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United States Coast Guard

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NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 04-07

Subj: SERVICING AND MAINTENANCE OF LIFEBOATS, LAUNCHING APPLIANCES AND ON-LOAD RELEASE GEAR

1. PURPOSE.

a. This Navigation and Vessel Inspection Circular (NVIC) provides guidance on implementation for U.S-flag ships subject to the International Convention for the Safety of Life at Sea, 1974, as amended (SOLAS) for the International Maritime Organization's (IMO) Maritime Safety Committee (MSC) Circular MSC.1/Circ. 1206 *Measures to prevent accidents with lifeboats*, published 26 May 2006. MSC.1/Circ 1206 is a compilation of the four previous MSC Circulars dealing with lifeboat maintenance, drills, and training. This NVIC focuses in particular on the implementation of Annex 1 to the Circular (*Guidance for periodic servicing and maintenance of lifeboats, launching appliances and on-load release gear*). The Annex provides guidelines for manufacturer certification of facilities and personnel servicing lifeboats and launching systems, and also provides amplifying guidance on procedures relating to certain terms used in SOLAS Chapter III, regulation 20 ("thorough examination", "overhaul", and "operational test") in an appendix. The applicable sections of MSC.1/Circ. 1206 are provided in Enclosure 1 to this NVIC. Although MSC.1/Circ. 1206 is not at present a mandatory IMO instrument, work is underway at IMO with a view to possible mandatory application of its contents in the future.

b. Additionally, this NVIC promulgates recent amendments to regulation 20 of SOLAS Chapter III on the same subject, along with related provisions for liferaft and rescue boat launching appliances. These amendments entered into force on 1 July 2006, with additional clarifying amendments to the same regulation scheduled to enter into force on

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1 July 2008. In accordance with IMO MSC.1/Circ. 1215, inviting early implementation of these latter amendments in advance of their formal entry into force, the Coast Guard will give them immediate effect for U.S.-flag SOLAS ships. A consolidated version of the amendments to SOLAS regulation III/20 is provided in Enclosure 2 to this NVIC.

2. ACTION. Ship operators, lifesaving equipment manufacturers, servicing and repair facilities and personnel, and Officers in Charge, Marine Inspection (OCMIs) should ensure that servicing and maintenance of lifeboats and launching systems is carried out in accordance with the guidance in this NVIC. This NVIC will be distributed by electronic means only. It is available on the World Wide Web at http://www.uscg.mil/hq/g-m/nvic/.

3. DIRECTIVES AFFECTED. None.

4. BACKGROUND.

   a. Current Coast Guard guidance on inspection and repair of lifesaving equipment is contained in earlier NVICs (e.g., NVIC 2-63, Guide for Inspection and Repair of lifesaving Equipment), the Marine Safety Manual, and Title 46, Subchapter W in the Code of Federal Regulations (CFR). Over the years lifesaving equipment has become more sophisticated in order to provide increased capabilities, and to be able to better deal with different possible types of shipboard casualties. This is readily apparent in modern totally enclosed lifeboats, rescue boats, and lifeboat on-load release gear. While this equipment provides greater functionality, it also has become more complex, and consequently more difficult and critical to maintain properly. As a result, numerous accidents involving this equipment, some resulting in fatalities, have been reported worldwide in recent years, most due to operator error or to faulty maintenance.

   b. In response to these accidents, several years ago the IMO began a long-term initiative to address measures to prevent accidents with lifeboats. This work has thus far resulted in amendments to the requirements for design and performance of on-load release mechanisms in the IMO Life-Saving Appliances (LSA) Code, and to the development of MSC.1/Circ. 1206 (in particular Annex 1).

   c. There has been a good deal of confusion worldwide concerning whether the application of MSC.1/Circ.1206 became mandatory with the July 2006 entry into force of the amendments to SOLAS regulation III/20 (where it is referenced in a footnote). At its 82nd session in December 2006, the IMO MSC clarified the issue by deciding unequivocally that until certain practical issues relating to the mandatory application of the Circular have been addressed (in particular the lack of adequate worldwide coverage of suitably certified facilities and personnel), the Circular is not mandatory. The MSC directed the IMO Sub-Committee on Ship Design and Equipment to further examine the issue with a view to a decision on mandatory application of the Circular no later than 2010. IMO is currently considering procedures, similar to those for approval of inflatable liferaft servicing facilities, for Administration approval of facilities carrying out this work.

