



JOHN DEERE

**ENGINE PERFORMANCE CURVE**

Rating: Gross Power  
 Application: Generator  
 1800 RPM (60 Hz)

**PowerTech 4.5L Engine**  
 Model: **4045TF270**

**90 hp (67 kW) Prime**  
**99 hp (74 kW) Standby**

Nominal Engine Power @ 1800 RPM			
Prime		Standby	
HP	kW	HP	kW
90	67	99	74

Generator Efficiency %	Fan Power		Power Factor	Prime Rating		Standby Rating <sup>1</sup>		4 sec Standby Block Load Capability
	hp	kW		kW	kVA	kW	kVA	
88-92	5	3.7	0.8	56-58	70-73	62-65	77-81	100%

Note 1: Based on nominal engine power.\*

Air Intake Restriction ..... 12 in.H<sub>2</sub>O (3 kPa)  
 Exhaust Back Pressure ..... 30 in.H<sub>2</sub>O (7.5 kPa)

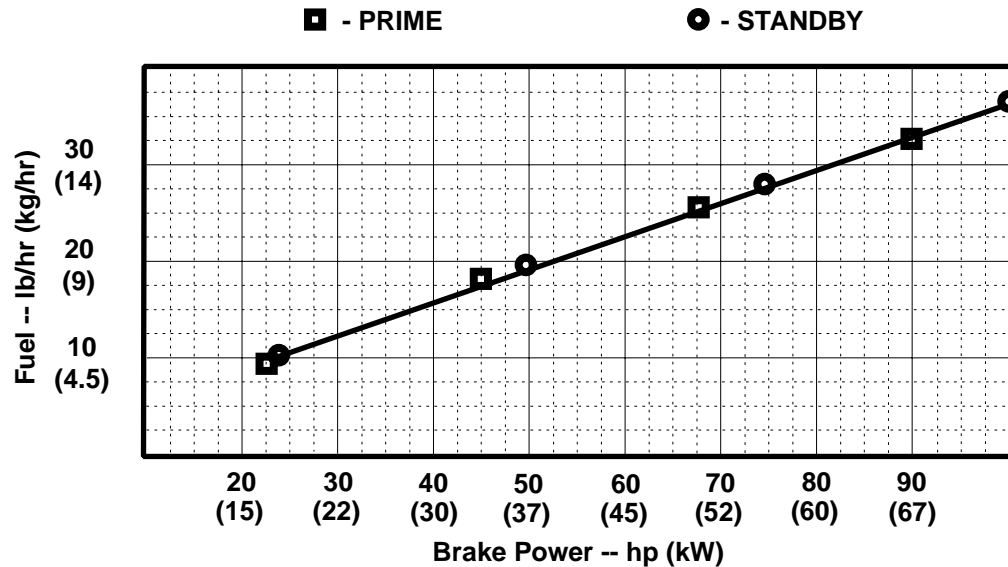
Gross power guaranteed within + or - 5% at SAE J1995 and ISO 3046 conditions:

- 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:

Tier-2 Emission Certifications:

Certified by:

CARB; EPA

*Brian L. Carlson*  
 30 OCT 02

Ref: Engine Emission Label

\* Revised Data  
 Curve 4045TF270180099..... Sheet 1 of 2  
 October 2002

## Engine Specification Data

### General Data

Model .....4045TF270  
 Number of Cylinders ..... 4  
 Bore and Stroke--in. (mm)..... 4.20 x 5.0 (106 x 127)  
 Displacement--in.<sup>3</sup> (L) .....275 (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<sub>2</sub>O (kPa) .....2 (0.5)

### Physical Data

Length--in. (mm) ..... 33.9 (860)\*  
 Width--in. (mm) ..... 24.1 (612)\*  
 Height--in. (mm) ..... 39.1 (994)\*  
 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 Housing 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)

### Air System

**Prime    Standby**

Max. Allowable Temp Rise--Ambient Air to  
     Engine Inlet--°F (°C)..... 15 (8) ..... 15 (8)  
 Maximum Air Intake Restriction  
     Dirty Air Cleaner--in.H<sub>2</sub>O (kPa) ... 25 (6.25) .....25 (6.25)  
     Clean Air Cleaner--in.H<sub>2</sub>O (kPa) ..... 12 (3) .....12 (3)  
 Engine Air Flow--ft<sup>3</sup>/min (m<sup>3</sup>/min) ..... 201 (5.7) .....212 (6.0)  
 Intake Manifold Pressure--psi (kPa)..... 11 (75) .....13 (88)  
 Recm'd Intake Pipe Dia--in. (mm) ..... 3 (76.2) .....3 (76.2)

