

WATER PUMP

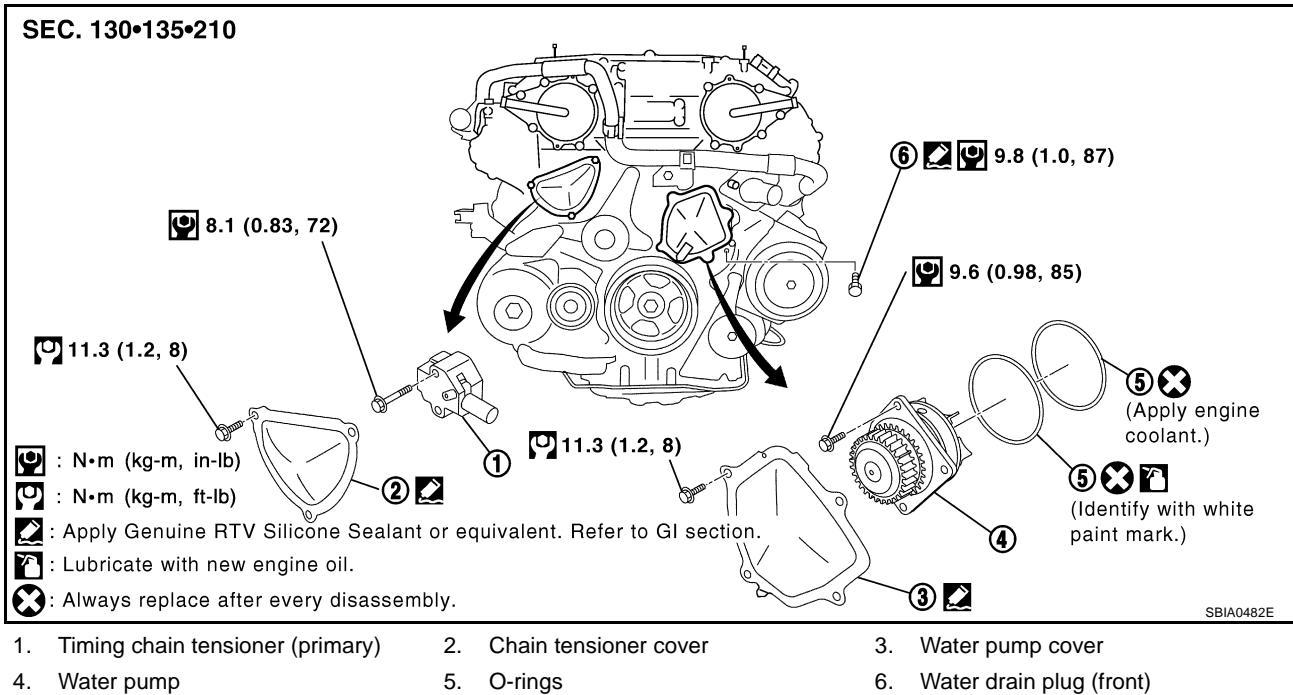
[VQ35DE]

WATER PUMP

PFP:21020

Components

NBS004R1



Removal and Installation

NBS004R2

CAUTION:

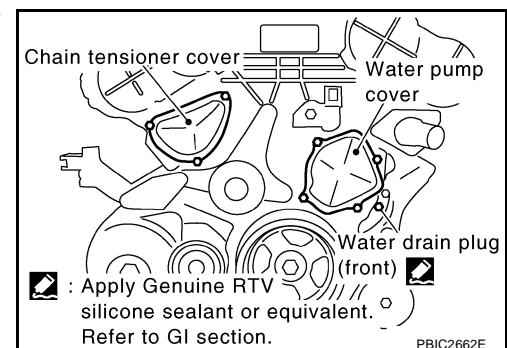
- When removing water pump assembly, be careful not to get engine coolant on drive belts.
- Water pump cannot be disassembled and should be replaced as a unit.
- After installing water pump, connect hose and clamp securely, then check for leaks using the radiator cap tester (commercial service tool) and the radiator cap tester adapter [SST: EG17650301 (J33984-A)].

REMOVAL

1. Remove engine room cover (RH and LH). Refer to [EM-14, "ENGINE ROOM COVER"](#).
2. Remove air duct (inlet) and air cleaner case assembly. Refer to [EM-17, "AIR CLEANER AND AIR DUCT"](#).
3. Remove front engine undercover with power tool.
4. Remove drive belts. Refer to [EM-15, "DRIVE BELTS"](#).
5. Drain engine coolant from radiator. Refer to [CO-11, "Changing Engine Coolant"](#).

CAUTION:

- Perform this step when the engine is cold.
 - Do not spill engine coolant on drive belts.
6. Remove water drain plug (front) on water pump side of cylinder block to drain engine coolant from engine inside.



7. Remove chain tensioner cover and water pump cover from front timing chain case.

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- Use the seal cutter [SST: KV10111100 (J37228)] to cut liquid gasket for removal.

8. Remove timing chain tensioner (primary) as follows:

a. Remove lower mounting bolt.

