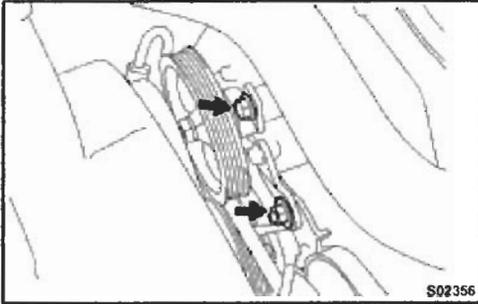


**REMOVAL**

1. REMOVE ENGINE UNDER COVER
2. DRAIN ENGINE COOLANT
3. DISCONNECT UPPER RADIATOR HOSE

**4. DISCONNECT PS PUMP FROM ENGINE**

- (a) Disconnect the 2 PS air hoses from the air intake chamber and resonator.
- (b) Remove the bolt holding the PS pressure tube clamp to the frame.
- (c) Remove the drive belt. (See page SR-3)
- (d) Remove the bolt and nut, and disconnect the PS pump from the engine.

**5. w/ A/C:****DISCONNECT A/C COMPRESSOR FROM ENGINE**

- (a) Disconnect the A/C compressor connector.
- (b) Remove the drive belt. (See page AC-17)
- (c) Remove the 4 bolts, and disconnect the A/C compressor from the engine.

**6. LOOSEN FAN WITH FLUID COUPLING AND FAN PULLEYS****7. REMOVE DRIVE BELT FOR GENERATOR**

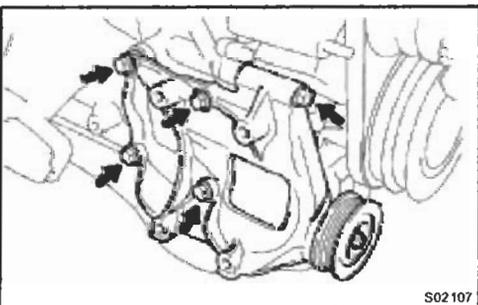
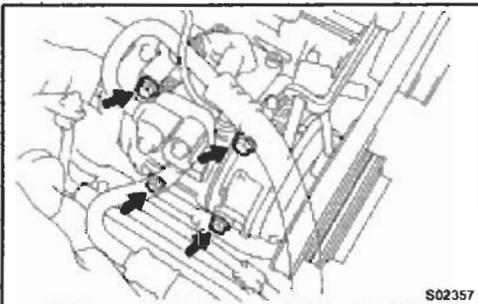
(See page CH-6)

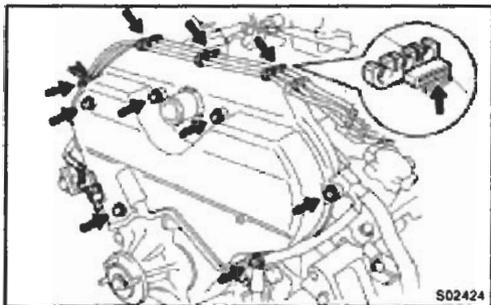
**8. REMOVE NO.2 FAN SHROUD****9. REMOVE FAN WITH FLUID COUPLING AND FAN PULLEYS****10. w/ A/C:****REMOVE A/C COMPRESSOR BRACKET**

Remove the 5 bolts and A/C compressor bracket.

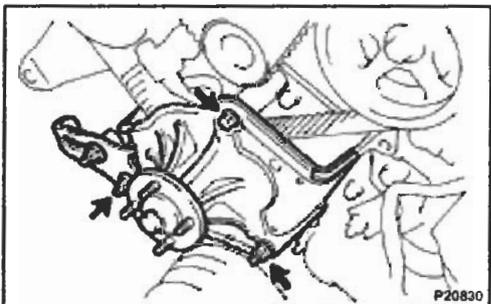
**11. REMOVE OIL DIPSTICK AND GUIDE**

Remove the bolt, oil dipstick, guide and O-ring.

