Communications Network

Special Tool(s)

	Fluke 77-IV Digital Multimeter FLU77-4 or equivalent
	Vehicle Communication Module (VCM) and Integrated Diagnostic System (IDS) software with appropriate hardware, or equivalent scan tool
	Flex Probe Kit NUD105-R025D or equivalent

Principles of Operation

Both High Speed Controller Area Network (HS-CAN) and Medium Speed Controller Area Network (MS-CAN) use an unshielded twisted pair cable of data (+) and data (-) circuits. The HS-CAN operates at a maximum data transfer speed of 500 Kbps and designed for real-time information transfer and control. The MS-CAN operates at a maximum data transfer speed of 125 Kbps for bus messages and is designed for general information transfer.

Controller Area Network (CAN) Fault Tolerance

NOTE: *The oscilloscope traces below are from the Integrated Diagnostic System (IDS) oscilloscope taken using the IDS pre-configured CAN settings. The traces are for both data (+) and data (-) taken simultaneously (2-channel) at a sample rate of 1 mega-sample per second (1MS/s) or greater.*

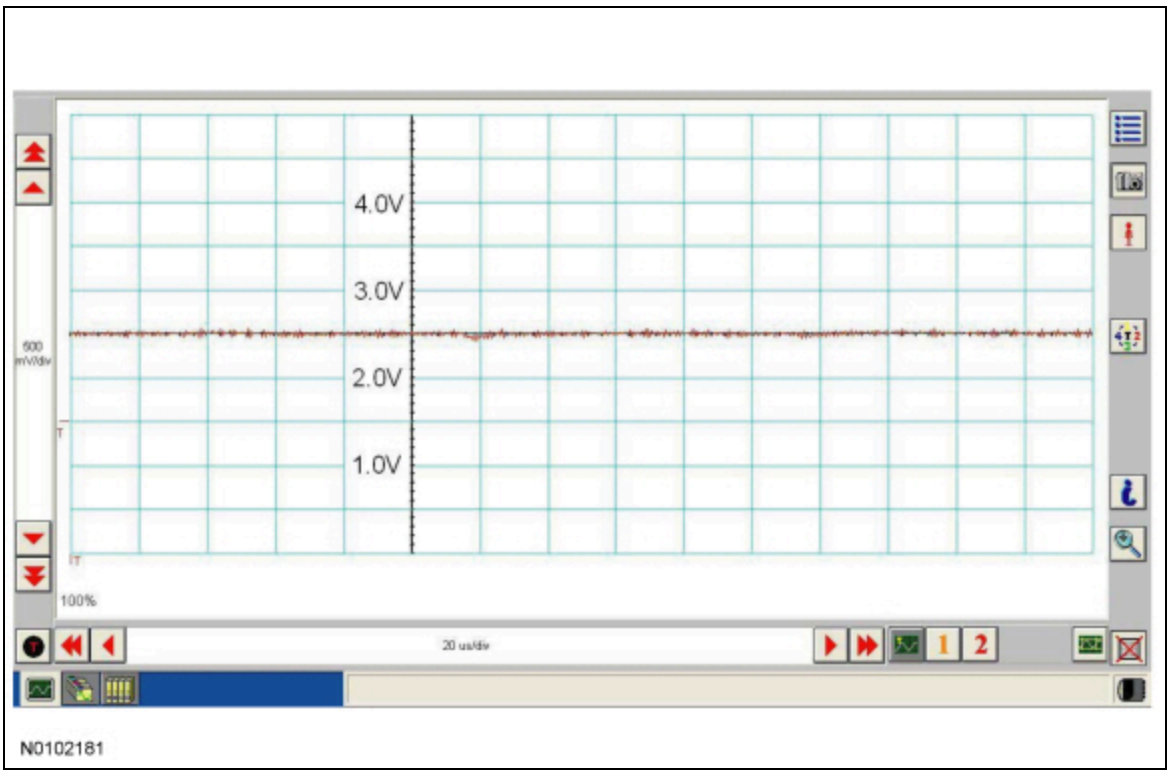
Traces below are viewed at 500mV per division (vertical axis) and 20 microseconds (20µs) per division (horizontal axis). Readings taken with a different oscilloscope vary from those shown. Compare any suspect readings to a known good vehicle.

Normal CAN Operation

The data (+) and data (-) circuits are each regulated to approximately 2.5 volts during neutral or rested network traffic. As 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 message is sent.

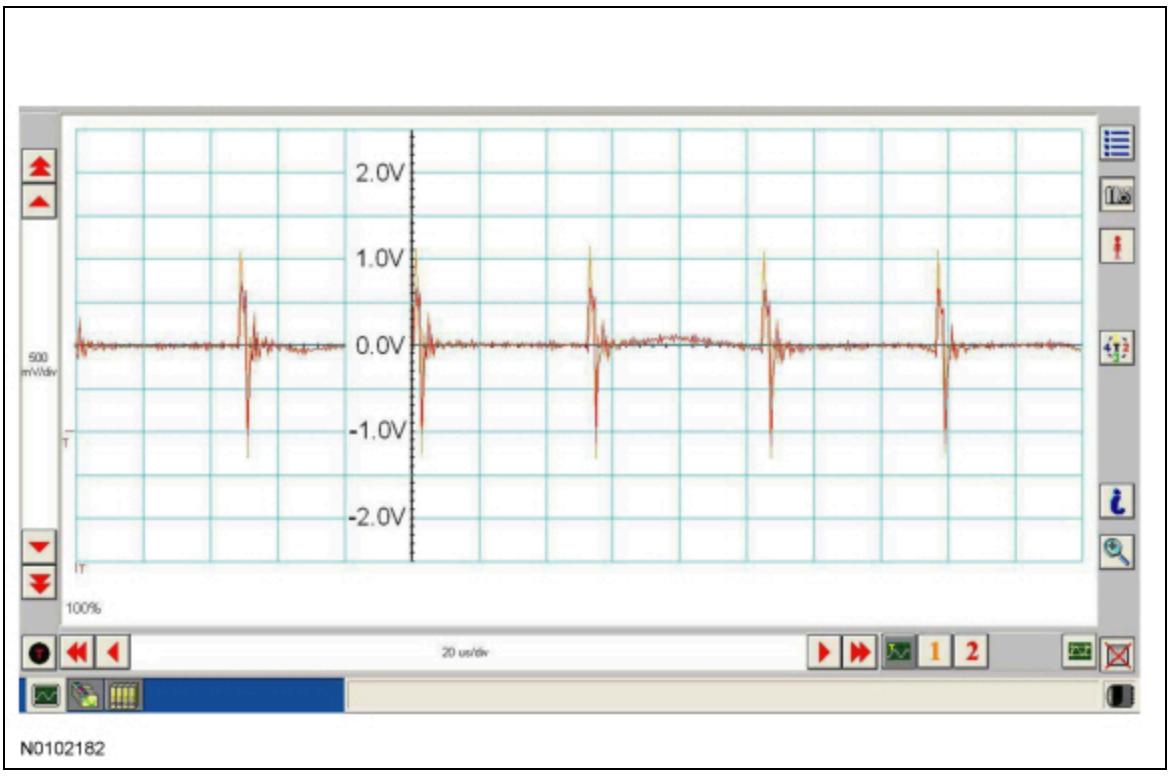
Successful communication of a message can usually be identified by the slight spike at the end of a message transmission. Any signals that are significantly different than the normal CAN waveform may cause network DTCs (U-codes) to set or may cause a complete network outage.

CAN Circuits Shorted Together



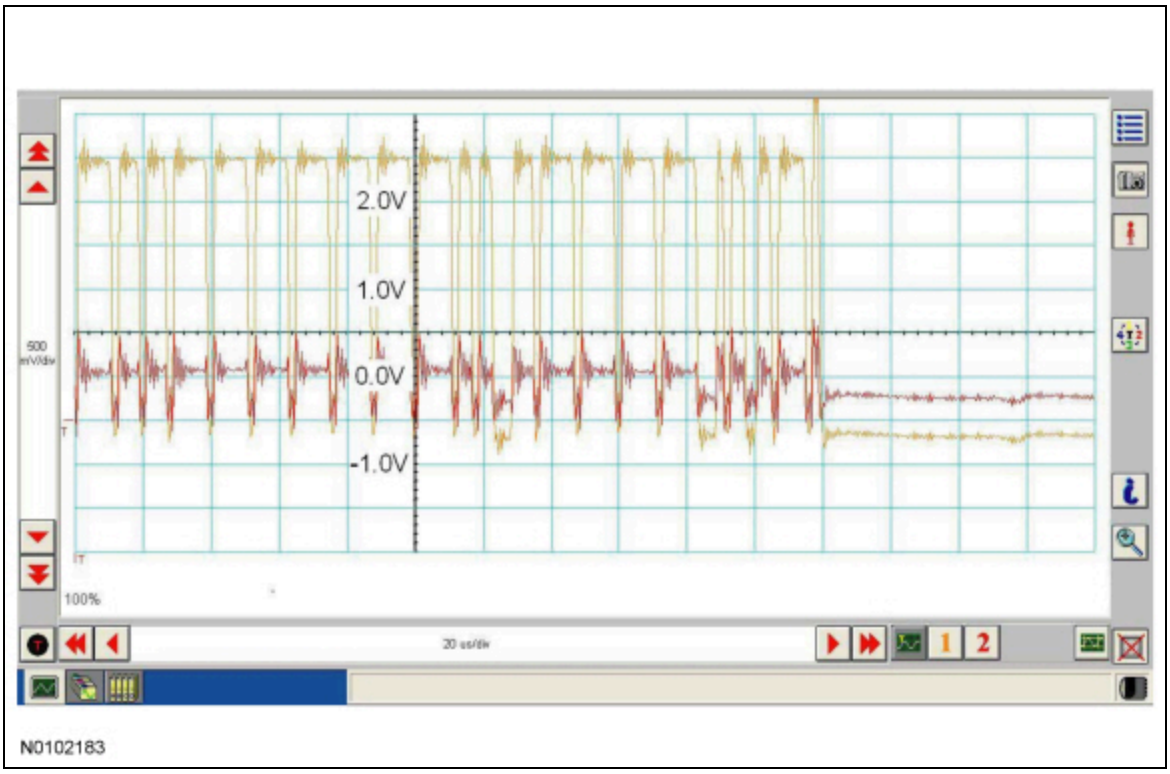
In the event the data (+) and data (-) circuits become shorted together, the signal stays at base voltage (2.5V) continuously and all communication capabilities are lost.

CAN (+) Circuit Shorted To Ground



In the event the data (+) circuit becomes shorted to ground, both the data (+) and data (-) circuits are pulled low (0V) and all communication capabilities are lost.

CAN (-) Circuit Shorted To Ground



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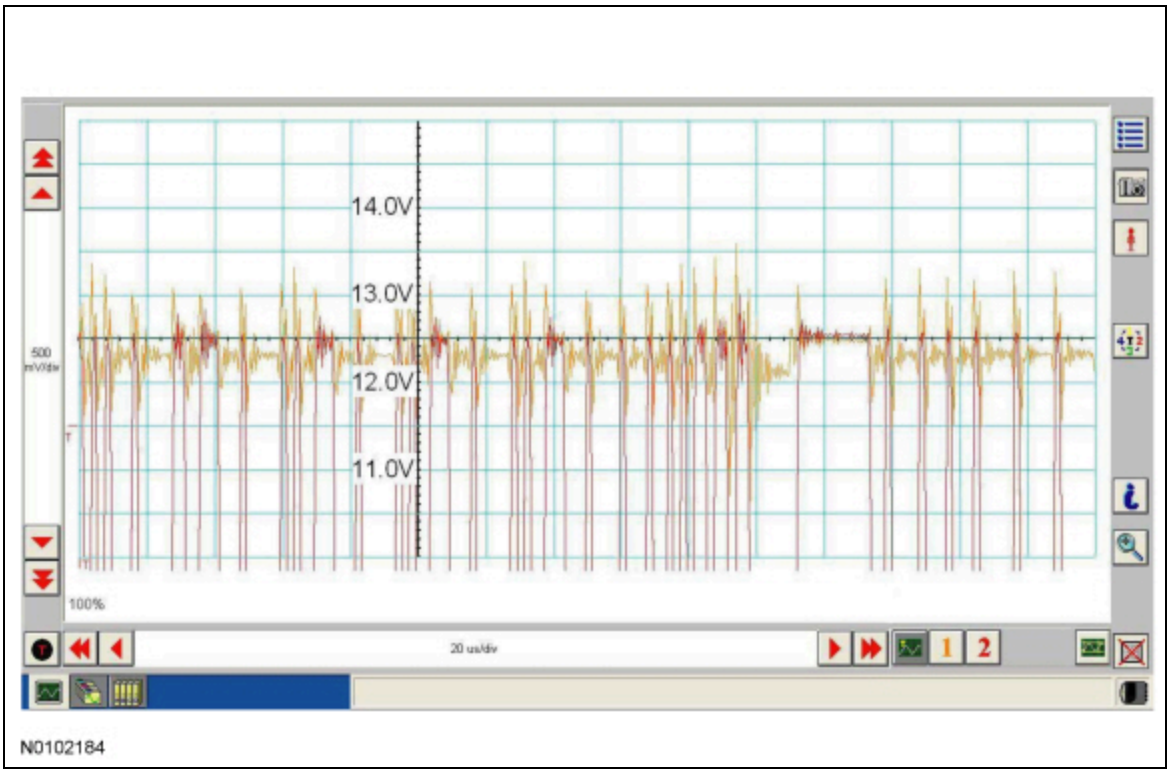
In the event the data (-) circuit becomes shorted to ground, the data (-) circuit is pulled low (0V) and the data (+) circuit reaches near-normal peak voltage (3.0V) during communication but falls to 0V instead of normal base voltage (2.5V). Communication may continue but at a degraded level.

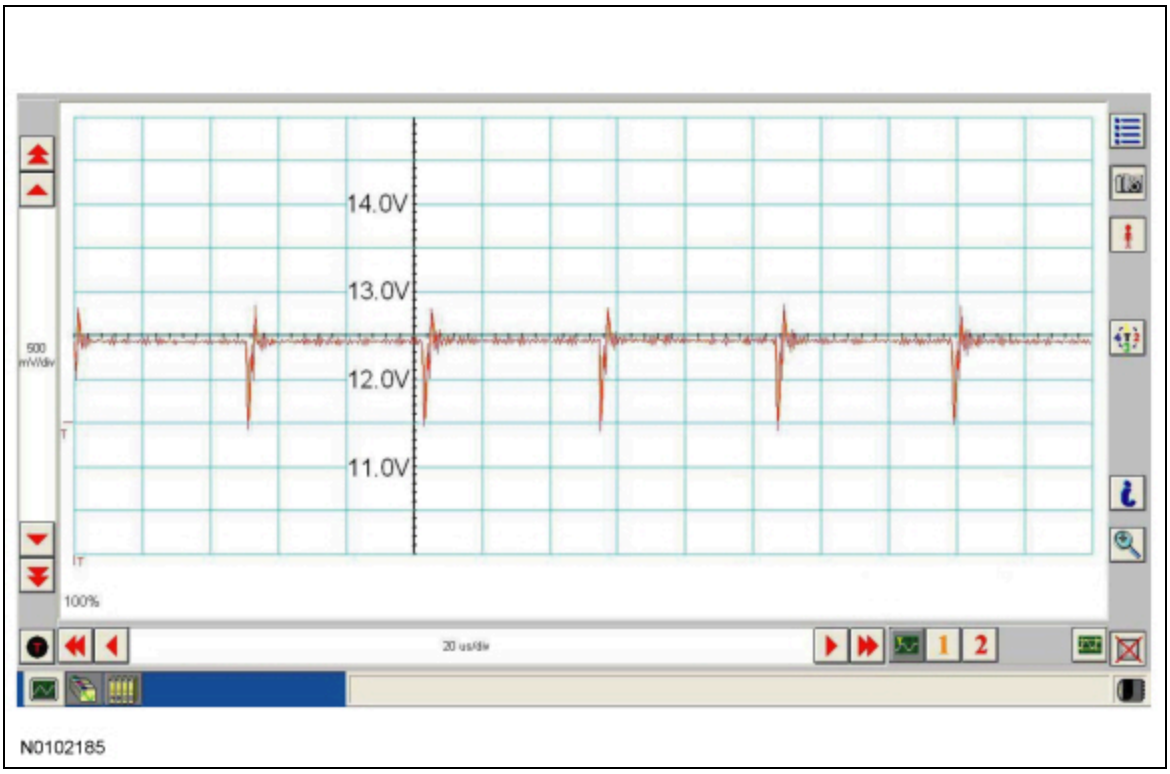
CAN (+) Circuit Shorted To Battery Voltage



N0102184

In the event the data (+) circuit becomes shorted to battery voltage, the data (+) circuit is pulled high (12V) and the data (-) circuit falls to abnormally high voltage (above 5V) during communication and reaches battery voltage (12V) for peak voltage. Communication may continue but at a degraded level.

