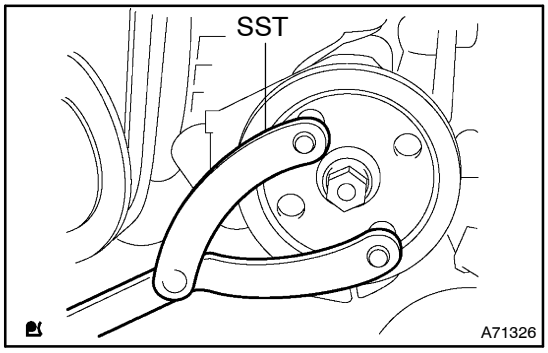
14118–01

REPLACEMENT

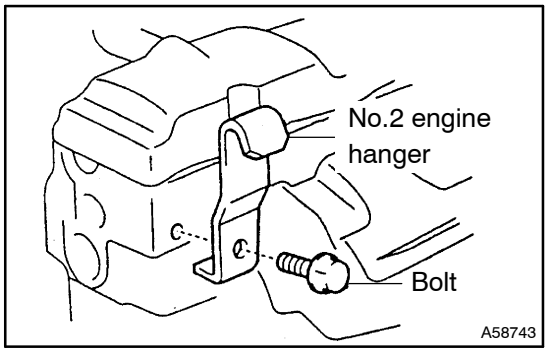
1. REMOVE ENGINE UNDER COVER SUB–ASSY NO.1
2. REMOVE ENGINE UNDER COVER ASSY REAR
3. DRAIN ENGINE COOLANT (See page 16–18)
4. DRAIN ENGINE OIL (See page 17–24)
5. REMOVE HOOD SUB–ASSY
6. REMOVE RADIATOR SUPPORT SEAL UPPER
7. REMOVE RADIATOR HOSE NO.1
8. REMOVE RADIATOR HOSE NO.2
9. REMOVE FAN SHROUD
10. REMOVE RADIATOR ASSY
11. REMOVE AIR CLEANER ASSY
(a) Disconnect the intake air temperature sensor connector.
(b) Disconnect the air cleaner hose from the intake pipe.
(c) Remove the air cleaner filter element.
(d) Remove the 3 bolts and air cleaner case.
12. REMOVE VANE PUMP V BELT (See page 14–77)
13. REMOVE V (COOLER COMPRESSOR TO CRANKSHAFT PULLEY) BELT NO.1 (W/ AIR CONDITIONING) (See page 14–77)
14. REMOVE FAN AND GENERATOR V BELT (W/O AIR CONDITIONING) (See page 14–77)
HINT:
Loosen the 4 fan pulley nuts.
15. REMOVE FAN AND GENERATOR V BELT (W/ AIR CONDITIONING) (See page 14–77)
HINT:
Loosen the 4 fan pulley nuts.
16. REMOVE FLUID COUPLING ASSY (See page 14–99)
17. REMOVE IDLE PULLEY BRACKET (W/ AIR CONDITIONING)
18. SEPARATE COMPRESSOR AND MAGNETIC CLUTCH (W/ AIR CONDITIONING)
HINT:
Separate the compressor and magnetic clutch with the high and low pressure hoses connected, and it should be hung with rope.



19. SEPARATE VANE PUMP ASSY
(a) Using SST, stop the pulley rotation and loosen the nut.
SST 09960–10010 (09962–01000, 09963–01000)
(b) Remove the nut and vane pump pulley from the vane pump shaft.
(c) Remove the 2 bolts, nut and separate the vane pump assy.
HINT:
Separate the vane pump with the hoses connected, and it should be hung with rope.

