

ENGINE MECHANICAL

SERVICE DATA

SS174-01

Compression pressure	at 250 rpm STD Minimum Difference between each cylinder	1,471 kPa (15.0 kgf/cm ² , 213 psi) 1,079 kPa (11.0 kgf/cm ² , 156 psi) 98 kPa (1.0 kgf/cm ² , 14 psi)
Valve clearance	Valve lifter for repair part at cold Intake Exhaust No. 06 No. 08 No. 10 No. 12 No. 14 No. 16 No. 18 No. 20 No. 22 No. 24 No. 26 No. 28 No. 30 No. 32 No. 34 No. 36 No. 38 No. 40 No. 42 No. 44 No. 46 No. 48 No. 50 No. 52 No. 54 No. 56 No. 58 No. 60 No. 62 No. 64 No. 66 No. 68 No. 70 No. 72 No. 74	0.15 - 0.25 mm (0.006 - 0.010 in.) 0.25 - 0.35 mm (0.010 - 0.014 in.) 5.060 mm (0.1992 in.) 5.080 mm (0.2000 in.) 5.100 mm (0.2008 in.) 5.120 mm (0.2016 in.) 5.140 mm (0.2024 in.) 5.160 mm (0.2031 in.) 5.180 mm (0.2039 in.) 5.200 mm (0.2047 in.) 5.220 mm (0.2055 in.) 5.240 mm (0.2063 in.) 5.260 mm (0.2071 in.) 5.280 mm (0.2079 in.) 5.300 mm (0.2087 in.) 5.320 mm (0.2094 in.) 5.340 mm (0.2102 in.) 5.360 mm (0.2110 in.) 5.380 mm (0.2118 in.) 5.400 mm (0.2126 in.) 5.420 mm (0.2134 in.) 5.440 mm (0.2142 in.) 5.460 mm (0.2150 in.) 5.480 mm (0.2157 in.) 5.500 mm (0.2165 in.) 5.520 mm (0.2173 in.) 5.540 mm (0.2181 in.) 5.560 mm (0.2189 in.) 5.580 mm (0.2197 in.) 5.600 mm (0.2205 in.) 5.620 mm (0.2213 in.) 5.640 mm (0.2220 in.) 5.660 mm (0.2228 in.) 5.680 mm (0.2236 in.) 5.700 mm (0.2244 in.) 5.720 mm (0.2252 in.) 5.740 mm (0.2260 in.)
Ignition timing		8 - 12° BTDC @ idle
Idle speed	w/ Cooling fan off	A/T 700 ± 50 rpm M/T 650 ± 50 rpm
Chain and timing sprocket	Chain length at 16 links Camshaft timing sprocket wear (w/ chain) Crankshaft timing sprocket wear (w/ chain)	Maximum Minimum Minimum 123.2 mm (4.850 in.) 96.2 mm (3.787 in.) 50.5 mm (1.988 in.)
Chain tensioner slipper and vibration damper	Wear	Maximum 1.0 mm (0.039 in.)

