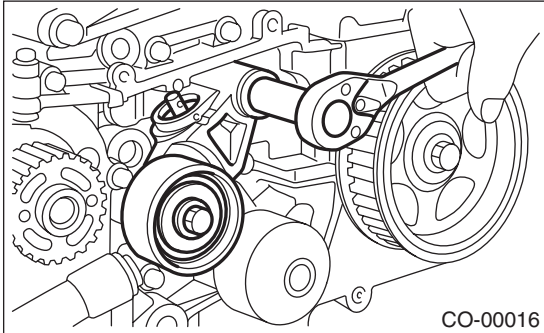


## 5. Water Pump

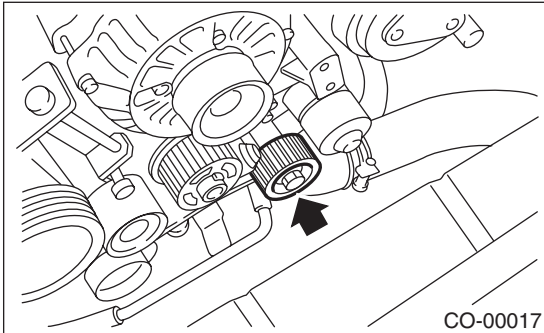
### A: REMOVAL

#### 1. NON-TURBO MODEL

- 1) Remove the radiator. <Ref. to CO(H4SO)-38, REMOVAL, Radiator.>
- 2) Remove V-belts.  
<Ref. to ME(H4SO)-42, REMOVAL, V-belt.>
- 3) Remove the timing belt.  
<Ref. to ME(H4SO)-46, TIMING BELT, REMOVAL, Timing Belt.>
- 4) Remove the automatic belt tension adjuster.



- 5) Remove the belt idler No. 2.

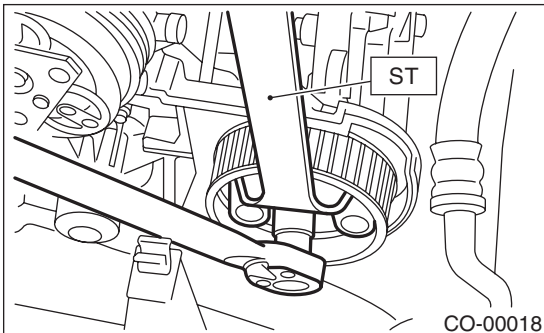


- 6) Remove the left-hand camshaft sprocket by using ST.

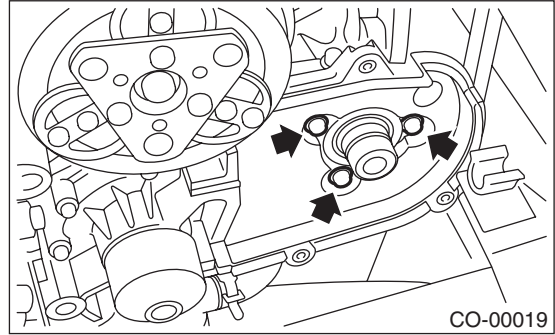
ST 18231AA010 CAMSHAFT SPROCKET WRENCH

#### NOTE:

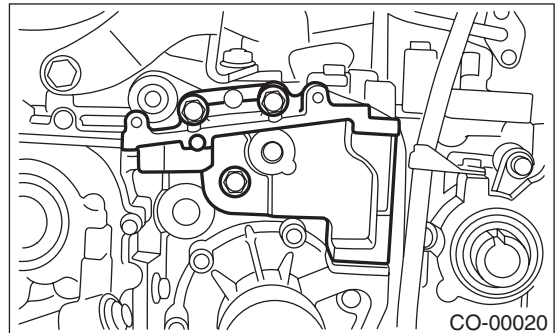
Also the CAMSHAFT SPROCKET WRENCH (499207100) can be used.



- 7) Remove the left-hand belt cover No. 2.

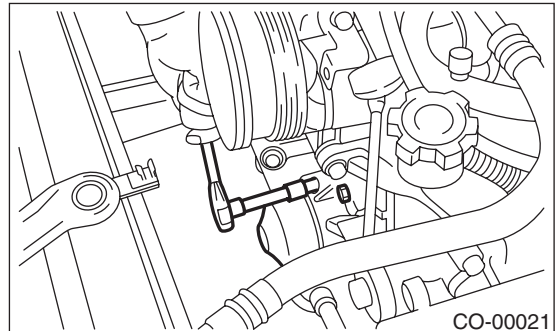


- 8) Remove the tensioner bracket.



