SERVICE SPECIFICATIONS

SERVICE DATA

EG0V7-08

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Tune—up	Engine oil API grade	SG or SH, or ILSAC multigrade engine oil
	Battery specific gravity	1.25 — 1.27 (when fully charged at 20°C (68°F))
	High—tension cord resistance — Limit	25 kΩ per cord
	Spark plug (Recommended spark plug) — ND	K16R—U
	Spark plug (Recommended spark plug) — NGK	BKR5EYA
	Spark plug (Correct electrode gap)	0.8 mm (0.031 in.)
	Alternator drive belt	
	Deflection with 98 N (10 kgf, 22 lbf)	
	New belt	5 — 7 mm (0.20 — 0.28 in.)
	Used belt	7 — 8 mm (0.28 — 0.31 in.)
	Tension with SST	
	New belt	685 — 785 N (70 — 80 kgf)
	Used belt	295 — 440 N (30 — 45 kgf)
	Valve clearance (Cold) — Intake	0.15 — 0.25 mm (0.006 — 0.010 in.)
	Valve clearance (Cold) — Exhaust	0.25 — 0.35 mm (0.010 — 0.014 in.)
	Ignition timing	5° BTDC @ Max. 950rpm
	Idle speed	800 rpm
	Idle CO consentration	1.5 ± 0.5 %
	Idle mixture speed	850 rpm
	Fast idle speed	2,600 rpm
	TP setting speed (RCK series)	1,300 rpm
	TP setting speed (RZB series)	1,600 rpm
Compression pressure	at 250 rpm — STD	1,127 kPa (11.5 kgf/cm², 164 psi) or more
	at 250 rpm — Limit	880 kPa (9.0 kgf/cm², 127 psi)
	Difference of pressure between each cylinder	98 kPa (1.0 kgf/cm², 14 psi) or less
Cylinder head	Warpage — Cylinder block side (Limit)	0.05 mm (0.0020 in.)
	Warpage — Manifold side (Limit)	0.10 mm (0.0039 in.)
	Valve seat — Refacing angle (Intake)	30°, 45°, 60°
	Valve seat — Refacing angle (Exhaust)	45°, 60°
	Valve seat — Contacting angle	45°
	Valve seat — Contacting width (Intake)	1.0 — 1.4 mm (0.039 — 0.055 in.)
	Valve seat — Contacting width (Exhaust)	1.0 — 1.4 mm (0.039 — 0.055 in.)
	Cylinder head bolt outside diametr — STD	10.76 — 10.97 mm (0.4236 — 0.4319 in.)
	Cylinder head bolt outside diameter — Limit	10.40 mm (0.4094 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.)
	Outside diameter (for repair part) — O/S 0.05	11.050 — 11.077 mm (0.4350 — 0.4361 in.)
	Protrusion height	8.2 — 8.6 mm (0.323 — 0.339 in.)
	Replacing temperature (Cylinder head side)	80 — 100°C (176 —212°F)

