

## 13.Crank Pulley

### A: REMOVAL

**NOTE:**

When replacing a single part, perform the work with the engine assembly installed to body.

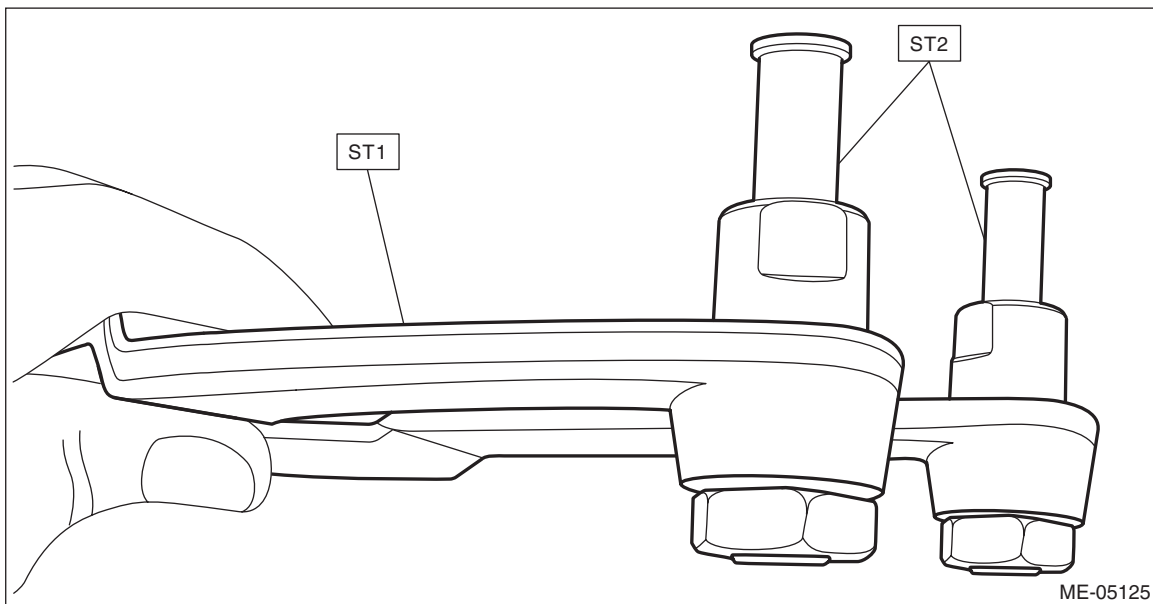
- 1) Remove the V-belts. <Ref. to ME(H4DO)-77, REMOVAL, V-belt.>
- 2) Remove the radiator sub fan and fan motor. <Ref. to CO(H4DO)-45, REMOVAL, Radiator Sub Fan and Fan Motor.>
- 3) Use the ST to lock the crank pulley, and remove the crank pulley bolt.

**NOTE:**

To prevent damaging ST1, attach the ST2 onto the ST1 as shown.

