

2001 Chevrolet Corvette

2000-01 MANUAL A/C-HEATER SYSTEMS Corvette

2000-01 MANUAL 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	1.50 lbs.
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 (Polyalkylene Glycol) Refrigerant Oil.	
(3) Engine speed 1000 RPM. Ambient temperature of 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**.

CAUTION: When battery is disconnected, radio will go into anti-theft protection mode. Obtain radio anti-theft protection code from owner prior to servicing vehicle.

The A/C-heater system is a blend-air type. Air flows through evaporator and mixes or by-passes the heater core. Temperature is controlled electronically by a temperature door motor. Various vacuum-actuated mode doors control the airflow through the Heater Ventilation Air Conditioning (HVAC) module.

Refrigeration system is Variable Displacement Orifice Tube (VDOT) type. The VDOT system utilizes a variable displacement compressor which can maintain A/C demand under all conditions without cycling on and off.

OPERATION

HVAC CONTROL HEAD

Blower Control Knob

Blower control knob controls operation of the blower motor. Blower speed can be set from low (No. 1) position through high (No. 5) position. Blower operation is terminated in the OFF position. See **Fig. 1** .

Temperature Control Knob

Temperature control knob controls operation of the temperature door motor. This allows control of discharged air temperature by varying the amount of cool and warm air mixing before entering passenger compartment.

Mode Control Knob

Mode control knob controls positioning of various mode doors of the HVAC (A/C-heater) module assembly. There are 5 different modes to choose from: vent, bi-level, floor, defog and defrost. All modes are represented by symbols on the control panel.

Outside Air Button

Outside air button, when depressed, allows fresh outside air to flow into the HVAC module assembly. Fresh outside air passes through the evaporator and is mixed or by-passes the heater core for desired temperature. See **Fig. 1** .

Recirculation Button

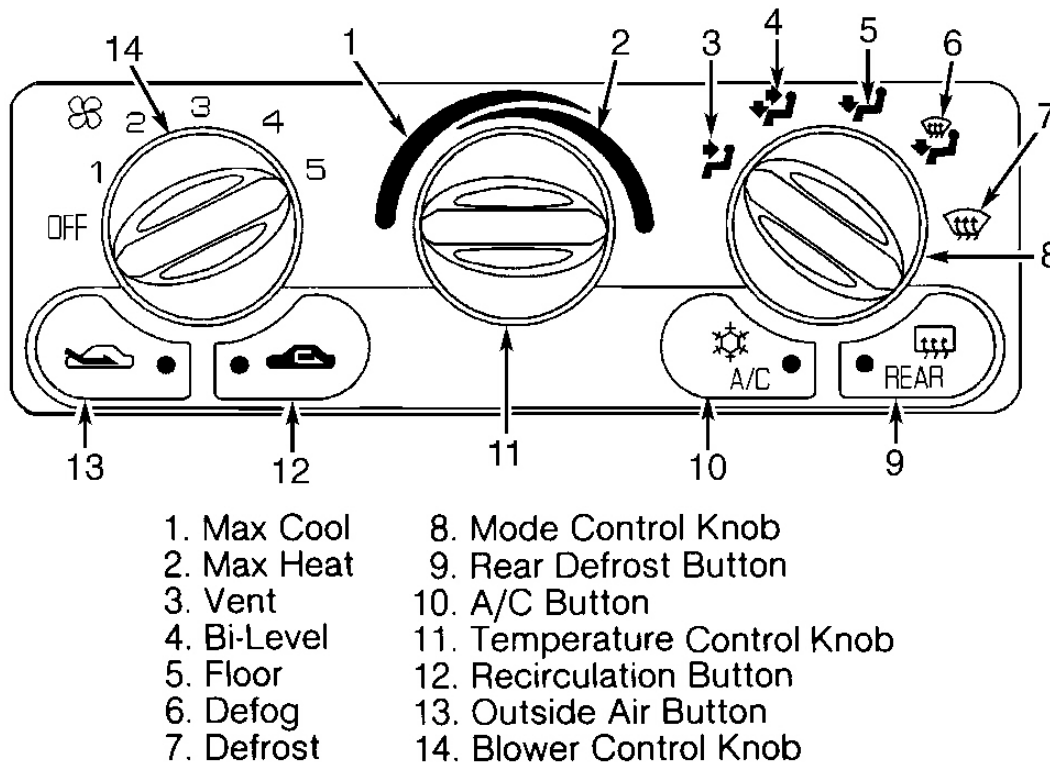
Recirculation button, when depressed, air from inside the vehicle is mixed with a small amount of outside air. Air is recirculated within the vehicle and discharged through air conditioner and heater outlets.

A/C Button

A/C button, when depressed, an A/C request signal is sent to Powertrain Control Module (PCM). PCM controls operation of A/C compressor. Depressing the A/C button again while compressor is operating will turn compressor off.

Rear Defrost Button

Depressing rear defrost button, provides electric current to rear window defroster (defogger) for 10 minutes, and will automatically shut off. If button is depressed again, rear window defroster will operate at 5-minute intervals. Rear window defroster also activates the heated mirrors.



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Fig. 1: Identifying Manual A/C-Heater Control Panel
 Courtesy of GENERAL MOTORS CORP.

A/C COMPRESSOR CLUTCH DIODE

A/C clutch compressor diode is taped in wiring harness near A/C compressor clutch coil connector. When A/C compressor clutch is de-energized, voltage is induced in the clutch coil. Diode provides a path to ground for this voltage, preventing voltage from entering electrical controls of vehicle.

A/C CLUTCH RELAY

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A/C clutch relay is located in engine compartment electrical center, above battery in right rear corner of engine compartment. When A/C or defrost is selected, an A/C request signal is received by Powertrain Control Module (PCM). PCM will then ground A/C clutch relay and energize compressor clutch coil, engaging A/C compressor clutch.

A/C PRESSURE SENSOR

The A/C (refrigerant) pressure sensor is mounted on a Schrader valve, on evaporator tube, between evaporator and condenser. A/C pressure sensor reads A/C line pressure and relays information to Powertrain Control Module (PCM). If pressures reach more than 410 psi (28.8 km/cm^2) or less than 30 psi (2.1 km/cm^2), A/C pressure sensor signals PCM to deactivate A/C compressor clutch. PCM adjusts engine idle to compensate for A/C load and controls auxiliary cooling fan operation based on input from A/C pressure sensor.

BLOWER MOTOR RELAY

Blower motor relay is located in engine compartment electrical center, above battery in right rear corner of engine compartment. When any blower speed is selected (except off), blower motor relay will feed power through blower motor switch to blower motor control module, energizing blower motor.

BLOWER MOTOR RESISTOR

Blower motor resistor is located under right side of instrument panel, behind blower motor, under HVAC module assembly. A step down resistor reduces voltage from blower motor relay to control blower motor in all selected speeds except high (No. 5) position. Blower motor resistor is by-passed when high speed (No. 5) is selected. Voltage to blower motor is supplied directly from blower motor relay, by-passing blower motor resistor.

INSTRUMENT PANEL ELECTRICAL CENTER

Instrument panel electrical center (fuse box) is located under passenger floor kick panel and houses miscellaneous fuses and relays which control various functions for the vehicle, including HVAC system. See **Fig. 2**.

