



# National Transportation Safety Board

Washington, D.C. 20594

## Safety Recommendation

**Date:** November 20, 1986  
**In reply refer to:** M-86-116 through -118

Mr. George Michael Roach  
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On October 28, 1985 about 1615, the U.S. lift boat A.M. HOWARD departed Hopedale, Louisiana, with a master and three industrial persons aboard, and entered the Mississippi River Gulf Outlet Canal en route to Breton Sound. The master stated that the winds were 15 to 25 mph, the seas were 3 to 4 feet in height and intermittent rain squalls were passing through the area. Hurricane Juan was located in the Gulf of Mexico west of the Mississippi River. Several hours later engine problems caused the master to shut down the starboard engine. Shortly thereafter, the master was told that Hurricane Juan was moving eastward and he decided to return to Hopedale. While turning the lift boat in the canal, it grounded on the southwest side near Light No. 61. The master backed the vessel off the ground and proceeded inbound. Several hours later the vessel rolled to starboard and sank. The master exited the pilothouse as the vessel sank and was rescued by a passing towboat. The three industrial persons, located in the deckhouse, went down with the vessel and drowned. 1/

The master stated that it was standard procedure to follow orders as to the movements of the vessel from industrial personnel on board and/or the representative of the company who had contracted the lift boat. However, when the master departed Hopedale on October 28 he knew that he had the responsibility to make the final decision concerning the vessel's movements except for the decision to jack the lift boat up or down if the wave height exceeded 6 feet (in which case he must first contact his supervisor). Although he had reservations about the adverse weather conditions in the Gulf of Mexico, he entered the canal in winds gusting to 50 mph and intermittent rain squalls. The master stated that he believed the vessel could be operated in the weather conditions present on October 28; however, he had not previously operated the lift boat in similar squalls or high wind conditions. The passing rain squalls, resulting in periods of no visibility and ineffective radar operation, hindered the master's ability to navigate within the canal boundaries. In addition, it would have been very difficult in these conditions to meet or overtake other vessels that may have been transitting the canal. The master was proceeding to Breton Sound on October 28 under gale and hurricane warnings and in sea conditions similar to those when operations had been suspended and the vessels had left the area on the previous day. The Safety Board believes that the

1/ For more detailed information, read Accident/Incident Summary Report--"Sinking of the U. S. Lift Boat A.M. HOWARD in the Mississippi River Gulf Outlet Canal, about 1/4 nmi east-southeast of Light No. 87 on October 28-29, 1985" (NTSB/MAR-86/02/SUM).

master of the A.M. HOWARD should have recognized that the weather conditions were not conducive to the safe operation of the lift boat and that he should not have departed Hopedale. However, his decision to navigate to Breton Sound in the adverse weather conditions suggests that he did not understand the increased risks posed by the adverse weather on the safe operation of his vessel. This may have been the result, in part, of insufficient training in lift boat operations, vessel navigation, and stability and of the company's lack of written operating procedures, pertinent to the safe operation of the lift boat.

When the engineer was asked to check the vessel's void after the grounding it is very likely that he did not carefully inspect the entire void area, because he was not trained in vessel operations and had only been aboard the vessel 4 days. Subsequent to the engineer's actions, checks were not made to determine if the hull was flooding or to detect a small or slow leak. Although the master did not believe the grounding caused any damage, he should have considered it important to periodically monitor the void for signs of flooding and should have inspected it for damage because the vessel was not equipped with a high water alarm or automatic pump in the void space. Prudent actions under normal operating conditions would involve hourly inspections of unmanned engine spaces that lack monitoring and alarm systems. While the master was the only person familiar with the vessel and its operation, he could have considered the option of jacking the vessel up after grounding and inspecting the void and hull himself or continuing to have the engineer check the void of frequent intervals. The vessel was not equipped with anchor, high water alarm, or a means to activate the pump for the void without entering the space. Therefore, in the event that the lift boat could not have been jacked up due to adverse sea conditions, water depth, and/or the bottom contour, the master would have had to allow the vessel to drift or leave an untrained person to operate the vessel if it was necessary to inspect the hull for flooding. High water sensors located in the vessel's void with alarms located in the pilothouse, would have warned the master of flooding. An automatic pump or means to activate a manually started pump from the pilothouse would have provided the master with a means to immediately respond to the flooding of the unmanned space. Vessel owners and operators have the responsibility to equip their vessels so that they can be operated safely as manned. Therefore, the Safety Board believes that the vessel's owner should equip unmanned void spaces of the lift boats with high water sensors which have pilothouse alarms and a drainage system which includes an automatic pump or a manually started pump which can be operated from the pilothouse.

