
	<b>NATIONAL SHIPPING ADJUSTERS INC.</b>	<b>I-NASHA-25</b>
	<b>QUALITY SYSTEM INSTRUCTIVE</b>	<b>Revision 01</b>
		<b>01/08/2021</b>

INSTRUCTIVE FOR SURVEY AND ISSUANCE CERTIFICATE OF CLASSIFICATION

	POSITION	DATE	SIGNATURE
PREPARED BY			
REVISED BY			
APPROVED BY			

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**1.0 TITLE**

**INSTRUCTIVE FOR SURVEY AND ISSUANCE CERTIFICATE OF CLASSIFICATION**

**2.0 OBJECTIVE**

To establish an appropriate mechanism to accomplish and control systematically the surveys and completion of the corresponding reports and certificates.

**3.0 RESPONSIBILITY**

**3.1** It is responsibility of Technical Department to assure that all procedures contained in this INSTRUCTIVE are fulfilled for the surveys and issuance of the Certificate of Classification.

**3.2** It is responsibility of Technical Department to support in the monitoring for the compliance of the mechanisms for the surveys and issuance of the Certificate of Classification.

**3.3** It is responsibility of the surveyors to comply with the procedure contained in this instructive when carrying out the surveys for the Certificate of Classification.

**4.0 DEFINITIONS**


**4.1 NASHA:** National Shipping Adjusters, Inc. is a Maritime Organization authorized to carry out surveys and Certification on behalf of Maritime Administration of Flag State. In some cases also it is identify as a Recognized Organization (RO) or Recognized Security Organization (RSO).

**4.2 Classification Rules:** They are referred to those issued by a classification society with which NASHA has signed contractual agreement for sharing such rules in ship surveys and certification activities.

**4.3 Stand by:** to be waiting and ready to do something.

**4.4 IMO,** International Maritime Organization: It is a specialized agency of the United Nations devoted to maritime matters.

**4.5 SOLAS 74/78,** International Convention for the Safety of Life at Sea, as amended and modified by its Protocol of 1978, and 1988.

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**4.6 MARITIME ADMINISTRATION.**

Is the Authority responsible to regulate all aspects related to the marine requirements of the flag.

**4.7 NATIONAL REGULATIONS**

Are those established by each Maritime Administration to implement IMO Regulations or to adopt standards not envisaged in International Conventions.

**5.0 GENERAL PROVISIONS**

**5.1 Scope of classification**

5.1.1 Classification covers the ship's hull and machinery, including equipment and electrical machinery.

5.1.2 Classification activities are performed in accordance with the provisions of the present Rules and Regulations and any other applicable Rules and Guidance Notes, published by the Society.

5.1.3 Classification Rules and Regulations will be updated each year by the person in charge according with the Quality System. This updated is based in the information received of RULEFINDER (LLOYDS), ABS and KR-CON.

5.1.4 Upon application certain installations – such as refrigerating installations - may be classed separately.


**5.2 Certificates of Class**

5.2.1 The assignment of class, classification characters and notations, which denote the degree of confidence that the ship has, are assigned following the satisfactory completion of Surveys, carried out by the Society's Surveyors and the verification of compliance with the Rules.

5.2.2 When the required reports on completion of the survey of existing ships submitted for classification have been received and duly approved, a **Certificate of First Entry of Classification** will be issued to Owners or Builders.

5.2.3 Classed ships will be granted a **Certificate of Class (HM)** with the corresponding class notations, valid for 5 years and subject to endorsements for Annual and Intermediate Surveys.

5.2.4 Surveyors of NASHA are entitled to issue **Interim Certificates of Class (HM-IC)** to enable a ship classed with the Society to continue her voyage or service (for fixed or tethered ships). Such Certificates are in all cases subject to the instruction by the NASHA Head Office.

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### **5.3 Validity of class**

5.3.1 Upon completion of the Special Survey a new class period will be assigned to the ship and a new Certificate of Class will be issued to the Owners.

### **5.4 Expiry of class**

5.4.1 Where hull and machinery are found to no longer comply with the requirements of the Rules or any conditions on which class assignment was based, or where Owners refuse to have repairs or modifications required by NASHA carried out within a period to be determined for each particular case, the vessel's class will cease to be valid. The same applies to the class of special equipment.

## **6.0 CLASSIFICATION PROCEDURE**

### **6.1 Application for classification**

6.1.1 Application for classification is to be submitted in written to the NASHA Head Office by the Builder, the Owner, or his appointed representative.


6.1.2 Applications for the classification of ships are to be accompanied, at least, by their general particulars. The Society reserves the right to request submission of additional particulars.

6.1.3 In case of transfer of class the previous class status, as well as any recommendations made by the previous Classification Society are to be submitted when application for classification is filed.

### **6.2 Ships without a class and ships not built under survey by a recognized Society**

6.2.1 For ships without a valid Certificates of Class the drawings and other particulars relevant to classification are to be appraised for compliance with the NASHA Rules for construction and/or other equivalent Rules.

6.2.2 For admission to class, the ship and/or her special equipment are to be surveyed in accordance with requirements for a Special Survey appropriate to the age and type of ship, along with Docking and Tailshaft Surveys at the discretion of NASHA. If results of surveys are satisfactory, the NASHA class will be effective as of the date of completion of the survey.

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6.2.3 For ships not built under a recognized Classification Society, longitudinal strength calculations, local strength calculations, equipment number computation and load line calculation are to be carried out before the classification surveys are commenced.

## 7.0 TRANSFER OF CLASS

### 7.1 Procedure for the transfer of class

7.1.1 Whenever NASHA is requested by an Owner to accept an existing vessel into class, the Society is to immediately notify the Owner in writing the following:

- (a) An Interim Certificate of Class may be issued only after all overdue surveys have been satisfactorily completed and all overdue recommendations and conditions of class previously issued to the vessel have been completed as specified by the previous Society.
- (b) Any remaining recommendations and conditions of class are to be dealt with by their due dates.
- (c) Principles given in subpara. (a) and (b) above apply to any additional recommendations or conditions of class issued to the vessel arising from surveys, which were not included in the initial Survey Status provided to the Society because these surveys were carried out in close proximity to the request for the transfer of class. Such additional recommendations or conditions of class - if received after the issuance of the Certificate of Class by NASHA (HM-IC) and which are overdue - are to be dealt with at the first port of call.


7.1.2 Owners/Managers are to produce documentary evidence of the surveys held by the previous Society as follows:

- Dry dock report or the previous class survey status.

7.1.3 Upon receipt of a written request by an Owner for the transfer of class, the Society may utilize the transferring Society's survey status information provided by the Owner and, after compliance with the relevant requirements of this Section, may issue an Interim Certificate of Class. In such cases, a statement is to be included in/with the Certificate of Class reminding the Owner that the conditions of para.7.1.1 are still applicable.

7.1.4 The Society will not issue an Interim Certificate of Class or other documents enabling the vessel to trade until any overdue surveys have been satisfactorily completed, and any overdue recommendations or conditions of class previously issued to the subject vessel have been completed by the Bureau (technical committee) as specified to the Owner by the previous Society.

7.1.5 When repair facilities are not available in the first port of survey, a direct voyage

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to a repair port may be accepted to complete surveys, outstanding recommendations and/or conditions of class.

- 7.1.6 The validity of the Interim Certificate of Class and the subsequent Certificate of Class will be subject to any remaining recommendations or overdue conditions of class previously issued to the vessel being completed by the due date and as specified by the transferring Society. Any remaining recommendations or conditions of class with their due dates are to be clearly stated on the:
- Interim Certificate of Class or an attachment to the Interim Certificate of Class and/or Class Survey Record on board.
  - Survey Status, when the full term Certificate of Class is issued.

## **7.2 Technical requirements - General**

- 7.2.1 For the transfer of class from a recognized Society to NASHA.

The following information is to be submitted for approval:

- General arrangement plan.
- Midship section.
- Profile and deck view plans.
- Shell expansion plan.
- Capacity plan.
- Stability documents.


The following documentation is also considered necessary and is to be submitted to the Society:

- Trim and Stability Booklet (for ships of length 24 metres and above). (If applicable).
- Loading Manual, (if applicable).
- Damage Stability calculation, for ships which are required by IMO Conventions to comply with a subdivision and damage standard (e.g. passenger ships). (If applicable).
- Grain Loading Manual, for ships intended for the carriage of grain. (If applicable).
- Other booklets, depending on the ship's type and as required by IMO Conventions. (If applicable).

For the installations, arrangements or equipment covered by an additional class notation or a special notation the Society will determine the documentation to be submitted.

## **7.3 Plans and information – Machinery**

- 7.3.1 The following is to be submitted:
- General arrangement.
  - Bilge, ballast, lubricating oil, cooling pipes, steam general service and starting compressed air piping.

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(c) Fire plan.

**7.4 Plans and information – Electrical equipment**

7.4.1 The following is to be submitted:

- (a) Single line diagram of networks and switchboards.
- (b) Location and arrangement of electrical equipment in hazardous areas.

**7.5 Surveys for the transfer of class**

- 7.5.1 A survey programme will be set forth, including least surveys overdue and due within 3 months, according the previous Society’s survey programme, plus a survey to the scope of an Annual Class Survey.
- 7.5.2 An In-water Survey may be required depending on the time elapsed from the last Docking Survey, at the discretion of NASHA.
- 7.5.3 The next Special Survey will become due five years from the Special Survey held by the previous Society and not 5 years from the Initial Class Surveys.
- 7.5.4 The Load Line, Safety Construction and MARPOL periodical Surveys are to be carried out along with the Initial Class Surveys.

**Note:** In case the inspector requests the information (documents / plans, etc.) listed in item 7.2, 7.3 and 7.4, and the ship does not have this information, for any reason (sale / change of flag or name), the inspector will request the ship owner a formal letter in which commits to submit the documentation and necessary information, until the next dock.

**8.0 SUSPENSION AND WITHDRAWAL OF CLASS**


**8.1 General**

8.1.1 The class of a ship will be automatically suspended in the following cases:

- (a) When the ship is operating beyond her restricted service area.
- (b) When the Society considers that the ship is not complying with the Rules.
- (c) When damage occurs to the ship to such an extent that impairs her class and is not repaired in accordance with the requirements of the Rules, or when alterations or conversions affecting her class are carried out, without the approval of the Society.
- (d) When the ship proceeds to sea with less freeboard than that assigned, or when the freeboard marks on the ship sides are placed higher than the assigned position.
- (e) When the ship is not subjected to the surveys required for maintaining the class.

8.1.2 The class may also be withdrawn by the Society upon request by the Owner or in the event of non-payment of fees.

8.1.3 For a ship whose class has been suspended, the Society will consider that her class may be reinstated after the causes of suspension are removed.

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## 8.2 Overdue surveys

- 8.2.1 Owners will be notified that the 5-year Certificate of Class expires and the class is automatically suspended from the Certificate's expiry date in the event that the Special Survey has not been completed or is not under attendance for completion prior to resuming trade by the due date.
- 8.2.2 Under exceptional circumstances the Society may grant an extension to the Certificate of Class to allow completion of the Special Survey as stated below.
- (a) Provided that the vessel is attended by a Surveyor to the Society and the Surveyor so recommends. Such an extension is not to exceed **3 months**.
  - (b) In case the Certificate of Class expires when the ship is expected to be at sea, provided that there is a documented agreement to such an extension prior to the expiry date of the Certificate, that positive arrangements have been made for attendance by a Surveyor at the next port of call and provided also that the Society agrees that there is a sound technical reason for that extension. This extension will be granted upon arrival to the first port of call after the expiry date of the Certificate.

### 8.2.3 Overdue Annual and Intermediate Surveys

8.2.3.1 Owners will be notified that the Certificate of Class becomes invalid and class will be automatically suspended if the Annual Survey is not completed and the Certificate of Class not endorsed within 3 months of the due date of the Annual Survey or - in the case of Intermediate Surveys - if the said survey is not completed within 3 months of the third Annual Survey in each periodical survey cycle.

8.2.3.2 Class will be reinstated upon satisfactory completion of the surveys due. Such surveys are to be credited from the date originally due. However, the vessel will be declassified from the date of suspension to the date of reinstatement of class.


### 8.2.4 Overdue Continuous Survey items

8.2.4.1 Continuous Surveys items due or overdue at the time of Annual Survey are to be dealt with. The vessel's class will be subject to a suspension procedure if the items are not dealt with or postponed by agreement with the Surveyor to the Society.

## 8.3 Overdue recommendations or conditions of class

- 8.3.1 Each recommendation and condition of class will be assigned a due date for completion. Owners will be notified of these dates and that the vessel's class will be subject to a suspension procedure if the item is not dealt with or postponed by agreement by the due date.



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8.3.2 Class will be reinstated upon verification that the overdue recommendation or condition of class has been satisfactorily dealt with. However, the vessel will be declassified from the date of suspension to the date of reinstatement of class.

#### **8.4 Laid-up vessels**

8.4.1 Vessels laid-up in accordance with the Society's requirements prior to surveys coming due need not be suspended when these surveys become overdue. However, vessels which are laid-up after being suspended as a result of surveys becoming overdue will remain suspended until the overdue surveys are completed.

#### **8.5 Withdrawal of class**

8.5.1 When class of a vessel has been suspended for an 8 months period as a result of overdue surveys, recommendations or conditions of class, the class will be withdrawn. A longer suspension period may be granted when the vessel is not trading as in cases of lay-up, awaiting disposition in case of casualty or attendance for reinstatement.

#### **8.6 Reclassification**

8.6.1 When reclassification is desired for a ship for which the previously assigned class has been withdrawn, the Society will carry out a reclassification survey in accordance with the ship's age, her condition and the relevant circumstances. If, at such survey, the ship is found to be in a good and efficient condition in accordance with the requirements of the Rules, the Society will reinstate her class.

#### **8.7 Notifications to Owners and Flag States**


8.7.1 The Society will notify the withdrawal of class by separate letters to the Owner and to the Flag State.

### **9.0 FREQUENCY OF SURVEYS AND TESTS**

#### **9.1 Annual Surveys**

9.1.1 Annual Surveys are to be held for all ships, within **3 months** before and after each anniversary date of commencement of the class period.

9.1.2 For ships that can accommodate **more than 12 passengers**, the Annual Survey is to be held not later than the due date entered.

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## 9.2 Intermediate Surveys

9.2.1 Intermediate Surveys are to be carried out at the second or third Annual Surveys after the assigned date of the Special Survey. Parts of the Intermediate Survey which are additional to the requirements for Annual Survey may be surveyed either at or between the second and third Annual Surveys.

## 9.3 Special Surveys

### 9.3.1 Regular programme

9.3.1.1 The Special Class Survey may be commenced at the 4<sup>th</sup> Annual Survey and must have been completed by the end of the class period. The total survey period must not exceed 15 months.

