

WATER PUMP

[VQ35DE]

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

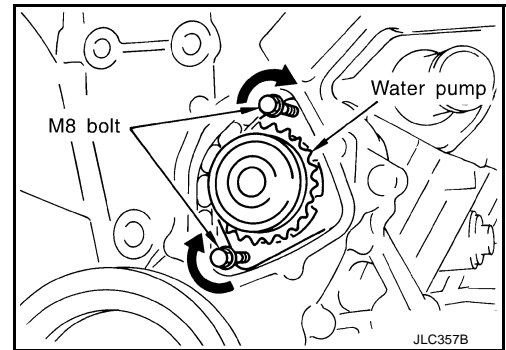
CAUTION:

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

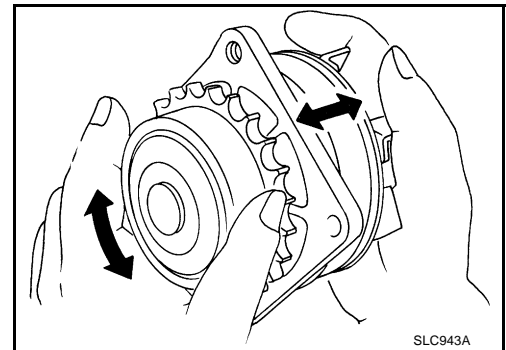
- c. Remove M8 bolts and O-rings from water pump.

CAUTION:

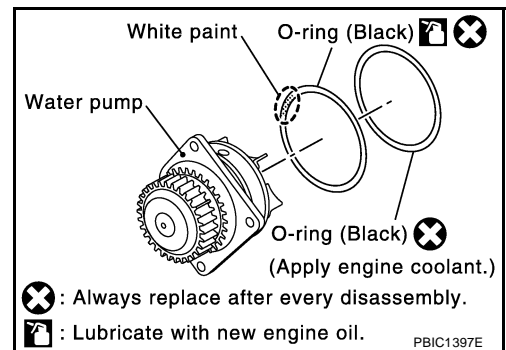
Do not disassemble water pump.

**INSPECTION AFTER REMOVAL**

- Check for badly rusted or corroded water pump body assembly.
- Check for rough operation due to excessive end play.
- If anything is found, replace water pump.

**INSTALLATION**

1. Install new O-rings to water pump.
 - Apply engine oil and engine coolant to O-rings as shown in the figure.
 - Locate O-ring with white paint mark to engine front side.

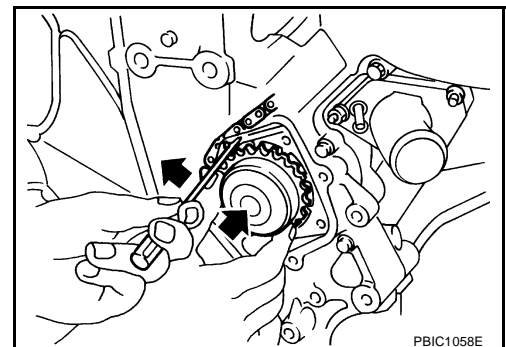


2. Install water pump.

CAUTION:

Do not allow cylinder block to nip O-rings when installing water pump.

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

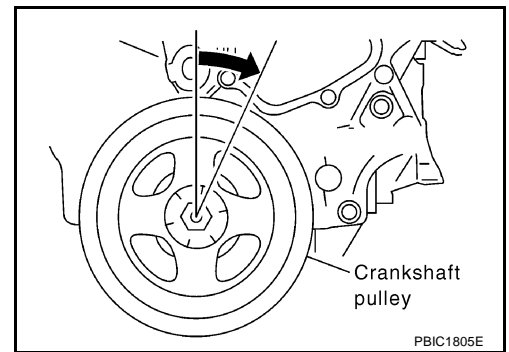


3. Install timing chain tensioner (primary) as follows:

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



- b. Pull plunger stopper tab up (or turn lever downward) so as to remove plunger stopper tab from the ratchet of plunger.

NOTE:

Plunger stopper tab and lever are synchronized.

