

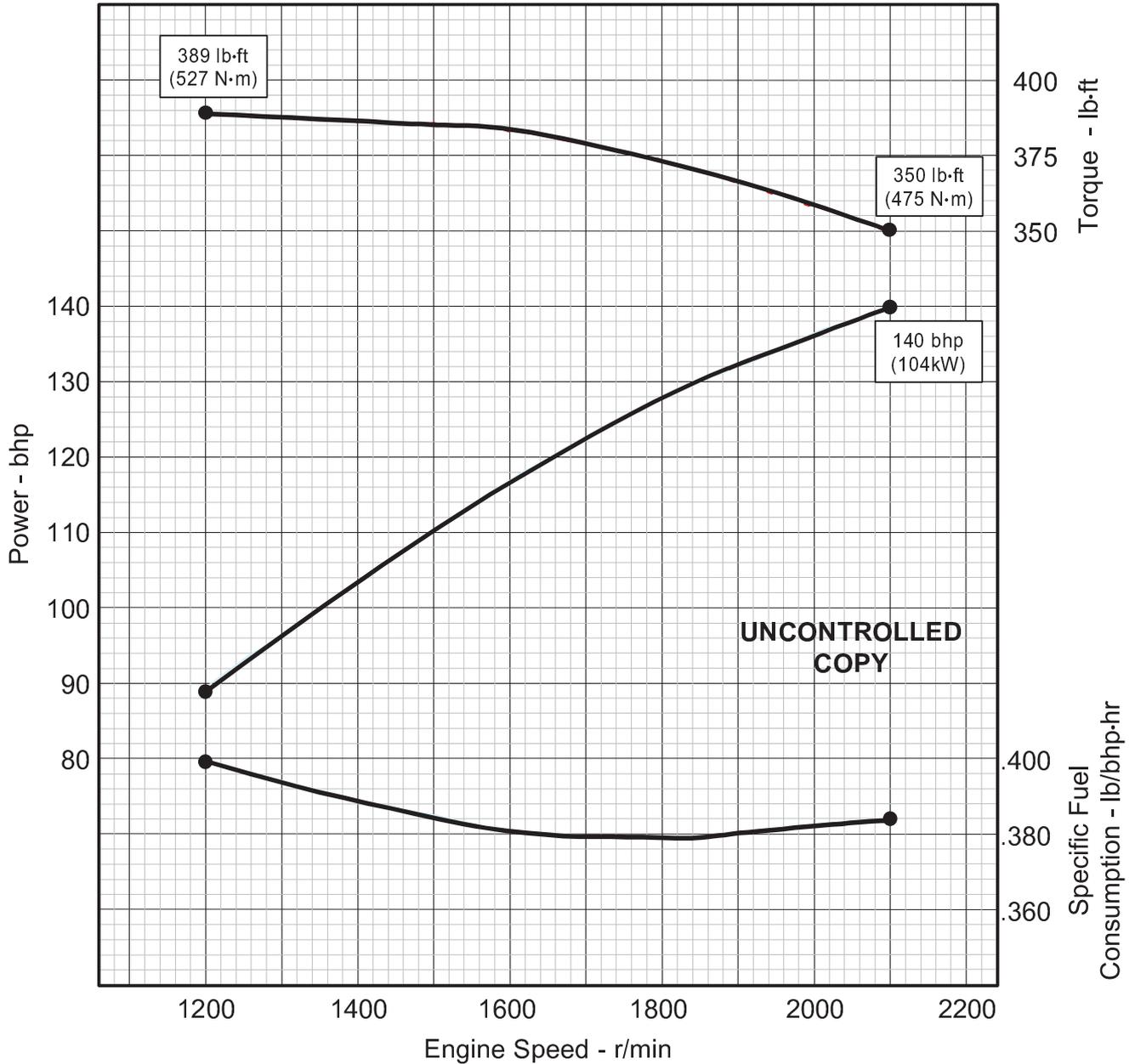


Industrial Power

Model: 4-71

Rating: 140 bhp @ 2100 r/min

389 lb·ft @ 1200 r/min



Power output guaranteed within 5% SAE J1995 conditions: 77°F (25°C) air inlet temperature; 29.31 in. Hg (99kPa) dry barometer; 100°F (38°C) fuel inlet temperature; .853 specific gravity at 60°F. Air intake restriction: 10 in. H ₂ O (2.5 kPa) Exhaust Back Pressure: 15 in. H ₂ O (3.7 kPa)	Conversion Factors: Power: kW = bhp x 0.746	Injector: N60
	Fuel: kg/kW · hr = lb/bhp · hr x 0.608 Torque: N · m = lb · ft x 1.356	

