

## Communications Network

### Special Tool(s)

 ST1137-A	73III Automotive Meter 105-R0057 or equivalent
 ST2834-A	Vehicle Communication Module (VCM) and Integrated Diagnostic System (IDS) software with appropriate hardware, or equivalent scan tool
 ST2574-A	Flex Probe Kit 105-R025C or equivalent

### Principles of Operation

**NOTE:** The Smart Junction Box (SJB) is also known as the Generic Electronic Module (GEM).

Vehicle communication utilizes both International Standards Organization (ISO) 9141 and controller area network (CAN) communications. ISO 9141 is for diagnostic use only, and **CAN** is a method for transferring data among distributed electronic modules via a serial data bus.

The vehicle is equipped with 3 module communication networks:

- ISO 9141
- Medium Speed Controller Area Network (MS-CAN)
- High Speed Controller Area Network (HS-CAN)

### International Standards Organization (ISO) 9141 Communications Network

The ISO 9141 communications network is a single wire network. The ISO 9141 communications network does not permit intermodule communication. The ISO 9141 is for the Restraints Control Module (RCM) and is for diagnostic use only. When the scan tool communicates to the **RCM**, the scan tool must request all information; the module cannot initiate communications.

The following fault chart describes the specific ISO 9141 network failures and their resulting symptom:

#### ISO 9141 Network Communication Fault Chart

Failure Description	Symptom
ISO circuit open	No communication

ISO circuit short to voltage	No communication
ISO circuit short to ground	No communication
Module loss of voltage or ground	No communication
Module internal failure	No communication

### Medium Speed Controller Area Network (MS-CAN)

The **MS-CAN** uses an unshielded twisted pair cable of data (+) and data (-) circuits. The data (+) and the data (-) circuits are each regulated to approximately 2.5 volts during neutral or rested network traffic. As bus messages are sent on the data (+) circuit, voltage is increased by approximately 1.0 volt. Inversely, the data (-) circuit is reduced by approximately 1.0 volt when a bus message is sent. Multiple bus messages can be sent over the **CAN** circuits allowing multiple modules to communicate with each other. The **MS-CAN** is used for the Instrument Cluster (IC), the Audio Control Module (ACM), the Satellite Digital Audio Receiver System (SDARS) module (if equipped) and the Smart Junction Box (SJB) communications, and designed for general information transfer. The **MS-CAN** will not communicate while certain faults are present, but will operate with diminished performance with other faults present. The **MS-CAN** bus may remain operational when 1 of the 2 termination resistors are not present.

In the event that one of the 2 network circuits ( **MS-CAN +** or **MS-CAN -**) becomes open to a module on the network, unreliable network communication to all modules on the network may result. The module to which the network circuit is open may repeatedly send network messages indicating there has been partial data received. This type of message is referred to as a Negative-Acknowledge (NACK) message. Repeated **NACK** messages may "load" the network with too much activity causing intermittent no communication to other network modules and/or the scan tool.

The following fault chart describes the specific **MS-CAN** failures and their resulting symptom:

#### **MS-CAN** Communication Fault Chart

Failure Description	Symptom
<b>MS-CAN (+)</b> shorted to <b>MS-CAN (-)</b>	No communication
<b>MS-CAN (+)</b> short to voltage	No communication
<b>MS-CAN (-)</b> short to voltage	No communication
<b>MS-CAN (+)</b> short to ground	No communication
<b>MS-CAN (-)</b> short to ground	Unreliable communication possible in all network modules
<b>MS-CAN (+)</b> open	Unreliable communication possible in all network modules
<b>MS-CAN (-)</b> open	Unreliable communication possible in all network modules
Module loss of voltage or ground	No communication
Module internal failure	No communication

### High Speed Controller Area Network (HS-CAN)

The **HS-CAN** uses an unshielded twisted pair cable of data (+) and data (-) circuits. The data (+) and the data (-) circuits are each regulated to approximately 2.5 volts during neutral or rested network traffic. As bus messages are sent on the data (+) circuit, voltage is increased by approximately 1.0 volt. Inversely, the data (-) circuit is reduced by approximately 1.0 volt when a bus message is sent. Multiple bus messages can be sent over the **CAN** circuits allowing multiple modules to communicate with each other. The **HS-CAN** is a high speed communication network used for the **IC**, the PCM and the ABS module (if equipped) communications, and designed for real time information transfer and control. The **HS-CAN** will not communicate while certain faults are present, but will operate with diminished performance with other faults present. The **HS-CAN** bus may remain operational when 1 of the 2 termination resistors are not present.

In the event that one of the 2 network circuits ( **HS-CAN +** or **HS-CAN -**) becomes open to a module on the network, unreliable network communication to all modules on the network may result. The module to which the network circuit is open may repeatedly send network messages indicating there has been partial data received. This type of message is referred to as a Negative-Acknowledge (NACK) message. Repeated **NACK** messages

may "load" the network with too much activity causing intermittent no communication to other network modules and/or the scan tool.

The following fault chart describes the specific [HS-CAN](#) failures and their resulting symptom:

### [HS-CAN](#) Communication Fault Chart

Failure Description	Symptom
<a href="#">HS-CAN</a> (+) shorted to <a href="#">HS-CAN</a> (-)	No communication
<a href="#">HS-CAN</a> (+) short to voltage	No communication
<a href="#">HS-CAN</a> (-) short to voltage	No communication
<a href="#">HS-CAN</a> (+) short to ground	No communication
<a href="#">HS-CAN</a> (-) short to ground	Unreliable communication possible in all network modules
<a href="#">HS-CAN</a> (+) open	Unreliable communication possible in all network modules
<a href="#">HS-CAN</a> (-) open	Unreliable communication possible in all network modules
Module loss of voltage or ground	No communication
Module internal failure	No communication

The following chart describes the specific [CAN](#) messages broadcast by each module, and the module(s) that receive the message:

### [CAN](#) Module Communication Message Chart

Broadcast Message	Originating Module	Network Type	Receiving Module (s)
ABS indicator request	ABS module	<a href="#">HS-CAN</a>	• <a href="#">IC</a>
ABS/traction control system configuration	ABS module	<a href="#">HS-CAN</a>	• <a href="#">IC</a>
Accelerator pedal position	PCM	<a href="#">HS-CAN</a>	• ABS module
Accessory delay status	<a href="#">SJB</a>	<a href="#">MS-CAN</a>	• <a href="#">ACM</a>
A/C clutch request	<a href="#">SJB</a>	<a href="#">MS-CAN</a>	• <a href="#">IC</a>
A/C clutch request (gateway)	<a href="#">IC</a>	<a href="#">HS-CAN</a>	• PCM
A/C clutch status	PCM	<a href="#">HS-CAN</a>	• <a href="#">IC</a>
Axle ratio	PCM	<a href="#">HS-CAN</a>	• ABS module
Barometric pressure	PCM	<a href="#">HS-CAN</a>	• ABS module • <a href="#">IC</a>
Barometric pressure (gateway)	<a href="#">IC</a>	<a href="#">MS-CAN</a>	• <a href="#">SJB</a>
Battery saver status	<a href="#">SJB</a>	<a href="#">MS-CAN</a>	• <a href="#">IC</a>
Brake deactivator switch status	PCM	<a href="#">HS-CAN</a>	• ABS module
Brake fluid level	<a href="#">SJB</a>	<a href="#">MS-CAN</a>	• <a href="#">IC</a>
Brake fluid level (gateway)	<a href="#">IC</a>	<a href="#">HS-CAN</a>	• ABS module
Brake malfunction indicator request	ABS module	<a href="#">HS-CAN</a>	• <a href="#">IC</a>
Brake switch status	<a href="#">SJB</a>	<a href="#">MS-CAN</a>	• <a href="#">IC</a>
Brake switch status (gateway)	<a href="#">IC</a>	<a href="#">HS-CAN</a>	• ABS module
Charging system warning indicator request	PCM	<a href="#">HS-CAN</a>	• <a href="#">IC</a>
Door ajar status (LF, RF, luggage compartment)	<a href="#">SJB</a>	<a href="#">MS-CAN</a>	• <a href="#">IC</a>
Daytime Running Lamps (DRL) indicator request	<a href="#">SJB</a>	<a href="#">MS-CAN</a>	• <a href="#">IC</a>

Engine coolant temperature	PCM	<a href="#">HS-CAN</a>	• <a href="#">IC</a>
Engine fail-safe cooling mode	PCM	<a href="#">HS-CAN</a>	• <a href="#">IC</a>
Engine fail-safe (wrench) indicator request	PCM	<a href="#">HS-CAN</a>	• <a href="#">IC</a>
Engine fuel consumption data	PCM	<a href="#">HS-CAN</a>	• <a href="#">IC</a>
Engine Malfunction Indicator Lamp (MIL) request	PCM	<a href="#">HS-CAN</a>	• <a href="#">IC</a>
Engine oil pressure	<a href="#">SJB</a>	<a href="#">MS-CAN</a>	• <a href="#">IC</a>
Engine RPM	PCM	<a href="#">HS-CAN</a>	• ABS module • <a href="#">IC</a>
Engine supercharger boost pressure	PCM	<a href="#">HS-CAN</a>	• <a href="#">IC</a>
Engine torque data	PCM	<a href="#">HS-CAN</a>	• ABS module
Engine torque reduction request	ABS module	<a href="#">HS-CAN</a>	• PCM
Engine vacuum	PCM	<a href="#">HS-CAN</a>	• ABS module
Fuel cap off indicator request	PCM	<a href="#">HS-CAN</a>	• <a href="#">IC</a>
Fuel level input status, sender 1 and 2	<a href="#">SJB</a>	<a href="#">MS-CAN</a>	• <a href="#">IC</a>
Fuel level input status, sender 1 and 2 (gateway)	<a href="#">IC</a>	<a href="#">HS-CAN</a>	• PCM
Headlamp high beam status	<a href="#">SJB</a>	<a href="#">MS-CAN</a>	• <a href="#">IC</a>
Headlamp low beam status	<a href="#">SJB</a>	<a href="#">MS-CAN</a>	• <a href="#">IC</a>
Headlamp on warning chime request	<a href="#">SJB</a>	<a href="#">MS-CAN</a>	• <a href="#">IC</a>
Ignition switch position	<a href="#">SJB</a>	<a href="#">MS-CAN</a>	• <a href="#">ACM</a> • <a href="#">IC</a>
Ignition switch position (gateway)	<a href="#">IC</a>	<a href="#">HS-CAN</a>	• ABS module • PCM
Illumination dimmer level	<a href="#">SJB</a>	<a href="#">MS-CAN</a>	• <a href="#">ACM</a> • <a href="#">IC</a>
Key-in-ignition status	<a href="#">IC</a>	<a href="#">MS-CAN</a>	• <a href="#">SJB</a>
Odometer count	PCM	<a href="#">HS-CAN</a>	• <a href="#">IC</a>
Parking brake status	<a href="#">SJB</a>	<a href="#">MS-CAN</a>	• <a href="#">IC</a>
Parking brake status (gateway)	<a href="#">IC</a>	<a href="#">HS-CAN</a>	• ABS module • PCM
Parking lamp status	<a href="#">SJB</a>	<a href="#">MS-CAN</a>	• <a href="#">IC</a>
Passive Anti-Theft System (PATS) indicator status	PCM	<a href="#">HS-CAN</a>	• <a href="#">IC</a>
Perimeter anti-theft status	<a href="#">SJB</a>	<a href="#">MS-CAN</a>	• <a href="#">IC</a>
Speed control set indicator request	PCM	<a href="#">HS-CAN</a>	• ABS module • <a href="#">IC</a>
Tire size information	ABS module	<a href="#">HS-CAN</a>	• PCM
Tire Pressure Monitoring System (TPMS) system status	<a href="#">SJB</a>	<a href="#">MS-CAN</a>	• <a href="#">IC</a>
<a href="#">TPMS</a> sensor status (LF, RF, RR, LR, spare)	<a href="#">SJB</a>	<a href="#">MS-CAN</a>	• <a href="#">IC</a>
Transmission clutch pedal position	PCM	<a href="#">HS-CAN</a>	• ABS module
Traction control disable switch status	<a href="#">IC</a>	<a href="#">HS-CAN</a>	• ABS module
Traction control event in progress	ABS module	<a href="#">HS-CAN</a>	• PCM
Traction control indicator request	ABS module	<a href="#">HS-CAN</a>	• <a href="#">IC</a>
Transmission overdrive indicator status	PCM	<a href="#">HS-CAN</a>	• <a href="#">IC</a>
Transmission selector (PRNDL) range	PCM	<a href="#">HS-CAN</a>	• ABS module • <a href="#">IC</a>
Transmission selector (PRNDL) range (gateway)	<a href="#">IC</a>	<a href="#">MS-CAN</a>	• <a href="#">SJB</a>

Transmission shift in progress	PCM	<a href="#">HS-CAN</a>	<ul style="list-style-type: none"> <li>• ABS module</li> </ul>
Transmission type	PCM	<a href="#">HS-CAN</a>	<ul style="list-style-type: none"> <li>• ABS module</li> </ul>
Turn signal indicator request	<a href="#">SJB</a>	<a href="#">MS-CAN</a>	<ul style="list-style-type: none"> <li>• <a href="#">IC</a></li> </ul>
Vehicle speed	PCM	<a href="#">HS-CAN</a>	<ul style="list-style-type: none"> <li>• ABS module</li> <li>• <a href="#">IC</a></li> </ul>
Vehicle speed (gateway)	<a href="#">IC</a>	<a href="#">MS-CAN</a>	<ul style="list-style-type: none"> <li>• <a href="#">ACM</a></li> <li>• <a href="#">SJB</a></li> </ul>
Vehicle Identification Number (VIN) information	PCM	<a href="#">HS-CAN</a>	<ul style="list-style-type: none"> <li>• ABS module</li> <li>• <a href="#">IC</a></li> </ul>
Wheel speed output (RF, LF, RR, LR)	ABS module	<a href="#">HS-CAN</a>	<ul style="list-style-type: none"> <li>• PCM</li> </ul>

## Inspection and Verification

1. Verify the customer concern.
2. Visually inspect for obvious signs of electrical damage.
  - If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.

## Visual Inspection Chart

Electrical
<ul style="list-style-type: none"> <li>• Bussed Electrical Center (BEC) fuse(s): <ul style="list-style-type: none"> <li>■ 42 (15A) (no communication with PCM)</li> <li>■ 45 (10A) (no communication with PCM)</li> <li>■ 56 (20A) (no communication with Audio Control Module (ACM), Satellite Digital Audio Receiver System (SDARS) module)</li> <li>■ 59 (30A) (no communication with <a href="#">SJB</a>)</li> <li>■ 63 (30A) (no communication with <a href="#">SJB</a>)</li> <li>■ 65 (30A) (no communication with ABS module)</li> <li>■ 67 (30A) (no communication with <a href="#">SJB</a>)</li> </ul> </li> <li>• Smart Junction Box (SJB) fuse(s): <ul style="list-style-type: none"> <li>■ 8 (10A) (no communication with Instrument Cluster (IC), no power to scan tool)</li> <li>■ 16 (5A) (no communication with <a href="#">IC</a>)</li> <li>■ 17 (10A) (no communication with Restraints Control Module (RCM))</li> <li>■ 18 (10A) (no communication with ABS module)</li> <li>■ 19 (5A) (no communication with <a href="#">IC</a>, PCM)</li> </ul> </li> <li>• Data Link Connector (DLC)</li> <li>• Wiring harness</li> <li>• Wiring, terminals or connectors</li> </ul>

3. Connect the scan tool to the [DLC](#).
  - **NOTE:** Make sure to use the latest scan tool software release.

**NOTE:** The Vehicle Communication Module (VCM) LED prove-out confirms power and ground from the [DLC](#) are provided to the [VCM](#).

If the Integrated Diagnostic System (IDS) does not communicate with the [VCM](#):

- Check the [VCM](#) connection to the vehicle.
- Check the scan tool connection to the [VCM](#).
- [GO to Pinpoint Test L](#), to diagnose No Power To The Scan Tool.

4. Establish a scan tool session.
  - **NOTE:** The scan tool will first attempt to communicate with the PCM, after establishing communication with the PCM, the scan tool will then attempt to communicate with all other

modules on the vehicle.

If an [IDS](#) session cannot be established with the vehicle, ([IDS](#) may state "No communication can be established with the PCM"):

- Choose "NO" when the scan tool prompts whether or not to retry communication.
- Enter either a PCM part number, tear tag or calibration number to identify the vehicle and start a session (the PCM part number and 4-character tear tag are printed on the PCM label).
- [GO to Pinpoint Test A](#) , to diagnose The PCM Does Not Respond To The Scan Tool.

5. Carry out the network test.

- If the network test passes, retrieve and record the continuous memory DTCs and proceed to Step 6.
- If the network test fails, GO to [Symptom Chart](#) to diagnose the failed communication network.
- If a module fails to communication during the network test, GO to [Symptom Chart](#) .

6. Retrieve and review the DTCs.

- If the DTCs retrieved are related to the concern, go to DTC Charts. Follow the non-network DTC diagnostics (B-codes, C-codes, P-codes) prior to the network DTC diagnostics (U-codes). For all other DTCs, refer to the Diagnostic Trouble Code (DTC) Chart in [Section 419-10](#) .
- If no DTCs related to the concern are retrieved, GO to [Symptom Chart](#) .

## DTC Charts

**NOTE:** Network DTCs (U-codes) are often a result of intermittent concerns such as faulty wiring or low battery voltage occurrences. Additionally, vehicle service procedures such as module reprogramming will often set network DTCs. Replacing a module to resolve a network DTC is unlikely to resolve the concern. To prevent repeat network DTC concerns, inspect all network wiring, especially connectors. Test the vehicle battery, refer to [Section 414-01](#) .

### Communication Network DTC Chart

**NOTE:** DTC U1900 will set in a module that is reporting a communication fault from another module on the data bus. The module that reports the fault is not the problem module.

DTC	Description	Source	Action
U0073	Control Module Communication Bus A Off	ABS module	DTC U0073 indicates the module could not communicate on the network at a point in time. The fault is currently not present. CLEAR the DTC. REPEAT the network test with the scan tool.
U0073	Control Module Communication Bus A Off	Instrument Cluster (IC)	DTC U0073 indicates the module could not communicate on the network at a point in time. The fault is currently not present. CLEAR the DTC. REPEAT the network test with the scan tool.
U0073	Control Module Communication Bus A Off	Smart Junction Box (SJB)	DTC U0073 indicates the module could not communicate on the network at a point in time. The fault is currently not present. CLEAR the DTC. REPEAT the network test with the scan tool.
U0140	Lost Communication With Body Control Module ( <a href="#">GEM</a> )	Audio Control Module (ACM)	REFER to <a href="#">Section 415-00</a> .
U0155	Lost Communication With Instrument Panel Cluster ( <a href="#">IC</a> ) Control Module	<a href="#">ACM</a>	REFER to <a href="#">Section 415-00</a> .
U0159	Lost Communication With	<a href="#">ACM</a>	DISREGARD this DTC.

