



**JOHN DEERE**

**ENGINE PERFORMANCE CURVE**

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

**PowerTech™ E 4.5L Engine**  
**Model: 4045TF285**  
 JD Electronic Control  
 95 hp (71 kW) Prime  
 105 hp (78 kW) Standby

EPA Marine Tier 3 .....

Nominal Engine Power @ 1800 RPM			
Prime		Standby	
HP	kW	HP	kW
95	71	105	78

Generator Efficiency %	Fan Power (% of Standby)		Power Factor	Prime Rating		Standby Rating		ISO 8528 G2 Block Load Capability
	hp	kW		kWe	kVA	kWe	kVA	
88-92	6.3	4.7	0.8	58-61	73-76	65-67	81-84	NA

Note 1: Based on nominal engine power.  
 Note 2: kWe/kVA rating assumes 90% efficiency. "Generator Efficiency %" will vary.

**STANDARD CONDITIONS**

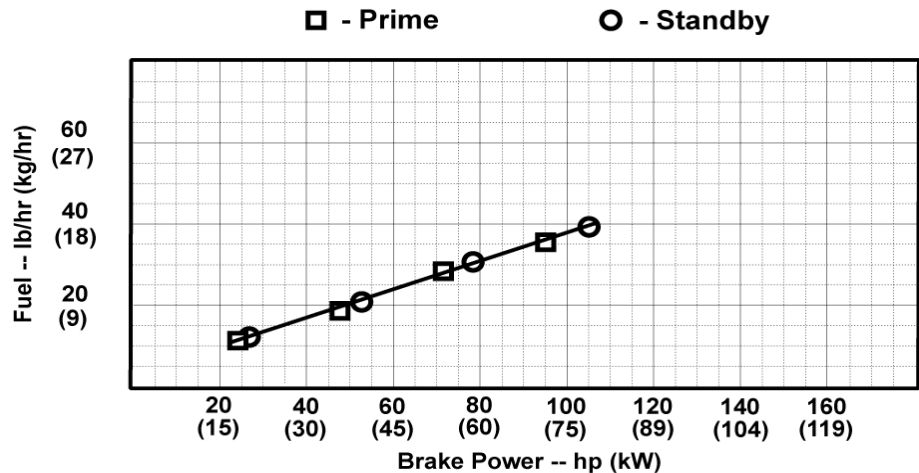
Air Intake Restriction.....12 in.H<sub>2</sub>O (3 kPa)  
 Exhaust Back Pressure.....30 in.H<sub>2</sub>O (7.5 kPa)

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

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

Notes: Industrial Based Auxiliary - The Marine Emissions Labeled Industrial Engine ratings are for applications that require variable speed and load operation and do not run on a propeller curve or at a constant speed. Additionally, these engines are for applications that do not require marinized components (such as wet manifold/turbocharger, blue hose, etc.) or marine classification society approval. See John Deere Industrial Diesel Engine Documentation and Application Guidelines for further information. Possible applications: Hydraulic power units, generators, fixed-speed only.



Designed/Calibrated to meet:	Certified by:
<ul style="list-style-type: none"> <li>US EPA Marine Tier 3 Compliant</li> </ul>	 8/27/14
Ref: Engine Emission Label	

Performance Curve: 4045TF285\_G

## Engine Installation Criteria

### General Data

Model	4045TF285	
Number of Cylinders	4	
Bore	106 mm	4.2 in.
Stroke	127 mm	5.0 in.
Displacement	4.5 L	275 in. <sup>3</sup>
Compression Ratio	19.0:1	
Valves per Cylinder, Intake/Exhaust	1/1	
Combustion System	HPCR	
Engine Type	In-line, 4-Cycle	
Aspiration	Turbocharged	
Charge Air Cooling System	None	
Engine Crankcase Vent System	Open	

### Physical Data

Length	860 mm	33.9 in.
Width	612 mm	24.1 in.
Height	1039 mm	40.9 in.
Weight, with oil & no coolant (Includes engine, flywheel housing, flywheel & electrics)	491 kg	1082 lb
Center of Gravity Location, X-axis From Rear Face of Block	249 mm	9.8 in.
Center of Gravity Location, Y-axis Right of Crankshaft	55 mm	2.2 in.
Center of Gravity Location, Z-axis Above Crankshaft	145 mm	5.7 in.
Max. Allowable Static Bending Moment At Rear Face of Flywheel Housing with 5-G Load	814 N·m	600 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. Torsional Vibration, Front of Crank	0.25 DDA	

### Electrical System

Recommended Battery Capacity, 12V @32 °F (0 °C)	640 amps
Recommended Battery Capacity, 24V @32 °F (0 °C)	570 amps
Starter Rolling Current, 12V @32 °F (0 °C)	780 amps
Starter Rolling Current, 24V @32 °F (0 °C)	600 amps
Starter Rolling Current, 12V @-22 °F (-30 °C)	1000 amps
Starter Rolling Current, 24V @-22 °F (-30 °C)	700 amps
Max. Allowable Start Circuit Resistance, 24V	0.002 Ohm
Max. Allowable Start Circuit Resistance, 12V	0.0012 Ohm
Max. Voltage From Engine to Crankshaft, 12V	0.15 volts
Max. Voltage From Engine to Crankshaft, 24V	0.15 volts

