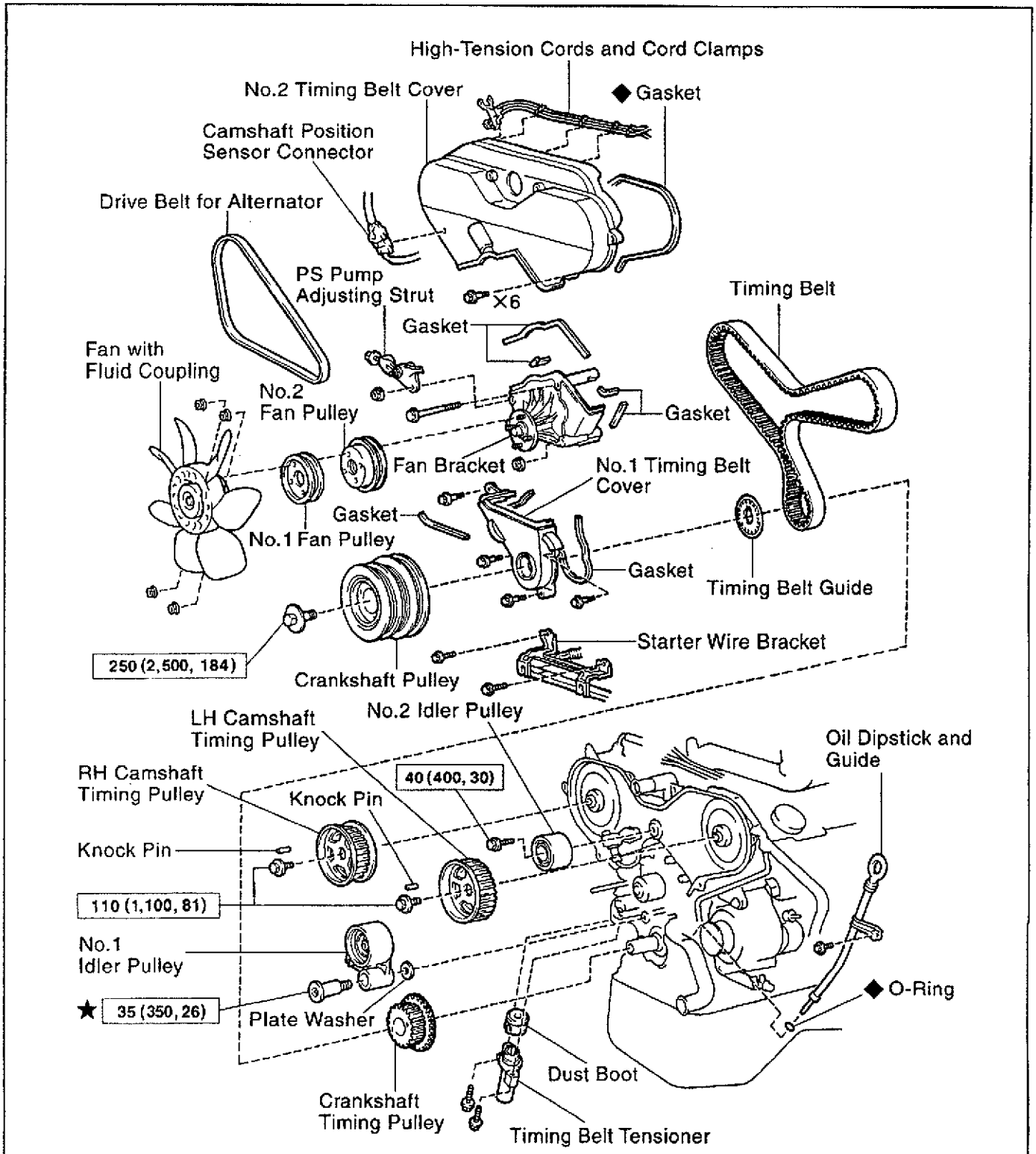
TIMING BELT

COMPONENTS FOR REMOVAL AND INSTALLATION

EG8YV-02



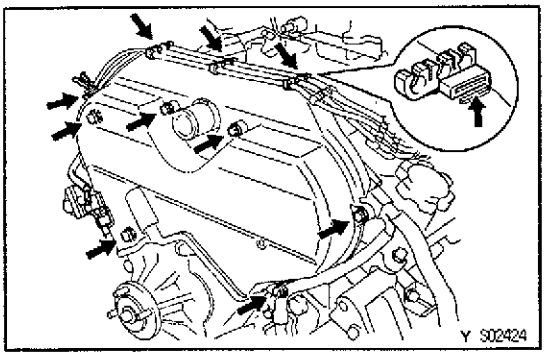
N·m (kgf-cm, ft·lbf) : Specified torque
◆ Non-reusable part
★ Precoated part

