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Yes	GO to U4

No	REPAIR the circuit in question.

U4 CHECK THE EVAPORATOR TEMPERATURE SENSOR CIRCUITS FOR A SHORT TOGETHER

- Measure:

Positive Lead	Measurement / Action	Negative Lead
C296-1	Ω	C296-2

Is the resistance greater than 10,000 ohms?

Yes	INSTALL a new evaporator temperature sensor. REFER to: Evaporator Temperature Sensor (412-00 Climate Control System - General Information, Removal and Installation). TEST the system for normal operation. If the concern is still present, GO to U5

No	REPAIR the circuits.

U5 CHECK FOR CORRECT HVAC (HEATING, VENTILATION AND AIR CONDITIONING) CONTROL MODULE OPERATION

- Ignition OFF.
- Disconnect and inspect all HVAC (heating, ventilation and air conditioning) control module electrical connectors (if not previously disconnected).
- Repair:
  - corrosion (install new connector or terminal - clean module pins)
  - damaged or bent pins - install new terminals or pins
  - pushed-out pins - install new pins as necessary
- Connect all HVAC (heating, ventilation and air conditioning) control module electrical connectors. Make sure they seat and latch correctly.

Possible Sources

- Network concerns
- BCM (body control module)
- PCM (powertrain control module)
- HVAC (heating, ventilation and air conditioning) control module

V1 VERIFY THE CUSTOMER CONCERN

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

Is an observable symptom present?

Yes	GO to V2

No	CLEAR the DTC (diagnostic trouble code) . The system is operating correctly at this time. The DTC (diagnostic trouble code) may have been set due to high network traffic or an intermittent fault condition.

V2 CHECK THE COMMUNICATION NETWORK

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

Do the BCM (body control module) , PCM (powertrain control module) and the HVAC (heating, ventilation and air conditioning) control module pass the network test?

Yes	GO to V3

No	DIAGNOSE the BCM (body control module) , HVAC (heating, ventilation and air conditioning) control module or the PCM (powertrain control module) does not communicate with the diagnostic scan tool. REFER to: Controller Area Network (CAN) Module Communications Network (418-00A Controller Area Network (CAN) Module Communications Network, Diagnosis and Testing).

V3 CHECK THE PCM (POWERTRAIN CONTROL MODULE) A/C (AIR CONDITIONING) REQUEST SIGNAL (AC_REQ) PID (PARAMETER IDENTIFICATION)

- Connect all HVAC (heating, ventilation and air conditioning) control module 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?

Yes	CHECK OASIS (Online Automotive Service Information System) for any applicable service articles: TSB (Technical Service Bulletin) , GSB (General Service Bulletin) , SSM (special service message) or FSA (Field Service Action) . If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern, INSTALL a new HVAC (heating, ventilation and air conditioning) control module. REFER to: Heating, Ventilation and Air Conditioning (HVAC) Control Module (412-00 Climate Control System - General Information, Removal and Installation).

No	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.

V6 VERIFY CORRECT BCM (BODY CONTROL MODULE) OPERATION

- Ignition OFF.
- Disconnect and inspect all BCM (body control module) electrical 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 BCM (body control module) 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?

Yes	CHECK OASIS (Online Automotive Service Information System) for any applicable service articles: TSB (Technical Service Bulletin) , GSB (General Service Bulletin) , SSM (special service message) or FSA (Field Service Action) . If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern, INSTALL a new BCM (body control module) . REFER to: Body Control Module (BCM) (419-10 Multifunction Electronic Modules, Removal and Installation).

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).

Normal Operation and Fault Conditions

INSPECT the A/C (air conditioning) system for a leak. GO to Pinpoint Test AO

Some sounds are normal when the A/C (air conditioning) system is operating. When the refrigerant charge is found to be correct, compare to a like vehicle.

Possible Sources

- Low refrigerant charge
- Air Conditioning (A/C) compressor clutch air gap out of specification
- Air Conditioning (A/C) compressor pulley bearing worn
- Air Conditioning (A/C) compressor bearing worn
- Air Conditioning (A/C) lines or hoses in contact with frame or other components

Diagnostic steps are not provided for this symptom or DTC. REFER to: Diagnostic Methods (100-00 General Information, Description and Operation).

PINPOINT TEST X : AIR CONDITIONING (A/C) ELECTRIC COMPRESSOR INOPERATIVE OR OPERATING POORLY AIR CONDITIONING CONTROL MODULE (ACCM)

Refer to Wiring Diagrams Cell 55for schematic and connector information.

