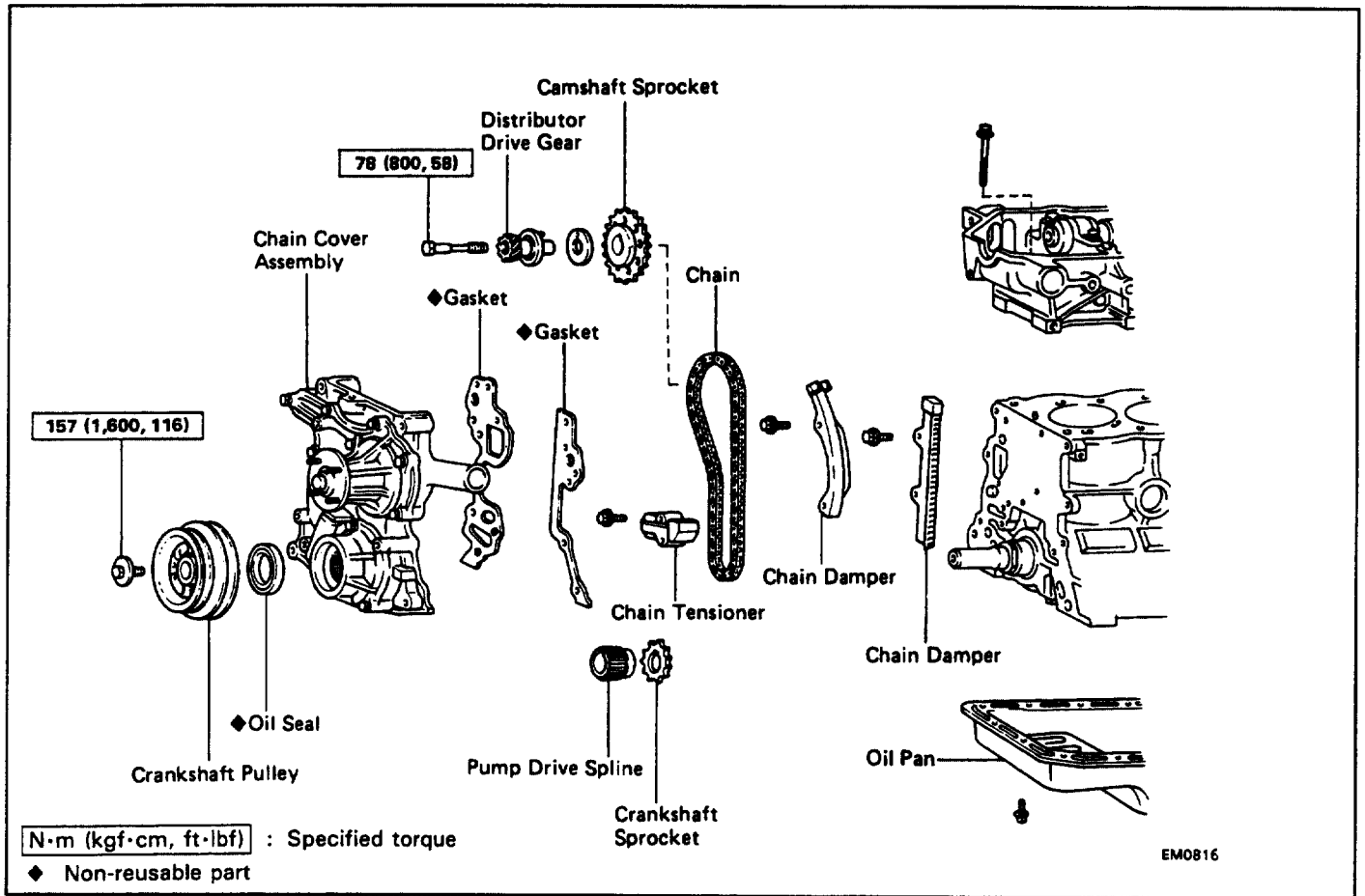
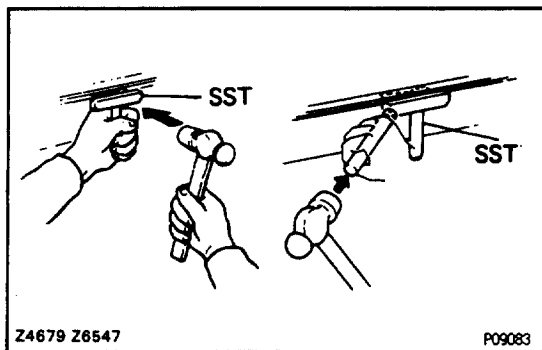


