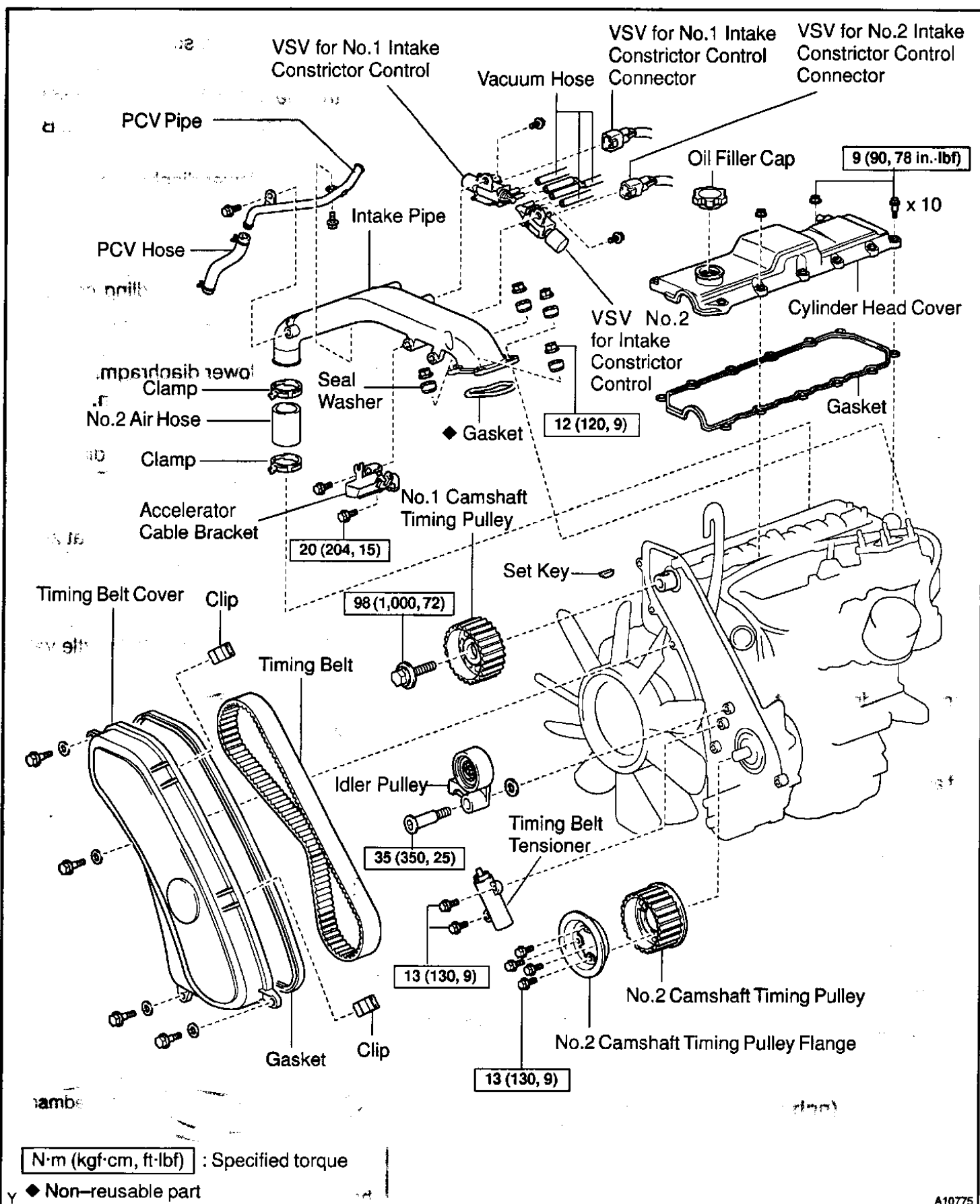


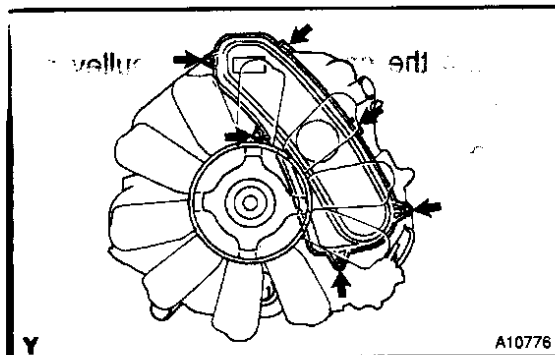
TIMING BELT COMPONENTS



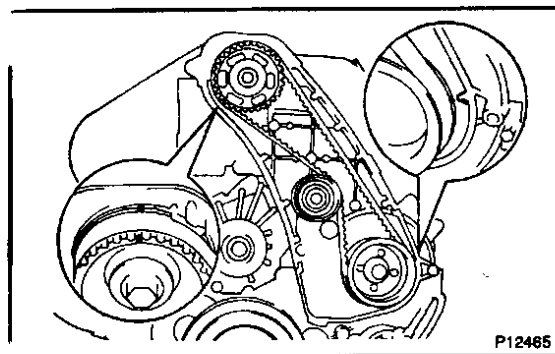
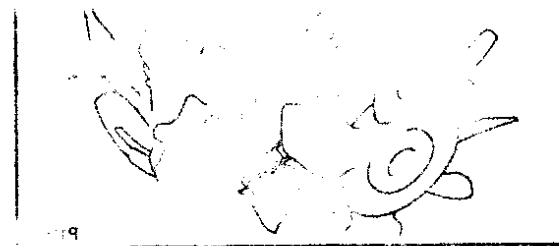
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REMOVAL**HINT:**

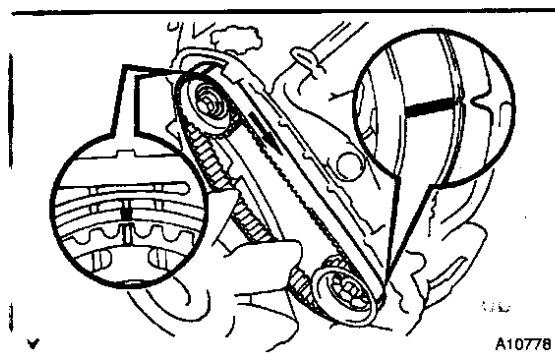
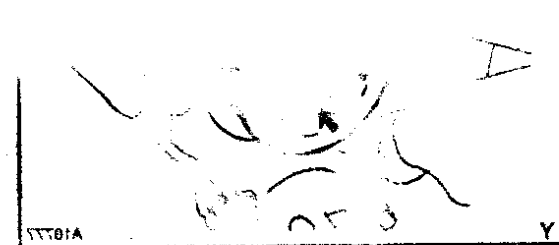
If replacing the timing belt before the timing belt warning light comes on, (light comes on after 100,000 km of driving), be sure to reset the timing belt counter of the speedometer to zero.

**1. REMOVE TIMING BELT COVER**

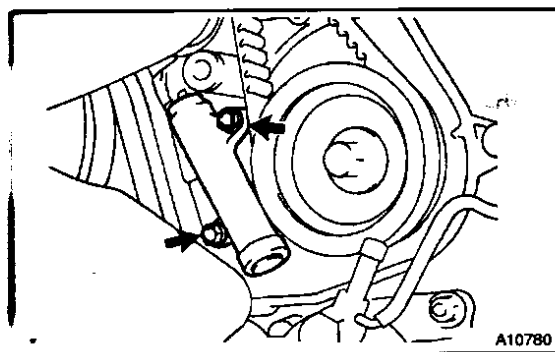
