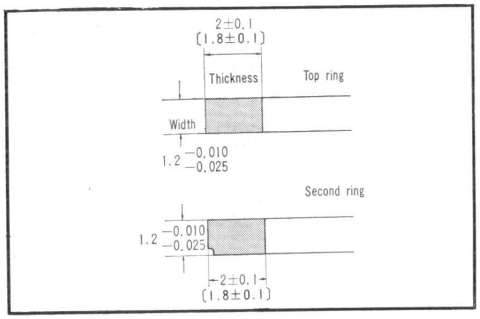

Figure 3-51. Piston compression rings (top and second)

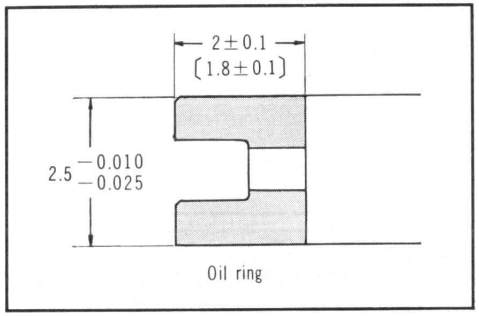

Figure 3-52. Piston oil ring [ ] for C50, C50M, S50

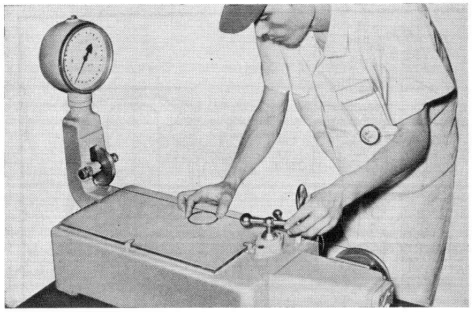

Figure 3-53. Measuring piston ring tension

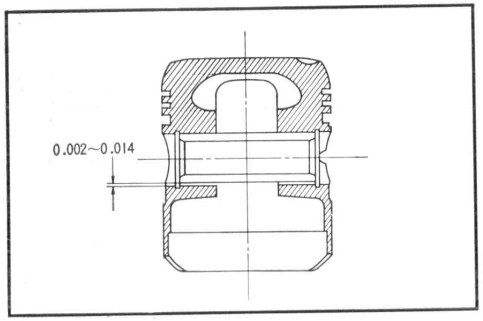

Figure 3-54. Piston pin clearance

(3) Piston to cylinder minimum clearance
Standard value→0.010 (0.0004 in)
Serviceable limit→Replace if over 0.12 (0.0047 in)

(4) Piston pin bore
Standard value→13mm $^{+0.008}_{+0.002}$ (0.5120 $^{+0.0003}_{+0.0001}$ in)
Serviceable limit→Replace if over 0.12 (0.0047 in)

(5) Oversize piston
Standard→0.25 (0.0099 in)

(6) Piston ring, compression, [ ] are for C50, C50M, S50 **(Fig. 3-50, 3-51)**

	Standard Value	Serviceable Limit
Width	1.2 (0.473 in.) −0.010 (0.0004 in.) −0.025 (0.0010 in.)	Replace if under 1.12 (0.044 in.)
Thickness	2 (0.079 in.) ±0.01 (0.04 in.)	Replace if under 1.8 (0.07 in.)
Ring closing force	0.3-0.6 kg (0.66~1.30 lbs) [0.16-0.44] (3.5~9.7 lbs) 0.35~0.65 kg (.77~1.43 lb) [0.34-0.62] (.75~1.36 lbs)	Replace if under 0.25 kg (55 lbs) [0.10] (22 lbs) Replace if under 0.2 kg (44 lb)
Ring end gap	0.15-0.35 (.0059~0138 in.) [0.1-0.3] (0.004~0.0118 in.)	Replace if over 0.5 (0.0197 in.)

(7) Side clearance, compression
Standard value→0.015-0.045 (0.0006~0.00177 in)
Serviceable limit→Replace if over 0.12 (0.0047 in)

(8) Oil ring [ ] are for C50, C50M, S50**(Fig. 3-52, 3-53)**

	Standard Value	Serviceable Limit
Width	2.5 (0.099 in.) −0.010 (0.0004 in.) −0.025 (0.0010 in.)	Replace if under 24.2 (0.953 in.)
Thickness	2±0.1 (0.099±0.004 in.) [1.8±0.1] (0.071±0.0004 in.)	Replace if under 1.8 (0.071 in.) [1.6] (0.063 in.)
Ring closing force	0.5-0.8 kg (1.1~1.8 lb) [0.45~0.75 kg] (1.0~1.65 lb)	Replace if under 0.35 kg (0.77 lb) [0.30 kg] (0.66 lb)
Ring end gap	0.1~0.35 (0.004~0.014 in.) [0.30] (0.12 in.)	Replace if over 0.50 (0.020 in.)

