

# P1531 the sensor resistance and signal voltage are low

## Circuit Description

The HVAC control module monitors the evaporator temperature via the evaporator temperature sensor. When the air is cold, the sensor resistance and signal voltage are high. When the air is warm, the sensor resistance and signal voltage are low.

## Conditions for Running the DTC

The ignition is turned ON.

## Conditions for Setting the DTC

The HVAC control module detects the evaporator temperature sensor signal circuit is less than 0.09 volt (5 counts) or greater than 4.90 volts (250 counts).

## Action Taken When the DTC Sets

- The driver information center will display SERVICE A/C SYSTEM.
- The A/C OFF segment will illuminate on the HVAC control module.
- The A/C compressor will be disabled.

## Conditions for Clearing the DTC

- The DTC will become history if the HVAC control module no longer detects a failure.
- The history DTC will clear after 50 fault free ignition cycles.
- The DTC can be cleared with a scan tool.

## Test Description

The numbers below refer to the step numbers on the diagnostic table.  
3. Tests for the proper operation of the circuit in the high voltage range.

4. Tests for the proper operation of the circuit in the low voltage range. If the fuse in the jumper opens upon performing this test, the signal circuit has a short to voltage.

**DTC P1531**

Step	Action	Values	Yes	No
<b>Schematic Reference: HVAC Schematics</b> <b>Connector End View Reference: HVAC Connector End Views</b>				
1	Did you perform the HVAC Diagnostic System Check?	—	Go to Step 2	Go to Diagnostic System Check - HVAC Systems - Automatic
2	1. Install a scan tool. 2. Turn ON the ignition, with the engine OFF. 3. With a scan tool, observe the Evaporator Temp parameter in the Climate Control Panel, Open/Short data list. Does the scan tool indicate that the Evaporator temp parameter is within the specified range?	0.09–4.90 V	Go to Testing for Intermittent and Poor Connections in Wiring Systems	Go to Step 3
3	1. Turn OFF the ignition. 2. Disconnect the evaporator temperature sensor. 3. Turn ON the ignition, with the engine OFF. 4. With a scan tool, observe the Evaporator Temp parameter. Is the Evaporator Temp parameter greater than the specified value?	4.90 V	Go to Step 4	Go to Step 5

Step	Action	Values	Yes	No
4	<ol style="list-style-type: none"> <li>1. Turn OFF the ignition.</li> <li>2. Connect a 3-ampere fused jumper wire between the signal wire between the signal circuit of the evaporator temperature sensor and the low reference circuit of the evaporator temperature sensor.</li> <li>3. Turn ON the ignition, with the engine OFF.</li> <li>4. With a scan tool, observe the Evaporator Temp parameter. Is the Evaporator Temp parameter less than the specified value?</li> </ol>	0.09 V	Go to Step 9	Go to Step 6
5	Test the signal circuit of the evaporator temperature sensor 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 13	Go to Step 10
6	Test the signal circuit of the evaporator temperature sensor for one of the following conditions: <ul style="list-style-type: none"> <li>• A short to voltage</li> <li>• A high resistance</li> <li>• An open Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?</li> </ul>	—	Go to Step 13	Go to Step 7
7	Test the low reference circuit of the evaporator temperature sensor for one of the following conditions: <ul style="list-style-type: none"> <li>• A high resistance</li> <li>• An open Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?</li> </ul>	—	Go to Step 13	Go to Step 8

Step	Action	Values	Yes	No
8	<p>Test the following signal circuits for a short to voltage:</p> <ul style="list-style-type: none"> <li>• Inside air temperature sensor</li> <li>• Ambient air temperature sensor</li> <li>• Left sunload sensor</li> <li>• Right sunload sensor</li> <li>• Ambient light sensor</li> </ul> <p>Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?</p>	—	Go to Step 13	Go to Step 10
9	<p>Inspect for poor connections at the harness connector of the evaporator temperature sensor. 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 13	Go to Step 11
10	<p>Inspect for poor connections at the harness connector of the HVAC control module. 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 13	Go to Step 12
11	<p>Replace the evaporator temperature sensor. Refer to Evaporator Core Replacement. Did you complete the replacement?</p>	—	Go to Step 13	—
12	<p>Replace the HVAC control module. Refer to HVAC Control Module Replacement. Did you complete the replacement?</p>	—	Go to Step 13	—

Step	Action	Values	Yes	No
13	1. Use the scan tool in order to clear the DTCs. 2. Operate the vehicle within the Conditions for Running the DTC. Does the DTC reset?	—	Go to Step 2	System OK

LAUNCH