	Parking Assist Control Module ( <a href="#">PAM</a> )		
U0184	Lost Communication With Radio ( <a href="#">ACM</a> )	Satellite Digital Audio Receiver System (SDARS) module	REFER to <a href="#">Section 415-00</a> .
U0193	Lost Communication With Digital Audio Control Module ( <a href="#">SDARS</a> )	<a href="#">ACM</a>	REFER to <a href="#">Section 415-00</a> .
U0196	Lost Communication With Entertainment Control Module - Rear (AUX)	<a href="#">ACM</a>	DISREGARD this DTC. This vehicle is not equipped with an auxiliary <a href="#">ACM</a> .
U0197	Lost Communication With Telephone Control Module	<a href="#">ACM</a>	DISREGARD this DTC. This vehicle is not equipped with a telephone control module.
U0197	Lost Communication With Telephone Control Module	<a href="#">SDARS</a> module	DISREGARD this DTC. This vehicle is not equipped with a telephone control module.
U0238	Lost Communication With Digital Audio Control Module "D" ( <a href="#">DSP</a> )	<a href="#">ACM</a>	DISREGARD this DTC. This vehicle is not equipped with a networked audio Digital Signal Processing (DSP) module.
U0249	Lost Communication With Entertainment Control Module - Rear "B" (RCU)	<a href="#">ACM</a>	DISREGARD this DTC. This vehicle is not equipped with a Rear Entertainment Module (RETM).
U1900	<a href="#">CAN</a> Communication Bus Fault-Receive Error	ABS module	GO to <a href="#">Symptom Chart</a> for module that failed network test.
U1900	<a href="#">CAN</a> Communication Bus Fault-Receive Error	<a href="#">IC</a>	GO to <a href="#">Symptom Chart</a> for module that failed network test.
U1900	<a href="#">CAN</a> Communication Bus Fault-Receive Error	<a href="#">SJB</a>	GO to <a href="#">Symptom Chart</a> for module that failed network test.
U2011	Module Transmitted Invalid Data (Non- <a href="#">SCP</a> )	ABS module	RETRIEVE and FOLLOW DTCs from the PCM.
U2023	Fault Received From External Node	<a href="#">IC</a>	RETRIEVE AND FOLLOW non-network DTCs from module with non-network fault code present. REFER to <a href="#">Section 419-10</a> .
U2033	<a href="#">VSM</a> Communication Link Failure	<a href="#">SJB</a>	The communication network to the overhead console is not accessible through the vehicle Data Link Connector (DLC). REFER to <a href="#">Section 419-01A</a> .
U2473	Unexpected Vehicle Speed ( <a href="#">VSS</a> )	<a href="#">ACM</a>	REFER to <a href="#">Section 415-00</a> .

## Symptom Chart

### Symptom Chart

Condition	Possible Sources	Action
<ul style="list-style-type: none"> <li>The PCM does not respond to the scan tool</li> </ul>	<ul style="list-style-type: none"> <li>Wiring, terminals or connectors</li> <li>PCM</li> </ul>	<ul style="list-style-type: none"> <li>REFER to the Powertrain Control/Emissions Diagnosis (PC/ED) manual, Section 5, pinpoint test QA before proceeding to <a href="#">Pinpoint Test A</a> . If pinpoint test QA has been completed, <a href="#">GO to Pinpoint Test A</a> .</li> </ul>
<ul style="list-style-type: none"> <li>The ABS module does not respond to the scan tool</li> </ul>	<ul style="list-style-type: none"> <li>Fuse</li> <li>Wiring,</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">GO to Pinpoint Test B</a> .</li> </ul>

	<ul style="list-style-type: none"> <li>terminals or connectors</li> <li>ABS module</li> </ul>	
<ul style="list-style-type: none"> <li>The Instrument Cluster (IC) does not respond to the scan tool</li> </ul>	<ul style="list-style-type: none"> <li>Fuse</li> <li>Wiring, terminals or connectors</li> <li><a href="#">IC</a></li> </ul>	<ul style="list-style-type: none"> <li><a href="#">GO to Pinpoint Test C.</a></li> </ul>
<ul style="list-style-type: none"> <li>The Smart Junction Box (SJB) does not respond to the scan tool</li> </ul>	<ul style="list-style-type: none"> <li>Fuse</li> <li>Wiring, terminals or connectors</li> <li><a href="#">SJB</a></li> </ul>	<ul style="list-style-type: none"> <li><a href="#">GO to Pinpoint Test D.</a></li> </ul>
<ul style="list-style-type: none"> <li>The Audio Control Module (ACM) does not respond to the scan tool</li> </ul>	<ul style="list-style-type: none"> <li>Fuse</li> <li>Wiring, terminals or connectors</li> <li><a href="#">ACM</a></li> </ul>	<ul style="list-style-type: none"> <li><a href="#">GO to Pinpoint Test E.</a></li> </ul>
<ul style="list-style-type: none"> <li>The Satellite Digital Audio Receiver System (SDARS) module does not respond to the scan tool</li> </ul>	<ul style="list-style-type: none"> <li>Fuse</li> <li>Wiring, terminals or connectors</li> <li><a href="#">SDARS</a> module</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">GO to Pinpoint Test F.</a></li> </ul>
<ul style="list-style-type: none"> <li>The Restraints Control Module (RCM) does not respond to the scan tool or no ISO 9141 network communication</li> </ul>	<ul style="list-style-type: none"> <li>Fuse</li> <li>Wiring, terminals or connectors</li> <li><a href="#">RCM</a></li> </ul>	<ul style="list-style-type: none"> <li><a href="#">GO to Pinpoint Test G.</a></li> </ul>
<ul style="list-style-type: none"> <li>Intermittent no Medium Speed Controller Area Network (MS-CAN) communication, communication can be intermittently established</li> </ul>	<ul style="list-style-type: none"> <li>Wiring, terminals or connectors</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">GO to Pinpoint Test H.</a></li> </ul>
<ul style="list-style-type: none"> <li>No Medium Speed Controller Area Network (MS-CAN) communication, communication can be intermittently established</li> </ul>	<ul style="list-style-type: none"> <li>Wiring, terminals or connectors</li> <li><a href="#">SJB</a></li> <li><a href="#">ACM</a></li> <li><a href="#">SDARS</a> module (if equipped)</li> <li><a href="#">IC</a></li> </ul>	<ul style="list-style-type: none"> <li><a href="#">GO to Pinpoint Test I.</a></li> </ul>
<ul style="list-style-type: none"> <li>Intermittent no High Speed Controller Area Network (HS-CAN) communication, communication can be intermittently established</li> </ul>	<ul style="list-style-type: none"> <li>Wiring, terminals or connectors</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">GO to Pinpoint Test J.</a></li> </ul>
<ul style="list-style-type: none"> <li>No High Speed Controller Area Network (HS-CAN) communication, all modules are not responding</li> </ul>	<ul style="list-style-type: none"> <li>Wiring, terminals or connectors</li> <li>ABS module (if equipped)</li> <li><a href="#">IC</a></li> <li>PCM</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">GO to Pinpoint Test K.</a></li> </ul>
<ul style="list-style-type: none"> <li>No power to the scan tool</li> </ul>	<ul style="list-style-type: none"> <li>Fuse</li> <li>Wiring, terminals or connectors</li> <li>Scan tool</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">GO to Pinpoint Test L.</a></li> </ul>

- Data Link Connector (DLC)

## Pinpoint Tests

### Pinpoint Test A: The PCM Does Not Respond To The Scan Tool

Refer to Wiring Diagrams Cell [14](#), Module Communications Network for schematic and connector information.

Refer to Wiring Diagrams Cell [23](#), Electronic Engine Controls - 4.0L for schematic and connector information.

Refer to Wiring Diagrams Cell [24](#), Electronic Engine Controls - 4.6L for schematic and connector information.

Refer to Wiring Diagrams Cell [25](#), Electronic Engine Controls - 5.4L for schematic and connector information.

### Normal Operation

The PCM communicates with the scan tool through the High Speed Controller Area Network (HS-CAN). Circuits 1827 (WH/LG) ( [HS-CAN](#) +) and 1828 (PK/LG) ( [HS-CAN](#) -) provide the network connection to the PCM. The PCM shares the [HS-CAN](#) with the ABS module (if equipped), and the Instrument Cluster (IC).

#### This pinpoint test is intended to diagnose the following:

- Wiring, terminals or connectors
- PCM

### PINPOINT TEST A: THE PCM DOES NOT RESPOND TO THE SCAN TOOL

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

**NOTE:** Failure to disconnect the battery when instructed will result in false resistance readings. Refer to [Section 414-01](#).

Test Step	Result / Action to Take
<b>A1 VERIFY WHETHER OTHER <a href="#">HS-CAN</a> MODULES PASS THE NETWORK TEST</b> <ul style="list-style-type: none"> <li>• Enter the following diagnostic mode on the scan tool: Network Test.</li> <li>• In the left hand pane of the <a href="#">IDS</a> network test display screen, verify whether any <a href="#">HS-CAN</a> modules passed the network test.</li> <li>• <b>Is the text "pass" or a DTC listed next to any of the following modules: ABS module, Instrument Cluster (IC) or PCM?</b></li> </ul>	<p><b>Yes</b> If "pass" or a DTC was listed next to the PCM, a network fault is not currently present. <a href="#">GO to Pinpoint Test J</a> to diagnose an intermittent <a href="#">HS-CAN</a> fault condition.</p> <p>If "pass" or a DTC was listed next to one or more modules other than the PCM, GO to <a href="#">A2</a>.</p> <p><b>No</b> No modules are currently communicating on the <a href="#">HS-CAN</a>. <a href="#">GO to Pinpoint Test K</a> to diagnose no <a href="#">HS-CAN</a> communication.</p>

## A2 **PC/ED** MANUAL PINPOINT TEST QA VERIFICATION CHECK

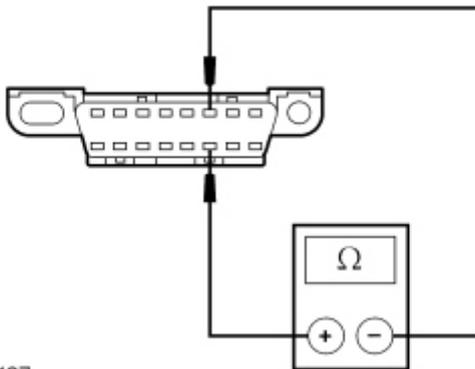
- Verify that the Powertrain Control/Emissions Diagnosis (PC/ED) pinpoint test QA has been performed.
- **Has pinpoint test QA been performed?**

**Yes**  
GO to [A3](#).

**No**  
REFER to the Powertrain Control/Emissions Diagnosis (PC/ED) manual, Section 5, pinpoint test QA to diagnose no communication with the PCM.

## A3 CHECK THE **HS-CAN** TERMINATION RESISTANCE

- Ignition OFF.
- Disconnect: Negative Battery Cable.
- Measure the resistance between the Data Link Connector (DLC) C251-6, circuit 1827 (WH/LG), harness side and the **DLC** C251-14, circuit 1828 (PK/LG), harness side.



N0026427

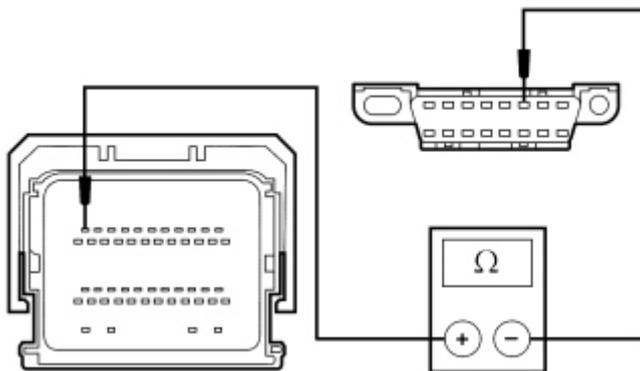
- **Is the resistance between 54 and 66 ohms?**

**Yes**  
CONNECT the negative battery cable. GO to [A5](#).

**No**  
GO to [A4](#).

## A4 CHECK THE **CAN** CIRCUITS BETWEEN THE PCM AND THE **DLC** FOR AN OPEN

- Disconnect: PCM C175b.
- Measure the resistance between the PCM C175b-11, circuit 1827 (WH/LG), harness side and the **DLC** C251-6, circuit 1827 (WH/LG), harness side.

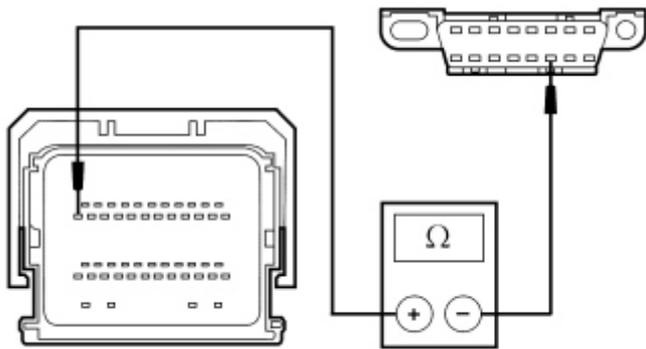


N0002560

- Measure the resistance between the PCM C175b-23, circuit 1828 (PK/LG), harness side and the **DLC** C251-14, circuit 1828 (PK/LG), harness side.

**Yes**  
CONNECT the negative battery cable. GO to [A5](#).

**No**  
REPAIR the circuit in question. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.



N0002561

- Are the resistances less than 5 ohms?

#### A5 CHECK FOR CORRECT PCM OPERATION

- Disconnect all the PCM connectors.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect all the PCM 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 PCM. REFER to [Section 303-14](#). CLEAR the DTCs. REPEAT the network test with the scan tool.

#### 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 network test with the scan tool.

### Pinpoint Test B: The ABS Module Does Not Respond To The Scan Tool

Refer to Wiring Diagrams Cell [14](#), Module Communications Network for schematic and connector information.

Refer to Wiring Diagrams Cell [42](#), Vehicle Dynamic Systems for schematic and connector information.

#### Normal Operation

The ABS module communicates with the scan tool through the High Speed Controller Area Network (HS-CAN). Circuits 1827 (WH/LG) ( [HS-CAN+](#) ) and 1828 (PK/LG) ( [HS-CAN-](#) ) provide the network connection to the ABS module. The ABS module shares the [HS-CAN](#) with the PCM and the Instrument Cluster (IC). Voltage for the ABS module is provided by circuits 601 (LB/PK) and 1844 (LG/RD). Both circuits 1205 (BK) provide ground.

#### This pinpoint test is intended to diagnose the following:

- Fuse
- Wiring, terminals or connectors
- ABS module

### PINPOINT TEST B: THE ABS MODULE DOES NOT RESPOND TO THE SCAN TOOL

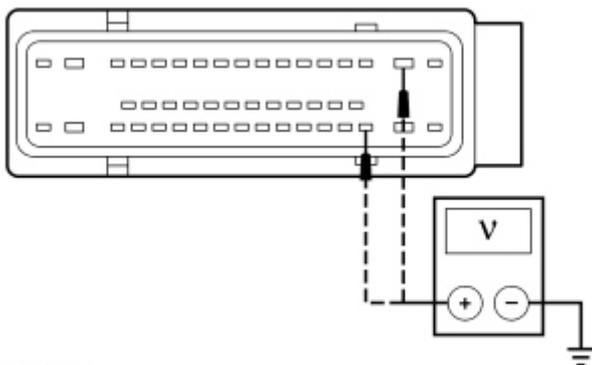
**NOTICE:** Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may damage the connector.

**NOTE:** Failure to disconnect the battery when instructed will result in false resistance readings. Refer to [Section 414-01](#).

Test Step	Result / Action to Take

### B1 CHECK THE ABS MODULE VOLTAGE SUPPLY CIRCUITS FOR AN OPEN

- Ignition OFF.
- Disconnect: ABS Module C135.
- Ignition ON.
- Measure the voltage between the ABS module C135-2, circuit 601 (LB/PK), harness side and ground; and between the ABS module C135-32, circuit 1844 (LG/RD), harness side and ground.



- Are the voltages greater than 10 volts?

**Yes**  
GO to [B2](#).

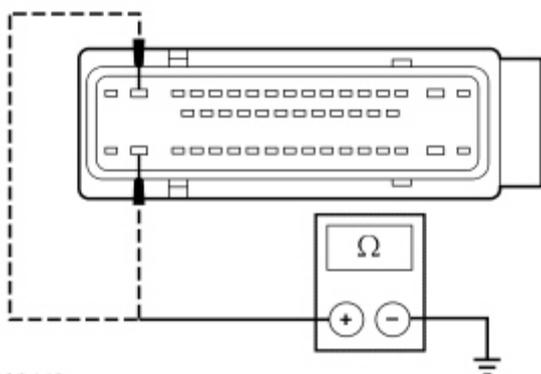
**No**  
VERIFY the [SJB](#) fuse 18 (10A) is OK. If OK, REPAIR the circuit. If not OK, REFER to the Wiring Diagrams Manual to IDENTIFY the possible causes of the short circuit.

VERIFY the Bussed Electrical Center (BEC) fuse 65 (30A) is OK. If OK, REPAIR the circuit. If not OK, REFER to the Wiring Diagrams Manual to IDENTIFY the possible causes of the short circuit.

CLEAR the DTCs. REPEAT the network test with the scan tool.

### B2 CHECK THE ABS MODULE GROUND CIRCUITS FOR AN OPEN

- Ignition OFF.
- Disconnect: Negative Battery Cable.
- Measure the resistance between the ABS module C135-16, circuit 1205 (BK), harness side and ground; and between the ABS module C135-45, circuit 1205 (BK), harness side and ground.



- Are the resistances less than 5 ohms?

**Yes**  
GO to [B3](#).

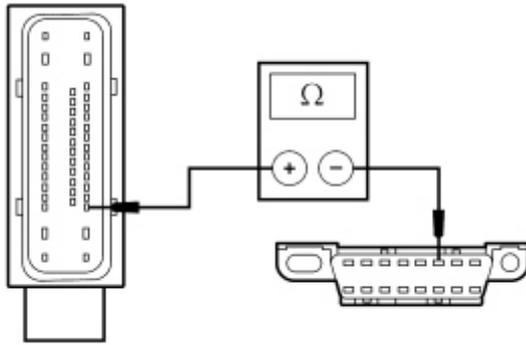
**No**  
REPAIR the circuit in question. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

### B3 CHECK THE [HS-CAN](#) CIRCUITS BETWEEN THE ABS MODULE AND THE [DLC](#) FOR AN OPEN

- Measure the resistance between the ABS module C135-3, circuit 1827 (WH/LG), harness side and the Data Link Connector (DLC) C251-6, circuit 1827 (WH/LG), harness side.

