

## VALVE CLEARANCE

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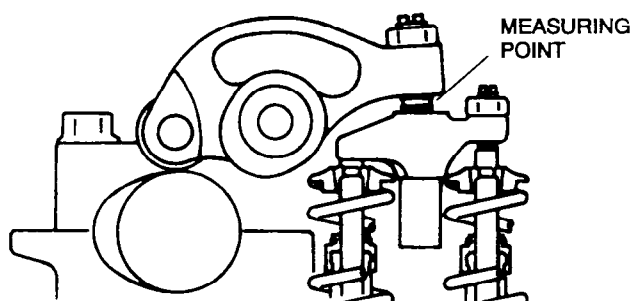
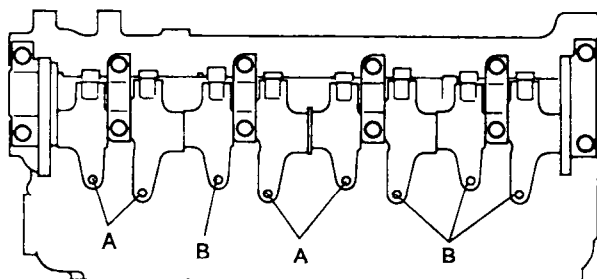
#### VALVE CLEARANCE INSPECTION

1. Remove the cylinder head cover.
2. Turn the crankshaft and align the timing mark so that the piston of the No.1 or No.4 cylinder is at TDC of compression.
3. Measure the valve clearances A with the No.1 cylinder at TDC of compression, and those of B with the No.4 cylinder at TDC of compression.
  - If the valve clearance is not within the specification, adjust the valve clearance. (Refer to VALVE CLEARANCE, VALVE CLEARANCE ADJUSTMENT.)

#### Valve clearance [Engine cold]

IN: 0.12—0.18 mm {0.005—0.007 in}  
(0.15 ± 0.03 mm {0.006 ± 0.001 in})

EX: 0.32—0.38 mm {0.013—0.014 in}  
(0.35 ± 0.03 mm {0.014 ± 0.001 in})



4. Turn the crankshaft one full turn and measure the remaining valve clearances. Adjust if necessary.
5. Install the cylinder head cover. (Refer to CYLINDER HEAD GASKET, CYLINDER HEAD GASKET REPLACEMENT, Cylinder Head Cover Installation Note.)

#### VALVE CLEARANCE ADJUSTMENT

1. Remove the cylinder head cover.
2. Turn the crankshaft clockwise and set the No.1 cylinder to compression TDC.

#### Caution

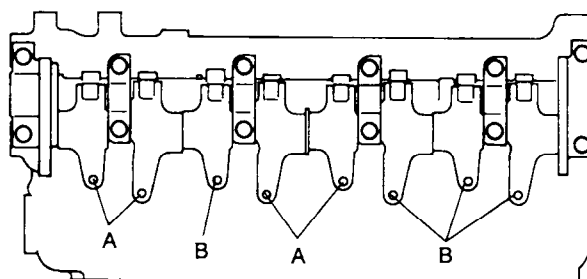
- If the crankshaft is turned without removing the glow plug, compression pressure acts on the injection nozzle and causes the injection nozzle to move. When the injection nozzle is moved, carbon stuck to the nozzle washer installation surface of the cylinder head may affect the seal. To avoid this, remove the glow plug to release the compression pressure. If the injection nozzle is moved, remove the carbon with a clean cloth and replace the washer.

3. Remove the glow plugs. (Refer to section F5, INTAKE-AIR SYSTEM, GLOW PLUG REMOVAL/INSTALLATION)

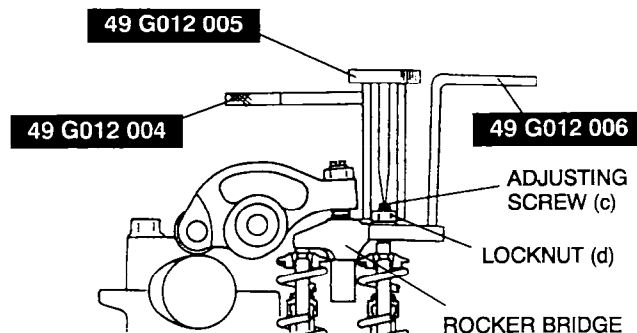
#### Caution

- When the injection nozzle is moved, carbon stuck to the nozzle washer installation surface of the cylinder head may affect the seal. After removing the injection nozzle bracket, do not move the injection nozzle. If the injection nozzle is moved, remove the carbon with a clean cloth and replace the washer.

