

**Climate Control System - Vehicles With: Dual Automatic Temperature Control (DATC)**

**DTC Chart: Front Controls Interface Module (FCIM) - Dual Automatic Temperature Control (DATC)**

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices.  
 REFER to: [Diagnostic Methods](#) (100-00 General Information, Description and Operation).

Network Diagnostic Trouble Codes (DTCs) (U-codes) are often a result of intermittent concerns such as damaged wiring or low battery voltage occurrences. Additionally, vehicle repair procedures, such as module reprogramming, often set network Diagnostic Trouble Codes (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: Battery (414-01) .

**FCIM - Dual Automatic Temperature Control (DATC) DTC CHART**

DTC	Description	Action
B105A:12	Cabin Temperature Sensor Fan: Circuit Short To Battery	<a href="#">GO to Pinpoint Test N</a>
B105A:14	Cabin Temperature Sensor Fan: Circuit Short To Ground or Open	<a href="#">GO to Pinpoint Test N</a>
B1081:07	Left Temperature Damper Motor: Mechanical Failure	INSPECT for a binding or damaged linkage or door. REPAIR as necessary. If no condition is found, INSTALL a new driver side temperature door actuator. REFER to: <a href="#">Driver Side Temperature Door Actuator</a> (412-00 Climate Control System - General Information, Removal and Installation).
B1081:11	Left Temperature Damper Motor: Circuit Short To Ground	<a href="#">GO to Pinpoint Test I</a>
B1081:12	Left Temperature Damper Motor: Circuit Short To Battery	<a href="#">GO to Pinpoint Test I</a>
B1081:13	Left Temperature Damper Motor: Circuit Open	<a href="#">GO to Pinpoint Test I</a>
B1082:07	Right Temperature Damper Motor: Mechanical Failure	INSPECT for a binding or damaged linkage or door. REPAIR as necessary. If no condition is found, INSTALL a new passenger side temperature door actuator. REFER to: <a href="#">Passenger Side Temperature Door Actuator</a> (412-00 Climate Control System - General Information, Removal and Installation).
B1082:11	Right Temperature Damper Motor: Circuit Short To Ground	<a href="#">GO to Pinpoint Test J</a>
B1082:12	Right Temperature Damper Motor: Circuit Short To Battery	<a href="#">GO to Pinpoint Test J</a>
B1082:13	Right Temperature Damper Motor: Circuit Open	<a href="#">GO to Pinpoint Test J</a>
B1083:07	Recirculation Damper Motor: Mechanical Failure	INSPECT for a binding or damaged linkage or door. REPAIR as necessary. If no condition is found, INSTALL a new air inlet mode door actuator. REFER to: <a href="#">Air Inlet Door Actuator</a> (412-00 Climate Control System - General Information, Removal and Installation).
B1083:11	Recirculation Damper Motor: Circuit Short To Ground	<a href="#">GO to Pinpoint Test D</a>
B1083:12	Recirculation Damper Motor: Circuit Short To Battery	<a href="#">GO to Pinpoint Test D</a>
B1083:13	Recirculation Damper Motor: Circuit Open	<a href="#">GO to Pinpoint Test D</a>
B1086:07	Air Distribution Damper Motor: Mechanical Failure	INSPECT for a binding or damaged linkage or door. REPAIR as necessary. If no condition is found, INSTALL a new air distribution door actuator. REFER to: <a href="#">Air Distribution Door Actuator</a> (412-00 Climate Control System - General Information, Removal and Installation).
B1086:11	Air Distribution Damper Motor: Circuit Short To Ground	<a href="#">GO to Pinpoint Test E</a>
B1086:12	Air Distribution Damper Motor: Circuit Short To Battery	<a href="#">GO to Pinpoint Test E</a>
B1086:13	Air Distribution Damper Motor: Circuit Open	<a href="#">GO to Pinpoint Test E</a>
B10AF:11	Blower Fan Relay: Circuit Short To Ground	<a href="#">GO to Pinpoint Test K</a>
B10AF:15	Blower Fan Relay: Circuit Short To Battery or Open	<ul style="list-style-type: none"> <li>For an inoperative blower motor, <a href="#">GO to Pinpoint Test K</a></li> </ul>

DTC	Description	Action
		<ul style="list-style-type: none"> <li>For all other blower motor symptoms, <a href="#">GO to Pinpoint Test L</a></li> </ul>
B10B5:11	Left Panel Air Discharge Temperature: Circuit Short To Ground	<a href="#">GO to Pinpoint Test M</a>
B10B5:15	Left Panel Air Discharge Temperature: Circuit Short To Battery or Open	<a href="#">GO to Pinpoint Test M</a>
B10B6:11	Left Floor Air Discharge Temperature: Circuit Short To Ground	<a href="#">GO to Pinpoint Test M</a>
B10B6:15	Left Floor Air Discharge Temperature: Circuit Short To Battery or Open	<a href="#">GO to Pinpoint Test M</a>
B10B8:63	Push Buttons: Circuit / Component Protection Time-Out	<p>This DTC sets when the buttons have been held down too long. ATTEMPT to clean buttons. CLEAR the Diagnostic Trouble Codes (DTCs) and REPEAT the self-test. If the DTC returns,</p>  <p><b>VIN required to access Guided Routine (FCIM)</b></p>
B10B9:12	Blower Control: Circuit Short To Battery	<a href="#">GO to Pinpoint Test K</a>
B10B9:14	Blower Control: Circuit Short To Ground or Open	<ul style="list-style-type: none"> <li>For an inoperative blower motor, <a href="#">GO to Pinpoint Test K</a></li> <li>For all other blower motor symptoms, <a href="#">GO to Pinpoint Test L</a></li> </ul>
B11E5:12	Left HVAC Damper Position Sensor: Circuit Short To Battery	<a href="#">GO to Pinpoint Test I</a>
B11E5:14	Left HVAC Damper Position Sensor: Circuit Short To Ground or Open	<a href="#">GO to Pinpoint Test I</a>
B11E6:12	Right HVAC Damper Position Sensor: Circuit Short To Battery	<a href="#">GO to Pinpoint Test J</a>
B11E6:14	Right HVAC Damper Position Sensor: Circuit Short To Ground or Open	<a href="#">GO to Pinpoint Test J</a>
B11E7:12	Air Distribution Damper Position Sensor: Circuit Short To Battery	<a href="#">GO to Pinpoint Test E</a>
B11E7:14	Air Distribution Damper Position Sensor: Circuit Short To Ground or Open	<a href="#">GO to Pinpoint Test E</a>
B11F0:12	Air Intake Damper Position Sensor: Circuit Short To Battery	<a href="#">GO to Pinpoint Test D</a>
B11F0:14	Air Intake Damper Position Sensor: Circuit Short To Ground or Open	<a href="#">GO to Pinpoint Test D</a>
B1A61:11	Cabin Temperature Sensor: Circuit Short To Ground	<a href="#">GO to Pinpoint Test N</a>
B1A61:15	Cabin Temperature Sensor: Circuit Short To Battery or Open	<a href="#">GO to Pinpoint Test N</a>
B1A63:11	Right Solar Sensor: Circuit Short To Ground	<a href="#">GO to Pinpoint Test O</a>
B1A63:15	Right Solar Sensor: Circuit Short To Battery or Open	<a href="#">GO to Pinpoint Test O</a>
B1A64:11	Left Solar Sensor: Circuit Short To Ground	<a href="#">GO to Pinpoint Test O</a>
B1A64:15	Left Solar Sensor: Circuit Short To Battery or Open	<a href="#">GO to Pinpoint Test O</a>
B1A69:12	Humidity Sensor: Circuit Short To Battery	<a href="#">GO to Pinpoint Test N</a>
B1A69:14	Humidity Sensor: Circuit Short To Ground or Open	<a href="#">GO to Pinpoint Test N</a>
B1B71:11	Evaporator Temperature Sensor: Circuit Short To Ground	<a href="#">GO to Pinpoint Test P</a>
B1B71:15	Evaporator Temperature Sensor: Circuit Short To Battery or Open	<a href="#">GO to Pinpoint Test P</a>
C1B14:11	Sensor Supply Voltage A: Circuit Short To Ground	<a href="#">GO to Pinpoint Test Q</a>
C1B14:12	Sensor Supply Voltage A: Circuit Short To Battery	<a href="#">GO to Pinpoint Test Q</a>
All Other <b>FCIM</b> Diagnostic Trouble Codes (DTCs) not listed in this	—	Refer to the appropriate section in Group 415 for the procedure.

DTC	Description	Action
chart		

**DTC Chart: Powertrain Control Module (PCM)**

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices. REFER to: [Diagnostic Methods](#) (100-00 General Information, Description and Operation).

**Powertrain Control Module (PCM) DTC Chart**

DTC	Description	Action
P0532	A/C Refrigerant Pressure Sensor "A" Circuit Low	<a href="#">GO to Pinpoint Test A</a>
P0533	A/C Refrigerant Pressure Sensor "A" Circuit High	<a href="#">GO to Pinpoint Test A</a>
P0645	A/C Clutch Relay Control Circuit	<a href="#">GO to Pinpoint Test B</a>
P06A0	Variable A/C Compressor Control Circuit	<a href="#">GO to Pinpoint Test R</a>
P1464	A/C Demand Out Of Self Test Range	If the <b>HVAC</b> selector was not powered off, POWER the <b>HVAC</b> off, CLEAR the Diagnostic Trouble Codes (DTCs) and REPEAT the self-test. If the <b>DTC</b> returns, <a href="#">GO to Pinpoint Test H</a>
P193E	A/C Clutch Request Signal	<a href="#">GO to Pinpoint Test S</a>
All Other PCM Diagnostic Trouble Codes (DTCs)	—	<ul style="list-style-type: none"> <li>For 2.3L PCM DTC Chart, REFER to: <a href="#">Electronic Engine Controls</a> (303-14A Electronic Engine Controls - 2.3L EcoBoost (231kW/314PS), Diagnosis and Testing).</li> <li>For 3.7L PCM DTC Chart, REFER to: <a href="#">Electronic Engine Controls</a> (303-14B Electronic Engine Controls - 3.7L Duratec (227kW/301PS), Diagnosis and Testing).</li> <li>For 5.0L PCM DTC Chart, REFER to: <a href="#">Electronic Engine Controls</a> (303-14C Electronic Engine Controls - 5.0L 32V Ti-VCT, Diagnosis and Testing).</li> <li>For 5.2L PCM DTC Chart, REFER to: <a href="#">Electronic Engine Controls</a> (303-14D Electronic Engine Controls - 5.2L 32V Ti-VCT, Diagnosis and Testing).</li> </ul>

**Symptom Chart(s)**

**Symptom Chart: Climate Control - Dual Automatic Temperature Control (DATC)**

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices. REFER to: [Diagnostic Methods](#) (100-00 General Information, Description and Operation).

**Symptom Chart**

Condition	Possible Sources	Actions
A module does not communicate with the diagnostic scan tool	<ul style="list-style-type: none"> <li>Fuse(s)</li> <li>Wiring, terminals or connectors</li> </ul>	REFER to: <a href="#">Communications Network</a> (418-00 Module Communications Network, Diagnosis and Testing).
Externally Controlled Variable Displacement Compressor (EVDC) poor performance/does not operate correctly	Refer to Pinpoint Test	<a href="#">GO to Pinpoint Test R</a>
Unable To Duplicate The Customer Concern And No Diagnostic Trouble Codes (DTCs) Present	Refer to Pinpoint Test	<a href="#">GO to Pinpoint Test C</a>
<b>HVAC</b> functions are inoperative/do not operate correctly from touchscreen only	<ul style="list-style-type: none"> <li>Communication network</li> <li><b>FCIM</b></li> <li><b>APIM</b></li> </ul>	Refer to the appropriate section in Group 415 for the procedure.
Reduced outlet airflow	Plugged cabin air filter	INSPECT the cabin air filter. REFER to: <a href="#">Cabin Air Filter</a> (412-00 Climate Control System - General Information, Removal and Installation).

Condition	Possible Sources	Actions
		If OK, DIAGNOSE for low refrigerant charge, <u>A/C</u> always commanded on or blower motor not operating correctly.
	Improper refrigerant level	CARRY OUT the refrigerant system tests. REFER to: <a href="#">Refrigerant System Tests - 2.3L EcoBoost (231kW/314PS)</a> (412-00 Climate Control System - General Information, General Procedures). REFER to: <a href="#">Refrigerant System Tests - 3.7L Duratec (227kW/301PS)</a> (412-00 Climate Control System - General Information, General Procedures). REFER to: <a href="#">Refrigerant System Tests - 5.0L 32V Ti-VCT</a> (412-00 Climate Control System - General Information, General Procedures). REFER to: <a href="#">Refrigerant System Tests - 5.2L 32V Ti-VCT</a> (412-00 Climate Control System - General Information, General Procedures). If refrigerant charge is OK, <a href="#">GO to Pinpoint Test H</a>
	Blower motor	<a href="#">GO to Pinpoint Test L</a>
The air inlet door is inoperative	Refer to Pinpoint Test	<a href="#">GO to Pinpoint Test D</a>
Incorrect or erratic direction of airflow from outlets	Refer to Pinpoint Test	<a href="#">GO to Pinpoint Test E</a>
Insufficient, erratic or no heat	Refer to Pinpoint Test	<a href="#">GO to Pinpoint Test F</a>
The <u>A/C</u> is inoperative	Refer to Pinpoint Test	<a href="#">GO to Pinpoint Test G</a>
The <u>A/C</u> is always on — <u>A/C</u> mode always commanded ON	Refer to Pinpoint Test	<a href="#">GO to Pinpoint Test H</a>
Temperature control is inoperative/does not operate correctly — driver side	Refer to Pinpoint Test	<a href="#">GO to Pinpoint Test I</a>
Temperature control is inoperative/does not operate correctly — passenger side	Refer to Pinpoint Test	<a href="#">GO to Pinpoint Test J</a>
The blower motor is inoperative	Refer to Pinpoint Test	<a href="#">GO to Pinpoint Test K</a>
The blower motor does not operate correctly	Refer to Pinpoint Test	<a href="#">GO to Pinpoint Test L</a>
Insufficient <u>A/C</u> cooling	Improper refrigerant level	CARRY OUT the refrigerant system tests. REFER to: <a href="#">Refrigerant System Tests - 2.3L EcoBoost (231kW/314PS)</a> (412-00 Climate Control System - General Information, General Procedures). REFER to: <a href="#">Refrigerant System Tests - 3.7L Duratec (227kW/301PS)</a> (412-00 Climate Control System - General Information, General Procedures). REFER to: <a href="#">Refrigerant System Tests - 5.0L 32V Ti-VCT</a> (412-00 Climate Control System - General Information, General Procedures). REFER to: <a href="#">Refrigerant System Tests - 5.2L 32V Ti-VCT</a> (412-00 Climate Control System - General Information, General Procedures). If OK, DIAGNOSE for a temperature door actuator not operating correctly.
	Temperature door actuator	<ul style="list-style-type: none"> <li>For inadequate temperature out of the driver side, <a href="#">GO to Pinpoint Test I</a></li> <li>For inadequate temperature out of the passenger side, <a href="#">GO to Pinpoint Test J</a></li> </ul>
<u>A/C</u> pressure relief valve discharging	<u>A/C</u> pressure relief valve	CHECK the high side system pressure. REFER to: <a href="#">Specifications</a> (412-00 Climate Control System - General Information, Specifications). If the pressure is below the <u>A/C</u> pressure relief valve open pressure, INSTALL a new <u>A/C</u> pressure relief valve. Refer to the appropriate section in Group 412 for the procedure.
	High system pressure	CHECK the high side system pressure. REFER to: <a href="#">Specifications</a> (412-00 Climate Control System - General Information, Specifications). If the system pressure is above the <u>A/C</u> pressure relief valve open pressure, REPAIR the <u>A/C</u> system for a restriction.
Climate control does not operate only when remote start is used	<ul style="list-style-type: none"> <li><a href="#">IPC</a> information display settings</li> <li>Non-Ford approved remote start system installed</li> </ul>	<ul style="list-style-type: none"> <li>VERIFY Remote Start - Message Center Set To Auto, or Remote Start - Message Center Set To Last User Settings. REFER to: <a href="#">Climate Control System - Vehicles With: Dual Automatic Temperature Control (DATC) - System Operation and Component Description</a> (412-00 Climate Control System - General Information, Description and Operation).</li> <li>VERIFY module communications network operation. DIAGNOSE Diagnostic Trouble Codes (DTCs) if present.</li> </ul>

### Symptom Chart: Noise, Vibration, and Harshness (NVH)

Diagnostics in this manual assume a certain skill level and knowledge of Ford-specific diagnostic practices.  
REFER to: [Diagnostic Methods](#) (100-00 General Information, Description and Operation).

### Symptom Chart

Condition	Possible Sources	Actions
Noisy <u>A/C</u> compressor	<u>A/C</u> compressor pulley bearing worn	INSPECT the <u>A/C</u> compressor pulley bearing for roughness. If bearing roughness is found, INSTALL a new <u>A/C</u> compressor clutch and <u>A/C</u> clutch field coil. REFER to: <a href="#">Air Conditioning (A/C) Clutch and Air Conditioning (A/C) Clutch Field Coil</a> (412-00 Climate Control System - General Information, General Procedures).
Excessive hissing from the plenum when the <u>A/C</u> is on	Incorrect <u>A/C</u> refrigerant level	CHECK the <u>A/C</u> refrigerant level. REFER to: <a href="#">Refrigerant System Tests - 2.3L EcoBoost (231kW/314PS)</a> (412-00 Climate Control System - General Information, General Procedures). REFER to: <a href="#">Refrigerant System Tests - 3.7L Duratec (227kW/301PS)</a> (412-00 Climate Control System - General Information, General Procedures). REFER to: <a href="#">Refrigerant System Tests - 5.0L 32V Ti-VCT</a> (412-00 Climate Control System - General Information, General Procedures). REFER to: <a href="#">Refrigerant System Tests - 5.2L 32V Ti-VCT</a> (412-00 Climate Control System - General Information, General Procedures).

**Pinpoint Test(s)**

**P0532, P0533**

Refer to Wiring Diagrams Cell [55](#) for schematic and connector information.

**Normal operation and Fault Conditions**

The A/C pressure transducer receives a ground from the PCM . A 5-volt reference voltage is supplied to the A/C pressure transducer from the PCM . The A/C pressure transducer then sends a voltage to the PCM to indicate the A/C pressure.

**DTC Fault Trigger Conditions**

DTC	Description	Fault Trigger Conditions
P0532	<u>A/C</u> Refrigerant Pressure Sensor "A" Circuit Low	This <u>DTC</u> sets if the feedback voltage is less than 0.26 volt for at least 2 seconds and the ambient air temperature is greater than 0°C (32°F).
P0533	<u>A/C</u> Refrigerant Pressure Sensor "A" Circuit High	This <u>DTC</u> sets if the feedback voltage is greater than 4.95 volts for at least 2 seconds and the ambient air temperature is greater than 0°C (32°F).

