



MARINE ENGINES OF FRP TRAWLERS OF RATNAGIRI, MAHARASHTRA (INDIA)

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ABSTRACT

Two FRP trawlers have been recently made operational from Mirkarwada Fishing Harbour of Ratnagiri, Maharashtra. Both the FRP trawlers were fitted with Ashok Leyland make AL-370 model diesel engine having horse power below 100 hp for 40 footer trawler and 106 hp engine for 50 footer trawler. The fuel consumption of the FRP trawlers ranged from 12-16 liters /hour.

KEY WORDS FRP Trawlers, diesel engines, propeller pitch, efficiency and fuel consumption

INTRODUCTION

Maharashtra having 720 km long coastline is an important maritime state situated on the west coast of India and Ratnagiri district is situated in the South Konkan region of Maharashtra. Mirkarwada is one of the important mechanized fish landing center and minor fishing harbour of Ratnagiri operational since 1988-89, providing berthing and fish landing facilities for all kinds of fishing vessels. The present study was undertaken with respect to the FRP trawlers recently operational from Mirkarwada Fishing Harbour.

Satyanarayana and Pillai 1992 studied the trawlers operated along the Madras coast. They categorized trawlers into four classes according to overall length viz, 9.5-10 m, 12 m and 13-14 m fitted with 90 to 120 hp engines. Performance of small and medium size trawlers along the Andhra coast was studied by Sehara *et al.* 1993. They have reported medium size trawlers fitted with Ashok Leyland engine of 100 hp of 12-15 m overall length. The small sized trawlers reported by them were 8 to 10 m in overall length with net tonnage 8 to 15 tonnes and were fitted with Ashok Leyland engine of 60 to 90 hp. Jeeva *et al.* 2008 studied the mini trawlers operated from Visakhapatnam had length ranging from 16.5-20 m LOA and were fitted with Ashok Leyland engine of about 145-210 hp having a fuel consumption of 7.89 l/hr.

MATERIALS AND METHODS

Mirkarwada fishing harbor situated 2 km away on the west of Ratnagiri city (16° 59' 42" N latitude and 73° 16' 14" E longitude) was chosen as the sampling station for the present study. Two FRP trawlers fitted with marine diesel engine were operated from Mirkarwada, Ratnagiri during the study period. The interview schedule was formulated to collect the required data comprising of the detail information regarding different types of marine diesel engine used on

FRP trawlers, by physically sampling the units. The data included the length class and other specifications of the FRP trawlers as well as the specifications of marine diesel engines, like horse power, fuel consumption (l/hr), propeller diameter and propeller pitch.

RESULTS AND DISCUSSION

FRP trawlers operating from Mirkarwada fishing harbor, Ratnagiri were classified on the basis of length class (below and above 40 ft); as detailed in Table 1.

Table 1 **Specification of FRP trawlers according to length class**

Sr. No.	Specification of FRP Trawlers / Length Class	Below 40 ft	Above 40 ft
	No. of FRP Trawlers	01	01
1.	Length (ft)	39.6	49.5
2.	Breadth (ft)	10.23	20.46
3.	Depth (ft)	4.29	7.59
4.	Gross tonnage (tonnes)	9.73	49.88
5.	Net tonnage (tonnes)	8.46	43.37
6.	Engine horse power (hp)	99.27	106
7.	Engine RPM	1500	2000
8.	Fuel tank capacity (liters)	500	400
9.	Fuel consumption liters / hour	12	16
10.	Propeller diameters (inches)	38	38
11.	Propeller Pitch (inches)	29.87	29.87

FRP trawlers operating from the Mirkarwada fishing harbour were classified according to the length class below and above 40 ft. Same length class based classification was recorded by Chittibabu *et al.*, 1988 along the Andhra coast, Sehara *et al.*, 1991 at Mirkarwada landing center, Rao and Pillai, 1992 along Madras coast, Gopal *et al.*, 2008 and Rajeswari *et al.*, 2012 along the Andhra coast.

Both the FRP trawlers were fitted with Ashok Leyland make AL-370 model inboard marine diesel engine, having horse power below 100 hp for 40 footer trawler and 106 hp engine for 50 footer trawler. Kunjir 2004 reported that engines with horse power of 87-106 hp were fitted on trawlers operating from Mirkarwada and Sehara *et al.* (1991) had reported the same observations with respect to the engine type as that observed during present study.

The speed of the FRP trawlers was recorded as 1500 rpm (length class below 40 ft) and 2000 rpm (length class above 40 ft). Fuel consumption of 12 l/hr and 16 l/hr were observed for length class of FRP trawlers below and above 40 ft, respectively. Below 40 ft vessels, low fuel

consumption was recorded by Overa and Ravikumar (1986) for 28 ft BOBP beach craft IND-20 along the India coast and by Jeeva *et al* (2008) along the Andhra coast.

Similarly, the range of the diameters and the pitch of the propellers, fitted to the FRP trawlers of the two length class and engines with varying horse power have been recorded during the present study and presented in Table 1 and 2.

CONCLUSION

Thus, it was observed that Ashok Leyland make marine diesel engines (models AL-370) with their horse power ranging from 99.27 to 106 hp and having fuel consumption ranging from 12 to 16 l/hr were found to be the commonly installed marine diesel engines on the FRP trawlers of overall length ranging from 39.6 to 49.5 ft, operated along the Ratnagiri coast of Maharashtra.

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