

SECTION C

49000 HEATER SYSTEM

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DIVISION I SPECIFICATIONS AND ADJUSTMENTS

12-20 SPECIFICATIONS

Recommended Coolant	Ethylene-glycol base
Type of Thermostat	180°
Capacity of Cooling System with Heater	18.0 qts.
Blower Motor Type	12 V.D.C.
Blower Fan Type	Squirrel Cage

12-21 ADJUSTMENT OF WARMER LEVER AND TEMPERATURE DOOR

It is recommended that the adjustment of the WARMER lever (see Figure 12-12) and temperature door be performed when the recommended springback of lever

is not present, the instrument panel control assembly on the blower and heater assembly have been removed, or when the temperature door does not permit proper mixing of the air.

1. Secure temperature control cable tabs and loops at both ends.

2. Move WARMER lever fully to the right and adjust adjuster nut to obtain a slight springback of lever.

3. Reposition lever fully to the left and rotate adjuster nut to obtain 1/8 to 3/16 inch springback of lever.

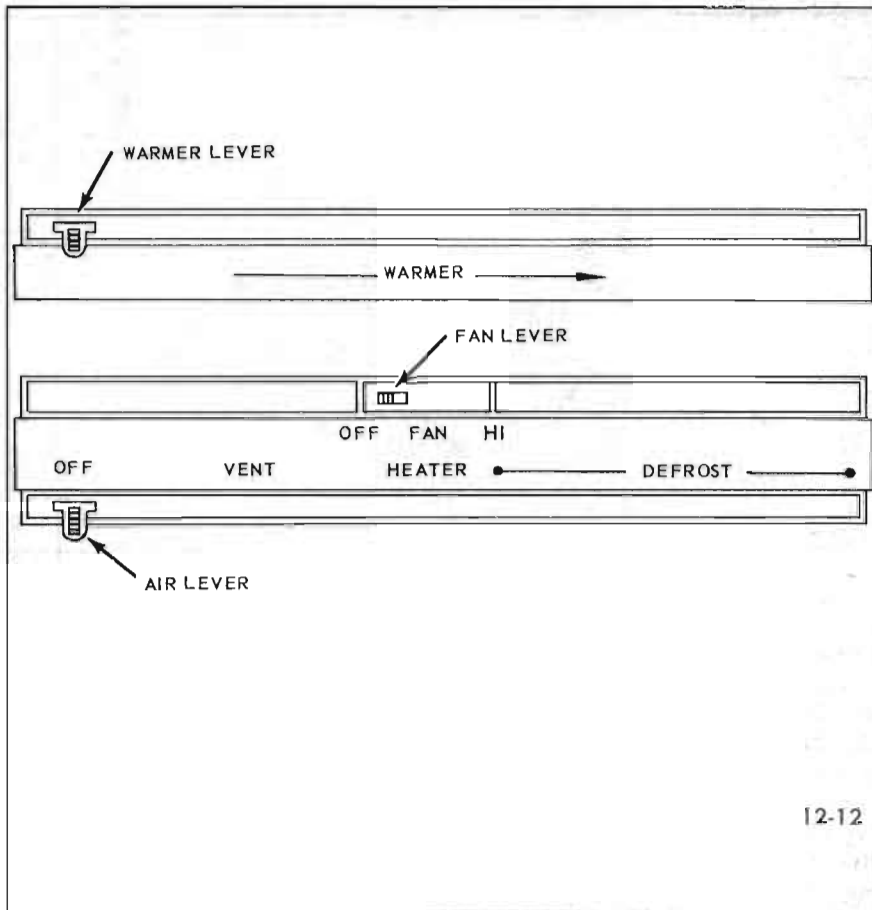


Figure 12-12—Heater Instrument Panel Control Assembly

DIVISION II

DESCRIPTION AND OPERATION

12-23 GENERAL DESCRIPTION

The heater system for 49000 Series cars 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 six major parts: (1) the blower and heater assembly (see Figure 12-15) which houses the blower motor, the outside air door, the heater-vent door and the vacuum diaphragms; (2) the heater distributor assembly which contains the defroster door (see Figure

12-16); (3) the vent distribution duct; (4) the heater center outlet; and (5) the instrument panel control assembly (see Figure 12-14).

The flow of coolant through the heater system is as shown in Figure 12-17.

12-24 DESCRIPTION OF AIR FLOW

The flow of air in the heater system is shown in Figure 12-18. Air enters the plenum chamber thru opening forward of the windshield. It 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 lever vent openings or the heater and/or defroster outlets. When the air is directed toward the heater and/or defroster outlets, the proportion of the air by-passing and flowing thru the heater core is controlled by the temperature door. The air

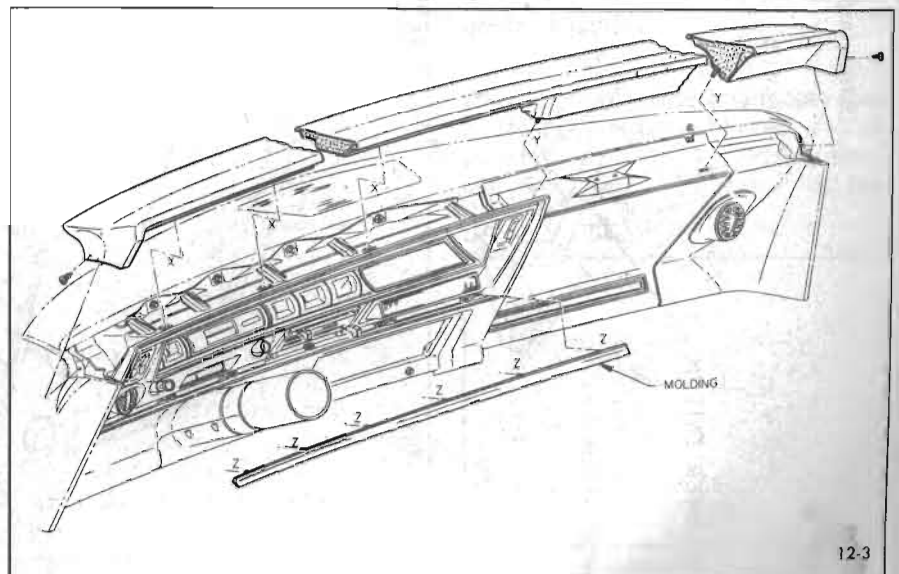
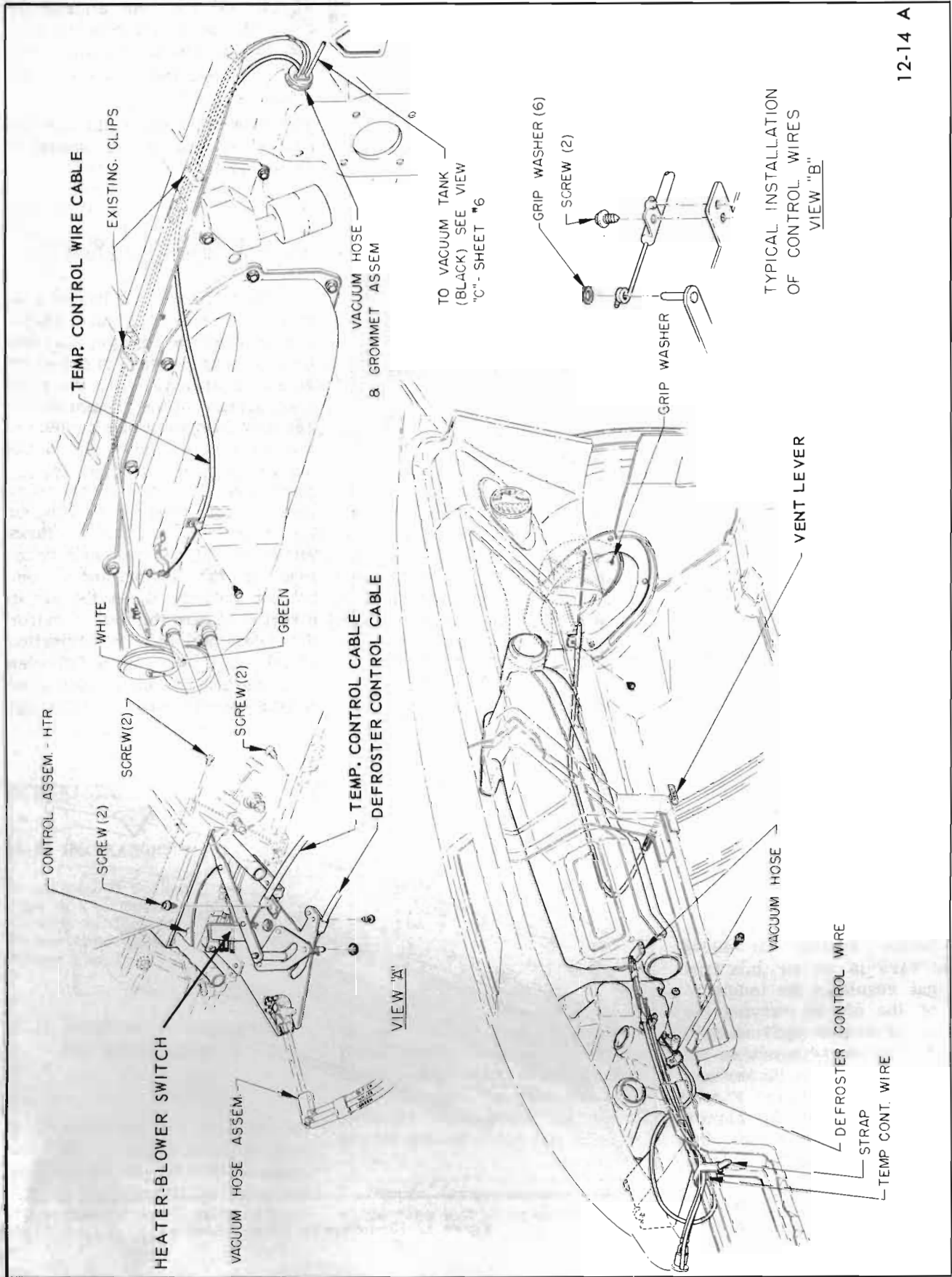


