

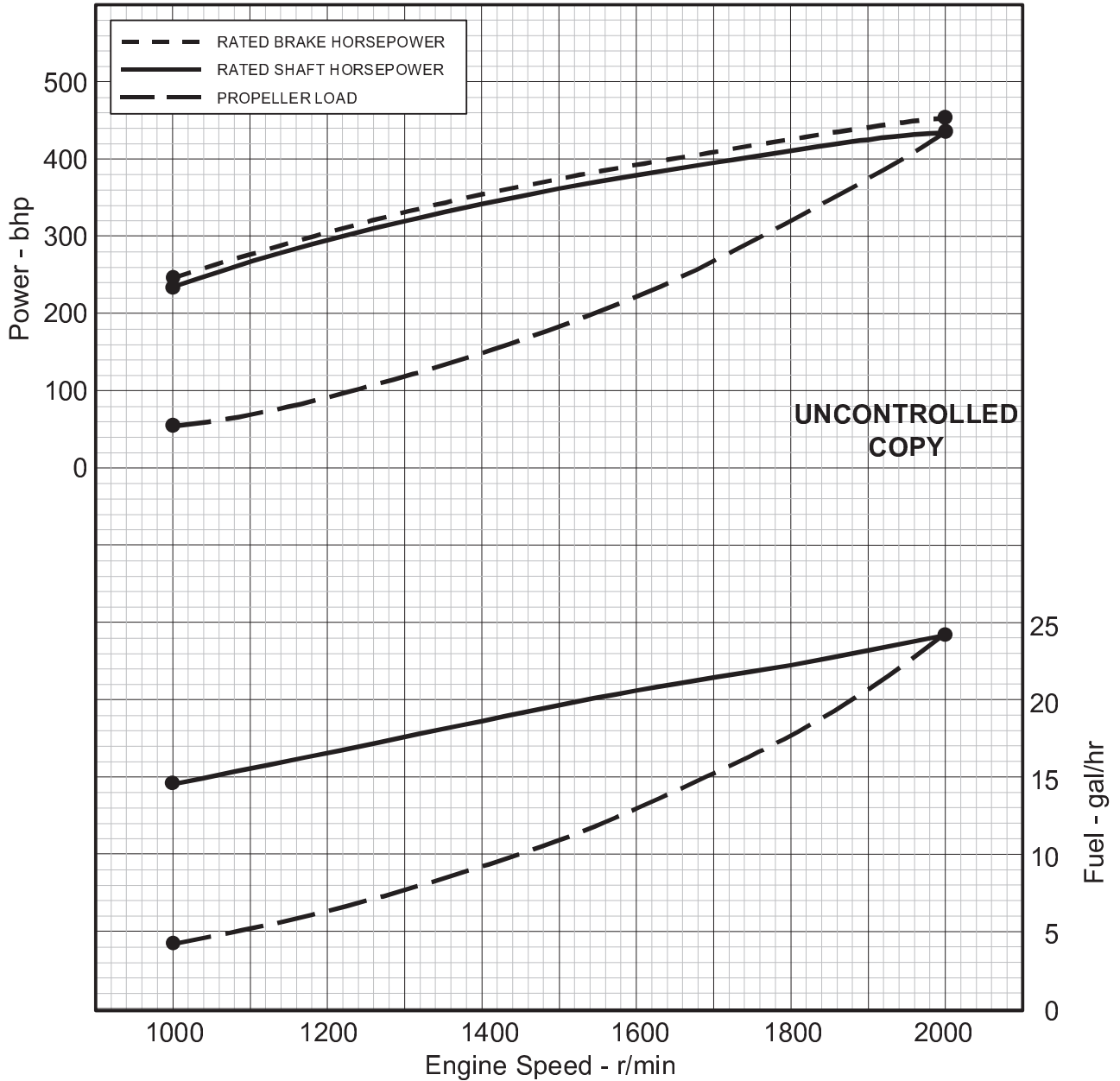


## Marine Power

**Model:** 12-V71TA

**Rating:** 453 bhp (338 kW) @ 2000 r/min  
437 shp (326 kW) @ 2000 r/min

Intermittent  
Net Power



<p>Power output guaranteed within 5% SAE J1228 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. Power rated in accordance with NMMA Procedure 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)</p>	<p><i>Conversion Factors:</i> Power: kW = hp x 0.746 Fuel: L/hr = gal/hr x 3.785</p>	<p><b>Turbo:</b> TW7502 (1.03 A/R) <b>Injector:</b> 7E65 <b>Accessories:</b> DD-516V Gear <b>Alternator:</b> 24V, 65A <b>Raw Water Pump:</b> Keel Cooled</p>
--	--	--

