

**DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD**

U.S. Coast Guard (G-MMT-3)
Washington, DC 20593
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NVC 1-80
14 JAN 1980

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 1-80

Subj: Inspection of Viking On-Load Release Gear on Watercraft America

Ref: (a) Rules for annual stripping, cleaning and overhaul of lifeboats; 46 CFR 33.25-15(a), 78.17-60(c), 97.15-45(c), 109.217(d), 167.35-30, and 196.15-45(c)
(b) Rules for reports of accidents, repairs and unsafe equipment; 46 CFR 33.01-20, 78.33, 97.30, 109.419, 109.425, 167.30-1(a), and 196.30.
(c) Rules for inspection and reinspection of lifesaving equipment; 46 CFR 33.01-1, 71.25-15, 91.25-15, 107.231(b), 167.35-50, 189.25-15.

1. **PURPOSE.** This Circular establishes inspection procedures for Viking On-Load Release Gear systems (USCG approvals 160.033/66/0, 1, & 2) conducted as part of the annual stripping, cleaning and overhaul of lifeboats (reference (a)). The systems are installed on certain lifeboats constructed by Watercraft America, Inc. (See Enclosure 1.)

2. **BACKGROUND**

- a. The Viking On-Load Release Gear is a new design, first approved in 1977. The system is similar in function to the conventional Rottmer gear in that it provides simultaneous release of both ends of the lifeboat. Its advantages over the Rottmer gear include easier operation and the location of the release control handle at the boat operator's station, so that the operator is in full control of the launching and release of the boat.
- b. Because the Viking gear differs from the Rottmer gear, it is necessary to establish proper inspection procedures to assure that the system is in satisfactory condition.

3. **DISCUSSION.**

- a. The Viking On-Load Release gear consists of an upsetting hook which releases the falls in a manner similar to the Rottmer gear. However, unlike the Rottmer gear which uses a rotating collar to hold the foot of the hook in place until release, the Viking gear hook is held in place by stainless steel cables that run through a series of cable guides inside the boat to the release control mechanism. The release control mechanism includes another stainless steel cable connecting the release control handle with the linkage for the main cables that hold the hooks.
- b. The design of the Viking gear is such that when the boat is being supported by its hooks, all of the cables are under load. If there should be a failure of either of the main cables or any of the cable guides, the hook being held by the cable 'would open and 'would allow that end of the boat to drop. If there should be a failure of the cable or linkage in the release control mechanism, both hooks could open, allowing the boat to drop.

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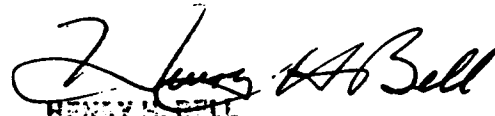
- c. Because of the consequences of a failure, the components of the system are designed with an ample factor of safety. Stainless steel cables and fittings have been chosen to minimize corrosion problems. Nevertheless, it is essential that all of the components are maintained in good condition.

4. ACTION.

- a. A complete visual examination of Viking On-Load Release Gears shall be conducted as part of the annual stripping, cleaning and overhaul under reference (a). The examination shall include inspection of the full length of cables and each cable guide. If any part of a cable is not visible, the cable shall be removed for complete inspection.
- b. Any of the following conditions constitute failure of the examination:
 - (1) Broken, damaged, or corroded cables including separated or broken strands, kinking, or visible wear. (Particular attention should be paid to the area between cable strands for evidence of crevice corrosion).
 - (2) Slack cables indicated by hooks not completely closed.
 - (3) Broken, damaged, or corroded cable end fittings.
 - (4) Broken, cracked, 'worn, or corroded cable guides.
 - (5) Loose cable guide bolts.
 - (6) Any evidence of stress cracks, delamination, or distortion of the fibrous glass reinforced plastic (FRP) structure supporting any cable guide.
 - (7) Any damage, deformation or difficult operation of any part of the release control mechanism, or of the release hooks.
 - (8) Any other condition indicating a weakness in the release gear structure.
- c. Cables or cable guides failing the inspection may be replaced by parts obtained from the original manufacturer of the gear if an adjustment or tightening of bolts does not correct the problem.
- d. Damaged FRP structure may be repaired only by or under the supervision of the manufacturer of the boat, or the manufacturer's designated representative.
- e. In the case of cables of questionable quality, a tensile test of 4000 lbs. for a 7/16" diameter cable or a test of 1000 lbs. for 3/16" diameter release control mechanism cable shall be performed. Cables passing the test are satisfactory.
- f. In the case of cable guides, appropriate non-destructive methods may be used to check for cracks. If a liquid penetrant method is used, care shall be taken to assure that it is compatible with the galvanized steel guides.

