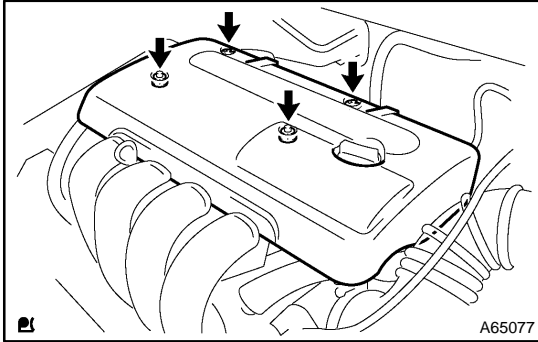


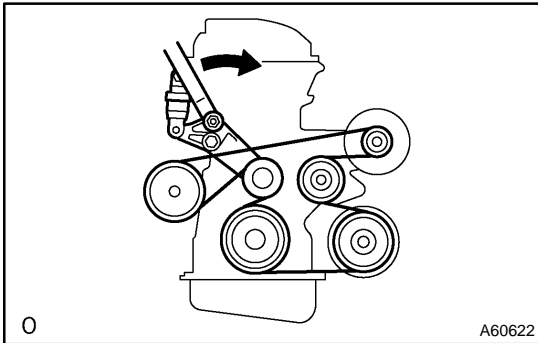
## REPLACEMENT

1. REMOVE ENGINE UNDER COVER RH
2. DRAIN COOLANT (See page 16-7)
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

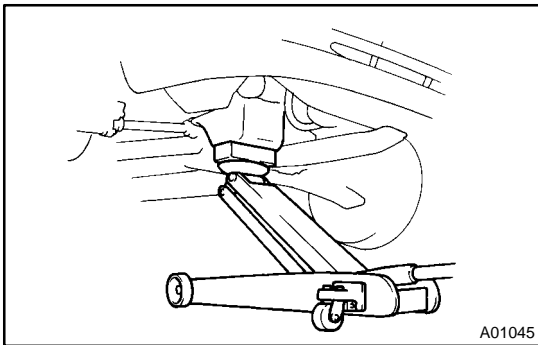
- (a) Turn the V-ribbed belt tensioner slowly clockwise and loosen it. Then, remove the fan and generator V belt and put back the V-ribbed belt tensioner little by little and fix it quietly.

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

#### NOTICE:

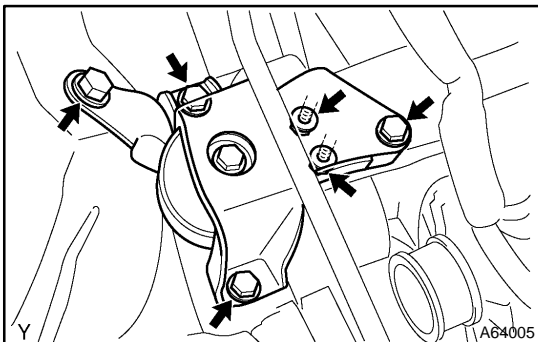
Do not disconnect the hose.

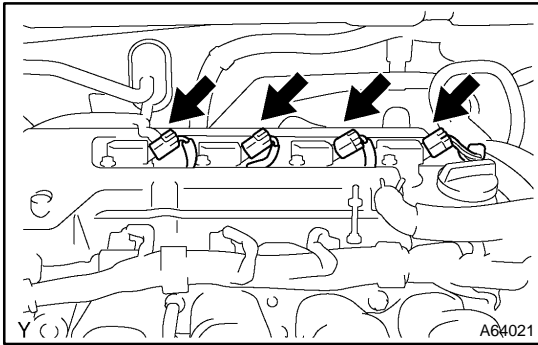
### 7. REMOVE GENERATOR ASSY (See page 19-16)



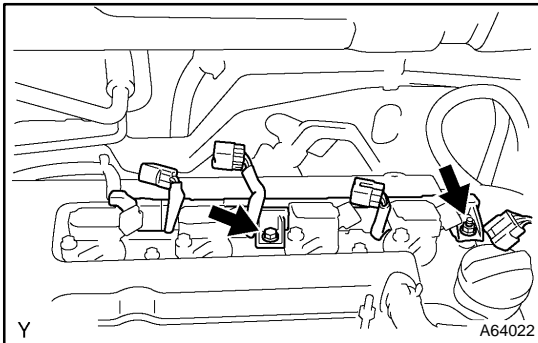
### 8. REMOVE ENGINE MOUNTING INSULATOR SUB-ASSY RH

- (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.

