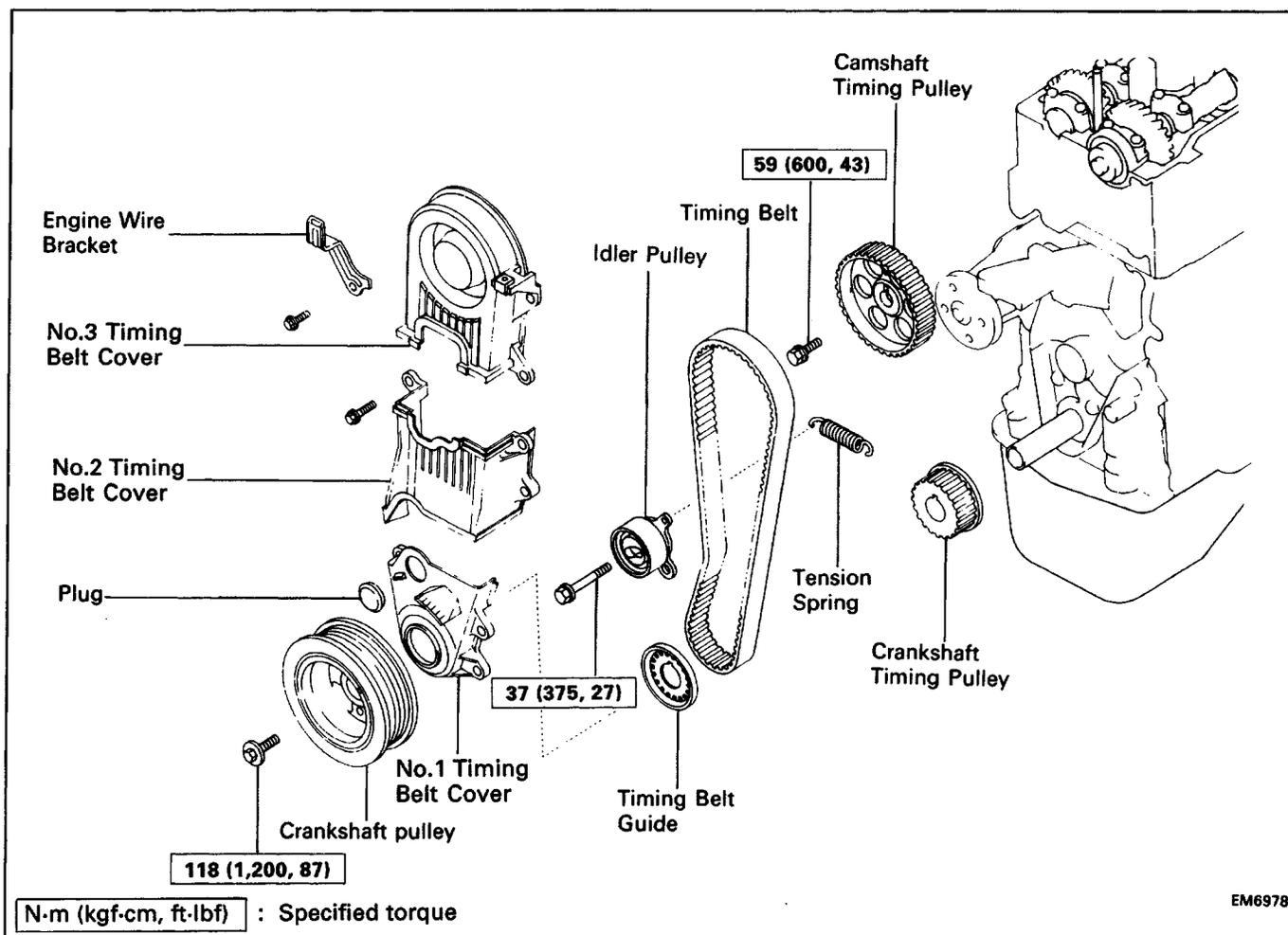


TIMING BELT (4A-FE) COMPONENTS



REMOVAL OF TIMING BELT

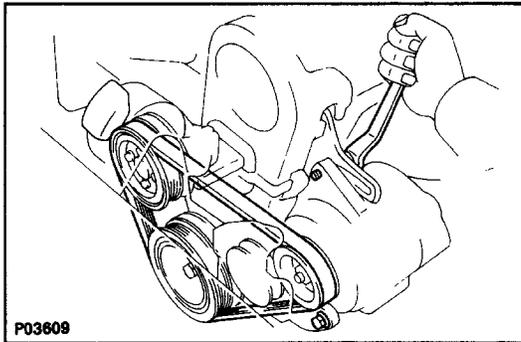
1. DISCONNECT CABLE FROM NEGATIVE TERMINAL OF BATTERY

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.

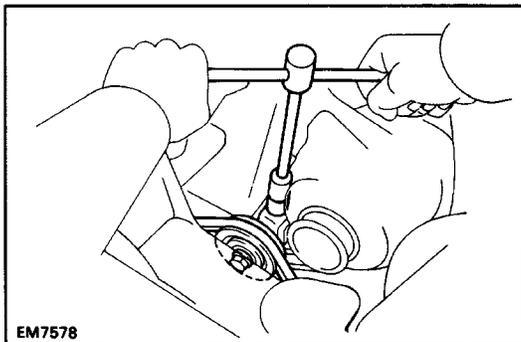
2. REMOVE RH FRONT WHEEL
3. REMOVE RH ENGINE UNDER COVER
4. REMOVE GENERATOR DRIVE BELT

(a) Loosen the four water pump pulley bolts.



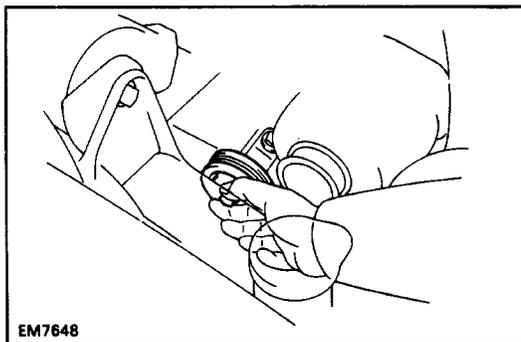


- (b) Loosen the pivot nut and adjusting bolt, and remove the drive belt.

