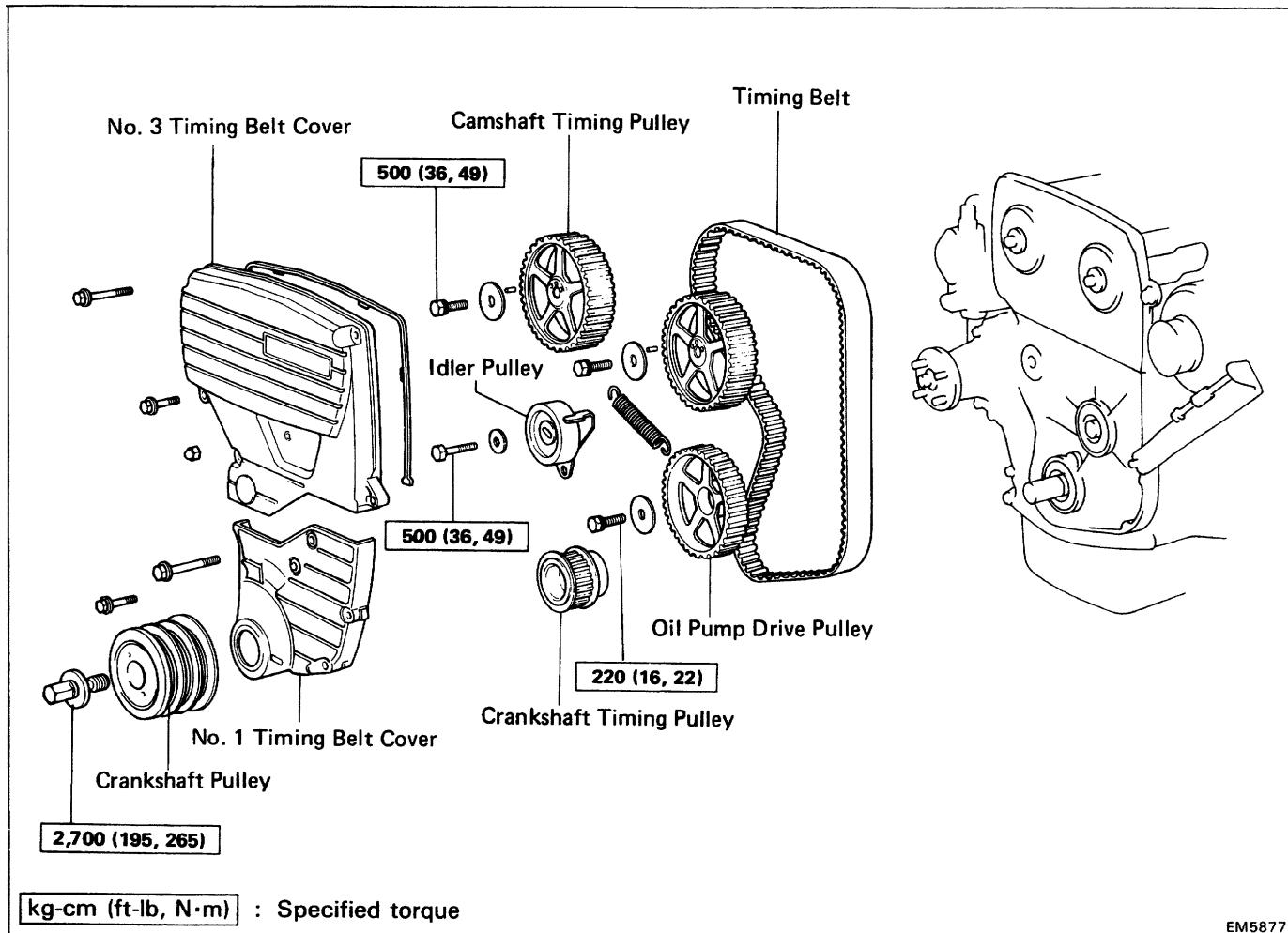


TIMING BELT COMPONENTS



EM5877

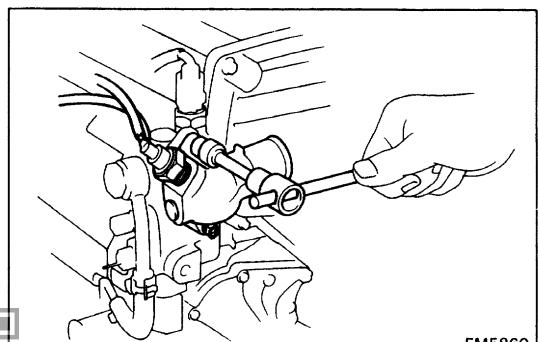
REMOVAL OF TIMING BELT

1. REMOVE RADIATOR (See page CO-11)
2. REMOVE SPARK PLUGS (See page IG-7)

3. REMOVE WATER OUTLET

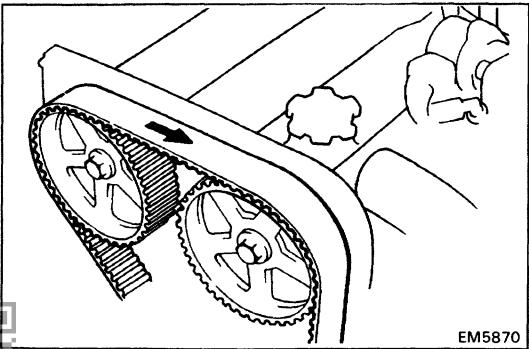
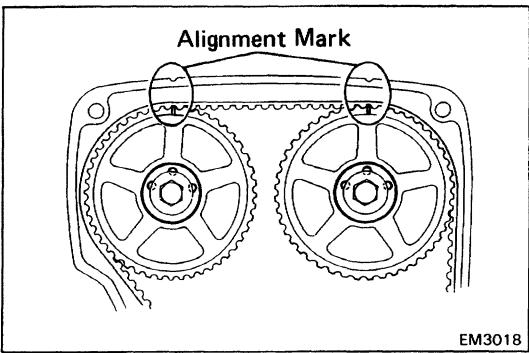
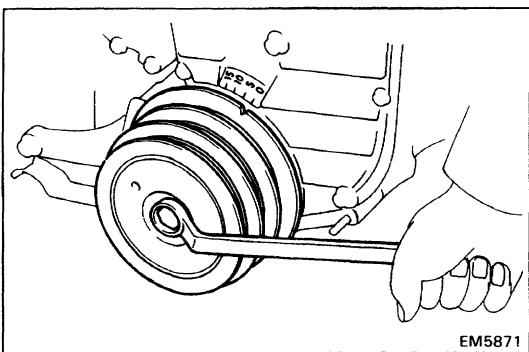
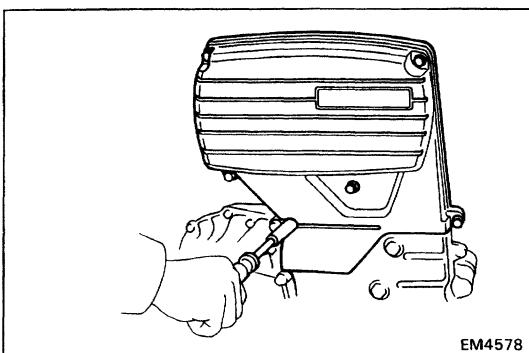
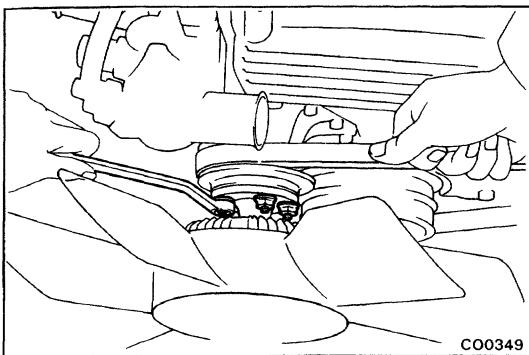
Remove the two bolts, water outlet and thermostat with the gasket.

4. REMOVE A/C BELT



EM5860





5. REMOVE ALTERNATOR DRIVE BELT, FAN WITH FLUID COUPLING AND WATER PUMP PULLEY

- Loosen the four nuts holding the fluid coupling to the water pump.
- Loosen the pivot bolt, adjusting bolt and nut, and remove the drive belt.
- Remove the four nuts, fluid coupling, water pump pulley and fan shroud.

6. REMOVE PS BELT

7. REMOVE NO.3 TIMING BELT COVER

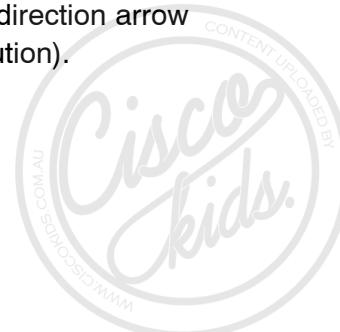
Remove the five bolts, nut and No.3 timing belt cover with the gasket.