9.3.1.2 The Periodical Surveys and inspections of propulsion systems and machinery are a part of the Special Surveys required for class, unless otherwise specified.

9.3.1.3 Special Class Surveys to hull are numbered in the sequence I, II, III, etc. Special Class Survey V and thereafter correspond to Special Class Survey IV.


9.3.1.4 As a part of preparations for Special Class Survey, thickness measurements are to be dealt with in advance of the said survey. Thickness measurements are not to be carried out before the 4<sup>th</sup> Annual Survey. However, when deemed necessary by the Society, the thickness measurements may be dealt with – so far as practicable – in connection with the 4<sup>th</sup> Annual Survey.

9.3.1.5 Special Survey may be postponed for a maximum of 3 months beyond the five-year term in special circumstances. Such special circumstances are: unavailability of docking facilities, repair facilities, materials or spare parts, or severe weather conditions. Postponement for purely commercial reasons is excluded.


### 9.3.2 Continuous Survey programme

9.3.2.1 At the request of the Owner and upon approval of the proposed arrangements, a programme of Continuous Survey for hull, machinery and cargo refrigerating installations may be undertaken - except for hull surveys of oil tankers, bulk carriers and similar types of ships – whereby the Special Survey requirements are carried out in a regular cycle to complete all the items of the particular Special Class Survey within a 5 year period.

9.3.2.2 For ships other than the above, admission to the Continuous Survey programme cannot be granted for the Special Survey to hull of ships over 20 years old (for sea-going ships) or over 21 years old (for inland navigation ships), unless highly positive results relevant to the condition

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- of structures of all compartments are available.
- 9.3.2.3 Approximately one-fifth of the surveyable items are to be surveyed each year and all the requirements of the particular hull Special Survey must be completed at the end of the five year cycle. The period between two subsequent surveys of each item is not to exceed 5 years.
- 9.3.2.4 The intervals of inspections to items concerning fire protection, inert gas system, ballast and double bottom tanks are to be specially agreed.
- 9.3.2.5 Where some surveyed machinery items are opened out and examined by the Chief Engineer as normal routine for the maintenance, at ports where a Surveyor to the Society is no available or at sea, the open –out inspection of the items may, upon request by the Owner and under certain conditions, be dispensed with, at the discretion of the Surveyor, subject to a confirmation survey at a convenient port of call where a Surveyor is available. The confirmation survey is to be carried out within 5 months from the date when the item was opened out and inspected by the Chief Engineer.
- 9.3.2.6 If deemed necessary by the Surveyor, the individual items may be inspected again.
- 9.3.2.7 Not more than 50% of the machinery items may be surveyed by the Chief Engineer during a 5 year cycle.
- 9.3.2.8 Under a Continuous Survey Machinery programme, the Chief Engineer will not be entitled to carry out surveys of the following items:
- (a) Boilers (except utilization boilers).
  - (b) Pressure vessels.
  - (c) Main gear and couplings.
  - (d) Shaft lines.
- 9.3.2.9 The Chief Engineer is to submit, for the purposes of the confirmation survey, a report on the surveyed items. The report is to contain the following particulars:
- (a) Name and particulars of surveyed item.
  - (b) Description of its technical condition; list of replaced or repaired parts, including the repair methods and the test results.
  - (c) Date and place of survey.
  - (d) Chief Engineer's license.
- 9.3.2.10 In addition to the above mentioned report, the Chief Engineer is to submit the following:
- (a) Entries from the *Engineer's Log Book* and the *Machinery Repairs Book* concerning the performed survey.
  - (b) Parts dismantled due to excessive wear or defects.
- 9.3.2.11 Thickness measurements for a vessel under a Continuous Survey Hull

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programme that are carried out before the 4<sup>th</sup> Annual Survey cannot be credited to the Class Special Survey

9.3.2.12 At the end of a period of class, for the purpose of class renewal, a final survey is to be performed, during which the Surveyor is to be satisfied as regards that all areas required to be surveyed have in fact been surveyed throughout with satisfactory results. If special conditions arise, the Surveyor may inspect individual parts again.

9.3.2.13 Ships under a Continuous Survey programme are not exempted from other required Periodical Surveys (such as Annual and Intermediate Surveys).

#### **9.4 Bottom Surveys**

9.4.1 At least two Bottom Surveys are to be carried out within a 5 year period. The second Bottom Survey is to be carried out, as far as practicable, on the occasion of the scheduled Intermediate Survey. In all cases, the maximum interval between two subsequent Bottom Surveys is not to exceed 36 months

9.4.2 A Docking Survey is to be a part of the Special Class Survey.

9.4.3 If, in exceptional cases, possible time windows (plus/minus three months) are taken advantage of, so that the interval between two Bottom Surveys exceeds 36 months, a special consent is to be obtained from NASHA.

9.4.4 Upon application, an In-water Survey or bottom inspection may be carried out in lieu of every second periodical Docking Survey, with the assistance of an approved diving company.


9.4.5 Special consideration should be given to vessels of 20 years of age or over prior to the permission being granted to carry out an In-water Survey in lieu of the Docking Survey or bottom inspection.

9.4.6 If a Bottom Survey is intended to be credited to a Class Special Survey, all the checking of the hull and machinery required for the respective class renewals and usually requiring dry-docking will have to be carried out.

9.4.7 A Bottom Survey for class renewal may be carried out up to 12 months before completion of the class renewal.

9.4.8 The interval between examinations of the outside of the ship's bottom and related items – for ships operating in fresh waters and for harbour and non-propelled craft - may be greater, as approved by the Society.

9.4.9 Attention is to be given to the requirements of the National or International Regulations requiring shorter intervals between examinations of the ship's bottom for certain types of vessels.

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## 9.5 Propeller Shaft Surveys

9.5.1 The following shafts are to be submitted to Complete Survey (withdrawal survey) or intervals or described in this subsection:

- (a) Shafts with continuous liner (fitted with joints satisfying the appropriate requirements when the liner consists of 2 or more lengths).
- (b) Shafts made of corrosion resistant materials.

9.5.2 The Complete Survey is to be carried out:

- (a) Every **3 years** for single shaft arrangements.
- (b) Every **4 years** for multi-shafting arrangements

9.5.3 Shafts covered by para 9.5.1 may be submitted to a Complete withdrawal survey every 5 years in the following cases:

- (a) When the propeller is keyed to the shaft taper and the forward end of keyway is shaped in accordance with NASHA requirements or similar.
- (b) When the propeller is fitted keyless to the aft shaft taper by means of shrinkage and the design details meet the requirements of the Rules or equivalent.
- (c) When the propeller is fitted with a solid flange coupling at the end of the shaft and the design details meet the requirements of the Rules or equivalent.

9.5.4 Shafts covered by para 9.5.3 are to be submitted to a Complete Survey every **7 years and 8 months** in the following cases:

- (a) When shafts are fitted with approved oil lubricated bearing and oil sealing glands.
- (b) When a Partial Survey is carried out 5 years after the last Complete Survey.

9.5.5 Shafts covered by para 9.5.4 are to be submitted to a Complete Survey every **10 years** when, in lieu of a Partial Survey a Modified Survey is carried out 5 years after the last Complete Survey.

9.5.6 All other shafts, such as those fitted with a non- continuous liner and are in contact with sea water or have oil-lubricated bearings, are to be submitted to a complete withdrawal survey every **2½ years**.


9.5.7 Special propulsion systems such as rotating thrusters, vertical axis propellers, pump jet systems, are to be inspected at intervals not exceeding **5 years**.

## 9.6 Testing of steam boilers

9.6.1 The term *Steam boiler* includes exhaust gas boilers in the exhaust gas system of oil engines and hot water boilers with outlet temperatures exceeding 120°C (except when they are heated by steam or liquids).

9.6.2 Steam boilers are to be subjected to the following examinations and tests at regular intervals:

- (a) **External inspections** at annual intervals, in accordance to the inspection programme.

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- (b) **Internal inspections** at nominal intervals of 2.5 years, preferably in connection with an Intermediate and/or Class Special Survey. For ships with one main boiler only, external inspections are to be performed every 2.5 years until 10 years after commissioning and every year thereafter.

## 9.7 Testing of pressure vessels

- 9.7.1 Pressure vessels that are subject to survey by NASHA in accordance with the Rules, are to be examined internally and externally every 5 years, possibly in connection with a Special Survey.

## 9.8 Assignment of a new class period

- 9.8.1 The new period of class will commence, alternatively:
- At the date in which the previous class expires, provided that the Special Class Survey has been completed within the 3 months preceding the date or where extension of the class period has been granted by 3 months at the most.
  - At the date in which the Special Class Surveys were completed, provided they were completed more than 3 months before the expiry of the previous class.

## 10.0 CLASS NOTATIONS


### 10.1 General

- 10.1.1 The class will be indicated by a notation consisting of figures, characters and special symbols, representing the technical condition of the ship.
- 10.1.2 The class notation will include the following:
- Construction marks.
  - Class symbols:
    - Hull character.
    - Machinery installation character (if applicable).
    - Division number.
    - Rating letter.
    - Equipment symbol.
  - Service notations.
  - Navigation notations.
  - Additional notations
  - Special notations.

### 10.2 Class symbols

- 10.2.1 The following class symbols will be assigned as appropriate:

**H** The Hull Character means that the construction and scantlings of the hull meet the relevant

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requirements of the Rules.

**M** The Machinery Installation Character will be placed after the Hull character and will indicate that the ship's machinery, essential auxiliary machinery, electrical installations and boilers (if any) meet the provisions of the Rules.

**100** The Division Number (100 or 90) will be assigned to Hull and Machinery. Division 100 ships are those which fully meet the provisions

of the Rules concerning construction and scantlings of the hull, as well as essential components relating to propulsion and safety, as applicable. In the event that some construction or scantling requirements are not met, but it is deemed possible to grant the NASHA Class, the ship will be classed in *Division 90*.

The Rating Letter (A or B) placed after the Division Number denoted the degree of confidence the ship is worthy, as follows: The letter A denotes that a ship is considered in satisfactory condition for the intended service and is following the Periodical and Annual Surveys schedule as required by the Rules.

**B** The letter B denotes that the ship generally complies with the requirements of the Rules, but due to her condition or age it has been considered necessary to define intervals between Special Surveys shorter than those normally required for ships with the letter A.

The Equipment Symbol (E), placed after the

**E** Rating Character, indicates that the ship's anchors and chain cables meet the relevant requirements of the Rules. When the ship's equipment does not meet the requirements of the Rules, but it is deemed by the Society to be acceptable for the intended service, the symbol E may be assigned. When the Society considers that it is not called upon to form an opinion on the equipment, having regard for the specific operating conditions of the ship, the symbol E will be replaced by a dash (-).

### 10.3 Service notations


10.3.1 Service notations will be assigned to ships provided they comply with the relevant requirements of the Rules or other requirements considered equivalent for her type or service.

10.3.2 Service notations of ships carrying solid cargoes will be as follows:

- (a) **Cargo ship** for ships intended to carry general cargo.
- (b) **Container ship** for ships intended to carry containers in holds and possibly on decks.
- (c) **Roll on/Roll off** for ships specially intended for the carriage of vehicles or loads on wheeled beds.
- (d) **Livestock carrier** for ships specially intended to carry livestock.
- (e) **Refrigerated carrier** for ships specially intended for the carriage of refrigerated cargoes.


10.3.3 Service notations for ships carrying **solid cargoes in bulk** will be the following:

- (a) **Bulk carrier** for ships constructed generally with single decks, topside tanks and hopper side tanks in cargo spaces, and intended primarily for the carriage of dry cargo in bulk.
- (b) **Ore carrier** for ships having two longitudinal bulkheads and a double bottom throughout the cargo region, intended for the carriage of ore cargoes in the centre holds only.
- (c) **Bulk-ore carrier** for bulk carriers whose scantlings have been studied to allow their deadweight with empty cargo spaces.

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- 10.3.4 Notation **ESP** will be placed after the service notation if the ship is under the Enhanced Survey Programme.
- 10.3.5 Service notations for ships carrying **liquid cargoes in bulk** will be as follows:
- (a) **Oil tanker**, for ships intended to carry liquid hydrocarbons. Where arrangements and scantlings have been approved by the Society for ships carrying oil or other liquid cargoes in bulk with a flash point above 60°C (closed cup test), the service notation will be suitably modified to show the nature of the cargo.
  - (b) **Chemical tanker**, for ships intended to carry dangerous liquids in bulk. The list of products the ship is allowed to carry will be attached to the Certificate of Class. For ships intended to carry one type of product, the service notation Chemical tanker may be completed with designation of the product.
  - (c) **Tanker**, for ships intended to carry in bulk non- dangerous liquids such as wine, water, vegetable or animal oil. The list of cargoes the ship is entitled to carry may be attached to the Certificate of Class. For ships intended to carry one type of cargo, the service notation may be completed with the designation of the cargo.
  - (d) **Liquefied gas carrier** for ships intended to carry liquefied gases and other substances. The list of products the ship is entitled to carry will be attached to the Certificate of Class. For ships intended to carry one product, the service notation *Liquefied gas carrier* may be completed with the designation of the product.
- 10.3.6 Service notations for passenger ships will be as follows:
- (a) **Passenger ship**, for ships intended to carry more than 12 passengers.
  - (b) **Passenger ferry**, for passenger ships corresponding to the above definition and specially equipped to carry complete trains or wheeled vehicles.
- 10.3.7 Service notations for ships engaged on dredging activities will be the following:
- (a) **Dredger**, for ships specially equipped for dredging activities.
  - (b) **Hopper dredger**, for ships specially equipped for dredging and carrying dredged material.
  - (c) **Hopper barge**, for ships or barges specially intended for the carriage of spoils or dredged material,
  - (d) **Split hopper dredger**, for ships specially equipped for dredging and carrying dredged material and which open longitudinally.
  - (e) **Split hopper barge**, for ships or barges specially intended for the carriage of spoils or dredged materials and which open longitudinally.
- 10.3.8 Service notations for **service ships** and **offshore working ships** or units will be the following:
- (a) **Tug**, for ships specially intended for towage.
  - (b) **Supply vessel**, for ships specially intended for the service to offshore units.
  - (c) **Floating dock**, for floating dry-docks.
  - (d) **Pontoon**, for units specially intended for the carriage of solid cargoes exclusively on weather decks.
  - (e) **Pontoon/derrick or Pontoon/crane** for units intended to support equipment



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such as cranes or derricks.

- (f) **Barge/deck**, for units intended for the carriage of solid bulk cargoes in cargo holds.
- (g) **Tank barge**, for units intended for the carriage of liquid bulk cargoes in cargo tanks.
- (h) **Drilling ship** or **Drilling unit** for ships, platforms - fixed or mobile – intended for drilling operations on the seabed for its exploration or the exploitation of resources beneath it and permanently equipped for that purpose.