### Cooling System

**Prime    Standby**

Eng. Heat Reject.--BTU/min (kW).....2334 (41) ... 2618 (46)  
 Coolant Flow--gal/min (L/min).....38 (144) ..... 38 (144)  
 Thermostat Start to Open--°F (°C) .....180 (82) ..... 180 (82)  
 Thermostat Fully Open--°F (°C).....202 (94) ..... 202 (94)  
 Maximum Water Pump  
     Inlet Restrict.--in.H<sub>2</sub>O (kPa) .....27 (7) ..... 27 (7)  
 Engine Coolant Capacity--qt (L) .....9(8.5) ..... 9 (8.5)  
 Recm'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)

### Electrical System

**12 Volt    24 Volt**

Rec'md. Battery Capacity (CCA)--amp ..... 640 ..... 570  
 Max. Allow. Starting Circuit Resist.--Ohm .. 0.0012 .... 0.002  
 Starter Rolling Current  
     At 32 °F ( 0 °C)--amp ..... 780 ..... 600  
     At -22 °F (-30 °C)--amp ..... 1000 ..... 700

### Exhaust System

**Prime    Standby**

Exhaust Flow--ft<sup>3</sup>/min (m<sup>3</sup>/min).....512 (14.5) ..558 (15.8)  
 Exhaust Temperature--°F (°C) .....959 (515) .1013 (545)  
 Maximum Allowable Back  
     Pressure--in.H<sub>2</sub>O (kPa) .....30 (7.5) ..... 30 (7.5)  
 Recm'd Exhaust Pipe Dia--in. (mm) ..4 (101.6) .... 4 (101.6)

### Fuel System

**Prime    Standby**

Fuel Injection Pump (Stanadyne)..... DB4 ..... DB4  
 Governor Regulation.....3-5% ..... 3-5%  
 Governor Type .....Mechanical .. Mechanical  
 Total Fuel Flow--lb/hr (kg/hr) .....212 (96) ..... 212 (96)  
 Fuel Consumption--lb/hr (kg/hr)....32.8 (14.9) ... 36.6 (16.6)  
 Maximum Fuel Transfer Pump  
     Suction--ft (m) fuel .....3 (0.9) ..... 3 (0.9)  
 Max. Fuel Inlet Temp.--°F (°C).....212 (100) ..... 212 (100)  
 Fuel Filter Micron Size @ 98 % Efficiency...8 ..... 8

### Lubrication System

**Prime    Standby**

Oil Pressure  
     at Rated Speed--psi (kPa) ..... 50 (345) ..... 50 (345)  
 Oil Pressure at Low Idle--psi (kPa) .... 15 (105) ..... 15 (105)  
 In Pan Oil Temperature--°F (°C) .....243 (117) ... 244 (118)

### Performance Data

**Prime    Standby**

Rated Power--hp (kW) .....90 (67) ..... 99 (74)  
 Rated Speed--rpm ..... 1800 ..... 1800  
 Low Idle Speed--rpm ..... 1150 .....1150  
 BMEP--psi (kPa) ..... 143 (985) .... 158 (1090)  
 Friction Power  
     at Rated Speed--hp (kW) ..... 17 (13) ..... 17 (13)  
 Altitude Capability--ft (m) .....7500 (2285) ... 5000(1525)  
 Ratio--Air : Fuel..... 26 : 1 ..... 24 : 1  
 Noise--dB(A) @ 1 m ..... N/A ..... N/A

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

**Prime    Standby**

25 % Power .....9.7 (4.4) ..... 10.6 (4.8)  
 50 % Power ..... 18.1 (8.2) ..... 19.8 (9.0)  
 75 % Power ..... 25.6 (11.6) ..... 28.0 (12.7)  
 100 % Power .....32.8 (14.9) ..... 36.6 (16.6)

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

\* Revised Data  
 Curve 4045TF270180099 ..... Sheet 2 of 2  
 October 2002