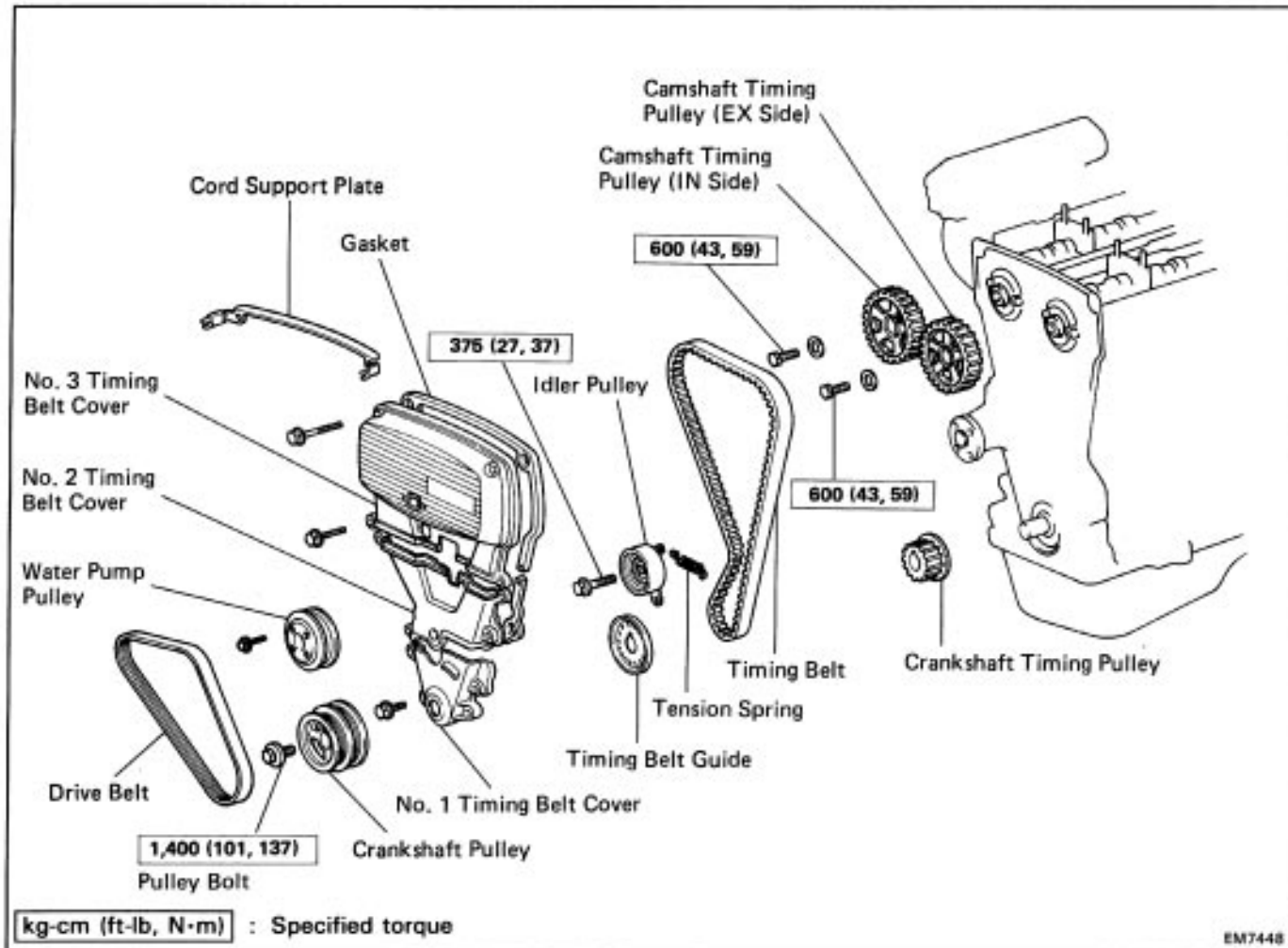
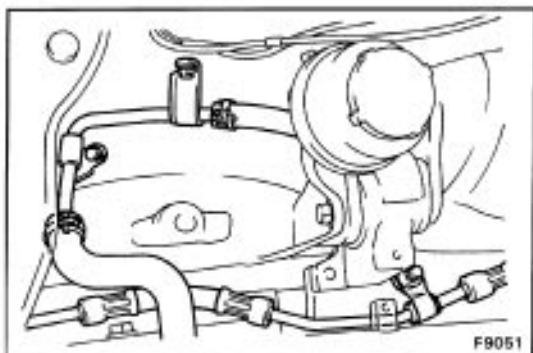


TIMING BELT (4A-GE) COMPONENTS



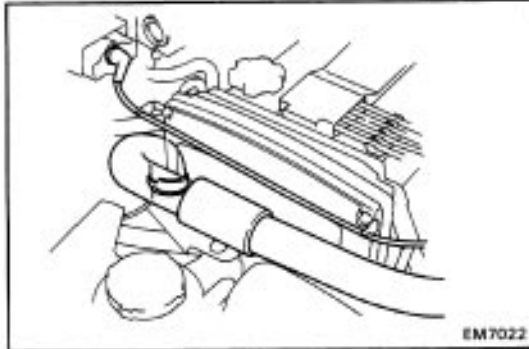
REMOVAL OF TIMING BELT

1. REMOVE RH FRONT WHEEL
2. REMOVE RH ENGINE UNDER COVER
3. DRAIN ENGINE COOLANT
4. REMOVE WASHER TANK
5. (w/ CRUISE CONTROL)
REMOVE CRUISE CONTROL ACTUATOR
 - (a) (w/ PS)
Remove the bolt and PS reservoir tank
 - (b) (w/ PS)
Remove the three pipe clamps.

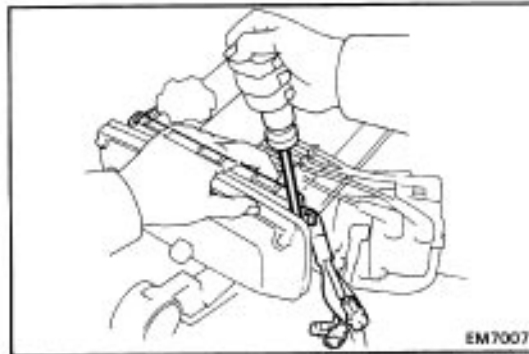




(c) Remove the three bolts and actuator with the bracket.



