

permanently disabled an output because an excessive current draw fault (such as a short to ground) has exceeded the limits that the BCM can withstand. CORRECT the cause of the excessive current draw before installing a new BCM. For additional information on BCM Field Effect Transistor (FET) protection, REFER to: Module Controlled Functions - Overview .

#### Possible Sources

- Wiring, terminals or connectors
- Bulb (halogen headlamps)
- Ballast (LED headlamps)
- Headlamp assembly (LED headlamps)
- BCM

#### Visual Inspection and Diagnostic Pre-checks

- Inspect the headlamp assembly for damage.

### DIAGNOSIS AND TESTING > HEADLAMPS > PINPOINT TESTS > PINPOINT TEST A : ONE OR BOTH LOW BEAMS IS INOPERATIVE > PINPOINT TEST A : ONE OR BOTH LOW BEAMS IS INOPERATIVE

#### A1 DETERMINE IF ONE OR BOTH LOW BEAMS ARE INOPERATIVE

Ignition ON.

Place the headlamp switch in the HEADLAMPS position.

#### Are both low beams inoperative?

|     |          |
|-----|----------|
| Yes | GO to A8 |
| No  | GO to A2 |

#### A2 CHECK FOR VOLTAGE FROM THE HEADLAMP LOW BEAM CIRCUIT

Place the headlamp switch in the OFF position.

Ignition OFF.

Disconnect: With halogen headlamps, inoperative LH Headlamp C1021 or RH Headlamp C1041 .

Disconnect: With LED headlamps, inoperative LH Headlamp C1284 or RH Headlamp C1285 .

Ignition ON.

Place the headlamp switch in the HEADLAMPS position.

For halogen headlamps, measure:

#### LH Headlamp

| Positive Lead | Measurement / Action                                                              | Negative Lead |
|---------------|-----------------------------------------------------------------------------------|---------------|
| C1021-1       |  | Ground        |

#### RH Headlamp

| Positive Lead | Measurement / Action                                                              | Negative Lead |
|---------------|-----------------------------------------------------------------------------------|---------------|
| C1041-1       |  | Ground        |

For LED headlamps, measure:

#### LH Headlamp

| Positive Lead | Measurement / Action                                                                | Negative Lead |
|---------------|-------------------------------------------------------------------------------------|---------------|
| C1284-5       |  | Ground        |

#### RH Headlamp

| Positive Lead | Measurement / Action                                                                | Negative Lead |
|---------------|-------------------------------------------------------------------------------------|---------------|
| C1285-5       |  | Ground        |

**Is the voltage greater than 11 volts?**

|            |          |
|------------|----------|
| <b>Yes</b> | GO to A6 |
|------------|----------|

|           |          |
|-----------|----------|
| <b>No</b> | GO to A3 |
|-----------|----------|

A3 REPEAT THE ON-DEMAND SELF-TEST AND CHECK FOR VOLTAGE HEADLAMP LOW BEAM CIRCUIT

Place the headlamp switch in the OFF position.

Using a diagnostic scan tool, perform the BCM self-test.

Clear the Diagnostic Trouble Codes (DTCs) and repeat the self-test (required to enable the lamp output driver).

Ignition OFF.

Ignition ON.

Place the headlamp switch in the HEADLAMPS position.

For halogen headlamps, measure:

#### LH Headlamp

| Positive Lead | Measurement / Action                                                              | Negative Lead |
|---------------|-----------------------------------------------------------------------------------|---------------|
| C1021-1       |  | Ground        |

#### RH Headlamp

| Positive Lead | Measurement / Action                                                              | Negative Lead |
|---------------|-----------------------------------------------------------------------------------|---------------|
| C1041-1       |  | Ground        |

For LED headlamps, measure:

#### LH Headlamp

| Positive Lead | Measurement / Action                                                                | Negative Lead |
|---------------|-------------------------------------------------------------------------------------|---------------|
| C1284-5       |  | Ground        |

#### RH Headlamp

| Positive Lead | Measurement / Action                                                                | Negative Lead |
|---------------|-------------------------------------------------------------------------------------|---------------|
| C1285-5       |  | Ground        |

#### Is the voltage greater than 11 volts?

|            |                                                                                                                    |
|------------|--------------------------------------------------------------------------------------------------------------------|
| <b>Yes</b> | For halogen headlamps, INSTALL a new low beam headlamp bulb. REFER to: Headlamp Bulb . For LED headlamps, GO to A7 |
|------------|--------------------------------------------------------------------------------------------------------------------|

|           |          |
|-----------|----------|
| <b>No</b> | GO to A4 |
|-----------|----------|

#### A4 CHECK THE LOW BEAM CIRCUIT FOR A SHORT TO GROUND

Ignition OFF.

Place the headlamp switch in the OFF position.

Disconnect: BCM C2280G .

