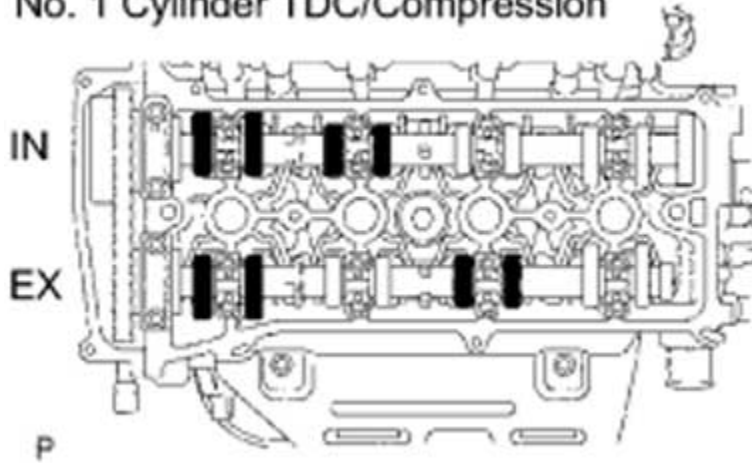


1. REMOVE CYLINDER HEAD COVER SUB-ASSEMBLY
2. SET NO. 1 CYLINDER TO TDC/COMPRESSION
3. CHECK VALVE CLEARANCE

No. 1 Cylinder TDC/Compression



(a) Check only the valves indicated.

(1) Using a feeler gauge, measure the clearance between the valve lifter and camshaft.

Standard valve clearance (cold):

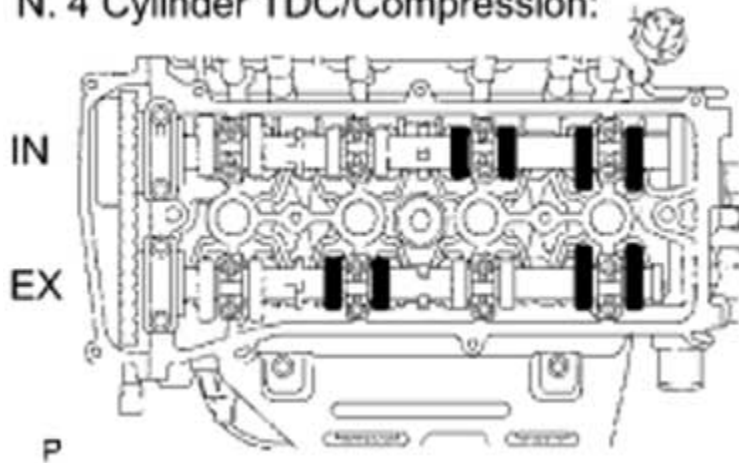
Item	Standard Condition
Intake	0.19 to 0.29 mm (0.007 to 0.011 in.)
Exhaust	0.38 to 0.48 mm (0.015 to 0.019 in.)

a.

(2) Record any out-of-specification valve clearance measurements. They will be used later to determine the required replacement valve clearance lifters.

(b) Turn the crankshaft 1 revolution (360°) and set the No. 4 cylinder to the TDC/compression.

N. 4 Cylinder TDC/Compression:



(c) Check only the valves indicated.

(1) Using a feeler gauge, measure the clearance between the valve lifter and camshaft.

Standard valve clearance (cold):

Item	Standard Condition
Intake	0.19 to 0.29 mm (0.007 to 0.011 in.)
Exhaust	0.38 to 0.48 mm (0.015 to 0.019 in.)

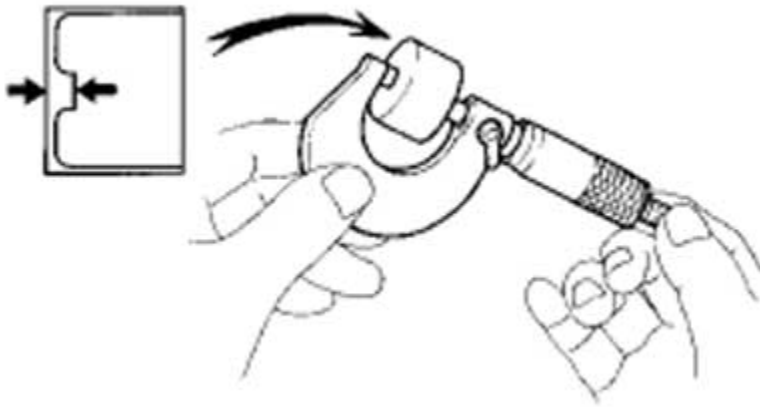
(2) Record any out-of-specification valve clearance measurements. They will be used later to determine the required replacement valve lifters.