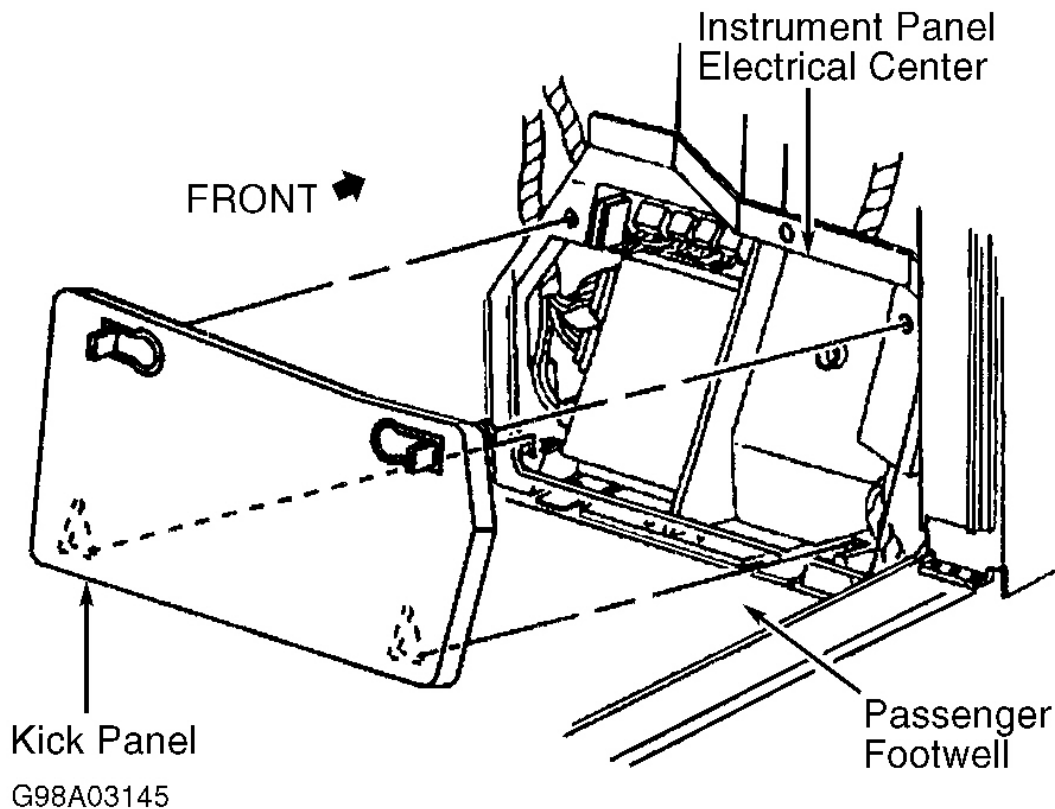


Fig. 2: Locating Instrument Panel Electrical Center
Courtesy of GENERAL MOTORS CORP.

TEMPERATURE DOOR MOTOR

Temperature door motor is located on left side of HVAC module and controls movement of the air mix door (hot/cool air) through inputs controlled by HVAC control head and temperature control knob position.

VACUUM CONTROLS

Mode selector switch provides vacuum to various vacuum actuators, directing airflow through HVAC module to desired outlets.

TROUBLE SHOOTING

NOTE: For additional trouble shooting procedures, see MANUAL A/C-

HEATER SYSTEMS - TROUBLE SHOOTING article.

BLOWER CONTROLS SYSTEM CHECK

1. Start vehicle and allow to idle. Rotate mode control knob to VENT position. Depress A/C button. Rotate temperature control knob to maximum cool setting. Depress recirculation button. Rotate blower control knob to No. 3 position. See **Fig. 1** . A/C compressor should engage and cold air should exit from instrument panel vent outlets.
2. Turn A/C off by depressing A/C button a second time. Depress outside air button. A/C compressor should be disengaged and cool air should exit from instrument panel vent outlets.
3. Rotate mode control knob to bi-level position. A/C compressor should be engaged and cold air should exit from instrument panel vent and floor outlets, with a slight amount of air from defrost outlets.
4. Rotate mode control knob to floor position. A/C compressor should disengage and cool air should exit from floor outlets, with a slight amount of air from defrost outlets.
5. Rotate mode control knob to floor and defrost position. A/C compressor should engage and cold air should exit from floor and defrost outlets.
6. Rotate mode control knob to defrost position. A/C compressor should engage and cold air should exit from defrost outlets, with a slight amount of air from floor outlets.
7. Rotate mode control knob to vent position. Rotate temperature control knob to maximum heat position. Rotate blower control knob to low (No. 1) position. Sound of temperature door moving from cool to warm air mode should be heard. Warm air should exit from instrument panel vent outlets.
8. Rotate temperature control knob to maximum cool position. Rotate blower control knob from low (No. 1) to high (No. 5) position and from high to low position. Sound of temperature door moving from warm to cool air mode should be heard. Blower motor speed should change with blower control knob settings. Warm air should exit from instrument panel vent outlets.

BLOWER MOTOR LOW POSITION INOPERATIVE

1. Perform blower controls system check before diagnosing blower motor operation. See **BLOWER CONTROLS SYSTEM CHECK** . If system check was performed, go to next step.
2. Disconnect HVAC control head connector C2 and blower motor control module connector C1. Install fused jumper wire between terminals "B" (Red wire) and "H" (Yellow wire) of HVAC control head connector. Turn ignition switch to ON position. Measure voltage

between ground and terminal "H"(Yellow wire) of blower motor control module connector. If battery voltage exists, go to next step. If battery voltage does not exist, repair open or high resistance in Yellow wire between HVAC control head and blower motor control module. Perform blower controls system check. See **BLOWER CONTROLS SYSTEM CHECK** .

3. Remove fused jumper wire. Connect HVAC control head harness connector. Rotate blower control knob to low (No. 1) position. Turn ignition switch to ON position. Check voltage between ground and terminal "B" (Red wire) of blower motor control module connector. If battery voltage exists, replace blower motor control module. Perform blower controls system check. See **BLOWER CONTROLS SYSTEM CHECK** . If battery voltage does not exist, replace HVAC control head. See **HVAC CONTROL HEAD** under REMOVAL & INSTALLATION. Perform blower controls system check.

BLOWER MOTOR MEDIUM-LOW POSITION INOPERATIVE

1. Perform blower controls system check before diagnosing blower motor operation. See **BLOWER CONTROLS SYSTEM CHECK** . If system check was performed, go to next step.
2. Disconnect HVAC control head connectors and blower motor control module connector. Install fused jumper between terminals "B" (Red wire) and "G" (Tan wire) of HVAC control head harness connector. Turn ignition switch to ON position. Measure voltage between ground and terminal "A" (Tan wire) of blower motor control module harness connector. If battery voltage exists, go to next step. If battery voltage does not exist, repair open or high resistance in Tan wire between HVAC control head and blower motor control module. Perform blower controls system check.
3. Remove fused jumper wire. Connect HVAC control head connector. Rotate blower control knob to No. 2 position. Turn ignition switch to ON position. Measure voltage between ground and terminal "A" (Tan wire) of blower motor control module connector. If battery voltage exists, replace blower motor control module. See **BLOWER MOTOR CONTROL MODULE** . If battery voltage does not exist, replace HVAC control head. See **HVAC CONTROL HEAD** under REMOVAL & INSTALLATION. Perform blower controls system check.

BLOWER MOTOR MEDIUM POSITION INOPERATIVE

1. Perform blower controls system check before diagnosing blower motor operation. See **BLOWER CONTROLS SYSTEM CHECK** . If system check was performed, go to next step.
2. Disconnect HVAC control head connector C2 and blower motor control module connector

- C1. Install fused jumper between terminals "B" (Red wire) and "F" (Light Blue wire) of HVAC control head harness connector. Turn ignition switch to ON position. Use DVOM to check voltage between ground and terminal "D" (Light Blue wire) of blower motor control module harness connector. If battery voltage exists, go to next step. If battery voltage does not exist, repair open or high resistance in Light Blue wire between HVAC control head and blower motor control module. Perform blower controls system check.
3. Remove fused jumper wire. Connect HVAC control head harness connector. Rotate blower control knob to No. 3 position. Turn ignition switch to ON position. Measure voltage between ground and terminal "D" (Light Blue wire) of blower motor control module harness connector. If battery voltage exists, Replace blower motor control module. If battery voltage does not exist, replace HVAC control head. See **HVAC CONTROL HEAD** under REMOVAL & INSTALLATION. Perform blower controls system check.

