1420L–01

REPLACEMENT

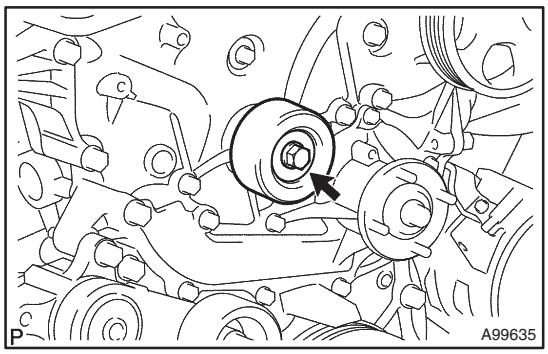
1. **REMOVE ENGINE ASSEMBLY (SEE PAGE 14–19)**
2. **REMOVE DRIVE PLATE & RING GEAR SUB–ASSY (AUTOMATIC TRANSMISSION) (SEE PAGE 14–19)**
   SST 09213–54015 (91651–60855), 09330–00021
3. **REMOVE CLUTCH COVER ASSY (MANUAL TRANSMISSION) (SEE PAGE 42–5)**
4. **REMOVE CLUTCH DISC ASSY (MANUAL TRANSMISSION) (SEE PAGE 42–5)**
5. **REMOVE FLYWHEEL SUB–ASSY (MANUAL TRANSMISSION) (SEE PAGE 14–19)**
   SST 09213–54015 (91651–60855), 09330–00021
6. **REMOVE REAR END PLATE (SEE PAGE 14–19)**
7. **INSTALL ENGINE STAND**
8. **REMOVE ENGINE WIRE**
9. **REMOVE FLUID COUPLING ASSY**

(a) Remove the 4 nuts with the coupling from the water pump pulley .

10. **REMOVE FAN PULLEY**
11. **REMOVE OIL PAN SUB–ASSY NO.2 (SEE PAGE 14–44)**
    SST 09032–00100
12. **REMOVE OIL STRAINER SUB–ASSY**

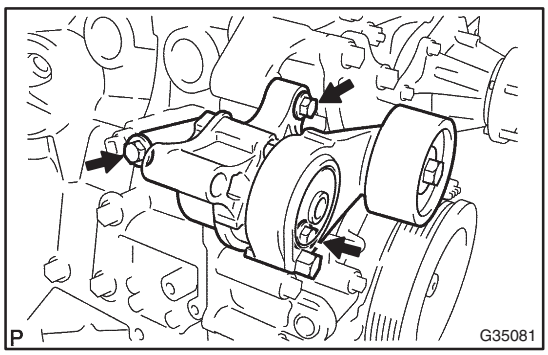
(a) Remove the 2 bolts, 2 nuts, oil strainer and gasket.

13. **REMOVE OIL PAN SUB–ASSY (SEE PAGE 14–44)**
14. **REMOVE GENERATOR ASSY (SEE PAGE 19–8)**



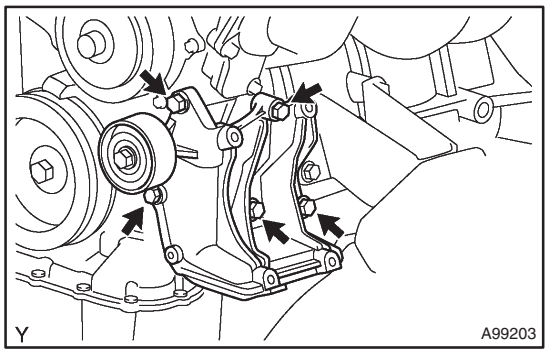
15. **REMOVE IDLER PULLEY SUB–ASSY NO.1**

(a) Remove the bolt and idler pulley sub–assy No.1.



16. **REMOVE V–RIBBED BELT TENSIONER ASSY**

(a) Remove the 3 bolts and belt tensioner.



17. REMOVE COMPRESSOR MOUNTING BRACKET NO.1 (W/ AIR CONDITIONING)

(a) Remove the 5 bolts and mounting bracket.

18. REMOVE INTAKE MANIFOLD (SEE PAGE 14–19)

19. REMOVE WATER BY–PASS PIPE NO.1

(a) Remove the bolt and 2 nuts, water by–pass pipe and gasket.

20. REMOVE IGNITION COIL ASSY

(a) Remove the bolt and ignition coil.