ST1 18355AA000 PULLEY WRENCH

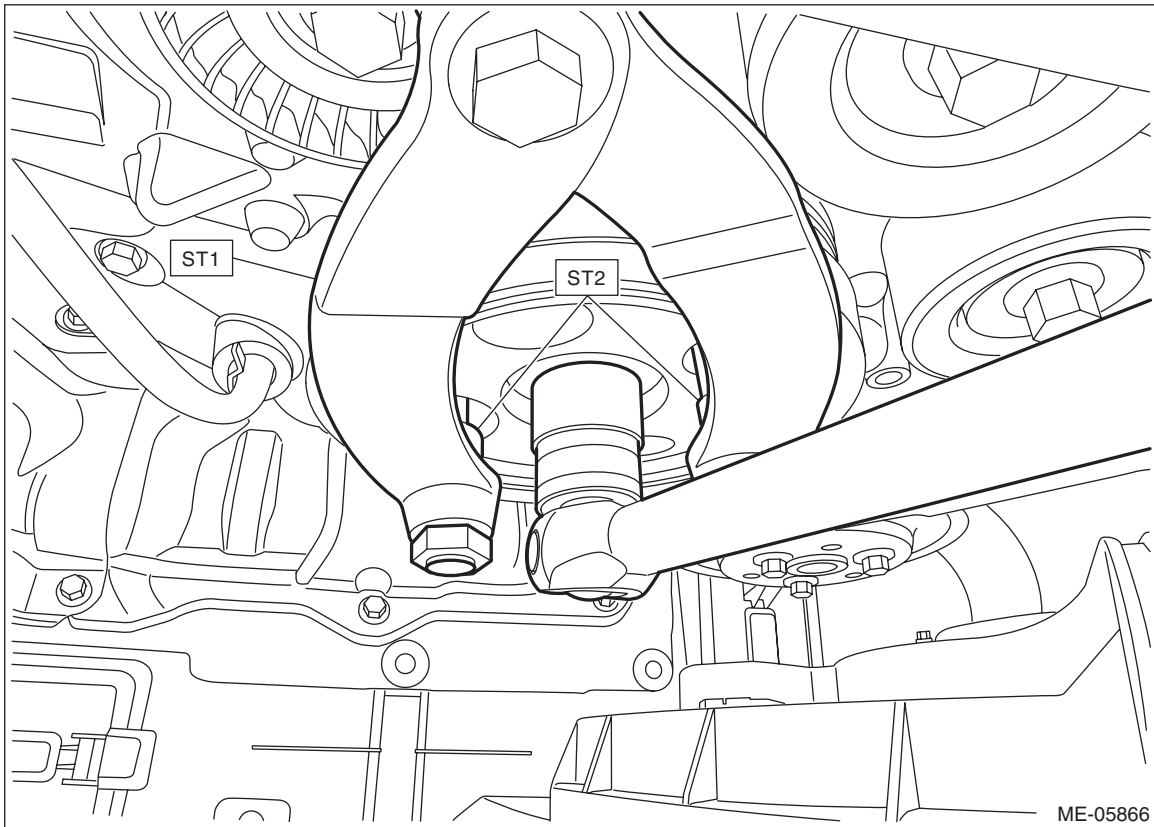
ST2 18334AA000 PULLEY WRENCH PIN SET



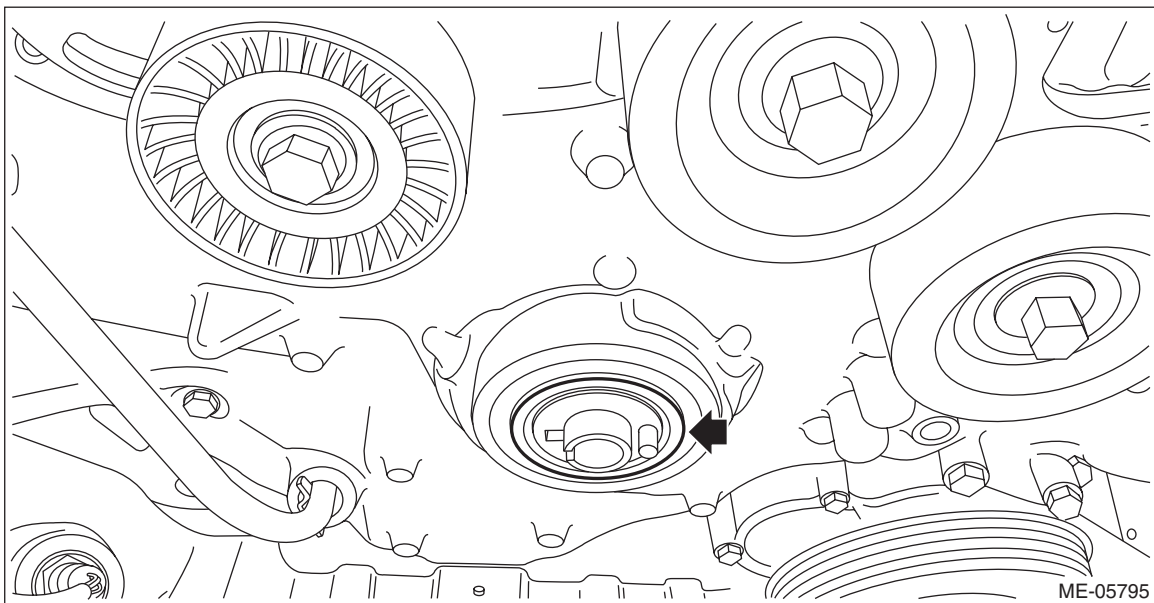
# Crank Pulley

## MECHANICAL

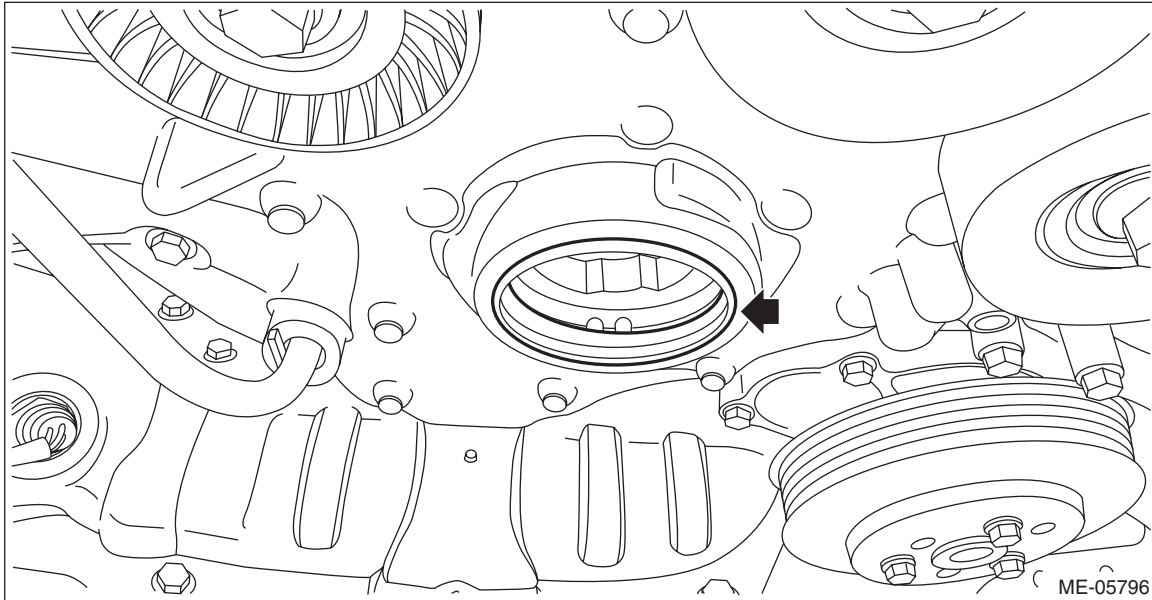
ST1 18355AA000 PULLEY WRENCH  
ST2 18334AA000 PULLEY WRENCH PIN SET



4) Remove the crank pulley and remove the crank pulley boss.



5) Remove the front oil seal.



## B: INSTALLATION

### 1. METHOD WITHOUT ANGLE GAUGE

1) Apply a light coat of engine oil to the front oil seal inner periphery and outer periphery, and install the front oil seal using ST.

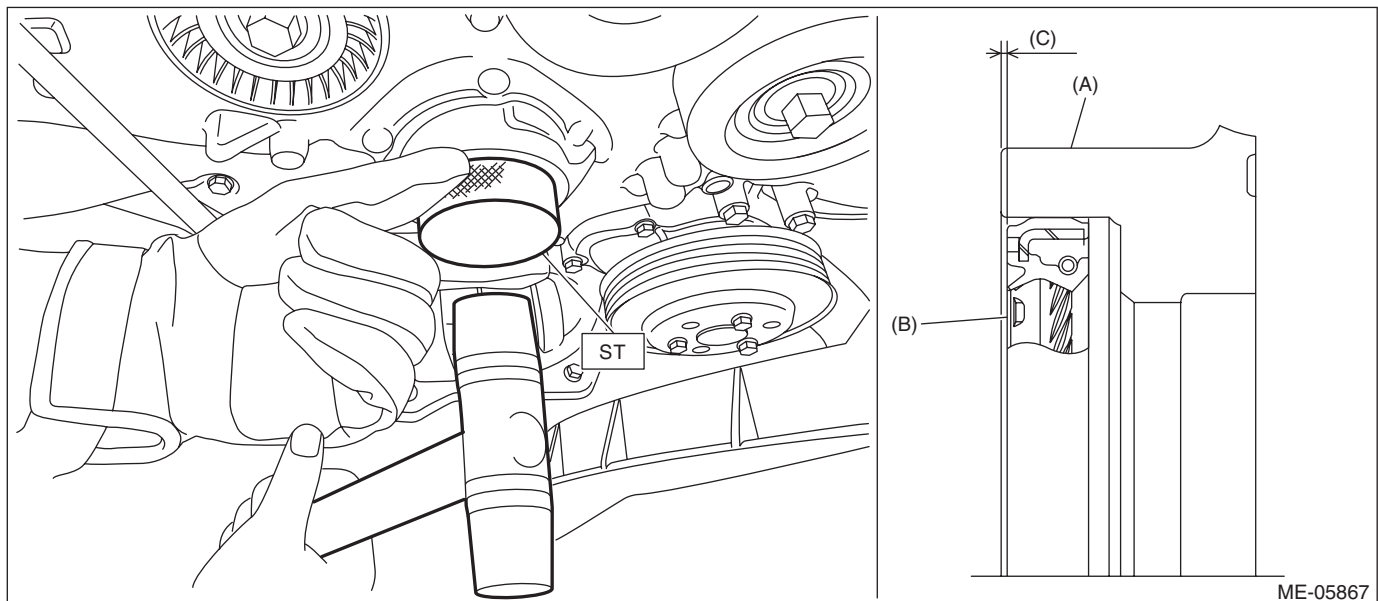
NOTE:

- Use a new front oil seal.
- When tapping the front oil seal in, protect the radiator fin with cardboards etc. so as not to damage the radiator fin by the plastic hammer.