Normal Operation and Fault Conditions The ACCM (air conditioning control module) is an integral part of the A/C (air conditioning) electric compressor and cannot be removed from or serviced separately. The ACCM (air conditioning control module) has both low voltage and high voltage electrical connections. The ACCM (air conditioning control module) requires a low voltage system operating voltage between 9 and 16 volts. The ACCM (air conditioning control module) also requires high voltage system operating voltage between 100 and 467 volts. The ACCM (air conditioning control module) has a single ground circuit located in the engine compartment wiring harness. Excessive resistance or an open in one or more of these circuits, a discharged battery or an inoperative charging system results in the ACCM (air conditioning control module) setting a DTC (diagnostic trouble code) . To validate repairs have been completed, using a diagnostic scan tool, clear all Diagnostic Trouble Codes (DTCs) and carry out a self-test of the SOBDMC (secondary on-board diagnostic control module C) . The SOBDMC (secondary on-board diagnostic control module C) self-test requests the climate control systems to activate. **DTC Fault Trigger Conditions**

DTC (diagnostic trouble code)	Description	Fault Trigger Condition
ACCM (air conditioning control module) P0562:00	System Voltage Low: No Sub Type Information	This DTC (diagnostic trouble code) sets when the ACCM (air conditioning control module) detects low voltage system voltage is below 8.5 volts. The A/C (air

module) B11EE:92	Operation	number of stops due to "software overcurrent" or "start failure" exceeds a specified value. The A/C (air conditioning) electric compressor motor is stopped. A/C doesn't work.
SOBDMC (secondary on-board diagnostic control module C) P0D6D:00	A/C Compressor 'A' Motor Voltage 'A' Low: No Sub Type Information	Signal received from ACCM (air conditioning control module) indicates motor voltage out of range.
SOBDMC (secondary on-board diagnostic control module C) P0D6F:00	A/C Compressor 'A' Motor Current High: No Sub Type Information	Test fails when signal from ACCM (air conditioning control module) indicates motor current too high.
SOBDMC (secondary on-board diagnostic control module C) P0D71:00	A/C Compressor Control Module Internal Temperature Sensor 'A' Performance: No Sub Type Information	Test fails when ACCM (air conditioning control module) indicates internal temperature sensor performance fault.
SOBDMC (secondary on-board diagnostic control module C) P26FD:00	A/C Compressor 'A' Internal Control Module Performance: No Sub Type Information	Test fails when ACCM (air conditioning control module) indicates internal control module performance fault
SOBDMC (secondary on-board diagnostic control module C) P2D41:00	A/C Compressor 'A' Motor Voltage 'B' Performance: No Sub Type Information	Test fails when ACCM (air conditioning control module) indicates motor voltage "B" fault.
SOBDMC (secondary on-board diagnostic control module C) P2D42:00	A/C Compressor 'A' Motor Voltage 'B' Low: No Sub Type Information	Test fails when ACCM (air conditioning control module) indicates motor voltage "B" fault.
SOBDMC (secondary on-board diagnostic control module C) P2D44:00	A/C Compressor 'A' Motor Performance: No Sub Type Information	Test fails when ACCM (air conditioning control module) indicates motor performance fault.

	(418-00A Controller Area Network (CAN) Module Communications Network, Diagnosis and Testing).

X3 CHECK THE PCM (POWERTRAIN CONTROL MODULE) AIR CONDITIONING (A/C) PRESSURE SENSOR (ACP_PRESS) PARAMETER IDENTIFICATION (PID)

NOTE

The following pinpoint test step is tested in ambient temperature of approximately 21.1°C (70°F). As ambient temperatures near 38°C (100.4°F), the pressure value difference increases above ± 15 psi (103 kPa) range.

- Ignition ON.
- Using a diagnostic scan tool, view PCM (powertrain control module) Parameter Identifications (PIDs).
- With the manifold gauge set connected, compare the pressure readings of the manifold gauge set and the
  Access the PCM (powertrain control module) and monitor the ACP_PRESS ((A/C) pressure sensor) (kPa) PID (parameter identification)

Are the pressure values of the manifold gauge set and the ACP_PRESS PCM (powertrain control module) PID (parameter identification) , dependent upon ambient temperatures, within ± 103 kPa (15 psi)?

Yes	GO to X4

No	DIAGNOSE the A/C (air conditioning) pressure transducer. GO to Pinpoint Test A

X4 CARRY OUT THE DCDC (DIRECT CURRENT/DIRECT CURRENT CONVERTER CONTROL MODULE) SELF-TEST

- Using a diagnostic scan tool, carry out the DCDC (direct current/direct current converter control module) self-test.

Are any DCDC (direct current/direct current converter control module) Diagnostic Trouble Codes (DTCs) present?

Yes	DIAGNOSE the DCDC (direct current/direct current converter control module) Diagnostic Trouble Codes (DTCs). REFER to: Direct Current/Direct Current (DC/DC) Converter Control Module - Electric

Ready to Drive mode. Switch the ignition on with transmission selector lever in position P. Look for the green ready indicator light to appear in the lower right portion of the instrument cluster and a ready to drive message to appear in the middle of the left cluster screen.

