OIL PUMP ASSY (1MZ–FE)

1705P–01

REPLACEMENT

1. **REMOVE FRONT WHEEL RH**
2. **REMOVE FRONT FENDER APRON SEAL RH**

3. **REMOVE ENGINE UNDER COVER RH**

4. **DRAIN ENGINE OIL**

(a) Install a new gasket after draining engine oil.
Torque: 45 N·m (459 kgf·cm, 33 ft·lbf)

5. **REMOVE FRONT SUSPENSION UPPER BRACE CENTER (W/ FRONT SUSPENSION BRACE UPPER CENTER)**

6. **REMOVE V (COOLER COMPRESSOR TO CRANKSHAFT PULLEY) BELT NO.1**
(See page 14–141)
7. **REMOVE VANE PUMP V BELT**
(See page 14–141)
8. **REMOVE ENGINE MOVING CONTROL ROD**
(See page 14–156)
9. **REMOVE ENGINE MOUNTING STAY NO.2 RH**
(See page 14–156)
10. **REMOVE GENERATOR BRACKET NO.2**

11. **REMOVE CRANKSHAFT PULLEY**
(See page 14–174)
SST 09213–54015 (91651–60855), 09330–00021, 09950–50013 (09951–05010, 09952–05010, 09953–05010, 09954–05030)
12. **REMOVE TIMING BELT NO.1 COVER**

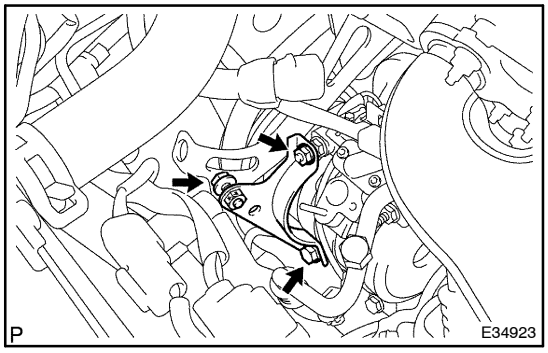
13. **REMOVE TIMING BELT NO.2 COVER**
(See page 14–174)
14. **REMOVE TRANSVERSE ENGINE ENGINE MOUNTING BRACKET**

15. **REMOVE TIMING BELT GUIDE NO.2**

16. **REMOVE TIMING BELT**
(See page 14–211)
17. **REMOVE EXHAUST PIPE NO.1 SUPPORT BRACKET**

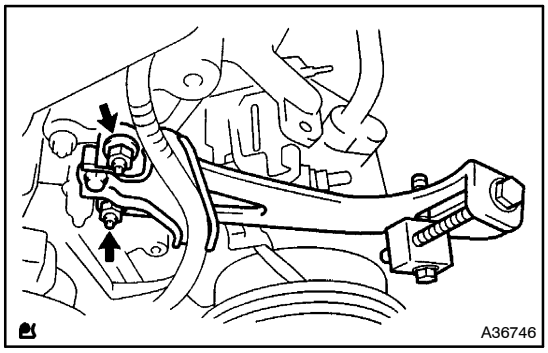
18. **REMOVE EXHAUST PIPE ASSY FRONT**

19. **REMOVE EXHAUST PIPE SUPPORT BRACKET NO.1**

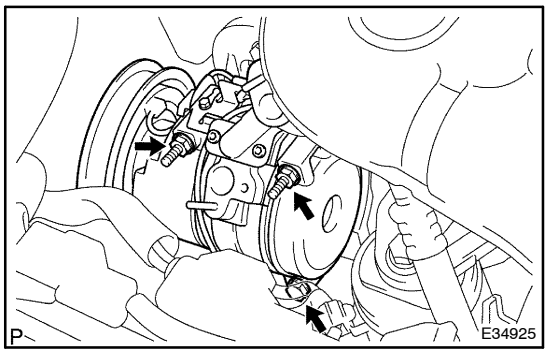


20. SEPARATE COMPRESSOR AND MAGNETIC CLUTCH

(a) Remove the 2 bolts, nut and drive belt adjusting bar bracket.



(b) Remove the 2 nuts, the generator bracket adjusting bar with wire harness cramp bracket.



