

# DETROIT DIESEL

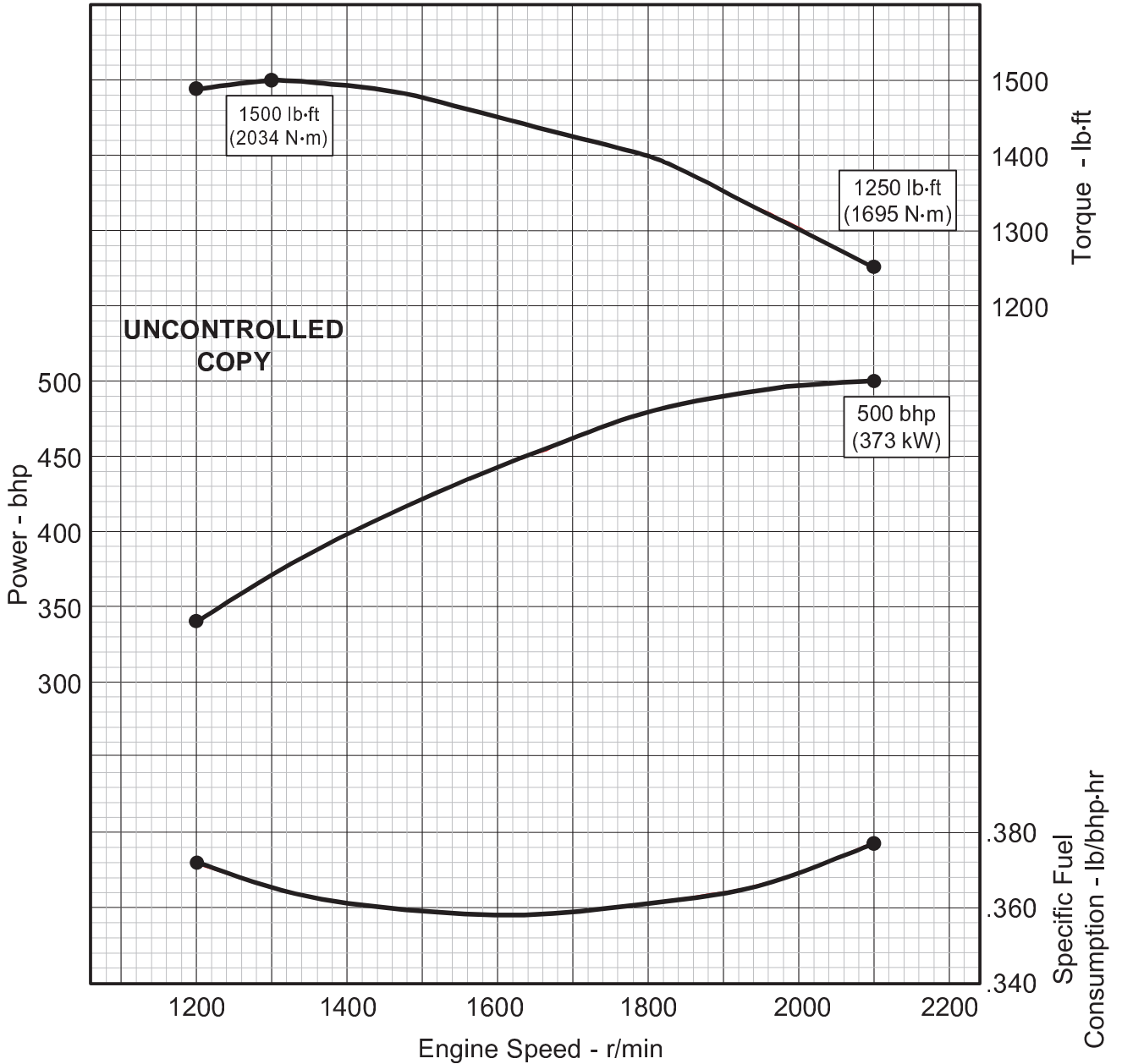


## Industrial Power

**Model:** 8V-92TA DDEC®

**Rating:** 500 bhp @ 2100 r/min  
1500 lb-ft @ 1300 r/min

**Certification:**  
1996-97 Nonroad



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 <sub>2</sub> O (2.5 kPa) Exhaust Back Pressure: 15 in. H <sub>2</sub> O (3.7 kPa)	Conversion Factors: Power: kW = bhp x 0.746	<b>Turbo:</b> TV8513 (1.39 A/R)  <b>Injector:</b> 5234775
	Fuel: kg/kW · hr = lb/bhp · hr x 0.608	
	Torque: N · m = lb · ft x 1.356	

Certified by: *JR Schringer*

**Curve No.:** E4-8083-32-55  
**Rev. / Date:** 2 / 12-23-97  
**Sheet No.:** 1 of 2

### Performance Curve

# CONSTRUCTION AND INDUSTRIAL SPECIFICATION SHEET

## General Data

Model	8083-7K33
Number of Cylinders	8
Bore and Stroke – in. x in. (mm x mm)	4.84 x 5.00 (123 x 127)
Displacement – in. <sup>3</sup> (L)	736 (12.1)
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	EUI
Turbocharger	TV8513 (1.39 A/R)
Blower Type	Bypass
Blower Drive Ratio	2.05:1
Charge Air Cooling	JWAC
Low Idle Speed – r/min	600
High Idle Speed – r/min	2250
Engine Crankcase Vent System	OPEN

