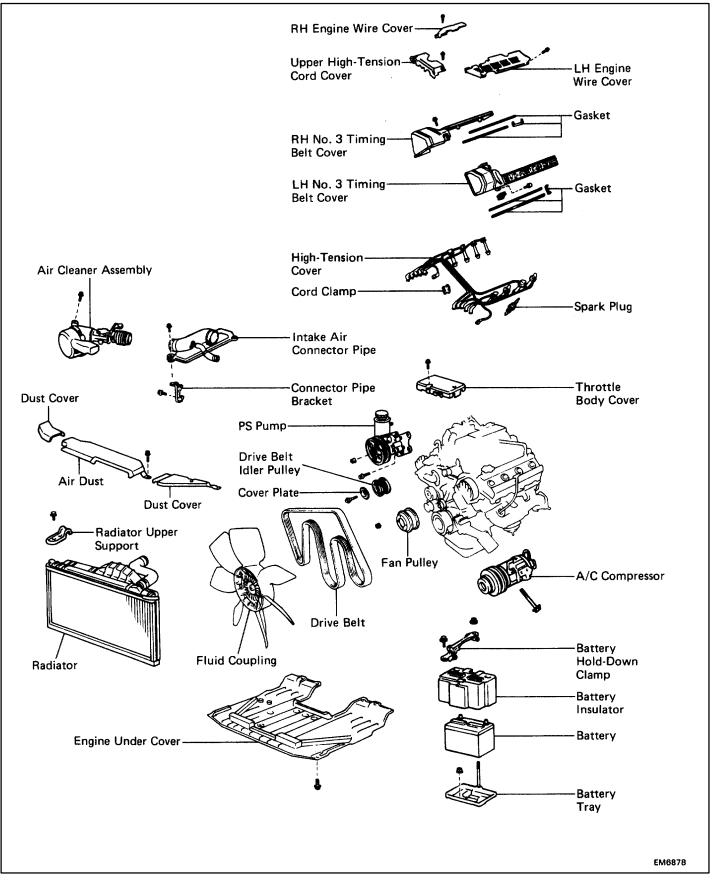
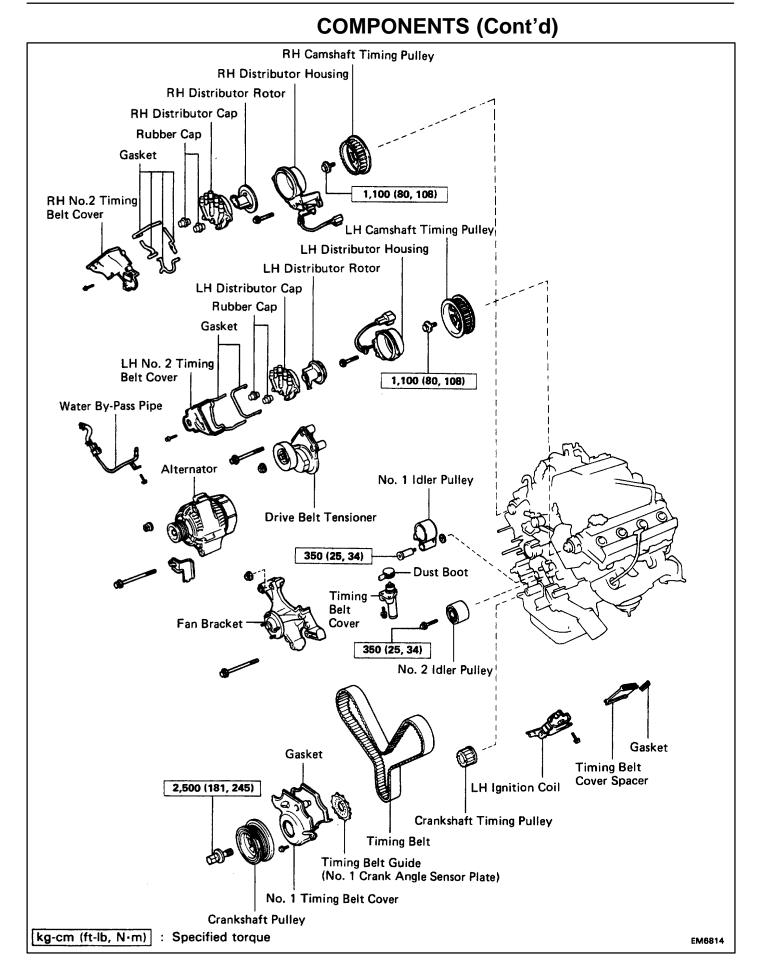
TIMING BELT COMPONENTS





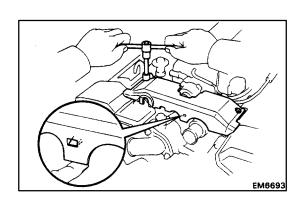
REMOVAL OF TIMING BELT

(See pages EM-15 and 16)

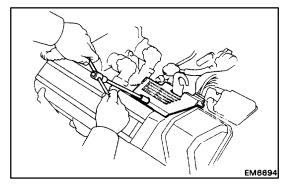
- DISCONNECT CABLE FROM NEGATIVE TERMINAL OF BATTERY CAUTION: Work must be started after approx. 20 seconds or longer from the time the ignition switch is turned to the "LOCK" position and the negative (–) terminal cable is disconnected from the battery.
- 2. REMOVE AIR DUCT AND DUST COVERS
- 3. REMOVE BATTERY
- 4. REMOVE ENGINE UNDER COVER
- 5. DRAIN ENGINE COOLANT
- 6. REMOVE DRIVE BELT, FAN, FLUID COUPLING AND FAN PULLEY