- 9) Disconnect the heater hose from the water pump.

- 10) Remove the water pump.

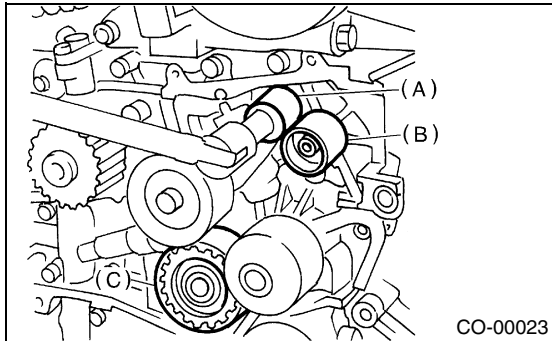


# WATER PUMP

## COOLING

### 2. TURBO MODEL

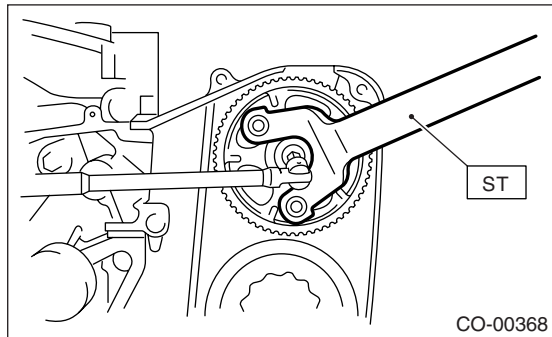
- 1) Remove the radiator. <Ref. to CO(H4SO)-38, Removal, Radiator.>
- 2) Remove the V-belts. <Ref. to ME(H4DOTC)-44, REMOVAL, V-belt.>
- 3) Remove the timing belt. <Ref. to ME(H4DOTC)-48, REMOVAL, Timing Belt Assembly.>
- 4) Remove the automatic belt tension adjuster (A).
- 5) Remove the belt idler (B).
- 6) Remove the belt idler No. 2 (C).



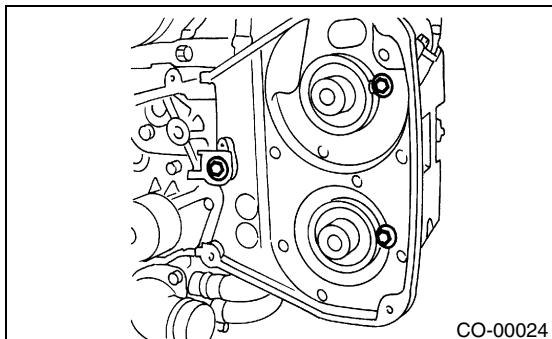
- 7) Remove the camshaft position sensor. <Ref. to FU(H4DOTC)-31, REMOVAL, Camshaft Position Sensor.>

- 8) Remove the left-hand camshaft sprockets by using ST.

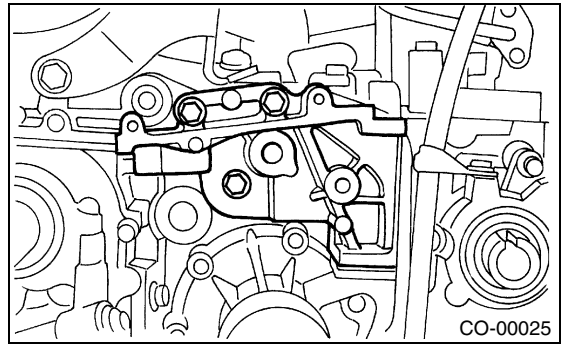
- |               |                                    |
|---------------|------------------------------------|
| ST 18231AA010 | CAMSHAFT SPROCKET WRENCH (Intake)  |
| ST 499207400  | CAMSHAFT SPROCKET WRENCH (Exhaust) |



- 9) Remove the left-hand belt cover No. 2.

