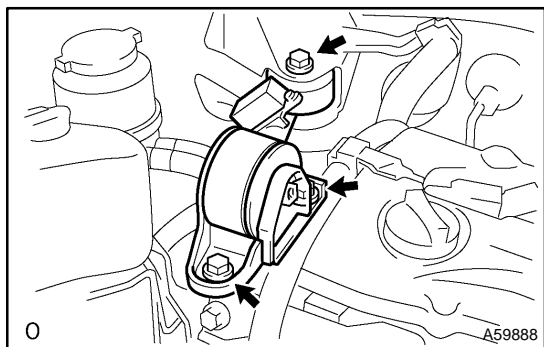


REPLACEMENT

1. REMOVE FRONT WHEEL RH
2. REMOVE ENGINE UNDER COVER LH
3. REMOVE ENGINE UNDER COVER RH
4. REMOVE FRONT FENDER APRON SEAL RH
5. DRAIN ENGINE OIL
 - (a) Install a new gasket and the drain plug after draining engine oil.
Torque: 25 N·m (255 kgf·cm, 18 ft·lbf)
6. REMOVE EXHAUST PIPE ASSY FRONT



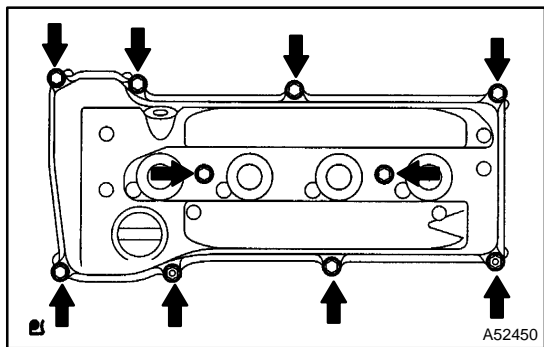
7. REMOVE ENGINE MOVING CONTROL ROD W/BRACKET
 - (a) Remove the 3 bolts and control rod.

8. REMOVE ENGINE MOUNTING STAY NO.2 RH
9. REMOVE ENGINE MOUNTING BRACKET NO.2 RH
10. REMOVE FAN AND GENERATOR V BELT (See page 14-5)
11. REMOVE ENGINE COVER SUB-ASSY NO.1
12. DISCONNECT ENGINE WIRE
13. REMOVE GENERATOR ASSY (See page 19-17)
14. REMOVE VANE PUMP ASSY (See page 51-8)

NOTICE:

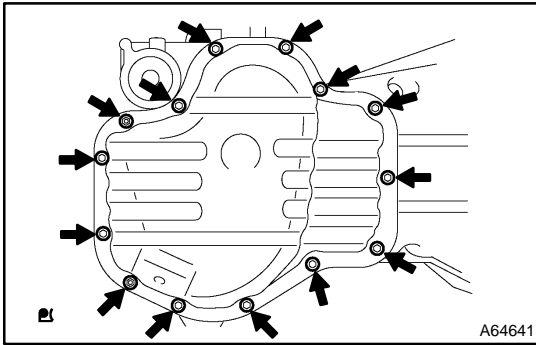
Do not disconnect the hose.

15. REMOVE IGNITION COIL ASSY
16. DISCONNECT VENTILATION HOSE
17. DISCONNECT VENTILATION HOSE NO.2



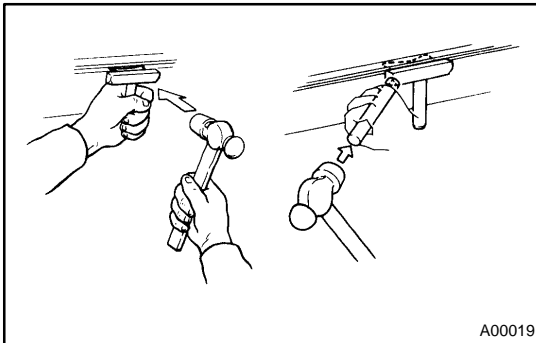
18. REMOVE CYLINDER HEAD COVER SUB-ASSY
 - (a) Remove the bolt and disconnect the engine wire harness clamp.
 - (b) Remove the 8 bolts and 2 nuts, and disconnect the cylinder head cover.

19. SET NO. 1 CYLINDER TO TDC/COMPRESSION (See page 14-7)
20. REMOVE CRANKSHAFT PULLEY (See page 14-47)
21. REMOVE CRANKSHAFT POSITION SENSOR



22. REMOVE OIL PAN SUB-ASSY

- (a) Remove the 12 bolts and 2 nuts.



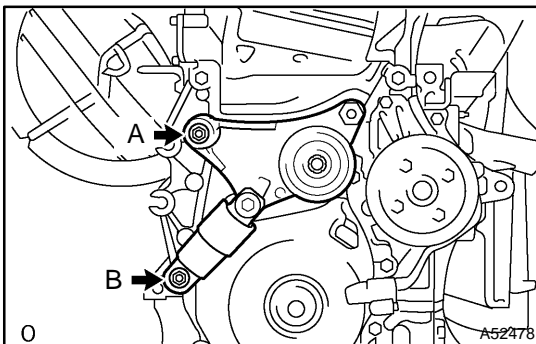
- (b) Insert the blade of SST between the crankcase and oil pan, cut through applied sealer and remove the oil pan.