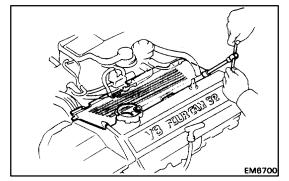
(See step 8 on page EM-84)

- 7. REMOVE RADIATOR (See page CO–12)
- 8. REMOVE AIR CLEANER (See step 10 on page EM-85)
- 9. REMOVE THROTTLE BODY COVER (See step 12 on page EM-85)
- 10. REMOVE INTAKE AIR CONNECTOR PIPE (See step 13 on page EM-85)
- 11. REMOVE A/C COMPRESSOR WITHOUT DISCONNECTING HOSES (See step 16 on page EM-86)
- 12. REMOVE PS PUMP WITHOUT DISCONNECTING HOSES (See step 14 on page EM-86)
- 13. REMOVE UPPER HIGH-TENSION CORD COVER
 - (a) Remove the two bolts.
 - (b) Disconnect the front side claw groove of the upper cover from the claw of the lower cover, and remove the upper cover.



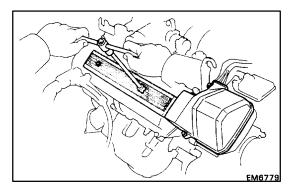
14. REMOVE RH ENGINE WIRE COVER Remove the bolt and wire cover.



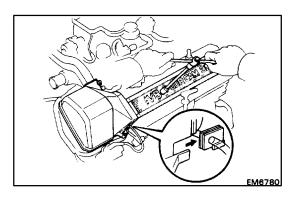


15. REMOVE LH ENGINE WIRE COVER

- (a) Disconnect the PCV hose from the PCV valve on the LH cylinder head.
- (b) Remove the three bolts and wire cover.

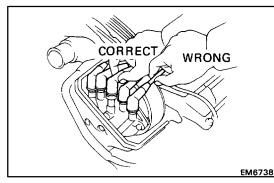


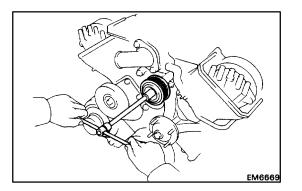
16. REMOVE RH NO.3 TIMING BELT COVER Remove the four bolts, timing belt cover and three gaskets.



17. REMOVE LH NO.3 TIMING BELT COVER

- (a) Disconnect the vacuum hose from the EVAP BVSV.
- (b) Remove the four bolts.
- (c) Disconnect the cord grommet from the timing belt cover, and remove the timing belt cover and three gaskets.
- (d) Remove the cord grommet.





18. REMOVE HIGH-TENSION CORDS

- (a) Disconnect the five cord clamps together with the high-tension cords from the lower high-tension cord cover.
- (b) Remove the five cord clamps from the high-tension cords.
- (c) (Ignition Coil Side)

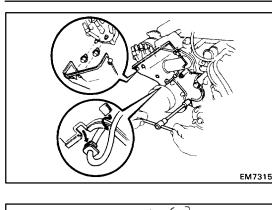
Disconnect the cord holder from the ignition coil.

(d) Disconnect the high-tension cord by pulling the grommet, and remove the ten high-tension cords.

NOTICE: Pulling or bending the cords may damage the conductor inside.

19. REMOVE DRIVE BELT IDLER PULLEY

Remove the pulley bolt, cover plate and idler pulley.

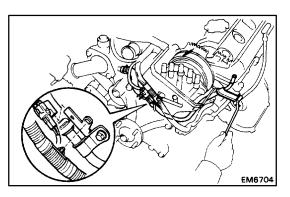


20. REMOVE RH NO.2 TIMING BELT COVER

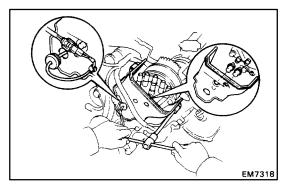
- (a) Disconnect the crank position sensor connector.
- (b) Remove the five bolts.
- (c) Disconnect the connector grommet from the timing belt cover, and remove the timing belt cover and four gaskets.
- (d) Remove the two rubber caps from the distributor cap.

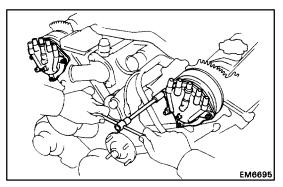
21. REMOVE LH IGNITION COIL

- (a) Disconnect the ignition coil connector.
- (b) Remove the two bolts and ignition coil.



EM6433





22. REMOVE WATER BY-PASS PIPE

- (a) Disconnect the water by-pass hose (from reservoir tank) from the water by-pass pipe.
- (b) Remove the two bolts.
- (c) Disconnect the wire and connector from the water bypass pipe.
- (d) Disconnect the water by–pass hose from the water inlet housing, and remove the water by–pass pipe and hose.

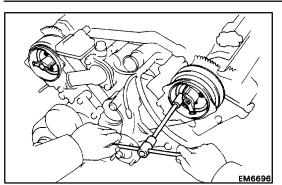
23. REMOVE LH NO.2 TIMING BELT COVER

- (a) Disconnect the crank position sensor wire from the clamp on the timing belt cover.
- (b) Disconnect the crank position sensor connector.
- (c) Remove the two bolts.
- (d) Disconnect the connector grommet from the timing belt cover, and remove the timing belt cover and two gaskets.
- (e) Remove the two rubber caps from the distributor cap.