(c) Disconnect the compressor, magnetic clutch connector and the wire harness cramp.

(d) Remove the 3 bolts, the compressor and magnetic clutch.

HINT:

Hung up the hoses instead of detaching.

21. REMOVE TIMING BELT IDLER SUB–ASSY NO.2

(See page 16–32)

22. REMOVE CAMSHAFT TIMING PULLEY

(See page 14–180)

SST 09960–10010 (09962–01000, 09963–01000), 09249–63010

23. REMOVE TIMING BELT IDLER SUB–ASSY NO.1

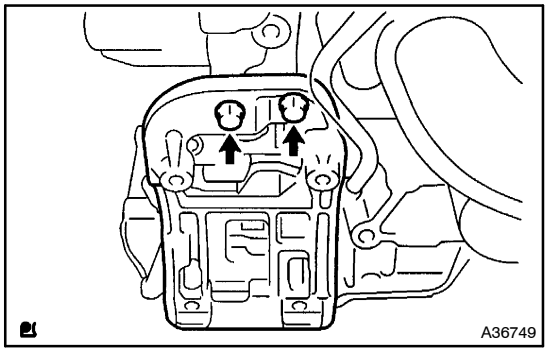
(a) Using a 10mm socket hexagon wrench, remove the timing belt idler sub–assembly No. 1 and the plate washer.

24. REMOVE CRANKSHAFT TIMING PULLEY

(See page 14–211)

SST 09950–50013 (09951–05010, 09952–05010, 09953–05020, 09954–05010)

25. REMOVE TIMING BELT NO.3 COVER

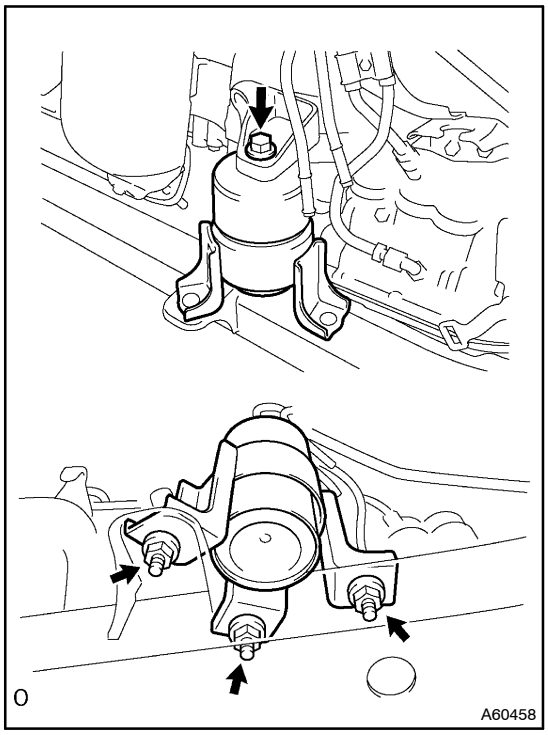


26. REMOVE COMPRESSOR MOUNTING BRACKET NO.1

(a) Remove the 2 bolts and compressor mounting bracket No. 1.

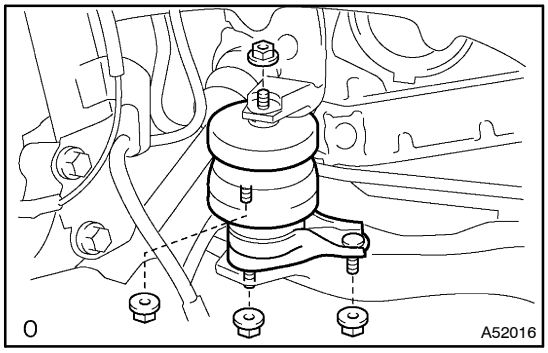
27. REMOVE OIL LEVEL GAGE GUIDE

(a) Remove the bolt and oil level gage guide.