## Physical Data

Size:	
Length – in. (mm)	43.3 (1100)
Width – in. (mm)	37.5 (953)
Height – in. (mm)	49.4 (1255)
Weight, dry – lb (kg)	2420 (1098)
Weight, wet – lb (kg)	2528 (1147)
Center of Gravity Distance:	
From R.F.O.B. (x axis) – in. (mm)	13.3 (338)
Above Crankshaft (y axis) – in. (mm)	11.4 (290)
Right of Crankshaft (z axis) – in. (mm)	0.0 (0.0)
Installation Drawing	SK-10547

## 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	5234775
Injection Timing Height – in.	1.520
Certification Code	5043
Fuel Consumption – lb/hr (kg/hr)	188.5 (85.5)
Fuel Consumption – gal/hr (L/hr)	27.0 (102.0)
Fuel Spill – lb/hr (kg/hr)	379 (172)
Fuel Spill – gal/hr (L/hr)	54.2 (205)
Total Fuel Flow – lb/hr (kg/hr)	567 (257)
Total Fuel Flow – gal/hr (L/hr)	81.2 (307)
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

## Lubrication System

Oil Pressure at Rated Speed – lb/in. <sup>2</sup> (kPa)	49-70 (338-483)
Oil Pressure at Low Idle – lb/in. <sup>2</sup> (kPa)	5 (34)
In Pan Oil Temperature – °F (°C)	200 – 250 (93 – 121)
Oil Flow – gal/min (L/min)	37 (140)
Oil Pan Capacity: > 24 Hour Operation	
High Limit – qt (L)	23 (22)
Low Limit – qt (L)	17 (16)
Total Engine Oil Capacity with Filters – qt (L)	25 (24)
Engine Angularity Limits, Front Up – degrees	20
Engine Angularity Limits, Front Down – degrees	30
Engine Angularity Limits, Side Tilt – degrees	5

## 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)	14900 (262.0)
Engine Radiated Heat – Btu/min (kW)	2540 (44.7)
Coolant Flow – gal/min (L/min)	187 (708)
Minimum Coolant Flow – gal/min	168 (637)
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)	29 (27)
Minimum Pressure Cap – lb/in. <sup>2</sup> (kPa)	9 (62)
Maximum Coolant Pressure	
(Exclusive of Pressure Cap – lb/in. <sup>2</sup> (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 <sup>3</sup> /min (m <sup>3</sup> /min)	0.8 (0.023)
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 <sub>2</sub> O (kPa)	12 (3.0)
Dirty Air Cleaner – in. H <sub>2</sub> O (kPa)	20 (5.0)
Engine Air Flow – ft <sup>3</sup> /min (m <sup>3</sup> /min)	1500 (42.5)
Engine Air Box/Manifold Pressure – in. Hg (kPa)	57.0 (193)
Recommended Intake Pipe Outer Diameter:	
Single – in. (mm)	6.0 (152)
Dual – in. (mm)	Not Applicable
Maximum Crankcase Pressure – in. H <sub>2</sub> O (kPa)	3.5 (0.87)

## Exhaust System

Exhaust Flow – ft <sup>3</sup> /min (m <sup>3</sup> /min)	3370 (95.4)
Exhaust Temperature – °F (°C)	710 (377)
Maximum Back Pressure – in. Hg (kPa)	2.5 (8.0)
Recommended Exhaust Pipe Diameter:	
Single – in. (mm)	6.0 (152)
Dual – in. (mm)	Not Applicable

## Performance Data

BMEP – lb/in. <sup>2</sup> (kPa)	128.0 (883)
Friction Power:	
Rated Speed – fhp (kW)	106 (79)
Peak Torque Speed – fhp (kW)	39 (29)
Altitude Capability – ft (m)	10000 (3050)
Torque Available at 800 r/min – lb-ft (N-m)	Not Applicable

Engine Speed	Rated Power	Rated Torque	Rated BSFC
r/min	bhp (kW)	lb-ft (N-m)	lb/bhp-hr (g/kW-hr)
2100	500 (373)	1250 (1695)	0.377 (229)
1950	494 (368)	1330 (1803)	0.366 (223)
1800	480 (358)	1401 (1899)	0.361 (219)
1650	452 (337)	1439 (1951)	0.358 (218)
1500	422 (315)	1478 (2003)	0.359 (219)
1300	371 (277)	1500 (2033)	0.365 (222)
1200	340 (254)	1488 (2018)	0.371 (226)

## Emissions Data

Certification	1996-97 Nonroad
Smoke, Rated Speed – Bosch Number	0.6
Smoke, Peak Torque Speed – Bosch Number	1.4
Noise – dB(A) @ 1	97.3
Additional Noise Data	Not Available

	2100 r/min	8 Mode Cycle
	g/hr	g/bhp-hr
NO <sub>x</sub>	3165	6.489
CO	441	1.776
HC	161	.404
Particulates	62	0.170

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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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