14. ADJUST VALVE CLEARANCE

(a) Remove the No. 2 camshaft

(b) Remove the camshaft

(c) Remove the valve lifters.



(d) Using a micrometer, measure the thickness of the removed valve lifters.

(e) Calculate the thickness of a new lifter so that the valve clearance comes within the specified values.

New lifter thickness:

Item	Specification
Intake	$A = B + (C - 0.24 \text{ mm (0.0094 in.)})$
Exhaust	$A = B + (C - 0.43 \text{ mm (0.0169 in.)})$
A	New lifter thickness
B	Used lifter thickness
C	Measured valve clearance

EXAMPLE (Intake):

Measured intake valve clearance = 0.40 mm (0.0158 in.)

$0.40 \text{ mm (0.0158 in.)} - 0.24 \text{ mm (0.0094 in.)} = 0.16 \text{ mm (0.0063 in.)}$

(Measured - Specification = Excess clearance)

Used lifter measurement = 5.250 mm (0.2067 in.)

$0.16 \text{ mm (0.0063 in.)} + 5.250 \text{ mm (0.2067 in.)} = 5.410 \text{ mm (0.2130 in.)}$

(Excess clearance + Used lifter = Ideal new lifter)

Closest new lifter = 5.410 mm (0.2130 in.)

Select No. 42 lifter

(f) Select a new lifter with a thickness as close as possible to the calculated values.

HINT:

Lifters are available in 35 sizes in increments of 0.020 mm (0.0008 in.), from 5.060 to 5.740 mm (0.1992 to 0.2260 in.).

(g) Install the selected valve lifter.

New Lifter Thickness

Lifter No.	Thickness mm (in.)	Lifter No.	Thickness mm (in.)	Lifter No.	Thickness mm (in.)
06	5.060 (0.1992)	30	5.300 (0.2087)	54	5.540 (0.2181)
08	5.080 (0.2000)	32	5.320 (0.2094)	56	5.560 (0.2189)
10	5.100 (0.2008)	34	5.340 (0.2102)	58	5.580 (0.2197)
12	5.120 (0.2016)	36	5.360 (0.2110)	60	5.600 (0.2205)
14	5.140 (0.2024)	38	5.380 (0.2118)	62	5.620 (0.2213)
16	5.160 (0.2031)	40	5.400 (0.2126)	64	5.640 (0.2220)
18	5.180 (0.2039)	42	5.420 (0.2134)	66	5.660 (0.2228)
20	5.200 (0.2047)	44	5.440 (0.2142)	68	5.680 (0.2236)
22	5.220 (0.2055)	46	5.460 (0.2150)	70	5.700 (0.2244)
24	5.240 (0.2063)	48	5.480 (0.2157)	72	5.720 (0.2252)
26	5.260 (0.2071)	50	5.500 (0.2165)	74	5.740 (0.2260)
28	5.280 (0.2079)	52	5.520 (0.2173)	-	-

Standard intake valve clearance (cold):

0.19 to 0.29 mm (0.007 to 0.011 in.)

EXAMPLE:

The 5.250 mm (0.2067 in.) lifter is installed, and the measured clearance is 0.400 mm (0.0157 in.). Replace the 5.250 mm (0.2067 in.) lifter with a new No. 42 lifter.

