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10 Feb 1983

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 1-83
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Subj: Painters for Life Floats and Buoyant Apparatus

1. PURPOSE. This Circular is intended to provide information to vessel owners/operators and Officers in Charge, Marine Inspection on new requirements for painters on life floats and buoyant apparatus.

2. BACKGROUND. On 20 September 1982, the Coast Guard published rules requiring a new painter arrangement on life floats and buoyant apparatus by 20 September 1983 (47 FR 41368). (The term "buoyant apparatus" refers to those devices approved as buoyant apparatus with Coast Guard approval numbers beginning 11160.0l0/....N The term does not include inflatable liferafts or ring life buoys). The rules apply to all inspected vessels with life floats or buoyant apparatus, but do not apply to artificial islands and mobile offshore drilling units. In the following discussion, the term "apparatus" refers to both life floats and buoyant apparatus.

3. DISCUSSION.

a. The new rules require the following:

(1) The apparatus must be secured to the vessel by a painter at least 100 ft. long. The painter must be attached to the vessel by a float-free link. (In other words, the link must be at the vessel end of the painter.) This arrangement is shown in Enclosure (1). The existing 4 fathom painter now on most apparatus can continue in use if extended by an appropriate length of painter of the required strength. The old and new painters must be joined by a well-made splice. Knots are not permitted. All new painters must be one continuous length.

(2) The painter breaking strength must be at least 1500 lb., except for apparatus of 50 persons or more capacity, which must have ~000 lb. breaking strength painters. The painter may be of manila or synthetic fiber rope. If a synthetic fiber rope is used, it must be certified to be UV (ultraviolet) resistant or else a dark color (black preferred, but dark blue, dark green, etc. are okay). The table in Enclosure (2) gives typical rope sizes for the required painter strengths.

(3) The float-free link is described in Subpart 160.073 which is reproduced in Enclosure (3). The float-free link is not a Coast Guard approved item. It is certified by the maker to meet the requirements of Subpart 160.073, and this certification is on the identification tag. The devices are available from most apparatus manufacturers, but they can be made by anyone with the proper corrosion resistant wire and means to permanently secure the loops in the wire. The table in Enclosure (4) gives typical wire sizes for the required breaking strengths.

(4) Two or more apparatus may be grouped on a single painter and float-free link, provided that the weight of the group does not exceed 400 lb. In this case, the strength of the painter and float-free link are determined by the combined capacity

of the apparatus in the group. At the apparatus end of the painter, there must be individual lines leading to each apparatus which are long enough to allow each one to float without stacking up on another. Two possible arrangements are pictured in Enclosure (5).

(5) The float-free link is not required if the vessel operates only in waters that are not as deep as the length of the painter. For example, a vessel that operates in waters up to 120 ft. deep could either fit 120 ft. of painter with no link, or 100 ft. of painter with a link. A vessel that operates in waters up to 50 ft. deep would have to have a 100 ft. painter, but the link could be omitted.

(6) If the apparatus does not have a painter attachment fitting on it, one can be made by securing a line around the body of the apparatus. The line should be the same as the painter, but other materials such as corrosion resistant wire or hardware can be used if they are of at least the strength of the painter. The painter must not be attached to the lifelines or pendants on the apparatus. The webbing used to hold the lifelines and pendants on some apparatus can be used on any apparatus of 10 persons capacity or less. If the webbing is 3 in. wide, it can be used on apparatus up to 20 persons capacity.

(7) Care must be taken in attaching the float-free link to the vessel. This needs to be a strong connection, so that if any break in the painter system occurs, it occurs in the float-free link. Enclosure (1) shows a shackle and eyebolt arrangement, but any solid attachment point with adequate strength can be used. If rope or wire is used, it must be the same or stronger than the rope used for the painter and must also be dark or UV resistant, or must be corrosion resistant if wire.

