Table 5-26. Auxiliary Lamps Inoperative Diagnostic Faults

<table>
<thead>
<tr>
<th>POSSIBLE CAUSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auxiliary lamp malfunction</td>
</tr>
<tr>
<td>Auxiliary lamp switch malfunction</td>
</tr>
<tr>
<td>Open in auxiliary power circuit</td>
</tr>
<tr>
<td>Open in auxiliary ground circuit</td>
</tr>
</tbody>
</table>

**NOTE**
The auxiliary lamps can be configured with Digital Technician II one of three ways. They will either be on only when the low beam headlamp is on, only when the high beam headlamp is on or when both are on. Verify operation before diagnosing.

**1. Auxiliary Lamps Operation Test**
1. Turn IGN ON.
2. Turn on the auxiliary lamps.
3. Do the auxiliary lamps illuminate?
   a. **Yes.** System operating properly. Intermittent perform wiggle test. See 1.5 DIAGNOSTICS AND TROUBLESHOOTING, Wiggle Test.
   b. **No.** Only one auxiliary lamp is operative. Go to Test 2.
   c. **No.** Both auxiliary lamps are inoperative. Go to Test 5.

**2. Auxiliary Bulb Test**
1. Inspect the bulb.
2. Is the bulb good?
   a. **Yes.** Go to Test 3.
   b. **No.** Auxiliary lamp is LED. Go to Test 3.
   c. **No.** Auxiliary lamp is a bulb. Replace bulb. (5227)

**3. Auxiliary Lamp Circuit Test**
1. Disconnect auxiliary lamps [73].
2. Test for battery voltage between [73B] terminal B and ground.
3. Turn IGN ON.
4. Turn on the auxiliary lamps.
5. Is battery voltage present?
   a. **Yes.** Replace the inoperative auxiliary lamp. (5227)
   b. **No.** Go to Test 4.

**4. Auxiliary Lamp Ground Circuit Test**
1. Test resistance between inoperative circuit at [73B] terminal A and ground.
2. Is resistance less than 0.5 Ohms?
   a. **Yes.** Repair open in (GY/BK) wire. (5041)
   b. **No.** Repair open in (BK) wire. (5041)

**5. Auxiliary Lamp Switch Test**
1. Disconnect auxiliary lamp switch [109] (non-fairing models) or [105L] (fairing models).
3. Turn IGN ON.
4. Do the auxiliary lamps illuminate?
   a. **Yes.** Replace the auxiliary lamp toggle switch. (5167)
   b. **No.** Go to Test 6.

**6. Auxiliary Lamp Switch Power Test**
1. Using HARNESS CONNECTOR TEST KIT (Part No. HD-41404), test voltage between [109A] terminal 1 (non-fairing models) or [105LB] terminal 5 (fairing models) and ground.
2. Turn IGN ON.
3. Is battery voltage present?
   a. **Yes.** Go to Test 7.
   b. **No.** Repair open in (R/Y) wire (non-fairing models) or (V/BE) wire (fairing models).

**7. Auxiliary Lamp Input Circuit Test**
1. Turn IGN OFF.
2. Connect BREAKOUT BOX (Part No. HD-50390-1) and BCM CABLE (Part No. HD-50390-2) between wire harness [242B] and [242A]. See 1.4 DIAGNOSTIC TOOLS.
3. Verify BCM OVERLAY (Part No. HD-50390-2-P) is in position on BOB.
4. Using HARNESS CONNECTOR TEST KIT (Part No. HD-41404), test voltage between BOB terminal B3 and ground.
5. Reconnect [109A] (non-fairing models) or [105LB] (fairing models).
6. With IGN ON, turn on the auxiliary lamps.
7. Is battery voltage present?
   a. **Yes.** Go to Test 8.
   b. **No.** Repair open in (BE/GY) wire.

