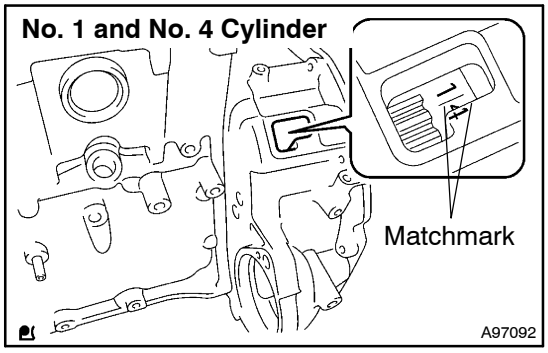
CAMSHAFT (N04C–TF)

141UD–01

REPLACEMENT

1. DISCONNECT BATTERY NEGATIVE TERMINAL
2. DRAIN FUEL
3. DRAIN ENGINE OIL (See page 17–3)
4. DRAIN ENGINE COOLANT (See page 16–3)
5. DRAIN POWER STEERING FLUID
6. REMOVE FRONT MUDGUARD RH
7. REMOVE FRONT MUDGUARD LH
8. REMOVE RADIATOR RESERVE TANK ASSY
9. REMOVE ENGINE SIDE COVER RH
10. REMOVE ENGINE SIDE COVER LH
11. REMOVE INTAKE AIR CONNECTOR PIPE (See page 14–14)
12. REMOVE AIR HOSE NO. 2 (See page 14–14)
13. REMOVE CHARGE AIR COOLER ASSY (See page 13–9)
14. REMOVE FAN (See page 14–14)
15. REMOVE A/C COMPRESSOR V BELT (See page 14–4)
16. DISCONNECT RADIATOR HOSE INLET
17. DISCONNECT RADIATOR HOSE OUTLET
18. REMOVE RADIATOR ASSY (See page 16–10)
19. REMOVE VENTILATION PIPE NO. 2 (See page 14–14)
20. REMOVE A/C COMPRESSOR ASSY (See page 14–14)
21. REMOVE EXHAUST PIPE ASSY FRONT (See page 15–2)
22. REMOVE GENERATOR ASSY (See page 19–7)
23. REMOVE INTAKE AIR CONNECTOR PIPE (See page 14–14)
24. REMOVE OIL FILLER CAP SUB–ASSY
25. REMOVE CYLINDER HEAD COVER NO. 2 (See page 11–20)
26. REMOVE CYLINDER HEAD COVER SUB–ASSY (See page 11–20)
27. REMOVE BREATHER PIPE
28. REMOVE BRACKET (See page 14–14)
29. REMOVE WATER BY–PASS PIPE (See page 14–14)
30. REMOVE VENTURI ASSY (See page 10–7)
31. REMOVE FUEL PIPE CLAMP (See page 11–20)
32. REMOVE OIL LEVEL GAGE GUIDE
33. REMOVE INJECTOR ASSY (See page 11–20)
34. REMOVE INTAKE PIPE (See page 14–14)
35. REMOVE RADIATOR PIPE (See page 14–14)
36. REMOVE VANE PUMP ASSY (See page 14–14)
37. REMOVE TURBOCHARGER SUB–ASSY (See page 13–6)
38. REMOVE IDLER PULLEY BRACKET (See page 14–14)
39. REMOVE COMPRESSOR BRACKET (See page 14–14)
40. REMOVE GENERATOR SUB BRACKET (See page 14–14)
41. REMOVE GENERATOR BRACKET (See page 14–14)
42. REMOVE WATER BY–PASS PIPE (See page 14–14)
43. REMOVE WATER PUMP ASSY (See page 16–5)



44. SET NO. 1 CYLINDER TO TDC/COMPRESSION

(a) Turn the crankshaft clockwise to align the matchmark (the line between the 1 and 4) on the flywheel with the edge on the flywheel housing.

HINT:

If not, turn the crankshaft 1 revolution (360°) to align the mark.

