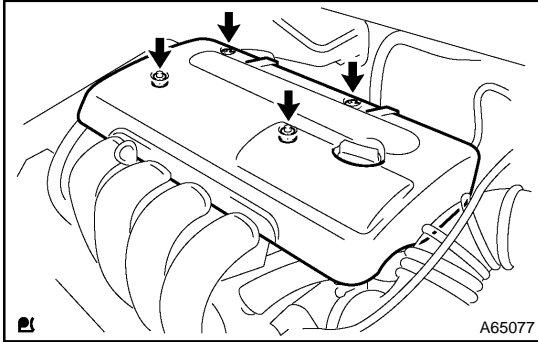


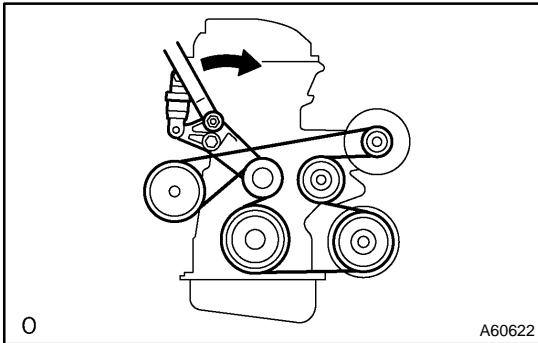
REPLACEMENT

1. REMOVE ENGINE UNDER COVER RH
2. DRAIN COOLANT (See page 16-6)
3. REMOVE FRONT WHEEL RH



4. REMOVE CYLINDER HEAD COVER NO.2

- (a) Remove the 2 nuts, 2 clips and cylinder head cover.



5. REMOVE FAN AND GENERATOR V BELT

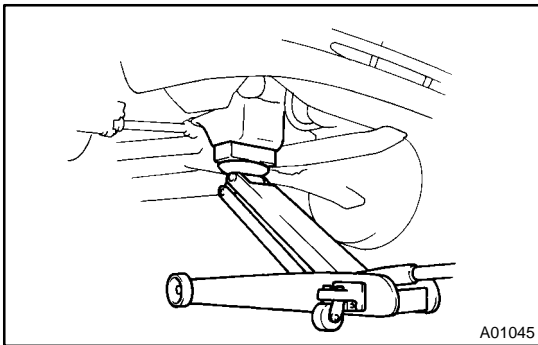
- (a) Turn the V-ribbed belt tensioner slowly clockwise and loosen it. Then, remove the fan and generator V belt and put back the V-ribbed belt tensioner little by little and fix it quietly.

6. SEPARATE VANE PUMP ASSY (See page 51-8)

NOTICE:

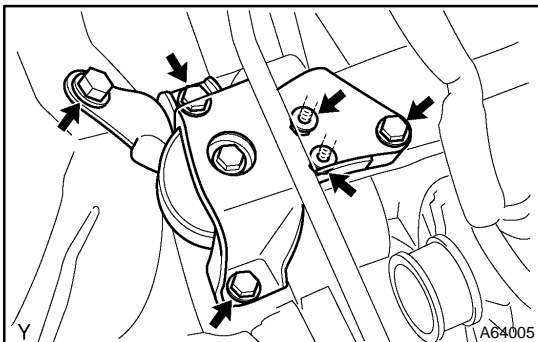
Do not disconnect the hose.

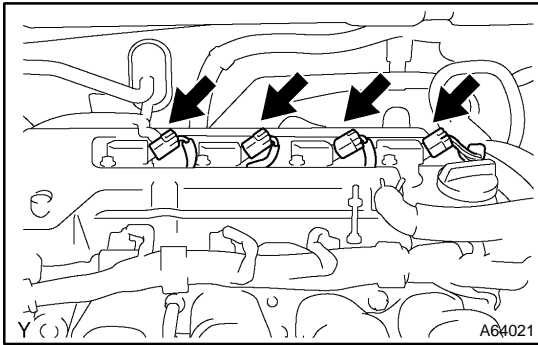
7. REMOVE GENERATOR ASSY (See page 19-15)



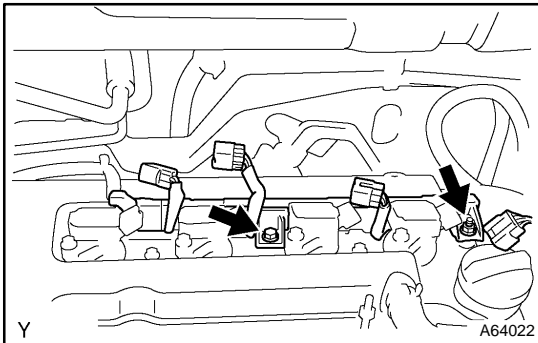
8. REMOVE ENGINE MOUNTING INSULATOR SUB-ASSY RH

- (a) Remove the PS oil pump reservoir and put it aside.
- (b) Place a wooden block between the jack and engine, and set the jack, then remove the 4 bolts, the 2 nuts and engine mounting insulator RH.

