SECTION B

HEATER SYSTEM (45-46-48000 SERIES)

CONTENTS

DIVISION I
SPECIFICATIONS AND ADJUSTMENTS

12-11 GENERAL SPECIFICATIONS

Recommended Coolant	Ethylene-glycol Base
Thermostat Opening Temperature	190°
Cooling System Capacity with Heater (Quarts)	
45000 Series	13.2
46-48000 Series	16.7
Blower Motor Type	12 VDC
Blower Motor Fan	Squirrel Cage

12-12 ADJUSTMENT OF OUTSIDE AIR (DEFROST) WHEEL AND OUTSIDE AIR 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 DEFROST wheel is in the "OFF" position. This adjustment should also be made when the heater assembly has been removed or when the outside air door does not open sufficiently to permit maximum air flow.

To adjust, position the DEFROST wheel to the "OFF" position and rotate the control cable adjuster nut until approximately 1/16 to 1/8 inch of indicator is showing. See Figure 12-10.

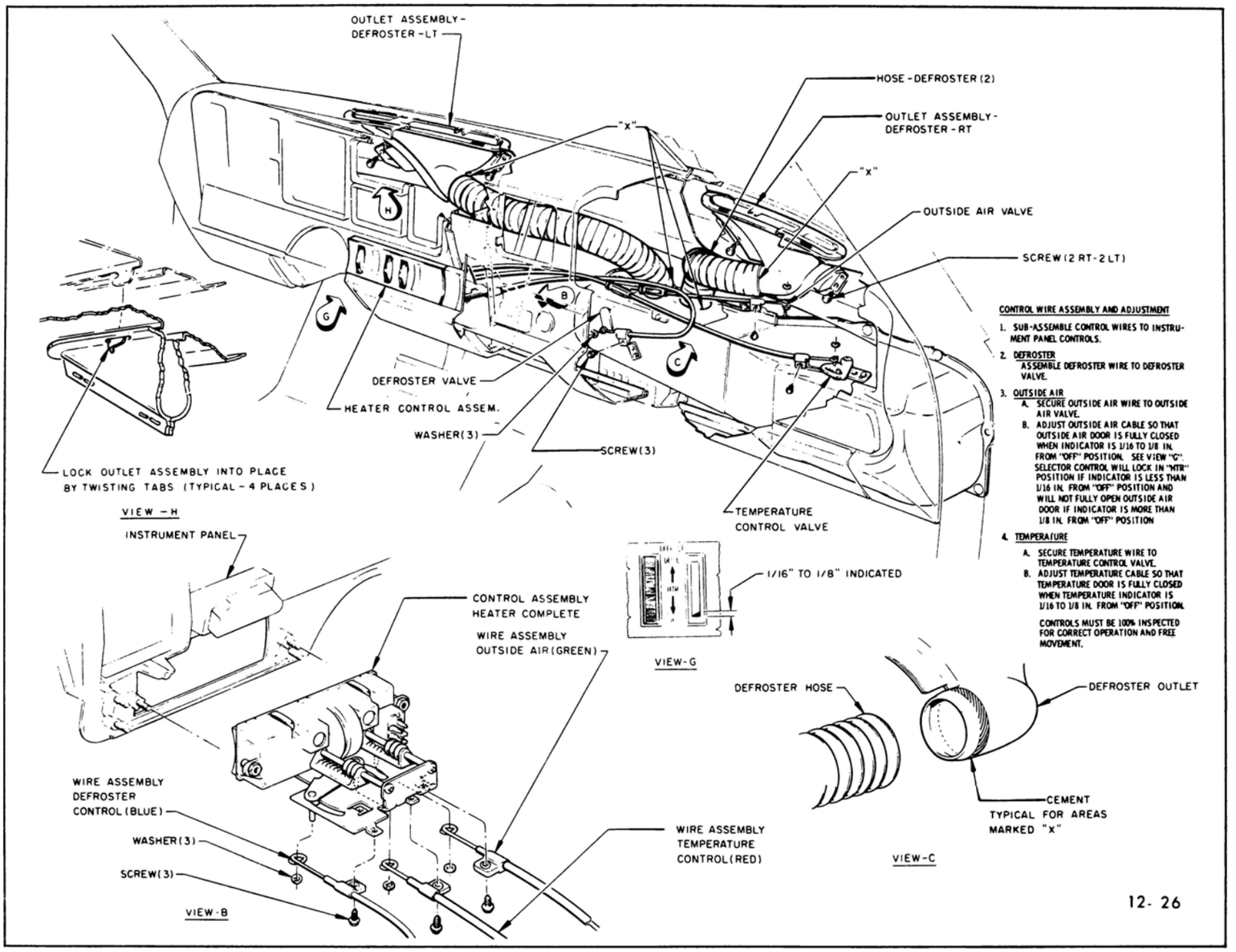

Figure 12-10 Heater Control Wire and Defroster Hose Installation

NOTE:

The DEFROST control wheel will lock in "HTR" position if indicator is less than 1/16 inch from the "OFF" position and will not fully open outside air door if indicator is more than 1/8 inch from the "OFF" position.

12-13 ADJUSTMENT OF TEMPERATURE SELECTOR WHEEL AND TEMPERATURE DOOR

The control cable should be adjusted when the recommended 1/16 to 1/8 inch of indicator is not visible when the TEMPERATURE wheel is in the "COOL" position. This adjustment should also be made when the heater assembly has been removed or when the 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. See Figure 12-10.

DIVISION II

DESCRIPTION AND OPERATION

12-14 DESCRIPTION OF SYSTEM

The heater system is an air-mix type system in which outside air is heated and then mixed in varying amounts with cooler outside air to attain the desired air temperature. The system consists basically of three parts: (1) the blower and air inlet assembly, (2) the heater assembly and (3) the heater control assembly (see Figure 12-11). The operation of the system is as follows:

1. Blower and Air Inlet Assembly - The blower and air inlet assembly draws outside air through the outside air inlet grille located forward of the windshield reveal molding and channels the air into the heater assembly. The operation of the blower motor is controlled by a FAN switch on the heater control. The motor is connected in series

