

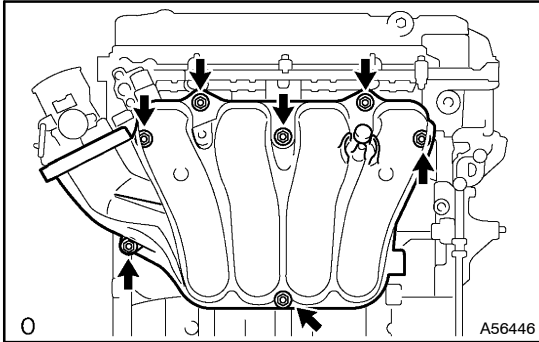
CYLINDER HEAD GASKET (1AZ-FE)

140DA-01

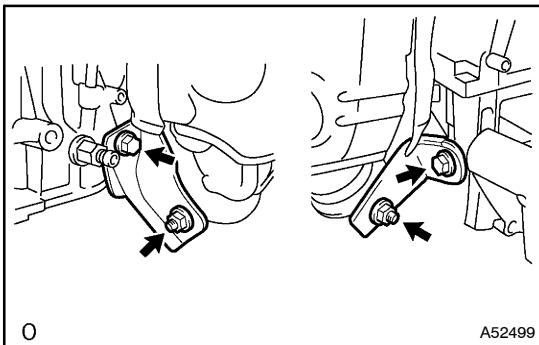
REPLACEMENT

1. WORK FOR PREVENTING GASOLINE FROM SPILLING OUT (See page 11-1)
2. DRAIN COOLANT (See page 16-6)
3. REMOVE HOOD SUB-ASSY
4. REMOVE FRONT WIPER ARM HEAD CAP (3 LINK TYPE FR WIPER)
5. REMOVE FR WIPER ARM LH (3 LINK TYPE FR WIPER)
(See page 66-9)
6. REMOVE COWL TOP VENTILATOR LOUVER CENTER NO.1 (4 LINK TYPE FR WIPER)
7. REMOVE FR WIPER ARM LH (4 LINK TYPE FR WIPER)
(See page 66-9)
8. REMOVE FRONT WIPER ARM HEAD CAP
9. REMOVE FR WIPER ARM RH
(See page 66-9)
10. REMOVE COWL TOP VENTILATOR LOUVER SUB-ASSY
11. REMOVE WIPER LINK ASSY
(See page 66-9)
12. REMOVE WINDSHIELD WIPER MOTOR ASSY
(See page 66-9)
13. REMOVE COWL TOP PANEL SUB-ASSY OUTER
(See page 14-20)
14. REMOVE FRONT WHEEL RH
15. REMOVE ENGINE UNDER COVER RH
16. DRAIN ENGINE OIL
 - (a) Install a new gasket and drain plug after draining engine oil.
Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)
17. REMOVE EXHAUST PIPE ASSY FRONT
18. REMOVE FAN AND GENERATOR V BELT
(See page 14-5)
19. REMOVE GENERATOR ASSY
(See page 19-7)
20. REMOVE VANE PUMP ASSY
(See page 51-10)
21. REMOVE ENGINE COVER SUB-ASSY NO.1
22. REMOVE IGNITION COIL ASSY
23. REMOVE VENTILATION HOSE
24. REMOVE VENTILATION HOSE NO.2

