



**JOHN DEERE**

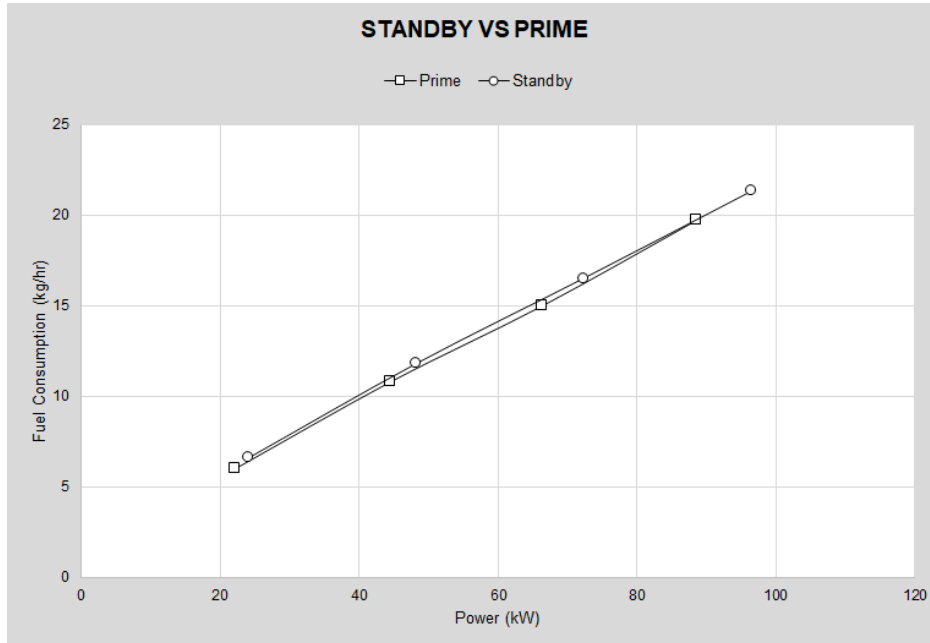
## ENGINE PERFORMANCE CURVE

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

**PowerTech™ 4.5L Engine**  
**Model: 4045TSG20**  
 119 hp 89 kW Prime  
 130 hp 97 kW Standby

Nominal Engine Power @ RPM			
Prime		Standby	
HP	kW	HP	kW
119	89	130	97

Generator Efficiency %	Fan power (% of Standby)		Power Factor	Prime Rating		Standby Rating	
	hp	kW		kWe	kVA	kWe	kVA
92	6.4	4.7	0.8	77	96	84	106



### STANDARD CONDITIONS

Air Intake Restriction = 3 kPa  
 Exhaust Back Pressure = 7.5 kPa  
**Gross Power Guaranteed within + or - 5% at SAEJ1995 and ISO 3046 conditions:**  
 Air Inlet Temperature = 25 °C  
 Barometer = 100 kPa  
 Fuel Inlet Temperature = 40 °C  
 Fuel Specific Gravity @ 60 °F (15.5 °C) = 0.853

#### 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: 1) This Performance Curve provides installation requirements necessary for the engine to emit at its certified emission levels. For additional information necessary to meet applicable regulatory requirements, refer to the John Deere Emissions-related Installation Instructions (AG01): <https://power.deere.com/wps/myportal/jdps/products/engines/apguidelines>.  
 2) A crankshaft Torsional Vibration Analysis is required on all Gen Set.

Designed/Calibrated to meet:	Certified By:
None	Early
Ref: Engine Emission Label	3-Apr-20
Performance Curve: 4045TSG20_A18	

## Engine Installation Criteria

### General Data

Engine Model	4045TSG20	
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	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	

### Physical Data

Length	890 mm	35 in.
Width	587 mm	23.1 in.
Height	1138 mm	44.8 in.
Weight, with oil&no coolant (Includes engine, flywheel housing, flywheel&electrics)	465 kg	1024.7 lb
Center of Gravity Location, X-axis From Rear Face of Block	-12.76 mm	-0.47 in.
Center of Gravity Location, Y-axis Right of Crankshaft	152.46 mm	5.98 in.
Center of Gravity Location, Z-axis Above Crankshaft	259.58 mm	10.2 in.
Max. Allowable Static Bending Moment at Rear Face of Flywheel Housing with 5-G Load	814 N·m	602.4 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. Continuous Damper Temp	#N/A °F	
Max. Torisonal Vibration, Front of Crank	#N/A DDA	

### Electrical System

Starter Rolling Current, 12V @32 °F (0 °C)	920 amps
Starter Rolling Current, 24V @32 °F (0 °C)	600 amps
Starter Rolling Current, 12V @-22 °F (-30°C)	1300 amps
Starter Rolling Current, 24V @-22 °F (-30°C)	700 amps
Min. Voltage at ECU during Cranking, 12V	#N/A volts
Min. Voltage at ECU during Cranking, 24V	#N/A volts
Max. Allowable Start Circuit Resistance, 12V	0.00120 Ohm
Max. Allowable Start Circuit Resistance, 24V	0.00200 Ohm
Max. Voltage From Engine to Crankshaft, 12V	#N/A volts
Max. Voltage From Engine to Crankshaft, 24V	#N/A volts
Max. ECU Temperature	#N/A °F
Max. Alternator Temperature	#N/A °F
Max. Starter Temperature	#N/A °F
Max. Temperature, All Other Electronics	#N/A °F

