ENGINE MECHANICAL

SERVICE DATA

SS0SJ–07

Compression pressure	at 250 rpm	STD	1,270 kPa (13 kgf/cm^2, 185 psi) or more
		Minimum	980 kPa (10 kgf/cm^2, 142 psi)
	Difference of pressure between each cylinder		190 kPa (1.9 kgf/cm^2, 28 psi) or less
Valve Clearance	at hot	Intake	0.20 – 0.25 mm (0.008 – 0.010 in.)
		Exhaust	0.36 – 0.40 mm (0.014 – 0.016 in.)
Ignition timing	w/ Terminals TE1 and E1 of the check connector		10 – 14 ° BTDC @ idle
	w/o Terminals TE1 and E1 of the check connector		7 – 17 ° BTDC @ idle
Idle speed			650 – 750 rpm
Cylinder head	Warpage	Maximum	0.20 mm (0.0079 in.)
	Valve seat		
	Refacing angle	Intake	45 °, 63 °
		Exhaust	30 °, 45 °, 80 °
	Contacting angle		45 °
	Contacting width	Intake	1.3 – 1.9 mm (0.051 – 0.075 in.)
		Exhaust	1.6 – 2.4 mm (0.063 – 0.094 in.)
	Cylinder head bolt thread inside diameter	STD	11.800 – 12.000 mm (0.4646 – 0.4724 in.)
		Minimum	11.60 mm (0.4567 in.)
Valve guide bushing	Inside diameter		7.010 – 7.030 mm (0.2760 – 0.2768 in.)
	Outside diameter for repair part		11.540 – 11.551 mm (0.4543 – 0.4548 in.)
Valve	Valve overall length	STD Intake	126.30 – 126.70 mm (4.9724 – 4.9882 in.)
		Exhaust	126.25 – 126.65 mm (4.9705 – 4.9862 in.)
		Minimum Intake	126.00 mm (4.9606 in.)
		Exhaust	125.95 mm (4.9587 in.)
	Valve face angle		44.5 °
	Stem diameter	Intake	6.970 – 6.985 mm (0.2744 – 0.2750 in.)
		Exhaust	6.955 – 6.970 mm (0.2738 – 0.2744 in.)
	Stem oil clearance	STD Intake	0.025 – 0.060 mm (0.0010 – 0.0024 in.)
		Exhaust	0.040 – 0.075 mm (0.0016 – 0.0030 in.)
		Maximum Intake	0.08 mm (0.0031 in.)
		Exhaust	0.10 mm (0.0039 in.)
	Margin thickness	STD Intake	1.26 mm (0.0496 in.)
		Exhaust	0.97 mm (0.0382 in.)
		Minimum Intake	0.76 mm (0.0299 in.)
		Exhaust	0.47 mm (0.0185 in.)
Valve Spring	Deviation	Maximum	2.0 mm (0.079 in.)
	Free length		51.83 – 54.16 mm (2.0406 – 2.1323 in.)
	Installed tension at 41.3 mm (1.626 in.)		245 – 315 N (25.0 – 32.1 kgf, 55.1 – 70.8 lbf)
Valve rocker arm and shaft	Valve rocker arm inside diameter		18.512 – 18.533 mm (0.7288 – 0.7296 in.)
	Valve rocker shaft diameter		18.472 – 18.493 mm (0.7272 – 0.7281 in.)
	Oil clearance	STD	0.019 – 0.061 mm (0.0007 – 0.0024 in.)
		Maximum	0.10 mm (0.0039 in.)
Push rod	Circle runout	Maximum	0.50 mm (0.0197 in.)
Timing gear	Idler gear thrust clearance	STD	0.060 – 0.170 mm (0.0024 – 0.0067 in.)
		Maximum	0.30 mm (0.0118 in.)
	Idler gear inside diameter		44.974 – 45.000 mm (1.7706 – 1.7717 in.)
	Idler gear shaft diameter		44.935 – 44.955 mm (1.7691 – 1.7699 in.)
	Idler gear oil clearance	STD	0.019 – 0.065 mm (0.0007 – 0.0026 in.)
		Maximum	0.18 mm (0.0071 in.)

