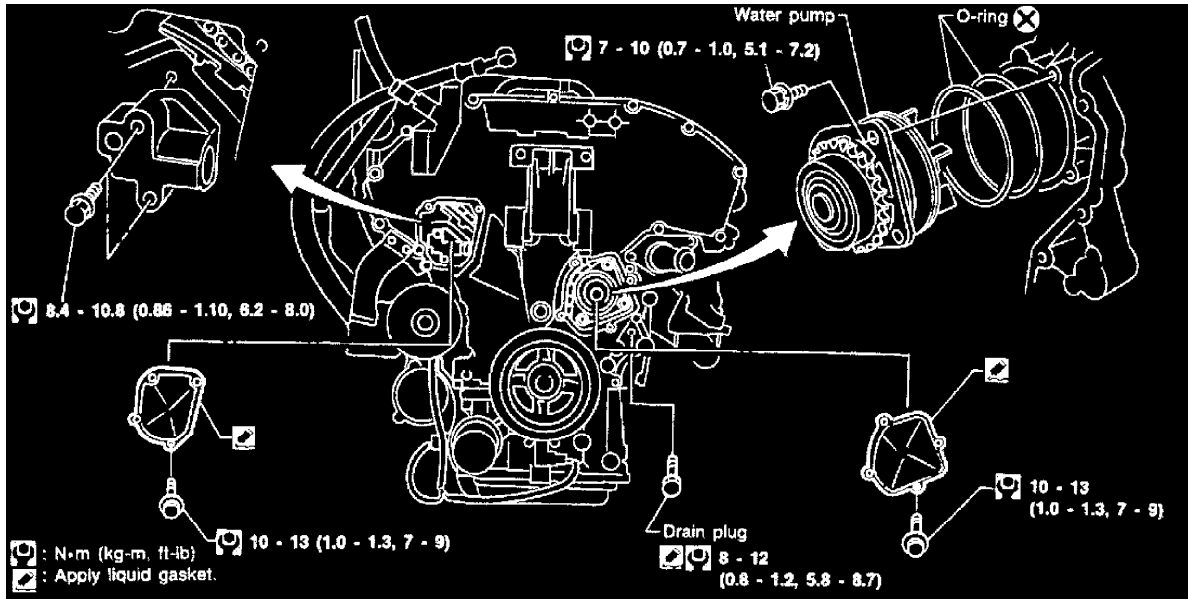


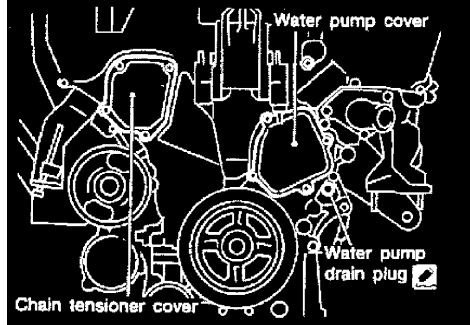
Water Pump: Service and Repair

REMOVAL AND INSTALLATION

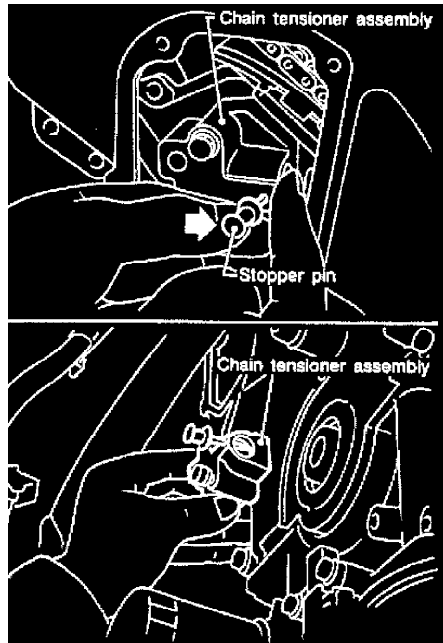
CAUTION: When removing water pump assembly, be careful not to get coolant on drive belt. Water pump cannot be disassembled and should be replaced as a unit. After installing water pump, connect hose and clamp securely, then check for leaks using radiator cap tester.



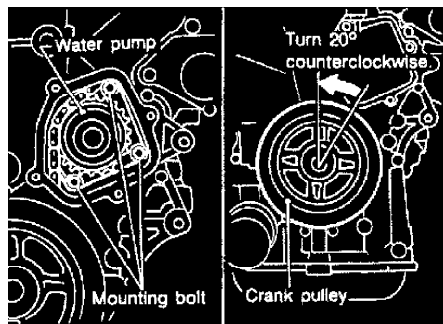
1. Drain coolant from drain plugs on radiator and both sides of cylinder block.
2. Remove drain plug on cylinder block.
3. Remove right side engine mounting, mounting bracket and nuts.



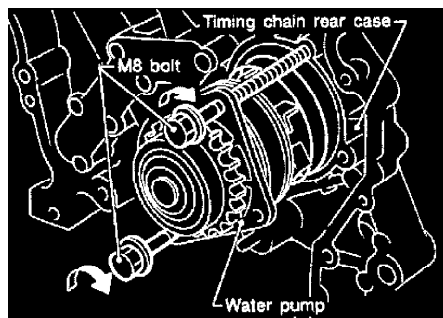
4. Remove drive belts and idler pulley bracket.
5. Remove chain tensioner cover and water pump cover.



