# ENGINE MECHANICAL

## SERVICE DATA

SS0FH–03

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| Compression pressure | | at 250 rpm STD | 1,324 kPa (13.5 kgf/cm$^2$, 192 psi) or more |
| | | Minimum | 1,079 kPa (11.0 kgf/cm$^2$, 156 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 2.500 | 2.500 mm (0.0984 in.) |
| | | Mark 2.550 | 2.550 mm (0.1004 in.) |
| | | Mark 2.600 | 2.600 mm (0.1024 in.) |
| | | Mark 2.650 | 2.650 mm (0.1043 in.) |
| | | Mark 2.700 | 2.700 mm (0.1063 in.) |
| | | Mark 2.750 | 2.750 mm (0.1083 in.) |
| | | Mark 2.800 | 2.800 mm (0.1102 in.) |
| | | Mark 2.850 | 2.850 mm (0.1122 in.) |
| | | Mark 2.900 | 2.900 mm (0.1142 in.) |
| | | Mark 2.950 | 2.950 mm (0.1161 in.) |
| | | Mark 3.000 | 3.000 mm (0.1181 in.) |
| | | Mark 3.050 | 3.050 mm (0.1201 in.) |
| | | Mark 3.100 | 3.100 mm (0.1220 in.) |
| | | Mark 3.150 | 3.150 mm (0.1240 in.) |
| | | Mark 3.200 | 3.200 mm (0.1260 in.) |
| | | Mark 3.250 | 3.250 mm (0.1280 in.) |
| | | Mark 3.300 | 3.300 mm (0.1299 in.) |
| Ignition timing | | w/ Terminals TC and CG connected of DLC3 | 10 ± 2° BTDC @ idle |
| Idle speed | | | 700 ± 50 rpm |
| Timing belt tensioner | Protrusion (from housing side) | | 8.0 – 8.8 mm (0.315 – 0.346 in.) |
| Cylinder head | Warpage | | |
| | Cylinder block side | Maximum | 0.10 mm (0.0039 in.) |
| | Intake manifold side | Maximum | 0.10 mm (0.0039 in.) |
| | Exhaust manifold side | Maximum | 0.10 mm (0.0039 in.) |
| | Valve guide bore diameter | STD | 10.985 – 11.006 mm (0.4325 – 0.4333 in.) |
| | | O/S 0.05 | 11.035 – 11.056 mm (0.4344 – 0.4353 in.) |
| | Valve seat | | |
| | Refacing angle | | 15°, 45°, 75° |
| | Contacting angle | | 45° |
| | Contacting width | Intake | 1.0 – 1.4 mm (0.039 – 0.055 in.) |
| | | Exhaust | 1.2 – 1.6 mm (0.047 – 0.063 in.) |
| | Cylinder head bolt diameter | STD | 10.8 – 11.0 mm (0.425 – 0.433 in.) |
| | | Minimum | 10.7 mm (0.421 in.) |
| Valve guide bushing | Inside diameter | | 6.010 – 6.030 mm (0.2366 – 0.2374 in.) |
| | Outside diameter (for repair part) | STD | 11.033 – 11.044 mm (0.4344 – 0.4348 in.) |
| | | O/S 0.05 | 11.083 – 11.094 mm (0.4363 – 0.4368 in.) |
| Valve | Valve overall length | STD Intake | 98.29 – 98.79 mm (3.8697 – 3.8894 in.) |
| | | Exhaust | 98.84 – 99.34 mm (3.8913 – 3.9110 in.) |
| | | Minimum Intake | 98.19 mm (3.8657 in.) |
| | | Exhaust | 98.74 mm (3.8874 in.) |
| | Valve 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.) |