ST 398437700 OIL SEAL INSTALLER

**Front oil seal press-fit position:**

$1^{+0}_{-1}$  mm ( $0.0039^{+0}_{-0.0039}$  in) position from chain cover end face



(A) Chain cover

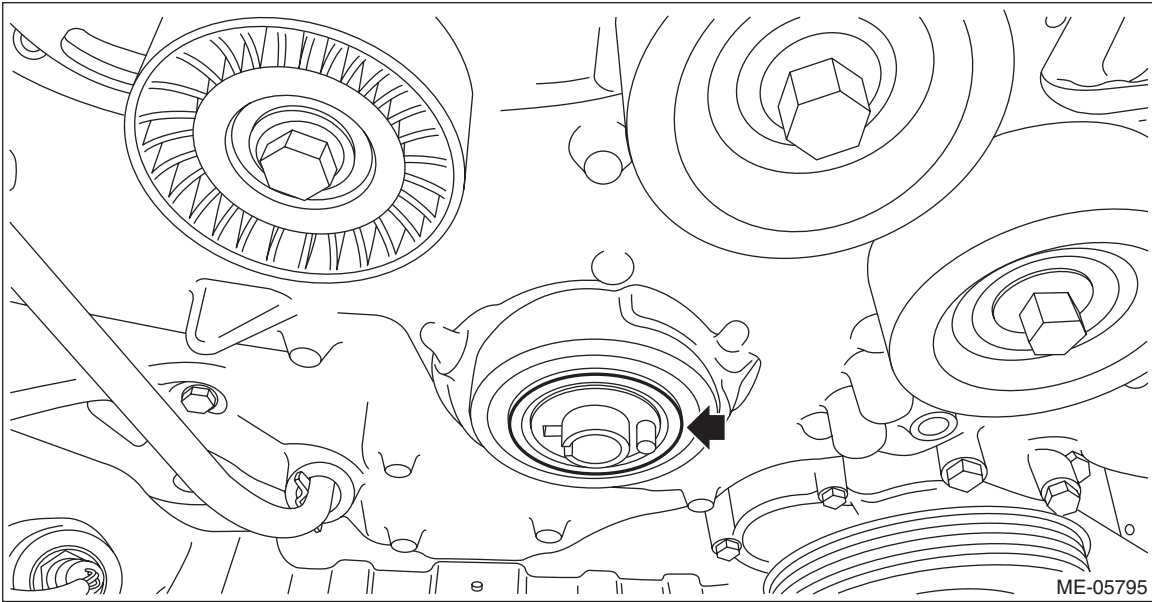
(B) Oil seal

(C) Front oil seal press-fit position  
 $1^{+0}_{-1}$  mm ( $0.0039^{+0}_{-0.0039}$  in)  
 position from chain cover end face

# Crank Pulley

## MECHANICAL

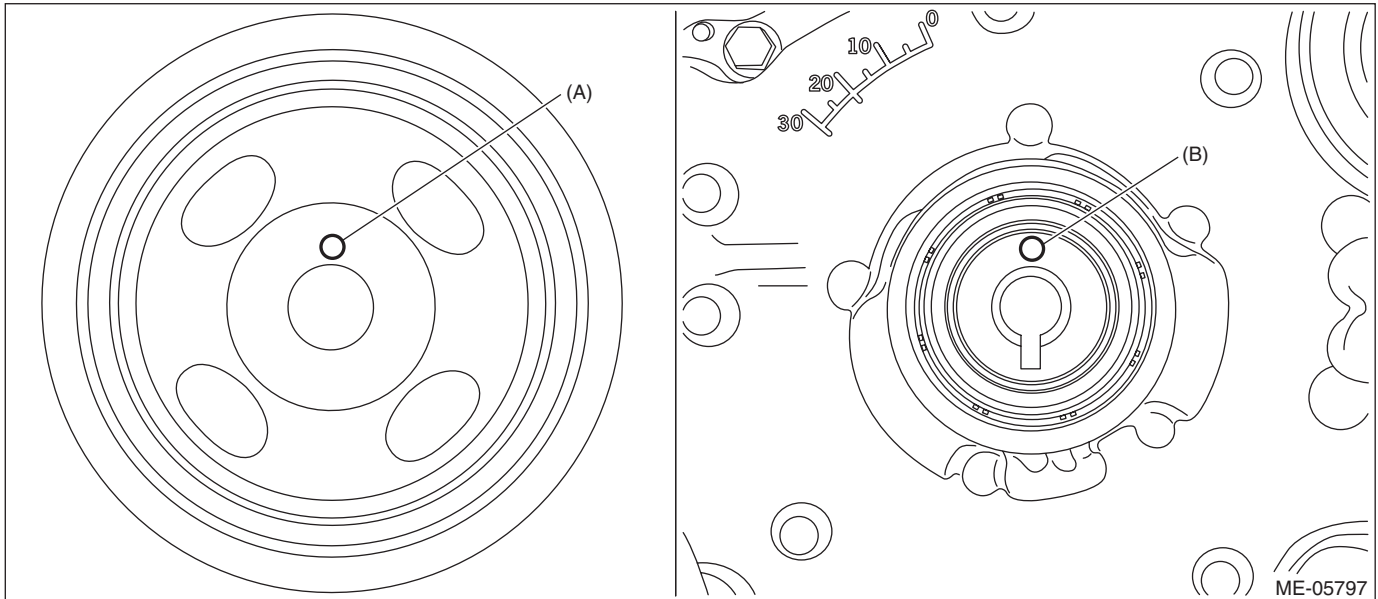
- 2) Clean the crankshaft thread using compressed air.
- 3) Install the crank pulley boss.



- 4) Apply engine oil to the crank pulley bolt seat and thread.
- 5) Install the crank pulley.
  - (1) Install the crank pulley to the crank pulley boss.

### NOTE:

- Use new O-rings.
- Install the crank pulley by aligning the crank pulley knock hole (A) and crank pulley boss knock pin (B).



