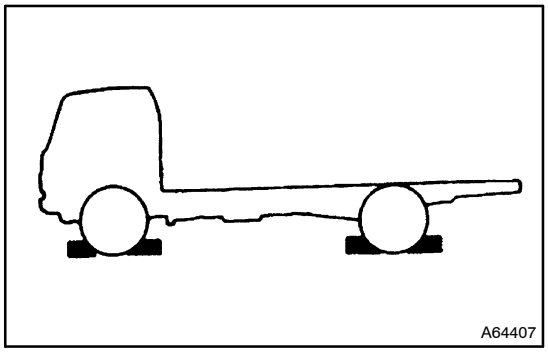
141UC–01

REPLACEMENT



1. BLOCK WHEEL OF VEHICLE

2. DISCONNECT BATTERY NEGATIVE TERMINAL
3. DRAIN ENGINE OIL (See page 17–3)
4. DRAIN ENGINE COOLANT (See page 16–3)
5. DRAIN FUEL
6. DRAIN POWER STEERING FLUID
7. REMOVE FRONT MUDGUARD RH
8. REMOVE FRONT MUDGUARD LH
9. REMOVE RADIATOR RESERVE TANK ASSY
10. REMOVE ENGINE SIDE COVER RH
11. REMOVE ENGINE SIDE COVER LH
12. REMOVE VACUUM RESERVOIR
(a) Disconnect the air hose.
(b) Remove the 4 bolts and reservoir.
13. REMOVE REAR ARCH COVER
(a) Remove the 8 bolts and cover.
14. REMOVE AIR HOSE ASSY
(a) Remove the 2 bolts.
(b) Loosen the 2 clamps and remove the hose.
15. REMOVE AIR HOSE NO. 1
(a) Loosen the clamp.
(b) Remove the 2 bolts and hose.
16. REMOVE INTAKE AIR CONNECTOR PIPE
(a) Disconnect the ECT sensor and vacuum sensor connectors.
(b) Remove the 2 bolts.
(c) Loosen the 2 clamps and remove the pipe.
17. REMOVE AIR HOSE NO. 2
(a) Loosen the 2 clamps and remove the hose.
18. REMOVE CHARGE AIR COOLER ASSY (See page 13–9)
19. REMOVE FAN
(a) Stretch the belt tight and loosen the 4 nuts.
(b) Remove the fan and generator V belt.
(c) Remove the 4 nuts, pulley and fan.
20. REMOVE A/C COMPRESSOR V BELT (See page 14–4)
21. DISCONNECT RADIATOR HOSE INLET
22. DISCONNECT RADIATOR HOSE OUTLET

23. REMOVE RADIATOR ASSY (See page 16–10)

24. REMOVE VENTILATION PIPE NO. 2

(a) Disconnect the breather hose.

(b) Remove the 3 bolts and ventilation pipe.

25. SEPARATE A/C COMPRESSOR ASSY

(a) Disconnect the compressor connector.

(b) Remove the 4 bolts and compressor.

HINT:

Hang up the compressor instead of detaching it.

26. REMOVE EXHAUST PIPE ASSY FRONT (See page 15–2)

27. REMOVE PROPELLER SHAFT ASSY

(See pub. No. RM1008E, on pages 30–6 and 30–14)

28. REMOVE GENERATOR ASSY (See page 19–7)

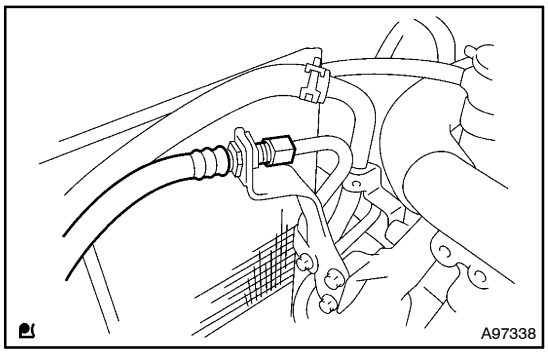
29. REMOVE STARTER ASSY (See page 19–3)

