

1. Engine

A: SPECIFICATIONS

Engine	Model		2200 cc	
	Type		Horizontally opposed, liquid cooled, 4-cylinder, 4-stroke gasoline engine	
	Valve arrangement		Belt driven, single over-head camshaft, 4-valve/cylinder	
	Bore × Stroke	mm (in)	96.9 × 75.0 (3.815 × 2.953)	
	Displacement	cm ³ (cu in)	2,212 (135.0)	
	Compression ratio		9.7	
	Compression pressure (at 200 — 300 rpm)	kPa (kg/cm ² , psi)	1,079 — 1,275 (11.0 — 13.0, 156 — 185)	
	Number of piston rings		Pressure ring: 2, Oil ring: 1	
	Intake valve timing	Opening	4° BTDC	
		Closing	52° ABDC	
	Exhaust valve timing	Opening	48° BBDC	
		Closing	12° ATDC	
	Valve clearance	Intake	mm (in)	0.20±0.02 (0.0079±0.0008)
		Exhaust	mm (in)	0.25±0.02 (0.0098±0.0008)
Idling speed [At neutral position on MT, or "P" or "N" position on AT]		rpm	700±100 (No load) 850±50 (A/C switch ON)	
Firing order			1 → 3 → 2 → 4	
Ignition timing		BTDC/rpm	14°±8°/700 (MT), 20°±8°/700 (AT)	

B: SERVICE DATA

NOTE:

STD: Standard, I.D.: Inner Diameter, O.D.: Outer Diameter, OS: Oversize, US: Undersize

Belt tensioner adjuster	Protrusion of adjuster rod		5.2 — 6.2 mm	(0.205 — 0.244 in)	
Belt tensioner	Spacer O.D.		17.955 — 17.975 mm	(0.7069 — 0.7077 in)	
	Tensioner bush I.D.		18.00 — 18.08 mm	(0.7087 — 0.7118 in)	
	Clearance between spacer and bush	STD	0.025 — 0.125 mm	(0.0010 — 0.0049 in)	
		Limit	0.175 mm	(0.0069 in)	
Side clearance of spacer	STD	0.2 — 0.55 mm	(0.0079 — 0.0217 in)		
	Limit	0.81 mm	(0.0319 in)		
Valve rocker arm	Clearance between shaft and arm	STD	0.020 — 0.054 mm	(0.0008 — 0.0021 in)	
		Limit	0.10 mm	(0.0039 in)	
Camshaft	Bend limit		0.020 mm	(0.0008 in)	
	Thrust clearance	STD	0.030 — 0.090 mm	(0.0012 — 0.0035 in)	
		Limit	0.11 mm	(0.0043 in)	
	Cam lobe height	Intake	STD	34.00 — 38.782 mm	(1.3386 — 1.5268 in)
			Limit	33.84 mm	(1.3323 in)
		Exhaust	STD	34.00 — 39.307 mm	(1.3386 — 1.5475 in)
			Limit	33.84 mm	(1.3323 in)
	Camshaft journal O.D.		31.928 — 31.945 mm	(1.2570 — 1.2577 in)	
Camshaft journal hole I.D.		32.000 — 32.018 mm	(1.2598 — 1.2605 in)		
Oil clearance	STD	0.055 — 0.090 mm	(0.0022 — 0.0035 in)		
	Limit	0.118 mm	(0.0046 in)		