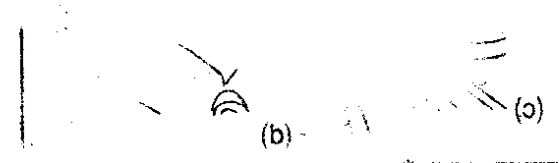
Remove the 4 bolts, seal washers, 2 clips, timing belt cover and gasket.

**2. SET NO.4 CYLINDER TO TDC / COMPRESSION**

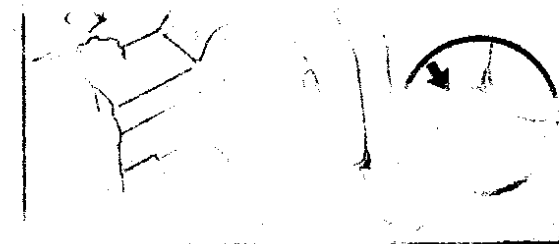
Turn the crankshaft pulley clockwise, set both No.1 and No.2 camshaft pulley grooves at TDC marks.

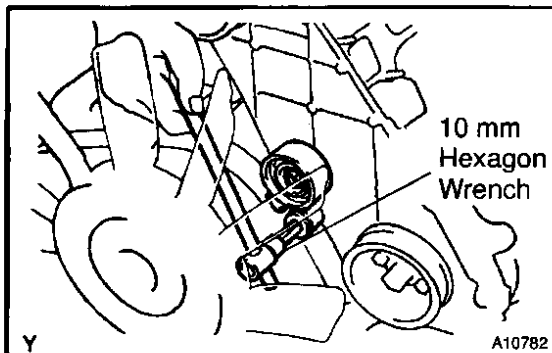
**3. IF RE-USING TIMING BELT, MARK TIMING BELT****HINT:**

If reusing the timing belt, draw a direction arrow on the belt (in the direction of engine revolution), and place matchmarks on the pulleys and belt as shown in the illustration.