Certified by: T.J. MOORE

Curve No. E4-1041-52-2
 Rev. / Date: 5 / 10-6-98
 Sheet No. 1 of 2

Performance Curve

CONSTRUCTION AND INDUSTRIAL SPECIFICATION SHEET

General Data

Model	1043-5000
Number of Cylinders	4
Bore and Stroke – in. x in. (mm x mm)	4.25 x 5.00 (108 x 127)
Displacement – in. ³ (L)	284 (4.65)
Compression Ratio	18.7:1
Piston Speed – ft/min (m/min)	1750 (533)
Exhaust Valves Per Cylinder	4
Combustion System	DIRECT INJECTION
Engine Type	INLINE 2 CYCLE
Aspiration	NATURAL

Configuration

Injection Device	MUI
Turbocharger	Not Applicable
Blower Type	Standard
Blower Drive Ratio	2.0:1
Charge Air Cooling	NONE
Low Idle Speed – r/min	550
High Idle Speed – r/min	2250
Engine Crankcase Vent System	OPEN

Physical Data

Size:	
Length – in. (mm)	41.9 (1064)
Width – in. (mm)	28.8 (730)
Height – in. (mm)	41.7 (1059)
Weight, dry – lb (kg)	1780 (807)
Weight, wet – lb (kg)	1851 (840)
Center of Gravity Distance:	
From R.F.O.B. (x axis) – in. (mm)	16.2 (411)
Above Crankshaft (y axis) – in. (mm)	7.1 (179)
Right of Crankshaft (z axis) – in. (mm)	0.5 (1.2)
Installation Drawing	5172568

Mechanical Data

Thrust Bearing Load Limit, Continuous – lb (N)	400 (1779)
Thrust Bearing Load Limit, Intermittent – lb (N)	1200 (5338)
Maximum Static Bending Moment at Rear	
Face of Block – lb-ft (N-m)	500 (678)
Maximum Weight on Crankshaft – lb (kg)	600 (272)
Additional Mechanical Data	E4-1000-32-1

Fuel System

Fuel Injector	N60
Injection Timing Height – in.	1.460
Fuel Consumption – lb/hr (kg/hr)	53.8 (24.4)
Fuel Consumption – gal/hr (L/hr)	7.7 (29.1)
Fuel Spill – lb/hr (kg/hr)	503.3 (228.3)
Fuel Spill – gal/hr (L/hr)	72.0 (272.6)
Total Fuel Flow – lb/hr (kg/hr)	557.1 (252.7)
Total Fuel Flow – gal/hr (L/hr)	79.7 (301.7)
Maximum Fuel Inlet Temperature – °F (°C)	140 (60)
Maximum Fuel Pump Suction:	
Clean System – in. Hg (kPa)	6 (20.3)
Dirty System – in. Hg (kPa)	12 (40.6)
Fuel Filter Size, Primary – microns	30
Fuel Filter Size, Secondary – microns	12
Smoke Control Device	Not Applicable

Lubrication System

Oil Pressure at Rated Speed – lb/in. ² (kPa)	55 (379)
Oil Pressure at Low Idle – lb/in. ² (kPa)	5 (34)
In Pan Oil Temperature – °F (°C)	200 – 225 (93 – 107)
Oil Flow – gal/min (L/min)	31 (117)
Oil Pan Capacity: > 24 Hour Operation	
High Limit – qt (L)	20 (18.9)
Low Limit – qt (L)	15 (14.2)
Total Engine Oil Capacity with Filters – qt (L)	22 (20.8)
Engine Angularity Limits, Front Up – degrees	16
Engine Angularity Limits, Front Down – degrees	16
Engine Angularity Limits, Side Tilt – degrees	5