305110

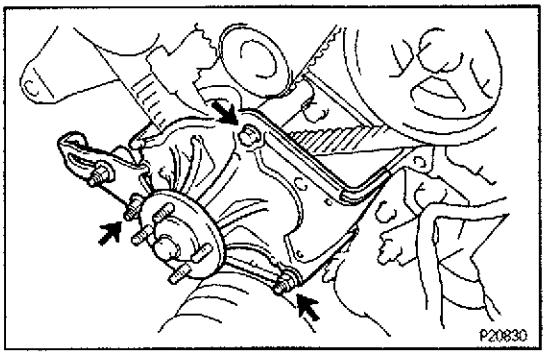
EG79T-01

TIMING BELT REMOVAL

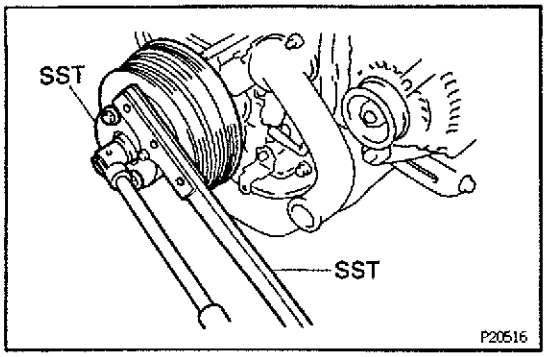
1. **LOOSEN FAN WITH FLUID COUPLING AND FAN PULLEYS**
2. **REMOVE DRIVE BELT FOR ALTERNATOR**
3. **REMOVE FAN WITH FLUID COUPING AND FAN PULLEYS**
4. **REMOVE OIL DIPSTICK AND GUIDE**
   Remove the bolt, oil dipstick, guide and O—ring.



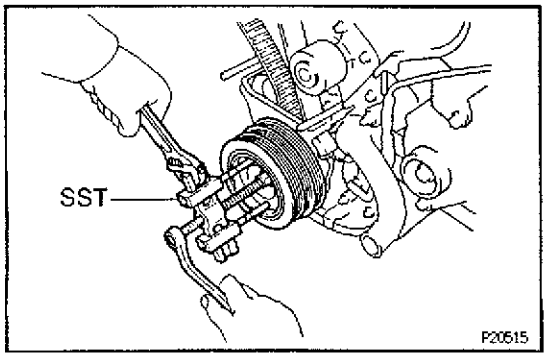
5. **REMOVE NO.2 TIMING BELT COVER**
(a) Disconnect the 4 high—tension cord clamps from the No.2 timing belt cover.
(b) Remove the 6 bolts and No.2 timing belt cover.
(c) Disconnect the camshaft position sensor connector.



6. **REMOVE FAN BRACKET**
(a) Remove the nut and PS pump adjusting strut.
(b) Remove the bolt, nut, and fan bracket.

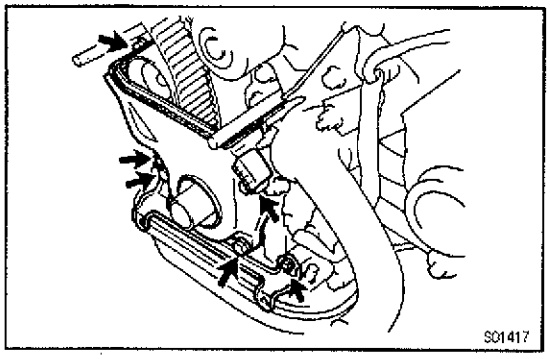


7. **REMOVE CRANKSHAFT PULLEY**
(a) Using SST, loosen the pulley bolt.
SST 09213—54015 (90119—08216), 09330—00021
(b) Remove the SST, pulley bolt and pulley.