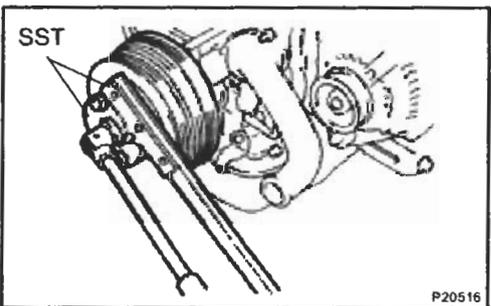


**12. REMOVE NO.2 TIMING BELT COVER**

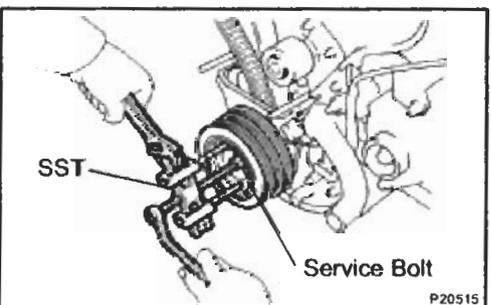
- (a) Disconnect the 4 high-tension cord clamps from the No.2 timing belt cover.
- (b) Remove the 6 bolts and No.2 timing belt cover.
- (c) Disconnect the camshaft position sensor connector.

**13. REMOVE FAN BRACKET**

- (a) Remove the nut and PS pump adjusting strut.
- (b) Remove the bolt, nut and fan bracket.

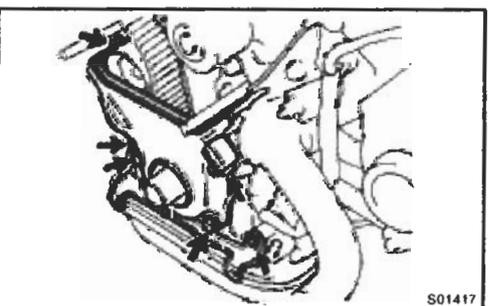
**14. REMOVE CRANKSHAFT PULLEY**

- (a) Using SST, loosen the pulley bolt.  
SST 09213-54015 (90119-08216), 09330-00021
- (b) Remove the SST, pulley bolt and pulley.

**HINT:**

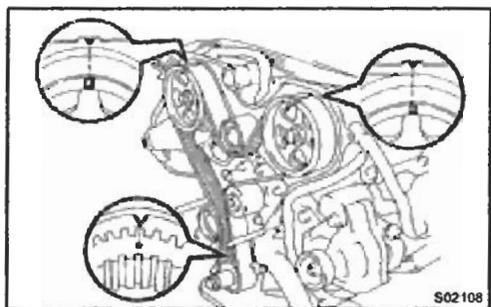
If necessary, remove the pulley with SST and a service bolt.

SST 09950-50011 (09951-05010, 09952-05010,  
09953-05020, 09954-05030)

**15. REMOVE STARTER WIRE BRACKET AND NO.1 TIMING BELT COVER**

- (a) Remove the 2 bolts and starter wire bracket.
- (b) Remove the 4 bolts and timing belt cover.

**16. REMOVE TIMING BELT GUIDE**

**17. SET NO.1 CYLINDER AT TDC/COMPRESSION**

- (a) Temporarily install the crankshaft pulley bolt to the crankshaft.
- (b) Turn the crankshaft, and align the timing marks of the crankshaft timing pulley and oil pump body.

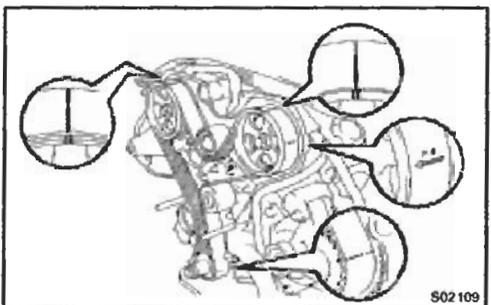
**NOTICE:**

**Always turn the crankshaft clockwise.**

- (c) Check that the timing marks of the camshaft timing pulleys and No.3 timing belt cover are aligned.

