

2001 Chevrolet Corvette

2000-01 AUTOMATIC A/C-HEATER SYSTEMS Corvette

2000-01 AUTOMATIC A/C-HEATER SYSTEMS

Corvette

SPECIFICATIONS

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Application	Specification
Compressor Type	Harrison V7
Compressor Belt Tension	(1)
System Oil Capacity	(2) 9 ozs.
Refrigerant (R-134a) Capacity	24 ozs.
System Operating Pressures ⁽³⁾	
Low Side	26 psi (1.8 kg/cm ²)
High Side	179 psi (12.5 kg/cm ²)
(1) Belt tension is adjusted by automatic belt tensioner.	
(2) Use PAG Oil (Polyalkylene glycol, Part No. 12345923).	
(3) Specifications with engine speed at 1000 RPM, ambient temperature at 80°F (27°C).	

DESCRIPTION

WARNING: To avoid injury from accidental air bag deployment, read and carefully follow all SERVICE PRECAUTIONS and DISABLING & ACTIVATING AIR BAG SYSTEM procedures in AIR BAG SYSTEM SAFETY article in GENERAL SERVICING.

Automatic, dual-zone A/C-heater system uses 2 bi-directional electric motors to position each temperature door. Driver may select desired interior temperature, fan speed and up to 8 modes of operation. During AUTO mode, system automatically adjusts discharge locations, fan speed and discharge air temperature to maintain desired interior temperature. Passenger knob of control panel can adjust discharge temperature for passenger side of vehicle. A memory zone is available which can store specific settings and recall them at any time.

A/C system is a Variable Displacement Orifice Tube (VDOT) type. Compressor engagement is controlled by Powertrain Control Module (PCM). The VDOT utilizes a variable displacement

compressor which can maintain A/C demand under all conditions without cycling on and off.

Combined with Variable Displacement Orifice Tube (VDOT) system, HVAC control head regulates blower motor fan speed and generates command signals to A/C-heater programmer and blower control module. The VDOT system for automatic, dual-zone A/C-heater system is similar to manual A/C-heater system.

OPERATION

HVAC CONTROL HEAD

The Heating Ventilation Air Conditioning (HVAC) control head (panel) controls operation of A/C-heater system. A/C-heater system is a dual-zone system and can adjust temperature for driver and for passenger comfort. When in AUTO mode, system can automatically adjust A/C-heater controls. HVAC control head is monitored by Body Control Module (BCM) and has self-diagnostic capabilities.

A/C Button

Manually activates and deactivates A/C compressor. A/C can be selected in all modes except FRONT defrost mode. If A/C is selected during FRONT defrost mode, A/C button light will flash, indicating this function is not available at this time. See **Fig. 1** .

AUTO Mode Button

In this mode, system automatically adjusts mode, blower motor fan speed, and A/C compressor to maintain temperature selected by driver. Blower motor speed is controlled automatically unless it is changed by pressing fan up or down button. See **Fig. 1** .

Bi-Level Mode

In this mode, airflow from HVAC module is directed to flow through heater and A/C outlets, with a small amount directed to defroster and side window defroster outlets.

Blower Speed Select Switch

Manually controls blower speed. When selected, AUTO mode is turned off and manual control of HVAC system is available.

Defog Mode

When defogger mode is selected, outside air is dehumidified, then heated. Airflow is directed to flow through defroster and floor outlets.

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Defrost Mode Button

In this mode, A/C compressor is engaged to remove moisture in air. Air is then heated and most air is directed to windshield, with a small amount directed to floor outlet. Fan motor speed is selected by driver.

Digital Display

The digital display shows readings in Fahrenheit (F) or Celsius (C) by pressing E/M (english/metric) button on driver information center. The display will show current mode, fan speed and selected driver side set temperature for 5 seconds and then show ambient air temperature. When a change in desired temperature is made, the new temperature reading will be displayed for 5 seconds and then go back to ambient air temperature. When HVAC control head is switched off, only ambient air temperature will be displayed. When HVAC system is in full automatic mode, the word AUTO will be displayed. If you have selected a manual fan speed, then fan symbol will appear on the display. If a manual mode has been selected, the corresponding mode symbol will appear on the display.

Driver/Passenger Temperature Control Knobs

Control driver/passenger air mix doors respectively to regulate outlet temperatures. Passenger's control knob will not have any effect on temperature if driver's control knob is set at maximum hot or cold.

Heater Mode

In this mode, most air entering vehicle is directed to floor outlets, with a small amount directed to defroster outlets. System will adjust to temperature selected by driver.

MODE Button

When depressed, AUTO mode is turned off and manual mode selection is available. See **Fig. 1** .

OFF

Air will flow through vents when car is moving. Control panel will display SET TEMP information for 5 seconds, then OUTSIDE TEMP will be displayed. See **Fig. 1** .

Outside Air (OSA) Button

In this mode, fresh air will flow from the outside to the interior of the vehicle. When operating in this mode, the OSA button will light up. When in AUTO mode, system will automatically select outside air to control interior temperature of vehicle. The system will lock into fresh air mode by

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pressing OSA button.

Recirculation Mode Button

In this mode, maximum cooling is provided by recirculating passenger compartment air with a small amount of outside air. Recirculation mode is used for maximum cooling during A/C operation and during defrost/defog modes. See [Fig. 1](#) .

Rear Defrost Mode Button

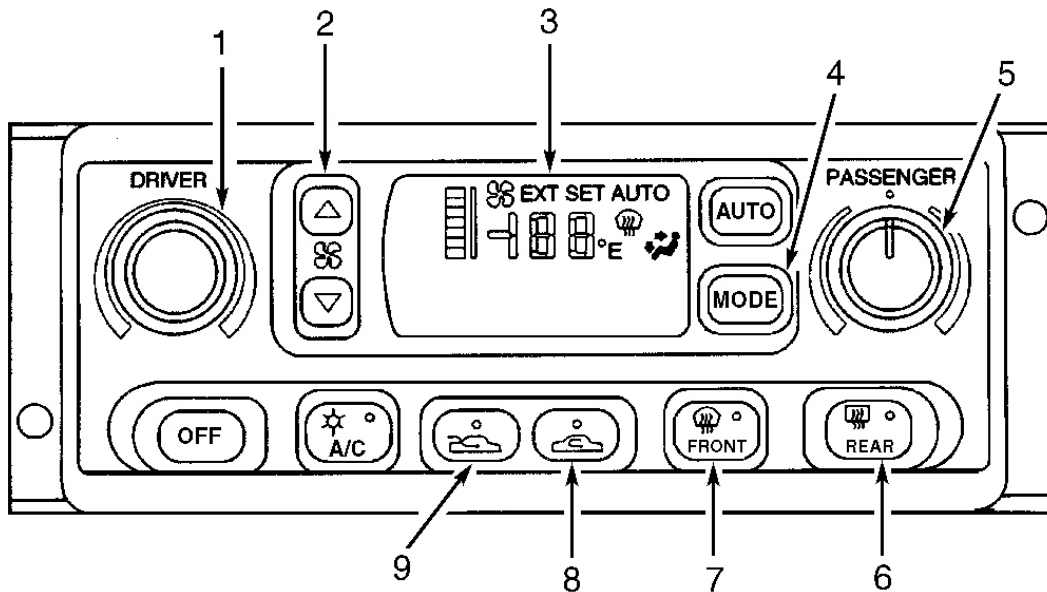
In this mode, system defrosts rear window and activates heated mirrors (if equipped). System will operate for 10 minutes and automatically shut off. If activated again, system will operate for 5 minutes.

Upper (Vent) Mode

In this mode, outside air is drawn through HVAC module and airflow is directed to panel outlets. Temperature of air can be heated if desired.

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1. Driver's Side Temperature Control Knob
2. Blower Speed Select Switch
3. HVAC Function Display
4. Mode Button
5. Passenger Side Temperature Control Knob
6. Rear Window Defrost Button
7. Front Window Defrost Mode Select Button
8. Recirculated Air Button
9. Outside Air Button

G98I03154

Fig. 1: Identifying HVAC Control Head
Courtesy of GENERAL MOTORS CORP.

AMBIENT TEMPERATURE SENSOR

Ambient Temperature Sensor (ATS) is located on right side of radiator upper support. Sensor resistance changes as temperature of air outside of vehicle changes. Sensor low current signal corresponds to actual temperature of outside air. Sensor low current signal is monitored by HVAC control head.

BLOWER CONTROL MODULE

Blower control module is located under right side of dashboard, on blower motor assembly. Module supplies voltage to blower motor. Depending on speed selected the voltage supplied will be from 4 to 12 volts. The blower module receives a 12-volt pulse width signal from HVAC control head. Signal width is increased as blower speed requested is increased.

INSIDE TEMPERATURE SENSOR

Inside Temperature Sensor (ITS) is located on right side of steering column, next to ignition switch, in a dedicated vent. Sensor resistance changes as temperature of air inside vehicle changes. Sensor low current signal corresponds to actual in-car temperature. Signal is monitored by HVAC control head, which controls blower speed and temperature door position to obtain desired temperature.

SUNLOAD TEMPERATURE SENSOR

Sunload Temperature Sensor (STS) is located on instrument panel center defroster grille. Sensor is a photosensitive resistor, which measures amount of heat generated by sun shining into vehicle.

VACUUM/ELECTRIC SOLENOID

Vacuum/electric solenoid is located on left side of HVAC module above blower motor. The module converts electrical signals from A/C-heater control head into vacuum signals. Vacuum is constantly applied to module and when commanded, vacuum is routed to various mode door control actuators.

TROUBLE SHOOTING

DIAGNOSTIC SYSTEM CHECK

1. Connect scan tool to Data Link Connector (DLC). Turn ignition on and check that scan tool powers up. If scan tool does not power up, check DLC circuits (battery voltage at terminal No. 16, ground at terminal No. 4 and common signal ground at terminal No. 5). See **DATA LINK CONNECTORS** article in **WIRING DIAGRAMS**. If scan tool powers up, go to next step.
2. Turn ignition on (engine off). Attempt to establish communication with HVAC control head, body control module and powertrain control module. If scan tool cannot communicate with module(s), see **SCAN TOOL DOES NOT COMMUNICATE WITH CLASS 2 DEVICE** in appropriate **BODY CONTROL MODULES** article in **ACCESSORIES & EQUIPMENT**. If scan tool communicates with module(s), go to next step.
3. Select the DTC display function for HVAC control module, body control module and powertrain control module. If any DTCs are displayed, go to next step. If no DTCs are displayed, diagnose HVAC system by symptom. See **SYMPTOM TESTS** .
4. If scan tool displays any DTCs that begin with "U", see **SCAN TOOL DOES NOT COMMUNICATE WITH CLASS 2 DEVICE** in appropriate **BODY CONTROL MODULES** article in **ACCESSORIES & EQUIPMENT**. The presence of a DTC which

begins with a "U" indicates that some other module is not communicating. If scan tool does not display any DTCs that begin with "U", go to next step.

5. If scan tool displays any DTCs which begin with B10xx (xx represents any 2 other characters), see DTC list in appropriate BODY CONTROL MODULES article in ACCESSORIES & EQUIPMENT. If any DTCs exist which do not start with B10xx, go to next step.
6. If scan tool displays any DTCs that begin with a "B" which are associated with charging system, see appropriate GENERATORS & REGULATORS article in STARTING & CHARGING SYSTEMS. If scan tool does not display any DTCs which are associated with charging system, go to next step.
7. If scan tool displays any HVAC related DTCs, see **DIAGNOSTIC TROUBLE CODE DEFINITION** table under SELF-DIAGNOSTICS. If scan tool does not display any DTCs which are associated with HVAC system, go to appropriate SELF-DIAGNOSTICS article in ENGINE PERFORMANCE.