6. REMOVE RADIATOR INLET HOSE AND HIGH-TENSION CORD

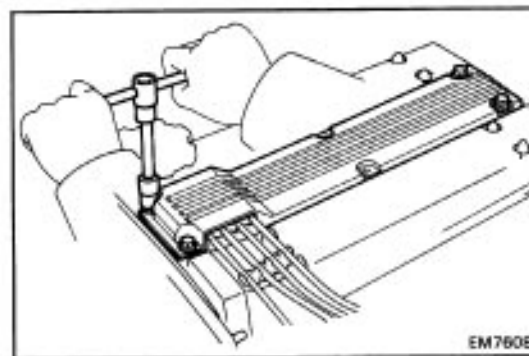


7. DISCONNECT ENGINE WIRE FROM NO.4 TIMING BELT COVER

(a) Disconnect the following connectors:

- Distributor wire connectors
- Oil pressure sender gauge connector
- (with A/C)
Compressor connector

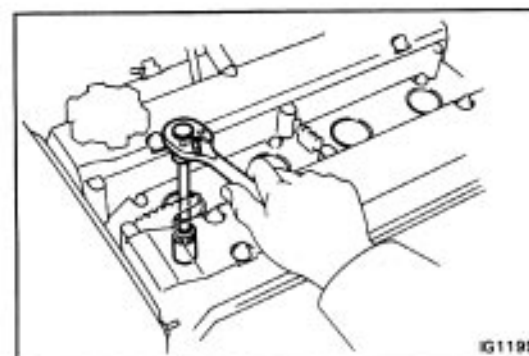
(b) Disconnect the engine wire from the timing belt cover.



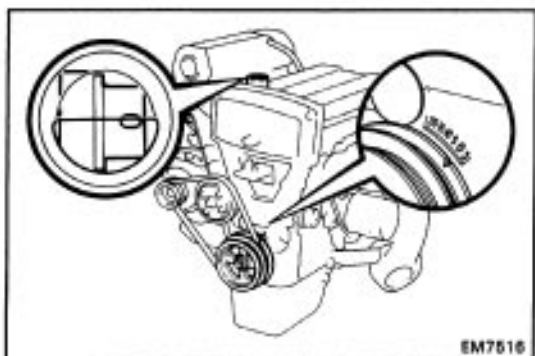
8. REMOVE SPARK PLUGS

(a) Remove the bolts and plug cord cover.

(b) Disconnect the high-tension cords from the spark plugs.



(c) Using a plug wrench (16 mm), remove the spark plugs.

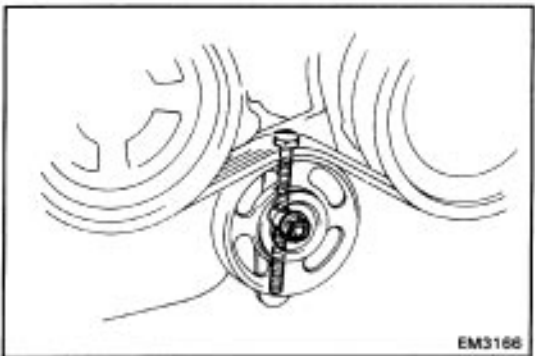


EM7516

9. 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) Remove the oil filler cap and check that you can see the cavity in the camshaft.

If necessary, turn the crankshaft pulley one complete revolution (360°).

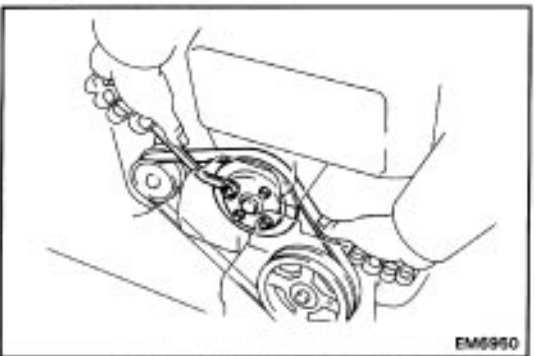


EM3166

10. (w/ PS AND/OR with A/C)

REMOVE PS AND/OR A/C DRIVE BELT

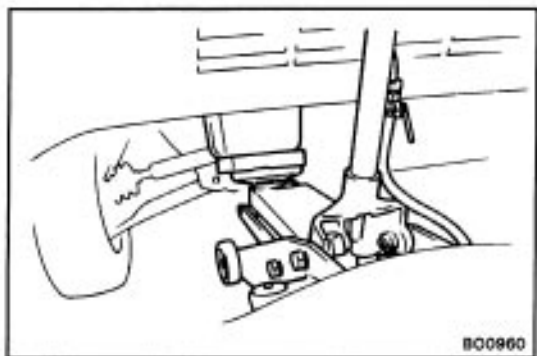
- (a) Loosen the drive belt adjusting set bolt.
- (b) Loosen the adjusting bolt and remove drive belt.



EM6950

11. LOOSEN WATER PUMP PULLEY BOLTS AND REMOVE ALTERNATOR DRIVE BELT

- (a) Stretch the belt tight and loosen the water pump pulley bolts.
- (b) Loosen the pivot nut and adjusting bolt, and remove the drive belt.

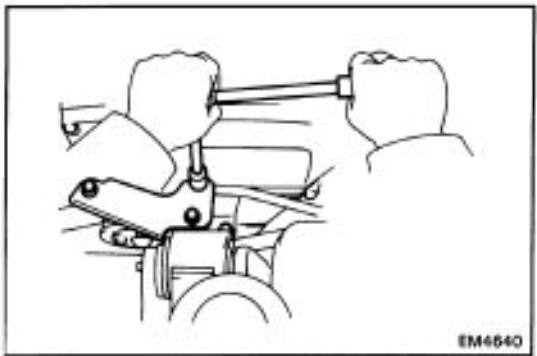


BG0960

12. REMOVE RH ENGINE MOUNTING INSULATOR

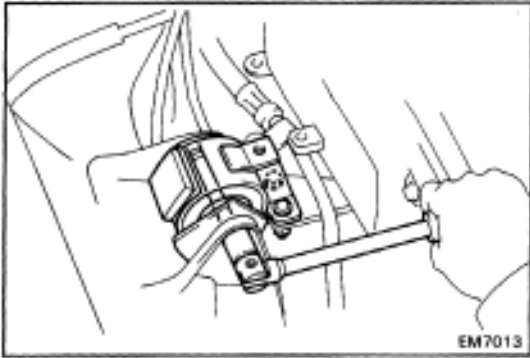
- (a) Set the jack to the engine.