28. SEPARATE TRANSVERSE ENGINE ENGINE MOUNTING INSULATOR

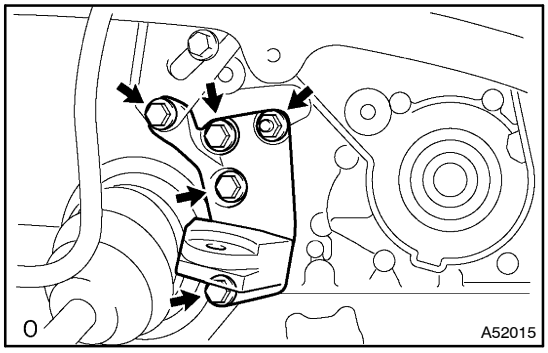
(a) Remove the 3 nuts and a bolt, and separate the engine mounting insulator front.



29. REMOVE TRANSVERSE ENGINE ENGINE MOUNTING INSULATOR

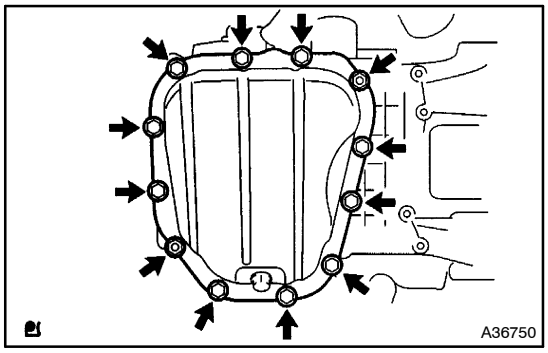
(a) Remove the bolt and disconnect the power steering return hose cramp from the frame.
(b) Remove the 4 nuts.
(c) Place a wooden block between the jack and engine, and set the jack, then remove the engine mounting insulator.
(d) Handle a jack up to remove the engine mounting insulator RH.

NOTICE:
Be careful not to damage the contact surfaces of the oil pan.



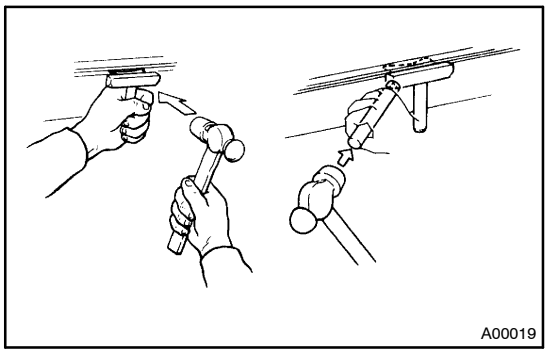
30. REMOVE TRANSVERSE ENGINE ENGINE MOUNTING BRACKET

(a) Remove the 4 bolts, nut and bracket.



31. REMOVE OIL PAN SUB–ASSY NO.2

(a) Remove the 10 bolts and 2 nuts.

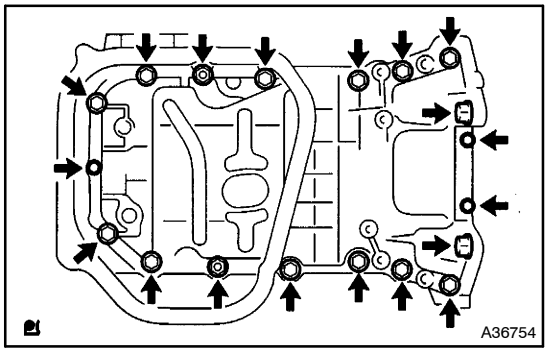


(b) Using SST, remove the oil pan No. 2.
SST 09032–00100

NOTICE:
Be careful not to damage the oil pan No. 2 flange.

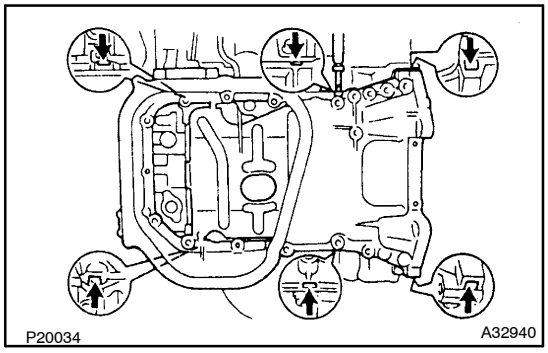
32. REMOVE OIL STRAINER SUB–ASSY

(a) Remove the bolt, 2 nuts and oil strainer sub–assembly.



