



JOHN DEERE

ENGINE PERFORMANCE CURVE

Rating: Gross Power
 Application: Generator
 250 kVA Prime Market; Dual Frequency
 1500 RPM (50 Hz)

PowerTech™ E 9.0L Engine
Model: 6090HFG84
 JD Electronic Control

308 hp (230 kW) Prime
 339 hp (253 kW) Standby

Nominal Engine Power @ 1500 RPM			
Prime		Standby	
HP	kW	HP	kW
308	230	339	253

Generator Efficiency %	Fan Power (% of Standby)		Power Factor	Prime Rating		Standby Rating	
	hp	kW		kWe	kVA	kWe	kVA
90-94	22.8	17.0	0.8	192-201	240-251	213-222	266-278

Note 1: Based on nominal engine power.

Note 2: kWe / kVA rating assumes 90% efficiency. Generator Efficiency % will vary.

STANDARD CONDITIONS

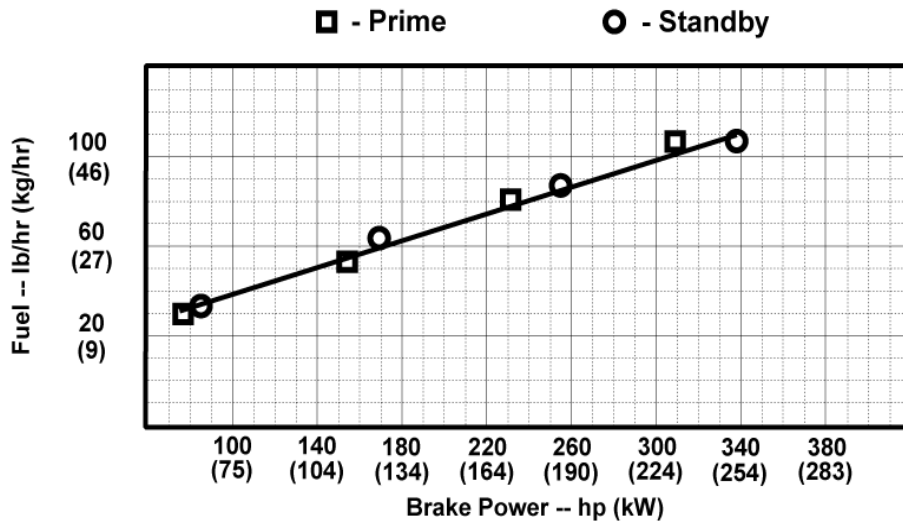
Air Intake Restriction.....12 in.H₂O (3 kPa)
 Exhaust Back Pressure.....30 in.H₂O (7.5 kPa)

Gross power guaranteed within + or - 5% at SAE J1995 and ISO 3046 conditions:
 77 °F (25 °C) air inlet temperature
 29.31 in.Hg (99 kPa) barometer
 104 °F (40 °C) fuel inlet temperature
 0.853 fuel specific gravity @ 60 °F (15.5 °C)

Conversion factors:
 Power: kW = hp x 0.746
 Fuel: 1 gal = 7.1 lb, 1 L = 0.85kg
 Torque: N·m = lb·ft x 1.356

All values are from currently available data and are subject to change without notice.

Notes:



Designed/Calibrated to meet:

Certified by:

- EPA Tier 3
- EU Stage III A

03-14-2011

Ref: Engine Emission Label

Performance Curve: 6090HFG84_U84_A15

Engine Installation Criteria

General Data

Model	6090HFG84	
Number of Cylinders	6	
Bore	118.4 mm	4.7 in.
Stroke	136 mm	5.4 in.
Displacement	9.0 L	549 in. ³
Compression Ratio	16.0 : 1	
Valves per Cylinder, Intake/Exhaust	2 / 2	
Firing Order	1-5-3-6-2-4	
Combustion System	HPCR	
Engine Type	In-line, 4-Cycle	
Aspiration	Turbocharged and air-to-air aftercooled	
Engine Crankcase Vent System	Open	

Physical Data

Length	1208 mm	47.6 in.
Width	630 mm	24.8 in.
Height	1113 mm	43.8 in.
Weight, with oil & no coolant (Includes engine, flywheel housing, flywheel & electrics)	901 kg	1986 lb
Center of Gravity Location, X-axis From Rear Face of Block	mm	
Center of Gravity Location, Y-axis Right of Crankshaft	mm	
Center of Gravity Location, Z-axis Above Crankshaft	mm	
Max. Allowable Static Bending Moment At Rear Face of Flywheel Housing with 5-G Load	814 N·m	600 lb-ft
Thrust Bearing Load Limit Forward, Intermittent	13000 N	2923 lb
Thrust Bearing Load Limit Forward, Continuous	8600 N	1933 lb
Thrust Bearing Load Limit Rearward, Intermittent	6000 N	1349 lb
Thrust Bearing Load Limit Rearward, Continuous	4000 N	899 lb
Max. Continuous Damper Temp	82 °C	180 °F
Max. Torsional Vibration, Front of Crank	0.25 DDA	