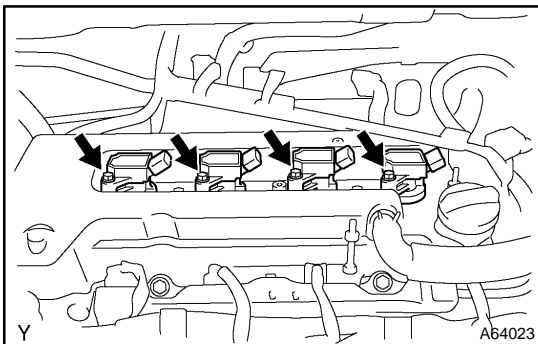


**9. DISCONNECT ENGINE WIRE**

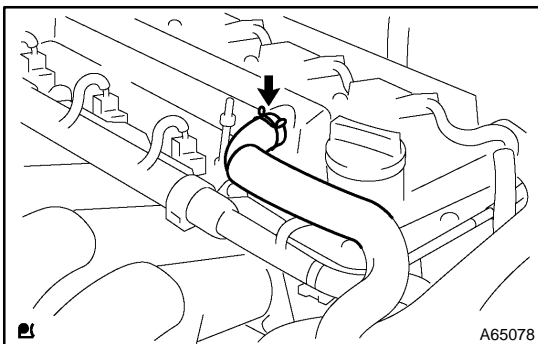
- (a) Remove the 5 clamps from the 5 clamp brackets.
- (b) Disconnect the 4 ignition coil connectors.



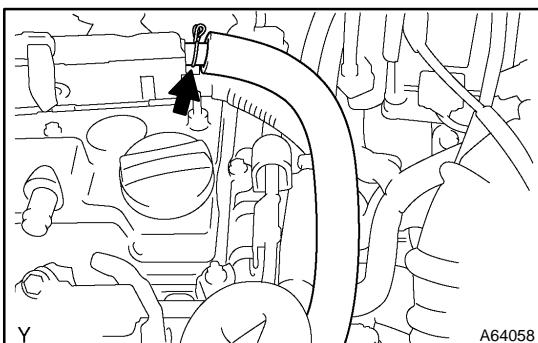
- (c) Remove the bolt and nut installing the engine wire.

**10. REMOVE IGNITION COIL ASSY**

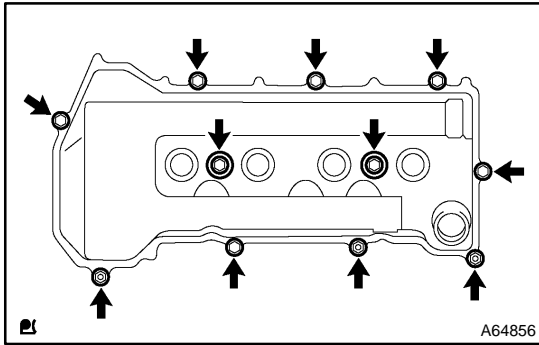
- (a) Remove the 4 bolts and 4 ignition coils.

**11. DISCONNECT VENTILATION HOSE**

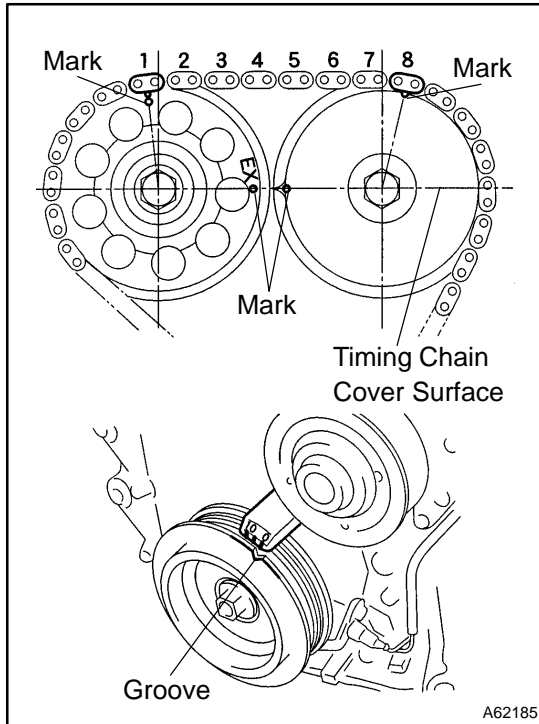
- (a) Disconnect the ventilation hose from the cylinder head cover.

