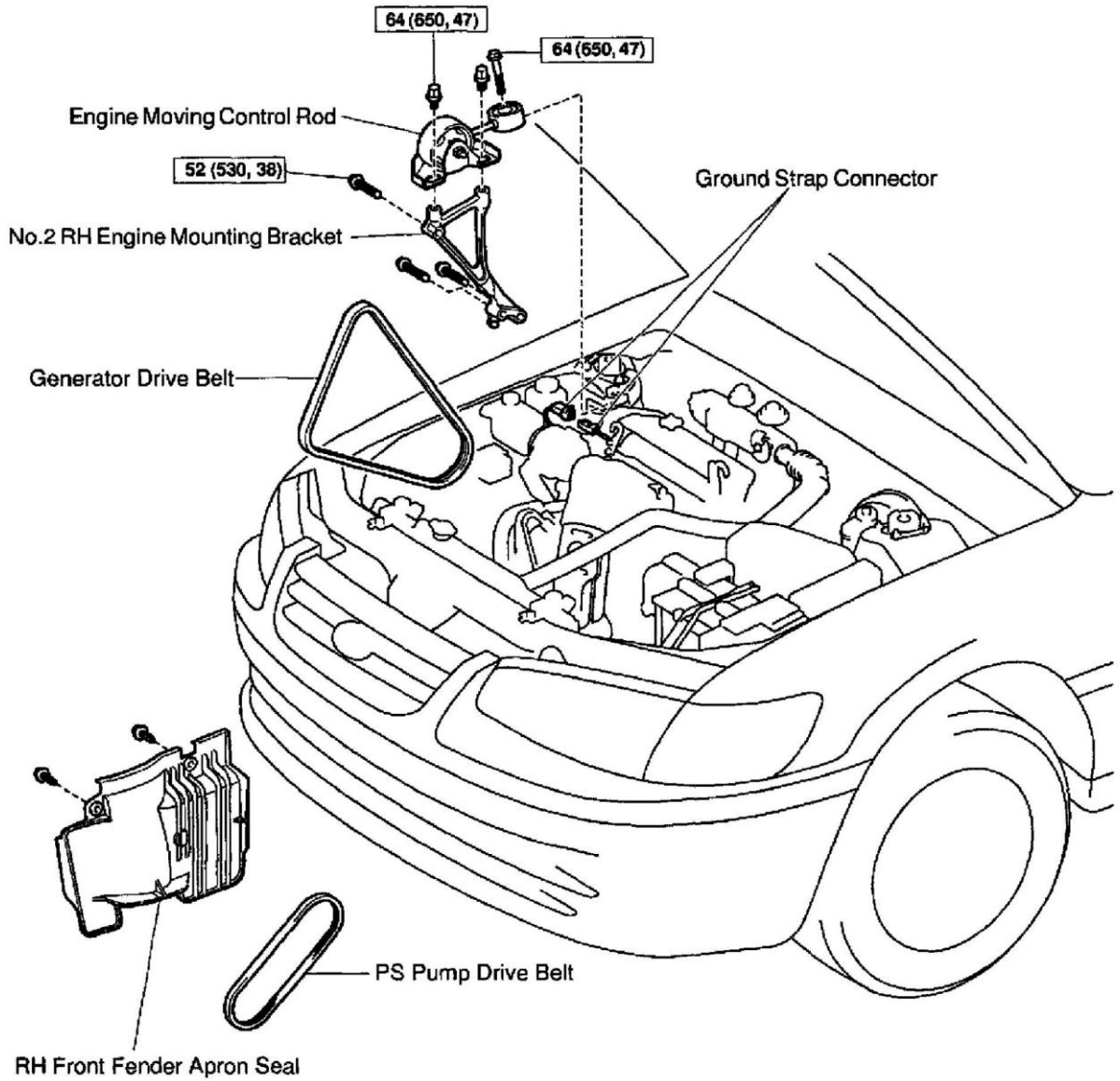


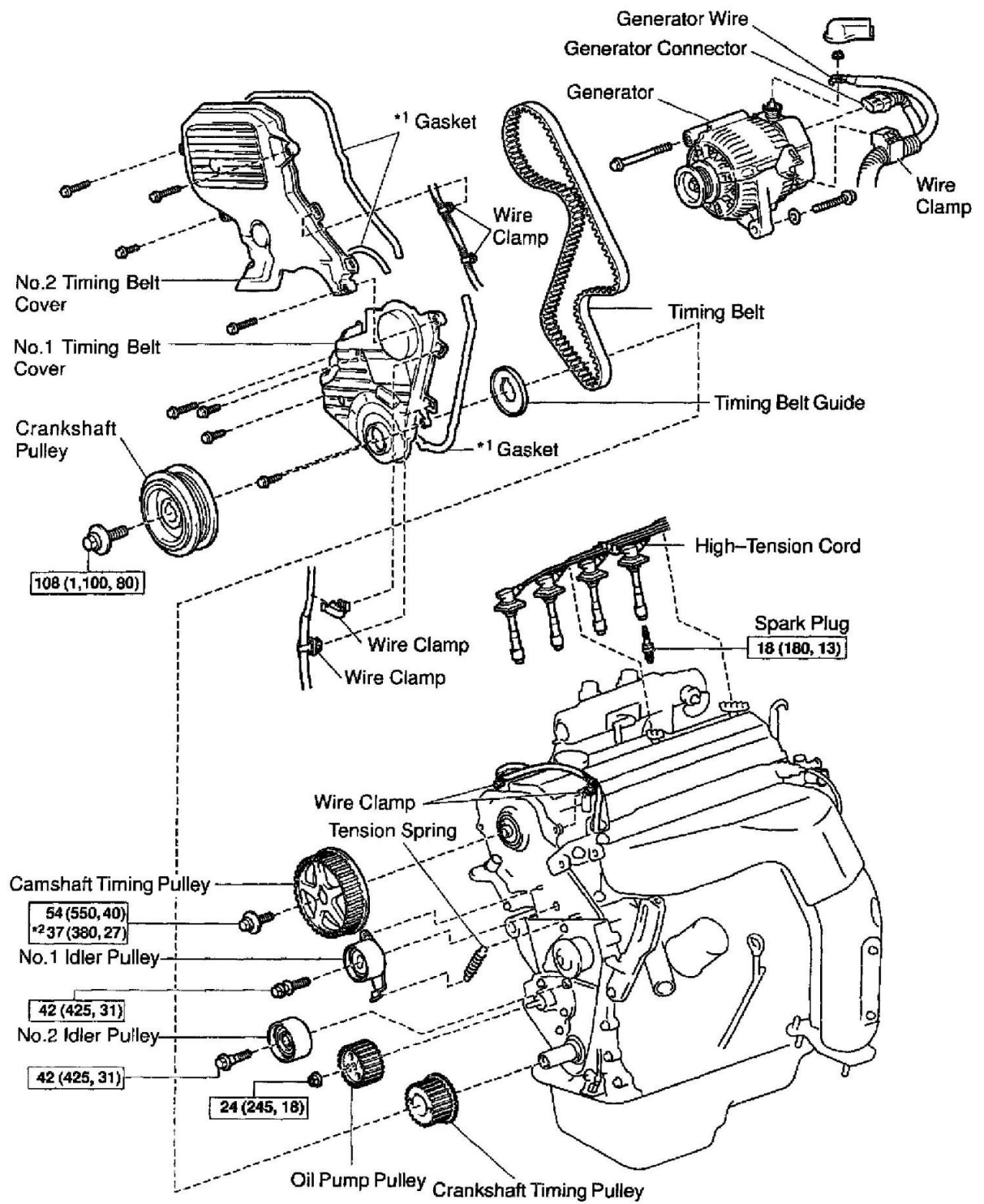


# Toyota Camry CE Sedan L4-2.2L DOHC (5S-FE) MFI 2001

## Timing Belt: Service and Repair



**N·m (kgf·cm, ft·lbf)** : Specified torque



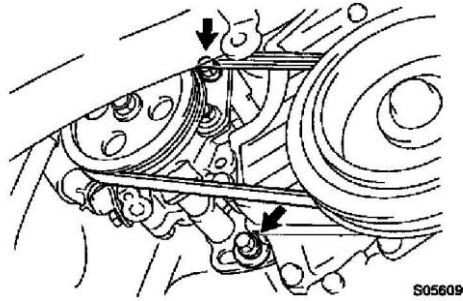
**N·m (kgf·cm, ft·lbf) : Specified torque**

\*1 Replace only if damaged

\*2 For use with SST

## REMOVAL

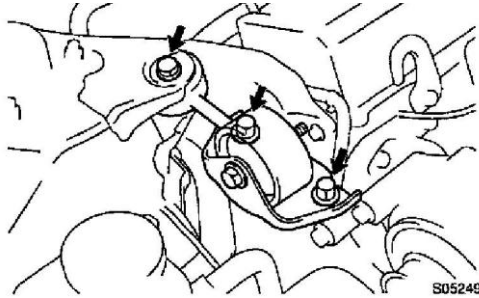
1. REMOVE GENERATOR
