ENGINE MECHANICAL

030YD–03

SERVICE DATA

Valve rocker arm and shaft	Valve rocker arm inside diameter		18.512 – 18.533 mm (0.7288 – 0.7296 in.)
	Valve rocker shaft diameter		18.472 – 18.493 mm (0.7272 – 0.7281 in.)
	Oil clearance	STD	0.019 – 0.061 mm (0.0007 – 0.0024 in.)
		Maximum	1.00 mm (0.0039 in.)
Push rod	Circle runout	Maximum	0.50 mm (0.0197 in.)
Timing gear	Gear backlash	STD	0.058 – 0.162 mm (0.0023 – 0.0064 in.)
		Maximum	0.30 mm (0.0118 in.)
	Idle gear No. 1 thrust clearance	STD	0.060 – 0.170 mm (0.0024 – 0.0067 in.)
		Maximum	0.30 mm (0.0118 in.)
	Idle gear No. 1 inside diameter		44.974 – 45.000 mm (1.7706 – 1.7717 in.)
	Idle gear shaft diameter		44.935 – 44.955 mm (1.7691 – 1.7699 in.)
	Idle gear oil clearance	STD	0.019 – 0.065 mm (0.0007 – 0.0026 in.)
		Maximum	0.18 mm (0.0071 in.)
Camshaft	Circle runout	Maximum	0.06 mm (0.0024 in.)
	Cam lobe height	STD Intake	44.879 –44.969 mm (1.7669 – 1.7704 in.)
		Exhaust	45.050 – 45.140 mm (1.7736 – 1.7772 in.)
		Minimum Intake	44.44 mm (1.7496 in.)
		Exhaust	44.62 mm (1.7567 in.)
	Journal diameter	STD No. 1	53.459 – 53.475 mm (2.1047 – 2.1053 in.)
		2	53.209 – 53.225 mm (2.0948 – 2.0955 in.)
		3	52.959 – 52.975 mm (2.0850 – 2.0856 in.)
		4	52.709 – 52.725 mm (2.0752 – 2.0758 in.)
		5	52.459 – 52.475 mm (2.0653 – 2.0659 in.)
	Bearing inside diameter	STD No. 1	53.505 – 53.530 mm (2.1065 – 2.1075 in.)
		2	53.255 – 53.280 mm (2.0966 – 2.0976 in.)
		3	53.005 – 53.030 mm (2.0868 – 2.0878 in.)
		4	52.755 – 52.780 mm (2.0770 – 2.0779 in.)
		5	52.505 – 52.530 mm (2.0671 – 2.0681 in.)
	Journal oil clearance	STD	0.030 – 0.071 mm (0.0012 – 0.0028 in.)
		Maximum	0.10 mm (0.0039 in.)
	Thrust clearance	STD	0.060 – 0.130 mm (0.0024 – 0.0051 in.)
		Maximum	0.30 mm (0.0118 in.)
Cylinder head bolt	Cylinder head bolt thread inside diameter	STD	11.80 – 12.00 mm (0.4646 – 0.4724 in.)
		Minimum	11.60 mm (0.4567 in.)
Cylinder head gasket	Cylinder head gasket thickness	Mark 1.5	1.47 – 1.53 mm (0.0579 – 0.0602 in.)
		1.6	1.57 – 1.63 mm (0.0618 – 0.0642 in.)
		1.7	1.67 – 1.73 mm (0.0657 – 0.0681 in.)
Valve clearance		at cold Intake	0.20 mm (0.008 in.)
		Exhaust	0.36 mm (0.014 in.)
Cylinder head	Warpage	Maximum	0.20 mm (0.0079 in.)
	Valve seat		
	Refacing angle	Intake	30°, 45°, 65°
		Exhaust	30°, 45°, 65°
	Contacting angle		45°
	Contacting width		1.9 – 2.3 mm (0.075 – 0.091 in.)

