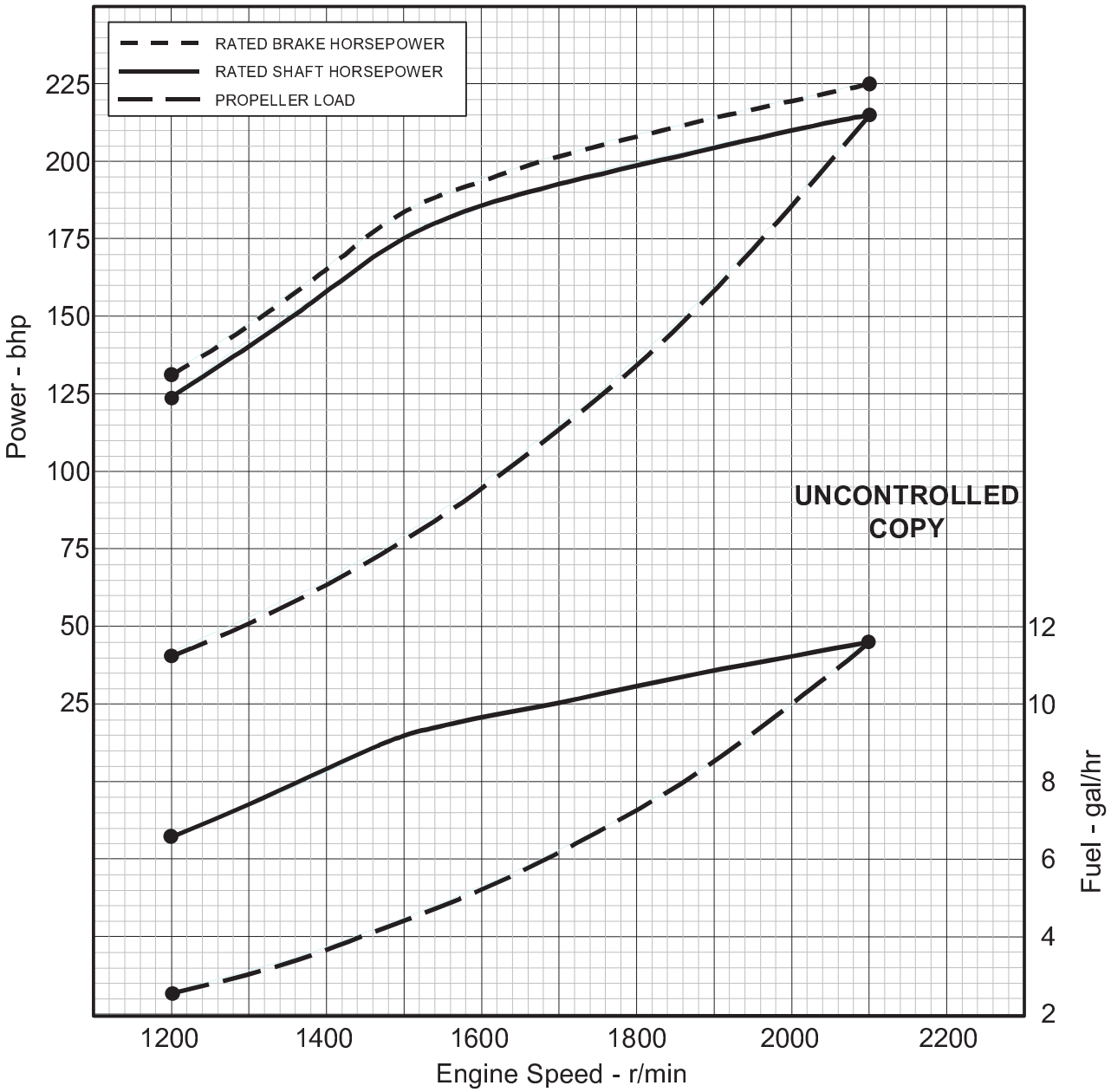
DETROIT DIESEL

Marine Power

Model: 4-71TI DDEC®

Rating: 225 bhp (168 kW) @ 2100 r/min
215 shp (160 kW) @ 2100 r/min

Intermittent
Net Power



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_2O (2.5 kPa) Exhaust Back Pressure: 15 in. H_2O (3.7 kPa)	*Conversion Factors:* Power: kW = hp x 0.746 Fuel: L/hr = gal/hr x 3.785	**Turbo:** TV6501 (0.84 A/R) **Injector:** 5234770 **Accessories:** DD-5091V Gear **Alternator:** 24V, 40A **Raw Water Pump:** Included

Certified by: J R Hebringer

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Performance Curve

MARINE SPECIFICATION SHEET

General Data

Model	1042-5K22,-7K22
Number of Cylinders	4
Bore and Stroke – in. x in. (mm x mm)	4.25 x 5.00 (108 x 127)
Displacement – in.^{3} (L)	284 (4.65)
Compression Ratio	17.0:1
Piston Speed – ft/min (m/min)	1750 (533)
Exhaust Valves	4
Combustion System	Direct Injection
Engine Type	Inline 2 Cycle
Aspiration	TURBOCHARGED

Configuration

Injection Device	EUI
Turbocharger	TV6501 (0.84 A/R)
Charge Air Cooling System	RWIC
Blower Type	Bypass
Blower Drive Ratio	2.05:1
Low Idle Speed – r/min	600
Maximum No Load Speed – r/min	2200
Engine Crankcase Vent System	Closed

