connector at the E13LA Headlamp Assembly - Left.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the E13LA Headlamp Assembly - Left.
 - **If the daytime running lamp illuminates**
9. Ignition OFF, connect the X1 harness connector at the X50A Fuse Block - Underhood.
10. Disconnect the X7 harness connector at the K9 Body Control Module, ignition ON
11. Verify a test lamp does not illuminate between the control circuit terminal 8 and ground.
 - **If the test lamp illuminates**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood, ignition ON.
 2. Test for less than 1 V between the control circuit terminal and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V, replace the X50A Fuse Block - Underhood.
 - **If the test lamp does not illuminate**

12. Ignition OFF, connect a 3 A fused jumper between the control circuit terminal 8 and B+, ignition ON.
13. Verify both daytime running lamps illuminate.
- **If the daytime running lamps do not illuminate**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the X50A Fuse Block - Underhood.
 - **If the daytime running lamps illuminate**
14. Test or replace the K9 Body Control Module.

DTC B259B

1. Ignition OFF, exterior lamps OFF, disconnect the harness connector at the E13RA Headlamp Assembly - Right. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 4 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Connect the harness connector at the E13RA Headlamp Assembly - Right.
4. Disconnect the X2 harness connector at the X50A Fuse Block - Underhood.
5. Test for less than 10 Ω between the ground circuit terminal D9 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
6. Disconnect the X1 harness connector at the X50A Fuse Block - Underhood.
7. Connect a 3 A fused jumper between the control circuit terminal G2 and B+.
8. Verify the E4D Daytime Running Lamp - Right illuminates.
 - **If the daytime running lamp does not illuminate**
 1. Ignition OFF, disconnect the harness connector at the E13RA Headlamp Assembly - Right.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the E13RA Headlamp Assembly - Right.
 - **If the daytime running lamp illuminates**
9. Ignition OFF, connect the X1 harness connector at the X50A Fuse Block - Underhood.
10. Disconnect the X5 harness connector at the K9 Body Control Module, ignition ON
11. Verify a test lamp does not illuminate between the control circuit terminal 25 and ground.
 - **If the test lamp illuminates**

1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood, ignition ON.
2. Test for less than 1 V between the control circuit terminal and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V, replace the X50A Fuse Block - Underhood.
- **If the test lamp does not illuminate**
12. Ignition OFF, connect a 3 A fused jumper between the control circuit terminal 25 and B+, ignition ON.
13. Verify both daytime running lamps illuminate.
 - **If the daytime running lamps do not illuminate**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the X50A Fuse Block - Underhood.
 - **If the daytime running lamps illuminate**
14. Test or replace the K9 Body Control Module.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Headlamp Replacement \(SBM\)](#), [Headlamp Replacement \(T4L, Buick\)](#), [Headlamp Replacement \(SBV, Chevrolet\)](#)
- Refer to [Front Compartment Fuse Block Replacement](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DTC B260B OR B260C: LEFT/RIGHT DAYTIME RUNNING LAMP RELAY CONTROL CIRCUIT

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptors

DTC B260B 02

Left Daytime Running Lamp Relay Control Circuit Short to Ground

DTC B260B 04

Left Daytime Running Lamp Relay Control Circuit Open

DTC B260C 02

Right Daytime Running Lamp Relay Control Circuit Short to Ground

DTC B260C 04

Right Daytime Running Lamp Relay Control Circuit Open

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Left Daytime Running Lamp Control	B260B 02	1	1	-
Right Daytime Running Lamp Control	B260C 02	1	1	-
Left Daytime Running Lamp Ground	-	1	-	-
Right Daytime Running Lamp Ground	-	1	-	-
1. Daytime Running Lamps Malfunction				

Circuit/System Description

The ambient light sensor is used to monitor outside lighting conditions. The ambient light sensor provides a voltage signal that will vary between 0.2 and 4.9 volts depending on outside lighting conditions. The body control module (BCM) provides a 5-volt reference signal to the ambient light sensor which is permanently grounded. The BCM monitors the ambient light sensor signal circuit to determine if outside lighting conditions are correct for either daytime running lights (DRL) or automatic lamp control (ALC) when the headlamp switch is in the AUTO position. In daylight conditions the BCM will command the DRLs ON. During low light conditions the BCM will command the low beam headlamps ON. Any function or condition that turns on the headlamps will cancel DRL operation.

Conditions for Running the DTC

- Battery voltage must be between 9-16 V.
- Engine ON.
- Headlamp switch in AUTO position.
- Ambient light is day.

Conditions for Setting the DTC

DTC B260B 02 or B260C 02

The BCM detects a short to ground on the control circuit.

DTC B260B 04 or B260C 04

The BCM detects an open control circuit.

Actions Taken When the DTC Sets

The appropriate daytime running lamp is inoperative.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists and the ignition is cycled.
- A history DTC will clear once 100 consecutive malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

[Headlights/Daytime Running Lights \(DRL\) Schematics \(Buick\)](#) [Headlights/Daytime Running Lights \(DRL\) Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#) [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

Description and Operation

Electrical Information Reference

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- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

Circuit/System Testing

DTC B260B

1. Ignition OFF, exterior lamps OFF, disconnect the harness connector at the E13LA Headlamp Assembly - Left. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 4 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Connect the harness connector at the E13LA Headlamp Assembly - Left.
4. Disconnect the X2 harness connector at the X50A Fuse Block - Underhood.
5. Test for less than 10 Ω between the ground circuit terminal G3 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
6. Disconnect the X1 harness connector at the X50A Fuse Block - Underhood.
7. Connect a 3 A fused jumper between the control circuit terminal H1 and B+.
8. Verify the E4C Daytime Running Lamp - Left illuminates.
 - **If the daytime running lamp does not illuminate**
 1. Ignition OFF, disconnect the harness connector at the E13LA Headlamp Assembly - Left.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the E13LA Headlamp Assembly - Left.
 - **If the daytime running lamp illuminates**
9. Ignition OFF, connect the X1 harness connector at the X50A Fuse Block - Underhood.
10. Disconnect the X7 harness connector at the K9 Body Control Module, ignition ON
11. Verify a test lamp does not illuminate between the control circuit terminal 8 and ground.
 - **If the test lamp illuminates**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood, ignition ON.

2. Test for less than 1 V between the control circuit terminal and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V, replace the X50A Fuse Block - Underhood.
- **If the test lamp does not illuminate**
12. Ignition OFF, connect a 3 A fused jumper between the control circuit terminal 8 and B+, ignition ON.
13. Verify both daytime running lamps illuminate.
 - **If the daytime running lamps do not illuminate**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the X50A Fuse Block - Underhood.
 - **If the daytime running lamps illuminate**
14. Test or replace the K9 Body Control Module.

DTC B260C

1. Ignition OFF, exterior lamps OFF, disconnect the harness connector at the E13RA Headlamp Assembly - Right. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 4 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Connect the harness connector at the E13RA Headlamp Assembly - Right.
4. Disconnect the X2 harness connector at the X50A Fuse Block - Underhood.
5. Test for less than 10 Ω between the ground circuit terminal D9 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
6. Disconnect the X1 harness connector at the X50A Fuse Block - Underhood.
7. Connect a 3 A fused jumper between the control circuit terminal G2 and B+.
8. Verify the E4D Daytime Running Lamp - Right illuminates.
 - **If the daytime running lamp does not illuminate**
 1. Ignition OFF, disconnect the harness connector at the E13RA Headlamp Assembly - Right.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the E13RA Headlamp Assembly - Right.
 - **If the daytime running lamp illuminates**

9. Ignition OFF, connect the X1 harness connector at the X50A Fuse Block - Underhood.
10. Disconnect the X5 harness connector at the K9 Body Control Module, ignition ON
11. Verify a test lamp does not illuminate between the control circuit terminal 25 and ground.
 - **If the test lamp illuminates**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood, ignition ON.
 2. Test for less than 1 V between the control circuit terminal and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V, replace the X50A Fuse Block - Underhood.
 - **If the test lamp does not illuminate**
12. Ignition OFF, connect a 3 A fused jumper between the control circuit terminal 25 and B+, ignition ON.
13. Verify both daytime running lamps illuminate.
 - **If the daytime running lamps do not illuminate**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the X50A Fuse Block - Underhood.
 - **If the daytime running lamps illuminate**
14. Test or replace the K9 Body Control Module.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Headlamp Replacement \(SBM\)](#), [Headlamp Replacement \(T4L, Buick\)](#), [Headlamp Replacement \(SBV, Chevrolet\)](#).
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DTC B2610: PASSENGER COMPARTMENT DIMMING 1 CIRCUIT

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptors

DTC B2610 01

Passenger Compartment Dimming 1 Circuit Short to Battery

DTC B2610 02

Passenger Compartment Dimming 1 Circuit Short to Ground

DTC B2610 04

Passenger Compartment Dimming 1 Circuit Open

Diagnostic Fault Information

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Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
LED Backlight Dimming Control Terminal 8 X2	B2610 02	1	1	-
LED Backlight Dimming Control Terminal 9 X7	B2610 02	1	1	-
Door Lock Switch - Driver Ground	-	1	-	-
Door Lock Switch - Passenger Ground	-	1	-	-
Headlamp Switch Ground	-	1	-	-
Ignition Mode Switch Ground	-	1	-	-
Multifunction Switch - Instrument Panel Ground	-	1	-	-
Multifunction Switch 2 - Instrument Panel Ground	-	1	-	-
Outside Rearview Mirror Switch Ground	-	1	-	-
Steering Wheel Control Switch - Right Ground	-	1	-	-
Steering Wheel Control Switch - Left Ground	-	1	-	-
Sunroof Switch Ground	-	1	-	-
Sunroof Tilt Switch Ground	-	1	-	-
Transmission Shift Lever Position Indicator Ground	-	1	-	-
Vehicle Stability Control Switch Ground	-	1	-	-
Window Switch - Driver Ground	-	1	-	-
Window Switch - Passenger Ground	-	1	-	-
Window Switch - Left Rear Ground	-	1	-	-
Window Switch - Right Rear Ground	-	1	-	-
1. Interior Backlighting Malfunction				

Circuit/System Description

The instrument panel dimmer switch is used to increase and decrease the brightness of the interior backlighting components. The instrument panel dimmer switch provides a voltage signal to the body control module (BCM) that will increase as the brightness of the lights are increased and decrease as the brightness of the lights are decreased. The BCM provides a low reference, signal, and B+ voltage reference circuits to the instrument panel dimmer switch. When the instrument panel dimmer switch is placed in the desired position, the dimmed voltage setting is applied from the instrument panel dimmer switch through the instrument panel dimmer switch signal circuit to the BCM. The BCM interprets the signal and applies a pulse width modulated (PWM) voltage through the light emitting diode (LED) dimming control circuits illuminating the interior backlighting to the requested level of brightness.

Conditions for Running the DTC

- Battery voltage must be between 9-16 V.
- Park lamps ON.

Conditions for Setting the DTC

DTC B2610 01

The BCM detects a short to battery in the LED backlight dimming control circuit terminal 8 X2 or the LED backlight dimming control circuit terminal 9 X7.

DTC B2610 02

The BCM detects a short to ground in the LED backlight dimming control circuit terminal 8 X2 or the LED backlight dimming control circuit terminal 9 X7.

DTC B2610 04

The BCM detects an open/high resistance in the LED backlight dimming control circuit terminal 8 X2 or the LED backlight dimming control circuit terminal 9 X7.

Actions Taken When the DTC Sets

The BCM will disable the LED backlight dimming control circuits.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear once 100 consecutive malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

[Interior Lights Dimming Schematics \(Buick\)](#), [Interior Lights Dimming Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#), [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

Description and Operation

[Interior Lighting Systems Description and Operation](#)

Electrical Information Reference

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- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

Circuit/System Testing

NOTE: Each component with backlighting may need to be disconnected to isolate a short to voltage or short to ground. Use the schematics to identify the following:

- Backlighting components the vehicle is equipped with
- Each component's control and ground circuit terminals
- Component locations on the backlighting control circuit

1. Ignition OFF, all doors closed, all accessories OFF, disconnect the harness connector at the component with inoperative backlighting. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 15 Ω between the appropriate ground circuit terminal and ground.

- **If 15 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 15 Ω**
- 3. Connect a test lamp between the appropriate control circuit terminal and ground, ignition ON.
- 4. Verify the test lamp turns ON and OFF when commanding the LED Backlight Dimming ON and OFF with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the appropriate harness connector listed below at the K9 Body Control Module.
 - X2 terminal 8
 - X7 terminal 9
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control 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 the test lamp is always ON**
 1. Ignition OFF, disconnect the appropriate harness connector listed below at the K9 Body Control Module, ignition ON.
 - X2 terminal 8
 - X7 terminal 9
 2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**
- 5. Test or replace the component with inoperative backlighting.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Headlamp Switch Replacement](#)
- Refer to [Sunroof Switch Replacement](#)
- Refer to [Sunroof Tilt Position Switch Replacement](#)
- Refer to [Transmission Control Replacement](#)
- Refer to [Radio and Telephone Control Switch Replacement \(Chevrolet\)](#)
- Refer to [Cruise Control Switch Replacement \(Buick\)](#) [Cruise Control Switch Replacement \(Chevrolet\)](#)
- Refer to [Vehicle Stability Control System Switch Replacement \(Buick\)](#) [Vehicle Stability Control System Switch Replacement \(Chevrolet\)](#)
- Refer to [Door Lock Switch Replacement - Driver Side \(Buick\)](#) [Door Lock Switch Replacement - Driver Side \(Chevrolet\)](#)
- Refer to [Door Lock Switch Replacement - Passenger Front \(Buick\)](#) [Door Lock Switch Replacement - Passenger Front \(Chevrolet\)](#)
- Refer to [Front Side Door Window Switch Replacement \(Driver Side, Buick\)](#) [Front Side Door Window Switch Replacement \(Passenger Side, Buick\)](#) [Front Side Door Window Switch Replacement \(Driver Side, Chevrolet\)](#) [Front Side Door Window Switch Replacement \(Passenger Side, Chevrolet\)](#)

- Refer to [Rear Side Door Window Switch Replacement](#)
- Refer to [Outside Rearview Mirror Remote Control Switch Replacement \(Buick\)](#), [Outside Rearview Mirror Remote Control Switch Replacement \(Chevrolet\)](#)
- Refer to [Ignition and Start Switch Replacement \(Buick, With BTM\)](#), [Ignition and Start Switch Replacement \(Chevrolet, Without BTM\)](#), [Ignition and Start Switch Replacement \(Chevrolet, With BTM\)](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DTC B2615: PASSENGER COMPARTMENT DIMMING 2 CIRCUIT SHORT TO GROUND

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptor

DTC B2615 02

Passenger Compartment Dimming 2 Circuit Short to Ground

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Dome Lamps Control - Terminal 1 X7	B2615 02	1	1	-
Dome/Reading Lamps Ground	-	1	-	-
Dome Lamp Ground	-	1	-	-
1. Dome Lamps Malfunction				

Circuit/System Description

The body control module (BCM) applies battery voltage to the dome/reading lamps through the dome/reading lamp control circuit. When any door is opened, the jam switch contacts close and the BCM receives a door-ajar input. If the BCM receives a door lock or unlock input or a rear hatch open input, the BCM will activate the dome/reading lamp control circuit, providing battery voltage to dome/reading lamps. In the event that any of these courtesy lamps were to remain illuminated for more than 10 min with the ignition switch in the OFF position and no doors opened, the BCM will deactivate the courtesy lamp control circuit to prevent total battery discharge.

Conditions for Running the DTC

Battery voltage must be between 9-16 V.

Conditions for Setting the DTC

The BCM detects a short to ground in the dome lamps control circuit terminal 1 X7.

Actions Taken When the DTC Sets

The BCM will disable the dome lamps control circuit.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear once 100 consecutive malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

- [Interior Lights Schematics \(Buick\)](#), [Interior Lights Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#), [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

Description and Operation

[Interior Lighting Systems Description and Operation](#)

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- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

[Circuit/System Testing](#)

1. Ignition OFF, all doors closed, all accessories OFF, disconnect the harness connector at the E37A Dome/Reading Lamps and E36AH Dome Lamp. It may take up to 2 min for all vehicle systems to power down.
2. Connect a test lamp between the appropriate control circuit terminal listed below and ground, ignition ON.
 - E37A Dome/Reading Lamps terminal 2
 - E36AH Dome Lamp - terminal 3
3. Verify the test lamp turns ON and OFF when commanding the Courtesy Lamps ON and OFF with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the X7 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control 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 the test lamp is always ON**
 1. Ignition OFF, disconnect the X7 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**
4. Test or replace the inoperative dome/reading lamp.

[Repair Instructions](#)

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Dome Lamp Bulb Replacement](#)
- Refer to [Center Reading Lamp Replacement](#)
- Refer to [Center Reading Lamp Bulb Replacement](#)

- Refer to [Rear Seat Position Center Courtesy Lamp Replacement](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DTC B2625: DISPLAY DIMMING PULSE WIDTH MODULATION OUTPUT CIRCUIT SHORT TO GROUND

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptor

DTC B2625 02

Display Dimming Pulse Width Modulation Output Circuit Short to Ground

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
LED Amber Indicator Dimming Control Terminal 5 X1	B2625 02	1	1	-
Lane Departure Warning Switch Indicator Control	3	B0987 06	B0987 01	-
Park Assist Switch Indicator Control	2	2	B0968 01	-
1. Interior Backlighting Malfunction 2. Park Assist System Malfunction 3. Lane Departure Warning System Malfunction				

Circuit/System Description

The instrument panel dimmer switch is used to increase and decrease the brightness of the interior backlighting components. The instrument panel dimmer switch provides a voltage signal to the body control module (BCM) that will increase as the brightness of the lights are increased and decrease as the brightness of the lights are decreased. The BCM provides a low reference, signal, and B+ voltage reference circuits to the instrument panel dimmer switch. When the instrument panel dimmer switch is placed in the desired position, the dimmed voltage setting is applied from the instrument panel dimmer switch through the instrument panel dimmer switch signal circuit to the BCM. The BCM interprets the signal and applies a pulse width modulated (PWM) voltage through the LED backlight dimming control circuit illuminating the park assist switch and lane departure warning switch amber LED's to the requested level of brightness.

Conditions for Running the DTC

- Battery voltage must be between 9-16 V.
- Park lamps ON.

Conditions for Setting the DTC

The BCM detects a short to ground in the indicator dimming control circuit terminal 5 X1.

Actions Taken When the DTC Sets

The park assist switch and lane departure warning switch amber indicators are inoperative.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.

- A history DTC will clear once 100 consecutive malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

- [Interior Lights Dimming Schematics \(Buick\)](#), [Interior Lights Dimming Schematics \(Chevrolet\)](#)
- [Object Detection Schematics \(Buick\)](#), [Object Detection Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#), [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

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

1. Ignition OFF, scan tool disconnected, all doors closed, all accessories OFF, disconnect the harness connector at the inoperative component listed below. It may take up to 2 min for all vehicle systems to power down.
 - S48A Multifunction Switch - Instrument Panel
 - S48D Multifunction Switch 2 - Instrument Panel
2. Place the instrument panel dimmer switch in the HIGH position for high backlighting intensity.
3. Verify a test lamp illuminates between the appropriate control circuit terminal listed below and ground.
 - S48A Multifunction Switch - Instrument Panel terminal 6
 - S48D Multifunction Switch 2 - Instrument Panel terminal 1
 - **If the test lamp does not illuminate**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control 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 the test lamp illuminates**
4. Place the instrument panel dimmer switch in the LOW position for low backlighting intensity.
5. Verify a test lamp does not illuminate at FULL intensity between the appropriate control circuit terminal listed below and ground.
 - S48A Multifunction Switch - Instrument Panel terminal 6
 - S48D Multifunction Switch 2 - Instrument Panel terminal 1
 - **If the test lamp illuminates at full intensity**

1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.
2. Test for less than 1 V between the control circuit terminal 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 the test lamp does not illuminate at full intensity**
6. Test or replace the inoperative switch.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

Refer to [Control Module References](#) for BCM replacement, programming, and setup

DTC B2645: AMBIENT LIGHT SENSOR CIRCUIT LOW/HIGH VOLTAGE

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptors

DTC B2645 03

Ambient Light Sensor Circuit Low Voltage

DTC B2645 07

Ambient Light Sensor Circuit High Voltage

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Ambient Light Sensor Signal	B2645 03	B2645 07	B2645 07	-
Ambient Light Sensor Ground	-	B2645 07	-	-
1. Daytime Running Lamps Malfunction				

Circuit/System Description

The ambient light sensor is used to monitor outside lighting conditions. The body control module (BCM) provides a 5-volt reference signal to the ambient light sensor. Depending on outside lighting conditions, the ambient light sensor provides a voltage signal to the BCM that will vary between 0.2 and 4.9 volts. The BCM monitors the ambient light sensor signal circuit to determine if outside lighting conditions are correct for either daytime running lights (DRL) or automatic headlamp system control when the headlamp switch is in the AUTO position. In daylight conditions, the BCM will command the daytime running lamps ON by applying voltage to the daytime running lamp relay control circuits illuminating the left and right daytime running lamps. Any function or condition that turns on the headlamps will cancel DRL operation.

Conditions for Running the DTC

Battery voltage must be between 9-16 V.

Conditions for Setting the DTC

DTC B2645 03

The BCM detects a short to ground in the ambient light sensor signal circuit.

