



Fire Power

Engine Performance Curve

Cummins Fire Power
DePere, WI 54115
<http://www.cumminsfirepower.com>

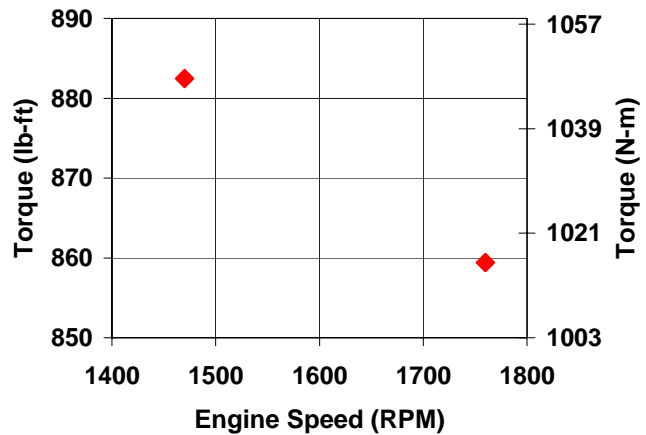
Basic Engine Model
CFP83-F40

Curve Number: **FR - 90940**
Revision Date: **November 2006**

Engine Family:	G Drive	CPL Code:	8000
Displacement - in.3 (litre):	505 (8.3)	Emission Certification:	2002 EPA/CARB Tier 2
Dry Weight - lbs (kg):	2045 (920)	Aspiration:	Turbocharged, Chrg Air Cooled
Compression Ratio:	16.8:1	Engine Configuration:	D413035GX02
No. of Cylinders:	6	Minimum rating:	247 HP @ 1470 RPM
Fuel System:	Bosch - P7100 Inline	Maximum rating:	288 HP @ 1760 RPM

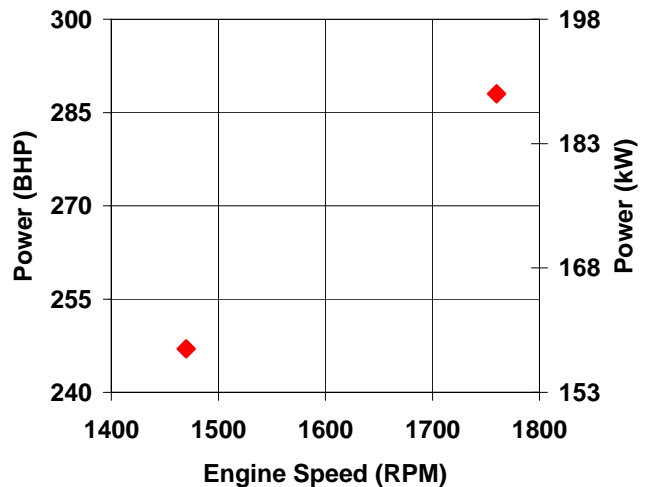
Torque Output *

RPM	lb-ft	N-m
1470	882	1196
1760	859	1165



Horsepower Output *

RPM	BHP	kW
1470	247	184
1760	288	215



*CFP83-F40 is not a speed rated engine.

1. Curves shown above represent mature gross engine performance capabilities obtained and corrected in accordance with SAE J1349 conditions of 29.61 in Hg (100 kPa) barometric pressure [300 ft. (91.4 m) altitude], 77 °F (25 °C) inlet air temperature, and 0.30 in. Hg (1 kPa) water vapor pressure with No. 2 diesel fuel.
2. The engine may be operated without changing the fuel setting up to 300 ft. (91.4 m) altitude and up to 77°F (25 °C) ambient temperature. For sustained operation at high altitudes, the fuel rate of the engine should be adjusted to limit performance by 3% per 1,000 ft. (305 m) above 300 ft. (91.4 m) altitude. For sustained operation at high ambient temperatures, the fuel rate of the engine should be adjusted to limit performance by 1% per 10 °F above 77 °F (2% per 11 °C above 25 °C).
3. Engine is certified at only 1470 and 1760 RPM.

Scott Danforth
Engineering Manager

Certified Within 5%



Fire Power

Engine Datasheet

Cummins Fire Power

DePere, WI 54115

<http://www.cumminsfirepower.com>

Basic Engine Model

CFP83-F40

Curve Number: **FR - 90940**

CPL Code: **8000**

Configuration Number: **D413035GX02**

Installation Drawing: **8710**

Engine Family: **Industrial**

Revision Date: **November 2006**

General Engine Data

Type.....	4 Cycle; In-Line; 6 Cylinder
Aspiration.....	Turbocharged, Chrg Air Cooled
Bore & Stroke - in. (mm).....	4.49 x 5.32 (114 x 135)
Displacement - in. ³ (litre).....	505 (8.3)
Compression Ratio.....	16.8:1
Valves per Cylinder - Intake.....	1
- Exhaust.....	1
Dry Weight - lb (kg).....	2045 (920)
Wet Weight - lb (kg).....	2117 (953)
Maximum Allowable Bending Moment @ Rear Face of Block - lb.-ft. (N-m).....	1000 (1356)

Air Induction System

Max. Temperature Rise Between Ambient Air and Engine Air Inlet - °F (°C).....	30 (16.7)
Maximum Inlet Restriction with Dirty Filter - in. H ₂ O (mm H ₂ O).....	25 (635)
Recommended Air Cleaner Element - (Standard)..... Donaldson (CFP).....	B105006 (8535)
- (Optional)..... K&N (CFP).....	RU5045 (9606)