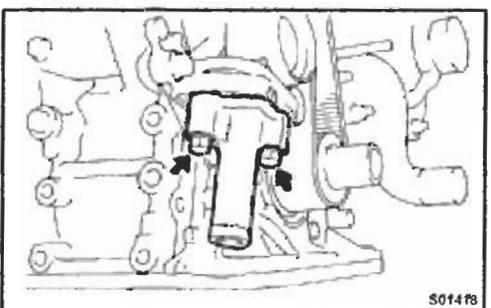
If not, turn the crankshaft pulley 1 revolution (360°).

- (d) Remove the crankshaft pulley bolt.

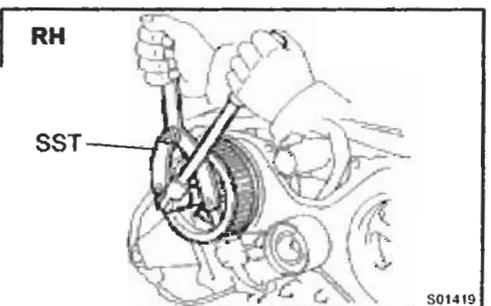
**18. IF REUSING TIMING BELT, CHECK INSTALLATION MARKS ON TIMING BELT**

Check that there are 3 installation marks and front mark on the timing belt.

If the installation and front marks have disappeared, before removing the timing belt, place 3 new installation marks on the timing belt to match the timing marks of the timing pulleys, and place a new front mark on the timing belt.

**19. REMOVE TIMING BELT TENSIONER**

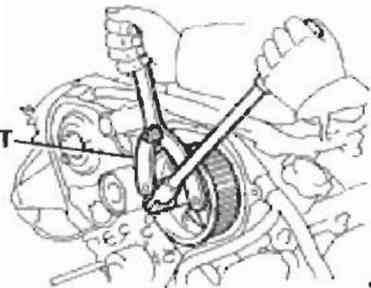
Alternately loosen the 2 bolts, and remove them, the belt tensioner and dust boot.

**20. REMOVE TIMING BELT****21. REMOVE RH CAMSHAFT TIMING PULLEY**

- (a) Using SST, loosen the pulley bolt.  
SST 09960-10010 (09962-01000, 09963-01000)
- (b) Remove the bolt, knock pin and camshaft timing pulley.

LH

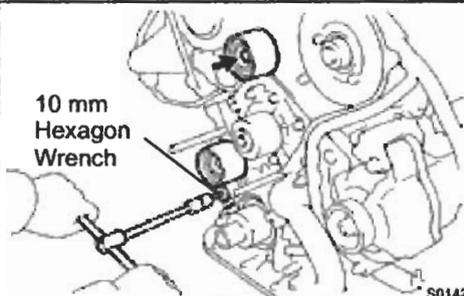
SST



S01420

**22. REMOVE LH CAMSHAFT TIMING PULLEY**

- (a) Using SST, loosen the pulley bolt.  
SST 09960-10010 (09962-01000, 09963-01000)
- (b) Remove the bolt, knock pin and camshaft timing pulley.

10 mm  
Hexagon  
Wrench

S01421

**23. REMOVE NO.2 IDLER PULLEY**

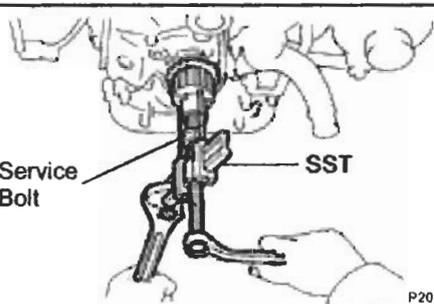
Remove the bolt and No.2 idler pulley.

**24. REMOVE NO.1 IDLER PULLEY**

Using a 10 mm hexagon wrench, remove the pivot bolt, No.1 idler pulley and plate washer.

Service  
Bolt

SST



P20816

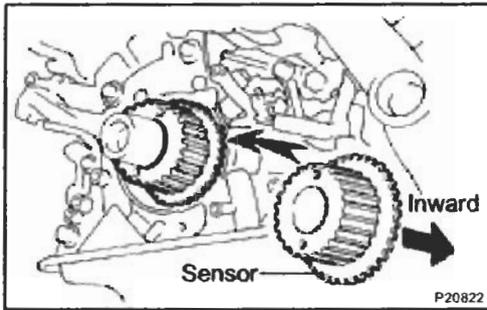
**25. REMOVE CRANKSHAFT TIMING PULLEY**

Remove the crankshaft timing pulley.

