

# 6. CYLINDER HEAD/ VALVES

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## SERVICE INFORMATION

### GENERAL

- This Section covers cylinder head, valves, camshaft and rocker arm maintenance.
- The engine must be removed from the frame to service the cylinder head and valves. To remove the cylinder head cover or the rocker arms, engine removal is not required.
- Camshaft lubrication oil is fed to the cylinder head through an oil control orifice in the engine case. Be sure this orifice is not clogged and that the O-rings and dowel pins are in place before installing the cylinder head.
- Before assembly, apply molybdenum disulfide grease to the camshaft bearings to provide initial lubrication.
- Pour clean engine oil into the oil pockets in the cylinder head during assembly to lubricate the camshaft lobes.

### SPECIFICATIONS

ITEM		STANDARD		SERVICE LIMIT
Cylinder compression		11.0 ± 1.0 kg/cm <sup>2</sup> (159 ± 14 psi)		—————
Camshaft	Cam lift	IN	31.379 mm (1.2354 in)	31.199 mm (1.2283 in)
		EX	30.978 mm (1.2196 in)	30.798 mm (1.2125 in)
	Journal OD	R	19.967–19.980 mm (0.7861–0.7866 in)	19.90 mm (0.783 in)
		L	33.957–33.970 mm (1.3370–1.3376 in)	33.90 mm (1.335 in)
Cylinder head	Bearing ID	L	33.980–34.075 mm (1.3378–1.3415 in)	34.05 mm (1.341 in)
	Warpage	—————		0.10 mm (0.004 in)
Camshaft bushing	ID	20.005–20.026 mm (0.7876–0.7884 in)		20.05 mm (0.789 in)
Rocker arm	ID	12.000–12.018 mm (0.4724–0.4730 in)		12.05 mm (0.474 in)
Rocker arm shaft	OD	11.977–11.995 mm (0.4715–0.4722 in)		11.93 mm (0.470 in)
Rocker arm-to-shaft clearance		0.005–0.041 mm (0.0002–0.0016 in)		0.08 mm (0.003 in)
Valve spring	Free length	Inner	39.4 mm (1.55 in)	35.5 mm (1.40 in)
		Outer	45.5 mm (1.79 in)	41.0 mm (1.61 in)
	Preload	Inner	83.0 ± 0.6 kg/33.7 mm (18.3 ± 1.3 lb/1.33 in)	—————
		Outer	21.0 ± 1.5 kg/38.4 mm (46.3 ± 3.3 lb/1.51 in)	—————
Valve, valve guide	Stem OD	IN	5.450–5.465 mm (0.2146–0.2152 in)	5.42 mm (0.213 in)
		EX	5.430–5.445 mm (0.2138–0.2144 in)	5.40 mm (0.213 in)
	Guide ID	IN	5.475–5.485 mm (0.2156–0.2159 in)	5.50 mm (0.217 in)
		EX	5.475–5.485 mm (0.2156–0.2159 in)	5.50 mm (0.217 in)
	Stem-to-guide clearance	IN	0.010–0.035 mm (0.0004–0.0014 in)	0.12 mm (0.005 in)
		EX	0.030–0.055 mm (0.0012–0.002 in)	0.14 mm (0.006 in)
Valve face width		1.7 mm (0.07 in)		2.0 mm (0.08 in)
Valve seat width		1.2 mm (0.05 in)		1.5 mm (0.06 in)