24. REMOVE DISTRIBUTOR CAPS

Loosen the three bolts, and remove the distributor cap. Remove the two distributor caps.

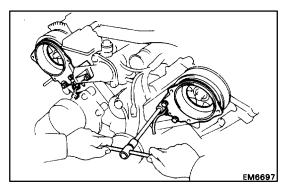
HINT: Arrange the distributor caps (RH side and LH side).



25. REMOVE DISTRIBUTOR ROTORS

Loosen the two bolts, and remove the distributor rotor. Remove the two distributor rotors.

HINT: Arrange the distributor rotors (RH side and LH side).



26. REMOVE DISTRIBUTOR HOUSINGS

(a) (RH Distributor Housing)

Disconnect the crank position sensor connector from the ignition coil bracket.

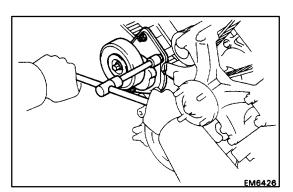
(b) (RH Distributor Housing)

Disconnect the crank position sensor connector from the engine wire.

(c) Remove the three bolts and distributor housing. Remove the two distributor housings.

27. REMOVE ALTERNATOR

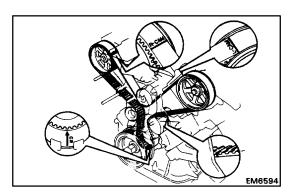
- (a) Disconnect the alternator connector and wire.
- (b) Remove the bolt, nut, engine wire bracket and alternator.



EM6377

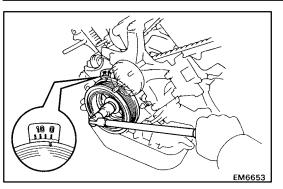
28. REMOVE DRIVE BELT TENSIONER Remove the bolt, two nuts and tensioner. 20. REMOVE SPARK PLUCE (See page 10. 8)

29. REMOVE SPARK PLUGS (See page IG-8)



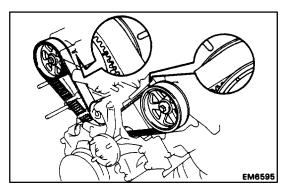
30. IF RE-USING TIMING BELT, CHECK INSTALLATION MARKS ON TIMING BELT

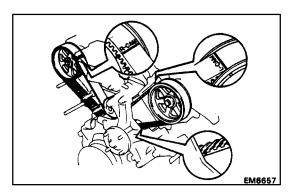
Check that there are four installation marks on the timing belt by turning the crankshaft pulley as shown in the illustration. If the installation marks have disappeared, place a new installation mark on the timing belt before removing each part.

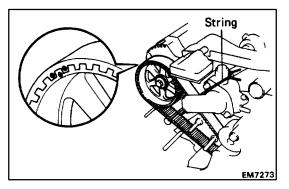


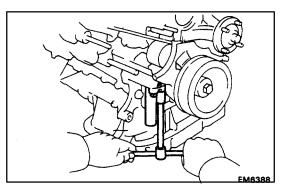
31. SET NO.1 CYLINDER TO TDC/COMPRESSION

(a) Turn the crankshaft pulley and align its groove with the timing mark "0" of the No.1 timing belt cover.









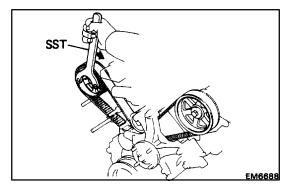
(b) Check that the timing marks of the camshaft timing pulleys and timing belt rear plates are aligned.
 If not, turn the crankshaft one revolution (360°).

- 32. REMOVE TIMING BELT TENSIONER HINT:
 - (Re–using timing belt)

If the installation marks have disappeared, before removing the timing belt, place new installation marks on the timing belt to match the timing marks of the camshaft timing pulleys, and place a new installation mark on the timing belt to match the end of the fan bracket.

• (When replacing timing belt tensioner only) To avoid meshing of the timing pulley and timing belt, secure one with string. And place matchmarks on the timing belt and RH camshaft timing pulley.

Alternately loosen the two bolts, and remove them, the tensioner and dust boot. EM6378

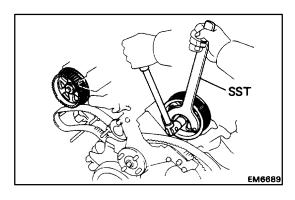


33. DISCONNECT TIMING BELT FROM CAMSHAFT TIMING PULLEYS

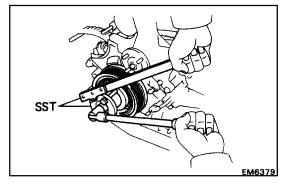
(a) Using SST, loosen the tension between the LH and RH camshaft timing pulleys by slightly turning the LH camshaft timing pulley clockwise.

SST 09278-54012

(b) Disconnect the timing belt from the camshaft timing pulleys.

