

NAPA AUTOMOTIVE CAREER TRAINING

Passenger Comfort - Air Conditioning - Continued Evaporator

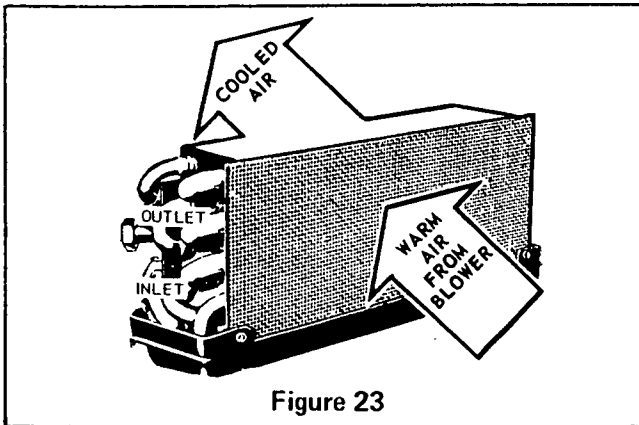


Figure 23

The evaporator (Figure 23), like the condenser and radiator, is of finned tube construction. On factory installed air conditioners, the evaporator will be built into the firewall. On field installed units, it is attached to the underside of the dashboard.

The expansion valve sprays liquid refrigerant into the lower pressure inside the evaporator. Once inside the evaporator coils, it changes from a liquid to a gas. This change allows the Freon to absorb heat, producing cold. A fan behind the evaporator blows air through the fin tubes, producing the cold air felt inside the passenger compartment of the car.

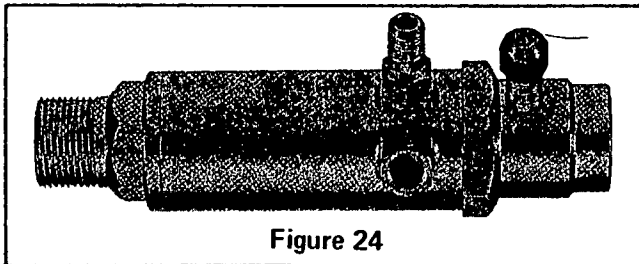


Figure 24

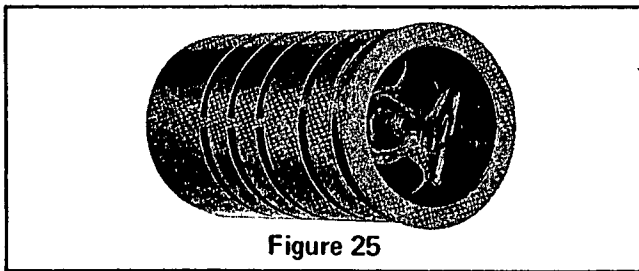


Figure 25

Various manufacturers use different methods of regulating evaporator pressure, thereby controlling the rate at which Freon will boil or evaporate inside the unit. Typical is the General Motors' suction throttling valve (Figure 24) (STL Valve or POA Valve) and Chrysler Corporation's EPR Valve (Figure 25) (Evaporator Pressure Regulator) and ETR Valve (Evaporator Temperature Regulator). These second-

ary control valves help sense and further regulate evaporator pressure to prevent freeze-up during operation.

From the evaporator, the low-pressure gas is sucked to the compressor where the cycle is repeated.

Hose and Fittings

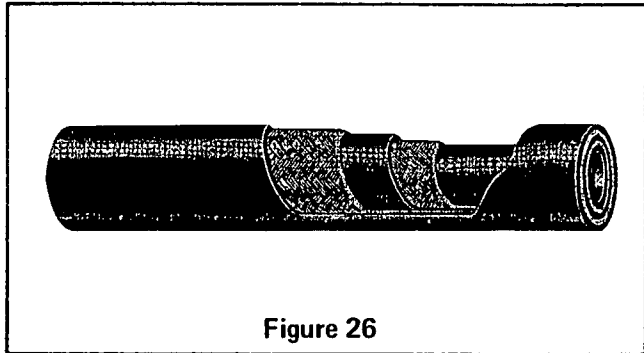


Figure 26

All components of the system are connected with hose or tubing to form the complete sealed system. A special refrigerant hose is required for Freon transmission. The unique feature of rubber Freon hose is in the compound used for the inner lining. This compound is especially made for the Freon and any other rubber hose will break down. (Figure 26).

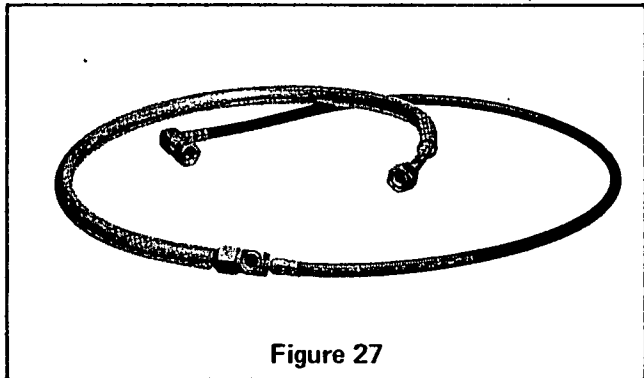


Figure 27

Refrigerant hose, as supplied by the car manufacturers on factory equipment, is always of double-braid rubber or braided nylon. Braided nylon (Figure 27) will be found only in some Ford and Chrysler liquid or suction lines. Nylon liquid hose assemblies are available for certain Ford applications, but most nylon assemblies should be replaced with rubber.

The hang-on or after-market air conditioner manufacturers use single braid hose exclusively. Single braid is probably selected because it is less expensive. It is strongly recommended that all replacement be of the double braid hose for maximum protection.