33. REMOVE OIL PAN SUB–ASSY

(a) Remove the 17 bolts and 2 nuts.



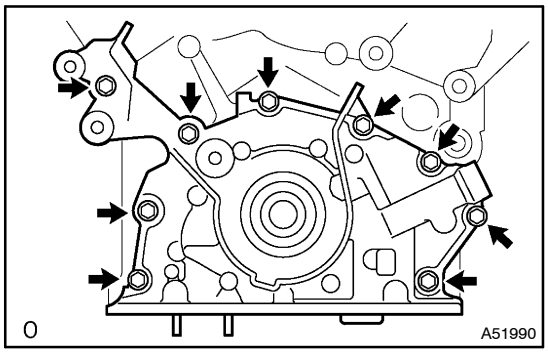
(b) Using a screwdriver, remove the oil pan by prying the portions between the cylinder block and oil pan.

NOTICE:

Be careful not to damage the contact surfaces of the cylinder block and oil pan.

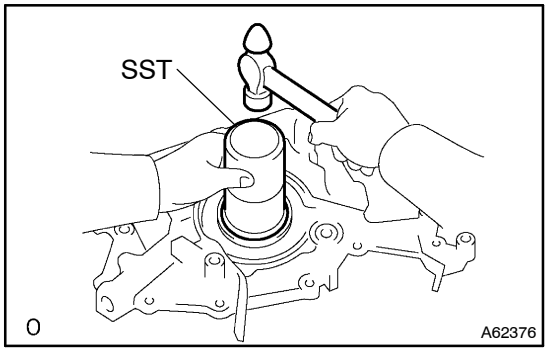
34. REMOVE CRANK POSITION SENSOR

(a) Disconnect the crank position sensor connector.
(b) Remove the bolt and crank position sensor.



35. REMOVE OIL PUMP ASSY

(a) Remove the 9 bolts, O–ring and oil pump.



36. INSTALL OIL PUMP ASSY

(a) Using SST and a hammer, tap in a new oil seal until its surface is flush with the oil pump body edge.
SST 09223–00010

NOTICE:

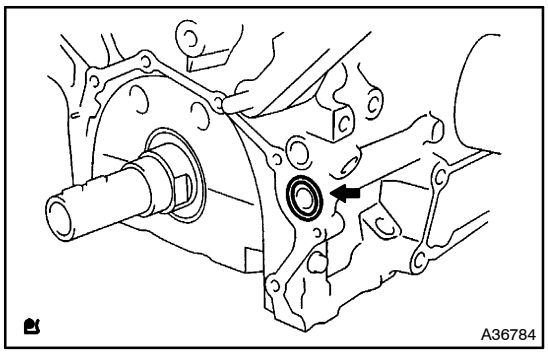
Be careful not to tap the oil seal slantingly.

(b) Apply a small amount of MP grease to the oil seal lip.

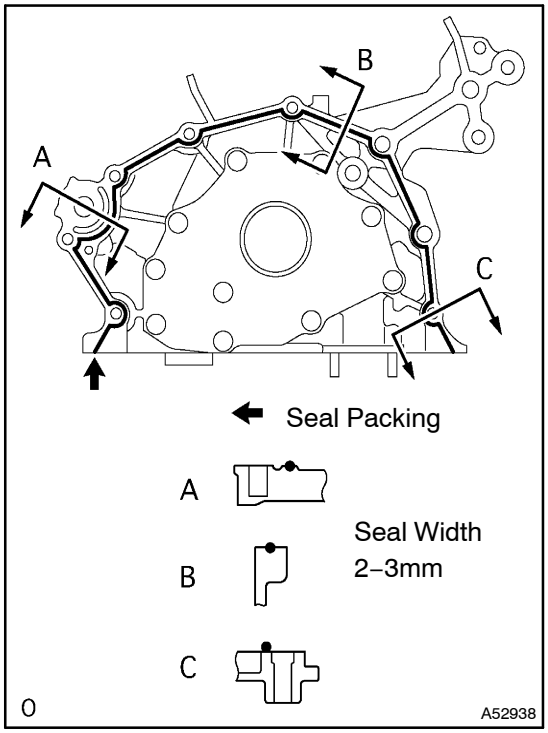
NOTICE:

Keep the lip off foreign materials.