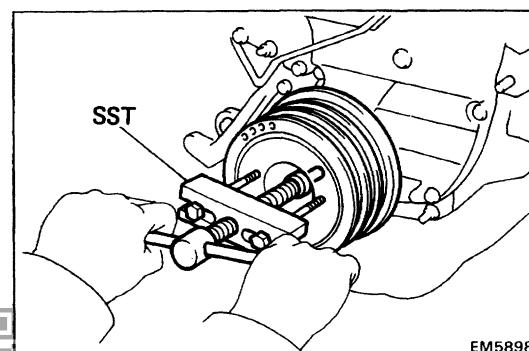
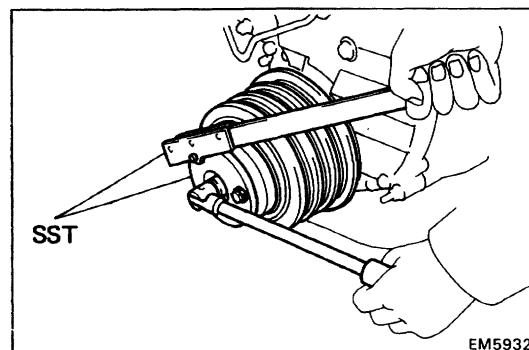
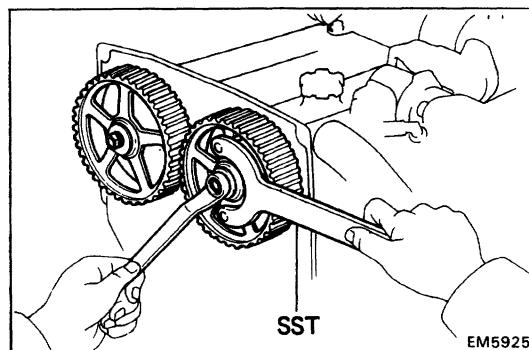
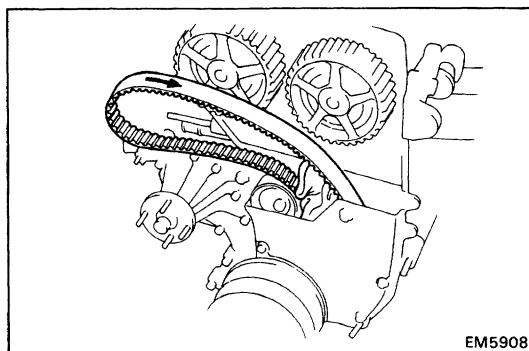
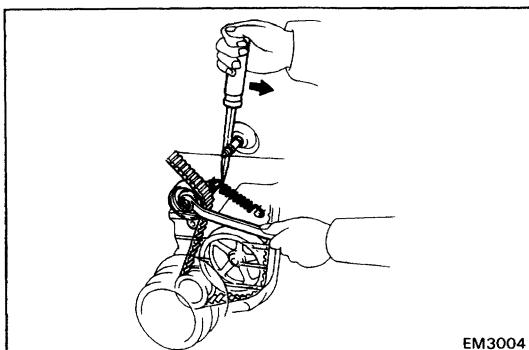
8. SET NO. 1 CYLINDER TO TDC/COMPRESSION

- Turn the crankshaft pulley and align its groove with the "0" mark on the No. 1 timing belt cover.
- Check that the alignment marks on the camshaft timing pulleys and No.2 timing belt cover are aligned. If not, turn the crankshaft pulley one complete revolution.

9. REMOVE TIMING BELT FROM CAMSHAFT TIMING PULLEYS

HINT: If reusing the timing belt, draw a direction arrow on the belt (in direction of engine revolution).





- Loosen the mounting bolt of the idler pulley and shift it left as far as it will go with a screwdriver and wrench.
- Temporarily tighten the mounting bolt and thus relieve the timing belt tension.
- Remove the timing belt from the camshaft timing pulley.

HINT:

- Support the belt so the meshing of the crankshaft timing pulley and timing belt does not shift.
- Be careful not to drop anything inside the timing belt cover.
- Do not allow the belt to come into contact with oil, water and dust.

10. REMOVE CAMSHAFT TIMING PULLEYS

Using SST to hold the pulley, remove the pulley bolt, timing pulley and straight pin.

SST 09278-54012

HINT: Place the matchmarks on the camshaft timing pulley where the straight pin is inserted.

NOTICE: Do not make use of the timing belt tension when removing and installing the pulley set bolts.

11. REMOVE CRANKSHAFT PULLEY

- Using SST to hold the crankshaft pulley, loosen the pulley mounting bolt.

SST 09213-54015 (91651-60855) and 09330-00021

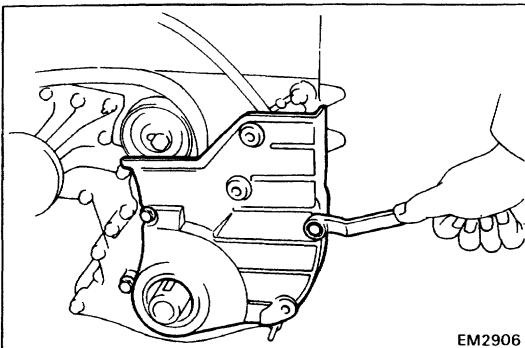
- Remove SST and pulley bolt.

- Using SST, remove the pulley.