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

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

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

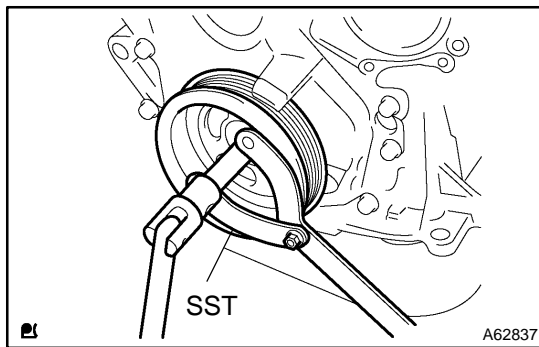
- (a) Remove the 9 bolts, 2 seal washers, 2 nuts, 3 clamp brackets and cylinder head cover.

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

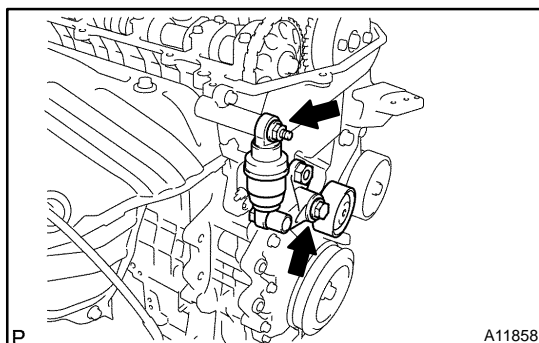
- (a) Turn the crankshaft pulley, and align its groove with timing mark "0" of the timing chain cover.
- (b) Check that the point marks of the camshaft timing sprocket and VVT timing sprocket are in straight line on the timing chain cover surface as shown in the illustration.

**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.

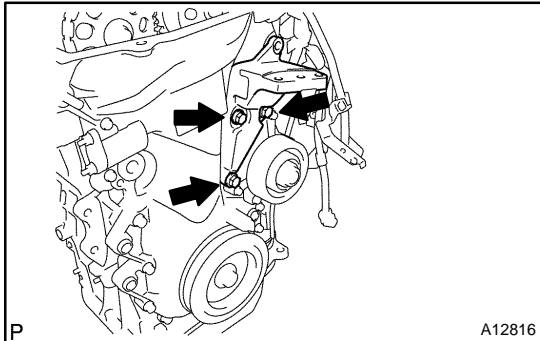
**16. REMOVE V-RIBBED BELT TENSIONER ASSY**

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

**HINT:**

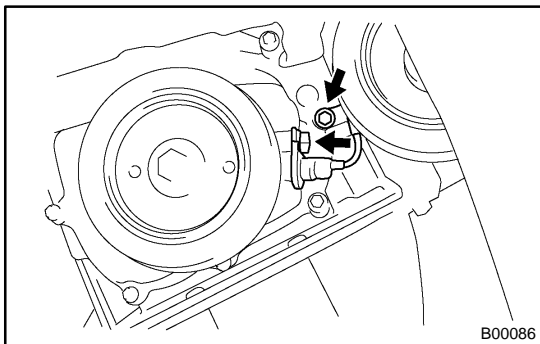
Handle a jack up and down to remove the bolt.

**17. REMOVE WATER PUMP ASSY (See page 16-8)**



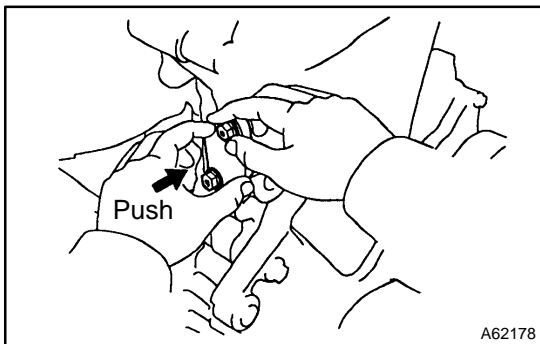
**18. REMOVE TRANSVERSE ENGINE ENGINE MOUNTING BRACKET**

- (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.