Figure 12-13—Instrument Panel Assembly



12-14 A

Figure 12-14—Vacuum Line and Control Cable Installation - 49000 Series

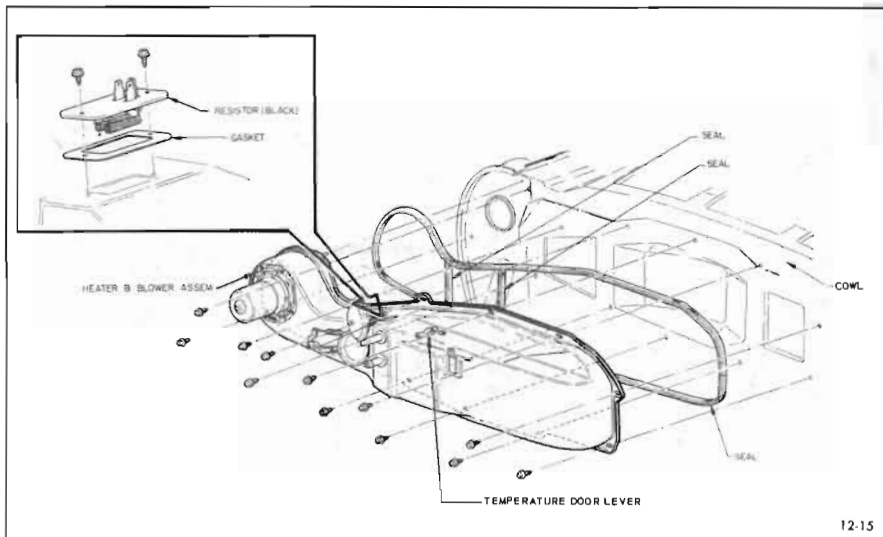


Figure 12-15—Blower and Heater Assembly Installation - 49000 Series

is then directed to the heater distributor assembly where the defrosted door distributes the air to the heater and/or defroster outlets.

