

ENGINE MECHANICAL (2JZ-GE)

SERVICE DATA

SS0FH-08

Compression pressure	at 250 rpm STD Minimum Difference of pressure between each cylinder	1,275 kPa (13.0 kgf/cm ² , 185 psi) or more 1,079 kPa (11.0 kgf/cm ² , 156 psi) 98 kPa (1.0 kgf/cm ² , 14 psi) or less
Valve clearance	Clearance at cold Intake Exhaust Adjusting shim (for repair part) Mark 2.500 Mark 2.550 Mark 2.600 Mark 2.650 Mark 2.700 Mark 2.750 Mark 2.800 Mark 2.850 Mark 2.900 Mark 2.950 Mark 3.000 Mark 3.050 Mark 3.100 Mark 3.150 Mark 3.200 Mark 3.250 Mark 3.300	0.15 – 0.25 mm (0.006 – 0.010 in.) 0.25 – 0.35 mm (0.010 – 0.014 in.) 2.500 mm (0.0984 in.) 2.550 mm (0.1004 in.) 2.600 mm (0.1024 in.) 2.650 mm (0.1043 in.) 2.700 mm (0.1063 in.) 2.750 mm (0.1083 in.) 2.800 mm (0.1102 in.) 2.850 mm (0.1122 in.) 2.900 mm (0.1142 in.) 2.950 mm (0.1161 in.) 3.000 mm (0.1181 in.) 3.050 mm (0.1201 in.) 3.100 mm (0.1220 in.) 3.150 mm (0.1240 in.) 3.200 mm (0.1260 in.) 3.250 mm (0.1280 in.) 3.300 mm (0.1299 in.)
Ignition timing	w/ Terminals TE1 and E1 connected of DLC1	10° BTDC @ idle
Idle speed	–	700 ± 50 rpm
Timing belt tensioner	Protrusion (from housing side)	8.0 – 8.8 mm (0.315 – 0.346 in.)
Valve guide bushing	Inside diameter Outside diameter (for repair part) STD O/S 0.05	6.010 – 6.030 mm (0.2366 – 0.2374 in.) 11.033 – 11.044 mm (0.4344 – 0.4348 in.) 11.083 – 11.094 mm (0.4363 – 0.4368 in.)
Cylinder head	Warpage Cylinder block side Intake manifold side Exhaust manifold side Valve guide bore diameter STD O/S 0.05 Valve seat Refacing angle Contacting angle Contacting width Intake Exhaust Cylinder head bolt diameter STD Minimum	0.10 mm (0.0039 in.) 0.10 mm (0.0039 in.) 0.10 mm (0.0039 in.) 10.985 – 11.006 mm (0.4325 – 0.4333 in.) 11.035 – 11.056 mm (0.4344 – 0.4353 in.) 15°, 45°, 60° 45° 1.0 – 1.4 mm (0.039 – 0.055 in.) 1.2 – 1.6 mm (0.047 – 0.063 in.) 10.8 – 11.0 mm (0.425 – 0.433 in.) 10.7 mm (0.421 in.)
Valve	Valve overall length STD Intake Exhaust Minimum Intake Exhaust Valve face angle Stem diameter Intake Exhaust	98.29 – 98.79 mm (3.8697 – 3.8894 in.) 98.84 – 99.34 mm (3.8913 – 3.9110 in.) 98.19 mm (3.8657 in.) 98.74 mm (3.8874 in.) 44.5° 5.970 – 5.985 mm (0.2350 – 0.2356 in.) 5.965 – 5.980 mm (0.2348 – 0.2354 in.)

