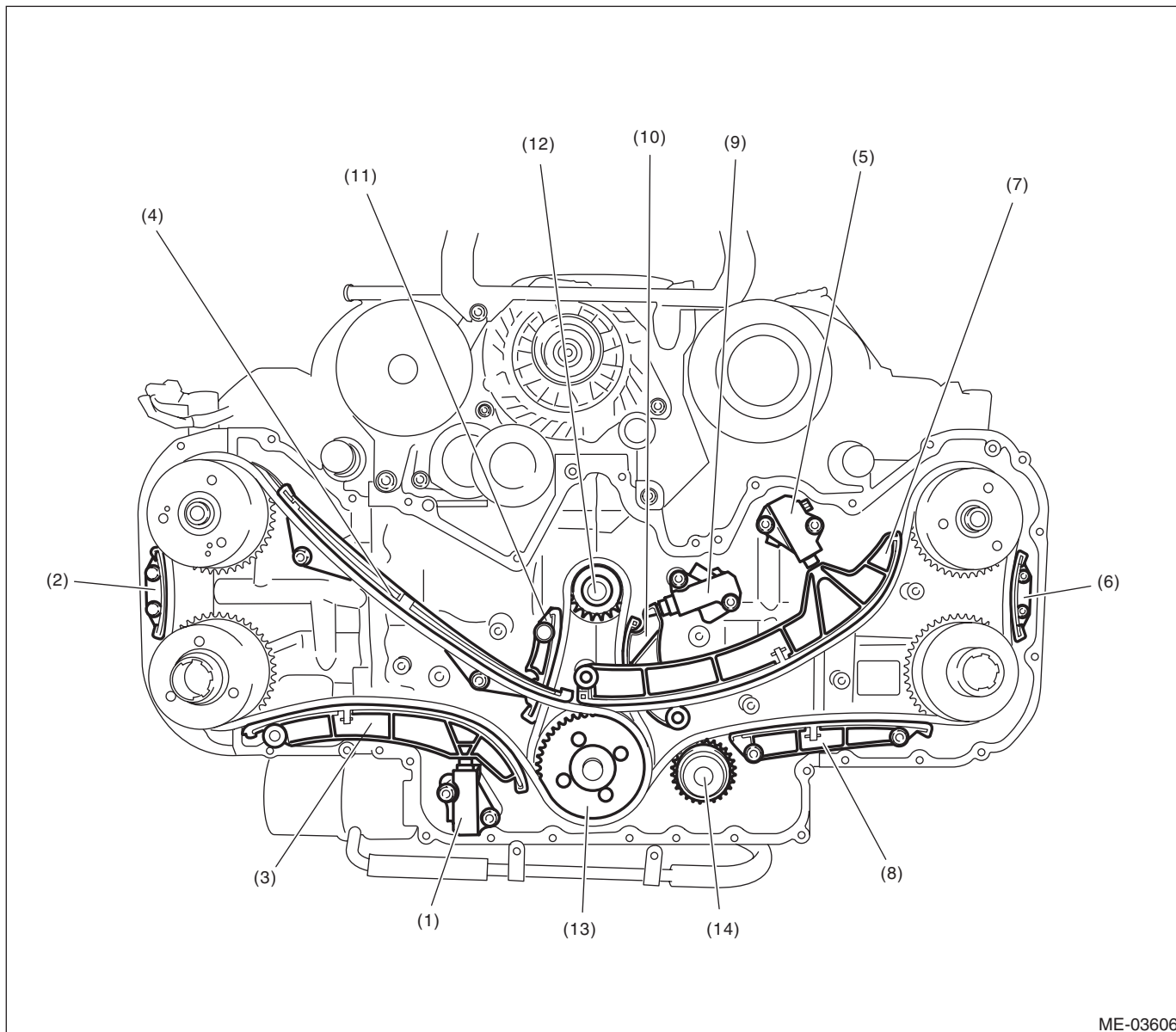


15. Timing Chain Assembly

A: LOCATION



ME-03606

- | | | |
|------------------------------------|------------------------------------|--------------------------|
| (1) Chain tensioner (RH) | (6) Chain guide (LH: between cams) | (11) Chain guide (Main) |
| (2) Chain guide (RH: between cams) | (7) Chain tensioner lever (LH) | (12) Crank sprocket |
| (3) Chain tensioner lever (RH) | (8) Chain guide (LH) | (13) Idler sprocket |
| (4) Chain guide (RH) | (9) Chain tensioner (Main) | (14) Water pump sprocket |
| (5) Chain tensioner (LH) | (10) Chain tensioner lever (Main) | |

Timing Chain Assembly

MECHANICAL

B: REMOVAL

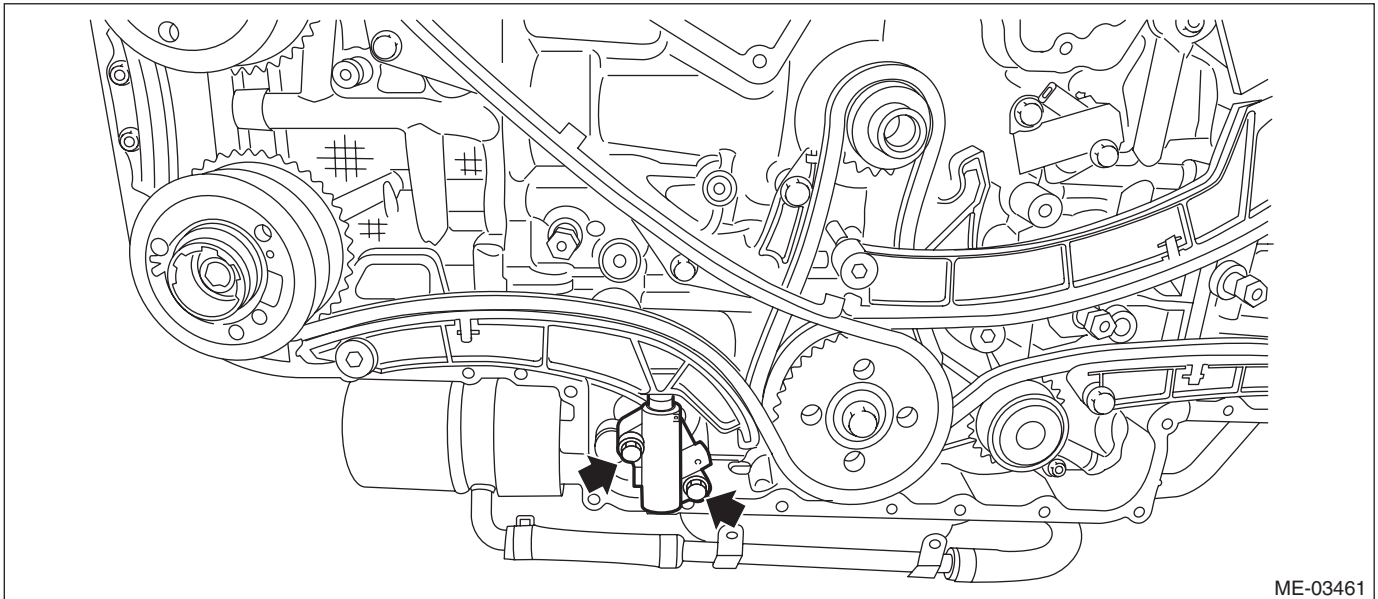
NOTE:

- Perform the work with the engine installed to body when replacing a single part.
- After removal, arrange the timing chain components in proper order, to prevent confusion.

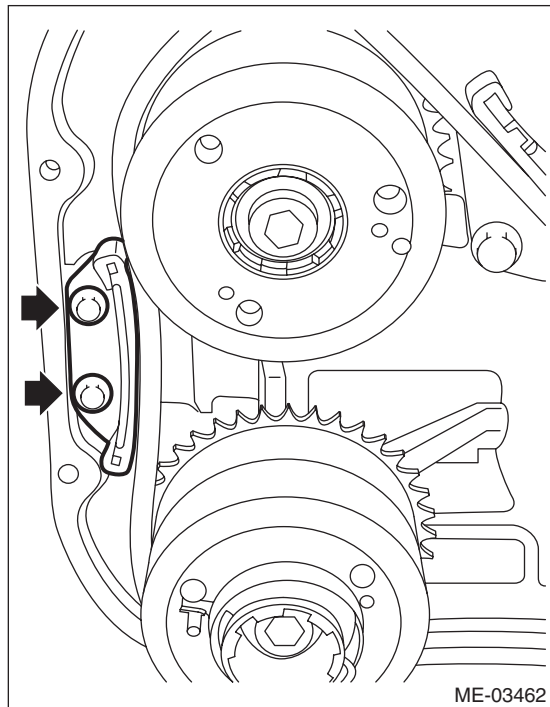
- 1) Drain the engine oil. <Ref. to LU(H6DO)-9, REPLACEMENT, Engine Oil.>
- 2) Remove the radiator. <Ref. to CO(H6DO)-16, REMOVAL, Radiator.>
- 3) Remove the V-belt. <Ref. to ME(H6DO)-46, REMOVAL, V-belt.>
- 4) Remove the crank pulley. <Ref. to ME(H6DO)-47, REMOVAL, Crank Pulley.>
- 5) Remove the chain cover. <Ref. to ME(H6DO)-48, REMOVAL, Chain Cover.>
- 6) Remove the chain tensioner (RH).

NOTE:

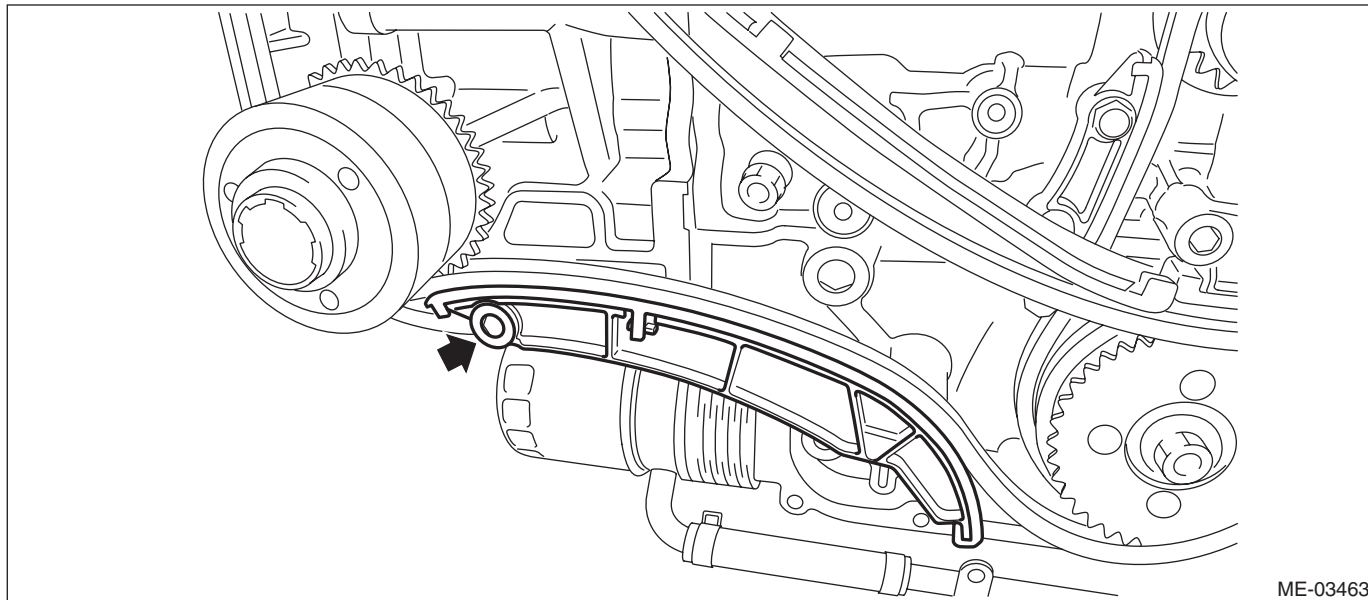
During removal of chain tensioner (RH) from chain tensioner lever (RH), press the plunger by hand to prevent it from popping out.



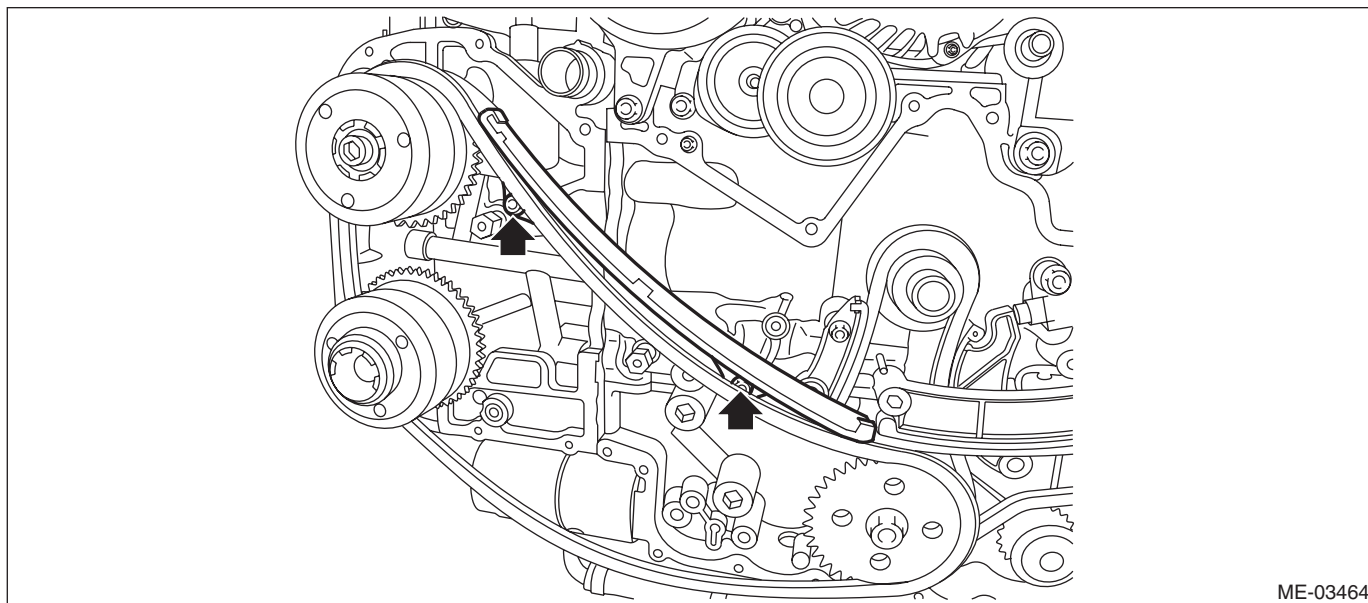
- 7) Remove the chain guide (RH: between cams).



8) Remove the chain tensioner lever (RH).



9) Remove the chain guide (RH).



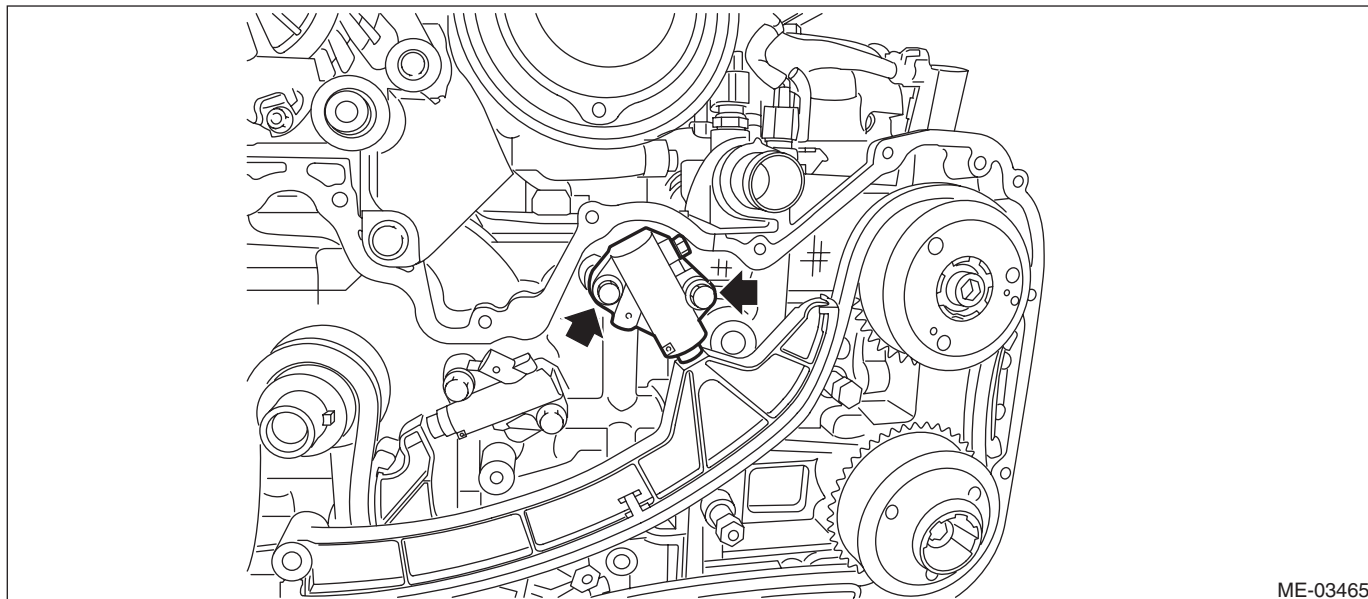
Timing Chain Assembly

MECHANICAL

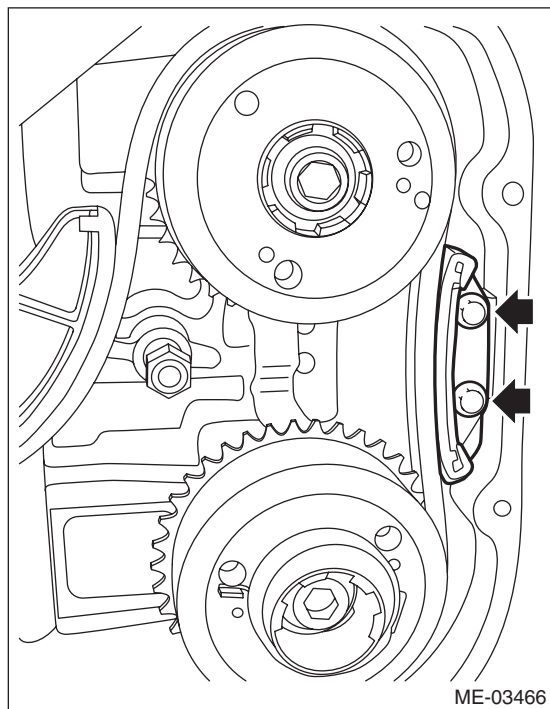
- 10) Remove the timing chain (RH).
- 11) Remove the chain tensioner (LH).

NOTE:

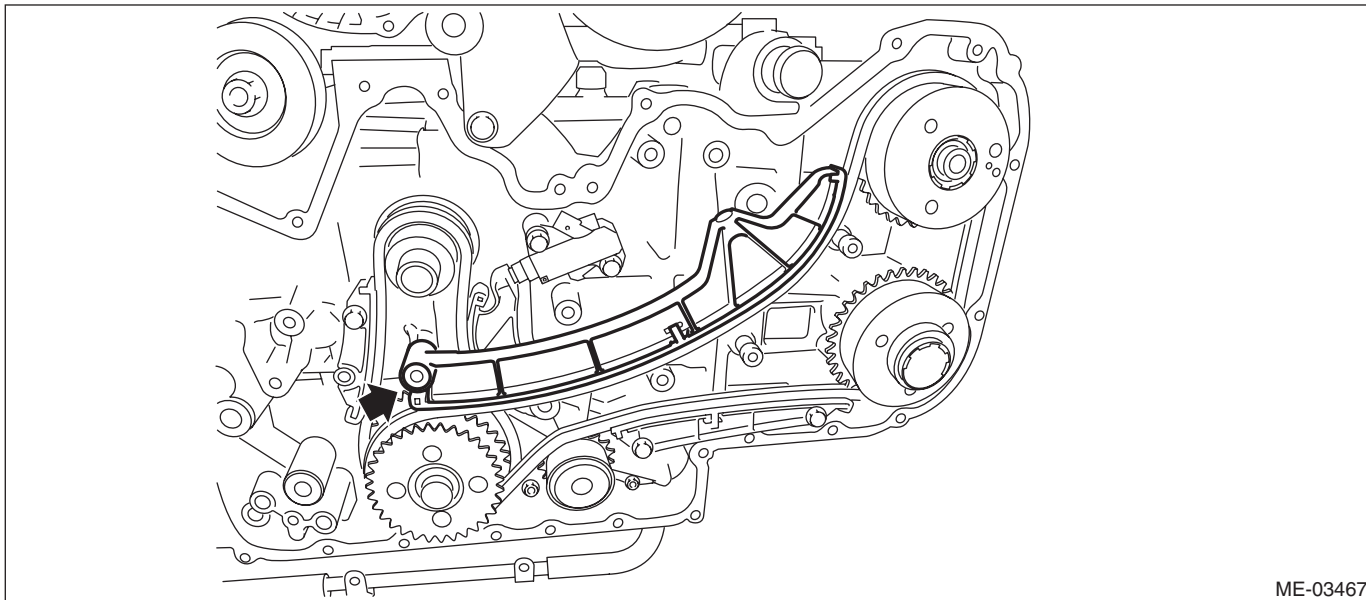
During removal of chain tensioner (LH) from chain tensioner lever (LH), press the plunger by hand to prevent it from popping out.



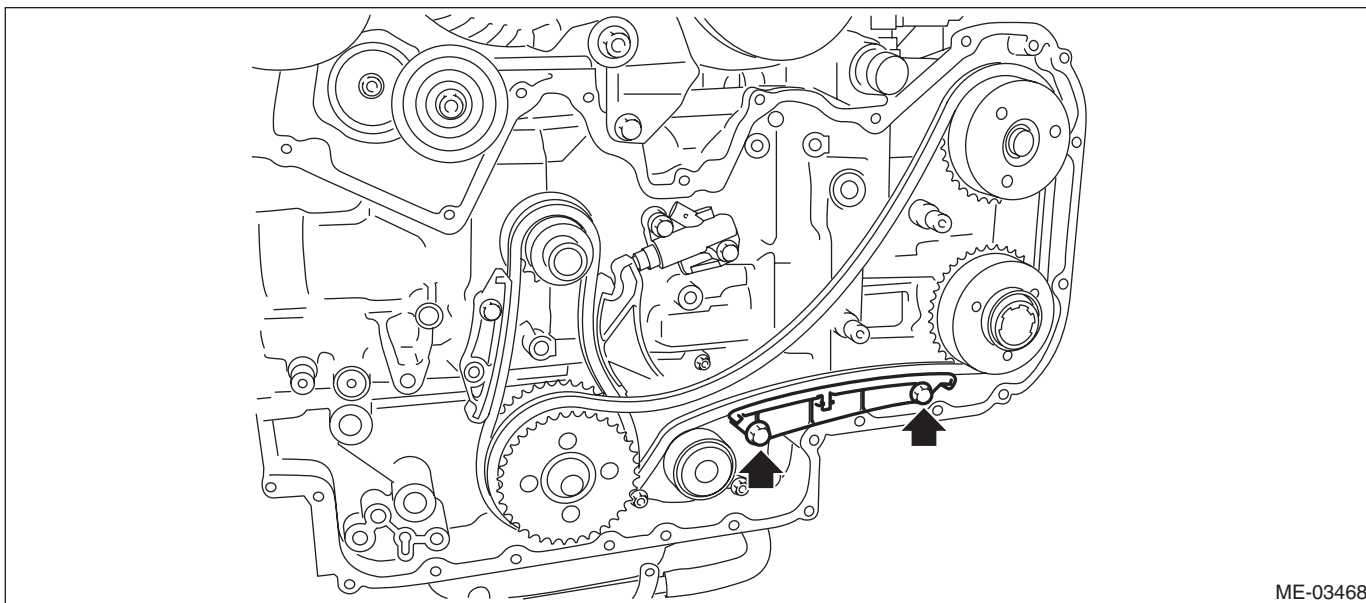
- 12) Remove the chain guide (LH: between cams).



13) Remove the chain tensioner lever (LH).



14) Remove the chain guide (LH).



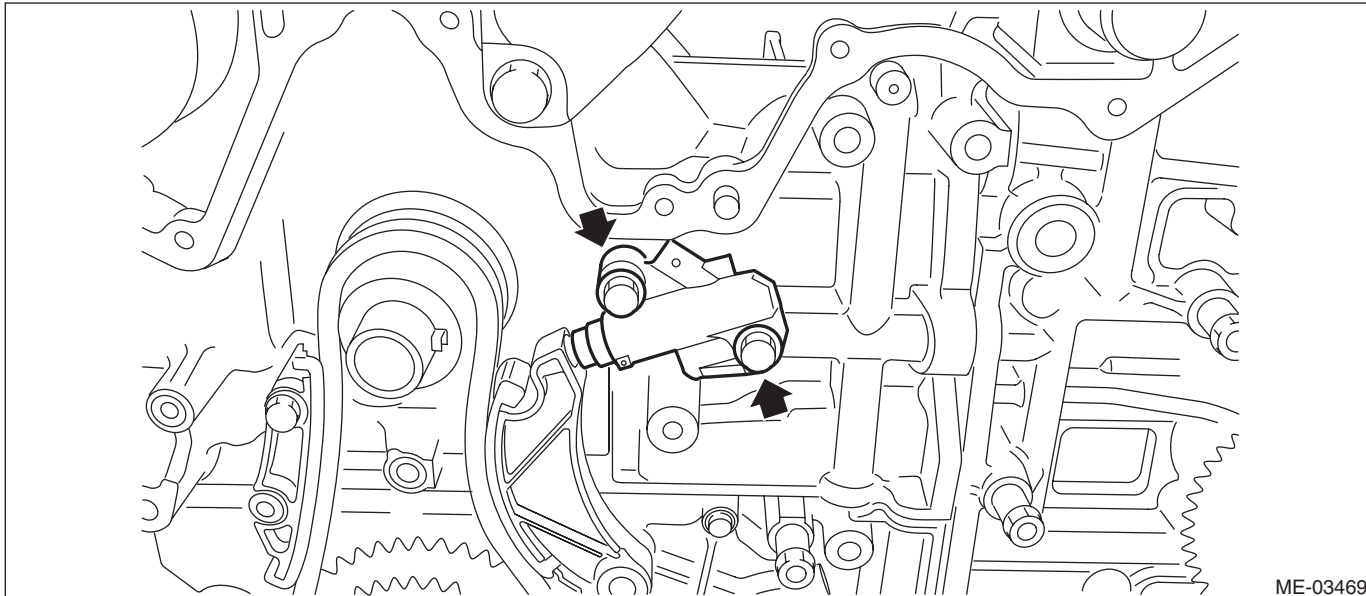
Timing Chain Assembly

MECHANICAL

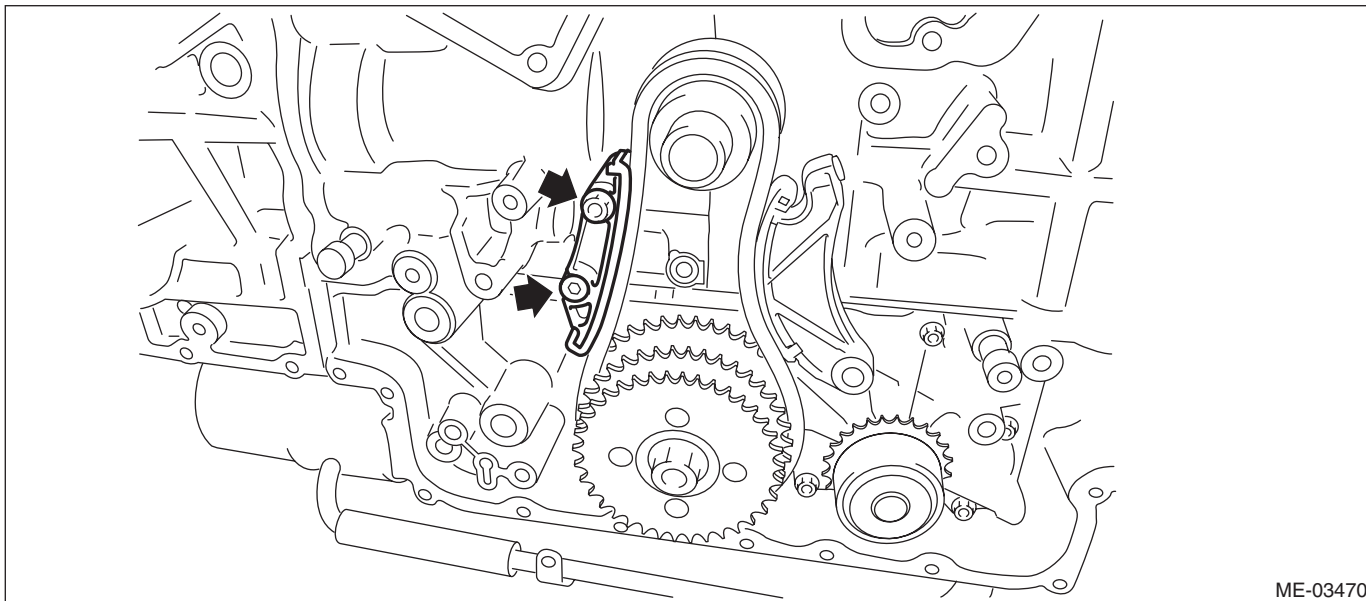
- 15) Remove the timing chain (LH).
- 16) Remove the chain tensioner (Main).

NOTE:

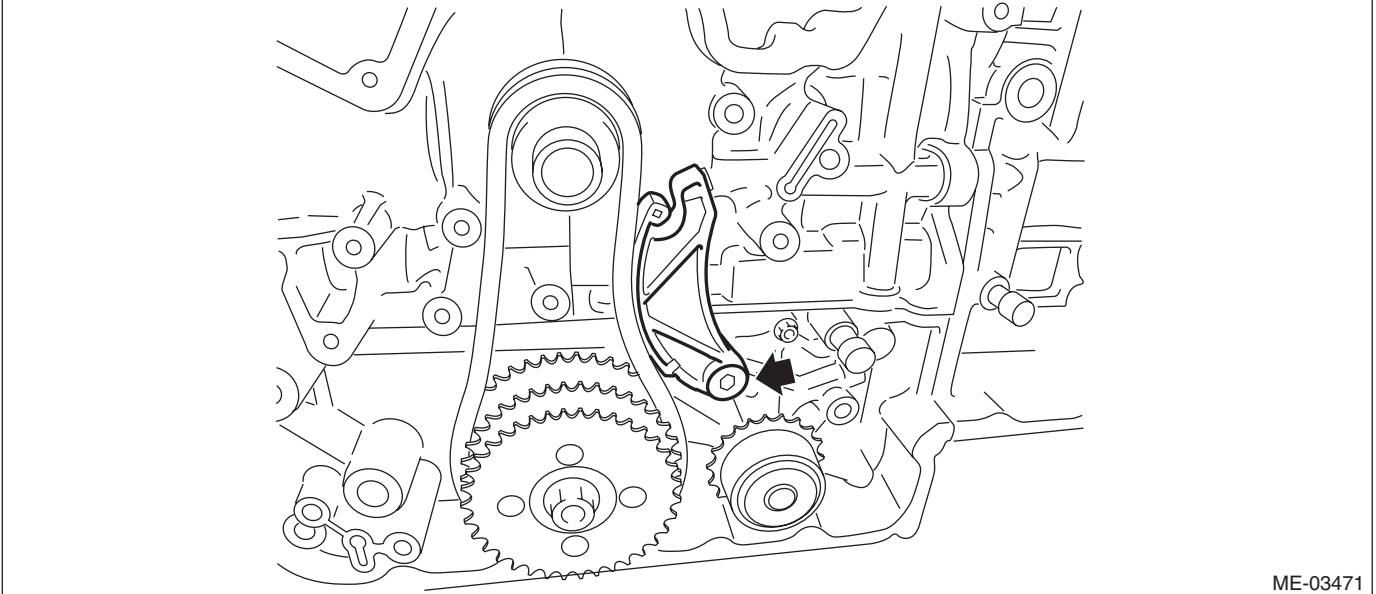
During removal of chain tensioner (Main) from chain tensioner lever (Main), press the plunger by hand to prevent it from popping out.



- 17) Remove the chain guide (Main).



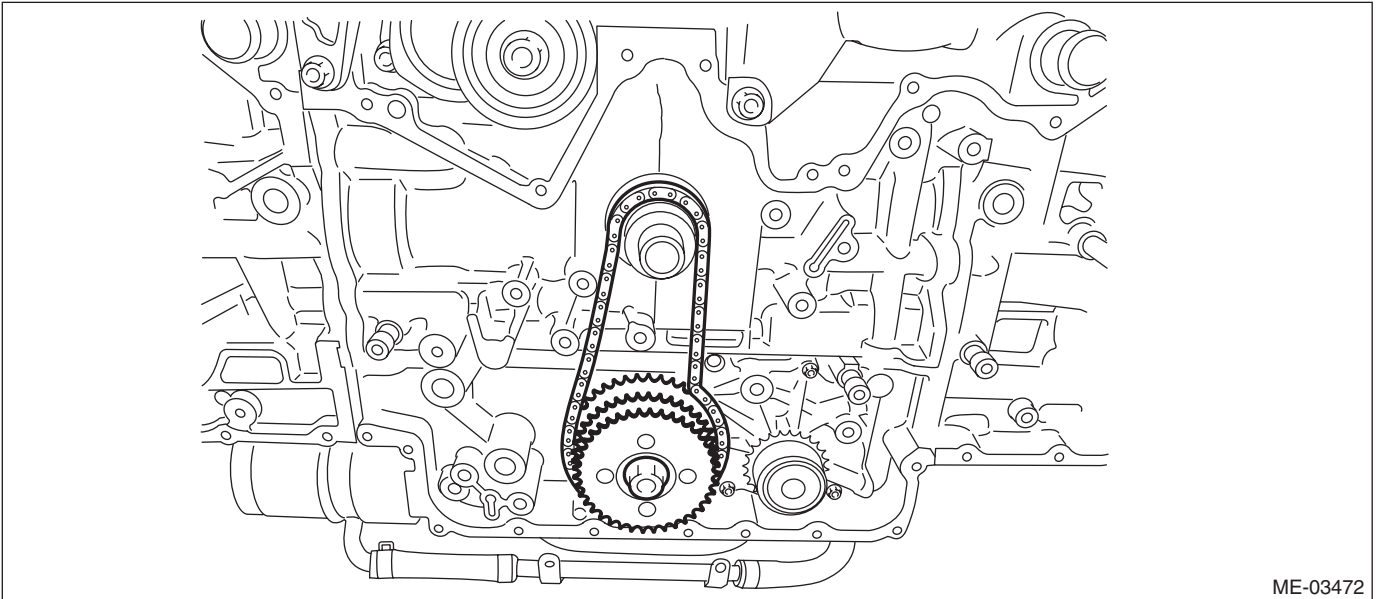
18) Remove the chain tensioner lever (Main).



19) Remove the idler sprocket, and then remove the idler sprocket and timing chain (Main).

ST1 18355AA000 PULLEY WRENCH

ST2 18334AA000 PULLEY WRENCH PIN SET



Timing Chain Assembly

MECHANICAL

C: INSTALLATION

NOTE:

- Be careful that the foreign matter is not into or onto assembled component during installation.
- Apply engine oil to the all timing chain components.

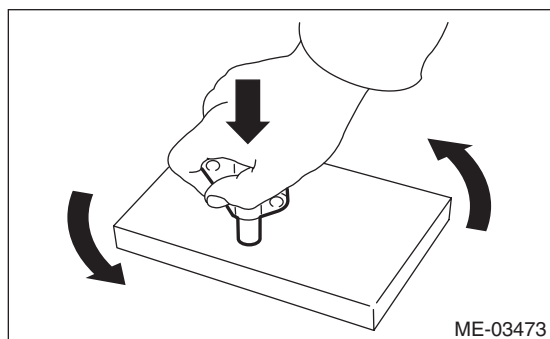
1) Preparation for chain tensioner installation.

(1) Insert the screw, spring pin and plunger into tensioner body.

(2) Rotate the rubber mat counterclockwise while pressing the chain tensioner from upper side by hand as shown in the figure.

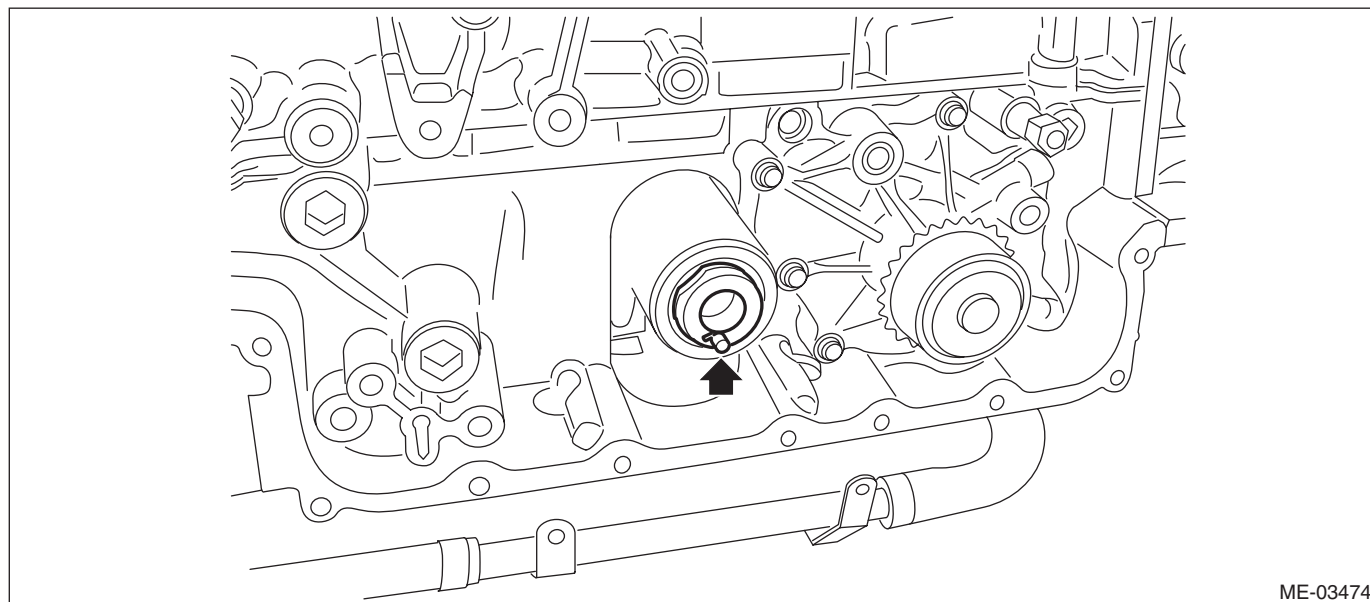
NOTE:

Degrease the contact surface between plunger top portion and rubber mat to prevent slipping.

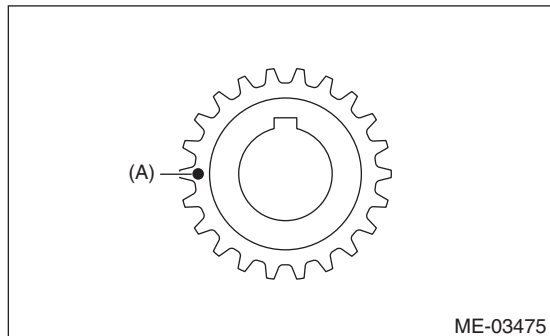


(3) Insert the stopper pin into the chain tensioner body hole.

2) Set the oil pump shaft knock pin at the six o'clock position as shown in the figure.

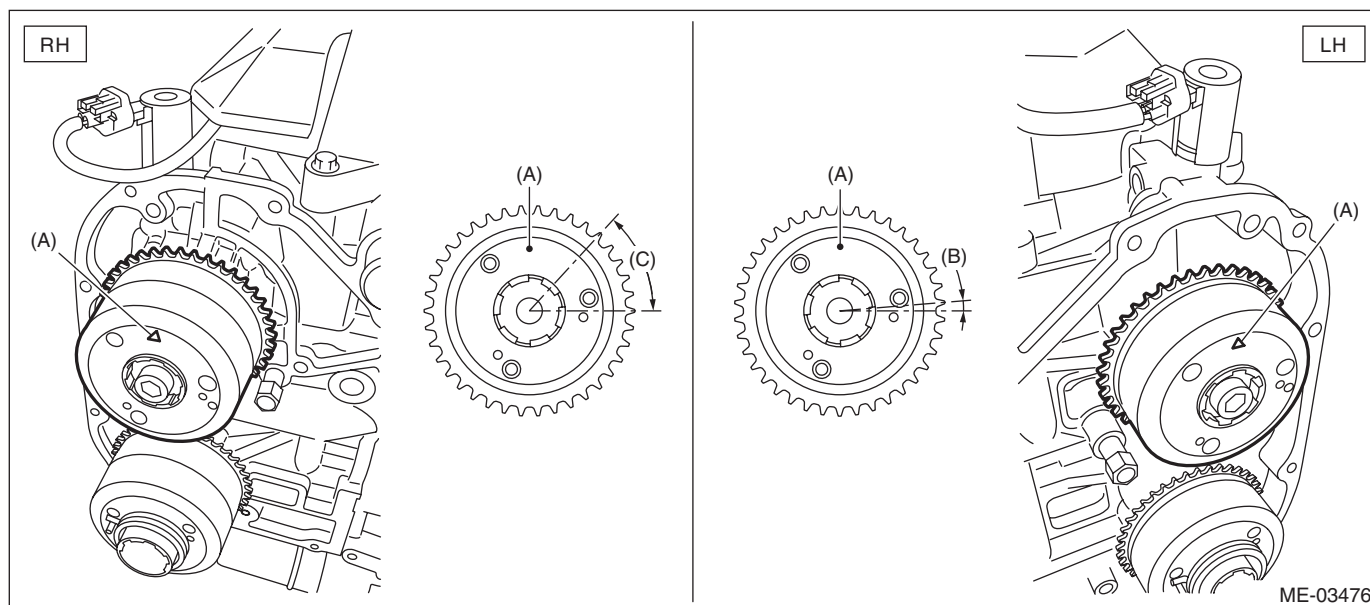


3) Using the ST, align the “Top mark” on crank sprocket to nine o'clock position as shown in the figure



(A) Top mark

4) Align the intake cam sprocket to 12 o'clock position as shown in the figure.



(A) Align the marking (Top mark) position to 12 o'clock position.

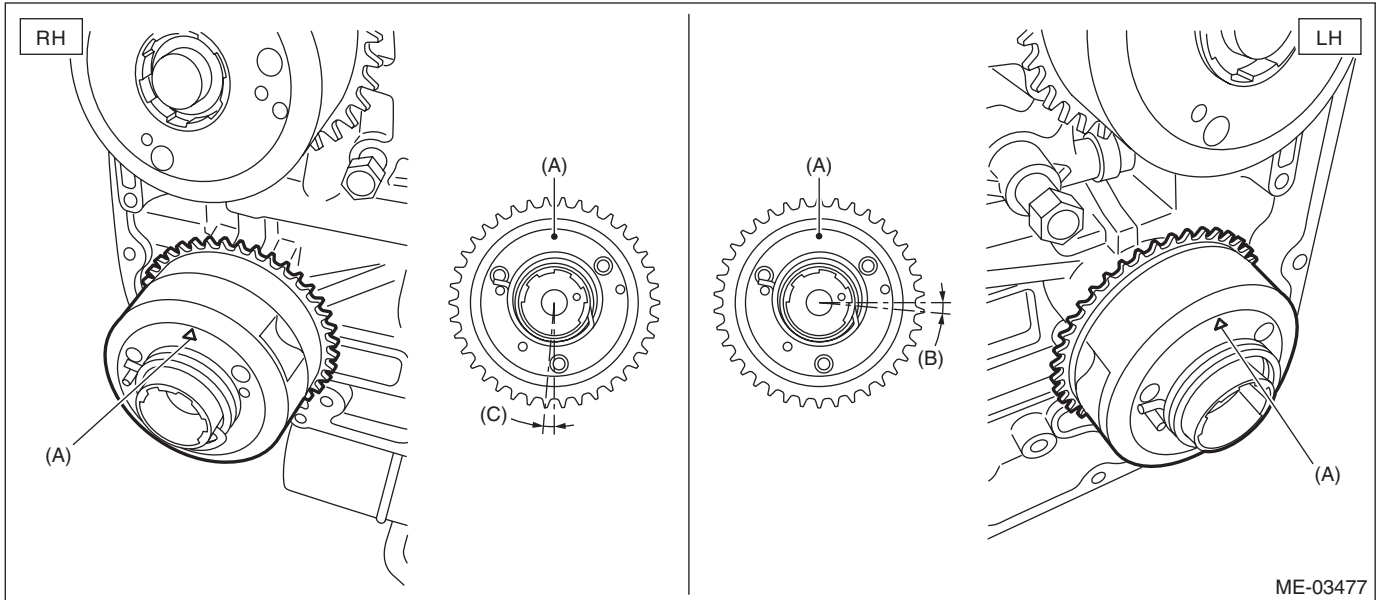
(B) 6°

(C) 47°

Timing Chain Assembly

MECHANICAL

5) Align the exhaust cam sprocket to 12 o'clock position as shown in the figure.



(A) Align the marking (Top mark) position to 12 o'clock position.

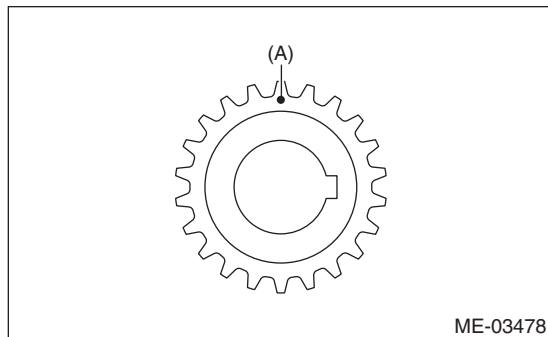
(B) 5.5°

(C) 3.5°

6) Using the ST, align the "Top mark" on crank sprocket to 12 o'clock position as shown in the figure

NOTE:

- Piston #1 is at top dead center (TDC) position.
- Do not rotate the crankshaft and cam sprocket before completing timing chain installation.
- Crank sprocket key is located at three o'clock position.

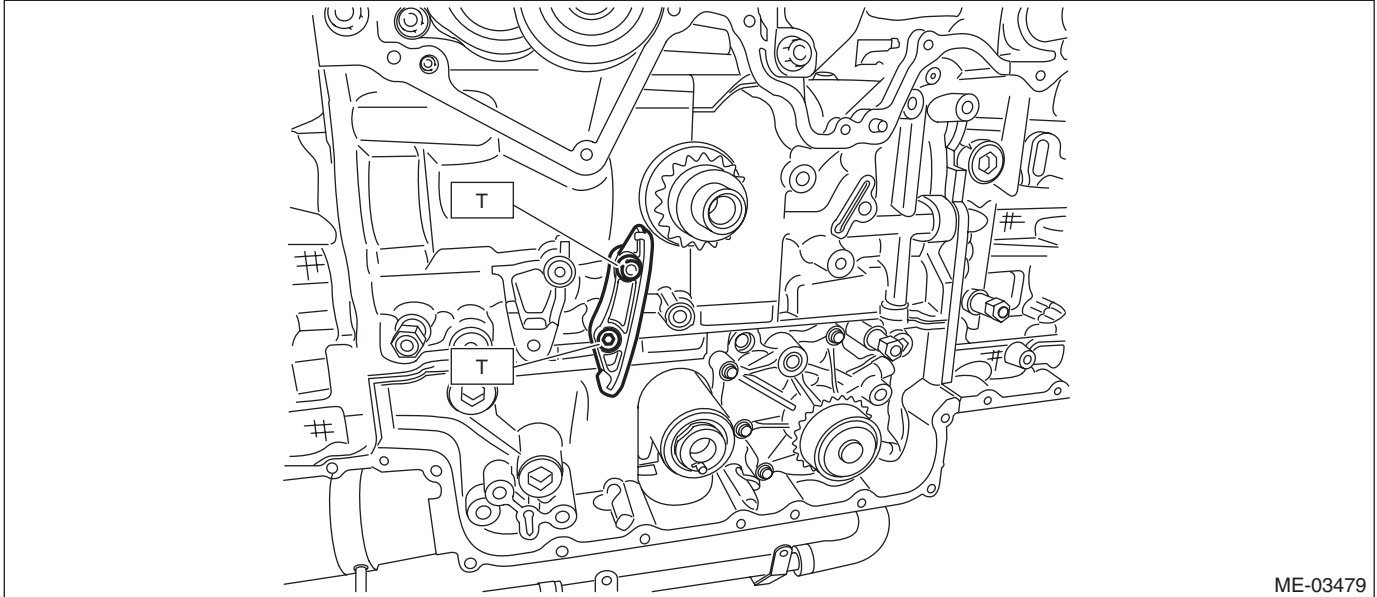


(A) Top mark

7) Install the chain guide (Main).

Tightening torque:

16 N·m (1.6 kgf-m, 11.8 ft-lb)



8) Install the idler sprocket and timing chain (Main).

(1) Align the timing chain mark (gold) to the idler sprocket timing mark position.

(2) Align the idler sprocket timing mark to the six o'clock position, and then install the idler sprocket and timing chain.

(3) Confirm the timing chain mark (gold) is set to the crank sprocket 12 o'clock position.

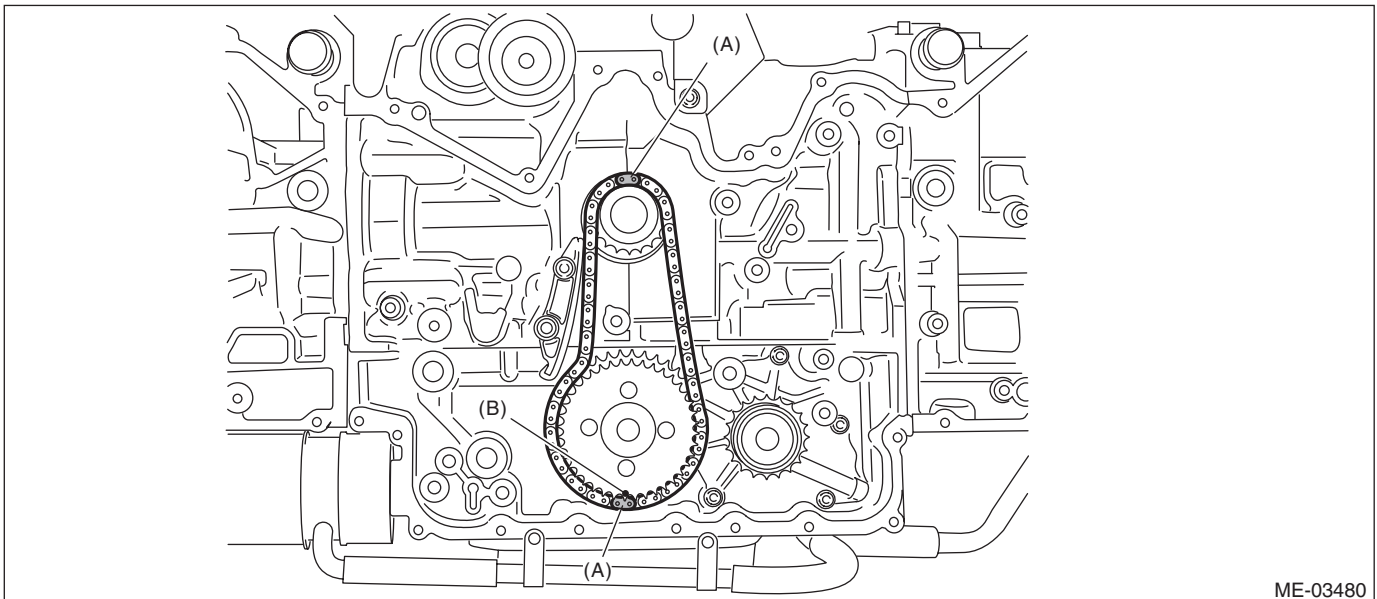
(4) Install the idler sprocket bolt.

ST1 18355AA000 PULLEY WRENCH

ST2 18334AA000 PULLEY WRENCH PIN SET

Tightening torque:

120 N·m (12.2 kgf-m, 88.5 ft-lb)



(A) Gold

(B) Timing mark

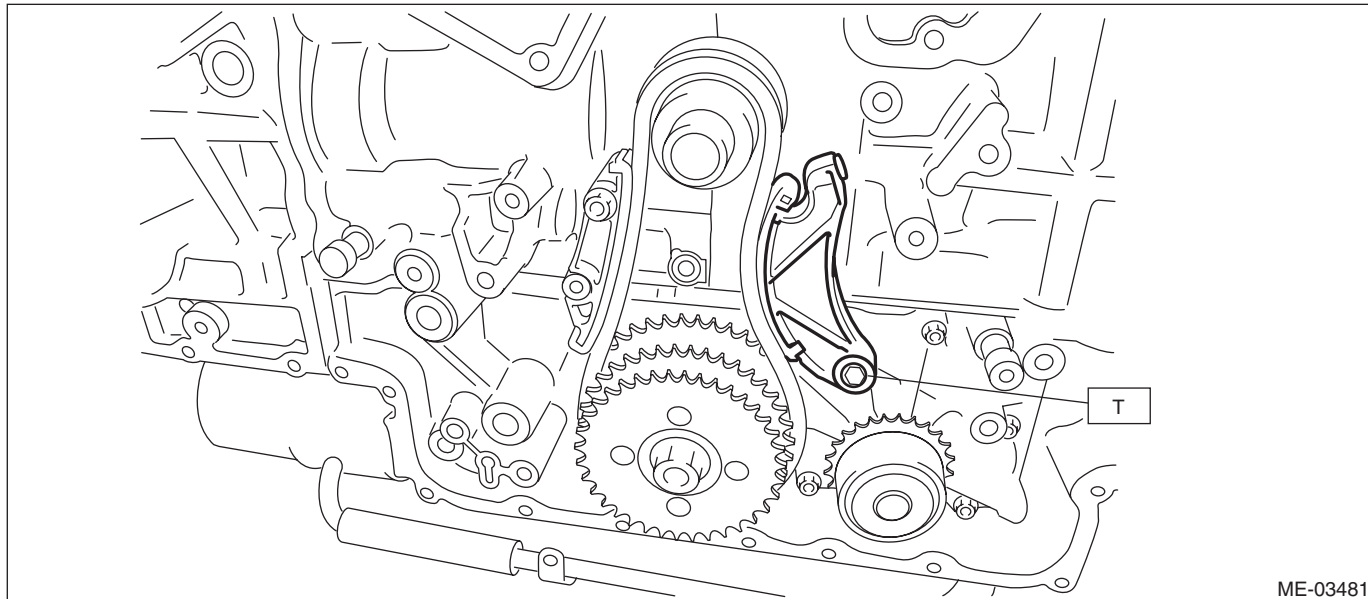
Timing Chain Assembly

MECHANICAL

9) Install the chain tensioner lever (Main).

Tightening torque:

16 N·m (1.6 kgf-m, 11.8 ft-lb)



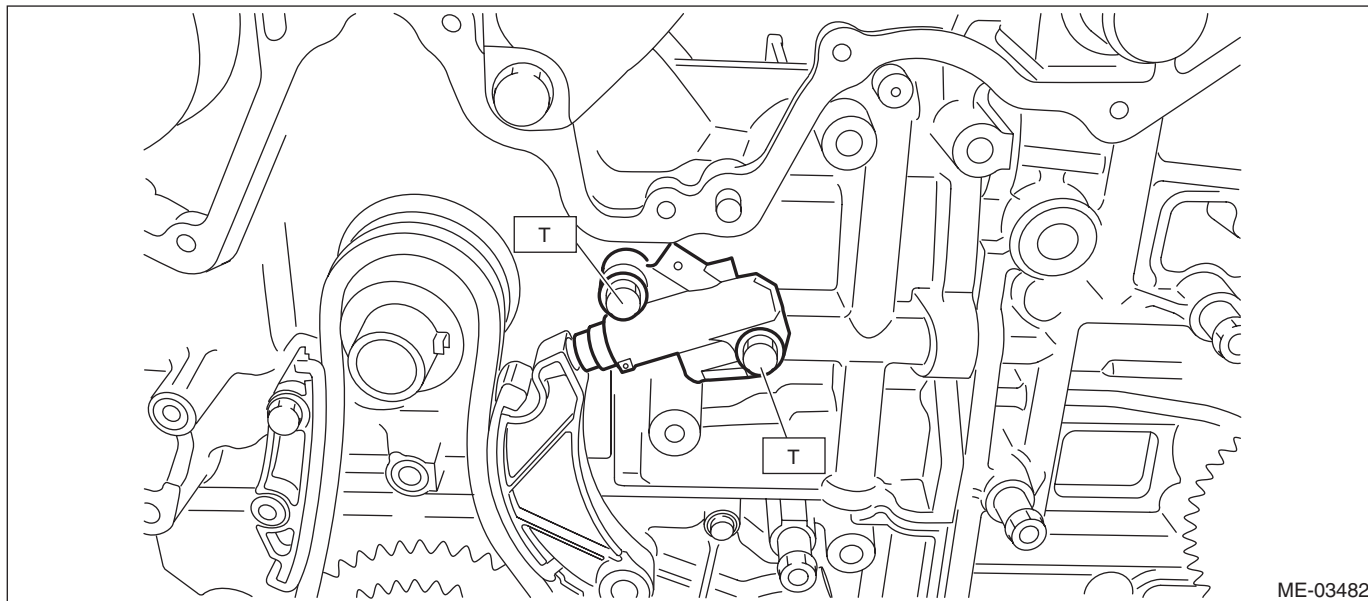
10) Install the chain tensioner (Main) and pull out the stopper pin.

NOTE:

Timing chain (Main) components assembly is completed.