**HINT:**

If the pulley cannot be removed by hand, use SST and a service bolt to remove the crankshaft timing pulley.

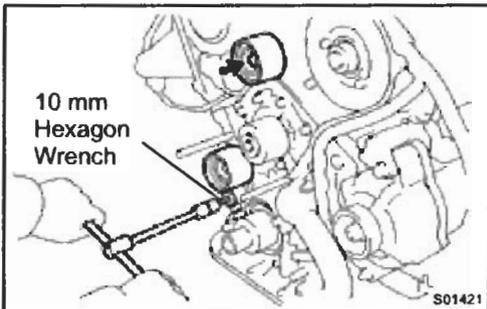
SST 09950-50011 (09951-05010, 09952-05010,  
09953-05020, 09954-05010)



## INSTALLATION

### 1. INSTALL CRANKSHAFT TIMING PULLEY

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



### 2. INSTALL NO.1 IDLER PULLEY

- (a) Using a 10 mm hexagon wrench, install the plate washer and No.1 idler pulley with bolt.

**Torque: 35 N·m (350 kgf·cm, 26 ft·lbf)**

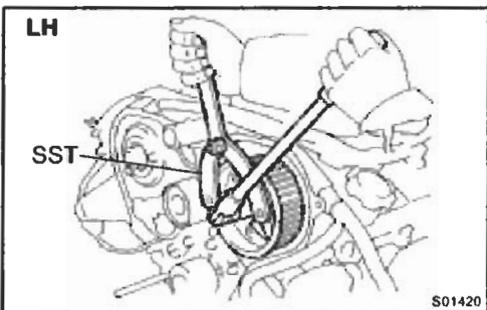
- (b) Check that the pulley bracket moves smoothly.

### 3. INSTALL NO.2 IDLER PULLEY

- (a) Install the No.2 idler pulley with the bolt.

**Torque: 40 N·m (400 kgf·cm, 30 ft·lbf)**

- (b) Check that the No.2 idler pulley moves smoothly.

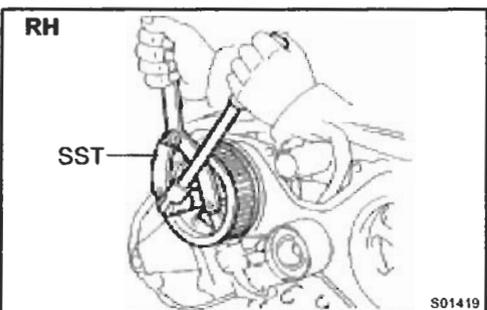


### 4. INSTALL LH CAMSHAFT TIMING PULLEY

- (a) Face the flange side of the timing pulley outward.
- (b) Align the knock pin on the camshaft with the knock pin groove of the timing pulley, and slide on the timing pulley.
- (c) Using SST, install the pulley bolt.

SST 09960-10010 (09962-01000, 09963-01000)

**Torque: 110 N·m (1,100 kgf·cm, 81 ft·lbf)**

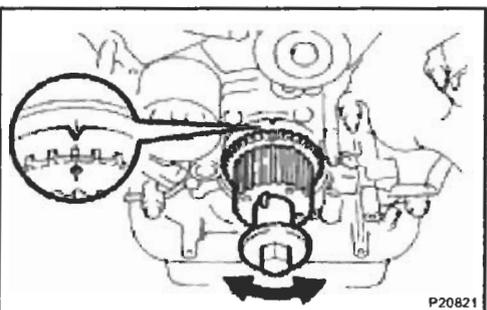


### 5. INSTALL RH CAMSHAFT TIMING PULLEY

- (a) Face the flange side of the timing pulley outward.
- (b) Align the knock pin on the camshaft with the knock pin groove of the timing pulley, and slide on the timing pulley.
- (c) Using SST, install the pulley bolt.