(8) The painter must be stowed in a way that allows it to run out freely. This can be done in a number of ways. If the apparatus is stowed flat, the painter can be faked or coiled loosely underneath. Other acceptable arrangements include coiling the painter in a basket or hanging it on a peg. The peg should not have a hook on the end that could snag the painter as it pays out. The painter can be gathered into a hank and secured by one or two turns of light twine or the hank can be inserted into a section of pipe or tube.

b. Apparatus are required by the regulations to be stowed in such a way that they float-free or else be secured so they can be readily cast loose. The best arrangement is one that allows the apparatus to float free so that it is available immediately in case of an accident that occurs so quickly that there is no time to cast it loose. This can be accomplished by securing the apparatus with a Coast Guard approved hydrostatic release. These releases must be tested annually at an approved servicing facility, so a less expensive alternative is to construct a rack that holds the apparatus in place, but that allows it to float off. Stowing the apparatus in a way that requires it to be manually released is not recommended unless there is no other reasonable alternative. If more than one apparatus is carried, they must not be lashed to each other since this limits carrying capacity in the water.

4. ACTION

a. Vessel owners/operators, and Officers in Charge, Marine Inspection shall make sure that life floats and buoyant apparatus are equipped with the new painter arrangement by 20 September 1993.

b. Vessel owners/operators are encouraged to stow life floats apparatus in such a way that they are not lashed together, they will float free in case the vessel sinks or capsizes.

CLYDE T. LUSK, JR.
Chief, Office of Merchant Marine Safety

Ends: (1) Illustration, Apparatus secured to vessel by painter and float free link.
(2) Table, Minimum rope sizes
(3) 46 CFR 160.073
(4) Table, Nominal wire sizes
(5) Illustration, Two ways to group apparatus on a single painter.

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D:l CG Liaison Officer MILSEALIFTCOMD M-60 STRAT MOB only (1)
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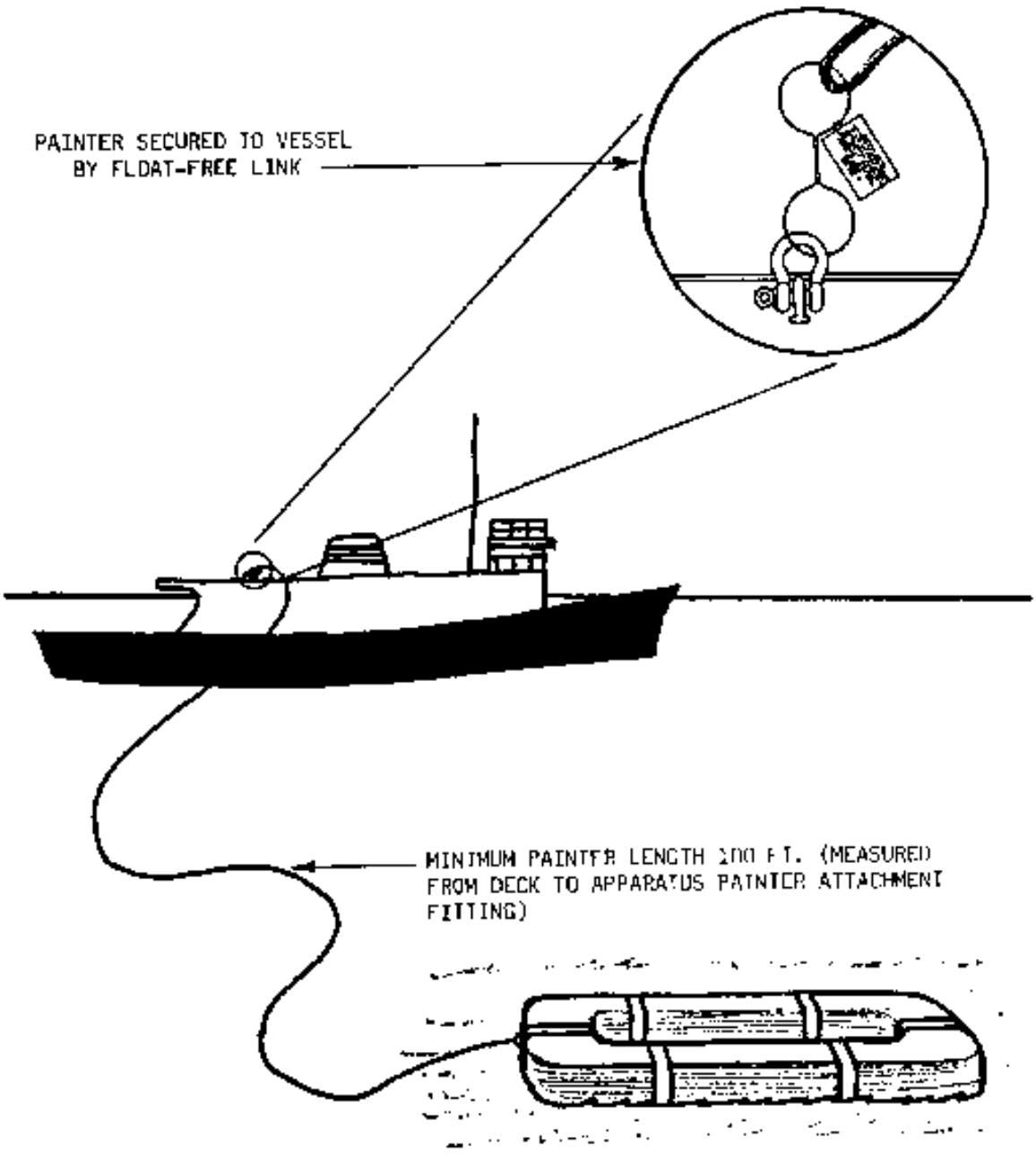


