

ENGINE MECHANICAL

SERVICE DATA

SS1E0-03

Compression pressure	at 250 rpm STD Minimum Difference of pressure between each cylinder	1,176 kPa (12.0 kgf/cm ² , 171 psi) or more 883 kPa (9.0 kgf/cm ² , 128 psi) 98 kPa (1.0 kgf/cm ² , 14 psi) or less
Valve clearance	at cold Intake Exhaust	0.15 – 0.25 mm (0.006 – 0.010 in.) 0.25 – 0.35 mm (0.010 – 0.014 in.)
Ignition timing	w/ Terminals TE1 and E1 connected	3° BTDC @ idle
Idle speed	–	650 ± 50 rpm
Intake manifold vacuum	at idle speed	63 kPa (473 mmHg, 18.6 in.Hg)
Cylinder head	Warpage Cylinder block side Manifold side Valve seat Refacing angle Contacting angle Contacting width Cylinder head bolt outside diameter	Maximum Maximum Intake Exhaust Intake Exhaust STD minimum 0.15 mm (0.0059 in.) 0.10 mm (0.0039 in.) 30°, 45°, 75° 45°, 75° 45° 1.2 – 1.6 mm (0.047 – 0.063 in.) 1.0 – 1.4 mm (0.039 – 0.055 in.) 10.85 – 11.00 mm (0.4272 – 0.4331 in.) 10.6 mm (0.417 in.)
Valve guide bushing	Inside diameter Outside diameter (for repair part) STD O/S 0.05	7.010 – 7.030 mm (0.2760 – 0.2768 in.) 11.540 – 11.551 mm (0.4543 – 0.4548 in.) 11.590 – 11.601 mm (0.4563 – 0.4567 in.)
Valve	Valve overall length Valve face angle Stem diameter Stem oil clearance Margin thickness	STD Intake Exhaust Minimum Intake Exhaust 44.5° Intake Exhaust STD Intake Exhaust Maximum Intake Exhaust STD Minimum 98.2 – 98.6 mm (3.866 – 3.882 in.) 97.7 – 98.1 mm (3.846 – 3.862 in.) 97.9 mm (3.854 in.) 97.4 mm (3.835 in.) 6.970 – 6.985 mm (0.2744 – 0.2750 in.) 6.965 – 6.980 mm (0.2742 – 0.2748 in.) 0.025 – 0.060 mm (0.0010 – 0.0024 in.) 0.030 – 0.065 mm (0.0012 – 0.0026 in.) 0.08 mm (0.0031 in.) 0.10 mm (0.0039 in.) 1.2 mm (0.047 in.) 1.0 mm (0.039 in.)
Valve spring	Deviation Free length Installed tension at 36.5 mm (1.437 in.)	Maximum 2.0 mm (0.079 in.) 43.94 – 45.06 mm (1.7299 – 1.7740 in.) 214 – 238 N (21.8 – 24.2 kgf, 48.1 – 53.4 lbf)
Valve lifter	Lifter diameter Lifter bore diameter Oil clearance STD Maximum	33.966 – 33.976 mm (1.3372 – 1.3376 in.) 34.000 – 34.021 mm (1.3386 – 1.3394 in.) 0.024 – 0.055 mm (0.0009 – 0.0022 in.) 0.07 mm (0.0028 in.)
Manifold	Warpage Maximum	0.30 mm (0.0118 in.)
Air intake chamber	Warpage Maximum	0.30 mm (0.0118 in.)