2. REMOVE RH FRONT WHEEL
3. REMOVE RH FRONT FENDER APRON SEAL



4. REMOVE PS PUMP DRIVE BELT

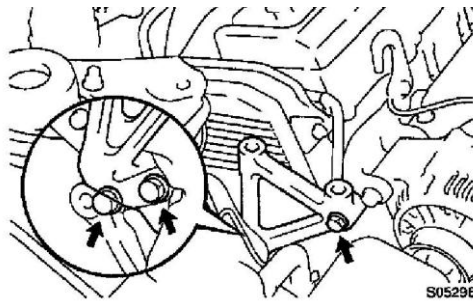
Loosen the 2 bolts, and remove the drive belt.

5. DISCONNECT GROUND STRAP CONNECTOR



6. REMOVE ENGINE MOVING CONTROL ROD

Remove the 3 bolts and control rod.

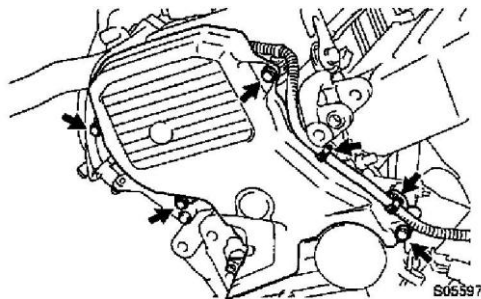


7. REMOVE NO.2 RH ENGINE MOUNTING BRACKET

Remove the 3 bolts and mounting bracket.