(c) Apply engine oil to the O–ring.



(d) Install a new O–ring on the cylinder block.

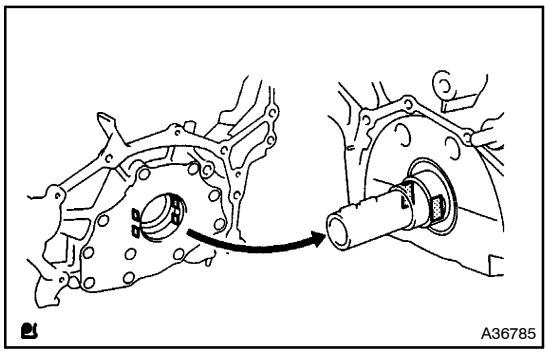


(e) Apply seal packing to the oil pump assembly as shown in the illustration.

Seal packing: Part No. 08226–00080 or equivalent.

NOTICE:

- **Install the oil pump assembly within 3 minutes after applying seal packing.**
- **Do not put into engine oil within 2 hours after installing.**



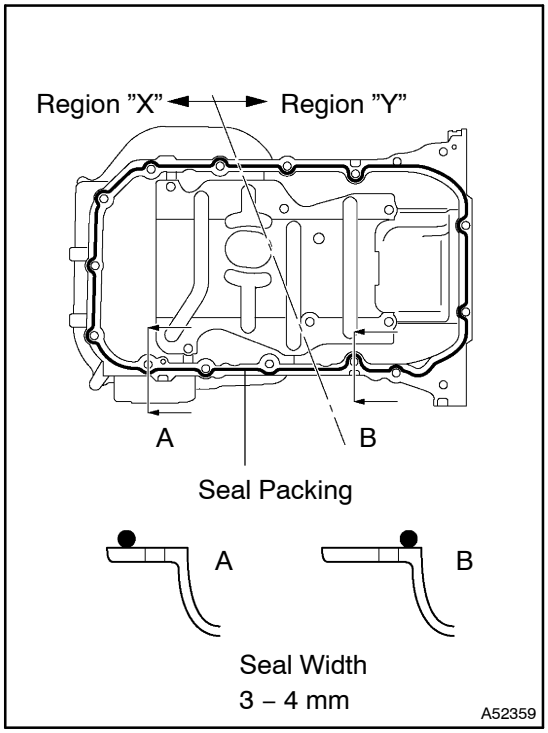
(f) Engage the spline teeth of the oil pump drive gear with the large teeth of the crankshaft, and slide the oil pump on the crankshaft.

(g) Install the oil pump with the 9 bolts. Uniformly tighten the bolts in several passes.

Torque:
10 mm head 8 N·m (82 kgf·cm, 71 in.·lbf)
12 mm head 20 N·m (199 kgf·cm, 14 ft·lbf)
14 mm head 43 N·m (439 kgf·cm, 32 ft·lbf)

37. INSTALL CRANK POSITION SENSOR

Torque: 8 N·m (82 kgf·cm, 71 in.·lbf)



38. INSTALL OIL PAN SUB–ASSY

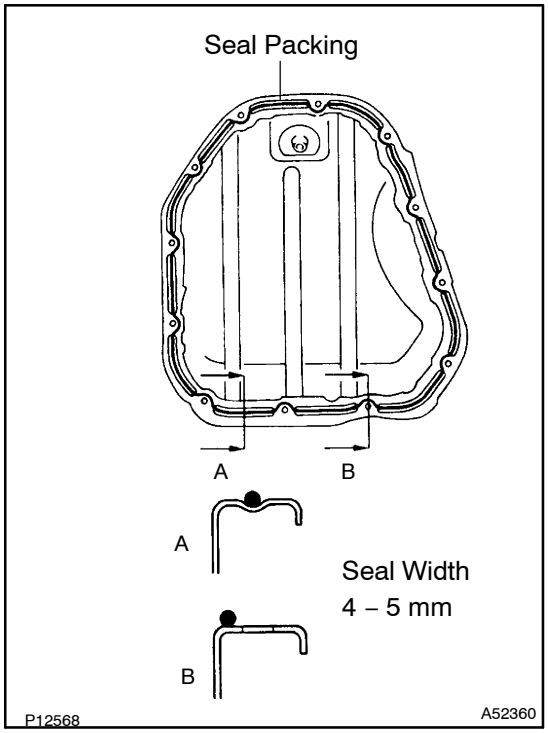
(a) Apply seal packing to the oil pan as shown in the illustration.
Seal packing: Part No. 08226–00080 or equivalent.