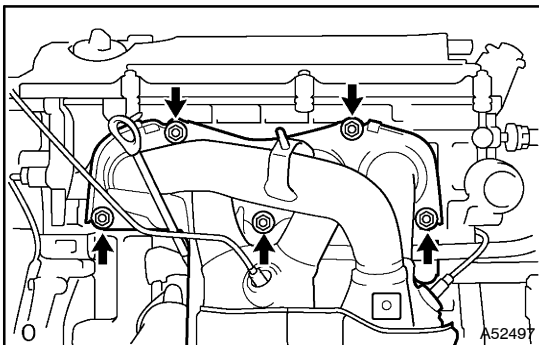
25. REMOVE CYLINDER HEAD COVER SUB-ASSY
(See page 14-6)
26. REMOVE ENGINE HANGER NO.1
(See page 14-40)
27. REMOVE ENGINE HANGER NO.2
(See page 14-40)
28. REMOVE ENGINE MOUNTING BRACKET NO.2 RH
(See page 14-40)
29. REMOVE TRANSVERSE ENGINE ENGINE MOUNTING INSULATOR
(See page 14-40)
30. SET NO.1 CYLINDER TO TDC/COMPRESSION (See page 14-6)
31. REMOVE CRANKSHAFT PULLEY
(See page 14-40)
32. REMOVE CRANK POSITION SENSOR
33. REMOVE OIL PAN SUB-ASSY
(See page 14-40)
34. REMOVE CHAIN TENSIONER ASSY NO.1
(See page 14-40)
35. REMOVE V-RIBBED BELT TENSIONER ASSY
(See page 14-40)
36. REMOVE TIMING CHAIN OR BELT COVER SUB-ASSY
(See page 14-40)
37. REMOVE CRANKSHAFT POSITION SENSOR PLATE NO.1
38. REMOVE CHAIN TENSIONER SLIPPER
39. REMOVE CHAIN VIBRATION DAMPER NO.1
40. REMOVE TIMING CHAIN GUIDE
41. REMOVE CHAIN SUB-ASSY
42. SEPARATE RADIATOR HOSE OUTLET
43. SEPARATE UNION TO CHECK VALVE HOSE
44. SEPARATE HEATER WATER INLET HOSE A
45. SEPARATE FUEL TUBE SUB-ASSY
(See page 11-1)
46. REMOVE CAMSHAFT TIMING OIL CONTROL VALVE ASSY
47. REMOVE BATTERY
48. REMOVE AIR CLEANER ASSEMBLY WITH HOSE
49. REMOVE THROTTLE BODY ASSY
(See page 10-6)

**50. REMOVE INTAKE MANIFOLD**

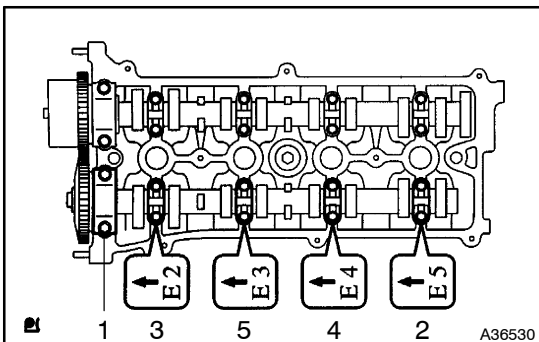
- (a) Remove the 5 bolts, the 2 nuts, intake manifold and gasket.

51. SEPARATE ENGINE WIRE**52. REMOVE INTAKE MANIFOLD INSULATOR NO.1****53. REMOVE EXHAUST MANIFOLD HEAT INSULATOR NO.1****54. REMOVE EXHAUST MANIFOLD CONVERTER SUB-ASSY**

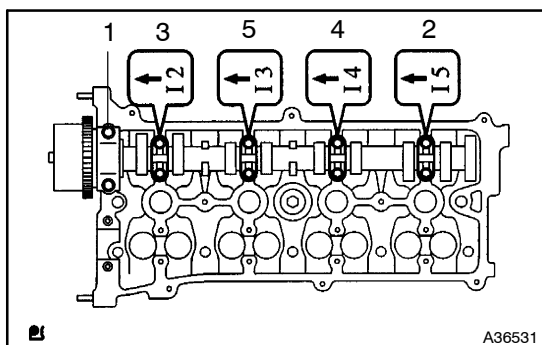
- (a) Remove the 2 bolts, nuts No. 1 and No. 2 exhaust manifold stay.