# TIMING CHAIN COMPONENTS



## PREPARATION OF REMOVAL

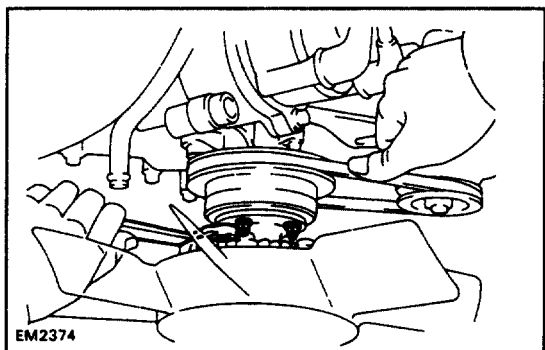
1. REMOVE CYLINDER HEAD  
(See page [EG1-16](#))
2. REMOVE RADIATOR  
(See page [EG1-236](#))
3. 4WD:  
REMOVE FRONT DIFFERENTIAL  
(See SA section)
4. REMOVE OIL PAN
  - (a) Remove the engine undercover.
  - (b) Remove the engine mounting bolts.
  - (c) 2WD:  
Place a jack under the transmission and raise the engine approx. 25 mm (0.98 in.)
  - (d) Remove the 16 bolts and 2 nuts.



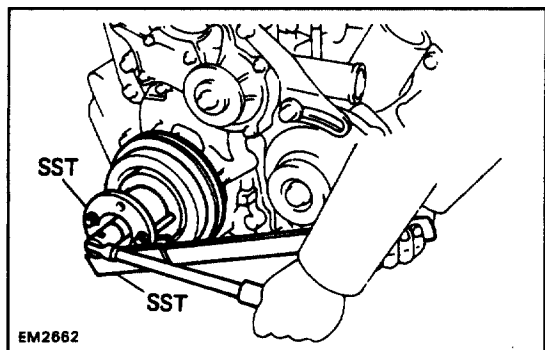
- (e) Using SST and brass bar, separate the oil pan from the cylinder block.  
 SST 09032-00100  
 HINT: When removing the oil pan, be careful not to damage the oil pan flange.

## TIMING CHAIN REMOVAL

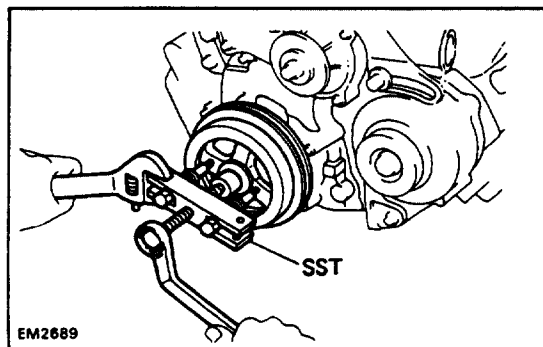
1. w/ PS:  
**REMOVE PS BELT**
2. w/ A/C:  
**REMOVE A/C BELT, COMPRESSOR AND BRACKET**



