

VALVE CLEARANCE INSPECTION

EM091-02

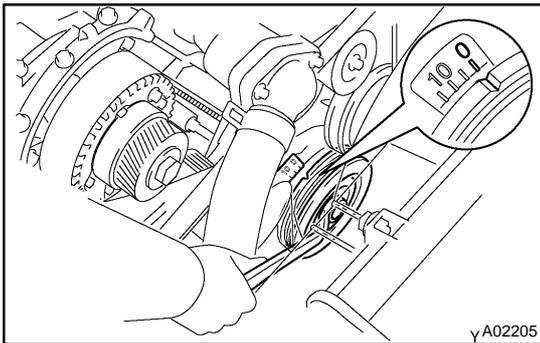
HINT:

Inspect and adjust the valve clearance when the engine is cold.

1. DRAIN ENGINE COOLANT
2. REMOVE BATTERY CLAMP COVER
3. REMOVE AIR CLEANER INLET
4. REMOVE V-BANK COVER
5. REMOVE AIR CLEANER AND INTAKE AIR CONNECTOR ASSEMBLY
6. REMOVE NO.3 TIMING BELT COVERS
(See page [EM-15](#))
7. REMOVE IGNITION COILS (See page [IG-7](#))
8. REMOVE RH CYLINDER HEAD COVER

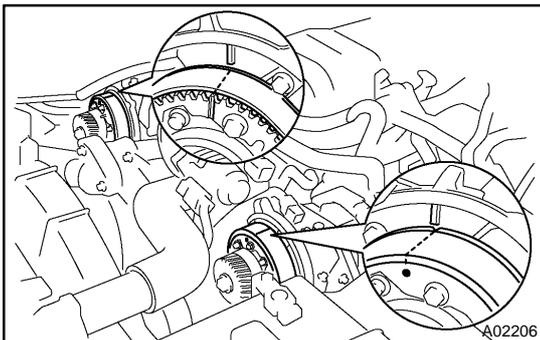
Remove the 9 bolts, 9 seal washers and cylinder head cover.

9. REMOVE LH CYLINDER HEAD COVER
 - (a) Remove the oil dipstick for the transmission.
 - (b) Disconnect the PCV hose.
 - (c) Disconnect the engine wire clamp from the wire bracket on the delivery pipe.
 - (d) Remove the 9 bolts, 9 seal washers and cylinder head cover.

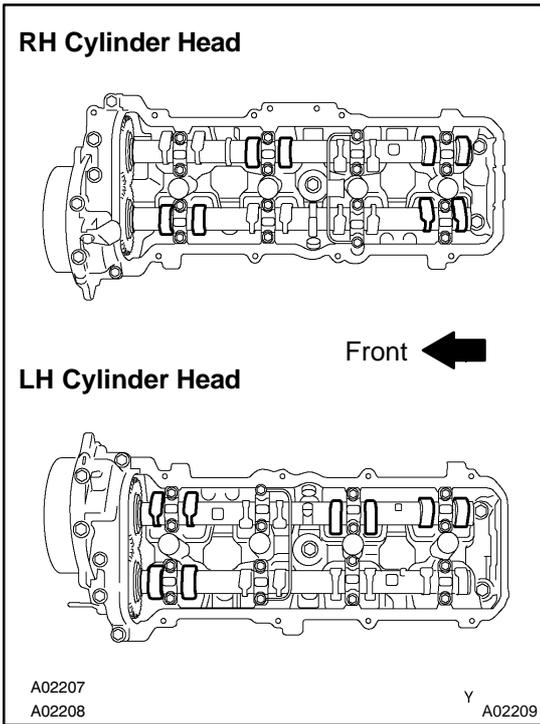


10. SET NO.1 CYLINDER TO TDC/COMPRESSION

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



- (b) Check that the timing marks of the camshaft timing pulleys and timing belt rear plates are aligned.
If not, turn the crankshaft 1 revolution (360°) and align the mark as above.