30. DISCONNECT WATER HOSE

31. SEPARATE CLUTCH RELEASE CYLINDER ASSY (See page 41–3)

32. DISCONNECT FLOOR SHIFT CABLE TRANSMISSION CONTROL SHIFT (See page 41–8)

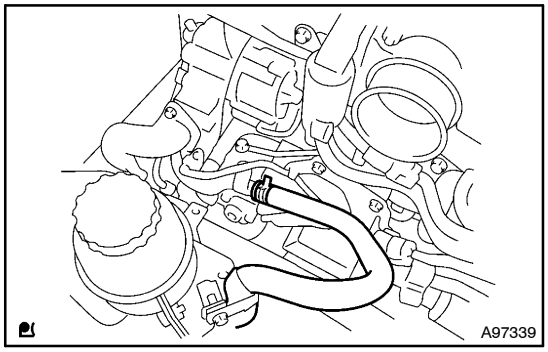
33. DISCONNECT FLOOR SHIFT CABLE TRANSMISSION CONTROL SELECT (See page 41–8)



34. DISCONNECT VANE PUMP HOSE

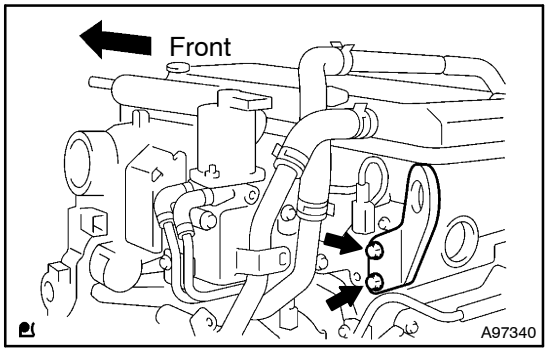
(a) Using SST, disconnect the pump hose.

SST 09023–12900



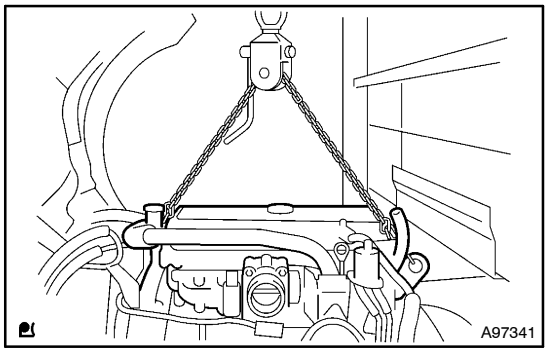
35. DISCONNECT VANE PUMP RESERVOIR HOSE

36. DISCONNECT WIRE HARNESS



37. REMOVE ENGINE ASSY

(a) Install the engine hanger with the 2 bolts as shown in the illustration.
Torque: 108 N·m (1,100 kgf·cm, 80 ft·lbf)

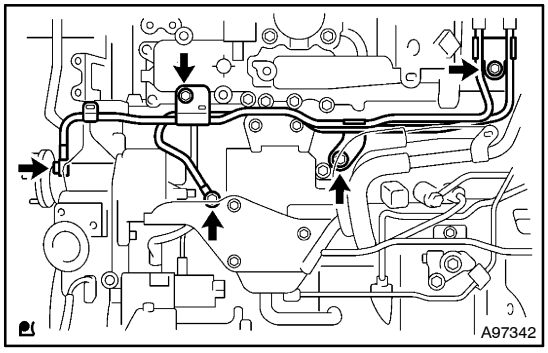


(b) Using a chain block and an engine sling device, hang the engine together with the transmission.
(c) Remove the transmission (see page 41–3).
(d) Remove the 2 nuts and engine from the engine mounting brackets.

38. REMOVE BREATHER PIPE

39. REMOVE BRACKET

(a) Remove the 4 bolts and bracket.



40. REMOVE WATER BY–PASS PIPE

(a) Remove the 3 bolts, 2 union bolts, 4 gaskets and pipe.

