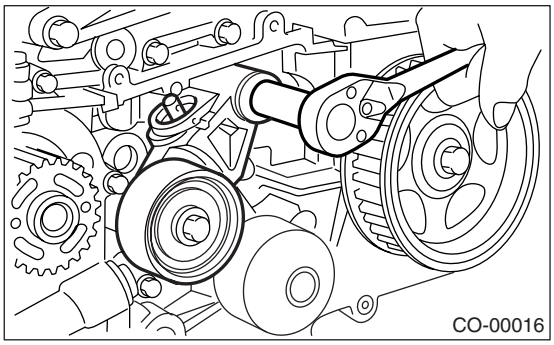
4. Water Pump

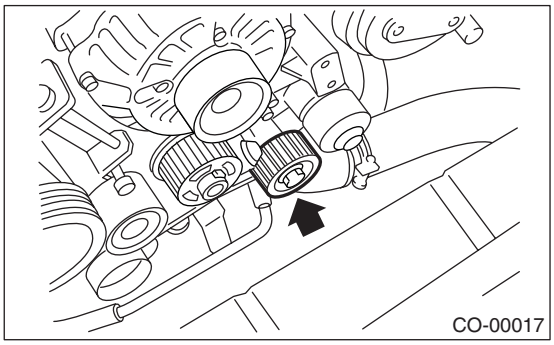
A: REMOVAL

1. NON-TURBO MODEL

1) Remove the radiator. <Ref. to CO(H4SO)-26, REMOVAL, Radiator.>
2) Remove the V-belts.
<Ref. to ME(H4SO)-42, REMOVAL, V-belt.>
3) Remove the crank pulley.
<Ref. to ME(H4SO)-44, REMOVAL, Crank Pulley.>
4) Remove the timing belt.
<Ref. to ME(H4SO)-46, TIMING BELT, REMOVAL, Timing Belt Assembly.>
5) Remove the automatic belt tension adjuster.

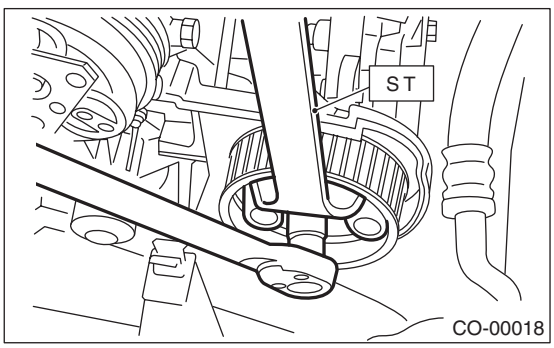

CO-00016

6) Remove the belt idler No. 2.


CO-00017

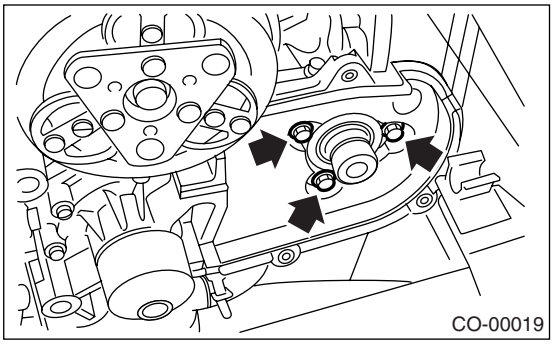
7) Remove the cam sprocket (LH) by using ST.
ST 18231AA010 CAM SPROCKET WRENCH

NOTE:
Also the CAM SPROCKET WRENCH (499207100) can be used.

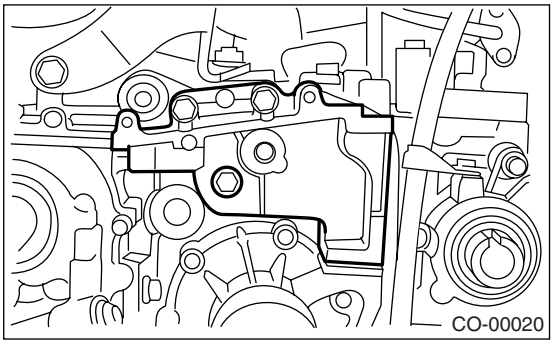


CO-00018

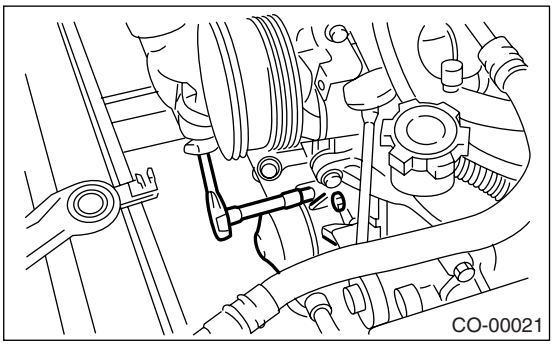
8) Remove the belt cover No. 2 (LH).