HINT: Place a wooden block between the jack and engine.



EM4640

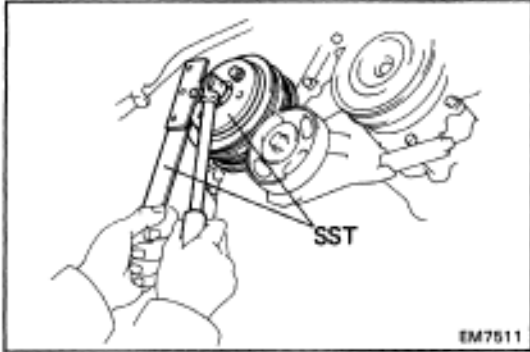
- (b) Remove the three bolts and RH mounting stay.



(c) Remove the two nuts, mounting through bolt and RH engine mounting insulator.

13. REMOVE WATER PUMP PULLEY

Remove the set bolts and water pump pulley.

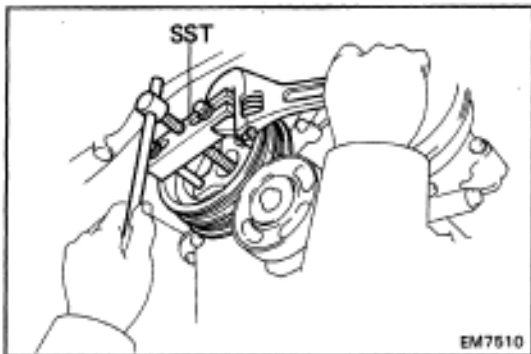


14. REMOVE CRANKSHAFT PULLEY

(a) Using SST to hold the crankshaft pulley, loosen the pulley bolt.

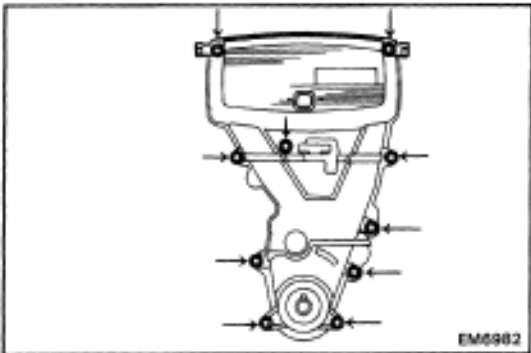
SST 09213-70010 and 09330-00021

(b) Remove SST and pulley bolt.



(c) Using SST, remove the crankshaft pulley.

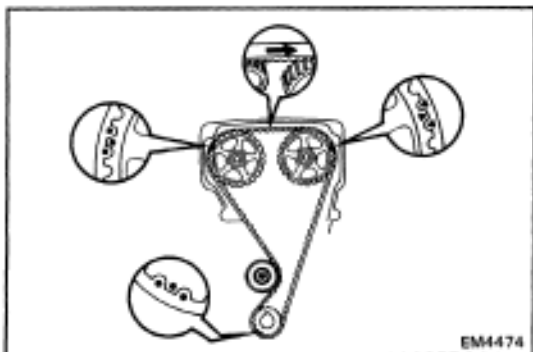
SST 09213-31021



15. REMOVE TIMING BELT COVERS

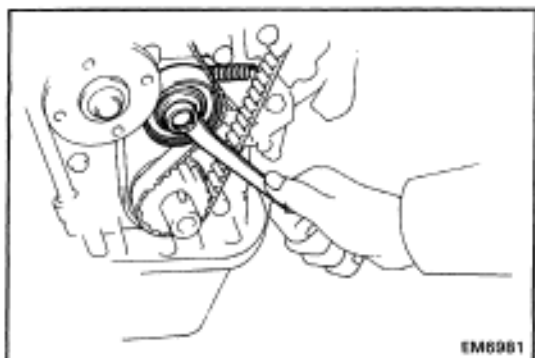
Remove the ten bolts, cord support plate and timing belt covers and gaskets.

16. REMOVE TIMING BELT GUIDE



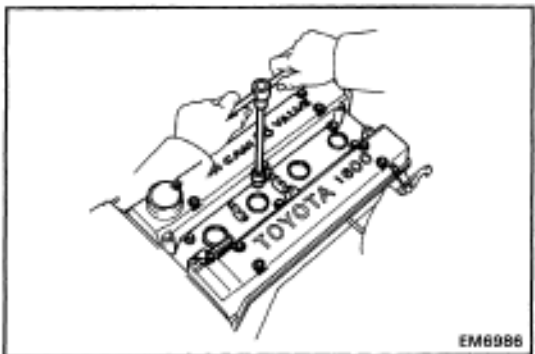
17. REMOVE TIMING BELT AND IDLER PULLEY

HINT: If reusing the timing belt, draw a direction arrow on the belt (in direction of engine revolution), and place matchmarks on the pulleys and belt as shown.



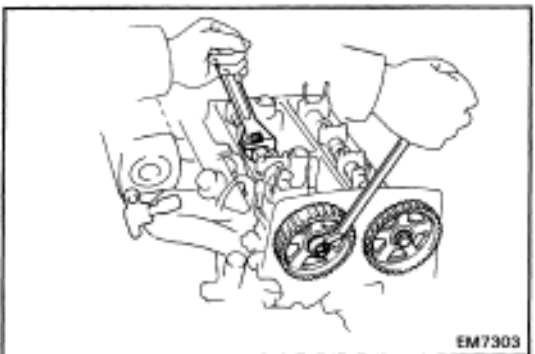
- (a) Remove the bolt, idler pulley and tension spring.
- (b) Remove the timing belt.