**4. REMOVE TIMING BELT TENSIONER**

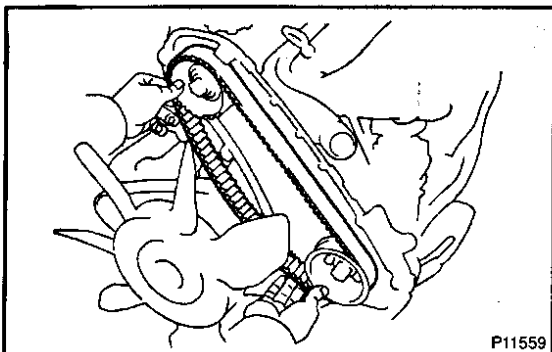
Alternately loosen the 2 bolts, remove them and timing belt tensioner.





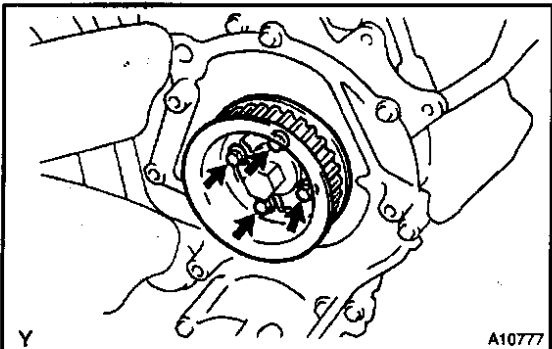
5. REMOVE TIMING BELT IDLER PULLEY

Using a 10 mm hexagon wrench, remove the bolt, timing belt idler pulley and washer.



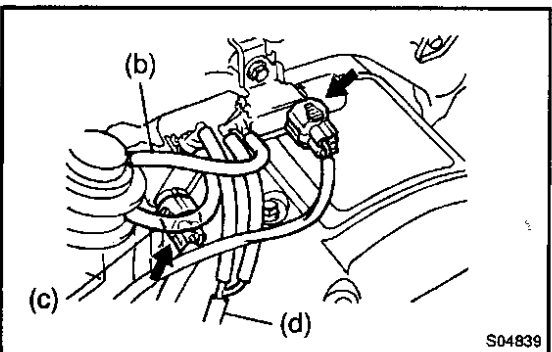
6. REMOVE TIMING BELT

Remove the timing belt from the camshaft timing pulley and crankshaft pulley.



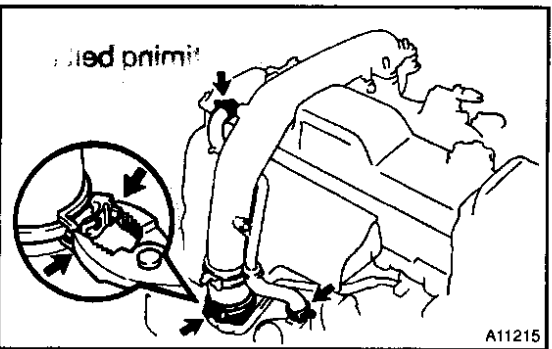
7. REMOVE NO.2 CAMSHAFT TIMING PULLEY

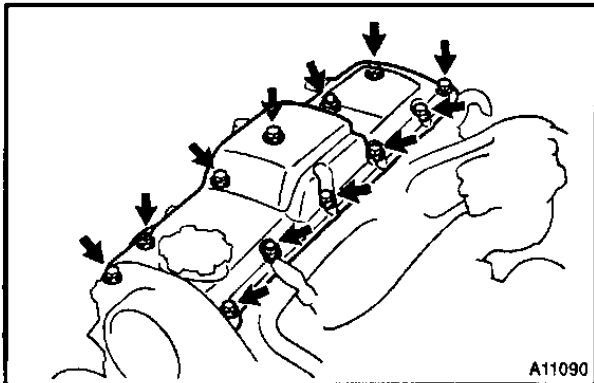
Remove the 4 bolts, No.2 camshaft timing pulley flange and No.2 camshaft timing pulley.



