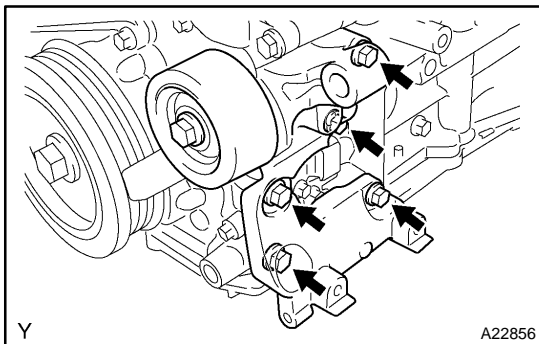
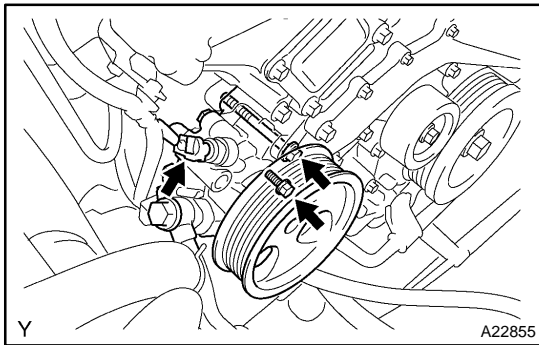
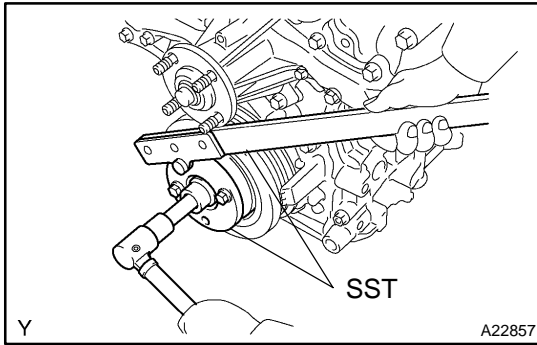


REMOVAL

1. DRAIN ENGINE COOLANT (See page [CO-2](#))
 2. DRAIN ENGINE OIL
 3. REMOVE BATTERY
 4. REMOVE V-BANK COVER
 5. REMOVE RADIATOR (See page [CO-17](#))
 6. LOOSEN FAN W/FLUID COUPLING
(See page [EM-62](#))
 7. REMOVE DRIVE BELT (See page [EM-62](#))
 8. REMOVE FAN W/FLUID COUPLING
 9. REMOVE AIR CLEANER (See page [EM-62](#))
 10. REMOVE INTAKE AIR SURGE TANK
(See page [EM-62](#))
 11. REMOVE CYLINDER HEAD COVER
(See page [EM-62](#))
 12. REMOVE VVT SENSOR
 13. REMOVE OIL LEVEL GAUGE GUIDE
 - (a) Remove the oil level gauge.
 - (b) Remove the bolt and pull out the oil level gauge guide.
 - (c) Remove the O-ring from the oil level gauge guide.
 14. SEPARATE VANE PUMP
 - (a) Disconnect the P/S oil pressure switch connector.
 - (b) Remove the 2 bolts, and separate the vane pump.
- NOTICE:**
Do not hit the pulley to other parts when separating the vane pump.
- HINT:**
The vane pump is suspended securely.
15. REMOVE GENERATOR (See page [CH-7](#))
 16. SEPARATE COOLER COMPRESSOR
(See page [AC-54](#))



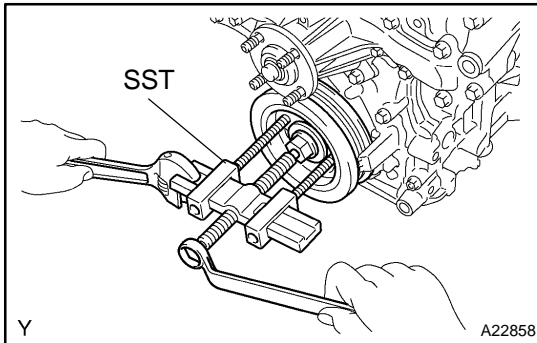
17. REMOVE V-RIBBED BELT TENSIONER
Remove the 5 bolts and V-ribbed belt tensioner.
18. REMOVE IDLER PULLEY NO.1 AND NO.2



19. REMOVE CRANKSHAFT PULLEY

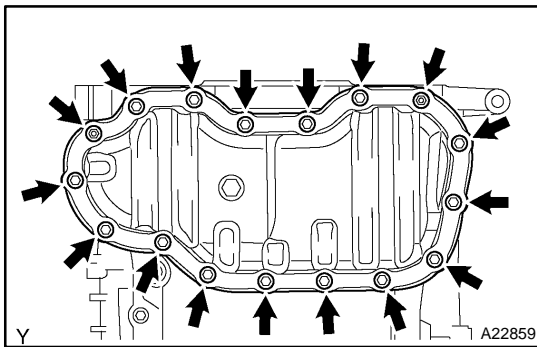
- (a) Using SST, hold the crankshaft pulley and loosen the pulley set bolt.

