RULES
FOR THE CLASSIFICATION AND CONSTRUCTION OF SEA-GOING SHIPS

PART I

CLASSIFICATION REGULATIONS

January
2024

GDAŃSK

RULES FOR CLASSIFICATION AND CONSTRUCTION OF SEA-GOING SHIPS

prepared and edited by Polski Rejestr Statków S.A., hereinafter referred to as PRS, consist of the following Parts:

Part I – Classification Regulations
Part II – Hull
Part III – Hull Equipment
Part IV – Stability and Subdivision
Part V – Fire Protection
Part VI – Ship and machinery piping systems
Part VII – Main and auxiliary machinery and equipment
Part VIII – Electrical Installations and Control Systems
Part IX – Materials and Welding.

Part I – Classification Regulations – January 2024, was approved by PRS Executive Board on 21 December 2024 and enters into force on 1 January 2024.

From the entry into force, the requirements of *Part I – Classification Regulations* apply to:

- new ships, the building contract for which will be signed on or after 1 January 2024 – within the full scope,
- existing ships – from the nearest classification survey.

The present *Part I* replaces *Part I – Classification Regulations – July 2023*.

The requirements of *Part I – Classification Regulations* are extended by the following Publications:

Publication 2/P – Alternative Survey Arrangements for Machinery
Publication 12/P – Safety Requirements for Sea-going Ships Carrying Industrial Personnel
Publication 14/P – Principles of Approval of Computer Programs
Publication 36/P – Hull Surveys of Oil Tankers
Publication 39/P – Hull Surveys of Bulk Carriers
Publication 46/P – Hull Surveys of Chemical Tankers
Publication 48/P – Requirements Concerning Gas Tankers
Publication 51/P – Procedural Requirements for Service Suppliers
Publication 54/P – Alternative Hull Survey Arrangements
Publication 58/P – Hull Surveys of Double Hull Oil Tankers
Publication 62/P – Hull Surveys of General Dry Cargo Ships
Publication 63/P – Replacement Criteria for Side Shell Frames and Brackets in Single Side Skin Bulk Carriers and Oil-Bulk-Ore Carriers
Publication 64/P – Hull Surveys of Double Skin Bulk Carriers
Publication 72/P – Safety Requirements for Ships Using Low-flashpoint Gases as Fuel
Publication 81/P – Hull Surveys for New Construction
Publication 82/P – Hull Surveys of Liquefied Gas Carriers
Publication 90/P – Guidance for Safe Return to Port and Orderly Evacuation and Abandonment of Passenger Ship
Publication 95/P – Survey Requirements for Shell and Inner Doors of Ro-ro Ships
Publication 97/P – Transfer of Class and Adding Maintaining and Withdrawing Double or Dual Class.
Publication 100/P – Safety requirements for sea-going passenger ships and high-speed passenger craft engaged in domestic voyages.
Publication 102/P – EU RO Mutual Recognition of Type Approval
Publication 103/P – Guidelines for Ship Energy Efficiency.
Publication 106/P – Eco Class Rules
Publication 111/P – Periodical Surveys of Propeller Shafts
Publication 118/P – Requirements for Passenger Ships Constructed of Polymer Composites, Engaged on Domestic Voyages
Publication 119/P – Periodic Surveys of Fuel Installations on Ships other than Liquefied Gas Carriers Utilizing Gas or other Low Flash Point Fuels.
Publication 120/P – Requirements for Vessels and Units with Dynamic Positioning Systems
Publication 122/P – Requirements for Ice Baltic Class and Polar Class for Ships under PRS Supervision
Publication 123/P – Safe Entry to Confined Spaces
Publication 16/I – Shipbuilding and Repair Quality Standard
Publication 27/I – Guidelines for Approval/Acceptance of Alternative Means of Access
Publication 29/I – Guidelines for Periodic Inspections of Fire-Extinguishing Systems and Appliances Used on Ships
Publication 32/I – Guidelines for Pilot Schemes of Extended Interval between Surveys in Dry Dock – Extended Dry-docking (EDD) Scheme.

PRS/RP, 06/2023

CONTENTS

0 STRUCTURE AND SCOPE OF PRS RULES

0.1 Regulations relating to the scope of PRS survey activity, PRS liability, the survey procedures, the procedure of technical documentation approval, as well as kind of the issued documents are given in, separately published by PRS, *Supervision Activity Regulations*.

0.2 *Rules for the Classification and Construction of Sea-going Ships*, hereinafter referred to as the Rules consist of the following Parts:

Part I – Classification Regulations
Part II – Hull
Part III – Hull Equipment
Part IV – Stability and Subdivision
Part V – Fire Protection
Part VI – Machinery Installations and Refrigerating Plants
Part VII – Machinery, Boilers and Pressure Vessels
Part VIII – Electrical Installations and Control Systems
Part IX – Materials and Welding.

0.3 Additional and supplementary requirements are given in, separately published, Publications "P" (additional rules requirements), referred to in particular parts of the Rules.

0.4 Additional recommendations and guidance on issues included in the *Rules* are included in separately issued Publications "I" (informative), cited in different parts of the Rules.

1 GENERAL

1.1 Scope of Application

1.1.1 *Rules for the Classification and Construction of Sea-going Ships* apply to the following ships, designated to operate in non-Arctic seas:

- **.1** ships of 24 m in length and above, irrespective of navigation area,
- **.2** ships of less than 24 m in length, intended for navigation in unrestricted area, except sea-going yachts,
- **.3** oil tankers, chemical tankers and gas tankers, irrespective of their length and navigation area,
- **.4** passenger ships of less than 24 m in length, engaged on international voyages.

1.1.2 The present Part of the Rules applies both to new and existing ships.

Wherever in the *Rules* the ship's age is referred to, it is determined from the date of build.

1.1.3 Upon PRS agreement, the Rules may be also applied to classification of ships not mentioned in 1.1.1.

1.1.4 Requirements of the Rules and the Publications apply to such an extent as is specified in detail in the various locations of parts of the Rules and Publications.

1.1.5 Additional requirements concerning ro-ro ships are given in *Publication 95/P – Survey Requirements for Shell and Inner Doors of Ro-ro Ships.*

1.1.6 Additional requirements concerning general dry cargo ships of single skin or hybrid construction, are given in *Publication 62/P – Hull Surveys of Dry Cargo Ships*, while additional requirements concerning surveys of hulls of the ships subject to enhanced surveys ESP are given in Publications mentioned in Annex 2. General Cargo Dry Cargo Ships of fully double skin construction, are subject for Classification Regulation only.

1.1.7 Additional requirements concerning gas tankers are given in *Publication 48/P – Requirements Concerning Gas Tankers*, in *Publication 82/P – Hull Surveys of Liquefied Gas Carriers* and in the *International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk* (IGC Code). These requirements concern also gas tankers, which use as a fuel its cargo or other low-flashpoint fuels.

1.1.8 Additional requirements concerning chemical tankers are given in the *Publication 46/P – Hull Surveys of Chemical Tankers* and in the *International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk* (IBC Code).

1.1.9 Additional requirements concerning hydrofoil craft are given in the *Code of Safety for Dynamically Supported Craft* (DSC Code).

1.1.10 High-speed craft requirements are given in the *Rules for the Classification and Construction of High Speed Craft.*

1.1.11 Additional requirements concerning special purpose ships, of gross tonnage 500 and above and carrying more than 12 special personnel on board are given in *Code of Safety for Special Purpose Ships* (SPS Code).

1.1.12 The present Part of the Rules applies also to refrigerating plants.

1.1.13 Additional requirements for ships other than gas carriers using LNG or other low-flashpoint fuel are given in the *Publication 72/P* and in *The International Code of Safety for Ships using Gases or other Low-Flashpoint Fuels* (IGF Code).

1.2 Definitions

In the present Part of the *Rules*, the following definitions have been adopted; they are also applicable to other Parts of the *Rules*.

Note:
Unless stipulated otherwise, wherever in the *Rules* reference is made to distances such as tank length, height, width, ship length, subdivision length, waterline length etc., those distances shall be taken as moulded dimensions.

Air lock – space accessible only by gastight doors.

Ballast tank – a tank which is being used primarily for water ballast.

Base plane – a horizontal plane which crosses amidships the top of a flat keel or the intersection of the inner surface of the plating with the bar keel.

Bulk carrier – a ship constructed generally with single deck and double bottom, topside tanks and hopper side tanks, as well as with single or double side skin, intended primarily for the carriage of dry cargo in bulk.

Cargo length area – that part of the ship, see Fig. 1, which contains cargo holds, cargo tanks, slop tanks and cargo pump-rooms, including other pump-rooms, cofferdams, ballast and void spaces adjacent to cargo holds and cargo tanks and also deck areas throughout the entire length and breadth of the part of the ship over the above-mentioned spaces.

Chemical recovery vessel – a ship intended for removal of hazardous substances, provided with cargo tanks and/or holds for the carriage of chemicals collected during chemical recovery operations, fulfilling additional requirements.

Chemical tanker – a tanker specially intended or adapted for the carriage of dangerous and/or noxious liquid substances as specified in IBC Code, Chapter 17.

Citadel – an internal area onboard chemical recovery vessels which is protected against penetration by a hazardous atmosphere. The citadel comprises any space of the vessel which is in continuous use during service and must, for safety reasons, be accessible at all times. The citadel is so called a non-hazardous area not belonging to zones 0, 1 or 2.

Classification cycle – a cyclical period starting from the date of completion of the Initial Survey for Assignment of Class, performed after the ship's construction completion or from the date of Class Renewal Survey completion, equal to class validity period (in general 5 years) and covering all due Periodical Surveys.

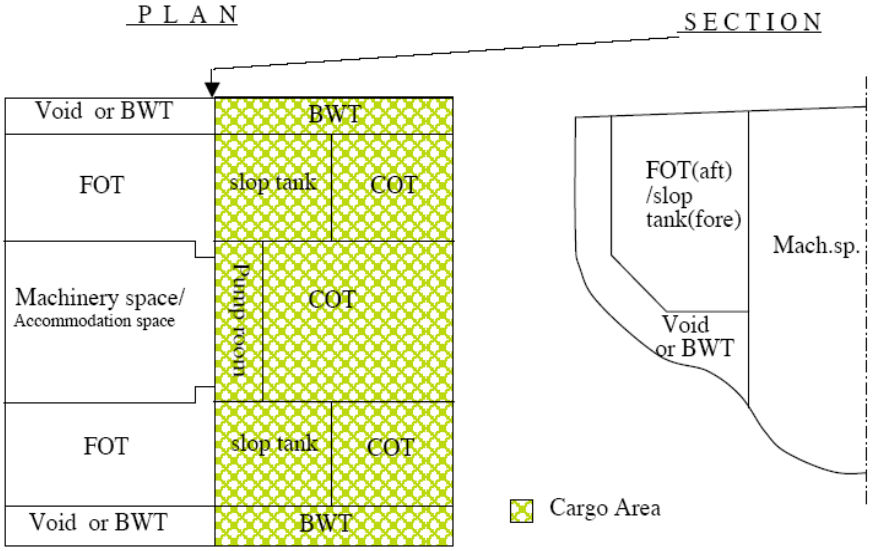

Fig. 1. Cargo area

Class of a ship – compliance of the ship's structure, workmanship and condition (the condition of hull, machinery, installations, equipment) with the relevant requirements of the *Rules*, confirmed by assignment of class and the issue of the *Certificate of Class*.

Coating condition – is defined as follows:
- *GOOD* – condition with only minor spot rusting;
- *FAIR* – condition with local breakdown at edges of stiffeners and weld connections and/or light rusting over 20% or more of the area under consideration, but less than defined as POOR condition;
- *POOR* – condition with general breakdown of coating over 20% or more of the area or hard scale at 10% or more of the area under consideration.

Combination carrier – a ship intended for alternate carriage of oil, chemicals or solid cargoes in bulk.

Container ship – a ship specially equipped with container cell guides and intended for the carriage of containers on the assumption that they are loaded and unloaded vertically.

Corrosion prevention system – normally considered a full hard protective coating. Hard protective coating is an epoxy coating or equivalent. Other coating systems, which are neither soft nor semi-hard coatings, may be considered acceptable as alternatives, provided they are applied and maintained in compliance with the manufacturer's specification.

Crew of a ship – a group of persons controlling the ship and ensuring her manoeuvrability and safe operation, together with a personnel attending those on board, including passengers.

Crew transfer vessel – ship intended for the carriage of industrial personnel to work on board other ships and/or offshore installations.

Critical structural areas – locations which have been identified from calculations to require monitoring or from the service history of the subject ship, from similar or sister ship (if available), to be sensitive to cracking, buckling or corrosion which would impair the structural integrity of the ship.

Crude oil – any liquid hydrocarbon mixture occurring naturally in the earth whether or not treated to render it suitable for transportation and including crude oil from which certain distillate fractions may have been removed and to which may have been added.

Crude oil tanker – oil tanker intended for the carriage of crude oil.

Date of build – the date of completing the Initial Survey for Assignment of Class to a new ship, which shall be the basis for Periodical Surveys requirements. Where there is a substantial delay between completion of construction survey process and the ship commencing service, the date of commissioning may be also specified in the *Certificate of Class*. In the case of the ship's modification, the date of build shall remain assigned to the ship. In the case of a complete replacement or addition of a major portion of the ship[1] is involved, the following shall apply:
- the "Date of build" associated with each major portion of the ship shall be indicated where it has been agreed that the newer structures shall be on a different survey cycle;
- survey requirements shall be based on the "Date of build" associated with each major portion of the ship;
- survey due dates may be aligned at the discretion of PRS.

Date of contract for construction – unless specified otherwise:

.1 the date of contract for construction of a ship is the date on which the contract to build the ship is signed between the prospective Owner and the shipbuilder. This date and the construction numbers (i.e. hull numbers) of all the ships included in the contract shall be declared to PRS by the party applying for the assignment of class to a newbuilding;

.2 the date of contract for construction of a series of sister ships, including specified optional ships for which the option is ultimately exercised, is the date on which the contract to build the series is signed between the prospective owner and the shipbuilder.

For the purpose of this definition, ships built under a single contract for construction are considered a "series of sister ships" if they are built to the same approved plans for classification purposes. However, ships within a series may have design alterations from the original design provided:

(1) such alterations do not affect matters related to classification, or

(2) if the alterations are subject to classification requirements, these alterations shall fulfil the classification requirements in effect on the date on which the alterations are

[1] For example, a major portion of the ship may include a complete forward or after section, a complete main cargo section (which may include a complete hold/tank of a cargo ship), a complete block of deck structure of a passenger ship or a structural modification of a single hull to a double hull ship.

contracted between the prospective owner and the shipbuilder or, in the absence of the alteration contract, comply with the classification requirements in effect on the date on which the alterations are submitted to PRS for approval.

The optional ships will be considered part of the same series of sister ships if the option is exercised not later than 1 year after the contract to build the series was signed;

.3 if a contract for construction is later amended to include additional ships or additional options, the date of contract for construction for such ships is the date on which the amendment to the contract is signed between the prospective Owner and the shipbuilder. The amendment to the contract shall be considered as a new contract to which the provisions of .1 and .2, above, apply;

.4 if a contract for construction is amended to change the ship type, the date of contract for construction of this modified ship, or ships, is the date on which revised contract or new contract is signed between the Owner, or Owners, and the shipbuilder.

Date of delivery – For the purpose of determining the application of mandatory requirements of the SOLAS and MARPOL conventions to a new ship, the date of "delivery" means the completion date (day, month and year) of the survey on which the certificate is based (i.e. the initial survey before the ship is put into service and certificate issued for the first time) as entered on the relevant statutory certificates.

Dredger – a ship intended for dredging port areas.

Dual fuel engines – engines that employ fuel covered by IGF Code (with pilot fuel) and oil fuel. Oil fuels may include distillate and residual fuels.

Energy efficient ship – a ship built in accordance with energy efficient requirements described in regulations 20 and 21 of MARPOL Annex VI and *Publication 103/P.*

Explosion – a deflagration event of uncontrolled combustion.

ESD – emergency shutdown.

ESP – enhanced hull survey of a ship. Types of ships which are subject to ESP are mentioned in Annex 2.

Examination:
- *External examination (general)* – a visual inspection of structure or machinery, without dismantling, to provide a general assessment of their condition and to determine, where necessary, the scope of an additional close-up examination;
- *Internal examination* – a visual examination of structure or machinery in dismantled condition (partially or wholly) or a visual examination of an arrangement (boilers, pressure vessels) from the inside, aimed at the assessment of their condition and determination, where necessary, the scope of an additional close-up examination;
- *Close-up examination* – a survey where the details of structure, machinery or equipment are subject to close visual inspection by the Surveyor, i.e. normally within the Surveyor's hand reach.

Exceptional circumstances – unavailability of dry docking facilities; unavailability of repair facilities; unavailability of essential materials, equipment or spare parts; or delays incurred by action taken to avoid severe weather conditions.

Ferry – a ship intended for regular carriage of road and railway means of transport (with or without cargo), as well as passengers.

Fishing vessel – a ship specially intended and equipped for fishing and for excavating other living resources of the sea.

Floating crane – a ship having usually a pontoon type hull with a jib crane installed on a deck.

Force Majeure – unforeseen inability of the Society to attend the vessel due to the governmental restrictions on the right of access or movement of personnel; unforeseeable delays in port or inability to discharge cargo due to unusually lengthy periods of severe weather, strikes or civil strife; acts of war or other force majeure.

Gas – a fluid having a vapour pressure exceeding 0.28 MPa absolute at a temperature of 37.8°C.

Gas tanker – a tanker specially intended for the carriage of liquefied gases and other products listed in Chapter 19 of the IGC Code.

Grounding – contact, by a ship, with the water bed or a navigation obstacle, reported by the master as marine accident.

Hazardous atmosphere – the one with gases or vapours present in dangerous concentrations/ amount, noxious to humans and/or flammable/explosive.

Hazardous substance – a toxic, corrosive substance or combustible substance of flash point below 60°C (closed cup test), which may be in a volatile, liquid or solid form, carried onboard ships in bulk (in cargo tanks or portable retention tanks) or in packaged form (in dedicated spaces/ cargo spaces or portable retention tanks).

Hazardous zone – an area onboard the ship used for removal of hazardous substances, where a hazardous atmosphere shall be expected. The hazardous zones are divided into zones 0, 1 or 2, depending on the likelihood of presence there of a hazardous atmosphere:

Zone 0 – an area in which a hazardous atmosphere is present constantly or for long periods of time.
Zone 1 – an area in which a hazardous atmosphere may occur occasionally.
Zone 2 – an area in which a hazardous atmosphere may occur rarely or only for short periods of time.

Specification of ship areas covered by the given zone is contained in *Part II* of the Rules, Table 29.2.1.1.

High speed craft – a craft capable of a maximum speed, in m/s, equal to or exceeding $3.7\ V^{0.1667}$, where V = displacement corresponding to the design waterline, [m^3].

Hopper barge – a ship provided with hold fitted with bottom and side flaps opening for the purpose of discharging the cargo (spoil).

Hydrofoil craft – a craft which is supported above the water surface in non-displacement mode by hydrodynamic forces generated by foils.

IGC Code – The International Code of the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk.

IGF Code – The International Code of Safety for Ships using Gases or other Low-Flashpoint Fuels.

Industrial personnel (IP) means all persons transported or accommodated on board for the purpose of offshore industrial activities performed on board other ships and/or offshore facilities. (SOLAS, Reg. XV/1.1, IP Code, Reg. I/2.4)

Information and Communication Technology (ICT) – are the technologies used in the scope of remote surveys for gathering, storing, retrieving, processing, analysing, and transmitting information which includes both software and hardware.

LEL – the lower explosive limit.

Length of ship (length L) – 96% of the total length on a waterline at 85% of the moulded depth, measured from the base plane, or the length from the fore-side of the stem to the axis of the rudder stock on that waterline, if that be greater. In ships designed with a rake of keel, the waterline on which this length is measured shall be parallel to the design waterline.

List of substances – a list of hazardous substances, the spills of which may be recovered by a vessel specially designed for this purpose.

LNG – liquefied natural gas.

Low-flashpoint fuel – gaseous or liquid fuel having a flashpoint lower than 60°C

Moulded depth – the vertical distance measured amidships from the base plane to the top of the uppermost continuous deck beam at side.

Noxious liquid substance – any substance of Category *X*, *Y*, *Z* or *Other substances* according to Chapters 17 and 18 of the IBC Code, as well as any other liquid substance assessed under the provisions of Appendix I to Annex II of MARPOL as falling into Category *X*, *Y*, *Z* or *Other substances*.

Offshore industrial activities mean the construction, maintenance, decommissioning, operation or servicing of offshore facilities related, but not limited, to, exploration and exploitation of resources by the renewable or hydrocarbon energy sectors, aquaculture, ocean mining or similar activities. (SOLAS, Reg. XV/1.3, IP Code, Reg. I/2.6)

Oil – petroleum in any form, including crude oil, fuel oil, sludge, oil refuse and refined products (other than petrochemicals which are subject to the provisions of Annex II to MARPOL) and, without limiting the generality of the foregoing, includes the substances listed in Appendix I to Annex I of MARPOL (animal and vegetable oils are not treated as oil in the above interpretation).

Oil tanker – a ship specially intended for the carriage of oil in bulk (crude oil tanker, product carrier, as well as any combination carrier, chemical tanker or gas tanker carrying oil in bulk).

Operating center – onboard chemical recovery vessels, a compartment manned by persons responsible for chemical recovery activities, where all control and monitoring means important for the operation are located.

Operation, strength, tightness tests:

- *Operation tests* – close-up examinations of machinery or appliance under working conditions, combined with the measurements of essential operation parameters.
- *Strength tests*:
  - *Destructive strength tests* – a load is applied to test samples and increased until the sample is damaged. Parameters of the destructive load are recorded in the test report.
  - *Non-destructive strength tests* – a test load, specified by PRS, is applied to the tested object or product. The tested object shall not be damaged during testing.
- *Tightness test* – a pressure of the liquid or gas medium is applied to the tested body. Kind of medium, test procedure and pressure value shall be agreed with PRS.

Passenger – every person on board the ship other than the master and the members of the crew or other persons employed or engaged on board in any character and capacity (special personnel) and a child less than one year of age.

Passenger ship – a ship intended for the carriage of more than 12 passengers.

Product carrier – an oil tanker intended for the carriage of oil other than crude oil.

Prompt and thorough repair – a permanent repair completed at the time of survey to the Surveyor's satisfaction, therein eliminating the need for issuance of any condition of class.

Protected air – onboard the chemical recovery vessels, air filtered to remove hazardous substances in a filtration station and supplied into the citadel.

Recognized Classification Society – a classification society recognized by the European Union or meeting the requirements of the IACS Quality System Certification Scheme (QSCS).

Reefer carrier – a ship with refrigerated and isolated holds adapted for the carriage of various perishable goods.

Remote Inspection Techniques – a means of survey that enables examination of any part of the structure without the need for direct physical access of the surveyor (refer to IACS Rec. 42).

Remote Survey - is a process of verifying that a ship and its equipment are in compliance with the rules of the PRS where the verification is undertaken, or partially undertaken, without attendance on board by a surveyor[1].

Representative spaces – spaces which are expected to reflect the condition of other spaces of similar type and service and with similar corrosion prevention systems. When selecting representative spaces, account shall be taken of the service and repair history on board and identifiable critical and/or suspect areas.

Rescue ship – a ship intended and equipped for the rescue of life at sea in all weather conditions.

Ro-ro ship – a ship specially intended for the carriage of cargo in units by means of wheeled and caterpillar transport on the assumption that they are loaded and unloaded horizontally.

Ship subject for IACS PR 1A or 1B – whatever type of a ship of gross tonnage 100 and above, self propelled or not, restricted or unrestricted service, with class valid or suspended or withdrawn not longer than 6 months ago issued by Classification Society subject to verification of compliance with QSCS, which class is to be transferred.

Similar stage of construction – the stage at which construction identifiable with a specific ship begins and assembly of that ship has commenced comprising at least 50 tonnes or one per cent (1%) of the estimated mass of all structural material, whichever is less.

Sister ships – ships built to the same approved plans for classification purposes which may have minor design alterations, provided that such alterations do not affect the matter related to classification.

Spaces – separate compartments, including holds and tanks.

Special consideration – close-up inspection and thickness measurements which are sufficient to confirm the actual average condition of the structure under the coating.

[1] 1. Attendance on board by a surveyor' means physical attendance on board the ship by a surveyor.
2. Remote classification activities not requiring a survey, such as some administrative tasks, are not to be considered as remote surveys.
3. An administrative task is a task where a survey decision is not being made, for example reissue of a certificate or record following a correction, or an update to the ship's records held by the Classification Society or a document review.

Special personnel means all persons who are not passengers or members of the crew or children of under one year of age and who are carried on board in connection with the special purpose of that ship or because of special work being carried out aboard that ship.

Special personnel are expected to be able bodied with a fair knowledge of the layout of the ship and to have received some training in safety procedures and the handling of the ship's safety equipment before leaving port and include the following:

.1 scientists, technicians and expeditionaries on ships engaged in research, non-commercial expeditions and survey;

.2 personnel engaging in training and practical marine experience to develop seafaring skills suitable for a professional career at sea. Such training should be in accordance with a training programme approved by the Administration;

.3 personnel who process the catch of fish, whales or other living resources of the sea on factory ships not engaged in catching;

.4 salvage personnel on salvage ships, cable-laying personnel on cable-laying ships, seismic personnel on seismic survey ships, diving personnel on diving support ships, pipe-laying personnel on pipe layers and crane operating personnel on floating cranes; and

.5 other personnel similar to those referred to in .1 to .4 who, in the opinion of the Administration, may be referred to this group. (SPS Code, Reg. 1/1.3.11)

Special purpose ship – ship of 500 gross tonnage and upward with mechanical propulsion which due to its function carries more than 12 members of special personnel.

Special purpose ships include the following types:
- ships engaged in research, expeditions and inspection,
- ships for training marine students,
- fish factory ships not engaged in catching,
- ships processing other living resources of the sea, not engaged in catching;
- other special purpose ships, with specific design features, equipment and modes of operation, e.g. navy ships.

Subdivision – capability of a ship to maintain buoyancy and stability in accordance with the requirements specified in *Part IV – Stability and Subdivision*, after damage and flooding of a single compartment or a group of adjacent compartments, located below the bulkhead deck.

Substantial corrosion – an extent of corrosion such that assessment of corrosion pattern indicates wastage in excess of 75% of allowable margins, but within acceptable limits.

Supply vessel – a ship intended for the carriage of service materials and cargo and for assistance in drilling and excavating work at sea.

Survey – a set of activities relating to a ship, its machinery, appliances, equipment, etc. performed through the review of technical documentation, as well as conducting appropriate examinations, measurements and tests.

Survey completion – a survey is considered completed when all activities, determined in the Rules for the specified survey, have been performed, the recommended repairs have been made and deficiencies have been so rectified as to ensure the safe departure of the ship to sea and its safe operation. Completion of survey is confirmed by a new full-term/temporary certificate or an endorsement of a full-term certificate. The date of survey completion is a date of issuing certificate or endorsement of a full-term certificate.

Suspect areas – locations showing substantial corrosion or considered by the Surveyor to be prone to damage or rapid wastage.

Symbol of class – a group of conventional marks and notations, specifying a class of a ship, kind of survey during the ship's building and in service, as well as the ship's structural features and operational limitations, if any. Symbol of class consists of the main symbol of class and additional marks.

Symbol of refrigerating plants – a group of conventional notes specifying kind of survey during construction of refrigerating plants and indicating their structural features.

Symbol of machinery – a group of conventional notes specifying kind of survey during construction of machinery.

Tanker – a ship specially intended for the carriage of liquid cargoes in bulk.

Transverse section – a section which includes all longitudinal members, such as plating, longitudinals and girders at the deck, sides, bottom, inner bottom and longitudinal bulkheads. For transversely framed vessels, a transverse section includes adjacent frames with their end connections.

Tug – a ship intended and equipped for towing.

2 SCOPE OF SURVEY

2.1 Classification survey covers the ship's hull and its equipment, the machinery and electrical equipment, as well as refrigerating plants, including their systems and other equipment, referred to in the Rules.

2.2 Stability, subdivision and fire protection are also subject to survey, according to the principles set forth in the Rules.

2.3 If the symbol of class contains additional marks, the corresponding items of hull, machinery and electrical equipment and other equipment are subject to classification survey.

2.4 During Periodical Classification Surveys, the ship's equipment not covered by classification survey is subject to PRS technical survey with respect to the Flag State requirements and/or the possible hazard to the ship's safety.

3 CLASS OF SHIP

3.1 General

3.1.1 At the Owner's request, PRS may assign a class to a new or an existing ship, as well as to confirm, renew, withdraw or reinstate class of an existing ship classed with PRS.