Electrical System

Recommended Battery Capacity, 12V @32 °F (0 °C)	1100 amps	
Recommended Battery Capacity, 24V @32 °F (0 °C)	750 amps	
Starter Rolling Current, 12V @32 °F (0 °C)	920 amps	
Starter Rolling Current, 24V @32 °F (0 °C)	600 amps	
Starter Rolling Current, 12V @-22 °F (-30 °C)	1300 amps	
Starter Rolling Current, 24V @-22 °F (-30 °C)	700 amps	
Min. Voltage at ECU during Cranking, 12V	6 volts	
Min. Voltage at ECU during Cranking, 24V	10 volts	
Max. Allowable Start Circuit Resistance, 12V	0.0012 Ohm	
Max. Allowable Start Circuit Resistance, 24V	0.002 Ohm	
Max. Voltage From Engine to Crankshaft, 12V	0.15 volts	
Max. Voltage From Engine to Crankshaft, 24V	0.15 volts	
Max. ECU Temperature	105 °C	221 °F
Max. VTG Actuator Surface Temp	180 °C	356 °F
Max. Harness Temperature	125 °C	257 °F
Max. Alternator Temperature	150 °C	302 °F
Max. Starter Temperature	120 °C	248 °F
Max. Temperature, All Other Electronics	125 °C	257 °F

Charge Air Cooling System

Air-to-Air Heat Rejection	56.0 kW	3188 BTU/min
Intake Manifold Pressure	210.3 kPa	30.5 psi
Compressor Discharge Temperature @77°F(25°C) Ambient Air	203.1 °C	398 °F
Max. Temperature Out of Charge Air Cooler @All Ambient Conditions	88 °C	190 °F
Intake Manifold Temperature at which Power De-rate Occurs	89.5 °C	193 °F
Intake Manifold Temperature at which Severe Power De-rate Occurs	91 °C	195.8 °F
Max. CAC System Volume	27 Liter	29 quart
Max. Pressure Drop through CAC	13 kPa	52.0 in. H ₂ O
Max. Temperature Out of Charge Air Cooler @77°F (25°C) Ambient Air	45.0 °C	113 °F

Performance Curve: 6090HFG84_U84_A15

Engine Installation Criteria

Cooling System

Engine Heat Rejection	102.0 kW	5806 BTU/min
Engine Radiated Heat	25 kW	1423 BTU/min
Coolant Flow	250 L/min	66 gal/min
Thermostat Start to Open	82 °C	180 °F
Thermostat Fully Open	94 °C	201 °F
Engine Coolant Capacity	16 Liter	16.9 quart
Min. Coolant Fill Rate	12 L/min	3.2 gal/min
Min. Pressure Cap	100 kPa	15 psi
Min. Pump Inlet Pressure @203°F (95°C) Coolant	30 kPa	4 psia
Min. External Coolant Restriction	10 kPa	1 psi
Max. External Coolant Restriction	14 kPa	2 psi
Max. Top Tank Temperature	110 °C	230 °F
Max. Top Tank Temperature 95% of Operating Hours	100 °C	212 °F
Min. Limiting Ambient Temperature	47 °C	117 °F

Exhaust System

Exhaust Flow	47.9 m ³ /min	1692 ft. ³ /min
Exhaust Temperature	542 °C	1008 °F
Max. Allowable Exhaust Restriction	7.5 kPa	30 in. H ₂ O
Max. Bending Moment on Turbo Outlet	7 N-m	5.2 lb-ft
Max. Shear on Turbine Outlet	11 kg	24 lb

Fuel System

ECU Description	L14 Controller	
Fuel Injection Pump	Denso HP4	
Governor Type	Electronic	
Governor Regulation	0	
Total Fuel Flow	kg/hr	
Fuel Consumption	53.5 kg/hr	117.9 lb/hr
Fuel Temperature Rise, Inlet to Return	35 Δ°C	63 Δ°F
Max. Fuel Inlet Restriction	20 kPa	80 in. H ₂ O
Min. Fuel Inlet Pressure	7.6 kPa	30 in. H ₂ O
Max. Fuel Inlet Pressure	20 kPa	80 in. H ₂ O
Max. Fuel Return Pressure	20 kPa	80 in. H ₂ O
Max. Fuel Inlet Temperature	80 °C	176 °F
Fuel Filter @98% Efficiency	2 mic	

Lubrication System

Oil Pressure at Rated Speed	237 kPa	34 psi
Oil Pressure at Low Idle	190 kPa	28 psi
Max. Oil Carryover in Blow-By	3.0 g/hr	0.007 lb/hr
Max. Airflow in Blow-By	40 L/min	10.6 gal/min
Max. Crankcase Pressure	0.5 kPa	2 in. H ₂ O

Air Intake System

Engine Air Flow	18.1 m ³ /min	639 ft. ³ /min
Air Mass Flow	1254 kg/hr	2765 lb/hr
Maximum Allowable Temperature Rise, Ambient Air to Engine Inlet	8 Δ°C	15 Δ°F
Max. Air Intake Restriction, Clean Air Cleaner	3.75 kPa	15.0 in. H ₂ O
Max. Air Intake Restriction, Dirty Air Cleaner	6.25 kPa	25.0 in. H ₂ O
Air Cleaner Efficiency	99.9 %	

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Performance Data

Rated Power, Prime	230 kW	308 HP
Rated Power, Standby	253 kW	339 HP
Rated Speed		1500 rpm
Rated Torque, Prime	1464.2 N·m	1080 lb-ft
Rated Torque, Standby	1610.6 N·m	1188 lb-ft
BMEP, Prime	2049 kPa	297 psi
Altitude Capability	3000 m	9843 ft
Friction Power @Rated Speed	16.9 kW	23 HP
Air:Fuel Ratio		23.1 : 1
Smoke @Rated Speed		Bosch No.
Noise @1 m		dB(A)
0-100% Standby Load Acceptance		5.5 sec
Load Acceptance, ISO 8528-5		G3

Fuel Consumption	Prime		Standby	
	lb/hr	kg/h	lb/hr	kg/h
25 % Power	29.8	13.5	32.6	14.8
50 % Power	58.2	26.4	63.7	28.9
75 % Power	80.9	36.7	87.3	39.6
100 % Power	107.4	48.7	107.1	48.6

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