ENGINE MECHANICAL

SERVICE DATA

SS0OQ–04

Compression pressure	at 250 rpm STD	1,324 kPa (13.5 kgf/cm^2, 192 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.)
	No58	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 check connector	5 –15° BTDC @ idle
Idle speed	–	700 ± 50 rpm
Timing belt tensioner	Protrusion from housing end	10.5 – 11.5 mm (0.413 – 0.453 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	9.810 – 9.960 mm (0.3862 – 0.3921 in.)
		Minimum	9.70 mm (0.3819 in.)
Valve guide bushing	Inside diameter		5.510 – 5.530 mm (0.2169 – 0.2374 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	95.05 mm (3.7421 in.)
		Exhaust	95.10 mm (3.7441 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 Intake	1.25 mm (0.049 in.)
		Exhaust	1.4 mm (0.055 in.)
		Minimum	0.5 mm (0.020 in.)
Valve spring	Deviation	Maximum	2.0 mm (0.079 in.)
	Free length		54.1 mm (2.130 in.)
	Installed tension at 35.0 mm (1.378 in.)		204 – 226 N (20.8 – 23.0 kgf·cm, 45.9 – 50.7 lbf)
Valve lifter	Lifter diameter		30.966 – 30.976 mm (1.2191 – 2.2195 in.)
	Lifter bore diameter		31.000 – 31.016 mm (1.2205 – 1.2211 in.)
	Oil clearance	STD	0.024 – 0.050 mm (0.0009 – 0.0020 in.)
		Maximum	0.07 mm (0.0028 in.)
Camshaft	Thrust clearance	STD Intake	0.040 – 0.090 mm (0.0016 – 0.0035 in.)
		Exhaust	0.040 – 0.085 mm (0.0016 – 0.0033 in.)
		Maximum	0.12 mm (0.0047 in.)
	Journal oil clearance	STD	0.030 – 0.067 mm (0.0012 – 0.0026 in.)
		Maximum	0.10 mm (0.0039 in.)
	Journal diameter		26.954 – 26.970 mm (1.0612 – 1.0618 in.)
	Circle runout		0.08 mm (0.0031 in.)
	Cam lobe height	STD Intake	41.94 – 42.04 mm (1.6512 – 1.6551 in.)
		Exhaust	41.96 – 42.06 mm (1.6520 – 1.6559 in.)
		Minimum Intake	41.79 mm (1.6453 in.)
		Exhaust	41.81 mm (1/6461 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.)
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 STD Mark 1	94.002 – 94.010 mm (3.7009 – 3.7012 in.)
		Mark 2	94.010 – 94.023 mm (3.7012 – 3.7017 in.)
		Mark 3	94.023 – 94.031 mm (3.7017 – 3.7020 in.)
		Maximum STD	94.231 mm (3.7099 in.)
		O/S 050	94.731 mm (3.7296 in.)
	Main bearing cap bolt tension portion diameter	STD	10.760 – 10.970 mm (0.4236 – 0.4319 in.)
		Minimum	10.40 mm (0.4094 in.)
Piston and piston ring	Piston diameter	STD Mark 1	93.902 – 93.912 mm (3.6969 – 3.6973 in.)
		Mark 2	93.912 – 93.920 mm (3.6973 – 3.6976 in.)
		Mark 3	93.920 – 93.930 mm (3.6976 – 3.6980 in.)
		O/S 0.50	94.402 – 94.430 mm (3.7166 – 3.7177 in.)
	Piston oil clearance	STD	0.090 – 0.111 mm (0.0035 – 0.0044 in.)
		Maximum	0.13 mm (0.0051 in.)
	Piston ring groove clearance	No.1	0.030 – 0.080 mm (0.0012 – 0.0031 in.)
		No.2	0.030 – 0.070 mm (0.0012 – 0.0028 in.)
	Piston ring end gap	STD No.1	0.300 – 0.500 mm (0.0118 – 0.0197 in.)
		No.2	0.400 – 0.650 mm (0.0157 – 0.0256 in.)
		Oil	0.130 – 0.480 mm (0.0051 – 0.0189 in.)
		Maximum No.1	1.10 mm (0.0433 in.)
		No.2	1.20 mm (0.0472 in.)
		Oil	1.15 mm (0.0453 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	0.027 – 0.053 mm (0.0011 – 0.0021 in.)
		Maximum	0.065 mm (0.0026 in.)
	Connecting rod bearing center wall thickness (Reference)	Mark 2	1.484 – 1.487 mm (0.0584 – 0.0585 in.)
		Mark 3	1.487 – 1.490 mm (0.0585 – 0.0587 in.)
		Mark 4	1.490 – 1.493 mm (0.0587 – 0.0588 in.)
		Mark 5	1.493 – 1.496 mm (0.0588 – 0.0589 in.)
		Mark 6	1.496 – 1.499 mm (0.0589 – 0.0590 in.)
		Mark 7	1.499 – 1.502 mm (0.0590 – 0.0591 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	0.040 – 0.058 mm (0.0016 – 0.0023 in.)
		Maximum	0.070 mm (0.0028 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	2.481 – 2.484 mm (0.0977 – 0.0978 in.)
		Mark 4	2.484 – 2.487 mm (0.0978 – 0.0979 in.)
		Mark 5	2.487 – 2.490 mm (0.0979 – 0.0980 in.)
		Mark 6	2.490 – 2.493 mm (0.0980 – 0.0981 in.)
		Mark 7	2.493 – 2.496 mm (0.0981 – 0.0983 in.)
	Others	Mark 1	2.481 – 2.484 mm (0.0977 – 0.0978 in.)
		Mark 2	2.484 – 2.487 mm (0.0978 – 0.0979 in.)
		Mark 3	2.487 – 2.490 mm (0.0979 – 0.0980 in.)
		Mark 4	2.490 – 2.493 mm (0.0980 – 0.0981 in.)
		Mark 5	2.493 – 2.496 mm (0.0981 – 0.0983 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.)