ENGINE MECHANICAL

SERVICE DATA

SS0C8–07

Compression pressure	at 250 rpm STD	1,226 kPa (12.5 kgf/cm^2, 178 psi) or more
	Minimum	981 kPa (10.0 kgf/cm^2, 142 psi)
	Difference of pressure between each cylinder	98 kPa (1.0 kgf/cm^2, 14 psi) or less
Valve clearance	at cold Intake	0.15 – 0.25 mm (0.006 – 0.010 in.)
	Exhaust	0.25 – 0.35 mm (0.010 – 0.014 in.)
	Valve clearance adjusting shim No.00	2.000 mm (0.0787 in.)
	No.02	2.020 mm (0.0795 in.)
	No.04	2.040 mm (0.0803 in.)
	No.06	2.060 mm (0.0811 in.)
	No.08	2.080 mm (0.0819 in.)
	No.10	2.100 mm (0.0827 in.)
	No.12	2.120 mm (0.0835 in.)
	No.14	2.140 mm (0.0843 in.)
	No.16	2.160 mm (0.0850 in.)
	No.18	2.180 mm (0.0858 in.)
	No.20	2.200 mm (0.0866 in.)
	No.22	2.220 mm (0.0874 in.)
	No.24	2.240 mm (0.0882 in.)
	No.26	2.260 mm (0.0890 in.)
	No.28	2.280 mm (0.0898 in.)
	No.30	2.300 mm (0.0906 in.)
	No.32	2.320 mm (0.0913 in.)
	No.34	2.340 mm (0.0921 in.)
	No.36	2.360 mm (0.0929 in.)
	No.38	2.380 mm (0.0937 in.)
	No.40	2.400 mm (0.0945 in.)
	No.42	2.420 mm (0.0953 in.)
	No.44	2.440 mm (0.0961 in.)
	No.46	2.460 mm (0.0969 in.)
	No.48	2.480 mm (0.0976 in.)
	No.50	2.500 mm (0.0984 in.)
	No.52	2.520 mm (0.0992 in.)
	No.54	2.540 mm (0.1000 in)
	No.56	2.560 mm (0.1008 in.)
	No.58	2.580 mm (0.1016 in.)
	No.60	2.600 mm (0.1024 in.)
	No.62	2.620 mm (0.1031 in.)
	No.64	2.640 mm (0.1039 in.)
	No.66	2.660 mm (0.1047 in.)
	No.68	2.680 mm (0.1055 in.)
	No.70	2.700 mm (0.1063 in.)
	No.72	2.720 mm (0.1071 in.)
	No.74	2.740 mm (0.1079 in.)
	No.76	2.760 mm (0.1087 in.)
	No.78	2.780 mm (0.1094 in.)
	No.80	2.800 mm (0.1102 in.)
Ignition timing	w/ Terminals TC and E1 connected of DLC1	8 –12° BTDC @ idle
Idle speed	–	750 ± 50 rpm
Timing belt tensioner	Protrusion from housing end	9.5 – 10.5 mm (0.374 – 0.413 in.)

