



**JOHN DEERE**

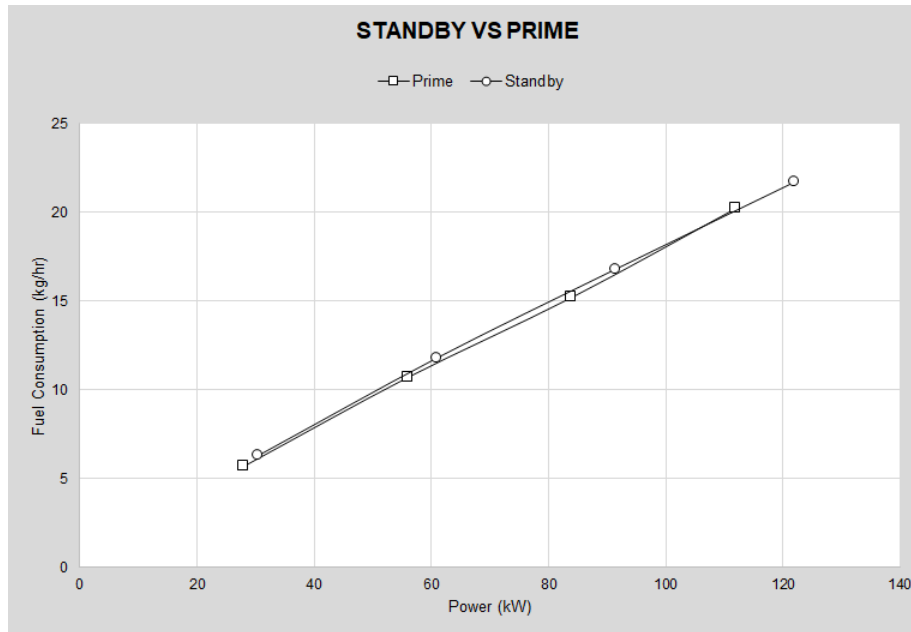
## ENGINE PERFORMANCE CURVE

Rating: Gross power  
 Application: Generator  
 1500 RPM (50 Hz)

**PowerTech™ 4.5L Engine**  
**Model: 4045HFG20**  
 150 hp 112 kW Prime  
 164 hp 122 kW Standby

Nominal Engine Power @ RPM			
Prime		Standby	
HP	kW	HP	kW
150	112	164	122

Generator Efficiency %	Fan power (% of Standby)		Power Factor	Prime Rating		Standby Rating	
	hp	kW		kWe	kVA	kWe	kVA
92	7.2	6.1	0.8	97	122	107	133



### STANDARD CONDITIONS

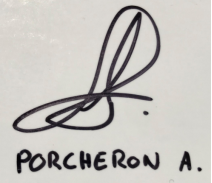
Air Intake Restriction	3 kPa
Exhaust Back Pressure	7.5 kPa
<b>Gross Power Guaranteed within + or - 5% at SAEJ1995 and ISO 3046 conditions:</b>	
Air Inlet Temperature =	25 °C
Barometer =	100 kPa
Fuel Inlet Temperature =	40 °C
Fuel Specific Gravity @ 60 °F (15.5 °C) =	0.853

#### 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:
Non-certified	 <b>PORCHERON A.</b> 17-Apr-20
Ref: Engine Emission Label	Performance Curve: 4045HFG20_B15

## Engine Installation Criteria

### General Data

Engine Model	4045HFG20	
Number of Cylinders	4	
Bore	106 mm	4.2 in.
Stroke	127 mm	5 in.
Displacement	4.5 L	275 in. <sup>3</sup>
Compression Ratio	17.0:1	
Valves per Cylinder, Intake/Exhaust	2	
Firing Order	1-3-4-2	
Combustion System	Direct Injection	
Engine Type	In-line, 4-Cycle	
Aspiration	Turbocharged and air-to-air aftercooled	
Engine Crankcase Vent System	Open	

### Physical Data

Length	1209 mm	47.6 in.
Width	784 mm	30.9 in.
Height	1251 mm	49.3 in.
Weight, with oil&no coolant (Includes engine, flywheel housing, flywheel&electrics)	1111 kg	2450 lb
Center of Gravity Location, X-axis From Rear Face of Block	-2.41 mm	-0.1 in.
Center of Gravity Location, Y-axis Right of Crankshaft	200.01 mm	7.9 in.
Center of Gravity Location, Z-axis Above Crankshaft	328.86 mm	12.9 in.
Max. Allowable Static Bending Moment at Rear Face of Flywheel Housing with 5-G Load	814 N·m	602.4 lb-ft
Thrust Bearing Load Limit Forward, Intermittent	4000 N	899 lb
Thrust Bearing Load Limit Forward, Continuous	2200 N	495 lb
Thrust Bearing Load Limit Rearward, Intermittent	2000 N	450 lb
Thrust Bearing Load Limit Rearward, Continuous	1000 N	225 lb
Max. Continuous Damper Temp	#N/A °F	
Max. Torisonal Vibration, Front of Crank	#N/A DDA	