45. REMOVE VALVE ROCKER SHAFT SUB–ASSY NO.1 (See page 14–29)

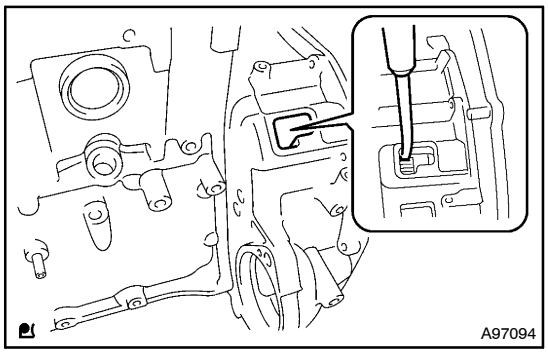
46. REMOVE VALVE PUSH ROD (See page 14–29)

47. REMOVE VALVE BRIDGE (See page 14–29)

48. REMOVE CYLINDER HEAD SUB–ASSY (See page 14–29)

49. INSPECT CYLINDER HEAD BOLT (See page 14–29)

50. REMOVE VALVE LIFTER (See page 14–29)

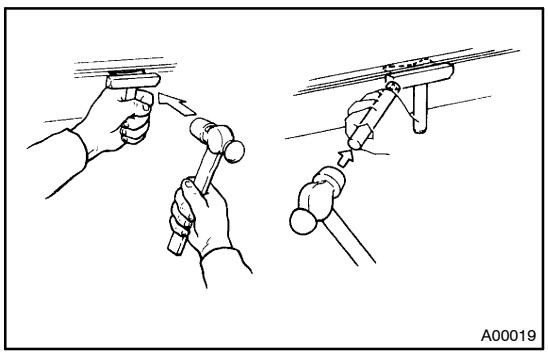


51. REMOVE CRANKSHAFT PULLEY

(a) Using a 46 mm socket wrench, remove the nut, spacer and pulley.

HINT:

Insert a screwdriver through the inspection hole of the flywheel housing into the ring gear of the flywheel to keep it from turning together with the crankshaft.



52. REMOVE OIL PAN SUB–ASSY

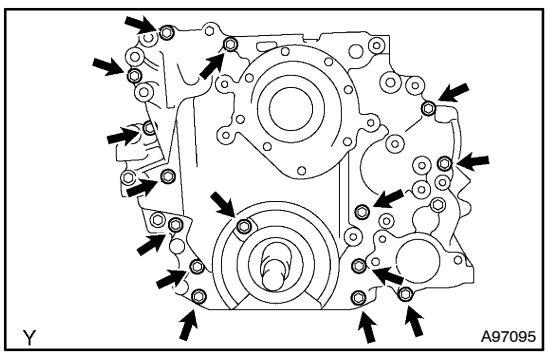
(a) Remove the 26 bolts from the oil pan.

(b) Insert the blade of SST between the crankcase and oil pan. Cut through the applied sealer and remove the oil pan.

SST 09032–00100

NOTICE:

Do not damage the contact surface of the cylinder block and oil pan.



53. REMOVE TIMING CHAIN OR BELT COVER SUB–ASSY

(a) Remove the 15 bolts.

(b) Using a screwdriver, pry out the cover.

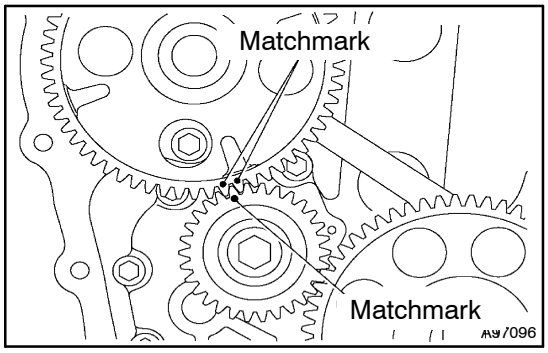
NOTICE:

Do not damage the contact surfaces of the timing chain or belt cover, cylinder block and cylinder head.

54. REMOVE OIL SEAL (See page 14–34)

55. REMOVE CAMSHAFT

(a) Remove the 2 bolts and camshaft.



