

Engine Specifications	GD1100
Model	GD1100
Type	4-stroke, OHV, three cylinder
Displacement	1,061 cm ³ (65.0 cu-in)
Max. horsepower	SH1: 18 HP (13.4 kW) at 2,600 rpm
	SH2: 20 HP (14.9 kW) at 3,000 rpm
	SH3: 22 HP (16.4 kW) at 3,600 rpm
Max. torque (crank PTO)	SH1: 58.8 N·m (6.0 kg·m, 43.39 ft·lb) at 2,600 rpm
	SH2: 55.9 N·m (5.7 kg·m, 41.22 ft·lb) at 2,000 rpm
	SH3: 52 N·m (5.3 kg·m, 38.33 ft·lb) at 2,200 rpm
Firing order	1-3-2 (1-2-3 from timing belt side)
Injection timing	SH1, SH2: B.T.D.C 15°
	SH3: B.T.D.C 18°
Cooling system	Liquid-cooling
Lubricating system	Forced oil by trochoid pump
Starting system	Starter motor
Fuel used	Diesel fuel
Fuel tank capacity	20.0 l (5.28 US. Gal, 4.40 Imp. Gal.)
Fuel consumption	SH1: 178 g/psh

	SH2: 194 g/psh
	SH3: 214 g/psh
PTO shaft rotation	Counterclockwise (from PTO shaft side)
Length, mm (in)	520 (20.5)
Width, mm (in)	415 (16.3)
Height, mm (in)	540 (21.3)
Dry weight, kg (lb)	100.0 (220.5)
CYLINDER BLOCK AND HEAD	
Compression ratio	18:1
Bore x Stroke	76 mm X 78 mm (2.99 x 3.07 in)
Sleeve internal diameter	76.000-76.017 mm (2.9921-2.9928 in)
Piston skirt outer diameter	75.930-75.950 mm (2.9893-2.9901 in)
Number of piston rings	(compression / oil): 2 / 1
Ring side clearance	Top: 0.065-0.095 mm (0.0026-0.0037 in)
	Second: 0.055-0.085 mm (0.0022-0.0022 in)
	Oil: 0.020-0.055 mm (0.0008-0.0022 in)
Ring end gap	Top: 0.20-0.35 mm (0.008-0.014 in)
	Second: 0.20-0.35 mm (0.008-0.014 in)
	Oil: 0.20-0.40 mm (0.008-0.016 in)

Piston pin outer diameter	22.994-23.000 mm (0.9053-0.9055 in)
Connecting rod small end ID	23.010-23.028 mm (0.9060-0.9066 in)
Cylinder Head	
Distortion of cylinder head	0.05 mm (0.002 in)
Valve Arrangement	OHV
Valves	2
Stem outer diameter (standard)	INTAKE: 6.575-6.590 mm (0.2589-0.2594 in)
	EXHAUST: 6.545-6.560 mm (0.2577-0.2583 in)
Guide internal diameter	INTAKE / EXHAUST: 6.600-6.615 mm (0.2598-0.2604 in)
Spring free length	38.1 mm (1.33 in)
Cam lobe height	INTAKE / EXHAUST: 39.538-39.938 mm (1.5566-1.5724 in)
Valve rocker arm internal diameter	16.012-16.030 mm (0.6304-0.6311 in)
Rocker arm shaft outer diameter	15.976-16.994 mm (0.6290-0.6691 in)
TIGHTENING TORQUE SPECS	
Camshaft holder bolts	22 Nm; 2.2 kg·m; 16 ft·lb
Head cover nuts	10 Nm; 1.0 kg·m; 7 ft·lb
Cylinder head bolts (M12)	Step 1: 45 Nm; 4.5 kg·m; 32 ft·lb
	Step 2: Turn all bolts 90°
	Step 3: Turn all bolts 90° once more

Cylinder head bolts (M8)	30 Nm; 3.0 kg·m; 22 ft·lb
Timing belt driven pulley bolt	38 Nm; 3.8 kg·m; 27 ft·lb
Timing belt adjuster bolt	43 Nm; 4.3 kg·m; 31 ft·lb
Crankshaft bearing cap bolts	68 Nm; 6.8 kg·m; 49 ft·lb
Connecting rod cap nuts	32 Nm; 3.2 kg·m; 23 ft·lb
Rear end plate bolts	55 Nm; 5.5 kg·m; 40 ft·lb
Flywheel bolts	115 Nm; 11.5 kg·m; 83 ft·lb
Flywheel housing	55 Nm; 5.5 kg·m; 40 ft·lb
Oil filter holder	55 Nm; 5.5 kg·m; 40 ft·lb
Oil filter cartridge	22 Nm; 2.2 kg·m; 16 ft·lb
Fuel pipe nuts	22.5 Nm; 2.25 kg·m; 16.3 ft·lb
Fuel joint bolts	22.5 Nm; 2.25 kg·m; 16.3 ft·lb
Injection nozzle nuts	Step 1: 5 Nm; 0.5 kg·m; 3.6 ft·lb
	Step 2: 10 Nm; 1.0 kg·m; 7 ft·lb
Governor shaft	43 Nm; 4.3 kg·m; 31 ft·lb
Glow plugs	17.5 Nm; 1.75 kg·m; 12.7 ft·lb
Glow plug nuts	1.25 Nm; 0.125 kg·m; 0.9 ft·lb
Injection pump nut and bolts	22 Nm; 2.2 kg·m; 16 ft·lb
Oil pressure switch	20 Nm; 2.0 kg·m; 14 ft·lb

Drain plug bolt	45 Nm; 4.5 kg·m; 32 ft·lb
Thermostat switch	22.5 Nm; 2.25 kg·m; 16.3 ft·lb
Crankshaft pulley	115 Nm; 11.5 kg·m; 83 ft·lb
SERVICE INFORMATION	GD1100
Engine	
Maximum speed	SH1: 2,750 rpm
	SH2: 3,120 rpm
	SH3: 3,740 rpm
Idle speed	800 rpm
Cylinder compression	27.0 kg/cm ² (384 psi) at 200 rpm
Valve clearance	Intake valve: 0.20 ± 0.02 mm (0.006 ± 0.00078 in)
	Exhaust valve: 0.20 ± 0.02 mm (0.006 ± 0.00078 in)
Oil system	
Oil type	Diesel oil (API Service Classification CC or CD)
Recommended oil	SAE 10W-30
Oil capacity	SH1: 2.9 l (3.07 US. qt, 2.55 Imp. qt.)
	SH2, SH3: 4.8 l (5.07 US. qt, 4.22 Imp. qt.)
Oil pressure	4.0 kg/cm ² (57 psi) at 800 rpm