Importance of Planned Maintenance On Ships

The permanence and success of maintenance performed on board will vary depending on the ship operator's regular control / maintenance discipline and available spares. Therefore, keeping the maintenance performance always at a satisfactory level can be challenging for ship operators in cases of limited fund and workforce...

From this perspective, it is important to give priority to the procedures, measures and corrective maintenance action aimed at improving the reliability of materials and technical systems, which are critical to the operation of the ship. Technical failures can not only have serious consequences for the safety of the crew, the environment and the ship, but also the loss of time due to such errors and/or detaining of the vessel as the result of the controls performed by the Flag / Port State authorities will constitute loss to the ship's commercial trade. In addition, it should be kept in mind that the ship, the commercial operation of which is interrupted in order to remedy any deficiencies / problems arising during Flag / Port State controls, will suffer much more time loss than usual.

Although the actual repair cost of a technical damage is not always high, our experiences show that when total repair, off-hire, deductibles under the hull & machinery policy and all other costs are put together, the costs of damage tend to rise considerably and pose great difficulties for ship operators. In simple terms, this leads to an increase in operating costs.

The root cause of such damages is the failure to perform regular planned maintenance on the ships and we, as Türk P&I, refresh our insurers' minds time to time both through our circulars and during the condition surveys we perform on our vessels about the fact that the damage or loss arising from inadequate maintenance may be detrimental for their insurance coverages. Apart from the insurance coverage, the loss of time and work that may arise following such damages will affect the commercial reputation of the owners.

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For these reasons, we publish these circulars in order to remind our operators that a planned and effective maintenance regime will be a good investment for their ships, even during economically difficult times.

The common problem in most damages reported to us so far is the failure to comply with or improper abidance to the machine manufacturers' specific recommendations on maintenance intervals. We see that maintenance is kept at minimum level and/or is limited to class and flag state obligations in economically challenging periods. Maintenance operations are generally postponed dry dock periods and the operations during docking are kept to the minimum level due to budget constraints. However, deferred and/or temporary maintenance can be carried out at the shipyard in a much safer and more cost-effective manner with proper planning without causing high risk damages during the voyage. In addition, replacing the second-hand spare parts, which are used compulsorily in order not to hinder the commercial activities of the ship during the voyage, with their originals during the shipyard period will allow avoidance of the high risks that may occur in the future.

Lack of experience related the ship's machinery and equipment, especially the lack of diligence of the senior officers of the ship and the limited availability of the ship's contact with the ship agency due to the fact that it is usually in transit are factors contributing to the occurrence of damages. In addition, when senior officers are changed frequently, especially in cases where they will not re-join the same ship / company, we see that the spare parts ordered and the works performed are not followed regularly by the replacement officers and the spare parts brought to the ship on subsequent voyages are accepted without control and/or objection. Of course, the length of stay of senior officers on board may be short but in such cases, the contact between the ship agency and the ship must be very strong in order to maintain a high standard of maintenance on board.

If we give an example from our experiences, as the result of performance of visual and manual check without opening the connecting rod bearing (crank pin) of cylinder number x of the main engine during the repairs performed by the crew members, reaching to the conclusion that it was sound and their misleading of the operator, it was concluded that they could not detect the bearing, which had probably seized at the first moment of the accident and therefore they had had run the main engine again and continued running it on the bearing, which had already seized, for about 1 hour, that the damage, which could be fixed by replacing the piston, segment, liner and rod bearing under normal conditions, had considerably increased and aggravated due to the damage given to the crank shaft by the damaged bearing.

In another damage, it was found that the web weight had dislodged and hit the bedplate base with speed, breaking the casting base, as a result of the breakage of the 2 studs connecting the main machine crankshaft web weight to the crankshaft. Since these studs are fixed parts used to engage web weights on the travelling crankshaft, wear on the studs is not possible. Only the metal fatigue due to the deterioration in the molecular structure of the studs can be in question. As a result, it was inevitable that the web weight would break and damage the cylinder block and the crankshaft, as the crankshaft web weight studs were not checked because of the lack of regular maintenance.

Again in another damage, it was found that wearing parts were continued to be used over time and parts were replaced with less wearing parts. Several liners and piston rods appear to have been used although they are outside the manufacturer's maximum acceptable limits and acceptance criteria.

Finally, in a file in which it was stated that the machine had been running for months without cleaning the lubricating oil system due to the separators that were inoperative / blunted and/or

non-rotating at required speed, the lubricating oil pump has worn out, causing insufficient lubrication of the machine and crushing the bearings and damaging the crankshaft.

All files mentioned above are examples of situations that led to high damage repair costs, which could be related to poor maintenance planning, improper maintenance and/or lack of appropriate spare parts available on board. In addition, in all of these case files, the damage costs were above USD 500,000 and the ships had to stop their commercial operations for at least two months.

As a suggestion, the ship-owners and operators must prepare current risk assessment procedures and review them regularly in order to optimize the maintenance operations on board and to minimize the damage risk leading to operating periods out of the limits and thereby reducing the loss of income. Priority should be given to measures and corrective actions aimed at improving the reliability of such machinery, equipment or systems, including control, inspection and record keeping.

In summary - instead of saying that everything is fine - on paper, even if there are limited resources and budgetary constraints, the plan, together with its order and discipline, should be an indispensable part of the ship in order to prevent damages and failures that may lead to damages.