



ENGINE PERFORMANCE CURVE

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

POWERTECH 4.5L Engine
 Model: **4045TF250**

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

[Option 160R / 1608 / 1682]*

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

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

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	3.4	2.5	0.8	53-56	66-70	59-62	74-78	100%*

Note 1: Based on nominal engine power.*

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

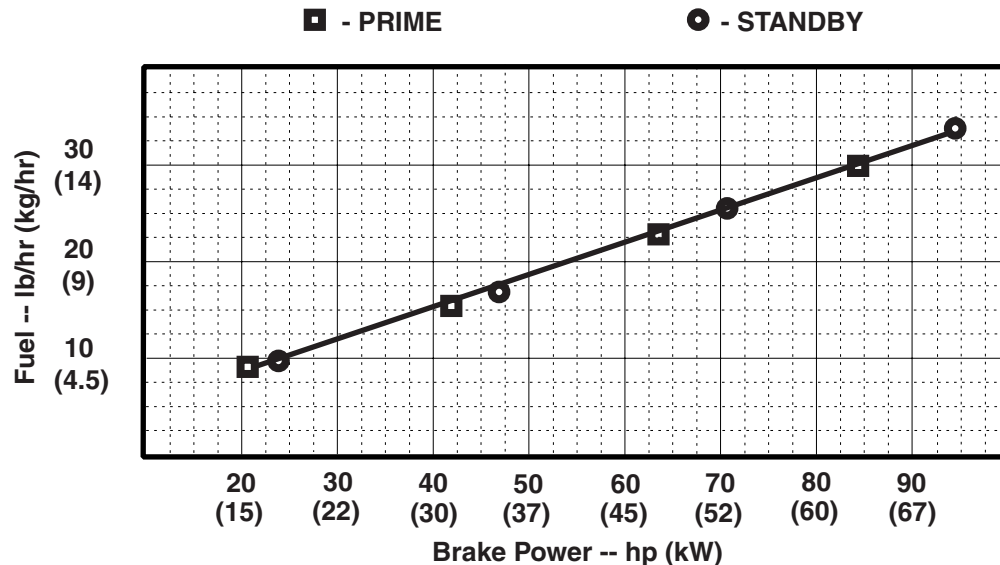
Gross power guaranteed within + or - 5% at SAE J1995 and ISO 3046 conditions:

- 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

Kevin J Bailey
 31 MAY 1999

Ref: Engine Emission Label

* Revised Data

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 June 1999

Engine Specification Data

General Data

Model	4045TF250
Number of Cylinders	4
Bore and Stroke--in.(mm).....	4.19 x 5 (106 x 127)
Displacement--in ³ (L)	276 (4.5)
Compression Ratio	17.0:1
Valves per Cylinder--Intake/Exhaust	1/1
Firing Order	1-3-4-2
Combustion System	Direct Injection
Engine Type	In-line, 4-Cycle
Aspiration	Turbocharged
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)	38.6 (980)
Weight, dry--lb (kg).....	872 (396)
(Includes flywheel housing, flywheel & electrics)	
Center of Gravity Location	
From Rear Face of Block (X-axis)--in.(mm) ..	10.6 (269)
Right of Crankshaft (Y-axis)--in.(mm).....	-0.3 (-8)
Above Crankshaft (Z-axis)--in.(mm).....	5.9 (151)
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).....	141 (4.0)	148 (4.2)
Intake Manifold Pressure--psi (kPa)	7.3 (50)	8.7 (60)
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).....	374 (10.6)	409 (11.6)
Exhaust Temperature--°F (°C)	979 (526)	1050(565)
Max. Allowable Back Pressure--		
in.H ₂ O (kPa)	30 (7.5)	30 (7.5)
Rec'd. Exhaust Pipe Dia--in.(mm)	4(101.6)	4(101.6)

Cooling System

	<u>Prime</u>	<u>Standby</u>
Engine Heat Reject.--BTU/min (kW) .	2161 (38)	2389 (42)
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)	29.7 (13.5)	33.4 (15.2)
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)	13 (12.2)	13 (12.2)
Oil Pan Capacity, Low--qt (L)	12 (11.3)	12 (11.3)
Total Engine Oil Capacity		
With Filters--qt (L)	14 (13.2)	14 (13.2)
Engine Angularity Limits (Continuous)		
Any Direction--degrees.....	20	20

Performance Data

	<u>Prime</u>	<u>Standby</u>
Rated Power--hp (kW)	84 (63)	94 (70)
Rated Speed--rpm	1500	1500
Low Idle Speed--rpm	1400*	1400*
BMEP--psi (kPa)	161 (1113)	179(1237)
Friction Power		
@ Rated Speed--hp (kW)	13 (10)	13 (10)
Altitude Capability--ft (m)	11,500 (3500)	9000 (2700)*
Ratio--Air : Fuel.....	20.8:1	19.5:1
Noise--dB(A) @ 1 m	89.5	90

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

	<u>Prime</u>	<u>Standby</u>
25 % Power	9.5 (4.3)	10.1 (4.6)
50 % Power	15.6 (7.1)	17.2 (7.8)
75 % Power	22.2 (10.1)	24.6 (11.2)
100 % Power	29.7 (13.5)	33.4 (15.2)

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

* Revised Data
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June 1999