DTC B2645 07

- The BCM detects a short to voltage or an open/high resistance in the ambient light sensor signal circuit.
- The BCM detects an open/high resistance in the ambient light sensor ground circuit.

Actions Taken When the DTC Sets

- Automatic headlamp system and daytime running lamps are inoperative.
- The BCM defaults to low light status and commands the low beam headlamps ON.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear once 100 consecutive malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

[Headlights/Daytime Running Lights \(DRL\) Schematics \(Buick\)](#) [Headlights/Daytime Running Lights \(DRL\) Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#) [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

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 Testing

1. Ignition OFF, scan tool disconnected, all doors closed, all accessories OFF, open and close drivers door, disconnect the harness connector at the B10B Ambient Light/Sunload Sensor. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 15 Ω between the ground circuit terminal 6 and ground.
 - **If 15 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 15 Ω**
3. Ignition ON.
4. Verify the scan tool Ambient Light Sensor parameter is greater than 4.65 V.
 - **If 4.65 V or less**

1. Ignition OFF, disconnect the X2 harness connector at the K9 Body Control Module.
2. Test for infinite resistance between the signal circuit terminal 5 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
- **If greater than 4.65 V**
5. Install a 3 A fused jumper wire between the signal circuit terminal 5 and ground circuit terminal 6.
6. Verify the scan tool Ambient Light Sensor parameter is less than 0.196 V.
 - **If 0.196 V or greater**
 1. Ignition OFF, disconnect the X2 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the signal circuit terminal 5 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
 3. Test for less than 2 Ω in the signal 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 less than 0.196 V**
7. Test or replace the B10B Ambient Light/Sunload Sensor.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Sun Load Temperature Sensor Replacement](#)
- Refer to [Headlamp Automatic Control Ambient Light Sensor Replacement](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DTC B2740: FRONT FOG LAMP SWITCH CIRCUIT 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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptor

DTC B2740 00

Front Fog Lamp Switch Circuit Malfunction

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Front Fog Lamp Switch Signal	1	B2740 00	1	-
Headlamp Switch Ground	-	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 momentarily by pressing the front fog lamp switch. 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 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.

Conditions for Running the DTC

- Battery voltage must be between 9-16 V.
- Front fog lamps ON.

Conditions for Setting the DTC

The front fog lamp switch input is Active for longer than 60 seconds.

Actions Taken When the DTC Sets

The front fog lamps are inoperative.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear once 100 consecutive malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

[Fog Lights Schematics \(Buick\)](#), [Fog Lights Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#), [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

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 Testing

1. Ignition OFF, scan tool disconnected, all doors closed, all accessories OFF, disconnect the harness connector at the S30 Headlamp Switch. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 8 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Ignition ON.
4. Verify the scan tool Front Fog Lamps Switch parameter is Inactive.

- **If not Inactive**

1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module.
2. Test for infinite resistance between the signal circuit terminal 10 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.

- **If Inactive**

5. Install a 3 A fused jumper wire between the signal circuit terminal 10 and ground.
6. Verify the scan tool Front Fog Lamps Switch parameter is Active.

- **If not Active**

1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.
2. Test for less than 1 V between the signal circuit terminal 10 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
3. Test for less than 2 Ω in the signal 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 Active**

7. Test or replace the S30 Headlamp Switch.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Headlamp Switch Replacement](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DTC B3596: HAZARD LAMPS REQUEST CIRCUIT 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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptor

DTC B3596 00

Hazard Lamps Request Circuit Malfunction

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Hazard Warning Switch Signal	B3596 00	1	1	-
Hazard Warning Switch Ground	-	1	-	-
1. Hazard Lamps Malfunction				

Circuit/System Description

The hazard flashers may be activated in any power mode. The hazard warning switch signal circuit is momentarily grounded when the hazard warning switch is pressed. The body control module (BCM) responds to the hazard warning switch signal input by supplying battery voltage to all four turn signal lamps in an ON and OFF duty cycle. When the hazard warning switch is activated, the BCM sends a

serial data message to the instrument cluster requesting both turn signal indicators to be cycled ON and OFF.

Conditions for Running the DTC

- Battery voltage must be between 9-16 V.
- Hazard lamps ON.

Conditions for Setting the DTC

The hazard warning switch input is Active for longer than 60 s.

Actions Taken When the DTC Sets

The hazard lamps are inoperative.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear once 100 consecutive malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

[Exterior Lights Schematics \(Buick\)](#), [Exterior Lights Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#), [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

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 Testing

1. Ignition OFF, scan tool disconnected, all doors closed, all accessories OFF, disconnect the harness connector at the S26 Hazard Warning Switch. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 5 Ω between the appropriate ground circuit terminal listed below and ground.
 - Terminal 2 (Buick)
 - Terminal 9 (Chevrolet)
 - **If 5 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 5 Ω**

3. Ignition ON.

4. Verify the scan tool Hazard Lamps Switch parameter is Inactive.

- **If not Inactive**

1. Ignition OFF, disconnect the X2 harness connector at the K9 Body Control Module.

2. Test for infinite resistance between the appropriate signal circuit terminal listed below and ground.

- Terminal 1 (Buick)
- Terminal 5 (Chevrolet)
- If less than infinite resistance, repair the short to ground on the circuit.
- If infinite resistance, replace the K9 Body Control Module.

- **If Inactive**

5. Install a 3 A fused jumper wire between the appropriate signal circuit terminal listed below and ground.

- Terminal 1 (Buick)
- Terminal 5 (Chevrolet)

6. Verify the scan tool Hazard Lamps Switch parameter is Active.

- **If not Active**

1. Ignition OFF, disconnect the X2 harness connector at the K9 Body Control Module, ignition ON.

2. Test for less than 1 V between the appropriate signal circuit terminal listed below and ground.

- Terminal 1 (Buick)
- Terminal 5 (Chevrolet)
- If 1 V or greater, repair the short to voltage on the circuit.
- If less than 1 V

3. Test for less than 2 Ω in the signal 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 Active**

7. Test or replace the S26 Hazard Warning Switch.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Hazard Warning Switch Replacement](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DTC B3600: PASSENGER COMPARTMENT DIMMING REQUEST SIGNAL CIRCUIT LOW/HIGH VOLTAGE

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptors

DTC B3600 03

Passenger Compartment Dimming Request Signal Circuit Low Voltage

DTC B3600 07

Passenger Compartment Dimming Request Signal Circuit High Voltage

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Instrument Panel Dimmer Switch B+ Reference	B1395 03, B3600 03	B3600 03	B1395 07, B3600 07	-
Instrument Panel Dimmer Switch Signal	B1395 03, B3600 03	B3600 03	B1395 07, B3600 07	-
Instrument Panel Dimmer Switch Low Reference	1	1	1	-
1. Interior Backlighting Malfunction				

Circuit/System Description

The instrument panel dimmer switch is used to increase and decrease the brightness of the interior backlighting components. The instrument panel dimmer switch provides a voltage signal to the body control module (BCM) that will increase as the brightness of the lights are increased and decrease as the brightness of the lights are decreased. The BCM provides a low reference, signal, and B+ voltage reference to the instrument panel dimmer switch. When the instrument panel dimmer switch is placed in the desired position, the dimmed voltage setting is applied from the instrument panel dimmer switch through the instrument panel dimmer switch signal circuit to the BCM. The BCM interprets the signal and applies a pulse width modulated voltage through the LED dimming 1 and dimming 2 control circuits illuminating the interior backlighting to the requested level of brightness.

Conditions for Running the DTC

- Battery voltage must be between 9-16 V.
- Park Lamps ON.

Conditions for Setting the DTC

DTC B3600 03

- The BCM detects a short to ground or an open/high resistance in the instrument panel dimmer switch B+ reference circuit.
- The BCM detects a short to ground or an open/high resistance in the instrument panel dimmer switch signal circuit.

DTC B3600 07

- The BCM detects a short to voltage in the instrument panel dimmer switch B+ reference circuit.
- The BCM detects a short to voltage in the instrument panel dimmer switch signal circuit.

Actions Taken When the DTC Sets

The BCM will not dim any interior backlighting. All interior backlighting will default to the FULL bright.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear once 100 consecutive malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

[Interior Lights Dimming Schematics \(Buick\)](#), [Interior Lights Dimming Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#), [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

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

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the S30 Headlamp Switch, ignition ON.
2. Test for B+ between the B+ circuit terminal 12 and ground.
 - **If less than B+**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module.
 2. 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
 3. 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+**
3. Verify a test lamp illuminates between B+ and the low reference circuit terminal 7.
 - **If the test lamp does not illuminate**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the low reference circuit terminal 7 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
 3. Test for less than 2 Ω in the low reference 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 the test lamp illuminates**
4. Verify a test lamp does not illuminate between B+ and the signal circuit terminal 11.
 - **If the test lamp illuminates**
 1. Ignition OFF, disconnect the X2 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
 - **If the test lamp does not illuminate**
5. Test for B+ between the B+ circuit terminal 12 and the signal circuit terminal 11.
 - **If less than B+**
 1. Ignition OFF, disconnect the X2 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the signal circuit terminal 11 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.

- If less than 1 V
3. Test for less than 2 Ω in the signal 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+**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the B+ circuit terminal 12 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
 6. Test or replace the S30 Headlamp Switch.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Headlamp Switch Replacement](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DTC B3650: HIGH BEAM REQUEST SIGNAL CIRCUIT PERFORMANCE - SIGNAL INVALID

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptor

DTC B3650 08

High Beam Request Signal Circuit Performance - Signal Invalid

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Turn Signal/Multifunction Switch High Beam Signal	B3650 08	1	1	-
Turn Signal/Multifunction Switch Ground	-	1	-	-
1. Headlamps Malfunction				

Circuit/System Description

When the low beam headlamps are on and the turn signal/multifunction switch is placed in the high beam position, ground is applied to the body control module (BCM) through the high beam signal circuit. The BCM responds to the high beam request by applying ground to the high beam relay control circuit which energizes the high beam relay. With the high beam relay energized, the switch contacts close allowing battery voltage to flow through the high beam fuses to the high beam control circuits illuminating the high beam headlamps.

Conditions for Running the DTC

Battery voltage must be between 9-16 V.

Conditions for Setting the DTC

The BCM detects a short to ground in the turn signal/multifunction switch high beam signal circuit.

Actions Taken When the DTC Sets

The high beam headlamps will not operate.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear once 100 consecutive malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

Headlights/Daytime Running Lights (DRL) Schematics (Buick), **Headlights/Daytime Running Lights (DRL) Schematics (Chevrolet)**

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX (ENCORE), **COMPONENT CONNECTOR END VIEWS - INDEX (TRAX)**

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 Testing

1. Ignition OFF, scan tool disconnected, all doors closed, all accessories OFF, disconnect the harness connector at the S78 Turn Signal/Multifunction Switch. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 3 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Ignition ON.
4. Verify the scan tool High Beam Select Switch parameter is Inactive.
 - **If not Inactive**
 1. Ignition OFF, disconnect the X3 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal circuit terminal 2 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
 - **If Inactive**
5. Install a 3 A fused jumper wire between the signal circuit terminal 2 and the ground circuit terminal 3.

6. Verify the scan tool High Beam Select Switch parameter is Active.

- **If not Active**

1. Ignition OFF, disconnect the X3 harness connector at the K9 Body Control Module, ignition ON.
2. Test for less than 1 V between the signal circuit terminal 2 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
3. Test for less than 2 Ω in the signal 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 Active**

7. Test or replace the S78 Turn Signal/Multifunction Switch.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Turn Signal Switch Replacement \(Buick, With BTM\)](#), [Turn Signal Switch Replacement \(Chevrolet, Without BTM\)](#), [Turn Signal Switch Replacement \(Chevrolet, With BTM\)](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DTC B3806: HIGH BEAM AND HEADLAMP FLASH SELECT CIRCUIT 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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptor

DTC B3806 00

High Beam and Headlamp Flash Select Circuit Malfunction

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Turn Signal/Multifunction Switch Flash To Pass Signal	B3806 00	1	1	-
Turn Signal/Multifunction Switch Ground	-	1	-	-
1. Headlamps Malfunction				

Circuit/System Description

When the turn signal/multifunction switch is momentarily placed in the flash to pass position, ground is applied to the body control module (BCM) through the flash to pass signal circuit. The BCM responds to the flash to pass request by applying ground to the high beam relay control circuit which energizes the high beam relay. With the high beam relay energized, the switch contacts close allowing battery voltage to flow through the high beam fuses to the high beam control circuits illuminating the high beam headlamps. The high beam headlamps will only illuminate for as long as the flash to pass switch is activated.

Conditions for Running the DTC

Battery voltage must be between 9-16 V.

Conditions for Setting the DTC

The BCM detects a short to ground in the turn signal/multifunction switch flash to pass signal circuit.

Actions Taken When the DTC Sets

The high beam lamps and the high beam indicator on the instrument cluster are always ON.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear once 100 consecutive malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

[Headlights/Daytime Running Lights \(DRL\) Schematics \(Buick\)](#) [Headlights/Daytime Running Lights \(DRL\) Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#) [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

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 Testing

1. Ignition OFF, scan tool disconnected, all doors closed, all accessories OFF, disconnect the harness connector at the S78 Turn Signal/Multifunction Switch. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 3 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Ignition ON.
4. Verify the scan tool Headlamps Flash Switch parameter is Inactive.
 - **If not Inactive**
 1. Ignition OFF, disconnect the X3 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal circuit terminal 4 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.

- **If Inactive**
- 5. Install a 3 A fused jumper wire between the signal circuit terminal 4 and the ground circuit terminal 3.
- 6. Verify the scan tool Headlamps Flash Switch parameter is Active.
 - **If not Active**
 1. Ignition OFF, disconnect the X3 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the signal circuit terminal 4 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
 3. Test for less than 2 Ω in the signal 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 Active**
- 7. Test or replace the S78 Turn Signal/Multifunction Switch.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Turn Signal Switch Replacement \(Buick, With BTM\)](#), [Turn Signal Switch Replacement \(Chevrolet, Without BTM\)](#), [Turn Signal Switch Replacement \(Chevrolet, With BTM\)](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DTC B3881 OR B3882: TAIL LAMP CIRCUIT

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptors

DTC B3881 01

Tail Lamp Circuit Short to Battery

DTC B3881 02

Tail Lamp Circuit Short to Ground

DTC B3881 04

Tail Lamp Circuit Open

DTC B3882 01

Right Tail Lamp Circuit Short to Battery

DTC B3882 02

Right Tail Lamp Circuit Short to Ground

DTC B3882 04

Right Tail Lamp Circuit Open

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
F3DA (BCM 3) Fuse B+	B3881 01, B3881 04, B3949 01, B3949 04	B3881 01, B3881 04, B3949 01, B3949 04	-	-
F4DA (BCM 4) Fuse B+	B3882 01, B3882 04, B3950 01, B3950 04	B3882 01, B3882 04, B3950 01, B3950 04	-	-
Stop Lamp Control - Left	B3881 02	B3881 01, B3881 04	B3881 01	-
Stop Lamp Control - Right	B3882 02	B3882 01, B3882 04	B3882 01	-
Stop Lamp Ground - Left	-	1	-	-
Stop Lamp Ground - Right	-	1	-	-
1. Park, License, and/or Tail Lamps Malfunction 2. Park Lamp Switch Malfunction				

Circuit/System Description

The brake pedal position (BPP) sensor is used to sense the action of the driver application of the brake pedal. The BPP sensor provides an analog voltage signal that will increase as the brake pedal is applied. The body control module (BCM) provides a low reference signal and a 5-volt reference voltage to the BPP sensor. When the variable signal reaches a voltage threshold indicating the brakes have been applied, the BCM will apply battery voltage to the left and right stop lamp control circuits as well as the center high mounted stop lamp (CHMSL) control circuit illuminating the left and right stop lamps and the CHMSL.

Conditions for Running the DTC

- Battery voltage must be between 9-16 V.
- Brakes APPLIED.

Conditions for Setting the DTC

DTC B3881 01 and B3881 04

- The BCM detects a short to voltage or an open/high resistance in the left stop lamp control circuit.
- The BCM detects a short to ground or an open/high resistance in the F3DA (BCM 3) fuse B+ circuit.

DTC B3881 02

The BCM detects a short to ground in the left stop lamp control circuit.

DTC B3882 01 and B3882 04

- The BCM detects a short to voltage or an open/high resistance in the right stop lamp control circuit.
- The BCM detects a short to ground or an open/high resistance in the F4DA (BCM 4) fuse B+ circuit.

DTC B3882 02

The BCM detects a short to ground in the right stop lamp control circuit.

Actions Taken When the DTC Sets

The appropriate stop lamp will not operate.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear once 100 consecutive malfunction-free ignition cycles have occurred.

Diagnostic Aids

When testing at the stop lamp bulb sockets, make sure all measurements and test lamp connections are in the correct terminal location and do not come in contact with each other during testing.

Reference Information

Schematic Reference

- [Exterior Lights Schematics \(Buick\)](#) [Exterior Lights Schematics \(Chevrolet\)](#)
- [Body Control System Schematics \(Buick\)](#) [Body Control System Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#) [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

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 Testing

DTC B3881

1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.
2. Verify a test lamp illuminates between the B+ circuit terminal 3 and ground.
 - **If the test lamp does not illuminate and the circuit fuse is good**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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 , verify the fuse is not open and there is voltage at the fuse.
 - **If the test lamp does not illuminate and the circuit fuse is open**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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, replace the K9 Body Control Module.
 - **If the test lamp illuminates**
3. Ignition OFF, connect the X1 harness connector at the K9 Body Control Module.
4. Ignition OFF, exterior lamps OFF, rear hatch latch latched, disconnect the harness connector at the appropriate component listed below.
 - E42L Tail Lamp Assembly - Left (Buick)
 - E5L Stop Lamp - Left (Chevrolet)
5. Test for less than 10 Ω between the appropriate ground circuit terminal listed below and ground.

- E42L Tail Lamp Assembly - Left terminal 3 (Buick)
- E5L Stop Lamp - Left socket terminal (Chevrolet)
- **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
- 6. Connect a test lamp between the appropriate control circuit terminal listed below and ground, ignition ON.
 - E42L Tail Lamp Assembly - Left terminal 2 (Buick)
 - E5L Stop Lamp - Left socket terminal (Chevrolet)
- 7. Verify the test lamp turns ON and OFF when commanding the Left Rear Stop/Park Lamp ON and OFF with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control 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 the test lamp is always ON**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**
- 8. Test or replace the appropriate E5 Stop Lamp - Left.

DTC B3882

1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.
2. Verify a test lamp illuminates between the B+ circuit terminal 2 and ground.
 - **If the test lamp does not illuminate and the circuit fuse is good**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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 , verify the fuse is not open and there is voltage at the fuse.
 - **If the test lamp does not illuminate and the circuit fuse is open**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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, replace the K9 Body Control Module.
 - **If the test lamp illuminates**
3. Ignition OFF, connect the X1 harness connector at the K9 Body Control Module.
4. Ignition OFF, exterior lamps OFF, trunk latch latched, disconnect the harness connector at the appropriate component listed below.
 - E42R Tail Lamp Assembly - Right (Buick)

- E5R Stop Lamp - Right (Chevrolet)
5. Test for less than 5 Ω between the appropriate ground circuit terminal listed below and ground.
 - E42R Tail Lamp Assembly - Right terminal 3 (Buick)
 - E5R Stop Lamp - Right socket terminal (Chevrolet)
 - **If 5 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 5 Ω**
 6. Connect a test lamp between the appropriate control circuit terminal listed below and ground, ignition ON.
 - E42R Tail Lamp Assembly - Right terminal 2 (Buick)
 - E5R Stop Lamp - Right socket terminal (Chevrolet)
 7. Verify the test lamp turns ON and OFF when commanding the Right Rear Stop/Park Lamp ON and OFF with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the X5 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control 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 the test lamp is always ON**
 1. Ignition OFF, disconnect the X5 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**
 8. Test or replace the appropriate E5 Stop Lamp - Right.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Rear Body Structure Stop Lamp Replacement \(Buick with UGE\)](#), [Rear Body Structure Stop Lamp Replacement \(Chevrolet with UGE\)](#), [Rear Body Structure Stop Lamp Replacement \(Chevrolet with TVM\)](#)
- Refer to [Stop and Tail Lamp Bulb Replacement \(Chevrolet with TVM\)](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DTC B3883: LICENSE PLATE LAMP CIRCUIT

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptors

DTC B3883 01

DTC B3883 02

License Plate Lamp Circuit Short to Ground

DTC B3883 04

License Plate Lamp Circuit Open

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
F1DA (BCM 1) Fuse B+	B3883 01, B3883 04	B3883 01, B3883 04	-	-
License Plate Lamp Control	B3883 02	B3883 01, B3883 04	B3883 01	-
License Plate Lamp Ground - Right	-	1	-	-
License Plate Lamp Ground - Left	-	1	-	-
1. Park, License, and/or Tail Lamps Malfunction				

Circuit/System Description

When the headlamp switch is placed in the HEAD or PARK position, ground is applied to the park lamp switch ON signal circuit to the body control module (BCM). The BCM responds by applying voltage to the park lamps, tail lamps, and license lamps control circuits illuminating the park, tail, and license plate lamps.

Conditions for Running the DTC

Battery voltage must be between 9-16 V.

DTC B3883 01

Headlamp switch in OFF position.

DTC B3883 02 or B3883 04

Headlamp switch in PARK or ON positions.

Conditions for Setting the DTC**DTC B3883 01**

- The BCM detects a short to voltage in the license plate lamps control circuit.
- The BCM detects an open/high resistance in the license plate lamps ground circuit.