CO-00019

9) Remove the tensioner bracket.

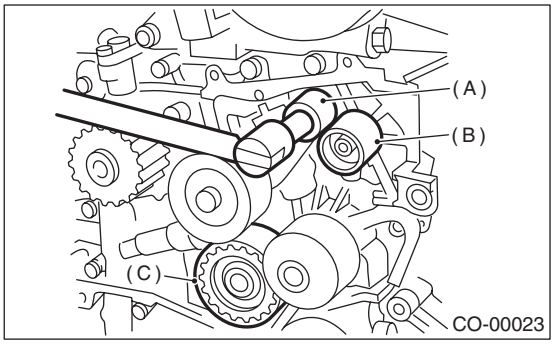

CO-00020

10) Disconnect the hose from water pump.
11) Remove the water pump.

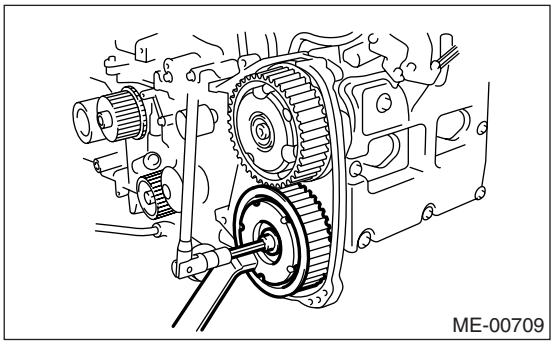

CO-00021

2. TURBO MODEL

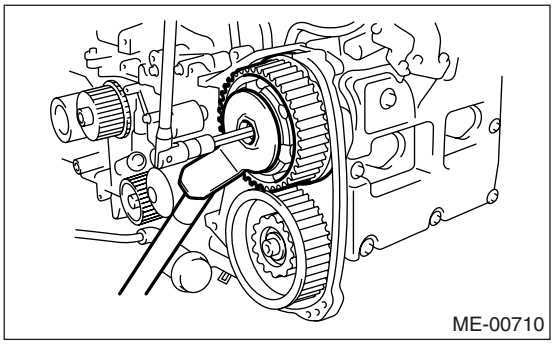
1) Remove the radiator. <Ref. to CO(H4SO)-26, REMOVAL, Radiator.>
2) Remove the V-belts. <Ref. to ME(H4DOTC)-45, REMOVAL, V-belt.>
3) Remove the crank pulley. <Ref. to ME(H4DOTC)-48, REMOVAL, Crank Pulley.>
4) Remove the timing belt. <Ref. to ME(H4DOTC)-50, REMOVAL, Timing Belt Assembly.>
5) Remove the automatic belt tension adjuster (A).
6) Remove the belt idler (B).
7) Remove the belt idler No. 2 (C).



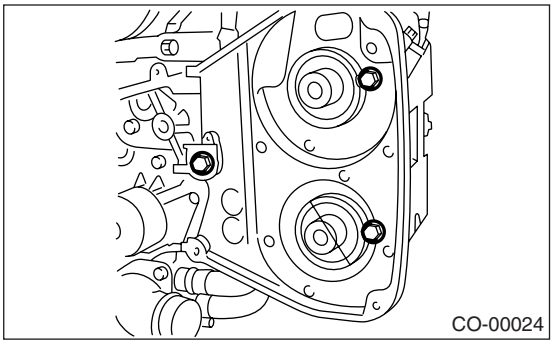
8) Remove the camshaft position sensor. <Ref. to FU(H4DOTC)-28, REMOVAL, Camshaft Position Sensor.>
9) Remove the cam sprockets (LH) by using ST.
ST 499207400 CAM SPROCKET WRENCH