CAN (-) Circuit Shorted To Battery Voltage



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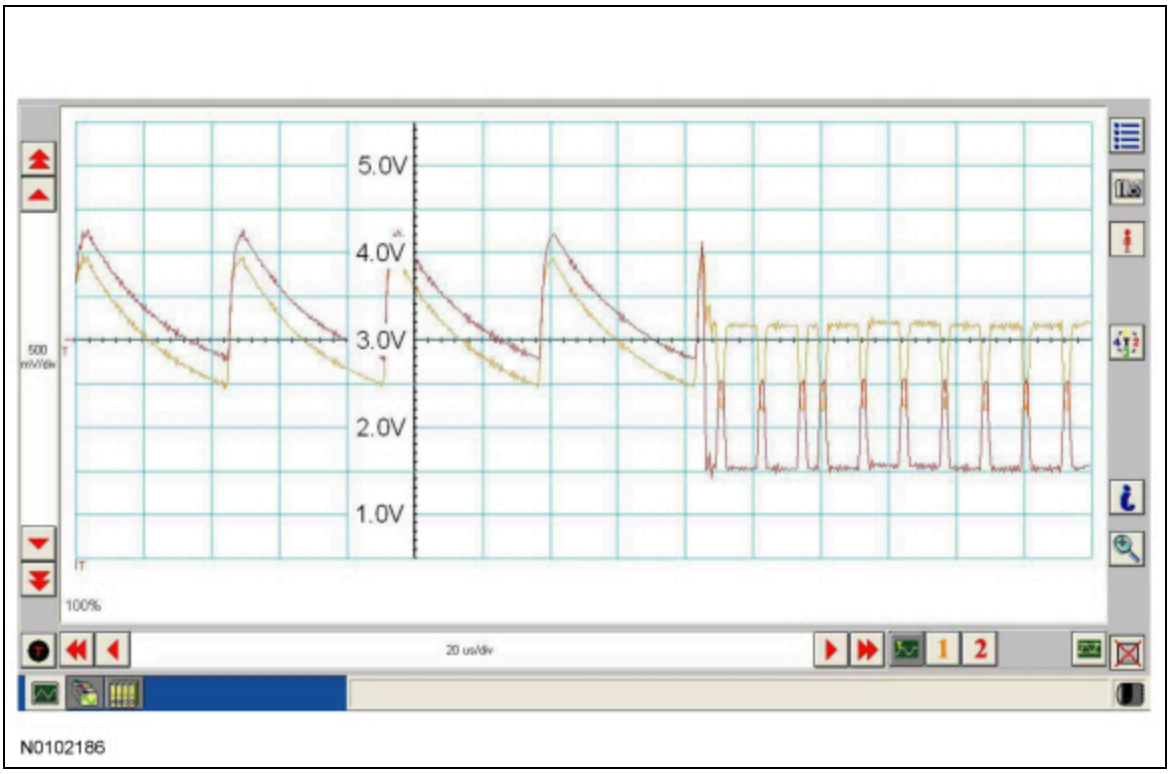
In the event the data (-) circuit becomes shorted to battery voltage, both the data (+) and data (-) circuits are pulled high (12V) and all communication capabilities are lost.

CAN Circuit Signal Corruption



N0102186

Rhythmic oscillations, inductive spikes or random interference can disrupt the network communications. The corruption signal source may be outside electrical interference such as motors or solenoids or internal interference generated from a module on the network. In some cases, an open in either the data (+) or data (-) circuit to a network module may cause the module to emit interference on the one circuit which is still connected. The trace shown is an example of a "sawtooth" pattern transmitted from a module with one open network circuit.

Other corruptions may be present when a module is intermittently powered up and down. The module on power up may initiate communication out of sync with other modules on the network causing momentary communication outages.

Controller Area Network (CAN) Multiplex Messages

Modules on the CAN utilize simultaneous communication of two or more messages on the same network circuits. The following chart summarizes the messages sent and received on the network.

CAN Module Communication Message Chart

NOTE: *This chart describes the specific High Speed Controller Area Network (HS-CAN) and Medium Speed Controller Area Network (MS-CAN) messages broadcast by each module, and the module(s) that receive the message.*

Broadcast Message	Originating Module	Network Type	Receiving Module(s)
A/C clutch engagement request	HVAC module	MS-CAN	• IPC
A/C clutch engagement request (gateway)	IPC	HS-CAN	• PCM
A/C clutch engagement status	PCM	HS-CAN	• IPC
A/C clutch engagement status (gateway)	IPC	MS-CAN	• HVAC module
A/C recirculation mode request	PCM	HS-CAN	• IPC
A/C recirculation mode request (gateway)	IPC	MS-CAN	• HVAC module
ABS event in progress	ABS module	HS-CAN	• PCM • RCM
ABS Roll Stability Control (RSC®) chime malfunction status	ABS module	HS-CAN	• IPC
ABS warning indicator request	ABS module	HS-CAN	• IPC • RCM
Accelerator pedal position	PCM	HS-CAN	• ABS module • IPC
Accelerometer and yaw sensor data	ABS module	HS-CAN	• IPC • PSCM
Accelerometer and yaw sensor data (gateway)	IPC	MS-CAN	• GPSM
Accessory delay status	SJB	MS-CAN	• ACM • BCM-B • FCIM • FDIM

Broadcast Message	Originating Module	Network Type	Receiving Module(s)
Airbag deployment eCall confirmation	APIM	HS-CAN	• RCM
Airbag deployment eCall notification	RCM	HS-CAN	• APIM
Airbag deployment event data record	PCM	HS-CAN	• RCM
Airbag deployment status	RCM	HS-CAN	• IPC • OCSM • PCM
Airbag deployment status (gateway)	IPC	MS-CAN	• SJB
Airbag warning indicator request	RCM	HS-CAN	• IPC
Airbag warning indicator status	IPC	HS-CAN	• RCM
Ambient lighting color	IPC	MS-CAN	• BCM-B
Ambient lighting dimming level	IPC	MS-CAN	• BCM-B
Ambient lighting status	BCM-B	MS-CAN	• IPC
Ambient temperature, inferred	PCM	HS-CAN	• ABS module • IPC
Autolamp delay command	IPC	MS-CAN	• SJB
Autolamp delay status	SJB	MS-CAN	• IPC
Autolock command	IPC	MS-CAN	• SJB
Autolock status	SJB	MS-CAN	• IPC
Auto-unlock command	IPC	MS-CAN	• SJB
Auto-unlock status	SJB	MS-CAN	• IPC
Average fuel economy data	IPC	MS-CAN	• ACM

Broadcast Message	Originating Module	Network Type	Receiving Module(s)
Average fuel economy reset request (navigation)	ACM	MS-CAN	• IPC
Axle ratio	PCM	HS-CAN	• ABS module
Barometric pressure	PCM	HS-CAN	• ABS module • IPC
Barometric pressure (gateway)	IPC	MS-CAN	• SJB
Belt-Minder® warning status	RCM	HS-CAN	• IPC
Belt-Minder® programming request	RCM	HS-CAN	• IPC
Brake (red) warning indicator request	ABS module	HS-CAN	• IPC • RCM
Brake fluid level low	SJB	MS-CAN	• IPC
Brake fluid level low (gateway)	IPC	HS-CAN	• ABS module
Brake lamp switch status	PCM	HS-CAN	• ABS module • IPC
Charging system status	PCM	HS-CAN	• IPC
Charging system warning indicator request	PCM	HS-CAN	• IPC • PSCM
Compass display data	IPC	MS-CAN	• ACM • FDIM
Compass zone and calibration status	IPC	MS-CAN	• ACM • FDIM
Convertible top position status	BCM-B	MS-CAN	• HVAC module
Decklid ajar status	SJB	MS-CAN	• IPC
Door ajar status	SJB	MS-CAN	• IPC

Broadcast Message	Originating Module	Network Type	Receiving Module(s)
Door lock command	SJB	MS-CAN	• BCM-B
Door lock command source	SJB	MS-CAN	• BCM-B
Engine coolant temperature	PCM	HS-CAN	• ABS module • IPC
Engine coolant temperature (gateway)	IPC	MS-CAN	• HVAC module
Engine fail-safe cooling mode status	PCM	HS-CAN	• IPC
Engine fail-safe Electronic Throttle Control (ETC) warning indicator request	PCM	HS-CAN	• IPC
Engine Malfunction Indicator Lamp (MIL) request	PCM	HS-CAN	• IPC
Engine off timer	PCM	HS-CAN	• ABS module • IPC
Engine off timer (gateway)	IPC	MS-CAN	• HVAC module
Engine RPM	PCM	HS-CAN	• ABS module • IPC • PSCM
Engine RPM (gateway)	IPC	MS-CAN	• APIM • HVAC module
Engine torque data	PCM	HS-CAN	• ABS module • APIM
Engine torque reduction request	ABS module	HS-CAN	• PCM
Engine turbocharger boost	PCM	HS-CAN	• IPC
Engine type	PCM	HS-CAN	• ABS module • IPC
English/metric display (navigation)	ACM	MS-CAN	• IPC
English/metric mode	IPC	MS-CAN	• ACM

Broadcast Message	Originating Module	Network Type	Receiving Module(s)
			• HVAC module
Front Controls Interface Module (FCIM) button press data	FCIM	MS-CAN	• ACM • APIM • IPC
Fuel cap off indicator request	PCM	HS-CAN	• IPC
Fuel flow data	PCM	HS-CAN	• APIM • IPC
Fuel level (instant)	IPC	HS-CAN	• PCM
Fuel level status	IPC	MS-CAN	• ACM
Fuel level status	IPC	HS-CAN	• APIM
Global Positioning System (GPS) data	Global Positioning System Module (GPSM)	MS-CAN	• APIM
Headlamp high beam indicator request	SJB	MS-CAN	• IPC
Headlamp low beam status	SJB	MS-CAN	• IPC
Headlamps on warning chime command	SJB	MS-CAN	• IPC
Hood ajar status	SJB	MS-CAN	• IPC
HVAC button status	FCIM	MS-CAN	• HVAC module
HVAC button status, navigation Audio Front Control Module (ACM)	ACM	MS-CAN	• HVAC module
HVAC indicator status	HVAC module	MS-CAN	• ACM • FCIM
HVAC module display data	HVAC module	MS-CAN	• ACM • FDIM
HVAC voice request	ACM	MS-CAN	• HVAC module

Broadcast Message	Originating Module	Network Type	Receiving Module(s)
Ignition switch position	SJB	MS-CAN	• ACM • APIM • BCM-B • FCIM • FDIM • GPSM • HVAC module • IPC
Ignition switch position (gateway)	IPC	HS-CAN	• ABS module • PCM
Integrated Keyhead Transmitter (IKT) programming request	IPC	MS-CAN	• SJB
IKT programming status	SJB	MS-CAN	• IPC
Illuminated exit status	SJB	MS-CAN	• BCM-B
Instrument illumination level	SJB	MS-CAN	• ACM • BCM-B • FCIM • FDIM • HVAC module • IPC
Interior courtesy lamp battery saver status	SJB	MS-CAN	• BCM-B
Interior courtesy lamp delay status	SJB	MS-CAN	• BCM-B
Interior courtesy lamp door status	SJB	MS-CAN	• BCM-B
Interior courtesy lamp illuminated entry status	SJB	MS-CAN	• BCM-B
Key-in-ignition status	SJB	MS-CAN	• ACM • APIM
Key-in-ignition warning chime command	SJB	MS-CAN	• IPC
Low odometer status	IPC	MS-CAN	• HVAC module • SJB
Manual transmission clutch top travel switch status	PCM	HS-CAN	• ABS module

Broadcast Message	Originating Module	Network Type	Receiving Module(s)
Manual transmission upshift indicator request	PCM	HS-CAN	• IPC
Navigation rolling wheel count	ABS module	HS-CAN	• IPC
Navigation rolling wheel count (gateway)	IPC	MS-CAN	• ACM • GPSM
Occupant Classification System (OCS) calibration data	OCSM	HS-CAN	• RCM
OCS fault status	OCSM	HS-CAN	• RCM
OCS sensor data	OCSM	HS-CAN	• RCM
OCS serial number	OCSM	HS-CAN	• RCM
Odometer rolling count	PCM	HS-CAN	• APIM • IPC
Park brake chime request	SJB	MS-CAN	• IPC
Park brake status	SJB	MS-CAN	• ACM • IPC
Park brake status (gateway)	IPC	HS-CAN	• ABS module • PCM
Park lamp status	SJB	MS-CAN	• ACM • FCIM • FDIM • HVAC module • IPC
Passenger seat belt buckle status	RCM	HS-CAN	• OCSM
Passive Anti-Theft System (PATS) security data	IPC	HS-CAN	• PCM
PATS security data	PCM	HS-CAN	• IPC
PATS security data	IPC	MS-CAN	• SJB
Perimeter alarm chime request	SJB	MS-CAN	• IPC

Broadcast Message	Originating Module	Network Type	Receiving Module(s)
Perimeter alarm courtesy lamp status	SJB	MS-CAN	• BCM-B
Perimeter alarm event trigger source	SJB	MS-CAN	• IPC
Perimeter alarm inclination armed status	SJB	MS-CAN	• BCM-B
Perimeter alarm inclination sensor status	BCM-B	MS-CAN	• SJB
Perimeter alarm inclination/intrusion sensor fault	BCM-B	MS-CAN	• IPC
Perimeter alarm intrusion armed status	SJB	MS-CAN	• BCM-B
Perimeter alarm intrusion sensor status	BCM-B	MS-CAN	• SJB
PSCM fault status	PSCM	HS-CAN	• IPC
Restraints Control Module (RCM) serial number	RCM	HS-CAN	• ABS module • OCSM
Remote start status	SJB	MS-CAN	• APIM
Seat belt indicator request	RCM	HS-CAN	• IPC
Seat belt warning chime request	RCM	HS-CAN	• IPC
Seat belt warning chime status	IPC	HS-CAN	• RCM
Slow vehicle speed puddle lamp status	SJB	MS-CAN	• BCM-B
Speed control indicator status	PCM	HS-CAN	• ABS module • IPC
Stability control event in progress	ABS module	HS-CAN	• PCM • RCM
Stability control indicator status	ABS module	HS-CAN	• IPC • RCM
Stability control message center text	ABS module	HS-CAN	• IPC

Broadcast Message	Originating Module	Network Type	Receiving Module(s)
Steering wheel angle	PSCM	HS-CAN	• ABS Module • RCM
Steering wheel angle offset	ABS module	HS-CAN	• PSCM
Tire revolutions per mile	PCM	HS-CAN	• IPC
Tire size information	ABS module	HS-CAN	• IPC • PCM
Tire size information (gateway)	IPC	MS-CAN	• ACM • GPSM
Tire Pressure Monitoring System (TPMS) indicator command	SJB	MS-CAN	• APIM • IPC
TPMS sensor status	SJB	MS-CAN	• APIM
TPMS system status	SJB	MS-CAN	• APIM • IPC
TPMS tire pressure data	SJB	MS-CAN	• APIM
Traction control disable switch status	ABS module	HS-CAN	• IPC
Traction control event in progress	ABS module	HS-CAN	• PCM • RCM
Transmission malfunction indicator request	PCM	HS-CAN	• IPC
Transmission overdrive cancel status	PCM	HS-CAN	• IPC
Transmission selector (PRNDL) status	PCM	HS-CAN	• ABS module • IPC • RCM
Transmission selector (PRNDL) status (gateway)	IPC	MS-CAN	• ACM • BCM-B • GPSM • SJB
Transmission shift in progress	PCM	HS-CAN	• ABS

Broadcast Message	Originating Module	Network Type	Receiving Module(s)
Transmission type	PCM	HS-CAN	• ABS module • IPC
Turn signal command	SJB	MS-CAN	• IPC
Turn signal outage, LR	BCM-B	MS-CAN	• SJB
Turn signal outage, RR	BCM-B	MS-CAN	• SJB
Turn signal sequential command	SJB	MS-CAN	• BCM-B
Vehicle speed	PCM	HS-CAN	• ABS module • IPC • OCSM
Vehicle speed (gateway)	IPC	MS-CAN	• ACM • APIM • BCM-B • GPSM • HVAC module • SJB
Vehicle type information	PCM	HS-CAN	• ABS module • APIM • IPC
Vehicle type information (gateway)	IPC	MS-CAN	• ACM • HVAC module
Vehicle Identification Number (VIN) information	PCM	HS-CAN	• ABS module • APIM • IPC • OCSM • RCM
VIN information (gateway)	IPC	MS-CAN	• APIM • ACM • HVAC module • SJB
Wheel speed data	ABS module	HS-CAN	• PCM

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

• Battery Junction Box (BJB) fuse(s):
  ▪ 18 (20A) (no communication with the Body Control Module B (BCM-B))
  ▪ 23 (10A) (no communication with the PCM)
  ▪ 45 (5A) (no communication with the PCM and the Power Steering Control Module (PSCM))
  ▪ 47 (15A) (no communication with the PCM)
• Smart Junction Box (SJB) fuse(s):
  ▪ 3 (15A) (no communication with the Accessory Protocol Interface Module (APIM))
  ▪ 5 (10A) (no communication with the SJB)
  ▪ 14 (10A) (no communication with the Front Controls Interface Module (FCIM) , Front Display Interface Module (FDIM) (without navigation), Global Positioning System Module (GPSM))
  ▪ 15 (10A) (no communication with the HVAC module)
  ▪ 20 (15A) (no power to the scan tool)
  ▪ 26 (10A) (no communication with the Instrument Panel Cluster (IPC))
  ▪ 31 (10A) (no communication with the Restraints Control Module (RCM))
  ▪ 32 (10A) (no communication with the Parking Aid Module (PAM))
  ▪ 34 (5A) (no communication with the ABS module)
  ▪ 35 (10A) (no communication with the BCM-B)
  ▪ 36 (5A) (no communication with the IPC)
  ▪ 39 (20A) (no communication with the Audio Front Control Module (ACM))
  ▪ 46 (7.5A) (no communication with the Occupant Classification System Module (OCSM))
• Data Link Connector (DLC)
• Wiring harness
• Wiring, terminals or connectors

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 R, to diagnose No Power To The Scan Tool.

