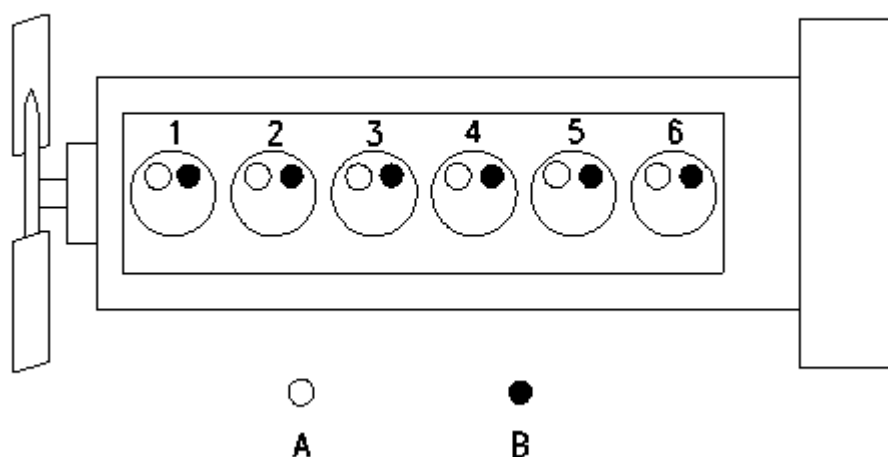


## Testing and Adjusting 3056 Engine for Caterpillar Built Machines

### Engine Valve Lash - Inspect/Adjust

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Illustration 1

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Cylinder and valve location

(A) Inlet valve

(B) Exhaust valve

If the valve lash requires adjustment several times in a short period of time, excessive wear exists in a different part of the engine. Find the problem and make necessary repairs in order to prevent more damage to the engine.

Not enough valve lash can be the cause of rapid wear of the camshaft and valve lifters. Not enough valve lash can indicate that the seats for the valves are worn.

Valves become worn due to the following causes:

- Fuel injection nozzles that operate incorrectly
- Excessive dirt and oil are present on the filters for the inlet air.
- Incorrect fuel settings on the fuel injection pump.
- The load capacity of the engine is frequently exceeded.

Too much valve lash can cause broken valve stems, springs, and spring retainers. Too much valve lash can be an indication of the following problems:

- Worn camshaft and valve lifters
- Worn rocker arms
- Bent pushrods
- Broken socket on the upper end of a pushrod
- Loose adjustment screw for the valve lash

If the camshaft and valve lifters show rapid wear, look for fuel in the lubrication oil or dirty lubrication oil as a possible cause.

## Valve Lash Check

An adjustment is NOT NECESSARY if the measurement of the valve lash is in the acceptable range. Check the valve lash while the engine is stopped. The temperature of the engine does not change the valve lash setting.

If the measurement is not within the acceptable clearance, adjustment is necessary. Refer to "Valve Lash Adjustment".

## Valve Lash Adjustment

Table 1

	<b>Inlet Valves</b>	<b>Exhaust Valves</b>
Valve Lash	0.20 mm (0.008 inch)	0.45 mm (0.018 inch)
TC Compression Stroke	1-2-4	1-3-5
TC Exhaust Stroke <sup>(1)</sup>	3-5-6	2-4-6
Firing Order	1-5-3-6-2-4 <sup>(2)</sup>	

<sup>(1)</sup> 360° from TC compression stroke

<sup>(2)</sup> The No. 1 Cylinder is at the front of the engine.

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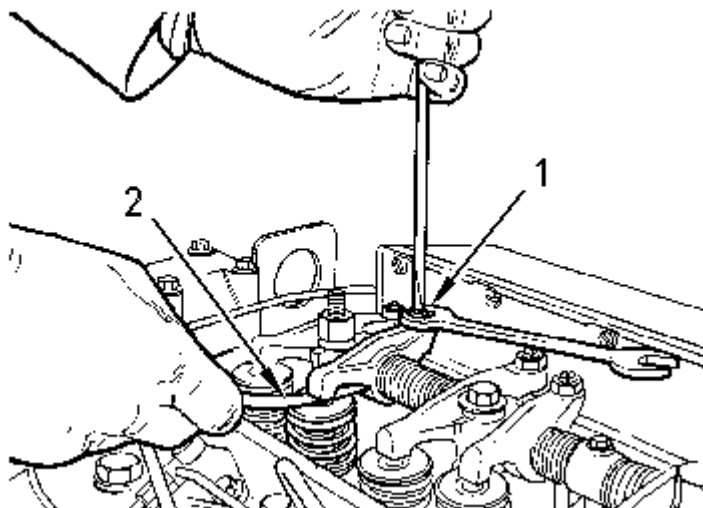


Illustration 2

g00323903

Setting the valve lash

- (1) Adjustment screw
- (2) Feeler gauge

**WARNING**

**Accidental engine starting can cause injury or death to personnel.**

**To prevent accidental engine starting, turn the ignition switch to the OFF position and place a do not operate tag at the ignition switch location.**

1. Remove the valve mechanism cover. Refer to Disassembly and Assembly, "Valve Mechanism Cover - Remove" For the removal procedure.
2. Rotate the crankshaft in the direction of engine rotation until the inlet valve of the No. 6 cylinder has opened and the exhaust valve of the No. 6 cylinder has not completely closed. The engine is now at TC compression stroke.

Table 2

TC Compression Stroke	Inlet Valves	Exhaust Valves
Valve Lash	0.20 mm (0.008 inch)	0.45 mm (0.018 inch)
Cylinders	1-2-4	1-3-5

3. Measure the valve lash for the valve when the engine is at TC compression stroke according to Table 2. If necessary, make an adjustment to the valves according to Table 2.
  - a. Loosen the valve adjustment screw locknut that is on the adjustment screw (1) .
  - b. Place an appropriate feeler gauge (2) between the rocker arm and the valve. Turn the adjustment screw (1) while the valve adjustment screw locknut is being held from turning. Adjust the valve lash until the correct specification is achieved.
  - c. After each adjustment, tighten the valve adjustment screw locknut while you hold the valve adjustment screw (1) from turning.
4. Rotate the crankshaft in the direction of engine rotation to TC exhaust stroke (360° from TC compression stroke).

Table 3

<b>TC Exhaust Stroke <sup>(1)</sup></b>	<b>Inlet Valves</b>	<b>Exhaust Valves</b>
Valve Lash	0.20 mm (0.008 inch)	0.45 mm (0.018 inch)
Cylinders	3-5-6	2-4-6

<sup>(1)</sup> 360° from TC compression stroke

5. Measure the valve lash for the valves when the engine is at TC exhaust stroke according to Table 3. If necessary, make an adjustment to the valves according to Table 3.
    - a. Loosen the valve adjustment screw locknut that is on the adjustment screw (1) .
    - b. Place an appropriate feeler gauge (2) between the rocker arm and the valve. Turn the adjustment screw (1) while the valve adjustment screw locknut is being held from turning. Adjust the valve lash until the correct specification is achieved.
    - c. After each adjustment, tighten the valve adjustment screw locknut while you hold the valve adjustment screw (1) from turning.
  6. Install the valve mechanism cover. Refer to Disassembly and Assembly, "Valve Mechanism Cover - Install" for the installation procedure.
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