

SECTION III

HEAT AND VENTILATING SYSTEM (HVS)—DESCRIPTION

The 240Z "HVS" is of the hot water heater type; the preheated water source being supplied by the engine cooling system. With the heat source in the "OFF" position, the system may be used for compartment fresh air ventilation by induction of outside air.

The system components, compartment, air intake/blower, and heating unit assembly, are mounted under the instrument panel adjacent to the inner firewall. Fresh air is ducted to compartment air outlets in the instrument panel facia, console finisher, and windshield defroster outlets located in the instrument panel, top garnish. (See Fig. III-1.)

The following procedure concerns removal and replacement (R&R) of the components in the immediate area of the instrument panel which have not previously been documented, or which are more readily accessible during R&R of heat and ventilating system components.

NOTE

Complete instructions for operating the heat ventilating system controls are provided in the 240Z OWNERS MANUAL.

A. Removal (Compartment Air Intake/Blower Assembly)

The air intake/blower assembly must be removed to accommodate removal of the heater and console

finisher attachments. Though not a requirement, prior removal of the glove compartment door and liner, as described in Section IV, Paragraph A, will assist visibility and give better access to heat and ventilating system, and other panel components. A complete breakdown of major HVS components and attaching parts is provided in Figure III-2.

1. For reasons of safety, disconnect the battery cable, Positive (+) connection at the battery terminal.

2. Disconnect the defroster ducts (see Figure III-1. Items 1 and 2) at the air outlets.

3. The following instructions, Paragraphs 3a through 3c, pertain to R&R of the blower motor/fan assembly independent of further dismantling of HVS components.

- a. Disconnect the blower motor, electrical power connections (red and black wires).

- b. Using a swivel-socket with extension, remove the three attaching screws from the blower motor mount flange and withdraw the blower motor assembly from the blower housing. (See Figure III-3.)

- c. Replace a defective unit with (Part No. 27070-E 4405) motor and fan.

4. Disconnect the blower motor electrical power connector from the instrument panel wire harness.

5. Disconnect the air vent. control cable at the vent lever terminal on the RH side of the air intake unit, as shown in Figure III-4.

6. The air intake/blower assembly is mounted to the firewall at three points. A fourth mounting point is provided by means of a support bracket suspended from under the cowl. A single attaching screw secures the blower cage and the blower motor