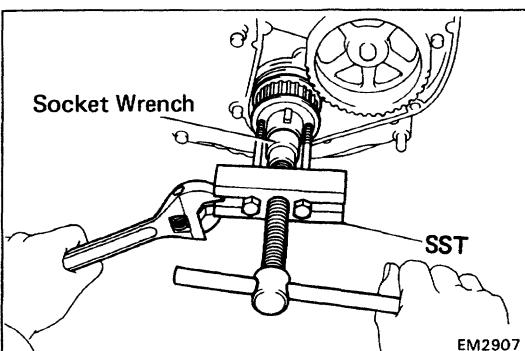
SST 09213-54015 (91651-60855) and 09213-60017 (09213-00020, 09213-00030, 09213-00040)

12. REMOVE PS AIR PIPE



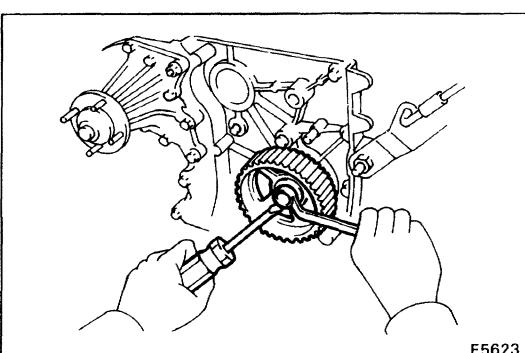
**13. REMOVE NO. 1 TIMING BELT COVER**

Remove the nine bolts, nut, A/C idler pulley bracket, compressor bracket and No. 1 timing belt cover.

14. REMOVE TIMING BELT**15. REMOVE IDLER PULLEY AND TENSION SPRING****16. REMOVE CRANKSHAFT TIMING PULLEY**

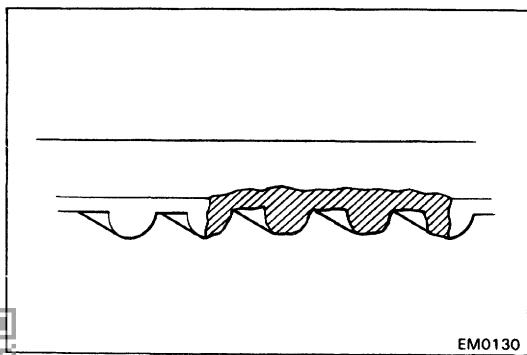
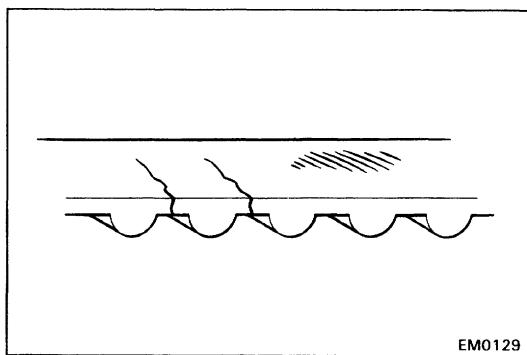
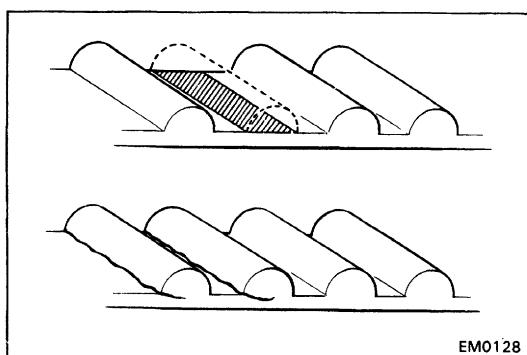
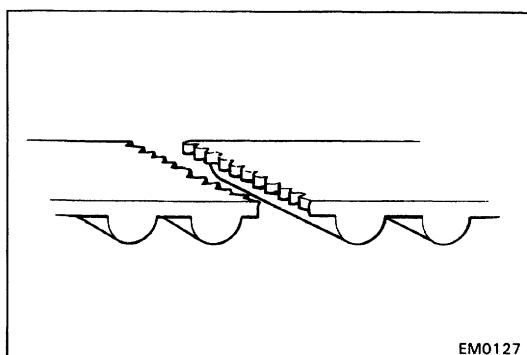
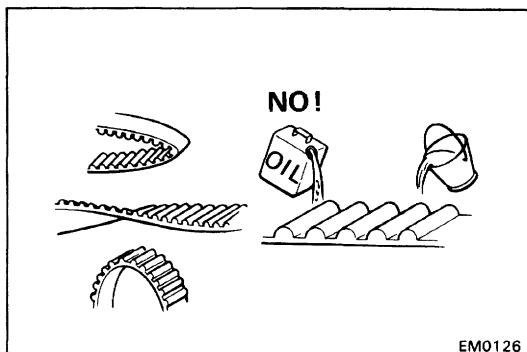
Using SST and a socket wrench, remove the crankshaft timing pulley.