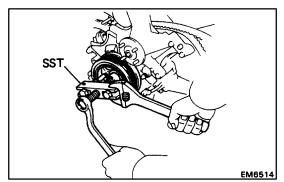


34. REMOVE CAMSHAFT TIMING PULLEYS
 Using SST, remove the bolt, timing pulley. Remove the two timing pulleys.
 SST 09278–54012

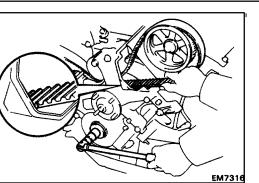


35. REMOVE CRANKSHAFT PULLEY

(a) Using SST, remove the pulley bolt. SST 90213–70010 and 09330–00021



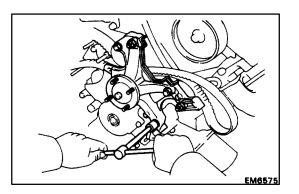
(b) Using SST, remove the pulley. SST 09213–31021



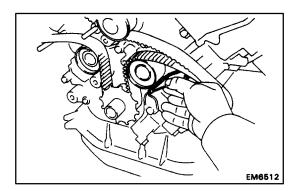
36. REMOVE FAN BRACKET

HINT (Re–using timing belt): Before removing the fan bracket, using the crankshaft pulley bolt, turn the crankshaft pulley and align the installation mark of the timing belt with the end of the fan bracket.

Remove the two bolts, two nuts and fan bracket.

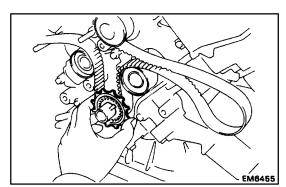


37. REMOVE NO.1 TIMING BELT COVER Remove the four bolts, timing belt cover and gasket.



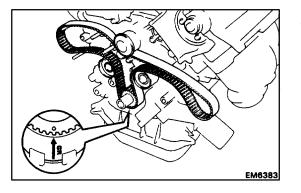
EM6454

38. REMOVE TIMING BELT COVER SPACER Remove the cover spacer and gasket.



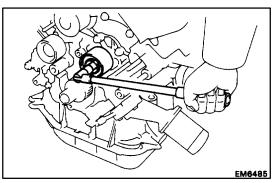
39. REMOVE TIMING BELT GUIDE (NO.1 CRANK ANGLE SENSOR PLATE)





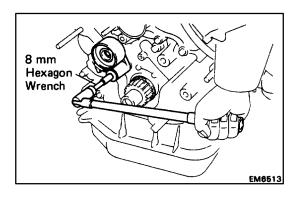
40. REMOVE TIMING BELT

HINT (Re-using timing belt): If the installation marks have disappeared, place a new installation mark on the timing belt to match the drilled mark of the crankshaft timing pulley.

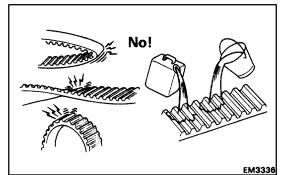


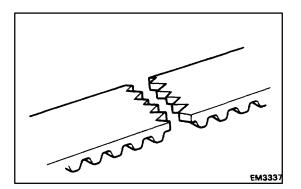
41. REMOVE NO.2 IDLER PULLEY Remove the pulley bolt and idler pulley.

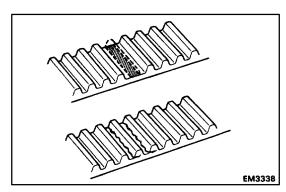
- EM6486
- 42. REMOVE NO.1 IDLER PULLEY Using a 8 mm hexagon wrench, remove the bolt, idler pulley and plate washer.



43. REMOVE CRANKSHAFT TIMING PULLEY Using SST, remove the timing pulley. SST 09213-60017 (09213-00050)









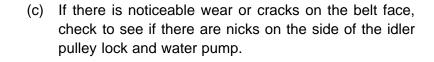
1. INSPECT TIMING BELT

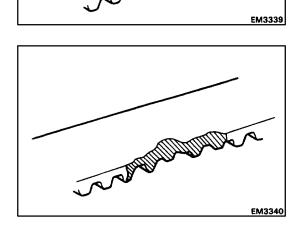
NOTICE:

- Do not bend, twist or turn the timing belt inside out.
- Do not allow the timing belt to come into contact with oil, water or steam.
- Do not utilize timing belt tension when installing or removing the mount bolt of the camshaft timing pulley.

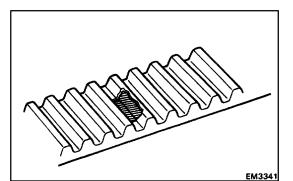
If there are any defects as shown in the figures, check the following points:

- (a) Premature parting
 - Check for proper installation.
 - Check the timing cover gasket for damage and proper installation.
- (b) If the belt teeth are cracked or damaged, check to see if either camshaft is locked.

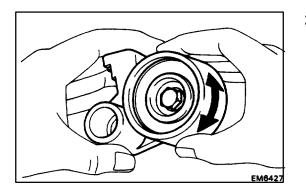




(d) If there is wear or damage on only one side of the belt, check the belt guide and the alignment of each pulley.

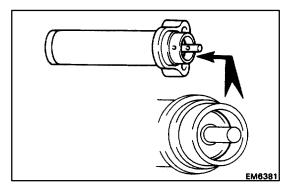


(e) If there is noticeable wear on the belt teeth, check timing cover for damage and check for correct gasket installation and for foreign material on the pulley teeth. If necessary, replace the timing belt.



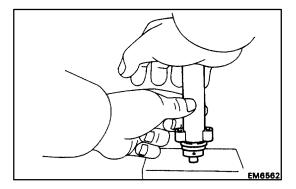
2. **INSPECT IDLER PULLEYS**

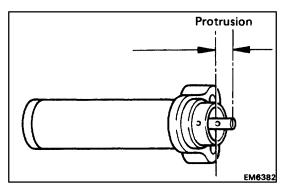
Check the turning smoothness of the idler pulley. If necessary, replace the idler pulley.