### Cooling System

Engine Heat Rejection, Prime	40 kW	2277 BTU/min
Engine Heat Rejection, Standby	42 kW	2391 BTU/min
Coolant Flow	180 L/min	48 gal/min
Thermostat Start to Open	82 °C	180 °F
Thermostat Fully Open	95 °C	203 °F
Engine Coolant Capacity	8.5 Liter	9.0 quart
Min. Pressure Cap	100 kPa	15 psi
Min. Pump Inlet Pressure	30 kPa	4.4 psi
Max. Top Tank Temperature	110 °C	230 °F
Min. Coolant Fill Rate	11 L/min	2.9 gal/min

### Exhaust System

Exhaust Flow, Prime	13.6 m <sup>3</sup> /min	480 ft. <sup>3</sup> /min
Exhaust Flow, Standby	14.2 m <sup>3</sup> /min	501 ft. <sup>3</sup> /min
Exhaust Temperature, Prime	587 °C	1089 °F
Exhaust Temperature, Standby	615 °C	1139 °F
Max. Allowable Exhaust Restriction	7.5 kPa	30 in. H <sub>2</sub> O
Min. Allowable Exhaust Restriction	0 kPa	0 in. H <sub>2</sub> O
Max. Bending Moment on Turbo Outlet	7.0 N·m	5.2 lb-ft
Max. Shear on Turbine Outlet	11 kg	24 lb

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## Engine Installation Criteria

### Fuel System

ECU Description	L16 Controller	
Fuel Injection Pump	Denso HP3	
Governor Type	Electronic	
Total Fuel Flow, Prime	38 kg/hr	84 lb/hr
Total Fuel Flow, Standby	41 kg/hr	90 lb/hr
Fuel Consumption, Prime	16.3 kg/hr	36 lb/hr
Fuel Consumption, Standby	18.1 kg/hr	40 lb/hr
Max. Fuel Inlet Restriction	20 kPa	80 in. H <sub>2</sub> O
Max. Fuel Return Pressure	20 kPa	80 in. H <sub>2</sub> O
Max. Fuel Inlet Temperature	80 °C	176 °F

### Lubrication System

Oil Pressure at Rated Speed	320 kPa	46 psi
Oil Pressure at Low Idle	105 kPa	15 psi
Max. Oil Carryover in Blow-By	1.0 g/hr	0.002 lb/hr
Max. Airflow in Blow-By	100 L/min	26.4 gal/min
Max. Crankcase Pressure	0.5 kPa	2 in. H <sub>2</sub> O

### Air Intake System

Engine Air Flow, Prime	5.4 m <sup>3</sup> /min	191 ft. <sup>3</sup> /min
Engine Air Flow, Standby	5.7 m <sup>3</sup> /min	201 ft. <sup>3</sup> /min
Intake Manifold Pressure, Prime	49.6 kPa	7.2 psi
Intake Manifold Pressure, Standby	54.1 kPa	7.8 psi
Maximum Allowable Temperature Rise, Ambient Air to Engine Inlet	8 Δ°C	15 Δ°F
Max. Air Intake Restriction, Clean Air Cleaner	3.75 kPa	15.0 in. H <sub>2</sub> O
Max. Air Intake Restriction, Dirty Air Cleaner	6.25 kPa	25.0 in. H <sub>2</sub> O
Air Cleaner Efficiency	99.9 %	

### Performance Data

Rated Power, Prime	71 kW	95 HP
Rated Power, Standby	78 kW	105 HP
Rated Speed	1800 rpm	
Low Idle Speed	1150 rpm	
Rated Torque, Prime	376 N·m	305 lb-ft
Rated Torque, Standby	413 N·m	305 lb-ft
BMEP, Prime	1050 kPa	305 psi
BMEP, Standby	1153 kPa	305 psi
Altitude Capability, Prime	3048 m	10000 ft
Altitude Capability, Standby	3048 m	10000 ft
Friction Power @Rated Speed	13 kW	17 HP
Air:Fuel Ratio, Prime	22:1	
Air:Fuel Ratio, Standby	21:1	
Smoke @Rated Speed Prime	0.53	Bosch No.
Smoke @Rated Speed Standby	0.56	Bosch No.
Noise @1 m Prime	88.4 dB(A)	
Noise @1 m Standby	88.8 dB(A)	

Fuel Consumption	Prime		Standby	
	lb/hr	kg/h	lb/hr	kg/h
25 % Power	11.2	5.1	12.1	5.5
50 % Power	19.2	8.7	20.9	9.5
75 % Power	28.4	12.9	30.6	13.9
100 % Power	35.9	16.3	39.7	18.0

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