Physical Data

	WITH GEAR	WITHOUT GEAR
Size:		
Length – in. (mm)	60.39 (1534)	57.49 (1460)
Width – in. (mm)	30.83 (783)	30.83 (783)
Height – in. (mm)	41.26 (1048)	41.26 (1048)
Weight, dry – lb (kg)	Not Available	Not Available
Weight, wet – lb (kg)	Not Available	Not Available
Center of Gravity Distance:		
From R.F.O.B. (x axis) – in. (mm)	Not Available	Not Available
Above Crankshaft (y axis) – in. (mm)	Not Available	Not Available
Right of Crankshaft (z axis) – in. (mm)	Not Available	Not Available
Installation Drawing	L00-2004	

Mechanical Data E4-1000-32-1

Marine Gear

Type	DD507-1
Reduction Ratio	1.51:1
Lube Oil Capacity– qt (L) (marine gear must use straight viscosity oil)	6.4 (6.1)
Gear Weight, dry – lb (kg)	350 (159)
Center of Gravity Distance:	
From Output Flange (x axis) – in. (mm)	6.68 (170)
Above Output Shaft (y axis) – in. (mm)	1.50 (38)
Right of Output Shaft (z axis) – in. (mm)	1.08 (27.4)

Fuel System

Fuel Injector-Part Number	5234770
Injection Timing Height – in.	1.520
Fuel Consumption – lb/hr (kg/hr)	81.3 (36.9)
Fuel Spill Rate gal/hr (L/hr)	80.0 (302.8)
Total Fuel Flow gal/hr (L/hr)	91.6 (346.9)
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.^{2} (kPa)	40-60 (276-414)	
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)	27 (102)	
Oil Pan Capacity at Installation Angle	0°	7°
High Limit – qt (L)	18.0 (17.0)	18.0 (19.0)
Low Limit – qt (L)	15.0 (14.2)	15.0 (14.2)
Total Engine Oil Capacity with Filters – qt (L)	20.0 (18.9)	20.0 (18.9)
Maximum Installation Angle – Degrees	7.0	

Electrical System

Recommended Battery Capacity (CCA @ 0°F):	
12 Volt System, Above 32°	950
12 Volt System, Below 32°	1250
24 Volt System, Above 32°	475
24 Volt System, Below 32°	625
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):	6750 (118.7)	
Engine Radiated Heat – Btu/min (kW)	500 (8.8)	
Coolant Flow:		
Fresh Water Flow – gal/min (L/min)	115 (435)	
Raw Water Flow – gal/min (L/min)	67 (254)	
Maximum Water Pump:	Fresh Water	Raw Water
Inlet Restriction – in. Hg (kPa)	3.0 (10.2)	5.0 (17.0)
Fresh Water Capacity – qt (L)	40 (37.9)	
Maximum Coolant Pressure (Exclusive of Pressure Cap) – lb/in.^{2} (kPa)	40 (275.8)	
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_2O (kPa)	10 (2.5)
Dirty Air Cleaner – in. H_2O (kPa)	15 (3.7)
Engine Air Flow – ft^3/min (m^3/min)	750 (21.2)
Air Box Pressure – in. Hg (kPa)	51.5 (173.9)
Recommended Intake Pipe Dia. – in. (mm)	5.0 (127)
Minimum Net Engine Room Vent Area, – in.^{2} (cm^2)	72 (465)
Maximum Crankcase Pressure – in. H_2O (kPa)	3.0 (0.80)

Exhaust System

Exhaust Flow – ft^3/min (m^3/min)	1540 (43.6)	
Exhaust Temperature – °F (°C)	625 (329)	
Maximum Back Pressure – in. Hg (kPa)	2.5 (8.4)	
Recommended Exhaust Pipe Diameter:	Dry	Wet
Single – in. (mm)	5.0 (127)	6 (152)
Dual – in. (mm)	Not Applicable	

Performance Data

BMEP – lb/in.^{2} (kPa)	132.9 (917)
Friction Power – fhp (kW)	39 (29)

Engine Speed r/min	Brake Power bhp (kW)	Shaft Power shp (kW)	Rated Fuel Usage gal/hr·(L/hr)	Rated BSFC lb/bhp·hr (g/kW·hr)
2100	225 (168)	215 (160)	11.6 (44.0)	0.361 (220)
1950	217 (162)	207 (155)	11.2 (42.3)	0.360 (219)
1800	208 (155)	199 (148)	10.5 (39.7)	0.352 (214)
1500	184 (137)	176 (131)	9.2 (35.0)	0.351 (213)
1200	131 (98)	124 (93)	6.6 (25.1)	0.354 (215)

Engine Speed r/min	Prop Load shp (kW)	Prop Fuel Usage gal/hr (L/hr)	Prop BSFC lb/bhp·hr (g/kW·hr)
2100	215 (160)	11.6 (44.0)	0.361 (220)
1950	172 (128)	9.2 (34.7)	0.354 (215)
1800	135 (101)	7.2 (27.4)	0.354 (215)
1500	78 (58)	4.4 (16.7)	0.368 (224)
1200	40 (30)	2.5 (9.5)	0.395 (241)

Emissions Data

Smoke, Rated Speed – Bosch Number	0.6
Noise – dB(A) @ 1	100
Additional Noise Data	Not Available
NO_x – g/hr	1880
CO – g/hr	480
HC – gh/r	55
SO_2 – g/hr	369

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

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All information subject to change without notice.