12-25 OPERATION OF HEATER SYSTEM CONTROLS

The heater system for the 49000 Series cars has three control levers: The WARMER, AIR and FAN levers (see Figure 12-12). They function as follows. **WARMER Lever** - This lever regulates the position of the temperature door (see Figure 12-18) thru action of a control cable (see

Figure 12-14). As the lever is moved from left to right the temperature door is progressively opened to direct more air through the heater core.

AIR Lever - This lever controls the vent-heater and outside air door diaphragms and also the position of the defroster door. Moving the lever from left to right performs three following system changes:

1. **OFF Position** - In this position vacuum is supplied to the vent-heater diaphragm outside air door diaphragm to hold this door closed. See Figure 12-18.

2. **VENT Position** - In VENT position the vacuum is cut off at the vacuum disc switch, hence the vacuum diaphragms are released. The outside air door is pulled by its spring to the open position, and the heater-vent door is pulled by its spring to the vent position.

3. **HEATER Position** - HEATER position reapplies vacuum back to the vent-heater diaphragm to draw the air door to the heater position again.

FAN Lever - This lever operates a three position blower switch (see Figure 12-14). First, second and third positions of the

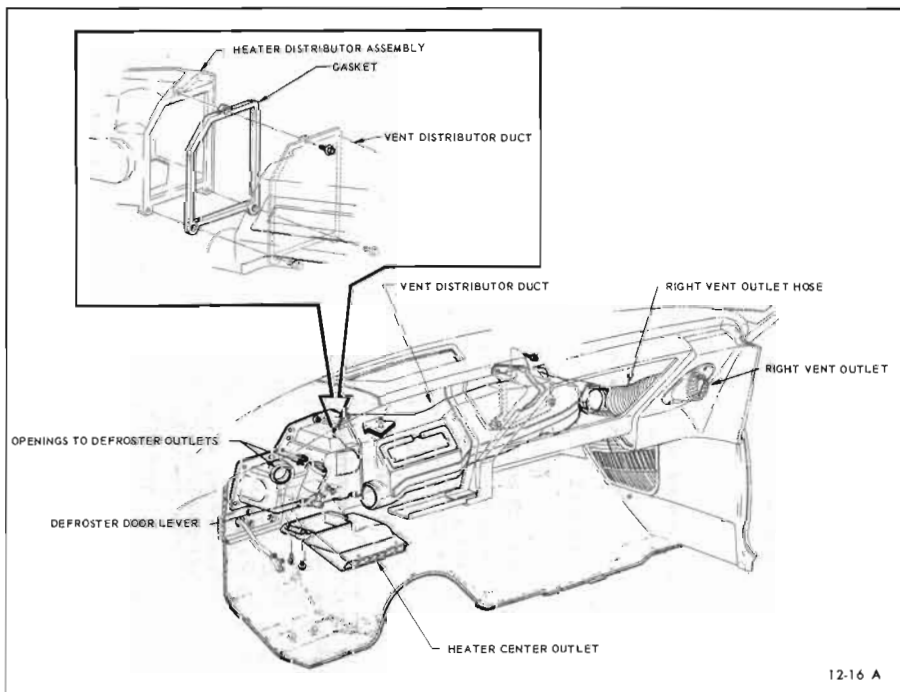


Figure 12-16—Heater Distributor Assembly, Vent Distributor Duct and Center Outlet Installation - 49000 Series