SST 09213-60017 (09213-00020, 09213-00030, 09213-00050)

**17. REMOVE OIL PUMP DRIVE PULLEY**

Using a screwdriver to hold the pulley, remove the pulley bolt and pulley.





INSPECTION OF TIMING BELT COMPONENTS

1. INSPECT TIMING BELT

NOTICE:

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

If there are any defects as shown in the illustrations,

check the following points and replace the timing belt if necessary.

(a) Premature parting

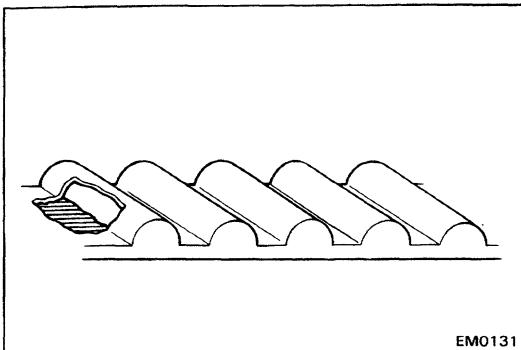
- Check for proper installation.
- Check the timing belt cover gasket for damage and proper installation.

(b) If the belt teeth are cracked or damaged, check to see if the camshaft is locked.

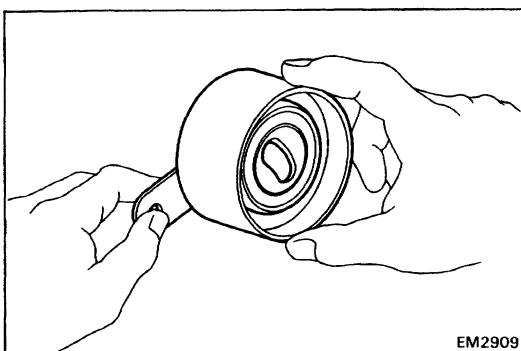
(c) If there is noticeable wear of cracks on the belt face, check to see if there are nicks on one side of the idler pulley lock.

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



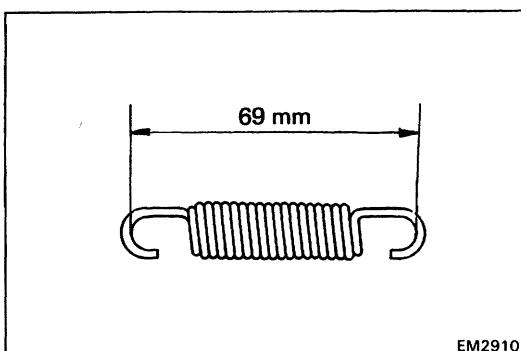


(e) If there is noticeable wear on the belt teeth, check the timing belt cover gasket for damage and correct gasket installation. Check for foreign materials on the pulley teeth.



2. INSPECT IDLER PULLEY

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



3. INSPECT TENSION SPRING

Check the free length of the spring.

Free length: 69 mm (2.72 in.)

If not as specified, replace the spring.



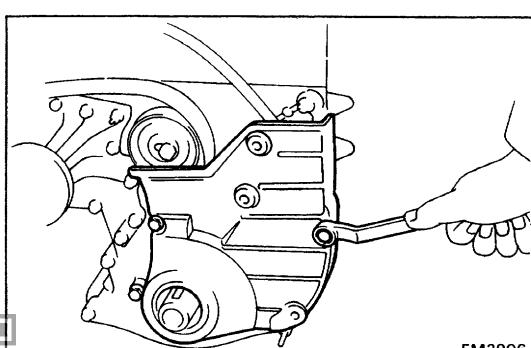
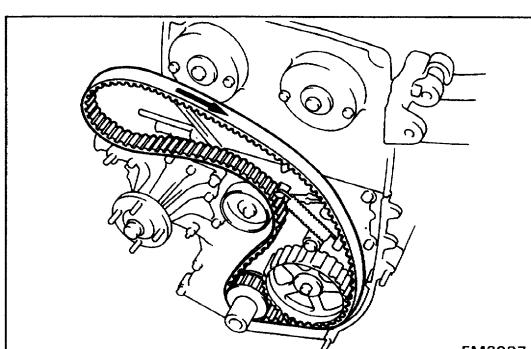
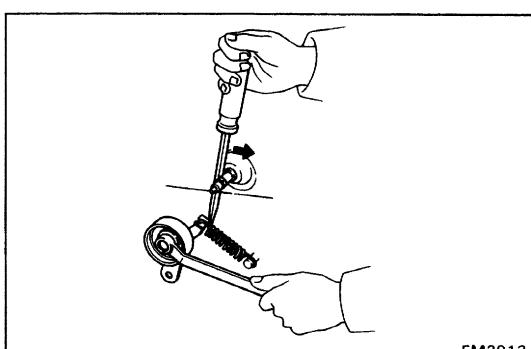
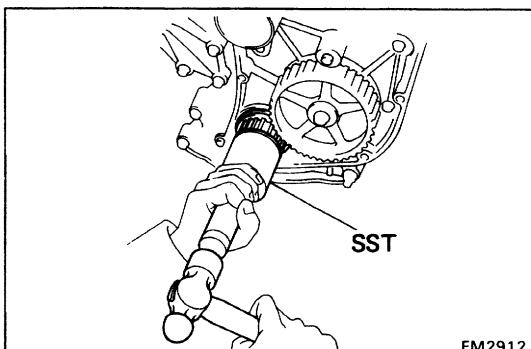
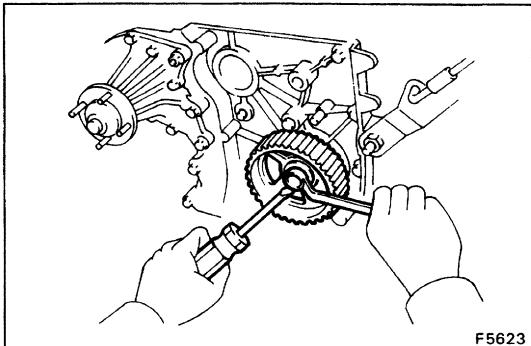
INSTALLATION OF TIMING BELT

