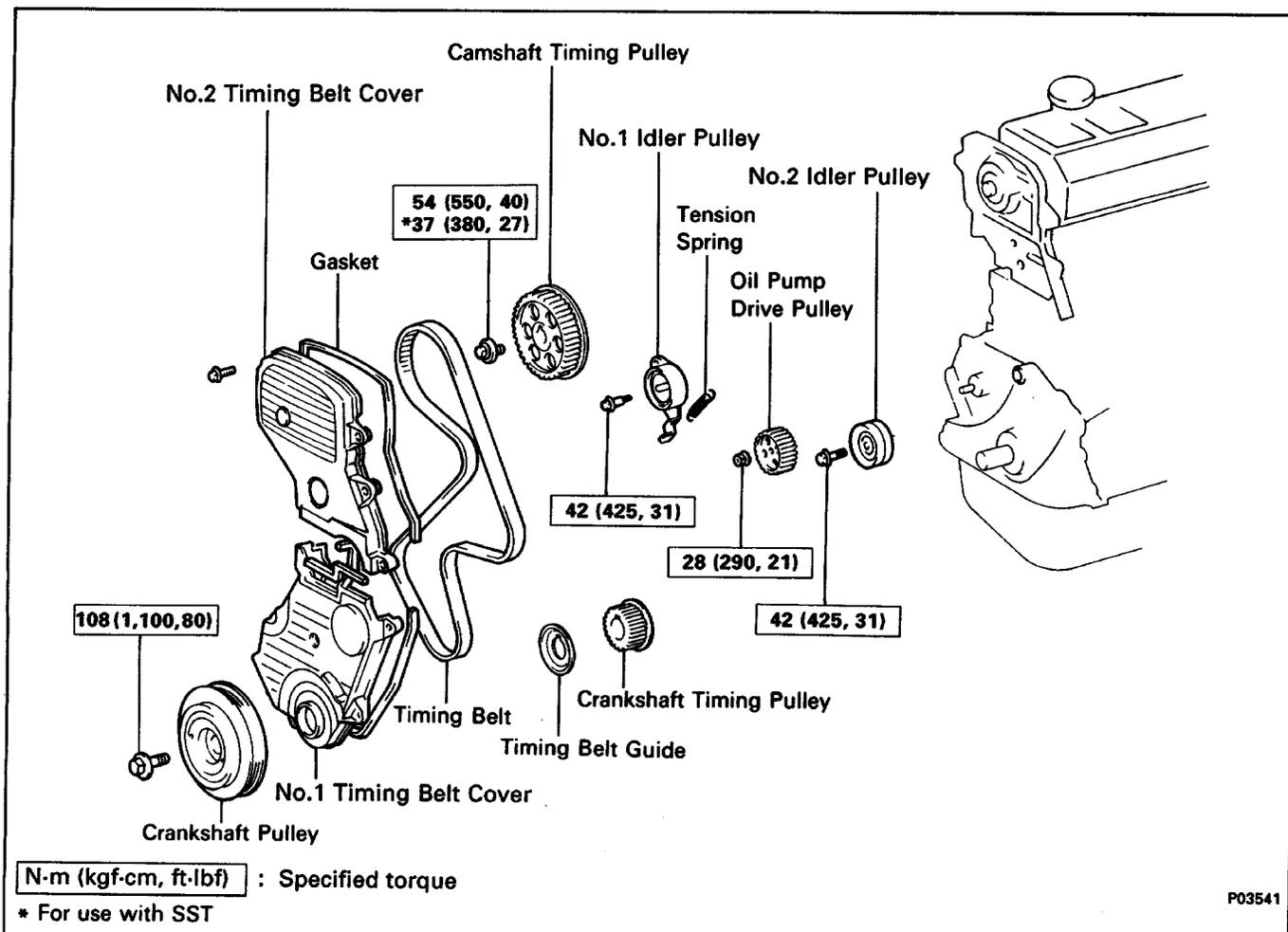


TIMING BELT (5S-FE) COMPONENTS



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

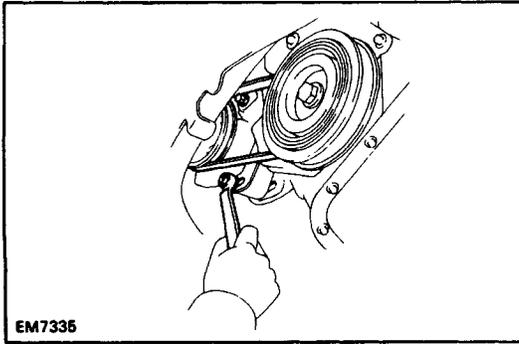
3. REMOVE RH ENGINE UNDER COVER

4. (w/ CRUISE CONTROL SYSTEM (w/o ABS))

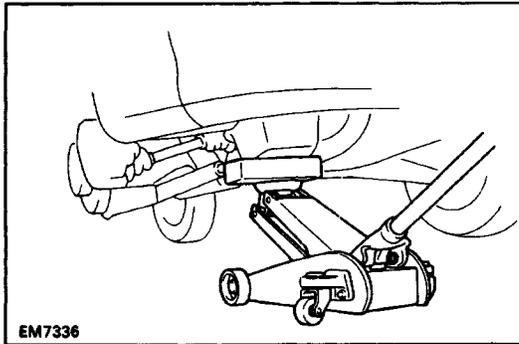
REMOVE CRUISE CONTROL ACTUATOR

(See page 11 on page [EM-270](#))

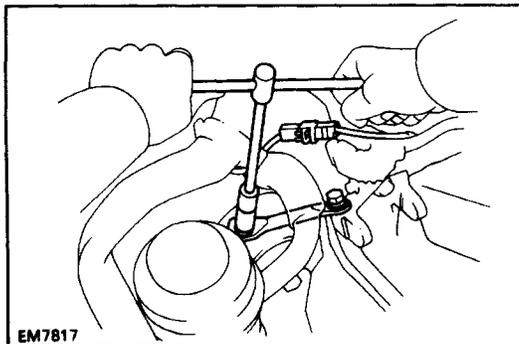
5. REMOVE GENERATOR (See page [CH-9](#))

**6. REMOVE PS DRIVE BELT**

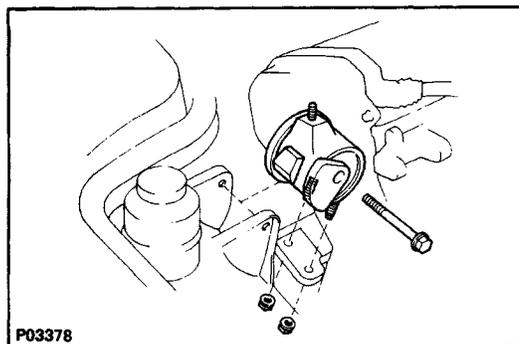
Loosen the two bolts, and remove the drive belt.