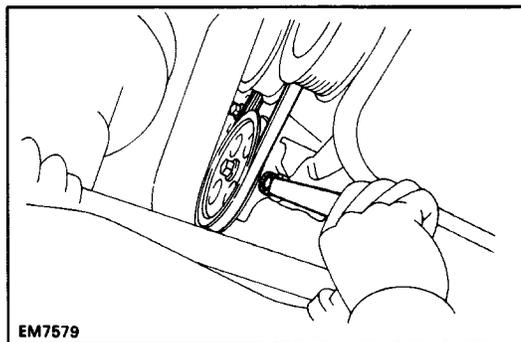


5. REMOVE A/C COMPRESSOR DRIVE BELT AND A/C IDLER PULLEY

- (a) Loosen the idler pulley mounting nut and adjusting bolt, and remove the drive belt.



- (b) Remove the nut and idler pulley.

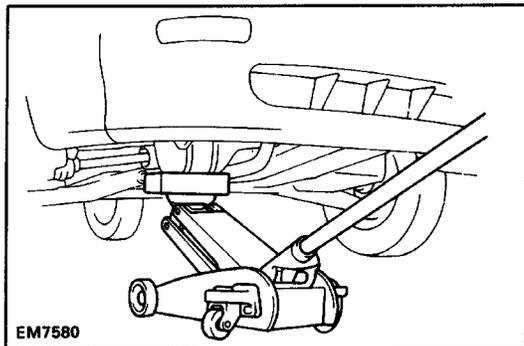


6. REMOVE PS PUMP DRIVE BELT, AND DISCONNECT WATER PUMP PULLEY FROM WATER PUMP

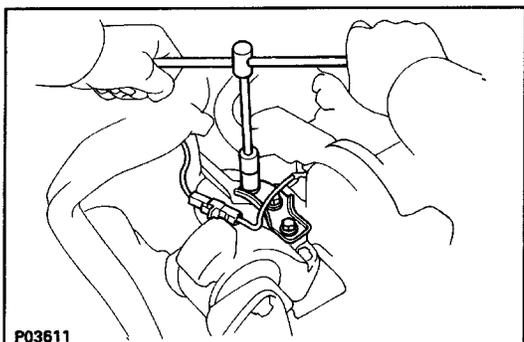
- (a) Loosen the pivot bolt and adjusting bolt, and remove the drive belt.



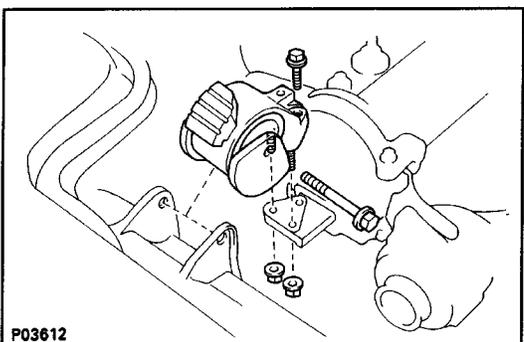
- (b) Remove the four bolts, and disconnect the water pump pulley from the water pump.

**7. SLIGHTLY JACK UP ENGINE**

Raise the engine enough to remove the weight from the engine mounting on the right side.

**8. DISCONNECT CONNECTOR FROM GROUND WIRE ON RH FENDER APRON****9. REMOVE RH ENGINE MOUNTING STAY**

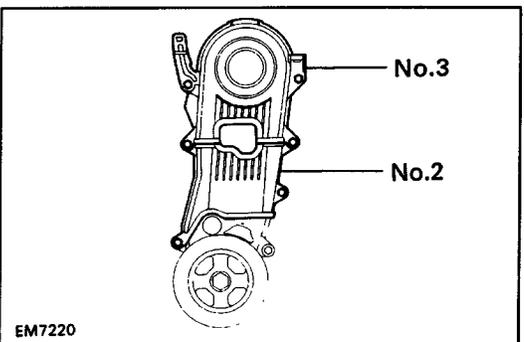
Remove the three bolts and mounting stay.

**10. REMOVE RH ENGINE MOUNTING INSULATOR**

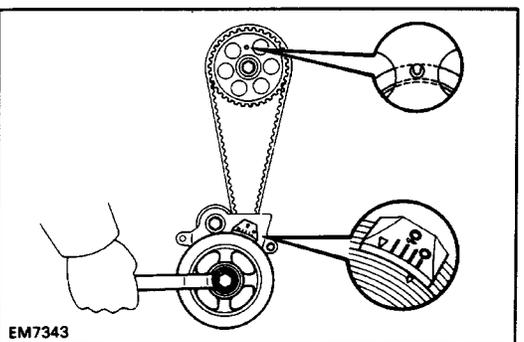
Remove the bolt, two nuts, through bolt and mounting insulator.

11. REMOVE SPARK PLUGS**12. REMOVE CYLINDER HEAD COVER**

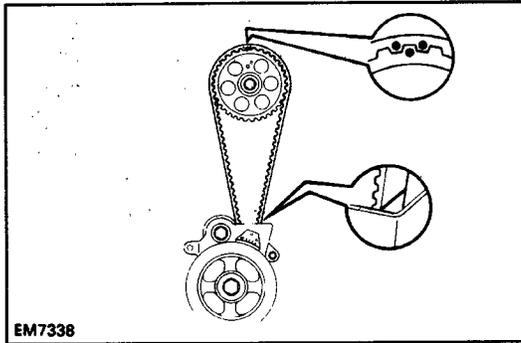
(See steps 18 and 24 on pages [EM-85](#) and 87)

**13. REMOVE NO.3 AND NO.2 TIMING BELT COVERS**

Remove the six bolts, engine wire bracket, No.3 and No.2 timing belt covers.

**14. SET NO.1 CYLINDER TO TDC/COMPRESSION**

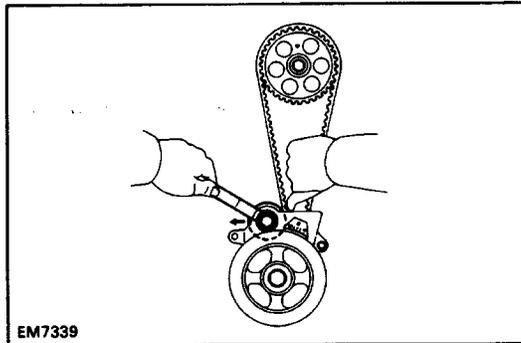
- (a) Turn the crankshaft pulley and align its groove with timing mark "0" of the No.1 timing belt cover.
- (b) Check that the hole of the camshaft timing pulley is aligned with the timing mark of the bearing cap. If not, turn the crankshaft one revolution (360°).



