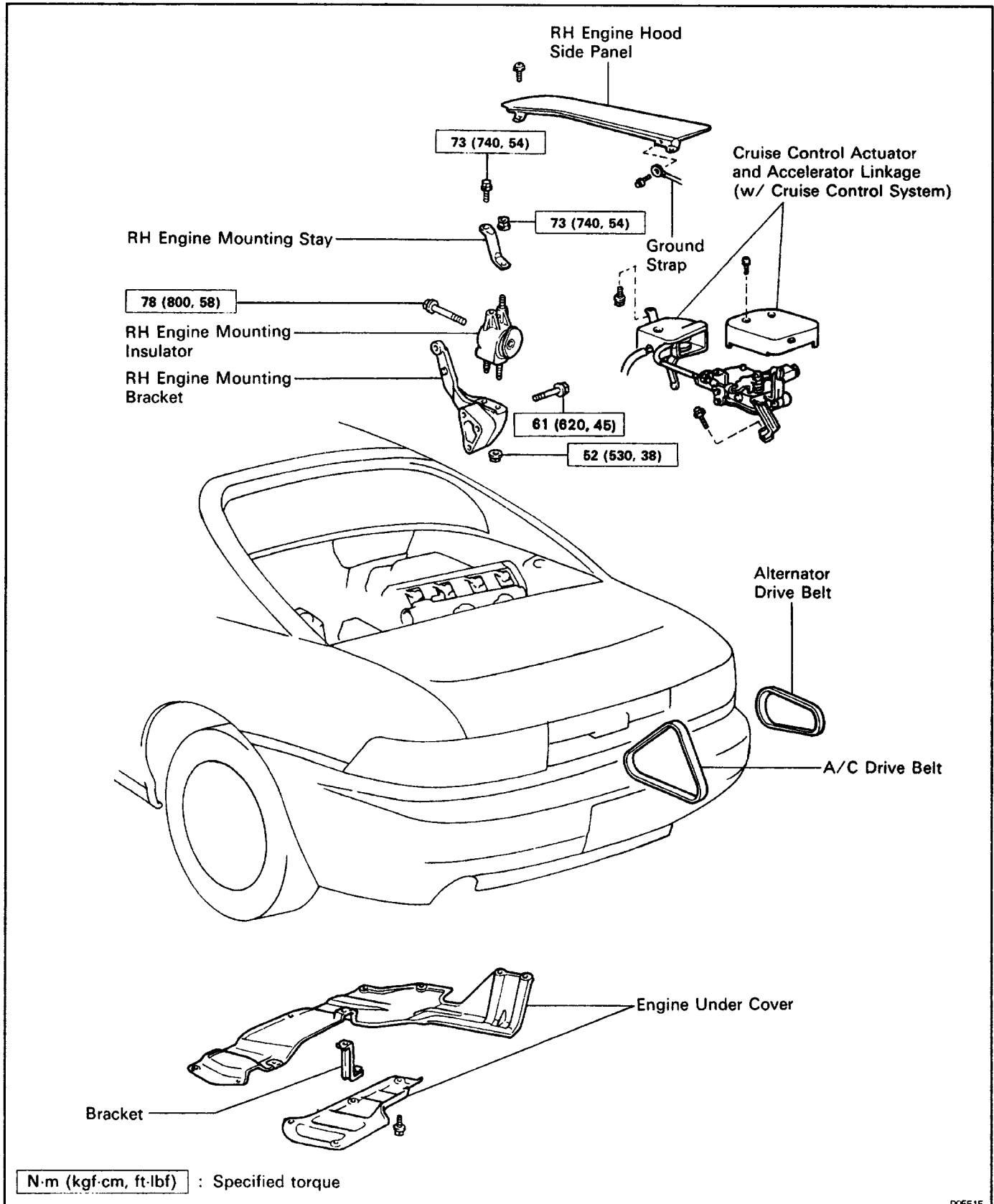
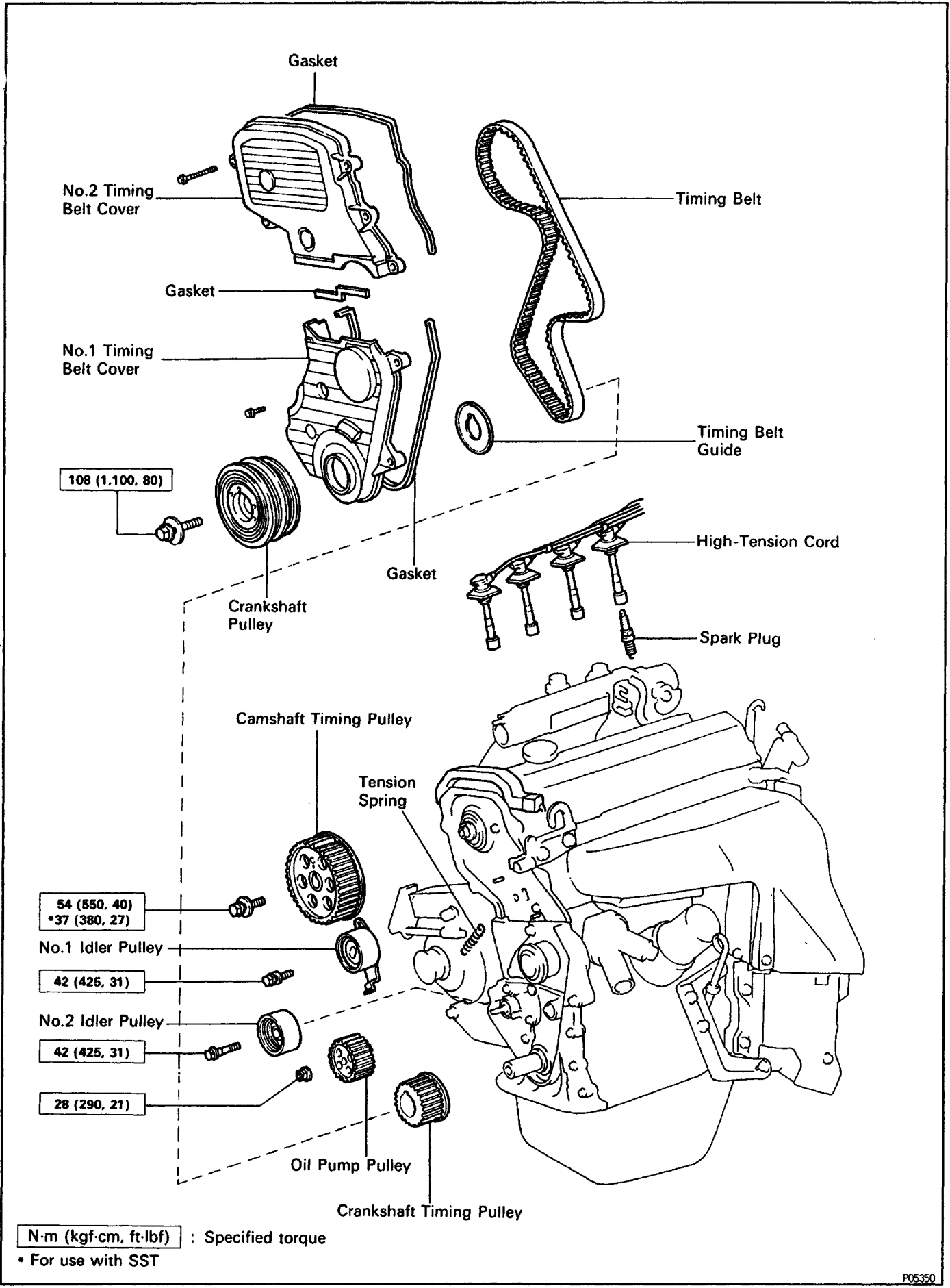
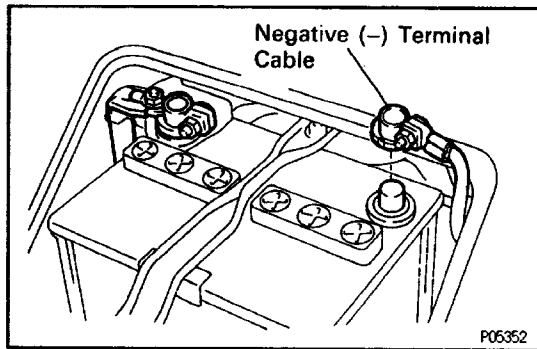