BLOWER MOTOR MEDIUM-HIGH POSITION INOPERATIVE

1. Perform blower controls system check before diagnosing blower motor operation. See **BLOWER CONTROLS SYSTEM CHECK** . If system check was performed, go to next step.
2. Disconnect HVAC control head connector C2 and blower motor control module connector C1. Install fused jumper between terminals "B" (Red wire) and "E" (Purple wire) of HVAC control head connector. Turn ignition switch to ON position. Measure voltage between ground and blower motor control module connector terminal "C" (Purple wire). If battery voltage exists, go to next step. If battery voltage does not exist, repair open or high resistance in Purple wire between HVAC control head and blower motor control module. Perform blower controls system check.
3. Remove fused jumper wire. Connect HVAC control head harness connector. Rotate blower control knob to No. 4 position. Turn ignition switch to ON position. Measure voltage between ground and blower motor control module connector terminal "C" (Purple wire). If battery voltage exists, replace blower motor control module. If battery voltage does not exist, replace HVAC control head. Perform blower controls system check. See **BLOWER CONTROLS SYSTEM CHECK** .

BLOWER MOTOR HIGH POSITION INOPERATIVE

1. Perform blower controls system check before diagnosing blower motor operation. See **BLOWER CONTROLS SYSTEM CHECK** . If system check was performed, go to next step.
2. Disconnect blower motor control module connector C1. Use DVOM to check voltage between ground and blower motor control module connector terminal "F" (Orange wire). Turn ignition switch to ON position. Rotate mode control knob to vent position. Rotate

blower control knob to high (No. 5) position. If battery voltage exists, go to step 4 . If battery voltage does not exist, go to next step.

3. Turn ignition switch to OFF position. Disconnect HVAC control head connector C2. Check for continuity in Orange wire between terminal "C" of HVAC control head harness connector and blower motor control module connector terminal "F". If continuity exists, replace HVAC control head. Perform blower controls system check. If continuity does not exist, repair open or high resistance in Orange wire between blower motor control module and HVAC control head connector. Perform blower controls system check. See **BLOWER CONTROLS SYSTEM CHECK** .
4. Measure voltage between ground and terminal "G" (Red wire) of blower motor module harness connector. If battery voltage exists, replace blower motor control module. If battery voltage does not exist, repair open or high resistance in Red wire between blower motor control module and fuse 51 (30-amp) of instrument panel electrical center (fuse box). Perform blower controls system check.

BLOWER MOTOR INOPERATIVE IN ALL POSITIONS

1. Perform blower controls system check before diagnosing blower motor operation. See **BLOWER CONTROLS SYSTEM CHECK** . If system check was performed, go to next step.
2. Disconnect blower motor harness connector. Turn ignition switch to ON position. Turn mode selector knob to vent position. Turn blower selector to low (No. 1) position. Measure voltage between ground and terminal No. "A" of blower motor harness connector. If battery voltage exists, go to next step. If battery voltage does not exist, go to step 6 .
3. Check resistance between ground and terminal "B" (Black wire) of blower motor harness connector. Measure resistance between ground and terminal "E" (Black wire) of blower motor control module connector. If resistance is 0.5 ohm or less, replace blower motor. Perform blower controls system check. If resistance is more than 0.5 ohm, go to next step.
4. Disconnect blower motor control module connector C1. Measure resistance between ground and terminal "B" (Black wire) of blower motor harness connector. If resistance is 0.5 ohm or less, go to next step. If resistance is more than 0.5 ohm, repair open or high resistance in Black wire between ground (located behind left front shock absorber) and terminal "B" of blower motor connector. Perform blower controls system check. See **BLOWER CONTROLS SYSTEM CHECK** .
5. Disconnect blower motor control module connector C1. Measure resistance between ground and terminal "E" (Black wire) of blower motor control module connector. If continuity exists, replace blower motor control module. Perform blower controls system check. If continuity does not exist, repair open or high resistance in Black wire between terminal "E" of blower control module harness connector and ground (located behind left front shock

absorber).

6. Disconnect blower motor relay. See **A/C COMPRESSOR CLUTCH RELAY & BLOWER MOTOR RELAY** under REMOVAL & INSTALLATION. Measure resistance between ground and terminal A1 (Black wire) of blower motor relay harness connector. If resistance is 0.5 ohm or less, go to next step. If resistance is more than 0.5 ohm, repair open or high resistance in Black wire between terminal A1 of blower motor relay and ground (located behind left front shock absorber).
7. Check voltage between ground and terminal C2 (Brown wire) of blower motor relay connector. Turn ignition switch to ON position. If battery voltage exists, go to step 9 . If voltage does not exist, go to next step.
8. Check HVAC fuse No. 18 (10-amp) for open. If fuse is blown, repair short to ground in Brown wire between fuse No. 18 in instrument panel electrical center (fuse box) and terminal C2 of blower motor relay. Perform blower controls system check. See **BLOWER CONTROLS SYSTEM CHECK** . If fuse is okay, repair open in Brown wire between terminal C2 of blower motor relay connector and fuse No. 18 in instrument panel fuse box. Perform blower controls system check.
9. Measure voltage between ground and terminal C1 (Red wire) of blower motor relay connector. If battery voltage exists, go to step 11 . If battery voltage does not exist, go to next step.
10. Check BLO MOT mini fuse No. 51 for open. If fuse is blown, repair short to ground in Red wire between terminal C1 of blower motor relay connector and instrument panel fuse box. If fuse is okay, repair open in Red wire between blower motor relay connector terminal C1 and instrument panel electrical center. Perform blower controls system check. See **BLOWER CONTROLS SYSTEM CHECK** .
11. Connect fused jumper wire between terminals C1 (Red wire) and A2 (Red wire) of blower motor relay harness connector. Turn blower motor control knob to low (No. 1) position. If blower motor operates, replace blower motor relay. See **A/C COMPRESSOR CLUTCH RELAY & BLOWER MOTOR RELAY** under REMOVAL & INSTALLATION. If blower motor does not operate, go to next step.
12. With fused jumper wire still connected, disconnect HVAC control head connector C2. Check voltage between ground and terminal "B" (Red wire) of HVAC control head connector. If battery voltage exists, go to next step. If battery voltage does not exist, repair open or high resistance in Red wire between HVAC control head connector terminal "B" and blower motor relay connector terminal A2. Perform blower controls system check. See **BLOWER CONTROLS SYSTEM CHECK** .
13. Connect blower motor control module connector. With fused jumper wire still connected, across blower motor relay, install another fused jumper wire between HVAC control head connector terminals "B" (Red wire) and "H" (Yellow wire). If blower motor operates,

replace HVAC control head. If blower motor does not operate, replace blower motor control module. Perform blower controls system check. See **BLOWER CONTROLS SYSTEM CHECK** .

COMPRESSOR CLUTCH WILL NOT DISENGAGE

1. Perform blower controls system check before diagnosing blower motor operation. See **BLOWER CONTROLS SYSTEM CHECK** . If system check was performed, go to next step.
2. Connect scan tool to Data Link Connector (DLC). Display PCM ENG 2 data list. Depress A/C button to off position. If scan tool indicates A/C request is NO, go to step 4 . If scan tool does not indicate A/C request is NO, go to next step.
3. Disconnect PCM harness connector. Disconnect HVAC control head harness connector. Measure resistance in Dark Green/White wire between terminal No. 17 of PCM and terminal "B" of HVAC control head. If resistance is 0.5 ohm or less, replace HVAC control head. See **HVAC CONTROL HEAD** under REMOVAL & INSTALLATION. If resistance is more than 0.5 ohm, repair open or high resistance in Dark Green/White wire.
4. Disconnect A/C compressor clutch harness connector. If A/C clutch does not engage, replace A/C compressor clutch. See A/C COMPRESSOR SERVICING in GENERAL SERVICING. If A/C clutch disengages, replace PCM.