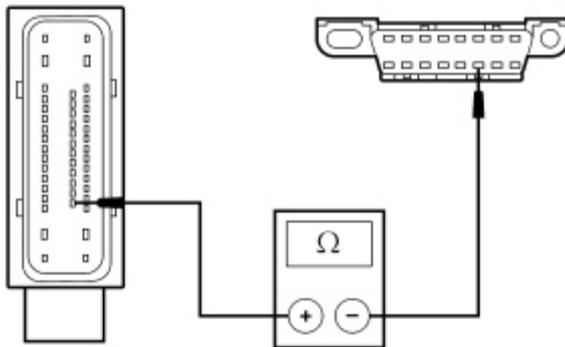
**Yes**  
CONNECT the negative battery cable. GO to [B4](#).

**No**  
REPAIR the circuit in question. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.



N0060136

- Measure the resistance between the ABS module C135-18, circuit 1828 (PK/LG), harness side and the DLC C251-14, circuit 1828 (PK/LG), harness side.



N0060137

- Are the resistances less than 5 ohms?

#### B4 CHECK FOR CORRECT ABS MODULE OPERATION

- Disconnect the ABS module connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the ABS module connector and make sure it seats correctly.
- Operate the system and verify the concern is still present.
- **Is the concern still present?**

#### Yes

INSTALL a new ABS module. REFER to [Section 206-09](#). CLEAR the DTCs. REPEAT the network test with the scan tool.

#### 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 network test with the scan tool.

### Pinpoint Test C: The Instrument Cluster (IC) Does Not Respond To The Scan Tool

Refer to Wiring Diagrams Cell [14](#), Module Communications Network for schematic and connector information.

Refer to Wiring Diagrams Cell [60](#), Instrument Cluster for schematic and connector information.

#### Normal Operation

The Instrument Cluster (IC) communicates with the scan tool through the High Speed Controller Area Network (HS-CAN). Circuits 1827 (WH/LG) ( HS-CAN +) and 1828 (PK/LG) ( HS-CAN -) provide the HS-CAN connection to the IC and circuits 1847 (WH/OG) ( MS-CAN +) and 1848 (PK/OG) ( MS-CAN -) provide the MS-CAN connection to the IC. The IC shares the HS-CAN with the PCM, and the ABS module (if equipped). Voltage for

the **IC** is provided by circuits 489 (PK/BK), 1001 (LG/RD) and 1266 (RD/YE). Circuit 1205 (BK) provides ground.

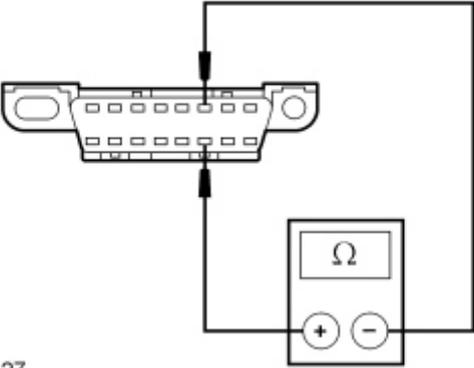
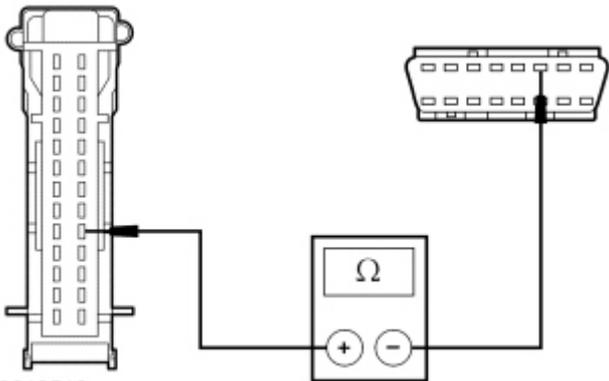
**This pinpoint test is intended to diagnose the following:**

- Fuse
- Wiring, terminals or connectors
- **IC**

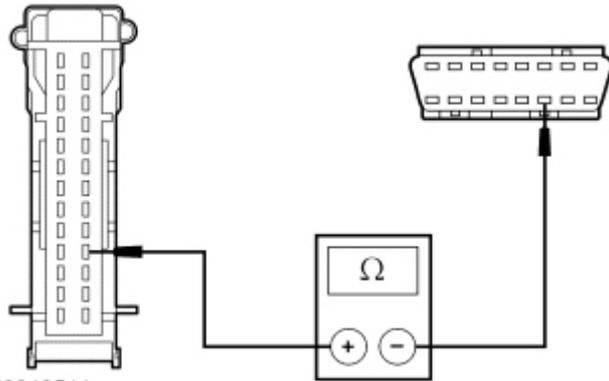
**PINPOINT TEST C: THE **IC** DOES NOT RESPOND TO THE SCAN TOOL**

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

**NOTE:** Failure to disconnect the battery when instructed will result in false resistance readings. Refer to [Section 414-01](#).

Test Step	Result / Action to Take
<p><b>C1 CHECK THE <b>HS-CAN</b> TERMINATION RESISTANCE</b></p> <ul style="list-style-type: none"> <li>• Ignition OFF.</li> <li>• Disconnect: Negative Battery Cable.</li> <li>• Disconnect the scan tool cable from the Data Link Connector (DLC).</li> <li>• Measure the resistance between the <b>DLC</b> C251-6, circuit 1827 (WH/LG), harness side and the <b>DLC</b> C251-14, circuit 1828 (PK/LG), harness side.</li> </ul>  <p>N0026427</p> <ul style="list-style-type: none"> <li>• Is the resistance between 54 and 66 ohms?</li> </ul>	<p><b>Yes</b> GO to <a href="#">C3</a>.</p> <p><b>No</b> GO to <a href="#">C2</a>.</p>
<p><b>C2 CHECK THE <b>HS-CAN</b> CIRCUITS BETWEEN <b>IC</b> AND THE <b>DLC</b> FOR AN OPEN</b></p> <ul style="list-style-type: none"> <li>• Measure the resistance between the <b>IC</b> C220-18, circuit 1827 (WH/LG), harness side and the Data Link Connector (DLC) C251-6, circuit 1827 (WH/LG), harness side.</li> </ul>  <p>N0012510</p>	<p><b>Yes</b> CONNECT the negative battery cable. GO to <a href="#">C7</a>.</p> <p><b>No</b> REPAIR the circuit in question. CLEAR the DTCs. REPEAT the network test with the scan tool.</p>

- Measure the resistance between the **IC** C220-17, circuit 1828 (PK/LG), harness side and the **DLC** C251-14, circuit 1828 (PK/LG), harness side.

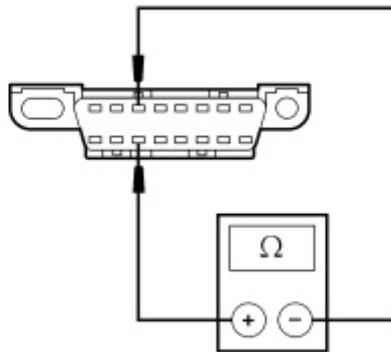


N0012511

- Are the resistances less than 5 ohms?

### C3 CHECK THE **MS-CAN** TERMINATION RESISTANCE

- Measure the resistance between the **DLC** C251-3, circuit 1847 (WH/OG), harness side and the **DLC** C251-11, circuit 1848 (PK/OG), harness side.

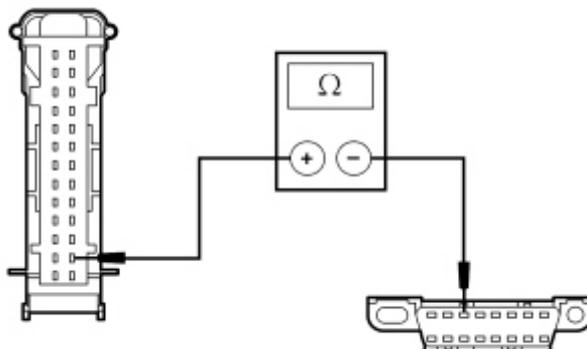


N0050701

- Is the resistance between 54 and 66 ohms?

### C4 CHECK THE **MS-CAN** CIRCUITS BETWEEN THE **IC** AND THE **DLC** FOR AN OPEN

- Measure the resistance between the **IC** C220-15, circuit 1847 (WH/OG), harness side and the **DLC** C251-3, circuit 1847 (WH/OG), harness side.



N0082092

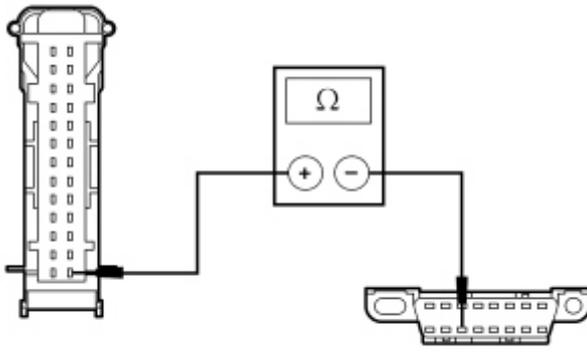
- Measure the resistance between the **IC** C220-14, circuit 1848 (PK/OG), harness side and the **DLC** C251-11, circuit 1848 (PK/OG), harness side.

**Yes**  
GO to [C5](#).

**No**  
GO to [C4](#).

**Yes**  
CONNECT the negative battery cable. GO to [C7](#).

**No**  
REPAIR the circuit in question. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

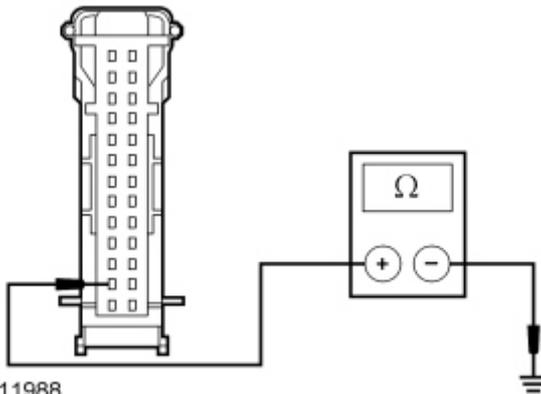


N0082093

- Are the resistances less than 5 ohms?

**C5 CHECK THE IC GROUND CIRCUIT FOR AN OPEN**

- Measure the resistance between the IC C220-2, circuit 1205 (BK) harness side and ground.



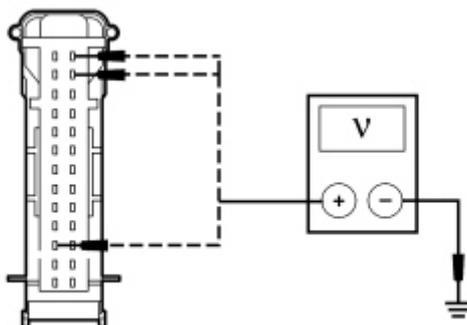
N0011988

- Is the resistance less than 5 ohms?

**C6 CHECK THE IC VOLTAGE SUPPLY CIRCUITS FOR AN OPEN**

- Disconnect: IC C220.
- Ignition ON.
- Measure the voltage between the IC, harness side and ground as follows:

Connector-Pin	Circuit
C220-3	1001 (WH/YE)
C220-25	1266 (RD/YE)
C220-26	489 (PK/BK)



N0084256

- Are the voltages greater than 10 volts?

**Yes**  
CONNECT the negative battery cable. GO to [C6](#).

**No**  
REPAIR the circuit. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

**Yes**  
GO to [C7](#).

**No**  
VERIFY the SJB fuses 8 (10A), 16 (5A), and 19 (5A) are OK. If OK, REPAIR the circuit in question. If not OK, REFER to the Wiring Diagrams Manual to IDENTIFY the possible causes of the short circuit. CLEAR the DTCs. REPEAT the network test with the scan tool.

<b>C7 CHECK FOR CORRECT <u>IC</u> OPERATION</b>	
<ul style="list-style-type: none"> <li>● Disconnect the <u>IC</u> connector.</li> <li>● Check for: <ul style="list-style-type: none"> <li>■ corrosion</li> <li>■ damaged pins</li> <li>■ pushed-out pins</li> </ul> </li> <li>● Connect the <u>IC</u> connector and make sure it seats correctly.</li> <li>● Operate the system and verify the concern is still present.</li> <li>● <b>Is the concern still present?</b></li> </ul>	<p><b>Yes</b> INSTALL a new <u>IC</u>. REFER to <a href="#">Section 413-01</a>. CLEAR the DTCs. REPEAT the network test with the scan tool.</p> <p><b>No</b> 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 network test with the scan tool.</p>

**Pinpoint Test D: The Smart Junction Box (SJB) Does Not Respond To The Scan Tool**

Refer to Wiring Diagrams Cell [10](#), Grounds for schematic and connector information.

Refer to Wiring Diagrams Cell [13](#), Power Distribution/SJB for schematic and connector information.

Refer to Wiring Diagrams Cell [14](#), Module Communications Network for schematic and connector information.

**Normal Operation**

The Smart Junction Box (SJB) communicates with the scan tool through the Medium Speed Controller Area Network (MS-CAN). Circuits 1847 (WH/OG) ( MS-CAN+) and 1848 (PK/OG) ( MS-CAN-) provide the network connection to the SJB. The SJB shares the MS-CAN with the Audio Control Module (ACM), the Satellite Digital Audio Receiver System (SDARS) module (if equipped) and the Instrument Cluster (IC). Voltage for the SJB is provided by circuits 905 (GY/LB), 1052 (TN/BK) and 1523 (DG). Both circuits 1205 (BK) provide ground.

**This pinpoint test is intended to diagnose the following:**

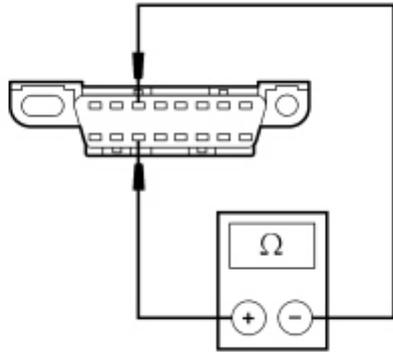
- Fuse
- Wiring, terminals or connectors
- SJB

**PINPOINT TEST D: THE SJB DOES NOT RESPOND TO THE SCAN TOOL**

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

**NOTE:** Failure to disconnect the battery when instructed will result in false resistance readings. Refer to [Section 414-01](#).

<b>Test Step</b>	<b>Result / Action to Take</b>
<b>D1 CHECK THE <u>MS-CAN</u> TERMINATION RESISTANCE</b>	
<ul style="list-style-type: none"> <li>● Ignition OFF.</li> <li>● Disconnect: Negative Battery Cable.</li> <li>● Measure the resistance between the <u>DLC</u> C251-3, circuit 1847 (WH/OG), harness side and the <u>DLC</u> C251-11, circuit 1848 (PK/OG), harness side.</li> </ul>	<p><b>Yes</b> GO to <a href="#">D3</a>.</p> <p><b>No</b> GO to <a href="#">D2</a>.</p>

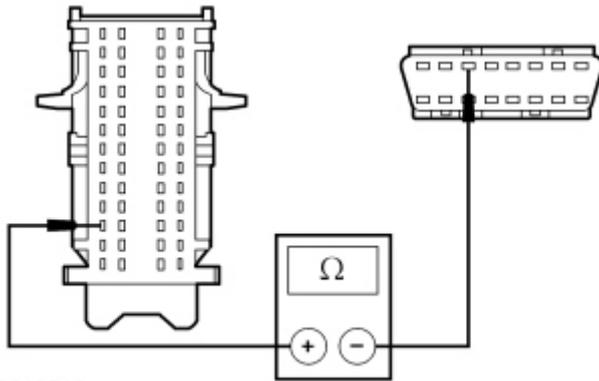


N0050701

- Is the resistance between 54 and 66 ohms?

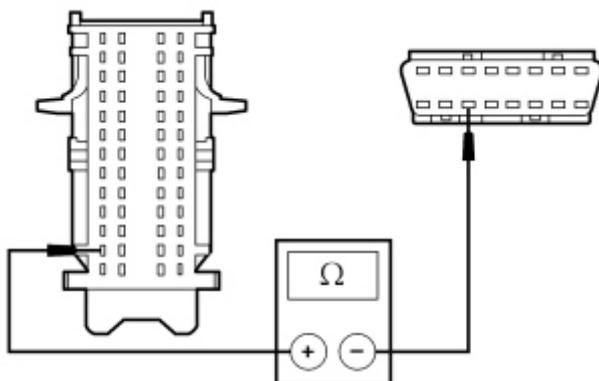
**D2 CHECK THE MS-CAN CIRCUITS BETWEEN THE SJB AND THE DLC FOR AN OPEN**

- Disconnect: SJB C2280b.
- Measure the resistance between the SJB C2280b-50, circuit 1847 (WH/OG), harness side and the Data Link Connector (DLC) C251-3, circuit 1847 (WH/OG), harness side.



N0012516

- Measure the resistance between the SJB C2280b-51, circuit 1848 (PK/OG), harness side and the DLC C251-11, circuit 1848 (PK/OG), harness side.



N0012517

- Are the resistances less than 5 ohms?

**D3 CHECK THE SJB VOLTAGE SUPPLY CIRCUITS FOR AN OPEN**

- Ignition OFF.
- Disconnect: SJB C2280h.
- Connect: Negative Battery Cable.
- Ignition ON.
- Measure the voltage between the SJB, harness side and ground as follows:



**Yes**

GO to [D3](#).

**No**

REPAIR the circuit in question. CLEAR the DTCs. REPEAT the network test with the scan tool.

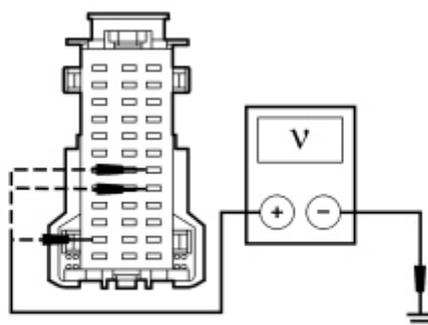
**Yes**

GO to [D4](#).

**No**

VERIFY the Bussed Electrical Center (BEC) fuse(s) 59 (30A), 63 (30A) and 67 (30A) are OK. If

Connector-Pin	Circuit
C2280h-11	1523 (DG)
C2280h-31	905 (GY/LB)
C2280h-32	1052 (TN/BK)



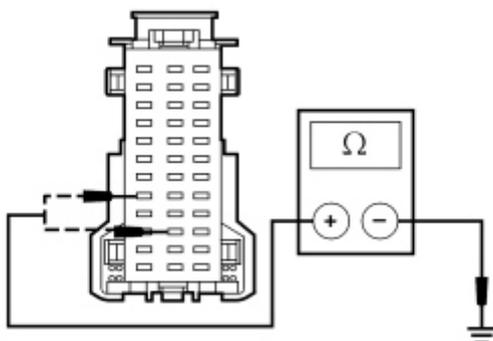
N0094211

- Are the voltages greater than 10 volts?