21. REMOVE CYLINDER HEAD COVER SUB–ASSY (SEE PAGE 14–44)

22. SET NO. 1 CYLINDER TO TDC/COMPRESSION (SEE PAGE 14–44)

23. REMOVE CRANKSHAFT PULLEY (SEE PAGE 14–44)

SST 09213–54015 (91651–60855), 09330–00021, 09950–50013 (09951–05010, 09952–05010, 09953–05010, 09954–05021)

24. REMOVE TIMING CHAIN COVER (SEE PAGE 17–12)

25. REMOVE TIMING CHAIN GUIDE

(a) Remove the 2 bolts, timing chain guide and O–ring.

26. REMOVE CHAIN TENSIONER ASSY NO.1 (SEE PAGE 14–44)

27. REMOVE CHAIN TENSIONER SLIPPER

(a) Remove the bolt and tensioner slipper.

28. REMOVE CHAIN VIBRATION DAMPER NO.1

(a) Remove the 2 bolts and vibration damper.

29. REMOVE CHAIN SUB–ASSY

30. REMOVE CAMSHAFT BEARING CAP (SEE PAGE 14–59)

31. REMOVE NO.2 CAMSHAFT

32. REMOVE CAMSHAFT (SEE PAGE 14–59)

33. REMOVE VALVE ROCKER ARM SUB–ASSY NO.1

HINT:

Make sure the removed parts are returned to the same places they were removed from.

34. REMOVE VALVE LASH ADJUSTER ASSY

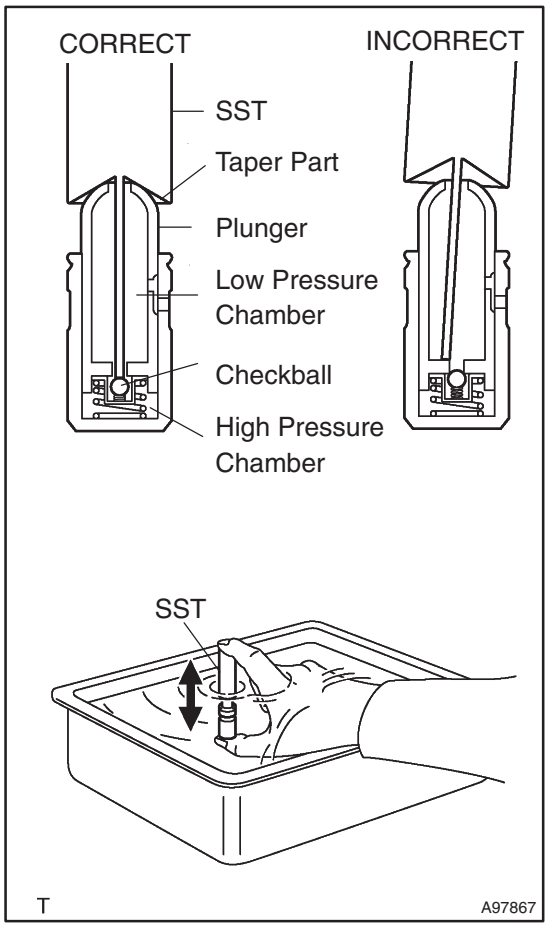
HINT:

Make sure the removed parts are returned to the same places they were removed from.

35. REMOVE VALVE STEM CAP

HINT:

Make sure the removed parts are returned to the same places they were removed from.



36. INSPECT VALVE LASH ADJUSTER ASSY

NOTICE:

- **Keep the lash adjuster free from dirt and foreign objects.**
- **Only use clean engine oil.**

(a) Place the lash adjuster into a container full of engine oil.

(b) Insert SST's tip into the lash adjuster's plunger and use the tip to press down on the checkball inside the plunger.
SST 09276–75010

(c) Squeeze the SST and lash adjuster together to move the plunger up and down 5 to 6 times.

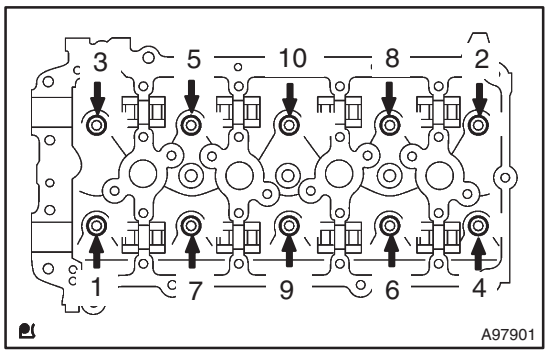
(d) Check the movement of the plunger and bleed air.
OK: Plunger moves up and down.