APPARATUS SECURED TO VESSEL BY PAINTER AND FLOAT-FREE LINK

MINIMUM ROPE SIZES FOR LIFE FLOAT AND BUOYANT APPARATUS PAINTERS *

	1500 LB. STRENGTH (APPARATUS FOR LESS THAN 50 PERSONS)	3000 LB. STRENGTH (APPARATUS FOR 50 PERSONS OR MORE)
MANILA	7/16 " DIA.	9/16 " DIA.
NYLON	1/4 " DIA.	3/8 " DIA.
BRAIDED NYLON	1/4 " DIA.	3/8 " DIA.
DACRON	5/16 " DIA.	3/8 " DIA.
POLYPROPYLENE	5/16 " DIA.	7/16 " DIA.
POLYETHYLENE	5/16 " DIA.	7/16 " DIA.
ESTERLON (POLYESTER)	5/16 " DIA.	7/16 " DIA.
BRAIDED POLYESTER	5/16 " DIA.	7/16 " DIA.

* CORDAGE, ESPECIALLY SYNTHETIC CORDAGE, VARIES WIDELY DEPENDING UPON THE MANUFACTURER AND METHOD OF CONSTRUCTION. UNLESS OTHERWISE NOTED, THE ROPES IN THIS TABLE ARE THREE STRAND - MEDIUM LAY AND SYNTHETIC ROPES ARE OF THE MONOFILAMENT TYPE. CONSULT MANUFACTURER'S DATA FOR MORE EXACT INFORMATION ON ROPES NOT COVERED IN THIS TABLE.

Subpart 160.073 (Title 46, Code of Federal Regulations)
FLOAT-FREE LINK FOR LIFE FLOATS AND BUOYANT APPARATUS

Sec.
160.073-1 Scope.
160.073-5 Certification.
160.073-10 Construction and Performance.
160.073-15 Tests.
160.073-20 Marking.
AUTHORITY: 46 U.S.C. 481; 49 U.S.C. 1655(b); 49 CFR 1.46.

§ 160.073-1 Scope.