**7. SLIGHTLY JACK UP ENGINE**

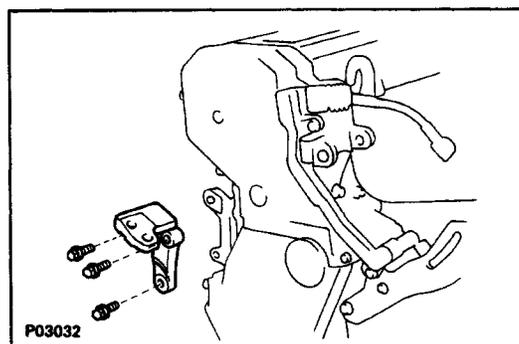
Raise the engine enough to remove the weight from the engine mounting on the right side.

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

Remove the bolt, nut and mounting stay.

10. DISCONNECT PS RESERVOIR TANK FROM BRACKET**11. REMOVE RH ENGINE MOUNTING INSULATOR**

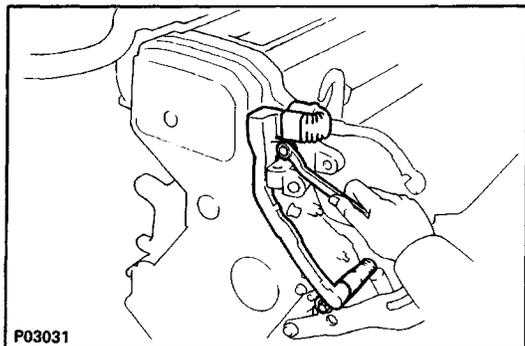
Remove the through bolt, two nuts and mounting insulator.

**12. REMOVE RH ENGINE MOUNTING BRACKET**

Remove the three bolts and mounting bracket.

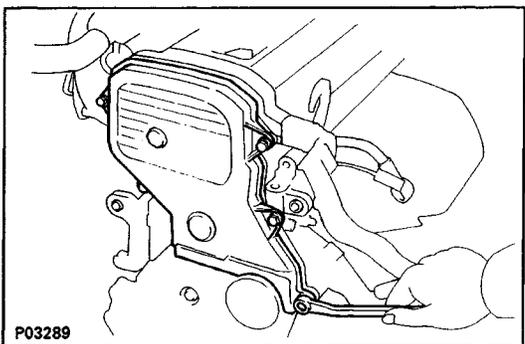
HINT: Lower the jack and perform the operation with the engine fully down.

13. REMOVE SPARK PLUGS



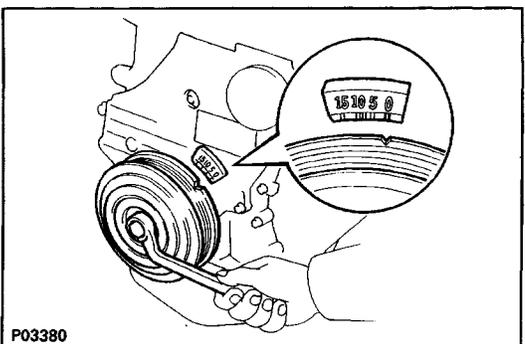
14. DISCONNECT ENGINE WIRE FROM GENERATOR BRACKET AND ADJUSTING BAR

Remove the two bolts, and disconnect the engine wire from the generator bracket and adjusting bar.



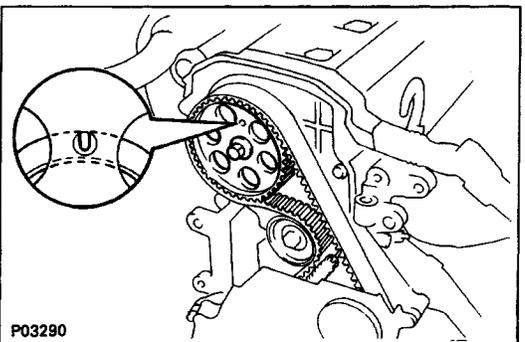
15. REMOVE NO.2 TIMING BELT COVER

Remove the five bolts, timing belt cover and two gaskets.

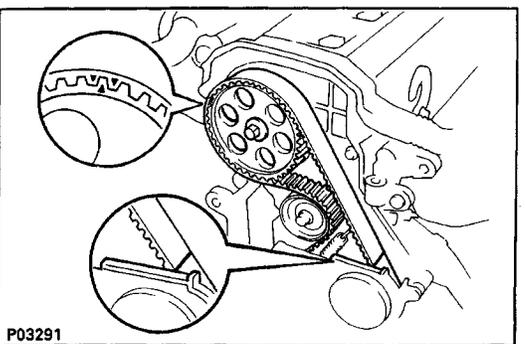


16. SET NO.1 CYLINDER TO TDC/COMPRESSION

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

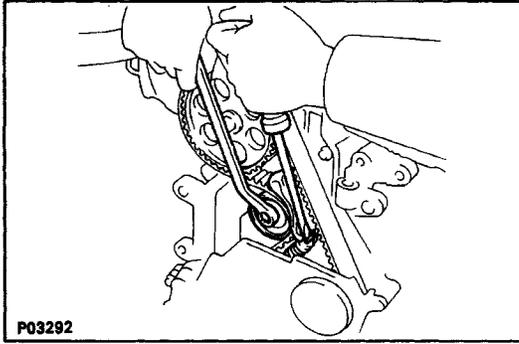


- (b) Check that the hole of the camshaft timing pulley is aligned with the timing mark of the bearing cap. If not, turn the crankshaft one revolution (360°).

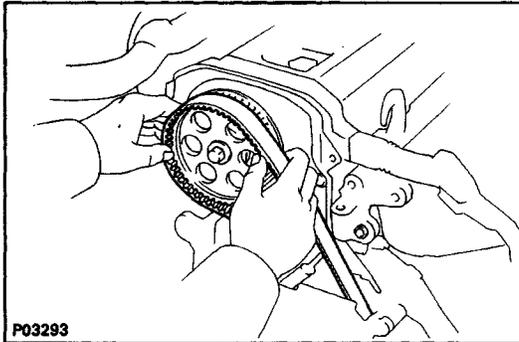


17. REMOVE TIMING BELT FROM CAMSHAFT TIMING PULLEY

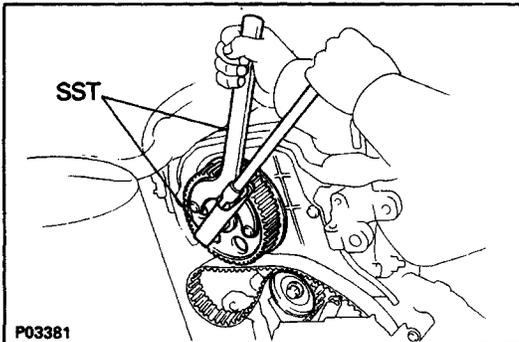
HINT (When re-using timing belt): Place the matchmarks on the timing belt and camshaft timing pulley, and place matchmark on timing belt to match the end of the No.1 timing belt cover.