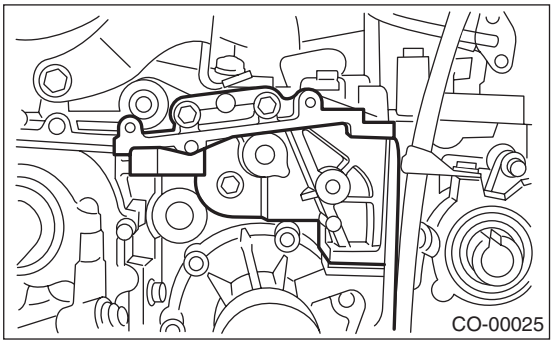
ST 499977500 CAM SPROCKET WRENCH



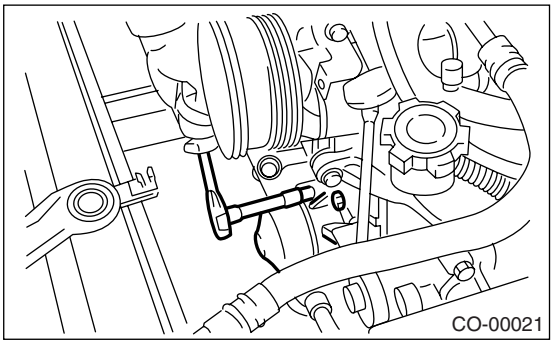
10) Remove the belt cover No. 2 (LH).



11) Remove the tensioner bracket.



12) Disconnect the hose from water pump.
13) Remove the water pump.



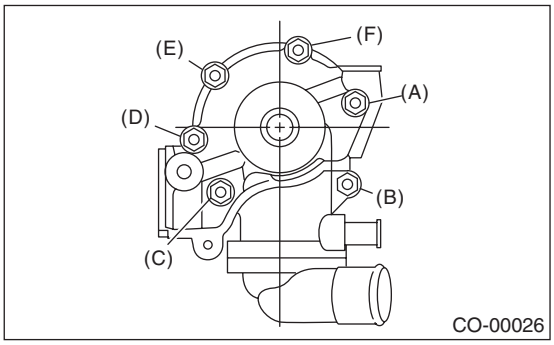
B: INSTALLATION

1. NON-TURBO MODEL

1) Install water pump onto cylinder block (LH).

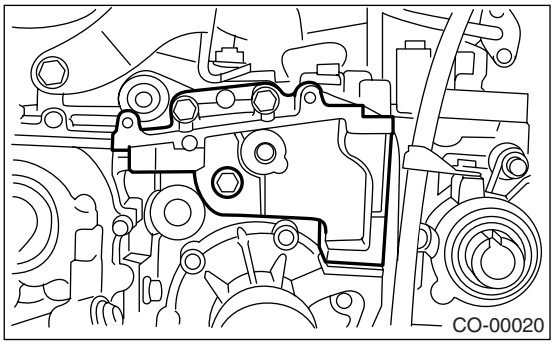
NOTE:
- Replace the gasket with a new one.
- When installing the water pump, tighten bolts in two stages in alphabetical sequence as shown in the figure.

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)



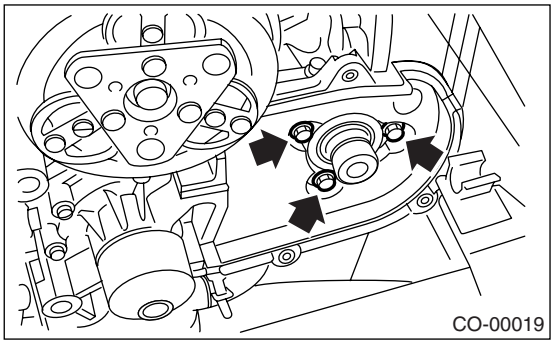
2) Connect the hose to water pump.
3) Install the tensioner bracket.

Tightening torque:
25 N·m (2.5 kgf-m, 18.1 ft-lb)



4) Install the belt cover No. 2 (LH).

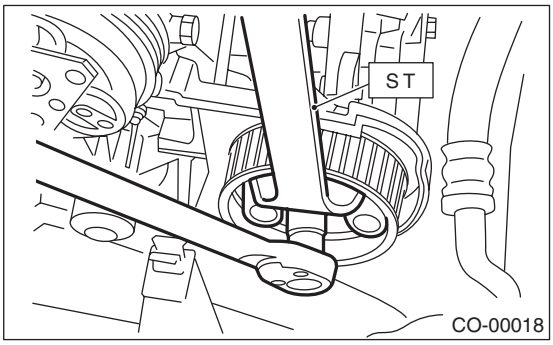
Tightening torque:
5 N·m (0.5 kgf-m, 3.6 ft-lb)



