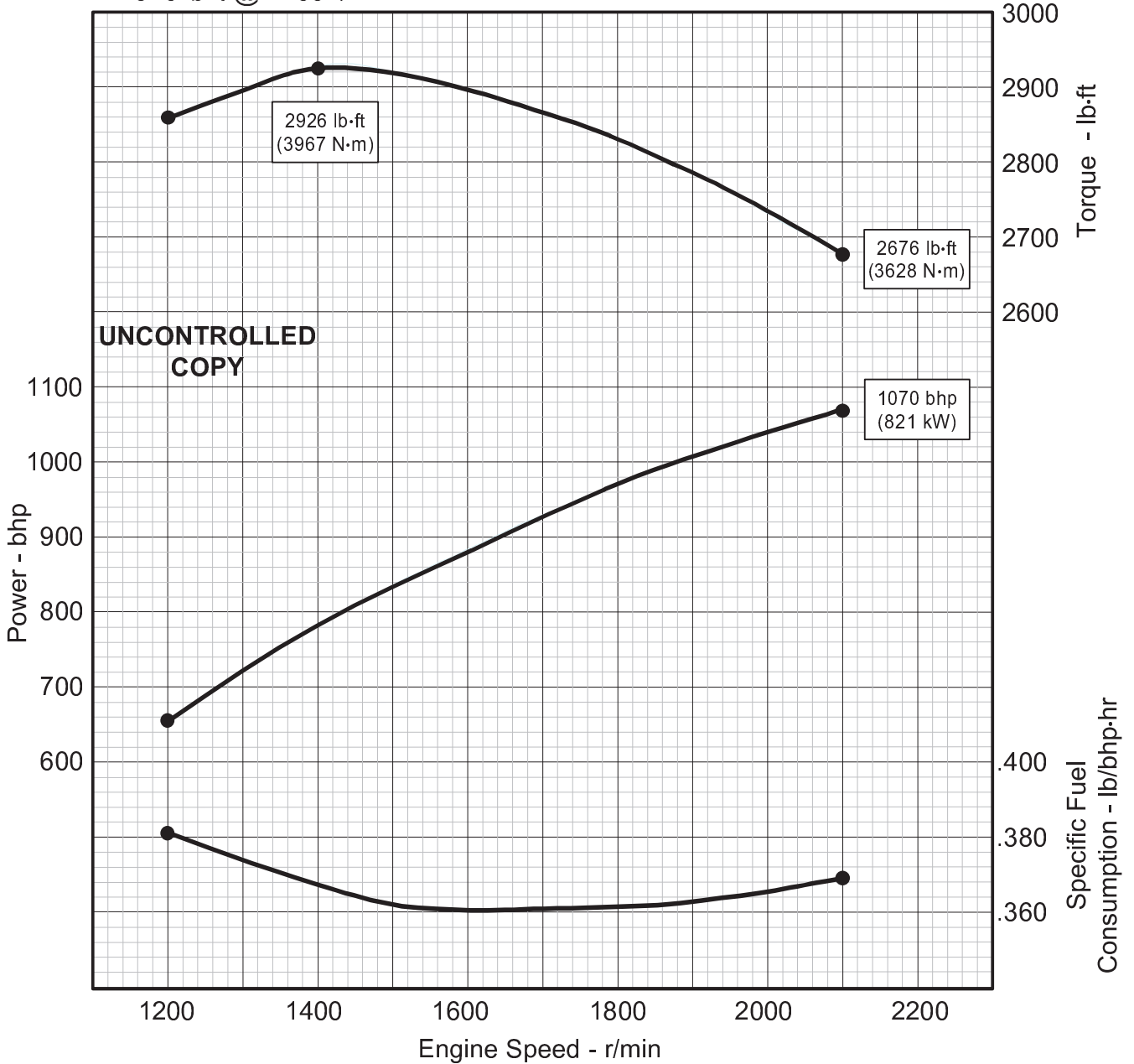


DETROIT DIESEL



Industrial Power

Model: 16V-92TA
Rating: 1070 bhp @ 2100 r/min
 2926 lb·ft @ 1400 r/min



Power output guaranteed within 5% at 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 (15°C), 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 Fuel: kg/kW · hr = lb/bhp · hr x 0.608 Torque: N · m = lb · ft x 1.356	Turbo: TW8401 (1.19 A/R) Injector: 7035
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Certified by: *JR Hebringer*

Curve No. E4-8163-32-19
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Preliminary Performance Curve

PRELIMINARY CONSTRUCTION AND INDUSTRIAL SPECIFICATION SHEET

General Data

Model	8163-7473
Number of Cylinders	16
Bore and Stroke – in. x in. (mm x mm)	4.84 x 5.00 (123 x 127)
Displacement – in. ³ (L)	1472 (24.14)
Compression Ratio	17.0:1
Piston Speed – ft/min (m/min)	1750 (533)
Exhaust Valves Per Cylinder	4
Combustion System	DIRECT INJECTION
Engine Type	63.5° VEE 2 CYCLE
Aspiration	TURBOCHARGED

Configuration

Injection Device	MUI
Turbocharger	TW8401 (1.19 A/R)
Blower Type	Bypass
Blower Drive Ratio	2.05
Charge Air Cooling	JWAC
Low Idle Speed – r/min	600
High Idle Speed – r/min	2250
Physical Crankcase Vent System	OPEN