EM7338

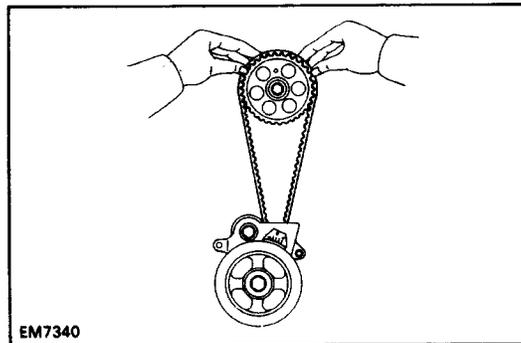
15. REMOVE TIMING BELT FROM CAMSHAFT TIMING PULLEY

HINT (When re-using timing belt): Place the match-marks on the timing belt and camshaft timing pulley, and matchmark on the timing belt to match the end of the No.1 timing belt cover.



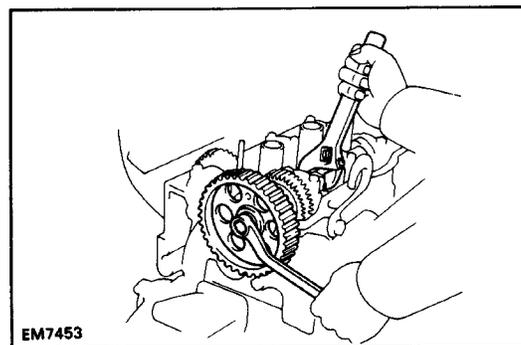
EM7339

- (a) Remove the grommet from the No-1 timing belt cover.
- (b) Loosen the mounting bolt of the No.1 idler pulley and push the pulley toward the left as far as it will go, and temporarily tighten it.



EM7340

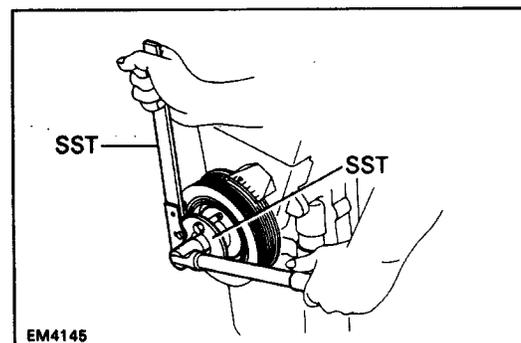
- (c) Remove the timing belt from the camshaft timing pulley.



EM7453

16. REMOVE CAMSHAFT TIMING PULLEY

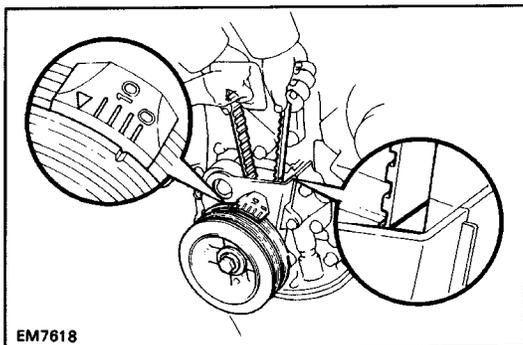
Hold the hexagon wrench head portion of the camshaft with a wrench, and remove the bolt and timing pulley.



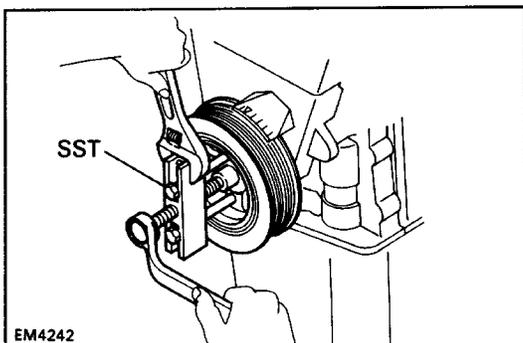
EM4145

17. REMOVE CRANKSHAFT PULLEY

- (a) Using SST, remove the pulley bolt.
SST 09213-14010 and 09330-00021



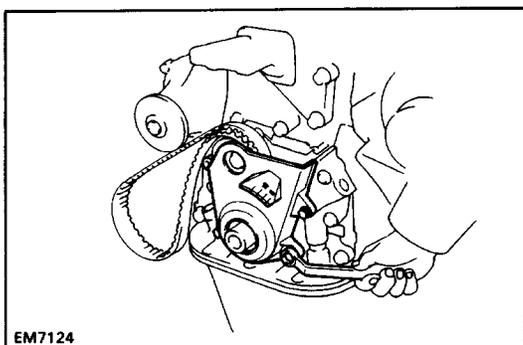
HINT: (when re-using timing belt): After loosening the crankshaft pulley bolt, check that the timing belt matchmark aligns with the end of the No.1 timing belt cover when the crankshaft pulley groove is aligned with the timing mark "0" of the No.1 timing belt cover. If the matchmark does not align, shift the meshing of the timing belt and crankshaft timing pulley until they align.



(b) Using SST, remove the pulley.

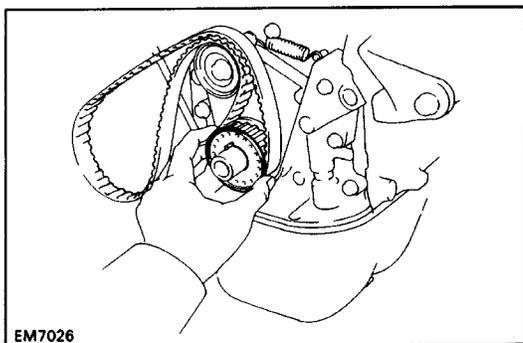
SST 09213-31021

HINT (When re-using timing belt): Remove the pulley without turning it.