**Possible Sources**

- Wiring, terminals or connectors
- A/C pressure transducer
- PCM

**Visual Inspection and Diagnostic Pre-checks**

- Inspect for loose or corroded PCM and A/C pressure transducer connections.

**PINPOINT TEST A: P0532, P0533**

<b>NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may damage the connector.</b>	
<b>A1 COMPARE THE PCM (POWERTRAIN CONTROL MODULE) PRESSURE SENSOR (ACP_PRESS) PID (PARAMETER IDENTIFICATION) WITH THE MANIFOLD GAUGE SET READINGS</b>	
<ul style="list-style-type: none"> <li>• Allow the <u>A/C</u> system to stabilize to the outside ambient temperature.</li> <li>• Ignition ON.</li> <li>• Using a diagnostic scan tool, view <u>PCM</u> Parameter Identifications (PIDs).</li> <li>• With the manifold gauge set connected, compare the pressure readings of the manifold gauge set and the <u>PCM</u> <u>ACP_PRESS</u> <u>PID</u> .</li> </ul>	
<b>Are the pressure values of the manifold gauge set and the <u>ACP_PRESS</u> <u>PCM</u> <u>PID</u> within ± 103 kPa (15 psi)?</b>	
<b>Yes</b>	IGNORE the Diagnostic Trouble Codes (DTCs). REFER to the Symptom Chart in this section.
<b>No</b>	GO to <a href="#">A2</a>

<b>A2 CHECK THE A/C (AIR CONDITIONING) PRESSURE SENSOR CIRCUITS FOR A SHORT TO VOLTAGE</b>	
<ul style="list-style-type: none"> <li>• Ignition OFF.</li> <li>• Disconnect <u>PCM</u> , 2.3L <a href="#">C1551B</a>, 3.7L <a href="#">C1381B</a> or 5.0L and 5.2L <a href="#">C175B</a>.</li> <li>• Disconnect <u>A/C</u> pressure transducer <a href="#">C1260</a>.</li> <li>• Disconnect Turbocharger boost pressure sensor <a href="#">C1588</a> (if equipped).</li> <li>• Disconnect Generator current sensor <a href="#">C1645</a>.</li> </ul>	

- Ignition ON.
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C1260</a> Pin 1	$\overline{\overline{V}}$	Ground Pin -
<a href="#">C1260</a> Pin 2	$\overline{\overline{V}}$	Ground Pin -
<a href="#">C1260</a> Pin 3	$\overline{\overline{V}}$	Ground Pin -

Is any voltage present?

<b>Yes</b>	REPAIR the circuit.
<b>No</b>	GO to <a href="#">A3</a>

#### A3 CHECK THE A/C (AIR CONDITIONING) PRESSURE SENSOR CIRCUITS FOR A SHORT TO GROUND

- Ignition OFF.
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C1260</a> Pin 1	$\Omega$	Ground Pin -
<a href="#">C1260</a> Pin 2	$\Omega$	Ground Pin -
<a href="#">C1260</a> Pin 3	$\Omega$	Ground Pin -

Are the resistances greater than 10,000 ohms?

<b>Yes</b>	GO to <a href="#">A4</a>
<b>No</b>	REPAIR the circuit.

#### A4 CHECK THE A/C (AIR CONDITIONING) PRESSURE SENSOR CIRCUITS FOR AN OPEN

- Measure:

[Click to display connectors](#)

**2.3L**

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C1260</a> Pin 1	$\Omega$	<a href="#">C1551B</a> Pin 18
<a href="#">C1260</a> Pin 2	$\Omega$	<a href="#">C1551B</a> Pin 52
<a href="#">C1260</a> Pin 3	$\Omega$	<a href="#">C1551B</a> Pin 11

[Click to display connectors](#)

**3.7L**

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C1260</a> Pin 1	$\Omega$	<a href="#">C1381B</a> Pin 51
<a href="#">C1260</a> Pin 2	$\Omega$	<a href="#">C1381B</a> Pin 33
<a href="#">C1260</a> Pin 3	$\Omega$	<a href="#">C1381B</a> Pin 52

[Click to display connectors](#)

**5.0L or 5.2L**

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C1260</a> Pin 1	$\Omega$	<a href="#">C175B</a> Pin 51
<a href="#">C1260</a> Pin 2	$\Omega$	<a href="#">C175B</a> Pin 33
<a href="#">C1260</a> Pin 3	$\Omega$	<a href="#">C175B</a> Pin 52

Are the resistances less than 3 ohms?

<b>Yes</b>	GO to <a href="#">A5</a>
<b>No</b>	REPAIR the circuit.

#### A5 CHECK THE A/C (AIR CONDITIONING) PRESSURE SENSOR CIRCUITS FOR A SHORT TOGETHER

• Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C1260</a> Pin 1	$\Omega$	<a href="#">C1260</a> Pin 2
<a href="#">C1260</a> Pin 1	$\Omega$	<a href="#">C1260</a> Pin 3
<a href="#">C1260</a> Pin 2	$\Omega$	<a href="#">C1260</a> Pin 3




Are the resistances greater than 10,000 ohms?

<b>Yes</b>	INSTALL a new <u>A/C</u> pressure transducer. REFER to: <a href="#">Air Conditioning (A/C) Pressure Transducer</a> (412-00 Climate Control System - General Information, Removal and Installation). TEST the system for normal operation. If the concern is still present, GO to <a href="#">A6</a>
<b>No</b>	REPAIR the circuits.

#### A6 CHECK FOR CORRECT PCM (POWERTRAIN CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all PCM connectors.
- Repair:
  - corrosion (install new connector or terminals – clean module pins)
  - damaged or bent pins – install new terminals/pins
  - pushed-out pins – install new pins as necessary
- Reconnect all PCM connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

<b>Yes</b>	CHECK <u>OASIS</u> for any applicable Technical Service Bulletins (TSBs). If a <u>TSB</u> exists for this concern, DISCONTINUE this test and FOLLOW <u>TSB</u> instructions. If no Technical Service Bulletins (TSBs) address this concern,     <b>VIN required to access Guided Routine (PCM)</b>
<b>No</b>	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

#### P0645

Refer to Wiring Diagrams Cell [55](#) for schematic and connector information.

#### Normal Operation and Fault Conditions

Voltage is provided to the A/C clutch relay. When A/C is requested and A/C line pressures allow, a ground is provided to the A/C clutch relay coil from the PCM, energizing the A/C clutch relay.

## DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
P0645	A/C Clutch Relay Control Circuit	This <b>DTC</b> sets when the <b>PCM</b> grounds the relay circuit and more voltage than expected is detected on the relay circuit. This <b>DTC</b> also sets when the relay circuit is off and no voltage is detected on the relay circuit. The <b>PCM</b> expects to detect voltage coming through the relay coil to the relay circuit when it is not grounding it.

### Possible Sources

- Wiring, terminals or connectors
- **A/C** clutch relay
- **PCM**

### Visual Inspection and Diagnostic Pre-checks

- Inspect **BJB** fuses 23 (10A) and 42 (15A).

### PINPOINT TEST B: P0645

**NOTICE:** Use the correct probe adapter(s) from the Flex Probe Kit when taking measurements. Failure to use the correct probe adapter(s) may damage the connector.

#### B1 CHECK THE VOLTAGE TO THE A/C (AIR CONDITIONING) CLUTCH RELAY VOLTAGE SUPPLY CIRCUITS

- Ignition OFF.
- Disconnect **A/C** clutch relay.
- Ignition ON.
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<b>A/C</b> clutch relay socket 1	$\overline{\text{V}}$	Ground
<b>A/C</b> clutch relay socket 3	$\overline{\text{V}}$	Ground

#### Are the voltages greater than 11 volts?

<b>Yes</b>	GO to <a href="#">B2</a>
<b>No</b>	VERIFY <b>BJB</b> fuses 23 (10A) and 42 (15A) are OK. If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short. If OK, REPAIR the circuit.

#### B2 CHECK THE A/C (AIR CONDITIONING) CLUTCH RELAY

- Carry out the component test on the **A/C** clutch relay. Refer to Wiring Diagrams Cell [149](#) for schematic and connector information.

#### Did the relay pass the component test?

<b>Yes</b>	GO to <a href="#">B3</a>
<b>No</b>	INSTALL a new <b>A/C</b> clutch relay.

#### B3 CHECK THE A/C (AIR CONDITIONING) CLUTCH RELAY CONTROL CIRCUIT FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect **A/C** clutch relay.
- Disconnect **PCM**, 2.3L [C1551B](#), 3.7L [C1381B](#) or 5.0L and 5.2L [C175B](#).
- Ignition ON.
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<b>A/C</b> clutch relay socket 2	$\overline{\text{V}}$	Ground

#### Is any voltage present?

<b>Yes</b>	REPAIR the circuit.
------------	---------------------

No	GO to <a href="#">B4</a>
----	--------------------------

**B4 CHECK THE A/C (AIR CONDITIONING) CLUTCH RELAY CONTROL CIRCUIT FOR A SHORT TO GROUND**

- Ignition OFF.
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">A/C</a> clutch relay socket 2	$\Omega$	Ground

Is the resistance greater than 10,000 ohms?

Yes	GO to <a href="#">B5</a>
No	REPAIR the circuit.

**B5 CHECK THE A/C (AIR CONDITIONING) CLUTCH RELAY CONTROL CIRCUIT FOR AN OPEN**

- Measure:

[Click to display connectors](#)

2.3L

Positive Lead	Measurement / Action	Negative Lead
<a href="#">A/C</a> clutch relay socket 2	$\Omega$	<a href="#">C1551B</a> Pin 2

[Click to display connectors](#)

3.7L

Positive Lead	Measurement / Action	Negative Lead
<a href="#">A/C</a> clutch relay socket 2	$\Omega$	<a href="#">C1381B</a> Pin 15

[Click to display connectors](#)

5.0L or 5.2L

Positive Lead	Measurement / Action	Negative Lead
<a href="#">A/C</a> clutch relay socket 2	$\Omega$	<a href="#">C175B</a> Pin 15


Is the resistance less than 3 ohms?

Yes	GO to <a href="#">B6</a>
No	REPAIR the circuit.

**B6 CHECK FOR CORRECT PCM (POWERTRAIN CONTROL MODULE) OPERATION**

- Ignition OFF.
- Disconnect and inspect all [PCM](#) connectors.
- Repair:
  - corrosion (install new connector or terminals – clean module pins)
  - damaged or bent pins – install new terminals/pins
  - pushed-out pins – install new pins as necessary
- Reconnect all [PCM](#) connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

<b>Yes</b>	CHECK <a href="#">OASIS</a> for any applicable Technical Service Bulletins (TSBs). If a <a href="#">TSB</a> exists for this concern, DISCONTINUE this test and FOLLOW <a href="#">TSB</a> instructions. If no Technical Service Bulletins (TSBs) address this concern,   <b>VIN required to access Guided Routine (PCM)</b>
<b>No</b>	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

### Unable To Duplicate The Customer Concern And No Diagnostic Trouble Codes (DTCs) Present

This diagnostic procedure tests the functions of the [HVAC](#) system and identifies the correct [HVAC](#) symptom pinpoint test.

#### Normal Operation and Fault Conditions

System Operation

REFER to: [Climate Control System - Vehicles With: Dual Automatic Temperature Control \(DATC\) - System Operation and Component Description](#) (412-00 Climate Control System - General Information, Description and Operation).

### **PINPOINT TEST C: UNABLE TO DUPLICATE THE CUSTOMER CONCERN AND NO DIAGNOSTIC TROUBLE CODES (DTCs) PRESENT**

#### **C1 CHECK THE PCM (POWERTRAIN CONTROL MODULE) FOR DIAGNOSTIC TROUBLE CODES (DTCs)**

- Ignition ON.
- Using a diagnostic scan tool, perform [PCM](#) self-test.

Are any climate control related Diagnostic Trouble Codes (DTCs) present?

<b>Yes</b>	REFER to the <a href="#">PCM DTC</a> chart in this section.
<b>No</b>	GO to <a href="#">C2</a>

#### **C2 CHECK THE FCIM (FRONT CONTROLS INTERFACE MODULE) FOR DIAGNOSTIC TROUBLE CODES (DTCs)**

- Ignition ON.
- Using a diagnostic scan tool, perform [FCIM](#) self-test.

Are any Diagnostic Trouble Codes (DTCs) present?

<b>Yes</b>	REFER to the <a href="#">FCIM DTC</a> chart in this section.
<b>No</b>	GO to <a href="#">C3</a>

#### **C3 CHECK THE BLOWER MOTOR OPERATION**

- Ignition ON.
- Select panel mode.
- Observe blower motor operation and select each blower motor speed.

Does the blower motor operate in all ranges?

<b>Yes</b>	GO to <a href="#">C4</a>
<b>No</b>	If the blower motor does not operate in any setting, <a href="#">GO to Pinpoint Test K</a> If the blower motor does not correctly change speeds or shut off, <a href="#">GO to Pinpoint Test L</a>

#### **C4 CHECK AIRFLOW OPERATION**

- Select the highest blower motor setting.
- While observing the airflow, select each of the airflow positions (panel, panel/floor, floor, floor/defrost, defrost).

Is the airflow directed to the correct outlets?

<b>Yes</b>	GO to <a href="#">C5</a>
<b>No</b>	<a href="#">GO to Pinpoint Test E</a>

#### **C5 VERIFY TEMPERATURE CONTROL OPERATION**

- Start the vehicle and allow it to reach normal operating temperature.
- With the [A/C](#) off, select panel mode.

- Change the driver and passenger temperature settings from the coldest to the warmest and back to the coldest.

**Does the temperature change between very warm to cool?**

<b>Yes</b>	GO to <a href="#">C6</a>
<b>No</b>	If the temperature does not get very warm, <a href="#">GO to Pinpoint Test F</a> If the driver side temperature does not change at all, <a href="#">GO to Pinpoint Test I</a> If the passenger side temperature does not change at all, <a href="#">GO to Pinpoint Test J</a>

**C6 VERIFY THE AIR CONDITIONING COMPRESSOR DOES NOT ENGAGE WITH A/C (AIR CONDITIONING) OFF**

- With the engine running and the A/C off, select panel mode.
- Select the coldest temperature setting.

**Is the outlet temperature close to ambient air temperature?**

<b>Yes</b>	GO to <a href="#">C7</a>
<b>No</b>	If the driver side temperature is warmer than ambient air temperature, <a href="#">GO to Pinpoint Test I</a> If the passenger side temperature is warmer than ambient air temperature, <a href="#">GO to Pinpoint Test J</a> If the outlet temperature is significantly colder than ambient air temperature and the <u>A/C</u> compressor clutch is engaged, <a href="#">GO to Pinpoint Test H</a>

**C7 VERIFY THE A/C (AIR CONDITIONING) COMPRESSOR IS OPERATIONAL IN THE A/C (AIR CONDITIONING) MODE**

- Make sure the ambient air temperature is above 0°C (32°F).
- With the engine running, select panel mode.
- Press the A/C button (indicator on).

**Is the A/C compressor operational when the panel and A/C button (indicator on) is pressed?**

<b>Yes</b>	GO to <a href="#">C8</a>
<b>No</b>	<a href="#">GO to Pinpoint Test G</a>

**C8 CHECK THE RECIRCULATED AIR OPERATION**

- With the engine running, press the recirculated air button (indicator off).
- Select panel mode.
- Select the highest blower motor setting.
- Observe airflow noise.
- Press the recirculated air button (indicator on).

**Does the airflow noise increase when the recirculated air mode is selected (indicator on)?**

<b>Yes</b>	GO to <a href="#">C9</a>
<b>No</b>	<a href="#">GO to Pinpoint Test D</a>

**C9 CHECK THE FCIM (FRONT CONTROLS INTERFACE MODULE) LEFT DISCHARGE FLOOR TEMPERATURE (LDFTEMP) PID (PARAMETER IDENTIFICATION)**

- Using a diagnostic scan tool, view the FCIM Parameter Identifications (PIDs).
- Monitor the LDFTEMP PID .

**Is the temperature coming out of the driver footwell vent similar to the PID ?**

<b>Yes</b>	GO to <a href="#">C10</a>
<b>No</b>	<a href="#">GO to Pinpoint Test M</a>

**C10 CHECK THE FCIM (FRONT CONTROLS INTERFACE MODULE) LEFT DISCHARGE PANEL TEMPERATURE (LDPT) PID (PARAMETER IDENTIFICATION)**

- Using a diagnostic scan tool, view the FCIM Parameter Identifications (PIDs).
- Monitor the LDPT PID .

**Is the temperature coming out of the driver side register similar to the PID ?**

<b>Yes</b>	GO to <a href="#">C11</a>
<b>No</b>	<a href="#">GO to Pinpoint Test M</a>

### C11 CHECK THE FCIM (FRONT CONTROLS INTERFACE MODULE) INTERIOR TEMPERATURE SENSOR (INT\_TEMP) PID (PARAMETER IDENTIFICATION)

- Using a diagnostic scan tool view the [FCIM](#) Parameter Identifications (PIDs).
- Monitor the INT\_TEMP PID .

Is the air temperature at the cabin temperature sensor similar to the PID ?

Yes	GO to <a href="#">C12</a>
No	<a href="#">GO to Pinpoint Test N</a>

### C12 CHECK THE TOUCHSCREEN CONTROLS OPERATION

- Using the touchscreen controls, select each climate control function.
- Using the touchscreen controls, select each audio control function.

Do all touchscreen controls operate?

Yes	The system is operating correctly.
No	Refer to the appropriate section in Group 415for the procedure.

### The Air Inlet Door Is Inoperative

Refer to Wiring Diagrams Cell [55](#) for schematic and connector information.

#### Normal Operation and Fault Conditions

To rotate the air inlet door actuator, the [FCIM](#) supplies voltage and ground to the air inlet door actuator through the door actuator motor circuits. To reverse the air inlet door actuator rotation, the [FCIM](#) reverses the voltage and ground circuits. The air inlet door actuator feedback resistors are supplied a ground from the [FCIM](#) by the air inlet door actuator return circuits and a 5-volt reference voltage on the air inlet door actuator reference circuits. The [FCIM](#) uses the actuator feedback resistor wiper arm position and the voltage on the air distribution door actuator feedback circuits to determine the air inlet door actuator position.

During an actuator calibration cycle, the [FCIM](#) drives the air inlet door until the door reaches both internal stops in the [FCIM](#) case. If the air inlet door is temporarily obstructed or binding during a calibration cycle, the [FCIM](#) may interpret this as the actual end of travel for the door. When this condition occurs and the [FCIM](#) commands the actuator to its end of travel, the air intake may not be from the expected source.

#### DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
B1083:11	Recirculation Damper Motor: Circuit Short To Ground	This <a href="#">DTC</a> sets when the module senses lower than expected voltage on an actuator motor circuit when voltage is applied to drive the motor, indicating a short to ground. The motor can move only in one direction.
B1083:12	Recirculation Damper Motor: Circuit Short To Battery	This <a href="#">DTC</a> sets when the module senses higher than expected voltage on the actuator motor circuit when ground is applied to drive the motor, indicating a short to voltage. The motor can move only in one direction.
B1083:13	Recirculation Damper Motor: Circuit Open	This <a href="#">DTC</a> sets when the module senses no voltage on the actuator motor circuit when ground is applied to drive the motor, indicating an open circuit. The motor cannot move.
B11F0:12	Air Intake Damper Position Sensor: Circuit Short to Battery	This <a href="#">DTC</a> sets when the module senses greater than 5 volts on the actuator feedback circuit, indicating a short to voltage.
B11F0:14	Air Intake Damper Position Sensor: Circuit Short to Ground or Open	This <a href="#">DTC</a> sets when the module senses less than 1 volt on the actuator feedback circuit, indicating an open circuit or a short to ground.

#### Possible Sources

- Wiring, terminals or connectors
- Air inlet door actuator
- Air inlet door binding or stuck
- [FCIM](#)

### PINPOINT TEST D: THE AIR INLET DOOR IS INOPERATIVE

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

#### D1 CHECK THE AIR INLET DOOR ACTUATOR CIRCUITS FOR A SHORT TO VOLTAGE

- Ignition OFF.

- Disconnect Air distribution door actuator [C232](#).
- Disconnect In-vehicle temperature and humidity sensor [C233](#).
- Disconnect Driver side temperature door actuator [C2091](#).
- Disconnect Passenger side temperature door actuator [C2092](#).
- Disconnect Air inlet door actuator [C282](#).
- Ignition ON.
- Disconnect [FCIM C2402A](#).
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C282</a> Pin 1	$\overline{\text{V}}$	Ground
<a href="#">C282</a> Pin 2	$\overline{\text{V}}$	Ground
<a href="#">C282</a> Pin 3	$\overline{\text{V}}$	Ground
<a href="#">C282</a> Pin 5	$\overline{\text{V}}$	Ground
<a href="#">C282</a> Pin 6	$\overline{\text{V}}$	Ground

Is there any voltage present?

<b>Yes</b>	REPAIR the circuit.
<b>No</b>	GO to <a href="#">D2</a>

#### D2 CHECK THE AIR INLET DOOR ACTUATOR CIRCUITS FOR A SHORT TO GROUND

- Connect [FCIM C2402A](#).
- Ignition OFF.
- Disconnect [FCIM C2402A](#).
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C282</a> Pin 1	$\Omega$	Ground
<a href="#">C282</a> Pin 2	$\Omega$	Ground
<a href="#">C282</a> Pin 3	$\Omega$	Ground
<a href="#">C282</a> Pin 5	$\Omega$	Ground
<a href="#">C282</a> Pin 6	$\Omega$	Ground

Are the resistances greater than 10,000 ohms?

<b>Yes</b>	GO to <a href="#">D3</a>
<b>No</b>	REPAIR the circuit.

#### D3 CHECK THE AIR INLET DOOR ACTUATOR CIRCUITS FOR AN OPEN

- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C282</a> Pin 1	$\Omega$	<a href="#">C2402A</a> Pin 2
<a href="#">C282</a> Pin 2	$\Omega$	<a href="#">C2402A</a> Pin 16
<a href="#">C282</a> Pin 3	$\Omega$	<a href="#">C2402A</a> Pin 3
<a href="#">C282</a> Pin 5	$\Omega$	<a href="#">C2402A</a> Pin 24
<a href="#">C282</a> Pin 6	$\Omega$	<a href="#">C2402A</a> Pin 25

Are the resistances less than 3 ohms?

<b>Yes</b>	GO to <a href="#">D4</a>
<b>No</b>	REPAIR the circuit.

#### D4 CHECK THE AIR INLET DOOR ACTUATOR CIRCUITS FOR A SHORT TOGETHER

- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C282</a> Pin 1	$\Omega$	<a href="#">C282</a> Pin 2
<a href="#">C282</a> Pin 1	$\Omega$	<a href="#">C282</a> Pin 3
<a href="#">C282</a> Pin 1	$\Omega$	<a href="#">C282</a> Pin 5
<a href="#">C282</a> Pin 1	$\Omega$	<a href="#">C282</a> Pin 6
<a href="#">C282</a> Pin 2	$\Omega$	<a href="#">C282</a> Pin 3
<a href="#">C282</a> Pin 2	$\Omega$	<a href="#">C282</a> Pin 5
<a href="#">C282</a> Pin 2	$\Omega$	<a href="#">C282</a> Pin 6
<a href="#">C282</a> Pin 3	$\Omega$	<a href="#">C282</a> Pin 5
<a href="#">C282</a> Pin 3	$\Omega$	<a href="#">C282</a> Pin 6
<a href="#">C282</a> Pin 5	$\Omega$	<a href="#">C282</a> Pin 6


Are the resistances greater than 10,000 ohms?

<b>Yes</b>	INSTALL a new air inlet door actuator. REFER to: <a href="#">Air Inlet Door Actuator</a> (412-00 Climate Control System - General Information, Removal and Installation). TEST the system for normal operation. If the concern is still present, GO to <a href="#">D5</a>
<b>No</b>	REPAIR the circuit.

#### D5 CHECK FOR CORRECT FRONT CONTROLS INTERFACE MODULE OPERATION

- Disconnect and inspect all [FCIM](#) connectors.
- Repair:
  - corrosion (install new connector or terminals – clean module pins)
  - damaged or bent pins – install new terminals/pins
  - pushed-out pins – install new pins as necessary
- Reconnect all [FCIM](#) connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

<b>Yes</b>	CHECK <a href="#">OASIS</a> for any applicable Technical Service Bulletins (TSBs). If a <a href="#">TSB</a> exists for this concern, DISCONTINUE this test and FOLLOW <a href="#">TSB</a> instructions. If no Technical Service Bulletins (TSBs) address this concern,  <b>VIN required to access Guided Routine (FCIM)</b>
<b>No</b>	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

#### Incorrect Or Erratic Direction Of Airflow From Outlets

Refer to Wiring Diagrams Cell [55](#) for schematic and connector information.

#### Normal Operation and Fault Conditions

To rotate the air distribution door actuator, the [FCIM](#) supplies voltage and ground to the air distribution door actuator through the door actuator motor circuits. To reverse the air distribution door actuator rotation, the [FCIM](#) reverses the voltage and ground circuits. The air distribution door actuator feedback resistors are supplied a ground from the [FCIM](#) by the air distribution door actuator return circuits and a 5-volt reference voltage on the air distribution door actuator reference circuits. The [FCIM](#) uses the actuator feedback resistor wiper arm position and the voltage on the air distribution door actuator feedback circuits to determine the air distribution door actuator position.

During an actuator calibration cycle, the FCIM drives the air distribution door until the door reaches both internal stops in the FCIM case. If the air distribution door is temporarily obstructed or binding during a calibration cycle, the FCIM may interpret this as the actual end of travel for the door. When this condition occurs and the FCIM commands the actuator to its end of travel, the airflow may not be from the expected outlets.

**DTC Fault Trigger Conditions**

DTC	Description	Fault Trigger Conditions
B1086:11	Air Distribution Damper Motor: Circuit Short to Ground	This <u>DTC</u> sets when the module senses lower than expected voltage on an actuator motor circuit when voltage is applied to drive the motor, indicating a short to ground. The motor can move only in one direction.
B1086:12	Air Distribution Damper Motor: Circuit Short to Battery	This <u>DTC</u> sets when the module senses higher than expected voltage on the actuator motor circuit when ground is applied to drive the motor, indicating a short to voltage. The motor can move only in one direction.
B1086:13	Air Distribution Damper Motor: Circuit Open	This <u>DTC</u> sets when the module senses no voltage on the actuator motor circuit when ground is applied to drive the motor, indicating an open circuit. The motor cannot move.
B11E7:12	Air Distribution Damper Position Sensor: Circuit Short to Battery	This <u>DTC</u> sets when the module senses greater than 5 volts on the actuator feedback circuit, indicating a short to voltage.
B11E7:14	Air Distribution Damper Position Sensor: Circuit Short to Ground or Open	This <u>DTC</u> sets when the module senses less than 1 volt on the actuator feedback circuit, indicating an open circuit or a short to ground.

**Possible Sources**

- Wiring, terminals or connectors
- Air distribution door actuator
- Air distribution door binding or stuck
- FCIM

**PINPOINT TEST E: INCORRECT OR ERRATIC DIRECTION OF AIRFLOW FROM OUTLETS**

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

**E1 CHECK THE AIR DISTRIBUTION DOOR ACTUATOR CIRCUITS FOR A SHORT TO VOLTAGE**

- Ignition OFF.
- Disconnect In-vehicle temperature and humidity sensor C233.
- Disconnect Driver side temperature door actuator C2091.
- Disconnect Passenger side temperature door actuator C2092.
- Disconnect Air inlet door actuator C282.
- Disconnect Air distribution door actuator C232.
- Ignition ON.
- Disconnect FCIM C2402A.
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<u>C232</u> Pin 1	$\overline{\text{V}}$	Ground
<u>C232</u> Pin 2	$\overline{\text{V}}$	Ground
<u>C232</u> Pin 3	$\overline{\text{V}}$	Ground
<u>C232</u> Pin 5	$\overline{\text{V}}$	Ground
<u>C232</u> Pin 6	$\overline{\text{V}}$	Ground

Is there any voltage present?

<b>Yes</b>	REPAIR the circuit.
<b>No</b>	GO to <u>E2</u>

**E2 CHECK THE AIR DISTRIBUTION DOOR ACTUATOR CIRCUITS FOR A SHORT TO GROUND**

- Connect FCIM C2402A.
- Ignition OFF.
- Disconnect FCIM C2402A.
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C232</a> Pin 1	$\Omega$	Ground
<a href="#">C232</a> Pin 2	$\Omega$	Ground
<a href="#">C232</a> Pin 3	$\Omega$	Ground
<a href="#">C232</a> Pin 5	$\Omega$	Ground
<a href="#">C232</a> Pin 6	$\Omega$	Ground

Are the resistances greater than 10,000 ohms?

<b>Yes</b>	GO to <a href="#">E3</a>
<b>No</b>	REPAIR the circuit.

### E3 CHECK THE AIR DISTRIBUTION DOOR ACTUATOR CIRCUITS FOR AN OPEN

• Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C232</a> Pin 1	$\Omega$	<a href="#">C2402A</a> Pin 2
<a href="#">C232</a> Pin 2	$\Omega$	<a href="#">C2402A</a> Pin 22
<a href="#">C232</a> Pin 3	$\Omega$	<a href="#">C2402A</a> Pin 3
<a href="#">C232</a> Pin 5	$\Omega$	<a href="#">C2402A</a> Pin 20
<a href="#">C232</a> Pin 6	$\Omega$	<a href="#">C2402A</a> Pin 21

Are the resistances less than 3 ohms?

<b>Yes</b>	GO to <a href="#">E4</a>
<b>No</b>	REPAIR the circuit.

### E4 CHECK THE AIR DISTRIBUTION DOOR ACTUATOR CIRCUITS FOR A SHORT TOGETHER

• Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C232</a> Pin 1	$\Omega$	<a href="#">C232</a> Pin 2
<a href="#">C232</a> Pin 1	$\Omega$	<a href="#">C232</a> Pin 3
<a href="#">C232</a> Pin 1	$\Omega$	<a href="#">C232</a> Pin 5
<a href="#">C232</a> Pin 1	$\Omega$	<a href="#">C232</a> Pin 6
<a href="#">C232</a> Pin 2	$\Omega$	<a href="#">C232</a> Pin 3
<a href="#">C232</a> Pin 2	$\Omega$	<a href="#">C232</a> Pin 5
<a href="#">C232</a> Pin 2	$\Omega$	<a href="#">C232</a> Pin 6
<a href="#">C232</a> Pin 3	$\Omega$	<a href="#">C232</a> Pin 5
<a href="#">C232</a> Pin 3	$\Omega$	<a href="#">C232</a> Pin 6
<a href="#">C232</a> Pin 5	$\Omega$	<a href="#">C232</a> Pin 6


Are the resistances greater than 10,000 ohms?

<b>Yes</b>	INSTALL a new air distribution door actuator, REFER to: <a href="#">Air Distribution Door Actuator</a> (412-00 Climate Control System - General Information, Removal and Installation). TEST the system for normal operation. If the concern is still present, GO to <a href="#">E5</a>
<b>No</b>	REPAIR the circuit.

## E5 CHECK FOR CORRECT FCIM (FRONT CONTROLS INTERFACE MODULE) OPERATION

- Disconnect and inspect all FCIM connectors.
- Repair:
  - corrosion (install new connector or terminals – clean module pins)
  - damaged or bent pins – install new terminals/pins
  - pushed-out pins – install new pins as necessary
- Reconnect all FCIM connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

### Is the concern still present?

<b>Yes</b>	CHECK <u>OASIS</u> for any applicable Technical Service Bulletins (TSBs). If a <u>TSB</u> exists for this concern, DISCONTINUE this test and FOLLOW <u>TSB</u> instructions. If no Technical Service Bulletins (TSBs) address this concern,  <b>VIN required to access Guided Routine (FCIM)</b>
<b>No</b>	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

## Insufficient, Erratic Or No Heat

### Normal Operation and Fault Conditions

When the engine is at operating temperature hot coolant flows from the coolant pump through the heater core and back to the coolant pump. Correct coolant temperatures are critical for good heater performance.

### Possible Sources

- Wiring, terminals or connectors
- Temperature door actuator(s)
- Air trapped in the coolant system
- Heater core

### Visual Inspection and Diagnostic Pre-checks

- Inspect for low engine coolant level.

## PINPOINT TEST F: INSUFFICIENT, ERRATIC OR NO HEAT

### F1 CHECK FOR CORRECT ENGINE COOLANT LEVEL

- Ignition OFF.
- Check the engine coolant level.

#### Is the engine coolant at the correct level as indicated on the engine coolant recovery reservoir?

<b>Yes</b>	GO to <a href="#">F3</a>
<b>No</b>	GO to <a href="#">F2</a>

### F2 CHECK THE ENGINE COOLING SYSTEM FOR LEAKS

- Pressure test the cooling system for leaks. Refer to the appropriate section in Group 303for the procedure..

#### Does the engine cooling system leak?

<b>Yes</b>	REPAIR the engine coolant leak. Refer to the appropriate section in Group 303for the procedure. TEST the system for normal operation.
<b>No</b>	FILL and BLEED the cooling system. Refer to the appropriate section in Group 303for the procedure. After filling and bleeding the cooling system, GO to <a href="#">F3</a>

### F3 CHECK FOR COOLANT FLOW TO THE HEATER CORE

- Run the motor until it reaches normal operating temperature. Select the floor position on the control assembly. Set the temperature control to full warm and the blower to the lowest setting.
- Increase engine speed to 3,500 RPM and hold for 30 seconds.
- Allow the engine to idle for 30 seconds.
- Using a suitable temperature measuring device, check the heater core inlet hose to see if it is hot.

**Is the heater core inlet hose hot?**

<b>Yes</b>	GO to <a href="#">F4</a>
<b>No</b>	BLEED the cooling system per the cooling system draining and vacuum filling general procedure. Refer to the appropriate section in Group 303 for the procedure. After bleeding the cooling system, GO to <a href="#">F4</a>

**F4 CHECK FOR A PLUGGED OR RESTRICTED HEATER CORE**

- Using a suitable temperature measuring device, measure the heater core outlet hose temperature.

**Is the heater core outlet hose temperature similar to the inlet hose temperature (within approximately 6-17°C [10-30°F])?**

<b>Yes</b>	DIAGNOSE for a temperature door actuator not operating correctly. For inadequate temperature out of the driver side, <a href="#">GO to Pinpoint Test I</a> For inadequate temperature out of the passenger side, <a href="#">GO to Pinpoint Test J</a>
<b>No</b>	INSTALL a new heater core. REFER to: <a href="#">Heater Core</a> (412-00 Climate Control System - General Information, Removal and Installation).

**The A/C Is Inoperative**

Refer to Wiring Diagrams Cell [55](#) for schematic and connector information.

**Normal Operation and Fault Conditions**

Control System Logic

REFER to: [Climate Control System - Vehicles With: Dual Automatic Temperature Control \(DATC\) - System Operation and Component Description](#) (412-00 Climate Control System - General Information, Description and Operation).

**Possible Sources**

- Wiring, terminals or connectors
- A/C system discharged or low refrigerant charge
- Network concerns
- A/C pressure transducer
- Evaporator temperature sensor
- Electric cooling fan
- Intake Air Temperature (IAT) or other temperature sensors
- Active grille shutters (if equipped)
- A/C compressor clutch air gap
- A/C compressor clutch field coil
- A/C clutch relay
- [FCIM](#)

**Visual Inspection and Diagnostic Pre-checks**

- Inspect [BJB](#) fuses 23 (10A) and 42 (15A).

**PINPOINT TEST G: THE A/C (AIR CONDITIONING) IS INOPERATIVE**

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

**NOTE:** Some PCM Diagnostic Trouble Codes (DTCs) may inhibit A/C operation. If any PCM Diagnostic Trouble Codes (DTCs) are retrieved, diagnose those first. Refer to the [DTC Chart: PCM](#).

**G1 CHECK THE A/C (AIR CONDITIONING) SYSTEM PRESSURE**

**NOTE:** Static refrigerant pressure, under perfect conditions, should approximately reflect ambient air temperature. Do not rely upon the static refrigerant pressure alone to determine if the system is properly charged. Refer to the current Ford Web Based Technical Training courses for basic HVAC system refrigerant operation.

- Ignition OFF.
- With a manifold gauge set connected, check for minimum A/C system pressure.

**Is the A/C system pressure above 290 kPa (42 psi)?**

<b>Yes</b>	GO to <a href="#">G2</a>
<b>No</b>	CHECK the A/C system for leaks.  REFER to: Electronic Leak Detection - Vehicles With: R134A Refrigerant (412-00) .  REFER to: Fluorescent Dye Leak Detection - Vehicles With: R134A Refrigerant (412-00) .

After the leak is repaired, RECHARGE the A/C system.  
 REFER to: Air Conditioning (A/C) System Recovery, Evacuation and Charging - Vehicles With: R134A Refrigerant (412-00) .

## G2 CHECK THE COMMUNICATION NETWORK

- Ignition ON.
- Using a diagnostic scan tool, carry out the network test.

Do the FCIM and the PCM pass the network test?

<b>Yes</b>	GO to <a href="#">G3</a>
<b>No</b>	DIAGNOSE the <u>FCIM</u> or <u>PCM</u> does not communicate with the diagnostic scan tool. REFER to: <a href="#">Communications Network</a> (418-00 Module Communications Network, Diagnosis and Testing).

## G3 CHECK THE PCM (POWERTRAIN CONTROL MODULE) A/C (AIR CONDITIONING) PRESSURE SENSOR (ACP\_PRESS) PID (PARAMETER IDENTIFICATION)

- Ignition ON.
- Using a diagnostic scan tool, view PCM Parameter Identifications (PIDs).
- With a manifold gauge set connected, compare the pressure readings of the manifold gauge set and the PCM ACP\_PRESS PID .