(See page EM- 16)

1. INSTALL OIL PUMP DRIVE PULLEY

Using a screwdriver to hold the pulley, install and torque the pulley bolt.

Torque: 220 kg-cm (16 ft-lb, 22 N-m)



4. TEMPORARILY INSTALL TIMING BELT

NOTICE: The engine should be cold.

Install the timing belt on the crankshaft timing pulley, oil pump drive pulley and idler pulley.

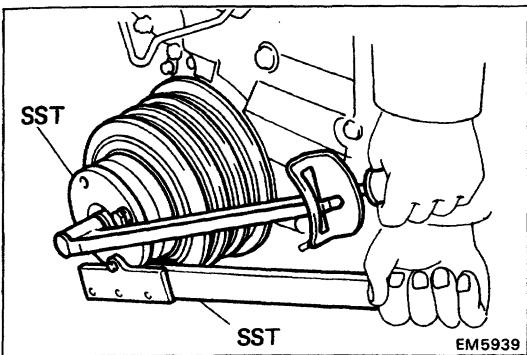
HINT: If reusing the timing belt, install it with the rotation direction mark pointing in the same direction as before disassembly.

5. INSTALL NO. 1 TIMING BELT COVER

Install the No. 1 timing belt cover, A/C compressor bracket and idler pulley bracket with the nine bolts and two nuts.

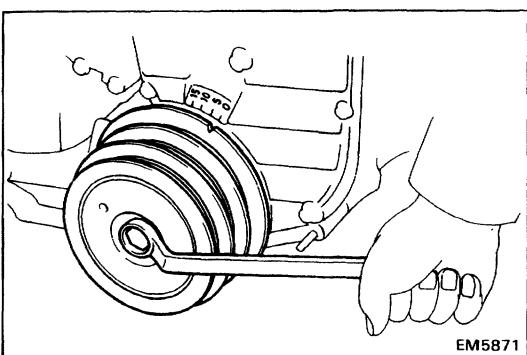
6. INSTALL PS AIR PIPE





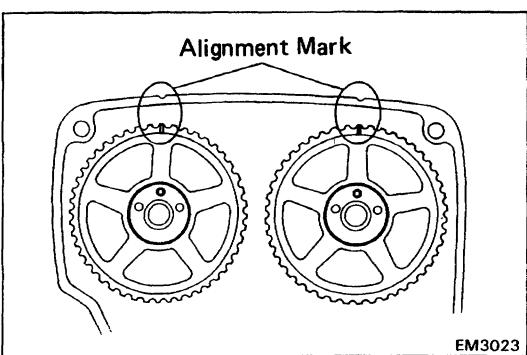
7. INSTALL CRANKSHAFT PULLEY

- Align the pulley set key with the key groove of the pulley, and slide the pulley.
- Using SST to hold the crankshaft pulley, install and torque the pulley mounting bolt.
SST 09213-54015 (91651-60855) and 09330-00021
Torque: 2,700 kg-cm (195 ft-lb, 265 N·m)



8. SET NO. 1 CYLINDER TO TDC/COMPRESSION

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



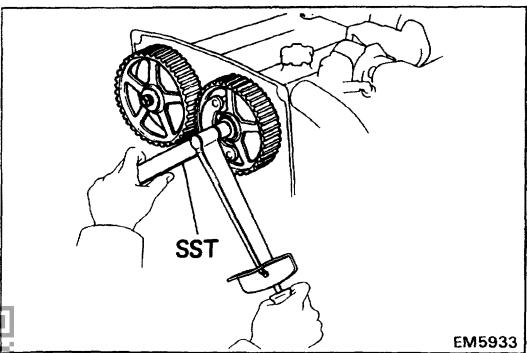
9. INSTALL CAMSHAFT TIMING PULLEYS

- Align the timing pulley alignment mark with the No.2 timing belt cover alignment mark.
- Install the timing pulley.
- Install the straight pin into the hole.