COMPRESSOR CLUTCH WILL NOT ENGAGE

1. Perform blower controls system check before diagnosing blower motor operation. See **BLOWER CONTROLS SYSTEM CHECK** . If system check was performed, go to next step.
2. Connect scan tool to Data Link Connector (DLC). Start engine and allow to idle. Display PCM ENG 2 data list. Depress A/C button to on position. If scan tool indicates A/C RELAY COMMAND is on, go to step 5 . If scan tool does not indicate A/C COMMAND RELAY is on, go to next step.
3. If scan tool indicates A/C REQUEST is YES, replace PCM. If scan tool does not indicate A/C REQUEST is YES, go to next step.
4. Disconnect PCM harness connector. Disconnect HVAC control head harness connector. Measure resistance in Dark Green/White wire between terminal No. 17 of Powertrain Control Module (PCM) and HVAC control head. If resistance is 0.5 ohm or less, replace HVAC control head. See **HVAC CONTROL HEAD** under REMOVAL & INSTALLATION. If resistance is more than 0.5 ohm, repair open or high resistance in Dark/Green White wire.
5. Disconnect A/C compressor clutch harness connector. Measure resistance in Dark Green

wire between terminal No. 18 of PCM and A/C clutch relay. Measure resistance in Dark Green wire between A/C clutch relay and terminal "A" of A/C compressor clutch harness connector. If resistance is 0.5 ohm or less in both wires, go to next step. If resistance is more than 0.5 ohm in either wire, repair open in Dark Green wire(s).

6. Measure resistance between ground and terminal "B" (Black wire) of A/C clutch harness connector. If resistance is 0.5 ohm or less, replace A/C compressor clutch. See A/C COMPRESSOR SERVICING in GENERAL SERVICING. If resistance is more than 0.5 ohm, repair open in Black wire between A/C clutch and ground (located behind right headlight).

TEMPERATURE CONTROL INOPERATIVE

1. Perform blower controls system check before diagnosing blower motor operation. See **BLOWER CONTROLS SYSTEM CHECK** . If system check was performed, go to next step.
2. Disconnect temperature mode door motor connector. Turn ignition switch to ON position. Measure voltage between ground and terminal No. 10 (Brown wire) of temperature mode door motor connector. If battery voltage exists, go to step 4 . If battery voltage does not exist, go to next step.
3. Check HVAC fuse No. 18 (10-amp) for open. If fuse is blown, repair short to ground in Brown wire between temperature door motor and fuse No. 18 of instrument panel fuse box. If fuse is not blown, repair open or high resistance in Brown wire between terminal No. 10 of temperature door motor connector and instrument panel fuse box. Perform blower controls system check. See **BLOWER CONTROLS SYSTEM CHECK** .
4. Measure resistance between ground and terminal No. 7 (Black wire) of temperature mode door motor connector. If resistance is 0.5 ohm or less, go to next step. If resistance is more than 0.5 ohm, repair open or high resistance in Black wire between terminal No. 7 of temperature mode door motor connector and ground (located at front drivers door jamb).
5. Measure voltage between ground and terminal No. 8 (Light Blue wire) of temperature mode door motor connector. Turn ignition switch to ON position. Rotate temperature control knob from hot to cold, and back to hot again. If voltage varies between 1 to 12 volts, go to next step. If voltage does not vary between 1 to 12 volts, check for poor connection at temperature mode door motor connector. Check for binding air temperature valve. If connections and valve are okay, replace temperature door motor. Perform blower controls system check. See **BLOWER CONTROLS SYSTEM CHECK** .
6. Turn ignition switch to OFF position. Disconnect HVAC control head connector C1. Measure resistance between ground and Light Blue wire at terminal No. 8 of temperature door motor connector. If resistance is 10 k/ohm or less, repair short to ground in Light Blue wire between terminal "G" of HVAC control head connector and terminal No. 8 of

temperature door motor connector. Perform blower controls system check. If resistance is more than 10 k/ohm, go to next step.

7. Measure resistance in Light Blue wire between terminal "G" of HVAC control head connector and terminal No. 8 of temperature door motor connector. If resistance is 0.5 ohm or less, replace HVAC control head. If resistance is more than 0.5 ohm, repair open in Light Blue wire between HVAC control head and temperature door motor connector. Perform blower controls system check. See **BLOWER CONTROLS SYSTEM CHECK** .

VACUUM DIAGNOSIS

1. Disconnect vacuum hose from actuator(s). Check operation of each vacuum actuator. Using a vacuum pump, apply vacuum directly to vacuum actuator and ensure vacuum actuator rod retracts. Ensure vacuum diaphragm holds vacuum. Replace vacuum actuator if rod fails to retract, or if actuator will not hold vacuum.
2. Ensure all vacuum hoses and electrical connections are installed. Operate engine for 2 minutes, and then shut engine off. Engine needs to be started occasionally during testing to ensure proper vacuum supply.
3. Turn ignition switch to ON position. Operate HVAC control head through different modes. Check for proper distribution of vacuum to vacuum actuators based on mode selected.
4. If vacuum actuator retracts in wrong position, replace HVAC control head. If vacuum actuator does not retract, check for vacuum leaks, defective hoses or binding valves.

SYSTEM TESTS

A/C COMPRESSOR CLUTCH CONTROL

NOTE: See **A/C COMPRESSOR CLUTCH CONTROLS - ALL MODELS** article.

A/C SYSTEM PERFORMANCE

1. Close all doors and windows. Set control panel to A/C mode. Set blower speed to high (No. 5) position. Turn control knob to full cold position. Let engine idle for 5 minutes. Feel liquid line on both sides of orifice tube. If temperature is the same on both sides of orifice tube, go to next step. If temperature is not the same on both sides of orifice tube, go to step 4 .
2. Discharge A/C system, using approved refrigerant recovery/recycling equipment. Remove orifice tube and inspect for missing "O" ring. If "O" ring is missing, replace orifice tube with new "O" ring and go to step 4 . See **Fig. 3** . If "O" ring is intact, go to next step.
3. Inspect A/C system high-side line for kink, bend, or any damage that may cause a restriction.