4. Establish a scan tool session.

   - **NOTE:** *The scan tool first attempts to communicate with the PCM, after establishing communication with the PCM, the scan tool then attempts 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 communicate 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	Action
U0028:08	Vehicle Communication Bus A: Bus Signal / Message Failure	The module could not communicate on the network at a point in time. The fault is not currently present (the module had to communicate with the scan tool to report this DTC). CLEAR the DTC. REPEAT the Network Test with the scan tool. VERIFY the integrity of the connectors and wiring Refer to Wiring Diagrams Cell 14 , Module Communications Network for schematic and connector information.
U0028:88	Vehicle Communication Bus A: Bus off	The module could not communicate on the network at a point in time. The fault is not currently present (the module had to communicate with the scan tool to report this DTC). CLEAR the DTC. REPEAT the Network Test with the scan tool. VERIFY the integrity of the connectors and wiring Refer to Wiring Diagrams Cell 14 , Module Communications Network for schematic and connector information.
U0073	Control Module Communication Bus Off	The module could not communicate on the network at a point in time. The fault is not currently present (the module had to communicate with the scan tool to report this DTC). CLEAR the DTC. REPEAT the Network Test with the scan tool. VERIFY the integrity of the connectors and wiring Refer to Wiring Diagrams Cell 14 , Module Communications Network for schematic and connector information.
U2472	Unexpected Ignition State	This DTC is only set when an on-demand self-test is run with the test entry conditions not correct. CLEAR the DTC. REPEAT the self-test with the ignition in the ON position and the vehicle stationary.
U2473	Unexpected Vehicle Speed	This DTC is only set when an on-demand self-test is run with the test entry conditions not correct. CLEAR the DTC. REPEAT the self-test with the ignition in the ON position and the vehicle stationary.
-	All network DTCs referenced to 418-00 from another section	GO to Symptom Chart.
-	All other DTCs	REFER to Section 419-10.

Symptom Chart

Symptom Chart

Condition	Possible Causes	Action
• The vehicle will not start with the scan tool connected to the DLC and/or multiple malfunction indicators are on only while the scan tool is connected to the DLC .	• DLC ground • Wiring, terminals or connectors • Scan tool	• GO to Pinpoint Test R.
• The PCM does not respond to the scan tool	• Wiring, terminals or connectors • PCM	• REFER to the Powertrain Control/Emissions Diagnosis (PC/ED) manual, Section 5, pinpoint test QA before proceeding to Pinpoint Test A. If

		pinpoint test QA has been completed, GO to Pinpoint Test A.
• The ABS module does not respond to the scan tool	• Fuse • Wiring, terminals or connectors • ABS module	• GO to Pinpoint Test B.
• The Instrument Panel Cluster (IPC) does not respond to the scan tool	• Fuse • Wiring, terminals or connectors • IPC	• GO to Pinpoint Test C.
• The Restraints Control Module (RCM) does not respond to the scan tool	• Case ground open • Fuse • Wiring, terminals or connectors • RCM	• GO to Pinpoint Test D.
• The Occupant Classification System Module (OCSM) does not respond to the scan tool	• Fuse • Wiring, terminals or connectors • OCSM	• GO to Pinpoint Test E.
• The Smart Junction Box (SJB) does not respond to the scan tool	• Fuse • Wiring, terminals or connectors • SJB	• GO to Pinpoint Test F.
• The Body Control Module B (BCM-B) does not respond to the scan tool	• Fuse • Wiring, terminals or connectors • BCM-B	• GO to Pinpoint Test G.
• The HVAC module does not respond to the scan tool	• Fuse • Wiring, terminals or connectors • HVAC module	• GO to Pinpoint Test H.
• The Audio Front Control Module (ACM) does not respond to the scan tool	• Fuse • Wiring, terminals or connectors • ACM	• GO to Pinpoint Test I.
• The Front Controls Interface Module (FCIM) does not respond to the scan tool	• Fuse • Wiring, terminals or connectors • FCIM	• GO to Pinpoint Test J.
• The Front Display Interface Module (FDIM) does not respond to the scan tool (without navigation)	• Fuse • Wiring, terminals or connectors • FDIM	• GO to Pinpoint Test K.
• The Global Positioning System Module (GPSM) does not respond to the scan tool	• Fuse • Wiring, terminals or connectors • GPSM	• GO to Pinpoint Test L.
• The Accessory Protocol Interface Module (APIM) does not respond to the scan tool	• Fuse • Wiring, terminals or connectors • APIM	• GO to Pinpoint Test M.
• The Power Steering Control Module (PSCM) does not respond to the scan tool	• Fuse • Wiring, terminals or connectors • PSCM	• GO to Pinpoint Test N
• The Parking Aid Module (PAM) does not respond to the scan tool	• Fuse	• GO to Pinpoint Test O

	• Wiring, terminals or connectors • PAM	
• No Medium Speed Controller Area Network (MS-CAN) communication, all modules are not responding	• Wiring, terminals or connectors • APIM (if equipped) • ACM • BCM-B • FCIM • FDIM (without navigation) • HVAC module (if equipped) • IPC (gateway module) • SJB	• GO to Pinpoint Test P.
• No High Speed Controller Area Network (HS-CAN) communication, all modules are not responding	• Wiring, terminals or connectors • ABS module • APIM (if equipped) • IPC • OCSM • PAM • PCM • PSCM • RCM	• GO to Pinpoint Test Q.
• No power to the scan tool	• Fuse • Wiring, terminals or connectors • Scan tool • Data Link Connector (DLC)	• GO to Pinpoint Test R.

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 24 , Electronic Engine Controls - 5.0L for schematic and connector information.

Refer to Wiring Diagrams Cell 25 , Electronic Engine Controls - 5.4L for schematic and connector information.

Refer to Wiring Diagrams Cell 26 , Electronic Engine Controls - 3.7L for schematic and connector information.

Normal Operation

The PCM communicates with the scan tool through the High Speed Controller Area Network (HS-CAN) .

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 results in false resistance readings. Refer to Section 414-01.*
A1 VERIFY WHETHER OTHER HS-CAN MODULES PASS THE NETWORK TEST

- Enter the following diagnostic mode on the scan tool: Network Test .
- In the left hand pane of the IDS network test display screen, verify whether any HS-CAN modules passed the network test.

Is the text "pass" or a DTC listed next to any of the following modules: ABS module, Instrument Panel Cluster (IPC) , Occupant Classification System Module (OCSM) , PCM, PSCM or Restraints Control Module (RCM) ?

Yes	If "pass" or a DTC was listed next to the PCM, a network fault is not currently present. GO to Pinpoint Test P to diagnose an intermittent HS-CAN fault condition. If "pass" or a DTC was listed next to one or more modules other than the PCM, GO to A2.
No	No modules are currently communicating on the HS-CAN . GO to Pinpoint Test Q to diagnose no HS-CAN communication.

A2 PC/ED MANUAL PINPOINT TEST QA VERIFICATION CHECK

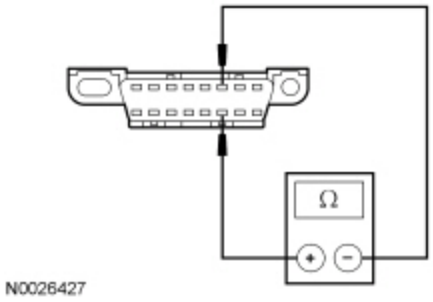
- Verify that the Powertrain Control/Emissions Diagnosis (PC/ED) pinpoint test QA has been performed.

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 Pin 6, circuit VDB04 (WH/BU), harness side and the DLC C251 Pin 14, circuit VDB05 (WH), harness side.

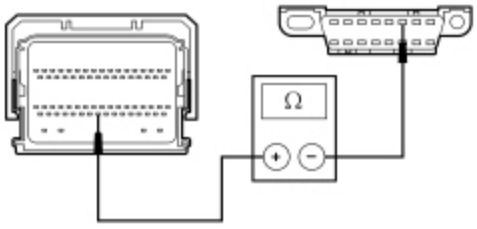


Is the resistance between 54 and 66 ohms?

Yes	CONNECT the negative battery cable. GO to A5.
No	GO to A4.

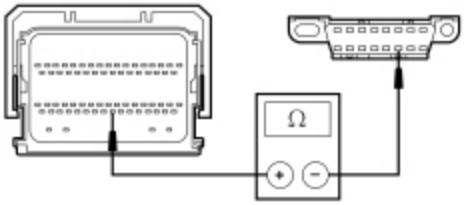
A4 CHECK THE CAN CIRCUITS BETWEEN THE PCM AND THE DLC FOR AN OPEN

- Disconnect: PCM C175B or C1381B .
- Measure the resistance between the PCM C175B Pin 59 or C1381B Pin 59, circuit VDB04 (WH/BU), harness side and the DLC C251 Pin 6, circuit VDB04 (WH/BU), harness side.



N0077607

- Measure the resistance between the PCM C175B Pin 58 or C1381B Pin 58, circuit VDB05 (WH), harness side and the DLC C251 Pin 14, circuit VDB05 (WH), harness side.



N0113941

Are the resistances less than 5 ohms?

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.

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) .

This pinpoint test is intended to diagnose the following:

- Fuse
- Wiring, terminals or connectors
- ABS module

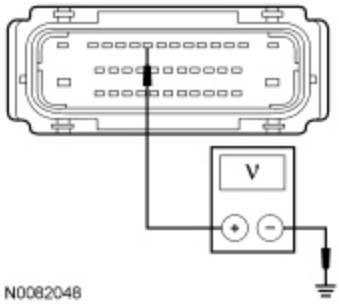
PINPOINT TEST B : THE ABS MODULE DOES NOT RESPOND TO THE SCAN TOOL

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 results in false resistance readings. Refer to Section 414-01.*

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 Pin 30, circuit CBP34 (VT/BN), harness side and ground.

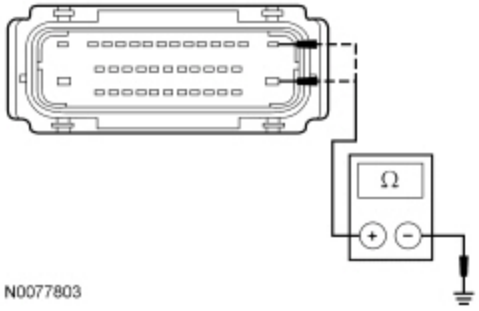


Are the voltages greater than 10 volts?

Yes	GO to B2.
No	VERIFY the SJB fuse 34 (5A) is OK. If OK, REPAIR the circuit. If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short. 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 Pin 13, circuit GD120 (BK/GN), harness side and ground; and between the ABS module C135 Pin 38, circuit GD120 (BK/GN), harness side and ground.

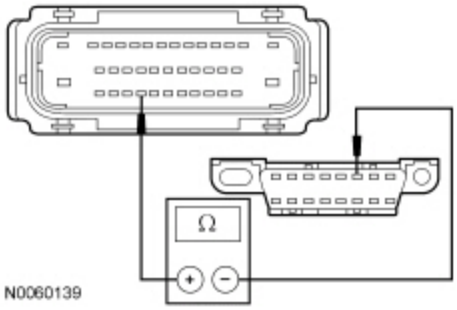


Are the resistances less than 5 ohms?

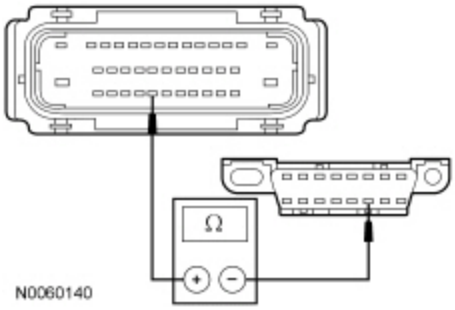
Yes	GO to B3.
No	REPAIR the circuit in question. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

B3 CHECK THE HS-CAN CIRCUITS BETWEEN THE ABS MODULE AND THE DLC FOR AN OPEN

- Measure the resistance between the ABS module C135 Pin 5, circuit VDB04 (WH/BU), harness side and the Data Link Connector (DLC) C251 Pin 6, circuit VDB04 (WH/BU), harness side.



- Measure the resistance between the ABS module C135 Pin 6, circuit VDB05 (WH), harness side and the DLC C251 Pin 14, circuit VDB05 (WH), harness side.



Are the resistances less than 5 ohms?

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.

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 Panel Cluster (IPC) 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 Panel Cluster (IPC) communicates with the scan tool through the High Speed Controller Area Network (HS-CAN) and the Medium Speed Controller Area Network (MS-CAN) .

This pinpoint test is intended to diagnose the following:

- Fuse(s)
- Wiring, terminals or connectors
- IPC

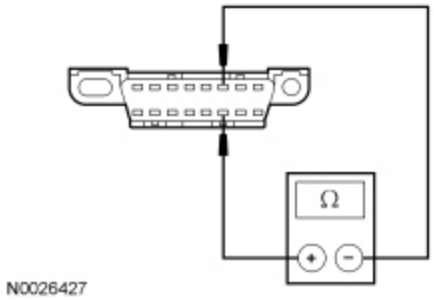
PINPOINT TEST C : THE IPC DOES NOT RESPOND TO THE SCAN TOOL

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 results in false resistance readings. Refer to Section 414-01.*

C1 CHECK THE HS-CAN TERMINATION RESISTANCE

- Ignition OFF.
- Disconnect: Negative Battery Cable .
- Disconnect the scan tool cable from the Data Link Connector (DLC) .
- Measure the resistance between the DLC C251 Pin 6, circuit VDB04 (WH/BU), harness side and the DLC C251 Pin 14, circuit VDB05 (WH), harness side.

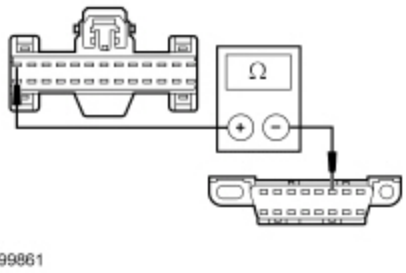


Is the resistance between 54 and 66 ohms?

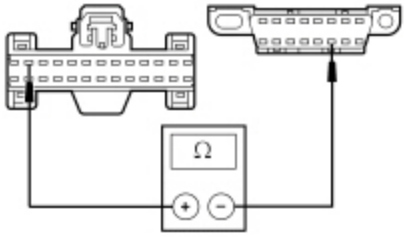
Yes	GO to C3.
No	GO to C2.

C2 CHECK THE HS-CAN CIRCUITS BETWEEN THE IPC AND THE DLC FOR AN OPEN

- Disconnect: IPC C220 .
- Measure the resistance between the IPC C220 Pin 13, circuit VDB04 (WH/BU), harness side and the DLC C251 Pin 6, circuit VDB04 (WH/BU), harness side.



- Measure the resistance between the IPC C220 Pin 12, circuit VDB05 (WH), harness side and the DLC C251 Pin 14, circuit VDB05 (WH), harness side.



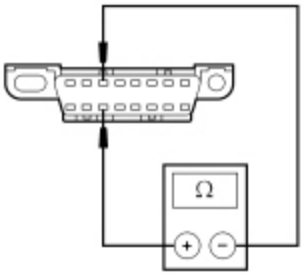
N0099862

Are the resistances less than 5 ohms?

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.

C3 CHECK THE MS-CAN TERMINATION RESISTANCE

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



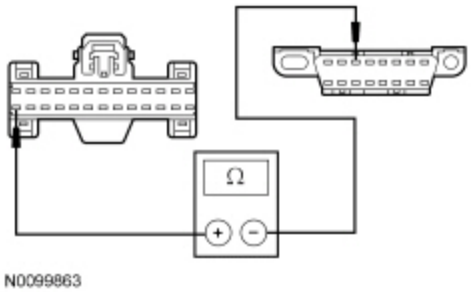
N0050701

Is the resistance between 54 and 66 ohms?

Yes	GO to C5.
No	GO to C4.

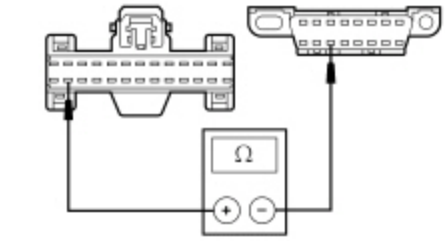
C4 CHECK THE MS-CAN CIRCUITS BETWEEN THE IPC AND THE DLC FOR AN OPEN

- Disconnect: IPC C220 .
- Measure the resistance between the IPC C220 Pin 26, circuit VDB06 (GY/OG), harness side and the DLC C251 Pin 3, circuit VDB06 (GY/OG), harness side.



N0099863

- Measure the resistance between the IPC C220 Pin 25, circuit VDB07 (VT/OG), harness side and the DLC C251 Pin 11, circuit VDB07 (VT/OG), harness side.

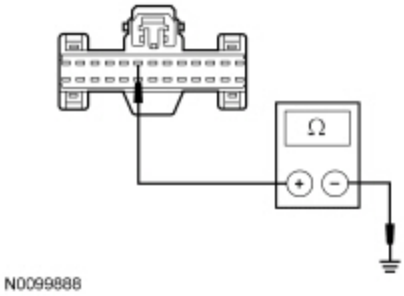


Are the resistances less than 5 ohms?

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.

C5 CHECK THE IPC GROUND CIRCUIT FOR AN OPEN

- Disconnect: IPC C220 .
- Measure the resistance between the IPC C220 Pin 8, circuit GD116 (BK/VT) harness side and ground.