INSPECT TIMING BELT TENSIONER 3.

(a) Visually check tensioner for oil leakage. HINT: If there is only a small trace of oil on the seal of the push rod, the tensioner is all right. If leakage is found, replace the tensioner.





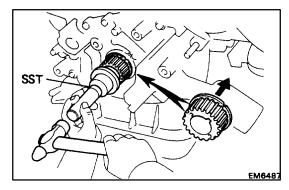
(b) Hold the tensioner with both hands and push the push rod strongly against the floor or wall to check that it doesn't move.

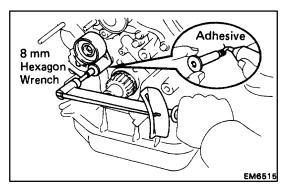
If the push rod moves, replace the tensioner.

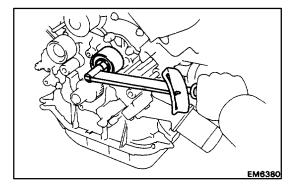
(c) Measure the protrusion of the push rod from the housing end.

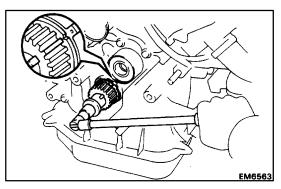
Protrusion: 10.5-11.5 mm (0.413-0.453 in.)

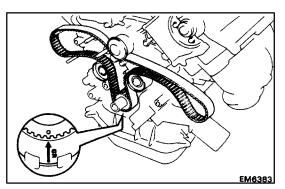
If the protrusion is not as specified, replace the tensioner.











INSTALLATION OF TIMING BELT

(See pages EM-15 and 16)

1. INSTALL CRANKSHAFT TIMING PULLEY

- (a) Align the pulley set key on the crankshaft with the key groove of the timing pulley.
- (b) Using SST and a hammer, tap in the timing pulley, facing the flange side rearward.

SST 09223-46011

2. INSTALL NO.1 IDLER PULLEY

(a) Apply adhesive to two or three threads of the pulley bolt end.

Adhesive: Part No. 08833–00080, THREE BOND 1344, LOCTITE 242 or equivalent

(b) Using an 8 mm hexagon wrench, install the plate washer and idler pulley with the pulley bolt. Torque the pulley bolt.

Torque: 350 kg-cm (25 ft-lb, 34 N·m)

(c) Check that the pulley bracket moves smoothly.

3. INSTALL NO.2 IDLER PULLEY

(a) Install the idler pulley with the pulley bolt. Torque the pulley bolt.

Torque: 350 kg-cm (25 ft-lb, 34 N·m)

(b) Check that the idler pulley moves smoothly.

4. TEMPORARILY INSTALL TIMING BELT

NOTICE: The engine should be cold.

- (a) Using the crankshaft pulley bolt, turn the crankshaft and align the timing marks of the crankshaft timing pulley and oil pump body.
- (b) Remove any oil or water on the crankshaft timing pulley, No.1 idler pulley and No.2 idler pulley, and keep them clean.
- (c) Align the installation mark on the timing belt with the drilled mark of the crankshaft timing pulley.
- (d) Install the timing belt on the crankshaft timing pulley, No.1 idler pulley and No.2 idler pulley.

EM6455

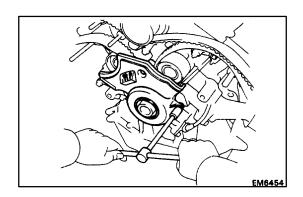
EM6512

5. INSTALL TIMING BELT GUIDE (NO.1 CRANK ANGLE SENSOR PLATE)

Install the belt guide, facing the cup side forward.

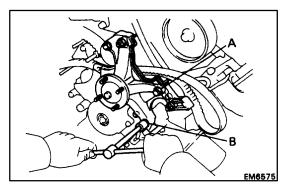
6. INSTALL TIMING BELT COVER SPACER

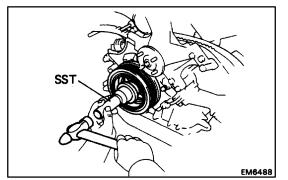
- (a) Install the gasket to the spacer.
- (b) Install the spacer.



7. INSTALL NO.1 TIMING BELT COVER

- (a) Install the gasket to the timing belt cover.
- (b) Install the timing belt cover with the four bolts.





8. INSTALL FAN BRACKET

Install the fan bracket with the two bolts and two nuts. **Torque:**

12 mm head 160 kg-cm (12 ft-lb, 16 N·m)

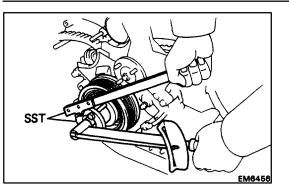
Others 310 kg-cm (22 ft-lb, 30 N·m)

HINT: Each bolt length is indicated in the figure. Bolt length:

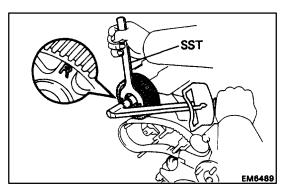
A 106 mm (4.17 in.) for 12 mm head B 114 mm (4.49 in.) for 14 mm head

9. INSTALL CRANKSHAFT PULLEY

- (a) Align the pulley set key on the crankshaft with the key groove of the pulley.
- (b) Using SST and a hammer, tap in the pulley.
- SST 09223-46011