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Cylinder head	Surface warpage limit			0.05 mm	(0.0020 in)	
	Surface grinding limit			0.3 mm	(0.012 in)	
	Standard height			97.5 mm	(3.839 in)	
Valve set	Refacing angle			90°		
	Contacting width	Intake	STD	1.0 mm	(0.039 in)	
			Limit	1.7 mm	(0.067 in)	
		Exhaust	STD	1.4 mm	(0.055 in)	
			Limit	2.1 mm	(0.083 in)	
Valve guide	Inner diameter			6.000 — 6.012 mm	(0.2362 — 0.2367 in)	
	Protrusion above head	Intake		20.0 — 20.5 mm	(0.787 — 0.807 in)	
		Exhaust		16.5 — 17.0 mm	(0.650 — 0.669 in)	
Valve	Head edge thickness	Intake	STD	1.0 mm	(0.039 in)	
			Limit	0.6 mm	(0.024 in)	
		Exhaust	STD	1.2 mm	(0.047 in)	
			Limit	0.6 mm	(0.024 in)	
	Stem diameter	Intake		5.945 — 5.960 mm	(0.2341 — 0.2346 in)	
		Exhaust		5.950 — 5.965 mm	(0.2343 — 0.2348 in)	
	Stem oil clearance	STD	Intake	0.035 — 0.062 mm	(0.0014 — 0.0024 in)	
			Exhaust	0.040 — 0.067 mm	(0.0016 — 0.0026 in)	
	Overall length	Limit	Intake	—	0.15 mm	(0.0059 in)
			Exhaust	—	0.15 mm	(0.0059 in)
Valve spring	Free length			54.30 mm	(2.1378 in)	
	Squareness			2.5°, 2.4 mm	(0.094 in)	
	Tension/spring height			214.8 — 246.2 N (21.9 — 25.1 kg, 48.3 — 55.3 lb)/45.0 mm (1.772 in) 526.6 — 581.6 N (53.7 — 59.3 kg, 118.4 — 130.8 lb)/34.7 mm (1.366 in)		
Cylinder block	Surface warpage limit (mating with cylinder head)			0.05 mm	(0.0020 in)	
	Surface grinding limit			0.1 mm	(0.004 in)	
	Cylinder bore	STD	A	96.905 — 96.915 mm	(3.8151 — 3.8155 in)	
			B	96.895 — 96.905 mm	(3.8148 — 3.8151 in)	
	Taper	STD		0.015 mm	(0.0006 in)	
		Limit		0.050 mm	(0.0020 in)	
	Out-of-roundness	STD		0.010 mm	(0.0004 in)	
		Limit		0.050 mm	(0.0020 in)	
	Piston clearance	STD		0.010 — 0.030 mm	(0.0004 — 0.0012 in)	
Limit		0.050 mm	(0.0020 in)			
Enlarging (boring) limit			0.5 mm	(0.020 in)		
Piston	Outer diameter	STD	A	96.885 — 96.895 mm	(3.8144 — 3.8148 in)	
			B	96.875 — 96.885 mm	(3.8140 — 3.8144 in)	
		0.25 mm (0.0098 in) OS		97.125 — 97.135 mm	(3.8238 — 3.8242 in)	
		0.50 mm (0.0197 in) OS		97.375 — 97.385 mm	(3.8337 — 3.8340 in)	
Piston pin	Standard clearance between piston pin and hole in piston	STD	0.004 — 0.008 mm		(0.0002 — 0.0003 in)	
		Limit	0.020 mm		(0.0008 in)	
	Degree of fit			Piston pin must be fitted into position with thumb at 20°C (68°F).		

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Piston ring	Piston ring gap	Top ring	STD	0.20 — 0.35 mm	(0.0079 — 0.0138 in)
			Limit	1.0 mm	(0.039 in)
		Second ring	STD	0.37 — 0.52 mm	(0.0146 — 0.0205 in)
			Limit	1.0 mm	(0.039 in)
		Oil ring	STD	0.20 — 0.50 mm	(0.0079 — 0.0197 in)
			Limit	1.0 mm	(0.039 in)
	Clearance between piston ring and piston ring groove	Top ring	STD	0.040 — 0.080 mm	(0.0016 — 0.0031 in)
			Limit	0.15 mm	(0.0059 in)
Second ring		STD	0.030 — 0.070 mm	(0.0012 — 0.0028 in)	
		Limit	0.15 mm	(0.0059 in)	
Connecting rod	Bend twist per 100 mm (3.94 in) in length	Limit	0.10 mm	(0.0039 in)	
	Side clearance	STD	0.070 — 0.330 mm	(0.0028 — 0.0130 in)	
		Limit	0.4 mm	(0.016 in)	
Connecting rod bearing	Oil clearance	STD	0.010 — 0.038 mm	(0.0004 — 0.0015 in)	
		Limit	0.05 mm	(0.0020 in)	
	Thickness at center portion	STD	1.492 — 1.501 mm	(0.0587 — 0.0591 in)	
		0.03 mm (0.0012 in) US	1.510 — 1.513 mm	(0.0594 — 0.0596 in)	
		0.05 mm (0.0020 in) US	1.520 — 1.523 mm	(0.0598 — 0.0600 in)	
		0.25 mm (0.0098 in) US	1.620 — 1.623 mm	(0.0638 — 0.0639 in)	
Connecting rod bushing	Clearance between piston pin and bushing	STD	0 — 0.022 mm	(0 — 0.0009 in)	
		Limit	0.030 mm	(0.0012 in)	

