A/C SYSTEM 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	1.63 lbs.
System Operating Pressures (3)	
High Side	210 psi (135 kg/cm^2)
Low Side	30 psi (2.1 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 80-90°F (27-32°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 article in the ACCESSORIES/SAFETY EQUIPMENT Section.

CAUTION: When discharging air conditioning system, use only approved refrigerant recovery/recycling equipment. Make every attempt to avoid discharging refrigerant into the atmosphere.

SYSTEM DESCRIPTION

Automatic, dual zone A/C-heater system uses 2 bidirectional 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/C system is a Variable Displacement Orifice Tube (VDOT) type. Compressor engagement is controlled Powertrain Control Module (PCM). The VDOT compressor 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 (PANEL)

The HVAC control head controls operation of A/C-heating 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.

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** .

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** .

MODE Button

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

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** .

Upper (Vent) Mode

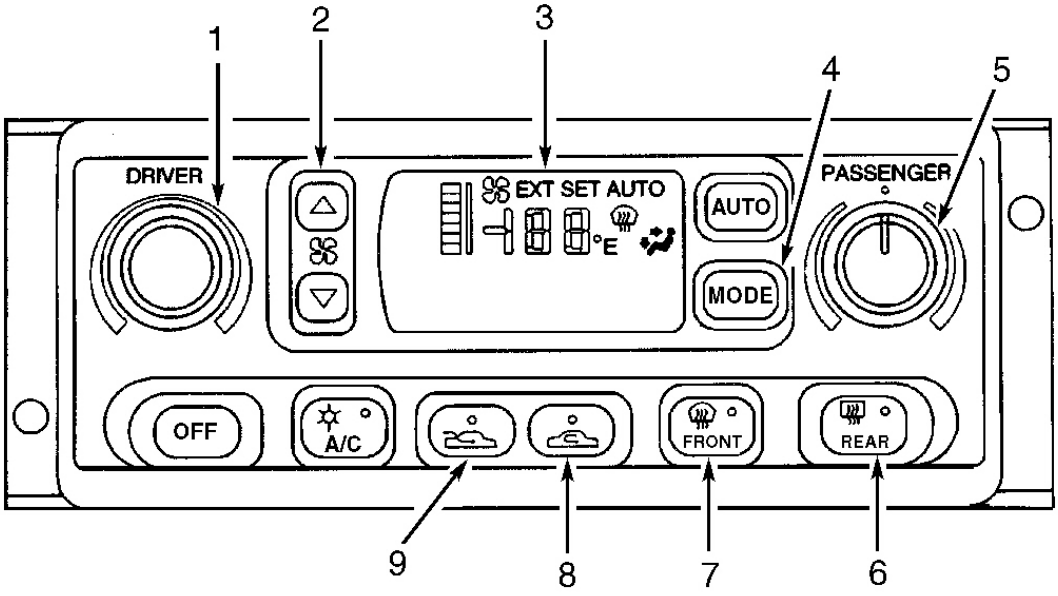
In this mode, outside air drawn through HVAC module and airflow is directed to panel outlets. Temperature of air can be heated if desired.

Defog Mode

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

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.



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.

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.

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.

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.

Driver/Passenger Temperature Control Knob

Control driver/passenger air mix doors respectively to regulate outlet temperatures.

Blower Speed Select Switch

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

AMBIENT TEMPERATURE SENSOR (ATS)

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.

INSIDE TEMPERATURE SENSOR (ITS)

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.

SUN LOAD SENSOR (SLS)

Sun Load Sensor (SLS) 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 SOLENOID MODULE

Vacuum solenoid module is located on left side of HVAC module above blower motor, converts electrical signals from A/C 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

NOTE: For trouble shooting items not covered in this article, see A/C-HEATER SYSTEM - MANUAL article.

DIAGNOSTIC SYSTEM CHECK

1. Turn ignition switch to OFF position. Install scan tool. Turn ignition switch to ON position. Retrieve Diagnostic Trouble Codes (DTCs). If any HVAC, Powertrain Control Module (PCM) or Body Control Module (BCM) codes related to HVAC operation are stored, see appropriate DTC under **SELF-DIAGNOSTICS** . If scan tool communicates with other systems, go to next step. If scan tool does not communicate with vehicle, see TESTS W/CODES article in ENGINE PERFORMANCE.
2. Turn ignition switch to OFF position. Remove scan tool. Start engine and allow to idle. Press AUTO button on HVAC control head. Rotate drivers-side temperature control knob to maximum cold position. Air should flow from instrument panel outlets with blower at maximum speed. A/C light will be illuminated and engine idle speed will increase. A/C compressor will turn on and air from vents will be cold. Engine coolant fan may run.
3. Depress fan control button until fan reaches low speed. Blower speed should be displayed. Blower speed should decrease as long as switch is depressed. If blower motor is inoperative at any speed, see **BLOWER MOTOR INOPERATIVE AT ANY SPEED** .
4. Depress fan control button until fan reaches high speed. Blower speed should be displayed. Blower speed should increase as long as switch is depressed. If blower motor is inoperative at any speed, see **BLOWER MOTOR INOPERATIVE AT ANY SPEED** .
5. Depress AUTO button on HVAC control head. Rotate drivers temperature control knob to maximum heat position. Air should be warm and flow through instrument panel vents, with slight air from defrost outlets.
6. Rotate drivers temperature control knob until temperature display reaches 75°F (24°C). In-car temperature display should decrease in one degree increments until 75°F (24°C) is obtained. Blower speed decreases as in-car temperature reaches 75°F (24°C). Air flows from instrument panel vents and floor outlets as 75°F (24°C) is reached.
7. After in-car temperature stabilizes at 75°F (24°C), rotate passenger temperature control knob to maximum heat, maximum cold and then back to center position. Passenger temperature flow should be warmer than master setting, then cooler than master setting and then back to master setting when knob is at center position.
8. Depress MODE button until instrument panel UPPER position is displayed. Depress outside air control button. See **Fig. 1** . Air should flow from instrument panel vents and A/C should be off.
9. Depress MODE button until LOWER floor position is displayed. Air should flow from instrument panel vents and A/C should be off.
10. Depress MODE button until DEFOG position is displayed. Air should flow from windshield outlets and A/C should turn on.
11. Depress MODE button until BI-LEVEL position is displayed. Air should flow from instrument panel and floor vents and A/C should be on.
12. Depress front defroster button. Air should flow from windshield outlets. A/C should be on.
13. Depress front defroster button a second time. Depress A/C button until A/C indicator light comes on. Rotate drivers temperature control knob to maximum cold position. Depress recirculation button. Air should flow from instrument panel vents, A/C should be on and air should recirculate within the vehicle.
14. Depress A/C button until A/C indicator light turns off. Depress outside air button. Air should flow from instrument panel vents, A/C compressor should turn off and outside air will enter vehicle.
15. Depress OFF button. HVAC system should turn off and outside temperature should be displayed.