SYMPTOM TESTS

BLOWER MOTOR INOPERATIVE AT ANY SPEED

1. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** under TROUBLE SHOOTING. After diagnostic system check, go to next step.
2. Connect scan tool. Turn ignition on. Display HVAC data list. Operate blower speed control switch from highest to lowest speed settings. If scan tool displays speeds decreasing and increasing in relation to blower speed switch position, go to next step. If scan tool does not display decreasing and increasing speeds in relation to setting of blower speed switch position, replace HVAC control head (panel) and go to step 9 . See **HVAC CONTROL HEAD** under REMOVAL & INSTALLATION.
3. Disconnect blower motor control module harness connector. Turn ignition on. Switch on blower motor. Measure voltage between ground and terminal "B" (Red wire) of blower control module harness connector. If battery voltage exists, go to next step. If battery voltage does not exist, repair open or high resistance in Red wire between terminal "B" of blower motor control module and BLO MOT fuse No. 51 (30-amp) of instrument panel electrical center (fuse block) and go to step [9](#) .
4. Measure voltage between terminal "B" (Red wire) and terminal "A" (Black wire) of blower motor control module. If battery voltage exists, go to step 6 . If battery voltage does not exist, repair open or high resistance in Black wire between blower motor control module and ground (located at base of right "A" pillar) and go to step 9 .
5. Inspect BLO MOT fuse (30-amp) in instrument panel electrical center (fuse block) for an open circuit. If BLO MOT fuse is blown, repair short to ground in Red wire between

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instrument panel electrical center and terminal "B" of blower motor control module and go to step 9 . If BLO MOT fuse is not blown, repair open or high resistance in Red wire between instrument panel electrical center and terminal "B" of blower motor control module.

6. Turn ignition off. Connect blower motor control module harness connector. Disconnect blower motor harness connector. Turn ignition on. Measure voltage between Red and Black wire terminals of blower motor harness connector. If battery voltage exists, inspect and repair blower motor harness and connector for damage or loose connections. Repair any problem found and go to step 9 . If blower motor harness does not have any loose connections or damage, replace blower motor. See **MANUAL A/C-HEATER SYSTEMS - CORVETTE** article. If battery voltage does not exist, go to next step.
7. Measure voltage between ground and terminal "C" (Tan wire) of blower motor control module (backprobe). Turn ignition on. Press A/C control head OFF button. If voltage is 4.5-5.5 volts, go to next step. If voltage is not 4.5-5.5 volts, repair open or high resistance in Tan wire between blower motor control module and terminal C11 of HVAC control head and go to step 9 .
8. Measure voltage between ground and terminal "C" (Tan wire) of blower motor control module harness connector. Turn ignition on. Set blower speed to maximum setting. If voltage is 0.25-1.25 volts, inspect and repair any damage or loose connections on blower motor control module and go to step 9 . If connections are okay, replace blower motor control module and go to next step. See **BLOWER MOTOR CONTROL MODULE** under **REMOVAL & INSTALLATION**. If voltage is not 0.25-1.25 volts, repair open or high resistance in Tan wire between blower motor control module and terminal C11 of HVAC control head and go to next step.
9. Use scan tool to clear DTCs. Operate vehicle and verify that DTCs do not reset. If DTCs reset, go to **DIAGNOSTIC SYSTEM CHECK** under **TROUBLE SHOOTING**. If DTCs do not reset, system is okay.

COMPRESSOR CLUTCH DOES NOT ENGAGE

NOTE: **A/C compressor clutch will not engage when A/C request is made and no DTCs are present.**

1. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** under **TROUBLE SHOOTING**. After diagnostic system check, go to next step.
2. Use scan tool to display HVAC inputs screen. Depress A/C button. If scan tool indicates A/C button is on while button is depressed, replace PCM and go to step 6 . If scan tool does not indicate A/C button is on, replace HVAC control head (panel) and go to step 6 . See **HVAC CONTROL HEAD** under **REMOVAL & INSTALLATION**.

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3. Remove A/C CLU relay from underhood electrical center. Disconnect A/C compressor clutch harness connector. Check continuity between ground and Dark Green wire terminal of A/C compressor clutch harness connector. If continuity exists, go to next step. If continuity does not exist, repair open or high resistance in Dark Green wire between A/C CLU relay and terminal No. 18 of PCM. Underhood electrical center and A/C compressor clutch harness connector and go to step 6 .
4. Connect fused jumper wire between terminal No. 30 and terminal No. 87 of A/C CLU relay connector in underhood electrical center. Measure voltage between ground and Dark Green wire terminal of A/C compressor clutch. If battery voltage exists, go to next step. If battery voltage does not exist, repair open or high resistance in Dark Green wire between underhood electrical center and A/C compressor clutch harness connector and go to step 6 .
5. Check continuity between ground and Black wire terminal of A/C compressor clutch harness connector. If continuity exists, replace A/C compressor clutch coil and go to step 6 . See **COMPRESSOR SERVICING** in **GENERAL SERVICING**. If continuity does not exist, repair open or high resistance in Black wire between A/C compressor clutch harness connector and ground (located at rear of right front wheelwell) and go to step 6 .
6. Use scan tool to clear DTCs. Operate vehicle and verify that DTCs do not reset. If DTCs reset, go to **DIAGNOSTIC SYSTEM CHECK** under TROUBLE SHOOTING. If DTCs do not reset, system is okay.

COMPRESSOR CLUTCH DOES NOT DISENGAGE

NOTE: **A/C compressor clutch will not disengage when A/C request is commanded off and no DTCs are present.**

1. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** under TROUBLE SHOOTING. After diagnostic system check, go to next step.
2. Use scan tool to display HVAC inputs screen. Turn A/C switch off. If scan tool indicates A/C button is off , replace PCM and go to step 4 . If scan tool does not indicate A/C button is off, replace HVAC control head (panel). See **HVAC CONTROL HEAD** under REMOVAL & INSTALLATION.
3. Disconnect A/C compressor clutch harness connector C1. Turn ignition on. If A/C compressor clutch disengages, replace PCM and go to step 4 . If A/C compressor clutch does not disengage, replace A/C compressor clutch and go to step 4 .
4. Use scan tool to clear DTCs. Operate vehicle and verify that DTCs do not reset. If DTCs reset, go to **DIAGNOSTIC SYSTEM CHECK** under TROUBLE SHOOTING. If DTCs do not reset, system is okay.

INCORRECT OUTLET AIRFLOW

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1. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** under TROUBLE SHOOTING. After diagnostic system check, go to next step.
2. Start engine and allow to idle in park. Use scan tool to display HVAC data list. Switch HVAC control through the following operating modes. See **SOLENOID SCAN TOOL DISPLAY** table. If scan tool indicates correct combination of vacuum/electric solenoids on and off in all operating modes listed, go to next step. If scan tool does not indicate correct combination of vacuum solenoids on and off in all operating modes listed, replace HVAC control head and go to step 7 . See **HVAC CONTROL HEAD** under REMOVAL & INSTALLATION.

SOLENOID SCAN TOOL DISPLAY

Operating Mode	Solenoids (No.) On
Upper	Heater (2) & Mode Open (5)
Bi-Level	Heater (2)
Lower	Heater (2) & Mode Closed (3)
Defog	Mode Closed (3)
Defrost	Defrost (1) & Mode Closed (3)
Fresh Air
Recirculated Air	Air Inlet (4)

3. Disconnect vacuum line connector to vacuum/electric solenoid. Connect a vacuum gauge to Purple vacuum line. Start engine and allow to idle in park. If vacuum reading is within 10-17 in. Hg, go to next step. If vacuum reading is not within 10-17 in. Hg, repair leak or restriction in Purple vacuum supply line, vacuum tank or manifold vacuum line to vacuum tank and go to step 7 .
4. Disconnect vacuum lines at vacuum/electric solenoid (located under right side of dashboard, on blower motor housing). Using a hand-held vacuum pump, apply vacuum to each vacuum actuator supply lines at vacuum/electric solenoid connector. Apply vacuum to each vacuum actuator. Listen for door movement within HVAC module assembly. If necessary, turn ignition on and blower motor to high speed position to verify door operation. If vacuum actuators hold vacuum and effectively control door operation, go to next step. If vacuum actuators do not hold vacuum and effectively control door operation, inspect and repair or replace any sticking or binding doors, inoperative vacuum actuators or vacuum supply lines. After repairs, go to step 7 .
5. Disconnect vacuum/electric solenoid electrical connector. Measure voltage between ground and terminal No. 6 (Brown wire) of vacuum/electric solenoid. Turn ignition on. If battery voltage exists, go to next step. If battery voltage does not exist, repair open or high

resistance in Brown wire between fuse No. 27 (10-amp) in instrument panel electrical center (fuse block) and vacuum/electric solenoid. After repair, go to step 7 .

6. Measure voltage between terminal No. 6 (Brown wire) of vacuum/electric solenoid and terminals D8 (Dark Green wire), D9 (Light Green wire), D10 (Purple wire), D11 (Light Green wire) and D13 (Pink wire) of HVAC control head. See **Fig. 6** . Switch HVAC control head through operating modes listed in **SOLENOID SCAN TOOL DISPLAY** table. If each circuit shows voltage only when solenoid is on, replace HVAC control head and go to step 7 . See **HVAC CONTROL HEAD** under REMOVAL & INSTALLATION.

If all circuits do not show voltage when solenoid is on or show voltage when solenoid is not on, repair open or high resistance between vacuum/electric solenoid and effected terminal(s) of HVAC control head and go to step [7](#) . If all circuits are okay, replace vacuum/electric solenoid. See **VACUUM/ELECTRIC SOLENOID** under REMOVAL & INSTALLATION and go to step [7](#) .

7. Use scan tool to clear DTCs. Operate vehicle and verify that DTCs do not reset. If DTCs reset, go to **DIAGNOSTIC SYSTEM CHECK** under TROUBLE SHOOTING. If DTCs do not reset, system is okay.

LEFT TEMPERATURE CONTROL INOPERATIVE

1. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** under TROUBLE SHOOTING. After diagnostic system check, go to next step.
2. Connect scan tool. Turn ignition on. Display HVAC data list. Depress AUTO button to off. Turn passenger's control knob to center position. Operate driver's control knob through full range of movement. If scan tool displays LH MIX MTR and RH MIX MTR positions in relation to control knob position, go to next step. If scan tool does not display correct left and right actuator positions in relation to control knob position, go to step [9](#) .
3. Use scan tool to command LH MIX MTR in MISCELLANEOUS TESTS through full range of movement. If scan tool indicates LH MIX MTR is operating properly, go to next step. If scan tool indicates LH MIX MTR is not operating properly, go to step [5](#) .
4. Use scan tool to command RH MIX MTR in MISCELLANEOUS TESTS through full range of movement. If scan tool indicates RH MIX MTR is operating properly, system is operating properly at this time. If scan tool indicates RH MIX MTR is not operating properly, go to step [6](#) .
5. Turn ignition off. Check continuity in Brown wire between terminal No. 5 (Brown wire) of left air temperature actuator and HVAC fuse (10-amp) in instrument panel fuse block. If continuity does not exist, repair open in Brown wire. If continuity exists, check continuity in

- Dark Blue wire between terminal No. 6 of right air temperature actuator and terminal C7 of HVAC control head. If continuity exists, go to step 7 . If continuity does not exist, repair open in Dark Blue wire and go to step 10 .
6. Turn ignition off. Check continuity in Brown wire between terminal No. 5 (Brown wire) of right air temperature actuator and HVAC fuse 18 (10-amp) in instrument panel fuse block. If continuity does not exist, repair open in Brown wire. If continuity exists, check continuity in White/Black wire between terminal No. 6 of right air temperature actuator and terminal C6 of HVAC control head. If continuity exists, go to step 8 . If continuity does not exist, repair open in Dark Blue wire and go to step 10 .
 7. Replace left air temperature actuator. See **AIR TEMPERATURE ACTUATORS** under REMOVAL & INSTALLATION and go to step 10 .
 8. Replace right air temperature actuator. See **AIR TEMPERATURE ACTUATORS** under REMOVAL & INSTALLATION and go to step 10 .
 9. Replace HVAC control head. See **HVAC CONTROL HEAD** under REMOVAL & INSTALLATION and go to next step.
 10. Use scan tool to clear DTCs. Operate vehicle and verify that DTCs do not reset. If DTCs reset, go to **DIAGNOSTIC SYSTEM CHECK** under TROUBLE SHOOTING. If DTCs do not reset, system is okay.