- (a) Loosen the mounting bolt of the No-1 idler pulley and shift the pulley toward the left as far as it will go, and temporarily tighten it.



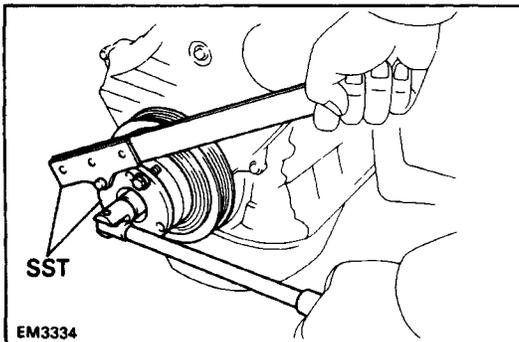
- (b) Remove the timing belt from the camshaft timing pulley.



18. REMOVE CAMSHAFT TIMING PULLEY

Using SST, remove the bolt, plate washer and timing pulley.

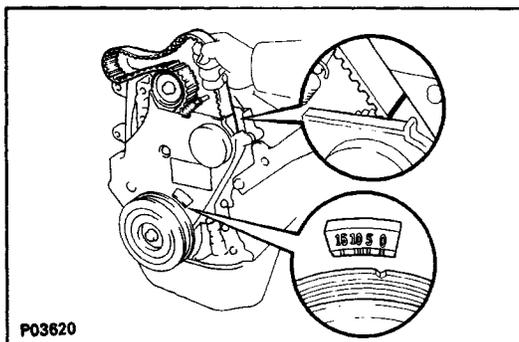
SST 09249-63010 and 09278-54012



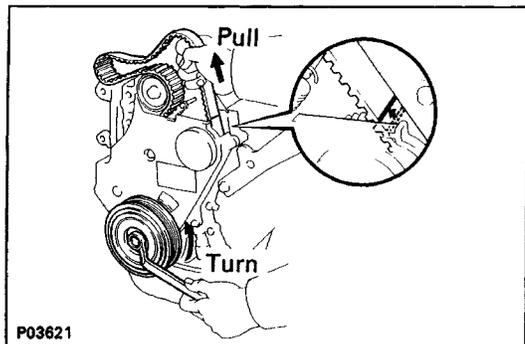
19. REMOVE CRANKSHAFT PULLEY

- (a) Using SST, remove the pulley bolt.

SST 09213-54015 (09214-00030) and 09330-00021

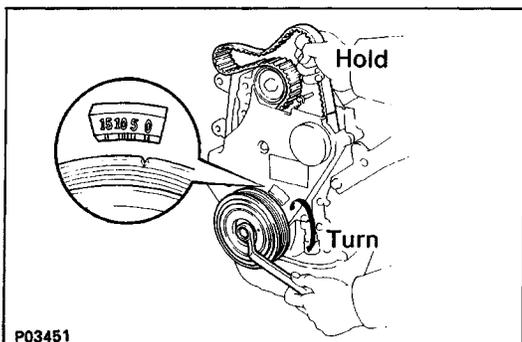


HINT (When re-using timing belt): After loosening the crankshaft pulley bolt, check that the timing belt matchmark aligns with the end of the No.1 timing belt cover when the crankshaft pulley groove is aligned with the timing mark "0" of the No.1 timing belt cover. If the matchmark does not align, align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

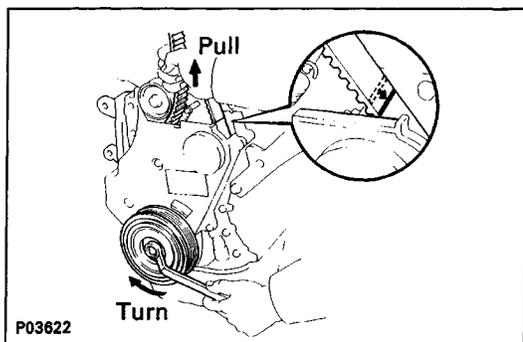


(When matchmark is out of alignment on clockwise)

- Align the matchmark by pulling the timing belt up on the water pump pulley side while turning the crankshaft pulley counterclockwise.

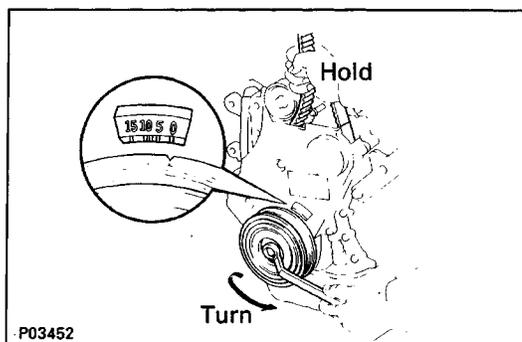


- After aligning the matchmark, hold the timing belt. And turn the crankshaft pulley clockwise, and align its groove with timing mark "o" of the IVo.1 timing belt cover.

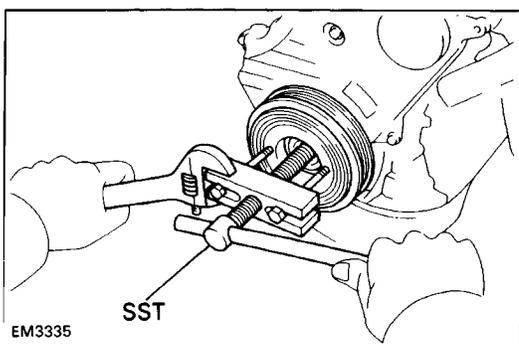


(When matchmark is out of alignment on counterclockwise)

- Align the matchmark by pulling the timing belt up on the No.1 idler pulley side while turning the crankshaft pulley clockwise.



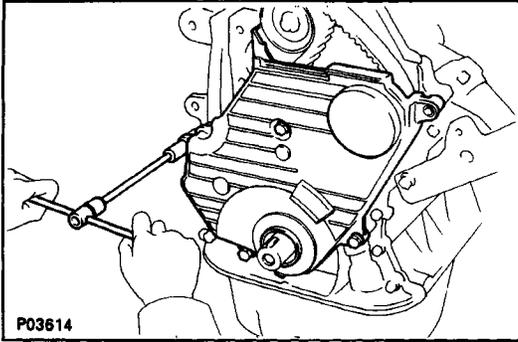
- After aligning the matchmark, hold the timing belt. And turn the crankshaft pulley counterclockwise, and align its groove with timing mark "0" of the No.1 timing belt cover.