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- g. The release gear should be maintained in accordance with the manufacturer's instructions, including grease lubrication of all moving parts.
- h. Any unsatisfactory conditions shall be reported to the Officer in charge of Marine Inspection (reference (b)).
- i. Coast Guard inspectors may examine the release gear as part of inspections performed under reference (c). Any records of the examinations performed during the annual stripping, cleaning and overhaul should be made available to the inspector.

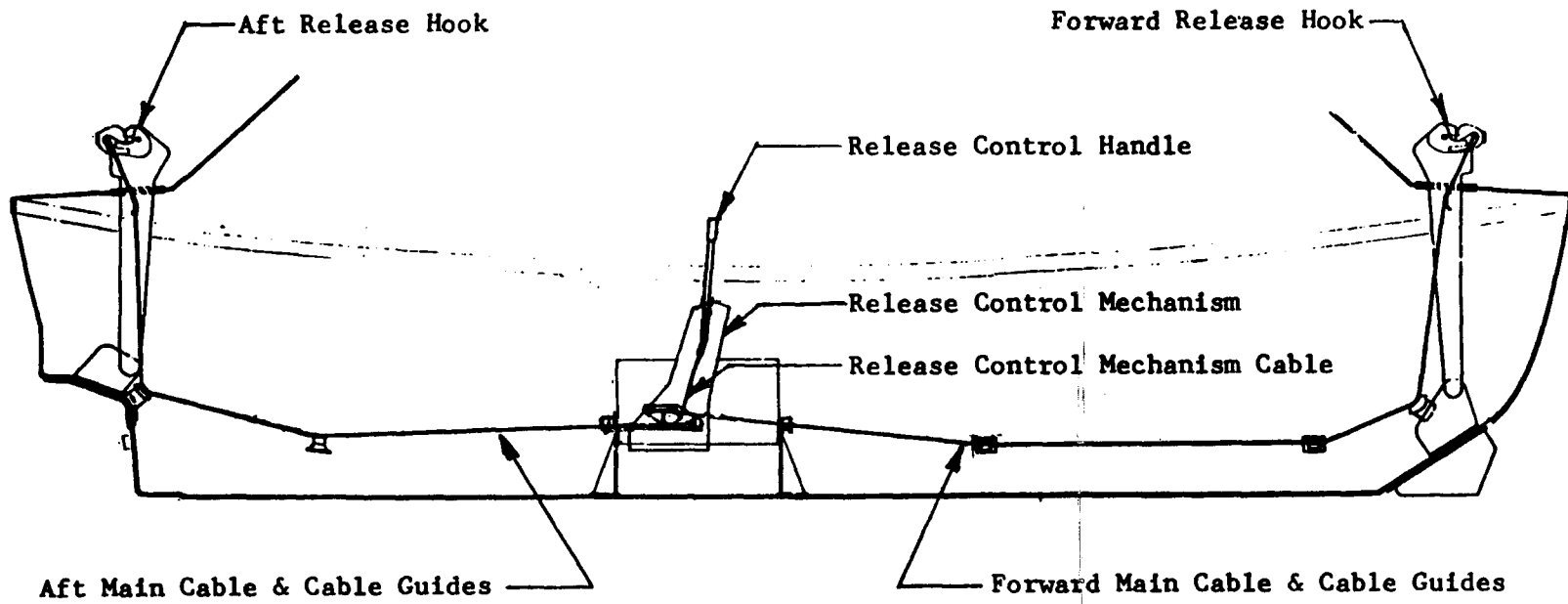

HENRY H. BELL
Chief, Office of Merchant Marine Safety

End: (1) Viking On-Load Release Gear Typical Installation in Enclosed Lifeboat

Non-Standard Distribution:

Ce: Baltimore (75); San Francisco, Mobile, Guam, Pittsburgh, Providence, Norfolk (50), Galveston (30); Cleveland, Portland, OR, Sturgeon Bay (25); San Diego, Savannah, Buffalo, Corpus Christi (20); Tampa, Louisville, Detroit, Toledo, Anchorage (15); Portland, ME, Duluth, Charleston, Huntton, Minneapolis, St. Paul (Dubugue), San Juan (10); Juneau, Cincinnati, Memphis, Wilmington, Paducah, Albany (5) extra

Cm: New Orleans (250); New York (200); Seattle (100); Houston (50); Terminal Is. (LA-LB), Philadelphia (40); extra



VIKING ON-LOAD RELEASE GEAR - TYPICAL INSTALLATION IN ENCLOSED LIFEBOAT

ENCL