**8. Auxiliary Lamp BCM Test**
1. Test voltage between BOB terminal L4 and ground.
2. With IGN ON, turn on the auxiliary lamps.
3. Is battery voltage present?
   a. **Yes.** Go to Test 9.
   b. **No.** Replace BCM.

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9. Auxiliary Lamp Power Circuit Test
1. Test voltage between [73LB] or [73RB] terminal B and ground.
2. With IGN ON, turn on the auxiliary lamps.
3. Is battery voltage present?
   a. Yes. Repair open in GND 3 connections. (5041)
   b. No. Repair open in (BE/BK) wire. (5041)

DTC B2106, B2107

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>TOOL NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>HD-41404</td>
<td>HARNESS CONNECTOR TEST KIT</td>
</tr>
<tr>
<td>HD-50390-1</td>
<td>BREAKOUT BOX</td>
</tr>
<tr>
<td>HD-50390-2</td>
<td>BCM CABLE</td>
</tr>
<tr>
<td>HD-50390-2-P</td>
<td>BCM OVERLAY</td>
</tr>
<tr>
<td>HD-50424</td>
<td>1.5 MM TERMINAL EXTRACTOR TOOL</td>
</tr>
</tbody>
</table>

Table 5-27. DTC B2106, B2107 Diagnostic Faults

<table>
<thead>
<tr>
<th>POSSIBLE CAUSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short to power in auxiliary lamp circuit</td>
</tr>
<tr>
<td>Open in auxiliary lamp power circuit</td>
</tr>
</tbody>
</table>

2. Auxiliary Lamp Open Circuit Test
1. Turn IGN OFF.
2. Disconnect BCM [242].
3. Connect BREAKOUT BOX (Part No. HD-50390-1) and BCM CABLE (Part No. HD-50390-2) between wire harness [242B] and [242A]. See 1.4 DIAGNOSTIC TOOLS.
4. Verify BCM OVERLAY (Part No. HD-50390-2-P) is in position on BOB.
5. Turn IGN OFF.
6. Using HARNESS CONNECTOR TEST KIT (Part No. HD-41404), test voltage between extracted terminal L4 and ground.
7. Is voltage present?
   a. Yes. Repair short to voltage in the auxiliary lamp circuit (BE/BK) wire.
   b. No. Go to Test 4.

4. DTC Test
1. Connect [242].
2. Clear DTC.
3. Turn IGN ON.
4. Check DTCs.
5. Did DTC reset?
   a. Yes. Replace BCM.
   b. No. Condition not currently present.

DTC B2108, B2109

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>TOOL NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>HD-41404</td>
<td>HARNESS CONNECTOR TEST KIT</td>
</tr>
<tr>
<td>HD-50390-1</td>
<td>BREAKOUT BOX</td>
</tr>
<tr>
<td>HD-50390-2</td>
<td>BCM CABLE</td>
</tr>
<tr>
<td>HD-50390-2-P</td>
<td>BCM OVERLAY</td>
</tr>
</tbody>
</table>

Table 5-28. DTC B2108, B2109 Diagnostic Faults

<table>
<thead>
<tr>
<th>POSSIBLE CAUSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short to ground in auxiliary lamp circuit</td>
</tr>
<tr>
<td>High current in auxiliary lamp circuit</td>
</tr>
<tr>
<td>Auxiliary lamp circuit overloading circuit</td>
</tr>
</tbody>
</table>

1. Auxiliary Lamp Circuit Short to Ground Test
1. Turn IGN OFF.
2. Disconnect both auxiliary lamps.
3. Connect BREAKOUT BOX (Part No. HD-50390-1) and BCM CABLE (Part No. HD-50390-2) between wire harness [242B], leaving [242A] disconnected. See 1.4 DIAGNOSTIC TOOLS.
4. Verify BCM OVERLAY (Part No. HD-50390-2-P) is in position on BOB.
2. DTC Test
1. Connect [242].
2. Clear DTC.
3. Turn IGN ON.
4. Check DTCs.
5. Did DTC reset?
   a. Yes. Replace BCM.
   b. No. Go to Test 2.