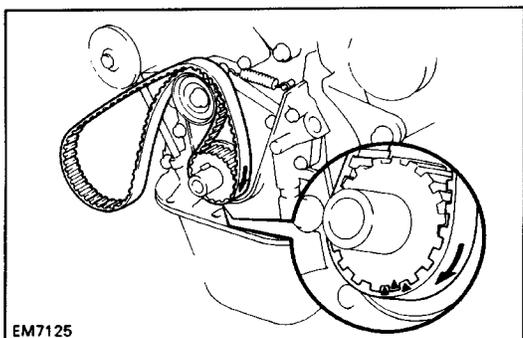


18. REMOVE NO.1 TIMING BELT COVER

Remove the three bolts and timing belt cover.

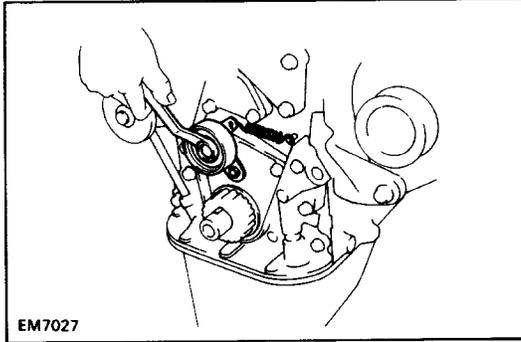


19. REMOVE TIMING BELT GUIDE



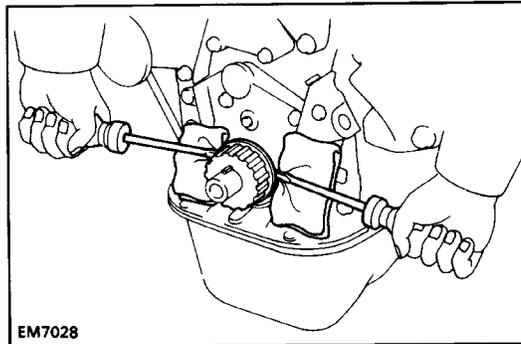
20. REMOVE TIMING BELT

HINT (When re-using timing belt): Draw a direction arrow on the timing belt (in the direction of engine revolution), and place matchmarks on the timing belt and crankshaft timing pulley. ,



21. REMOVE IDLER PULLEY AND TENSION SPRING

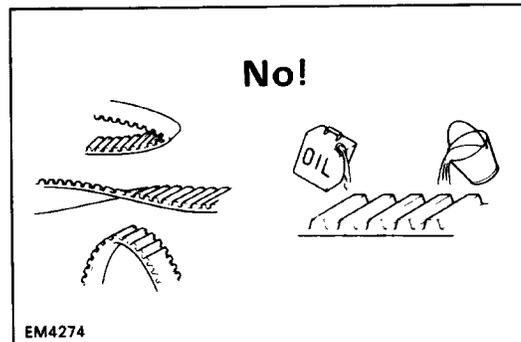
Remove the bolt, idler pulley and tension spring.



22. REMOVE CRANKSHAFT TIMING PULLEY

If the pulley cannot be removed by hand, use two screwdrivers.

NOTICE: Position shop rags as shown to prevent damage.



INSPECTION OF TIMING BELT COMPONENTS

1. INSPECT TIMING BELT

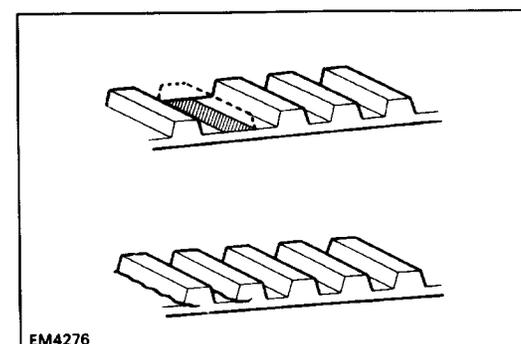
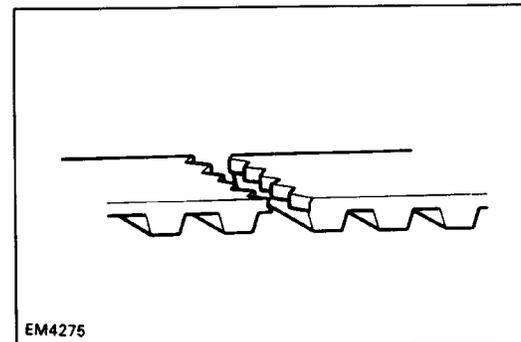
NOTICE:

- 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.

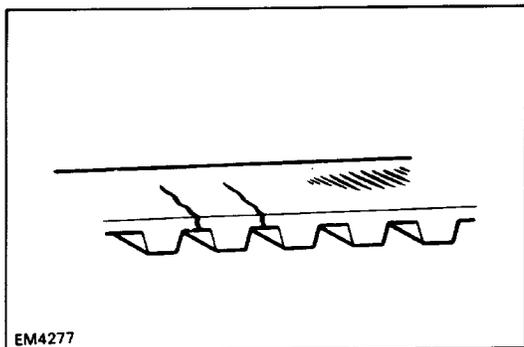
If there are any defects as shown in the illustrations check the following points:

(a) Premature parting

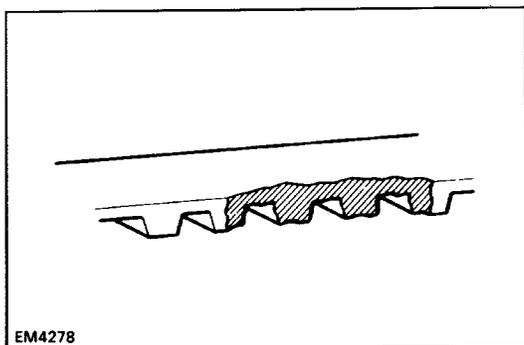
- Check the proper installation.
- Check the timing cover gasket for damage and proper installation.



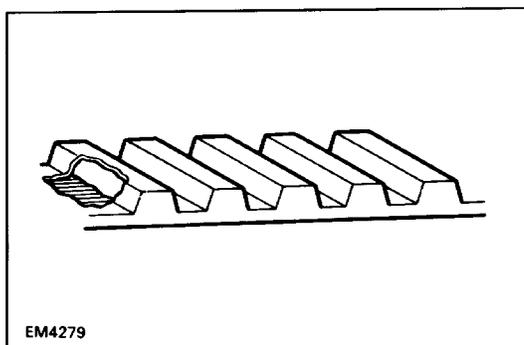
- (b) If the belt teeth are cracked or damaged, check to see if either camshaft or water pump is locked.