SST 09213-54015 (91651-60855), 09330-00021



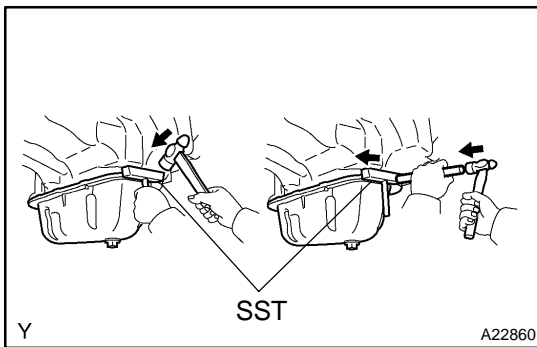
- (b) Using the pulley set bolt and SST, remove the crankshaft pulley.

SST 09950-50013 (09951-05010, 09952-05010, 09953-05020, 09954-05031)



20. REMOVE OIL PAN NO.2

- (a) Remove the 15 bolts and 2 nuts.

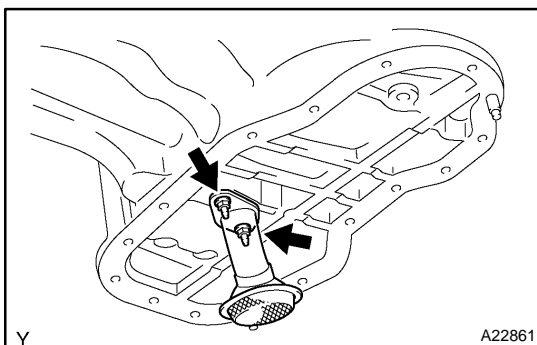


- (b) Insert the blade of SST between the oil pan and oil pan No. 2, cut off applied sealer and remove the oil pan No. 2.

SST 09032-00100

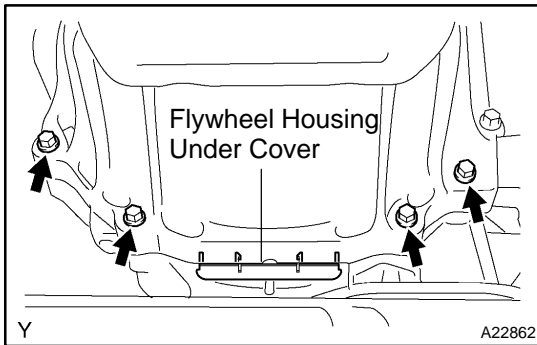
NOTICE:

- Be careful not to damage the contact surface of the oil pan and oil pan No. 2.
- Be careful not to damage the oil pan No. 2 flange.