3.1.2 PRS may suspend or withdraw the ship's class for reasons specified in Chapters 6 and 7, respectively.

3.1.3 Class of a ship is confirmed by the *Certificate of Class*.

3.1.4 In the *Certificate of Class*, the main symbol of class with additional marks, as specified in 3.4, is given.

3.1.5 Class of machinery is confirmed by the *Machinery Certificate*.

3.1.6 Class of a refrigerating plant is confirmed by *Certificate of Class for Refrigerating Plant*.

3.2 Period of Ship's Class Validity

3.2.1 Class of a ship is assigned or renewed, in general, for 5 years.

3.2.2 Having regard to the technical condition of the hull, machinery or electrical equipment, PRS may assign a class to a ship for a shorter period or may shorten the class validity, as a result of the Class Renewal Survey, inserting an appropriate additional mark in the symbol of class – see 3.4.3.1.

3.2.3 In justified cases, PRS may extend the ship's class validity (see 6.1.3.1 and 6.3).

3.3 Main Symbol of Class

3.3.1 Main Symbol of Class of Ship Built under PRS Survey

3.3.1.1 A new ship built under PRS survey, upon completion of the Initial Survey for Assignment of Class (see sub-chapter 4.2), is given the following main symbol of class:

✳ **KM** – for ship with mechanical propulsion,
✳ **K** – for ship without mechanical propulsion.

3.3.2 Main Symbol of Class of Ship Built under Survey of Other Classification Society

3.3.2.1 An existing ship, built under the survey of other Classification Society to which, upon completion of the Initial Survey for Assignment of Class (see 4.3), PRS class has been assigned, is given the following main symbol of class:

KM – for ship with mechanical propulsion,
K – for ship without mechanical propulsion.

3.3.2.2 PRS may assign the main symbol of class, as in 3.3.1.1, to an existing ship built under the survey of other Classification Society, subject to:

- approval, by PRS, of the updated technical documentation,
- completion of the Initial Survey within the scope of Class Renewal Survey (see 5.4), including fulfilment of conditions of class, as stated in the ship's survey status issued by the previous Society.

3.3.3 Main Symbol of Class of Ship Built without Survey of any Classification Society

3.3.3.1 A ship built without the survey of any Classification Society, to which, upon completion of the Initial Survey for Assignment of Class (see 4.4), PRS class has been assigned, is given the following main symbol of class:

(KM) – for ship with mechanical propulsion,
(K) – for ship without mechanical propulsion.

3.3.4 Main Symbol of Class of Sailing Ship with Auxiliary Mechanical Propulsion

3.3.4.1 Sailing ship with an auxiliary mechanical propulsion of the power enabling to obtain a speed of at least 7 knots in still water, may be assigned the symbol of class:

✳ **KM** or **KM** or **(KM)**, whichever appropriate.

In that case, a note informing on an auxiliary character of the mechanical propulsion is entered in the *Certificate of Class* and the *Machinery Certificate* is issued.

3.4 Additional Marks in Symbol of Class

3.4.1 General

3.4.1.1 Additional marks in the symbol of class indicate the ship type, obligatory requirements or limitations relevant to the ship type or its operation ability, as well as additional ship structure or adaptation features.

3.4.1.2 Additional marks are affixed to the symbol of class upon compliance of the requirements specified in the relevant Parts of the Rules.

3.4.1.3 Additional marks in the symbol of class are put after the main symbol of class in order ensuing from 3.4.2, 3.4.3 and 3.4.4, e.g.

✳ **KM PASSENGER SHIP I [1] L3 IWS AUT.**

3.4.1.4 PRS may alter or delete the additional mark in the symbol of class in the case of modification of conditions, upon which the mark has been affixed or at the Owner's request.

3.4.1.5 Explanation of the selected abbreviations associated with additional marks is given in Appendix 1.

3.4.2 Additional Marks Indicating Ship Type

3.4.2.1 Passenger Ship

A passenger ship complying with the basic requirements and the relevant additional requirements for passenger ship, specified in particular Parts of the Rules, is assigned following mark, affixed to the symbol of class:

PASSENGER SHIP

3.4.2.2 Cargo ship

3.4.2.2.1 A cargo ship which complies only with the basic requirements, specified in particular Parts of the Rules, is assigned the following mark affixed to the symbol of class:

SHIP

3.4.2.2.2 A cargo ship complying with the basic requirements and with additional requirements applicable for the given type of the ship, specified in particular Parts of the Rules, is assigned one of the below-stated marks, affixed to the symbol of class:

3.4.2.2.2.1 Roll on-roll off ship:

RO-RO SHIP

3.4.2.2.2.2 Ferry:

FERRY

3.4.2.2.2.3 General cargo ship:

GENERAL CARGO SHIP

3.4.2.2.2.4 Bulk carrier:

BULK CARRIER

3.4.2.2.2.5 Ore carrier:

ORE CARRIER

3.4.2.2.2.6 Cement carrier:

CEMENT CARRIER

3.4.2.2.2.7 Crude oil tanker:

CRUDE OIL TANKER

3.4.2.2.2.8 Product carrier carrying cargoes with an ignition temperature not exceeding 60°C (closed cup test) and with a pressure of vapour (acc. to Reid) below the atmospheric pressure*:*

PRODUCT CARRIER A

3.4.2.2.2.9 Product carrier carrying cargo with an ignition temperature exceeding 60°C (closed cup test):

PRODUCT CARRIER B

3.4.2.2.2.10 Ship intended for the carriage of specified liquid cargo in bulk, other than oil tanker, chemical tanker or gas tanker:

TANKER FOR …

(in place of dots, type of cargo, e.g. FRESH WATER shall be put).

3.4.2.2.2.11 Gas tanker:

LIQUEFIED GAS TANKER

3.4.2.2.2.12 Chemical tanker:

CHEMICAL TANKER

3.4.2.2.2.13 Container ship:

CONTAINER SHIP

3.4.2.2.2.14 Reefer carrier:

REEFER CARRIER

3.4.2.2.2.15 Livestock carrier:

LIVESTOCK CARRIER

3.4.2.2.2.16 Fishing vessel:

FISHING VESSEL

3.4.2.2.2.17 Tug:

TUG

3.4.2.2.2.18 Supply vessel:

SUPPLY VESSEL

3.4.2.2.2.19 Rescue vessel:

RESCUE VESSEL

3.4.2.2.2.20 Fire fighting ship:

FIRE FIGHTING SHIP ...

(in place of dots, the relevant distinguishing mark 1a, 1, 2 or 3 shall be put)

3.4.2.2.2.21 Ship intended for operation in the area of oil spillage*:*

OIL RECOVERY VESSEL

3.4.2.2.2.22 Special purpose ship:

SPECIAL PURPOSE SHIP

3.4.2.2.2.23 Floating crane:

FLOATING CRANE

3.4.2.2.2.24 Dredger:

DREDGER

3.4.2.2.2.25 Hopper barge:

HOPPER BARGE

3.4.2.2.2.26 Barge:

BARGE

3.4.2.2.2.27 Pontoon:

PONTOON

3.4.2.2.2.28 Ship for the carriage of personnel complying with the requirements of *Publication 12/P – Safety Requirements for Sea-going Ships Carrying Industrial Personnel*

CREW BOAT

3.4.2.2.2.29 Chemical recovery vessel:

CHEMICAL RECOVERY VESSEL

Note:

A ship without cargo tanks and/or holds intended for the carriage of chemicals collected during recovery of chemical pollution, is issued with permanent condition "A ship is not provided with tanks/holds for the carriage of collected chemicals" in the Certificate of Class.

3.4.2.2.2.30 A ship for the carriage of general cargo occasionally carrying bulk cargo*:*

DRY CARGO SHIP

3.4.2.2.2.31 Bulk carrier which is constructed to carry and self-loading and self-unloading of dry cargo in bulk:

SELF-UNLOADING BULK CARRIER

Ship complying with the requirements specified for two or more ship types is assigned an additional mark in the symbol of class, which is a combination of particular marks (e.g. **TUG/SUPPLY VESSEL, TUG/OIL RECOVERY VESSEL, FERRY/PASSENGER SHIP, RO-RO/PASSENGER SHIP, ORE/BULK CARRIER)**.

3.4.2.2.2.32 Ship intended for research and/or training purposes :

RESEARCH SHIP, TRAINING SHIP

In case, when such vessels are carrying more than 12 persons, who are not crew members, than SPECIAL PURPOSE SHIP notation requirements (for ships of GT = 500 and greater) or CREW BOAT (for ships of GT less than 500) are applicable.

3.4.2.3 PRS may assign to the ship another mark indicating the ship type if considers it technically justified. In such case, the additional requirements are specified by PRS in each particular case.

3.4.3 Additional Marks Indicating Obligatory Requirements or Limitations Relevant to Ship Type or its Operation Ability

3.4.3.1 Mark of Passenger Ship Engaged on Domestic Voyages

The following additional marks confirm that ship complies with the requirements of Directive 2009/45/EC, as amended by Directive (EU) 2017/2108 and Implementing Regulation (EU) 2020/411, which were implemented in Publication 100/P, which is an extension and supplement to these *Rules*.

A passenger ship engaged on domestic voyages is assigned, in the symbol of class, in addition to the mark PASSENGER SHIP, one of the following additional marks:

Class A – means a passenger ship engaged on domestic voyages in Areas A, B, C and D

Class B – means a passenger ship engaged on domestic voyages in Areas B, C and D

Class C – means a passenger ship engaged on domestic voyages in Areas C and D

Class D – means a passenger ship engaged on domestic voyages in Area D

Areas A, B, C and D are defined in Directive (EU) 2017/2108 as follows:

.1 *Area A* – means a sea area outside of areas B, C and D.

.2 *Area B* – means sea area, whose geographical coordinates are at no point more than 20 miles from the line of coast, corresponding to the medium tide height, but which is outside of areas C and D.

.3 *Area C* – means a sea area, whose geographical coordinates are at any point no more than 5 miles from the line of coast, corresponding to the medium tide height, but outside of sea area D if any.

Additionally the probability of the significant wave height exceeding 2,5 metres shall be smaller than 10 % for a period of one year for all-year-round operation, or for a specific period for seasonal operation, such as summer period operation.

.4 *Area D* – means a sea area, whose geographical coordinates are at any point no more than 3 miles from the line of coast, corresponding to the medium tide height.

Additionally the probability of the significant wave height exceeding 1,5 metres shall be smaller than 10 % for a period of one year for all-year-round operation, or for a specific period for seasonal operation, such as summer period operation.

A passenger ship engaged on domestic voyages, constructed of polymer composites and complying with the requirements of *Publication 118/P*, is assigned the following additional mark in the symbol of class:

FRP

Passenger ships engaged on domestic voyages, which are high speed craft, are subject to the requirements of the *Rules for the Classification and Construction of Sea-going High Speed Craft (HSC)* and *Publication 100/P*.

3.4.3.2 Mark of Limited Period of Class Validity

If, as a result of survey, the necessity to shorten the classification cycle has been stated, the appropriate mark of class validity period is placed in the symbol of class:

< 3 – when the classification cycle is shortened to 3 years,
< 2 – when the classification cycle is shortened to 2 years,
< 1 – when the classification cycle is shortened to 1 year.

3.4.3.3 Enhanced Hull Survey Mark

All bulk carriers, oil tankers, chemical tankers and combination carriers are assigned the following mark:

ESP

affixed to the symbol of class, which indicates that the ships are subject to enhanced hull survey according to the requirements specified in the following Publications: *Publication 36/P – Hull Surveys of Oil Tankers*, *Publication 58/P – Hull Surveys of Double Hull Oil Tankers, Publication 39/P – Hull Surveys of Bulk Carriers, Publication 64/P – Hull Surveys of Double Skin Bulk Carriers* and *Publication 46/P – Hull Surveys of Chemical Tankers.*

3.4.3.4 Restricted Service Marks

3.4.3.4.1 If a ship has been built with preferences for the given area of navigation, specified in the following parts of the Rules: *II – Hull, III – Hull Equipment, IV – Stability and Subdivision, V – Fire Protection* and *VI – Machinery Installations and Refrigerating Plants* of the Rules, marks **I**, **II** or **III** are affixed to the symbol of class to have the following meaning:

I – navigation on open seas up to 200 nautical miles from the port of refuge and with an allowable distance between two ports of refuge up to 400 nautical miles and navigation on enclosed seas;

II – navigation on open seas up to 50 nautical miles from the port of refuge and with an allowable distance between two ports of refuge up to 100 nautical miles and navigation on enclosed seas, within the limits determined for each case and specified in the *Certificate of Class*, as well as navigation on the Baltic Sea;

III – navigation on the open and enclosed seas up to 20 nautical miles from the coast line, within the limits determined for each case and specified in the *Certificate of Class*.

3.4.3.4.2 For unrestricted service ships, no marks indicating an area of navigation are affixed to the symbol of class.

3.4.3.5 Subdivision Mark of Passenger Ship

Additional mark **[P]** in the symbol of class of passenger ship and **[1]** or **[2]** in the symbol of class of existing passenger ship, indicates that the ship complies with the relevant requirements set forth in the following parts of the Rules: *III – Hull Equipment, IV – Stability and Subdivision* and *VI – Machinery Installations and Refrigerating Plants,* is affixed.

The figures in brackets indicate the number of compartments after the flooding of which a ship shall remain afloat in a satisfactory state of equilibrium.

3.4.4 Additional Marks Indicating Ship's Structure or Adaptation Features

3.4.4.1 Subdivision Mark

If the ship complies with the relevant requirements set forth in the following parts of the Rules: *III – Hull Equipment, IV – Stability and Subdivision* and *VI – Machinery Installations and Refrigerating Plants*, one of the following marks is affixed in the symbol of class.

3.4.4.1.1 Oil tanker (Crude oil tanker, Product carrier A, Product carrier B):

[T]

3.4.4.1.2 Special purpose ship:

[SP]

3.4.4.1.3 Chemical tanker:

[CH]

3.4.4.1.4 Gas tanker:

[G]

3.4.4.1.5 A ship that remains afloat in a satisfactory state of equilibrium and damage stability after flooding of 1 compartment:

[1]

3.4.4.1.6 A ship that remains afloat in a satisfactory state of equilibrium and damage stability after flooding of 2 adjacent compartments:

[2]

3.4.4.1.7 A ship for which probability of damage stability has been determined:

[s]

3.4.4.2 Ice Strengthening Marks (Ice Class) for sailing outside polar waters

3.4.4.2.1 If ice strengthening of a ship complies with the relevant requirements contained in the following parts of the Rules: *II – Hull, III – Hull Equipment* and *VI – Machinery Installations and Refrigerating Plants* and *Publication 122/P* the following mark:

L1A

which means that the ship is allowed to sail without the assistance of ice breakers in heavy ice conditions, or

L1

which means that the ship is allowed to sail with the assistance of icebreakers, when necessary in heavy ice conditions, is affixed to the symbol of class.

3.4.4.2.2 If ice strengthening of a ship complies with the relevant requirements contained in in the following parts of the Rules: *II – Hull* and *VI – Machinery Installations and Refrigerating Plants* and *Publication 122/P* the following mark:

L2

which means that the ship is allowed to sail with the assistance of icebreakers, when necessary, in moderate ice conditions, or:

L3

which means that the ship is allowed to sail with the assistance of icebreakers, when necessary, in light ice conditions, is affixed to the symbol of class.

3.4.4.2.3 If ice strengthening of a ship complies with the relevant requirements contained in *Part II – Hull* and *Publication 122/P* the following mark:

(L4)

is affixed to the symbol of class. This mark means that the ship is allowed to sail unaided occasionally in fine ice pieces of coastal areas of non-Arctic seas.

3.4.4.2.4 If ice strengthening of a ship complies with the relevant requirements contained in *Part II – Hull* and *Publication 122/P* the following mark:

E

is affixed to the symbol of class. This mark means that the ship is allowed to sail unaided in drift ice in mouths of rivers and coastal regions.

3.4.4.2.5 If ice strengthening of a ship complies with the requirements of the Rules in force before 1 December 2004, the following marks are affixed to the symbol of class: **(L1A), (L1), (L2), (L3)**.

3.4.4.2.6 If a ship is constructed with no ice strengthenings, no ice class marks are affixed in the symbol of class.

3.4.4.2.7 The minimum and maximum ice class draughts fore, amidships and aft shall be indicated in the *Certificate of Class*. If the summer load line in fresh water is any where located at a higher level than the UIWL (upper waterline assumed for navigation in ice), the ship's sides shall be provided amidships with a warning triangle and with an ice class draught mark at the maximum permissible ice class draught.

3.4.4.3 Mark of Deck Strengthening

3.4.4.3.1 Where the ship's decks strengthened for the carriage of ro-ro cargoes comply with the relevant requirements of *Part II – Hull*, the following mark:

SD

is affixed to the symbol of class.

3.4.4.3.2 Where the ship's movable decks comply with the relevant requirements of *Part III – Hull Equipment*, the following mark:

MD

is affixed to the symbol of class.

3.4.4.4 Mark of Ship Adaptation for Carriage of Containers on Deck

3.4.4.4.1 A ship, other than container ship, complying with the relevant requirements for the carriage of containers on deck is assigned the following mark:

ACC (...)

affixed to the symbol of class.

Design number of twenty foot equivalent units (TEU) is given in brackets.

3.4.4.5 Cargo Distribution Mark

3.4.4.5.1 A ship intended for the carriage of bulk cargoes and complying with the relevant requirements contained in *Part II – Hull* is assigned the following mark:

HC/ALT – in the case when heavy bulk cargo may be distributed unevenly on the ship's length;
HC/E – in the case when at least one hold may remain empty at loading the ship to the highest load line

affixed to the symbol of class.

3.4.4.5.2 The numbers of holds, which according to the mark **HC/E** may remain empty, are indicated in Appendix to the *Certificate of Class/Temporary Certificate of Class*.

3.4.4.6 Mark of Strengthening in Ships Lying Aground during Loading Operations

A ship complying with the relevant requirements contained in *Part II – Hull* is assigned the following mark:

LAL

affixed to the symbol of class.

The mark means the strengthening of the ship for lying aground during loading operations.

3.4.4.7 Mark of Strengthening for Unloading with Use of Cargo Grabs

A ship complying with the relevant requirements contained in *Part II – Hull* is assigned the following mark:

CG

affixed to the symbol of class.

The mark means strengthening for performing unloading operations with the use of cargo grabs.

3.4.4.8 Mark of Strengthening for Mooring at Sea

A ship complying with the relevant requirements contained in *Part II – Hull* is assigned the following mark:

MS

affixed to the symbol of class.

The mark means strengthening for mooring to other ships at sea.

3.4.4.9 Mark of Protection against Corrosion

A ship complying with the relevant requirements contained in *Part II – Hull* is assigned the following mark:

PAC

affixed to the symbol of class.

The mark means that the corrosion additions are reduced or omitted.

3.4.4.10 Mark of Adaptation to Survey of Underwater Part of Hull when Ship is Afloat

Ships complying with the requirements contained in 5.5.3 of this Part of the Rules are assigned the following mark:

IWS

affixed to the symbol of class.

The mark means that the ship is adapted for performing In-water Bottom Survey.

3.4.4.11 Segregated Ballast Mark

Oil tankers and combination carriers complying with the relevant requirements of *Part II – Hull* are assigned the following mark:

SBT

affixed to the symbol of class.

3.4.4.12 Crude Oil Washing Mark

Oil tankers and combination carriers complying with the relevant requirements of *Part VI – Machinery Installations and Refrigerating Plants* are assigned the following mark:

COW

affixed to the symbol of class.

3.4.4.13 Mark of Protective Location of Segregated Ballast Tanks

Oil tankers, chemical tankers and combination carriers complying with the relevant requirements of *Part II – Hull* are assigned the following mark:

PLT

affixed to the symbol of class.

3.4.4.14 Mark of Inert Gas System

Oil tankers, chemical tankers and combination carriers complying with the relevant requirements of *Part V – Fire Protection* are assigned the following mark:

ING

affixed to the symbol of class.

3.4.4.15 Mark of Ships Adapted for Carriage of Timber

A ship intended or adapted for the carriage of timber and complying with the relevant requirements contained in *Parts: III – Hull Equipment* and *IV – Stability and Subdivision* is assigned the following mark:

TIMBER

affixed to the symbol of class.

3.4.4.16 Mark of Fishing Equipment

A fishing vessel complying with the requirements of the Rules concerning fishing equipment is assigned the following mark:

FE

affixed to the symbol of class.

3.4.4.17 Mark of Unattended Operation of Machinery Space, One Man Bridge Operation and Dynamic Positioning Systems

3.4.4.17.1 If automatic systems and machinery of a ship comply with the relevant requirements specified in *Part VIII – Electrical Installations and Control Systems*, such ship may be assigned the following mark:

AUT

affixed to the symbol of class.

The mark is applicable only in the case of machinery spaces being capable of unattended operation during at least 8 consecutive hours.

Inclusion of the mark in the symbol of class means that the scope of automation of machinery affords the possibility of its operation without direct attendance of the crew.

3.4.4.17.2 If the ship's automatic systems comply with the requirements of *Part VIII – Electrical Installations and Control Systems* for the case of one man bridge operation, the ship may be assigned the following mark:

NAV 1

affixed to the symbol of class.

3.4.4.17.3 If automatic systems and machinery of a ship comply with the relevant requirements specified in *Publication 120/P*; such ship may be assigned one of the following marks affixed to the symbol of class:

DP1

alternatively

DP2

alternatively

DP2+

which means, that the ship complies with more strict criteria for keeping position and route than DP2, but less than DP3;

alternatively

DP3

3.4.4.18 Mark of Ship Carrying Vehicles with Petroleum Tanks

A ship carrying vehicles with petroleum tanks, complying with the relevant requirements specified in *Part V – Fire Protection*, is assigned the following mark:

PET

affixed to the symbol of class.

3.4.4.19 Additional Marks of Bulk Carrier

3.4.4.19.1 Bulk carrier, with the length of 150 m or more, contracted for construction on 1 July, 2003 or later, is assigned one of the following marks:

BC-A – for bulk carriers designed to carry dry bulk cargoes of cargo density 1.0 tonne/m^3 or more with specified holds empty at maximum draught in addition to **BC-B** conditions.
BC-B – for bulk carriers designed to carry dry bulk cargoes of cargo density of 1.0 tonne/m^3 or more with all cargo holds loaded in addition to **BC-C** conditions.
BC-C – for bulk carriers designed to carry dry bulk cargoes of cargo density less than 1.0 tonne/m^3.

3.4.4.19.2 The mark mentioned in 3.4.4.19.1 is supplemented by one of the below listed notations in :
– the symbol of class:
  – "maximum cargo density (in tonnes/m^3)" – for marks **BC-A** and **BC-B** if the maximum cargo density is less than 3.00 t/m^3,
  – "no MP" – for all marks when the vessel has not been designated for loading and unloading in multiple ports, as defined in *Part II – Hull*;
– the additional information in the *Certificate of Class*:
  – "allowed combination of specified empty holds" – for mark **BC-A**.

3.4.4.20 Additional mark of bulk carrier of 90 m in length and above and double hull oil tanker of 150 m in length and above

A ship built in accordance with requirements of *Common Structural Rules*, is assigned the following mark:

CSR

3.4.4.21 Additional Marks of Ecological Ship

An existing ship which complies with the requirements specified in *Publication 106/P – Eco Class Rules* is assigned the following marks:

3.4.4.21.1 A ship which complies the requirements for Preventing Pollution of the Sea is assigned the mark:

ECO SEA

3.4.4.21.2 A ship which complies the requirements of Preventing Pollution of the Air is assigned the following additional mark in the symbol of class:

ECO AIR

3.4.4.21.3 A ship which complies the requirements of Ships Energy Efficiency is assigned the following additional mark in the symbol of class:

ECO EF

3.4.4.21.4 A ship which complies the requirements of Control and Management of Ship's Ballast Water and Sediments is assigned the following additional mark in the symbol of class:

ECO BWM

3.4.4.21.5 A ship which complies the requirements of Safe and Environmentally Sound Recycling is assigned the following additional mark in the symbol of class:

ECO REC

3.4.4.22 Additional mark of ship whose compliance with certain requirements has been verified directly by the Flag State Administration

3.4.4.22.1 An existing ship whose compliance with the fire protection requirements of SOLAS Ch II-2, European Directives, has been verified directly by the Flag State Administration is assigned the following additional mark in the symbol of class:

(FP)

3.4.4.22.2 An existing vessel, which compliance with the intact and damage stability criteria has been verified directly by the Flag State Administration is assigned the following additional mark in the symbol of class:

(STA)

3.4.4.23 Gas tanker, which uses her cargo as a fuel is assigned with the following additional mark in the symbol of class:

IGC DF

3.4.4.24 Ship other than gas tanker, which uses low-flashpoint gas as fuel and complying with the requirements of *Publication 72/P – Safety Requirements for Ships Using Low-Flashpoint Gases as Fuel* is assigned with one of the additional marks provided in this *Publication.*

3.4.4.25 Ship, which complies with requirements of *Publication 90/P – Guidance for Safe Return to Port and Orderly Evacuation and Abandonment of Passenger Ship* , is assigned with the following additional mark in the symbol of class:

SRP

3.4.4.26 Ship, which complies with the Rules, Part V, p. 7.1 is assigned with the following additional mark in the symbol of class:

HLA

3.4.4.27 Ship which complies with PRS requirements of Chapter 8 of the Rules for Classification and Construction of Units and System for Underwater Technology Installed on Ships and other Units is assigned with the following additional mark in the symbol of class:

– In case of saturation diving system installed:

DIV-SSS

– In case of air diving system installed:

DIV-SSA

3.4.4.28 Ship, constructed of steel and intended for independent navigation in ice-infested polar waters, which complies with requirements of *Publication 122/P – Requirements for ice Baltic class and Polar class for ships under PRS supervision* for Polar Class, is assigned with the following additional mark in the symbol of class

PC1

which means possibility of year-round operation in all polar waters,

alternatively

PC2

which means possibility of year-round operation in moderate multi-year ice conditions,

alternatively

PC3

which means possibility of year-round operation in second-year ice which may include multi-year ice inclusions,

alternatively

PC4

which means possibility of year-round operation in thick first-year ice which may include old ice inclusions,

alternatively

PC5

which means possibility of year-round operation in medium first-year ice which may include old ice inclusions,

alternatively

PC6

which means possibility of summer/autumn operation in medium first-year ice which may include old ice inclusions,

alternatively

PC7

which means possibility of summer/autumn operation in thin first-year ice which may include old ice inclusions.

3.5 Symbol of Machinery

3.5.1 Symbol of Machinery Built under PRS Survey

3.5.1.1 The main propulsion machinery, built under PRS survey (see 4.2.1), upon completion of the Initial Survey for Assignment of Class covering the survey of machinery installation on board and sea trials survey, is given the following symbol of class:

✳ PRM

3.5.2 Symbol of Machinery Previously Classed by Other Classification Society

3.5.2.1 The main propulsion machinery, built and installed on board under the survey of another Classification Society, upon completion of the Initial Survey for Assignment of Class (see 4.3 and 4.5), is given the following symbol of class:

PRM

3.5.3 Symbol of Machinery Not Classed Before

3.5.3.1 The main propulsion machinery, built and installed on board without the survey of Classification Society, upon completion of the Initial Survey for Assignment of Class (see 4.4), is given the following symbol of class:

(PRM)

3.5.4 Symbol of Electric Main Propulsion

Electric Main Propulsion installations, which fulfil requirements specified in the *Rules for Construction and Classification of Sea-going Ships,* paragraph 17.1 of *Part VIII Electrical Installations*

and Control Systems are assigned with the following symbol of machinery installations:

EMP

3.6 Additional Descriptive Information

Other ship's class related additional requirements, conditions or restrictions, not denoted by additional marks in the symbol of class, are entered in the *Certificate of Class/Temporary Certificate of Class.*

4 ASSIGNMENT OF CLASS

4.1 General

4.1.1 PRS may assign a class to a new ship or to an existing ship. The condition for assigning class to a ship is the Owner's written request for PRS class assignment, submitting the required technical documentation and satisfactory result of the Initial Survey for Assignment of Class.

4.1.2 After completion of the Initial Survey for Assignment of Class, PRS field organizational unit issues the *Temporary Certificate of Class* to enable the ship to sail. The results of the Initial Survey are subject to verification by PRS Head Office.

4.1.3 Assignment of class is confirmed by the issue of the *Certificate of Class* and an appropriate entry made in the PRS Register. Assignment of class means that the ship, in full measure or to a degree considered by PRS acceptable, complies with the relevant requirements of the Rules.

4.1.4 Where structural details of a ship to be classed with PRS or her equipment do not comply with the requirements of PRS Rules and the Owner presents evidence of the ship's or equipment satisfactory behaviour during the ship hitherto operation, PRS may accept the evidence as technically equivalent.

4.1.5 Additional information about PRS class assignment are defined in the *Publication 97/P – Transfer of Class and Adding, Maintaining and Withdrawing Double or Dual Class.*

4.2 Ship Built under PRS Survey

4.2.1 A new ship, built under PRS survey, may be assigned PRS class after satisfactory completion of the following activities:
- the approval of technical documentation within the scope required in particular Parts of the Rules,
- survey of the manufacture of the main propulsion (main engines, gears, clutches, shaft lines, thrusters and, where fitted, main boilers or main generator sets),
- survey of the manufacture of other machinery and equipment, materials and components required in particular Parts of the Rules,
- survey during construction of hull,
- survey of installation of machinery, equipment and systems required in particular Parts of the Rules,
- survey of dock trials and sea trials.