RIGHT TEMPERATURE CONTROL INOPERATIVE

1. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** under TROUBLE SHOOTING. After diagnostic system check, go to next step.
2. Connect scan tool. Turn ignition on. Display HVAC data list. Depress AUTO button to off. Turn driver's control knob to center position. Operate passenger's control knob through full range of movement. If scan tool displays RH MIX MTR positions in relation to control knob position, go to next step. If scan tool does not display correct left and right actuator positions in relation to control knob position, replace HVAC control head. See **HVAC CONTROL HEAD** under REMOVAL & INSTALLATION and go to step 7 .
3. Use scan tool to command RH MIX MTR in MISCELLANEOUS TESTS through full range of movement. If scan tool indicates RH MIX MTR is operating properly, system is okay at this time. If scan tool indicates RH MIX MTR is not operating properly, go to next step.
4. Turn ignition off. Check continuity in Brown wire between terminal No. 5 (Brown wire) of right air temperature actuator and HVAC fuse 18 (10-amp) in instrument panel fuse block. If continuity does not exist, repair open in Brown wire. If continuity exists, check continuity in White/Black wire between terminal No. 6 of right air temperature actuator and terminal C6 of HVAC control head. If continuity exists, go to next step. If continuity does not exist,

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repair open in White/Black wire and go to step 7 .

5. Replace right air temperature actuator. See **AIR TEMPERATURE ACTUATORS** under REMOVAL & INSTALLATION and go to step 7 .
6. Replace HVAC control head. See **HVAC CONTROL HEAD** under REMOVAL & INSTALLATION and go to next step.
7. Use scan tool to clear DTCs. Operate vehicle and verify that DTCs do not reset. If DTCs reset, go to **DIAGNOSTIC SYSTEM CHECK** . If DTCs do not reset, system is okay.

SELF-DIAGNOSTICS

RETRIEVING DIAGNOSTIC TROUBLE CODES

NOTE: Diagnostic Trouble Codes (DTCs) can be retrieved using a scan tool or Driver Information Center (DIC). If using scan tool, follow manufacturer's instructions and follow screen prompts. Retrieve and record current and history DTCs.

Using Driver Information Center To Retrieve DTCs

1. Turn ignition on. Press RESET button on DIC to acknowledge any warning messages present. Press and hold OPTIONS button of DIC. While holding OPTIONS button, press FUEL button 4 times within 10 seconds. System will enter automatic display mode followed by all DTCs present for all information systems. To enter manual display mode, depress any button except E/M button. Pressing E/M button at any time will exit diagnostics.
2. Depress any button of DIC display to enter HVAC (Heater, Ventilation and Air Conditioning) mode of manual diagnostics. Retrieve and record current and history DTCs. Proceed to appropriate DTC testing procedure, and follow diagnostic and repair procedures.

DIAGNOSTIC TROUBLE CODE DEFINITION

DTC	Circuit Affected
<u>B0332</u>	Ambient Air Temperature Sensor Short To Ground
<u>B0333</u>	Ambient Air Temperature Sensor Open
<u>B0337</u>	Inside Temperature Sensor Short To Ground
<u>B0338</u>	Inside Air Temperature Sensor Open
<u>B0348</u>	Sunload Temperature Sensor Open
<u>B0361</u>	Left Actuator Feedback Short To Ground
<u>B0363</u>	Left Actuator Feedback Open

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<u>B0365</u>	Right Actuator Feedback Short To Ground
<u>B0365</u>	Right Actuator Feedback Short To Ground
<u>B0367</u>	Right Actuator Feedback Open
<u>B0367</u>	Right Actuator Feedback Open
<u>B0441</u>	Left Actuator Out Of Range
<u>B0446</u>	Right Actuator Out Of Range

CLEARING TROUBLE CODES

Current DTCs will automatically clear as soon as fault in system is repaired or fault no longer exists for 50 drive cycles. DTCs can be manually cleared by using a scan tool, following scan tool manufacturer's instructions.

Turn ignition on. Press RESET button on DIC to acknowledge any warning messages present. Press and hold OPTIONS button of DIC. While holding OPTIONS button, press FUEL button 4 times within 10 seconds. Select desired system to clear DTCs then press and hold RESET button to clear DTCs displayed.

DIAGNOSTIC TESTS

DTC B0332: AMBIENT AIR TEMPERATURE SENSOR SHORT TO GROUND

Diagnostic Aids

If DTC is intermittent or has a history, perform tests while wiggling wiring and connectors. This can often cause the malfunction to appear. Inspect sensor connector and harness for damage, corrosion or water intrusion. Check for adequate terminal tension, harness routing, damaged wire insulation, and broken wires. The resistance value of sensor must be close to values listed in chart. See **OUTSIDE AIR TEMPERATURE SENSOR RESISTANCE** or **INSIDE AIR TEMPERATURE SENSOR RESISTANCE** . If sensor is out of specification, it must be replaced.

OUTSIDE AIR TEMPERATURE SENSOR RESISTANCE

Temp - °F (°C)	Resistance (Ohms)
-40 (-40)	242,700
-22 (-30)	177,000
-4 (-20)	97,060
-14 (-10)	55,319
32 (0)	32,654

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50 (10)	19,903
68 (20)	12,493
86 (30)	8,056
104 (40)	5,327
122 (50)	3,603
140 (60)	2,488

INSIDE AIR TEMPERATURE SENSOR RESISTANCE

Temp. - °F (°C)	Counts	Volts	Resistance (Ohms)
-40 (-40)	248	4.86	100701
-31 (-35)	246	4.82	72449
-22 (-30)	242	4.74	52671
-13 (-25)	238	4.66	38672
-4 (-20)	232	4.54	28661
5 (-15)	226	4.43	21430
14 (-10)	217	4.25	16159
23 (-5)	208	4.07	12282
32 (0)	197	3.86	9407
41 (5)	184	3.60	7273
50 (10)	171	3.35	5666
59 (15)	156	3.05	4447
68 (20)	142	2.78	3514
77 (25)	127	2.49	2795
86 (30)	113	2.21	2237
95 (35)	100	1.96	1802
104 (40)	87	1.70	1549
113 (45)	76	1.49	1188
122 (50)	66	1.29	973
131 (55)	57	1.11	804
140 (60)	49	0.96	667
149 (65)	42	0.82	557
158 (70)	36	0.70	467
167 (75)	31	0.60	393
176 (80)	27	0.52	332
185 (85)	23	0.45	282

Diagnostic Procedure

1. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** under TROUBLE SHOOTING. Go to next step.
2. Connect scan tool. Turn ignition on. Observe OUTSIDE AIR TEMP SENSOR in HVAC data list. If scan tool indicates outside air temp sensor value is 0.1-5 volts, see **DIAGNOSTIC AIDS** . If scan tool does not indicate outside air temp sensor value is 0.1-5 volts, go to next step.
3. Turn ignition off. Disconnect ambient air temperature sensor. Turn ignition on. Use scan tool to observe OUTSIDE AIR TEMP SENSOR parameter. If scan tool indicates value is more than 4.9 volts, go to next step. If scan tool indicates value is 4.9 volts or less, go to step 5 .
4. Turn off ignition. Connect a fused jumper wire between terminals "A" (Light Green/Black wire) and "B" (Gray/Black wire) of ambient air temperature sensor. Turn ignition on. Use scan tool to observe OUTSIDE AIR TEMPERATURE SENSOR parameter. If scan tool indicates 0.1 volt or more exists, go to step 6 . If scan tool indicates less than 0.1 volt exists, go to step 8 .
5. Turn ignition off. Check continuity between ground and terminal "A" (Light Green/Black wire) of ambient air temperature sensor. If continuity exists, repair short to ground in Light Green/Black wire between ambient air temperature sensor and terminal D3 of HVAC control head and go to step 12 . If continuity does not exist, go to step 9 .
6. Measure voltage between ground and terminal "A" (Light Green/Black wire) of ambient air temperature sensor. If voltage exists, repair short to voltage in Light Green/Black wire between ambient air temperature sensor and terminal D3 of HVAC control head harness connector and go to step 12 . If voltage does not exist, go to next step.
7. Check continuity of Gray/Black wire between terminal "B" of ambient air temperature sensor and terminal D1 of HVAC control head. If continuity exists, go to step 9 . If continuity does not exist, repair open or high resistance in Gray/Black wire and go to step 12 .
8. Check wires and connectors at ambient outside air temperature sensor. Repair any problems found and go to step 12 . If wiring and connectors are okay, go to step 10 .
9. Check for loose wires and or poor connections at HVAC control head. Repair any problems found and go to step 12 . If wires and connectors are okay, go to step 11 .
10. Replace ambient air temperature sensor. See **AMBIENT AIR TEMPERATURE SENSOR** under REMOVAL & INSTALLATION. After repairs, go to step 12 .
11. Replace HVAC control head. See **HVAC CONTROL HEAD** under REMOVAL & INSTALLATION and go to next step.
12. Use scan tool to clear DTCs. See **CLEARING TROUBLE CODES** under SELF-

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DIAGNOSTICS. Operate vehicle and verify that DTCs do not reset. If DTCs reset, go to step 2 . If DTCs do not reset, system is okay.

DTC B0333: AMBIENT AIR TEMPERATURE SENSOR OPEN

Diagnostic Aids

If DTC is intermittent or has a history, perform tests while wiggling wiring and connectors. This can often cause the malfunction to appear. Inspect sensor connector and harness for damage, corrosion or water intrusion. Check for adequate terminal tension, harness routing, damaged wire insulation, and broken wires. Resistance value of sensor must be close to values listed in chart. See **OUTSIDE AIR TEMPERATURE SENSOR RESISTANCE** or **INSIDE AIR TEMPERATURE SENSOR RESISTANCE** . If sensor is out of specification, it must be replaced.

Diagnostic Procedure

1. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** under TROUBLE SHOOTING. Go to next step.
2. Connect scan tool. Turn ignition on. Observe OUTSIDE AIR TEMP SENSOR in HVAC data list. If scan tool indicates ambient outside air temperature sensor value is 0.1-5 volts, see **DIAGNOSTIC AIDS** . If scan tool does not indicate outside air temp sensor value is 0.1-5 volts, go to next step.
3. Turn ignition off. Disconnect ambient temperature sensor. Turn ignition on. Use scan tool to observe OUTSIDE AIR TEMP SENSOR parameter with scan tool. If scan tool indicates value is more than 4.9 volts, go to step 5 . If scan tool indicates value is 4.9 volts or less, go to next step.
4. Connect a fused jumper wire between terminals "A" (Light Green/Black wire) and "B" (Gray/Black wire) of ambient temperature sensor. Turn ignition on. Use scan tool to observe OUTSIDE AIR TEMPERATURE SENSOR parameter. If scan tool indicates 0.1 volt or more exists, go to step 6 . If scan tool indicates less than 0.1 volt exists, go to step 9 .
5. Turn ignition off. Check continuity between ground and terminal "A" (Light Green/Black wire) of ambient air temperature sensor. If continuity exists, repair short to ground in Light Green/Black wire between ambient outside air temperature sensor and terminal D3 of HVAC control head. After repairs, go to step 12 . If continuity does not exist, go to step 9 .
6. Measure voltage between ground and terminal "A" (Light Green/Black wire) of ambient outside air temperature sensor. If voltage exists, repair short to voltage in Light Green/Black wire between ambient outside air temperature sensor and terminal D3 of HVAC control head harness connector. After repairs, go to step 12 . If voltage does not exist, check continuity of Light Green/Black wire between terminal "A" of ambient outside air

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- temperature sensor and terminal D3 of HVAC control module. If continuity exists, go to next step. If continuity does not exist, repair open or high resistance in Light Green/Black wire and go to step 12 .
7. Check continuity of Gray/Black wire between terminal "B" of ambient outside air temperature sensor and terminal D1 of HVAC control head. If continuity exists, go to step 9 . If continuity does not exist, repair open or high resistance in Gray/Black wire and go to step 12 .
 8. Check for loose wires and or poor connectors at ambient outside air temperature sensor. Repair any problems found and go to step 12 . If problems were not found, go to step 10 .
 9. Check for loose wires and or poor connections at HVAC control head. Repair any problems found and go to step 12 . If wiring and connectors are okay, go to step 11 .
 10. Replace ambient outside air temperature sensor. See **AMBIENT AIR TEMPERATURE SENSOR** under REMOVAL & INSTALLATION and go to step 12 .
 11. Replace HVAC control head. See **HVAC CONTROL HEAD** under REMOVAL & INSTALLATION. After repair, go to step 12 .
 12. Use scan tool to clear DTCs. See **CLEARING TROUBLE CODES** under SELF-DIAGNOSTICS. Operate vehicle and verify that DTCs do not reset. If DTCs reset, go to step 2 . If DTCs do not reset, system is okay.

