ENGINE MECHANICAL

SERVICE DATA

030YD–05

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	0.070 – 0.102 mm (0.0023 – 0.0040 in.)
		Maximum	0.30 mm (0.0118 in.)
	Idle gear No. 1 thrust clearance	STD	0.070 – 0.120 mm (0.0028 – 0.0047 in.)
		Maximum	0.30 mm (0.0118 in.)
	Idle gear No. 1 inside diameter		44.984 – 45.0100 mm (1.7710 – 1.7720 in.)
	Idle gear shaft diameter		44.920 – 44.955 mm (1.7685 – 1.7699 in.)
	Idle gear oil clearance	STD	0.029 – 0.090 mm (0.0011 – 0.0035 in.)
		Maximum	0.18 mm (0.0071 in.)
Camshaft	Circle runout	Maximum	0.06 mm (0.0024 in.)
	Cam lobe height	STD Intake	43.535 – 43.635 mm (1.7140 – 1.7179 in.)
		Exhaust	44.900 – 45.000 mm (1.7677 – 1.7717 in.)
		Minimum Intake	43.10 mm (1.6968 in.)
		Exhaust	44.47 mm (1.7508 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 1.2	1.17 – 1.23 mm (0.0461 – 0.0484 in.)
		1.3	1.27 – 1.33 mm (0.0500 – 0.0524 in.)
		1.4	1.37 – 1.43 mm (0.0539 – 0.0563 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	45°, 60°
		Exhaust	30°, 45°, 60°
	Contacting angle		45°
	Contacting width	Intake	1.3 – 1.9 mm (0.051 – 0.075 in.)
		Exhaust	1.6 – 2.4 mm (0.063 – 0.094 in.)

Valve	Valve overall length	STD Intake	126.30 – 126.70 mm (4.9724 – 4.9882 in.)
		Exhaust	126.25 – 126.65 mm (4.9705 – 4.9862 in.)
		Minimum Intake	126.00 mm (4.9606 in.)
		Exhaust	125.95 mm (4.9587 in.)
	Valve face angle		45°
	Stem diameter	Intake	6.970 – 6.985 mm (0.2744 – 0.2750 in.)
		Exhaust	6.955 – 6.970 mm (0.2738 – 0.2744 in.)
	Stem oil clearance	STD Intake	0.025 – 0.060 mm (0.0010 – 0.0024 in.)
		Exhaust	0.040 – 0.075 mm (0.0016 – 0.0030 in.)
		Maximum Intake	0.08 mm (0.0031 in.)
		Exhaust	0.10 mm (0.0039 in.)
	Margin thickness	STD Intake	1.26 mm (0.0496 in.)
		Exhaust	0.97 mm (0.0382 in.)
		Minimum Intake	0.76 mm (0.0299 in.)
		Exhaust	0.47 mm (0.0185 in.)
Valve guide bush	Inside diameter		7.010 – 7.030 mm (0.2760 – 0.2768 in.)
	Outside diameter for repair part	STD	11.540 – 11.551 mm (0.4543 – 0.4547 in.)
		O/S 0.05	11.590 – 11.601 mm (0.4563 – 0.4567 in.)
Valve spring	Deviation	Maximum	2.0 mm (0.079 in.)
	Free length		54.16 mm (2.1323 in.)
	Installed tension	at 41.3 mm (1.626 in.)	285 – 315 N (29.1 – 32.1 kgf, 64.2 – 70.8 lbf)
Cylinder block	Cylinder head surface warpage	Maximum	0.20 mm (0.0079 in.)
	Cylinder bore diameter	STD Mark 1	108.000 – 108.010 mm (4.2520 – 4.2524 in.)
		2	108.010 – 108.020 mm (4.2524 – 4.2527 in.)
		3	108.020 – 108.030 mm (4.2527 – 4.2531 in.)
		Maximum STD	108.03 mm (4.2531 in.)
		O/S 0.50	108.53 mm (4.2728 in.)
		0.75	108.78 mm (4.2827 in.)
		1.00	109.03 mm (4.2925 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	1.980 – 1.985 mm (0.0780 – 0.0781 in.)
		Green	1.985 – 1.990 mm (0.0781 – 0.0783 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		37.009 – 37.019 mm (1.4570 – 1.4574 in.)
	Piston pin diameter		37.000 – 37.008 mm (1.4567 – 1.4570 in.)
	Bush oil clearance	STD	0.005 – 0.015 mm (0.0002 – 0.0006 in.)
		Maximum	0.05 mm (0.0020 in.)
	Connecting rod bolt tension portion diameter	STD	10.80 – 11.10 mm (0.4252 – 0.4370 in.)
		Minimum	10.50 mm (0.4134 in.)

Piston and piston ring	Piston diameter	STD Mark 1	107.880 – 107.890 mm (4.2472 – 4.2476 in.)
		2	107.890 – 107.900 mm (4.2476 – 4.2480 in.)
		3	107.900 – 107.910 mm (4.2480 – 4.2484 in.)
		O/S 0.50	108.380 – 108.410 mm (4.2669 – 4.2681 in.)
		0.75	108.630 – 108.660 mm (4.2768 – 4.2779 in.)
		1.00	108.880 – 108.910 mm (4.2866 – 4.2878 in.)
	Piston oil clearance	STD	0.110 – 0.130 mm (0.0043 – 0.0051 in.)
		Maximum	0.18 mm (0.0071 in.)
	Piston ring groove clearance	STD No. 1	0.070 – 0.110 mm (0.0028 – 0.0043 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	0.350 – 0.450 mm (0.0138 – 0.0177 in.)
		No. 2	0.470 – 0.600 mm (0.0185 – 0.0236 in.)
		Oil	0.200 – 0.400 mm (0.0079 – 0.0157 in.)
		Maximum No. 1	1.41 mm (0.0555 in.)
		No. 2	1.61 mm (0.0634 in.)
		Oil	1.61 mm (0.0634 in.)
	Piston protrusion from cylinder block		0.255 – 0.705 mm (0.0100 – 0.0278 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	0.059 – 0.099 mm (0.0023 – 0.0039 in.)
		U/S 0.25, 0.50, 1.00	0.059 – 0.101 mm (0.0023 – 0.0040 in.)
	STD Others	STD	0.029 – 0.069 mm (0.0011 – 0.0027 in.)
		U/S 0.25, 0.50, 1.00	0.029 – 0.071 mm (0.0011 – 0.0028 in.)
		Maximum No. 3	0.15 mm (0.0059 in.)
		Others	0.10 mm (0.0039 in.)
	Main journal diameter	STD No. 3	76.950 – 76.970 mm (3.0295 – 3.0303 in.)
		Others	76.980 – 77.000 mm (3.0307 – 3.0315 in.)
		U/S 0.25 No. 3	76.700 – 76.720 mm (3.0197 – 3.0205 in.)
		Others	76.730 – 76.750 mm (3.0209 – 3.0216 in.)
		U/S 0.50 No. 3	76.450 – 76.470 mm (3.0098 – 3.0106 in.)
		Others	76.480 – 76.500 mm (3.0110 – 3.0118 in.)
		U/S 1.00 No. 3	75.950 – 75.970 mm (2.9902 – 2.9909 in.)
		Others	75.980 – 76.000 mm (2.9913 – 2.9921 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	65.980 – 66.000 mm (2.5976 – 2.5984 in.)
		U/S 0.25	65.730 – 65.750 mm (2.5878 – 2.5886 in.)
		0.50	65.480 – 65.500 mm (2.5779 – 2.5787 in.)
		1.00	64.980 – 65.000 mm (2.5583 – 2.5591 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.)