SST 09032-00100

NOTICE:

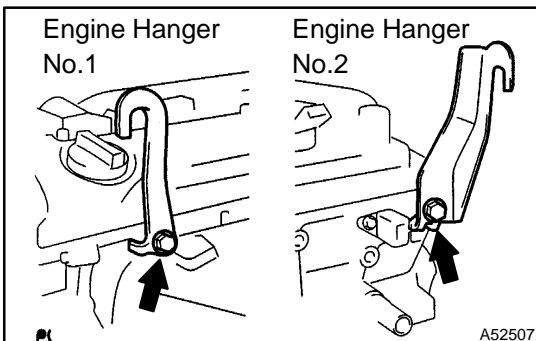
Do not damage the contact surface of the cylinder block and oil pan.

23. REMOVE CHAIN TENSIONER ASSY NO.1 (See page 14-47)



24. REMOVE V-RIBBED BELT TENSIONER ASSY

- (a) Remove the bolt labeled A and the bolt labeled B. Then remove the tensioner.



25. REMOVE ENGINE HANGER NO.1

- (a) Install the engine hanger No. 1 and No. 2 with their respective bolts, as shown in the illustration.

Parts No.:

Engine hanger No. 1	12281-28010
Engine hanger No. 2	12282-28010
Bolt	91512-61020

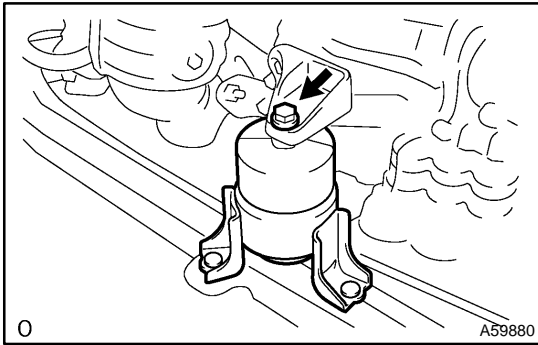
Torque: 38 N·m (387 kgf·cm, 28 ft·lbf)

26. REMOVE ENGINE MOUNTING INSULATOR

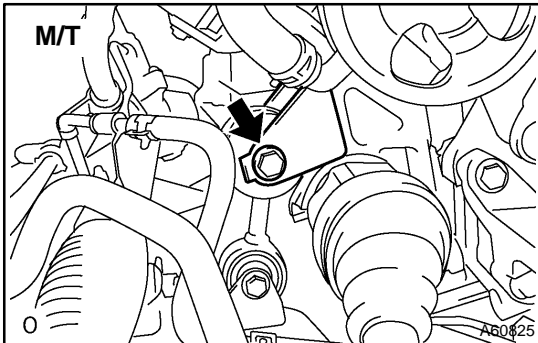
- (a) Attach the engine chain hoist to the engine hangers.

CAUTION:

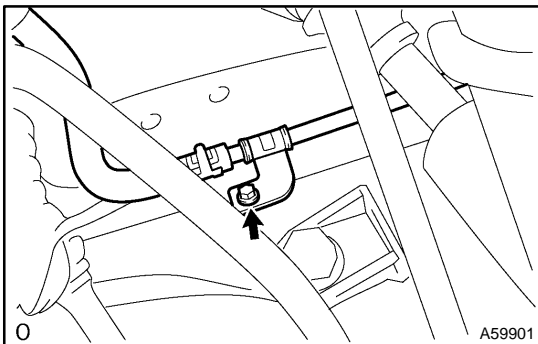
Do not attempt to hang the engine by hooking the chain to any other part.



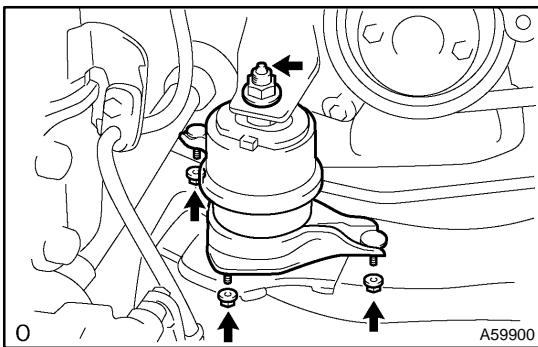
- (b) Remove the bolt and disconnect the engine mounting insulator FR.



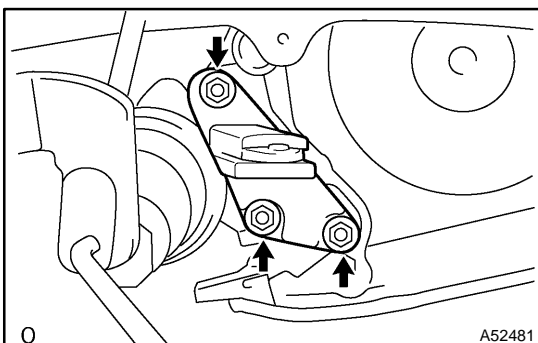
- (c) M/T:
Remove the bolt and disconnect the engine lateral control rod.



- (d) Remove the bolt and disconnect the steering gear return hose clamp from the frame.

