

DETROIT DIESEL

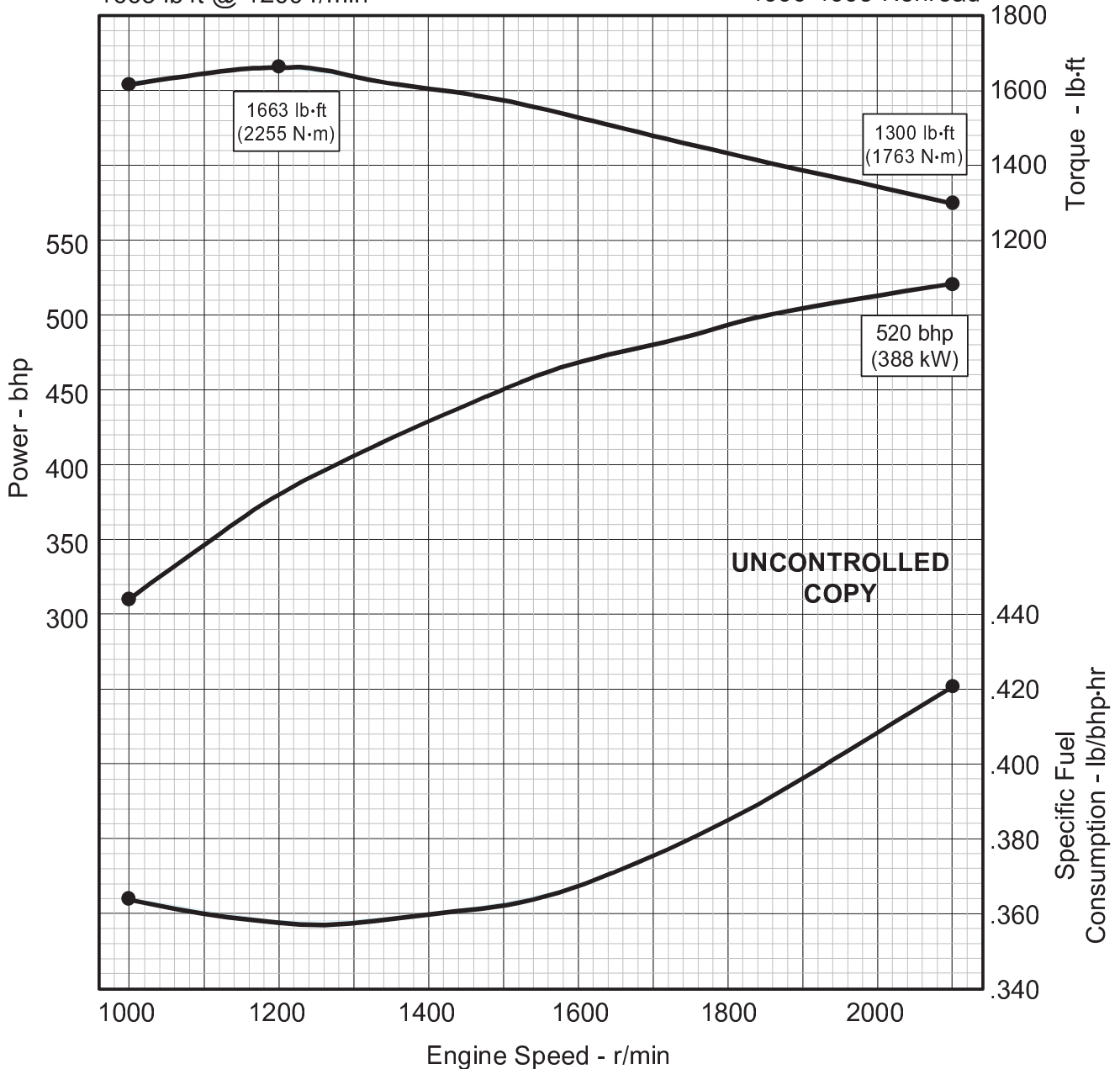


Industrial Power

Model: 12V-92TA DDEC®

Rating: 520 bhp @ 2100 r/min
1663 lb·ft @ 1200 r/min

Certification:
1996-1998 Nonroad



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<p>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. H₂O (2.5 kPa) Exhaust Back Pressure: 15 in. H₂O (3.7 kPa)</p>	<p><i>Conversion Factors:</i> Power: kW = bhp x 0.746 Fuel: kg/kW · hr = lb/bhp · hr x 0.608 Torque: N · m = lb · ft x 1.356</p>	<p>Turbo: TV7302 (1.08 A/R) Injector: 5236387</p>
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Certified by: *JR Schringer*

Curve No. E4-8123-32-41
Rev. / Date: 2 / 1-20-98
Sheet No. 1 of 2

Performance Curve

CONSTRUCTION AND INDUSTRIAL SPECIFICATION SHEET

General Data

Model	8123-7K33
Number of Cylinders	12
Bore and Stroke – in. x in. (mm x mm)	4.84 x 5.00 (123 x 127)
Displacement – in. ³ (L)	1104 (18.1)
Compression Ratio	18.0:1
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	EUI
Turbocharger	TV7302 (1.23 A/R)
Blower Type	Bypass
Blower Drive Ratio	2.05:1
Charge Air Cooling	JWAC
Low Idle Speed – r/min	500
High Idle Speed – r/min	2250
Engine Crankcase Vent System	OPEN