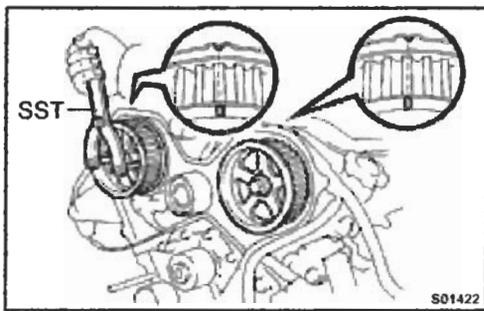
SST 09960-10010 (09962-01000, 09963-01000)

**Torque: 110 N·m (1,100 kgf·cm, 81 ft·lbf)**



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

- (a) Temporarily install the crankshaft pulley bolt to the crankshaft.
- (b) Turn the crankshaft, and align the timing marks of the crankshaft timing pulley and oil pump body.



- (c) Using SST, turn the camshaft pulley, align the timing marks of the timing pulley and No.3 timing belt cover. SST 09960-10010 (09962-01000, 09963-01000)

## 7. INSTALL TIMING BELT

### NOTICE:

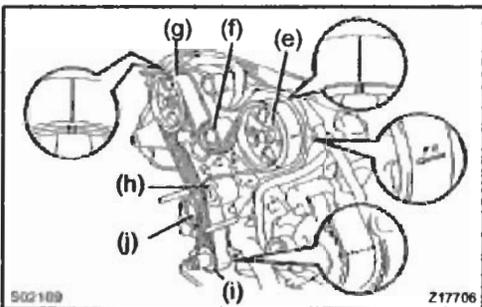
**The engine should be cold.**

- (a) Remove any oil or water on the pulleys, and keep them clean.

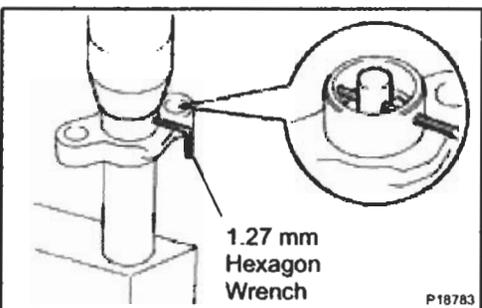
### NOTICE:

**Only wipe the pulleys; do not use any cleansing agent.**

- (b) Face the front mark on the timing belt forward.  
 (c) Align the installation mark on the timing belt with the timing mark of the crankshaft timing pulley.  
 (d) Align the installation marks on the timing belt with the timing marks of the camshaft timing pulleys.

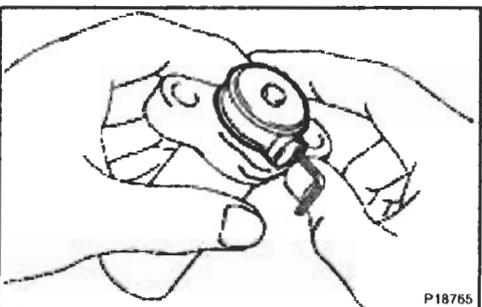


- (e) Install the timing belt to the LH camshaft timing pulley.  
 (f) Install the timing belt to the No.2 idler pulley.  
 (g) Install the timing belt to the RH camshaft timing pulley.  
 (h) Install the timing belt to the water pump pulley.  
 (i) Install the timing belt to the crankshaft timing pulley.  
 (j) Install the timing belt to the No.1 idler pulley.

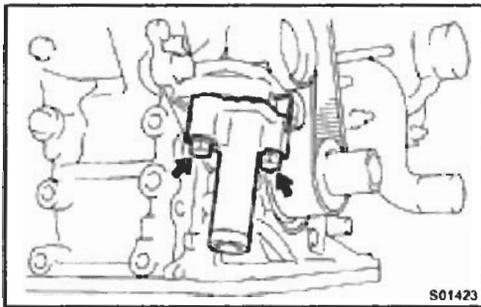


## 8. SET TIMING BELT TENSIONER

- (a) Using a press, slowly press in the push rod using 981 – 9,807 N (100 – 1,000 kgf, 200 – 2,205 lbf) of pressure.  
 (b) Align the holes of the push rod and housing, pass a 1.27 mm hexagon wrench through the holes to keep the setting position of the push rod.  
 (c) Release the press.