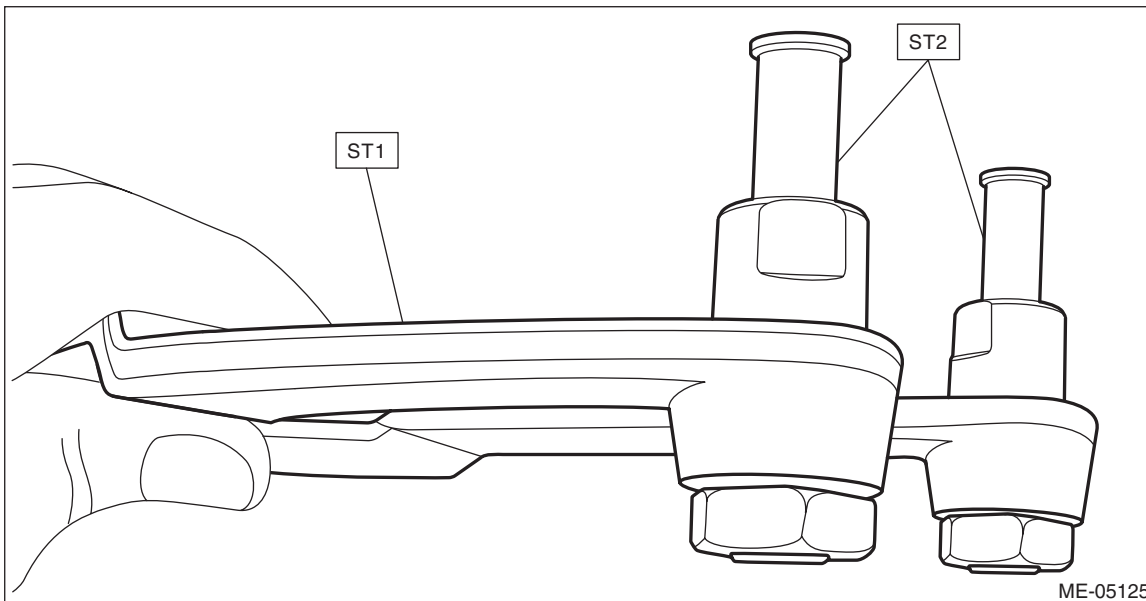
(2) Use the ST to lock the crank pulley, and temporarily tighten the crank pulley bolt.

**NOTE:**

To prevent damaging ST1, attach the ST2 onto the ST1 as shown.

