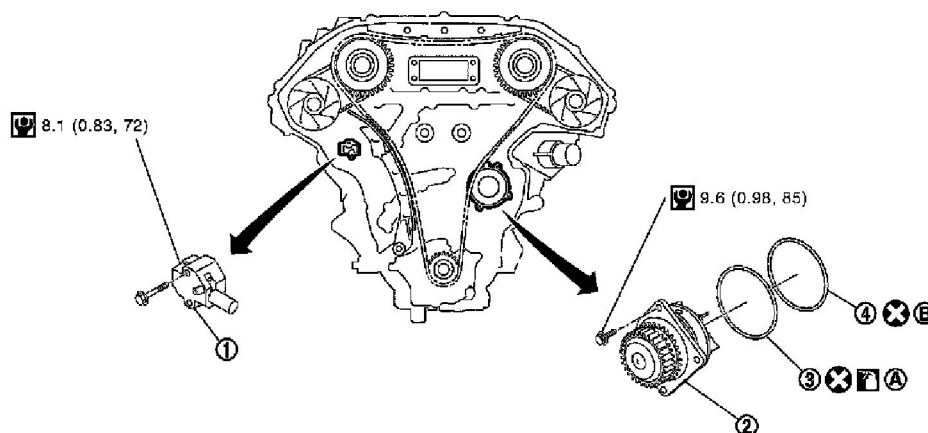


Water Pump: Service and Repair

WATER PUMP

Removal and Installation

SEC. 130•135•210



- | | | |
|---------------------------|-----------------------------------|-------------------------|
| 1. Timing chain tensioner | 2. Water pump | 3. O-ring |
| 4. O-ring | A. Identify with white paint mark | B. Apply engine coolant |

CAUTION:

- When removing water pump assembly, be careful not to get coolant on drive belt.
- Water pump cannot be disassembled and should be replaced as a unit.
- After installing water pump, connect hose and clamp securely, then check for leaks using radiator cap tester.

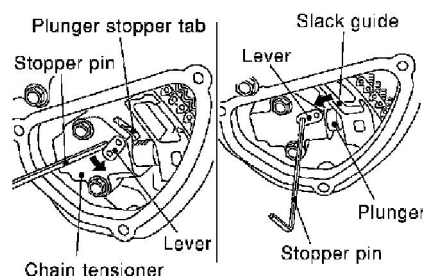
REMOVAL

1. Drain coolant from radiator. See: Cooling System/Coolant/Service and Repair/Changing Engine Coolant.

CAUTION:

Perform when the engine is cold.

2. Remove RH wheel and tire. See: Maintenance/Wheels and Tires/Service and Repair/Adjustment.
3. Remove splash shield.
4. Remove drive belts. See: Drive Belts, Mounts, Brackets and Accessories/Drive Belt/Service and Repair/Removal and Replacement/Removal And Installation.
5. Remove idler pulley and A/C idler pulley.
6. Remove hoodledge cover (RH).
7. Support engine and remove the front engine insulator and bracket. See: Service and Repair/Removal and Replacement.
8. Remove water drain plug on water pump side of cylinder block.
9. Remove IVT valve cover and water pump cover. See: Timing Components/Timing Cover/Service and Repair/Front Timing Chain Case/Removal And Installation.
10. Remove the timing chain tensioner assembly.

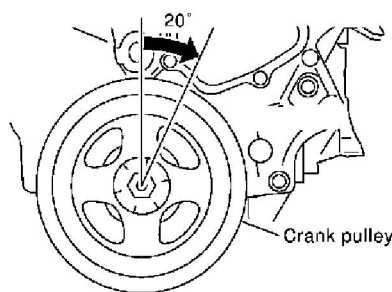


- a. Pull the lever down to release the plunger stopper tab.
- b. Insert the stopper pin into the tensioner body hole to hold the lever and keep the plunger stopper tab released.

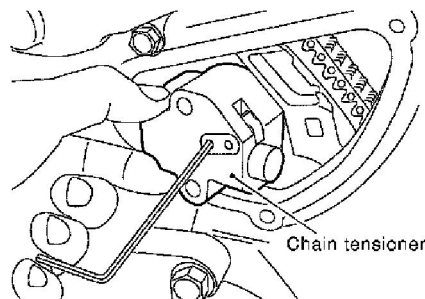
NOTE:

An allen wrench [(1.2 mm (0.047 in))] is used for a stopper pin as an example.

- c. Insert the plunger stopper tab into the tensioner body by pressing the slack guide.
- d. Keep the slack guide pressed and hold the plunger stopper tab in by pushing the stopper pin deeper through the lever and into the chain tensioner body hole.



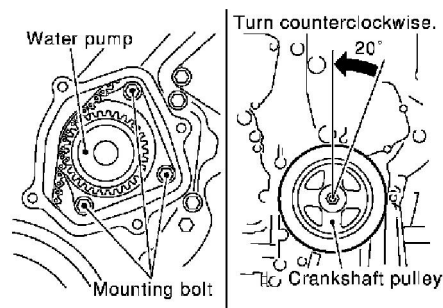
- e. Make a gap between water pump gear and timing chain, by turning the crankshaft pulley approximately 20° clockwise.