Sea water entering the void was free to flow from side to side or fore and aft throughout the entire compartment, because the void was not subdivided. Thus, the water free to flow to the low side, would have reduced the vessel's stability or tendency to return to its original position at both large and small angles of heel. The reduction in the vessel's stability from the free surface effect of the flooding would have been worsened by the effects of the fuel oil shifting among the interconnected, partially filled, fuel oil tanks. Further, the seawater entering the void would have added more weight to the vessel and caused a reduction in the freeboard. A decrease in freeboard results in deck immersion at smaller angles of heel and can decrease the ability of the vessel to right itself at moderate and large angles of inclination. It is probable that the A.M. HOWARD heeled to starboard from an adjustment in the heading or movement because of the seas. This would have caused the liquid in the void and fuel tanks to shift to the starboard side. This shift in weight would have resulted in a larger angle of heel. As the vessel listed the unsecured deck cargo would have shifted to the starboard. Eventually the A.M. HOWARD's righting ability was exceeded and it was not able to recover from the list and capsized.

The master of the A.M. HOWARD did not appreciate the seriousness of the grounding nor the danger it posed to the vessel. He failed to monitor or to have the engineer monitor the void at frequent intervals, as safe operating procedures would dictate, for signs of flooding which would have led to detection of the flooding. He had operated the A.M. HOWARD for about 63 days and he did not have formal classroom training in lift boat operations, navigation, and stability. The vessel's owner provided on-the-job training for crewmembers prior to assigning them to operate the vessels; however, this was not supplemented with operation manuals on all information necessary for the safe operation of the vessel. The master of the A.M. HOWARD had not been trained in and did not know about many aspects of the safe operation of the vessel. Further, an engineer with no formal training in vessel operation or stability loaded the deck cargo. It was the master's usual policy to follow the directions of the engineer or contractor, consequently he allowed them to determine when the vessel should operate. The master also depended on his supervisor shoreside to aid him in deciding if the vessel could operate safely and a mechanic shoreside to assist in the operation of the engines. The master did not make many decisions for which he was responsible. He relied on persons not trained in vessel operations, persons not familiar with the vessel's limitations and characteristics, and persons not on or near the vessel to make decisions as to the safe loading and/or operation of the lift boat. Although the master was responsible for the safety of the industrial personnel aboard, he was not able to make proper decisions pertinent to the safe operation of the vessel because he was not given adequate training and directives. The master had informed the industrial personnel of the location of the life preservers, however an abandon ship drill or more extensive safety orientation would have ensured that they knew the location of and how to properly use all safety equipment aboard the life boat. The Safety Board believes that owners of lift boats should provide their masters with formal training and detailed operation manuals which include information on vessel loading procedures and deck load restrictions, jacking procedures, inspections of unmanned engine spaces, the weather conditions under which the vessel can safely operate, and the importance of briefing the industrial persons aboard on the vessel's safety equipment.

Therefore, the National Transportation Safety Board recommends that the Cardinal Wireline Specialists, Inc.:

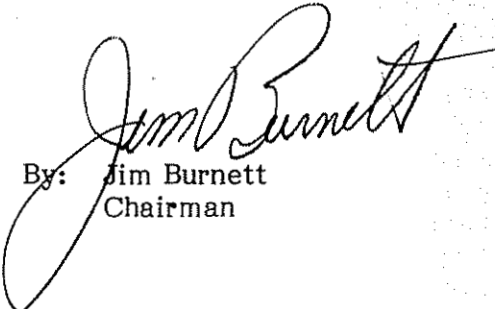
Equip lift boats that you own or operate with high water sensors, which have pilothouse alarms, and a drainage system which includes an automatic pump or a manually started pump which can be operated from the pilothouse for the vessels' void spaces. (Class II, Priority Action) (M-86-116)

Modify lift boats that you own or operate so that the lift boats will not capsize or sink at maximum allowable loaded draft when any one compartment is flooded. (Class II, Priority Action) (M-86-117)

Provide the masters of all vessels that you own or operate with clearly and precisely written operation manuals which provide information, easily understood by the master, on vessel loading procedures, deck load restrictions, jacking procedures, inspections of unmanned engine spaces, the weather conditions under which the vessel can safely operate, and the importance of briefing the industrial persons aboard on the vessel's safety equipment. (Class II, Priority Action) (M-86-118)

Also as a result of its investigation, the Safety Board issued Safety Recommendations M-86-119 to the U.S. Coast Guard and M-86-120 and -121 to the Offshore Marine Service Association.

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 actions taken as a result of its safety recommendations and 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-86-116 through -118 in your reply.

  
By: Jim Burnett  
Chairman