### Charge Air Cooling System

Air-to-Air Heat Rejection	#N/A kW	#N/A BTU/min
Compressor Discharge Temperature @ 77°F(25°C) Ambient Air	160 °C	320 °F
Intake Manifold Pressure	120 kPa	17.4 psi
Max. Temperature Out of Charge Air Cooler @ All Ambient Conditions	#N/A °C	#N/A °F
Max. Pressure Drop through CAC	#N/A kPa	#N/A in. H <sub>2</sub> O
Max. Temperature Out of Charge Air Cooler 77°F (25°C) Ambient Air	#N/A °C	#N/A °F

### Cooling System

Engine Heat Rejection	48.4 kW	2752.5 BTU/min
Coolant Flow @ 10 kPa External Restriction	129 L/min	34 gal/min
Thermostat Start to Open	82 °C	179.6 °F
Thermostat Fully Open	94 °C	201.2 °F
Engine Coolant Capacity	9 Liter	9.0 quart
Min. Coolant Fill Rate	11 L/min	2.9 gal/min
Min. Pump Inlet Pressure @ 203°F (95°C) Coolant	30 kPa	4.4 psi
Max. External Coolant Restriction	#N/A kPa	#N/A psi
Max. Top Tank Temperature	105 °C	221.0 °F
Max. Top Tank temperature 95% of Operating Hours	#N/A °C	#N/A °F

Performance Curve: 4045TSG20

## Engine Installation Criteria

### Exhaust System

Exhaust Flow	20.2 m <sup>3</sup> /min	706.3 ft <sup>3</sup> /min
Exhaust Temperature	560 °C	1040 °F
Max. Allowable Exhaust Restriction	7.5 kPa	30 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	11.0 kg	24.3 lb

### Fuel System

ECU Description	N/A	
Fuel Injection Pump	Delphi DP100G	
Governor Type	Mechanical	
Total Fuel Flow	#N/A kg/hr	#N/A lb/hr
Fuel Consumption, Prime	17 kg/hr	37 lb/hr
Fuel Temperature Rise, Inlet to Return	13.2 Δ°C	55.4 Δ°F
Min. Fuel Inlet Pressure	-30 kPa	121 in. H <sub>2</sub> O
Max. Fuel Inlet Pressure	69 kPa	277 in. H <sub>2</sub> O
Max. Fuel Return Pressure	10 kPa	40 in. H <sub>2</sub> O
Min. Fuel Return Pressure	kPa	0 in. H <sub>2</sub> O
Max. Fuel Inlet Temperature	85 °C	185 °F
Fuel Filter @98% Efficiency	#N/A mic	

### Lubrication System

Oil Pressure at Rated Speed	315 kPa	46 psi
Max. Crankcase Pressure	1 kPa	2 in. H <sub>2</sub> O

### Air Intake System

Engine Air Flow	7.3 m <sup>3</sup> /min	247 ft. <sup>3</sup> /min
Air Mass Flow	505 kg/hr	1113 lb/hr
Maximum Allowable Temperature Rise, Ambient Air to Engine Inlet	8 Δ°C	15 Δ°F
Max. Air Intake Restriction, Clean Air Clearer	3.75 kPa	15 in. H <sub>2</sub> O
Max. Air Intake Restriction, Dirty Air Clearer	6.25 kPa	25 in. H <sub>2</sub> O
Air Cleaner Efficiency	99.9 %	

### Performance Data

Rated Power, Prime	89 kW	119 HP
Rated Power, Standby	97 kW	130 HP
Rated Speed	1800 rpm	
Low Idle Speed	#N/A rpm	
Rated Torque, Prime	465 N·m	343 lb-ft
Rated Torque, Standby	507 N·m	378 lb-ft
BMEP, Prime	1300 kPa	189 psi
BMEP, Standby	1417 kPa	206 psi
Altitude Capability, Prime	2286 m	7500 ft
Altitude Capability, Standby	1524 m	5000 ft
Friction Power @Rated Speed	13.0 kW	17 HP
Air: Fuel Ratio, Prime	23 : 1	
Air: Fuel Ratio, Standby	24.5 : 1	
Noise @1 m Prime	#N/A dB(A)	
Noise @1 m Standby	#N/A dB(A)	
0-100% Standby Load Acceptance	#N/A sec	
Load Acceptance, ISO 8528-5	#N/A	

Fuel Consumption	Prime		Standby	
	kg/h	lb/hr	kg/h	lb/hr
25 % Power	6.0	13.2	6.6	14.6
50 % Power	10.8	22.1	11.8	24.3
75 % Power	15.0	33.1	16.5	35.3
100 % Power	19.7	41.9	21.3	46.3

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