Valve	Valve overall length	STD Intake	126.35 – 126.75 mm (4.9744 – 4.9901 in.)
		Exhaust	126.22 – 126.62 mm (4.9693 – 4.9850 in.)
		Minimum Intake	126.05 mm (4.9626 in.)
		Exhaust	125.92 mm (4.9575 in.)
	Valve face angle		44.5°
	Stem diameter	Intake	8.968 – 8.984 mm (0.3531 – 0.3537 in.)
		Exhaust	8.954 – 8.970 mm (0.3525 – 0.3531 in.)
	Stem oil clearance	STD Intake	0.026 – 0.062 mm (0.0010 – 0.0024 in.)
		Exhaust	0.040 – 0.076 mm (0.0016 – 0.0030 in.)
		Maximum Intake	0.10 mm (0.0039 in.)
		Exhaust	0.12 mm (0.0047 in.)
	Margin thickness	STD Intake	1.4 mm (0.055 in.)
		Exhaust	1.7 mm (0.067 in.)
		Minimum Intake	0.9 mm (0.035 in.)
		Exhaust	1.2 mm (0.047 in.)
Valve guide bush	Inside diameter		9.010 – 9.030 mm (0.3547 – 0.3555 in.)
	Outside diameter for repair part	STD	14.023 – 14.041 mm (0.5521 – 0.5528 in.)
		O/S 0.05	14.073 – 14.091 mm (0.5541 – 0.5548 in.)
Valve spring	Deviation	Maximum	2.0 mm (0.079 in.)
	Free length	Inner	43.21 – 45.28 mm (1.7012 – 1.7827 in.)
		Outer	48.70 – 50.73 mm (1.9173 – 1.9972 in.)
	Installed tension	Inner at 38.19 mm (1.5035 in.)	96 – 135 N (9.8 – 13.8 kgf, 21.6 – 30.4 lbf)
		Outer at 41.69 mm (1.6413 in.)	215 – 277 N (21.9 – 28.3 kgf, 48.3 – 62.4 lbf)
Cylinder block	Cylinder head surface warpage	Maximum	0.20 mm (0.0079 in.)
	Cylinder bore diameter	STD Mark 1	102.000 – 102.010 mm (4.0157 – 4.0161 in.)
		2	102.010 – 102.020 mm (4.0161 – 4.0165 in.)
		3	102.020 – 102.030 mm (4.0165 – 4.0169 in.)
		Maximum STD	102.23 mm (4.0248 in.)
		O/S 0.50	102.73 mm (4.0445 in.)
		0.75	102.98 mm (4.0543 in.)
		1.00	103.23 mm (4.0642 in.)
Connecting rod	Thrust clearance	STD	0.200 – 0.320 mm (0.0079 – 0.0126 in.)
		Maximum	0.40 mm (0.0157 in.)
	Connecting rod oil clearance		
	STD	STD	0.030 – 0.070 mm (0.0012 – 0.0028 in.)
		U/S 0.25, 0.50, 1.00	0.030 – 0.072 mm (0.0012 – 0.0028 in.)
		Maximum	0.10 mm (0.0039 in.)
	Connecting rod bearing center wall thickness (Reference)		
		STD Mark Yellow	1.480 – 1.485 mm (0.0583 – 0.0585 in.)
		Green	1.485 – 1.490 mm (0.0585 – 0.0587 in.)
	Rod bent	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.)
	Bush inside diameter		32.009 – 32.019 mm (1.2602 – 1.2606 in.)
	Piston pin diameter		32.000 – 32.010 mm (1.2598 – 1.2602 in.)
	Bush oil clearance	STD	0.004 – 0.014 mm (0.0002 – 0.0006 in.)
		Maximum	0.05 mm (0.0020 in.)
	Connecting rod bolt tension portion diameter	STD	9.900 – 10.100 mm (0.3898 – 0.3976 in.)
		Minimum	9.70 mm (0.3819 in.)