8. REMOVE SPARK PLUGS

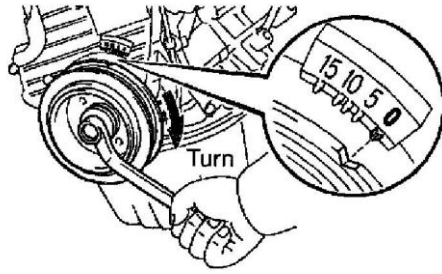
- a. Disconnect the 4 high-tension cords from the clamps on the cylinder head cover.
- b. Disconnect the 4 high-tension cords from the spark plug.
- c. Remove the 4 spark plugs.



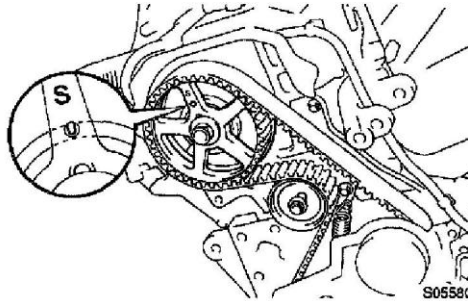
9. REMOVE NO.2 TIMING BELT COVER

- a. Disconnect the 2 engine wire clamps from the timing belt cover.
- b. Remove the 4 bolts and timing belt cover.

10. SET NO.1 CYLINDER TO TDC/COMPRESSION

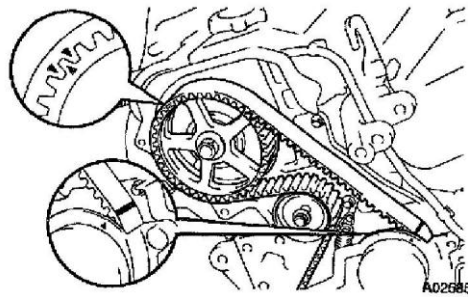


- a. Turn the crankshaft pulley, and align its groove with timing mark "0" of the No. 1 timing belt cover.

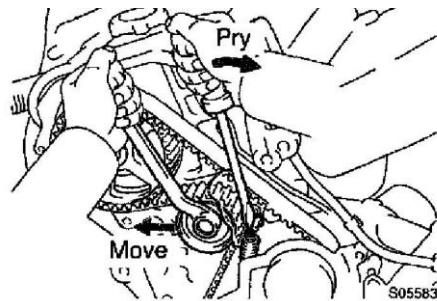


- b. Check that the hole of the camshaft timing pulley is aligned with the timing mark of the bearing cap.  
If not, turn the crankshaft 1 revolution (360°).

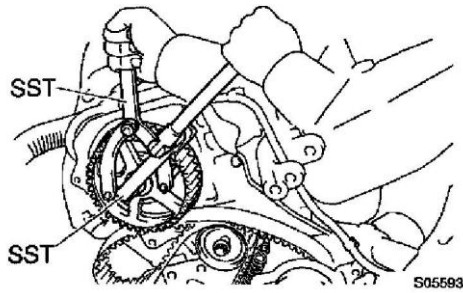
**11. REMOVE TIMING BELT FROM CAMSHAFT TIMING PULLEY**



**HINT:** When re-using timing belt, Affix the matching marks on the timing belt and the camshaft timing pulley, and the timing belt and the No. 1 timing belt cover.



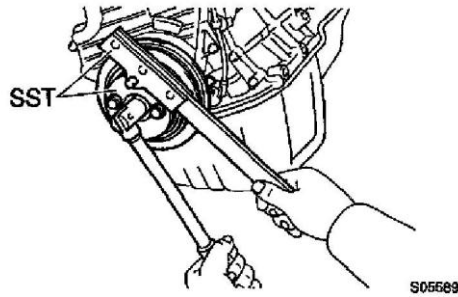
- a. Loosen the mounting bolt of the No.1 idler pulley, and shift the pulley toward the left as far as it will go, and temporarily tighten it. b. Remove the timing belt from the camshaft timing pulley.



12. REMOVE CAMSHAFT TIMING PULLEY

- a. Using SST, loosen the pulley bolt.  
SST 09249-63010, 09960-10010 (09962-1000, 09963-01000)
- b. Remove the bolt and timing pulley.

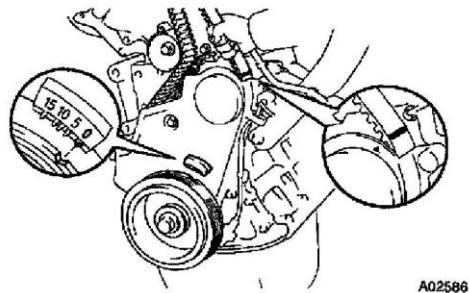
13. REMOVE CRANKSHAFT PULLEY



- a. Using SST (and bolt), loosen the pulley bolt. SST 09213-54015 (91651-60855), 09330-00021

HINT:

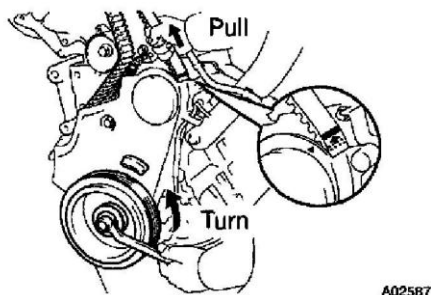
- Either of 2 types of pulley may be used, each with its own bolt size, type A (91651-0885) and type B (part No. 91121-40665).
- When using bolt type B. a plate washer must be inserted between the bolt and SST.



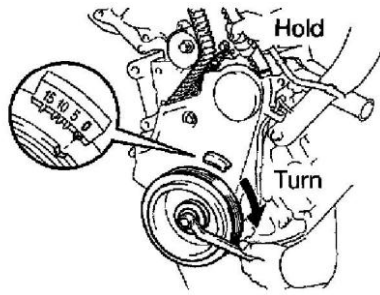
HINT: When re-using timing belt:

After loosening the crankshaft pulley bolt and matching the ditch of the crankshaft pulley with the "0" of the timing mark of No.1 timing belt cover, check that matching mark meets.

When matchmark is misaligned clockwise: If the matchmark does not align, align as follows:

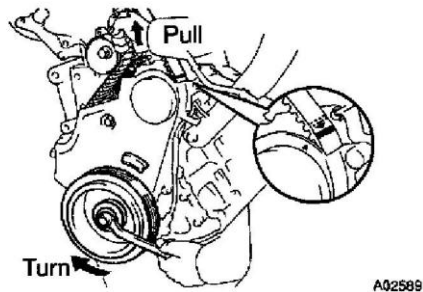


1. Align the matchmark by pulling the timing belt up on the water pump pulley side while turning the crankshaft pulley counterclockwise.

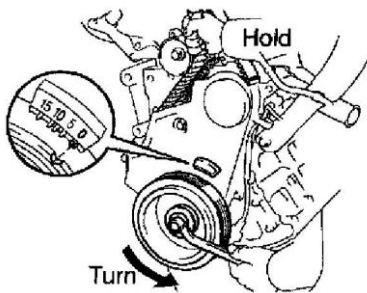


2. After aligning the matchmark, hold the timing belt. And turn the crankshaft pulley clockwise, and align its groove with timing mark "0" of the No.1 timing belt cover.

When matchmark is misaligned counterclockwise: If the matchmark does not align, align as follows:

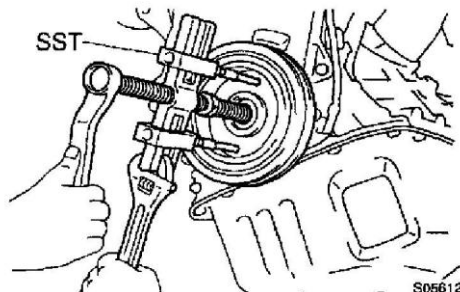


1. Align the matchmark by pulling the timing belt up on the No.1 idler pulley side while turning the crankshaft pulley clockwise.



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

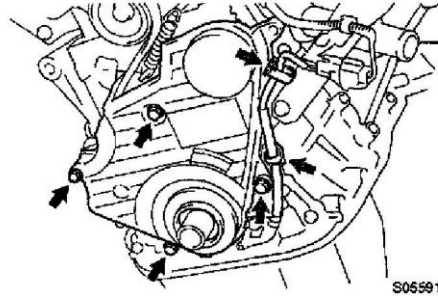
- b. Remove the pulley bolt.



- c. Using SST, remove the pulley.  
SST 09950-50012 (09951-05010, 09952-05010, 09953-05010, 09953-05020, 09954-05020, 09954-05010)

**HINT:**

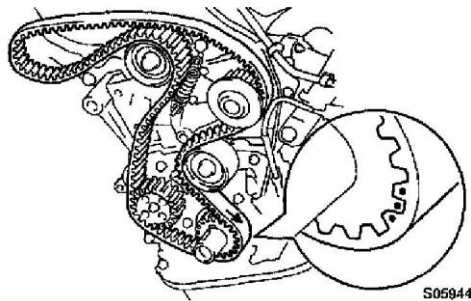
- Either of 2 types of pulley may be used, each with its own bolt size, type A(09954-05020)and type B (09954-05010). - When re-using timing belt: Remove the pulley without turning it.



**14. REMOVE NO.1 TIMING BELT COVER**

- a. Disconnect the crankshaft position sensor wire from the clamp on the timing belt cover.
- b. Disconnect the clamp of the crankshaft position sensor wire from the timing belt cover.
- c. Remove the 4 bolts and timing belt cover.

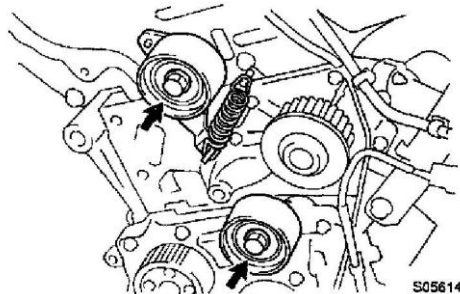
**15. REMOVE TIMING BELT GUIDE**



**16. 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.

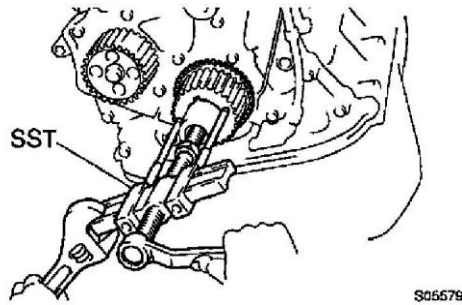


**17. REMOVE NO.1 IDLER PULLEY AND TENSION SPRING**

Remove the bolt, pulley and tension spring.

