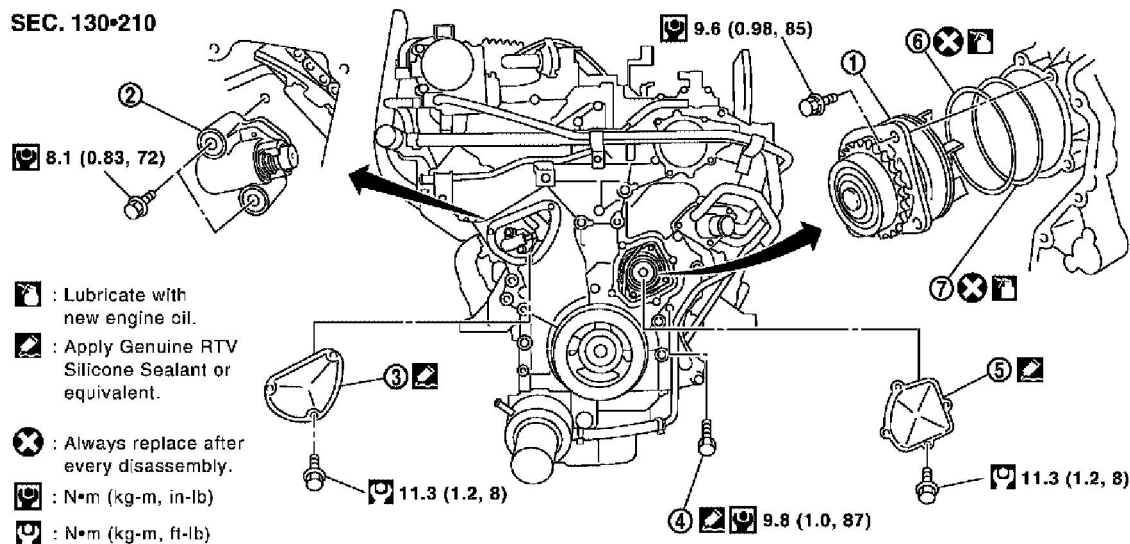


# Water Pump: Service and Repair

## WATER PUMP

SEC. 130•210



- |                             |                                     |                          |
|-----------------------------|-------------------------------------|--------------------------|
| 1. Water pump               | 2. Timing chain tensioner (primary) | 3. Chain tensioner cover |
| 4. Water drain plug (front) | 5. Water pump cover                 | 6. O-ring                |
| 7. O-ring                   |                                     |                          |

## Removal and Installation

### CAUTION:

- ^ When removing water pump assembly, be careful not to get engine coolant on drive belts.
- ^ 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 tool.

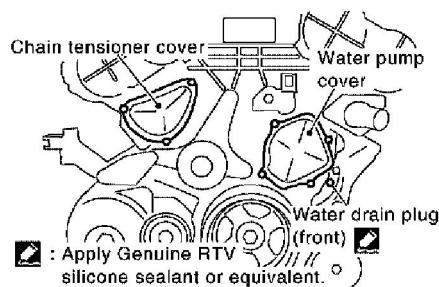
### REMOVAL

1. Remove undercover with power tool.
2. Remove drive belts.
3. Drain engine coolant. Refer to "ENGINE COOLANT".

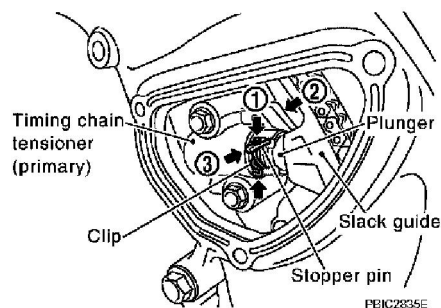
### CAUTION:

- ^ Perform this step when engine is cold.
- ^ Do not spill engine coolant on drive belts.

