

# SECTION 12-02 Heating and Defrosting

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## VEHICLE APPLICATION

Taurus / Sable.

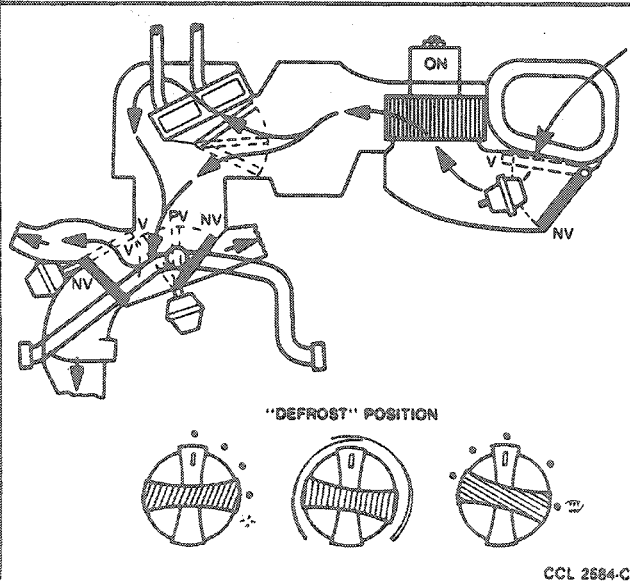
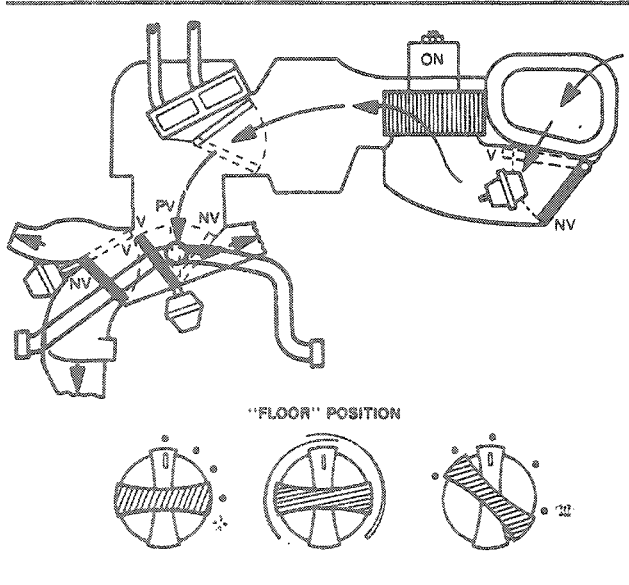
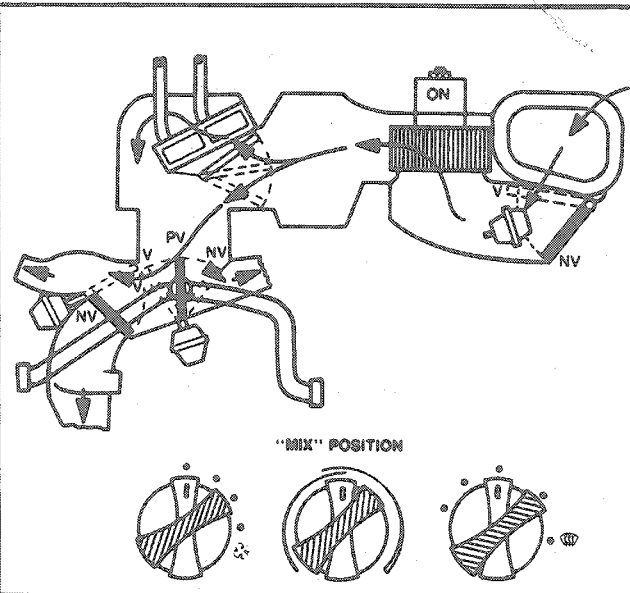
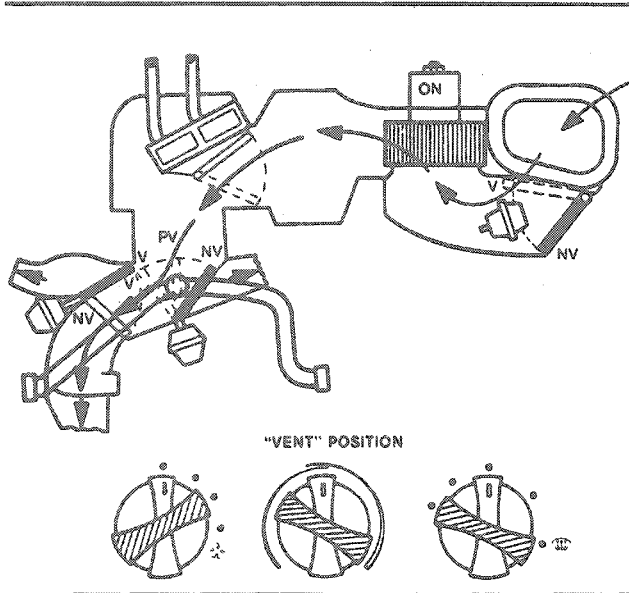
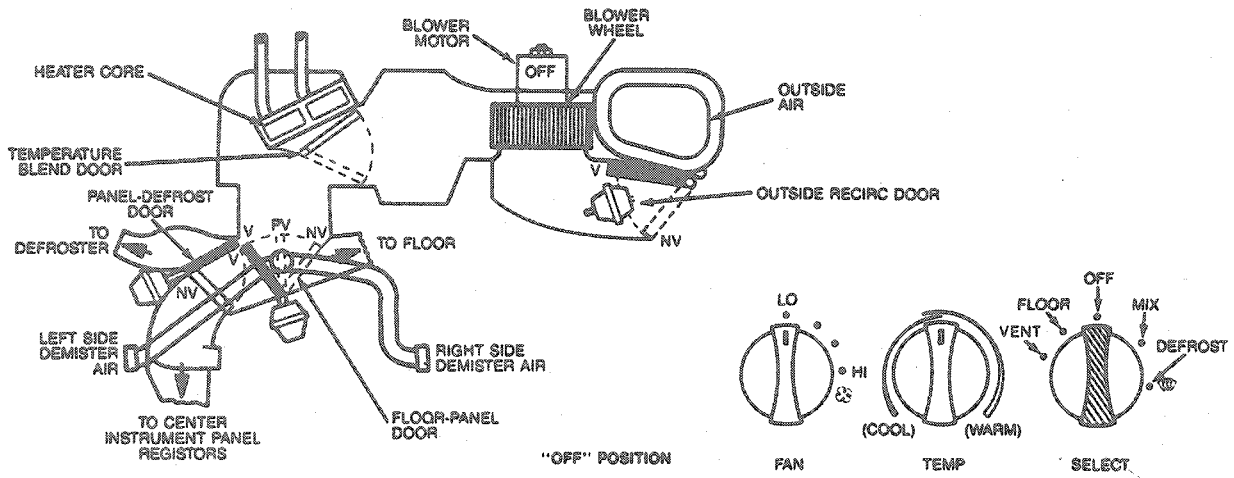
## DESCRIPTION AND OPERATION

### Airflow

The heater assembly is a blend air system, receiving outside air through the blower inlet, which is connected directly to an opening in the upper cowl. Outside air is drawn into the system from the cowl, through the blower inlet into the blower housing. It is forced through and / or around the heater core, mixed, and then discharged through outlets in the discharge air duct to the floor area or through the defroster outlets, depending upon the type of climate control desired. Several doors determine the amount of air that goes through the heater core and the particular outlet(s) through which it discharges. The following illustration shows the airflow through the system with the various function selections available.

DESCRIPTION AND OPERATION (Continued)

System Airflow Schematic



CCL 2584-C

**DESCRIPTION AND OPERATION (Continued)****OFF**

When the function selector knob is in the OFF position:

- The outside-recirc door is at full vacuum. As a result, outside air is closed off and recirc air is admitted to the system.
- The panel-defrost door and the floor-panel door are both at full vacuum, closing off the passages to the defrosters.
- The blend door position may be anywhere within the range of its cable travel from FULL HEAT to FULL COOL.
- The blower motor is off.

**PANEL**

When the function selector knob is in the PANEL position:

- The outside-recirc door, with no vacuum being applied, will block recirc air and admit outside air. From there, airflow is directed through the system to the instrument panel registers.
- The floor-panel door is at no vacuum to block airflow to the floor registers, and the panel-defrost door is at full vacuum, closing off airflow to the defrosters.
- The temperature selector may be adjusted to heat the air, if desired.
- The blower motor is on.

**FLOOR**

When the function selector knob is in the FLOOR position:

- The outside-recirc door is in the no vacuum position to block recirc air and admit outside air.
- The floor-panel door is in the vacuum position which closes off all but a minimum of airflow to the defroster.
- The blend air door position will channel airflow so that a desired temperature level will be achieved.
- The panel-defrost door is in the no vacuum position to block air circulation to the panel registers.
- The blower motor is on.

**MIX**

When the function selector knob is in the MIX position:

- The outside-recirc air door and the panel-defrost door are in the no vacuum position.
- The floor-panel door is in the partial vacuum position.
- The blower motor is on.

**DEFROST**

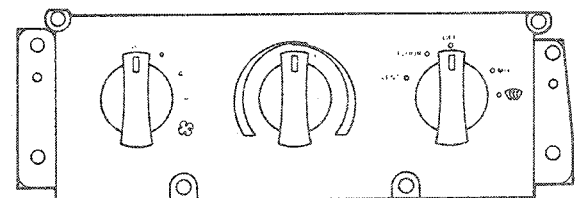
When the function selector knob is in the DEFROST position:

- The outside-recirc air door is in the no vacuum position to admit outside air.

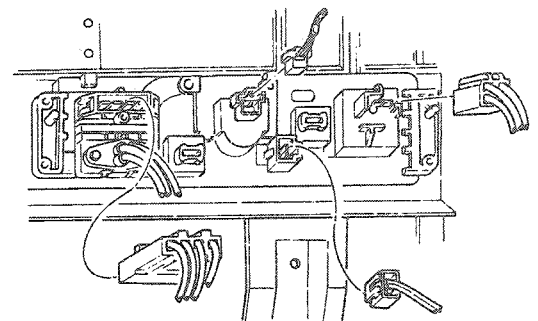
- Both the floor-panel and the panel-defrost doors are in the no vacuum position so that most of the incoming air is directed to the defroster nozzles. There is a slight air bleed to the floor registers.
- The temperature control knob setting will determine the amount of heat being introduced into the airflow.
- The blower motor is on.

**Control Assembly**

The control assembly is located in the instrument panel at the right of the steering column. The control assembly contains a four position blower knob, a temperature control knob, a function control knob and illumination bulb.

**Heater Control Assembly**

FRONT VIEW



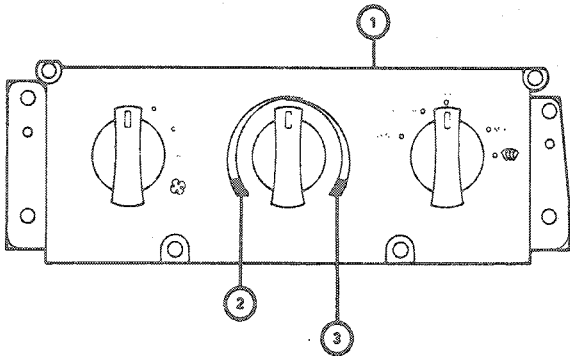
REAR VIEW

CCL 3784-A

The heater and power ventilation control includes a function control knob for PANEL, FLOOR, OFF, MIX and DEFROST that determines the manner in which the system will operate, a temperature control knob for manually setting the desired comfort temperature, and a blower switch to control the volume of air movement. Each position of the function control knob and blower switch is detented for positive engagement. The blower switch provides four manually selected blower speeds and may be operated in any position to select the desired amount of airflow.