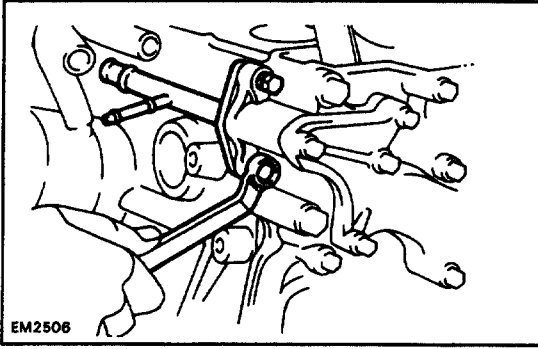
3. **REMOVE FLUID COUPLING WITH FAN AND WATER PUMP PULLEY**
  - (a) Loosen the water pump pulley set bolts.
  - (b) Loosen the belt adjusting bolt and pivot bolt of the generator, and remove the drive belt.
  - (c) Remove the set nuts, fluid coupling with fan and water pump pulley.



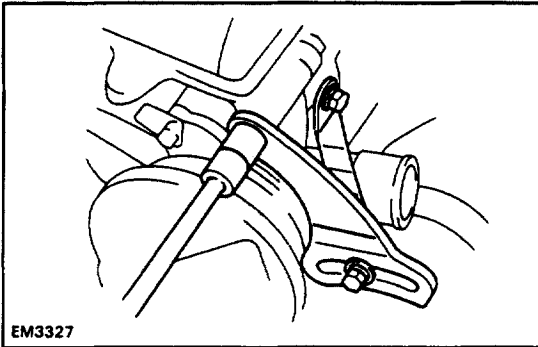
4. **REMOVE CRANKSHAFT PULLEY**
  - (a) w/ A/C (w/o Air pump) or w/PS (w/ Air pump): Remove the No.2 crankshaft pulley.
  - (b) Using SST to hold the crankshaft pulley, loosen the pulley bolt.  
 SST 09213-70010, 09330-00021



- (c) Using SST, remove the crankshaft pulley.  
 SST 09213-310231  
 HINT: If the front seal is to be replaced, see page [EG1-242](#).

**5. REMOVE NO.1 WATER BYPASS PIPE**

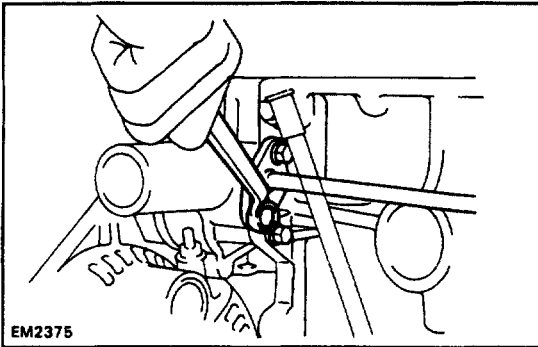
Remove the 2 bolts and pipe.

**6. REMOVE FAN BELT ADJUSTING BAR**

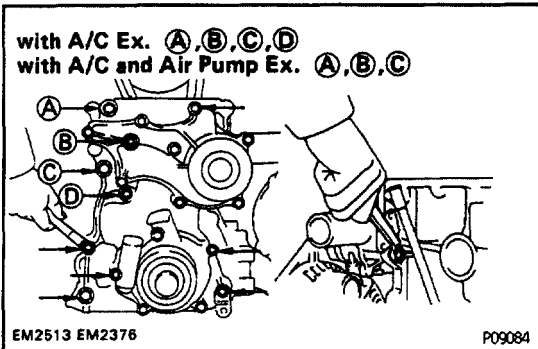
(a) w/ PS:

Remove the bolt and PS lower bracket.

(b) Remove the 3 bolts and bar.

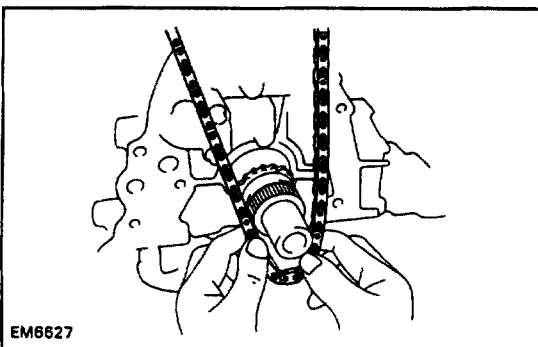
**7. DISCONNECT HEATER WATER OUTLET PIPE**

Remove the 2 bolts, and disconnect heater water outlet pipe.

