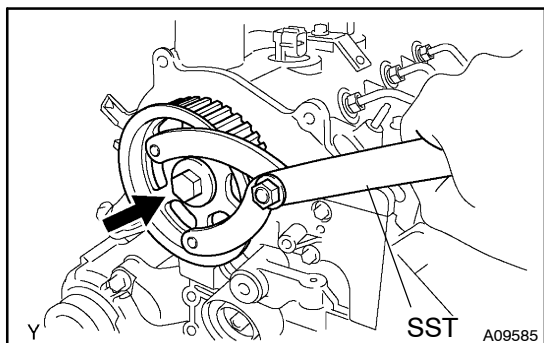
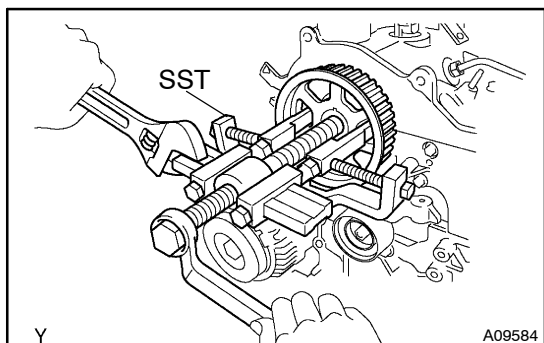


REPLACEMENT

1. DRAIN ENGINE COOLANT (See page 16-19)
2. REMOVE HOOD SUB-ASSY
3. REMOVE FR WIPER ARM RH
(See page 66-9)
4. REMOVE FR WIPER ARM LH
(See page 66-9)
5. REMOVE COWL TOP VENTILATOR LOUVER SUB-ASSY
6. REMOVE WINDSHIELD WIPER MOTOR ASSY
(See page 66-9)
7. REMOVE COWL TOP PANEL SUB-ASSY OUTER
(See page 11-23)
8. REMOVE RADIATOR RESERVE TANK ASSY
9. REMOVE FRONT WHEEL RH
10. REMOVE ENGINE UNDER COVER RH
11. REMOVE ENGINE COVER SUB-ASSY NO.1
12. REMOVE AIR TUBE NO.1
(See page 13-6)
13. REMOVE V (COOLER COMPRESSOR TO CRANKSHAFT PULLEY) BELT NO.1
(See page 14-75)
14. REMOVE FAN AND GENERATOR V BELT
(See page 14-75)
15. REMOVE ENGINE MOUNTING BRACKET NO.2 RH
(See page 14-114)
16. REMOVE CRANKSHAFT PULLEY
(See page 14-114)
SST 09213-54015 (91651-60855), 09330-00021, 09950-50013 (09951-05010, 09952-05010, 09953-05010, 09953-05020, 09954-05030, 09954-05021)
17. REMOVE PULLEY SUB-ASSY, IDLER
18. REMOVE TIMING BELT NO.2 COVER
(See page 14-114)
19. REMOVE TIMING BELT NO.1 COVER
(See page 14-114)
20. REMOVE TIMING BELT GUIDE
21. REMOVE TRANSVERSE ENGINE ENGINE MOUNTING BRACKET
(See page 14-114)
22. SET NO.1 CYLINDER TO TDC/COMPRESSION (See page 14-114)
23. REMOVE TIMING BELT
(See page 14-114)

**24. REMOVE CAMSHAFT TIMING PULLEY**

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



- (b) Using SST, remove the timing pulley.
SST 09950-40011 (09951-04010, 09952-04010, 09953-04020, 09954-04010, 09955-04071, 09957-04010, 09958-04011)
- (c) Remove the set key.

25. REMOVE INJECTION PIPE SUB-ASSY NO.1

(See page 1-23)

SST 09023-12900, 09023-12700

26. REMOVE INJECTION PIPE SUB-ASSY NO.2

(See page 1-23)

SST 09023-12900, 09023-12700

27. REMOVE INJECTION PIPE SUB-ASSY NO.3

(See page 1-23)

SST 09023-12900, 09023-12700

28. REMOVE INJECTION PIPE SUB-ASSY NO.4

(See page 1-23)

SST 09023-12900, 09023-12700

29. REMOVE VACUUM PUMP ASSY

- (a) Remove vacuum hose.
(b) Remove vacuum pump oil hose.
(c) Remove the 2 bolts and the vacuum pump assy.