New Lifter Thickness

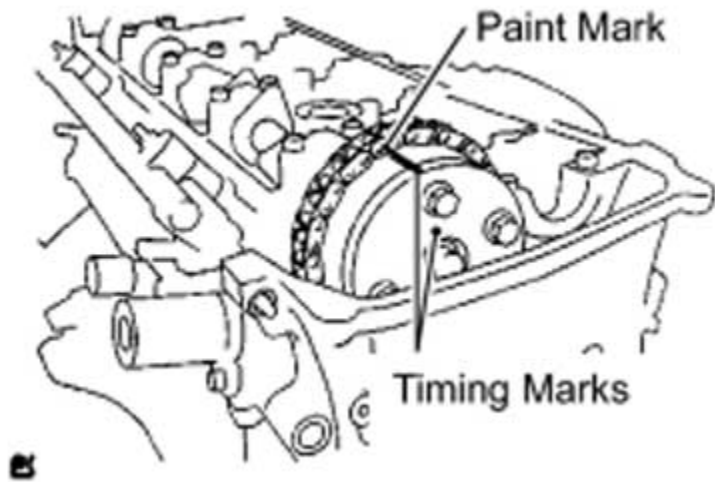
Lifter No.	Thickness mm (in.)	Lifter No.	Thickness mm (in.)	Lifter No.	Thickness mm (in.)
06	5.060 (0.1992)	30	5.300 (0.2087)	54	5.540 (0.2181)
08	5.080 (0.2000)	32	5.320 (0.2094)	56	5.560 (0.2189)
10	5.100 (0.2008)	34	5.340 (0.2102)	58	5.580 (0.2197)
12	5.120 (0.2016)	36	5.360 (0.2110)	60	5.600 (0.2205)
14	5.140 (0.2024)	38	5.380 (0.2118)	62	5.620 (0.2213)
16	5.160 (0.2031)	40	5.400 (0.2126)	64	5.640 (0.2220)
18	5.180 (0.2039)	42	5.420 (0.2134)	66	5.660 (0.2228)
20	5.200 (0.2047)	44	5.440 (0.2142)	68	5.680 (0.2236)
22	5.220 (0.2055)	46	5.460 (0.2150)	70	5.700 (0.2244)
24	5.240 (0.2063)	48	5.480 (0.2157)	72	5.720 (0.2252)
26	5.260 (0.2071)	50	5.500 (0.2165)	74	5.740 (0.2260)
28	5.280 (0.2079)	52	5.520 (0.2173)	-	-

Standard exhaust valve clearance (cold):

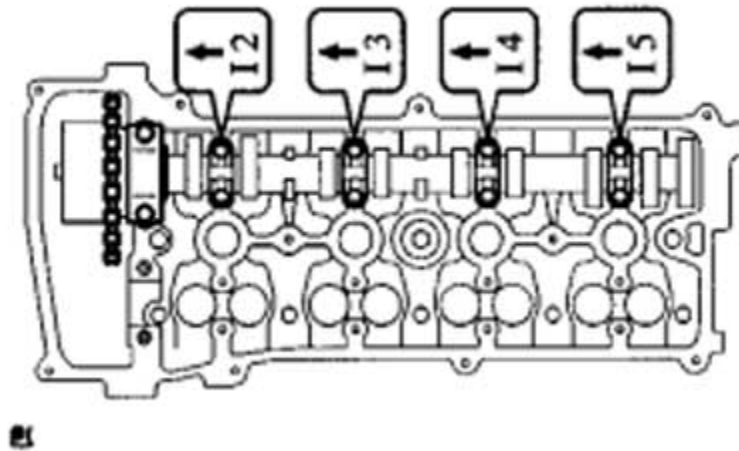
0.38 to 0.48 mm (0.015 to 0.019 in.)

EXAMPLE:

The 5.340 mm (0.2102 in.) lifter is installed, and the measured clearance is 0.440 mm (0.0173 in.). Replace the 5.340 mm (0.2102 in.) lifter with a new No. 4 lifter.