Physical Data

Size:	
Length – in. (mm)	68 (1727)
Width – in. (mm)	47 (1194)
Height – in. (mm)	54 (1372)
Weight, dry – lb (kg)	4280 (1941)
Weight, wet – lb (kg)	4459(2023)
Center of Gravity Distance:	
From R.F.O.B. (x axis) – in. (mm)	20.4 (518)
Above Crankshaft (y axis) – in. (mm)	7.9 (201)
Right of Crankshaft (z axis) – in. (mm)	1.2 (30.5)
Installation Drawing	8928843

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)	800 (363)
Additional Mechanical Data	E4-8000-32-1

Fuel System

Fuel Injector – Part Number	5236387
Injection Timing Height – in.	1.520
Certification Code	5065
Fuel Consumption – lb/hr (kg/hr)	218.9 (99.3)
Fuel Consumption – gal/hr (L/hr)	31.3 (118.5)
Fuel Spill – lb/hr (kg/hr)	1513 (686)
Fuel Spill – gal/hr (L/hr)	216 (818)
Total Fuel Flow – lb/hr (kg/hr)	1732 (786)
Total Fuel Flow – gal/hr (L/hr)	247 (935)
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	12
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)	54 (204)
Oil Pan Capacity: > 24 Hour Operation	
High Limit – qt (L)	36 (34)
Low Limit – qt (L)	28 (26)
Total Engine Oil Capacity with Filters – qt (L)	38 (36)
Engine Angularity Limits, Front Up – degrees	30
Engine Angularity Limits, Front Down – degrees	16
Engine Angularity Limits, Side Tilt – degrees	Not Available

Electrical System

Recommended Battery Capacity (CCA @ 0°F):	
12 Volt System, Above 32°	1900
12 Volt System, Below 32°	2500
24 Volt System, Above 32°	950
24 Volt System, Below 32°	1250
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)	22620 (397.8)
Engine Radiated Heat – Btu/min (kW)	2950 (51.9)
Coolant Flow – gal/min (L/min)	270 (1022)
Minimum Coolant Flow – gal/min	243 (920)
Thermostat:	Full Blocking
Start to Open – °F (°C)	167 (75)
Fully Open – °F (°C)	187 (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)	51 (48)
Minimum Pressure Cap – lb/in. ² (kPa)	9 (62)
Maximum Coolant Pressure (Exclusive of Pressure Cap – lb/in. ² (kPa))	
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)	1.2 (0.034)
Minimum Drawdown Requirement – qt (L)	5.1 (4.8)
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)	12 (3.0)
Dirty Air Cleaner – in. H ₂ O (kPa)	20 (5.0)
Engine Air Flow – ft ³ /min (m ³ /min)	2090 (59.2)
Engine Air Box/Manifold Pressure – in. Hg (kPa)	54.9 (186)
Recommended Intake Pipe Outer Diameter:	
Single – in. (mm)	8.0 (203)
Dual – in. (mm)	6.0 (152)
Maximum Crankcase Pressure – in. H ₂ O (kPa)	3.0 (0.75)

Exhaust System

Exhaust Flow – ft ³ /min (m ³ /min)	4310 (122.1)
Exhaust Temperature – °F (°C)	620 (327)
Maximum Back Pressure – in. Hg (kPa)	2.5 (8.0)
Recommended Exhaust Pipe Diameter:	
Single – in. (mm)	8.0 (203)
Dual – in. (mm)	6.0 (152)

Performance Data

BMEP – lb/in. ² (kPa)	89.0 (612)
Friction Power:	
Rated Speed – fhp (kW)	158 (118)
Peak Torque Speed – fhp (kW)	54 (40)
Altitude Capability – ft (m)	10000 (3050)
Torque Available at 800 r/min – lb-ft (N-m)	Not Applicable

Engine Speed r/min	Rated Power bhp (kW)	Rated Torque lb-ft (N-m)	Rated BSFC lb/bhp-hr (g/kW-hr)
2100	520 (388)	1300 (1763)	0.421 (256)
1950	507 (378)	1366 (1851)	0.403 (245)
1800	492 (367)	1436 (1946)	0.385 (234)
1650	473 (353)	1506 (2041)	0.372 (226)
1500	450 (336)	1576 (2136)	0.363 (221)
1350	416 (310)	1618 (2194)	0.359 (218)
1200	380 (283)	1663 (2255)	0.358 (218)
1000	310 (231)	1628 (2207)	0.364 (221)

Emissions Data

Certification	1996-98 Nonroad
Smoke, Rated Speed – Bosch Number	0.6
Smoke, Peak Torque Speed – Bosch Number	0.4
Noise – dB(A) @ 1	96.5
Additional Noise Data	Not Available

	2100 r/min g/hr	8 Mode Cycle g/bhp-hr
NO _x	1804	6.358
CO	270	0.777
HC	172	0.419
Particulates	47.5	0.154

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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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