BLOWER MOTOR INOPERATIVE AT ANY SPEED

1. Before any blower motor trouble shooting can be performed, complete **DIAGNOSTIC SYSTEM CHECK** . After completing DIAGNOSTIC SYSTEM CHECK, go to next step.
2. Disconnect blower motor control module connector. Turn ignition switch to ON position. Turn on HVAC control head. Connect test light between ground and blower control module connector terminal "C" (Tan wire). If test light comes on, go to step 4). If test light does not come on, go to next step.
3. Repair open or high resistance in Tan wire between HVAC control head connector terminal C11 and blower motor control module connector terminal "C". If circuit is okay, replace HVAC control head. Perform diagnostic system check. Recheck operation of blower motor.
4. Connect test light between ground and blower motor control module terminal "B" (Red wire). If test light comes on, go to step 6). If test light does not come on, go to next step.
5. Repair open or high resistance in Red wire between BLO MOT fuse and blower motor control module connector terminal "B". Perform diagnostic system check. Recheck operation of blower motor.
6. Turn ignition switch to OFF position. Connect blower motor control module. Disconnect blower motor connector. Turn ignition switch to ON position. Connect test light between ground and blower motor connector terminal "A" (Black wire). If test light glows, go to step 8). If test light does not glow, go to next step.
7. Repair open or high resistance in Black wire between HVAC control head connector terminal C1 and blower motor connector terminal "A". If circuit is okay, replace blower motor control module. Perform diagnostic system check.
8. Disconnect splice pack 202 connector. Connect fused jumper between blower motor connector terminals "A" and "B". Connect test light between ground and terminal "F" (Black wire) of slice pack 202 connector. If test light comes on, go to step 10). If test light does not come on, go to next step.
9. Repair open or high resistance in Black wire between blower motor control module connector terminal "A" and splice pack 202 connector terminal "F".
10. Replace blower motor. Perform diagnostic system check. See DIAGNOSTIC SYSTEM CHECK. Recheck operation of blower motor.

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. Before any A/C compressor trouble shooting can be performed, complete **DIAGNOSTIC SYSTEM CHECK** . After completing DIAGNOSTIC SYSTEM CHECK, go to next step.
2. Remove A/C CLU micro relay from underhood electrical center. Disconnect A/C compressor clutch connector. Use DVOM to check for continuity between ground and A/C compressor clutch connector terminal "A". If continuity exists, go to step 4). If continuity does not exist, go to next step.
3. Repair short to ground in Dark Green wire between underhood electrical center and A/C compressor clutch connector terminal "A". Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .
4. Connect fused jumper from terminal No. 30 to terminal No. 87 of A/C CLU micro relay connector in underhood electrical center. Use DVOM to measure voltage between ground and A/C compressor clutch

terminal "A". If reading is 10-14 volts, go to step 6). If reading is not 10-14 volts, go to next step.

5. Repair open or high resistance in Dark Green wire between underhood electrical center and A/C compressor clutch connector terminal "A". Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .
6. Use DVOM to check for continuity between ground and A/C compressor clutch connector terminal "B". If continuity exists, go to step 8). If continuity does not exist, go to next step.
7. Repair open or high resistance in Black wire between A/C compressor clutch connector terminal "B" and ground. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .
8. Disconnect PCM connector C1. Install A/C CLU micro relay. Connect fused jumper between PCM connector C1 terminal No. 39 and ground. Use DVOM to measure voltage between ground and A/C compressor clutch connector terminal "A". If reading is 10-14 volts, go to next step. If reading is not 10-14 volts, go to step 10).
9. Remove fused jumper from PCM connector. Connect A/C compressor clutch connector. Reinstall fused jumper between PCM connector terminal No. 39 and ground. Turn ignition switch to ON position. If A/C compressor clutch engages, go to SYSTEM PERFORMANCE TEST in **A/C-HEATER SYSTEM TROUBLESHOOTING - MANUAL** article. If A/C compressor clutch does not engage, go to step 16).
10. Turn ignition switch to OFF position. Remove A/C CLU micro relay. Use DVOM to check for continuity between PCM connector terminal No. 39 and A/C CLU micro relay connector terminal No. 88 (Dark Green/White wire). If continuity exists, go to step 12). If continuity does not exist, go to next step.
11. Repair open or high resistance in Dark Green/White wire between PCM connector terminal No. 39 and A/C CLU micro relay connector terminal No. 88. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .
12. Replace A/C CLU micro relay. If replacing relay repairs problem, perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** . If problem is not repaired, go to next step.
13. Disconnect PCM connector C2. Use DVOM to check for continuity between PCM connector C2 terminal No. 58 (Dark Green wire) and HVAC control head connector terminal D12 (White wire). If continuity exists, go to step 15). If continuity does not exist, go to next step.
14. Repair open or high resistance in Dark Green wire between PCM connector terminal No. 58 and star connector terminal "B". Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .
15. Use DVOM to check for continuity between ground and PCM connector terminal No. 58. If continuity exists, go to next step. If continuity does not exist, go to step 17).
16. Repair short to ground in Dark Green wire between PCM connector terminal No. 58 and star connector terminal "B". Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .
17. Disconnect DVOM, reconnect all connectors, install scan tool, start engine and allow to idle. Select HVAC output status function. Depress A/C button on HVAC control head numerous times. If scan tool indicates A/C request being sent by HVAC control head, go to next step. If no A/C request is indicated, go to step 19).
18. Replace PCM. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .
19. Replace HVAC control head. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .

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. Before any A/C compressor trouble shooting can be performed, complete **DIAGNOSTIC SYSTEM CHECK** . After completing DIAGNOSTIC SYSTEM CHECK, go to next step.
2. Disconnect PCM connector C1. Turn ignition switch to ON position. If A/C compressor clutch disengages, go to step 4). If A/C compressor clutch does not disengage, go to next step.
3. Replace PCM. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .
4. Remove A/C CLU micro relay from underhood electrical center. Turn ignition switch to ON position. If A/C compressor clutch disengages, go to step 8). If A/C compressor clutch does not disengage, go to next step.
5. Turn ignition switch to OFF position. Use DVOM to check for continuity between ground and PCM connector terminal No. 39 (Dark Green/White wire). If continuity exists, go to next step. If continuity does not exist, go to step 7).
6. Repair short to ground in Dark Green/White wire between PCM connector terminal No. 39 and A/C CLU micro relay connector terminal No. 88. Perform diagnostic system check. See procedures in **DIAGNOSTIC SYSTEM CHECK** .
7. Replace A/C CLU micro relay. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .
8. Use DVOM to measure for voltage between ground and PCM connector terminal No. 14 (Dark Green wire). Turn ignition switch to ON position. If battery voltage is present, go to next step. If voltage is not present, go to step 10).
9. Repair short to battery voltage in Dark Green wire between A/C compressor clutch connector terminal "A" and underhood electrical center. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .
10. Replace A/C compressor clutch. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .

INCORRECT OUTLET AIRFLOW

1. Before any air delivery trouble shooting can be performed, complete **DIAGNOSTIC SYSTEM CHECK** . After completing DIAGNOSTIC SYSTEM CHECK, go to next step.
2. Disconnect vacuum solenoid module electronic connector. Turn ignition switch to ON position. Use DVOM to measure voltage between ground and vacuum solenoid module connector terminal No. 6 (Brown wire). If reading is 10-14 volts, go to step 6). If reading is not 10-14 volts, go to next step.
3. Check HVAC mini fuse. If fuse is open, go to next step. If fuse is good, go to step 5).
4. Repair short to ground in Brown wire between vacuum solenoid module connector terminal No. 6 and instrument panel electrical center. Perform diagnostic system check. See procedures in **DIAGNOSTIC SYSTEM CHECK** .
5. Repair open or high resistance in Brown wire between vacuum solenoid module connector terminal No. 6 and instrument panel electrical center. Perform diagnostic system check. See procedures in **DIAGNOSTIC SYSTEM CHECK** .
6. Turn ignition switch to OFF position. Disconnect HVAC control head. Use DVOM to check for

continuity of Purple wire between HVAC control head connector terminal D10 and vacuum solenoid module connector terminal No. 2. If continuity exists, go to next step. If continuity does not exist, go to step 8).

7. Use DVOM to check for continuity of Purple wire between ground and HVAC control head connector terminal D10. If continuity exists, go to next step. If continuity does not exist, go to step 9).
8. Repair open or short to ground in Purple wire between HVAC control head connector terminal D10 and vacuum solenoid module connector No. 2. Perform diagnostic system check. See procedures in **DIAGNOSTIC SYSTEM CHECK** .
9. Use DVOM to check for continuity of Light Green wire between HVAC control head connector terminal D11 and vacuum solenoid module connector terminal No. 1. If continuity exists, go to next step. If continuity does not exist, go to step 11).
10. Use DVOM to check for continuity of Light Green wire between ground and HVAC control head connector terminal D11. If continuity exists, go to next step. If continuity does not exist, go to step 12).
11. Repair open or short to ground in Light Green wire between HVAC control head connector terminal D11 and vacuum solenoid module connector No. 1. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .
12. Use DVOM to check for continuity of Pink wire between HVAC control head connector terminal D13 and vacuum solenoid module connector terminal No. 5. If continuity exists, go to next step. If continuity does not exist, go to step 14).
13. Use DVOM to check for continuity of Pink wire between ground and HVAC control head connector terminal D13. If continuity exists, go to next step. If continuity does not exist, go to step 15).
14. Repair open or short to ground in Pink wire between HVAC control head connector terminal D13 and vacuum solenoid module connector No. 5. Perform diagnostic system check. See procedures in **DIAGNOSTIC SYSTEM CHECK** .
15. Use DVOM to check for continuity of Light Green wire between HVAC control head connector terminal D9 and vacuum solenoid module connector terminal No. 3. If continuity exists, go to next step. If continuity does not exist, go to step 17).
16. Use DVOM to check for continuity of Light Green wire between ground and HVAC control head connector terminal D9. If continuity exists, go to next step. If continuity does not exist, go to step 18).
17. Repair open or short to ground in Light Green wire between HVAC control head connector terminal D9 and vacuum solenoid module connector No. 3. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .
18. Use DVOM to check for continuity of Dark Green wire between HVAC control head connector terminal D8 and vacuum solenoid module connector terminal No. 4. If continuity exists, go to next step. If continuity does not exist, go to step 20).
19. Use DVOM to check for continuity of Dark Green wire between ground and HVAC control head connector terminal D8. If continuity exists, go to next step. If continuity does not exist, go to step 21).
20. Repair open or short to ground in Dark Green wire between HVAC control head connector terminal D8 and vacuum solenoid module connector No. 4. Perform diagnostic system check. See procedures in **DIAGNOSTIC SYSTEM CHECK** .
21. Reconnect vacuum solenoid module connector. Start engine, allow to idle. Momentarily connect fused jumper between ground and HVAC control head connector terminals: D8, D9, D10, D11 and D13. If vacuum solenoids react to corresponding connector when grounded, go to next step. If vacuum solenoids

do not respond when grounded, go to step 23).

22. Replace HVAC control head. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .
23. Replace vacuum solenoid module. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .

LEFT TEMPERATURE CONTROL INOPERATIVE

1. Before any temperature control trouble shooting can be performed, complete **DIAGNOSTIC SYSTEM CHECK** . After completing DIAGNOSTIC SYSTEM CHECK, go to next step.
2. Disconnect left-side electric actuator connector. Turn ignition switch to ON position. Use DVOM to measure voltage between ground and left-side electric actuator connector terminal No. 5 (Brown wire). If reading is 10-14 volts, go to step 4). If voltage is not 10-14 volts, go to next step.
3. Repair open or high resistance in Brown wire between left-side electric actuator connector terminal No. 5 and instrument panel electrical center. Perform diagnostic system check. See procedures in **DIAGNOSTIC SYSTEM CHECK** .
4. Use DVOM to measure voltage between ground and left-side electric actuator connector terminal No. 10 (Yellow wire). Turn ignition switch to ON position. If reading is 4-6 volts, go to step 6). If reading is not 4-6 volts, go to next step.
5. Repair open or high resistance in Yellow wire between left-side electric actuator connector terminal No. 10 and HVAC control head connector terminal C10. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .
6. Use DVOM to measure voltage between ground and left-side electric actuator connector terminal No. 9 (Light Blue wire). Turn ignition switch to ON position. If reading is 4-6 volts, go to step 9). If reading is not 4-6 volts, go to next step.
7. Back probe HVAC control head connector terminal C8 with positive lead of DVOM, and negative lead of DVOM to ground. Turn ignition switch to ON position. If reading is 4-6 volts, go to next step. If reading is not 4-6 volts, go to 14).
8. Repair open or high resistance in Light Blue wire between left-side electric actuator connector terminal No. 9 and HVAC control head connector terminal C8. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .
9. Disconnect HVAC control head connector. Connect fused jumper between terminals No. 5 and 6 of left-side electric actuator connector. Turn ignition switch to ON position. Use DVOM to measure voltage between ground and HVAC control head connector terminal C7 (Dark Blue wire). If reading is 10-14 volts, go to step 11). If reading is not 10-14 volts, go to next step.
10. Repair open or high resistance in Dark Blue wire between left-side electric actuator connector terminal No. 6 and HVAC control head connector terminal C7. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .
11. Turn ignition switch to OFF position. Use DVOM to check for continuity between HVAC control head connector terminal D1 and left-side electric actuator connector terminal No. 7 (Grey/Black wire). If continuity exists, go to step 13). If continuity does not exist, go to next step.
12. Repair open or high resistance in Grey/Black wire between left-side electric actuator connector terminal No. 7 and HVAC control head connector terminal D1. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .

13. Reconnect all connectors, connect scan tool, turn ignition switch to ON position. Select HVAC parameters on scan tool. Rotate HVAC control head left (drivers) temperature control knob from full hot to full cold and back. If the scan tool shows request from HVAC control head but no feedback signal from left-side actuator, go to step 15). If scan tool shows no request signal from HVAC control head, go to next step.
14. Replace HVAC control head. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .
15. Replace left-side electric actuator. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .

RIGHT TEMPERATURE CONTROL INOPERATIVE

1. Before any temperature control trouble shooting can be performed, complete **DIAGNOSTIC SYSTEM CHECK** . After completing DIAGNOSTIC SYSTEM CHECK, go to next step.
2. Disconnect right-side electric actuator connector. Turn ignition switch to ON position. Use DVOM to measure voltage between ground and right-side electric actuator connector terminal No. 5 (Brown wire). If reading is 10-14 volts, go to step 4).
3. Repair open or high resistance in Brown wire between right-side electric actuator connector terminal No. 5 and instrument panel electrical center. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .
4. Use DVOM to measure voltage between ground and right-side electric actuator connector terminal No. 10 (Yellow wire). Turn ignition switch to ON position. If reading is 4-6 volts, go to step 6). If reading is not 4-6 volts, go to next step.
5. Repair open or high resistance in Yellow wire between right-side electric actuator connector terminal No. 10 and HVAC control head connector terminal C10. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .
6. Use DVOM to measure voltage between ground and right-side electric actuator connector terminal No. 9 (Dark Blue wire). Turn ignition switch to ON position. If reading is 4-6 volts, go to step 9). If reading is not 4-6 volts, go to next step.
7. Back probe HVAC control head connector terminal C3 with positive lead of DVOM, and negative lead of DVOM to ground. Turn ignition switch to ON position. If reading is 4-6 volts, go to next step. If reading is not 4-6 volts, go to step 14).
8. Repair open or high resistance in Dark Blue wire between right-side electric actuator connector terminal No. 9 and HVAC control head connector terminal C3. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .
9. Disconnect HVAC control head connector. Connect fused jumper between terminals No. 5 and 6 of right-hand electric actuator connector. Turn ignition switch to ON position. Use DVOM to measure voltage between ground and HVAC control head connector terminal C6 (White/Black wire). If reading is 10-14 volts, go to step 11). If reading is not 10-14 volts, go to next step.
10. Repair open or high resistance in White/Black wire between right-side electric actuator connector terminal No. 6 and HVAC control head connector terminal C6. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .
11. Turn ignition switch to OFF position. Use DVOM to check for continuity between HVAC control head connector terminal D1 and right-side electric actuator connector terminal No. 7 (Grey/Black wire). If

continuity exists, go to step 13). If continuity does not exist, go to next step.

12. Repair open or high resistance in Grey/Black wire between RH electric actuator connector terminal No. 7 and HVAC control head connector terminal D1. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .
13. Reconnect all connectors, connect scan tool, turn ignition switch to ON position. Select HVAC parameters on scan tool. Rotate HVAC control head right (passenger) temperature control knob from full hot to full cold and back. If the scan tool shows request from HVAC control head but no feedback signal from RH actuator, go to step 15). If scan tool shows no request signal from HVAC control head, go to next step.
14. Replace HVAC control head. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .
15. Replace right-side electric actuator. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .

SYSTEM TESTING

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 step 1) through 5) of FUNCTIONAL TEST-TEMPERATURE DOOR and step 1) through 3) of FUNCTIONAL TEST-DUAL ZONE SYSTEM 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.

A/C-HEATER SYSTEM FUNCTIONAL TEST CHART

	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7	Step 8
Operator Action								
Press Button	(1)*	MODE	MODE	MODE	MODE	MODE	MODE	MODE
VF Display	—	(2)*	(3)*	(4)*	(5)*	AUTO	(5)*	(5)*
Set Temp Driver	90°F	90°F	90°F	60°F	60°F	—	—	—
Set Temp Pass.	12 o'clock	12 o'clock	12 o'clock	12 o'clock	12 o'clock	12 o'clock	5 o'clock	7 o'clock
Fan Speed	7 Bars	4 Bars	7 Bars	7 Bars	7 Bars	Auto	Auto	Auto
Operator Should Observe								
LED's Lit								
AC	On	On	On	On	On	On	On	On
REC	—	—	—	On	On	On	—	—
OSA	On	On	—	—	—	—	On	On
Def	On	—	—	—	—	—	—	—
Air Flow Direction								
W/S	85% Air Flow	60% Air Flow	28% Air Flow	3% Air Flow	12% Air Flow	3% Air Flow	12% Air Flow	12% Air Flow
Floor	12% Air Flow	32% Air Flow	59% Air Flow	7% Air Flow	29% Air Flow	7% Air Flow	29% Air Flow	29% Air Flow
I/P	—	—	—	68% Air Flow	53% Air Flow	88% Air Flow	53% Air Flow	53% Air Flow
S/W	3% Air Flow	8%Air Flow	13% Air Flow	1% Air Flow	7% Air Flow	1% Air Flow	7% Air Flow	7% Air Flow
Temperature	—							
Driver	Hot	Hot	Hot	Cold	Cold	Cold	Hot	Cold
Pass.	Hot	Hot	Hot	Cold	Cold	Cold	Hot	Cold
Comments	—	1	—	2	—	3	—	—

* – Number in ( ) refers to callout number on illustration. *See Fig. 4.*
[1] – Operator should notice a reduction in air flow noise when blower changes.
[2] – Operator should notice a increase in air rush noise when is in recirculation mode.
[3] – System may go either A/C or Bi-level. Mode could be Recirculation or OSA.

96I31284

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

SELF-DIAGNOSTICS

RETRIEVING DIAGNOSTIC TROUBLE CODES

Diagnostic Trouble Codes (DTCs) can only be retrieved using a scan tool. Retrieve and record current and history DTCs. Proceed to appropriate DTC, and follow diagnostic and repair procedures.

CLEARING TROUBLE CODES

Current DTCs will clear as soon as fault in system goes away or is repaired. History DTCs can only be cleared by disconnecting negative battery cable, or by using a scan tool to manually clear history codes.

DTC B0332: AMBIENT TEMPERATURE SENSOR SHORT TO GROUND

1. Disconnect Ambient Temperature Sensor (ATS). Turn ignition switch to ON position. Depress AUTO mode button of HVAC control head. Use DVOM (Digital Volt-Ohm Meter) to measure voltage between ground and ATS terminal "A" (Light Green/Black wire). If reading is 4.5-5.5 volts, go to step 3). If reading is not 4.5-5.5 volts, go to next step.
2. Repair short to ground in Light Green/Black wire between ATS and HVAC control head. Go to step 4).
3. Replace ATS. Go to step 4).
4. Press A/C mode button on HVAC control head or use scan tool to clear DTCs from memory. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .

DTC B0333: AMBIENT TEMPERATURE SENSOR OPEN

1. Disconnect Ambient Temperature Sensor (ATS) connector. Turn ignition switch to ON position. Depress AUTO mode button of HVAC control head. Use DVOM to measure voltage between ground and terminal "A" (Light Green/Black wire) of ambient temperature sensor. If reading is 4.5-5.5 volts, go to step 3). If reading is not 4.5-5.5 volts, go to next step.
2. Repair open or high resistance in Light Green/Black wire between ambient temperature sensor connector terminal "A" and HVAC control head connector terminal D3. Go to step 6).
3. Use DVOM to measure voltage between terminals "A" (Light Green/Black wire) and "B" (Gray/Black wire) of ambient temperature sensor connector. If reading is 4.5-5.5 volts, go to step 5). If reading is not 4.5-5.5 volts, go to next step.
4. Repair open or high resistance in Gray/Black wire between ambient temperature sensor connector terminal "B" to HVAC control head connector terminal D1.
5. Replace ATS. Go to next step.
6. Press A/C mode button on HVAC control head or use scan tool to clear DTCs from memory. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .

DTC B0337: INSIDE TEMPERATURE SENSOR SHORT TO GROUND

1. Disconnect Inside Temperature Sensor (ITS). Turn ignition switch to ON position. Depress AUTO mode button of HVAC control head. Use DVOM to measure voltage between ground and terminal "A" (Dark Green/Black wire). If reading is 4.5-5.5 volts, go to step 3). If reading is not 4.5-5.5 volts, go to next step.
2. Repair short to ground in Dark Green wire between ITS connector terminal "A" and HVAC control head connector terminal D2.
3. Replace ITS. Go to next step.
4. Press A/C mode button on HVAC control head or use scan tool to clear DTCs from memory. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .

DTC B0338: INSIDE TEMPERATURE SENSOR OPEN

1. Disconnect Inside Temperature Sensor (ITS). Turn ignition switch to ON position. Depress AUTO mode button of HVAC control head. Use DVOM to measure voltage between ground and terminal "A" (Dark Green/Black wire). If reading is 4.5-5.5 volts, go to step 3). If reading is not between 4.5-5.5 volts, go to next step.
2. Repair short to ground in Dark Green wire between ITS connector terminal "A" and HVAC control head

connector terminal D2.

3. Use DVOM to measure voltage between terminal "A" (Dark Green/Black wire) and terminal "B" (Gray/Black wire) of ITS connector. If reading is 4.5-5.5 volts, go to step 5). If reading is not 4.5-5.5 volts, go to next step.
4. Repair open or high resistance in Gray/Black wire between ITS connector terminal "B" and HVAC control head connector terminal D1.
5. Replace ITS. Go to next step.
6. Press A/C mode button on HVAC control head or use scan tool to clear DTCs from memory. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .

DTC B0348: SUNLOAD TEMPERATURE SENSOR OPEN

1. Disconnect Sunload Temperature Sensor (STS). Turn ignition switch to ON position. Depress AUTO mode button of HVAC control head. Use DVOM to measure voltage between ground and terminal "A" (Light Blue/Black wire). If reading is 4.5-5.5 volts, go to step 3). If reading is not 4.5-5.5 volts, go to next step.
2. Repair short to ground in Light Blue/Black wire between STS connector terminal "A" and HVAC control head connector terminal C2.
3. Use DVOM to measure voltage between terminal "A" (Light Blue/Black wire) and terminal "B" (Gray/Black wire) of STS connector. If reading is 4.5-5.5 volts, go to step 5). If reading is not 4.5-5.5 volts, go to next step.
4. Repair open or high resistance in Gray/Black wire between ITS connector terminal "B" and HVAC control head connector terminal D1.
5. Replace STS. Go to next step.
6. Press A/C mode button on HVAC control head or use scan tool to clear DTCs from memory. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .

DTC B0361: LEFT ACTUATOR FEEDBACK SHORT TO GROUND

1. Disconnect left-side actuator connector. Start engine and bring to normal operating temperature. Set AUTO mode of HVAC control head to 60°F (16°C). Use DVOM to measure voltage between ground and actuator connector terminal No. 10 (Yellow wire). If reading is 4.5-5.5 volts, go to step 3). If reading is not 4.5-5.5 volts, go to next step.
2. Repair open or high resistance in Yellow wire between left-side actuator connector terminal No. 10 and splice (S201).
3. Use DVOM to measure voltage between ground and terminal No. 9 (Light Blue wire) of left-side actuator connector. If reading is 4.5-5.5 volts, go to step 5). If reading is not 4.5-5.5 volts, go to next step.
4. Repair short in Light Blue wire between left-side electronic actuator terminal No. 9 and HVAC control head terminal C8. If circuit is okay, replace HVAC control head.
5. Repair open or high resistance in Gray/Black wire between left-side electronic actuator connector terminal No. 7 and HVAC control head connector terminal D1. If circuit is okay, replace left-side electronic actuator. Go to next step.
6. Press A/C mode button on HVAC control head or use scan tool to clear DTCs from memory. Perform

diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .

DTC B0363: LEFT ACTUATOR FEEDBACK OPEN

1. Disconnect left-side actuator connector. Start engine and bring to normal operating temperature. Set AUTO mode of HVAC control head to 60°F (16°C). Use DVOM to measure voltage between ground and actuator connector terminal No. 10 (Yellow wire). If reading is 4.5-5.5 volts, go to step 3). If reading is not 4.5-5.5 volts, go to next step.
2. Repair open or high resistance in Yellow wire between left-side actuator connector terminal No. 10 and splice (S201).
3. Use DVOM to measure voltage between ground and terminal No. 9 (Light Blue wire) of left-side actuator connector. If reading is 4.5-5.5 volts, go to step 5). If reading is not 4.5-5.5 volts, go to next step.
4. Repair short in Light Blue wire between left-side electronic actuator connector terminal No. 9 and HVAC control head terminal C8. If circuit is okay, replace HVAC control head.
5. Repair open or high resistance in Gray/Black wire between left-side electronic actuator terminal No. 7 and HVAC control head connector terminal D1. If circuit is okay, replace LH electronic actuator.
6. Press A/C mode button on HVAC control head or use scan tool to clear DTCs from memory. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .

DTC B0365: RIGHT ACTUATOR FEEDBACK SHORT TO GROUND

1. Disconnect right-side actuator connector. Start engine and bring engine to normal operating temperature. Set AUTO mode of HVAC control head to 60°F (16°C). Use DVOM to measure voltage between ground and right-side actuator connector terminal No. 10 (Yellow wire). If reading is 4.5-5.5 volts, go to step 3). If reading is not 4.5-5.5 volts, go to next step.
2. Repair open or high resistance in Yellow wire between right-side actuator connector terminal No. 10 and splice (S201).
3. Use DVOM to measure voltage between ground and terminal No. 9 (Dark Blue wire) of right-side actuator connector. If reading is 4.5-5.5 volts, go to step 5). If reading is not 4.5-5.5 volts, go to next step.
4. Repair short to ground in Dark Blue wire between right-side electronic actuator connector terminal No. 9 and HVAC control head terminal C3. If circuit is okay, replace HVAC control head.
5. Repair open or high resistance in Gray/Black wire between right-side electronic actuator terminal No. 7 and HVAC control head connector terminal D1. If circuit is okay, replace right-side electronic actuator.
6. Press A/C mode button on HVAC control head or use scan tool to clear DTCs from memory. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .

DTC B0367: RIGHT ACTUATOR FEEDBACK OPEN

1. Disconnect right-side actuator connector. Start engine and bring engine to normal operating temperature. Set AUTO mode of HVAC control head to 60°F (16°C). Use DVOM to measure voltage between ground and right-side actuator connector terminal No. 10 (Yellow wire). If reading is 4.5-5.5 volts, go to step 3). If reading is not 4.5-5.5 volts, go to next step.
2. Repair open or high resistance in Yellow wire between right-side actuator connector terminal No. 10 and splice (S201).