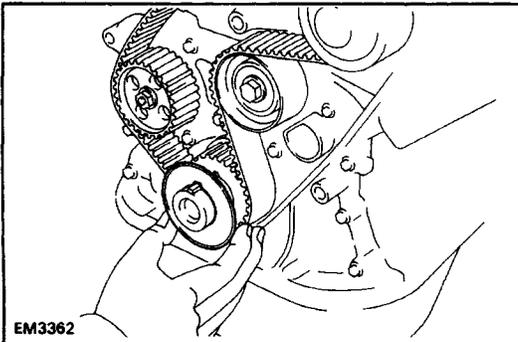
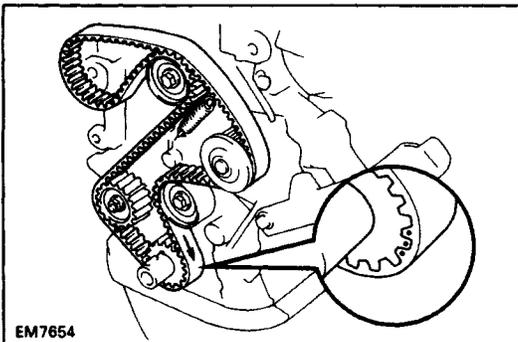
(b) Using SST, remove the pulley.

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

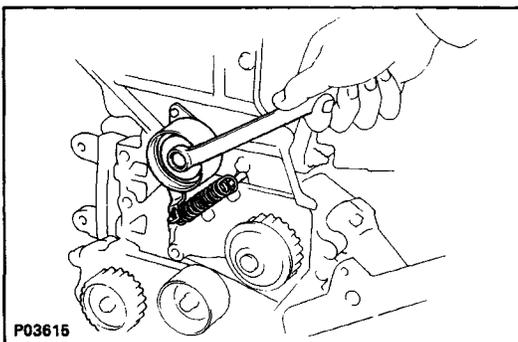
HINT (When re-using timing belt): Remove the pulley without turning it.

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

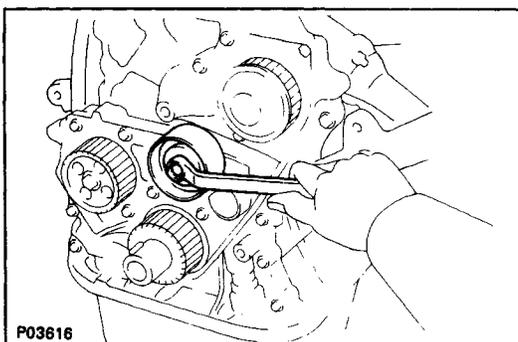
Remove the four bolts, timing belt cover and gasket.

**21. REMOVE TIMING BELT GUIDE****22. REMOVE TIMING BELT**

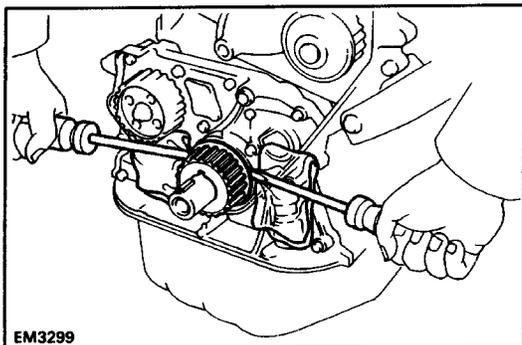
HINT (When re-using timing belt): Draw a direction arrow on the timing belt (in the direction of engine revolution), and place matchmarks on the timing belt and crankshaft timing pulley.

**23. REMOVE NO.1 IDLER PULLEY AND TENSION SPRING**

Remove the bolt, pulley and tension spring.

**24. REMOVE NO.2 IDLER PULLEY**

Remove the bolt and pulley.

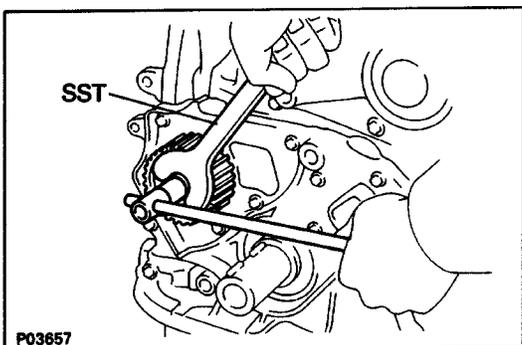


EM3299

25. REMOVE CRANKSHAFT TIMING PULLEY

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

HINT: Position shop rags as shown to prevent damage.

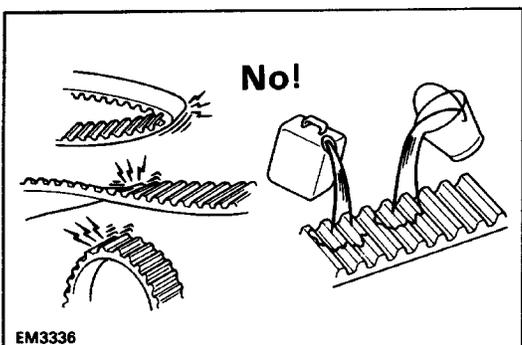


P03657

26. REMOVE OIL PUMP PULLEY

Using SST, remove the nut and pulley.

SST 09616-30011



EM3336

INSPECTION OF TIMING BELT COMPONENTS

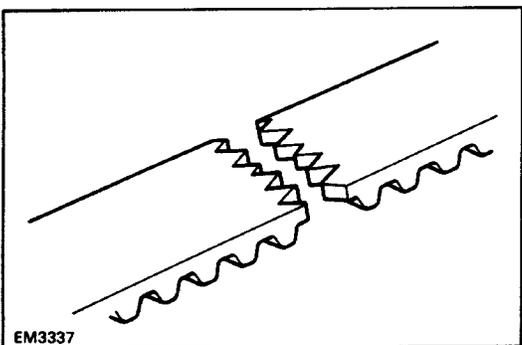
1. INSPECT TIMING BELT

NOTICE:

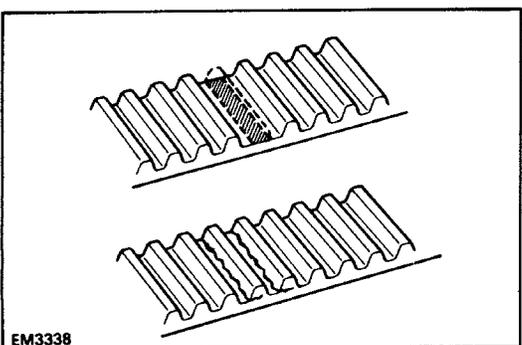
- Do not bend, twist or turn the timing belt inside out.
- Do not allow the timing belt to come into contact with oil, water or steam.
- Do not utilize timing belt tension when installing or removing the mounting bolt of the camshaft timing pulley.