Valve	Valve overall length — STD (Intake)	103.45 mm (4.0728 in.)
	Valve overall length — STD (Exhaust)	103.60 mm (4.0787 in.)
	Valve overall length — Limit (Intake)	102.95 mm (4.0531 in.)
	Valve overall length — Limit (Exhaust)	103.10 mm (4.0590 in.)
	Valve face angle	44.5°
	Stem diameter (Intake)	5.970 — 5.985 mm (0.2350 — 0.2356 in.)
	Stem diameter (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.)
	Stem oil clearance — STD (Exhaust)	0.030 — 0.065 mm (0.0012 — 0.0026 in.)
	Stem oil clearance — Limit (Intake)	0.08 mm (0.0031 in.)
	Stem oil clearance — Limit (Exhaust)	0.10 mm (0.0039 in.)
	Margin thickness — STD	1.0 mm (0.039 in.)
	Margin thickness — Limit	0.5 mm (0.020 in.)
Valve spring	Squareness — Limit	2.0 mm (0.079 in.)
	Installed tension at 37.5 mm (1.406 in.)	177 — 204 N (18.0 — 20.0 kgf, 45.9 — 39.7 lbf)
Valve lifter	Lifter diameter	30.966 — 30.976 mm (1.1578 — 1.2195 in.)
	Lifter bore diameter	31.000 — 31.016 mm (1.2205 — 1.2211 in.)
	Oil clearance — STD	0.024 — 0.055 mm (0.0009 — 0.0022 in.)
	Oil clearance — Limit	0.07 mm (0.0028 in.)
Manifold	Warpage — Limit (Intake)	0.20 mm (0.0078 in.)
	Warpage — Limit (Exhaust)	0.5 mm (0.0197 in.)
Camshaft	Thrust clearance — STD	0.040 — 0.095 mm (0.0016 — 0.0037 in.)
	Thrust clearance — Limit	0.12 mm (0.0047 in.)
	Journal oil clearance — STD	0.025 — 0.062 mm (0.0010 — 0.0024 in.)
	Journal oil clearance — Limit	0.08 mm (0.0031 in.)
	Journal diameter	26.959 — 26.975 mm (1.0614 — 1.0620 in.)
	Circle rounout — Limit	0.06 mm (0.0024 in.)
	Cam lobe height (Intake)	45.31 — 45.41 mm (1.7839 — 1.7878 in.)
	Cam lobe height (Exhaust)	45.06 — 45.16 mm (1.7740 — 1.7779 in.)
	Camshaft gear backlash — STD	0.020 — 0.200 mm (0.0008 — 0.0079 in.)
	Camshaft gear backlash — Limit	0.30 mm (0.0188 in.)
	Camshaft gear spring end free distance	22.5 — 22.9 mm (0.886 — 0.902 in.)
Spark plug tube	Protrusion	47.0 mm (1.850 in.)
Chain and timing gear	Chain length at 16 links — Limit (No.1)	147.5 mm (5.807 in.)
	Chain length at 16 links — Limit (No.2)	123.6 mm (4.866 in.)
	Crankshaft timing gear wear (w/ chain) — Limit	59.4 mm (2.339 in.)
	Camshaft timing gear wear (w/ chain) — Limit	113.8 mm (4.480 in.)
	Balanceshaft drive gear wear (w/ chain) — Limit	75.9 mm (2.988 in.)
	No.2 crankshaft timing sprocket wear (w/ chain) — Limit	96.7 mm (3.807 in.)
Chain tensioner slipper and vibration damper	Wear — Limit	1.0 mm (0.039 in.)