- c. Push plunger into the inside of tensioner body.
- d. Hold plunger in the fully compressed position by engaging plunger stopper tab with the tip of ratchet.
- e. To secure lever, insert stopper pin through hole of lever into tensioner body hole.
- The lever parts and the tab are synchronized. Therefore, the plunger will be secured under this condition.

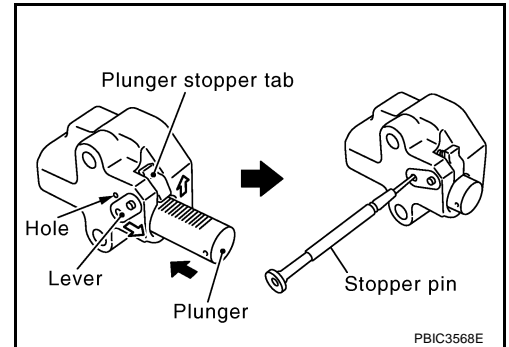
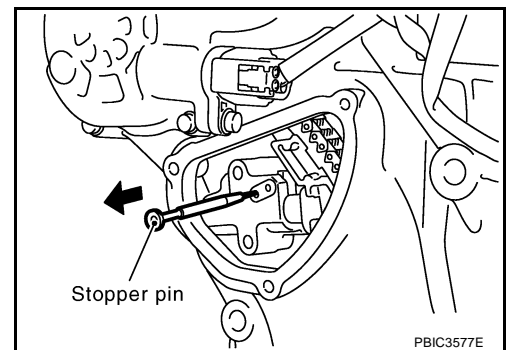
**NOTE:**

Figure shows the example of 1.2 mm (0.047 in) diameter thin screwdriver being used as the stopper pin.

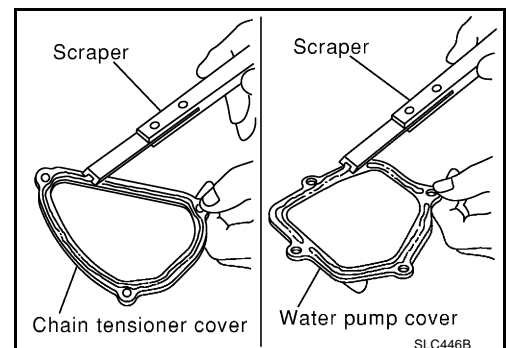
- f. Install timing chain tensioner (primary).
- Remove dust and foreign material completely from backside of timing chain tensioner (primary) and from installation area of rear timing chain case.
- g. Remove stopper pin.



- h. 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.



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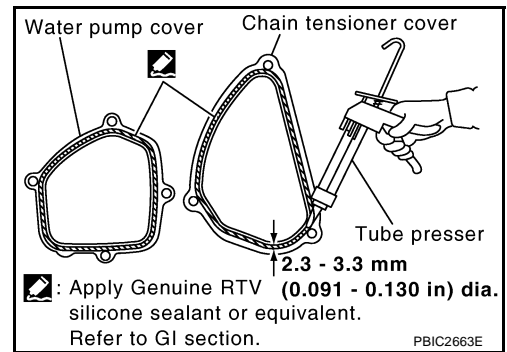
- b. Apply a continuous bead of liquid gasket with tube presser [SST: WS39930000 (—)] to mating surface of chain tensioner cover and water pump cover.

Use Genuine RTV Silicone Sealant or equivalent. Refer to [GI-48, "RECOMMENDED CHEMICAL PRODUCTS AND SEALANTS"](#) .

CAUTION:

Attaching should be done within 5 minutes after coating.

- c. Tighten mounting bolts.



5. Install water drain plug (front) on water pump side of cylinder block.
- Apply liquid gasket to the thread of water drain plug (front).
Use Genuine RTV Silicone Sealant or equivalent. Refer to [GI-48, "RECOMMENDED CHEMICAL PRODUCTS AND SEALANTS"](#) .
6. Install in the reverse order of removal for remaining parts.
- **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 the radiator cap tester adapter [SST: EG17650301 (J33984-A)] and the radiator cap tester (commercial service tool). Refer to [CO-11, "LEAK CHECK"](#) .
- Start and warm up the engine. Visually make sure that there is no leaks of engine coolant.