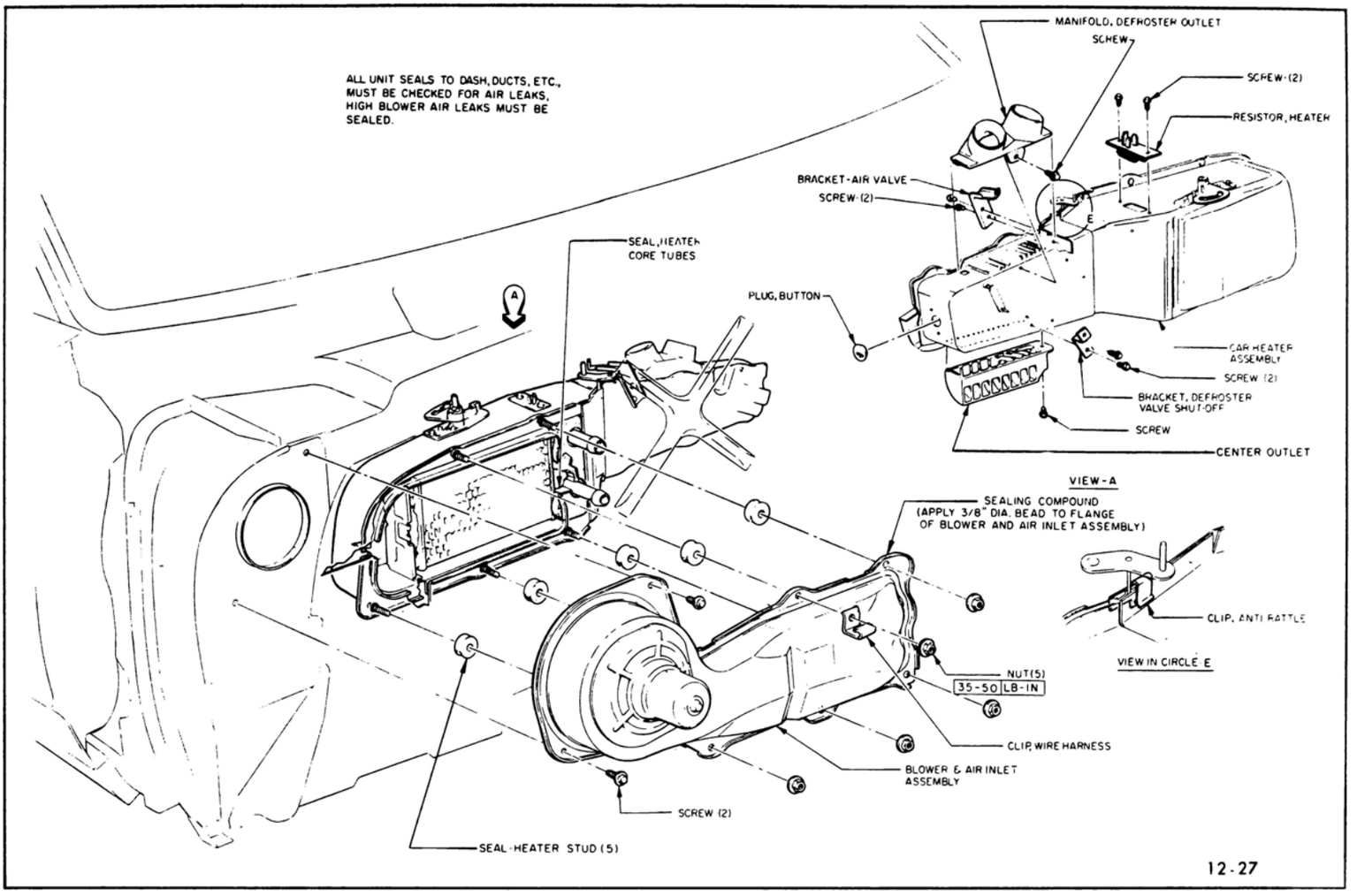

Figure 12-11 Heater Installation

with the three position FAN switch and also the blower resistor assembly. See Figure 12-12. A 25 amp fuse, located in the fuse block, is in series between the blower motor and the battery.

2. Heater Assembly - The heater assembly (see Figure 12-13) houses the heater core and the doors necessary to control mixing and channeling of the air. Air entering the heater assembly divides into two channels: (1) through the heater core and (2) through a by-pass around the heater core. The ratio of the mixture of heated to unheated air is controlled by the temperature door. An outside air inlet door initiates the air flow through the heater assembly. A defroster door controls the amount of air deflected through the defroster outlets. The defroster door may be positioned to deflect all air to the defroster outlet, all air to the floor outlet, or to both the defroster and floor outlets.

The heater core, located in the heater assembly, has water flowing through it at all times. The water flow begins at the right rear portion of the intake manifold and flows to the lower inlet port of the heater core, thru the heater core, out the upper outlet port of the heater core and to the suction port of the water pump. See Figure 12-14.

The heater assembly has fixed vane outlets to distribute air evenly throughout the passenger compartment.

3. Heater Control Assembly - The heater control assembly (see Figure 12-10) consists of three controls, namely the TEMPERATURE wheel, outside air (DEFROST) wheel, and FAN switch wheel.