HINT: If necessary, remove the pulley with SST and service bolt.
SST 09950—50010 (09551—05010, 09552—05010, 09553—05020, 09554—05030)

EG

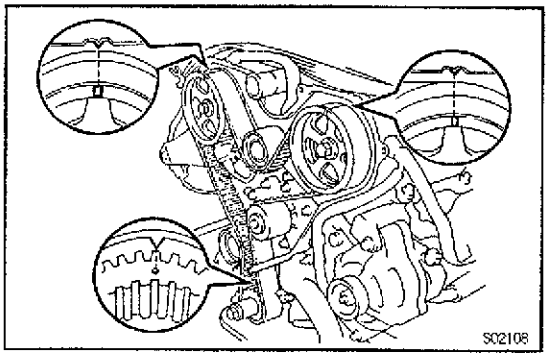


8. REMOVE STARTER WIRE BRACKET AND NO. 1 TIMING BELT COVER

(a) Remove the 2 bolts and starter wire bracket.

(b) Remove the 4 bolts timing belt cover.

9. REMOVE TIMING BELT GUIDE



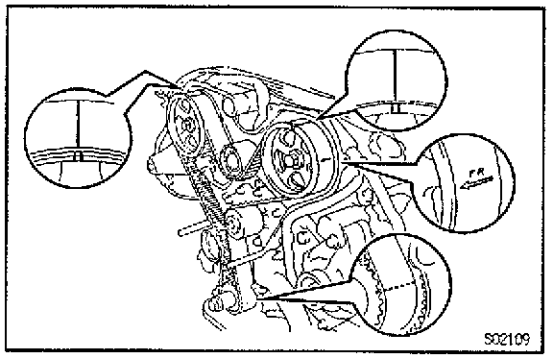
10. SET NO.1 CYLINDER AT TDC/COMPRESSION

(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.

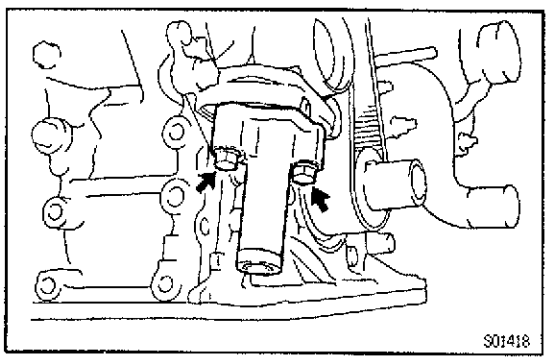
(c) Check that the timing marks of the camshaft timing pulley and No.3 timing belt cover are aligned.
If not, turn the crankshaft pulley 1 revolution (360°).

(d) Remove the crankshaft pulley bolt.



11. IF REUSING TIMING BELT, CHECK INSTALLATION MARKS ON TIMING BELT

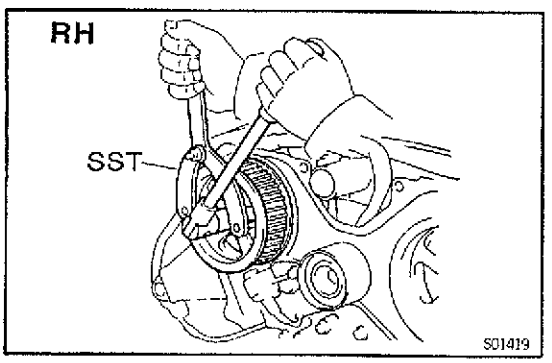
Check that there are 3 installation marks and front mark on the timing belt.
If the installation and front marks have disappeared, before removing the timing belt, place 3 new installation marks on the timing belt to match the timing marks of the timing pulleys, are place a new front mark on the timing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



12. REMOVE TIMING BELT TENSIONER

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

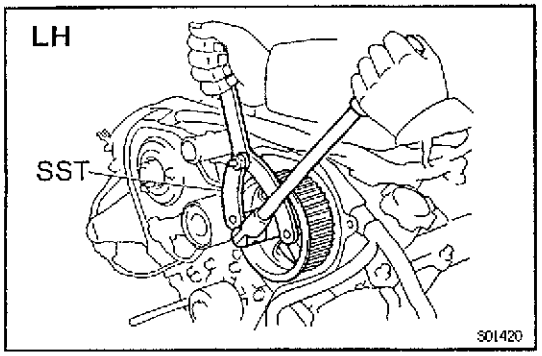
13. REMOVE TIMING BELT



14. REMOVE RH CAMSHAFT TIMING PULLEY

(a) Using SST, loosen the pulley bolt.
SST 09960−10010 (09962−01000, 09963−01000)