30. REMOVE CYLINDER HEAD COVER SUB-ASSY

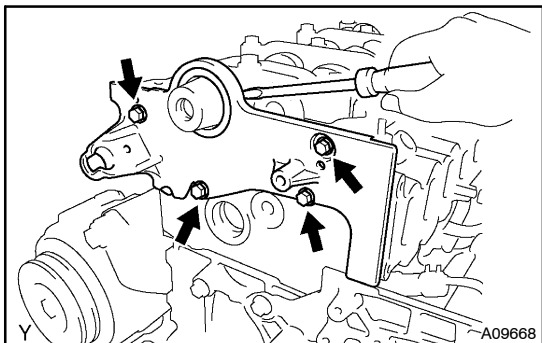
(See page 1-23)

31. REMOVE NOZZLE LEAKAGE PIPE ASSY

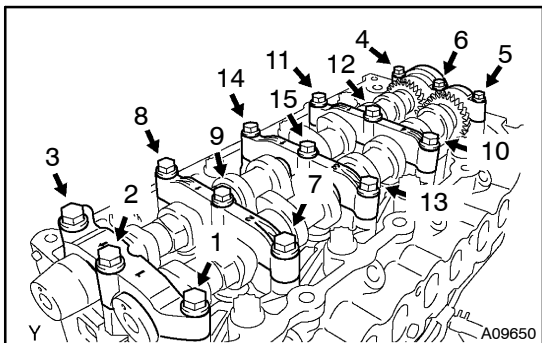
(See page 1-23)

32. REMOVE INJECTOR ASSY

(See page 1-23)

**33. REMOVE CAMSHAFT OIL SEAL RETAINER**

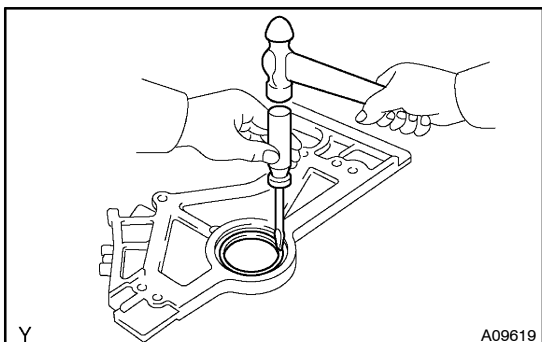
- (a) Remove the 4 bolts.
- (b) Using a screwdriver, remove the oil seal retainer by prying the portions between the oil seal retainer and camshaft bearing cap.

**34. REMOVE CAMSHAFT**

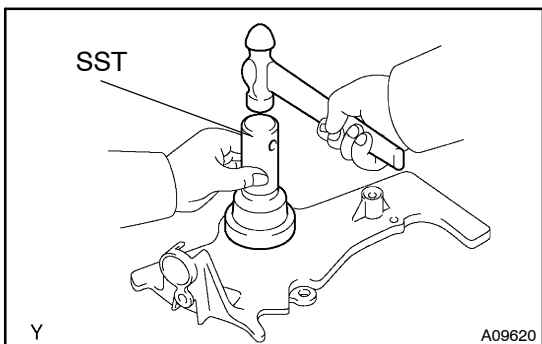
- (a) Uniformly loosen and remove the 15 bearing cap bolts in several passes and in the sequence shown.
- (b) Remove the 5 bearing caps and camshaft sub-assy.

35. REMOVE NO.2 CAMSHAFT

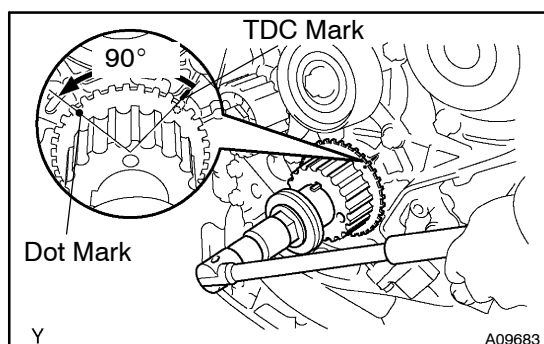
- (a) Remove camshaft sub-assy and camshaft carrier.

**36. REMOVE CAMSHAFT OIL SEAL**

- (a) Using a screwdriver and a hammer, tap out the oil seal.

