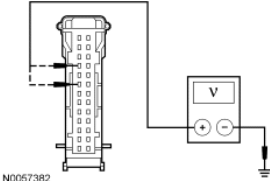
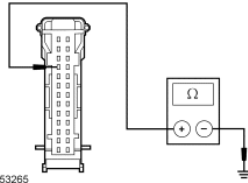


PINPOINT TEST B: INCORRECT FUEL GAUGE INDICATION — SINGLE FUEL TANK

NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may damage the connector.

NOTE: The fuel pump module may also be called the fuel tank unit or fuel level sender.

Test Step	Result / Action to Take															
<p>B1 RETRIEVE THE RECORDED DTCs FROM BOTH THE CONTINUOUS AND ON-DEMAND INSTRUMENT CLUSTER SELF-TESTS</p> <ul style="list-style-type: none"> Ignition OFF. Check for recorded instrument cluster DTCs from the continuous and on-demand self-tests. Are any instrument cluster DTCs recorded? 	<p>Yes For DTC B1201, GO to B3. For DTC B1204, GO to B6.</p> <p>For all other DTCs, REFER to the Instrument Cluster Diagnostic Trouble Code (DTC) Index to continue diagnosis of the DTCs.</p> <p>No GO to B2.</p>															
<p>B2 CARRY OUT THE INSTRUMENT CLUSTER FUEL GAUGE ACTIVE COMMAND USING THE SCAN TOOL</p> <ul style="list-style-type: none"> Ignition ON. Enter the following diagnostic mode on the scan tool: Instrument Cluster Active Command. Select the instrument cluster active command. Trigger, monitor, and scroll the fuel gauge level at 0%, 50%, and 100%. Does the fuel gauge display below E with 0%, half with 50%, and full stop with 100%? 	<p>Yes GO to B8.</p> <p>No GO to B11.</p>															
<p>B3 CHECK THE FUEL PUMP MODULE FOR AN OPEN</p> <ul style="list-style-type: none"> Disconnect: Fuel Pump Module C434 or C4033. Connect a fused (5A) jumper wire between the fuel pump module as follows: <table border="1"> <thead> <tr> <th>Connector-Pin</th> <th>Circuit</th> <th>Connector-Pin</th> <th>Circuit</th> </tr> </thead> <tbody> <tr> <td>C434-2</td> <td>29 (YE/WH)</td> <td>C434-4</td> <td>396 (BK/OG)</td> </tr> <tr> <td>C4033-5</td> <td>29 (YE/WH)</td> <td>C4033-8</td> <td>396 (BK/OG)</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Ignition ON. Enter the following diagnostic mode on the scan tool: Instrument Cluster Self-Test. Wait one minute. NOTE: Once set, it is normal for DTC B1201 to be present when carrying out this test step and should be ignored. Clear the instrument cluster DTCs. Repeat the instrument cluster self-test. Is DTC B1204 retrieved? 	Connector-Pin	Circuit	Connector-Pin	Circuit	C434-2	29 (YE/WH)	C434-4	396 (BK/OG)	C4033-5	29 (YE/WH)	C4033-8	396 (BK/OG)	<p>Yes REMOVE the jumper wire.</p> <p>For gasoline engines, GO to B10.</p> <p>For diesel engines, INSTALL a new fuel level sender. REFER to Section 310-01. CLEAR the DTCs. REPEAT the self-test.</p> <p>No REMOVE the jumper wire. GO to B4.</p>			
Connector-Pin	Circuit	Connector-Pin	Circuit													
C434-2	29 (YE/WH)	C434-4	396 (BK/OG)													
C4033-5	29 (YE/WH)	C4033-8	396 (BK/OG)													
<p>B4 CHECK CIRCUITS 29 (YE/WH) AND 396 (BK/OG) FOR A SHORT TO VOLTAGE</p> <ul style="list-style-type: none"> Ignition OFF. Disconnect: Instrument Cluster C220b. Ignition ON. Measure the voltage between the instrument cluster C220b-10, circuit 29 (YE/WH), harness side and ground; and between the instrument cluster C220b-8, circuit 396 (BK/OG), harness side and ground.  <p>N0057382</p> <ul style="list-style-type: none"> Is any voltage present? 	<p>Yes REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.</p> <p>No GO to B5.</p>															
<p>B5 CHECK CIRCUITS 29 (YE/WH) AND 396 (BK/OG) FOR AN OPEN</p> <ul style="list-style-type: none"> Ignition OFF. Measure the resistance between the instrument cluster, harness side and the fuel pump module, harness side as follows: <table border="1"> <thead> <tr> <th>Instrument Cluster Connector-Pin</th> <th>Circuit</th> <th>Fuel Pump Module Connector-Pin</th> </tr> </thead> <tbody> <tr> <td>C220b-10</td> <td>29 (YE/WH)</td> <td>C434-2</td> </tr> <tr> <td>C220b-10</td> <td>29 (YE/WH)</td> <td>C4033-5</td> </tr> <tr> <td>C220b-8</td> <td>396 (BK/OG)</td> <td>C434-4</td> </tr> <tr> <td>C220b-8</td> <td>396 (BK/OG)</td> <td>C4033-8</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Are the resistances less than 5 ohms? 	Instrument Cluster Connector-Pin	Circuit	Fuel Pump Module Connector-Pin	C220b-10	29 (YE/WH)	C434-2	C220b-10	29 (YE/WH)	C4033-5	C220b-8	396 (BK/OG)	C434-4	C220b-8	396 (BK/OG)	C4033-8	<p>Yes GO to B10.</p> <p>No REPAIR the circuit in question. CLEAR the DTCs. REPEAT the self-test.</p>
Instrument Cluster Connector-Pin	Circuit	Fuel Pump Module Connector-Pin														
C220b-10	29 (YE/WH)	C434-2														
C220b-10	29 (YE/WH)	C4033-5														
C220b-8	396 (BK/OG)	C434-4														
C220b-8	396 (BK/OG)	C4033-8														
<p>B6 CHECK THE FUEL PUMP MODULE FOR A SHORT TO GROUND</p> <ul style="list-style-type: none"> Disconnect: Fuel Pump Module C434 or C4033. Ignition ON. Wait one minute. Enter the following diagnostic mode on the scan tool: Instrument Cluster Self-Test. NOTE: Once set, it is normal for DTC B1204 to be present when carrying out this test step and should be ignored. Clear the instrument cluster DTCs. Repeat the instrument cluster self-test. Is DTC B1201 retrieved? 	<p>Yes For gasoline engines, GO to B10.</p> <p>For diesel engines, INSTALL a new fuel level sender. REFER to Section 310-01. CLEAR the DTCs. REPEAT the self-test.</p> <p>No GO to B7.</p>															
<p>B7 CHECK CIRCUIT 29 (YE/WH) FOR A SHORT TO GROUND</p> <ul style="list-style-type: none"> Disconnect: Instrument Cluster C220b. Measure the resistance between the instrument cluster C220b-10, circuit 29 (YE/WH), harness side and ground. 	<p>Yes GO to B11.</p> <p>No REPAIR the circuit. CLEAR the DTCs. REPEAT the self-test.</p>															