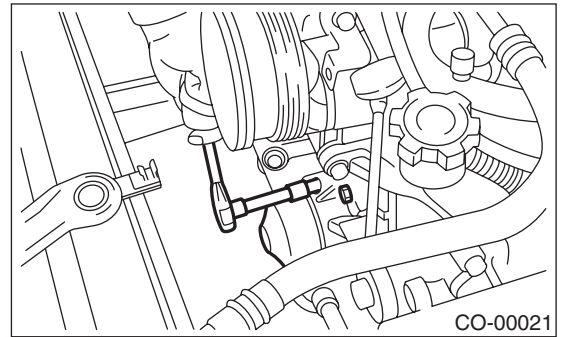


- 10) Remove the tensioner bracket.



- 11) Disconnect the heater hose from the water pump.

- 12) Remove the water pump.



## B: INSTALLATION

### 1. NON-TURBO MODEL

1) Install the water pump onto the left-hand cylinder block.

NOTE:

- Replace gasket with a new one.
- When installing water pump, tighten bolts in two stages in alphabetical sequence as shown in figure.

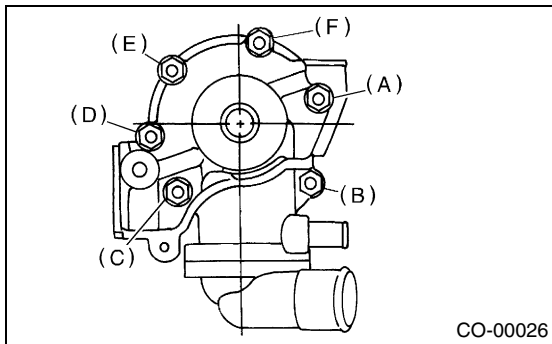
**Tightening torque:**

**First:**

**12 N·m (1.2 kgf-m, 8.7 ft-lb)**

**Second:**

**12 N·m (1.2 kgf-m, 8.7 ft-lb)**

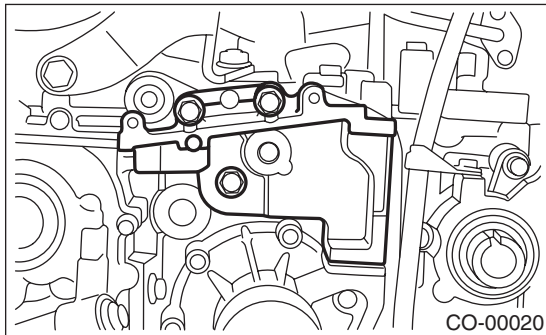


2) Install the hose to the water pump.

3) Install the tensioner bracket.

**Tightening torque:**

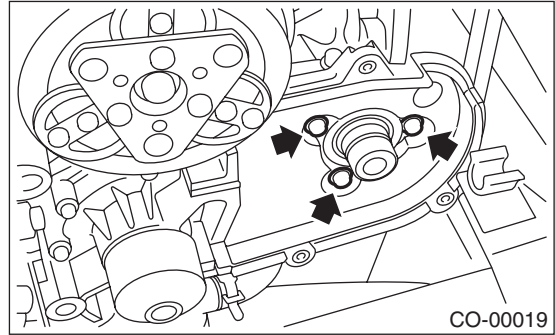
**25 N·m (2.5 kgf-m, 18.1 ft-lb)**



4) Install the left-hand belt cover No. 2.

**Tightening torque:**

**5 N·m (0.5 kgf-m, 3.6 ft-lb)**



5) Install the left-hand camshaft sprockets by using ST.

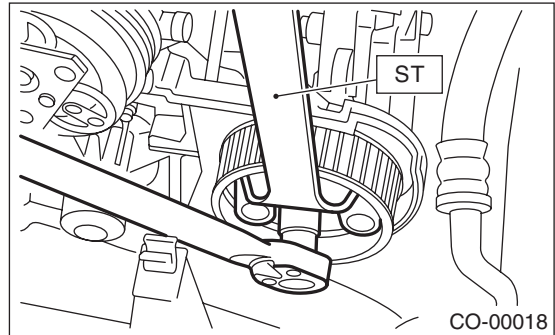
ST 18231AA010 CAMSHAFT SPROCKET WRENCH

NOTE:

Also the CAMSHAFT SPROCKET WRENCH (499207100) can be used.