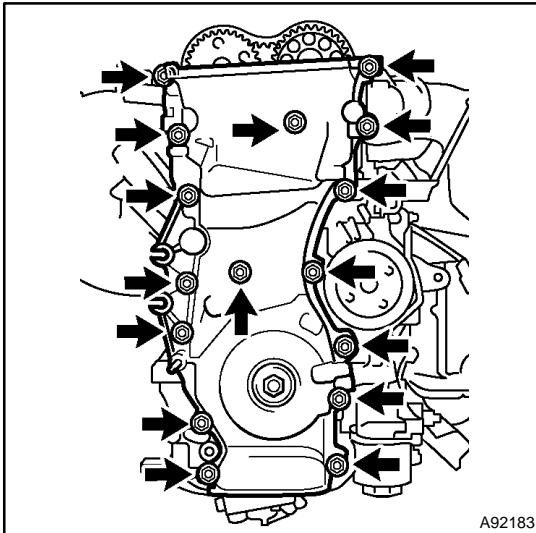


- (e) Remove the 4 nuts from the engine mounting insulator RH.
(f) Prepare a jack. Place a wooden block on the jack and set the jack under the engine. Remove the engine mounting insulator.
(g) Raise the jack and lift up the engine. Then remove the engine mounting insulator RH.



27. REMOVE ENGINE MOUNTING BRACKET RH

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



28. REMOVE TIMING CHAIN OR BELT COVER SUB-ASSY

- Remove the stud bolt for drive belt tensioner from the cylinder block.
- Remove the 14 bolts and 2 nuts.
- Pry out the timing chain cover using a screwdriver.

NOTICE:

Be careful not to damage the contact surfaces of the timing chain cover, cylinder block and cylinder head.

29. REMOVE CRANKSHAFT POSITION SENSOR PLATE NO.1

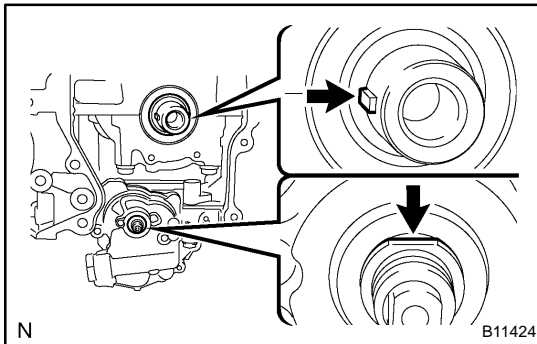
30. REMOVE CHAIN TENSIONER SLIPPER

31. REMOVE CHAIN VIBRATION DAMPER NO.1

32. REMOVE CHAIN SUB-ASSY

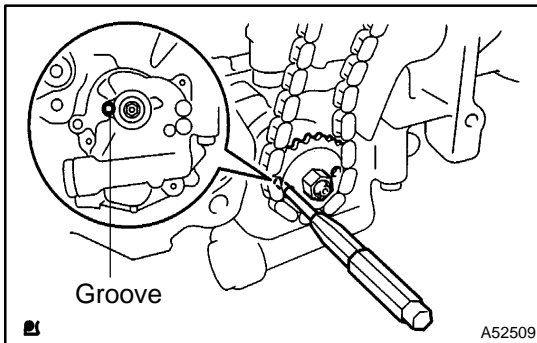
33. REMOVE CRANKSHAFT TIMING GEAR OR SPROCKET

- Remove the bolt and timing chain guide.
- Remove the timing gear or sprocket.

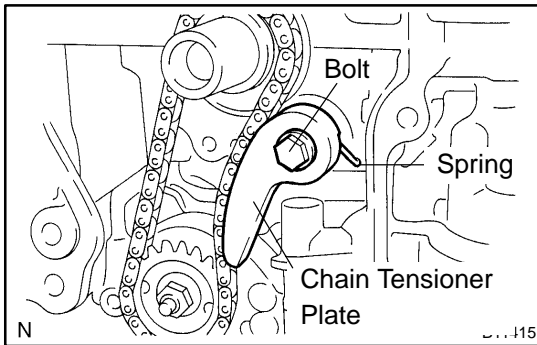


34. REMOVE NO.2 CHAIN SUB-ASSY

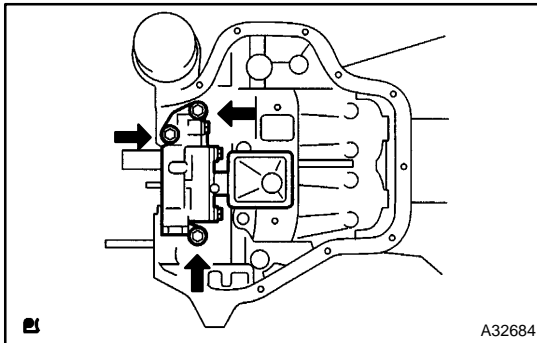
- Turn the crankshaft counterclockwise 90° and turn the cutout of the oil pump drive shaft gear to the top.



- Align the adjusting hole of the oil pump drive shaft gear with the groove of the oil pump.
- Put a bar (ϕ 4 mm (0.16 in.)) in the adjusting hole of the oil pump drive shaft gear to temporarily lock the gear in position. Remove the nut.



- (d) Remove the bolt, chain tensioner plate and spring.
- (e) Remove the oil pump drive shaft gear and chain.