2. DTC Test
1. Connect [242].
2. Clear DTC.
3. Turn IGN ON.
4. Check DTCs.
5. Did DTC reset?
   a. Yes. Replace BCM.
   b. No. Go to Test 2.

2. DTC Test
1. Connect [242].
2. Clear DTC.
3. Turn IGN ON.
4. Check DTCs.
5. Did DTC reset?
   a. Yes. Replace BCM.
   b. No. Go to Test 2.

5. BCM Test
1. Connect [38H-B].
2. With IGN ON, jumper BOB terminal M2 to M3.
3. Does high beam headlamp illuminate?
   a. Yes. Replace BCM.
   b. No. Replace high beam headlamp.

6. Ground Circuit Open Test
1. Disconnect headlamp [38H].
2. Using HARNESS CONNECTOR TEST KIT (Part No. HD-41404), test continuity between BOB terminal A and ground.
3. Is continuity present?
   a. Yes. Go to Test 7.
   b. No. Repair open in (BK) ground wire.

7. Power Circuit Open Test
1. Turn IGN OFF.
2. Connect BREAKOUT BOX (Part No. HD-50390-1) and BCM CABLE (Part No. HD-50390-2) between wire harness [242B] and [242A]. See 1.4 DIAGNOSTIC TOOLS.
3. Verify BCM OVERLAY (Part No. HD-50390-2-P) is in position on BOB.
4. Using HARNESS CONNECTOR TEST KIT (Part No. HD-41404), test continuity between BOB terminal M3 and [38HB] high beam terminal 2 (BE/W) wire.
5. Is continuity present?
   a. Yes. Go to Test 8.
   b. No. Repair open in (BE/W) wire between BCM and headlamp.

8. BCM Test
1. Connect [38B].
2. With IGN ON, jumper BOB terminal M2 to M3.

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**Table 5-29. DTC B2131 Diagnostic Faults**

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>TOOL NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>HD-41404</td>
<td>HARNESS CONNECTOR TEST KIT</td>
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<tr>
<td>HD-50390-1</td>
<td>BREAKOUT BOX</td>
</tr>
<tr>
<td>HD-50390-2</td>
<td>BCM CABLE</td>
</tr>
<tr>
<td>HD-50390-2-P</td>
<td>BCM OVERLAY</td>
</tr>
</tbody>
</table>

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**HIGH BEAM INOPERATIVE, DTC B2131**

**1. Headlamp Inspection Test**
1. Visually inspect headlamp.
2. Does headlamp have a separate connector for high and low beam?
   a. Yes. Go to Test 2.
   b. No. Go to Test 6.

**2. Bulb Test**
1. Turn IGN OFF.
2. Inspect high beam headlamp.
3. Is bulb good?
   a. Yes. Go to Test 3.
   b. No. Replace high beam headlamp.

**3. Ground Circuit Open Test**
1. Disconnect headlamp [38H].
2. Using HARNESS CONNECTOR TEST KIT (Part No. HD-41404), test continuity between [38H-B] terminal 1 and ground.
3. Is continuity present?
   a. Yes. Go to Test 4.
   b. No. Repair short to ground in (BE/BK) wire.

**4. Power Circuit Open Test**
1. Connect BREAKOUT BOX (Part No. HD-50390-1) and BCM CABLE (Part No. HD-50390-2) between wire harness [242B] and [242A]. See 1.4 DIAGNOSTIC TOOLS.
2. Verify BCM OVERLAY (Part No. HD-50390-2-P) is in position on BOB.
3. Using HARNESS CONNECTOR TEST KIT (Part No. HD-41404), test continuity between BOB terminal M3 and [38HB] high beam terminal 2 (BE/W) wire.
4. Is continuity present?
   a. Yes. Go to Test 5.
   b. No. Repair open in (BE/W) wire between BCM and headlamp.