**37. INSTALL CAMSHAFT OIL SEAL**

- (a) Using SST and a hammer, tap in a new oil seal until its surface is flush with the camshaft oil seal retainer edge.
SST 09223-46011

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

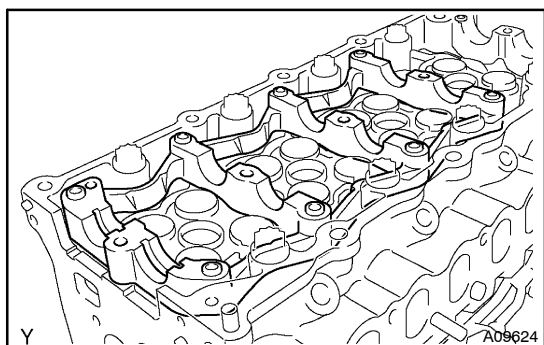
- (a) Using the crankshaft pulley bolt, turn the crankshaft, and set the dot mark of the crankshaft timing pulley at the position of 90° BTDC.

NOTICE:

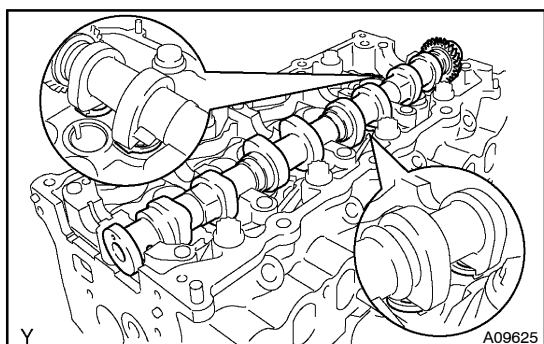
If the timing belt is disengaged, having the crankshaft timing pulley at wrong angle can cause the piston head and valve head to come into contact with each other.

39. INSTALL CAMSHAFT**NOTICE:**

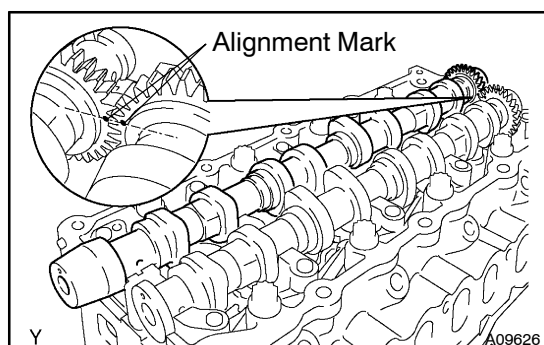
Since the thrust clearance of the camshaft is small, the camshaft must be kept leveled while it is being installed. If the camshaft is not kept leveled, the portion of the cylinder head receiving the shaft thrust may crack or be damaged, causing the camshaft to seize or break. To avoid this, the following steps should be carried out.



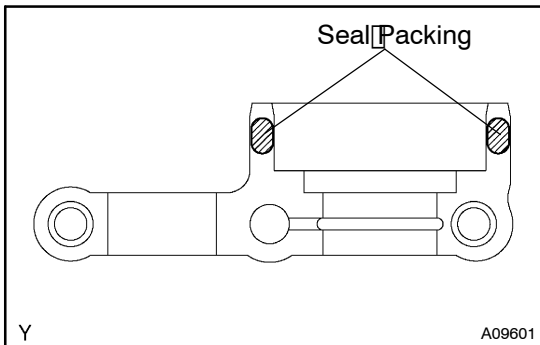
- (a) Place the camshaft carrier in position on the cylinder head.



- (b) Install the camshaft sub-assy No. 1.
 (c) Apply engine oil to the cam and gear of the camshaft, and the journal of the camshaft carrier.
 (d) Place the intake camshaft on top of the camshaft carrier as shown in the illustration so that the No. 3 and No. 4 of cylinder cam lobes face downward.

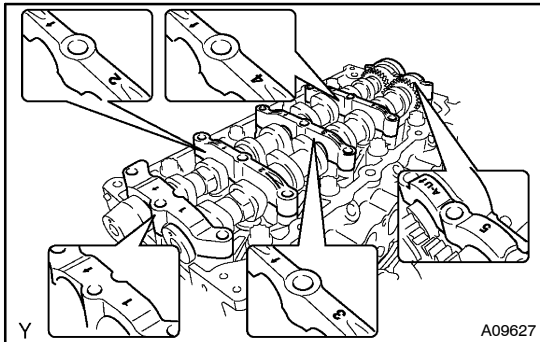
**40. INSTALL NO.2 CAMSHAFT**

- (a) Install the exhaust camshaft.
 (b) Apply engine oil to the cam and gear of the camshaft, and the journal of the camshaft carrier.
 (c) Engage the exhaust camshaft gear to the intake camshaft gear by matching the alignment marks on each gear.
 (d) Roll down the exhaust camshaft onto the bearing journals while engaging gears with each other.

