

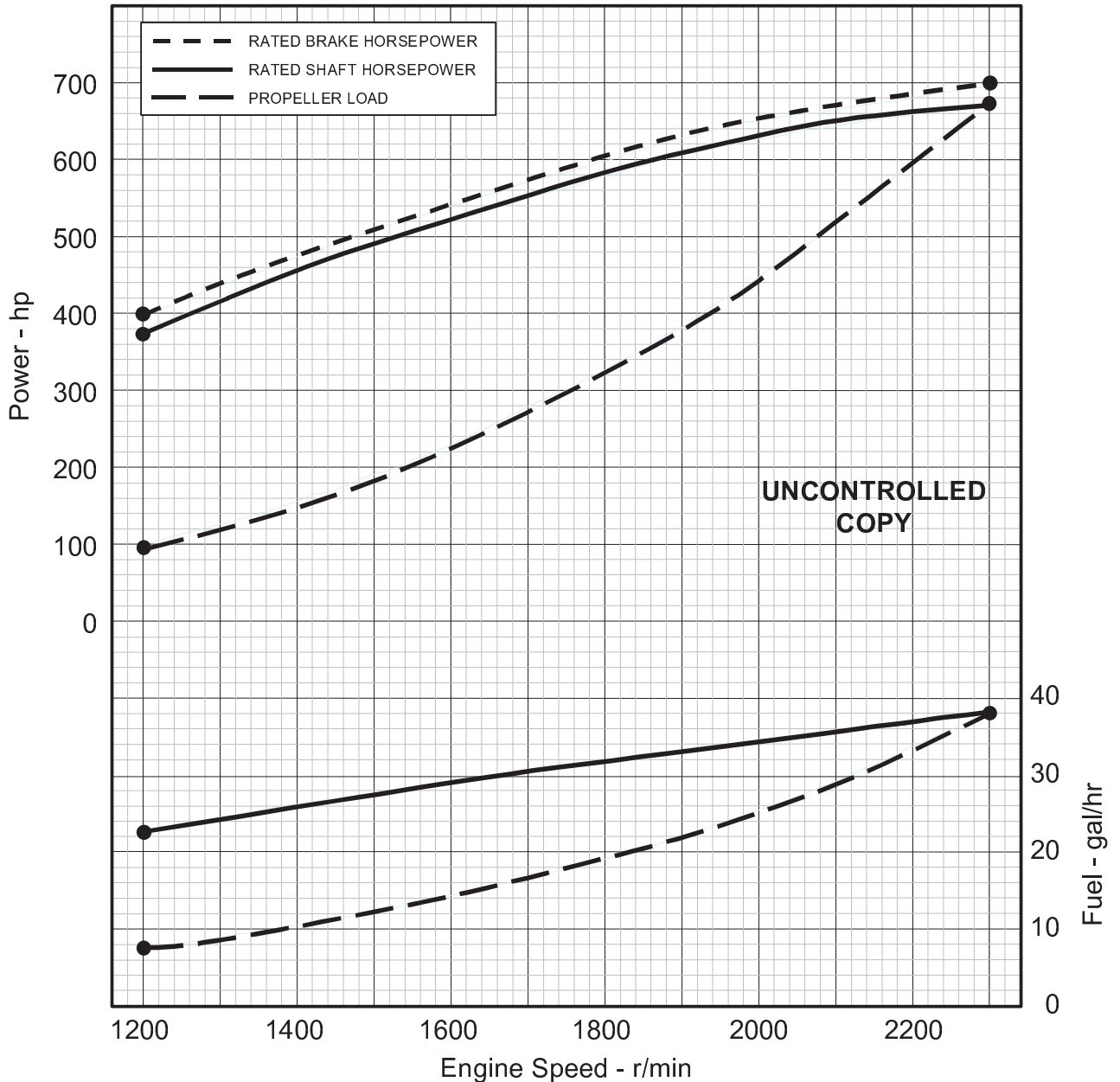


Marine Power

Model: 12V-71TA

Rating: 700 bhp (522 kW) @ 2300 r/min
675 shp (504 kW) @ 2300 r/min

Intermittent
Maximum
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. 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: TW73 (1.03 A/R) Injector: 9G90 Accessories: DD232EV Gear Alternator: 24V, 65A Raw Water Pump: Included</p>
--	--	---

Certified by: *JR Lebringer*

Performance Curve

Curve No. E4-7122-32-17
Rev. / Date: 1 / 12-23-97
Sheet No. 1 of 2

MARINE SPECIFICATION SHEET

General Data

Model.....	7122-7600
Number of Cylinders.....	12
Bore and Stroke – in. x in. (mm x mm).....	4.25 x 5.00 (108 x 127)
Displacement – in. ³ (L).....	852 (13.97)
Compression Ratio.....	17.0:1
Piston Speed – ft/min (m/min).....	1917 (584)
Exhaust Valves.....	4
Combustion System.....	Direct Injection
Engine Type.....	63.5° VEE – 2 Cycle
Aspiration.....	Turbocharged

Configuration

Injection Device.....	MUI
Turbocharger.....	TW73 (1.03 A/R)
Charge Air Cooling System.....	JWAC with Boost Cooler
Blower Type.....	100% Bypass
Blower Drive Ratio.....	1.95:1
Low Idle Speed – r/min.....	550
Maximum No Load Speed – r/min.....	2500
Engine Crankcase Vent System.....	OPEN

