

B0126, B0409, or B0419 the mode actuator, the driver air temperature actuator, The HVAC door actuator

Circuit Description

- DTC B0126 is for the mode actuator.
- DTC B0409 is for the driver air temperature actuator.
- DTC B0419 is for the passenger air temperature actuator. The HVAC door actuator is an electronic motor with a feedback potentiometer. The HVAC control module supplies power and ground to the actuator. The HVAC control module controls the direction of the actuator by changing the polarity of the control circuit. When the actuator reaches the desired position, voltage is removed from the control circuit. The HVAC control module determines the current position of the actuator by monitoring the feedback voltage of the door position signal circuit. The feedback potentiometer position is a function of the actuator position.

Conditions for Running the DTC

- The ignition is ON.
- Ignition voltage is between 9–16 volts.

Conditions for Setting the DTC

The actual door position differs from the commanded door position by 4 counts or greater for more than 16 seconds.

Action Taken When the DTC Sets

The HVAC control module will not command actuator movement past the point where the stall condition is detected and will continue to make use of the remaining nonrestricted range.

Conditions for Clearing the DTC

- The DTC will become history if the HVAC control module no longer detects the condition that set the DTC.

- The history DTC will clear after 50 fault free ignition cycles.
- The DTC can be cleared with a scan tool.

Diagnostic Aids

- The condition may be intermittent. Refer to Testing for Intermittent and Poor Connections in Wiring Systems.
- Inspect the appropriate HVAC door and actuator for the following conditions:
 - A misaligned door actuator
 - Broken or binding linkages or door
 - An obstruction that prevents the door from operating within its full range of motion

Test Description

The number below refers to the step number on the diagnostic table.

5. This step verifies that the HVAC control module is able to command the appropriate HVAC actuator through its full range of motion.

Step	Action	Yes	No
Schematic Reference: HVAC Schematics Connector End View Reference: HVAC Connector End Views			
1	Did you perform the HVAC Diagnostic System Check?	Go to Step 2	Go to Diagnostic System Check -HVAC Systems -Automatic on page 1-167
2	1. Install a scan tool. 2. Turn ON the ignition, with the engine OFF. 3. With a scan tool, select the Climate Control Panel display DTCs function. Does the scan tool indicate that DTC B0130, B0414 or B0424 are set as current or history DTCs?	Go to DTC B0130, B0414, or B0424	Go to Step 3

Step	Action	Yes	No
3	With a scan tool, observe the Ignition 3 Input parameter in the Climate Control Panel data list. Does the scan tool indicate that the Ignition 3 Input parameter displays Active?	Go to Step 4	Go to Step 11
4	With the scan tool, observe the appropriate Dr. Commanded data parameter and the appropriate Dr. Act data parameter in the Climate Control Panel Data list. Does the scan tool indicate that the appropriate Dr. Commanded value is within 4 counts of the appropriate Dr. Actual parameter?	Go to Step 5	Go to Step 6
5	With the scan tool, command the appropriate HVAC door actuator to the minimum and maximum positions. Does the appropriate Dr. Actual value change by more than 4 counts?	Go to Diagnostic Aids	Go to Step 6
6	<ol style="list-style-type: none"> 1. Turn OFF the ignition. 2. Disconnect HVAC control module. 3. Connect a 3-amp fused jumper wire between the control A circuit of the appropriate HVAC actuator and battery positive voltage. 4. Connect a second 3-amp fused jumper wire between the control B circuit of the appropriate HVAC actuator and a good ground. 5. Observe the actuator drive shaft. Does the actuator shaft rotate? 	Go to Step 9	Go to Step 7

Step	Action	Yes	No
7	1. Connect a 3-amp fused jumper wire between the control B circuit of the appropriate HVAC actuator and battery positive voltage. 2. Connect a second 3-amp fused jumper wire between the control A circuit of the appropriate HVAC actuator and a good ground. 3. Observe the actuator drive shaft. Does the actuator shaft rotate?	Go to Step 9	Go to Step 8
8	Test the control A circuit and control B circuit of the appropriate actuator for an open, a high resistance, a short to ground or a short to voltage. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 18	Go to Step 12
9	Test the 5-volt reference circuit of the appropriate actuator for an open. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 18	Go to Step 10
10	Test the position signal circuit of the appropriate actuator for an open, short to ground or short to voltage. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 18	Go to Step 14
11	1. Turn OFF the ignition. 2. Disconnect the HVAC control module. 3. Turn ON the ignition, with the engine OFF. 4. Probe the ignition 3 voltage circuit of the HVAC control module with a test lamp that is connected to a good ground. Does the test lamp illuminate?	Go to Step 14	Go to Step 15

Step	Action	Yes	No
12	<p>Inspect the appropriate HVAC door and appropriate HVAC actuator for the following conditions:</p> <ul style="list-style-type: none"> • A misaligned HVAC actuator • Broken or binding linkages or door • An obstruction that prevents the door from operating within its full range of motion <p>Did you find and correct the condition?</p>	Go to Step 18	Go to Step 13
13	<p>Inspect for poor connections at the harness connector of the appropriate HVAC actuator. Refer to Testing for Intermittent and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?</p>	Go to Step 18	Go to Step 16
14	<p>Inspect for poor connections at the harness connector of the HVAC control module. Refer to Testing for Intermittent and Poor Connections on page 8-1187 and Connector Repairs on page 8-1198 in Wiring Systems. Did you find and correct the condition?</p>	Go to Step 18	Go to Step 17
15	<p>Repair the ignition 3 voltage circuit of the HVAC control module. Refer to Wiring Repairs on page 8-1189 in Wiring Systems. Did you complete the repair?</p>	Go to Step 18	—
16	<p>Replace the appropriate HVAC actuator. Refer to the appropriate replacement procedure:</p> <ul style="list-style-type: none"> • Mode Actuator Replacement • Air Temperature Actuator Replacement -Right • Air Temperature Actuator Replacement -Left <p>Did you complete the replacement?</p>	Go to Step 18	—
17	<p>Replace the HVAC control module. Refer to HVAC Control Module Replacement. Did you complete the replacement?</p>	Go to Step 18	—

Step	Action	Yes	No
18	1. Use the scan tool in order to clear the DTCs. 2. Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text. Does the DTC reset?	Go to Step 2	System OK

LAUNCH