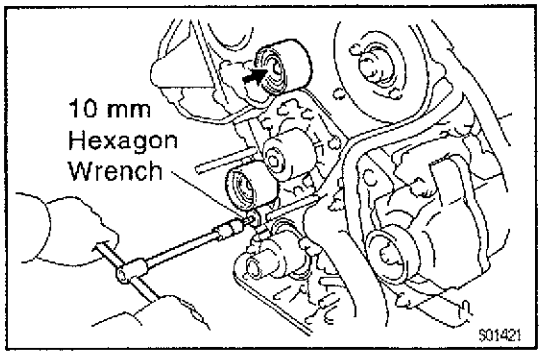
(b) Remove the bolt, knock pin and camshaft timing pulley with timing belt.



15. 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.

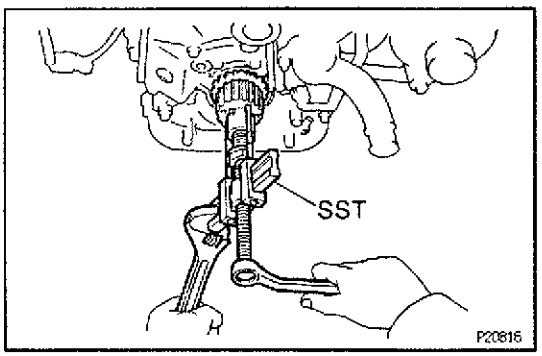


16. REMOVE NO.2 IDLER PULLEY

Remove the bolt and No.2 idler pulley.

17. REMOVE NO.1 IDLER PULLEY

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

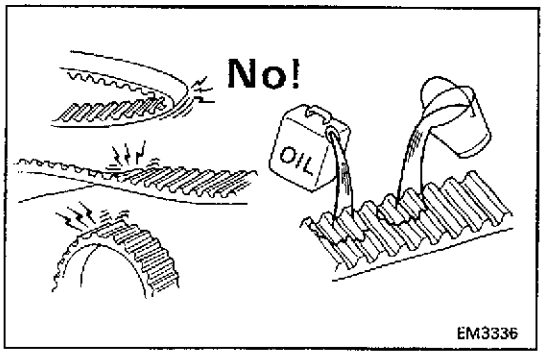


18. REMOVE CRANKSHAFT TIMING PULLEY

Remove crankshaft timing pulley.

HINT: If the pulley cannot be removed by hand, use SST and servise bolt to remove the crankshaft timing pulley.

SST 09950–50010 (09951–05010, 09952–05010, 09953–05020, 09954–05010)



EG

TIMING BELT INSPECTION

EG78U-01

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 mount bolt of the camshaft timing pulley.**

If there are any defects, check these points:

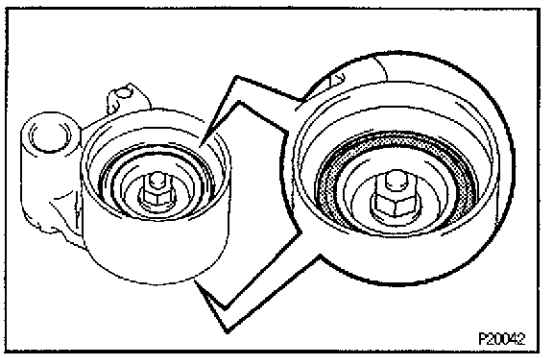
(a) Premature parting
- Check for proper installation.
- Check the timing cover gasket for damage and proper installation.

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

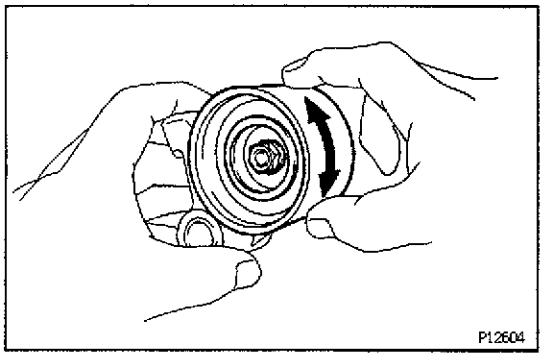
(d) If there is wear or damage on only one side of the belt, check the belt guide and the alignment of each pulley.