**8. REMOVE CHAIN COVER ASSEMBLY**

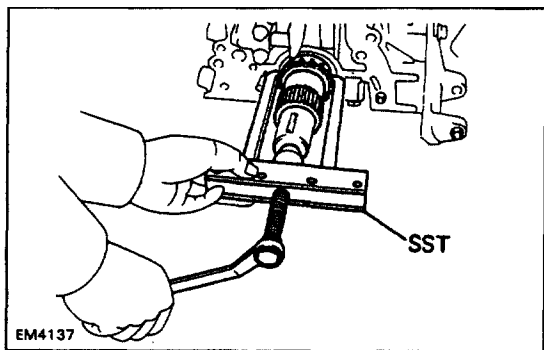
(a) Remove timing chain cover bolts shown by the arrows.

(b) Using a plastic faced hammer, loosen the chain cover and remove it.

**9. REMOVE CHAIN AND CAMSHAFT SPROCKET**

(a) Remove the chain from the damper.

(b) Remove the cam sprocket and chain together.

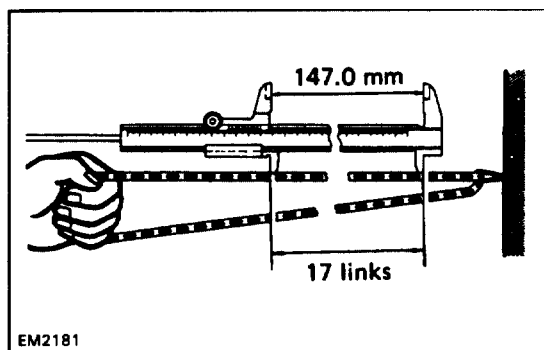


## 10. REMOVE PUMP DRIVE SPLINE AND CRANKSHAFT SPROCKET

If the oil pump drive spline and sprocket cannot be removed by hand, use SST to remove them together.

SST 09213-36020

## 11. REMOVE GASKET MATERIAL ON CYLINDER BLOCK



## COMPONENTS INSPECTION

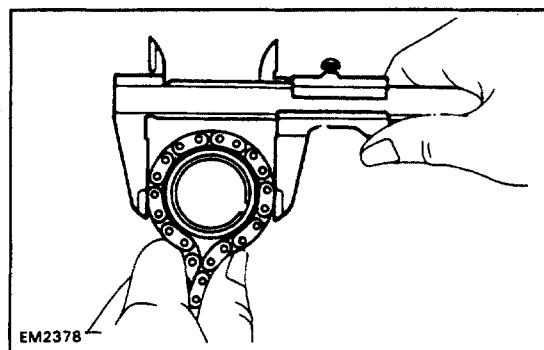
### 1. MEASURE CHAIN AND SPROCKET WEAR

- Measure the length of 17 links with the chain fully stretched.
- Make the same measurements at least 3 other places selected at random.

**Chain elongation limit at 17 links:**

**147.0 mm (5.787 in.)**

If over the limit at any one place, replace the chain.



- Wrap the chain around the sprocket.
- Using a caliper gauge, measure the outer sides of the chain rollers as shown. Measure both sprockets.

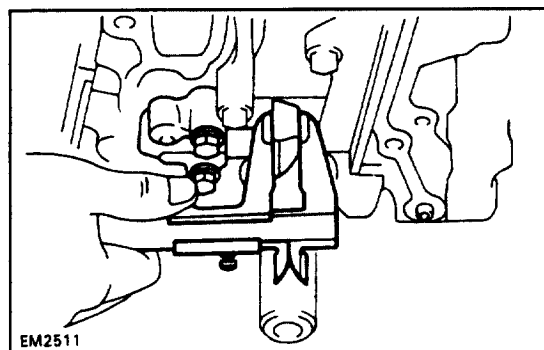
**Crankshaft sprocket minimum:**

**59.4 mm (2.339 in.)**

**Camshaft sprocket minimum:**

**113.8 mm (4.480 in.)**

If the measurement is less than minimum, replace the chain and 2 sprockets.



