



JOHN DEERE

### ENGINE PERFORMANCE CURVE

Rating: Gross Power

Application: Industrial  
Intermittent / Continuous

### PowerTech 2.4 L Engine

### Model: 4024TF270

**49.0 hp @ 2800 rpm**

**36.7 kW @ 2800 rpm**

#### 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 = 0.85 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:

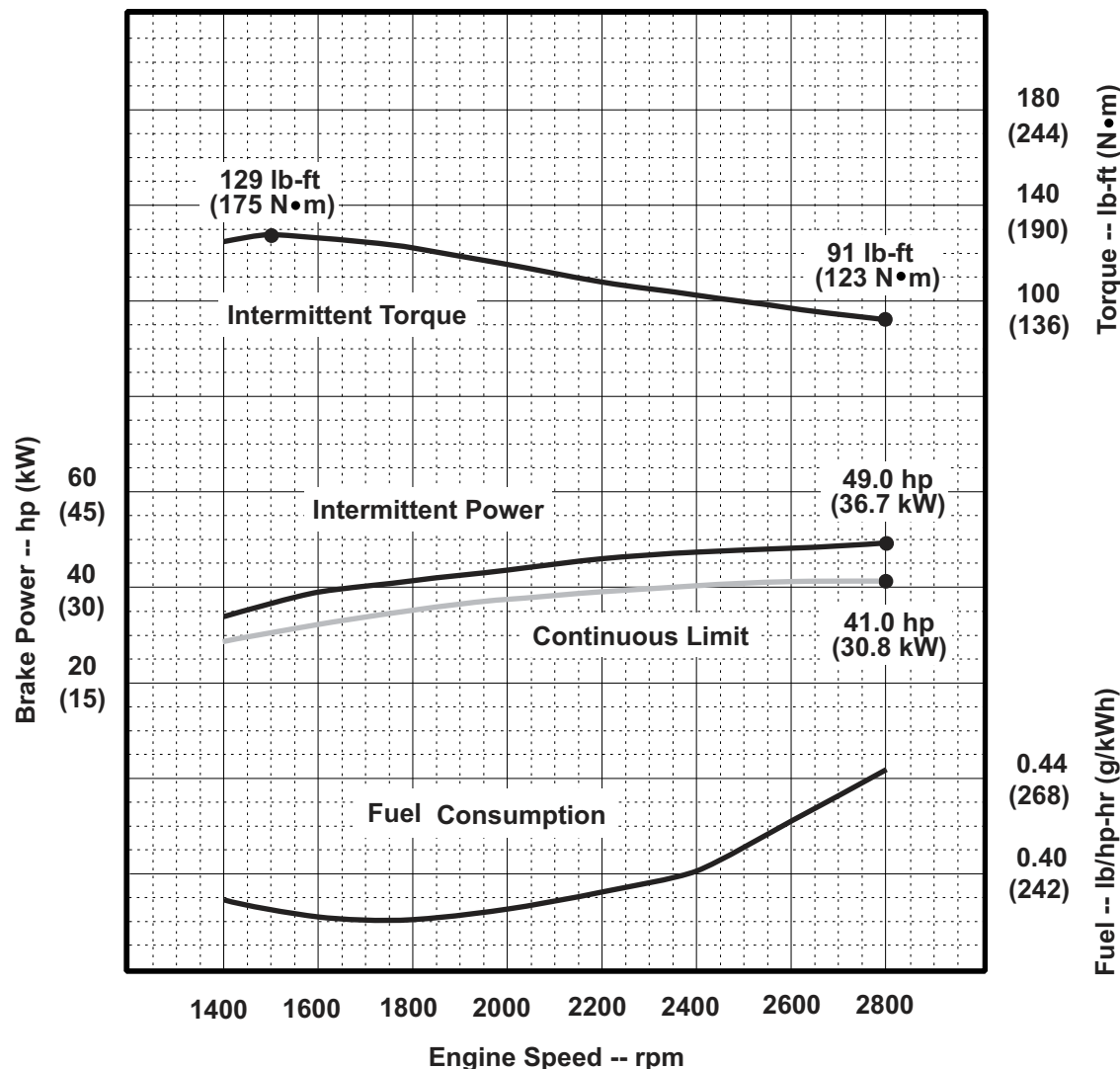
Certified by:

**CARB; EPA; EU**  
Ref: Engine Emission Label

*Brian L. Carlson*  
2 Aug 06

\* Revised Data

Curve: 4024TF27049I..... Sheet 1 of 2  
August 2006



**Engine Specification Data**

**General Data**

Model .....4024TF270  
 Number of Cylinders ..... 4  
 Bore and Stroke--in. (mm)..... 3.4 x 4.1 (86 x 105)  
 Displacement--in.<sup>3</sup> (L) ..... 149 (2.44)  
 Compression Ratio ..... 19.1 : 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) .....26.1 (662)  
 Width--in. (mm) .....22.3 (566)  
 Height--in. (mm) .....30.4 (772)  
 Weight, dry--lb (kg) .....554 (251)  
 (Includes flywheel housing, flywheel and electrics.)  
 Center of Gravity Location  
 From Rear Face of Block (X-axis)--in. (mm) 7.6 (194)  
 Right of Crankshaft (Y-axis)--in. (mm).....0.6 (14)  
 Above Crankshaft (Z-axis)--in. (mm) .....4.3 (108)  
 Max. Allow. Static Bending Moment at Rear  
 Face of Flywhl Hsg w/ 5-G Load--lb-ft (N•m)....369 (500)  
 Thrust Brng. Load Limit (Forward)--lb (N) [I] ..... 1147 (5100)  
 [C] .....629 (2800)