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

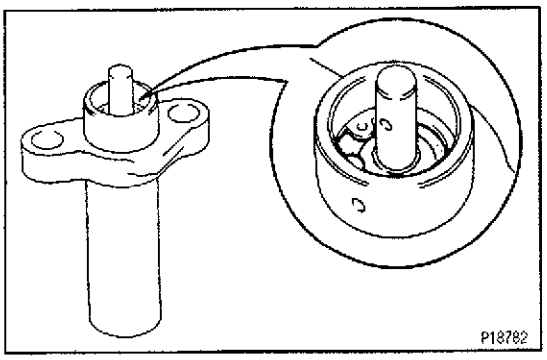


2. INSPECT IDLER PULLEYS

(a) Visually check the seal portion of the idler pulley for oil leakage.
If leakage is found, replace the idler pulley.

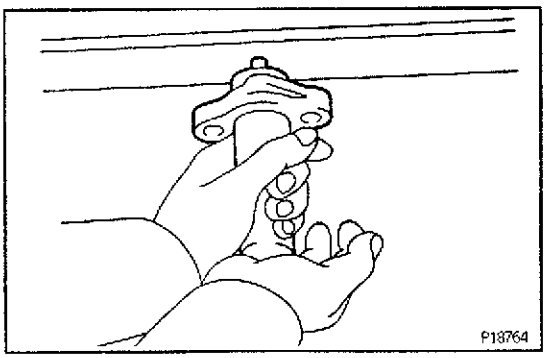


(b) Check that the idler pulley turns smoothly.
If necessary, replace the idler pulley.

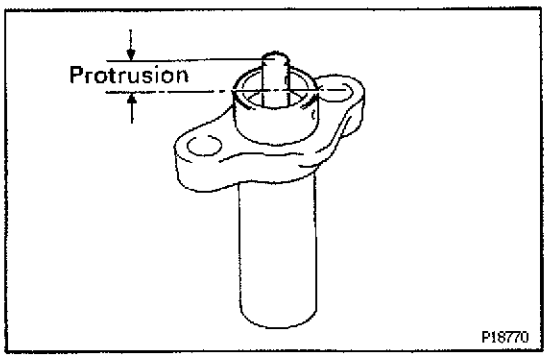


3. INSPECT TIMING BELT TENSIONER

(a) Visually check the seal portion of the tensioner for oil leakage.
HINT: If there is only the faintest trace of oil on the seal on the push rod side, the tensioner is all right.
If leakage is found, replace the tensioner.

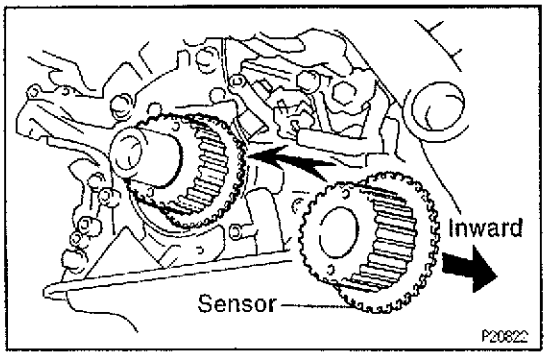


(b) Hold the tensioner with both hands and push the push rod strongly as shown to check that it doesn't move.
If the push rod moves, replace the tensioner.
NOTICE: Never hold the tensioner push rod facing downward.



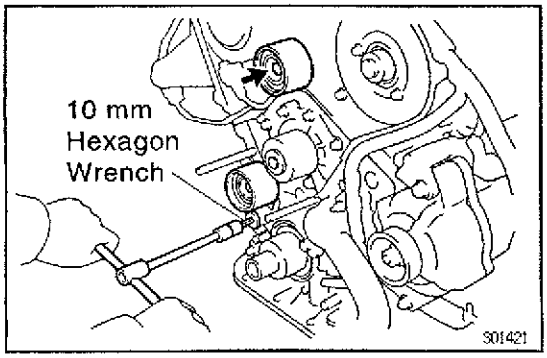
(c) Measure the protrusion of the push rod from the housing end.
Protrusion:
10.0 — 10.8 mm (0.394 — 0.425 in.)
If the protrusion is not as specified, replace the tensioner.