3. Use DVOM to measure voltage between ground and terminal No. 9 (Dark Blue wire) of right-side actuator connector. If reading is 4.5-5.5 volts, go to step 5). If reading is not 4.5-5.5 volts, go to next step.
4. Repair short to ground in Dark Blue wire between right-side electronic actuator connector terminal No. 9 and HVAC control head connector terminal C3. If circuit is okay, replace HVAC control head.
5. Repair open or high resistance in Gray/Black wire between right-side electronic actuator connector terminal No. 7 and HVAC control head connector terminal D1. If circuit is okay, replace right-side electronic actuator.
6. Press A/C mode button on HVAC control head or use scan tool to clear DTCs from memory. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .

DTC B0441: LEFT ACTUATOR OUT OF RANGE

1. Disconnect left-side actuator connector. Start engine and bring to normal operating temperature. Set AUTO mode of HVAC control head to 60°F (16°C). Use DVOM to measure voltage between ground and actuator connector terminal No. 10 (Yellow wire). If reading is 4.5-5.5 volts, go to step 3). If reading is not 4.5-5.5 volts, go to next step.
2. Repair open or high resistance in Yellow wire between left-side actuator connector terminal No. 10 and splice (S201).
3. Use DVOM to measure voltage between ground and terminal No. 9 (Light Blue wire) of left-side actuator connector. If reading is 4.5-5.5 volts, go to step 5). If reading is not 4.5-5.5 volts, go to next step.
4. Repair short to ground in Light Blue wire between left-side electronic actuator connector terminal No. 9 and HVAC control head terminal C8. If circuit is okay, replace HVAC control head.
5. Repair open or high resistance in Gray/Black wire between left-side electronic actuator connector terminal No. 7 and HVAC control head connector terminal D1. If circuit is okay, replace left-side electronic actuator.
6. Press A/C mode button on HVAC control head or use scan tool to clear DTCs from memory. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .

DTC B0446: RIGHT ACTUATOR OUT OF RANGE

1. Disconnect right-side actuator connector. Start engine and bring to normal operating temperature. Set AUTO mode of HVAC control head to 60°F (16°C). Use DVOM to measure voltage between ground and right-side actuator connector terminal No. 10 (Yellow wire). If reading is 4.5-5.5 volts, go to step 3). If reading is not 4.5-5.5 volts, go to next step.
2. Repair open or high resistance in Yellow wire between right-side actuator connector terminal No. 10 and splice (S201).
3. Use DVOM to measure voltage between ground and terminal No. 9 (Dark Blue wire) of right-side actuator connector. If reading is 4.5-5.5 volts, go to step 5). If reading is not 4.5-5.5 volts, go to next step.
4. Repair short to ground in Dark Blue wire between right-side electronic actuator connector terminal No. 9 and HVAC control head connector terminal C3. If circuit is okay, replace HVAC control head.
5. Repair open or high resistance in Gray/Black wire between right-side electronic actuator connector terminal No. 7 and HVAC control head connector terminal D1. If circuit is okay, replace right-side electronic actuator.

6. Press A/C mode button on HVAC control head or use scan tool to clear DTCs from memory. Perform diagnostic system check. See **DIAGNOSTIC SYSTEM CHECK** .

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 RESTRAINT SYSTEM article in ACCESSORIES AND ELECTRICAL.

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

AMBIENT TEMPERATURE SENSOR

Removal & Installation

Disconnect negative battery cable. Disconnect outside temperature sensor 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.

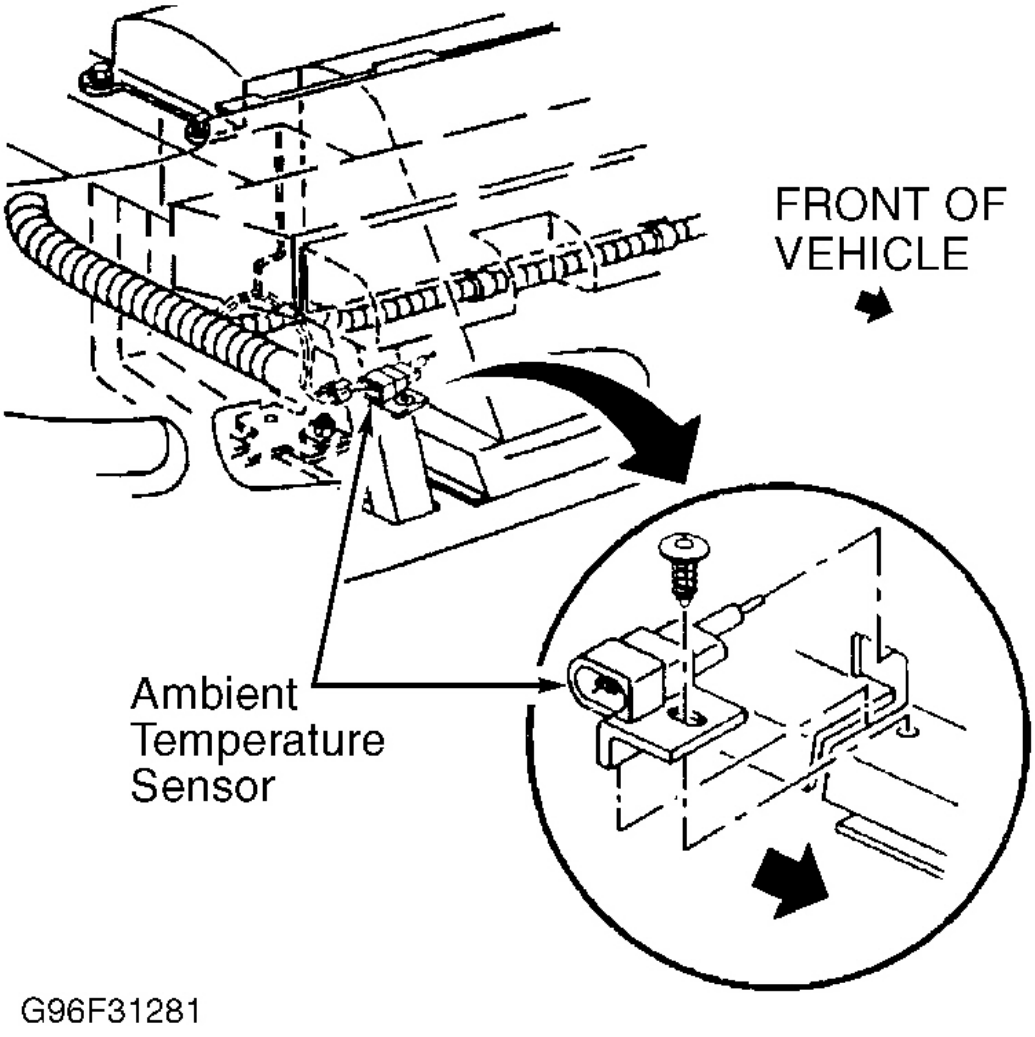


Fig. 3: Removing Ambient Temperature Sensor
Courtesy of GENERAL MOTORS CORP.

HVAC CONTROL HEAD (PANEL)

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 ash tray and accessory trim plate grille. Grasp sides of accessory trim plate and pull to rear of vehicle to release clips.

Disconnect cigarette lighter connector. Turn shift boot to fit through opening for shifter. Remove instrument panel accessory trim plate.

3. Remove HVAC control head mounting screws. Disconnect electrical connectors. Remove HVAC control head from vehicle. To install, reverse removal procedure.