Are the pressure values of the manifold gauge set and the ACP\_PRESS PCM PID within  $\pm 103$  kPa (15 psi)?

<b>Yes</b>	GO to <a href="#">G4</a>
<b>No</b>	DIAGNOSE the <u>A/C</u> pressure transducer. <a href="#">GO to Pinpoint Test A</a>

## G4 ELECTRIC COOLING FAN FUNCTIONAL CHECK

- Ignition ON.
- Using a diagnostic scan tool, carry out the PCM KOEO self-test.

Does the electric cooling fan operate during the KOEO self-test?

<b>Yes</b>	GO to <a href="#">G5</a>
<b>No</b>	DIAGNOSE the electric cooling fan operation. REFER to Powertrain Control/Emissions Diagnosis (PC/ED) manual, Section 3 Symptom Charts.

## G5 COMPARE THE PCM (POWERTRAIN CONTROL MODULE) INTAKE AIR TEMPERATURE (IAT) PID (PARAMETER IDENTIFICATION) AND THE OTHER TEMPERATURE SENSOR READINGS TO THE PCM (POWERTRAIN CONTROL MODULE) AMBIENT AIR TEMPERATURE (AAT) PID (PARAMETER IDENTIFICATION)

**NOTE:** Compare multiple engine sensor readings to the ambient temperature to determine sensors are reading correctly. A faulty sensor can cause the PCM to disable the A/C with or without a DTC .

- Allow the vehicle exterior and interior to stabilize to ambient temperature. This can take a soak period of at least 6 hours.
- Using a diagnostic scan tool, view PCM Parameter Identifications (PIDs).
- Monitor the AAT, CACT, CHT, ECT, IAT, IAT2, MAF, MAPT, TCB and TC IPT Parameter Identifications (PIDs) (as applicable).

Are the temperature values similar (typically within 18°C (32.4°F))?

<b>Yes</b>	GO to <a href="#">G6</a>
<b>No</b>	DIAGNOSE the suspect temperature sensor. REFER to Section 413-01 for Ambient Air Temperature (AAT) sensor or Outside Air Temperature Display concerns. For all other temperature sensor concerns, REFER to Powertrain Control/Emissions Diagnosis (PC/ED) manual.

## G6 COMPARE THE EVAPORATOR TEMPERATURE SENSOR TO THE PCM (POWERTRAIN CONTROL MODULE) AMBIENT AIR TEMPERATURE (AAT) PID (PARAMETER IDENTIFICATION)

- Ignition OFF.
- Disconnect Evaporator temperature sensor [C296](#).
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
C296-1 (component side)	$\Omega$	C296-2 (component side)

- Compare the resistance values to the table below:

Ambient Temperature °F (°C)	Resistance ohms
-39.9 °F (-40 °C)	98,625 - 103,275 ohms
-4.0 °F (-20 °C)	28,640 - 29,600 ohms
32.0 °F (0 °C)	9695 - 9895 ohms
68.0 °F (20 °C)	3675 - 3810 ohms
77.0 °F (25 °C)	2950 - 3050 ohms
86.0 °F (30 °C)	2370 - 2565 ohms
103.9 °F (40 °C)	1565 - 1635 ohms

- Ignition ON.
- Using a diagnostic scan tool, view PCM Parameter Identifications (PIDs).
- Monitor the AAT PID .

Is the resistance within the specified values for the temperatures?

<b>Yes</b>	GO to <a href="#">G7</a>
<b>No</b>	INSTALL a new evaporator temperature sensor. REFER to: <a href="#">Evaporator Temperature Sensor</a> (412-00 Climate Control System - General Information, Removal and Installation).

**G7 VERIFY THE GRILLE SHUTTER OPERATION USING THE PCM (POWERTRAIN CONTROL MODULE) GRILL SHUTTER A POSITION - COMMANDED (GRILL\_A\_CMD) PID (PARAMETER IDENTIFICATION)**

- Start the engine and allow it to idle for at least 30 seconds to allow for the grille shutter calibration to complete.
- Using a diagnostic scan tool, view PCM PID .
- Using a diagnostic scan tool, select the PCM PID GRILL\_A\_CMD and command the grille shutter from 100% (open) to 0% (closed) while observing the grille shutter operation from the front of the vehicle.

Does the grille shutter fully open and close when commanded by the scan tool?

<b>Yes</b>	GO to <a href="#">G8</a>
<b>No</b>	DIAGNOSE the active grille shutter is inoperative or does not operate correctly. REFER to: <a href="#">Active Grille Shutter</a> (501-02 Front End Body Panels, Diagnosis and Testing).

**G8 CHECK THE FCIM (FRONT CONTROLS INTERFACE MODULE) A/C (AIR CONDITIONING) SWITCH (CC\_SW\_AC) PID (PARAMETER IDENTIFICATION) WITH THE A/C (AIR CONDITIONING) ON**

- Using a diagnostic scan tool, view FCIM Parameter Identifications (PIDs).
- Monitor the CC\_SW\_AC PID .
- On the HVAC controls, select PANEL and then press the A/C button (indicator on).

Does the PID display Active when the button is pressed?

<b>Yes</b>	GO to <a href="#">G9</a>
<b>No</b>	GO to <a href="#">G17</a>

**G9 CHECK THE PCM (POWERTRAIN CONTROL MODULE) A/C (AIR CONDITIONING) REQUEST SIGNAL (AC\_REQ) PID (PARAMETER IDENTIFICATION) WITH THE A/C (AIR CONDITIONING) ON**

- Start the engine.
- Using a diagnostic scan tool, monitor the PCM AC\_REQ PID .
- On the HVAC controls, select PANEL and then press the A/C button (indicator on).

Does the PID display Yes when the button is pressed?

<b>Yes</b>	GO to <a href="#">G11</a>
<b>No</b>	GO to <a href="#">G10</a>

**G10 RESET THE AMBIENT AIR TEMPERATURE (AAT) SENSOR**

- On the HVAC controls, press the A/C (air conditioning) and Recirc buttons simultaneously, then release both. Within 2 seconds press A/C button again.
- Start the engine.
- On the HVAC controls, set the temperature to full cold, select PANEL and select the A/C button (indicator on).

**Does the A/C compressor turn on?**

<b>Yes</b>	RETEST the <u>A/C</u> system for normal operation. REFER to: <a href="#">Refrigerant System Tests - 2.3L EcoBoost (231kW/314PS)</a> (412-00 Climate Control System - General Information, General Procedures). REFER to: <a href="#">Refrigerant System Tests - 3.7L Duratec (227kW/301PS)</a> (412-00 Climate Control System - General Information, General Procedures). REFER to: <a href="#">Refrigerant System Tests - 5.0L 32V Ti-VCT</a> (412-00 Climate Control System - General Information, General Procedures). REFER to: <a href="#">Refrigerant System Tests - 5.2L 32V Ti-VCT</a> (412-00 Climate Control System - General Information, General Procedures).
<b>No</b>	GO to <a href="#">G11</a>

**G11 CHECK THE PCM (POWERTRAIN CONTROL MODULE) A/C (AIR CONDITIONING) COMPRESSOR COMMANDED STATE (ACC\_CMD) PID (PARAMETER IDENTIFICATION) WITH THE A/C (AIR CONDITIONING) COMMANDED ON**

- Using a diagnostic scan tool, activate the PCM ACC\_CMD PID.

**Does the A/C compressor turn on?**

<b>Yes</b>	GO to <a href="#">G18</a>
<b>No</b>	GO to <a href="#">G12</a>

**G12 CHECK THE VOLTAGE TO THE A/C (AIR CONDITIONING) CLUTCH RELAY**

- Ignition OFF.
- Disconnect the A/C clutch relay.
- Ignition ON.
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<u>A/C</u> clutch relay socket 1		Ground Pin -
<u>A/C</u> clutch relay socket 3		Ground Pin -

**Are the voltages greater than 11 volts?**

<b>Yes</b>	GO to <a href="#">G13</a>
<b>No</b>	VERIFY BJB fuses 23 (10A) and 42 (15A) are OK. If not OK, REFER to the Wiring Diagrams manual to identify the possible causes of the circuit short.

**G13 BYPASS THE A/C (AIR CONDITIONING) CLUTCH RELAY**

- Ignition OFF.
- Connect a fused jumper wire:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<u>A/C</u> clutch relay socket 3		<u>A/C</u> clutch relay socket 5

- Ignition ON.

**Does the A/C compressor clutch engage?**

<b>Yes</b>	REMOVE the fused jumper wire. INSTALL a new <u>A/C</u> clutch relay.
<b>No</b>	LEAVE the fused jumper wire installed. GO to <a href="#">G14</a>

**G14 CHECK THE A/C (AIR CONDITIONING) COMPRESSOR CLUTCH FIELD COIL VOLTAGE SUPPLY CIRCUIT FOR AN OPEN**

- Disconnect A/C compressor clutch field coil [C100](#).
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C100</a> Pin 1	$\bar{V}$	Ground Pin -

Is the voltage greater than 11 volts?

<b>Yes</b>	REMOVE the fused jumper wire. GO to <a href="#">G15</a>
<b>No</b>	REMOVE the fused jumper wire. REPAIR the circuit.

#### G15 CHECK THE A/C (AIR CONDITIONING) COMPRESSOR CLUTCH FIELD COIL GROUND CIRCUIT FOR AN OPEN

- Ignition OFF.
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C100</a> Pin 2	$\Omega$	Ground Pin -

Is the resistance less than 3 ohms?

<b>Yes</b>	GO to <a href="#">G16</a>
<b>No</b>	REPAIR the circuit.

#### G16 CHECK THE A/C (AIR CONDITIONING) COMPRESSOR CLUTCH AIR GAP

- Measure the A/C compressor clutch air gap at 3 equally spaced locations between the clutch hub and the A/C compressor clutch pulley. REFER to: [Air Conditioning \(A/C\) Clutch and Air Conditioning \(A/C\) Clutch Field Coil](#) (412-00 Climate Control System - General Information, General Procedures).


Is the A/C compressor clutch air gap greater than 0.6 mm (0.0236 in)?

<b>Yes</b>	ADJUST the <u>A/C</u> compressor clutch air gap. REFER to: <a href="#">Air Conditioning (A/C) Clutch and Air Conditioning (A/C) Clutch Field Coil</a> (412-00 Climate Control System - General Information, General Procedures).
<b>No</b>	INSTALL a new <u>A/C</u> compressor clutch and <u>A/C</u> clutch field coil. REFER to: <a href="#">Air Conditioning (A/C) Clutch and Air Conditioning (A/C) Clutch Field Coil</a> (412-00 Climate Control System - General Information, General Procedures).

#### G17 CHECK FOR CORRECT FCIM (FRONT CONTROLS INTERFACE MODULE) OPERATION

- Disconnect and inspect all FCIM connectors.
- Repair:
  - corrosion (install new connector or terminals – clean module pins)
  - damaged or bent pins – install new terminals/pins
  - pushed-out pins – install new pins as necessary
- Reconnect all FCIM connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

<b>Yes</b>	CHECK <u>OASIS</u> for any applicable Technical Service Bulletins (TSBs). If a <u>TSB</u> exists for this concern, DISCONTINUE this test and FOLLOW <u>TSB</u> instructions. If no Technical Service Bulletins (TSBs) address this concern,  <b>VIN required to access Guided Routine (FCIM)</b>
<b>No</b>	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

#### G18 CHECK FOR AN INPUT DISABLING THE A/C (AIR CONDITIONING) CLUTCH RELAY

**NOTE:** The PCM strategy may disable the A/C compressor operation. If the A/C compressor clutch can be commanded on using IDS PCM Parameter Identifications (PIDs) Active Commands, PCM replacement will not resolve the condition.

- Diagnose the **PCM** not energizing the **A/C** clutch relay using the suggestions in the table below. Refer to the reference value information in Section 6 of the Powertrain Control/Emissions Diagnosis (PC/ED) manual.

A/C Clutch Engagement is inhibited because strategy has not yet detected hardware that indicates vehicle is equipped with A/C
A/C Clutch Engagement is inhibited because the strategy is operating in Ignition System Failure Mode
A/C Clutch Engagement is inhibited because the (ECU) received a Request to Command the A/C Off
A/C Clutch Engagement is inhibited because the engine has not yet reached a stable running mode after starting
A/C Clutch Engagement is inhibited because the A/C Discharge (Head) Pressure is Too High
A/C Clutch Engagement is inhibited because the Engine Coolant Temperature is Too High
A/C Clutch Engagement is inhibited to Prevent Frost and Ice Build Up on the Evaporator
A/C Clutch Engagement is inhibited to Prevent an Engine Stall during a Low Engine Speed condition
A/C Clutch Engagement is inhibited to Protect the Compressor from a Compressor Over-speed condition
A/C Clutch Engagement is inhibited to temporarily make more power available when Accelerator Pedal is Fully Depressed
A/C Clutch Engagement is inhibited because Low A/C Refrigerant Charge has been detected
A/C Clutch Engagement is inhibited to Protect the Compressor from Operating at Too Low of an Ambient Temperature
A/C Clutch Engagement is inhibited due to Missing Climate Control Message
A/C Clutch Engagement is inhibited because the strategy is operating in Failsafe Cooling Mode
A/C Clutch Engagement is inhibited to Protect the Clutch from Damage because the Compressor Load and Speed are Too High
A/C Clutch Engagement is inhibited by the off portion of the A/C Cycling Strategy invoked to manage High Engine Temperature
A/C Clutch Engagement is inhibited due to Low Battery State of Charge
A/C Clutch Engagement is inhibited to Protect the Variable Displacement Compressor from Operating at Too Low of a Temperature
A/C Clutch Engagement is inhibited to improve Brake Booster Vacuum
A/C Clutch Engagement is inhibited because Evaporator Temperature is sufficiently low and compressor was at minimum displacement
A/C Clutch Engagement is inhibited (Disabled) because the Evaporator Temperature is sufficiently below the target temperature
A/C Clutch Engagement is inhibited to satisfy A/C Clutch minimum off time
A/C Clutch Engagement is inhibited Due to Request from Torque Control Strategy (to Temporarily Make More Power Available)
A/C Clutch Engagement is inhibited to Prevent Engine Stalling
A/C Clutch Engagement is inhibited Due to Request to Disable A/C from Stop-Start Strategy
A/C Clutch Engagement is inhibited (Delayed) to make Power Available for Power Steering
A/C Clutch Engagement Is Inhibited Due To State Of Auxiliary A/C Disable (Typically A Pressure Or Temperature) Switch 1 input
A/C Clutch Engagement is inhibited due to state of auxiliary A/C Disable (Typically a Pressure or Temperature) Switch 2 input

Are any of the conditions described above not within normal parameters?

<b>Yes</b>	DIAGNOSE the condition found to be disabling the <b>A/C</b> clutch relay. REFER to the appropriate Workshop Manual (WSM) section or the Powertrain Control/Emissions Diagnosis (PC/ED) manual.
<b>No</b>	The <b>A/C</b> compressor clutch can be commanded on using the IDS <b>PCM</b> Active command <b>PID</b> . The <b>A/C</b> inoperative concern may be caused by an intermittent condition due to a component or module connection, wiring or pin issue. ADDRESS the root cause of any connector or pin issues. CHECK the vehicle service history for recent service actions that have replaced modules. This condition may be due to incomplete or incorrect <b>PMI</b> procedures.

**The A/C Is Always On - A/C Mode Always Commanded On**

Refer to Wiring Diagrams Cell [55](#) for schematic and connector information.

**Normal Operation and Fault Conditions**

Control System Logic  
 REFER to: [Climate Control System - Vehicles With: Dual Automatic Temperature Control \(DATC\) - System Operation and Component Description](#) (412-00 Climate Control System - General Information, Description and Operation).

**DTC Fault Trigger Conditions**

DTC	Description	Fault Trigger Conditions
P1464	A/C Demand Out Of Self Test Range	This <u>DTC</u> sets when the <u>PCM</u> senses an <u>A/C</u> request during a <u>PCM</u> self-test.

#### Possible Sources

- A/C clutch relay
- Wiring, terminals or connectors
- PCM
- FCIM

### **PINPOINT TEST H: THE A/C (AIR CONDITIONING) IS ALWAYS ON - A/C (AIR CONDITIONING) MODE ALWAYS COMMANDED ON**

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

#### **H1 CHECK THE A/C (AIR CONDITIONING) CLUTCH RELAY**

- Carry out the component test on the A/C clutch relay. Refer to Wiring Diagrams Cell [149](#) for schematic and connector information.

Did the relay pass the component test?

<b>Yes</b>	GO to <a href="#">H2</a>
<b>No</b>	INSTALL a new <u>A/C</u> clutch relay.

#### **H2 CHECK THE A/C (AIR CONDITIONING) COMPRESSOR CLUTCH FIELD COIL VOLTAGE SUPPLY CIRCUIT FOR A SHORT TO VOLTAGE**

- Ignition OFF.
- Disconnect A/C compressor clutch field coil [C100](#).
- Disconnect the A/C clutch relay.
- Ignition ON.
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C100</a> Pin 1	$\overline{V}$	Ground Pin -

Is any voltage present?

<b>Yes</b>	REPAIR the circuit.
<b>No</b>	GO to <a href="#">H3</a>

#### **H3 COMPARE THE EVAPORATOR TEMPERATURE SENSOR TO THE PCM (POWERTRAIN CONTROL MODULE) AMBIENT AIR TEMPERATURE (AAT) PID (PARAMETER IDENTIFICATION)**

- Ignition OFF.
- Allow the vehicle exterior and interior to stabilize to ambient temperature.
- Disconnect Evaporator Temperature Sensor [C296](#).
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
C296-1 (component side)	$\Omega$	C296-2 (component side)

- Compare the resistance values to the table below:

Ambient Temperature °F (°C)	Resistance ohms
-39.9 °F (-40 °C)	98,625 - 103,275 ohms
-4.0 °F (-20 °C)	28,640 - 29,600 ohms
32.0 °F (0 °C)	9695 - 9895 ohms
68.0 °F (20 °C)	3675 - 3810 ohms
77.0 °F (25 °C)	2950 - 3050 ohms
86.0 °F (30 °C)	2370 - 2565 ohms
103.9 °F (40 °C)	1565 - 1635 ohms

- Ignition ON.
- Using a diagnostic scan tool, view [PCM](#) Parameter Identifications (PIDs).
- Monitor the AAT [PID](#) .

Is the resistance within the specified values for the temperatures?

<b>Yes</b>	GO to <a href="#">H4</a>
<b>No</b>	INSTALL a new evaporator temperature sensor. REFER to: <a href="#">Evaporator Temperature Sensor</a> (412-00 Climate Control System - General Information, Removal and Installation).