**DESCRIPTION AND OPERATION (Continued)****Temperature Control**

Temperature control of the heater and power ventilation system is determined by the position of the temperature control knob (between COOL and WARM) of the control assembly, and is accomplished by means of an electric blend door actuator between the control assembly and the temperature blend door. System airflow is manually controlled by the control assembly. A vacuum selector valve, controlled by the function control knob, distributes vacuum to the various door vacuum motors which in turn, direct the airflow through the system.

**Control Assembly — Temperature Control Knob**

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**ITEM DESCRIPTION**

1. CONTROL ASSEMBLY (HEATER/POWER VENTILATION SYSTEM) - 18549
2. COOL BAND (BLUE)
3. WARM BAND (RED)

The system uses a temperature blend method to provide controlled temperature to the vehicle interior. With this method, all outside airflow from the blower passes through the heater case to the plenum assembly. Temperature is then regulated by heating a portion of the outside air and blending it with the remaining cooler outside air to the desired temperature. Temperature blending is varied by the temperature blend door which controls the amount of air that flows through or around the heater core, where it is mixed and directed into the distribution plenum. The air is finally directed to the heater ducts, the defroster nozzles, or the instrument panel registers, depending upon the selection made with the function selector knob.

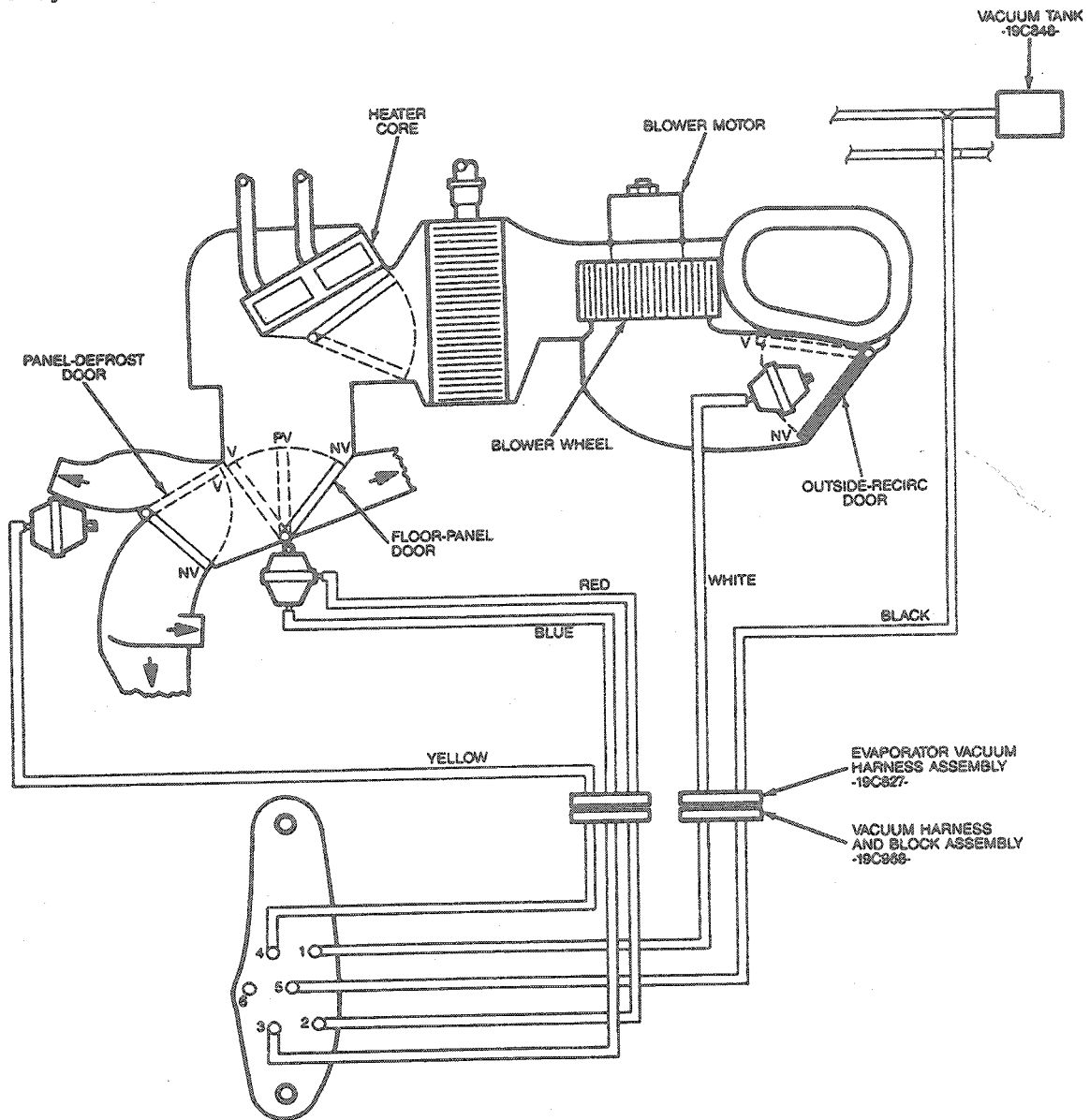
**System Airflow and Vacuum Controls**

The System Air Flow Schematic illustrates how air is circulated through the system when the function selector knob is in each of its detent positions. The following illustration adds a vacuum schematic and chart to a basic airflow schematic to show how the five lines in the vacuum harness are controlled by a selector valve assembly to operate three vacuum motors. The motors control the movement of:

- The outside-recirc door
- The panel-floor door
- The panel-defrost door

DESCRIPTION AND OPERATION (Continued)

Heater System Vacuum Schematic and Selector Test



VACUUM PORT	FUNCTION	SELECTION						
		OFF	DEFROST	FLOOR — PANEL (MX)	FLOOR	FLOOR — PANEL (HI-LO)	PANEL	RECIRC.
1	Outside — Recirc.	V	NV	NV	NV	NV	NV	V
2	Full Floor	NV	NV	NV	V	NV	NV	NV
3	Floor — Panel (Partial)	NV	NV	V	V	V	NV	NA
4	Panel — Defrost	NV	NV	NV	NV	V	V	V
5	Source	V	V	V	V	V	V	V
6	Plugged	—	—	—	—	—	—	—

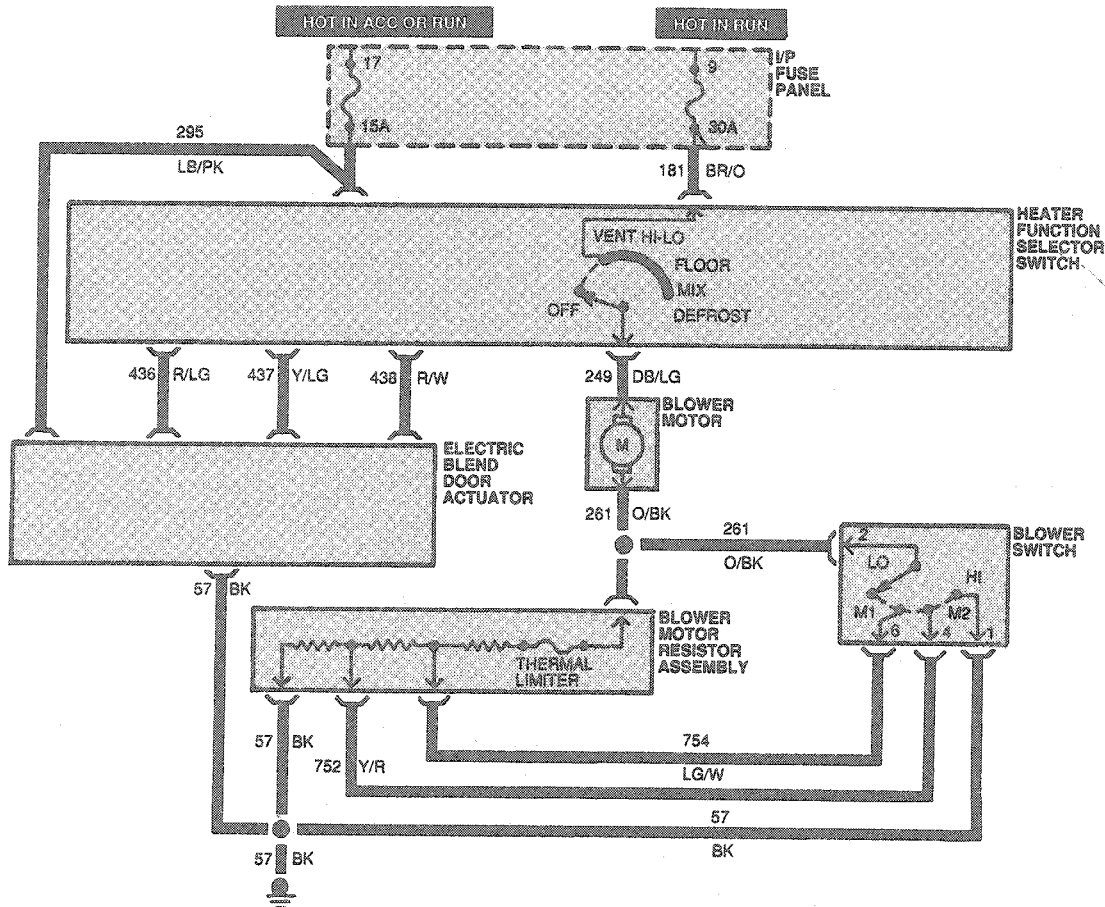
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**DESCRIPTION AND OPERATION (Continued)**

The panel-floor door vacuum motor has two vacuum lines. When vacuum is applied to both lines, the door moves to its full vacuum position. When vacuum is applied to the blue line only, the door moves to a partial vacuum position. If it is applied to the red line only (or neither line) the door will assume a no vacuum position.

The following illustration shows the system electrical wiring diagram and provides charts which contain some test data.

**Heater System Electrical Wiring Diagram**



L8227-A

**Safety Precautions**

Whenever components in the engine compartment or instrument panel areas are being serviced, the battery ground cable must be disconnected to eliminate the possibility of electrical shorts, burned-up wiring, and dangerous fires. Extreme care must be exercised when performing electrical tests where the battery must be connected to operate the system.