TIMING BELT 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.

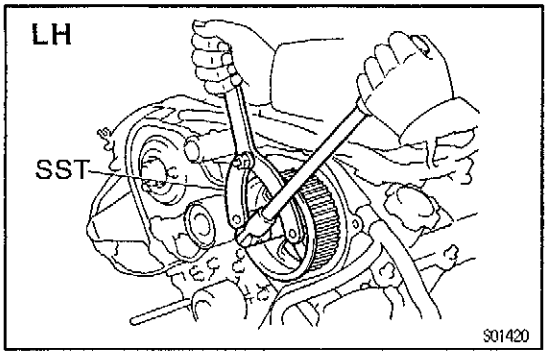


2. INSTALL NO.1 IDLER PULLEY

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

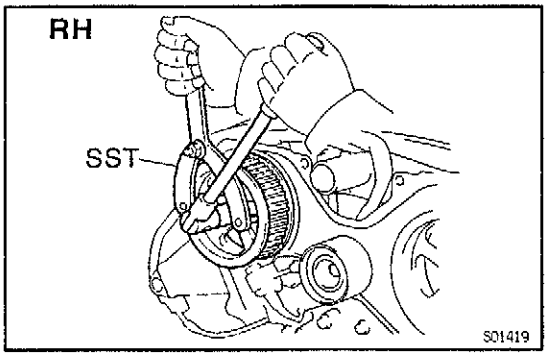


4. INSTALL LH CAMSHAFT TIMING PULLEY

(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)

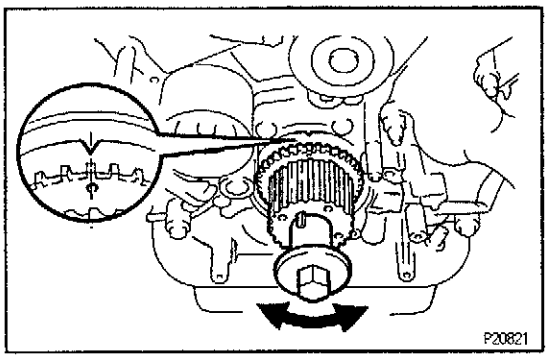


5. INSTALL RH CAMSHAFT TIMING PULLEY

(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.

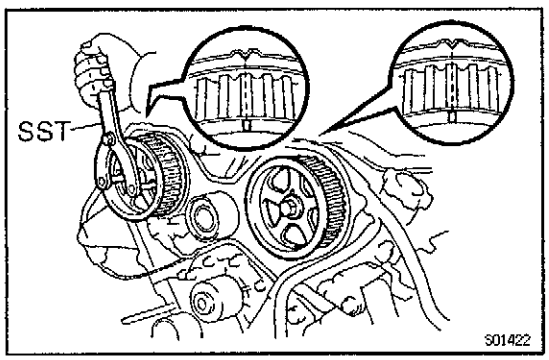
(c) Using SST, install the pulley bolt.
SST 09960—10010 (09962—01000, 09963—01000)
Torque: 110 N·m (1,100 kgf·cm, 81 ft·lbf)



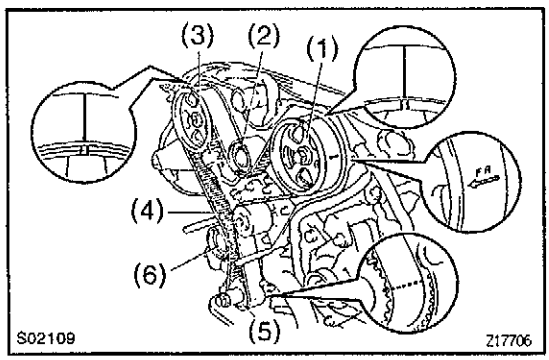
6. SET NO.1 CYLINDER TO TDC/COMPRESSION

(a) Crankshaft Timing Pulley Position:

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



(b) Camshaft Timing Pulley Positions:
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

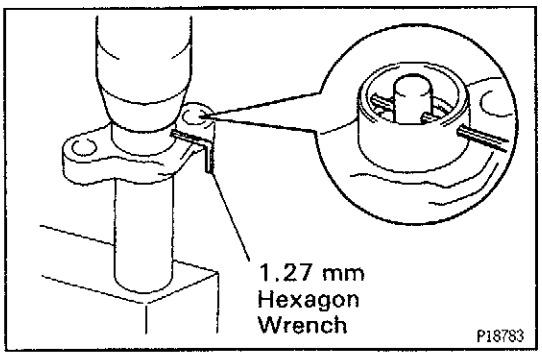
NOTICE: The engine should be cold.

