1411P–01

REPLACEMENT

1. REMOVE ENGINE UNDER COVER SUB–ASSY NO.1

(a) Remove the 4 bolts and engine under cover No. 1.

2. DRAIN COOLANT (See page 16–50)

3. REMOVE RADIATOR SUPPORT SEAL UPPER

(a) Remove the 11 clips and radiator support seal upper.

4. REMOVE WIRE HARNESS (W/ COLD AREA)

(a) Remove the wire harness from the fan shroud.

5. REMOVE RADIATOR RESERVE TANK ASSY

(a) Remove the radiator reserve tank hose first, and then remove the 3 bolts and radiator reserve tank.

6. REMOVE RADIATOR HOSE NO.1

7. REMOVE FAN AND GENERATOR V BELT (See page 14–189)

HINT:

Loosen the 4 nuts for the fan with fluid coupling assy in advance.

8. REMOVE FAN SHROUD

(a) Remove the oil cooler inlet hose and outlet hose from the hose clamp. (AT TRANSMISSION)

(b) Remove the 4 nuts for the fan with fluid coupling assy and 2 bolts for the fan shroud.

(c) Remove the fan with fluid coupling assy together with the fan shroud.

9. REMOVE FAN PULLEY

10. REMOVE INTERCOOLER PROTECTOR (See page 13–30)

11. REMOVE INTERCOOLER ASSY (See page 10–31)

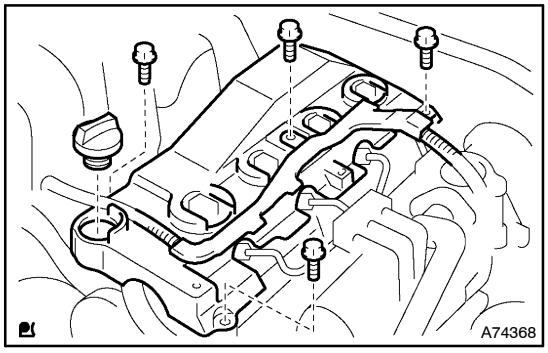
12. REMOVE AIR HOSE NO.1

13. REMOVE VACUUM SWITCHING VALVE ASSY NO.1 (See page 10–31)

14. REMOVE DIESEL THROTTLE BODY ASSY (See page 10–31)

15. REMOVE TIMING BELT NO.1 COVER (See page 14–214)

16. REMOVE TIMING BELT (See page 14–214)



17. REMOVE CYLINDER HEAD COVER SUB–ASSY NO.2

(a) Disconnect the injector connectors.

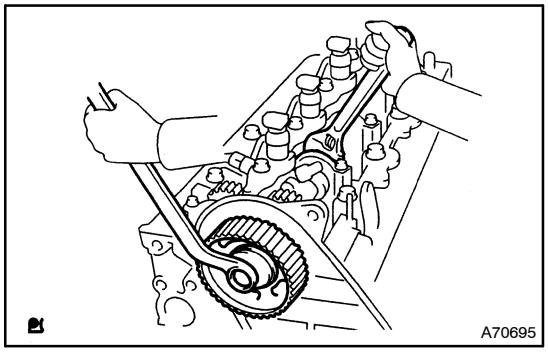
(b) Remove the oil filler cap sub–assy.

(c) Remove the bolt and wire harness from the cylinder head cover sub–assy No. 2.

(d) Remove the 3 bolts and cylinder head cover sub–assy No. 2.

18. REMOVE INJECTION PIPE (See page 11–106)

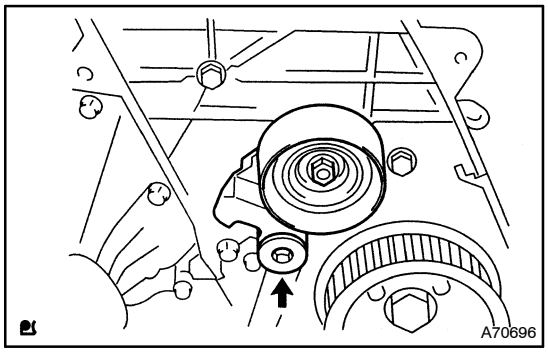
19. REMOVE CYLINDER HEAD COVER SUB–ASSY (See page 11–106)



20. REMOVE CAMSHAFT TIMING PULLEY

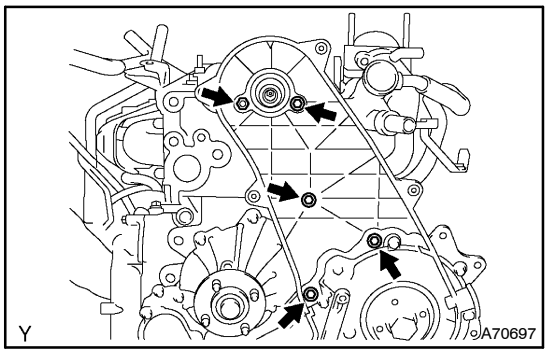
(a) Remove the bolt for the camshaft timing pulley by holding the camshaft with a monkey wrench.