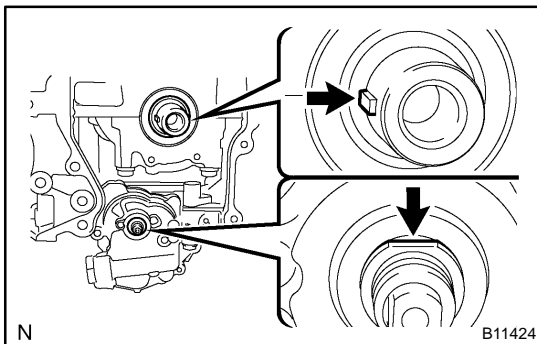
35. REMOVE OIL PUMP ASSY

- (a) Remove the 3 bolts and pump.

36. INSTALL OIL PUMP ASSY

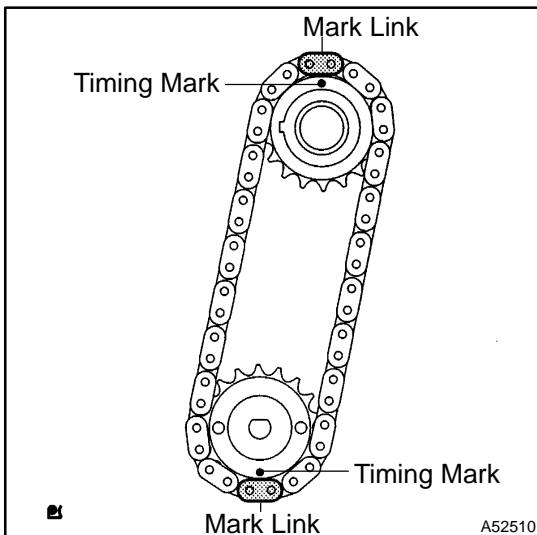
- (a) Place a new gasket on the cylinder block.
- (b) Install the pump with the 3 bolts.

Torque: 19 N·m (194 kgf·cm, 14 ft·lbf)

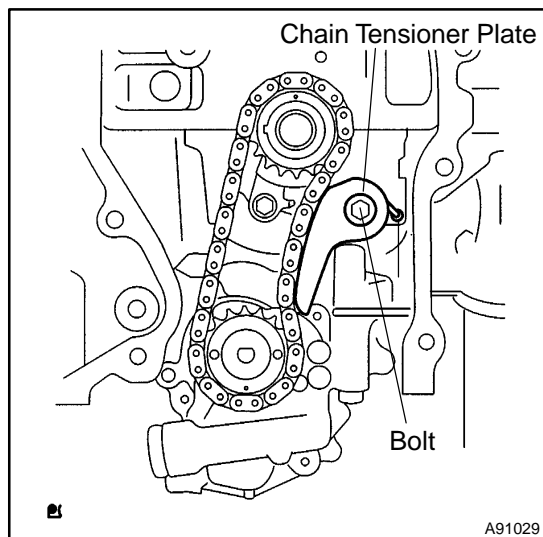


37. INSTALL NO.2 CHAIN SUB-ASSY

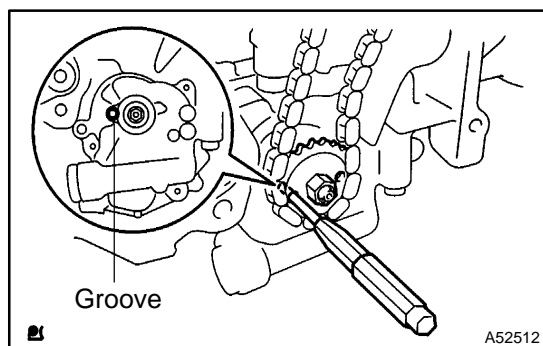
- (a) Set the crankshaft key into the left horizontal position.
- (b) Turn the cutout of the drive shaft gear to the top.



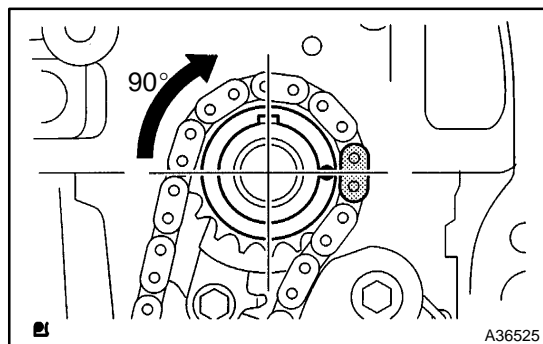
- (c) Align the mark links (yellow colored links) with the timing marks of the gear as shown in the illustration.
- (d) Insert the gears and chain to the crankshaft and oil pump shaft.
- (e) Temporarily tighten the oil pump drive shaft gear with the a nut.



- (f) Inset the damper spring into the adjusting hole, and install the chain tensioner plate with the nut.
Torque: 12 N·m (122 kgf·cm, 9 ft·lbf)