Camshaft	Circle runout		Maximum	0.06mm (0.0024 in.)
	Cam lobe height	STD	Intake	43.774 – 43.864 mm (1.7234 – 1.7269 in.)
			Exhaust	44.905 – 44.995 mm (1.7679 – 1.7715 in.)
		Minimum	Intake	43.34 mm (1.7063 in.)
			Exhaust	44.47 mm (1.7508 in.)
	Journal diameter		No.1	53.459 – 53.475 mm (2.1047 – 2.1053 in.)
			No.2	53.209 – 53.225 mm (2.0948 – 2.0955 in.)
			No.3	52.959 – 52.975 mm (2.0850 – 2.0856 in.)
			No.4	52.709 – 52.725 mm (2.0752 – 2.0758 in.)
			No.5	52.459 – 52.475 mm (2.0653 – 2.0659 in.)
	Camshaft bearing inside diameter		No.1	53.500 – 53.525 mm (2.1063 – 2.1073 in.)
			No.2	53.250 – 53.275 mm (2.0965 – 2.0974 in.)
			No.3	53.000 – 53.025 mm (2.0866 – 2.0876 in.)
			No.4	52.750 – 52.775 mm (2.0768 – 2.0778 in.)
			No.5	52.500 – 52.525 mm (2.0669 – 2.0679 in.)
	Journal oil clearance		STD	0.025 – 0.066 mm (0.0010 – 0.0026 in.)
			Maximum	0.10 mm (0.0039 in.)
	Thrust clearance		STD	0.060 – 0.130 mm (0.0024 – 0.0051 in.)
			Maximum	0.30 mm (0.0118 in.)
Connecting rod	Thrust clearance		STD	0.200 – 0.320 mm (0.0079 –0.0126 in.)
			Maximum	0.40 mm (0.0157 in.)
	Connecting rod oil clearance STD		STD	0.030 – 0.070 mm (0.0012 – 0.0028 in.)
			U/S 0.25, 0.50, 1.00	0.030 – 0.072 mm (0.0012 – 0.0028 in.)
			Maximum	0.10 mm (0.0039 in.)
	Connecting rod bearing center wall thickness			
	(Reference)	STD	Yellow	1.480 – 1.485 mm (0.0583 – 0.0585 in.)
			Green	1.485 – 1.490 mm (0.0585 – 0.0587 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)		0.15 mm (0.0059 in.)
	Bushing inside diameter			33.999 – 34.009 mm (1.3385 – 1.3389 in.)
	Piston pin diameter			34.000 – 34.010 mm (1.3386 – 1.3390 in.)
	Bushing oil clearance		STD	0.005 – 0.015 mm (0.0002 – 0.0006 in.)
			Maximum	0.05 mm (0.0020 in.)
	Connecting rod bolt tension portion diameter		STD	9.900 – 10.100 mm (0.3898 – 0.3976 in.)
			Minimum	9.70 mm (0.3819 in.)
Cylinder block	Cylinder head surface warpage		Maximum	0.20 mm (0.0079 in.)
	Cylinder bore diameter	STD STD	Mark 1	108.000 – 108.010 mm (4.2520 – 4.2524 in.)
			Mark 2	108.010 – 108.020 mm (4.2524 – 2.2528 in.)
			Mark 3	108.020 – 108.030 mm (4.2528 – 4.2531 in.)
			O/S 0.50	108.500 – 108.530 mm (4.2717 – 4.2728 in.)
			O/S 0.75	108.750 – 108.780 mm (4.2815 – 4.2827 in.)
			O/S 1.00	109.000 – 109.030 mm (4.2913 – 4.2925 in.)
		Maximum	STD	108.23 mm (4.2610 in.)
			O/S 0.50	108.73 mm (4.2807 in.)
			O/S 0.75	108.98 mm (4.2906 in.)
			O/S 1.00	109.23 mm (4.3004 in.)