#### H4 CHECK THE FCIM (FRONT CONTROLS INTERFACE MODULE) A/C (AIR CONDITIONING) SWITCH STATUS (CC\_SW\_AC) PID (PARAMETER IDENTIFICATION)

- Ignition ON.
- Using a diagnostic scan tool, view [FCIM](#) Parameter Identifications (PIDs).
- Monitor the CC\_SW\_AC [PID](#) .
- Select panel mode, press and release the [A/C](#) button (indicator off) on the [FCIM](#) controls.

Does the [PID](#) display Active when pressed and Inactive when released?

<b>Yes</b>	GO to <a href="#">H5</a>
<b>No</b>	GO to <a href="#">H8</a>

#### H5 CHECK THE A/C (AIR CONDITIONING) PRESSURE SENSOR (ACP\_PRESS) PARAMETER IDENTIFICATION (PID)

- Using a diagnostic scan tool, view the [PCM](#) Parameter Identification (PIDs).
- With a manifold gauge set connected, compare the pressure readings of the manifold gauge set and the [PCM](#) Parameter Identification (PID) ACP\_PRESS.

Are the pressure values of the manifold gauge set and the ACP\_PRESS [PCM PID](#) within  $\pm 103$  kPa (15 psi)?

<b>Yes</b>	GO to <a href="#">H6</a>
<b>No</b>	INSTALL a new <a href="#">A/C</a> pressure transducer. REFER to: <a href="#">Air Conditioning (A/C) Pressure Transducer</a> (412-00 Climate Control System - General Information, Removal and Installation).

#### H6 CHECK THE PCM (POWERTRAIN CONTROL MODULE) A/C (AIR CONDITIONING) REQUEST SIGNAL (AC\_REQ) PID (PARAMETER IDENTIFICATION) WITH THE A/C (AIR CONDITIONING) OFF

- Using a diagnostic scan tool, view [PCM](#) Parameter Identifications (PIDs).
- Monitor the AC\_REQ [PID](#) .
- While in panel mode, release the [A/C](#) button (indicator off) on the [FCIM](#) controls.

Does the [PID](#) display No?

<b>Yes</b>	GO to <a href="#">H9</a>
<b>No</b>	GO to <a href="#">H7</a>

#### H7 CHECK THE PCM (POWERTRAIN CONTROL MODULE) A/C (AIR CONDITIONING) REQUEST SIGNAL (AC\_REQ) PID (PARAMETER IDENTIFICATION) WITH FCIM (FRONT CONTROLS INTERFACE MODULE) DISCONNECTED

- Ignition ON.
- Disconnect [FCIM C2402A](#).
- Using a diagnostic scan tool, view [PCM](#) Parameter Identifications (PIDs).
- Monitor the AC\_REQ [PID](#) .

Does the [PID](#) display No?




<b>Yes</b>	GO to <a href="#">H9</a>
<b>No</b>	GO to <a href="#">H8</a>

#### H8 CHECK FOR CORRECT FCIM (FRONT CONTROLS INTERFACE MODULE) OPERATION

- Connect [FCIM C2402A](#).
- Ignition OFF.
- Disconnect and inspect all [FCIM](#) connectors.
- Repair:
  - corrosion (install new connector or terminals – clean module pins)

- damaged or bent pins – install new terminals/pins
- pushed-out pins – install new pins as necessary
- Reconnect all **FCIM** connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.




**Is the concern still present?**

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

**H9 CHECK FOR CORRECT PCM (POWERTRAIN CONTROL MODULE) OPERATION**

- Ignition OFF.
- Disconnect and inspect all **PCM** connectors.
- Repair:
  - corrosion (replace connector or terminals – clean module pins)
  - damaged or bent pins – replace terminals/pins
  - pushed-out pins – replace pins as necessary
- Reconnect all **PCM** connectors. Make sure they seat and latch correctly.
- Operate the system and verify the concern is still present.

**Is the concern still present?**

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

**The Temperature Control Is Inoperative Or Does Not Operate Correctly - Driver Side**

Refer to Wiring Diagrams Cell [55](#) for schematic and connector information.

**Normal Operation and Fault Conditions**

Temperature Door Actuator - Driver side,  
 REFER to: [Climate Control System - Vehicles With: Dual Automatic Temperature Control \(DATC\) - System Operation and Component Description](#) (412-00 Climate Control System - General Information, Description and Operation).

During an actuator calibration cycle, the **FCIM** drives the temperature door until the door reaches both internal stops in the **HVAC** case. If the temperature door is temporarily obstructed or binding during a calibration cycle, the module may interpret this as the actual end of travel for the door. When this condition occurs and the module commands the actuator to its end of travel, the airflow may not be the expected temperature.

**DTC Fault Trigger Conditions**

DTC	Description	Fault Trigger Conditions
B1081:11	Left Temperature Damper Motor: Circuit Short To Ground	This <b>DTC</b> sets when the module senses lower than expected voltage on an actuator motor circuit when voltage is applied to drive the motor, indicating a short to ground. The motor can move only in one direction.
B1081:12	Left Temperature Damper Motor: Circuit Short To Battery	This <b>DTC</b> sets when the module senses higher than expected voltage on the actuator motor circuit when ground is applied to drive the motor, indicating a short to voltage. The motor can move only in one direction.
B1081:13	Left Temperature Damper Motor: Open Circuit	This <b>DTC</b> sets when the module senses no voltage on the actuator motor circuit when ground is applied to drive the motor, indicating an open circuit. The motor cannot move.
B11E5:12	Left HVAC Damper Position Sensor: Circuit Short to Battery	This <b>DTC</b> sets when the module senses greater than 5 volts on the actuator feedback circuit, indicating a short to voltage.
B11E5:14	Left HVAC Damper Position Sensor: Circuit Short to Ground or Open	This <b>DTC</b> sets when the module senses less than 1 volt on the actuator feedback circuit, indicating an open circuit or a short to ground.

## Possible Sources

- Wiring, terminals or connectors
- Driver side temperature door actuator
- [FCIM](#)

### PINPOINT TEST I: THE TEMPERATURE CONTROL IS INOPERATIVE OR DOES NOT OPERATE CORRECTLY - DRIVER SIDE

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

#### I1 CHECK THE DRIVER SIDE TEMPERATURE DOOR ACTUATOR CIRCUITS FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect Air distribution door actuator [C232](#).
- Disconnect Air inlet door actuator [C282](#).
- Disconnect In-vehicle temperature and humidity sensor [C233](#).
- Disconnect Passenger side temperature door actuator [C2092](#).
- Disconnect Driver side temperature door actuator [C2091](#).
- Ignition ON.
- Disconnect [FCIM C2402A](#).
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2091</a> Pin 1	$\overline{\text{V}}$	Ground
<a href="#">C2091</a> Pin 2	$\overline{\text{V}}$	Ground
<a href="#">C2091</a> Pin 3	$\overline{\text{V}}$	Ground
<a href="#">C2091</a> Pin 5	$\overline{\text{V}}$	Ground
<a href="#">C2091</a> Pin 6	$\overline{\text{V}}$	Ground

Is any voltage present?

<b>Yes</b>	REPAIR the circuit.
<b>No</b>	GO to <a href="#">I2</a>

#### I2 CHECK THE DRIVER SIDE TEMPERATURE DOOR ACTUATOR CIRCUITS FOR A SHORT TO GROUND

- Connect [FCIM C2402A](#).
- Ignition OFF.
- Disconnect [FCIM C2402A](#).
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2091</a> Pin 1	$\Omega$	Ground
<a href="#">C2091</a> Pin 2	$\Omega$	Ground
<a href="#">C2091</a> Pin 3	$\Omega$	Ground
<a href="#">C2091</a> Pin 5	$\Omega$	Ground
<a href="#">C2091</a> Pin 6	$\Omega$	Ground

Are the resistances greater than 10,000 ohms?

<b>Yes</b>	GO to <a href="#">I3</a>
<b>No</b>	REPAIR the circuit.

#### I3 CHECK THE DRIVER SIDE TEMPERATURE DOOR ACTUATOR CIRCUITS FOR AN OPEN

- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2091</a> Pin 1	$\Omega$	<a href="#">C2402A</a> Pin 2

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2091</a> Pin 2	$\Omega$	<a href="#">C2402A</a> Pin 10
<a href="#">C2091</a> Pin 3	$\Omega$	<a href="#">C2402A</a> Pin 3
<a href="#">C2091</a> Pin 5	$\Omega$	<a href="#">C2402A</a> Pin 8
<a href="#">C2091</a> Pin 6	$\Omega$	<a href="#">C2402A</a> Pin 9

Are the resistances less than 3 ohms?

<b>Yes</b>	GO to <a href="#">I4</a>
<b>No</b>	REPAIR the circuit.

#### I4 CHECK THE DRIVER SIDE TEMPERATURE DOOR ACTUATOR CIRCUITS FOR A SHORT TOGETHER

• Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2091</a> Pin 1	$\Omega$	<a href="#">C2091</a> Pin 2
<a href="#">C2091</a> Pin 1	$\Omega$	<a href="#">C2091</a> Pin 3
<a href="#">C2091</a> Pin 1	$\Omega$	<a href="#">C2091</a> Pin 5
<a href="#">C2091</a> Pin 1	$\Omega$	<a href="#">C2091</a> Pin 6
<a href="#">C2091</a> Pin 2	$\Omega$	<a href="#">C2091</a> Pin 3
<a href="#">C2091</a> Pin 2	$\Omega$	<a href="#">C2091</a> Pin 5
<a href="#">C2091</a> Pin 2	$\Omega$	<a href="#">C2091</a> Pin 6
<a href="#">C2091</a> Pin 3	$\Omega$	<a href="#">C2091</a> Pin 5
<a href="#">C2091</a> Pin 3	$\Omega$	<a href="#">C2091</a> Pin 6
<a href="#">C2091</a> Pin 5	$\Omega$	<a href="#">C2091</a> Pin 6




Are the resistances greater than 10,000 ohms?

<b>Yes</b>	INSTALL a new driver side temperature door actuator. REFER to: <a href="#">Driver Side Temperature Door Actuator</a> (412-00 Climate Control System - General Information, Removal and Installation). TEST the system for normal operation. If the concern is still present, GO to <a href="#">I5</a>
<b>No</b>	REPAIR the circuit.

#### I5 CHECK FOR CORRECT FCIM (FRONT CONTROLS INTERFACE MODULE) OPERATION

- Disconnect and inspect all [FCIM](#) connectors.
- Repair:
  - corrosion (install new connector or terminals – clean module pins)
  - damaged or bent pins – install new terminals/pins
  - pushed-out pins – install new pins as necessary
- Reconnect all [FCIM](#) connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

<b>Yes</b>	CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW <a href="#">TSB</a> instructions. If no Technical Service Bulletins (TSBs) address this concern,     <b>VIN required to access Guided Routine (FCIM)</b>
<b>No</b>	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

## The Temperature Control Is Inoperative Or Does Not Operate Correctly - Passenger Side

Refer to Wiring Diagrams Cell [55](#) for schematic and connector information.

### Normal Operation and Fault Conditions

Temperature Door Actuator - Passenger side,

REFER to: [Climate Control System - Vehicles With: Dual Automatic Temperature Control \(DATC\) - System Operation and Component Description](#) (412-00 Climate Control System - General Information, Description and Operation).

During an actuator calibration cycle, the **FCIM** drives the temperature door until the door reaches both internal stops in the **HVAC** case. If the temperature door is temporarily obstructed or binding during a calibration cycle, the module may interpret this as the actual end of travel for the door. When this condition occurs and the module commands the actuator to its end of travel, the airflow may not be the expected temperature.

### DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
B1082:11	Right Temperature Damper Motor: Circuit Short To Ground	This <b>DTC</b> sets when the module senses lower than expected voltage on an actuator motor circuit when voltage is applied to drive the motor, indicating a short to ground. The motor can move only in one direction.
B1082:12	Right Temperature Damper Motor: Circuit Short To Battery	This <b>DTC</b> sets when the module senses higher than expected voltage on the actuator motor circuit when ground is applied to drive the motor, indicating a short to voltage. The motor can move only in one direction.
B1082:13	Right Temperature Damper Motor: Open Circuit	This <b>DTC</b> sets when the module senses no voltage on the actuator motor circuit when ground is applied to drive the motor, indicating an open circuit. The motor cannot move.
B11E6:12	Right HVAC Damper Position Sensor: Circuit Short to Battery	This <b>DTC</b> sets when the module senses greater than 5 volts on the actuator feedback circuit, indicating a short to voltage.
B11E6:14	Right HVAC Damper Position Sensor: Circuit Short to Ground or Open	This <b>DTC</b> sets when the module senses less than 1 volt on the actuator feedback circuit, indicating an open circuit or a short to ground.

### Possible Sources

- Wiring, terminals or connectors
- Passenger side temperature door actuator
- **FCIM**

### **PINPOINT TEST J: THE TEMPERATURE CONTROL IS INOPERATIVE OR DOES NOT OPERATE CORRECTLY - PASSENGER SIDE**

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

#### **J1 CHECK THE PASSENGER SIDE TEMPERATURE DOOR ACTUATOR CIRCUITS FOR A SHORT TO VOLTAGE**

- Ignition OFF.
- Disconnect Air distribution door actuator [C232](#).
- Disconnect In-vehicle temperature and humidity sensor [C233](#).
- Disconnect Driver side temperature door actuator [C2091](#).
- Disconnect Air inlet door actuator [C282](#).
- Disconnect Passenger side temperature door actuator [C2092](#).
- Ignition ON.
- Disconnect **FCIM** [C2402A](#).
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2092</a> Pin 1	$\overline{\text{V}}$	Ground
<a href="#">C2092</a> Pin 2	$\overline{\text{V}}$	Ground
<a href="#">C2092</a> Pin 3	$\overline{\text{V}}$	Ground
<a href="#">C2092</a> Pin 5	$\overline{\text{V}}$	Ground
<a href="#">C2092</a> Pin 6	$\overline{\text{V}}$	Ground

Is any voltage present?

<b>Yes</b>	REPAIR the circuit.
<b>No</b>	GO to <a href="#">J2</a>

#### **J2 CHECK THE PASSENGER SIDE TEMPERATURE DOOR ACTUATOR CIRCUITS FOR A SHORT TO GROUND**

- Connect FCIM [C2402A](#).
- Ignition OFF.
- Disconnect FCIM [C2402A](#).
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2092</a> Pin 1	$\Omega$	Ground
<a href="#">C2092</a> Pin 2	$\Omega$	Ground
<a href="#">C2092</a> Pin 3	$\Omega$	Ground
<a href="#">C2092</a> Pin 5	$\Omega$	Ground
<a href="#">C2092</a> Pin 6	$\Omega$	Ground

Are the resistances greater than 10,000 ohms?

<b>Yes</b>	GO to <a href="#">J3</a>
<b>No</b>	REPAIR the circuit.

### J3 CHECK THE PASSENGER SIDE TEMPERATURE DOOR ACTUATOR CIRCUITS FOR AN OPEN

- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2092</a> Pin 1	$\Omega$	<a href="#">C2402A</a> Pin 2
<a href="#">C2092</a> Pin 3	$\Omega$	<a href="#">C2402A</a> Pin 3

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2092</a> Pin 2	$\Omega$	<a href="#">C2402B</a> Pin 18
<a href="#">C2092</a> Pin 5	$\Omega$	<a href="#">C2402B</a> Pin 13
<a href="#">C2092</a> Pin 6	$\Omega$	<a href="#">C2402B</a> Pin 14

Are the resistances less than 3 ohms?

<b>Yes</b>	GO to <a href="#">J4</a>
<b>No</b>	REPAIR the circuit.

### J4 CHECK THE PASSENGER SIDE TEMPERATURE DOOR ACTUATOR CIRCUITS FOR A SHORT TOGETHER

- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2092</a> Pin 1	$\Omega$	<a href="#">C2092</a> Pin 2
<a href="#">C2092</a> Pin 1	$\Omega$	<a href="#">C2092</a> Pin 3
<a href="#">C2092</a> Pin 1	$\Omega$	<a href="#">C2092</a> Pin 5
<a href="#">C2092</a> Pin 1	$\Omega$	<a href="#">C2092</a> Pin 6
<a href="#">C2092</a> Pin 2	$\Omega$	<a href="#">C2092</a> Pin 3
<a href="#">C2092</a> Pin 2	$\Omega$	<a href="#">C2092</a> Pin 5
<a href="#">C2092</a> Pin 2	$\Omega$	<a href="#">C2092</a> Pin 6
<a href="#">C2092</a> Pin 3	$\Omega$	<a href="#">C2092</a> Pin 5

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2092</a> Pin 3	$\Omega$	<a href="#">C2092</a> Pin 6
<a href="#">C2092</a> Pin 5	$\Omega$	<a href="#">C2092</a> Pin 6


Are the resistances greater than 10,000 ohms?

<b>Yes</b>	INSTALL a new passenger side temperature door actuator. REFER to: <a href="#">Passenger Side Temperature Door Actuator</a> (412-00 Climate Control System - General Information, Removal and Installation). TEST the system for normal operation. If the concern is still present, GO to <a href="#">J5</a>
<b>No</b>	REPAIR the circuit.

#### J5 CHECK FOR CORRECT FCIM (FRONT CONTROLS INTERFACE MODULE) OPERATION

- Disconnect and inspect all [FCIM](#) connectors.
- Repair:
  - corrosion (install new connector or terminals – clean module pins)
  - damaged or bent pins – install new terminals/pins
  - pushed-out pins – install new pins as necessary
- Reconnect all [FCIM](#) connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

<b>Yes</b>	CHECK <a href="#">OASIS</a> for any applicable Technical Service Bulletins (TSBs). If a <a href="#">TSB</a> exists for this concern, DISCONTINUE this test and FOLLOW <a href="#">TSB</a> instructions. If no Technical Service Bulletins (TSBs) address this concern,   <b>VIN required to access Guided Routine (FCIM)</b>
<b>No</b>	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

#### The Blower Motor Is Inoperative

Refer to Wiring Diagrams Cell [55](#) for schematic and connector information.

#### Normal Operation and Fault Conditions

Voltage is supplied to the blower motor relay switched contact from the [BJB](#). Ground to the relay coil is a dedicated circuit. When the blower motor relay coil receives power from the [FCIM](#), the relay coil is energized and voltage is delivered to the blower motor speed control. Power and ground for the blower motor is provided by the blower motor speed control. The [FCIM](#) sends a [PWM](#) signal to the blower motor speed control to control the blower speed.

#### DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
B10AF:11	Blower Fan Relay: Circuit Short To Ground	This <a href="#">DTC</a> sets when the module senses low voltage on the relay coil voltage circuit when the module is energizing the circuit. The blower motor relay is permanently inactive.
B10AF:15	Blower Fan Relay: Circuit Short To Battery or Open	This <a href="#">DTC</a> sets when the module senses greater than expected voltage on the blower motor relay coil voltage circuit, indicating an open circuit or a short to voltage. The blower motor relay is inactive when circuit is open; the blower motor relay is on all the time when shorted to battery.
B10B9:12	Blower Control: Circuit Short To Battery	This <a href="#">DTC</a> sets when the module senses high voltage on the blower motor control <a href="#">PWM</a> circuit, indicating a short directly to voltage. The blower motor is inoperative.
B10B9:14	Blower Control: Circuit Short To Ground or Open	This <a href="#">DTC</a> sets when the module senses no voltage on the blower motor control <a href="#">PWM</a> circuit, indicating a short directly to ground or an open circuit. The blower motor runs at full speed if the circuit is shorted to ground. The blower motor is inoperative if the circuit is open.