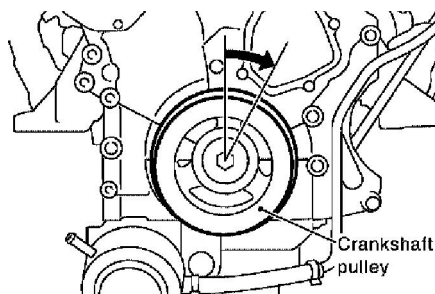
4. Remove radiator hoses (upper and lower) and cooling fan assembly. Refer to "ENGINE COOLING FAN".



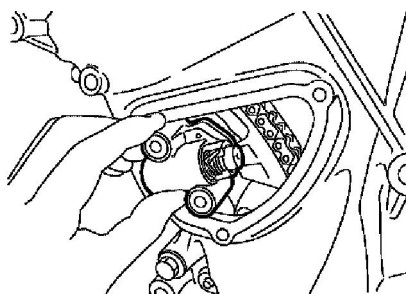
5. Remove chain tensioner cover and water pump cover from front timing chain case, using Tool.  
Tool number: KV10111100 (J-37228)
6. Remove timing chain tensioner (primary) as follows:



- a. Loosen clip of timing chain tensioner (primary), and release plunger stopper. (1)
- b. Insert plunger into tensioner body by pressing slack guide. (2)
- c. Keep slack guide pressed and hold plunger in by pushing stopper pin through the tensioner body hole and plunger groove. (3)



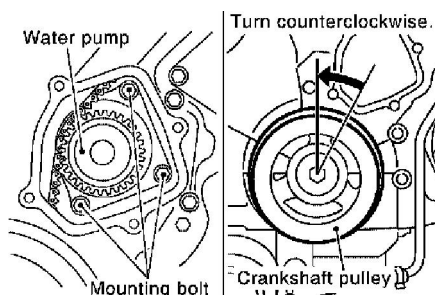
- d. Turn crankshaft pulley clockwise so that timing chain on the timing chain tensioner (primary) side is loose.



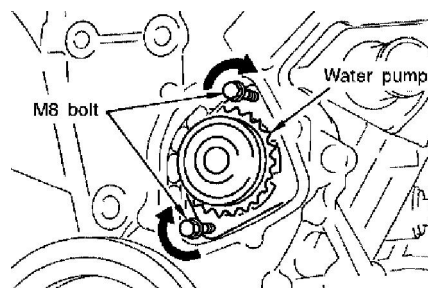
- e. Remove bolts and remove timing chain tensioner (primary).

**CAUTION:** Be careful not to drop bolts inside timing chain case.

7. Remove water pump as follows:



- a. Remove three water pump bolts. Secure a gap between water pump gear and timing chain, by turning crankshaft pulley counterclockwise until timing chain looseness on water pump sprocket becomes maximum.



- b. Screw M8 bolts [pitch: 1.25 mm (0.049 inch) length: approx. 50 mm (1.97 inch)] into water pumps upper and lower bolt holes until they reach timing chain case. Then, alternately tighten each bolt for a half turn, and pull out water pump.

**CAUTION:**

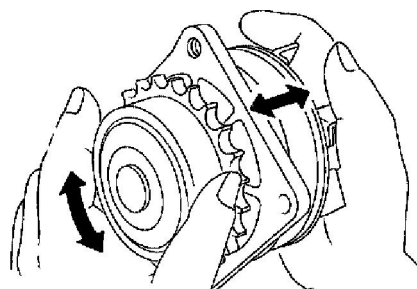
- ^ Pull straight out while preventing vane from contacting socket in installation area.
- ^ Remove water pump without causing sprocket to contact timing chain.

- c. Remove M8 bolts and O-rings from water pump.

**CAUTION:** Do not disassemble water pump.

**NOTE:** Do not reuse O-rings.

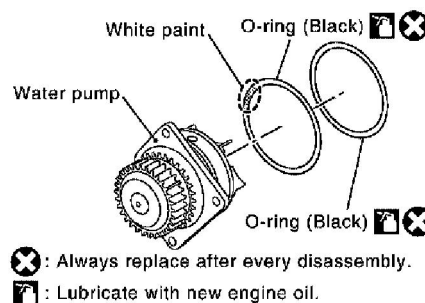
**INSPECTION AFTER REMOVAL**



- ^ Check for badly rusted or corroded water pump body assembly.
- ^ Check for rough operation due to excessive end play.
- ^ Replace water pump, if necessary.