4. Remove the injection nozzle bracket. (Refer to CYLINDER HEAD GASKET, CYLINDER HEAD GASKET REMOVAL/INSTALLATION.)
5. Adjust the valve clearance A with the No.1 cylinder at TDC of compression, and those of B with the No.4 cylinder at TDC of compression.

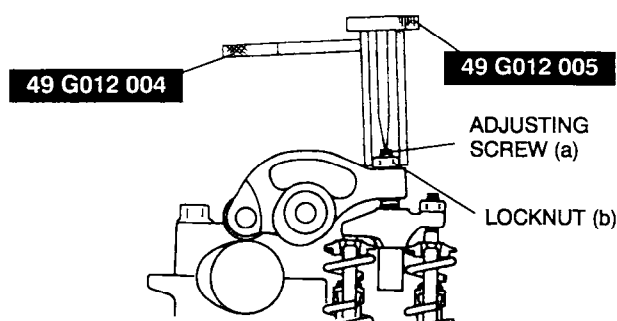


- (1) Hold the rocker bridge using the SST (49 G012 006).
- (2) Loosen the locknut (d) using the SST (49 G012 004), and then turn the adjusting screw (c) using the SST (49 G012 005) until it is separated from the valve stem completely.



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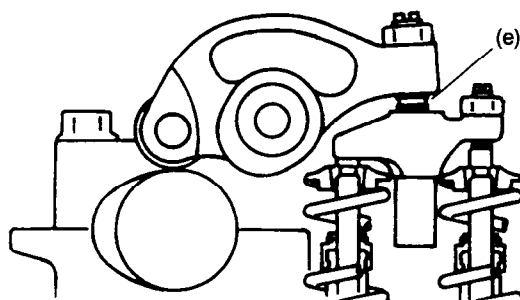
- (3) Loosen the rocker arm locknut (b) using the **SST** (49 G012 004), and then turn the adjusting screw (a) using the **SST** (49 G012 005) until it is separated from the rocker bridge completely.



- (4) Insert a feeler gauge between the rocker arm and rocker bridge (e).

### Valve clearance [Engine cold]

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 (0.15 ± 0.03 mm {0.006 ± 0.001 in})  
 EX: 0.32—0.38 mm {0.013—0.014 in}  
 (0.35 ± 0.03 mm {0.014 ± 0.001 in})



- (5) Adjust the valve clearance by turning the adjuster (a) using the **SST** (49 G012 005). Then temporarily tighten locknut (b) using the **SST** (49 G012 004).
- (6) With the feeler gauge inserted between the rocker arm and rocker bridge, verify that the feeler gauge remains firmly in place even when the adjusting screw (c) is loosened.
- If the feeler gauge does not remain firmly in place, repeat procedures from Step 1.
- (7) Turn the adjusting screw (c) using the **SST** (49 G012 005) until it reaches the valve stem and the feeler gauge fits more firmly. Then tighten the locknut (d) using the **SST** (49 G012 004) to specified torque.

### Tightening torque

16—20 N·m {1.6—2.1 kgf·m, 12—15 ft·lbf}

- (8) Loosen the locknut (b) using the **SST** (49 G012 004) and readjust the valve clearance (e).

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 (0.35 ± 0.03 mm {0.014 ± 0.001 in})

- (9) Tighten the locknut (b) using the **SST** (49 G012 004) to specified torque.

### Tightening torque

16—20 N·m {1.6—2.1 kgf·m, 12—15 ft·lbf}

- (10) Verify the valve clearance at (e).

### Valve clearance [Engine cold]

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 EX: 0.32—0.38 mm {0.013—0.014 in}  
 (0.35 ± 0.03 mm {0.014 ± 0.001 in})

6. Turn the crankshaft one full turn and adjust the remaining valve clearances.
7. Install the injection nozzle bracket. (Refer to CYLINDER HEAD GASKET, CYLINDER HEAD GASKET REMOVAL/INSTALLATION.)
8. Install the fuel leak pipe. (Refer to CYLINDER HEAD GASKET, CYLINDER HEAD GASKET REMOVAL/INSTALLATION.)
9. Install the glow plug. (Refer to section F5, INTAKE-AIR SYSTEM, GLOW PLUG REMOVAL/INSTALLATION.)
10. Install the cylinder head cover. (Refer to CYLINDER HEAD GASKET, CYLINDER HEAD GASKET REPLACEMENT, Cylinder Head Cover Installation Note.)

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