



## **GUIDELINES FOR BULK CARRIER HATCH COVER SURVEYS AND OWNER'S INSPECTIONS AND MAINTENANCE**

1 The Maritime Safety Committee, at its seventy-sixth session (2 to 13 December 2002), considered recommendations for decision-making emanating from several formal safety assessment (FSA) studies on bulk carrier safety covering all aspects of design, equipment and operation of these ships. In particular, while recognizing that replacing hatch covers in existing bulk carriers would not be cost-effective, the Committee agreed that more attention should be paid to hatch cover securing mechanisms and the issue of horizontal loads, especially with regard to maintenance and frequency of inspection.

2 The Committee, at its seventy-seventh session (28 May to 6 June 2003), having considered a recommendation made by the Sub-Committee on Ship Design and Equipment at its forty-sixth session, approved the Guidelines for bulk carrier hatch cover surveys and owner's inspections and maintenance, set out in the annex.

3 Member Governments are invited to ensure that companies, as defined in the ISM Code, that operate bulk carriers flying their flag are made aware of the need to implement regular maintenance and inspection procedures for hatch cover closing mechanisms in existing bulk carriers in order to ensure proper operation and efficiency at all times, as provided in the annexed Guidelines.

4 Member Governments are further invited to ensure that classification societies acting on their behalf that are involved in the survey of bulk carrier hatch covers are also made aware of, and observe, the survey procedures outlined in the Guidelines.

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## ANNEX

**GUIDELINES FOR BULK CARRIER HATCH COVER SURVEYS AND  
OWNER'S INSPECTIONS AND MAINTENANCE****1 Application**

These Guidelines are intended primarily for large steel hatch covers on bulk carriers to which SOLAS chapter XII applies. However, they may also be relevant to other minimum freeboard ship types having steel covers in exposed positions.

**2 Design considerations**

2.1 Recent research has quantified the magnitude of sea load pressures acting on the side and end faces of hatch covers and on hatch coamings. This has revealed substantial green sea loading pressures which may generate lateral forces well in excess of the capability of some hatch cover securing devices. These forces cause significant loading on hatch cover travel stops and securing devices, and are only partially resisted by frictional and cleating forces.

2.2 The strength of securing devices of hatch covers on all ships should therefore be reviewed by the Administration. The review should ensure that the weathertightness of each cover is not likely to be impaired having regard to the service in which the ship is engaged and the location of the hatchway. Where hatch covers or coamings undergo substantial repair, the strength of securing devices should be brought up to the relevant standard for new construction.

2.3 Hydraulic cleating systems are generally preferable to manual cleats from the operability standpoint on large hatch covers. Where hydraulic cleating is used, the system should be protected against release by incorporating mechanical securing devices. IACS Recommendation 14 contains such guidance.

2.4 The cleating and securing devices should be designed or otherwise arranged to be readily visible, so as to facilitate checking proper and complete securing of hatch covers during a voyage.

2.5 Manufacturers should provide recommendations on the safe operation, inspection, maintenance and repair of each type of hatch cover fitted, with a recommended list of spare parts to be carried aboard. This guidance should include recommendations for the periodic renewal of components subject to wear or ageing. A maintenance record sheet should also be provided to document owner's inspections and maintenance planning in accordance with the International Safety Management Code (ISM Code).

**3 Maintenance of hatch covers and hatch opening, closing, securing and sealing systems**

3.1 Lack of weathertightness may be attributed to:

- .1 normal use of the hatch cover system, such as deformation of the hatch coaming or cover due to impact, wear of the friction pads where fitted, or wear and tear of the cleating arrangement which may be corrected by a rebuild to restore the original specification; or

- .2 lack of maintenance such as corrosion of plating and stiffeners due to breakdown of coatings, lack of lubrication of moving parts; cleats, joint gaskets and rubber pads in need of replacement, or replaced with incorrect specification parts.

3.2 Insecure hatch covers may be particularly attributed to damage or wear of securing devices, and incorrect adjustment, hence incorrect pre-tension and load sharing, of cleating systems.

3.3 Shipowners and operators should institute a programme of maintenance. This maintenance should be directed to:

- .1 protecting exposed surfaces of plating and stiffeners of hatch covers and coamings in order to preserve overall structural strength;
- .2 preserving the surface of trackways of rolling covers, and of compression bars and other steel work bearing on seals or friction pads, noting that surface smoothness and correct profile are important for reducing wear rates on these components;
- .3 maintaining hydraulic or mechanically powered opening, closing securing or cleating systems in accordance with manufacturers recommendations;
- .4 maintaining manual cleats in adjustment, with replacement on significant wastage, wear or loss of adjustment capability;
- .5 replacing seals and other wear components in accordance with manufacturers recommendations, noting the need to carry aboard or obtain such spares of correct specification, and that seals are designed for a particular degree of compression, hardness, chemical and wear resistance; and
- .6 keeping peripheral and cross joint drains, where fitted, in working order, noting that any drains fitted to the inboard side of seal lines will have non-return valves for prevention of water ingress to holds in the event of boarding seas.