Electrical System

Recommended Battery Capacity (CCA @ 0°F):	
12 Volt System, Above 32°	950
12 Volt System, Below 32°	1250
24 Volt System, Above 32°	475
24 Volt System, Below 32°	625
Maximum Resistance of Starting Circuit:	
12 Volt System – ohms	0.0012
24 Volt System – ohms	0.002

Cooling System

Engine Heat Rejection – Btu/min (kW)	4115 (72.4)
Engine Radiated Heat – Btu/min (kW)	790 (13.9)
Coolant Flow – gal/min (L/min)	53 (201)
Minimum Coolant Flow – gal/min	48 (181)
Thermostat:	Non Blocking
Start to Open – °F (°C)	173 (78)
Fully Open – °F (°C)	186 (86)
Minimum Water Pump Inlet Pressure:	
Rapid Warmup Radiator – in. Hg (kPa)	POSITIVE
Conventional Radiator – in. Hg (kPa)	-3 (-21)
Engine Coolant Capacity – qt (L)	14 (27)
Minimum Pressure Cap – lb/in. ² (kPa)	9 (62)
Maximum Coolant Pressure	
(Exclusive of Pressure Cap – lb/in. ² (kPa)	20 (138)
Maximum Top Tank Temperature – °F (°C)	210 (99)
Minimum Top Tank Temperature – °F (°C)	160 (71)
Minimum Coolant Fill Rate – gal/min (L/min)	3 (11.4)
Air Handling Capacity – ft ³ /min (m ³ /min)	0.4 (0.011)
Minimum Drawdown Requirement – qt (L)	4 (3.8)
Deaeration Time – minutes	30

Air System

Maximum Temperature Rise	
(Ambient Air to Engine Inlet) – °F (°C)	30 (16.7)
Maximum Air Intake Restriction:	
Clean Air Cleaner – in. H ₂ O (kPa)	16 (4.0)
Dirty Air Cleaner – in. H ₂ O (kPa)	25 (6.2)
Engine Air Flow – ft ³ /min (m ³ /min)	440 (12.5)
Engine Air Box/Manifold Pressure – in. Hg (kPa)	6.0 (20.3)
Recommended Intake Pipe Outer Diameter:	
Single – in. (mm)	5.0 (127)
Dual – in. (mm)	Not Applicable
Maximum Crankcase Pressure – in. H ₂ O (kPa)	1.9 (0.47)

Exhaust System

Exhaust Flow – ft ³ /min (m ³ /min)	1050 (29.7)
Exhaust Temperature – °F (°C)	820 (438)
Maximum Back Pressure – in. Hg (kPa)	4.0 (13.5)
Recommended Exhaust Pipe Diameter:	
Single – in. (mm)	3.5 (89)
Dual – in. (mm)	Not Applicable

Performance Data

BMEP – lb/in. ² (kPa)	93.0 (641)
Friction Power:	
Rated Speed – fhp (kW)	56 (42)
Peak Torque Speed – fhp (kW)	16 (12)
Altitude Capability – ft (m)	16000 (4880)
Torque Available at 800 r/min – lb-ft (N-m)	360 (458)

Engine Speed r/min	Rated Power bhp (kW)	Rated Torque lb-ft (N·m)	Rated BSFC lb/bhp·hr (g/kW·hr)
2100	140 (104)	350 (475)	0.384 (234)
2000	137 (102)	358 (485)	0.382 (232)
1800	128 (95)	373 (506)	0.379 (231)
1600	117 (87)	383 (519)	0.381 (232)
1400	103 (77)	386 (523)	0.389 (237)
1200	89 (66)	389 (527)	0.399 (243)

Emissions Data

Smoke, Rated Speed – Bosch Number	1.5
Smoke, Peak Torque Speed – Bosch Number	1.2
Noise – dB(A) @ 1	101
Additional Noise Data	Not Available
NO _x – g/hr	1550
CO – g/hr	1030
HC – g/hr	60
SO ₂ – g/hr	245

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Curve No. E4-1041-52-2
Rev. / Date: 5 / 10-6-98
Sheet No. 2 of 2

All values are at rated speed and power at SAE J1995 with standard engine hardware, unless otherwise noted.