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Optimization of Maintenance and Supervision of Deck Crane Wire on Mv. Daidan Pertiwi

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Abstract: The smooth operation of the ship is determined by the operational conditions of the ship when carrying out loading and unloading operational activities and administrative management at the port of origin and port of destination. So when the performance of the deck crane is disturbed, it will affect the loading and unloading process. Damage to the motor or breaking of the wire rope will cause loading and unloading activities to be disrupted so that the next process will be hampered. Based on these problems, the author conducts an analysis to determine whether there are factors causing the breaking of the hoisting wire and the cause of the less than optimal performance of the supervisory officer of the guard in loading and unloading activities. The type of research used is a qualitative method. Data collection was carried out by conducting observations, verbal interviews with the ship's crew, and direct research to the object of research by carrying out marine practices on the MV ship. Daidan Pertiwi. Conclusions in this study were carried out by comparing those obtained from respondents' answers in the form of relevant theoretical and scientific data which were analyzed by qualitative descriptive analysis. Based on the acquisition of questionnaire data and data processing. The results showed that the maintenance of loading and unloading equipment and the lack of optimal performance of the supervision of the guard officers during loading and unloading together proved to be positive and significant to the delay in the loading process on the MV. Daidan Pertiwi. The author describes several solutions to overcome damage to loading and unloading equipment, namely: the company and the MV crew. Daidan Pertiwi must make efforts to implement PMS (planned maintenance system) in terms of maintenance of loading and unloading equipment on board and implement working hours in accordance with MLC 2006 (Maritime Labor Convention) as well as add guard personnel to facilitate supervision during loading and unloading activities. so that there are no obstacles and a positive influence on the delay in the loading process due to damage to the loading and unloading equipment in the MV. Daidan Pertiwi.

Keywords: Loading and Unloading Equipment Maintenance, Crew Skills, PMS, Mlc 2006, Delay in Loading Process.

INTRODUCTION

Sea transportation is a very important sector in the world of trade, so Indonesia must have a sea transportation system that is useful and successful in order to achieve efficiency and effectiveness. In the world of national trade and international trade, commercial shipping plays an important role in supporting the process of distributing goods. Almost all exported and imported goods use ships for transportation, although among the places where the transportation is carried out there are other transportation facilities in the form of land transportation such as trucks and trains. The transportation of goods by ship was chosen because the number of goods transported would be greater when compared to using trucks, trains, or airplanes and the transportation costs were also lower when compared to them. One of the purposes of transportation by ship is to transport cargo by sea quickly and safely to the destination. The smooth operation of the ship is determined by the operational conditions of the ship when carrying out loading and unloading operational activities and administrative management at the port of origin and port of destination. For smooth loading and unloading activities from and to the ship, loading and unloading equipment is one of the most important factors to ensure loading and unloading activities.

On bulk carriers, one of the most common loading and unloading equipment is a deck crane which is used in the process of transferring cargo to the ship (loading) or the process of loading and unloading from the ship to the barge so that the ship can perform its work function properly. So when the performance of the deck crane is disturbed, it will affect the loading and unloading process. Damage to the motor or the breaking of the wire rope will cause loading and unloading activities to be disrupted so that the next process will be hampered. Wire rope is a steel rope made of several wires that form strands, then these strands are twisted around the core to form a wire rope. On the deck crane there are Hoisting and Luffing wire. Hoisting wire serves to raise and lower the cargo block while the Luffing wire serves to raise and lower the boom.

In the implementation of loading and unloading, fully using a deck crane as the main tool for the loading and unloading process, and wire is one of the important components in the effectiveness of using the crane. The type of wire used is non-rotating galvanized steel wire. At the time the author carried out the practice in MV. DAIDAN PERTIWI a problem occurred while carrying out loading and unloading activities at the port of Bunati, Kalimantan. Damage to the deck crane no.4 where the hoisting wire on the crane no.4 broke, causing the loading and unloading process to be hampered, which should have been around 4 days to 6 days and this resulted in the loading and unloading process being longer.