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

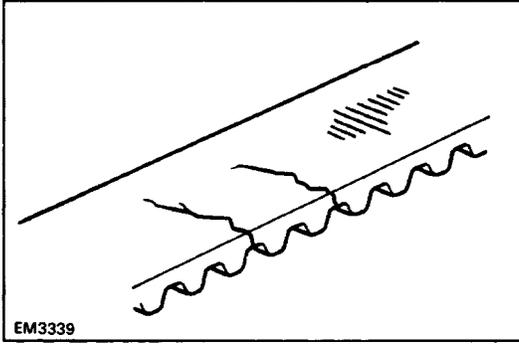
- (a) Premature parting
 - Check the proper installation.
 - Check the timing cover gasket for damage and proper installation.
- (b) If the belt teeth are cracked or damaged, check to see if either camshaft or water pump is locked.



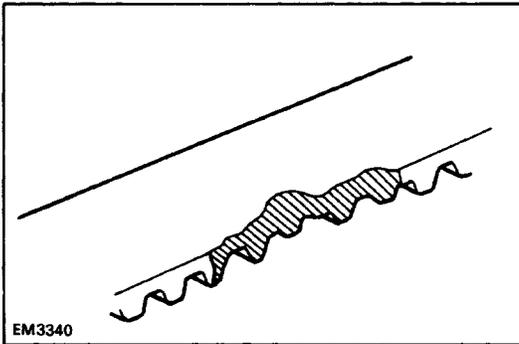
EM3337



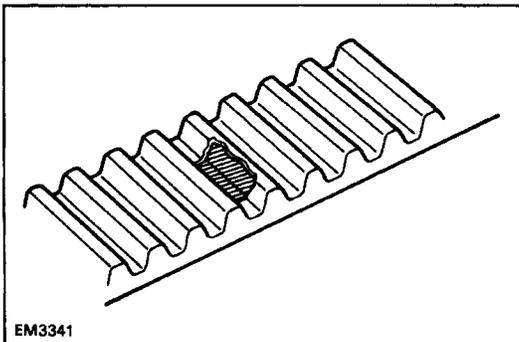
EM3338



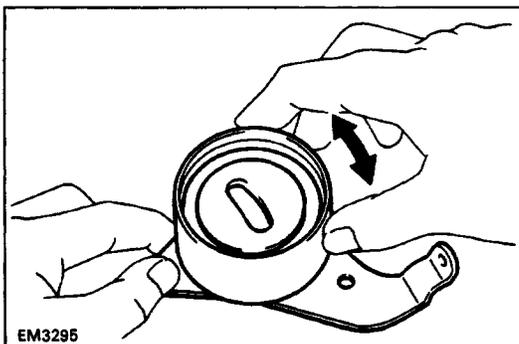
- (c) If there is noticeable wear or cracks on the belt face, check to see if there are nicks on the side of the idler pulley lock.



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

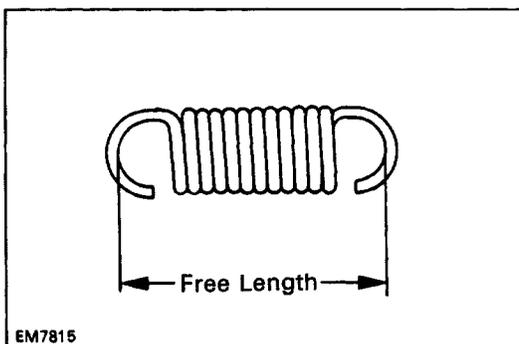


- (e) If there is noticeable wear on the belt teeth, check the timing cover for damage, correct gasket installation, and the foreign material on the pulley teeth. If necessary, replace the timing belt.



2. INSPECT IDLER PULLEYS

Check that the idler pulley turns smoothly.



3. INSPECT TENSION SPRING

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

Free length: 46.0 mm (1.811 in.)

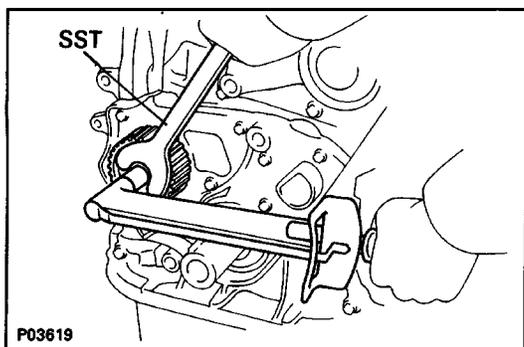
If the free length is not as specified, replace the tension spring.

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

Installed tension:

**32 – 37 N (3.25 – 3.75 kgf, 7.2 – 8.3 lbf)
at 50.5 mm (1.988 in.)**

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



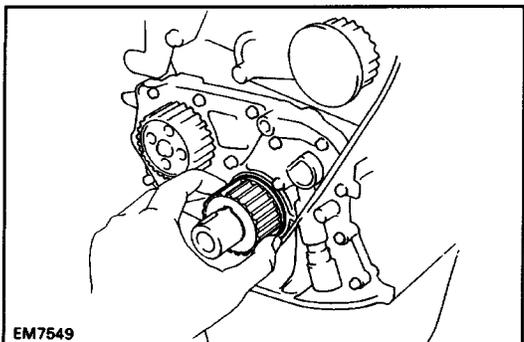
INSTALLATION OF TIMING BELT

(see page EM-67)

1. INSTALL OIL PUMP PULLEY

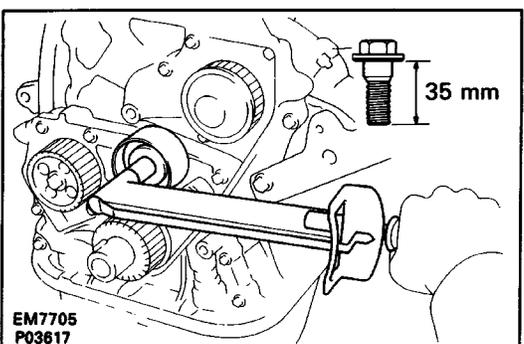
- Align the cutouts of the pulley and shaft, and slide on the pulley.
- Using SST, install the nut.
SST 09616-30011

Torque: 28 N-m (290 kgf-cm, 21 ft-lbf)