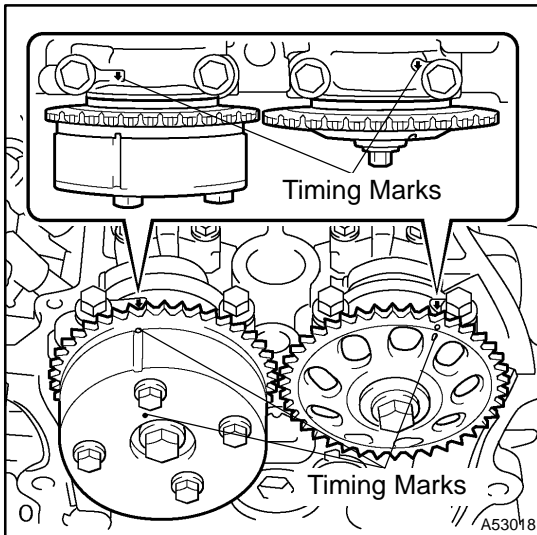
- (g) Align the adjusting hole of the oil pump drive shaft gear with the groove of the oil pump.
 (h) Put a bar (ϕ 4 mm (0.16 in.)) in the adjusting hole of the oil pump drive shaft gear to temporarily lock the gear in position. Install the nut.
Torque: 30 N·m (306 kgf·cm, 22 ft·lbf)



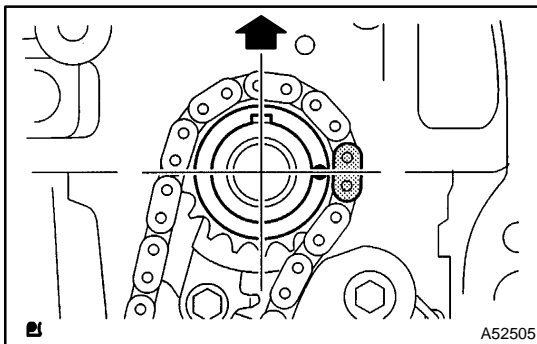
- (i) Rotate the crankshaft clockwise 90°, and align the crankshaft key to the top.

38. INSTALL CHAIN VIBRATION DAMPER NO.1

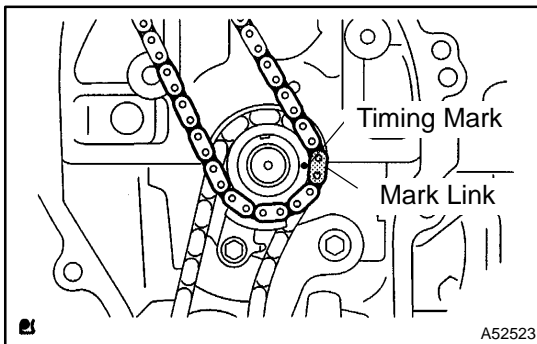
Torque: 9.0 N·m (92 kgf·cm, 80 in·lbf)

**39. INSTALL CHAIN SUB-ASSY**

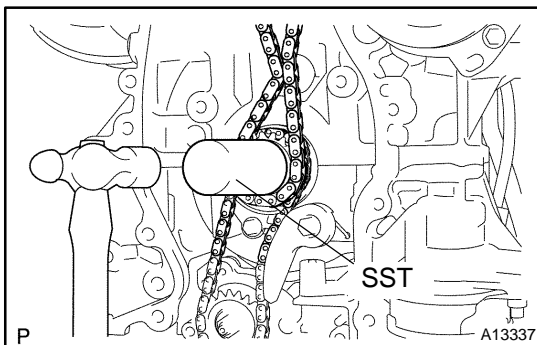
- (a) Set the No.1 cylinder to TDC/compression.
 (1) Align the timing marks of the camshaft timing sprockets and bearing caps (No. 1 and No. 2).



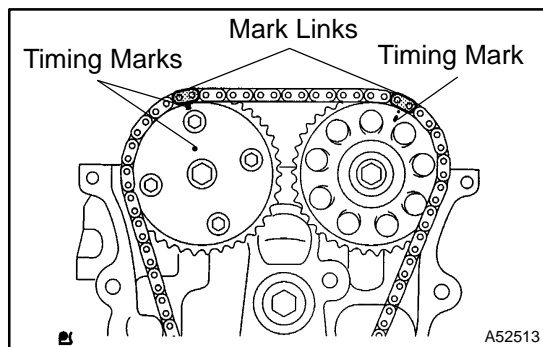
- (2) Using the crankshaft pulley bolt, turn the crankshaft and set the set key on the crankshaft upward.



- (b) Align the mark link (gold or orange colored link) with the timing mark of the crankshaft timing sprocket.



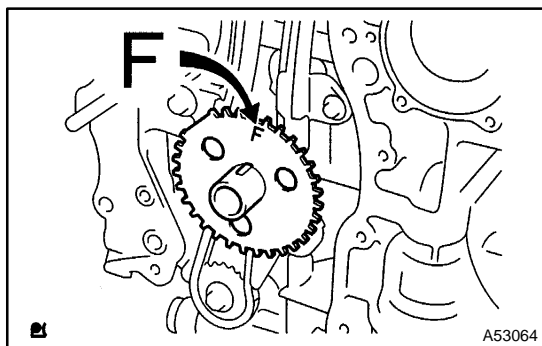
- (c) Using SST, tap in the sprocket.
 SST 09309-37010



- (d) Align the mark links (gold or yellow colored links) with the timing marks of the camshaft timing gear and camshaft timing sprocket, and install the chain.