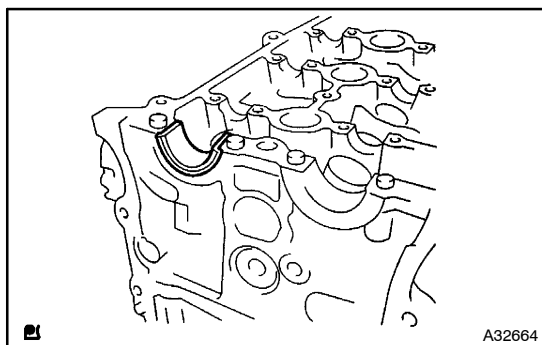
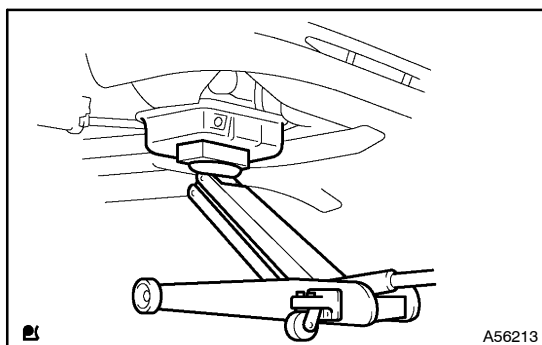
- (b) Remove the 5 nuts, exhaust manifold and gasket.

**55. REMOVE NO.2 CAMSHAFT**

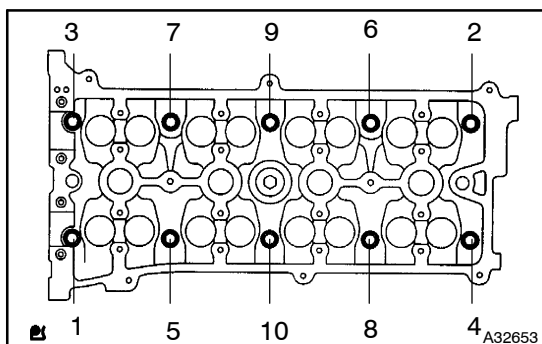
- (a) Remove the No. 2 and No. 3 camshaft bearing cap in the sequence shown in the illustration.
 (b) Remove the No. 2 camshaft.

**56. REMOVE CAMSHAFT**

- (a) Remove the No. 1 and No. 3 camshaft bearing cap in the sequence shown in the illustration.
- (b) Remove the No. 1 camshaft.

**57. REMOVE CAMSHAFT BEARING NO.2****58. SUPPORT ENGINE ASSEMBLY WITH TRANSAXLE**

- (a) Install the oil pan sub-assy.
- (b) Place a Wooden block between the jack and engine assy w/ transaxle, and set the jack.
- (c) Remove the chain block and sling devise.

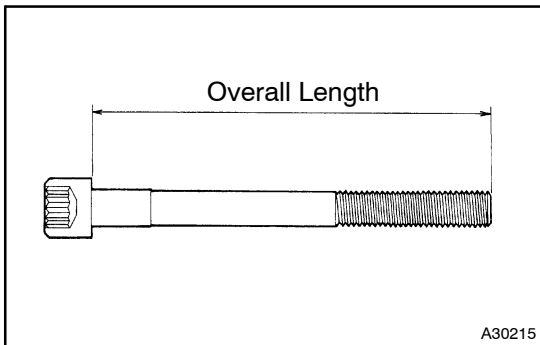
**59. REMOVE CYLINDER HEAD SUB-ASSY**

- (a) Using a 10 mm bi-hexagon wrench, uniformly loosen and remove the 10 cylinder head bolts, in several passes, in the sequence shown. Remove the 10 cylinder head bolts and plate washers.

NOTICE:

- **Be careful not to drop washers into the cylinder head.**
- **Head warpage or cracking could result from removing bolts and installing incorrect order.**

60. REMOVE CYLINDER HEAD GASKET



61. INSPECT CYLINDER HEAD SET BOLT

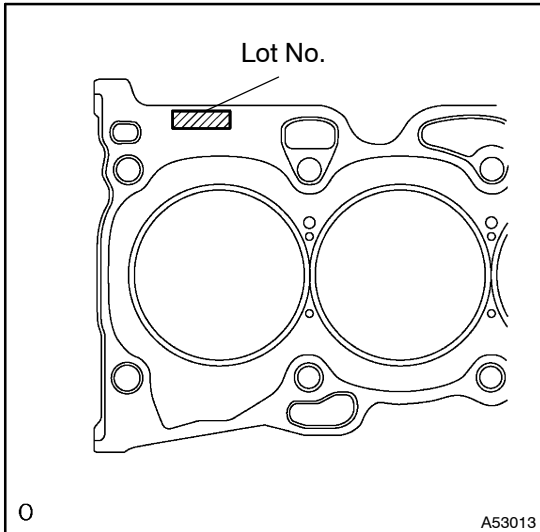
- (a) Using a vernier calipers, measure the length of head bolts from the seat to the end.