OK, REPAIR the circuit in question. If not OK, REFER to the Wiring Diagrams Manual to IDENTIFY the possible causes of the short circuit. CLEAR the DTCs. REPEAT the network test with the scan tool.

#### D4 CHECK THE **SJB** GROUND CIRCUITS FOR AN OPEN

- Ignition OFF.
- Measure the resistance between the **SJB** C2280h-8, circuit 1205 (BK), harness side and ground; and between the **SJB** C2280h-22, circuit 1205 (BK), harness side and ground.



N0026852

- Are the resistances less than 5 ohms?

#### Yes

CONNECT the negative battery cable. GO to [D5](#).

#### No

REPAIR the circuit in question. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

#### D5 CHECK FOR CORRECT **SJB** OPERATION

- Disconnect all the **SJB** connectors.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect all the **SJB** 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 **SJB**. REFER to [Section 419-10](#). CLEAR the DTCs. REPEAT the network test with the scan tool.

#### 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 network test with the scan tool.

Refer to Wiring Diagrams Cell [14](#), Module Communications Network for schematic and connector information.

Refer to Wiring Diagrams Cell [130](#), Audio System/Navigation for schematic and connector information.

### Normal Operation

The Audio Control Module (ACM) communicates with the scan tool through the Medium Speed Controller Area Network (MS-CAN). Circuits 1847 (WH/OG) ( [MS-CAN](#) +) and 1848 (PK/OG) ( [MS-CAN](#) -) provide the network connection to the [ACM](#). The [ACM](#) shares the [MS-CAN](#) with the Smart Junction Box (SJB), the [SDARS](#) module (if equipped), and the Instrument Cluster (IC). Voltage for the [ACM](#) is provided by circuits 687 (GY/YE) and 729 (RD/WH). Circuit 1204 (BK/OG) provides ground.

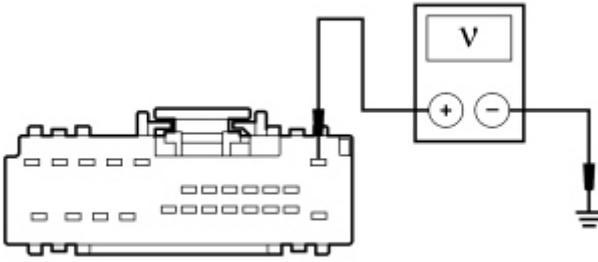
**This pinpoint test is intended to diagnose the following:**

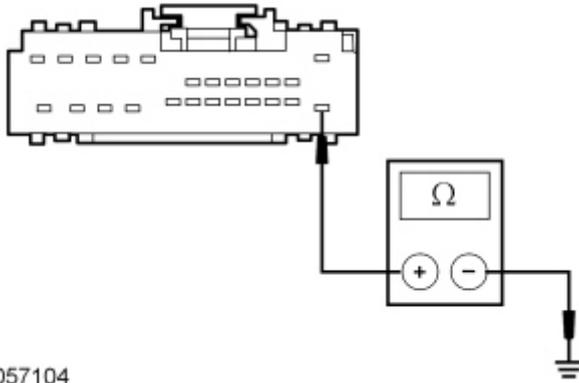
- Fuse
- Wiring, terminals or connectors
- [ACM](#)

### PINPOINT TEST E: THE [ACM](#) DOES NOT RESPOND TO THE SCAN TOOL

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

**NOTE:** Failure to disconnect the battery when instructed will result in false resistance readings. Refer to [Section 414-01](#).

Test Step	Result / Action to Take
<p><b>E1 CHECK THE <a href="#">ACM</a> VOLTAGE SUPPLY CIRCUITS FOR AN OPEN</b></p> <ul style="list-style-type: none"> <li>• Ignition OFF.</li> <li>• Disconnect: <a href="#">ACM</a> C290d.</li> <li>• Ignition ON.</li> <li>• Measure the voltage between the <a href="#">ACM</a> C290d-1, circuit 729 (RD/WH), harness side and ground.</li> </ul>  <p>N0062412</p> <ul style="list-style-type: none"> <li>• Are the voltages greater than 10 volts?</li> </ul>	<p><b>Yes</b> GO to <a href="#">E2</a>.</p> <p><b>No</b> VERIFY the Bussed Electrical Center (BEC) fuse 56 (20A) is OK. If OK, REPAIR the circuit in question. If not OK, REFER to the Wiring Diagrams Manual to IDENTIFY the possible causes of the short circuit. CLEAR the DTCs. REPEAT the network test with the scan tool.</p>
<p><b>E2 CHECK THE <a href="#">ACM</a> GROUND CIRCUIT FOR AN OPEN</b></p> <ul style="list-style-type: none"> <li>• Ignition OFF.</li> <li>• Disconnect: Negative Battery Cable.</li> <li>• Measure the resistance between the <a href="#">ACM</a> C290d-13, circuit 1204 (BK/OG), harness side and ground.</li> </ul>	<p><b>Yes</b> GO to <a href="#">E3</a>.</p> <p><b>No</b> REPAIR the circuit. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.</p>

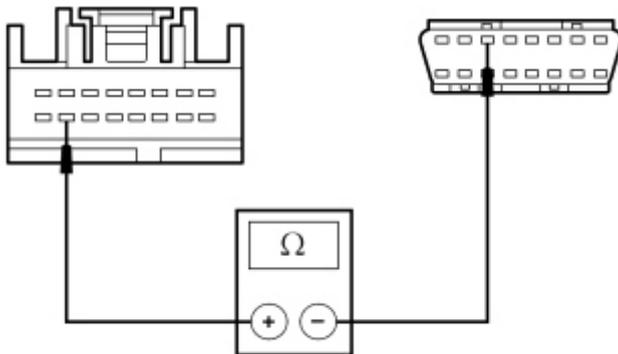


A0057104

- Is the resistance less than 5 ohms?

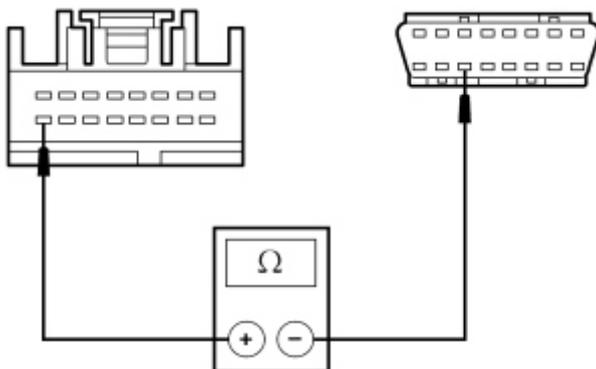
**E3 CHECK THE MS-CAN CIRCUITS BETWEEN THE ACM AND THE DLC FOR AN OPEN**

- Disconnect: ACM C290a.
- Measure the resistance between the ACM C290a-15, circuit 1847 (WH/OG), harness side and the Data Link Connector (DLC) C251-3, circuit 1847 (WH/OG), harness side.



N0012514

- Measure the resistance between the ACM C290a-16, circuit 1848 (PK/OG), harness side and the DLC C251-11, circuit 1848 (PK/OG), harness side.



N0012515

- Are the resistances less than 5 ohms?

**E4 CHECK FOR CORRECT ACM OPERATION**

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

**Yes**

CONNECT the negative battery cable. GO to [E4](#).

**No**

REPAIR the circuit in question. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

**Yes**

INSTALL a new ACM. REFER to [Section 415-00](#). 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 network test with the scan tool.

## Pinpoint Test F: The Satellite Digital Audio Receiver System (SDARS) Module Does Not Respond To The Scan Tool

### Normal Operation

The Satellite Digital Audio Receiver System (SDARS) module communicates with the scan tool through the Medium Speed Controller Area Network (MS-CAN). Circuits 1847 (WH/OG) ( [MS-CAN +](#)) and 1848 (PK/OG) ( [MS-CAN -](#)) provide the network connection to the [SDARS](#) module. The [SDARS](#) module shares the [MS-CAN](#) with the Smart Junction Box (SJB), the Audio Control Module (ACM) and the Instrument Cluster (IC). Voltage for the [SDARS](#) module is provided by circuit 729 (RD/WH). Ground is provided by circuit 1204 (BK/OG).

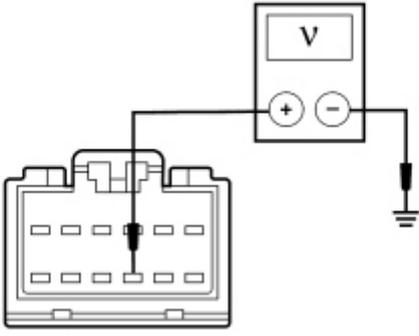
**This pinpoint test is intended to diagnose the following:**

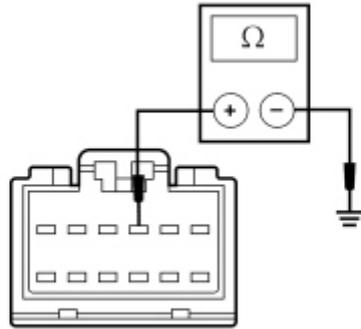
- Fuse
- Wiring, terminals and connectors
- [SDARS](#) module

### PINPOINT TEST F: THE [SDARS](#) MODULE DOES NOT RESPOND TO THE SCAN TOOL

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

**NOTE:** Failure to disconnect the battery when instructed will result in false resistance readings. Refer to [Section 414-01](#).

Test Step	Result / Action to Take
<p><b>F1 CHECK THE <a href="#">SDARS</a> MODULE VOLTAGE SUPPLY CIRCUIT FOR AN OPEN</b></p> <ul style="list-style-type: none"> <li>• Ignition OFF.</li> <li>• Disconnect: <a href="#">SDARS</a> Module C4344.</li> <li>• Ignition ON.</li> <li>• Measure the voltage between the <a href="#">SDARS</a> module C4344-9, circuit 729 (RD/WH), harness side and ground.</li> </ul>  <p>N0053245</p> <ul style="list-style-type: none"> <li>• Is the voltage greater than 10 volts?</li> </ul>	<p><b>Yes</b> GO to <a href="#">F2</a>.</p> <p><b>No</b> VERIFY the Bussed Electrical Center (BEC) fuse 56 (20A) is OK. If OK, REPAIR the circuit in question. If not OK, REFER to the Wiring Diagrams Manual to IDENTIFY the possible causes of the short circuit. CLEAR the DTCs. REPEAT the network test with the scan tool.</p>
<p><b>F2 CHECK THE <a href="#">SDARS</a> MODULE GROUND CIRCUIT FOR AN OPEN</b></p> <ul style="list-style-type: none"> <li>• Ignition OFF.</li> <li>• Disconnect: Negative Battery Cable.</li> <li>• Measure the resistance between the <a href="#">SDARS</a> module C4344-3, circuit 1204 (BK/OG), harness side and ground.</li> </ul>	<p><b>Yes</b> GO to <a href="#">F3</a>.</p> <p><b>No</b></p>



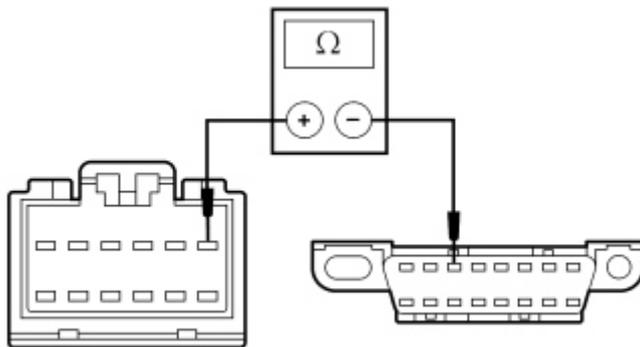
N0053246

- Is the resistance less than 5 ohms?

REPAIR the circuit. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

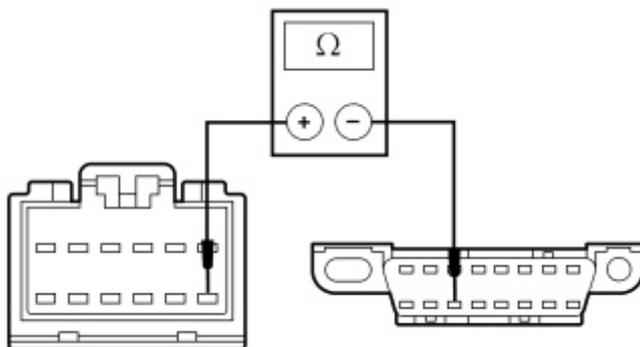
**F3 CHECK THE MS-CAN CIRCUITS BETWEEN THE SDARS MODULE AND THE DLC FOR AN OPEN**

- Measure the resistance between the SDARS module C4344-1, circuit 1847 (WH/OG), harness side and the Data Link Connector (DLC) C251-3, circuit 1847 (WH/OG), harness side.



N0026834

- Measure the resistance between the SDARS module C4344-7, circuit 1848 (PK/OG), harness side and the DLC C251-11, circuit 1848 (PK/OG), harness side.



N0026835

- Are the resistances less than 5 ohms?

**Yes**  
CONNECT the negative battery cable. GO to [F4](#).

**No**  
REPAIR the circuit. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

**F4 CHECK FOR CORRECT SDARS MODULE OPERATION**

- Disconnect the SDARS module connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the SDARS module connector and make sure it seats correctly.
- Operate the system and verify the concern is still present.

**Yes**  
INSTALL a new SDARS module. REFER to [Section 415-00](#). CLEAR the DTCs. REPEAT the network test with the scan tool.

**No**

- Is the concern still present?

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 network test with the scan tool.

### Pinpoint Test G: The Restraints Control Module (RCM) Does Not Respond To The Scan Tool Or No ISO 9141 Network Communication

Refer to Wiring Diagrams Cell [14](#), Module Communications Network for schematic and connector information.

Refer to Wiring Diagrams Cell [46](#), Supplemental Restraint System for schematic and connector information.

#### Normal Operation

The Restraints Control Module (RCM) communicates with the scan tool through the ISO 9141 communications network, circuit 70 (LB/WH). The [RCM](#) is the only module on the ISO 9141 network. Voltage for the [RCM](#) is provided by circuit 937 (RD/WH). Ground is provided by circuit 1203 (BK/LB).

#### This pinpoint test is intended to diagnose the following:

- Fuse
- Wiring, terminals or connectors
- [RCM](#)

### PINPOINT TEST G: PINPOINT TEST G: THE [RCM](#) DOES NOT RESPOND TO THE SCAN TOOL OR NO ISO 9141 NETWORK COMMUNICATION



**WARNING:** Never probe the electrical connectors on air bag, Safety Canopy® or side air curtain modules. Failure to follow this instruction may result in the accidental deployment of these modules, which increases the risk of serious personal injury or death.



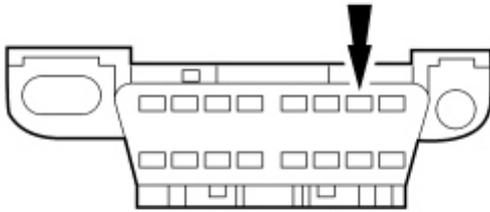
**WARNING:** Never probe the electrical connectors on safety belt buckle/retractor pretensioners or adaptive load limiting retractors. Failure to follow this instruction may result in the accidental deployment of the safety belt pretensioners or adaptive load limiting retractors, which increases the risk of serious personal injury or death.

**NOTE:** The Supplemental Restraint System (SRS) must be fully operational and free of faults before releasing the vehicle to the customer.

**NOTE:** Most faults are due to connector and/or wiring concerns. Carry out a thorough inspection and verification before proceeding with the pinpoint test.

**NOTE:** Failure to disconnect the battery when instructed will result in false resistance readings. Refer to [Section 414-01](#).

Test Step	Result / Action to Take
<b>G1 CHECK THE DATA LINK CONNECTOR (DLC) PINS FOR DAMAGE</b> <ul style="list-style-type: none"> <li>• Ignition OFF.</li> <li>• Disconnect the scan tool cable from the <a href="#">DLC</a>.</li> <li>• Inspect the <a href="#">DLC</a> C251-7 for damage.</li> </ul>	<p><b>Yes</b> GO to <a href="#">G2</a>.</p> <p><b>No</b> REPAIR the <a href="#">DLC</a> as necessary. CLEAR the DTCs. REPEAT the</p>



N0053184

- Is the **DLC** pin 7 OK?

network test with the scan tool.

**G2 CHECK THE **RCM** CONNECTION**

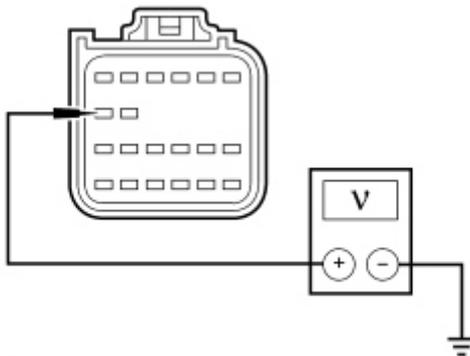
- Depower the **SRS**. Refer to [Section 501-20B](#).
- Disconnect: **RCM** C2041a.
- Are **RCM** C2041a pins 11, 12 and 16 OK?

**Yes**  
GO to [G3](#).

**No**  
REPAIR the **RCM** connector pins as necessary. REPOWER the **SRS**. REFER to [Section 501-20B](#). CLEAR the DTCs. REPEAT the network test with the scan tool.

**G3 CHECK THE **RCM** VOLTAGE SUPPLY CIRCUIT FOR AN OPEN**

- Deactivate the **SRS**. Refer to [Section 501-20B](#).
- Repower the **SRS**. Refer to [Section 501-20B](#).
- Ignition ON.
- Measure the voltage between **RCM** C2041a-12, circuit 937 (RD/WH), harness side and ground.



A0039638

- Is the voltage greater than 10 volts?

**Yes**  
GO to [G4](#).

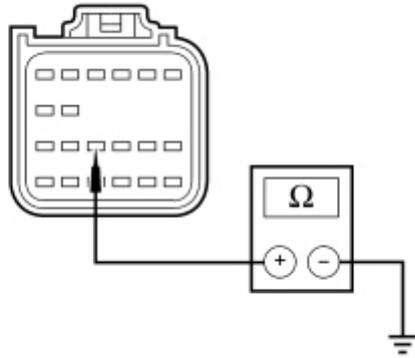
**No**  
VERIFY the Smart Junction Box (SJB) fuse 17 (10A) is OK. If OK, REPAIR the circuit. If not OK, REFER to the Wiring Diagrams Manual to IDENTIFY the possible causes of the short circuit. REACTIVATE the **SRS**. REFER to [Section 501-20B](#). CLEAR the DTCs. REPEAT the network test with the scan tool.

**G4 CHECK THE **RCM** GROUND CIRCUIT FOR AN OPEN**

- Ignition OFF.
- Disconnect: Negative Battery Cable.
- Measure the resistance between **RCM** C2041a-16, circuit 1203 (BK/LB), harness side and a sheet metal ground near the **RCM**.