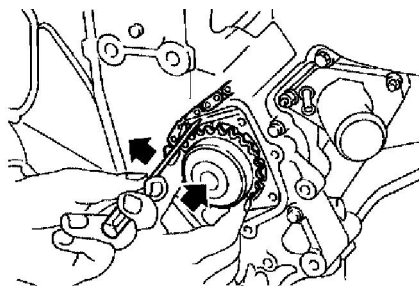
**INSTALLATION**

1. Install new O-rings to water pump.



**NOTE:**

- ^ Apply engine oil to O-rings.
- ^ Locate O-ring with white paint mark to engine front side.



2. Install water pump.

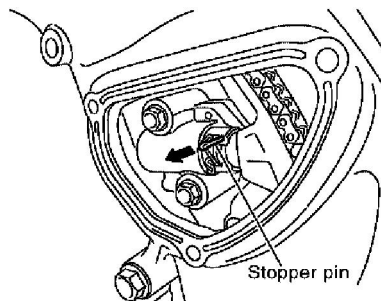
**CAUTION:** Do not allow timing chain case to nip O-rings when install water pump.

- ^ Make sure that timing chain and water pump sprocket are engaged.
- ^ Insert water pump by tightening bolts alternately and evenly.

3. Install timing chain tensioner (primary) as follows:

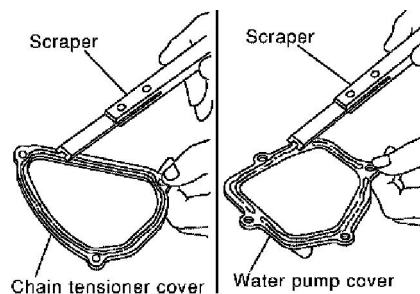
- a. Remove dust and foreign material completely from backside of timing chain tensioner (primary) and from installation area of rear timing chain case.
- b. Turn crankshaft pulley clockwise so that timing chain on the timing chain tensioner (primary) side is loose.
- c. Install timing chain tensioner (primary) with its stopper pin attached.

**CAUTION:** Be careful not to drop bolts inside timing chain case.

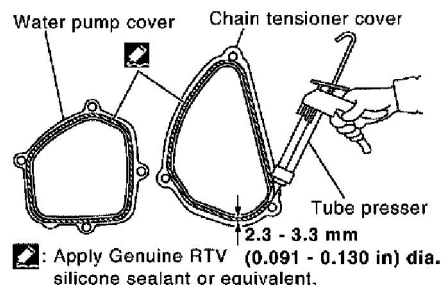


- d. Remove stopper pin.
- e. Make sure again that timing chain and water pump sprocket are engaged.

4. Install chain tensioner cover and water pump cover as follows:



- a. Before installing, remove all traces of old liquid gasket from mating surface of water pump cover and chain tensioner cover using scraper. Also remove traces of old liquid gasket from the mating surface of front timing chain case.



- b. Apply a continuous bead of liquid gasket, to mating surface of chain tensioner and water pump cover, using Tool.  
Tool number: WS39930000 ( - )

Use Genuine RTV Silicone Sealant or equivalent. Refer to "Recommended Chemical Products and Sealants".

**CAUTION:** Attaching should be done within 5 minutes after coating.

- c. Tighten bolts to specified torque.
5. Refill engine coolant system. Refer to "REFILLING ENGINE COOLANT".
  - ^ Apply liquid gasket to the thread of water drain plug (front). Use Genuine RTV Silicone Sealant or equivalent. Refer to "Recommended Chemical Products and Sealants".
6. Installation of the remaining components is in the reverse order of removal after this step.
  - ^ 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 chain tensioner. Engine may produce a rattling noise. This indicates that air still remains in the chamber and is not a matter of concern.

#### **INSPECTION AFTER INSTALLATION**

- ^ Check for leaks of engine coolant using tool. Refer to "CHECKING COOLING SYSTEM FOR LEAKS".
- ^ Start and warm up engine. Visually check there are no leaks of engine coolant.