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| Valve (cont'd) | 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 | Pink painted mark | 43.71 mm (1.7209 in.) |
| | | Yellow painted mark | 44.10 mm (1.7362 in.) |
| | Installed tension at 34.5 mm (1.358 in.) | | 186.2 – 205.8 N (19.0 – 21.0 kgf, 41.9 – 46.3 lbf) |
| Valve lifter | Lifter diameter | | 30.966 – 30.976 mm (1.2191 – 1.2195 in.) |
| | Lifter bore diameter | | 31.000 – 31.016 mm (1.2205 – 1.2211 in.) |
| | Oil clearance | STD | 0.024 – 0.050 mm (0.0009 – 0.0020 in.) |
| | | Maximum | 0.07 mm (0.0028 in.) |
| Camshaft | Thrust clearance | STD | 0.080 – 0.190 mm (0.0031 – 0.0075 in.) |
| | | Maximum | 0.30 mm (0.0118 in.) |
| | Cam lobe height | STD Intake | 44.310 – 44.360 mm (1.7445 – 1.7465 in.) |
| | | Exhaust | 44.250 – 44.350 mm (1.7421 – 1.7461 in.) |
| | | Maximum Intake | 44.16 mm (1.7386 in.) |
| | | Exhaust | 44.10 mm (1.7362 in.) |
| | Journal diameter | | 28.949 – 28.965 mm (1.1397 – 1.1404 in.) |
| | Journal oil clearance | STD | 0.035 – 0.072 mm (0.0014 – 0.0028 in.) |
| | | Maximum | 0.10 mm (0.0039 in.) |
| | Circle runout | Maximum | 0.08 mm (0.0031 in.) |
| Air intake chamber | Warpage | Maximum | 0.15 mm (0.0059 in.) |
| Manifold | Warpage | Maximum Intake | 0.15 mm (0.0059 in.) |
| | | Exhaust | 0.50 mm (0.0196 in.) |
| Cylinder block | Cylinder head surface warpage | Maximum | 0.07 mm (0.0028 in.) |
| | Cylinder bore diameter | STD | 86.000 – 86.013 mm (3.3858 – 3.3863 in.) |
| | | Maximum | 86.02 mm (3.3866 in.) |
| | Main bearing bolt diameter | STD | 9.96 – 9.97 mm (0.3921 – 0.3925 in.) |
| | | Minimum | 9.7 mm (0.382 in.) |
| Connecting rod | Thrust clearance | STD | 0.250 – 0.402 mm (0.0098 – 0.0158 in.) |
| | | Maximum | 0.50 mm (0.0197 in.) |
| | Connecting bolt diameter | STD | 8.1 – 8.3 mm (0.319 – 0.327 in.) |
| | | Minimum | 8.0 mm (0.315 in.) |
| | Connecting rod oil clearance | STD STD | 0.023 – 0.041 mm (0.0009 – 0.0016 in.) |
| | | U/S 0.25 | 0.028 – 0.066 mm (0.0011 – 0.0026 in.) |
| | | Maximum STD | 0.07 mm (0.0027 in.) |
| | | U/S 0.25 | 0.08 mm (0.0031 in.) |
| | Connecting rod bearing center wall thickness | | |
| | (Reference) | STD Mark 1 | 1.498 – 1.501 mm (0.0590 – 0.0591 in.) |
| | | Mark 2 | 1.501 – 1.504 mm (0.0591 – 0.0592 in.) |
| | | Mark 3 | 1.504 – 1.507 mm (0.0592 – 0.0593 in.) |
| | | Mark 4 | 1.507 – 1.510 mm (0.0593 – 0.0594 in.) |
| | | Mark 5 | 1.510 – 1.513 mm (0.0594 – 0.0596 in.) |
| | Bushing inside diameter | | 22.005 – 22.014 mm (0.8663 – 0.8667 in.) |
| | Piston pin diameter | | 21.997 – 22.006 mm (0.8660 – 0.8664 in.) |
| | Piston pin oil clearance | STD | 0.005 – 0.011 mm (0.0002 – 0.0004 in.) |
| | | Maximum | 0.05 mm (0.0020 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.) | 0.15 mm (0.0059 in.) |

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| Piston and Piston ring | Piston diameter | | 85.945 – 85.965 mm (3.3837 – 3.3844 in.) |
| | Piston oil clearance | STD | 0.035 – 0.068 mm (0.0014 – 0.0027 in.) |
| | | Maximum | 0.10 mm (0.0039 in.) |
| | Piston ring groove clearance | No.1 | 0.040 – 0.080 mm (0.0016 – 0.0031 in.) |
| | | No.2 | 0.030 – 0.070 mm (0.0012 – 0.0028 in.) |
| | Piston ring end gap | STD No.1 | 0.300 – 0.470 mm (0.0118 – 0.0185 in.) |
| | | No.2 | 0.350 – 0.520 mm (0.0138 – 0.0205 in.) |
| | | Oil | 0.130 – 0.450 mm (0.0051 – 0.0177 in.) |
| | | Maximum No.1 | 1.07 mm (0.0421 in.) |
| | | No.2 | 1.12 mm (0.0441 in.) |
| | | Oil | 1.05 mm (0.0413 in.) |
| Crankshaft | Thrust clearance | STD | 0.020 – 0.220 mm (0.0008 – 0.0087 in.) |
| | | Maximum | 0.30 mm (0.0118 in.) |
| | Thrust washer thickness | STD | 1.940 – 1.990 mm (0.0764–0.0783 in.) |
| | Main journal oil clearance | STD STD | 0.026 – 0.040 mm (0.0010–0.0016 in.) |
| | | U/S 0.25 | 0.025 – 0.061 mm (0.0010–0.0024 in.) |
| | | Maximum STD | 0.06 mm (0.0024 in.) |
| | | U/S 0.25 | 0.08 mm (0.0031 in.) |
| | Main journal diameter | STD | 61.984 – 62.000 mm (2.4403 – 2.4409 in.) |
| | | U/S 0.25 | 61.745 – 61.755 mm (2.4309 – 2.4313 in.) |
| | Main bearing center wall thickness (Reference) | | |
| | | Mark 1 | 1.994 – 1.997 mm (0.0785 – 0.0786 in.) |
| | | Mark 2 | 1.997 – 2.000 mm (0.0786 – 0.0787 in.) |
| | | Mark 3 | 2.000 – 2.003 mm (0.0787 – 0.0789 in.) |
| | | Mark 4 | 2.003 – 2.006 mm (0.0789 – 0.0790 in.) |
| | | Mark 5 | 2.006 – 2.009 mm (0.0790 – 0.0791 in.) |
| | Crank pin diameter | STD | 51.982 – 52.000 mm (2.0465 – 2.0472 in.) |
| | | U/S 0.25 | 51.745 – 51.755 mm (2.0372 – 2.0376 in.) |
| | Circle runout | Maximum | 0.06 mm (0.0024 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.) |