10.3.9 Other service notations will be the following:

- (a) **Fishing** vessel, for ships engaged on the capture, but not on processing, of fish and other living resources of the sea.
- (b) **Yacht**, for vessels intended for pleasure cruising.
- (c) **Seagoing launch**, for launches and motorboats less than 24 m intended for sea-going service, limited to wind force 6 Beaufort scale.
- (d) **Launch**, for vessels less than 24 m in length intended to operate in ports, roadsteads, harbours and generally calm waterways. Limited to wind force 4 Beaufort scale.

10.3.10 The Society may define other service notations by means of provisional Rules or recommendations, which will be published as Provisional Rules or Guidelines.

#### 10.4 Navigation notations


10.4.1 Every ship will be assigned a navigation notation according to her design, configuration, scantlings and other construction arrangements.

10.4.2 The navigation notations are the following:

**RIS *Restricted International Service***, assigned to ships operating at a maximum distance from the nearest port of shelter not exceeding 200 nautical miles or operating within enclosed seas, e.g., the Mediterranean Sea, the Black Sea and similar waterways.

**CS *Coastal Service***, assigned to ships operating along a coast, at a maximum distance from shore generally not exceeding 20 nautical miles, unless some other distance is specified for coastal service by the ship's Administration.

**SW *Sheltered Waters*** assigned to ships operating in harbours, estuaries, bays or generally calm stretches of water where there is no running of heavy seas, as well as outside these areas for not more than short distances, generally less than 5 nautical miles and when the wind force does not exceed 6 Beaufort scale.

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- 10.4.3 The designation of the geographical area where the ship operates, or the most unfavourable conditions considered may be added to the navigation notation.
- 10.4.4 The Society reserves the right to assign the navigation notation subject to the conditions of the seaway prevailing in the respective service area.

## 10.5 Additional notations

10.5.1 Machinery installations which comply with the requirements of the Rules for automated or remote controlled systems will have the following additional class notations affixed to the Certificate of Class:

**UMS** **Unmanned Machinery Space**, for ships fitted with equipment for unattended engine room, provided that it may be left unattended continuously for a period of 24 hours.

**UMS-h/24** For ships fitted with equipment for unattended engine room, provided that it may be left unattended for a shorter period, *h* meaning the number of hours during which the engine room may remain unattended on a continuous basis.

10.5.2 The following notations are associated with control and automation equipment:


**ICC** **Integrated Computer Control**. For ships whose arrangements are such that the control and supervision of ship operational functions are computer based.

**SBL** **Superior Bridge Layout**. This notation will be assigned when a superior bridge layout and level of navigation equipment are provided

**1-W** **One Watchkeeper**. This notation will be assigned when the bridge layout and level of equipment are such that the ship is considered suitable for safe periodic operation under the supervision of a single watchkeeper on the bridge.

**IBS** **Integrated Bridge System**. This additional notation will be assigned where an integrated bridge system is fitted to provide electronic chart display, track planning and automatic track following, centralized navigation information display, and bridge alarm management. Upon assignment of this notation, the ship will also be assigned either SBL or 1-W.

**DYN (CM)** **Dynamic positioning (Centralized- Manual)**. For ships fitted with centralized remote manual controls for position keeping and with position reference system(s) and environmental sensor(s).

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**DYN (AM)** *Dynamic positioning (Automated-Manual)*. For ships fitted with automatic main and manual standby controls for position keeping and with position reference system(s) and environmental sensor(s).

**DYN (AA)** *Dynamic positioning (Automated- Automated)* For ships fitted with automatic main and automatic standby controls for position keeping, and with an additional/emergency automatic control unit located in a separate compartment and with position reference systems and environmental sensors.

**DYN (FA)** *Dynamic positioning (Fully Automated)* For ships fitted with automatic main and automatic standby controls for position keeping, and with an additional/emergency automatic control unit located in a separate compartment and with position reference systems and environmental sensors.

10.5.3 **Ice category notations** will be assigned to **ice class ships** which are ships intended for independent ice navigation including motion in fractures between floes, surmounting of ice isthmuses and portions of relatively thin ice, or navigation in ice with icebreaker escort. The following notations are associated with ice categories:

**ICE-C** Ships built for independent episodic navigation in freezing non-Arctic seas, in open pack ice with a thickness 0.4 m at a speed of 5 knots and navigation in the wake of an icebreaker in compact ice (thickness 0.35 m) at a speed of 3 knots.


**ICE-B** Ships built for independent regular navigation in freezing non-Arctic seas, in open pack ice with a thickness 0.55 m at a speed of 5 knots and navigation in the wake of an icebreaker in compact ice (thickness 0.5 m) at a speed of 3 knots.

**ICE-A** Ships built for independent regular navigation in freezing non-Arctic seas, in open pack ice with a thickness 0.7 m at a speed of 5 knots and navigation in the wake of an icebreaker in compact ice (thickness 0.65 m) at a speed of 3 knots.

**ICE-A** Ships built for independent navigation in Arctic seas under moderate weather conditions, at a top speed of 6-8 knots in open floating first-year ice with a thickness of 0.6 and 0.8 m in the winter/spring and summer/autumn navigation, respectively.

10.5.4 Other additional notations are the following:

**RMC** *Refrigerated Machinery Class*. This notation may be assigned to refrigerating

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installations when they meet the requirements of the Rules or other requirements considered equivalent. In general, notation RMC will be followed by the minimum temperature in the refrigerated space to be maintained with maximum sea temperature. When the installation is fitted with additional equipment suitable for the carriage of special cargoes or quick freezers in fishing vessels, an appropriate descriptive note will be added.

**IGS** *Inert Gas System.* This notation will be assigned to ships with the service notation Oil tanker, fitted with an inert gas plant for cargo tanks

**CSS** *Container Securing System:* Upon request, this additional notation may be assigned to ships fitted with a container securing system which meets the requirements of the Rules.

**REDSC** *Reduced Scantlings.* Ships having reduced scantlings in certain hull members, within limits agreed with the Bureau (technical committee).

**E(exh.g)** For ships fitted with exhaust gas economizer.

**B(exh.g)** For ships fitted with exhaust gas boiler.

## 10.6 Special notations


10.6.1 Special notations may be assigned upon request from the party applying for classification, indicating that the ship or some of her arrangements and/or installations comply with specific International, National or other regulations that are not necessarily covered by the present Rules.

## 11.0 TYPES OF SURVEYS

### 11.1 Annual Survey – Hull


11.1.1 A general examination of the hull and its fastening devices shall be carried out as far as can be seen, including the same as applied in NASHA class rules CHAPTER 3:

- (a) Side shell above the waterline.
- (b) Cargo ports.
- (c) Accessible parts of rudder.
- (d) Decks.
- (e) Bulwarks, guard rails and freeing ports.
- (f) Ventilators.
- (g) Air, overflow and sounding pipes.
- (h) Closing appliances of superstructures.

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- (i) Engine casing, skylights, miscellaneous hatches.
- (j) Ladders on weather decks.

- 11.1.2 Anchoring and mooring equipment is to be surveyed, including the working test of windlass.
- 11.1.3 Cargo holds are to be surveyed as deemed necessary depending of the overall condition of the ship.
- 11.1.4 A confirmation is to be carried out, as far as practicable, that no significant changes have been made to the arrangement of structural fire protection.
- 11.1.5 Verification that loading guidance and stability data are on board ready for use.
- 11.1.6 Verification that no alterations have been made to the hull or superstructures which would affect the calculation determining the position of load lines.
- 11.1.7 The Annual Survey of **hatch covers and coamings** will include the following:
  - (a) Confirmation that no significant changes have been made to the hatch covers, hatch coamings and their securing and sealing devices.
  - (b) When fitted with portable covers, wooden or steel pontoons, checking of the satisfactory condition of:
    - (i) Wooden covers and portable beams, carriers or sockets for portable beams and their securing devices.
    - (ii) Steel pontoons.
    - (iii) Tarpaulins.
    - (iv) Cleats, battens and wedges.
    - (v) Hatch securing bars and their securing devices.
    - (vi) Loading pads/bars and the side plate edge.
    - (vii) Guide plates and chocks.
    - (viii) Compression bars, drainage channels and drain pipes (if any).
  - (c) When fitted with mechanically operated steel covers, checking of the satisfactory condition of:
    - (i) Hatch covers.
    - (ii) Tightness devices of longitudinal, transverse and intermediate cross junctions (gaskets, gasket lips, compression bars, drainage channels).
    - (iii) Clamping devices, retaining bars, cleating.
    - (iv) Chain or rope pulleys.
    - (v) Guides, guide rails and track wheels.
    - (vi) Stoppers.
    - (vii) Wires, chains, gypsies, tensioning devices.
    - (viii) Hydraulic system essential to closing and securing.
    - (ix) Safety locks and retaining devices.
    - (x) Random checking of the satisfactory operation of hatch covers: stowage and securing in open condition, proper fit, locking and efficiency of sealing in closed position.
    - (xi) Operational testing of hydraulic and power components, wires, chains and link drives.

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- (d) Checking of the satisfactory condition of hatch coaming plating and their stiffeners.

11.1.8 **Protection of other openings** is to be surveyed, including:

- (a) Hatchways, manholes, and scuttles in freeboard and superstructure decks.
- (b) Portlights together with deadcovers.
- (c) Cargo ports, bow or stern access.
- (d) Chutes and similar openings in ship's sides or ends below the freeboard deck or in way of enclosed superstructures.
- (e) Ventilators, air pipes together with flame screens, scuppers and discharges serving spaces on or below the freeboard deck.
- (f) Watertight bulkheads, bulkhead penetrations and walls of enclosed superstructures.
- (g) Weathertight and watertight doors and closing appliances for all the above including proper operation of such doors.

11.1.9 Ballast tanks for vessels of **age over 5 years** are to be internally examined where required as a consequence of the results of the Special or Intermediate Survey.


## 11.2 Annual Survey – Machinery

11.2.1 For the machinery and electrical installations the Annual Survey will consist of:

- (a) A general examination of machinery and boiler spaces with particular attention to the propulsion system, auxiliary machinery and the spaces of fire and explosion hazards.
- (b) Confirmation that emergency escape routes are practicable and not blocked.
- (c) Testing of the means of communication and order transmission between the navigating bridge and the machinery control positions, as well as between the bridge and the alternative steering position, if fitted.
- (d) Examination, so far as practicable, of the bilge pumping systems and bilge wells, including operation of the pumps, remote reach rods and level alarms, where fitted.
- (e) External examination of pressure vessels and their appurtenances, including safety devices, foundations, controls, relieving gear, high pressure and steam escape piping, insulation and gauges.
- (f) General examination visually and in operation, as feasible, of electrical machinery and emergency source of electrical power. If they are automatic, also in the automatic mode.
- (g) General examination of switchgear, switchboards and other electrical equipment and megger testing of selected parts of the installation, when deemed necessary.
- (h) General examination of main and auxiliary steering arrangements, including their associated equipment and control systems and manoeuvring gear.

11.2.2 During the Annual Survey the main source of electrical power is to be tested under load.

11.2.3 For the fire fighting equipment, the Annual Survey will consist of:

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- (a) Confirmation that fire control plans are properly posted.
- (b) Examination and testing, as feasible, of the operation of manual and/or automatic fire doors, where fitted.
- (c) Examination, as far as practicable, and testing, as feasible, of the fire and/or smoke detection systems.
- (d) Examination of the fire main system and confirmation that each fire pump including the emergency fire pump can be operated separately so that the two required powerful jets of water can be produced simultaneously from different hydrants.
- (e) Confirmation that fire hoses, nozzles, applicators and spanners are in good working condition and situated at their respective locations.
- (f) External examination of CO<sub>2</sub> / Halon receivers.
- (g) Examination of fixed fire-fighting system controls, piping, instructions and marking; checking for evidence of proper maintenance and servicing, including date of last system tests.
- (h) Confirmation that semi-portable and portable fire extinguishers are in their stowed positions; checking for evidence of proper maintenance and servicing, conducting random check for evidence of discharged containers.
- (i) Confirmation that the remote controls for stopping fans and machinery and shutting off fuel supplies in machinery spaces are in working order.
- (j) Checking of fire detection and alarm systems.
- (k) Examination of the closing arrangements of ventilators, funnel annular spaces, skylights, doorways and tunnels, where applicable.
- (l) Confirmation that foam concentrates are periodically (twice every 5 years) tested, either by the Manufacturer or by an organization agreed by him.
- (m) Confirmation that the fireman's outfits are complete and in satisfactory condition.

### 11.3 Intermediate Survey - Hull

#### 11.3.1 Ballast tanks

11.3.1.1 For ships 5 years old and over, and less than 10 years:

- (a) An internal examination of representative salt water ballast tanks is to be carried out. When such examination reveals no visible structural defects, the examination may be limited to the verification that the protective coating remains efficient.
- (b) Where poor coating condition, corrosion or other defects are found in salt water ballast spaces or where a protective coating was not applied from the time of construction, the examination is to be extended to other ballast spaces of the same type.
- (c) For salt water ballast spaces other than double bottom tanks, where a protective coating is found in poor condition and is not renewed, where soft coating has been applied or where a protective coating was not applied from the time of construction, maintenance of class is to be subject to the tanks in question being internally examined and thickness measurement carried out as deemed necessary at annual intervals.
- (d) For salt water ballast double bottom tanks, where such breakdown of coating

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is found, where a soft coating has been applied or where a coating has not been applied from the time of construction, maintenance of class may be subject to the tanks in question being internally examined at annual intervals.

- (e) When extensive corrosion is found, thickness measurements may be required.

11.3.1.2 For ships **10 years old and over**, the requirements of 11.3.1.1 are to be complied with and, additionally:

- (a) An internal examination of all salt water ballast spaces is to be carried out. Where such examination reveals no visible structural defects, the examination may be limited to a verification that the protective coating remains efficient..
- (b) For salt water ballast spaces other than double bottom tanks, where a protective coating is found in poor condition and is not renewed, where soft coating has been applied or where a protective coating was not applied from the time of construction, maintenance of class is to be subject to the tanks in question being internally examined and thickness measurement carried out as deemed necessary at annual intervals.
- (c) For salt water ballast double bottom tanks, where such breakdown of coating is found, where a soft coating has been applied or where a coating has not been applied, maintenance of class may be subject to the tanks in question being internally examined at annual intervals.
- (d) When extensive corrosion is found, thickness measurements may be required.

11.3.1.3 Double bottom ballast spaces in way of cargo holds have to be tested, for ships 10 years old or over.

### **11.3.2 Cargo holds**

11.3.2.1 Ships over 10 years of age.

- (a) An internal examination of at least one forward and one after cargo hold is to be carried out.
- (b) For ships with only two cargo holds, either one cargo hold is to be examined.

