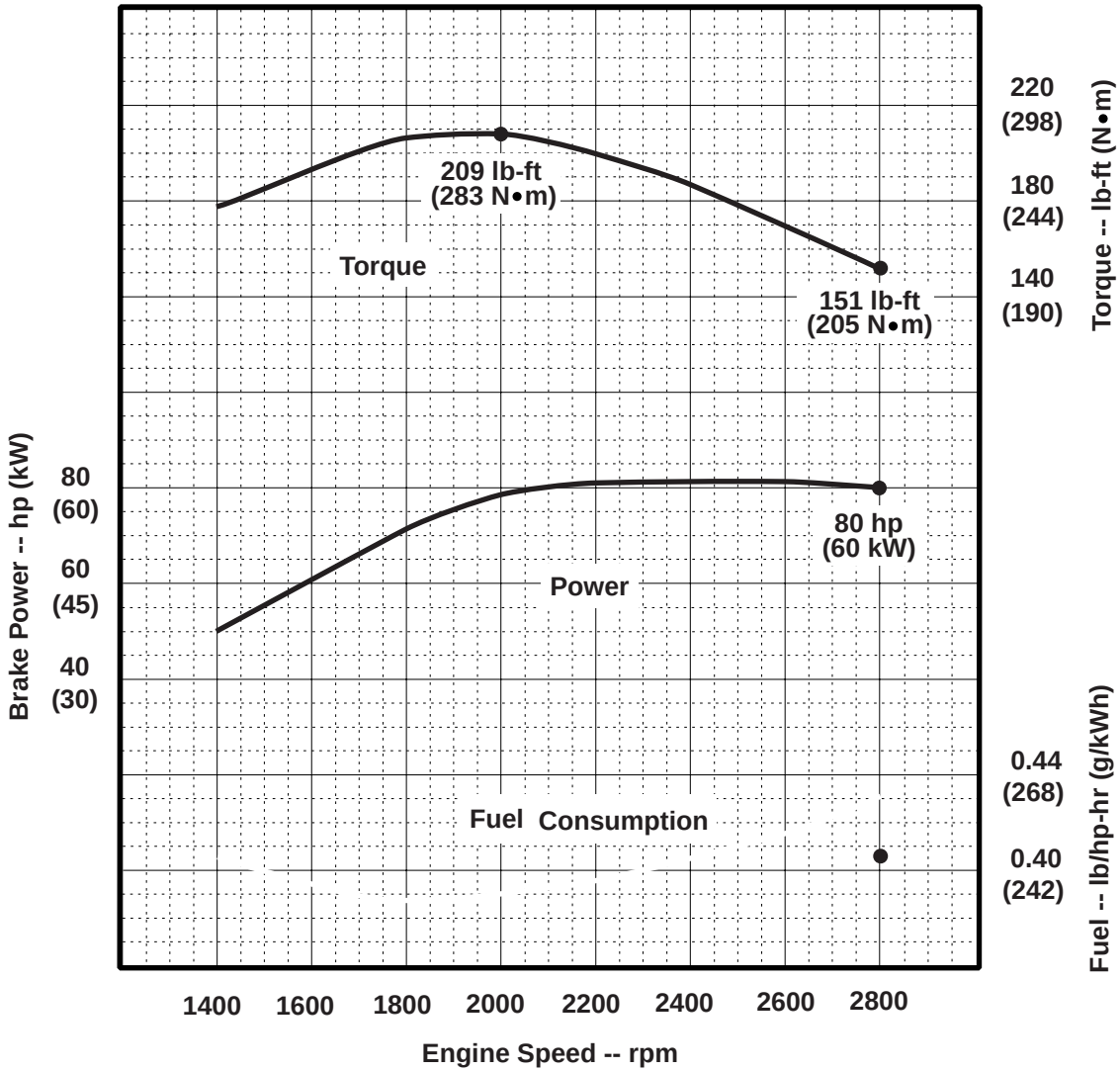
JOHN DEERE

ENGINE PERFORMANCE CURVE

Rating: Gross Power
Application: Industrial - Intermittent
Power Bulge - 0%
Torque Rise - 38%

PowerTech 2.4 L Engine
Model: 4024HF285

80 hp @ 2800 rpm
60 kW @ 2800 rpm



Air Intake Restriction ..... 12 in.H_2O (3 kPa)
Exhaust Back Pressure ..... 30 in.H_2O (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:

Advance Information

Tier-3 Emission Certifications:	Certified by:
CARB; EPA; EU Ref: Engine Emission Label	

* Revised Data
Curve: 4024HF28580_2800_0_38 ..... Sheet 1 of 2
January 2007

Engine Installation Criteria

General Data (Est. based on Tier-2 data)

Model 4024HF285
Number of Cylinders 4
Bore and Stroke--in. (mm)..... 3.4 x 4.1 (86 x 105)
Displacement--in.^{3} (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-Stroke Cycle
Aspiration ..... Turbocharged
Charge Air Cooling System ..... Air-to-Air
Engine Crankcase Vent System ..... Open

Physical Data (Estimated based on Tier 2)

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 & 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)
Maximum Allowable Static Bending Moment at Rear Face of Flywhl Hsg w/ 5-G Load--lb-ft (N•m) 369 (500)

Thrust Bearing Load Limit --lb (N)	Forward	Rearward
Intermittent	1147 (5100)	00 (00)
Continuous	629 (2800)	00 (00)

Max. Front of Crank. Torsional Vibration--DDA..... 0.25
Max. Continuous Damper Temp--°F (°C) 180 (82)