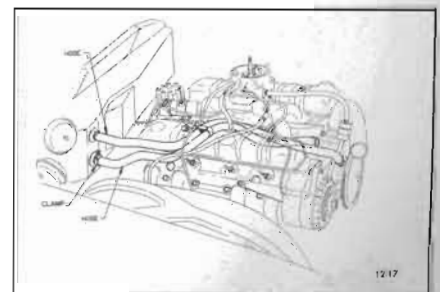


Figure 12-17—Heater Hose Routing - 49000 Series

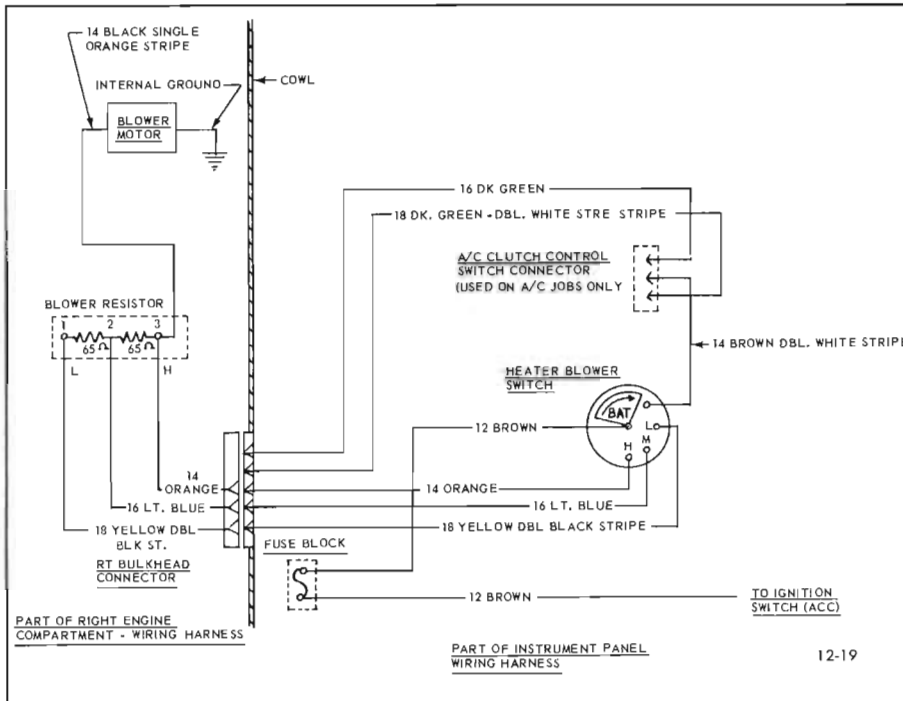


Figure 12-19—Wiring Diagram of Heater System - 49000 Series

lever respectively provide low, medium and high blower speeds (see Figure 12-19).

control cable (refer to paragraph 12-2).

12-27 REMOVAL AND INSTALLATION OF HEATER-DISTRIBUTOR ASSEMBLY

a. Removal

1. Remove two screws and lower heater center outlet (see Figure 12-16).
2. Disconnect left vent outlet hose and both defroster hoses from vent distribution duct and heater distributor assembly (see Figure 12-20).
3. Disconnect defroster control cable from defroster door lever (see Figure 12-16).
4. Take out three screws securing heater distributor assembly to vent distribution duct, and three screws securing heater distributor assembly to cowl, then remove assembly.

b. Installation

To install, reverse removal procedure and check adjustment of

DIVISION III

SERVICE PROCEDURES

12-26 REMOVAL AND INSTALLATION OF INSTRUMENT PANEL CONTROL ASSEMBLY

a. Removal

1. Pry off thin strip of trim along center bottom of instrument panel (see Figure 12-13).
2. Remove four screws from corners of instrument panel control and partially withdraw assembly.
3. Disconnect control cables, lamp sockets and blower switch connector and complete removal of blower assembly.