Valve (cont'd)	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.)
	Margin thickness	Maximum Intake	0.08 mm (0.0031 in.)
		Exhaust	0.10 mm (0.0039 in.)
		STD	0.8 – 1.2 mm (0.031 – 0.047 in.)
		Minimum	0.5 mm (0.020 in.)
Valve spring	Deviation	Maximum	2.0 mm (0.079 in.)
	Free length		41.70 mm (1.6417 in.)
	Installed tension at 34.5 mm (1.358 in.)		186 – 206 N (19.0 – 21.0 kgf, 41.9 – 46.3 lbf)
Valve lifter	Lifter diameter		30.966 – 30.976 mm (1.2191 – 1.2195 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	0.080 – 0.190 mm (0.0031 – 0.0075 in.)
		Maximum	0.30 mm (0.0118 in.)
	Cam lobe height	STD Intake	44.570 – 44.670 mm (1.7547 – 1.7587 in.)
		Exhaust	44.770 – 44.870 mm (1.7626 – 1.7665 in.)
		Maximum Intake	44.24 mm (1.7488 in.)
		Exhaust	44.62 mm (1.7567 in.)
	Journal diameter		28.949 – 28.965 mm (1.1397 – 1.1404 in.)
	Journal oil clearance	STD	0.035 – 0.072 mm (0.0014 – 0.0028 in.)
		Maximum	0.10 mm (0.0039 in.)
	Circle runout	Maximum	0.08 mm (0.0031 in.)
Air intake chamber	Warpage	Maximum	0.15 mm (0.0059 in.)
Manifold	Warpage	Maximum Intake	0.15 mm (0.0059 in.)
		Exhaust	0.50 mm (0.0196 in.)
Cylinder block	Cylinder head surface warpage	Maximum	0.07 mm (0.0028 in.)
	Cylinder bore diameter	STD	86.000 – 86.013 mm (3.3858 – 3.3863 in.)
		Maximum	86.02 mm (3.3866 in.)
	Main journal bore diameter (Reference)	STD Mark 0	66.020 – 66.022 mm (2.59922 – 2.59929 in.)
		Mark 1	66.022 – 66.024 mm (2.59929 – 2.59936 in.)
		Mark 2	66.024 – 66.026 mm (2.59936 – 2.59944 in.)
		Mark 3	66.026 – 66.028 mm (2.59944 – 2.59952 in.)
		Mark 4	66.028 – 66.030 mm (2.59952 – 2.59960 in.)
		Mark 5	66.030 – 66.032 mm (2.59960 – 2.59968 in.)
		Mark 6	66.032 – 66.034 mm (2.59968 – 2.59976 in.)
		Mark 7	66.034 – 66.036 mm (2.59976 – 2.59984 in.)
	Main bearing bolt diameter	STD	9.96 – 9.97 mm (0.3921 – 0.3925 in.)
		Minimum	9.7 mm (0.382 in.)
Piston and Piston ring	Piston diameter		85.935 – 85.945 mm (3.3833 – 3.3837 in.)
	Piston oil clearance	STD	0.055 – 0.078 mm (0.0022 – 0.0031 in.)
		Maximum	0.10 mm (0.0039 in.)
	Piston ring groove clearance	No.1	0.011 – 0.070 mm (0.0004 – 0.0028 in.)
		No.2	0.030 – 0.070 mm (0.0012 – 0.0028 in.)
	Piston ring end gap	STD No.1	0.300 – 0.470 mm (0.0118 – 0.0185 in.)
		No.2	0.350 – 0.520 mm (0.0138 – 0.0205 in.)
		Oil	0.130 – 0.450 mm (0.0051 – 0.0177 in.)
		Maximum No.1	1.07 mm (0.0421 in.)
		No.2	1.12 mm (0.0441 in.)
		Oil	1.05 mm (0.0413 in.)

SERVICE SPECIFICATIONS – ENGINE MECHANICAL (2JZ-GE)