18. REMOVE CRANKSHAFT TIMING PULLEY



19. REMOVE CYLINDER HEAD COVERS

- (a) Remove the PCV hose.
- (b) Remove the center cover with gasket and the EGR modulator bracket.
- (c) Remove cap nuts, seals and head covers with gaskets.



20. REMOVE CAMSHAFT TIMING PULLEYS

Secure the camshaft and remove the camshaft timing pulley bolt.

NOTICE: Be careful not to damage the cylinder head with the wrench.

INSPECTION OF TIMING BELT COMPONENTS

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 mounting bolt of the camshaft timing pulley.

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

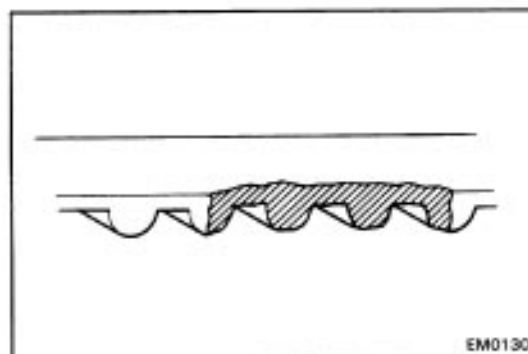
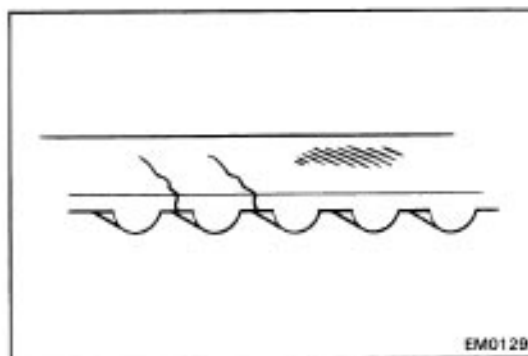
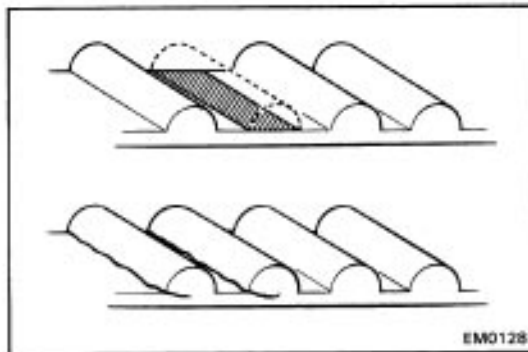
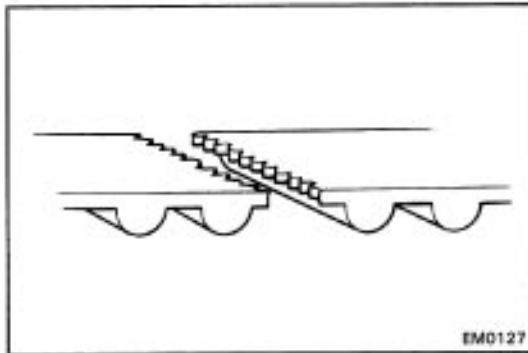
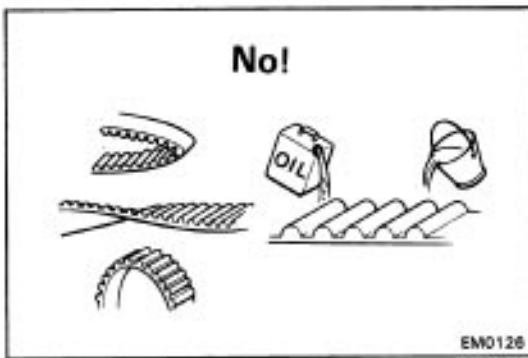
(a) Premature splitting

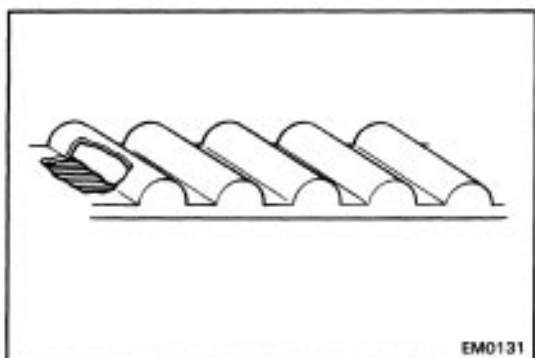
- Check for proper installation.
- Check the timing cover gasket for damage and proper installation.

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

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

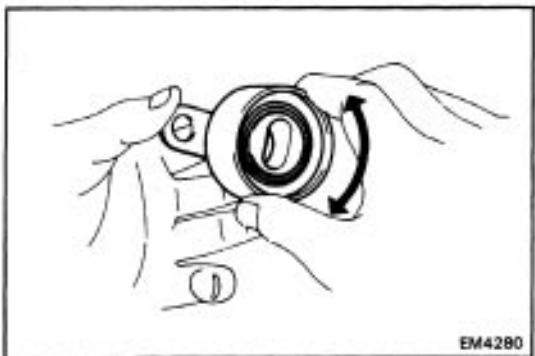
(d) If there is wear or damage on only one side of the belt, check the belt guide and the alignment of each pulley.





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

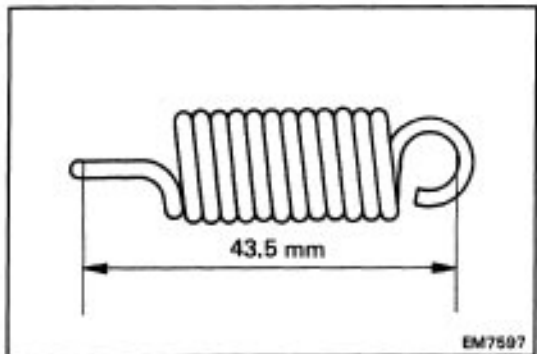
If necessary, replace the timing belt.



2. INSPECT IDLER PULLEY

Check the turning smoothness of the idler pulley.

If necessary, replace the idler pulley.



3. INSPECT TENSION SPRING

- (a) Measure the free length of the tension spring.

Free length: 43.5 mm (1.713 in.)

If the free length is not as specified, replace the tension spring.