20. DISCONNECT HEATER WATER INLET HOSE A
21. DISCONNECT HEATER WATER OUTLET HOSE A(FROM HEATER UNIT)
22. DISCONNECT INJECTION PUMP TO FUEL FILTER FUEL HOSE OR PIPE
23. DISCONNECT INJECTION PUMP TO FUEL PIPE FUEL HOSE
24. DISCONNECT ENGINE WIRE

25. REMOVE MANUAL TRANSMISSION UNIT ASSY (See page 41–4)
26. REMOVE CLUTCH COVER ASSY (See page 42–15)
27. REMOVE CLUTCH DISC ASSY (See page 42–15)
28. REMOVE VANE PUMP DRIVE PULLEY (W/O AIR CONDITIONING) (See page 14–99)
29. REMOVE VANE PUMP DRIVE PULLEY (W/ AIR CONDITIONING) (See page 14–99)
30. REMOVE FLYWHEEL SUB–ASSY (See page 14–120)
SST 09213–54015 (91651–60855), 09330–00021
31. REMOVE REAR END PLATE
32. REMOVE FLYWHEEL HOUSING DUST SEAL



33. INSTALL ENGINE HANGER NO.2
(a) Install the No.2 engine hanger in the correct direction.
Torque: 37 N·m (380 kgf·cm, 27 ft·lbf)

Part No.:

No.2 engine hanger	12282 – 54060
Bolt	91622 – 61022

34. REMOVE ENGINE ASSEMBLY
(a) Hook the engine sling device with engine hanger No.1 and No.2.
(b) Remove the 4 bolts and 4 nuts.
(c) Using a chain block and engine sling device, lift up the engine.
35. REMOVE ENGINE WIRE
36. REMOVE CRANKSHAFT PULLEY (See page 14–99)
SST 09213–54015 (91651–60855), 09330–00021, 09950–50013 (09951–05010, 09952–05010, 09953–05010, 09953–05020, 09954–05030)
37. REMOVE RADIATOR HOSE HOSE CLAMP
38. REMOVE TIMING CHAIN OR BELT COVER SUB–ASSY (See page 14–99)
39. REMOVE TIMING BELT GUIDE
40. SET NO.1 CYLINDER TO TDC/COMPRESSION (See page 14–99)
41. REMOVE TIMING BELT (See page 14–99)
42. REMOVE INTAKE PIPE
43. REMOVE INTAKE FLANGE (See page 10–19)
44. REMOVE VENTURI ASSY (See page 10–19)
45. REMOVE INJECTION PIPE SET (See page 11–46)
46. REMOVE GLOW PLUG NO.1 CONNECTOR (See page 19–21)
47. REMOVE NOZZLE LEAKAGE PIPE ASSY (See page 11–46)
48. REMOVE NOZZLE HOLDER AND NOZZLE SET (See page 11–46)
SST 09268–64010 (09268–64020)
49. REMOVE GLOW PLUG ASSY (See page 19–21)
50. REMOVE INJECTION PUMP DRIVE PULLEY (See page 11–48)
SST 09213–14010 (91651–60865), 09330–00021, 09950–50013 (09951–05010, 09952–05010, 09953–05010, 09954–05021)
51. REMOVE INJECTION OR SUPPLY PUMP ASSY (See page 11–48)
52. REMOVE WATER OUTLET HOUSING
(a) Remove the 3 bolts, the water outlet, outlet housing assembly and gasket.

53. REMOVE INTAKE MANIFOLD

(a) Remove the 6 bolts, 2 nuts, intake manifold and gasket.

54. REMOVE WATER BY–PASS HOSE UNION

55. REMOVE ENGINE COOLANT TEMPERATURE SENSOR

56. REMOVE CYLINDER BLOCK WATER DRAIN COCK SUB–ASSY

57. REMOVE PUMP BRACKET

58. REMOVE ENGINE MOUNTING BRACKET FRONT NO.1 LH

59. REMOVE COMPRESSOR MOUNTING BRACKET NO.1 (W/ AIR CONDITIONING)

60. REMOVE FAN BELT ADJUSTING BAR (W/O AIR CONDITIONING)

61. REMOVE GENERATOR W/ VACUUM PUMP ASSY (See page 19–16)

62. REMOVE GENERATOR BRACKET NO.1

63. REMOVE OIL LEVEL GAGE GUIDE (See page 17–25)

64. REMOVE EXHAUST MANIFOLD HEAT INSULATOR NO.1

65. REMOVE EXHAUST MANIFOLD

(a) Remove the 6 bolts, 2 nuts, exhaust manifold and gasket.

66. REMOVE OIL FILTER SUB–ASSY (See page 17–24)

SST 09228–44011

67. REMOVE OIL FILTER BRACKET SUB–ASSY (See page 17–25)

68. REMOVE ENGINE OIL PRESSURE SWITCH ASSY

(a) Using a 24 mm deep socket wrench, remove the oil pressure switch.