The impact of the breaking of the hoisting wire crane no. 4 is very influential on the shipping business because it is related to the time and material losses of the shipping company related, including the cessation of the loading and unloading process. The fall of cargo blocks, and cargo grabs into the ship's hold, resulted in injury to crane operators, decreased work morale caused by work accidents. Of course, this cannot be left unchecked, which will be detrimental to shipping companies.

Research Objectives and Benefits

Research purposes

The objectives to be achieved by the author in conducting this research are: To find out the factors causing the breaking of the hoisting wire in MV.Daidan Pertiwi; To find ways to improve the supervisory performance of guard officers on loading and unloading activities.

Benefits of research

Benefits of this research To provide a solution to the importance of optimizing the maintenance of deck crane components for loading and unloading.

LITERATURE REVIEW

Optimization

Optimization is the result achieved in accordance with the wishes, so optimization is the achievement of results as expected effectively and efficiently. According to the Big Indonesian Dictionary (Depdikbud: 1995: 628) optimization comes from the word optimal which means the best, the highest. In this study, the topic raised is optimization of deck crane wire maintenance on MV. Daidan Pertiwi the above understanding can be concluded that if we want a thing or procedure to work optimally, then we need a process to find the best solution and solution according to the criteria. to achieve maximum results.

Treatment

Maintenance or maintenance is a periodic scheduling activity of the facility/machine to maintain its performance in order to keep it functioning properly in accordance with the initial condition of the machine. Treatment can be divided into two, namely: Preventive Maintenance, which is aimed at preventing failure or the development of damage, or finding failure as early as possible; Corrective Maintenance, aimed at repairing the anticipated damage, but which is not to prevent because it is intended not for tools that are critical or important to safety or savings.

Lubricant

The lubrication system can also function to remove impurities from the system by circulating oil through the filter so that these impurities accumulate in the oil filter and do not damage the engine components. Lubricating fluid also plays an important role in controlling engine temperature by absorbing engine heat and expelling it to the outside air or components such as heat exchangers. In wire deck cranes, lubrication using grease needs to be done primarily to reduce the impact that occurs due to friction that occurs when the wire deck crane operates as well as to provide protection from high temperatures or temperatures so that the wire deck crane remains flexible and does not break easily. as a layer to protect the wire deck crane from rusting easily.

Quality

The quality of a product or service is the feasibility or suitability of the product or service to fulfill its use so that it is in accordance with what the customer wants. Quality values can change, increase or decrease, increase or decrease so that quality values are very dynamic so efforts are needed to increase quality values.

Supervision

Winardi (1983: 379) suggests that supervision means: determining what has been implemented, meaning evaluating work performance and if necessary, implementing corrective actions so that work results are in accordance with plans.

Bulk Ship

According to the Law of the Republic of Indonesia number 17 of 2008 article 1 (36), the definition of a ship is a water vehicle of a certain shape and type, which is driven by wind power, mechanical power, other energy, pulled or delayed, including vehicles that have dynamic support, vehicles under the water surface, as well as floating devices and floating structures that do not move.

Rest Hour

Rest hour is the time needed by a person as a form of relaxation after doing a job, and is a need that must be met by every worker which is closely related to the level of fitness and awareness in doing a job, which can affect the efficiency, effectiveness and level of work safety. someone.Rest hour has a maximum and a minimum limit.

Loading and Unloading

According to Soegiyanto and Martopo (2004:30) "The loading and unloading process is the activity of lifting, transporting and moving cargo from the ship to the port dock or vice versa". While the process of loading and unloading of general goods at the port includes stevedoring (ship loading and unloading work), cargodoring (mooring transfer operations), and receiving / delivery (receiver/delivery) in carrying out loading and unloading activities.

Deck Cranes

According to Martopo and Soegiyanto (2004:38-71) "A ship crane is a loading and unloading tool specially designed on a ship that is used as a lifting tool". For modern cargo ships, deck cranes are often used as a loading and unloading tool and for special ships using loading and unloading tools according to the type of goods being transported.