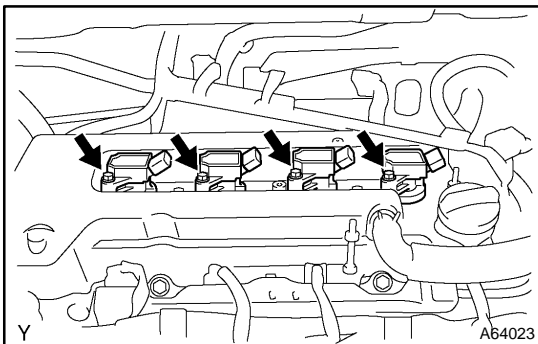


**9. DISCONNECT ENGINE WIRE**

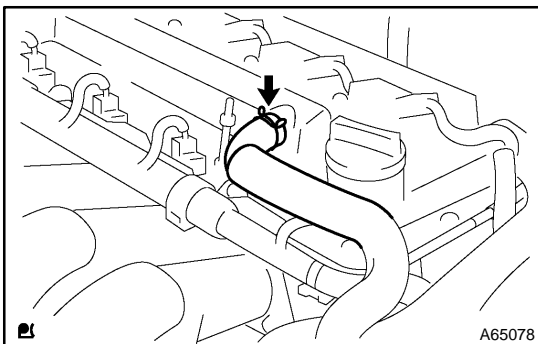
- (a) Remove the 5 clamps from the 5 clamp brackets.
- (b) Disconnect the 4 ignition coil connectors.



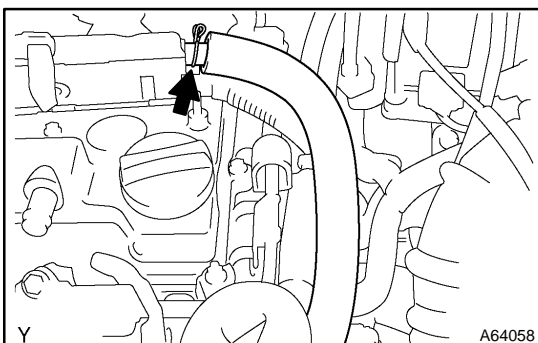
- (c) Remove the bolt and nut installing the engine wire.

**10. REMOVE IGNITION COIL ASSY**

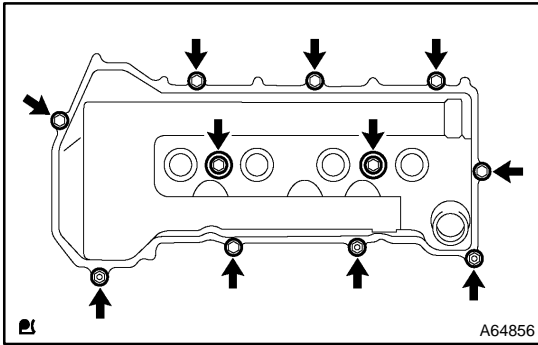
- (a) Remove the 4 bolts and 4 ignition coils.

**11. DISCONNECT VENTILATION HOSE**

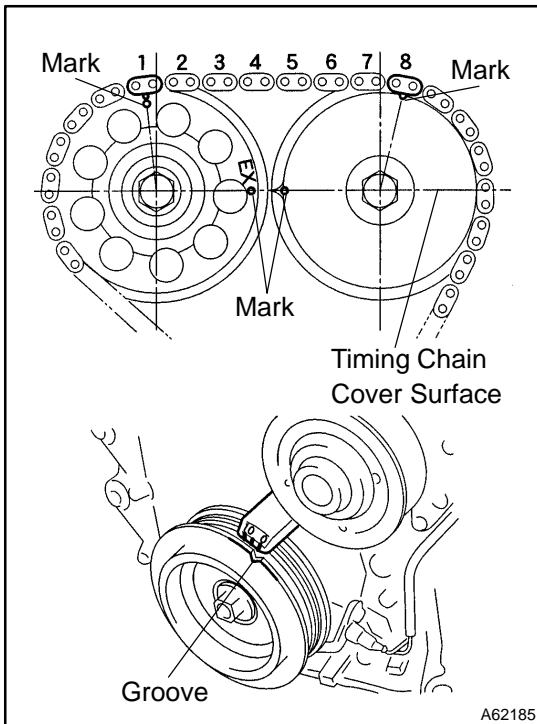
- (a) Disconnect the ventilation hose from the cylinder head cover.

**12. DISCONNECT VENTILATION HOSE NO.2**

- (a) Disconnect the ventilation hose from the cylinder head cover.

**13. REMOVE CYLINDER HEAD COVER SUB-ASSY**

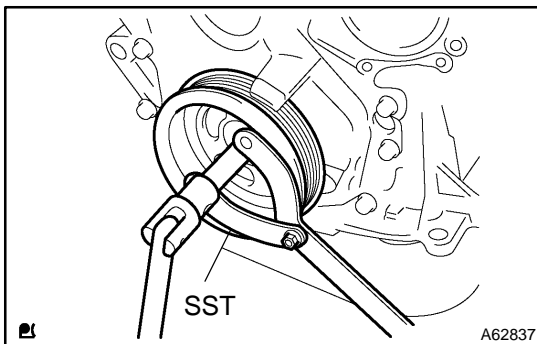
- (a) Remove the 9 bolts, 2 seal washers, 2 nuts, 3 clamp brackets and cylinder head cover.