**18. REMOVE NO.2 IDLER PULLEY**

Remove the bolt and pulley.

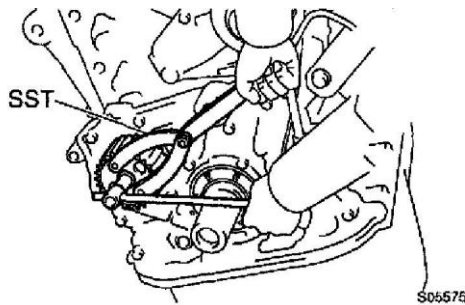


#### 19. REMOVE CRANKSHAFT TIMING PULLEY

If the pulley cannot be removed by hand, use SST to remove the timing pulley.

SST 09950-50012 (09951-05010, 09952-05010, 09953-05010, 09953-05020, 09950-05010)

NOTICE: Do not scratch the angle sensor of the timing pulley.



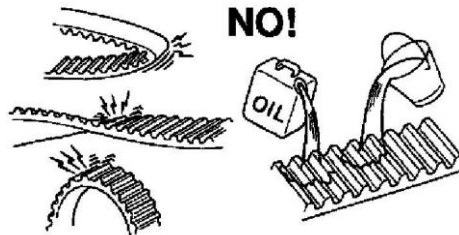
#### 20. REMOVE OIL PUMP PULLEY

a. Using SST, loosen the pulley nut.

SST 09960-10010 (09962-01000, 09963-00500)

b. Remove the nut and pulley.

#### INSPECTION



#### 1. INSPECT TIMING BELT

##### NOTICE:

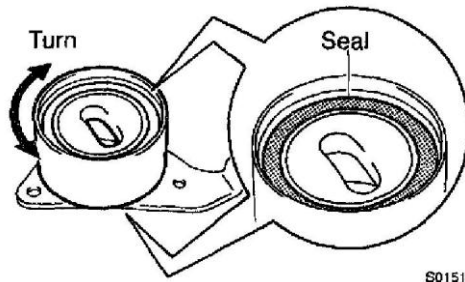
- Do not bend, twist or turn the timing belt inside out.
- Do not allow the timing belt to come into contact with oil, water or steam.
- Do not utilize timing belt tension when installing or removing the mounting bolt of the camshaft timing pulley.

If there are any defects as shown in the illustration,

check 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 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 and check gasket has been installed correctly and for foreign material on the pulley teeth.
- If necessary, replace the timing belt.

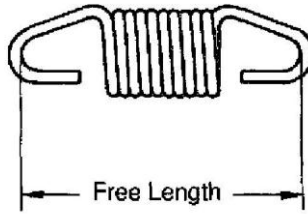




S01519

## 2. INSPECT IDLER PULLEYS

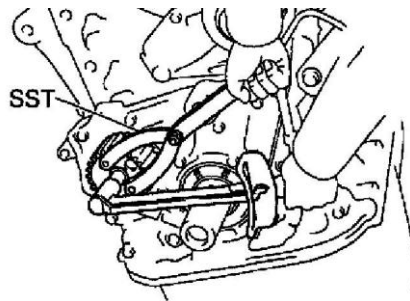
- a. Visually check the seal portion of the idler pulley for oil leakage.  
If leakage is found, replace the idler pulley.
- b. Check that the idler pulley turns smoothly. If necessary, replace the idler pulley.



## 3. INSPECT TENSION SPRING

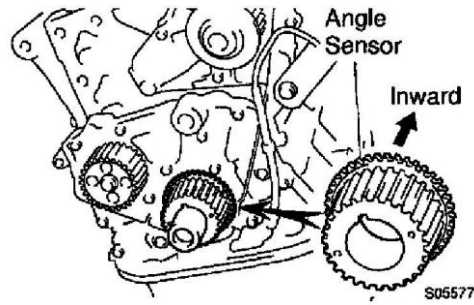
- a. Measure the free length of tension spring.  
Free length: 42.0 mm (1.654 inch)  
If the free length is not as specified, replace the tension spring.
- b. Measure the tension of the tension spring at the specified installed length.  
Installed tension (at 50.5 mm (1.988 inch)): 32 - 37 N (3.25 - 3.75 kgf, 7.2 - 8.3 lbs.) If the installed tension is not as specified, replace the tension spring.

## INSTALLATION



### 1. INSTALL OIL PUMP PULLEY

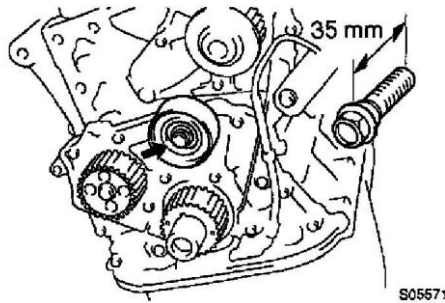
- a. Align the cutouts of the pulley and shaft, and slide on the pulley.
- b. Using SST, install the pulley nut.  
SST 09960-10010 (09962-01000, 09963-0500)  
Torque: 24 Nm (245 kgf-cm, 18 ft. lbs.)



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 angle sensor inward.

NOTICE: Do not scratch the angle sensor of the timing pulley.