69. REMOVE ENGINE MOUNTING BRACKET FRONT NO.1 RH

70. INSTALL ENGINE MOUNTING BRACKET FRONT NO.1 RH

Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)

71. INSTALL ENGINE OIL PRESSURE SWITCH ASSY

(a) Clean the threads of the oil pressure switch, apply adhesive there.

Adhesive: Part No. 08833–00080 THREE BOND 1344 or equivalent

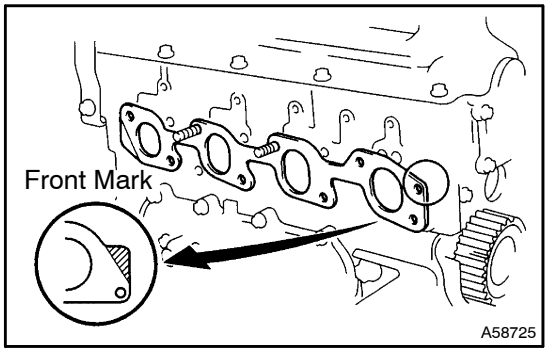
(b) Using a 24 mm deep socket wrench, inatall the oil pressure switch.

Torque: 15 N·m (155 kgf·cm, 11 ft·lbf)

72. INSTALL OIL FILTER BRACKET SUB–ASSY (See page 17–25)

73. INSTALL OIL FILTER SUB–ASSY (See page 17–24)

SST 09228–44011



74. INSTALL EXHAUST MANIFOLD

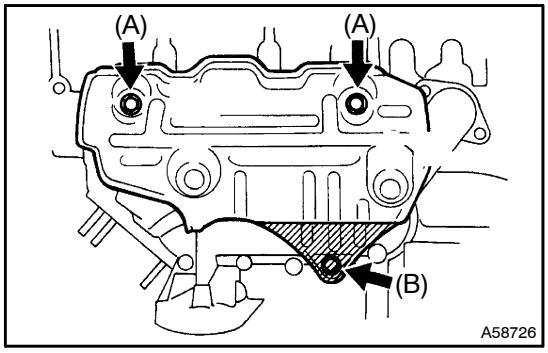
(a) Install a new gasket to the cylinder head.

HINT:

The direction of a new gasket is in the illustration.

(b) Install the exhaust manifold with the 6 bolts and 2 new nuts. Uniformly tighten the bolts and nuts in several passes.

Torque: 52 N·m (530 kgf·cm, 38 ft·lbf)



75. INSTALL EXHAUST MANIFOLD HEAT INSULATOR NO.1

(a) Install the heat insulator with the 3 bolts.

Torque:
18 N·m (185 kgf·cm, 13 ft·lbf) for bolt (A)
19 N·m (195 kgf·cm, 14 ft·lbf) for bolt (B)

76. INSTALL OIL LEVEL GAGE GUIDE (See page 17–25)

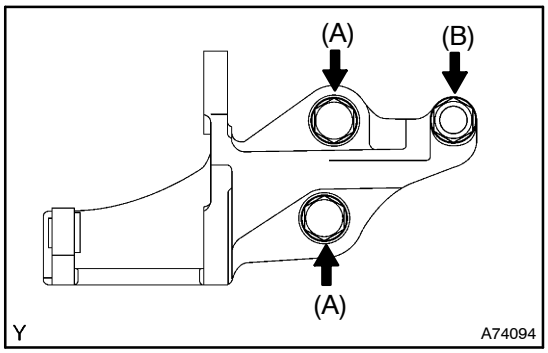
77. INSTALL GENERATOR BRACKET NO.1
Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)