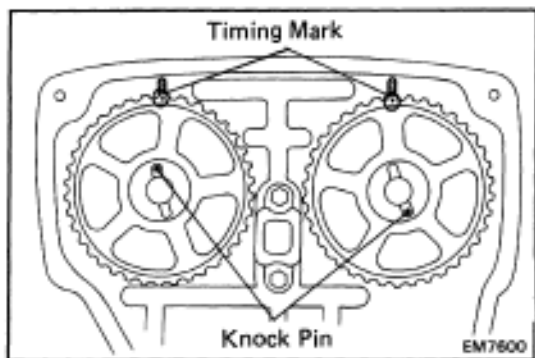
- (b) Measure the tension of the tension spring at the specified installed length.

Installed tension: 9.47 – 10.47 kg

(20.9 – 23.1 lb, 93 – 103 N)

at 50.2 mm (1.976 in.)

If the tension is not as specified, replace the tension spring.

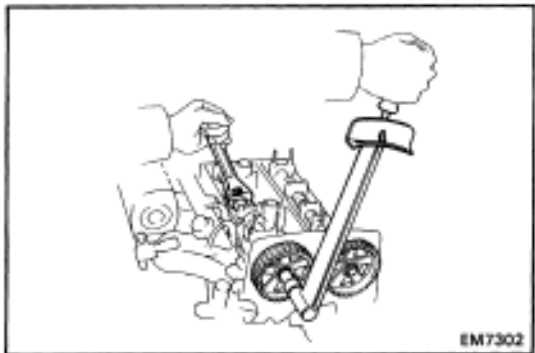


INSTALLATION OF TIMING BELT

(See page EM-41)

1. INSTALL CAMSHAFT TIMING PULLEYS

- Position the knock pins of the camshafts as shown in the illustration.
- Align the camshaft knock pin with the knock pin groove of the pulley, and slide the pulley, facing the timing mark upward.

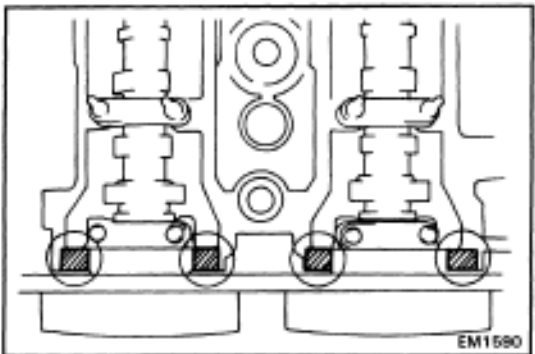


- Secure the hexagonal wrench head portion of the camshaft, and install the plate washer and bolt.

Torque: 600 kg-cm (43 ft-lb, 59 N-m)

NOTICE:

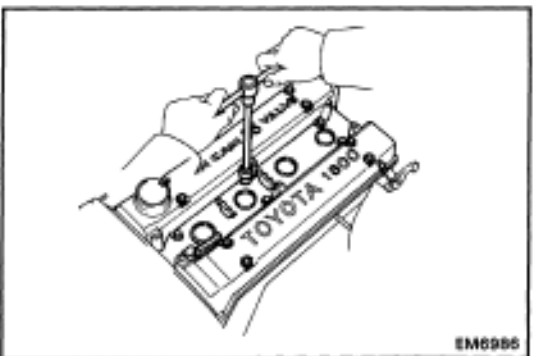
- Remove any oil or water on the camshaft timing pulley and keep it clean.
- Be careful not to damage the cylinder head with the wrench.



2. INSTALL CYLINDER HEAD COVERS

- Apply seal packing to the cylinder head as shown in the illustration.

Seal packing: Part No. 08826-00080 or equivalent



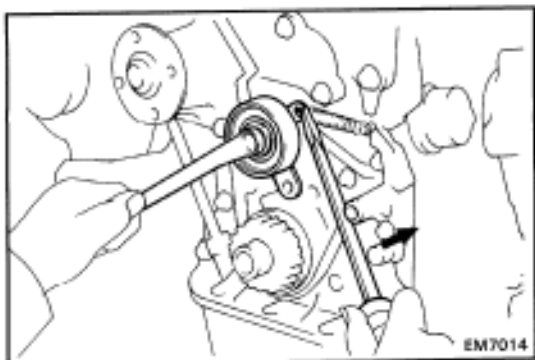
- Install the intake and exhaust head covers with the gaskets.
- Install the center cover with the gasket.
- Install the PCV hose.



3. INSTALL CRANKSHAFT TIMING PULLEY

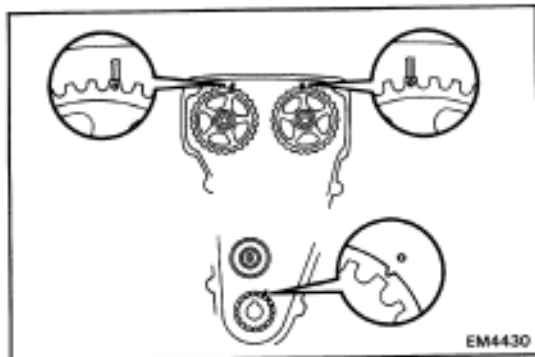
Install the crankshaft timing pulley and align the TDC marks on the oil pump body and crankshaft timing pulley.

HINT: Remove any oil or water on the crankshaft timing pulley and keep it clean.



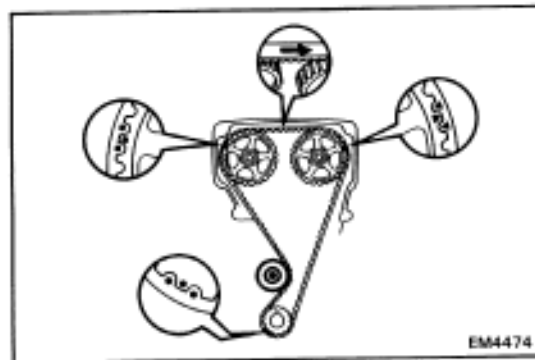
4. TEMPORARILY INSTALL IDLER PULLEY AND TENSION SPRING

- (a) Install the pulley with the bolt. Do not tighten the bolt yet.
- (b) Install the tension spring.
- (c) Pry the pulley toward the left as far as it will go and tighten the bolt.



