7. CYLINDER/PISTON

SERVICE INFORMATION

GENERAL

- This section covers cylinder and piston services. The engine must be removed from the frame to service the cylinder and piston (section 5).

SPECIFICATIONS

ITEM			STANDARD	SERVICE LIMIT
Cylinder	I.D.		81.000—81.010 mm (3.1890—3.1894 in)	81.10 mm (3.193 in)
	Taper		—	0.10 mm (0.004 in)
	Out of round		—	0.10 mm (0.004 in)
	Warpage across top		—	0.10 mm (0.004 in)
Piston, Piston pin, Piston rings	Piston O.D.		80.965—80.985 mm (3.1876—3.1884 in)	80.90 mm (3.185 in)
	Piston pin bore		21.002—21.008 mm (0.8268—0.8271 in)	21.04 mm (0.828 in)
	Piston pin O.D.		20.000—20.994 mm (0.7874—0.8265 in)	20.96 mm (0.825 in)
	Piston-to-pin clearance		0.002—0.014 mm (0.0001—0.0006 in)	0.02 mm (0.001 in)
	Piston ring-to-ring groove clearance	TOP	0.015—0.045 mm (0.0006—0.0018 in)	0.09 mm (0.004 in)
		SECOND	0.015—0.045 mm (0.0006—0.0018 in)	0.09 mm (0.004 in)
	Piston ring end gap	TOP/SECOND	0.20—0.35 mm (0.008—0.014 in)	0.55 mm (0.022 in)
		OIL (SIDE RAIL)	0.20—0.70 mm (0.008—0.028 in)	—
Cylinder-to-piston clearance			0.015—0.045 mm (0.0006—0.0018 in)	0.10 mm (0.004 in)
Connecting rod small end I.D.			21.020—21.041 mm (0.8276—0.8284 in)	21.10 mm (0.831 in)

TORQUE VALUES

Cylinder base SH bolt	8—12 N·m (0.8—1.2 kg-m, 6—9 ft-lb)

TROUBLESHOOTING

Low or unstable compression
- Worn cylinder or piston rings.
- Cylinder head and valves need service (Section 6).

Excessive smoke
- Worn cylinder, piston, or piston rings.
- Improper installation of piston rings.
- Scored or scratched piston or cylinder wall.

Overheating
- Excessive carbon build-up on piston or combustion chamber wall.

Knocking or abnormal noise
- Worn piston and cylinder.
- Excessive carbon build-up.