41. REMOVE VENTURI ASSY

(a) Remove the 4 bolts, 2 nuts and venturi from the intake manifold.

42. REMOVE FUEL PIPE CLAMP (See page 11–20)

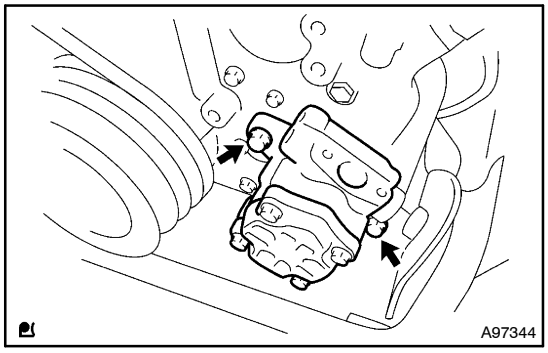
43. REMOVE OIL LEVEL GAUGE GUIDE

44. REMOVE INTAKE PIPE

(a) Remove the 2 nuts, gasket and pipe.

45. REMOVE RADIATOR PIPE

(a) Remove the 2 bolts, gasket and pipe.



46. REMOVE VANE PUMP ASSY
(a) Remove the 2 bolts and pump.

47. REMOVE TURBO INSULATOR NO. 1 (See page 13–6)
48. REMOVE TURBO OIL INLET PIPE SUB–ASSY (See page 13–6)
49. REMOVE TURBO OIL OUTLET PIPE (See page 13–6)
50. REMOVE TURBO WATER PIPE NO. 1 (See page 13–6)
51. REMOVE TURBO WATER PIPE NO. 2 (See page 13–6)
52. REMOVE TURBOCHARGER SUB–ASSY (See page 13–6)
53. REMOVE EXHAUST MANIFOLD
(a) Remove the 8 nuts and manifold.
54. REMOVE INTAKE MANIFOLD
(a) Remove the 4 bolts 2 nuts and manifold.
55. REMOVE OIL PRESSURE SWITCH
56. REMOVE ECT SENSOR
57. REMOVE CAMSHAFT POSITION SENSOR
(a) Remove the bolt and sensor.
58. REMOVE CRANKSHAFT POSITION SENSOR
(a) Remove the bolt and sensor.
59. REMOVE OIL COOLER ASSY (See page 17–7)
60. REMOVE IDLER PULLEY BRACKET
(a) Remove the 3 bolts and bracket.
61. REMOVE COMPRESSOR BRACKET
(a) Remove the 3 bolts and bracket.
62. REMOVE GENERATOR SUB BRACKET
(a) Remove the 2 bolts and sub bracket.
63. REMOVE GENERATOR BRACKET
(a) Remove the 3 bolts and bracket.
64. REMOVE THERMOSTAT (See page 16–7)
65. REMOVE WATER OUTLET HOUSING
(a) Remove the 3 bolts and housing.
66. REMOVE HEATER PIPE
(a) Remove the 2 bolts and pipe.
67. REMOVE WATER BY–PASS PIPE
(a) Remove the 4 bolts, 2 O–rings and pipe.
68. REMOVE WATER PUMP ASSY (See page 16–5)
69. REMOVE VACUUM PIPE
(a) Remove the bolt, union bolt, 2 gaskets and pipe.
70. REMOVE INJECTION PUMP DRIVE HOUSING SHAFT OIL PIPE SUB–ASSY
(a) Remove the 3 union bolts, 3 gaskets and pipe.
71. REMOVE VACUUM PUMP ASSY
(a) Remove the 2 nuts and pump.

72. REMOVE FUEL PIPE NO. 4

(a) Remove the 2 union bolts, 4 gaskets and pipe.

73. REMOVE FUEL FILTER TO INJECTION PUMP FUEL PIPE

(a) Remove the nut and clamp.

(b) Using SST, remove the fuel pipe.
SST 09023–12900

74. REMOVE COMMON RAIL ASSY

(a) Remove the 2 bolts, bracket and common rail.