RESEARCH METHOD

Approach and Data Collection Method

Approach Method

So that problem solving in this research can be carried out properly and systematically, the author uses a qualitative approach method by describing the events that occur thoroughly and in depth, qualitative descriptive research is research that is included in the type of qualitative research. The purpose of this research is to reveal facts, circumstances, phenomena, variables and circumstances that occurred at the time the research was running and present it as it is.

Data Collection Techniques

A technique or ways that can be used by the author to collect data. The data collection can be done by conducting observations and research directly to the object of research. The data collected is quite accurate because it is directly examined from existing sources at the time of the research, and the existing data presented are secondary data. In writing this study the authors use data collection techniques in the form of:

a) Observation Technique (Observation)
   Observation is one of the data collection techniques by observing, reviewing, and analyzing objects or problems to be studied directly so that the data obtained are objective. In this case, the observations made are regarding the problem of lack of attention to the wire crane above the MV. DAIDAN PERTIWI, so that when the ship is loading, the wire crane breaks due to lack of supervision during loading and unloading operations.
b) Documentation Study
   The author also conducts research by conducting a study of documentation, namely the method used to collect data in the form of ship documents and procedures related to the subject matter studied. In addition, the author also collects photos or pictures taken during the maintenance process for loading and unloading equipment in MV. DAIDAN PERTIWI.
c) Literature review
   Literature study is a method of collecting data using library research which is carried out by collecting theories from reference books and journals related to the topic. This method

is done by reading, researching, taking notes and studying from books and journals related to the topic of this research discussion so that it can help the author in perfecting his research.

d) Interview

Interviews are data collection techniques through an oral question and answer process that takes place in one direction, meaning that questions come from the party conducting the interview to be addressed to the interviewee.

The different positions of the two parties continue to be questioned throughout the process question and answer takes place, in contrast to dialogue where the positions of the parties involved can change and change functions at any time, while the dialogue process is in progress.

Research subject

The author uses certain social situations by examining three elements as research subjects, namely actors, places, and activities. The actors in this study are people who are considered to know about the social situation, where the author examines all elements in the research area where the research subjects are the informants or informants in terms of the research subjects, namely the workers who work hard on the MV. DAIDAN PERTIWI and the ship's manpower/crew who are used as theoretical examples, the place is MV. DAIDAN PERTIWI, and the activities of this research are loading and unloading activities and maintenance of deck crane wire in MV. DAIDAN PERTIWI.

Data Analysis Techniques

In this paper, the author uses a qualitative descriptive analysis technique, where the author analyzes the problems that occur during field visits related to the loading and unloading process, how the crew performs maintenance before the loading and unloading process takes place. By analyzing the events in the loading and unloading process, it is hoped that this research can produce solutions to problems caused by lack of maintenance for loading and unloading equipment so that they experience damage which can result in delays in the loading and unloading process.

FINDINGS AND DISCUSSION

Descriptive Data

In the description of this data, it will describe the events found by the author at the time of loading and unloading, including:

There was a break in the hoisting wire in the MV. Daidan Pertiwi

The cargo to be loaded is coal which is loaded from the barge. During the loading process, a problem occurred, namely the breaking of the wire on crane number 4 which caused the grab to fall into the hold. The guard officer who knew of the incident immediately reported the incident to the chief officer and captain. The Chief Officer with bosun and AB (able body) on duty immediately checks the condition of the broken crane and wire. When it was finished being checked, the chief officer said that the wire broke because before it was used the wire was in bad condition or in other words maintenance of the wire was not carried out.

Less than optimal performance of guard officers during loading and unloading supervision

When the charterer asks to use a ship's crane in the process of unloading, the cargo to be unloaded at that time is coal loaded at the port of Balikpapan, Kalimantan. During the

unloading process, the guard officer and able body (AB) guard did not pay attention to how the crane operator used the crane at the port. Seen during the loading and unloading process, the duty officer was overwhelmed to supervise one by one the crane operators did not pay attention to the maximum load that the crane could lift, the SWL on the crane was 25 tons but the operator carried loads that exceeded the recommended safe limit of 25 tons so that on the day of unloading to -2 April 10, 2020 a problem occurred, namely breaking the wire on crane number 3, and fortunately the cargo transported on the crane fell into hold no 4 and did not cause any loss or adverse incident.