HINT:

- When replacing the camshaft or the camshaft timing pulley:
Align the center holes of the camshaft and timing pulleys, as shown in the illustration and insert the straight pin.
- When reusing the camshaft or camshaft timing pulleys:
Check that the straight pin hole position is in the same position it was at disassembly, and insert the straight pin.

- Install the plate washer and pulley bolt.



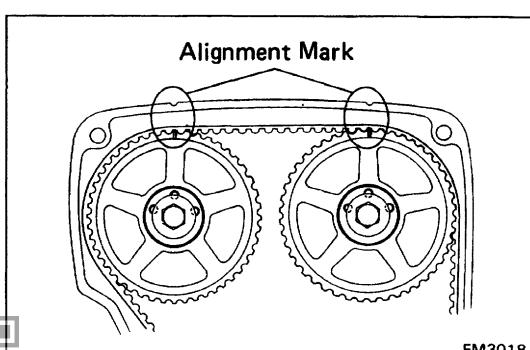
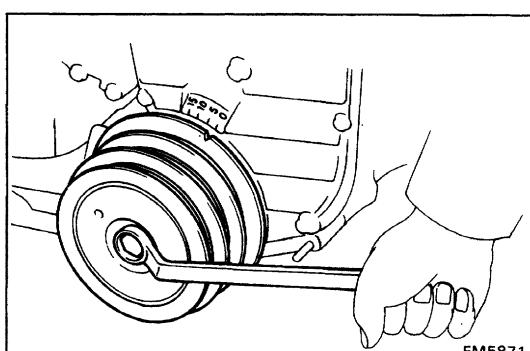
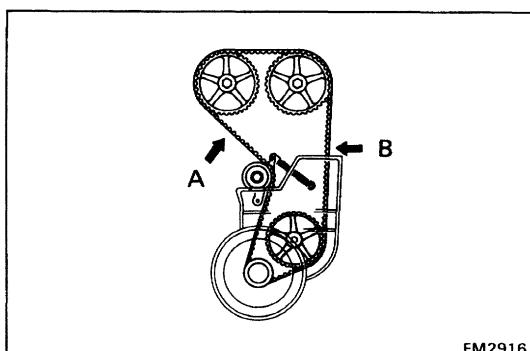
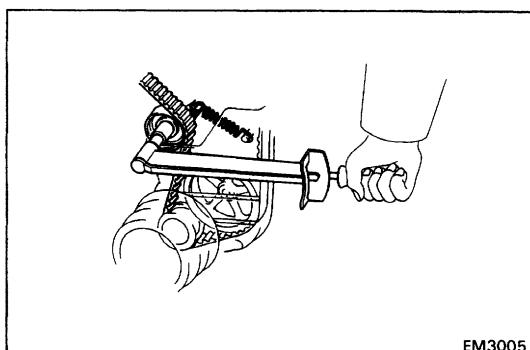
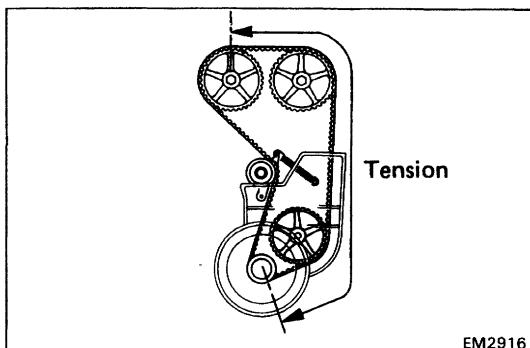
- Using SST to hold the pulley, torque the pulley bolt.

SST 09278-54012

Torque: 500 kg-cm (36 ft-lb, 49 N·m)

- Check that the matchmarks on the camshaft timing pulley are aligned with those on the No.2 timing belt cover.





10. INSTALL TIMING BELT

- Install the timing belt to the intake camshaft timing pulley, the exhaust camshaft timing pulley and then the idler pulley.
- Check that the belt has tension as shown in the illustration.

- Loosen the idler pulley mounting bolt until the pulley is moved slightly by the spring tension.

- Torque the idler pulley mounting bolt.

Torque: 500 kg-cm (36 ft-lb, 49 N-m)

HINT: Check that the timing belt tension at A is equal to that at B .

