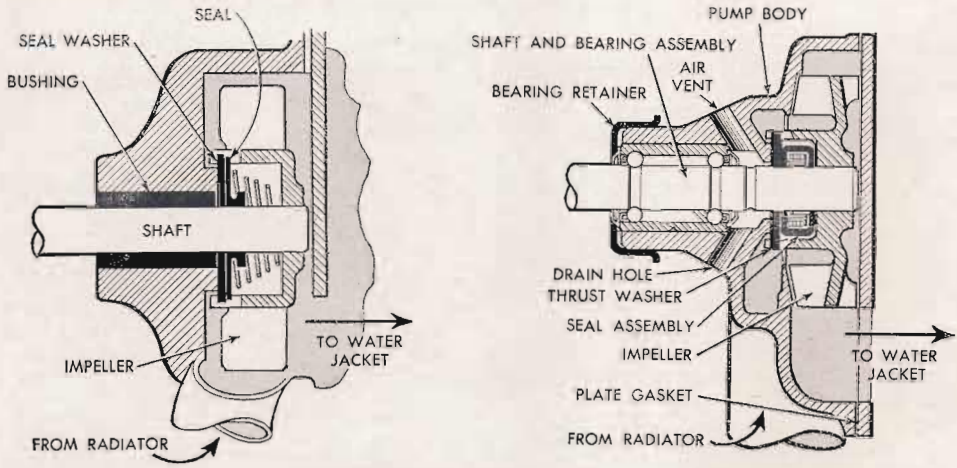

Two types of water pumps used on modern cooling systems. Water is kept from leaking around impeller shaft by self-adjusting seal. Too tight a fan belt will pull shaft out of line and cause it to leak

a fan belt may pull the water-pump impeller shaft out of alignment and cause excessive wear on the bearings and eventual leaks.

Water pump: Check the water pump for air or water leaks, end play, worn or scored shaft and worn bushings. The first condition can usually be remedied by tightening the packing nut slightly, that is, if the water pump has a packing nut. The other conditions, if present, will necessitate the removal of water-pump assembly for an overhaul or replacement.

Hose leaks: The rubber hose and its connections are often a source of leakage. To secure a tight fitting, apply hose or gasket cement on the pipe ends before replacing the hose. Hose should be replaced when it shows signs of deterioration.

Rust preventive: The solution is added to the water in the cooling system for the purpose of preventing, not removing, the accumulation of rust and scale in the radiator and cylinder block and should be put into the cooling system of new cars and added when the system has been flushed.

Cleaning clogged radiator: When old auto radiators of the flat tubular type become clogged to such an extent that flushing will not remove the scale, they usually can be restored by rodding the tubes with a length of flat steel. Cut openings through the top with a fine-toothed hacksaw blade and bend the pieces back. Then insert a length of thin sheet metal in each tube and work it through slowly, turning the metal strip as it progresses. If available, a short length cut from an old bandsaw blade is just the thing for this job. When all scale has been removed from the tubes, press the bent sections back into place and solder the joints. This accomplished, flush the radiator in the regular manner. Water for the cooling system should be free of lime and alkali for the best results.

Releasing stuck thermostat: When the thermostat in the car radiator sticks, here's a simple trick that may save you the trouble of removing it. Cover the radiator with newspapers or a blanket and let the engine idle until the temperature rises 20 to 30 deg. above normal. Then stop the engine and permit it to cool before operating again. The wide variation in temperature generally will cause the thermostat to release and operate normally.

Below is illustrated the method for testing thermostats to determine whether they are opening at the proper temperature range. The thermostat is suspended in water and heated to the specified temperature