**WARNING: CARBON MONOXIDE IS COLORLESS, ODORLESS AND DANGEROUS. IF IT IS NECESSARY TO OPERATE THE ENGINE WITH THE VEHICLE IN A CLOSED AREA SUCH AS A GARAGE, ALWAYS USE AN EXHAUST COLLECTOR TO VENT THE EXHAUST GASES OUTSIDE THE CLOSED AREA.**

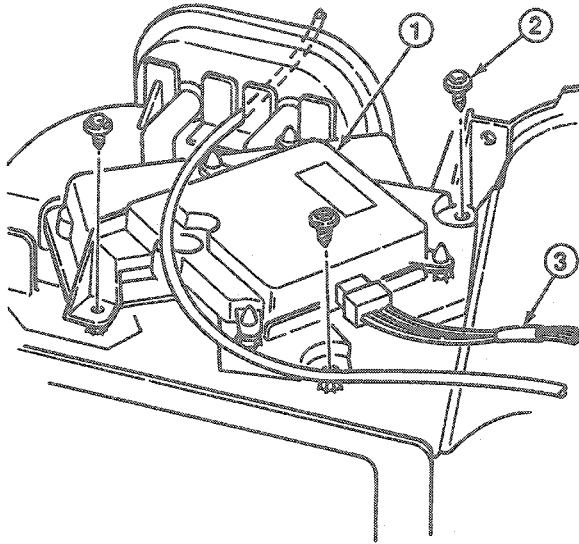
**Components**

**Control Assembly**

The control assembly consists of three main parts: 1) the function selector—a vacuum selector valve combined with an internal electrical switch; 2) blower switch—an electrical switch that provides four speeds of blower operation, and 3) the temperature control knob which connects through an electric actuator to the temperature blend door of the plenum assembly.

## DESCRIPTION AND OPERATION (Continued)

## Electric Blend Door Actuator



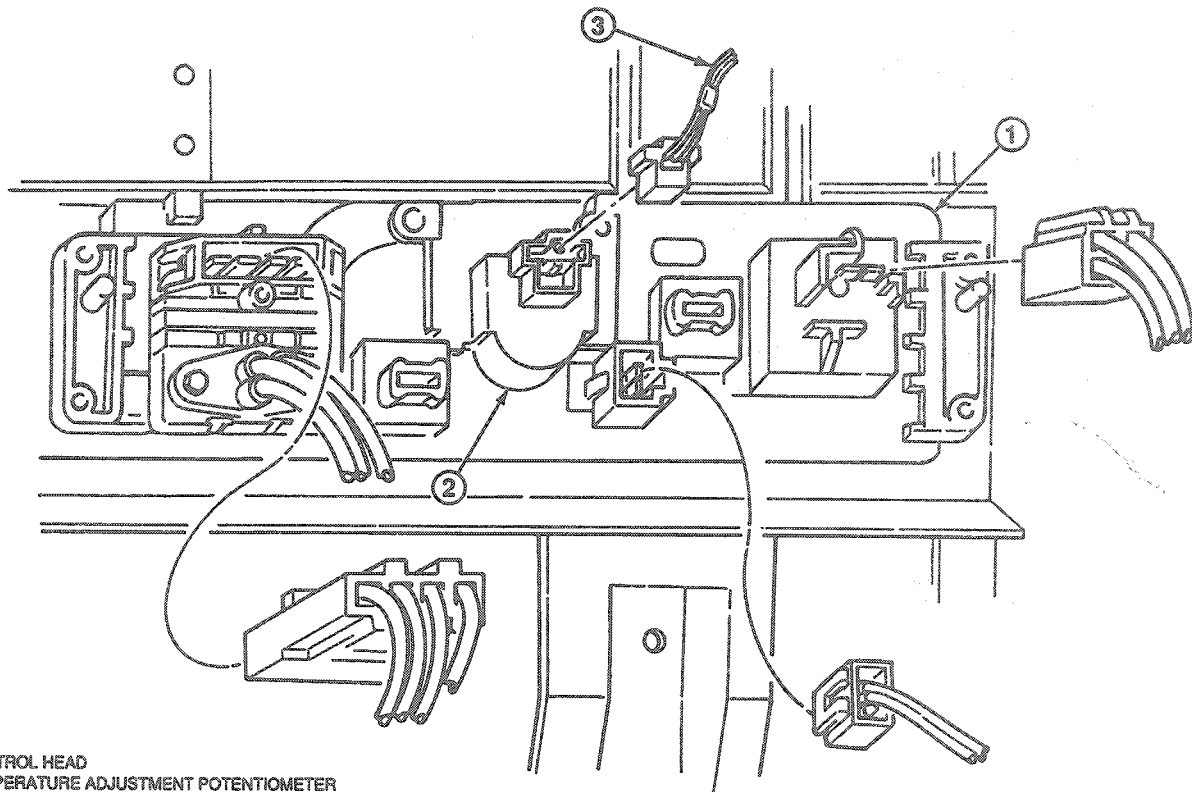
1. BLEND DOOR ACTUATOR
2. ACTUATOR TO EVAPORATOR CASE MOUNTING SCREWS
3. JUMPER HARNESS FROM 14401 WIRING

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1. The vacuum selector valve directs source vacuum to various vacuum motors. One internal single-pole electrical switch is also controlled by the selector. The internal electrical switch controls the electrical supply to the blower switch (refer to Heater System Electrical Wiring Diagram).
2. The four-speed blower switch controls blower speed and is manually set to select the desired airflow.
3. The temperature control knob (temperature adjustment potentiometer) is connected to the temperature blend door by an electric actuator. Movement of the control knob from COOL to WARM causes a corresponding movement on the temperature blend door and determines the temperature that the system will maintain.

## DESCRIPTION AND OPERATION (Continued)

## Temperature Adjustment Potentiometer



1. CONTROL HEAD
2. TEMPERATURE ADJUSTMENT POTENTIOMETER
3. FROM 14401 WIRING HARNESS

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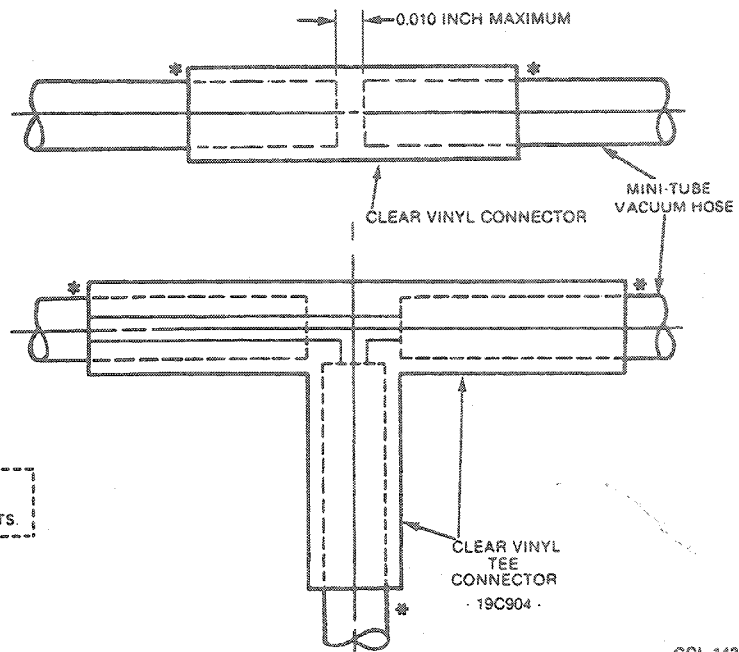
**Mini-Tube Vacuum Hoses**

Mini-tube vacuum hoses are used in the vacuum harness assemblies. They provide greater flexibility with less tendency to collapse and are less susceptible to pinching. Service is easily performed using a short piece of standard 3mm (1/8 inch) ID vacuum hose and inserting the cut ends of the mini-tube into the ends of the standard 3mm (1/8 inch) ID vacuum hose. Refer to Adjustments.



## DESCRIPTION AND OPERATION (Continued)

## Mini-Tube Vacuum Hose Service



\*DIP THE MINI-TUBE HOSE ENDS IN TETRA HYDRO FURAN (THF) OR METHYL ETHYL KETONE (MEK) TO ACT AS SOLVENT AND SEAL THE REPAIR JOINTS.

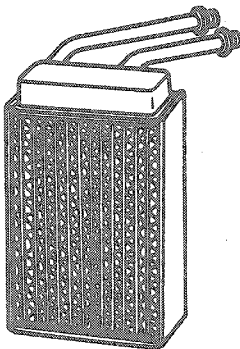
ALL PASSAGES MUST BE CLEAN AND FREE OF OBSTRUCTION

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## Heater Core

The heater core consists of a number of fins, and tubes in a geometry to extract available heat from the engine coolant and transfer that heat to the air that passes through the core.

## Heater Core



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## Register Assemblies

The register assemblies have retaining pins on each end of the louver assembly that lock into pivot holes in the register housing. The housings are an integral part of the instrument panel applique assembly. The applique panel has four flexible tabs (two on top and two on the bottom) that lock the housing into the instrument panel. The louver assembly swivels, directing outlet air up or down while the louvers allow side-to-side air distribution.

A knob located on the LH front of the register assembly controls an air outlet shutoff door installed in the register housing assembly.

## REMOVAL AND INSTALLATION

## Instrument Panel

Refer to Section 01-12 for instrument panel removal and installation procedures.

## Control Assembly

## Removal

1. Disconnect battery ground cable.
2. Remove four screws attaching control assembly to instrument panel.
3. Pull control assembly from instrument panel opening and disconnect wire connectors from control assembly.
4. Disconnect vacuum harness and wire connectors from control assembly. Discard pushnuts used to retain vacuum harness.

## Installation

1. Connect wire connectors and vacuum harness to control assembly using new pushnuts.

**CAUTION:** Push on vacuum harness retaining nut. Do not attempt to screw onto post.

**REMOVAL AND INSTALLATION (Continued)**

2. Position control assembly to instrument panel opening and install four retaining screws.
3. Connect battery ground cable.
4. Check system for proper operation.

2. Position vacuum selector switch on control assembly bracket.
3. Install screw attaching vacuum switch to control assembly.

**Blower Switch****Removal**

1. Remove control assembly from instrument panel as outlined.
2. Remove switch knob.
3. Remove screw (from underside of control assembly) which attaches the switch to control assembly.
4. Disconnect wire connectors from switch and remove switch.

**Installation**

1. Position switch on control assembly.
2. Install screw to attach switch to control assembly.
3. Connect wire harness connector to switch.
4. Install control assembly in instrument panel.
5. Place switch knob on switch shaft and push knob all the way on.
6. Connect battery ground cable.
7. Check system for proper operation.

**Louver Assembly**

All louver assemblies can be removed by rotating the assemblies downward and pulling outward. The RH instrument panel applique can be removed by inserting a flat-blade screwdriver under the retaining tabs and pulling outward.

**Heater Case Assembly****Removal**

1. Disconnect battery ground cable.
2. Drain coolant from radiator into a clean container.
3. Disconnect heater hoses from heater core. Plug heater core tubes or blow any coolant from heater core with low-pressure air.
4. Disconnect vacuum supply hose from in-line vacuum check valve in engine compartment.
5. Remove instrument panel. Refer to Section 01-12.
6. Remove screw holding instrument panel shake brace to heater case. Remove instrument panel shake brace.
7. Remove floor register and rear floor ducts from the bottom of heater case.
8. Remove three nuts attaching heater case to dash panel in engine compartment.
9. Remove two screws attaching brackets to cowl top panel.
10. Carefully pull heater assembly away from dash panel and remove heater from vehicle.