# TIMING BELT COMPONENTS FOR REMOVAL AND INSTALLATION

80117-01







## TIMING BELT REMOVAL

(See Components for Removal and installation)

### 1. DISCONNECT CABLE FROM NEGATIVE TERMINAL OF BATTERY

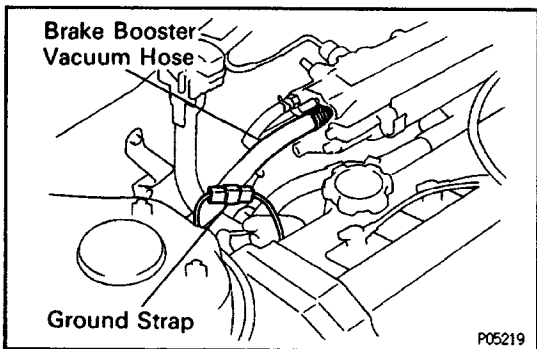
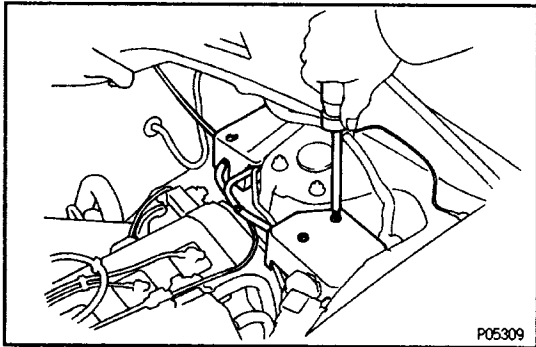
**CAUTION:** Turn the ignition switch to 'LOCK'. Disconnect the negative terminal from the battery. Wait at least 20 seconds before proceeding with work.

### 2. REMOVE ENGINE UNDER COVERS

### 3. REMOVE RH ENGINE HOOD SIDE PANEL

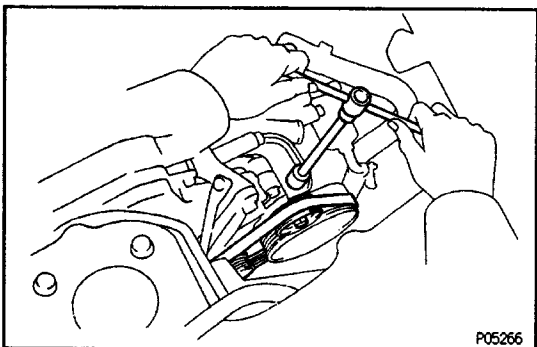
### 4. (w/ CRUISE CONTROL SYSTEM)

### REMOVE CRUISE CONTROL ACTUATOR AND ACCELERATOR LINKAGE



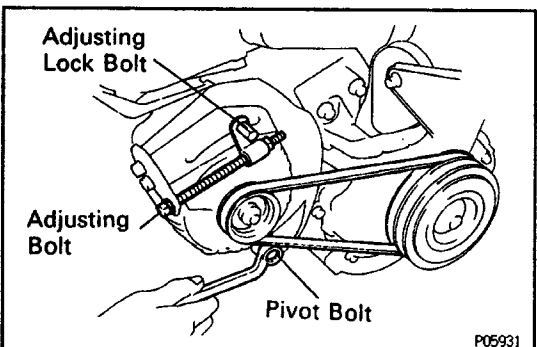
### 5. DISCONNECT GROUND STRAP CONNECTOR

### 6. DISCONNECT BRAKE BOOSTER VACUUM HOSE



### 7. REMOVE A/C DRIVE BELT

Loosen the pully nut and adjusting bolt, and remove the drive belt.

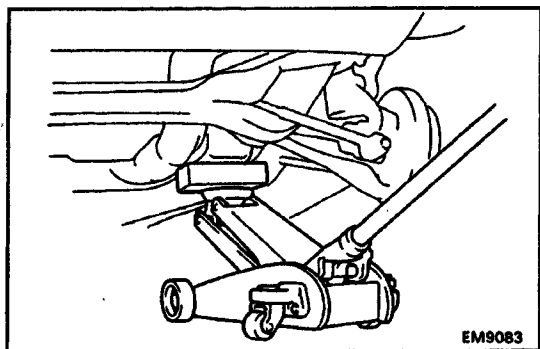


### 8. REMOVE ALTERNATOR DRIVE BELT

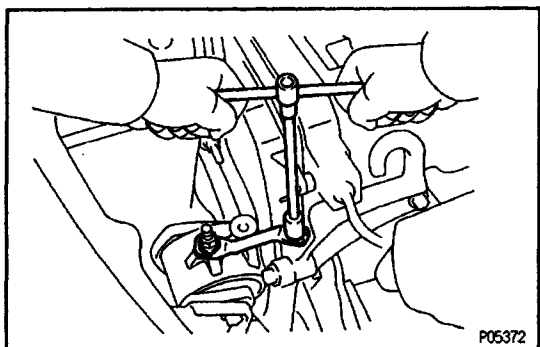
(a) Loosen the pivot bolt and adjusting lock bolt.

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

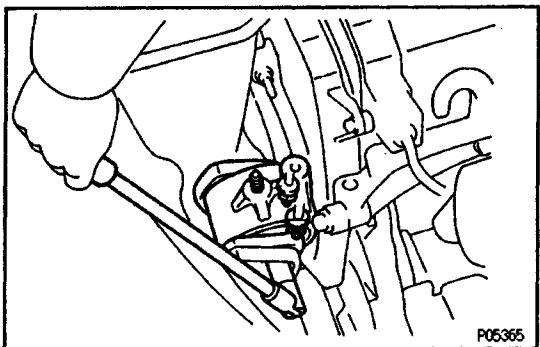
### 9. REMOVE RH REAR WHEEL

**14. SLIGHTLY JACK UP ENGINE**

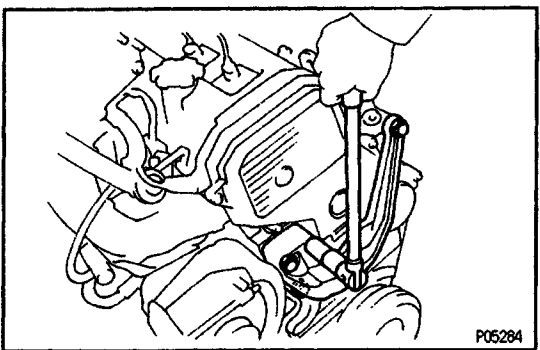
Raise the engine enough to remove the weight from the engine mounting on the right side.

**11. REMOVE RH ENGINE MOUNTING STAY**

Remove the bolt, nut and mounting stay.

**12. REMOVE RH ENGINE MOUNTING INSULATOR**

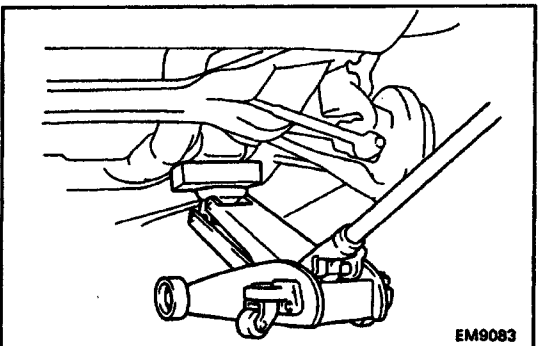
Remove the through bolt, two nuts and mounting insulator.

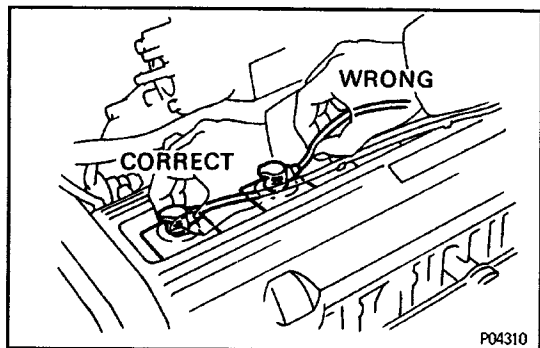
**13. REMOVE RH ENGINE MOUNTING BRACKET**

(a) Remove the four bolts.

(b) Remove the mounting bracket.

HINT: Raise the engine as far as it will go, and remove the mounting bracket.