**Yes**  
CONNECT the negative battery cable. GO to [G5](#).

**No**  
REPAIR the circuit. CONNECT the negative battery cable. REACTIVATE the **SRS**. REFER to [Section 501-20B](#). CLEAR the DTCs. REPEAT the network test with the scan tool.

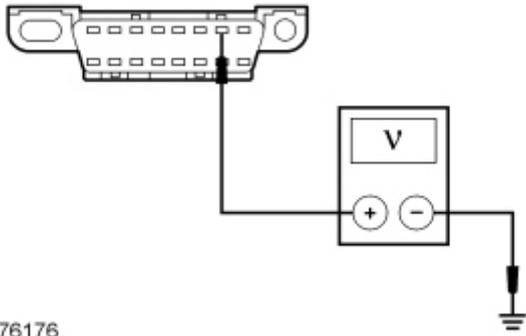


A0039639

- Is the resistance less than 5 ohms?

**G5 CHECK THE ISO 9141 CIRCUIT FOR A SHORT TO VOLTAGE**

- Ignition ON.
- Measure the voltage between the **DLC** C251-7, circuit 70 (LB/WH), harness side and ground.



A0076176

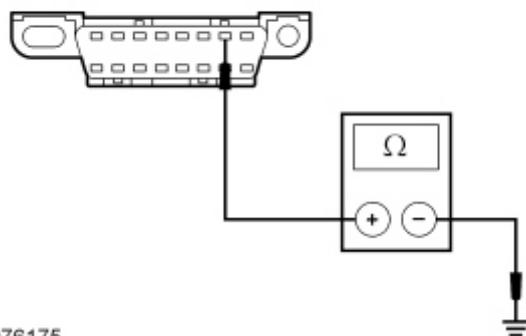
- Is any voltage present?

**Yes**  
REPAIR the circuit. REACTIVATE the **SRS**. REFER to [Section 501-20B](#). CLEAR the DTCs. REPEAT the network test with the scan tool.

**No**  
GO to [G6](#).

**G6 CHECK THE ISO 9141 CIRCUIT FOR A SHORT TO GROUND**

- Ignition OFF.
- Measure the resistance between the **DLC** C251-7, circuit 70 (LB/WH), harness side and ground.



A0076175

- Is the resistance greater than 10,000 ohms?

**Yes**  
GO to [G7](#).

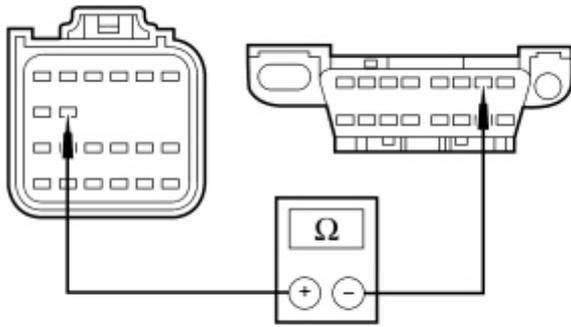
**No**  
REPAIR the circuit. REACTIVATE the **SRS**. REFER to [Section 501-20B](#). CLEAR the DTCs. REPEAT the network test with the scan tool.

**G7 CHECK THE ISO CIRCUIT BETWEEN THE **RCM** AND THE **DLC** FOR AN OPEN**

- Measure the resistance between the **RCM** C2041a-11, circuit 70 (LB/WH), harness side and the Data Link Connector (DLC) C251-7, circuit 70 (LB/WH), harness side.

**Yes**  
GO to [G8](#).

**No**  
REPAIR the circuit in question.



A0041599

- Is the resistance less than 5 ohms?

REACTIVATE the [SRS](#). REFER to [Section 501-20B](#). CLEAR the DTCs. REPEAT the network test with the scan tool.

#### G8 CHECK FOR CORRECT [RCM](#) OPERATION

- Disconnect all the [RCM](#) connectors.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect all the [RCM](#) 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 [RCM](#). REACTIVATE the [SRS](#). REFER to [Section 501-20B](#). CLEAR the DTCs. REPEAT the network test with the scan tool.

**No**  
 The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. REACTIVATE the [SRS](#). REFER to [Section 501-20B](#). CLEAR the DTCs. REPEAT the network test with the scan tool.

### Pinpoint Test H: Intermittent No Medium Speed Controller Area Network (MS-CAN) Communication, Communication Can Be Intermittently Established

#### Normal Operation

The Medium Speed Controller Area Network (MS-CAN) uses an unshielded twisted pair cable, circuits VDB06 (GY/OG) and VDB07 (VT/OG). The Audio Control Module (ACM), Satellite Digital Audio Receiver System (SDARS) module, Smart Junction Box (SJB) and the Instrument Cluster (IC) all communicate on the [MS-CAN](#).

In the event that one of the 2 network circuits ( [MS-CAN](#) + or [MS-CAN](#) -) becomes open to a module on the network, unreliable network communication to all modules on the network may result.

**This pinpoint test is intended to diagnose the following:**

- Wiring, terminals or connectors

#### PINPOINT TEST H: INTERMITTENT NO [MS-CAN](#) COMMUNICATION, COMMUNICATION CAN BE INTERMITTENTLY ESTABLISHED

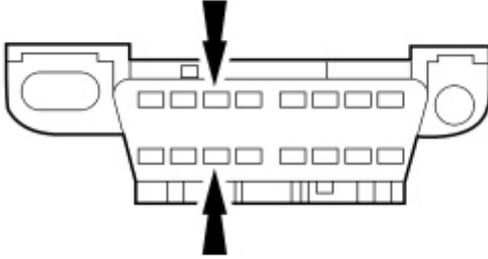
**NOTE:** Various modules will set network DTCs during this test procedure. Clear DTCs from all modules after the diagnostic procedure is completed.

**NOTE:** Failure to disconnect the battery when instructed will result in false resistance readings. Refer to [Section 414-01](#).

Test Step	Result / Action to Take

### H1 CHECK THE **DLC** PINS FOR DAMAGE

- Ignition OFF.
- Disconnect the scan tool cable from the Data Link Connector (DLC).
- Inspect **DLC** pins 3 and 11 for damage.



N0053178

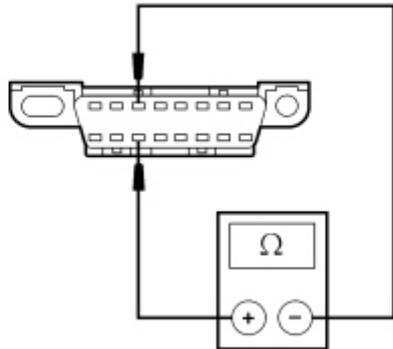
- Are **DLC** pins 3 and 11 OK?

**Yes**  
GO to [H2](#).

**No**  
REPAIR the **DLC** as necessary. CLEAR the DTCs. REPEAT the network test with the scan tool.

### H2 CHECK THE **MS-CAN** TERMINATION RESISTANCE

- Disconnect: Negative Battery Cable.
- Measure the resistance between the **DLC** C251-3, circuit VDB06 (GY/OG), harness side and the **DLC** C251-11, circuit VDB07 (VT/OG), harness side.



N0050701

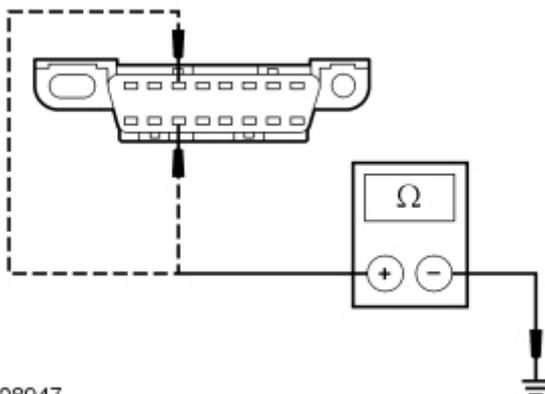
- Is the resistance between 54 and 66 ohms?

**Yes**  
GO to [H3](#).

**No**  
CONNECT the negative battery cable.  
[GO to Pinpoint Test I](#).

### H3 CHECK THE **MS-CAN (+)** AND **MS-CAN (-)** CIRCUITS FOR A SHORT TO GROUND

- Measure the resistance between the **DLC** C251-3, circuit VDB06 (GY/OG), harness side and ground; and between the **DLC** C251-11, circuit VDB07 (VT/OG), harness side and ground.



N0008947

- Are the resistances greater than 1,000 ohms?

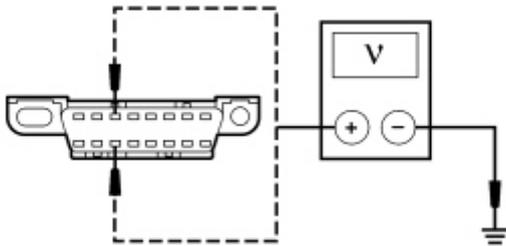
**Yes**  
CONNECT the negative battery cable.  
GO to [H4](#).

**No**  
CONNECT the negative battery cable.  
[GO to Pinpoint Test I](#).

### H4 CHECK THE **MS-CAN (+)** AND **MS-CAN (-)** CIRCUITS FOR A SHORT TO

## VOLTAGE

- Ignition ON.
- Measure the voltage between the [DLC C251-3](#), circuit VDB06 (GY/OG), harness side and ground; and between the [DLC C251-11](#), circuit VDB07 (VT/OG), harness side and ground.



N0050702

- Is the voltage greater than 6 volts?

**Yes**  
REPAIR the circuit.  
CLEAR the DTCs.  
REPEAT the network test with the scan tool.

**No**  
GO to [H5](#).

### H5 CHECK FOR RESTORED NETWORK COMMUNICATION WITH THE [ACM](#) AND [SDARS](#) MODULE DISABLED

**NOTE:** When re-running the network test, the network test application must be first closed or the screen display will revert back to the prior run network test results.

- Disconnect: [SJB](#) Fuse 56 (20A).
- Enter the following diagnostic mode on the scan tool: Network Test.
- Repeat the network test.
- **Do all other modules pass the network test?**

**Yes**  
If the vehicle is equipped with a [SDARS](#) module, GO to [H6](#).

Otherwise, [GO to Pinpoint Test E](#).

**No**  
INSTALL the removed fuse. GO to [H7](#).

### H6 CHECK FOR RESTORED NETWORK COMMUNICATION WITH THE [ACM](#) DISCONNECTED

**NOTE:** When re-running the network test, the network test application must be first closed or the screen display will revert back to the prior run network test results.

- Disconnect: [ACM](#) C290a.
- Enter the following diagnostic mode on the scan tool: Network Test.
- Repeat the network test.
- **Do all other modules pass the network test?**

**Yes**  
CONNECT the [ACM](#).  
[GO to Pinpoint Test E](#).

**No**  
CONNECT the [ACM](#).  
[GO to Pinpoint Test F](#).

### H7 CHECK FOR RESTORED NETWORK COMMUNICATION WITH THE [SJB](#) DISABLED

**NOTE:** When re-running the network test, the network test application must be first closed or the screen display will revert back to the prior run network test results.

- Disconnect: Bussed Electrical Center (BEC) Fuses 59 (30A), 63 (30A) and 67 (30A).
- Enter the following diagnostic mode on the scan tool: Network Test.
- Repeat the network test.
- **Do all other modules pass the network test?**

**Yes**  
INSTALL the removed fuses. [GO to Pinpoint Test D](#).

**No**  
INSTALL the removed fuses. GO to [H8](#).

### H8 CHECK FOR RESTORED NETWORK COMMUNICATION WITH THE [IC](#) DISABLED

**NOTE:** When re-running the network test, the network test application must be first closed or the screen display will revert back to the prior run network test results.

**Yes**  
INSTALL the removed fuses. [GO to Pinpoint Test C](#).

<ul style="list-style-type: none"> <li>• Disconnect: <a href="#">SJB</a> Fuses 19 (5A) and 16 (5A).</li> <li>• Enter the following diagnostic mode on the scan tool: Network Test.</li> <li>• Repeat the network test.</li> <li>• <b>Do all other modules pass the network test?</b></li> </ul>	<p><b>No</b> INSTALL the removed fuse. GO to <a href="#">H9</a>.</p>
<p><b>H9 CHECK FOR RESTORED NETWORK COMMUNICATION WITH THE <a href="#">IC</a> DISCONNECTED</b></p>	<p><b>Yes</b> INSTALL the removed fuses. <a href="#">GO to Pinpoint Test C</a>.</p> <p><b>No</b> INSTALL the removed fuse. An intermittent fault is not present. <a href="#">GO to Pinpoint Test I</a>.</p>
<ul style="list-style-type: none"> <li>• Disconnect: <a href="#">IC</a> C220.</li> <li>• Enter the following diagnostic mode on the scan tool: Network Test.</li> <li>• Repeat the network test.</li> <li>• <b>Do all other modules pass the network test?</b></li> </ul>	

**Pinpoint Test I: No Medium Speed Controller Area Network (MS-CAN) Communication, All Modules Are Not Responding**

Refer to Wiring Diagrams Cell [14](#), Module Communications Network for schematic and connector information.

**Normal Operation**

The Medium Speed Controller Area Network (MS-CAN) uses an unshielded twisted pair cable, circuits 1847 (WH/OG) and 1848 (PK/OG). The Smart Junction Box (SJB), the Audio Control Module (ACM), the Satellite Digital Audio Receiver System (SDARS) module and the Instrument Cluster (IC) communicate with the scan tool using the [MS-CAN](#).

**This pinpoint test is intended to diagnose the following:**

- Wiring, terminals or connectors
- [ACM](#)
- [IC](#)
- [SDARS](#) module
- [SJB](#)

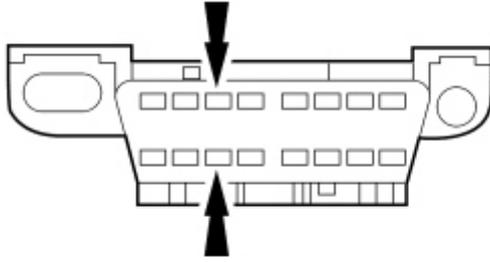
**PINPOINT TEST I: NO [MS-CAN](#) COMMUNICATION, ALL MODULES ARE NOT RESPONDING**

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

**NOTE:** Most faults are due to connector and/or wiring concerns. Carry out a thorough inspection and verification before proceeding with the pinpoint test.

**NOTE:** Failure to disconnect the battery when instructed will result in false resistance readings. Refer to [Section 414-01](#).

Test Step	Result / Action to Take
<p><b>I1 CHECK DATA LINK CONNECTOR (DLC) PINS FOR DAMAGE</b></p>	
<ul style="list-style-type: none"> <li>• Ignition OFF.</li> <li>• Disconnect the scan tool cable from the <a href="#">DLC</a>.</li> <li>• Inspect <a href="#">DLC</a> pins 3 and 11 for damage.</li> </ul>	<p><b>Yes</b> GO to <a href="#">I2</a>.</p> <p><b>No</b> REPAIR the <a href="#">DLC</a> as necessary. CLEAR the DTCs. REPEAT the network test with the scan tool.</p>

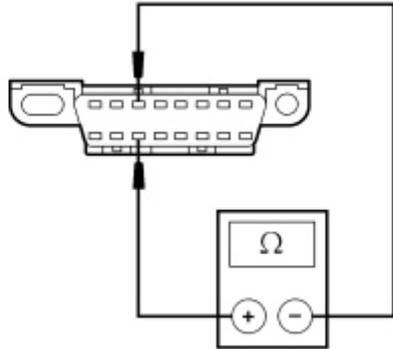


N0053178

- Are **DLC** pins 3 and 11 OK?

**I2 CHECK THE **MS-CAN** TERMINATION RESISTANCE**

- Disconnect: Negative Battery Cable.
- Measure the resistance between the **DLC** C251-3, circuit 1847 (WH/OG), harness side and the **DLC** C251-11, circuit 1848 (PK/OG), harness side.



N0050701

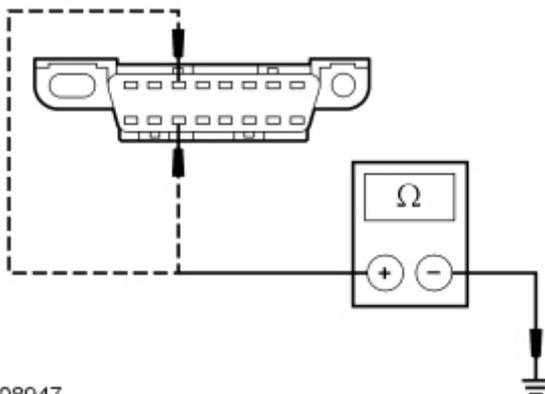
- Is the resistance between 54 and 66 ohms?

**Yes**  
GO to [13](#).

**No**  
GO to [15](#).

**I3 CHECK THE **MS-CAN** (+) AND **MS-CAN** (-) CIRCUITS FOR A SHORT TO GROUND**

- Measure the resistance between the **DLC** C251-3, circuit 1847 (WH/OG), harness side and ground; and between the **DLC** C251-11, circuit 1848 (PK/OG), harness side and ground.



N0008947

- Are the resistances greater than 1,000 ohms?

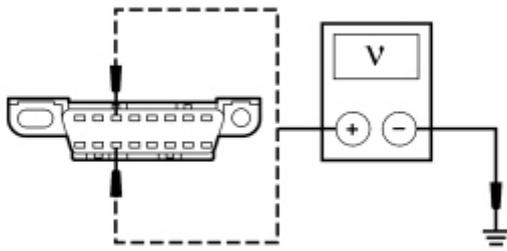
**Yes**  
CONNECT the negative battery cable. GO to [14](#).

**No**  
GO to [16](#).

**I4 CHECK THE **MS-CAN** (+) AND **MS-CAN** (-) CIRCUITS FOR A SHORT TO VOLTAGE**

- Ignition ON.
- Measure the voltage between the **DLC** C251-3, circuit 1847 (WH/OG), harness side and ground; and between the **DLC** C251-11, circuit 1848 (PK/OG), harness side and ground.

**Yes**  
REPAIR the circuit. CLEAR the DTCs. REPEAT the network test with the scan



N0050702

- Is the voltage greater than 6 volts?

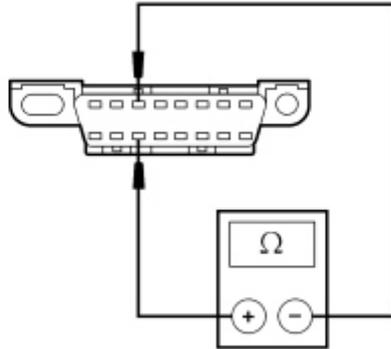
tool.

**No**

The **CAN** has tested within specifications. [GO to Pinpoint Test H](#) to test for an intermittent network fault condition.

