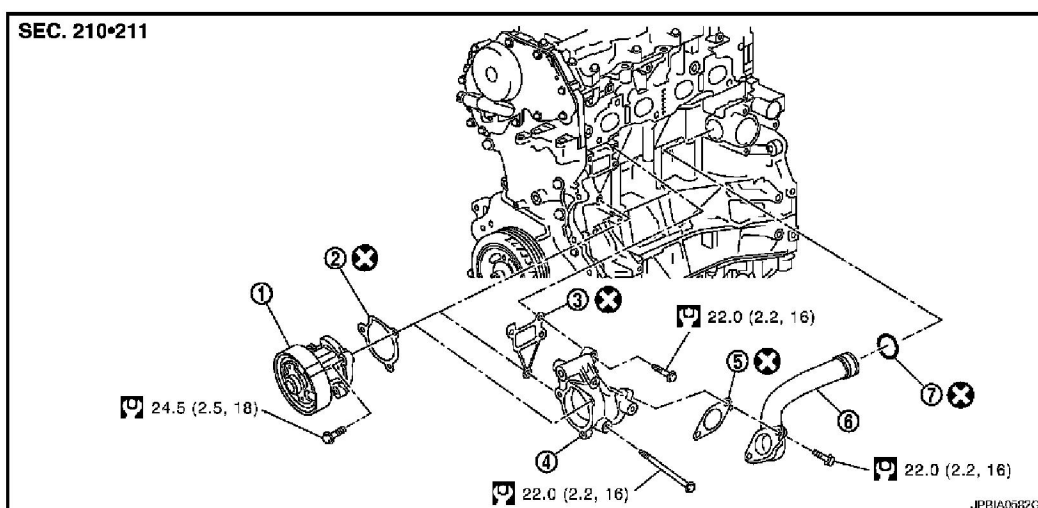


# Water Pump: Service and Repair

## Removal and Installation

### Exploded View



- |                       |           |               |
|-----------------------|-----------|---------------|
| 1. Water pump         | 2. Gasket | 3. Gasket     |
| 4. Water pump housing | 5. Gasket | 6. Water pipe |
| 7. O-ring             |           |               |

Refer to Diagram Information and Instruction for additional symbol definitions.

### CO-23 Exploded View

## REMOVAL

1. Drain engine coolant.

**CAUTION:** Perform this step when engine is cold.

2. Remove the following parts.
  - ^ Drive belt
  - ^ Drive belt auto-tensioner
  - ^ Alternator
3. Remove water pump.
  - ^ Engine coolant leaks from cylinder block, so have a receptacle ready below.

### CAUTION:

- ^ Handle water pump vane so that it does not contact any other parts.
- ^ Water pump cannot be disassembled and should be replaced as a unit.

4. Remove water pump housing with the following procedure:
  - a. Remove exhaust manifold cover.
  - b. Remove oil level gauge and oil level gauge guide.

**CAUTION:** Plug the oil level gauge guide opening to prevent oil pan from entering foreign materials.

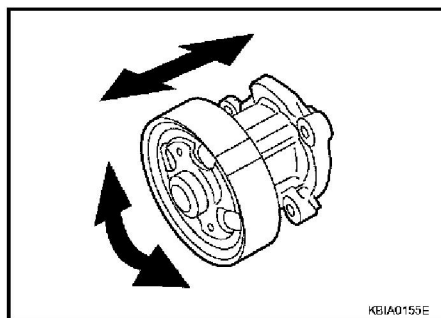
- c. Remove mounting bolts for water pipe.
  - d. Remove water pump housing.
5. Remove exhaust manifold and three way catalyst assembly.
  6. Remove water pipe.

## INSTALLATION

Note the following, and install in the reverse order of removal.

- ^ When inserting water pipe end into cylinder block, apply a neutral detergent to O-ring. Then insert it immediately.

## Inspection

**INSPECTION AFTER REMOVAL**

- ^ Check visually that there is no significant dirt or rusting on water pump body and vane.
- ^ Check that there is no looseness in vane shaft, and that it turns smoothly when rotated by hand.
- ^ Replace water pump, if necessary.

**INSPECTION AFTER INSTALLATION**

- ^ Check for leakage of engine coolant using the radiator cap tester adapter (commercial service tool) and the radiator cap tester (commercial service tool). Refer to CO-9, "Inspection". See: Cooling System/Testing and Inspection/System Inspection
- ^ Start and warm up engine. Check visually that there is no leakage of engine coolant.