DTC B3883 02

The BCM detects a short to ground in the license plate lamps control circuit.

DTC B3883 04

- The BCM detects an open/high resistance in the license plate lamps control circuit.
- The BCM detects an open/high resistance in the license plate lamps ground circuit.

Actions Taken When the DTC Sets**DTC B3883 01**

License plate lamps always ON.

DTC B3883 02 or B3883 04

License plate lamps inoperative.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear once 100 consecutive malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

- [Exterior Lights Schematics \(Buick\)](#) [Exterior Lights Schematics \(Chevrolet\)](#)
- [Body Control System Schematics \(Buick\)](#) [Body Control System Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#) [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

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 Testing

1. Ignition OFF, disconnect the X2 harness connector at the K9 Body Control Module, ignition ON.
2. Verify a test lamp illuminates between the B+ circuit terminal 1 and ground.
 - **If the test lamp does not illuminate and the circuit fuse is good**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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 , verify the fuse is not open and there is voltage at the fuse.
 - **If the test lamp does not illuminate and the circuit fuse is open**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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, replace the K9 Body Control Module.
 - **If the test lamp illuminates**
3. Ignition OFF, connect the X2 harness connector at the K9 Body Control Module.
4. Ignition OFF, exterior lamps OFF, rear hatch latch latched, remove both E7 License Plate Lamp Bulbs.
5. Test for less than 5 Ω between each ground circuit terminal 2 and ground.
 - **If 5 Ω or greater**

1. Ignition OFF.
2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
- **If less than 5 Ω**
6. Connect a test lamp between the E7L License Plate Lamp - Left control circuit terminal 1 and ground, ignition ON.
7. Verify the test lamp turns ON and OFF when commanding the License Plate Lamps ON and OFF with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control 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 the test lamp is always ON**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**
8. Ignition OFF.
9. Connect a test lamp between the E7R License Plate Lamp - Right control circuit terminal 1 and ground, ignition ON.
10. Verify the test lamp turns ON and OFF when commanding the License Plate Lamps ON and OFF with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - **If the test lamp turns ON and OFF**
11. Test or replace the appropriate E7 License Plate Lamp Bulb.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Rear License Plate Lamp Bulb Replacement](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DTC B3884: CENTER HIGH MOUNTED BRAKE LAMP CIRCUIT SHORT TO GROUND

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC B3884 02

Center High Mounted Brake Lamp Circuit Short to Ground

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Center High Mounted Stop Lamp Control	B3884 02	1	1	-
Center High Mounted Stop Lamp Ground	-	1	-	-
1. Stop Lamps Malfunction				

Circuit/System Description

The brake pedal position sensor is used to sense the action of the driver application of the brake pedal. The brake pedal position sensor provides an analog voltage signal that will increase as the brake pedal is applied. The body control module (BCM) provides a low reference signal and a 5 V reference voltage to the brake pedal position sensor. When the variable signal reaches a voltage threshold indicating the brakes have been applied, the BCM will apply battery voltage to the right and left stop lamp control circuits, engine control module (ECM), and center high mounted stop lamp control circuit.

Conditions for Running the DTC

- Battery voltage must be between 9-16 V.
- Brakes APPLIED.

Conditions for Setting the DTC

The BCM detects a short to ground in the center high mounted stop lamp control circuit.

Actions Taken When the DTC Sets

The BCM will not illuminate the center high mounted stop lamp.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

[Exterior Lights Schematics \(Buick\)](#), [Exterior Lights Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#), [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

Description and Operation

[Exterior Lighting Systems Description and Operation](#)

Electrical Information Reference

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- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)

- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

Circuit/System Testing

1. Ignition OFF, exterior lamps OFF, trunk latch latched, disconnect the harness connector at the E6 Center High Mounted Stop Lamp.
2. Test for less than 5 Ω between the ground circuit terminal 2 and ground.
 - **If 5 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 5 Ω**
3. Connect a test lamp between the control circuit terminal 1 and ground, ignition ON.
4. Verify the test lamp turns ON and OFF when commanding the Center Stop Lamp ON and OFF with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control 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 the test lamp is always ON**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**
5. Test or replace the E6 Center High Mounted Stop Lamp.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [High Mount Stop Lamp Replacement](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DTC B3948 OR B3949: LEFT/RIGHT FRONT TURN SIGNAL CIRCUIT

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptors

DTC B3948 01

Left Front Turn Signal Circuit Short to Battery

DTC B3948 02

Left Front Turn Signal Circuit Short to Ground

DTC B3948 04

Left Front Turn Signal Circuit Open

DTC B3949 01

Right Front Turn Signal Circuit Short to Battery

DTC B3949 02

Right Front Turn Signal Circuit Short to Ground

DTC B3949 04

Right Front Turn Signal Circuit Open

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
F3DA (BCM 3) Fuse B+	B3881 01, B3881 04, B3949 01, B3949 04	B3881 01, B3881 04, B3949 01, B3949 04	-	-
F7DA (BCM 7) Fuse B+	B3948 01, B3948 04, B3951 01, B3951 04	B3948 01, B3948 04, B3951 01, B3951 04	-	-
Turn Signal Control - Left Front	B3948 01, B3948 02	B3948 01, B3948 04	B3948 01	-
Turn Signal Control - Right Front	B3949 01, B3949 02	B3949 01, B3949 04	B3949 01	-
Outside Rearview Mirror Ground - Driver	-	1	-	-
Outside Rearview Mirror Ground - Passenger	-	1	-	-
Turn Signal Lamp Ground - Left Front	-	1	-	-
Turn Signal Lamp Ground - Right Front	-	1	-	-
1. Turn Signal Lamps and/or Indicators Malfunction				

Circuit/System Description

Ground is applied at all times to the turn signal/multifunction switch. The turn signal lamps may only be activated with the ignition switch in the ON or START positions. When the turn signal/multifunction switch is placed in either the turn right or turn left position, ground is applied to the body control module (BCM) through either the right turn or left turn signal switch signal circuit. The BCM responds to the turn signal switch input by applying a pulsating voltage to the front and rear turn signal lamps through their respective control circuits. When a turn signal request is received by the BCM, a serial data message is sent to the instrument cluster requesting the respective turn signal indicator be pulsed ON and OFF.

Conditions for Running the DTC

- Battery voltage must be between 9-16 V.

- Turn Signal ON.

Conditions for Setting the DTC

DTC B3948 01 and B3948 04

- The BCM detects an open/high resistance in the left front turn signal control circuit.
- The BCM detects an open/high resistance in the left front turn signal ground circuit.
- The BCM detects a short to ground or an open/high resistance in the F7DA (BCM 7) fuse B+ circuit.

DTC B3948 02

The BCM detects a short to ground in the left front turn signal control circuit.

DTC B3949 01 and B3949 04

- The BCM detects an open/high resistance in the right front turn signal control circuit.
- The BCM detects an open/high resistance in the right front turn signal ground circuit.
- The BCM detects a short to ground or an open/high resistance in the F3DA (BCM 3) fuse B+ circuit.

DTC B3949 02

The BCM detects a short to ground in the right front turn signal control circuit.

Actions Taken When the DTC Sets

DTC B3948

- The left front turn signal is inoperative.
- The left turn signal indicator on the instrument cluster flashes rapidly.

DTC B3949

- The right front turn signal is inoperative.
- The right turn signal indicator on the instrument cluster flashes rapidly.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear once 100 consecutive malfunction-free ignition cycles have occurred.

Diagnostic Aids

When testing at the turn signal lamp bulb socket, make sure all measurements and test lamp connections are in the correct terminal location and do not come in contact with each other during testing.

Reference Information

Schematic Reference

- [Exterior Lights Schematics \(Buick\)](#), [Exterior Lights Schematics \(Chevrolet\)](#)
- [Body Control System Schematics \(Buick\)](#), [Body Control System Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#), [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

Description and Operation

[Exterior Lighting Systems Description and Operation](#)

- [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

DTC B3948

1. Ignition OFF, disconnect the X5 harness connector at the K9 Body Control Module, ignition ON.
2. Verify a test lamp illuminates between the B+ circuit terminal 3 and ground.
 - **If the test lamp does not illuminate and the circuit fuse is good**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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 , verify the fuse is not open and there is voltage at the fuse.
 - **If the test lamp does not illuminate and the circuit fuse is open**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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, replace the K9 Body Control Module.
 - **If the test lamp illuminates**
3. Ignition OFF, connect the X5 harness connector at the K9 Body Control Module.
4. Ignition OFF, exterior lamps OFF, disconnect the harness connector at the appropriate component listed below.
 - E4LF Turn Signal Lamp - Left Front (Chevrolet)
 - E13LA Headlamp Assembly - Left Front (Buick)
 - A9A Outside Rearview Mirror - Driver (Buick)
5. Test for less than 10 Ω between the appropriate ground circuit terminal listed below and ground.
 - E4LF Turn Signal Lamp - Left Front socket terminal (Chevrolet)
 - E13LA Headlamp Assembly - Left Front terminal 8 (Buick)
 - A9A Outside Rearview Mirror - Driver terminal 5 (Buick with SGM)
 - A9A Outside Rearview Mirror - Driver terminal 9 (Buick with T4L)
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
6. Connect a test lamp between the appropriate control circuit terminal listed below and ground, ignition ON.
 - E4LF Turn Signal Lamp - Left Front socket terminal
 - E13LA Headlamp Assembly - Left Front terminal 9 (Buick)
 - A9A Outside Rearview Mirror - Driver terminal 10 (Buick)
7. Verify the test lamp turns ON and OFF when commanding the Left Front Turn Signal Lamp ON and OFF with a scan tool.

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

1. Ignition OFF, disconnect the X5 harness connector at the K9 Body Control Module.

2. Test for infinite resistance between the control circuit and ground.

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

3. Test for less than 2 Ω in the control 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 the test lamp is always ON**

1. Ignition OFF, disconnect the X5 harness connector at the K9 Body Control Module, ignition ON.

2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**

8. Test or replace the inoperative turn signal bulb.

DTC B3949

1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.

2. Verify a test lamp illuminates between the B+ circuit terminal 3 and ground.

- **If the test lamp does not illuminate and the circuit fuse is good**

1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.

2. 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 , verify the fuse is not open and there is voltage at the fuse.

- **If the test lamp does not illuminate and the circuit fuse is open**

1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.

2. 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, replace the K9 Body Control Module.

- **If the test lamp illuminates**

3. Ignition OFF, connect the X1 harness connector at the K9 Body Control Module.

4. Ignition OFF, exterior lamps OFF, disconnect the harness connector at the appropriate component listed below.

- E4RF Turn Signal Lamp - Right Front (Chevrolet)
- E13RA Headlamp Assembly - Right Front (Buick)
- A9B Outside Rearview Mirror - Passenger (Buick)

5. Test for less than 5 Ω between the appropriate ground circuit terminal listed below and ground.

- E4RF Turn Signal Lamp - Right Front socket terminal (Chevrolet)
- E13RA Headlamp Assembly - Right Front terminal 8 (Buick)
- A9B Outside Rearview Mirror - Passenger terminal 5 (Buick with SGM)
- A9B Outside Rearview Mirror - Passenger terminal 9 (Buick with T4L)

- **If 5 Ω or greater**

1. Ignition OFF.

2. Test for less than 2 Ω in the ground circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , repair the open/high resistance in the ground connection.

- **If less than 5 Ω**

6. Connect a test lamp between the appropriate control circuit terminal listed below and ground, ignition ON.
 - E4RF Turn Signal Lamp - Right Front socket terminal (Chevrolet)
 - E13RA Headlamp Assembly - Right Front terminal 9 (Buick)
 - A9B Outside Rearview Mirror - Passenger terminal 10 (Buick)
7. Verify the test lamp turns ON and OFF when commanding the Right Front Turn Signal Lamp ON and OFF with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control 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 the test lamp is always ON**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**
8. Test or replace the inoperative turn signal bulb.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Turn Signal Bulb Replacement - Left Side \(SBV\)](#), [Turn Signal Bulb Replacement - Left Side \(SBM\)](#).
- Refer to [Turn Signal Bulb Replacement - Right Side \(2H0 with SBV\)](#), [Turn Signal Bulb Replacement - Right Side \(2H0 with SBM\)](#), [Turn Signal Bulb Replacement - Right Side \(LUV with SBM\)](#), [Turn Signal Bulb Replacement - Right Side \(LUV with SBV\)](#).
- Refer to [Headlamp LED Driver Module Replacement \(T4L\)](#).
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DTC B3950 OR B3951: LEFT/RIGHT REAR TURN SIGNAL CIRCUIT

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptors

DTC B3950 01

Left Rear Turn Signal Circuit Short to Battery

DTC B3950 02

Left Rear Turn Signal Circuit Short to Ground

DTC B3950 04

Left Rear Turn Signal Circuit Open

DTC B3951 01

Right Rear Turn Signal Circuit Short to Battery

DTC B3951 02

Right Rear Turn Signal Circuit Short to Ground

DTC B3951 04

Right Rear Turn Signal Circuit Open

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
F4DA (BCM 4) Fuse B+	B3882 01, B3882 04, B3950 01, B3950 04	B3882 01, B3882 04, B3950 01, B3950 04	-	-
F7DA (BCM 7) Fuse B+	B3948 01, B3948 04, B3951 01, B3951 04	B3948 01, B3948 04, B3951 01, B3951 04	-	-
Turn Signal Control - Left Rear	B3950 01, B3950 02	B3950 01, B3950 04	B3950 01	-
Turn Signal Control - Right Rear	B3951 01, B3951 02	B3951 01, B3951 04	B3951 01	-
Turn Signal Lamp Ground - Left Rear	-	1	-	-
Turn Signal Lamp Ground - Right Rear	-	1	-	-
1. Turn Signal Lamps and/or Indicators Malfunction				

Circuit/System Description

Ground is applied at all times to the turn signal/multifunction switch. The turn signal lamps may only be activated with the ignition switch in the ON or START positions. When the turn signal/multifunction switch is placed in either the turn right or turn left position, ground is applied to the body control module (BCM) through either the right turn or left turn signal switch signal circuit. The BCM responds to the turn signal switch input by applying a pulsating voltage to the front and rear turn signal lamps through their respective control circuits. When a turn signal request is received by the BCM, a serial data message is sent to the instrument cluster requesting the respective turn signal indicator be pulsed ON and OFF.

Conditions for Running the DTC

- Battery voltage must be between 9-16 V.
- Turn Signal ON.

Conditions for Setting the DTC

DTC B3950 01 and B3950 04

- The BCM detects an open/high resistance in the left rear turn signal control circuit.
- The BCM detects an open/high resistance in the left rear turn signal ground circuit.
- The BCM detects a short to ground or an open/high resistance in the F4DA (BCM 4) fuse B+ circuit.

DTC B3950 02

The BCM detects a short to ground in the left rear turn signal control circuit.

DTC B3951 01 and B3951 04

- The BCM detects an open/high resistance in the right rear turn signal control circuit.
- The BCM detects an open/high resistance in the right rear turn signal ground circuit.
- The BCM detects a short to ground or an open/high resistance in the F7DA (BCM 7) fuse B+ circuit.

DTC B3951 02

The BCM detects a short to ground in the right rear turn signal control circuit.

Actions Taken When the DTC Sets

DTC B3950

- The left rear turn signal is inoperative.
- The left turn signal indicator on the instrument cluster flashes rapidly.

DTC B3951

- The right rear turn signal is inoperative.
- The right turn signal indicator on the instrument cluster flashes rapidly.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear once 100 consecutive malfunction-free ignition cycles have occurred.

Diagnostic Aids

When testing at the turn signal lamp bulb socket, make sure all measurements and test lamp connections are in the correct terminal location and do not come in contact with each other during testing.

Reference Information

Schematic Reference

- [Exterior Lights Schematics \(Buick\)](#), [Exterior Lights Schematics \(Chevrolet\)](#)
- [Body Control System Schematics \(Buick\)](#), [Body Control System Schematics \(Chevrolet\)](#)

Connector End View Reference

COMPONENT CONNECTOR END VIEWS - INDEX (ENCORE), **COMPONENT CONNECTOR END VIEWS - INDEX (TRAX)**

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 Testing

DTC B3950

1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.

2. Verify a test lamp illuminates between the B+ circuit terminal 2 and ground.

- **If the test lamp does not illuminate and the circuit fuse is good**

1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.

2. 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 , verify the fuse is not open and there is voltage at the fuse.

- **If the test lamp does not illuminate and the circuit fuse is open**

1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.

2. 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, replace the K9 Body Control Module.

- **If the test lamp illuminates**

3. Ignition OFF, connect the X1 harness connector at the K9 Body Control Module.

4. Ignition OFF, exterior lamps OFF, rear hatch latch latched, remove the E4LR Turn Signal Lamp Bulb - Left Rear.

5. Test for less than 5 Ω between the ground circuit at the socket terminal and ground.

- **If 5 Ω or greater**

1. Ignition OFF.

2. Test for less than 2 Ω in the ground circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , repair the open/high resistance in the ground connection.

- **If less than 5 Ω**

6. Connect a test lamp between the control circuit at the socket terminal and ground, ignition ON.

7. Verify the test lamp turns ON and OFF when commanding the Left Rear Turn Signal Lamp ON and OFF with a scan tool.

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

1. Ignition OFF, disconnect the X5 harness connector at the K9 Body Control Module.

2. Test for infinite resistance between the control circuit and ground.

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

3. Test for less than 2 Ω in the control 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 the test lamp is always ON**

1. Ignition OFF, disconnect the X5 harness connector at the K9 Body Control Module, ignition ON.

2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**

8. Test or replace the E4LR Turn Signal Lamp Bulb - Left Rear.

DTC B3951

1. Ignition OFF, disconnect the X5 harness connector at the K9 Body Control Module, ignition ON.

2. Verify a test lamp illuminates between the B+ circuit terminal 3 and ground.

- **If the test lamp does not illuminate and the circuit fuse is good**

1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.

2. 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 , verify the fuse is not open and there is voltage at the fuse.
- **If the test lamp does not illuminate and the circuit fuse is open**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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, replace the K9 Body Control Module.
- **If the test lamp illuminates**
 3. Ignition OFF, connect the X5 harness connector at the K9 Body Control Module.
 4. Ignition OFF, exterior lamps OFF, rear hatch latch latched, remove the E4RR Turn Signal Lamp Bulb - Right Rear.
 5. Test for less than 5 Ω between the ground circuit at the socket terminal and ground.
 - **If 5 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 5 Ω**
 6. Connect a test lamp between the control circuit at the socket terminal and ground, ignition ON.
 7. Verify the test lamp turns ON and OFF when commanding the Right Rear Turn Signal Lamp ON and OFF with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control 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 the test lamp is always ON**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**
 8. Test or replace the E4RR Turn Signal Lamp Bulb - Right Rear.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Rear Turn Signal Lamp Bulb Replacement \(Buick\)](#), [Rear Turn Signal Lamp Bulb Replacement \(Chevrolet with UGE\)](#), [Rear Turn Signal Lamp Bulb Replacement \(Chevrolet with TVM\)](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DTC C0277 OR C0890: BRAKE PEDAL POSITION SENSOR CIRCUIT/CONTROL MODULE VOLTAGE REFERENCE OUTPUT 3 CIRCUIT VOLTAGE

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptors

DTC C0277 06

Brake Pedal Position Sensor Circuit Low Voltage/Open

DTC C0277 07

Brake Pedal Position Sensor Circuit High Voltage

DTC C0277 09

Brake Pedal Position Sensor Circuit Too Fast Transitions

DTC C0277 4B

Brake Pedal Position Sensor Circuit Calibration Not Learned

DTC C0890 03

Control Module Voltage Reference Output 3 Circuit Low Voltage

DTC C0890 07

Control Module Voltage Reference Output 3 Circuit High Voltage

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Brake Pedal Position Sensor 5 V Reference	B1011 00, C0277 06, C0890 03, C0161 71	B1011 00, C0277 06, C0161 71	B1011 00, C0277 07, C0890 07, C0161 71	-
Brake Pedal Position Sensor Signal	B1011 00, C0277 06, C0161 71	B1011 00, C0277 06, C0161 71	B1011 00, C0277 07, C0890 07, C0161 71	C0277 09
Brake Pedal Position Sensor Low Reference	-	B1011 00, C0277 07, C0161 71	1	-
1. Stop Lamps Malfunction				

Circuit/System Description

The brake pedal position (BPP) sensor is used to sense the action of the driver application of the brake pedal. The BPP sensor provides an analog voltage signal that will increase as the brake pedal is applied. The body control module (BCM) provides a low reference signal and a 5-volt reference voltage to the BPP sensor. When the variable signal reaches a voltage threshold indicating the brakes have been applied, the BCM will apply battery voltage to the left and right stop lamp control circuits as well as the center high mounted stop lamp (CHMSL) control circuit illuminating the left and right stop lamps and the CHMSL.

Conditions for Running the DTC

- Battery voltage must be between 9-16 V.
- Brakes APPLIED.

Conditions for Setting the DTC

DTC C0277 06

- The BCM detects a short to ground or an open/high resistance in the BPP sensor 5 V reference circuit.
- The BCM detects a short to ground or an open/high resistance in the BPP sensor signal circuit.

DTC C0277 07

- The BCM detects a short to voltage in the BPP sensor 5 V reference circuit.
- The BCM detects a short to voltage in the BPP sensor signal circuit.
- The BCM detects an open/high resistance in the BPP sensor low reference circuit.

DTC C0277 09

The BCM detects the BPP sensor signal is changing faster than possible under normal operating conditions.

DTC C0277 4B

The DTC will set when the BPP sensor home position is not learned.

DTC C0890 03

The BCM detects a short to ground in the BPP sensor 5 V reference circuit.

DTC C0890 07

- The BCM detects a short to voltage in the BPP sensor 5 V reference circuit.
- The BCM detects a short to voltage in the BPP sensor low reference circuit.

Actions Taken When the DTC Sets

- The Traction Control indicator is commanded ON.
- For DTC C0277 4B, the stop lamps may not activate at the expected brake pedal positions.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- For DTC C0277 07 the ignition must be cycled before the code can be cleared.
- For DTC C0277 4B a successful brake pedal position sensor calibration has been performed.
- A history DTC will clear once 50 malfunction-free ignition cycles have occurred.
- A DTC will not clear the current status until the next ignition cycle.

Reference Information

Schematic Reference

[Exterior Lights Schematics \(Buick\)](#), [Exterior Lights Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#), [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

Description and Operation

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Electrical Information Reference

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- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)

- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

Circuit/System Testing

DTC C0277 06, C0277 07, C0890 03, and C0890 07

1. Ignition OFF, disconnect the harness connector at the B22 Brake Pedal Position Sensor, ignition ON.
2. Verify a test lamp illuminates between the appropriate low reference circuit terminal listed below and B+.
 - Terminal 2 - with MM1 (Chevrolet)
 - Terminal A - with MM3 (Chevrolet)
 - Terminal 2 (Buick)
 - **If the test lamp does not illuminate**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module.
 2. Test for less than 2 Ω in the low reference 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 the test lamp illuminates**
3. Ignition ON.
4. Test for 4.8-5.2 V between the appropriate 5 V reference circuit terminal listed below and ground.
 - Terminal 1 - with MM1 (Chevrolet)
 - Terminal C - with MM3 (Chevrolet)
 - Terminal 1 (Buick)
 - **If less than 4.8 V**
 1. Ignition OFF, disconnect the X2 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the 5 V reference circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the 5 V reference 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 greater than 5.2 V**
 1. Ignition OFF, disconnect the X2 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the 5 V reference circuit 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 between 4.8-5.2 V**
5. Verify the scan tool Brake Pedal Applied parameter is Inactive.
 - **If not Inactive**
 1. Ignition OFF, disconnect the X2 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the appropriate signal circuit terminal listed below and ground.
 - Terminal 3 - with MM1 (Chevrolet)
 - Terminal B - with MM3 (Chevrolet)
 - Terminal 3 (Buick)

- 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 Inactive**
6. Install a 3 A fused jumper wire between the appropriate 5 V reference and signal circuit terminals listed below.
 - 5 V reference terminal 1 and signal terminal 3 - with MM1 (Chevrolet)
 - 5 V reference terminal C and signal terminal B - with MM3 (Chevrolet)
 - 5 V reference terminal 1 and signal terminal 3 (Buick)
 7. Verify the scan tool Brake Pedal Applied parameter is Active.
 - **If not Active**
 1. Ignition OFF, disconnect the X2 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the signal 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 Active**
 8. Test or replace the B22 Brake Pedal Position Sensor.

DTC C0277 4B

1. Verify DTC C0277 4B is not set.
 - **If DTC C0277 4B is set**
 1. Ignition ON
 2. Perform the BPP sensor recalibration procedure for the K9 Body Control Module. Refer to [Brake Pedal Position Sensor Calibration](#).
 3. Verify the DTC does not reset while operating the vehicle under the conditions for running the DTC.
 - If the DTC resets, replace the B22 Brake Pedal Position Sensor.
 - If the DTC does not reset
 4. All OK.
 - **If DTC C0277 4B is not set**
2. All OK.

DTC C0277 09

1. Verify DTC C0277 09 is not set.
 - **If DTC C0277 09 is set**
 1. Replace the B22 Brake Pedal Position Sensor.
 2. Perform the BPP sensor recalibration procedure for the K9 Body Control Module. Refer to [Brake Pedal Position Sensor Calibration](#).
 3. Verify the DTC does not reset while operating the vehicle under the conditions for running the DTC.
 - If the DTC resets, replace the K9 Body Control Module.
 - If the DTC does not reset
 4. All OK.
 - **If DTC C0277 09 is not set**
2. All OK.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Brake Pedal Position Sensor Calibration](#)
- Refer to [Brake Pedal Position Sensor Replacement](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DTC C0297: BRAKE APPLIED OUTPUT CIRCUIT SHORT TO GROUND

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

DTC Descriptor

DTC C0297 02

Brake Applied Output Circuit Short to Ground

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Brake Applied Signal	C0297 02	1	1	-
1. Cruise Control Malfunction				

Circuit/System Description

The brake pedal position sensor is used to sense the action of the driver application of the brake pedal. The brake pedal position sensor provides an analog voltage signal that will increase as the brake pedal is applied. The body control module (BCM) provides a low reference signal and a 5 V reference voltage to the brake pedal position sensor. When the variable signal reaches a voltage threshold indicating the brakes have been applied, the BCM will apply battery voltage to the right and left stop lamp control circuits, engine control module (ECM), automatic transmission, and center high mounted stop lamp control circuit.

Conditions for Running the DTC

- Battery voltage must be between 9-16 V.
- Brakes APPLIED.

Conditions for Setting the DTC

The BCM detects a short to ground or an open/high resistance on the brake applied signal circuit.

Actions Taken When the DTC Sets

The cruise control system is disabled.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A history DTC will clear once 50 consecutive malfunction-free ignition cycles have occurred.

Diagnostic Aids

Verify that the brake pedal position sensor is properly calibrated.

Reference Information

Schematic Reference

[Cruise Control Schematics \(Buick\)](#), [Cruise Control Schematics \(Chevrolet\)](#)

COMPONENT CONNECTOR END VIEWS - INDEX (ENCORE), COMPONENT CONNECTOR END VIEWS - INDEX (TRAX)

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 Testing

1. Ignition OFF, disconnect the X1 harness connector at the component listed below.
 - K20 Engine Control Module
 - T12 Automatic Transmission Assembly (Buick)
2. Connect a test lamp between the appropriate signal circuit terminal listed below and ground, ignition ON.
 - K20 Engine Control Module terminal 25 (Chevrolet with 2H0)
 - K20 Engine Control Module terminal 33 (LUV)
 - K20 Engine Control Module terminal 50 (Buick with LE2)
 - T12 Automatic Transmission Assembly terminal 10 (Buick/Chevrolet with MM1)
3. Verify the test lamp turns ON and OFF while pressing and releasing the brake pedal.
 - **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the X5 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the signal 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 the test lamp is always ON**
 1. Ignition OFF, disconnect the X5 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the signal circuit terminal 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.
4. Test or replace the inoperative component.

Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the repair.

- Refer to **Brake Pedal Position Sensor Calibration**
- Refer to **Control Solenoid Valve and Transmission Control Module Assembly Replacement**
- Refer to **Control Module References** for BCM or ECM replacement, programming, and setup

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 \(Manual Transmission\)](#)[Backup Lamps Malfunction \(Automatic Transmission\)](#)
- [Courtesy Lamps Malfunction](#)
- [Daytime Running Lamps Malfunction](#)
- [Dome Lamps Malfunction](#)
- [Front Fog Lamps Malfunction](#)
- [Hazard Lamps Malfunction](#)
- [Headlamps Malfunction](#)
- [Interior Backlighting Malfunction](#)
- [Park, License, and/or Tail Lamps Malfunction](#)
- [Rear Compartment Lamp Malfunction](#)
- [Stop Lamps Malfunction](#)
- [Turn Signal Lamps and/or Indicators Malfunction](#)

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
F6DA (BCM 6) Fuse B+	B127B 08	B127B 08	-	-

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Backup Lamp Switch Signal	P0812	P0812	1	-
Backup Lamps Control	B127B 08, B2545 02	B127B 08	1	-
Backup Lamp Switch Ground	-	P0812	-	-
Backup Lamp Ground - Left	-	1	-	-
Backup Lamp Ground - Right	-	1	-	-
1. Backup Lamps Malfunction				

Circuit/System Description

The engine control module (ECM) provides a signal circuit to the backup lamp switch which is permanently grounded. With the engine running and the transmission in the reverse position, the backup lamp switch signal circuit is pulled low and the ECM responds by sending a serial data message to the body control module (BCM). The message indicates that the gear selector is in the reverse position. The BCM applies battery voltage to the backup lamps control circuit illuminating the backup lamps. Once the driver moves the gear selector out of the reverse position, a message is sent by the ECM via serial data requesting the BCM to remove battery voltage from the backup lamps control circuit. The engine must be running for the backup lamps to operate.

Diagnostic Aids

When testing at the backup lamp bulb socket, make sure all measurements and test lamp connections are in the correct terminal location and do not come in contact with each other during testing.

Reference Information

Schematic Reference

- [Exterior Lights Schematics \(Buick\)](#), [Exterior Lights Schematics \(Chevrolet\)](#)
- [Body Control System Schematics \(Buick\)](#), [Body Control System Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#), [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

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. Engine ON.
2. Verify the scan tool Reverse Position Switch parameter changes between ON and OFF while shifting the vehicle between the neutral and reverse gears.

- **If the parameter does not change**

Refer to Backup Lamp Switch Malfunction.

- **If the parameter changes**

3. Verify the backup lamps turn ON and OFF when commanding the Backup Lamps ON and OFF with a scan tool.

- **If the backup lamps do not turn ON and OFF**

Refer to Backup Lamps Malfunction.

- **If the backup lamps turn ON and OFF**

4. All OK.

Circuit/System Testing

Backup Lamp Switch Malfunction

1. Ignition OFF, exterior lamps OFF, all doors closed, disconnect the harness connector at the B16 Backup Lamp Switch. It may take up to 2 min for all vehicle systems to power down.

2. Test for less than 5 Ω between the ground circuit terminal 2 and ground.

- **If 5 Ω or greater**

1. Ignition OFF.

2. Test for less than 2 Ω in the ground circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , repair the open/high resistance in the ground connection.

- **If less than 5 Ω**

3. Ignition ON.

4. Verify the scan tool Reverse Position Switch parameter is Off.

- **If not Off**

1. Ignition OFF, disconnect the appropriate harness connector listed below at the K20 Engine Control Module.

- X1 (LUV)
- X3 (2H0)

2. Test for infinite resistance between the signal circuit terminal 1 and ground.

- If less than infinite resistance, repair the short to ground on the circuit.
- If infinite resistance, replace the K20 Engine Control Module.

- **If Off**

5. Install a 3 A fused jumper wire between the signal circuit terminal 1 and the ground circuit terminal 2.

6. Verify the scan tool Reverse Position Switch parameter is On.

- **If not On**

1. Ignition OFF, disconnect the appropriate harness connector listed below at the K20 Engine Control Module, ignition ON.

- X1 (LUV)
- X3 (2H0)

2. Test for less than 1 V between the signal circuit terminal 1 and ground.

- If 1 V or greater, repair the short to voltage on the circuit.
- If less than 1 V

3. Test for less than 2 Ω in the signal circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , replace the K20 Engine Control Module.

- **If On**

7. Test or replace the B16 Backup Lamp Switch.

Backup Lamps Malfunction

1. Ignition OFF, disconnect the X5 harness connector at the K9 Body Control Module, ignition ON.

2. Verify a test lamp illuminates between the B+ circuit terminal 4 and ground.

- **If the test lamp does not illuminate and the circuit fuse is good**

1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.

2. 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 , verify the fuse is not open and there is voltage at the fuse.

- **If the test lamp does not illuminate and the circuit fuse is open**

1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.

2. 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, replace the K9 Body Control Module.

- **If the test lamp illuminates**

3. Ignition OFF, connect the X5 harness connector at the K9 Body Control Module.

4. Ignition OFF, exterior lamps OFF, rear hatch latch latched, remove the appropriate E5 Backup Lamp bulb at the appropriate E42 Tail Lamp Assembly.

5. Test for less than 5 Ω between the ground circuit at the socket terminal and ground.

- **If 5 Ω or greater**

1. Ignition OFF.

2. Test for less than 2 Ω in the ground circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , repair the open/high resistance in the ground connection.

- **If less than 5 Ω**

6. Connect a test lamp between the control circuit at the socket terminal and ground, ignition ON.

7. Verify the test lamp turns ON and OFF when commanding the Backup Lamps ON and OFF with a scan tool.

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

1. Ignition OFF, disconnect the X7 harness connector at the K9 Body Control Module.

2. Test for infinite resistance between the control circuit and ground.

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

3. Test for less than 2 Ω in the control 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 the test lamp is always ON**

1. Ignition OFF, disconnect the X7 harness connector at the K9 Body Control Module, ignition ON.

2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**

8. Test or replace the appropriate E5 Backup Lamp.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Backup Bulb Replacement \(Chevrolet with UGE\)](#), [Backup Bulb Replacement \(Buick with UGE\)](#), [Backup Bulb Replacement \(Chevrolet with TVM\)](#).
- Refer to [Backup Lamp Switch Replacement](#)
- Refer to [Control Module References](#) for BCM or ECM replacement, programming, and setup

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
F6DA (BCM 6) Fuse B+	B127B 08	B127B 08	-	-
Backup Lamps Control	B127B 08, B2545 02	B127B 08	1	-
Backup Lamp Ground - Left	-	1	-	-
Backup Lamp Ground - Right	-	1	-	-
1. Backup Lamps Malfunction				

Circuit/System Description

With the engine running and the transmission in the reverse position, the transmission control module (TCM) sends a serial data message to the body control module (BCM). The message indicates that the gear selector is in the reverse position. The BCM applies battery voltage to the backup lamps control circuit illuminating the backup lamps. Once the driver moves the gear selector out of the reverse position, a message is sent by the TCM via serial data requesting the BCM to remove battery voltage from the backup lamps control circuit. The engine must be running for the backup lamps to operate.

Diagnostic Aids

When testing at the backup lamp bulb socket, make sure all measurements and test lamp connections are in the correct terminal location and do not come in contact with each other during testing.

Reference Information

Schematic Reference

- [Exterior Lights Schematics \(Buick\)](#), [Exterior Lights Schematics \(Chevrolet\)](#)
- [Body Control System Schematics \(Buick\)](#), [Body Control System Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#), [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

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 Testing

1. Ignition OFF, disconnect the X5 harness connector at the K9 Body Control Module, ignition ON.
2. Verify a test lamp illuminates between the B+ circuit terminal 4 and ground.
 - **If the test lamp does not illuminate and the circuit fuse is good**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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 , verify the fuse is not open and there is voltage at the fuse.
 - **If the test lamp does not illuminate and the circuit fuse is open**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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, replace the K9 Body Control Module.
 - **If the test lamp illuminates**
3. Ignition OFF, connect the X5 harness connector at the K9 Body Control Module.
4. Ignition OFF, exterior lamps OFF, rear hatch latch latched, remove the appropriate E5 Backup Lamp bulb at the appropriate E42 Tail Lamp Assembly.
5. Test for less than 5 Ω between the ground circuit at the socket terminal and ground.
 - **If 5 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 5 Ω**
6. Connect a test lamp between the control circuit at the socket terminal and ground, ignition ON.
7. Verify the test lamp turns ON and OFF when commanding the Backup Lamps ON and OFF with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the X7 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control 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 the test lamp is always ON**
 1. Ignition OFF, disconnect the X7 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**
8. Test or replace the appropriate E5 Backup Lamp.

[Repair Instructions](#)

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Backup Bulb Replacement \(Chevrolet with UGE\)](#), [Backup Bulb Replacement \(Buick with UGE\)](#), [Backup Bulb Replacement \(Chevrolet with TVM\)](#).
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

COURTESY 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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
F6DA (BCM 6) Fuse B+	B127B 08	B127B 08	-	-
Courtesy Lamps Control - Terminal 2 X7	B1480 02	1	1	-
Dome/Reading Lamps Ground	-	1	-	-
Dome Lamp Ground	-	1	-	-
Sunshade - Left Ground	-	1	-	-
Sunshade - Right Ground	-	1	-	-
1. Courtesy Lamps Malfunction				

Circuit/System Description

The body control module (BCM) supplies battery voltage to the reading lamps and sunshade mirror lamps via the courtesy lamp control circuit. The front reading lamps are controlled by an individual switch that is activated by the operator when additional cabin lighting is required. In the event that the reading lamps or sunshade lamps were to remain illuminated for more than 10 min with the ignition switch in the OFF position and no doors opened, the BCM will deactivate the courtesy lamp control circuit to prevent total battery discharge.

Reference Information

Schematic Reference

- [Interior Lights Schematics \(Buick\)](#), [Interior Lights Schematics \(Chevrolet\)](#)
- [Body Control System Schematics \(Buick\)](#), [Body Control System Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#), [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

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

Circuit/System Testing

1. Ignition OFF, disconnect the X5 harness connector at the K9 Body Control Module, ignition ON.
2. Verify a test lamp illuminates between the B+ circuit terminal 4 and ground.
 - **If the test lamp does not illuminate and the circuit fuse is good**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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 , verify the fuse is not open and there is voltage at the fuse.
 - **If the test lamp does not illuminate and the circuit fuse is open**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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, replace the K9 Body Control Module.
 - **If the test lamp illuminates**
3. Ignition OFF, connect the X5 harness connector at the K9 Body Control Module.
4. Ignition OFF, all doors closed, all accessories OFF, disconnect the harness connector at the appropriate component listed below.
 - E37A Dome/Reading Lamps
 - E36AH Dome Lamp
 - A3L Sunshade - Left
 - A3R Sunshade - Right
5. Test for less than 15 Ω between the appropriate ground circuit terminal listed below and ground.
 - E37A Dome/Reading Lamps - terminal 6
 - E36AH Dome Lamp - terminal 2
 - A3L Sunshade - Left terminal B
 - A3R Sunshade - Right terminal B
 - **If 15 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 15 Ω**
6. Connect a test lamp between the appropriate control circuit terminal listed below and ground.
 - E37A Dome/Reading Lamps - terminal 1
 - E36AH Dome Lamp - terminal 4
 - A3L Sunshade - Left terminal A
 - A3R Sunshade - Right terminal A
7. Verify the test lamp turns ON and OFF when commanding the Inadvertent Load ON and OFF with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the X7 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control 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 the test lamp is always ON

1. Ignition OFF, disconnect the X7 harness connector at the K9 Body Control Module, ignition ON.
2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF

8. Test or replace the inoperative courtesy lamp.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Dome Lamp Bulb Replacement](#)
- Refer to [Center Reading Lamp Replacement](#)
- Refer to [Center Reading Lamp Bulb Replacement](#)
- Refer to [Sunshade Illuminated Mirror Lamp Bulb Replacement \(Buick\)](#), [Sunshade Illuminated Mirror Lamp Bulb Replacement \(Chevrolet\)](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DAYTIME RUNNING 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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Ambient Light Sensor Signal	B2645 03	B2645 07	B2645 07	-
Left Daytime Running Lamp Control	B260B 02	B259A 04	B259A 04	-
Right Daytime Running Lamp Control	B260C 02	B259B 04	B259B 04	-
Ambient Light Sensor Ground	-	B2645 07	-	-
Left Daytime Running Lamp Ground	-	1	-	-
Right Daytime Running Lamp Ground	-	1	-	-
1. Daytime Running Lamps Malfunction				

Circuit/System Description

Daytime Running Lamps

The ambient light sensor is used to monitor outside lighting conditions. The body control module (BCM) provides a low reference ground and 5-volt reference signal to the ambient light sensor. Depending on outside lighting conditions, the ambient light sensor provides a voltage signal to the BCM that will vary between 0.2 and 4.9 volts. The BCM monitors the ambient light sensor signal circuit to determine if outside lighting conditions are correct for either daytime running lights (DRL) or automatic headlamp system control when the headlamp switch is in the AUTO position. In daylight conditions, the BCM will command the daytime running lamps ON by applying voltage to the daytime running lamp relay control circuits illuminating the left and right daytime running lamps. Any function or condition that turns on the headlamps will cancel DRL operation.

Reference Information

Schematic Reference

[Headlights/Daytime Running Lights \(DRL\) Schematics \(Buick\)](#) [Headlights/Daytime Running Lights \(DRL\) Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#) [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

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.
2. Verify the left daytime running lamps turn on & off when commanding the Low Beam Lamps ON and OFF with a scan tool.
 - **If the left daytime running lamps do not turn ON and OFF**
Refer to Daytime Running Lamps Malfunction.
 - **If the left daytime running lamps turn ON and OFF**
3. Refer to Ambient Light/Sunload Sensor Malfunction.

Circuit/System Testing

Daytime Running Lamps Malfunction (SBV)

1. Ignition OFF, exterior lamps OFF, disconnect the harness connector at the appropriate E13 Headlamp Assembly. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 4 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Connect the harness connector at the E13 Headlamp Assembly.
4. Disconnect the X2 harness connector at the X50A Fuse Block - Underhood.
5. Test for less than 10 Ω between the appropriate ground circuit terminal listed below and ground.
 - Terminal G3 - left daytime running lamp
 - Terminal D9 - right daytime running lamp
 - **If 10 Ω or greater**
 1. Ignition OFF.

