



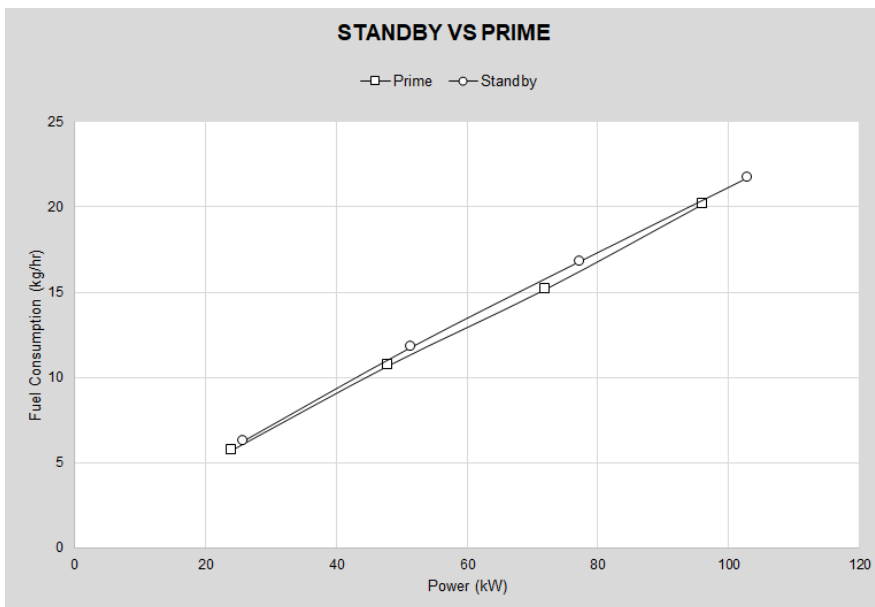
ENGINE PERFORMANCE CURVE

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

PowerTech™ 4.5L Engine
Model: 4045HFU20
130 hp 96 kW Prime
140 hp 103 kW Standby

Nominal Engine Power @ RPM			
Prime		Standby	
HP	kW	HP	kW
130	96	140	103

Generator Efficiency %	Fan power (% of Standby)		Power Factor	Prime Rating		Standby Rating	
	hp	kW		kWe	kVA	kWe	kVA
92	6.9	5.1	0.8	85	105	90	113



STANDARD CONDITIONS

Air Intake Restriction	3 kPa
Exhaust Back Pressure	7.5 kPa
Gross Power Guaranteed within + or - 5% at SAEJ1995 and ISO 3046 conditions:	
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

PORCHERON A.

Ref: Engine Emission Label

27-Nov-20

Performance Curve: 4045HFU20_A15

Engine Installation Criteria

General Data

Engine Model	4045HFU20	
Number of Cylinders	4	
Bore	106 mm	4.2 in.
Stroke	127 mm	5 in.
Displacement	4.5 L	275 in. ³
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	1210 mm	47.6 in.
Width	784 mm	30.9 in.
Height	1151 mm	45.3 in.
Weight, with oil&no coolant (Includes engine, flywheel housing, flywheel&electrics)	655 kg	1444 lb
Center of Gravity Location, X-axis From Rear Face of Block	12.7 mm	0.5 in.
Center of Gravity Location, Y-axis Right of Crankshaft	226 mm	8.9 in.
Center of Gravity Location, Z-axis Above Crankshaft	347.5 mm	13.7 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	12 kW	683 BTU/min
Compressor Discharge Temperature @ 77°F(25°C)	186 °C	366 °F
Ambient Air		
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	#N/A in. H ₂ O
Max. Temperature Out of Charge Air Cooler 77°F (25°C)	105 °C	221 °F
Ambient Air		

Cooling System

Engine Heat Rejection	42 kW	2383.1 BTU/min
Coolant Flow @ 10 kPa External Restriction	110 L/min	29 gal/min
Thermostant 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)	30 kPa	4.4 psi
Coolant		
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	°C	°F
Min. Air-to-Boil Temperature	44.3 °C	111.7 °F

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Engine Installation Criteria

Exhaust System

Exhaust Flow	18.8 m ³ /min	633 ft ³ /min
Exhaust Temperature	525 °C	977 °F
Max. Allowable Exhaust Restriction	7.5 kPa	30 in. H ₂ 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	58.6 kg/hr	127.9 lb/hr
Fuel Consumption, Prime	20.2 kg/hr	44 lb/hr
Fuel Temperature Rise, Inlet to Return	12.3 Δ°C	53.6 Δ°F
Min. Fuel Inlet Pressure	-10 kPa	-40 in. H ₂ O
Max. Fuel Inlet Pressure	69 kPa	277 in. H ₂ O
Max. Fuel Return Pressure	10 kPa	40 in. H ₂ O
Min. Fuel Return Pressure	N/A kPa	N/A in. H ₂ O
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 ₂ O

Air Intake System

Engine Air Flow	7.5 m ³ /min	264.7 ft. ³ /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 ₂ O
Max. Air Intake Restriction, Dirty Air Clearer	6.25 kPa	25 in. H ₂ O
Air Cleaner Efficiency	99.9 %	

Performance Data

Rated Power, Prime	96 kW	150 HP
Rated Power, Standby	103 kW	164 HP
Rated Speed	1500 rpm	
Low Idle Speed	N/A rpm	
Rated Torque, Prime	602 N·m	444 lb-ft
Rated Torque, Standby	661 N·m	488 lb-ft
BMEP, Prime	1690 kPa	245 psi
BMEP, Standby	1857 kPa	269 psi
Altitude Capability, Prime	2300 m	7546 ft
Altitude Capability, Standby	1500 m	4921 ft
Friction Power @Rated Speed	13.0 kW	17 HP
Air: Fuel Ratio, Prime		
Air: Fuel Ratio, Standby	23.6 : 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	5.7	11	6.3	13.2
50 % Power	10.7	22	11.8	24.3
75 % Power	15.2	33.1	16.8	35.3
100 % Power	20.2	44.1	21.7	46.3

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