11.3.3 For ships over 15 years of age an internal examination of all cargo holds is to be carried out.


### **11.4 Intermediate Survey - Machinery**

11.4.1 During the Intermediate Survey to the ship's machinery, the requirements of the Annual Surveys are to be met.

## **12.0 SPECIAL SURVEY HULL I (AGE OF SHIP UP TO 5 YEARS)**

### **12.1 Preparation**




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- 12.1.1 The holds, tweendecks, peak tanks, deep tanks, engine and boiler spaces and other spaces, are to be cleared and cleansed as necessary and the bilges and limbers all fore and aft are to be cleansed and prepared for examination.
- 12.1.2 Platform plates in engine and boiler spaces are to be lifted as may be necessary for the examination of the structure below.
- 12.1.3 Where necessary, close and spar ceiling, lining and pipe casings are to be removed for examination of the structure.
- 12.1.4 The examination is to be sufficient to reveal substantial corrosion, significant deformation, fractures, damages or other structural deterioration.
- 12.1.5 The bottom ceiling in holds of single bottom ships is to be lifted to such an extent that at least 2 strakes on each side (one strake being at the bilge) and all portable hatches in holds and flooring plates in machinery and boiler spaces are to be removed for examination of the structure below.
- 12.1.6 Where a double bottom is fitted, a sufficient ceiling is to be lifted from the inner bottom to enable the Surveyor to satisfy himself as to the condition of the tank top plating and, if necessary, all ceiling is to be removed for ascertaining the condition.
- 12.1.7 The cement or other composition on the inner surface of the bottom plating is to be carefully examined. The removal of this covering may be dispensed with provided that it is tested by beating or chipping and found sound and adhering satisfactorily to the steel plating.
- 12.1.8 The steel work is to be examined before painting or before the cement or other covering is renewed.
- 12.1.9 Where holds are insulated for the purpose of carrying refrigerated cargoes and the hull in way of the insulation was examined by the Surveyor at the time such insulation was fitted, it will be sufficient to remove the limbers and hatches to enable the framing and plating in way to be examined. In other cases, additional insulation is to be removed as necessary for the Surveyor to be satisfied as to the condition of the structure.

## **12.2 External examinations**

- 12.2.1 A general examination of the hull and hull equipment, as required by *Subs 11.1* for the Annual Survey of hull, is to be carried out.
- 12.2.2 Decks are to be examined and particular attention being given to the areas where stress concentration or increased corrosion are likely to be developed, such as hatch corners and other discontinuities of structure.
- 12.2.3 Deck erections such as hatch coamings, deckhouses and superstructures are to be examined.
- 12.2.4 Worn out, worm-eaten or rotten parts of wooden decks are to be renewed to the Surveyor's satisfaction. The same applies to wood-sheathed steel decks, the

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sheathing of which may be removed in places to ascertain the condition of plating underneath.


- 12.2.5 Masts and standing rigging are to be examined.
- 12.2.6 Anchors chain cables and windlasses are to be examined and checked. Lengths of chain cables worn out more than **12%** from their nominal diameter are to be renewed.
- 12.2.7 The engine room structure is to be examined. Particular attention is to be given to tank tops, brackets connecting side, shell frames, tank tops and engine room ulkhheads in way of tank top and bilge wells. Where wastage is evident or suspected, thickness measurements are to be carried out.

### **12.3 Examination of tanks**

- 12.3.1 The seawater ballast tanks are to be examined at the Surveyor's discretion.
- 12.3.2 For seawater ballast spaces other than double bottom tanks, where a protective coating is found in poor condition and is not renewed, where soft coating has been applied or where a protective coating was not applied from the time of construction, maintenance of class is to be subject to the tanks in question being internally examined and thickness measurement carried out as deemed necessary at annual intervals.
- 12.3.3 For seawater ballast double bottom tanks, where breakdown of coating is found, where a soft coating has been applied or where a coating has not been applied from the time of construction, maintenance of class may be subject to the tanks in question being internally examined at annual intervals.
- 12.3.4 Fuel oil, lubricating oil and feed water tanks need not be emptied if their tightness can be verified by an external examination while they are completely filled and there is no reason for doubt as to their proper condition.

### **12.4 Tightness tests**

- 12.4.1 Each compartment of the double bottom and all tanks, the boundary bulkheads of which form part of the main structure of the ship, are to be subjected to a pressure test. Fuel, lubricating oil and feed water tanks may be tested by filling with the respective liquid.
- 12.4.2 The applied test pressure is to correspond to a head of water up to the top of the hatch for cargo tanks or up to the top of the overflow/air pipe of the tank, whichever is higher.
- 12.4.3 The tightness of pipe tunnels outside the inner bottom and of void spaces can be tested by air pressure. Testing of other spaces by air pressure is to be agreed

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with the Surveyor in each particular case.

**12.5 Holds and other spaces**

12.5.1 Holds, tweendecks, void spaces, cofferdams and other spaces which are integral to the ships structure are to be internally examined.

12.5.2 Plating under bilge wells in holds and engine room i to be examined.

**12.6 Hatch covers and coamings**

12.6.1 Hatch covers and coamings are to be examined as follows:

- (a) A thorough inspection of the items listed in Annual Surveys is to be carried out.
- (b) Checking of the satisfactory operation of all mechanically operated hatch covers is to be made, including:
  - (i) Stowage and securing in open condition
  - (ii) Operational testing of hydraulic and power components, wires, chains, and link drives
- (c) The effectiveness of sealing arrangements of all hatch covers by hose testing or equivalent is to be checked.

**12.7 Thickness measurements**

12.7.1 Thickness measurements are to be carried out.

**13.0 SPECIAL SURVEY HULL II (AGE OF SHIP 5-10 YEARS)**

**13.1 General**


13.1.1 The requirements of Sec 12 for Special Survey I are to be complied with.

**13.2 Preparation**

13.2.1 In addition to the requirements of Sub 12.1 the requirements of this Subsection are to be complied with.

13.2.2 A sufficient amount of ceiling in the holds is to be lifted from bilges and the inner bottom to enable the Surveyor to satisfy himself as to the condition of the structure in bilges, the inner bottom plating, the pillar feet, the lower and plating of bulkheads and the tunnel side.

13.2.3 In ships having a single bottom, the close ceiling in holds is to be lifted to such an extent that at least 3 strakes on each side (one strake being at the bilge) and all

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portable hatches in holds and flooring plates in machinery and boiler spaces are to be removed for examination of the structure below. In either case the whole of the ceiling may be lifted for examination of the structure below when deemed necessary by the Surveyor.

13.2.4 Structural parts behind insulations are to be examined as required by the Surveyor.

13.2.5 Chain cables are to be ranged out and examined, and chain lockers are to be examined internally.

### **13.3 Examination and testing of tanks**

13.3.1 In addition to the requirements of subs 12.3, 12.4 the requirements of this Subsection are to be complied with.

13.3.2 All seawater ballast tanks are to be internally examined (see also 12.3.2 – 12.3.3).

13.3.3 Ship's tanks (excluding peak tanks) used exclusively for oil fuel or fresh water need not all be internally examined provided that, from an external examination and testing and from an internal examination of the aft end of one forward double bottom tank and of one selected deep tank, the Surveyor is satisfied as to the condition observed.

13.3.4 Lubricating oil tanks need not be examined internally.

13.3.5 At least one integral fresh water tank is to be examined internally. The remaining fresh water tanks may be examined externally from all accessible boundaries.

### **13.4 Thickness measurements**

13.4.1 Thickness measurements are to be carried out.

## **14.0 SPECIAL SURVEY HULL III (AGE OF SHIP 10-15 YEARS)**

### **14.1 General**


14.1.1 The requirements of Sec 13 for Special Survey II are to be complied with.

### **14.2 Preparation**

14.2.1 In addition to the requirements of Sub 13.2 the requirements of the present Subsection are to be complied with.

14.2.2 A sufficient amount of ceiling and lining in the holds and flooring plates in the machinery spaces is to be removed, as required by the Surveyor.

14.2.3 The ship is to be made free from rust inside and outside in order to expose for examination the framing and plating together with discharges, scuppers, air and sounding pipes, and the structure is to be examined.

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- 14.2.4 Wood sheathing and deck composition on steel decks are to be removed as required by the Surveyor and the plating below examined.
- 14.2.5 Cement chocks on the ship's sides at bilges and decks are to be examined and portions of them removed so that the condition of the shell plating and adjacent steel work can be ascertained.
- 14.2.6 The lining in way of side scuttles is to be removed as required by the Surveyor and the shell plating examined.
- 14.2.7 All double bottom and other tanks are to be cleansed as necessary to permit their internal examination when required by the Surveyor.
- 14.2.8 Where the holds are insulated for the purpose of carrying refrigerated cargoes, the limbers and hatches are to be lifted and sufficient insulation is to be removed in each of the chambers to enable the Surveyor to satisfy himself as of the condition of the framing and plating.
- 14.2.9 All mast wedging is to be removed for inspection.
- 14.2.10 Attention is to be given by the Surveyor to the parts of the ship's structure in way of the boilers.
- 14.2.11 Attention is also to be paid to the possibility of local wastage and grooving, e.g. at the shell plating along the heel of framing members.

**14.3 Examination and testing of tanks**

- 14.3.1 In addition to the requirements of Sub 13.3 the requirements of this Subsection are to be complied with.
- 14.3.2 Integral tanks which are used exclusively for fresh water are to be examined internally.
- 14.3.3 Independent tanks in the engine room containing fuel or lubricating oil are to be filled to the top of the tank for testing.

**14.4 Thickness measurements**


- 14.4.1 Measurements shall be made in accordance with the provisions of Appendix 1 of the NASHA Class Rules.

**15.0 SPECIAL SURVEY HULL IV (AGE OF SHIP OVER 15 YEARS) AND SPECIAL SURVEYS THEREAFTER**

**15.1 General**

- 15.1.1 The requirements of Sec 14 for Special Survey III are to be complied with.

**15.2 Examination and testing of tanks**

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15.2.1 In addition to the requirements of *Sub 1 4 . 3* the requirements of this Subsection are to be complied with.

15.2.2 A minimum of two selected **integral oil fuel** tanks are to be examined internally. The remaining tanks may be examined externally from all accessible boundaries.

15.2.3 Integral tanks which are used for **lubricating oil** need not be examined internally subject to external examination of all accessible boundaries.

15.2.4 **Independent tanks** which are used for **fresh water, oil fuel** or **lubricating oil** need not be examined internally subject to external examination of all accessible boundaries.

**15.3 Thickness measurements**

15.3.1 Thickness measurements are to be carried out.

**16.0 Bottom Surveys**

**16.1 Docking Survey**

16.1.1 When a ship is in dry-dock or on a slipway, it is to be placed on sufficiently high and secure blocks and with the necessary staging to permit the examination of elements such as shell plating including bottom and bow plating, stern frame and rudder, sea chests and valves, propeller, shaft brackets and other stern appendages if fitted.

16.1.2 The shell plating is to be examined for excessive corrosion or deterioration due to chafing or contact with the ground and for any undue unfairness or buckling. Special attention is to be paid to bilge keels. Important plate unfairness or other deterioration which do not necessitate immediate repairs is to be recorded.

16.1.3 Visible parts of rudder, rudder pintles, rudder shafts and couplings and stern frame are to be examined.


16.1.4 The steering gear is to be subjected to an operational trial.

16.1.5 Visible parts of propeller and stern bush are to be examined. The clearance in the stern bush and the efficiency of the oil gland, if fitted, are to be ascertained and recorded.

16.1.6 For controllable pitch propellers, the Surveyor is to be satisfied with the fastenings and tightness of hub and blade sealing. Dismantling need not be carried out unless deemed necessary by the Surveyor.

16.1.7 Visible parts of side thrusters are to be examined.

16.1.8 At Docking Surveys carried out as a part of the Special Class Survey, the cross sectional area of the anchor chain cables is to be determined by measuring


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approximately 3 typical links per length (27.5 m) at the ends of the links in way of the maximum wear. Worn out chain lengths (over 12% from their nominal diameter) are to be renewed.

- 16.1.9 Bower anchors, if considerably worn, are to be weighed. If their weight is found to be reduced by 20% or more from the original they are to be replaced.

## 16.2 In-water Survey

- 16.2.1 The In-water Survey is to be carried out with the ship at light draught in sheltered waters. The in-water visibility is to be good and the hull below waterline is to be sufficiently clean to permit a meaningful examination. The Society is to be satisfied with the methods of localization of the divers on the plating. Use is to be made, where necessary, of permanent markings on the plating at selected points.
- 16.2.2 The In-water Survey is to be carried out by a Surveyor who is a skilled diver and trained to carry out the survey or by a qualified diver under surveillance by a Surveyor to NASHA. The diver has to be employed by a firm acceptable to the Society.
- 16.2.3 It is advisable that both the Surveyor and the diver be provided with detailed plans of the hull and hull attachments below the waterline, that is:
- Plans of the shell plating below waterline showing the details of the location and size of shell openings, bilge keels and location of watertight and oiltight bulkheads.
  - Plans of anodes' distribution, including their securing arrangements.
  - Drawings and detailed information of rudder and fittings.
  - Drawings and detailed information of tailshaft arrangement and propeller.
  - Drawings of stem and stern.
- 16.2.4 The above plans are to include the necessary instructions to facilitate the diver's work, especially for clearance measurements.
- 16.2.5 Suitable means of ascertaining the position and identifying each blade of propeller(s) from inboard are to be provided.
- 16.2.6 Sea connections are to be provided with means of blanking their openings to the sea from outboard so that they may be opened out from inboard for examination and repairs.
- 16.2.7 Anodes are to be attached in such a manner as to be easily replaced as necessary.
- 16.2.8 When professional divers are employed, the Surveyor is to be satisfied with the method of pictorial representation, and a good two-way communication between the Surveyor and divers is to be provided. The underwater pictures on the surface monitor screen are to offer reliable technical information such as to enable the Surveyor to assess the parts surveyed.