#### 15 CHECK THE **MS-CAN** TERMINATION RESISTOR

- Measure the resistance between the **DLC** C251-3, circuit 1847 (WH/OG), harness side and the **DLC** C251-11, circuit 1848 (PK/OG), harness side.



N0050701

- Is the resistance between 108 and 132 ohms?

**Yes**

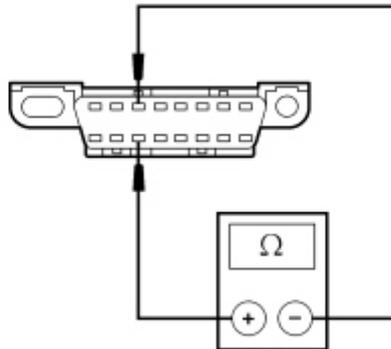
GO to [16](#).

**No**

GO to [19](#).

#### 16 CHECK THE **MS-CAN** TERMINATION RESISTOR WITH THE **SJB** DISCONNECTED

- Disconnect: **SJB** C2280b.
- Measure the resistance between the **DLC** C251-3, circuit 1847 (WH/OG), harness side and the **DLC** C251-11, circuit 1848 (PK/OG), harness side.



N0050701

- Is the resistance between 108 and 132 ohms?

**Yes**

GO to [17](#).

**No**

GO to [18](#).

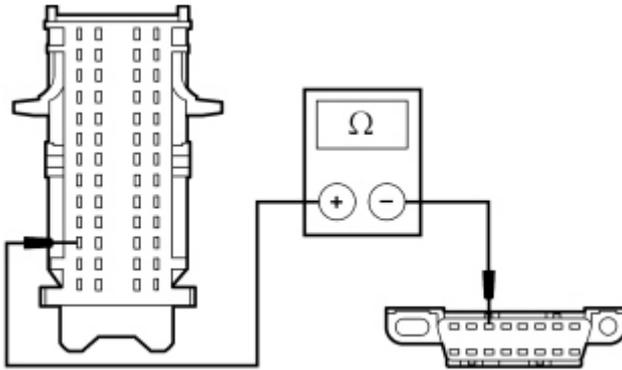
#### 17 CHECK THE **MS-CAN** CIRCUITS BETWEEN THE **SJB** AND THE **DLC** FOR AN OPEN

- Measure the resistance between the **SJB** C2280b-50, circuit 1847 (WH/OG), harness side and the **DLC** C251-3, circuit 1847

**Yes**

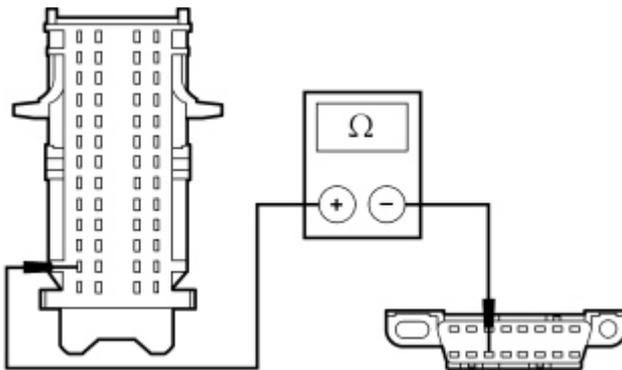
CONNECT the negative

(WH/OG), harness side.



N0072867

- Measure the resistance between the **SJB** C2280b-51, circuit 1848 (PK/OG), harness side and the **DLC** C251-11, circuit 1848 (PK/OG), harness side.

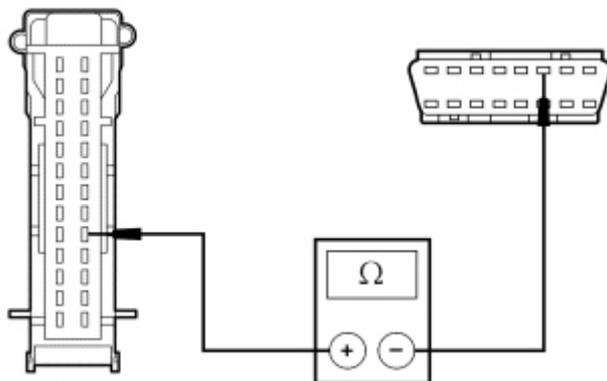


N0072868

- Are the resistances less than 5 ohms?

**18 CHECK HIGH SPEED CAN CIRCUITS BETWEEN THE IC AND THE DLC FOR AN OPEN**

- Disconnect: **IC** C220.
- Measure the resistance between the **IC** C220-18, circuit 1827 (WH/LG), harness side and the **DLC** C251-6, circuit 1827 (WH/LG), harness side.



N0012510

- Measure the resistance between the **IC** C220-17, circuit 1828 (PK/LG), harness side and the **DLC** C251-14, circuit 1828 (PK/LG), harness side.

battery cable. GO to [I21](#).

**No**

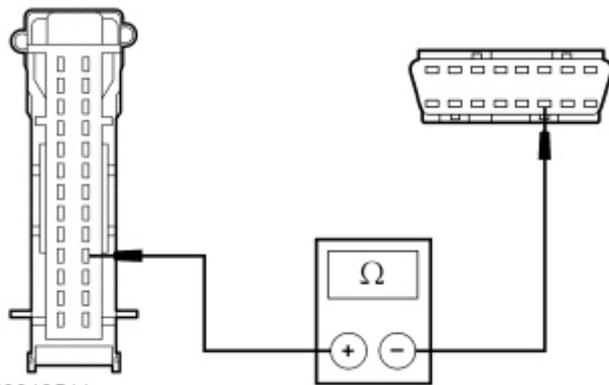
REPAIR the circuit in question. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

**Yes**

CONNECT all modules. CONNECT the negative battery cable. GO to [I21](#).

**No**

REPAIR the circuit in question. CONNECT the negative battery cable. CONNECT all modules. CLEAR the DTCs. REPEAT the network test with the scan tool.

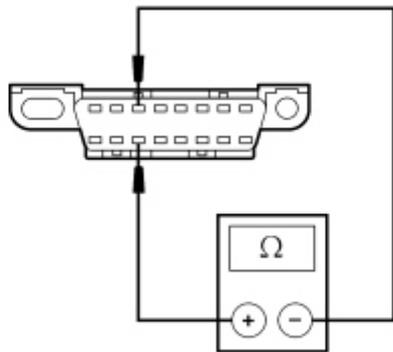


N0012511

- Are the resistances less than 5 ohms?

**I9 CHECK THE MS-CAN (+) AND MS-CAN (-) CIRCUITS FOR A SHORT TOGETHER**

- Measure the resistance between the DLC C251-3, circuit 1847 (WH/OG), harness side and the DLC C251-11, circuit 1848 (PK/OG), harness side.

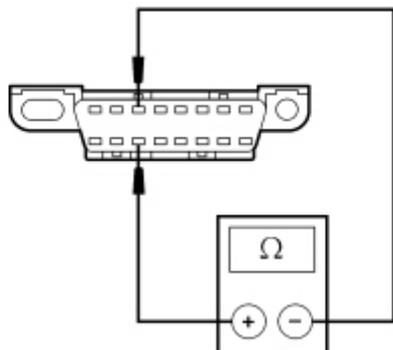


N0050701

- Is the resistance less than 5 ohms?

**I10 CHECK THE MS-CAN (+) AND MS-CAN (-) CIRCUITS FOR AN OPEN**

- Measure the resistance between the DLC C251-3, circuit 1847 (WH/OG), harness side and the DLC C251-11, circuit 1848 (PK/OG), harness side.



N0050701

- Is the resistance greater than 1,000 ohms?

**I11 CHECK THE MS-CAN (+) AND MS-CAN (-) CIRCUITS FOR A SHORT TOGETHER WITH THE SJB DISCONNECTED**

- Disconnect: SJB C2280b.
- Measure the resistance between the DLC C251-3, circuit 1847 (WH/OG), harness side and the DLC C251-11, circuit 1848 (PK/OG), harness side.

**Yes**  
GO to [I11](#).

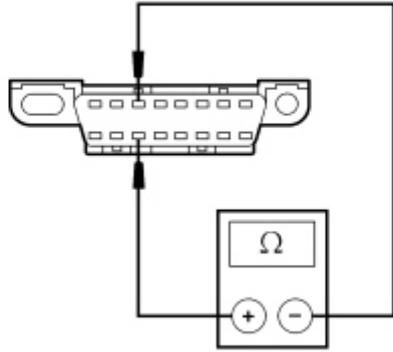
**No**  
GO to [I10](#).

**Yes**  
REPAIR the circuit.  
CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

**No**  
A capacitor internal to a module may still be draining causing irregular resistance readings. WAIT 5 minutes. REPEAT the pinpoint test.

**Yes**  
GO to [I12](#).

**No**



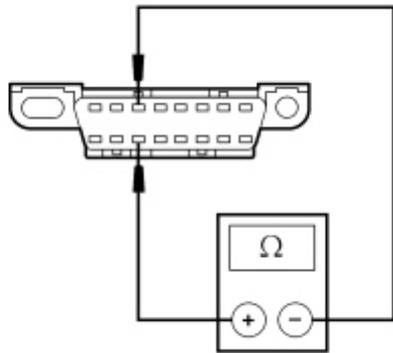
N0050701

- Is the resistance less than 5 ohms?

CONNECT the negative battery cable. GO to [I21](#).

**I12 CHECK THE MS-CAN (+) AND MS-CAN (-) CIRCUITS FOR A SHORT TOGETHER WITH THE IC DISCONNECTED**

- Disconnect: IC C220.
- Measure the resistance between the DLC C251-3, circuit 1847 (WH/OG), harness side and the DLC C251-11, circuit 1848 (PK/OG), harness side.



N0050701

- Is the resistance less than 5 ohms?

**Yes**  
GO to [I13](#).

**No**  
CONNECT all modules.  
CONNECT the negative battery cable. GO to [I22](#).

**I13 VERIFY VEHICLE EQUIPMENT — SDARS MODULE**

- Inspect the vehicle for a Satellite Digital Audio Receiver System (SDARS) module.
- Is the vehicle equipped with a SDARS module?

**Yes**  
GO to [I14](#).

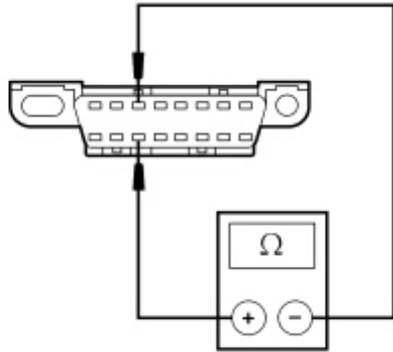
**No**  
GO to [I15](#).

**I14 CHECK THE MS-CAN (+) AND MS-CAN (-) CIRCUITS FOR A SHORT TOGETHER WITH THE SDARS MODULE DISCONNECTED**

- Disconnect: SDARS Module C4344.
- Measure the resistance between the DLC C251-3, circuit 1847 (WH/OG), harness side and the DLC C251-11, circuit 1848 (PK/OG), harness side.

**Yes**  
GO to [I15](#).

**No**  
CONNECT all modules.  
CONNECT the negative battery cable. GO to [I23](#).

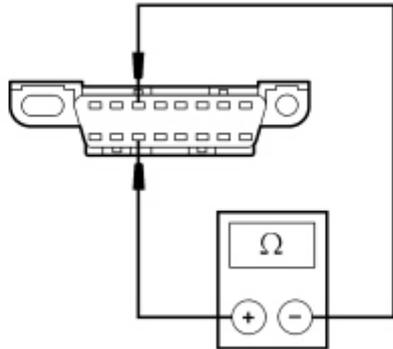


N0050701

- Is the resistance less than 5 ohms?

**I15 CHECK THE MS-CAN (+) AND MS-CAN (-) CIRCUITS FOR A SHORT TOGETHER WITH THE ACM DISCONNECTED**

- Disconnect: ACM C290a.
- Measure the resistance between the DLC C251-3, circuit 1847 (WH/OG), harness side and the DLC C251-11, circuit 1848 (PK/OG), harness side.

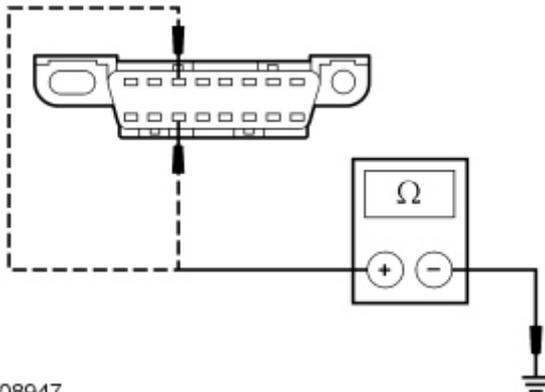


N0050701

- Is the resistance less than 5 ohms?

**I16 CHECK THE MS-CAN (+) AND MS-CAN (-) CIRCUITS FOR A SHORT TO GROUND WITH THE SJB DISCONNECTED**

- Disconnect: SJB C2280b.
- Measure the resistance between the DLC C251-3, circuit 1847 (WH/OG), harness side and ground; and between the DLC C251-11, circuit 1848 (PK/OG), harness side and ground.



N0008947

- Are the resistances greater than 1,000 ohms?

**I17 CHECK THE MS-CAN (+) AND MS-CAN (-) CIRCUITS FOR A SHORT TO GROUND WITH THE IC DISCONNECTED**

- Disconnect: IC C220.
- Measure the resistance between the DLC C251-3, circuit 1847

**Yes**

REPAIR the circuit.  
CONNECT all modules.  
CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

**No**

CONNECT all modules.  
CONNECT the negative battery cable. GO to [I24](#).

**Yes**

CONNECT the negative battery cable. GO to [I21](#).

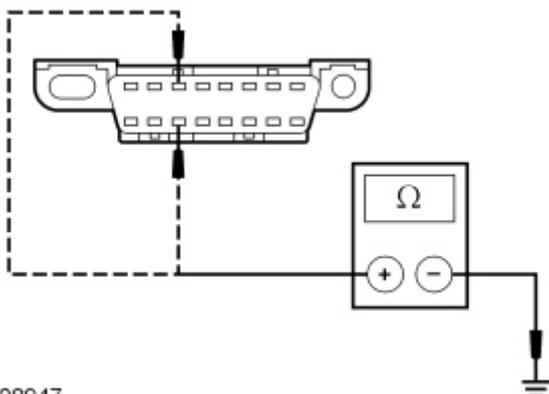
**No**

GO to [I17](#).

**Yes**

CONNECT all modules.

(WH/OG), harness side and ground; and between the [DLC C251-11](#), circuit 1848 (PK/OG), harness side and ground.



N0008947

- Are the resistances greater than 1,000 ohms?

CONNECT the negative battery cable. GO to [I22](#).

**No**  
GO to [I18](#).

### I18 VERIFY VEHICLE EQUIPMENT — [SDARS](#) MODULE

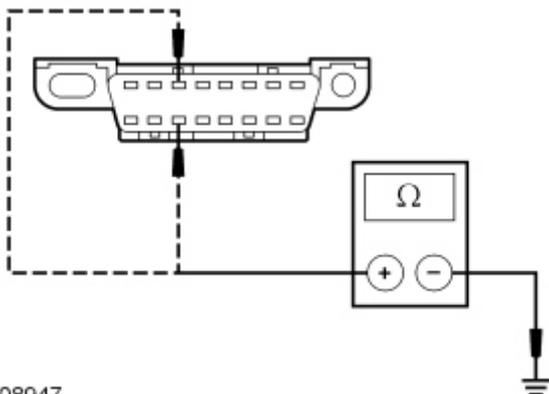
- Inspect the vehicle for a Satellite Digital Audio Receiver System (SDARS) module.
- Is the vehicle equipped with a [SDARS](#) module?

**Yes**  
GO to [I19](#).

**No**  
GO to [I20](#).

### I19 CHECK THE [MS-CAN \(+\)](#) AND [MS-CAN \(-\)](#) CIRCUITS FOR A SHORT TO GROUND WITH THE [SDARS](#) MODULE DISCONNECTED

- Disconnect: [SDARS](#) Module C4344.
- Measure the resistance between the [DLC C251-3](#), circuit 1847 (WH/OG), harness side and ground; and between the [DLC C251-11](#), circuit 1848 (PK/OG), harness side and ground.



N0008947

- Are the resistances greater than 1,000 ohms?

**Yes**  
CONNECT all modules.  
CONNECT the negative battery cable. GO to [I23](#).

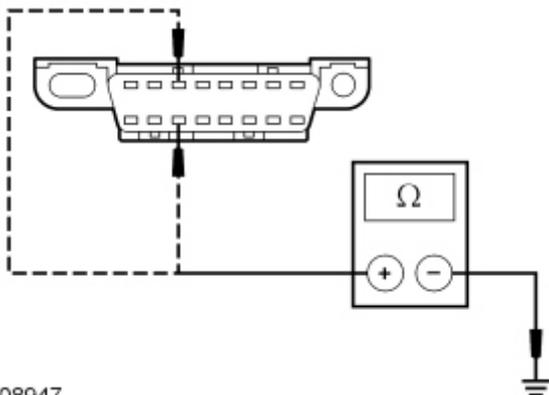
**No**  
GO to [I20](#).

### I20 CHECK THE [MS-CAN \(+\)](#) AND [MS-CAN \(-\)](#) CIRCUITS FOR A SHORT TO GROUND WITH THE [ACM](#) DISCONNECTED

- Disconnect: [SJB C290a](#).
- Measure the resistance between the [DLC C251-3](#), circuit 1847 (WH/OG), harness side and ground; and between the [DLC C251-11](#), circuit 1848 (PK/OG), harness side and ground.

**Yes**  
CONNECT all modules.  
CONNECT the negative battery cable. GO to [I24](#).

**No**  
REPAIR the circuit.  
CONNECT all modules.  
CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.



N0008947

- Are the resistances greater than 1,000 ohms?

### I21 CHECK FOR CORRECT **SJB** OPERATION

- Disconnect all the **SJB** connectors.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect all the **SJB** 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 **SJB**. REFER to [Section 419-10](#). CLEAR the DTCs. REPEAT the network test with the scan tool.

**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 network test with the scan tool.

### I22 CHECK FOR CORRECT **IC** OPERATION

- Disconnect the **IC** connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the **IC** connector and make sure it seats correctly.
- Operate the system and verify the concern is still present.
- **Is the concern still present?**

**Yes**  
 INSTALL a new **IC**. REFER to [Section 413-01](#). CLEAR the DTCs. REPEAT the network test with the scan tool.

**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 network test with the scan tool.

### I23 CHECK FOR CORRECT **SDARS** MODULE OPERATION

- Disconnect the **SDARS** module connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the **SDARS** module connector and make sure it seats correctly.
- Operate the system and verify the concern is still present.
- **Is the concern still present?**

**Yes**  
 INSTALL a new **SDARS** module. REFER to [Section 415-00](#). CLEAR the DTCs. REPEAT the network test with the scan tool.