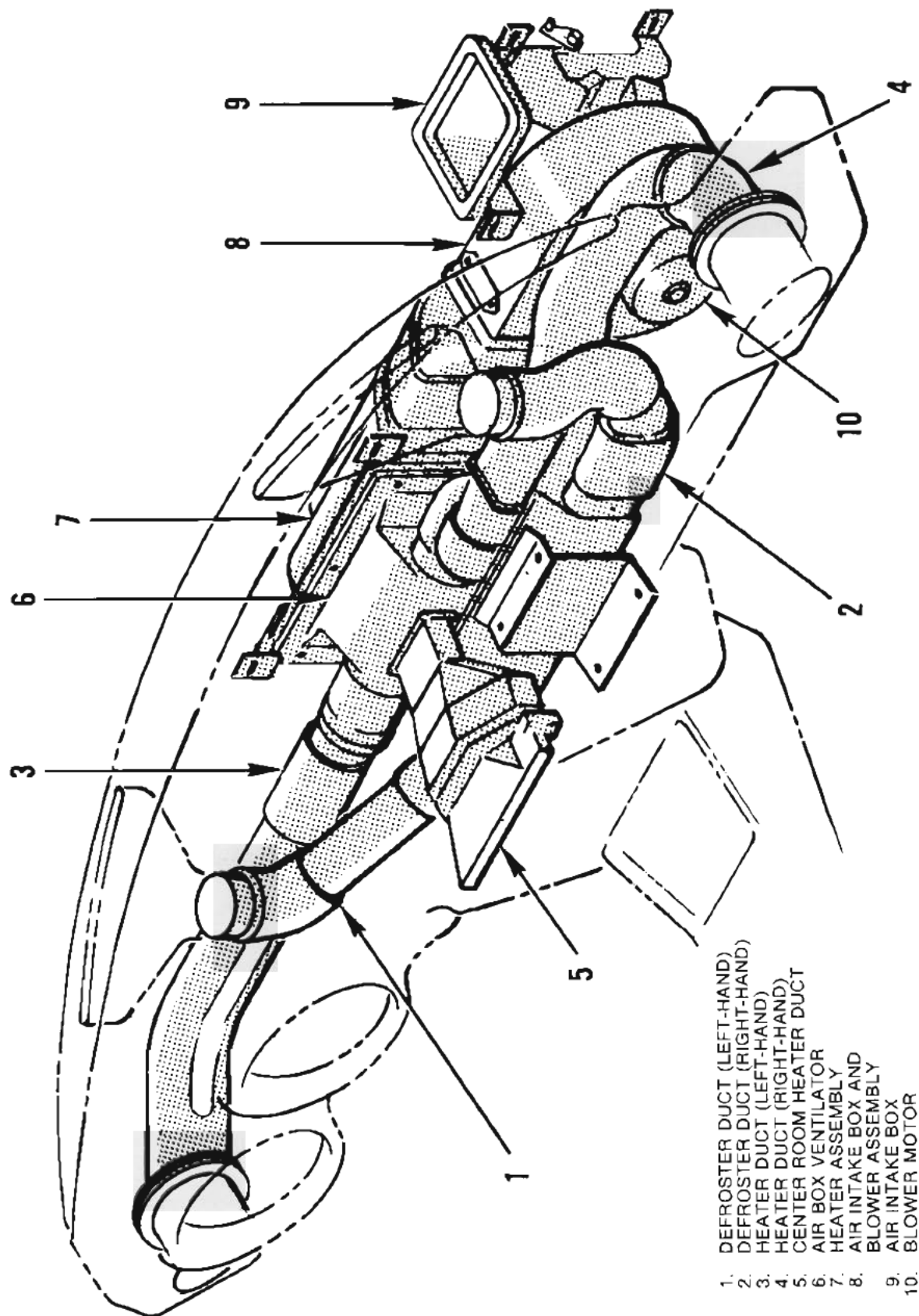


Figure III-1. Heat and Ventilating System (HVS) Installation

- | | | |
|--|---|--------------------------------------|
| 1. HEATER CORE | 19. WASHER | 38. SPRING WASHER |
| 2. HEATER UNIT ASSEMBLY | 20. DEFROSTER DUCT (LEFT-HAND) | 39. BLOWER SWITCH ASSEMBLY |
| 3. VENTILATOR VALVE LEVER | 21. SELF-TAPPING SCREW | 40. SWITCH, WIRE HARNESS ASSEMBLY |
| 4. NUT | 22. WASHER | 41. TEMPERATURE CONTROL CABLE |
| 5. SPRING WASHER | 23. DEFROSTER DUCT (RIGHT-HAND) | 42. ROOM-DEFROST CONTROL CABLE |
| 6. VALVE SPRING SNAP RING | 24. VENTILATOR DUCT ASSEMBLY (RIGHT-HAND) | 43. COMPARTMENT AIR CONTROL CABLE |
| 7. AIR BOX VENTILATOR ASSEMBLY | 25. VENTILATOR DUCT CLAMP | 44. HOT WATER VALVE CONTROL CABLE |
| 8. SCREW | 26. VENTILATOR DUCT ASSEMBLY (LEFT-HAND) | 45. WATER INLET HOSE |
| 9. WASHER | 27. MACHINE SCREW | 46. WATER OUTLET HOSE |
| 10. HEATER MOUNTING SCREW | 28. NUT | 47. HOSE CLAMP |
| 11. WASHER | 29. WASHER | 48. FIREWALL THRU-HOLE GROMMET |
| 12. COMPARTMENT AIR INTAKE ASSEMBLY | 30. CENTER VENTILATOR DUCT | 49. ENGINE WATER SUPPLY FITTING |
| 13. VALVE SPRING | 31. CENTER-FRONT VENTILATOR DUCT | 50. CONNECTOR CAP |
| 14. CONTROL CABLE CLAMP | 32. CENTER GRILL SPRING | 51. HOSE CLAMP |
| 15. SCREW | 33. VENTILATOR DUCT CLAMP | 52. HOT WATER CONTROL VALVE ASSEMBLY |
| 16. MOUNTING SCREW | 34. VENTILATOR DUCT CLAMP | |
| 17. WASHER | 35. MACHINE SCREW | |
| 18. AIR INTAKE/BLOWER ASSEMBLY ATTACHING SCREW | 36. HEATER CONTROL ASSEMBLY | |
| | 37. MACHINE SCREW | |