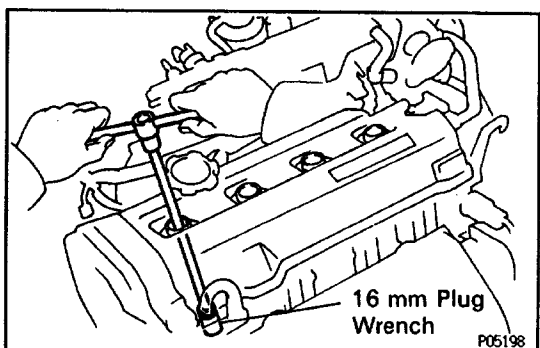




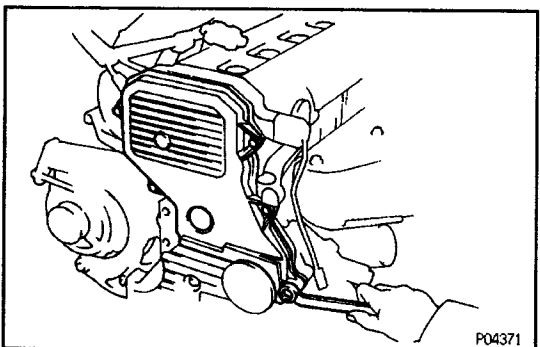
#### 14. REMOVE SPARK PLUGS

(a) Disconnect the four high-tension cords at the rubber boot. Do not pull the cords.

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

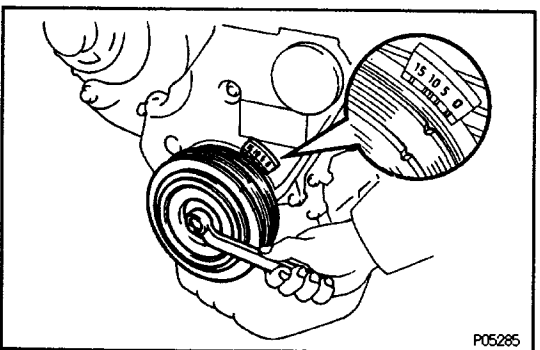


(b) Using a 16 mm plug wrench, remove the four spark plugs.



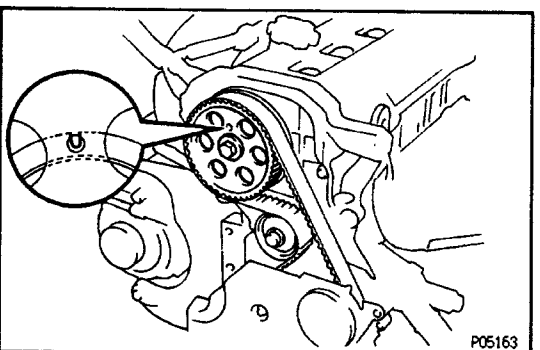
#### 15. REMOVE NO.2 TIMING BELT COVER

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

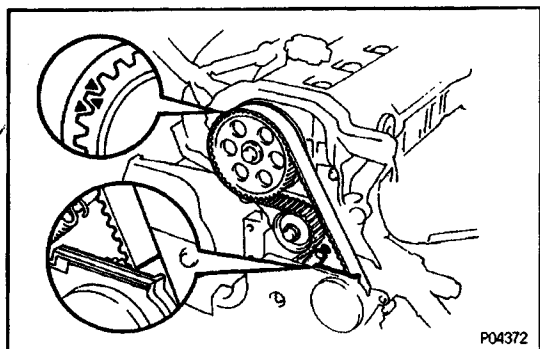


#### 16. SET NO.1 CYLINDER TO TDC/COMPRESSION

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

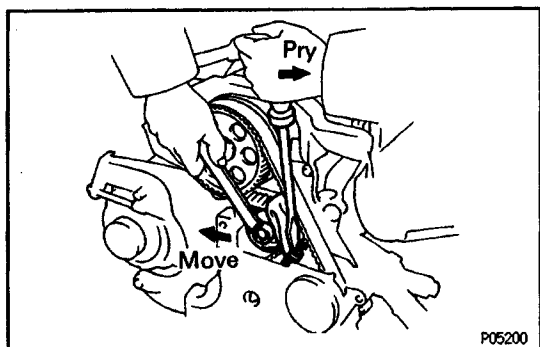


(b) Check that the hole of the camshaft timing pulley is aligned with the timing mark of the bearing cap. If not, turn the crankshaft one revolution (360°).

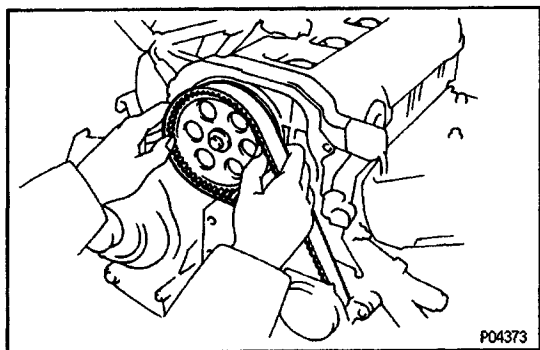


## 17. REMOVE TIMING BELT FROM CAMSHAFT TIMING PULLEY

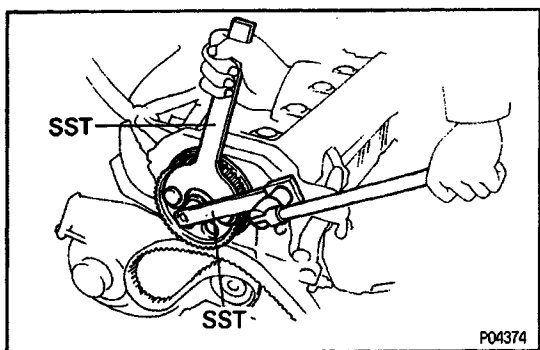
HINT (When re-using timing belt): Place the matchmarks on the timing belt and camshaft timing pulley, and place matchmark on timing belt to match the end of the No.1 timing belt cover.



(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.



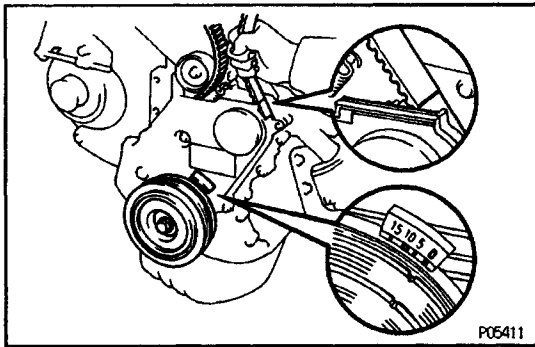
## 18. REMOVE CAMSHAFT TIMING PULLEY

Using SST, remove the bolt and timing pulley.  
SST 09249-63010, 09278-54012

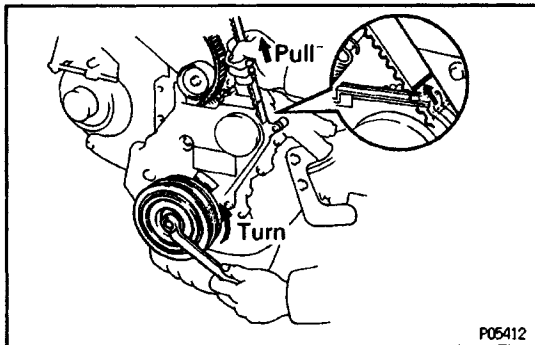


## 19. REMOVE CRANKSHAFT PULLEY

(a) Using SST, remove the pulley bolt.  
SST 09213-54015 (09214-00030),  
09330-00021

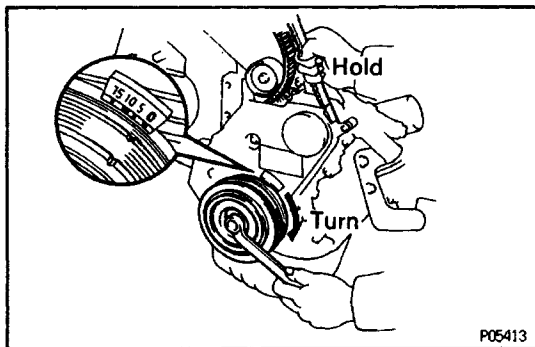


HINT (When re-using timing belt): After loosening the crankshaft pulley bolt, check that the timing belt matchmark aligns with the end of the No. 1 timing belt cover when the crankshaft pulley groove is aligned with the timing mark "0" of the No. 1 timing belt cover. If the matchmark does not align,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