DTC B0337: INSIDE TEMPERATURE SENSOR SHORT TO GROUND

Diagnostic Aids

If DTC is intermittent or has a history, perform tests while wiggling wiring and connectors. This can often cause the malfunction to appear. Inspect sensor connector and harness for damage, corrosion or water intrusion. Check for adequate terminal tension, harness routing, damaged wire insulation, and broken wires. Resistance value of sensor must be close to values listed in chart. See **OUTSIDE AIR TEMPERATURE SENSOR RESISTANCE** or **INSIDE AIR TEMPERATURE SENSOR RESISTANCE** . If sensor is out of specification, it must be replaced.

Diagnostic Procedure

1. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** under TROUBLE SHOOTING. Go to next step.
2. Connect scan tool. Turn ignition on. Observe INSIDE AIR TEMP SENSOR in HVAC data list. If scan tool indicates inside air temperature sensor value is 0.1-5 volts, see **DIAGNOSTIC AIDS** . If scan tool does not indicate inside air temperature sensor value is 0.1-5 volts, go to next step.

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3. Turn ignition off. Disconnect inside air temperature sensor. Turn ignition on. Use scan tool to observe **INSIDE AIR TEMPERATURE SENSOR** parameter. If scan tool indicates more than 4.9 volts, go to next step. If scan tool indicates 4.9 volts or less, go to step 5 .
4. Turn off ignition. Connect a fused jumper wire between terminal "A" (Dark Green wire) and terminal "B" (Gray/Black wire) of inside temperature sensor harness connector. Turn ignition on (engine off). With scan tool, observe **INSIDE AIR TEMP SENSOR** parameter. If scan tool indicates 0.1 volt or more exists, go to step 8 . If scan tool indicates less than 0.1 volt exists, go to step 6 .
5. Check continuity between ground and terminal "A" (Dark Green wire) of inside air temperature sensor. If continuity exists, repair short to ground in Dark Green wire between inside air temperature sensor and terminal D2 of HVAC control head and go to step 12 . If continuity does not exist, go to step 9 .
6. Measure voltage between ground and terminal "A" (Dark Green wire) of inside air temperature sensor. If voltage exists, repair short to voltage in Dark Green wire between inside air temperature sensor and terminal D2 of HVAC control head. After repair, go to step 12 . If voltage does not exist, check continuity in Dark Green wire between terminal "A" of inside air temperature sensor and terminal D2 of HVAC control head. If continuity exists, go to next step. If continuity does not exist, repair open or high resistance in Dark Green wire and go to step 12 .
7. Check continuity of Gray/Black wire between terminal "B" of inside air temperature sensor and terminal D1 of HVAC control head. If continuity exists, go to step 9 . If continuity does not exist, repair open in Gray/Black wire and go to step 12 .
8. Check for loose wires and or poor connections at inside air temperature sensor. Repair any problems found and go to step 12 . If wiring and connectors are okay, go to step 10 .
9. Check for loose wires and or poor connections to HVAC control head. Repair any problems found and go to step 12 . If wiring and connectors are okay, go to step 11 .
10. Replace inside air temperature sensor. See **INSIDE AIR TEMPERATURE SENSOR** under REMOVAL & INSTALLATION. After repair, go to step 12 .
11. Replace HVAC control head. See **HVAC CONTROL HEAD** under REMOVAL & INSTALLATION and go to next step.
12. Use scan tool to clear DTCs. See **CLEARING TROUBLE CODES** under SELF-DIAGNOSTICS. Operate vehicle and verify that DTCs do not reset. If DTCs reset, go to step 2 . If DTCs do not reset, system is okay.

DTC B0338: INSIDE AIR TEMPERATURE SENSOR OPEN

Diagnostic Aids

If DTC is intermittent or has a history, perform tests while wiggling wiring and connectors. This can often cause malfunction to appear. Inspect sensor connector and harness for damage, corrosion or water intrusion. Check for adequate terminal tension, harness routing, damaged wire insulation, and broken wires. Resistance value of sensor must be close to values listed in chart. See **OUTSIDE AIR TEMPERATURE SENSOR RESISTANCE** or **INSIDE AIR TEMPERATURE SENSOR RESISTANCE** . If sensor is out of specification, it must be replaced.

Diagnostic Procedure

1. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** under TROUBLE SHOOTING. Go to next step.
2. Connect scan tool. Turn ignition on. Observe INSIDE AIR TEMP SENSOR in HVAC data list. If scan tool indicates inside air temperature sensor value is 0.1-5 volts, see **DIAGNOSTIC AIDS** . If scan tool does not indicate inside air temperature sensor value is 0.1-5 volts, go to next step.
3. Turn ignition off. Disconnect inside air temperature sensor. Turn ignition on. Use scan tool to observe inside air temperature sensor parameter with scan tool. If scan tool indicates more than 4.9 volts, go to next step. If scan tool indicates 4.9 volts or less, go to step 5 .
4. Turn ignition off. Connect a fused jumper wire between terminal "A" (Dark Green wire) and terminal "B" (Gray/Black wire) of inside temperature sensor harness connector. Turn ignition on (with engine off). Use scan tool to observe INSIDE AIR TEMP SENSOR parameter. If scan tool indicates 0.1 volt or more exists, go to step 8 . If scan tool indicates less than 0.1 volt exists, go to step 6 .
5. Turn ignition off. Check continuity between ground and terminal "A" (Dark Green wire) of inside air temperature sensor harness connector. If continuity exists, repair short to ground in Dark Green wire between inside air temperature sensor and terminal D2 of HVAC control head harness connector. After repair, go to step 12 . If continuity does not exist, go to step 9 .
6. Measure voltage between ground and terminal "A" (Dark Green wire) of inside air temperature sensor. If voltage exists, repair short to voltage in Dark Green wire between inside air temperature sensor and terminal D2 of HVAC control head harness connector. After repair, go to step 12 . If voltage does not exist, check continuity of Dark Green wire between terminal "A" of inside air temperature sensor and terminal D2 of HVAC control module. If continuity exists, go to next step. If continuity does not exist, repair open or high resistance in Dark Green wire and go to step 12 .
7. Check continuity between ground and terminal "B" (Gray/Black wire) of inside air temperature sensor. If continuity exists, go to step 9 . If continuity does not exist, repair open or high resistance in Gray/Black wire between ambient outside air temperature sensor

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- and terminal D1 of HVAC control head and go to step 12 .
8. Check for loose wires and or poor connections of inside air temperature sensor. Repair any problems found and go to step 12 . If wiring and connectors are okay, go to step 10 .
 9. Check for loose wires and or poor connections at HVAC control head. Repair any problems found and go to step 12 . If wiring and connectors are okay, go to step 11 .
 10. Replace inside air temperature sensor. See **INSIDE AIR TEMPERATURE SENSOR** under REMOVAL & INSTALLATION. After repair, go to step 12 .
 11. Replace HVAC control head. See **HVAC CONTROL HEAD** under REMOVAL & INSTALLATION and go to next step.
 12. Use scan tool to clear DTCs. See **CLEARING TROUBLE CODES** under TROUBLE SHOOTING. Operate vehicle and verify that DTCs do not reset. If DTCs reset, go to step 3 . If DTCs do not reset, system is okay.

DTC B0348: SUNLOAD TEMPERATURE SENSOR OPEN

Diagnostic Aids

If DTC is intermittent or has a history, perform tests while wiggling wiring and connectors. This can often cause the malfunction to appear. Inspect sensor connector and harness for damage, corrosion or water intrusion. Check for adequate terminal tension, harness routing, damaged wire insulation, and broken wires.

Diagnostic Procedure

1. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** under TROUBLE SHOOTING. Go to next step.
2. Connect scan tool. Turn ignition on. Observe SUNLOAD TEMP SENSOR parameter in HVAC data list. If scan tool indicates sunload temperature sensor value is 0.1-5 volts, see **DIAGNOSTIC AIDS** . If scan tool does not indicate sunload temp sensor is 0.1-5 volts, go to next step.
3. Turn ignition off. Disconnect sunload temperature sensor harness connector. Turn ignition on. Use scan tool to observe SUNLOAD AIR TEMP SENSOR parameter with scan tool. If scan tool indicates more than 4.9 volts, go to next step. If scan tool indicates 4.9 volts or less, go to step 5 .
4. Turn ignition off. Connect a fused jumper wire between terminal "A" (Light Blue/Black wire) and terminal "B" (Gray/Black wire) of sunload temperature sensor harness connector. Turn ignition on (with engine off). With scan tool, observe SUNLOAD AIR TEMP SENSOR parameter. If scan tool indicates 0.1 volt or more exists, go to step9 . If scan tool indicates more than 0.1 volt exists, go to step6 .

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5. Turn ignition off. Check continuity between ground and terminal "A" (Light Blue/Black wire) of sunload temperature sensor harness connector. If continuity exists, repair short to ground in Dark Green wire between inside sunload temperature sensor and terminal D2 of HVAC control head harness connector. After repair, go to step 12 . If continuity does not exist, go to step 10 .
6. Measure voltage between ground and terminal "A" (Light Blue/Black wire) of sunload temperature sensor. If voltage exists, repair short to voltage in Light Blue/Black wire between sunload temperature sensor and terminal C2 of HVAC control head harness connector. After repair, go to step 12 . If voltage does not exist, check continuity in Light Blue/Black wire between terminal "A" of sunload temperature sensor and terminal C2 of HVAC control head harness connector. If continuity exists, go to next step. If continuity does not exist, repair open or high resistance in Light Blue/Black wire and go to step 12 .
7. Check continuity in Gray/Black wire between terminal "B" of sunload sensor and terminal D1 of HVAC control module. If continuity exists, go to step 10 . If continuity does not exist, repair open in Gray/Black wire and go to step, 12 .
8. Check for loose wires and or poor connections at sunload temperature sensor. Repair any problems found and go to step 12 . If wiring and connectors are okay, go to step 10 .
9. Check for loose wires and or poor connections at HVAC control head. Repair any problems found and go to step 12 . If wiring and connections are okay, go to step 11 .
10. Replace sunload temperature sensor. See **SUNLOAD TEMPERATURE SENSOR** under REMOVAL & INSTALLATION. After repair, go to step 12 .
11. Replace HVAC control head. See **HVAC CONTROL HEAD** under REMOVAL & INSTALLATION and go to next step.
12. Use scan tool to clear DTCs. See **CLEARING TROUBLE CODES** . Operate vehicle and verify that DTCs do not reset. If DTCs reset, go to step 3 . If DTCs do not reset, system is okay.

DTC B0361: LEFT ACTUATOR FEEDBACK SHORT TO GROUND

Diagnostic Aids

If DTC is intermittent or has a history, perform tests while wiggling wiring and connectors. This can often cause the malfunction to appear. Inspect sensor connector and harness for damage, corrosion or water intrusion. Check for adequate terminal tension, harness routing, damaged wire insulation, and broken wires.

