



MARINE SAFETY ALERT

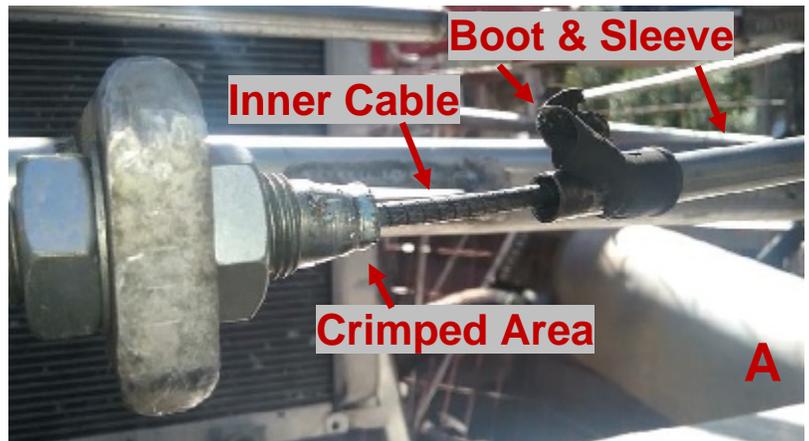
Inspections and Compliance Directorate

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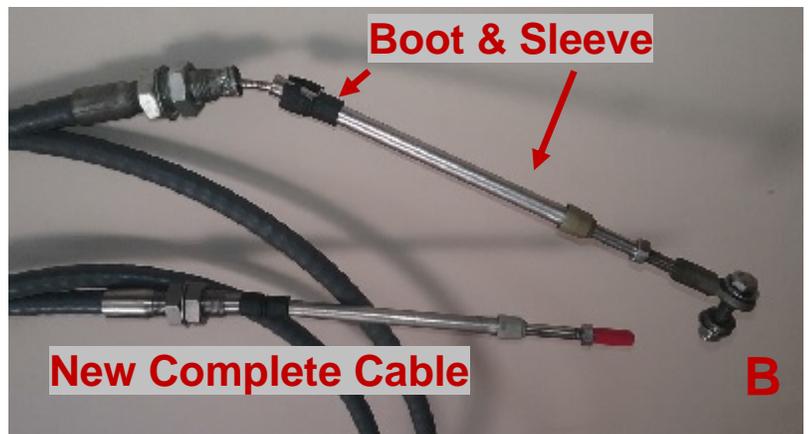
Safety Alert 01-18

A Delayed Repair Can Bite You in the Derriere **Performing prompt maintenance is critical!**

Recently, several passengers onboard a commercial airboat tour were injured when the boat lost steering and hit a tree. Fortunately, there were only a few serious injuries because the boat was not underway at full speed when the accident occurred. This Safety Alert serves as a reminder to vessel owners, operators and those who repair these vessels of the importance of recognizing risks and ensuring proper maintenance and repairs are made to minimize risk.



On some airboats, steering is achieved by directing the flow of (propulsion) fan air across two vertically placed rudder foils. As the foil position is changed the directional thrust acting on the stern of the vessel varies. The foils move in tandem because of a linkage between the two foils. The steering cable is typically only connected to one of them. The end of the body of the steering cable is secured to the vessel and locked in place by two nuts. (Image A) Attached near this fitting is a sleeve which covers the final end of the enclosed cable. The end of the sleeve is bellowed outwards and inserted into the end of the main cable body which is then crimped inward. (Image A) This joint is covered by a rubber boot to prevent dirt and debris from entering into the cable body and interfering with the enclosed cable's movement. The crimped connection allows for some angular movement at the end of the cable.



Over time, the crimped connection can become deformed due to the stresses occurring at the joint. Ultimately, in this case, the parts separated and the end of the cable lost its linear rigidity, putting slack into the control cable and causing a loss of control of the steering foils. (Image C) In this instance, the rubber boot covering the joint was found to be damaged and there appeared to be tool marks at the location of the joint. It's likely that in the past the joint was held compressed together by the use of Vice-grip type pliers. The person who may have placed the Vice-grips on the connections failed to recognize the potential risk of a loss of steering should the connection fail. It was not proper to make repairs in this instance and the cable should have been completely replaced.

The following image shows a Morse/Teleflex/Cablecraft "type" push-pull control cable assembly sleeve connection point that was fatigued and had begun to fail.



Throughout the history of Marine Safety and Prevention activities, inadequate or improper maintenance and repairs, combined with the failure to recognize potential risks as a result of those maintenance and repair efforts, have led to numerous marine casualties involving substantial injuries, fatalities, environmental damage and economic costs to the involved parties. The causal factors behind the decisions to perform inadequate or improper maintenance or improper repairs oftentimes are related to economic factors which limit the available options to those involved, causing them to make a poor decision.

As a result of this information and other similar instances the Coast Guard **strongly recommends to owners and operators and those involved with the maintenance of these and all vessel types:**

- To develop an operational paradigm where maintenance and repair items are evaluated carefully, recognizing the potentials risks associated with their operation should the repair or maintenance item not be properly performed or achieved in a timely manner.
- **For airboat operators specifically:** Owners and operators of airboats that use flexible type steering control cables are reminded of the need to thoroughly inspect cables before use, including areas under the dust boots. Due to the forces encountered on airboat applications, owners are also encouraged to ensure these cables are properly maintained and to immediately replace a worn cable. Owners are discouraged from attempting to repair a factory crimp.

This Safety Alert is provided for informational purposes only and does not relieve any domestic or international safety, operational or material requirement. This information has been developed by the Marine Investigators at U.S. Coast Guard Sector Saint Petersburg. Distributed by the Office of Investigations and Casualty Analysis, Washington DC. Questions may be sent to HQS-PF-fldr-CG-INV@uscg.mil.