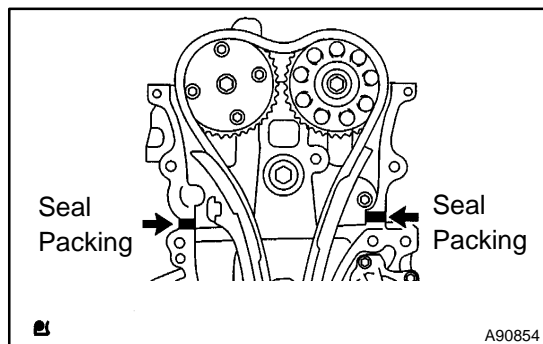
40. INSTALL CHAIN TENSIONER SLIPPER

Torque: 19 N·m (194 kgf·cm, 14 ft·lbf)



41. INSTALL CRANKSHAFT POSITION SENSOR PLATE NO.1

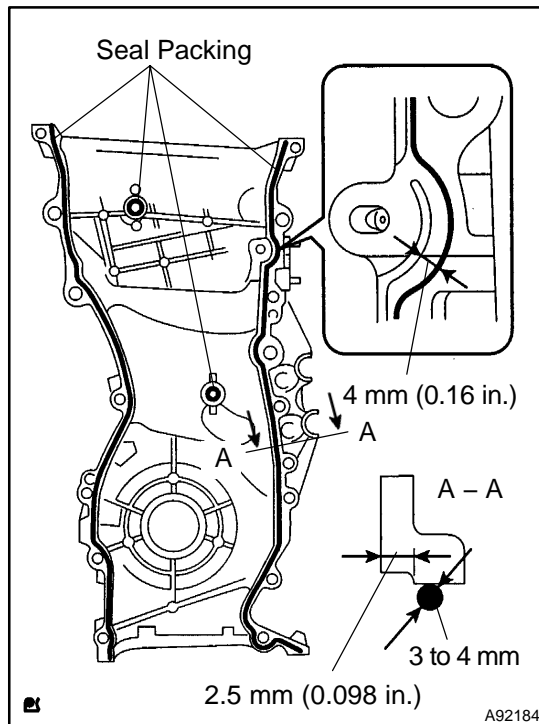
- (a) Install the sensor plate with the F mark facing outward.



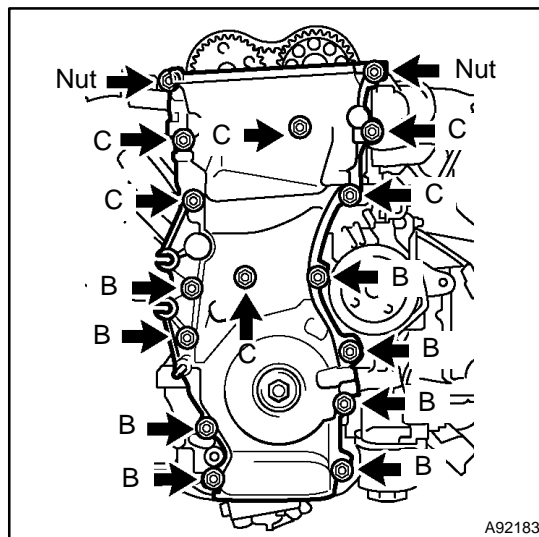
42. INSTALL TIMING CHAIN OR BELT COVER SUB-ASSY NOTICE:

- Remove any oil from the contact surface.
 - Install the chain cover within 3 minutes after applying seal packing.
 - Do not start the engine for at least 2 hours after installing the chain cover.
- (a) Remove any old packing (FIPG) material and be careful not to drop any oil on the contact surfaces of the timing chain cover, cylinder head and cylinder block.
- (b) Apply a continuous bead of seal packing (diameter: 2 mm (0.099 in.)), as shown in the illustration.

Seal packing: Part No. 08826-00080 or equivalent

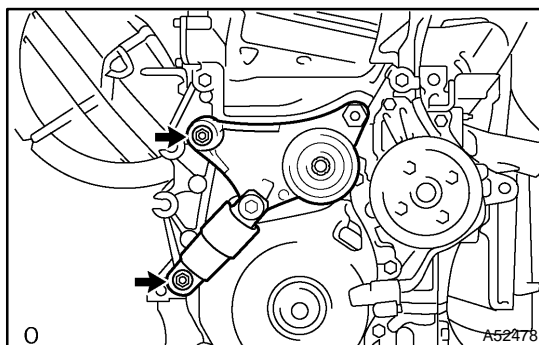


- (c) Apply a continuous bead of seal packing (diameter: 3 to 4 mm (0.118 to 0.157 in.)), as shown in the illustration.
Seal packing: Part No. 08826-00080 or equivalent

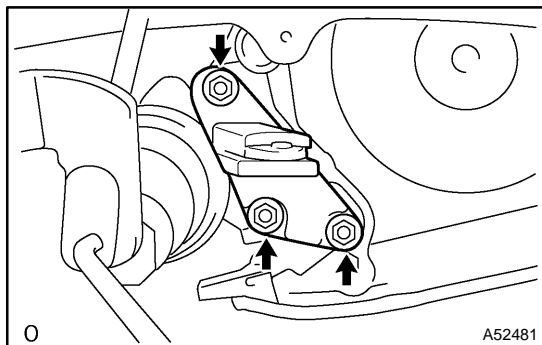


- (d) Install the timing chain cover with the 14 bolts and 2 nuts.
Torque:
9.0 N·m (92 kgf·cm, 80 in·lbf) for bolt A
21 N·m (214 kgf·cm, 15 ft·lbf) for bolt B
43 N·m (438 kgf·cm, 32 ft·lbf) for bolt C
9.0 N·m (92 kgf·cm, 80 in·lbf) for nut
 (e) Install the stud bolt to the drive belt tensioner.
Torque: 10 N·m (102 kgf·cm, 7 ft·lbf)