The scope of the required technical documentation to be forwarded to PRS covers also:

- documentation submitted for information, but to which PRS may have remarks: Technical Specification, General Arrangement Plan, Tanks Plan;
- workshop documentation which shall be agreed with the attending PRS field organizational unit; the scope of this documentation is specified each time by this field organizational unit.

The detailed scope of the surveys associated with the above-mentioned activities is specified each time by the attending PRS field organizational unit on the basis of the Rules, approved technical documentation and the local building conditions. All these surveys constitute the Initial Survey of a ship.

Validity of the *Certificate of Class* will start from the date of the Initial Survey completion.

4.3 Ship subject for IACS PR 1A or 1B

4.3.1 Conditions of Assignment of Class

An existing ship, with valid class of other Classification Society, may be assigned PRS class upon completion of the Initial Survey for Assignment of Class covering:

- examination of the required technical documentation, referred to in 4.3.2, submitted by the Owner.

  If the Owner is not able to submit the required technical documentation (wholly or in part), they shall submit the equivalent information, within the scope enabling PRS to assess the ship's structure and equipment;
- verification of certificates for main engines, as well as for essential machinery and equipment, issued by Classification Society;
- carrying out all due and overdue surveys, specified in the ship's survey status by the previous Classification Society;
- fulfilment of all due and outstanding conditions of class, specified in the ship's survey status by the previous Classification Society. Since the Initial Survey may be, but is not required to be, credited as Periodical Survey for maintenance of class, conditions of class due for compliance at a specified periodical survey for maintenance of class need not be fulfiled at the Initial Survey unless the Initial Survey is credited as the specified periodical survey for maintenance of class or the condition of class is overdue;
- carrying out surveys specified in 4.3.3.

When facilities are not available in the first port of survey, the *Temporary Certificate of Class* may be issued to allow the ship to undertake a direct voyage to a port where facilities are available to complete the required survey. In such case the surveys specified in 4.3.3 shall be performed to the maximum extent practicable at the first port of survey, but in no case less than the scope of Annual Hull Survey and machinery surveys required in 4.3.3.2.

In justified cases, PRS may accept an examination, measurements or tests performed under the survey of the previous Classification Society.

PRS *Certificate of Class* validity is determined by PRS in each particular case.

In the case where full Class Renewal Survey is not required, the validity of the *Certificate of Class* issued by PRS cannot exceed the validity of the *Certificate of Class* issued by the previous Classification Society.

4.3.2 Scope of Required Technical Documentation

4.3.2.1 Main plans:

- General Arrangement Plan
- Capacity Plan
- Hydrostatic Curves
- Loading Manual (where required)
- Information on Stability
- Information on Damage Stability with calculation (when required).

4.3.2.2 Hull plans:

- Midship Section;
- Longitudinal Section;
- Scantling Plan;
- Decks;
- Shell Expansion;

– Transverse Bulkheads;
– Rudder and rudder stock;
– Hatch Covers;
– for ships with an additional mark CSR in the symbol of class – plans showing for each structural elements both as built and renewal thickness and any thickness for voluntary addition.

4.3.2.3 Machinery plans:
– Machinery Arrangement;
– Intermediate, Thrust and Screw Shafts;
– Propeller;
– Main Engines, Propulsion Gears and Clutch Systems (or the manufacturer, type and rating information);
– For steam turbine ships: Main Boilers, Superheaters and Economizers (or the manufacturer, type and rating information) and Steam Piping;
– Bilge and Ballast Piping Diagram;
– Wiring Diagram (electric balance of a ship, principle diagram of power distribution circuits, principle diagram of the main and emergency switchboards);
– Steering Gear Systems Piping and Arrangements and Steering Gear manufacturer and type information.

4.3.2.4 Torsional Vibration Calculations (for ships less than two years old).

4.3.2.5 Additional documentation for ships with ice strengthening:
– Plans for flexible couplings or torque limiting shafting devices in the propulsion line shafting (or the manufacturer, type and rating information).

4.3.2.6 Additional plans required for oil tankers, chemical tankers and gas tankers:
– Plans of cargo pump-rooms at the forward and after ends and drainage of cofferdams and pump-rooms;
– General Arrangement Plan of cargo piping in tanks and on decks.

4.3.2.7 Additional plans required for unattended machinery space:
– instrument and alarm list;
– fire alarm system;
– list of automatic safety functions (e.g. slow-downs, shut-downs, etc.);
– function testing plan.

4.3.2.8 Additionally, submitting the following documentation is recommended:
– the ship's data and specification;
– body lines;
– drawings of superstructures;
– drawings of longitudinal bulkheads.

4.3.2.9 Additional documents required for approval of Alternative Design and Arrangements and Documents of Approval of Alternative Design and Arrangements are to be submitted, if any.

4.3.3 Scope of Initial Survey

The scope of the Initial Survey, performed by PRS, covers in each case at least:

4.3.3.1 Hull Survey:
.5 for each ship, at least the survey within the scope of Annual Survey;

.6 for ships between 5 and 10 years of age, Annual Survey and examination of the representative number of ballast spaces, selected by PRS;

.7 for ships of 10 years of age and more but less than 20 years of age, Annual Survey and examination of the representative number of ballast and cargo spaces, selected by PRS; except for:
- gas carriers, in lieu of internal inspection of cargo spaces, the following applies:
  - inspection of surrounding ballast tank(s) and void spaces, including external inspection of independent cargo tank(s) and associated supporting systems as far as possible;
  - review of cargo log books and operational records to verify the correct functioning of the cargo containment system;
- chemical carriers of 10 years of age and above but less than 15 years of age, in lieu of an internal inspection of cargo tanks without internal stiffening and framing, inspections of surrounding ballast tank(s) and void spaces and deck structure, are to be applied;

.8 for ships subject to ESP which are 15 years of age or more but less than 20 years of age, a Class Renewal Survey or an Intermediate Survey shall be performed, whichever is due next;

.9 for all ships which are 20 years of age or more, a Class Renewal Survey shall be performed;

.10 instead of the requirements in items **.1** trough **.5**, the following apply for site specific purpose-built Floating Production and/or Storage Vessels:
- for ships of age less than 5 years, the survey shall have the scope of an Annual Survey,
- for ships of age between 5 and 10 years, the survey shall include an Annual Survey and inspection of 20 % of ballast spaces,
- for ships of age between 10 and 20 years, the survey shall include an Annual Survey and inspections of 20 % of ballast spaces and 20% of cargo spaces,
- for ships over 20 years of age, the survey shall have the scope of a Class Renewal Survey;

.7 for site specific Floating Production and/or Storage Vessels which have been converted from other ships, the survey shall take the form of an Annual Survey and also include inspection of 20% of ballast spaces and 20% of cargo spaces until 20 years have elapsed since conversion. After 20 years, the survey shall have the scope of a Class Renewal Survey;

.8 in the context of applying items .4 and .5 above, if a dry-docking of the ship is not due at the time of transfer, consideration can be given to carrying out an underwater survey instead of dry-docking;

.9 in the context of applying items 4 and 5, the following applies:
- the anchors and anchor chain cables ranging and gauging for ships over 15 years of age is not required to be performed as part of the class entry survey unless the class entry survey is being credited as a periodical survey for maintenance of class,
- if the class entry survey is to be credited as a periodical survey for maintenance of class, consideration may be given by PRS to the acceptance of the anchors and anchor chain cables ranging and gauging performed by the losing society provided they were performed within the applicable survey window of the periodical survey in question;

.10 in the context of applying items .1 to .8 above, as applicable:
- if the Initial Survey shall be credited as Periodical Survey for maintenance of class, consideration may be given by PRS to the acceptance of thickness measurements taken by the losing society provided they were performed within the acceptable survey window of the periodical survey in question,

– if the Initial Survey is not to be credited as Periodical Survey for maintenance of class, consideration may be given by PRS to the acceptance of thickness measurements taken by the loosing society provided they were performed within 15 months prior to completion of Class Assignment Survey when it is in scope of a Class Renewal Survey, or within 18 months prior to completion of Class Assignment Survey when it is in scope of an Intermediate Survey.

In both cases thickness measurements are subject to PRS verification. Additionally, confirmatory gauging is required to be taken to the satisfaction of PRS Surveyor;

.11 in the context of applying items .3 to .8 above, as applicable, tank testing for ships over 15 years of age is not required to be performed as a part of the Initial Survey unless the Initial Survey is being credited as a Periodical Survey for maintenance of class. In such cases, PRS may accept the tank testing performed by the losing society, provided they were performed within the applicable survey window of the periodical survey in question. If the class entry survey is to be credited as a periodical survey for maintenance of class, consideration may be given by PRS to the acceptance of the tank testing performed by loosing society, provided they were performed within the applicable survey window of the periodical survey in question;

.12 in the context of applying items .1 to .8 above, as applicable, retroactive requirements that require compliance at the forthcoming due Periodical Surveys are not required to be performed/ complied with as part of the Initial Survey unless the Initial Survey is credited as a Periodical Survey for maintenance of class.

4.3.3.2 Machinery Survey

A general examination of all essential machinery and electrical equipment shall be held and shall include:

.1 checking under working condition of oil fuel burning equipment of boilers, economizers and steam generators. The adjustment of safety valves of this equipment shall be verified by checking the records of the *Engineer's Log Book*;

.2 all pressure vessels shall be verified;

.3 insulation resistance, generator circuit breakers, preference tripping relays and generator prime mover governors shall be tested and paralleling and load sharing to be proved;

.4 navigation lights and indicators shall be examined and their working and alternative sources of power verified;

.5 bilge pumps, emergency fire pumps and remote controls for oil valves, oil fuel pumps, lubricating oil pumps and forced draught fans shall be examined under working conditions;

.6 water recirculating and ice clearing arrangements, if any, shall be examined;

.7 the main and all auxiliary machinery necessary for the ship operation at sea, including their installations and essential controls, as well as the main and auxiliary steering gear shall be tested under working conditions. In the case of ships which have been laid up for a long period, a short sea trial shall be held if deemed necessary by the PRS Surveyor;

.8 initial start arrangements shall be verified;

.9 for oil tankers: the cargo oil system and electrical installation in way of hazardous spaces shall be checked for compliance with the Rules requirements;

.10 where intrinsically safe equipment is installed, approval certificates issued by a recognized authority shall be checked. The safety devices, alarms and essential instruments of the inert gas system shall be verified and the plant generally examined to ensure that it does not constitute a hazard to the ship;

.11 in the case when the ship's machinery are supervised on PMS scheme, the following shall be done:
- to perform PMS annual audit,
- to send to PRS Head Office a copy of the *Certificate of Approval for Planned Maintenance Scheme* issued by the Loosing Society.

4.4 Ship Never Classed by PRS or Other Recognized Classification Society or Ship not been Previously Classed

4.4.1 Requirements for class assignment by PRS to an existing ship that has never been classed by PRS or other recognized Classification Society or to a ship that has not previously been classed are specified in *Publication 97/P – Transfer of Class and Adding, Maintaining or Withdrawing Double or Dual Class*, Paragraph 3.

4.5 Ship Classed Previously by PRS or Other Recognized Classification Society

4.5.1 Requirements for class assignment by PRS to an existing ship classed before by PRS or other recognized Classification Society are specified in *Publication 97/P – Transfer of Class and Adding, Maintaining or Withdrawing Double or Dual Class*, Paragraph 3.

5 MAINTENANCE OF CLASS – INTERVALS BETWEEN SURVEYS AND SURVEY SCOPES

5.1 General Requirements

5.1.1 Conditions for Survey

5.1.1.1 The conditions for maintaining the ship's class are:
- maintaining the ship – the ship's hull, machinery, installations and equipment in a satisfactory technical condition,
- ship's operation in accordance with conditions specified in the Certificate of Class, the manufacturer's instructions and the principles of good seamanship,
- carrying out due Periodical Surveys at scheduled dates,
- fulfilling, at specified dates, the retroactive requirements, specified in Supplements to particular Parts of the Rules,
- fulfilment of conditions of class at scheduled dates,
- carrying out the required Occasional Surveys,
- timely payment of fees for survey services.

The Owner is responsible for fulfilling the above conditions as well as for proceeding with the requirements contained in the Rules, applicable to his ship.

5.1.1.2 All ships classed with PRS are subject, within each classification cycle, to the following Periodical Surveys:
- Annual Survey,
- Intermediate Survey,
- Class Renewal Survey,
- Bottom Survey,
- Propeller Shaft Survey, if fitted,
- Thrusters, if fitted and intended for main propulsion,
- Boilers and Pressure Vessels Survey, if fitted.

Special consideration may be given in application of relevant sections of this point to commercial vessels owned or chartered by Governments, which are utilized in support of military operations or service.

5.1.1.3 All ships classed by PRS are subject to Occasional Surveys in cases specified in 5.11.

5.1.1.4 PRS informs the Owner on the dates of due Periodical and Occasional Surveys by a ship's survey status. Non-receipt of a ship's survey status does not absolve the Owner from an obligation to submit the ship for survey at the dates specified in the Rules.

5.1.1.5 Class Renewal Survey aim is to ascertain that the ship's hull and its equipment, machinery and installations comply with the requirements of the Rules, and to ensure that the ship is fit for its intended purpose for the subsequent 5-year period, subject to proper maintenance and operation. A survey planning meeting shall be held prior to the commencement of the survey.

5.1.1.6 Annual and Intermediate Surveys shall ascertain that the ship's hull and its equipment, machinery and installations are in a satisfactory technical condition.

5.1.1.7 The Annual, Intermediate or Class Renewal Survey may be considered complete if an appropriate survey of the ship's hull and machinery has been held within the scope defined in 5.3 to 5.9. PRS may extend the scope of surveys, depending on the ship's age, technical condition, as well as the type of equipment and structure.

5.1.1.8 After completion of Periodical Survey, PRS Branch Office endorses or issues the *Certificate of Class*. In the case of Initial Surveys, surveys after change of flag or major conversion of a ship PRS Branch Office issues the *Temporary Certificate of Class* to enable the ship to sail. The results of Periodical Survey are subject to verification by PRS Head Office.

5.1.1.9 Intervals between Periodical Surveys of a ship built under the PRS classification survey will date from the classification cycle commencement.

5.1.1.10 Intervals between Periodical Surveys of ships which have entered PRS class with a valid class assigned by other Classification Society, ships that have not been classed before and ships with class withdrawn are set by PRS (see 4.3, 4.4 or 4.5).

5.1.1.11 PRS may shorten the intervals between examinations, measurements or tests of hull members, particular items of machinery, installations and equipment if it is found necessary due to their technical or service conditions. In this case, new due dates of the examinations, measurements or tests shall, in general, be concurrent with Periodical Surveys.

5.1.1.12 In justified cases, PRS Surveyor may dispense with a survey of particular items of machinery in dismantled condition or limit the scope of survey if external examinations, measurements and operation tests prove that the machinery item is in a good and efficient condition. The Surveyor may also limit the scope of surveys in dismantled condition of main engine and generator prime movers after analysis of maintenance records of the given engine.

5.1.1.13 Any damage in association with wastage over the allowable limits (including buckling, grooving, detachment or fracture), or extensive areas of wastage over the allowable limits, which affect or, in the opinion of PRS surveyor, will affect the vessel's structural, watertight or weathertight integrity, shall be promptly and thoroughly repaired.

Areas, to be particularly considered, include:
- side shell frames, their end attachments of adjacent shell plating;
- deck plating with adjacent structural members;
- bottom structure and bottom plating with adjacent structural members;
- watertight and oiltight bulkheads;
- hatch covers and hatch coamings;
- welded joints at penetrations of air pipes through the deck plating;
- air pipe heads installed on weather decks, including flame screens on vents to all bunker tanks;
- fans, including closing devices, if any.

If the extent of damage detected in port is such that thorough repair is impossible in that port, PRS may permit, on the Owner's request, the ship to proceed directly to the port or shipyard where adequate repair is practicable. In that case, discharging of cargo and/or carrying out temporary repairs allowing for such a voyage may be required.

5.1.1.14 Where the damage found on structure mentioned in para. 5.1.1.13 is isolated and of a localised nature which does not affect the ship's structural integrity, consideration may be given by the surveyor to allow an appropriate temporary repair to restore watertight or weathertight integrity and issue a condition of class with a specific time limit for fulfilment.

5.1.1.15 Remote inspection techniques may be used to facilitate the required internal examinations, including close-up examinations and gaugings required with close-up examinations.

Proposals for use of remote inspection techniques shall be submitted to PRS for approval in advance of the survey.

Where such techniques are applied, confirmatory close-up surveys are performed by PRS Surveyor at selected locations.

Use of remote inspection techniques may be restricted or limited where there is an indication of abnormal deterioration or damage to structure.

5.1.1.16 Services, which constitute the basis for the ship technical condition assessment by PRS, such as:
- general examination of the underwater part of hull by diver;
- thickness measurements of hull structure;
- non-destructive and destructive tests;
- surveys and tests of fire-extinguishing systems;

as well as all repairs which affect the ship's technical condition, such as:
- hull structure repairs;
- renovations of machinery and equipment (such as: main engines, main gear, shafts, main and emergency generating sets, boilers and pressure vessels, anchoring equipment and steering gear, propellers, compressors, fire, bilge and water ballast pumps, main and emergency switchboards) shall be performed by service suppliers approved by PRS (see *Publication 51/P – Procedural Requirements for Service Suppliers*).

In justified cases, PRS Surveyor may, at the Owner's request, agree on performance of services by a service supplier not holding PRS approval – on a single approval basis, after verifying the service supplier's ability to perform such services.

All above-mentioned activities, performed by a service supplier, shall be verified by PRS Surveyor.

Thickness measurements of hull structure and examination of the underwater part of hull by diver shall be performed in the presence of PRS Surveyor.

5.1.1.17 Each measurement constituting the basis for the assessment of the structure, machinery or equipment technical condition shall be performed with measuring devices provided with valid verification certificates issued by the authorized body, in accordance with the relevant requirements (standards or technical specifications) and according to the appropriate schedule. Each measuring device shall have valid verification certificate and shall be identifiable (by e.g. serial number or factory identification number).

PRS Surveyor may accept, without confirmation of verification:
- simple measuring equipment (e.g. rulers, measuring tapes, weld gauges, micrometers, etc.), provided they are used according to their intended purpose, are properly maintained and periodically verified by the user;
- the equipment fitted on board ship and used for checking pressure, temperature or rpm, etc., provided its readings are compared against the readings of equivalent measuring devices (type, accuracy, scale).

5.1.1.18 Where repairs to the ship's hull, machinery or essential equipment shall be performed during a voyage, they shall be performed only upon consent and under conditions agreed with PRS. In such cases, the Owner is obliged to submit to PRS, for acceptance, the Planned Repairs Programme.

5.1.1.19 In the case of repairs to the coating in ballast tanks, holds and on hull outside bottom plating, the Owner is obliged to submit, to PRS, document confirming that the coating was applied in accordance with the manufacturer's recommendations. In the case of a routine maintenance work performed by the ship's crew, submission of an Owner's report is required.

5.1.1.20 Each computer software used for calculations while preparing technical documentation and data for evaluation of the ship's operation safety shall have been previously approved by PRS according to *Publication 14/P – Principles of Approval of Computer Programs*.

5.1.1.21 Special consideration may be given in application of the present Chapter requirements to commercial ships owned or chartered by Governments, which are utilized in support of military operations or service.

5.1.1.22 Gas tankers and chemical tankers intended for the carriage of noxious substances in bulk shall additionally fulfil the survey requirements specified in IMO Resolution A.1140(31).

5.1.2 Preparation for Survey

5.1.2.1 The Owner is obliged to properly prepare the hull, machinery and electrical installations, as well as the ship equipment for each survey. The Surveyor may refrain from performing a survey if he/she considers that the ship has not been properly prepared for the survey or a threat to life or health exists.

If, during the survey, permanent means of access to ship's structure are not available, then alternative means of access shall be applied in accordance with the requirements specified in *Publication 27/I – Guidelines for Approval/ Acceptance of Alternative Means of Access*.

If, during the survey, entering a confined space is necessary, then the requirements contained in *Publication 123/P – Safe Entry to Confined Spaces shall be applied*.

The Owner is obliged to present to PRS Surveyor a written Permit to Enter that has been signed and dated, including time of issue, by a responsible person, which states that the space has been tested by a competent person and that the space is safe for entry. It shall also specify what precautions, equipment etc. are required.

5.1.2.2 Where soft or semi-hard coatings have been applied, safe access shall be provided to verify the effectiveness of the coating and to perform an assessment of the conditions of the internal structure which may include spot removal of the coating. When safe access cannot be provided, the soft or semi-hard coating shall be removed.

5.1.2.3 Casings, ceilings or linings, and loose insulation, where fitted, shall be removed, as required by PRS Surveyor, for examination of plating and framing. Compositions on plating shall be examined and sounded, but need not be disturbed if found adhering satisfactorily to the plating.

5.1.2.4 In refrigerated cargo spaces, the condition of the coating behind the insulation shall be examined at representative locations. The examination may be limited to verification that the protective coating remains effective and that there are no visible structural defects. Where POOR coating condition is found, the examination shall be extended as deemed necessary by the PRS Surveyor. The condition of the coating shall be reported. If indents, scratches, etc., are detected during surveys of shell plating from the outside, insulation in way shall be removed as required by the Surveyor, for further examination of the plating and adjacent frames.

5.1.2.5 For ships of which additional requirements for enhanced hull surveys are specified in Publications mentioned in Annex 2, the Owner, prior to Class Renewal Survey, shall prepare, based on these Publications and in co-operation with the relevant PRS field organizational unit, the survey programme.

5.1.2.6 For survey in cargo holds/tanks and ballast tanks, one or more of the following means for access, acceptable to the Surveyor, is to be provided:
- permanent staging and passages through structures;
- temporary staging and passages through structures;
- hydraulic arm vehicles such as conventional cherry pickers, lifts and movable platforms;
- boats or rafts;
- other equivalent means.

5.1.2.7 Consideration may be given by the attending Surveyor to allow use of Remote Inspection Techniques (RIT) as an alternative to close-up survey. Surveys conducted using a RIT are to be completed to the satisfaction of the attending Surveyor. When RIT is used for a close-up survey, temporary means of access for the corresponding thickness measurements is to be provided unless such RIT is also able to carry out the required thickness measurements.

5.1.2.8 For surveys conducted by use of a remote inspection technique, one or more of the following means for access, acceptable to the Surveyor, is to be provided:
- unmanned robot arm
- remotely operated vehicles (ROV)
- unmanned aerial vehicles / drones
- other means acceptable to the PRS.

5.1.3 Requirements for Thickness Measurements

5.1.3.1 Thickness measurements of the hull structural elements, if not performed by PRS itself, shall be witnessed by PRS Surveyor. The attendance of the Surveyor shall be recorded. PRS Surveyor shall be on board, while gaugings are being taken, to the extent necessary to control the process. This also applies to thickness measurements taken during voyages. Thickness measurements shall be performed by the TM Companies approved by PRS in accordance with *Publication 51/P – Requirements for Service Suppliers,* except that in respect of measurements of non-ESP ships less than 500 GT and all fishing vessels, the TM Companies need not be so approved. Prior to commencement of the intermediate or class renewal survey, a survey planning meeting shall be held between the attending PRS Surveyor(s), the Owner's Representative in attendance, the TM company representative and the master of the ship or an appropriately qualified representative appointed by the master or Company, so as to ensure the safe and efficient execution of the surveys and thickness measurements, if any, to be performed onboard. During the meeting, communication between involved parties shall be agreed with respect to the following:
- reporting of thickness measurements on regular basis to the attending PRS Surveyor(s),
- prompt notification to the surveyor in case of following findings:
  - excessive and/or extensive corrosion or pitting/grooving of any significance,
  - structural defects like buckling, fractures and deformed structures,
  - detached and/or holed structure,
  - corrosion of welds.

When thickness measurements are taken in association with Intermediate or Class Renewal Survey, a documented record indicating where and when the meeting took place and who attended shall be maintained.

5.1.3.2 PRS Surveyor shall decide final extent and location of thickness measurements after overall survey of representative spaces onboard. In the case when the Owner prefers to commence the thickness measurements prior to the overall survey then the Surveyor shall advise of that the planned extent and locations of thickness measurements are subject to confirmation during the overall survey. Based on findings, the Surveyor may require that additional thickness measurements have to be taken. Thickness measurement locations are to be selected to provide the best representative sampling of areas likely to be most exposed to corrosion, considering cargo and ballast history and arrangement and condition of protective coatings. Thickness measurements taken mainly to evaluate the extent of corrosion, which may affect the hull girder strength, shall be performed in a systematic manner of all longitudinal structural members that are required by the relevant Rules to be gauged. Where thickness measurements indicate substantial corrosion or wastage in excess of allowable diminution, the surveyor shall direct locations for additional thickness measurements in order to delineate areas of substantial corrosion and to identify structural members for repairs/renewals. Thickness measurements of structures in areas where close-up surveys are required shall be performed simultaneously with close-up surveys.

5.1.3.3 Upon completion of the thickness measurements, Surveyor shall confirm that no further gaugings are needed, or specify additional gaugings. If, where special consideration is allowed by the Rules, the extent of thickness measurements is reduced, the Surveyor special consideration shall be reported. In case thickness measurements are partly performed, the extent of remaining thickness measurements shall be reported for the use of the next surveyor. Thickness measurements of internals may be specially considered by the Surveyor, if the hard protective coating is in GOOD condition.

5.1.3.4 At any survey, i.e. Class Renewal, Intermediate, Annual or other surveys, having the scope of the foregoing ones, structure thickness measurements in areas where close-up examination is required, shall be performed in parallel with close-up examination.

5.1.3.5 Surveys and thickness measurements of spaces once credited towards Class Renewal Survey can not be credited towards Intermediate Survey and respectively credited towards Intermediate Survey can not be credited towards Class Renewal Survey.

5.1.3.6 The acceptance criteria for thickness measurements are according to the Rules and/or specific IACS URs depending on ship's age and structural elements concerned, e.g UR S18 for corrugated transverse bulkhead, UR S21A for all cargo hatch covers and coamings on exposed decks.

5.1.3.7 Thickness measurements in way of Substantial Corrosion shall be performed in the below pattern:
- Suspected area and adjacent plates of plating, with 5 point pattern over 1 square meter.
- Suspect area of stiffener, with 3 measurements each in line across web and flange

5.1.4 Remote Inspection Techniques (RIT)

5.1.4.1 The RIT is to provide the information normally obtained from a close-up survey. RIT surveys are to be carried out in accordance with the requirements given here-in and the requirements of IACS Rec. 42 'Guidelines for Use of Remote Inspection Techniques for surveys'. These considerations are to be included in the proposals for use of a RIT which are to be submitted in advance of the survey so that satisfactory arrangements can be agreed with the PRS.

5.1.4.2 The equipment and procedure for observing and reporting the survey using a RIT are to be discussed and agreed with the parties involved prior to the RIT survey, and suitable time is to be allowed to set-up, calibrate and test all equipment beforehand.

5.1.4.3 When using a RIT as an alternative to close-up survey, if not carried out by the PRS itself, it is to be conducted by a firm approved as a service supplier according to UR Z17 and is to be witnessed by an attending surveyor of the PRS.

5.1.4.4 The structure to be examined using a RIT is to be sufficiently clean to permit meaningful examination. Visibility is to be sufficient to allow for a meaningful examination. PRS is to be satisfied with the methods of orientation on the structure.

5.1.4.5 The Surveyor is to be satisfied with the method of data presentation including pictorial representation, and a good two-way communication between the Surveyor and RIT operator is to be provided.

5.1.4.6 If the RIT reveals damage or deterioration that requires attention, the Surveyor may require traditional survey to be undertaken without the use of a RIT.

5.2 Intervals between Periodical Surveys

5.2.1 Annual Survey

Annual Survey shall be held within 3 months, before and after each anniversary of the assignment of class or the class renewal.

5.2.2 Intermediate Survey

The Intermediate Survey shall be held at either the second or third Annual Survey. Parts of the Intermediate Survey, which are additional to the requirements of the Annual Survey, may be surveyed either at or between the second and third Annual Survey.

5.2.3 Class Renewal Survey

.1 The Class Renewal Survey shall be held at 5-yearly intervals. In exceptional cases, however, upon PRS agreement, a maximum 3-month extension of class beyond the 5th year may be granted – see 6.1.3.1.

.2 Regardless of the requirements specified in 5.2.3.1, where the Class Renewal Survey is completed within 3 months before and after the expiry date of class validity, the validity of the new *Certificate of Class* will be not longer than 5 years from the expiry date of the previous *Certificate*. For surveys completed more than 3 months before the expiry date of class validity, the period of class will start from the survey completion date. Where the ship has been laid up or has been out of service for a considerable period because of a major repair or modification and the Owner elects to only perform the overdue surveys, the next period of class will start class renewal survey. If the Owner elects to perform the next due class renewal survey, the period of class will start from the survey completion date.

