



ENGINE PERFORMANCE

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

POWERTECH 4.5L Engine
 Model: **4045DF150**

54 hp (40 kW) Prime
59 hp (44 kW) Standby

[Option 1603 / 1673 / 1674]

Factory pump must be adjusted from 1800 RPM to 1500 RPM.*

Nominal Engine Power @ 1500 RPM			
Prime		Standby	
HP	kW	HP	kW
54	40	59	44

Generator Efficiency %	Fan Power		Power Factor	Prime Rating		Standby Rating ¹		4 sec Standby Block Load Capability
	hp	kW		kW	kVA	kW	kVA	
88-92	2.7	2	0.8	33-35	41-44	37-39	46-49	90%

Note 1: Based on nominal engine power. Derate 10% for 100% block load capability.

Air Intake Restriction 12 in.H₂O (3 kPa)
 Exhaust Back Pressure 30 in.H₂O (7.5 kPa)

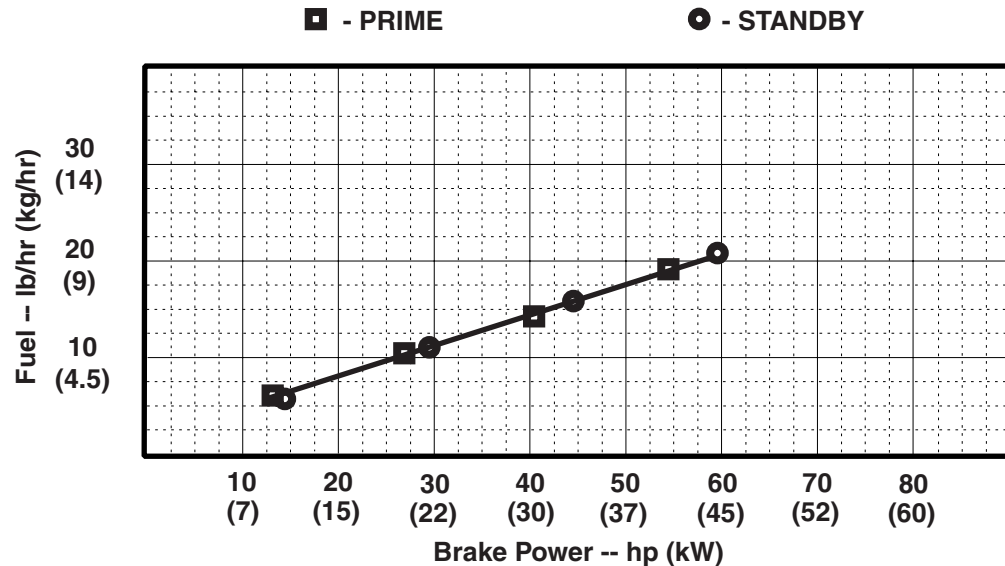
Gross power guaranteed within + or - 5% at SAE J1995 and ISO 3046 conditions:

- 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 = 0.85 kg
- Torque: N*m = lb-ft x 1.356

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



Notes:

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:

Certified by:

NONE

Ref: Engine Emission Label

Kevin J Bailey
 31 MAY 1999

* Revised Data

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 June 1999

Engine Specification Data

General Data

Model	4045DF150
Number of Cylinders	4
Bore and Stroke--in.(mm).....	4.19 x5 (106 x 127)
Displacement--in ³ (L)	276 (4.5)
Compression Ratio	17.6:1
Valves per Cylinder--Intake/Exhaust	1/1
Firing Order	1-3-4-2
Combustion System	Direct Injection
Engine Type	In-line, 4-Cycle
Aspiration	Natural
Engine Crankcase Vent System	Open
Maximum Crankcase Pressure--in.H ₂ O (kPa)	2 (0.5)

Physical Data

Length--in.(mm)	33.9 (861)
Width--in.(mm)	23.5 (598)
Height--in.(mm)	33.6 (854)
Weight, dry--lb (kg).....	851 (387)
(Includes flywheel housing, flywheel & electrics)	
Center of Gravity Location	
From Rear Face of Block (X-axis)--in.(mm)	9.3 (235)
Right of Crankshaft (Y-axis)--in.(mm).....	0.3 (7)
Above Crankshaft (Z-axis)--in.(mm).....	5.7 (144)
Max. Allow. Static Bending Moment at Rear	
Face of Flywhl Hsg w/ 5-G Load--lb-ft (N•m) ...	600 (814)
Thrust Bearing Load Limit (Forward)	
Continuous--lb (N).....	500 (2224)
Intermittent--lb (N).....	900 (4003)