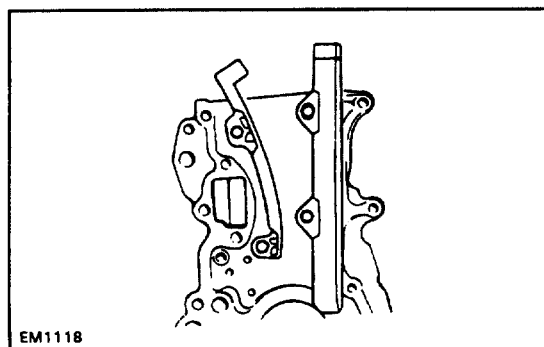
### 2. MEASURE CHAIN TENSIONER

Using a caliper gauge, measure the tensioner as shown.

**Tensioner minimum:**

**11.0 mm (0.433 in.)**

If the tensioner is worn or less than minimum, replace the chain tensioner.



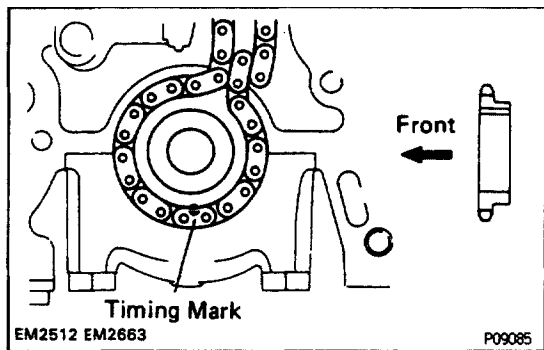
### 3. MEASURE CHAIN DAMPERS

Using a micrometer, measure each damper.

**Damper wear limit:**

**0.5 mm (0.020 in.)**

If either damper is worn or less than minimum, replace the damper.

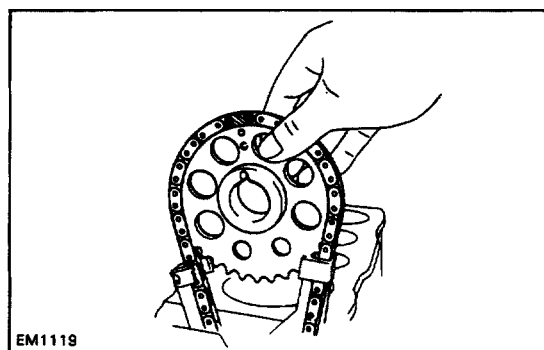


## TIMING CHAIN INSTALLATION

(See Components)

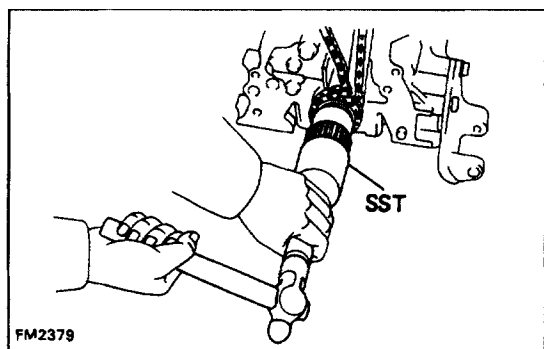
### 1. INSTALL CRANKSHAFT SPROCKET AND CHAIN

- Turn the crankshaft until the shaft key is on top.
- Slide the sprocket over the key on the crankshaft.
- Place the timing chain on the sprocket with the single bright chain link aligned with the timing mark on the sprocket.



