

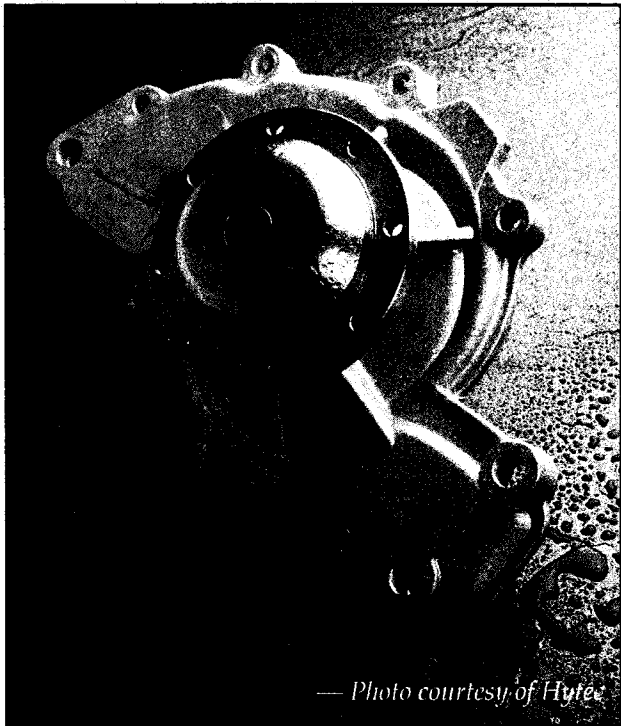
What to Know When Coolant Leaks Occur

Engines run hot! Almost a third of the heat energy produced by combustion is absorbed by the engine itself. That's why engines need a cooling system. The cooling system absorbs the engine's waste-heat and prevents the engine from overheating and self-destructing.

To get rid of the heat, the coolant inside the engine is pumped to the radiator by the water pump. The pump is usually located on the front of the engine and is driven by either the serpentine belt or the overhead cam timing belt. The pump itself is relatively simple, with a metal or plastic impeller mounted on a shaft. The shaft is supported in the water pump housing by a bearing and seal assembly.

On most engines, the water pump pulls coolant in through the lower radiator hose and routes it into the block and heads. The coolant then circulates back to the radiator through the thermostat housing and out the upper radiator hose. On some engines with "reverse flow" cooling systems, the pump routes the water into the cylinder heads first. Many water pumps also have additional inlet and outlet ports for heater hose and bypass connections.

Water pumps work hard. As the miles add up, so does the wear and tear on the pump shaft bearing, seal and impeller. Erosion inside the pump can wear away the vanes on the impeller, causing it to pump less efficiently as the impeller is eaten away. This may lead to engine overheating on hot days or when the engine is working hard. If the water pump seal becomes worn, coolant will leak past the pump shaft or out of the small vent hole on the housing. The loss of coolant will eventually cause the engine to overheat. If the



— Photo courtesy of Hyltec

pump shaft bearing fails or seizes, the shaft may break. Other symptoms of bearing wear may include pump noise (rumbling, chirping or growling) and fan or pulley wobble.

One way to identify a water pump with bad shaft bearings is to check pulley or fan play with the engine off. The pulley or fan should not move when wiggled sideways by hand. Pressure testing the cooling system can also reveal a leaky shaft seal inside the water pump.

Replacing a water pump that is leaking or failing is a repair that can't be postponed for very long — especially if the pump is leaking coolant. Cooling system sealers usually can't stop a shaft seal leak. Unless the steady loss of coolant is stopped or constantly replenished by adding more coolant, the engine will overheat. This should be avoided because overheating can damage the head gasket and other engine parts that are expensive to replace. Better to replace a failing water pump as soon as possible than to risk major engine damage!

A new or remanufactured water pump may cost anywhere from \$20 to \$100 or more depending on the application. The supplier your company chooses should offer everything you need to properly service your customers, and that includes accurate cataloging a dedicated sales force, help with inventory issues and high fill rates.

The labor required to change the pump will vary