Lubrication System

Oil Pressure Range at Rated - PSI (kPa)	40-60 (276-414)
Oil Capacity of Pan (High - Low) - U.S. quarts (litre)	20-16 (18.9-15.1)
Total System Capacity - U.S. Gal. (litre)	6.3 (23.8)
Recommended Lube Oil Filter	Fleetguard (Cummins)..... LF9009 (3401544)

Cooling System

Raw Water Working Pressure Range at Heat Exchanger - PSI (kPa)	60 (413) MAX
Recommended Min. Water Supply Pipe Size to Heat Exchanger - in. (mm).....	1.00 (25.40)
Recommended Min. Water Disch. Pipe Size From Heat Exchanger - in. (mm).....	1.25 (31.75)
Coolant Water Capacity (Engine Side) - U.S. gal. (litre)	5.9 (22.3)
Standard Thermostat - Type.....	Modulating
- Range - deg F (deg C)	180-203 (82-95)
Minimum Raw Water Flow	
with Water Temperatures to 90 °F (32 °C) - U.S. GPM (litre/s)	30 (1.89)
Recommended Cooling Water Filter.....	Fleetguard (Cummins)..... WF2072 (4058964)

A jacket water heater is mandatory on this engine. The recommended heater wattage is 2250 down to 40 °F (4 °C).

Exhaust System

Max. Back Pressure Imposed by Complete Exhaust System in in. H ₂ O (kPa)	40.8 (10.2)
Exhaust Pipe Size Normally Acceptable - in. (mm)	5.0 (127)

Noise Emissions

Top.....	97.7 dBa
Right Side.....	97.7 dBa
Left Side.....	97.7 dBa
Front.....	97.7 dBa
Exhaust.....	N/A dBa

The noise emission values are estimated sound pressure levels at 3.3 ft. (1 m.).

Fuel Supply / Drain System

	1470	1760
CFP83-F40 Nominal Fuel Consumption - Gal./hr. (L/hr)	11.8 (44.8)	14.5 (55.0)
Fuel Type	Number 2 Diesel Only	
Minimum Supply Line Size - in. (mm)	0.375	(9.53)
Minimum Drain Line Size - in. (mm)	0.25	(6.35)
Maximum Fuel Line Length Between Supply Tank & Fuel Pump - ft. (m)	40	(12)
Maximum Fuel Height above C/L Crankshaft - in. (mm)	80	(2032)
Recommended Fuel Filter - Primary	Fleetguard (Cummins)..... FS1251	(3286503)
- Secondary	None	
Maximum Restriction @ Lift Pump-Inlet - With Clean Filter - in. Hg (mm Hg)	4.0	(102)
Maximum Restriction @ Lift Pump-Inlet - With Dirty Filter - in. Hg (mm Hg)	8.0	(203)
Maximum Return Line Restriction - Without Check Valves - in. Hg (mm Hg)	10	(254)
Minimum Fuel Tank Vent Capability - ft ³ /hr (m ³ /hr)	12	(0.36)
Maximum Fuel Temperature @ Lift Pump Inlet - °F (°C)	160	(71)

Starting and Electrical System

	12V	24V
Min. Recommended Batt. Capacity - Cold Soak at 0°F (-18°C) or Above		
Engine Only - Cold Cranking Amperes - (CCA)	1250	625
Engine Only - Reserve Capacity - Minutes	400	800
Battery Cable Size (Maximum Cable Length Not to Exceed 5 ft. [1.5 m] AWG)	00	00
Maximum Resistance of Starting Circuit - Ohms	0.002	0.004
Typical Cranking Speed - RPM	120	120
Alternator (Standard), Internally Regulated - Ampere	95	45
Wiring for Automatic Starting (Negative Ground)	Standard	
Reference Wiring Diagram	8512	

Performance Data

All data is based on the engine operating with fuel system, water pump, lubricating oil pump, air cleaner, and alternator; not included are compressor, fan, optional equipment, and driven components. Data is based on operation at SAE standard J1394 conditions of 300 ft. (91.4 m) altitude, 29.61 in. (752 mm) Hg dry barometer, and 77 °F (25 °C) intake air temperature, using No.2 diesel or a fuel corresponding to ASTM-D2.

Altitude Above Which Output Should be Limited - ft. (m)	300	(91.4)
Correction Factor per 1000 ft. (305 m) above Altitude Limit	3%	
Temperature Above Which Output Should be Limited - °F (°C)	77	(25)
Correction Factor per 10 °F (11 °C) Above Temperature Limit	1%	(2%)

Exhaust Emissions (EPA Tier T2) [Reference Emissions Data Doc. 9812]

	g/kW-hr	g/BHP-hr
Hydrocarbons (HC/OMHCE).....	0.14	0.10
Oxides of Nitrogen (NOx).....	5.37	4.00
Non-Methane Hydrocarbons + NOx (NMHC+NOx).....	5.51	4.11
Carbon Monoxide (CO).....	0.60	0.45
Particulate.....	0.09	0.07

FM Approved and UL Listed Ratings for CFP83-F40

Engine Speed - RPM	1470	1760
CFP83-F40 Output - BHP (kW)	247 (184)	288 (215)
Ventilation Air Required for Combustion - CFM (litre/sec)	492 (232)	657 (310)
Exhaust Gas Flow - CFM (litre/sec)	1247 (589)	1632 (770)
Exhaust Gas Temperature - °F (°C)	971 (522)	952 (511)
Engine Heat Rejection to Coolant- BTU/min. (kW)	3184 (56)	3854 (68)
Engine Heat Rejection to Ambient - BTU/min. (kW)	1497 (26)	1470 (26)

All Data is Subject to Change Without Notice.

Manager Engineering: *Scott Danforth*
Cummins Fire Power, DePere, WI 54115 U.S.A.