2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
- **If less than 10 Ω**
6. Disconnect the X1 harness connector at the X50A Fuse Block - Underhood.
7. Connect a 3 A fused jumper between the appropriate control circuit terminal listed below and B+.
 - Terminal H1 - left daytime running lamp
 - Terminal G2 - right daytime running lamp
8. Verify the E4 Daytime Running Lamp illuminates.
 - **If the daytime running lamp does not illuminate**
 1. Ignition OFF, disconnect the harness connector at the E13 Headlamp Assembly.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the E13 Headlamp Assembly.
 - **If the daytime running lamp illuminates**
9. Ignition OFF, connect the X1 harness connector at the X50A Fuse Block - Underhood.
10. Disconnect the appropriate harness connector listed below at the K9 Body Control Module, ignition ON
 - X7 - left daytime running lamp
 - X5 - right daytime running lamp
11. Verify a test lamp does not illuminate between the appropriate control circuit terminal listed below and ground.
 - Terminal 8 - left daytime running lamp
 - Terminal 25 - right daytime running lamp
 - **If the test lamp illuminates**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood, ignition ON.
 2. Test for less than 1 V between the control circuit terminal and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V, replace the X50A Fuse Block - Underhood.
 - **If the test lamp does not illuminate**
12. Ignition OFF, connect a 3 A fused jumper between the appropriate control circuit terminal listed below and B+, ignition ON.
 - Terminal 8 - left daytime running lamp
 - Terminal 25 - right daytime running lamp
13. Verify both daytime running lamps illuminate.
 - **If the daytime running lamps do not illuminate**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the X50A Fuse Block - Underhood.
 - **If the daytime running lamps illuminate**
14. Test or replace the K9 Body Control Module.

Daytime Running Lamps Malfunction (SBM/SGM)

1. Ignition OFF, exterior lamps OFF, disconnect the harness connector at the appropriate E4 Daytime Running Lamp. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 3 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Connect the harness connector at the E4 Daytime Running Lamp.
4. Disconnect the X2 harness connector at the X50A Fuse Block - Underhood.
5. Test for less than 10 Ω between the appropriate ground circuit terminal listed below and ground.
 - Terminal G3 - left daytime running lamp
 - Terminal D9 - right daytime running lamp
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
6. Disconnect the X1 harness connector at the X50A Fuse Block - Underhood.
7. Connect a 3 A fused jumper between the appropriate control circuit terminal listed below and B+.
 - Terminal H1 - left daytime running lamp
 - Terminal G2 - right daytime running lamp
8. Verify the E4 Daytime Running Lamp illuminates.
 - **If the daytime running lamp does not illuminate**
 1. Ignition OFF, disconnect the harness connector at the E13 Headlamp Assembly.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the E4 Daytime Running Lamp.
 - **If the daytime running lamp illuminates**
9. Ignition OFF, connect the X1 harness connector at the X50A Fuse Block - Underhood.
10. Disconnect the appropriate harness connector listed below at the K9 Body Control Module, ignition ON
 - X7 - left daytime running lamp
 - X5 - right daytime running lamp
11. Verify a test lamp does not illuminate between the appropriate control circuit terminal listed below and ground.
 - Terminal 8 - left daytime running lamp
 - Terminal 25 - right daytime running lamp
 - **If the test lamp illuminates**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood, ignition ON.
 2. Test for less than 1 V between the control circuit terminal and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.

- If less than 1 V, replace the X50A Fuse Block - Underhood.

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

12. Ignition OFF, connect a 3 A fused jumper between the appropriate control circuit terminal listed below and B+, ignition ON.

- Terminal 8 - left daytime running lamp
- Terminal 25 - right daytime running lamp

13. Verify both daytime running lamps illuminate.

- **If the daytime running lamps do not illuminate**

1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood.

2. Test for infinite resistance between the control circuit and ground.

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

3. Test for less than 2 Ω in the control circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , replace the X50A Fuse Block - Underhood.

- **If the daytime running lamps illuminate**

14. Test or replace the K9 Body Control Module.

Daytime Running Lamps Malfunction (T4L)

1. Ignition OFF, exterior lamps OFF, disconnect the harness connector at the appropriate E13 Headlamp Assembly. It may take up to 2 min for all vehicle systems to power down.

2. Test for less than 10 Ω between the ground circuit terminal 8 and ground.

- **If 10 Ω or greater**

1. Ignition OFF.

2. Test for less than 2 Ω in the ground circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , repair the open/high resistance in the ground connection.

- **If less than 10 Ω**

3. Connect the harness connector at the E13 Headlamp Assembly.

4. Disconnect the X2 harness connector at the X50A Fuse Block - Underhood.

5. Test for less than 10 Ω between the appropriate ground circuit terminal listed below and ground.

- Terminal G3 - left daytime running lamp
- Terminal D9 - right daytime running lamp

- **If 10 Ω or greater**

1. Ignition OFF.

2. Test for less than 2 Ω in the ground circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , repair the open/high resistance in the ground connection.

- **If less than 10 Ω**

6. Connect the X2 harness connector at the X50A Fuse Block - Underhood.

7. Disconnect the X1 harness connector at the X50A Fuse Block - Underhood.

8. Connect a 3 A fused jumper between the appropriate control circuit terminal listed below and B+.

- Terminal H1 - left daytime running lamp
- Terminal G2 - right daytime running lamp

9. Verify the E4 Daytime Running Lamp illuminates.

- **If the daytime running lamp does not illuminate**

1. Ignition OFF, disconnect the harness connector at the E13 Headlamp Assembly.

2. Test for infinite resistance between the control circuit and ground.

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

- If infinite resistance
3. Test for less than $2\ \Omega$ in the control circuit end to end.
 - If $2\ \Omega$ or greater, repair the open/high resistance in the circuit.
 - If less than $2\ \Omega$, replace the E13 Headlamp Assembly.
 - **If the daytime running lamp illuminates**
 10. Ignition OFF, connect the X1 harness connector at the X50A Fuse Block - Underhood.
 11. Disconnect the appropriate harness connector listed below at the K9 Body Control Module, ignition ON
 - X7 - left daytime running lamp
 - X5 - right daytime running lamp
 12. Verify a test lamp does not illuminate between the appropriate control circuit terminal listed below and ground.
 - Terminal 8 - left daytime running lamp
 - Terminal 25 - right daytime running lamp
 - **If the test lamp illuminates**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood, ignition ON.
 2. Test for less than 1 V between the control circuit terminal and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V, replace the X50A Fuse Block - Underhood.
 - **If the test lamp does not illuminate**
 13. Ignition OFF, connect a 3 A fused jumper between the appropriate control circuit terminal listed below and B+, ignition ON.
 - Terminal 8 - left daytime running lamp
 - Terminal 25 - right daytime running lamp
 14. Verify both daytime running lamps illuminate.
 - **If the daytime running lamps do not illuminate**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than $2\ \Omega$ in the control circuit end to end.
 - If $2\ \Omega$ or greater, repair the open/high resistance in the circuit.
 - If less than $2\ \Omega$, replace the X50A Fuse Block - Underhood.
 - **If the daytime running lamps illuminate**
 15. Ignition OFF, exterior lamps OFF, connect the appropriate harness connector listed below at the K9 Body Control Module.
 - X7 - left daytime running lamp
 - X5 - right daytime running lamp
 16. Ignition OFF, exterior lamps OFF, disconnect the appropriate K166 Multifunction LED Control Module.
 17. Test for less than $10\ \Omega$ between the ground circuit terminals 7 X1 and 8 X1 and ground at the E13 Headlamp Assembly.
 - **If $10\ \Omega$ or greater**
 - Replace the E13 Headlamp Assembly.
 - **If less than $10\ \Omega$**
 18. Ignition ON, verify a test lamp illuminates between the B+ circuit terminals 1 X1 and 2 X1 and ground.
 - **If the test lamp does not illuminate**
 - Replace the E13 Headlamp Assembly.

- **If the test lamp illuminates**

19. Replace the K166 Multifunction LED Control Module.

Ambient Light/Sunload Sensor Malfunction

1. Ignition OFF, scan tool disconnected, all doors closed, all accessories OFF, open and close drivers door, disconnect the harness connector at the B10B Ambient Light/Sunload Sensor. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 15 Ω between the ground circuit terminal 6 and ground.
 - **If 15 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 15 Ω**
3. Ignition ON.
4. Verify the scan tool Ambient Light Sensor parameter is greater than 4.65 V.
 - **If 4.65 V or less**
 1. Ignition OFF, disconnect the X2 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal circuit terminal 5 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
 - **If greater than 4.65 V**
5. Install a 3 A fused jumper wire between the signal circuit terminal 5 and the ground circuit terminal 6.
6. Verify the scan tool Ambient Light Sensor parameter is less than 0.196 V.
 - **If 0.196 V or greater**
 1. Ignition OFF, disconnect the X2 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the signal circuit terminal 5 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
 3. Test for less than 2 Ω in the signal 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 less than 0.196 V**
7. Test or replace the B10B Ambient Light/Sunload Sensor.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Sun Load Temperature Sensor Replacement](#) [Sun Load Temperature Sensor Replacement](#)
- Refer to [Headlamp Automatic Control Ambient Light Sensor Replacement](#)
- Refer to [Front Compartment Fuse Block Replacement](#)
- Refer to [Headlamp Replacement \(SBM\)](#) [Headlamp Replacement \(T4L, Buick\)](#) [Headlamp Replacement \(SBV, Chevrolet\)](#)
- Refer to [Daytime Running and Parking/Position Lamp Bulb Replacement \(Right Side with 2H0 and SBM\)](#) [Daytime Running and Parking/Position Lamp Bulb Replacement \(Right Side with LUV and SBM\)](#) [Daytime Running and Parking/Position Lamp Bulb Replacement \(Left Side with SBM\)](#)
- Refer to [Headlamp LED Driver Module Replacement \(T4L\)](#)

- Refer to [Control Module References](#) for BCM replacement, programming, and setup

DOMELAMPS 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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
F2DA (BCM 2) Fuse B+	1	1	-	-
Dome Lamps Control - Terminal 1 X7	B2615 02	1	1	-
Dome Lamp Switch Cancel Signal	2	2	2	-
Dome Lamp Switch ON Signal	2	2	2	-
Dome/Reading Lamps Ground	-	1, 2	-	-
Dome Lamp - Rear Ground	-	1	-	-
1. Dome Lamps Malfunction 2. Dome Lamp Switch Malfunction				

Circuit/System Description

When any door is opened, the door ajar switch contacts close and the body control module (BCM) receives a door-open input. The BCM illuminates the dome lamp when any door is opened or a door lock/unlock request is activated with the key fob. After all doors have been closed, the dome lamp will remain illuminated approximately 3 s after the last door closes. In the event that the dome lamp were to remain illuminated for more than 10 min with the ignition switch in the OFF position and no doors opened, the BCM will deactivate the dome lamp control circuit to prevent total battery discharge.

Reference Information

Schematic Reference

- [Interior Lights Schematics \(Buick\)](#) [Interior Lights Schematics \(Chevrolet\)](#)
- [Body Control System Schematics \(Buick\)](#) [Body Control System Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#) [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

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 Verification

1. Ignition ON.
2. Verify the scan tool Door Ajar Sw. parameter changes between Active and Inactive while opening and closing each vehicle door.
 - **If the parameter does not change**
Refer to [Door Ajar Indicator Malfunction](#) .
 - **If the parameter changes**
3. Verify the Interior/Courtesy Lighting Master Switch parameter changes between Cancel, Door, and On while activating the dome lamp switch.
 - **If the parameter does not change**
Refer to Dome Lamp Switch Malfunction.
 - **If the parameter changes**
4. Verify the dome lamps turn ON and OFF while commanding the Courtesy Lamps ON and OFF with a scan tool.
 - **If the dome lamps do not turn ON and OFF**
Refer to Dome Lamps Malfunction.
 - **If the dome lamps turn ON and OFF**
5. All OK.

Circuit/System Testing

Dome Lamp Switch Malfunction

1. Ignition OFF, scan tool disconnected, all doors closed, all accessories OFF, disconnect the harness connector at the inoperative E37A Dome/Reading Lamps. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 6 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Ignition ON.
4. Verify the scan tool Interior/Courtesy Lighting Master Switch parameter is Door.
 - **If Cancel**
 1. Ignition OFF, disconnect the X7 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal circuit terminal 4 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
 - **If On**
 1. Ignition OFF, disconnect the X7 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal circuit terminal 5 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
 - **If Door**
5. Install a 3 A fused jumper wire between the signal circuit terminal 4 and ground.
6. Verify the scan tool Interior/Courtesy Lighting Master Switch parameter is Cancel.

- **If not Cancel**

1. Ignition OFF, disconnect the X7 harness connector at the K9 Body Control Module, ignition ON.
2. Test for less than 1 V between the signal circuit terminal 4 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
3. Test for less than 2 Ω in the signal 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 Cancel**

7. Install a 3 A fused jumper wire between the signal circuit terminal 5 and ground.
8. Verify the scan tool Interior/Courtesy Lighting Master Switch parameter is On.

- **If not On**

1. Ignition OFF, disconnect the X7 harness connector at the K9 Body Control Module, ignition ON.
2. Test for less than 1 V between the signal circuit terminal 5 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
3. Test for less than 2 Ω in the signal 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 On**

9. Test or replace the E37A Dome/Reading Lamps.

Dome Lamps Malfunction

1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.
2. Verify a test lamp illuminates between the B+ circuit terminal 4 and ground.

- **If the test lamp does not illuminate and the circuit fuse is good**

1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
2. 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 , verify the fuse is not open and there is voltage at the fuse.

- **If the test lamp does not illuminate and the circuit fuse is open**

1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
2. 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, replace the K9 Body Control Module.

- **If the test lamp illuminates**

3. Ignition OFF, connect the X1 harness connector at the K9 Body Control Module.
 4. Ignition OFF, all doors closed, all accessories OFF, disconnect the harness connector at the E37A Dome/Reading Lamps and E36AH Dome Lamp. It may take up to 2 min for all vehicle systems to power down.
 5. Test for less than 15 Ω between the appropriate ground circuit terminal listed below and ground.
 - E37A Dome/Reading Lamps terminal 6
 - E36AH Dome Lamp - terminal 2
- **If 15 Ω or greater**
1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.

- If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 15 Ω**
6. Connect a test lamp between the appropriate control circuit terminal listed below and ground, ignition ON.
 - E37A Dome/Reading Lamps terminal 2
 - E36AH Dome Lamp - terminal 3
 7. Verify the test lamp turns ON and OFF when commanding the Courtesy Lamps ON and OFF with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the X7 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control 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 the test lamp is always ON**
 1. Ignition OFF, disconnect the X7 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**
 8. Test or replace the inoperative dome/reading lamp.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Center Reading Lamp Replacement](#)
- Refer to [Center Reading Lamp Bulb Replacement](#)
- Refer to [Rear Seat Position Center Courtesy Lamp Replacement](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Front Fog Lamp Fuse B+	1	1	-	-
Front Fog Lamp Switch Signal	1	B2740 00	1	-
Front Fog Lamp Relay Control	B2530 02, B2530 04	B2530 02, B2530 04	B2530 01	-
Front Fog Lamp Control	1	1	1	-
Front Fog Lamp Ground - Left	-	1	-	-

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
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 momentarily by pressing the front fog lamp switch. 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 switch 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 \(Buick\)](#), [Fog Lights Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#), [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

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, headlamps ON.
2. 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**
3. 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**
4. 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**

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

5. All OK.

Circuit/System Testing

Front Fog Lamp Switch Malfunction

1. Ignition OFF, scan tool disconnected, all doors closed, all accessories OFF, disconnect the harness connector at the S30 Headlamp Switch. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal 8 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Ignition ON.
4. Verify the scan tool Front Fog Lamps Switch parameter is Inactive.
 - **If not Inactive**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal circuit terminal 10 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
 - **If Inactive**
5. Install a 3 A fused jumper wire between the signal circuit terminal 10 and ground.
6. Verify the scan tool Front Fog Lamps Switch parameter is Active.
 - **If not Active**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the signal circuit terminal 10 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
 3. Test for less than 2 Ω in the signal 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 Active**
7. Test or replace the S30 Headlamp Switch.

Front Fog Lamps Malfunction

1. Ignition OFF, disconnect the X5 harness connector at the K9 Body Control Module, ignition ON.
2. Verify a test lamp illuminates between the appropriate control circuit terminal listed below and ground.
 - Terminal 13 (Buick)
 - Terminal 10 (Chevrolet)
 - **If the test lamp does not illuminate**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood.
 2. Test for infinite resistance between the control circuit terminal and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance

3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the X50A Fuse Block - Underhood.
 - **If the test lamp illuminates**
3. Ignition OFF, connect a 3 A fused jumper between the appropriate control circuit terminal listed below and ground.
 - Terminal 13 (Buick)
 - Terminal 10 (Chevrolet)
4. Remove the front fog lamp fuse at the X50A Fuse Block - Underhood, ignition ON.
5. Verify a test lamp illuminates between the front fog lamp fuse B+ switch control terminal and ground.
 - **If the test lamp does not illuminate**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood, ignition ON.
 2. Test for less than 1 V between the appropriate control circuit terminal listed below and ground.
 - Terminal 13 (Buick)
 - Terminal 10 (Chevrolet)
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V, replace the X50A Fuse Block - Underhood.
 - **If the test lamp illuminates**
6. Ignition OFF, connect the X5 harness connector at the K9 Body Control Module.
7. Install the front fog lamp fuse at the X50A Fuse Block - Underhood.
8. Ignition OFF, exterior lamps OFF, disconnect the harness connector at the appropriate E29 Fog Lamp.
9. Test for less than 5 Ω between the ground circuit at the socket terminal and ground.
 - **If 5 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 5 Ω**
10. Connect a test lamp between the control circuit at the socket terminal and ground, ignition ON.
11. 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**
 1. Ignition OFF, disconnect the X1 harness connector at the X50A Fuse Block - Underhood.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control 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 the test lamp is always ON**
 1. Ignition OFF, disconnect the X1 harness connector at the X50A Fuse Block - Underhood, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**

12. Test or replace the appropriate E29 Fog Lamp.

Front Fog Lamp Indicator Malfunction

1. Ignition ON.
2. 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.

- If the front fog lamp indicator turns ON and OFF

3. Replace the K9 Body Control Module.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Headlamp Switch Replacement](#)
- Refer to [Front Fog Lamp Bulb Replacement \(Buick\)](#) [Front Fog Lamp Bulb Replacement \(Chevrolet\)](#)
- Refer to [Front Compartment Fuse Block Replacement](#)
- Refer to [Control Module References](#) for BCM or Instrument Cluster replacement, programming, and setup

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
F1DA (BCM 1) Fuse B+	B3883 01, B3883 04	B3883 01, B3883 04	-	-
Hazard Warning Switch Signal	B3596 00	1	1	-
Hazard Warning Switch LED Backlighting Control	2	2	2	-
Hazard Warning Switch Ground	-	1	-	-
1. Hazard Lamps Malfunction 2. Hazard Warning Switch Backlighting Malfunction				

Circuit/System Description

The hazard flashers may be activated in any power mode. The hazard warning switch signal circuit is momentarily grounded when the hazard warning switch is pressed. The body control module (BCM) responds to the hazard warning switch signal input by supplying battery voltage to all four turn signal lamps in an ON and OFF duty cycle. When the hazard warning switch is activated, the BCM sends a serial data message to the instrument cluster requesting both turn signal indicators to be cycled ON and OFF.

The instrument panel dimmer switch controls are located on the headlamp switch assembly and are used to increase and decrease the brightness of the interior backlighting components. When the instrument panel dimmer switch is placed in a desired brightness position, the body control module (BCM) receives a signal from the instrument panel dimmer switch and responds by applying a pulse width modulated

(PWM) voltage to the hazard switch LED backlighting control circuit illuminating the LED to the desired level of brightness.

Reference Information

Schematic Reference

- [Exterior Lights Schematics \(Buick\)](#), [Exterior Lights Schematics \(Chevrolet\)](#)
- [Interior Lights Schematics \(Buick\)](#), [Interior Lights Schematics \(Chevrolet\)](#)
- [Body Control System Schematics \(Buick\)](#), [Body Control System Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#), [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

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.
2. Verify the scan tool Hazard Lamps Switch parameter changes between Active and Inactive while commanding the hazard lamps ON and OFF with the hazard warning switch.
 - **If the parameter does not change**
Refer to Hazard Warning Switch Malfunction.
 - **If the parameter changes**
3. Verify all left and right turn signal lamps turn ON and OFF while commanding the hazard lamps ON and OFF with the hazard warning switch.
 - **If all turn signal lamps do not turn ON and OFF**
Refer to [Turn Signal Lamps and/or Indicators Malfunction](#)
 - **If all turn signal lamps turn ON and OFF**
4. Verify the hazard warning switch backlighting turns ON and OFF while commanding the Hazard Lamps Switch Backlight ON and OFF with a scan tool.
 - **If the hazard warning switch backlighting does not turn ON and OFF**
Refer to Hazard Warning Switch Backlighting Malfunction.
 - **If the hazard warning switch backlighting turns ON and OFF**
5. All OK.