Tightening torque:

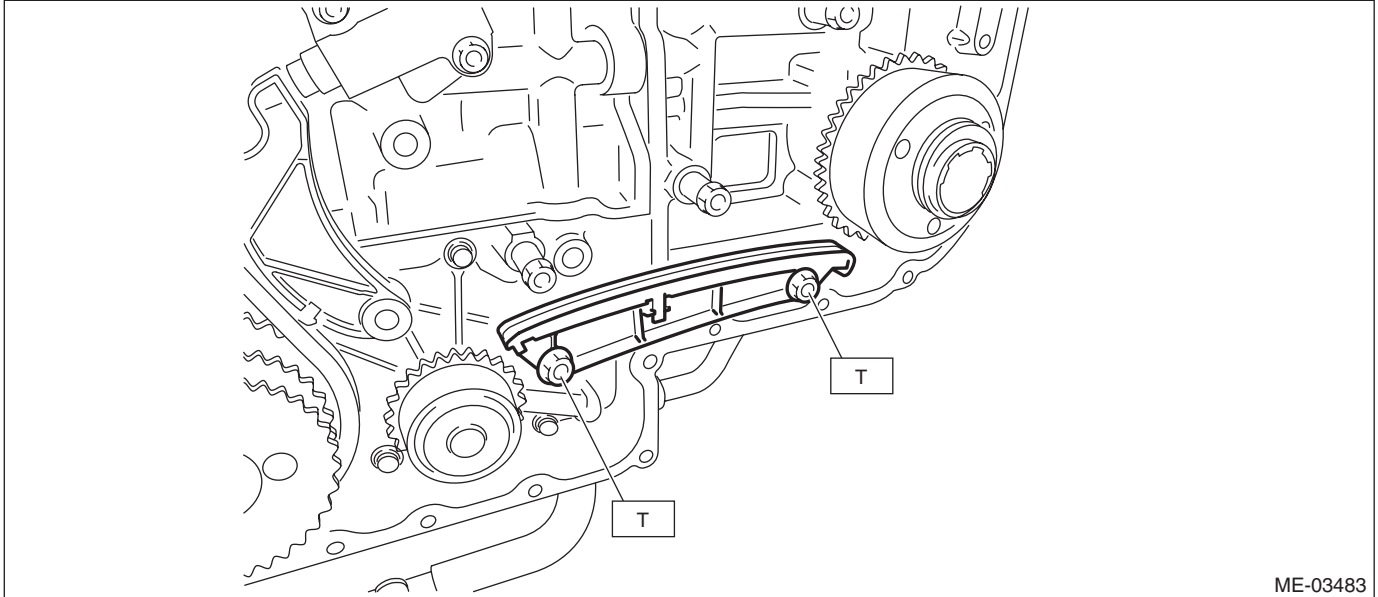
16 N·m (1.6 kgf-m, 11.8 ft-lb)



11) Install the chain guide (LH).

Tightening torque:

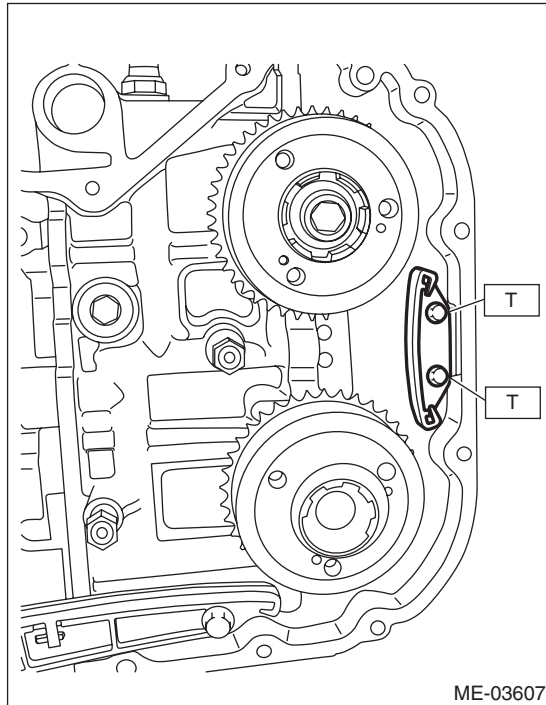
16 N·m (1.6 kgf-m, 11.8 ft-lb)



12) Install the chain guide (LH: between cams).

Tightening torque:

6.4 N·m (0.7 kgf-m, 4.7 ft-lb)

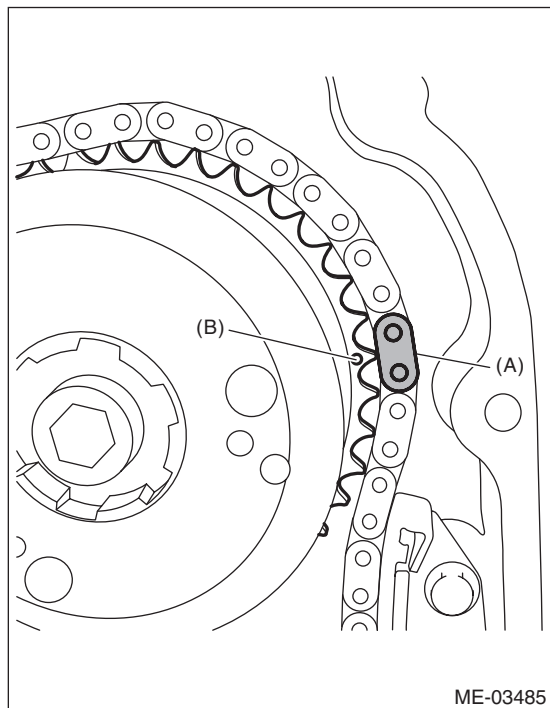


Timing Chain Assembly

MECHANICAL

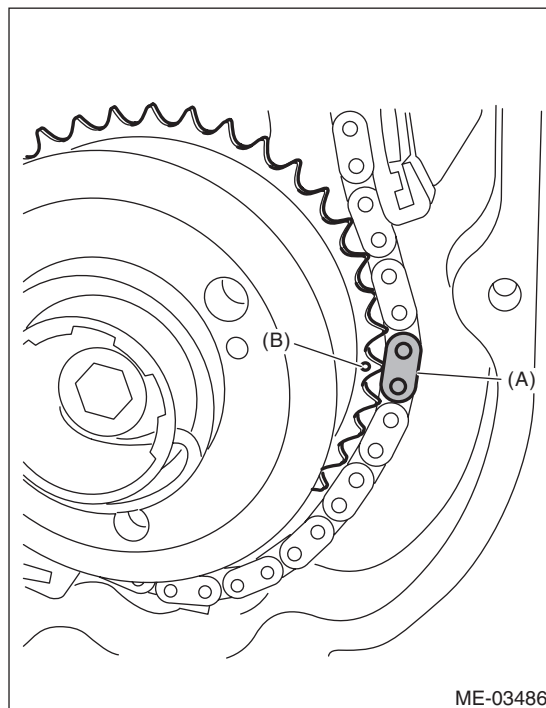
13) Install the timing chain (LH).

(1) Align the timing chain mark (blue) to the intake cam sprocket (LH) timing mark.



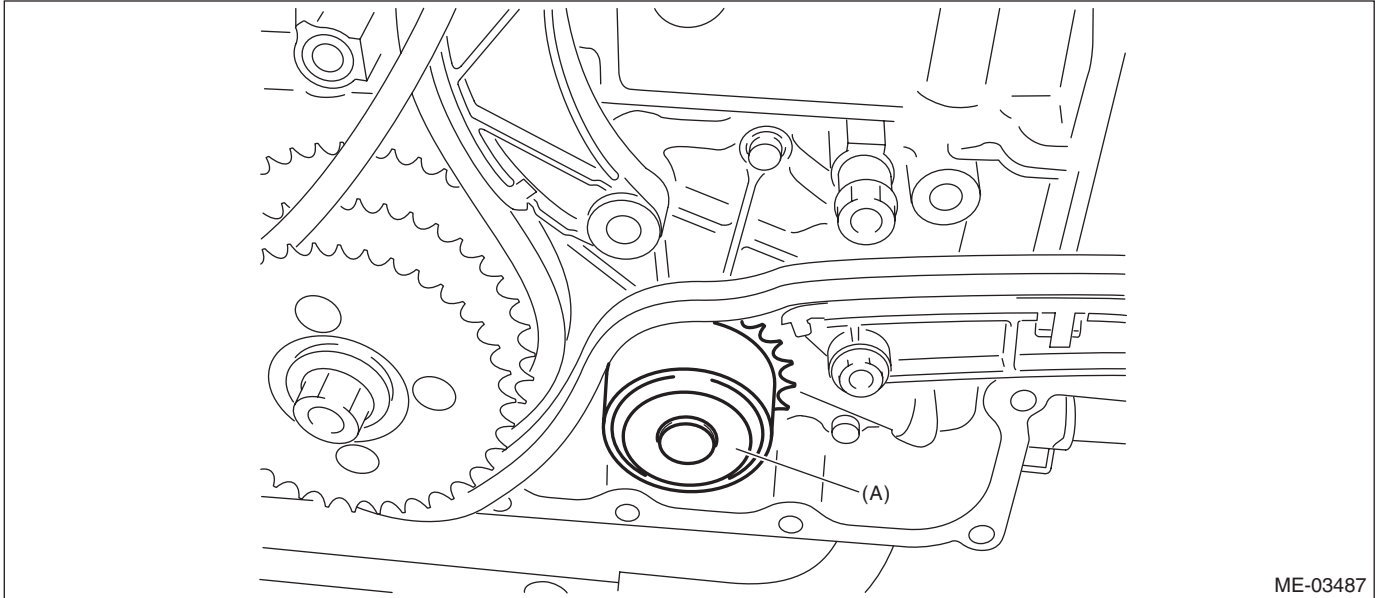
- (A) Blue
- (B) Timing mark

(2) Align the timing chain mark (blue) to the exhaust cam sprocket (LH) timing mark.



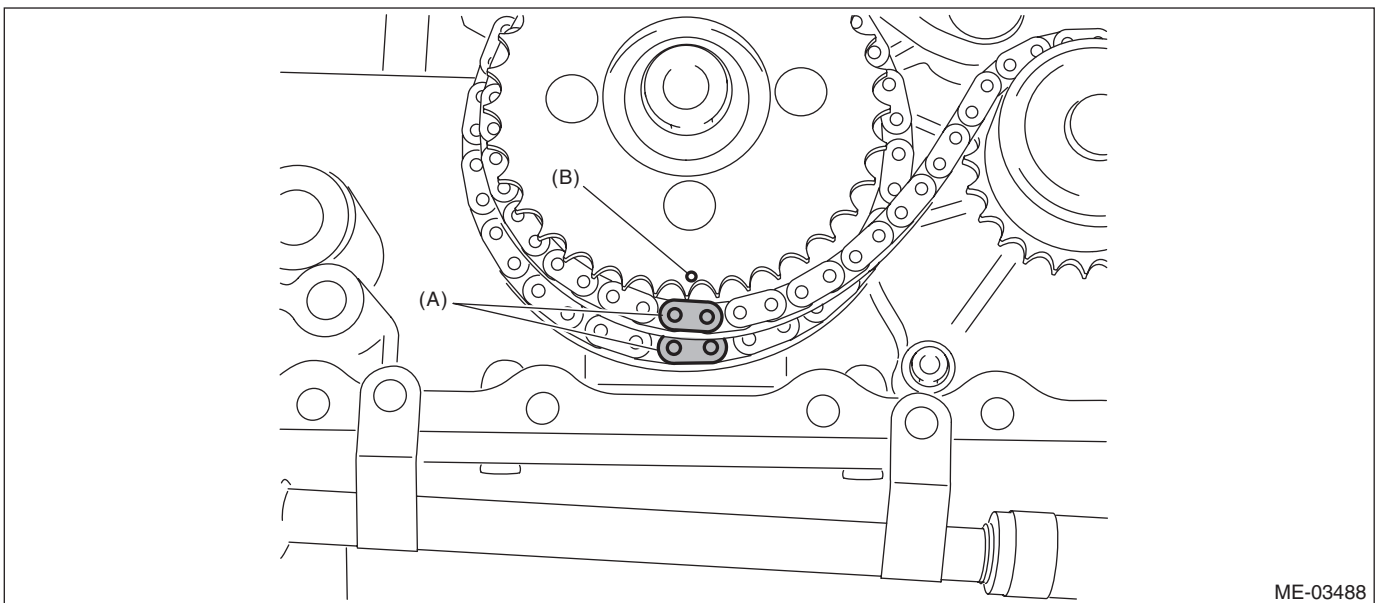
- (A) Blue
- (B) Timing mark

(3) Install the timing chain to the water pump sprocket.