**14. SET NO. 1 CYLINDER TO TDC/COMPRESSION**

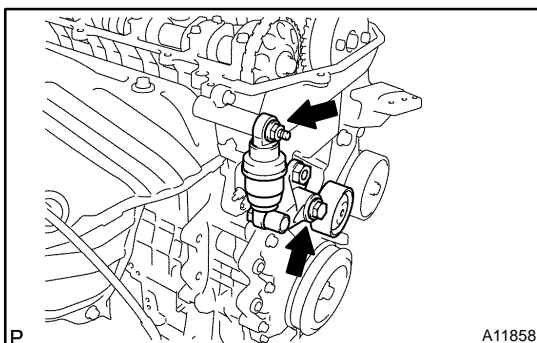
- (a) Turn the crankshaft pulley, and align its groove with timing mark "0" of the timing chain cover.
- (b) Check that the point marks of the camshaft timing sprocket and VVT timing sprocket are in straight line on the timing chain cover surface as shown in the illustration.

HINT:

If not, turn the crankshaft 1 revolution (360°) and align the marks as above.

**15. REMOVE CRANKSHAFT PULLEY**

- (a) Using SST, remove the pulley bolt.
SST 09960-10010 (09962-01000, 09963-01000)
- (b) Remove the crankshaft pulley from the crankshaft.

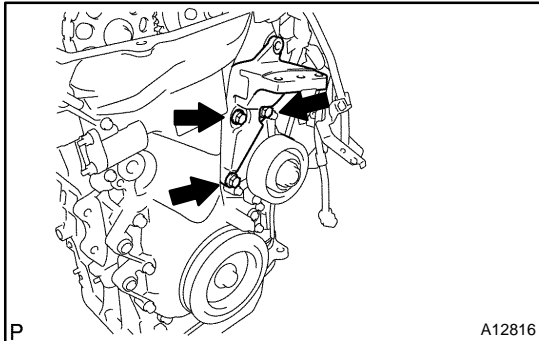
**16. REMOVE V-RIBBED BELT TENSIONER ASSY**

- (a) Remove the bolt, nut and V-ribbed belt tensioner.

HINT:

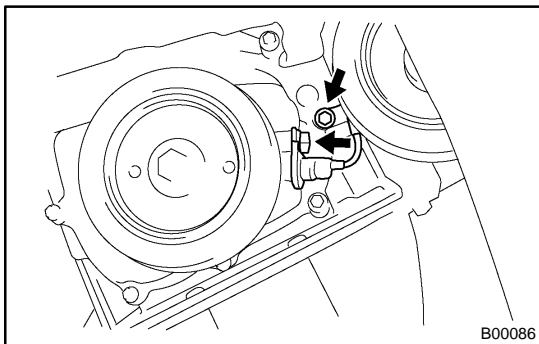
Handle a jack up and down to remove the bolt.

17. REMOVE WATER PUMP ASSY (See page 16-7)



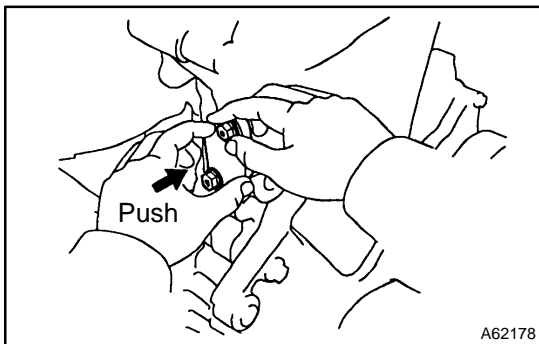
18. REMOVE TRANSVERSE ENGINE ENGINE MOUNTING BRACKET

- (a) Remove the 3 bolts and transverse engine engine mounting bracket.



19. REMOVE CRANK POSITION SENSOR

- (a) Remove the 2 bolts installing the crank position sensor.

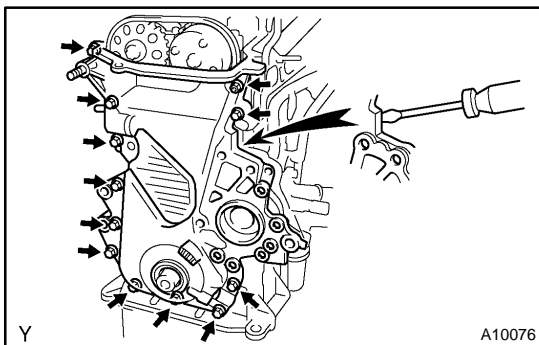


20. REMOVE CHAIN TENSIONER ASSY NO.1

- (a) Remove the 2 nuts and chain tensioner.

NOTICE:

Be sure not to revolve the crankshaft without the chain tensioner.

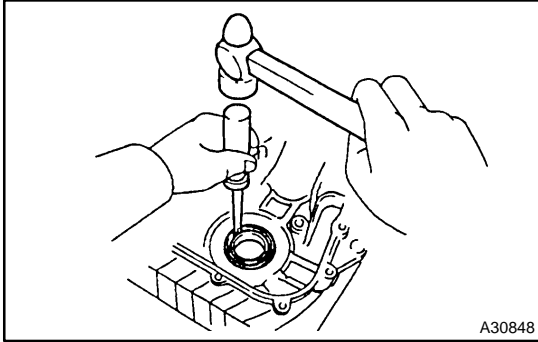


21. REMOVE TIMING CHAIN OR BELT COVER SUB-ASSY

- (a) Remove the 11 bolts and nuts.
- (b) Using a torx wrench socket (E8), remove the stud bolt.
- (c) Remove the timing chain cover by prying the portions between the cylinder head and cylinder block with a screwdriver.