**Vacuum Selector Switch****Removal**

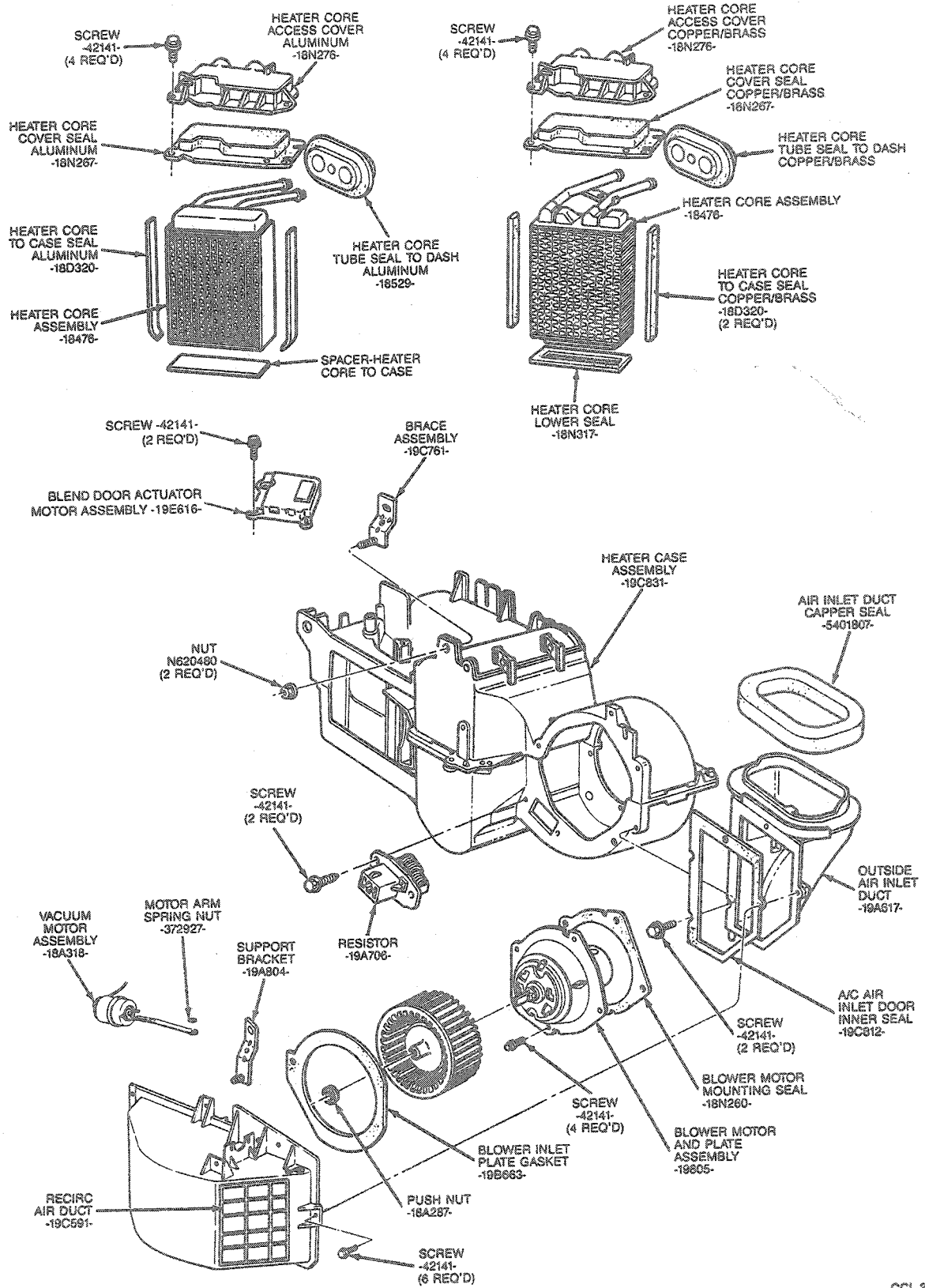
1. Remove control assembly from vehicle.
2. Pull knob off function selector shaft.
3. Remove screw attaching vacuum switch to control assembly and remove vacuum selector switch.

**Installation**

1. Rotate function selector shaft to OFF position.

### REMOVAL AND INSTALLATION (Continued)

#### Heater Case Assembly



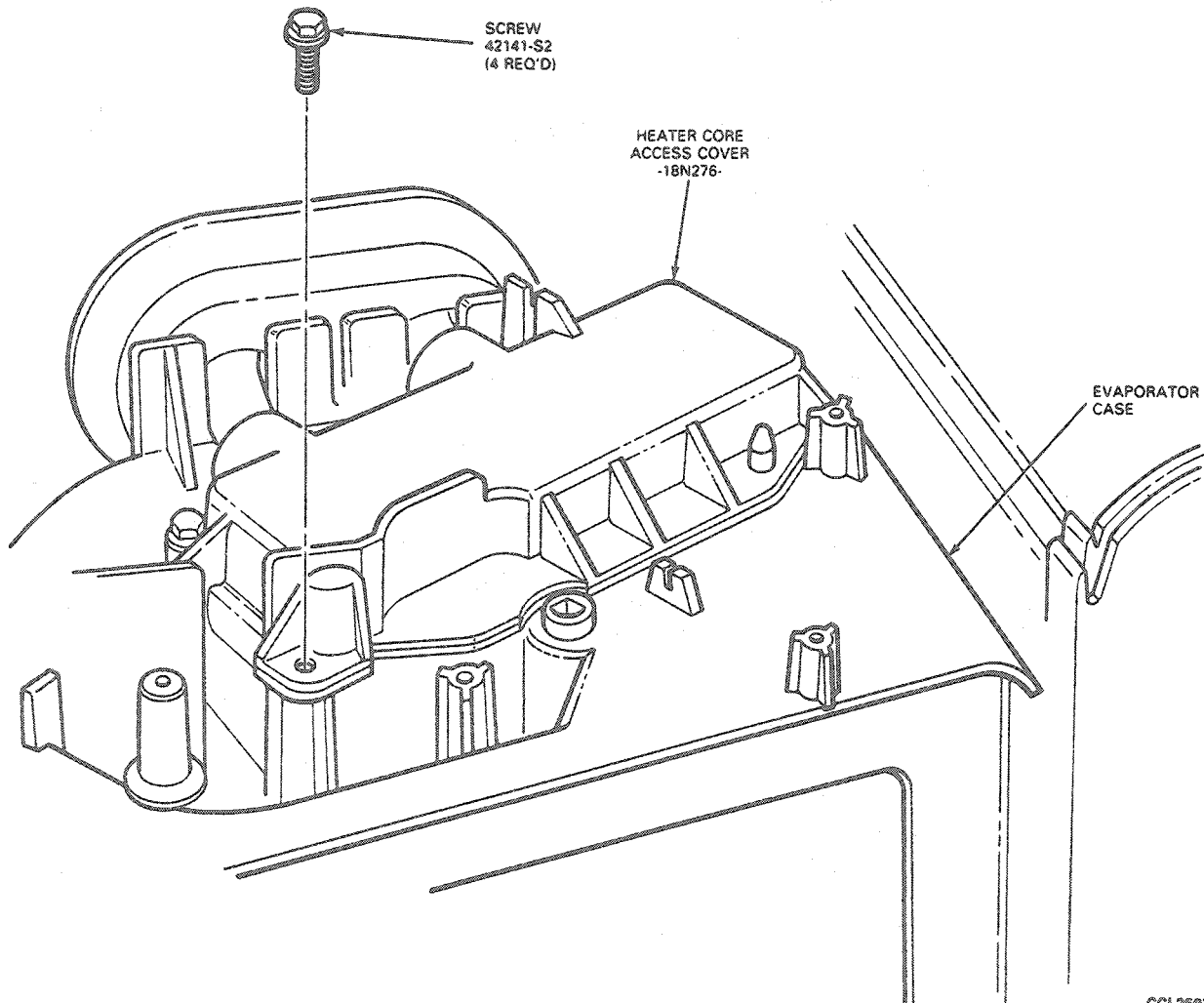
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**REMOVAL AND INSTALLATION (Continued)****Installation**

1. Position heater case assembly to dash panel and cowl top panel at air inlet opening. Install two screws to attach support brackets to cowl top panel.
2. Install three nuts in engine compartment to attach heater case to dash panel.
3. Install floor register and rear floor ducts on the bottom of the heater case.
4. Install instrument panel shake brace and screw to heater case.
5. Install instrument panel as outlined.
6. Connect heater hoses to heater core.
7. Connect black vacuum supply hose to vacuum check valve in engine compartment.
8. Fill radiator to correct level with previously removed coolant or specified mixture of coolant and water.
9. Connect battery ground cable.
10. Check system for proper operation.

**Heater Core****Removal**

1. Remove instrument panel and lay it on front seat.
2. Remove heater case assembly as outlined.
3. Remove vacuum source line from heater core tube seal.
4. Remove seal from heater core tubes (refer to Heater Case Assembly).
5. Remove four heater core access cover retaining screws and remove access cover from heater case.

**Heater Core Access Cover Retaining Screws**

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**REMOVAL AND INSTALLATION (Continued)**

6. Lift heater core and seals from heater case.

**Installation**

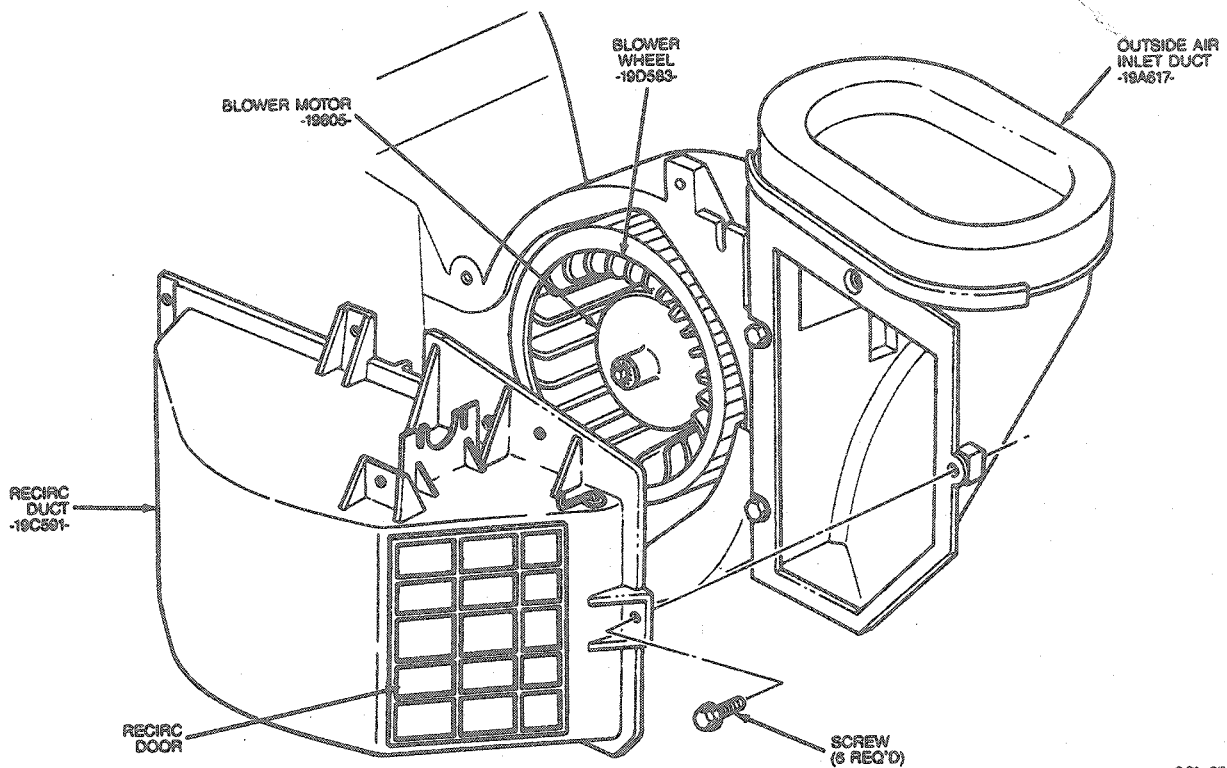
1. Transfer three foam core seals to new heater core.
2. Install heater core and seals into heater case.