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Cylinder block	Cylinder head surface warpage – Limit		0.05 mm (0.0020 in.)
	Cylinder bore diameter – STD		94.990 – 95.003 mm (3.7398 – 3.7403 in.)
	Cylinder bore diameter – Limit (STD)		95.06 mm (3.7425 in.)
	Main bearing bolt outside diameter – STD		10.76 – 10.97 mm (0.4236 – 0.4319 in.)
	Main bearing bolt outside diameter – Limit		10.4 mm (0.4094 in.)
Piston and piston ring	Piston diameter – STD		94.933 – 94.943 mm (3.7375 – 3.7379 in.)
	Piston diameter – O/S 0.50		95.433 – 95.443 mm (3.7572 – 3.7575 in.)
	Piston oil clearance – STD		0.047 – 0.070 mm (0.0019 – 0.0028 in.)
	Piston ring groove clearance – No.1		0.030 – 0.080 mm (0.0012 – 0.0031 in.)
	Piston ring groove clearance – No.2		0.040 – 0.080 mm (0.0016 – 0.0031 in.)
	Piston ring end gap – STD (No.1)		0.300 – 0.430 mm (0.0118 – 0.0169 in.)
	Piston ring end gap – STD (No.2)		0.450 – 0.600 mm (0.0177 – 0.0236 in.)
	Piston ring end gap – Limit (No.1)		0.43 mm (0.0169 in.)
	Piston ring end gap – Limit (No.2)		0.60 mm (0.0236 in.)
	Piston pin installing temperature		80 – 90°C (176 – 194°F)
Connecting rod	Thrust clearance – STD		0.160 – 0.312 mm (0.0063 – 0.0123 in.)
	Thrust clearance – Limit		0.350 mm (0.0138 in.)
	Connecting rod bearing center wall thickness		
	– STD (Mark 4)		1.482 – 1.485 mm (0.0583 – 0.0585 in.)
	– STD (Mark 5)		1.485 – 1.488 mm (0.0585 – 0.0586 in.)
	– STD (Mark 6)		1.488 – 1.491 mm (0.0586 – 0.0587 in.)
	Connecting rod oil clearance		
	– STD (STD)		0.030 – 0.055 mm (0.0012 – 0.0022 in.)
	– STD (U/S 0.25)		0.031 – 0.071 mm (0.0012 – 0.0026 in.)
	– Limit		0.10 mm (0.0039 in.)
	Rod out–of–alignment		
	– Limit per 100 mm (3.94 in.)		0.05 mm (0.0020 in.)
	Rod twist – Limit per 100 mm (3.94 in.)		0.15 mm (0.0059 in.)
	Bushing inside diameter		24.008 – 24.017 mm (0.9452 – 0.9455 in.)
	Piston pin diameter		24.000 – 24.009 mm (0.9449 – 0.9452 in.)
	Piston pin oil clearance – STD		0.005 – 0.011 mm (0.0002 – 0.0004 in.)
	Piston pin oil clearance – Limit		0.015 mm (0.0006 in.)
	Connecting rod bolt outside diameter – STD		7.8 – 7.9 mm (0.3071 – 0.3110 in.)
	Connecting rod bolt outside diameter – Limit		7.6 mm (0.2992 in.)
Crankshaft	Thrust clearance – STD		0.020 – 0.0220 mm (0.0008 – 0.0087 in.)
	Thrust clearance – Limit		0.30 mm (0.0118 in.)
	Thrust washer thickness – STD		2.440 – 2.490 mm (0.0961 – 0.0980 in.)
	Main journal oil clearance – STD	No.1,2,4,5,	0.024 – 0.049 mm (0.0009 – 0.0019 in.)
	Main journal oil clearance – STD	No.3	0.030 – 0.055 mm (0.0012 – 0.0022 in.)
	Main journal oil clearance – U/S 0.25	No.1,2,4,5	0.025 – 0.065 mm (0.0010 – 0.0026 in.)
	Main journal oil clearance – U/S 0.25	No.3	0.030 – 0.070 mm (0.0012 – 0.0028 in.)
	Main journal oil clearance – Limit		0.10 mm (0.0039 in.)
	Main journal diameter – STD	No.1,2,4,5	59.987 – 60.000 mm (2.3617 – 2.3622 in.)
	Main journal diameter – STD	No.3	59.981 – 59.994 mm (2.2615 – 2.3620 in.)
	Main journal diameter – U/S 0.25	No.1,2,4,5	59.745 – 59.755 mm (2.3522 – 2.3526 in.)
	Main journal diameter – U/S 0.25	No.3	59.740 – 59.750 mm (2.3520 – 2.3524 in.)

Crankshaft	Main bearing center wall thickness	
	— STD (Mark 1)	1.987 — 1.990 mm (0.0782 — 0.0783 in.)
	— STD (Mark 2)	1.991 — 1.993 mm (0.0784 — 0.0785 in.)
	— STD (Mark 3)	1.994 — 1.996 mm (0.0785 — 0.0786 in.)
	— U/S 0.25	2.106 — 2.112 mm (0.0829 — 0.0831 in.)
	Crank pin diameter — STD	52.987 — 53.000 mm (2.0861 — 2.0866 in.)
	Crank pin diameter — U/S 0.25	52.745 — 52.755 mm (2.0766 — 2.0770 in.)
	Circle runout — Limit	0.03 mm (0.0012 in.)
	Main journal taper and out—of—round (Limit)	0.005 mm (0.0002 in.)
	Crank pin taper and out—of—round (Limit)	0.005 mm (0.0002 in.)
Balanceshaft	Thrust clearance — STD	0.07 — 0.13 mm (0.0027 — 0.0051 in.)
	Thrust clearance — Limit	0.2 mm (0.0079 in.)
	Bearing inside diameter (No.1)	38.025 — 38.045 mm (1.4970 — 1.4978 in.)
	Bearing inside diameter (No.2)	37.525 — 37.545 mm (1.4774 — 1.4781 in.)
	Journal diameter (No.1)	37.969 — 37.985 mm (1.4948 — 1.4955 in.)
	Journal diameter (No.2)	37.449 — 37.465 mm (1.4744 — 1.4750 in.)
	Journal oil clearance — STD (No.1)	0.040 — 0.076 mm (0.0016 — 0.0031 in.)
	Journal oil clearance — STD (No.2)	0.060 — 0.096 mm (0.0024 — 0.0038 in.)
	Journal oil clearance — Limit	0.15 mm (0.0059 in.)