.3 The Class Renewal Survey may be commenced at the fourth Annual Survey and be progressed so as to be completed by the fifth anniversary date. When the Class Renewal Survey started before the fourth Annual Survey, the entire survey shall be completed within 15 months. The new period of class will start from the survey completion date.

5.2.4 Bottom Survey of Hull

5.2.4.1 All ships

.1 The Bottom Survey of hydrofoil craft, high speed craft and ships engaged in ice breaking shall be performed each year at the time of Periodical Survey.

.2 The Bottom Survey of ships, other than those mentioned in .1, shall be performed twice within each classification cycle: during Intermediate Survey and Class Renewal Survey. The intervals between consecutive surveys shall not exceed 3 years. In exceptional circumstances, as defined in 1.2, PRS may accept an extension to a maximum of 3 months.

.3 Depending on PRS decision, the Bottom Survey of ships, other than those mentioned in .1, assigned the mark of limited period of class validity, shall be performed during the first or the second Annual Survey.

.4 The Bottom Survey of all ships, during Class Renewal Survey, shall be performed in dry dock.

.5 Examination of the outside of the ship's bottom and related items of ships is normally to be performed with the ship in dry-dock. However, consideration may be given to alternate examination while the ship is afloat as an in-water survey, subject to provisions of subparagraph 5.5.3. Special consideration shall be given to ships of 15 years or over before being permitted to have such examination. For ESP ships of 15 years of age and over, such examinations shall be performed with the ship in dry-dock.

.6 The intervals between Bottom Surveys for ships operating in fresh water and those operated in harbors or the crafts without mechanical propulsion may be greater than that specified in sub-paragraph .2.

.7 The Bottom Survey performed by divers is subject to compliance with the requirements specified in 5.5.3.4 or 5.5.3.5.

.8 The Occasional Bottom Survey may be required in the case of ship’s grounding.

.9 The Owner is obliged to notify PRS whenever the ship’s bottom can be examined in dry dock.

5.2.4.2 Compliance with the requirements of paragraph 5.2.4.1 does not absolve the Owner from compliance with the requirements of SOLAS Convention, especially when shorter intervals between ships bottom surveys are required for certain types of ships.

5.2.4.3 Additional requirements for passenger ships for which PRS supervise in scope of SOLAS Convention.

.1 The Bottom Survey of passenger ship shall be performed each year at the time of Periodical Survey.

.2 The Bottom Survey of passenger ship due within Annual Survey, may be performed by divers however maximum interval between any two Bottom Surveys performed in the dry-dock shall not exceed 3 years. For ships 15 years of age or over, special consideration by PRS will be given before acceptance of Bottom Survey to be performed by divers. In such case such survey is subject to compliance with the requirements specified in 5.5.3.5.

.3 For passenger ships 15 years of age or less, other than passenger ro-ro ships, interval between any two Bottom Surveys performed in the dry-dock may be extended up to 5 years.

5.3 Scope of Annual and Intermediate Surveys

5.3.1 Hull and Hull Equipment Annual Survey

The scope of the Hull and Hull Equipment Annual Survey covers the following:

5.3.1.1 Checking:

- validity of classification and statutory documents, as well as the ship's documents entries concerning overhauling and maintenance of oil tanks, holds and hull machinery and equipment by the Owner. In the case any entries are missing, PRS reserves for itself a right to extend the scope of survey beyond the Annual Survey;
- validity of the Loading Manual, Loading Instrument and Cargo Securing Manual, where required;
- validity of Stability Booklet and Subdivision Booklet, where required;
- fulfilment of the special requirements for ships permitted to sail with load line type "A" or reduced type "B";
- checking that any new equipment containing asbestos has not been fitted on board since the latest survey,
- checking, if performance capabilities and operating instructions of the emergency release system of the towing rope are documented and made available on board.

5.3.1.2 General examinations of:

- plating of the above-water part of the hull and weather decks, including marks (load line marks, draught marks, ship's identification number, electromagnetic radiation warning marks, etc.),
- collision bulkhead,
- other watertight bulkheads, if accessible during survey,
- ballast tanks, in cases subject to the provisions of sub-paragraphs .4 and .5 of paragraph 5.3.2.4 and paragraph 5.4.1.1,
- bulwark, railings and freeing ports,
- the fittings and appliances for timber deck cargoes, where applicable,
- cargo doors,
- superstructures and deckhouses,
- hatch coamings and crane columns, together with stiffeners,
- openings and manholes on weather decks,
- outer doors, ship side doors, skylights and scuttles,
- ventilator coamings,
- heads of air pipes, closing devices of sounding pipes and fuel supply pipes,
- closing appliances of inlets and outlets of ventilating ducts in outer superstructures,
- passageways and escape routes, including safe access to the bow, if required,

– towing hooks or towing winch with rigging, fastenings and arches (applicable to tugs),
– emergency release system of the towing rope.

Where mechanically operated steel covers are fitted, the satisfactory condition of the following shall be checked:
– hatch covers and tightness devices of longitudinal, transverse and intermediate cross junctions (gaskets, gasket lips, compression bars, drainage channels),
– clamping devices, retaining bars, wedges, cleating,
– chain or rope pulleys, guides, guide rails and track wheels,
– stoppers, etc.,
– wires, chains, gypsies, tensioning devices,
– hydraulic system, essential to closing and securing,
– safety locks and retaining devices.

Where portable covers, wooden or steel pontoons are fitted, condition of the following elements shall be checked:
– wooden covers and portable beams, carriers or sockets for the portable beams and their securing devices,
– steel pontoons, together with close-up examination of plating,
– tarpaulins,
– cleats, battens and wedges,
– hatch securing bars and their securing devices,
– loading pads/bars and the side plate edge,
– guide plates and chocks,
– compression bars, drainage channels and drain pipes (if any).

5.3.1.3 Close-up examination of:
– suspect areas, if identified during the Class Renewal Survey.

5.3.1.4 Thickness measurements of:
– the plating of the above-water part of the hull, decks, hatch coamings, cargo hatches in the regions where, during survey, substantial corrosion has been found,
– hull structure in the regions where substantial corrosion has been found and specified during previous surveys,
– ballast tanks, as deemed necessary by attending PRS Surveyor, in cases resulting from 5.3.1.3.

5.3.1.5 Operation tests of:
– the bow, stern and side cargo doors and ramps,
– bulkhead doors,
– main and emergency steering gear,
– anchoring equipment (the windlass test may be performed at port),
– mooring equipment;
– towing winch or towing rope release, in its various positions (applicable to tugs) in accordance with the reference to the documented instructions for surveys provided by the manufacturer, including:
  – operation test of the winch emergency release system under no load condition. Where practical, activation of the emergency release system may be confirmed by observation of the winch brake.
  – test function of the alarms associated with the emergency release system, as far as practicable and reasonable.
  – visual examination of the emergency release system,
  – test of means of emergency release of the towline in the event of a blackout, and where additional sources of energy are arranged for this purpose, the sources of energy are to be visually inspected and operationally tested.

– checking, if performance capabilities and operating instructions of the emergency release system are documented and made available on board the ship.

Random checking of the satisfactory operation of mechanically operated hatch covers shall be made in respect of:
– stowage and securing in opened up condition,
– proper fit, locking and effective of sealing in closed condition,
– operation tests of hydraulic and power components, wires, chains and link drives.

5.3.1.6 Additionally, for bulk carriers:

.1 single side skin bulk carriers of 150 m in length and above, allowed to carry solid bulk cargo of density 1780 kg/m^3 and above, where distribution of cargo in holds and/or a vessel's deadweight are restricted – checking that both ship's sides are marked with "a triangle" of proper size, visibility and durability;
.2 confirming, when appropriate and as far as practicable when examining internal spaces that the means of access to cargo and other spaces remain in good condition.

5.3.1.7 Additionally for passenger ships:

.1 checking the correctness of List of operational limitations
.2 checking the helicopter landing area, taking into account:
– condition of the helideck structure,
– completion and condition of the fire-fighting equipment,
– condition of the helicopter fuel distribution system, if fitted,
– condition of the helicopter shelter, if fitted,
– aviability and validity of the procedures for helicopter operation, including emergency situations.

5.3.1.8 Additionally for cement carriers:

.1 general examination of the selected cargo holds;
.2 general examination of void spaces adjacent to cargo hold area, including close-up examination of the lower attachments of side shell frames, if applicable.

5.3.1.9 Additionally for oil tankers:

.1 oil tankers of tonnage 5000 DWT or more for which the contract for construction was signed on or after 01.01.2007:
– checking if the ship has prompt access to computerised, shore-based damage stability and residual structural strength calculating programs;
.2 confirming, when appropriate and as far as practicable, when examining internal spaces that the means of access to cargo and other spaces remain in good condition;
.3 examination of emergency towing equipment;
.4 examination of condition and operation of water spray and air supply systems that are in totally enclosed lifeboats and have self-contained support systems.

5.3.1.10 Additionally for chemical tankers:
.1 examination of equipment of personal protection:
– protective clothing for crew engaged in loading and discharging operations and its stowage,
– the required safety equipment and associated breathing apparatus and associated air supplies and, when appropriate, emergency-escape respiratory and eye protection including its stowage,
– medical first-aid equipment, including stretchers and oxygen resuscitation equipment,
– arrangements for the antidotes for the cargo actually carried on board,
– decontamination arrangements and eyewashes,

- required gas detection instruments and arrangements and the supply of the appropriate vapour detection tubes,
- arrangements for stowage of the cargo samples.

5.3.1.11 Additionally for liquefied gas carriers:
- checking special arrangements to survive conditions of damage,
- examination of wheelhouse doors and windows, side scuttles and windows in superstructure and deckhouse ends in the cargo area,
- examination of cargo compressor rooms and cargo control room.

5.3.1.12 Watertight Cable Transits[1]:
- checking if Register of WCT is being maintained,
- examination of the transits, as far as practicable, to confirm their satisfactory condition.
- review of records and if necessary, examination of those transits which were, according to the Register, added or repaired since last annual survey, the results of this review/examination is to be recorded in Register.

5.3.2 Hull and Hull Equipment Intermediate Survey

Hull Intermediate Survey covers the Bottom Survey of hull according to 5.2.4, the activities to be performed within Annual Survey and additionally the activities mentioned in 5.3.2.1 to 5.3.2.5.

5.3.2.1 General examination of selected cargo holds, indicated by PRS – the inner bottom, bulkheads, ship's sides, decks, 'tweendecks, structural members, piping in the holds, watertight bulkhead penetrations.

5.3.2.2 General examination of machinery spaces, as well as their casings with closing appliances.

5.3.2.3 General examination of the attachment of bottom and side fittings to the shell.

5.3.2.4 General examination of ballast tanks:

.1 In ships over 5 years old and up to 10 years of age:

Representative ballast tanks, selected by PRS, shall be examined.

Where, in ballast tanks, POOR coating condition has been found or soft or semi-hard protective coating has been applied or where a protective coating has not been applied since the time of construction, the examination shall be extended to other ballast tanks of the same type.

.2 In ships over 10 years of age – all ballast tanks shall be examined.

.3 Where the survey has revealed no visible structural defects, the examination may be limited to verification that the corrosion prevention system remains effective.

.4 Where in tanks, other than the double bottom tanks, a protective hard coating is found to be in POOR condition and has not been renewed, or semi-hard or soft coating was applied, or a protective coating was not applied from the time of construction, maintenance of class shall be made subject to the tanks in question being examined internally at each subsequent Annual Survey.

.5 Where the double bottom tanks are found to be in the condition, as specified in .4, or a protective coating was not applied from the time of construction, maintenance of class may be subject to the tanks in question being examined internally at each subsequent Annual Survey.

5.3.2.5 Additional requirements for hull survey of general dry cargo ships are specified in *Publication 62/P – Hull Surveys of General Dry Cargo Ships* while additional requirements for hull surveys of the ships subject to enhanced surveys ESP are given in Publications mentioned in Annex 2.

[1] Applicable to the vessels contracted for construction on or after 1st July 2021.

Additional requirements for hull survey of Liquefied Gas Carriers, are specified in *Publication 82/P – Hull surveys of Liquefied Gas Carriers*.

5.3.2.6 Additionally for cement carriers:

.1 general examination of all cargo holds;
.2 close-up examination of all side shell frames in cargo area, including the lower and upper attachments and adjacent shell plating.

5.3.3 Machinery Installations – Annual Survey

Annual Survey of Machinery Installations is performed within the following scope:

5.3.3.1 Checking classification documents and entries in the ship documents concerning overhauling and maintenance of ship's machinery installations and equipment performed by the Owner. Where any entries are missing, PRS reserves the right to extend the scope of survey beyond that of the Annual Survey.

5.3.4 Engine Room Machinery, Machinery Installations and Systems

.1 Main internal combustion engine:
- external examination of M.E. crank case safety devices,
- external examination of M.E. high pressure fuel pipelines' jacketed piping system and checking the operation of oil leakage alarm,
- operation tests of M.E. safety system,
- tests of manoeuvring gear and starting arrangements, including the test of restoring normal operation of propulsion machinery after one of the essential mechanisms becomes inoperative, as well as the test of bringing into operation the ship machinery from the dead ship condition without external aid,

.2 Main turbine:
- operation tests of the ahead and astern manoeuvring valves, quick-closing valves, servomotors and the speed governors (simulated tests are accepted),
- checking the operation of indicator of axial clearance in the turbine thrust bearing,
- checking the operation of the temperature indicator of the turbine journal bearings.

.3 Main electric propulsion power system:
- operation tests of main generators and motors, electric clutches, distributing devices, control and monitoring consoles,
- checking the high temperature alarm of the electric motors and generators of the electric propulsion plant.

.4 Generator prime movers, including protective devices – operation tests. Additionally, for internal combustion engines, external examination of high pressure fuel pipelines' jacketed piping system and checking the operation of oil leakage alarm. This requirement also applies to internal combustion engines driving other machinery.

.5 Pumps with independent drive: cooling water, general use, ballast pumps, fire pumps, oil fuel and lubricating oil pumps – operation tests.

.6 Bilge system, including high level alarm system – operation tests of the engine room system and, additionally, of cargo holds, conveyor tunnels and chain locker system.

.7 Water ingress detection system – operation test.

.8 Compressed air system, including compressors and safety valves – operation tests. Compressed air receivers – external examination.

.9 Remote closing of the valves on fuel and lubricating oil tanks – operation tests.

.10 Ventilation systems of engine room, compartments and holds, if required – operation test.

.11 Marine environmental protection installations – external examination of piping systems and tests of equipment.

.12 Operation test of the reverse mechanism of CP propeller – if fitted.

.13 Checking the insulation of surfaces with temperatures above 220° C which may be impinged as a result of fuel pipe failure.
.14 Checking whether oil fuel pipes are screened or otherwise suitably protected to avoid oil spray or oil leakage onto the sources of ignition.
.15 Operational tests of the drainage system for the spaces located forward of collision bulkhead.
.16 Main engine crankshaft deflection measurement, if possible and deemed necessary by the attending surveyor.

5.3.5 Fire Protection

Annual Survey of fire protection shall cover at least the following:

.1 Fire safety documentation:
- verification that Fire Control Plan, Fire Protection Systems and Appliances Maintenance Plan, Training Manual, Fire Safety Operational Booklet are available onboard.

.2 Water fire-extinguishing systems: water fire main system, sprinkler system, water-spraying/ water-fog fire extinguishing system and water screen system:
- external examination of system components;
- operation test of water fire main system;
- operation test of components of other systems;
- operation test (simulation) of other systems.

.3 CO_2, halon, aerosol and other gas fire-extinguishing systems:
- external examination of system components;
- operation test of system components;
- checking the quantity of fire-extinguishing medium;
- operation test (simulation) of system.

.4 Foam fire-extinguishing systems:
- external examination of system components;
- operation test of system components;
- checking the quantity and quality of fire-extinguishing medium;
- operation test (simulation) of system.

.5 Dry powder fire-extinguishing systems:
- external examination of system components;
- pressure test of system components;
- operation test of system components;
- checking the quantity and quality of fire-extinguishing powder;
- operation test (simulation) of system.

.6 Inert gas system (on oil tankers and liquefied gas carriers):
- external examination of system components;
- operation test of system components.

.7 Fire detection and fire alarm system:
- external examination of system components;
- operation test of system components;
- operation test (simulation) of system.

.8 Hydrocarbon gas detection system:
- external examination of system components;
- operation test of system components.

.9 Ventilating systems, closing arrangements in fire resisting divisions:
- examinations of ventilation systems and closing arrangements;
- operation test of remote stopping of fans and closing of fire dampers;

.10 Installations of technical gases for welding (oxygen, acetylene):
- examination of compartments for the storage of cylinders;
- examination and operation test of system components;
- operation test of ventilation in compartment.

.11 Liquefied gas installation for the domestic purposes:
- external examination of system components;
- operation test of system components;
- operation test of ventilation in compartment with gas receivers.

.12 Fire doors:
- operation test of remote and local closing of fire doors;
- operation test of systems signalling open/closed position of the fire doors.

.13 Fire resisting divisions and arrangements:
- external examinations of arrangements and fire resisting divisions.

.14 Escape routes:
- examination of escape routes (internal and external) leading to life boats' and liferafts' embarkation areas;
- examination of marking and lighting of escape routes, emergency exits and embarkation areas.

.15 Low lighting system of escape routes (for passenger ships):
- external examination of photo-luminescent tapes/other lighting elements and marking on escape routes leading to the embarkation areas.

.16 Breathing apparatus and emergency escape breathing devices (EEBD):
- checking the validity of device examination including validity of cylinder's air examination, required every 2 years;
- checking the condition of breathing apparatus masks and air control valves;
- operation test of air charging system (with compressor) of air cylinders.

.17 Portable and mobile fire-extinguishing foam sets:
- checking validity of examination performed by an approved service supplier;
- checking the technical condition of selected extinguishers.

Detailed guidelines for annual surveys of fire protection systems are provided in *Publication 29/I*.

5.3.6 Electrical Equipment and Control Systems and DP Systems

.1 Tests of the main sources of electric power:
- load test,
- parallel test run, including the test of reverse current or reverse power protection.

.2 Overload and short circuit protection of generators – checking the settings.

.3 Emergency sources of electric power:
- start-up and operation test of emergency generating set, including test of a second independent means of starting the emergency generating set,
- test of emergency accumulators.

.4 Distributing devices: main and emergency switchboard, navigation lanterns switchboard, battery charging facilities, together with battery room ventilation, control and monitoring consoles, shore connection installations, section and terminal switchboards – external examination and tests.

.5 Electric power converting installations supplying essential consumers – tests.

.6 Electric drive of essential machinery, together with control and monitoring devices of pumps, air compressors, anchoring arrangements, mooring and towing winches, steering gear, fans, watertight doors – operation tests.

.7 Lighting installation of compartments and places important from the point of view of safety and safe navigation of ship and the safety of the people on board:
- main lighting – external examination,
- emergency lighting – external examination and tests.

.8 Operation tests of internal communication and electrical signalling arrangements:
- electric engine-room telegraph,
- service telephone communication,
- general alarm system.

.9 External examination of electrical equipment of the voltage over 1000 V.
.10 External examination of electrical equipment in explosion hazardous spaces and zones.
.11 Operation tests of main propulsion remote control system.
.12 Operation tests of main propulsion safety system.
.13 Operation tests of generating set automatic control system.
.14 Operation tests of safety system of engines driving generating sets.
.15 Operation tests of automatic control systems of pumps and air compressors, as well as their safety systems.
.16 Operation tests of remote or automatic control system of bilge installation, including testing of high level alarm system.
.17 Operation tests of engine room alarm system, including alarm system in the engineer's accommodation.
.18 External examination of circuits.
.19 Measurement of electric network and electrical equipment insulation resistance, if deemed necessary by the attending surveyor.
.20 DP systems:
- checking of DP documentation – watchkeeping checklist, routine checklists,
- checking of periodical services reports, performed by manufacturer/approved service supplier,
- checking if in case of failure of one sensor other sensors work properly,
- checking if DP system works properly on UPS supply, after main source of power failure,
- checking if DP system works properly after failure of one reference system,
- checking if after DP control system failure, the thrusters' system remains in stable condition,
- checking of alarm system after failure of any sensor, peripheral equipment or reference system,
- checking emergency stop function of DP system,
- test of DP system in working condition – as far as practicable,
- tests which are necessary, due to FMEA – concerns DP2 and DP3 notations.

5.3.6.1 Additional requirements for oil tankers, gas tankers, chemical tankers, ships with dual fuel internal combustion engines and chemical recovery vessels

.1 External examination of cargo pumps.
.2 Operation tests of remote control of cargo system and cargo level indicators.
.3 Verification that cargo system pressure indicators and cargo level indicators are in good condition.
.4 External examination of electrical equipment and circuits in explosion hazardous spaces on open decks and in pump-room, including the insulation resistance measurements.
.5 Checking the means for regaining steering capability following its loss due to failure.
.6 External examination of pressure and vacuum relief valves of cargo tanks.
.7 External examination of liquid cargo system, as well as cargo tanks washing, venting, steaming, ballasting and slopping systems.
.8 External examination and operation tests of ventilation system of pump-rooms and spaces intended for inert gas equipment.
.9 Operation tests of cargo pump-rooms additional equipment:
- temperature sensing devices for bulkhead shaft glands and pump components;
- a system for monitoring the concentration of explosive gases;
- bilge level monitoring.

.10 For chemical tankers carrying noxious liquid substances in bulk:
- pumping and pumping systems including stripping system and with associated equipment, external examination,
- tank washing piping (type, capacity, number and arrangement of the tank washing machines), external examination,

- wash water heating system, external examination,
- underwater discharge arrangements, examination as far as practicable,
- means of controlling the rate of discharge, checking approval,
- ventilation equipment for residue removal, examination,
- heating system for solidifying the high viscosity substances, examination, as far as practicable,
- additional requirements listed on the International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk,
- confirming that sampling points or detector heads are located in suitable positions in order that potentially dangerous leakages are readily detected.

.11 For gas carriers:

- the gas detection equipment, examination and testing,
- confirming, where applicable, that pipelines and independent cargo tanks are electrically bonded to the hull,
- manually operated emergency shutdown system, together with the automatic shutdown of the cargo pumps and compressors,
- gas detection arrangements for cargo control rooms and the measures taken to exclude ignition sources where such spaces are not gas-safe,
- arrangements for the air locks, maintenance,
- bow or stern loading and unloading arrangements with particular reference to the electrical equipment, fire-fighting arrangements and means of communication between the cargo control room and the shore location, when applicable,
- sealing arrangements at the gas domes,
- portable or fixed drip trays or deck insulation for cargo leakage is in order,
- cargo and process piping, including the expansion arrangements, insulation from the hull structure, pressure relief and drainage arrangements,
- cargo tank and interbarrier space pressure and relief valves, including safety systems and alarms,
- liquid and vapour hoses – suitability for their intended purpose and, where appropriate, type-approval or marking with date of testing,
- arrangements for the cargo pressure/temperature control including, when fitted, any refrigeration system with associated alarms.

.12 For ships with dual fuel internal combustion engines:

.12.1 External examination:

- remotely controlled valves,
- gas piping and their protection,
- drip trays in bunker stations,
- gas tanks and their insulation,
- gas compressors,
- ventilating ducts and fans,
- drenching and powder fixed fire fighting installations,
- electrical equipment in explosion hazardous spaces.

.12.2 Operational tests of:

- valves and gas compressors,
- safety arrangements such as: gas detectors, fire detectors, cut-off valves on gas pipelines,
- disconnecting of electrical equipment, which is not considered as safe for service in area 1 in ESD protected spaces by emergency shut down device after reaching 20% of LEL,
- emergency shut down of dual fuel engines and gas compressors,
- ventilation and alarm system of ventilation,
- portable gas detectors and oxygen analysers.

.13 Additionally for chemical recovery vessels:
.13.1 Operational tests of:
– protected air system,
– equipment provided for service in hazardous atmosphere and associated safety equipment.

5.3.6.2 If found necessary by the Surveyor, piping wall thickness measurements or hydraulic tests shall be performed.

5.3.7 Machinery Installations – Intermediate Survey

5.3.7.1 Intermediate Survey of Machinery Installations covers activities as defined for the Annual Survey.

5.3.7.2 Additionally, for liquefied gas carriers:
– examination of electrical equipment and cables in dangerous zones such as cargo pump rooms and areas adjacent to cargo tanks to check for defective equipment, fixtures and wiring,
– checking that spares are provided for cargo area mechanical ventilation fans,
– checking that the heating arrangements, if any, for steel structures are satisfactory.

5.4 Scope of Class Renewal Surveys

5.4.1 I Class Renewal Survey of Hull (Age ≤ 5 years)

I Class Renewal Survey of hull and its equipment covers Bottom Survey performed in dry dock (see 5.5.1 and 5.5.2), the activities specified in 5.3.1 and 5.3.2 and, additionally, the activities mentioned below.

5.4.1.1 General examination of:

.1 all cargo holds,
.2 engine room spaces,
.3 pump-room (if any),
.4 inner bottom compartments (if any),
.5 side shell plating,
.6 bulkheads,
.7 watertight bulkhead penetrations,
.8 decks and tweendecks (if any),
.9 tweendeck hatch covers (if any),
.10 piping,
.11 bilge wells,
.12 bilges in cargo holds and engine compartment, and also in cofferdams,
.13 seatings of main engines, generating sets, auxiliary machinery and boilers,
.14 masts, their fixing arrangements and standing rigging,
.15 anchors, chain cables, chain slips and stoppers,
.16 bollards, mooring ropes and tow ropes,
.17 tanks:
– forepeak and afterpeak,
– chain lockers,
– all ballast tanks,
– cofferdams and tunnels,
– void and dry spaces.

If, during the examination, no damage to the structure has been found, the examination may be limited to verification that the corrosion prevention system remains effective.

Where in ballast tanks, other than double bottom tanks, a hard protective coating is found in POOR condition and is not renewed, or where soft or semi-hard coating has been applied, or where a protective coating has not been applied since the time of construction, the tanks in question shall be subject to internal examination at annual intervals. Thickness measurements shall be performed if deemed necessary by PRS Surveyor.

If double bottom tanks are found to be in the condition, as specified above or where a protective coating has not been applied since the time of construction, the tanks in question may be subjected to internal examination at annual intervals.

5.4.1.2 Internal examination of four, selected by PRS Surveyor, automatic air pipe heads, located on the exposed decks, preferably air pipes serving ballast tanks:
- two heads (one on each side) located in the forward 0.25L, and
- two heads (one on each side) located aft of forward 0.25L.

Depending on the results of this inspection, PRS Surveyor may require the inspection of other air pipe heads located on the exposed decks. This requirement does not apply to passenger ships.

5.4.1.3 Close-up examinations:

.1 hatch covers (plating and stiffeners), subject to cargo hold hatch covers of approved design which structurally have no access to the internals, close-up survey shall be done of accessible parts of hatch covers structures,
.2 hatch coamings (plating and stiffeners),
.3 suspect areas,
.4 critical structural areas.

5.4.1.4 Operation tests:

.1 checking the operation and tightness of companion hatches and manholes on weather decks, outer doors, ship side doors, skylights and scuttles,
.2 checking the effectiveness of sealing arrangements of all hatch covers by hose tests or an equivalent method,
.3 checking the operation of all mechanically operated hatch covers, including:
- stowage and securing in opened up position,
- proper fit, locking and effectiveness of sealing in closed position,
- operation tests of hydraulic and power components, wires, chains and link drives.

5.4.1.5 Boundaries of double bottom tanks, deep tanks, ballast tanks, peak tanks, and other tanks, including holds adapted for the carriage of water ballast (i.e. boundaries of all tanks which form parts of the hull structure), shall be tested with a head of liquid to the top of air pipes or to near the top of hatches for ballast/cargo holds. Boundaries of fuel oil, lube oil and fresh water tanks shall be tested with a head of liquid to highest point that liquid will rise under service conditions. Tank testing of fuel oil, lube oil and fresh water tanks may be waived by PRS Surveyor, subject to satisfactory external examination of the tanks' boundaries and confirmation from the Master stating that the tank testing has been performed in accordance with the above mentioned requirements with satisfactory results.

5.4.1.6 Thickness measurements of plating and stiffeners of hatch coamings, hatch closing devices (steel pontoons or hatch covers) on weather decks shall be taken if deemed necessary by PRS Surveyor. Thickness measurements of areas of substantial corrosion identified during previous surveys shall be taken. Thickness measurements may be extended as deemed necessary by PRS Surveyor.

Where thickness measurements indicate substantial corrosion, the extent of thickness measurements shall be increased to determine areas of substantial corrosion. In that case, 5 measurements over 1 m^2 of plating and 3 measurements on each stiffener web and flange shall be taken. These extended thickness measurements shall be performed before the survey is credited as complete.

5.4.1.7 Additionally, for passenger ships – supervision of the lightweight check and, if necessary, inclining test. If previous lightweight check was performed less than 5 years ago, than this check can be done later (after completion of renewal survey), but the period between two consecutive lightweight checks cannot exceed 5 years.