NOTICE:

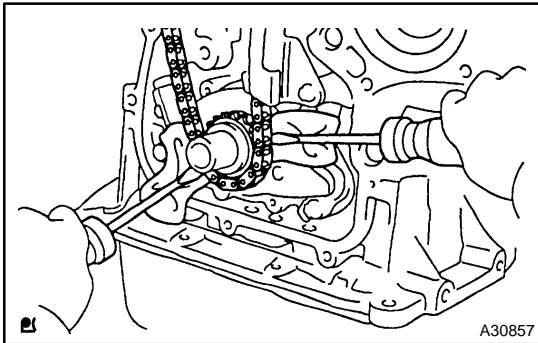
Be careful no tot damage the contact surfaces of the timing chain cover, cylinder head and cylinder block.

**22. REMOVE TIMING GEAR COVER OIL SEAL**

- (a) Using a screwdriver, remove the oil seal.

23. REMOVE CRANKSHAFT POSITION SENSOR PLATE NO.1**24. REMOVE CHAIN TENSIONER SLIPPER**

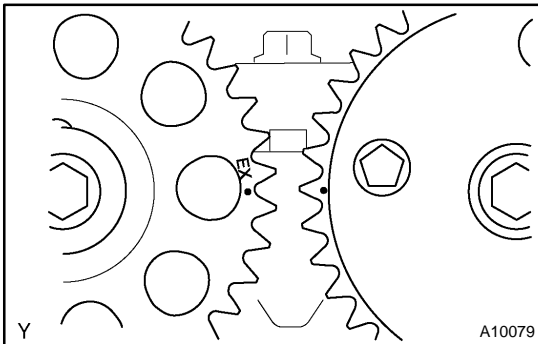
- (a) Remove the bolt and chain tensioner slipper.

**25. REMOVE CHAIN SUB-ASSY**

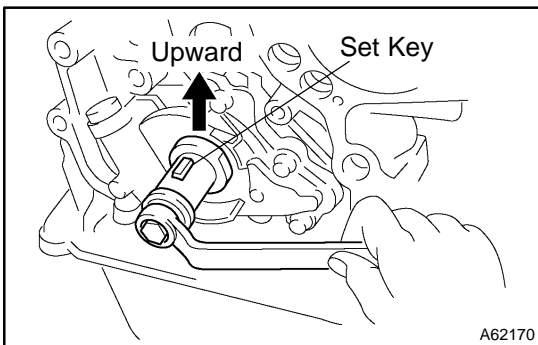
- (a) Remove the timing chain with the crankshaft timing gear plying screwdrivers as shown in the illustration.

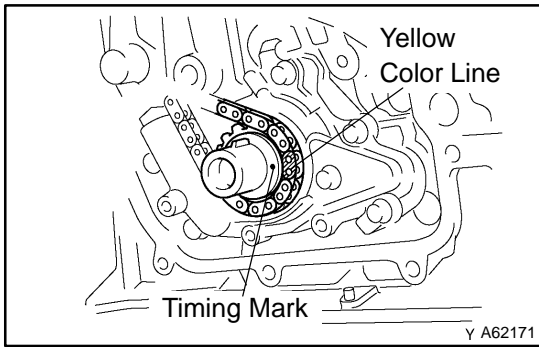
NOTICE:

- Put shop rag to protect the engine.
- In case of revolving the camshafts with the chain off the sprockets, turn the crankshaft 1/4 revolution for valves not to touch the pistons.

**26. INSTALL CHAIN SUB-ASSY**

- (a) Set No. 1 cylinder to TDC/compression.
- (1) Turn the hexagonal wrench head portion of the camshafts, and align the point marks of the camshaft timing sprockets.
- (2) Using a crankshaft pulley bolt, turn the crankshaft and set the set key on the crankshaft upward.

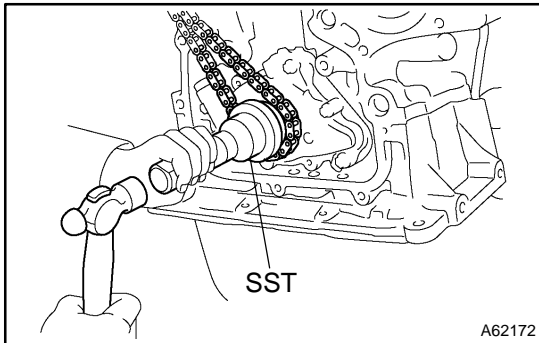




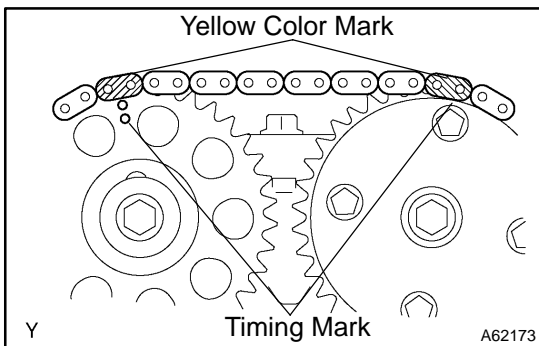
- (b) Install the timing chain on the crankshaft timing sprocket with the yellow color link aligned with the timing mark on the crankshaft timing sprocket.

HINT:

Three yellow color links are on the chain.