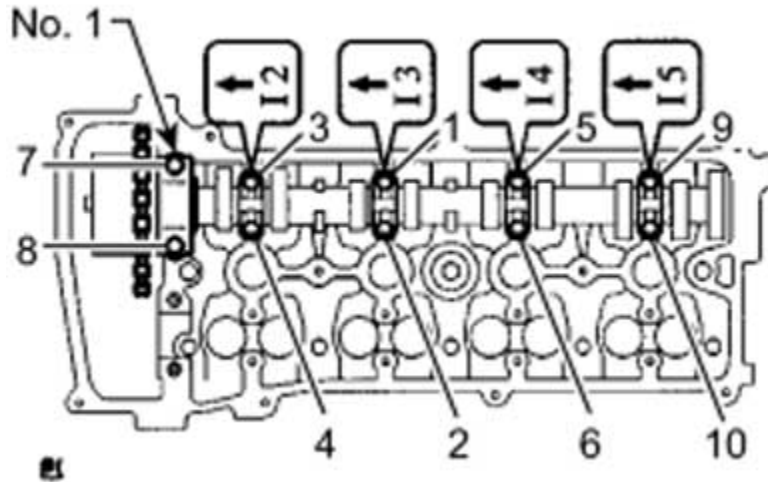


(b) Install the timing chain onto the camshaft timing gear with the paint mark aligned with the timing mark in the camshaft timing gear as shown in the illustration.



(c) Examine the front marks and numbers and check that the order is as shown in the illustration. Then install the bearing caps into the cylinder head.

(d) Apply a light coat of engine oil on the threads and under the heads of the bearing cap bolts



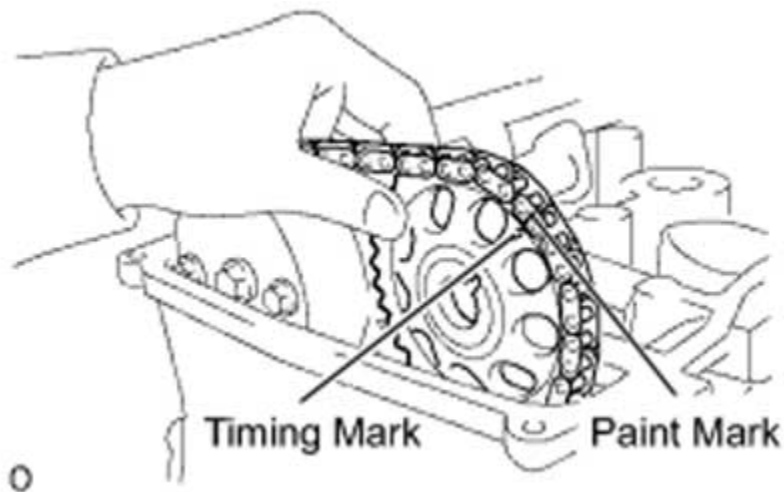
e) Using several steps, uniformly tighten the 10 bearing cap bolts in the sequence shown in the illustration.

Torque: **29.5 N·m (301 kgf·cm, 22ft·lbf)** for No. 1 bearing cap

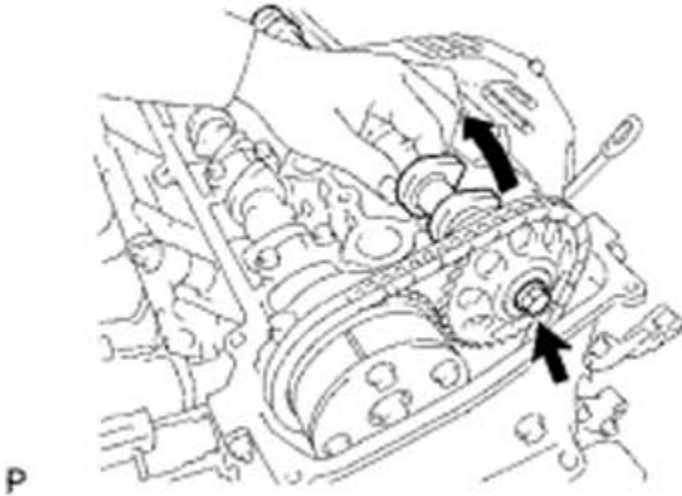
Torque: **9.0 N·m (92 kgf·cm, 80in·lbf)** for No. 3 bearing cap