5.4.1.8 Additionally, for tugs:
- the full functionality of the emergency release system is to be tested to the satisfaction of the surveyor. Testing may be conducted either during a bollard pull test or by applying the load against a strong point on the deck of the tug or the shore that is certified to the appropriate load.
- the emergency release system is to be tested at a towline load that is equal to the lesser of 30% of the maximum design load or 80% of vessel bollard pull in both a normal power condition and power blackout condition to the satisfaction of the surveyor.

5.4.1.9 Additional requirements for hull survey of general dry cargo ships are specified in *Publication 62/P – Hull Surveys of General Dry Cargo Ships* while additional requirements for hull surveys of the ships subject to enhanced surveys ESP are given in the Publications mentioned in Annex 2.

5.4.1.10 For structure built with a material other than steel, alternative thickness measurement requirements may be developed and applied as deemed necessary by PRS.

5.4.1.11 Watertight Cable Transits[1]:
- examination of all Watertight Cable Transits
- review Watertight Cable Transits Register
- entry to the WCTR, done by surveyor, confirming completion of Renewal Survey
- review of records, and if necessary, examination of those transits which were, according to the Register, added or repaired since last annual survey, the results of this review/examination is to be recorded in Register,

alternatively:

- if the during Renewal survey the Owner is contracting approved service supplier, than the review of the Register, in order to ascertain that it has been properly maintained by the owner and correctly endorsed by the service supplier is to be made.

5.4.2 II Hull Class Renewal Survey (5 < Age ≤ 10 years)

II Class Renewal Survey of hull and its equipment covers activities of I Class Renewal Survey, specified in sub-chapter 5.4.1 and, additionally, the activities specified below.

5.4.2.1 General examination:

.1 one fuel oil tank located in cargo area,
.2 one fresh water tank,
.3 one fuel oil tank outside machinery and outside cargo area, if existing on board chosen by PRS Surveyor.

5.4.2.2 Internal examination of automatic air pipe heads located on the exposed decks:
- all heads in the forward 0.25*L*, and
- at least 20% of heads serving spaces aft of 0.25L, chosen by PRS surveyor, preferably heads serving ballast tanks.

Depending on the results of the inspection, PRS Surveyor may require inspection of other heads located on the exposed decks. This requirement does not apply to passenger ships.

[1] Applicable to the vessels contracted for construction on or after 1st July 2021.

5.4.2.3 Thickness measurements of:

.1 hull structural members in suspect areas,
.2 one transverse section of deck plating ~~in way of cargo space~~ within the amidships 0.5L (in way of a cargo space, if applicable),
.3 chain cable links.

5.4.3 III Hull Class Renewal Survey (10 < Age ≤ 15 years)

III Class Renewal Survey of hull and its equipment covers activities of II Class Renewal Survey specified in 5.4.2 and, additionally, the activities mentioned below.

5.4.3.1 General examination:

.1 one fuel oil tank, located in way of engine room area, chosen by PRS Surveyor,
.2 two fuel oil tanks, located in cargo area, chosen by PRS Surveyor, one of which shall be deep tank, if fitted,
.3 all fresh water tanks,
.4 all slope and sludge tanks forming part of the ship's structure.

5.4.3.2 Internal examination of all automatic air pipe heads located on the exposed decks. Exemption may be considered for air pipe heads where there is evidence that they were replaced no more than five years before. This requirement does not apply to passenger ships.

5.4.3.3 Internal examination of structural downflooding ducts and structural ventilation ducts is to be performed.

5.4.3.4 Thickness measurements:

.1 plating and stiffeners of cargo hold hatch covers and coamings, subject to cargo hold hatch covers of approved design which structurally have no access to the internals, thickness measurements shall be done of accessible parts of hatch covers structures,
.2 stiffeners in forepeak and afterpeak ballast tanks,
.3 two transverse sections within the amidships 0.5L (in way of two cargo spaces., if applicable),
.4 for ships 100 m in length and above, second transverse section within the amidships 0.5L, in way of other cargo area.

5.4.4 IV Hull Class Renewal Survey and Subsequent Surveys (Age > 15 years)

IV Class Renewal Survey and the subsequent surveys of hull and its equipment cover activities of III Class Renewal Survey, specified in sub-chapter 5.4.3, and, additionally, the activities mentioned below.

5.4.4.1 General examination:

.1 half of the number of fuel oil tanks, however at least two, located in the cargo area, chosen by PRS Surveyor,
.2 lubricating oil tank, chosen by PRS Surveyor,
.3 second fuel oil tank outside machinery and cargo area, if existing.

5.4.4.2 Thickness measurements of:

.1 all plating throughout exposed main deck,
.2 representative exposed superstructure deck plating (poop, bridge and forecastle deck),
.3 the lowest strake of all transverse bulkheads, together with stiffeners,
.4 the lowest strakes, together with stiffeners, in way of each 'tweendeck – this applies to every transverse bulkhead in cargo space,
.5 all strakes of wind and water plating,

.6 throughout all keel plates and, additionally, bottom plates in way of cofferdams, machinery spaces and aft end of tanks,
.7 plating of sea chests,
.8 bottom shell plating in way of overboard discharge as considered necessary by PRS Surveyor,
.9 a minimum of three transverse sections within the amidships 0.5L (in way of cargo spaces, if applicable).

5.4.4.3 Additionally – for cement carriers, representative hull thickness measurements of the following hull elements:

.1 side shell frames in cargo holds and adjacent void spaces,
.2 internals of ballast tanks.

5.4.5 Machinery Installations – Class Renewal Survey

Class Renewal Survey of machinery installations covers the Annual Survey and, additionally, the activities specified in 5.4.5.1, 5.4.5.2, 5.4.5.3 and 5.4.5.4.

5.4.5.1 Machinery installations shall be subjected to visual examinations, measured and tested within such scope as is necessary for the proper assessment of their technical condition.

.1 Main internal combustion engines:
- close-up examination of parts essential for the proper operation of the engine;
- close-up examination of machinery driven by the main engine and the engine fittings;
- testing of crank case safety valves;
- close-up examination of turbochargers;
- close-up examination of vibration damper and verification that the manufacturer's service requirements are filfilled;
- checking the timing chain pre-tension;
- checking the tie rod pre-tension for compliance with the manufacturer's instructions;
- checking the main engine securing to the seating.
- measurement of M.E. crankshaft deflection.

.2 Main and auxiliary steam turbines:
- close-up examination of steam turbine parts;
- checking steam turbine securing to the seating;
- operation tests of machinery arrangements – the ahead and astern manoeuvring valves, quick closing valve and servomotors, as well as speed governor;
- hydraulic test of manoeuvring valves – at 10-yearly intervals.

If steam turbines are of a type which has proved to be reliable in operation and are fitted with rotor position indicators and vibration indicators of an approved type, as well as measuring equipment of steam pressure at proper locations along the steam flow, PRS may limit the Class Renewal Survey No. 1 to examination of rotor bearings, thrust bearings and flexible couplings, provided the Surveyor is satisfied from operation service records and proper trials, subsequent to the survey, that operation of the turbine and its technical condition are satisfactory. Such limitation of the survey is not applicable to the subsequent surveys for class renewal.

The opening of the turbine casing may be postponed on the basis of the Owner's request, technically justified and technical and operating documentation prepared by the manufacturer.

.3 Main electric drive:
- checking the electric motor cooling system and fan switching off alarm (for primary and secondary systems).

.4 Gear boxes:

The following parts shall be opened up and examined within the necessary scope to ascertain their technical condition: pinions, gears, shafts, bearings, thrust bearing, disengaging couplings.

.5 Couplings:
- slip couplings – internal examination, including the dismantling of the cover, to assess the coupling elastic elements;
- rubber couplings – 5 years from the date of the coupling installation or rubber element exchange – internal examination. At the subsequent Class Renewal Surveys – internal examination in the dismantled condition.

.6 Thrust shaft, inclusive of bearings:
- close-up examination of the shaft and bearings,
- thrust bearing clearance measurement,
- checking of bearing securing to the seating.

.7 Intermediate shafts, inclusive of bearings:
- close-up examination of shafts and bearings,
- checking the bearing securing to the seating.

.8 Propeller shaft and propeller – see 5.6.

.9 Internal examination of generators and generator prime movers, in the dismantled condition, and tests.

.10 Close-up examination of air compressors.

.11 Air receivers:

Internal examination of the receiver, including the examination of fittings in opened up condition. Where the technical condition of the air receiver cannot be assessed satisfactorily based on the internal examination, PRS may require the wall thickness measurement or hydraulic test to be performed. After the has been repaired, it shall be also subjected to hydraulic test.

.12 Operation tests of the following pumps with independent drive: bilge, ballast, general use, cooling water, fuel oil, lubricating oil, boiler supply and circulating water systems. In case of incorrect operation – internal examination shall be performed.

.13 Operation tests of steering gear, anchoring arrangements and mooring winches. In case of incorrect operation, internal examination shall be performed. For tugs, bollard pull test shall be performed after the repair or exchange of an essential towing arrangement.

.14 Piping systems:
- general examination of the bilge, overflow, air and sounding pipe systems. Tightness tests of these pipes shall be performed, together with tightness tests of tanks;
- operation tests of ballast, cooling water, steam, fuel oil, lubricating oil, hydraulic system installations. In case of any doubt as to the piping technical condition, PRS may require the hydraulic test or wall thickness measurement to be performed;
- hydraulic tests of pipes passing through fuel oil tanks, liquid cargo tanks and cargo holds;
- hydraulic tests of heating coils in tanks not subject to internal examination. In tanks subject to examination, the heating coils shall be tested, depending on their technical condition;
- pressure/vacuum valves external and internal examination and operational test.

.15 External examination of ventilation ducts passing through watertight bulkheads and fire divisions.

.16 External and internal examination of the structure of tanks not forming structural part of the ship's hull, and their fittings.

.17 Heat exchangers:
- internal examination,
- hydraulic test required, depending on the result of the examination and after repair.

.18 Operation tests of generator reverse-power, overload and undervoltage protection.

.19 Operation tests of economizers associated with engine room systems.

.20 Close-up examination of cables and the cable penetrations in watertight bulkheads and fire divisions.
.21 Close-up examination of lightning and earthing protection.
.22 Checking the set point value of sensors of the engine-room control systems.
.23 Operation test of temperature, pressure, fuel viscosity control systems (when the sea trials of the ship are performed).
.24 Control instruments and gauges – the following shall be checked:
- instrument condition – based on examination,
- accuracy of indications (on boilers and pressure vessels – by means of control manometer and in other cases by comparing the indications of two parallel instruments).

.25 Operation test of oily-water separating equipment and oil filtering equipment – checking the automatic and manual control.
.26 Checking the high level alarm of the bilge water retention tank.
.27 Survey of cargo installations on oil tankers, chemical tankers and gas tankers within the scope determined by PRS.
.28 Insulation resistance measurement of electric network and electrical equipment.
.29 DP System:
- sea trials – at least 3 hours of proper service (no significant alarms).
- change of command between DP control system, independent joystick system and individual thruster lever system
- tests of the complete DP system (all operational modes, back-up system, joystick system, alarm system and manual override),
- turning to manual control after DP control failure and in normal operating conditions,
- tests which are necessary, due to FMEA – concerns DP2 and DP3 notations.

5.4.5.2 Dock trial shall be performed to confirm satisfactory operation of main and auxiliary machinery. In the case of significant repairs to main propulsion, auxiliary machinery or steering gear, consideration shall be given to perform sea trials.

5.4.5.2.1 If the significant repairs as stated in 5.4.5.2, is considered by PRS to have any impact on response characteristics of the propulsion systems, then the scope of sea trial shall also include a test plan for astern response characteristics based on those required for such an equipment or systems when fitted to the new ship. Refer to IACS UR M25 for astern testing requirements. The tests are to demonstrate the satisfactory operation of the equipment or system under realistic service conditions at least over the manoeuvring range of the propulsion plant, for both ahead and astern directions. Depending on the actual extent of the repair, the PRS may accept a reduction of the test plan.

5.4.5.3 Fire Protection

Class Renewal Survey of the fire protection covers the scope of Annual Survey and the following additional activities:

.1 Water fire-extinguishing systems: water fire main system, sprinkler system, water-spraying/ water-fog fire extinguishing system and water screen system:
- internal examination of system components;
- hydraulic test of system components.

.2 CO_2, halon, areosol and other gas fire-extinguishing systems:
- internal examination of system components;
- hydraulic test of system components.

.3 Foam fire-extinguishing systems:
- internal examination of system components;
- tightness test of system components.

.4 Dry powder fire-extinguishing systems:
- internal examination of system components;

– hydraulic test of system components;
– tightness test of system components.

.5 Inert gas system (on oil tankers and liquefied gas carriers):
– internal examination of system components;
– hydraulic test of system components.

.6 Installations of technical gases for welding (oxygen, acetylene):
– hydraulic test of system components;
– examination of gas pressure reducer.

.7 Liquefied gas installation for the domestic purposes:
– hydraulic test of system components;
– examination of gas pressure reducer.

.8 Low lighting system of escape routes (for passenger ships):
– examination of the luminance of low lighting system.

.9 Breathing apparatus and emergency escape breathing devices (EEBD):
– hydraulic test of apparatus' steel cylinders.

Detailed guidelines concerning Class Renewal Surveys of fire protection systems are provided in *Publication 29/I*.

5.4.5.4 Additional Requirements for Ships with Dual Fuel Internal Combustion Engines

5.4.5.4.1 Examination of gastight bulkheads with cable and shaft sealing etc. Special attention shall be paid to bulkheads in the spaces containing electrical motors and/or compressors. Shaft sealings shall be checked for lubrication and possible overheating.

5.4.5.4.2 Internal examination of:
– gas tanks safety/relief valves,
– tank room or secondary barrier space P/V valves and relief hatches, as relevant,
– gas handling machinery and equipment,
– auxiliary systems and equipment for gas installations.

5.4.5.4.3 Testing of:
– gas tanks high level alarm,
– gas tanks safety relief valves,
– tank room or secondary barrier space P/V valves and relief hatches, as relevant,
– gas handling machinery and equipment,
– auxiliary systems and equipment for gas installations.

5.4.5.5 Additional Requirements for Chemical Recovery Vessels

5.4.5.5.1 Examinations of:
– the protected air system,
– equipment provided for service in hazardous atmosphere and associated safety equipment.

5.4.5.5.2 Operational tests of:
– the protected air system,
– equipment provided for service in hazardous atmosphere and associated safety equipment.

5.5 Scope of Ship Bottom Periodical Surveys

5.5.1 Ship's Bottom Periodical Survey in dry dock covers the following:

.1 general examination of bottom and side plating up to the maximum draught waterline, keel, stem, stern frame, shaft brackets, rudder trunk, Kort nozzle, stabilizer recesses, bilge keels, the anode corrosion protection;

.2 close-up examination of drain plugs of ballast and fresh water tanks – at the interval of 5 years; drain plugs of fuel and lubricating oil tanks, as well as cofferdams – only when the plug is screwed out;
.3 internal examination of bottom and side sea chests – at the interval of 5 years;
.4 bottom and side fittings; internal examination in the opened up condition – every 5 years. Where bottom and side fittings are not fitted directly to bottom chest, sea chest or shell plating, the connecting pipes between chests or shell plating and fittings are subject to close-up examination in dismantled condition;
.5 general examination of rudder blade;
.6 measurement of clearances in bearings of rudder arrangements and external examination when putting the rudder from side to side. Depending on the results of the clearance measurement in the bearings and external examination, dismantling of rudder blade or part of its suspension arrangements may be required;
.7 general examination of bow and aft thruster propeller tunnels;
.8 general examination of propeller, as well as measurement of clearances and weardown of the propeller shaft stern tube bearing and checking the stern tube sealing tightness (see 5.6);
.9 general examination and measurement of other equipment related to ship's propulsion, manoeuvring, steering and roll stabilizing system (such as directional propellers, vertical axis propellers, water jet units) with focus on the condition of gear housing, propeller blades, bolt locking, other fastening arrangements and sealing arrangements.

5.5.2 Thickness Measurements of Bottom Shell Plating

At the ship's Bottom Survey to be held in the Class Renewal Survey, the thickness measurement of shell plating appropriate to the age and type of ship, as specified in 5.4, shall be made. If, during any other Bottom Survey, excessive corrosion or damage has been found, thickness measurements of areas, indicated by PRS Surveyor, shall be performed.

5.5.3 In-water Bottom Survey

5.5.3.1 In-water Bottom Survey is performed by PRS divers. In justified cases, PRS may agree that In-water Bottom Survey being performed in accordance with the following procedure:

.1 general examination of the underwater part of hull is performed by in-water survey firm engaged by the Owner;
.2 these in-water survey firm have been approved by PRS in accordance with IACS UR Z17;
.3 examination performed by divers is being monitored by PRS Surveyor;
.4 final assessment of the technical condition of underwater part of hull is made by PRS Surveyor.

5.5.3.2 In-water bottom survey shall provide information normally obtained from a dock survey (see 5.5.1 and 5.5.2), so far as practicable. If the in-water bottom survey reveals extensive corrosion or damage affecting the ship's class, the ship shall be dry-docked. The equipment, procedure for observing and reporting the survey are to be discussed with the parties involved prior to the in-water survey, and suitable time is to be allowed to permit the diving company in-water survey firm to test all equipment beforehand.

5.5.3.3 To enable the diver to perform examination of the underwater part of the hull, the Owner is obliged to properly prepare the ship for the in-water survey, i.e.:
– provide arrangements for measuring the rudder shaft bearing clearances and propeller shaft weardown, measuring the rudder shaft bearing clearances and propeller shaft weardown is not required to in-water surveys which shall not be credited instead of dry-docking survey and to in water surveys of passenger ships performed during annual surveys;
– provide the means to enable the diver to determine his own position and location of the possible damage.

To ensure the working diver's safety, the in-water survey shall be performed in sheltered water and preferably with weak tidal streams and currents.

The water visibility and the cleanliness of the hull below the waterline shall be sufficient to enable PRS Surveyor and the in-water survey firm to perform meaningful examination and determine the condition of the plating, appendages and welds. PRS Surveyor is to be satisfied with the methods of orientation of the divers or Remotely Operated Vehicle (ROV) on the plating, which should make use where necessary of permanent markings on the plating at selected points.

5.5.3.4 Requirements for In-water Bottom Survey, instead of Dry Docking Survey, of a ship with **IWS** mark, affixed to the symbol of class:

.1 The underwater part of the hull shall be effectively protected against corrosion for a period of 5 years and shall be provided, where necessary, with permanent markings at selected points on the plating that would enable determining the diver's position on the plating and location of damage (if any).
.2 The design of sea chests shall be such as to provide the possibility of their underwater opening and cleaning.
.3 Provision shall be made for the possibility to blank off all openings at inlets and outlets for the purpose of maintenance or replacing a valve.
.4 Provision shall be made for measuring the rudder and propeller shaft bearing clearances or weardown and for checking the stern tube sealing tightness.
.5 Liners on rudder axles and pintles, as well as bearing bushes in a rudder and sternframe shall have permanent marks permitting to detect any relative movement between them.
.6 The requirements for the additional equipment, such as bow or stern thrusters, stabilizers, etc. will be specified separately in each particular case.
.7 A ship shall be provided with a set of drawings or colour photographs showing the hull marking system, details of the rudder bearing clearances measurements, a drawing which shows all overboard openings and means of their blanking off, etc. – providing information and instructions for divers. The scope of such documentation is subject to PRS acceptance in each particular case.

5.5.3.5 In-water Bottom Survey, instead of Dry Docking Survey, of a ship without additional **IWS** mark affixed to the symbol of class, in the cases specified in sub-chapter 5.2.4, is performed at the Owner's request, subject to PRS consent following the review of the Survey Programme enclosed to the Owner's request.

The Survey Programme shall include the following information:

.1 Statement that neither ship grounding nor damage to the bottom structure and the associated equipment have occurred and no failure of the rudder arrangement and shaft line have been observed since the last Dry Docking Survey;
.2 Statement that technical documentation within the following scope, as a minimum, is available on board: plan of shell expansion below the waterline, plan of bottom tanks, plan of openings under water and their closing appliances, plan of anodes, plan of rudder arrangement, plan of propeller shaft line sealing, drawing of propeller;
.3 Statement that the survey will be performed in water of proper visibility and the ship's hull below the waterline will be properly cleaned and marked to enable the diver to determine his position and locate the possible damage;
.4 Information on the possibility and method of measuring clearances/weardown in rudder bearings and checking the stern tube sealing tightness;
.5 Information about the diver's company which will perform in-water bottom examination if the examination shall not be performed by PRS divers-surveyors;
.6 Classification reports and measurement records if the last Bottom Survey in dry dock and propeller shaft survey has not been performed by PRS.

5.6 Periodical Surveys of Propeller Shaft and Propeller

5.6.1 General

5.6.1.1 Depending on intervals between surveys and other conditions, propeller shafts are subject to Complete, Partial or Modified Surveys.

5.6.1.2 During each In-water Bottom Survey, external examination of the propeller, as well as the measurement of clearances/weardown of the propeller shaft in the stern tube and checking the stern tube sealing glands tightness shall be performed.

5.6.2 Complete Survey of Propeller Shaft

5.6.2.1 Complete Survey is performed after drawing the propeller shaft from the tube. The interval between consecutive Complete Surveys is 2.5 years (±6 months).

5.6.2.2 Where:

.1 the propeller shaft is fitted with a continuous liner or type-approved oil sealing glands or is made of corrosion resistant material;
.2 the shaft structural components fulfil the requirements of the Rules;
.3 Complete Survey has been performed within the scope specified in 5.6.2.3,

the intervals between Complete Surveys may be extended up to 5 years.

5.6.2.3 The scope of Complete Survey covers:

- checking the Chief Engineer's statement confirming proper service of the shafting system;
- non-destructive tests by an approved crack detection method:
  - for propellers fitted to a keyed shaft taper – on not less than one third of the taper length, starting from its large end (from the shaft liner, if applied);
  - for propellers fitted keyless to the shaft taper – on the forward part of the taper starting from its large end;
  - for propellers fitted to a solid flange coupling at the end of the shaft – on the flange fillet area of the shaft;
- measurements of weardown/clearances in the aft stern tube bearing;
- close-up examination of bearings;
- close-up examination of oil sealing glands, if fitted, and tightness test.

5.6.3 Partial Survey of Propeller Shaft

5.6.3.1 For propeller shafts for which intervals between Complete Surveys were extended up to 5 years (see 5.6.2.2), at the Owner's request, PRS may consider prolongation of intervals between Complete Surveys, provided the Partial Survey is performed within the scope specified in 5.6.3.2. In no case, shall the prolongation exceed 2,5 years (±6 months).

5.6.3.2 The scope of Partial Survey covers:

.1 checking the Chief Engineer's statement confirming proper service of the system;
.2 verification of records in the *Engine Log Book*;
.3 external examination of oil sealing glands, if exist, and checking lubricating oil analysis records;
.4 checking the shaft weardown/clearance in the aft stern tube bearings;
.5 for propeller fitted to a keyed shaft taper, non-destructive tests of the shaft ends by an approved crack detection method.

5.6.3.3 Where Partial Survey, within the scope specified above, cannot be accomplished, Complete Survey shall be performed.

5.6.4 Modified Survey of Propeller Shaft

5.6.4.1 Where:

.1 the propeller shaft is fitted with oil sealing glands of an approved type and oil lubricated bearings, and its structural elements fulfil the requirements of the Rules;
.2 the shaft and its fittings are not exposed to corrosion;
.3 the type of sealing makes allows to fit new oil sealing glands without removal of the propeller (except in the case of keyed propeller);
.4 the propeller is fitted to the shaft by one of the following methods:
- to the taper with a key;
- to the taper without key;
- to a solid flange coupling;

.5 reliable measurement of shaft weardown/clearance in the aft stern tube bearings is possible;
.6 recording of shaft stern tube bearing temperature during shaft operation is ensured by two replaceable temperature detectors fitted in the lower part of the bearing at one third of its length from the aft end, possibly close to the bearing surface;
.7 the point of reliable sampling for lubricating oil analysis has been determined,

instead of Complete Survey, in 5-year cycle, Modified Survey may be performed.

5.6.4.2 The scope of Modified Survey covers:

.1 checking the Chief Engineer statement confirming proper service of the system, taking account of the oil consumption and bearing temperature records;
.2 checking the records of the stern tube lubricating oil analysis performed, by an appropriate method, regularly at intervals of 6 months by a laboratory approved by PRS or the manufacturer. Oil samples shall be taken under service conditions, i.e. with the shaft rotating and the system at service temperature. The samples shall be taken from the same, agreed and identified, position in the system. They shall be collected and described by the Chief Engineer;
.3 the measurement of shaft weardown/clearance in the aft stern tube bearings;
.4 examination of the aft bearing contact area of the shaft after removing glands and adequate drawing the shaft. Where a lubrication oil analysis is performed regularly at intervals not exceeding 6 months and the oil consumption and bearing temperature are recorded and considered to be within permissible limits, drawing of the shaft to expose that aft bearing contact area is not required;
.5 examination of the forward bearing as far as possible and all accessible parts of the shaft including the propeller connection to the shaft;
.6 for keyed propellers, a non-destructive testing, by an approved crack detection method, of about one-third of the length of the taper from the large end, for which dismantling of the propeller will be required;
.7 checking the tightness of oil sealing glands.

5.6.4.3 In each case of non-compliance with the above requirements for Modified Survey, Complete Survey shall be performed.

5.6.5 Propeller Survey

5.6.5.1 Propeller Survey is performed during the Bottom Survey.

5.6.5.2 The survey covers:

.1 external examination;
.2 in the case of the propeller dismantling – close-up examination of the shaft taper and non-destructive testing of the shaft ends, as well as close-up examination of the propeller boss;
.3 external examination of the propeller fixing to the shaft.

For controllable pitch (CP) propellers – tightness test of the propeller boss and the blade sealing, as well as checking the correctness of the CP propeller pitch change. The dismantling of CP propeller is not required unless considered necessary by the Surveyor.

5.6.6 New Regime of Tailshafts Surveys

5.6.6.1 The requirements described in points 5.6.1, 5.6.2, 5.6.3 and 5.6.4 are applicable to the first scheduled survey after 2016-01-01.

5.6.6.2 The requirements described in *Publication 111/P*, are applicable to the surveys which are to take place, after the survey mentioned in paragraph 5.6.6.1.

5.6.7 Surveys of Thrusters

5.6.7.1 In case when the vessel is fitted with thrusters (i.e. Azimuth , Voith-Schneider, water jet), than such devices, in case there are intended for main propulsion, are subject for suveys, which time interval shall not exceed 5 years. PRS may decide about different time period, after review of manufacturer guidelines. The scope of survey shall also be based of instructions prepared by manufacturer.

5.6.7.2 The basic requirements are as follow:

5.6.7.2.1 Checking:
- ASTERN maneuver is made by turning the column by 180°: turning time
- CP propellers: positioning the blades in AHEAD position in the case of executing system failure

5.6.7.2.2 Examination:
- screw joints transmitting forces turning the thruster around its axis
- screw joints transmitting thruster thrust force to the hull
- propulsion shafts, gears, flexible couplings
- propellers
- propeller pitch control mechanism

5.6.7.3 Operation tests:
- means for immediate stopping the propeller independently of the thruster remote control system
- blockade preventing engaging the coupling when turning speed of driving engine exceeds the specified value
- mechanism for emergency setting and blocking in AHEAD position
- control and monitoring systems

5.7 Periodical Surveys of Boilers

5.7.1 The following boilers are subject to periodical surveys:
- steam boilers used for main propulsion,
- auxiliary steam boilers,
- all other steam boilers having working pressure exceeding 0.35 MPa or a heating surface exceeding 4.5 m^2,
- thermal oil boilers.

5.7.2 External surveys of all kinds of boilers shall be performed at annual intervals at the time of the ship Periodical Survey. External survey shall be performed after the internal survey and hydraulic test if performed.

5.7.3 Internal surveys of steam and thermal oil boilers shall be performed twice within 5-year classification cycle; however, the intervals between successive internal surveys shall not exceed 3 years. In exceptional circumstances, PRS may grant an extension of the internal examination of the boiler up to 3 months beyond the due date. This extension may be granted after carrying out, with positive result, external survey of the boiler.

5.7.4 Thermal oil boilers are, during the Class Renewal Survey, subject to tightness and strength tests with a pressure equal to 1.25 the working pressure.

5.7.5 The external survey of steam boiler covers:
- external examination of the boiler fixing arrangements,
- external examination of the boiler casing and insulation,
- external examination of the boiler fittings,
- functional test while in operation,
- review of the records (operation, maintenance, repair history, feedwater chemistry), since the latest boiler survey.

During the test, operation of the following items shall be checked:
- boiler and steam superheater safety valves[1],
- boiler supply and circulating water system,
- boiler blow-off and skimming system,
- water level indicators,
- pressure gauges,
- remote control of the main steam valve and safety valves,
- fuel supply system,
- boiler control system,
- boiler safety system,
- boiler alarm system.

5.7.6 The external survey of thermal oil heater covers:
- external examination,
- operation tests of safety valves,
- checking the operation of alarm and safety systems of limit temperature of thermal oil and exhaust gases,
- checking indication accuracy of the pressure gauges,
- operation tests of the valves' remote control,
- operation test of the arrangements for emergency discharge of thermal oil from the installation and remote stopping the circulation pumps.