### 2. PLACE CHAIN ON CAMSHAFT SPROCKET

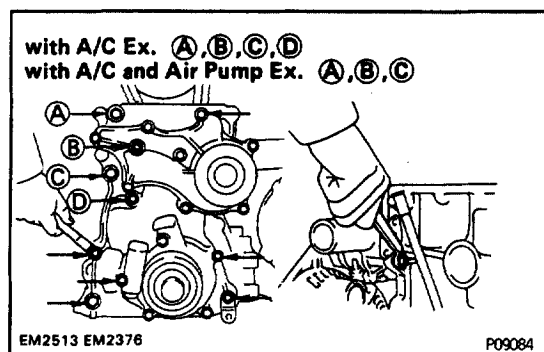
- Place the timing chain on the sprocket so that the bright chain link is aligned with the timing mark on the sprocket.
- Make sure the chain is positioned between the dampers.
- Turn the camshaft sprocket counterclockwise to take the slack out of the chain.



### 3. INSTALL OIL PUMP DRIVE SPLINE

Slide the oil pump drive spline over the crankshaft key.  
HINT: If the oil pump drive spline is difficult to install by hand, install using SST.

SST 09608-35014 (09608-06040)



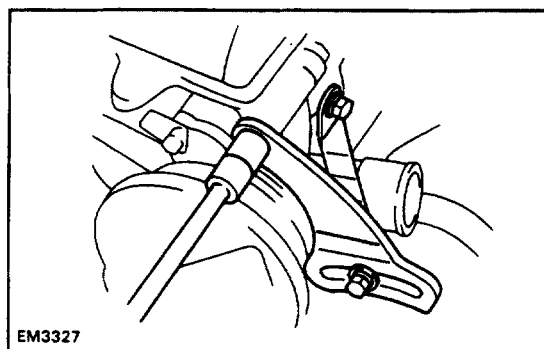
### 4. INSTALL TIMING CHAIN COVER ASSEMBLY

- Remove the old cover gaskets. Clean the gasket surface. Install new gaskets over the dowels.
- Slide the cover assembly over the dowels and pump spline.
- Insert the bolts as shown and torque them.

**Torque:**

**13 N-m (130 kgf-cm, 9 ft-lbf) for 8 mm bolt**

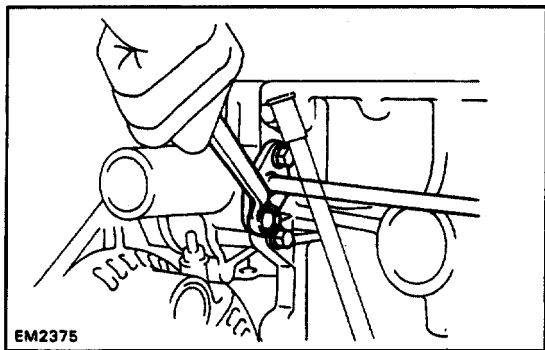
**39 N-m (400 kgf-cm, 29 ft-lbf) for 10 mm bolt**



### 5. INSTALL FAN BELT ADJUSTING BAR

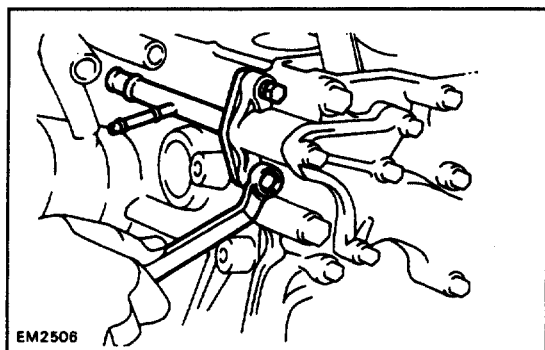
- Temporarily install the adjusting bar to the alternator.
- Install the adjusting bar to the chain cover and cylinder head.