NOTICE:

When bleeding high–pressure air from the compression chamber, make sure that the tip of the SST is actually pressing the checkball as shown in the illustration. If the checkball is not pressed, air will not bleed.

(e) After bleeding air, remove the SST. Then quickly and firmly press the plunger with a finger.
OK: Plunger is very difficult to move.

If the result is not as specified, replace the lash adjuster.



37. REMOVE CYLINDER HEAD SUB–ASSY

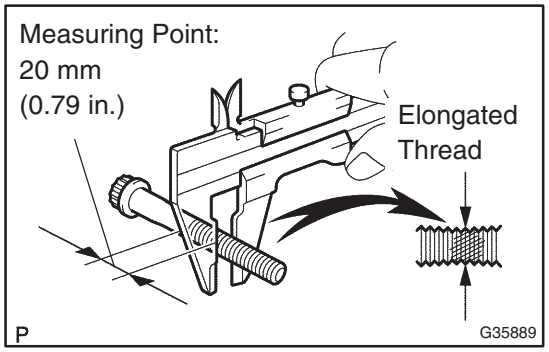
(a) Uniformly loosen the 10 bolts in the sequence shown in the illustration. Remove the 10 cylinder head bolts and plate washers.

NOTICE:

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

(b) Remove the cylinder head sub–assy.

38. REMOVE CYLINDER HEAD GASKET

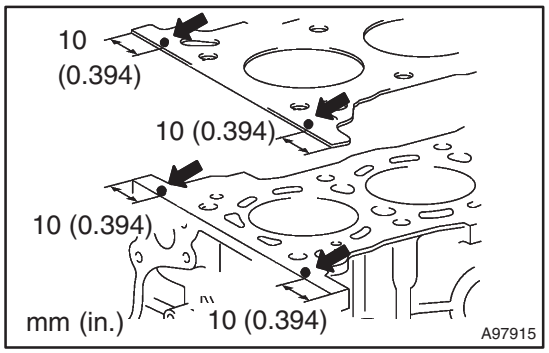


39. INSPECT CYLINDER HEAD SET BOLT

(a) Using a vernier caliper, measure the minimum diameter of the elongated thread at the measuring point.
Standard outside diameter:
10.76 to 10.97 mm (0.4236 to 0.4319 in.)
Minimum outside diameter: 10.40 mm (0.4094 in.)

HINT:

If a visual check reveals no excessively thin areas, check the center of the bolt (see illustration) and find the area that has the lowest diameter.



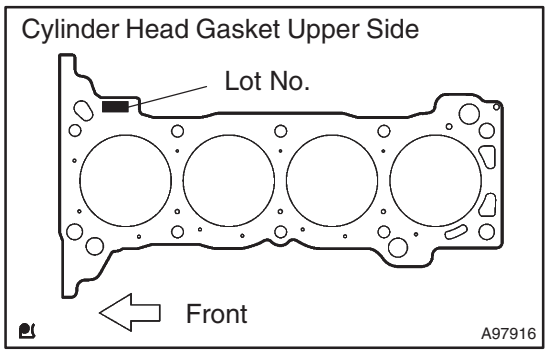
40. INSTALL CYLINDER HEAD GASKET

(a) Apply a continuous bead of seal packing to the cylinder block upper side and cylinder head gasket upper side as shown in the illustration.

Seal packing: Part No. 08826–00100 or equivalent
Seal width: 4.0 to 7.0 mm (0.15 to 0.28 in.)

NOTICE:

- **Remove any oil from the contact surface.**
- **Install the cylinder head gasket within 3 minutes after applying the seal packing.**
- **Install the cylinder head bolt within 15 minutes after applying the seal packing.**
- **Do not put into engine oil within 2 hours of installation.**



(b) Place a new cylinder head gasket on the cylinder block surface with the Lot No. stamp upper side facing upward.

