

**MC-9 MAINTENANCE MANUAL**

# **SECTION 16**

## **HEATING AND AIR CONDITIONING**

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## HEATING AND AIR CONDITIONING

### HEATING SYSTEM

The coach is provided with a hot water forced-air heating system which uses the engine cooling medium for heating the interior of the vehicle and windshield defrosting. Two heating radiator cores are provided, one for the main interior heating system and one for the driver's heater and defroster.

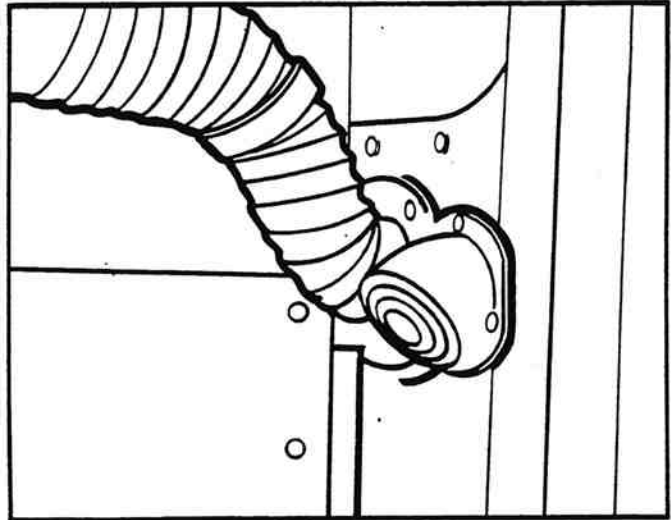
Heating in the stepwell area is provided by the introduction of heated air from the main right hand passenger heating duct into the stepwell. The heat enters the stepwell through louvers at the rear of the stepwell.

A complete air conditioning system is installed as standard equipment. The same duct system is used for both air conditioning and heating.

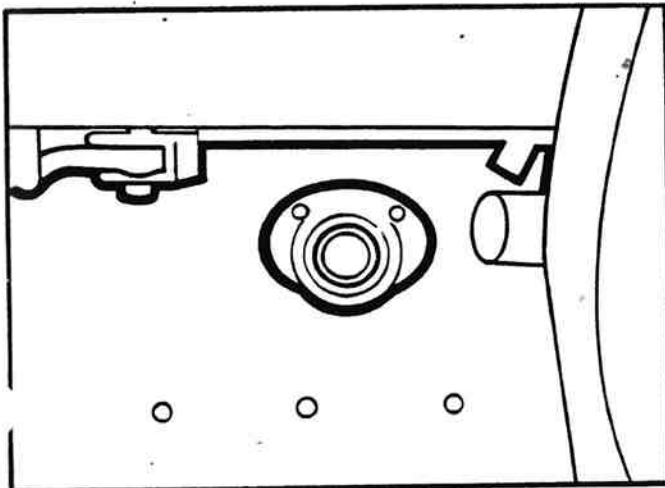
An optional auxiliary air conditioning evaporator and blower unit is mounted at the extreme rear of the left hand side parcel rack. This unit operates in conjunction with the main coach air conditioning system and is controlled by its own coach temperature sensing unit. This auxiliary air conditioner can be used with either Freon 12 or with Freon 500. The purpose of this unit is to provide additional cooling at the rear of the passenger compartment.

Flow of hot water to the main heater core is controlled by an electric water valve. A manually-operated water valve controls the flow to the driver's heater core. In the engine compartment, manually-operated shut-off valves are provided to isolate the heating system in the event of system failure or when the cooling system is to be drained.