- Ignition ON.
- Using a diagnostic scan tool, clear the ACCM (air conditioning control module) Diagnostic Trouble Codes (DTCs).
- Using a diagnostic scan tool, carry out the ACCM (air conditioning control module) self-test.

Does DTC (diagnostic trouble code) P0562:00, P0563:00, P0AFA:16, P0AFB:17, P0AFB:1C, B11EE:19, B11EE:4B or B11EE:92 return?

Yes	GO to X7

No	IGNORE the DTC (diagnostic trouble code) and CONTINUE diagnosing other Diagnostic Trouble Codes (DTCs) or symptoms. GO to the ACCM (air conditioning control module) DTC (diagnostic trouble code) Chart or Symptom Chart – Climate Control in this section.

X7 CHECK THE ACCM (AIR CONDITIONING CONTROL MODULE) MAIN ECU VOLTAGE SUPPLY MAINECUV PARAMETER IDENTIFICATION (PID)

- With the vehicle in Ready to Drive mode,
  Access the ACCM (air conditioning control module) and monitor the MAINECUV (Main ECU voltage supply) (V) PID (parameter identification)
  .

Is the voltage PID (parameter identification) between 9 volts and 16 volts?

Yes	GO to X10

No	GO to X8

X8 CHECK THE ACCM (AIR CONDITIONING CONTROL MODULE) LOW VOLTAGE SUPPLY CIRCUIT

NOTICE

Use the correct probe adapter(s) when making measurements. Failure to use the correct probe

No	REPAIR the circuit.

X10 CHECK THE ACCM (AIR CONDITIONING CONTROL MODULE) ELECTRIC A/C COMPRESSOR HIGH VOLTAGE SUPPLY PARAMETER IDENTIFICATION (PID)

- With the vehicle in Ready to Drive mode,
  Access the ACCM (air conditioning control module) and monitor the ACCM_CHVS (Electric A/C Compressor High Voltage Supply) (V) PID (parameter identification)

Is the voltage supply PID (parameter identification) between 100 volts and 467 volts?

Yes	GO to X13

No	GO to X11

X11 CHECK THE ACCM (AIR CONDITIONING CONTROL MODULE) ELECTRIC A/C COMPRESSOR HIGH VOLTAGE CABLES FOR AN OPEN

WARNING

To prevent the risk of high-voltage shock, always follow precisely all warnings and service instructions, including instructions to depower the system. The high-voltage system utilizes approximately 450 volts DC, provided through high-voltage cables to its components and modules. The high-voltage cables and wiring are identified by orange harness tape or orange wire covering. All high-voltage components are marked with high-voltage warning labels with a high-voltage symbol. Failure to follow these instructions may result in serious personal injury or death.

- Ignition OFF.
- De-energize (Depower) the High Voltage Battery system.
  REFER to: High Voltage System De-energizing - Full Hybrid Electric Vehicle (FHEV)(414-03A High Voltage Battery, Mounting and Cables, General Procedures).
- Disconnect ACCM (air conditioning control module) C1803B .
- Disconnect DCDC (direct current/direct current converter control module) C1457A .
- Measure:
  HEV (hybrid electric vehicle)

Positive Lead	Measurement / Action	Negative Lead

No	INSTALL a new high voltage low current fuse. REFER to: High Voltage Low Current Fuse - Electric (414-03A High Voltage Battery, Mounting and Cables, Removal and Installation). CLEAR all Diagnostic Trouble Codes (DTCs). TEST the system for normal operation. If the concern is still present, GO to X13

X13 CHECK FOR CORRECT ACCM (AIR CONDITIONING CONTROL MODULE) OPERATION

NOTE

Before testing of the Air Conditioning (A/C) electric compressor Air Conditioning Control Module (ACCM) with a diagnostic scan tool can be performed on a Hybrid Electric Vehicle (HEV), the vehicle must be in Ready to Drive mode. Switch the ignition on with transmission selector lever in position P. Look for the green ready indicator light to appear in the lower right portion of the instrument cluster and a ready to drive message to appear in the middle of the left cluster screen.

- Ignition OFF.
- Disconnect and inspect all ACCM (air conditioning control module) 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 ACCM (air conditioning control module) connectors. Make sure they seat and latch correctly.
- Place vehicle in Ready to Drive mode.
- Using a diagnostic scan tool, clear all Diagnostic Trouble Codes (DTCs).
- Ignition OFF.
- Wait 10 seconds.
- Place vehicle in Ready to Drive mode.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	CHECK OASIS (Online Automotive Service Information System) for any applicable service articles: TSB (Technical Service Bulletin) , GSB (General Service Bulletin) , SSM (special service message) or FSA (Field Service Action) . If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern, INSTALL a new A/C (air conditioning) electric compressor. REFER to: Air Conditioning (A/C) Compressor - 3.5L V6 PowerBoost (CN)