(c) Using SST, install and torque the pulley bolt. SST 09213–70010 and 09330–00021 Torque: 2,500 kg–cm (181 ft–lb, 245 N⋅m)



SST



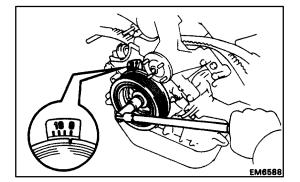
- (a) Align the knock pin on the camshaft with the knock pin groove of the timing pulley.
- (b) Slide the timing pulley, facing the "RH" mark forward.
- (c) Using SST, install and torque the pulley bolt.
- SST 09278-54012

Torque: 1,100 kg-cm (80 ft-lb, 108 N·m)

11. INSTALL LH CAMSHAFT TIMING PULLEY

- (a) Align the knock pin on the camshaft with the knock pin groove of the timing pulley.
- (b) Slide the timing pulley, facing the "LH" mark forward.
- (c) Using SST, install and torque the pulley bolt.
- SST 09278-54012

Torque: 1,100 kg-cm (80 ft-lb, 108 N·m)



EM6490



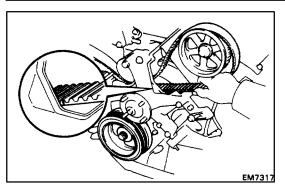
(a) (Crankshaft Pulley Position)

Turn the crankshaft pulley, and align its groove with the "0" timing mark of the No.1 timing belt cover.

SST CONTRACTOR (b) (Camshaft Timing Pulley Positions)

Using SST, turn the camshaft timing pulley, and align the timing marks of the camshaft timing pulley and timing belt rear plate.

SST 09278-54012



SS

SST

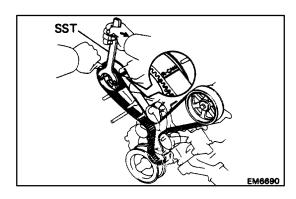
EM6597

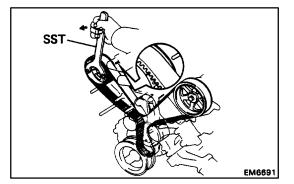
EM6598

13. INSTALL TIMING BELT TO LH CAMSHAFT TIMING PULLEY

(a) Check that the installation mark on the timing belt matches the end of the fan bracket.

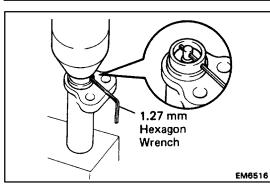
- (b) Remove any oil or water on the LH camshaft timing pulley, and keep it clean.
 - (c) Using SST, slightly turn the LH camshaft timing pulley clockwise. Align the installation mark on the timing belt with the timing mark of the camshaft timing pulley, and hang the timing belt on the LH camshaft timing pulley. SST 09278–54012
 - (d) Using SST, align the timing marks of the LH camshaft pulley and timing belt rear plate.
- SST 09278-54012
- (e) Check that the timing belt has tension between the crankshaft timing pulley and LH camshaft timing pulley.

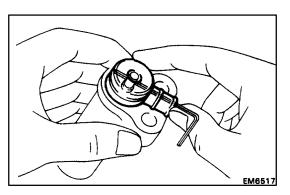




14. INSTALL TIMING BELT TO RH CAMSHAFT TIMING PULLEY

- (a) Remove any oil or water on the RH camshaft timing and water pump pulley, and keep them clean.
- (b) Using SST, slightly turn the RH camshaft timing pulley clockwise. Align the installation mark on the timing belt with the timing mark of the camshaft timing pulley, and hang the timing belt on the RH camshaft timing pulley. SST 09278–54012
- (c) Using SST, align the timing marks of the RH camshaft pulley and timing belt rear plate.
- SST 09278-54012
- (d) Check that the timing belt has tension between the RH camshaft timing pulley and LH camshaft timing pulley.



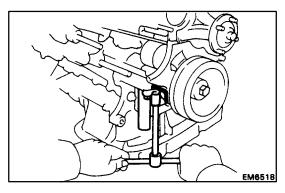


setting position of the push rod.

15. SET TIMING BELT TENSIONER

(c) Release the press.

(d) Install the dust boot to the tensioner.



16. INSTALL TIMING BELT TENSIONER

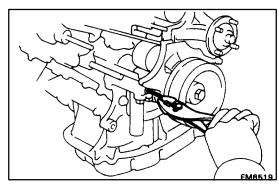
(a) Temporarily install the tensioner with the two bolts.

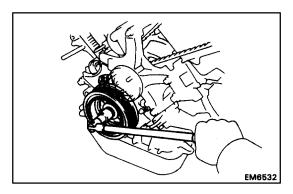
(a) Using a press, slowly press in the push rod using 100–1,000 kg (220–2,205 lb, 981–9,807 N) of pressure.
(b) Align the holes of the push rod and housing, pass a 1.27 mm hexagon wrench through the holes to keep the

(b) Alternately tighten the two bolts.

Torque: 270 kg-cm (20 ft-lb, 26 N·m)

(c) Using pliers, remove the 1.27 mm hexagon wrench from the tensioner.

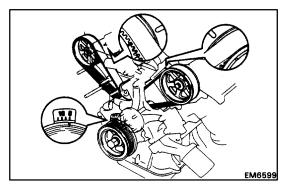




17. CHECK VALVE TIMING

(a) Turn the crankshaft pulley two revolutions from TDC to TDC.