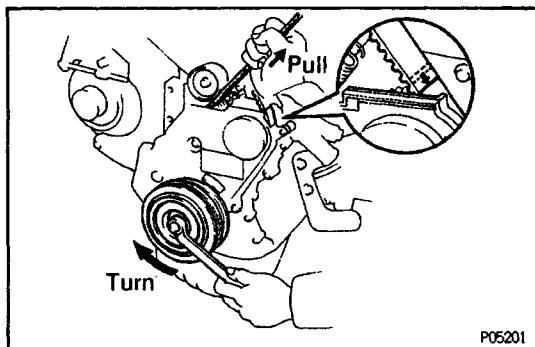


(When matchmark is out of alignment on clockwise)

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

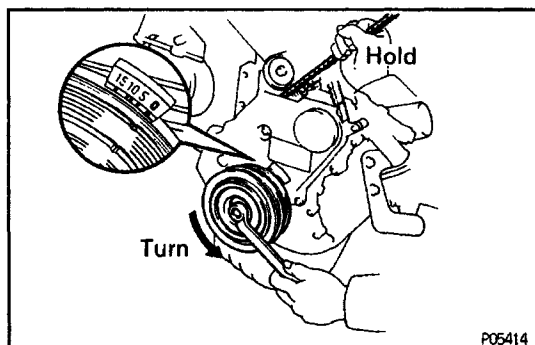


- After aligning the matchmark, hold the timing belt. And turn the crankshaft pulley clockwise, and align its groove with timing mark "0" of the No.1 timing belt cover.

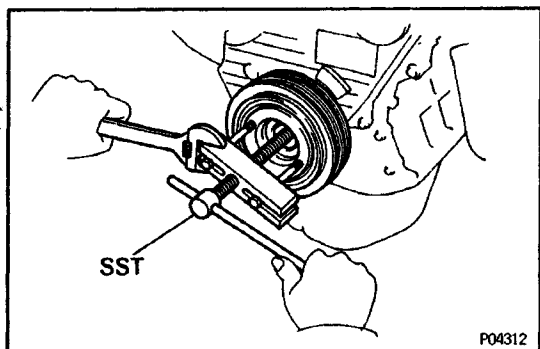


(When matchmark is out of alignment on counter-clockwise)

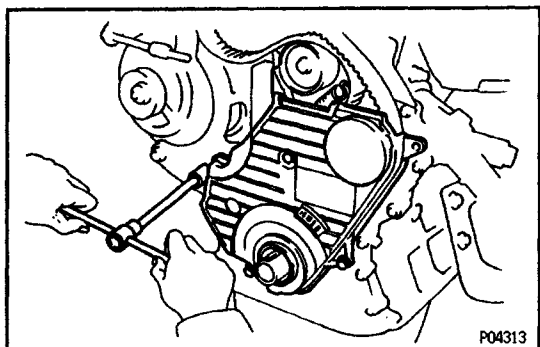
- Align the matchmark by pulling the timing belt up on the No.1 idler pulley side while turning the crankshaft pulley clockwise.



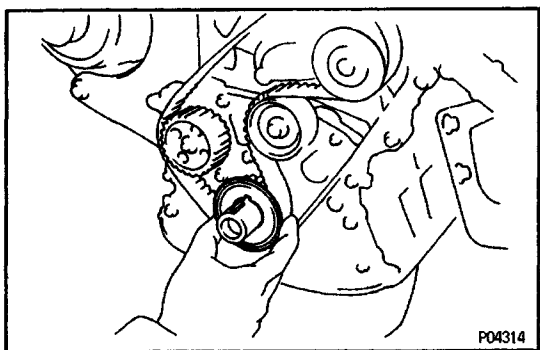
- After aligning the matchmark, hold the timing belt. And turn the crankshaft pulley counter-clockwise, and align its groove with timing mark "0" of the No.1 timing belt cover.



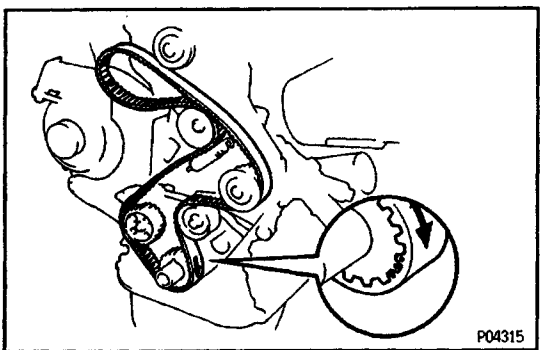
- (b) Using SST, remove the pulley.  
 SST 0921360017 (09213-00020, 09213-00030,  
 09213-00050)  
 HINT (When re-using timing belt): Remove the pulley  
 without turning it.



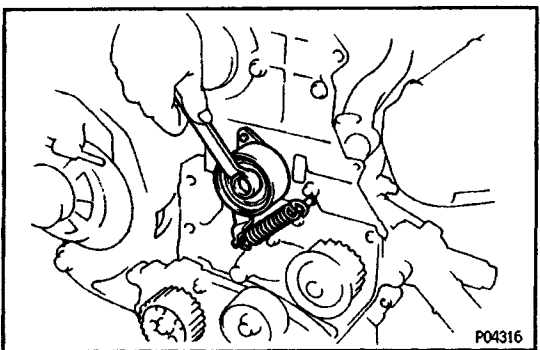
- 20. REMOVE NO.1 TIMING BELT COVER**  
 Remove the four bolts, timing belt cover and gasket.



- 21. REMOVE TIMING BELT GUIDE**

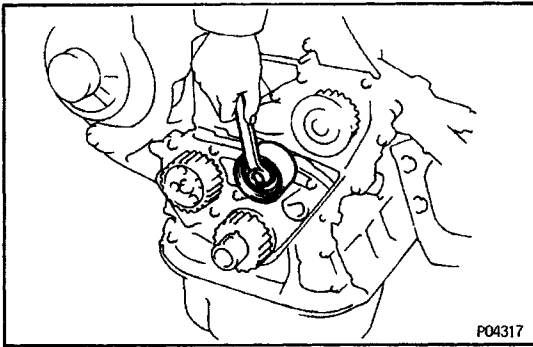


- 22. REMOVE TIMING BELT**  
 HINT (When re-using timing belt): Draw a direction  
 arrow on the timing belt (in the direction of engine  
 revolution), and place matchmarks on the timing belt  
 and crankshaft timing pulley.

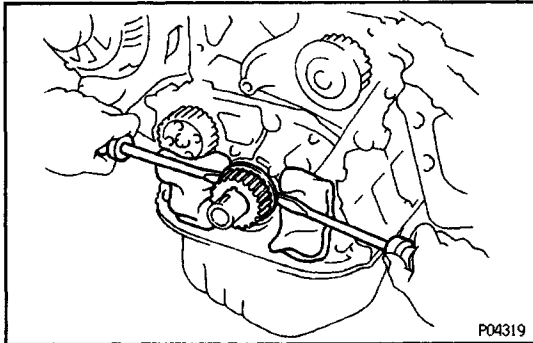


- 23. REMOVE No.1 IDLER PULLEY AND TENSION  
 SPRING**  
 Remove the bolt, pulley and tension spring.



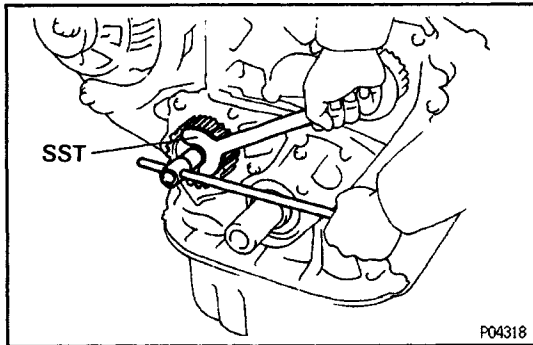
**24. REMOVE NO.2 IDLER PULLEY**

Remove the bolt and pulley.