78. INSTALL GENERATOR W/ VACUUM PUMP ASSY (See page 19–16)

79. INSTALL FAN BELT ADJUSTING BAR (W/O AIR CONDITIONING)
Torque: 45 N·m (460 kgf·cm, 33 ft·lbf)

80. INSTALL COMPRESSOR MOUNTING BRACKET NO.1 (W/ AIR CONDITIONING)
Torque: 85 N·m (870 kgf·cm, 63 ft·lbf)

81. INSTALL ENGINE MOUNTING BRACKET FRONT NO.1 LH
Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)



82. INSTALL PUMP BRACKET
Torque:
78 N·m (795 kgf·cm, 58 ft·lbf) for bolt (A)
57 N·m (581 kgf·cm, 42 ft·lbf) for bolt (B)

83. INSTALL CYLINDER BLOCK WATER DRAIN COCK SUB–ASSY

(a) Clean the threads of the water drain cock, apply adhesive there.
Adhesive: Part No. 08833–00080 THREE BOND 1344 or equivalent

(b) Install the water drain cock.
Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)

84. INSTALL ENGINE COOLANT TEMPERATURE SENSOR

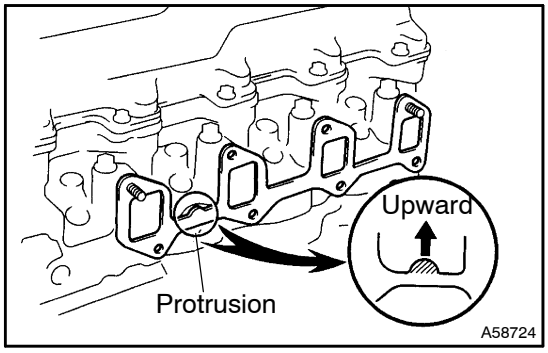
(a) Clean the threads of the coolant temperature sensor, apply adhesive there.
Adhesive: Part No. 08833–00080 THREE BOND 1344 or equivalent

(b) Install the coolant temperature sensor.
Torque: 20 N·m (200 kgf·cm, 15 ft·lbf)

85. INSTALL WATER BY–PASS HOSE UNION

(a) Clean the threads of the water by–pass hose union, apply adhesive there.
Adhesive: Part No. 08833–00080 THREE BOND 1344 or equivalent

(b) Install the water by–pass hose union.
Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)



86. INSTALL INTAKE MANIFOLD

(a) Install a new gasket to the cylinder head, facing the protrusion upward.

(b) Install the intake manifold with the 6 bolts and 2 nuts. Uniformly tighten the bolts and nuts in several passes.
Torque: 24 N·m (240 kgf·cm, 17 ft·lbf)

87. INSTALL WATER OUTLET HOUSING

(a) Install a new gasket, the water outlet and outlet housing assembly with the 3 bolts.
Torque: 19 N·m (195 kgf·cm, 14 ft·lbf)

88. INSTALL INJECTION PUMP SUPPLY PUMP ASSY (See page 11–48)

89. INSTALL INJECTION PUMP DRIVE PULLEY (See page 11–48)
SST 09213–14010 (91651–60865), 09330–00021

90. INSTALL GLOW PLUG ASSY (See page 19–21)

91. INSTALL NOZZLE HOLDER AND NOZZLE SET (See page 11–46)
SST 09268–64010 (09268–64020)

92. INSTALL NOZZLE LEAKAGE PIPE ASSY (See page 11–46)

93. INSTALL GLOW PLUG NO.1 CONNECTOR (See page 19–21)

94. INSTALL INJECTION PIPE SET (See page 11–46)

95. INSTALL VENTURI ASSY (See page 10–19)

96. INSTALL INTAKE FLANGE (See page 10–19)

97. INSTALL INTAKE PIPE (See page 10–19)

98. INSPECT TIMING BELT (See page 14–99)

99. INSPECT TIMING BELT IDLER SUB–ASSY NO.1 (See page 14–99)

100. INSPECT IDLER TENSION SPRING (See page 14–99)

101. INSPECT WATER PUMP ASSY (See page 14–99)

102. SET NO.1 CYLINDER TO TDC/COMPRESSION (See page 14–99)

103. INSTALL TIMING BELT (See page 14–99)
SST 09960–10010 (09962–01000, 09963–01000)

104. CHECK VALVE TIMING (See page 14–99)

105. INSTALL TIMING BELT GUIDE (See page 14–99)

106. INSTALL TIMING CHAIN OR BELT COVER SUB–ASSY (See page 14–99)

107. INSTALL RADIATOR HOSE HOSE CLAMP (See page 14–99)

108. INSTALL CRANKSHAFT PULLEY (See page 14–99)
SST 09213–54015 (91651–60855), 09330–00021

109. INSTALL ENGINE WIRE

110. INSTALL ENGINE ASSEMBLY

(a) Hook the engine sling device with engine hanger No.1 and No.2.

