1118K–01

REPLACEMENT

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

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

2. REMOVE ENGINE UNDER COVER ASSY REAR

(a) Remove the 4 bolts and the engine under cover rear.

3. DRAIN ENGINE COOLANT (See Pub. No. RM990E, Page 16–50)

4. REMOVE RADIATOR SUPPORT SEAL UPPER

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

5. REMOVE WIRE HARNESS (W/ COLD AREA SPECIFICATION)

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

6. REMOVE RADIATOR RESERVE TANK ASSY

(a) Remove the hose of the radiator reserve tank first.

(b) Remove the 3 bolts and the radiator reserve tank.

7. REMOVE RADIATOR HOSE NO.1

8. REMOVE FAN AND GENERATOR V BELT (See Pub. No. RM990E, Page 14–189)

HINT:

Loosen the 4 nuts for the fan with fluid coupling assy before removing the V belt.

9. REMOVE FAN SHROUD

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

10. REMOVE FAN PULLEY

11. REMOVE INTERCOOLER PROTECTOR (SEE PAGE 13–18)

12. REMOVE INTERCOOLER ASSY (SEE PAGE 13–18)

13. REMOVE TIMING BELT NO.1 COVER (See Pub. No. RM990E, Page 14–214)

14. REMOVE TIMING BELT (See Pub. No. RM990E, Page 14–214)

15. REMOVE VANE PUMP OIL RESERVOIR ASSY

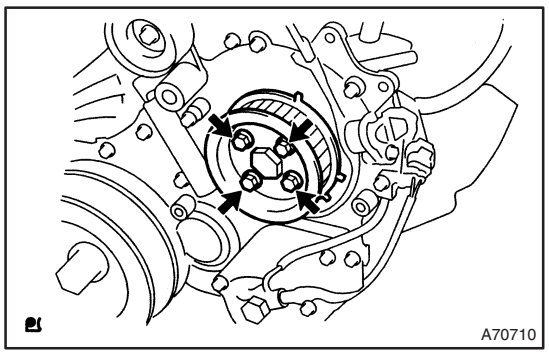
(a) Remove the 3 bolts and vane pump oil reservoir assy.

HINT:

It is not necessary to remove the hose from the vane pump oil reservoir assy when you remove the assembly. Also, for the following removal process, put and hang the removed oil reservoir assy with a rope to an appropriate location of the vehicle.

16. REMOVE FUEL INLET PIPE SUB–ASSY (SEE PAGE 11–67)

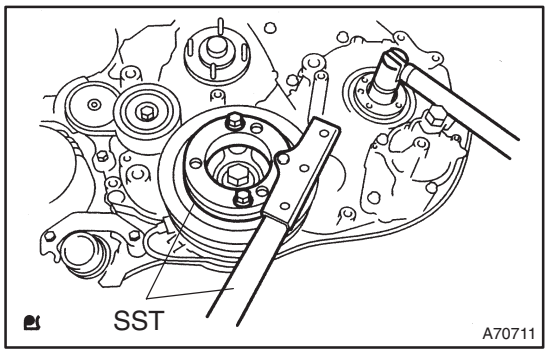
SST 09023–12701



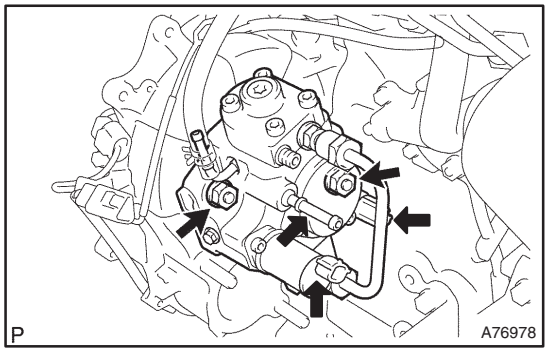
17. REMOVE INJECTION OR SUPPLY PUMP ASSY

(a) Remove the 4 bolts.

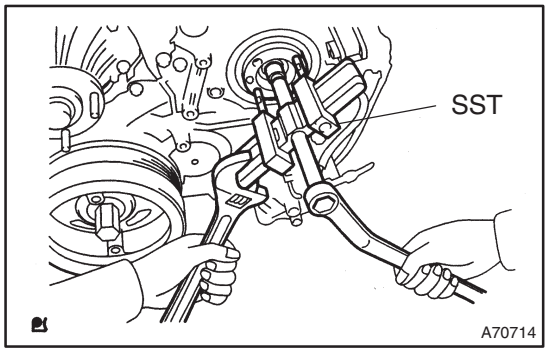
(b) Remove the camshaft timing pulley flange No.2 and pump drive shaft pulley.



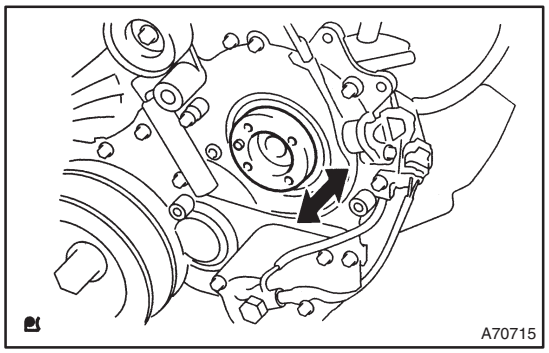
(c) Using SST, remove the supply pump gear set nut and O–ring while holding the crankshaft pulley.
SST 09213–58013, 09330–00021



(d) Disconnect the 2 fuel hoses.
(e) Disconnect the 2 connectors and wire harness.
(f) Loosen the 2 nuts as shown in the illustration.