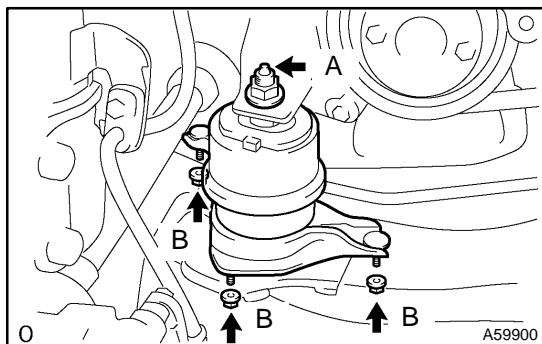
43. INSTALL CHAIN TENSIONER ASSY NO.1 (See page 14-47)



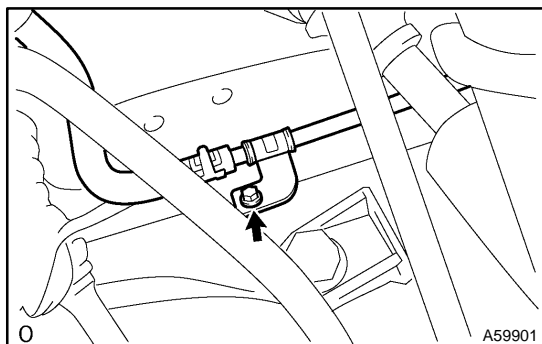
44. **INSTALL V-RIBBED BELT TENSIONER ASSY**
 (a) Install the tensioner with the bolt and nut.
Torque: 59.5 N·m (607 kgf·cm, 44 ft·lbf)

**45. INSTALL ENGINE MOUNTING BRACKET RH**

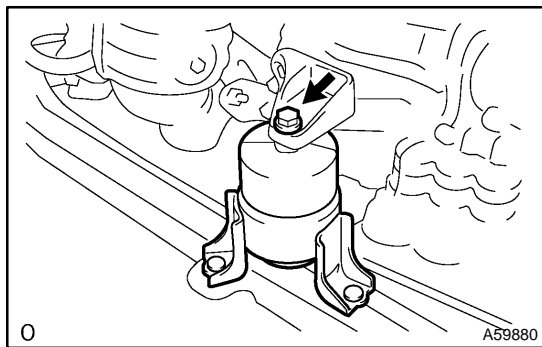
- (a) Install the engine mounting bracket RH with the 3 bolts.
Torque: 54 N·m (551 kgf·cm, 41 ft·lbf)

**46. INSTALL ENGINE MOUNTING INSULATOR**

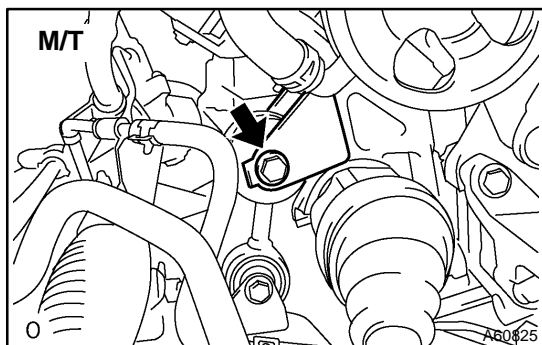
- (a) Raise the engine and install the engine mounting insulator RH.
 (b) Install the engine mounting insulator RH with the 4 nuts.
Torque:
95 N·m (969 kgf·cm, 70 ft·lbf) for bolt A
87 N·m (888 kgf·cm, 64 ft·lbf) for bolt B



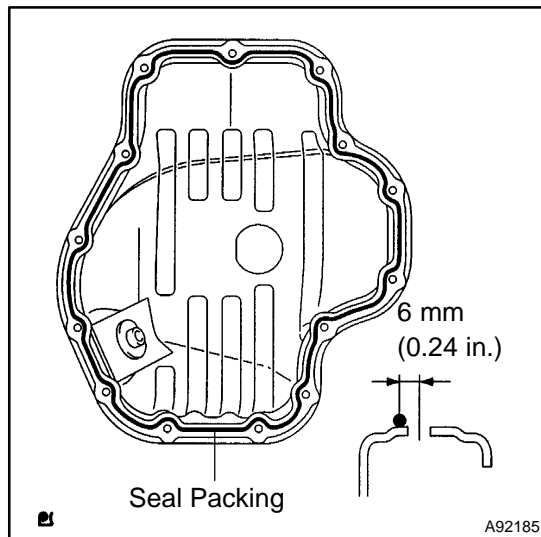
- (c) Install the bolt and disconnect the steering gear return hose clamp from the frame.
Torque: 8.0 N·m (80 kgf·cm, 71 in·lbf)



- (d) Install the engine mounting insulator FR with the bolt.
Torque: 87 N·m (888 kgf·cm, 64 ft·lbf)



- (e) M/T:
 Install the engine lateral control rod with the bolt.
Torque: 89 N·m (910 kgf·cm, 66 ft·lbf)