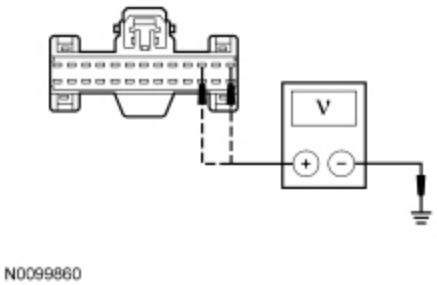


Is the resistance less than 5 ohms?

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.

C6 CHECK THE IPC VOLTAGE SUPPLY CIRCUITS FOR AN OPEN

- Ignition ON.
- Measure the voltage between the IPC C220 Pin 1, circuit SBP26 (YE/RD), harness side and ground; and between the IPC C220 Pin 3, circuit CBP36 (BU/BN), harness side and ground.



Are the voltages greater than 10 volts?

Yes	TURN the key to the OFF position. GO to C7.

No	VERIFY the SJB fuse 26 (10A) or fuse 36 (5A) 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.

C7 CHECK FOR CORRECT IPC OPERATION

- Disconnect the IPC connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the IPC 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 IPC . 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.

Pinpoint Test D: The Restraints Control Module (RCM) 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 46 , Supplemental Restraint System for schematic and connector information.

Normal Operation

The Restraints Control Module (RCM) communicates with the scan tool through the High Speed Controller Area Network (HS-CAN) .

This pinpoint test is intended to diagnose the following:

- Fuse
- Wiring, terminals or connectors
- Case ground open
- RCM

PINPOINT TEST D : THE RCM DOES NOT RESPOND TO THE SCAN TOOL

WARNING: Never disassemble or tamper with seat belt deployable components, including pretensioners, load limiters and inflators. Never back probe deployable device electrical connectors. Tampering or back probing may cause an accidental deployment and result in personal injury or death.

WARNING: Never probe the electrical connectors on airbag, Safety Canopy or side air curtain assemblies. Failure to follow this instruction may result in the accidental deployment of these assemblies, 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 results in false resistance readings. Refer toSection 414-01.*

D1 CHECK THE RCM CONNECTION

- Ignition OFF.
- Depower the SRS . Refer toSection 501-20B.
- Disconnect: RCM C2041A .
- Disconnect: RCM C2041B .

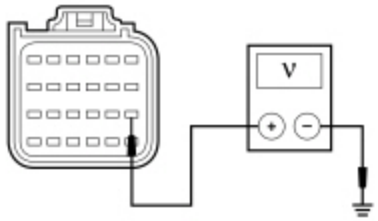
- Inspect the RCM connector for damaged, pushed out or corroded pins.

Are RCM C2041A pin 13 and RCM C2041B pins 9 and 10 OK?

Yes	GO to D2.
No	REPAIR the RCM connector pins as necessary. REPOWER the SRS . REFER toSection 501-20B. CLEAR the DTCs. REPEAT the network test with the scan tool.

D2 CHECK THE RCM VOLTAGE SUPPLY CIRCUIT FOR AN OPEN

- Repower the SRS . Refer toSection 501-20B.
- Ignition ON.
- Measure the voltage between the RCM C2041A Pin 13, circuit CBP31 (BU/OG), harness side and ground.



N0117680

Is the voltage greater than 10 volts?

Yes	GO to D3.
No	VERIFY the Smart Junction Box (SJB) fuse 31 (10A) is OK. If OK, REPAIR the circuit. If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short. CLEAR the DTCs. REPEAT the network test with the scan tool.

D3 CHECK THE RCM CASE GROUND

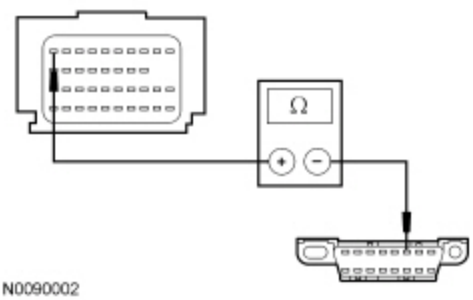
- Ignition OFF.
- Disconnect: Negative Battery Cable .
- Measure the resistance between the RCM case and a good chassis ground.

Is the resistance less than 5 ohms?

Yes	GO to D4.
No	REPAIR the RCM case ground as necessary. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

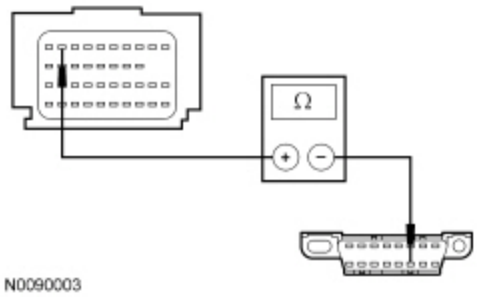
D4 CHECK THE HS-CAN CIRCUITS BETWEEN THE RCM AND THE DLC FOR AN OPEN

- Measure the resistance between the RCM C2041B Pin 10, circuit VDB04 (WH/BU), harness side and the Data Link Connector (DLC) C251 Pin 6, circuit VDB04 (WH/BU), harness side.



N0090002

- Measure the resistance between the RCM C2041B Pin 9, circuit VDB05 (WH), harness side and the DLC C251 Pin 14, circuit VDB05 (WH), harness side.



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

Pinpoint Test E: The Occupant Classification System Module (OCSM) 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 46 , Supplemental Restraint System for schematic and connector information.

Normal Operation

The Occupant Classification System Module (OCSM) communicates with the scan tool through the High Speed Controller Area Network (HS-CAN) .

This pinpoint test is intended to diagnose the following:

- Fuse
- Wiring, terminals or connectors
- OCSM

PINPOINT TEST E : THE OCSM DOES NOT RESPOND TO THE SCAN TOOL

WARNING: Never disassemble or tamper with seat belt deployable components, including pretensioners, load limiters and inflators. Never back probe deployable device electrical connectors. Tampering or back probing may cause

an accidental deployment and result in personal injury or death.

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

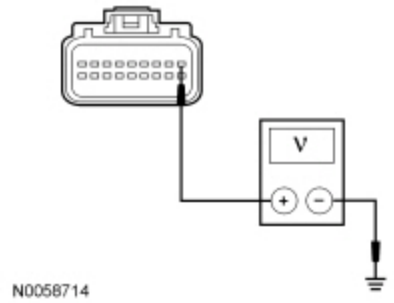
NOTE: *The Supplemental Restraint System (SRS) must be fully operational and free of faults before releasing the vehicle to the customer.*

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 results in false resistance readings. Refer to Section 414-01.*

E1 CHECK THE OCSM VOLTAGE SUPPLY CIRCUIT FOR AN OPEN

- Ignition OFF.
- Depower the SRS . Refer to Section 501-20B.
- Disconnect: OCSM C3043 .
- Deactivate the SRS . Refer to Section 501-20B.
- Repower the SRS . Refer to Section 501-20B.
- Ignition ON.
- Measure the voltage between the OCSM C3043 Pin 1, circuit CBP46 (WH/BU), harness side and ground.

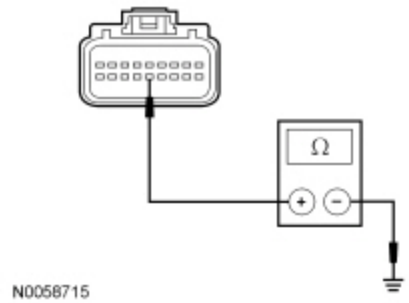


Is the voltage greater than 10 volts?

Yes	GO to E2.
No	VERIFY the Smart Junction Box (SJB) fuse 46 (7.5A) is OK. If OK, REPAIR the circuit. If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short. REACTIVATE the SRS . REFER to Section 501-20B. CLEAR the DTCs. REPEAT the network test with the scan tool.

E2 CHECK THE OCSM GROUND CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect: Negative Battery Cable .
- Measure the resistance between the OCSM C3043 Pin 14, circuit GD138 (BK/WH), harness side and ground.

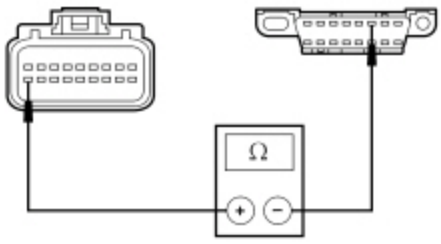


Is the resistance less than 5 ohms?

Yes	GO to E3.
No	REPAIR the circuit. REACTIVATE the SRS . CONNECT the negative battery cable. REFER to Section 501-20B. CLEAR the DTCs. REPEAT the network test with the scan tool.

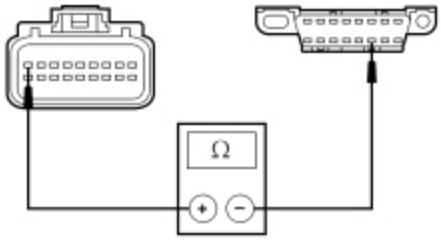
E3 CHECK THE HS-CAN CIRCUITS BETWEEN THE OCSM AND THE DLC FOR AN OPEN

- Measure the resistance between the OCSM C3043 Pin 18, circuit VDB04 (WH/BU), harness side and the Data Link Connector (DLC) C251 Pin 6, circuit VDB04 (WH/BU), harness side.



N0026670

- Measure the resistance between the OCSM C3043 Pin 9, circuit VDB05 (WH), harness side and the DLC C251 Pin 14, circuit VDB05 (WH), harness side.



N0026671

Are the resistances less than 5 ohms?

Yes	CONNECT the negative battery cable. GO to E4.
No	REPAIR the circuit. REACTIVATE the SRS . CONNECT the negative battery cable. REFER toSection 501-20B. CLEAR the DTCs. REPEAT the network test with the scan tool.

E4 CHECK FOR CORRECT OCSM OPERATION

- Disconnect the OCSM connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the OCSM connector and make sure it seats correctly.
- Verify the concern is still present.

Is the concern still present?

Yes	INSTALL a new OCSM . REFER toSection 501-20B. REACTIVATE the SRS . 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 toSection 501-20B. CLEAR the DTCs. REPEAT the network test with the scan tool.

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

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) .

This pinpoint test is intended to diagnose the following:

- Fuse
- Wiring, terminals or connectors
- SJB

PINPOINT TEST F : THE SJB DOES NOT RESPOND TO THE SCAN TOOL

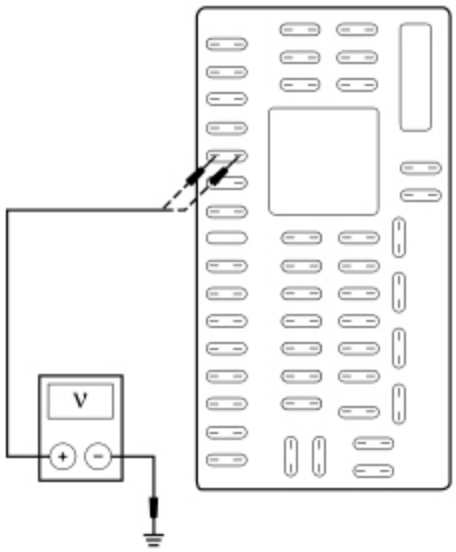
NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may damage the connector.

NOTE: *Failure to disconnect the battery when instructed results in false resistance readings. Refer to Section 414-01.*

F1 CHECK THE SJB VOLTAGE SUPPLY CIRCUIT FOR AN OPEN

- Ignition ON.
- **NOTE:** *Measurements are taken with the fuses installed.*

  Measure the voltage between the SJB fuse 5 (10A) and ground.

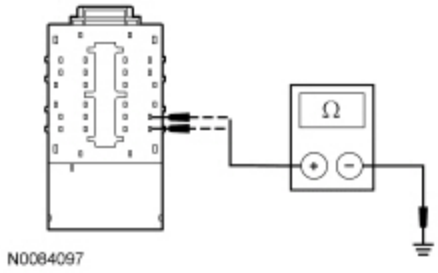


Is the voltage greater than 10 volts?

Yes	GO to F2.
No	VERIFY the SJB fuse 5 (10A) is OK. If OK, REPAIR the circuit. CLEAR the DTCs. REPEAT the network test with the scan tool. If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short.

F2 CHECK THE SJB GROUND CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect: Negative Battery Cable .
- Disconnect: SJB C2280D .
- Measure the resistance between the SJB C2280D Pin 8, circuit GD139 (BK/YE), harness side and ground; and between the SJB C2280D Pin 12, circuit GD139 (BK/YE), harness side and ground.

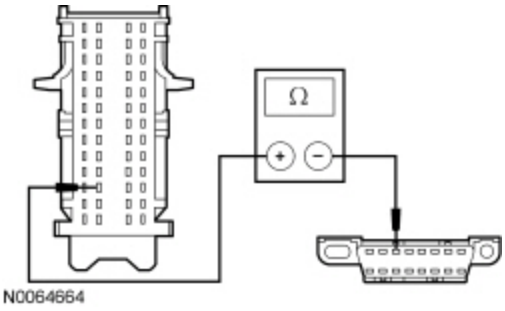


Is the resistance less than 5 ohms?

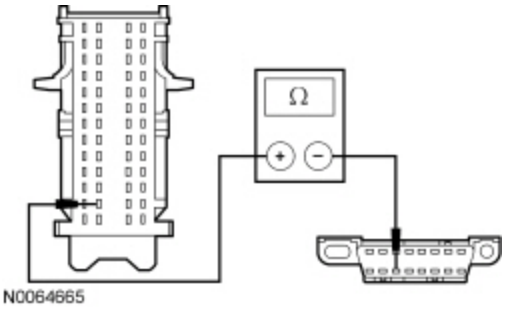
Yes	GO to F3.
No	REPAIR the circuit. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

F3 CHECK THE MS-CAN CIRCUITS BETWEEN THE SJB AND THE DLC FOR AN OPEN

- Disconnect: SJB C2280B .
- Measure the resistance between the SJB C2280B Pin 37, circuit VDB06 (GY/OG), harness side and the DLC C251 Pin 3, circuit VDB06 (GY/OG), harness side.



- Measure the resistance between the SJB C2280B Pin 38, circuit VDB07 (VT/OG), harness side and the DLC C251 Pin 11, circuit VDB07 (VT/OG), harness side.



Are the resistances less than 5 ohms?

Yes	CONNECT the negative battery cable. GO to F4.
No	REPAIR the circuit in question. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

F4 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.

Pinpoint Test G: The Body Control Module B (BCM-B) Does Not Respond To The Scan Tool

Refer to Wiring Diagrams Cell 89 , Interior Lamps for schematic and connector information.

Refer to Wiring Diagrams Cell 14 , Module Communications Network for schematic and connector information.

Normal Operation

The Body Control Module B (BCM-B) communicates with the scan tool through the Medium Speed Controller Area Network (MS-CAN) .

This pinpoint test is intended to diagnose the following:

- Fuse
- Wiring, terminals or connectors
- BCM-B

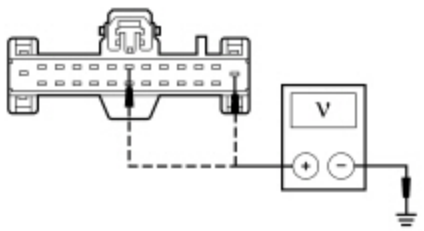
PINPOINT TEST G : THE BCM-B DOES NOT RESPOND TO THE SCAN TOOL

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 results in false resistance readings. Refer to Section 414-01.*

G1 CHECK THE BCM-B VOLTAGE SUPPLY CIRCUITS FOR AN OPEN

- Ignition OFF.
- Disconnect: BCM-B C4368A .
- Ignition ON.
- Measure the voltage between the BCM-B C4368A Pin 1, circuit SBB18 (YE/RD), harness side and ground; and between the BCM-B C4368A Pin 7, circuit CBP35 (YE/GY), harness side and ground.



N0099865

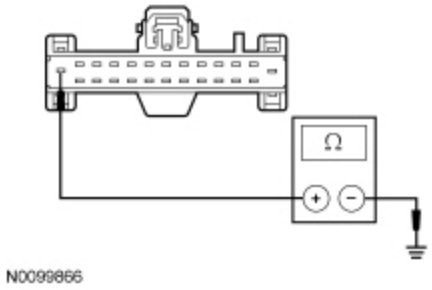
Are the voltages greater than 10 volts?

Yes	GO to G2.
No	VERIFY the Battery Junction Box (BJB) fuse 18 (20A) or Smart Junction Box (SJB) fuse 35 (10A) 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 circuit short. CLEAR the DTCs. REPEAT the network test with the scan tool.

G2 CHECK THE BCM-B GROUND CIRCUIT FOR AN OPEN

- Ignition OFF.

- Disconnect: Negative Battery Cable .
- Measure the resistance between the BCM-B C4368A Pin 13, circuit GD110 (BK/WH), harness side and ground.

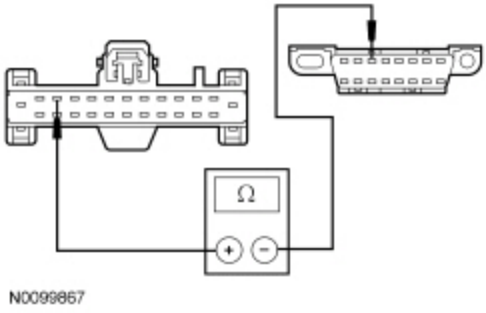


Is the resistance less than 5 ohms?