INSTALL NO. 2 CAMSHAFT

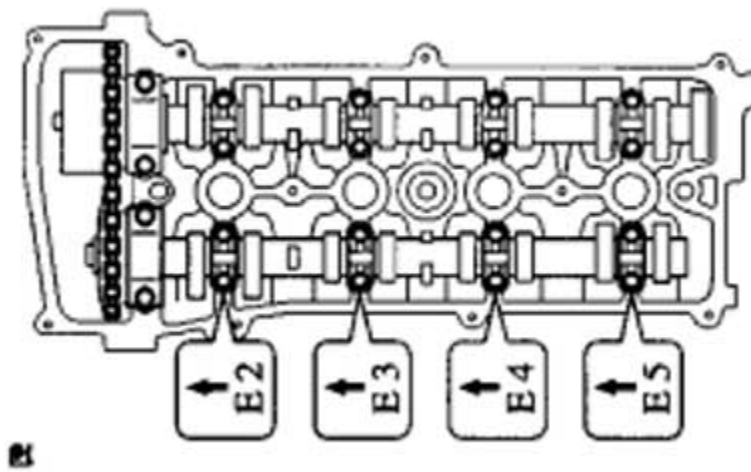
(a) Apply a light coat of engine oil to the journal portion of the No. 2 camshaft.



(b) Put the No. 2 camshaft on the cylinder head with the paint mark of the chain aligned with the timing mark in the camshaft timing sprocket.

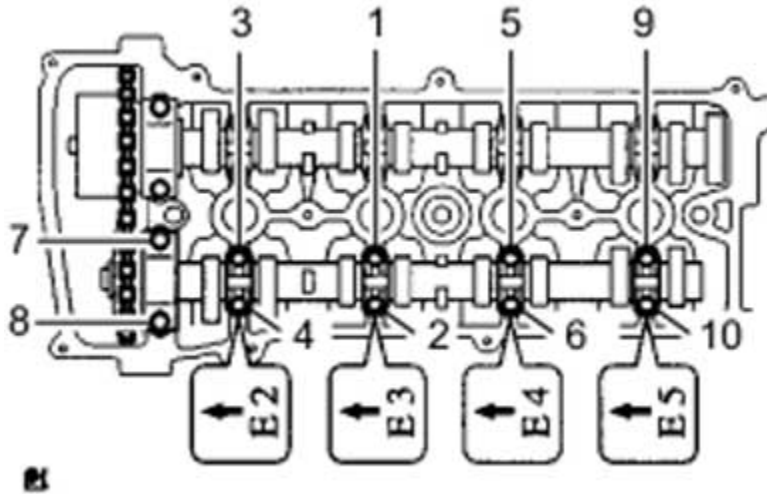


(c) While holding the No. 2 camshaft by hand, temporarily tighten the camshaft timing sprocket set bolt.



(d) Examine the front marks and numbers and check that the order is as shown in the illustration. Then install the bearing caps onto the cylinder head.

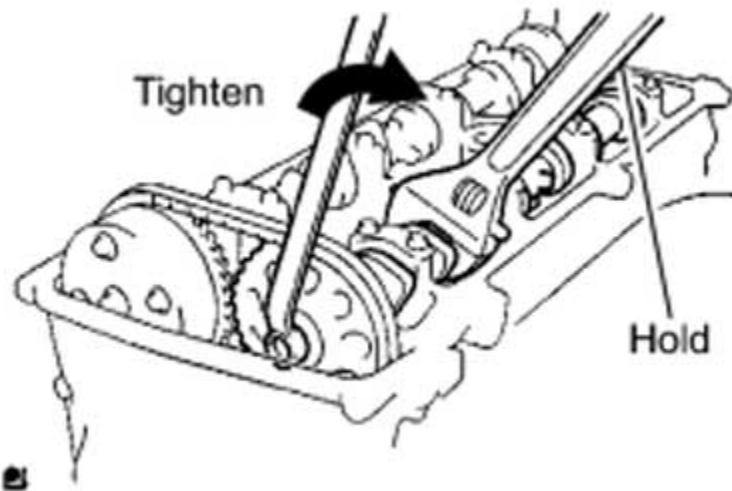
(e) Apply a light coat of engine oil to the threads and under the heads of the bearing cap bolts.



(f) Using several steps, uniformly tighten the 10 bearing cap bolts in the sequence shown in the illustration.