5. SET NO. 1 CYLINDER TO TDC/COMPRESSION

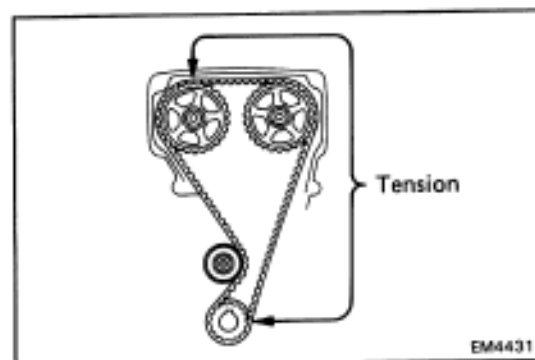
- (a) Align the timing marks of the camshaft timing pulleys and No.4 timing belt cover by turning the camshafts.
- (b) Align the timing marks of the crankshaft timing pulley and oil pump body by turning the crankshaft.



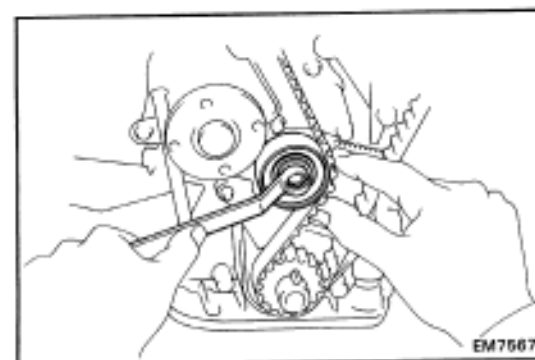
6. INSTALL TIMING BELT

NOTICE: The engine should be cold.

HINT: If reusing the timing belt, align the points marked during removal, and install the belt with the arrow pointing in the direction of engine revolution.

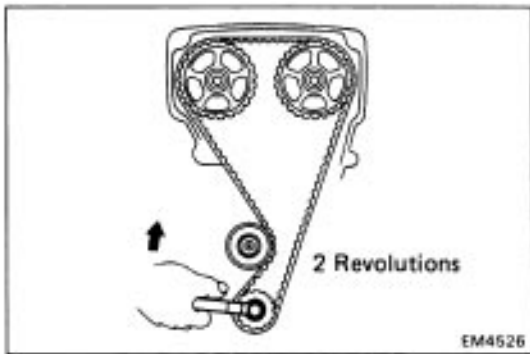


Install the timing belt, checking the tension between the intake camshaft and crankshaft timing pulleys.



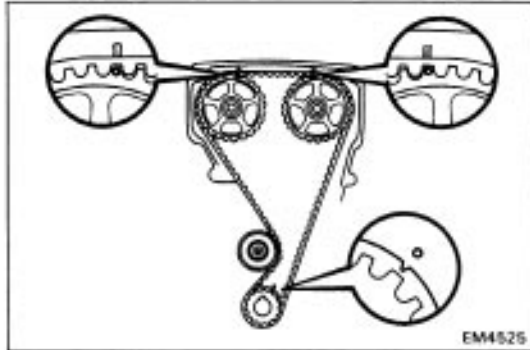
7. CHECK VALVE TIMING AND TIMING BELT DEFLECTION

- (a) Slowly loosen the idler pulley bolt.



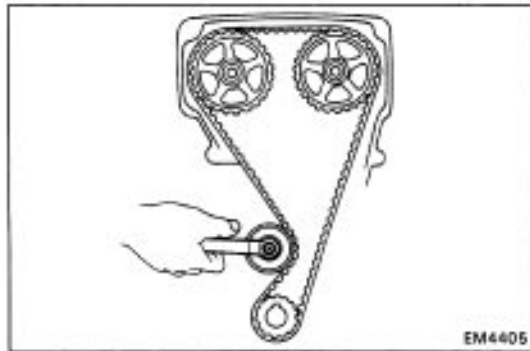
- (b) Temporarily install the crankshaft pulley bolt, and turn the crankshaft pulley two revolutions from TDC to TDC.

HINT: Always turn the crankshaft clockwise.



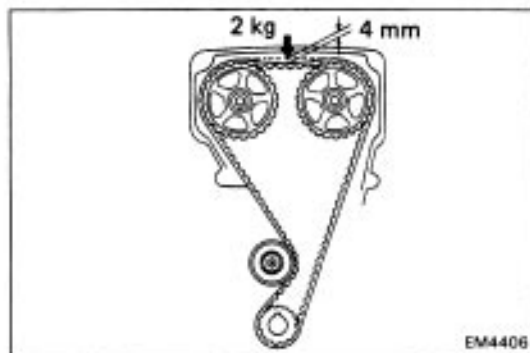
- (c) Check that each pulley aligns with the timing marks as shown in the illustration.

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



- (d) Torque the idler pulley bolt.

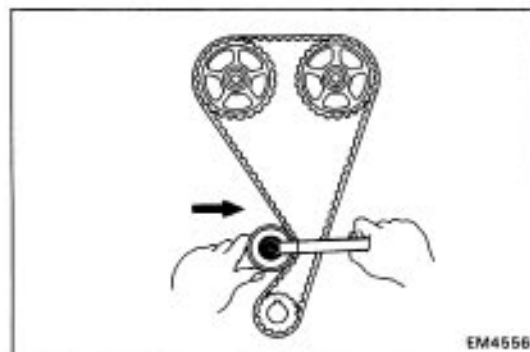
Torque: 375 kg-cm (27 ft-lb, 37 N-m)



- (e) Check that there is belt deflection at the position indicated in the illustration.