(b) Remove the camshaft timing pulley.



21. REMOVE TIMING BELT IDLER SUB–ASSY NO.1

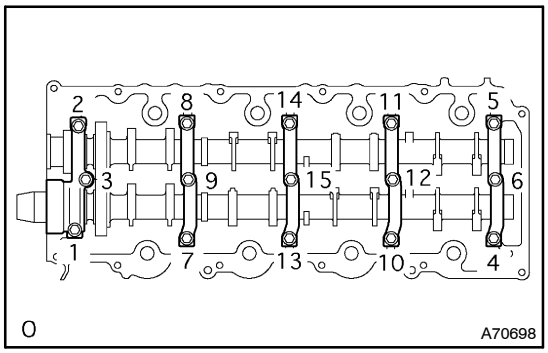
(a) Remove the timing belt idler No. 1 by using a 10 mm socket hexagonal wrench.



22. REMOVE TIMING BELT NO.2 COVER

(a) Remove the 4 bolts and nuts, then remove timing belt No. 2 cover.

23. REMOVE INJECTOR ASSY (See page 11–106)

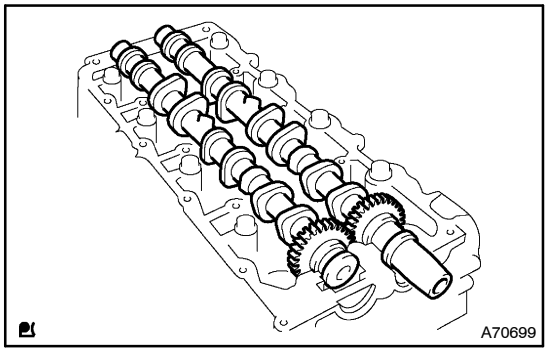


24. REMOVE CAMSHAFT

(a) Uniformly loosen and remove the 15 camshaft bearing cap bolts in the specified order described in the illustration.

(b) Remove the 5 camshaft bearing caps.

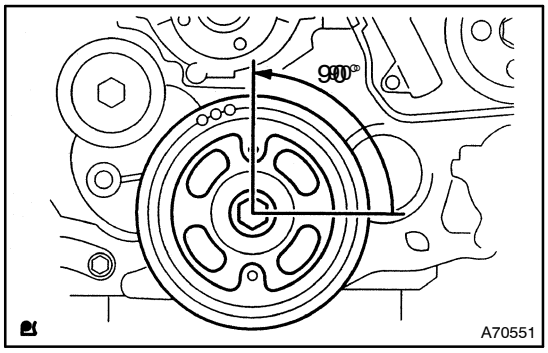
(c) Pull out the oil seal.



(d) Remove the camshaft and camshaft No. 2.

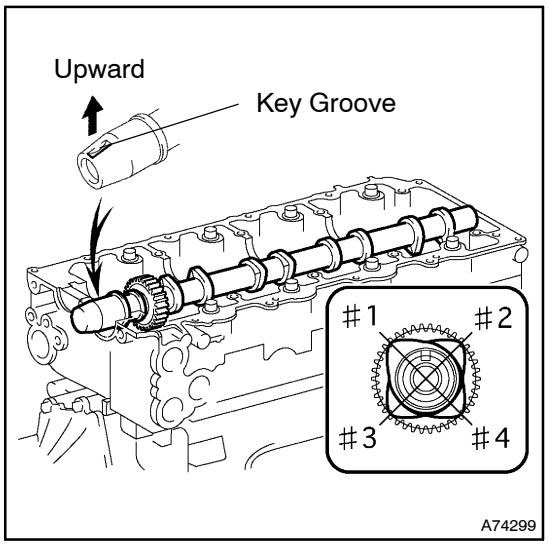
NOTICE:

- **Do not pry the camshaft.**
- **Do not damage thrusts of the cylinder head.**



25. INSTALL CAMSHAFT

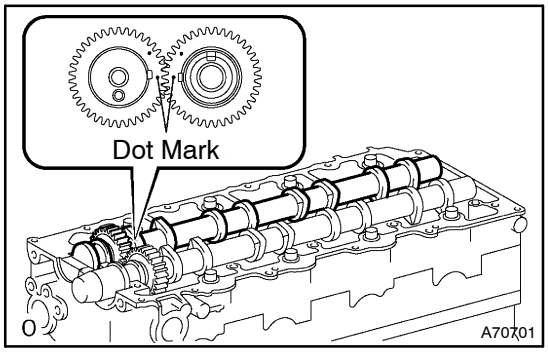
(a) Set the crankshaft to 90–degree position behind of the compression TDC.



