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**GUIDELINES FOR THE ASSESSMENT OF TECHNICAL PROVISIONS FOR THE  
PERFORMANCE OF AN IN-WATER SURVEY IN LIEU OF BOTTOM  
INSPECTION IN DRY-DOCK TO PERMIT ONE DRY-DOCK EXAMINATION  
IN ANY FIVE-YEAR PERIOD FOR PASSENGER SHIPS  
OTHER THAN RO-RO PASSENGER SHIPS**

- 1 The Maritime Safety Committee, at its eighty-seventh session (12 to 21 May 2010), approved Guidelines for the assessment of technical provisions for the performance of an in-water survey in lieu of bottom inspection in dry-dock to permit one dry-dock examination in any five-year period for passenger ships other than ro-ro passenger ships, as set out in the annex, prepared by the Sub-Committee on Ship Design and Equipment at its fifty-third session.
- 2 The Guidelines are intended to provide guidance on technical aspects to be considered when implementing a one in five-year dry-docking regime with an in-water survey in lieu of bottom inspection in dry-dock for passenger ships of 15 years of age or less, other than ro-ro passenger ships, and to ensure that sound technical judgment is exercised by Administrations in a uniform manner, when implementing such a regime.
- 3 Member Governments are invited to apply the attached Guidelines when accepting an in-water survey in lieu of a bottom inspection in dry-dock, and to bring them to the attention of all parties concerned.

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## ANNEX

### **GUIDELINES FOR THE ASSESSMENT OF TECHNICAL PROVISIONS FOR THE PERFORMANCE OF AN IN-WATER SURVEY IN LIEU OF BOTTOM INSPECTION IN DRY-DOCK TO PERMIT ONE DRY-DOCK EXAMINATION IN ANY FIVE-YEAR PERIOD FOR PASSENGER SHIPS OTHER THAN RO-RO PASSENGER SHIPS**

#### **1 Introduction**

1.1 Following SOLAS regulation I/7, the Survey Guidelines under the Harmonized System of Survey and Certification (resolution A.997(25)) currently specify that inspection of a passenger ship's bottom, as required by SOLAS regulation I/7, should be carried out annually, with two inspections in dry-dock in any five-year period<sup>1</sup>. Where acceptable to the Administration, the minimum number of inspections in dry-dock of the outside of the bottom of a passenger ship (which is not a ro-ro passenger ship) in any five-year period may be reduced from two to one. In such cases, the interval between consecutive inspections in dry-dock shall not exceed 60 months.

1.2 It is recognized that technological advances have been made in regard to corrosion resistant materials, quality, endurance and effectiveness of hull coatings, repair in water by means of protected environment such as temporary cofferdam, implementation of effective five-year maintenance regimes and also the effectiveness of in-water survey (IWS) technology overall.

1.3 The following guidance has been developed to ensure that sound technical judgement is exercised by Administrations in a uniform manner, when allowing passenger ships to have an in-water survey in lieu of bottom inspection in dry-dock.

1.4 The guidance for in-water survey is intended to be applied to passenger ships of 15 years of age or less<sup>2</sup> which are not ro-ro passenger ships. Some aspects of the guidance may also be useful in ascertaining suitability of any in-water inspection of passenger ships.

#### **2 Areas for technical consideration by the Administration**

2.1 Prior to agreeing to an in-water survey, the Administration should ascertain that:

- .1 the owner has requested the Administration or recognized organization (RO) to approve the in-water survey at least four weeks in advance of the intended date of the inspection. The owner's proposed schedule and the conditions for performing the in-water inspection should allow effective planning and execution of the survey;
- .2 the master of the ship has confirmed in writing that the ship, to his best knowledge, has not sustained any grounding or contact damage since the previous bottom inspection and that nothing unusual has been observed to suspect that any part of the ship's bottom or protuberances has been otherwise damaged;

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<sup>1</sup> The definition of "any five-year period" is the five-year period of validity of the International Load Line Certificate.

<sup>2</sup> If an in-water survey in lieu of dry-docking is proposed for the 15th anniversary of the ship's construction, it should be subject to specific agreement of the Administration based on a dry-dock examination within the previous 30 months.

- .3 the Administration or its RO has reviewed the ship survey records to confirm current satisfactory condition of hull and machinery. Decisions of acceptability should be based on the condition of the ship, the hull protection system and the procedures that will be followed for the performing of the underwater survey; and
- .4 a shipowner who makes a request for an IWS has completed, at a previous dry-dock, or during its initial construction, a preliminary survey of the hull to the satisfaction of the Administration or its RO that documents and establishes the ship's future suitability for an IWS. The preliminary survey will evaluate the condition of the hull and note that appropriate preparations, markings, fittings and capability have been satisfactorily installed, affixed or completed so as to accomplish the IWS in accordance with the recommendations specified in these Guidelines.

### **3 Conditions for in-water survey**

3.1 The Administration or its RO should be satisfied that conditions for survey are sufficient to complete the survey satisfactorily. Points to consider may include those below, and classification society requirements should also support this aim.

3.2.1 The IWS should be carried out by a diving company that is approved by the Administration or its RO, and in accordance with an approved plan.

3.2.2 Diving companies providing services on behalf of the owner of a ship or a mobile offshore unit (such as measurements, tests, surveys or maintenance of safety systems and equipment), the results of which are used by the surveyors in making decisions affecting certification, should be subject to approval by the Administration or its RO.

3.2.3 Diving companies should undergo an approval process, including training, and should be certified at intervals not exceeding five years, and may be subject to intermediate audit.

3.2.4 The in-water survey should be performed to the satisfaction of the attending Administration or RO surveyor who is properly trained and authorized to conduct such surveys. Training and qualification of the attending authorized surveyor from an RO should be in accordance with the quality system requirements of the RO and resolution A.739(18), as verified by periodic audit.

