

ENGINE DATASHEET





JOHN DEERE

ENGINE PERFORMANCE CURVE

Rating: Gross power
 Application: Generator
 1800 RPM (60 Hz)

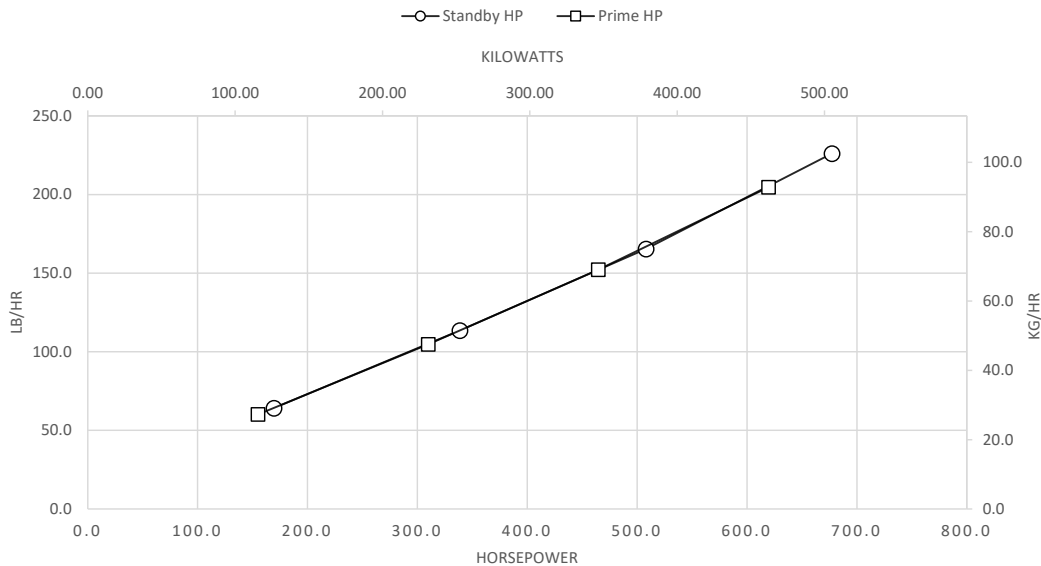
PowerTech™ PSL 13.6L Engine
Model: 6136CG440
 620 hp 462 kW Prime
 677 hp 505 kW Standby
 Dual-frequency partner 6136CG440_B

Nominal Engine Power @ 1800 RPM			
Prime		Standby	
HP	kW	HP	kW
620	462	677	505

Generator Efficiency %	Fan power (% of Standby)		Power Factor	Prime Rating		Standby Rating	
	hp	kW		kWe	kVA	kWe	kVA
91-95	37.0	27.6	0.8	395 - 412	493 - 515	434 - 453	543 - 567

Note 1: Based on nominal engine power

STANDBY VS PRIME



STANDARD CONDITIONS

Air Intake Restriction	12in.H2O (3kPa)
Exhaust Back Pressure	30 in.H2O (7.5kPa)
Gross Power Guaranteed within + or - 5% at SAEJ1995 and ISO 3046 conditions:	
Air Inlet Temperature =	77°F (25°C)
Barometer =	29.31 in.Hg (99 kPa)
Fuel Inlet Temperature =	104°F (40°C)
Fuel Specific Gravity @ 60 °F (15.5 °C) =	0.853

CONVERSION FACTORS:

Power:	kW = HP x 0.746
Fuel:	1 Gal = 7.1 lb, 1 L = 0.85 kg
Torque:	N·m = lb-ft x 1.356

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

Notes:1) This Performance Curve provides installation requirements necessary for the engine to emit at its certified emission levels. For additional information necessary to meet applicable regulatory requirements, refer to the John Deere Emissions-related Installation Instructions (AG01): <https://power.deere.com/wps/myportal/jdps/products/engines/apguidelines>.
 2) A crankshaft Torsional Vibration Analysis is required on all Gen Set.

