



JOHN DEERE

ENGINE PERFORMANCE CURVE

Rating: Gross Power
 Application: Generator
 Emergency Stationary (350 kWe Market)
 1800 RPM (60 Hz)

PowerTech™ E 13.5L Engine
Model: 6135HFG84
 JD Electronic Control

NA hp (NA kW) Prime
 538 hp (401 kW) Standby

Nominal Engine Power @ 1800 RPM			
Prime		Standby	
HP	kW	HP	kW
NA	NA	538	401

Generator Efficiency %	Fan Power (% of Standby)		Power Factor	Prime Rating		Standby Rating	
	hp	kW		kWe	kVA	kWe	kVA
90-94	21.5	16.0	0.8	NA	NA	346-362	433-452

Note 1: Based on nominal engine power; Fan Power is 4% of Standby.

STANDARD CONDITIONS

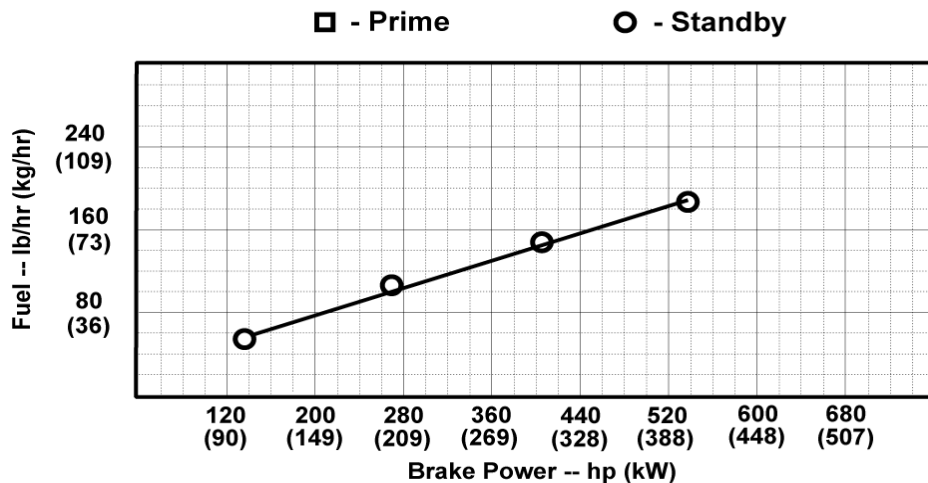
Air Intake Restriction.....12 in.H₂O (3 kPa)
 Exhaust Back Pressure.....60 in.H₂O (15 kPa)

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: A crankshaft Torsional Vibration Analysis is required on all Gen Set applications .



Designed/Calibrated to meet:	Certified by:
• EPA Tier 3	<i>Scott D. Oshone</i> 22 July 2013
Ref: Engine Emission Label	

Performance Curve: 6135HFG84_B

Engine Installation Criteria

General Data

Model	6135HFG84	
Number of Cylinders	6	
Bore	132 mm	5.2 in.
Stroke	165 mm	6.5 in.
Displacement	13.5 L	824 in. ³
Compression Ratio	16.0 : 1	
Valves per Cylinder, Intake/Exhaust	2 / 2	
Firing Order	1-5-3-6-2-4	
Combustion System	Unit Injection	
Engine Type	In-line, 4 Cycle	
Aspiration	Turbocharged and air-to-air aftercooled	
Engine Crankcase Vent System	Open	

Physical Data

Length	1362 mm	53.6 in.
Width	857 mm	33.7 in.
Height	1210 mm	47.6 in.
Weight, with oil & no coolant (Includes engine, flywheel housing, flywheel & electrics)	1334 kg	2941 lb
Center of Gravity Location, X-axis From Rear Face of Block	-522 mm	-20.6 in.
Center of Gravity Location, Y-axis Right of Crankshaft	-23.3 mm	-0.9 in.
Center of Gravity Location, Z-axis Above Crankshaft	254.5 mm	10.0 in.
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	8100 N	1821 lb
Thrust Bearing Load Limit Forward, Continuous	5400 N	1214 lb
Thrust Bearing Load Limit Rearward, Intermittent	4000 N	899 lb
Thrust Bearing Load Limit Rearward, Continuous	2500 N	562 lb
Max. Continuous Damper Temp	82 °C	180 °F
Max. Torsional Vibration, Front of Crank	0.36 DDA	

Electrical System

Recommended Battery Capacity, 12V @32 °F (0 °C)	1900 amps	
Recommended Battery Capacity, 24V @32 °F (0 °C)	925 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. Voltage Drop, Battery to Starter	0.8 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. Harness Temperature	125 °C	257 °F
Max. Alternator Temperature	120 °C	248 °F
Max. Starter Temperature	120 °C	248 °F
Max. Temperature, All Other Electronics	125 °C	257 °F