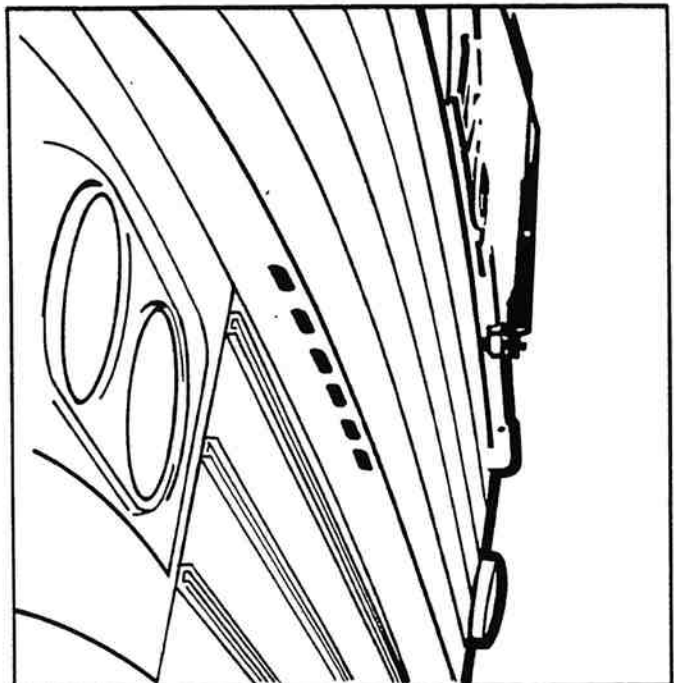
A temperature sensing unit is located in the front L.H. baggage compartment at the center control duct and through relays, controls the main heater water valve within limits selected by means of the heat control dial on the driver's switch panel.



Driver's heater or air conditioning Gasper located to the right of the driver under the dash.

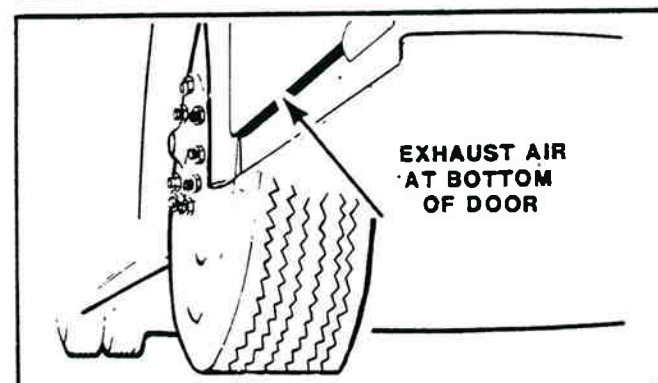
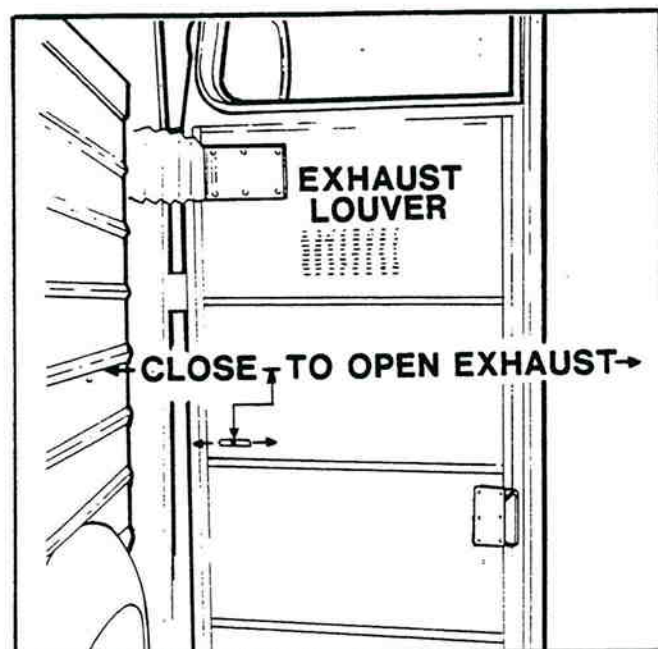


Driver's fresh air located to the left of the driver under the dash.