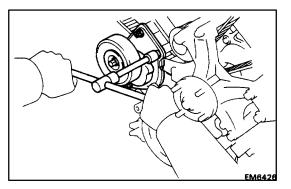
NOTICE: Always turn the crankshaft clockwise.



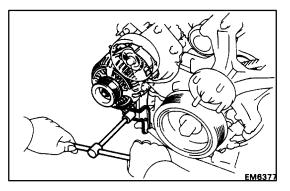
(b) Check that each pulley aligns with the timing marks as shown in the figure.

If the marks do not align, remove the timing belt and reinstall it.

18. INSTALL SPARK PLUGS (See page IG-9) Torque: 180 kg-cm (13 ft-lb, 18 N·m)



19. INSTALL DRIVE BELT TENSIONER Install the tensioner with the bolt and two nuts. Torque: 160 kg-cm (12 ft-lb, 16 N·m) HINT: Use bolt 106 mm (4.17 in.) in length.



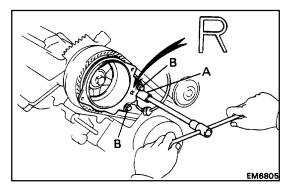
20. INSTALL ALTERNATOR

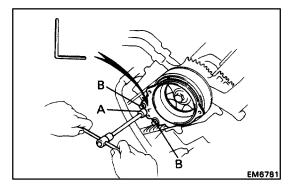
(a) Install the alternator and engine wire bracket with the bolt and nut.

Torque:

Bolt 360 kg-cm (26 ft-lb, 35 N·m) Nut 380 kg-cm (27 ft-lb, 37 N·m)

(b) Connect the alternator connector and wire.





21. INSTALL RH DISTRIBUTOR HOUSING

(a) Install the distributor housing with the three bolts. Torque: 185 kg-cm (13 ft-lb, 18 N·m) HINT:

- The RH distributor housing is marked with "R". •
- Each bolt length is indicated in the figure.

Bolt length: A 38 mm (1.50 in.)

B 96 mm (3.78 in.)

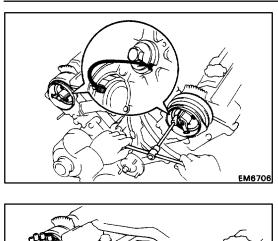
- (b) Connect the crank position sensor connector to the engine wire.
- Install the crank position sensor connector to the ignition (c) coil bracket.

22. INSTALL LH DISTRIBUTOR HOUSING

(a) Install the distributor housing with the three bolts. Torque: 185 kg–cm (13 ft–lb, 18 N·m) HINT:

- The LH distributor housing is marked with "L".
- Each bolt length is indicated in the figure.

Bolt length: A 38 mm (1.50 in.) B 80 mm (3.15 in.)



23. INSTALL DISTRIBUTOR ROTORS

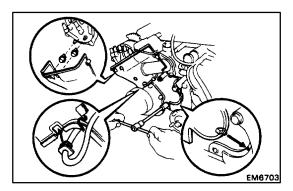
- (a) Align the protrusion of the distributor rotor with the groove of the camshaft timing pulley.
- (b) Install the distributor rotor with the two bolts. Install the two distributor rotors.

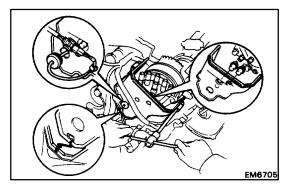
Torque: 39 kg-cm (34 in.-lb, 3.8 N·m)

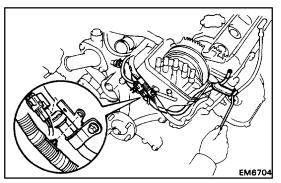
24. INSTALL DISTRIBUTOR CAPS

Install the distributor cap with the three bolts. Install the two distributor caps.

Torque: 39 kg-cm (34 in.-lb, 3.8 N·m)







25. INSTALL RH NO.2 TIMING BELT COVER

- (a) Install the two rubber caps to the distributor cap.
- (b) Install the four gaskets to the timing belt cover.
- (c) Install the connector grommet to the timing belt cover.

(d) Install the timing belt cover with the five bolts.

Torque:

EM6695

10 mm head bolt 80 kg–cm (69 in.–lb, 7.8 N⋅m) 12 mm head bolt 160 kg–cm (12 ft–lb, 16 N⋅m)

HINT (12 mm head bolt): Use bolts 106 mm (4.17 in.) in length.

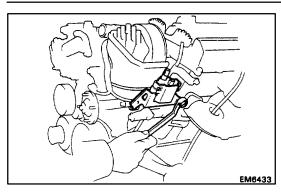
(e) Connect the crank position sensor connector.

26. INSTALL LH NO.2 TIMING BELT COVER

- (a) Install the two rubber caps to the distributor cap.
- (b) Run the crank position sensor wire through the timing belt cover hole, and install the two gaskets to the timing belt cover.
- (c) Install the connector grommet to the timing belt cover.
- (d) Install the timing belt cover with the two bolts.
- (e) Connect the crank position sensor connector.

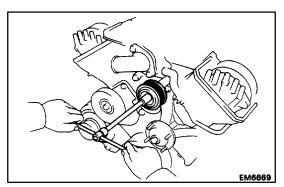
27. INSTALL WATER BY-PASS PIPE

- (a) Connect the water by-pass hose to the water inlet housing.
- (b) Install the water by-pass pipe with the two bolts.
- (c) Install the wire and connector to the water by-pass pipe.
- (d) Connect the water by–pass hose (from reservoir tank) to the water by–pass pipe.