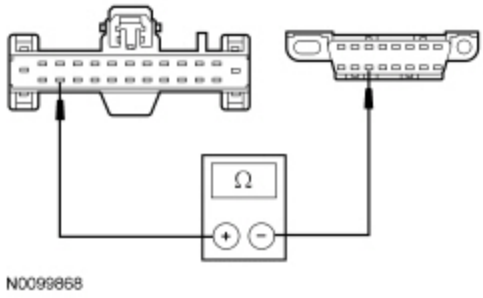
Yes	GO to G3.
No	REPAIR the circuit. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

G3 CHECK THE MS-CAN CIRCUITS BETWEEN THE BCM-B AND THE DLC FOR AN OPEN

- Measure the resistance between the BCM-B C4368A Pin 11, circuit VDB06 (GY/OG), harness side and the Data Link Connector (DLC) C251 Pin 3, circuit VDB06 (GY/OG), harness side.



- Measure the resistance between the BCM-B C4368A Pin 23, circuit VDB07 (VT/OG), harness side and the DLC C251 Pin 11, circuit VDB07 (VT/OG), harness side.



Are the resistances less than 5 ohms?

Yes	CONNECT the negative battery cable. GO to G4.
No	REPAIR the circuit in question. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

G4 CHECK FOR CORRECT BCM-B OPERATION

- Disconnect all the BCM-B connectors.
- Check for:
  - corrosion
  - damaged pins

    - pushed-out pins
- Connect all the BCM-B 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 BCM-B . REFER to Section 419-10. 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 H: The HVAC 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 54 , Manual Climate Control for schematic and connector information.

Refer to Wiring Diagrams Cell 55 , Automatic Climate Control System for schematic and connector information.

Normal Operation

The HVAC module communicates with the scan tool through the Medium Speed Controller Area Network (MS-CAN) .

This pinpoint test is intended to diagnose the following:

- Fuse
- Wiring, terminals or connectors
- HVAC module

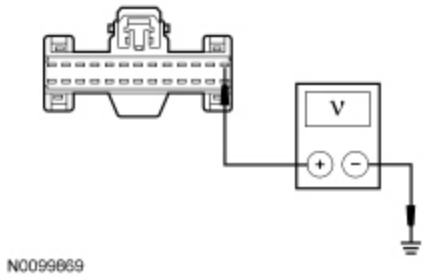
PINPOINT TEST H : THE HVAC MODULE DOES NOT RESPOND TO THE SCAN TOOL

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 results in false resistance readings. Refer to Section 414-01.*

H1 CHECK THE HVAC VOLTAGE SUPPLY CIRCUITS FOR AN OPEN

- Ignition OFF.
- Disconnect: HVAC Module C294A .
- Ignition ON.
- Measure the voltage between the HVAC module C294A Pin 1, circuit SBP15 (WH/RD), harness side and ground.

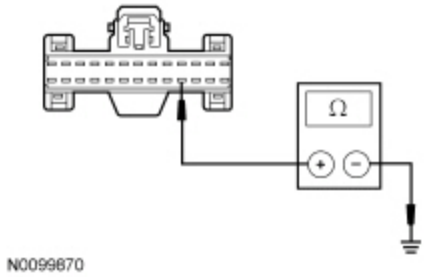


Are the voltages greater than 10 volts?

Yes	GO to H2.
No	VERIFY the Smart Junction Box (SJB) fuse 15 (10A) is OK. If OK, REPAIR the circuit in question. CLEAR the DTCs. REPEAT the network test with the scan tool. If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short.

H2 CHECK THE HVAC GROUND CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect: Negative Battery Cable .
- Measure the resistance between the HVAC module C294A Pin 17, circuit GD116 (BK/VT), harness side and ground.

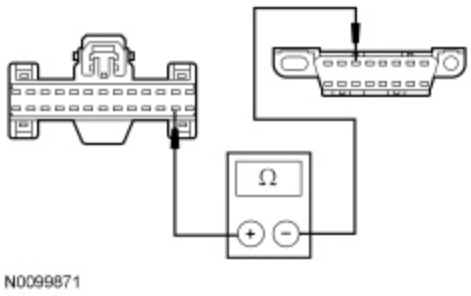


Is the resistance less than 5 ohms?

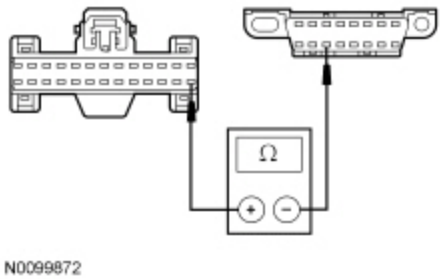
Yes	GO to H3.
No	REPAIR the circuit. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

H3 CHECK THE MS-CAN CIRCUITS BETWEEN THE HVAC MODULE AND THE DLC FOR AN OPEN

- Measure the resistance between the HVAC module C294A Pin 15, circuit VDB06 (GY/OG), harness side and the Data Link Connector (DLC) C251 Pin 3, circuit VDB06 (GY/OG), harness side.



- Measure the resistance between the HVAC module C294A Pin 14, circuit VDB07 (VT/OG), harness side and the DLC C251 Pin 11, circuit VDB07 (VT/OG), harness side.



Are the resistances less than 5 ohms?

Yes	CONNECT the negative battery cable. GO to H4.
No	REPAIR the circuit as necessary. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

H4 CHECK FOR CORRECT HVAC MODULE OPERATION

- Disconnect all the HVAC module connectors.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect all the HVAC module 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 HVAC module. REFER to Section 412-01. 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.

Pinpoint Test I: The Audio Front Control Module (ACM) 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 130 , Audio System/Navigation for schematic and connector information.

Normal Operation

The Audio Front Control Module (ACM) communicates with the scan tool through the Medium Speed Controller Area Network (MS-CAN) .

This pinpoint test is intended to diagnose the following:

- Fuse
- Wiring, terminals or connectors
- ACM

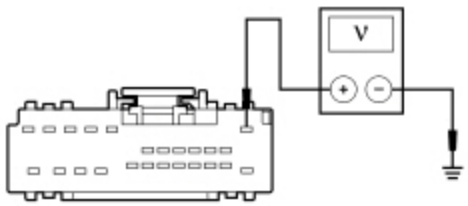
PINPOINT TEST I : THE ACM DOES NOT RESPOND TO THE SCAN TOOL

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 results in false resistance readings. Refer to Section 414-01.*

I1 CHECK THE ACM VOLTAGE SUPPLY CIRCUITS FOR AN OPEN

- Ignition OFF.
- Disconnect: ACM C290D .
- Ignition ON.
- Measure the voltage between the ACM C290D Pin 1, circuit SBP39 (WH/RD), harness side and ground.



N0062412

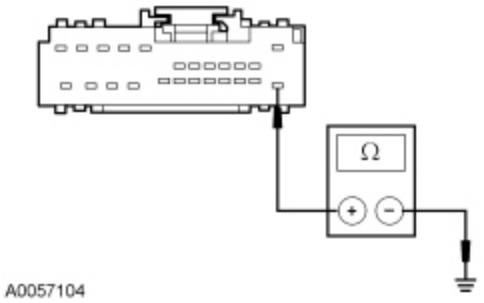
Are the voltages greater than 10 volts?

Yes	GO to I2.

No	VERIFY the SJB fuse 39 (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 circuit short. CLEAR the DTCs. REPEAT the network test with the scan tool.

I2 CHECK THE ACM GROUND CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect: Negative Battery Cable .
- Measure the resistance between the ACM C290D Pin 13, circuit GD115 (BK/GY), harness side and ground.

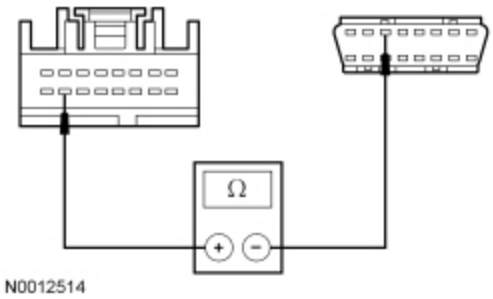


Is the resistance less than 5 ohms?

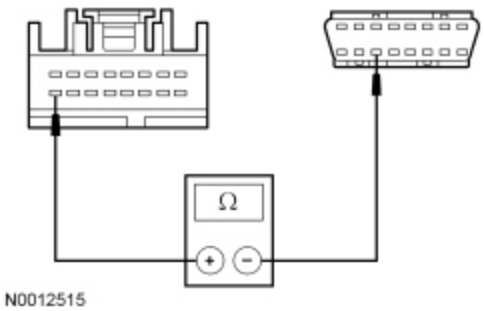
Yes	GO to I3.
No	REPAIR the circuit. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

I3 CHECK THE MS-CAN CIRCUITS BETWEEN THE ACM AND THE DLC FOR AN OPEN

- Disconnect: ACM C290A .
- Measure the resistance between the ACM C290A Pin 15, circuit VDB06 (GY/OG), harness side and the Data Link Connector (DLC) C251 Pin 3, circuit VDB06 (GY/OG), harness side.



- Measure the resistance between the ACM C290A Pin 16, circuit VDB07 (VT/OG), harness side and the DLC C251 Pin 11, circuit VDB07 (VT/OG), harness side.



Are the resistances less than 5 ohms?

Yes	CONNECT the negative battery cable. GO to I4.

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

I4 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	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 J: The Front Controls Interface Module (FCIM) 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 130 , Audio System/Navigation for schematic and connector information.

Normal Operation

The Front Controls Interface Module (FCIM) communicates with the scan tool through the Medium Speed Controller Area Network (MS-CAN) .

This pinpoint test is intended to diagnose the following:

- Fuse
- Wiring, terminals or connectors
- FCIM

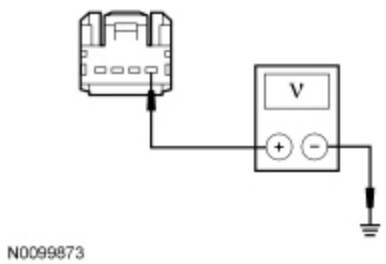
PINPOINT TEST J : THE FCIM DOES NOT RESPOND TO THE SCAN TOOL

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 results in false resistance readings. Refer to Section 414-01.*

J1 CHECK THE FCIM VOLTAGE SUPPLY CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect: FCIM C2402 .
- Ignition ON.
- Measure the voltage between the FCIM C2402 Pin 1, circuit SBP14 (BN/RD), harness side and ground.

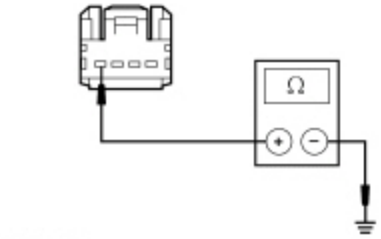


Is the voltage greater than 10 volts?

Yes	GO to J2.
No	VERIFY the Smart Junction Box (SJB) fuse 14 (10A) 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 circuit short. CLEAR the DTCs. REPEAT the network test with the scan tool.

J2 CHECK THE FCIM GROUND CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect: Negative Battery Cable .
- Measure the resistance between the FCIM C2402 Pin 4, circuit GD115 (BK/GY), harness side and ground.



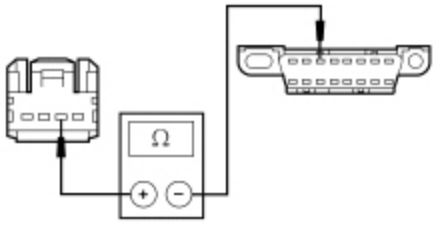
N0099874

Is the resistance less than 5 ohms?

Yes	GO to J3.
No	REPAIR the circuit. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

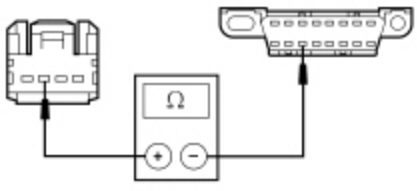
J3 CHECK THE MS-CAN CIRCUITS BETWEEN THE FCIM AND THE DLC FOR AN OPEN

- Measure the resistance between the FCIM C2402 Pin 2, circuit VDB06 (GY/OG), harness side and the Data Link Connector (DLC) C251 Pin 3, circuit VDB06 (GY/OG), harness side.



N0099875

- Measure the resistance between the FCIM C2402 Pin 3, circuit VDB07 (VT/OG), harness side and the DLC C251 Pin 11, circuit VDB07 (VT/OG), harness side.



N0099876

Are the resistances less than 5 ohms?

Yes	CONNECT the negative battery cable. GO to J4.
No	REPAIR the circuit in question. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

J4 CHECK FOR CORRECT FCIM OPERATION

- Disconnect the FCIM connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the FCIM 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 FCIM . 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 K: The Front Display Interface Module (FDIM) Does Not Respond To The Scan Tool (Without Navigation)

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 Front Display Interface Module (FDIM) (without navigation) communicates with the scan tool through the Medium Speed Controller Area Network (MS-CAN) .

This pinpoint test is intended to diagnose the following:

- Fuse
- Wiring, terminals or connectors
- FDIM

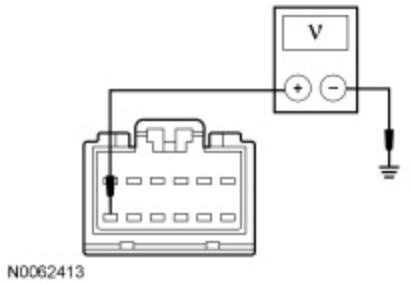
PINPOINT TEST K : THE FDIM DOES NOT RESPOND TO THE SCAN TOOL (WITHOUT NAVIGATION)

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 results in false resistance readings. Refer toSection 414-01.*

K1 CHECK THE FDIM VOLTAGE SUPPLY CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect: FDIM C2123 .
- Ignition ON.
- Measure the voltage between the FDIM C2123 Pin 12, circuit SBP14 (BN/RD), harness side and ground.



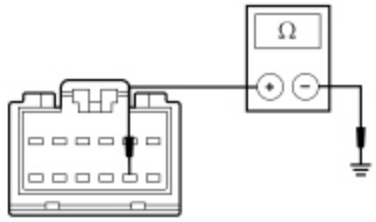
N0062413

Is the voltage greater than 10 volts?

Yes	GO to K2.
No	VERIFY the Smart Junction Box (SJB) fuse 14 (10A) is OK. If OK, REPAIR the circuit. If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short. CLEAR the DTCs. REPEAT the network test with the scan tool.

K2 CHECK THE FDIM GROUND CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect: Negative Battery Cable .
- Measure the resistance between the FDIM C2123 Pin 8, circuit GD116 (BK/VT), harness side and ground.



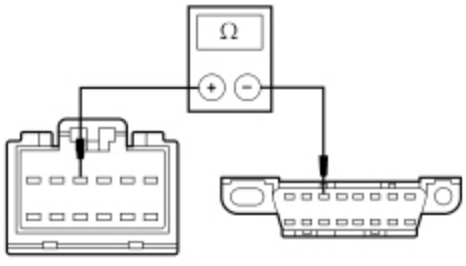
N0077731

Is the resistance less than 5 ohms?

Yes	GO to K3.
No	REPAIR the circuit. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

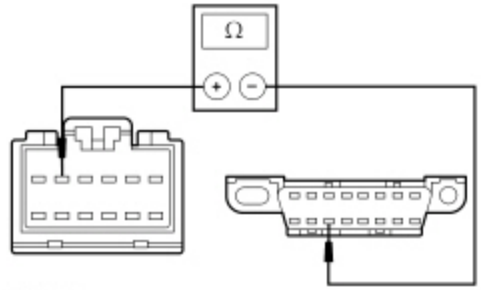
K3 CHECK THE MS-CAN CIRCUITS BETWEEN THE FDIM AND THE DLC FOR AN OPEN

- Measure the resistance between the FDIM C2123 Pin 4, circuit VDB06 (GY/OG), harness side and the DLC C251 Pin 3, circuit VDB06 (GY/OG), harness side.



N0077618

- Measure the resistance between the FDIM C2123 Pin 5, circuit VDB07 (VT/OG), harness side and the DLC C251 Pin 11, circuit VDB07 (VT/OG), harness side.



Are the resistances less than 5 ohms?

Yes	CONNECT the negative battery cable. GO to K4.
No	REPAIR the circuit in question. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

K4 CHECK FOR CORRECT FDIM OPERATION

- Disconnect the FDIM connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the FDIM 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 FDIM . 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 L: The Global Positioning System Module (GPSM) Does Not Respond To The Scan Tool

Refer to Wiring Diagrams Cell 14 , Lodule Communications Network for schematic and connector information.

Refer to Wiring Diagrams Cell 130 , Audio System/Navigation for schematic and connector information.

Normal Operation

TheGlobal Positioning System Module (GPSM) communicates with the scan tool through the Medium Speed Controller Area Network (MS-CAN) .

This pinpoint test is intended to diagnose the following:

- Fuse
- Wiring, terminals or connectors
- GPSM

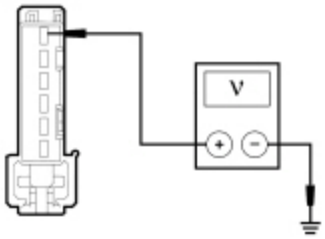
PINPOINT TEST L : THE GPSM DOES NOT RESPOND TO THE SCAN TOOL

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 results in false resistance readings. Refer toSection 414-01.*

L1 CHECK THE GPSM VOLTAGE SUPPLY CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect: GPSM C2398 .
- Ignition ON.
- Measure the voltage between the GPSM C2398 Pin 1, circuit SBP14 (BN/RD), harness side and ground.



