

SECTION C

HEATER SYSTEM (49000 SERIES)

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DIVISION I

SPECIFICATIONS AND ADJUSTMENTS

12-21 GENERAL SPECIFICATIONS

Recommended Coolant	Ethylene-glycol Base
Thermostat Opening Temperature	190°
Cooling System Capacity with Heater (Quarts)	16.7
Blower Motor Type	12 VDC
Blower Motor Fan	Squirrel Cage

12-22 ADJUSTMENT OF TEMPERATURE WHEEL AND TEMPERATURE DOOR

NOTE:

The defroster control cable is a non-adjustable, fixed dimension cable and regulates the defroster door to a predetermined travel.

The control cable should be adjusted when the recommended 1/16 to 1/8 inch of indicator is not visible when the wheel is in the "COOL" position.

This adjustment should also be made when the heater and blower assembly has been removed or when temperature door does not open sufficiently to permit maximum air flow.

To adjust, position the TEMPERATURE wheel to the "COOL" position and rotate the control cable adjuster nut until approximately 1/16 to 1/8 inch of indicator is showing when the wheel is in the "COOL" position. See Figure 12-20.

DIVISION II

DESCRIPTION AND OPERATION

12-23 GENERAL DESCRIPTION

The heater system is an air mix type unit that regulates the temperature of the air by varying the mixture of heated and unheated air. The system consists of four major parts: (1) the heater and blower assembly (see Figure 12-21) which houses the blower motor,

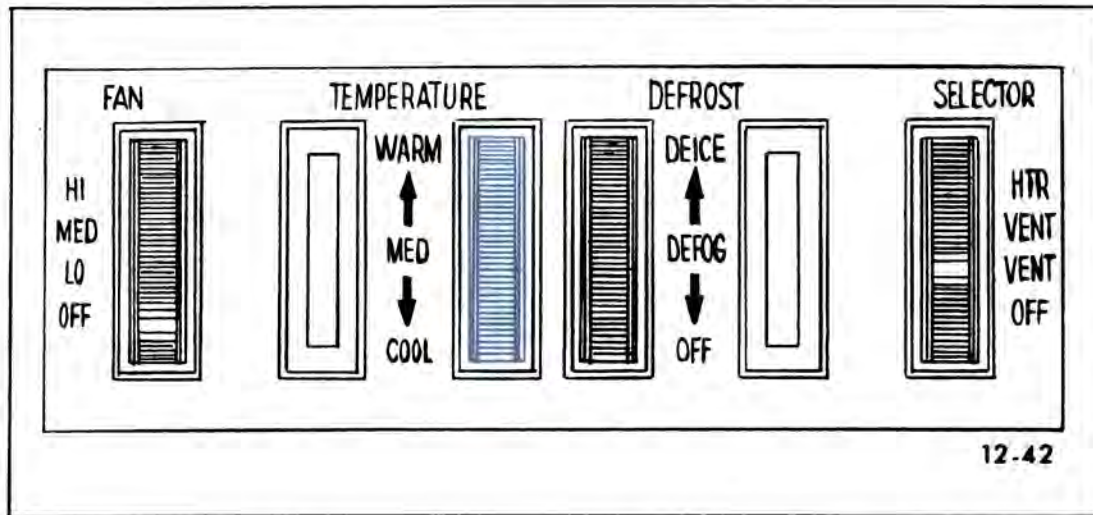


Figure 12-20 Heater Instrument Panel Control Assembly

outside air door, heater-vent door, heater core and vacuum diaphragms; (2) the heater selector assembly which contains the defroster door and re-heat vent door and diaphragm (see Figure 12-22); (3) the vent distributor duct; and (4) the instrument panel control assembly (see Figure 12-23).

The flow of coolant through the heater system is as shown in Figure 12-24.

12-24 DESCRIPTION OF AIR FLOW

The flow of air in the heater system is shown in Figure 12-25. Air enters the plenum chamber thru an opening forward of the windshield.

Air then flows to the right hand portion of the plenum chamber and downward into the blower and heater assembly. When the outside air door is open the air flows past this door to the vent-heater door, where depending on the door position, the air flows either to upper level instrument panel outlets or to the heater and/or defroster outlets. When the air is directed toward the heater and/or defroster outlets, the proportion of the air bypassing and flowing thru the heater core is controlled by the temperature door. The air is then directed to the heater selector assembly where the defroster door distributes the air to the heater and/or defroster outlets. If the

SELECTOR wheel on the instrument panel is positioned to the upper or second "VENT" position vacuum will be applied to the reheat door diaphragm and the reheat door will move to the midposition. Under these circumstances a split mode situation exists wherein the air flow is to both the instrument panel and heater and/or defroster outlets.

12-25 OPERATION OF HEATER SYSTEM CONTROLS

The heater system for the

49000 Series cars has four control wheels. See Figure 12-20. They function as follows:

1. FAN Wheel - This wheel operates a four position blower switch.

2. TEMPERATURE Wheel - This wheel regulates the position of the temperature door (see Figure 12-25) thru action of a control cable (see Figure 12-23). As the wheel is moved up from "COOL" or "MED", the temperature door is progressively opened to direct more air through the heater core.