Physical Data

Size:	WITH GEAR	WITHOUT GEAR
Length – in. (mm).....	83.3 (2116)	62.7 (1593)
Width – in. (mm).....	49.4 (1255)	49.4 (1255)
Height – in. (mm).....	52.4 (1331)	52.4 (1331)
Weight, dry – lb (kg).....	5121 (2323)	4460 (2023)
Weight, wet – lb (kg).....	5532 (2509)	4847 (2199)
Center of Gravity Distance:		
From R.F.O. Flange/Blk. (x axis) – in. (mm).....	41.04 (1042)	18.36 (466)
Above Output Shaft (y axis) – in. (mm).....	19.14 (486)	13.0 (329)
Right of Output Shaft (z axis) – in. (mm).....	-1.12 (-28.4)	-0.93 (-24)
Installation Drawing.....	23502630	

Mechanical Data

E4-7000-32-1

Marine Gear

Type.....	DD-232EV
Reduction Ratio.....	1.76:1
Lube Oil Capacity– qt (L).....	12.7 (12.0)
(marine gear must use straight viscosity oil)	
Gear Weight, dry – lb (kg).....	661 (300)
Center of Gravity Distance:	
From R.F.O. Flange (x axis) – in. (mm).....	10.55 (268)
Above Output Shaft (y axis) – in. (mm).....	5.51 (140)
Right of Output Shaft (z axis) – in. (mm).....	-2.36 (-59.9)

Fuel System

Fuel Injector.....	9G90
Injection Timing Height – in.	1.460
Fuel Consumption – lb/hr (kg/hr).....	262.8 (119.2)
Fuel Spill Rate gal/hr (L/hr).....	77.4 (293.0)
Total Fuel Flow gal/hr (L/hr).....	115.0 (435.3)
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)
Smoke Control Device/Setting.....	Mod. – .454

Lubrication System

Oil Pressure at Rated Speed – lb/in. ² (kPa).....	49-70 (338-483)
Oil Pressure at Low Idle – lb/in. ² (kPa).....	5.0 (34)
In Pan Oil Temperature – °F (°C).....	200 – 250 (93 – 121)
Oil Flow – gal/min (L/min).....	64 (242)
Oil Pan Capacity – at Installation Angle	0° 15°
High Limit – qt (L).....	42.0 (39.7) 38.0 (36.0)
Low Limit – qt (L).....	32.0 (30.3) 28.0 (26.5)
Total Engine Oil Capacity with Filters – qt (L).....	46.0 (43.5) 42.0 (39.7)
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

Cooling System

Engine Heat Rejection – Btu/min (kW).....	33000 (580.3)
Boost Cooler Heat Rejection – Btu/min (kW).....	8800 (154.7)
Engine Radiated Heat – Btu/min (kW).....	1210 (21.3)
Coolant Flow:	
Fresh Water Flow – gal/min (L/min).....	315 (1192)
Raw Water Flow – gal/min (L/min).....	142 (538)
Maximum Water Pump:	
Inlet Restriction – in. Hg (kPa).....	3.0 (10.2)
Fresh Water Capacity – qt (L).....	142 (134.4)
Maximum Coolant Pressure	
(Exclusive of Pressure Cap) – lb/in. ² (kPa).....	17 (117)
Maximum Raw Water Pump Pressure – lb/in. ² (kPa).....	14 (97)
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 ₂ O (kPa).....	10 (2.5)
Dirty Air Cleaner – in. H ₂ O (kPa).....	15 (3.7)
Engine Air Flow – ft ³ /min (m ³ /min).....	2050 (58.1)
Air Box Pressure – in. Hg (kPa).....	44.0 (148.6)
Recommended Intake Pipe Outer Diameter:	
Single – in. (mm).....	8.0 (203)
Dual – in. (mm).....	6.0 (152)
Minimum Net Engine Room Vent Area, – in. ² (cm ²).....	197 (1270)
Maximum Crankcase Pressure – in. H ₂ O (kPa).....	3.0 (0.75)

Exhaust System

Exhaust Flow – ft ³ /min (m ³ /min).....	4010 (113.6)
Exhaust Temperature – °F (°C).....	570 (299)
Maximum Back Pressure – in. Hg (kPa).....	2.5 (8.4)
Recommended Exhaust Pipe Diameter:	
Single – in. (mm).....	8.0 (203)
Dual – in. (mm).....	5.0 (127)

Performance Data

BMEP – lb/in. ² (kPa).....	141.5 (976)
Friction Power– fhp (kW).....	136 (101)

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)
2300	700 (522)	675 (504)	37.6 (142.4)	0.375 (228)
2100	670 (500)	646 (482)	35.4 (133.9)	0.369 (224)
1950	642 (479)	619 (462)	33.5 (126.9)	0.365 (222)
1800	603 (450)	581 (434)	31.5 (119.2)	0.365 (222)
1500	510 (380)	491 (366)	27.4 (103.9)	0.376 (229)
1200	398 (297)	382 (285)	22.8 (86.1)	0.399 (243)

Engine Speed	Prop Load	Prop Fuel Usage	Prop BSFC
r/min	shp (kW)	gal/hr (L/hr)	lb/bhp·hr (g/kW·hr)
2300	675 (504)	37.6 (142.4)	0.375 (228)
2100	514 (383)	28.8 (108.9)	0.374 (227)
1950	411 (307)	23.5 (89.0)	0.378 (230)
1800	324 (241)	19.0 (71.9)	0.384 (234)
1500	187 (140)	12.4 (46.9)	0.420 (255)
1200	96 (72)	7.6 (28.7)	0.475 (289)

Emissions Data

Smoke, Rated Speed – Bosch Number.....	0.3
Noise – dB(A) @ 1.....	104
Additional Noise Data.....	Not Available
NO _x – g/hr.....	5480
CO – g/hr.....	3450
HC – gh/r.....	77
SO ₂ – g/hr.....	1192

UNCONTROLLED COPY

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

Curve No. E4-7122-32-17
Rev. / Date: 1 / 12-23-97
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