

Engine Valve Lash - Inspect/Adjust

Table 1

Required Tools			
Tool	Part Number	Part Description	Qty
A	385-4005	Angled Feeler gauge	1

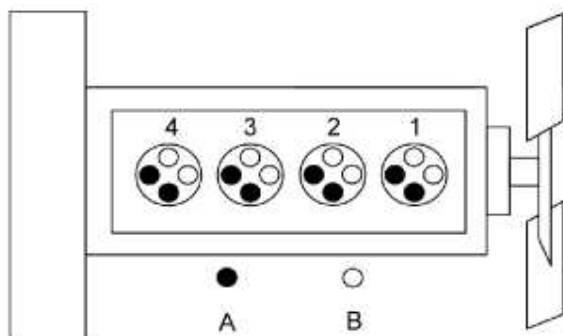


Illustration 1

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Cylinder and valve location

(A) Exhaust valve

(B) Inlet 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.
- The load capacity of the engine is frequently exceeded.

Too much valve lash can cause broken valve stems, springs, and spring retainers. This will produce emissions in excess of the correct specification.

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

NOTICE

It is very important to follow this valve lash adjustment procedure. Do not use the traditional opposing cylinders method. Failure to follow the correct procedure may result in serious engine damage.

Note: The procedure to adjust the engine valve lash for the C4.4 engine is different from conventional engines, due to the altered valve opening and closing events.

Table 2

	Exhaust Valves	Inlet Valves
Valve Lash	0.35 ± 0.05 mm (0.0138 ± 0.0020 inch)	0.35 ± 0.05 mm (0.0138 ± 0.0020 inch)
Firing Order	1-3-4-2 ⁽²⁾	

⁽²⁾ The No. 1 Cylinder is at the front of the engine.

Note: For new engines, the valve lash should be checked and reset after the first 500 hours and after the next 500 hours. The valve lash will then be checked at service intervals of 1000 hours.

Note: For example, if the pushrods in a remanufactured engine have been replaced with new parts then Adjust the valve lash to 0.25 ± 0.05 mm (0.0098 ± 0.0020 inch) for the initial rebuild. The tappets should be reset to 0.35 ± 0.05 mm (0.0138 ± 0.0020 inch) at the normal service intervals thereafter.

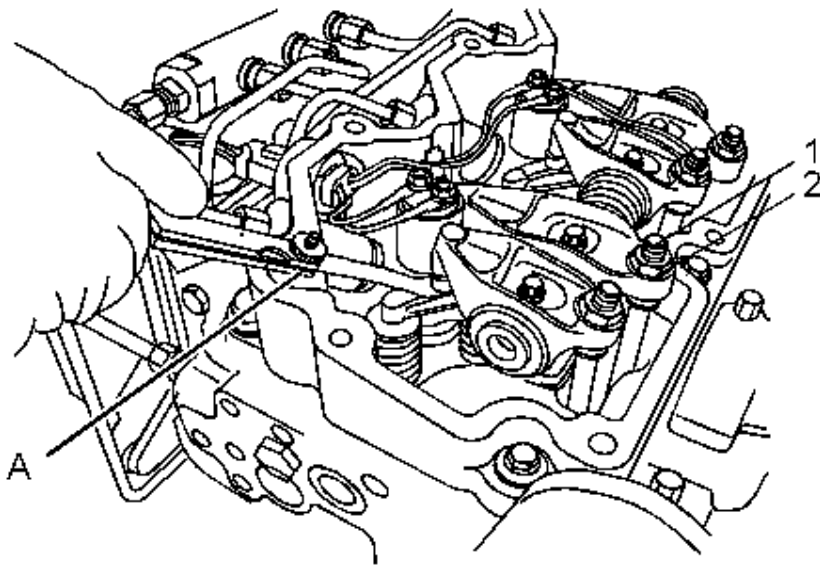


Illustration 2

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Setting the valve lash

(A) Angled feeler gauge

(1) Adjustment screw

(2) Locking screw



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.