5) Install the cam sprockets (LH) by using ST.
ST 18231AA010 CAMSHAFT SPROCKET WRENCH

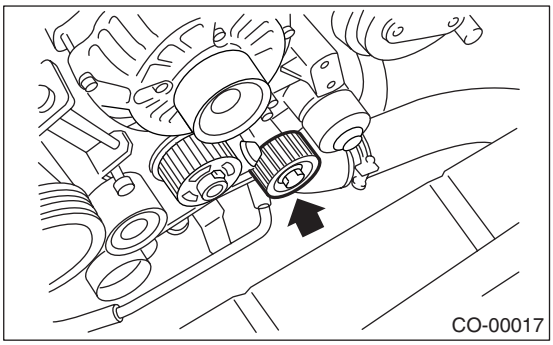
NOTE:
Also the CAMSHAFT SPROCKET WRENCH (499207100) can be used.

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)



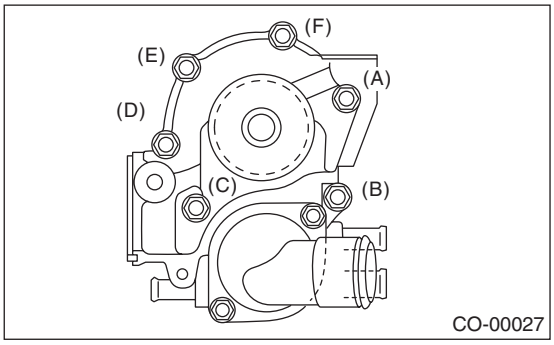
7) Install the automatic belt tension adjuster which has tension rod held by pin. <Ref. to ME(H4SO)-47, AUTOMATIC BELT TENSION ADJUSTER ASSEMBLY AND BELT IDLER, INSTALLATION, Timing Belt Assembly.>
8) Install the timing belt. <Ref. to ME(H4SO)-48, TIMING BELT, INSTALLATION, Timing Belt Assembly.>
9) Install the crank pulley. <Ref. to ME(H4SO)-44, INSTALLATION, Crank Pulley.>
10) Install the V-belts. <Ref. to ME(H4SO)-42, INSTALLATION, V-belt.>
11) Install the radiator. <Ref. to CO(H4SO)-28, INSTALLATION, Radiator.>

2. TURBO MODEL

1) Install the water pump onto cylinder block (LH).

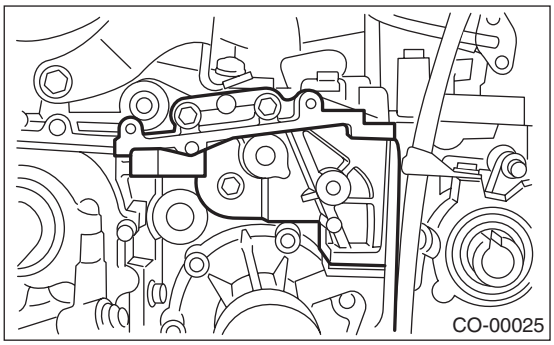
NOTE:
- Replace the gasket with a new one.
- When installing the water pump, tighten bolts in two stages in alphabetical sequence as shown in the figure.

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)



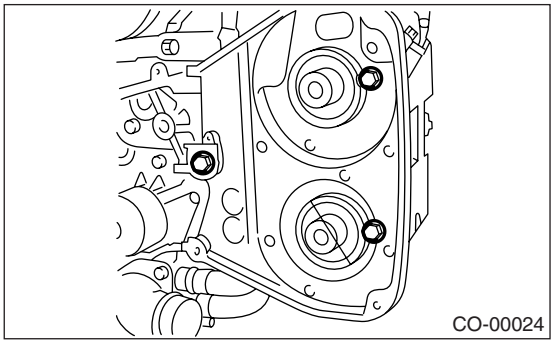
2) Connect the hose to water pump.
3) Install the tensioner bracket.

Tightening torque:
25 N·m (2.5 kgf-m, 18.1 ft-lb)



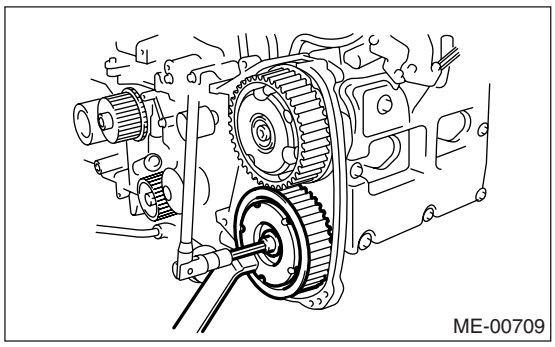
4) Install the belt cover No. 2 (LH).

