



National Transportation Safety Board

Washington, D. C. 20594

Safety Recommendation

Date: June 26, 1992

In Reply Refer To: M-92-38 and -39

Mr. R. A. Belik
Chairman
International Association of
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About 2350 on August 15, 1990, the 843-foot Hong Kong-registered motor tank ship MANDAN experienced a steering malfunction. Shortly thereafter, it rammed a U.S. Army Corps of Engineers' barge flotilla positioned at mile 10.5 Above Head of Passes near Venice, Louisiana, on the right descending bank of the lower Mississippi River. All personnel aboard the 13 barges were successfully evacuated. Quarters barge 4302 then capsized and sank. Crewmembers on the barges sustained minor to moderate injuries; no fatalities occurred. The MANDAN had minor damage; its crewmembers were uninjured.¹

The MANDAN's rotary vane engine steering gear system had been in service since the MANDAN's construction in 1975. A hydro-block that contained a pressure relief valve, a solenoid-actuated hydraulic directional control pilot valve, and a main hydraulic valve was fitted to the pump discharge of each main steering gear pumping unit. The design of the hydro-block employed circ clips to secure centering springs on the inboard and outboard ends of each control pilot valve spool and each main hydraulic valve spool. The circ clips were subjected to impact each time a rudder command moved the control pilot and main hydraulic valves either left or right from their center neutral position.

¹For more detailed information, read Marine Accident Report--"Collision of the Hong Kong-Registered Motor Tank Ship MANDAN with the U.S. Army Corps of Engineers' Barge Flotilla at Mile 10.5 Above Head of Passes in the Lower Mississippi River near Venice, Louisiana, on August 15, 1990" (NTSB/MAR-92/04)

Although a February 1985 letter from Porsgrunn Stal & Maskin Company, the manufacturer of the steering gear vane engine, to Tradax Gestion S.A., the previous owner of the MANDAN, outlined a modernization proposal for the steering gear, no modifications had been made to the steering gear system. The modernization proposal included a hydro-block design change that no longer used a circ clip to secure the centering springs on the main hydraulic valve and the control pilot valve. However, Tradax Gestion sold the vessel in 1985 without effecting Porsgrunn's modernization proposal for the steering gear. According to the new (current) owner, Tradax Gestion had not informed them of the package of steering gear modernization proposals and recommendations. Neither owner was required by any regulation to execute the proposed changes. If the steering gear on the MANDAN had been modernized, this accident probably would have been prevented.

The Safety Board understands that classification societies do not necessarily receive information about steering gear modernization (retrofit) recommendations proposed by a steering gear manufacturer. The Safety Board believes that the International Association of Classification Societies (IACS) should develop a system to collect and to disseminate information concerning modifications that affect vessel safety. Furthermore, the IACS and its members should implement survey procedures to verify the installation of class-approved modifications that would substantially improve the reliability of steering systems.

Therefore, the National Transportation Safety Board recommends that the International Association of Classification Societies:


Develop a system to collect and to disseminate information concerning modifications that affect vessel safety. (Class II, Priority Action) (M-92-38)

Implement survey procedures to verify the timely installation of class-approved modifications that would substantially improve vital ship safety equipment and systems, such as steering. (Class II, Priority Action) (M-92-39)

Also, the Safety Board issued Safety Recommendations M-92-40 through -47 to the U.S. Coast Guard and M-92-48 through -53 to the U.S. Army Corps of Engineers.

The National Transportation Safety Board is an independent Federal agency with the statutory responsibility "to promote transportation safety by conducting independent accident investigations and by formulating safety improvement recommendations" (Public Law 93-633). The Safety Board is vitally interested in any action taken as a result of its safety recommendations. Therefore, it would appreciate a response from you regarding action taken or contemplated with respect to the recommendations in this letter. Please refer to Safety Recommendations M-92-38 and -39 in your reply.

COUGHLIN, Acting Chairman, and LAUBER, KOLSTAD, HART, and HAMMERSCHMIDT, Members, concurred in these recommendations.


By: Susan M. Coughlin
Acting Chairman