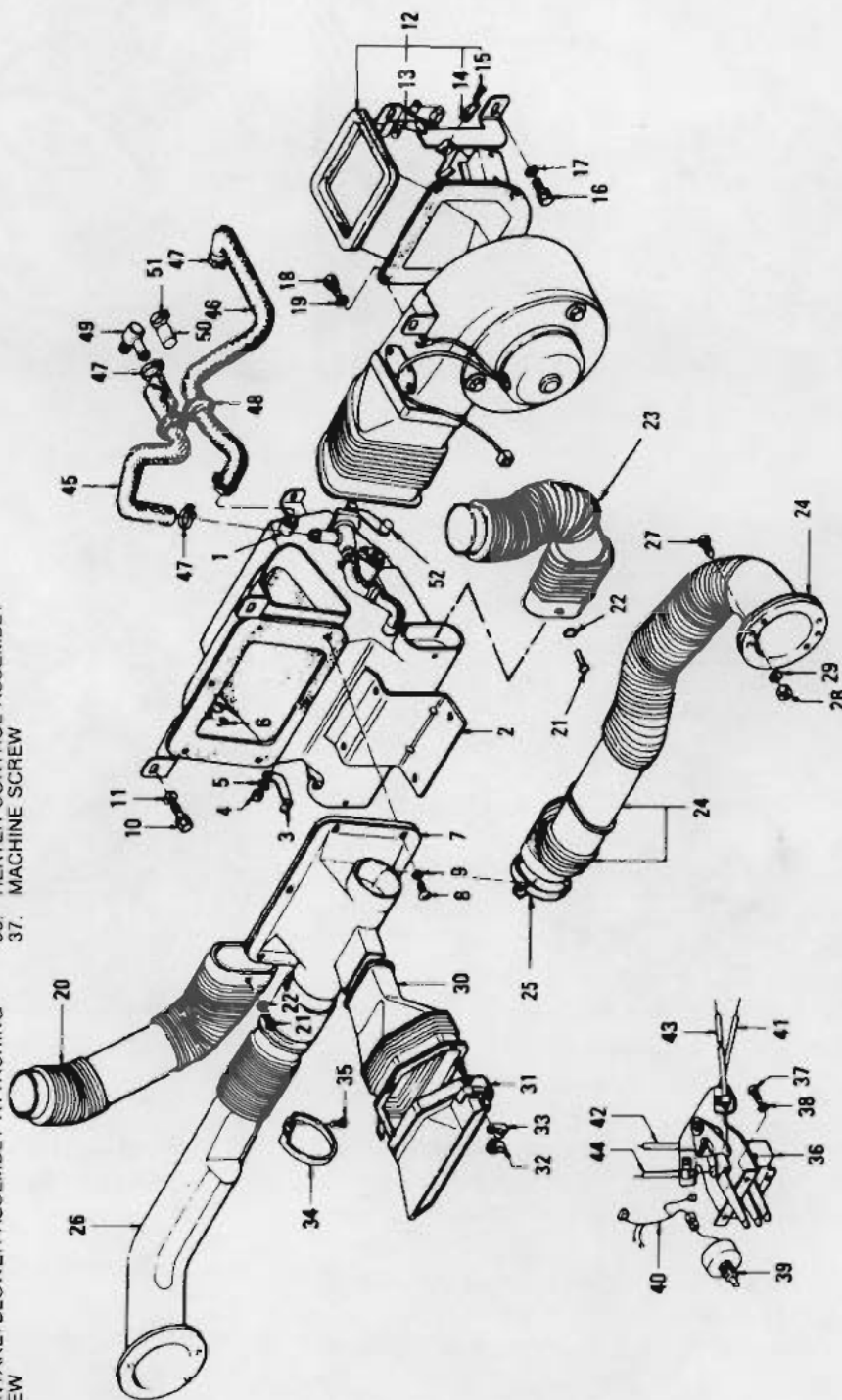


Figure III-2. Heat and Ventilating System (Exploded View)