Standard bolt length:

161.3–162.3 mm (6.350–6.390 in.)

Maximum bolt length: 164.2 mm (6.465 in)

If the length is greater than maximum, replace the bolt.



62. INSTALL CYLINDER HEAD GASKET

- (a) Place a new cylinder head gasket on the cylinder block surface with the Lot No. stamp upward.

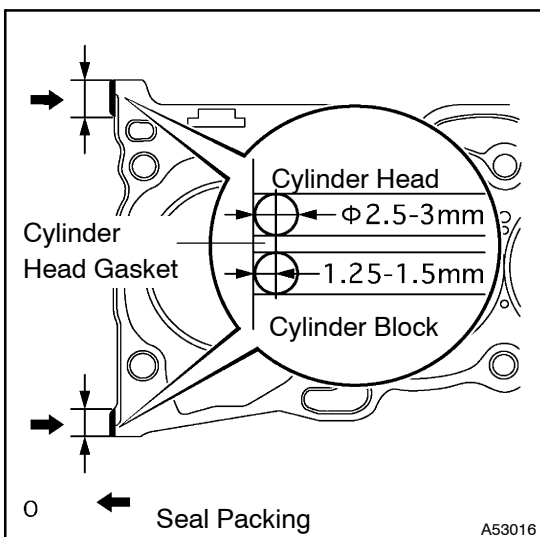
NOTICE:

- **Remove any oil from contact surface.**
- **Be careful of the installation direction.**
- **Place the cylinder head quietly in order not to damage the gasket with the bottom part of the head.**

63. INSTALL CYLINDER HEAD SUB-ASSY

HINT:

The cylinder head bolts are tightened in 2 progressive steps.



- (a) Apply seal packing in the shape of bead (Diameter 2.5 – 3mm (0.098 – 0.118 in.)) consequently as shown in the illustration.

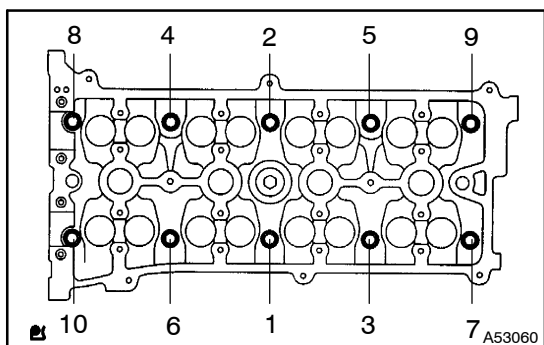
Seal packing: Part No. 08826-00080 or equivalent

NOTICE:

- **Remove any oil from contact surface.**
 - **Install the cylinder head within 3 minutes after applying seal packing.**
 - **After installing the cylinder head, cylinder head bolts must be tightened within 15 minutes.**
- (b) Apply a light coat of engine oil on the threads and under the heads of the cylinder head bolts.
- (c) Install bolts and plate washers to the cylinder head.

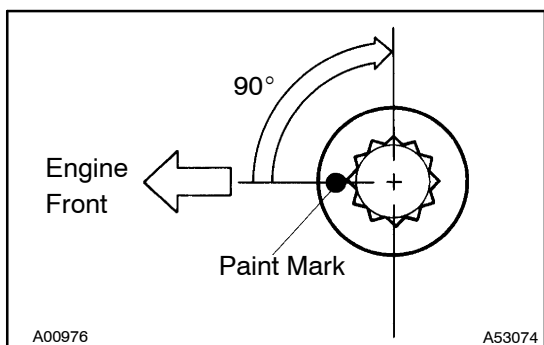
NOTICE:

Do not drop the washers into the cylinder head.