Certified by: TJ MOORE

**Curve No.** E4-7122-32-13  
**Rev. / Date:** 1 / 8-6-98  
**Sheet No.** 1 of 2

### Performance Curve

# MARINE SPECIFICATION SHEET

## General Data

Model.....	7122-7602
Number of Cylinders.....	12
Bore and Stroke – in. x in. (mm x mm).....	4.25 x 5.00 (108 x 127)
Displacement – in. <sup>3</sup> (L).....	852 (13.97)
Compression Ratio.....	17.0:1
Piston Speed – ft/min (m/min).....	1667 (508)
Exhaust Valves.....	4
Combustion System.....	DIRECT INJECTION
Engine Type.....	63.5° VEE 2 Cycle
Aspiration.....	TURBOCHARGED

## Configuration

Injection Device.....	MUI
Turbocharger.....	TW7502 (0.84 A/R)
Charge Air Cooling System.....	JWAC
Blower Type.....	100% Bypass
Blower Drive Ratio.....	1.95:1
Low Idle Speed – r/min.....	550
Maximum No Load Speed – r/min.....	2200
Engine Crankcase Vent System.....	OPEN

## Physical Data

Size:		
Length – in. (mm).....	97.1 (2466)	78.3 (1786)
Width – in. (mm).....	49.7 (1262)	49.7 (1262)
Height – in. (mm).....	60.1 (1526)	52.7 (1338)
Weight, Dry – lb (kg).....	5920 (2685)	4340 (1969)
Weight, Wet – lb (kg).....	6361 (2885)	4723 (2142)
Center of Gravity Distance:		
From R.F.O. Flange/Blk. (x axis) – in. (mm).....	Not Available	
Above Output Shaft (y axis) – in. (mm).....	Not Available	
Right of Output Shaft (z axis) – in. (mm).....	Not Available	
Installation Drawing.....	23503965	

## Mechanical Data

E4-7000-32-1

## Marine Gear

Type.....	DD-516V	
Reduction Ratio.....	5.05:1	
Lube Oil Capacity – qt (L).....	35.0 (33)	
(marine gear must use straight viscosity oil)		
Gear Weight, Dry – lb (kg).....	1580 (717)	
Center of Gravity Distance:		
From R.F.O. Flange (x axis) – in. (mm).....	9.56 (243)	
Above Output Shaft (y axis) – in. (mm).....	5.32 (135)	
Right of Output Shaft (z axis) – in. (mm).....	1.64 (42.0)	

## Fuel System

Fuel Injector.....	7N65
Injector Timing Height.....	1.460
Fuel Consumption – lb/hr (kg/hr).....	169.5 (76.9)
Fuel Spill Rate gal/hr (L/hr).....	108.0 (408.8)
Total Fuel Flow gal/hr (L/hr).....	132.3 (500.8)
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
Recommended Supply Line I.D. – in.(mm).....	0.5 (12.7)

## 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).....	5.0 (34)
In Pan Oil Temperature – °F (°C).....	200 – 250 (93 – 121)
Oil Flow – gal/min (L/min).....	58 (220)
Oil Pan Capacity – at Installation Angle	
High Limit – qt (L).....	42.0 (39.7) 42.0 (39.7)
Low Limit – qt (L).....	32.0 (30.3) 32.0 (30.3)
Total Engine Oil Capacity with Filters – qt (L).....	46.0 (43.5) 46.0 (43.5)
Maximum Installation Angle – Degrees.....	15.0

## 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

\* Includes Front PTO

## Cooling System

Engine Heat Rejection – Btu/min (kW).....	18260 (321.0)
Boost Cooler Heat Rejection – Btu/min (kW).....	Not Applicable
Engine Radiated Heat – Btu/min (kW).....	780 (13.7)
Coolant Flow:	
Fresh Water Flow – gal/min (L/min).....	190 (719)
Raw Water Flow – gal/min (L/min).....	96 (363)
Maximum Water Pump:	
Inlet Restriction – in. Hg (kPa).....	<b>Fresh Water</b> 3.0 (10.2) <b>Raw Water</b> 5.0 (17.0)
Fresh Water Capacity – qt (L).....	140 (132)
Maximum Coolant Pressure	
(Exclusive of Pressure Cap) – lb/in. <sup>2</sup> (kPa).....	17 (117)
Maximum Raw Water Pump Pressure – lb/in. <sup>2</sup> (kPa).....	10 (69)
Maximum Top Tank Temperature – °F (°C).....	210 (99)
Recommended Raw Water Pipe I.D.	