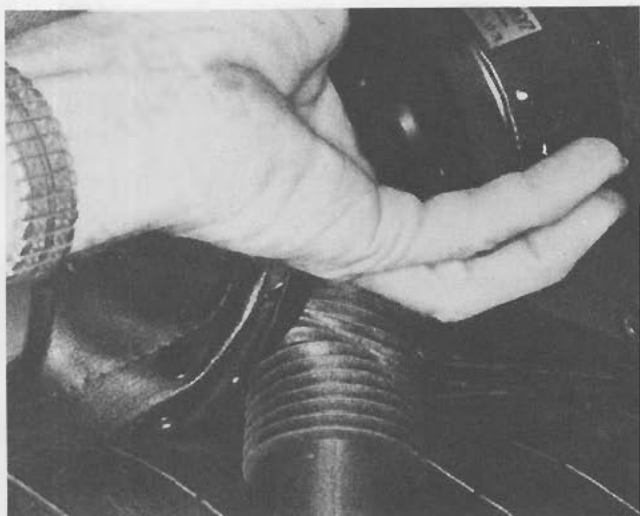


Figure III-3. Removal of Blower Motor/Fan Assembly

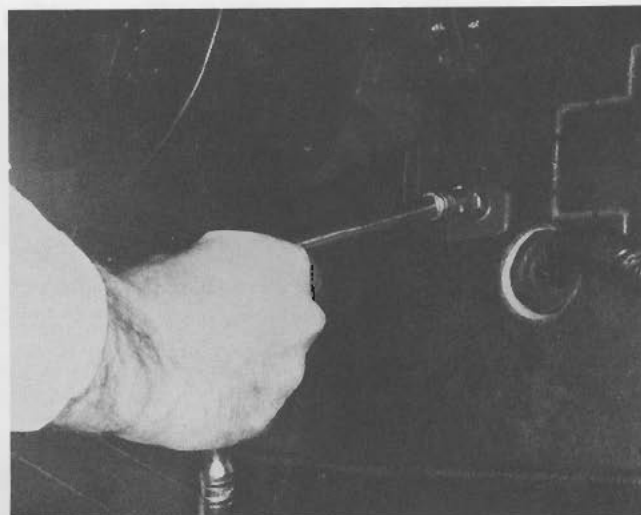


Figure III-5. Removing Air/Blower Assembly

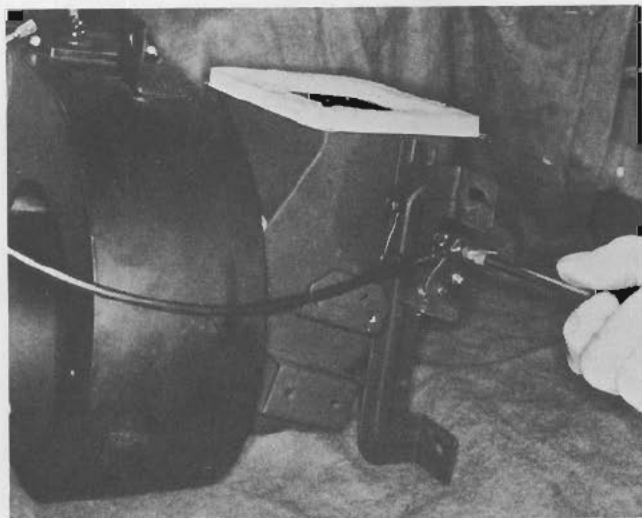


Figure III-4. Air Intake/Blower Assembly Cable Disconnect

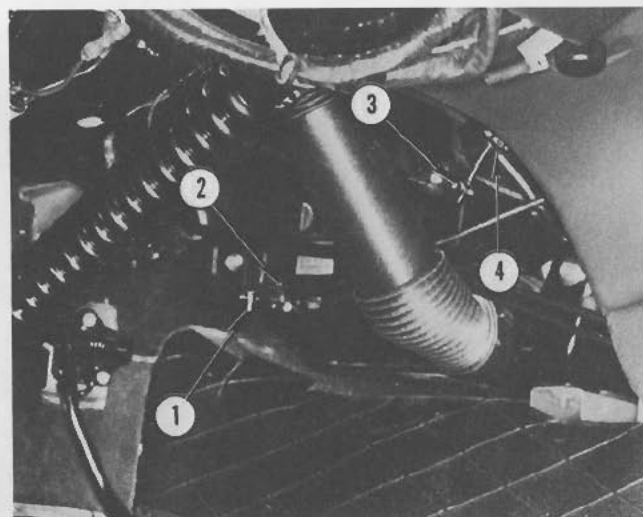


Figure III-6. Heater Control Cable Disconnect (LH)

ground wire at this point. Remove the four 10 mm attaching screws using a swivel-socket where required. (See Figure III-5.)

7. With the attaching hardware removed, slip the blower air duct from the heater connection and remove the assembly downward and to the right.

8. If no other HVS components are to be removed, replace the air intake/blower assembly in the reverse order making sure that the blower motor ground wire is secured with the attaching hardware.

B. Removal (Instrument Panel, Center Console Finisher)

1. With the air intake/blower assembly removed, proceed to dismantle the system by removing the instrument panel center console finisher (see Figure I-4, Item 8). Disconnect the three heater box control cables as follows:

- a. Disconnect the air vent control cable at the terminal, Item 1, on the lower LH side of the heater box (see Figure III-6). Release the cable clamp, Item 2, and free the cable of connections.

b. Disconnect the defroster control cable at the terminal, Item 3, on the upper LH heater/defrost box (see Figure III-6). Release the cable clamp, Item 4, and free the cable of connections.

c. Disconnect the heater temperature control cable at the terminal, Item 1, on the water control valve on the RH side of the heater box (see Figure III-7). Release the cable clamp, Item 2, and free the cable of connections.

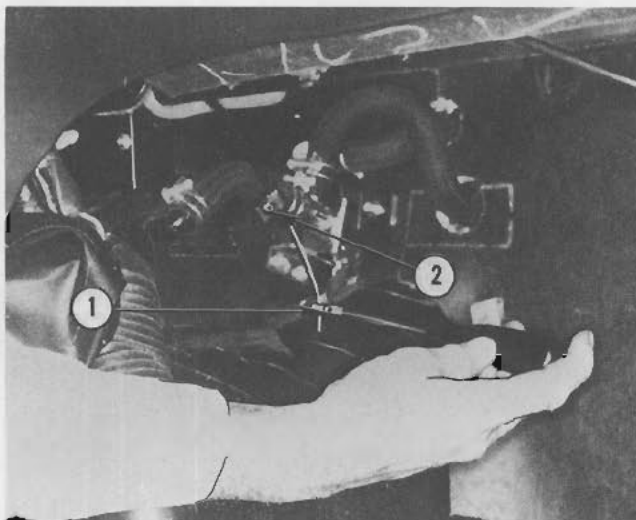


Figure III-7. Heater Control Cable Disconnect (RH)

2. The radio chassis and surrounding instrument panel radio chassis brace are supported by floor mounted "L" brackets on both sides. Remove the two opposed screws, Item 12, to free radio chassis. Remove the RH "L" bracket to accommodate later removal of the heater unit. (See Figure I-4.)