(9) Side cleance, oil ring
Standard value→0.010~0.045 (0.0004~0.0017 in)
Serviceable limit→Replace if over 0.12 (0.005 in)

(10) Oversize piston ring
Standard oversize→0.25 (0.01 in)

(11) Piston [ ] are for S50 **(Fig. 3-54)**

	Standard Value	Serviceable Limit
Outside dia	13 mm (0.512 in.) +0 (+0 in.) +0.006 (0.0002 in.)	Replace if under 12.98 (0.511 in.)
Height	35.4 (1.395 in.) +0.2 (0.008 in.) −0 (−0 in.) [30.7] (1.21 in.) +0.2 (0.008 in.) −0 (−0 in.)	

(12) Piston pin to piston clearance
Standard value→0.002~0.014 (0.00008~0.00055 in)
Serviceable limit→Replace if over 0.05 (0.0020 in)

Reassembly

(1) Assemble the piston.

(Caution)

Assemble the piston so that the arrow on the piston head is pointing toward the front. **(Fig. 3.55)**

(2) Install the piston pin locking clips.

(Caution)

a. Install the clip so that the opening is not aligned with the clip groove cut out.

b. Replace any clip that have lost its tension.

Figure 3-55. Arrow marking on piston head

8. VALVE OPERATING MECHANISM

Both the inlet and exhaust valves are incorporated in the combustion chamber. The exhaust valve is designed smaller than the inlet valve to afford greater volumetric efficiency. The exhaust valve is constantly exposed to extremely high temperature, therefore, it is made of special high heat resisting material to withstand the high temperature as well as the wear.

The cam chain revolves at a very high speed within the cam chain chamber which is located on the left side of the cylinder, making it necessary to use a heat resistant as well as a wear resistant rubber on the cam chain guide sprocket and the cam chain tensioner roller to prevent chain noise. Further, in contrast to the conventional push rod type of a mechanism, this system has less reciprocating movement parts to cause hitting noises and therefore the operation is much smoother and quieter, making is very suitable for high speed, with the consequent increase in power output. **(Fig. 3-56, 3-57)**

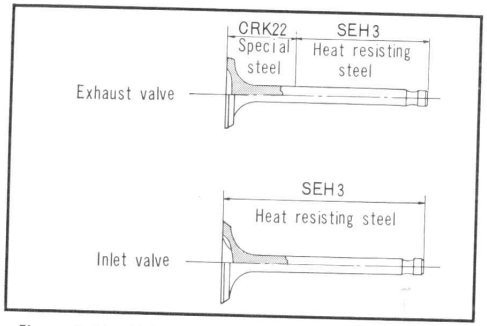

Figure 3-56. Valves

a. Disassembly

(1) Remove the cylinder head in accordance with section 3.21a.

(2) The rocker arm is disassembled from the cylinder head by pulling out the rocker arm shaft. **(Fig. 3-58)**

(3) Compress the valve spring with the valve lifter and after removing the valve cotter, the valve spring and the retainer can be removed. **(Fig. 3-59)**

b. Inspection

(1) Rocker arm

	Standard Value	Serviceable Limit
Slipper surface wear		Replace if over 0.3 (0.012 in.)
Shaft bore dia	10 mm (0.394 in.) +0.015 (0.0006 in.) −0 (−0 in.)	Replace if over 10.1 (0.398 in.)

(2) Rocker arm shaft

	Standard Value	Serviceable Limit
Outside dia	10 mm (0.394 in.) −0.013 (0.0005 in.) −0.022 (0.0009 in.)	Replace if under 9.91 (0.390 in.)
Clearance	0.013-0.037 (0.0005~0.0015 in.)	Replace if over 0.1 (0.004 in.)

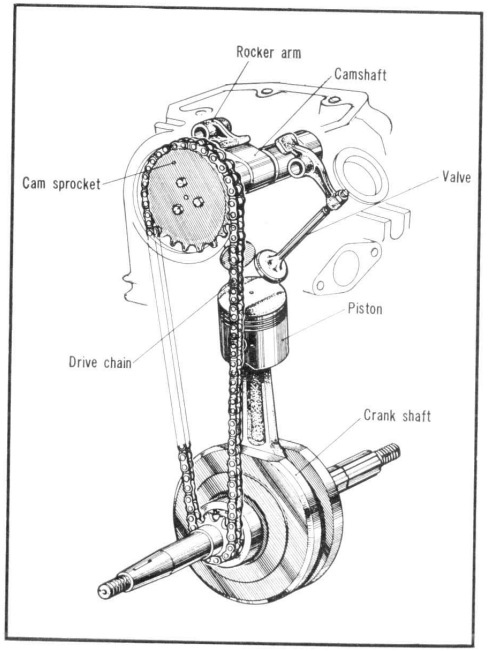

Figure 3-57. Valve operating mechanism