3. Position heater case access cover on heater case. Install four retaining screws.
4. Install seal on heater core tubes.
5. Install vacuum source line through heater core tube seal.
6. Install heater case assembly into vehicle as outlined.

**Recirc Duct Assembly****Removal**

1. Open glove compartment door and release retainers, lowering door.

2. Remove screw attaching recirc duct support bracket to cowl.
3. Remove vacuum connection to recirc door vacuum motor.
4. Remove six screws attaching recirc duct to heater assembly.

**Recirc Duct-to-Heater Assembly Attachment**

CCL 2368-8

5. Remove recirc duct from heater assembly, lowering recirc duct from between instrument panel and heater case.

**Installation**

1. Install recirc duct to heater, lifting recirc duct between instrument panel and heater case.
2. Install six screws retaining recirc duct to heater case.
3. Install vacuum connector to recirc door vacuum motor.

4. Install screw attaching support bracket to cowl.
5. Close glove compartment.

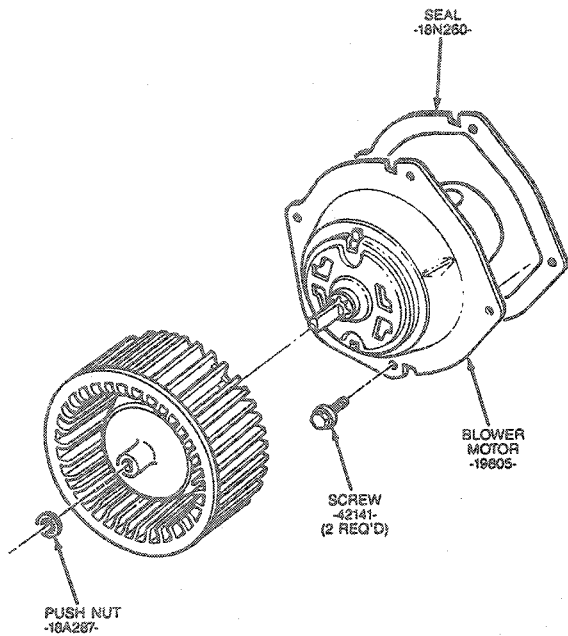
**Blower Motor and Wheel Assembly****Removal**

1. Remove recirc duct assembly from vehicle.
2. Disconnect blower electrical lead.

## REMOVAL AND INSTALLATION (Continued)

3. Remove blower wheel pushnut and blower wheel.
4. Remove four blower motor mounting plate screws. Remove blower motor from evaporator case.

## Blower Motor and Motor Mounting Plate



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## Installation

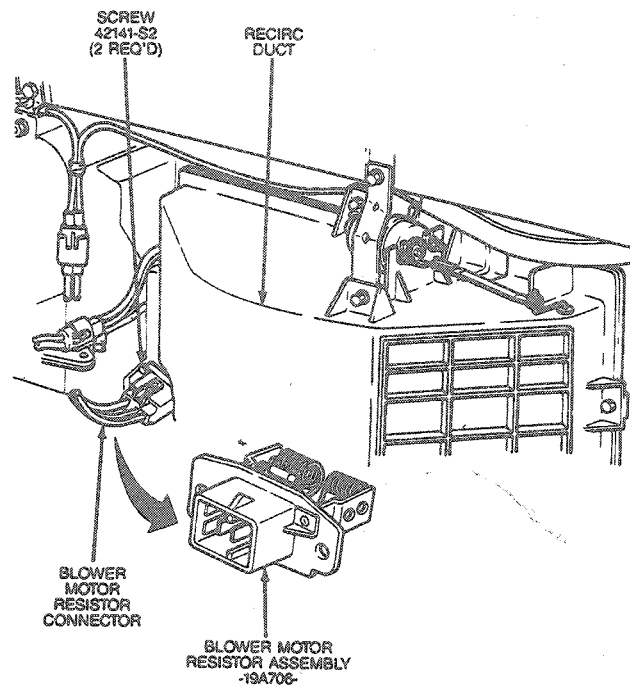
1. Assemble blower motor electrical lead through evaporator case.
2. Position blower motor into evaporator. Install four retaining screws.
3. Assemble blower wheel to blower motor shaft aligning the flat on the shaft with the flat on the inside diameter of the blower wheel hub. Slide the blower wheel onto the blower motor shaft until the wheel is fully seated.
4. Install a new pushnut on the blower motor shaft to retain the wheel.
5. Connect wiring harness to blower motor.
6. Install recirc duct assembly in vehicle.

## Blower Motor Resistor

## Removal and Installation

The blower motor resistor and thermal limiter assembly is installed on the passenger side of the heater case behind the glove compartment. Use only the specified resistor assembly for service replacement. Do not apply sealer to the resistor board mounting surface.

## Blower Motor Resistor



CCL 2600-B

1. Open glove compartment and release glove compartment retainers so that glove compartment hangs down.
2. Disconnect wire harness connector from resistor assembly.
3. Remove two resistor retaining screws and remove resistor from heater case.
4. To install, position resistor assembly in heater case opening and install two retaining screws. Do not apply sealer to resistor assembly mounting surface.
5. Connect wire harness connector to resistor.
6. Check operation of blower motor.
7. Close glove compartment.

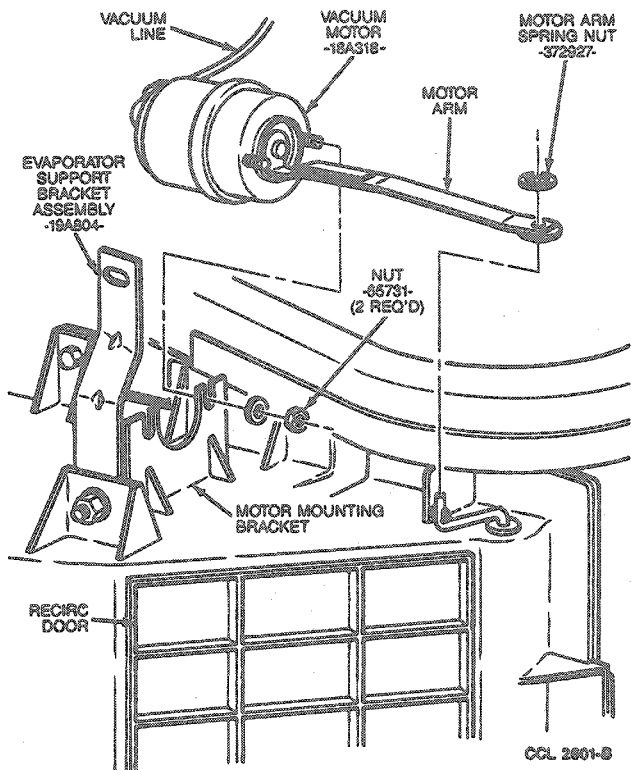
## Outside-Recirc Door Vacuum Motor

## Removal

1. Lower glove compartment door to provide access to recirc duct assembly.
2. Disconnect vacuum hose from end of vacuum motor.
3. Remove motor arm retainer from door crank arm.

## REMOVAL AND INSTALLATION (Continued)

## Motor Arm Retainer and Screw Removal



4. Remove two nuts retaining vacuum motor to recirc duct and remove motor.

## Installation

1. Position vacuum motor to outside-recirc door crank arm. Position motor to recirc duct and install two retaining nuts.
2. Install retainer on door crank arm.
3. Connect white vacuum hose to vacuum motor and check operation of vacuum motor.
4. Lift glove compartment into position.

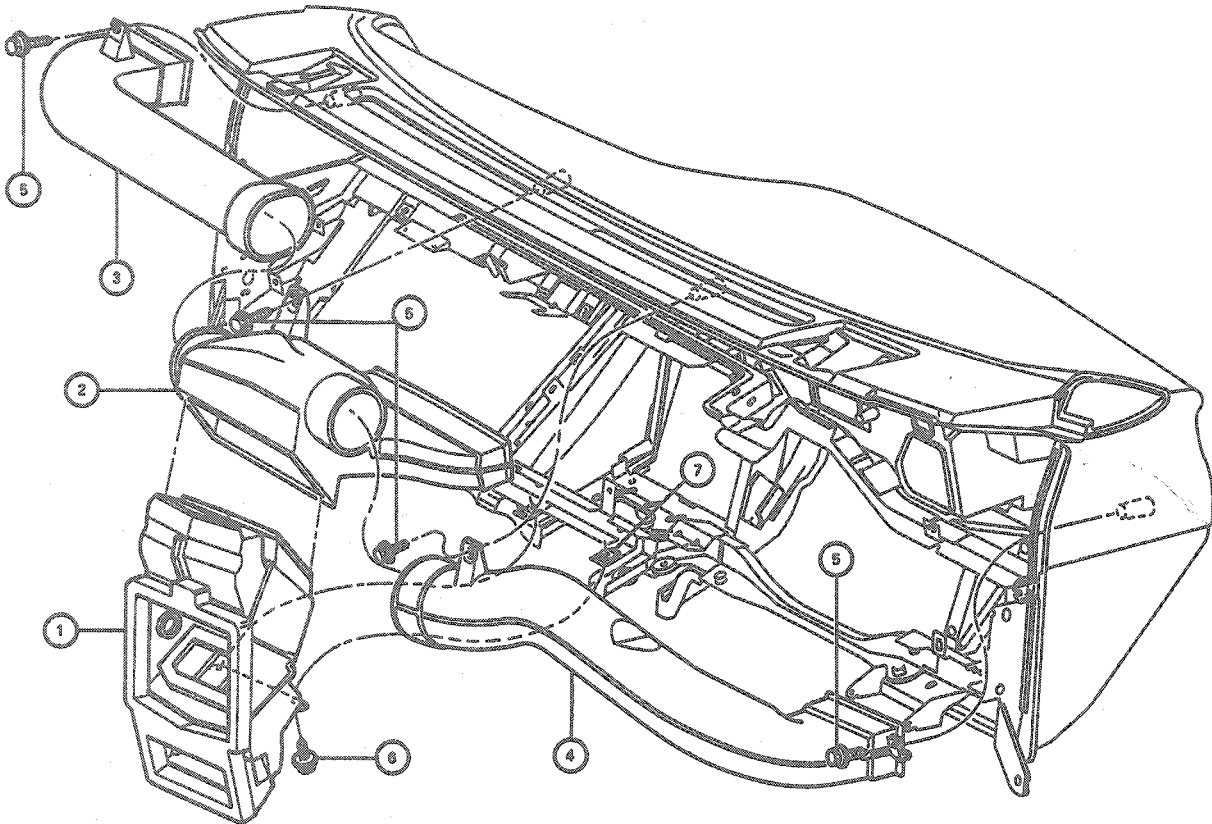
## Plenum Chamber and Duct Assembly

## Removal and Installation

1. Remove instrument panel. Refer to Section 01-12.
2. Remove two screws retaining plenum to instrument panel. Remove screw retaining defroster nozzle to plenum.
3. Disconnect vacuum hose connector retaining defroster nozzle.
4. Disconnect demister hoses.
5. Remove plenum chamber.
6. To install, reverse Removal procedure.