Torque: **29.5 N·m (301 kgf·cm, 22ft·lbf)** for No. 1 bearing cap

Torque: **9.0 N·m (92 kgf·cm, 80in·lbf)** for No. 3 bearing cap

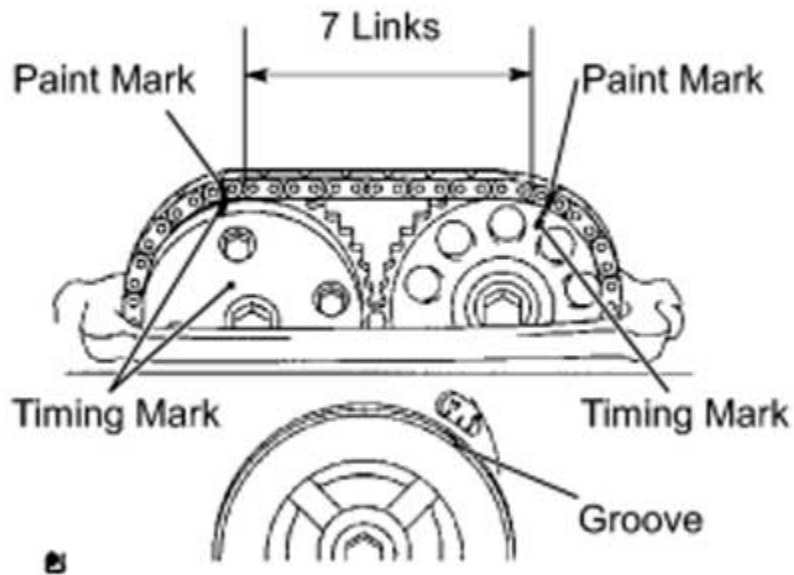


g) While holding the camshaft with a wrench, tighten the camshaft timing sprocket set bolt.

Torque: **54 N·m (551 kgf·cm, 40ft·lbf)**

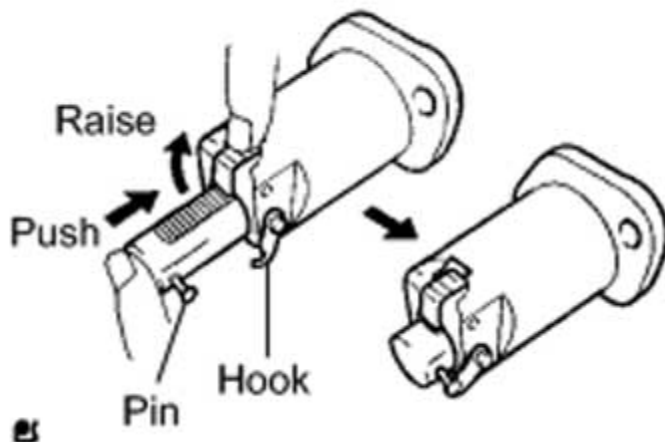
NOTICE:

Be careful not to damage the valve lifter.



(h) Check that the paint marks on the chain and camshaft timing gear and sprocket are aligned. Also, check that the crankshaft pulley groove is aligned with the timing mark "0" of the timing chain cover.

INSTALL NO. 1 CHAIN TENSIONER



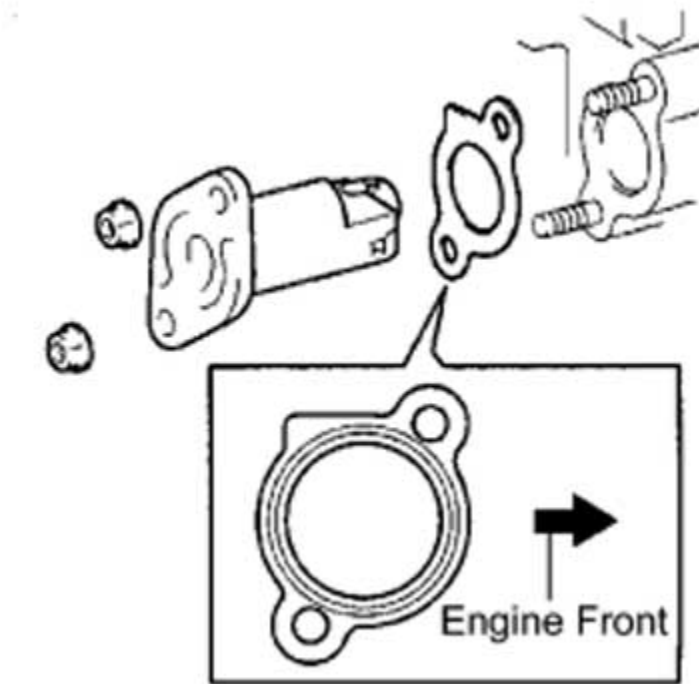
(a) Release the ratchet pawl, then fully push in the plunger and hook the hook to the pin so that the plunger is in the position shown in the illustration.