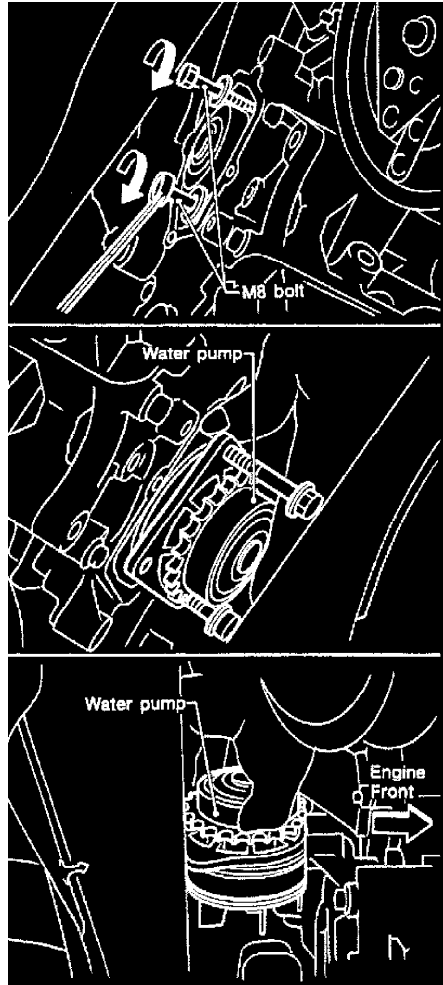
6. Pushing timing chain tensioner sleeve, apply a stopper pin so it does not return. Then remove the chain tensioner assembly.



7. Remove the 3 water pump fixing bolts. Secure a gap between water pump gear and timing chain, by turning crankshaft pulley 20° backwards.

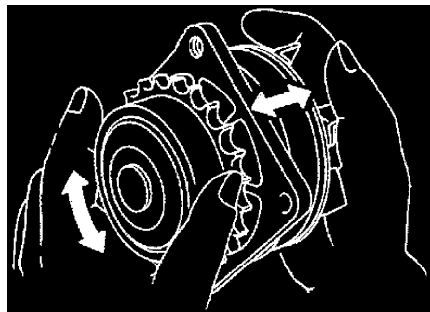


8. Put M8 bolts to two M8-threaded holes out of 3 water pump fixing bolt holes.



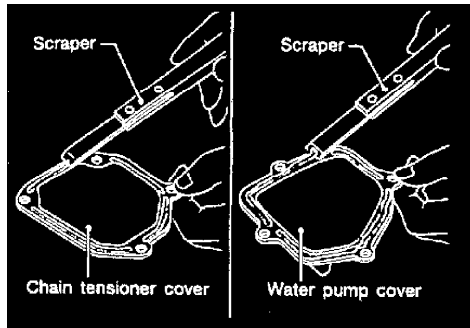
9. Tighten M8 bolts by turning half turn alternately until they reach timing chain rear case.
In order to prevent damages to water pump or timing chain rear case, do not tighten one bolt continuously. Always turn each bolt half turn each time.
10. Lift up water pump and remove it.
When lifting up water pump, do not allow water pump gear to hit timing chain.

INSPECTION

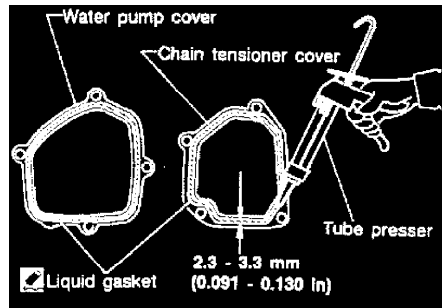


1. Check for badly rusted or corroded body assembly.
2. Check for rough operation due to excessive end play.

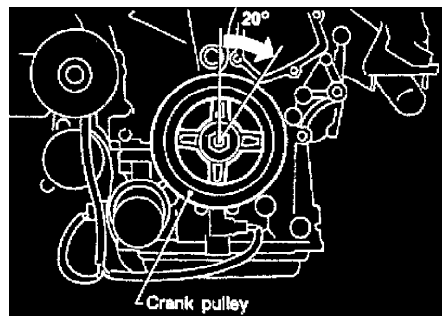
INSTALLATION



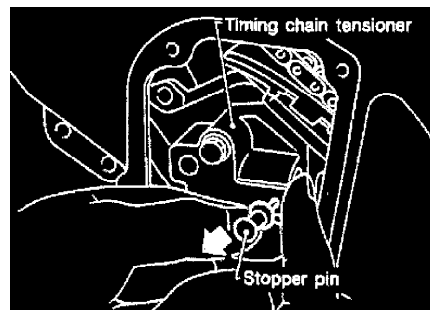
1. Before installing, remove all traces of liquid gasket from mating surface of water pump cover and chain tensioner cover using a scraper. Also remove traces of liquid gasket from mating surface of front cover.



2. Apply a continuous bead of liquid gasket to mating surface of chain tensioner cover and water pump cover.



3. Return the crankshaft pulley to its original position by turning it 20° forward.



4. Install timing chain tensioner, then remove the stopper pin. After installing the tensioner, race the engine at about 3,000 rpm under no load to purge air from the high-pressure chamber. The engine may produce a rattling noise. This indicates that air still remains in the chamber and is not a matter of concern.
5. Install drain plug on cylinder block.
6. Reinstall any parts removed in reverse order of removal.