(A) Water pump sprocket

(4) Align the idler sprocket timing mark to the timing chain mark (gold).



(A) Gold

(B) Timing mark

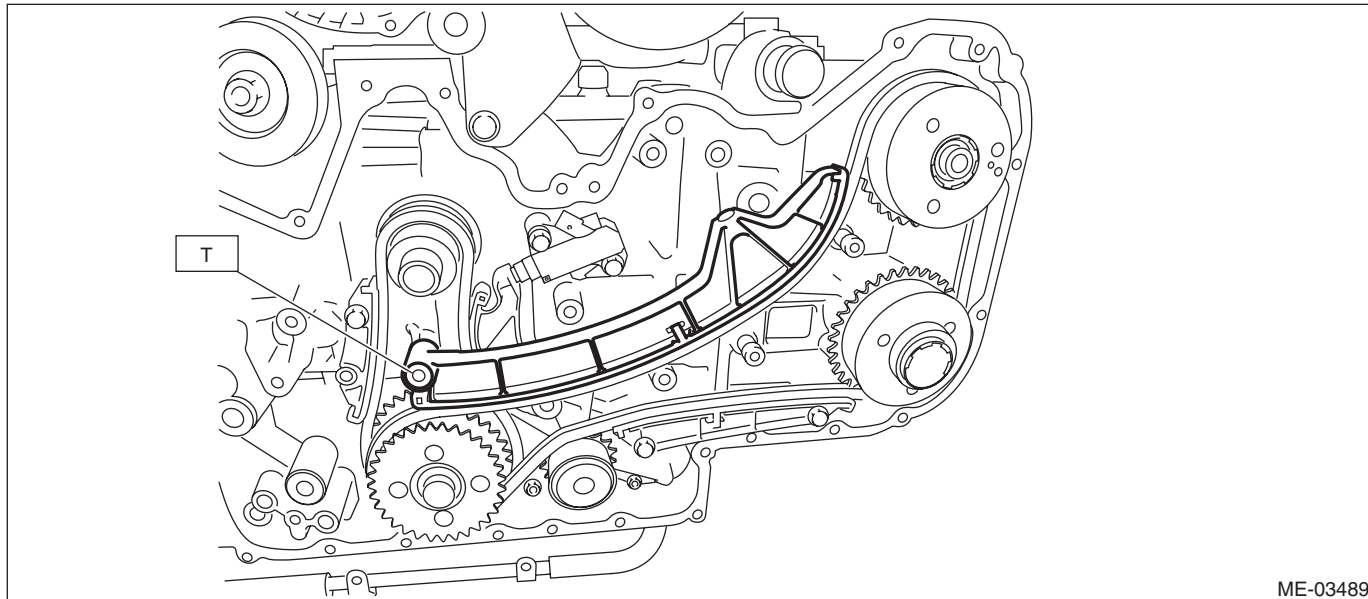
Timing Chain Assembly

MECHANICAL

14) Install the chain tensioner lever (LH).

Tightening torque:

16 N·m (1.6 kgf-m, 11.8 ft-lb)



ME-03489

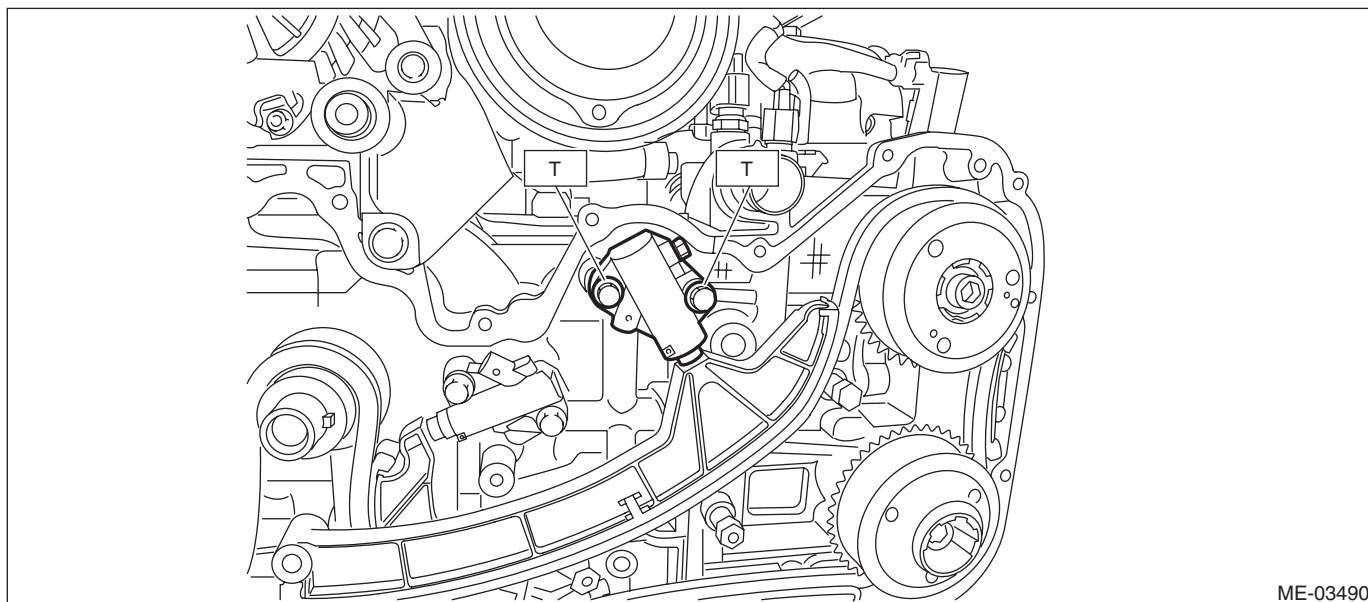
15) Install the chain tensioner (LH) and pull out the stopper pin.

NOTE:

- Confirm the bolt is attached on the side of chain tensioner housing.
- Timing chain (LH) components assembly is completed.

Tightening torque:

16 N·m (1.6 kgf-m, 11.8 ft-lb)

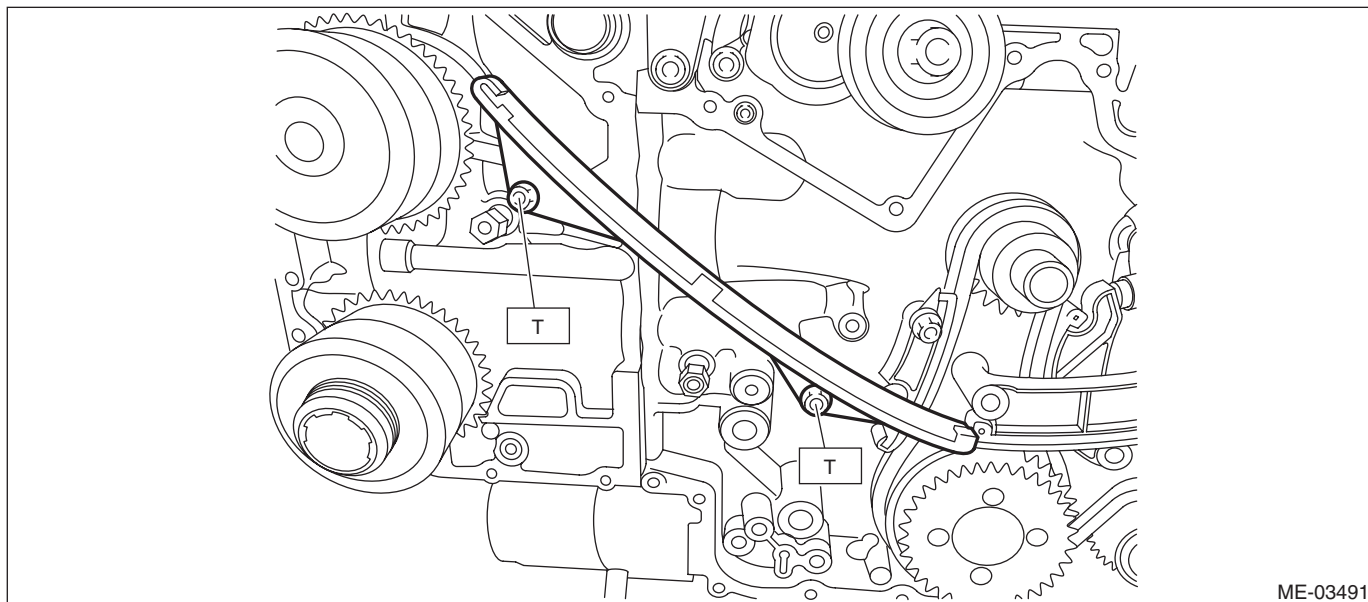


ME-03490

16) Install the chain guide (RH).

Tightening torque:

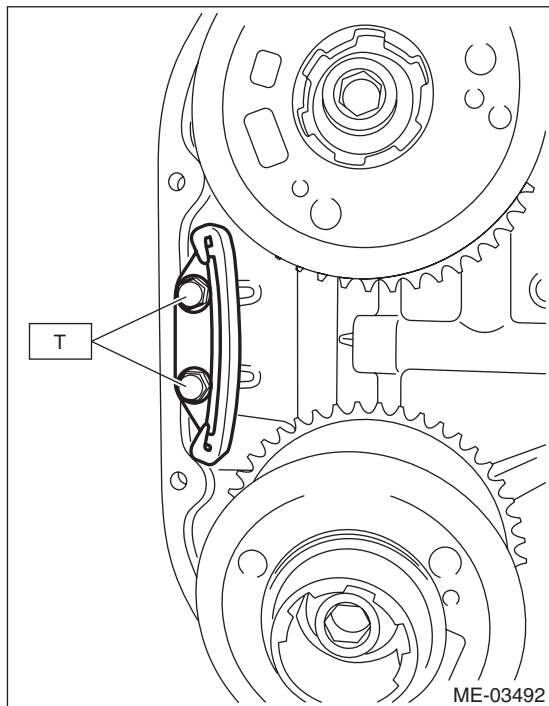
16 N·m (1.6 kgf-m, 11.8 ft-lb)



17) Install the chain guide (RH: between cams).