NOTICE:

- **Pay attention to the installation direction.**
- **Place the cylinder head gently in order not to damage the gasket with the bottom part of the head.**

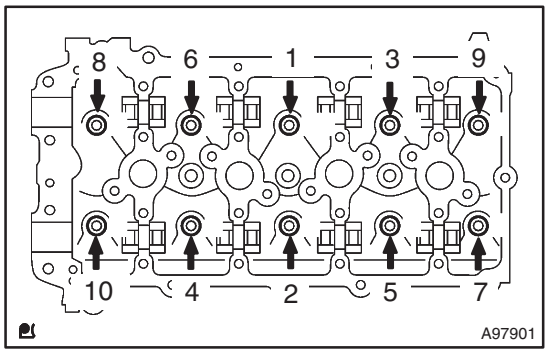
41. INSTALL CYLINDER HEAD SUB–ASSY

HINT:

The cylinder head bolts are tightened in 2 progressive steps.

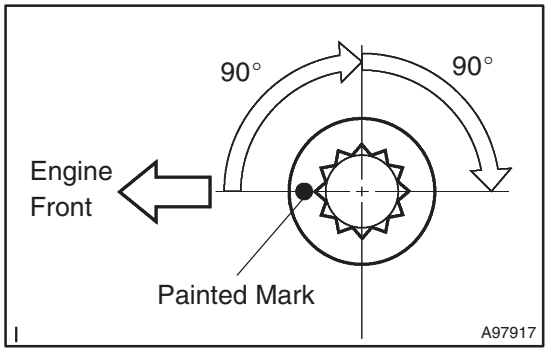
(a) Place the cylinder head on the cylinder block.

(b) Apply a light coat of engine oil to the threads and under the heads of the cylinder head bolts.



(c) Install and uniformly tighten the 10 cylinder head bolts with the plate washers, in several steps, in the sequence shown.

Torque: 39 N·m (398 kgf·cm, 29 ft·lbf)

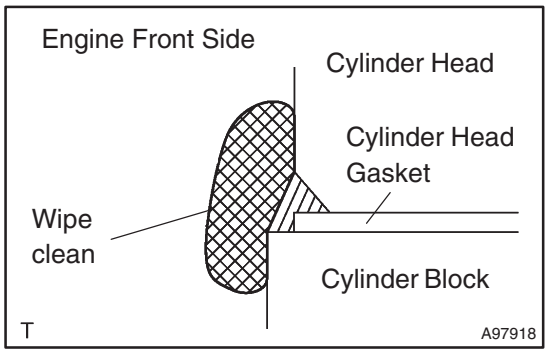


(d) Mark the front of the cylinder head bolt head with paint.

(e) Retighten the cylinder head bolts by 90° in the order shown in step (c).

(f) Retighten the cylinder head bolts by an additional 90°.

(g) Check that the painted mark is now facing rearward.



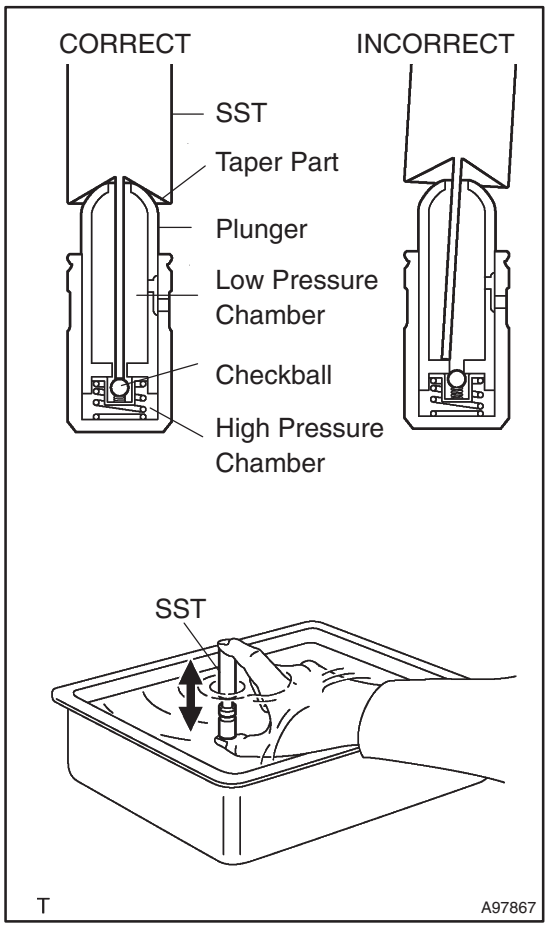
(h) Seal packing will seep out on the engine's front side. Thoroughly wipe clean any seal packing.