Inlet – in. (mm).....	4.0 (152)
Outlet – in. (mm).....	3.0 (76)

## Recommended Sea Strainer Size:

(Max. Screen Opening – 2.0 mm)	
Simplex – in. (mm).....	3.0 (76)
Duplex – in. (mm).....	4.0 (102)

## 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).....	1570 (44.5)
Air Box Pressure – in. Hg (kPa).....	35.0 (118.2)
Recommended Intake Pipe Dia.	
Single – in. (mm).....	8.0 (203)
Dual – in. (mm).....	6.0 (152)
Minimum Net Engine Room Vent Area. – in. <sup>2</sup> (cm <sup>2</sup> ).....	151 (972)
Maximum Crankcase Pressure – in. H <sub>2</sub> O (kPa).....	3.0 (0.57)

## Exhaust System

Exhaust Flow – ft <sup>3</sup> /min (m <sup>3</sup> /min).....	2750 (77.9)
Exhaust Temperature – °F (°C).....	480 (249)
Maximum Back Pressure – in. Hg (kPa).....	1.9 (6.4)
Recommended Exhaust Pipe Diameter:	
Single – in. (mm).....	8.0 (203) <b>Wet</b> 10 (254)
Dual – in. (mm).....	5.0 (127) 8.0 (203)

## Performance Data

BMEP – lb/in. <sup>2</sup> (kPa).....	105.4 (727)
Friction Power – fhp (kW).....	107 (80)

Engine Speed	Brake Power	Shaft Power	Rated Fuel Usage	Rated BSFC
r/min	bhp (kW)	shp (kW)	gal/hr (L/hr)	lb/bhp-hr (g/kW-hr)
2000	453 (338)	437 (326)	24.3 (91.8)	0.374 (228)
1800	426 (318)	411 (306)	22.4 (84.7)	0.367 (223)
1500	377 (281)	363 (271)	19.8 (75.1)	0.368 (224)
1200	308 (230)	296 (221)	16.8 (63.7)	0.382 (232)
1000	247 (184)	237 (176)	14.6 (55.1)	0.412 (251)

Engine Speed	Prop Load	Prop Fuel Usage	Prop BSFC
r/min	shp (kW)	gal/hr (L/hr)	lb/bhp-hr (g/kW-hr)
2000	437 (326)	24.3 (91.8)	0.374 (228)
1800	319 (238)	17.6 (66.7)	0.372 (226)
1500	184 (138)	11.1 (41.9)	0.400 (243)
1200	94 (70)	6.4 (24.1)	0.440 (268)
1000	55 (41)	4.3 (16.4)	0.505 (307)

## Emissions Data

Smoke, Rated Speed – Bosch Number.....	0.2
Noise – dB(A) @ 1.....	99.4
Additional Noise Data.....	Not Available
NO <sub>x</sub> – g/hr.....	4600
CO – g/hr.....	65
HC – g/hr.....	140
SO <sub>2</sub> – g/hr.....	770

**UNCONTROLLED COPY**

All values are at rated speed and power at SAE J1228 with standard engine hardware, unless otherwise noted.

Curve No. E4-7122-32-13  
Rev. / Date: 1 / 8-6-98  
Sheet No. 2 of 2

All information subject to change without notice.

Detroit Diesel and and Spinning Arrows Design © are registered trademarks of Detroit Diesel Corporation.