Circuit/System Testing

Hazard Warning Switch Malfunction

1. Ignition OFF, scan tool disconncted, all doors closed, all accessories OFF, disconnect the harness connector at the S26 Hazard Warning Switch. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 10 Ω between the appropriate ground circuit terminal listed below and ground.
 - Terminal 2 (Buick)
 - Terminal 9 (Chevrolet)
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Ignition ON.
4. Verify the scan tool Hazard Lamps Switch parameter is Inactive.
 - **If not Inactive**
 1. Ignition OFF, disconnect the X2 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the appropriate signal circuit terminal listed below and ground.
 - Terminal 1 (Buick)
 - Terminal 5 (Chevrolet)
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
 - **If Inactive**
5. Install a 3 A fused jumper wire between the appropriate signal circuit terminal listed below and ground.
 - Terminal 1 (Buick)
 - Terminal 5 (Chevrolet)
6. Verify the scan tool Hazard Lamps Switch parameter is Active.
 - **If not Active**
 1. Ignition OFF, disconnect the X2 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the appropriate signal circuit terminal listed below and ground.
 - Terminal 1 (Buick)
 - Terminal 5 (Chevrolet)
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
 3. Test for less than 2 Ω in the signal 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 Active**
7. Test or replace the S26 Hazard Warning Switch.

Hazard Warning Switch Backlighting Malfunction

1. Ignition OFF, disconnect the X2 harness connector at the K9 Body Control Module, ignition ON.
2. Verify a test lamp illuminates between the B+ circuit terminal 1 and ground.
 - **If the test lamp does not illuminate and the circuit fuse is good**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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 , verify the fuse is not open and there is voltage at the fuse.
- **If the test lamp does not illuminate and the circuit fuse is open**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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, replace the K9 Body Control Module.
 - **If the test lamp illuminates**
- 3. Ignition OFF, connect the X2 harness connector at the K9 Body Control Module.
- 4. Ignition OFF, scan tool disconnected, all doors closed, all accessories OFF, disconnect the harness connector at the S26 Hazard Warning Switch. It may take up to 2 min for all vehicle systems to power down.
- 5. Test for less than 10 Ω between the appropriate ground circuit terminal listed below and ground.
 - Terminal 2 (Buick)
 - Terminal 9 (Chevrolet)
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
- 6. Ignition ON, test for B+ between the appropriate control circuit terminal listed below and ground while commanding the Hazard Lamps Switch Backlight ON and OFF with a scan tool.
 - Terminal 6 (Buick)
 - Terminal 10 (Chevrolet)
 - **If the voltage is always less than B+**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control 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 the voltage is always B+**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module.
 2. Test for less than 1 V between the control circuit terminal 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 the voltage changes**
- 7. Test or replace the S26 Hazard Warning Switch.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Hazard Warning Switch Replacement](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

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.

- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
F3DA (BCM 3) Fuse B+	B3881 01, B3881 04, B3949 01, B3949 04	B3881 01, B3881 04, B3949 01, B3949 04	-	-
F4DA (BCM 4) Fuse B+	B3882 01, B3882 04, B3950 01, B3950 04	B3882 01, B3882 04, B3950 01, B3950 04	-	-
Headlamp High Beam Relay Control	B2580 02, B2580 04	B2580 02, B2580 04	B2580 01	-
Low Beam Headlamp Control - Left	B2575 02	B2575 04	B2575 01, B2575 04	-
Low Beam Headlamp Control - Right	B2699 02	B2699 04	B2699 01, B2699 04	-
High Beam Headlamp Control - Left	2	2	2	-
High Beam Headlamp Control - Right	2	2	2	-
Headlamp Switch Headlamps OFF Signal	B257A 00	3	3	-
Headlamp Switch Headlamps ON Signal	B257A 00	3	3	-
Turn Signal/Multifunction Switch Flash To Pass Signal	B3806 00	4	4	-
Turn Signal/Multifunction Switch High Beam Signal	B3650 08	4	4	-
Headlamp Ground - Left	-	1	-	-
Headlamp Ground - Right	-	1	-	-
Headlamp Switch Ground	-	3	-	-
Turn Signal/Multifunction Switch Ground	-	4	-	-
1. Headlamps Malfunction - Low Beam 2. Headlamps Malfunction - High Beam 3. Headlamp Switch Malfunction 4. Turn Signal/Multifunction Switch Malfunction				

Circuit/System Description

The body control module (BCM) monitors three signal circuits from the headlamp switch. When the headlamp switch is in the AUTO position, all three signal circuits are open. When placed in the AUTO position, the BCM monitors inputs from the ambient light sensor to determine if headlamps are required or if daytime running lamps will be activated based on outside lighting conditions. When the headlamp switch is placed in the OFF position, the headlamp switch headlamps OFF signal circuit is grounded, indicating to the BCM that the exterior lamps should be turned OFF. With the headlamp switch in the PARK position, the headlamp switch park lamps ON signal circuit is grounded, indicating that the park lamps have been requested. When the headlamp switch is placed in the HEADLAMP position, both the headlamp switch park lamps ON signal circuit and the headlamp switch headlamps ON signal circuit are grounded. The BCM responds to the inputs by illuminating the park lamps and headlamps. When the low beam headlamps are requested, the BCM applies B+ to both low beam headlamp control circuits illuminating the low beam headlamps.

The high beam and flash to pass functions are contained within the turn signal/multifunction switch. The BCM provides the turn signal/multifunction switch with two signal circuits, the high beam signal circuit and the flash to pass signal circuit. When the low beam headlamps are ON and the turn

signal/multifunction switch is placed in the high beam position, ground is applied to the BCM through the high beam signal circuit. The BCM responds to the high beam request by applying ground to the high beam relay control circuit which energizes the high beam relay. With the high beam relay energized, the switch contacts close allowing battery voltage to flow through the high beam fuses to the high beam control circuits illuminating the high beam headlamps.

When the turn signal/multifunction switch is momentarily placed in the flash to pass position, ground is applied to the BCM through the flash to pass signal circuit. The BCM responds by applying ground to the high beam relay control circuit which energizes the high beam relay illuminating the high beams for a brief moment or until the flash to pass switch is released.

Reference Information

Schematic Reference

- [Headlights/Daytime Running Lights \(DRL\) Schematics \(Buick\)](#) [Headlights/Daytime Running Lights \(DRL\) Schematics \(Chevrolet\)](#)
- [Body Control System Schematics \(Buick\)](#) [Body Control System Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#) [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

Description and Operation

[Exterior Lighting Systems Description and Operation](#)

Electrical Information Reference

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- [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.
2. Verify the scan tool Headlamps On Switch parameter changes between Active and Inactive while commanding the headlamp ON and OFF with the headlamp switch.
 - **If the parameter does not change**

Refer to Headlamp Switch Malfunction.
 - **If the parameter changes**
3. Verify the scan tool Automatic Headlamps Disable Switch parameter changes between Active and Inactive while commanding the automatic lamp control ON and OFF with the headlamp switch.
 - **If the parameter does not change**

Refer to Headlamp Switch Malfunction.
 - **If the parameter changes**
4. Verify the scan tool Headlamps Flash Switch parameter changes between Active and Inactive while commanding the flash to pass ON and OFF with the turn signal/multifunction switch.
 - **If the parameter does not change**

Refer to Turn Signal/Multifunction Switch Malfunction.

- **If the parameter changes**

5. Verify the scan tool High Beam Select Switch parameter changes between Active and Inactive while commanding the high beams ON and OFF with the turn signal/multifunction switch.

- **If the parameter does not change**

Refer to Turn Signal/Multifunction Switch Malfunction.

- **If the parameter changes**

6. Verify the left low beam/daytime running lamps turn ON and OFF when commanding the Low Beam Lamps ON and OFF with a scan tool.

- **If the left low beam/daytime running lamps do not turn ON and OFF**

Refer to Headlamps Malfunction - Low Beam.

- **If the left low beam/daytime running lamps turn ON and OFF**

7. Verify the right low beam/daytime running lamps turn ON and OFF when commanding the Right Low Beam/Daytime Running Lamp ON and OFF with a scan tool.

- **If the right low beam/daytime running lamp do not turn ON and OFF**

Refer to Headlamps Malfunction - Low Beam.

- **If the right low beam/daytime running lamps turn ON and OFF**

8. Verify the high beams turn ON and OFF when commanding the High Beams ON and OFF with a scan tool.

- **If the high beams do not turn ON and OFF**

Refer to Headlamps Malfunction - High Beam.

- **If the high beams turn ON and OFF**

9. Verify the high beam indicator on the instrument cluster turns ON and OFF while commanding the All Indicators Test ON and OFF with a scan tool.

- **If the high beam indicator does not turn ON and OFF**

Refer to High Beam Indicator Malfunction.

- **If the high beam indicator turns ON and OFF**

10. All OK.

Circuit/System Testing

Headlamp Switch Malfunction

1. Ignition OFF, scan tool disconnected, all doors closed, all accessories OFF, disconnect the harness connector at the S30 Headlamp Switch. It may take up to 2 min for all vehicle systems to power down.

2. Test for less than 15 Ω between the ground circuit terminal 8 and ground.

- **If 15 Ω or greater**

1. Ignition OFF.

2. Test for less than 2 Ω in the ground circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.

- If less than 2 Ω , repair the open/high resistance in the ground connection.

- **If less than 15 Ω**

3. Ignition ON.

4. Verify the scan tool Automatic Headlamps Disable Switch parameter is Inactive.

- **If not Inactive**

1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module.

2. Test for infinite resistance between the signal circuit terminal 3 and ground.

- If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
 - **If Inactive**
5. Install a 3 A fused jumper wire between the signal circuit terminal 3 and the ground circuit terminal 8.
 6. Verify the scan tool Automatic Headlamps Disable Switch parameter is Active.
 - **If not Active**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the signal circuit terminal 3 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
 3. Test for less than 2 Ω in the signal 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 Active**
 7. Verify the scan tool Park Lamps Switch parameter is Inactive.
 - **If not Inactive**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal circuit terminal 5 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
 - **If Inactive**
 8. Install a 3 A fused jumper wire between the signal circuit terminal 5 and the ground circuit terminal 8.
 9. Verify the scan tool Park Lamps Switch parameter is Active.
 - **If not Active**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the signal circuit terminal 5 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
 3. Test for less than 2 Ω in the signal 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 Active**
 10. Verify the scan tool Headlamps On Switch parameter is Inactive.
 - **If not Inactive**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal circuit terminal 1 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
 - **If Inactive**
 11. Install a 3 A fused jumper wire between the signal circuit terminal 1 and the ground circuit terminal 8.
 12. Verify the scan tool Headlamps On Switch parameter is Active.
 - **If not Active**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the signal circuit terminal 1 and ground.

- If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
3. Test for less than 2 Ω in the signal 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 Active**
13. Test or replace the S30 Headlamp Switch.

Turn Signal/Multifunction Switch Malfunction

1. Ignition OFF, scan tool disconnected, all doors closed, all accessories OFF, disconnect the harness connector at the S78 Turn Signal/Multifunction Switch. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than 15 Ω between the ground circuit terminal 3 and ground.
 - **If 15 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 15 Ω**
3. Ignition ON.
4. Verify the scan tool High Beam Select Switch parameter is Inactive.
 - **If not Inactive**
 1. Ignition OFF, disconnect the X3 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal circuit terminal 2 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
 - **If Inactive**
5. Install a 3 A fused jumper wire between the signal circuit terminal 2 and the ground circuit terminal 3.
6. Verify the scan tool High Beam Select Switch parameter is Active.
 - **If not Active**
 1. Ignition OFF, disconnect the X3 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the signal circuit terminal 2 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
 3. Test for less than 2 Ω in the signal 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 Active**
7. Verify the scan tool Headlamps Flash Switch parameter is Inactive.
 - **If not Inactive**
 1. Ignition OFF, disconnect the X3 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal circuit terminal 4 and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
 - **If Inactive**
8. Install a 3 A fused jumper wire between the signal circuit terminal 4 and the ground circuit terminal 3.
9. Verify the scan tool Headlamps Flash Switch parameter is Active.

- **If not Active**

1. Ignition OFF, disconnect the X3 harness connector at the K9 Body Control Module, ignition ON.
2. Test for less than 1 V between the signal circuit terminal 4 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
3. Test for less than 2 Ω in the signal 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 Active**

10. Test or replace the S78 Turn Signal/Multifunction Switch.

Headlamps Malfunction - Low Beam (SBM/SBV/SGM)

1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.
2. Verify a test lamp illuminates between the B+ circuit terminal 3 and ground.
 - **If the test lamp does not illuminate and the circuit fuse is good**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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 , verify the fuse is not open and there is voltage at the fuse.
 - **If the test lamp does not illuminate and the circuit fuse is open**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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, replace the K9 Body Control Module.
 - **If the test lamp illuminates**
3. Verify a test lamp illuminates between the B+ circuit terminal 2 and ground.
 - **If the test lamp does not illuminate and the circuit fuse is good**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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 , verify the fuse is not open and there is voltage at the fuse.
 - **If the test lamp does not illuminate and the circuit fuse is open**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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, replace the K9 Body Control Module.
 - **If the test lamp illuminates**
4. Ignition OFF, connect the X1 harness connector at the K9 Body Control Module.
5. Ignition OFF, exterior lamps OFF, remove the appropriate E4 Headlamp - Low Beam bulb.
6. Test for less than 10 Ω between the ground circuit at the socket terminal and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
7. Connect a test lamp between the control circuit at the socket terminal and ground, ignition ON.

8. Verify the test lamp turns ON and OFF when commanding the appropriate Low Beam/Daytime Running Lamp ON and OFF with a scan tool.

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

1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module.
2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
3. Test for less than 2 Ω in the control 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 the test lamp is always ON**

1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module, ignition ON.
2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**

9. Test or replace the appropriate E4 Headlamp - Low Beam.

Headlamps Malfunction - Low Beam (T4L)

1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.
2. Verify a test lamp illuminates between the B+ circuit terminal 3 and ground.

- **If the test lamp does not illuminate and the circuit fuse is good**

1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
2. 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 , verify the fuse is not open and there is voltage at the fuse.

- **If the test lamp does not illuminate and the circuit fuse is open**

1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
2. 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, replace the K9 Body Control Module.

- **If the test lamp illuminates**

3. Verify a test lamp illuminates between the B+ circuit terminal 2 and ground.

- **If the test lamp does not illuminate and the circuit fuse is good**

1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
2. 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 , verify the fuse is not open and there is voltage at the fuse.

- **If the test lamp does not illuminate and the circuit fuse is open**

1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
2. 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, replace the K9 Body Control Module.

- **If the test lamp illuminates**

4. Ignition OFF, connect the X1 harness connector at the K9 Body Control Module.
5. Ignition OFF, exterior lamps OFF, disconnect the harness connector at the appropriate E13 Headlamp Assembly.
6. Test for less than 10 Ω between the ground circuit terminal 8 and ground.

- **If 10 Ω or greater**

1. Ignition OFF.
2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.

- **If less than 10 Ω**

7. Connect a test lamp between the control circuit terminal 1 and ground, ignition ON.
8. Verify the test lamp turns ON and OFF when commanding the appropriate Low Beam/Daytime Running Lamp ON and OFF with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control 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 the test lamp is always ON**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**
9. Test or replace the appropriate E13 Headlamp Assembly.

Headlamps Malfunction - High Beam (SBM/SBV/SGM)

1. Ignition OFF, disconnect the X5 harness connector at the K9 Body Control Module, ignition ON.
2. Verify a test lamp illuminates between the control circuit terminal 18 and ground.
 - **If the test lamp does not illuminate**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood.
 2. Test for infinite resistance between the control circuit terminal and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the X50A Fuse Block - Underhood.
 - **If the test lamp illuminates**
3. Ignition OFF, connect a 3 A fused jumper between the control circuit terminal 18 and ground.
4. Remove the F31UA fuse at the X50A Fuse Block - Underhood.
5. Verify a test lamp illuminates between the F31UA fuse B+ switch control terminal and ground.
 - **If the test lamp does not illuminate**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 18 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V, replace the X50A Fuse Block - Underhood.
 - **If the test lamp illuminates**
6. Ignition OFF, connect the X5 harness connector at the K9 Body Control Module.

7. Install the F31UA fuse at the X50A Fuse Block - Underhood.
8. Remove the appropriate E4 Headlamp - High Beam bulb.
9. Test for less than 10 Ω between the ground circuit at the socket terminal and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
10. Connect a test lamp between the control circuit at the socket terminal and ground, ignition ON.
11. Verify the test lamp turns ON and OFF when commanding the High Beams ON and OFF with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the X1 harness connector at the X50A Fuse Block - Underhood.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control 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 the test lamp is always ON**
 1. Ignition OFF, disconnect the X1 harness connector at the X50A Fuse Block - Underhood, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**
12. Test or replace the appropriate E4 Headlamp - High Beam.

Headlamps Malfunction - High Beam (T4L)

1. Ignition OFF, disconnect the X5 harness connector at the K9 Body Control Module, ignition ON.
2. Verify a test lamp illuminates between the control circuit terminal 16 and ground.
 - **If the test lamp does not illuminate**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood.
 2. Test for infinite resistance between the control circuit terminal and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the X50A Fuse Block - Underhood.
 - **If the test lamp illuminates**
3. Ignition OFF, connect a 3 A fused jumper between the control circuit terminal 18 and ground.
4. Remove the F31UA fuse at the X50A Fuse Block - Underhood.
5. Verify a test lamp illuminates between the F31UA fuse B+ switch control terminal and ground.
 - **If the test lamp does not illuminate**
 1. Ignition OFF, disconnect the X2 harness connector at the X50A Fuse Block - Underhood, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 16 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.

- If less than 1 V, replace the X50A Fuse Block - Underhood.
 - **If the test lamp illuminates**
6. Ignition OFF, connect the X5 harness connector at the K9 Body Control Module.
 7. Install the F31UA fuse at the X50A Fuse Block - Underhood.
 8. Disconnect the harness connector at the appropriate E13 Headlamp Assembly.
 9. Test for less than 10 Ω between the ground circuit terminal 8 and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
 10. Connect a test lamp between the control circuit terminal 2 and ground, ignition ON.
 11. Verify the test lamp turns ON and OFF when commanding the High Beams ON and OFF with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the X1 harness connector at the X50A Fuse Block - Underhood.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control 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 the test lamp is always ON**
 1. Ignition OFF, disconnect the X1 harness connector at the X50A Fuse Block - Underhood, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**
 12. Test or replace the appropriate E13 Headlamp Assembly.

High Beam Indicator Malfunction

1. Ignition ON.
2. Verify the high beam indicator turns ON and OFF when commanding the Instrument Cluster All Indicators Test ON and OFF with a scan tool.
 - **If the high beam indicator is always OFF or remains ON**
Replace the P16 Instrument Cluster.
 - **If the high beam indicator turns ON and OFF**
3. Replace the K9 Body Control Module.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Headlamp Switch Replacement](#)
- Refer to [Relay Replacement \(Attached to Wire Harness\)](#) [Relay Replacement \(Within an Electrical Center\)](#)
- Refer to [Turn Signal Switch Replacement \(Buick, With BTM\)](#) [Turn Signal Switch Replacement \(Chevrolet, Without BTM\)](#) [Turn Signal Switch Replacement \(Chevrolet, With BTM\)](#)

- Refer to [Headlamp Bulb Replacement - Left Side \(Chevrolet with SBV\)](#), [Headlamp Bulb Replacement - Left Side \(SBM with High Beam\)](#), [Headlamp Bulb Replacement - Left Side \(SBM with Low Beam\)](#).
- Refer to [Headlamp Bulb Replacement - Right Side \(Chevrolet with 2H0 and SBV\)](#), [Headlamp Bulb Replacement - Right Side \(Chevrolet with LUV and SBV\)](#), [Headlamp Bulb Replacement - Right Side \(LUV with SBM Low Beam\)](#), [Headlamp Bulb Replacement - Right Side \(2H0 with SBM Low Beam\)](#), [Headlamp Bulb Replacement - Right Side \(LUV with SBM High Beam\)](#), [Headlamp Bulb Replacement - Right Side \(2H0 with SBM High Beam\)](#).
- Refer to [Front Compartment Fuse Block Replacement](#)
- Refer to [Control Module References](#) for BCM or Instrument Cluster replacement, programming, and setup

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
F6DA (BCM 6) Fuse B+	B127B 08	B127B 08	-	-
Instrument Panel Dimmer Switch B+ Reference	B1395 03, B3600 03	B3600 03	B1395 07, B3600 07	-
Instrument Panel Dimmer Switch Signal	B1395 03, B3600 03	B3600 03	B1395 07, B3600 07	-
LED Backlight Dimming Control Terminal 8 X2	B2610 02	1	1	-
LED Backlight Dimming Control Terminal 9 X7	B2610 02	1	1	-
LED Amber Indicator Dimming Control Terminal 5 X1	B2625 02	3	3	-
Instrument Panel Dimmer Switch Low Reference	2	2	2	-
Door Lock Switch - Driver Ground	-	1	-	-
Door Lock Switch - Passenger Ground	-	1	-	-
Headlamp Switch Ground	-	1	-	-
Ignition Mode Switch Ground	-	1	-	-
Multifunction Switch 1 - Instrument Panel Ground	-	1	-	-
Multifunction Switch 2 - Instrument Panel Ground	-	1	-	-
Outside Rearview Mirror Switch Ground	-	1	-	-
Steering Wheel Control Switch - Right Ground	-	1	-	-
Steering Wheel Control Switch - Left Ground	-	1	-	-
Sunroof Switch Ground	-	1	-	-
Sunroof Tilt Switch Ground	-	1	-	-
Traction Control Switch Ground	-	1	-	-

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Transmission Shift Lever Position Indicator Ground	-	1	-	-
Vehicle Stability Control Switch Ground	-	1	-	-
Window Switch - Driver Ground	-	1	-	-
Window Switch - Passenger Ground	-	1	-	-
Window Switch - Left Rear Ground	-	1	-	-
Window Switch - Right Rear Ground	-	1	-	-
1. Interior Backlighting Malfunction 2. Dimmer Switch Malfunction 3. Multifunction Switch Amber Indicator Malfunction				

Circuit/System Description

The instrument panel dimmer switch is used to increase and decrease the brightness of the interior backlighting components. The instrument panel dimmer switch provides a voltage signal to the body control module (BCM) that will increase as the brightness of the lights are increased and decrease as the brightness of the lights are decreased. The BCM provides a low reference signal and a B+ voltage reference to the instrument panel dimmer switch. When the instrument panel dimmer switch is placed in the desired position, the dimmed voltage setting is applied from the instrument panel dimmer switch through the instrument panel dimmer switch signal circuit to the BCM. The BCM interprets the signal and applies a pulse width modulated (PWM) voltage through the LED dimming control circuits illuminating the interior backlighting to the requested level of brightness.

