ENGINE MECHANICAL (7A–FE)

SS1CI–02

SERVICE DATA

Compression pressure	at 250 rpm	STD	1,320 kPa (13.5 kgf/cm^2, 191 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.)
	adjusting shim (for repair part)	Mark 2.550	2.55 mm (0.1004 in.)
		Mark 2.600	2.60 mm (0.1024 in.)
		Mark 2.650	2.65 mm (0.1043 in.)
		Mark 2.700	2.70 mm (0.1063 in.)
		Mark 2.750	2.75 mm (0.1083 in.)
		Mark 2.800	2.80 mm (0.1102 in.)
		Mark 2.850	2.85 mm (0.1122 in.)
		Mark 2.900	2.90 mm (0.1142 in.)
		Mark 2.950	2.95 mm (0.1161 in.)
		Mark 3.000	3.00 mm (0.1181 in.)
		Mark 3.050	3.05 mm (0.1201 in.)
		Mark 3.100	3.10 mm (0.1220 in.)
		Mark 3.150	3.15 mm (0.1240 in.)
		Mark 3.200	3.20 mm (0.1260 in.)
		Mark 3.250	3.25 mm (0.1280 in.)
		Mark 3.300	3.30 mm (0.1299 in.)
Ignition timing			10 ± 2˚ BTDC @ idle (w/ Terminals TE_1 and E_1 connected of DLC1)
Idle speed	–		700 ± 50 rpm
Intake manifold vacuum	at idle speed		43 kPa (320 mmHg, 12.6 in.Hg) or more
Idler pulley tension spring	Free length		31.76 mm (1.250 in.)
	Installed load at 37.6 mm (1.480 in.)		47.5 – 51.5 N (4.85 – 5.25 kgf, 10.7 – 11.6 lbf)
Cylinder head	Warpage		
	Cylinder block side	Maximum	0.05 mm (0.020 in.)
	Manifold side	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	Inside diameter		6.010 – 6.030 mm (0.2366 – 0.2374 in.)
	Outside diameter (for repair part)	STD	11.000 – 11.027 mm (0.4331 – 0.4341 in.)
		O/S 0.05	11.050 – 11.077 mm (0.4350 – 0.4361 in.)
Valve	Valve overall length	STD Intake	87.45 mm (3.4429 in.)
		Exhaust	87.84 mm (3.4583 in.)
		Minimum Intake	86.95 mm (3.4232 in.)
		Exhaust	87.34 mm (3.4386 in.)
	Vale face angle		44.5˚
	Stem diameter	Intake	5.970 – 5.985 mm (0.2350 – 0.2356 in.)
		Exhaust	5.965 – 5.980 mm (0.2348 – 0.2354 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	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		38.57 mm (1.5185 in.)
	Installed tension at 31.7 mm (1.248 in.)		166 N (16.9 kgf, 37.3 lbf)
Camshaft	Thrust clearance	STD Intake	0.030 – 0.085 mm (0.0012 – 0.0033 in.)
		Exhaust	0.035 – 0.090 mm (0.0014 – 0.0035 in.)
		Maximum	0.11 mm (0.0043 in.)
	Journal oil clearance	STD	0.035 – 0.072 mm (0.0014 – 0.0028 in.)
		Maximum	0.10 mm (0.0039 in.)
	Journal diameter	Exhaust No.1	24.949 – 24.965 mm (0.9822 – 0.9829 in.)
		Others	22.949 – 22.965 mm (0.9035 – 0.9041 in.)
	Circle runout	Maximum	0.04 mm (0.0016 in.)
	Cam lobe height	STD Intake	42.610 – 42.710 mm (1.6776 – 1.6815 in.)
		Exhaust	41.960 – 42.060 mm (1.6520 – 1.6560 in.)
		Minimum Intake	42.20 mm (1.6614 in.)
		Exhaust	41.55 mm (1.6358 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		17.0 – 17.6 mm (0.669 – 0.693 in.)
Valve lifter	Lifter diameter		30.966 – 30.976 mm (1.2191 – 1.2195 in.)
	Lifter bore diameter		31.000 – 31.025 mm (1.2205 – 1.2215 in.)
	Oil clearance	STD	0.024 – 0.059 mm (0.0009 – 0.0023 in.)
		Maximum	0.07 mm (0.0028 in.)
Manifold	Warpage	Maximum Intake	0.20 mm (0.0079 in.)
		Exhaust	0.30 mm (0.0118 in.)
Spark plug tube	Protrusion		46.8 – 47.6 mm (1.843 – 1.874 in.)
Cylinder block	Cylinder head surface warpage	Maximum	0.05 mm (0.0020 in.)
	Cylinder bore diameter	STD Mark 1	81.000 – 81.010 mm (3.1890 – 3.1894 in.)
		Mark 2	81.010 – 81.020 mm (3.1894 – 3.1898 in.)
		Mark 3	81.020 – 81.030 mm (3.1898 – 3.1902 in.)
		Maximum STD	81.23 mm (3.1982 in.)
		O/S 0.50	81.73 mm (3.2177 in.)
	Main journal bore diameter	Mark 1	52.025 – 52.031 mm (2.0482 – 2.0485 in.)
		Mark 2	52.031 – 52.037 mm (2.0485 – 2.0487 in.)
		Mark 3	52.037 – 52.043 mm (2.0487 – 2.0489 in.)
Piston and piston ring	Piston diameter	STD Mark 1	80.905 – 80.915 mm (3.1852 – 3.1856 in.)
		Mark 2	80.915 – 80.925 mm (3.1856 – 3.1860 in.)
		Mark 3	80.925 – 80.935 mm (3.1860 – 3.1864 in.)
		O/S 0.50	81.405 – 81.435 mm (3.2049 – 3.2061 in.)
	Piston oil clearance	STD	0.085 – 0.105 mm (0.0033 – 0.0041 in.)
		Maximum	0.20 mm (0.0079 in.)
	Piston ring groove clearance	No.1	0.008 – 0.080 mm (0.0003 – 0.0031 in.)
		No.2	0.030 – 0.070 mm (0.0012 – 0.0028 in.)
	Piston ring end gap	STD No.1	0.250 – 0.350 mm (0.0098 – 0.0138 in.)
		No.2	0.350 – 0.500 mm (0.0138 – 0.0197 in.)
		Oil	0.100 – 0.400 mm (0.0039 – 0.0157 in.)
		Maximum No.1	1.05 mm (0.0413 in.)
		No.2	1.20 mm (0.0472 in.)
		Oil	1.10 mm (0.0433 in.)