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

IN-CAR TEMPERATURE SENSOR

Removal & Installation

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

SUNLOAD SENSOR

Removal & Installation

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

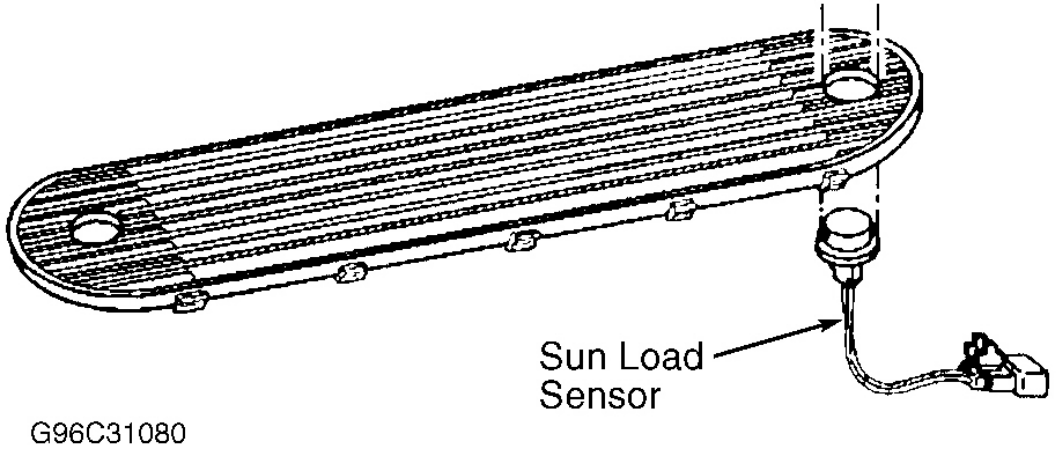


Fig. 4: Identifying Sunload Sensor
Courtesy of GENERAL MOTORS CORP.

TEMPERATURE DOOR MOTORS

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 box cover. Remove right instrument panel trim panel and air outlet. Remove instrument panel lower right trim panel. Disconnect either temperature door motor connector. Remove either temperature door motor. To install, reverse removal procedure.

VACUUM SOLENOID MODULE

Removal & Installation

Disconnect negative battery cable. Remove passenger floor hush panel. Disconnect vacuum solenoid valve electrical and vacuum connectors. Remove vacuum solenoid module mounting screws. Remove vacuum solenoid module. To install, reverse removal procedure. See **Fig. 5** .

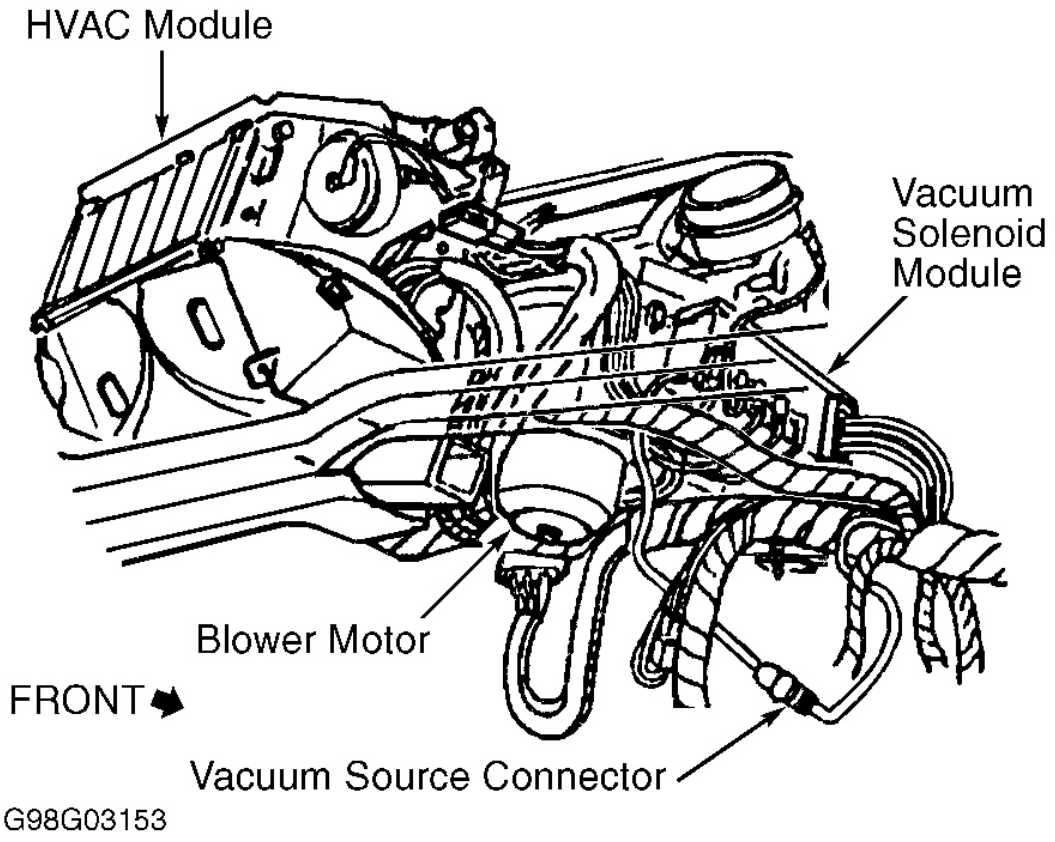


Fig. 5: Identifying Vacuum Solenoid Module
Courtesy of GENERAL MOTORS CORP.

VACUUM DIAGRAM

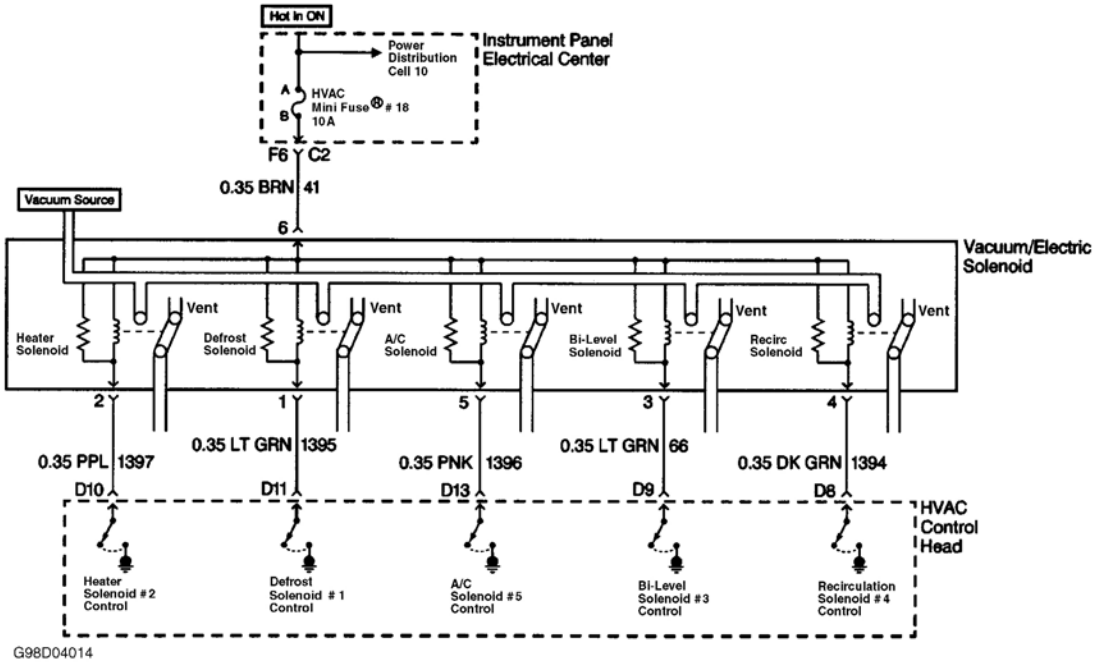


Fig. 6: Automatic A/C-Heater System Vacuum Diagram
Courtesy of GENERAL MOTORS CORP.