Piston and piston ring	Piston diameter STD Mark 1	101.800 – 101.810 mm (4.0079 – 4.0083 in.)
	2	101.810 – 101.820 mm (4.0083 – 4.0087 in.)
	3	101.820 – 101.830 mm (4.0087 – 4.0090 in.)
	O/S 0.50	102.300 – 102.330 mm (4.0276 – 4.0287 in.)
	0.75	102.550 – 102.580 mm (4.0374 – 4.0386 in.)
	1.00	101.800 – 102.830 mm (4.0472 – 4.0484 in.)
	Piston oil clearance STD	0.190 – 0.210 mm (0.0075 – 0.0083 in.)
	Maximum	0.26 mm (0.0102 in.)
	Piston ring groove clearance STD No. 1	0.062 – 0.092 mm (0.0024 – 0.0036 in.)
	No. 2	0.060 – 0.100 mm (0.0024 – 0.0039 in.)
	Oil	0.030 – 0.070 mm (0.0012 – 0.0028 in.)
	Maximum	0.20 mm (0.0079 in.)
	Piston ring end gap STD No. 1	0.300 – 0.520 mm (0.0118 – 0.0205 in.)
	No. 2	0.400 – 0.650 mm (0.0157 – 0.0256 in.)
	Oil	0.200 – 0.520 mm (0.0079 – 0.0205 in.)
	Maximum No. 1	1.32 mm (0.0520 in.)
	No. 2	1.45 mm (0.0571 in.)
	Oil	1.32 mm (0.0520 in.)
	Piston protrusion from cylinder block	0.535 – 0.984 mm (0.0211 – 0.0387 in.)
Crankshaft	Thrust clearance STD	0.040 – 0.250 mm (0.0016 – 0.0098 in.)
	Maximum	0.30 mm (0.0118 in.)
	Thrust washer thickness STD	2.430 – 2.480 mm (0.0957 – 0.0976 in.)
	O/S 0.125	2.493 – 2.543 mm (0.0981 – 0.1001 in.)
	0.250	2.555 – 2.605 mm (0.1006 – 0.1026 in.)
	Main journal oil clearance	
	STD No. 3 STD	0.060 – 0.104 mm (0.0024 – 0.0041 in.)
	U/S 0.25, 0.50, 1.00	0.060 – 0.106 mm (0.0024 – 0.0042 in.)
	STD Others STD	0.030 – 0.074 mm (0.0012 – 0.0029 in.)
	U/S 0.25, 0.50, 1.00	0.030 – 0.076 mm (0.0012 – 0.0030 in.)
	Maximum No. 3	0.15 mm (0.0059 in.)
	Others	0.10 mm (0.0039 in.)
	Main journal diameter STD No. 3	69.950 – 69.970 mm (2.7539 – 2.7547 in.)
	Others	69.980 – 70.000 mm (2.7551 – 2.7559 in.)
	U/S 0.25 No. 3	69.710 – 69.720 mm (2.7445 – 2.7449 in.)
	Others	69.740 – 69.750 mm (2.7457 – 2.7461 in.)
	U/S 0.50 No. 3	69.460 – 69.470 mm (2.7346 – 2.7350 in.)
	Others	69.490 – 69.500 mm (2.7358 – 2.7362 in.)
	U/S 1.00 No. 3	68.960 – 68.970 mm (2.7150 – 2.7153 in.)
	Others	68.990 – 69.000 mm (2.7161 – 2.7165 in.)
	Main bearing center wall thickness (Reference)	
	STD Mark Yellow	2.480 – 2.485 mm (0.0976 – 0.0978 in.)
	Green	2.485 – 2.490 mm (0.0978 – 0.0980 in.)
	Crank pin diameter STD	60.980 – 61.000 mm (2.4008 – 2.4016 in.)
	U/S 0.25	60.740 – 60.750 mm (2.3913 – 2.3917 in.)
	0.50	60.490 – 60.500 mm (2.3815 – 2.3819 in.)
	1.00	59.990 – 60.000 mm (2.3618 – 2.3622 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.)
Valve lifter	Valve lifter diameter	26.955 – 26.975 mm (1.0612 – 1.0620 in.)
	Valve lifter bore diameter	27.010 – 27.030 mm (1.0634 – 1.0642 in.)
	Oil clearance STD	0.035 – 0.075 mm (0.0014 – 0.0030 in.)
	Maximum	0.10 mm (0.0039 in.)