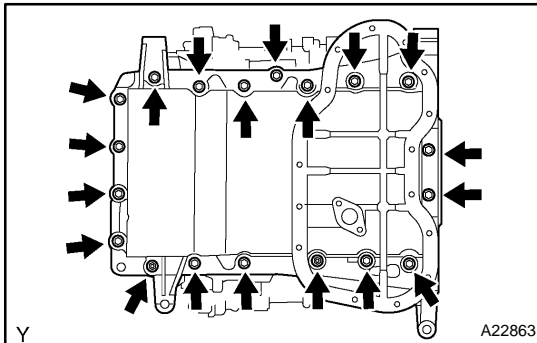


21. REMOVE OIL STRAINER

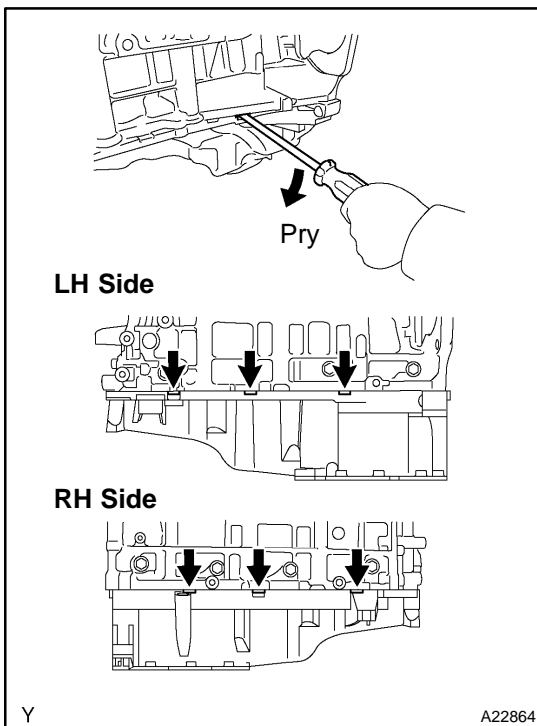
Remove the 2 nuts, oil strainer and gasket.

**22. REMOVE OIL PAN**

- (a) Remove the 4 housing bolts.
- (b) Remove the flywheel housing under cover.



- (c) Remove 17 bolts and 2 nuts.

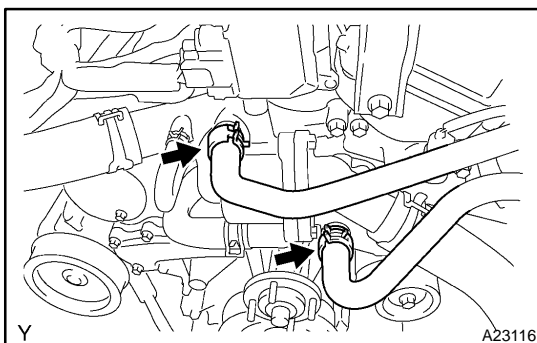


- (d) Using a screwdriver, remove the oil pan by prying between the oil pan and cylinder block in the sequence shown.

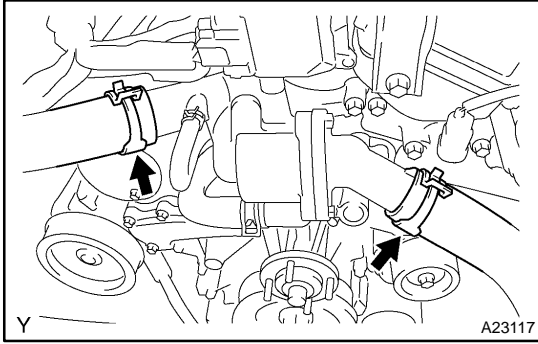
NOTICE:

Be careful not to damage the contact surfaces of the cylinder block and oil pan.

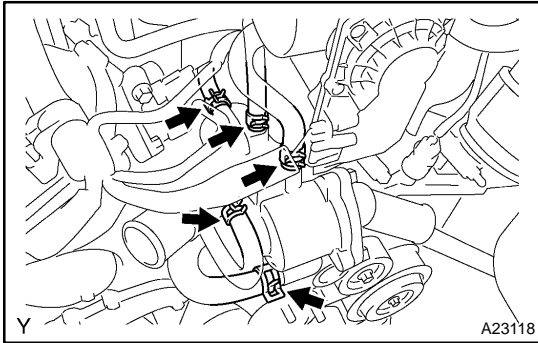
- (e) Remove the O-ring from the oil pump.

**23. REMOVE WATER INLET**

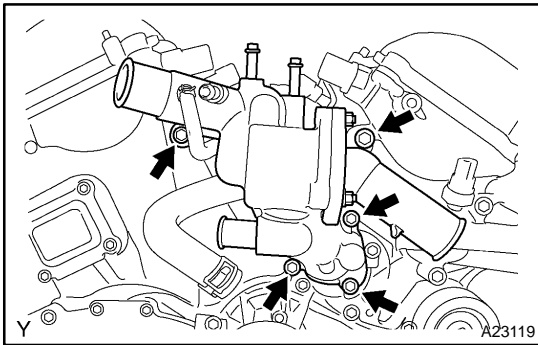
- (a) Disconnect the 2 oil cooler hoses (w/ oil cooler).



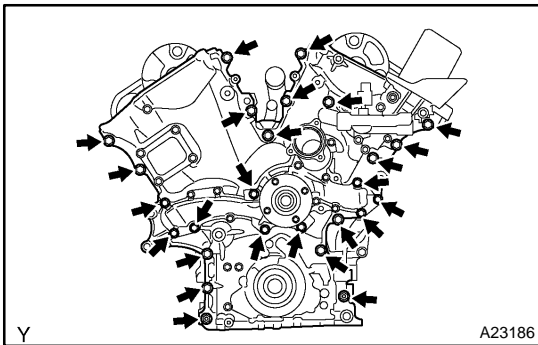
- (b) Disconnect the 2 radiator hoses.