ST1 18355AA000 PULLEY WRENCH

ST2 18334AA000 PULLEY WRENCH PIN SET



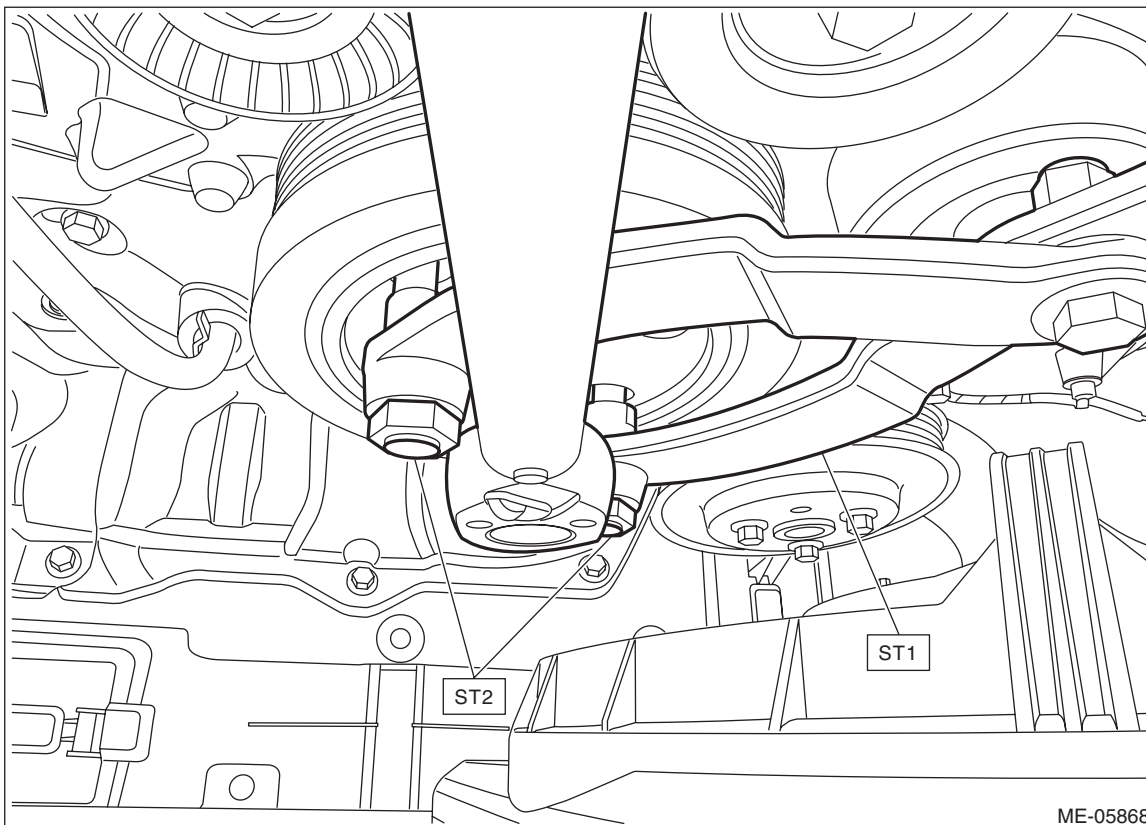
ME-05125

ST1 18355AA000 PULLEY WRENCH

ST2 18334AA000 PULLEY WRENCH PIN SET

**Tightening torque:**

**60 N·m (6.1 kgf-m, 44.3 ft-lb)**



ME-05868

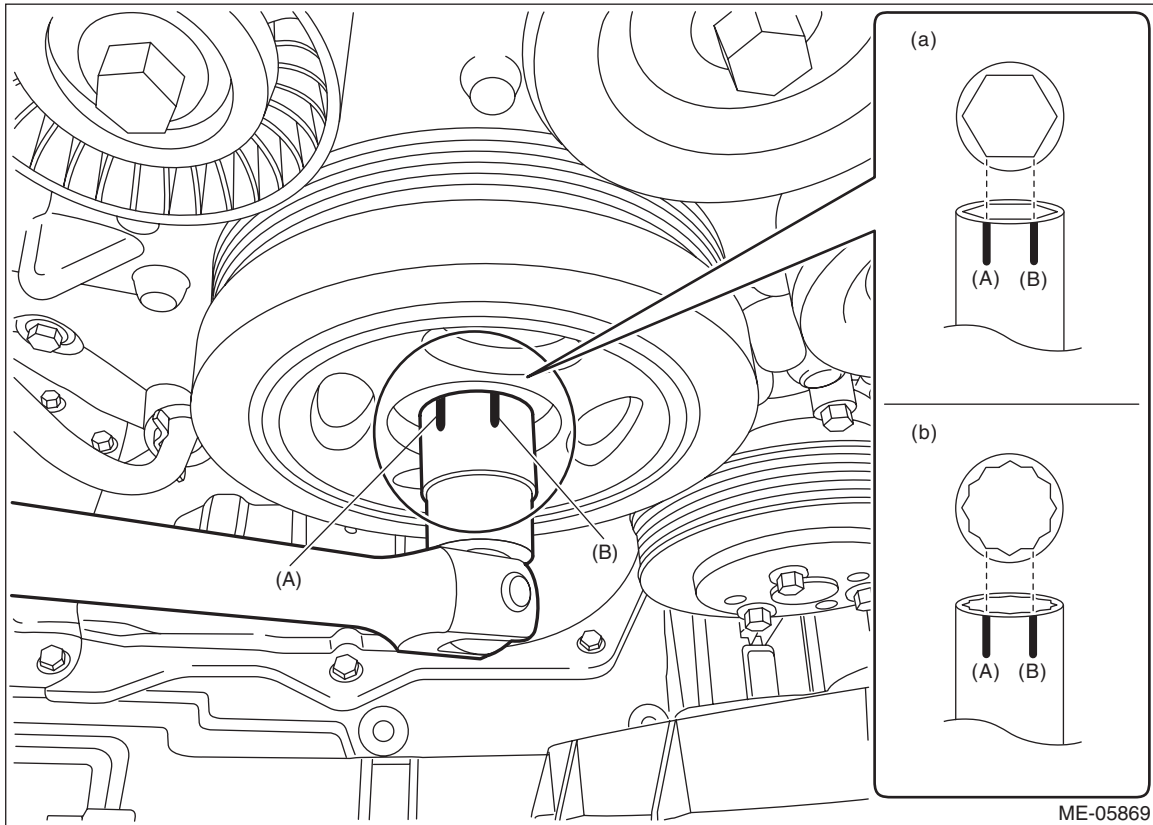
# Crank Pulley

## MECHANICAL

(3) Draw reference lines (A) and (B) using a marker to set the socket to the crank pulley bolt as shown in the figure.

### NOTE:

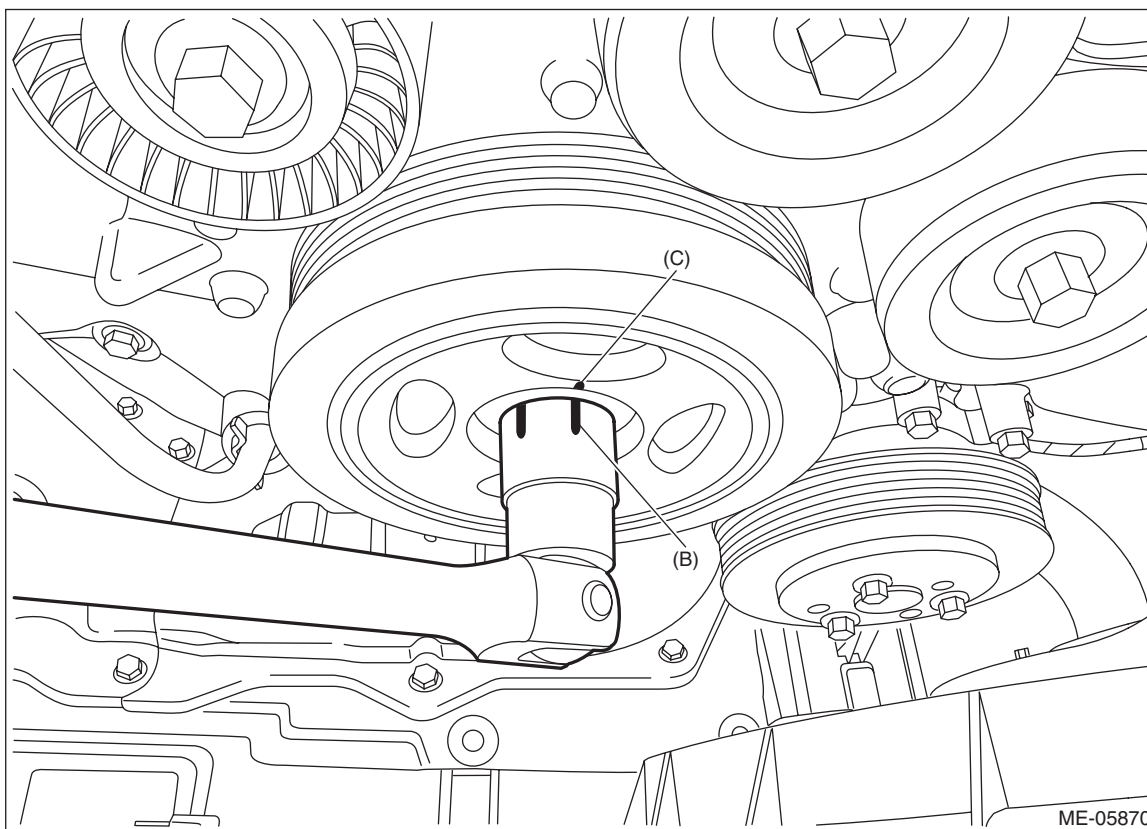
Set the socket onto the crank pulley bolt so that reference lines (A) and (B) is visible.



(a) When using 6-point socket

(b) When using 12-point socket

(4) Draw end line (C) on crank pulley using a marker at the same position as reference line (B) drawn on the socket in step (2).



ME-05870



## Crank Pulley

### MECHANICAL

- (5) Use the ST to lock the crank pulley, and tighten the crank pulley bolt to the angle where reference line (A) and end line (C) are aligned.

#### NOTE:

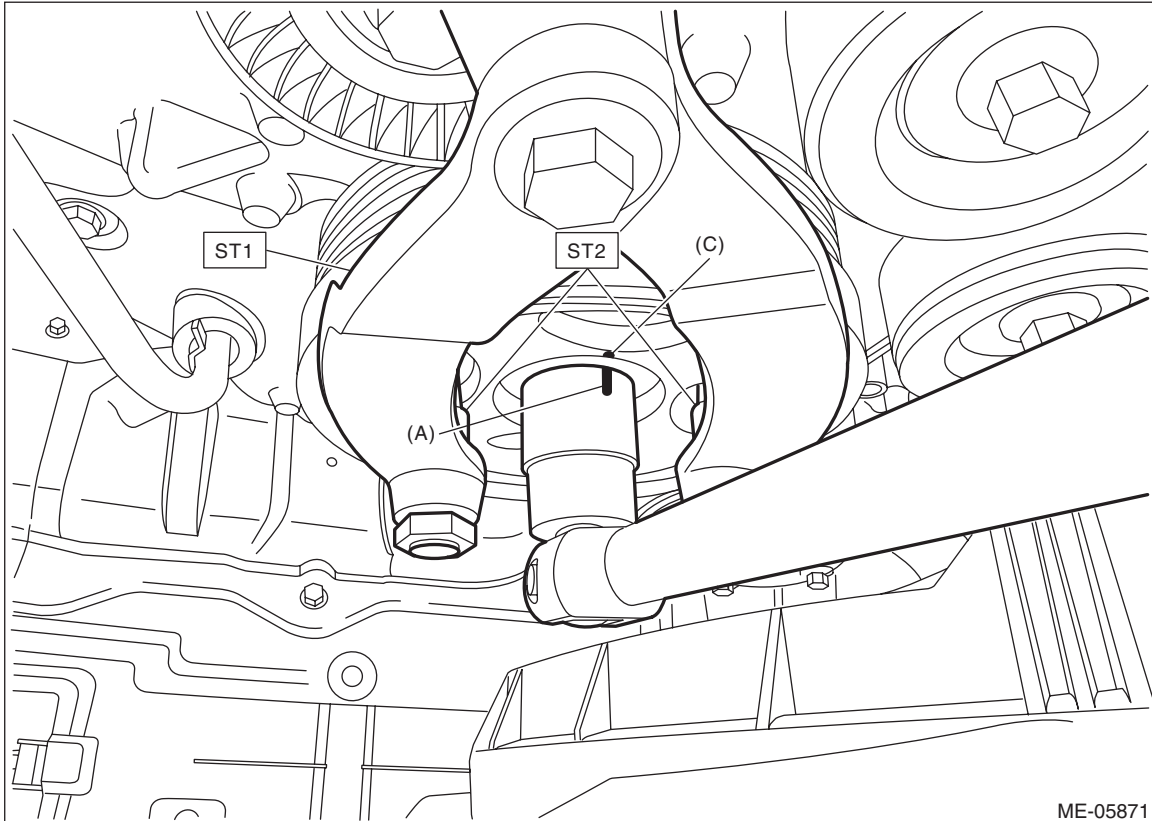
It should be approx.  $60^\circ$  when reference line (A) and end line (C) are aligned.