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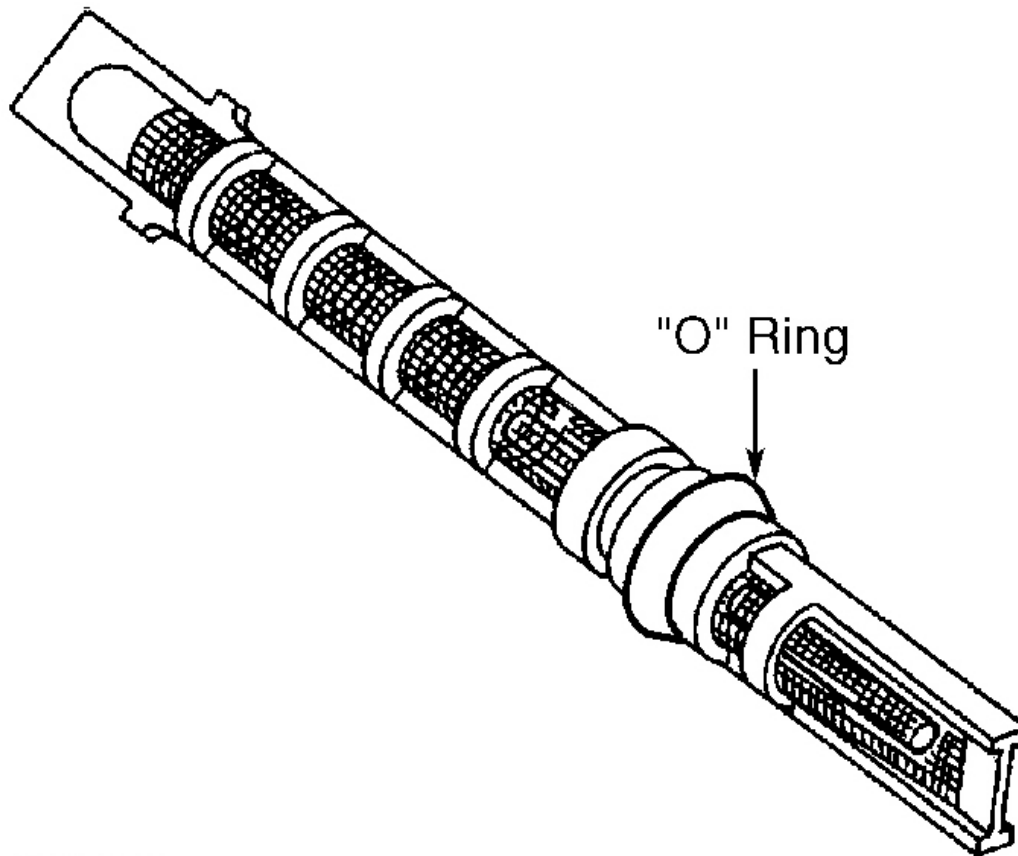
If a restriction is found, repair or replace high-side pressure line. Evacuate and charge A/C system. Perform leak test at any location where A/C system was opened. If no restriction was located, go to next step.

4. Operate A/C system to allow system to stabilize. Check outlet temperature. See **A/C TEMPERATURE DROP** table. If temperature drop is within specification, system is okay. If temperature drop is not within specification, go to next step.
5. Operate A/C system for 5 minutes or longer. Record low and high-side pressure readings. If equipped with electric cooling fans, record pressure readings when fans are operating. See appropriate VDOT SYSTEM PERFORMANCE CHART in MANUAL A/C-HEATER SYSTEMS - TROUBLE SHOOTING article.

A/C TEMPERATURE DROP

Condenser Inlet Ambient Temp. - °F (°C) (1)	Right Upper Vent Outlet Temp. - °F (°C)
70 (21)	20-39 (-7-4)
80 (26.6)	25-39 (-4-4)
90-100 (32.2-37.7)	30-50 (-1.1-10)

(1) Humidity between 30-90 percent.



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Fig. 3: Identifying "O" Ring Of Orifice Tube
Courtesy of GENERAL MOTORS CORP.

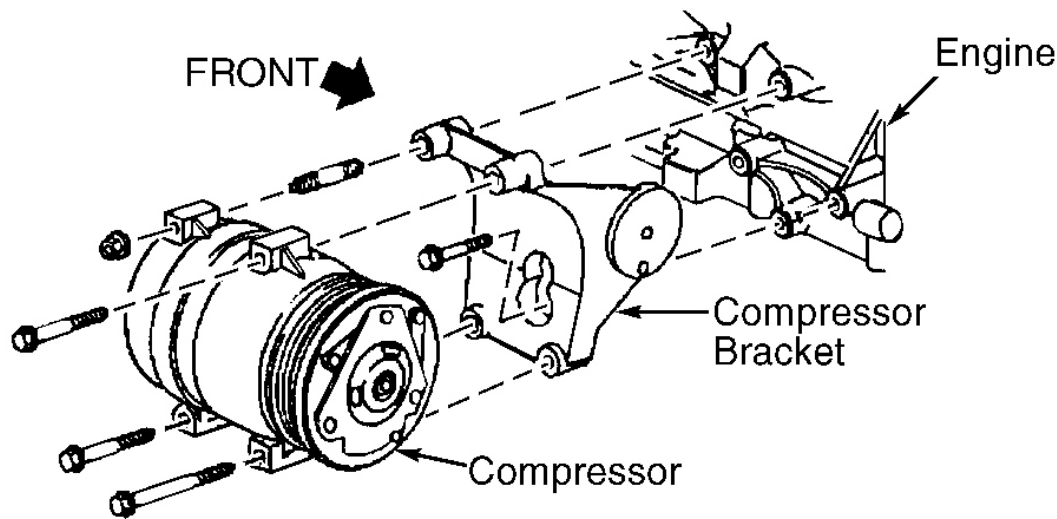
REMOVAL & INSTALLATION

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.

A/C COMPRESSOR

Removal & Installation

1. Disconnect negative battery cable. Remove drive belts. Discharge A/C system, using approved refrigerant recovery/recycling equipment. Drain cooling system. Remove water pump.
2. Disconnect compressor electrical leads. Disconnect refrigerant lines, and plug openings. Remove compressor bolts and compressor. See **Fig. 4** . Drain oil from compressor, measure and record amount of oil drained.
3. To install, reverse removal procedure. Add the same amount of refrigerant oil to compressor as was drained. If compressor is replaced, drain oil from new compressor and add the same amount of oil drained from old compressor. Evacuate and charge A/C system. Fill cooling system.



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Fig. 4: Removing A/C Compressor
 Courtesy of GENERAL MOTORS CORP.

A/C COMPRESSOR CLUTCH RELAY & BLOWER MOTOR RELAY

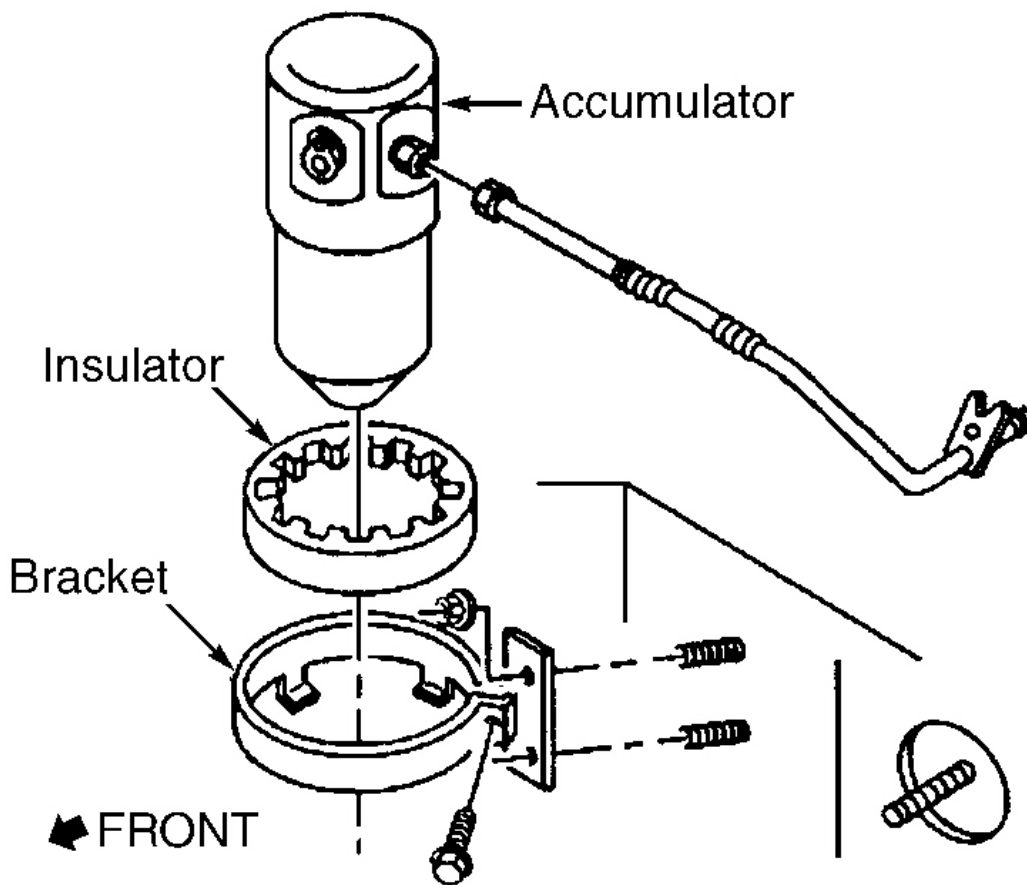
Removal & Installation

Relays are located in instrument panel electrical center (fuse box). Remove selected relay from electrical center. To install, reverse removal procedure.