NOTICE:
- **Remove any oil from the contact surface.**
- **Apply seal packing to the outer side of the bolt hole in the region ”X”.**
- **Apply seal packing to the inner side of the bolt hole in the region ”Y”.**
- **Install the oil pan within 3 minutes after applying seal packing.**
- **Do not put into engine oil within 2 hours after installing.**

(b) Install the oil pan with the 17 bolts and 2 nuts.
Torque:
10 mm head 8 N·m (82 kgf·cm, 71 in.·lbf)
12 mm head 20 N·m (199 kgf·cm, 14 ft·lbf)

39. INSTALL OIL STRAINER SUB–ASSY

(a) Install a new gasket and the oil strainer with the bolt and 2 nuts.
Torque: 8 N·m (82 kgf·cm, 71 in.·lbf)



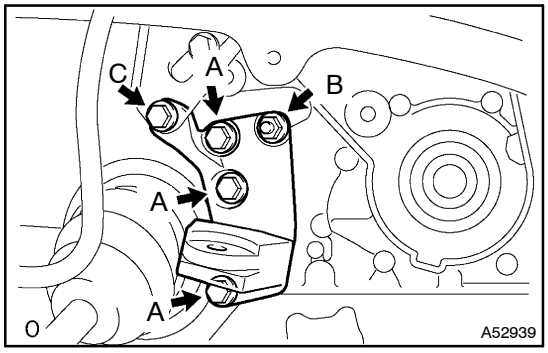
40. INSTALL OIL PAN SUB–ASSY NO.2

(a) Apply seal packing to the oil pan as shown in the illustration.
Seal packing: Part No. 08226–00080 or equivalent.

NOTICE:
Apply seal packing to the inner side of the bolt hole.

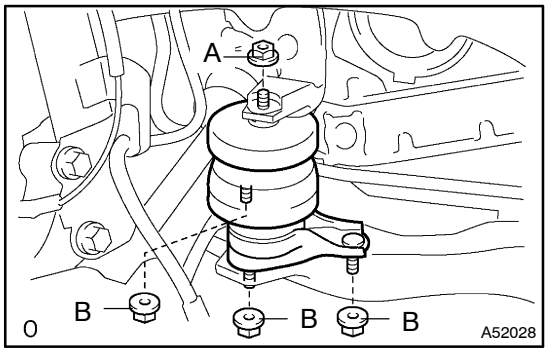
(b) Install oil pan No. 2.
Torque: 8 N·m (82 kgf·cm, 71 in.·lbf)

NOTICE:
- **Remove any oil from the contact surface.**
- **Do not put into engine oil within 2 hours after installing.**



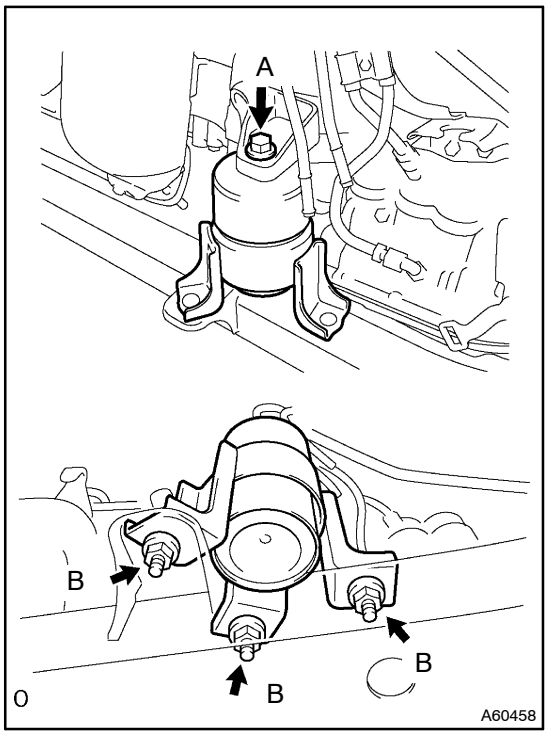
41. INSTALL TRANSVERSE ENGINE ENGINE MOUNTING BRACKET

Torque:
Bolt A 54 N·m (550 kgf·cm, 40 ft·lbf)
Nut B 54 N·m (550 kgf·cm, 40 ft·lbf)
Bolt C 43 N·m (439 kgf·cm, 32 ft·lbf)