Connect a scan tool to Diagnostic Link Connector (DLC) and turn ignition on. Select OUTPUT CONTROL screen in HVAC SPECIAL FUNCTIONS. Use MISCELLANEOUS TEST screen to manually drive LH ELECTRIC ACTUATOR with scan tool from fully open to fully closed. Use

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scan tool to monitor LH MIX MTR POSITION FEEDBACK. A normal position feedback signal should range between 0-255 counts as electric actuator is being moved.

Diagnostic Procedure

1. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** under TROUBLE SHOOTING. Go to next step.
2. Connect scan tool. Turn ignition on. Observe LH MIX MTR POSITION FEEDBACK parameter in HVAC data list. If scan tool indicates LH MIX MTR POSITION FEEDBACK parameter is between 5-250 counts, see **DIAGNOSTIC AIDS** . If scan tool indicates LH MIX MTR POSITION FEEDBACK parameter is not between 5-250 counts, go to next step.
3. Turn ignition off. Disconnect left air temperature actuator. Turn ignition on. Observe LH MIX MTR POSITION FEEDBACK parameter in HVAC data list. If scan tool indicates LH MIX MTR POSITION FEEDBACK parameter is 250 counts or more, go to next step. If scan tool indicates LH MIX MTR POSITION FEEDBACK parameter is less than 250 counts, go to step 8 .
4. Turn ignition off. Connect a fused jumper wire between terminals No. 9 (Light Blue wire) and No. 7 (Gray/Black wire) of left air temperature actuator. Turn ignition on. Observe LH MIX MTR POSITION FEEDBACK parameter in HVAC data list. If scan tool indicates LH MIX MTR POSITION FEEDBACK parameter is 5 counts or less, go to next step. If scan tool indicates LH MIX MTR POSITION FEEDBACK parameter is more than 5 counts, go to step 9 .
5. Turn ignition off. Connect a fused jumper wire between terminals No. 5 (Brown wire) and No. 10 (Yellow wire) of left air temperature actuator. Turn ignition on. Observe LH MIX MTR POSITION FEEDBACK parameter in HVAC data list. If scan tool indicates LH MIX MTR POSITION FEEDBACK parameter is more than 250 counts, go to step 7 . If scan tool indicates LH MIX MTR POSITION FEEDBACK parameter is 250 counts or less, go to next step.
6. Disconnect left air temperature harness connector. Check continuity between ground and terminal No. 10 (Yellow wire) of left air temperature actuator. If continuity exists, repair short to ground in Yellow wire between left air temperature actuator and terminal C10 of HVAC control head and go to step 15 . If continuity does not exist, go to step 12 .
7. Measure continuity in Yellow wire between terminal No. 10 of left air temperature actuator and terminal C10 of HVAC control head. If continuity exists, go to step 11 . If continuity does not exist, repair open or high resistance in Yellow wire and go to step 15 .
8. Turn ignition off. Check continuity between ground and terminal No. 9 (Light Blue wire) of left air temperature actuator harness connector. If continuity exists, repair short to ground in Light Blue wire between left air temperature actuator and terminal C8 of HVAC control

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head and go to step 15 . If continuity does not exist, go to step 12 .

9. Measure voltage between ground and terminal No. 9 (Light Blue wire) of left air temperature actuator harness connector. If voltage exists, repair short to voltage in Light Blue wire between left air temperature actuator and terminal C8 of HVAC control head. If voltage does not exist, check continuity in Light Blue wire between terminal No. 9 of left air temperature actuator harness connector and terminal C8 of HVAC control head. If continuity exists, go to next step. If continuity does not exist, repair open in Light/Blue wire and go to step 15 .
10. Check continuity between ground and terminal No. 7 (Gray/Black wire) of left air temperature actuator. If continuity exists, go to step 12 . If continuity does not exist, repair open or high resistance in Gray/Black wire between left air temperature actuator and terminal D1 of HVAC control head and go to step 15 .
11. Check for loose wires and or poor connections to left air temperature actuator. Repair any problems found and go to step 15 . If wiring and connectors are okay, go to step 13 .
12. Check for loose wires and or poor connections to HVAC control head. Repair any problems found and go to step 15 . If wires and connections are okay, go to step 14 .
13. Replace left air temperature actuator. See **AIR TEMPERATURE ACTUATORS** under REMOVAL & INSTALLATION. After repair, go to step 15 .
14. Replace HVAC control head. See **HVAC CONTROL HEAD** under REMOVAL & INSTALLATION and go to next step.
15. Use scan tool to clear DTCs. See **CLEARING TROUBLE CODES** under SELF-DIAGNOSTICS. Operate vehicle and verify that DTCs do not reset. If DTCs reset, go to step 3 . If DTCs do not reset, system is okay.

DTC B0363: LEFT ACTUATOR FEEDBACK OPEN

Diagnostic Aids

If DTC is intermittent or has a history, perform tests while wiggling wiring and connectors. This can often cause the malfunction to appear. Inspect sensor connector and harness for damage, corrosion or water intrusion. Check for adequate terminal tension, harness routing, damaged wire insulation, and broken wires.

Connect a scan tool to Diagnostic Link Connector (DLC) and turn ignition on. Select the OUTPUT CONTROL screen in HVAC SPECIAL FUNCTIONS. Use MISCELLANEOUS TEST screen to manually drive LH ELECTRIC ACTUATOR with scan tool from fully open to fully closed. Use scan tool to monitor LH MIX MTR POSITION FEEDBACK. A normal position feedback signal should range between 0-255 counts as electric actuator is being moved.

Diagnostic Procedure

1. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** under TROUBLE SHOOTING. Go to next step.
2. Connect scan tool. Turn ignition on. Observe LH MIX MTR POSITION FEEDBACK parameter in HVAC data list. If scan tool indicates LH MIX MTR POSITION FEEDBACK parameter is between 5-250 counts, see **DIAGNOSTIC AIDS** . If scan tool indicates LH MIX MTR POSITION FEEDBACK parameter is not between 5-250 counts, go to next step.
3. Turn ignition off. Disconnect left air temperature actuator. Turn ignition on. Observe LH MIX MTR POSITION FEEDBACK parameter in HVAC data list. If scan tool indicates LH MIX MTR POSITION FEEDBACK parameter is more than 250 counts, go to next step. If scan tool indicates LH MIX MTR POSITION FEEDBACK parameter is 250 counts or less, go to step 8 .
4. Turn ignition off. Connect a fused jumper wire between terminals No. 9 (Light Blue wire) and No. 7 (Gray/Black wire) of left air temperature actuator. Turn ignition on. Observe LH MIX MTR POSITION FEEDBACK parameter in HVAC data list. If scan tool indicates LH MIX MTR POSITION FEEDBACK parameter is less than 5 counts, go to next step. If scan tool indicates LH MIX MTR POSITION FEEDBACK parameter is 5 counts or more, go to step 9 .
5. Turn ignition off. Connect a fused jumper wire between terminals No. 9 (Light Blue wire) and No. 10 (Yellow wire) of left air temperature actuator. Turn ignition on. Observe LH MIX MTR POSITION FEEDBACK parameter in HVAC data list. If scan tool indicates LH MIX MTR POSITION FEEDBACK parameter is more than 250 counts, go to step 9 . If scan tool indicates LH MIX MTR POSITION FEEDBACK parameter is 250 counts or less, go to next step.
6. Disconnect left air temperature actuator harness connector. Check continuity between ground and terminal No. 10 (Yellow wire) of left air temperature actuator. If continuity exists, repair short to ground in Yellow wire between left air temperature actuator and terminal C10 of HVAC control head. After repair, go to step 15 . If continuity does not exist, go to step 12 .
7. Turn ignition off. Measure voltage between ground and terminal No. 10 (Yellow wire) of left air temperature actuator. If voltage exists, repair short to voltage in Yellow wire between left air temperature actuator and terminal C10 of HVAC control head. After repair, go to step 15 . If voltage does not exist, go to step 11 .
8. Measure continuity between ground and terminal No. 9 (Light Blue wire) of left air temperature actuator. If continuity exists, repair short to ground in Light Blue wire between left air temperature actuator and terminal C8 of HVAC control head and go to step 15 . If voltage does not exist, go to step 12 .

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9. Measure voltage between ground and terminal No. 9 (Light Blue wire) of left air temperature actuator. If voltage exists, repair short to voltage in Light Blue wire between left air temperature actuator and terminal C8 of HVAC control head. If voltage does not exist, check continuity in Light Blue wire between terminal No. 9 of left air temperature actuator and terminal C8 of HVAC control head. If continuity exists, go to next step. If continuity does not exist, repair open or high resistance in Light Blue wire and go to step 15 .
10. Check continuity between ground and terminal No. 7 (Gray/Black wire) of left air temperature actuator. If continuity exists, go to step 12 . If continuity does not exist, repair open or high resistance in Gray/Black wire between left air temperature actuator and terminal D1 of HVAC control head and go to step 15 .
11. Check for loose wires and loose connections at left air temperature actuator. Repair any problems found and go to step 15 . If wires and connectors are okay, go to step 13 .
12. Check for loose wires and or loose connections at HVAC control head. Repair any problems found and go to step 15 . If wires and connectors are okay, go to step 14 .
13. Replace left air temperature actuator. See **AIR TEMPERATURE ACTUATORS** under REMOVAL & INSTALLATION and go to step 15 .
14. Replace HVAC control head. See **HVAC CONTROL HEAD** under REMOVAL & INSTALLATION and go to next step.
15. Use scan tool to clear DTCs. See **CLEARING TROUBLE CODES** under SELF-DIAGNOSTICS. Operate vehicle and verify that DTCs do not reset. If DTCs reset, go to step 3 . If DTCs do not reset, system is okay.

DTC B0365: RIGHT ACTUATOR FEEDBACK SHORT TO GROUND

Diagnostic Aids

If DTC is intermittent or has a history, perform tests while wiggling wiring and connectors. This can often cause the malfunction to appear. Inspect sensor connector and harness for damage, corrosion or water intrusion. Check for adequate terminal tension, harness routing, damaged wire insulation, and broken wires.

Connect a scan tool to Diagnostic Link Connector (DLC) and turn ignition on. Select OUTPUT CONTROL screen in HVAC SPECIAL FUNCTIONS. Use MISCELLANEOUS TEST screen to manually drive RH ELECTRIC ACTUATOR with scan tool from fully open to fully closed. Use scan tool to monitor RH MIX MTR POSITION FEEDBACK. A normal position feedback signal should range between 0-255 counts as electric actuator is being moved.