Reference Information

Schematic Reference

- [Interior Lights Dimming Schematics \(Buick\)](#) [Interior Lights Dimming Schematics \(Chevrolet\)](#)
- [Body Control System Schematics \(Buick\)](#) [Body Control System Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#) [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

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 Verification

1. Ignition ON.

2. Verify the scan tool LED Backlight Dimming Command parameter changes between a high percentage to a low percentage while operating the dimmer switch from high to low.

- **If the parameter does not change**

Refer to Dimmer Switch Malfunction.

- **If the parameter changes**

3. Verify the amber LED indicators on the components listed below turn ON and OFF while commanding the associated switches ON and OFF. (Buick only)

- S48A Multifunction Switch - Instrument Panel Park Assist Switch
- S48D Multifunction Switch 2 - Instrument Panel Lane Departure Warning Switch
- **If the amber LED indicators do turn ON and OFF**

Refer to Switch Indicator LED Backlighting Malfunction.

- **If the amber LED indicators turn ON and OFF**

4. Verify all backlighting components turn ON and OFF while commanding the LED Backlight Dimming ON and OFF with a scan tool.

- **If all backlighting components do not turn ON and OFF**

Refer to Interior Backlighting Malfunction.

- **If all backlighting components turn ON and OFF**

5. All OK.

Circuit/System Testing

Dimmer Switch Malfunction

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the S30 Headlamp Switch, ignition ON.
2. Test for B+ between the B+ circuit terminal 12 and ground.
 - **If less than B+**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module.
 2. 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
 3. 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+**
3. Verify a test lamp does not illuminate between the B+ circuit terminal 12 and ground.
 - **If the test lamp illuminates**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the B+ 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 the test lamp does not illuminate**
4. Verify a test lamp illuminates between the B+ circuit terminal 12 and the low reference circuit terminal 7.
 - **If the test lamp does not illuminate**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the low reference circuit terminal 7 and ground.

- If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
3. Test for less than 2 Ω in the low reference 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 the test lamp illuminates**
5. Verify a test lamp does not illuminate between the B+ circuit terminal 12 and the signal circuit terminal 11.
 - **If the test lamp illuminates**
 1. Ignition OFF, disconnect the X2 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the signal circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K9 Body Control Module.
 - **If the test lamp does not illuminate**
 6. Test for B+ between the B+ circuit terminal 12 and the signal circuit terminal 11.
 - **If less than B+**
 1. Ignition OFF, disconnect the X2 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the signal circuit terminal 11 and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V
 3. Test for less than 2 Ω in the signal 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+**
 7. Test or replace the S30 Headlamp Switch.

Switch Indicator LED Backlighting Malfunction (Buick)

NOTE: Each component with backlighting may need to be disconnected to isolate a short to voltage or short to ground. Use the schematics to identify the following:

- Backlighting components the vehicle is equipped with
 - Each component's control and ground circuit terminals
 - Component locations on the backlighting control circuit
1. Ignition OFF, scan tool disconnected, all doors closed, all accessories OFF, disconnect the harness connector at the inoperative component listed below. It may take up to 2 min for all vehicle systems to power down.
 - S48A Multifunction Switch - Instrument Panel
 - S48D Multifunction Switch 2 - Instrument Panel
 2. Place the instrument panel dimmer switch in the HIGH position for high backlighting intensity.
 3. Verify a test lamp illuminates between the appropriate control circuit terminal listed below and ground.
 - S48A Multifunction Switch - Instrument Panel terminal 6
 - S48D Multifunction Switch 2 - Instrument Panel terminal 1
 - **If the test lamp does not illuminate**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance

3. Test for less than 2 Ω in the control 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 the test lamp illuminates**
4. Place the instrument panel dimmer switch in the LOW position for low backlighting intensity.
5. Verify a test lamp does not illuminate at FULL intensity between the appropriate control circuit terminal listed below and ground.
 - S48A Multifunction Switch - Instrument Panel terminal 6
 - S48D Multifunction Switch 2 - Instrument Panel terminal 1
 - **If the test lamp illuminates at full intensity**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 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 the test lamp does not illuminate at full intensity**
6. Test or replace the inoperative switch.

Interior Backlighting Malfunction

NOTE: Each component with backlighting may need to be disconnected to isolate a short to voltage or short to ground. Use the schematics to identify the following:

- Backlighting components the vehicle is equipped with
 - Each component's control and ground circuit terminals
 - Component locations on the backlighting control circuit
1. Ignition OFF, disconnect the X5 harness connector at the K9 Body Control Module, ignition ON.
 2. Verify a test lamp illuminates between the B+ circuit terminal 4 and ground.
 - **If the test lamp does not illuminate and the circuit fuse is good**
 1. Ignition OFF.
 2. 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 , verify the fuse is not open and there is voltage at the fuse.
 - **If the test lamp does not illuminate and the circuit fuse is open**
 1. Ignition OFF.
 2. 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, replace the K9 Body Control Module.
 - **If the test lamp illuminates**
 3. Ignition OFF, connect the X5 harness connector at the K9 Body Control Module.
 4. Ignition OFF, all doors closed, all accessories OFF, disconnect the harness connector at the component with inoperative backlighting. It may take up to 2 min for all vehicle systems to power down.
 5. Test for less than 15 Ω between the appropriate ground circuit terminal and ground.
 - **If 15 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.

- If less than 15 Ω

6. Connect a test lamp between the appropriate control circuit terminal and ground, ignition ON.
7. Verify the test lamp turns ON and OFF when commanding the LED Backlight Dimming ON and OFF with a scan tool.

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

1. Ignition OFF, disconnect the appropriate harness connector at the K9 Body Control Module.
2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
3. Test for less than 2 Ω in the control 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 the test lamp is always ON**

1. Ignition OFF, disconnect the appropriate harness connector at the K9 Body Control Module, ignition ON.
2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**

8. Test or replace the component with inoperative backlighting.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Headlamp Switch Replacement](#)
- Refer to [Sunroof Switch Replacement](#)
- Refer to [Sunroof Tilt Position Switch Replacement](#)
- Refer to [Transmission Control Replacement](#)
- Refer to [Radio and Telephone Control Switch Replacement \(Chevrolet\)](#)
- Refer to [Cruise Control Switch Replacement \(Buick\)](#), [Cruise Control Switch Replacement \(Chevrolet\)](#)
- Refer to [Vehicle Stability Control System Switch Replacement \(Buick\)](#), [Vehicle Stability Control System Switch Replacement \(Chevrolet\)](#)
- Refer to [Door Lock Switch Replacement - Driver Side \(Buick\)](#), [Door Lock Switch Replacement - Driver Side \(Chevrolet\)](#)
- Refer to [Door Lock Switch Replacement - Passenger Front \(Buick\)](#), [Door Lock Switch Replacement - Passenger Front \(Chevrolet\)](#)
- Refer to [Front Side Door Window Switch Replacement \(Driver Side, Buick\)](#), [Front Side Door Window Switch Replacement \(Passenger Side, Buick\)](#), [Front Side Door Window Switch Replacement \(Driver Side, Chevrolet\)](#), [Front Side Door Window Switch Replacement \(Passenger Side, Chevrolet\)](#)
- Refer to [Rear Side Door Window Switch Replacement](#)
- Refer to [Outside Rearview Mirror Remote Control Switch Replacement \(Buick\)](#), [Outside Rearview Mirror Remote Control Switch Replacement \(Chevrolet\)](#)
- Refer to [Ignition and Start Switch Replacement \(Buick, With BTM\)](#), [Ignition and Start Switch Replacement \(Chevrolet, Without BTM\)](#), [Ignition and Start Switch Replacement \(Chevrolet, With BTM\)](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
F1DA (BCM 1) Fuse B+	B3883 01, B3883 04	B3883 01, B3883 04	-	-
F3DA (BCM 3) Fuse B+	B3881 01, B3881 04, B3949 01, B3949 04	B3881 01, B3881 04, B3949 01, B3949 04	-	-
F4DA (BCM 4) Fuse B+	B3882 01, B3882 04, B3950 01, B3950 04	B3882 01, B3882 04, B3950 01, B3950 04	-	-
Headlamp Switch Park Lamps ON Signal	2	B257A 00	2	-
License Plate Lamp Control	B3883 02	B3883 01, B3883 04	B3883 01	-
Left Park Lamps Control	B2585 02	1	1	-
Right Park Lamps Control	B3867 02	1	1	-
Headlamp Switch Ground	-	2	-	-
License Plate Lamp Ground - Left	-	3	-	-
License Plate Lamp Ground - Right	-	3	-	-
Park Lamp Ground - Left Front	-	1	-	-
Park Lamp Ground - Right Front	-	1	-	-
Side Marker Lamp Ground - Left Front	-	1	-	-
Side Marker Lamp Ground - Right Front	-	1	-	-
Side Marker Lamp Ground - Left Rear	-	1	-	-
Side Marker Lamp Ground - Right Rear	-	1	-	-
Tail Lamp Ground - Left	-	1	-	-
Tail Lamp Ground - Right	-	1	-	-
1. Park, License, and/or Tail Lamps Malfunction 2. Park Lamp Switch Malfunction 3. License Plate Lamps Malfunction				

Circuit/System Description

When the headlamp switch is placed in the HEAD or PARK position, ground is applied to the park lamp switch ON signal circuit to the body control module (BCM). The BCM responds by applying voltage to the park lamps, tail lamps, and license lamps control circuits illuminating the park, tail, and license lamps.

Diagnostic Aids

When testing at the park lamp bulb socket, make sure all measurements and test lamp connections are in the correct terminal location and do not come in contact with each other during testing.

Reference Information

Schematic Reference

- [Exterior Lights Schematics \(Buick\)](#) [Exterior Lights Schematics \(Chevrolet\)](#)
- [Body Control System Schematics \(Buick\)](#) [Body Control System Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#) [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

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.
2. Verify the scan tool Park Lamp Switch parameter changes between Active and Inactive while commanding the park lamps ON and OFF with the headlamp switch.
 - **If the parameter does not change**
Refer to Park Lamp Switch Malfunction.
 - **If the parameter changes**
3. Verify the left park lamps turn ON and OFF when commanding the Left Front Park Lamp ON and OFF with a scan tool.
 - **If the left park lamps do not turn ON and OFF**
Refer to Park Lamps Malfunction.
 - **If the left park lamps turn ON and OFF**
4. Verify the right park lamps turn ON and OFF when commanding the Right Front Park Lamp ON and OFF with a scan tool.
 - **If the right park lamps do not turn ON and OFF**
Refer to Park Lamps Malfunction.
 - **If the right park lamps turn ON and OFF**
5. Verify the license plate lamps turn ON and OFF when commanding the License Plate Lamps ON and OFF with a scan tool.
 - **If the license plate lamps do not turn ON and OFF**
Refer to License Plate Lamps Malfunction.
 - **If the license plate lamps turn ON and OFF**
6. All OK.

[Circuit/System Testing](#)

Park Lamp Switch Malfunction

1. Ignition OFF, all doors closed, all accessories OFF, disconnect the harness connector at the S30 Headlamp Switch. It may take up to 2 min for all vehicle systems to power down.

2. Test for less than 15 Ω between the ground circuit terminal 8 and ground.

- **If 15 Ω or greater**

1. Ignition OFF.

2. Test for less than 2 Ω in the ground circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , repair the open/high resistance in the ground connection.

- **If less than 15 Ω**

3. Ignition ON.

4. Verify the scan tool Park Lamps Switch parameter is Inactive.

- **If not Inactive**

1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module.

2. Test for infinite resistance between the signal circuit terminal 5 and ground.

- If less than infinite resistance, repair the short to ground on the circuit.
- If infinite resistance, replace the K9 Body Control Module.

- **If Inactive**

5. Install a 3 A fused jumper wire between the signal circuit terminal 5 and the ground circuit terminal 8.

6. Verify the scan tool Park Lamps Switch parameter is Active.

- **If not Active**

1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.

2. Test for less than 1 V between the signal circuit terminal 5 and ground.

- If 1 V or greater, repair the short to voltage on the circuit.
- If less than 1 V

3. Test for less than 2 Ω in the signal 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 Active**

7. Test or replace the S30 Headlamp Switch.

Park Lamps Malfunction

1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.

2. Verify a test lamp illuminates between the B+ circuit terminal 3 and ground.

- **If the test lamp does not illuminate and the circuit fuse is good**

1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.

2. 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 , verify the fuse is not open and there is voltage at the fuse.

- **If the test lamp does not illuminate and the circuit fuse is open**

1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.

2. 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, replace the K9 Body Control Module.

- **If the test lamp illuminates**

3. Verify a test lamp illuminates between the B+ circuit terminal 2 and ground.

- **If the test lamp does not illuminate and the circuit fuse is good**

1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.

2. 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 , verify the fuse is not open and there is voltage at the fuse.

• **If the test lamp does not illuminate and the circuit fuse is open**

1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
2. 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, replace the K9 Body Control Module.

• **If the test lamp illuminates**

4. Ignition OFF, connect the X1 harness connector at the K9 Body Control Module.
5. Ignition OFF, exterior lamps OFF, rear hatch latch latched, disconnect the harness connector at the appropriate park lamp.
6. Test for less than 10 Ω between the appropriate ground circuit terminal listed below and ground.
 - E4J Park Lamp - Left Front socket terminal (Chevrolet with SBM)
 - E4K Park Lamp - Right Front socket terminal (Chevrolet with SBM)
 - E13LA Headlamp Assembly - Left terminal 4 (Chevrolet with SBV)
 - E13RA Headlamp Assembly - Right terminal 4 (Chevrolet with SBV)
 - E13LA Headlamp Assembly - Left terminal 10 (Chevrolet)
 - E13RA Headlamp Assembly - Right terminal 10 (Chevrolet)
 - E13LA Headlamp Assembly - Left terminal 11 (Buick with SGM)
 - E13RA Headlamp Assembly - Right terminal 11 (Buick with SGM)
 - E13LA Headlamp Assembly - Left terminal 8 (Buick with T4L)
 - E13RA Headlamp Assembly - Right terminal 8 (Buick with T4L)
 - E42L Tail Lamp Assembly - Left terminal 5 (Chevrolet with UGE)
 - E42R Tail Lamp Assembly - Right terminal 5 (Chevrolet with UGE)
 - E42L Tail Lamp Assembly - Left terminal 7 (Chevrolet with SBM)
 - E42R Tail Lamp Assembly - Right terminal 7 (Chevrolet with SBM)
 - E42L Tail Lamp Assembly - Left terminal 3 (Buick with T4L)
 - E42R Tail Lamp Assembly - Right terminal 3 (Buick with T4L)
 - E42L Tail Lamp Assembly - Left terminal 3 (Buick with SGM)
 - E42R Tail Lamp Assembly - Right terminal 3 (Buick with SGM)
- **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
- **If less than 10 Ω**
7. Connect a test lamp between the appropriate control circuit terminal listed below and ground, ignition ON.

- E4J Park Lamp - Left Front socket terminal (Chevrolet with SBM)
- E4K Park Lamp - Right Front socket terminal (Chevrolet with SBM)
- E13LA Headlamp Assembly - Left terminal 7 (Chevrolet with SBV)
- E13RA Headlamp Assembly - Right terminal 7 (Chevrolet with SBV)
- E13LA Headlamp Assembly - Left terminal 9 (Chevrolet)
- E13RA Headlamp Assembly - Right terminal 9 (Chevrolet)
- E13LA Headlamp Assembly - Left terminal 10 (Buick with SGM)
- E13RA Headlamp Assembly - Right terminal 10 (Buick with SGM)
- E13LA Headlamp Assembly - Left terminal 6 (Buick with T4L)
- E13RA Headlamp Assembly - Right terminal 6 (Buick with T4L)

- E42L Tail Lamp Assembly - Left terminal 4 (Chevrolet with UGE)
 - E42R Tail Lamp Assembly - Right terminal 4 (Chevrolet with UGE)
 - E42L Tail Lamp Assembly - Left terminal 3 (Chevrolet with SBM)
 - E42R Tail Lamp Assembly - Right terminal 3 (Chevrolet with SBM)
 - E42L Tail Lamp Assembly - Left terminal 1 (Buick with T4L)
 - E42R Tail Lamp Assembly - Right terminal 1 (Buick with T4L)
 - E42L Tail Lamp Assembly - Left terminal 1 (Buick with SGM)
 - E42R Tail Lamp Assembly - Right terminal 1 (Buick with SGM)
8. Verify the test lamp turns ON and OFF when commanding the appropriate Front Park Lamp ON and OFF with a scan tool.
- **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control 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 the test lamp is always ON**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**
9. Test or replace the appropriate park lamp.

License Plate Lamps Malfunction

1. Ignition OFF, exterior lamps OFF, rear hatch latch latched, remove both E7 License Plate Lamp bulbs.
2. Test for less than 5 Ω between each ground circuit terminal 2 and ground.
 - **If 5 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 5 Ω**
3. Connect a test lamp between the E7L License Plate Lamp - Left control circuit terminal 1 and ground, ignition ON.
4. Verify the test lamp turns ON and OFF when commanding the License Plate Lamps ON and OFF with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control 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 the test lamp is always ON**

1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module, ignition ON.
2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**
5. Connect a test lamp between the E7R License Plate Lamp - Right control circuit terminal 1 and ground, ignition ON.
6. Verify the test lamp turns ON and OFF when commanding the License Plate Lamps ON and OFF with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control 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 the test lamp turns ON and OFF**
7. Test or replace the appropriate E7 License Plate Lamp bulb.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Headlamp Switch Replacement](#)
- Refer to [Headlamp Replacement \(SBM\)](#), [Headlamp Replacement \(T4L, Buick\)](#), [Headlamp Replacement \(SBV, Chevrolet\)](#)
- Refer to [Daytime Running and Parking/Position Lamp Bulb Replacement \(Right Side with 2H0 and SBM\)](#), [Daytime Running and Parking/Position Lamp Bulb Replacement \(Right Side with LUV and SBM\)](#), [Daytime Running and Parking/Position Lamp Bulb Replacement \(Left Side with SBM\)](#)
- Refer to [Rear License Plate Lamp Bulb Replacement](#)
- Refer to [Stop and Tail Lamp Bulb Replacement \(Chevrolet with TVM\)](#)
- Refer to [Rear Combination Lamp Module Replacement \(Chevrolet with UGE\)](#), [Rear Combination Lamp Module Replacement \(Buick with UGE\)](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

REAR COMPARTMENT LAMP 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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
F7DA (BCM 7) Fuse B+	B3948 01, B3948 04, B3951 01, B3951 04	B3948 01, B3948 04, B3951 01, B3951 04	-	-
Rear Compartment Courtesy Lamp Control	B2570 02	1	1	-

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Rear Compartment Courtesy Lamp Ground	-	1	-	-
1. Rear Compartment Lamp Malfunction				

Circuit/System Description

The body control module (BCM) applies battery voltage to the rear compartment courtesy lamp through the rear compartment lamp control circuit. When the BCM receives a rear compartment lid open input from the rear compartment lid latch, the BCM applies battery voltage to the rear compartment lamp control circuit illuminating the rear compartment courtesy lamp. In the event that the rear compartment lamp were to remain illuminated for more than 10 min with the ignition switch in the OFF position and no doors opened, the BCM will deactivate the rear compartment lamp control circuit to prevent total battery discharge.

Reference Information

Schematic Reference

- [Interior Lights Schematics \(Buick\)](#), [Interior Lights Schematics \(Chevrolet\)](#)
- [Body Control System Schematics \(Buick\)](#), [Body Control System Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#), [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

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

1. Ignition OFF, disconnect the X5 harness connector at the K9 Body Control Module, ignition ON.
2. Verify a test lamp illuminates between the B+ circuit terminal 3 and ground.
 - **If the test lamp does not illuminate and the circuit fuse is good**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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 , verify the fuse is not open and there is voltage at the fuse.
 - **If the test lamp does not illuminate and the circuit fuse is open**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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, replace the K9 Body Control Module.
 - **If the test lamp illuminates**
3. Ignition OFF, connect the X5 harness connector at the K9 Body Control Module.

4. Ignition OFF, exterior lamps OFF, rear hatch latch latched, disconnect the harness connector at the E8S Rear Compartment Courtesy Lamp.

5. Test for less than 5 Ω between the ground circuit terminal 2 and ground.

- **If 5 Ω or greater**

1. Ignition OFF.

2. Test for less than 2 Ω in the ground circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , repair the open/high resistance in the ground connection.

