



CUMMINS ENGINE COMPANY, INC
Columbus, Indiana 47201

Marine Performance Curve

Basic Engine Model:
VTA28-D(M)

Curve Number:
D(M)-5165

Marine
Pg. No.
V28
47

Engine Configuration:
D153104MX02

CPL Code:
2950

Date:
10Jan03

Displacement: **28 litre** [1710 in.³]
Bore: **140 mm** [5.5 in.]
Stroke: **152 mm** [6.0 in.]
Fuel System: **PT**
Cylinders: **12**

Aspiration: **Turbocharged & Aftercooled**
Exhaust: **Dry Manifold**

Prime Power Rating kW [HP] @ RPM
608 [815] @ 1800

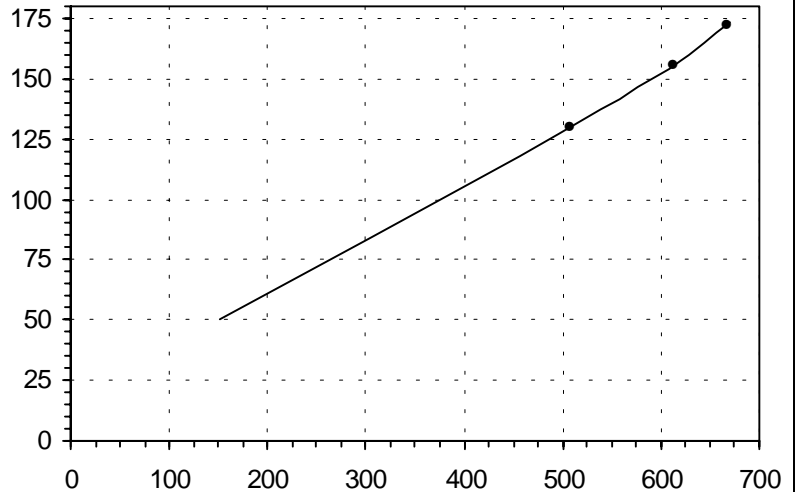
CERTIFIED: This marine diesel engine conforms with the NOx requirements of the International Maritime Organization (IMO), MARPOL 73/78 Annex VI, Regulation 13 as applicable.

Engine Speed RPM	Overload Capacity		Prime Power		Continuous Power	
	kWm	BHP	kWm	BHP	kWm	BHP
1800	671	900	608	815	504	675

Engine Performance Data @ 1800 RPM

OUTPUT POWER			FUEL CONSUMPTION			
%	kWm	BHP	kg/ kWm·h	lb/ BHP·h	litre/ hour	U.S. Gal/ hour
10% OVERLOAD CAPACITY						
110	671	900	0.219	0.361	173	45.7
PRIME POWER						
100	608	815	0.215	0.355	154	40.7
75	456	611	0.220	0.362	118	31.2
50	304	407.5	0.235	0.387	84	22.2
25	152	204	0.277	0.456	50	13.1
CONTINUOUS POWER						
100	504	675	0.217	0.357	128	33.9

Litre/hour



Gross Engine Power Output - kWm

Rating Conditions: Ratings are in accordance with ISO-3046 reference conditions; air pressure at 100 kPa (29.61. in. Hg.), air temperature 25°C (77°F), and 30% relative humidity. The fuel consumption data is based on No. 2 diesel fuel weight at 0.85 kg/litre (7.1 lbU.S. gal).

Power output curves are based on the engine operating with fuel system, water pump and lubricating oil pump; not included are battery charging alternator, fan, optional equipment, and driven components.

Operation at Elevated Temperatures for sustained operation above 40°C (104°F), derate 2% per 11°C (1% per 10°F).

Prime Power Rating is applicable for supplying continual electrical power at varied load. The following are the Prime Rating parameters:

* Prime Power is available for an unlimited number of hours per year in a variable load application. Variable load should not exceed a 70% average of the Prime Power rating during any operating period of 250 hours.

* The total operating time at 100% Prime Power shall not exceed 500 hours per year.

* There is a 10% overload capability for a period of 1 hour within a 12 hour period of operation. Total operating time at 10% overload shall not exceed 25 hours per year.