Electrical System

Recommended Battery Capacity (CCA)	
12 Volt System--amp.....	640
24 Volt System--amp.....	570
Maximum Allowable Starting Circuit Resistance	
12 Volt System--Ohm.....	0.0012
24 Volt System--Ohm.....	0.002
Starter Rolling Current--12 Volt System	
At 32 °F (0 °C)--amp	780
At -22 °F (-30 °C)--amp.....	1000
Starter Rolling Current--24 Volt System	
At 32 °F (0 °C)--amp	600
At -22 °F (-30 °C)--amp.....	700

Air System

	<u>Prime</u>	<u>Standby</u>
Maximum Allowable Temp Rise--		
Ambient Air to Engine Inlet--°F (°C)	15 (8)	15 (8)
Maximum Air Intake Restriction		
Dirty Air Cleaner--in.H ₂ O (kPa) ...	25 (6.25)	25 (6.25)
Clean Air Cleaner--in.H ₂ O (kPa)	12 (3)	12 (3)
Engine Air Flow--ft ³ /min (m ³ /min)	85 (24)	93 (2.6)
Intake Manifold Pressure--psi (kPa)	Ambient	Ambient
Rec'd. Intake Pipe Dia--in. (mm).....	3 (76.2)	3 (76.2)

Exhaust System

	<u>Prime</u>	<u>Standby</u>
Exhaust Flow--ft ³ /min (m ³ /min).....	251 (7.1)	258 (7.3)
Exhaust Temperature--°F (°C)	999 (537)	1049 (565)
Max. Allowable Back Pressure--		
in.H ₂ O (kPa)	30 (7.5)	30 (7.5)
Rec'd. Exhaust Pipe Dia--in.(mm)	2.5 (63.5)	2.5 (63.5)

Cooling System

	<u>Prime</u>	<u>Standby</u>
Engine Heat Reject.--BTU/min (kW). ..	1365 (24)	1535 (27)
Coolant Flow--gal/min (L/min).....	32 (120)	32 (120)
Thermostat Start to Open--°F (°C)	180 (82)	180 (82)
Thermostat Fully Open--°F (°C).....	202 (94)	202 (94)
Max Water Pump Inlet		
Restriction--in.H ₂ O (kPa)	20 (5)	20 (5)
Engine Coolant Capacity--qt (L)	9 (8.5)	9 (8.5)
Rec'd. Pressure Cap--psi (kPa)	10 (69)	10 (69)
Max. Top Tank Temp--°F (°C)	221 (105)	221 (105)
Min. Coolant Fill Rate--gal/min (L/min)	3 (11)	3 (11)
Min. Air-to-Boil Temperature--°F (°C) ..	117 (47)	117 (47)

Fuel System

	<u>Prime</u>	<u>Standby</u>
Fuel Injection Pump	Stanadyne	Stanadyne
Governor Regulation.....	5 %	5 %
Governor Type	Mechanical	Mechanical
Fuel Consumption--lb/hr (kg/hr)	18.9 (8.6)	21.1 (9.6)
Total Fuel Flow--lb/hr (kg/hr)	205 (93)	205 (93)
Maximum Fuel Transfer Pump Suction--		
ft (m) fuel	3 (0.9)	3 (0.9)
Fuel Filter Micron Size @ 98 % Efficiency ...	8	8

Lubrication System

	<u>Prime</u>	<u>Standby</u>
Oil Pressure at Rated Speed--psi (kPa)50 (345) ...	50 (345)	50 (345)
Oil Pressure at Low Idle--psi (kPa)	15 (105)	15 (105)
In Pan Oil Temperature--°F (°C)	240 (115)	240 (115)
Oil Pan Capacity, High--qt (L)	8 (7.5)	8 (7.5)
Oil Pan Capacity, Low--qt (L)	7 (6.5)	7 (6.5)
Total Engine Oil Capacity		
With Filters--qt (L)	9 (8.5)	9 (8.5)
Engine Angularity Limits (Continuous)		
Any Direction--degrees	20	20

Performance Data

	<u>Prime</u>	<u>Standby</u>
Rated Power--hp (kW)	54 (40)	59 (44)
Rated Speed--rpm	1500	1500
Low Idle Speed--rpm	1400*	1400*
BMEP--psi (kPa)	103 (707)	113 (778)
Friction Power @ Rated Speed--hp (kW)13 (10)....	13 (10)	13 (10)
Altitude Capability--ft (m)	3000 (900)	1000 (300)*
Ratio--Air : Fuel.....	18.6:1	18.3:1
Noise--dB(A) @ 1 m	91.5	91.5

Fuel Consumption -- lb/hr (kg/h)

	<u>Prime</u>	<u>Standby</u>
25 % Power	6.4 (2.9)	5.7 (2.6)
50 % Power	10.3 (4.7)	11.2 (5.1)
75 % Power	14.5 (6.6)	15.8 (7.2)
100 % Power	18.9 (8.6)	21.1 (9.6)

All values at rated speed and power with standard options unless otherwise noted.

* Revised Data
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June 1999