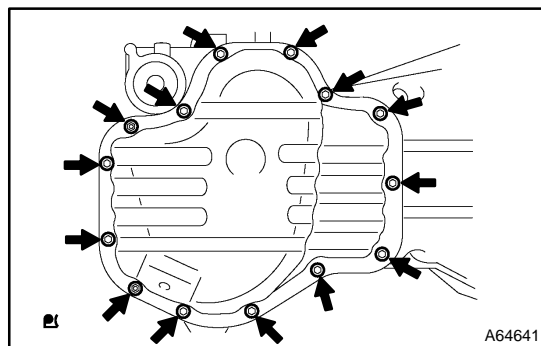
47. INSTALL OIL PAN SUB-ASSY

NOTICE:

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

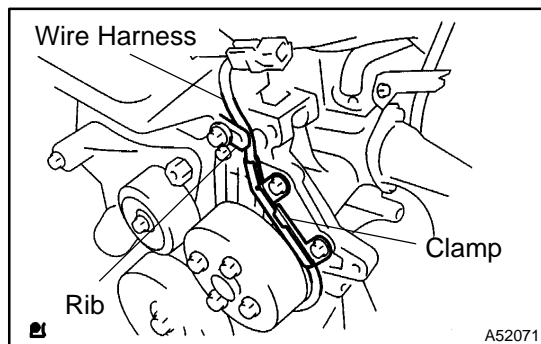
- Remove any old packing (FIPG) material and be careful not to drop any oil on the contact surface of the cylinder block and oil pan.
- Apply a continuous bead of seal packing in the shape of bead (diameter: 3 to 4 mm (0.157 in.)) as shown in the illustration, and install the oil pan.

Seal packing: Part No. 08826-00080 or equivalent



- Install the oil pan with the 12 bolts and 2 nuts.

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

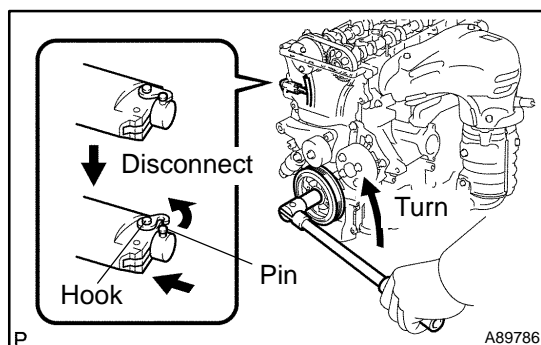


48. INSTALL CRANKSHAFT POSITION SENSOR

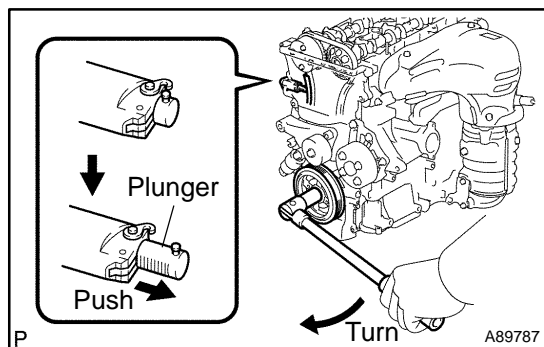
- Install the bolt and sensor.
Torque: 9.0 N·m (92 kgf·cm, 80 in.-lbf)
- Confirm the wire harness of the sensor is placed as shown in the illustration.

49. INSTALL CRANKSHAFT PULLEY

- Install the crankshaft pulley (see page [14-47](#)).

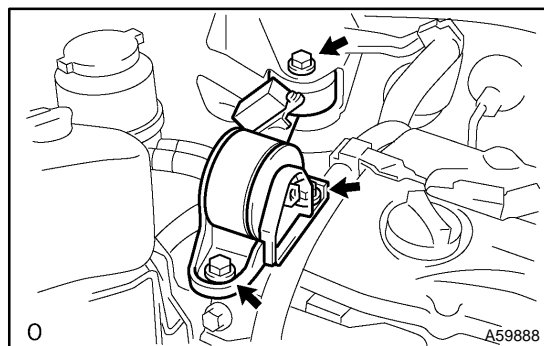


- Disconnect the plunger knock pin.
 - Turn the crankshaft counterclockwise and disconnect the plunger knock pin from the hook.



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

50. INSTALL CYLINDER HEAD COVER SUB-ASSY (See page 14-47)
51. INSTALL IGNITION COIL ASSY
Torque: 9.0 N·m (92 kgf·cm, 80 in·lbf)
52. INSTALL VANE PUMP ASSY (See page 51-8)
53. INSTALL GENERATOR ASSY (See page 19-17)
54. INSTALL ENGINE WIRE
55. INSTALL FAN AND GENERATOR V BELT (See page 14-5)
56. INSTALL ENGINE MOUNTING BRACKET NO.2 RH
Torque: 52 N·m (531 kgf·cm, 38 ft·lbf)
57. INSTALL ENGINE MOUNTING STAY NO.2 RH
Torque: 64 N·m (653 kgf·cm, 47 ft·lbf)



58. INSTALL ENGINE MOVING CONTROL ROD W/BRACKET
 - (a) Install the engine mounting control rod with the 3 bolts.
Torque: 64 N·m (653 kgf·cm, 47 ft·lbf)

59. INSTALL EXHAUST PIPE ASSY FRONT (See page 15-3)
60. INSTALL FRONT WHEEL RH
61. ADD ENGINE OIL
62. INSPECT CHECK FOR ENGINE OIL LEAKS