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Crank- shaft	Bend limit		0.035 mm	(0.0014 in)		
	Crankpin and crank journal		Out-of-roundness	0.030 mm (0.0012 in) or less		
			Grinding limit	0.250 mm (0.0098 in)		
	Crankpin outer diameter		STD	51.984 — 52.000 mm	(2.0466 — 2.0472 in)	
			0.03 mm (0.0012 in) US	51.954 — 51.970 mm	(2.0454 — 2.0461 in)	
			0.05 mm (0.0020 in) US	51.934 — 51.950 mm	(2.0446 — 2.0453 in)	
			0.25 mm (0.0098 in) US	51.734 — 51.750 mm	(2.0368 — 2.0374 in)	
	Crank journal outer diameter		#1, #5	STD	59.992 — 60.008 mm	(2.3619 — 2.3625 in)
				0.03 mm (0.0012 in) US	59.962 — 59.978 mm	(2.3607 — 2.3613 in)
				0.05 mm (0.0020 in) US	59.942 — 59.958 mm	(2.3599 — 2.3605 in)
				0.25 mm (0.0098 in) US	59.742 — 59.758 mm	(2.3520 — 2.3527 in)
			#2, #3, #4	STD	59.992 — 60.008 mm	(2.3619 — 2.3625 in)
				0.03 mm (0.0012 in) US	59.962 — 59.978 mm	(2.3607 — 2.3613 in)
				0.05 mm (0.0020 in) US	59.942 — 59.958 mm	(2.3599 — 2.3605 in)
				0.25 mm (0.0098 in) US	59.742 — 59.758 mm	(2.3520 — 2.3527 in)
	Thrust clearance		STD	0.030 — 0.115 mm	(0.0012 — 0.0045 in)	
			Limit	0.25 mm	(0.0098 in)	
	Oil clearance		#1, #5	STD	0.003 — 0.030 mm	(0.0001 — 0.0012 in)
				STD	0.010 — 0.033 mm	(0.0004 — 0.0013 in)
			#2, #3, #4	Limit	0.040 mm	(0.0016 in)
Limit				0.045 mm	(0.0018 in)	
Crank- shaft bearing	Crankshaft bearing thickness		#1, #5	STD	1.998 — 2.011 mm	(0.0787 — 0.0792 in)
				0.03 mm (0.0012 in) US	2.017 — 2.020 mm	(0.0794 — 0.0795 in)
				0.05 mm (0.0020 in) US	2.027 — 2.030 mm	(0.0798 — 0.0799 in)
				0.25 mm (0.0098 in) US	2.127 — 2.130 mm	(0.0837 — 0.0839 in)
			#2, #3, #4	STD	2.000 — 2.013 mm	(0.0787 — 0.0793 in)
				0.03 mm (0.0012 in) US	2.019 — 2.022 mm	(0.0795 — 0.0796 in)
				0.05 mm (0.0020 in) US	2.029 — 2.032 mm	(0.0799 — 0.0800 in)
				0.25 mm (0.0098 in) US	2.129 — 2.132 mm	(0.0838 — 0.0839 in)