Connecting rod	Thrust clearance	STD	0.250 – 0.402 mm (0.0098 – 0.0158 in.)
		Maximum	0.50 mm (0.0197 in.)
	Connecting bolt diameter	STD	8.1 – 8.3 mm (0.319 – 0.327 in.)
		Minimum	8.0 mm (0.315 in.)
	Connecting rod oil clearance	STD STD	0.023 – 0.041 mm (0.0009 – 0.0016 in.)
		U/S 0.25	0.028 – 0.066 mm (0.0011 – 0.0026 in.)
		Maximum STD	0.07 mm (0.0027 in.)
		U/S 0.25	0.08 mm (0.0031 in.)
	Connecting rod big end inside diameter (Reference)	STD Mark 1	55.025 – 55.031 mm (2.1633 – 2.1666 in.)
		Mark 2	55.031 – 55.037 mm (2.1666 – 2.1668 in.)
		Mark 3	55.037 – 55.043 mm (2.1668 – 2.1670 in.)
	Connecting rod bearing center wall thickness (Reference)	STD Mark 1	1.498 – 1.501 mm (0.0590 – 0.0591 in.)
		Mark 2	1.501 – 1.504 mm (0.0591 – 0.0592 in.)
		Mark 3	1.504 – 1.507 mm (0.0592 – 0.0593 in.)
		Mark 4	1.507 – 1.510 mm (0.0593 – 0.0594 in.)
		Mark 5	1.510 – 1.513 mm (0.0594 – 0.0596 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.)
	Piston pin oil clearance	STD	0.005 – 0.011 mm (0.0002 – 0.0004 in.)
		Maximum	0.05 mm (0.0020 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.)

Crankshaft	Thrust clearance	STD	0.020 – 0.220 mm (0.0008 – 0.0087 in.)
		Maximum	0.30 mm (0.0118 in.)
	Thrust washer thickness	STD	1.940 – 1.990 mm (0.0764–0.0783 in.)
	Main journal oil clearance	STD	0.026 – 0.040 mm (0.0010–0.0016 in.)
		U/S 0.25	0.025 – 0.061 mm (0.0010–0.0024 in.)
		Maximum	0.06 mm (0.0024 in.)
		U/S 0.25	0.08 mm (0.0031 in.)
	Main journal diameter	STD	61.984 – 62.000 mm (2.4403 – 2.4409 in.)
		U/S 0.25	61.745 – 61.755 mm (2.4309 – 2.4313 in.)
	Main bore journal diameter (Reference)	STD Mark 0	66.020 – 66.022 mm (2.59922 – 2.59929 in.)
		Mark 1	66.022 – 66.024 mm (2.59929 – 2.59936 in.)
		Mark 2	66.024 – 66.026 mm (2.59936 – 2.59944 in.)
		Mark 3	66.026 – 66.028 mm (2.59944 – 2.59952 in.)
		Mark 4	66.028 – 66.030 mm (2.59952 – 2.59960 in.)
		Mark 5	66.030 – 66.032 mm (2.59960 – 2.59968 in.)
		Mark 6	66.032 – 66.034 mm (2.59968 – 2.59976 in.)
		Mark 7	66.034 – 66.036 mm (2.59976 – 2.59984 in.)
	Main journal diameter (Reference)	STD Mark 0	61.998 – 62.000 mm (2.44086 – 2.44094 in.)
		Mark 1	61.996 – 61.998 mm (2.44078 – 2.44086 in.)
		Mark 2	61.994 – 61.996 mm (2.44070 – 2.44078 in.)
		Mark 3	61.662 – 61.994 mm (2.44063 – 2.44070 in.)
		Mark 4	61.990 – 61.992 mm (2.44055 – 2.44063 in.)
		Mark 5	61.988 – 61.990 mm (2.44047 – 2.44055 in.)
		Mark 6	61.986 – 61.988 mm (2.44039 – 2.44047 in.)
		Mark 7	61.984 – 61.986 mm (2.44031 – 2.44039 in.)
	Main bearing center wall thickness (Reference)	Mark 1	1.994 – 1.997 mm (0.0785 – 0.0786 in.)
		Mark 2	1.997 – 2.000 mm (0.0786 – 0.0787 in.)
		Mark 3	2.000 – 2.003 mm (0.0787 – 0.0789 in.)
		Mark 4	2.003 – 2.006 mm (0.0789 – 0.0790 in.)
		Mark 5	2.006 – 2.009 mm (0.0790 – 0.0791 in.)
	Crank pin diameter	STD	51.982 – 52.000 mm (2.0465 – 2.0472 in.)
		U/S 0.25	51.745 – 51.755 mm (2.0372 – 2.0376 in.)
	Crank pin diameter (Reference)	STD Mark 0	51.994 – 52.000 mm (2.0470 – 2.0472 in.)
		Mark 1	51.988 – 51.994 mm (2.0468 – 2.0470 in.)
		Mark 2	51.982 – 51.988 mm (2.0465 – 2.0468 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.)