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- 16.2.9 The Diving Report is to contain the following information:
- Name of diving company.
  - Name of diver and license number.
  - Date and place of Survey.
  - Name of equipment used for the In-water Bottom Inspection.
  - Name of ship.
  - Class character and notations.
  - Gross tonnage.
  - Port of registry.
  - Owner of ship.
  - Draughts (forward and aft).
  - Contents and results of the inspection (damage configuration and status, etc.).
- 16.2.10 The Diving Report must be countersigned by the attending Surveyor.
- 16.2.11 If the In-water Survey reveals damage or deterioration that requires early attention, the Surveyor may require that the ship be dry-docked in order that a detailed survey can be undertaken and the necessary repairs carried out.
- 16.2.12

## **17.0 Propeller Shaft Surveys**

### **17.1 Complete Survey**

- 17.1.1 The following requirements are to be complied with during the Complete Survey:
- Propellers are to be removed and examined.
  - Tailshafts are to be completely drawn in or out and examined. Shafts are to be carefully examined throughout, i. e.:
    - In way of the thread for the propeller nut.
    - At the keyway.
    - At the large end of the cone.
    - At the ends of liner(s) where in contact with sea water.
    - At the junctions of the separate lengths of a liner.
    - At the portion of shaft between separate lengths of liners.
    - In way of couplings and their bolt holes.
  - At the discretion of the Surveyor, the shaft is to be examined by an efficient crack detection method, usually the magnetic particle method for non-austenitic steel shafts.
  - The various parts of the aft oil glands (if fitted) are to be examined.
  - Bearings are to be examined.
  - Clearances of the bearings and the wear down of the shaft, if any, are to be checked.
- 17.1.2 For oil lubricated arrangements all exposed areas of the after shaft area are to be examined by an approved crack-detection method without drawing of the shaft, and the following is to be found satisfactory:
- Clearances and wear down of the bearings.
  - Records of lubricating oil analysis, oil consumption and bearing temperature.



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(c) Visible shaft areas.

17.1.3 Lubricating oil and bearing temperature controls are to be performed as specified in 17.3.6 – 17.3.8.

17.1.4 Where any doubt exists regarding the findings of the above, the shaft is to be sufficiently drawn to permit a complete examination.

**17.2 Partial Survey**

17.2.1 The Partial Survey is to consist of the propeller being backed off in any keyed shaft and the top half of the cone examined by an efficient crack detection method for which removal of the key will be required.

17.2.2 Oil gland and seals are to be examined and dealt with as necessary. Wear down is to be measured and found satisfactory.

17.2.3 Propeller and fastenings are to be examined.

**17.3 Modified Survey**

17.3.1 The Modified Survey will consist of a partial withdrawal of the shaft, sufficient to ascertain the condition of the stern bearing and shaft in way.

17.3.2 For keyless propellers or shafts with a solid flange connection to the propeller, a visual examination to confirm the good condition of the sealing arrangements is to be made. The oil glands are to be capable of being replaced without removal of the propeller.

17.3.3 The forward bearing and all accessible parts including the propeller connection to the shaft are to be examined so far as possible. Wear-down is to be measured and to be found satisfactory.


17.3.4 Where a controllable pitch propeller is fitted, at least one of the blades is to be dismantled for examination of the working parts and the control gear, followed by a function test after the assembling.

17.3.5 For keyed propellers, the after end of the cylindrical part of the shaft and forward 1/3 of the shaft cone is to be examined by a magnetic practicable crack detection method, for which dismantling of the propeller and removal of the key will be required.

17.3.6 Where a lubricating oil analysis is carried out regularly at intervals not exceeding 6 months and the oil consumption and bearing temperature are recorded and considered to be within permissible limits, the drawing of the shaft to expose the aft bearing contact area may be dispensed with.

17.3.7 The documentation on lubricating oil analysis is to be available on board. Each analysis is to include:

(a) Water contents.

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- (b) Chlorides contents.
- (c) Content of bearing metal particles.
- (d) Oil aging (resistance to oxidation).

17.3.8 Oil samples are to be taken under service conditions.

**17.4 Maximum and minimum clearances for propeller shafts**

- 17.4.1 The bearing clearances will depend on the material of the bearing surface, the diameter of the shaft and the means of lubrication.
- 17.4.2 For water-lubricated lignum vitae bearings the recommended clearances are approximately as shown in table 17.4.2.


**Table 17.4.2 Recommended clearances for lignum-vitae bearings**

<b>Shaft diameter (mm)</b>	<b>Minimum clearances for new bearings (mm)</b>	<b>Maximum allowed clearances (mm)</b>
Up to 200	0.75	6.00
Up to 305	1.00	8.00
More than 305	1.25	9.00

- 17.4.3 For white linings of oil lubricated stern tubes the recommended minimum clearances of new bearings are as shown in table 17.4.3.

**Table 17.4.3 Recommended minimum bearing clearances for oil lubricated stern tubes**

<b>Shaft diameter (mm)</b>	<b>Minimum clearances (mm)</b>
Up to 200	0.60
Up to 305	0.75
Up to 500	1.00
Up to 700	1.20
More than 700	1.25

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17.4.4 When the clearance between the shaft and the bearing reaches approximately twice the value of the above mentioned clearances of new bearing, the bush must be remetalled.

17.4.5 Stern tube bearings lined with rubber or plastic are to have initial clearances in accordance with the Maker's recommendations.

## 18.0 SPECIAL SURVEY MACHINERY

### 18.1 General

18.1.1 Special Survey of machinery is to be carried out at the same time and intervals as required for hull and equipment with respect to the type of machinery.

18.1.2 For machinery and electrical equipment, in addition to the requirements for the Intermediate Survey, the following requirements are to be complied with.

### 18.2 Survey of main and auxiliary engines

18.2.1 At the Special Survey of main engines, the following requirements are to be complied with in accordance with the type of engine.


18.2.2 Where deemed necessary by the Surveyor, control, governing and safety devices are to be tested.

18.2.3 For **oil engines** the following is to be performed:

- (a) Cylinders, cylinder covers, pistons, piston rods and connecting rods, cross-heads (including pins, bearings and guides) are to be opened out and examined.
- (b) Crank shafts and all bearings, cam shafts and their driving gears are to be opened out and examined.
- (c) Essential valves and valve arrangements, fuel oil pumps and fittings, scavenging pumps, scavenging blowers, superchargers, intercoolers, filters or oil separators and safety devices are to be opened out and examined.
- (d) Clutches and reverse gear are to be opened out and examined.
- (e) Crank cases and explosion relief devices are to be opened out and examined.
- (f) Deflections of crank arms are to be measured.
- (g) Vibration dampers or balancers are to be examined.

18.2.4 For steam turbines the following is to be accomplished:

- (a) Turbine blades, rotors, stop valves, shafts, glands, thrust adjusting bearings, oil drains, and sealing pipes are to be opened out and examined.
- (b) At Special Survey No. 1 only, for vessels having more than 1 main propulsion ahead turbine with emergency steam crossover arrangement, the turbine casings need not be opened provided that approved vibration indicators and rotor position indicators are fitted and that the operating records are considered satisfactory by the Surveyor.
- (c) An operational test of the turbines may be required when deemed necessary by

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the Surveyor.

18.2.5 For the **main electric propelling machinery**, windings, commutators and slip-rings, all air ducts in stator coils and ventilating holes in rotors are to be examined.

18.2.6 For **auxiliary engines**, the requirements corresponding to those of the main engine are to be complied with.

### 18.3 Survey of machinery other than main and auxiliary engines

18.3.1 All shafts (except the propeller and stern tube shafts), thrust blocks and line shaft bearings are to be examined. The lower halves of bearings need not be exposed, if alignment and wear are found satisfactory.

18.3.2 Reduction gear is to be examined. Where deemed necessary by the Surveyor, reduction gear is to be opened out and the gear wheels, pinions, gear shafts and bearings are to be examined.

18.3.3 The foundation bolts and chocks of main and auxiliary engines, gear casings, thrust blocks and line shaft bearings are to be examined.

18.3.4 An examination of machinery driven by the main engine and the engine fittings is to be carried out.

18.3.5 All air receivers and other pressure vessels for essential services together with their mountings and safety devices are to be opened out and examined internally and externally. Where internal examination is not practicable, they are to be tested hydraulically to **1.5 times** the working pressure and, if deemed necessary by the Surveyor, a performance test of safety valves for the above mentioned devices is to be carried out.


18.3.6 Air compressors with their inter-coolers, filters and/or oil separators and safety devices, and all pumps and components used for essential services are to be opened out as deemed necessary by the Surveyor and examined.

18.3.7 Operational conditions of steering gear are to be examined. Where deemed necessary by the Surveyor, main parts are to be opened out and examined.

18.3.8 Remote control systems of main engines and controllable pitch propellers are also to be tested in operation (special attention is to be given to the reverse mechanism).

18.3.9 Operating conditions of windlass, mooring winches and cargo winches are to be examined. Where deemed necessary by the Surveyor, main parts of them are to be opened out and examined.

18.3.10 Evaporators are to be opened out and examined. Their safety valves are to be checked under working conditions.

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18.3.11 During the Special Survey of **heat exchangers** the following is to be performed:

- (a) An internal examination is to be carried out,
- (b) A hydraulic test will be required depending on the result of the examination and after repairs of the heat exchanger.

18.3.12 For **pumping and piping arrangements** the following is to be carried out:

- (a) Valves, cocks and strainers of the bilge system including the emergency bilge suction valve are to be examined and, where deemed necessary by the Surveyor, they are to be opened out.
- (b) Fuel oil, feed and lubricating oil systems, ballast connections and blanking arrangement to deep tanks which may carry liquid or dry cargoes, together with all filters, heaters, coolers and condensers for essential services are to be opened out and examined. Pressure tests may be carried out, including safety devices, where deemed necessary by the Surveyor.

18.3.13 Where deemed necessary by the Surveyor, performance tests of pressure gauges, revolutions and thermometers are to be carried out.

18.3.14 Spare parts of main and auxiliary engines are to be available on board according to the requirements of the Rules.

18.3.15 Where essential machinery is fitted with automatic and remote controls these are to be tested to demonstrate that they are in good working order. Special attention must be given to the proper operation of remote stopping systems of transfer pumps, fuel oil heating pumps, forced draught fans and engine room ventilation fans.

18.3.16 Operation tests of engine room alarm system, including alarm system in the engineer's accommodation, are to be carried out.

18.3.17 An examination of ventilation ducts passing through watertight bulkheads and fire-resisting bulkheads is to be carried out.

18.3.18 An examination of cables and cable penetrations in watertight and fire-resistant bulkheads is to be carried out.

#### **18.4 Survey of electrical equipment**


18.4.1 Main and emergency switchboards, section panels, and distribution fuse panels are to be examined and overcurrent protective devices and fuses inspected to verify that they provide suitable protection for their respective circuits.

18.4.2 Generators are to be tested under load conditions, either separately or in parallel and the performance of speed governors, switches and circuit breakers is to be checked.

18.4.3 Emergency sources of electrical power are to be tested, including:

- (a) Operation test of emergency generating set.
- (b) Test of emergency accumulators.

18.4.4 Battery chargers are to be tested.

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- 18.4.5 Mechanical ventilation of battery rooms / lockers to be examined.
- 18.4.6 The insulation resistance of generators, switchboards, motors, cables and other electrical equipment is to be tested and adjusted if it is found not to comply with the requirements given below:
- (a) For main and emergency switchboard, feeder circuit breakers being open, busbar circuit closed, measuring and monitoring instruments disconnected, the insulation resistance measured across each insulated busbar and hull, and across insulated busbars is not to be less than **1MΩ**.
  - (b) For generators, the equipment and circuits normally connected between the generator and the first circuit breaker being connected, the resistance of insulation (preferably at working temperature whenever possible), in ohms, is to be greater than 1000 times the rated voltage, in volts. When appropriate, the Surveyor will check also that the insulation resistance of generator independent exciters is not less than **0.25 MΩ**.
  - (c) The insulation resistance of the entire electrical system is to be checked with all circuit breakers and protective devices closed, except for generators. In general, the resistance is not to be less than **0.1MΩ**.
  - (d) The variation of the resistance with time is to be checked, comparing the current figure with previous readings. If the insulation resistance has dropped suddenly or is not sufficient, the defective circuits are to be traced, disconnecting as much circuits as necessary.
- However, this test may be dispensed with if it is found that the measured records remain efficient and they comply with the above requirements.
- 18.4.7 The lighting arrangements, internal communication and signalling systems, mechanical ventilation systems, and other electrical equipment are to be tested for effectiveness.
- 18.4.8 The electrical supply of navigation lights and associated alarm and signal devices is to be tested.

## **19.0 PERIODICAL SURVEYS AND TESTING OF MACHINERY ITEMS**


### **19.1 Steam boilers**

#### **19.1.1 External inspection**

19.1.1.1 The operability and general condition of the entire boiler, including its valves and fittings, pumps, piping, insulations, foundation, control and regulation systems, and its protective and safety equipment, is to be checked.

19.1.1.2 The boiler manual and operating instructions are to be checked.

#### **19.1.2 Internal inspection**

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19.1.2.1 Where deemed necessary by the Surveyor, the boiler is to be cleansed on the water and fuel gas sides, and, if required, its outside surfaces are to be exposed as well, so that all walls subject to pressure may be examined.

19.1.2.2 Where the design of the boiler does not permit an adequate internal inspection, hydraulic tests may be required.  
It is left to the Surveyor's discretion to have the internal inspection supplemented by hydraulic tests, if required on account of the condition of the boiler.

19.1.2.3 Where doubts arise concerning the thickness of the boiler walls, it is to be ascertained by means of a recognized gauging method. On the basis of the results of such inspection the allowable working pressure (**PB**) at which the boiler may be operated in future is to be decided on.

19.1.2.4 The hydraulic pressure test is to be carried out to a test pressure of 1.3 **PB**. Only after repair of major damages the test pressure may be **1.5 PB**. In no case, however, is the test pressure to be less than **PB + 1 bar**, and it is not to exceed the test pressure applied during the first inspection of the boiler after completion.

19.1.2.5 In addition to the above periodical inspections the Surveyor may, at his own discretion, require hydraulic tests or extraordinary surveys to be performed, e. g. following repairs and maintenance work.

**19.2 Pressure vessels**

19.2.1 Subject to the provisions of Sub 9.7 pressure vessels are to be inspected internally and externally.


19.2.2 **Supplementary testing:** Where pressure vessels cannot be satisfactorily examined internally and where their unobjectionable condition cannot be clearly recognized during the internal inspection, recognized non-destructive test methods are to be applied and/or hydraulic pressure tests are to be carried out. The hydraulic pressure test is to be carried out at a test pressure of **1.5 PB**. However, the test pressure must not be less than **PB + 1 bar**.

**19.3 Carbon dioxide low-pressure fire- extinguishing systems and Halon tanks**

19.3.1 The surfaces are to be checked for corrosion at the Surveyor's discretion.

19.3.2 Insulated vessels are to be exposed at some selected points, such as to offer a general impression of the vessel's external condition.

19.3.3 Following a hydraulic pressure test, the vessels and/or bottles are to be carefully dried. In the case of vessels for powder extinguishing agents, periodical pressure tests may be dispensed with, provided that their internal inspection does not reveal any deficiencies.