Physical Data

Size:	
Length – in. (mm)	79.6 (2022)
Width – in. (mm)	46.4 (1177)
Height – in. (mm)	57.8 (1467)
Weight, dry – lb (kg)	4840 (2195)
Weight, wet – lb (kg)	5127 (2325)
Center of Gravity Distance:	
From R.F.O.B. (x axis) – in. (mm)	38.0 (965)
Above Crankshaft (y axis) – in. (mm)	14.0 (356)
Right of Crankshaft (z axis) – in. (mm)	1.5 (38)
Installation Drawing	8928844

Mechanical Data

Thrust Bearing Load Limit, Continuous – lb (N)	600 (2670)
Thrust Bearing Load Limit, Intermittent – lb (N)	1800 (8007)
Maximum Static Bending Moment at Rear	
Face of Block – lb·ft (N·m)	1000 (1356)
Maximum Weight on Crankshaft – lb (kg)	1000 (454)
Additional Mechanical Data	E4-8000-32-2

Fuel System

Fuel Injector	7035
Injection Timing Height – in.	1.470
Fuel Consumption – lb/hr (kg/hr)	394.8 (179.1)
Fuel Consumption – gal/hr (L/hr)	56.5 (213.8)
Fuel Spill – lb/hr (kg/hr)	770 (349)
Fuel Spill – gal/hr (L/hr)	110 (416)
Total Fuel Flow – lb/hr (kg/hr)	1165 (528.4)
Total Fuel Flow – gal/hr (L/hr)	166.7 (630.9)
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 (41)
Fuel Filter Size, Primary – microns	30
Fuel Filter Size, Secondary – microns	10
Smoke Control Device	Not Applicable

Lubrication System

Oil Pressure at Rated Speed – lb/in. ² (kPa)	49-70 (338-483)
Oil Pressure at Low Idle – lb/in. ² (kPa)	5 (34)
In Pan Oil Temperature – °F (°C)	200 – 250 (93 – 121)
Oil Flow – gal/min (L/min)	81 (307)
Oil Pan Capacity: > 24 Hour Operation	
High Limit – qt (L)	83 (79)
Low Limit – qt (L)	63 (60)
Total Engine Oil Capacity with Filters – qt (L)	87 (82)
Engine Angularity Limits, Front Up – degrees	20
Engine Angularity Limits, Front Down – degrees	20
Engine Angularity Limits, Side Tilt – degrees	5

Electrical System

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

Cooling System

Engine Heat Rejection – Btu/min (kW)	43635(767.3)
Engine Radiated Heat – Btu/min (kW)	1830 (32.1)
Coolant Flow – gal/min (L/min)	287 (1086)
Minimum Coolant Flow – gal/min	258 (978)
Thermostat:	Full Blocking
Start to Open – °F (°C)	177 (81)
Fully Open – °F (°C)	197 (92)
Minimum Water Pump Inlet Pressure:	
Rapid Warmup Radiator – in. Hg (kPa)	POSITIVE
Conventional Radiator – in. Hg (kPa)	-3 (-21)
Engine Coolant Capacity – qt (L)	60 (56.8)
Minimum Pressure Cap – lb/in. ² (kPa)	9 (62)
Maximum Coolant Pressure	
(Exclusive of Pressure Cap – lb/in. ² (kPa))	14 (97)
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)	1.6 (0.045)
Minimum Drawdown Requirement – qt (L)	10% of System Capacity
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)	12 (3.0)
Dirty Air Cleaner – in. H ₂ O (kPa)	20 (5.0)
Engine Air Flow – ft ³ /min (m ³ /min)	3120 (88.4)
Engine Air Box/Manifold Pressure – in. Hg (kPa)	50.0 (168.9)
Recommended Intake Pipe Outer Diameter:	
Single – in. (mm)	10.0 (254)
Dual – in. (mm)	8 (203)
Maximum Crankcase Pressure – in. H ₂ O (kPa)	3.0 (0.75)

Exhaust System

Exhaust Flow – ft ³ /min (m ³ /min)	6220 (176.2)
Exhaust Temperature – °F (°C)	580 (304)
Maximum Back Pressure – in. Hg (kPa)	3.0 (10.1)
Recommended Exhaust Pipe Diameter:	
Single – in. (mm)	10.0 (254)
Dual – in. (mm)	8.0 (203)

Performance Data

BMEP – lb/in. ² (kPa)	137.1 (945)
Friction Power:	
Rated Speed – fhp (kW)	211 (157)
Peak Torque Speed – fhp (kW)	95 (71)
Altitude Capability – ft (m)	10000 (3050)
Torque Available at 800 r/min – lb·ft (N·m)	1435 (1946)

Engine Speed r/min	Rated Power bhp (kW)	Rated Torque lb·ft (N·m)	Rated BSFC lb/bhp·hr (g/kW·hr)
2100	1070 (798)	2676 (3628)	0.369 (224)
1950	1025 (765)	2761 (3743)	0.364 (222)
1800	970 (724)	2830 (3837)	0.362 (220)
1600	882 (658)	2895 (3925)	0.361 (220)
1500	833 (621)	2917 (3955)	0.363 (221)
1400	780 (582)	2926 (3967)	0.368 (224)
1200	653 (487)	2858 (3875)	0.381 (232)

Emissions Data

Smoke, Rated Speed – Bosch Number	0.8
Smoke, Peak Torque Speed – Bosch Number	1.5
Noise – dB(A) @ 1	103
Additional Noise Data	Not Available
NO _x – g/hr	8460
CO – g/hr	1505
HC – g/hr	262
SO ₂ – g/hr	1790

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

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