3. INSTALL NO.2 IDLER PULLEY

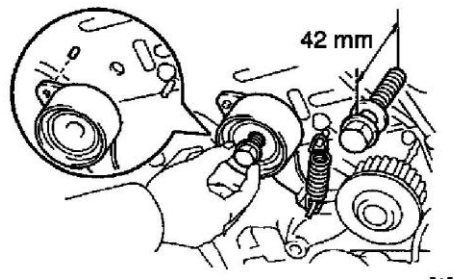
- a. Install the pulley with the bolt.  
Torque: 42 Nm (425 kgf-cm, 31 ft. lbs.)

HINT: Use the 35 mm (1.38 inch) long bolt.

- b. Check that the idler pulley moves smoothly.

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

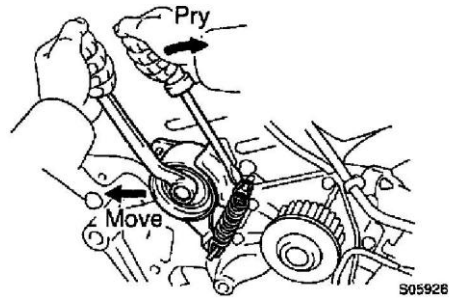
- a. Align the bracket pin hole with the pivot pin.



- b. Install the pulley with the bolt. Do not tighten the bolt yet.

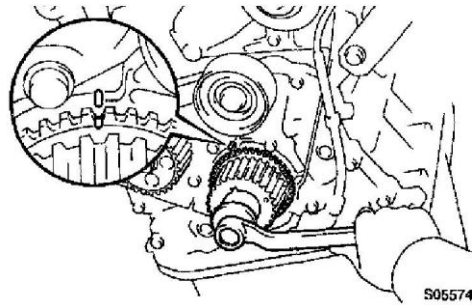
HINT: Use the 42 mm (1.65 inch) long bolt.

- c. Install the tension spring.

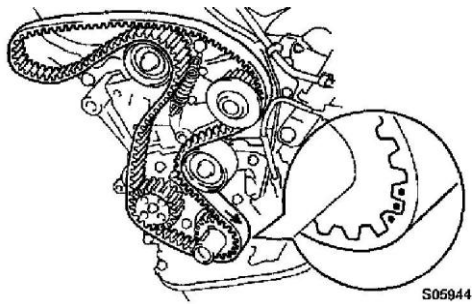


- d. Pry the pulley toward the left as far as it will go, and tighten the bolt.
  - e. Check that the idler pulley moves smoothly.
5. TEMPORARILY INSTALL TIMING BELT

NOTICE: The engine should be cold.



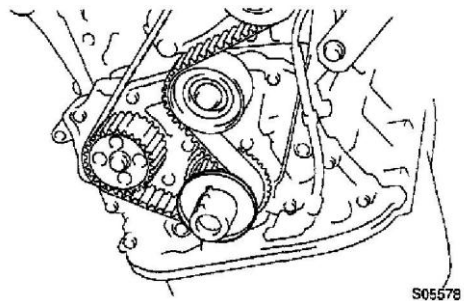
- a. Using the crankshaft pulley bolt, turn the crankshaft and align the timing marks of the crankshaft timing pulley and oil pump body.



- b. Remove any oil or water on the crankshaft pulley, oil pump pulley, water pump pulley, No.1 idler pulley and 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:

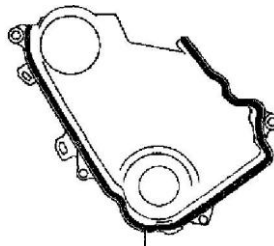
Align the points marked during removal, and install the belt with the arrow pointing in the direction of engine revolution.



6. INSTALL TIMING BELT GUIDE

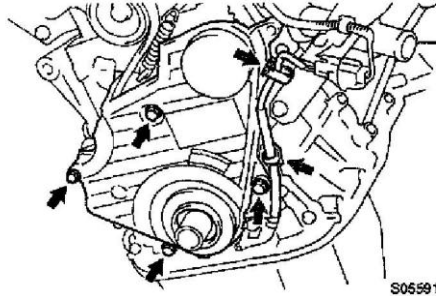
Install the guide, facing the cup side outward.

## 7. INSTALL NO.1 TIMING BELT COVER

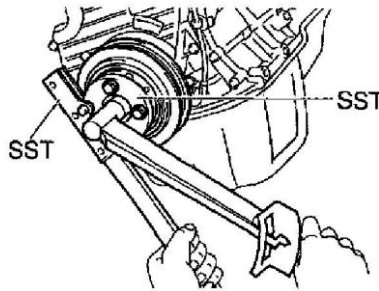


Length = 660 mm (25.98 in.)

- a. Check that the timing belt cover gasket has no cracks or peeling, etc. If the gasket has 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 timing belt cover shaded black in the illustration.
  4. After installing the gasket, press down on it so that the adhesive firmly sticks to the timing belt cover.



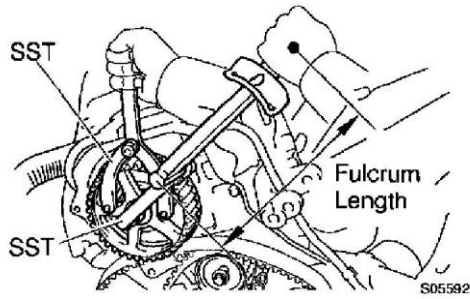
- b. Install the timing belt cover with the 4 bolts.
- c. Install the clamp of the crankshaft position sensor wire to the timing belt cover.
- d. Install the crankshaft position sensor wire to the clamp on the timing belt cover.