**Air System**

Maximum Allowable Temp Rise--Ambient Air to  
 Engine Inlet--°F (°C) ..... 15 (8)  
 Maximum Air Intake Restriction  
 Dirty Air Cleaner--in. H<sub>2</sub>O (kPa) .....25 (6.25)  
 Clean Air Cleaner--in. H<sub>2</sub>O (kPa) ..... 12 (3)  
 Engine Air Flow--ft<sup>3</sup>/min (m<sup>3</sup>/min) [I] ..... 166 (4.7)  
 [C] ..... NA  
 Intake Manifold Pressure--psi (kPa) [I] ..... 12 (84)  
 [C] ..... NA

**Cooling System**

Engine Heat Rejection--BTU/min (kW) [I] ... 1508 (26.5)  
 [C] ..... NA  
 Coolant Flow--gal/min (L/min)..... 23 (88.9)  
 Thermostat Start to Open--°F (°C) ..... 192 (89)\*  
 Thermostat Fully Open--°F (°C) ..... 212 (100)\*  
 Engine Coolant Capacity--qt (L) ..... 2.7 (2.6)  
 Recommended Pressure Cap--psi (kPa) ..... 10 (69)  
 Maximum Top Tank Temp--°F (°C) ..... 221 (105)  
 Minimum Coolant Fill Rate--gal/min (L/min) ..... 2.5 (9.5)  
 Minimum Air-to-Boil Temperature--°F (°C) ..... 117 (47)

**Electrical System**

**12 Volt 24 Volt**

Rec'md. Battery Capacity (CCA)--amp ..... 750 ..... NA  
 Max. Allow. Start. Circuit Resist.--Ohm ..... 0.0012 ..... NA  
 Starter Rolling Current  
 At 32 °F ( 0 °C)--amp ..... 290 ..... NA  
 At -22 °F (-30 °C)--amp ..... 370 ..... NA

**Exhaust System**

Exhaust Flow--ft<sup>3</sup>/min (m<sup>3</sup>/min) [I] ..... 396 (11.2)  
 [C] ..... NA  
 Exhaust Temperature--°F (°C) [I] ..... 878 (470)  
 [C] ..... NA  
 Max. Allowable Back Pressure--in. H<sub>2</sub>O (kPa) ..... 30 (7.5)

**Fuel System**

Fuel Injection Pump ..... Unit Pump  
 Governor Regulation ..... 7-10 %  
 Governor Type ..... Mechanical  
 Total Fuel Flow--lb/hr (kg/hr) [I] ..... 154 (70)  
 Fuel Consumption--lb/hr (kg/hr) [I] ..... 22 (10)  
 [C] ..... NA  
 Maximum Fuel Transfer Pump Suction--ft (m) fuel ..... 10 (3)  
 Max. Fuel Inlet Temperature--°F (°C) ..... 185 (85)  
 Fuel Filter Micron Size @ 98% Efficiency ..... 5

**Lubrication System**

Oil Pressure at Rated Speed--psi (kPa) ..... 52 (360)  
 Oil Pressure at Low Idle-psi (kPa) ..... 22 (150)  
 In Pan Oil Temperature--°F (°C) ..... 257 (125)  
 Oil Pan Capacity, High--qt (L) ..... 7.6 (7.2)  
 Oil Pan Capacity, Low--qt (L) ..... 6.6 (6.2)  
 Total Engine Oil Capacity with Filters--qt (L) ..... 8.5 (8.0)  
 Engine Angularity Limits, Any Direction--Degrees [I] ..... 35  
 [C] ..... 30

**Performance Data**

Rated Power--hp (kW) [I] ..... 49 (36.7)  
 [C] ..... 41 (30.8)  
 Rated Speed--rpm ..... 2800  
 Peak Torque--lb-ft (N•m) [I] ..... 129 (175)  
 [C] ..... 110 (149)  
 Peak Torque Speed--rpm ..... 1500  
 Low Idle Speed--rpm ..... 900  
 BMEP--psi (kPa) [I] ..... 95 (654)  
 [C] ..... 78 (541)  
 Friction Power @ Rated Speed--hp (kW) ..... 23 (17.1)  
 Altitude Capability -- ft (m) ..... 5000 (1524)  
 Ratio--Air : Fuel [I] ..... 32 : 1  
 [C] ..... NA  
 Smoke @ Rated Speed--Bosch No [I] ..... 0.8  
 [C] ..... NA  
 Noise--dB(A) @ 1 m [I] ..... 89.0  
 [C] ..... NA

Engine Speed rpm	Contn. Limit hp(kW)	Intermit. Power hp(kW)	Intermit. Torque lb-ft (N•m)	BSFC lb/hp-hr (g/kWh)
2800	41 (30.8)	49 (36.2)	91 (123)	0.443 (270)
2600	41 (30.3)	48 (35.7)	97 (131)	0.422 (257)
2400	40 (29.7)	47 (34.9)	102 (139)	0.405 (247)
2200	39 (29.0)	46 (34.1)	109 (148)	0.392 (239)
2000	37 (27.7)	44 (32.5)	115 (155)	0.386 (235)
1800	35 (26.5)	42 (31.1)	122 (165)	0.381 (232)
1600	33 (24.6)	39 (28.9)	127 (173)	0.382 (233)
1500	31 (23.3)	37 (27.5)	129 (175)	0.386 (236)
1400	29 (21.7)	34 (25.5)	128 (174)	0.389 (237)
1200	23 (17.0)	27 (20.0)	118 (160)	0.391 (238)
1000	16 (12.1)	19 (14.3)	100 (136)	0.397 (242)

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

[I] = Intermittent Data [C] = Continuous Data  
 Unless noted, all other values pertain to both.

\* Revised Data  
 Curve: 4024TF27049I ..... Sheet 2 of 2  
 August 2006