12-15 OPERATION OF CONTROLS

The TEMPERATURE wheel is connected by a control wire to the temperature door on the heater assembly, and regulates the ratio of mixture between heated and unheated air-hence the temperature of the air. The TEMPERATURE wheel has three positions: "COOL", "MED", and "WARM". When the temperature control is in the "COOL" position, the temperature door is fully closed and prevents air flow through the heater core. When the temperature control is moved from "COOL" to "MED" or "WARM", the temperature door is moved in proportion to allow more outside air to flow through the heater core and hence be warmed. The "COOL" position blocks air flow through the heater core. In "MED", approximately one half of the outside air will flow through the heater core. In "WARM", the temperature door

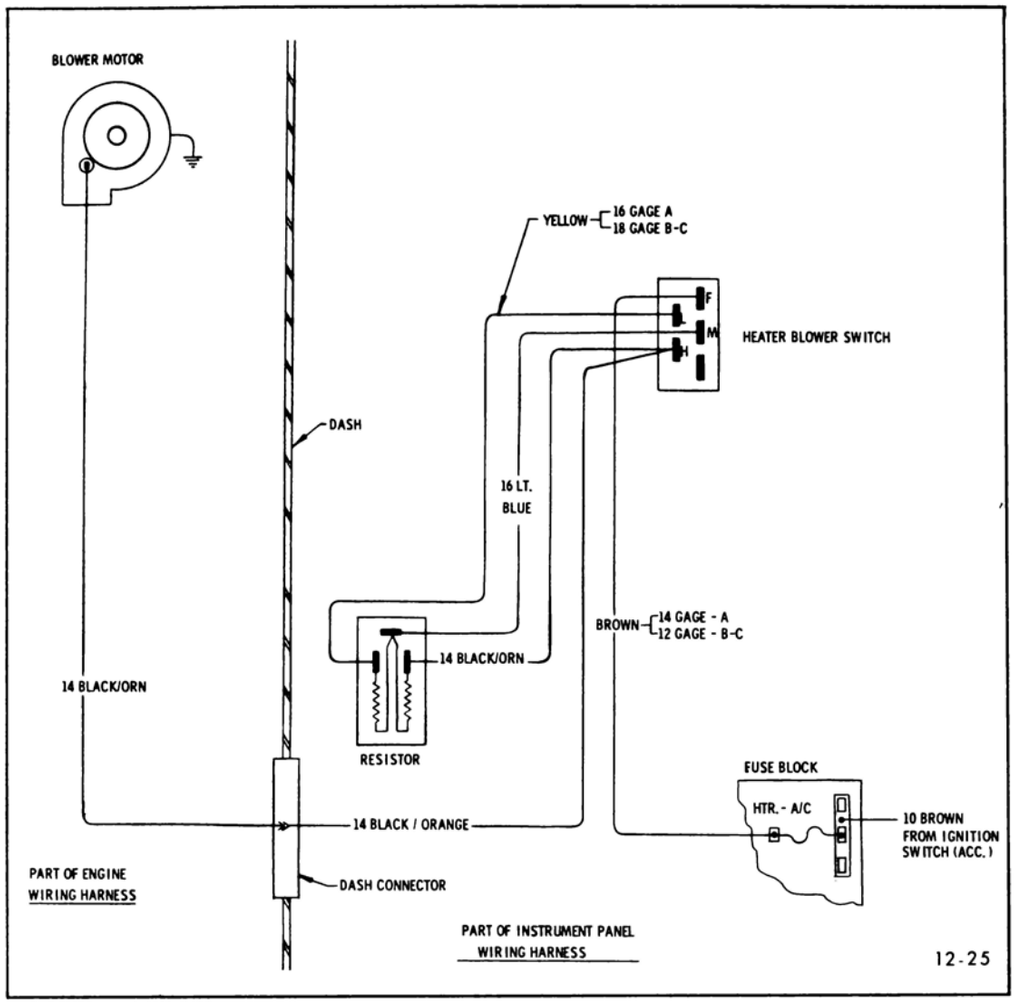

Figure 12-12 Heater System Wiring Diagram

is fully open and directs all outside air through the heater core.