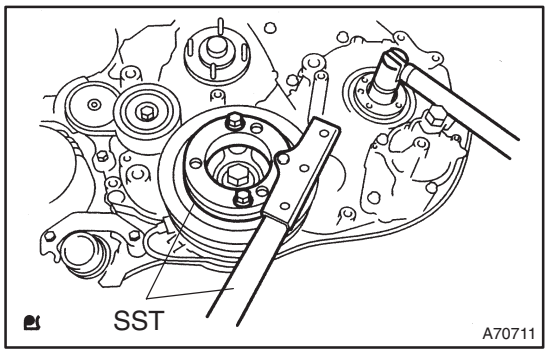


(g) Using SST, disengage the supply pump from the supply pump gear.
SST 09950–50013 (09951–05010, 09952–05010, 09953–05020, 09954–05021)
(h) Remove the 2 nuts and supply pump from the engine.
(i) Remove the O–ring from the supply pump.



18. INSTALL INJECTION OR SUPPLY PUMP ASSY

(a) Confirm that the supply pump gear in the timing gear case moves back and forth smoothly.
(b) Install a new O–ring to the supply pump.
(c) Aligning the projecting edge of the supply pump head to the key–slot of the supply pump gear, install the pump to the timing gear case.
(d) While holding the supply pump by hand, push the supply pump gear rearward to engage the pump gear and drive shaft.
(e) Temporarily install the supply pump with the 2 nuts.



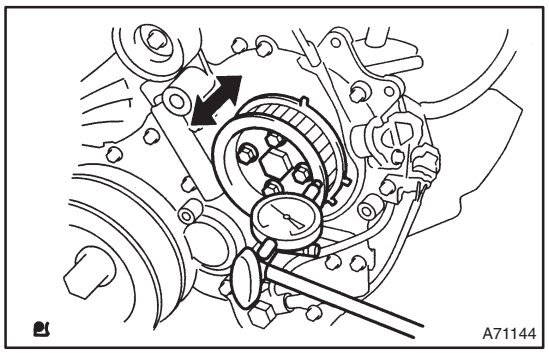
(f) Using SST, fix the crankshaft.
SST 09213–58013, 09330–00021

(g) Set a new O–ring before tightening the supply pump gear set nut.
Torque: 64 N·m (653 kgf·cm, 47 ft·lbf)

(h) Temporarily install the supply pump stay with the 2 bolts on the engine block side.

(i) Tighten the 2 nuts for the injection pump.
Torque: 21 N·m (214 kgf·cm, 16 ft·lbf)

(j) Install the camshaft timing pulley flange No.2 and pump drive shaft with the 4 bolts.
Torque: 31 N·m (316 kgf·cm, 23 ft·lbf)



(k) Push the pump drive shaft pulley back and forth to check a thrust clearance of the injection pump drive shaft.
Thrust clearance:
0.15 to 0.55 mm (0.0059 to 0.0217 in.)

NOTICE:
Make sure that the crankshaft pulley's notch is at 30 degree in the counterclockwise direction from the TDC position.
HINT:
If there is no thrust clearance, disassemble and reassemble the injection pump and pump drive shaft pulley.

19. INSTALL FUEL INLET PIPE SUB–ASSY (SEE PAGE 11–67)

NOTICE:
- **Also, if the supply pump is replaced, the fuel inlet pipe must be replaced.**
- **Be careful not to adhere dusts, dirt or any other materials onto the joint area of the fuel inlet pipe.**

(a) Temporarily install the fuel inlet pipe.

(b) Using SST, tighten the injection pipe on the common rail side.
SST 09023–12701
Torque:
32 N·m (326 kgf·cm, 24 ft·lbf) for use with SST
35 N·m (357 kgf·cm, 26 ft·lbf)

(c) Using SST, tighten the injection pipe on the supply pump side.
SST 09023–12701
Torque:
32 N·m (326 kgf·cm, 24 ft·lbf) for use with SST
35 N·m (357 kgf·cm, 26 ft·lbf)

20. INSTALL VANE PUMP OIL RESERVOIR ASSY

(a) Install the vane pump oil reservoir assy with the 3 bolts.
Torque: 18 N·m (184 kgf·cm, 13 ft·lbf)

21. INSTALL TIMING BELT (See Pub. No. RM990E, Page 14–214)

22. INSTALL TIMING BELT NO.1 COVER

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

(b) Install the wire harness clamp.

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

23. INSTALL INTERCOOLER ASSY (SEE PAGE 13–18)

24. INSTALL INTERCOOLER PROTECTOR

(a) Install the intercooler protector with the 5 bolts.
Torque: 7.0 N·m (71 kgf·cm, 62 in.·lbf)

25. INSTALL FAN PULLEY

26. 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. (AUTOMATIC TRANSMISSION)

27. INSTALL FAN AND GENERATOR V BELT (See Pub. No. RM990E, Page 14–189)

28. INSTALL RADIATOR HOSE NO.1

29. INSTALL RADIATOR RESERVE TANK ASSY

(a) Install the radiator reserve tank with the 3 bolts.
Torque: 5 N·m (51 kgf·cm, 44 in.·lbf)

(b) Install the radiator reserve tank hose.

30. INSTALL WIRE HARNESS (W/ COLD AREA SPECIFICATION)

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

31. INSTALL RADIATOR SUPPORT SEAL UPPER

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

32. ADD ENGINE COOLANT (See Pub. No. RM990E, Page 16–50)

33. CHECK FOR ENGINE COOLANT LEAKS (See Pub. No. RM990E, Page 16–38)

34. BLEED FUEL LINE

(a) Operate the priming pump of the fuel filter assy to fill the system.

35. CHECK FUEL LEAK (SEE PAGE 11–46)

36. INSTALL ENGINE UNDER COVER ASSY REAR

(a) Install the engine under cover rear with the 4 bolts.
Torque: 29 N·m (296 kgf·cm, 21 ft·lbf)

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

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