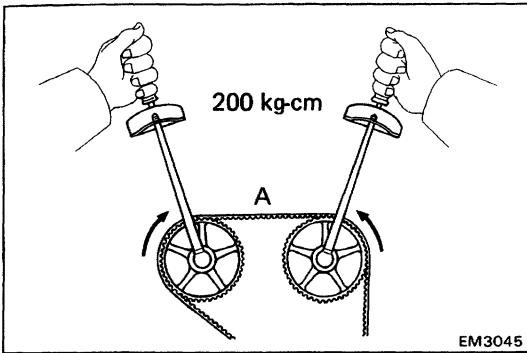
If not, readjust with the idler pulley.

- Turn the crankshaft pulley two revolutions clockwise from TDC to TDC.

- Check that the alignment marks on the camshaft timing pulleys are aligned with those on the No.2 timing belt cover.

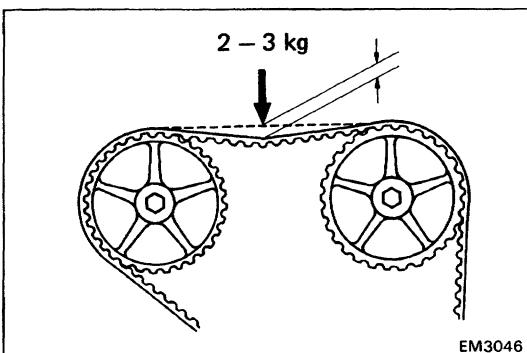
If the marks do not align, remove the timing belt and reinstall it.





11. CHECK TIMING BELT TENSION

(a) Turn both the intake and exhaust camshaft pulleys inward at the same time to slacken the timing belt at position A.
Turning torque: 200 kg-cm (14 ft-lb, 20 N-m)



(b) Measure the timing belt deflection as shown.

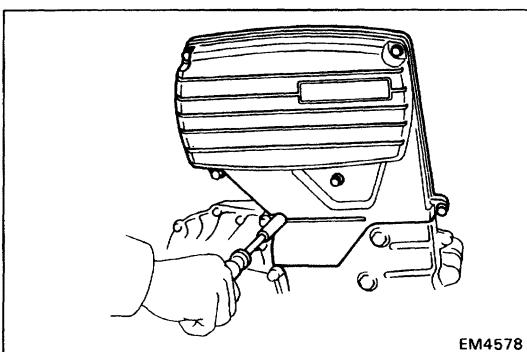
Belt deflection at 2 – 3 kg (4.4 – 6.6 lb, 20 – 29 N):

Cold Used belt 5 – 7 mm (0.20 – 0.28 in.)

New belt 4 – 6 mm (0.16 – 0.24 in.)

Hot (Reference) 3 – 5 mm (0.12 – 0.20 in.)

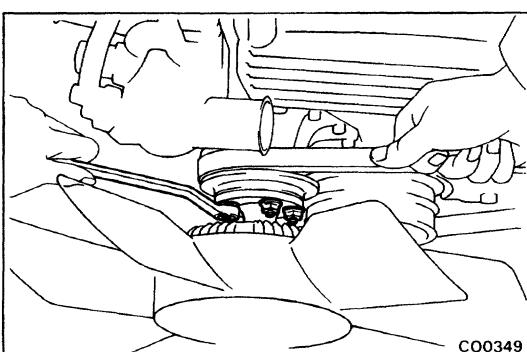
If the measurement is not within specification, adjust by the idler pulley.



12. INSTALL NO.3 TIMING BELT COVER

Install the gasket and the belt cover with the five bolts and nut.

13. INSTALL PS BELT



14. INSTALL WATER PUMP PULLEY, FAN WITH FLUID COUPLING AND ALTERNATOR DRIVE BELT

(a) Install the water pump pulley and fan with fluid coupling with the four nuts.
(b) Place the drive belt onto each pulley.
(c) Stretch the belt tight and tighten the four nuts.

15. INSTALL A/C BELT

16. ADJUST DRIVE BELTS (See page MA-4)

Drive belt tension:

Alternator Used belt 115 ± 20 lb

New belt 175 ± 5 lb

PS pump Used belt 100 ± 20 lb

New belt 160 ± 10 lb

A/C Used belt 105 ± 10 lb

New belt 160 ± 20 lb



17. INSTALL THERMOSTAT AND WATER OUTLET

(See page [CO-9](#))

18. INSTALL SPARK PLUGS (See page [IG-7](#))**19. INSTALL RADIATOR (See page [CO-16](#))****20. START ENGINE AND CHECK FOR LEAKS****21. PERFORM ROAD TEST**

Check for abnormal noise, shock, slippage, correct shift points and smooth operation.

22. RECHECK ENGINE COOLANT LEVEL