## REMOVAL AND INSTALLATION (Continued)

## Plenum Chamber — Taurus



## ITEM DESCRIPTION

1. A/C PLENUM ASSY - 19740
2. A/C I/P CENTER LH REGISTER DUCT ASSY - 19C805
3. A/C I/P RH REGISTER DUCT ASSY - 19B880
4. A/C I/P LH REGISTER DUCT ASSY - 19A843

## ITEM DESCRIPTION

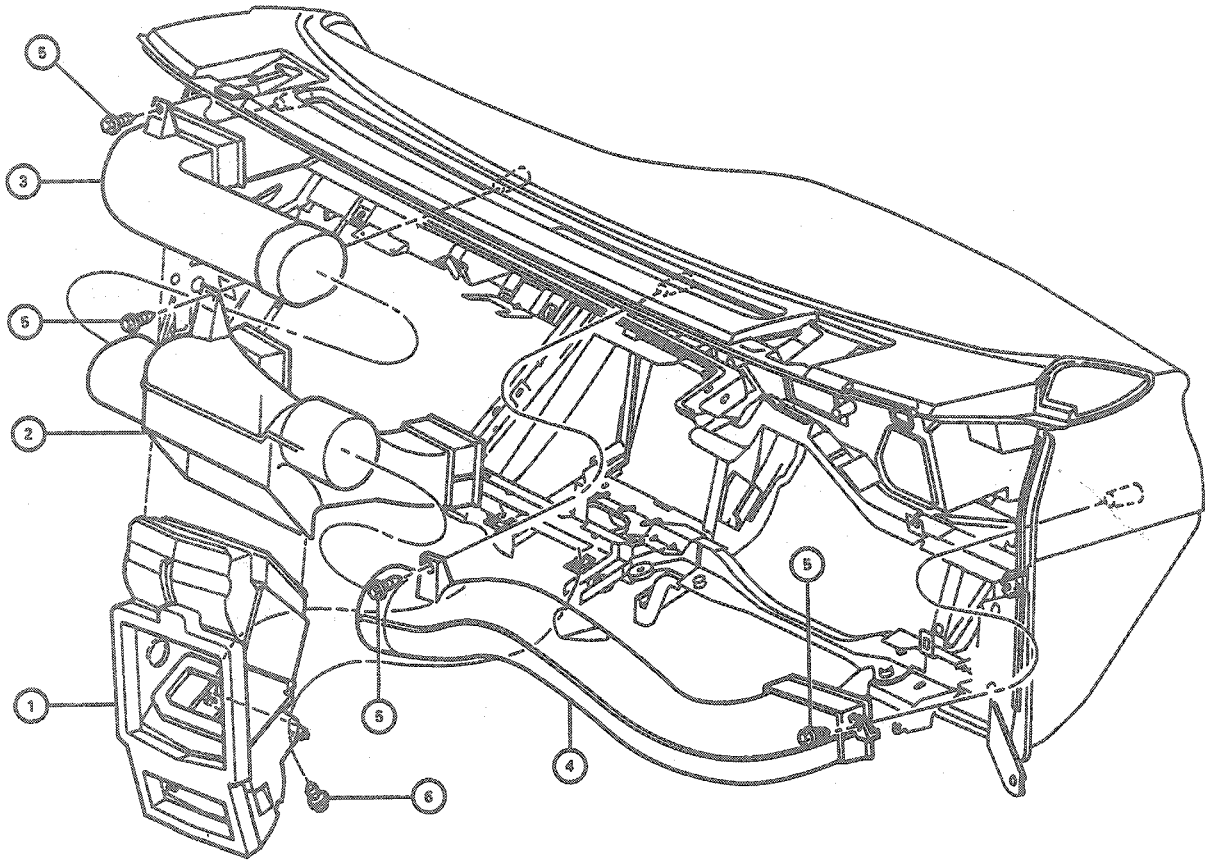
5. SCREW - N803875-S36 (4 REQ'D)
6. SCREW - N803876-S36B (2 REQ'D)
7. SPRING NUT P.I.A. INSTRUMENT PANEL

CCL 3708-A



## REMOVAL AND INSTALLATION (Continued)

## Plenum Chamber and Duct Assembly — Sable



## ITEM DESCRIPTION

1. PLENUM ASSY - 19740
2. LH CENTER IP REGISTER DUCT ASSY - 19C805
3. RH IP REGISTER DUCT ASSY - 19B690

## ITEM DESCRIPTION

4. LH IP REGISTER DUCT ASSY - 18A843
5. SCREW - N803875-S36 (4 REQ'D)
6. SCREW - N803876-S36B (2 REQ'D)

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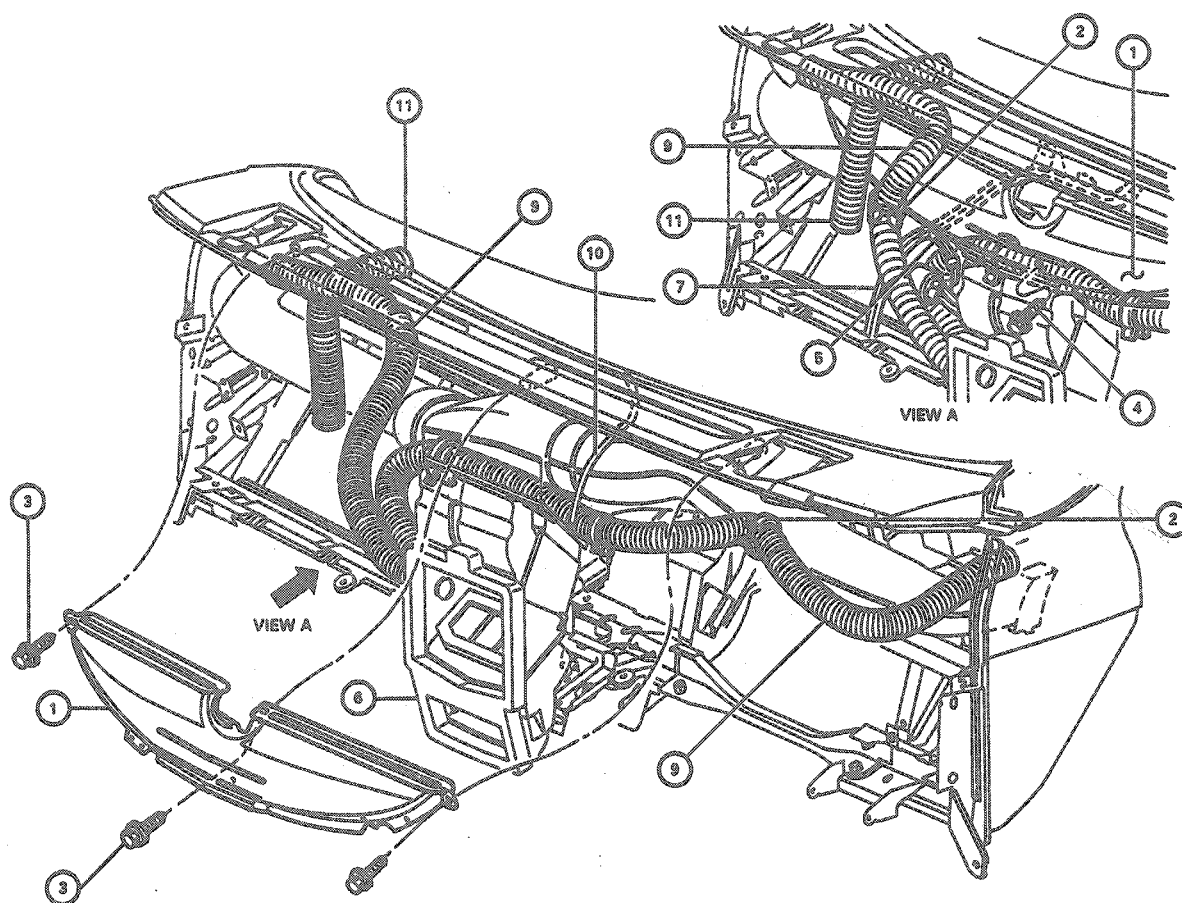
**Defroster Nozzle****Removal and Installation**

1. Remove instrument panel. Refer to Section 01-12.
2. Disconnect vacuum hose from retaining tab on defroster assembly.
3. Lower plenum chamber by loosening the two screws retaining it to instrument panel and screw retaining it to plenum.

4. Remove screw retaining defroster nozzle to plenum.
5. Remove three screws retaining defroster nozzle to instrument panel.
6. Disconnect LH demister hose from defroster nozzle and both RH hoses from plenum.
7. To install, reverse Removal procedure.

## REMOVAL AND INSTALLATION (Continued)

## Defroster Nozzle and Demister Hoses



ITEM	DESCRIPTION
1.	NOZZLE ASSY - 19D733
2.	CLIP - 19B632 (4 REQ'D)
3.	SCREW - N603875-S36 (3 REQ'D)
4.	SCREW - 361601-S2 OR N603818-S55
5.	STRAP - 9B674-S
6.	PLENUM CHAMBER

ITEM	DESCRIPTION
7.	VACUUM HARNESS P.I.A. CONTROL ASSY
8.	TAB PART OF CENTER DUCT
9.	DEMISTER & HOSE ASSY P.I.A. INSTRUMENT PANEL
10.	CABLE ASSY - 19D674
11.	TEMP CONTROL HOSE - 19D888

CCL 3710-A

**Demisters and Demister Hoses****Removal and Installation**

Refer to Defroster Nozzle and Demister Hoses illustration.

1. Remove instrument panel, resting it against front seat. Refer to Section 01-12.
2. Disconnect vacuum hose connector from vacuum harness where it is clipped to defroster nozzle.
3. Loosen two retaining screws to lower A/C plenum chamber from instrument panel.
4. Remove screw retaining defroster nozzle to plenum.

5. Remove three screws retaining defroster nozzle to instrument panel.
6. Disconnect LH demister hose from LH duct clip, two clips on center duct and RH side of plenum. Disconnect RH hose from clip on defroster nozzle and RH side of plenum chamber. Remove each hose from demister by rotating clockwise to remove the barb on demister.
7. Remove two screws holding demister assembly to instrument panel and from front side of instrument panel.
8. To install, reverse Removal procedure.