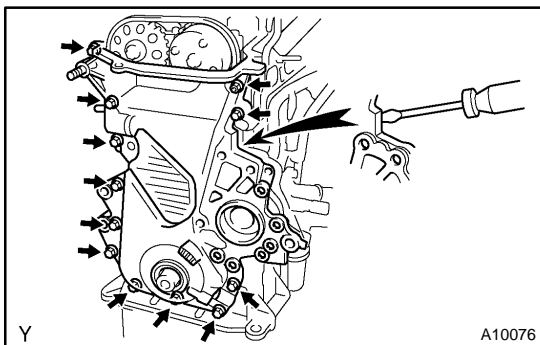


**20. REMOVE CHAIN TENSIONER ASSY NO.1**

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

**NOTICE:**

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

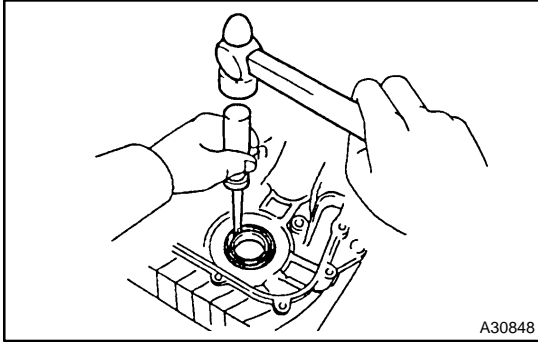


**21. REMOVE TIMING CHAIN OR BELT COVER SUB-ASSY**

- (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.**



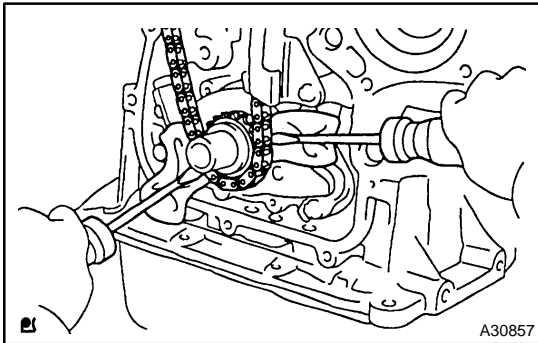
## 22. REMOVE TIMING GEAR COVER OIL SEAL

- (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.

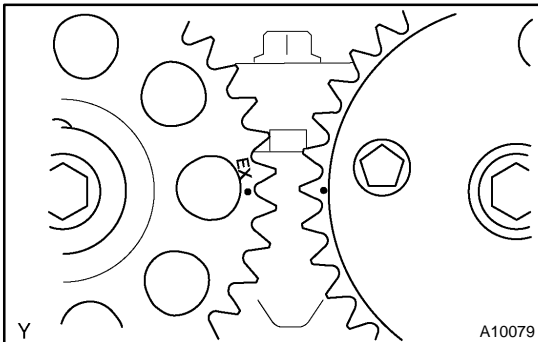


## 25. REMOVE CHAIN SUB-ASSY

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

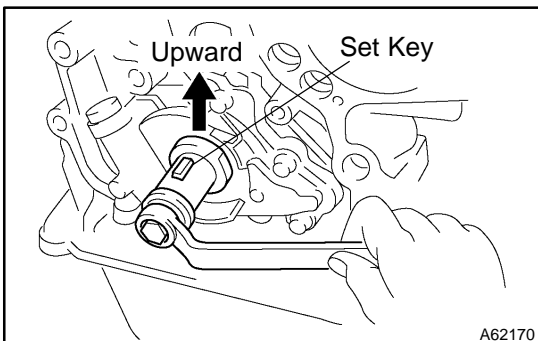
### NOTICE:

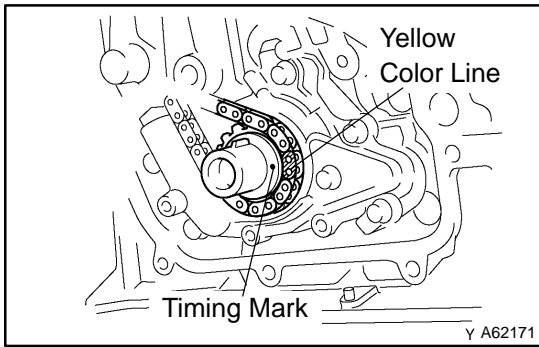
- Put shop rag to protect the engine.
- In case of revolving the camshafts with the chain off the sprockets, turn the crankshaft 1/4 revolution for valves not to touch the pistons.



## 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.

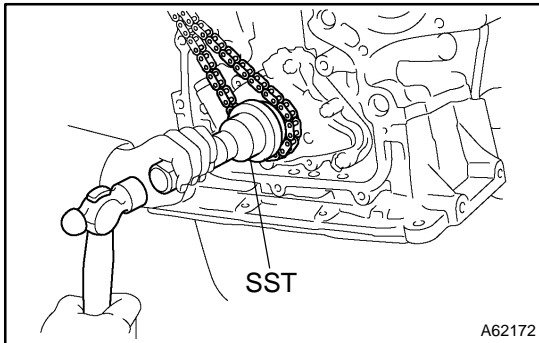




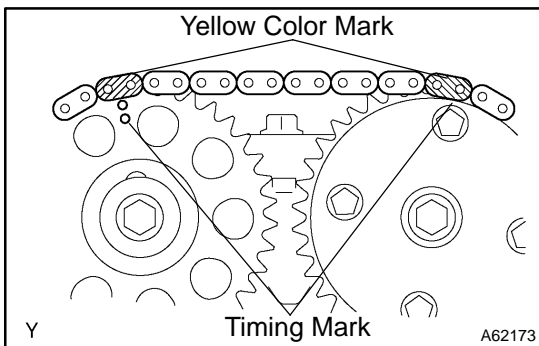
- (b) Install the timing chain on the crankshaft timing sprocket with the yellow color link aligned with the timing mark on the crankshaft timing sprocket.

