

Is it Possible to Prevent Crankshaft Damage, the Nightmare of Ship-Owners?

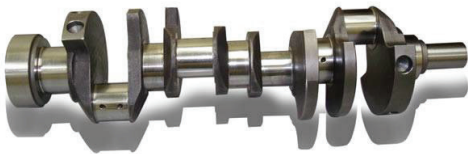
Although there are significant improvements in technology and quality control processes on ships, serious failures are still encountered. When the loss records of hull and machinery insurers are examined machinery claims are the most common claim type representing approximately 40%- 50% of costs.



Türk P and I Sigorta A.Ş. started to offer hull and machinery insurance coverage as of May 2016. The number of vessels insured under this coverage in 2016 - 2018 period is 767. Our portfolio is expanding day by day. On the other hand, we have experienced 128 claims in 1.5 years period totaling \$ 5.9 million. 9 of 128 claims totaling \$ 3.3 million are related with the crank shaft damages contributing to 55% of the cost of all H&M claims. As we understand from here, crankshaft damages are costly.

When we look at the age of the ships, it is possible to say that the ships with crankshaft damage are between 10 and 21 years old.

But why does it occur?



Of course there are many causes of damage to crankshafts. As a result of our technical investigations on the damages we experienced, we can list the most common causes of major crank shaft damages as follows;

- Inadequate monitoring and maintenance of the condition of lubricating oil
- As we all know, alarms indicate a problem in the system, and in most cases operators ignore or not notice the first (temperature, oil) alarms. Restarting the engine without taking a remedial action after the alarms have been silenced, increases the severity of damage.



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- Failure to submitting samples of lubricating oil to the laboratory at certain intervals
- Not keeping the lubricating oil clean in the system
- Vibration
- Cracked welds between bearings and connections
- Excessive pressure inside the cylinders

How is it prevented?

The most important fact is to have a well implemented and proper management system. Human factors are the main cause of accidents. Facilitating proper training and education of the crew, providing them with the essential knowledge and experience required for their ordinary daily work and maintenance according to company procedures should be included in the management system. In addition, we recommend that the connection between the ship and the company is performed via computer based PMS (Planned Maintenance System). We recommend that the PMS to be used by the company is approved and periodically audited by the competent authorities or institutions.

We have listed some of the tips below that would help ship owners and operators to gain insight and take the necessary preventive measures;

- Equip ships with proper fuel and lubrication system
- Take samples during bunkering and avoid the use of new fuel until the analysis results have been considered and it has been established that the fuel is suitable.
- As you know, lubrication oil is the lifeblood of the engine. In addition to testing the lubrication oil on the ship, take samples from the lubrication oil and submit samples to the laboratory at certain intervals.
- Carry out regular system checks at both fuel and lubrication oil systems.
- Carry out periodic inspections to ensure that oil which will settle on the bottom of crankcase is free of metal particles
- Identify the cause of oil pressure changings accurately. Determine whether the pressure change is due to temperature, filter or excessive clearance.

- Check the line of the crankshaft at regular intervals by taking advantage of changing the dimensions of the webs without removing any parts / assembly of the crankshaft while all pistons and bearings are connected.
- Maintain the lubricating oil filters in clean and proper condition by frequent daily routines
- Ensure that maintenance-handling booklets can be accessed easily by the crew members at all times.
- Ensure that proper tools for maintenance are always available and calibrated.
- Use computer based PMS (Planned Maintenance System) linked with the onshore organization
- Ensure that an engineer from the manufacturer is in attendance during major overhauls and repairs
- Always take every alarm that sounds in the engine room serious and investigate in detail. Equip the vessel with a fully functional alarm system for the safe operation of the vessel.

Wishing you fair winds and calm seas...