8. REMOVE INTAKE PIPE

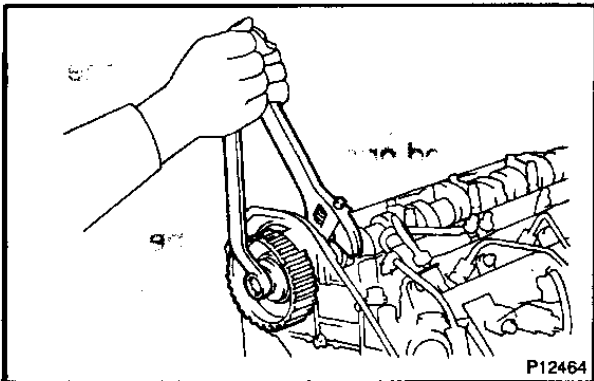
- (a) Disconnect the VSV for the No.1 and No.2 intake constrictor control connectors.
- (b) Disconnect the vacuum hose from the actuator of the chamber A.
- (c) Disconnect the vacuum hose from the actuator of the chamber B.
- (d) Disconnect the vacuum hose from the 3-way (from vacuum pump).
- (e) Remove the 4 nuts and seal washers.
- (f) Disconnect the 2 PCV hoses.
- (g) Use pliers to pinch the ends of the clamp together until the lock plate engages the catch.
Make sure the lock plate and catch are engaged securely.
- (h) Remove the intake pipe and gasket.





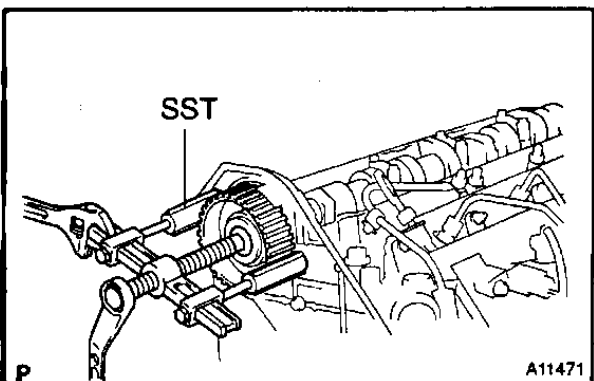
9. REMOVE CYLINDER HEAD COVER

Remove the 10 bolts, 2 nuts, cylinder head cover and gasket.



10. REMOVE NO.1 CAMSHAFT TIMING PULLEY

- (a) Hold the hexagonal wrench head portion of the camshaft with a wrench, and remove the No.1 camshaft timing pulley bolt.



- (b) Using SST, remove the No.1 camshaft timing pulley.
SST 09950-40011 (09951-04010, 09952-04010, 09953-04020, 09954-04010, 09955-04061)
- (c) Remove the set key.

INSPECTION

1. INSPECT TIMING BELT

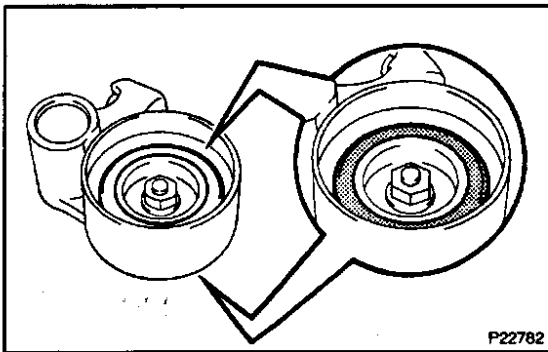
NOTICE:

- 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 mount bolt of the camshaft timing pulley.

If there are any defects, check these points:

- Premature parting
 - Check for proper installation.
 - Check the timing cover gasket for damage and proper installation.
- If the belt teeth are cracked or damaged, check to see if the camshaft is locked.
- If there is noticeable wear or cracks on the bolt face, check to see if there are nicks on the side of the idler pulley lock.
- If there is wear or damage on only one side of the belt, check the belt guide and the alignment of each pulley.
- If there is noticeable wear on the belt teeth, check timing cover for damage and check gasket has been installed correctly and for foreign material on the pulley teeth.

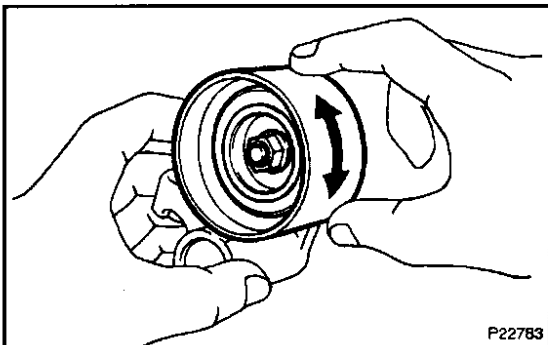
If necessary, replace the timing belt.