3. DEFROST Wheel - This wheel regulates the volume of air directed to the windshield. As the wheel is moved up, from "OFF" or "DEFOG", the defroster door is progressively opened to direct more air to the windshield.

4. SELECTOR Wheel - This wheel controls the vent-heater door, outside air door, and reheat vent door diaphragms. As the wheel is moved up from "OFF" the following system changes are made:

a. "OFF" Position - In this

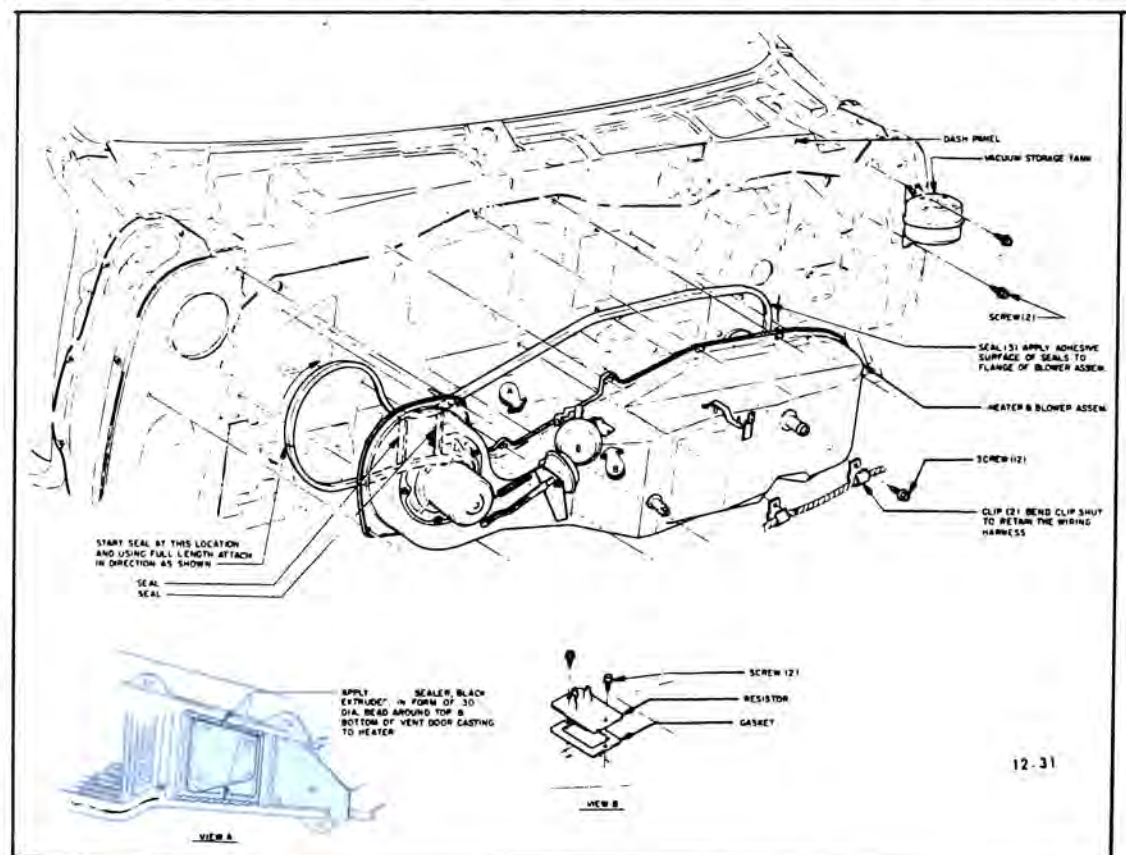
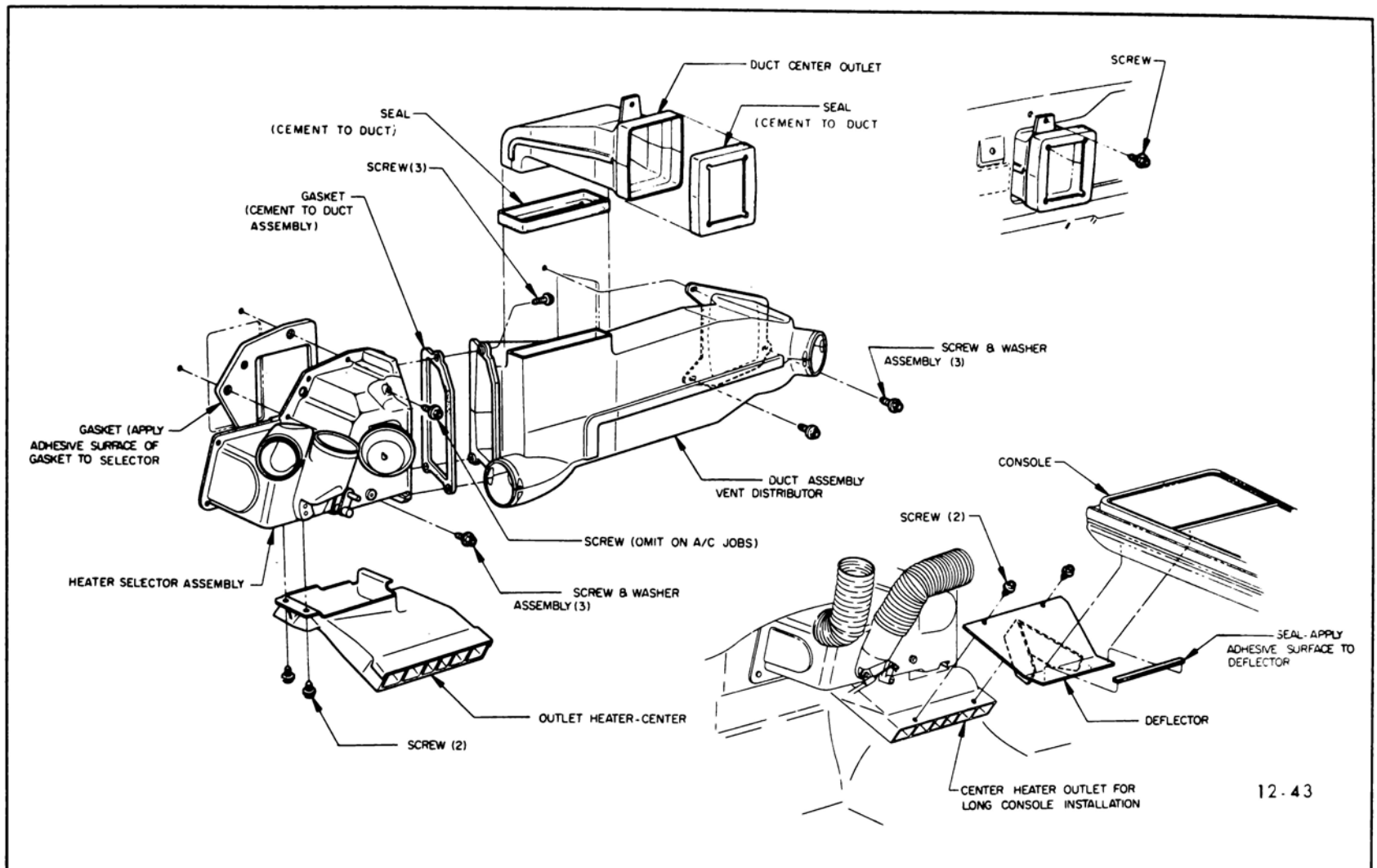