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Engine Installation Criteria

Charge Air Cooling System

Air-to-Air Heat Rejection	75 kW	4269 BTU/min
Intake Manifold Pressure	228.9 kPa	33.2 psi
Compressor Discharge Temperature @77°F(25°C) Ambient Air	199 °C	390 °F
Compressor Discharge Temperature @117°F(47°C) 80 kPa Barometric pressure	240 °C	464 °F
Max. Temperature Out of Charge Air Cooler @All Ambient Conditions	88 °C	190 °F
Intake Manifold Temperature at which Power De-rate Occurs	121 °C	250 °F
Intake Manifold Temperature at which Severe Power De-rate Occurs	123 °C	253.4 °F
Max. CAC System Volume	54 Liter	57 quart
Max. Pressure Drop through CAC	13 kPa	52.0 in. H ₂ O
Min. Pressure Drop through CAC	8 kPa	32.0 in. H ₂ O
Max. Temperature Out of Charge Air Cooler @77°F (25°C) Ambient Air	45 °C	113 °F
Max. Bending Moment on Compressor Outlet	7 N·m	5 lb-ft
Max. Shear on Compressor Outlet	11 kg	24 lb

Cooling System

Engine Heat Rejection	175 kW	9961 BTU/min
Engine Radiated Heat	43 kW	2448 BTU/min
Coolant Flow	400 L/min	106 gal/min
Thermostat Start to Open	82 °C	180 °F
Thermostat Fully Open	92 °C	198 °F
Engine Coolant Capacity	18 Liter	19.0 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
Max. External Coolant Restriction	40 kPa	6 psi
Max. Top Tank Temperature	105 °C	221 °F
Max. Top Tank Temperature 95% of Operating Hours	95 °C	203 °F
Min. Limiting Ambient Temperature	47 °C	117 °F

Exhaust System

Exhaust Flow	67.6 m ³ /min	2387 ft. ³ /min
Exhaust Temperature	547 °C	1017 °F
Max. Allowable Exhaust Restriction	7.5 kPa	30 in. H ₂ O
Min. Allowable Exhaust Restriction	4 kPa	16 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	L15 Controller	
Fuel Injection Pump	Unit Injection	
Governor Type	Electronic	
Governor Regulation	Selectable	
Total Fuel Flow	153 kg/hr	337 lb/hr
Fuel Consumption	85 kg/hr	187.4 lb/hr
Fuel Temperature Rise, Inlet to Return	47 Δ°C	85 Δ°F
Max. Fuel Inlet Restriction	10 kPa	40 in. H ₂ O
Min. Fuel Inlet Pressure	-10 kPa	-40 in. H ₂ O
Max. Fuel Inlet Pressure	24 kPa	96 in. H ₂ O
Max. Fuel Return Pressure	35 kPa	140 in. H ₂ O
Max. Fuel Inlet Temperature	100 °C	212 °F
Fuel Filter @98% Efficiency	2 mic	

Lubrication System

Oil Pressure at Rated Speed	227.5 kPa	33 psi
In-Pan Oil Temperature	110 °C	230 °F
Max. Oil Carryover in Blow-By	3 g/hr	0.007 lb/hr
Max. Airflow in Blow-By	300 L/min	79.3 gal/min
Max. Crankcase Pressure	0.5 kPa	2 in. H ₂ O

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Engine Installation Criteria

Air Intake System

Engine Air Flow	25 m ³ /min	883 ft. ³ /min
Air Mass Flow	1732 kg/hr	3818 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 %	

Performance Data

Rated Power, Prime	NA	NA
Rated Power, Standby	401 kW	538 HP
Rated Speed	1800 rpm	
Rated Torque, Prime	NA	
Rated Torque, Standby	2127 N·m	1569 lb-ft
BMEP, Prime	NA	
BMEP, Standby	1980 kPa	287 psi
Altitude Capability	1676 m	5500 ft
Friction Power @Rated Speed	41 kW	55 HP
Air:Fuel Ratio	20.4 : 1	
Smoke @Rated Speed	0.623 Bosch No.	
Noise @1 m	98.5 dB(A)	
0-100% Standby Load Acceptance	8.9 sec	
Load Acceptance, ISO 8528-5	G3	

Fuel Consumption	Prime		Standby	
	lb/hr	kg/h	lb/hr	kg/h
25 % Power	0.0	0.0	55.1	25.0
50 % Power	0.0	0.0	105.8	48.0
75 % Power	0.0	0.0	149.9	68.0
100 % Power	0.0	0.0	187.4	85.0

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