### Electrical System

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	#N/A volts	
Min. Voltage at ECU during Cranking, 24V	#N/A volts	
Max. Allowable Start Circuit Resistance, 12V	0.00120 Ohm	
Max. Allowable Start Circuit Resistance, 24V	0.00200 Ohm	
Max. Voltage From Engine to Crankshaft, 12V	#N/A volts	
Max. Voltage From Engine to Crankshaft, 24V	#N/A volts	
Max. ECU Temperature	#N/A °F	
Max. Alternator Temperature	#N/A °F	
Max. Starter Temperature	#N/A °F	
Max. Temperature, All Other Electronics	#N/A °F	

### Charge Air Cooling System

Air-to-Air Heat Rejection	24 kW	1365 BTU/min
Compressor Discharge Temperature @ 77°F(25°C) Ambient Air	190 °C	374 °F
Intake Manifold Pressure	194 kPa	28.1 psi
Max. Temperature Out of Charge Air Cooler @ All Ambient Conditions	130 °C	266 °F
Max. Pressure Drop through CAC	10 kPa	40 in. H <sub>2</sub> O
Max. Temperature Out of Charge Air Cooler 77°F (25°C) Ambient Air	45 °C	113 °F

### Cooling System

Engine Heat Rejection	48 kW	2729.8 BTU/min
Coolant Flow @ 10 kPa External Restriction	120 L/min	31.7 gal/min
Thermostat Start to Open	82 °C	179.6 °F
Thermostat Fully Open	94 °C	201.2 °F
Engine Coolant Capacity	9 Liter	9.0 quart
Min. Coolant Fill Rate	11 L/min	2.9 gal/min
Min. Pump Inlet Pressure @ 203°F (95°C) Coolant	30 kPa	4.4 psi
Max. External Coolant Restriction	30 kPa	4.4 psi
Max. Top Tank Temperature	105 °C	221 °F
Max. Top Tank temperature 95% of Operating Hours	#N/A °C	#N/A °F
Min. Air-to-Boil Temperature	42.3 °C	108.1 °F

Performance Curve: 4045HFG20

## Engine Installation Criteria

### Exhaust System

Exhaust Flow	23.6 m <sup>3</sup> /min	833 ft <sup>3</sup> /min
Exhaust Temperature	610 °C	1130 °F
Max. Allowable Exhaust Restriction	7.5 kPa	30 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	11.0 kg	24.3 lb

### Fuel System

ECU Description	N/A	
Fuel Injection Pump	Delphi DP100G	
Governor Type	Mechanical	
Total Fuel Flow	69 kg/hr	151 lb/hr
Fuel Consumption, Prime	24 kg/hr	53 lb/hr
Fuel Temperature Rise, Inlet to Return	12 Δ°C	22 Δ°F
Min. Fuel Inlet Pressure	-10 kPa	-40 in. H <sub>2</sub> O
Max. Fuel Inlet Pressure	69 kPa	277 in. H <sub>2</sub> O
Max. Fuel Return Pressure	10 kPa	40 in. H <sub>2</sub> O
Min. Fuel Return Pressure	N/A kPa	
Max. Fuel Inlet Temperature	85 °C	185 °F
Fuel Filter @98% Efficiency	N/A	mic

### Lubrication System

Oil Pressure at Rated Speed	325 kPa	47 psi
Max. Crankcase Pressure	kPa	0 in. H <sub>2</sub> O

### Air Intake System

Engine Air Flow	8.5 m <sup>3</sup> /min	300 ft. <sup>3</sup> /min
Air Mass Flow	570 kg/hr	1257 lb/hr
Maximum Allowable Temperature Rise, Ambient Air to Engine Inlet	8 Δ°C	15 Δ°F
Max. Air Intake Restriction, Clean Air Clearer	3.75 kPa	15 in. H <sub>2</sub> O
Max. Air Intake Restriction, Dirty Air Clearer	6.25 kPa	25 in. H <sub>2</sub> O
Air Cleaner Efficiency	99.9 %	

### Performance Data

Rated Power, Prime	112 kW	150 HP
Rated Power, Standby	122 kW	164 HP
Rated Speed	1500 rpm	
Low Idle Speed	N/A rpm	
Rated Torque, Prime	702 N·m	519 lb-ft
Rated Torque, Standby	N·m 0 lb-ft	
BMEP, Prime	2150 kPa	312 psi
BMEP, Standby	kPa 0 psi	
Altitude Capability, Prime	1524 m	5000 ft
Altitude Capability, Standby	1524 m	5000 ft
Friction Power @Rated Speed	13.0 kW	17 HP
Air: Fuel Ratio, Prime		
Air: Fuel Ratio, Standby	21.5 : 1	
Noise @1 m Prime	N/A dB(A)	
Noise @1 m Standby	N/A dB(A)	
0-100% Standby Load Acceptance	N/A sec	
Load Acceptance, ISO 8528-5		

Fuel Consumption	Prime		Standby	
	kg/h	lb/hr	kg/h	lb/hr
25 % Power	6.4	14.1	7.0	15.4
50 % Power	12.9	28.4	14.2	31.3
75 % Power	18.4	40.6	20.2	44.5
100 % Power	24.1	53.1	26.5	58.4

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