(a) This subpart contains requirements for a float-free link used for connecting a life float or buoyant apparatus painter to a vessel. The float-free link is designed to be broken by the buoyant force of the life float or buoyant apparatus so that the float or apparatus breaks free of a vessel that sinks in water deeper than the length of the painter.

§ 160.073-5 Certification.

(a) The float-free link is not approved by the Coast Guard. The manufacturer of the link must certify that it meets all of the requirements of this subpart by application of the markings required in § 160.073-20.

(b) If the manufacturer wants the link to be listed in the Coast Guard publication "Equipment Lists," the manufacturer must send a letter requesting the listing to Commandant (G-MVI-3), U.S. Coast Guard, Washington, DC 20593.

§ 160.073-10 Construction and performance.

(a) The link must be constructed essentially as shown in figure 160.073-10. The link must be formed from a single salt water corrosion-resistant wire. A loop at least 50 mm (2 in.) in diameter must be provided at each end of the wire. Each loop must be permanently secured.

(b) The breaking strength of each link must be between:

(1) 450 N (100 lb.) and 600 N (134 lb.) for links intended for life floats and buoyant apparatus of 10 persons and less capacity.

(2) 900 N (200 lb.) and 1200 N (268 lb.) for links intended for life floats and buoyant apparatus of 11 to 20 persons capacity.

(3) 1800 N (400 lb.) and 2400 N (536 lb.) for links intended for life floats and buoyant apparatus of 21 persons and more capacity.

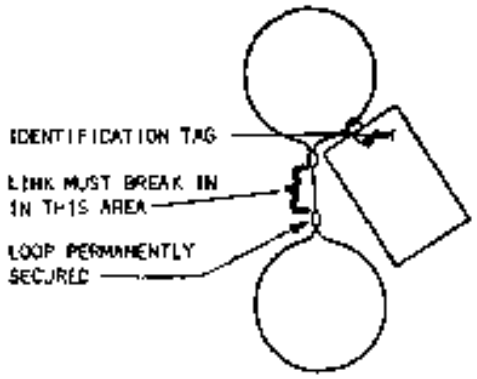


Figure 160.073-10. Typical configuration of float-free link for life floats and buoyant apparatus.

§ 160.073-15 Tests.

(a) The manufacturer shall perform a tensile test on the first three links made from a particular spool of wire. The test must be done by slowly loading the link until it breaks. The link must break between the limits specified in § 160.073-10(b). The break must occur in the length of wire at or between the points where the loops are secured (see Figure 160.073-10).

(b) If each of the three links passes the test, each link constructed in the same manner from the same spool of wire may be certified by the manufacturer as meeting the requirements of this subpart.

(c) If one or more of the three links fails the test, no link manufactured in the same manner and from the same spool of wire as the test links may be certified as meeting the requirements of this subpart.

§ 160.073-20 Marking.

(a) Each link certified by the manufacturer to meet the requirements of this subpart must have a corrosion resistant, waterproof tag attached to it that has the following information on it (the manufacturer must make the appropriate entries in the indicated spaces):