(b) Using a chain block and engine sling device, install the engine with the 4 bolts and 4 nuts.
Torque: 38 N·m (387 kgf·cm, 28 ft·lbf)

111. REMOVE ENGINE HANGER NO.2

112. INSTALL FLYWHEEL HOUSING DUST SEAL

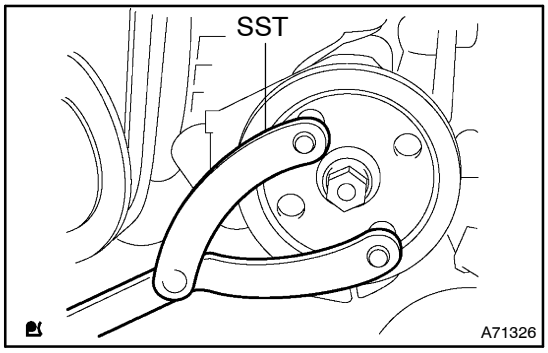
113. INSTALL REAR END PLATE (See page 14–120)

114. INSTALL FLYWHEEL SUB–ASSY (See page 14–120)
SST 09213–54015 (91651–60855), 09330–00021

115. INSTALL VANE PUMP DRIVE PULLEY (W/O AIR CONDITIONING) (See page 14–99)

116. INSTALL VANE PUMP DRIVE PULLEY (W/ AIR CONDITIONING) (See page 14–99)

117. INSTALL CLUTCH DISC ASSY (See page 42–15)
118. INSTALL CLUTCH COVER ASSY (See page 42–15)
119. INSTALL MANUAL TRANSMISSION UNIT ASSY (See page 41–4)



120. INSTALL VANE PUMP ASSY
(a) Install the pulley to the vane pump shaft.
(b) Using SST, stop the pulley rotation and torque the nut.
SST 09960–10010 (09962–01000, 09963–01000)
Torque: 43 N·m (440 kgf·cm, 32 ft·lbf)

121. INSTALL COMPRESSOR AND MAGNETIC CLUTCH (W/ AIR CONDITIONING)
Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)
122. INSTALL IDLE PULLEY BRACKET (W/ AIR CONDITIONING)
Torque: 47 N·m (475 kgf·cm, 34 ft·lbf)
123. TEMPORARILY TIGHTEN FLUID COUPLING ASSY (See page 14–99)
124. INSTALL FAN AND GENERATOR V BELT (W/O AIR CONDITIONING) (See page 14–77)
125. INSTALL FAN AND GENERATOR V BELT (W/ AIR CONDITIONING) (See page 14–77)
126. TIGHTEN FLUID COUPLING ASSY (See page 14–99)
127. INSTALL V (COOLER COMPRESSOR TO CRANKSHAFT PULLEY) BELT NO.1 (W/ AIR CONDITIONING) (See page 14–77)
128. INSTALL VANE PUMP V BELT (See page 14–77)
129. INSTALL AIR CLEANER ASSY
(a) Install the air cleaner case with the 3 bolts.
Torque: 12 N·m (122 kgf·cm, 9 ft·lbf)
130. INSTALL FAN SHROUD (See page 16–20)
131. INSTALL HOOD SUB–ASSY (See page 75–2)
132. ADD ENGINE COOLANT (See page 16–18)
133. ADD ENGINE OIL (See page 17–24)
134. BLEED INJECTION PIPE (See page 11–46)
135. CHECK FOR ENGINE COOLANT LEAKS (See page 16–18)
136. CHECK FOR ENGINE OIL LEAKS
137. CHECK FOR FUEL LEAKS (See page 11–46)
138. CHECK FOR EXHAUST GAS LEAKS
139. INSTALL ENGINE UNDER COVER ASSY REAR
Torque: 29 N·m (296 kgf·cm, 21 ft·lbf)
140. INSTALL ENGINE UNDER COVER SUB–ASSY NO.1
Torque: 29 N·m (296 kgf·cm, 21 ft·lbf)