© 1998 DETROIT DIESEL CORPORATION

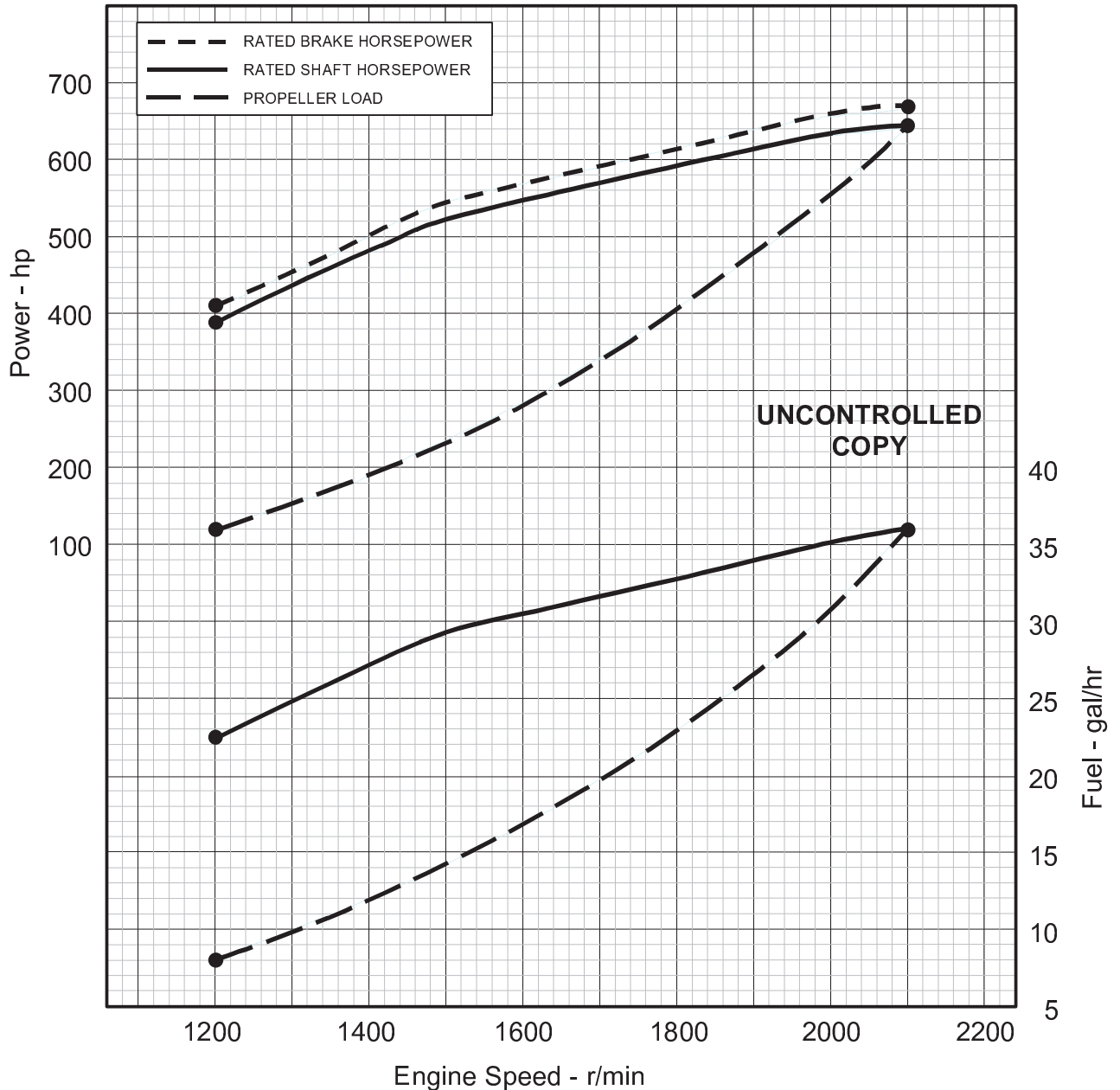


## Marine Power

**Model:** 12V-71TA DDEC®

**Rating:** 670 bhp (500 kW) @ 2100 r/min  
645 shp (481 kW) @ 2100 r/min

Intermittent  
Net Power



<p>Power output guaranteed within 5% SAE J1228 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. Power rated in accordance with NMMA Procedure 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)</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><b>Turbo:</b> TV7309 (0.96 A/R) <b>Injector:</b> 5234775 <b>Accessories:</b> DD518-1 Gear <b>Alternator:</b> 24V, 65A <b>Raw Water Pump:</b> Included</p>
--	--	--

Certified by: *JR Hebringer*

**Curve No.** E4-7122-32-14  
**Rev. / Date:** 1 / 1-29-98  
**Sheet No.** 1 of 2

### Performance Curve