5.7.7 Internal Survey of Steam Boiler

5.7.7.1 For the purpose of the internal survey, both sides, water and combustion, of the boiler shall be sufficiently clean to enable a proper assessment of the examined parts (water and steam drums, boiler furnace, combustion chambers and furnaces, tubes, stays and stay-bolts, steam superheaters and economizers).

At the Boiler Survey, internal examination of the boiler fittings in dismantled condition shall be performed.

During the exhaust gas boiler survey any accessible welds of boiler plating shall be examined for the presence of cracks. At Surveyor's request, non-destructive tests may be performed.

5.7.7.2 If, upon the survey, there is any doubt as to the technical condition of the boiler, PRS may require that additional thickness measurement of boiler parts, partial or complete removing of insulation or hydraulic test be performed.

5.7.7.3 After the repair of boiler essential parts, hydraulic test to a pressure 1.25 the working pressure shall be performed.

[1] Where the setting of safety valves can be done during sea trial only and provision for such a trial, on the survey completion, has not been made, PRS Surveyor may authorize the ship's Chief Engineer to set and seal utilization boiler safety valves, as well as to enter appropriate record in the engineer's log book. The record is to be presented to PRS Surveyor at the nearest survey.

5.7.7.4 After the repair of boiler fittings, hydraulic test to a pressure specified in *Part VI – Machinery Installations and Refrigerating Plants* shall be performed.

5.7.8 Internal survey of thermal oil heater is performed within the scope of the relevant requirements specified in 5.7.7.

5.7.9 If, during the Periodical or Occasional Survey, damages that require repair of the boiler are detected, the repair shall be performed under the Surveyor's supervision in accordance with the PRS-approved repair procedure. After repair, the boiler shall be tested, as specified in 5.7.7.3.

5.7.10 When direct visual internal inspection is not feasible due to the limited size of the internal spaces, such as for small boilers and/or narrow internal spaces, this may be replaced by a hydrostatic pressure test or by alternative verifications as determined by the PRS.

5.8 Periodical Surveys of Masting and Rigging

5.8.1 Sailing equipment on sailing ship is subject to Periodical Surveys in intervals of the hull surveys in the scope specified in 5.8.2, 5.8.3 and 5.8.4.

5.8.2 Annual Survey

The scope of the Annual Survey covers visual examination, including evaluation of:
- the straightness of the individual sections of the masts and its possible deformations,
- welding joints,
- the degree of deformation of the holes and pins in the fasteners,
- protection against loosening fasteners.

5.8.3 Intermediate Survey

Scope of Intermediate Survey covers a range of Annual Survey and additionally:
- visual examination of chain plates and stay plates,
- valuating of the wear of fasteners,
- assessment of technical condition of ropes (corrosion, damage of strands and wires) and the terminals.

5.8.4 Class Renewal Survey

The scope of the Renewal Survey covers a range of Intermediate Survey and ultrasonic testing of masts in the places selected by PRS Surveyor, including in the vicinity of welds, welding washers and their edges. Corrosive wear test of masts; instead of ultrasonic testing it can be done by drilling of holes, using a camera or endoscope.

5.9 Periodical Surveys of Cargo Stowage and Lashing Equipment

5.9.1 Cargo stowage and lashing gear and equipment for fastening cargo units on board, as well as the equipment intended for the carriage of timber on weather deck if any part of timber volume is taken into account in calculations of cross curves of stability, covered with the requirements of *Part III – Hull Equipment*, are subject to Periodical Surveys at the time of Class Renewal Survey within the scope specified in 5.8.2.

5.9.2 The scope of 5-yearly survey covers:

.1 checking the entries of Annual and Intermediate Surveys made by the person responsible for the ship's cargo stowage and lashing equipment according to the provisions given in the *Register Book of Examination of Equipment for Positioning and Lashing of Cargoes on Ship*;

.2 verification that the equipment provided onboard ship has appropriate valid documents issued by PRS, certificates, test certificates (of manufacturers or laboratories approved by PRS);

.3 general examination of: lashing (rope, chain, rod), twistlocks and bridge fittings, spreaders, stretchers, tensioners, cellular guides, foundations and posts, stowage bottom plates, stowage cones, stacking cones. 1% of fittings of each kind, but not less than 10 pcs, shall be subjected to close-up examination;

.4 measurements of lashing, twistlocks and bridge fittings, spreaders, stretchers, tensioners, cellular guides, stowage bottom plates, etc;

.5 at least 0.5% of the fittings shall be subjected to test load – 1.1 of the working load, depending on close-up examination and measurements results or if loss of strength is supposed to occur due to corrosion and wear or in the case where the equipment condition cannot be satisfactorily ascertained based on external examination.

5.10 Continuous Surveys and Other Alternative Survey Systems

5.10.1 Instead of direct survey, PRS may accept – at the Owner's request – Continuous Survey or another alternative survey system for particular components of the ship's hull, machinery installations and refrigerating plants, as well as control systems.

5.10.2 Continuous Survey of the ship hull, machinery installations, refrigerating plants and automatic systems, as well as surveys of the ship's hull in Consolidated Supervision System and the survey of machinery installations, refrigerating plants and control systems in Planned Maintenance Scheme shall be performed at the time of Annual Survey.

5.10.3 Owner's hull inspection and maintenance schemes are encouraged as a means to maintain compliance with classification and statutory requirements between surveys. These schemes, however, are not accepted as an alternative to, or a substitute for the required hull classification/statutory surveys performed by PRS Surveyor.

5.10.4 Continuous Survey of Hull (CHS), as well as Consolidated Supervision System of Hull (CSS) are performed in accordance with the requirements of *Publication 54/P – Alternative Hull Survey Arrangements*.

5.10.5 Continuous Survey of Machinery (CMS), as well as Planned Maintenance Scheme (PMS), as well as Condition Monitoring (CM), of machinery are performed in accordance with the requirements of *Publication 2/P – Alternative Survey Arrangements for Machinery*.

5.11 Occasional Surveys

5.11.1 General

Occasional Surveys of a ship or the ship's machinery, arrangements, installations or equipment are held upon request in all cases not covered by Initial Surveys for Class Assignment and Periodical Surveys or surveys resulting from Continuous Survey. Occasional Survey may be held at the Owner or Underwriter's request or may be consequent upon PRS, PSC or Flag State verification of the performed classification activities correctness (see 5.11).

The scope of Occasional Surveys and their procedure will be determined by PRS, depending on the purpose of the survey, age and technical condition of the ship. Performance of the survey resulting from classification activities verification may be the condition for class maintenance.

5.11.2 Survey After Damage

5.11.2.1 One of Occasional Surveys is a Survey After Damage to which a ship shall be submitted in the case of ship's grounding, damage sustained by the ship's hull, machinery, arrangements, installations, equipment or outfit covered by the requirements of the Rules and subject to PRS technical survey.

The burden of immediate report on the ship damage to PRS lies on the Owner.

5.11.2.2 Survey After Damage shall be performed at a port where the damage occurred or at the first port the ship calls after the damage or grounding.

This survey aims to assess the extent of damage, specify the scope of work required to eliminate the consequences of damage and to determine the possibility and conditions for maintenance or reinstatement of the ship class.

If the ship is in a port where repairs connected with damage cannot be made, at the Owner's request, after analysis of the case, PRS may allow the ship to undertake a single trip directly to the port or shipyard, where the specified repairs will be possible.

In that case, discharging of cargo and/or temporary repairs to allow the ship to undertake such a trip may be required.

5.11.3 Survey of Ship's Items Repaired during Voyage

Repairs to hull, machinery or equipment items, subject to PRS classification survey, planned by the Owner to be made during a voyage, may be performed if agreed in advance with PRS. Failure to agree, in advance, the repairs may result in suspension of the ship's class (see 6.1.5).

The Owner who planned such repairs is obliged to submit, to PRS, Repairs Programme determining the object of repair, the repair extent and technology, and the repair performer, as well as to agree the date and scope of the survey after repairs.

In justified cases, PRS Surveyor's attendance, during repairs, may be required.

An agreement is not required in the case of maintenance and overhaul to hull, machinery and equipment in accordance with the manufacturer's recommended procedures and established marine practice.

In addition, any not planned repairs, made during the voyage, which affect or may affect the ship class, shall be noted in the ship's log and submitted, as soon as possible, to PRS for the purpose of determining the scope of survey connected with the ship's class.

Where in any emergency circumstances, emergency repairs shall be effected immediately, the repairs shall be documented in the ship's log and submitted thereafter to PRS for use in determining further survey requirements.

5.12 Audit

On PRS classed ships, audits for determining conformity of PRS performed processes with the quality management system provisions, may be required.

Subject to PRS consent, external auditors may participate in the audits.

At PRS request, the Owner is obliged to submit the ship for auditing within the scope, at a date and place agreed with PRS.

5.13 Remote Surveys

The survey of ships may utilize different methods and concepts. This regulation contains principles and minimum requirements for carrying out remote surveys. Remote survey will only be appropriate provided the level of assurance is not compromised, and the survey is carried out with the same effectiveness as and is equivalent to, a survey carried out with attendance on board by PRS Surveyor.

5.13.1 Application

These requirements apply to all vessels, self-propelled or not, covered by this PRS Rules. Application to other ships, ie. Small sea gong vessels, HSC, MODU is addressed in Classification Rules concerning them.

5.13.2 Requirements for equivalency

The requirements for equivalency of a remote survey to a survey attended on board by a Surveyor include:
- eligibility of the remote survey,
- qualification of Surveyors,
- planning of the remote survey,
- performance of the remote survey,
- assessment of the remote survey,
- reporting.

Equivalency is obtained when, with the use of available ICT, a surveyor can perform a survey remotely being able to:
- obtain the supporting and technical evidence required according to the applicable rules,
- verify applicable survey items and relevant tests,

and the results of the remote survey provide the same level of assurance obtained with attendance on board by a Surveyor.

5.13.2.1 Eligibility of the remote survey

Eligibility of the remote survey is to be decided based on type and scope of the requested survey, in accordance with 3.1 and, if applicable, flag State Administration acceptance and possible instructions, when the classification survey is also related to a statutory item, and the PRS is carrying out the statutory survey on behalf of the flag State Administration.

A remote survey is deemed eligible when it provides the same level of assurance, according to the requirements for equivalency, as if it was conducted with attendance on board by a Surveyor.

Remote surveys are generally to be carried out with internet connection allowing a live streaming visual examination, although, at the discretion of the Surveyor, a combination of remote survey methods (see 5.13.2.4) may be used. For simple/limited verifications, other types of ICT may be accepted by the Surveyor.

5.13.2.2 Qualification and monitoring of Surveyors

5.13.2.2.1 Qualification

Surveyors engaged in remote surveys are to be qualified as per standard procedures for the type of ship and type of survey, i.e., in accordance with IMO RO Code (MSC.349(92)), IACS Procedural Requirement PR 7, and the PRS training and qualification scheme.

Additional training is to be carried out, covering the ICT used for the remote survey, in relation to the applicable remote survey scope and methods, in order to fully qualify the Surveyor engaged in remote surveys.

The additional training required for qualification for remote surveys shall be in accordance with the PRS procedures and shall provide:
- knowledge of the operation of the PRS' remote survey software, if applicable
- knowledge of the technical and procedural aspects related to remote surveys
- knowledge of the connectivity aspects related to remote surveys.

5.13.2.2.2 Monitoring

The monitoring of a Surveyor qualified for remote surveys is to be carried out in accordance with IACS Procedural Requirement PR 6

5.13.2.2.3 Surveyor's Record

Records of Surveyor's training and qualification for remote surveys shall be maintained and updated as per the PRS standard procedures.

Notes:

1. Society's personnel engaged in remote classification activities not requiring a survey (refer to 1.2.1) are to be trained and qualified according to the Society's standard procedures.
2. On board personnel/Crew:
   - Training and qualification of on board personnel/Crew are regulated by the STCW Convention and is a prerogative of the flag State Administration.
   - The ship's flag State Administration may require that the Safety Management System of the ship is updated by the Company to include provisions for specific training of the crew engaged in remote surveys.

5.13.2.3 Planning of the remote survey

Planning of the remote survey is required to ensure that the remote survey is carried out in accordance with the applicable requirements. The content of the planning shall be based on the scope of the remote survey.

To ensure that the Surveyor can properly plan the remote survey and communicate with personnel/crew, so that the survey is carried out according to the applicable rules, adequate means are to be available enabling the Surveyor and allowing the PRS to:

– properly interact with personnel/crew involved in the remote survey, before and during the survey process,
– agree on ICT means to be used
– verify that personnel/crew involved in the remote survey are suitably skilled to use the electronic devices and/or software used by the PRS to perform the remote survey,
– acquire as deemed necessary information on identity and ranking of personnel/crew involved in the remote survey,
– provide the survey item/scope to the personnel/crew involved in facilitating the remote surveys, including the tests that will be performed,
– communicate, during the remote survey, additional actions depending on the evidence to be collected.

One or more of the following means is to be provided for planning the remote survey:

– live-streaming video and audio connection,
– exchange of data / electronic documents,
– other means acceptable to the PRS.

The owner is to provide the necessary facilities for the safe execution of the survey.

5.13.2.4 Performance of the remote survey

To ensure that the Surveyor can properly perform the remote survey according to the applicable rules, the available evidence must allow the attending surveyor to:

– examine and assess a survey item and/or a group of items and/or supporting documents,
– verify and assess applicable tests and/or services.

The evidence provided to the Surveyor is subject to the technical evaluation and final acceptance by the Surveyor with respect to the completeness and accuracy, necessary to perform the requested survey according to the applicable requirements.

One or more of the following evidence is to be provided for performing the remote survey:

– live-streaming video and audio
– recorded videos provided by the Owner's representative
– photos provided by the Owner's representative
– other data and/or supporting documents acceptable to the PRS.

5.13.2.5 Assessment of the remote survey

The Surveyor shall evaluate all evidence received and accept them before crediting the remote survey.

The means used for the remote survey must allow the Surveyor to collect the necessary evidence that will be examined according to the Surveyor's professional judgement in order to satisfactorily complete and credit the relevant survey items.

In case the Surveyor, according to their professional judgement, deems that the remote survey does not provide the same level of assurance as a survey with attendance on board by a Surveyor, the Surveyor may decide not to credit the relevant survey items.

5.13.3 Scope and procedures

A remote survey will be only appropriate provided it reaches the same level of assurance as, and is equivalent to, a survey attended on board by a Surveyor.

5.13.3.1 Scope - Eligible survey items

A remote survey may be proposed as an alternative to a survey attended on board by a Surveyor for the surveys listed in Table 1.

When the classification survey is also related to a statutory item, and the PRS is carrying out the statutory survey on behalf of the flag State Administration, then the flag State Administration acceptance is required, and possible additional requirements are to be complied with.

The Surveyor may require to confirm the results of the remote survey, by a survey attended on board by a Surveyor, to credit the relevant survey items, in case the remote survey is not carried out to the Surveyor's satisfaction or it is required by the PRS.

Table 1: Eligible remote survey items:

No.	Surveys and related items eligible to remote survey	Live streaming required (See Notes)
1	Postponement, issuance, deletion of Condition of Class	X (1)
2	Postponement of Class surveys	X (1)
3	Items of Continuous Survey for Machinery (UR Z18) or Planned Maintenance Scheme (UR Z20, PMS)	X (1)
4	Occasional survey for change of ship's name	X (1)
5	Occasional survey for loss of anchor	X (1)
6	Occasional survey for minor machinery or equipment damage	X (1)
7	Occasional survey for minor hull damage	X (1)
8	Occasional survey for minor deficiencies/defects not subject to a Condition of Class	X (1)
9	In-water bottom survey	X
10	Specified items of a class periodical survey (excluding additional specific items of initial or renewal surveys), including completion of remaining items of a part held class periodical survey	X (1)(2)
11	Non-propelled / un-manned barges/pontoon – annual surveys when no survey of hull compartments is due	X
12	Minor retrofit / installation/upgrade of equipment	X (1)
13	Documentary or data based initial / periodical / renewal / occasional verifications and surveys	

Notes:
1. "(1)" means that live streaming may not be required for minor survey scope or that a combination remote survey method, as listed in 5.13.2.4, may be used at the sole discretion of the PRS.
2. "(2)" means that pure documentary verifications are eligible in accordance with item 13.
3. Live streaming may be required for surveys not marked X in the Table, depending on the survey scope at the sole discretion of the PRS.
4. "Minor" in the items 6, 7, 8 and 12 means that the item can be surveyed remotely according to requirements for equivalency given in 5.13.2.

5.13.3.2 Procedures

5.13.3.2.1 Eligibility

Refer to 5.13.2.1.

5.13.3.2.2 Digital information quality, completeness, and accuracy

Final appraisal of the quality of digital information is at the discretion of the Surveyor, who is to be satisfied with the content and the quality of digital information collected, and the survey carried out, allowing the Surveyor to confirm its completion.

The Owner is responsible for the completeness and accuracy of digital information provided. The digital information submitted by the Owner to the Surveyor is to reflect the real situation of the surveyed item. The date and time, when a photo or video was taken are to be made available to the Surveyor or identifiable from its metadata.

The PRS is to collect and store digital information as evidence of the survey. It is not necessary to store all of digital information received; the exact digital information stored shall support the survey decision and is to be decided by the Surveyor crediting the survey.

The remote survey is carried out under the supervision and upon instructions of the Surveyor, who is in charge of crediting the remote surveys. A surveyor attendance on board may be required to complete the survey, upon the Surveyor's request and at their discretion.

5.13.3.2.3 Requirements for a remote survey when live streaming is not used

When live streaming is not used, communication and digital information collection are to be performed through an ICT channels (such as emails, data streams and clouds), which is to be accepted by the PRS prior to the survey. The Owner's representative is to confirm the identity of the ship at the commencement of the survey.

5.13.3.2.4 Requirements for a remote survey when live streaming is used

The Owner's is to ensure that:
- the Owner's representative is attending onboard and has access to the areas intended to be surveyed
- the Owner's representative has at his disposal a 2-ways visual and audible communication means complying with the requirements in 4.
- ICT solution is available on the communication means and meets the requirement described in 5.13.4.

In the case these requirements cannot be fulfilled, the remote survey may be rejected. The Surveyor is to verify the identity of the ship at the commencement of the survey by live streaming.

5.13.3.3 Hardware and ICT solution

Refer to 5.13.4.1.

5.13.3.4 Requirements for Connectivity

The Owner's representative is to ensure that internet connectivity tests are carried out before the survey and that proper connectivity is available and maintained during the survey.

When remote survey by live streaming is being undertaken, a connection that enables live streaming between the Surveyor and the Owner's representative attending on board is required. The quality of the live streaming connection (audio and video) is to ensure proper communication and to allow the Surveyor to carry out the survey remotely, to the Surveyor's satisfaction. In the case where a live streaming connection with the Surveyor is not possible or is not continuous at the place of the survey (e.g., Engine Room), partly online sequences (where the Owner is able to capture pictures and videos offline of those items not covered by live streaming) may be accepted by the Surveyor.

5.13.4 Information and Communication Technology (ICT)

This section outlines the minimum requirements for the use of ICT that can capture images, record video and/or live stream video or other data from a ship as considered acceptable to the PRS.

5.13.4.1 Hardware

The Owner is responsible for ensuring that all hardware installations on board used for the remote survey shall comply with the applicable requirements relevant for use and location on board, including hazardous areas. The ICT shall typically consist of:

- A host computer device, to receive the streaming of images/data/video. This is usually a laptop or desktop computer compatible with the software application used for the remote survey,
- On board standalone device which may include digital cameras capable of capturing videos/ photos/data,
- On board smart device compatible with the applicable software/technology,
- Communication accessories like headphones and microphone for the noisy environment as applicable and as deemed necessary.

Notes: The smart device may be a smartphone, tablet, computer, wearable device, smart glass, digital camera, or any other device which can be connected to the network and capable of transmitting the necessary data/images to shore.

The communication equipment used for the live streaming shall have the following minimum functionality:

- both ends shall simultaneously see the same image/videos in near real-time (i.e., live streaming),
- two-way direct voice communication,
- possibility to take screenshots.

When using a portable device on board for live streaming, the movement of the handheld device may affect the stability of the video and the image, leading to lower quality outputs. When necessary, a suitable anti-shake device shall be used to provide proper stability.

Notes:

1. The host computer screen is to be able to present an image quality that is sufficient to enable a survey decision to be made.
2. Portable equipment on board shall be equipped with a power capacity suitable for the intended scope and time of the survey.

5.13.4.2 Internet Connectivity (coverage and speed)

For internet connectivity requirements on board, refer to 5.13.3.4.

The on board smart devices shall have the capability of transmitting the images/video/data over a Cellular, Wi-Fi or Satellite Connection to the remote Surveyor.

When live streaming communication is applied, the internet connection shall have sufficient and stable bandwidth capacity to ensure quality (such as resolution and frame rate) of the direct colour image/video and voice communication to the remote survey location to the satisfaction of the Surveyor.

5.13.4.3 Software and data security:

The software used for the remote survey is to be acceptable to the PRS. The overall function and ability of the software used to ensure the security of data shall be evaluated prior to use as per the below requirements.

The Surveyor shall normally control the live video call, providing instructions to the on-site personnel/crew and supervising survey activities for capturing relevant information. The on board device shall have the capability of transmitting the data over a Cellular, Wi-Fi, or Satellite Connection to the Surveyor.

The software used to perform the remote survey may also be provided with technologies that support the Surveyor in the process of making a decision, such as:
- Artificial Intelligence (AI) for the recognition and the classification of defects,
- Internet of things (IoT) for collecting parameters and evaluating acceptability/working condition of machinery and equipment,
- Data driven verification or other means considered acceptable by the PRS.

The above software and technologies are to be evaluated and accepted by the PRS in each case.

When considering the use of software/applications and other technologies, data protection shall be considered in accordance with applicable requirements of the PRS before the remote survey is commenced. The software/application used to perform the remote survey is to be compatible with the technical requirements detailed in this paragraph; in addition, the software used is to comply with the PRS applicable requirements for:
- cybersecurity
- data protection and confidentiality for the transmitted data.

When not provided by the PRS itself, the audio/video software or application used to perform the remote survey is to be accepted by the PRS.

During the survey preparation, it is the Owner's responsibility to ensure that their data security policies are implemented as per the Company's Safety Management System.

Notes: The Company's SMS may take into account IMO resolution MSC.428(98), MSC-FAL.1/Circ.3 and IACS Rec.166.

5.13.5 Recording of evidence and reporting of survey

5.13.5.1 Recording of Evidence

5.13.5.1.1 Required evidence (refer to 5.13.2.4)

In principle, live streaming video and audio shall be applied to remote surveys as a primary means (refer to Table 1 in 5.13.3.1).

Additionally, and/or alternatively, one or more of the following evidence may be submitted or verified as requested by the Surveyor during remote survey so that the Surveyor is able to verify conditions of survey items:
- Recorded video and audio
- Photos
- Master's/chief engineer's statement
- Ship's logbook
- Owner's confirmation

5.13.5.1.1.1 Live streaming video and audio

Live streaming video and audio using ICT shall be in accordance with the requirements in 4.

5.13.5.1.1.2 Recorded videos/photos

For the recorded videos/photos, the following information is to be available:
- confirmation that they were actually taken on the ship by the Owner's representative,
- date and time when they were taken,
- identity of the personnel/crew responsible for taking evidence.

5.13.5.1.1.3 Master's/chief engineer's statement

Recorded videos/photos provided by the Owner's representative may be supplemented with a statement signed by the master and/or the chief engineer confirming the condition of the items shown in the evidence. The final evaluation of the remote survey by the Surveyor is to be based on all of the provided evidence, and it does not delegate the responsibility to the master/chief engineer's statement only.

5.13.5.1.1.4 Ship's logbook

The Master shall make entries into ship's logbook on the following occasions and submit copies of the relevant pages when requested by the Surveyor:
- when a remote survey is carried out by the Surveyor,
- when videos/photos are taken and submitted to the Surveyor with the master's/chief engineer's statement and additional documents as applicable.

5.13.5.1.1.5 Owner's confirmation

The Owner's representative or the master is to confirm the correctness and completeness of the provided information and evidence (if any) relevant to the condition of the items requested to be surveyed. This confirmation may be included in the survey application.

5.13.5.1.2 Retaining/filing evidence

The evidence submitted by the Owner's representative or master shall be retained/filed in accordance with the PRS procedures which shall include:
- type of evidence to be retained/filed,
- duration/location to be retained/filed.

It is not required for the PRS to record and save live streaming video and audio as evidence unless the Surveyor considers it necessary.

5.13.5.1.3 Other supporting documents

The Surveyor may request the Owner's representative or master to submit supplementary documents such as ship's maintenance reports and record for the operation of machinery, and equipment and service reports issued by manufacturers, service suppliers or service providers.

While the Surveyor shall verify that the documents are duly prepared and issued to the ship, they may not be required to be retained/filed by the PRS as evidence.

5.13.5.2 Reporting of remote survey

The report of a remote survey shall be issued in accordance with the PRS procedure. The survey report shall also include the following additional information:
- indication that the survey was carried out remotely,
- description of the means used during the remote survey,
- indication of the provided evidence,
- confirmation of the flag State Administration's authorization, when applicable.

6 SUSPENSION OF CLASS

6.1 Reasons for Ship Class Suspension

6.1.1 Damage to Ship

The Owner is obliged to notify PRS of each case of ship grounding and every damage sustained by the ship hull, machinery, installations or equipment covered by the requirements of the Rules, as well as to agree with PRS the date of After Damage Survey and the procedure for:
– determining the extent of damage,
– determining the scope and date of repair.

The ship class is automatically suspended from the time of damage occurrence until completion of After Damage Survey confirming elimination of class suspension reasons.

In justified cases[1], after receiving notification from the Owner and its review, PRS may decide that the ship's class will not be suspended[2].

6.1.2 Transgression of Service Conditions Specified in *Certificate of Class*

The Owner is obliged to inform PRS on every transgression the service conditions specified in the *Certificate of Class* and PRS will make a decision on further proceedings. The transgression of service conditions, without PRS agreement, causes the ship class automatic suspension until completion of the occasional survey.

6.1.3 Suspension of Class in Case of Overdue Periodical Surveys

6.1.3.1 Class Renewal Survey

The ship class is automatically suspended where Class Renewal Survey has not been completed by the due date or by the expiry date of any extension granted, and the ship is not being surveyed at the time.

The class is reinstated upon satisfactory completion of the due survey.

The survey to be performed shall be based upon the survey requirements at the original date due and not on the age of the ship when the survey is performed. Such survey shall be credited as of the date originally due.

The ship is disclassed from the date of suspension until the issue of a new *Temporary Certificate of Class*.

6.1.3.1.1 In "exceptional circumstances", as defined in 1.2, PRS may grant an extension not exceeding 3 months to allow for completion of the Class Renewal Survey, provided that the ship has been attended for commencement of the Class Renewal Survey and the attending Surveyor(s) so recommend(s) after the following has been performed:
– annual survey,
– re-examination of areas specified in conditions of class,
– progression of the Class Renewal Survey, as far as practicable.

Where dry-docking is due prior to the end of the class extension, an underwater examination shall be performed by an approved diver. An underwater examination by an approved diver may be dispensed with in the case of extension of dry-docking survey not exceeding 36 months interval, provided the ship is without outstanding conditions of class regarding underwater parts.

If the *Certificate of Class* expires when the ship is expected to be at sea, an extension to allow for completion of the Class Renewal Survey may be granted, provided that:
– there is a documented PRS consent to such an extension prior to the expiry date of the certificate,

[1] For example when the vessel is able to undertake unaided voyage to the repairyard.
[2] In such cases, additional limitations can be taken, for example the vessel can be excluded from trading until permanent repairs are done.

– arrangements have been made for attendance of the Surveyor at the first port of call,
– PRS finds that such an extension is technically reasonable.

Such an extension may be granted only until the ship arrival at the first port of call after the certificate expiry date. However, if owing to the „exceptional circumstances", as defined in 1.2, the Class Renewal Survey cannot be completed at the first port of call, PRS may apply the requirements specified in paragraph to be followed, but the total period of extension in no case shall be longer than three months after the original due date of the Class Renewal Survey.

The extension of statutory certificates validity will be subject to conditions specified by the Administration.

6.1.3.2 Annual Survey

The *Certificate of Class* becomes invalid and the ship class is automatically suspended if the Annual Survey has not been completed within 3 months of the due date of the Annual Survey, unless the ship is under attendance for completion of the Annual Survey.

The *Certificate of Class* validity will be reinstated upon satisfactory completion of the due survey. The survey to be performed shall be based upon the survey requirements at the original date due and not on the age of the ship when the survey is performed. Such survey shall be credited as of the date originally due.

The ship will be disclassed from the date of class suspension until the validity of the *Certificate of Class* is endorsed.

6.1.3.3 Intermediate Survey

The *Certificate of Class* becomes invalid and the ship's class is automatically suspended if the Intermediate Survey has not been completed within 3 months of the due date of the third Annual Survey, unless the ship is under attendance for completion of the Intermediate Survey.