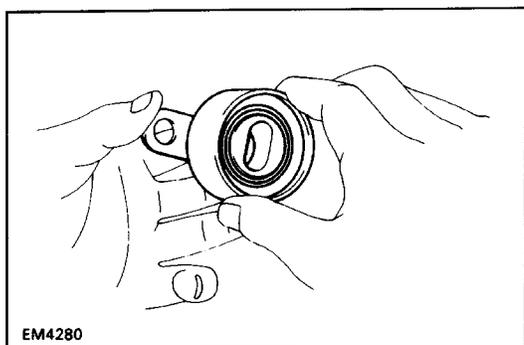
- (c) If there is noticeable wear or cracks on the belt face, check to see if there are nicks on the side of the idler pulley lock.



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

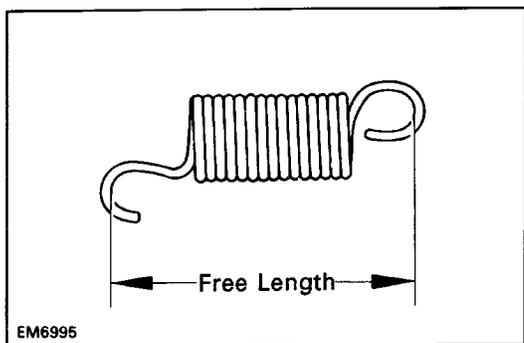


- (e) If there is noticeable wear on the belt teeth, check the timing cover for damage, correct gasket installation, and the foreign material on the pulley teeth. If necessary, replace the timing belt.



2. INSPECT IDLER PULLEY

Check that the idler pulley turns smoothly. If necessary, replace the idler pulley.



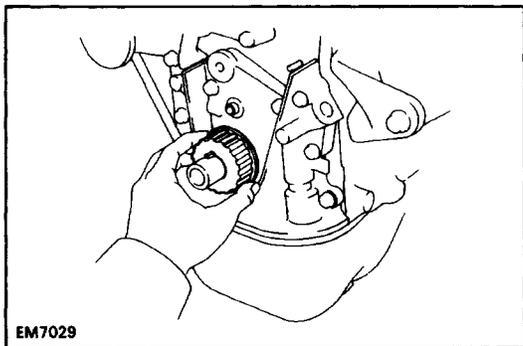
3. INSPECT TENSION SPRING

- (a) Measure the free length of tension spring.
Free length: 38.4 mm (1.512 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:

35 – 39 N (3.6 – 4.0 kgf, 7.9 – 8.8 lbf)
at 50.2 mm (1.976 in.)

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

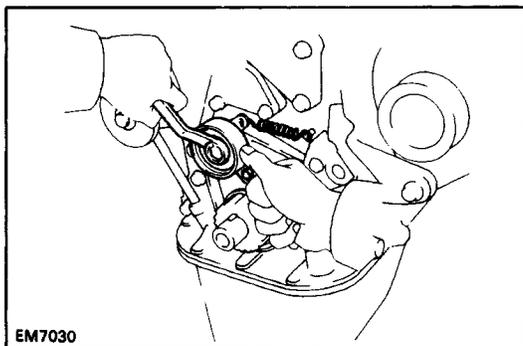


INSTALLATION OF TIMING BELT

(See page [EM-33](#))

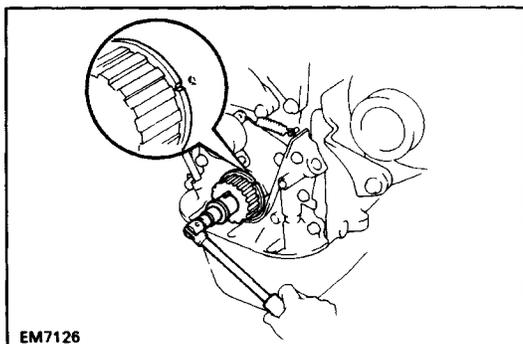
1. INSTALL CRANKSHAFT TIMING PULLEY

- (a) Align the pulley set key with the key groove of the pulley.
- (b) Slide on the timing pulley, facing the flange side inward.



2. TEMPORARILY INSTALL IDLER PULLEY AND TENSION SPRING

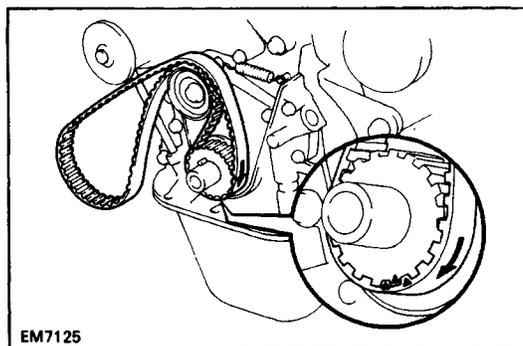
- (a) Install the idler pulley with the bolt. Do not tighten the bolt yet.
- (b) Install the tension spring.
- (c) Push the pulley toward the left as far as it will go and tighten the bolt.



3. TEMPORARILY INSTALL TIMING BELT

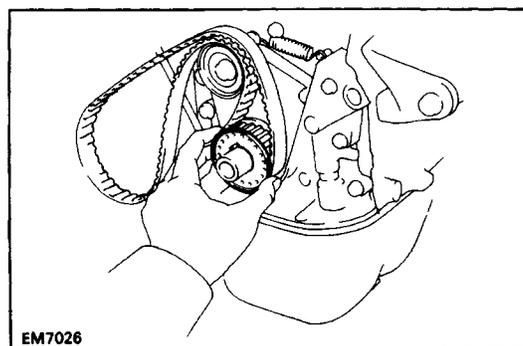
NOTICE: The engine should be cold.

- (a) Using the crankshaft pulley bolt, turn the crankshaft and align the timing marks of the crankshaft timing pulley and oil pump body.



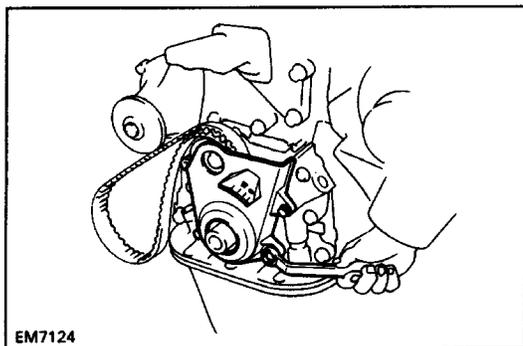
- (b) Remove any oil or water on the crankshaft timing pulley and idler pulley, and keep them clean.
- (c) Install the timing belt on the crankshaft timing pulley and idler pulley.