**Torque: 13 N-m (130 kgf-cm, 9 ft-lbf)**



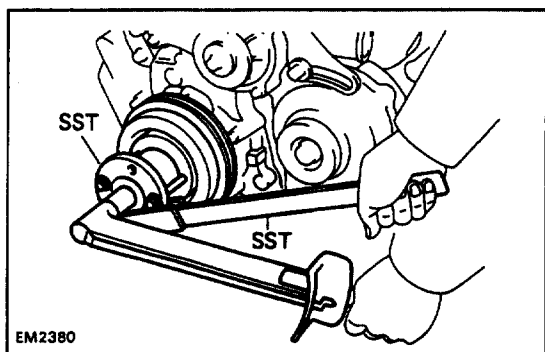
#### 6. INSTALL HEATER WATER OUTLET PIPE

Connect the heater water outlet pipe to the timing chain cover with the 2 bolts.



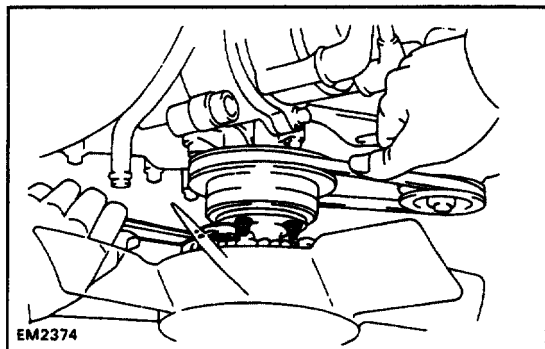
#### 7. INSTALL NO.1 WATER BYPASS PIPE

Install the pipe with the 2 bolts.



#### 8. INSTALL CRANKSHAFT PULLEY

- (a) Install the crankshaft pulley and bolt.
- (b) Using SST to hole the crankshaft pulley, torque the bolt.  
SST 09213-70010 and 09660-00021  
**Torque: 157 N·m (1,600 kgf·cm, 116 ft.lbf)**
- (c) w/ A/C:  
Install the NO.2 crankshaft pulley.



#### 9. INSTALL WATER PUMP PULLEY AND FLUID COUPLING WITH FAN

- (a) Temporarily install the water pump pulley and fluid coupling with fan with the 4 nuts.
- (b) Place the drive belt onto each pulley.
- (c) Stretch the belt tight and tighten the 4 nuts.

#### 10. ADJUST DRIVE BELT TENSION

(See page [MA-8](#))

#### 11. w/ A/C:

**INSTALL A/C COMPRESSOR BRACKET, COMPRESSOR AND BELT**

(See page [MA-8](#))

#### 12. w/PS:

**INSTALL PS BELT**

(See page [MA-8](#))

**13. INSTALL OIL PAN**

- (a) Remove any old packing material and be careful not to drop any oil on the contacting surfaces of the oil pan and cylinder block.

- Using a razor blade and gasket scraper, remove all the packing (FIPG) material from the gasket surfaces.
- Thoroughly clean all components to remove all the loose material.
- Clean both sealing surfaces with a non-residue solvent.

**NOTICE: Do not use a solvent which will affect the painted surfaces.**

- (b) Apply seal packing to the joint part of the cylinder block and chain cover, cylinder block and rear oil seal retainer.

**Seal packing:**

**Part No.08826-00080 or equivalent**

- (c) Apply seal packing to the oil pan as shown in the illustration.

**Seal packing:**

**Part No.08826-00080 or equivalent**

- Install a nozzle that has been cut to a 5-mm (0.20 in.) opening.

**HINT:** Avoid applying an excessive amount to the surface. Be especially careful near oil passages.

- If parts are not assembled within 5 minutes of applying the seal packing, the effectiveness of the seal packing is lost and the seal packing must be removed and reapplied.
- Immediately remove the nozzle from the tube and reinstall the cap after using the seal packing.

- (d) Install the oil pan over the studs on the block with the 16 bolts and 2 nuts. Torque the bolts and nuts.

**Torque: 13N-m (130 kgf-cm, 9 ft-lbf)**

- (e) Lower the engine and install the engine mounting bolts.

- (f) Install the engine under cover.

**14. INSTALL RADIATOR****15. INSTALL CYLINDER HEAD**

(See page [EG1-34](#))

**16. 4WD:**

**INSTALL FRONT DIFFERENTIAL**

(See SA section)