HINT:

Three yellow color links are on the chain.



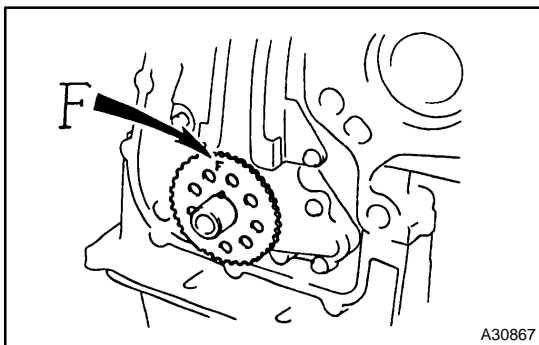
- (c) Using SST, install the crankshaft timing sprocket.  
SST 09223-22010



- (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.

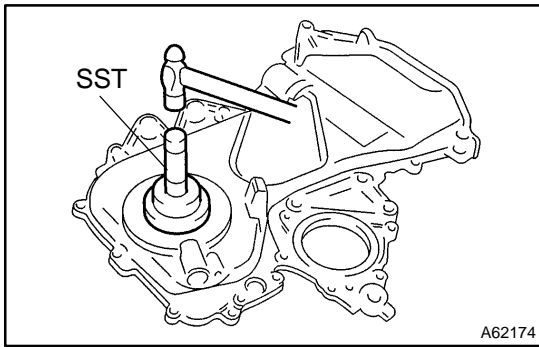
**27. INSTALL CHAIN TENSIONER SLIPPER**

- (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.



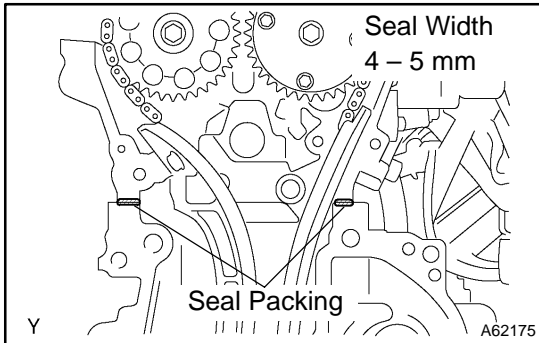
**29. INSTALL TIMING GEAR COVER OIL SEAL**

- (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.