The DEFROST wheel of the heater control assembly regulates the positioning of two doors: the outside air door and the defroster door. The DEFROST wheel has three positions: "OFF", "HTR" and "DEICE". Positioning of the DEFROST wheel to the "OFF" position closes the outside air door and the defroster door. When the outside air door is closed, all air is blocked from passing through the heater assembly. When the DEFROST wheel is moved to the "HTR" position, the outside air door is fully opened. Air is permitted to pass through the heater assembly and is directed to the floor of the car. Moving of the DEFROST wheel to "DEICE" position, opens the defroster door and channels the air to the defroster outlets. Locating of the outside air selector wheel midway between HTR and DEICE positions causes the air to be routed to both the defroster outlets and the floor outlets proportional to wheel setting.

The FAN switch wheel operates a four-position switch. A two

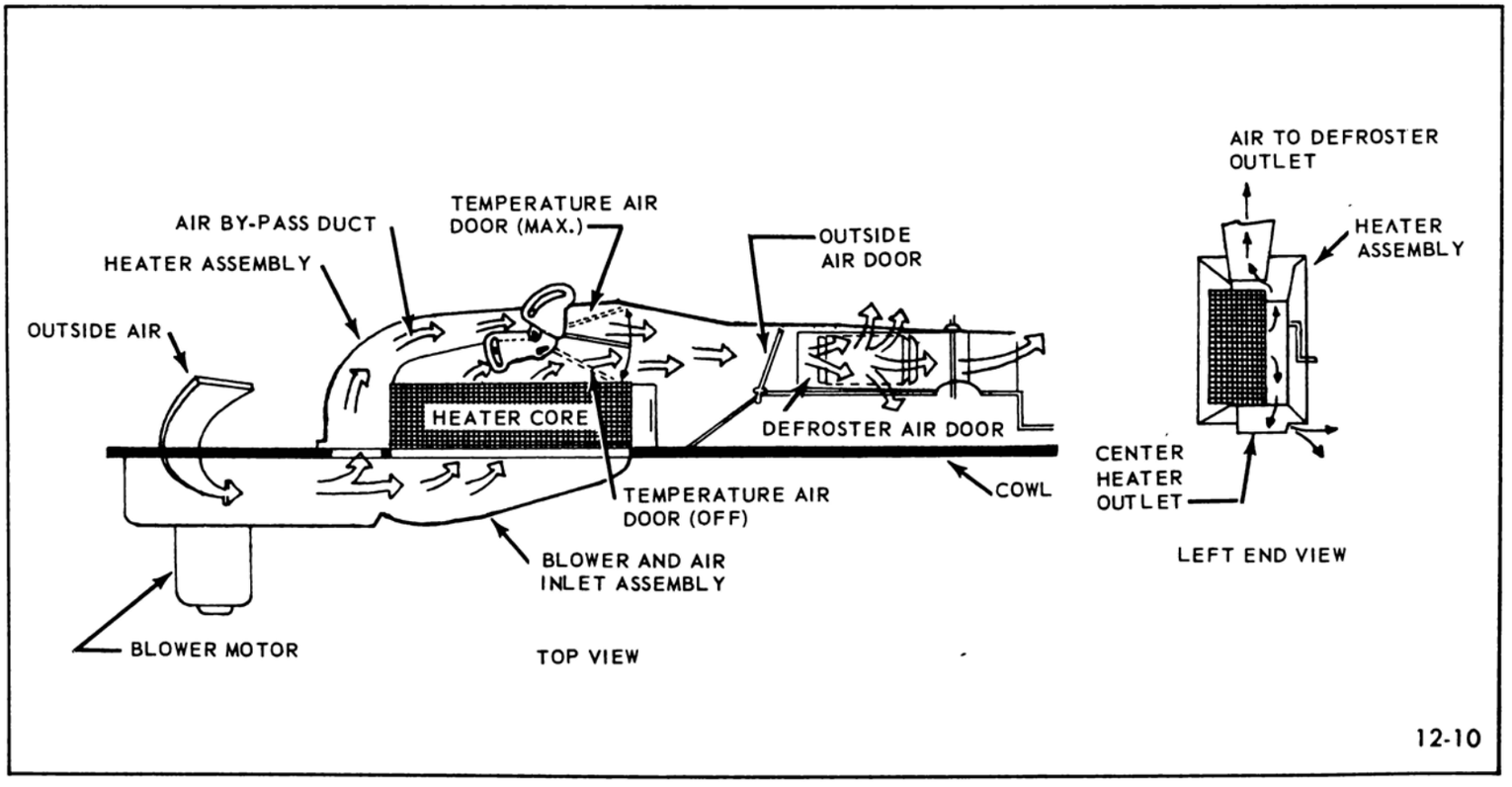

Figure 12-13 Heater System Air Flow

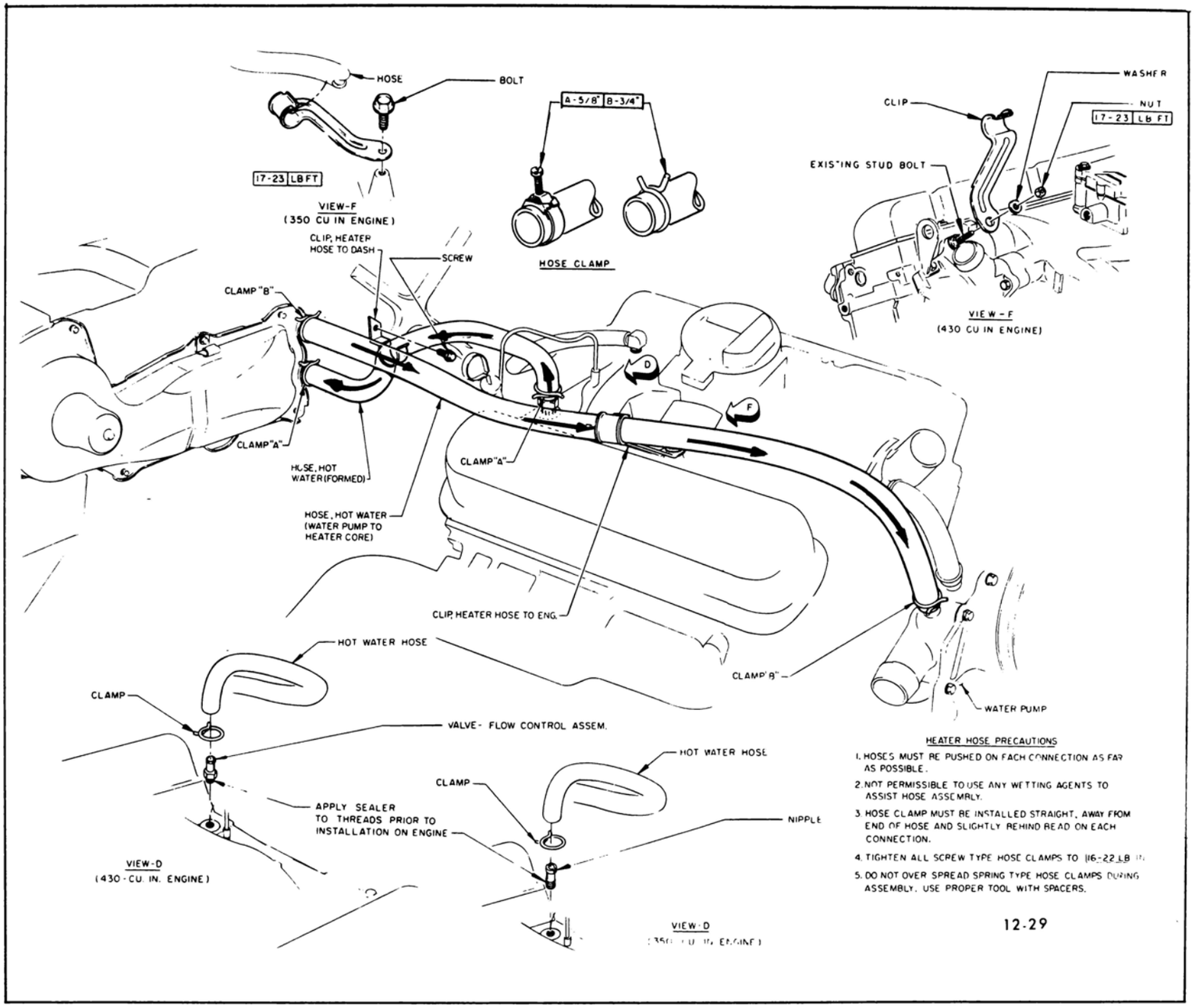

Figure 12-14 Heater Hose Installation

resistor blower resistor assembly is connected in series between the blower motor and the switch, and serves to reduce the speed of the motor. When the FAN switch wheel is positioned fully downward, the blower motor is "OFF". Movement of the wheel upwrd provides "LO", "MED" and "HI" blower speeds.

DIVISION III

SERVICE PROCEDURES