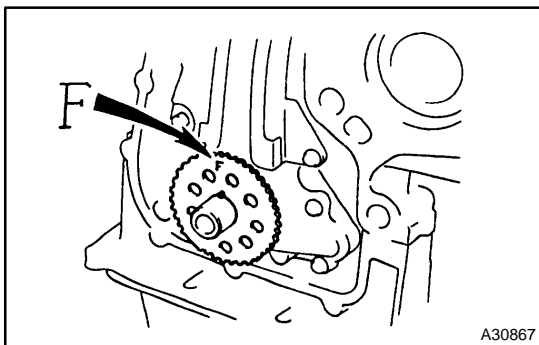
- (c) Using SST, install the crankshaft timing sprocket.
SST 09223-22010



- (d) Install the timing chain on the camshaft timing sprockets with the yellow color links aligned with the timing marks on the camshaft timing sprockets.

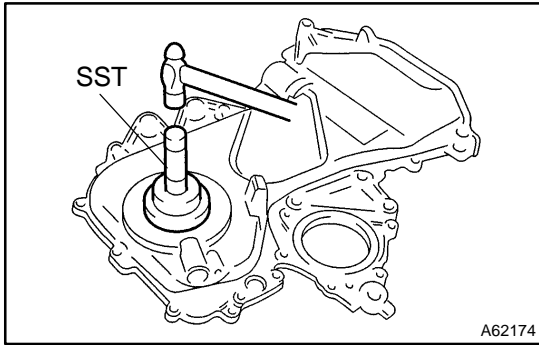
27. INSTALL CHAIN TENSIONER SLIPPER

- (a) Install the chain tensioner slipper with the bolt.
Torque: 19 N·m (194 kgf·cm, 14 ft·lbf)



28. INSTALL CRANKSHAFT POSITION SENSOR PLATE NO.1

- (a) Install the plate with the "F" mark facing forward.



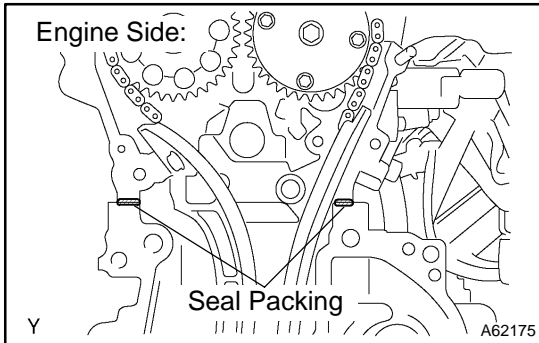
29. INSTALL TIMING GEAR COVER OIL SEAL

- (a) Apply MP grease to a new oil seal lip.
- (b) Using SST, tap in the oil seal until its surface is flush with the timing chain cover edge.

SST 09223-22010

NOTICE:

Keep the lip off foreign materials.



30. INSTALL TIMING CHAIN OR BELT COVER SUB-ASSY

- (a) Remove any old packing material from the contact surface.
- (b) Apply seal packing in the shape of bead (Diameter 3.5 mm - 4.5 mm (0.1379 - 0.177 in.)) consequently as shown in the illustration.

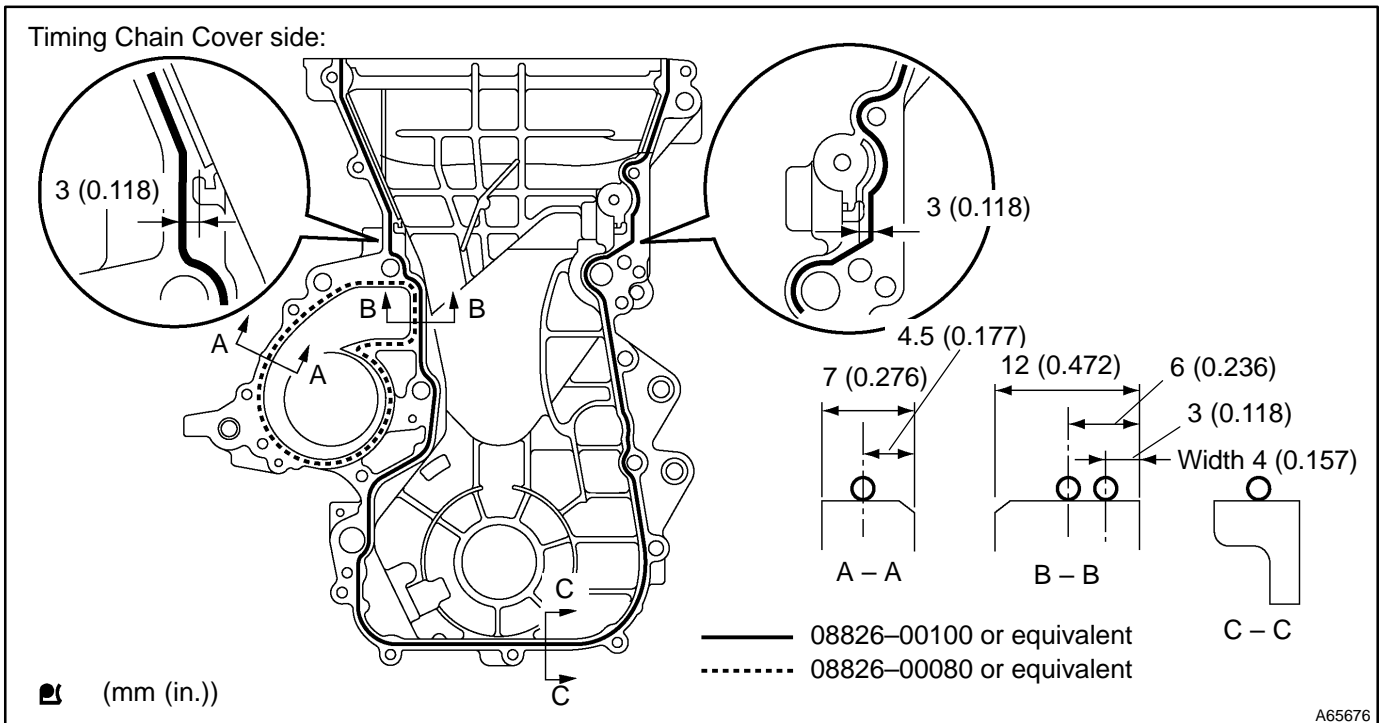
Seal packing:

Water pump part part No. 08826-00100 or equivalent

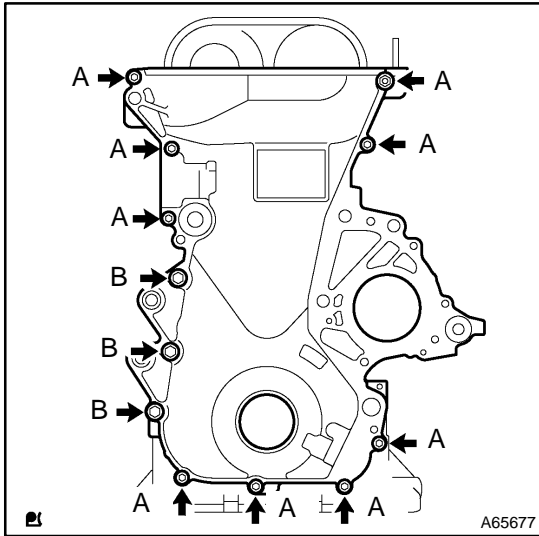
Other part part No. 08826-00080 or equivalent.

NOTICE:

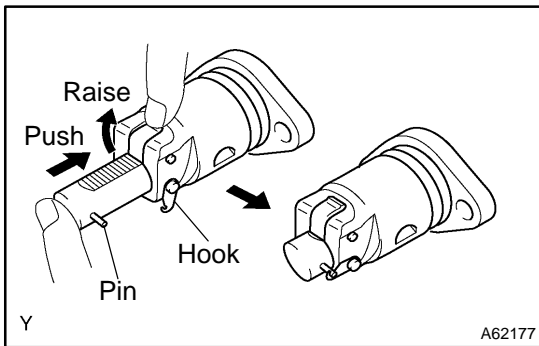
- Remove any oil from the contact surface.
- Install the oil pan within 3 minutes after applying seal packing.
- Do not put into engine oil within 2 hours after installing.



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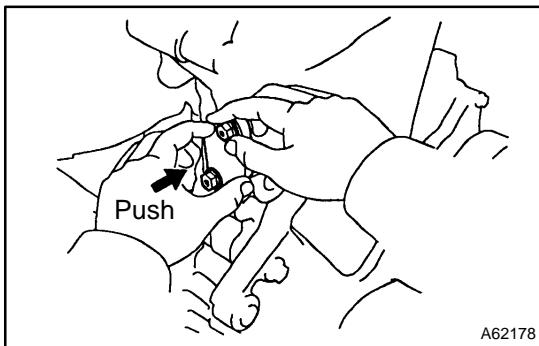


- (c) Install the timing chain cover with the 11 bolts and nut.
Torque:
A: 13 N·m (133 kgf·cm, 10 ft·lbf)
B: 19 N·m (194 kgf·cm, 14 ft·lbf)
- (d) Using a torx wrench socket (E8), install the stud bolt.
Torque: 9.5 N·m (97 kgf·cm, 84 in·lbf)



31. INSTALL CHAIN TENSIONER ASSY NO.1

- (a) Check the O-ring is clean, and set the hook as shown in the illustration.

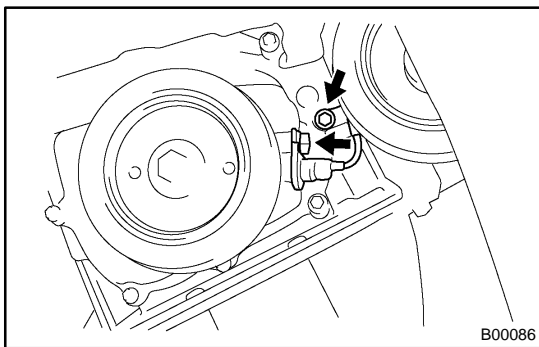


- (b) Apply engine oil to the chain tensioner and install it with 2 nuts.

Torque: 9.0 N·m (92 kgf·cm, 80 in·lbf)

NOTICE:

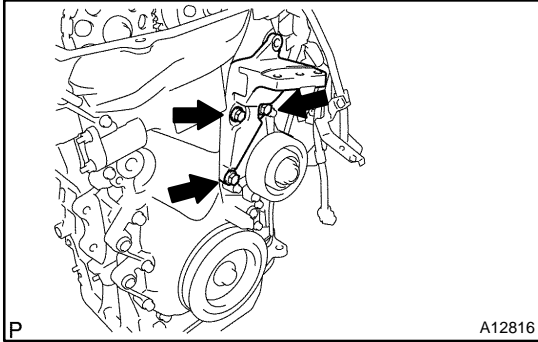
When installing the tensioner, set the hook again if the hook release the plunger.



