

ENGINE PERFORMANCE CURVE



JOHN DEERE

Rating: Gross Power
 Application: Generator
 1500 RPM (Hz)

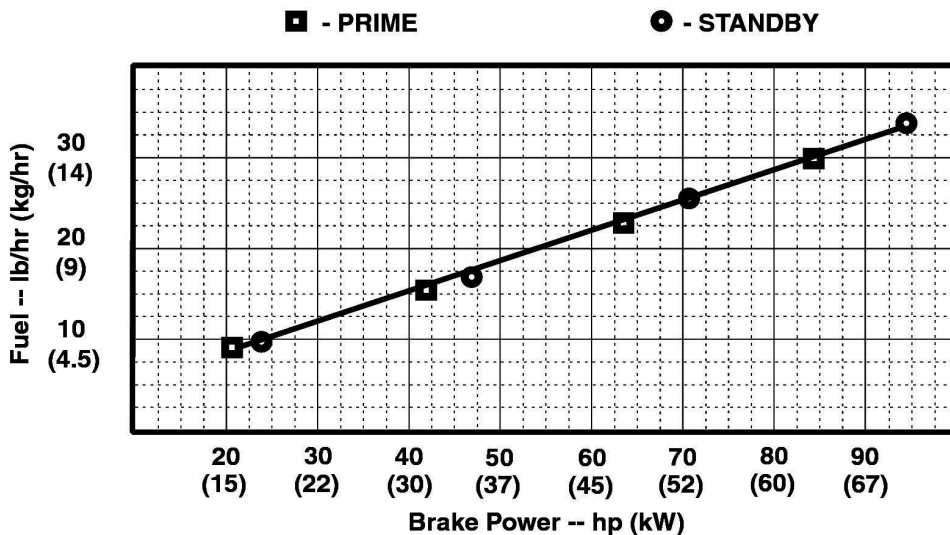
PowerTech™ 4.5L Engine
 Model: **4045TF120**

84 hp (63 kW) Prime
94 hp (70 kW) Standby

Nominal Engine Power @ 1500 RPM			
Prime		Standby	
HP	kW	HP	kW
84	63	94	70

Generator Efficiency %	Fan Power (6% of Standby)		Power Factor	Prime Rating		Standby Rating		4 sec Standby Block Load Capability
	hp	kW		kW	kVA	kW	kVA	
88-92	4.7	3.5	0.8	52-54	65-68	58-61	73-76	100%

Note 1: Based on nominal engine power.



STANDARD CONDITIONS

Air Intake Restriction 12 in.H₂O (3 kPa)
 Exhaust Back Pressure 30 in.H₂O (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:

All OEM Gen Set Engine Applications must be pre-screened for torsional vibration compatibility with the respective alternator end hardware. OEM Engine Application Engineering will perform this computer-based analysis work upon request.

Emission Certifications:

- none

Ref: Engine Emission Label

Certified by:

Kevin J. Bailey
31 May 1999

* Revised Data
 Curve 4045TF120_A_S0_R0

Engine Installation Criteria

General Data

4	Cylinders
106 mm	Bore
127 mm	Stroke
4.5 L	Displacement
17.0:1	Compression Ratio
1/1	Valves per Cylinder
1-3-4-2	Firing Order
Direct Injection Combustion System	
In-line, 4-Cycle Engine Type	
Turbocharged Aspiration	
Open	Engine Crankcase Vent System

Physical Data

269 mm	X-axis, Center of Gravity Location
-8 mm	Y-axis, Center of Gravity Location
151 mm	Z-axis, Center of Gravity Location
980 mm	Height
861 mm	Length
Continuous, Thrust Bearing Load Limit	
2224 N	Forward
Intermittent, Thrust Bearing Load Limit	
4003 N	Forward
396 kg	Weight- with oil and no coolant
598 mm	Width
814 N·m	Max. Allowable Static Bending Moment