ST1 18355AA000 PULLEY WRENCH

ST2 18334AA000 PULLEY WRENCH PIN SET

#### **Tightening angle:**

**$60^\circ \pm 5^\circ$**



- 6) Install the radiator sub fan and fan motor. <Ref. to CO(H4DO)-46, INSTALLATION, Radiator Sub Fan and Fan Motor.>
- 7) Install the V-belts. <Ref. to ME(H4DO)-80, INSTALLATION, V-belt.>



## 2. METHOD WITH ANGLE GAUGE

1) Apply a light coat of engine oil to the front oil seal inner periphery and outer periphery, and install the front oil seal using ST.

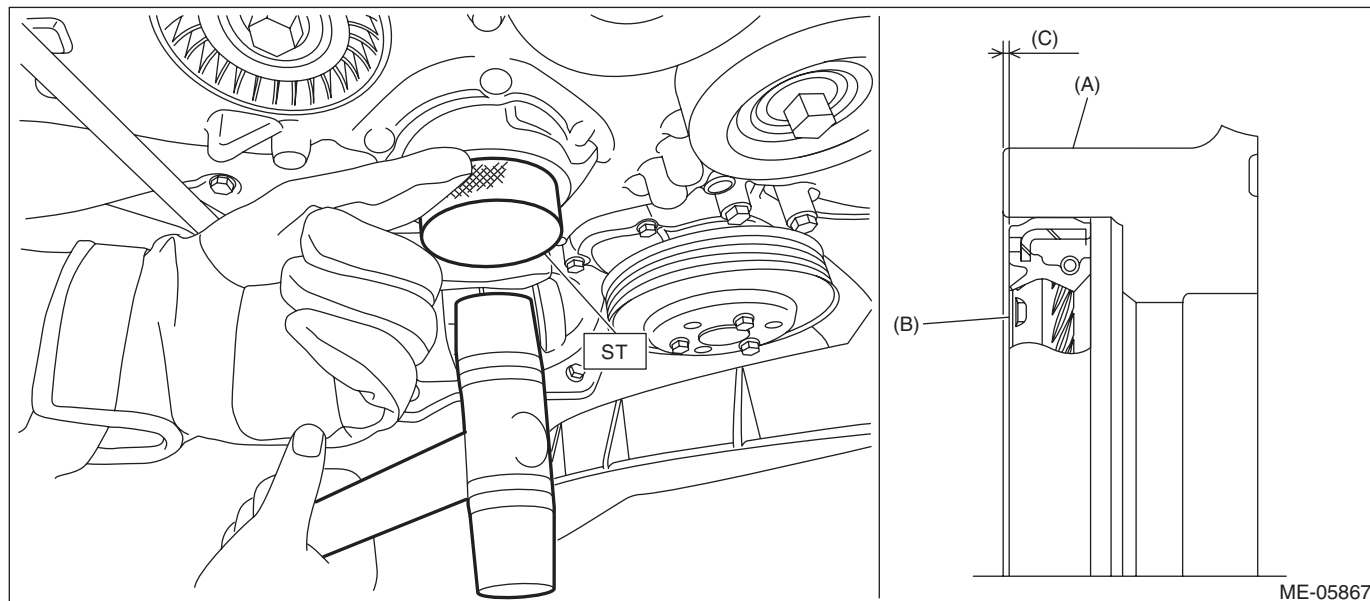
### NOTE:

- Use a new front oil seal.
- When tapping the front oil seal in, protect the radiator fin with cardboards etc. so as not to damage the radiator fin by the plastic hammer.

ST 398437700 OIL SEAL INSTALLER

### Front oil seal press-fit position:

$1^{+0}_{-1}$  mm ( $0.0039^{+0}_{-0.0039}$  in) position from chain cover end face



ME-05867

(A) Chain cover

(B) Oil seal

(C) Front oil seal press-fit position  
 $1^{+0}_{-1}$  mm ( $0.0039^{+0}_{-0.0039}$  in)  
 position from chain cover end face

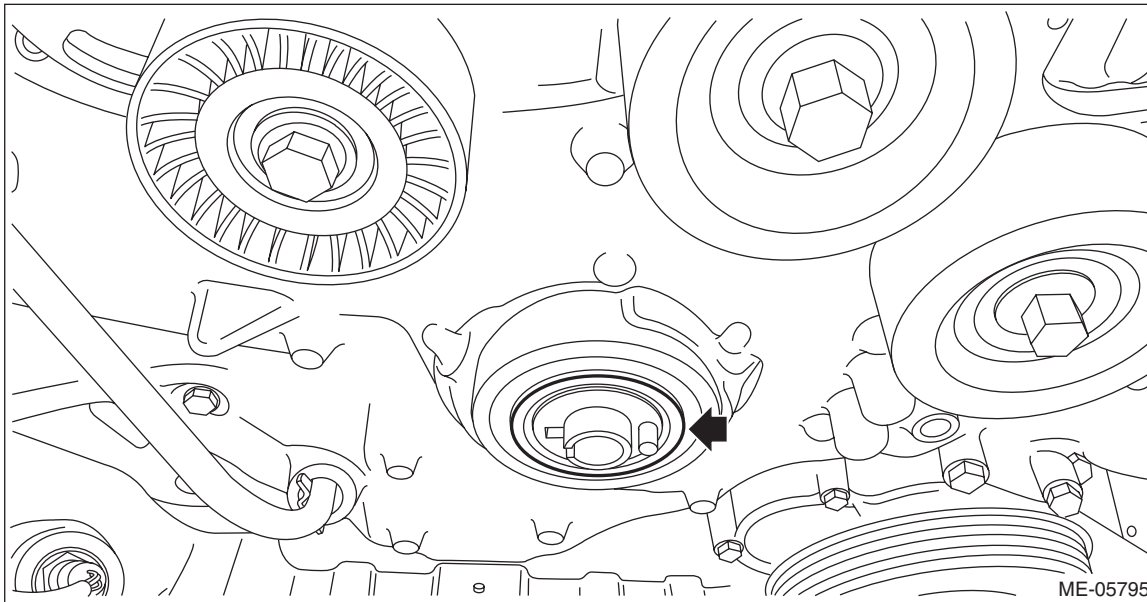
2) Remove the radiator main fan and fan motor. <Ref. to CO(H4DO)-41, REMOVAL, Radiator Main Fan and Fan Motor.>

3) Clean the crankshaft thread using compressed air.