(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.

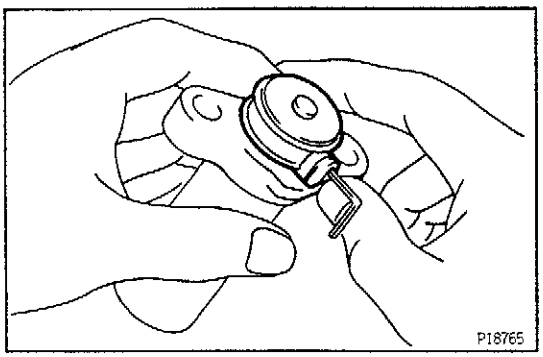
(c) Align the installation mark on the timing belt with the timing mark of the crankshaft timing pulley.

(d) Align the installation marks on the timing belt with the timing marks of the camshaft timing pulleys.
(e) Install the timing belt in this order:
(1) LH camshaft timing pulley
(2) No.2 idler pulley
(3) RH camshaft timing pulley
(4) Water pump pulley
(5) Crankshaft timing pulley
(6) No.1 idler pulley

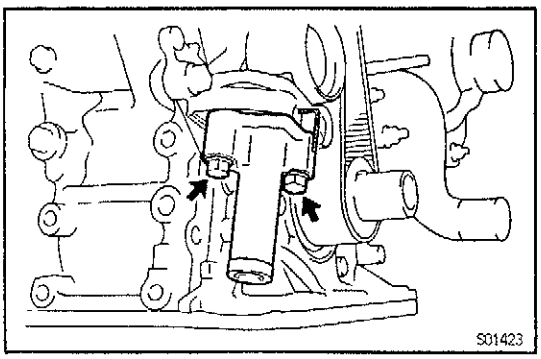


8. SET TIMING BELT TENSIONER

(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.

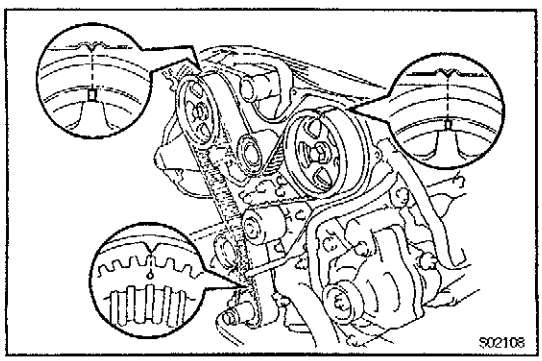


(d) Install the dust boot to the tensioner.



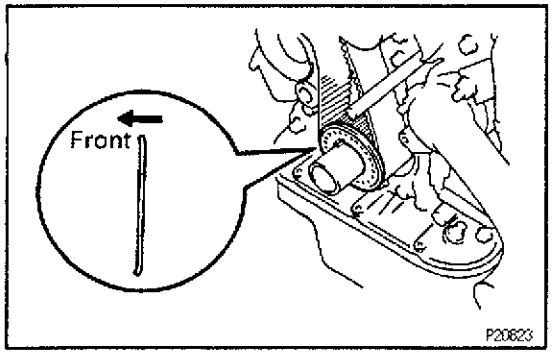
9. INSTALL TIMING BELT TENSIONER

(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.