3. Disconnect all radio electrical and antenna connections, Items 12, 13 and 14, as shown in Figure V-3.

4. To remove the console finisher integral with radio and heat and ventilating system controls, proceed as follows:

a. Disconnect the blower switch power connector. (See Figure I-2, Item 11.)

b. Remove the four attaching screws, i.e., two each, located in the upper corners of the console finisher and lower corners of the radio escutcheon. (See Figure I-4, Item 9.)

c. Bring the console finisher toward the rear until the center compartment heater air duct is exposed, and disconnect the duct from the air outlet.

d. Remove map light lens and push light fixture through finisher. Do not disconnect the map light electrical circuit.

5. With these operations completed, the console finisher is free to be removed from position in the instrument panel.

C. Removal (Heating Unit Assembly)

1. Preparatory to removing the heater unit, the heater core or preferably the engine cooling system must be drained. If the coolant meets the specified limits, i.e., under 24,000 miles and/or antifreeze tests, it may be claimed for reuse as follows:

a. Remove the radiator cap to assist drainage.

b. Place a clean container (2 U.S. Gal. +) beneath the radiator drain cock (lower RH core) and open the valve until drainage is complete.

c. Loosen the heater hose clamps (supply and return lines), see Figure III-8, Items 1 and 2, at the RH side of the engine and remove the hoses from the fittings.

d. The heater core may be force drained from within the engine compartment by applying air pressure to the heater supply line.

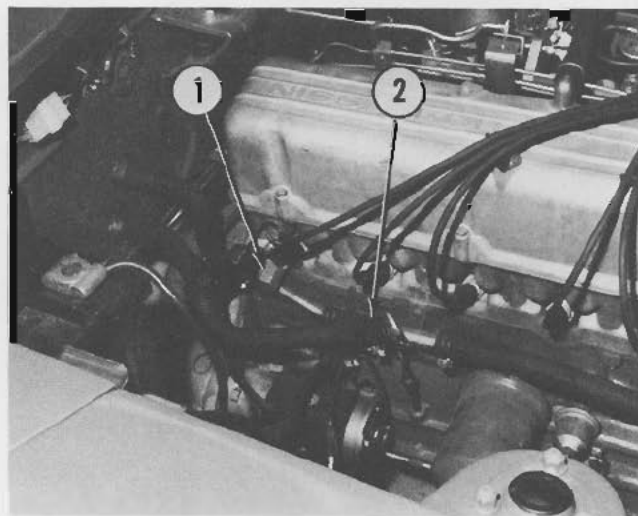
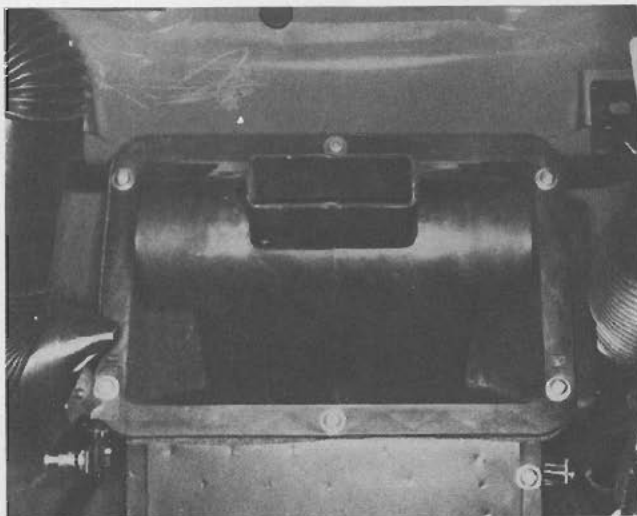


Figure III-8. Method of Draining Heater Core With Air Pressure

2. Inside the passenger compartment, and with the console finisher removed, the heater unit and air box ventilator attaching hardware is accessible. The order of disassembly is as follows:

- a. Loosen the left- and right-hand ventilator duct clamps (see Figure III-2, Items 25 and 34), and move the ducts away from the ventilator assembly.
- b. Remove the six attaching screws from the air box ventilator (see Figure III-9). Note that the lower LH screw also attaches the heater box vent control cable clamp.
- c. Remove the air box ventilator assembly out through the console finisher mount opening.