Electrical System

	12 Volt	24 Volt
Min. Battery Capacity (CCA)--amp	750	NA
Max. Allow. Starting Circuit Resist.--Ohm	0.0012	NA
Starter Rolling Current		
At 32 °F (0 °C)--amp	290	310
At -22 °F (-30 °C)--amp	370	340
Min. Voltage at ECU during Cranking--volts	6	10

Maximum ECU Temperature--°F (°C) 221 (105)
Max. VTG Actuator Surface Temp.--°F (°C)..... 356 (180)
Maximum Harness Temperature--°F (°C) 257 (125)

Air System

Maximum Allowable Temp Rise--Ambient Air to Engine Inlet--°F (°C) 15 (8)
Maximum Air Intake Restriction:
Dirty Air Cleaner--in. H_2O (kPa)..... 25 (6.25)
Clean Air Cleaner--in. H_2O (kPa)..... 15 (3.75)
Engine Air Flow--ft^3/min (m^3/min) 212 (6)
Air Cleaner Efficiency--% 99.9

Charge Air Cooling System

Air/Air Exch'r. Heat Rej.–Btu/min(kW) 854 (15.0)
Compressor Discharge Temp.(Rated @ 77 °F (25°C) Ambient Air--°F (°C)..... 315 (157)
Compressor Discharge Temp.(Max.) @ any Ambient--°F (°C) ..... NA
Max. Pressure Drop, thru CAC--in.H_2O (kPa) 52 (13)
Min. Pressure Drop, thru CAC--in.H_2O (kPa) 28 (7)
Intake Manifold Pressure--psi (kPa) 19 (134)
Max CAC Out Temp @ 77°F (25°C) Amb.--°F (°C) 140(60)
Min CAC Out Temp @ 77°F (25°C) Amb.--°F (°C) 118 (48)
Max CAC Out Temp @ any Ambient--°F (°C) 190 (88)

Cooling System

Engine Heat Rejection--BTU/min (kW) 2334 (41.0)
Coolant Flow--gal/min (L/min)..... 23 (89)
Thermostat Start to Open--°F (°C)..... 180 (82)
Thermostat Fully Open--°F (°C)..... 201 (94)
Engine Coolant Capacity--qt (L) 2.7 (2.6)
Minimum 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)
Minimum Pump Inlet Pressure--psi (kPa) 4.4 (30)

Exhaust System

Exhaust Flow--ft^3/min (m^3/min)..... 526 (15)
Exhaust Temperature--°F (°C)..... 000 (000)
Max. Exhaust Restriction--in. H_2O (kPa) 30 (7.5)
Min. Exhaust Restriction--in. H_2O (kPa) 12 (3)
Max. Bend. Moment on Turbo Out.--lb-ft (N•m)..... 5.2 (7)
Max. Shear on Turbo Outlet--lb (kg) 24 (11)

Fuel System

ECU Description ..... L18 Controller
Fuel Injection Pump ..... Delphi HP3
Governor Type..... Electronic
Total Fuel Flow--lb/hr (kg/hr) 000 (000)
Fuel Consumption--lb/hr (kg/hr)..... 000 (000)
Max. Fuel Inlet Temperature--°F (°C) 185 (85)
Fuel Temp. Rise, Inlet to Return--°F (°C) 57.6 (32)
Max. Fuel Inlet Restriction--in. H_2O (kPa) 120 (30)
Max. Fuel Inlet Pressure--in. H_2O (kPa)..... NA
Max. Fuel Return Pressure--in. H_2O (kPa)..... 140 (35)

Lubrication System

Oil Pressure at Rated Speed--psi (kPa) 55 (380)
Oil Pressure at Low Idle--psi (kPa) 36 (250)
Max. Oil Carryover in Blow-by--lb/hr (g/hr) 0.002 (1.0)
Max. Airflow in Blow-by--gal/min (l/min)..... 11 (40)
Max. Crankcase Pressure--in. H_2O (kPa)..... 2 (0.5)

Performance Data

Rated Power--hp (kW) 80 (60)
Rated Speed--rpm 2800
Breakaway Speed--rpm 2870
Fast Idle Speed--rpm 3000
Peak Torque--lb-ft (N•m)..... 209 (283)
Peak Torque Speed--rpm 2000
Low Idle Speed--rpm 900
BMEP--psi (kPa)..... 000 (000)
Friction Power @ Rated Speed--hp (kW) 00 (00)
Altitude Capability--ft (m) 00,000 (000)
Ratio--Air : Fuel ..... 27 : 1
Smoke @ Rated Speed--Bosch No. 1.2
Noise--dB(A) @ 1 m .....
Power Bulge--%..... 0
Power Bulge Speed--rpm ..... NA
Torque Rise--%..... 38

Engine Speed rpm	Power hp (kW)	Torque lb-ft (N•m)	BSFC lb/hp-hr (g/kWh)
2800	80 (60)	151 (205)	0.407 (248)
2600	81 (61)	171 (232)	0.000 (000)
2400	81 (61)	187 (254)	0.000 (000)
2200	81 (61)	200 (272)	0.000 (000)
2000	79 (59)	209 (283)	0.000 (000)
1800	71 (53)	208 (283)	0.000 (000)
1600	61 (46)	193 (262)	0.000 (000)
1400	50 (37)	178 (241)	0.000 (000)

Advance Information

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

* Revised Data
Curve: 4024HF28580_2800_0_38 ..... Sheet 2 of 2
January 2007