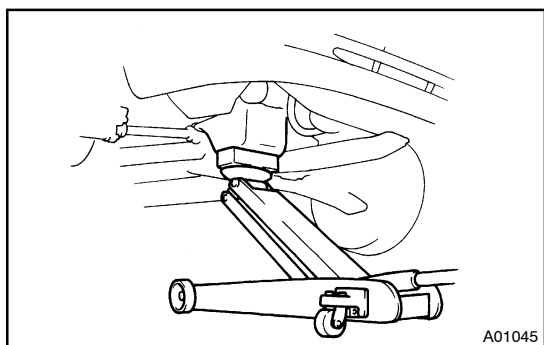


REMOVAL

1. REMOVE UPPER FRONT FENDER APRON SEAL AND UPPER RADIATOR SUPPORT SEAL
2. DRAIN ENGINE COOLANT
3. REMOVE RH FRONT WHEEL
4. REMOVE RH ENGINE UNDER COVER
5. REMOVE DRIVE BELT AND ALTERNATOR
(See page CH-5)
6. DISCONNECT PS PUMP FROM ENGINE
 - (a) Disconnect the PS oil pressure switch connector.
 - (b) Remove the 2 nuts and through bolts, and disconnect the PS pump from the engine
(See Pub. No. RM734E on page SR section).

HINT:

Put aside the pump and suspend it to the cowl with a string.

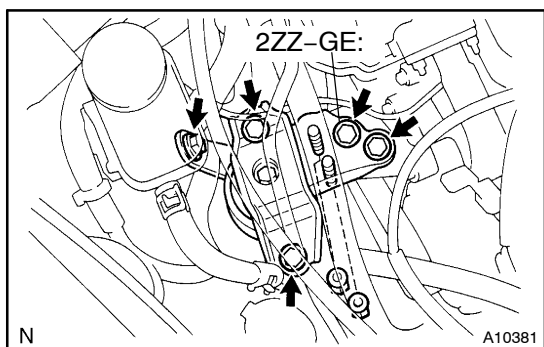


7. REMOVE RH ENGINE MOUNTING INSULATOR

- (a) Set the jack to the engine.

HINT:

Place a wooden block between the jack and engine.

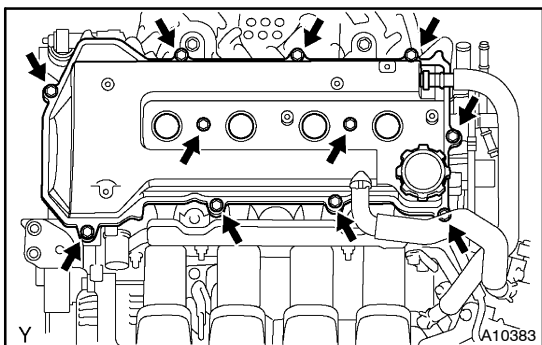


- (b) 1ZZ-FE:
Remove the 4 bolts, 2 nuts and RH engine mounting insulator.
- (c) 2ZZ-GE:
Remove the 5 bolts, 2 nuts and RH engine mounting insulator.

8. 1ZZ-FE:

REMOVE CYLINDER HEAD COVER

- (a) Remove the 4 bolts and No. 2 cylinder head cover.
- (b) Remove the 4 ignition coils (See page IG-6).
- (c) Disconnect the 2 PCV hoses from the cylinder head.



- (d) Remove the 9 bolts, 2 seal washers, 2 nuts, cylinder head cover and gasket.

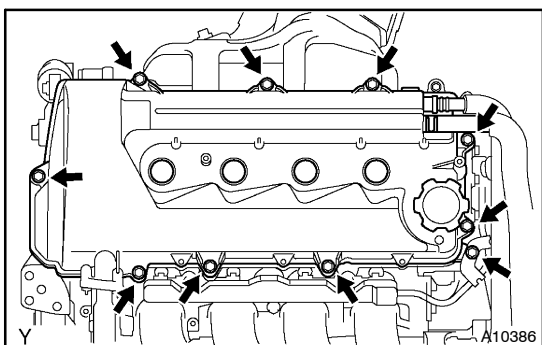
9. 2ZZ-GE:

REMOVE CYLINDER HEAD COVER

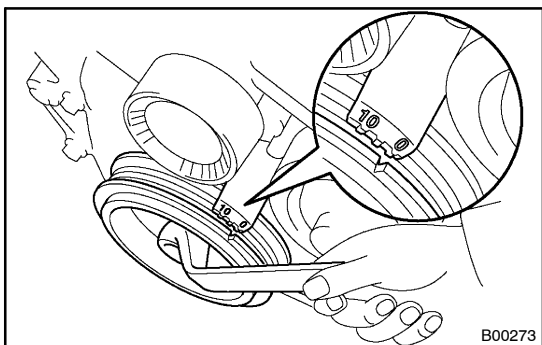
- (a) Remove the 4 bolts and No. 2 cylinder head cover.
 (b) Remove the ignition coils ([See page IG-6](#)).
 (c) Disconnect the 2 PCV hoses from the cylinder head cover.



