



JOHN DEERE

ENGINE PERFORMANCE CURVE

Rating: Gross Power
 Application: Industrial - Intermittent
 Power Bulge - 0%
 Torque Rise - 35%

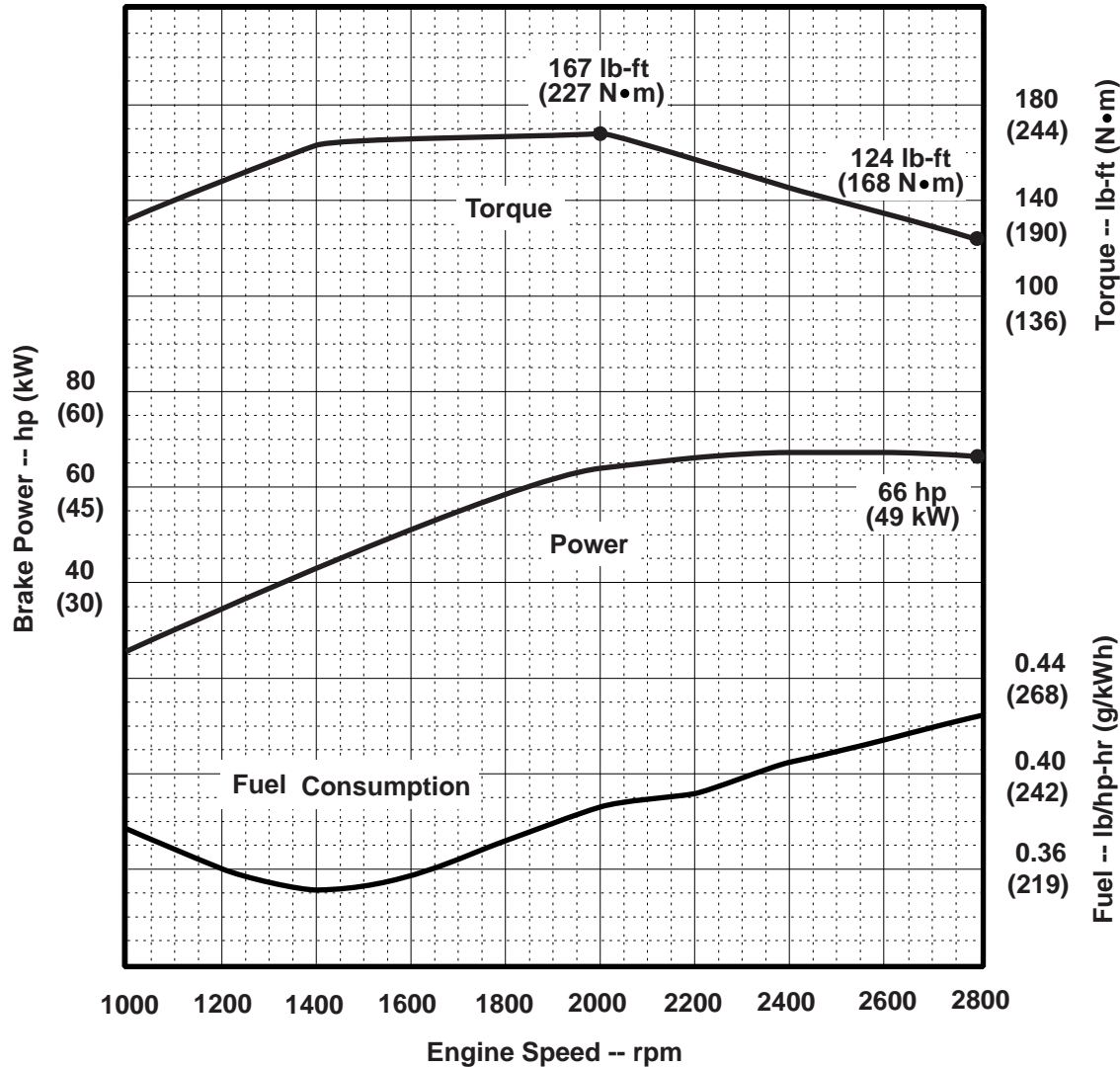
PowerTech™ E 2.4 L Engine

Model: 4024HF295

[Option Code 4610 or 4612]

66 hp @ 2800 rpm

49 kW @ 2800 rpm



Air Intake Restriction 12 in.H₂O (3 kPa)
 Exhaust Back Pressure 30 in.H₂O (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:

Interim Tier-4
 Emission Certifications:

Certified by:

CARB; EPA; EU
 Ref: Engine Emission Label

[Signature]
 27 May 08

* Revised Data

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Engine Installation Criteria