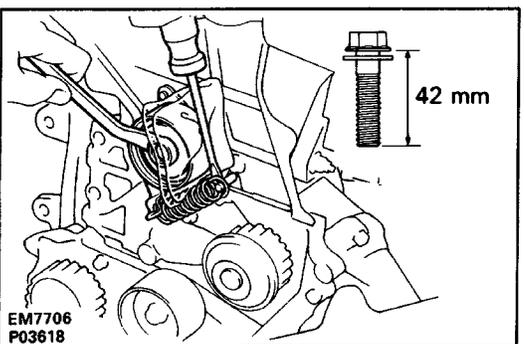
2. INSTALL CRANKSHAFT TIMING PULLEY

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



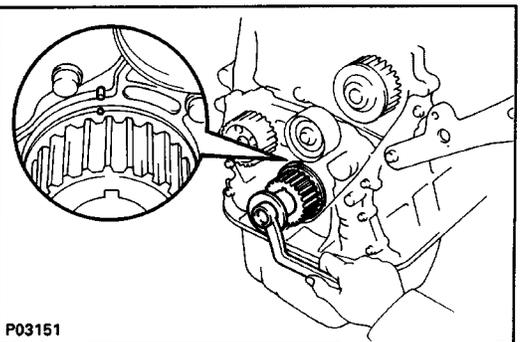
3. INSTALL NO.2 IDLER PULLEY

- Install the pulley with the bolt.
Torque: 42 N-m (425 kgf-cm, 31 ft-lbf)
HINT: Use bolt 35 mm (1.38 in.) in length.
- Check that the idler pulley moves smoothly.



4. TEMPORARILY INSTALL NO.1 IDLER PULLEY AND TENSION SPRING

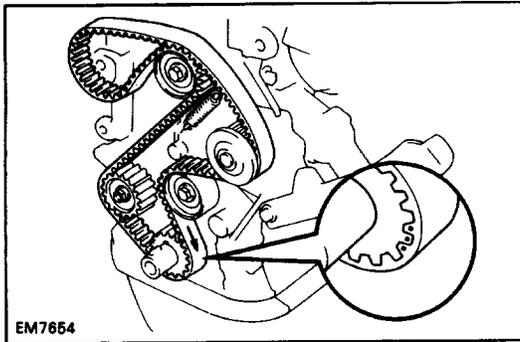
- Install the pulley with the bolt. Do not tighten the bolt yet.
HINT: Use bolt 42 mm (1.65 in.) in length.
- Install the tension spring.
- Pry the pulley toward the left as far as it will go and tighten the bolt.
- Check that the idler pulley moves smoothly.



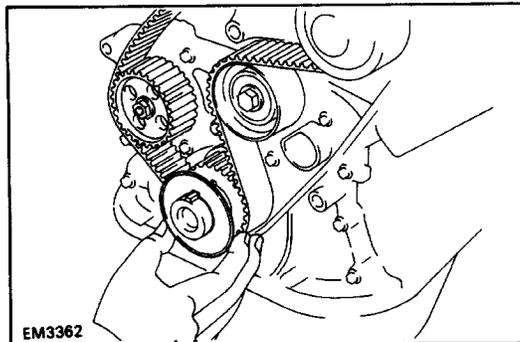
5. TEMPORARILY INSTALL TIMING BELT

NOTICE: The engine should be cold.

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

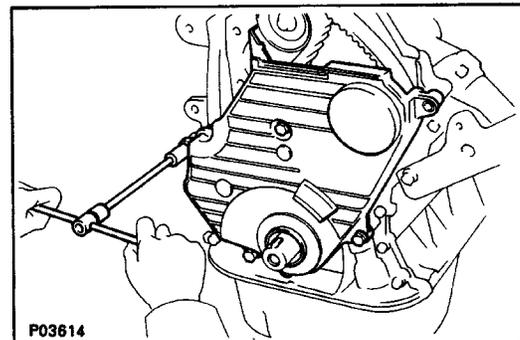


- (b) Remove any oil or water on the crankshaft pulley, oil pump pulley, water pump pulley, No.1 idler pulley, No.2 idler pulley, and keep them clean.
- (c) Install the timing belt on the crankshaft timing pulley, oil pump pulley, No.1 idler pulley, water pump pulley and No.2 idler pulley.
- HINT (When re-using timing, belt): Align the points marked during removal, and install the belt with the arrow pointing in the direction of engine revolution.



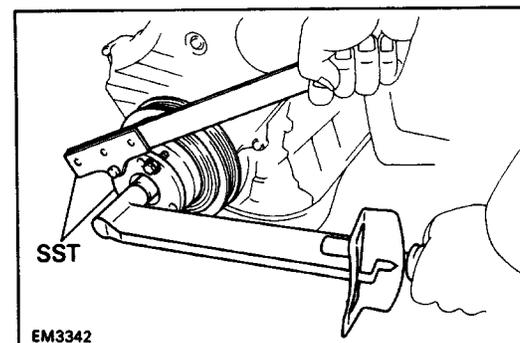
6. INSTALL TIMING BELT GUIDE

Install the guide, facing the cup side outward.



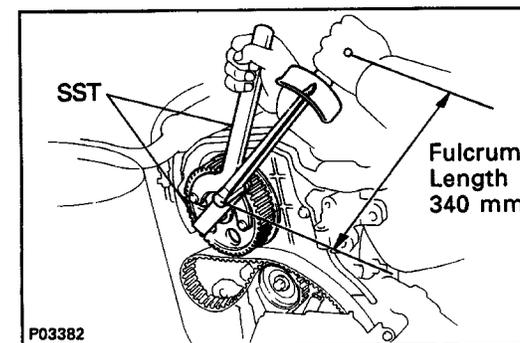
7. INSTALL NO.1 TIMING BELT COVER

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



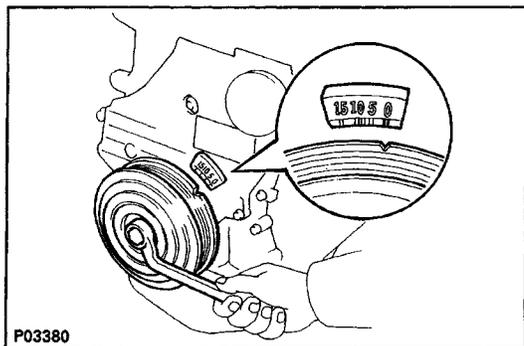
8. INSTALL CRANKSHAFT PULLEY

- (a) Align the pulley set key with the key groove of the pulley, and slide on the pulley.
- (b) Using SST, install the pulley bolt.
SST 09213-54015 (09214-00030) and 09330-00021
- Torque: 108 N-m (1,100 kgf-cm, 80 ft-lbf)**



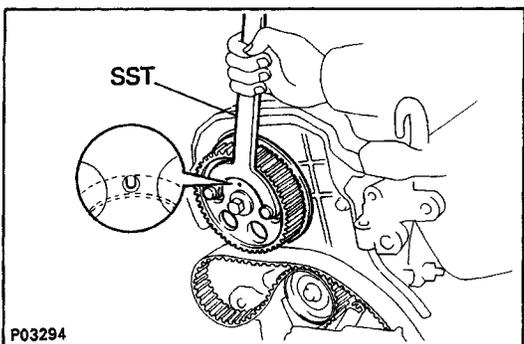
9. INSTALL CAMSHAFT TIMING PULLEY

- (a) Align the camshaft knock pin with the knock pin groove of the pulley, and slide on the timing pulley
- (b) Using SST, install the plate washer and bolt.
SST 09249-63010 and 09278-54012
- Torque: 54 N-m (550 kgf-cm, 40 ft-lbf)**
37 N-m (380 kgf-cm, 27 ft-lbf) for SST
- HINT: Use a torque wrench with a fulcrum length of 340 mm (13.39 in.)