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**A - Thickness measurements during Special Surveys**

Thickness Measurement Requirements at Special Periodical Surveys for Vessels Under 90 meters (295 feet) in Length; Passenger Vessels and High Speed Craft Under 61 meters)]

<i>i) Special Periodical Survey No.1 (Age ≤ 5 Years)</i>	<i>ii) Special Periodical Survey No.2 (5 &lt; Age ≤ 10 Years)</i>	<i>iii) Special Periodical Survey No.3 (10 &lt; Age ≤ 15 Years)</i>	<i>iv) Special Periodical Survey No.4 and Subsequent (Age &gt; 15 Years) See Notes 1 &amp; 2</i>
<p>1. Suspect areas throughout the vessel.</p>	<p>1. Suspect areas throughout the vessel. 2. One (1) transverse section of deck plating within the midship 0.5L (in way of cargo space, if applicable).</p>	<p>1. Suspect areas throughout the vessel. 2. One (1) transverse section within the amidships 0.5L. 3. Internals in forepeak and afterpeak ballast tanks. 4. All cargo hold hatch covers and coamings (stiffeners and plating).</p>	<p>1. Suspect areas throughout the vessel. 2. Two (2) transverse sections within the amidships 0.5L, (in way of two (2) different cargo (or ballast) spaces, if applicable), avoiding those spaces previously gauged. 3. Internals in forepeak and after peak ballast tanks. 4. All cargo hold hatch covers and coamings (stiffeners and plating). 5. Lowest strake and strakes in way of tween decks of all transverse bulkheads in cargo spaces together with internals in way. 6. Wind-and-water strakes, port and starboard, full length. 7. All exposed main deck full length and representative exposed superstructure deck plating (poop, bridge and forecastle decks). 8. Flat keel plating full length. Also, additional bottom plates in way of cofferdams, machinery spaces and aft end of tanks. 9. Plating of seachests. Shell plating in way of overboard discharges as considered necessary by the attending Surveyor.</p>




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Notes:


- 1 For tank vessels, gauging of principal internals throughout cargo and ballast tanks.
- 2 For High Speed Craft, one (1) additional transverse section forward of 0.125L.

Thickness Measurement Requirements at Special Periodical Surveys for Tankers, Independent Tank Carriers 90 meters (295 feet) and over in Length

<i>i)</i>	<i>Special Periodical Survey No. 1 (Age ≤ 5 Years)</i>	<i>ii)</i>	<i>Special Periodical Survey No. 2 (5 &lt; Age ≤ 10 Years)</i>	<i>iii)</i>	<i>Special Periodical Survey No. 3 (10 &lt; Age ≤ 15 Years)</i>	<i>iv)</i>	<i>Special Periodical Survey No. 4 and Subsequent (Age &gt; 15 Years)</i>
1	Suspect areas throughout the vessel.	1	All main deck plates within the amidships 0.5L or cargo tank section, whichever is longer.	1	All main deck plates within the amidships 0.5L or cargo tank, whichever is longer.	1	All exposed main deck plates, full length. Also, exposed first-tier superstructure deck plates (poop bridge and forecastle decks).
		2	One (1) transverse section within 0.5L.	2	Two (2) transverse sections within the amidships 0.5L.	2	All keel plates full length. Also, additional bottom plates in way of cofferdams, machinery space and aft end of tanks.
		3	Plates in wind-and-water strakes outside 0.5L.	3	Plates in wind-and-water strakes outside 0.5L.	3	A minimum of three (3) transverse sections within the amidships 0.5L.
		4	(2006) All complete transverse web frame rings in a ballast wing tank or ballast double hull tank, if any.	4	(2006) All complete transverse web frame rings in all ballast tanks and in a cargo wing tank.	4	(2006) All complete transverse web frame rings in all ballast tanks and in a cargo wing tank.
		5	(2006) One (1) deck transverse in each of the remaining ballast tanks, if any.	5	(2006) A minimum of 30% of all complete transverse web frame rings in each remaining cargo wing tank. (In calculating the 30% minimum, the number of web frame rings is to be rounded up to the next whole integer.)	5	(2006) A minimum of 30% of all complete transverse web frame rings in each remaining cargo wing tank. (In calculating the 30% minimum, the number of web frame rings is to be rounded up to the next whole integer.)


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i)	<i>Special Periodical Survey No. 1 (Age ≤ 5 Years)</i>	ii)	<i>Special Periodical Survey No. 2 (5 &lt; Age ≤ 10 Years)</i>	iii)	<i>Special Periodical Survey No. 3 (10 &lt; Age ≤ 15 Years)</i>	iv)	<i>Special Periodical Survey No. 4 and Subsequent (Age &gt; 15 Years)</i>
		6	Both transverse bulkheads including girder system in a ballast wing tank or ballast double hull tank, if any, or a cargo wing tank used primarily for water ballast.	6	A minimum of 30% of deck and bottom transverse in each cargo center tank. (In calculating the 30% minimum, the number of transverses is to be rounded up to the next whole integer.)	6	A minimum of 30% of deck and bottom transverse in each cargo center tank. (In calculating the 30% minimum, the number of transverses is to be rounded up to the next whole integer.)
		7	Lower part of transverse bulkhead including girder system in each remaining ballast tank, one (1) cargo wing tank and two (2) cargo center tanks.	7	All transverse bulkheads including girder and stiffener systems in all cargo and ballast tanks.	7	All transverse bulkheads including girder and stiffener systems in all cargo and ballast tanks.
		8	Suspect areas throughout the vessel.	8	Additional complete transverse web frame rings as considered necessary by the Surveyor.	8	Additional complete transverse web frame rings as considered necessary by the Surveyor.
				9	Internals in forepeak and afterpeak tanks including plating and stiffeners of forepeak and afterpeak tank bulkheads.	9	Any additional tanks and structure as considered necessary by the Surveyor.
				10	Suspect areas throughout the vessel.	10	Internals in forepeak and afterpeak tanks including plating and stiffeners of forepeak and afterpeak tank bulkheads.
						11	All plates in two (2) wind-and-water strakes, port and starboard full length.
						12	Suspect areas throughout the vessel.
						13	Plating of seachests. Shell plating in way of overboard discharges as considered necessary by the attending Surveyor.

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Thickness Measurement Requirements at Special Periodical Surveys for Vessels 90 meters (295 feet) and over in Length; Passenger Vessels and High Speed Craft 61 meters (200 feet) and over in Length


i) <i>Special Periodical Survey No.1 (Age ≤ 5 Years)</i>	ii) <i>Special Periodical Survey No.2 (5 &lt; Age ≤ 10 Years)</i>	iii) <i>Special Periodical Survey No.3 (10 &lt; Age ≤ 15 Years)</i>	iv) <i>Special Periodical Survey No.4 and Subsequent (Age &gt; 15 Years)</i>
<p>1. Suspect areas throughout the vessel.</p>	<p>1. Suspect areas throughout the vessel. 2. One (1) transverse section of deck plating within the midship 0.5L (in way of cargo space, if applicable)</p>	<p>1. Suspect areas throughout the vessel. 2. Two (2) transverse sections within the amidships 0.5L (in way of two (2) different cargo (or ballast) spaces, if applicable). 3. Internals in forepeak and afterpeak ballast tanks including plating and stiffeners of forepeak and afterpeak ballast tank bulkheads. 4. All cargo hold hatch covers and coamings (stiffeners and plating).</p>	<p>1. Suspect areas throughout the vessel. 2. A minimum of three (3) transverse sections within the amidships 0.5L (in way of cargo spaces, if applicable). 3. Internals in forepeak and afterpeak ballast tanks including plating and stiffeners of forepeak and afterpeak ballast tank bulkheads. 4. All cargo hold hatch covers and coamings (plating and stiffeners). 5. Lowest strakes and strakes in way of tween decks of all transverse bulkheads in cargo space together with internals in way. 6. All plates in two (2) wind-and-water strakes, port and starboard, full length. 7. All exposed main deck plates full length and all exposed first-tier superstructure deck plates (poop, bridge and forecastle decks). 8. All keel plates full length. Also, additional bottom plates in way of cofferdams, machinery space and aft end of tanks. 9. Duct keel or pipe tunnel plating and internals. 10. Plating of seachests. Shell plating in way of overboard discharges as considered necessary by the attending Surveyor.</p>

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Thickness Measurement Requirements at Special Periodical Surveys Barges other than Oil/Fuel Oil Tank Barges and Chemical Tank Barges

<i>a Special Periodical Survey No.1 (Age ≤ 5 Years)</i>	<i>b Special Periodical Survey No.2 (5 &lt; Age ≤ 10 Years)</i>	<i>c Special Periodical Survey No.3 (10 &lt; Age ≤ 15 Years)</i>	<i>d Special Periodical Survey No.4 and Subsequent (Age &gt; 15 Years)</i>
1. Areas considered suspect by the Surveyor, throughout the barge.	1. Areas considered suspect by the Surveyor, throughout the barge.	1. Areas considered suspect by the Surveyor, throughout the barge. 2. Two (2) transverse sections within the midship half length.	1. Areas considered suspect by the Surveyor, throughout the barge. 2. Three (3) transverse sections within the midship half-length. 3. Two (2) wind and water strakes, port and starboard, for the full length. 4. All exposed main deck and superstructure deck plating. 5. Flat keel plating full length, plus all bottom plating.

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Thickness Measurement Requirements at Special Periodical Surveys Oil/Fuel Oil Tank Barges and Chemical Tank Barges under 122 meters (400 feet) in Length


<i>a Special Periodical Survey No.1 (Age ≤ 5 Years)</i>	<i>b Special Periodical Survey No.2 (5 &lt; Age ≤ 10 Years)</i>	<i>c Special Periodical Survey No.3 (10 &lt; Age ≤ 15 Years)</i>	<i>d Special Periodical Survey No.4 and Subsequent (Age &gt; 15 Years)</i>
1. Areas considered suspect by the Surveyor, throughout the barge.	1. Areas considered suspect by the Surveyor, throughout the barge.	1. Areas considered suspect by the Surveyor, throughout the barge. 2. Two (2) transverse sections within the midship half-length in way of two (2) different cargo (or ballast) tanks.	1. Areas considered suspect by the Surveyor, throughout the barge. 2. Three (3) transverse sections within the midship half-length avoiding those tanks previously gauged. 3. Transverse webs with associated plating and longitudinals in way of the three (3) transverse sections required above. 4. All transverse bulkheads including stiffening system in all ballast and cargo tanks. 5. Two (2) wind and water strakes, port and starboard, for the full length. 6. All exposed main deck and superstructure deck plating. 7. Flat keel plating full length, plus all bottom plating.

Thickness Measurement Requirements at Special Periodical Surveys Bulk Carriers

<i>(a) Special Periodical Survey No.1 (Age ≤ 5 Years)</i>	<i>(b) Special Periodical Survey No.2 (5 &lt; Age ≤ 10 Years) (1 July 2006)</i>	<i>(c) Special Periodical Survey No.3 (10 &lt; Age ≤ 15 Years) (1 July 2006)</i>	<i>(d) Special Periodical Survey No.4 and Subsequent (Age &gt; 15 Years) (1 July 2006)</i>
i) Suspect areas throughout the vessel.	i) Suspect areas throughout the vessel.	i) Suspect areas throughout the vessel.	i) Suspect areas throughout the vessel.
	ii) All deck plating inside the line of opening between cargo hold hatches.	ii) All main deck plating outside of line of cargo hatch openings within the cargo length area.	ii) All exposed main deck plating and representative exposed first tier superstructure deck plates (poop, bridge and forecastle decks).


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(a)	<i>Special Periodical Survey No.1 (Age ≤ 5 Years)</i>	(b)	<i>Special Periodical Survey No.2 (5 &lt; Age ≤ 10 Years) (1 July 2006)</i>	(c)	<i>Special Periodical Survey No.3 (10 &lt; Age ≤ 15 Years) (1 July 2006)</i>	(d)	<i>Special Periodical Survey No.4 and Subsequent (Age &gt; 15 Years)</i>
		iii)	Two (2) transverse sections of deck plating outside the line of cargo hatch openings within the amidships 0.5L with at least one (1) including a ballast tank, as far as practicable.	iii)	Two (2) transverse sections, one (1) in the amidship area, outside the line of cargo hatch openings	iii)	A minimum of three (3) transverse sections, one (1) in the amidship area, outside of the line of cargo hatch openings within the amidships 0.5L.
		iv)	Wind-and-water strakes in way of the same transverse sections.	iv)	All wind-and-water strakes within the cargo length area.	iv)	All wind-and-water strakes, port and starboard, full length.
		v)	(1 July 2006) Selected wind-and-water strakes outside the cargo length area.	v)	Selected wind and water strakes outside the cargo length area.	v)	All cargo hold hatch covers and coamings (plating and stiffeners).
		vi)	Measurement, for general assessment and recording of corrosion patterns, of structural members subject to Close-up Survey.	vi)	All cargo hold hatch covers and coamings (plating and stiffeners).	vi)	Internals in forepeak and afterpeak ballast tanks, including plating and stiffeners of bulkheads.
		vii)	Measurements of the corrugated transverse watertight bulkhead between cargo holds No's. one and two, for vessels subject to IACS UR S19 and IACS UR S23.	vii)	Internals in forepeak and afterpeak ballast tanks, including plating and stiffeners of bulkheads.	vii)	Duct keel or pipe tunnel plating and internals.
		viii)	Additional thickness measurements to be taken of the cargo hold side shell frames and brackets on ships subject to compliance with IACS UR S31 for initial and continued compliance.	viii)	Measurement, for general assessment and recording of corrosion pattern, of structural members subject to Close-up Survey.	viii)	All keel and bottom plates full length.
				ix)	Measurements of the corrugated transverse watertight bulkhead between cargo holds No's. one and two, for vessels subject to IACS UR S19 and IACS UR S23.	ix)	Plating of seachests. Shell plating in way of overboard discharges as considered necessary by the attending Surveyor.

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(a)	<i>Special Periodical Survey No.1 (Age ≤ 5 Years)</i>	(b)	<i>Special Periodical Survey No.2 (5 &lt; Age ≤ 10 Years) (1 July 2006)</i>	(c)	<i>Special Periodical Survey No.3 (10 &lt; Age ≤ 15 Years) (1 July 2006)</i>	(d)	<i>Special Periodical Survey No.4 and Subsequent (Age &gt; 15 Years) (1 July 2006)</i>
				x)	Additional thickness measurements to be taken of the cargo hold side shell frames and brackets on ships subject to compliance with IACS UR S31 for initial and continued compliance.	x)	Measurement, for general assessment and recording of corrosion patterns of structural members subject to Close-up Survey.
						xi)	Measurements of the corrugated transverse watertight bulkhead between cargo holds No's. one and two, for vessels subject to IACS UR S19 and IACS UR S23.
						xii)	Additional thickness measurements to be taken of the cargo hold side shell frames and brackets on ships subject to compliance with IACS UR S31 for initial and continued compliance.