# Crank Pulley

## MECHANICAL

4) Install the crank pulley boss.



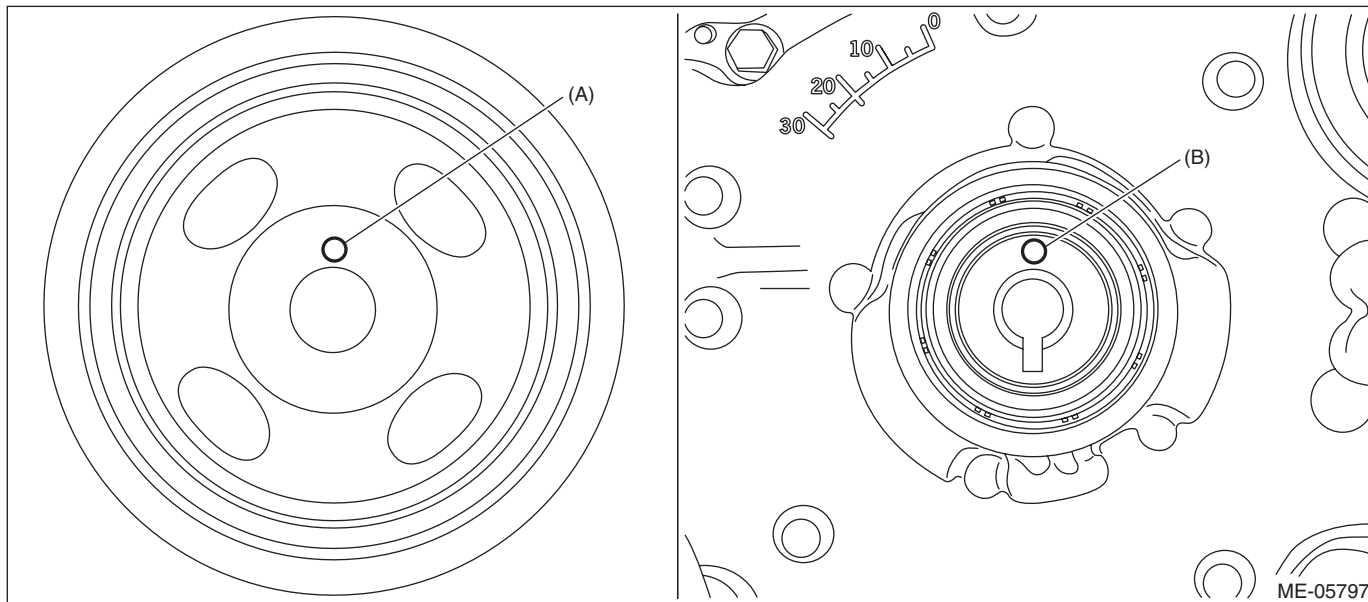
5) Apply engine oil to the crank pulley bolt seat and thread.

6) Install the crank pulley.

(1) Install the crank pulley to the crank pulley boss.

### NOTE:

- Use new O-rings.
- Install the crank pulley by aligning the crank pulley knock hole (A) and crank pulley boss knock pin (B).



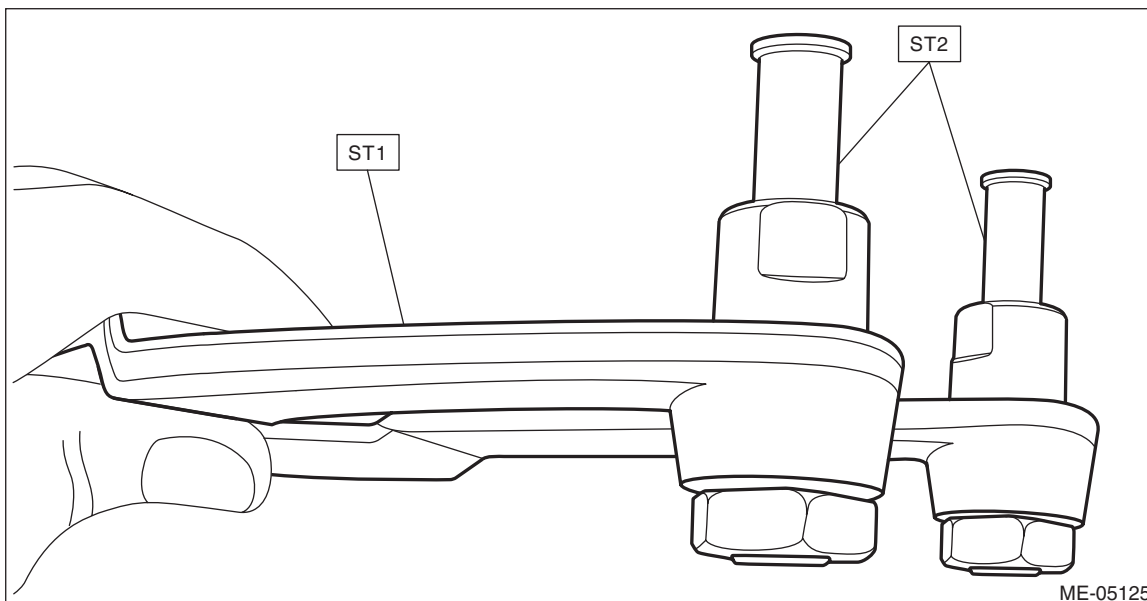
(2) Use the ST to lock the crank pulley, and temporarily tighten the crank pulley bolt.

**NOTE:**

To prevent damaging ST1, attach the ST2 onto the ST1 as shown.