Tightening torque:
5 N·m (0.5 kgf-m, 3.6 ft-lb)



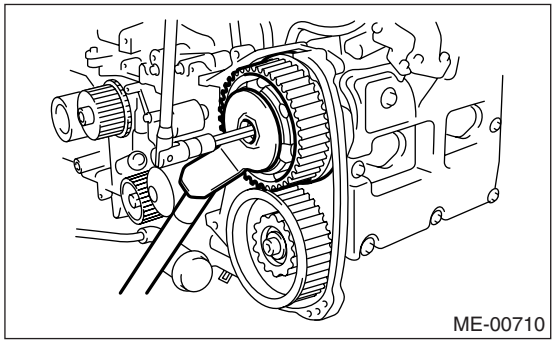
5) Install the cam sprockets (LH) by using ST.
ST 499207400 CAM SPROCKET WRENCH

Tightening torque:
98 N·m (10.0 kgf-m, 72.4 ft-lb)



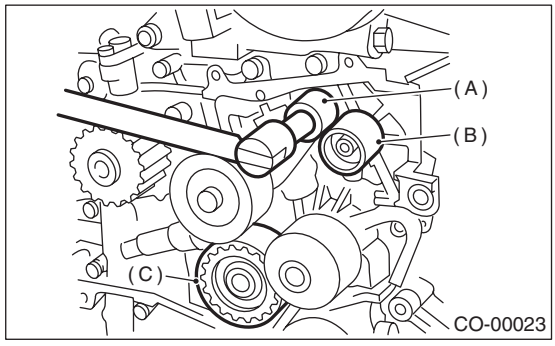
ST 499977500 CAM SPROCKET WRENCH

Tightening torque:
29.5 N·m (3.0 kgf-m, 21.8 ft-lb), and then tighten 45° furthermore



6) Install the camshaft position sensor. <Ref. to FU(H4DOTC)-28, 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 tension rod held by pin. <Ref. to ME(H4DOTC)-52, 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)

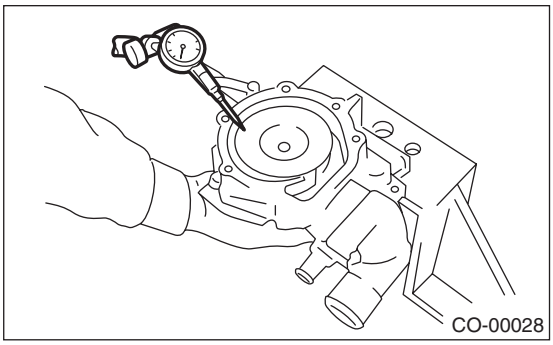


10) Install the timing belt. <Ref. to ME(H4DOTC)-52, TIMING BELT, INSTALLATION, Timing Belt Assembly.>
11) Install the crank pulley. <Ref. to ME(H4DOTC)-48, INSTALLATION, Crank Pulley.>
12) Install the V-belts. <Ref. to ME(H4DOTC)-45, INSTALLATION, V-belt.>
13) Install the radiator. <Ref. to CO(H4SO)-28, INSTALLATION, Radiator.>

C: INSPECTION

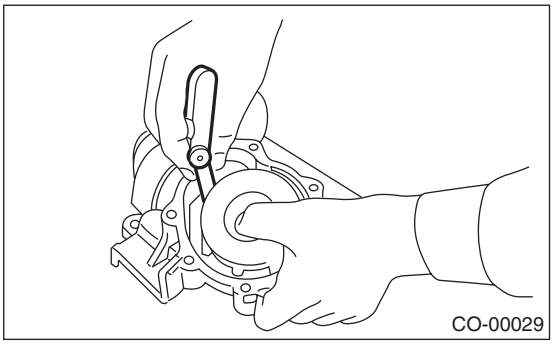
1) Check the water pump bearing for smooth rotation.
2) Check the water pump pulley for abnormalities.
3) Using a dial gauge, measure the impeller runout in thrust direction while rotating the pulley.

"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 the pulley shaft for engine coolant leaks. If leaks are noted, replace the water pump assembly.