3.3 The in-water survey should be carried out at an agreed geographical location with the ship at a suitable draught in an area that has been demonstrated to have sheltered waters and with weak tidal streams and currents. The weather at the time of the survey should be conducive to a safe and effective IWS.

3.4 Surveys of the underwater body should be carried out in sufficiently clear and calm waters. In general, for example, a significant portion of the propeller or rudder should be clearly observed from a single view. Visibility and water conditions should be suitable to provide sufficient evidence to be able to draw a conclusion that the hull inspection requirements have been met and the hull is in satisfactory condition.

3.5 The surveyor should be satisfied that the hull marking and mapping as well as the method of pictorial presentation are satisfactory. To facilitate an efficient survey it is recommended that the underwater hull and fittings are permanently and clearly marked externally (including tank boundaries).

3.6 Sufficient information to the satisfaction of the attending surveyor, including specific plans to facilitate the survey, should be available on board in order to ensure a full assessment and survey.

3.7 Unless accessible from outside with the aid of the ship's trim and/or heel, underwater parts should be surveyed and/or relevant maintenance work should be carried out with assistance by a diver to the satisfaction of the attending surveyor. The survey should include CCTV monitoring of the IWS, together with electronic video and still picture (if required and where appropriate) recording of the ship's hull, appendages, sea-chests and other elements of the survey. There should be good two-way communication between the diver and the personnel at the surface, including the surveyor.

3.8 The hull below the waterline should be sufficiently clean to the satisfaction of the surveyor and diver so as to be able to ascertain the physical condition of the hull and coating.

3.9 Interior sections of the hull plating should be made available for inspection to the same extent as if the ship were in dry-dock.

#### **4 Survey findings**

4.1 If the IWS reveals damage, deterioration or other conditions that require early attention or which can only be assessed reliably out of water, the surveyor may require that the ship be dry-docked in order that a fuller survey can be undertaken and the necessary work carried out. If the condition of the hull is such that it may cause corrosion damages affecting the ship's hull integrity and strength before the next survey, suitable repairs should be carried out.

4.2 The Administration should be informed of the results of all in-water surveys.

#### **5 Maintenance considerations**

5.1 A basic requirement for consideration to allow one inspection in dry-dock in five years is that a comprehensive maintenance regime based upon a five-year cycle should be effectively implemented by the company for the relevant items. The items to be considered may include the following:

- .1 *Shafting and stern tube* – Stern tube bearings should be oil lubricated or, in the case of water lubricated systems, the shafting should be of corrosion resistant material. Where wear-down measurements are unable to be taken, special consideration may be given to ascertaining sternbush clearances based on a review of the operating history, onboard testing and stern bearing oil analysis.
- .2 *Shell coating* – The hull coating system should be able to perform its functions of corrosion protection and anti-fouling over the anticipated five-year period in water. The use of a high resistance coating or advanced coating, such as silicone-based paint, would be examples of typical coating systems that could be accepted.
- .3 *Shaft seals* – Shaft seals should be capable of five-year service. The use of advanced systems such as air seals with failure mode redundancy could be considered as offering added confidence of service life.
- .4 *Bow thrusters and stern thrusters* – Inspection and replacement of propeller blade foot seals of the bow thrusters and stern thrusters should be based

upon a five-year interval, taking into account the lubricating oil record. Bow and stern thrusters dismantling for general overhauling may be considered at intervals greater than five years, in accordance with manufacturer's recommendations.

- .5 *Rope cutters* – The fitting of rope cutters may be an added safeguard to give confidence to continued trouble-free operation of propulsion shaft, propeller and seals.
- .6 *Main propellers and shafting for controllable pitch propellers (CPP) ships* – Main propeller blade foot seals and the shaft seals replacement interval should be in accordance with the five-year regime, taking into account the lubricating oil record. Main propeller hub dismantling for general overhauling may be considered at intervals greater than five years. Screwshaft surveys should normally be carried out at five-year intervals, unless a screwshaft condition monitoring scheme is in effect.
- .7 *Rudders* – Rudders and rudder bearings (e.g., pintles and stocks) should be inspected and bearing clearances taken at those in-water surveys carried out in lieu of dry-dock surveys. Additionally, rudders should be inspected and rudder bearing clearances taken every five years in dry-dock. When oil lubricated bearing clearances are unable to be taken at those in-water surveys carried out in lieu of dry-dock surveys, special consideration may be given to ascertaining those bearing clearances based on a review of the operating history and onboard testing. Replacement of the sliding block and flap bushes of Becker rudders may be considered at intervals greater than five years.
- .8 *Sea chests* – Means, such as hinged gratings, should be provided on all sea chests to allow divers access to each sea chest to inspect the external sides of through hull connections and sea valves.
- .9 *Anodes and cathodic protection and sea valves* – The operator's maintenance regime should include provisions for inspection and replacement of cathodic protection anodes, taking into account that replacement of sacrificial anodes is variable, according to the conditions experienced. Sea valves that are found to be in need of replacement at the in-water survey should be replaced without delay.
- .10 *Hull thickness measurements* – Requirements for thickness measurements of hull structure should not be prohibited by any in-water survey.
- .11 *Podded Propulsion Units (PODs)* – Scheduled replacement of the drive end and non-drive end bearings on the PODs and inspection and replacement of seals should be based upon a five-year maintenance regime.

5.2 The items listed above are not exhaustive and other items of fittings and equipment may be considered to be included in such a maintenance regime.

5.3 In all cases, the design life of components, manufacturers recommended maintenance, company's implemented ship's maintenance system and classification society survey requirements should not conflict with the bottom inspection of passenger ships when the inspection is intended to be carried out in dry-dock only once in any five-year period.