Tightening torque:

6.4 N·m (0.7 kgf-m, 4.7 ft-lb)

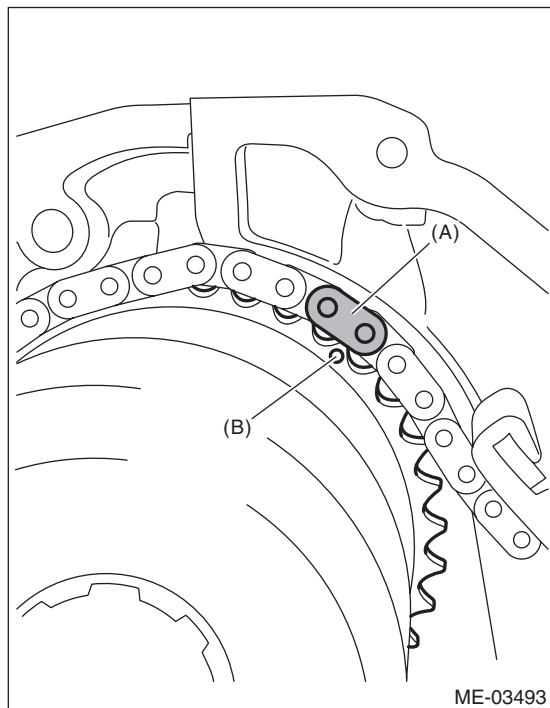


Timing Chain Assembly

MECHANICAL

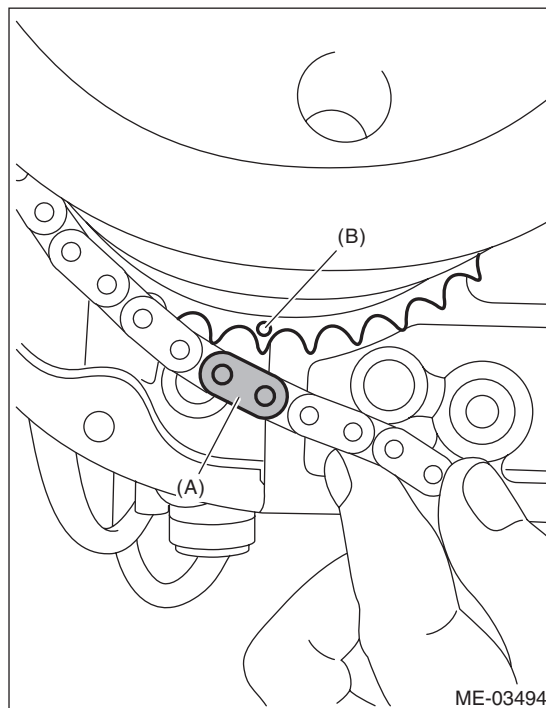
18) Install the timing chain (RH).

(1) Align the timing chain mark (blue) to the intake cam sprocket (RH) timing mark.



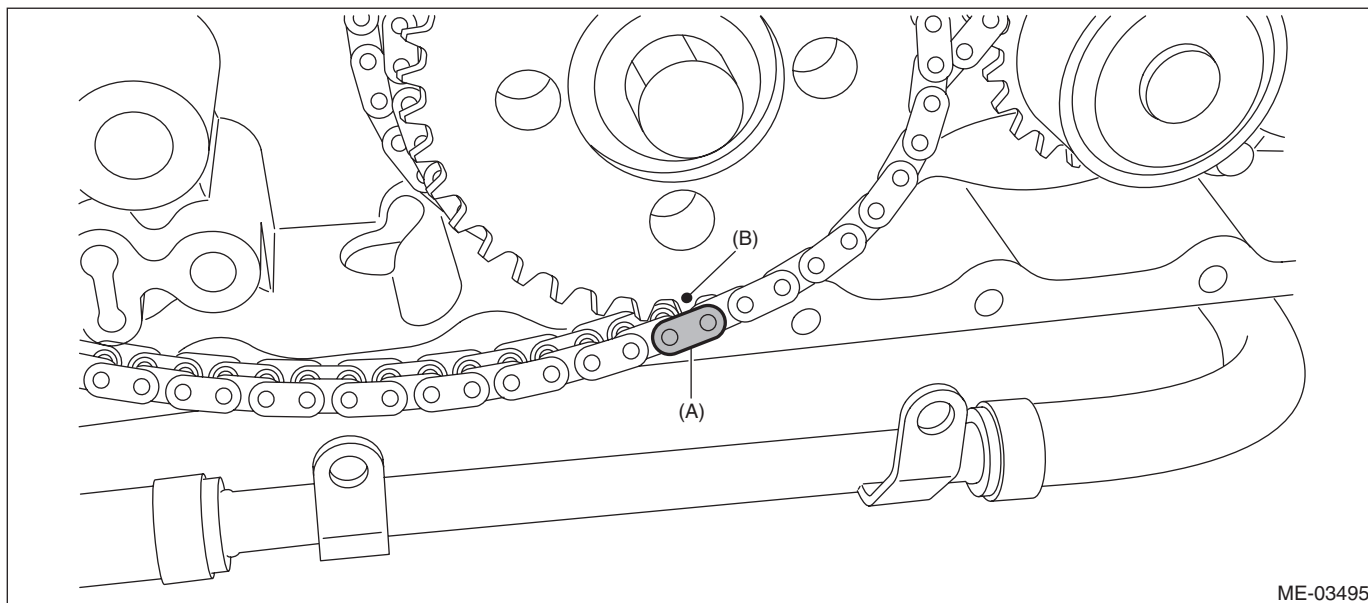
- (A) Blue
- (B) Timing mark

(2) Align the timing chain mark (blue) to the exhaust cam sprocket (RH) timing mark.



- (A) Blue
- (B) Timing mark

(3) Align the idler sprocket timing mark to the timing chain mark (gold).

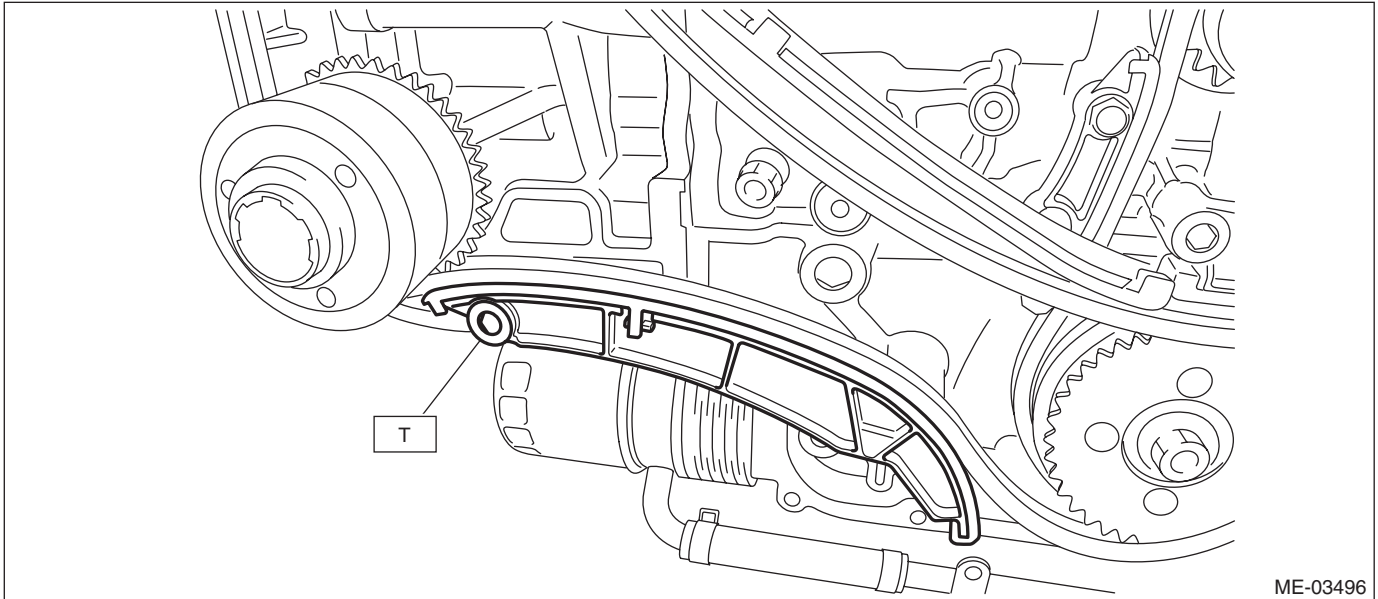


- (A) Gold
- (B) Timing mark

19) Install the chain tensioner lever (RH).

Tightening torque:

16 N·m (1.6 kgf-m, 11.8 ft-lb)



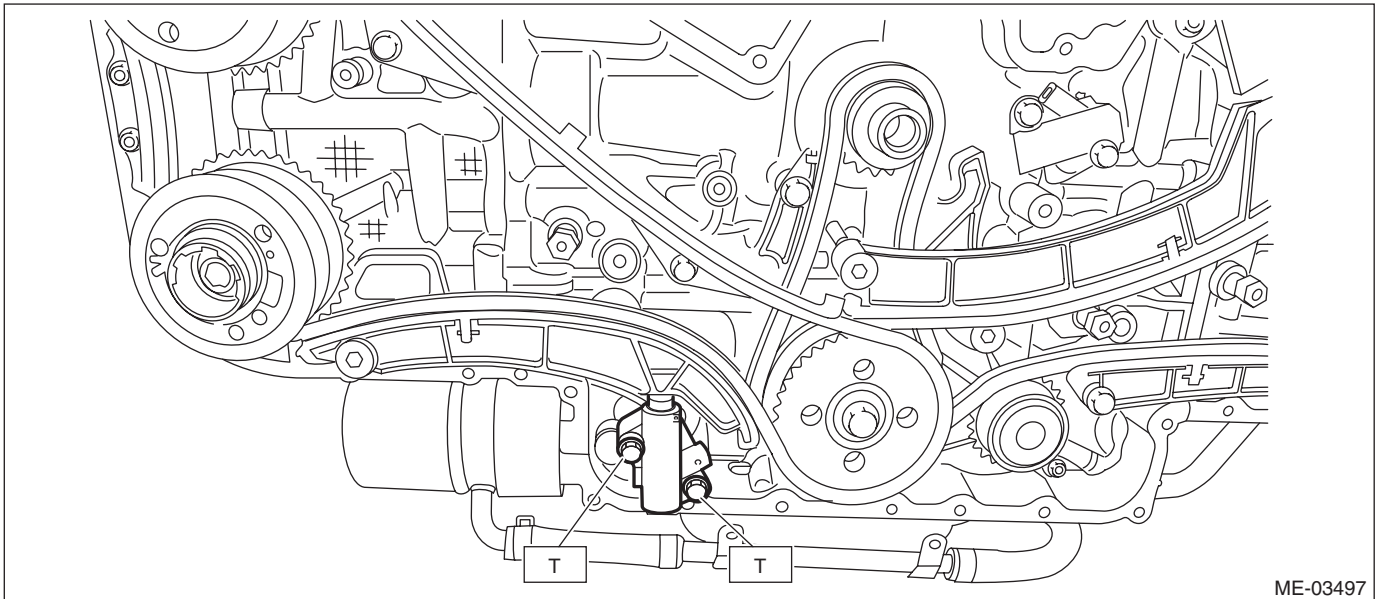
20) Install the chain tensioner (RH) and pull out the stopper pin.

NOTE:

Timing chain (RH) components assembly is completed.

Tightening torque:

16 N·m (1.6 kgf-m, 11.8 ft-lb)



21) Confirm the followings after installation.

CAUTION:

Be sure to perform this confirmation.

- (1) Confirm that the idler sprocket timing mark and three timing chain marks (gold) are aligned.
- (2) Confirm that the crank sprocket 12 o'clock position and timing chain (Main) mark (gold) are aligned.
- (3) Confirm that the LH cam sprocket timing mark and timing chain mark (blue) are aligned.
- (4) Confirm that the RH cam sprocket timing mark and timing chain mark (blue) are aligned.
- (5) Confirm that the bolts are tightened to the specified tightening torque.

Timing Chain Assembly

MECHANICAL

22) Confirm that there are no abnormalities, while turning the crankshaft in the engine rotating direction using ST.

CAUTION:

Be sure to perform this confirmation.

23) Install the chain cover. <Ref. to ME(H6DO)-49, INSTALLATION, Chain Cover.>

24) Install the crank pulley. <Ref. to ME(H6DO)-47, INSTALLATION, Crank Pulley.>

25) Install the V-belt. <Ref. to ME(H6DO)-46, INSTALLATION, V-belt.>

26) Fill engine oil. <Ref. to LU(H6DO)-9, REPLACEMENT, Engine Oil.>

27) Confirm that there are no oil leakage at the chain cover mating surface.

28) Install the radiator. <Ref. to CO(H6DO)-18, INSTALLATION, Radiator.>