(b) Install a new gasket and the chain tensioner with the 2 nuts.

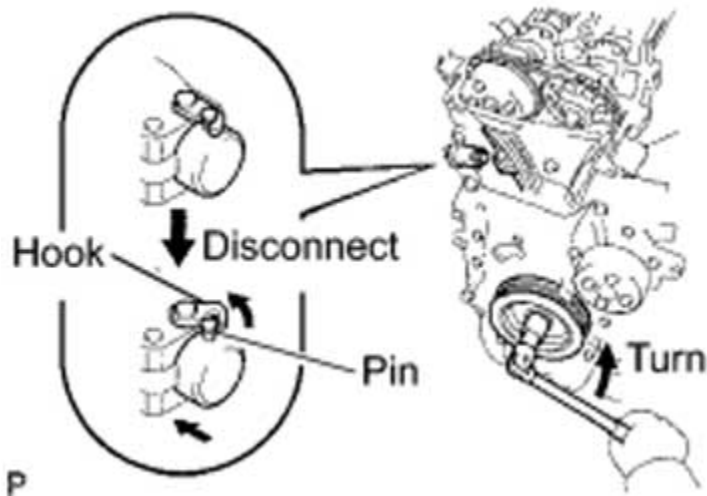
Torque: **9.0 N·m (92 kgf·cm, 80in·lbf)**

NOTICE:

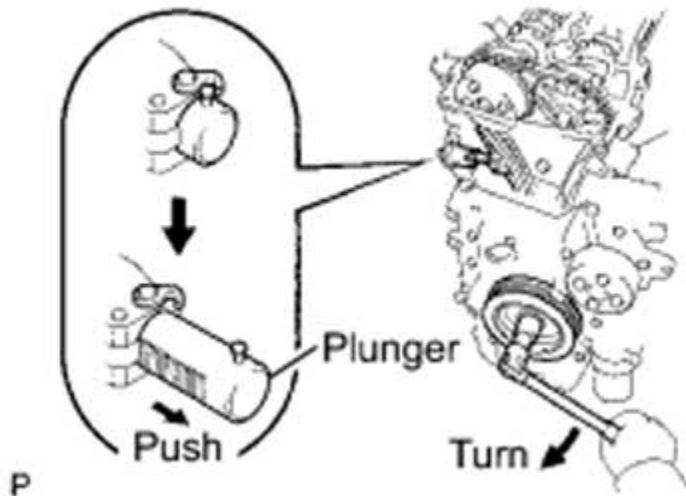
When installing the chain tensioner, set the hook again if the hook releases the plunger.



a



(c) Turn the crankshaft counterclockwise, then disconnect the plunger knock pin from the hook.



(c) Turn the crankshaft clockwise, then check that the plunger is extended.

INSTALL CYLINDER HEAD COVER SUB-ASSEMBLY

INSTALL IGNITION COIL ASSEMBLY

INSTALL ENGINE MOUNTING INSULATOR RH

INSTALL VANE PUMP ASSEMBLY

INSTALL FAN & GENERATOR V BELT

CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

CHECK FOR ENGINE OIL LEAKS

INSTALL NO. 1 ENGINE COVER SUB-ASSEMBLY

INSTALL FRONT FENDER APRON SEAL RH

INSTALL ENGINE UNDER COVER LH

INSTALL ENGINE UNDER COVER RH

INSTALL FRONT WHEEL RH

PERFORM INITIALIZATION

NOTICE: Certain systems need to be initialized after disconnecting and reconnecting the cable from the negative (-) battery terminal.