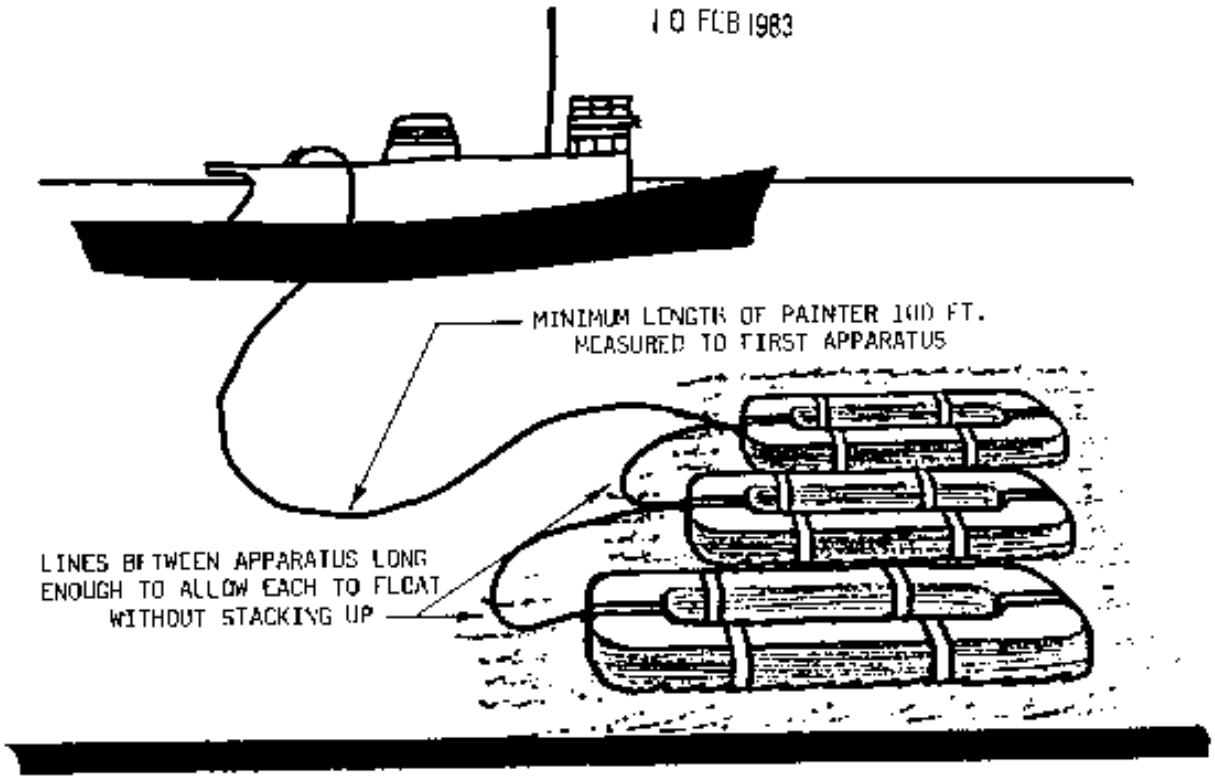
FLOAT-FREE LINK FOR
LIFE FLOATS AND BUOYANT APPARATUS
OF (10 OR LESS) (11 TO 20) (21 OR MORE)
PERSONS CAPACITY.
NOMINAL BREAKING STRENGTH _____.
MEETS U.S. COAST GUARD
REQUIREMENTS - 46 CFR 160.073.
MADE BY: (name and address)
(date)