Figure 12-21 Heater and Blower Assembly Installation



12-43

Figure 12-22 Heater Selector Assembly, Vent Distributor Duct and Center Outlet Installation

position vacuum is applied to the vent-heater door diaphragm and outside air door diaphragm to hold these doors closed. See Figure 12-25.

b. "VENT" Position (1st Detent) - In this position vacuum is cut off at the vacuum disc switch, hence all the vacuum diaphragms are released. The outside air door is pulled by its spring to the open position, and the vent-heater door is pulled by its spring to the vent position.

c. "VENT" Position (2nd Detent) - In this position vacuum is applied to the vent-heater door diaphragm and reheat door diaphragm. The vent-heater diaphragm pulls the door closed to direct air flow thru the heater portion of the system. The reheat diaphragm positions the reheat door to redirect a portion of the air flow into the ducts leading to the instrument

panel outlets and directing the balance of the air to the floor outlets.

d. "HTR" Position - In this position vacuum is applied to only the vent-heater door diaphragm to pull the door to the heater position.

DIVISION III

SERVICE PROCEDURES

12-26 REMOVAL AND INSTALLATION OF HEATER CONTROL ASSEMBLY

a. Removal

1. Remove ignition switch.
2. Remove ash tray assembly.
3. Remove radio.
4. Loosen self-contained nuts on back of control assembly.
5. Move control assembly back

and remove light sockets, electrical and vacuum connections, and Bowden cables.

6. Remove control assembly through ash tray opening.

b. Installation

1. Install control assembly reverse of removal procedure.
2. Adjust TEMPERATURE control wheel and cable as necessary.

12-27 REMOVAL AND INSTALLATION OF VENT DISTRIBUTOR DUCT

a. Removal

1. Remove instrument panel cover assembly. See Figure 12-27.
2. Remove center instrument panel outlet duct. See Figure 12-22.
3. Remove right and left instrument panel outlet air hoses. See Figure 12-28.