75. REMOVE FUEL PIPE SUPPORT

(a) Remove the 2 bolts and support.

76. REMOVE FUEL RETURN PIPE SUB–ASSY

(a) Remove the union bolt, 2 gaskets and pipe.

77. REMOVE SUPPLY PUMP ASSY (See page 11–10)

78. REPLACE PARTIAL ENGINE ASSY

79. INSTALL SUPPLY PUMP ASSY (See page 11–10)

80. INSTALL FUEL RETURN PIPE SUB–ASSY

(a) Install 2 new gaskets and the return pipe with the union bolt.
Torque: 24.5 N·m (250 kgf·cm, 18 ft·lbf)

81. INSTALL FUEL PIPE SUPPORT

(a) Install the pipe support with the 2 bolts.
Torque: 28.5 N·m (291 kgf·cm, 21 ft·lbf)

82. INSTALL COMMON RAIL ASSY

(a) Install the common rail and bracket with the 2 bolts.
Torque: 28.5 N·m (291 kgf·cm, 21 ft·lbf)

83. INSTALL FUEL FILTER TO INJECTION PUMP FUEL PIPE

(a) Using SST, install the fuel pipe.
SST 09023–12900
Torque: 44 N·m (449 kgf·cm, 32 ft·lbf)

(b) Install the clamp with the nut.
Torque: 14 N·m (143 kgf·cm, 10 ft·lbf)

84. INSTALL FUEL PIPE NO. 4

(a) Install 4 new gaskets and the pipe with the 2 union bolts.
Torque:
20 N·m (204 kgf·cm, 15 ft·lbf) for union bolt (M10)
24.5 N·m (250 kgf·cm, 18 ft·lbf) for union bolt (M12)

85. INSTALL VACUUM PUMP ASSY

(a) Install the pump with the 2 nuts.
Torque: 55 N·m (561 kgf·cm, 41 ft·lbf)

86. INSTALL INJECTION PUMP DRIVE HOUSING SHAFT OIL PIPE SUB–ASSY

(a) Install 3 new gaskets and the pipe with the 3 union bolts.
Torque: 12.7 N·m (130 kgf·cm, 9 ft·lbf)

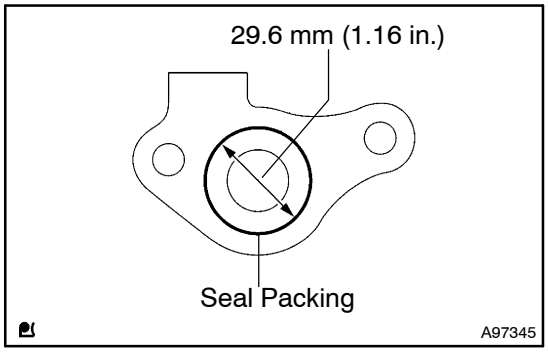
87. INSTALL VACUUM PIPE

(a) Install 2 new gaskets and the pipe with the bolt and union bolt.
Torque:
28.5 N·m (291 kgf·cm, 21 ft·lbf) for bolt
24.5 N·m (250 kgf·cm, 18 ft·lbf) for union bolt

88. INSTALL WATER PUMP ASSY (See page 16–5)

89. INSTALL WATER BY–PASS PIPE

(a) Install 2 new O–rings and the pipe with the 4 bolts.
Torque: 28.5 N·m (291 kgf·cm, 21 ft·lbf)



90. INSTALL HEATER PIPE

(a) Remove any oil packing material from the contact surface.

(b) Apply a continuous bead of seal packing (diameter: 1.5 to 2.5 mm (0.06 to 0.10 in.)) as shown in the illustration.
Seal packing: Part No. 08826–00080 or equivalent

NOTICE:

- **Remove any oil from the contact surface.**
- **Install the heater pipe within 3 minutes after applying seal packing.**
- **Do not expose the seal packing to engine oil for at least 2 hours after installing.**

(c) Install the pipe with the 2 bolts.
Torque: 28.5 N·m (291 kgf·cm, 21 ft·lbf)

91. INSTALL WATER OUTLET HOUSING

(a) Remove any oil packing material from the contact surface.

(b) Apply a continuous bead of seal packing.
Seal packing: Part No. 08826–00080 or equivalent

NOTICE:

- **Remove any oil from the contact surface.**
- **Install the water outlet housing within 3 minutes after applying seal packing.**
- **Do not expose the seal packing to engine oil for at least 2 hours after installing.**

(c) Install the housing with the 3 bolts.
Torque: 28.5 N·m (291 kgf·cm, 21 ft·lbf)

92. INSTALL THERMOSTAT (See page 16–7)

93. INSTALL GENERATOR BRACKET

(a) Install the bracket with the 3 bolts.
Torque: 55 N·m (561 kgf·cm, 41 ft·lbf)

94. INSTALL GENERATOR SUB BRACKET

(a) Install the sub bracket with the 2 bolts.
Torque: 125 N·m (1,275 kgf·cm, 92 ft·lbf)

95. INSTALL COMPRESSOR BRACKET

(a) Install the bracket with the 3 bolts.
Torque: 55 N·m (561 kgf·cm, 41 ft·lbf)

96. INSTALL IDLER PULLEY BRACKET

(a) Install the bracket with the 3 bolts.
Torque: 55 N·m (561 kgf·cm, 41 ft·lbf)

97. INSTALL OIL COOLER ASSY (See page 17–7)

98. INSTALL CRANKSHAFT POSITION SENSOR

(a) Install the sensor with the bolt.
Torque: 12 N·m (122 kgf·cm, 9 ft·lbf)

99. INSTALL CAMSHAFT POSITION SENSOR

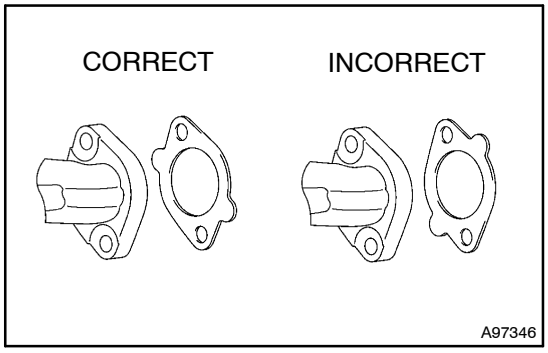
(a) Install the sensor with the bolt.
Torque: 12 N·m (122 kgf·cm, 9 ft·lbf)

100. INSTALL ECT SENSOR

(a) Install a new gasket and the ECT sensor.
Torque: 29.4 N·m (300 kgf·cm, 22 ft·lbf)

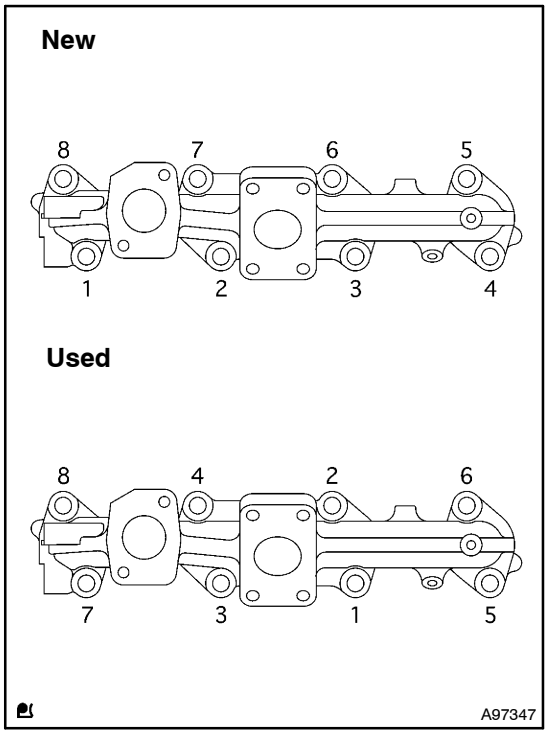
101. INSTALL OIL PRESSURE SWITCH

(a) Install a new gasket and the switch.
Torque: 29.4 N·m (300 kgf·cm, 22 ft·lbf)



102. INSTALL EXHAUST MANIFOLD

(a) Install a new gasket to the cylinder head as shown in the illustration.



(b) Install the manifold with the 8 bolts. Uniformly, tighten the 8 nuts in the order shown in the illustration.
Torque: 59 N·m (602 kgf·cm, 44 ft·lbf)

(c) Retighten the bolts in the same order as step (b).

103. INSTALL INTAKE MANIFOLD

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

(b) Install the manifold with the 4 bolts and 2 nuts.
Torque: 28.5 N·m (291 kgf·cm, 21 ft·lbf)

104. INSTALL TURBOCHARGER SUB–ASSY (See page 13–6)

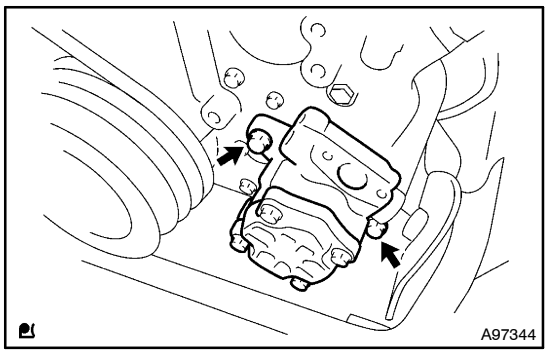
105. INSTALL TURBO WATER PIPE NO. 1 (See page 13–6)

106. INSTALL TURBO WATER PIPE NO. 2 (See page 13–6)

107. INSTALL TURBO OIL OUTLET PIPE (See page 13–6)

108. INSTALL TURBO OIL INLET PIPE SUB–ASSY (See page 13–6)

109. REMOVE TURBO INSULATOR NO. 1 (See page 13–6)



110. INSTALL VANE PUMP ASSY

(a) Install a new O–ring and the pump with the 2 bolts.
Torque: 28.5 N·m (291 kgf·cm, 21 ft·lbf)

111. INSTALL RADIATOR PIPE

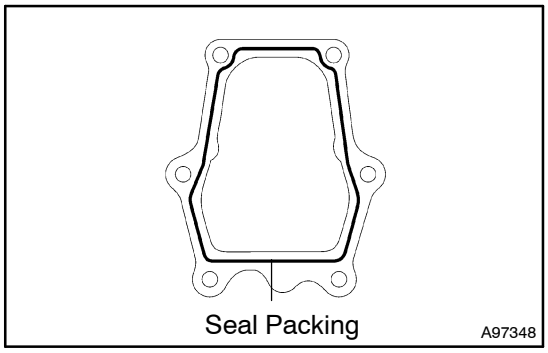
(a) Install a new gasket and the pipe with the 2 bolts.
Torque: 18 N·m (184 kgf·cm, 13 ft·lbf)

112. INSTALL INTAKE PIPE

(a) Install a new gasket and the pipe with the 2 nuts.
Torque: 18 N·m (184 kgf·cm, 13 ft·lbf)

113. INSTALL OIL LEVEL GAUGE GUIDE

114. INSTALL FUEL PIPE CLAMP (See page 11–20)



115. INSTALL VENTURI ASSY

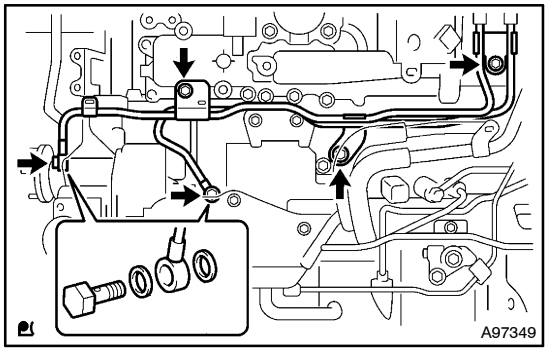
(a) Remove any oil packing material from the contact surface.

(b) Apply a continuous bead of seal packing (diameter: 1.5 to 2.5 mm (0.06 to 0.10 in.)) as shown in the illustration.
Seal packing: Part No. 08826–00080 or equivalent

NOTICE:

- **Remove any oil from the contact surface.**
- **Install the venturi assy within 3 minutes after applying seal packing.**
- **Do not expose the seal packing to engine oil for at least 2 hours after installing.**

(c) Install the venturi to the intake manifold with the 4 bolts and 2 nuts.
Torque: 28.5 N·m (291 kgf·cm, 21 ft·lbf)



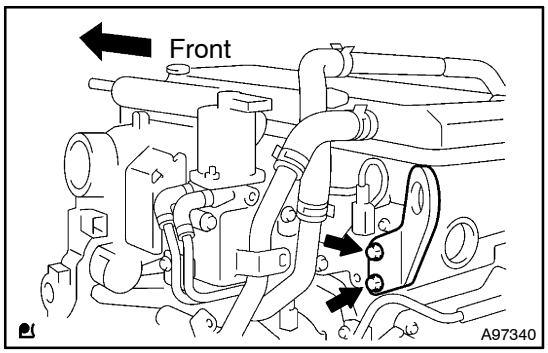
116. INSTALL WATER BY–PASS PIPE

(a) Install 4 new gaskets and the pipe with the 3 bolts and 2 union bolts.
Torque: 28.5 N·m (291 kgf·cm, 21 ft·lbf) for bolt
Torque: 24.5 N·m (250 kgf·cm, 18 ft·lbf) for union bolt

117. INSTALL BRACKET

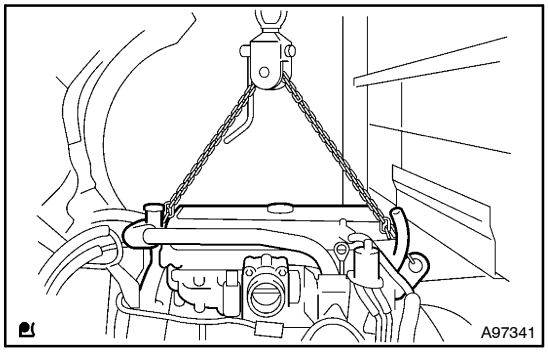
(a) Install the bracket with the 4 bolts.
Torque: 28.5 N·m (291 kgf·cm, 21 ft·lbf)

118. INSTALL BREATHER PIPE



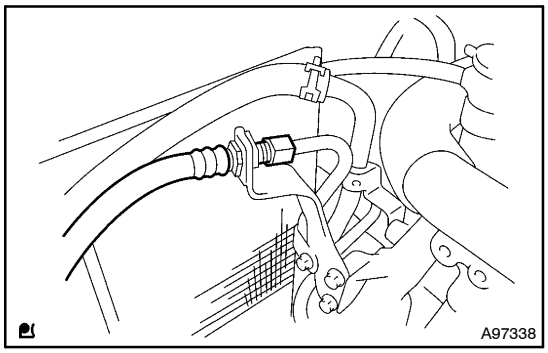
119. INSTALL ENGINE ASSY

(a) Install the engine hanger with the 2 bolts as shown in the illustration.
Torque: 108 N·m (1,100 kgf·cm, 80 ft·lbf)



(b) Using a chain block and an engine sling device, hang the engine assy together.
(c) Install the transmission (see page 41–3).
(d) Install the engine to the engine mounting brackets with the 2 nuts.
Torque: 98 N·m (1,000 kgf·cm, 72 ft·lbf)

120. CONNECT WIRE HARNESS
121. CONNECT VANE PUMP RESERVOIR HOSE



122. CONNECT VANE PUMP HOSE
(a) Using SST, connect the pump hose.
SST 09023–12900
Torque: 44 N·m (449 kgf·cm, 32 ft·lbf)

123. CONNECT FLOOR SHIFT CABLE TRANSMISSION CONTROL SHIFT (See page 41–8)
124. CONNECT FLOOR SHIFT CABLE TRANSMISSION CONTROL SELECT (See page 41–8)
125. CONNECT CLUTCH RELEASE CYLINDER ASSY (See page 41–3)
126. CONNECT WATER HOSE
127. INSTALL STARTER ASSY (See page 19–3)
128. INSTALL GENERATOR ASSY (See page 19–7)
129. INSTALL PROPELLER SHAFT ASSY
(See pub. No. RM1008E, on pages 30–6 and 30–14)
130. INSTALL EXHAUST PIPE ASSY FRONT (See page 15–2)
131. INSTALL A/C COMPRESSOR ASSY
(a) Install the compressor with the 4 bolts.
Torque: 24.5 N·m (250 kgf·cm, 18 ft·lbf)
(b) Connect the compressor connector.
132. INSTALL VENTILATION PIPE NO. 2
(a) Install the ventilation pipe with the 3 bolts.
Torque: 28.5 N·m (291 kgf·cm, 21 ft·lbf)
(b) Connect the breather hose.
133. INSTALL RADIATOR ASSY (See page 16–10)
134. CONNECT RADIATOR HOSE INLET
135. CONNECT RADIATOR HOSE OUTLET
136. INSTALL A/C COMPRESSOR V BELT (See page 14–4)

137. INSTALL FAN

(a) Install the fan pulley and fan temporarily with the 4 nuts.

(b) Install the fan and generator V belt.

(c) Holding the V belt, tighten the 4 nuts completely to install the fan pulley and fan properly.

Torque: 11 N·m (112 kgf·cm, 8 ft·lbf)

138. INSTALL CHARGE AIR COOLER ASSY (See page 13–9)

139. INSTALL AIR HOSE NO. 2

(a) Install the hose and tighten the 2 clamps.

140. INSTALL INTAKE AIR CONNECTOR PIPE

(a) Install the pipe and tighten the 2 clamps.

(b) Install the 2 bolts.

Torque: 18 N·m (184 kgf·cm, 13 ft·lbf)

(c) Connect the ECT sensor and vacuum sensor connectors.

141. INSTALL AIR HOSE NO. 1

(a) Install the 2 bolts.

Torque: 18 N·m (184 kgf·cm, 13 ft·lbf)

(b) Tighten the clamp.

142. INSTALL AIR HOSE ASSY

(a) Install the hose and tighten the 2 clamps.

(b) Install the 2 bolts.

Torque: 18 N·m (185 kgf·cm, 13 ft·lbf)

143. INSTALL RADIATOR RESERVE TANK ASSY

144. INSTALL REAR ARCH COVER

(a) Install the cover with the 8 bolts.

Torque: 18 N·m (184 kgf·cm, 13 ft·lbf)

145. INSTALL VACUUM RESERVOIR

(a) Install the reservoir with the 4 bolts.

Torque: 18 N·m (184 kgf·cm, 13 ft·lbf)

(b) Connect the air hose.

146. INSTALL ENGINE SIDE COVER RH

147. INSTALL ENGINE SIDE COVER LH

148. INSTALL FRONT MUDGUARD RH

149. INSTALL FRONT MUDGUARD LH

150. ADD ENGINE OIL (See page 17–3)

151. ADD ENGINE COOLANT (See page 16–3)

152. ADD POWER STEERING FLUID (See pub. No. RM1008E, on page 51–3)

153. ADD FUEL

154. BLEED AIR FROM FUEL SYSTEM (See page 11–5)

155. CONNECT BATTERY NEGATIVE TERMINAL

156. BLEED AIR FROM STEERING SYSTEM (See pub. No. RM1008E, on page 51–3)

157. CHECK STEERING SYSTEM FOR LEAKS (See pub. No. RM1008E, on page 51–3)

158. CHECK FOR ENGINE OIL LEAKS

159. CHECK FOR ENGINE COOLANT LEAKS (See page 16–1)

160. CHECK FOR FUEL LEAKS (See page 11–2)

161. CHECK FOR EXHAUST GAS LEAKS