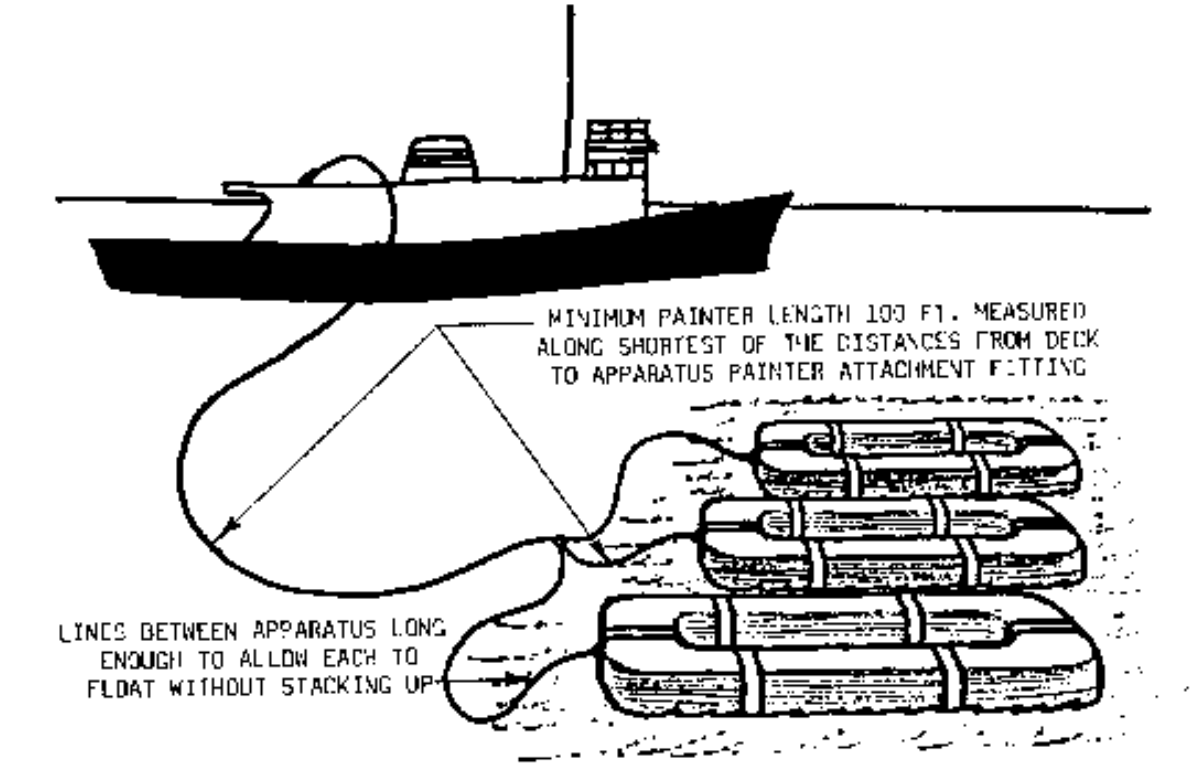
NOMINAL WIRE SIZES FOR FLOAT-FREE LINKS *

	100-134 LB. (APPARATUS FOR 10 PERSONS OR LESS	200-268 LB. (APPARATUS FOR 11 TO 20 PERSONS	400-536 LB. (APPARATUS FOR 21 PERSONS OR MORE
STAINLESS STEEL OR GALVANIZED CABLE:			
1 X 7 **	.024 " DIA. (100 LB.) .027 " DIA. (125 LB.)	.036 " DIA. (210 LB.) .039 " DIA. (250 LB.)	1/16 " DIA. (500 LB.)
1 x 19	.025 " DIA. (120 LB.)	.040 " DIA. (255 LB.)	1/16 " DIA. (500 LB.)
3 x 7	1/32 " DIA. (110 LB.)	.042 " DIA. (200 LB.) 3/64 " DIA. (235 LB.)	
7 x 3	1/32 " DIA. (110 LB.)		
7 x 7	.027 " DIA. (100 LB.) 1/32 " DIA. (110 LB.)	.045 " DIA. (200 LB.)	1/16 " DIA. (480 LB.)
7 x 19			1/16 " DIA. (480 LB.)
MONEL CABLE:			
6 x 42			1/8 " DIA. (440 LB.)
7 x 7	3/64 " DIA. (135 LB.)	1/16 " DIA. (215 LB.)	3/32 " DIA. (480 LB.)
7 x 19			3/32 " DIA. (480 LB.)
BRONZE CABLE:			
7 x #24 GAGE		.060 " DIA. (230 LB.)	

* CABLE AND WIRE STRENGTHS VARY DEPENDING UPON THE MANUFACTURER AND METHOD OF CONSTRUCTION. CONSULT MANUFACTURER'S DATA FOR MORE EXACT INFORMATION.

** CONSTRUCTION OF CABLE (NUMBER OF STRANDS X NUMBER OF WIRES PER STRAND OR GAGE SIZE OF SINGLE WIRE STRAND)).





TWO WAYS TO GROUP APPARATUS ON A SINGLE PAINTER