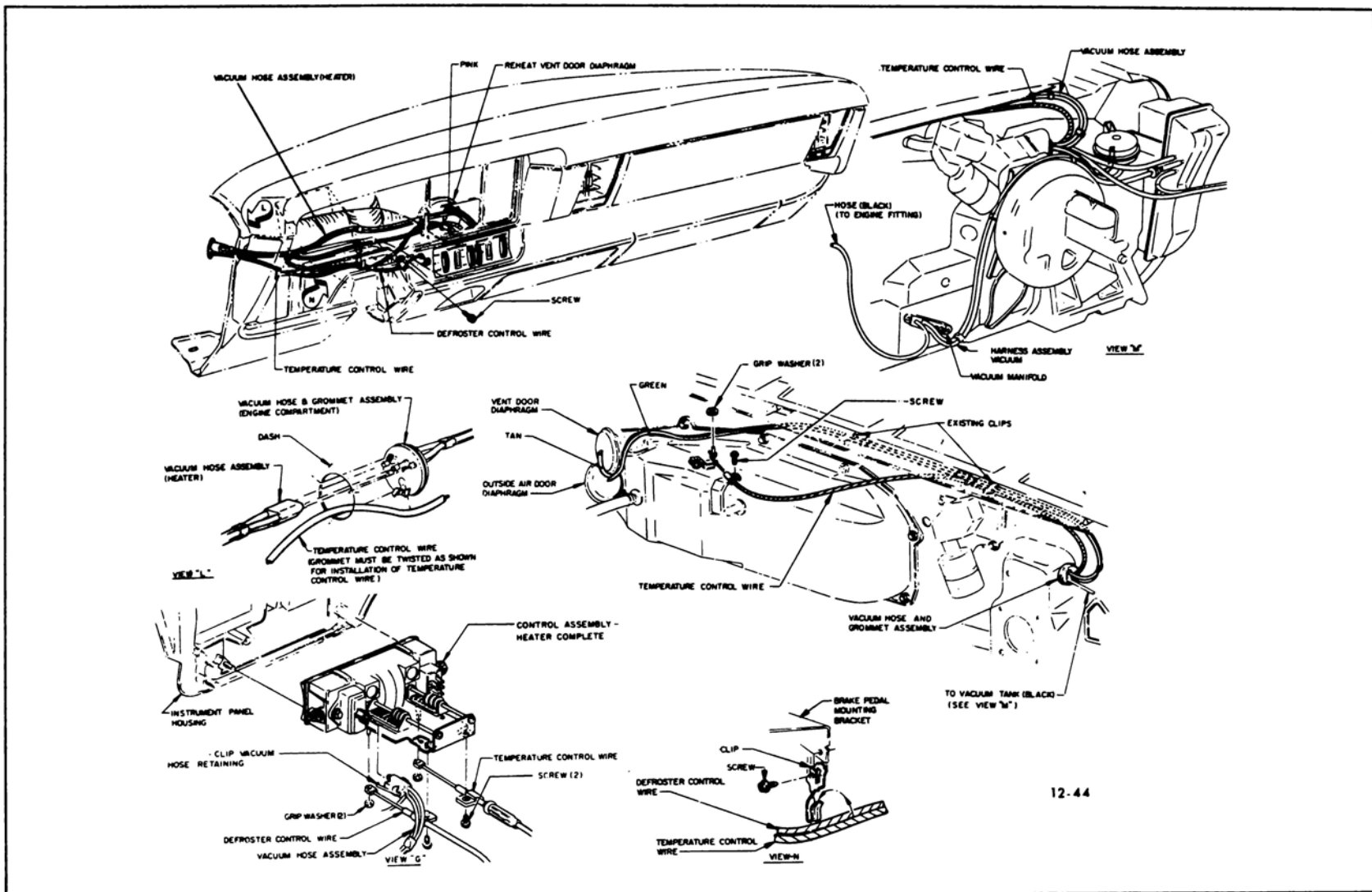


Figure 12-23 Vacuum Hose and Control Cable Installation

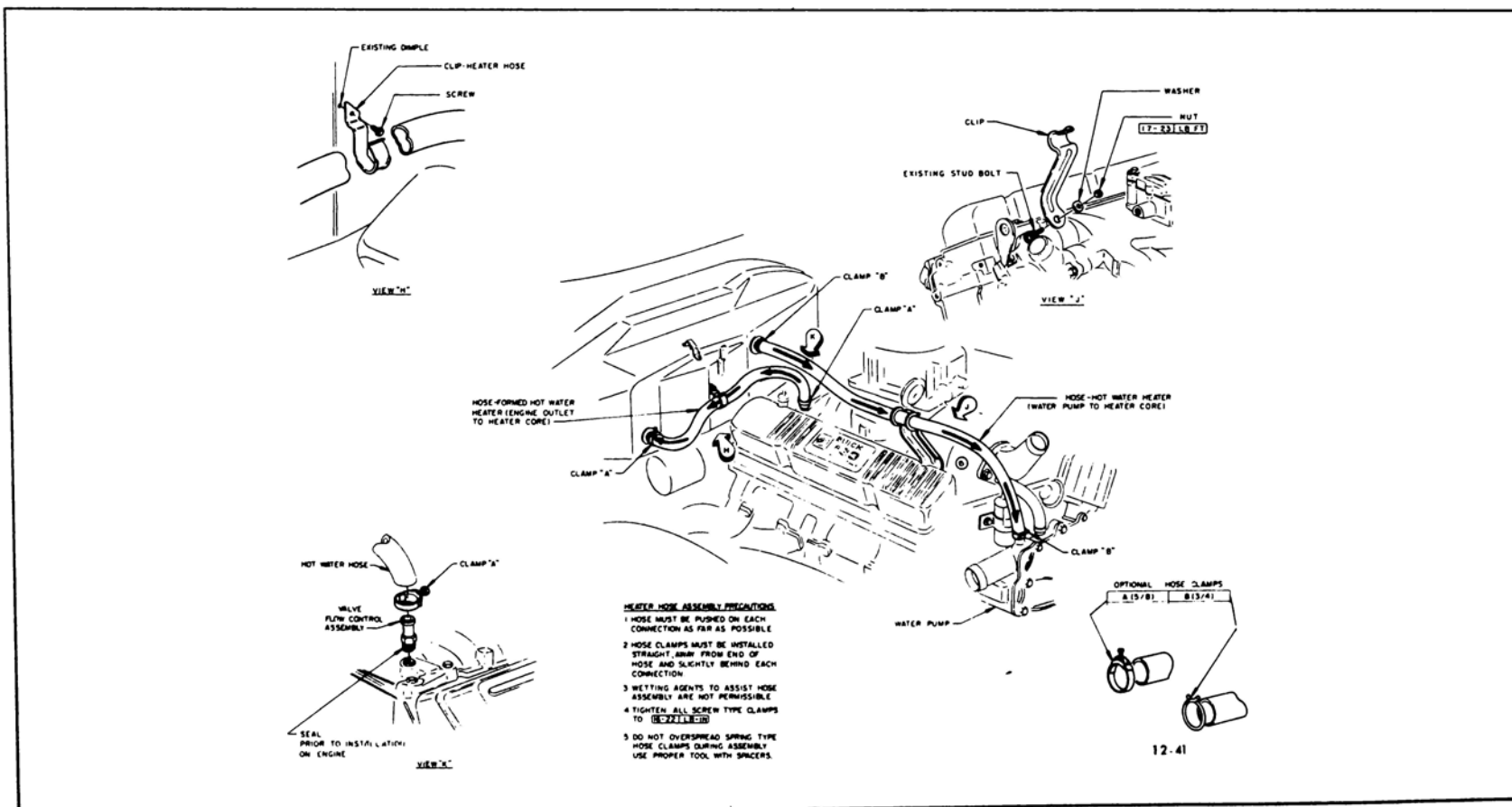


Figure 12-24 Heater Hose Installation

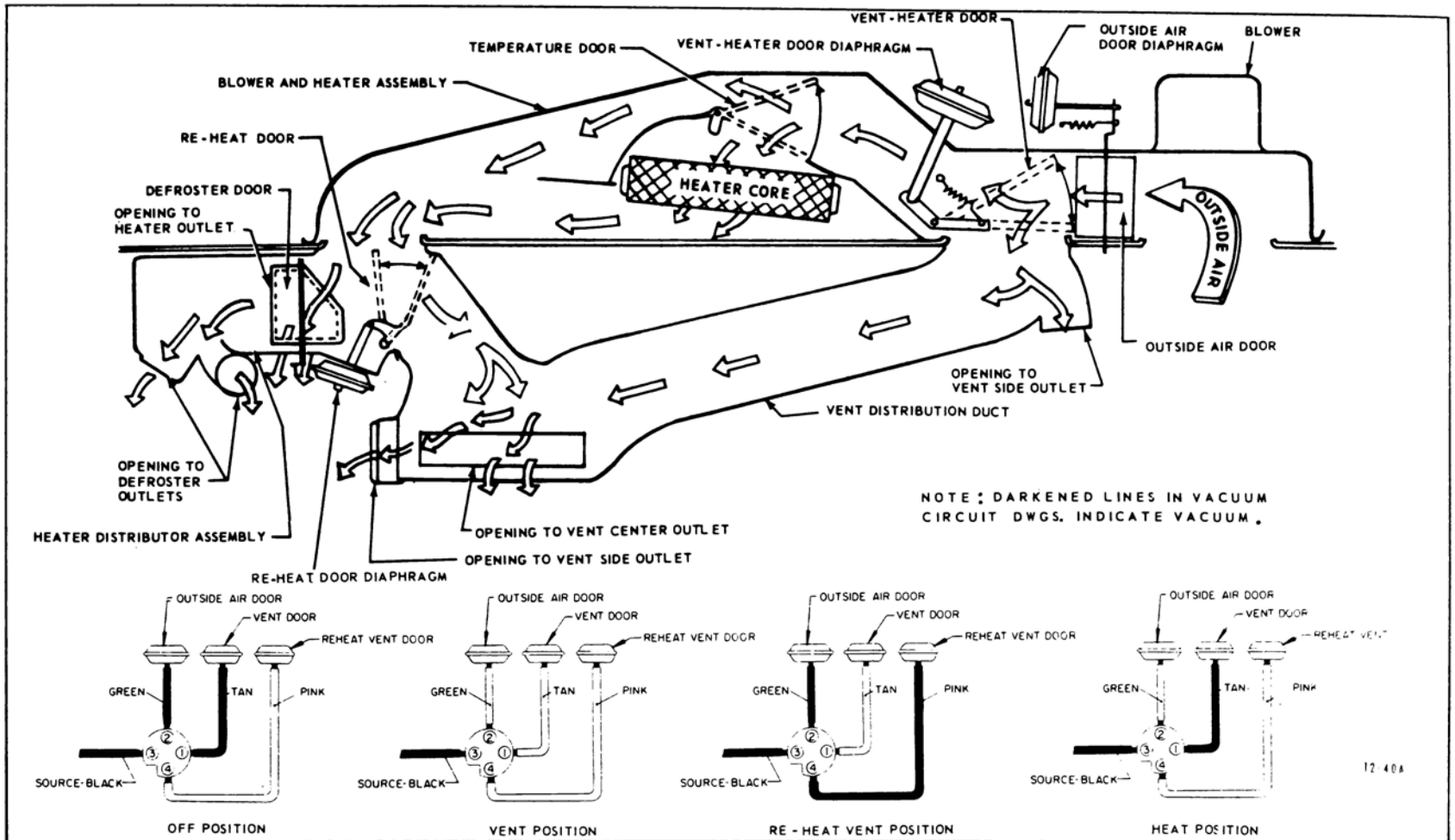


Figure 12-25 Heater System Air Flow

4. Remove three screws securing right end of vent distributor duct to dash. Remove three screws securing vent distributor duct to heater selector assembly.

5. Remove vent distributor duct assembly.

b. Installation

To install, reverse removal procedure and check for any possible air leaks along mating surfaces.

12-28 REMOVAL AND INSTALLATION OF HEATER SELECTOR ASSEMBLY

a. Removal

1. Remove instrument panel cover assembly. See Figure 12-27.
2. Remove center instrument panel outlet duct. See Figure 12-22.
3. Remove heater center outlet.
4. Remove left instrument

panel outlet air hose. Remove right and left defroster hoses.