5. DISCUSSION.

a. Most components of lifeboat and launching systems, e.g., engines, steering gear, etc., are generally of common and conventional designs for which service and repair do not necessarily require manufacturer-specific expertise. Many facilities have demonstrated their capabilities to competently examine, overhaul, and repair this equipment over many years under Administration oversight, with or without explicit manufacturer certification. Manufacturer certification is recommended, as a means of ensuring familiarity with the equipment specifications, but there is no compelling reason to require it for items such as routine steel and fiberglass work, and operations involving generic or non-critical components.

b. Lifeboat on-load release mechanisms, on the other hand, have been involved in almost all of the lifeboat accidents that have been discussed within IMO and seen by the USCG in recent years. This equipment is relatively complex, often with tight dimensional tolerances; the technical documentation and genuine parts needed to properly service and maintain it are in many cases not available to parties not certified by the manufacturer; and the consequences of failure are often catastrophic. For that reason, U.S. implementation by this NVIC of the provisions of MSC.1/Circ.1206 relating to manufacturer certification of servicing facilities and personnel places particular emphasis on this equipment.

6. IMPLEMENTATION.

a. For the reasons discussed in 5.b above, "thorough examinations", "operational tests", and "overhauls" of lifeboat and rescue boat on-load release mechanisms carried out in accordance with SOLAS Regulation III/20.11 (Enclosure 2) should, whenever practicable, be carried out by personnel or facilities certified by the original equipment manufacturer, or at a minimum with access to the manufacturer's technical specifications; and replacement parts should be genuine parts supplied by the original equipment manufacturer. In general, short-term deferral of servicing under a suitable CG-835 is preferable to use of non-original equipment manufacturer (OEM) critical parts. Contact the Commandant (CG-3PSE-4) for guidance in cases where the equipment manufacturer is not known or is no longer in business.

b. For servicing and maintenance of other, less critical equipment and components, certification by the manufacturer is recommended. However, facilities and personnel without explicit manufacturer certification, including shipyard engineers or experienced ship crew, are acceptable where the OCMI is satisfied, on the basis of long-term experience, that they are capable of satisfactorily and safely carrying out the work. In all cases, replacement of critical components as identified by the equipment manufacturer's operations and maintenance instructions should be with genuine parts meeting the original equipment manufacturer's specification.

c. In all cases, the procedural guidance in the appendix to Annex 1 to MSC.1/Circ.1206 (Enclosure 1) should be followed when performing thorough examinations, operational

tests, and overhauls of lifeboats, launching appliances, and on-load release mechanisms in accordance with SOLAS regulation III/20.11.

d. In order to provide supporting documentation for future discussions at IMO concerning mandatory application of MSC.1/Circ.1206, ship operators, lifesaving equipment manufacturers, servicing and repair facilities and personnel, and OCMI's are encouraged to inform the Commandant (CG-3PSE-4) of any practical problems encountered in the implementation of its provisions, particularly with regard to availability of manufacturer-certified facilities.

7. DISCLAIMER.

a. This is not a significant guidance document. It does not lead to an annual effect of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities; create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights or obligations of recipients thereof; or raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in Executive Order 13422.

b. While the guidance contained in this document may assist the industry, the public, the Coast Guard, and other Federal and State agencies in applying statutory and regulatory requirements, this guidance is not a substitute for the applicable legal requirements, nor is it in itself a regulation. It is not intended to, nor does it impose legally binding requirements on any party, including the Coast Guard, other Federal agencies, the States, or the regulated community.

8. CHANGES. This NVIC will be posted on the web at http://www.uscg.mil/hq/g-m/nvic/. Changes to this NVIC will be issued as necessary. Questions or suggestions for improvements to this NVIC should be submitted in writing to Commandant (CG-3PSE-4).

9. FORMS AND REPORTS. None.

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U.S. Coast Guard

Encl: (1) MSC.1/Circular 1206 Annex 1 and Appendix
(2) Amendments to SOLAS Regulation III/20 - Operational readiness, maintenance, and inspections

MSC.1/CIRCULAR 1206 ANNEX 1
GUIDELINES FOR PERIODIC SERVICING AND MAINTENANCE OF LIFEBOATS, LAUNCHING APPLIANCES AND ON-LOAD RELEASE GEAR

General

1 The objective of these Guidelines is to establish a uniform, safe and documented performance of periodic servicing and maintenance of lifeboats, launching appliances and on-load release gear.