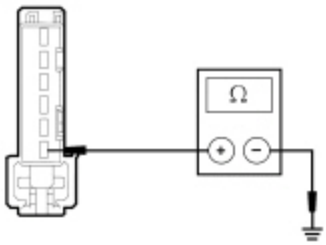
N0094349

Is the voltage greater than 10 volts?

Yes	GO to L2.
No	VERIFY the Smart Junction Box (SJB) fuse 14 (10A) 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 circuit short. CLEAR the DTCs. REPEAT the network test with the scan tool.

L2 CHECK THE GPSM GROUND CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect: Negative Battery Cable .
- Measure the resistance between the GPSM C2398 Pin 6, circuit GD115 (BK/GY), harness side and ground.



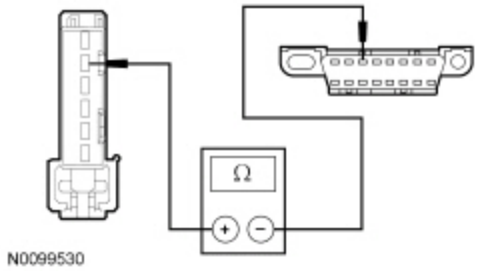
N0094350

Is the resistance less than 5 ohms?

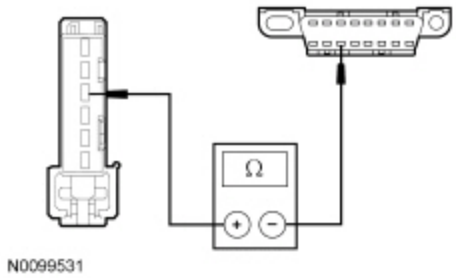
Yes	GO to L3.
No	REPAIR the circuit. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

L3 CHECK THE MS-CAN CIRCUITS BETWEEN THE GPSM AND THE DLC FOR AN OPEN

- Measure the resistance between the GPSM C2398 Pin 2, circuit VDB06 (GY/OG), harness side and the Data Link Connector (DLC) C251 Pin 3, circuit VDB06 (GY/OG), harness side.



- Measure the resistance between the GPSM C2398 Pin 3, circuit VDB07 (VT/OG), harness side and the DLC C251 Pin 11, circuit VDB07 (VT/OG), harness side.



Are the resistances less than 5 ohms?

Yes	CONNECT the negative battery cable. GO to L4.
No	REPAIR the circuit in question. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

L4 CHECK FOR CORRECT GPSM OPERATION

- Disconnect the GPSM connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the GPSM 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 GPSM . 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 M: The Accessory Protocol Interface Module (APIM) 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 130 , Audio System/Navigation for schematic and connector information.

Normal Operation

The Accessory Protocol Interface Module (APIM) communicates with the scan tool and other modules through the Medium Speed Controller Area Network (MS-CAN) and also communicates with other modules on the High Speed Controller Area Network (HS-CAN) .

This pinpoint test is intended to diagnose the following:

- Fuse
- Wiring, terminals or connectors
- APIM

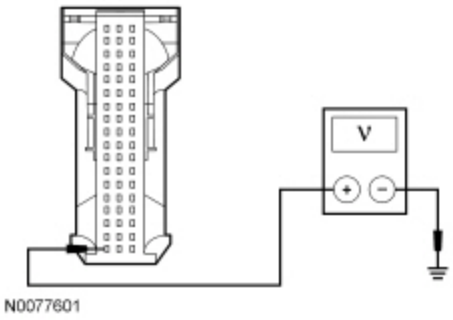
PINPOINT TEST M : THE APIM DOES NOT RESPOND TO THE SCAN TOOL

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 results in false resistance readings. Refer to Section 414-01.*

M1 CHECK THE APIM VOLTAGE SUPPLY CIRCUIT FOR AN OPEN

- Disconnect: APIM C2383 .
- Ignition ON.
- Measure the voltage between the APIM C2383 Pin 1, circuit SBP03 (BU/RD), harness side and ground.

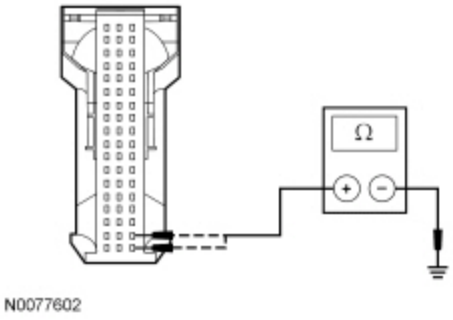


Is the voltage greater than 10 volts?

Yes	GO to M2.
No	VERIFY the Smart Junction Box (SJB) fuse 3 (15A) is OK. If OK, REPAIR the circuit. CLEAR the DTCs. REPEAT the network test with the scan tool. If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short.

M2 CHECK THE APIM GROUND CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect: Negative Battery Cable .
- Measure the resistance between the APIM C2383 Pin 37, circuit GD115 (BK/GY), harness side and ground; and between the APIM C2383 Pin 38, circuit GD115 (BK/GY), harness side and ground.

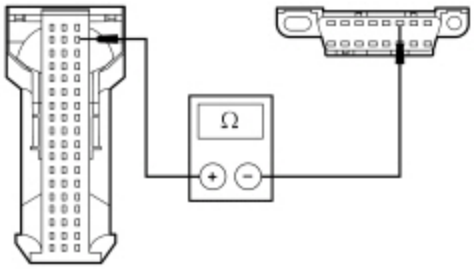


Are the resistances less than 5 ohms?

Yes	GO to M3.
No	REPAIR the circuit in question. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

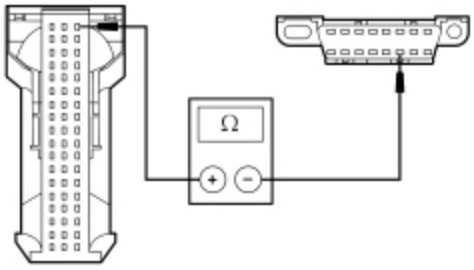
M3 CHECK THE HS-CAN CIRCUITS BETWEEN THE APIM AND THE DLC FOR AN OPEN

- Measure the resistance between the APIM C2383 Pin 53, circuit VDB04 (WH/BU), harness side and the Data Link Connector (DLC) C251 Pin 6, circuit VDB04 (WH/BU), harness side.



N0077603

- Measure the resistance between the APIM C2383 Pin 54, circuit VDB05 (WH), harness side and the DLC C251 Pin 14, circuit VDB05 (WH), harness side.



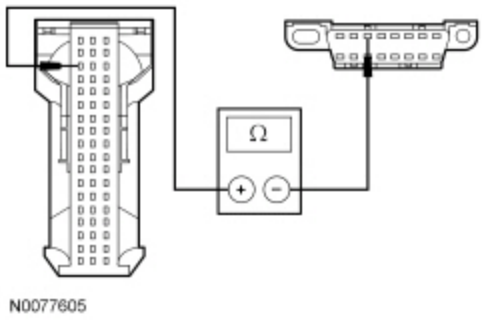
N0077604

Are the resistances less than 5 ohms?

Yes	GO to M4.
No	REPAIR the circuit in question. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

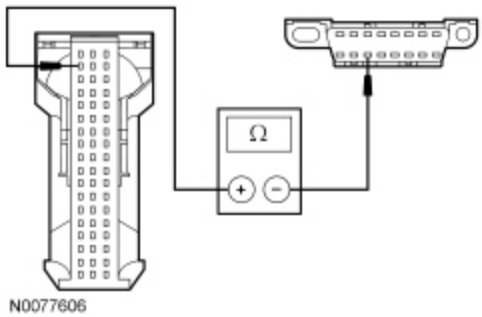
M4 CHECK THE MS-CAN CIRCUITS BETWEEN THE APIM AND THE DLC FOR AN OPEN

- Measure the resistance between the APIM C2383 Pin 16, circuit VDB06 (GY/OG), harness side and the DLC C251 Pin 3, circuit VDB06 (GY/OG), harness side.



N0077605

- Measure the resistance between the APIM C2383 Pin 17, circuit VDB07 (VT/OG), harness side and the DLC C251 Pin 11, circuit VDB07 (VT/OG), harness side.



N0077606

Are the resistances less than 5 ohms?

Yes	CONNECT the negative battery cable. GO to M5.
No	REPAIR the circuit in question. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

M5 CHECK FOR CORRECT APIM OPERATION

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

Is the concern still present?

Yes	**VIN required to access Guided Routine (APIM)**
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 N: The Power Steering Control Module (PSCM) 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 43 , Power Steering Controls for schematic and connector information.

Normal Operation

The Power Steering Control Module (PSCM) communicates with the scan tool and other modules through the High Speed Controller Area Network (HS-CAN) .

This pinpoint test is intended to diagnose the following:

- Fuse
- Wiring, terminals or connectors
- PSCM

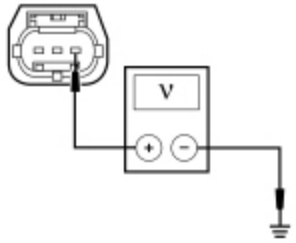
PINPOINT TEST N : THE PSCM DOES NOT RESPOND TO THE SCAN TOOL

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 results in false resistance readings. Refer toSection 414-01.*

N1 CHECK THE PSCM VOLTAGE SUPPLY CIRCUIT FOR AN OPEN

- Disconnect: PSCM C1463A .
- Ignition ON.
- Measure the voltage between thePSCM C1463A Pin 1, circuit CBB45 (YE), harness side and ground.



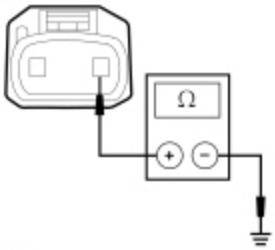
N0113933

Is the voltage greater than 10 volts?

Yes	GO to N2.
No	VERIFY the BJB fuse 45 (5A) is OK. If OK, REPAIR the circuit. CLEAR the DTCs. REPEAT the network test with the scan tool. If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short.

N2 CHECK THE PSCM GROUND CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect: Negative Battery Cable .
- Measure the resistance between thePSCM C1463B Pin 1, circuit GD125 (BK), harness side and ground



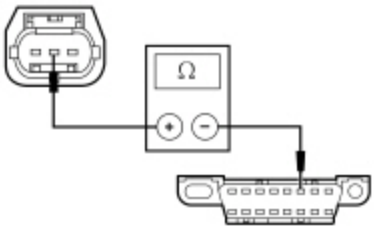
N0113935

Are the resistances less than 5 ohms?

Yes	GO to N3.
No	REPAIR the circuit in question. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

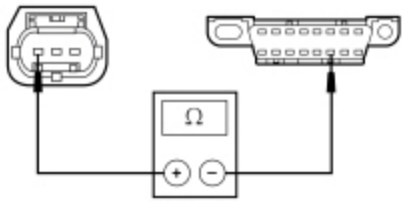
N3 CHECK THE HS-CAN CIRCUITS BETWEEN THE PSCM AND THE DLC FOR AN OPEN

- Measure the resistance between thePSCM C1463A Pin 2, circuit VDB04 (WH/BU), harness side and the Data Link Connector (DLC) C251 Pin 6, circuit VDB04 (WH/BU), harness side.



N0113936

- Measure the resistance between thePSCM C1463A Pin 3, circuit VDB05 (WH), harness side and the DLC C251 Pin 14, circuit VDB05 (WH), harness side.



N0113937

Are the resistances less than 5 ohms?

Yes	GO to N4.
No	REPAIR the circuit in question. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

N4 CHECK FOR CORRECT PSCM OPERATION

- Disconnect all the PSCM connectors.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect all the PSCM 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 PSCM . REFER to Steering Gear in Section 211-02. 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 O: The Parking Aid Module (PAM) 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 131 , Parking Aid for schematic and connector information.

Normal Operation

The Parking Aid Module (PAM) communicates with the scan tool and other modules through the High Speed Controller Area Network (HS-CAN) .

This pinpoint test is intended to diagnose the following:

- Fuse
- Wiring, terminals or connectors
- PAM

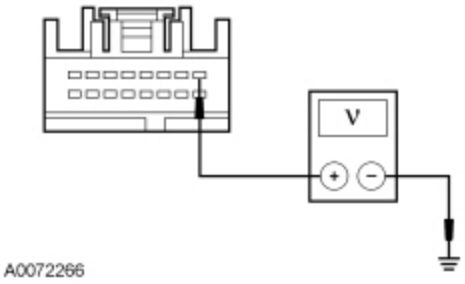
PINPOINT TEST O : THE PAM DOES NOT RESPOND TO THE SCAN TOOL

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 results in false resistance readings. Refer to Section 414-01.*

O1 CHECK THE PAM VOLTAGE SUPPLY CIRCUIT FOR AN OPEN

- Disconnect: PAM C4014 .
- Ignition ON.
- Measure the voltage between thePAM C4014 Pin 1, circuit CBP32 (GN/VT), harness side and ground.

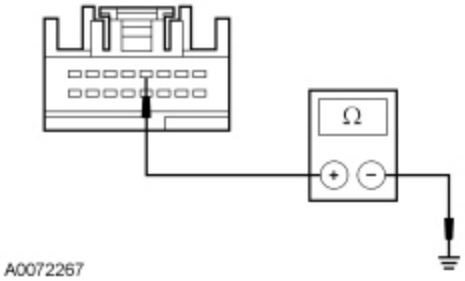


Is the voltage greater than 10 volts?

Yes	GO to O2.
No	VERIFY the Smart Junction Box (SJB) fuse 32 (10A) is OK. If OK, REPAIR the circuit. CLEAR the DTCs. REPEAT the network test with the scan tool. If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short.

O2 CHECK THE PAM GROUND CIRCUIT FOR AN OPEN

- Ignition OFF.
- Disconnect: Negative Battery Cable .
- Measure the resistance between thePAM C4014 Pin 4, circuit GD110 (BK/WH), harness side and ground

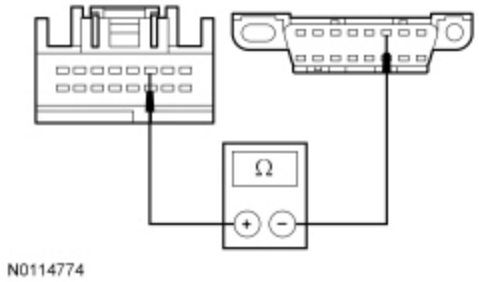


Are the resistances less than 5 ohms?

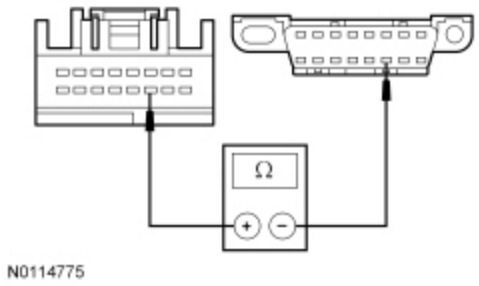
Yes	GO to O3.
No	REPAIR the circuit in question. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

O3 CHECK THE HS-CAN CIRCUITS BETWEEN THE PAM AND THE DLC FOR AN OPEN

- Measure the resistance between thePAM C4014 Pin 3, circuit VDB04 (WH/BU), harness side and the Data Link Connector (DLC) C251 Pin 6, circuit VDB04 (WH/BU), harness side.



- Measure the resistance between thePAM C4014 Pin 11, circuit VDB05 (WH), harness side and the DLC C251 Pin 14, circuit VDB05 (WH), harness side.



Are the resistances less than 5 ohms?

Yes	GO to O4.
No	REPAIR the circuit in question. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

O4 CHECK FOR CORRECT PAM OPERATION

- Disconnect the PAM connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the PAM 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 PAM . REFER to Section 413-13. 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 P: 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 VDB06 (MS-CAN -) and VDB07 (MS-CAN +).

NOTE: *The Instrument Panel Cluster (IPC) , while on the MS-CAN , communicates with the scan tool only on the High Speed Controller Area Network (HS-CAN) .*

This pinpoint test is intended to diagnose the following:

- Wiring, terminals or connectors
- Audio Front Control Module (ACM)
- Accessory Protocol Interface Module (APIM) (if equipped)
- Body Control Module B (BCM-B)
- Front Controls Interface Module (FCIM)
- Front Display Interface Module (FDIM) (without navigation)
- Global Positioning System Module (GPSM)
- HVAC module

- Instrument Panel Cluster (IPC)
- Smart Junction Box (SJB)

PINPOINT TEST P : NO MS-CAN COMMUNICATION, ALL MODULES ARE NOT RESPONDING

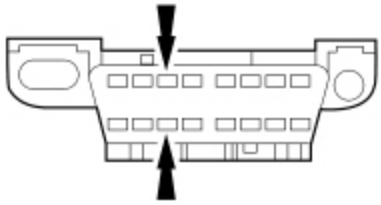
NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may damage the connector.

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 results in false resistance readings. Refer to Section 414-01.*

P1 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.



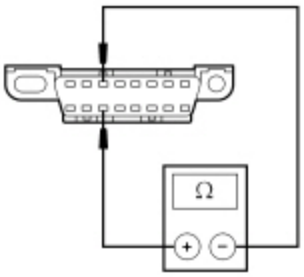
N0053178

Are DLC pins 3 and 11 OK?

Yes	GO to P2.
No	REPAIR the DLC as necessary. CLEAR the DTCs. REPEAT the network test with the scan tool.

