

Marine Power Plant Damages – Causes and Sequels

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Abstract

According to data provided by IMO thousands seafarers jobs throughout the world are reported vacant. Shipping companies are trying to find various solutions to this problem. Going deeper into the problem and discussing it with the owners of shipping companies one more important item was revealed.

According to forecasts done by shipping industry a very substantial growth in cargo shipment by sea is expected by year 2010 reaching 600 millions t. only in Baltic. Being cost effective, clean and safe mode of transport shipping industry is developing very fast. New shipping companies appear on the market and the old ones are trying to strengthen their position. Some shipping companies change their owners and shareholders. Often the new owners are not professionals in shipping and they think that to run shipping company is like to manage a milk processing company, for instance. Such policy leads to unnecessary over employment of seafarers, communications problems and finally- accidents at sea. As the result many well educated and highly qualified seafarers decide to leave the fleet.

KEY WORDS: *Ship owner, power plant, damages.*

1. Introduction

Statistics shows: 6 thousand millions tons of cargo transshipped in the world ports in 2005, only in EU ports in 2006 – 2 thousand millions tons of cargo. According to forecast in 2010 up to 10 thousand million tons [1].

In 2005 in world seas there sailed 39 932 commercial ships with DWT above 300 BT. Starting from year 2000 the world commercial fleet is growing by approx. 1 000 ships per year.

It's a well known fact that world fleet needs a thousands of seamen (in 2006 needs of marine officers in EU approx. 20 000). Companies are looking for different ways how to solve this problem, but in many cases they are facting the consequences but not the cause. Nevertheless, a lot is done to improve the situation, still the deficiency of seamen, especially officers is felt. Although this is a complex problem, only one aspect will be discussed – the impact of management (owners, shareholders) [2].

According to statistics, shipping business and transportation by sea ir growing and this tendency will remain in future. According to ISL (Institute of Shipping Economics and Logistics) ship building factories are fully loaded with work. The construction of ships wich are ordered today will be finished in year 2012. It is not possible to order ships for construction up to 40 000 DWT till 2011. Today PANAMAX type tanker (50 – 70 000 DWT) in time charter brings profit to its owner about 25 000 USD per day, AFRAMAX type tanker charter rate up to 65 000 - 67 000 USD/day.

The possibilities to gain fast profit attract people who are not involved in maritime business. These people or the groups of people buy shares of the shipping companies thus becoming the owners of the companies. If the new owners trust in shipping professionals there are no problems. The problems arise when the new owners are looking for maximum profit in a maximum short time. Although the ships bring high profit to its owners, also the maintenance expenses are considerable, e.g. the running costs of VLCC (up to 300 000 DWT) type ship is about 9 000 USD per day. The biggest share of shipping costs consist of crew costs, fuel costs, repairs and maintenance.

During the last few years there is a dramatic increase in fuel costs but also in ship repair and ship construction e.g. the construction of VLCC ship in November. 2006. cost 129 mill. USD, in February, 2007 – 130 mill. USD. The companies are looking for new economic means. In some cases the changes in shipbuilding and development of engines are being neglected. For example the development of two stroke engine:

Table 1

Year 1960	Year 2000
Ne c~2000KW	Ne c~7000KW
Ne set~24 000KW	Ne set~80 000KW
Pe ~ 0,8MPa	Pe ~ 1,9MPa
Pz- 7,6MPa	Pz- 12,5MPa

2. Examples

A few examples provided by students and graduates from the Latvian Maritime academy [3]:

1.

a) reduction of rotation of the main engine by 30 % at the maximum fuel feeding:

reason – the use of cheap and poor quality fuel (considerable water admixture).

Solution – the mixing of poor and good quality in proportion 2:3.

b) automatic system periodically switches of the boiler (low temperature of the fuel):

reason – the use of cheap and poor quality fuel (considerable water admixture).

Solution – the mixing of poor and good quality fuel in 2:3.

c) when a ship is at full speed the utilization boiler is constantly increasing the steam pressure in the system:

reason - lack of spare parts.

Solution – to let the steam in the atmosphere.

d) at 60 % load the exhaust valve of the auxiliary engine SULTZER (four stroke) regularly burns out. The cylinder heads are replaced by a new or renovated valves. The turbo charger is damaged when a piece of exhaust valve gets into turbo charger.

Reason – lack of spare parts.

Solution – change of turbocharger.

The auxiliary engines are supposed to use black oil (mazut) and diesel fuel in proportion 1:1 but the management of the company for economy reasons enforces to use only mazut. Irresponsibility of the company.

2.

A tanker was delayed in the territorial waters of the United States of America suspected in oil spillage accident overboard the ship. A pipe connection was found on board the ship corresponding to the size of the sludge pipe.

Total loss statement including arrest of the ship and the crew – 2 million USD (in this particular case the ship was not involved in oil spillage accident).

Reason – because of the lack of spare parts for the treatment facility the crew has to pump untreated water into the sea.

3.

Oil chemical tanker, DWT 37211, Main Engine (ME) – B&W, 8040 KW, built 2003.

During the unloading operation in Spanish port a cargo valve conducting hydraulics was damaged. Ship's demurrage caused by the repair works – 24 hours. The necessary repair works – the change of old rusty hydraulic pipes.

Reason – lack of spare parts.

Losses – 18 000 USD.

4.

Auxiliary Engine (AE) SULTZER (4 stroke) a split in crankshaft 3 months after the repair works in Naples (Italy).

During the case investigation it was found out that instead of a new crankshaft a second hand crankshaft was installed.

Reason – management instructions forbidding the crew to supervise repair works.

5.

Considerable fresh water leakage in ME B&W 7600 KW – bilge water tanks full in 3 days.

Before bunkering operations in Korea a decision was taken to pump bilge water overboard.

Reason – the company does not supply necessary spare parts.

6.

Tanker 50 000 DWT, built 2006.

a) the ship is on time charter, charter rate - 40 000 USD per day.

During cargo unloading in Rotterdam the boiler went out of order. The repair works and the heating of cargo up to 57° C took 4 days. The demurrage (damage) was paid by the ship owner.

Reason – lack of spare parts, although ordered several months ago.

b) during cargo unloading in Rio de Janeiro a cargo valve conducting hydraulics was damaged.

Result – cargo unloading lasted for 42 hours, instead of 24 hours planned.

Reason – the filters were not delivered in due time, although ordered 3 months ago.

7.

Tanker 70 000 DWT, ME – 10 000 KW, AE – YANMAR DIESEL – 550 KW, built 2001.

The damage of AE turbocharger bearings and deformation of blades.

Reason – the use of untreated oil (these AE turbocharger lubricate from engine circulation oil system).

Management instruction to use time-expired oil.

Solution – change of AE turbocharger.

Some shipping companies take easy decisions, cut costs for the crew, spare parts, repairs, buy cheaper and thus lower quality fuel.

In the worst case the owners of the company increase their profit on the account of ships budget e.g. diminish the number of the crew to the minimum, employ cheap and less qualified staff, avoid ordering expensive but necessary spare parts, choose cheap repair factories.

3. Conclusions

The above mentioned accidents on board the ship have a direct impact on company's financial situation, encourage skilled personnel to leave the company (due to correcting the mistakes done by the others).

Examples show that the lack of professional knowledge in shipping and trying to get maximum profit result in a completely opposite result – considerable financial losses for a company and the ship and the crew is exposed to risk. The unreasoned decisions accepted by the company management cause additional work for the crew and stress etc.

Such management attitude encourage seamen to look for shipping companies with professional maritime knowledge or to find jobs ashore.

References

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