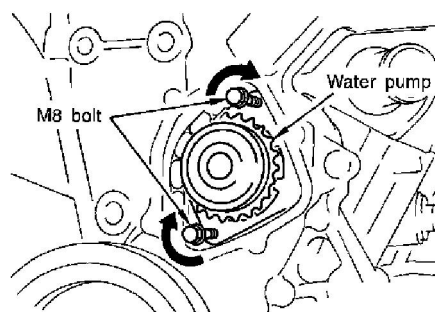
- f. Remove chain tensioner.

CAUTION:

Be careful not to drop bolts inside chain case.



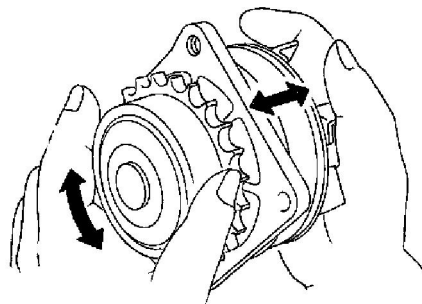
11. Remove the three water pump bolts. Make a gap between water pump gear and timing chain by turning crankshaft pulley counterclockwise until timing chain loosens on water pump sprocket.



12. Screw M8 bolts [pitch: 1.25 mm (0.49 in) length: approx. 50 mm (1.97 in)] into water pumps upper and lower bolt holes until they reach the timing chain case. Then, alternately tighten each bolt for a half turn, and pull out the water pump.
 - Pull straight out while preventing vane from contacting socket in installation area.

- Remove water pump without causing sprocket to contact timing chain.
13. Remove M8 bolts and O-rings from water pump.

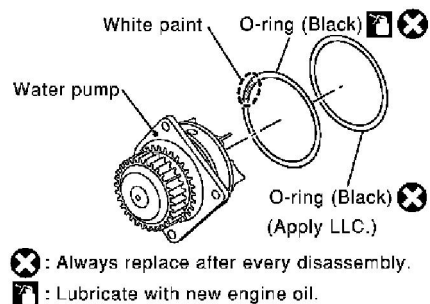
INSPECTION AFTER REMOVAL



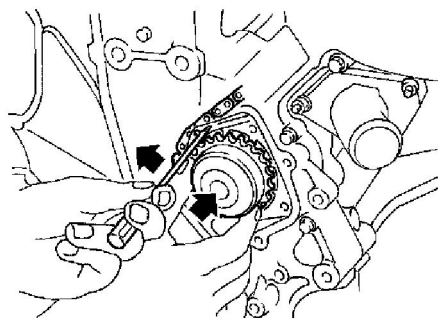
1. Check for badly rusted or corroded water pump body assembly.
2. Check for rough operation due to excessive end play.

INSTALLATION

1. Install new O-rings to water pump.



2. Apply engine oil and coolant to the O-rings as shown.
 - Locate the O-ring with white paint mark to engine front side.

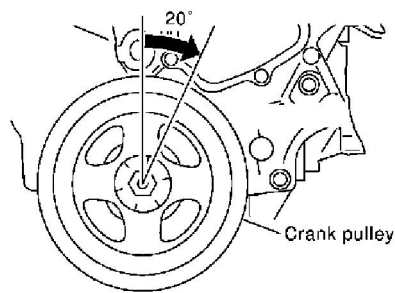


3. Install the water pump.

CAUTION:

Do not allow cylinder block to interfere with the O-rings when installing the water pump.

- Check that timing chain and water pump sprocket are engaged.
 - Insert water pump by tightening bolts alternately and evenly.
4. Remove dust and foreign material completely from backside of chain tensioner and from installation area of rear timing chain case.

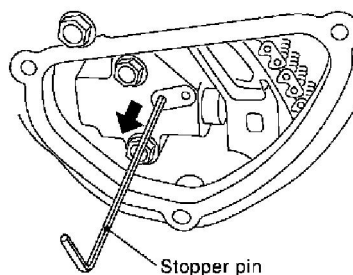


5. Turn the crankshaft pulley approximately 20° clockwise so that the timing chain on the timing chain tensioner side is loose.

NOTE:

When installing the timing chain tensioner, engine oil should be applied to the oil hole and tensioner.

6. Install the timing chain tensioner.



7. Remove the stopper pin.
8. Install chain tensioner cover and water pump cover.
 - a. Before installing, remove all traces of sealant from mating surface of water pump cover and chain tensioner cover using a scraper. Also remove traces of sealant from the mating surface of the front cover.
 - b. Apply a continuous bead of RTV Silicone Sealant or equivalent, to mating surface of chain tensioner cover and water pump cover. See: Specifications/Fluid Type Specifications.
9. Install water drain plug on water pump side of cylinder block. See: Cooling System/Coolant/Service and Repair/Changing Engine Coolant.
10. Install idler pulley and A/C idler pulley.

Idler pulley bolts : 29.5 N.m (3.0 kg-m, 22 ft-lb)

11. Installation of remaining components is in the reverse order of removal.
 - Refill engine coolant. See: Cooling System/Coolant/Service and Repair/Changing Engine Coolant.
 - After starting engine, let idle for three minutes, then rev engine up to 3,000 rpm under no load to purge air from the high-pressure chamber of the chain tensioner. The engine may produce a rattling noise. This indicates that air still remains in the chamber and is not a matter of concern.