P2 CHECK THE MS-CAN TERMINATION RESISTANCE

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



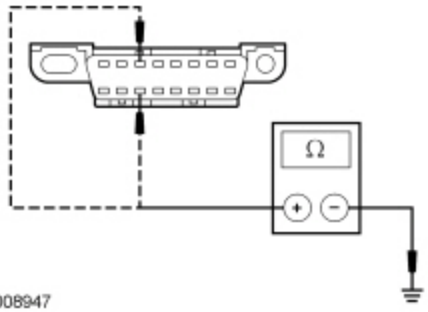
N0050701

Is the resistance between 54 and 66 ohms?

Yes	GO to P3.
No	GO to P5.

P3 CHECK THE MS-CAN (+) AND MS-CAN (-) CIRCUITS FOR A SHORT TO GROUND

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



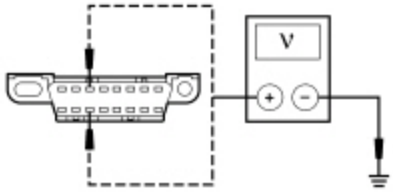
N0008947

Are the resistances greater than 1,000 ohms?

Yes	CONNECT the negative battery cable. GO to P4.
No	GO to P12.

P4 CHECK THE MS-CAN (+) AND MS-CAN (-) CIRCUITS FOR A SHORT TO VOLTAGE

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



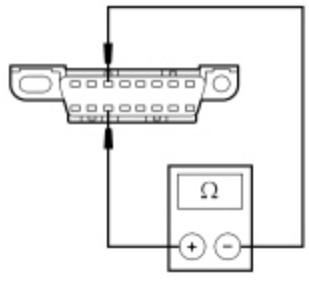
N0050702

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 P13.

P5 CHECK THE MS-CAN TERMINATION RESISTOR

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



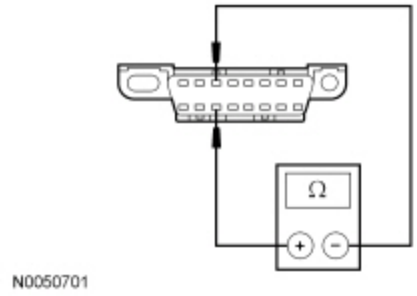
N0050701

Is the resistance between 108 and 132 ohms?

Yes	GO to P6.
No	GO to P9.

P6 CHECK THE MS-CAN TERMINATION RESISTOR WITH THE SJB DISCONNECTED

- Disconnect: Smart Junction Box (SJB) C2280B .
- Measure the resistance between the DLC C251 Pin 3, circuit VDB06 (GY/OG), harness side and the DLC C251 Pin 11, circuit VDB07 (VT/OG), harness side.

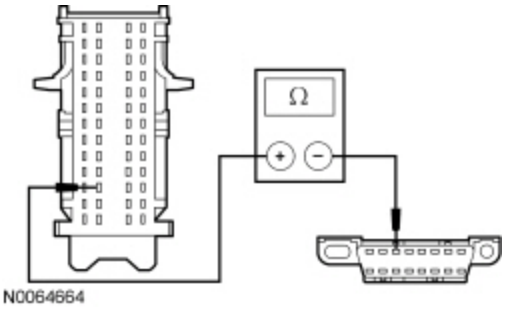


Is the resistance between 108 and 132 ohms?

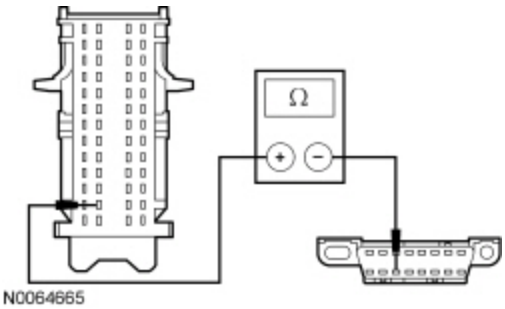
Yes	GO to P7.
No	GO to P8.

P7 CHECK THE MS-CAN CIRCUITS BETWEEN THE SJB AND THE DLC FOR AN OPEN

- Measure the resistance between the SJB C2280B Pin 37, circuit VDB06 (GY/OG), harness side and the DLC C251 Pin 3, circuit VDB06 (GY/OG), harness side.



- Measure the resistance between the SJB C2280B Pin 38, circuit VDB07 (VT/OG), harness side and the DLC C251 Pin 11, circuit VDB07 (VT/OG), harness side.



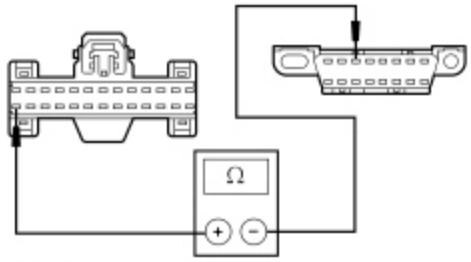
Are the resistances less than 5 ohms?

Yes	CONNECT the negative battery cable. GO to P22.
No	REPAIR the circuit in question. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

P8 CHECK THE MS-CAN CIRCUITS BETWEEN THE IPC AND THE DLC FOR AN OPEN

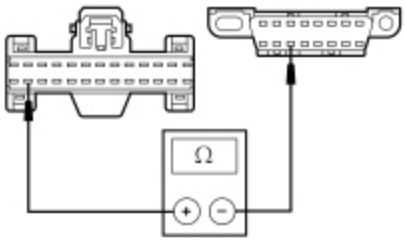
- Disconnect: IPC C220 .

- Measure the resistance between the IPC C220 Pin 26, circuit VDB06 (GY/OG), harness side and the DLC C251 Pin 3, circuit VDB06 (GY/OG), harness side.



N0099863

- Measure the resistance between the IPC C220 Pin 25, circuit VDB07 (VT/OG), harness side and the DLC C251 Pin 11, circuit VDB07 (VT/OG), harness side.



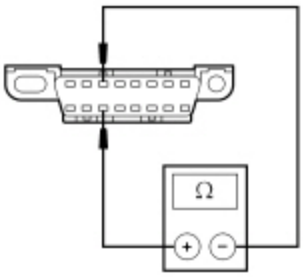
N0099864

Are the resistances less than 5 ohms?

Yes	CONNECT the negative battery cable. GO to P30.
No	REPAIR the circuit in question. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

P9 CHECK THE MS-CAN (+) AND MS-CAN (-) CIRCUITS FOR A SHORT TOGETHER

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



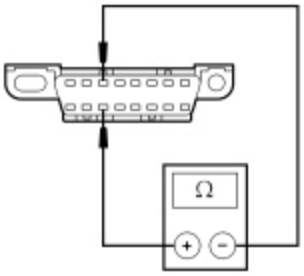
N0050701

Is the resistance less than 5 ohms?

Yes	GO to P11.
No	GO to P10.

P10 CHECK THE MS-CAN CIRCUITS FOR AN OPEN AT THE DLC

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



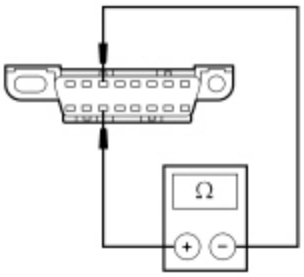
N0050701

Is the resistance greater than 10,000 ohms?

Yes	REPAIR the DLC or REPAIR the circuit in question. 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.

P11 CHECK THE MS-CAN (+) AND MS-CAN (-) CIRCUITS FOR A SHORT TOGETHER

- While measuring the resistance between the DLC C251 Pin 3, circuit VDB06 (GY/OG), harness side and the DLC C251 Pin 11, circuit VDB07 (VT/OG), harness side, disconnect the following modules one at a time until the resistance is greater than 5 ohms.
  - APIM C2383 (if equipped)
  - ACM C290A
  - BCM-B C4368A
  - FCIM C2402 (if equipped)
  - FDIM C2123 (without navigation)
  - GPSM C2398 (if equipped)
  - HVAC module C294A
  - IPC C220
  - SJB C2280B



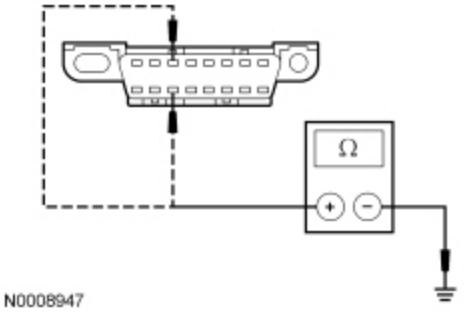
N0050701

Did the resistance change to greater than 5 ohms with one of the modules disconnected?

Yes	CONNECT the negative battery cable. For the APIM , GO to P29. For the ACM , GO to P28. For the BCM-B , GO to P23. For the FCIM , GO to P24. For the FDIM , GO to P27. For the GPSM , GO to P25. For the HVAC module, GO to P26. For the IPC , GO to P30. For the SJB , GO to P22.
No	REPAIR circuits VDB06 (GY/OG) and VDB07 (VT/OG) for a short together. CONNECT all modules. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the Network Test with the scan tool.

P12 CHECK THE MS-CAN (+) AND MS-CAN (-) CIRCUITS FOR A SHORT TO GROUND WITH THE MODULES DISCONNECTED

- Measure the resistance between the DLC C251 Pin 3, circuit VDB06 (GY/OG), harness side and ground; and between the DLC C251 Pin 11, circuit VDB07 (VT/OG), harness side and ground. Check for the short to ground on both circuits after disconnecting each module. Disconnect the following modules one at a time until the resistance to ground is greater than 1,000 ohms.
  - APIM C2383 (if equipped)
  - ACM C290A
  - BCM-B C4368A
  - FCIM C2402 (if equipped)
  - FDIM C2123 (without navigation)
  - GPSM C2398 (if equipped)
  - HVAC module C294A
  - IPC C220
  - SJB C2280B



Did the resistance change to greater than 1,000 ohms with one of the modules disconnected?

Yes	CONNECT the negative battery cable. For the APIM , GO to P29. For the ACM , GO to P28. For the BCM-B , GO to P23. For the FCIM , GO to P24. For the FDIM , GO to P27. For the GPSM , GO to P25. For the HVAC module, GO to P26. For the IPC , GO to P30. For the SJB , GO to P22.
No	REPAIR the circuit in question for a short to ground. CLEAR the DTCs. REPEAT the Network Test with the scan tool.

P13 CHECK FOR RESTORED NETWORK COMMUNICATION WITH THE ACM DISABLED

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

- Disconnect: SJB Fuse 39 (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	INSTALL the removed fuse. GO to Pinpoint Test I.
No	INSTALL the removed fuse. GO to P14.

P14 CHECK FOR RESTORED NETWORK COMMUNICATION WITH THE SJB DISABLED

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

- Disconnect: SJB Fuse 5 (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 F.
No	INSTALL the removed fuse. GO to P15.

P15 CHECK FOR RESTORED NETWORK COMMUNICATION WITH THE BCM-B DISABLED

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

- Disconnect: BJB Fuse 18 (10A) and SJB Fuse 35 (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 fuses. GO to Pinpoint Test G.
No	INSTALL the removed fuses. GO to P16.

P16 CHECK FOR RESTORED NETWORK COMMUNICATION WITH THE HVAC MODULE DISABLED

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

- Disconnect: SJB Fuse 15 (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 H.
No	INSTALL the removed fuse. GO to P17.

P17 CHECK FOR RESTORED NETWORK COMMUNICATION WITH THE FCIM , FDIM AND GPSM DISABLED

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

- Disconnect: SJB Fuse 14 (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 P18.
No	INSTALL the removed fuse. If the vehicle is equipped with SYNC®, GO to P20. If the vehicle is not equipped with SYNC®, GO to P21.

P18 CHECK FOR RESTORED NETWORK COMMUNICATION WITH THE FCIM DISABLED

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

- Disconnect: FCIM C2402 .
- 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 FCIM . GO to Pinpoint Test J.
No	If the vehicle is equipped with an FDIM (without navigation) only, GO to Pinpoint Test K. If the vehicle is equipped with a GPSM only, GO to Pinpoint Test L. If the vehicle is equipped with both an FDIM (without navigation) and a GPSM , GO to P19.

P19 CHECK FOR RESTORED NETWORK COMMUNICATION WITH THE FDIM DISCONNECTED

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

- Disconnect: FDIM C2123 .
- 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 FDIM . GO to Pinpoint Test K.
No	CONNECT the FDIM . GO to Pinpoint Test L.

P20 CHECK FOR RESTORED NETWORK COMMUNICATION WITH THE APIM DISABLED

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

- Disconnect: SJB Fuse 3 (15A) .
- 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 M.
No	INSTALL the removed fuse. GO to P21.

P21 CHECK FOR RESTORED NETWORK COMMUNICATION WITH THE IPC DISABLED

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

- Disconnect: SJB Fuses 26 (10A) and 36 (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	CONNECT all modules. The MS-CAN tests within specification. Verify the correct operation of the scan tool on a known good vehicle.

P22 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. CONNECT all modules. 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. CONNECT all modules. CLEAR the DTCs. REPEAT the network test with the scan tool.

P23 CHECK FOR CORRECT BCM-B OPERATION

- Disconnect all the BCM-B connectors.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect all the BCM-B 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 BCM-B . REFER to Section 419-10. CONNECT all modules. 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. CONNECT all modules. CLEAR the DTCs. REPEAT the network test with the scan tool.

P24 CHECK FOR CORRECT FCIM OPERATION

- Disconnect the FCIM connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the FCIM 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 FCIM . REFER to Section 415-00. CONNECT all modules. 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. CONNECT all modules. CLEAR the DTCs. REPEAT the network test with the scan tool.

P25 CHECK FOR CORRECT GPSM OPERATION

- Disconnect the GPSM connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the GPSM 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 GPSM . REFER toSection 415-00. CONNECT all modules. 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. CONNECT all modules. CLEAR the DTCs. REPEAT the network test with the scan tool.

P26 CHECK FOR CORRECT HVAC MODULE OPERATION

- Disconnect all the HVAC module connectors.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect all the HVAC module 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 HVAC module. REFER to Section 412-01. CONNECT all modules. 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. CONNECT all modules. CLEAR the DTCs. REPEAT the network test with the scan tool.

P27 CHECK FOR CORRECT FDIM OPERATION

- Disconnect the FDIM connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the FDIM 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 FDIM . REFER to Section 415-00. CONNECT all modules. 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. CONNECT all modules. CLEAR the DTCs. REPEAT the network test with the scan tool.

P28 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	INSTALL a new ACM . REFER to Section 415-00. CONNECT all modules. 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. CONNECT all modules. CLEAR the DTCs. REPEAT the network test with the scan tool.

P29 CHECK FOR CORRECT APIM OPERATION

- Disconnect the APIM connector.
- Check for:

- corrosion
- damaged pins
- pushed-out pins

- Connect the APIM connector and make sure it seats correctly.
- Operate the system and verify the concern is still present.

Is the concern still present?

Yes	  **VIN required to access Guided Routine (APIM)**
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CONNECT all modules. CLEAR the DTCs. REPEAT the network test with the scan tool.

P30 CHECK FOR CORRECT IPC OPERATION

- Disconnect the IPC connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the IPC 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 IPC . REFER to Section 413-01. CONNECT all modules. 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. CONNECT all modules. CLEAR the DTCs. REPEAT the network test with the scan tool.

Pinpoint Test Q: 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.

Refer to Wiring Diagrams Cell 24 , 5.0L for schematic and connector information.

Refer to Wiring Diagrams Cell 25 , 5.4L for schematic and connector information.

Refer to Wiring Diagrams Cell 26 , 3.7L for schematic and connector information.

Normal Operation

The High Speed Controller Area Network (HS-CAN) uses an unshielded twisted pair cable, circuits VDB04 (HS-CAN +) and VDB05 (HS-CAN -).

NOTE: *The APIM , while on the HS-CAN , communicates with the scan tool only on the Medium Speed Controller Area Network (MS-CAN) .*

This pinpoint test is intended to diagnose the following:

- Fuse
- Wiring, terminals or connectors
- ABS module
- Accessory Protocol Interface Module (APIM) (if equipped)
- Engine Temperature Gauge (if equipped)
- Instrument Panel Cluster (IPC)

- Occupant Classification System Module (OCSM)
- Parking Aid Module (PAM)
- PCM
- Power Steering Control Module (PSCM)
- Restraints Control Module (RCM)

PINPOINT TEST Q : NO HS-CAN COMMUNICATION, ALL MODULES ARE NOT RESPONDING

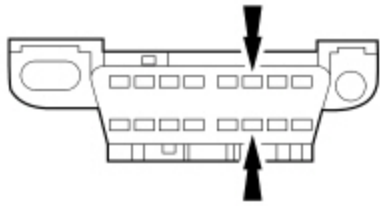
NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may damage the connector.

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 results in false resistance readings. Refer to Section 414-01.*

Q1 CHECK THE DLC PINS FOR DAMAGE

- Ignition OFF.
- Inspect DLC pins 6 and 14 for damage.



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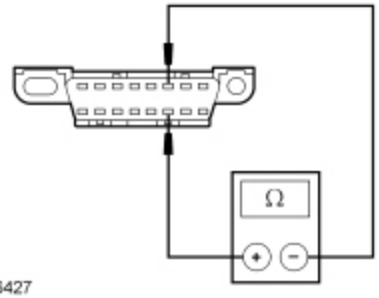
Are DLC pins 6 and 14 OK?

Yes	GO to Q2.
No	REPAIR the DLC as necessary. CLEAR the DTCs. REPEAT the network test with the scan tool.