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Minimum Requirements for CLOSE-UP Examination at Special Periodical Surveys Bulk Carriers - Non Double Skin and Bulk Carrier Features of Combination Carriers - Non Double Skin

(a)	<i>Special Periodical Survey No.1 (Age ≤ 5 Years)</i>	(b)	<i>Special Periodical Survey No.2 (5 &lt; Age ≤ 10 Years)</i>	(c)	<i>Special Periodical Survey No.3 (10 &lt; Age ≤ 15 Years)</i>	(d)	<i>Special Periodical Survey No.4 and Subsequent (Age &gt; 15 Years)</i>
i)	25% of shell frames in the forward cargo hold at representative positions. Representative frames in remaining cargo holds.	i)	All shell frames in the forward cargo hold and 25% of frames in each of the remaining cargo holds including upper and lower end attachments and adjacent shell plating. For bulk carriers 100,000 DWT and above, all shell frames in the No. 1 forward cargo hold and 50% of shell frames in each of the remaining cargo holds, including upper and lower end attachments and adjacent shell plating.	i)	All shell frames in the forward cargo hold and one other selected cargo hold, and 50% of frames in each of the remaining cargo holds, including the upper and lower end attachments and adjacent shell plating.	i)	All shell frames in all cargo holds including upper and lower end attachments and adjacent shell plating.
ii)	One (1) transverse web with associated plating and longitudinals in two (2) representative ballast tanks of each type: topside or hopper side tanks.	ii)	One (1) transverse web with associated plating and longitudinals in all ballast tanks.	ii)	All transverse web with associated plating and longitudinals in all ballast tanks.	ii)	All transverse webs with associated plating and longitudinals in all ballast tanks.
iii)	Two (2) cargo hold transverse bulkheads plating, stiffeners and girders, including internal structure of upper and lower stools, where fitted.	iii)	Forward and aft transverse bulkheads in one (1) topside ballast tank, including stiffening systems.	iii)	All transverse bulkheads in ballast tanks, including stiffening systems.	iii)	All transverse bulkheads in ballast tanks, including stiffening systems.




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(a)	<i>Special Periodical Survey No.1 (Age ≤ 5 Years)</i>	(b)	<i>Special Periodical Survey No.2 (5 &lt; Age ≤ 10 Years)</i>	(c)	<i>Special Periodical Survey No.3 (10 &lt; Age ≤ 15 Years)</i>	(d)	<i>Special Periodical Survey No.4 and Subsequent (Age &gt; 15 Years)</i>
iv)	All cargo hold hatch covers and coamings plating and stiffeners. For cargo hold hatch covers of approved design which structurally have no access to the internals, close-up survey/ thickness measurements shall be done of accessible parts of hatch covers structures.	iv)	All cargo hold transverse bulkheads plating, stiffeners and girders, including internal structure of upper and lower stools, where fitted.	iv)	All cargo holds transverse bulkheads plating, stiffeners and girders, including internal structure of upper and lower stools, where fitted.	iv)	All cargo holds transverse bulkheads plating, stiffeners and girders, including internal structure of upper and lower stools, where fitted.
		v)	All deck plating and under deck structure inside line of hatch openings between all cargo hold hatches.	v)	All deck plating and under deck structure inside the line of hatch openings between all cargo hold hatches.	v)	All deck plating and under deck structure inside the line of hatch openings between all cargo hold hatches.
		vi)	All cargo hatch covers and coamings plating and stiffeners. For cargo hold hatch covers of approved design which structurally have no access to the internals, close-up survey/ thickness measurements shall be done of accessible parts of hatch covers structures.	vi)	All cargo hatch covers and coamings plating and stiffeners. For cargo hold hatch covers of approved design which structurally have no access to the internals, close-up survey/ thickness measurements shall be done of accessible parts of hatch covers structures.	vi)	All cargo hatch covers and coamings plating and stiffeners. For cargo hold hatch covers of approved design which structurally have no access to the internals, close-up survey/ thickness measurements shall be done of accessible parts of hatch covers structures.

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Thickness Measurement Requirements at Special Periodical Surveys Tankers ESP (Oil Carriers and Oil Carrier Features of Combination Carriers - Non-Double Hull) and Oil/Fuel Oil Tank Barges - Non Double Hull and Chemical Tank Barges 122 meters (400 feet) and over in Length


<i>(a) Special Periodical Survey No.1 (Age ≤ 5 Years)</i>	<i>(b) Special Periodical Survey No.2 (5 &lt; Age ≤ 10 Years)</i>	<i>(c) Special Periodical Survey No.3 (10 &lt; Age ≤ 15 Years)</i>	<i>(d) Special Periodical Survey No.4 and Subsequent (Age &gt; 15 Years)</i>
<p><i>i) Suspect areas throughout the vessel.</i></p> <p><i>ii) One (1) transverse section of deck plating for the full beam of the ship within amidships 0.5L, in way of a ballast tank, if any, or a cargo tank used primarily for water ballast.</i></p> <p><i>iii) Measurement, for general assessment and recording of corrosion patterns, of structural members subject to Close-up Surveys.</i></p>	<p><i>i) Suspect areas throughout the vessel.</i></p> <p><i>ii) All main deck plating within the amidships 0.5L or cargo area, whichever is longer.</i></p> <p><i>iii) One (1) transverse section within the amidships 0.5L.</i></p> <p><i>iv) Selected wind-and-water strakes outside the cargo area.</i></p> <p><i>v) Measurement for general assessment and recording of corrosion patterns of structural members subject to Close-up Survey.</i></p>	<p><i>i) Suspect areas throughout the vessel.</i></p> <p><i>ii) All main deck plating within the cargo area.</i></p> <p><i>iii) Two (2) transverse sections within the amidships 0.5L in way of two different cargo tanks. At least one section is to include a ballast tank within 0.5L amidships, if any.</i></p> <p><i>iv) All wind-and-water strakes within the cargo area.</i></p> <p><i>v) Selected wind and water strakes outside the cargo length area.</i></p> <p><i>vi) Internals in forepeak and afterpeak ballast tanks, including plating and stiffeners of forepeak and afterpeak ballast tank bulkheads.</i></p> <p><i>vii) Measurement, for general assessment and recording of corrosion patterns, of structural members subject to Close-up Survey.</i></p>	<p><i>i) Suspect areas throughout the vessel.</i></p> <p><i>ii) All main deck plating and representative exposed superstructure deck plating (poop, bridge and forecastle decks).</i></p> <p><i>iii) A minimum of three (3) transverse sections, including at least one (1) in way of a ballast tank, within the amidships 0.5L.</i></p> <p><i>iv) All wind-and-water strakes, port and starboard, full length.</i></p> <p><i>v) Internals in forepeak and afterpeak ballast tanks, including plating and stiffeners of forepeak and afterpeak ballast tank bulkheads.</i></p> <p><i>vi) Duct keel or pipe tunnel plating and internals.</i></p> <p><i>vii) All keel and bottom plating, full length.</i></p> <p><i>viii) Plating of seachests. Shell plating in way of overboard discharges as considered necessary by the attending Surveyor.</i></p> <p><i>ix) Measurements, for general assessment and recording of corrosion patterns, of structural members subject to Close-up Survey.</i></p>

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*Note:* In the case of oil tankers of 130 meters (427 feet) in length and upwards, for the evaluation of the vessel's longitudinal strength as required in 7-3-2/5.15.1, the sampling method of thickness measurements is given in 7-A1-4/33.

Minimum Requirements for CLOSE-UP Examination at Special Periodical Surveys Tankers ESP (Oil Carriers and Oil Carrier Features of Combination Carriers - Non-Double Hull) and Oil/Fuel Oil Tank Barges - Non Double Hull and Chemical Tank Barges 122 meters (400 feet) and over in Length

(a)	<i>Special Periodical Survey No.1 (Age ≤ 5 Years)</i>	(b)	<i>Special Periodical Survey No.2 (5 &lt; Age ≤ 10 Years)</i>	(c)	<i>Special Periodical Survey No.3 (10 &lt; Age ≤ 15 Years)</i>	(d)	<i>Special Periodical Survey No.4 and Subsequent (Age &gt; 15 Years)</i>
i)	One (1) complete transverse web frame ring including adjacent structural members in a ballast wing tank, if any, or in a cargo wing tank used primarily for water ballast.	i)	All complete transverse web frame rings including adjacent structural members in a ballast wing tank, if any, or a cargo wing tank used primarily for water ballast.	i)	All complete transverse web frame rings, including adjacent structural members in all ballast tanks and in a cargo wing tank.	i)	All complete transverse web frame rings including adjacent structural members in all ballast tanks and in a cargo wing tank.
ii)	One (1) deck transverse including adjacent structural members in a cargo wing tank.	ii)	One (1) deck transverse including adjacent deck structural members. - In each of the remaining ballast tanks, if any. - In one (1) cargo wing tank. - In two (2) cargo center tanks.	ii)	A minimum of 30% of all complete transverse web frame rings, including adjacent structural members in each remaining cargo wing tank.  (In calculating the 30% minimum, the number of web frame rings is to be rounded up to the next whole integer.)	ii)	A minimum of 30% of all complete transverse web frame rings including adjacent structural members in each remaining cargo wing tank.  (In calculating the 30% minimum, the number of web frame rings is to be rounded up to the next whole integer.)

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(a)	<i>Special Periodical Survey No.1 (Age ≤ 5 Years)</i>	(b)	<i>Special Periodical Survey No.2 (5 &lt; Age ≤ 10 Years)</i>	(c)	<i>Special Periodical Survey No.3 (10 &lt; Age ≤ 15 Years)</i>	(d)	<i>Special Periodical Survey No.4 and Subsequent (Age &gt; 15 Years)</i>
iii)	Lower part of one (1) transverse bulkhead including girder system and adjacent structural member - In one (1) ballast wing tank. - In one (1) cargo wing tank.	iii)	Both transverse bulkheads including girder system and adjacent structural members in a ballast wing tank, if any, or a cargo wing tank used primarily for water ballast.	iii)	A minimum of 30% of deck and bottom transverses including adjacent structural members in each cargo center tank. (In calculating the 30% minimum, the number of transverses is to be rounded up to the next whole integer.)	iii)	A minimum of 30% of deck and bottom transverses including adjacent structural members in each cargo center tank. (In calculating the 30% minimum, the number of transverses is to be rounded up to the next whole integer.)
		iv)	Lower part of one (1) transverse bulkhead including girder system and adjacent structural members. - In each remaining ballast tank. - In one (1) cargo oil wing tank. - In two (2) cargo center tanks.	iv)	All transverse bulkheads, including girder and stiffener systems and adjacent structural members in all cargo and ballast tanks. (	iv)	All transverse bulkheads including girder and stiffener systems and adjacent structural members in all cargo and ballast tanks.
				v)	Additional complete transverse web frame rings as considered necessary by the Surveyor. (See 1-A1-7/1.5 FIGURE 5 Areas A and E)	v)	Additional complete transverse web frame rings as considered necessary by the Surveyor. (See 1-A1-7/1.5 FIGURE 5 Areas A and E)
						vi)	Any additional tanks and structure as considered necessary by the Surveyor.

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Thickness Measurement Requirements at Special Periodical Surveys Tankers ESP (Oil Carriers and Oil Carrier Features of Combination Carriers - Double Hull) and Oil/Fuel Oil Tank Barges - Double Hull 122 meters (400 feet) and over in Length

<i>(a) Special Periodical Survey No.1 (Age ≤ 5 Years)</i>	<i>(b) Special Periodical Survey No.2 (5 &lt; Age ≤ 10 Years)</i>	<i>(c) Special Periodical Survey No.3 (10 &lt; Age ≤ 15 Years)</i>	<i>(d) Special Periodical Survey No.4 and Subsequent (Age &gt; 15 Years)</i>
<p><i>i) Suspect areas throughout the vessel.</i>  <i>ii) One (1) transverse section of deck plating for the full beam of the ship within amidships 0.5L, in way of a ballast tank, if any.</i>  <i>iii) Measurement, for general assessment and recording of corrosion patterns, of structural members subject to Close-up Surveys.</i></p>	<p><i>i) Suspect areas throughout the vessel.</i>  <i>ii) All main deck plating within the cargo area.</i>  <i>iii) One (1) transverse section within the amidships 0.5L.</i>  <i>iv) Selected wind-and-water strakes outside the cargo area.</i>  <i>v) Measurement for general assessment and recording of corrosion patterns of structural members subject to Close-up Survey.</i></p>	<p><i>i) Suspect areas throughout the vessel.</i>  <i>ii) All main deck plating within the cargo area.</i>  <i>iii) Two (2) transverse sections within the amidships 0.5L in way of two different cargo tanks. At least one section is to include a ballast tank within 0.5L amidships, if any.</i>  <i>iv) All wind-and-water strakes within the cargo area.</i>  <i>v) Selected wind and water strakes outside the cargo length area.</i>  <i>vi) Internals in forepeak and afterpeak ballast tanks, including plating and stiffeners of forepeak and afterpeak ballast tank bulkheads.</i>  <i>vii) Measurement, for general assessment and recording of corrosion patterns, of structural members subject to Close-up Survey.</i></p>	<p><i>i) Suspect areas throughout the vessel.</i>  <i>ii) All main deck plating and representative exposed superstructure deck plating (poop, bridge and forecastle decks).</i>  <i>iii) A minimum of three (3) transverse sections, including at least one (1) in way of a ballast tank, within the amidships 0.5L.</i>  <i>iv) All wind-and-water strakes, port and starboard, full length.</i>  <i>v) Internals in forepeak and afterpeak ballast tanks, including plating and stiffeners of forepeak and afterpeak ballast tank bulkheads.</i>  <i>vi) (1 July 2006) Duct keel or pipe tunnel plating and internals.</i>  <i>vii) All keel and bottom plating full length.</i>  <i>viii) Plating of seachests. Shell plating in way of overboard discharges as considered necessary by the attending Surveyor.</i>  <i>ix) Measurements, for general assessment and recording of corrosion patterns, of structural members subject to Close-up Survey.</i></p>

*Note:* In the case of oil tankers of 130 meters (427 feet) in length and upwards, for the evaluation of the vessel's longitudinal strength as required in 1-3-2/10.1.2, the sampling method of thickness measurements is given in 1-A1-4/17.