2. INSPECT IDLER PULLEY

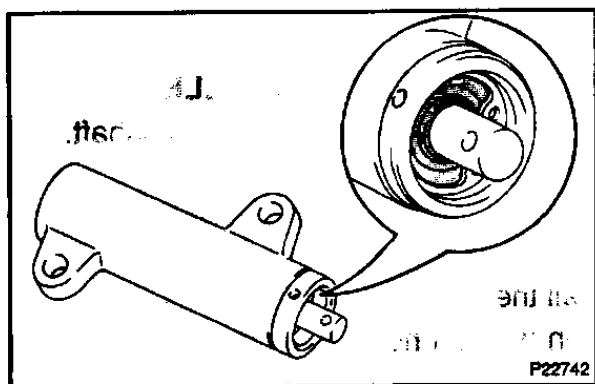
- Visually check the seal portion of the idler pulley for oil leakage.

If leakage is found, replace the idler pulley.



- Check that the idler pulley turns smoothly.
- If necessary, replace the idler pulley.

ENGINE MECHANICAL — TIMING BELT



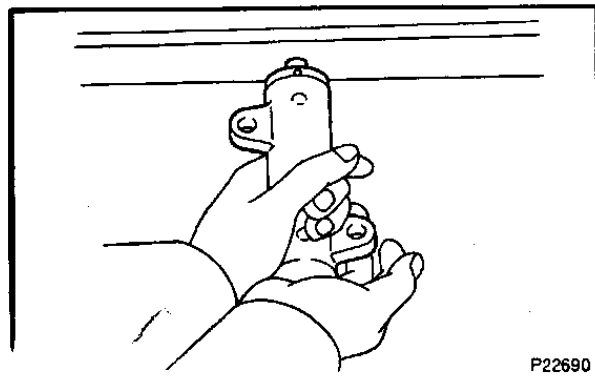
3. INSPECT TIMING BELT TENSIONER

- (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.

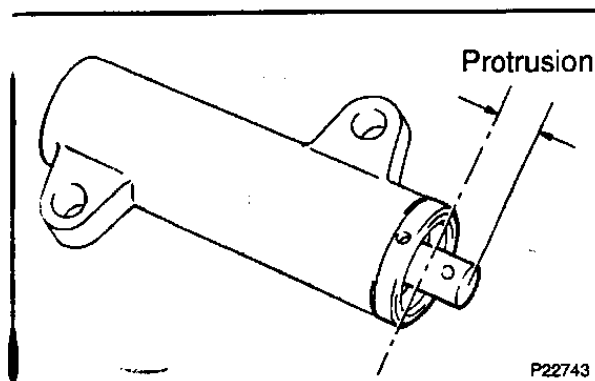


- (b) Hold the tensioner with both hands and push the push rod strongly as shown to check that it doesn't move.

If the push rod moves, replace the tensioner.

NOTICE:

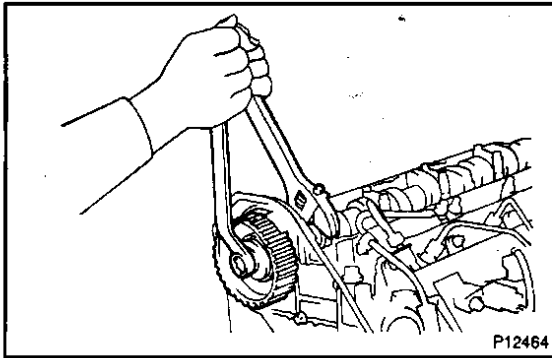
Never hold the tensioner push rod facing downward.



- (c) Measure the protrusion of the push rod from the housing end.

Protrusion: 8.1 – 8.9 mm (0.319 – 0.350 in.)

If the protrusion is not as specified, replace the tensioner.



Turner with both hands and push the push rod

SV

31

SV

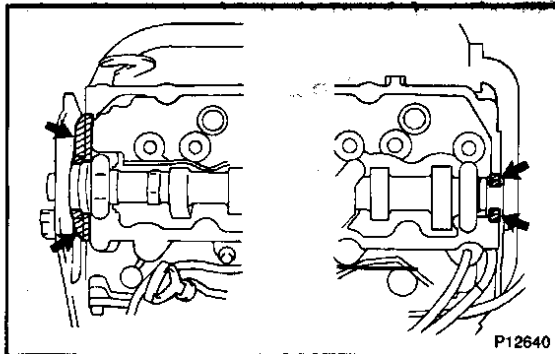
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INSTALLATION

1. INSTALL NO.1 CAMSHAFT TIMING PULLEY

- Install the set key to the key groove of the camshaft.
- Align the pulley set key with the key groove of the No.1 camshaft timing pulley, slide the No.1 camshaft timing pulley.
- Temporarily install the No.1 timing pulley bolt.
- Hold the hexagon wrench head portion of the camshaft with a wrench, and tighten the No.1 camshaft timing pulley bolt.