3.4 It is recommended that renewal of components such as seals, rubber washers, peripheral and cross joint cleats are made at least as a panel set, to facilitate equalisation of securing loads.

3.5 Shipowners and operators are recommended to maintain a record of maintenance, and component replacement, to facilitate statutory surveys by the Administration. All major repairs should be undertaken only after consultation with the hatch cover manufacturer and with the approval of the Administration. Hatch cover maintenance plans should form part of a ship's safety management system as referred to in the ISM Code.

3.6 Where a range of cargoes carried requires different gasket materials, a selection of gasket materials of the correct specification should be carried aboard, in addition to other spares.

3.7 At each operation of a hatch cover, the cover, and in particular bearing surfaces and drainage channels, should be free of debris and as clean as practicable.

3.8 Attention is drawn to the dangers of proceeding to sea without fully secured hatch covers. Securing of all covers should always be completed before the commencement of a sea passage. During voyages, especially on loaded passages, cover securing devices and tightness of cleating and securing arrangements should be checked, especially in anticipation of and following periods of severe weather.

3.9 Containers and other cargoes should not be stowed on hatch covers unless the covers are designed and approved for such carriage. Lashings should not be secured to the covers or coamings unless these are designed to withstand the lashing forces. It is therefore particularly important to consult the cargo securing manual when loading on deck.

#### **4 Survey of hatch covers and hatch opening, closing, securing and sealing systems**

4.1 Statutory surveys of hatchcovers and their coamings are to be carried out by the Administration as part of the annual survey required by article 14 of the International Convention on Load Lines, 1966, as modified by the 1988 Protocol relating thereto. On ships subject to the Guidelines on the enhanced programme of inspections during surveys of bulk carriers and oil tankers (resolution A.744(18), as amended), these should be surveyed taking into account the guidance in paragraph 3.3 of Annex A to the said Guidelines.

4.2 A thorough survey of hatch covers and coamings is only possible by examination in the open as well as closed positions and should include verification of proper opening and closing operation. As a result, at least 50% of hatch cover sets should be surveyed open, closed and in operation to the full extent in each direction, at each annual survey. The closing of the covers should include the fastening of all peripheral, and cross joint cleats or other securing devices. Particular attention should be paid to the condition of hatch covers in the forward 25% of the ship's length, where sea loads are normally greatest.

4.3 If there are indications of difficulty in operating and securing hatch covers, additional sets above those required by 4.2, at the discretion of the surveyor, should be tested in operation.

4.4 Owners and operators should ensure that facilities and personnel are available to perform the required hatch cover movements during each annual survey.

4.5 It is implicit that if the hatch securing system cannot be properly operated, the ship will be obliged to effect repairs under the supervision of the Administration. Where hatch covers or coamings undergo substantial repairs, the strength of securing devices should comply with IACS UR S30.

4.6 Owners and operators should be made aware that partial replacements in cleating systems have the potential to introduce imbalance between old and new cleats. This could result in isolated cleats being subjected to excessive loads, which may then lead to sequential failure.

4.7 For each hatch cover set, at each annual survey, the following items should be surveyed:

- .1 cover panels, including side plates, and stiffener attachments of opened covers, by close up survey (for corrosion, cracks, deformation);

- .2 sealing arrangements of perimeter and cross joints (gaskets for condition and permanent deformation, flexible seals on combination carriers, gasket lips, compression bars, drainage channels and non return valves);
- .3 clamping devices, retaining bars, cleating (for wastage, adjustment, and condition of rubber components);
- .4 closed cover locating devices (for distortion and attachment);
- .5 chain or rope pulleys;
- .6 guides;
- .7 guide rails and track wheels;
- .8 stoppers;
- .9 wires, chains, tensioners and gypsies;
- .10 hydraulic system, electrical safety devices and interlocks; and
- .11 end and interpanel hinges, pins and stools where fitted.

4.8 At each hatchway, at each annual survey, the coamings, with plating, stiffeners and brackets should be checked for corrosion, cracks and deformation, especially of the coaming tops.

4.9 Where considered necessary, the effectiveness of sealing arrangements may be proved by hose or chalk testing supplemented by dimensional measurements of seal compressing components.