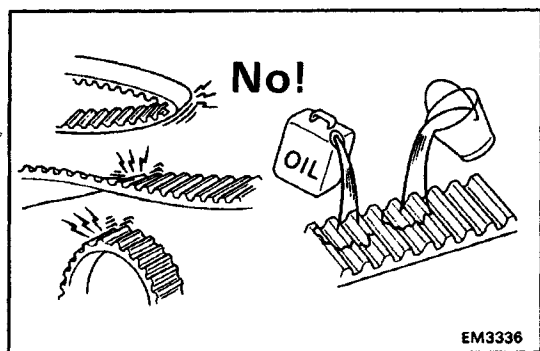
**25. REMOVE CRANKSHAFT TIMING PULLEY**

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

HINT: Position shop rags as shown to prevent damage.

**26. REMOVE OIL PUMP PULLEY**

Using SST, remove the nut and pulley.  
SST 09616-30011



## TIMING BELT COMPONENTS INSPECTION

### 1. INSPECT TIMING BELT

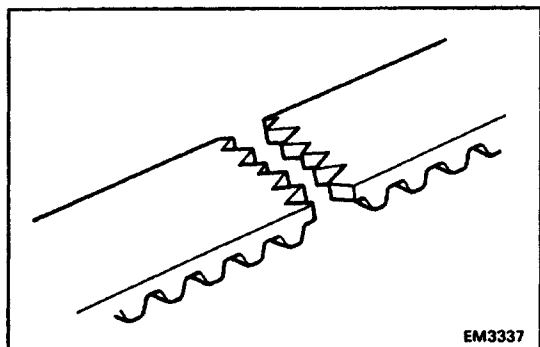
#### NOTICE:

- 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.

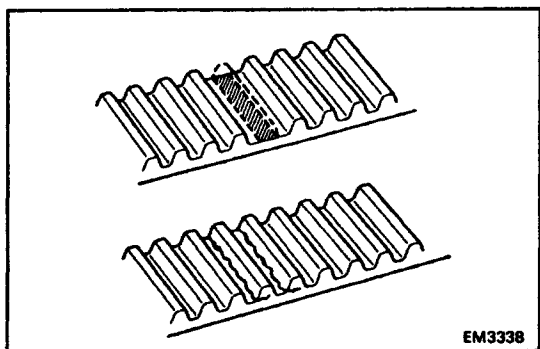
If there are any defects as shown in the illustration, check the following points:

#### (a) Premature parting

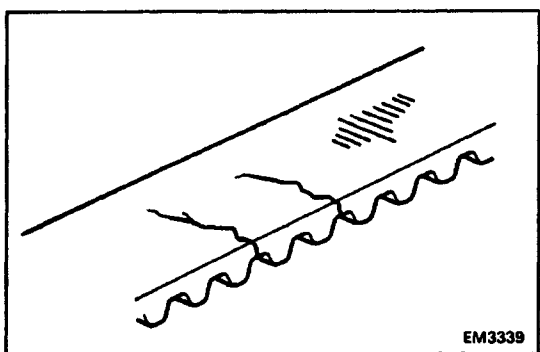
- Check the proper installation.
- Check the timing cover gasket for damage and proper installation.



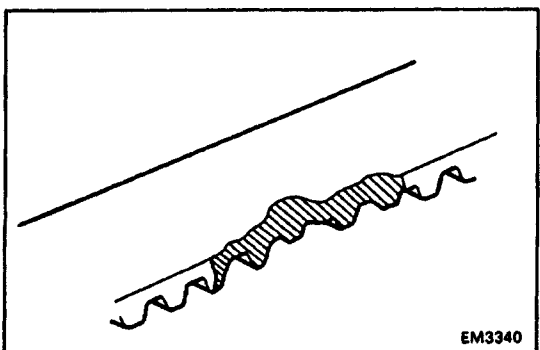
(b) If the belt teeth are cracked or damaged, check to see if either camshaft or water pump is locked.

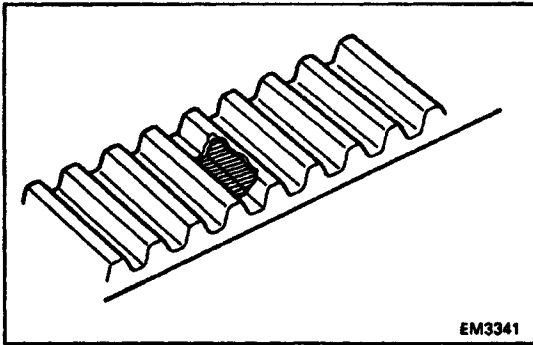


(c) If there is noticeable wear or cracks on the belt face, check to see if there are nicks on the side of the idler pulley lock.

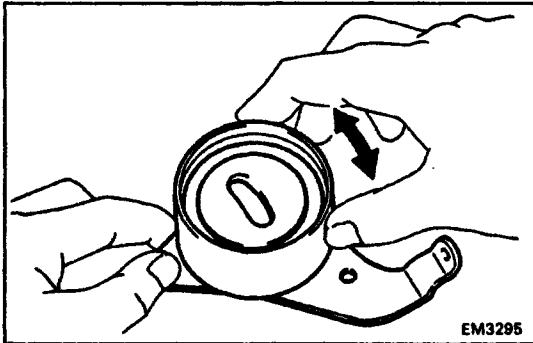


(d) If there is wear or damage on only one side of the belt, check the belt guide and the alignment of each pulley.



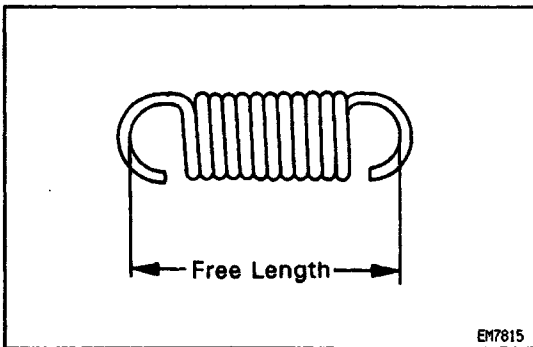


(e) If there is noticeable wear on the belt teeth, check the timing cover for damage, correct gasket installation, and the foreign material on the pulley teeth. If necessary, replace the timing belt.



## 2. INSPECT IDLER PULLEYS

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:**

**46.0 mm (1.811 in.)**

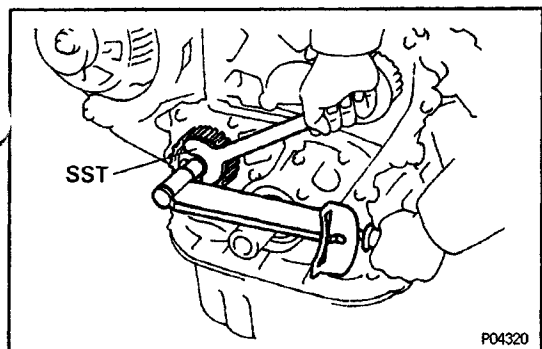
If the free length is not as specified, replace the tension spring.

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

**Installed tension (at 50.5 mm (1.988 in.):**

**32 – 37 N (3.25 – 3.75 kgf, 7.2 – 8.3 lbf)**

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



## TIMING BELT INSTALLATION

(See Components for Removal and Installation)

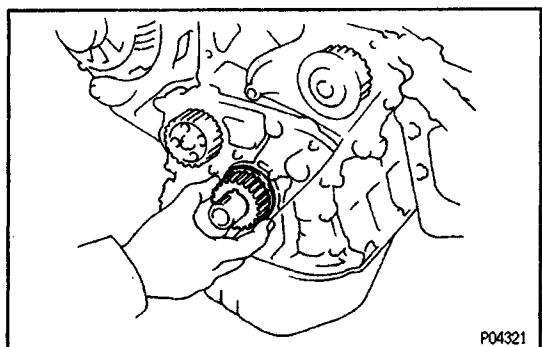
### 1. INSTALL OIL PUMP PULLEY

(a) Align the cutouts of the pulley and shaft, and slide on the pulley.

(b) Using SST, install the pulley nut.

SST 09616-30011

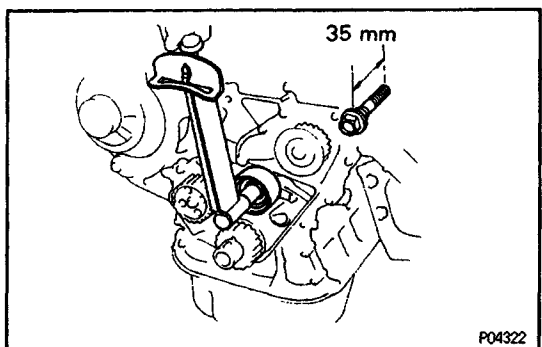
**Torque: 28 N-m (290 kgf-cm, 21 ft-lbf)**



### 2. INSTALL CRANKSHAFT TIMING PULLEY

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

(b) Slide on the timing pulley, facing the flange side inward.