Designed/Calibrated to meet:

Certified By:

CARB, EPA Tier 4

23-Jul-21

Ref: Engine Emission Label

Performance Curve: 6136CG440_A

Engine Installation Criteria

General Data

Engine Model	6136CG440	
Number of Cylinders	6	
Bore	132 mm	5.2 in.
Stroke	165 mm	6.5 in.
Displacement	13.55 L	827 in. ³
Compression Ratio	15.9:1	
Valves per Cylinder, Intake/Exhaust	2/2	
Firing Order	1-5-3-6-2-4	
Combustion System	Common Rail	
Engine Type	In-Line, 4-cycle	
Aspiration	Turbocharged & air-to-air aftercooled	
Engine Crankcase Vent System	Open	

Physical Data

Length	1498 mm	59.0 in.
Width	890 mm	35.0 in.
Height	1367 mm	53.8 in.
Weight, with oil&no coolant (Includes engine, flywheel housing, flywheel&electrics)	1521 kg	3353.2 lb
Center of Gravity Location, X-axis From Rear Face of Block	360 mm	14.2 in.
Center of Gravity Location, Y-axis Right of Crankshaft	44 mm	1.7 in.
Center of Gravity Location, Z-axis Above Crankshaft	239 mm	9.4 in.
Max. Bending Moment about Main Bearings Front and Rear	950 N·m	701 lb-ft
Max. Allowable Static Bending Moment at Rear Face of Flywheel Housing with 5-G Load	TBD N·m	TBD lb-ft
Thrust Bearing Load Limit Forward, Intermittent	10720 N	2410 lb
Thrust Bearing Load Limit Forward, Continuous	7140 N	1605 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	115 °C	239 °F
Max. ECU Vibration, All Axis	7.55 gRMS	
Max. Torsional Vibration, Front of Crank	0.40 DDA	
Max. Engine Torsional Vibration in Overspeed	0.50 DDA	

Electrical System

Min. Instantaneous Cranking	50 rpm	
Mn. Steady State Cranking	120 rpm	
Starter Rolling Current, 12V @32 °F (0 °C)	700 amps	
Starter Rolling Current, 24V @32 °F (0 °C)	400 amps	
Starter Rolling Current, 12V @-22 °F (-30°C)	1100 amps	
Starter Rolling Current, 24V @-22 °F (-30°C)	550 amps	
Min. Voltage at ECU during Cranking, 12V	5 volts	
Min. Voltage at ECU during Cranking, 24V	10 volts	
Max. Voltage Drop, Battery to Starter	0.8V volts	
Max. Allowable Start Circuit Resistance, 12V	0.0012 Ohm	
Max. Allowable Start Circuit Resistance, 24V	0.0020 Ohm	
Max. Voltage From Engine to Crankshaft	0 volts	
Max. ECU Temperature	105 °C	221 °F
Max. VTG Actuator Surface Temp	#N/A °C	#N/A °F
Max. Air Throttle Electrical Actuator Temperature	#N/A °C	#N/A °F
Max. Exhaust Throttle Electrical Actuator Temperature	125 °C	257 °F
Max. Harness Temperature	125 °C	257 °F
Max. Alternator Temperature	105 °C	221 °F
Max. Starter Temperature	120 °C	248 °F
Max. Temperature, All Other Electronics	125 °C	257 °F

Performance Curve: 6136CG440

Engine Installation Criteria

Charge Air Cooling System

Air-to-Air Heat Rejection	134.4 kW	7643 BTU/min
Compressor Discharge Temperature @ 77°F(25°C) Ambient Air	253 °C	487 °F
Intake Manifold Pressure	312 kPa	45.3 psi
Compressor Discharge Temperature @ 117°F(47°C) 80 kPa Barometric pressure	239 °C	462 °F
Max. Temperature Out of Charge Air Cooler @ All Ambient Conditions	88 °C	190 °F
Max. CAC System Volume	#N/A L	#N/A Qt.
Max. Pressure Drop through CAC	16.0 kPa	64 in. H ₂ O
Min. Pressure Drop through CAC	8.0 kPa	32 in. H ₂ O
Max. Temperature Out of Charge Air Cooler 77°F (25°C) Ambient Air	52 °C	126 °F
Min. Temperature Out of Charge Air Cooler 77°F (25°C) Ambient Air	48 °C	118 °F
Max. Bending Moment on Compressor Outlet	24.0 N·m	17.7 lb-ft
Max. Shear on Compressor Outlet	4.0 kg	8.8 lb

Cooling System

Engine Heat Rejection	264.4 kW	15036.4 BTU/min
Coolant Flow @ 10 kPa External Restriction	672 L/min	178 gal/min
Coolant Flow @ 40 kPa External Restriction	612 L/min	162 gal/min
Coolant Flow @ 85 kPa External Restriction	#NA L/min	#NA gal/min
Thermostat Start to Open	85 °C	185 °F
Thermostat Fully Open	94 °C	200 °F
Engine Coolant Capacity	27.3 Liter	28.9 quart
Min. Coolant Fill Rate	12 L/min	3.2 gal/min
Max. Water Pump Inlet Pressure	235 kPaa	34 psia
Min. Pump Inlet Pressure @ 203°F (95°C) Coolant	110 kPaa	16 psia
Min. Pump Inlet Pressure @ Max. Top Tank temperature	161 kPaa	23 psia
Min. External Coolant Restriction	#N/A kPa	#N/A psi
Max. External Coolant Restriction	85 kPa	12 psi
Max. Top Tank Temperature	113 °C	235 °F
Max. Top Tank temperature 95% of Operating Hours	103 °C	217 °F