42. INSTALL VALVE STEM CAP

(a) Apply clean engine oil to the valve stem tip, and install the valve stem cap.

NOTICE:

Install the cap to the same place it was removed from.



43. INSTALL VALVE LASH ADJUSTER ASSY

NOTICE:

- **Keep the lash adjuster free from dirt and foreign objects.**
- **Only use clean engine oil.**

(a) Place the lash adjuster into a container full of engine oil.

(b) Insert SST's tip into the lash adjuster's plunger and use the tip to press down on the checkball inside the plunger.
SST 09276–75010

(c) Squeeze the SST and lash adjuster together to move the plunger up and down 5 to 6 times.

(d) Check the movement of the plunger and bleed air.
OK: Plunger moves up and down.

NOTICE:

When bleeding high–pressure air from the compression chamber, make sure that the tip of the SST is actually pressing the checkball as shown in the illustration. If the checkball is not pressed, air will not bleed.

(e) After bleeding air, remove the SST. Then quickly and firmly press the plunger with a finger.
OK: Plunger is very difficult to move.

If the result is not as specified, replace the lash adjuster.

(f) Install the lash adjuster.

NOTICE:

Install the lash adjuster to the same place it was removed from.

44. INSTALL VALVE ROCKER ARM SUB–ASSY NO.1

(a) Apply clean engine oil to the valve lash adjuster tip and valve stem cap surface. Then install the valve rocker arm.

NOTICE:

Install the valve stem cap and valve rocker arm to the same places they were removed from.

45. INSTALL CAMSHAFT (SEE PAGE 14–59)

46. INSTALL NO.2 CAMSHAFT (SEE PAGE 14–59)

47. INSTALL CAMSHAFT BEARING CAP (SEE PAGE 14–59)

48. INSTALL CHAIN VIBRATION DAMPER NO.1

(a) Install the vibration damper with the 2 bolts.
Torque: 21 N·m (214 kgf·cm, 15 ft·lbf)

49. INSTALL CHAIN SUB–ASSY (SEE PAGE 14–44)

50. INSTALL CHAIN TENSIONER SLIPPER

(a) Install the tensioner slipper with the bolt.
Torque: 21 N·m (214 kgf·cm, 15 ft·lbf)

51. INSTALL CHAIN TENSIONER ASSY NO.1

(a) Install a new gasket and the chain tensioner with the bolt and nut.
Torque: 10 N·m (102 kgf·cm, 7 ft·lbf)

52. INSTALL TIMING CHAIN GUIDE

(a) Install a new O–ring and the chain guide with the 2 bolts.
Torque: 10 N·m (102 kgf·cm, 7 ft·lbf)

53. INSTALL TIMING CHAIN COVER (SEE PAGE 17–12)

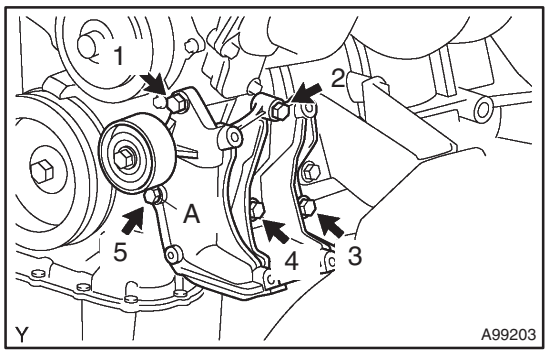
54. INSTALL CRANKSHAFT PULLEY (SEE PAGE 14–44)

SST 09213–54015 (91651–60855), 09330–00021

55. INSTALL WATER BY–PASS PIPE NO.1

(a) Install a new gasket and the water by–pass pipe with the bolt and 2 nuts.
Torque: 18 N·m (179 kgf·cm, 13 ft·lbf)

56. INSTALL INTAKE MANIFOLD (SEE PAGE 14–19)



57. INSTALL COMPRESSOR MOUNTING BRACKET NO.1 (W/ AIR CONDITIONING)

(a) Temporarily install the mounting bracket with the 5 bolts.