32. INSTALL CRANK POSITION SENSOR

- (a) Install the crank position sensor with the 2 bolts.

Torque: 9.0 N·m (92 kgf·cm, 80 in·lbf)

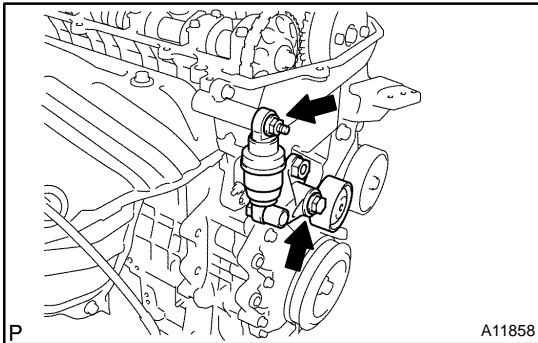


33. INSTALL TRANSVERSE ENGINE ENGINE MOUNTING BRACKET

- (a) Install the transverse engine engine mounting bracket with the 3 bolts.

Torque: 47 N·m (479 kgf·cm, 35 ft·lbf)

34. INSTALL WATER PUMP ASSY (See page 16-7)



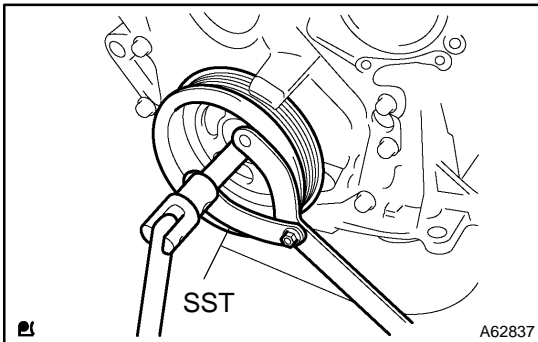
35. INSTALL V-RIBBED BELT TENSIONER ASSY

- (a) Install the V-ribbed belt tensioner with the nut and bolt.

Torque:

Nut 29 N·m (296 kgf·cm, 21 ft·lbf)

Bolt 69 N·m (704 kgf·cm, 51 ft·lbf)



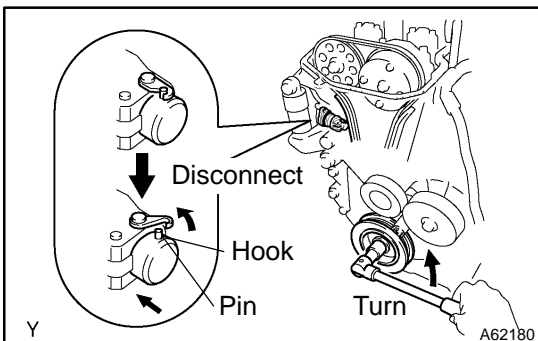
36. INSTALL CRANKSHAFT PULLEY

- (a) Align the pulley set key with the key groove of the pulley, and slide on the pulley.

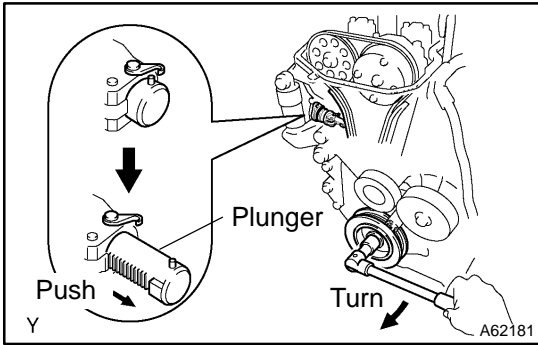
- (b) Using SST, install the crankshaft pulley bolt.

SST 09960-10010 (09962-01000, 09963-01000)

Torque: 138 N·m (1,407 kgf·cm, 102 ft·lbf)



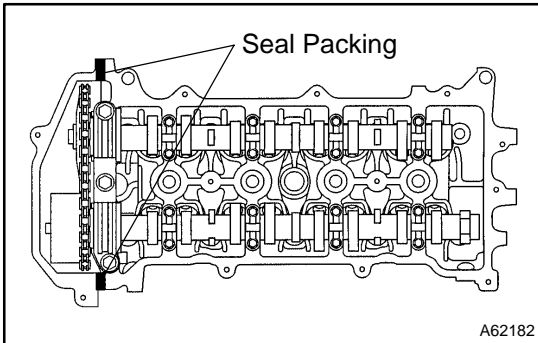
- (c) Turn the crankshaft counter clockwise, and disconnect the plunger knock pin from the hook.



- (d) Turn the crankshaft clockwise, and check that the slipper is pushed by the plunger.

HINT:

If the plunger does not spring out, press the slipper into the chain tensioner with a screwdriver so that the hook is released from the knock pin and the plunger springs out.



37. INSTALL CYLINDER HEAD COVER SUB-ASSY

- (a) Remove any old packing (FIPG) material.
 (b) Apply seal packing to 2 locations as shown in the illustration.