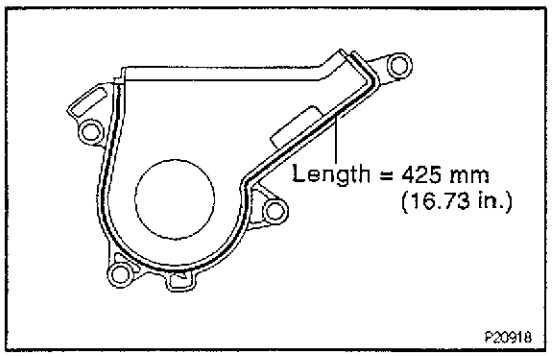
10. CHECK VALVE TIMING

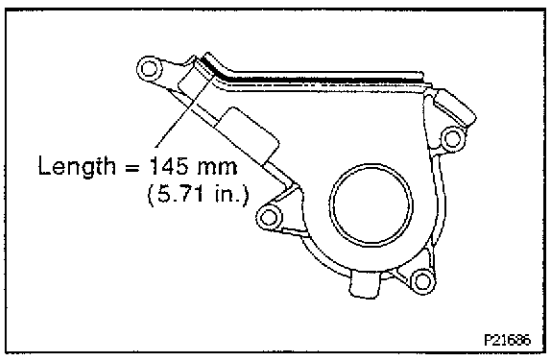
(a) Turn the crankshaft, and align the timing marks of the crankshaft timing pulley and oil pump body.
NOTICE: Always turn the crankshaft clockwise.
(b) Check that the timing marks of the RH and LH timing pulleys with the timing marks of the No.3 timing belt cover as shown in the illustration.
If the marks do not align, remove the timing belt and reinstall it.
(c) Remove the crankshaft pulley bolt.



11. INSTALL TIMING BELT GUIDE

Install the guide, facing the cup side outward.





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

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

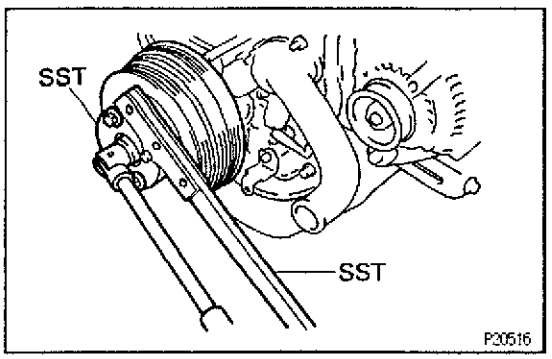
If the gasket does have cracks or peeling, etc., replace it using following steps.

- 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.



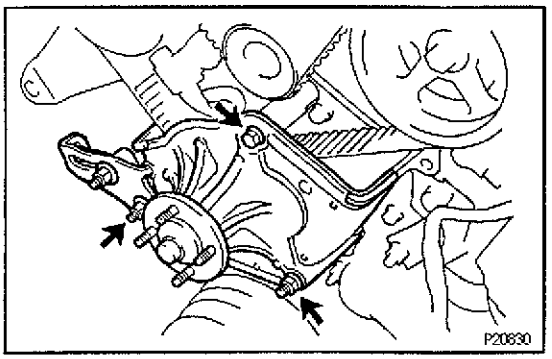
13. INSTALL CRANKSHAFT PULLEY

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

(b) Using SST, install and torque the bolt.

SST 09213−54015 (90119−08216),
09330−00021

Torque: 250 N·m (2,500 kgf·cm, 184 ft·lbf)



14. INSTALL FAN BRACKET

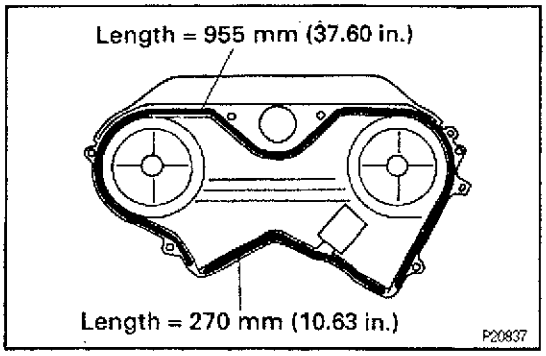
(a) Install the fan bracket with the bolt and nut.

(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 following 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 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.

(a) 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. TEMPORARILY INSTALL FAN WITH FLUID COUPLING AND FAN PULLEYS

18. INSTALL AND ADJUST DRIVE BELT FOR ALTERNATOR
(See on—vehicle inspection in Charging System)

19. TIGHTEN FAN WITH FLUID COUPLING AND FAN PULLEYS
Torque: 5.4 N·m (54 kgf·cm, 48 in.·lbf)