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Cylinder head	Warpage	Maximum	0.05 mm (0.0020 in.)
	Valve seat		
	Refacing angle		20°, 45°, 75°
	Contacting angle		45°
	Contacting width		1.0 - 1.4 mm (0.039 - 0.055 in.)
Valve guide bushing bore diameter		STD	9.685 - 9.706 mm (0.38130 - 0.38213 in.)
		O/S 0.05	9.735 - 9.756 mm (0.38327 - 0.38493 in.)
Valve guide bushing	Inside diameter		5.010 - 5.030 mm (0.19724 - 0.19803 in.)
	Protrusion height		9.0 - 9.4 mm (0.354 - 0.370 in.)
Valve	Valve overall length	STD Intake	89.25 mm (3.5138 in.)
		Exhaust	87.90 mm (3.4606 in.)
		Minimum Intake	88.75 mm (3.4941 in.)
		Exhaust	87.40 mm (3.4409 in.)
	Valve face angle		44.5°
	Stem diameter	Intake	4.970 - 4.985 mm (0.19567 - 0.19626 in.)
		Exhaust	4.965 - 4.980 mm (0.19547 - 0.19606 in.)
	Stem oil clearance	STD Intake	0.025 - 0.060 mm (0.00098 - 0.00236 in.)
		Exhaust	0.030 - 0.065 mm (0.00118 - 0.00256 in.)
		Maximum Intake	0.08 mm (0.0031 in.)
Exhaust		0.10 mm (0.0039 in.)	
Margin thickness	STD	1.00 - 1.15 mm (0.039 - 0.045 in.)	
	Minimum	0.7 mm (0.028 in.)	
Valve spring	Deviation	Maximum	1.6 mm (0.063 in.)
	Angle (Reference)	Maximum	2°
	Free length		45.1 mm (1.776 in.)
	Installed tension at 32.5 mm (1.280 in.)		149 - 165 N (15.2 - 16.8 kgf, 33.5 - 37.1 lbf)
	Maximum working tension at 23.9 mm (0.941 in.)		286 - 316 N (29.1 - 32.2 kgf, 64.2 - 71.0 lbf)
Valve lifter	Lifter diameter		30.966 - 30.976 mm (1.21913 - 1.21952 in.)
	Lifter bore diameter		31.000 - 31.025 mm (1.22047 - 1.22145 in.)
	Oil clearance	STD	0.024 - 0.059 mm (0.00094 - 0.00232 in.)
		Maximum	0.1 mm (0.004 in.)
Camshaft	Thrust clearance	STD	0.040 - 0.095 mm (0.0016 - 0.0037 in.)
		Maximum	0.11 mm (0.0043 in.)
	Journal oil clearance	STD	0.040 - 0.095 mm (0.00157 - 0.00374 in.)
		Maximum	0.115 mm (0.00453 in.)
	Journal diameter	No.1	34.449 - 34.465 (1.35626 - 1.35689 in.)
		Others	22.949 - 22.965 (0.90350 - 0.90413 in.)
	Circle run out	Maximum	0.03 mm (0.0012 in.)
	Cam lobe height	STD	44.617 - 44.717 mm (1.75657 - 1.76051 in.)
		Exhaust	44.666 - 44.766 mm (1.75850 - 1.76244 in.)
		Minimum Intake	44.47 mm (1.7508 in.)
	Exhaust	44.52 mm (1.7528 in.)	
Intake manifold	Warpage	Maximum	0.10 mm (0.0039 in.)
Exhaust manifold	Warpage	Maximum	0.70 mm (0.0276 in.)