Connecting rod	Thrust clearance	STD	0.15 – 0.25 mm (0.0059 – 0.0098 in.)
		Maximum	0.30 mm (0.0118 in.)
	Connecting rod bearing center wall thickness		
	Reference	STD Mark 1	1.486 – 1.490 mm (0.0585 – 0.0587 in.)
		Mark 2	1.490 – 1.494 mm (0.0587 – 0.0588 in.)
		Mark 3	1.494 – 1.498 mm (0.0588 – 0.0590 in.)
	Connecting rod oil clearance	STD STD	0.020 – 0.048 mm (0.0008 – 0.0019 in.)
		U/S 0.25	0.019 – 0.058 mm (0.0007 – 0.0022 in.)
		Maximum	0.08 mm (0.0031 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.)		0.05 mm (0.0020 in.)
	Connecting rod bolt outside diameter	STD	8.860 – 9.000 mm (0.3488 – 0.3543 in.)
		Minimum	8.60 mm (0.3386 in.)
Crankshaft	Thrust clearance	STD	0.015 – 0.220 mm (0.0006 – 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 oil clearance	STD STD	0.015 – 0.033 mm (0.0006 – 0.0013 in.)
		U/S 0.25	0.016 – 0.056 mm (0.0006 – 0.0022 in.)
		Maximum	0.08 mm (0.0031 in.)
	Main journal diameter	STD	47.982 – 48.000 mm (1.8891 – 1.8898 in.)
		U/S 0.25	47.745 – 47.755 mm (1.8797 – 1.8801 in.)
	Crankshaft journal diameter	Mark 0	47.994 – 48.000 mm (1.8895 – 1.8898 in.)
		Mark 1	47.988 – 47.994 mm (1.8893 – 1.8895 in.)
		Mark 2	47.982 – 47.988 mm (1.8891 – 1.8893 in.)
	Main bearing center wall thickness		
	Reference	STD Mark 1	2.002 – 2.005 mm (0.0788 – 0.0789 in.)
		Mark 2	2.005 – 2.008 mm (0.0789 – 0.0791 in.)
		Mark 3	2.008 – 2.011 mm (0.0791 – 0.0792 in.)
		Mark 4	2.011 – 2.014 mm (0.0792 – 0.0793 in.)
		Mark 5	2.014 – 2.017 mm (0.0793 – 0.0794 in.)
	Crank pin diameter	STD	47.988 – 48.000 mm (1.8893 – 1.8898 in.)
		U/S 0.25	47.745 – 47.555 mm (1.8797 – 1.8801 in.)
	Circle runout	Maximum	0.03 mm (0.0012 in.)
	Main journal taper and out–of–round	Maximum	0.005 mm (0.0002 in.)
	Crank pin taper and out–of–round	Maximum	0.005 mm (0.0002 in.)