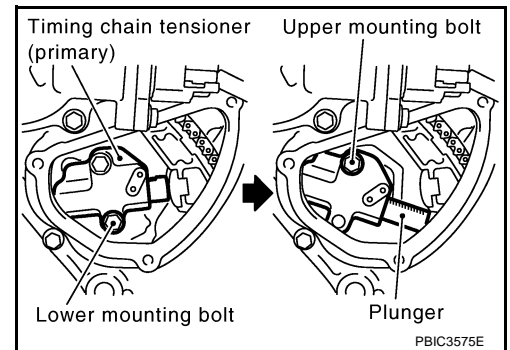
CAUTION:

Be careful not to drop mounting bolt inside timing chain case.

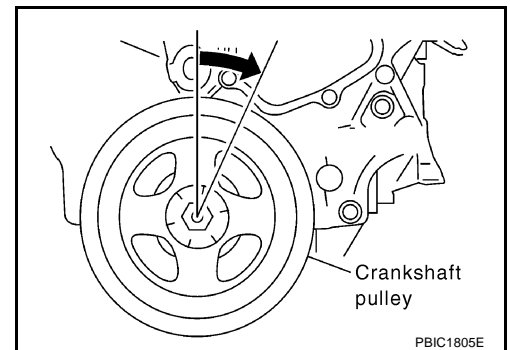
b. Loosen upper mounting bolt slowly, and then turn chain tensioner (primary) on the mounting bolt so that plunger is fully expanded.

NOTE:

Even if plunger is fully expanded, it is not dropped from the body of timing chain tensioner (primary).



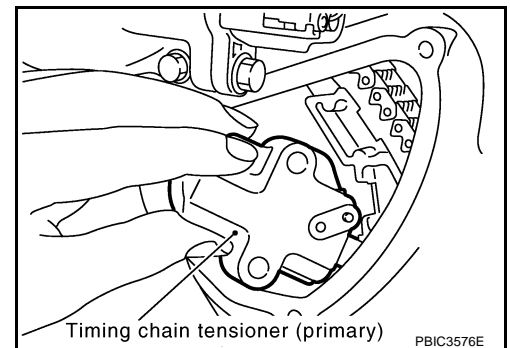
c. Turn crankshaft pulley clockwise so that timing chain on the timing chain tensioner (primary) side is loose.



d. Remove upper mounting bolt, and then remove timing chain tensioner (primary).

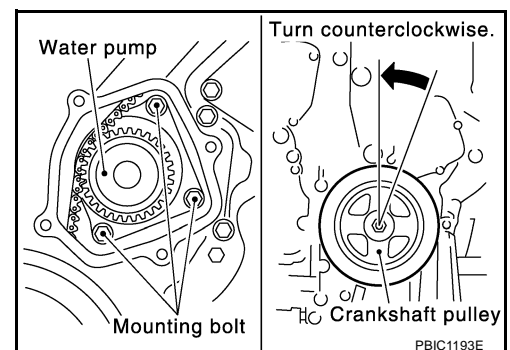
CAUTION:

Be careful not to drop mounting bolt inside timing chain case.



9. Remove water pump as follows:

a. Remove three water pump mounting 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.

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- 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.

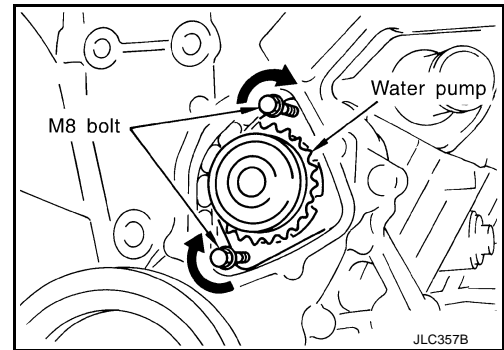
CAUTION:

- 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.

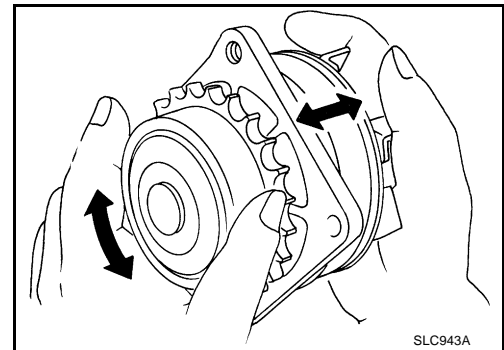
CAUTION:

Do not disassemble water pump.



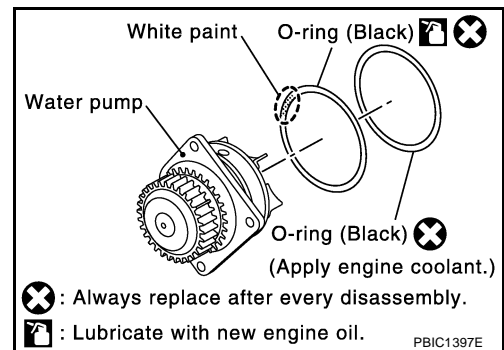
INSPECTION AFTER REMOVAL

- 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.

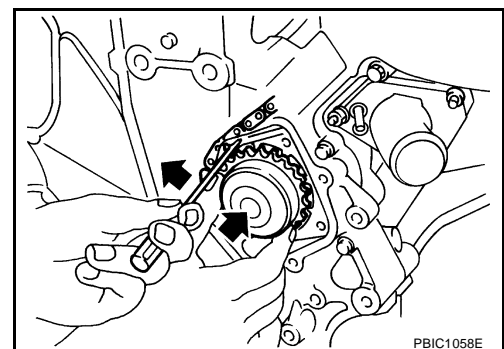


2. Install water pump.

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: