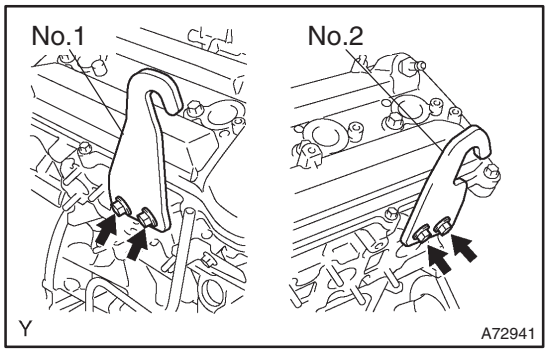
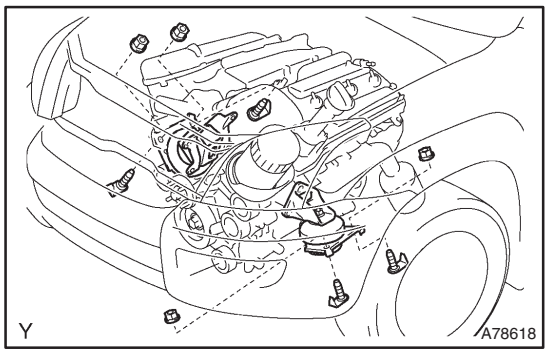
1420P–01

REPLACEMENT

1. PREVENT GASOLINE FROM SPILLING OUT (SEE PUB. NO. RM1017E, PAGE 11–1)
2. REMOVE AUTOMATIC TRANSMISSION ASSY (AUTOMATIC TRANSMISSION) (SEE PAGE 40–53)
3. REMOVE MANUAL TRANSMISSION UNIT ASSY (MANUAL TRANSMISSION) (SEE PAGE 41–14)
4. DRAIN ENGINE COOLANT (SEE PAGE 16–19)
5. DRAIN ENGINE OIL (SEE PUB. NO. RM1017E, PAGE 17–14)
6. REMOVE BATTERY
7. REMOVE HOOD SUB–ASSY
(a) Disconnect the windshield washer hose.
(b) Separate the 2 hood supports.
(c) Remove the 4 bolts and hood.
8. REMOVE V–BANK COVER (SEE PUB. NO. RM1017E, PAGE 10–7)
9. DISCONNECT VENTILATION HOSE NO.2 (SEE PUB. NO. RM1017E, PAGE 10–7)
10. REMOVE AIR CLEANER ASSY (SEE PUB. NO. RM1017E, PAGE 10–7)
11. REMOVE RADIATOR SUPPORT SEAL UPPER
(a) Remove the 11 clips and radiator support seal upper.
12. REMOVE RADIATOR ASSY (SEE PUB. NO. RM1017E, PAGE 16–11)
13. REMOVE FAN SHROUD
(a) Unfasten the hose clamp, and disconnect the 2 oil cooler hoses from the fan shroud.
(b) Remove the fan shroud.
14. LOOSEN FAN W/ FLUID COUPLING (SEE PUB. NO. RM1017E, PAGE 16–6)
15. REMOVE FAN AND GENERATOR V BELT (SEE PUB. NO. RM1017E, PAGE 14–5)
16. REMOVE FAN W/ FLUID COUPLING
(a) Remove the 4 bolts and fan w/ fluid coupling.
17. REMOVE FAN PULLEY
18. SEPARATE VANE PUMP ASSY (SEE PAGE 14–127)
19. REMOVE GENERATOR ASSY (SEE PUB. NO. RM1017E, PAGE 19–10)
20. SEPARATE COOLER COMPRESSOR ASSY (SEE PUB. NO. RM1017E, PAGE 18–7)
21. DISCONNECT FUEL PIPE SUB–ASSY NO.1 (SEE PUB. NO. RM1017E, PAGE 11–1)
22. DISCONNECT FUEL PIPE SUB–ASSY NO.2 (SEE PUB. NO. RM1017E, PAGE 11–1)
23. DISCONNECT HEATER WATER INLET HOSE B
24. DISCONNECT HEATER WATER OUTLET HOSE A(FROM HEATER UNIT)
25. REMOVE INTAKE AIR SURGE TANK (SEE PAGE 14–141)
26. SEPARATE ENGINE WIRE
(a) Remove the front door scuff plate RH (See Pub. No. RM990E, page 76–58).
(b) Remove the cowl side trim board RH (See Pub. No. RM990E, page 71–12).
(c) Remove the glove compartment door (See Pub. No. RM990E, page 71–12).
(d) Disconnect each connector for the ECM, four wheel drive control ECU and instrument panel wire before pulling out the engine wire into the engine room.
(e) Disconnect the front differential connector.
27. SEPARATE ENGINE WIRE NO.2
(a) Disconnect the ground cable from the cylinder block.





