

ENGINE MECHANICAL (2JZ-GE)

SERVICE DATA

Compression pressure	at 250 rpm STD Minimum Difference of pressure between each cylinder	1,324 kPa (13.5 kgf/cm ² , 192 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	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 TE and E1 connected of DLC1	10° ± 2° BTDC @ idle
Idle speed		700 ± 50 rpm
Timing belt tensioner	Protrusion (from housing side)	8.0 - 8.8 mm (0.315 - 0.346 in.)
Cylinder head	Wa:page Cylinder block side Intake manifold side Exhaust manifold side Valve guide bore diameter Valve seat Refacing angle Contacting angle Contacting width Cylinder head bolt diameter	Maximum 0.10 mm (0.0039 in.) Maximum 0.10 mm (0.0039 in.) Maximum 0.10 mm (0.0039 in.) STD 10.985 - 11.006 mm (0.4325 - 0.4333 in.) O/S 0.05 11.035 - 11.056 mm (0.4344 - 0.4353 in.) 15°, 45°, 75° 45° Intake 1.0 - 1.4 mm (0.039 - 0.055 in.) Exhaust 1.2 - 1.6 mm (0.047 - 0.063 in.) STD 10.8 - 11.0 mm (0.425 - 0.433 in.) Minimum 10.7 mm (0.421 in.)
Valve guide bushing	Inside diameter Outside diameter (for repair part)	6.010 - 6.030 mm (0.2366 - 0.2374 in.) STD 11.033 - 11.044 mm (0.4344 - 0.4348 in.) O/S 0.05 11.083 - 11.094 mm (0.4363 - 0.4368 in.)
Valve	Valve overall length Valve face angle Stem diameter	STD Intake 98.29 - 98.79 mm (3.8697 - 3.8894 in.) Exhaust 98.84 - 99.34 mm (3.8913 - 3.9110 in.) Minimum Intake 98.19 mm (3.8657 in.) Exhaust 98.74 mm (3.8874 in.) 44.5° Intake 5.970 - 5.985 mm (0.2350 - 0.2356 in.) Exhaust 5.965 - 5.980 mm (0.2348 - 0.2354 in.)

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Valve (cont'd)	Stem oil clearance	STD Intake Exhaust	0.025 - 0.060 mm (0.0010 - 0.0024 in.) 0.030 - 0.065 mm (0.0012 - 0.0026 in.)
	Margin thickness	Maximum Intake Exhaust STD Minimum	0.08 mm (0.0031 in.) 0.10 mm (0.0039 in.) 0.8 - 1.2 mm (0.031 - 0.047 in.) 0.5 mm (0.020 in.)
Valve spring	Deviation	Maximum	2.0 mm (0.079 in.)
	Free length	Pink painted mark Yellow painted mark	43.71 mm (1.7209 in.) 44.10 mm (1.7362 in.)
Valve lifter	Installed tension at 34.5 mm (1.358 in.)		186.2 - 205.8 N (19.0 - 21.0 kgf, 41.9 - 46.3 lbf)
	Lifter diameter Lifter bore diameter Oil clearance	STD Maximum	30.966 - 30.976 mm (1.2191 - 1.2195 in.) 31.000 - 31.016 mm (1.2205 - 1.2211 in.) 0.024 - 0.050 mm (0.0009 - 0.0020 in.)
Camshaft	Thrust clearance	STD Maximum	0.080 - 0.190 mm (0.0031 - 0.0075 in.) 0.30 mm (0.0118 in.)
	Cam lobe height	STD Intake Exhaust	44.310 - 44.360 mm (1.7445 - 1.7465 in.) 44.250 - 44.350 mm (1.7421 - 1.7461 in.)
		Maximum Intake Exhaust	44.16 mm (1.7386 in.) 44.10 mm (1.7362 in.)
	Journal diameter		28.949 - 28.965 mm (1.1397 - 1.1404 in.)
	Journal oil clearance	STD Maximum	0.035 - 0.072 mm (0.0014 - 0.0028 in.) 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 Exhaust	0.15 mm (0.0059 in.) 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.)
	Main bearing bolt diameter	Maximum STD Minimum	86.02 mm (3.3866 in.) 9.96 - 9.97 mm (0.3921 - 0.3925 in.) 9.7 mm (0.382 in.)
Connecting rod	Thrust clearance	STD Maximum	0.250 - 0.402 mm (0.0098 - 0.0158 in.) 0.50 mm (0.0197 in.)
	Connecting bolt diameter	STD Minimum	8.1 - 8.3 mm (0.319 - 0.327 in.) 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 Maximum STD U/S 0.25	0.028 - 0.066 mm (0.0011 - 0.0026 in.) 0.07 mm (0.0027 in.) 0.08 mm (0.0031 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 Maximum	0.005 - 0.011 mm (0.0002 - 0.0004 in.) 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.)	

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.)	
	Piston ring groove clearance	Maximum		0.10 mm (0.0039 in.)
		No.1		0.011 - 0.070 mm (0.0004 - 0.0028 in.)
	Piston ring end gap	No.2		0.030 - 0.070 mm (0.0012 - 0.0028 in.)
		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.)
	Crankshaft	Thrust clearance	Maximum No.1	1.07 mm (0.0421 in.)
			No.2	1.12 mm (0.0441 in.)
Oil			1.05 mm (0.0413 in.)	
Crankshaft	Thrust clearance	STD	0.020 - 0.220 mm (0.0008 - 0.0087 in.)	
	Thrust washer thickness	Maximum		0.30 mm (0.0118 in.)
		STD		1.940 - 1.990 mm (0.0764 - 0.0783 in.)
	Main journal oil clearance	STD 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.)
	Main journal diameter	Maximum STD		0.06 mm (0.0024 in.)
		U/S 0.25		0.08 mm (0.0031 in.)
		STD		61.984 - 62.000 mm (2.4403 - 2.4409 in.)
	Main bearing center wall thickness (Reference)	U/S 0.25		61.745 - 61.755 mm (2.4309 - 2.4313 in.)
		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.)
	Crank pin diameter	Mark 5		2.006 - 2.009 mm (0.0790 - 0.0791 in.)
		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.)
	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.)	

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