**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 network test with the scan tool.

### I24 CHECK FOR CORRECT **ACM** OPERATION

- Disconnect all of the [ACM](#) connectors.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect all of the [ACM](#) 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 [ACM](#).  
 REFER to [Section 415-00](#).  
 CLEAR the DTCs. REPEAT the network test with the scan tool.

**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 network test with the scan tool.

**Pinpoint Test J: Intermittent No High Speed Controller Area Network (HS-CAN) Communication, Communication Can Be Intermittently Established**

**Normal Operation**

The High Speed Controller Area Network (HS-CAN) is used for communication between the PCM, the ABS module and the Instrument Cluster (IC). An open circuit VDB04 (WH/BU) ([HS-CAN +](#)) or VDB05 (WH) ([HS-CAN -](#)) may cause intermittent or unreliable communication to all modules on the [HS-CAN](#).

In the event that either circuit VDB04 (WH/BU) ([HS-CAN +](#)) or VDB05 (WH) ([HS-CAN -](#)) becomes open to any module on the network, unreliable network communication to all modules on the network may result.

**This pinpoint test is intended to diagnose the following:**

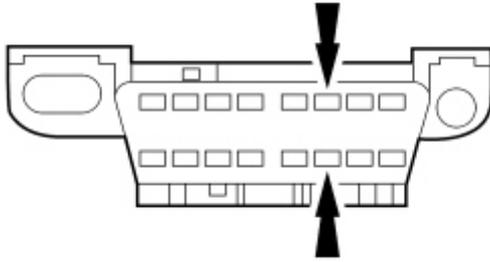
- Wiring, terminals or connectors

**PINPOINT TEST J: INTERMITTENT NO [HS-CAN](#) COMMUNICATION, COMMUNICATION CAN BE INTERMITTENTLY ESTABLISHED**

**NOTE:** Various modules will set network DTCs during this test procedure. Clear DTCs from all modules after the diagnostic procedure is completed.

**NOTE:** Failure to disconnect the battery when instructed will result in false resistance readings. Refer to [Section 414-01](#).

Test Step	Result / Action to Take
<p><b>J1 CHECK THE <a href="#">DLC</a> PINS FOR DAMAGE</b></p> <ul style="list-style-type: none"> <li>• Ignition OFF.</li> <li>• Disconnect the scan tool cable from the Data Link Connector (DLC).</li> <li>• Inspect <a href="#">DLC</a> pins 6 and 14 for damage.</li> </ul>	<p><b>Yes</b>            GO to <a href="#">J2</a>.</p> <p><b>No</b>            REPAIR the <a href="#">DLC</a> as necessary.            CLEAR the DTCs.            REPEAT the network test with the scan tool.</p>

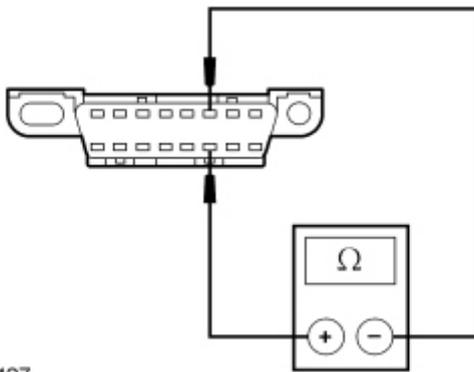


A0093867

- Are **DLC** pins 6 and 14 OK?

**J2 CHECK THE **HS-CAN** TERMINATION RESISTANCE**

- Disconnect: Negative Battery Cable.
- Measure the resistance between the **DLC** C251-6, circuit VDB04 (WH/BU), harness side and the **DLC** C251-14, circuit VDB05 (WH), harness side.



N0026427

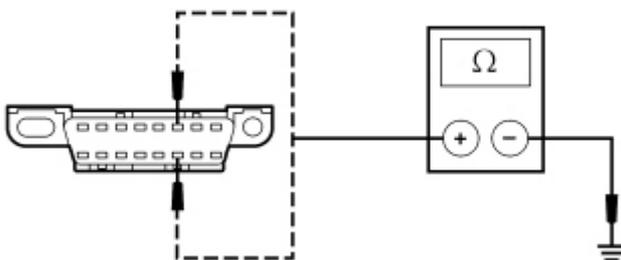
- Is the resistance between 54 and 66 ohms?

**Yes**  
GO to [J3](#).

**No**  
[GO to Pinpoint Test K](#).

**J3 CHECK THE **HS-CAN (+)** AND **HS-CAN (-)** CIRCUITS FOR A SHORT TO GROUND**

- Measure the resistance between the **DLC** C251-6, circuit VDB04 (WH/BU), harness side and ground; and between the **DLC** C251-14, circuit VDB05 (WH), harness side and ground.



N0002963

- Are the resistances greater than 1,000 ohms?

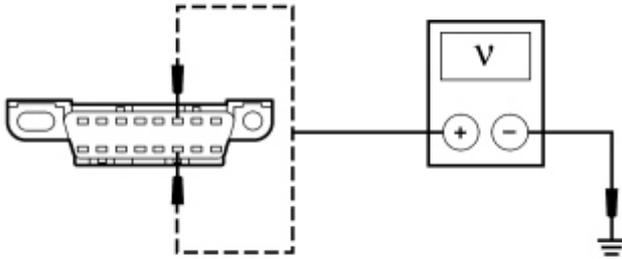
**Yes**  
CONNECT the negative battery cable. GO to [J4](#).

**No**  
[GO to Pinpoint Test K](#).

**J4 CHECK THE **HS-CAN (+)** AND **HS-CAN (-)** CIRCUITS FOR A SHORT TO VOLTAGE**

- Ignition ON.
- Measure the voltage between the **DLC** C251-6, circuit VDB04 (WH/BU), harness side and ground; and between the **DLC** C251-14, circuit VDB05 (WH), harness side and ground.

**Yes**  
REPAIR the circuit.  
CLEAR the DTCs.  
REPEAT the network test with



N0002964

- Is the voltage greater than 6 volts?

the scan tool.

**No**  
GO to [J5](#).

#### J5 CHECK FOR RESTORED COMMUNICATION WITH THE PCM DISABLED

**NOTE:** An [IDS](#) session must be established prior to disabling the PCM in this test step. If the PCM has failed communication during multiple attempts to identify the vehicle, first identify the vehicle manually by entering a PCM part number, calibration number or tear tag when prompted by [IDS](#).

**NOTE:** When a vehicle is manually identified by a PCM part number, calibration number or tear tag, the [IDS](#) will not automatically run a network test. The network test must be manually selected and run.

**NOTE:** When re-running the network test, the network test application must be first closed or the screen display will revert back to the prior run network test results.

- Disconnect: Bussed Electrical Center (BEC) Fuses 42 (15A), 45 (10A) and [SJB](#) fuse 19 (5A).
- Enter the following diagnostic mode on the scan tool: Network Test.
- Repeat the network test.
- **Do all other modules pass the network test?**

**Yes**  
INSTALL the removed fuses. [GO to Pinpoint Test A](#).

**No**  
INSTALL the removed fuses. GO to [J6](#).

#### J6 CHECK FOR RESTORED NETWORK COMMUNICATION WITH THE ABS MODULE DISABLED

**NOTE:** When re-running the network test, the network test application must be first closed or the screen display will revert back to the prior run network test results.

- Disconnect: [BEC](#) Fuse 65 (30A) and [SJB](#) fuse 18 (10A).
- Enter the following diagnostic mode on the scan tool: Network Test.
- Repeat the network test.
- **Do all other modules pass the network test?**

**Yes**  
INSTALL the removed fuse. [GO to Pinpoint Test B](#).

**No**  
INSTALL the removed fuse. GO to [J7](#).

#### J7 CHECK FOR RESTORED NETWORK COMMUNICATION WITH THE [IC](#) DISABLED

**NOTE:** When re-running the network test, the network test application must be first closed or the screen display will revert back to the prior run network test results.

- Disconnect: [SJB](#) Fuses 16 (5A) and 19 (5A).
- Enter the following diagnostic mode on the scan tool: Network Test.
- Repeat the network test.
- **Do all other modules pass the network test?**

**Yes**  
INSTALL the removed fuses. [GO to Pinpoint Test C](#).

**No**  
INSTALL the removed fuses. GO to [J8](#).

#### J8 CHECK FOR RESTORED NETWORK COMMUNICATION WITH THE [IC](#) DISCONNECTED

- Disconnect: [IC](#) C220.
- Enter the following diagnostic mode on the scan tool: Network Test.
- Repeat the network test.
- **Do all other modules pass the network test?**

**Yes**  
CONNECT the [IC](#). [GO to Pinpoint Test C](#).

**No**  
CONNECT the **IC**.  
An intermittent fault  
is not present. [GO](#)  
to [Pinpoint Test K](#).

**Pinpoint Test K: No High Speed Controller Area Network (HS-CAN) Communication, All Modules Are Not Responding**

Refer to Wiring Diagrams Cell [14](#), Module Communications Network for schematic and connector information.

**Normal Operation**

The High Speed Controller Area Network (HS-CAN) uses an unshielded twisted pair cable, circuits 1827 (WH/LG) and 1828 (PK/LG). The PCM, the ABS module (if equipped) and the Instrument Cluster (IC) all communicate with the scan tool using the [HS-CAN](#).

**This pinpoint test is intended to diagnose the following:**

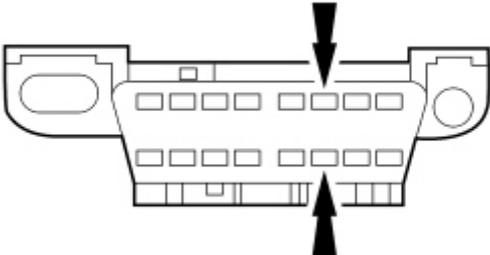
- Wiring, terminals or connectors
- ABS module (if equipped)
- [IC](#)
- PCM

**PINPOINT TEST K: NO [HS-CAN](#) COMMUNICATION, ALL MODULES ARE NOT RESPONDING**

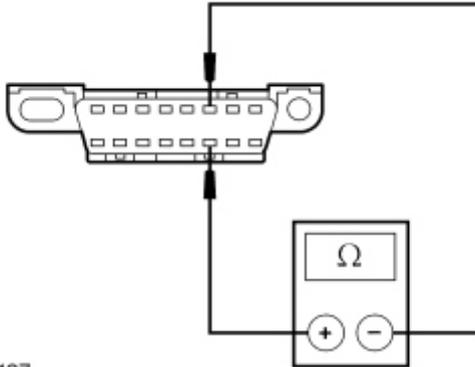
**NOTICE:** Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may damage the connector.

**NOTE:** Most faults are due to connector and/or wiring concerns. Carry out a thorough inspection and verification before proceeding with the pinpoint test.

**NOTE:** Failure to disconnect the battery when instructed will result in false resistance readings. Refer to [Section 414-01](#).

Test Step	Result / Action to Take
<p><b>K1 CHECK THE DATA LINK CONNECTOR (DLC) PINS FOR DAMAGE</b></p> <ul style="list-style-type: none"> <li>• Ignition OFF.</li> <li>• Disconnect the scan tool cable from the <a href="#">DLC</a>.</li> <li>• Inspect <a href="#">DLC</a> pins 6 and 14 for damage.</li> </ul> <div style="text-align: center;">  </div> <p>A0093867</p> <ul style="list-style-type: none"> <li>• Are <a href="#">DLC</a> pins 6 and 14 OK?</li> </ul>	<p><b>Yes</b>  GO to <a href="#">K2</a>.</p> <p><b>No</b>  REPAIR the <a href="#">DLC</a> as necessary. CLEAR the DTCs. REPEAT the network test with the scan tool.</p>
<p><b>K2 CHECK THE <a href="#">HS-CAN</a> TERMINATION RESISTANCE</b></p>	

- Disconnect: Negative Battery Cable.
- Measure the resistance between the **DLC** C251-6, circuit 1827 (WH/LG), harness side and the **DLC** C251-14, circuit 1828 (PK/LG), harness side.



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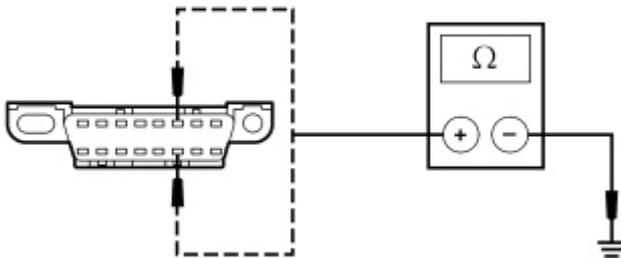
- Is the resistance between 54 and 66 ohms?

**Yes**  
GO to [K3](#).

**No**  
GO to [K5](#).

### K3 CHECK THE **HS-CAN**(+) AND **HS-CAN**(-) CIRCUITS FOR A SHORT TO GROUND

- Measure the resistance between the **DLC** C251-6, circuit 1827 (WH/LG), harness side and ground; and between the **DLC** C251-14, circuit 1828 (PK/LG), harness side and ground.



N0002963

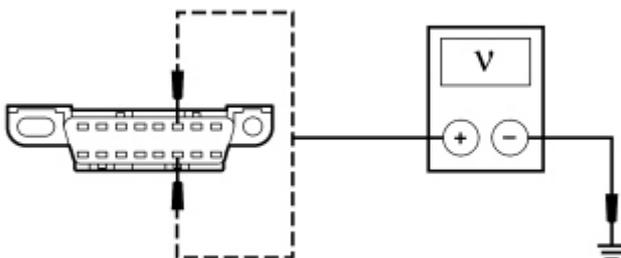
- Are the resistances greater than 1,000 ohms?

**Yes**  
CONNECT the negative battery cable. GO to [K4](#).

**No**  
GO to [K15](#).

### K4 CHECK THE **HS-CAN**(+) AND **HS-CAN**(-) CIRCUITS FOR A SHORT TO VOLTAGE

- Ignition ON.
- Measure the voltage between the **DLC** C251-6, circuit 1827 (WH/LG), harness side and ground; and between the **DLC** C251-14, circuit 1828 (PK/LG), harness side and ground.



N0002964

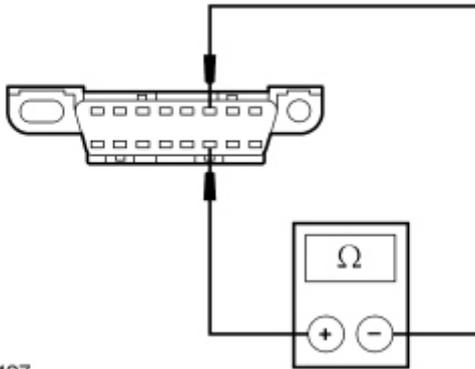
- Is the voltage greater than 6 volts?

**Yes**  
REPAIR the circuit. CLEAR the DTCs. REPEAT the network test with the scan tool.

**No**  
The **CAN** has tested within specifications. GO to [Pinpoint Test J](#) to test for an intermittent network fault condition.

### K5 CHECK THE **HS-CAN** TERMINATION RESISTOR

- Measure the resistance between the **DLC** C251-6, circuit 1827 (WH/LG), harness side and the **DLC** C251-14, circuit 1828 (PK/LG), harness side.



N0026427

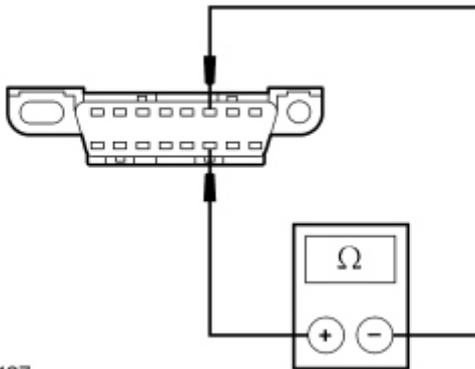
- Is the resistance between 108 and 132 ohms?

**Yes**  
GO to [K6](#).

**No**  
GO to [K9](#).

**K6 CHECK THE **HS-CAN** TERMINATION RESISTOR WITH THE PCM DISCONNECTED**

- Disconnect: PCM C175b.
- Measure the resistance between the **DLC** C251-6, circuit 1827 (WH/LG), harness side and the **DLC** C251-14, circuit 1828 (PK/LG), harness side.



N0026427

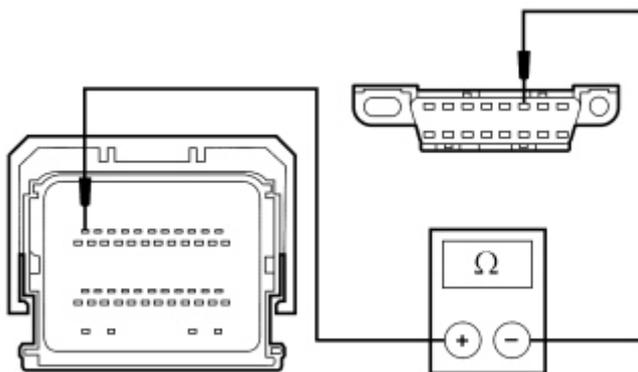
- Is the resistance between 108 and 132 ohms?

**Yes**  
GO to [K7](#).

**No**  
GO to [K8](#).

**K7 CHECK THE **HS-CAN** CIRCUITS BETWEEN THE PCM AND THE **DLC** FOR AN OPEN**

- Measure the resistance between the PCM C175b-11, circuit 1827 (WH/LG), harness side and the **DLC** C251-6, circuit 1827 (WH/LG), harness side.

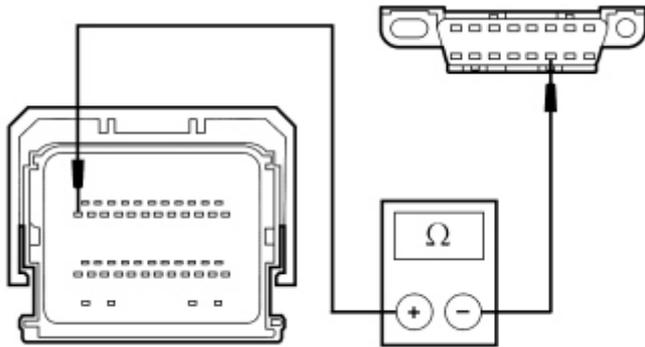


N0002560

- Measure the resistance between the PCM C175b-23, circuit 1828 (PK/LG), harness side and the **DLC** C251-14, circuit 1828 (PK/LG), harness side.

**Yes**  
CONNECT the negative battery cable. GO to [K19](#).

**No**  
REPAIR the circuit in question. CONNECT the negative battery cable. CONNECT the PCM. CLEAR the DTCs. REPEAT the network test with the scan tool.

