Edwards
Pentair Water

Engine Specification Data • EMI4050T
1760 RPM
Fire Pump Diesel Engine

Issue Date: April 30, 2004

General Data

Speed	UL HP (kw)	FM HP (kw)
1760	29 (22)	34 (25)

Model	EMI4050T18
Number of Cylinders	4
Bore and Stroke	3.31x3.54 (84x90)
Displacement-in^3 (L)	121.7 (1.994)
Compression Ratio	18:1
Valves per Cylinder-Intake/Exhaust	1/1
Firing Order	1-3-4-2-1
Combustion System	Direct Injection
Engine Type	In-line 4-Cycle
Aspiration	Turbocharged
Engine Crankcase Vent System	Open
Maximum Crankcase Pressure—in. H_20 (kPa)	2 (0.5)

Physical Data

Length-in (mm)	32.2 (819)
Width-in (mm)	21.6 (548)
Height-in (mm)	34.2 (869)
Weight, dry(power unit)--lb (kg) (includes flywheel & electrics)	506 (230)
Center of Gravity Location	
From Rear Face of Block (X-axis)--in. (mm)	7.32 (186)
Right of Crankshaft (Y-axis)--in.(mm)	-0.18 (-4.6)
Above Crankshaft (Z-axis)—in.(mm)	3.62 (92)
Maximum Allowable Static Bending Moment at Rear Face of Flywhl. Hsg. w/5-G Load-lb-ft.N·m)	159 (216)
Thrust Bearing Cont. Load Limit (Forward)-lb (N)	639 (2842)

Fuel System

Fuel Injection Pump	Yanmar
Governor Regulation	10% max
Governor Type	Mechanical
Fuel Consumption lb/hp-hr (kg/kw-hr) approx	0.38 (0.23)*
Maximum Allowable Fuel Pump Suction Clean System-psi (kPa)	1.13 (7.8)
Fuel Filter Micron Size @ 98% Efficiency	10

Lubrication System

Oil Pressure at Rated Speed-psi (kPa)	49.7 (343)
Oil Pressure at Low Idle-psi (kPa)	39.9 (275)
In Pan Oil Temperature-°F (°C)	240 (115)
Oil Pan Capacity, High-qt (L)	9.4 (9.0)
Oil Pan Capacity, Low-qt (L)	6.7 (6.4)
Total Engine Oil Capacity with Filters—qt. (L0	10.0 (9.6)
Engine Angularity Limits (Continuous)	
Any Direction—degrees	25

Air System

Maximum Allowable Temp Rise—Ambient Air to Engine Inlet--°F (°C)	18 (10)
Maximum Air Intake Restriction	
Dirty Air Cleaner -- in. H_20 (kPa)	25 (6.25)
Clean Air Cleaner-- in. H_20 (kPa)	12 (3)
Combustion Air Flow—ft^3/min (m^3/min)	109 (3.1)
Recommended Intake Diameter—in. (mm)	1.97 (50)

Cooling System

Engine Heat Rejection—BTU/min (kW)	910 (16.0)
Coolant Flow—gal/min (L/min)	15.6 (60)
Thermostat Start to Open--°F (°C)	160 (71)
Thermostat Fully Open--°F (°C)	185 (85)
Max. Water Pump Inlet Restriction—in. H_20 (kPa)	40 (10)
Engine Coolant Capacity—qt (L)	5.4 (5.2)
Recommended Pressure Cap—psi (kPa)	12.8 (88)
Maximum Top Tank Temp--°F (°C)	221 (105)
Recommended Air to Boil--°F (°C)	117 (47)

Exhaust System

Exhaust Flow-- ft^3/min (m^3/min)	198 (5.6)
Exhaust Temperature--°F (°C)	842 (450)
Max. Allowable Back Pressure—in. H_20 (kPa)	51.3 (12.3)

Electrical System

Recommended Battery Capacity (CCA) 12 Volt System—amp	700
Maximum Allowable Starting Circuit Resistance 12 Volt System—Ohm	0.0012
Starter Rolling Current—12 Volt System At 32°F (0°C)—amp	350

Jacket Water Heater 1000 Watts, 120 Volts, 1-Phase, 50/60 Hz

Performance Data

Rated Speed—max rpm	1760
Noise—dB (A) @1 m	88

Note-The following NFPA 20, 1999 paragraphs prescribe horsepower deductions for altitude and temperature:

8-2.2.4 A deduction of 3 percent from engine horsepower rating at standard SAE conditions shall be made for diesel engines for each 1000 ft (305 m) altitude above 300 ft. (91.4 m)

8.2.2.5 A deduction of 1 percent from engine horsepower rating as corrected to standard SAE conditions shall be made for diesel engines for every 10°F (5.6°C) above 77°F (25°C) ambient temperature.

*To convert lb/hp-hr into gallons/hp-hr multiply lb/hp-hr by 0.141.
To convert gallons/hp-hr into liters/kw-hr multiply gallons/hp-hr by 5.07.