12-16 REMOVAL AND INSTALLATION OF HEATER CONTROL ASSEMBLY

a. Removal

1. Remove ignition switch.

2. Disconnect lamp sockets and blower switch connector from control assembly.

3. Loosen self-contained nuts on back of control assembly.

4. Slide control assembly back out of instrument panel and remove Bowden cables.

b. Installation

1. Install control assembly reverse of removal procedure.

2. Adjust DEFROST and TEMPERATURE control wheels as necessary (Ref. paragraphs 12-12 and 12-13).

12-17 REMOVAL AND INSTALLATION OF BLOWER MOTOR OR BLOWER MOTOR AND AIR INLET ASSEMBLY

a. Removal

1. Remove right front fender.

2. (Blower Motor Only) Disconnect blower motor wire. Remove screws securing blower motor to air inlet assembly.

(Blower Motor and Air Inlet Assembly) Disconnect blower motor wire. Remove five nuts and two screws securing blower and air inlet assembly to dash. See Figure 12-11.

b. Installation

Install blower motor or blower motor and air inlet assembly reverse of removal procedures, and seal along mating surfaces between dash and air inlet assembly.

12-18 REMOVAL AND INSTALLATION OF HEATER-DEFROSTER ASSEMBLY OR HEATER CORE

a. Removal

1. Drain radiator and disconnect heater inlet and outlet hoses at dash. See Figure 12-14.

2. Disconnect control cables from defroster door, outside air door and temperature door levers.

3. Disconnect electrical connector from blower motor resistor.

4. Remove five nuts securing heater-defroster assembly to dash. See Figure 12-11.