- (d) Remove the 2 nuts, bolt and disconnect the No. 3 ventilation hose from the No. 1 ventilation pipe.
 (e) Remove the No. 1 ventilation pipe and gasket.

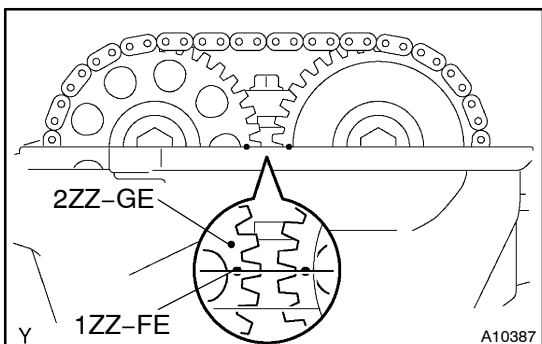


- (f) Remove the 9 bolts, wire harness protector, cylinder head cover and gasket.
 (g) Remove the O-ring from the cylinder head cover.



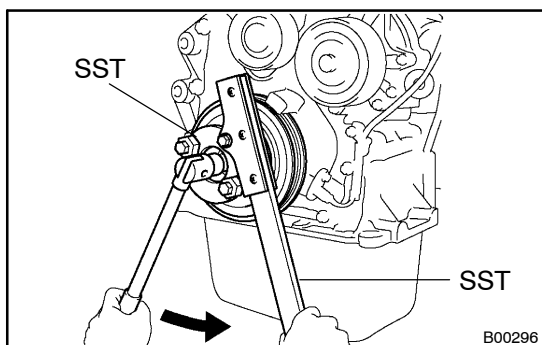
10. SET NO. 1 CYLINDER TO TDC/COMPRESSION

- (a) Turn the crankshaft pulley, and align its groove with timing mark "0" of the timing chain cover.



- (b) Check that the point marks of the camshaft timing sprockets are in straight line on the timing chain cover surface as shown in the illustration.

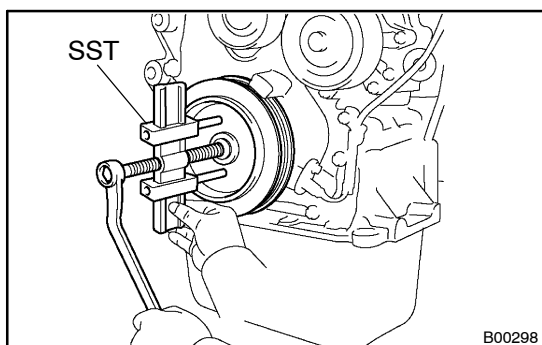
If not, turn the crankshaft 1 revolution (360°) and align the marks as above.

**11. REMOVE CRANKSHAFT PULLEY**

- (a) Using SST and 2 nuts (width: 10 mm (0.25 in.)), remove the pulley bolt.

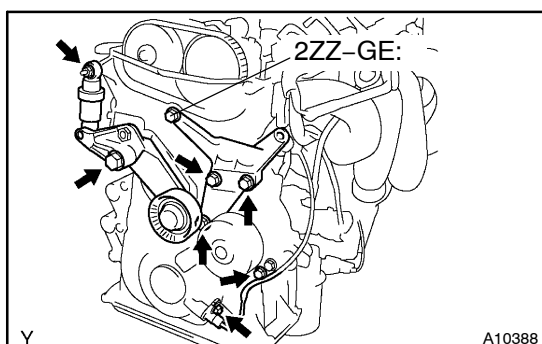
SST 09213-70010, 09330-00021

- (b) Remove the crankshaft pulley.

**HINT:**

If necessary, remove the pulley with SST.

SST 09950-50012 (09951-05010, 09952-05010, 09953-05020, 09954-05020)

**12. DISCONNECT CRANKSHAFT POSITION SENSOR FROM TIMING CHAIN COVER**

Remove the 2 bolts and crankshaft position sensor.

13. REMOVE DRIVE BELT TENSIONER

Remove the bolt, nut and drive belt tensioner.