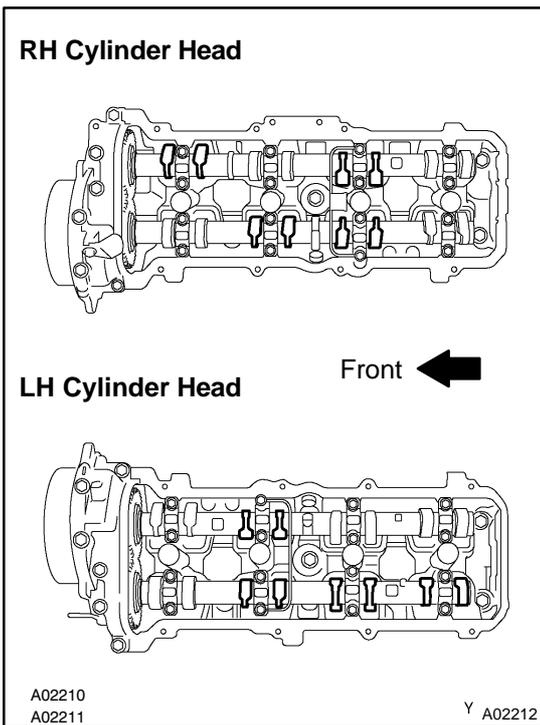


11. INSPECT VALVE CLEARANCE

- (a) Check only the valves indicated.
 - Using a feeler gauge, measure the clearance between the valve lifter and camshaft.
 - Record the out-of-specification valve clearance measurements. They will be used later to determine the required replacement adjusting shim.

Valve clearance (Cold):

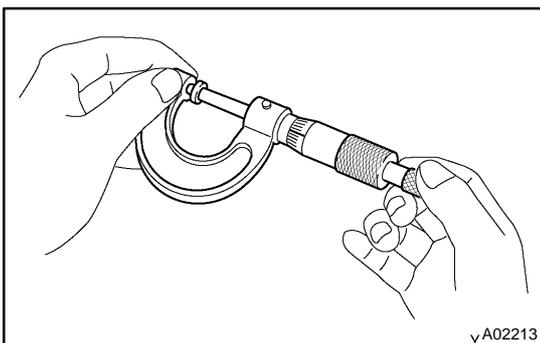
Intake	0.15 – 0.25 mm (0.006 – 0.010 in.)
Exhaust	0.25 – 0.35 mm (0.010 – 0.014 in.)



- (b) Turn the crankshaft 1 revolution (360°) and align the mark as above. (See procedure in step 10)
- (c) Check only the valves indicated as shown. Measure the valve clearance. (See procedure in step (a))

12. ADJUST VALVE CLEARANCE

- (a) Remove the timing belt. (See page EM-15)
- (b) Remove the camshafts. (See page EM-34)
- (c) Remove the valve lifter and adjusting shim.



- (d) Determine the replacement adjusting shim size according to these Formula or Charts:
 - Using a micrometer, measure the thickness of the removed shim.
 - Calculate the thickness of a new shim so that the valve clearance comes within the specified value.

T Thickness of removed shim
 A Measured valve clearance
 N Thickness of new shim

Intake:

$$N = T + (A - 0.20 \text{ mm (0.008 in.)})$$

Exhaust:

$$N = T + (A - 0.30 \text{ mm (0.012 in.)})$$

- Select a new shim with a thickness as close as possible to the calculated value.

HINT:

Shims are available in 41 increments of 0.020 mm (0.0008 in.), from 2.00 mm (0.0787 in.) to 2.80 mm (0.1102 in.).

- Place a new adjusting shim on the valve.
- Place the valve lifter.
- Reinstall the camshafts. (See page [EM-58](#))
- Reinstall the timing belt. (See page [EM-22](#))
- Recheck the valve clearance.

13. REINSTALL CYLINDER HEAD COVERS**14. REINSTALL IGNITION COILS****15. REINSTALL NO.3 TIMING BELT COVERS**

(See page [EM-22](#))

16. REINSTALL AIR CLEANER AND INTAKE AIR CONNECTOR ASSEMBLY**17. REFILL WITH ENGINE COOLANT****18. START ENGINE AND CHECK FOR LEAKS****19. RECHECK ENGINE COOLANT LEVEL****20. REINSTALL V-BANK COVER****21. REINSTALL AIR CLEANER INLET****22. REINSTALL BATTERY CLAMP COVER**