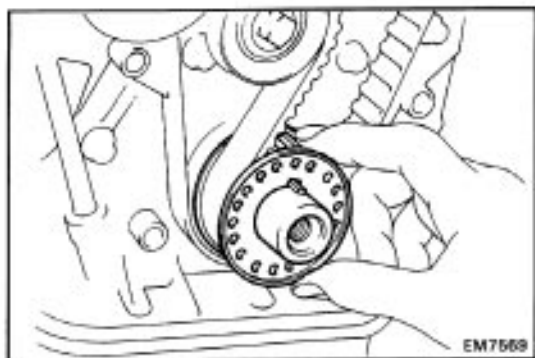
Deflection: 4 mm (0.16 in.)

at 2 kg (4.4 lb, 20 N)



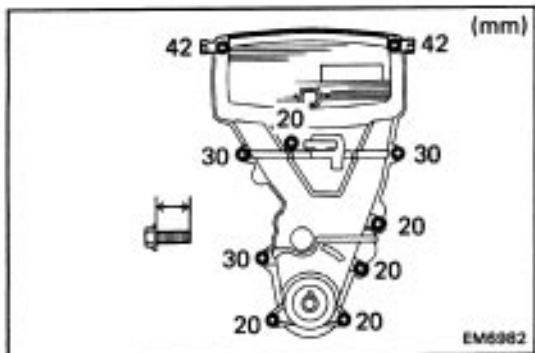
If the deflection is not as specified, adjust with the idler pulley.

- (f) Remove the temporarily installed crankshaft pulley bolt.



8. INSTALL TIMING BELT GUIDE

Install the guide, facing the cup side outward.

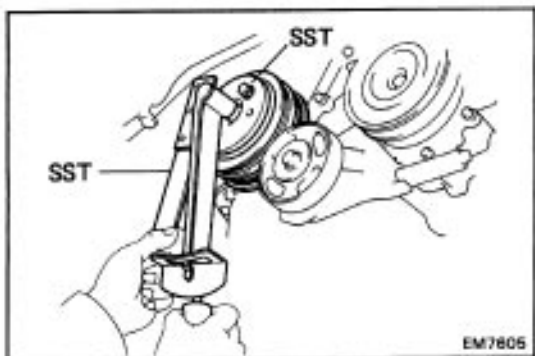


9. INSTALL TIMING BELT COVERS

(a) Install the gaskets to the belt covers.

(b) Install the No.1, No.2 and No.3 belt covers and support plate with the ten bolts.

HINT: Each bolt length is indicated in the illustration.



10. INSTALL CRANKSHAFT PULLEY

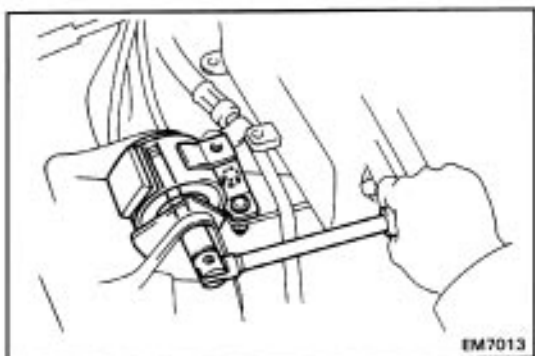
(a) Align the pulley set key with the key groove of the pulley, slide the pulley.

(b) Using SST, install and torque the bolt.

SST 09213-70010 and 09330-00021

Torque: 1,400 kg-cm (101 ft-lb, 137 N-m)

11. TEMPORARILY INSTALL WATER PUMP PULLEY



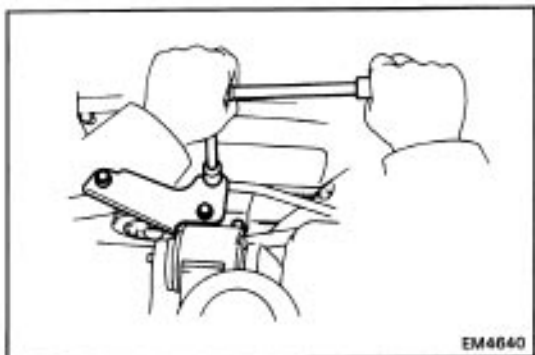
12. INSTALL RH ENGINE MOUNTING INSULATOR

(a) Install the RH engine mounting insulator to the engine with two nuts.

Align the RH mounting insulator into the bracket and install the mounting through bolt.

Torque: Nut 530 kg-cm (38 ft-lb, 52 N-m)

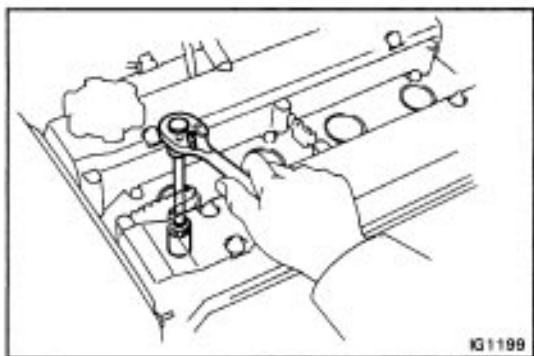
Through bolt 890 kg-cm (64 ft-lb, 87 N-m)



(b) Install the RH mounting stay and three bolts.

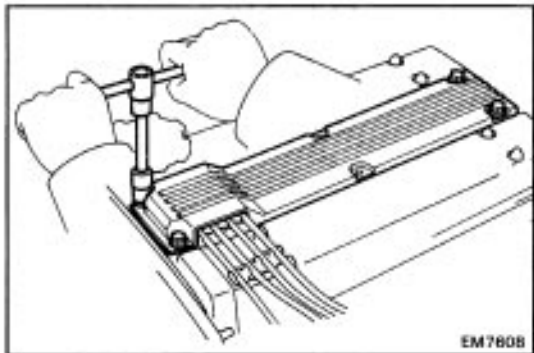
Torque: 430 kg-cm (31 ft-lb, 42 N-m)

(c) Remove the jack.

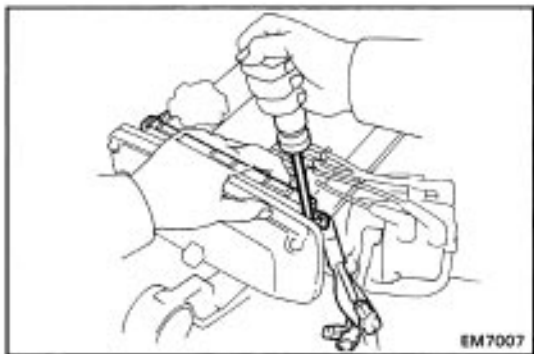


13. INSTALL SPARK PLUGS

- (a) Using a plug wrench (16 mm), install the spark plugs.
Torque: 180 kg-cm (13 ft-lb, 18 N-m)
 (b) Connect the high-tension cords to the spark plugs.