2 These Guidelines relate to the application of the ISM Code to periodic servicing and maintenance of lifeboat arrangements and should therefore be reflected in procedures developed for a ship under that Code.

3 The general principle in these Guidelines may also be applied for the periodic servicing and maintenance of liferafts, rescue boats and fast rescue boats and their launching appliances and release gear.

4 Detailed guidance regarding some procedures covered by these Guidelines is provided in the appendix.

SOLAS regulations

5 These Guidelines relate to the requirements contained in:
- .1 SOLAS regulation III/20 – Operational readiness, maintenance and inspections; and
- .2 SOLAS regulation III/36 – Instructions for on-board maintenance.

Responsibility

6 The company(1) is responsible for servicing and maintenance onboard its ships in accordance with SOLAS regulation III/20 and for the establishment and implementation of health, safety and environment (HSE) procedures covering all activities during servicing and maintenance.

7 The personnel carrying out servicing and maintenance are responsible for the performance of the work as authorized in accordance with the system specified in paragraph 10.

8 The above personnel are also responsible for complying with HSE instructions and procedures.

9 Where satisfied with an organization's ability to carry out these functions, the Administration may authorize such organization and its personnel to perform the functions of the manufacturer and manufacturer's certified personnel as assigned under these Guidelines, if manufacturer certified facilities are not available.

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(1) For the purpose of these Guidelines, company is as defined in SOLAS regulation IX/1.2.

Authorization

10 Where these Guidelines require certification of servicing personnel, such certification should be issued by the manufacturer in accordance with an established system for training and authorization.

Qualification levels

11 Weekly and monthly inspections, and routine maintenance as defined by the manufacturer, should be conducted under the direct supervision of a senior ship's officer in accordance with the instructions provided by the manufacturer.

12 All other inspections, servicing and repair should be conducted by the manufacturer's representative or a person appropriately trained and certified by the manufacturer for the work to be done.

Reports and records

13 All reports and checklists should be correctly filled out and signed by the person who carries out the inspection and maintenance work and should also be signed by the company's representative or the ship's master.

14 Records of inspections, servicing, repairs and maintenance should be updated and filed onboard the ship.

15 When repairs, thorough servicing and annual servicing are completed, a statement confirming that the lifeboat arrangements remain fit for purpose should be issued by the manufacturer's representative or by the person certified by the manufacturer for the work.

APPENDIX TO MSC.1/CIRCULAR 1206, ANNEX 1
SPECIFIC PROCEDURES FOR MAINTENANCE AND SERVICING

1 GENERAL

1.1 Any inspection, servicing and repair should be carried out according to the system for inspection and services developed by the manufacturer.

1.2 A full set of maintenance manuals and associated documentation issued by the manufacturer should be available on board for use in all operations involved in the inspection, maintenance, adjustment, and re-setting of the lifeboat and associated equipment, such as davits and release gear.

1.3 The manufacturer's system for inspection and services should include the following items as a minimum.

2 ANNUAL THOROUGH EXAMINATION

2.1 As items listed in checklists for the weekly/monthly inspections also form the first part of the annual thorough examination, when carrying out this examination the inspection of these items should be performed by the ship's crew in the presence of the manufacturer's representative or a person appropriately trained and certified by the manufacturer for the work to be done.

2.2 Inspection and maintenance records of inspections and routine maintenance carried out by the ship's crew and the applicable certificates for the launching appliances and equipment should be available.

2.3 Repairs and replacement of parts should be carried out in accordance with the manufacturer's requirements and standards.

Lifeboats

2.4 The following items should be examined and checked for satisfactory condition and operation:

.1 condition of lifeboat structure including fixed and loose equipment;
.2 engine and propulsion system;
.3 sprinkler system, where fitted;
.4 air supply system, where fitted;
.5 maneuvering system;
.6 power supply system; and
.7 bailing system.

Release gear

2.5 The following should be examined for satisfactory condition and operation after the annual winch brake test with the empty boat, as required by paragraph 3.1:

.1 operation of devices for activation of release gear;
.2 excessive free play (tolerances);
.3 hydrostatic interlock system, where fitted;
.4 cables for control and release; and
.5 hook fastening.

Notes:

1 The setting and maintenance of release gear are critical operations with regard to maintaining the safe operation of the lifeboat and the safety of personnel in the lifeboat. All inspection and maintenance operations on this equipment should therefore be carried out with the utmost care.