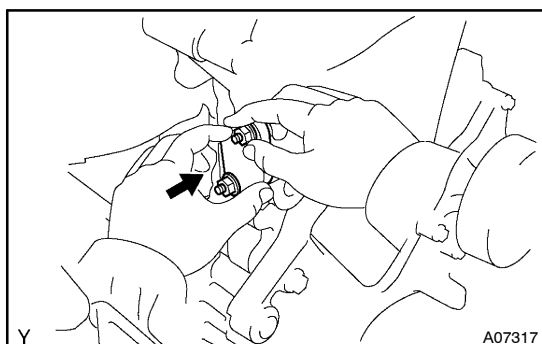
14. REMOVE RH ENGINE MOUNTING BRACKET

- (a) 1ZZ-FE:

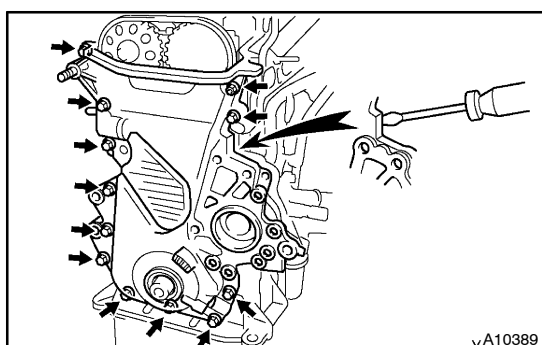
Remove the 3 bolts and mounting bracket.

- (b) 2ZZ-GE:

Remove the 4 bolts and mounting bracket.

**15. REMOVE CHAIN TENSIONER**

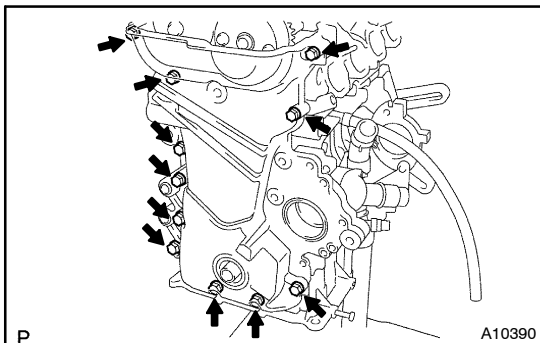
Remove the 2 nuts and chain tensioner.

16. REMOVE WATER PUMP (See page CO-5)**17. 1ZZ-FE:****REMOVE TIMING CHAIN COVER**

- (a) Remove the 11 bolts and nut.
 (b) Using a torx wrench socket (E8), remove the stud bolt.
 (c) Remove the timing chain cover by prying the portions between the cylinder head and cylinder block with a screwdriver.

NOTICE:

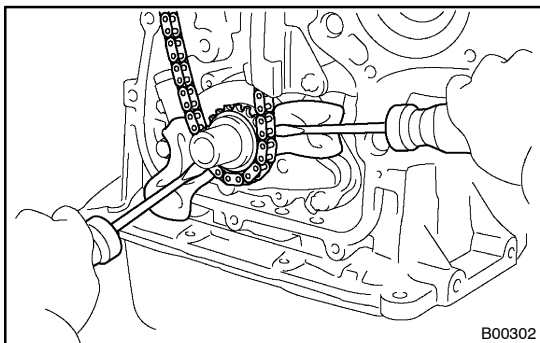
Be careful not to damage the contact surfaces of the timing chain cover, cylinder head and cylinder block.

**18. 2ZZ-GE:****REMOVE TIMING CHAIN COVER**

- (a) Remove the 12 bolts.
- (b) Using a torx wrench socket (E8), remove the stud bolt.
- (c) Remove the timing chain cover and 2 gaskets.

19. REMOVE CRANK ANGLE SENSOR PLATE**20. REMOVE CHAIN TENSIONER SLIPPER**

Remove the bolt and slipper.

**21. REMOVE TIMING CHAIN AND CRANKSHAFT TIMING SPROCKET**

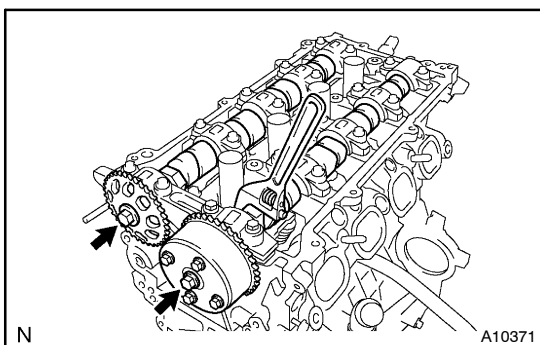
If the crankshaft timing sprocket cannot be removed by hand, use 2 screwdrivers.

NOTICE:

Position shop rags as shown to prevent damage.

22. REMOVE CHAIN VIBRATION DAMPER

Remove the 2 bolts and damper.

**23. REMOVE VALVE TIMING CONTROL ASSEMBLY AND CAMSHAFT TIMING SPROCKET**

Hold the hexagonal head wrench portion of the camshaft with a wrench, and remove the bolt, valve timing controller assembly and timing sprocket.

NOTICE:

- **Be careful not to damage the cylinder head and valve lifter with the wrench.**
- **Do not disassemble the valve timing controller assembly.**