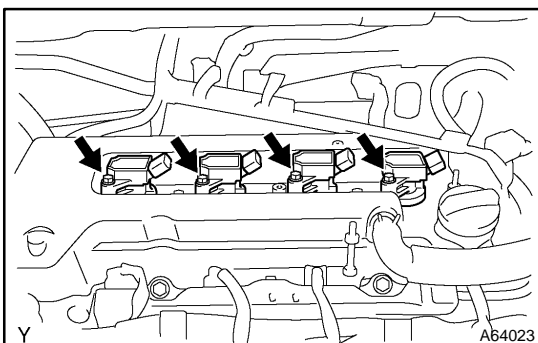
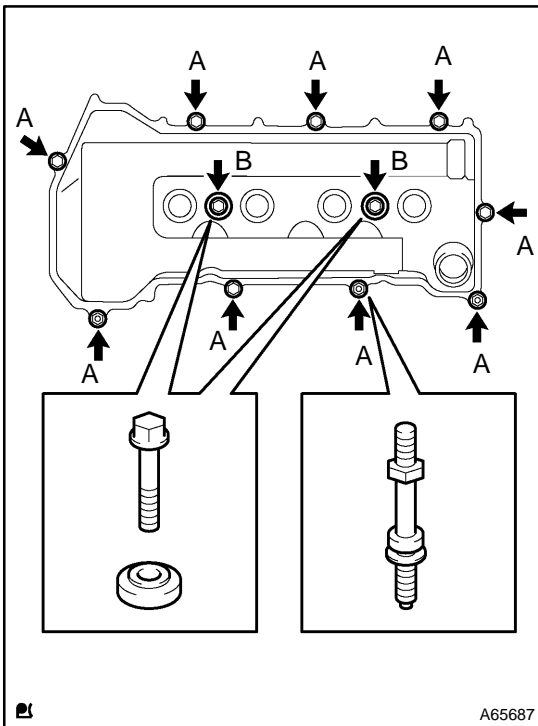
Seal packing: Part No. 08826-00080 or equivalent

NOTICE:

- Remove any oil from the contact surface.
 - Install the cylinder head cover within 3 minutes after applying seal packing.
 - Do not put into engine oil 2 hours after installing.
- (c) Install the cylinder head cover and 3 cable brackets with the 9 bolts, 2 seal washers and 2 nuts. Uniformly tighten the bolts and nuts, in the several passes.

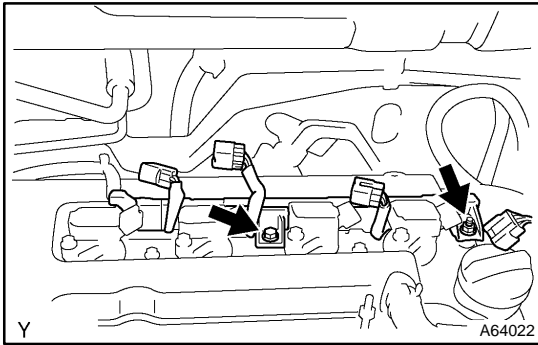
Torque:

A 11 N·m (112 kgf·cm, 8 ft·lbf)
B 9.0 N·m (92 kgf·cm, 80 in·lbf)

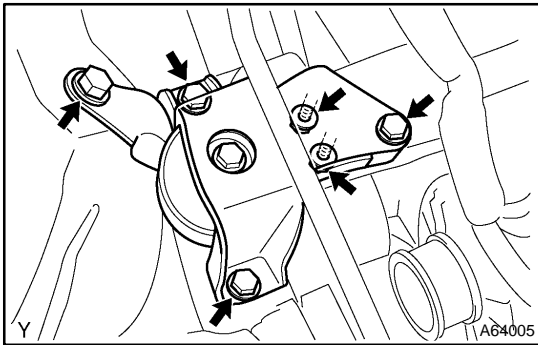


38. INSTALL IGNITION COIL ASSY

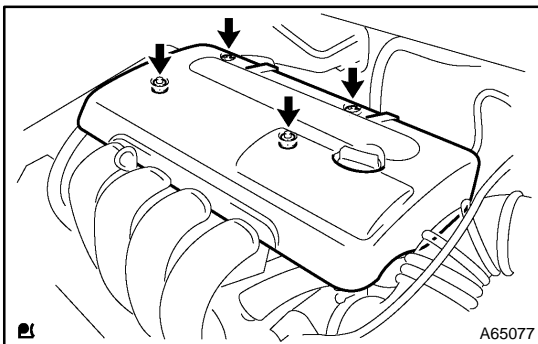
- (a) Install the 4 ignition coils with the 4 bolts.
Torque: 9.0 N·m (92 kgf·cm, 80 in·lbf)

**39. INSTALL ENGINE WIRE**

- (a) Install the engine wire with the bolt and nut.
Torque: 9.0 N·m (92 kgf·cm, 80 in.-lbf)

**40. INSTALL ENGINE MOUNTING INSULATOR SUB-ASSY RH**

- (a) Install the engine mounting insulator with the 4 bolts and 2 nuts.
Torque: 52 N·m (530 kgf·cm, 38 ft·lbf)

41. INSTALL GENERATOR ASSY (See page 19-15)**42. INSTALL VANE PUMP ASSY (See page 51-8)****43. INSTALL CYLINDER HEAD COVER NO.2**

- (a) Install the cylinder head cover with the 2 nuts and 2 clips.
Torque: 7.0 N·m (71 kgf·cm, 62 in.-lbf)

44. INSTALL FRONT WHEEL RH

Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

45. ADD COOLANT (See page 16-6)**46. CHECK ENGINE COOLANT LEAK (See page 16-6)****47. CHECK ENGINE OIL LEAK**