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Minimum Requirements for CLOSE-UP Examination at Special Periodical Surveys Tankers ESP (Oil Carriers and Oil Carrier Features of Combination Carriers - Double Hull) and Oil/Fuel Oil Tank Barges - Double Hull 122 meters (400 feet) and over in Length

<i>(a) Special Periodical Survey No.1 (Age ≤ 5 Years)</i>	<i>(b) Special Periodical Survey No.2 (5 &lt; Age ≤ 10 Years)</i>	<i>(c) Special Periodical Survey No.3 (10 &lt; Age ≤ 15 Years)</i>	<i>(d) Special Periodical Survey No.4 and Subsequent (Age &gt; 15 Years)</i>
<p>i) ) One (1) web frame<sup>(1)</sup> in one (1) ballast tank<sup>(2)</sup>.</p> <p>ii) ) One (1) deck transverse<sup>(3)</sup> in a cargo tank.</p> <p>iii) ) One (1) transverse bulkhead<sup>(4)</sup> in one (1) ballast tank<sup>(2)</sup>.</p> <p>iv) Lower part of a transverse bulkhead<sup>(5)</sup> in one (1) cargo center tank<sup>(6)</sup>.</p> <p>v) Lower part of a transverse bulkhead<sup>(5)</sup> in one (1) cargo wing tank.</p>	<p>i) All web frames<sup>(1)</sup> in one (1) ballast tank<sup>(2)</sup>.</p> <p>ii) ) The knuckle area and the upper part (5 meters approximately)<sup>(7)</sup> of one (1) web frame in each remaining ballast tank.</p> <p>iii) ) One (1) deck transverse<sup>(3)</sup> in two (2) cargo tanks.</p> <p>iv) ) One (1) transverse bulkhead<sup>(4)</sup> in all ballast tanks.</p> <p>v) Lower part of a transverse bulkhead<sup>(5)</sup> in two (2) cargo center tanks<sup>(6)</sup>.</p> <p>vi) Lower part of a transverse bulkhead<sup>(5)</sup> in one (1) cargo wing tank.</p>	<p>i) All web frames<sup>(1)</sup> in all ballast tanks</p> <p>ii) All web frames<sup>(8)</sup> in one (1) cargo tank.</p> <p>iii) One (1) web frame<sup>(8)</sup> in each remaining cargo tank.</p> <p>iv) All transverse bulkheads<sup>(9)</sup> in all cargo tanks.</p> <p>v) All transverse bulkheads<sup>(4)</sup> in all ballast tanks.</p>	<p>All web frames<sup>(1)</sup> in all ballast tanks.</p> <p>i) All web frames<sup>(8)</sup> in one (1) cargo tank.</p> <p>iii) One (1) web frame<sup>(8)</sup> in each remaining cargo tank.</p> <p>iv) All transverse bulkheads<sup>(9)</sup> in all cargo tanks.</p> <p>v)) All transverse bulkheads<sup>(4)</sup> in all ballast tanks.</p> <p>vi) Additional transverse areas as deemed necessary by the Surveyor.</p>

Notes:


- 1 Web frame in a ballast tank means vertical web in side tank, hopper web in hopper tank, floor in double bottom tank and deck transverse in double deck tank where fitted, including adjacent structural members. In fore and aft peak ballast tanks, web frame means a complete transverse web frame ring including adjacent structural members.

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- 2 Ballast tank: Apart from the fore and aft peak tanks, the term "ballast tank" has the following meaning:
  - i) All ballast compartments (hopper tank, side tank and double-deck tank, if separate from double bottom tank) located on one side, i.e. portside or starboard side, and additionally double bottom tank on portside plus starboard side, when the longitudinal central girder is not watertight and, therefore, the double bottom tank is a unique compartment from portside to starboard side; or
  - ii) All ballast compartments (double bottom tank, hopper tank, side tank and double deck tank) located on one side, i.e. portside or starboard side, when the longitudinal central girder is watertight and, therefore, the portside double bottom tank separate from the starboard-side double bottom tank.
- 3 Deck transverse includes adjacent deck structural members or external structure on deck in way of the tank, where applicable.
- 4 Transverse bulkhead in a ballast tank includes girder system and adjacent structural members such as longitudinal bulkheads, girders in double bottom tanks, inner bottom plating, hopper side, inner hull longitudinal bulkhead and connecting brackets.
- 5 Transverse bulkhead lower part in a cargo tank includes girder system, adjacent structural members such as longitudinal bulkheads, and internal structure of lower stool, where fitted.
- 6 Where no center cargo tanks are fitted (as in the case of center longitudinal bulkhead), transverse bulkheads in port and starboard cargo wing tanks are to be surveyed.
- 7 Knuckle area is the area of the web frame around the connections of the slope hopper plating to the inner hull bulkhead and the inner bottom plating, up to 2 meters from the corners both on the bulkhead and the double bottom. The knuckle area and the upper part (5 meters approximately) include adjacent structural members.
- 8 Web frame in a cargo tank means deck transverse, longitudinal bulkhead structural elements vertical girder and cross ties, where fitted, including adjacent structural members.
- 9 Transverse bulkhead in a cargo tank includes girder system, adjacent structural members such as longitudinal bulkheads, and internal structure of lower and upper stools, where fitted.


#### Thickness Measurement Requirements at Special Periodical Surveys General Dry Cargo Vessels

(a)	<i>Special Periodical Survey No.1 (Age ≤ 5 Years)</i>	(b)	<i>Special Periodical Survey No.2 (5 &lt; Age ≤ 10 Years)</i>	(c)	<i>Special Periodical Survey No.3 (10 &lt; Age ≤ 15 Years) (1 July 2006)</i>	(d)	<i>Special Periodical Survey No.4 and Subsequent (Age &gt; 15 Years) (1 July 2006)</i>
i)	Suspect areas.	i)	Suspect areas.	i)	Suspect areas.	i)	Suspect areas.
		ii)	One (1) transverse section of deck plating in way of a cargo space hatch opening (i.e., outside of cargo hatch opening) within the amidships 0.5L.	ii)	Within the cargo length area, each deck plate outside line of cargo hatch openings.	ii)	Each deck plate outside line of cargo hatch openings within the cargo length area, all exposed main deck plates full length and all exposed first-tier superstructure deck plates (poop, bridge and forecastle decks).

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(a)	<i>Special Periodical Survey No.1 (Age ≤ 5 Years)</i>	(b)	<i>Special Periodical Survey No.2 (5 &lt; Age ≤ 10 Years)</i>	(c)	<i>Special Periodical Survey No.3 (10 &lt; Age ≤ 15 Years) (1 July 2006)</i>	(d)	<i>Special Periodical Survey No.4 and Subsequent (Age &gt; 15 Years) (1 July 2006)</i>
		iii)	Measurement for general assessment and recording of corrosion pattern of those structural members subject to Close-up Survey.	iii)	Two (2) transverse sections within the amidships 0.5L in way of two (2) different cargo spaces.	iii)	A minimum of three transverse sections in way of cargo spaces within the amidships 0.5L.
				iv)	All wind and water strakes within the cargo length area.	iv)	All wind and water strakes full length port and starboard.
				v)	Selected wind and water strakes outside the cargo length area.	v)	All cargo hold hatch covers and coamings (plating and stiffeners).
				vi)	All cargo hold hatch covers and coamings (plating and stiffeners).	vi)	Lowest strakes and strakes in way of tween decks of all transverse bulkheads in cargo space together with internals in way.
				vii)	Internals in forepeak and afterpeak ballast tanks, including plating and stiffeners of forepeak and afterpeak ballast tank bulkheads.	vii)	Internals in forepeak and afterpeak ballast tanks, including plating and stiffeners of forepeak and afterpeak ballast tank bulkheads.
				viii)	Measurement for general assessment and recording of corrosion pattern of those structural members subject to Close-up Survey.	viii)	Duct keel or pipe tunnel plating and internals.
						ix)	Each bottom plate including lower turn of bilge within the cargo length area, all keel plates full length and also additional bottom plates in way of cofferdams, machinery space and aft end of tanks.



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	<i>Special Periodical Survey No.1 (Age ≤ 5 Years)</i>	(b)	<i>Special Periodical Survey No.2 (5 &lt; Age ≤ 10 Years)</i>	(c)	<i>Special Periodical Survey No.3 (10 &lt; Age ≤ 15 Years)</i>	(d)	<i>Special Periodical Survey No.4 and Subsequent (Age &gt; 15 Years)</i>
						x)	Plating of seachests. Shell plating in way of overboard discharges as considered necessary by the attending Surveyor.
						xi)	Measurement for general assessment and recording of corrosion pattern of those structural members subject to close-up survey.

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**Minimum Requirements for CLOSE-UP Examination at Special Periodical Surveys General Dry Cargo Vessels**

<i>(a) Special Periodical Survey No.1 (Age ≤ 5 Years)</i>	<i>(b) Special Periodical Survey No.2 (5 &lt; Age ≤ 10 Years)</i>	<i>(c) Special Periodical Survey No.3 (10 &lt; Age ≤ 15 Years)</i>	<i>(d) Special Periodical Survey No.4 and Subsequent (Age &gt; 15 Years)</i>
<p><i>i) Selected transverse shell frames in one (1) forward and one (1) aft cargo hold and associated tween deck spaces.</i></p> <p><i>ii) One (1) selected cargo hold transverse bulkhead, including plating, stiffeners and girders.</i></p> <p><i>iii) All cargo hold hatch covers and coamings (plating and stiffeners).</i></p>	<p><i>i) Selected transverse shell frames in all cargo holds and tween deck spaces.</i></p> <p><i>ii) One (1) transverse bulkhead in each cargo hold, including bulkhead plating, stiffeners and girders.</i></p> <p><i>iii) Forward and aft transverse bulkhead in one (1) side ballast tank, including stiffening system.</i></p> <p><i>iv) One (1) transverse web with associated plating and framing in two (2) representative ballast tanks of each type (i.e., topside, hopper side, side tank or double bottom tank).</i></p> <p><i>v) All cargo hold hatch covers and coamings (plating and stiffeners).</i></p> <p><i>vi) Selected areas of all deck plating and underdeck structure inside line of hatch openings between cargo hold hatches.</i></p> <p><i>vii) Selected areas of inner bottom plating.</i></p>	<p><i>i) All transverse shell frames in the forward lower cargo hold and 25% frames in each of the remaining cargo holds and tween deck spaces, including upper and lower end attachments and adjacent shell plating.</i></p> <p><i>ii) All cargo hold transverse bulkheads, including bulkhead plating, stiffeners and girders.</i></p> <p><i>iii) All transverse bulkheads in ballast tanks, including stiffening system.</i></p> <p><i>iv) All transverse webs with associated plating and framing in all ballast tanks.</i></p> <p><i>v) All cargo hold hatch covers and coamings (plating and stiffeners).</i></p> <p><i>vi) All deck plating and underdeck structure inside line of hatch openings between cargo hold hatches.</i></p> <p><i>vii) All areas of inner bottom plating.</i></p>	<p><i>i) All transverse shell frames in all cargo holds and tween deck spaces, including upper and lower end attachments and adjacent shell plating.</i></p> <p><i>ii) All cargo hold transverse bulkheads, including bulkhead plating, stiffeners and girders.</i></p> <p><i>iii) All transverse bulkheads in ballast tanks, including stiffening system.</i></p> <p><i>iv) All transverse webs with associated plating and framing in all ballast tanks.</i></p> <p><i>v) All cargo hold hatch covers and coamings (plating and stiffeners).</i></p> <p><i>vi) All deck plating and underdeck structure inside line of hatch openings between cargo hold hatches.</i></p> <p><i>vii) All areas of inner bottom plating.</i></p>

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**B - Thickness Measurement Report (Sample)**


Plate Position	Original Thickness	Maximum allowable diminution	Present thickness			Diminution	
			1	2	Average	nm	%

**C- Maximum reduction of topside and bottom areas (Transverse sections)**

Structural item		Category 1 ships		Category 2 ships		Category 3 ships	
		Over 0.5L amidships	At 0.075L from ends	Over 0.5L amidships	At 0.075L from ends	Over 0.5L amidships	At 0.075L from ends
<b>Topside areas</b>	Plating	10%	20%	10%	30%	15%	30%
	Longitudinals	15%	25%	15%	25%	20%	30%
<b>Bottom areas</b>	Plating/Single bottom construction	10%	20%	10%	30%	15%	30%
	Plating/Double bottom construction	15%	20%	15%	30%	20%	30%
	Longitudinals	15%	25%	15%	25%	20%	30%

**NOTES:**

- Intermediate values are to be obtained by linear interpolation.
- Topside area comprises deck (outside line of openings for dry cargo ships) stringer and sheer strake (including rounded gunwales) together with associated longitudinals.
- Bottom area comprises keel, bottom and bilge plating together with associated longitudinals.
- For ships of Categories 1 and 2 a greater reduction may be permitted over 0.5L amidships provided that the hull girder section modulus – using the actual gauged thickness – is not less than 90% of the Rules' section modulus for the new ship. A reassessment of scantlings would be required where this consideration is requested.
- Ship categories are as follows:
  - Category 1:** Oil tankers, chemical tankers, dry bulk cargo ships, combination carriers and liquefied gas ships having a length  $L \geq 90$  metres.
  - Category 2:** All remaining ship types not included in Category 1 and having length  $L \geq 90$  metres.
  - Category 3:** All ship types having a length  $L < 90$  metres.
- Where the reduction of topside or bottom area (plating and longitudinals) is in excess of 0.75 of the values given herein, additional transverse sections are to be measured as recommended by the Surveyor.

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**D - Guidance for additional thickness measurements in way of substantial corrosion**

Structural member	Extent of measurement	Pattern of measurement
Plates	Suspect area and adjacent plates	Five-point pattern over 1 square metre
Stiffeners	Suspect area	Three measurements in line across each flange and web

**20.0 RECORD OF INFORMATION**

- 20.1** Request of Survey
- 20.2** Quotation
- 20.3** Approval/ Acceptance of survey
- 20.4** Authorization for survey
- 20.5** Control of Documentation
- 20.6** Interim Certificate HM-IC
- 20.7** Class Entry Information HM-CL
- 20.8** Survey Report for Classification Hull & Machinery HM-SR
- 20.9** Class Survey Status Report Form CSS - 01
- 20.10** Certificate Of Classification HM/PA

**21.0 CRITERIA FOR EVALUATION**

The Control of Documentation form will be used to verify and evaluate the procedures and stages that have been executed pursuant to the established requirements.

**21.1 ACCORDANT PROCEDURE**


When the survey and Certification procedure has been fulfilled completely, the Control of Documentation form will be filled together with all the respective documentation in the vessel file.

**21.2 NOT ACCORDANT PROCEDURE**

When the survey and Certification procedure does not fulfill some of the demanded requirements, the documentation

that has been received and the Control of

Documentation form, will be maintained on standby until requirements are fulfill, according to the Review Procedure,

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Full Term Certificate and Endorsement P-RS-02

**22.0 RELATED DOCUMENTATION**

- 22.1 P-RS-01 Procedure for the Survey and Interim Certification
- 22.2 P-RS-02 Review Procedure, Full Term Certificate and Endorsement
- 22.3 P-RS-03 Procedure for Cases of Ships with Deficiencies
- 22.4 Documents of Support (NASHA Rules and Regulations for Classification and Construction of Steel Ships)

**23.0 REFERENCE**

- 23.1 P-RS-01 Procedure for the Survey and Interim Certification
- 23.2 P-RS-02 Review Procedure, Full Term Certificate and Endorsement.
- 23.3 hips with Deficiencies

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