

INSTALLATION INSTRUCTIONS

Read Instructions Before Installing Your New Water Pump

NOTE: Always refer to your vehicle manufacturer's repair manual for the exact procedures and specifications when replacing your water pump.

Before Installing New Water Pump:

1. **IF THE OLD PUMP WILL STILL CIRCULATE COOLANT THROUGH THE ENGINE, CLEAN THE COOLING SYSTEM WITH A CHEMICAL CLEANER AND REVERSE FLUSH ALL SEDIMENT, RUST AND SCALE BEFORE REMOVING OLD PUMP.**
2. Drain coolant from radiator and engine block.
3. Disconnect and inspect all hoses from old water pump, and inspect and disconnect fan belts riding on pulley connected to water pump. On vehicles equipped with timing belts, care must be taken when removing water pump so that engine timing is not disturbed which would result in internal engine damage.
4. Remove fan, fan clutch (if equipped) and pulley from old water pump. Inspect and replace if necessary. A defective fan clutch will cause premature water pump failure. Replacing the fan clutch at this time is highly recommended.
5. Inspect fan tensioner if equipped, and replace if necessary.
6. Remove old water pump from engine making note of location of any special bolt or fastener.
7. Clean out any built up sediment and scale from impeller cavity in engine block.
8. Remove all gasket material from pump mounting surfaces on engine.

Installing New Water Pump:

1. If water pump is equipped with a steel back plate covering the impeller, check all mounting bolts and tighten as required.
2. Coat gasket with tacky sealer and position on new water pump or engine. **NOTE:** If using a self curing, silicone type gasket sealer from a tube, do not apply excessive amount. Excess may be squeezed out into water pump and can clog cooling passages.
3. If water pump is equipped with o-rings, care must be taken to avoid damage. Carefully clean o-ring sealing surfaces. Apply suitable rubber lubricant to o-rings and o-ring sealing surfaces prior to attempting to install pump or o-ring mating components. Install pump or components by applying light pressure and using a twisting motion. Pump or mating parts should slide in with a small amount of effort. **DO NOT FORCE PARTS TOGETHER.** If parts fail to join smoothly at first, remove and inspect surfaces for debris. Repeat procedure until parts slide together easily.
4. Install new water pump on engine block - **DO NOT FORCE PUMP.**
5. Tighten mounting bolts gradually and evenly in a staggered sequence to vehicle manufacturer's torque specifications.
6. Turn pump shaft by hand to make sure it rotates freely.
7. Reinstall pulley, fan clutch (if equipped), fan, fan belts, and reconnect all hoses (Be sure belts and pulleys are not off-set). On vehicles equipped with a timing belt, the belt should be replaced at this time to prevent major internal engine damage due to a broken belt.
8. Tighten fan belts to factory recommended tension. Tension can be checked with commercially available testers or by measuring fan belt deflection as specified in factory service manual. Excessive belt tension can cause premature pump failure!
9. Fill radiator and coolant recovery bottle with a correct mixture of fresh low-silicate coolant and distilled water, and check for leaks. Be sure to measure the amount of the coolant mixture that you have added to the system and compare it to your capacity specifications in your vehicle's owner's manual, this will make you aware of any air that is trapped in the system.
10. **Purge system of air as required.**
11. Install radiator cap and run engine until normal operating temperature is reached, check for leaks and water circulation. **NOTE:** A small, temporary seepage of coolant from the "weep hole" located on the lower side of the shaft housing may occur during initial run-in period. This should stop after the seal has been allowed to "lap in".
12. After operating temperature has been reached, shut off engine and allow to cool — **NEVER REMOVE RADIATOR CAP WHILE ENGINE IS HOT.**
13. Remove radiator cap (only after engine has cooled) and top off radiator and coolant recovery bottle with additional low silicate coolant and distilled water mixture.

Prolong the life of your NEW Water Pump by taking the time to check the following:

FAN CLUTCH (if equipped)— replace if:

- There is an indication of fluid at shaft seal.
- Housing is damaged or broken.
- Noise or roughness can be detected when turning unit by hand, or when unit cannot be turned by hand
- Tip of fan blade can be moved more than 1/4 inch front to rear. If the fan clutch bearing is worn out or if the fan clutch is damaged in any way, excessive loads produced by the imbalance can result in early water pump bearing failure or even water pump shaft damage.

FAN — replace if:

- There are cracks, broken welds or loose rivets.
- Blades are bent or broken — **NEVER BEND OR ATTEMPT TO STRAIGHTEN FAN.**

Imbalance in a fan can produce the same excessive loads as a damaged or worn fan clutch resulting in premature failures.

FAN BELT TENSION

- Never adjust belts tighter than specified in the factory service manual. Excess tightening of water pump belts is the major cause of premature bearing failure and breaking of the bearing shaft or housing.
- On models equipped with automatic belt tensioners, be sure to inspect and test the operation of the tensioner prior to reusing. Most vehicle manufacturers have testing procedures and/or specifications for these tensioners.

RADIATOR CAP

- Radiator cap should be replaced when replacing the water pump to maintain appropriate operating pressure. Failure to replace the radiator cap can adversely affect the performance and life expectancy of the water pump. Improper pressure in the cooling system can cause damage to the water pump seal, resulting in premature water pump failure.