General Data

Model 4024HF295
 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 18.2 : 1
 Valves per Cylinder--Intake/Exhaust 1 / 1
 Firing Order 1-3-4-2
 Combustion System Unit Injection
 Engine Type In-line, 4-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) 553 (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) 337 (1500)
 Continuous 629 (2800) 180 (800)
 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 750 500
 Max. Allow. Starting Circuit Resist.--Ohm 0.0012 0.002
 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)
 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. H₂O (kPa) 25 (6.25)
 Clean Air Cleaner--in. H₂O (kPa) 12 (3.0)
 Engine Air Flow--ft³/min (m³/min) 210 (5.95)
 Air Cleaner Efficiency--% 99.9

Charge Air Cooling System

Air/Air Exch'r. Heat Rej.--Btu/min(kW) 643 (11.3)
 Compressor Discharge Temp.(Rated)
 @ 77 °F (25°C) Ambient Air--°F (°C) 318 (159)
 Compressor Discharge Temp.(Max.)
 @ any Ambient--°F (°C) NA
 Max. Pressure Drop, thru CAC--in.H₂O (kPa) 52 (13)
 Min. Pressure Drop, thru CAC--in.H₂O (kPa) 28 (7)
 Intake Manifold Pressure--psi (kPa) 20 (135)
 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) 1935 (34.0)
 Coolant Flow--gal/min (L/min) 32 (120)
 Thermostat Start to Open--°F (°C) 192 (89)
 Thermostat Fully Open--°F (°C) 212 (100)
 Engine Coolant Capacity--qt (L) 2.7 (2.6)
 Minimum Pressure Cap--psi (kPa) 14.9 (103)
 Maximum Top Tank Temp--°F (°C) 230 (110)
 Minimum Coolant Fill Rate--gal/min (L/min) 3.0 (9.5)
 Minimum Air-to-Boil Temperature--°F (°C) 117 (47)
 Minimum Pump Inlet Pressure--psi (kPa) 4.4 (30)

Exhaust System

Exhaust Flow--ft³/min (m³/min) 494 (14)
 Exhaust Temperature--°F (°C) 863 (462)
 Max. Exhaust Restriction--in. H₂O (kPa) 30 (7.5)
 Min. Exhaust Restriction--in. H₂O (kPa) 16 (4)
 Max. Bend. Moment on Turbo Out.--lb-ft (N•m) 5.5 (7.5)
 Max. Shear on Turbo Outlet--lb (kg) 24 (11)

Fuel System

ECU Description L18 Controller
 Fuel Injection Pump Delphi EUP
 Governor Type Electronic
 Total Fuel Flow--lb/hr (kg/hr) 154 (70.0)
 Fuel Consumption--lb/hr (kg/hr) 28 (12.8)
 Max. Fuel Inlet Temperature--°F (°C) 185 (85)
 Fuel Temp. Rise, Inlet to Return--°F (°C) 97 (36.2)
 Max. Fuel Inlet Restriction--in. H₂O (kPa) 120 (30)
 Max. Fuel Inlet Pressure--in. H₂O (kPa) 96 (24)
 Max. Fuel Return Pressure--in. H₂O (kPa) 140 (35)

Lubrication System

Oil Pressure at Rated Speed--psi (kPa) 44 (300)
 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) 12 (45)
 Max. Crankcase Pressure--in. H₂O (kPa) 2 (0.5)

Performance Data

Rated Power--hp (kW) 66 (49)
 Rated Speed--rpm 2800
 Breakaway Speed--rpm 2870
 Fast Idle Speed--rpm 3000
 Peak Torque--lb-ft (N•m) 167 (227)
 Peak Torque Speed--rpm 2000
 Low Idle Speed--rpm 900
 BMEP--psi (kPa) 125 (865)
 Friction Power @ Rated Speed--hp (kW) 28 (21)
 Altitude Capability--ft (m) 10,000 (3050)
 Ratio--Air : Fuel 30 : 1
 Smoke @ Rated Speed--Bosch No. 1.37
 Noise--dB(A) @ 1 m 90.6
 Power Bulge--% 0
 Power Bulge Speed--rpm NA
 Torque Rise--% 35

Engine Speed rpm	Power hp (kW)	Torque lb-ft (N•m)	BSFC lb/hp-hr (g/kWh)
2800	66 (49)	124 (168)	0.424 (259)
2600	67 (50)	135 (183)	0.415 (253)
2400	67 (50)	146 (198)	0.404 (246)
2200	66 (49)	157 (213)	0.391 (238)
2000	64 (48)	167 (227)	0.387 (236)
1800	57 (43)	167 (227)	0.371 (226)
1600	51 (38)	167 (227)	0.357 (217)
1400	43 (32)	162 (220)	0.351 (214)
1200	34 (25)	147 (200)	0.360 (220)
1000	25 (19)	131 (177)	0.378 (231)

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

* Revised Data
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