**REMOVAL AND INSTALLATION (Continued)****Floor Air Distribution Duct****Front Heater****Removal and Installation**

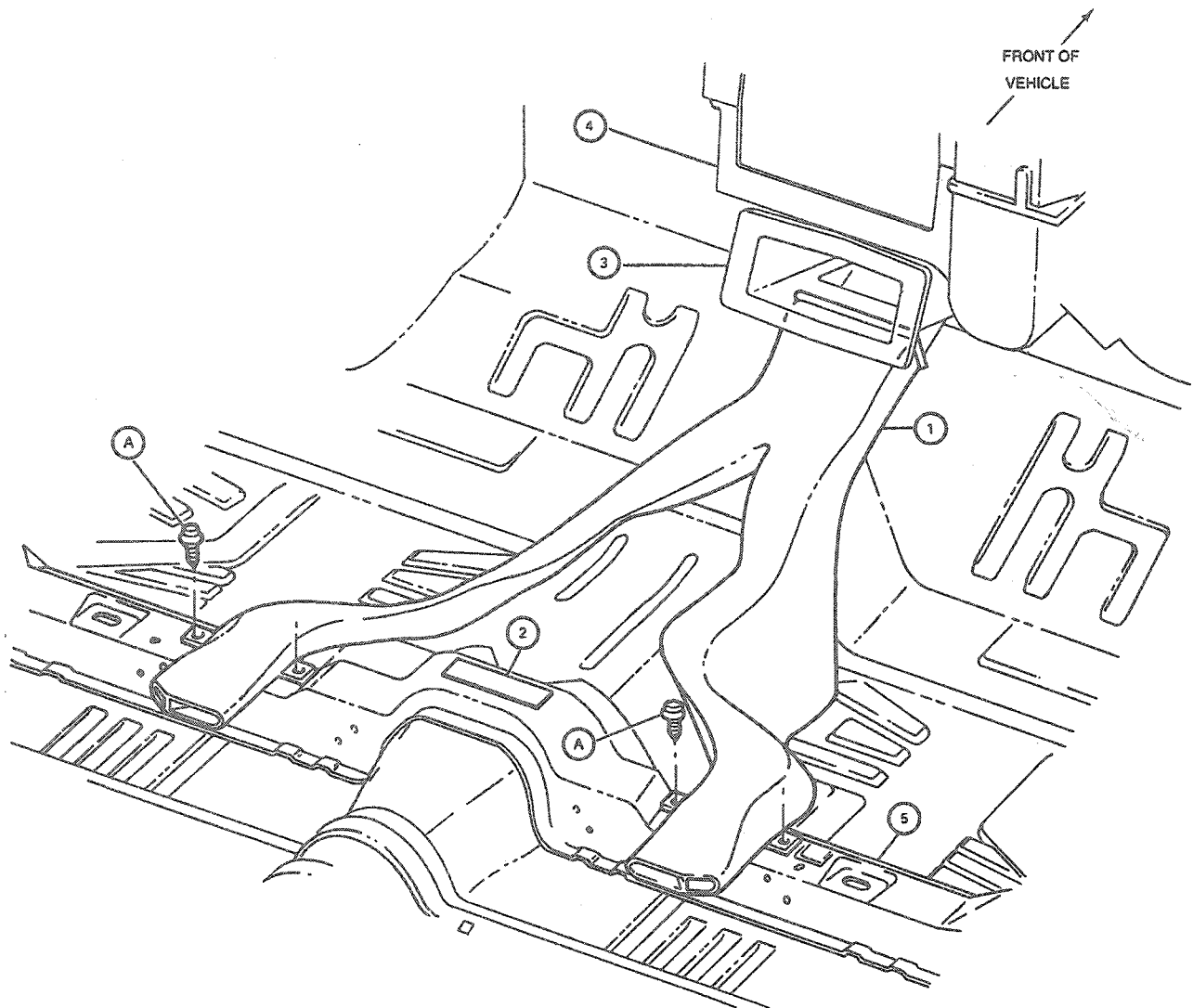
1. Remove two screws attaching duct to evaporator case assembly just below heat distribution duct.
2. Pull floor air distribution duct away from evaporator case.
3. To install, position duct to evaporator case. Ensure retainer at forward edge of duct is inserted over edge of opening in evaporator case. Install retaining screws.

**Floor Heater System****Removal and Installation**

1. Remove carpet.
2. Remove nut holding rear duct on tunnel.
3. Remove two screws attaching floor duct to evaporator case assembly.
4. Pull floor duct away from evaporator case assembly.
5. Pull floor duct away from evaporator case.
6. To install duct, reverse Removal procedure.

## REMOVAL AND INSTALLATION (Continued)

## Heater Duct — Rear Seat



E3D64201/PMD/910622

- 1 -18C4640- DUCT ASY-HEATER  
REAR SEAT OUTLET
- 2 ESB-M3G58-A TAPE  
7.00 LONG X 2.00 WIDE
- 3 18C422 ADAPTER ASY FOR INSTALLATION,  
SEE PAGE 650-01
- 4 19B555 EVAPORATOR AND BLOWER ASY  
FOR INSTALLATION SEE PAGE 650-1
- 5 REF CROSS MEMBER
- A N800500-S2 SCREW, 4 REQD

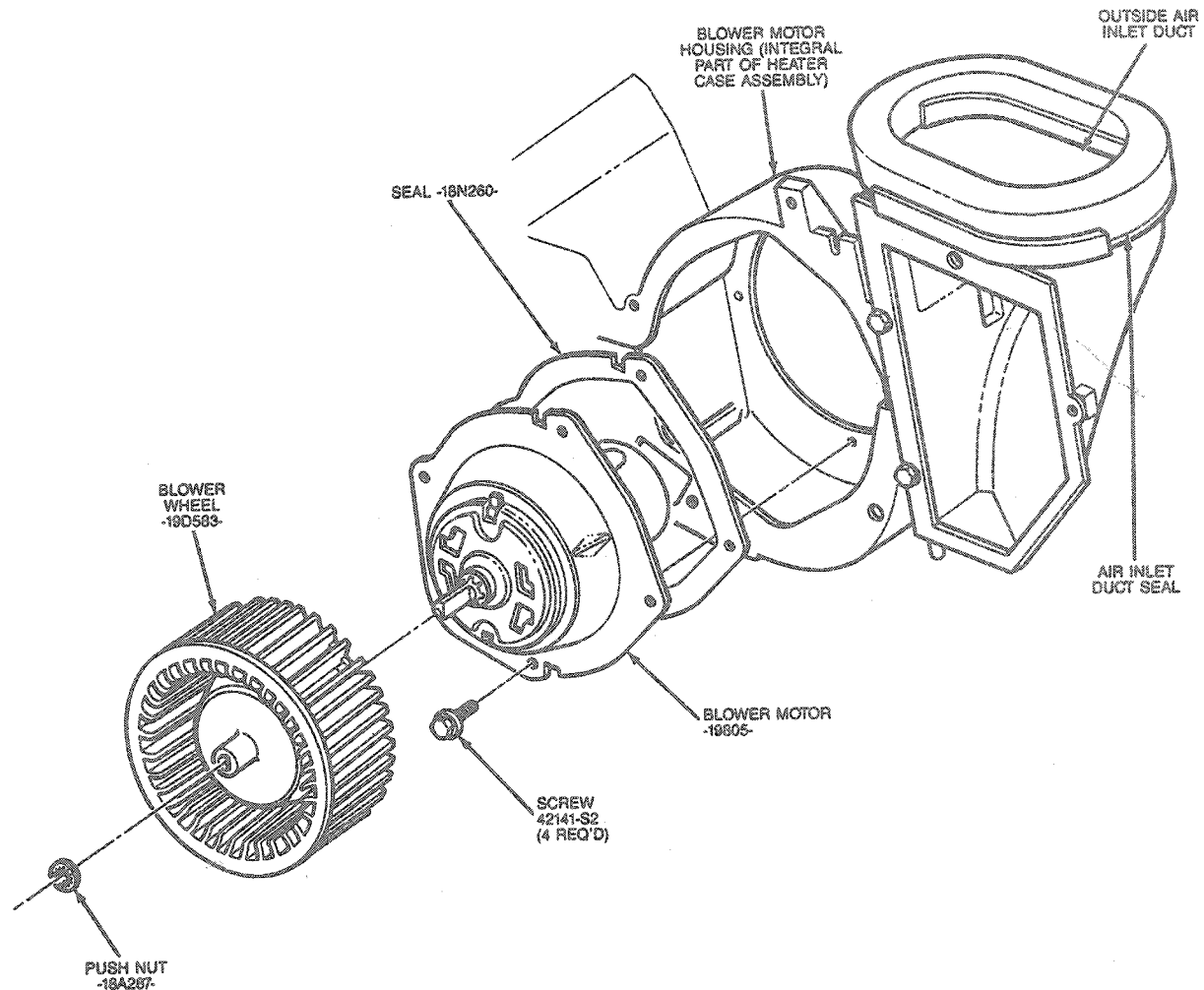
CCL 3785-A

## REMOVAL AND INSTALLATION (Continued)

### Air Inlet Duct and Blower Housing Assembly—Disassembled View

The following illustration shows the components of the air inlet duct and blower housing assembly.

### Air Inlet Duct and Blower Housing Assembly—Disassembled View



CCL 2604-C

### Floor-Panel Door Vacuum Motor

#### Removal

1. Remove instrument panel, resting it against front seat. Refer to Section 01-12.
2. Remove heater case assembly as outlined.
3. Remove two nuts retaining motor to bracket on RH side of plenum and disconnect vacuum hoses.
4. Disconnect arm from pivot shaft on plenum.
5. Remove motor.

#### Installation

1. Position motor to bracket and secure with two nuts.

2. Connect vacuum hose to motor.
3. Install motor arm and clip.
4. Install heater case assembly as outlined.
5. Install instrument panel. Refer to Section 01-12.

### Panel-Defrost Door Vacuum Motor

#### Removal

1. Disconnect battery ground cable.
2. Remove instrument panel. Refer to Section 01-12.

## REMOVAL AND INSTALLATION (Continued)

3. Depress retaining tabs and disconnect vacuum motor arm from door shaft.
4. Remove two screws retaining vacuum motor to mounting bracket.
5. Remove vacuum motor from mounting bracket and disconnect vacuum hose.

### Installation

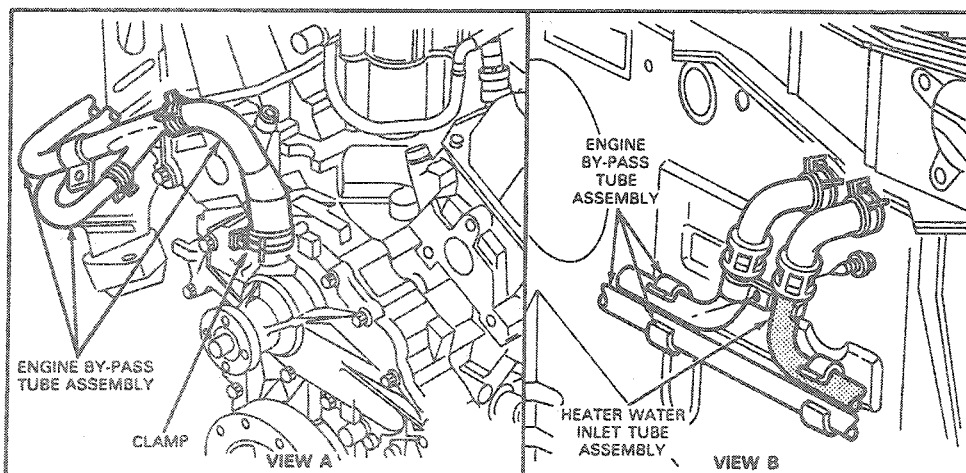
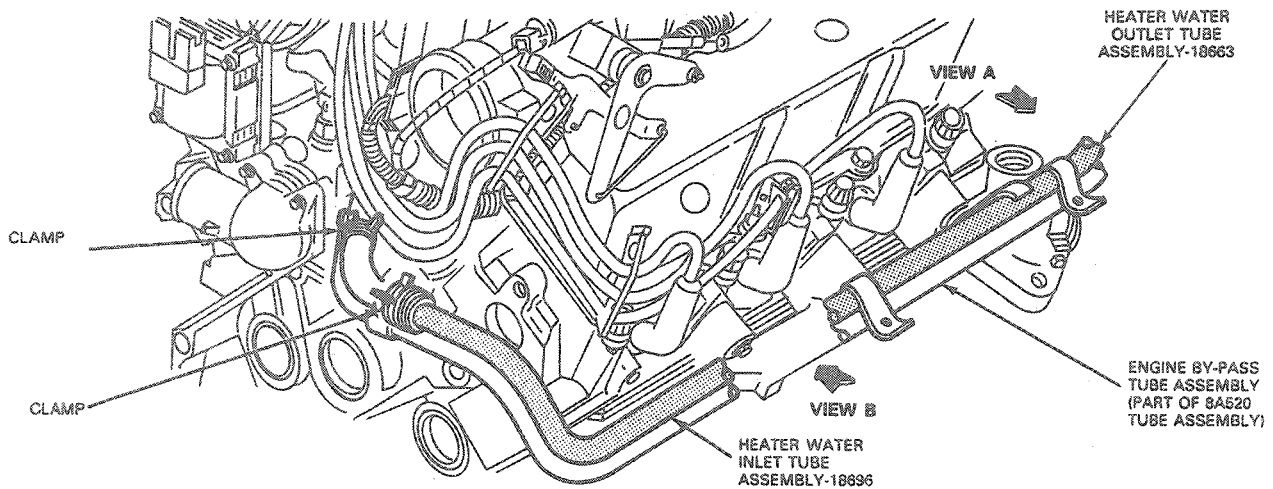
1. Position vacuum motor to mounting bracket and door shaft.
2. Install two screws attaching panel-defrost vacuum motor to mounting bracket.
3. Connect vacuum hose to defrost vacuum motor.
4. Install instrument panel.
5. Connect battery ground cable.