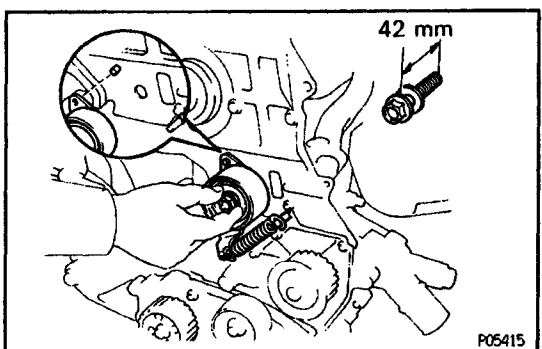
### 3. INSTALL NO.2 IDLER PULLEY

(a) 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.

(b) Check that the idler pulley moves smoothly.



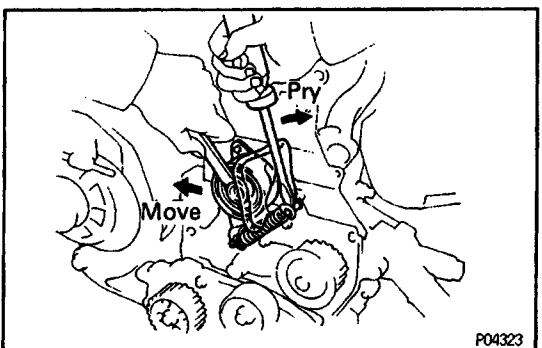
### 4. TEMPORARILY INSTALL NO.1 IDLER PULLEY AND TENSION SPRING

(a) Align the bracket pin hole with the pivot pin.

(b) Install the pulley with the bolt. Do not tighten the bolt yet.

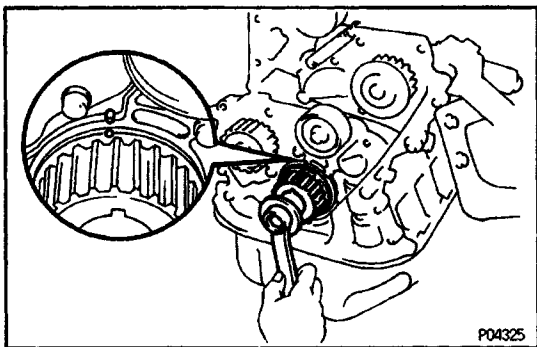
HINT: Use bolt 42 mm (1.65 in.) in length.

(c) Install the tension spring.



(d) Pry the pulley toward the left as far as it will go and tighten the bolt.

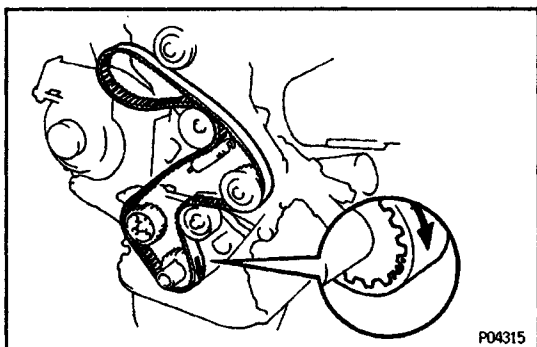
(e) Check that the idler pulley moves smoothly.



## 5. TEMPORARILY INSTALL TIMING BELT

**NOTICE: The engine should be cold.**

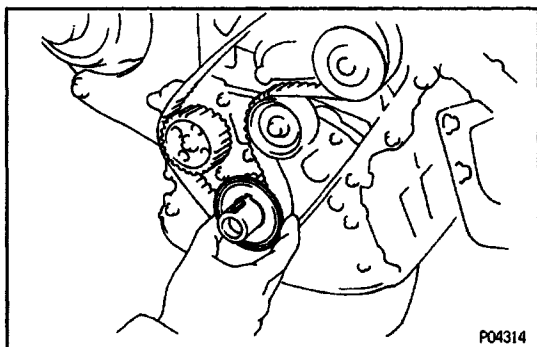
(a) Using the crankshaft pulley bolt, turn the crankshaft and align the timing marks of the crankshaft timing pulley and oil pump body.



(b) Remove any oil or water on the crankshaft pulley, oil pump pulley, water pump pulley, No. 1 idler pulley, No. 2 idler pulley and keep them clean.

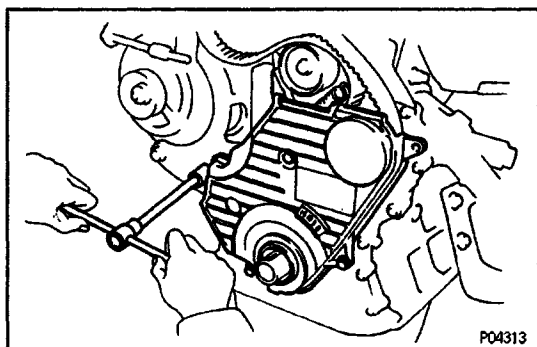
(c) Install the timing belt on the crankshaft timing pulley, oil pump pulley, No.1 idler pulley, water pump pulley and No.2 idler pulley.

**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

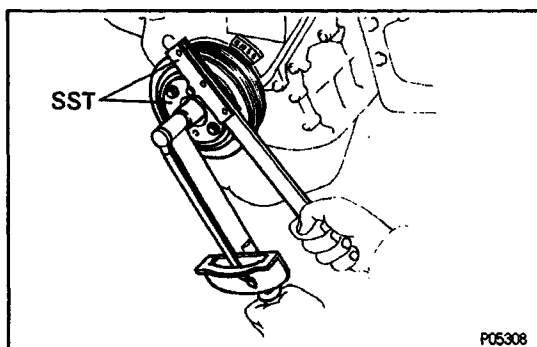
Install the guide, facing the cup side outward.



## 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

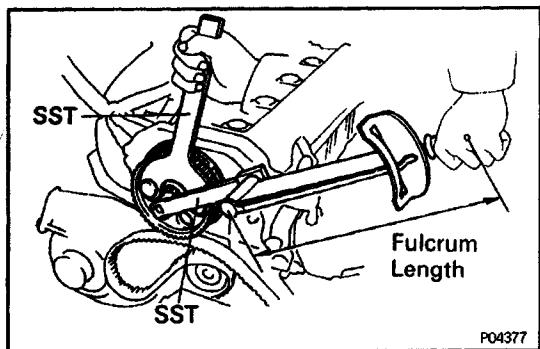
(a) Align the pulley set key with the key groove of the pulley, and slide on the pulley.

(b) Using SST, install the pulley bolt.

SST 09213-54015 (09214-00030),

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 pulley bolt.

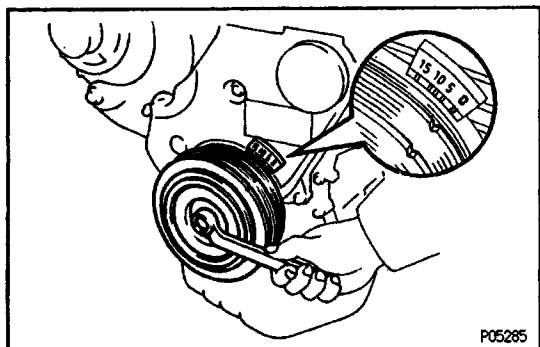
SST 09249-63010, 09278-54012

#### Torque:

**54 N-m (550 kgf-cm, 40 ft-lbf)**

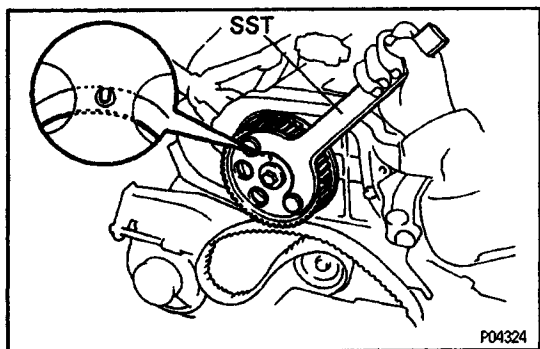
**37 N-m (380 kgf-cm, 27 ft-lbf) for SST**

HINT: Use a torque wrench with a fulcrum length of 340 mm (13.39 in.)