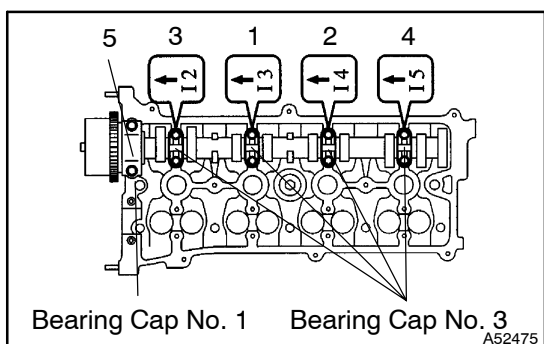


- (d) Using a 10 mm bi-hexagon wrench, install and uniformly tighten the 10 cylinder head bolts and plate washers, in several passes, in the sequence shown.

Torque: 79 N·m (806 kgf·cm, 58 ft·lbf)



- (e) Mark the front side of the cylinder head bolt with paint.
 (f) Retighten the cylinder head bolts by 90° in the sequence shown.
 (g) Check that the paint mark is now at a 90° angle to the front.



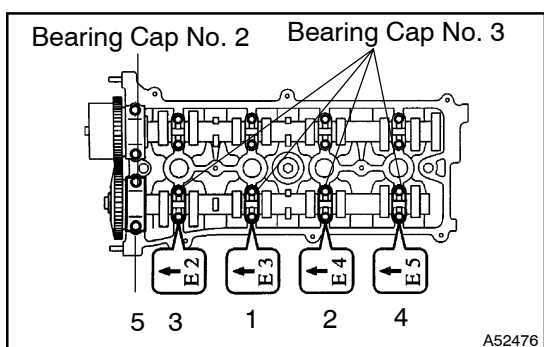
64. INSTALL CAMSHAFT

- (a) Tighten the camshaft bearing cap No. 1 and No. 3 as the sequence shown in the illustration.

Torque:

Bearing cap No.1 30 N·m (301 kgf·cm, 22 ft·lbf)

Bearing cap No.3 9.0 N·m (92 kgf·cm, 80 in·lbf)



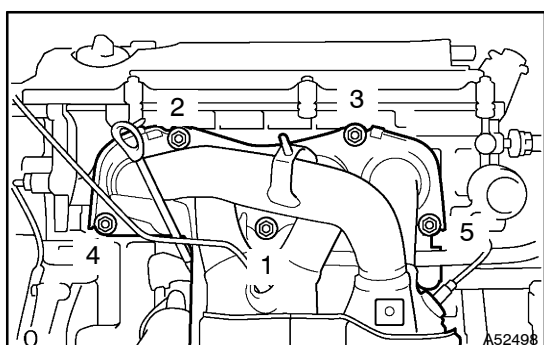
65. INSTALL NO.2 CAMSHAFT

- (a) Tighten the camshaft bearing cap No. 2 and No. 3 as the sequence shown in the illustration.

Torque:

Bearing cap No.2 30 N·m (301 kgf·cm, 22 ft·lbf)

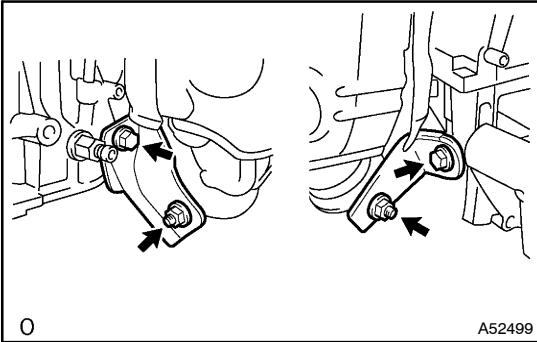
Bearing cap No.3 9.0 N·m (92 kgf·cm, 80 in·lbf)



66. INSTALL EXHAUST MANIFOLD CONVERTER SUB-ASSY

- (a) Install a new gasket and the exhaust manifold with the 5 nuts.

Torque: 37 N·m (378 kgf·cm, 27 ft·lbf)

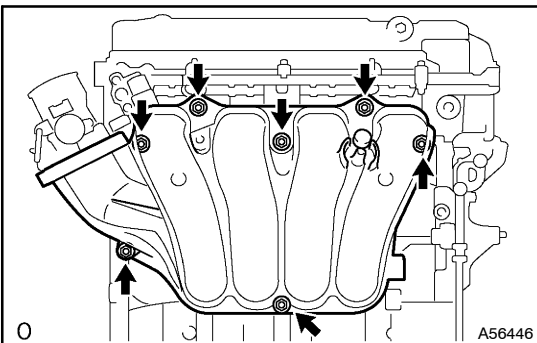


- (b) Install the No. 1 and No. 2 exhaust manifold stay with the 2 bolts and 2 nuts.