#### Possible Sources

- Wiring, terminals or connectors
- Fuse
- Blower motor relay

- Blower motor
- Blower motor speed control
- [FCIM](#)

## Visual Inspection and Diagnostic Pre-checks

- Inspect [BJB](#) fuse 10 (40A).

### PINPOINT TEST K: THE BLOWER MOTOR IS INOPERATIVE

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

#### K1 CHECK THE BLOWER MOTOR RELAY

- Ignition OFF.
- Disconnect Blower motor relay.
- Carry out the component test on the blower motor relay.  
Refer to Wiring Diagrams Cell [149](#) for schematic and connector information.

Did the relay pass the component test?

<b>Yes</b>	GO to <a href="#">K2</a>
<b>No</b>	INSTALL a new blower motor relay.

#### K2 CHECK THE BLOWER MOTOR RELAY SWITCH CONTACT SUPPLY VOLTAGE

- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
Blower motor relay socket 3	$\bar{V}$	Ground

Is the voltage greater than 11 volts?

<b>Yes</b>	GO to <a href="#">K3</a>
<b>No</b>	VERIFY <a href="#">BJB</a> fuse 10 (40A) 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.

#### K3 CHECK THE BLOWER MOTOR RELAY COIL GROUND CIRCUIT FOR AN OPEN

- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
Blower motor relay socket 1	$\Omega$	Ground Pin -

Is the resistance less than 3 ohms?

<b>Yes</b>	GO to <a href="#">K4</a>
<b>No</b>	REPAIR the circuit.

#### K4 CHECK THE BLOWER MOTOR RELAY COIL CONTROL CIRCUIT FOR A SHORT TO GROUND

- Disconnect [FCIM C2402A](#).
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
Blower motor relay socket 2	$\Omega$	Ground

Is the resistance greater than 10,000 ohms?

<b>Yes</b>	GO to <a href="#">K5</a>
------------	--------------------------

No	REPAIR the circuit.
----	---------------------

#### K5 CHECK THE BLOWER MOTOR RELAY COIL CONTROL CIRCUIT FOR AN OPEN

• Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
Blower motor relay socket 2	$\Omega$	<a href="#">C2402A</a> Pin 11

Is the resistance less than 3 ohms?

Yes	GO to <a href="#">K6</a>
No	REPAIR the circuit.

#### K6 CHECK THE BLOWER MOTOR SPEED CONTROL VOLTAGE CIRCUIT

- Disconnect Blower motor speed control [C297](#).
- Connect Blower motor relay.
- Connect FCIM [C2402A](#).
- Ignition ON.
- Select PANEL on the HVAC controls.
- Select the highest blower motor setting.
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C297</a> Pin 5	$\overline{\text{V}}$	Ground

Is the voltage greater than 11 volts?

Yes	GO to <a href="#">K7</a>
No	REPAIR the circuit.

#### K7 CHECK THE BLOWER MOTOR SPEED CONTROL GROUND CIRCUIT FOR AN OPEN

- Ignition OFF.
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C297</a> Pin 1	$\Omega$	Ground

Is the resistance less than 3 ohms?

Yes	GO to <a href="#">K8</a>
No	REPAIR the circuit.

#### K8 CHECK THE BLOWER MOTOR CONTROL PWM (PULSE WIDTH MODULATION) CIRCUIT FOR A SHORT TO VOLTAGE

- Ignition ON.
- Disconnect FCIM [C2402A](#).
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C297</a> Pin 2	$\overline{\text{V}}$	Ground

**Is any voltage present?**

<b>Yes</b>	REPAIR the circuit.
<b>No</b>	GO to <a href="#">K9</a>

**K9 CHECK THE BLOWER MOTOR CONTROL PWM (PULSE WIDTH MODULATION) CIRCUIT FOR AN OPEN**

- Connect [FCIM C2402A](#).
- Ignition OFF.
- Disconnect [FCIM C2402A](#).
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C297</a> Pin 2	$\Omega$	<a href="#">C2402A</a> Pin 23

**Is the resistance less than 3 ohms?**

<b>Yes</b>	GO to <a href="#">K10</a>
<b>No</b>	REPAIR the circuit.

**K10 CHECK THE OUTPUTS TO THE BLOWER MOTOR**

- Disconnect Blower motor [C2066](#).
- Connect Blower motor speed control [C297](#).
- Connect [FCIM C2402A](#).
- Ignition ON.
- Select PANEL on the [HVAC](#) controls.
- Select the highest blower motor setting.
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2066</a> Pin 1	$\overline{V}$	<a href="#">C2066</a> Pin 2

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

<b>Yes</b>	INSTALL a new blower motor. REFER to: <a href="#">Blower Motor</a> (412-00 Climate Control System - General Information, Removal and Installation).
<b>No</b>	GO to <a href="#">K11</a>

**K11 CHECK THE CIRCUITS TO THE BLOWER MOTOR FOR AN OPEN**

- Ignition OFF.
- Disconnect Blower motor speed control [C297](#).
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C297</a> Pin 6	$\Omega$	<a href="#">C2066</a> Pin 1
<a href="#">C297</a> Pin 5	$\Omega$	<a href="#">C2066</a> Pin 2

**Are the resistances less than 3 ohms?**

<b>Yes</b>	GO to <a href="#">K12</a>
<b>No</b>	REPAIR the circuit in question.

**K12 CHECK THE BLOWER MOTOR CIRCUITS FOR A SHORT TOGETHER**

- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2066</a> Pin 1	$\Omega$	<a href="#">C2066</a> Pin 2


Is the resistance greater than 10,000 ohms?

<b>Yes</b>	INSTALL a new blower motor speed control. REFER to: <a href="#">Blower Motor Speed Control</a> (412-00 Climate Control System - General Information, Removal and Installation). TEST the system for normal operation. If the concern is still present, GO to <a href="#">K13</a>
<b>No</b>	REPAIR the circuits.

### K13 CHECK FOR CORRECT FRONT CONTROLS INTERFACE MODULE (FCIM) OPERATION

- Disconnect and inspect all [FCIM](#) connectors.
- Repair:
  - corrosion (install new connector or terminals – clean module pins)
  - damaged or bent pins – install new terminals/pins
  - pushed-out pins – install new pins as necessary
- Reconnect all [FCIM](#) connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

<b>Yes</b>	CHECK <a href="#">OASIS</a> for any applicable Technical Service Bulletins (TSBs). If a <a href="#">TSB</a> exists for this concern, DISCONTINUE this test and FOLLOW <a href="#">TSB</a> instructions. If no Technical Service Bulletins (TSBs) address this concern,   <b>VIN required to access Guided Routine (FCIM)</b>
<b>No</b>	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

### The Blower Motor Does Not Operate Correctly

Refer to Wiring Diagrams Cell [55](#) for schematic and connector information.

#### Normal Operation and Fault Conditions

Voltage is supplied to the blower motor relay switched contact from the [BJB](#). Ground to the relay coil is a dedicated circuit. When the blower motor relay coil receives power from the [FCIM](#), the relay coil is energized and voltage is delivered to the blower motor speed control. Power and ground for the blower motor is provided by the blower motor speed control. The [FCIM](#) sends a [PWM](#) signal to the blower motor speed control to control the blower speed.

#### DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
B10AF:15	Blower Fan Relay: Circuit Short To Battery or Open	This <a href="#">DTC</a> sets when the module senses greater than expected voltage on the blower relay coil voltage circuit, indicating an open circuit or a short to voltage. Blower relay is inactive when circuit is open; blower relay is on all the time when shorted to battery.
B10B9:14	Blower Control: Circuit Short To Ground or Open	This <a href="#">DTC</a> sets when the module senses no voltage on the blower motor control <a href="#">PWM</a> circuit, indicating a short directly to ground or an open circuit. The blower motor runs at full speed if the circuit is shorted to ground. The blower motor is inoperative if the circuit is open.

#### Possible Sources

- Wiring, terminals or connectors
- Blower motor relay
- Blower motor speed control
- [FCIM](#)

### PINPOINT TEST L: THE BLOWER MOTOR DOES NOT OPERATE CORRECTLY

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

### L1 VERIFY THE BLOWER MOTOR OPERATION

- Ignition ON.
- Select PANEL on the [HVAC](#) controls. Adjust the blower motor setting to the minimum and maximum settings.

Does the blower motor operate at any setting?

Yes	GO to <a href="#">L2</a>
No	GO to <a href="#">Pinpoint Test K</a>

### L2 CHECK THE BLOWER MOTOR CONTROL PWM (PULSE WIDTH MODULATION) CIRCUIT FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect Blower motor speed control [C297](#).
- Ignition ON.
- Disconnect [FCIM C2402A](#).
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2402A</a> Pin 23	$\overline{V}$	Ground

Is any voltage present?

Yes	REPAIR the circuit.
No	GO to <a href="#">L3</a>

### L3 CHECK THE BLOWER MOTOR CONTROL PWM (PULSE WIDTH MODULATION) CIRCUIT FOR A SHORT TO GROUND

- Connect [FCIM C2402A](#).
- Ignition OFF.
- Disconnect [FCIM C2402A](#).
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2402A</a> Pin 23	$\Omega$	Ground Pin -

Is the resistance greater than 10,000 ohms?

Yes	GO to <a href="#">L4</a>
No	REPAIR the circuit.

### L4 CHECK THE BLOWER MOTOR RELAY COIL CONTROL CIRCUIT FOR A SHORT TO VOLTAGE

- Disconnect Blower motor relay.
- Connect [FCIM C2402A](#).
- Ignition ON.
- Disconnect [FCIM C2402A](#).
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2402A</a> Pin 11	$\overline{V}$	Ground

Is any voltage present?

Yes	REPAIR the circuit.
No	GO to <a href="#">L5</a>

#### L5 CHECK THE BLOWER MOTOR OPERATION WITH THE BLOWER MOTOR RELAY DISCONNECTED

- Connect FCIM [C2402A](#).
- Ignition OFF.
- Connect Blower motor speed control [C297](#).
- Ignition ON.
- Operate the system and determine if the concern is still present.

Does the fan still operate all the time?

<b>Yes</b>	REPAIR the blower motor speed control voltage circuit CH402 (YE/GN) for a short to voltage.
<b>No</b>	GO to <a href="#">L6</a>

#### L6 CHECK FOR CORRECT BLOWER MOTOR SPEED CONTROL OPERATION

- Ignition OFF.
- Disconnect and inspect all the blower motor speed control connectors.
- Repair:
  - corrosion (install new connector or terminals – clean module pins)
  - damaged or bent pins – install new terminals/pins
  - pushed-out pins – install new pins as necessary
- Reconnect the blower motor speed control connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.




Is the concern still present?

<b>Yes</b>	INSTALL a new blower motor speed control. REFER to: <a href="#">Blower Motor Speed Control</a> (412-00 Climate Control System - General Information, Removal and Installation). TEST the system for normal operation. If the concern is still present, GO to <a href="#">L7</a>
<b>No</b>	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

#### L7 CHECK FOR CORRECT FCIM (FRONT CONTROLS INTERFACE MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all FCIM connectors.
- Repair:
  - corrosion (install new connector or terminals – clean module pins)
  - damaged or bent pins – install new terminals/pins
  - pushed-out pins – install new pins as necessary
- Reconnect all FCIM connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

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

#### Air Discharge Temperature Sensor Circuit Faults

Refer to Wiring Diagrams Cell [55](#) for schematic and connector information.

#### Normal Operation and Fault Conditions

The 2 air discharge temperature sensors contain a thermistor. The sensor varies its resistance with the temperature. As the temperature rises, the resistance falls. As the temperature falls, the resistance rises.

REFER to: [Climate Control System - Vehicles With: Dual Automatic Temperature Control \(DATC\) - System Operation and Component Description](#) (412-00 Climate Control System - General Information, Description and Operation).

#### DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
B10B5:11	Left Panel Air Discharge Temperature: Circuit Short To Ground	This DTC sets when the FCIM senses erratic voltages from the left panel air discharge temperature sensor.
B10B5:15	Left Panel Air Discharge Temperature: Circuit Short To Battery or Open	This DTC sets when the FCIM senses erratic voltages from the left panel air discharge temperature sensor.
B10B6:11	Left Floor Air Discharge Temperature: Circuit Short To Ground	This DTC sets when the FCIM senses erratic voltages from the left floor air discharge temperature sensor.
B10B6:15	Left Floor Air Discharge Temperature: Circuit Short To Battery or Open	This DTC sets when the FCIM senses erratic voltages from the left floor air discharge temperature sensor.

**Possible Sources**

- Wiring, terminals or connectors
- Air discharge temperature sensor(s)
- FCIM

**PINPOINT TEST M: AIR DISCHARGE TEMPERATURE SENSOR CIRCUIT FAULTS**

**M1 CHECK THE AIR DISCHARGE TEMPERATURE SENSOR OUTPUT VOLTAGE CIRCUIT**

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

- Ignition OFF.
- Disconnect the suspect air discharge temperature sensor:
  - Driver side register air discharge temperature sensor [C2438](#)
  - Driver side footwell air discharge temperature sensor [C2436](#)
- Ignition ON.
- Turn the HVAC system on.
- Measure:

[Click to display connectors](#)

**Driver side footwell air discharge temperature sensor**

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2436</a> Pin 1		<a href="#">C2436</a> Pin 2

[Click to display connectors](#)

**Driver side register air discharge temperature sensor**

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2438</a> Pin 1		<a href="#">C2438</a> Pin 2

Is the voltage between 4.7 and 5.1 volts?

<b>Yes</b>	INSTALL a new air discharge temperature sensor. Refer to the appropriate section in Group 412 for the procedure. CLEAR the Diagnostic Trouble Codes (DTCs). REPEAT the self-test. If Diagnostic Trouble Code (DTC) returns, GO to <a href="#">M9</a>
<b>No</b>	GO to <a href="#">M2</a>

**M2 CHECK THE AIR DISCHARGE TEMPERATURE SENSOR SIGNAL CIRCUIT FOR A SHORT TO VOLTAGE**

- Disconnect FCIM [C2402A](#).
- Disconnect FCIM [C2402B](#).
- Measure:

[Click to display connectors](#)

**Driver side footwell air discharge temperature sensor**

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2436</a> Pin 1		Ground

[Click to display connectors](#)

**Driver side register air discharge temperature sensor**

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2438</a> Pin 2	$\bar{V}$	Ground

Is any voltage present?

<b>Yes</b>	REPAIR the circuit.
<b>No</b>	GO to <a href="#">M3</a>

**M3 CHECK THE AIR DISCHARGE TEMPERATURE SENSOR SIGNAL RETURN CIRCUIT FOR A SHORT TO VOLTAGE**

• Measure:

[Click to display connectors](#)

**Driver side footwell air discharge temperature sensor**

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2436</a> Pin 2	$\bar{V}$	Ground

[Click to display connectors](#)

**Driver side register air discharge temperature sensor**

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2438</a> Pin 1	$\bar{V}$	Ground

Is any voltage present?

<b>Yes</b>	REPAIR the circuit.
<b>No</b>	GO to <a href="#">M4</a>

**M4 CHECK THE AIR DISCHARGE TEMPERATURE SENSOR SIGNAL CIRCUIT FOR A SHORT TO GROUND**

- Connect [FCIM C2402A](#).
- Ignition OFF.
- Disconnect [FCIM C2402A](#).
- Measure:

[Click to display connectors](#)

**Driver side footwell air discharge temperature sensor**

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2436</a> Pin 1	$\Omega$	Ground

[Click to display connectors](#)

**Driver side register air discharge temperature sensor**

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2438</a> Pin 2	$\Omega$	Ground

Are the resistances greater than 10,000 ohms?

Yes	GO to <a href="#">M5</a>
No	REPAIR the circuit.

#### M5 CHECK THE AIR DISCHARGE TEMPERATURE SENSOR SIGNAL RETURN CIRCUIT FOR A SHORT TO GROUND

• Measure:

[Click to display connectors](#)

Driver side footwell air discharge temperature sensor

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2436</a> Pin 2	$\Omega$	Ground

[Click to display connectors](#)

Driver side register air discharge temperature sensor

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2438</a> Pin 1	$\Omega$	Ground

Are the resistances greater than 10,000 ohms?

Yes	GO to <a href="#">M6</a>
No	REPAIR the circuit.

#### M6 CHECK THE AIR DISCHARGE TEMPERATURE SENSOR SIGNAL CIRCUIT FOR AN OPEN

• Measure:

[Click to display connectors](#)

Driver side footwell air discharge temperature sensor

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2436</a> Pin 1	$\Omega$	<a href="#">C2402B</a> Pin 4

[Click to display connectors](#)

Driver side register air discharge temperature sensor

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2438</a> Pin 2	$\Omega$	<a href="#">C2402B</a> Pin 5

Are the resistances less than 3 ohms?

Yes	GO to <a href="#">M7</a>
No	REPAIR the circuit.

#### M7 CHECK THE AIR DISCHARGE TEMPERATURE SENSOR SIGNAL RETURN CIRCUIT FOR AN OPEN

• Measure:

[Click to display connectors](#)

Driver side footwell air discharge temperature sensor

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2436</a> Pin 2	$\Omega$	<a href="#">C2402A</a> Pin 2

[Click to display connectors](#)

**Driver side register air discharge temperature sensor**

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2438</a> Pin 1	$\Omega$	<a href="#">C2402A</a> Pin 2

Are the resistances less than 3 ohms?

<b>Yes</b>	GO to <a href="#">M8</a>
<b>No</b>	REPAIR the circuit.

**M8 CHECK AIR DISCHARGE TEMPERATURE SENSOR SIGNAL CIRCUIT AND THE SIGNAL RETURN FOR A SHORT TO TOGETHER**

• Measure:

[Click to display connectors](#)

**Driver side footwell air discharge temperature sensor**

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2436</a> Pin 1	$\Omega$	<a href="#">C2436</a> Pin 2

[Click to display connectors](#)

**Driver side register air discharge temperature sensor**

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2438</a> Pin 1	$\Omega$	<a href="#">C2438</a> Pin 2




Are the resistances greater than 10,000 ohms?

<b>Yes</b>	INSTALL a new air discharge temperature sensor. Refer to the appropriate section in Group 412 for the procedure. CLEAR the Diagnostic Trouble Codes (DTCs). REPEAT the self-test. If Diagnostic Trouble Code (DTC) returns, GO to <a href="#">M9</a>
<b>No</b>	REPAIR the circuit.