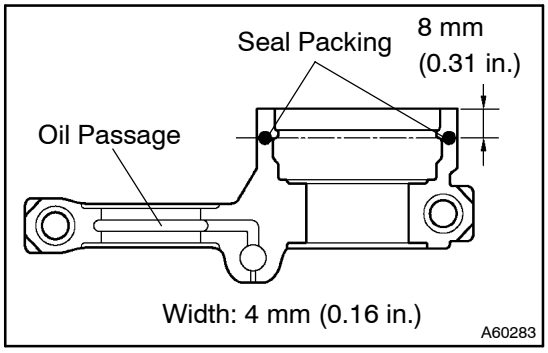
(b) Place the camshaft to the cylinder head just as shown in the illustration.

NOTICE:

Apply the engine oil to the cams, thrusts and gears of the camshaft as well as on the journal of the cylinder head.



(c) Align the dot marks of the camshaft and camshaft No. 2 by meshing the both two gears before place the camshaft No. 2.



(d) Remove old packing (FIPG) from the camshaft bearing cap.

(e) Apply a seal packing to the specific places described in the illustration.

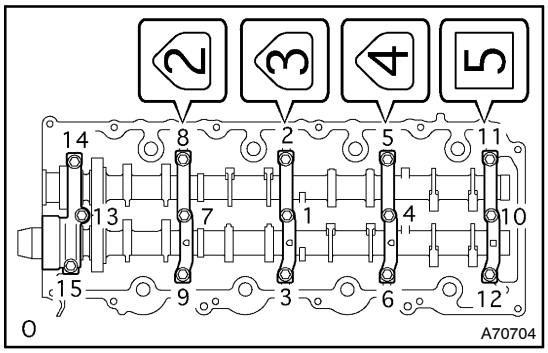
Seal packing: Part No. 08826–00080 or equivalent

Thickness: 1 mm (0.04 in.)

NOTICE:

- **Beware sticking FIPG in the oil passage of the bearing cap.**
- **Once completed applying FIPG, install the camshaft bearing cap and within 3 minutes and fasten its bolts within 15 minutes.**
- **Do not start the engine 2 hours after the installation.**

(f) Install the camshaft bearing cap as shown in the illustration.



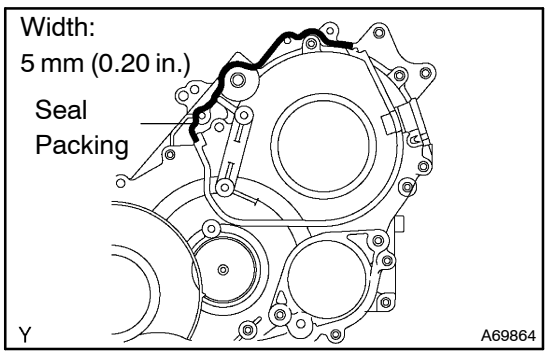
(g) Fasten 15 bolts for the camshaft bearing cap in the specified order described in the illustration.

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

(h) Install the oil seal (See page 14–241).

26. INSTALL INJECTOR ASSY (See page 11–106)

27. INSPECT FOR FUEL LEAKS (See page 11–106)



28. INSTALL TIMING BELT NO.2 COVER

(a) Remove old seal packing (FIPG) from the timing gear case.

(b) Apply a seal packing to the specific places described in the illustration.

Seal packing: Part No. 08826–00080 or equivalent

NOTICE:

- **Install the timing belt No. 2 cover within 3 minutes and tighten its bolts and nuts within 15 minutes as soon as when applying FIPG is competed.**
- **Do not start the engine 2 hours after the installation.**

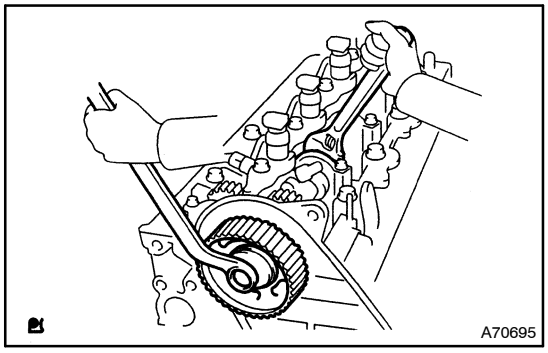
(c) Fix the timing belt cover No. 2 with the 4 bolts and nuts.