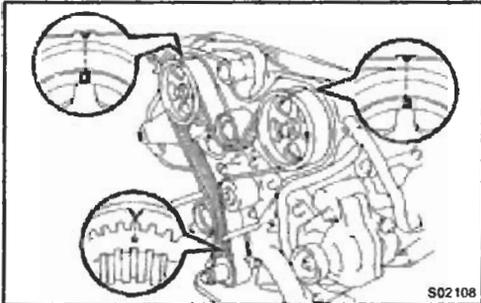
- (d) Install the dust boot to the tensioner.



S01423

**9. INSTALL TIMING BELT TENSIONER**

- (a) Temporarily install the tensioner with the 2 bolts.
- (b) Alternately tighten the 2 bolts.  
**Torque: 27 N·m (280 kgf·cm, 20 ft·lbf)**
- (c) Remove the 1.27 mm hexagon wrench from the tensioner.



S02108

**10. CHECK VALVE TIMING**

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

**NOTICE:**

**Always turn the crankshaft clockwise.**

- (b) Check that the timing marks of the RH and LH timing pulleys with the timing marks of the No.3 timing belt cover as shown in the illustration.

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

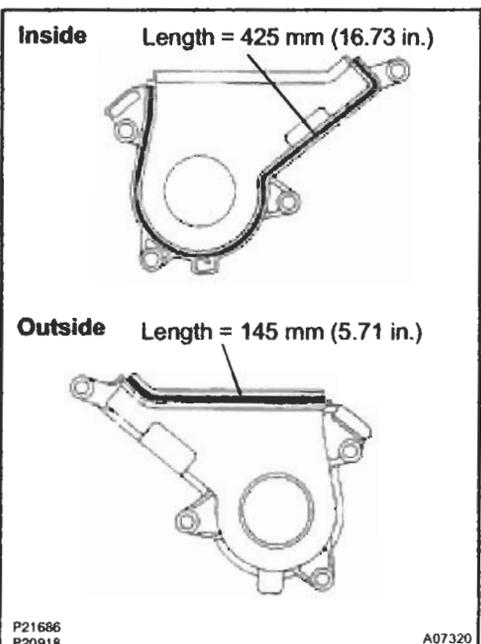
- (c) Remove the crankshaft pulley bolt.



P20823

**11. INSTALL TIMING BELT GUIDE**

Install the guide, facing the cup side outward.

P21686  
P20918

A07320

**12. INSTALL NO.1 TIMING BELT COVER AND STARTER WIRE BRACKET**

- (a) Check that the timing belt cover gaskets have cracks or peeling, etc.

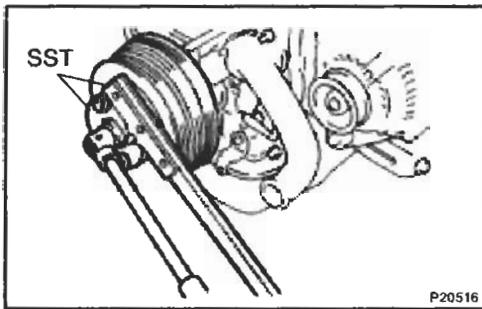
If the gasket does have cracks or peeling, etc., replace it using these steps.

- Using a screwdriver and gasket scraper, remove all the old gasket material.
- Thoroughly clean all components to remove all the loose material.
- Remove the backing paper from a new gasket and install the gasket evenly to the part of the belt cover shaded back in the illustration.

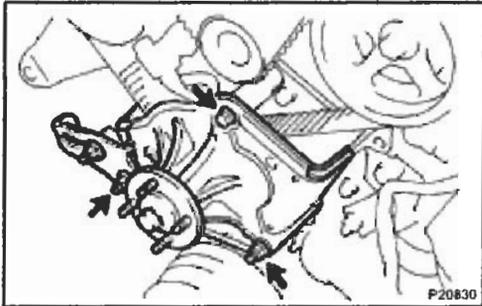
- (b) Install the timing belt cover with the 4 bolts.