**M9 CHECK FOR CORRECT FCIM (FRONT CONTROLS INTERFACE MODULE) OPERATION**

- Disconnect and inspect all [FCIM](#) connectors.
- Repair:
  - corrosion (install new connector or terminals – clean module pins)
  - damaged or bent pins – install new terminals/pins
  - pushed-out pins – install new pins as necessary
- Reconnect all [FCIM](#) connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

<b>Yes</b>	CHECK <a href="#">OASIS</a> for any applicable Technical Service Bulletins (TSBs). If a <a href="#">TSB</a> exists for this concern, DISCONTINUE this test and FOLLOW <a href="#">TSB</a> instructions. If no Technical Service Bulletins (TSBs) address this concern,    <b>VIN required to access Guided Routine (FCIM)</b>
<b>No</b>	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

**B105A:12, B105A:14, B1A61:11, B1A61:15, B1A69:12, B1A69:14**

Refer to Wiring Diagrams Cell [55](#) for schematic and connector information.

**Normal Operation and Fault Conditions**

In-Vehicle Temperature and Humidity Sensor,

REFER to: [Climate Control System - Vehicles With: Dual Automatic Temperature Control \(DATC\) - System Operation and Component Description](#) (412-00 Climate Control System - General Information, Description and Operation).

**DTC Fault Trigger Conditions**

DTC	Description	Fault Trigger Conditions
B105A:12	Cabin Temperature Sensor Fan: Circuit Short To Battery	This <u>DTC</u> sets when the module senses higher than expected voltage on the in-vehicle temperature and humidity sensor fan motor circuit. The in-vehicle temperature and humidity sensor fan motor is inactive.
B105A:14	Cabin Temperature Sensor Fan: Circuit Short To Ground or Open	This <u>DTC</u> sets when the module senses no voltage on the in-vehicle temperature and humidity sensor fan motor circuit, indicating an open or a short directly to ground. The in-vehicle temperature and humidity sensor fan motor is active.
B1A61:11	Cabin Temperature Sensor: Circuit Short to Ground	This <u>DTC</u> sets when the module senses lower than expected voltage on the in-vehicle temperature and humidity sensor feedback circuit, indicating a short to ground.
B1A61:15	Cabin Temperature Sensor: Circuit Short to Battery or Open	This <u>DTC</u> sets when the module senses greater than expected voltage on the in-vehicle temperature and humidity sensor feedback circuit, indicating a short to voltage or an open circuit or sensor.
B1A69:12	Humidity Sensor: Circuit Short To Battery	This <u>DTC</u> sets when the module senses greater than expected voltage on the in-vehicle temperature and humidity sensor humidity input circuit, indicating a short to voltage.
B1A69:14	Humidity Sensor: Circuit Short To Ground or Open	This <u>DTC</u> sets when the module senses no voltage on the in-vehicle temperature and humidity sensor humidity input circuit, indicating a short to ground or an open circuit or sensor.

**Possible Sources**

- Fuse
- Wiring, terminals or connectors
- In-vehicle temperature and humidity sensor
- [FCIM](#)

**Visual Inspection and Diagnostic Pre-checks**

- Make sure the in-vehicle temperature and humidity sensor harness is not chaffed.

**PINPOINT TEST N: B105A:12, B105A:14, B1A61:11, B1A61:15, B1A69:12, B1A69:14**

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

**N1 CHECK THE IN-VEHICLE TEMPERATURE AND HUMIDITY SENSOR CIRCUITS FOR A SHORT TO VOLTAGE**

- Ignition OFF.
- Disconnect Air distribution door actuator [C232](#).
- Disconnect Driver side temperature door actuator [C2091](#).
- Disconnect Passenger side temperature door actuator [C2092](#).
- Disconnect Air inlet door actuator [C282](#).
- Disconnect In-vehicle temperature and humidity sensor [C233](#).
- Disconnect [BCM](#) fuse 21 (5A).
- Ignition ON.
- Disconnect [FCIM](#) [C2402A](#).
- Disconnect [FCIM](#) [C2402B](#).
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C233</a> Pin 1	$\overline{\text{V}}$	Ground
<a href="#">C233</a> Pin 2	$\overline{\text{V}}$	Ground
<a href="#">C233</a> Pin 3	$\overline{\text{V}}$	Ground
<a href="#">C233</a> Pin 4	$\overline{\text{V}}$	Ground
<a href="#">C233</a> Pin 5	$\overline{\text{V}}$	Ground
<a href="#">C233</a> Pin 6	$\overline{\text{V}}$	Ground

Is any voltage present?

Yes	REPAIR the circuit.
No	GO to <a href="#">N2</a>

## N2 CHECK THE IN-VEHICLE TEMPERATURE AND HUMIDITY SENSOR CIRCUITS FOR A SHORT TO GROUND

- Connect [FCIM C2402A](#).
- Ignition OFF.
- Disconnect [FCIM C2402A](#).
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C233</a> Pin 1	$\Omega$	Ground
<a href="#">C233</a> Pin 2	$\Omega$	Ground
<a href="#">C233</a> Pin 3	$\Omega$	Ground
<a href="#">C233</a> Pin 4	$\Omega$	Ground
<a href="#">C233</a> Pin 5	$\Omega$	Ground
<a href="#">C233</a> Pin 6	$\Omega$	Ground

Are the resistances greater than 10,000 ohms?

Yes	GO to <a href="#">N3</a>
No	REPAIR the circuit.

## N3 CHECK THE IN-VEHICLE TEMPERATURE AND HUMIDITY SENSOR CIRCUITS FOR AN OPEN

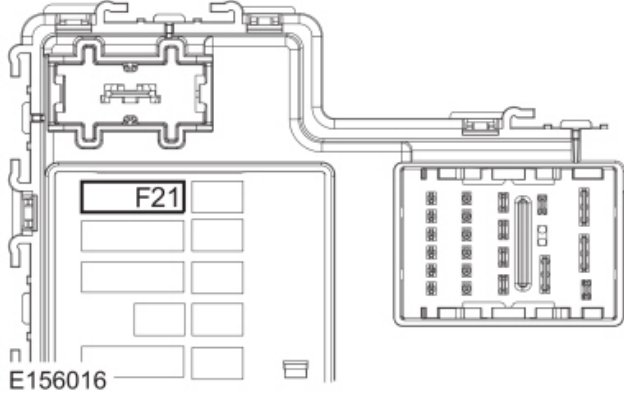
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C233</a> Pin 3	$\Omega$	<a href="#">C2402A</a> Pin 3
<a href="#">C233</a> Pin 5	$\Omega$	<a href="#">C2402A</a> Pin 2

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C233</a> Pin 1	$\Omega$	<a href="#">C2402B</a> Pin 27
<a href="#">C233</a> Pin 2	$\Omega$	<a href="#">C2402B</a> Pin 29
<a href="#">C233</a> Pin 4	$\Omega$	<a href="#">C2402B</a> Pin 19

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C233</a> Pin 6	$\Omega$	 <p>BCM fuse 21 cavity, (component side)</p>

Are the resistances less than 3 ohms?

<b>Yes</b>	GO to <a href="#">N4</a>
<b>No</b>	REPAIR the circuit.

#### N4 CHECK THE IN-VEHICLE TEMPERATURE AND HUMIDITY SENSOR CIRCUITS FOR A SHORT TOGETHER

• Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C233</a> Pin 1	$\Omega$	<a href="#">C233</a> Pin 2
<a href="#">C233</a> Pin 1	$\Omega$	<a href="#">C233</a> Pin 3
<a href="#">C233</a> Pin 1	$\Omega$	<a href="#">C233</a> Pin 4
<a href="#">C233</a> Pin 1	$\Omega$	<a href="#">C233</a> Pin 5
<a href="#">C233</a> Pin 1	$\Omega$	<a href="#">C233</a> Pin 6
<a href="#">C233</a> Pin 2	$\Omega$	<a href="#">C233</a> Pin 3
<a href="#">C233</a> Pin 2	$\Omega$	<a href="#">C233</a> Pin 4
<a href="#">C233</a> Pin 2	$\Omega$	<a href="#">C233</a> Pin 5
<a href="#">C233</a> Pin 2	$\Omega$	<a href="#">C233</a> Pin 6
<a href="#">C233</a> Pin 3	$\Omega$	<a href="#">C233</a> Pin 4
<a href="#">C233</a> Pin 3	$\Omega$	<a href="#">C233</a> Pin 5
<a href="#">C233</a> Pin 3	$\Omega$	<a href="#">C233</a> Pin 6
<a href="#">C233</a> Pin 4	$\Omega$	<a href="#">C233</a> Pin 5
<a href="#">C233</a> Pin 4	$\Omega$	<a href="#">C233</a> Pin 6
<a href="#">C233</a> Pin 5	$\Omega$	<a href="#">C233</a> Pin 6

Are the resistances greater than 10,000 ohms?

<b>Yes</b>	GO to <a href="#">N5</a>
<b>No</b>	REPAIR the circuit.

#### N5 CHECK FOR CORRECT IN-VEHICLE TEMPERATURE AND HUMIDITY SENSOR OPERATION

- Inspect the disconnected connectors.
- Repair:
  - corrosion (install new connector or terminals – clean module pins)
  - damaged or bent pins – install new terminals/pins
  - pushed-out pins – install new pins as necessary
- Reconnect all disconnected connectors. Make sure they seat and latch correctly.

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


**Is the concern still present?**

<b>Yes</b>	INSTALL a new in-vehicle temperature sensor. REFER to: <a href="#">In-Vehicle Temperature and Humidity Sensor</a> (412-00 Climate Control System - General Information, Removal and Installation). TEST the system for normal operation. If the concern is still present, GO to <a href="#">N6</a>
<b>No</b>	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

**N6 CHECK FOR CORRECT FCIM (FRONT CONTROLS INTERFACE MODULE) OPERATION**

- Ignition OFF.
- Disconnect and inspect all [FCIM](#) connectors.
- Repair:
  - corrosion (install new connector or terminals – clean module pins)
  - damaged or bent pins – install new terminals/pins
  - pushed-out pins – install new pins as necessary
- Reconnect all [FCIM](#) connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

**Is the concern still present?**

<b>Yes</b>	CHECK <a href="#">OASIS</a> for any applicable Technical Service Bulletins (TSBs). If a <a href="#">TSB</a> exists for this concern, DISCONTINUE this test and FOLLOW <a href="#">TSB</a> instructions. If no Technical Service Bulletins (TSBs) address this concern,   <b>VIN required to access Guided Routine (FCIM)</b>
<b>No</b>	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

**B1A63:11, B1A63:15, B1A64:11, B1A64:15**

Refer to Wiring Diagrams Cell [55](#) for schematic and connector information.

**Normal Operation and Fault Conditions**

Sunload Sensor,  
REFER to: [Climate Control System - Vehicles With: Dual Automatic Temperature Control \(DATC\) - System Operation and Component Description](#) (412-00 Climate Control System - General Information, Description and Operation).

**DTC Fault Trigger Conditions**

DTC	Description	Fault Trigger Conditions
B1A63:11	Right Solar Sensor: Circuit Short To Ground	This <a href="#">DTC</a> sets when the control module senses lower than expected voltage on the <a href="#">RH</a> sensor feedback circuit, indicating a short to ground.
B1A63:15	Right Solar Sensor: Circuit Short To Battery or Open	This <a href="#">DTC</a> sets when the control module senses higher than expected voltage on the <a href="#">RH</a> sensor feedback circuit, indicating a short to voltage or an open circuit or sensor.
B1A64:11	Left Solar Sensor: Circuit Short To Ground	This <a href="#">DTC</a> sets when the control module senses lower than expected voltage on the <a href="#">LH</a> sensor feedback circuit, indicating a short to ground.
B1A64:15	Left Solar Sensor: Circuit Short To Battery or Open	This <a href="#">DTC</a> sets when the control module senses higher than expected voltage on the <a href="#">LH</a> sensor feedback circuit, indicating a short to voltage or an open circuit or sensor.

**Possible Sources**

- Wiring, terminals or connectors
- Sunload sensor
- [FCIM](#)
- Inspect loose or corroded [FCIM](#) and sunload sensor connections.

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

### O1 CHECK THE SUNLOAD SENSOR CIRCUITS FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect Sunload sensor [C286](#).
- Disconnect [FCIM C2402B](#).
- Disconnect [BCM C2280B](#).
- Ignition ON.
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C286</a> Pin 1	$\overline{\text{V}}$	Ground
<a href="#">C286</a> Pin 2	$\overline{\text{V}}$	Ground
<a href="#">C286</a> Pin 3	$\overline{\text{V}}$	Ground
<a href="#">C286</a> Pin 4	$\overline{\text{V}}$	Ground

Is any voltage present?

<b>Yes</b>	REPAIR the circuit.
<b>No</b>	GO to <a href="#">O2</a>

### O2 CHECK THE SUNLOAD SENSOR CIRCUITS FOR A SHORT TO GROUND

- Ignition OFF.
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C286</a> Pin 1	$\Omega$	Ground
<a href="#">C286</a> Pin 2	$\Omega$	Ground
<a href="#">C286</a> Pin 3	$\Omega$	Ground
<a href="#">C286</a> Pin 4	$\Omega$	Ground

Are the resistances greater than 10,000 ohms?

<b>Yes</b>	GO to <a href="#">O3</a>
<b>No</b>	REPAIR the circuit.

### O3 CHECK THE SUNLOAD SENSOR SIGNAL CIRCUITS FOR AN OPEN

- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C286</a> Pin 1	$\Omega$	<a href="#">C2402B</a> Pin 22
<a href="#">C286</a> Pin 3	$\Omega$	<a href="#">C2402B</a> Pin 21

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C286</a> Pin 2	$\Omega$	<a href="#">C2280B</a> Pin 24
<a href="#">C286</a> Pin 4	$\Omega$	<a href="#">C2280B</a> Pin 22

Are the resistances less than 3 ohms?

<b>Yes</b>	GO to <a href="#">O4</a>
<b>No</b>	REPAIR the circuit.

#### O4 CHECK THE SUNLOAD SENSOR SIGNAL CIRCUITS FOR A SHORT TO EACH OTHER

• Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C286</a> Pin 1	$\Omega$	<a href="#">C286</a> Pin 2
<a href="#">C286</a> Pin 1	$\Omega$	<a href="#">C286</a> Pin 3
<a href="#">C286</a> Pin 1	$\Omega$	<a href="#">C286</a> Pin 4
<a href="#">C286</a> Pin 2	$\Omega$	<a href="#">C286</a> Pin 3
<a href="#">C286</a> Pin 2	$\Omega$	<a href="#">C286</a> Pin 4
<a href="#">C286</a> Pin 3	$\Omega$	<a href="#">C286</a> Pin 4




Are the resistances greater than 10,000 ohms?

<b>Yes</b>	INSTALL a new sunload sensor. REFER to: <a href="#">Sunload Sensor</a> (412-00 Climate Control System - General Information, Removal and Installation). TEST the system for normal operation. If the concern is still present, GO to <a href="#">O5</a>
<b>No</b>	REPAIR the circuit.

#### O5 CHECK FOR CORRECT FCIM (FRONT CONTROLS INTERFACE MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all [FCIM](#) connectors.
- Repair:
  - corrosion (install new connector or terminals – clean module pins)
  - damaged or bent pins – install new terminals/pins
  - pushed-out pins – install new pins as necessary
- Reconnect all [FCIM](#) connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

<b>Yes</b>	CHECK <a href="#">OASIS</a> for any applicable Technical Service Bulletins (TSBs). If a <a href="#">TSB</a> exists for this concern, DISCONTINUE this test and FOLLOW <a href="#">TSB</a> instructions. If no Technical Service Bulletins (TSBs) address this concern,     <b>VIN required to access Guided Routine (FCIM)</b>
<b>No</b>	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

#### B1B71:11, B1B71:15

Refer to Wiring Diagrams Cell [55](#) for schematic and connector information.

#### Normal Operation and Fault Conditions

Evaporator Temperature Sensor,  
REFER to: [Climate Control System - Vehicles With: Dual Automatic Temperature Control \(DATC\) - System Operation and Component Description](#) (412-00 Climate Control System - General Information, Description and Operation).

#### DTC Fault Trigger Conditions

DTC	Description	Fault Trigger Conditions
B1B71:11	Evaporator Temperature Sensor: Circuit Short To Ground	The module senses excessive voltage drop on the sensor reference voltage circuit, indicating a short directly to ground. The module defaults to calculated evaporator temperature and the compressor is shut off.

DTC	Description	Fault Trigger Conditions
B1B71:15	Evaporator Temperature Sensor: Circuit Short To Battery or Open	The module senses no voltage drop on the sensor reference voltage circuit, indicating a short directly to voltage or an open circuit. The module defaults to calculated evaporator temperature and the compressor is shut off.

**Possible Sources**

- Wiring, terminals or connectors
- Evaporator temperature sensor
- [FCIM](#)

**PINPOINT TEST P: B1B71:11, B1B71:15**

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

**P1 CHECK THE EVAPORATOR TEMPERATURE SENSOR RESISTANCE**

- Ignition OFF.
- Disconnect Evaporator temperature sensor [C296](#).
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
C296-1 (component side)	$\Omega$	C296-2 (component side)

- Compare the evaporator temperature sensor measured resistance with the table below.

Ambient Temperature °F (°C)	Resistance ohms
-39.9 °F (-40 °C)	98,625 - 103,275 ohms
-4.0 °F (-20 °C)	28,640 - 29,600 ohms
32.0 °F (0 °C)	9695 - 9895 ohms
68.0 °F (20 °C)	3675 - 3810 ohms
77.0 °F (25 °C)	2950 - 3050 ohms
86.0 °F (30 °C)	2370 - 2565 ohms
103.9 °F (40 °C)	1565 - 1635 ohms

Is the resistance within the specified values for the temperatures?

<b>Yes</b>	GO to <a href="#">P2</a>
<b>No</b>	INSTALL a new evaporator temperature sensor. REFER to: <a href="#">Evaporator Temperature Sensor</a> (412-00 Climate Control System - General Information, Removal and Installation).

**P2 CHECK THE EVAPORATOR TEMPERATURE SENSOR INPUT CIRCUIT FOR A SHORT TO VOLTAGE**

- Ignition ON.
- Disconnect [FCIM C2402A](#).
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2402A</a> Pin 19	$\overline{V}$	Ground

Is any voltage present?

<b>Yes</b>	REPAIR the circuit.
<b>No</b>	GO to <a href="#">P3</a>

**P3 CHECK THE EVAPORATOR TEMPERATURE SENSOR INPUT CIRCUIT FOR A SHORT TO GROUND**

- Connect [FCIM C2402A](#).
- Ignition OFF.
- Disconnect [FCIM C2402A](#).

• Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2402A</a> Pin 19	$\Omega$	Ground

Is the resistance greater than 10,000 ohms?

<b>Yes</b>	GO to <a href="#">P4</a>
<b>No</b>	REPAIR the circuit.

