

SERVICE INFORMATION

GENERAL

- This section covers maintenance of the cylinder and piston.
- The cylinder and piston can be serviced with the engine installed in the frame.
- Be careful not to damage mating surfaces when removing the cylinder.
- Take care not to damage the cylinder wall and piston.
- Clean all disassembled parts with clean solvent and dry them using compressed air before inspection.
- When removing the piston, clean carbon and sludge from the top of the cylinder.
- The rocker arm and camshaft lubricating oil is fed through the oil passage (stud bolt hole) in the cylinder. Clean the oil passage before installing the cylinder.

SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT	
Cylinder	I.D.	50.000 – 50.010 (1.9685 – 1.9689)	50.10 (1.972)	
	Out-of-round	–	0.05 (0.002)	
	Taper	–	0.05 (0.002)	
	Warpage	–	0.05 (0.002)	
Piston, piston ring, piston pin	Piston O.D.	49.970 – 49.990 (1.9673 – 1.9681)	49.95 (1.967)	
	Piston O.D. measurement point	10 (0.4) from bottom of skirt	–	
	Piston pin bore I.D.	13.002 – 13.008 (0.5119 – 0.5121)	13.04 (0.513)	
	Piston pin O.D.	12.994 – 13.000 (0.5116 – 0.5118)	12.96 (0.510)	
	Piston-to-piston pin clearance	0.002 – 0.014 (0.0001 – 0.0006)	0.02 (0.001)	
	Piston ring-to-ring groove clearance	Top	0.015 – 0.045 (0.0006 – 0.0018)	0.08 (0.003)
		Second	0.015 – 0.045 (0.0006 – 0.0018)	0.08 (0.003)
	Piston ring end gap	Top	0.10 – 0.25 (0.004 – 0.010)	0.45 (0.018)
		Second	0.10 – 0.25 (0.004 – 0.010)	0.45 (0.018)
		Oil (side rail)	0.20 – 0.70 (0.008 – 0.028)	–
Cylinder-to-piston clearance		0.010 – 0.040 (0.0004 – 0.0016)	0.09 (0.004)	
Connecting rod small end I.D.		13.010 – 13.028 (0.5122 – 0.5129)	13.05 (0.514)	
Connecting rod-to-piston pin clearance		0.010 – 0.034 (0.0004 – 0.0013)	0.05 (0.002)	
Stud bolt projection above crankcase		177.5 – 178.5 (6.99 – 7.03)	–	

TROUBLESHOOTING

Compression too low, hard starting or poor performance at low speed

- Worn, stuck or broken piston ring
- Worn or damaged cylinder and piston
- Bent connecting rod
- Cylinder head/valve problem (page 9-7)

Compression too high, overheating or knocking

- Excessive carbon build-up on piston head or on combustion chamber

Excessive smoke

- Worn cylinder, piston or piston ring
- Improper installation of piston rings
- Scored or scratched piston or cylinder wall
- Cylinder head/valve problem (page 9-7)

Abnormal noise

- Worn piston pin or piston pin hole
- Worn connecting rod small end
- Worn cylinder, piston or piston rings

Piston ring sticking/scuffing, bearing damage

- Clogged oil gallery or oil strainer screen
- Internal oil leak
- Not using recommended engine oil