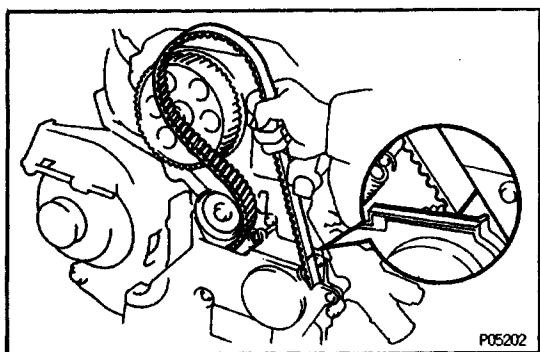
### 10. SET NO.1 CYLINDER TO TDC/COMPRESSION

(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.

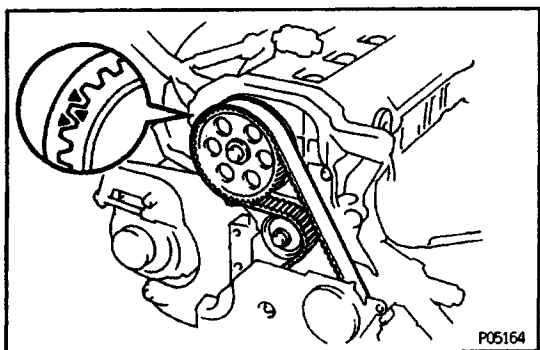
SST 09278-54012



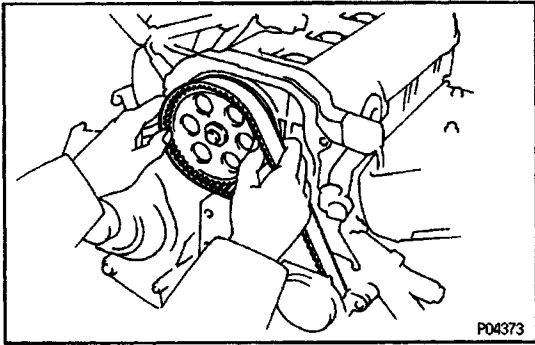
### 11. INSTALL TIMING BELT

HINT (When re-using timing belt):

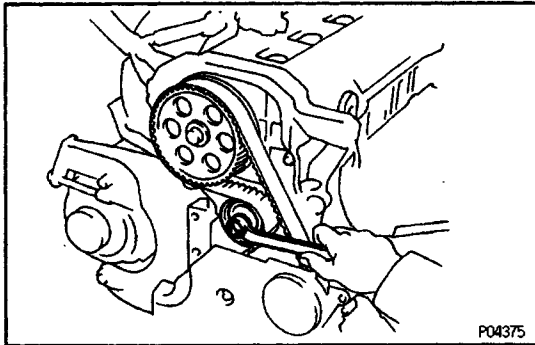
- Check that the matchmark on the timing belt matches the end of the No.1 timing belt cover. If the matchmark does not align, shift the meshing of the timing belt and crankshaft timing pulley until they align. (See step 19 in Timing Belt Removal)



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

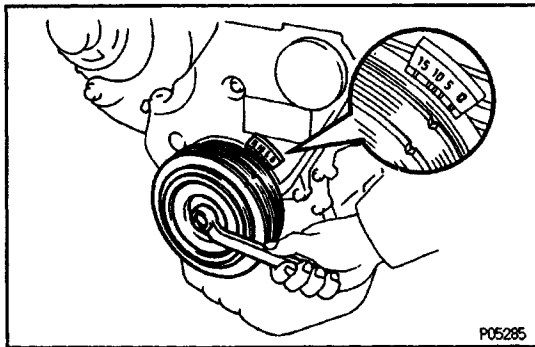


- (a) Remove any oil or water on the camshaft timing pulley, and keep it clean.  
 (b) Install the timing belt, and checking the tension between the crankshaft timing pulley and camshaft timing pulley.



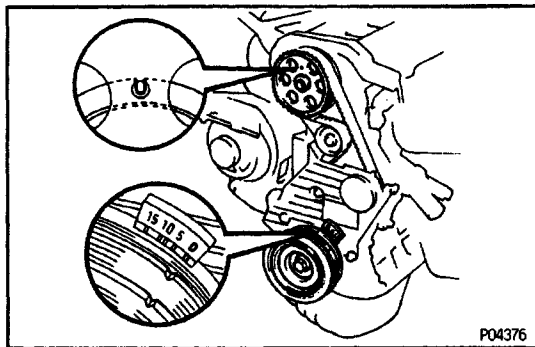
## 12. CHECK VALVE TIMING

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

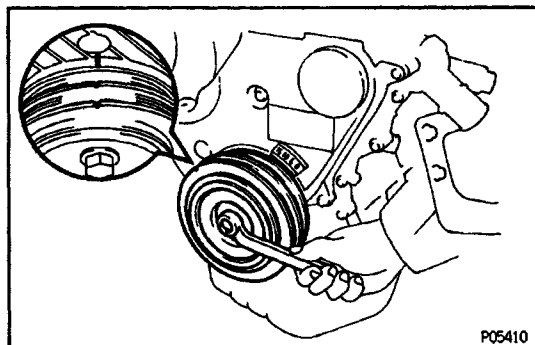


- (b) Slowly turn the crankshaft pulley two revolutions TDC to TDC.

**NOTICE: Always turn the crankshaft pulley clockwise.**

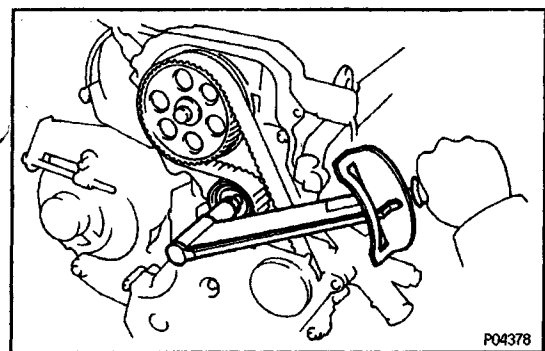


- (c) Check that each pulley aligns with the timing marks as shown in the illustration.  
 If the timing marks do not align, remove the timing belt and reinstall it.

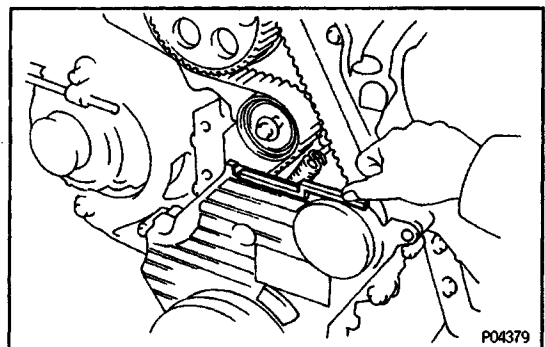


- (d) Slowly turn the crankshaft pulley 1 and 7/8 revolutions, and align its groove with the mark at 45° BTDC (for No.1 cylinder) of the No.1 timing belt cover.

**NOTICE: Always turn the crankshaft pulley clockwise.**

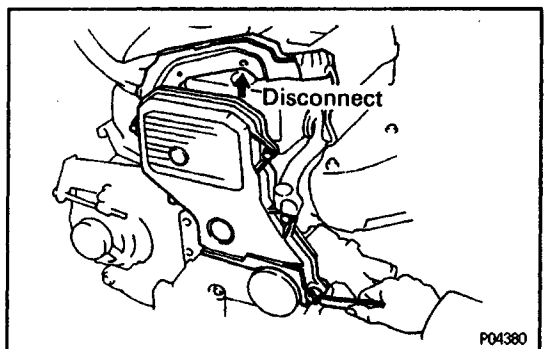


(e) Torque the mounting bolt of the No.1 idler pulley.  
**Torque: 42 N-m (425 kgf-cm, 31 ft-lbf)**

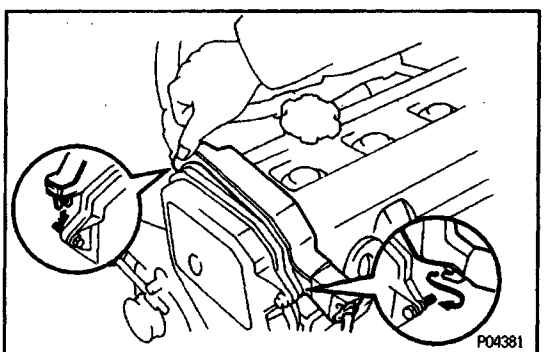


### 13. INSTALL NO.2 TIMING BELT COVER

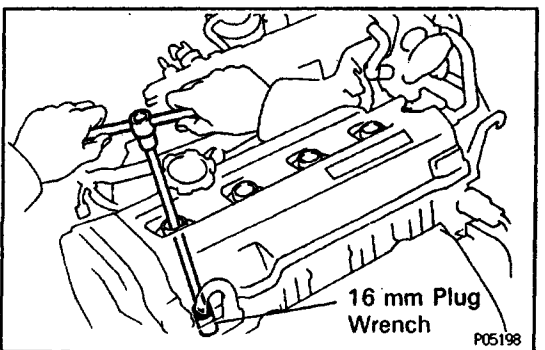
(a) Install the gasket to the No.1 timing belt cover.



