B0130, B0414, or B0424 The HVAC control module controls

Circuit Description

- B0130 is for the mode actuator.
- B0414 is for the driver air temperature actuator.
- B0424 is for the passenger air temperature actuator.

The HVAC control module controls the HVAC door actuators to regulate the airflow through the HVAC system. Each actuator consists of an electric motor and a potentiometer. The potentiometer inside the door actuator allows the module to monitor the current position of the actuator drive shaft. The module supplies a 5 volt source voltage to the potentiometer on the 5 volt reference circuit. The module supplies ground to the potentiometer through the low reference circuit. The HVAC control module monitors the voltage drop across the potentiometer on the door position signal circuit. When the actuator shaft rotates, the voltage on the door position signal circuit changes.

Conditions for Running the DTC

The ignition is turned ON.

Conditions for Setting the DTC

The HVAC control module detects the door position signal circuit is less than 7 counts or greater than 250 counts for 1 minute.

Action Taken When the DTC Sets

The HVAC control module uses only the minimum and maximum door positions.

Conditions for Clearing the DTC

- The DTC becomes history when 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

• If the condition is not present, refer to Testing for Intermittent and Poor Connections on page 8-1187 in Wiring Systems.
• The following conditions may cause multiple DTCs to set:
An open, short to ground or short to voltage on the 5 volt reference circuit.
An open on the low reference circuit
An internally shorted actuator
An insufficient 5 volt supply from the HVAC control module on the 5 volt reference circuit
An insufficient ground through the HVAC control module on the low reference circuit

Test Description

The numbers below refer to the step numbers on the diagnostic table.
4. Tests for the proper operation of the circuit in the high voltage range.
5. Tests for the proper operation of the circuit in the low voltage range. If the fuse in the jumper opens when you perform this test, the signal circuit is shorted to voltage.
6. Tests for a short to ground in the 5 volt reference circuit.

Step	Action	Values	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

Step	Action	Values	Yes	No
2	1. Install a scan tool. 2. Turn ON the ignition, with the engine OFF. 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 3	Go to Step 12
3	With a scan tool, observe the appropriate Dr. Actual parameter in the Climate Control Panel HVAC Door Positions data list. Does the scan tool indicate that the appropriate Dr. Actual parameter is within the specified range?	7–250 counts	Go to Diagnostic Aids	Go to Step 4
4	1. Turn OFF the ignition. 2. Disconnect the appropriate HVAC door actuator. 3. Turn ON the ignition, with the engine OFF. 4. With a scan tool, observe the appropriate Dr. Actual parameter. Does the scan tool indicate that the appropriate Dr. Actual parameter is greater than the specified value?	250 counts	Go to Step 5	Go to Step 9

Step	Action	Values	Yes	No
5	1. Turn OFF the ignition. 2. Connect a 3-amp fused jumper wire between the position signal circuit of the appropriate HVAC door actuator and the low reference circuit of the appropriate HVAC door actuator. 3. Turn ON the ignition, with the engine OFF. 4. With a scan tool, observe the appropriate Dr. Actual parameter. Does the scan tool indicate that the appropriate Dr. Actual parameter is less than the specified value?	7 counts	Go to Step 6	Go to Step 10
6	1. Turn OFF the ignition. 2. Disconnect the fused jumper wire. 3. Connect a 3-amp fused jumper wire between the position signal circuit of the appropriate HVAC door actuator and the 5-volt reference circuit of the appropriate HVAC door actuator. 4. Turn ON the ignition, with the engine OFF. 5. With a scan tool, observe the appropriate Dr. Actual parameter. Does the scan tool indicate that the appropriate Dr. Actual parameter is greater than the specified value?	250 counts	Go to Step 8	Go to Step 7

Step	Action	Values	Yes	No
7	Test the 5-volt reference circuit of the appropriate HVAC door actuator for a short to ground. 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
8	Test the 5-volt reference circuit of the appropriate HVAC door actuator for a short to voltage, a high resistance, or 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 13