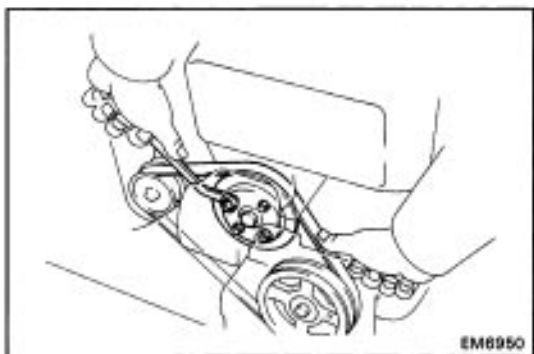


- (c) Install the plug cord cover with the bolts.



14. CONNECT ENGINE WIRE TO NO.4 TIMING BELT COVER

- (a) Connect the engine wire to the timing belt cover.
 (b) Connect the following connectors:
- Distributor wire connectors
 - Oil pressure sender gauge connector
 - (with A/C)
Compressor connector



15. INSTALL ALTERNATOR DRIVE BELT AND TIGHTEN WATER PUMP PULLEY BOLTS

- (a) Place the drive bolt on each pulley.
 (b) Stretch the belt tight and tighten the four water pump pulley bolts.

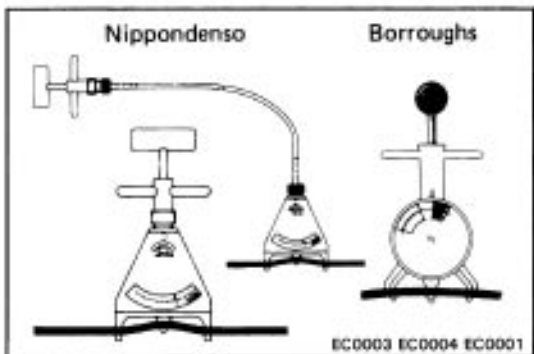
16. (w/ PS AND/OR with A/C) INSTALL PS AND/OR A/C DRIVE BELT

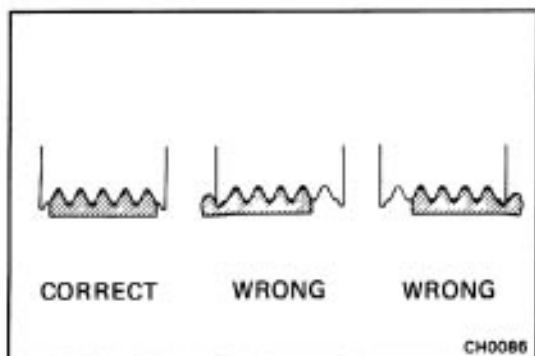
17. ADJUST DRIVE BELTS

Using a belt tension gauge, adjust the drive belt tension.
 Belt tension gauge:
 Nippondenso BTG-20 (95506-00020) or
 Borroughs No. BT-33-73F

Drive belt tension:

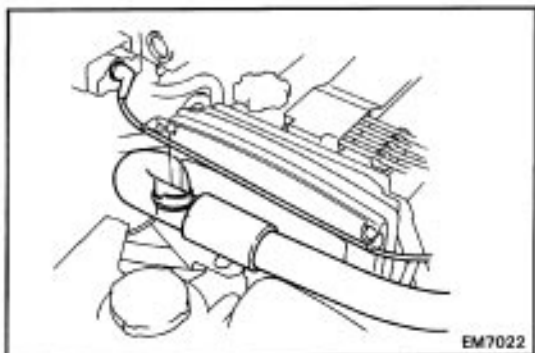
Alternator	New belt 175 ± 5 lb
	Used belt 115 ± 20 lb
	New belt 165 ± 25 lb
PS and/or A/C	Used belt 90 ± 20 lb



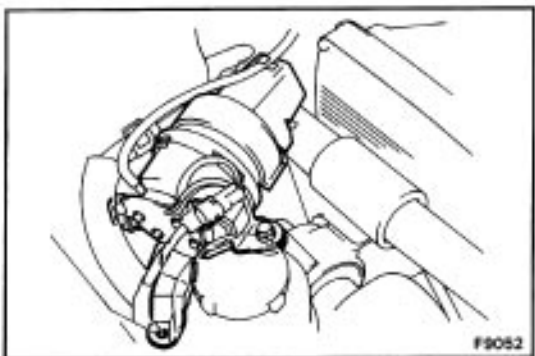


HINT:

- "New belt" refers to a belt which has been used less than 5 minutes on a running engine.
- "Used belt" refers to a belt which has been used on a running engine for 5 minutes or more.
- After installing the drive belt, check that it fits properly in the ribbed grooves.



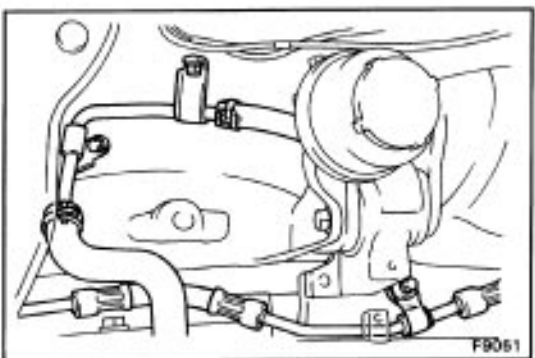
18. INSTALL RADIATOR INLET HOSE AND HIGH-TENSION CORD



19. (w/ CRUISE CONTROL)

INSTALL CRUISE CONTROL ACTUATOR

- (a) Install the actuator with the bracket and three bolts.



- (b) (w/ PS)

Install the three pipe clamps with the bolts.

- (c) (w/ PS)

Install the PS reservoir tank with the bolt.

20. INSTALL WASHER TANK

21. REFILL ENGINE COOLANT (See page [CO-5](#))

22. START ENGINE AND CHECK FOR LEAKAGE

23. INSTALL RH ENGINE UNDER COVER

24. INSTALL RH FRONT WHEEL