ACCUMULATOR

Removal & Installation

1. Disconnect negative battery cable. Remove battery heat shield. Discharge A/C system, using approved refrigerant recovery/recycling equipment. Remove intake manifold. Disconnect refrigerant lines at accumulator, and immediately plug line openings.
2. Remove accumulator from dash panel. Remove accumulator and insulator from mounting bracket. See **Fig. 5** . Drain oil from accumulator, measure, and record amount of oil drained.
3. To install, reverse removal procedure. Add the same amount of refrigerant oil to accumulator as was drained. If accumulator is replaced, add 3.5 ounces. Coat "O" rings with refrigerant oil. Evacuate and charge A/C system.



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Fig. 5: Removing Accumulator & Insulator

Courtesy of GENERAL MOTORS CORP.

A/C PRESSURE SENSOR

NOTE: A Schrader valve is used with A/C pressure sensor. A/C system will not need to be discharged before removing sensor.

Removal & Installation

Sensor is located in-line between condenser and evaporator. Disconnect electrical connector. Remove A/C pressure sensor. To install, reverse removal procedure. Coat new "O" ring with refrigerant oil and install.

BLOWER MOTOR

Removal & Installation

Disconnect negative battery cable. Remove passenger floor hush panel. Disconnect blower motor electrical connector. Remove blower motor cooling tube. Remove blower motor mounting screws. Remove blower motor. See **Fig. 6** . To install, reverse removal procedure.

BLOWER MOTOR CONTROL MODULE

Removal & Installation

Disconnect negative battery cable. Disconnect electrical connector at blower motor control module mounted above blower motor. See **Fig. 6** . Remove screws and blower motor control module. Blower motor resistor is attached to blower motor control module. To install, reverse removal procedure.

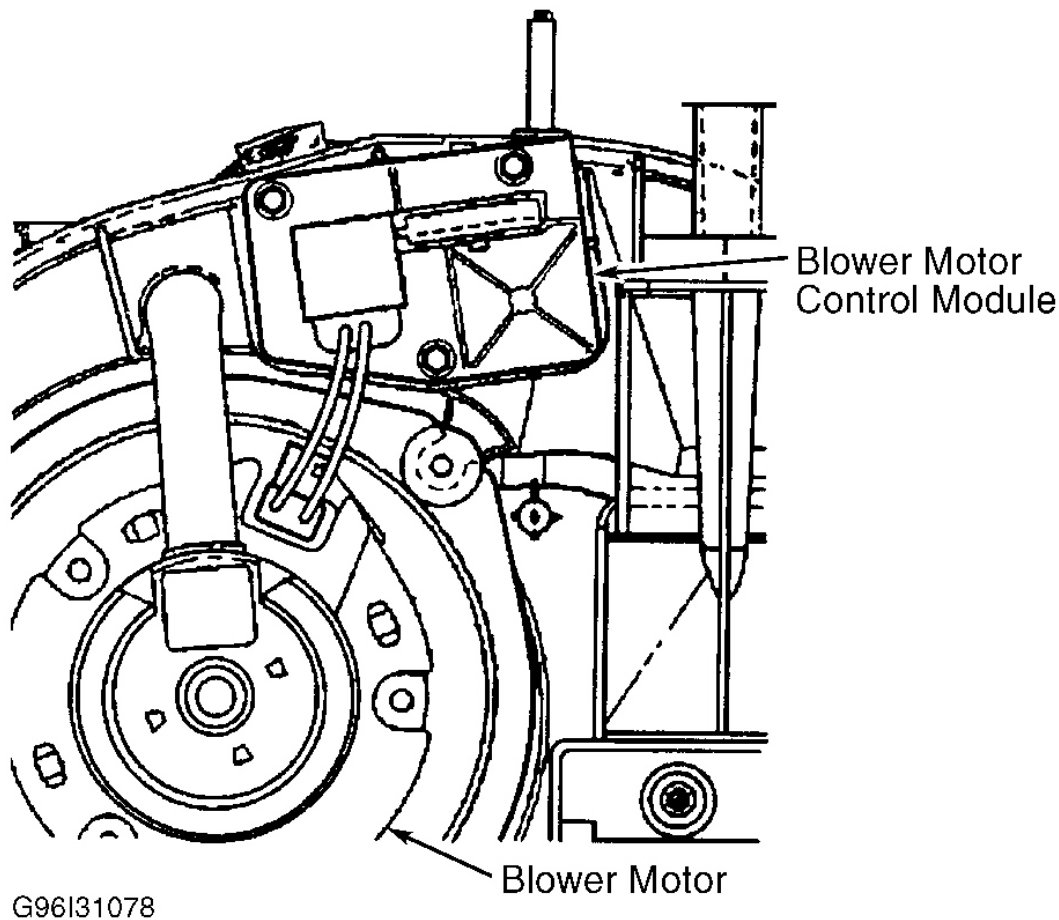


Fig. 6: Identifying Blower Motor & Blower Motor Control Module
Courtesy of GENERAL MOTORS CORP.

CONDENSER

Removal & Installation

1. Disconnect negative battery cable. Discharge A/C system, using approved refrigerant recovery/recycling equipment. Raise and support vehicle. Disconnect A/C line going from evaporator to condenser. Immediately cap or plug refrigerant line openings to prevent contamination. Remove fasteners retaining radiator support to front fascia. Lower vehicle.
2. Disconnect compressor hose from condenser. Immediately cap or plug refrigerant line openings to prevent contamination. Lower vehicle. Disconnect Mass Airflow (MAF) sensor wiring connector. Remove air intake duct assembly. Remove upper radiator support. Remove condenser from retaining clips of radiator. Drain and record amount of refrigerant

oil from condenser.

3. To install, reverse removal procedure. Add same amount of new oil to condenser as amount of oil drained. If condenser is replaced, add one ounce of refrigerant oil. Coat new "O" rings with refrigerant oil and install on refrigerant lines. Refill cooling system. Evacuate and charge A/C system.

EVAPORATOR CORE

CAUTION: Clips also hold HVAC module case halves together. Remove clips before separating halves or damage to case may occur.

Removal & Installation

1. Remove HVAC module. See **HVAC (A/C-HEATER) MODULE** . Remove and discard air inlet, drain, and plumbing seals from HVAC module. Remove heater/defroster actuator from HVAC module. Remove passenger-side vacuum actuator. Remove screws and clips, then separate case halves of HVAC module.
2. Remove evaporator core. Drain oil from evaporator core, and measure amount drained. Remove and discard all module and evaporator seals. Remove and discard water core filter (mesh screen) from evaporator core.
3. To install, reverse removal procedure. Add same amount of refrigerant oil to evaporator. If evaporator core is replaced, add 3 ounces of refrigerant oil. Replace all evaporator seals and water core filter. Replace all HVAC module seals. Coat new "O" rings with refrigerant oil. Evacuate and charge A/C system. Refill cooling system.