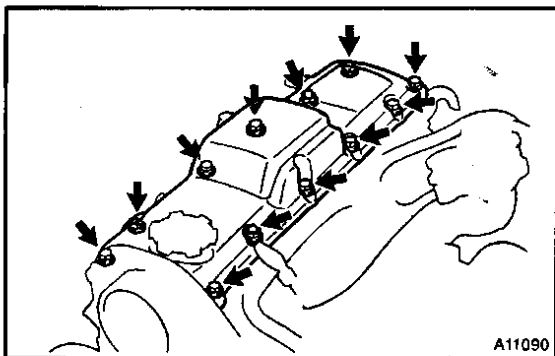
Torque: 98 N·m (1,000 kgf·cm, 72 ft·lbf)



2. INSTALL CYLINDER HEAD COVER

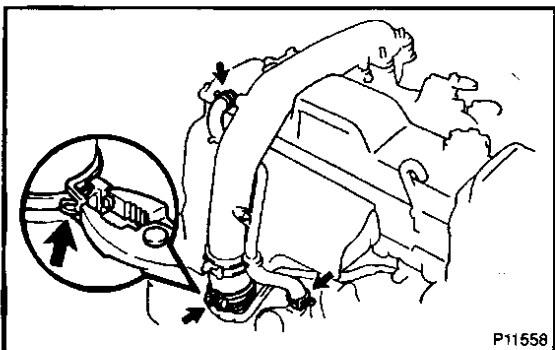
- Remove any old packing (FIPG) material.
- Apply seal packing to the cylinder head as shown in the illustration.

Seal packing: Part No. 08826-0080 or equivalent



- Install a new gasket to the cylinder head cover.
- Install the cylinder head cover with the 10 bolts and 2 nuts.

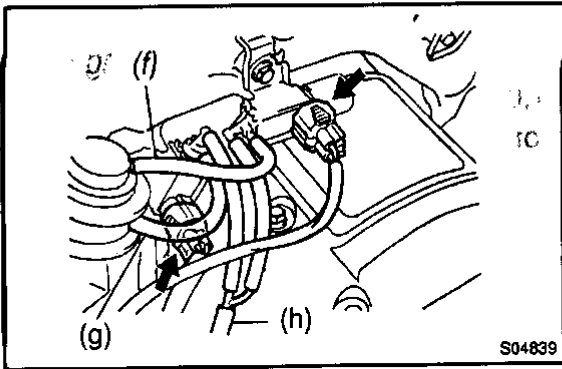
Torque: 9 N·m (90 kgf·cm, 78 in·lbf)



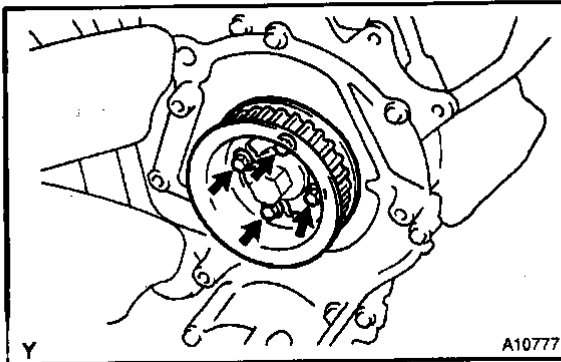
3. INSTALL INTAKE PIPE

- Place a new gasket on the intake manifold.
- Connect the air hose and install the intake pipe.
- Press the clamp lock together with the pliers and press down the tip of the lock plate. Carefully let the lock spread apart. Take care not to let the pliers slip.
- Connect the 2 PCV hoses.
- Install the 4 seal washers and nuts.

Torque: 12 N·m (120 kgf·cm, 9 ft·lbf)



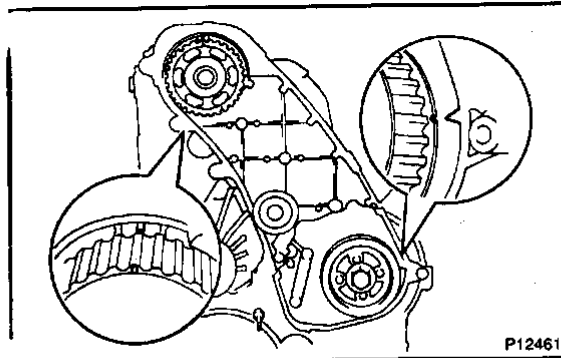
- (f) Connect the vacuum hose to the actuator of the chamber A.
- (g) Connect the vacuum hose to the actuator of the chamber B.
- (h) Connect the vacuum hose to the 3-way (from vacuum pump).
- (i) Connect the VSV for the No.1 and No.2 intake constrictor control connectors.