Continuous Power Rating is applicable for supplying continual power at a constant 100% load for an unlimited number of hours per year. There is no overload capability for this rating.

TECHNICAL DATA DEPT.

CHIEF ENGINEER

Marine Auxiliary Engine Performance Data

General Engine Data¹

Engine Model.....	VTA28-D(M)	
Rating Type	Prime Power	Overload
Rated Engine Power.....kW [HP]	608 [815]	671 [900]
Governed Engine Speed.....RPM	1800 1800	
Rated HP Production Tolerance.....%	±1	
Rated Engine Torque..... Nm [ft./lb]	3224 [2378]	3560 [2626]
Idle Speed Range.....RPM	575-650	
Brake Mean Effective Pressure.....kPa [PSI]	1448 [210]	1600 [232]
Compression Ratio	13.1:1	
Piston Speed..... m/sec [ft./min]	9.1 [1800]	
Firing Order.....	1L-6R-2L-5R-4L-3R-6L-1R-5L-2R-3L-4R	
Friction Power.....kW [HP]	78 [105]	
Steady State Stability Band at any Constant Load.....%	±0.25	

Fuel System¹

Fuel Consumption.....litre/hr [gal/hr]	154 [41]	173 [46]
Approximate Fuel Flow to Pump.....litre/hr [gal/hr]	314 [83]	
Max. Allowable Fuel Supply to Pump Temperature.....°C [°F]	60 [140]	
Approximate Fuel Flow Return to Tank.....litre/hr [gal/hr]	160 [42]	184 [49]

Weight¹

Dry - Engine Only	kg [lb]	2901 [6395]
Dry - Engine With Heat Exchanger	kg [lb]	2981 [6571]

Air System¹

Intake Manifold Pressure.....mm Hg [in Hg]	1270 [50]	1415 [56]
Intake Air Flow.....litre/sec [CFM]	975 [2065]	1076 [2280]
Heat Rejection to Ambient.....kW [BTU/min]	92 [5250]	105 [5950]

Exhaust System¹

Exhaust Gas Flow.....litre/sec [CFM]	2187 [4635]	2379 [5040]
Exhaust Gas Temperature (Turbine Out).....°C [°F]	474 [885]	502 [935]
Exhaust Gas Temperature (Manifold).....°C [°F]	613 [1134]	659 [1218]
Heat Rejection to Exhaust.....kWm [BTU/min]	469 [26710]	508 [28920]

Emissions (in accordance with ISO8178 Cycle D2)

NOx.....g/kw-hr [g/bhp-hr]	7.94 [5.92]
HC.....g/kw-hr [g/bhp-hr]	0.37 [0.28]
CO.....g/kw-hr [g/bhp-hr]	1.10 [0.22]
PM.....g/kw-hr [g/bhp-hr]	0.30 [0.22]

Cooling System¹

Coolant Flow to Engine Heat Exchanger/Keel Cooler		
At 3 psi Friction Head External to Engine.....litre/min [GPM]	893 [236]	
At 10 psi Friction Head External to Engine.....litre/min [GPM]	803 [212]	
Standard Thermostat Operating Range (Min.).....°C [°F]	82 [180]	
Standard Thermostat Operating Range (Max.).....°C [°F]	93 [200]	
Heat Rejection to Engine Coolant ³kWm [BTU/min]	369 [20985]	458 [26065]
Sea Water Flow @ 50 psi Pump Discharge Pressure.....litre/min [GPM]	231 [61]	
Pressure Cap Rating (With Heat Exchanger Option).....kPa [PSI]	48 [7]	

Installation drawings..... 3626364

TBD = To Be Decided

N/A = Not Applicable

N.A. = Not Available

¹All Data at Rated Conditions

²Consult Installation Direction Booklet for Limitations

³Heat rejection to coolant values are based on 50% water/ 50% ethylene glycol mix and do NOT include fouling factors. If sourcing your own cooler, a service fouling factor should be applied according to the cooler manufacturer's recommendation.

⁴Consult option notes for flow specifications of optional Cummins seawater pumps, if applicable.

CUMMINS ENGINE COMPANY, INC.
COLUMBUS, INDIANA

All Data is Subject to Change Without Notice - consult the following Cummins internet site for most recent data:
<http://www.cummins.com>