WIRING DIAGRAMS

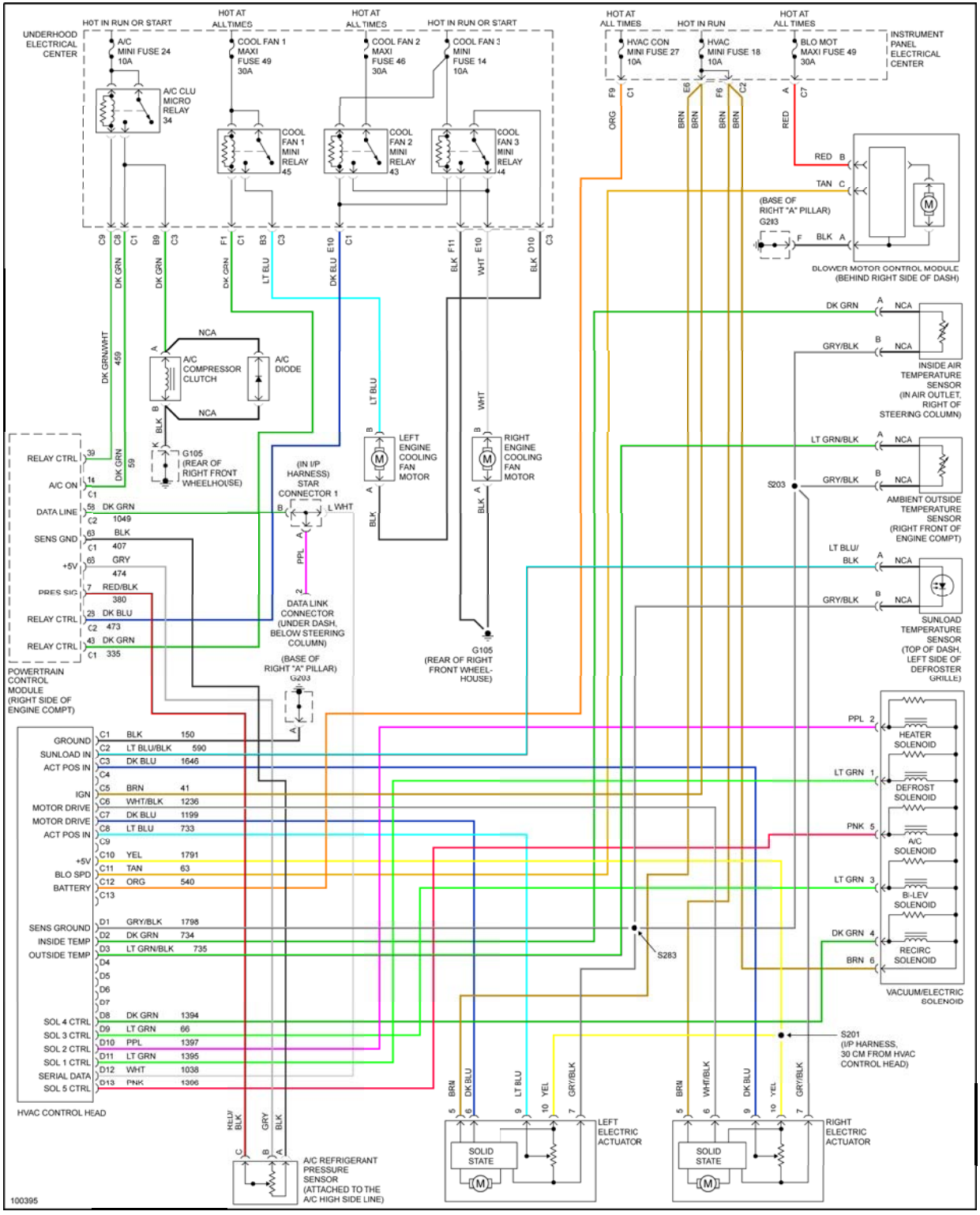

HOT IN RUN OR START
HOT AT ALL TIMES
HOT AT ALL TIMES
HOT IN RUN OR START
HOT AT ALL TIMES
HOT IN RUN
HOT AT ALL TIMES
UNDERHOOD ELECTRICAL CENTER
A/C MINI FUSE 24 10A
COOL FAN 1 MAXI FUSE 49 30A
COOL FAN 2 MAXI FUSE 46 30A
COOL FAN 3 MINI FUSE 14 10A
HVAC CON MINI FUSE 27 10A
HVAC MINI FUSE 18 10A
BLO MOT MAXI FUSE 49 30A
INSTRUMENT PANEL ELECTRICAL CENTER
A/C CLU MICRO RELAY 34
COOL FAN 1 MINI RELAY 45
COOL FAN 2 MINI RELAY 43
COOL FAN 3 MINI RELAY 44
BLOWER MOTOR CONTROL MODULE (BEHIND RIGHT SIDE OF DASH)
(BASE OF RIGHT "A" PILLAR) G203
A/C COMPRESSOR CLUTCH
A/C DIODE
G105 (REAR OF RIGHT FRONT WHEELHOUSE)
LEFT ENGINE COOLING FAN MOTOR
RIGHT ENGINE COOLING FAN MOTOR
(IN I/P HARNESS) STAR CONNECTOR 1
DATA LINK CONNECTOR (UNDER DASH, BELOW STEERING COLUMN)
INSIDE AIR TEMPERATURE SENSOR (IN AIR OUTLET, RIGHT OF STEERING COLUMN)
AMBIENT OUTSIDE TEMPERATURE SENSOR (RIGHT FRONT OF ENGINE COMPT)
SUNLOAD TEMPERATURE SENSOR (TOP OF DASH, LEFT SIDE OF DEFROSTER GRILLE)
POWERTRAIN CONTROL MODULE (RIGHT SIDE OF ENGINE COMPT)
HEATER SOLENOID
DEFROST SOLENOID
A/C SOLENOID
BI-LEV SOLENOID
RECIRC SOLENOID
VACUUM/ELECTRIC SOLENOID
S283
S201 (I/P HARNESS, 30 CM FROM HVAC CONTROL HEAD)
HVAC CONTROL HEAD
A/C REFRIGERANT PRESSURE SENSOR (ATTACHED TO THE A/C HIGH SIDE LINE)
LEFT ELECTRIC ACTUATOR
RIGHT ELECTRIC ACTUATOR
SOLID STATE
100395

Fig. 7: A/C-Heater System Wiring Diagram