Diagnostic Procedure

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1. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** under TROUBLE SHOOTING. Go to next step.
2. Connect scan tool. Turn ignition on. Observe RH MIX MTR POSITION FEEDBACK parameter in HVAC data list. If scan tool indicates RH MIX MTR POSITION FEEDBACK parameter is between 5-250 counts, see **DIAGNOSTIC AIDS** . If scan tool indicates RH MIX MTR POSITION FEEDBACK parameter is not between 5-250 counts, go to next step.
3. Turn ignition off. Disconnect right air temperature actuator. Turn ignition on. Observe RH MIX MTR POSITION FEEDBACK parameter in HVAC data list. If scan tool indicates RH MIX MTR POSITION FEEDBACK parameter is more than 250 counts, go to next step. If scan tool indicates RH MIX MTR POSITION FEEDBACK parameter is 250 counts or less, go to step 8 .
4. Turn ignition off. Connect a fused jumper wire between terminals No. 9 (Dark Blue wire) and No. 7 (Gray/Black wire) of right air temperature actuator. Turn ignition on. Observe RH MIX MTR POSITION FEEDBACK parameter in HVAC data list. If scan tool indicates RH MIX MTR POSITION FEEDBACK parameter is less than 5 counts, go to next step. If scan tool indicates RH MIX MTR POSITION FEEDBACK parameter is more than 5 counts, go to step 9 .
5. Turn ignition off. Connect a fused jumper wire between terminals No. 9 (Dark Blue wire) and No. 10 (Yellow wire) of right air temperature actuator. Turn ignition on. Observe RH MIX MTR POSITION FEEDBACK parameter in HVAC data list. If scan tool indicates RH MIX MTR POSITION FEEDBACK parameter is more than 250 counts, go to step 7 . If scan tool indicates RH MIX MTR POSITION FEEDBACK parameter is 250 counts or less, go to next step.
6. Check continuity between ground and terminal No. 10 (Yellow wire) of right air temperature actuator. If continuity exists, repair short to ground in Yellow wire between right air temperature actuator and terminal C10 of HVAC control head and go to step 15 . If continuity does not exist, go to step 12 .
7. Check continuity in Yellow wire between terminal No. 10 of right air temperature actuator and terminal C10 of HVAC control module. If continuity exists, go to step 11 . If continuity does not exist, repair open in Yellow wire and go to step 15 .
8. Check continuity between ground and terminal No. 6 (Dark Blue wire) of right air temperature actuator. If continuity exists, repair short to ground in Dark Blue wire between terminal C3 of HVAC control head and right air temperature actuator and go to step 15 . If continuity does not exist, go to step 12 .
9. Turn ignition off. Measure voltage between ground and terminal No. 9 (Dark Blue wire) of right air temperature actuator. If voltage exists, repair short to voltage in Dark Blue wire between terminal C3 of HVAC control head and right air temperature actuator and go to

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- step 15 . If voltage does not exist, go to next step.
10. Check continuity in Gray/Black wire between terminal No. 7 of right air temperature sensor and terminal D1 of HVAC control head harness connector. If continuity exists, go to step 12 . If continuity does not exist, repair open or high resistance in Gray/Black wire and go to step 15 .
 11. Check for loose wires and connectors at right air temperature actuator. Repair any problems found and go step 15 . If wiring and connections are okay, go to step 13 .
 12. Check for loose wires and connectors at HVAC control head. Repair any problems found and go step 15 . If wiring and connections are okay, go to step 14 .
 13. Replace right air temperature actuator. See **AIR TEMPERATURE ACTUATORS** under REMOVAL & INSTALLATION and go to step 15 .
 14. Replace HVAC control head. See **HVAC CONTROL HEAD** under REMOVAL & INSTALLATION and go to next step.
 15. Use scan tool to clear DTCs. See **CLEARING TROUBLE CODES** under SELF-DIAGNOSTICS. Operate vehicle and verify that DTCs do not reset. If DTCs reset, go to step 2 . If DTCs do not reset, system is okay.

DTC B0367: RIGHT ACTUATOR FEEDBACK OPEN

Diagnostic Aids

If DTC is intermittent or has a history, perform tests while wiggling wiring and connectors. This can often cause the malfunction to appear. Inspect sensor connector and harness for damage, corrosion or water intrusion. Check for adequate terminal tension, harness routing, damaged wire insulation, and broken wires.

Connect a scan tool to Diagnostic Link Connector (DLC) and turn ignition on. Select the OUTPUT CONTROL screen in HVAC SPECIAL FUNCTIONS. Use MISCELLANEOUS TEST screen to manually drive RH ELECTRIC ACTUATOR with scan tool from fully open to fully closed. Use scan tool to monitor RH MIX MTR POSITION FEEDBACK. A normal position feedback signal should range between 0-255 counts as electric actuator is being moved.

Diagnostic Procedure

1. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** under TROUBLE SHOOTING. Go to next step.
2. Connect scan tool. Turn ignition on. Observe RH MIX MTR POSITION FEEDBACK parameter in HVAC data list. If scan tool indicates RH MIX MTR POSITION FEEDBACK parameter is between 5-250 counts, see **DIAGNOSTIC AIDS** . If scan tool

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indicates RH MIX MTR POSITION FEEDBACK parameter is not between 5-250 counts, go to next step.

3. Turn ignition off. Disconnect right air temperature actuator. Turn ignition on. Observe RH MIX MTR POSITION FEEDBACK parameter in HVAC data list. If scan tool indicates RH MIX MTR POSITION FEEDBACK parameter is 250 counts or more, go to next step. If scan tool indicates RH MIX MTR POSITION FEEDBACK parameter is less than 250 counts, go to step 8 .
4. Turn ignition off. Connect a fused jumper wire between terminals No. 9 (Dark Blue wire) and No. 7 (Gray/Black wire) of right air temperature actuator. Turn ignition on. Observe RH MIX MTR POSITION FEEDBACK parameter in HVAC data list. If scan tool indicates RH MIX MTR POSITION FEEDBACK parameter is 5 counts or less, go to next step. If scan tool indicates RH MIX MTR POSITION FEEDBACK parameter is more than 5 counts, go to step 9 .
5. Turn ignition off. Connect a fused jumper wire between terminals No. 9 (Dark Blue wire) and No. 10 (Yellow wire) of right air temperature actuator. Turn ignition on. Observe RH MIX MTR POSITION FEEDBACK parameter in HVAC data list. If scan tool indicates RH MIX MTR POSITION FEEDBACK parameter is 250 counts or more, go to step 7 . If scan tool indicates RH MIX MTR POSITION FEEDBACK parameter is less than 250 counts, go to next step.
6. Disconnect right air temperature harness connector. Check continuity between ground and terminal No. 10 (Yellow wire) of right air temperature actuator. If continuity exists, repair short to ground in Yellow wire between right air temperature actuator and terminal C10 of HVAC control head and go to step 15 . If continuity does not exist, go to step 12 .
7. Measure voltage between ground and terminal No. 10 (Yellow wire) of right air temperature actuator. If voltage exists, repair short to voltage in Yellow wire between terminal C3 of HVAC control head and right air temperature actuator and go to step 15 . If voltage does not exist, go to step 11 .
8. Check continuity between ground and terminal No. 6 (Dark Blue wire) of right air temperature actuator. If continuity exists, repair short to ground in Dark Blue wire between terminal C3 of HVAC control head and right air temperature actuator. After repair, go to step 15 . If continuity does not exist, go to step 12 .
9. Turn ignition off. Measure voltage between ground and terminal No. 9 (Dark Blue wire) of right air temperature actuator. If voltage exists, repair short to voltage in Dark Blue wire between terminal C3 of HVAC control head and right air temperature actuator. After repair, go to step 15 . If voltage does not exist, check continuity in Dark Blue wire between terminal No. 9 of right air temperature sensor and terminal C3 of HVAC control head harness connector. If continuity exists, go to next step. If continuity does not exist, repair open or high resistance in Dark Blue wire and go to step 15 .

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10. Check continuity between ground and terminal No. 7 (Gray/Black wire) of right air temperature actuator. If continuity exists, go to step 12 . If continuity does not exist, repair open in Gray/Black wire between right air temperature actuator and terminal D1 of HVAC control head and go to step 15 .
11. Check for loose wires and or poor connections at right air temperature actuator. Repair any problems found and go to step 15 . If problems are not found, go to step 13 .
12. If continuity does not exist, inspect for loose wires and connector at HVAC control head. Repair any problems found and go to step 15 . If wiring and connections are okay, go to step 14 .
13. Replace right air temperature actuator. See **AIR TEMPERATURE ACTUATORS** under REMOVAL & INSTALLATION and go to step 15 .
14. Replace HVAC control head. See **HVAC CONTROL HEAD** under REMOVAL & INSTALLATION and go to next step.
15. Use scan tool to clear DTCs. See **CLEARING TROUBLE CODES** under SELF-DIAGNOSTICS. Operate vehicle and verify that DTCs do not reset. If DTCs reset, go to step 2 . If DTCs do not reset, system is okay.

DTC B0441: LEFT ACTUATOR OUT OF RANGE

Diagnostic Aids

If DTC is intermittent or has a history, perform tests while wiggling wiring and connectors. This can often cause the malfunction to appear. Inspect sensor connector and harness for damage, corrosion or water intrusion. Check for adequate terminal tension, harness routing, damaged wire insulation, and broken wires.

Connect a scan tool to Diagnostic Link Connector (DLC) and turn ignition on. Select the OUTPUT CONTROL screen in HVAC SPECIAL FUNCTIONS. Use MISCELLANEOUS TEST screen to manually drive LH ELECTRIC ACTUATOR with scan tool from fully open to fully closed. Use scan tool to monitor LH MIX MTR POSITION FEEDBACK. A normal position feedback signal should range between 0-255 counts as electric actuator is being moved.

Diagnostic Procedure

1. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** under TROUBLE SHOOTING. Go to next step.
2. Connect scan tool. Turn ignition on. Observe LH MIX MTR POSITION FEEDBACK parameter in HVAC data list. If scan tool indicates LH MIX MTR POSITION FEEDBACK parameter is between 5-250 counts, see **DIAGNOSTIC AIDS** . If scan tool

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indicates LH MIX MTR POSITION FEEDBACK parameter is not between 5-250 counts, go to next step.

3. Turn ignition off. Disconnect left air temperature actuator. Turn ignition on. Observe LH MIX MTR POSITION FEEDBACK parameter in HVAC data list. If scan tool indicates LH MIX MTR POSITION FEEDBACK parameter is more than 250 counts, go to next step. If scan tool indicates LH MIX MTR POSITION FEEDBACK parameter is 250 counts or less, go to step 8 .
4. Turn ignition off. Connect a fused jumper wire between terminals No. 9 (Dark Blue wire) and No. 7 (Gray/Black wire) of left air temperature actuator. Turn ignition on. Observe LH MIX MTR POSITION FEEDBACK parameter in HVAC data list. If scan tool indicates LH MIX MTR POSITION FEEDBACK parameter is less than 5 counts, go to next step. If scan tool indicates LH MIX MTR POSITION FEEDBACK parameter is 5 counts or more, go to step 9 .
5. Turn ignition off. Connect a fused jumper wire between terminals No. 9 (Dark Blue wire) and No. 10 (Yellow wire) of left air temperature actuator. Turn ignition on. Observe LH MIX MTR POSITION FEEDBACK parameter in HVAC data list. If scan tool indicates LH MIX MTR POSITION FEEDBACK parameter is more than 250 counts, go to step 7 . If scan tool indicates LH MIX MTR POSITION FEEDBACK parameter is 250 counts or less, go to next step.
6. Check continuity between ground and terminal No. 10 (Yellow wire) of right air temperature actuator. If continuity exists, repair short to ground in Yellow wire between terminal C3 of HVAC control head and right air temperature actuator. After repair, go to step 15 . If continuity does not exist, go to step 12 .
7. Turn ignition off. Measure voltage between ground and terminal No. 10 (Yellow wire) of left air temperature actuator. If voltage exists, repair short to voltage in Yellow wire between left temperature sensor and terminal C10 of HVAC control head. After repair, go to step 15 . If voltage does not exist, go to step 11 .
8. Check continuity between ground and terminal No. 9 (Light Blue wire) of left air temperature actuator. If continuity exists, repair short to ground in Light Blue wire between right air temperature actuator and terminal C8 of HVAC control head and go to step 15 . If continuity does not exist, go to step 12 .
9. Check voltage between ground and terminal No. 9 (Light Blue wire) of left air temperature actuator. If voltage exists, repair short to voltage in Light Blue wire between terminal C8 of HVAC control head and left air temperature actuator. After repair, go to step 15 . If continuity does not exist, go to next step. If continuity does not exist, check continuity in Light Blue wire between terminal No. 9 of left air temperature actuator and terminal C8 of HVAC control head. If continuity exists, go to next step. If continuity does not exist, repair open or high resistance in Light Blue wire and go to step 15 .

