ENGINE MECHANICAL

SERVICE DATA

0314S–01

Idler tension spring		
Free length		44.4 – 45.4 mm (1.748 – 1.787 in.)
Installed tension	at 52.1 mm (2.051 in.)	53 – 59 N (5.42 – 5.98 kgf, 11.9 – 13.2 lbf)
Cylinder head set bolt		
Outer diameter	Standard	11.80 – 12.00 mm (0.4646 – 0.4724 in.)
	Minimum	11.60 mm (0.4567 in.)
Cylinder head gasket		
New installed cylinder head gasket thickness	Mark B	1.40 – 1.50 mm (0.0551 – 0.0591 in.)
	D	1.50 – 1.60 mm (0.0591 – 0.0630 in.)
	F	1.60 – 1.70 mm (0.0630 – 0.0669 in.)
Valve clearance at cold	Intake	0.20 – 0.30 mm (0.008 – 0.012 in.)
	Exhaust	0.40 – 0.50 mm (0.016 – 0.020 in.)
Cylinder head		
Warpage	Maximum	0.20 mm (0.0079 in.)
Intake Valve		
Valve stem diameter		7.975 – 7.990 mm (0.3140 – 0.3146 in.)
Valve face angle		44.5°
Margin thickness	Standard	1.6 mm (0.063 in.)
	Minimum	1.1 mm (0.043 in.)
Overall length	Standard	104.10 – 104.50 mm (4.0984 – 4.1142 in.)
	Minimum	103.60 mm (4.0787 in.)
Exhaust Valve		
Valve stem diameter		7.960 – 7.975 mm (0.3134 – 0.3140 in.)
Valve face angle		44.5°
Margin thickness	Standard	1.7 mm (0.067 in.)
	Minimum	1.2 mm (0.047 in.)
Overall length	Standard	103.95 – 104.35 mm (4.0925 – 4.1083 in.)
	Minimum	103.45 mm (4.0728 in.)
Inner compression spring		
Deviation	Maximum	2.0 mm (0.079 in.)
Free length	Type A	46.20 mm (1.8189 in.)
	B	48.54 mm (1.9110 in.)
Installed tension	at 37.0 mm (1.457 in.)	301 – 322 N (30.7 – 33.9 kgf, 67.7 – 74.7 lbf)
Intake valve guide bush		
Inside diameter		8.010 – 8.030 mm (0.3154 – 0.3161 in.)
Oil clearance	Standard	0.020 – 0.055 mm (0.0008 – 0.0022 in.)
	Maximum	0.08 mm (0.0031 in.)
Bush bore diameter	STD	13.004 – 13.025 mm (0.5120 – 0.5128 in.)
	O/S 0.05	13.054 – 13.075 mm (0.5139 – 0.5148 in.)
Protrusion height		10.8 – 11.2 mm (0.425 – 0.441 in.)
Exhaust valve guide bush		
Inside diameter		8.010 – 8.030 mm (0.3154 – 0.3161 in.)
Oil clearance	Standard	0.035 – 0.070 mm (0.0014 – 0.0028 in.)
	Maximum	0.10 mm (0.0039 in.)
Bush bore diameter	STD	13.004 – 13.025 mm (0.5120 – 0.5128 in.)
	O/S 0.05	13.054 – 13.075 mm (0.5139 – 0.5148 in.)
Protrusion height		10.8 – 11.2 mm (0.425 – 0.441 in.)
Intake valve seats		
Contacting width		1.5 – 1.9 mm (0.059 – 0.075 in.)
Exhaust valve seats		
Contacting width		1.8 – 2.2 mm (0.071 – 0.087 in.)
Valve lifter		
Lifter diameter		40.892 – 40.902 mm (1.6099 – 1.6103 in.)
Lifter bore diameter		40.960 – 40.980 mm (1.6126 – 1.6134 in.)
Oil clearance	Standard	0.058 – 0.088 mm (0.0023 – 0.0035 in.)
	Maximum	0.10 mm (0.0039 in.)