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TORQUE SPECIFICATIONS

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Part tightened		N·m	kgf·cm	ft·lbf
No.2 vacuum pipe x Cylinder head		8.5	85	74 in.·lbf
Distributor x Cylinder head		19	195	14
Spark plug x Cylinder head		20	200	14
Cylinder head x Cylinder block	(1st)	39	400	29
	(2nd)	Turn 90°		
	(3rd)	Turn 90°		
Cylinder head x Timing chain cover		21	210	15
Camshaft beairng cap x Cylinder head		16	160	12
Camshaft timing gear x Camshaft		74	750	54
Distributor gear x Camshaft		46	465	37
Chain tensioner x Cylinder head		18	185	13
Engine hanger x Cylinder head		42	420	30
Exhaust manifold x Cylinder head		49	500	36
Heat insulator x Exhaust manifold		5.5	55	48 in.·lbf
Water bypass flange x Intake manifold		9.0	90	78 in.·lbf
Intake manifold x Cylinder head		29	300	22
Fuel pipe x Intake nanifold		8.5	85	74 in.·lbf
Intake manifold stay x Intake manifold		20	200	14
Accelerator bracket x Cylinder head		21	210	15
Fuel pump x Cylinder head		28	290	21
Cylinder head rear cover x Cylinder head		13.5	135	10
No.2 water bypass pipe x Cylinder head		19.5	200	14
Water outlet x Cylinder head		20	200	14
Balanceshaft drive gear x Balanceshaft		25	250	18
No.2 chain tensioner x Cylinder block		18	185	13
No.3 vibration damper x Cylinder block		18	185	13
No.2 vibration damper x Cylinder block		27	270	20

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No.1 vibration damper x Cylinder block		18	185	13
No.1 timing chain tensioner slipper x Cylinder block		27	270	20
Timing chain cover x Cylinder block	for Bolt A	20	200	14
	for Bolt B	24.5	250	18
	for Bolt C	44	440	32
	for Nut D	20	200	14
Timing chain cover mounting bolt		18	185	13
No.1 water bypass pipe mounting nut		20	200	14
Crankshaft pulley x Crankshaft		260	2,650	193
Oil strainer x Cylinder block		18	185	13
Oil pan x Cylinder block		12.5	130	9
Alternator bracket x Cylinder block		74.5	760	55
Alternator bracket x Timing chain cover		18	185	13
Alternator adjusting ber x Timing chain cover		58	590	43
Water pump pulley x Water pump		21	210	16
Connecting rod cap x Connecting rod	(1st)	45	460	33
	(2nd)	Turn 90°		
Main bearing cap x Cylinder block	(1st)	39	400	29
	(2nd)	Turn 90°		
No.1 balanceshaft x Timing gear		36	365	26
No.2 balanceshaft x Timing sprocket		36	365	26
Balanceshaft x Cylinder block		18	185	13.4
Rear oil seal retainer x Cylinder block		13.2	135	9.7
LH engine mounting bracket x Cylinder block		45	450	34
Oil dipstick guide x LH engine mounting bracket		20	200	14
RH engine mounting bracket x Cylinder block		45	450	34
Engine coolant drain plug x Cylinder block		24.5	250	18
Oil filter bracket union x Cylinder block		24.5	250	18
Oil filter bracket x Cylinder block		28	290	21
Water bypass pipe x Cylinder block		20	200	14
Rear end plate x Cylinder block		18	185	13
Rear end plate x Water bypass pipe		20	200	14
Flywheel x Crankshaft	(1st)	26.5	270	19
	(2nd)	Turn 90°		