5. Disconnect defroster cable and reheat door diaphragm vacuum hose.

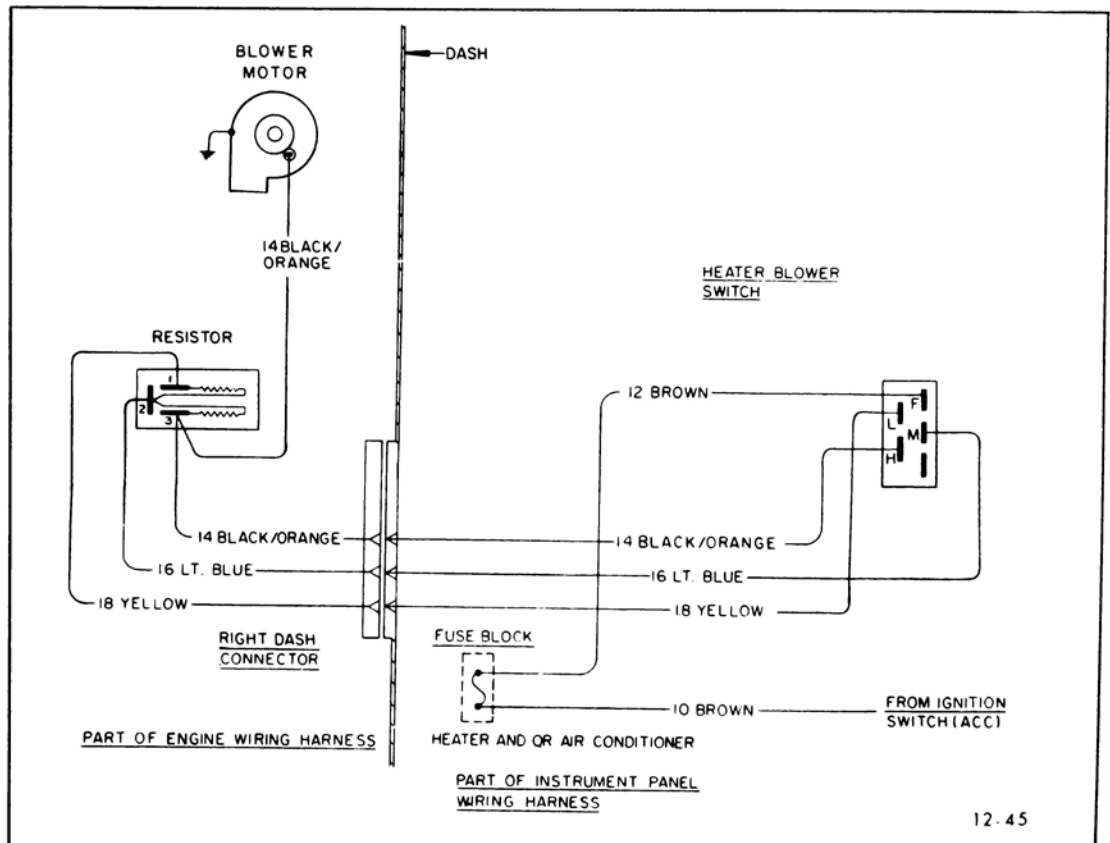


Figure 12-26 Heater System Wiring Diagram

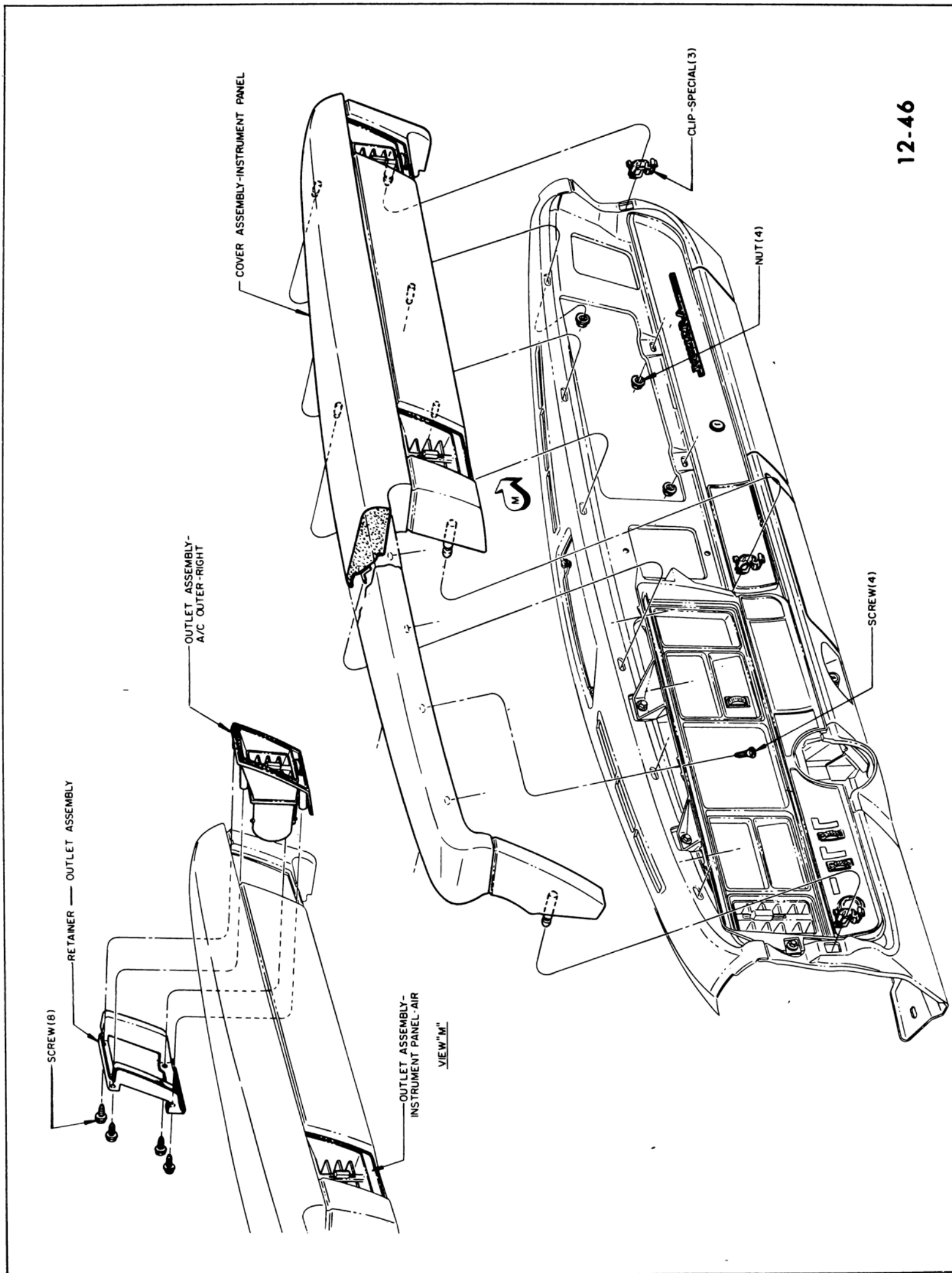


Figure 12-27 Instrument Panel Cover Assembly

6. Remove three screws securing heater selector to vent distributor duct.

7. Remove heater selector assembly.

b. Installation

To install, reverse removal procedure and check for any possible air leaks along mating surfaces.

12-29 REMOVAL AND INSTALLATION OF BLOWER MOTOR

a. Removal

1. Remove right front fender.
2. Disconnect blower motor wire. Remove screws securing blower motor to heater assembly and remove motor.

b. Installation

To install, reverse removal procedure.