Torque: 10 N·m (102 kgf·cm, 7 ft·lbf)

29. INSTALL TIMING BELT IDLER SUB–ASSY NO.1

(a) Install the timing belt idler No. 1 by using a 10 mm socket hexagon wrench.

Torque: 35 N·m (357 kgf·cm, 26 ft·lbf)



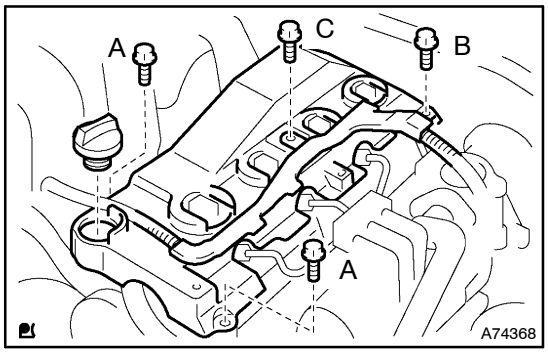
30. INSTALL CAMSHAFT TIMING PULLEY

(a) Install the camshaft timing pulley.

(b) Fasten the bolt for the camshaft timing pulley by holding the camshaft with a monkey wrench.
Torque: 98 N·m (1000 kgf·cm, 72 ft·lbf)

31. INSTALL CYLINDER HEAD COVER SUB–ASSY (See page 11–106)

32. INSTALL INJECTION PIPE (See page 11–106)



33. INSTALL CYLINDER HEAD COVER SUB–ASSY NO.2

(a) Install the cylinder head cover sub–assy No. 2 with the 3 bolts.
Torque:
18 N·m (184 kgf·cm, 13 ft·lbf) for bolt A
8.0 N·m (82 kgf·cm, 71 in.·lbf) for bolt B

(b) Install the bolt and wire harness to the cylinder head cover sub–assy No. 2.
Torque: 8.0 N·m (82 kgf·cm, 71 in.·lbf) for bolt C

(c) Install the oil filler cap sub–assy.

(d) Install the injector connectors.

34. INSTALL TIMING BELT (See page 14–214)

35. INSTALL TIMING BELT NO.1 COVER

(a) Install the timing belt cove No. 1 with the 6 bolts.
Torque: 6.0 N·m (61 kgf·cm, 53 in.·lbf)

(b) Install the wire harness clamp.

(c) Install the water hose clamp with the bolt.
Torque: 18 N·m (184 kgf·cm, 13 ft·lbf)

36. INSTALL DIESEL THROTTLE BODY ASSY (See page 10–31)

37. INSTALL VACUUM SWITCHING VALVE ASSY NO.1 (See page 10–31)

38. INSTALL AIR HOSE NO.1

39. INSTALL INTERCOOLER ASSY (See page 10–31)

40. INSTALL INTERCOOLER PROTECTOR

(a) Install the intercooler protector with the 5 bolts.
Torque: 6.0 N·m (61 kgf·cm, 53 in.·lbf)

41. INSTALL FAN PULLEY

42. INSTALL FAN SHROUD

(a) Temporarily place the fan shroud together with the fan with fluid coupling assy to the correct location inside the engine room first.

(b) Install the fan shroud to the radiator with the 2 bolts.
Torque: 5.0 N·m (51 kgf·cm, 44 in.·lbf)

(c) Install the fan with fluid coupling assy to the water pump with the 4 nuts.
Torque: 18 N·m (184 kgf·cm, 13 ft·lbf)

(d) Install the oil cooler inlet hose and outlet hose to the hose clamp. (AT TRANSMISSION)

43. INSTALL FAN AND GENERATOR V BELT (See page 14–189)

44. INSTALL RADIATOR HOSE NO.1

45. INSTALL RADIATOR RESERVE TANK ASSY

(a) Install the radiator reserve tank with the 3 bolts.
Torque: 5.0 N·m (51 kgf·cm, 44 in.·lbf)

(b) Install the radiator reserve tank hose.

46. INSTALL WIRE HARNESS (W/ COLD AREA)

(a) Install the wire harness to the fan shroud.

47. INSTALL RADIATOR SUPPORT SEAL UPPER

(a) Install the radiator support seal upper with the 11 clips.

48. ADD ENGINE COOLANT (See page 16–50)

49. CHECK FOR ENGINE COOLANT LEAKS

50. CHECK FUEL LEAK (See page 11–101)

51. INSTALL ENGINE UNDER COVER SUB–ASSY NO.1

(a) Fix the engine under cover No. 1 with the 4 bolts.
Torque: 29 N·m (296 kgf·cm, 21 ft·lbf)