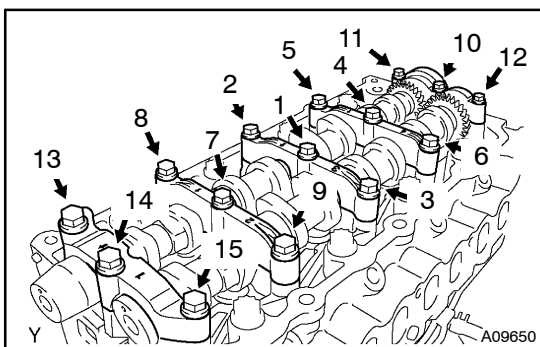


- (e) Install the camshaft bearing caps.
- (1) Remove any oil packing (FIPG) material from the No. 5 camshaft bearing cap.
 - (2) Apply a seal packing to the No. 5 camshaft bearing cap as shown in the illustration.

Seal packing: Part No. 08826-00080 or equivalent



- (3) Place the 5 bearing caps in their proper locations.



- (4) Install and uniformly tighten the 15 bearing cap bolts in several passes and in the sequence shown.

Torque: 20 N·m (200 kgf·cm, 15 ft·lbf)

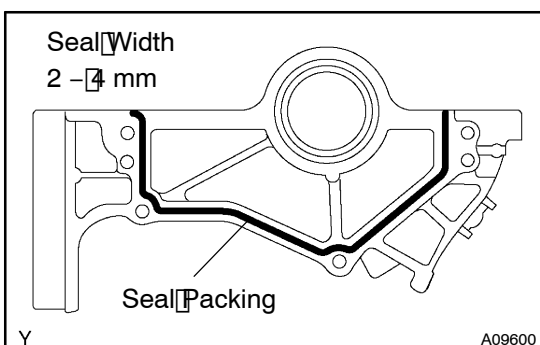
41. INSPECT VALVE CLEARANCE (See page 14-76)

42. INSTALL CAMSHAFT OIL SEAL RETAINER

- (a) Remove any old packing (FIPG) material and be careful not to drop any oil on the contact surfaces of the oil seal retainer and cylinder block.
 - (1) Thoroughly clean all components to remove all the loose material.
 - (2) Using a non-residue solvent, clean both sealing surfaces.
- (b) Apply a seal packing to the oil seal retainer as shown in the illustration.

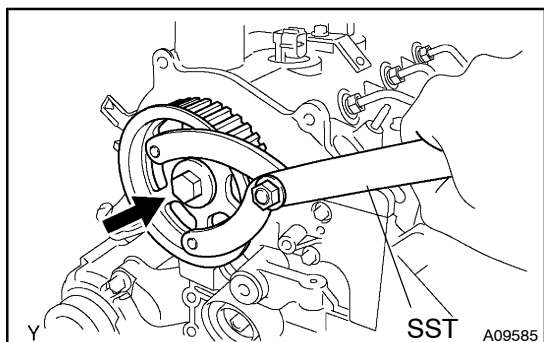
Seal packing: Part No. 08826-00080 or equivalent

- (1) Install a nozzle that has been cut to a 2 – 4 mm (0.08 – 0.16 in.) opening.
- (2) Parts must be assembled within 15 minutes of application. Otherwise the material must be removed and reapplied.
- (3) Immediately remove nozzle from the tube and reinstall cap.



- (c) Install the oil seal retainer with the 4 bolts. Uniformly tighten the 4 bolts in several passes.

Torque: 8.8 N·m (90 kgf·cm, 78 in·lbf)



43. INSTALL CAMSHAFT TIMING PULLEY

- (a) Install the pulley set key to the key groove of the camshaft.
 (b) Align the pulley set key with the key groove of the timing pulley, and slide on the timing pulley.
 (c) Using SST, install the pulley bolt.

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

Torque: 88.2 N·m (900 kgf·cm, 65 ft·lbf)

44. INSTALL INJECTOR ASSY

(See page 1-23)

45. INSTALL NOZZLE LEAKAGE PIPE ASSY

(See page 1-23)

SST 09992-00242

46. INSTALL CYLINDER HEAD COVER SUB-ASSY

(See page 4-132)

47. INSTALL VACUUM PUMP ASSY

- (a) Install the 2 bolts and the vacuum pump assy.