5. Remove screw securing defroster outlet adapter to heater-defroster assembly and raise adapter away from assembly.

6. Work heater-defroster assembly rearward until studs clear dash, and remove heater-defroster assembly.

b. Installation

1. Install heater-defroster assembly reverse of removal procedures and seal along mating surfaces between dash and heater-defroster assembly.

2. Adjust control cables as necessary (Ref. paragraph 12-12 and 12-13).

DIVISION IV—TROUBLE DIAGNOSIS

12-19 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.	Check fuse. Check for defective heater blower switch. Check for defective blower resistor assembly. Check for loose connectors or broken wires.
Insufficient heating	Check operation of outside air door (paragraph 12-12), and temperature door (paragraph 12-13). Check for air leaks around sealing edges of components. Check for dirt in engine thermostat. Check for sufficient coolant. Check for dislodged diaphragm in flow control valve (46-48000 Series). Check for air leaks thru dash, around doors, windows, etc.
Inadequate defrosting	Check operation and adjustment of outside air door (paragraph 12-12), temperature door and/or defroster door. (paragraph 12-13). Check for air leaks and for sufficient coolant. Check for loose or disconnected defroster air hoses and for position of defroster duct and instrument panel openings. Twist tabs provide positive position if properly installed.

12-30

Figure 12-15 Trouble Diagnosis Chart