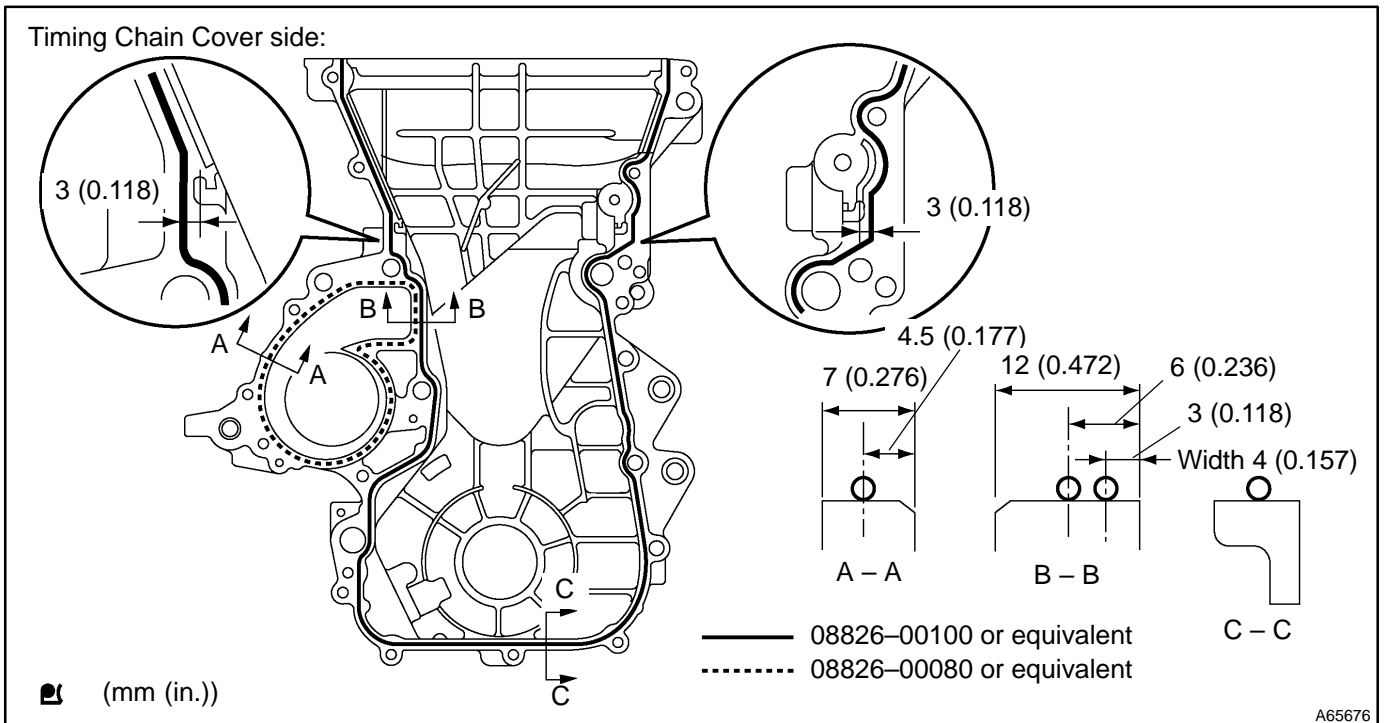
**Seal packing:**

**Water pump part part No. 08826-00100 or equivalent**

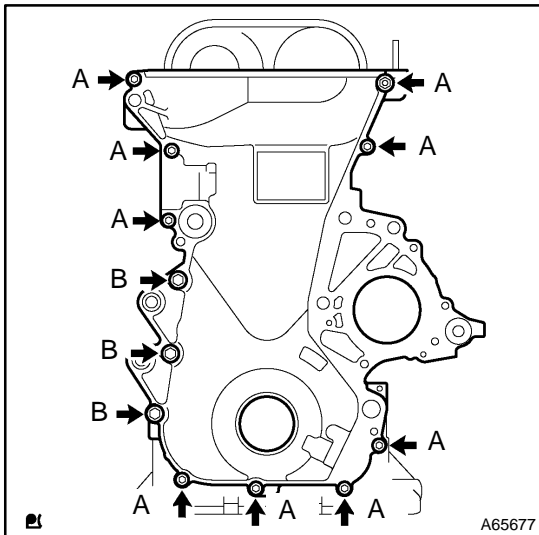
**Other part part No. 08826-00080 or equivalent.**

**NOTICE:**

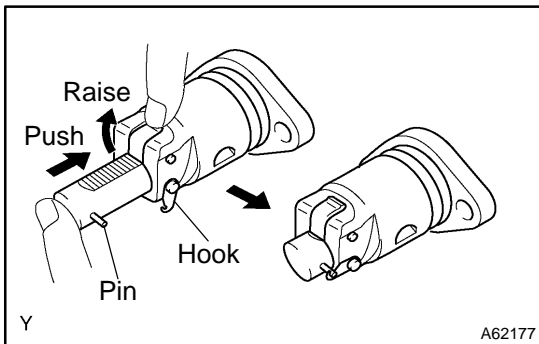
- Remove any oil from the contact surface.
- Install the oil pan within 3 minutes after applying seal packing.
- Do not put into engine oil within 2 hours after installing.



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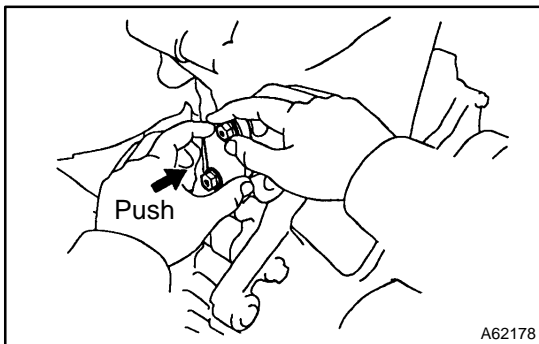


- (c) Install the timing chain cover with the 11 bolts and nut.  
**Torque:**  
**A: 13 N·m (133 kgf·cm, 10 ft·lbf)**  
**B: 19 N·m (194 kgf·cm, 14 ft·lbf)**
- (d) Using a torx wrench socket (E8), install the stud bolt.  
**Torque: 9.5 N·m (97 kgf·cm, 84 in·lbf)**



**31. INSTALL CHAIN TENSIONER ASSY NO.1**

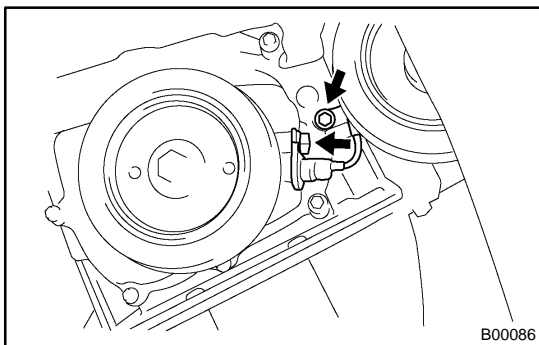
- (a) Check the O-ring is clean, and set the hook as shown in the illustration.