*Figure III-9. Air Box Ventilator
(Console Finisher Removed)*

3. The heater unit is now exposed and can be detached from the mounting points after removing the two attaching screws (see Figure III-2, Item 21) which secure the defroster ducts to the lower heater unit. With the screws removed, slide the defroster ducts out of the way.

4. Lay a protective covering of sheet plastic in the passenger compartment foot well to catch any antifreeze coolant remaining in the heater lines or core. Pull both heater hoses through the firewall from inside the compartment.

5. The heater unit, Item 2, and integral mount-

ing flanges are clearly shown in Figure III-2. Remove the six attaching screws, Item 10.

6. The Heater unit is now free of attachments and can be removed downward and to the right, as shown in Figure III-10.



Figure III-10. Removing Heater Assembly

NOTE

The heater unit is a repairable item to the extent that specific components may become defective and require replacement. Instructions for disassembly and assembly of the heater unit are provided in Paragraphs E.1. through E.5. of this section.

D. Replace (Heat and Ventilating System Components)

Replace the heat and ventilating system components per the following instructions:

1. If the heater unit has been disassembled for repair, check all controls (vent doors and air valves) for proper operation, and heater hose clamps for tightness prior to replacing the unit.

2. Move the unit into normal position and secure in place with attaching hardware.

3. Force the heater supply and return hoses into the thru-holes in the firewall, i.e., heater core return hose in the top thru-hole.

4. Secure the RH radio chassis support "L" bracket in place at the floor attach point.

5. Assemble the heater, air box ventilator to the heater and secure with attaching screws. Be sure to include the heater vent, control cable clamp in assembly.

6. Connect the left- and right-hand ventilator air ducts to the air box and secure the hose clamps.

NOTE

The heater unit and respective control cable connections are more accessible prior to further assembly of ducting and are next in order of attention.

7. Place the console finisher on the floor console in a semi-installed position. Route the heater control cables through the respective clamps and into the terminal connections.

8. Secure the terminal setscrews leaving the clamps loose for cable adjustment purposes until the console finisher is secured in place.

9. Move the console finisher into place and secure with attaching screws to the rear radio chassis support brackets.

10. Secure the console finisher to the instrument panel facia with the four attaching screws. Make sure the map light and lens are properly positioned upon assembly.

11. Position the heater and vent control cables to give total open/close operating movement, and secure the cable clamps.

12. Secure the LH defroster duct to the heater unit with the attaching screw, and complete the duct connection at the LH defroster air outlet.

13. Place the air intake/blower assembly in position and work the flexible duct until fully seated

at the connection on the heater. Secure the assembly to the firewall with the three attaching screws.

14. Using Figure VI-1 for connector identification, complete the connection of electrical components, i.e., blower switch, blower motor, radio power, antenna power and antenna lead. Be sure to attach the blower ground wire to the blower housing.

15. Secure the heater supply lines to the fittings on the engine and replace the engine coolant, filling to the required capacity.

16. Connect the battery and start the engine. Perform a check for proper operation of heater controls and electrical system. Verify that all heater hose connections are secure and without leaks.

E. Bench Service (Heating Unit)

1. Remove the heater unit for disassembly in accordance with the applicable instructions.

2. Loosen the hose clamps, Items 1 and 2, as shown in Figure III-11. Remove the heater hoses from the connections on the heater core.

3. Remove the two attaching screws, Item 3, and the heater cock assembly, Item 4. Replace a defective heater cock assembly with (Part No. 27116-E 4400) Assembly-cock heater (valve). (See Figure III-11.)

