

## SERVICE INFORMATION

### GENERAL

- The crankcase must be separated to service the crankshaft, cylinder and piston/connecting rod. Refer to procedures for crankcase separation (page 12-5) and assembly (page 12-16).
- Mark and store the connecting rods, bearing caps and bearing inserts to be sure of their correct locations for reassembly.
- The crankpin and main journal bearing inserts are select fit and are identified by color codes. Select replacement bearings from the code tables. After selecting new bearings, recheck the oil clearance with a plastigauge. Incorrect oil clearance can cause major engine damage.
- Clean the oil jets in the upper crankcase with compressed air before installing the pistons.

### SPECIFICATIONS

Unit: mm (in)

ITEM		STANDARD	SERVICE LIMIT	
Crankshaft	Connecting rod side clearance	0.15 – 0.30 (0.006 – 0.012)	0.35 (0.014)	
	Crankpin bearing oil clearance	0.028 – 0.052 (0.0011 – 0.0020)	0.06 (0.002)	
	Main journal bearing oil clearance	0.020 – 0.038 (0.0008 – 0.0015)	0.05 (0.002)	
	Runout	–	0.05 (0.002)	
Piston, piston rings	Piston O.D. at 10 (0.4) from bottom	66.965 – 66.985 (2.6364 – 2.6372)	66.90 (2.634)	
	Piston pin bore I.D.	16.002 – 16.008 (0.6300 – 0.6302)	16.02 (0.631)	
	Piston pin O.D.	15.994 – 16.000 (0.6297 – 0.6299)	15.98 (0.629)	
	Piston-to-piston pin clearance	0.002 – 0.014 (0.0001 – 0.0006)	0.04 (0.002)	
	Piston ring end gap	Top	0.10 – 0.20 (0.004 – 0.008)	0.4 (0.02)
		Second	0.21 – 0.31 (0.008 – 0.012)	0.5 (0.02)
		Oil (side rail)	0.2 – 0.7 (0.01 – 0.03)	1.0 (0.04)
	Piston ring-to-ring groove clearance	Top	0.030 – 0.060 (0.0012 – 0.0024)	0.10 (0.004)
Second		0.015 – 0.050 (0.0006 – 0.0020)	0.08 (0.003)	
Cylinder	I.D.	67.000 – 67.015 (2.6378 – 2.6384)	67.10 (2.642)	
	Out of round	–	0.10 (0.004)	
	Taper	–	0.10 (0.004)	
	Warpage	–	0.10 (0.004)	
Cylinder-to-piston clearance		0.015 – 0.050 (0.0006 – 0.0022)	0.10 (0.004)	
Connecting rod small end I.D.		16.010 – 16.034 (0.6303 – 0.6313)	16.050 (0.6319)	
Connecting rod-to-piston pin clearance		0.010 – 0.040 (0.0004 – 0.0016)	0.070 (0.0028)	

### TORQUE VALUES

Connecting rod bearing cap bolt      14 N·m (1.4 kgf·m, 10 lbf·ft) + 90°      Apply oil to the threads and seating surface