HINT (When re-using timing belt): Align the matchmarks of the crankshaft timing pulley and timing belt, and install the belt with the arrow pointing in the direction of engine revolution.



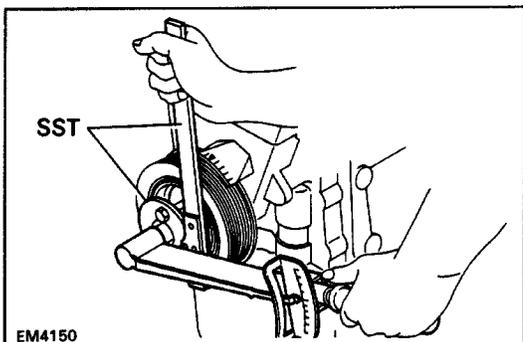
4. INSTALL TIMING BELT GUIDE

Slide on the timing belt guide, facing the cup side outward.



5. INSTALL NO.1 TIMING BELT COVER

Install the timing belt cover with the three bolts.

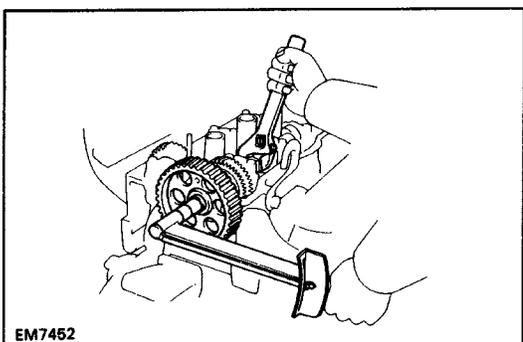


6. INSTALL CRANKSHAFT PULLEY

- Align the pulley set key with the key groove of the pulley, and slide on the pulley.
- Temporarily install the pulley bolt.
- Using SST, install the pulley bolt.

SST 09213-14010 and 09330-00021

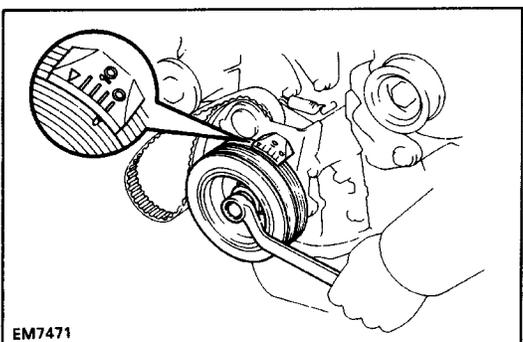
Torque: 118 N-m (1,200 kgf-cm, 87 ft-lbf)



7. INSTALL CAMSHAFT TIMING PULLEY

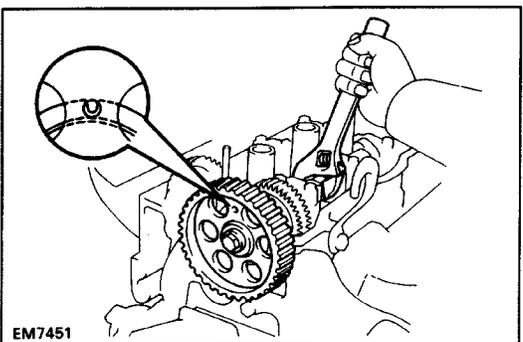
- Align the camshaft knock pin with the knock pin groove of the pulley, and slide on the pulley.
- Temporarily install the timing pulley bolt.
- Hold the hexagon wrench head portion of the camshaft with a wrench, and tighten the timing pulley bolt.

Torque: 59 N-m (600 kgf-cm, 43 ft-lbf)

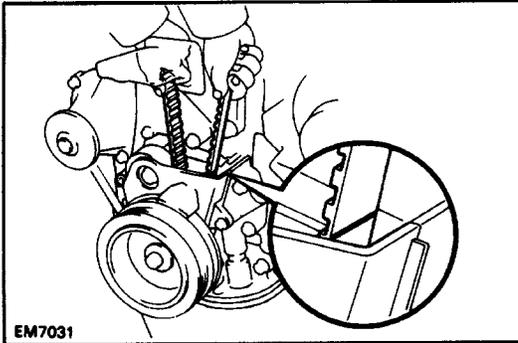


8. SET NO-1 CYLINDER TO TDC/COMPRESSION

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



- Turn the hexagon wrench head portion of the camshaft, and align the hole of the camshaft timing pulley with the timing mark of the bearing cap.

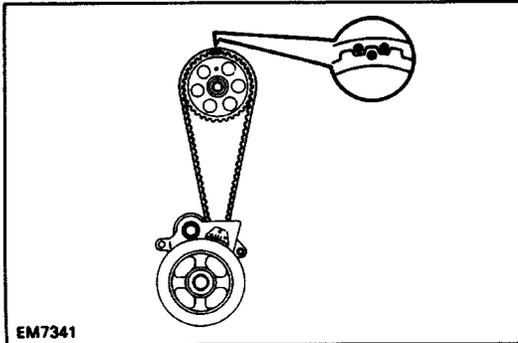


EM7031

9. INSTALL TIMING BELT

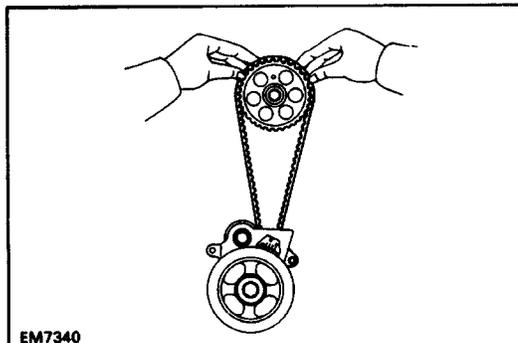
HINT (When re-using timing belt):

- Check that the matchmarks on the timing belt matches the end of the No.1 timing belt cover.
- If the matchmarks does not align, shift the meshing of the timing belt and crankshaft timing pulley until they align.