(b) Disconnect the engine wire protector between the No. 3 timing belt cover and cylinder head cover.  
 (c) Install the belt cover with the five bolts.



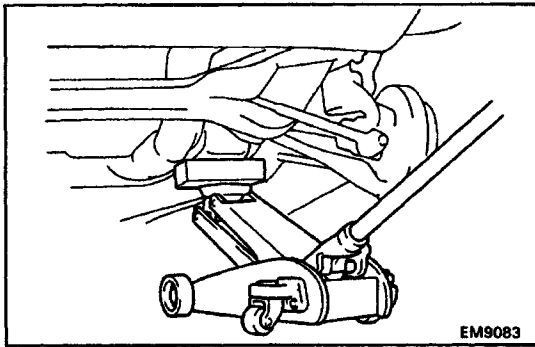
(d) Install the two clamps of the engine wire protector to each bolt.



### 14. INSTALL SPARK PLUGS

(a) Using a 16 mm plug wrench, install the four spark plugs.  
 (b) Connect the four high-tension cords to the spark plugs.

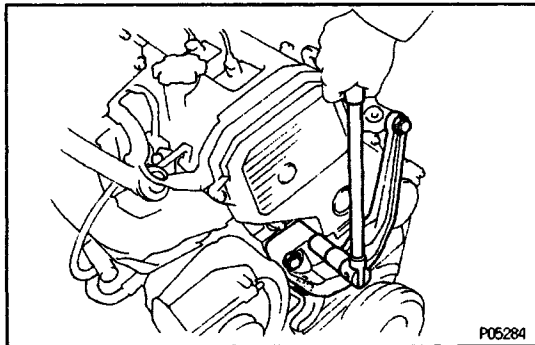




### 15. INSTALL RH ENGINE MOUNTING BRACKET

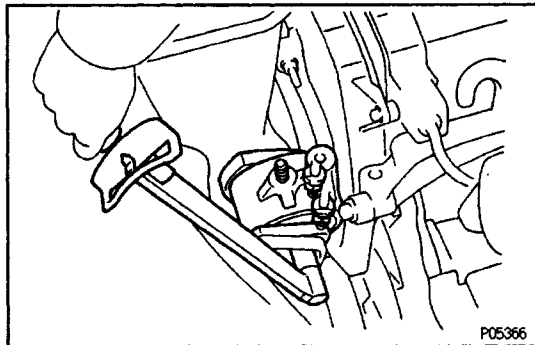
(a) Place the mounting bracket in position.

HINT: Raise the engine as far as it will go, and place the mounting bracket in position.



(b) Install the mounting bracket with the four bolts.

**Torque: 61 N-m (620 kgf-cm, 45 ft-lbf)**



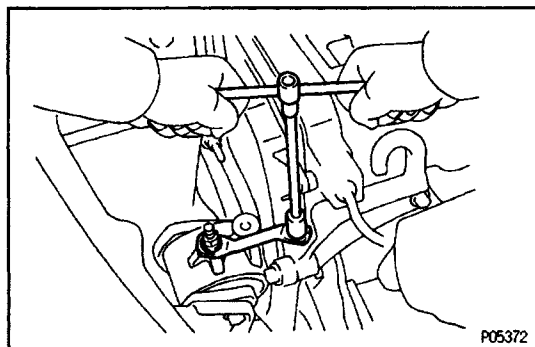
### 16. INSTALL RH ENGINE MOUNTING INSULATOR

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

**Torque:**

**52 N-m (530 kgf-cm, 38 ft-lbf) for nut**

**78 N-m (800 kgf-cm, 58 ft-lbf) for through bolt**

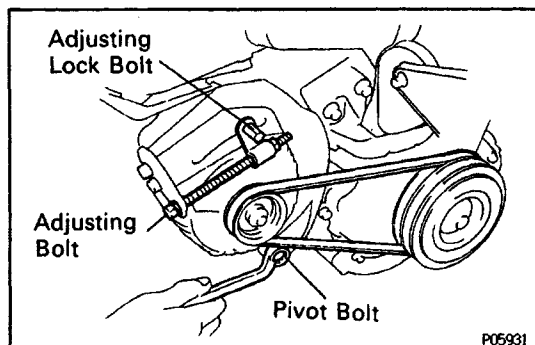


### 17. INSTALL RH ENGINE MOUNTING STAY

Install the mounting stay with the bolt and nut.

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

### 18. INSTALL RH REAR WHEEL

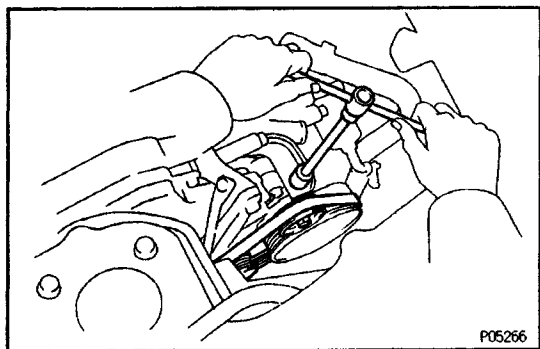


### 19. INSTALL ALTERNATOR DRIVE BELT

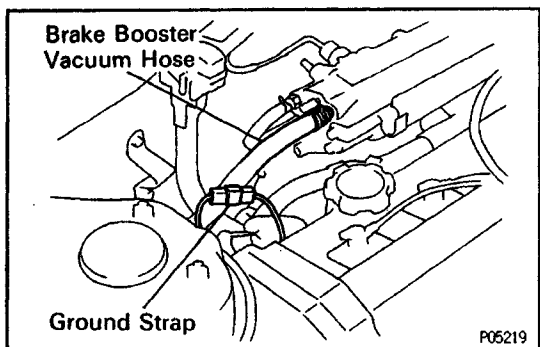
(a) Install the drive belt with the adjusting bolt.

(b) Adjust the drive belt with the adjusting bolt.

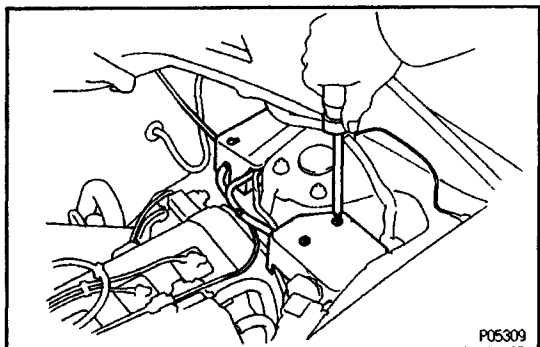
(c) Tighten the pivot bolt and adjusting lock bolt.

**20. INSTALL A/C DRIVE BELT**

- (a) Install the drive belt with the adjusting bolt.
- (b) Tighten the idler pulley bolt.



- 21. CONNECT GROUND STRAP CONNECTOR**
- 22. CONNECT BRAKE BOOSTER HOSE**



- 23. (w/ CRUISE CONTROL SYSTEM)  
INSTALL CRUISE CONTROL ACTUATOR AND  
ACCELERATOR LINKAGE**

- 24. INSTALL RH ENGINE HOOD SIDE PANEL**
- 25. INSTALL ENGINE UNDER COVERS**
- 26. CONNECT CABLE TO NEGATIVE TERMINAL OF  
BATTERY**