Automotive Thermostat - Continued

Car manufacturers now specify thermostats which are not sensitive to pressure and which are not affected by changes of cooling system pressure. Car manufacturers also specify thermostats with "reverse-poppet" valves. Coolant under water pump pressure is used to help hold a closed reverse-poppet valve tightly closed in order to prevent leakage. A reverse-poppet valve opens against water pump pressure, against the direction of coolant flow.

Before 1958 it was common practice to use thermostats opening at 160°F, in hot weather, changing to another thermostat which would open at 180°F. during cold weather. This practice has been unnecessary since cooling systems have been designed to operate under pressure. Starting about 1958, all passenger car engines were made with thermostats opening at 180°F. About 1962 American Motors and Ford started to use thermostats opening at 190-195°F.

All engines in popular cars made since 1969 have been equipped with thermostats specified to open at about either 190°F. or 195°F.

These thermostats will be fully opened at 212°F, and they will control the temperature of coolant leaving the thermostat and going into the top tank of the radiator at about 200-205°F.

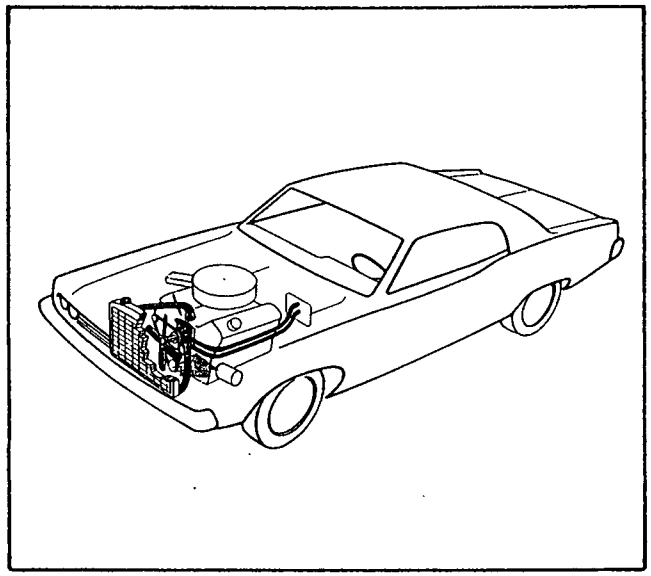
The Rule For Thermostat Application

Always recommend as a replacement, a thermostat which opens at the same temperature as the thermostat originally installed in the engine and as specified in the car manufacturer's shop service manual.

Cooling systems in all modern passenger cars require radiator pressure caps in order to prevent coolant from boiling due to today's high engine operating temperatures. Radiator pressure caps and their effect on boiling will be discussed in the radiator cap section. Ethyleneglycol based "Coolant" or "Anti-Freeze" is recommended for use to help prevent boiling.

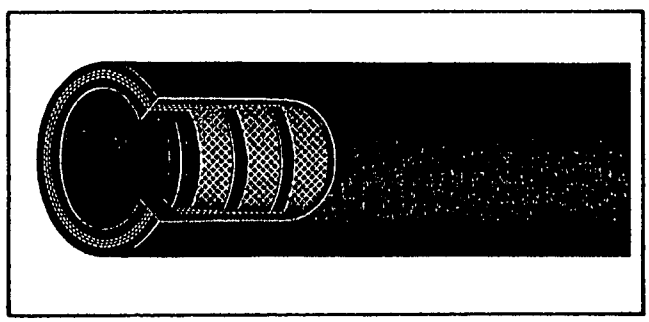
RADIATOR HOSES

The upper and lower radiator hoses serve as flexible connections between the radiator and the rest of the engine cooling system. Vibration and movement between the radiator and engine could cause breakage of rigid pipes, and for this reason a flexible connection is needed.



Radiator hose, like the other parts of the cooling system, is put under tremendous amounts of stress. The average modern engine cooling system must be able to withstand at least 16 lbs. of pressure, combined with underhood temperatures that can range up to 278°F. To provide adequate cooling under these conditions, the cooling system may have to circulate as much as 7,500 gallons of coolant per hour! Radiator hose must do its part of the engine cooling job effectively. Otherwise, loss of coolant due to hose failure may cause the engine to overheat and internal engine damage may result.

HOW RADIATOR HOSE IS BUILT TO LAST



A radiator hose is composed of three basic components: the tube, a hollow cylindrical section of rubber; reinforcement, usually yarn, fabric, wire, or a combination; and a cover. The function of the tube is to withstand the corrosive, abrasive, and other properties of the coolant being transmitted. The reinforcement is the "muscle" of the hose. It is the part that gives the necessary strength to resist the internal pressure. The cover protects the reinforcement and tube from the environment. These