4. INSTALL NO.2 CAMSHAFT TIMING PULLEY

Align the knock pin of the injection pump drive gear with the knock pin hole of the No.2 camshaft timing pulley, install the pulley and No.2 camshaft timing pulley flanges with the 4 bolts.

Torque: 13 N·m (130 kgf·cm, 9 ft·lbf)

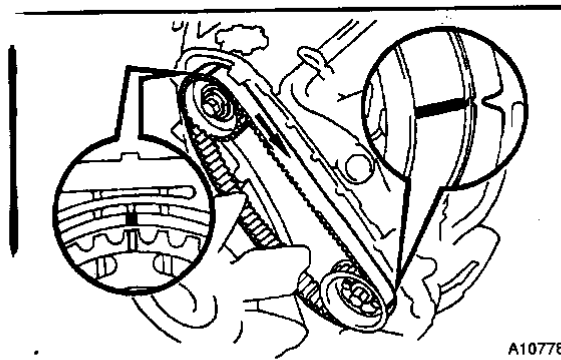


5. SET NO.4 CYLINDER TO TDC / COMPRESSION

Set the timing pulley at each position.

NOTICE:

When turning the crankshaft, the valve heads will hit against the position top. So do not turn it more than necessary.



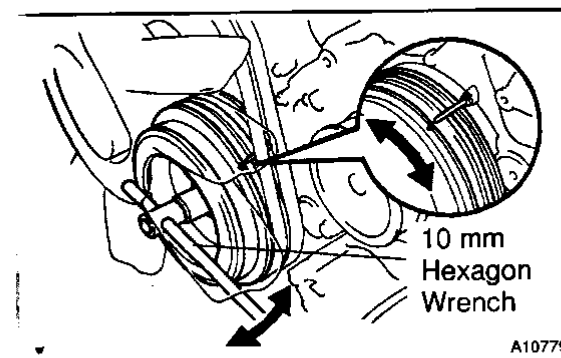
6. INSTALL TIMING BELT

NOTICE:

The engine should be cold.

HINT:

If re-using the timing belt, align the points marked during removal, and install the belt with the arrow pointing in the direction of engine revolution.



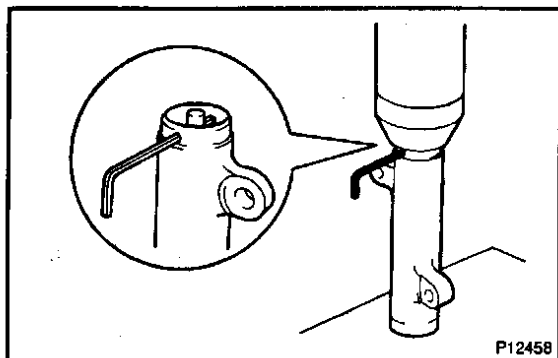
7. INSTALL TIMING BELT IDLER PULLEY

- (a) Using a 10 mm hexagon wrench, install the washer and timing belt idler pulley with the bolt.

Torque: 35 N·m (350 kgf·cm, 25 ft·lbf)

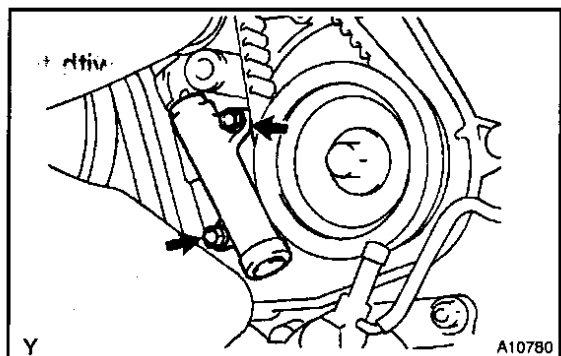
- (b) Check that the idler pulley moves smoothly.

If it doesn't move smoothly, check the idler pulley and washer.