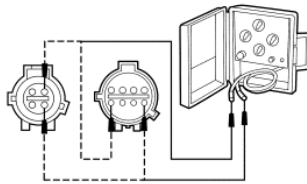
- Is the resistance greater than 10,000 ohms?

B8 CHECK THE FUEL LEVEL INPUT TO THE INSTRUMENT CLUSTER

NOTE: Since the instrument cluster may be in anti-slosh fuel indication mode, the PID values may not match the fuel gauge readings. The actual gauge indication should be disregarded during this test step.

- Ignition OFF.
- Disconnect: Fuel Pump Module C434 or C4033.
- Connect the instrument gauge tester to the fuel pump module as follows:

Connector-Pin	Circuit	Connector-Pin	Circuit
C434-2	29 (YE/WH)	C434-4	396 (BK/OG)
C4033-5	29 (YE/WH)	C4033-8	396 (BK/OG)



- Ignition ON.
- Enter the following diagnostic mode on the scan tool: Instrument Cluster PIDs.
- **NOTE:** It is extremely important to confirm the gauge tester settings with an ohmmeter to ensure that the gauge tester is in the correct position. Failure to follow this check may result in inaccurate test results.
- Monitor the fuel level PID FUEL with the gauge tester set at 15 ohms, 53 ohms, 85 ohms, 115 ohms and 160 ohms.
- Does the PID begin at approximately 0%, move to 25%, 50%, 75% then 100%?

B9 CHECK THE FUEL TANK

- Check the fuel tank for any damage or deformation.
- Is the fuel tank OK?

Yes
DISCONNECT the instrument gauge tester. GO to [B9](#).

No
DISCONNECT the instrument gauge tester. GO to [B11](#).

Yes
For gasoline engines, GO to [B10](#).

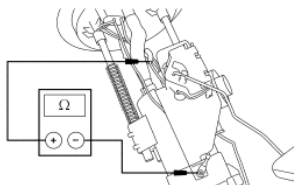
For diesel engines, INSTALL a new fuel level sender. REFER to [Section 310-01](#). CLEAR the DTCs. REPEAT the self-test.

No
VERIFY the fuel level sensor (gasoline and diesel) and the fuel pump module (gasoline only) are OK. INSTALL a new fuel tank. REFER to [Section 310-01](#). CLEAR the DTCs. REPEAT the self-test.

B10 CHECK THE FUEL LEVEL SENSOR

NOTE: The fuel level sensor resistance measures between 15 ohms ± 2 ohms at the lower stop position and 160 ohms ± 4 ohms at the upper stop position.

- Remove the fuel pump module. Refer to [Section 310-01](#).
- **NOTE:** Disconnect the fuel level sensor input wire from the fuel level sensor for this measurement.
- Measure the resistance between the fuel level sensor input wire and the fuel level sensor ground while slowly moving the float arm between the upper and lower stop position.



- Does the resistance slowly increase from approximately 15 ohms to 160 ohms?

Yes
INSTALL a new fuel pump module. REFER to [Section 310-01](#). CLEAR the DTCs. REPEAT the self-test.

No
INSTALL a new fuel level sensor. CLEAR the DTCs. REPEAT the self-test.

B11 CHECK FOR CORRECT INSTRUMENT CLUSTER OPERATION

- Disconnect all the instrument cluster connectors.
- Check for:
 - corrosion
 - damaged pins
 - pushed-out pins
- Connect all the instrument cluster connectors and make sure they seat correctly.
- Operate the system and verify the concern is still present.
- Is the concern still present?

Yes
INSTALL a new instrument cluster. REFER to [Instrument Cluster \(IC\)](#) in this section. TEST the system for normal operation.

No
The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR the DTCs. REPEAT the self-test. TEST the system for normal operation.