- (c) Disconnect the 5 water by-pass hoses.

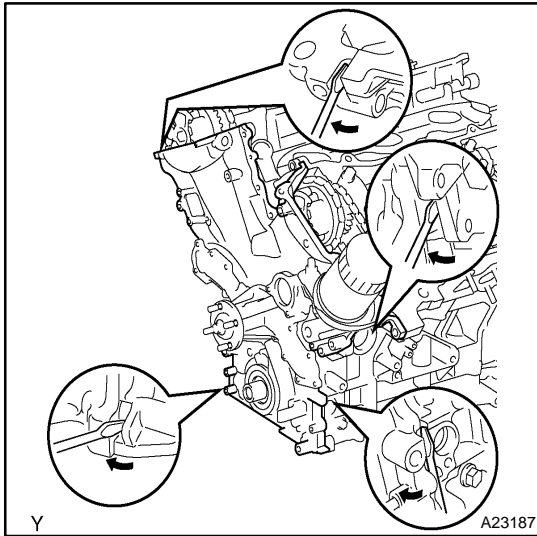


- (d) Remove the 5 bolts and water inlet.
 (e) Remove the O-ring from the water outlet pipe.
 (f) Remove the gasket from the water pump.



24. REMOVE TIMING CHAIN COVER

- (a) Remove the 24 bolts and 2 nuts.

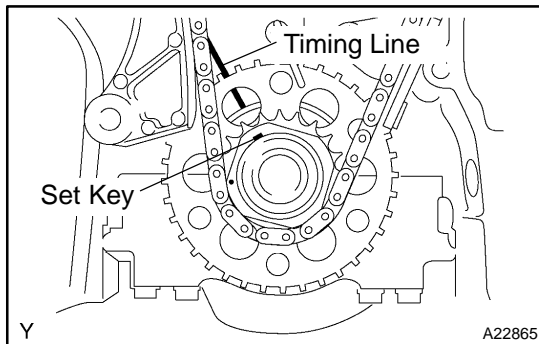


- (b) Remove the timing chain cover by prying between the timing chain cover and cylinder head or cylinder block with a screwdriver.

NOTICE:

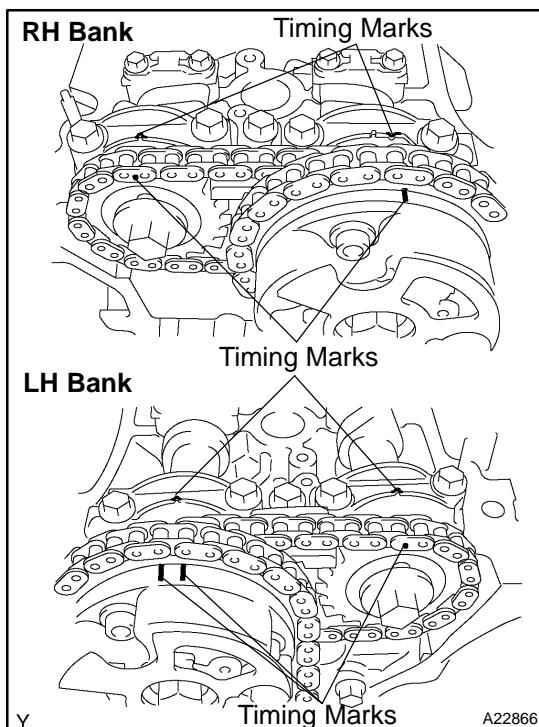
Be careful not to damage the contact surfaces of the timing chain cover, cylinder block and cylinder head.

- (c) Remove the O-ring from the LH cylinder head.



25. SET NO.1 CYLINDER TO TDC/COMPRESSION

- (a) Install the crankshaft pulley set bolt, and turn the crankshaft to align the crankshaft set key with the timing line of the cylinder block.



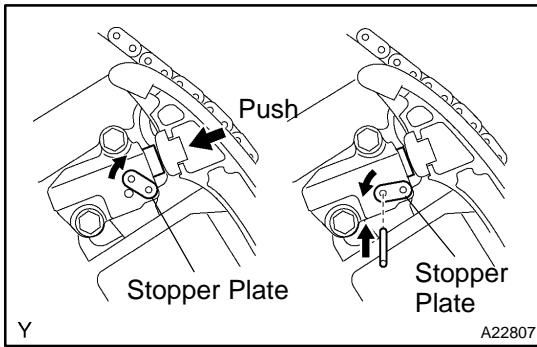
- (b) Check that the timing marks of the camshaft timing gear assembly and camshaft timing sprocket are aligned with the timing marks of the bearing caps as shown in the illustration.