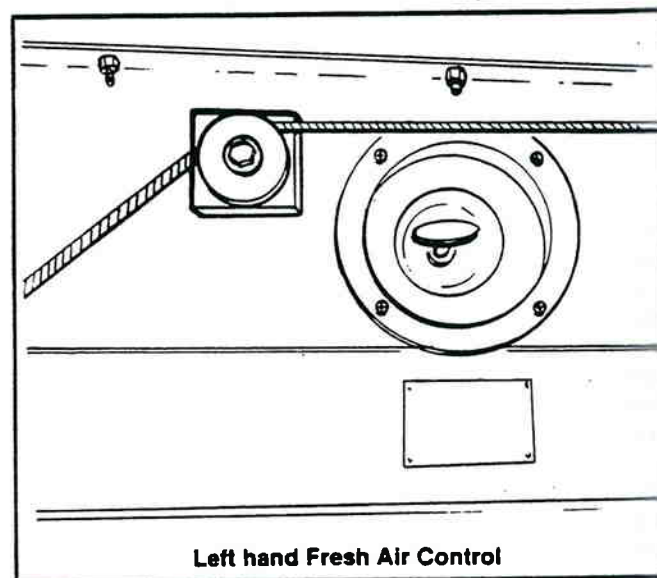
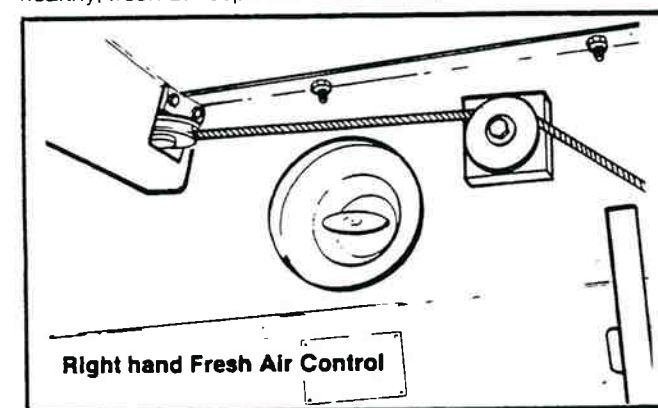
Fresh air intake above Tire Compartment

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## FRESH AIR VENTILATION

Some MC-9 coaches are equipped with controls to regulate the percentage of outside air being drawn into the coach and mixed with recirculated air. The controls should normally be in the closed position. Even in this position approximately 20% of the conditioned air is fresh outside air. This provides a healthy, fresh atmosphere in the coach.



At intervals depending entirely on service conditions, the A/C air filter should be removed and washed. To reach the filter, open the battery compartment door, unlatch locks and pull out. The filter is provided with a grab handle for removal.

When the cooling system is drained and flushed (Refer to Section 6, Cooling), the heating water system should be similarly serviced.

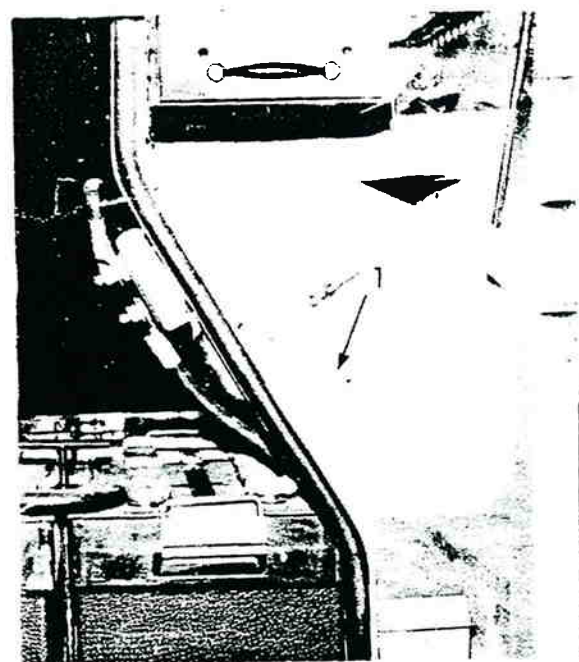


Figure 16-1. A/C Filter

## DRAINING AND REFILLING

Refer to Section 6 (Cooling) for instructions on draining and refilling the engine cooling and coach heating system.

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If the heating system is to be drained without draining the engine cooling system, close gate valves in engine compartment and drain radiator cores. A manual vent plug is provided in the top of the main heater core and at the top of the driver's heater core for bleeding air while refilling. The vent plugs allow air to enter during draining.

## OPERATION

Controls for coach heating system are located at the driver's switch panel. The temperature control selects the temperature range desired and the system automatically maintains the pre-set limits. Blower motors for coach heating, driver's heater and defroster are controlled by switches on the driver's switch panel.

