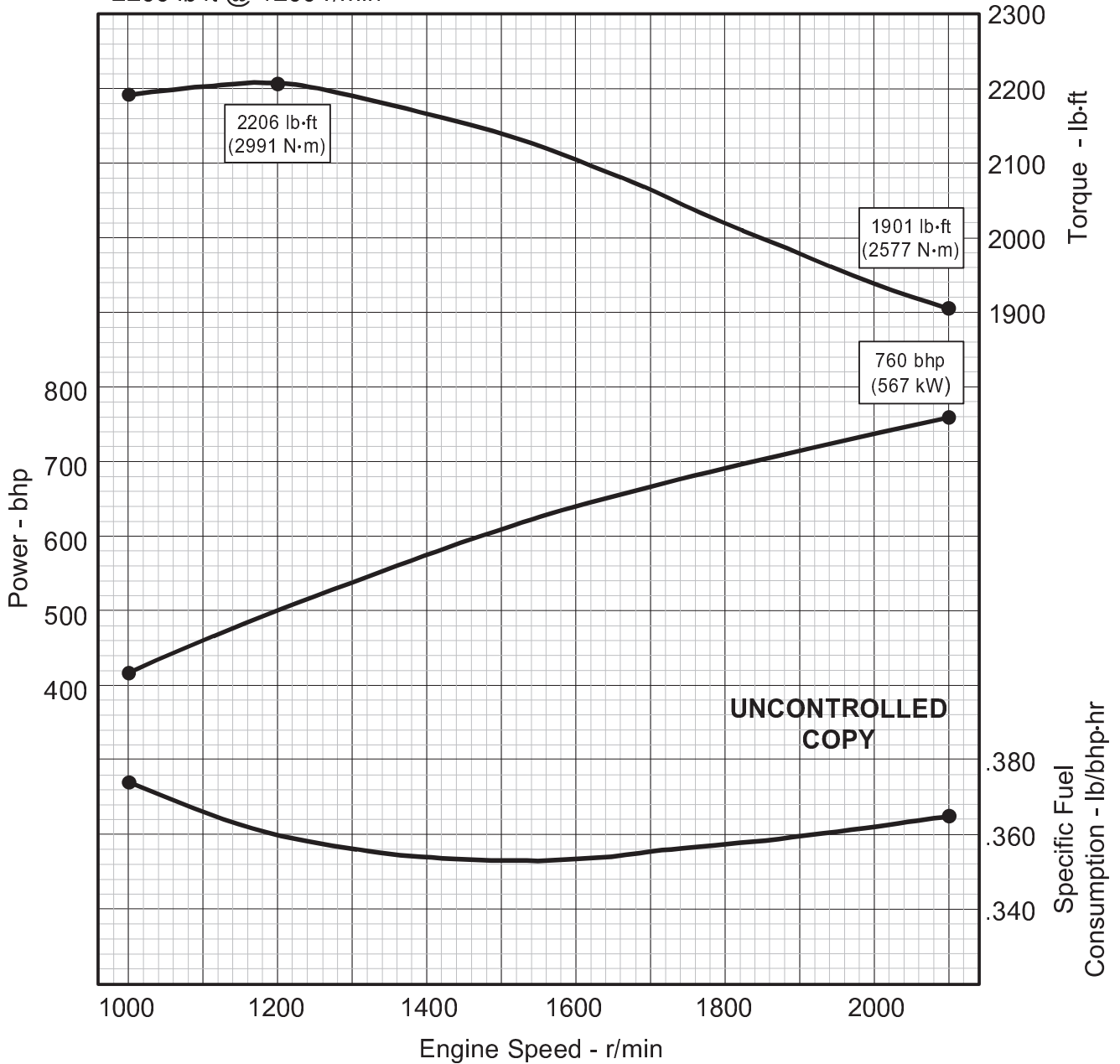


# DETROIT DIESEL



## Industrial Power

**Model:** 16V-71TA  
**Rating:** 760 bhp @ 2100 r/min  
 2206 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 <sub>2</sub> O (2.5 kPa) Exhaust Back Pressure: 15 in. H <sub>2</sub> O (3.7 kPa)	<b>Conversion Factors:</b> Power: kW = bhp x 0.746 Fuel: kg/kW · hr = lb/bhp · hr x 0.608 Torque: N · m = lb · ft x 1.356	<b>Turbo:</b> TV8503 (1.23 A/R) <b>Injector:</b> N80
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Certified by: *JR Schringer*

**Curve No.** E4-7163-32-7  
**Rev. / Date:** 2 / 1-9-98  
**Sheet No.** 1 of 2

### Performance Curve

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# CONSTRUCTION AND INDUSTRIAL SPECIFICATION SHEET

## General Data

Model .....	7163-7400
Number of Cylinders .....	16
Bore and Stroke – in. x in. (mm x mm) .....	4.25 x 5.00 (108 x 127)
Displacement – in. <sup>3</sup> (L) .....	1136 (18.6)
Compression Ratio .....	17.1:1
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 .....	TV8503 (1.23 A/R)
Blower Type .....	Bypass
Blower Drive Ratio .....	1.95:1
Charge Air Cooling .....	JWAC
Low Idle Speed – r/min .....	550
High Idle Speed – r/min .....	2325
Engine Crankcase Vent System .....	OPEN