28. REMOVE ENGINE ASSY

(a) Install the 2 engine hangers with the 4 bolts as shown in the illustration.

Part No.:
Engine hanger No.1 12281–31070
Engine hanger No.2 12282–31050
Bolt 91671–10825
Torque: 33 N·m (336 kgf·cm, 24 ft·lbf)

(b) Attach the engine sling device and hang the engine with the chain block.

(c) Remove the 4 bolts and 4 nuts, and separate the engine mounting brackets from the frame brackets.

(d) Lift the engine out of the vehicle carefully.

NOTICE:

Make sure the engine is clear of all wiring and hoses.

(e) Place the engine onto a working bench.

29. REMOVE DRIVE PLATE & RING GEAR SUB–ASSY (AUTOMATIC TRANSMISSION) (SEE PUB. NO. RM1017E, PAGE 14–113)
30. REMOVE CLUTCH COVER ASSY (MANUAL TRANSMISSION) (SEE PAGE 42–5)
31. REMOVE FLYWHEEL SUB–ASSY (MANUAL TRANSMISSION) (SEE PUB. NO. RM1017E, PAGE 14–113)
32. REMOVE ENGINE WIRE
33. REMOVE RADIATOR HOSE NO.1
34. REMOVE RADIATOR HOSE NO.2
35. REMOVE HEATER WATER INLET HOSE A
36. REMOVE HEATER WATER OUTLET HOSE A(FROM HEATER UNIT)
37. REMOVE VENTILATION HOSE
38. REMOVE VENTILATION HOSE NO.2
39. REMOVE EXHAUST MANIFOLD SUB–ASSY RH
(a) Remove the 6 nuts, exhaust manifold and gasket.
40. REMOVE EXHAUST MANIFOLD SUB–ASSY LH
(a) Remove the 6 nuts, exhaust manifold and gasket.
41. REMOVE ENGINE MOUNTING BRACKET FRONT NO.1 RH
(a) Remove the 4 bolts and engine mounting bracket w/ engine mounting insulator.
42. REMOVE ENGINE MOUNTING BRACKET FRONT NO.1 LH
(a) Remove the 3 bolts and engine mounting bracket w/ engine mounting insulator.
43. REMOVE IDLER PULLEY SUB–ASSY NO.2
(a) Remove the 2 bolts and 2 idler pulleys.
44. REMOVE IDLER PULLEY SUB–ASSY NO.1
(a) Remove the bolt and idler pulley.
45. REMOVE V–RIBBED BELT TENSIONER ASSY (SEE PAGE 14–127)
46. REMOVE WATER INLET (SEE PUB. NO. RM1017E, PAGE 16–6)
47. REMOVE OIL FILTER BRACKET SUB–ASSY
(a) Remove the 3 bolts, 2 nuts, oil filter bracket and gasket.
48. REMOVE INTAKE MANIFOLD (SEE PAGE 14–173)

49. REMOVE CAMSHAFT TIMING OIL CONTROL VALVE ASSY

(a) Remove the 2 bolts and 2 camshaft timing oil control valves.

50. REMOVE WATER BY–PASS JOINT RR (SEE PAGE 14–173)

51. REMOVE OIL FILLER CAP SUB–ASSY

52. REMOVE OIL FILLER CAP HOUSING

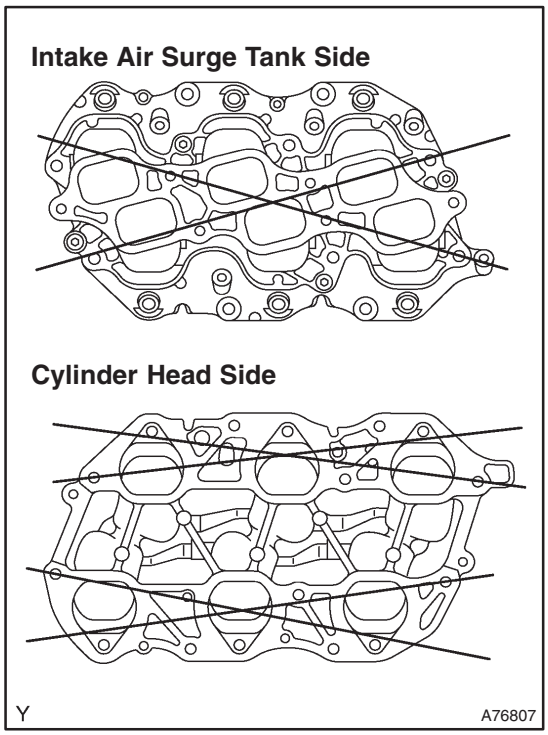
(a) Remove the 2 nuts, oil filler cap housing and gasket.