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Camshaft	Thrust clearance	STD	0.030 – 0.080 mm (0.0012 – 0.0031 in.)
		Maximum	0.10 mm (0.0039 in.)
	Journal oil clearance	STD	0.025 – 0.062 mm (0.0010 – 0.0024 in.)
		Maximum	0.10 mm (0.0039 in.)
	Journal diameter		26.959 – 26.975 mm (1.0614 – 1.0620 in.)
	Circle runout	Maximum	0.06 mm (0.0024 in.)
	Cam lobe height	STD	50.61 – 50.71 mm (1.9925 – 1.9965 in.)
		Minimum	50.51 mm (1.9886 in.)
	Camshaft gear backlash	STD	0.020 – 0.200 mm (0.0008 – 0.0079 in.)
		Maximum	0.30 mm (0.0188 in.)
	Camshaft gear spring end free distance		18.2 – 18.8 mm (0.717 – 0.740 in.)
Oil pump drive shaft gear	Thrust clearance	STD	0.040 – 0.160 mm (0.0016 – 0.0063 in.)
		Maximum	0.30 mm (0.0188 in.)
Chain and timing gear	Chain length at 16 links	Maximum	146.6 mm (5.772 in.)
	Camshaft timing gear wear	Minimum	126.0 mm (4.961 in.)
	Crankshaft timing gear wear	Minimum	65.4 mm (2.575 in.)
Chain tensioner slipper and vibration damper	Wear	Maximum	1.0 mm (0.039 in.)
Cylinder block	Cylinder head surface warpage	Maximum	0.05 mm (0.0020 in.)
	Cylinder bore diameter	STD Mark 1	100.000 – 100.010 mm (3.9370 – 3.9374 in.)
		Mark 2	100.010 – 100.020 mm (3.9374 – 3.9378 in.)
		Mark 3	100.020 – 100.030 mm (3.9378 – 3.9382 in.)
		Maximum STD	100.23 mm (3.9461 in.)
		O/S 0.50	100.73 mm (3.9658 in.)
		O/S 1.00	101.23 mm (3.9854 in.)
	Main bearing bolt thread outside diameter	STD	10.85 – 11.00 mm (0.4271 – 0.4331 in.)
Piston and piston ring		Minimum	10.6 mm (0.417 in.)
	Piston diameter	STD Mark 1	99.950 – 99.960 mm (3.9350 – 3.9354 in.)
		Mark 2	99.960 – 99.970 mm (3.9354 – 3.9358 in.)
		Mark 3	99.970 – 99.980 mm (3.9358 – 3.9362 in.)
		O/S 0.50	100.450 – 100.480 mm (3.9547 – 3.9559 in.)
		O/S 1.0	100.950 – 100.980 mm (3.9744 – 3.9756 in.)
	Piston oil clearance	STD	0.040 – 0.060 mm (0.0016 – 0.0024 in.)
		Maximum	0.080 mm (0.0031 in.)
	Piston ring groove clearance	No. 1	0.040 – 0.080 mm (0.0016 – 0.0031 in.)
		No. 2	0.030 – 0.070 mm (0.0012 – 0.0028 in.)
	Piston ring end gap	STD No. 1	0.300 – 0.520 mm (0.0118 – 0.0205 in.)
		No. 2	0.450 – 0.670 mm (0.0177 – 0.0264 in.)
		Oil	0.150 – 0.520 mm (0.0059 – 0.0205 in.)
		Maximum No. 1	1.12 mm (0.0441 in.)
		No. 2	1.17 mm (0.0461 in.)
		Oil	1.12 mm (0.0441 in.)

Connecting rod	Thrust clearance	STD	0.160 – 0.262 mm (0.0063 – 0.0103 in.)
		Maximum	0.362 mm (0.0143 in.)
	Connecting rod bearing center wall thickness (Reference)		
		STD Mark 2	1.744 – 1.747 mm (0.0687 – 0.0688 in.)
		Mark 3	1.747 – 1.750 mm (0.0688 – 0.0689 in.)
		Mark 4	1.750 – 1.753 mm (0.0689 – 0.0690 in.)
		Mark 5	1.753 – 1.756 mm (0.0690 – 0.0691 in.)
		Mark 6	1.756 – 1.759 mm (0.0691 – 0.0693 in.)
	Connecting rod oil clearance	STD STD	0.032 – 0.050 mm (0.0013 – 0.0020 in.)
		U/S 0.25	0.033 – 0.073 mm (0.0013 – 0.0029 in.)
		Maximum	0.10 mm (0.0039 in.)
	Rod bend	Maximum per 100 mm (3.94 in.)	0.05 mm (0.0020 in.)
	Rod twist	Maximum per 100 mm (3.94 in.)	0.15 mm (0.0059 in.)
	Bushing inside diameter		26.008 – 26.020 mm (1.0239 – 1.0244 in.)
	Piston pin diameter		26.000 – 22.012 mm (1.0236 – 1.0241 in.)
Crankshaft	Piston pin oil clearance	STD	0.004 – 0.012 mm (0.0002 – 0.0005 in.)
		Maximum	0.05 mm (0.0020 in.)
	Connecting rod bolt outside diameter	STD	8.40 – 8.60 mm (0.3307 – 0.3386 in.)
		Minimum	8.00 mm (0.3150 in.)
	Thrust clearance	STD	0.020 – 0.220 mm (0.0008 – 0.0087 in.)
		Maximum	0.30 mm (0.0118 in.)
	Thrust washer thickness	STD	2.440 – 2.490 mm (0.0961 – 0.0980 in.)
		O/S 0.125	2.503 – 2.553 mm (0.0985 – 0.1005 in.)
		O/S 0.250	2.565 – 2.615 mm (0.1010 – 0.1030 in.)
	Main journal oil clearance	STD STD	0.042 – 0.060 mm (0.0017 – 0.0024 in.)
		U/S 0.25	0.041 – 0.081 mm (0.0016 – 0.0032 in.)
		Maximum	0.10 mm (0.0039 in.)
	Main journal diameter	STD	68.982 – 69.000 mm (2.7158 – 2.7165 in.)
		U/S 0.25	68.745 – 68.755 mm (2.7065 – 2.7069 in.)
	Main bearing center wall thickness (Reference)		
		STD Mark 2	2.489 – 2.492 mm (0.0980 – 0.0981 in.)
		Mark 3	2.492 – 2.495 mm (0.0981 – 0.0982 in.)
		Mark 4	2.495 – 2.498 mm (0.0982 – 0.0983 in.)
		Mark 5	2.498 – 2.501 mm (0.0983 – 0.0985 in.)
		Mark 6	2.501 – 2.504 mm (0.0985 – 0.0986 in.)
	Crank pin diameter	STD	56.982 – 57.000 mm (2.2434 – 2.2441 in.)
		U/S 0.25	56.745 – 56.755 mm (2.2341 – 2.2344 in.)
	Circle runout	Maximum	0.06 mm (0.0024 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.)