b. Installation

To install, reverse removal procedure and check adjustment of

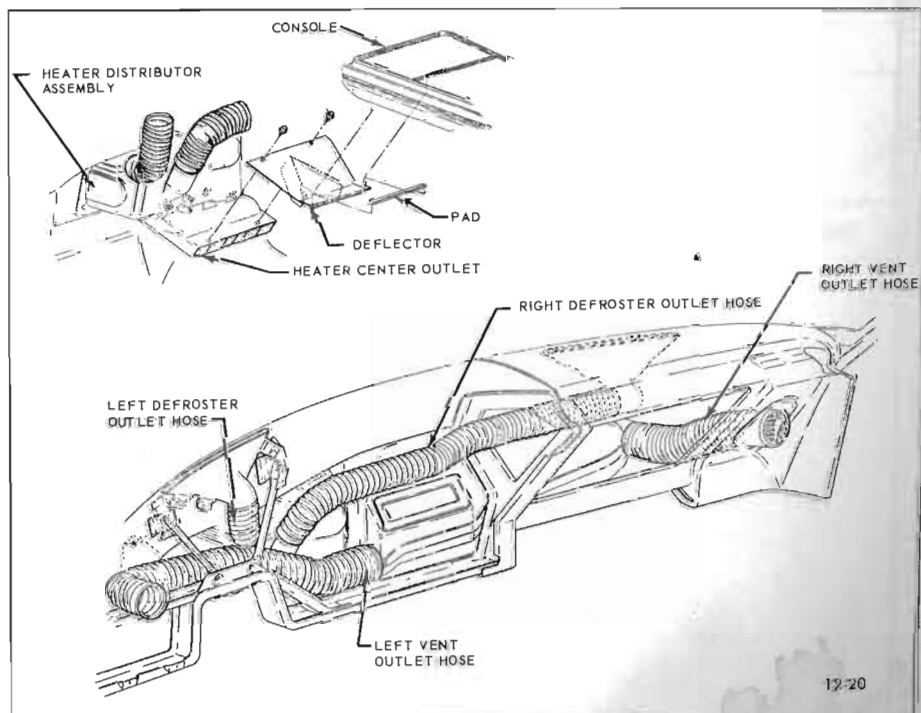


Figure 12-20—Installation of Hoses - 49000 Series

control cable. Check for any possible air leaks along mating surfaces.

12-28 REMOVAL AND INSTALLATION OF VENT DISTRIBUTION DUCT

a. Removal

1. Disconnect both left and right vent outlet hoses (see Figure 12-20).
2. Remove three screws securing vent distribution duct to heater distributor assembly and three screws securing right end of duct to cowl. Then remove duct.

b. Installation

To install, reverse removal procedure and check for any possible air leaks where duct mates with cowl.

12-29 REMOVAL AND INSTALLATION OF BLOWER AND HEATER ASSEMBLY

a. Removal

1. Adequately support hood; remove right hood hinge and hinge support.
2. Disconnect vacuum hoses attached to vacuum diaphragms. See Figure 12-15.

3. Disconnect wire attached to blower motor connector and pull off connector plugged into blower resistor.

4. Disconnect control cable attached to temperature door lever.

5. Drain radiator and disconnect heater coolant hoses attached to blower and heater assembly.

6. Remove 12 screws securing blower and heater assembly to cowl and remove assembly.

b. Installation

To install, reverse removal procedures and check for air leaks along mating surfaces. Check adjustment of control cable.

DIVISION IV TROUBLE DIAGNOSIS

12-30 HEATER-DEFROSTER TROUBLE DIAGNOSIS

TROUBLE	POSSIBLE CAUSES AND CHECKS
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 12-18) when air lever is in HEATER 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 WARMER control lever (refer to paragraph 12-21).</p> <p>Defective thermostat - Check that temperature of coolant at radiator filler neck is within $\pm 5^{\circ}\text{F}$ of rated thermostat value (180°F).</p>

	<p>NOTE: This will be true when ambient temperature is below approximately 50°F.</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>
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 Vent 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 air lever is in VENT position (see Figure 12-18).</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>