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

26. REMOVE CHAIN TENSIONER NO.1

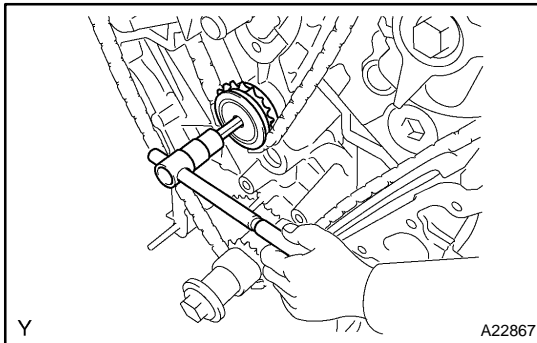
NOTICE:

- **Never rotate the crankshaft with the chain tensioner removed.**
- **When rotating the camshaft with the timing chain removed, rotate the crankshaft counterclockwise 40° from the TDC first.**



- (a) While turning the stopper plate of the tensioner clockwise, push in the plunger of the chain tensioner as shown in the illustration.
- (b) While turning the stopper plate of the tensioner counter-clockwise, insert a bar of ϕ 3.5 mm (0.138 in.) into the holes in the stopper plate and tensioner to fix the stopper plate.
- (c) Remove the 2 bolts and chain tensioner.

27. REMOVE CHAIN TENSIONER SLIPPER



28. REMOVE IDLE GEAR NO.1

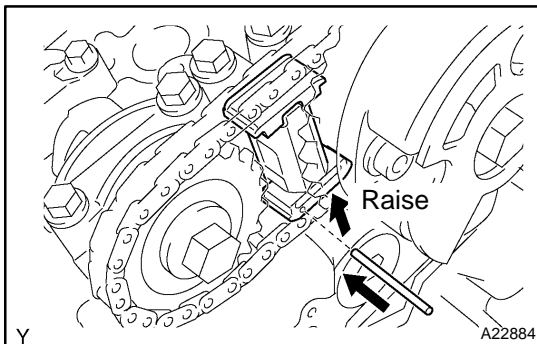
Using a 10 mm hexagon wrench, remove the idle gear shaft No. 2, idle gear No. 1 and idle gear shaft No. 1.

29. REMOVE CHAIN VIBRATION DAMPER NO.2

Remove the 2 chain vibration damper No.2.

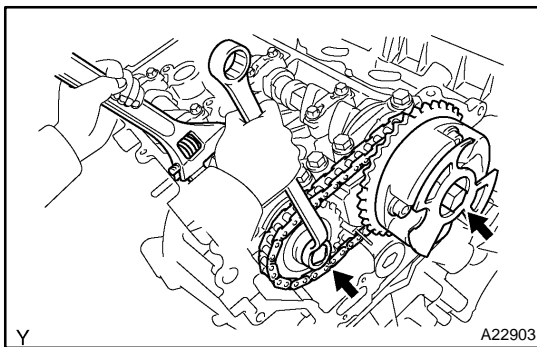
30. REMOVE NO.1 TIMING CHAIN

31. REMOVE CRANKSHAFT TIMING SPROCKET



32. REMOVE NO.2 TIMING CHAIN

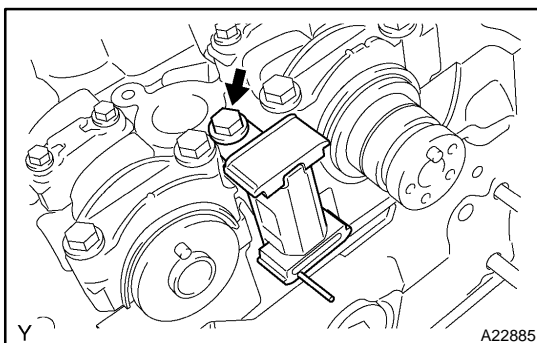
- (a) While raising the chain tensioner No. 2, insert a pin of ϕ 1.0 mm (0.039 in.) into the hole to fix it.



- (b) Hold the hexagonal portion of the camshaft with a wrench, and remove the 2 bolts, camshaft timing sprocket, camshaft timing gear assembly and timing chain No.2.

NOTICE:

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



33. REMOVE CHAIN TENSIONER NO.2

Remove the bolt and chain tensioner No.2.