53. REMOVE IGNITION COIL ASSY

54. REMOVE SPARK PLUG

55. REMOVE OIL LEVEL GAUGE SUB–ASSY

56. REPLACE PARTIAL ENGINE ASSY

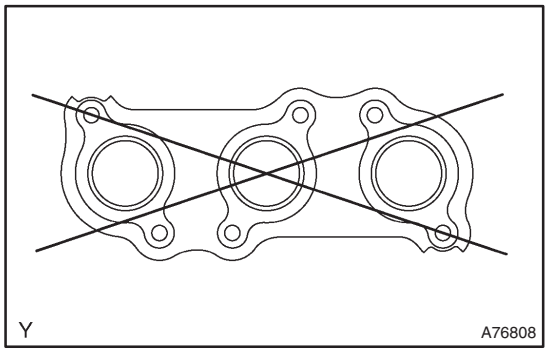


57. INSPECT INTAKE MANIFOLD FOR WARPAGE

(a) Using a precision straight edge and feeler gauge, measure the warpage of the contact surface of the cylinder head and intake air surge tank.

Maximum warpage:
Intake air surge tank side: 0.8 mm (0.031 in.)
Cylinder head side: 0.2 mm (0.008 in.)

If warpage is greater than the maximum, replace the intake manifold.



58. INSPECT EXHAUST MANIFOLD FOR WARPAGE

(a) Using a precision straight edge and feeler gauge, measure the warpage of the contact surface of the cylinder head.

Maximum warpage: 0.7 mm (0.028 in.)

If warpage is greater than the maximum, replace the exhaust manifold.

HINT:

Maximum warpage of each installation surface:
0.3 mm (0.012 in.)

59. INSTALL OIL LEVEL GAUGE SUB–ASSY

60. INSTALL SPARK PLUG

Torque: 20 N·m (204 kgf·cm, 15 ft·lbf)

61. INSTALL IGNITION COIL ASSY

Torque: 10 N·m (102 kgf·cm, 7 ft·lbf)

62. INSTALL OIL FILLER CAP HOUSING

(a) Install a new gasket and oil filler cap housing with the 2 nuts.

Torque: 9.0 N·m (92 kgf·cm, 80 in.·lbf)

63. INSTALL OIL FILLER CAP SUB–ASSY

64. INSTALL WATER BY–PASS JOINT RR (SEE PAGE 14–173)

65. INSTALL CAMSHAFT TIMING OIL CONTROL VALVE ASSY

(a) Insert the camshaft timing oil control valves to each cylinder head, and tighten the 2 bolts.
Torque: 9.0 N·m (92 kgf·cm, 80 in.·lbf)

66. INSTALL INTAKE MANIFOLD (SEE PAGE 14–173)

67. INSTALL OIL FILTER BRACKET SUB–ASSY

(a) Install a new gasket and oil filter bracket with the 3 bolts and 2 nuts.
Torque: 19 N·m (194 kgf·cm, 14 ft·lbf)

68. INSTALL WATER INLET (SEE PUB. NO. RM1017E, PAGE 16–6)

69. INSTALL V–RIBBED BELT TENSIONER ASSY (SEE PAGE 14–127)

70. INSTALL IDLER PULLEY SUB–ASSY NO.1 (SEE PAGE 14–127)

71. INSTALL IDLER PULLEY SUB–ASSY NO.2 (SEE PAGE 14–127)

72. INSTALL ENGINE MOUNTING BRACKET FRONT NO.1 LH

(a) Install the engine mounting bracket w/ engine mounting insulator with the 3 bolts.
Torque: 43 N·m (438 kgf·cm, 32 ft·lbf)

73. INSTALL ENGINE MOUNTING BRACKET FRONT NO.1 RH

(a) Install the engine mounting bracket w/ engine mounting insulator with the 4 bolts.
Torque: 43 N·m (438 kgf·cm, 32 ft·lbf)

74. INSTALL EXHAUST MANIFOLD SUB–ASSY LH (SEE PAGE 14–189)

75. INSTALL EXHAUST MANIFOLD SUB–ASSY RH (SEE PAGE 14–173)

76. INSTALL VENTILATION HOSE NO.2

77. INSTALL VENTILATION HOSE

78. INSTALL HEATER WATER OUTLET HOSE A(FROM HEATER UNIT)

79. INSTALL HEATER WATER INLET HOSE A

80. INSTALL RADIATOR HOSE NO.2

81. INSTALL RADIATOR HOSE NO.1

82. INSTALL ENGINE WIRE

83. INSTALL DRIVE PLATE & RING GEAR SUB–ASSY (AUTOMATIC TRANSMISSION) (SEE PUB. NO. RM1017E, PAGE 14–113)

**84. INSTALL FLYWHEEL SUB–ASSY (MANUAL TRANSMISSION)
(AUTOMATIC TRANSMISSION) (SEE PUB. NO. RM1017E, PAGE 14–113)**

85. INSTALL CLUTCH COVER ASSY (MANUAL TRANSMISSION) (SEE PAGE 42–5)

86. INSTALL ENGINE ASSY

(a) Attach the engine sling device and hang the engine with the chain block.
(b) Lower the engine into the engine room carefully.
(c) Attach the engine mounting brackets to the frame brackets.
(d) Install the engine mounting brackets to the frame brackets with the 4 bolts and 4 nuts .
Torque: 38 N·m (387 kgf·cm, 28 ft·lbf)
(e) Remove the 4 bolts and 2 engine hangers.