Cylinder head	Warpage	Maximum	0.10 mm (0.039 in.)
	Valve seat		
	Refacing angle		30°, 45°, 60°
	Contacting angle		45°
	Contacting width		1.0 – 1.4 mm (0.039 – 0.055 in.)
	Valve guide bushing bore diameter	STD	10.285 – 10.306 mm (0.4049 – 0.4057 in.)
		O/S 0.05	10.335 – 10.356 mm (0.4069 – 0.4077 in.)
	Cylinder head bolt thread inside diameter	STD	9.770 – 9.960 mm (0.3846 – 0.3921 in.)
		Minimum	9.70 mm (0.3819 in.)
Valve guide bushing	Inside diameter		5.510 – 5.530 mm (0.2169 – 0.2177 in.)
	Outside diameter (for repair part)	STD	10.333 – 10.344 mm (0.4068 – 0.4072 in.)
		O/S 0.05	10.383 – 10.394 mm (0.4088 – 0.4092 in.)
Valve	Valve overall length	STD Intake	94.80 – 95.30 mm (3.7323 – 3.7520 in.)
		Exhaust	94.85 – 95.35 (3.7342 – 3.7539 in.)
		Minimum Intake	94.55 mm (3.7224 in.)
		Exhaust	94.60 mm (3.7244 in.)
	Valve face angle		44.5°
	Stem diameter	Intake	5.470 – 5.485 mm (0.2154 – 0.2159 in.)
		Exhaust	5.465 – 5.480 mm (0.2152 – 0.2157 in.)
	Stem oil clearance	STD Intake	0.025 – 0.060 mm (0.0010 – 0.0024 in.)
		Exhaust	0.030 – 0.065 mm (0.0012 – 0.0026 in.)
		Maximum Intake	0.08 mm (0.0031 in.)
		Exhaust	0.10 mm (0.0039 in.)
	Margin thickness	STD	1.0 mm (0.039 in.)
		Minimum	0.5 mm (0.020 in.)
Valve spring	Deviation	Maximum	2.0 mm (0.079 in.)
	Free length		54.05 – 54.15 mm (2.1279 – 2.1319 in.)
	Installed tension	at 35.04 mm (1.3795 in.)	210 – 226 N (21.4 – 23.0 kgf·cm, 47.2 – 50.7 lbf)
Valve lifter	Lifter diameter		30.968 – 30.978 mm (1.2192 – 1.2196 in.)
	Lifter bore diameter		31.000 – 31.016 mm (1.2205 – 1.2211 in.)
	Oil clearance	STD	0.024 – 0.048 mm (0.0009 – 0.0018 in.)
		Maximum	0.07 mm (0.0028 in.)
Camshaft	Thrust clearance	STD Intake	0.060 – 0.100 mm (0.0024 – 0.0039 in.)
		Exhaust	0.030 – 0.075 mm (0.0012 – 0.0030 in.)
		Maximum Intake	0.13 mm (0.0051 in.)
		Exhaust	0.12 mm (0.0047 in.)
	Journal oil clearance	STD	0.030 – 0.067 mm (0.0012 – 0.0026 in.)
		Maximum	0.100 mm (0.0039 in.)
	Journal diameter	for camshaft bearing	26.954 – 26.970 mm (1.0612 – 1.0618 in.)
		for camshaft timing tube	30.984 – 31.000 mm (1.2198 – 1.2205 in.)
	Circle runout		0.08 mm (0.0031 in.)
	Cam lobe height	STD Intake	42.610 – 42.710 mm (1.6776 – 1.6815 in.)
		Exhaust	42.630 – 42.730 mm (1.6783 – 1.6823 in.)
		Minimum Intake	42.46 mm (1.6717 in.)
		Exhaust	42.48 mm (1.6724 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 (0.712 – 0.740 in.)
Camshaft timing tube	Journal diameter		39.955 – 39.964 mm (1.5730 – 1.5734 in.)
	Journal oil clearance	STD	0.036 – 0.057 mm (0.0014 – 0.0022 in.)
		Maximum	0.075 mm (0.0030 in.)
Manifold	Warpage	Maximum Intake	0.15 mm (0.0059 in.)
		Exhaust	0.50 mm (0.0197 in.)