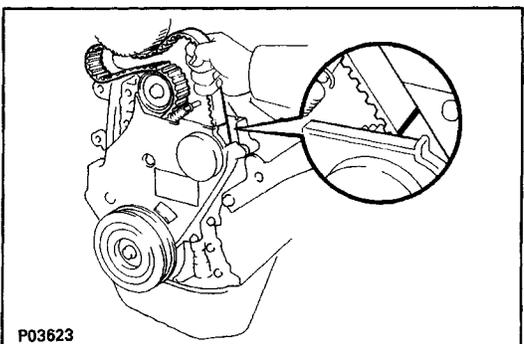
10. SET NO.1 CYLINDER-TO TDC/COMPRESSION

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



- (b) Using SST, turn the camshaft, and align the hole of the camshaft timing pulley with the timing mark of the bearing cap.

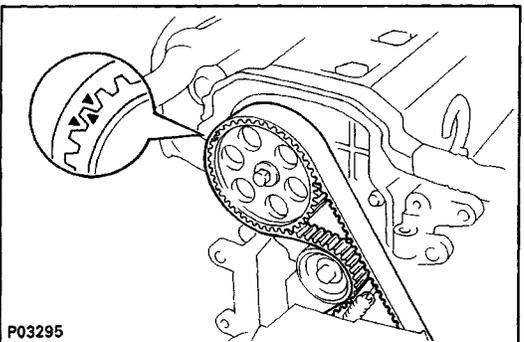
SST 09278-54012



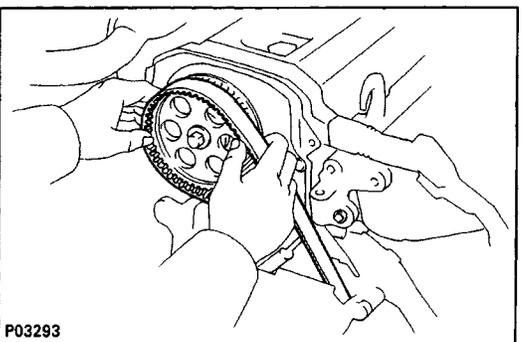
11. INSTALL TIMING BELT

HINT (When re-using timing belt):

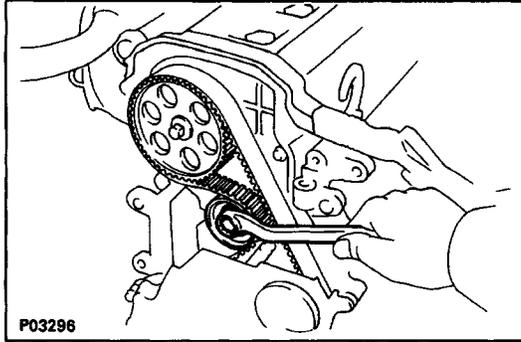
- Check that the matchmark on the timing belt matches the end of the No.1 timing belt cover. If the matchmark does not align, shift the meshing of the timing belt and crankshaft timing pulley until they align. (See page [EM-71](#))



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

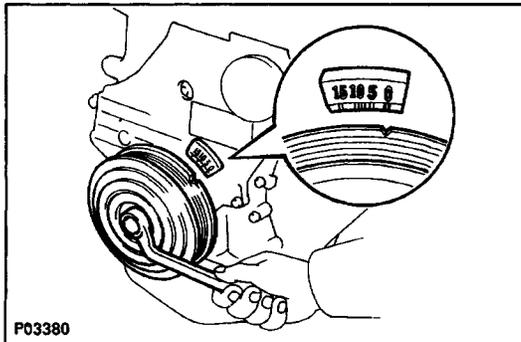


- (a) Remove any oil or water on the camshaft timing pulley, and keep it clean.
- (b) Install the timing belt, and checking the tension between the crankshaft timing pulley and camshaft timing pulley.



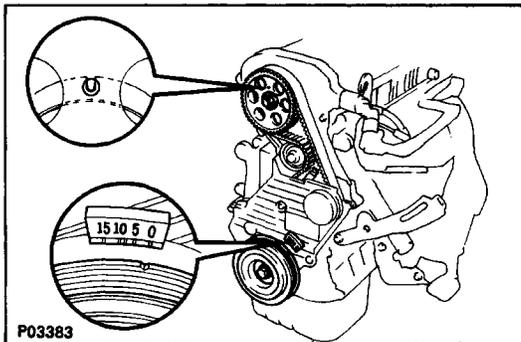
12. CHECK VALVE TIMING

(a) Loosen the No.1 idler pulley bolt 1/2 turn.



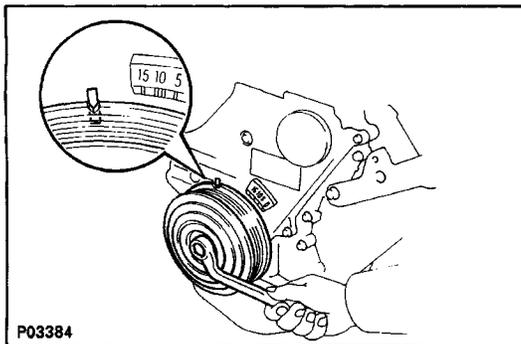
(b) Slowly turn the crankshaft pulley two revolutions from TDC to TDC.

NOTICE: Always turn the crankshaft clockwise.



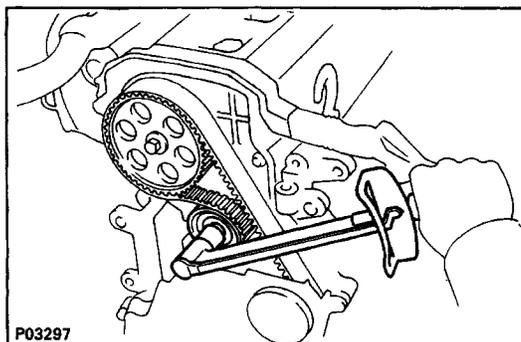
(c) Check that each pulley aligns with the timing marks as shown in the illustration.

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



(d) Slowly turn the crankshaft pulley 1 7/8 revolutions, and align its groove with the mark at BTDC 45° (for No.1 cylinder) of the No.1 timing belt cover.