Exhaust System

Exhaust Flow	61.1 m ³ /min	2158 ft ³ /min
Exhaust Temperature	442 °C	828 °F
Max. Allowable Exhaust Restriction	21 kPa	85 in. H ₂ O
Max. Bending Moment on Turbo Outlet	36.0 N·m	26.6 lb-ft
Max. Shear on Turbine Outlet	6.0 kg	13.2 lb
Exhaust Filter Size		7
Exhaust Filter Pressure Drop (Clean)	14 kPa	54 in. H ₂ O
Min. Mixing Length, Outlet to Exhaust Filter		#N/A
Max. Bending Moment on Exhaust Filter Inlet	110 N·m	81 lb-ft
Max. Bending Moment on Exhaust Filter Outlet	370 N·m	273 lb-ft
Max. Exhaust Leakage Rate, Engine to Exhaust Filter @30kPa	345.0 L/min	91.1 gal/min
Max. Temperature Drop, Engine to exhaust Filter	30 Δ°C	54 Δ°F

Fuel System

ECU Description	L40	
Fuel Injection Pump	Bosch	
Governor Type	Electronic	
Total Fuel Flow	208 kg/hr	458 lb/hr
Fuel Consumption, Prime	93 kg/hr	205 lb/hr
Fuel Consumption, Standby	103 kg/hr	226 lb/hr
Fuel Temperature Rise, Inlet to Return	10 Δ°C	17 Δ°F
Min. Fuel Inlet Pressure	-30 kPa	-121 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
Min. Fuel Return Pressure	0 kPa	0 in. H ₂ O
Max. Fuel Inlet Temperature	80 °C	176 °F
Fuel Filter @98% Efficiency		4.0 mic

Lubrication System

Oil Pressure at Rated Speed	430 kPa	62 psi
Oil Pressure at Low Idle	281 kPa	41 psi
Max. In-Pan Oil Temperature	138 °C	280 °F
Max. Crankcase Pressure	1 kPa	4 in. H ₂ O

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Engine Installation Criteria

Air Intake System

Engine Air Flow	32.9 m ³ /min	1162 ft. ³ /min
Air Mass Flow	2252 kg/hr	4965 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 in. H ₂ O
Max. Air Intake Restriction, Dirty Air Cleaner	6.25 kPa	25 in. H ₂ O
Air Cleaner Efficiency		99.9 %

Performance Data

Rated Power, Prime	462 kW	620 HP
Rated Power, Standby	505 kW	677 HP
Rated Speed		1800 rpm
Low Idle Speed		1200 rpm
Rated Torque, Prime	2451 N·m	1808 lb-ft
Rated Torque, Standby	2679 N·m	1976 lb-ft
BMEP, Prime	2273 kPa	330 psi
BMEP, Standby	2485 kPa	360 psi
Altitude Capability, Prime	2530 m	8300 ft
Altitude Capability, Standby	1524 m	5000 ft
Friction Power @Rated Speed	42.0 kW	56 HP
Air: Fuel Ratio, Prime		22.21 : 1
Air: Fuel Ratio, Standby		21.82 : 1
Noise @1 m Prime		100.8 dB(A)
Noise @1 m Standby		100.8 dB(A)
0-100% Standby Load Acceptance		3.8 sec
Load Acceptance, ISO 8528-5		G3 Capable

Fuel Consumption	Prime		Standby	
	kg/h	lb/hr	kg/h	lb/hr
25 % Power	27.3	60.1	29.1	64.2
50 % Power	47.5	104.7	51.5	113.5
75 % Power	69.0	152.1	75.0	165.3
100 % Power	92.8	204.6	102.5	226.0

DEF Data

Rating	Engine Speed RPM	DEF Consumption*		Percent of Diesel Consumption**
		g/kWh	lb/hp-hr	
Standby	1800	10.7	0.0176	4.1
Prime	1800	12.2	0.0201	4.7

*DEF conversion factor: 1.087 kg/l (9.071 lb/gal)

**Percent of diesel consumption by volume at 100% power

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