Electrical System

640 amps	Recommended Battery Capacity- 12V
570 amps	Recommended Battery Capacity- 24V
780 amps	At 0 °C - 12V, Starter Rolling Current
600 amps	At 0 °C - 24V, Starter Rolling Current
1000 amps	At -30 °C - 12V, Starter Rolling Current
700 amps	At -30 °C - 24V, Starter Rolling Current
0.0012 Ohm	Max. Allowable Start Circuit Resistance- 12V
0.002 Ohm	Max. Allowable Start Circuit Resistance- 24V

Cooling System

8.5 Liter	Engine Coolant Capacity
94 °C	Thermostat Fully Open
82 °C	Thermostat Start to Open
105 °C	Max. Top Tank Temperature
11 L/min	Minimum Coolant Fill Rate
69 kPa	Min. Pressure Cap
120 L/min	Coolant Flow
38 kW/min	Engine Heat Rejection Prime
42 kW/min	Engine Heat Rejection Standby
47 °C	Min. Air-to-Boil Temperature Prime
47 °C	Min. Air-to-Boil Temperature Standby

Exhaust System

7.5 kPa	Maximum Allowable Exhaust Restriction
101.6 mm	Recommended Exhaust Pipe Diameter
11.3 m ³	Exhaust Flow Prime
12.2 m ³	Exhaust Flow Standby
515 °C	Exhaust Temperature Prime
538 °C	Exhaust Temperature Standby

Fuel System

Stanadyne	Fuel Injection Pump
5%	Governor Regulation
Mechanical	Governor Type
8	Fuel Filter @ 98% Efficiency
13.6 kg/hr	Fuel Consumption Prime
15.3 kg/hr	Fuel Consumption Standby
93 kg/hr	Total Fuel Flow Prime
93 kg/hr	Total Fuel Flow Standby
0.9 m	Max. Fuel Transfer pump Suction

Lubrication System

20 deg	Engine Angularity Limits Any Direction
12.2 Liter	Oil Pan Capacity- High
11.3 Liter	Oil Pan Capacity- Low
13.2 Liter	Total Engine Oil Capacity with Filters
0.5 kPa	Max. Crankcase Pressure
106 °C	In-Pan Oil Temperature Prime
107 °C	In-Pan Oil Temperature Standby
105 kPa	Oil Pressure at Low Idle
345 kPa	Oil Pressure at Rated Speed

Air Intake System

58	Intake Manifold Pressure Prime
69	Intake Manifold Pressure Standby
Maximum Allowable Temp Rise--Ambient Air to Engine Inlet	
8 °C	
4.4 m ³	Engine Air Flow Prime
4.6 m ³	Engine Air Flow Standby
76.2 mm	Recommended Intake Pipe Diameter
Clean Air Cleaner, Maximum Air Intake Restriction	
3 kPa	
Dirty Air Cleaner, Maximum Air Intake Restriction	
6.25 kPa	

Engine Installation Criteria

Performance Data

21.7:1	Prime, Air:Fuel Ratio
20.4:1	Standby, Air:Fuel Ratio
3500 m	Altitude Capability
2700 kW	Friction Power @ Rated Speed
1400 rpm	Low Idle Speed
NA	Noise @ 1 m Prime
NA	Noise @ 1 m Standby
63 kW	Rated Power Prime
70 kW	Rated Power- Standby
1500 rpm	Rated Speed
445.6 N·m	Rated Torque Standby
401.1 N·m	Rated Torque Prime
1238 kPa	Standby BMEP
1114 kPa	Prime BMEP
13.6 kg/hr	100%Power Prime
15.3 kg/hr	100%Power Standby
4.1 kg/hr	25%Power Prime
4.4 kg/hr	25%Power Standby
6.9 kg/hr	50%Power Prime
7.6 kg/hr	50%Power Standby
10.4 kg/hr	75%Power Prime
11.5 kg/hr	75%Power Standby