28. INSTALL LH IGNITION COIL

- (a) Install the ignition coil with the two bolts.
- (b) Connect the ignition coil connector.



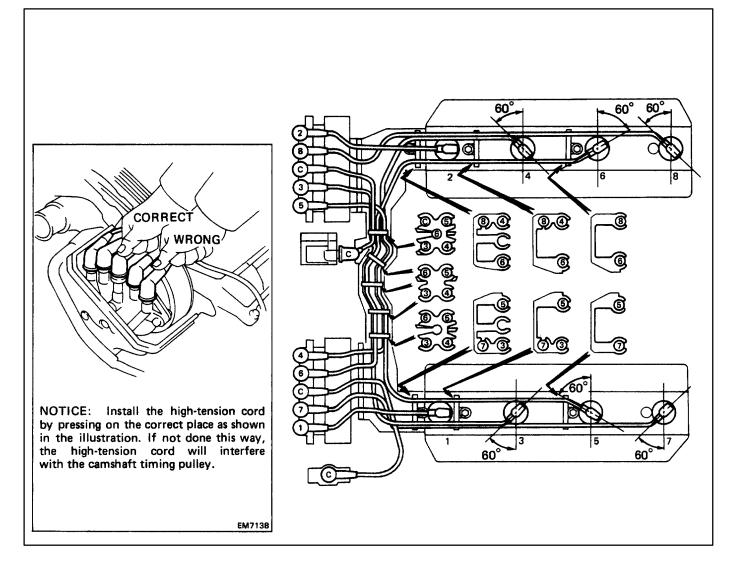
29. INSTALL DRIVE BELT IDLER PULLEY Install the idler pulley and cover plate with the pulley bolt. Torque: 380 kg-cm (27 ft-lb, 37 N·m)

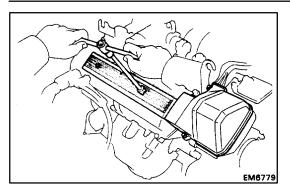
30. INSTALL HIGH-TENSION CORDS

- (a) Install the ten high-tension cords.
- (b) (Ignition Coil Side)

Install the cord holder to the ignition coil.

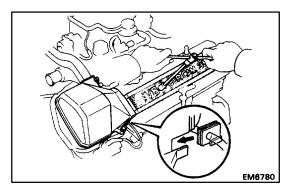
- (c) Install the five cord clamps to the high-tension cord.
- (d) Install the five cord clamps to the lower high-tension cord cover.





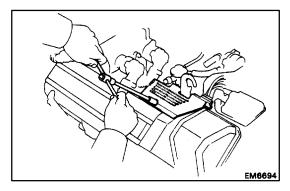
31. INSTALL RH NO.3 TIMING BELT COVER

- (a) Install the three gaskets to the timing belt cover.
- (b) Install the timing belt cover with the four bolts.

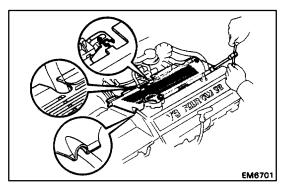


32. INSTALL LH NO.3 TIMING BELT COVER

- (a) Install the three gaskets to the timing belt cover.
- (b) Install the cord grommet to the high-tension cord.
- (c) Install the cord grommet to the timing belt cover, and install the timing belt cover with the four bolts.
- (d) Connect the vacuum hose to the EVAP BVSV.



33. INSTALL RH ENGINE WIRE COVER Install the wire cover with the bolt.



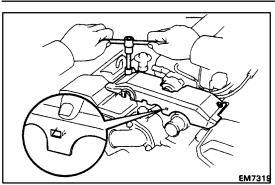
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34. INSTALL LH ENGINE WIRE COVER

- (a) Connect the wire cover to the two wire brackets, and place the wire cover in position.
- (b) Set the EVAP BVSV vacuum hose and fuel pressure VSV wire in original position.
- (c) Install the wire cover with the three bolts.

35. INSTALL UPPER HIGH-TENSION CORD COVER

(a) Fit the portion of the upper cover matching the top of the lower cover.



- (b) Fit the front side claw groove of the upper cover to the claw of the lower cover.
- (c) Install the cord cover with the two bolts.

- 36. INSTALL PS PUMP (See step 17 on page EM-128)
- 37. INSTALL A/C COMPRESSOR (See step 19 on page EM-128)
- **38. INSTALL INTAKE AIR CONNECTOR PIPE** (See step 20 on page EM-128)
- **39. INSTALL THROTTLE BODY COVER** (See step 21 on page EM-129)
- **40. INSTALL AIR CLEANER** (See step 23 on page EM-129)
- 41. INSTALL RADIATOR (See page CO-13)
- 42. INSTALL FAN PULLEY, FLUID COUPLING, FAN AND **DRIVE BELT**
 - (See step 25 on page EM-129)
- 43. INSTALL ENGINE UNDER COVER
- 44. INSTALL BATTERY
- 45. INSTALL AIR DUCT AND DUST COVERS
- 46. CONNECT CABLE TO NEGATIVE TERMINAL OF BATTERY
- 47. FILL WITH ENGINE COOLANT
- 48. CHECK IGNITION TIMING (See page IG-19) Ignition timing:
 - 8–12° BTDC @ idle
 - (w/ Terminals TE1 and E1 connected)