42. INSTALL TRANSVERSE ENGINE ENGINE MOUNTING INSULATOR

Torque:
Nut A 95 N·m (969 kgf·cm, 70 ft·lbf)
Nut B 87 N·m (887 kgf·cm, 64 ft·lbf)



43. INSTALL TRANSVERSE ENGINE ENGINE MOUNTING INSULATOR

Torque:
Bolt A 87 N·m (887 kgf·cm, 64 ft·lbf)
Nut B 52 N·m (531 kgf·cm, 38 ft·lbf)

44. INSTALL OIL LEVEL GAGE GUIDE

(a) Install a new O–ring, bolt and oil level gage guide.
Torque: 8 N·m (82 kgf·cm, 71 in.·lbf)

45. INSTALL COMPRESSOR MOUNTING BRACKET NO.1

Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)

46. INSTALL TIMING BELT NO.3 COVER
(See page 14–180)

47. INSTALL TIMING BELT IDLER SUB–ASSY NO.1

(a) Using a 10 mm hexagon wrench, install the plate washer and idler pulley with the pivot bolt.
Torque: 34 N·m (347 kgf·cm, 25 ft·lbf)

48. INSTALL TIMING BELT IDLER SUB–ASSY NO.2
(See page 16–32)

49. INSTALL CAMSHAFT TIMING PULLEY
(See page 14–180)
SST 09960–10010 (09962–01000, 09963–01000)

50. INSTALL COMPRESSOR AND MAGNETIC CLUTCH
Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)

51. INSTALL EXHAUST PIPE SUPPORT BRACKET NO.1
(See page 14–156)

52. INSTALL EXHAUST PIPE ASSY FRONT
(See page 15–8)

53. INSTALL EXHAUST PIPE NO.1 SUPPORT BRACKET
(See page 15–8)

54. INSPECT TIMING BELT
(See page 14–174)

55. INSTALL TIMING BELT
(See page 14–211)
SST 09960–10010 (09962–01000, 09963–01000)

56. INSTALL CHAIN TENSIONER ASSY NO.1
(See page 14–174)

57. INSTALL TIMING BELT GUIDE NO.2

58. INSTALL TRANSVERSE ENGINE ENGINE MOUNTING BRACKET

59. INSTALL TIMING BELT NO.2 COVER
(See page 14–174)

60. INSTALL TIMING BELT NO.1 COVER

61. INSTALL CRANKSHAFT PULLEY
(See page 14–174)
SST 09213–54015 (91651–60855), 09330–00021

62. INSTALL GENERATOR BRACKET NO.2

Torque: 28 N·m (286 kgf·cm, 21 in.·lbf)

63. INSTALL ENGINE MOUNTING STAY NO.2 RH
(See page 14–156)

64. INSTALL ENGINE MOVING CONTROL ROD
(See page 14–156)

65. INSTALL VANE PUMP V BELT
(See page 14–141)

66. INSTALL V (COOLER COMPRESSOR TO CRANKSHAFT PULLEY) BELT NO.1
(See page 14–141)

67. INSPECT DRIVE BELT DEFLECTION AND TENSION(REFERENCE) (See page 14–137)

68. INSTALL FRONT SUSPENSION UPPER BRACE CENTER (W/ FRONT SUSPENSION BRACE UPPER CENTER)

Torque: 80 N·m (816 kgf·cm, 59 ft·lbf)

69. ADD ENGINE OIL

70. INSPECT OIL LEAK

71. INSTALL FRONT WHEEL RH

Torque: 103 N·m (1,051 kgf·cm, 76 ft·lbf)

72. CHECK EXHAUST GAS LEAK