## Physical Data

Size:	
Length – in. (mm) .....	78.7 (1999)
Width – in. (mm) .....	47.0 (1193)
Height – in. (mm) .....	59.0 (1500)
Weight, dry – lb (kg) .....	4800 (2177)
Weight, wet – lb (kg) .....	5097 (2312)
Center of Gravity Distance:	
From R.F.O.B. (x axis) – in. (mm) .....	28.0 (711)
Above Crankshaft (y axis) – in. (mm) .....	8.0 (203)
Right of Crankshaft (z axis) – in. (mm) .....	1.4 (35.6)
Installation Drawing .....	5132930

## Mechanical Data

Thrust Bearing Load Limit, Continuous – lb (N) .....	600 (2670)
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 .....	E4-7000-32-1

## Fuel System

Fuel Injector .....	N80
Injection Timing Height – in. .....	1.484
Fuel Consumption – lb/hr (kg/hr) .....	277.5 (125.9)
Fuel Consumption – gal/hr (L/hr) .....	39.7 (150.3)
Fuel Spill – lb/hr (kg/hr) .....	754.9 (342.4)
Fuel Spill – gal/hr (L/hr) .....	108 (408.8)
Total Fuel Flow – lb/hr (kg/hr) .....	1032.4 (468.3)
Total Fuel Flow – gal/hr (L/hr) .....	147.7 (359.1)
Maximum Fuel Inlet Temperature – °F (°C) .....	140 (60)
Maximum Fuel Pump Suction:	
Clean System – in. Hg (kPa) .....	6 (20)
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. <sup>2</sup> (kPa) .....	55 (379)
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) .....	81 (307)
Oil Pan Capacity: > 24 Hour Operation	
High Limit – qt (L) .....	65 (61.5)
Low Limit – qt (L) .....	55 (52.0)
Total Engine Oil Capacity with Filters – qt (L) .....	69 (69.3)
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) .....	23250 (408.8)
Engine Radiated Heat – Btu/min (kW) .....	3650 (64.2)
Coolant Flow – gal/min (L/min) .....	305 (1155)
Minimum Coolant Flow – gal/min .....	275 (1039)
Thermostat: .....	Full Blocking
Start to Open – °F (°C) .....	166 (74)
Fully Open – °F (°C) .....	189 (87)
Minimum Water Pump Inlet Pressure:	
Rapid Warmup Radiator – in. Hg (kPa) .....	POSITIVE
Conventional Radiator – in. Hg (kPa) .....	-3 (-10.1)
Engine Coolant Capacity – qt (L) .....	79 (74.8)
Minimum Pressure Cap – lb/in. <sup>2</sup> (kPa) .....	9 (62)
Maximum Coolant Pressure	
(Exclusive of Pressure Cap – lb/in. <sup>2</sup> (kPa) .....	17 (117.2)
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) .....	1.6 (0.045)
Minimum Drawdown Requirement – qt (L) .....	8 (7.6)
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) .....	2250 (63.7)
Engine Air Box/Manifold Pressure – in. Hg (kPa) .....	48.2 (162.8)
Recommended Intake Pipe Outer Diameter:	
Single – in. (mm) .....	8.0 (203)
Dual – in. (mm) .....	6.0 (152)
Maximum Crankcase Pressure – in. H <sub>2</sub> O (kPa) .....	1.9 (0.47)

## Exhaust System

Exhaust Flow – ft <sup>3</sup> /min (m <sup>3</sup> /min) .....	4900 (138.8)
Exhaust Temperature – °F (°C) .....	690 (366)
Maximum Back Pressure – in. Hg (kPa) .....	2.5 (8.4)
Recommended Exhaust Pipe Diameter:	
Single – in. (mm) .....	8.0 (203)
Dual – in. (mm) .....	6.0 (152)

## Performance Data

BMEP – lb/in. <sup>2</sup> (kPa) .....	126.3 (871)
Friction Power:	
Rated Speed – fhp (kW) .....	158 (118)
Peak Torque Speed – fhp (kW) .....	62 (46)
Altitude Capability – ft (m) .....	16000 (4880)
Torque Available at 800 r/min – lb-ft (N-m) .....	1700 (2305)

Engine Speed r/min	Rated Power bhp (kW)	Rated Torque lb-ft (N-m)	Rated BSFC lb/bhp-hr (g/kW-hr)
2100	760 (567)	1901 (2577)	0.365 (222)
1950	725 (541)	1954 (2649)	0.360 (219)
1800	691 (515)	2016 (2734)	0.357 (217)
1600	641 (478)	2104 (2853)	0.353 (215)
1500	610 (455)	2136 (2896)	0.353 (215)
1400	577 (430)	2165 (2935)	0.354 (215)
1200	504 (376)	2206 (2991)	0.360 (219)
1000	417 (311)	2190 (2969)	0.374 (228)

## Emissions Data

Smoke, Rated Speed – Bosch Number .....	1.0
Smoke, Peak Torque Speed – Bosch Number .....	1.0
Noise – dB(A) @ 1 .....	99.5
Additional Noise Data .....	Not Available
NO <sub>x</sub> – g/hr .....	7810
CO – g/hr .....	280
HC – g/hr .....	168
SO <sub>2</sub> – g/hr .....	1260

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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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