Torque: 21 N·m (214 kgf·cm, 15 ft·lbf)

- (b) Install vacuum pump oil hose.

- (c) Install vacuum hose.

48. INSTALL INJECTION PIPE SUB-ASSY NO.1

(See page 1-23)

SST 09023-12900, 09023-12700

49. INSTALL INJECTION PIPE SUB-ASSY NO.2

(See page 1-23)

SST 09023-12700, 09023-12900

50. INSTALL INJECTION PIPE SUB-ASSY NO.3

(See page 1-23)

SST 09023-12900, 09023-12700

51. INSTALL INJECTION PIPE SUB-ASSY NO.4

(See page 1-23)

SST 09023-12900, 09023-12700

52. INSTALL TIMING BELT

(See page 4-114)

53. CHECK VALVE TIMING (See page 4-114)

54. INSTALL TRANSVERSE ENGINE ENGINE MOUNTING BRACKET

(See page 4-114)

55. INSTALL TIMING BELT GUIDE

(See page 4-114)

56. INSTALL TIMING BELT NO.1 COVER

(See page 4-114)

57. INSTALL TIMING BELT NO.2 COVER(See [page 14-114](#))**58. INSTALL PULLEY SUB-ASSY, IDLER (See [page 14-114](#))****59. INSTALL CRANKSHAFT PULLEY**(See [page 14-114](#))

SST 09213-54015 (91651-60855), 09330-00021

60. INSTALL ENGINE MOUNTING BRACKET NO.2 RH(See [page 14-114](#))**61. ADJUST V (COOLER COMPRESSOR TO CRANKSHAFT PULLEY) BELT NO.1**(See [page 14-75](#))**62. INSTALL FRONT WHEEL RH**

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

63. INSTALL WINDSHIELD WIPER MOTOR ASSY(See [page 66-9](#))**64. INSTALL FR WIPER ARM RH****65. INSTALL FR WIPER ARM LH****66. INSPECT HOOD SUB-ASSY**(See [page 75-1](#))**67. ADJUST HOOD SUB-ASSY**(See [page 75-1](#))**68. ADD COOLANT (See [page 16-19](#))****69. CHECK ENGINE COOLANT LEAK (See [page 16-19](#))****70. INSPECT FUEL LEAK****CAUTION:**

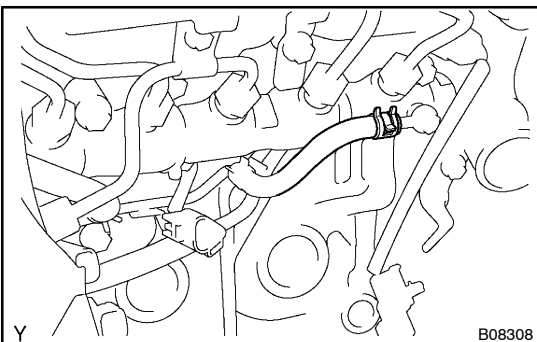
- During ACTIVE TEST mode, engine speed goes high and combustion noise becomes loud, so pay attention.
- During ACTIVE TEST mode, fuel becomes high-pressured, so take much care for not expose your eyes, hands, or body to the escaped fuel.

- (a) Check that there are no leaks from any part of the fuel system at the engine stops.

If there is fuel leakage, replace these parts.

- (b) While cranking or start the engine, check that there are no leaks from any part of the fuel system.

If there is fuel leakage, replace these parts.



- (c) Disconnect the return hose from the common rail.
- (d) While cranking the engine, check fuel leaks from the return pipe.

If there is fuel leakage, replace the common rail assembly.

(See [page 11-37](#))

- (e) Connect the hand-held tester to the DLC3.
- (f) Start the engine and push the hand-held tester main switch ON.
- (g) Select the FUEL LEAK test of ACTIVE TEST mode on the hand-held tester.

- (h) If you have no hand-held tester, depress the accelerator pedal quickly and fully to increase the engine speed at maximum and keep it for 2 seconds. Repeat this operation several times.
- (i) Check that there are no leaks from any part of the fuel system.

NOTICE:

However, if the leakage from the return pipe is less than 10 cc (0.6 cu in.) in a minute, it is acceptable.

If there is fuel leakage, replace these parts.

- (j) Reconnect the return hose to the common rail.