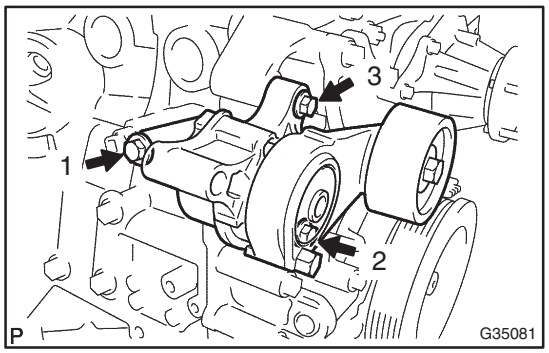
HINT:

Make sure the flanges of the bolts are contacting the bracket surface.

(b) Install the mounting bracket by tightening the 5 bolts in the order shown in the illustration.
Torque:
25 N·m (250 kgf·cm, 18 ft·lbf) for bolt A
45 N·m (459 kgf·cm, 33 ft·lbf) for bolts except bolt A

NOTICE:

In order to prevent misalignment, which causes belt rattle, tightening of the bolts must be performed in the order shown.



58. INSTALL V–RIBBED BELT TENSIONER ASSY

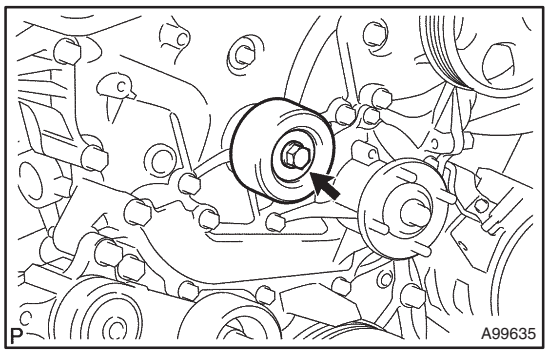
(a) Temporarily install the belt tensioner with the bolt 1 and bolt 2.

HINT:

Make sure the flanges of the bolts are contacting the tensioner surface.

(b) Install the tensioner by tightening the 3 bolts in the order shown in the illustration.

Torque:
40 N·m (408 kgf·cm, 30 ft·lbf) for bolt 1
21 N·m (214 kgf·cm, 15 ft·lbf) for bolt 2
43 N·m (438 kgf·cm, 32 ft·lbf) for bolt 3



59. INSTALL IDLER PULLEY SUB–ASSY NO.1

(a) Install the idler pulley sub–assy No.1 with the bolt.

Torque: 43 N·m (438 kgf·cm, 32 ft·lbf)

60. INSTALL GENERATOR ASSY (SEE PAGE 19–8)

61. INSTALL OIL PAN SUB–ASSY (SEE PAGE 14–44)

SST 09950–60010 (09951–00300), 09950–70010 (09951–07100)

62. INSTALL OIL STRAINER SUB–ASSY

(a) Install a new gasket and the oil strainer with the 2 bolts and 2 nuts.

Torque: 26 N·m (265 kgf·cm, 19 ft·lbf)

63. INSTALL OIL PAN SUB–ASSY NO.2 (SEE PAGE 14–44)

64. INSTALL CYLINDER HEAD COVER SUB–ASSY (SEE PAGE 14–44)

65. INSTALL IGNITION COIL ASSY

(a) Install the ignition coil with the bolt.

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

66. INSTALL FAN PULLEY

67. INSTALL FLUID COUPLING ASSY

(a) Install the coupling to the fan pulley with the 4 nuts.

Torque: 25 N·m (255 kgf·cm, 18 ft·lbf)

68. INSTALL ENGINE WIRE

69. REMOVE ENGINE STAND

70. INSTALL REAR END PLATE (SEE PAGE 14–19)

71. INSTALL DRIVE PLATE & RING GEAR SUB–ASSY (AUTOMATIC TRANSMISSION) (SEE PAGE 14–19)

SST 09213–54015 (91651–60855), 09330–00021

72. INSTALL FLYWHEEL SUB–ASSY (MANUAL TRANSMISSION) (SEE PAGE 14–19)

SST 09213–54015 (91651–60855), 09330–00021

73. INSTALL CLUTCH DISC ASSY (MANUAL TRANSMISSION) (SEE PAGE 42–5)

SST 09301–00110

74. INSTALL CLUTCH COVER ASSY (MANUAL TRANSMISSION) (SEE PAGE 42–5)
75. INSTALL ENGINE ASSEMBLY (SEE PAGE 14–19)