### Heater Hoses

**CAUTION:** Ensure replacement heater hose is made of EPDM and Nomex materials. Hoses made of other materials may not be suitable for this application.

Refer to the following illustrations for heater hose installation.

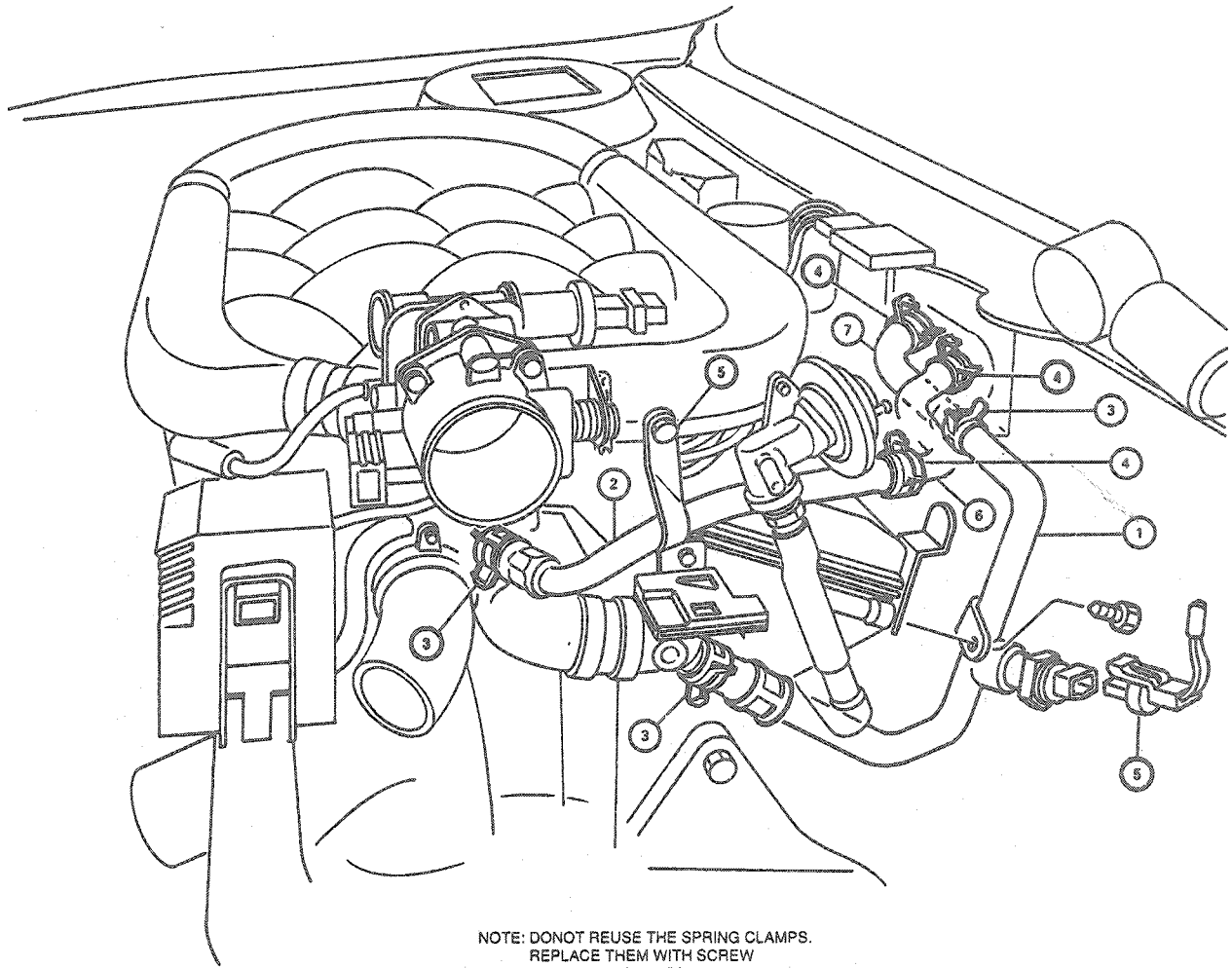
#### Heater Hose Installation, 3.0L with Manual A/C-Heater



CCL 2772-D

## REMOVAL AND INSTALLATION (Continued)

## Heater Hose Installation, 3.2L SHO with EATC



NOTE: DONOT REUSE THE SPRING CLAMPS.  
REPLACE THEM WITH SCREW  
TIGHTENED CLAMPS.

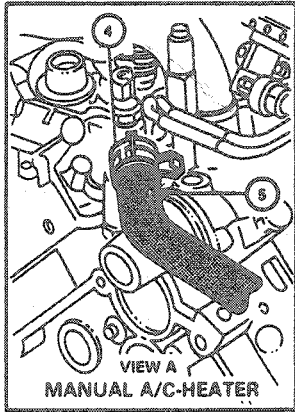
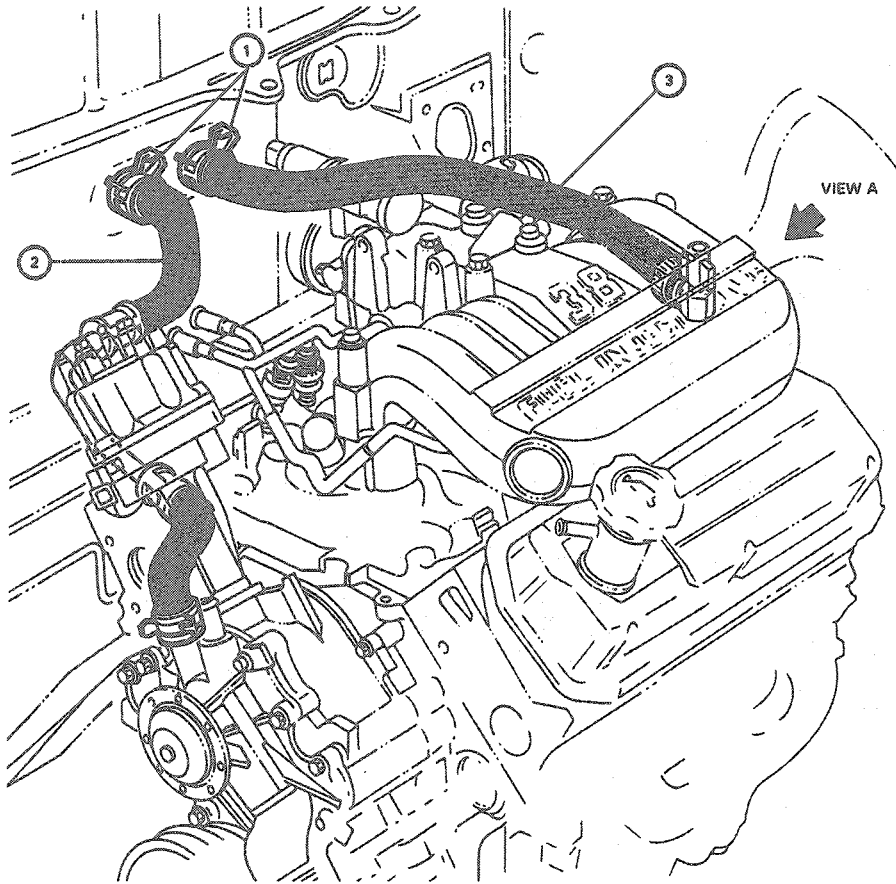
CCL 3544-B

## ITEM DESCRIPTION

1. HEATER INLET HOSE - 18D376
2. HEATER OUTLET HOSE - 18D663
3. SPRING CLAMP
4. SPRING CLAMP
5. WIRING HARNESS - 14401 ASS'Y
6. HEATER OUTLET HOSE - 18D358
7. HEATER INLET HOSE - 18D335

**REMOVAL AND INSTALLATION (Continued)**

**Heater Hose Installation, 3.8L**



- ITEM DESCRIPTION**
- 1. CLAMP - 390761 (2 REQ'D)
  - 2. HEATER OUTLET HOSE - 18D663
  - 3. HEATER INLET HOSE - 18D376 (EATC ONLY)

- ITEM DESCRIPTION**
- 4. CLAMP - 390762 (1 REQ'D)
  - 5. HOSE - 18D334

CCL3029-F

**ADJUSTMENTS**

**Mini-Tube Vacuum Hoses**

**Service**

1. Measure length of damaged area of mini-tube vacuum hose.
2. Cut a piece of standard 3mm (1/8 inch) ID vacuum hose approximately 25mm (1 inch) longer than damaged area of mini-tube vacuum hose.
3. Cut off mini-tube vacuum hose on each side of damaged area.
4. Dip mini-tube hose ends in Tetra Hydro Furan (THF) or Methyl Ethyl Ketone (MEK). This solvent will seal mini-tube in vacuum hose.
5. Insert ends of mini-tube vacuum hose approximately 9mm (3/8 inch) into ends of standard 3mm (1/8 inch) service vacuum hose section.

6. Shake service joint after assembly to ensure solvent is dispersed and vacuum line is not plugged.
7. Test system for a vacuum leak in service area.

**SPECIFICATIONS**

**TORQUE SPECIFICATIONS**

Description	N-m	Lb-In
Heater Hose Clamps	1.81-2.49	17-22
Upper Panel Retaining Screws	1.4-2.3	13-20
Lower Instrument Panel-to-Side Cowl Retaining Screws	7-11	6-8 (Lb-Ft)
Instrument Cluster Finish Panel Retaining Screws	2-2.9	18-25

(Continued)



**SPECIFICATIONS (Continued)**

TORQUE SPECIFICATIONS (Cont'd)		
Description	N-m	Lb-In
Radio Applique Retaining Screws	2-2.9	18-25
Glove Compartment Retaining Screws	2-2.6	18-23
Sound Insulator Retaining Screws	2-2.6	18-23

**SPECIAL SERVICE TOOLS**

ROTUNDA EQUIPMENT	
Model	Description
021-00012	Pressure Tester