- (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:**

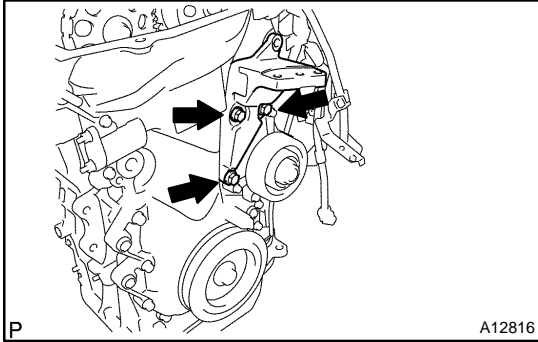
**When installing the tensioner, set the hook again if the hook release the plunger.**



**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)**



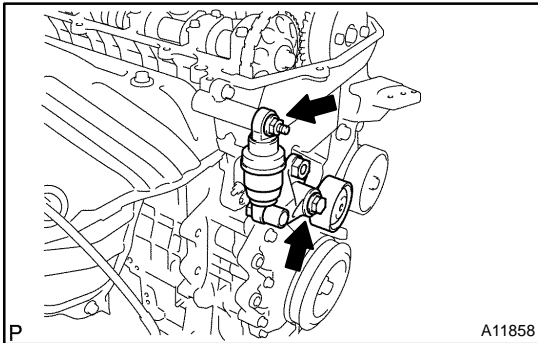


### 33. INSTALL TRANSVERSE ENGINE ENGINE MOUNTING BRACKET

- (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 16-8)



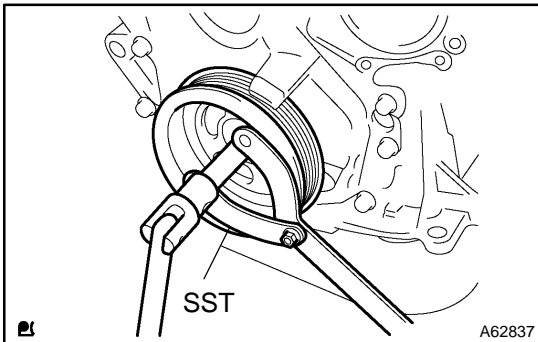
### 35. INSTALL V-RIBBED BELT TENSIONER ASSY

- (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)**



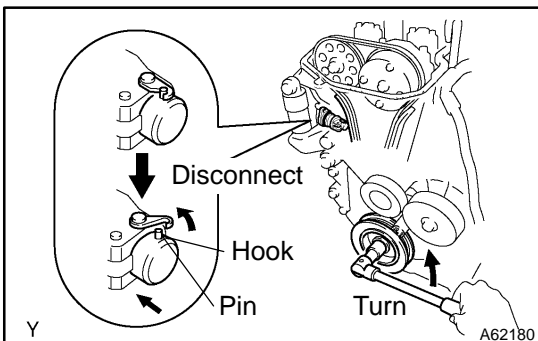
### 36. INSTALL CRANKSHAFT PULLEY

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

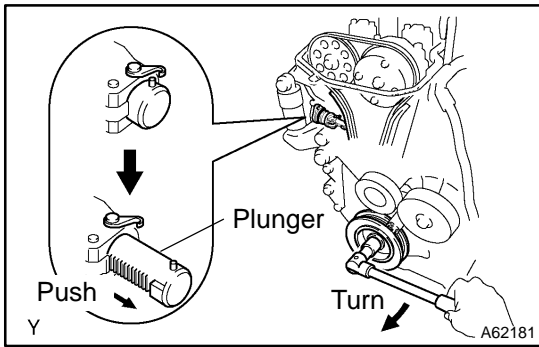
- (b) Using SST, install the crankshaft pulley bolt.

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

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



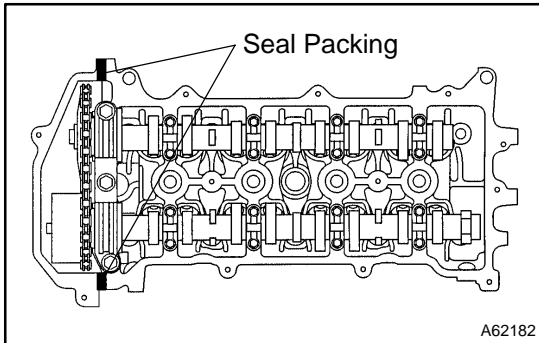
- (c) Turn the crankshaft counter clockwise, and disconnect the plunger knock pin from the hook.