Cylinder block	Cylinder head surface warpage	Maximum	0.05 mm (0.0020 in.)
	Cylinder bore diameter	STD	75.000 - 75.013 mm (2.95275 - 2.95326 in.)
		Maximum	75.013 mm (2.95326 in.)
	Main journal bore diameter	Mark 0	50.000 - 50.003 mm (1.96850 - 1.96862 in.)
		Mark 1	50.003 - 50.005 mm (1.96862 - 1.96870 in.)
		mark 2	50.005 - 50.007 mm (1.96870 - 1.96878 in.)
		Mark 3	50.007 - 50.010 mm (1.96878 - 1.96889 in.)
		Mark 4	50.010 - 50.012 mm (1.96889 - 1.96897 in.)
		Mark 5	50.012 - 50.014 mm (1.96897 - 1.96905 in.)
		Mark 6	50.014 - 50.016 mm (1.96905 - 1.96913 in.)
12 pointed head bearing cap sub-assembly bolt diameter at tension portion	STD	7.3 - 7.5 mm (0.287 - 0.295 in.)	
	Minimum	7.3 mm (0.287 in.)	
Piston and Piston ring	Piston diameter at 27 mm (1.063 in.) from the piston head		74.945 - 74.955 mm (2.95058 - 2.95098 in.)
	Piston oil clearance	STD	0.045 - 0.068 mm (0.00177 - 0.00268 in.)
		Maximum	0.08 mm (0.0031 in.)
	Piston ring groove clearance		0.030 - 0.070 mm (0.0012 - 0.0028 in.)
	Piston ring end gap	STD No. 1	0.25 - 0.35 mm (0.0098 - 0.0138 in.)
		No. 2	0.35 - 0.50 mm (0.0138 - 0.0197 in.)
		Oil	0.10 - 0.35 mm (0.0039 - 0.0138 in.)
		Maximum No. 1	0.91 mm (0.0358 in.)
		No. 2	1.06 mm (0.0417 in.)
Oil		0.82 mm (0.0323 in.)	
Connecting rod	Thrust clearance	STD	0.16 - 0.36 mm (0.0063 - 0.0142 in.)
		Maximum	0.36 mm (0.0142 in.)
	Connecting rod thickness		19.788 - 19.840 mm (0.779 - 0.781 in.)
	Connecting rod bearing center wall thickness Reference	Mark 1	1.488 - 1.492 mm (0.0586 - 0.0587 in.)
		Mark 2	1.492 - 1.496 mm (0.0587 - 0.0589 in.)
		Mark 3	1.496 - 1.500 mm (0.0589 - 0.0591 in.)
	Connecting rod oil clearance	STD	0.016 - 0.040 mm (0.0006 - 0.0016 in.)
		Maximum	0.06 mm (0.0024 in.)
	Rod out-of-alignment	Maximum per 100 mm (3.94 in.)	0.05 mm (0.0020 in.)
	Rod twist	Maximum per 100 mm (3.94 in.)	0.05 mm (0.0020 in.)
	Bushing inside diameter		18.010 - 18.019 mm (0.7091 - 0.7094 in.)
	Piston pin diameter		17.988 - 18.007 mm (0.7086 - 0.7089 in.)
	Bushing oil clearance	STD	0.009 - 0.015 mm (0.0003 - 0.0006 in.)
		Maximum	0.05 mm (0.0020 in.)
	Connecting rod bolt diameter at tension portion	STD	6.6 - 6.7 mm (0.260 - 0.264 in.)
Minimum		6.4 mm (0.252 in.)	

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Crankshaft	Thrust clearance	STD	0.090 - 0.190 mm (0.00354 - 0.00748 in.)
		Maximum	0.30 mm (0.012 in.)
	Thrust washer thickness		2.430 - 2.480 mm (0.09567 - 0.09764 in.)
	Main journal oil clearance	STD	0.010 - 0.023 mm (0.0004 - 0.0009 in.)
		Maximum	0.07 mm (0.0028 in.)
	Main journal diameter		
	Reference	Mark 0	46.000 - 46.002 mm (1.81102 - 1.81110 in.)
		Mark 1	46.002 - 46.004 mm (1.81110 - 1.81118 in.)
		Mark 2	46.004 - 46.006 mm (1.81118 - 1.81126 in.)
		Mark 3	46.006 - 46.008 mm (1.81126 - 1.81133 in.)
		Mark 4	46.008 - 46.010 mm (1.81133 - 1.81141 in.)
		Mark 5	46.010 - 46.012 mm (1.81141 - 1.81149 in.)
	Main bearing center wall thickness		
	Reference	Mark 1	1.992 - 1.995 mm (0.07843 - 0.07854 in.)
		Mark 2	1.995 - 1.998 mm (0.07854 - 0.07866 in.)
		Mark 3	1.998 - 2.001 mm (0.07866 - 0.07878 in.)
	Mark 4	2.001 - 2.004 mm (0.07878 - 0.07890 in.)	
Crank pin diameter		39.992 - 40.000 mm (1.5745 - 1.5748 in.)	
Circle run out	Maximum	0.03 mm (0.0012 in.)	
Main journal taper and out-of round	Maximum	0.02 mm (0.0008 in.)	
Crank pin taper and out-of round	Maximum	0.02 mm (0.0008 in.)	