- **If less than 5 Ω**

6. Connect a test lamp between the control circuit terminal 1 and ground, ignition ON.

7. Verify the test lamp turns ON and OFF when commanding the Cargo Lamp ON and OFF with a scan tool.

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

1. Ignition OFF, disconnect the X7 harness connector at the K9 Body Control Module.

2. Test for infinite resistance between the control circuit and ground.

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

3. Test for less than 2 Ω in the control 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 the test lamp is always ON**

1. Ignition OFF, disconnect the X7 harness connector at the K9 Body Control Module, ignition ON.

2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**

8. Test or replace the E8S Rear Compartment Courtesy Lamp.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Cargo Lamp Replacement](#)
- Refer to [Cargo Center Courtesy Lamp Bulb Replacement](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
F1DA (BCM 1) Fuse B+	B3883 01, B3883 04	B3883 01, B3883 04	-	-
F3DA (BCM 3) Fuse B+	B3881 01, B3881 04, B3949 01, B3949 04	B3881 01, B3881 04, B3949 01, B3949 04	-	-

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
F4DA (BCM 4) Fuse B+	B3882 01, B3882 04, B3950 01, B3950 04	B3882 01, B3882 04, B3950 01, B3950 04	-	-
Brake Pedal Position Sensor 5 V Reference	B1011 00, C0277 06, C0890 03, C0161 71	B1011 00, C0277 06, C0161 71	B1011 00, C0277 07, C0890 07, C0161 71	-
Brake Pedal Position Sensor Signal	B1011 00, C0277 06, C0161 71	B1011 00, C0277 06, C0161 71	B1011 00, C0277 07, C0890 07, C0161 71	C0277 09
Center High Mounted Stop Lamp Control	B3884 02	2	2	-
Stop Lamp Control - Left	B3881 02	B3881 01, B3881 04	B3881 01	-
Stop Lamp Control - Right	B3882 02	B3882 01, B3882 04	B3882 01	-
Brake Pedal Position Sensor Low Reference	-	B1011 00, C0277 07, C0161 71	3	-
Center High Mounted Stop Lamp Ground	-	2	-	-
Stop Lamp Ground - Left	-	1	-	-
Stop Lamp Ground - Right	-	1	-	-
1. Stop Lamps Malfunction 2. Center High Mounted Stop Lamp Malfunction 3. Brake Pedal Position Sensor Malfunction				

Circuit/System Description

The brake pedal position (BPP) sensor is used to sense the action of the driver application of the brake pedal. The BPP sensor provides an analog voltage signal that will increase as the brake pedal is applied. The body control module (BCM) provides a low reference signal and a 5-volt reference voltage to the BPP sensor. When the variable signal reaches a voltage threshold indicating the brakes have been applied, the BCM will apply battery voltage to the left and right stop lamp control circuits as well as the center high mounted stop lamp (CHMSL) control circuit illuminating the left and right stop lamps and the CHMSL.

Diagnostic Aids

When testing at the stop lamp bulb socket, make sure all measurements and test lamp connections are in the correct terminal location and do not come in contact with each other during testing.

Reference Information

Schematic Reference

- [Exterior Lights Schematics \(Buick\)](#) [Exterior Lights Schematics \(Chevrolet\)](#)
- [Body Control System Schematics \(Buick\)](#) [Body Control System Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#) **[COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)**

Description and Operation

[Exterior Lighting Systems Description and Operation](#)

- [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.
2. Verify the scan tool Brake Pedal Applied parameter changes between Active and Inactive while pressing and releasing the brake pedal.
 - **If the parameter does not change**

Refer to Brake Pedal Position Sensor Malfunction.
 - **If the parameter changes**
3. Verify the left stop lamp turns ON and OFF when commanding the Left Rear Stop/Park Lamp ON and OFF with a scan tool.
 - **If the left stop lamp does not turn ON and OFF**

Refer to Stop Lamps Malfunction.
 - **If the left stop lamp turns ON and OFF**
4. Verify the right stop lamp turns ON and OFF when commanding the Right Rear Stop/Park Lamp ON and OFF with a scan tool.
 - **If the right stop lamp does not turn ON and OFF**

Refer to Stop Lamps Malfunction.
 - **If the right stop lamp turns ON and OFF**
5. Verify the center high mounted stop lamp turns ON and OFF when commanding the Center Stop Lamp ON and OFF with a scan tool.
 - **If the center high mounted stop does not turn ON and OFF**

Refer to Center High Mount Stop Lamp Malfunction.
 - **If the center high mounted stop turns ON and OFF**
6. All OK.

Circuit/System Testing

Brake Pedal Position Sensor Malfunction

1. Ignition OFF, disconnect the harness connector at the B22 Brake Pedal Position Sensor, ignition ON.
2. Test for less than 1 V between the appropriate low reference circuit terminal listed below and ground.
 - Terminal 2 - with MM1 (Chevrolet)
 - Terminal A - with MM3 (Chevrolet)
 - Terminal 2 (Buick)
 - **If 1 V or greater**
 1. Ignition OFF, disconnect the X1 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the low reference circuit 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 less than 1 V**
3. Test or replace the B22 Brake Pedal Position Sensor.

Stop Lamps Malfunction

1. Ignition OFF, exterior lamps OFF, rear hatch latch latched, remove the appropriate bulb listed below.
 - E5 Stop Lamp (Chevrolet)
 - E42 Tail Lamp Assembly (Buick)
2. Test for less than 10 Ω between the appropriate ground circuit terminal listed below and ground.
 - E5L Stop Lamp - Left socket terminal (Chevrolet)
 - E5R Stop Lamp - Right socket terminal (Chevrolet)
 - E42L Tail Lamp Assembly - Left terminal 3 (Buick)
 - E42R Tail Lamp Assembly - Right terminal 3 (Buick)
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 10 Ω**
3. Connect a test lamp between the appropriate control circuit terminal listed below and ground, ignition ON.
 - E5L Stop Lamp - Left socket terminal (Chevrolet)
 - E5R Stop Lamp - Right socket terminal (Chevrolet)
 - E42L Tail Lamp Assembly - Left terminal 2 (Buick)
 - E42R Tail Lamp Assembly - Right terminal 2 (Buick)
4. Verify the test lamp turns ON and OFF when commanding the appropriate Rear Stop/Park Lamp ON and OFF with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the appropriate harness connector listed below at the K9 Body Control Module.
 - X4 left stop lamp
 - X5 right stop lamp
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control 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 the test lamp is always ON**
 1. Ignition OFF, disconnect the appropriate harness connector listed below at the K9 Body Control Module, ignition ON.
 - X4 left stop lamp
 - X5 right stop lamp
 2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**
5. Test or replace the appropriate E5 Stop Lamp.

Center High Mount Stop Lamp Malfunction

1. Ignition OFF, disconnect the X2 harness connector at the K9 Body Control Module, ignition ON.
2. Verify a test lamp illuminates between the B+ circuit terminal 1 and ground.
 - **If the test lamp does not illuminate and the circuit fuse is good**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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 , verify the fuse is not open and there is voltage at the fuse.
 - **If the test lamp does not illuminate and the circuit fuse is open**
 1. Ignition OFF, disconnect the harness connector at the X51A Fuse Block - Instrument Panel.
 2. 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, replace the K9 Body Control Module.
 - **If the test lamp illuminates**
3. Ignition OFF, connect the X2 harness connector at the K9 Body Control Module.
4. Ignition OFF, exterior lamps OFF, rear hatch latch latched, disconnect the harness connector at the E6 Center High Mounted Stop Lamp.
5. Test for less than 5 Ω between the ground circuit terminal 2 and ground.
 - **If 5 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 5 Ω**
6. Connect a test lamp between the control circuit terminal 1 and ground, ignition ON.
7. Verify the test lamp turns ON and OFF when commanding the Center Stop Lamp ON and OFF with a scan tool.
 - **If the test lamp is always OFF**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module.
 2. Test for infinite resistance between the control circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
 3. Test for less than 2 Ω in the control 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 the test lamp is always ON**
 1. Ignition OFF, disconnect the X4 harness connector at the K9 Body Control Module, ignition ON.
 2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**
8. Test or replace the E6 Center High Mounted Stop Lamp.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [High Mount Stop Lamp Replacement](#)
- Refer to [Brake Pedal Position Sensor Calibration](#)

- Refer to [Brake Pedal Position Sensor Replacement](#)
- Refer to [Stop and Tail Lamp Bulb Replacement \(Chevrolet with TVM\)](#)
- Refer to [Control Module References](#) for BCM replacement, programming, and setup

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.
- Refer to [Diagnostic Procedure Instructions](#) to provide an overview of each diagnostic category.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
F3DA (BCM 3) Fuse B+	B3881 01, B3881 04, B3949 01, B3949 04	B3881 01, B3881 04, B3949 01, B3949 04	-	-
F4DA (BCM 4) Fuse B+	B3882 01, B3882 04, B3950 01, B3950 04	B3882 01, B3882 04, B3950 01, B3950 04	-	-
F7DA (BCM 7) Fuse B+	B3948 01, B3948 04, B3951 01, B3951 04	B3948 01, B3948 04, B3951 01, B3951 04	-	-
Turn Signal Outage Detection Signal - Left Front	3	3	3	-
Turn Signal Outage Detection Signal - Right Front	3	3	3	-
Turn Signal Switch Signal - Left	2	2	2	-
Turn Signal Switch Signal - Right	2	2	2	-
Turn Signal Control - Left Front	B3948 01, B3948 02	B3948 01, B3948 04	B3948 01	-
Turn Signal Control - Left Rear	B3950 01, B3950 02	B3950 01, B3950 04	B3950 01	-
Turn Signal Control - Right Front	B3949 01, B3949 02	B3949 01, B3949 04	B3949 01	-
Turn Signal Control - Right Rear	B3951 01, B3951 02	B3951 01, B3951 04	B3951 01	-
Outside Rearview Mirror Ground - Driver	-	1	-	-
Outside Rearview Mirror Ground - Passenger	-	1	-	-
Turn Signal Lamp Ground - Left Front	-	1	-	-
Turn Signal Lamp Ground - Right Front	-	1	-	-
Turn Signal Lamp Ground - Left Rear	-	1	-	-
Turn Signal Lamp Ground - Right Rear	-	1	-	-
Turn Signal/Multifunction Switch Ground	-	2	-	-

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
1. Turn Signal Lamps and/or Indicators Malfunction 2. Turn Signal/Multifunction Switch Malfunction 3. Turn Signal Lamp Outage Detection Malfunction				

Circuit/System Description

Ground is applied at all times to the turn signal/multifunction switch. The turn signal lamps may only be activated with the ignition switch in the ON or START positions. When the turn signal/multifunction switch is placed in either the turn right or turn left position, ground is applied to the body control module (BCM) through either the right turn or left turn signal switch signal circuit. The BCM responds to the turn signal switch input by applying a pulsating voltage to the front and rear turn signal lamps through their respective control circuits. When a turn signal request is received by the BCM, a serial data message is sent to the instrument cluster requesting the respective turn signal indicator be pulsed ON and OFF.

Diagnostic Aids

When testing at the turn signal lamp bulb socket, make sure all measurements and test lamp connections are in the correct terminal location and do not come in contact with each other during testing.

Reference Information

Schematic Reference

- [Exterior Lights Schematics \(Buick\)](#) [Exterior Lights Schematics \(Chevrolet\)](#)
- [Body Control System Schematics \(Buick\)](#) [Body Control System Schematics \(Chevrolet\)](#)

Connector End View Reference

[COMPONENT CONNECTOR END VIEWS - INDEX \(ENCORE\)](#) [COMPONENT CONNECTOR END VIEWS - INDEX \(TRAX\)](#)

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.
2. Verify the scan tool Right Turn Signal Switch and Left Turn Signal Switch parameters change between Active and Inactive while cycling the turn signal switch between the right and left positions.
 - **If the parameters do not change**

Refer to Turn Signal/Multifunction Switch Malfunction.
 - **If the parameters change**
3. Verify the left front turn signal lamps turn ON and OFF while commanding the Left Front Turn Signal Lamp ON and OFF with a scan tool.

- **If the left front turn signal lamps do not turn ON and OFF**

Refer to Turn Signal Lamps Malfunction.

- **If the left front turn signal lamps turn ON and OFF**

4. Verify the right front turn signal lamps turn ON and OFF while commanding the Right Front Turn Signal Lamp ON and OFF with a scan tool.

- **If the right front turn signal lamps do not turn ON and OFF**

Refer to Turn Signal Lamps Malfunction.

- **If the right front turn signal lamps turn ON and OFF**

5. Verify the left rear turn signal lamps turn ON and OFF while commanding the Left Rear Turn Signal Lamp ON and OFF with a scan tool.

- **If the left rear turn signal lamps do not turn ON and OFF**

Refer to Turn Signal Lamps Malfunction.

- **If the left rear turn signal lamps turn ON and OFF**

6. Verify the right rear turn signal lamps turn ON and OFF while commanding the Right Rear Turn Signal Lamp ON and OFF with a scan tool.

- **If the right rear turn signal lamps do not turn ON and OFF**

Refer to Turn Signal Lamps Malfunction.

- **If the right rear turn signal lamps turn ON and OFF**

7. Verify the left and right turn signal indicators turn ON and OFF while commanding the All Indicators Test ON and OFF with a scan tool.

- **If the left or right turn signal indicators do not turn ON and OFF**

Refer to Turn Signal Indicators Malfunction.

- **If the left and right turn signal indicators turn ON and OFF**

8. Observe the left and right turn signal lamps and turn signal indicators on the instrument cluster while activating the left and right turn signals. The left and right turn signal lamps and indicators should illuminate and flash at a normal rate when turned ON. (Buick only)

- **If the left and right turn signal lamps and indicators illuminate but flash in a rapid manner**

Refer to Turn Signal Lamp Outage Detection Malfunction.

- **If the left and right turn signal lamps and indicators operate normally**

9. All OK.

Circuit/System Testing

Turn Signal/Multifunction Switch Malfunction

1. Ignition OFF, scan tool disconnected, all doors closed, all accessories OFF, disconnect the harness connector at the S78 Turn Signal/Multifunction Switch. It may take up to 2 min for all vehicle systems to power down.

2. Test for less than 10 Ω between the ground circuit terminal 3 and ground.

- **If 10 Ω or greater**

1. Ignition OFF.

2. Test for less than 2 Ω in the ground circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , repair the open/high resistance in the ground connection.

- **If less than 10 Ω**

3. Ignition ON.

4. Verify the scan tool Left Turn Signal Switch parameter is Inactive.

- **If not Inactive**

1. Ignition OFF, disconnect the X3 harness connector at the K9 Body Control Module.

2. Test for infinite resistance between the signal circuit terminal 1 and ground.

- If less than infinite resistance, repair the short to ground on the circuit.
- If infinite resistance, replace the K9 Body Control Module.

- **If Inactive**

5. Install a 3 A fused jumper wire between the signal circuit terminal 1 and the ground circuit terminal 3.

6. Verify the scan tool Left Turn Signal Switch parameter is Active.

- **If not Active**

1. Ignition OFF, disconnect the X3 harness connector at the K9 Body Control Module, ignition ON.

2. Test for less than 1 V between the signal circuit terminal 1 and ground.

- If 1 V or greater, repair the short to voltage on the circuit.
- If less than 1 V

3. Test for less than 2 Ω in the signal 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 Active**

7. Verify the scan tool Right Turn Signal Switch parameter is Inactive.

- **If not Inactive**

1. Ignition OFF, disconnect the X3 harness connector at the K9 Body Control Module.

2. Test for infinite resistance between the signal circuit terminal 7 and ground.

- If less than infinite resistance, repair the short to ground on the circuit.
- If infinite resistance, replace the K9 Body Control Module.

- **If Inactive**

8. Install a 3 A fused jumper wire between the signal circuit terminal 7 and the ground circuit terminal 3.

9. Verify the scan tool Right Turn Signal Switch parameter is Active.

- **If not Active**

1. Ignition OFF, disconnect the X3 harness connector at the K9 Body Control Module, ignition ON.

2. Test for less than 1 V between the signal circuit terminal 7 and ground.

- If 1 V or greater, repair the short to voltage on the circuit.
- If less than 1 V

3. Test for less than 2 Ω in the signal 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 Active**

10. Test or replace the S78 Turn Signal/Multifunction Switch.

Turn Signal Lamps Malfunction

1. Ignition OFF, exterior lamps OFF, rear hatch latch latched, disconnect the harness connector at the appropriate component listed below.

- E4LF Turn Signal Lamp - Left Front (Chevrolet)
- E4RF Turn Signal Lamp - Right Front (Chevrolet)
- E13LA Headlamp Assembly - Left (Buick)
- E13RA Headlamp Assembly - Right (Buick)

- A9A Outside Rearview Mirror - Driver (Buick)
 - A9B Outside Rearview Mirror - Passenger (Buick)
 - E4LR Turn Signal Lamp - Left Rear
 - E4RR Turn Signal Lamp - Right Rear
2. Test for less than 5 Ω between the appropriate ground circuit terminal listed below and ground.
- E4LF Turn Signal Lamp - Left Front socket terminal (Chevrolet)
 - E4RF Turn Signal Lamp - Right Front socket terminal (Chevrolet)
 - E13LA Headlamp Assembly - Left terminal 8 (Buick)
 - E13RA Headlamp Assembly - Right terminal 8 (Buick)
 - A9A Outside Rearview Mirror - Driver terminal 5 (Buick with SGM)
 - A9B Outside Rearview Mirror - Passenger terminal 5 (Buick with SGM)
 - A9A Outside Rearview Mirror - Driver terminal 9 (Buick with T4L)
 - A9B Outside Rearview Mirror - Passenger terminal 9 (Buick with T4L)
 - E4LR Turn Signal Lamp - Left Rear socket terminal
 - E4RR Turn Signal Lamp - Right Rear socket terminal
 - **If 5 Ω or greater**
1. Ignition OFF.
2. Test for less than 2 Ω in the ground circuit end to end.
- If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **If less than 5 Ω**
3. Connect a test lamp between the appropriate control circuit terminal listed below and ground.
- E4LF Turn Signal Lamp - Left Front socket terminal (Chevrolet)
 - E4RF Turn Signal Lamp - Right Front socket terminal (Chevrolet)
 - E13LA Headlamp Assembly - Left terminal 9 (Buick)
 - E13RA Headlamp Assembly - Right terminal 9 (Buick)
 - A9A Outside Rearview Mirror - Driver terminal 10 (Buick)
 - A9B Outside Rearview Mirror - Passenger terminal 10 (Buick)
 - E4LR Turn Signal Lamp - Left Rear socket terminal
 - E4RR Turn Signal Lamp - Right Rear socket terminal
4. Verify the test lamp turns ON and OFF when commanding the appropriate Turn Signal Lamp ON and OFF with a scan tool.
- **If the test lamp is always OFF**
1. Ignition OFF, disconnect the appropriate harness connector listed below at the K9 Body Control Module.
- X5 left turn signals
 - X4 right turn signals
2. Test for infinite resistance between the control circuit and ground.
- If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance
3. Test for less than 2 Ω in the control 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 the test lamp is always ON**
1. Ignition OFF, disconnect the appropriate harness connector listed below at the K9 Body Control Module, ignition ON.
- X5 left turn signals
 - X4 right turn signals
2. Test for less than 1 V between the control circuit terminal 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 the test lamp turns ON and OFF**
5. Test or replace the appropriate turn signal lamp.

Turn Signal Lamp Outage Detection Malfunction (Buick)

- Vehicle OFF, disconnect the harness connector at the appropriate E13 Headlamp Assembly.
- Test for B+ between the appropriate signal circuit terminal 7 and ground.
 - **If less than B+**
 - Vehicle OFF, disconnect the X4 harness connector at the K9 Body Control Module.
 - Test for infinite resistance between the signal 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 signal 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 a test lamp does not illuminate between the appropriate signal circuit terminal 7 and ground.
 - **If the test lamp illuminates**
 - Vehicle OFF, disconnect the X4 harness connector at the K9 Body Control Module, ignition ON.
 - Test for less than 1 V between the signal circuit terminal 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 the test lamp does not illuminate**
- Test or replace the turn signal lamp - front.

Turn Signal Indicators Malfunction

- Ignition ON.
- Verify the left and right turn signal indicators turn ON and OFF while commanding the All Indicators Test ON and OFF with a scan tool.
 - **If the left or right turn signal indicators are always OFF or remain ON**

Replace the P16 Instrument Cluster.
 - **If the left and right turn signal indicators turn ON and OFF**
- Replace the K9 Body Control Module.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- Refer to [Turn Signal Bulb Replacement - Left Side \(SBV\)](#), [Turn Signal Bulb Replacement - Left Side \(SBM\)](#).
- Refer to [Turn Signal Bulb Replacement - Right Side \(2H0 with SBV\)](#), [Turn Signal Bulb Replacement - Right Side \(2H0 with SBM\)](#), [Turn Signal Bulb Replacement - Right Side \(LUV with SBM\)](#), [Turn Signal Bulb Replacement - Right Side \(LUV with SBV\)](#).
- Refer to [Rear Turn Signal Lamp Bulb Replacement \(Buick\)](#), [Rear Turn Signal Lamp Bulb Replacement \(Chevrolet with UGE\)](#), [Rear Turn Signal Lamp Bulb Replacement \(Chevrolet with TVM\)](#).
- Refer to [Turn Signal Switch Replacement \(Buick, With BTM\)](#), [Turn Signal Switch Replacement \(Chevrolet, Without BTM\)](#), [Turn Signal Switch Replacement \(Chevrolet, With BTM\)](#).

BTM).

- Refer to [Headlamp LED Driver Module Replacement \(T4L\)](#).
 - Refer to [Control Module References](#) for BCM or Instrument Cluster replacement, programming, and setup
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