8. SET TIMING BELT TENSIONER

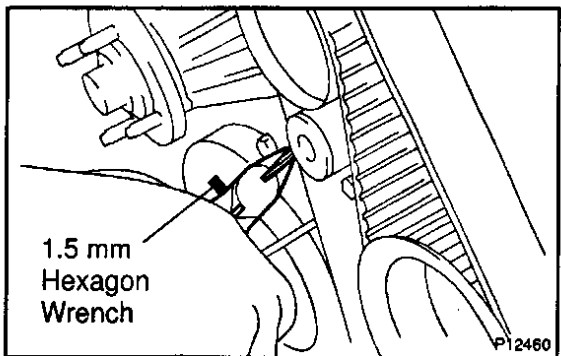
- Using a press, slowly press in the push rod using 981 – 9,807 N (100 – 1,000 kgf, 220 – 2,205 lbf) of force.
- Align the hoses of the push rod and housing, pass a 1.5 mm hexagon wrench through the hoses to keep the setting position of the push rod.
- Release the press.



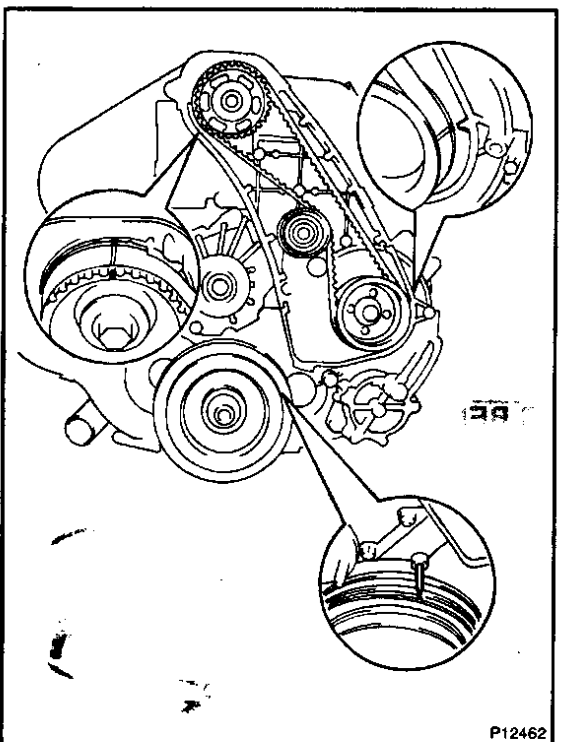
9. INSTALL TIMING BELT TENSIONER

- Temporarily install the timing belt tensioner with the 2 bolts while pushing the idler pulley toward the timing belt.
- Tighten the 2 bolts.

Torque: 13 N·m (130 kgf·cm, 9 ft·lbf)



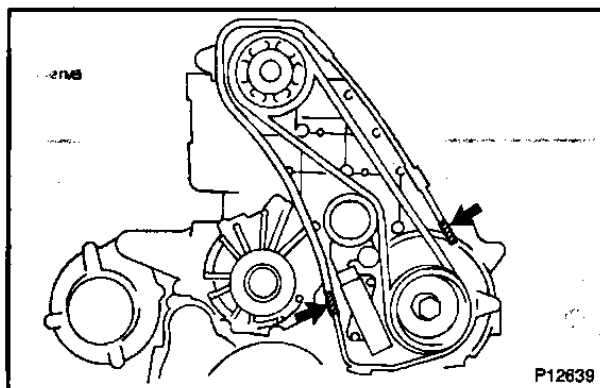
- Remove the 1.5 mm hexagon wrench from the tensioner.



10. CHECK VALVE TIMING

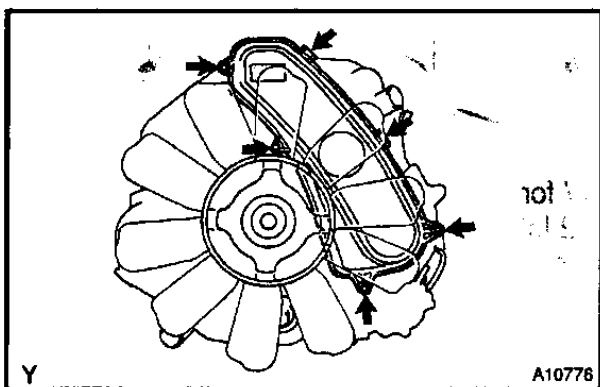
Turn the crankshaft pulley clockwise and check that each pulley aligns with the timing marks (TDC mark) as shown in the illustration.

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

**11. INSTALL TIMING BELT COVER**

- (a) Remove any old packing (FIPG) material.
- (b) Apply seal packing to the camshaft oil seal retainer and timing gear cover as shown in the illustration.

Seal packing: Part No. 08826-00080 or equivalent



- (c) Install the gasket to the timing belt cover.
- (d) Install the timing belt cover with the 4 seal washers, 4 bolts and 2 clips.