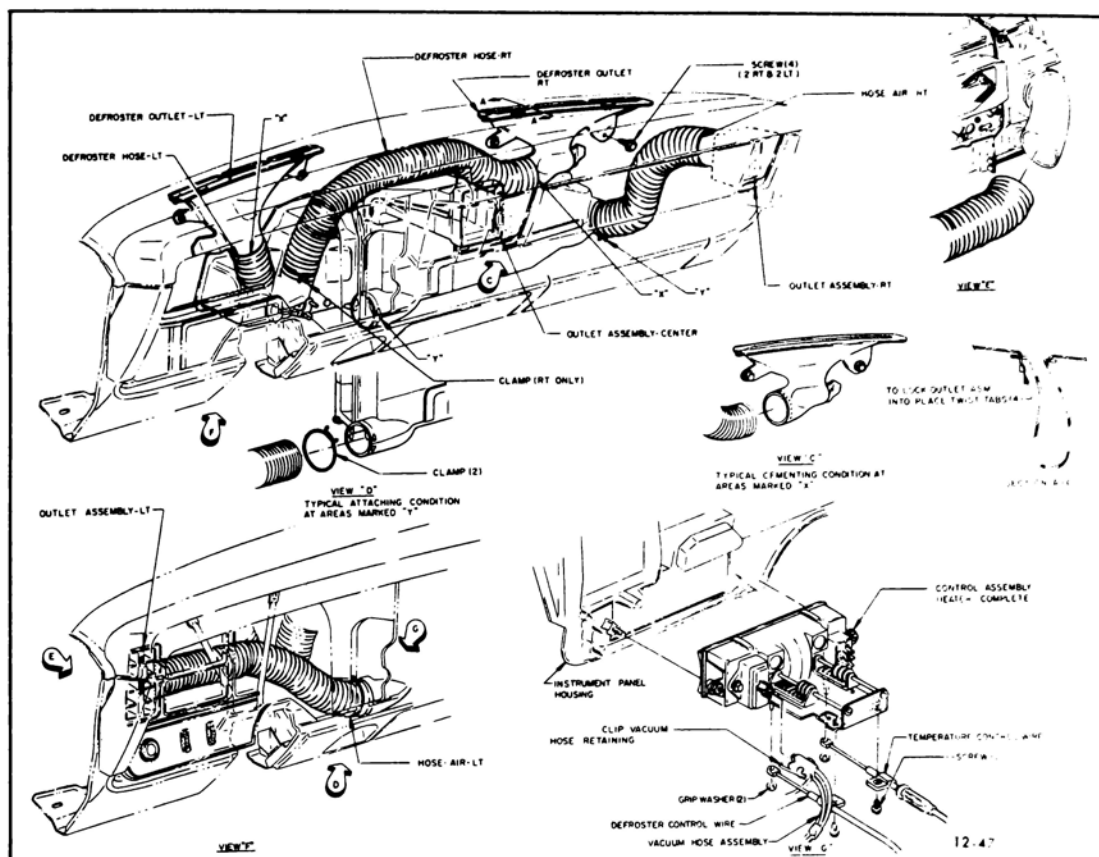


Figure 12-28 Installation of Air Hoses

12-30 REMOVAL AND INSTALLATION OF BLOWER MOTOR AND HEATER ASSEMBLY OR HEATER CORE

a. Removal

1. Drain radiator.
2. Remove right front fender.
3. Disconnect blower motor wire and blower motor resistor connectors.

4. Disconnect temperature door control cable. See Figure 12-23.

5. Disconnect vacuum hoses attached to outside door and vent-heater door vacuum diaphragms. See Figure 12-23.

6. Disconnect heater inlet and outlet hoses at heater assembly. See Figure 12-24.

7. Remove twelve screws securing blower and heater assembly to dash and remove assembly. See Figure 12-21.

b. Installation

To install, reverse removal procedures. Check for air leaks along mating surfaces, check vacuum diaphragm and door operation, and check adjustment of temperature door cable.

DIVISION IV—TROUBLE DIAGNOSIS

12-31 HEATER-DEFROSTER TROUBLE DIAGNOSIS

NOTE: It is suggested that prior to inspecting a car for heater system malfunctions, the owner be questioned to determine if system is being operated correctly. All windows and vents must be closed to effect maximum heat buildup.

TROUBLE	CAUSE AND CORRECTION
Blower Motor Inoperative	<p>Blown fuse - Substitute new fuse.</p> <p>Loose connectors at blower motor, blower resistor or blower switch (on instrument panel control) or broken or grounded wires - Visually check and use test light.</p> <p>Defective blower resistor or blower switch - Substitute new components.</p> <p>Defective blower motor - Substitute new component.</p>
Insufficient Heating	<p>Kinked vacuum hoses or defective vent-heater and outside air door vacuum disc switch - Check that there is no vacuum applied to diaphragm of outside air door, and that vacuum is applied to diaphragm of vent-heater door (see Figure 12-25) when SELECTOR wheel is in 'HTR' position.</p> <p>Sticking outside air door - Disconnect door lever spring and move door lever to check for smooth operation.</p> <p>Temperature door does not open sufficiently - Check operation and adjustment of door and TEMPERATURE wheel (refer to paragraph 12-22).</p> <p>Check for dirt particles in engine thermostat.</p> <p>Insufficient coolant or plugged heater core - Feel and compare temperature of heater core inlet and outlet pipes. Both hoses should be hot and approximately same temperature.</p> <p>Check for dislodged diaphragm in flow control valve.</p>
Insufficient Defrosting	<p>Loose defroster hoses, incorrect deflection of air stream at defroster outlets or loss of volume of air to defroster outlets due to air leaks along mating surfaces - Visually check system and feel for air leaks.</p> <p>Defroster door does not open sufficiently - Check operation.</p>
Insufficient Air thru Instrument Panel Outlets	<p>Kinked vacuum hoses or defective vent-heater and outside air vacuum disc switch - Check that no vacuum is applied to either outside air or vent-heater diaphragms when SELECTOR wheel is in 'VENT' position (see Figure 12-25).</p> <p>Sticking outside air and/or vent-heater doors - Disconnect door lever springs and move door lever to check for smooth operation.</p> <p>Defective vent-heater diaphragm - Substitute new diaphragm.</p>

Figure 12-29 Trouble Diagnosis Chart