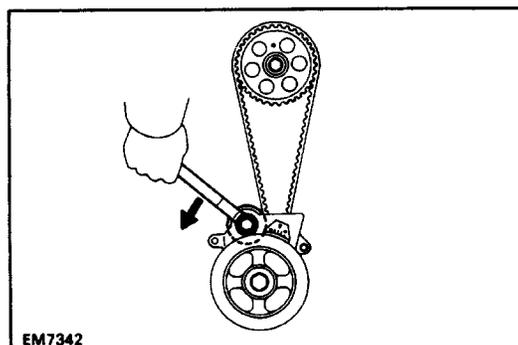
EM7341

- Align the matchmarks of the timing belt and camshaft timing pulley.



EM7340

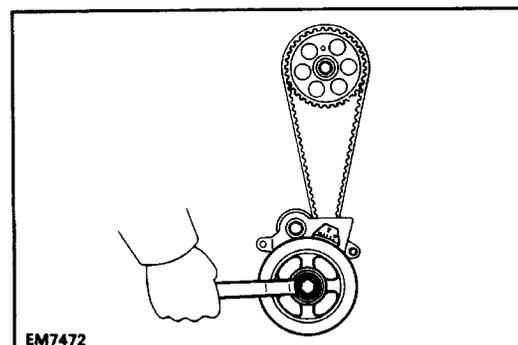
- Remove any oil or water on the camshaft timing pulley, and keep it clean.
- Install the timing belt, checking the tension between the crankshaft timing pulley and camshaft timing pulley.



EM7342

10. CHECK VALVE TIMING

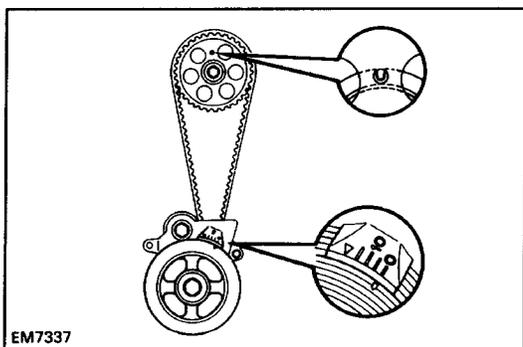
- Loosen the idler pulley bolt 1/2 turn.



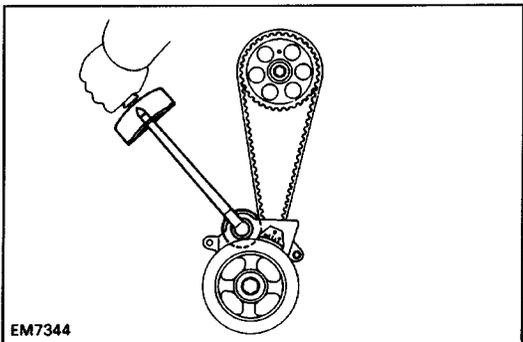
EM7472

- Slowly turn the crankshaft pulley two revolution; from TDC to TDC.

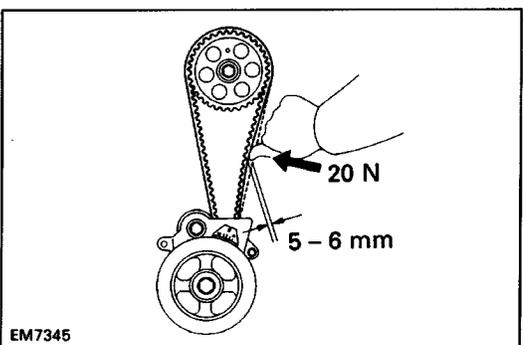
NOTICE: Always turn the crankshaft clockwise.



- (c) Check that each pulley aligns with the timing marks as shown in the illustration.
If the timing marks do not align, remove the timing belt and reinstall it.



- (d) Tighten the idler pulley bolt.
Torque: 37 N-m (375 kgf-cm, 27 ft-lbf)

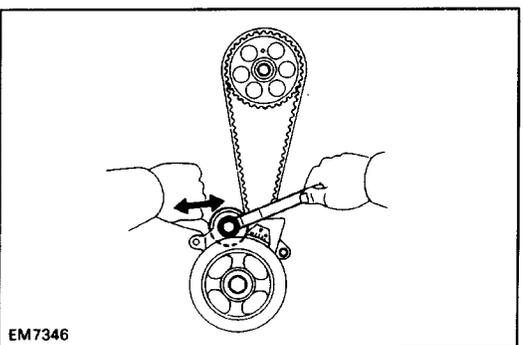


11. (REFERENCE)

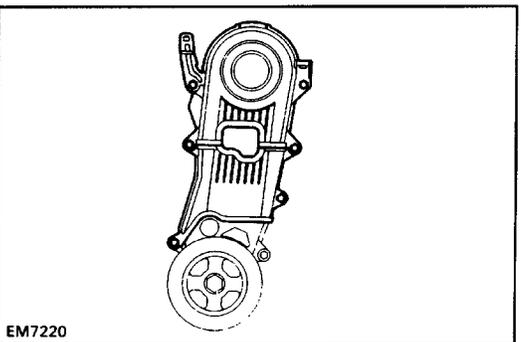
INSTALL TIMING BELT DEFLECTION

Check that there is belt tension at the position indicated in the illustration.

**Deflection: 5-6 mm (0.20-0.24 in.)
at 20 N (2 kgf, 4.4 lbf)**



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



12. INSTALL NO.2 AND NO.3 TIMING BELT COVERS

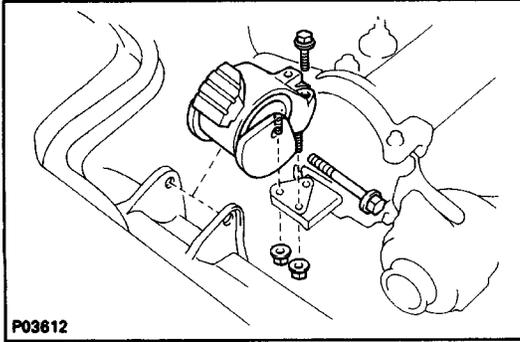
Install the No.2, No.3 timing belt covers and engine wire bracket with the six bolts.