For halogen headlamps, measure:

**LH Headlamp**

| Positive Lead | Measurement / Action | Negative Lead |
|---------------|----------------------|---------------|
| C1021-1       | $\Omega$             | Ground        |

**RH Headlamp**

| Positive Lead | Measurement / Action | Negative Lead |
|---------------|----------------------|---------------|
| C1041-1       | $\Omega$             | Ground        |

For LED headlamps, measure:

**LH Headlamp**

| Positive Lead | Measurement / Action | Negative Lead |
|---------------|----------------------|---------------|
| C1284-5       | $\Omega$             | Ground        |

**RH Headlamp**

| Positive Lead | Measurement / Action | Negative Lead |
|---------------|----------------------|---------------|
| C1285-5       | $\Omega$             | Ground        |

**Is the resistance greater than 10,000 ohms?**

|            |          |
|------------|----------|
| <b>Yes</b> | GO to A5 |
|------------|----------|

|           |                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>No</b> | REPAIR the circuit. After the repair: If no Diagnostic Trouble Codes (DTCs) are present, TEST the system for normal operation. If any BCM Diagnostic Trouble Codes (DTCs) other than DTC U3000:49 are present, CLEAR the Diagnostic Trouble Codes (DTCs), REPEAT the self-test (required to enable the lamp output driver) and cycle the ignition OFF and ON. TEST the system for normal operation. If DTC U3000:49 is present, |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**A5 CHECK THE LOW BEAM CIRCUIT FOR AN OPEN**

For halogen headlamps, measure:

**LH Headlamp**

| Positive Lead | Measurement / Action | Negative Lead |
|---------------|----------------------|---------------|
| C1021-1       | $\Omega$             | C2280G-4      |

**RH Headlamp**

| Positive Lead | Measurement / Action | Negative Lead |
|---------------|----------------------|---------------|
| C1041-1       | $\Omega$             | C2280G-2      |

For LED headlamps, measure:

#### LH Headlamp

| Positive Lead | Measurement / Action | Negative Lead |
|---------------|----------------------|---------------|
| C1284-5       | $\Omega$             | C2280G-4      |

#### RH Headlamp

| Positive Lead | Measurement / Action | Negative Lead |
|---------------|----------------------|---------------|
| C1285-5       | $\Omega$             | C2280G-2      |

Is the resistance less than 3 ohms?

|     |                     |
|-----|---------------------|
| Yes | GO to A8            |
| No  | REPAIR the circuit. |

A6 CHECK THE HEADLAMP GROUND CIRCUIT FOR AN OPEN

For halogen headlamps, measure:

#### LH Headlamp

| Positive Lead | Measurement / Action                                                                | Negative Lead |
|---------------|-------------------------------------------------------------------------------------|---------------|
| C1021-1       |  | C1021-3       |

#### RH Headlamp

| Positive Lead | Measurement / Action                                                                | Negative Lead |
|---------------|-------------------------------------------------------------------------------------|---------------|
| C1041-1       |  | C1041-3       |

For LED headlamps, measure:

#### LH Headlamp

| Positive Lead | Measurement / Action                                                                | Negative Lead |
|---------------|-------------------------------------------------------------------------------------|---------------|
| C1284-5       |  | C1284-7       |

#### RH Headlamp

| Positive Lead | Measurement / Action                                                              | Negative Lead |
|---------------|-----------------------------------------------------------------------------------|---------------|
| C1285-5       |  | C1285-7       |

**Is the voltage greater than 11 volts?**

|            |                                                                                                                    |
|------------|--------------------------------------------------------------------------------------------------------------------|
| <b>Yes</b> | For halogen headlamps, INSTALL a new low beam headlamp bulb. REFER to: Headlamp Bulb . For LED headlamps, GO to A7 |
| <b>No</b>  | REPAIR the circuit in question.                                                                                    |

**A7 CHECK THE HEADLAMP INTERNAL HARNESS**

CHECK the internal headlamp harness for open or shorted circuits and damaged or pushed-out pins.

**Is the headlamp internal harness OK?**

|            |                                                                                                                                                                                                                                    |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Yes</b> | INSTALL a new ballast. REFER to: Ballast . CLEAR the Diagnostic Trouble Codes (DTCs) and REPEAT the self-test. TEST the system for normal operation. If the condition returns, INSTALL a new LED module. REFER to: Headlamp Bulb . |
| <b>No</b>  | INSTALL a new headlamp assembly. REFER to: Headlamp Assembly .                                                                                                                                                                     |

**A8 CHECK FOR CORRECT BCM (BODY CONTROL MODULE) OPERATION**

Disconnect and inspect all BCM connectors.

Repair:

corrosion (install new connector or terminals - clean module pins)

damaged or bent pins - install new terminals/pins

pushed-out pins - install new pins as necessary

Reconnect the BCM connectors. Make sure they seat and latch correctly.

Operate the system and determine if the concern is still present.

**Is the concern still present?**

|            |                                                                                                                                                                                                                        |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Yes</b> | CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, |
| <b>No</b>  | The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.                                                         |