Data analysis

Based on existing research and data collection, this section will describe and analyze in detail the causes of problems in sub-optimal maintenance of deck crane wire, and less than optimal performance of guard officers when guarding during unloading activities. fit in accordance with the description of the data and sources of information from the sources involved. The purpose of this data analysis is to analyze the problem so that the perception of the problem can be found:

There was a break in the hoisting wire in MV. Daidan Pertiwi

Based on the description of the data that has been explained, it can be analyzed that there are factors that cause maintenance of the crane not in accordance with the procedure. The implementation of wire crane maintenance is carried out only based on the existing habits on the ship. Judging from the condition of the wire crane, in MV. Daidan Pertiwi what happens is that maintenance is carried out after the equipment is damaged. In this case the author has never seen the Chief Officer carry out maintenance based on a planned maintenance system (PMS) properly, this can be seen from the data on deck crane maintenance activities that have been carried out.

Not optimal performance of guard officers during loading and unloading supervision

Based on the results of the analysis of the events above, MV. Daidan Pertiwi, it can be concluded that the factors that cause the less than optimal performance of guard officers during loading and unloading supervision are as follows:

a) Fatigue factor experienced by guard officers due to over time and guard time. One of the duties of the first, second, and third commanders in cargo operations is the duty to take care of loading and unloading, the third officer is on duty at 8-12 hours to supervise loading and unloading activities, in fact in MV. Daidan Pertiwi if the missionary III finishes guard duty at 8-12 hours, which should only be overtime until 14, but the first officer does daily overtime until 16, and will continue to guard at 8-12 at night, this makes the rest of the missionary III reduced which will cause fatigue in the next watch.
b) Officers who work on ships do not have the qualifications of expertise or skills as crew members.

Troubleshooting

Looking at the problems above, the author will provide an effective problem solving for the problems that the authors discuss in this study:

There was a break in the hoisting wire in the MV. Daidan Pertiwi

Implementation of the Planned Maintenance System (PMS) for the crew (ABK) and the Bosun who work to perform maintenance. In finding a solution to the problem the author chooses from various alternative problem solving and the author makes efforts to implement a PMS (planned maintenance system) so that the officers and crew on board the ship know

the correct procedure in terms of maintaining loading and unloading equipment on board, and planning periodic or periodic maintenance in order to increase the life of a tool and can predict when the tool will be replaced in order to prevent events that can hinder activities at the time of unloading fit.

Not optimal performance of guard officers during loading and unloading supervision

Implement working hours in accordance with the 2006 MLC (Maritime Labor Convention). Regarding the problem of the non-optimal performance of officers during loading and unloading supervision, the author determines the problem solving from several alternative solutions to existing problems, namely the author tries to apply rest hours in accordance with the rules in the 2006 MLC (Maritime Labor Convention) rule A2.3 concerning Working Hours and Hours Rest, where stated Maximum seafarers work is 14 hours in a day or 72 hours in a week with a rest period of 10 hours in a day, Furthermore, rest time should not be divided into more than 2 periods where at least 6 hours of rest time must be given consecutively in one of the two periods. And choose to add guard personnel to facilitate supervision during loading and unloading activities.

CONCLUSION

Based on the explanation of various problems and their problem solving solutions in the previous chapter regarding the maintenance and supervision of deck cranes, the conclusions obtained are that the maintenance of the wire crane hoisting is not carried out in accordance with the procedures and not in accordance with the specified PMS schedule, the crew in carrying out maintenance is not carried out properly and maintenance planning is only carried out if there is an accident on loading and unloading equipment, and due to the crew's lack of concern for rest time, the fatigue factor of guard officers and crew due to overtime and guard time not in accordance with the 2006 MLC (Maritime Labor Convention).

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