**Torque: 9 N·m (90 kgf·cm, 80 in·lbf)**

- (c) Install the starter wire bracket with the 2 bolts.

**13. INSTALL CRANKSHAFT PULLEY**

- (a) Align the pulley set key with the key groove of the pulley, and slide the pulley.
- (b) Using SST, install a new bolt.  
SST 09213-54015 (90119-08216), 09330-00021  
Torque: 300 N·m (3,000 kgf·cm, 217 ft·lbf)

**14. INSTALL FAN BRACKET**

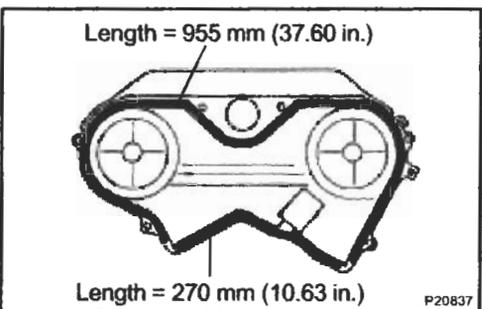
- (a) Install the fan bracket with the bolt and nut.
- (b) Install the PS pump adjusting strut with the nut.

**15. INSTALL NO.2 TIMING BELT COVER**

- (a) Check that the timing belt cover gasket has no cracks or peeling, etc.

If the gasket does have cracks or peeling, etc., replace it using these steps.

- (1) Using a screwdriver and gasket scraper, remove all the old gasket material.
- (2) Thoroughly clean all components to remove all the loose material.



- (3) Remove the backing paper from a new gasket and install the gasket evenly to the part of the belt cover shaded black in the illustration.

- (b) Install the belt cover with the 6 bolts.  
Torque: 9 N·m (90 kgf·cm, 80 in.-lbf)
- (c) Connect the 4 high-tension cord clamps and camshaft position sensor connector to the No.2 timing belt cover.

**16. INSTALL OIL DIPSTICK AND GUIDE**

- (a) Install a new O-ring to the dipstick guide.
- (b) Apply soapy water to the O-ring.
- (c) Install the oil dipstick and guide to the cylinder block.
- (d) Install the bolt to the generator bracket.

Torque: 8 N·m (80 kgf·cm, 71 in.-lbf)

**17. w/ A/C:****INSTALL A/C COMPRESSOR BRACKET**

Torque: 47 N·m (479 kgf·cm, 35 ft·lbf)

**18. TEMPORARILY INSTALL FAN WITH FLUID COUPLING AND FAN PULLEYS****19. INSTALL NO.2 FAN SHROUD**

**20. INSTALL AND ADJUST DRIVE BELT FOR GENERATOR (See page CH-15)**

**21. TIGHTEN FAN WITH FLUID COUPLING AND FAN PULLEYS**

**Torque: 5.4 N·m (54 kgf·cm, 48 in.-lbf)**

**22. w/ A/C:**

**CONNECT A/C COMPRESSOR TO ENGINE**

(a) Install the A/C compressor with the 4 bolts.

**Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)**

(b) Install the drive belt. (See page AC-18)

(c) Connect the A/C compressor connector.

**23. CONNECT PS PUMP TO ENGINE**

(a) Temporarily install the PS pump with the bolt and nut.

(b) Install the drive belt. (See page SR-3)

(c) Tighten the bolt and nut.

**Torque: 43 N·m (440 kgf·cm, 31 ft·lbf)**

(d) Install the PS pressure tube clamp with the bolt.

(e) Connect the 2 PS air hoses to the air intake chamber and resonator.

**24. CONNECT UPPER RADIATOR HOSE**

**25. FILL ENGINE WITH COOLANT**

**26. START ENGINE CHECK FOR LEAKS**

**27. INSTALL ENGINE UNDER COVER**

**28. PERFORM ROAD TEST**

Check for abnormal noise, shock, slippage, correct shift points and smooth operation.

**29. RECHECK ENGINE COOLANT LEVEL**