## 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 (and bolt), install the pulley bolt.  
SST 09213-54015 (91651-60855),  
09330-00021 Torque: 108 Nm (1,100  
kgf-cm, 80 ft. lbs.)

HINT: Either of 2 types of pulley may be used, each with its own bolt size, type A (Part No. 91651-60855) and type B (Part No. 91121-40665).



**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.

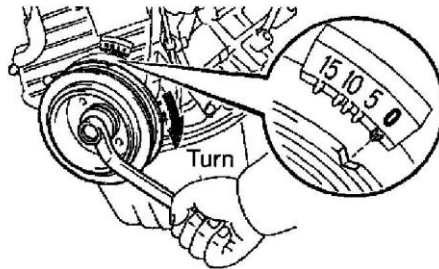
SST 09249-63010, 09960-10010 (09962-01000, 09963-01000) Torque:

54 Nm (550 kgf-cm, 40 ft. lbs.)

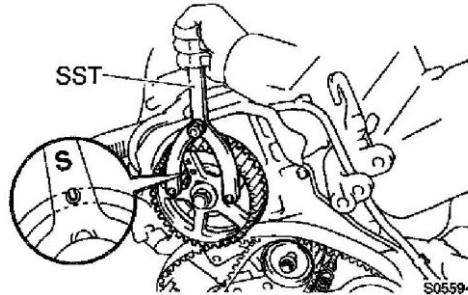
37 Nm (380 kgf-cm, 27 ft. lbs.) for use with SST

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

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

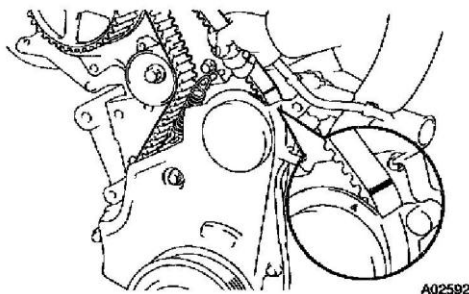


- a. Turn the crankshaft pulley, and align its groove with timing mark "0" of the No.1 timing belt cover.



- b. Using SST, turn the camshaft, and align the hole of the camshaft timing pulley with the timing mark of the bearing cap. SST 09960-10010 (09962-01000, 09963-01000)

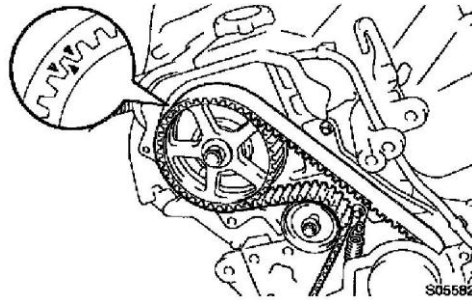
**11. CONNECT TIMING BELT TO CAMSHAFT TIMING PULLEY**



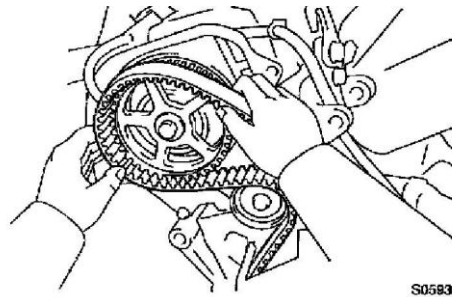
**HINT:** When re-using timing belt:

Check that the matching marks of the timing belt and the No.1 timing belt cover meet.

If the matchmark does not align, shift the meshing of the timing belt and crankshaft timing pulley until they align.

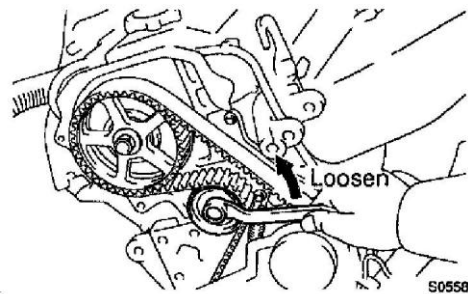


**HINT:** When re-using timing belt:  
Align the matchmarks of the timing belt and camshaft timing pulley.

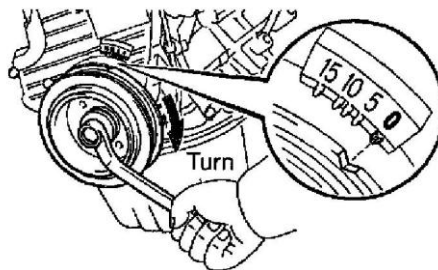


- a. Remove any oil or water on the camshaft timing pulley, and keep it clean.
- b. Connect the timing belt to the camshaft timing pulley, and checking the tension between the crankshaft timing pulley and camshaft timing pulley.

## 12. CHECK VALVE TIMING

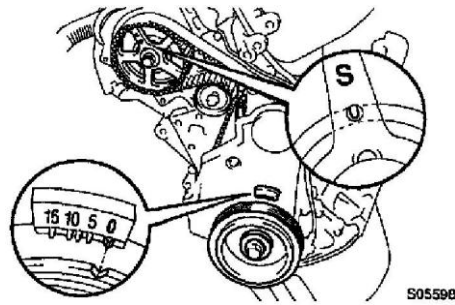


- a. Loosen the No.1 idler pulley bolt 1/2 turn.