**P4 CHECK THE EVAPORATOR TEMPERATURE SENSOR INPUT CIRCUIT FOR AN OPEN**

• Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2402A</a> Pin 19	$\Omega$	<a href="#">C296</a> Pin 1

Is the resistance less than 3 ohms?

<b>Yes</b>	GO to <a href="#">P5</a>
<b>No</b>	REPAIR the circuit.

**P5 CHECK THE EVAPORATOR TEMPERATURE SENSOR SIGNAL AND SIGNAL RETURN CIRCUITS FOR A SHORT TOGETHER**

• Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C296</a> Pin 1	$\Omega$	<a href="#">C296</a> Pin 2




Is the resistance greater than 10,000 ohms?

<b>Yes</b>	GO to <a href="#">P6</a>
<b>No</b>	REPAIR the circuit.

**P6 CHECK FOR CORRECT FCIM (FRONT CONTROLS INTERFACE MODULE) OPERATION**

- Disconnect and inspect all [FCIM](#) connectors.
- Repair:
  - corrosion (install new connector or terminals – clean module pins)
  - damaged or bent pins – install new terminals/pins
  - pushed-out pins – install new pins as necessary
- Reconnect all [FCIM](#) connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

<b>Yes</b>	CHECK <a href="#">OASIS</a> for any applicable Technical Service Bulletins (TSBs). If a <a href="#">TSB</a> exists for this concern, DISCONTINUE this test and FOLLOW <a href="#">TSB</a> instructions. If no Technical Service Bulletins (TSBs) address this concern,     <b>VIN required to access Guided Routine (FCIM)</b>
<b>No</b>	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

Refer to Wiring Diagrams Cell [55](#) for schematic and connector information.

**Normal Operation and Fault Conditions**

A 5-volt reference voltage and ground is supplied to the climate control sensors and actuators from the [FCIM](#) .

**DTC Fault Trigger Conditions**

DTC	Description	Fault Trigger Conditions
C1B14:11	Sensor Supply Voltage A: Circuit Short to Ground	This DTC sets when the module senses less than 5 volts on the sensor reference voltage circuit, indicating a short to ground.
C1B14:12	Sensor Supply Voltage A: Circuit Short to Battery	This DTC sets when the module senses greater than 5 volts on the sensor reference voltage circuit, indicating a short to voltage.

**Possible Sources**

- Wiring, terminals or connectors
- [FCIM](#)

**PINPOINT TEST Q: C1B14:11, C1B14:12**

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

**Q1 CHECK THE FCIM (FRONT CONTROLS INTERFACE MODULE) DTCS**

- Ignition ON.
- Using a diagnostic scan tool, perform [FCIM](#) self-test.

Is DTC C1B14:11 present?

Yes	GO to <a href="#">Q2</a>
No	GO to <a href="#">Q5</a>

**Q2 CHECK THE REFERENCE VOLTAGE CIRCUIT FOR A SHORT TO GROUND**

- Ignition OFF.
- Disconnect [FCIM C2402A](#).
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2402A</a> Pin 3	$\Omega$	Ground

Is the resistance greater than 10,000 ohms?

Yes	GO to <a href="#">Q3</a>
No	REPAIR the circuit.

**Q3 CHECK THE REFERENCE VOLTAGE CIRCUIT AND THE SIGNAL RETURN CIRCUIT FOR A SHORT TOGETHER**

- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2402A</a> Pin 3	$\Omega$	<a href="#">C2402A</a> Pin 2

Is the resistance greater than 200 ohms?

Yes	GO to <a href="#">Q6</a>
No	GO to <a href="#">Q4</a>

**Q4 CHECK THE A/C (AIR CONDITIONING) COMPONENTS**

• Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2402A</a> Pin 3	$\Omega$	<a href="#">C2402A</a> Pin 2

• While measuring the resistance, disconnect the following components one at a time, in order. Stop disconnecting components if the measured resistance rises above 200 ohms.

- In-vehicle temperature and humidity sensor [C233](#)
- Driver side temperature door actuator [C2091](#)
- Air distribution door actuator [C232](#)
- Passenger temperature door actuator [C2092](#)
- Air inlet door actuator [C289](#)

**Did the resistance rise above 200 ohms?**

<b>Yes</b>	INSTALL a new sensor or actuator (the last one to be disconnected). Refer to the appropriate section in Group 412 for the procedure. When installing an actuator, CONNECT the actuator electrical connector before the <a href="#">FCIM</a> . This allows the actuator to be calibrated when the <a href="#">FCIM</a> is connected.
<b>No</b>	REPAIR the circuit.

**Q5 CHECK THE REFERENCE VOLTAGE CIRCUIT FOR A SHORT TO VOLTAGE**

• Disconnect [FCIM C2402A](#).

• Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C2402A</a> Pin 3	$\overline{V}$	Ground


**Is any voltage present?**

<b>Yes</b>	REPAIR the circuit.
<b>No</b>	GO to <a href="#">Q6</a>

**Q6 CHECK FOR CORRECT FCIM (FRONT CONTROLS INTERFACE MODULE) OPERATION**

- Connect [FCIM C2402A](#).
- Ignition OFF.
- Disconnect and inspect all [FCIM](#) connectors.
- Repair:
  - corrosion (install new connector or terminals – clean module pins)
  - damaged or bent pins – install new terminals/pins
  - pushed-out pins – install new pins as necessary
- Reconnect all [FCIM](#) connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

**Is the concern still present?**

<b>Yes</b>	CHECK <a href="#">OASIS</a> for any applicable Technical Service Bulletins (TSBs). If a <a href="#">TSB</a> exists for this concern, DISCONTINUE this test and FOLLOW <a href="#">TSB</a> instructions. If no Technical Service Bulletins (TSBs) address this concern,   <b>VIN required to access Guided Routine (FCIM)</b>
<b>No</b>	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

**P06A0**

Refer to Wiring Diagrams Cell [55](#) for schematic and connector information.

**Normal Operation and Fault Conditions**

The externally controlled variable displacement compressor is electronically controlled by the PCM . The PCM pulse width modulates the ground to the externally controlled variable displacement compressor to change the displacement of the A/C compressor.  
 REFER to: [Climate Control System - Vehicles With: Dual Automatic Temperature Control \(DATC\) - System Operation and Component Description](#) (412-00 Climate Control System - General Information, Description and Operation).

**DTC Fault Trigger Conditions**

DTC	Description	Fault Trigger Conditions
P06A0	Variable A/C Compressor Control Circuit	The <u>PCM</u> senses greater than expected voltage on the sensor feedback circuit, indicating a short to voltage or an open circuit or sensor.

**Possible Sources**

- Wiring, terminals or connectors
- A/C compressor
- PCM

**Visual Inspection and Diagnostic Pre-checks**

- Inspect for loose or corroded PCM and A/C compressor connections.

**PINPOINT TEST R: P06A0**

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

**R1 EXTERNALLY CONTROLLED VARIABLE DISPLACEMENT COMPRESSOR (EVDC) PERFORMANCE CHECK WITH THE AC COMPRESSOR ELECTRONIC CONTROL VALVE TESTER**

**NOTE:** The following pinpoint test step uses the EVDC100 Electronic Variable Displacement A/C Compressor Control Valve Tester, available on the Ford Rotunda website. If you do not have the EVDC100 Electronic Variable Displacement A/C Compressor Control Valve Tester, go to step 2 of this pinpoint test.

**NOTE:** Proper Air Conditioning (A/C) system diagnosis on a vehicle's compressor is dependent on correct refrigerant system charge and tested in ambient temperatures above 21.1°C (70°F).

- Test the EVDC compressor displacement, following the instructions in the user manual supplied with the Model EVDC100 A/C Compressor Electronic Control Valve Tester.

**Did the suction low side pressure decrease or the high side pressure increase?**

<b>Yes</b>	The Externally Controlled Variable Displacement Compressor (EVDC) is able to change the displacement. Do not replace the compressor. If <u>DTC</u> P06A0 is present, GO to <u>R4</u> If <u>DTC</u> P06A0 is not present, CHECK refrigerant charge amount. REFER to the appropriate general procedure in Group 412-00.
<b>No</b>	INSTALL a new <u>A/C</u> compressor. REFER to the appropriate procedure in Group 412-00. CLEAR all Diagnostic Trouble Codes (DTCs). TEST the system for normal operation. If <u>DTC</u> P06A0 is present, GO to <u>R4</u>

**R2 EXTERNALLY CONTROLLED VARIABLE DISPLACEMENT COMPRESSOR (EVDC) PERFORMANCE CHECK WITHOUT THE AC COMPRESSOR ELECTRONIC CONTROL VALVE TESTER**

**NOTE:** Proper Air Conditioning (A/C) system diagnosis on a vehicle's compressor is dependent on correct refrigerant system charge and tested in ambient temperatures above 21.1°C (70°F).

**NOTE:** The following pinpoint test step is used to determine if the Externally Controlled Variable Displacement Compressor (EVDC) is able to change the displacement by monitoring PCM Parameter Identifications (PIDS) soon after the air conditioning clutch is engaged. If the PCM EVACC PID is not available for the vehicle you are working on, go to step 3.

- Start the engine.
- Using a diagnostic scan tool, view PCM Parameter Identifications (PIDS).
- Using a diagnostic scan tool, monitor EVACC PID .
- Select the floor position on the HVAC controls. Set the temperature control to full warm and the blower to the lowest setting. Set the A/C to off. Close all windows and doors. Run for 5 minutes to heat up the climate control housing.
- Select the PANEL position on the HVAC controls. Set the temperature control to full cold and the blower to the highest setting. Set the recirc mode to on. Set the A/C to on.

**Did the PID initially increase and then decrease?**

<b>Yes</b>	The Externally Controlled Variable Displacement Compressor (EVDC) is able to change the displacement. Do not replace the compressor. CHECK refrigerant charge amount. REFER to the appropriate general procedure in Group 412-00.
<b>No</b>	GO to <u>R4</u>

**R3 EXTERNALLY CONTROLLED VARIABLE DISPLACEMENT COMPRESSOR (EVDC) PERFORMANCE CHECK**

**NOTE:** Proper Air Conditioning (A/C) system diagnosis on a vehicle's compressor is dependent on correct refrigerant system charge and tested in ambient temperatures above 21.1°C (70°F).

**NOTE:** The performance check test is used to determine if the Externally Controlled Variable Displacement Compressor (EVDC) is able to change the displacement by measuring the amperage to the solenoid and monitoring the manifold pressure gauges soon after the air conditioning clutch is engaged. This test is used when the EVDC100 Electronic Variable Displacement A/C Compressor Control Valve Tester and the PCM EVACC PID are not available for the vehicle you are working on.

- Ignition OFF.
- Disconnect BJB fuse 42 (15A).
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<u>BJB</u> fuse 42 socket, component side	$\overline{\text{A}}$	<u>BJB</u> fuse 42 socket, component side

- With a manifold gauge set connected, monitor the low side and high side pressures.
- Start the engine. Run the engine until it reaches normal operating temperature.
- Select the floor position on the HVAC controls. Set the temperature control to full warm and the blower to the highest setting. Set the A/C to off. Close all windows and doors. Run for 5 minutes to heat up the climate control housing.
- Monitor the multi meter and the manifold gauges. Select the PANEL position on the HVAC controls. Set the temperature control to full cold and the blower to the highest setting. Set the recirculated air mode to on. Set the A/C to on.
- Record the highest amperage measurement and the A/C pressures.

**Did the amperage initially increase approximately 0.8A, and did the low side pressure decrease and the high side pressure increase and after a few minutes did the amperage and high side pressure decrease and low side pressure increase?**

<b>Yes</b>	The Externally Controlled Variable Displacement Compressor (EVDC) is able to change the displacement. CHECK refrigerant charge amount. REFER to: Air Conditioning (A/C) System Recovery, Evacuation and Charging - Vehicles With: R134A Refrigerant (412-00) .
<b>No</b>	GO to <a href="#">R4</a>

#### R4 CHECK FOR VOLTAGE TO THE A/C (AIR CONDITIONING) COMPRESSOR CONTROL SOLENOID

- Ignition OFF.
- Connect BJB fuse 42 (15A).
- Disconnect A/C Compressor Control Solenoid [C1110](#).
- Ignition ON.
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C1110</a> Pin 2	$\overline{\text{V}}$	Ground

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

<b>Yes</b>	GO to <a href="#">R5</a>
<b>No</b>	VERIFY the <u>BJB</u> fuse 42 (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.

#### R5 CHECK THE A/C (AIR CONDITIONING) COMPRESSOR DISPLACEMENT CONTROL SOLENOID PWM (PULSE WIDTH MODULATION) CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.
- Disconnect PCM 2.3L [C1551B](#).
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C1110</a> Pin 1	$\Omega$	Ground

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

<b>Yes</b>	GO to <a href="#">R6</a>
<b>No</b>	REPAIR the circuit.

**R6 CHECK THE A/C (AIR CONDITIONING) COMPRESSOR DISPLACEMENT CONTROL SOLENOID PWM (PULSE WIDTH MODULATION) CIRCUIT FOR A SHORT TO VOLTAGE**

- Ignition ON.
- Measure:

[Click to display connectors](#)

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C1110</a> Pin 1	$\overline{V}$	Ground

Is any voltage present?

<b>Yes</b>	REPAIR the circuit.
<b>No</b>	GO to <a href="#">R7</a>

**R7 CHECK THE A/C (AIR CONDITIONING) COMPRESSOR DISPLACEMENT CONTROL SOLENOID PWM (PULSE WIDTH MODULATION) CIRCUIT FOR AN OPEN**

- Ignition OFF.
- Measure:

[Click to display connectors](#)

**2.3L**

Positive Lead	Measurement / Action	Negative Lead
<a href="#">C1110</a> Pin 1	$\Omega$	<a href="#">C1551B</a> Pin 41


Is the resistance less than 3 ohms?

<b>Yes</b>	INSTALL a new <u>A/C</u> compressor. For 2.3L REFER to: <a href="#">Air Conditioning (A/C) Compressor - 2.3L EcoBoost (231kW/314PS)</a> (412-00 Climate Control System - General Information, Removal and Installation).  CLEAR the <u>DTC</u> and REPEAT the self-test. If the <u>DTC</u> returns, GO to <a href="#">R8</a>
<b>No</b>	REPAIR the circuit.

**R8 CHECK FOR CORRECT PCM (POWERTRAIN CONTROL MODULE) OPERATION**

- Ignition OFF.
- Disconnect and inspect all PCM connectors.
- Repair:
  - corrosion (install new connector or terminals – clean module pins)
  - damaged or bent pins – install new terminals/pins
  - pushed-out pins – install new pins as necessary
- Reconnect the PCM connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

<b>Yes</b>	CHECK <u>OASIS</u> for any applicable Technical Service Bulletins (TSBs). If a <u>TSB</u> exists for this concern, DISCONTINUE this test and FOLLOW <u>TSB</u> instructions. If no Technical Service Bulletins (TSBs) address this concern,   <b>VIN required to access Guided Routine (PCM)</b>
<b>No</b>	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. ADDRESS the root cause of any connector or pin issues.

Refer to Wiring Diagrams Cell [55](#) for schematic and connector information.

**Normal Operation and Fault Conditions**

The **PCM** controls the **A/C** compressor clutch field coil based on messages received from the **BCM** over the **HS-CAN** . When the **FCIM** determines it is necessary to activate the **A/C** compressor due to driver request or automatic climate control settings, the **FCIM** sends a message to the **BCM** over the **MS-CAN** , the **BCM** then sends a message to the **PCM** to activate the **A/C** compressor.

An internal failure of the **PCM** , **BCM** or **FCIM** , or a failure in the **MS-CAN** or **HS-CAN** , causes the **PCM** to set a **DTC** .

**DTC Fault Trigger Conditions**

DTC	Description	Fault Trigger Conditions
P193E	A/C Clutch Request Signal	This <b>DTC</b> sets when the <b>PCM</b> does not receive the <b>A/C</b> enable request from the <b>BCM</b> .

**Possible Sources**

- Network concerns
- **BCM**
- **PCM**
- **FCIM**

**PINPOINT TEST S: P193E**

**S1 VERIFY THE CUSTOMER CONCERN**

- Ignition ON.
- Verify there is an observable symptom present.

Is an observable symptom present?

<b>Yes</b>	GO to <a href="#">S2</a>
<b>No</b>	The system is operating correctly at this time. The <b>DTC</b> may have been set due to high network traffic or an intermittent fault condition.

**S2 CHECK THE COMMUNICATION NETWORK**

- Using a diagnostic scan tool, carry out the Network Test.

Do the **BCM** , **PCM** and the **FCIM** pass the Network Test?

<b>Yes</b>	GO to <a href="#">S3</a>
<b>No</b>	DIAGNOSE the <b>BCM</b> , <b>PCM</b> or <b>FCIM</b> does not communicate with the diagnostic scan tool. REFER to: <a href="#">Communications Network</a> (418-00 Module Communications Network, Diagnosis and Testing).

**S3 CHECK THE PCM (POWERTRAIN CONTROL MODULE) A/C (AIR CONDITIONING) REQUEST SIGNAL (AC\_REQ) PID (PARAMETER IDENTIFICATION)**

- Start the engine.
- Using a diagnostic scan tool, monitor the **PCM AC\_REQ PID** .
- On the **HVAC** controls, select PANEL mode, then press the **A/C** button (indicator ON).

Does the **AC\_REQ PID** display YES when the **A/C** button indicator is illuminated?

<b>Yes</b>	GO to <a href="#">S7</a>
<b>No</b>	GO to <a href="#">S4</a>

**S4 CHECK THE FCIM (FRONT CONTROLS INTERFACE MODULE) A/C (AIR CONDITIONING) SWITCH (CC\_SW\_AC) PID (PARAMETER IDENTIFICATION)**

- Using a diagnostic scan tool, monitor the **FCIM CC\_SW\_AC PID** while pressing and releasing the **A/C** button.




Does the **PID** display Active when the **A/C** button indicator is illuminated?

<b>Yes</b>	GO to <a href="#">S6</a>
<b>No</b>	GO to <a href="#">S5</a>

## S5 CHECK FOR CORRECT FCIM (FRONT CONTROLS INTERFACE MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all FCIM connectors.
- Repair:
  - corrosion (install new connector or terminals – clean module pins)
  - damaged or bent pins – install new terminals/pins
  - pushed-out pins – install new pins as necessary
- Reconnect all FCIM connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.




### Is the concern still present?

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

## S6 VERIFY CORRECT BCM (BODY CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all BCM electrical connectors.
- Repair:
  - corrosion (install new connector or terminals – clean module pins)
  - damaged or bent pins – install new terminals or pins
  - pushed-out pins – install new pins as necessary
- Reconnect all BCM electrical connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.




### Is the concern still present?

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

## S7 VERIFY CORRECT PCM (POWERTRAIN CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all PCM electrical connectors.
- Repair:
  - corrosion (install new connector or terminals – clean module pins)
  - damaged or bent pins – install new terminals or pins
  - pushed-out pins – install new pins as necessary
- Reconnect all PCM electrical connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

### Is the concern still present?

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