2 No maintenance or adjustment of the release gear should be undertaken while the hooks are under load.

3 Hanging-off pennants may be used for this purpose but should not remain connected at other times, such as when the lifeboat is normally stowed and during training exercises.

4 The release gear is to be examined prior to its operational test. The release gear is to be re-examined after its operational test and the dynamic winch brake test. Special consideration should be given to ensure that no damage has occurred during the winch brake test, especially the hook fastening.

2.6 Operational test of on-load release function:

.1 position the lifeboat partially into the water such that the mass of the boat is substantially supported by the falls and the hydrostatic interlock system, where fitted, is not triggered;
.2 operate the on-load release gear;
.3 reset the on-load release gear; and
.4 examine the release gear and hook fastening to ensure that the hook is completely reset and no damage has occurred.

2.7 Operational test of off-load release function:

.1 position the lifeboat fully waterborne;
.2 operate the off-load release gear;
.3 reset the on-load release gear; and
.4 recover the lifeboat to the stowed position and prepare for operational readiness.

Note:

Prior to hoisting, check that the release gear is completely and properly reset. The final turning-in of the lifeboat should be done without any persons on board.

2.8 Operational test of free-fall lifeboat release function:

.1 engage the simulated launching arrangements as specified in the manufacturer's operating instructions;
.2 the operator should be properly seated and secured in the seat location from which the release mechanism is to be operated;
.3 operate the release mechanism to release the lifeboat;
.4 reset the lifeboat in the stowed configuration;
.5 repeat procedures .2 to .4 above, using the back-up release mechanism, when applicable.
.6 remove the simulated launching arrangements; and
.7 verify that the lifeboat is in the ready to launch stowed configuration.

Davit

2.9 The following items should be examined for satisfactory condition and operation:

.1 davit structure, in particular with regard to corrosion, misalignments, deformations and excessive free play;
.2 wires and sheaves, possible damages such as kinks and corrosion;
.3 lubrication of wires, sheaves and moving parts;
.4 functioning of limit switches;
.5 stored power systems; and
.6 hydraulic systems.

Winch

2.10 The following items should be examined for satisfactory condition and operation:
.1 open and inspect brake mechanism;
.2 replace brake pads, if necessary;
.3 remote control system;
.4 power supply system; and
.5 winch foundation.

3 DYNAMIC WINCH BRAKE TEST

3.1 Annual operational testing should preferably be done by lowering the empty boat. When the boat has reached its maximum lowering speed and before the boat enters the water, the brake should be abruptly applied.

3.2 The five-year operational test should be done by lowering the boat loaded to a proof load equal to 1.1 times the weight of the survival craft or rescue boat and its full complement of persons and equipment, or equivalent load. When the boat has reached its maximum lowering speed and before the boat enters the water, the brake should be abruptly applied.

3.3 Following these tests, the brake pads and stressed structural parts should be re-inspected.

Note:
In loading the boat for this test, precautions should be taken to ensure that the stability of the boat is not adversely affected by free surface effects or the raising of the center of gravity.

4 OVERHAUL OF ON-LOAD RELEASE GEAR

Overhaul of on-load release gear includes:

.1 dismantling of hook release units;
.2 examination with regard to tolerances and design requirements;
.3 adjustment of release gear system after assembly;
.4 operational test as per above and with a load according to SOLAS regulation III/20.11.2.3;
.5 and examination of vital parts with regard to defects and cracks.

Note:
Non-destructive examination (NDE) techniques, such as dye penetrants (DPE), may be suitable.

AMENDMENTS TO THE INTERNATIONAL CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974, AS AMENDED

CHAPTER III
LIFE-SAVING APPLIANCES AND ARRANGEMENTS

(Includes amendments up to and including MSC 82/24, Add. 1, Annex 2)

Regulation 20 - Operational readiness, maintenance and inspections

1 In paragraph 1, in the second sentence, the words "paragraphs 3 and 6.2" are replaced by the words "paragraphs 3.2, 3.3 and 6.2."

2 The existing text of paragraph 3 is replaced by the following:

"3 Maintenance

3.1 Maintenance, testing and inspections of life-saving appliances shall be carried out based on the guidelines developed by the Organization[(1)] and in a manner having due regard to ensuring reliability of such appliances.