Cylinder block	Cylinder head surface warpage	Maximum	0.07 mm (0.0028 in.)
	Cylinder bore diameter	STD Mark 1	91.000 – 91.008 mm (3.5827 – 3.5830 in.)
		Mark 2	91.008 – 91.021 mm (3.5830 – 3.5835 in.)
		Mark 3	91.021 – 91.029 mm (3.5835 – 3.5838 in.)
		Maximum	91.229 mm (3.5917 in.)
	Main bearing cap bolt tension portion diameter		
		STD	7.500 – 7.600 mm (0.2953 – 0.2992 in.)
		Minimum	7.20 mm (0.2835 in.)
Piston and piston ring	Piston diameter	STD Mark 1	90.910 – 90.920 mm (3.5791 – 3.5795 in.)
		Mark 2	90.920 – 90.928 mm (3.5795 – 3.5798 in.)
		Mark 3	90.928 – 90.938 mm (3.5798 – 3.5802 in.)
	Piston oil clearance	STD	0.080 – 0.101 mm (0.0031 – 0.0040 in.)
		Maximum	0.121 mm (0.0048 in.)
	Piston ring groove clearance	No.1	0.030 – 0.080 mm (0.0012 – 0.0031 in.)
		No.2	0.020 – 0.060 mm (0.0008 – 0.0024 in.)
	Piston ring end gap	STD No.1	0.300 – 0.500 mm (0.0118 – 0.0197 in.)
		No.2	0.400 – 0.600 mm (0.0157 – 0.0236 in.)
		Oil	0.150 – 0.500 mm (0.0059 – 0.0197 in.)
		Maximum No.1	1.10 mm (0.0433 in.)
		No.2	1.20 mm (0.0472 in.)
		Oil	1.10 mm (0.0433 in.)
Connecting rod	Thrust clearance	STD	0.160 – 0.290 mm (0.0063 – 0.0138 in.)
		Maximum	0.35 mm (0.0138 in.)
	Connecting rod thickness		22.880 – 22.920 mm (0.9008 – 0.9024 in.)
	Connecting rod oil clearance	STD	0.021 – 0.047 mm (0.0008 – 0.0019 in.)
		Maximum	0.065 mm (0.0026 in.)
	Connecting rod bearing center wall thickness		
	(Reference)	Mark 2	1.487 – 1.490 mm (0.0585 – 0.0587 in.)
		Mark 3	1.490 – 1.493 mm (0.0587 – 0.0588 in.)
		Mark 4	1.493 – 1.496 mm (0.0588 – 0.0589 in.)
		Mark 5	1.496 – 1.499 mm (0.0589 – 0.0590 in.)
		Mark 6	1.499 – 1.502 mm (0.0590 – 0.0591 in.)
		Mark 7	1.502 – 1.505 mm (0.0591 – 0.0593 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		22.005 – 22.014 mm (0.8663 – 0.8667 in.)
	Piston pin diameter		21.997 – 22.006 mm (0.8660 – 0.8664 in.)
	Bushing oil clearance	STD	0.005 – 0.011 mm (0.0002 – 0.0004 in)
		Maximum	0.05 mm (0.0020 in.)
	Connecting rod bolt tension portion diameter	STD	7.200 – 7.300 mm (0.2835 – 0.2874 in.)
		Minimum	7.00 mm (0.2756 in.)
Crankshaft	Thrust clearance	STD	0.020 – 0.220 mm (0.0008 – 0.0087 in.)
		Maximum	0.30 mm (0.0118 in.)
	Thrust washer thickness		2.440 – 2.490 mm (0.0961 – 0.0980 in.)
	Main journal bore diameter on cylinder block (with main bearing)		66.986 – 67.000 mm (2.6372 – 2.6378 in.)
	Main journal oil clearance	STD No.1 and No.5	0.017 – 0.033 mm (0.0007 – 0.0013 in.)
		Others	0.029 – 0.045 mm (0.0011 – 0.0018 in.)
		Maximum No.1 and No.5	0.043 mm (0.0017 in.)
		Others	0.055 mm (0.0022 in.)
	Main journal diameter		66.988 – 67.000 mm (2.6373 – 2.6378 in.)

Crankshaft (cont'd)	Main bearing center wall thickness (Reference)		
	No.1 and No.5	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.)
		Mark 7	2.504 – 2.507 mm (0.0986 – 0.0987 in.)
	Others	Mark 1	2.486 – 2.489 mm (0.0979 – 0.0980 in.)
		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.)
	Crank pin diameter		51.982 – 52.000 mm (2.0465 – 2.0472 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–of–round	Maximum	0.02 mm (0.0008 in.)