**Tightening torque:**

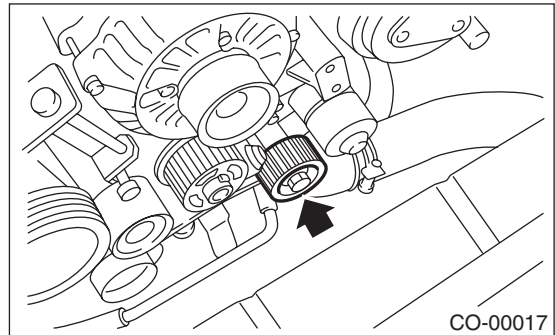
**78 N·m (8.0 kgf-m, 57.9 ft-lb)**



6) Install the belt idler No. 2.

**Tightening torque:**

**39 N·m (4.0 kgf-m, 28.9 ft-lb)**



# WATER PUMP

## COOLING

- 7) Install the automatic belt tension adjuster which tension rod is held with pin. <Ref. to ME(H4SO)-47, AUTOMATIC BELT TENSION ADJUSTER ASSEMBLY AND BELT IDLER, INSTALLATION, Timing Belt.>
- 8) Install the timing belt. <Ref. to ME(H4SO)-48, TIMING BELT, INSTALLATION, Timing Belt.>
- 9) Install V-belts. <Ref. to ME(H4SO)-42, INSTALLATION, V-belt.>
- 10) Install the radiator.<Ref. to CO(H4SO)-42, INSTALLATION, Radiator.>

## 2. TURBO MODEL

- 1) Install the water pump onto the left-hand cylinder block.

### NOTE:

- Replace gasket with a new one.
- When installing water pump, tighten bolts in two stages in alphabetical sequence as shown in figure.

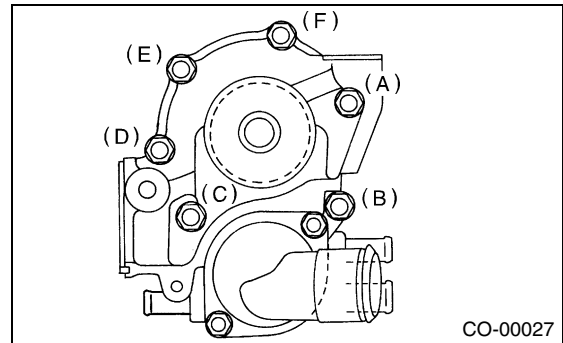
### Tightening torque:

#### First:

**12 N·m (1.2 kgf-m, 8.7 ft-lb)**

#### Second:

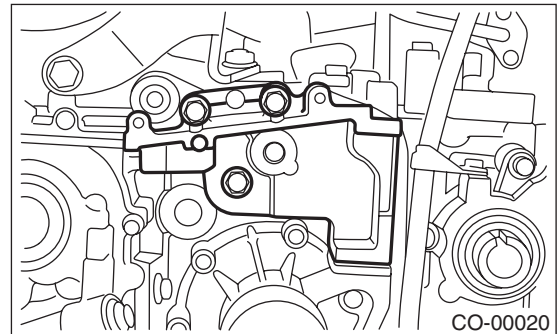
**12 N·m (1.2 kgf-m, 8.7 ft-lb)**



- 2) Install the hose to the water pump.
- 3) Install the tensioner bracket.

### Tightening torque:

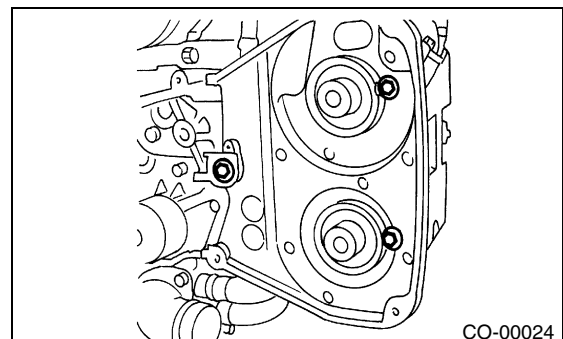
**25 N·m (2.5 kgf-m, 18.1 ft-lb)**



- 4) Install the left-hand belt cover No. 2.

