



**JOHN DEERE**

**ENGINE PERFORMANCE CURVE**

Rating: Gross Power  
 Application: Generator  
 450 kVA Standby Market  
 1500 RPM (50 Hz)

**PowerTech™ 13.5L Engine**  
**Model: 6135HF475**  
 JD Electronic Control

556 hp (415 kW) Prime  
 612 hp (456 kW) Standby

Nominal Engine Power @ 1500 RPM			
Prime		Standby	
HP	kW	HP	kW
556	415	612	456

Generator Efficiency %	Fan Power (% of Standby)		Power Factor	Prime Rating		Standby Rating	
	hp	kW		kWe	kVA	kWe	kVA
90-93	30.6	22.8	0.8	355-367	443-458	390-403	487-504

Based on nominal engine power.

**STANDARD CONDITIONS**

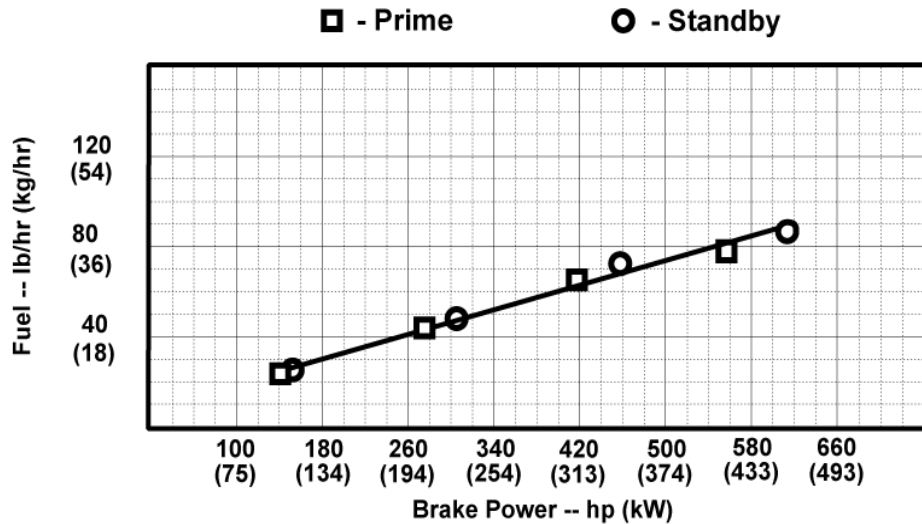
Air Intake Restriction.....12 in.H<sub>2</sub>O (3 kPa)  
 Exhaust Back Pressure.....30 in.H<sub>2</sub>O (7.5 kPa)

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



Designed/Calibrated to meet:	Certified by:
• EU Stage II	Advance Information
Ref: Engine Emission Label	

Performance Curve: 6135HF475\_A

## Engine Installation Criteria

### General Data

Model	6135HF475	
Number of Cylinders	6	
Bore	132 mm	5.2 in.
Stroke	165 mm	6.5 in.
Displacement	13.5 L	824 in. <sup>3</sup>
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	0.25 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. 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

### Charge Air Cooling System

Air-to-Air Heat Rejection	83 kW	4724 BTU/min
Intake Manifold Pressure	240 kPa	34.8 psi
Compressor Discharge Temperature @77°F(25°C) Ambient Air	206 °C	403 °F
Compressor Discharge Temperature @117°F(47°C) 80 kPa Barametric pressure	236 °C	457 °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. Pressure Drop through CAC	13 kPa	52.0 in. H <sub>2</sub> O
Max. Bending Moment on Compressor Outlet	7 N·m	5 lb-ft
Max. Shear on Compressor Outlet	11 kg	24 lb

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### Cooling System

Engine Heat Rejection	165 kW	9392 BTU/min
Coolant Flow	318 L/min	84 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 @194°F (90°C) Coolant		NA
Min. Pump Inlet Pressure @203°F (95°C) Coolant	30 kPaa	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	75.0 m <sup>3</sup> /min	2649 ft. <sup>3</sup> /min
Exhaust Temperature	494 °C	921 °F
Max. Allowable Exhaust Restriction	10 kPa	40 in. H <sub>2</sub> O
Max. Bending Moment on Turbo Outlet	7.0 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	Electronic	
Total Fuel Flow	156 kg/hr	344 lb/hr
Fuel Consumption, Prime	79.0 kg/hr	174 lb/hr
Fuel Consumption, Standby	88.0 kg/hr	194 lb/hr
Fuel Temperature Rise, Inlet to Return	62 Δ°C	112 Δ°F
Max. Fuel Inlet Restriction	10 kPa	40 in. H <sub>2</sub> O
Min. Fuel Inlet Pressure	-10 kPa	-40 in. H <sub>2</sub> O
Max. Fuel Inlet Pressure	24 kPa	96 in. H <sub>2</sub> O
Max. Fuel Return Pressure	35 kPa	140 in. H <sub>2</sub> O
Max. Fuel Inlet Temperature	100 °C	212 °F
Fuel Filter @98% Efficiency	2 mic	

### Lubrication System

Oil Pressure at Rated Speed	250 kPa	36 psi
Oil Pressure at Low Idle	138 kPa	20 psi
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 <sub>2</sub> O

### Air Intake System

Engine Air Flow	30 m <sup>3</sup> /min	1059 ft. <sup>3</sup> /min
Air Mass Flow	2065 kg/hr	4553 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 <sub>2</sub> O
Max. Air Intake Restriction, Dirty Air Cleaner	6.25 kPa	25.0 in. H <sub>2</sub> O
Air Cleaner Efficiency	99.9 %	

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## Engine Installation Criteria

### Performance Data

Rated Power, Prime	556 kW	415 HP
Rated Power, Standby	612 kW	456 HP
Rated Speed		1500 rpm
Low Idle Speed		NA
Rated Torque, Prime	2642 N·m	1949 lb-ft
Rated Torque, Standby	2903 N·m	2141 lb-ft
BMEP, Prime	2459 kPa	357 psi
BMEP, Standby	2702 kPa	392 psi
Altitude Capability, Prime	2347 m	7700 ft
Altitude Capability, Standby	1524 m	5000 ft
Friction Power @Rated Speed	29 kW	39 HP
Air:Fuel Ratio, Prime		24.3 : 1
Air:Fuel Ratio, Standby		23.4 : 1
Noise @1 m Prime		dB(A)
Noise @1 m Standby		dB(A)
0-100% Standby Load Acceptance		sec
Load Acceptance, ISO 8528-5		

Fuel Consumption	Prime		Standby	
	lb/hr	kg/h	lb/hr	kg/h
25 % Power	50.5	22.9	54.9	24.9
50 % Power	97.7	44.3	107.1	48.6
75 % Power	145.3	65.9	159.8	72.5
100 % Power	174.2	79.0	191.8	87.0

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