13. INSTALL CYLINDER HEAD COVER

(See steps 11 and 17 on pages [EM-109](#) and 111)

14. INSTALL SPARK PLUGS

Torque: 18 N-m (180 kgf-cm, 13 ft-lbf)

**15. INSTALL RH ENGINE MOUNTING INSULATOR**

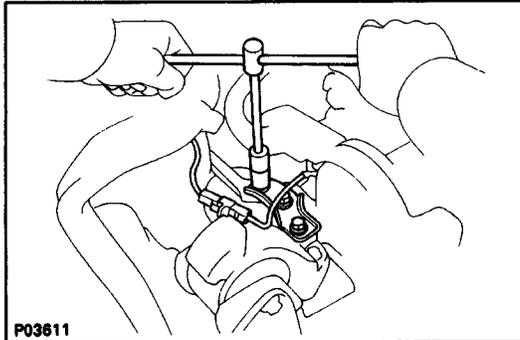
Install the mounting insulator with the through bolt, bolt and two nuts.

Torque:

Through bolt 87 N-m (890 kgf-cm, 64 ft-lbf)

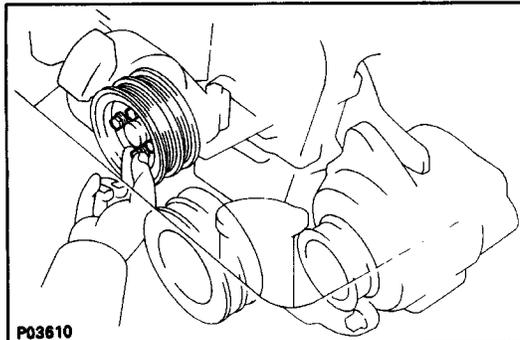
Bolt 64 N-m (650 kgf-cm, 47 ft-lbf)

Nut 52 N-m (530 kgf-cm, 38 ft-lbf)

**16. INSTALL RH ENGINE MOUNTING STAY**

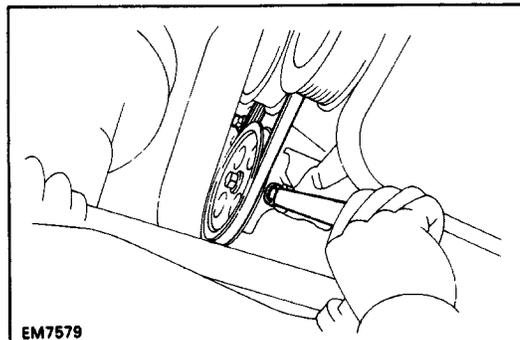
Install the mounting stay with the three bolts.

Torque: 42 N-m (430 kgf-cm, 31 ft-lbf)

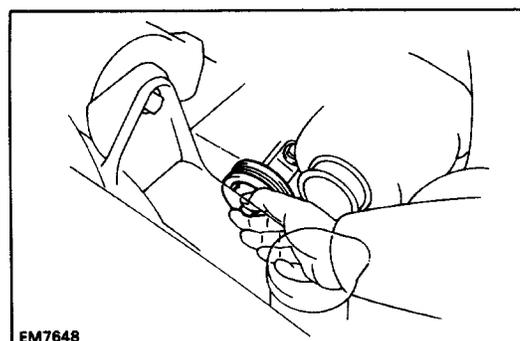
17. CONNECT GROUND CONNECTOR TO GROUND WIRE ON RH FENDER APRON**18. INSTALL WATER PUMP PULLEY AND PS PUMP DRIVE BELT**

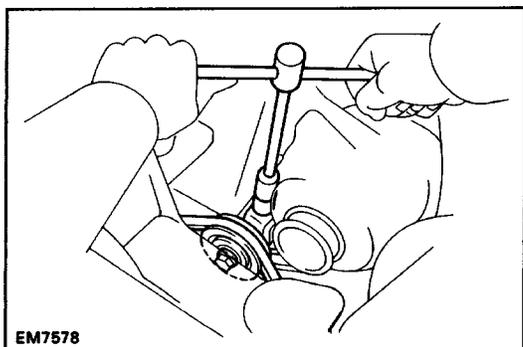
(a) Temporarily install the water pump pulley with the four bolts.

(b) Install the drive belt with the pivot bolt and adjusting bolt.

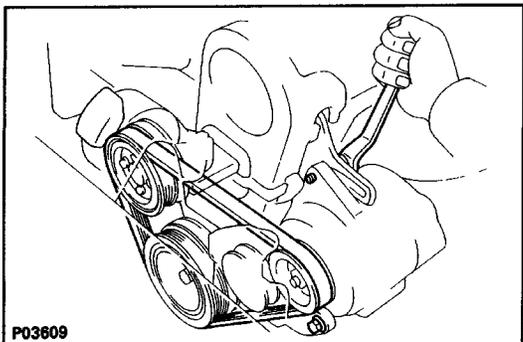
**19. INSTALL A/C IDLER PULLEY AND A/C DRIVE BELT**

(a) Temporarily install the idler pulley with the nut.



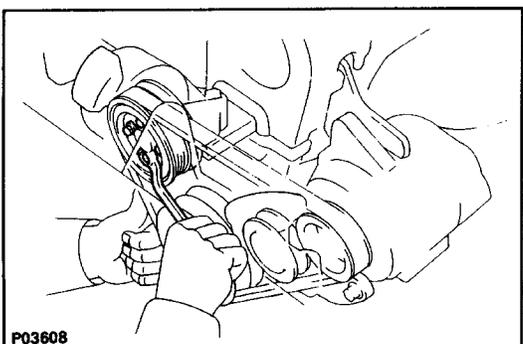


- (b) Install the drive belt with the idler pulley nut and adjusting bolt.



20. INSTALL GENERATOR DRIVE BELT

- (a) Install the drive belt with the pivot nut and adjusting bolt.



- (b) Tighten the four water pump pulley bolts.

21. INSTALL R H FRONT WHEEL

22. CONNECT CABLE TO NEGATIVE TERMINAL OF BATTERY

23. CHECK AND ADJUST DRIVE BELTS

Drive belt tension:

Generator	New belt	160 ± 20 lbf
	Used belt	130 ± 20 lbf
PS pump	New belt	125 ± 25 lbf
	Used belt	80 ± 20 lbf
A/C compressor	New belt	160 ± 25 IN
	Used belt	100 ± 20 lbf

24. INSTALL RH ENGINE UNDER COVER