Q2 CHECK THE HS-CAN TERMINATION RESISTANCE

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



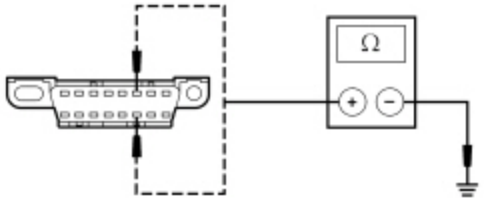
N0026427

Is the resistance between 54 and 66 ohms?

Yes	GO to Q3.
No	GO to Q5.

Q3 CHECK THE HS-CAN (+) AND HS-CAN (-) CIRCUITS FOR A SHORT TO GROUND

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



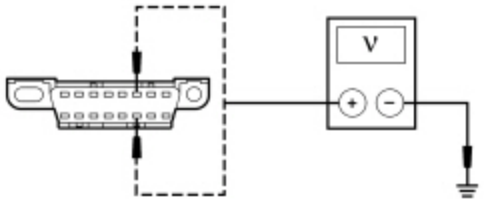
N0002963

Are the resistances greater than 1,000 ohms?

Yes	CONNECT the negative battery cable. GO to Q4.
No	GO to Q12.

Q4 CHECK THE HS-CAN (+) AND HS-CAN (-) CIRCUITS FOR A SHORT TO VOLTAGE

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



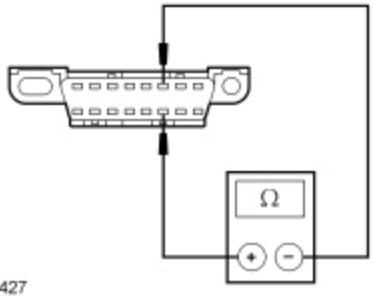
N0002964

Is the voltage greater than 6 volts?

Yes	REPAIR the circuit. CLEAR the DTCs. REPEAT the network test with the scan tool.
No	GO to Q13.

Q5 CHECK THE HS-CAN TERMINATION RESISTOR

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



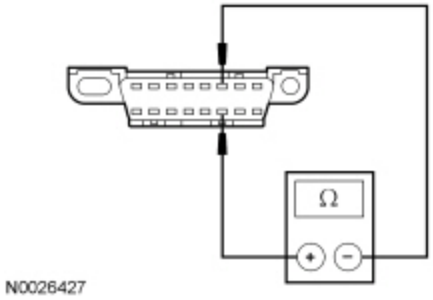
N0026427

Is the resistance between 108 and 132 ohms?

Yes	GO to Q6.
No	GO to Q9.

Q6 CHECK THE HS-CAN TERMINATION RESISTOR WITH THE PCM DISCONNECTED

- Disconnect: PCM C175B or C1381B .
- Measure the resistance between the DLC C251 Pin 6, circuit VDB04 (WH/BU), harness side and the DLC C251 Pin 14, circuit VDB05 (WH), harness side.

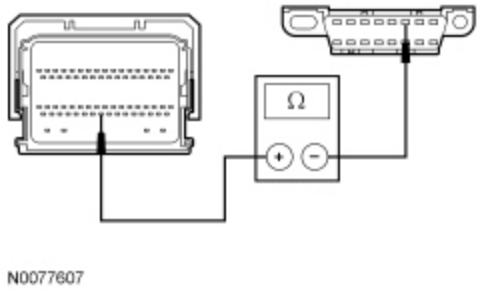


Is the resistance between 108 and 132 ohms?

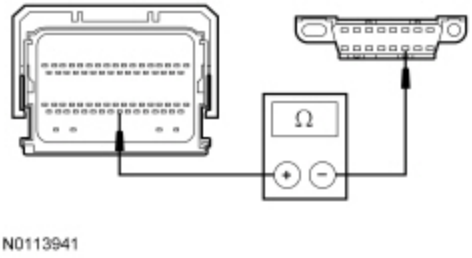
Yes	GO to Q7.
No	GO to Q8.

Q7 CHECK THE HS-CAN CIRCUITS BETWEEN THE PCM AND THE DLC FOR AN OPEN

- Measure the resistance between the PCM C175B Pin 59 or C1381B Pin 59, circuit VDB04 (WH/BU), harness side and the DLC C251 Pin 6, circuit VDB04 (WH/BU), harness side.



- Measure the resistance between the PCM C175B Pin 58 or C1381B Pin 58, circuit VDB05 (WH), harness side and the DLC C251 Pin 14, circuit VDB05 (WH), harness side.



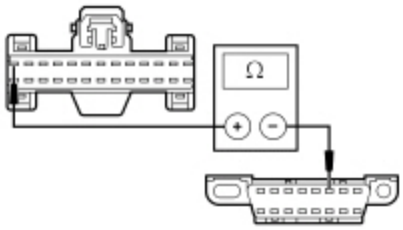
Are the resistances less than 5 ohms?

Yes	CONNECT the negative battery cable. GO to Q21.
No	REPAIR the circuit in question. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

Q8 CHECK THE HS-CAN CIRCUITS BETWEEN THE IPC AND THE DLC FOR AN OPEN

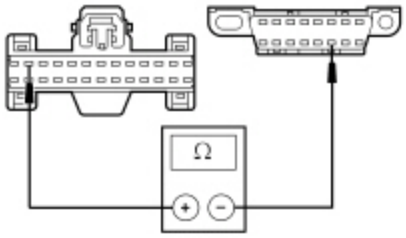
- Disconnect: IPC C220 .

- Measure the resistance between the IPC C220 Pin 13, circuit VDB04 (WH/BU), harness side and the DLC C251 Pin 6, circuit VDB04 (WH/BU), harness side.



N0099861

- Measure the resistance between the IPC C220 Pin 12, circuit VDB05 (WH), harness side and the DLC C251 Pin 14, circuit VDB05 (WH), harness side.



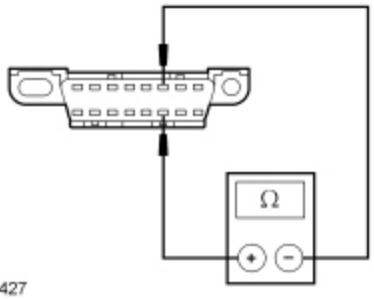
N0099862

Are the resistances less than 5 ohms?

Yes	CONNECT the negative battery cable. GO to Q26.
No	REPAIR the circuit in question. CONNECT the negative battery cable. CLEAR the DTCs. REPEAT the network test with the scan tool.

Q9 CHECK THE HS-CAN (+) AND HS-CAN (-) CIRCUITS FOR A SHORT TOGETHER

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



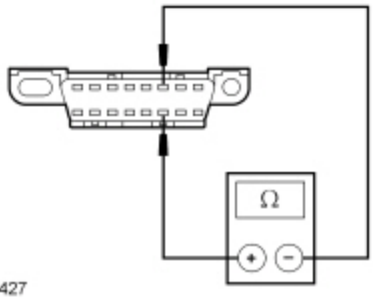
N0026427

Is the resistance less than 5 ohms?

Yes	GO to Q11.
No	GO to Q10.

Q10 CHECK THE HS-CAN CIRCUITS FOR AN OPEN AT THE DLC

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

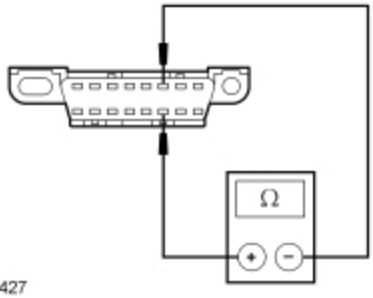


Is the resistance greater than 10,000 ohms?

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.

Q11 CHECK THE HS-CAN (+) AND HS-CAN (-) CIRCUITS FOR A SHORT TOGETHER

- While measuring the resistance between the DLC C251 Pin 6, circuit VDB04 (WH/BU), harness side and the DLC C251 Pin 14, circuit VDB05 (WH), harness side, disconnect the following modules one at a time until the resistance is greater than 5 ohms.
  - APIM C2383 (if equipped)
  - ABS module C135
  - Engine temperature gauge C2460
  - IPC C220 (if equipped)
  - OCSM C3043
  - PAM C4014 (if equipped)
  - PSCM C1463B (if equipped)
  - PCM C175B or C1381B
  - RCM C2041B

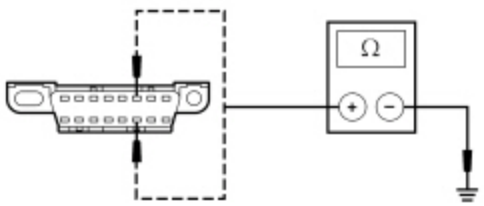


Did the resistance change to greater than 5 ohms with one of the modules disconnected?

Yes	CONNECT the negative battery cable. For the APIM , GO to Q25. For the ABS module, GO to Q22. For the engine temperature gauge, GO to Q29. For the IPC , GO to Q26. For the OCSM , GO to Q24. For the PAM , GO to Q28. For the PCM, GO to Q21. For the PSCM , GO to Q27. For the RCM , GO to Q23.
No	REPAIR circuits VDB04 (WH/BU) and VDB05 (WH) for being shorted together. CLEAR the DTCs. REPEAT the Network Test with the scan tool.

Q12 CHECK THE HS-CAN (+) AND HS-CAN (-) CIRCUITS FOR A SHORT TO GROUND WITH THE MODULES DISCONNECTED

- While measuring the resistance between the DLC C251 Pin 6, circuit VDB04 (WH/BU), harness side and ground; and between the DLC C251 Pin 14, circuit VDB05 (WH), harness side and ground, check for the short to ground on both circuits after disconnecting each module. Disconnect the following modules one at a time until the resistance to ground is greater than 1,000 ohms.
  - APIM C2383 (if equipped)
  - ABS module C135
  - Engine temperature gauge C2460
  - IPC C220 (if equipped)
  - OCSM C3043
  - PAM C4014 (if equipped)
  - PSCM C1463B (if equipped)
  - PCM C175B or C1381B
  - RCM C2041B



N0002963

Did the resistance change to greater than 1,000 ohms with one of the modules disconnected?

Yes	CONNECT the negative battery cable. For the APIM , GO to Q25. For the ABS module, GO to Q22. For the engine temperature gauge, GO to Q29. For the IPC , GO to Q26. For the OCSM , GO to Q24. For the PAM , GO to Q28. For the PCM, GO to Q21. For the PSCM , GO to Q27. For the RCM , GO to Q23.
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.

Q13 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 closed first or the screen display reverts back to the prior run network test results.*

- Disconnect: Battery Junction Box (BJB) Fuses 23 (10A), 45 (5A) and 47 (15A) .
- 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 Q14.

Q14 CHECK FOR RESTORED NETWORK COMMUNICATION WITH THE ABS MODULE DISABLED

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

- Disconnect: BJB Fuse 34 (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 fuse. GO to Pinpoint Test B.
No	INSTALL the removed fuse. GO to Q15.

Q15 CHECK FOR RESTORED NETWORK COMMUNICATION WITH THE IPC DISABLED

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

- Disconnect: SJB Fuses 26 (10A) and 36 (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 Q16.

Q16 CHECK FOR RESTORED NETWORK COMMUNICATION WITH THE RCM DISABLED

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

- Disconnect: SJB Fuse 31 (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 D.
No	INSTALL the removed fuse. If equipped with rear park assist GO to Q17. If not equipped with rear park assist GO to Q18.

Q17 CHECK FOR RESTORED NETWORK COMMUNICATION WITH THE PAM DISABLED

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

- Disconnect: SJB Fuse 32 (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 O.
No	INSTALL the removed fuse. The HS-CAN tests within specification. Verify the correct operation of the scan tool on a known good vehicle.

Q18 CHECK FOR RESTORED NETWORK COMMUNICATION WITH THE OCSM DISABLED

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

- Disconnect: SJB Fuse 46 (7.5A) .
- 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 fuse. GO to Pinpoint Test E.
No	INSTALL the removed fuse. If equipped with SYNC®, GO to Q19. If not equipped with SYNC®, GO to Q20.

Q19 CHECK FOR RESTORED NETWORK COMMUNICATION WITH THE APIM DISABLED

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

- Disconnect: SJB Fuse 3 (15A) .
- 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 M.
No	INSTALL the removed fuse. GO to Q20.

Q20 CHECK FOR RESTORED NETWORK COMMUNICATION WITH THE PSCM DISABLED

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

- Disconnect: BJB Fuse 45 (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 fuse. GO to Pinpoint Test N.
No	CONNECT all modules. The HS-CAN tests within specification. Verify the correct operation of the scan tool on a known good vehicle.

Q21 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	REPAIR the circuit. CLEAR the DTCs. REPEAT the network test with the scan tool.

Q22 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. CONNECT all modules. 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. CONNECT all modules. CLEAR the DTCs. REPEAT the network test with the scan tool.

Q23 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.
- Verify the concern is still present.

Is the concern still present?

Yes	INSTALL a new RCM . REFER to Section 501-20B. CONNECT all modules. 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. CONNECT all modules. CLEAR the DTCs. REPEAT the network test with the scan tool.

Q24 CHECK FOR CORRECT OCSM OPERATION

- Disconnect the OCSM connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the OCSM connector and make sure it seats correctly.
- Verify the concern is still present.

Is the concern still present?

Yes	INSTALL a new OCSM . REFER to Section 501-20B. CONNECT all modules. 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. CONNECT all modules. CLEAR the DTCs. REPEAT the network test with the scan tool.

Q25 CHECK FOR CORRECT APIM OPERATION

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

Is the concern still present?

Yes	  **VIN required to access Guided Routine (APIM)**
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CONNECT all modules. CLEAR the DTCs. REPEAT the network test with the scan tool.

Q26 CHECK FOR CORRECT IPC OPERATION

- Disconnect the IPC connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the IPC 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 IPC . REFER to Section 413-01. CONNECT all modules. 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. CONNECT all modules. CLEAR the DTCs. REPEAT the network test with the scan tool.

Q27 CHECK FOR CORRECT PSCM OPERATION

- Disconnect the PSCM connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the PSCM 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 PSCM . REFER to Steering Gear in Section 211-02. CONNECT all modules. 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. CONNECT all modules. CLEAR the DTCs. REPEAT the network test with the scan tool.

Q28 CHECK FOR CORRECT PAM OPERATION

- Disconnect the PAM connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the PAM 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 PAM . REFER to Section 413-13. CONNECT all modules. 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. CONNECT all modules. CLEAR the DTCs. REPEAT the network test with the scan tool.

Q29 CHECK FOR CORRECT ENGINE TEMPERATURE GAUGE OPERATION

- Disconnect the engine temperature gauge connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the engine temperature gauge 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 engine temperature gauge. REFER to Section 413-01. CONNECT all modules. 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. CONNECT all modules. CLEAR the DTCs. REPEAT the network test with the scan tool.

Pinpoint Test R: 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) and Medium Speed Controller Area Network (MS-CAN) .

A loss of ground or poor ground at the DLC may result in HS-CAN or MS-CAN faults while the scan tool is connected. This may cause multiple malfunction indicators to be on with the scan tool connected to the DLC .

This pinpoint test is intended to diagnose the following:

- Fuse
- Wiring, terminals or connectors
- Scan tool
- DLC

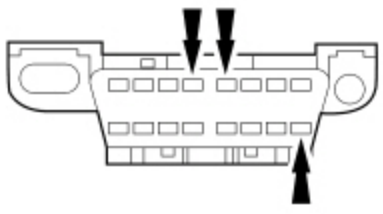
PINPOINT TEST R : NO POWER TO THE SCAN TOOL

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 results in false resistance readings. Refer to Section 414-01.*

R1 CHECK THE DLC PINS FOR DAMAGE

- Disconnect the scan tool cable from the DLC .
- Inspect DLC pins 4, 5 and 16 for damage.



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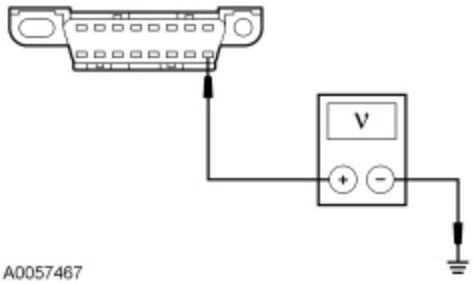
Are DLC pins 4, 5 and 16 OK?

Yes	GO to R2.
No	REPAIR the DLC as necessary. CLEAR the DTCs. REPEAT the network test with the scan tool.

R2 CHECK THE DLC VOLTAGE SUPPLY CIRCUIT FOR AN OPEN

- Measure the voltage between the DLC C251 Pin 16, circuit SBP20 (GN/RD), harness side and ground.

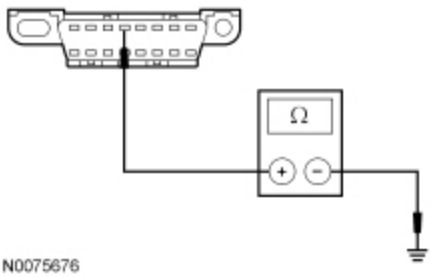


Is the voltage greater than 10 volts?

Yes	GO to R3.
No	VERIFY the Smart Junction Box (SJB) fuse 20 (15A) is OK. If OK, REPAIR the circuit. If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short. REPEAT the network test with the scan tool.

R3 CHECK THE DLC GROUND CIRCUITS FOR AN OPEN

- Disconnect: Negative Battery Cable .
- Measure the resistance between the DLC C251 Pin 4, circuit GD114 (BK/BU), harness side and ground; and between the DLC C251 Pin 5, circuit GD119 (BK/BU), harness side and ground.



Are the resistances less than 5 ohms?

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