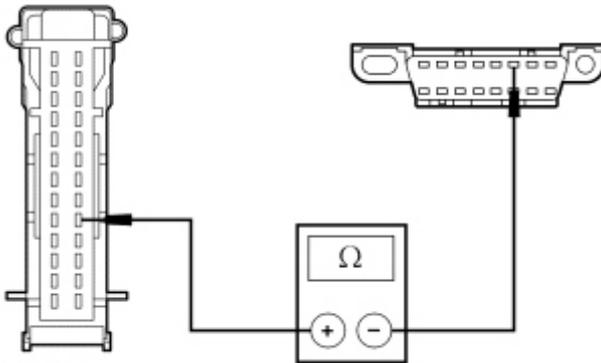


N0002561

- Are the resistances less than 5 ohms?

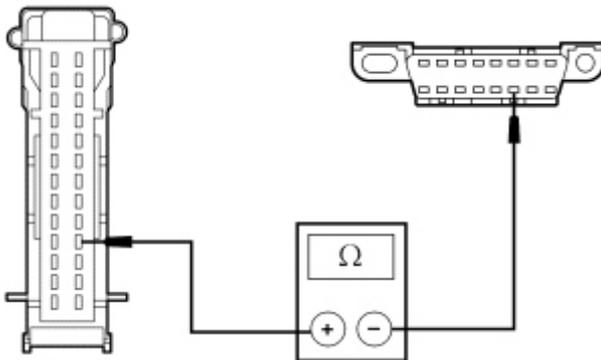
**K8 CHECK THE HS-CAN CIRCUITS BETWEEN THE IC AND THE DLC FOR AN OPEN**

- Disconnect: IC C220.
- Measure the resistance between the IC C220-18, circuit 1827 (WH/LG), harness side and the DLC C251-6, circuit 1827 (WH/LG), harness side.



N0062185

- Measure the resistance between the IC C220-17, circuit 1828 (PK/LG), harness side and the DLC C251-14, circuit 1828 (PK/LG), harness side.



N0062186

- Are the resistances less than 5 ohms?

**K9 CHECK THE HS-CAN (+) AND HS-CAN (-) CIRCUITS FOR A SHORT TOGETHER**

- Measure the resistance between the DLC C251-6, circuit 1827 (WH/LG), harness side and the DLC C251-14, circuit 1828 (PK/LG), harness side.

**Yes**

CONNECT all modules. CONNECT the negative battery cable. GO to [K21](#).

**No**

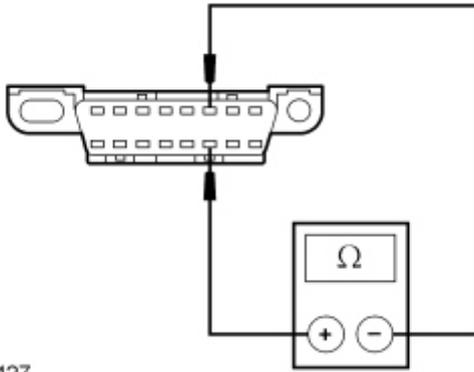
REPAIR the circuit in question. CONNECT all modules. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

**Yes**

GO to [K11](#).

**No**

GO to [K10](#).

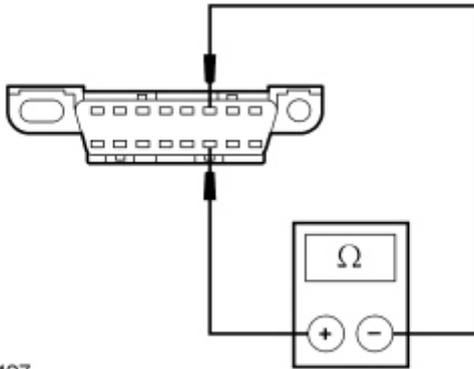


N0026427

- Is the resistance less than 5 ohms?

**K10 CHECK THE HS-CAN CIRCUITS FOR AN OPEN AT THE DLC**

- Measure the resistance between the DLC C251-6, circuit 1827 (WH/LG), harness side and the DLC C251-14, circuit 1828 (PK/LG), harness side.

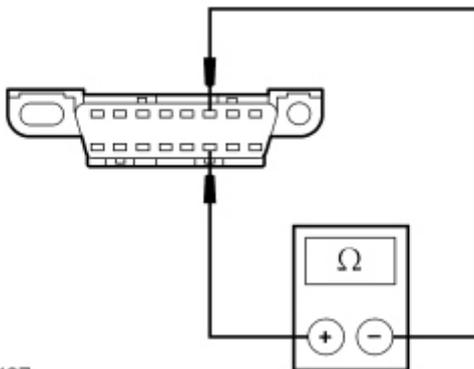


N0026427

- Is the resistance greater than 10,000 ohms?

**K11 CHECK THE HS-CAN (+) AND HS-CAN (-) CIRCUITS FOR A SHORT TOGETHER WITH THE PCM DISCONNECTED**

- Disconnect: PCM C175b.
- Measure the resistance between the DLC C251-6, circuit 1827 (WH/LG), harness side and the DLC C251-14, circuit 1828 (PK/LG), harness side.



N0026427

- Is the resistance less than 5 ohms?

**K12 VERIFY VEHICLE EQUIPMENT - ABS MODULE**

- Inspect the vehicle for an ABS module.
- Is the vehicle equipped with an ABS module?

**Yes**  
REPAIR the DLC or REPAIR the circuit in question. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

**No**  
A capacitor internal to a module may still be draining causing irregular resistance readings. WAIT 5 minutes. REPEAT the pinpoint test.

**Yes**  
GO to [K12](#).

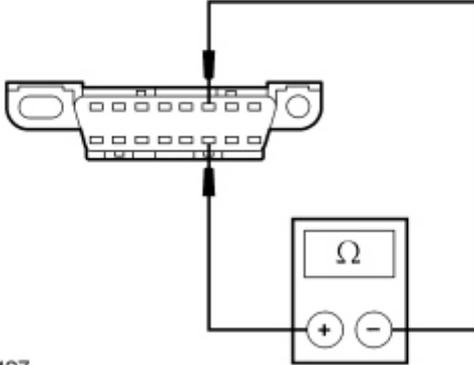
**No**  
CONNECT the negative battery cable. GO to [K19](#).

**Yes**  
GO to [K13](#).

**No**  
GO to [K14](#).

**K13 CHECK THE HS-CAN (+) AND HS-CAN (-) CIRCUITS FOR A SHORT TOGETHER WITH THE ABS MODULE DISCONNECTED**

- Disconnect: ABS Module C135.
- Measure the resistance between the DLC C251-6, circuit 1827 (WH/LG), harness side and the DLC C251-14, circuit 1828 (PK/LG), harness side.



- Is the resistance less than 5 ohms?

**Yes**

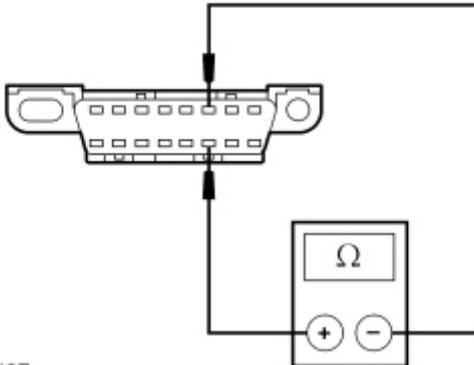
GO to [K14](#).

**No**

CONNECT all modules.  
CONNECT the negative battery cable. GO to [K20](#).

**K14 CHECK THE HS-CAN (+) AND HS-CAN (-) CIRCUITS FOR A SHORT TOGETHER WITH THE IC DISCONNECTED**

- Disconnect: IC C220.
- Measure the resistance between the DLC C251-6, circuit 1827 (WH/LG), harness side and the DLC C251-14, circuit 1828 (PK/LG), harness side.



- Is the resistance less than 5 ohms?

**Yes**

REPAIR the circuit.  
CONNECT all modules.  
CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

**No**

CONNECT all modules.  
CONNECT the negative battery cable. GO to [K21](#).

**K15 CHECK THE HS-CAN (+) AND HS-CAN (-) CIRCUITS FOR A SHORT TO GROUND WITH THE PCM DISCONNECTED**

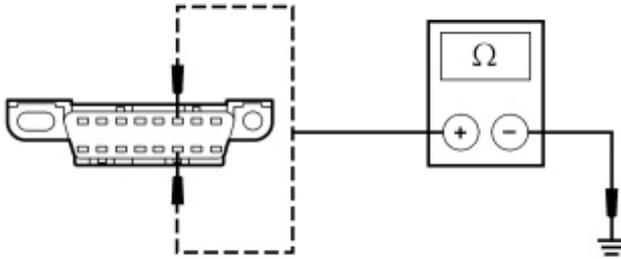
- Disconnect: PCM C175b.
- Measure the resistance between the DLC C251-6, circuit 1827 (WH/LG), harness side and ground; and between the DLC C251-14, circuit 1828 (PK/LG), harness side and ground.

**Yes**

CONNECT the negative battery cable. GO to [K19](#).

**No**

GO to [K16](#).



N0002963

- Are the resistances greater than 1,000 ohms?

**K16 VERIFY VEHICLE EQUIPMENT — ABS MODULE**

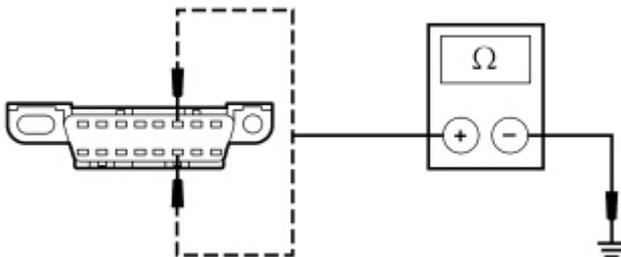
- Inspect the vehicle for an ABS module.
- Is the vehicle equipped with an ABS module?

**Yes**  
GO to [K17](#).

**No**  
GO to [K18](#).

**K17 CHECK THE HS-CAN (+) AND HS-CAN (-) CIRCUITS FOR A SHORT TO GROUND WITH THE ABS MODULE DISCONNECTED**

- Disconnect: ABS Module C135.
- Measure the resistance between the [DLC](#) C251-6, circuit 1827 (WH/LG), harness side and ground; and between the [DLC](#) C251-14, circuit 1828 (PK/LG), harness side and ground.



N0002963

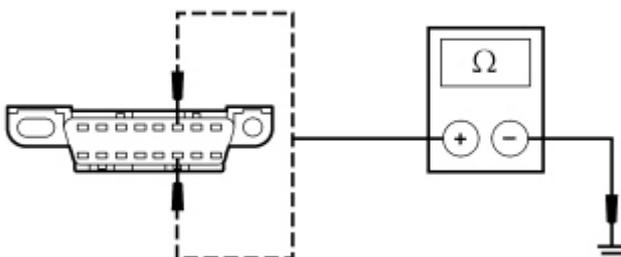
- Are the resistances greater than 1,000 ohms?

**Yes**  
CONNECT all modules.  
CONNECT the negative battery cable. GO to [K20](#).

**No**  
GO to [K18](#).

**K18 CHECK THE HS-CAN (+) AND HS-CAN (-) CIRCUITS FOR A SHORT TO GROUND WITH THE IC DISCONNECTED**

- Disconnect: [IC](#) C220.
- Measure the resistance between the [DLC](#) C251-6, circuit 1827 (WH/LG), harness side and ground; and between the [DLC](#) C251-14, circuit 1828 (PK/LG), harness side and ground.



N0002963

**Yes**  
CONNECT all modules.  
CONNECT the negative battery cable. GO to [K21](#).

**No**  
REPAIR the circuit.  
CONNECT all modules.  
CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

<ul style="list-style-type: none"> <li>• Are the resistances greater than 1,000 ohms?</li> </ul>	
<b>K19 CHECK FOR CORRECT PCM OPERATION</b>	
<ul style="list-style-type: none"> <li>• Disconnect all the PCM connectors.</li> <li>• Check for: <ul style="list-style-type: none"> <li>▪ corrosion</li> <li>▪ damaged pins</li> <li>▪ pushed-out pins</li> </ul> </li> <li>• Connect all the PCM connectors and make sure they seat correctly.</li> <li>• Operate the system and verify the concern is still present.</li> <li>• <b>Is the concern still present?</b></li> </ul>	<p><b>Yes</b> INSTALL a new PCM. REFER to <a href="#">Section 303-14</a>. CLEAR the DTCs. REPEAT the network test with the scan tool.</p> <p><b>No</b> 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 network test with the scan tool.</p>
<b>K20 CHECK FOR CORRECT ABS MODULE OPERATION</b>	
<ul style="list-style-type: none"> <li>• Disconnect the ABS module connector.</li> <li>• Check for: <ul style="list-style-type: none"> <li>▪ corrosion</li> <li>▪ damaged pins</li> <li>▪ pushed-out pins</li> </ul> </li> <li>• Connect the ABS module connector and make sure it seats correctly.</li> <li>• Operate the system and verify the concern is still present.</li> <li>• <b>Is the concern still present?</b></li> </ul>	<p><b>Yes</b> INSTALL a new ABS module. REFER to <a href="#">Section 206-09</a>. CLEAR the DTCs. REPEAT the network test with the scan tool.</p> <p><b>No</b> 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 network test with the scan tool.</p>
<b>K21 CHECK FOR CORRECT IC OPERATION</b>	
<ul style="list-style-type: none"> <li>• Disconnect the <b>IC</b> connector.</li> <li>• Check for: <ul style="list-style-type: none"> <li>▪ corrosion</li> <li>▪ damaged pins</li> <li>▪ pushed-out pins</li> </ul> </li> <li>• Connect the <b>IC</b> connector and make sure it seats correctly.</li> <li>• Operate the system and verify the concern is still present.</li> <li>• <b>Is the concern still present?</b></li> </ul>	<p><b>Yes</b> INSTALL a new <b>IC</b>. REFER to <a href="#">Section 413-01</a>. CLEAR the DTCs. REPEAT the network test with the scan tool.</p> <p><b>No</b> 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 network test with the scan tool.</p>

### Pinpoint Test L: No Power To The Scan Tool

Refer to Wiring Diagrams Cell [14](#), Module Communications Network for schematic and connector information.

#### Normal Operation

The scan tool is connected to the Data Link Connector (DLC) to communicate with the High Speed Controller Area Network (HS-CAN), Medium Speed Controller Area Network (MS-CAN), and International Standards Organization (ISO) 9141 communications network. Voltage for the scan tool is provided by circuit 1047 (LG/RD). Ground is provided by circuits 570 (BK/WH) and 1205 (BK).

**This pinpoint test is intended to diagnose the following:**

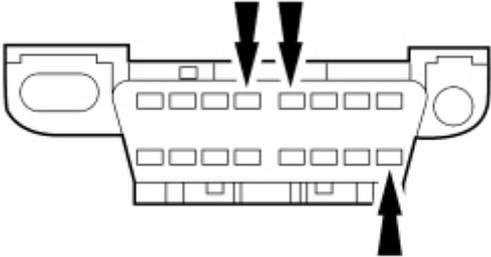
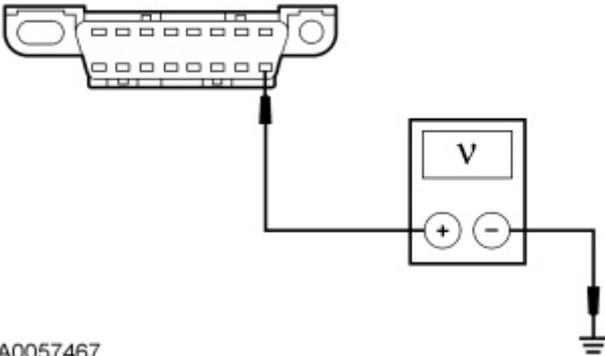
- Fuse

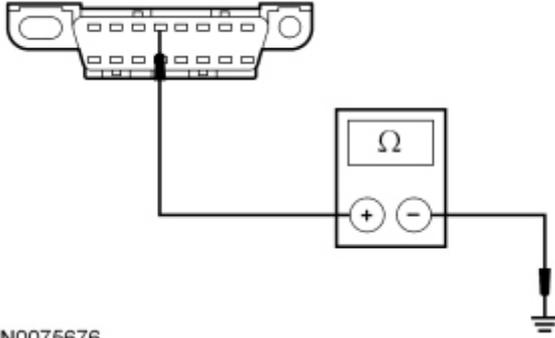
- Wiring, terminals or connectors
- Scan tool
- [DLC](#)

**PINPOINT TEST L: NO POWER TO THE SCAN TOOL**

**NOTE:** Most faults are due to connector and/or wiring concerns. Carry out a thorough inspection and verification before proceeding with the pinpoint test.

**NOTE:** Failure to disconnect the battery when instructed will result in false resistance readings. Refer to [Section 414-01](#).

Test Step	Result / Action to Take
<p><b>L1 CHECK THE <a href="#">DLC</a> PINS FOR DAMAGE</b></p> <ul style="list-style-type: none"> <li>• Disconnect the scan tool cable from the <a href="#">DLC</a>.</li> <li>• Inspect <a href="#">DLC</a> pins 4, 5 and 16 for damage.</li> </ul>  <p>N0050767</p> <ul style="list-style-type: none"> <li>• Are <a href="#">DLC</a> pins 4, 5 and 16 OK?</li> </ul>	<p><b>Yes</b> GO to <a href="#">L2</a>.</p> <p><b>No</b> REPAIR the <a href="#">DLC</a> as necessary. CLEAR the DTCs. REPEAT the network test with the scan tool.</p>
<p><b>L2 CHECK THE <a href="#">DLC</a> VOLTAGE SUPPLY CIRCUIT FOR AN OPEN</b></p> <ul style="list-style-type: none"> <li>• Measure the voltage between the <a href="#">DLC</a> C251-16, circuit 1047 (LG/RD), harness side and ground.</li> </ul>  <p>A0057467</p> <ul style="list-style-type: none"> <li>• Is the voltage greater than 10 volts?</li> </ul>	<p><b>Yes</b> GO to <a href="#">L3</a>.</p> <p><b>No</b> VERIFY the Smart Junction Box (SJB) fuse 8 (10A) is OK. If OK, REPAIR the circuit. If not OK, REFER to the Wiring Diagrams Manual to IDENTIFY the possible causes of the short circuit. REPEAT the network test with the scan tool.</p>
<p><b>L3 CHECK THE <a href="#">DLC</a> GROUND CIRCUITS FOR AN OPEN</b></p> <ul style="list-style-type: none"> <li>• Disconnect: Negative Battery Cable.</li> <li>• Measure the resistance between the <a href="#">DLC</a> C251-4, circuit 1205 (BK), harness side and ground; and between the <a href="#">DLC</a> C251-5, circuit 570 (BK/WH), harness side and ground.</li> </ul>	<p><b>Yes</b> REPAIR the scan tool. CONNECT the negative battery cable. REPEAT the network test with the scan tool.</p> <p><b>No</b></p>



N0075676

- Are the resistances less than 5 ohms?

REPAIR the circuit in question.  
CONNECT the negative battery  
cable. REPEAT the network  
test with the scan tool.