3.2 Instructions for on-board maintenance of life-saving appliances complying with regulation 36 shall be provided and maintenance shall be carried out accordingly.

3.3 The Administration may accept, in compliance with the requirements of paragraph 3.2, a shipboard planned maintenance program, which includes the requirements of regulation 36."

3 The text of paragraphs 4.1 and 4.2 is replaced by the following:

"Falls used in launching shall be inspected periodically[(2)] with special regard for areas passing through sheaves, and renewed when necessary due to deterioration of the falls or at intervals of not more than 5 years, whichever is the earlier."

4 The existing text of paragraph 6 is replaced by the following:

"6 Weekly inspection

The following tests and inspections shall be carried out weekly and a report of the inspection shall be entered in the log-book:

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(1),(2) Refer to the Guidelines for periodic servicing and maintenance of lifeboats, launching appliances and on-load release gear (MSC.1/Circ.1206).

.1 all survival craft, rescue boats and launching appliances shall be visually inspected to ensure that they are ready for use. The inspection shall include, but is not limited to, the condition of hooks, their attachment to the lifeboat and the on-load release gear being properly and completely reset;

.2 all engines in lifeboats and rescue boats shall be run for a total period of not less than 3 min, provided the ambient temperature is above the minimum temperature required for starting and running the engine. During this period of time, it should be demonstrated that the gear box and gear box train are engaging satisfactorily. If the special characteristics of an outboard motor fitted to a rescue boat would not allow it to be run other than with its propeller submerged for a period of 3 min, a suitable water supply may be provided. In special cases, the Administration may waive this requirement for ships constructed before 1 July 1986;

.3 lifeboats, except free-fall lifeboats, on cargo ships shall be moved from their stowed position, without any persons on board, to the extent necessary to demonstrate satisfactory operation of launching appliances, if weather and sea conditions so allow; and

.4 the general emergency alarm shall be tested."

5 In paragraph 7, the existing text is numbered as paragraph 7.2 and the following new paragraph 7.1 is added:

"7.1 All lifeboats, except free-fall lifeboats, shall be turned out from their stowed position, without any persons on board if weather and sea conditions so allow."

6 The heading of paragraph 8 is replaced by the following:

"8 Servicing of inflatable liferafts, inflatable lifejackets, and marine evacuation systems, and maintenance and repair of inflated rescue boats"

7 The existing text of paragraph 11 is replaced by the following:

"11 Periodic servicing of launching appliances and on-load release gear

11.1 Launching appliances shall be:

.1 maintained in accordance with instructions for on-board maintenance as required by regulation 36;

.2 subject to a thorough examination at the annual surveys required by regulations I/7 or I/8, as applicable; and

.3 upon completion of the examination referred to in .2 subjected to a dynamic test of the winch brake at maximum lowering speed. The load to be applied shall be the mass of the survival craft or rescue boat without persons on board, except that, at intervals not exceeding five years, the test shall be carried out with a proof load equal to 1.1 times the weight of the survival craft or rescue boat and its full complement of persons and equipment.

11.2 Lifeboat or rescue boat on-load release gear, including free-fall lifeboat release systems, shall be:

.1 maintained in accordance with instructions for on-board maintenance as required by regulation 36;

.2 subject to a thorough examination and operational test during the annual surveys required by regulations I/7 and I/8 by properly trained personnel familiar with the system; and

.3 operationally tested under a load of 1.1 times the total mass of the boat when loaded with its full complement of persons and equipment whenever the release gear is overhauled. Such over-hauling and test shall be carried out at least once every five years.[(2)]"

8 The following new paragraph 11.3 is added to the regulation:

"11.3 Davit-launched liferaft automatic release hooks shall be:

.1 maintained in accordance with instructions for on-board maintenance as required by regulation 36;

.2 subject to a thorough examination and operational test during the annual surveys required by regulations I/7 and I/8 by properly trained personnel familiar with the system; and

.3 operationally tested under a load of 1.1 times the total mass of the liferaft when loaded with its full complement of persons and equipment whenever the automatic release hook is overhauled. Such over-hauling and test shall be carried out at least once every five years."

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(2) Refer to the Recommendation on testing of life-saving appliances, adopted by the Organization by resolution A.689(17). For life-saving appliances installed on board on or after 1 July 1999, refer to the Revised Recommendation on testing of life-saving appliances, adopted by the Organization by resolution MSC.81(70).