

<b>Engine Specifications</b>	
Model	GX640
Type	4-stroke, OHV, 2-cylinder
Displacement	635 cm <sup>3</sup> (38.7 cu-in)
Max. Horsepower	20.0 PS (19.7 HP, 14.7 kW) at 3,600 rpm
Max. Torque (Crank PTO)	46.1 Nm (4.7 kg·m, 34.0 ft·lb) at 2,500 rpm
Carburetor	Horizontal type, butterfly valve
Cooling System	Liquid-cooling
Ignition System	Transistorized ignition
Lubricating System	Forced oil by trochoid pump
Starting System	Electric starter
Stopping System	Cut off the power supply to the CDI (Open)
Fuel Used	Unleaded gasoline (octane number 86 or higher)

<b>Dimensions and Weight</b>	
Length (mm/in)	449 (17.7)
Width (mm/in)	420 (16.5)
Height (mm/in)	551 (21.7)
Dry Weight (kg/lb)	50.0 (110.0)

Operating Weight (kg/lb)	52 (115.0)
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<b>Cylinder Block and Head</b>	
Compression Ratio	8.0:1
Bore x Stroke	76 X 70 mm (3.0 x 2.8 in)
Sleeve Internal Diameter	76.000-76.015 mm (2.9921-2.9927 in)
Piston Skirt Outer Diameter	75.97-75.99 mm (2.991-2.992 in)
Number of Piston Rings (Compression / Oil)	2 / 1
Ring Side Clearance (Top/Second)	0.030-0.060 mm (0.001-0.002 in)
Ring End Gap (Top/Second)	0.25-0.40 mm (0.010-0.016 in)
Ring Width (Top/Second)	1.175-1.190 mm (0.0463-0.469 in)
Crankshaft Journal Diameter	39.976-40.000 mm (1.5739-1.5748 in)
Crankpin Diameter	37.976-38.000 mm (1.4951-1.4961 in)

<b>Cylinder Head</b>	
Warpage (Limit)	0.10 mm (0.004 in)
Valve Arrangement	OHV
Valves	4
Stem Outer Diameter (Standard)	INTAKE: 4.980-4.990 mm (0.1961-0.1965 in)   EXHAUST: 4.960-4.970 mm (0.1953-0.1957 in)

Rocker Arm Shaft Outer Diameter	11.976-11.994 mm (0.4715-0.4722 in)
Rocker Arm Internal Diameter	12.000-12.018 mm (0.4724-0.4731 in)
Cam Height	INTAKE: 30.67-30.95 mm (1.207-1.219 in)  EXHAUST: 30.71-30.99 mm (1.209-1.220 in)
Camshaft Journal Diameter	27.959-27.980 mm (1.1007-1.1016 in)

<b>Tightening Torque Specs</b>	
Cylinder Head Bolt	55 Nm; 5.5 kg·m; 40 ft·lb
Crankcase – Cylinder Block (M8)	22 Nm; 2.2 kg·m; 16 ft·lb
Crankcase – Cylinder Block (M10)	44 Nm; 4.4 kg·m; 32 ft·lb
Connecting Rod Cup Nut	29 Nm; 2.9 kg·m; 21 ft·lb
Flywheel Bolt	71 Nm; 7.1 kg·m; 51 ft·lb
Timing Belt Driven Pulley Bolt	30 Nm; 3.0 kg·m; 22 ft·lb
Oil Drain Bolt	34 Nm; 3.4 kg·m; 25 ft·lb
Oil Filter	8 Nm; 0.8 kg·m; 6 ft·lb
Governor Slider Shaft	43 Nm; 4.3 kg·m; 31 ft·lb
Tension Arm Bolt	40 Nm; 4.0 kg·m; 29 ft·lb
PTO Shaft Bolt	32 Nm; 3.2 kg·m; 23 ft·lb
Oil Pressure Switch	8.5 Nm; 0.85 kg·m; 6.1 ft·lb

Thermo Switch	12 Nm; 1.2 kg·m; 9 ft·lb
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<b>Standard Torque Values</b>	
Bolt, Nut (5 mm)	5.5 Nm; 0.55 kg·m; 4.0 ft·lb
Bolt, Nut (6 mm)	10 Nm; 1.0 kg·m; 7 ft·lb
Bolt, Nut (8 mm)	24 Nm; 2.4 kg·m; 17 ft·lb
Bolt, Nut (10 mm)	37.5 Nm; 3.75 kg·m; 27 ft·lb
Bolt, Nut (12 mm)	55 Nm; 5.5 kg·m; 40 ft·lb

<b>Maintenance Data</b>	
Engine Idle Speed	1,400 ± 150 rpm
Cylinder Compression	4.0-7.0 kg/cm <sup>2</sup> (57-100 psi) at 350 rpm
Valve Clearance	INTAKE: 0.10-0.14 mm (0.004-0.006 in)   EXHAUST: 0.18-0.22 mm (0.007-0.009 in)

<b>Carburetor</b>	
Main Jet	#98
Float Height	14.0 mm (0.55 in)
Pilot Screw Opening	1-1/2 turns out

<b>Oil System</b>	
Oil Type	Honda 4-stroke or an equivalent (SE or SF)
Recommended Oil	SAE 10W-40
Oil Capacity (Without Filter Changed)	2.0 L (2.11 US qt, 1.76 Imp qt)
Oil Capacity (With Filter Changed)	2.3 L (2.43 US qt, 2.02 Imp qt)
Oil Pressure	3.0-4.0 kg/cm <sup>2</sup> (43-57 psi) at 350 rpm

<b>Cooling System</b>	
Coolant Capacity (Radiator and Engine)	3.5 L (3.70 US qt, 3.08 Imp qt)
Coolant Capacity (Reserve Tank)	0.4 L (0.42 US qt, 0.35 Imp qt)
Coolant Capacity (Total System)	3.9 L (4.12 US qt, 3.43 Imp qt)

<b>Thermostat</b>	
Start Opening	82° C (180° F)
Fully Open	95° C (203° F)
Lift Height	8.0 mm (0.31 in)

<b>Thermoswitch</b>	
Temperature Range for Continuity	110° ± 2° C (230° ± 36° C)

<b>Oil Pump</b>	
Tip Clearance (Standard)	0.14 mm (0.006 in)

Outer Rotor Clearance (Standard)	0.15-0.21 mm (0.006-0.008 in)
Pump End Clearance	0.04-0.09 mm (0.0016-0.0035 in)

<b>Ignition System</b>	
Ignition Timing	22° B.T.D.C
Spark Plug	NGK: BPR5ES-11   NIPPONDENSO: W16EPR-11
Spark Plug Gap	1.0-1.1 mm (0.039-0.043 in)
Primary Side Ignition Coil Resistance	0.37-0.50 Ω
Secondary Side Ignition Coil Resistance	8.0-9.3 kΩ

<b>Starter Motor</b>	
Brush Length	14 mm (0.55 in), limit: 9.0 mm (0.35 in)
Mica Depth (Limit)	0.2 mm (0.008 in)