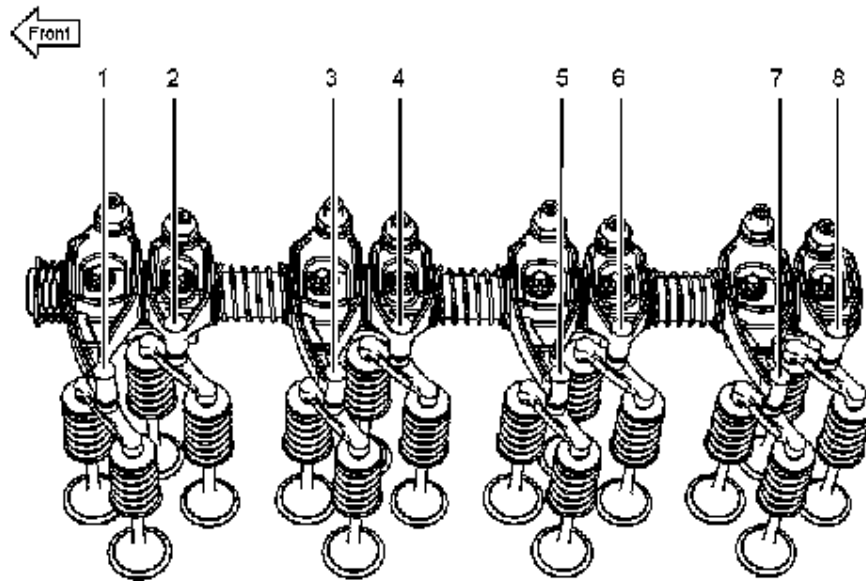


Illustration 3

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1. Remove the valve mechanism cover. Refer to Disassembly and Assembly, "Valve Mechanism Cover - Remove and Install" for the removal procedure.

Note: When the valve mechanism cover is removed or installed, the electrical harness must be checked. Do not trap the injector harness when the valve mechanism cover is installed. Do not allow the harness to be in contact with the valve mechanism cover. Renew the harness, if the harness is damaged.

Table 3

Set valve lash for the following :		
Piston in top center position and inlet and exhaust valves in valve overlap	Inlet valves	Exhaust valves
	(Cylinder number)	(Cylinder number)
4		

	1 (1)	2 (1)
2	5 (3)	6 (3)
1	7 (4)	8 (4)
3	3 (2)	4 (2)

2. See illustration 3. Rotate the crankshaft clockwise until the piston of No. 1 cylinder is at the top center position on the compression stroke. The exhaust valves and the inlet valves of No. 4 cylinder are in valve overlap. Measure the valve lash on the pair of exhaust valves (1) and the pair of inlet valves (2) of No. 1 cylinder. If necessary, adjust the valve lash to the settings in Table 2.
 - a. See illustration 2. Loosen the valve adjustment locknut that is on the adjustment screw (1) .
 - b. Place Tooling (A) between the rocker arm and the valve. Turn the adjustment screw (1) while the valve adjustment screw locknut (2) is prevented from turning. Adjust the valve lash until the correct specification is achieved.
 - c. After each adjustment, tighten the valve adjustment screw locknut to 21.5 to 32.5 N·m (15.9 to 24 lb ft) while the valve adjustment screw (1) is held in position.
3. Rotate the crankshaft by 180 degrees in the direction of engine rotation, until the piston of No. 3 cylinder is at the top center position on the compression stroke. The exhaust valves and the inlet valves of No. 2 cylinder are in valve overlap. Adjust the valve lash for both the inlet valves (5) and the exhaust valves (6) of No. 3 cylinder. Complete the sequence of checks according to table 3 until all the cylinders have been checked or adjusted. Reinstall the valve mechanism cover. Refer to Disassembly and Assembly, "Valve Mechanism Cover - Remove and Install" for the installation procedure.