(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**

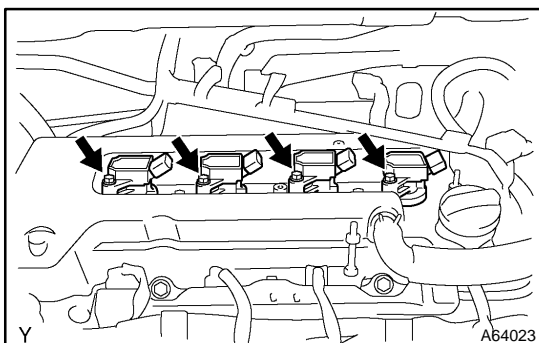
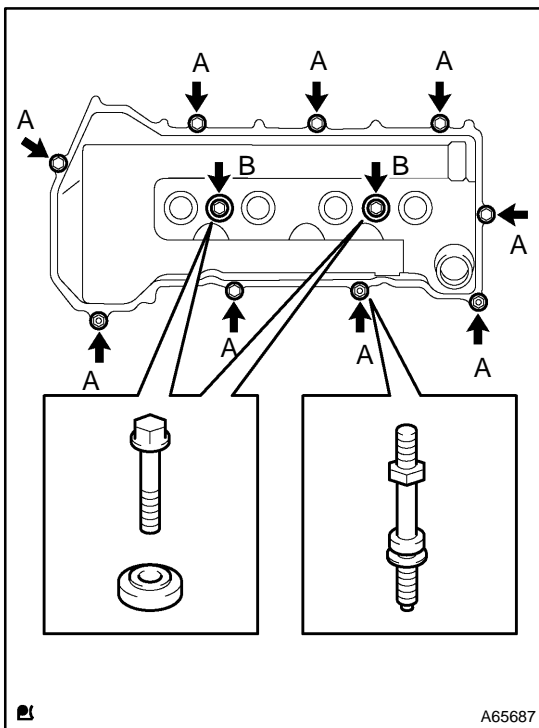
**NOTICE:**

- 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)**

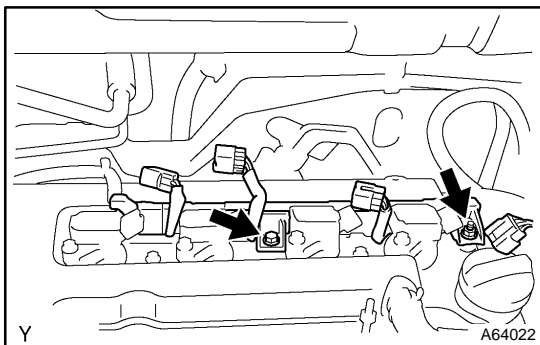
**B 9.0 N·m (92 kgf·cm, 80 in·lbf)**



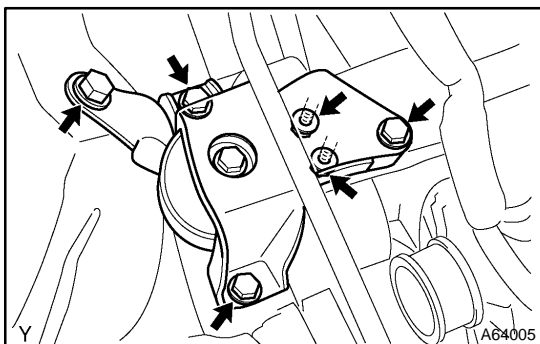
**38. INSTALL IGNITION COIL ASSY**

- (a) Install the 4 ignition coils with the 4 bolts.

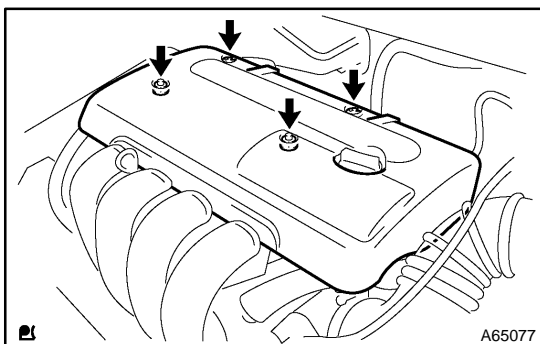
**Torque: 9.0 N·m (92 kgf·cm, 80 in·lbf)**

**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 51-8)****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 16-7)****46. CHECK ENGINE COOLANT LEAK (See page 16-7)****47. CHECK ENGINE OIL LEAK**