Torque: 44 N·m (449 kgf·cm, 32 ft·lbf)

67. INSTALL EXHAUST MANIFOLD HEAT INSULATOR NO.1

Torque: 12 N·m (122 kgf·cm, 9 ft·lbf)



68. INSTALL INTAKE MANIFOLD

- (a) Install a new gasket and the intake manifold with the 5 bolts and 2 nuts.

Torque: 30 N·m (306 kgf·cm, 22 ft·lbf)

69. INSTALL THROTTLE BODY ASSY

(See [page 10-6](#))

70. INSTALL CAMSHAFT TIMING OIL CONTROL VALVE ASSY

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

71. CONNECT FUEL TUBE SUB-ASSY

(See [page 11-1](#))

72. INSTALL TIMING CHAIN GUIDE

73. INSTALL CHAIN VIBRATION DAMPER NO.1

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

74. INSTALL CHAIN SUB-ASSY

(See [page 14-40](#))

SST 09309-37010

75. INSTALL CHAIN TENSIONER SLIPPER

Torque: 19 N·m (194 kgf·cm, 14 ft·lbf)

76. INSTALL CRANKSHAFT POSITION SENSOR PLATE NO.1

(See [page 14-40](#))

77. INSTALL TIMING CHAIN OR BELT COVER SUB-ASSY

(See [page 14-40](#))

78. INSTALL V-RIBBED BELT TENSIONER ASSY

(See [page 14-40](#))

79. INSTALL CHAIN TENSIONER ASSY NO.1
(See [page 14-53](#))
80. INSTALL OIL PAN SUB-ASSY
(See [page 14-40](#))
81. INSTALL CRANK POSITION SENSOR
(See [page 14-40](#))
82. INSTALL CRANKSHAFT PULLEY
(See [page 14-40](#))
SST 09213-54015 (91651-60855), 09330-00021
83. INSTALL TRANSVERSE ENGINE ENGINE MOUNTING INSULATOR
(See [page 14-40](#))
84. INSTALL ENGINE MOUNTING BRACKET NO.2 RH
(See [page 14-40](#))
85. INSTALL CYLINDER HEAD COVER SUB-ASSY
(See [page 14-6](#))
86. INSTALL IGNITION COIL ASSY

Torque: 9.0 N·m (92 kgf·cm, 80 in·lbf)
87. INSTALL VANE PUMP ASSY
(See [page 51-10](#))
88. INSTALL GENERATOR ASSY
(See [page 9-7](#))
89. INSTALL FAN AND GENERATOR V BELT
(See [page 14-5](#))
90. INSTALL EXHAUST PIPE ASSY FRONT
91. INSTALL FRONT WHEEL RH
Torque: 103 N·m (1050 kgf·cm, 76 ft·lbf)
92. INSTALL WINDSHIELD WIPER MOTOR ASSY
(See [page 66-9](#))
93. INSTALL WIPER LINK ASSY
(See [page 66-9](#))
94. INSTALL FR WIPER ARM RH
(See [page 66-9](#))
95. INSTALL FR WIPER ARM LH(3 LINK TYPE FR WIPER)
(See [page 66-9](#))
96. INSTALL FR WIPER ARM LH(4 LINK TYPE FR WIPER)
(See [page 66-9](#))
97. INSPECT HOOD SUB-ASSY
(See [page 75-1](#))
98. ADJUST HOOD SUB-ASSY
(See [page 75-1](#))
99. ADD ENGINE OIL
100. ADD COOLANT (See [page 16-6](#))
101. INSPECT OIL LEAK
102. CHECK ENGINE COOLANT LEAK (See [page 16-1](#))
103. INSPECT FUEL LEAK (See [page 11-5](#))
104. INSPECT CHECK IDLE SPEED AND IGNITION TIMING (See [page 14-1](#))
105. INSPECT CO/HC (See [page 14-1](#))