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10. Check continuity of Gray/Black wire between terminal No. 7 of left air temperature actuator and terminal D1 of HVAC control head. If continuity exists, go to step 15 . If continuity does not exist, go to step 12 .
11. Check for loose wires and or poor connections at left air temperature actuator harness connector. Repair any problems found and go to step 15 . If wiring and connectors are okay, go to step 12 .
12. Check for loose wires and or loose connectors at HVAC control head. Repair any problems found and go to step 15 . If wires and connectors are okay, go to step 14 .
13. Replace right air temperature actuator. See **AIR TEMPERATURE ACTUATORS** under REMOVAL & INSTALLATION and go to step 15 .
14. Replace HVAC control head. See **HVAC CONTROL HEAD** under REMOVAL & INSTALLATION and go to next step.
15. Use scan tool to clear DTCs. See **CLEARING TROUBLE CODES** under SELF-DIAGNOSTICS. Operate vehicle and verify that DTCs do not reset. If DTCs reset, go to step 2 . If DTCs do not reset, system is okay.

DTC B0446: RIGHT ACTUATOR OUT OF RANGE

Diagnostic Aids

If DTC is intermittent or has a history, perform tests while wiggling wiring and connectors. This can often cause the malfunction to appear. Inspect sensor connector and harness for damage, corrosion or water intrusion. Check for adequate terminal tension, harness routing, damaged wire insulation, and broken wires.

Connect a scan tool to Diagnostic Link Connector (DLC) and turn ignition on. Select the OUTPUT CONTROL screen in HVAC SPECIAL FUNCTIONS. Use MISCELLANEOUS TEST screen to manually drive RH ELECTRIC ACTUATOR with scan tool from fully open to fully closed. Use scan tool to monitor RH MIX MTR POSITION FEEDBACK. A normal position feedback signal should range between 0-255 counts as electric actuator is being moved.

Diagnostic Procedure

1. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** under TROUBLE SHOOTING. Go to next step.
2. Connect scan tool. Turn ignition on. Observe RH MIX MTR POSITION FEEDBACK parameter in HVAC data list. If scan tool indicates RH MIX MTR POSITION FEEDBACK parameter is between 5-250 counts, see **DIAGNOSTIC AIDS** . If scan tool indicates RH MIX MTR POSITION FEEDBACK parameter is not between 5-250 counts,

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go to next step.

3. Turn ignition off. Disconnect right air temperature actuator. Turn ignition on. Observe RH MIX MTR POSITION FEEDBACK parameter in HVAC data list. If scan tool indicates RH MIX MTR POSITION FEEDBACK parameter is more than 250 counts, go to next step. If scan tool indicates RH MIX MTR POSITION FEEDBACK parameter is 250 counts or less, go to step 8 .
4. Turn ignition off. Connect a fused jumper wire between terminals No. 9 (Dark Blue wire) and No. 7 (Gray/Black wire) of right air temperature actuator. Turn ignition on. Observe RH MIX MTR POSITION FEEDBACK parameter in HVAC data list. If scan tool indicates RH MIX MTR POSITION FEEDBACK parameter is less than 5 counts, go to next step. If scan tool indicates RH MIX MTR POSITION FEEDBACK parameter is 5 counts or more, go to step 9 .
5. Turn ignition off. Connect a fused jumper wire between terminals No. 9 (Dark Blue wire) and No. 10 (Yellow wire) of right air temperature actuator. Turn ignition on. Observe RH MIX MTR POSITION FEEDBACK parameter in HVAC data list. If scan tool indicates RH MIX MTR POSITION FEEDBACK parameter is more than 250 counts, go to step 7 . If scan tool indicates RH MIX MTR POSITION FEEDBACK parameter is 250 counts or less, go to next step.
6. Disconnect right air temperature harness connector. Check continuity between ground and terminal No. 10 (Yellow wire) of right air temperature actuator. If continuity exists, repair short to ground in Yellow wire between right air temperature actuator and terminal C10 of HVAC control head. After repair, go to step 15 . If continuity does not exist, go to step 12 .
7. Measure voltage between ground and terminal No. 10 (Yellow wire) of right air temperature actuator. If voltage exists, repair short to voltage in Yellow wire between right air temperature actuator and terminal C10 of HVAC control head. If voltage does not exist, check continuity in Yellow wire between terminal No. 10 of right air temperature actuator and terminal C10 of HVAC control head. If continuity exists, go to step 11 . If continuity does not exist, repair open in Yellow wire and go to step 15 .
8. Check continuity between ground and terminal No. 9 (Dark Blue wire) of right air temperature actuator. If continuity exists, repair short to ground in Dark Blue wire between right air temperature actuator and terminal C3 of HVAC control head and go to step 15 . If continuity does not exist, go to step 12 .
9. Check voltage between ground and terminal No. 6 (Dark Blue wire) of right air temperature actuator. If voltage exists, repair short to voltage in Dark Blue wire between terminal C3 of HVAC control head and right air temperature actuator. After repair, go to step 15 . If continuity does not exist, check continuity in Dark Blue wire between terminal No. 6 (Dark Blue wire) and terminal C3 of HVAC control head. If continuity exists, go to next step. If continuity does not exist, repair open in Dark Blue wire and go to step 15 .

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10. Check continuity between ground and terminal No. 7 (Gray/Black wire) of right air temperature actuator. If continuity exists, go to step 12 . If continuity does not exist, go to step 15 .
11. Check for loose wires and or poor connections at right air temperature actuator. Repair any problems found and go to step 15 . If wiring and connections are okay, go to step 13 .
12. Check for loose wires and poor connectors at HVAC control head. Repair any problems found and go to step 15 . If wiring and connectors are okay, go to step 14 .
13. Replace right air temperature actuator. See **AIR TEMPERATURE ACTUATORS** under REMOVAL & INSTALLATION and go to step 15 .
14. Replace HVAC control head. See **HVAC CONTROL HEAD** under REMOVAL & INSTALLATION and go to next step.
15. Use scan tool to clear DTCs. See **CLEARING TROUBLE CODES** under SELF-DIAGNOSTICS. Operate vehicle and verify that DTCs do not reset. If DTCs reset, go to step 2 . If DTCs do not reset, system is okay.

SYSTEM TESTS

A/C SYSTEM PERFORMANCE

See MANUAL A/C-HEATER SYSTEMS - CORVETTE article.

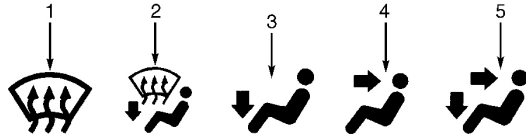
A/C-HEATER SYSTEM FUNCTIONAL TEST

Perform A/C-heater system functional test with engine running and at normal operating temperature. Start functional test from AUTO mode. Perform necessary steps of A/C-HEATER SYSTEM FUNCTIONAL TEST CHART from top to bottom. See **Fig. 2** .

NOTE: AUTO mode display on HVAC control head and dual-zone passenger control is overridden when driver-set temperature is either 60°F or 90°F.

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1. Defrost
2. Defog
3. Floor
4. Upper (Vent)
5. Bi-Level

Functional Test – Temperature Door

Operator ACTION						Operator Should OBSERVE							
Step	Press Button	VF Display	Set Temperature		Fan Speed	Percent of Air Flow				Temperature		Comments	
			Driver	Pass		Windshield	Floor	I/P	Side Window	Driver	Pass		
Important: You must begin this test in the AUTO MODE.													
1	Defrost	(1)*	—	90 °F	12 O'clock	7 Bars	85%	12%	—	3%	Hot	Hot	—
2	Defog	MODE	(2)*	90 °F	12 O'clock	7 Bars	60%	32%	—	8%	Hot	Hot	—
3	Lower	MODE	(3)*	90 °F	12 O'clock	7 Bars	28%	59%	—	13%	Hot	Hot	—
4	Upper	MODE	(4)*	60 °F	12 O'clock	7 Bars	3%	7%	88%	1%	Cold	Cold	1
5	Bilevel	MODE	(5)*	60 °F	12 O'clock	4 Bars	12%	29%	53%	7%	Cold	Cold	2

* The number in () refers to the callout number on the graphic.

Comments:

1. The operator should notice an increase in air rush noise when the system goes into the recirc mode.
2. The operator should notice a reduction in air flow noise when the blower speed has changed.

Function Test — Dual Zone System

Operator ACTION						Operator Should OBSERVE							
Step	Press Button	VF Display	Set Temperature		Fan Speed	Percent of Air Flow				Temperature		Comments	
			Driver	Pass		Windshield	Floor	I/P	Side Window	Driver	Pass		
Important: You must begin this test in the AUTO MODE.													
1	Upper	AUTO	—	73 °F	12 O'clock	AUTO	3%	7%	88%	1%	Cold	Cold	1
2	Upper	—	(4)*	70 °F	5 O'clock	AUTO	12%	29%	53%	7%	Cool	Warm	2
3	Upper	—	(4)*	80 °F	7 O'clock	AUTO	12%	29%	53%	7%	Warm	Cool	3

*The number in () refers to the callout number on the graphic.

Comments:

1. The driver and passenger side air temperature is the same.
2. The passenger side air temperature is warmer than the driver side air temperature.
3. The passenger side air temperature is cooler than the driver side air temperature.

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Fig. 2: A/C-Heater System Functional Test Chart & Mode Function Identification
 Courtesy of GENERAL MOTORS CORP.

REMOVAL & INSTALLATION

WARNING: To avoid injury from accidental air bag deployment, read and carefully follow all SERVICE PRECAUTIONS and DISABLING &

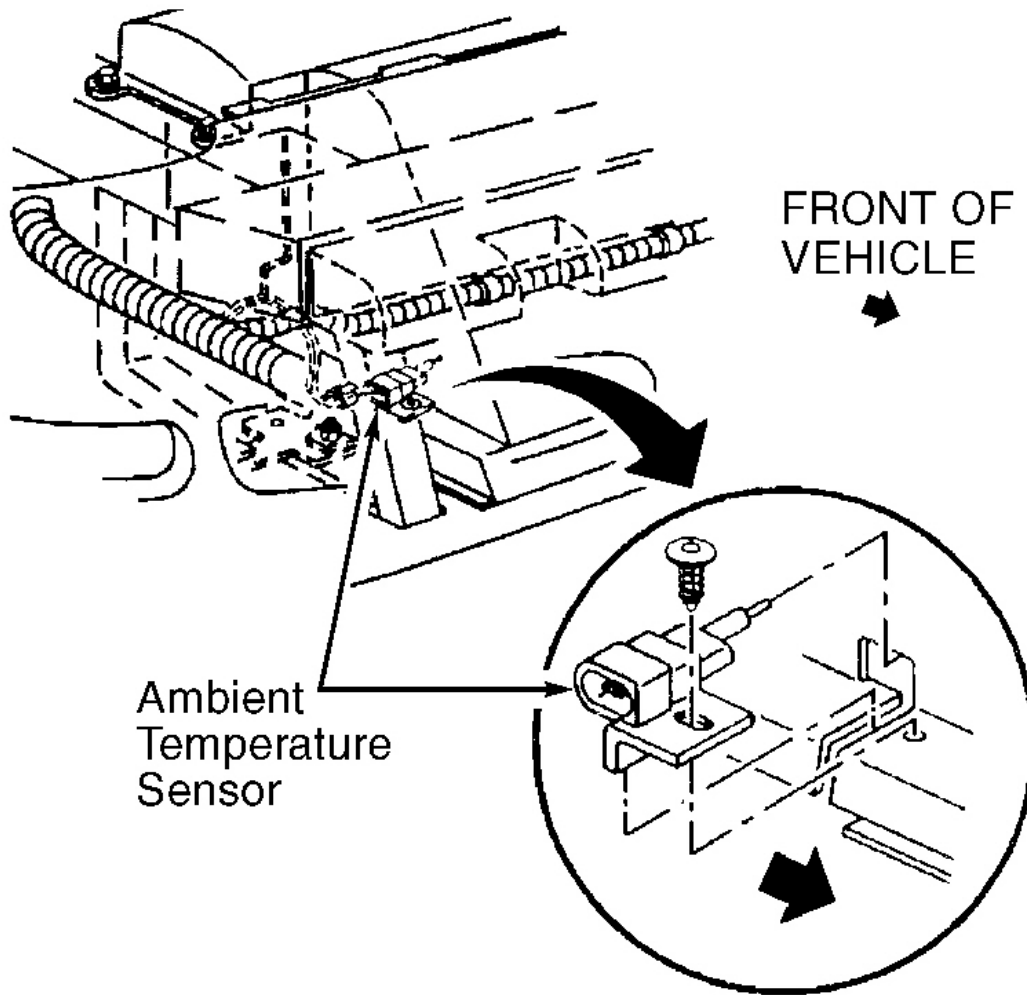
ACTIVATING AIR BAG SYSTEM procedures in AIR BAG SYSTEM SAFETY article in GENERAL SERVICING.