HEATER CORE

Removal & Installation

Remove HVAC module. See **HVAC (A/C-HEATER) MODULE** . Remove heater core cover. Remove heater core cover seals and discard. Remove heater core mounting clip screw and heater core line clamp screw. Remove heater core. Remove all heater core seals from HVAC module and discard. To install, reverse removal procedure. Replace all heater core seals. Evacuate and charge A/C system. Fill cooling system.

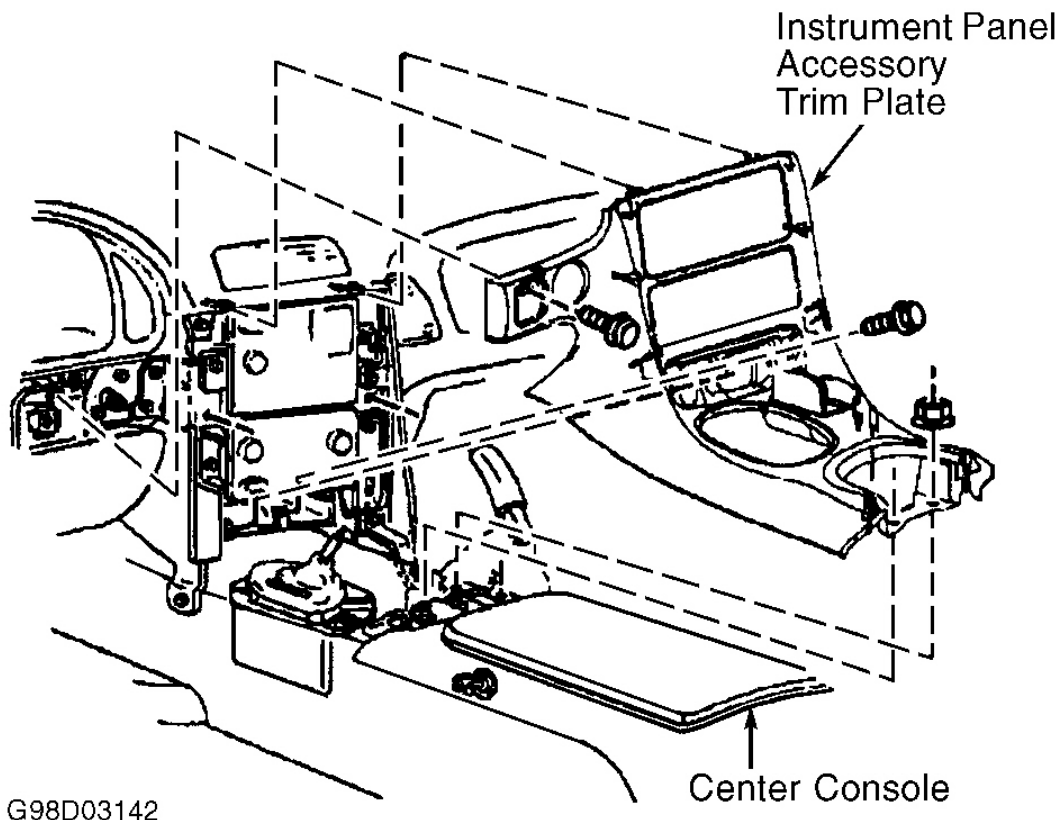
HVAC CONTROL HEAD

Removal & Installation

1. Disconnect negative battery cable. Remove traction control switch from 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. See **Fig. 7** . 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 and vacuum connectors. Remove HVAC control head from vehicle. See **Fig. 8** . To install, reverse removal procedure.



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Fig. 7: Removing Instrument Panel Accessory Trim Plate
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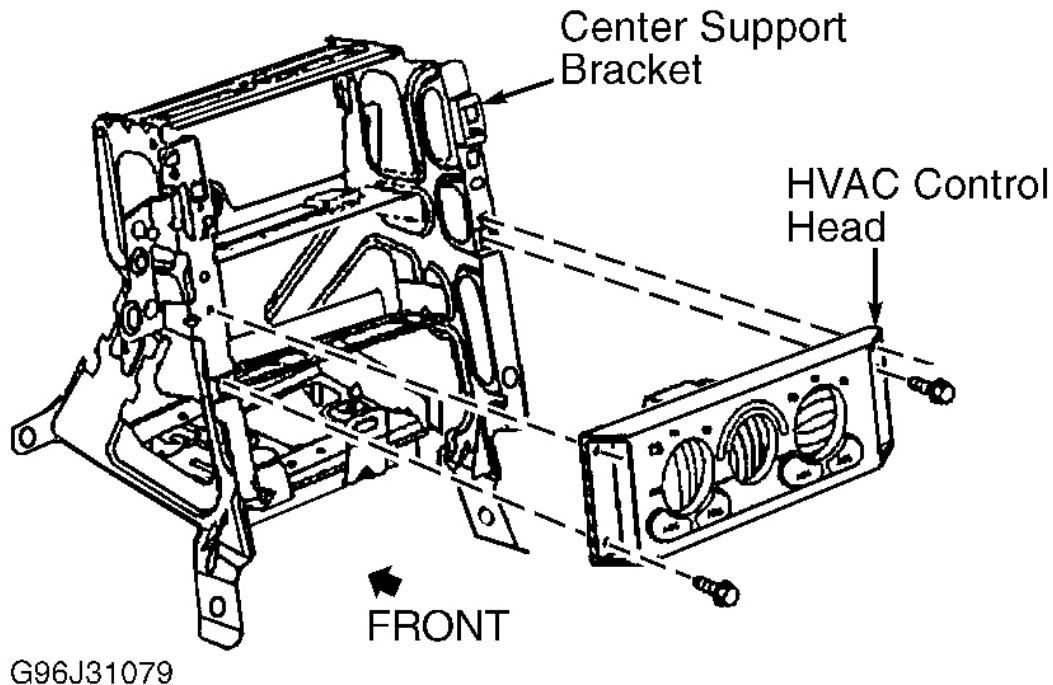


Fig. 8: Removing HVAC Control Head & Center Support Bracket
Courtesy of GENERAL MOTORS CORP.

HVAC (A/C-HEATER) MODULE

NOTE: Original locations of instrument panel brackets must be marked for proper trim fit. Panels may not line up properly if not marked.

Removal & Installation

1. Disconnect negative battery cable. Disable air bag system. See AIR BAG SYSTEM SAFETY article in GENERAL SERVICING. Drain cooling system. Discharge A/C system, using approved refrigerant recovery/recycling equipment.
2. Drain cooling system. Remove intake manifold from engine. Disconnect heater hoses from heater hose pipe assembly. Disconnect accumulator hose assembly from HVAC module. Remove heater hose pipe assembly. See **Fig. 9** . Remove drain tube from HVAC module.