56. INSTALL CAMSHAFT

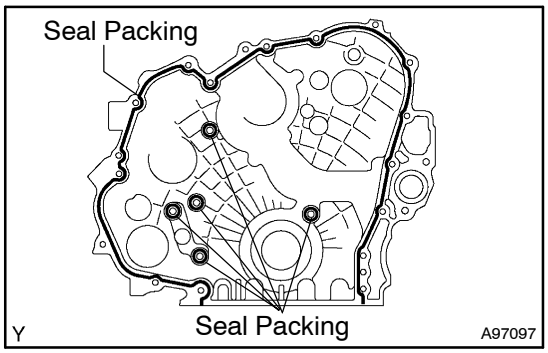
(a) Apply engine oil to the camshaft journal and bearing.

(b) Match the matchmarks of the camshaft timing gear and oil pump gear and install the camshaft.

(c) Install the thrust plate with the 2 bolts.

Torque: 28.5 N·m (291 kgf·cm, 21 ft·lbf)

57. INSTALL OIL SEAL (See page 14–34)



58. INSTALL TIMING CHAIN OR BELT COVER SUB–ASSY

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

(b) Apply a continuous bead of seal packing (diameter: 3 to 4 mm (0.11 to 0.15 in.)) as shown in the illustration.

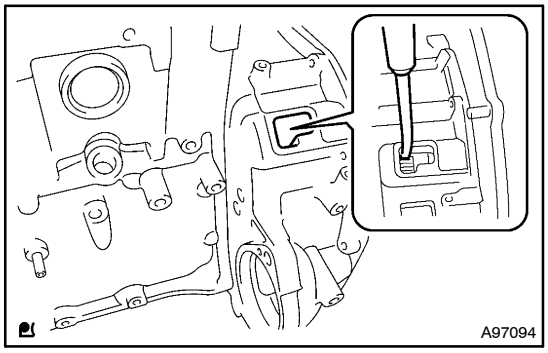
Seal packing: Part No. 08826–00080 or equivalent

NOTICE:

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

(c) Install the timing gear case with the 15 bolts.

Torque: 28.5 N·m (291 kgf·cm, 21 ft·lbf)



59. INSTALL CRANKSHAFT PULLEY

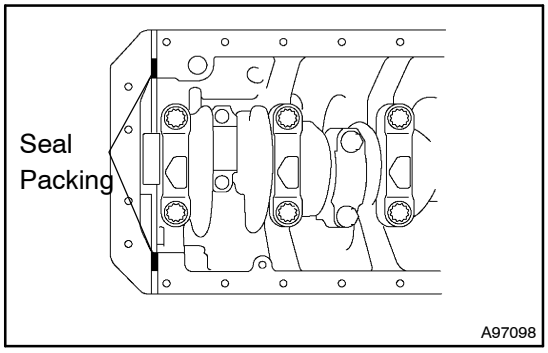
(a) Install the pulley and spacer to the crankshaft.

(b) Using a 46 mm socket wrench, tighten the nut.

Torque: 519 N·m (5,294 kgf·cm, 383 ft·lbf)

HINT:

Insert a screwdriver through the inspection hole of the flywheel housing into the ring gear of the flywheel to keep it from turning together with the crankshaft.



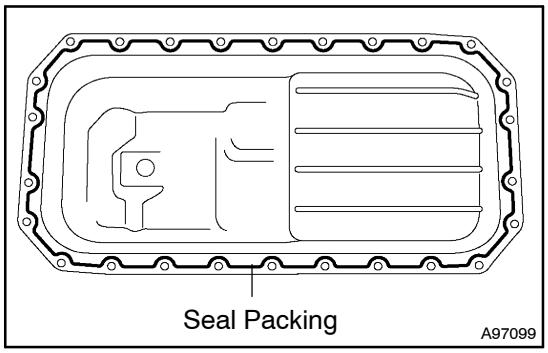
60. INSTALL OIL PAN SUB–ASSY

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

(b) Apply a continuous bead of seal packing (diameter: 3 to 4 mm (0.11 to 0.15 in.)) as shown in the illustration.
Seal packing: Part No. 08826–00080 or equivalent

NOTICE:

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



(c) Install the oil pan with the 26 bolts.
Torque: 28.5 N·m (291 kgf·cm, 21 ft·lbf)

61. INSTALL VALVE LIFTER (See page 14–29)
62. INSTALL CYLINDER HEAD SUB–ASSY (See page 14–29)
63. INSTALL VALVE BRIDGE (See page 14–29)
64. INSTALL VALVE PUSH ROD (See page 14–29)
65. INSTALL VALVE ROCKER SHAFT SUB–ASSY NO.1 (See page 14–29)
66. ADJUST VALVE CLEARANCE (See page 14–5)
67. INSTALL WATER PUMP ASSY (See page 16–5)
68. INSTALL WATER BY–PASS PIPE (See page 14–14)
69. INSTALL GENERATOR BRACKET (See page 14–14)
70. INSTALL GENERATOR SUB BRACKET (See page 14–14)
71. INSTALL COMPRESSOR BRACKET (See page 14–14)
72. INSTALL IDLER PULLEY BRACKET (See page 14–14)
73. INSTALL TURBOCHARGER SUB–ASSY (See page 13–6)
74. INSTALL VANE PUMP ASSY (See page 14–14)
75. INSTALL RADIATOR PIPE (See page 14–14)
76. INSTALL INTAKE PIPE (See page 14–14)
77. INSTALL INJECTOR ASSY (See page 11–20)
78. INSTALL OIL LEVEL GAGE GUIDE
79. INSTALL FUEL PIPE CLAMP (See page 11–20)
80. INSTALL VENTURI ASSY (See page 10–7)
81. INSTALL WATER BY–PASS PIPE (See page 14–14)
82. INSTALL BRACKET (See page 14–14)
83. INSTALL BREATHER PIPE
84. INSTALL CYLINDER HEAD COVER SUB–ASSY (See page 11–20)
85. INSTALL CYLINDER HEAD COVER NO. 2 (See page 11–20)

86. INSTALL OIL FILLER CAP SUB–ASSY
87. INSTALL INTAKE AIR CONNECTOR PIPE (See page 14–14)
88. INSTALL GENERATOR ASSY (See page 19–7)
89. INSTALL EXHAUST PIPE ASSY FRONT (See page 15–2)
90. INSTALL A/C COMPRESSOR ASSY (See page 14–14)
91. INSTALL VENTILATION PIPE NO. 2 (See page 14–14)
92. INSTALL RADIATOR ASSY (See page 16–10)
93. CONNECT RADIATOR HOSE INLET
94. CONNECT RADIATOR HOSE OUTLET
95. INSTALL A/C COMPRESSOR V BELT (See page 14–4)
96. INSTALL FAN (See page 14–14)
97. INSTALL CHARGE AIR COOLER ASSY (See page 13–9)
98. INSTALL AIR HOSE NO. 2 (See page 14–14)
99. INSTALL INTAKE AIR CONNECTOR PIPE (See page 14–14)
100. INSTALL ENGINE SIDE COVER RH
101. INSTALL ENGINE SIDE COVER LH
102. INSTALL RADIATOR RESERVE TANK ASSY
103. INSTALL FRONT MUDGUARD RH
104. INSTALL FRONT MUDGUARD LH
105. ADD ENGINE OIL (See page 17–3)
106. ADD ENGINE COOLANT (See page 16–3)
107. ADD POWER STEERING FLUID (See pub. No. RM1008E, on page 51–3)
108. ADD FUEL
109. BLEED AIR FROM FUEL SYSTEM (See page 11–5)
110. CONNECT BATTERY NEGATIVE TERMINAL
111. BLEED AIR FROM STEERING SYSTEM (See pub. No. RM1008E, on page 51–3)
112. CHECK STEERING SYSTEM FOR LEAKS (See pub. No. RM1008E, on page 51–3)
113. CHECK FOR ENGINE OIL LEAKS
114. CHECK FOR ENGINE COOLANT LEAKS (See page 16–1)
115. CHECK FOR FUEL LEAKS (See page 11–2)
116. CHECK FOR EXHAUST GAS LEAKS