

Log M-49

NOT: 1888

Rec M-76-20 thru 24

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NATIONAL TRANSPORTATION SAFETY BOARD WASHINGTON, D.C.

ISSUED: December 30, 1976

Forwarded to:

Admiral Owen W. Siler
Commandant
U.S. Coast Guard
Washington, D. C. 20590

SAFETY RECOMMENDATION(S)

M-76-20 thru 24

On 24 September 1974, the SS TRANSHURON was underway in the Arabian Sea when the main propulsion switchboard caught fire and the main control circuits were destroyed. The vessel was left without means of propulsion. After drifting for about 63 hours, the vessel grounded on Kiltan Island on 26 September 1974. The grounding breached the vessel's hull, caused a pollution incident, and resulted in the loss of the vessel.^{1/}

The National Transportation Safety Board determines that the probable cause of the accident was the loss of power by the SS TRANSHURON which resulted in the grounding of the vessel on Kiltan Island reef.

Contributing to the accident were the rendering inoperative of the vessel's propulsion switchboard by a fire, caused by the failure of the iron pipe nipple in the bronze condenser head, the reluctance of the master of the SS TRANSHURON to accept offers of aid from other vessels, and his failure to use available information in order to anchor prior to the grounding of the vessel on Kiltan Island.

The Safety Board is concerned that inspections aimed at preventing such equipment failures are inadequate. The first inspection inadequacy was the inspection for the installation of the air conditioning system that had as an integral part the condenser involved in the fire. This installation was part of a large-scale conversion of the vessel and was included in the specifications. The packaged air conditioning unit did not require approval as did the specifications and refrigerant piping plans. The only indication of the approved location of the air conditioning machinery was in the specifications which were not approved until 16 March 1967. The conversion was completed during 1966 and certification

^{1/} For more detailed information on this accident, read "Marine Casualty Report, SS TRANSHURON Fire on 24 September 1974 and Grounding on 26 September 1974, Arabian Sea," USCG/NTSB-MAR-76-2.

4 MAR 1977

M-76-20 thru 24

of the TRANSHURON was completed in January 1967. This delay in approval of the specifications deprived the inspector of determining if the location of the condenser and associated piping was proper.

46 CFR 56.50-1(d) stipulates that the placement of pipes in the vicinity of the switchboard shall be avoided, and if unavoidable, that suitable protection shall be provided. Locating the pipes directly below the switchboard was narrowly interpreted as not "in the vicinity" by the Commandant, U.S. Coast Guard. The installation of an additional gauge and nipple was completed after the conversion. This time sequence is based on the Safety Board determination of life of the iron nipple in the bronze/seawater environment as approximately 2 years. Such an installed piece of metal would have been difficult to detect. The fault of having the equipment there at all is a much more important matter when considering the background of the casualty.

Further evidence in the relationship of inspected equipment to casualties was the failure and questionable operation of the CO₂ firefighting equipment. The installed CO₂ equipment was serviced and inspected during the biennial inspection completed on 17 May 1974. As is the custom, the equipment was serviced by a commercial service company with verification of operations made by a Coast Guard inspector. This verification is made without using the CO₂ medium. Weighing of the CO₂ cylinder and examining the material condition of the semiportable and portable extinguisher is a mixture of inspection work and service company contract. During the attempts to use the equipment, the CO₂ system gave no indication of operating and the semiportable hose failed at the application horn. The record of the investigation and a search of current Coast Guard instructions used by inspectors has little information to aid the inspector. The Safety Board believes that this equipment should have the same detailed instructions on its repair and maintenance as does lifesaving equipment, such as liferafts and personal flotation devices.

The Marine Board of Investigation made three recommendations in this area and the Safety Board concurs with those recommendations.

The grounding indicated another problem area in the relationship between Coast Guard inspectors and licensed officers on inspected vessels. The fathometer always checked out as operational in the static dockside inspection. However, when the vessel was underway only erratic operation could be expected. On the TRANSHURON, this was a long-standing problem. By reporting such conditions to the inspector, requirements could have been written to correct the deficiency. Since the report is privileged, proper use of this feature of the inspection laws would have enabled the vessel to have onboard the required, fully operable fathometer. The use of this fathometer would have given the master information he needed on 26 September to attempt to anchor and either prevent the grounding or minimized its impact.

M-76-20 thru 24

The Safety Board recognized this problem in the loss of the SS STEEL VENDOR on 7 October 1971 and recommended that the Coast Guard publicize to the maritime industry the importance of 46 USC 234. This was done through an article published in the Merchant Marine Council Proceedings which is widely circulated in the industry. Events in the loss of the TRANSHURON indicate that there is a continuing need to publicize to masters and inspectors their responsibilities in the maintenance of safe merchant vessels.

While fighting the fire, the crew's failure to terminate electrical power at the main propulsion switchboard was the factor in the accident sequence which contributed most to the accident's severity. The reaction of the watch engineer and subsequent action by the chief and first assistant engineer indicated only partial understanding of casualty control procedures. While their knowledge of the CO₂'s fixed fighting system needs to be improved, their knowledge of operational procedures also needs improvement.

The Marine Board of Investigation made one recommendation in this area in which the Safety Board concurs. However, the Safety Board believes that the problem is a broad one and that the recommendation needs to be expanded.

Therefore, the National Transportation Safety Board recommends that the U.S. Coast Guard:

Insure that required specifications and plan-approved material are transmitted to the inspectors before equipment is installed or construction is begun. (Class II -- Priority Followup)
(M-76-20)

Expedite the issuance of regulations to require spray shield protection when saltwater piping must be in the vicinity of switchboards or other open electrical equipment. (Class II -- Priority Followup) (M-76-21)

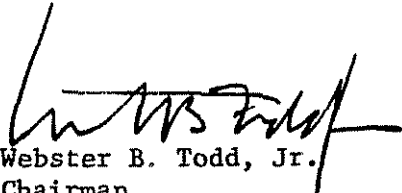
Expand either the Merchant Marine Safety Manual or other suitable instructions to include aids for inspection and repair of firefighting equipment, particularly CO₂ semi-portable equipment. (Class II -- Priority Followup)
(M-76-22)

Continue to disseminate to Coast Guard inspectors and licensed Merchant Marine officers the information that all concerned are responsible for the compliance of any vessel with the regulations and that this responsibility is found in and protected by law and regulations. (Class II -- Priority Followup) (M-76-23)

M-76-20 thru 24

Include in the engineers' license examination, questions on all phases of damage control and engineering casualty control for various powerplants in addition to the existing firefighting and emergency questions. (Class III -- Longer Term Followup) (M-76-24)

TODD, Chairman, BAILEY, Vice Chairman, McADAMS and HALEY, Members, concurred in the above recommendations. HOGUE, Member, did not participate.


By: Webster B. Todd, Jr.
Chairman

THIS RECOMMENDATION WILL BE RELEASED TO THE PUBLIC ON THE ISSUE DATE SHOWN ABOVE. NO PUBLIC DISSEMINATION OF THIS DOCUMENT SHOULD BE MADE PRIOR TO THAT DATE.