Piston and piston ring	Piston diameter	STD Mark 1	107.830 – 107.840 mm (4.2453 – 4.2457 in.)
		Mark 2	107.840 – 107.850 mm (4.2457 – 4.2461 in.)
		Mark 3	107.850 – 107.860 mm (4.2461 – 4.2465 in.)
		O/S 0.50	108.330 – 108.360 mm (4.2650 – 4.2661 in.)
		O/S 0.75	108.580 – 108.610 mm (4.2748 – 4.2760 in.)
		O/S 1.00	108.830 – 108.860 mm (4.2846 – 4.2858 in.)
	Piston oil clearance	STD	0.160 – 0.180 mm (0.0063 – 0.0071 in.)
		Maximum	0.23 mm (0.0091 in.)
	Piston ring groove clearance	STD No.1	0.067 – 0.108 mm (0.0026 – 0.0043 in.)
		No.2	0.060 – 0.100 mm (0.0024 – 0.0039 in.)
		Oil	0.030 – 0.070 mm (0.0012 – 0.0028 in.)
		Maximum	0.20 mm (0.0079 in.)
	Piston ring end gap	STD No.1	0.350 – 0.570 mm (0.0138 – 0.0224 in.)
		No.2	0.470 – 0.720 mm (0.0185 – 0.0236 in.)
		Oil	0.200 – 0.520 mm (0.0079 – 0.0205 in.)
		Maximum No.1	1.41 mm (0.0575 in.)
		No.2	1.61 mm (0.0634 in.)
		Oil	1.61 mm (0.0634 in.)
Crankshaft	Thrust clearance	STD	0.040 – 0.250 mm (0.0016 – 0.0098 in.)
		Maximum	0.30 mm (0.0118 in.)
	Thrust washer thickness	STD	2.430 – 2.480 mm (0.0957 – 0.0976 in.)
		O/S 0.125	2.493 – 2.543 mm (0.0981 – 0.1001 in.)
		O/S 0.250	2.555 – 2.605 mm (0.1006 – 0.1026 in.)
	Main journal oil clearance	STD No.3	0.060 – 0.104 mm (0.0024 – 0.0041 in.)
		Others	0.030 – 0.074 mm (0.0012 – 0.0029 in.)
		U/S 0.25, 0.50, 1.00 No.3	0.060 – 0.106 mm (0.0024 – 0.0042 in.)
		Others	0.030 – 0.076 mm (0.0012 – 0.0030 in.)
		Maximum No.3	0.15 mm (0.0059 in.)
		Others	0.10 mm (0.0039 in.)
	Main journal diameter	STD No.3	69.950 – 69.970 mm (2.7539 – 2.7547 in.)
		Others	69.980 – 70.000 mm (2.7551 – 2.7559 in.)
		U/S 0.25 No.3	69.710 – 69.720 mm (2.7445 – 2.7449 in.)
		Others	69.740 – 69.750 mm (2.7457 – 2.7461 in.)
		U/S 0.50 No.3	69.460 – 69.470 mm (2.7346 – 2.7350 in.)
		Others	69.490 – 69.500 mm (2.7358 – 2.7362 in.)
		U/S 1.00 No.3	69.960 – 68.970 mm (2.7150 – 2.7153 in.)
		Others	68.990 – 69.000 mm (2.7161 – 2.7165 in.)
	Main bearing center wall thickness (Reference)		
		STD Yellow	2.480 – 2.485 mm (0.0976 – 0.0978 in.)
		Green	2.486 – 2.490 mm (0.0979 – 0.0980 in.)
	Crank pin diameter	STD	60.980 – 61.000 mm (2.4008 – 2.4016 in.)
		U/S 0.25	60.740 – 60.750 mm (2.3913 – 2.3917 in.)
		U/S 0.50	60.490 – 60.500 mm (2.3815 – 2.3819 in.)
		U/S 1.00	59.990 – 60.000 mm (2.3618 – 2.3622 in.)
	Circle runout	Maximum	0.08 mm (0.0031 in.)
	Main journal taper and out–of–round	Maximum	0.02 mm (0.0008 in.)
	Crank pin taper and out–or–round	Maximum	0.02 mm (0.0008 in.)
Valve lifter	Cylinder block lifter bore diameter		27.010 – 27.030 mm (1.0634 – 1.0642 in.)
	Lifter diameter		26.955 – 26.975 mm (1.0612 – 1.0620 in.)
	Oil clearance	STD	0.035 – 0.075 mm (0.0014 – 0.0030 in.)
		Maximum	0.10 mm (0.0039 in.)