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step-by-step

WATER PUMP BASICS

Getting to the heart of your cooling system

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Think of the water pump as the heart of your vehicle cooling system. Its job is to continuously circulate engine coolant through the cooling system—from the radiator to the engine and then back again. If the water pump fails in this Sisyphean task the cooling system itself will fail to function. Your vehicle will run hot and possibly suffer serious damage from engine overheating.

The water pump takes its power from the engine. Some operate through a belt and pulley and others via a gear or chain. This power is transferred to a shaft on which there is an impeller. The impeller spins and circulates coolant in much the same way a propeller works on a boat or airplane to move water or air. The shaft and impeller spin on a sealed bearing, and this bearing is the part of a water pump that usually wears out.

Warning Signs

Fortunately a water pump that is about to give up the ghost will "bleed"—leak coolant. It may also make noise as its bearing is losing its way. Telltale signs of a failing water pump are coolant leaks originating from the water pump itself or the surrounding engine area. A wet engine or a coolant weep through the vent under a water pump are also sure signs of impending water pump failure.

Since a water pump is either working or not, replacement is a matter of necessity or preventive maintenance. If your water pump is leaking or quits altogether it obviously needs to be replaced. On the other hand, since often times much of the cooling system or engine itself may need to be removed to access the water pump, replacement may be a smart bet when servicing surrounding systems.

From easy to hard

Some water pumps are relatively easy to access and can be serviced with basic hand tools and mechanical know how. Other water pumps are so buried inside an engine that professional help is required. Water pumps that get their power from the timing belt or chain are often located inside the engine and best replaced when servicing either component, and vice versa.

Another ideal time to replace the water pump is when the cooling system is due for major service such as radiator replacement or removal since the first step in replacing your water pump is draining the coolant. Servicing the water pump is often easier if the radiator is removed for added working clearance.

The following is intended to give a basic idea of water pump removal and replacement for a rear drive vehicle equipped with v-belt engine accessory drive system. Serpentine type belts are often under a great deal of tension and require a different procedure than v-belts. For specific service intervals and procedures for your vehicle, follow manufacturer recommendations or refer to your service manual.

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