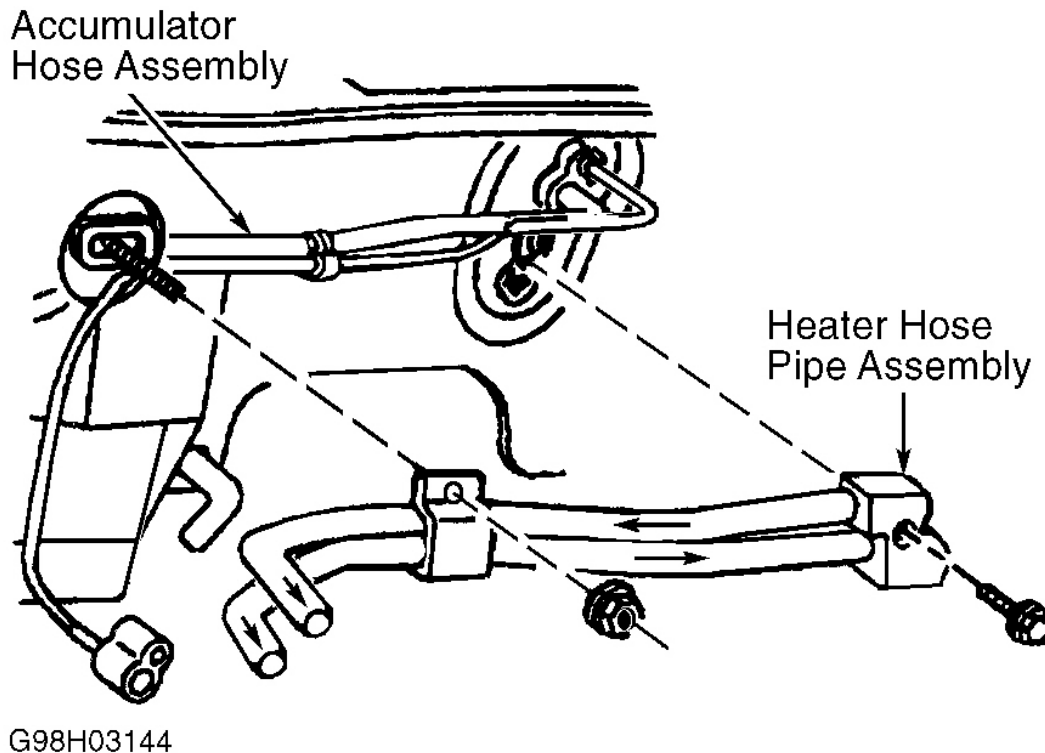
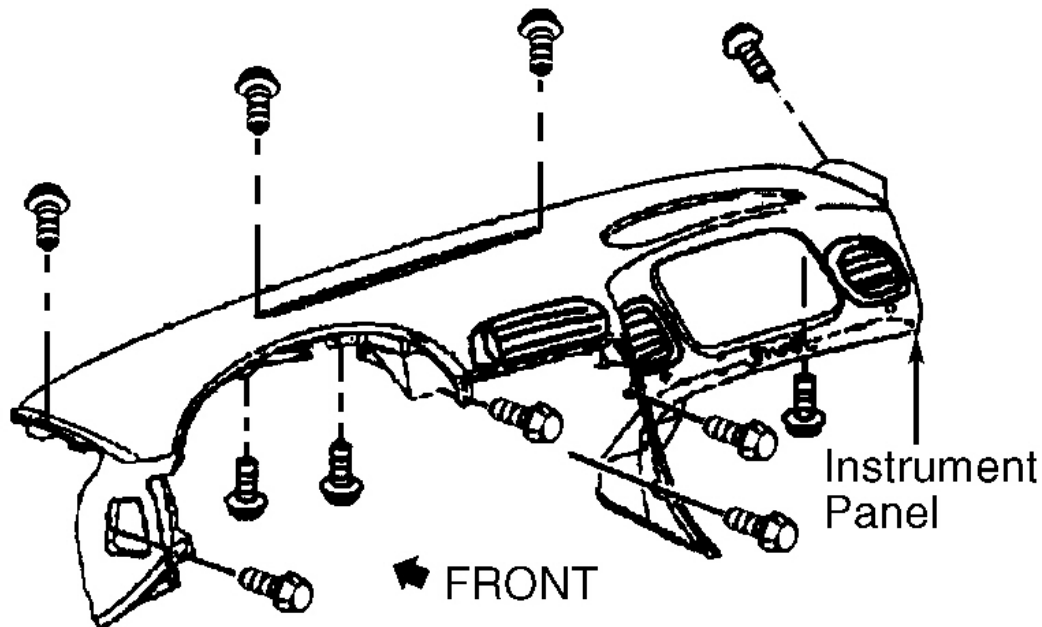


Fig. 9: Heater Hose & Accumulator Hose Assemblies
 Courtesy of GENERAL MOTORS CORP.

3. Remove center console. Remove instrument panel accessory trim plate. See **HVAC CONTROL HEAD** . Remove rear hatch/fog light switch by prying on lower edge to release locking tab. Remove screws/nuts for driver-side knee bolster. Pull on knee bolster trim panel to release clips. Disconnect inside air temperature sensor connector (if equipped).
4. Open glove compartment door. Remove trim plugs at bottom of glove compartment door. Disconnect glove compartment switch connector. Remove glove compartment upper/lower and side attaching bolts. Remove glove compartment. Gently pry on defroster grille to remove. If equipped, disconnect sun load sensor and Daytime Running Light (DRL) connectors. Move sensor connectors to defroster duct for additional clearance for instrument panel upper trim pad removal.
5. Remove windshield side molding garnishes by firmly pulling away from "A" pillar. Remove screws attaching upper trim pad to defroster duct and both hinge pillars.
6. Remove screws attaching instrument cluster bezel to upper trim pad. Remove screws attaching upper trim pad to knee bolster bracket and center support bracket. Remove screws

attaching upper trim pad to passenger SIR bracket. See **Fig. 10** .



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Fig. 10: Removing Upper Trim Pad
 Courtesy of GENERAL MOTORS CORP.

7. Tilt steering wheel to lowest position. Lift rear edge of upper trim pad to clear air distribution duct and slowly move rearward and away from lower edge of windshield. Disconnect hazard warning switch connector. Remove upper trim pad from vehicle. Disconnect electrical connector from instrument cluster assembly. Remove screws between instrument cluster and steering column bracket. Remove instrument cluster assembly.
8. Remove left and right inboard side window glass defroster ducts from windshield defroster duct. Disconnect sun load and DRL harnesses from defroster duct (if equipped). Remove windshield defroster duct from HVAC module. Remove intake air temperature sensor duct and muffler assembly from module.
9. Disconnect electrical connector from passenger-side SIR module. Remove passenger knee bolster to center support bracket bolts. Remove bolts attaching SIR module bracket to lower support beam. Remove bolts attaching SIR module bracket to upper support beam. Remove passenger SIR module and bracket.

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2000-01 MANUAL A/C-HEATER SYSTEMS Corvette

10. On automatic transmission equipped models, undo clips to housing and disconnect cable to remove park/lock control cable. On all models, remove connector from SIR sensing and diagnostic module (Yellow connector). Remove ignition switch housing bolts and position aside.
11. Remove bolts connecting center support bracket to driveline tunnel. Remove bolts attaching center support to passenger knee bolster bracket, and lower support beam. Remove bolt attaching ignition switch housing bracket to steering column bracket. Slowly pull center support bracket rearward to access radio and HVAC control head connectors. Disconnect radio and HVAC control head connectors/harness retainers and park/lock cable clip. Remove bolts attaching ignition switch housing bracket to center support, and remove ignition switch housing bracket. Remove instrument panel harness from center support bracket. Remove center support bracket from vehicle. See **Fig. 8**.
12. Remove driver-side knee bolster. Remove driver-side hush panel. Remove left-side floor air duct from HVAC module. Remove passenger-side hush panel. Unsnap lower right-side floor air duct from upper right-side air duct. Remove upper right-side floor air duct.
13. Disconnect blower motor and remove. See **BLOWER MOTOR**. Disconnect electrical connector from temperature door motor. Disconnect electrical connector to vacuum solenoid assembly (if equipped). Disconnect vacuum source line connection from instrument panel harness. Remove left rear and right rear floor air ducts from HVAC module.
14. Remove bolts and nuts retaining HVAC module to bulkhead and instrument panel brace. Remove HVAC module from vehicle. Remove and discard air inlet, drain, and plumbing seals. To install, reverse removal procedure. Replace all seals. Evacuate and charge A/C system. Fill cooling system.

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

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WIRING DIAGRAMS

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Fig. 11: Manual A/C-Heater System Wiring Diagram (2000-01 Corvette)