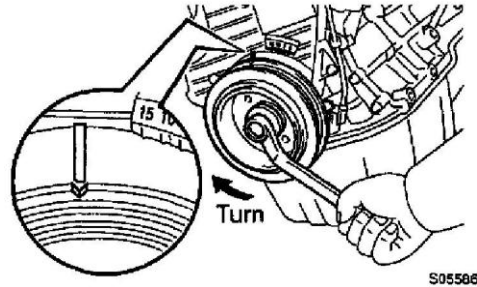


- b. Slowly turn the crankshaft pulley 2 revolutions TDC to TDC.

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

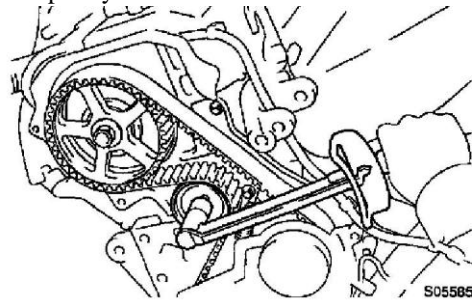


- c. Check that each pulley aligns with the timing marks as shown in the illustration. If the timing marks do not align, remove the timing belt and reinstall it.



- 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.

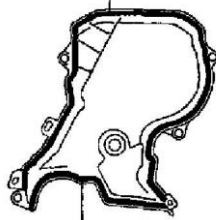
NOTICE: Always turn the crankshaft pulley clockwise.



- e. Tighten the mounting bolt of the No.1 idler pulley.  
Torque: 42 Nm (425 kgf-cm, 31 ft. lbs.)

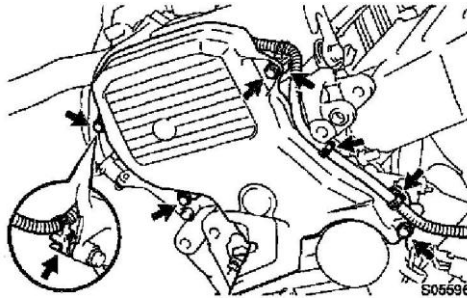
### 13. INSTALL NO.2 TIMING BELT COVER

Length = 735 mm (28.94 in.)



Length ≈ 230 mm (9.06 in.)

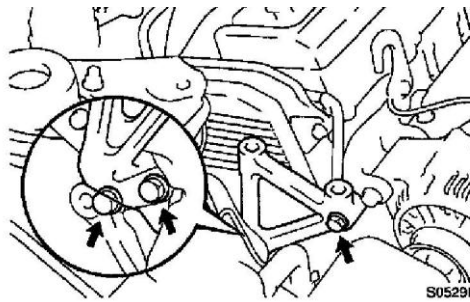
- a. Check that the timing belt cover gaskets have no cracks or peeling, etc. If the gasket has cracks or peeling, etc., replace it using these steps:
1. Using a screwdriver and gasket scraper, remove all the old gasket material.
  2. Thoroughly clean all components to remove all the loose material.
  3. Remove the backing paper from a new gasket and install the gasket evenly to the part of the timing belt cover shaded black in the illustration.
  4. After installing the gasket, press down on it so that the adhesive firmly sticks to the timing belt cover.



- b. Install the belt cover with the 4 bolts.
- c. Install the engine wire clamp.

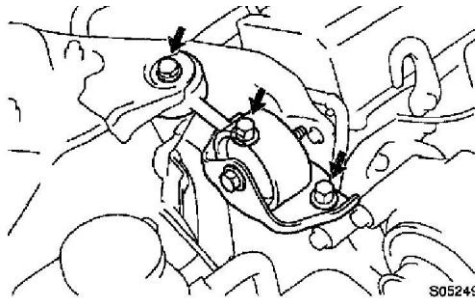
**14. INSTALL SPARK PLUGS**

- a. Install the 4 spark plugs.
- b. Connect the 4 high-tension cords to the spark plugs.
- c. Install the 4 high-tension cords to the clamps on the cylinder head cover.



**15. INSTALL NO.2 RH ENGINE MOUNTING BRACKET**

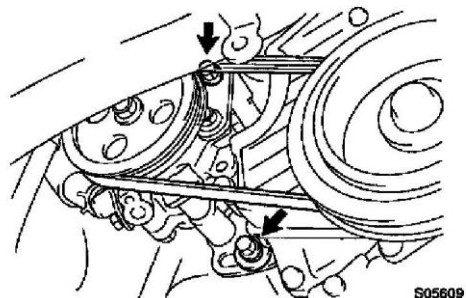
- a. Install the mounting bracket with the 3 bolts.
- b. Alternately tighten the 3 bolts in several passes. Torque: 52 Nm (530 kgf-cm, 38 ft. lbs.)



**16. INSTALL ENGINE MOVING CONTROL ROD**

- a. Temporarily install the control rod with the 3 bolt.
  - b. Alternately tighten the 3 bolts in several passes.
- Torque: 64 Nm (650 kgf-cm, 47 ft. lbs.)

**17. CONNECT GROUND STRAP CONNECTOR**



**18. INSTALL PS PUMP DRIVE BELT**

- Install the drive belt with the 2 bolts.



19. INSTALL RH FRONT FENDER APRON SEAL
20. INSTALL RH FRONT WHEEL
21. INSTALL GENERATOR