NOTE: For removal and installation procedures not covered in this article, see **MANUAL A/C-HEATER SYSTEMS - CORVETTE** article.

AMBIENT AIR TEMPERATURE SENSOR

Removal & Installation

Disconnect negative battery cable. Disconnect ambient air temperature sensor harness connector. Remove push-in retainer securing sensor to upper right radiator support. Remove sensor from radiator support. See **Fig. 3** . To install, reverse removal procedure.



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Fig. 3: Removing Ambient Air Temperature Sensor
Courtesy of GENERAL MOTORS CORP.

BLOWER MOTOR CONTROL MODULE

WARNING: Unplug blower motor before removal. If blower motor case touches any ground while still hooked up to wiring harness, it will run and may cause personal injury.

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Remove passenger's side lower dashboard trim panel. Disconnect blower motor control module harness connector. Disconnect harness connector from blower motor. Loosen blower motor control module forward 2 retaining screws (closest to dash mat). Remove rear blower motor control module retaining screw. Tilt down rear of blower motor control module and remove blower motor control module from HVAC control head. To install, reverse removal procedure. Tighten retaining screws to 14 INCH lbs. (1.6 N.m).

HVAC CONTROL HEAD

NOTE: When power is first applied to HVAC control head (battery reconnected, fuse replaced, etc.), system will perform a self-diagnostic test lasting about 2 minutes. During this time, system will not function.

Removal & Installation

1. Disconnect negative battery cable. Remove traction control switch in center console and disconnect. Remove retaining nut covers under console lid and remove front and rear retaining nuts. Disconnect fuel door release switch and accessory plug connectors. Remove center console.
2. Remove shift boot by gently pulling upward to release tabs. Remove ashtray. Remove instrument panel accessory trim plate grille, located next to ignition switch. Remove screw from behind ashtray and accessory trim plate grille. Grasp sides of accessory trim plate and pull to rear of vehicle to release clips. Disconnect cigarette lighter harness connector. Turn shift boot to fit through opening for shifter. Remove instrument panel accessory trim plate.
3. Remove HVAC control head mounting screws. Disconnect harness connectors. Remove HVAC control head from vehicle. To install, reverse removal procedure.

INSIDE AIR TEMPERATURE SENSOR

Removal & Installation

Disconnect negative battery cable. Remove instrument panel accessory trim plate. See **HVAC CONTROL HEAD** . Remove instrument panel knee bolster from driver's side lower trim panel. Remove aspirator hose from sensor. Disconnect harness connector. Remove in-car temperature sensor. To install, reverse removal procedure.

SUNLOAD TEMPERATURE SENSOR

Removal & Installation

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Disconnect negative battery cable. Remove instrument panel grille from instrument panel. Remove sunload temperature sensor from instrument panel wiring harness and instrument panel grille. See **Fig. 4** . To install, reverse removal procedure.

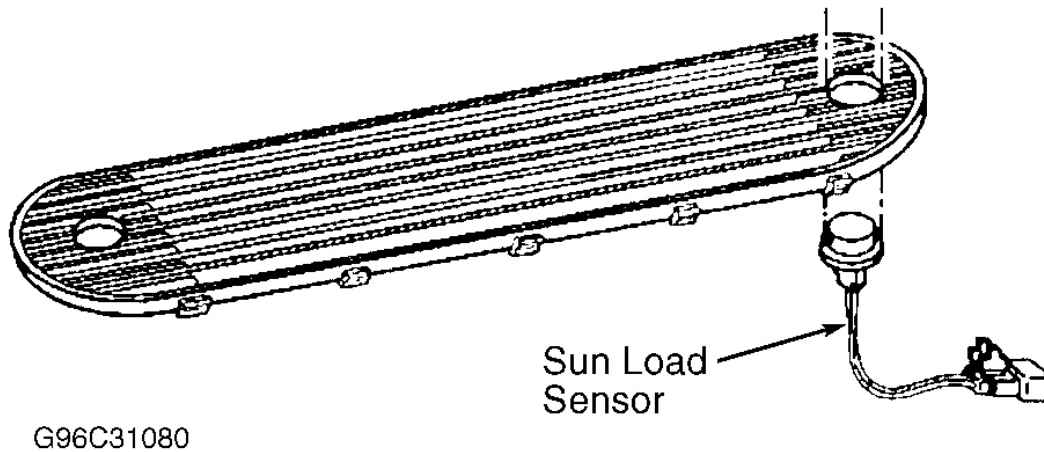


Fig. 4: Identifying Sunload Temperature Sensor
Courtesy of GENERAL MOTORS CORP.

AIR TEMPERATURE ACTUATORS

CAUTION: DO NOT operate temperature door motor if removed from HVAC module, damage to motor can result.

Removal & Installation

Disconnect negative battery cable. Remove fuse block cover. Remove right instrument panel trim panel and air outlet. Remove instrument panel lower right trim panel. Disconnect either temperature door motor harness connector. Remove either temperature door motor. To install, reverse removal procedure.

VACUUM/ELECTRIC SOLENOID

Removal & Installation

Disconnect negative battery cable. Remove passenger's floor hush panel. Disconnect vacuum/electric solenoid electrical and vacuum harness connectors. Remove vacuum/electric solenoid module mounting screws. Remove vacuum/electric solenoid module. To install, reverse

removal procedure. See **Fig. 5** .

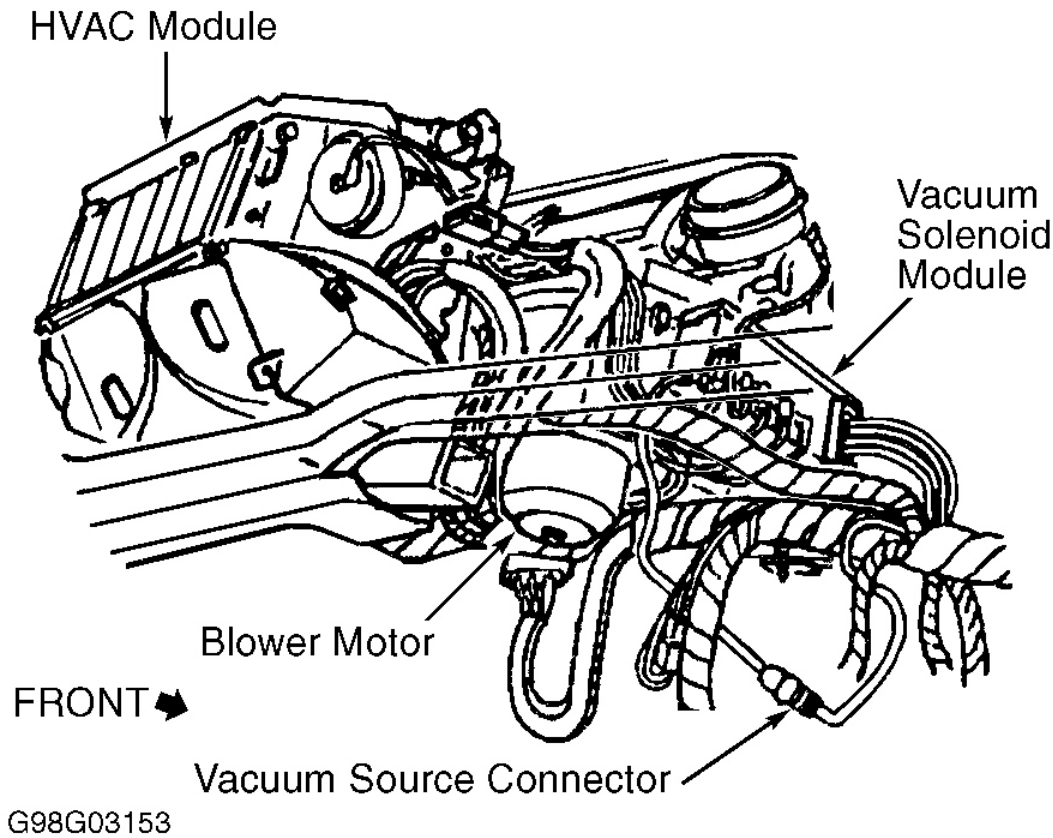


Fig. 5: Identifying Vacuum/Electric Solenoid
 Courtesy of GENERAL MOTORS CORP.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS

Application	Ft. Lbs. (N.m)
A/C Compressor Line Bolt	19 (26)
A/C Compressor Mounting Bolt	37 (50)
Accumulator Line Fitting	30 (41)
Compressor-To-Condenser Line Fitting	17 (23)
Evaporator-To-Condenser Line Fitting	20 (27)
	INCH Lbs. (N.m)

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A/C Pressure Sensor	42 (5)
Accumulator Clamp Bracket Bolt	89 (10)
Blower Motor Resistor Screw	14 (2)

VACUUM DIAGRAMS

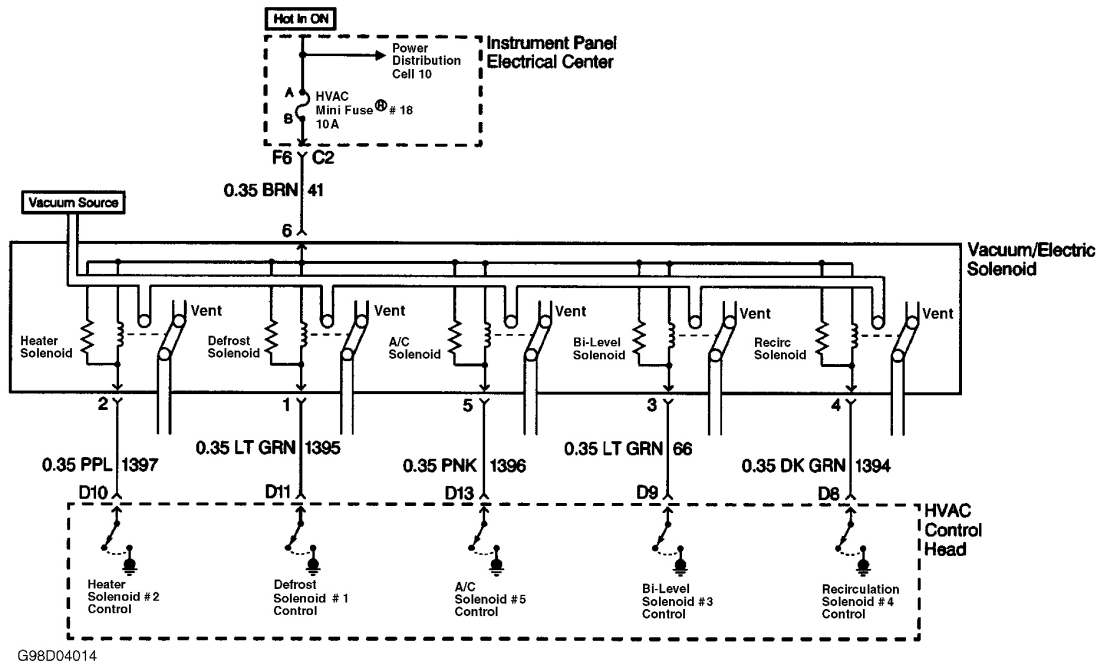


Fig. 6: Automatic A/C-Heater System Vacuum Diagram (Corvette)
 Courtesy of GENERAL MOTORS CORP.

WIRING DIAGRAMS

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Fig. 7: Automatic A/C-Heater System Wiring Diagram (2000-01 Corvette)