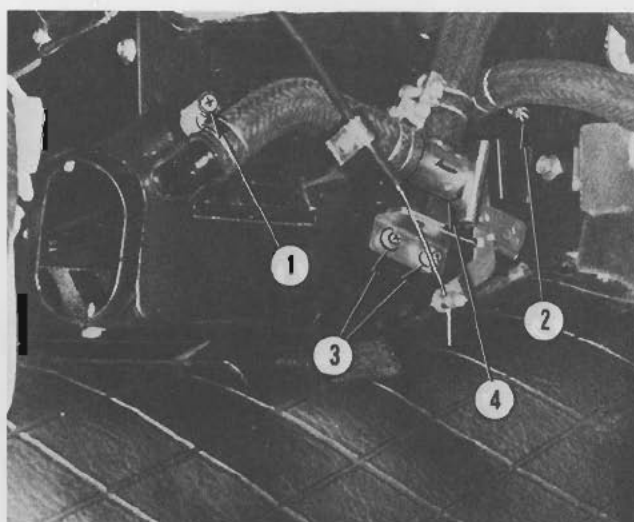


Figure III-11. Heater Hose and Valve Assembly

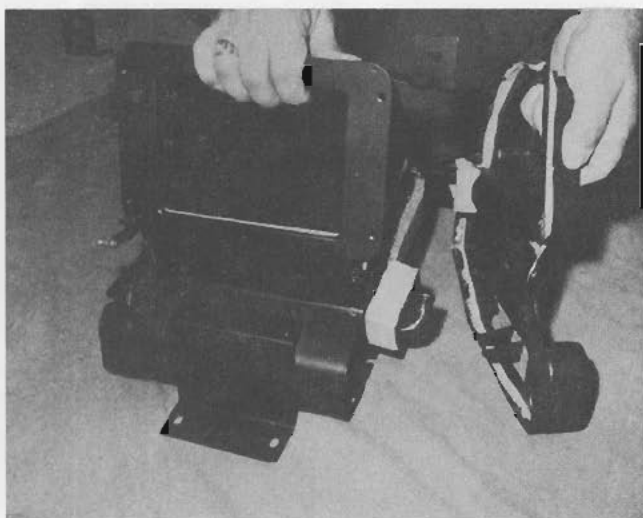


Figure III-12. Removing Heater End Plate

4. Open the heater vent doors and disconnect the RH door push rod by removing the retaining clip and push rod at the door.

5. Remove the five attaching screws from the heater box end plate assembly and work the end plate away from the heater body. (As shown in Figure III-12.)

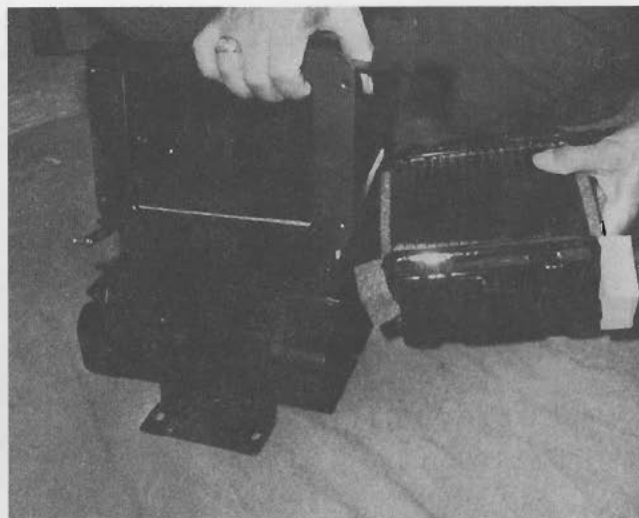


Figure III-13. Removing Heater Core

6. Grasp the heater box and heater core firmly while working the heater core out of position (see Figure III-13.) Replace a defective heater core with (Part No. 27115-E 4400) Assembly-core heater.

7. Reassemble the heater unit in the reverse order of this procedure. Check all vent doors, air valves, etc., for proper operation.