Camshaft		
Circle runout	Maximum	0.10 mm (0.0039 in)
Cam lobe height	Standard	
	Intake	54.890 – 54.910 mm (2.1610 – 2.1618 in.)
	Exhaust	54.990 – 55.010 mm (2.1650 – 2.1657 in.)
	Minimum	
	Intake	54.39 mm (2.1413 in.)
	Exhaust	54.49 mm (2.1453 in.)
Journal diameter	STD No.1	34.969 – 34.985 mm (1.3767 – 1.3774 in.)
	Others	27.969 – 27.985 mm (1.1011 – 1.1018 in.)
	U/S 0.125 No.1	34.844 – 34.860 mm (1.3718 – 1.3724 in.)
	Others	27.844 – 27.860 mm (1.0962 – 1.0968 in.)
	U/S 0.250 No.1	34.719 – 34.735 mm (1.3669 – 1.3675 in.)
	Others	27.719 – 27.735 mm (1.0913 – 1.0919 in.)
Oil clearance	Standard	0.022 – 0.074 mm (0.0009 – 0.0029 in.)
	Maximum	0.10 mm (0.0039 in.)
Thrust clearance	Standard	0.080 – 0.280 mm (0.0031 – 0.0110 in.)
	Maximum	0.35 mm (0.0138 in.)
Combustion chamber		
Shim thickness		0.03 mm (0.0012 in.)
Protrusion		Minus 0.03 – Plus 0.03 mm (Minus 0.0012 – Plus 0.0012 in.)
Connecting rod		
Thrust clearance	Standard	0.080 – 0.300 mm (0.0031 – 0.0118 in.)
	Maximum	0.35 mm (0.0138 in.)
Oil clearance	Standard	
	STD	0.036 – 0.064 mm (0.0014 – 0.0025 in.)
	U/S 0.25, U/S 0.50	0.033 – 0.079 mm (0.0013 – 0.0031 in.)
	Maximum	0.10 mm (0.0039 in.)
Connecting rod bearing center wall thickness (Reference)	Standard	
	Mark 1	1.478 – 1.482 mm (0.0582 – 0.0583 in.)
	2	1.482 – 1.486 mm (0.0583 – 0.0585 in.)
	3	1.486 – 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		29.008 – 29.020 mm (1.1420 – 1.1425 in.)
Connecting rod bolt tension portion diameter	Standard	8.400 – 8.600 mm (0.3307 – 0.3386 in.)
	Minimum	8.20 mm (0.3228 in.)
Crankshaft		
Thrust clearance	Standard	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.)
	O/S 0.250	2.555 – 2.605 mm (0.1006 – 0.1026 in.)
Main journal oil clearance	Standard	
	STD	0.034 – 0.065 mm (0.0013 – 0.0026 in.)
	U/S 0.25, 0.50	0.033 – 0.079 mm (0.0013 – 0.0031 in.)
	Maximum	0.10 mm (0.0039 in.)
Main bearing center wall thickness (Reference)	Standard	
	Mark 1	1.979 – 1.983 mm (0.0779 – 0.0781 in.)
	2	1.983 – 1.987 mm (0.0781 – 0.0782 in.)
	3	1.987 – 1.991 mm (0.0782 – 0.0784 in.)
Circle runout	Maximum	0.06 mm (0.0024 in.)
Main journal diameter	STD	61.985 – 62.000 mm (2.4403 – 2.4409 in.)
	U/S 0.25	61.745 – 61.755 mm (2.4309 – 2.4413 in.)
	U/S 0.50	61.495 – 61.505 mm (2.4211 – 2.4215 in.)
Crank pin diameter	STD	54.988 – 55.000 mm (2.1649 – 2.1654 in.)
	U/S 0.25	54.745 – 54.755 mm (2.1553 – 2.1557 in.)
	U/S 0.50	54.495 – 54.505 mm (2.1455 – 2.1459 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.)

Cylinder block		
Warpage	Maximum	0.20 mm (0.0079 in.)
Cylinder bore diameter	Standard	
	Mark 1	99.500 – 99.510 mm (3.9173 – 3.9177 in.)
	2	99.510 – 99.520 mm (3.9177 – 3.9181 in.)
	3	99.520 – 99.530 mm (3.9181 – 3.9185 in.)
	Maximum	
	STD	99.73 mm (3.9264 in.)
	O/S 0.50	100.23 mm (3.9461 in.)
Piston		
Piston diameter	STD	
	Mark 1	99.450 – 99.460 mm (3.9153 – 3.9157 in.)
	2	99.460 – 99.470 mm (3.9157 – 3.9161 in.)
	3	99.470 – 99.480 mm (3.9161 – 3.9165 in.)
	O/S 0.50	99.950 – 99.980 mm (3.9350 – 3.9362 in.)
Oil clearance	Standard	0.040 – 0.060 mm (0.0016 – 0.0024 in.)
	Maximum	0.13 mm (0.0051 in.)
Piston protrusion from cylinder block		0.68 – 0.97 mm (0.0268 – 0.0382 in.)
Piston pin		
Diameter		29.000 – 29.012 mm (1.1417 – 1.1422 in.)
Piston pin oil clearance	Standard	0.004 – 0.012 mm (0.0002 – 0.0005 in.)
	Maximum	0.05 mm (0.0020 in.)
Piston ring set		
Piston ring groove clearance	Standard	
	No.1	0.057 – 0.101 mm (0.0022 – 0.0040 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	Standard	
	No.1	0.350 – 0.590 mm (0.0138 – 0.0232 in.)
	No.2	0.470 – 0.720 mm (0.0185 – 0.0283 in.)
	Oil	0.200 – 0.520 mm (0.0079 – 0.0205 in.)
	Maximum	
	No.1	1.29 mm (0.0508 in.)
	No.2	1.42 mm (0.0559 in.)
	Oil	1.22 mm (0.0480 in.)