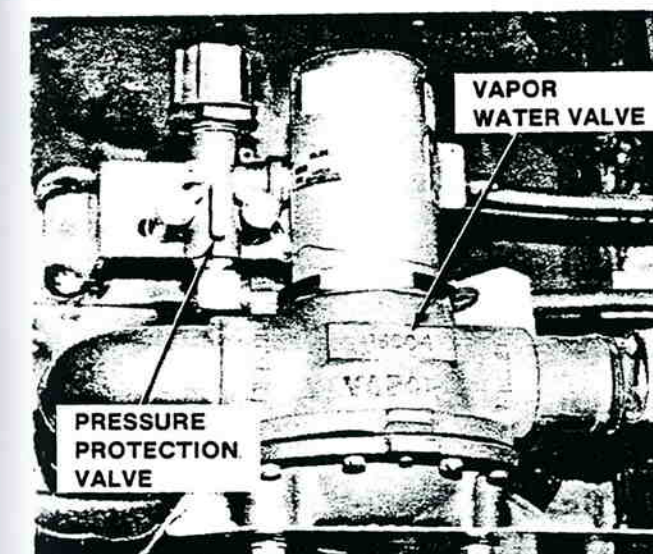
MAIN HEATER WATER VALVE  
(ELECTRICALLY ACTUATED)

Figure 16-2A. Electrically Actuated Main Heater Water Valve Used Prior To Unit 39263.

Prior to unit 41089, the flow of hot water to the main heater core is controlled by an electric water valve mounted in the right front baggage compartment.

Valves from two different manufacturers are present on the coaches built prior to unit 41089. One make was used prior to unit 39263 and another was used from unit 39263 through unit 41088. These two valves are interchangeable as complete assemblies. Refer to TMC/MCI Service Bulletin No. 2224 for information on replacing the earlier valve with the later valve.

**NOTE:** The following information applies specifically to the earlier valve but is generally applicable to the later one.

The valve is designed so that the pilot valve within the assembly opens and closes a port which directs pressure to either the top or bottom of the valve diaphragm, thus opening or closing the valve.

A delay action is built into the water valve through the means of an orifice in the valve body and a modulating cup on the

diaphragm assembly. When the coach is operating with no current to the water valve solenoid, inlet water pressure is directed to the upper side of the diaphragm, thus forcing it open.

The pilot valve is normally open, relieving any build-up of pressure under the diaphragm. When the solenoid is energized the pilot valve closes, water pressure builds up through the orifice to the underside of the diaphragm and keeps the valve in closed position.

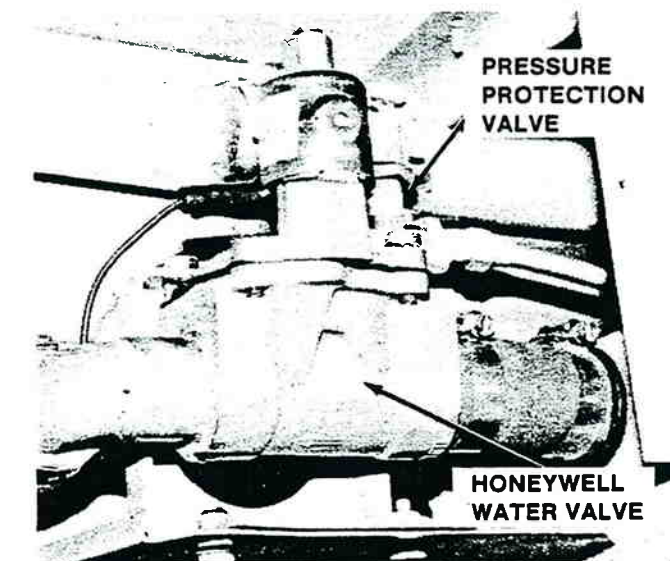


Figure 16-2B. Electrically Actuated Main Heater Water Valve Used On Units 39263 Through 41088.

## MAINTENANCE

The main heater water valve requires a minimum amount of maintenance. The valve should be free of any sediment or dirt which might interfere with its operation. The diaphragm (8) (figure 16-2C) should be replaced every year before the heating season begins. No other maintenance is needed unless a malfunction occurs.

## OVERHAUL

In the event of a malfunction, remove the water valve from the system.

**CAUTION:** Do not allow any liquid to reach the solenoid coil. After removing the valve from the system, carefully drain the remaining liquid from the inlet and outlet openings.

## DISASSEMBLY

Refer to figure 16-2C.

Remove the terminal nuts, lockwashers, and washers from the valve.

Remove the screw (17) and lockwasher (16) from the coil and container assembly (1).

Remove the valve seat assembly (3) from the coil and container assembly (1) by turning it counterclockwise with a wrench.