ST1 18355AA000 PULLEY WRENCH

ST2 18334AA000 PULLEY WRENCH PIN SET

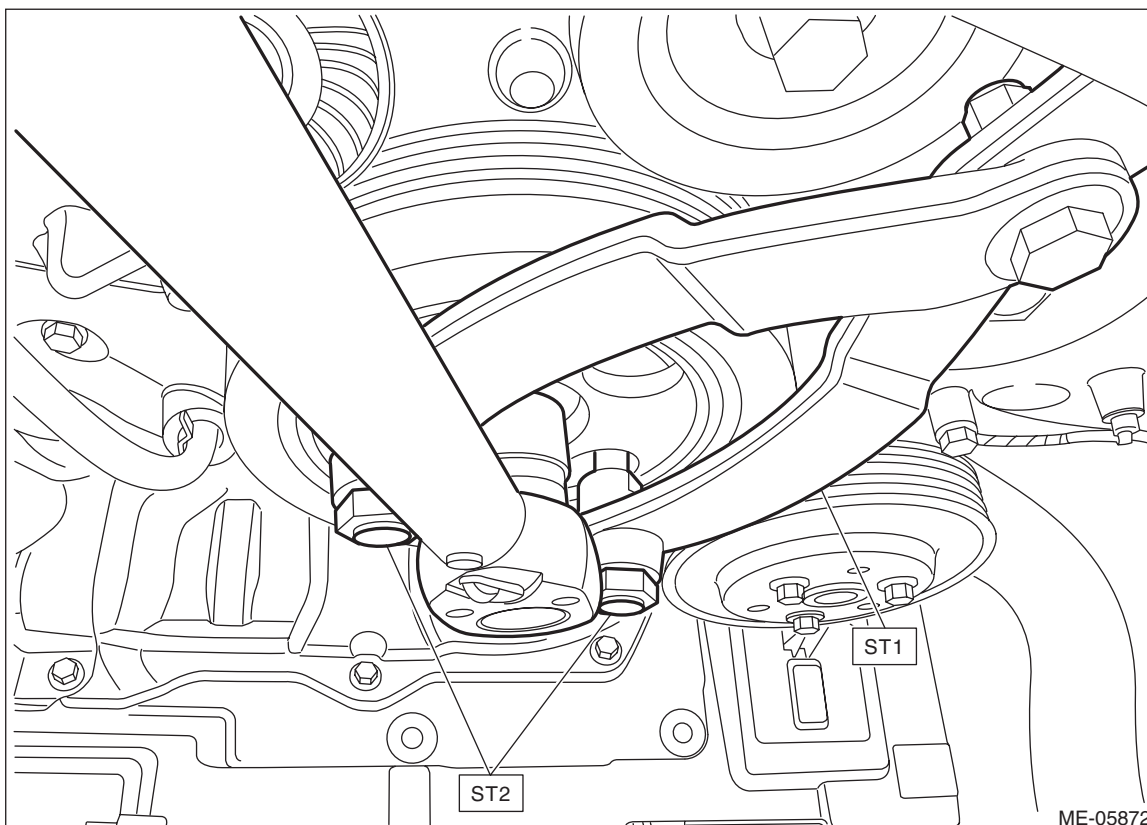


ST1 18355AA000 PULLEY WRENCH

ST2 18334AA000 PULLEY WRENCH PIN SET

**Tightening torque:**

**60 N·m (6.1 kgf-m, 44.3 ft-lb)**



# Crank Pulley

## MECHANICAL

- (3) Set the ST2, use the ST1 to lock the crank pulley, and tighten the crank pulley bolt to the specified angle.

### NOTE:

Attach the magnet used for securing the ST3 (ANGLE GAUGE) to ST1.

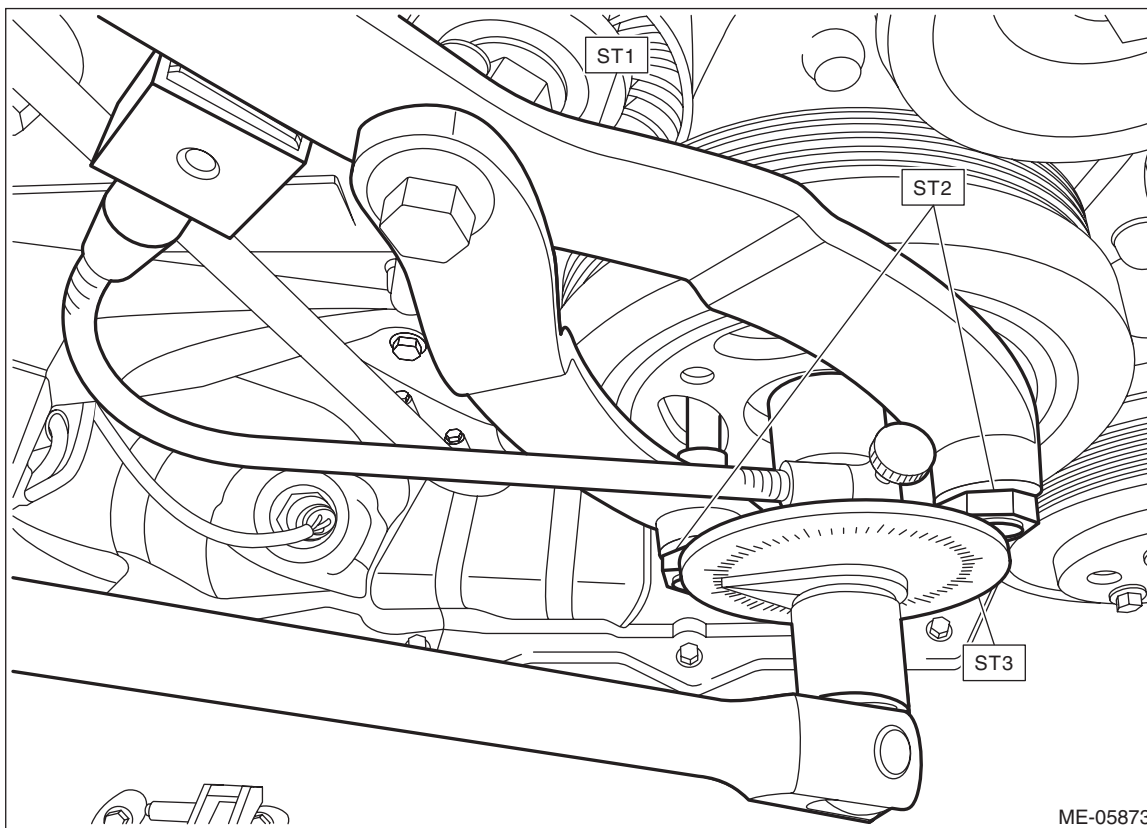
ST1 18355AA000 PULLEY WRENCH

ST2 18334AA000 PULLEY WRENCH PIN SET

ST3 18854AA000 ANGLE GAUGE

### Tightening angle:

$60^{\circ} \pm 5^{\circ}$



- 7) Install the radiator main fan & fan motor and radiator sub fan & fan motor. <Ref. to CO(H4DO)-42, INSTALLATION, Radiator Main Fan and Fan Motor.> <Ref. to CO(H4DO)-46, INSTALLATION, Radiator Sub Fan and Fan Motor.>

- 8) Install the V-belts. <Ref. to ME(H4DO)-80, INSTALLATION, V-belt.>

## C: INSPECTION

- 1) Check that the crank pulley has no deformation, cracks or other damages.
- 2) Inspect for oil leakage from the front oil seal. If there is an oil leak, replace the front oil seal with a new one. <Ref. to ME(H4DO)-85, REMOVAL, Crank Pulley.>