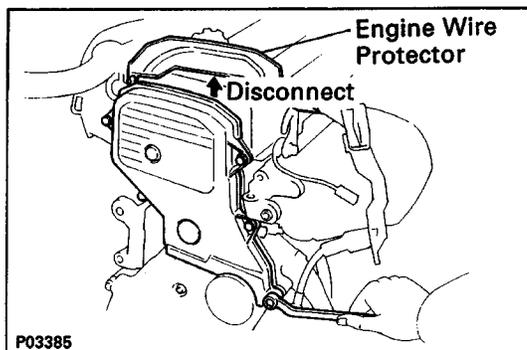
NOTICE: Always turn the crankshaft clockwise.



(e) Torque the mounting bolt of the No.1 idler pulley.

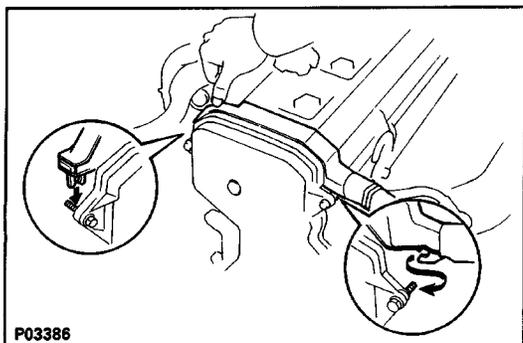
Torque: 42 N·m (425 kgf·cm, 31 ft·lbf)

(f) Recheck the valve timing.

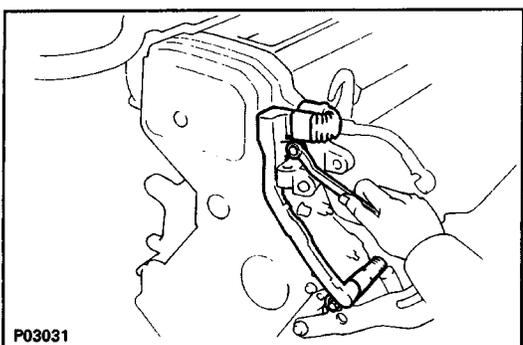


13. INSTALL NO.2 TIMING BELT COVER

- (a) Disconnect the engine Wire protector between the No.3 timing belt cover- and cylinder head cover.
- (b) Install the two gaskets to the No.1 and No.2 belt covers.
Install the belt cover with the five bolts.



- (d) Install the two clamps of the engine wire protector to each bolt.

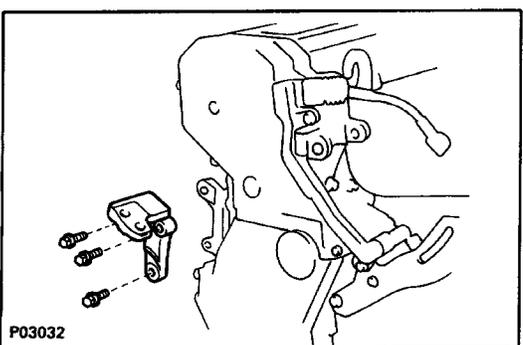


14. INSTALL ENGINE WIRE TO GENERATOR BRACKET AND ADJUSTING BAR

Install the engine wire with the two bolts.

15. INSTALL SPARK PLUGS

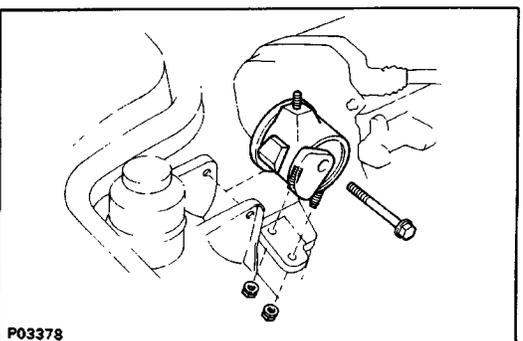
Torque: 18 N-m (180 kgf-cm, 13 ft-lbf)



16. INSTALL RH ENGINE MOUNTING BRACKET

Install the bracket with the three bolts.

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



17. INSTALL RH ENGINE MOUNTING INSULATOR

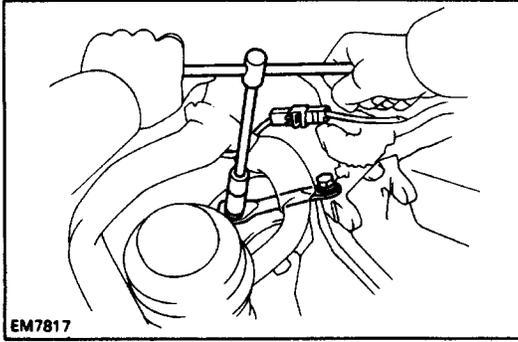
Install the mounting insulator with the through bolt and two nuts.

Torque:

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

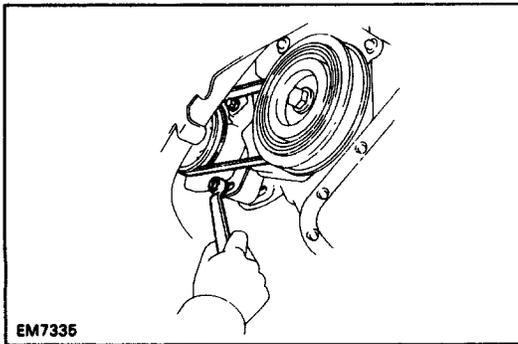
Through bolt 87 N-m (890 kgf-cm, 64 ft-lbf)

18. INSTALL PS RESERVOIR TANK TO BRACKET

**19. INSTALL RH ENGINE MOUNTING STAY**

Install the mounting stay with the bolt and nut.

Torque: 73 N-m (740 kgf-cm, 54 ft-lbf)

20. CONNECT GROUND CONNECTOR TO GROUND WIRE ON RH FENDER APRON**21. INSTALL PS DRIVE BELT**

Install the drive belt with the pivot bolt and adjusting bolt.

22. INSTALL GENERATOR (See page [CH-25](#))**23. (w/ CRUISE CONTROL SYSTEM (w/o ABS)**

INSTALL CRUISE CONTROL ACTUATOR

(See step 33 on page [EM-309](#))

24. INSTALL RH FRONT WHEEL**25. CONNECT CABLE TO NEGATIVE TERMINAL OF BATTERY****26. CHECK AND ADJUST DRIVE BELTS**

Adjust the drive belts.

Drive belt tension:

Generator

w/ A/C **New belt 165 ± 10 lbf**

Used belt 110 ± 10 lbf

w/o A/C **New belt 125 ± 25 lbf**

Used belt 95 ± 20 lbf

PS pump **New belt 125 ± 10 lbf**

Used belt 80 ± 20 lbf

27. INSTALL RH ENGINE UNDER COVER