87. INSTALL ENGINE WIRE NO.2

(a) Install the ground cable to the cylinder block.
Torque: 13 N·m (133 kgf·cm, 9 ft·lbf)

88. INSTALL ENGINE WIRE

(a) Connect the front differential connector.
(b) Insert the engine wire to the cabin space, and install the grommet.
(c) Connect each connector for the ECM, four wheel drive control ECU and instrument panel wire.
(d) Install the glove compartment door.
(e) Install the cowl side trim board RH.
(f) Install the front door scuff plate RH.

89. INSTALL INTAKE AIR SURGE TANK (SEE PAGE 14–141)

90. CONNECT HEATER WATER OUTLET HOSE A(FROM HEATER UNIT)

91. CONNECT HEATER WATER INLET HOSE B
92. CONNECT FUEL PIPE SUB–ASSY NO.2 (SEE PUB. NO. RM1017E, PAGE 11–1)
93. CONNECT FUEL PIPE SUB–ASSY NO.1 (SEE PUB. NO. RM1017E, PAGE 11–1)
94. INSTALL COOLER COMPRESSOR ASSY (SEE PUB. NO. RM1017E, PAGE 18–7)
95. INSTALL GENERATOR ASSY (SEE PUB. NO. RM1017E, PAGE 19–10)
96. INSTALL VANE PUMP ASSY (SEE PAGE 14–127)
97. INSTALL FAN PULLEY
98. INSTALL FAN W/ FLUID COUPLING
(a) Temporarily install the fan w/ fluid coupling with the 4 nuts.
99. INSTALL FAN AND GENERATOR V BELT (SEE PUB. NO. RM1017E, PAGE 14–5)
100. FULLY TIGHTEN FAN W/ FLUID COUPLING (SEE PUB. NO. RM1017E, PAGE 16–6)
101. INSTALL FAN SHROUD
(a) Put the fan shroud into the engine room.
(b) Connect the 2 oil cooler hoses with the hose clamp.
102. INSTALL RADIATOR ASSY (SEE PUB. NO. RM1017E, PAGE 16–11)
103. INSTALL RADIATOR SUPPORT SEAL UPPER
104. INSTALL AIR CLEANER ASSY (SEE PUB. NO. RM1017E, PAGE 10–7)
105. CONNECT VENTILATION HOSE NO.2
106. INSTALL HOOD SUB–ASSY
(a) Install the hood with the 4 bolts.
Torque: 13 N·m (133 kgf·cm, 10 ft·lbf)
(b) Tighten the 2 hood supports.
Torque: 18 N·m (184 kgf·cm, 13 ft·lbf)
(c) Connect the windshield washer hose.
107. ADJUST HOOD SUB–ASSY (SEE PUB. NO. RM990E, PAGE 75–2)
108. INSTALL BATTERY
109. ADD ENGINE OIL (SEE PUB. NO. RM1017E, PAGE 17–14)
110. ADD ENGINE COOLANT (SEE PAGE 16–19)
111. INSTALL AUTOMATIC TRANSMISSION ASSY (AUTOMATIC TRANSMISSION) (A/T TRANSAXLE) (SEE PAGE 40–53)
112. INSTALL MANUAL TRANSMISSION UNIT ASSY (MANUAL TRANSMISSION) (SEE PAGE 41–14)
113. CHECK FOR ENGINE COOLANT LEAKS (SEE PAGE 16–17)
114. CHECK FOR FUEL LEAKS (SEE PUB. NO. RM1017E, PAGE 11–5)
115. CHECK FOR ENGINE OIL LEAKS
116. INSTALL V–BANK COVER
(a) Install the V–bank cover with the 2 nuts.
Torque: 7.5 N·m (76 kgf·cm, 66 in.·lbf)
117. INSPECT IGNITION TIMING (SEE PUB. NO. RM1017E, PAGE 14–1)
SST 09843–18040
118. INSPECT ENGINE IDLE SPEED (SEE PUB. NO. RM1017E, PAGE 14–1)
SST 09843–18030
119. INSPECT CO/HC (SEE PUB. NO. RM1017E, PAGE 14–1)