### Tightening torque:

**5 N·m (0.5 kgf-m, 3.6 ft-lb)**



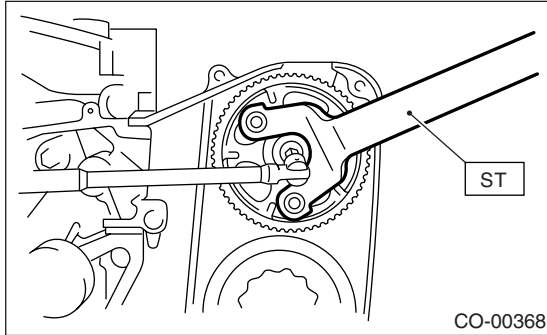
5) Install the left-hand camshaft sprockets by using ST.

ST 18231AA010 CAMSHAFT SPROCKET  
WRENCH (Intake)

ST 499207400 CAMSHAFT SPROCKET  
WRENCH (Exhaust)

**Tightening torque:**

**98 N·m (10.0 kgf-m, 72.4 ft-lb)**



6) Install the camshaft position sensor. <Ref. to FU(H4DOTC)-31, INSTALLATION, Camshaft Position Sensor.>

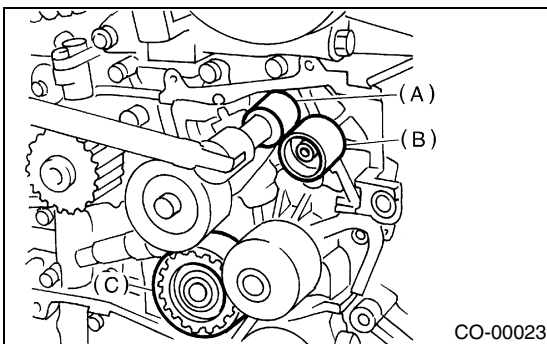
7) Install the belt idler No. 2 (C).

8) Install the belt idler (B).

9) Install the automatic belt tension adjuster (A) which has a tension rod held by a pin. <Ref. to ME(H4DOTC)-50, AUTOMATIC BELT TENSION ADJUSTER ASSEMBLY AND BELT IDLER, INSTALLATION, Timing Belt Assembly.>

**Tightening torque:**

**39 N·m (4.0 kgf-m, 28.9 ft-lb)**



10) Install the timing belt. <Ref. to ME(H4DOTC)-51, TIMING BELT, INSTALLATION, Timing Belt Assembly.>

11) Install the V-belts. <Ref. to ME(H4DOTC)-44, INSTALLATION, V-belt.>

12) Install the radiator. <Ref. to CO(H4SO)-42, INSTALLATION, Radiator.>

## C: INSPECTION

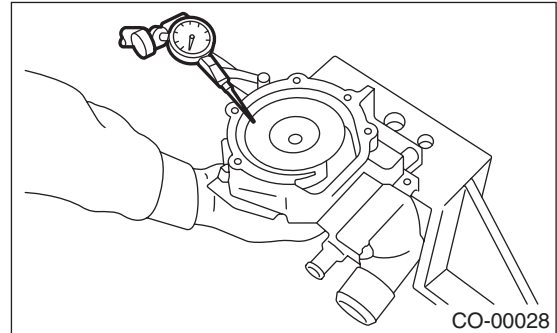
1) Check the water pump bearing for smooth rotation.

2) Check the water pump pulley for abnormalities.

3) Using a dial gauge, measure impeller runout in thrust direction while rotating the pulley.

**“Thrust” runout limit:**

**0.5 mm (0.020 in)**



4) Check the clearance between impeller and pump case.

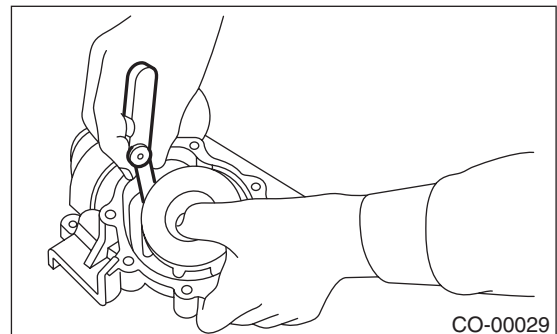
**Clearance between impeller and pump case:**

**Standard**

**0.5 — 0.7 mm (0.020 — 0.028 in)**

**Limit**

**1.0 mm (0.039 in)**



5) After water pump installation, check pulley shaft for engine coolant leaks. If leaks are noted, replace the water pump assembly.