The *Certificate of Class* validity will be reinstated upon satisfactory completion of the due survey. The survey to be performed shall be based upon the survey requirements at the original date due and not on the age of the ship when the survey is performed. Such survey shall be credited as of the date originally due.

The ship is disclassed from the date of class suspension until the validity of the *Certificate of Class* is endorsed.

6.1.3.4 Bottom Survey of Hull, Tailshaft Survey (if any), Boiler and Pressure Vessels Survey (if any)

The *Certificate of Class* becomes invalid and the ship class is subject to suspension if the bottom survey of hull, tailshaft survey (if any) or boiler and pressure vessels survey (if any) are not completed by the due date.

The *Certificate of Class* validity is reinstated upon satisfactory completion of the due survey. The surveys to be performed shall be based upon the survey requirements at the original date due and not on the age of the ship when the survey is being performed.

The ship is disclassed from the date of class suspension until the validity of the *Certificate of Class* is endorsed.

6.1.3.5 Continuous Survey and other Alternative Survey Systems

All due and overdue surveys of the ship hull, machinery installations, refrigerating plants and automatic systems in Continuous Survey, as well as all surveys of the ship's hull in Consolidated Supervision System and the surveys of machinery installations, refrigerating plants and automatic systems in the Planned Maintenance Scheme shall be performed at the time of Annual Survey. The ship class may be suspended

if the surveys are not dealt with or are not postponed at the Owner's request – subject to PRS consent in each particular case. The postponement shall not exceed 3 months.

In the case of Class suspension, the *Certificate of Class* validity is reinstated upon satisfactory completion of the specified surveys.

The ship is disclassed from the date of class suspension until the surveys completion.

6.1.4 Suspension of Class in Case of Overdue Conditions of Class

Each condition of class is assigned a due date for completion. Owners are notified by PRS of these dates and that the ship class will be subject to suspension if the item is not dealt with, or postponed – subject to PRS consent in each particular case – by the due date.

The *Certificate of Class* validity is reinstated upon PRS verification that the overdue conditions of class have been fulfiled.

The ship is disclassed from the date of class suspension until the conditions are fulfiled.

6.1.5 Planned Voyage Repairs Performed without Prior Agreement with PRS

The ship class is automatically suspended if the planned voyage repairs have not been performed according to the procedure specified in 5.10.3.

The *Certificate of Class* validity may be reinstated upon Occasional Survey performed within the scope specified by PRS.

6.1.6 Owner's Financial Overdues

If the Owner has not paid for PRS services connected with the ship survey at the agreed date, the ship class is suspended. Notice of PRS intent to suspend the class will be sent to the Owner one month in advance. The class will be reinstated automatically after the payments have been settled.

6.1.7 Non-compliance with Retroactive Requirements by Specified Dates

Each retroactive requirement set forth in Supplements to particular Parts of the Rules, shall be fulfilled at the dates specified in these Supplements.

PRS notifies the Owner of these dates.

The ship class is suspended if retroactive requirements are not complied with by the specified dates.

The ship is disclassed from the date of class suspension until the date when retroactive requirements are fulfilled.

The *Certificate of Class* validity is reinstated upon verification, by PRS, that retroactive requirements have been fulfilled.

6.1.8 Change of Ship Owner/Operator

To maintain class validity, a written notice of the intended change of the ship Owner/Operator shall be submitted to PRS. On the receipt of such notice, PRS will specify the need and scope of the required survey and the necessary changes to be made in the relevant documents.

6.2 Notifying Owners and Flag States

PRS communicates the suspension of class and reinstatement of the ship's class by separate letters to the Owner and to the Flag State. For vessels to which SOLAS applies, PRS is to inform the Owner and the Flag State, that certain statutory certificates are implicitly invalidated by the suspension of class.

6.3 Possibility of Prolongation of Class Validity due to Force Majeure

If, due to circumstances reasonably beyond the Owner's or PRS control, force majeure, as defined in 1.2, the ship is not in a port, shipyard or other place where the overdue surveys can be completed at the expiry of the periods allowed above, PRS may, at the Owner's request, allow the ship to sail, maintaining the class validity, directly to an agreed discharge port and, if necessary, hence, in ballast, to an agreed port at which the survey will be completed, provided that PRS:

.1 examines the ship records;
.2 performs the due and/or overdue surveys and verifies of conditions of class at the first port of call when there is an unforeseen inability of PRS to attend the ship in the present port, and
.3 is satisfied that the ship is fit to sail (where there is unforeseen inability of PRS to attend the ship in the present port, the master shall confirm that his ship is in condition to sail to the nearest port of call).

The surveys to be performed shall be based upon the survey requirements at the original date due and not on the age of the ship when the survey is performed.

6.4 Possibility of Temporary Reinstatement of Class Validity for Ship Scrapping

When the ship is intended for a demolition voyage with any periodical survey overdue, the ship class suspension may be held in abeyance and PRS may consider to allow the ship to proceed on a single ballast voyage from the laid up or final discharge port to the demolition yard. In such cases *Temporary Certificate of Class* with conditions for the voyage noted may be issued provided the PRS attending Surveyor finds the ship in satisfactory condition to proceed for the intended voyage.

7 WITHDRAWAL OF CLASS AND WITHDRAWAL OF SHIP FROM PRS REGISTER

7.1 Reasons for Ship Class Withdrawal

7.1.1 Introduction of alterations to the hull, superstructures and deckhouses, machinery, equipment and installations, covered by the requirements of the Rules, without the prior PRS consent.

7.1.2 Suspension of class for a period exceeding 6 months. PRS may grant a longer suspension period than 6 months after consideration in special cases.

7.1.3 The ship has been transferred for scrapping.

7.1.4 Written request by the Owner for the ship withdrawal from PRS Register.

7.1.5 Decision of PRS Classification Comitee[1].

7.2 Withdrawal of Ship from PRS *Register*

Withdrawal from PRS Register is consequent upon the ship class withdrawal for reasons specified in 7.1.

7.3 Notification to Owners and Flag States

PRS communicates the withdrawal of the ship's class and the ship's deletion from PRS *Register* by separate letters to the Owner and to the Flag State. For vessels to which SOLAS applies, PRS is to inform the Owner and the Flag State, that certain SOLAS certificates are implicitly invalidated by the withdrawal of class.

[1] Taken on the ground of safety issues e.g. breaking the provisions concerning PSC Policy, implementation of national, UE and/or UN policy.

8 DUAL AND DOUBLE CLASSED SHIPS

8.1 Dual Classed Ships

8.1.1 Definition "dual class ship" means that the ship is classed by two Classification Societies between which there is a written agreement regarding sharing of work.

8.1.2 The request for a dual classed ship survey shall be submitted by the Owner to both Classification Societies simultaneously.

8.1.3 PRS notifies the other Society of receiving the Owner's request for carrying out the ship survey.

8.1.4 Survey performed by PRS is also performed on behalf of the other Society unless the co-operation agreement requires otherwise.

8.1.5 When a decision is made by PRS to suspend the ship's class, PRS, within five working days, will advise the other Society of the reasons for such action. Unless the other Society presents arguments stating that the reasons for class suspension are groundless, the ship's class will be suspended.

8.1.6 When a decision for the ship's class suspension, for technical reasons, is made by the other Society, PRS will also suspend the ship's class unless it can otherwise document that such suspension is incorrect.

8.1.7 When a decision is made to withdraw the ship's class, PRS will advise the other Society of such decision within five working days.

8.2 Double Classed Ships

8.2.1 Definition "double class ship" means that the ship is classed by two Classification Societies and where each Society works as if it is the only Society classing the vessel, and does all surveys in accordance with its own requirements and schedule.

8.2.2 When a decision is made to suspend or withdraw the ship's class, PRS will advise the other Society of such decision.

8.3 Adding, Suspension and Withdrawing Double or Dual Class Ship

8.3.1 Adding, suspension and withdrawing of double or dual class ship is based on regulations set out in *Publication 97/P – Transfer of Class and Adding, Maintaining and Withdrawing Double or Dual Class.*

9 LAY-UP AND RECOMMISSIONING OF SHIP

9.1 At the Owner's request, a ship may be laid-up, while maintaining her class. However, ships who are laid-up after being suspended as a result of surveys going overdue, remain suspended until the overdue surveys are complete. The request shall include:

- the planned lay-up period,
- ship lay-up location (quay, roadstead, etc.),
- a list of machinery (e.g. boilers, generating sets, bilge pumps, etc. – identification numbers shall also be provided) that will be kept in service during the ship lay-up period,
- a list of ship crew.

9.2 A ship is laid-up upon the survey has been performed within the scope agreed with PRS in each particular case.

9.3 During the laying-up period, the ship is subject to laid-up confirmation surveys performed within 3 months, before and after each anniversary of the assignment of the laid-up status to the ship.

9.4 A ship is recommissioned at the Owner's request, upon carrying out a survey within the scope specified by PRS in each particular case. The survey covers at least all due and overdue Periodical Surveys and conditions of class.

Depending on the length of the laying-up period, dock trials of particular installations or their parts or sea trials may be required.

9.5 When a ship is intended for a single voyage from laid-up position to repair yard or another place of pay-up with any periodical survey overdue, the ship class suspension may be held in abeyance and consideration may be given to allow the ship to proceed on a single direct ballast voyage from the site of lay up to a repair yard or another place of lay-up, upon agreement with the Flag Administration, provided PRS finds the ship in satisfactory condition after surveys, the extent of which shall be based on surveys overdue and duration of lay-up. *Temporary Certificate of Class* with conditions for the intended voyage may be issued. This does not apply to ships whose class was already suspended prior to being laid-up.

10 CLASSIFICATION REGULATIONS FOR REFRIGERATING PLANTS

10.1 General

10.1.1 At a special Owner's request, PRS may assign a class to:

.1 refrigerating plants intended for generating and maintaining the required temperatures in refrigerated cargo chambers of cargo ships;

.2 refrigerating plants intended for generating and maintaining the required temperatures in cargo chambers designed for cold treatment (cooling, freezing) of sea products and supplying the cold necessary for all production processes in fishing factory ships.

10.1.2 PRS may assign a class to a refrigerating plant which has been built under PRS survey, refrigerating plant whose class has been previously assigned by other Classification Society, or which has not been classed before, provided the results of the Initial Survey for Assignment of Class to a refrigerating plant are satisfactory. The scope of the Initial Survey is specified by PRS in each particular case.

10.1.3 When submitting, for classification, a new refrigerating plant, the technical documentation within the scope specified in *Part VI – Machinery Installations and Refrigerating Plants* shall be submitted for approval.

10.1.4 When submitting, for classification, a refrigerating plant with a class of other Classification Society, the following documents shall be presented:

.1 the latest *Certificate of Class for Refrigerating Plant*;

.2 all available reports made by Surveyors to Classification Society concerning surveys dating from the last Class Renewal Survey, as well as the following plans approved by the previous Society:
- general arrangement plan of the refrigerating plant,
- diagrams of the refrigerating plant.

Where the Owner is not able to submit the required technical documentation (wholly or in part), he is obliged to submit the equivalent information enabling PRS to make the assessment of the plant structure.

10.1.5 When a refrigerating plant with no class assigned before is submitted for classification, plans and design data, as well as component certificates, within the scope agreed with PRS in each particular case, shall be submitted for approval.

10.2 Class of Refrigerating Plant

10.2.1 General

.1 Assignment or renewal of class means that the refrigerating plant, in full measure or to a degree considered acceptable by PRS, fulfils the relevant requirements of the Rules.

.2 Assignment of class to a refrigerating plant is confirmed by the issue of the *Certificate of Class for Refrigerating Plant* and an appropriate entry made in the PRS *Register of Ships*.

.3 Class assigned to a refrigerating plant may be withdrawn in cases specified in Chapter 7 or suspended in cases specified in Chapter 6.

.4 The class of a refrigerating plant may, at the Owner's request, be reinstated after the performance of an Occasional Survey. The scope of the survey is specified by PRS in each particular case.

.5 A refrigerating plant may, at the Owner's request, be laid-up; surveys during the laying-up period shall be performed. The kind and scope of surveys is specified by PRS in each particular case.

10.2.2 Symbol of Class of Refrigerating Plant

.1 The refrigerating plant, built under PRS survey, is assigned the following main symbol of class:

✳ Ch

.2 If a refrigerating plant has been built under the survey of other Classification Society and has been subsequently assigned the PRS class, the following symbol of class is given:

Ch

.3 If a refrigerating plant has not been built under the survey of any Classification Society and later has been assigned the PRS class, the following symbol of class is given:

(Ch)

.4 If a refrigerating plant has a cooling capability sufficient to reduce, on board the ship, the temperature of a non-precooled cargo during a period of time that ensure preservation of that cargo, the plant is assigned the mark:

+

affixed to the symbol of class.

10.2.3 Additional Descriptive Notations

Additional descriptive notations may be put in the *Certificate of Class for Refrigerating Plant* if they are deemed necessary by PRS for defining the purpose or design features of the plant.

10.2.4 Alteration of Marks in Symbol of Class

PRS may delete or alter a distinguishing mark in the symbol of class in the case of any modification of the requirements on the basis of which the mark has been assigned.

10.3 Classification Surveys of Refrigerating Plants

10.3.1 Initial Survey for Assignment of Class

The aim of the Initial Survey for Assignment of Class is to confirm that the refrigerating plant initially submitted for PRS classification is fit to be assigned a class.

The scope of the survey will be in each particular case determined by the relevant PRS field organizational unit, depending on the age and the technical condition of the whole refrigerating plant, as well as its various items of machinery and installations (see also 10.1.3).

10.3.2 Periodical Surveys

.1 Annual Survey aims at ascertaining that the refrigerating plant meets, to a sufficient degree, the requirements for maintaining a class, as well as at checking the operation of various items of machinery and appliances covered by the Rules.

.2 Class Renewal Survey aims at ascertaining that the refrigerating plant complies with the Rules and is fit for service for the subsequent 5 years.

10.3.3 Intervals between Periodical Surveys

With respect to intervals between Periodical Surveys of refrigerating plants, the provisions of 5.2.1 to 5.2.3 apply.

10.3.4 Continuous Survey

10.3.4.1 A Continuous Survey may be applied to a refrigerating plant in accordance with the provisions of 5.9.

10.3.4.2 Chief Engineer is authorized to perform surveys of automation systems, as well as of the following items of the classed refrigerating plant, provided their operation is substituted by that of another appropriate machinery:

– piston compressors,
– cooling agent (brine) pumps,

– cooling water pumps,
– heat exchangers.

10.4 Extent of Periodical Surveys

10.4.1 Annual Survey for Class Maintenance

– checking the Log Book of the Refrigerating Cargo Installation;
– testing the refrigerating plant under working conditions;
– external examination and tests of compressors, refrigerant pumps, cooling agent pumps, cooling water pumps, defrosting system, hydraulic system of freezers;
– external examination of heat exchangers, liquid separators, driers, filters, pressure vessels;
– side covers in ”shell-and-tube” condensers and evaporators of ammonia installation shall be examined at random;
– external examination, including checking the tightness of fittings and pipelines of refrigerant, cooling agent, cooling water, defrosting system, freezer hydraulic system;
– operation test of air cooler fans of holds and freezer tunnels, in their full capacity;
– operation test of freezing and cooling apparatus installed in fishing vessels;
– operation test of control and automatic systems of refrigerating plant installation;
– external examination of the refrigerating system protective devices: valves and discs, as well as operation test of the emergency discharge of refrigerant overboard;
– general examination of lining, insulation, hatch covers, doors, ventilation ducts, bilge wells and bilges and other equipment in refrigerating cargo spaces;
– checking the thermometers, temperature measuring systems in refrigerated cargo spaces and on the refrigerating plant installations;
– operation test of water screens and sprinkler system in machinery spaces and ammonia installation refrigerant store-rooms;
– operation test of emergency ventilation of refrigerating machinery space;
– operation test of sources of electric power for refrigerating plants, distributing devices, control and monitoring consoles, including checking the condition of electric motors;
– operation test of emergency lighting of refrigerating machinery space;
– operation test of signalling and protective devices;
– insulation resistance test of all electric circuits, as well as electric machinery and devices which affect the safety of cargo.

Where, as a result of the performed surveys or checking the records in the *Log Book of the Refrigerating Cargo Installation*, the plant output or the condition of thermal insulation of refrigerated cargo chamber is found unsatisfactory, PRS has the right to perform the test of the plant output, thermal insulation test or both tests.

10.4.2 Class Renewal Survey

Class Renewal Survey covers all survey activities, specified in 10.4.1, and additionally:

– external examination of all reciprocating compressors, refrigerant pumps, cooling agent pumps, cooling water pumps, defrosting system of freezer hydraulic system. Examination of screw compressors shall be performed according to the manufacturer's recommendations;
– external examination of sources of electric power, distributing devices, cables, electric motors, control and monitoring consoles;
– external examination of all side covers, tube plates, tubes of condensers and ”shell-and-tube” evaporators;
– checking the condition of shell, connections and fittings of heat exchangers, liquid separators, driers, filters and pressure vessels, especially underneath the insulation;
– checking the condition of fans, ducts of emergency ventilation of refrigerating machinery space;
– checking the condition of all protective devices: valves, discs; dismantling and the workshop operation test – if required by PRS;

- checking the condition of lining, insulation of the floor, decks, bulkheads, sides, cantilevers, coamings, ducts in refrigerated cargo chambers, with a partial dismantling if required by PRS;
- checking the condition of control instruments and gauges of the refrigerant, cooling agent, cooling water systems, as well as freezer hydraulic system on the basis of their examination; correctness of the instruments and gauges indications shall be checked by comparing indications of two parallel instruments or by means of a portable control instrument;
- strength and tightness pressure tests, according to the applicable requirements of *Part VI – Machinery Installations and Refrigerating Plants* and *Part VII – Machinery, Boilers and Pressure Vessels*, of the following:
  - heat exchangers, pressure vessels, pipelines and fittings of refrigerant system – 10 years from their installation, thereafter at interval of 5 years;
  - heat exchangers, pipelines and fittings of coolant (brine) system – 10 years from the date of installation, thereafter at interval of 5 years;
  - heat exchangers, pipelines and fittings of cooling water system – 10 years from the date of installation, thereafter at interval of 5 years.

In well-justified cases, PRS may depart from strength tests or limit them if examinations and operation tests prove that the given arrangement is in a good and efficient condition.

10.5 Occasional Surveys

10.5.1 Occasional Surveys are performed when a refrigerating plant is submitted for survey in all cases other than Initial Surveys for Class Assignment and Periodical Surveys or surveys resulting from Continuous Survey. The scope of the surveys and their procedure are specified by the relevant PRS field organizational unit, depending on the purpose of the survey, the age and technical condition of the refrigerating plant.

10.5.2 Occasional Surveys may be performed at the request of the Owner or Underwriter or may be consequent upon PRS, PSC or Flag State verification of performed classification activities correctness (see 5.11).

10.5.3 One of Occasional Surveys is Survey After Damage; notification PRS of damage is the Owner's responsibility.

10.5.3.1 Survey After Damage shall be held in the case when damage to a refrigerating plant or its various mechanisms, installations or elements, covered by the requirements of the Rules and subject to PRS survey, has been reported.

10.5.3.2 The survey shall be performed at a port where the damage occurred or at the first port the ship calls at after damage of the refrigerating plant.

10.5.3.3 The aim of the survey is to assess the extent of damage, to agree the scope of work required to eliminate the consequences of damage and to determine the possibility and conditions for maintaining the class of the refrigerating plant or ship if the plant is surveyed for the safety only.

10.6 Survey before Cargo Loading or Unloading

10.6.1 Survey of a refrigerating plant before loading or unloading the cargo may be performed on a special application by the Owner or other Party concerned, at the Owner's consent.

10.6.2 The scope of the survey covers the following:
- checking the refrigerating system under working conditions, including the temperature measurement in refrigerated cargo spaces,
- checking the generating sets and electrical equipment serving the refrigerating plant,
- checking the condition of the refrigerated cargo spaces equipment.

11 SURVEY OF NON-CLASSED REFRIGERATING PLANTS

11.1 General

11.1.1 Technical survey, in respect of ensuring the ship's safety, covers the following non-classed refrigerating plants installed on board the ships classed by PRS:

.1 refrigerating units operating with refrigerants of group II or III, specified in *Part VI – Machinery Installations and Refrigerating Plants*;

.2 refrigerating units operating with refrigerant of group I, together with compressors, for which

$$47 d^2 s n i \geq 100 \quad [m^3/h]$$

for each compressor,

where:

d – piston diameter, in m,
s – piston stroke, in m,
n – revolutions, per minute,
i – number of cylinders,

or the amount of the refrigerant in a plant exceeds 300 kg (in the case of refrigerating systems consisting of a number of independent units, the amount of refrigerant shall be calculated according to the amount of the refrigerant in one refrigerating unit only);

.3 refrigerating units, specified in .2, which have pipeline connection with the main classed or non-classed unit, irrespective of the amount of the refrigerant necessary for their independent operation

11.1.2 The requirements of 11.1.1 apply to all ships entering PRS class. The basis for the survey is the request for PRS class assignment.

11.2 Surveys of Refrigerating Plant

11.2.1 Initial Survey

The Initial Survey of a refrigerating plant with respect to safety, performed for the assignment of class to a ship, aims at ascertaining that a plant, submitted to PRS for classification for the first time, complies with the requirements set forth in *Part VI – Machinery Installations and Refrigerating Plants* for non-classed refrigerating plants.

The scope of the required documentation and the scope of survey will be each time specified by PRS, depending on the age and technical condition of a refrigerating plant and its equipment.

11.2.2 Periodical Surveys

Surveys of a non-classed refrigerating plant are performed at intervals coincident with Periodical Surveys of the ship, within the scope given in 11.3.

11.2.3 Occasional Surveys

Occasional Surveys are performed according to the principles given in 10.5.

11.3 Scope of Periodical Surveys

11.3.1 Scope of Annual Survey:

– operation test of working and emergency ventilation of refrigerating machinery space and refrigerant store-rooms;
– checking the emergency exits from refrigerating machinery space;
– operation test of water screens installations for the refrigerant of group II;

- verification and, as far as practicable, operation test of the safety valves of compressors, pressure vessels, heat exchangers;
- verification and, as far as practicable, operation test of the refrigerant emergency discharge overboard;
- operation test of emergency switching off compressors for the refrigerant of group II;
- operation test of emergency switching off electric power supply of a refrigerating plant operating on the refrigerant of group II;
- operation test of alarm system of refrigerating machinery space and refrigerated cargo chamber;
- external examination of manometers and checking, by means of control manometer, the correctness
  of manometer indications on compressors, pressure vessels and heat exchangers;
- checking the storage of refrigerant stock;
- verification of certificates and the marking of the portable refrigerant cylinders;
- checking personal protection equipment and its arrangement for the refrigerant of group II.

11.3.2 Scope of 5-year Survey

The scope of 5-year survey, performed at the Class Renewal Survey of a ship, covers, in addition to the scope given in 11.3.1, the following:

- strength tests of refrigerating apparatus at a pressure specified in *Part VI – Machinery Installations and Refrigerating Plants* – 10 years from the date of build, thereafter at 5-yearly intervals,
- tightness test of the whole refrigerating system at a pressure specified in *Part VI – Machinery Installations and Refrigerating Plants* – at interval of 5 years.

The foregoing tests refer to both the refrigerating apparatus and the whole refrigerating system exposed to the pressure of the refrigerants of group I, II or III.

PRS may depart from strength tests if examinations and operation tests of particular appliances prove that they are in a good and efficient condition.

Annex 1

EXPLANATION OF SOME ABBREVIATIONS ASSOCIATED WITH ADDITIONAL MARKS IN THE SYMBOL OF CLASS

Abbreviation	English definition	Polish definition
HSC	high speed craft	jednostka szybka
ESP	enhanced survey programme	rozszerzony zakres przeglądów
PET	petroleum tank	zbiornik paliwa napędowego
SD	strengthened deck	pokład wzmocniony
MD	movable deck	pokład ruchomy
HC	heavy cargo	ładunek ciężki
LAL	lying aground during loading	osiadanie na dnie przy załadunku
CG	cargo grabs	urządzenia przeładunkowe chwytakowe
IWS	in-water survey	przegląd na wodzie
PAC	protection against corrosion	ochrona przed korozją
SBT	segregated ballast tank	zbiornik balastu oddzielonego
COW	crude oil washing	mycie ropą
PLT	protective location tank	ochronnie rozmieszczony zbiornik balastu oddzielonego
ING	inert gas	gaz obojętny
FE	fishing equipment	wyposażenie rybackie
MS	mooring at sea	cumowanie w morzu
CHS	continuous survey of hull	nadzór stały kadłuba
CMS	continuous survey of machinery	nadzór stały urządzeń maszynowych
PMS	planned maintenance scheme	system planowego utrzymania urządzeń
CSS	consolidated supervision system	skonsolidowany system nadzoru

Annex 2

SHIP TYPES LIABLE TO MANDATORY ENHANCED HULL SURVEY (ESP)

1 PREAMBLE

1.1 The regime of enhanced surveys given in Publications mentioned below in 1.3 are applicable to ships specified in each of those Publications. Types of these ships are defined below, in paragraph 2.

1.2 To clearly indicate ships, which are subject to an enhanced hull survey, PRS assigns in the symbol of class the additional mark indicating the type of ship and enhanced hull survey mark **ESP**, in accordance with provisions given in Publications mentioned below in 1.3.

1.3 Requirements concerning enhanced surveys are contained in:

.1 *Publication 36/P – Hull Surveys of Oil Tankers* – for oil tankers which are not double hull oil tankers;
.2 *Publication 39/P – Hull Surveys of Bulk Carriers* – for single side skin bulk carriers;
.3 *Publication 46/P – Hull Surveys of Chemical Tankers* – for chemical tankers;
.4 *Publication 58/P – Hull Surveys of Double Hull Oil Tankers* – for double hull oil tankers;
.5 *Publication 64/P – Hull Surveys of Double Skin Bulk Carriers* – for double side skin bulk carriers;
.6 *Publication 39/P* and *Publication 64/P* – for bulk carriers with hybrid construction of cargo holds;
.7 *Publication 39/P* and/or *Publication 64/P* – for ore carriers, depending on the structural configuration;
.8 *Publication 36/P*, *Publication 58/P*, *Publication 39/P* and *Publication 64/P* – for combination carriers, depending on the structural configuration.
.9 *Publication 39/P* and *Publication 64/P* – for self-unloaders, depending on the structural configuration.

2 SHIP TYPES

2.1 Oil Tanker

The ship type notation **CRUDE OIL TANKER**, or equivalent, and the notation **ESP** are assigned to sea-going self-propelled ships which are constructed generally with integral tanks and intended primarily to carry oil in bulk. This type notations are assigned to tankers of both single and double hull construction, as well as tankers with alternative structural arrangements, e.g. mid-deck designs.

Typical midship sections are given in Figure 1.

Note:

Oil Tankers that do not comply with MARPOL I/19 may be subject to International and/or National Regulations requiring phase out under MARPOL I/20 and/or MARPOL I/21.

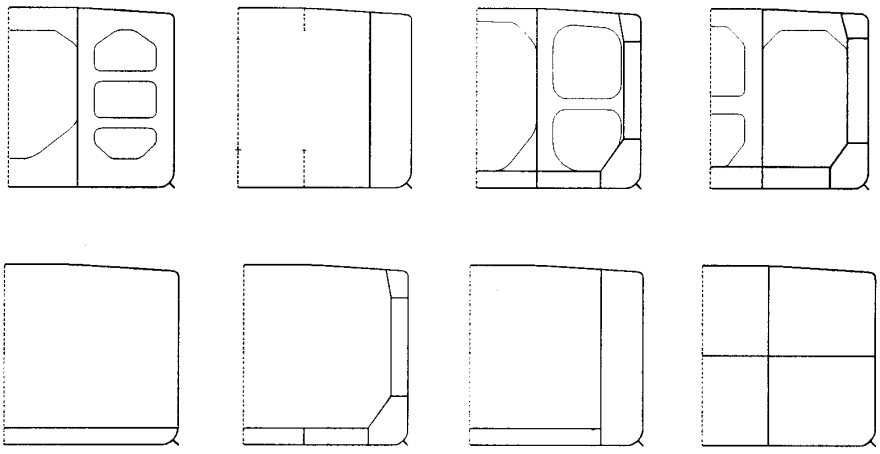

Fig. 1

2.2 Bulk Carrier

The ship type notation **BULK CARRIER**, or equivalent, and the notation **ESP** are assigned to sea-going self-propelled ships which are constructed generally with single deck, double bottom, hopper side tanks and topside tanks and with single or double side skin construction in cargo length area and intended primarily to carry dry cargoes in bulk.

Typical midship sections are given in Figure 2.

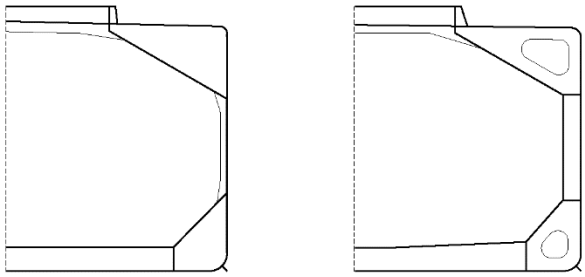

Fig. 2

2.3 Ore Carrier

The ship type notation **ORE CARRIER**, or equivalent, and the notation **ESP** are assigned to sea-going self-propelled ships which are constructed generally with single deck, two longitudinal bulkheads and a double bottom throughout the cargo length area and intended primarily to carry ore cargoes in the centre holds only.

Typical midship sections are given in Figure 3.

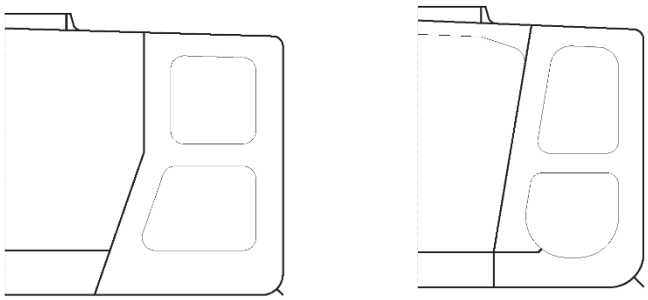

Fig. 3

2.4 Combination Carrier

.1 "Combination carrier" is a general term applied to ships intended for the carriage of both oil and dry cargoes in bulk; these cargoes are not carried simultaneously, with the exception of oily mixture retained in slop tanks.

The ship types defined in **.2** and **.3** below shall be considered to be combination carriers.

.2 The ship type notation **ORE CARRIER/CRUDE OIL TANKER**, or equivalent, and the notation **ESP** are assigned to sea-going self-propelled ships which are constructed generally with single deck, two longitudinal bulkheads and a double bottom throughout the cargo length area and intended primarily to carry ore cargoes in the centre holds or oil cargoes in centre holds and wing tanks. Typical midship sections are given in Figure 4.

Note: Ore/Oil Carriers that do not comply with MARPOL I/19 may be subject to International and/or National Regulations requiring phase out.

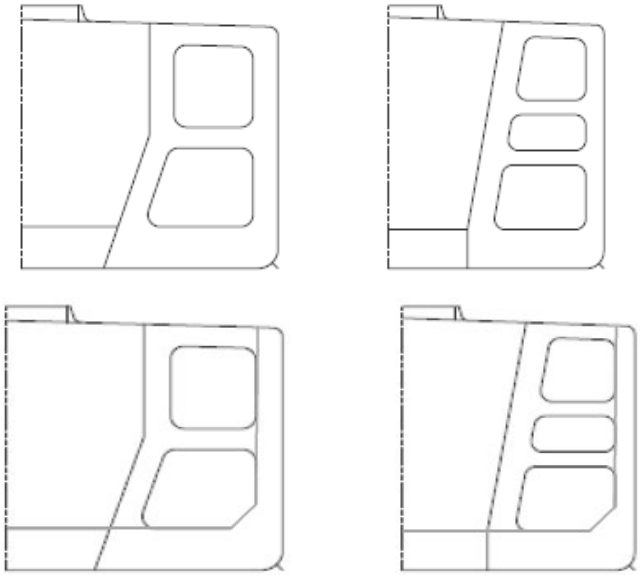

Fig. 4

.3 The ship type notation **OIL/BULK/ORE (OBO) CARRIER**, or equivalent, and the notation **ESP** are assigned to sea-going self-propelled ships which are constructed generally with single deck, double bottom, hopper side tanks and topside tanks, and with single or double side skin construction in the cargo length area, and intended primarily to carry oil or dry cargoes, including ore, in bulk.

Typical midship sections are given in Figure 5.

Note: Oil/Bulk Carriers that do not comply with MARPOL I/19 may be subject to International and/or National Regulations requiring phase out.

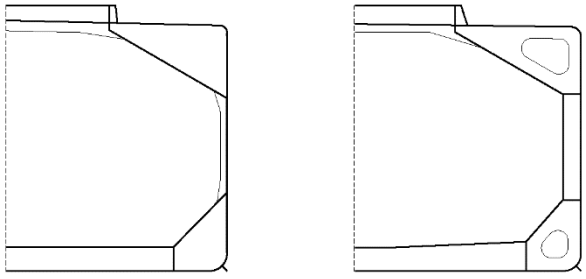

Fig. 5

2.5 Self-Unloading Bulk Carriers

The ship type notation SELF-UNLOADING BULK CARRIER ESP is to be assigned to sea going self-propelled ships, which are constructed generally with single deck, double bottom, hopper side tanks and topside tanks and with single or double side skin construction in cargo length area and intended to carry and self-unload dry cargoes in bulk. Typical midship sections are given in Figure 6.

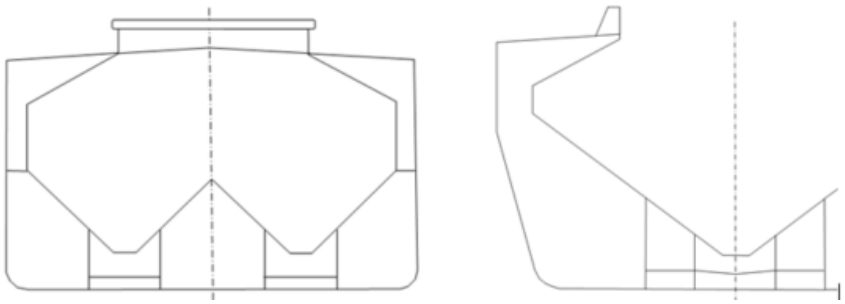

Fig. 6

2.6 Chemical Tankers

The ship type notation **CHEMICAL TANKER**, or equivalent, and the notation **ESP** are assigned to sea-going self-propell70ed ships, which are constructed generally with integral tanks and intended primarily to carry chemicals in bulk.

These type notations are assigned to tankers of both single and double hull construction, as well as tankers with alternative structural arrangements.

Typical midship sections are given in Figure 7.

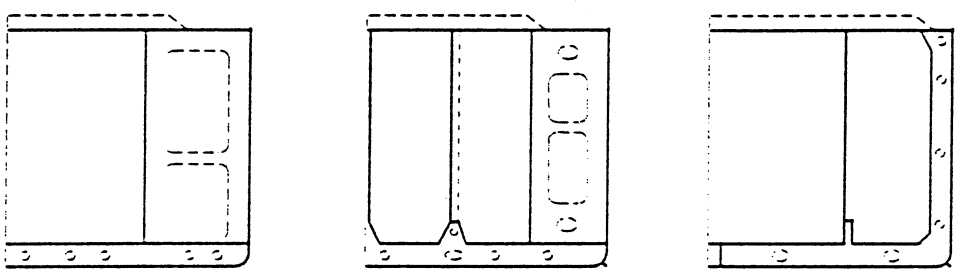

Fig. 7

ANNEX I

PROCEDURES FOR THICKNESS MEASUREMENTS OF SHIPS

This document may be used for recording thickness measurements as required by these Rules.

Reporting forms TM1-G, TM2-G(i) and (ii), TM3-G, TM4-G, TM5-G (sheets 4-9) may be used for recording thickness measurements and the maximum allowable diminution is to be stated. The maximum allowable diminution could be stated in an attached document.

CONTENT

General particulars

Forms of reports:

- Report TM1-G for recording the thickness measurement of all deck plating, all bottom shell plating and side shell plating.
- Report TM2-G (I) for recording the thickness measurement of shell and deck plating at transverse sections – strength deck and sheerstrake plating.
- Report TM2-G (II) for recording the thickness measurement of shell and deck plating at transverse sections – shell plating.
- Report TM3-G for recording the thickness measurement of longitudinal members at transverse sections.
- Report TM4-G for recording the thickness measurement of transverse bulkheads.
- Report TM5-G for recording the thickness measurement of miscellaneous structural members.

GENERAL PARTICULARS

Ship's name:

IMO number:

PRS identity number:

Port of registry:

Gross tons:

Deadweight:

DATE OF BUILD

Classification Society:

Name of Company performing thickness measurement:

Thickness measurement company certified by:

Certificate No:

Certificate valid from ..... to .....

Place of measurement:

First date of measurement:

Last date of measurement:

Special survey/intermediate survey due*):

Details of measurement equipment:

QUALIFICATION OF OPERATORS

Report Number: consisting of Sheets

Names of operator :..... Name of surveyor :.....

Signature of operator :..... Signature of surveyor :.....

Company official stamp: Classification Society Official Stamp:

Notes**:**

*) Delete as ppropriate

TM1-G

REPORT ON THICKNESS MEASUREMENT of ALL DECK PLATING, ALL BOTTOM SHELL PLATING or SIDE SHELL PLATING* (* – delete as appropriate)

Ship's name …….. Class Identity No. …… Report No. ……..

STRAKE POSITION																	
PLATE POSITION	No. or Letter	Org. Thk	Forward Reading						Aft Reading						Mean Diminution %		Maximum Allowable Diminution
			Gauged		Diminution P		Diminution S		Gauged		Diminution P		Diminution S				
			P	S	mm	%	mm	%	P	S	mm	%	mm	%	P	S	mm
11th																	
10th																	
9th																	
8th																	
7th																	
6th																	
5th																	
4th																	
3rd																	
2nd																	
1st																	
Amidships																	
1st aft																	
2nd																	
3rd																	
4th																	
5th																	
6th																	
7th																	
8th																	
9th																	
10th																	
11th																	
12th																	

Operator's Signature ……..... NOTES – See next page

NOTES

TO REPORT TM1-G

1. This report may be used for recording the thickness measurement of:

   A – All strength deck plating within cargo length area.

   B – Keel, bottom shell plating and bilge plating within the cargo length area.

   C – Side shell plating that is all wind and water strakes within the cargo length area.

   D – Side shell plating that is selected wind and water strakes outside the cargo length area.

2. The strake position is to be clearly indicated as follows:

   2.1 For strength deck indicate the number of the strake of plating inboard from the stringer plate.

   2.2 For bottom plating indicate the number of the strake of plating outboard from the keel plate.

   2.3 For side shell plating give number of the strake of plating below the sheerstrake and letter/ number as shown on shell expansion.

3. Only the deck plating strakes outside line of openings are to be recorded.

4. Measurements are to be taken at the forward and aft areas of all plates and the single measurements recorded are to represent the average of multiple measurements.

5. The maximum allowable diminution could be stated in an attached document.

TM2-G (I)

REPORT ON THICKNESS MEASUREMENT OF SHELL AND DECK PLATING (one, two or three transverse sections)

Ship's name …….. Class Identity No. …… Report No. ……..

STRENGTH DECK AND SHEERSTRAKE PLATING																											
	FIRST TRANSVERSE SECTION AT FRAME NUMBER									SECOND TRANSVERSE SECTION AT FRAME NUMBER									THIRD TRANSVERSE SECTION AT FRAME NUMBER								
STRAKE POSITION	No. or Letter	Org. Thk.	Max. Alwb. Dim.	Gauged		Diminution P		Diminution S		No. or Letter	Org. Thk.	Max. Alwb. Dim.	Gauged		Diminution P		Diminution S		No. or Letter	Org. Thk.	Max. Alwb. Dim.	Gauged		Diminution P		Diminution S	
		m	mm	P	S	mm	%	mm	%		mm	mm	P	S	mm	%	mm	%		mm	mm	P	S	mm	%	mm	%
Stringer PLATE																											
1st strake inboard																											
2nd																											
3rd																											
4th																											
5th																											
6th																											
7th																											
8th																											
9th																											
10th																											
11th																											
12th																											
13th																											
14th																											
centre strake																											
sheer strake																											
TOPSIDE TOTAL																											

Operator's Signature ……..... NOTES – See next page

NOTES

TO REPORT TM2-G (I)

1. This report may be used for recording the thickness measurement of:

   Strength deck plating and sheerstrake plating transverse sections:

   One, two or three sections within the cargo length area, comprising the structural items.

2. Only the deck plating strakes outside the line of openings are to be recorded.

3. The topside area comprises deck plating, stringer plate and sheerstrake (including rounded gunwales).

4. The exact frame station of measurement is to be stated.

5. The single measurements recorded are to represent the average of multiple measurements.

6. The maximum allowable diminution could be stated in an attached document.

TM2-G (II) **REPORT ON THICKNESS MEASUREMENT OF SHELL AND DECK PLATING (one, two or three transverse sections)**

Ship's name…… Class Identity No…… Report No……..

SHELL PLATING																													
	FIRST TRANSVERSE SECTION AT FRAME NUMBER									SECOND TRANSVERSE SECTION AT FRAME NUMBER									THIRD TRANSVERSE SECTION AT FRAME NUMBER										
STRAKE POSITION	No. or Letter	Org. Thk.	Max. Alwb. Dim.	Gauged		Diminution P		Diminution S		No. or Letter	Org. Thk.	Max. Alwb. Dim.	Gauged		Diminution P		Diminution S		No. or Letter	Org. Thk.	Max. Alwb. Dim.	Gauged		Diminution P		Diminution S			
		mm	mm	P	S	mm	%	mm	%		mm	mm	P	S	mm	%	mm	%		mm	mm	P	S	mm	%	mm	%		
1st below sheer strake																													
2nd																													
3rd																													
4th																													
5th																													
6th																													
7th																													
8th																													
9th																													
10th																													
11th																													
12th																													
13th																													
14th																													
15th																													
16th																													
17th																													
18th																													
19th																													
20th																													
keel strake																													
BOTTOM TOTAL																													

Operator's Signature ……..…..

NOTES – See next page

NOTES

TO REPORT TM2-G (II)

1. This report may be used for recording the thickness measurement of:
   Shell plating transverse sections:
   One, two or three sections within the cargo length area, comprising the structural items.
2. The bottom area comprises keel, bottom and bilge plating.
3. The exact frame station of measurement is to be stated.
4. The single measurements recorded are to represent the average of multiple measurements.
5. The maximum allowable diminution could be stated in an attached document.

TM3-G

REPORT ON THICKNESS MEASUREMENT OF LONGITUDINAL MEMBERS (one, two or three transverse sections)

Ship's name …….. Class Identity No. …… Report No. ……..

	FIRST TRANSVERSE SECTION AT FRAME NUMBER									SECOND TRANSVERSE SECTION AT FRAME NUMBER									THIRD TRANSVERSE SECTION AT FRAME NUMBER								
STRUCTURAL MEMBER	Item No.	Org. Thk.	Max. Alwb. Dim.	Gauged		Diminution P		Diminution S		Item No.	Org. Thk.	Max. Alwb. Dim.	Gauged		Diminution P		Diminution S		Item No.	Org. Thk.	Max. Alwb. Dim.	Gauged		Diminution P		Diminution S	
		mm	mm	P	S	mm	%	mm	%		mm	mm	P	S	mm	%	mm	%		mm	mm	P	S	mm	%	mm	%

Operator's Signature ……..... NOTES – See next page

NOTES

TO REPORT TM3-G

1. This report may be used for recording the thickness measurement of:

   Longitudinal Members at transverse sections:

   One, two, or three sections within the cargo length area, comprising of the appropriate structural items (10) to (29) as shown on the sketches of typical transverse section.

2. The exact frame station of measurement is to be stated.

3. The single measurements recorded are to represent the average of multiple measurements.

4. The maximum allowable diminution could be stated in an attached document.

TM4-G

REPORT ON THICKNESS OF TRANSVERSE BULKHEADS

Ship's name …… Class Identity No. …… Report No. ……

DESCRIPTION OF TANK/HOLD								
LOCATION OF STRUCTURE:				FRAME NO.:				
STRUCTURAL COMPONENT (PLATING/STIFFENER)	Original Thickness mm	Max. Alwb. Dim. mm	Gauged		Diminution P		Diminution S	
			Port	Starboard	mm	%	mm	%

Operator's Signature ……..... NOTES – See next page

NOTES

TO REPORT TM4-G

1. This report form may be used for recording the thickness measurement of cargo hold transverse bulkheads.

2. The single measurements recorded are to represent the average of multiple measurements.

3. The maximum allowable diminution could be stated in an attached document.

TM5-G

REPORT ON THICKNESS MEASUREMENT OF MISCELLANEOUS STRUCTURAL MEMBERS

Ship's name …….. Class Identity No. …… Report No. ……

STRUCTURAL MEMBER:									SKETCH
LOCATION OF STRUCTURE:									
Description	Org. Thk. mm	Max. Alwb. Dim. mm	Gauged		Diminution P		Diminution S		
			P	S	mm	%	mm	%	

Operator's Signature ……

NOTES – See next page

NOTES

TO REPORT TM5-G

1. This report may be used for recording the thickness measurement of miscellaneous structural members.

2. The single measurements recorded are to represent the average of multiple measurements.

3. The maximum allowable diminution could be stated in an attached document.

ANNEX II

PROCEDURES FOR THICKNESS MEASUREMENTS OF SHIPS WHICH ARE CONSTRUCTED ACCORDING TO THE NEW SCANTLING DESIGN

This document may be used for recording thickness measurements as required by this Rules.

Reporting forms TM1-G(NSD), TM2-G (i) (NSD) and (ii), TM3-G(NSD), TM4-G(NSD), TM5-G(NSD) may be used for recording thickness measurements and the maximum allowable diminution is to be stated.

The maximum allowable diminution could be stated in an attached document.

CONTENT

General Particulars

Forms of Reports:

- Report TM1-G(NSD) for recording the thickness measurement of all deck plating, all bottom shell plating and side shell plating.
- Report TM2-G(NSD) (I) for recording the thickness measurement of shell and deck plating at transverse sections – strength deck and sheerstrake plating.
- Report TM2-G(NSD) (II) for recording the thickness measurement of shell and deck plating at transverse sections – shell plating.
- Report TM3-G(NSD) for recording the thickness measurement of longitudinal members at transverse sections.
- Report TM4-G(NSD) for recording the thickness measurement of transverse bulkheads.
- Report TM5-G(NSD) for recording the thickness measurement of miscellaneous structural members.

GENERAL PARTICULARS

Ship's name:

IMO number:

PRS identity number:

Port of registry:

Gross tons:

Deadweight:

DATE OF BUILD

Classification Society:

Name of Company performing thickness measurement:

Thickness measurement company certified by:

Certificate No:

Certificate valid from ………………..................... to ……………………..................

Place of measurement:

First date of measurement:

Last date of measurement:

Special survey/intermediate survey due:[5]

Details of measurement equipment:

QUALIFICATION OF OPERATORS

Report Number: ………………………………. consisting of Sheets ……………….......................

Name of operator: ....……..…. Name of surveyor:....................................…………......

Signature of operator: .... Signature of surveyor: ....

Company official stamp: Classification Society Official Stamp:

Notes:

[5] Delete as appropriate.

TM1-G (NSD)

REPORT ON THICKNESS MEASUREMENT of ALL DECK PLATING, ALL BOTTOM PLATING or SIDE SHELL PLATING* (* - delete as appropriate)

Ship's name …….. Class Identity No. …… Report No. ……

STRAKE POSITION																			
PLATE POSITION	No. or Letter	As Built Thk. mm	Voluntary Thickness Addition mm	Renewal Thickness mm (a)	Forward Reading						Aft Reading						Mean Remaining Corr. Addition, mm [(c1) + (c2)] / 2	
					Gauged Thk. mm (b1)		Remaining Corr. Addition, mm (c1) = (b1) – (a)				Gauged Thk. mm (b2)		Remaining Corr. Addition, mm (c2) = (b2) – (a)					
					P	S	P		S		P	S	P		S		P	S
12th forward																		
11th																		
10th																		
9th																		
8th																		
7th																		
6th																		
5th																		
4th																		
3rd																		
2nd																		
1st																		
Amidships																		
1st aft																		
2nd																		
3rd																		
4th																		
5th																		
6th																		
7th																		
8th																		
9th																		
10th																		
11th																		
12th																		

Operator's Signature ……..... NOTES – See next page

NOTES

TO REPORT TMI-G(NSD)

1. This report may be used for recording the thickness measurement of:

   A – All strength deck plating within cargo length area.

   B – Keel, bottom shell plating and bilge plating within the cargo length area.

   C – Side shell plating that is all wind and water strakes within the cargo length area.

   D – Side shell plating that is selected wind and water strakes outside the cargo length area.

2. The strake position is to be clearly indicated as follows:

   2.1 For strength deck indicate the number of the strake of plating inboard from the stringer plate.

   2.2 For bottom plating indicate the number of the strake of plating outboard from the keel plate.

   2.3 For side shell plating give number of the strake of plating below the sheerstrake and the letter as shown on shell expansion.

3. Only the deck plating strakes outside line of openings are to be recorded.

4. Measurements are to be taken at the forward and aft areas of all plates and the single measurements recorded are to represent the average of multiple measurements.

5. The remaining corrosion addition is to be recorded with result of gauged thickness minus renewal thickness. If the result is negative, the structure in way shall be renewed, and the mark "R" is to be indicated in the right-hand column. If the result is between 0 and 0.5 mm, the structure in way shall be additional gauged, and the mark "S" is to be indicated in the right-hand column.

TM2-G (NSD) (I) **REPORT ON THICKNESS MEASUREMENT OF SHELL AND DECK PLATING (one, two or three transverse sections)**

Ship's name ..... Class Identity No. ..... Report No. .....

STRENGTH DECK AND SHEERSTRAKE PLATING																														
	FIRST TRANSVERSE SECTION AT FRAME NUMBER										SECOND TRANSVERSE SECTION AT FRAME NUMBER										THIRD TRANSVERSE SECTION AT FRAME NUMBER									
STRAKE POSITION	No. or Letter	As Built Thk. mm	Vol. Thk. Add. mm	Ren. Thk. mm (a)	Gauged Thk. mm (b)		Remaining Corr. Addition, mm (b) – (a)				No. or Letter	As Built Thk. mm	vol. Thk. Add. mm	Ren. Thk. mm (a)	Gauged Thk. mm (b)		Remaining Corr. Addition mm (b) – (a)				No. or Letter	As Built Thk. mm	Vol. Thk. Add. mm	Ren. Thk. mm (a)	Gauged Thk. mm (b)		Remaining Corr. Addition, mm (b) – (a)			
					P	S	P		S						P	S	P		S						P	S	P		S	
Stringer Plate																														
1st strake inboard																														
2nd																														
3rd																														
4th																														
5th																														
6th																														
7th																														
8th																														
9th																														
10th																														
11th																														
12th																														
13th																														
14th																														
centre strake																														
sheer strake																														
TOPSIDE TOTAL																														

Operator's Signature .....

NOTES – See next page

NOTES

TO REPORT TM2-G(NSD) (I)

1. This report may be used for recording the thickness measurement of:

   – Strength deck plating and sheerstrake plating transverse sections:

   – One, two or three sections within the cargo length area, comprising the structural items.

2. Only the deck plating strakes outside the line of openings are to be recorded.

3. The topside area comprises deck plating, stringer plate and sheerstrake (including rounded gunwales).

4. The exact frame station of measurement is to be stated.

5. The single measurements recorded are to represent the average of multiple measurements.

6. The remaining corrosion addition is to be recorded with result of gauged thickness minus renewal thickness. If the result is negative, the structure in way shall be renewed, and the mark "R" is to be indicated in the right-hand column. If the result is between 0 and 0.5 mm, the structure in way shall be additional gauged, and the mark "S" is to be indicated in the right-hand column.

TM2-G (NSD) (II) **REPORT ON THICKNESS MEASUREMENT OF SHELL PLATING (one, two or three transverse sections)**

Ship's name …… Class Identity No. …… Report No. ……

SHELL PLATING																																
	FIRST TRANSVERSE SECTION AT FRAME NUMBER										SECOND TRANSVERSE SECTION AT FRAME NUMBER										THIRD TRANSVERSE SECTION AT FRAME NUMBER									
STRAKE POSITION	No. or Letter	As Built Thk. mm	Vol. Thk. Add. mm	Ren. Thk. mm (a)	Gauged Thk. mm (b)		Remaining Corr. Addition mm (b) – (a)				No. or Letter	As Built Thk. mm	vol. Thk. Add. mm	Ren. Thk. mm (a)	Gauged Thk. mm (b)		Remaining Corr. Addition mm (b) – (a)				No. or Letter	As Built Thk. mm	Vol. Thk. Add. mm	Ren. Thk. mm (a)	Gauged Thk. mm (b)		Remaining Corr. Addition mm (b) – (a)			
					P	S	P		S						P	S	P		S						P	S	P		S	
1st below sheer strake																														
2nd																														
3rd																														
4th																														
5th																														
6th																														
7th																														
8th																														
9th																														
10th																														
11th																														
12th																														
13th																														
14th																														
15th																														
16th																														
17th																														
18th																														
19th																														
20th																														
Keel strake																														
BOTTOM TOTAL																														

Operator's Signature ……

NOTES – See next page

NOTES

TO REPORT TM2-G(NSD) (II)

1. This report may be used for recording the thickness measurement of:
   - Shell plating transverse sections:
   - One, two or three sections within cargo length area comprising the structural items.
2. The bottom area comprises keel, bottom and bilge plating.
3. The exact frame station of measurement is to be stated.
4. The single measurements recorded are to represent the average of multiple measurements.
5. The remaining corrosion addition is to be recorded with result of gauged thickness minus renewal thickness. If the result is negative, the structure in way shall be renewed, and the mark "R" is to be indicated in the right-hand column. If the result is between 0 and 0.5 mm, the structure in way shall be additional gauged, and the mark "S" is to be indicated in the right-hand column.

TM3-G (NSD)

REPORT ON THICKNESS MEASUREMENT OF LONGITUDINAL MEMBERS (one, two or three transverse sections)

Ship's name …….. Class Identity No. …… Report No. ……

STRUCTURAL MEMBER	FIRST TRANSVERSE SECTION AT FRAME NUMBER										SECOND TRANSVERSE SECTION AT FRAME NUMBER										THIRD TRANSVERSE SECTION AT FRAME NUMBER									
	Item No.	As Built Thk. mm	Vol. Thk. Add. mm	Ren. Thk. mm (a)	Gauged Thk. mm (b)		Remaining Corr. Addition mm (b) – (a)				Item No.	As Built Thk. mm	vol. Thk. Add, mm	Ren. Thk. mm (a)	Gauged Thk. mm (b)		Remaining Corr. Addition mm (b) – (a)				Item No.	As Built Thk. mm	Vol. Thk. Add. mm	Ren. Thk. mm (a)	Gauged Thk. mm (b)		Remaining Corr. Addition mm (b) – (a)			
					P	S	P		S						P	S	P		S						P	S	P		S	

Operator's Signature ……..... NOTES – See next page

NOTES

TO REPORT TM3-G(NSD)

1. This report may be used for recording the thickness measurement of:
   - Lonqitudinal Members at transverse sections:
   - One, two, or three sections within the cargo length area, comprising the appropriate structural items.
2. The exact frame station of measurement is to be stated.
3. The single measurements recorded are to represent the average of multiple measurements.
4. The remaining corrosion addition is to be recorded with result of gauged thickness minus renewal thickness. If the result is negative, the structure in way shall be renewed, and the mark "R" is to be indicated in the right-hand column. If the result is between 0 and 0.5 mm, the structure in way shall be additional gauged, and the mark "S" is to be indicated in the right-hand column.

TM4-G (NSD)

REPORT ON THICKNESS MEASUREMENTS OF TRANSVERSE BULKHEADS

Ship's name …….. Class Identity No. …… Report No. ……

DESCRIPTION OF TANK/HOLD:									
LOCATION OF STRUCTURE: FRAME NO.:									
STRUCTURAL COMPONENT (PLATING/STIFFENER)	As Built Thickness mm	Voluntary Thickness Addition mm	Renewal Thickness mm (a)	Gauqed Thickness mm (b)		Remaining Corr. Addition mm (b) – (a)			
				P	S	P		S	

Operator's Signature ……..... NOTES – See next page

NOTES

TO REPORT TM4-G(NSD)

1. This report form may be used for recording the thickness measurement of cargo hold transverse bulkheads.
2. The single measurements recorded are to represent the average of multiple measurements.
3. The remaining corrosion addition is to be recorded with result of gauged thickness minus renewal thickness. If the result is negative, the structure in way shall be renewed, and the mark "R" is to be indicated in the right-hand column. If the result is between 0 and 0.5 mm, the structure in way shall be additional gauged, and the mark "S" is to be indicated in the right-hand column.

TM5-G (NSD)

REPORT ON THICKNESS MEASUREMENT OF MISCELLANEOUS STRUCTURAL MEMBERS

Ship's name …….. Class Identity No. …… Report No. ……

STRUCTURAL COMPONENT										SKETCH
LOCATION OF STRUCTURE:										
Description	As Built Thk. mm	Voluntary Thickness Addition mm	Renewal Thickness mm (a)	Gauged Thickness mm (b)		Remaininq Corr. Addition mm (b) – (a)				
				P	S	P		S		

Operator's Signature ……

NOTES – See next page

NOTES

TO REPORT TM5-G(NSD)

1. This report may be used for recording the thickness measurement of miscellaneous structural members.
2. The single measurements recorded are to represent the average of multiple measurements.
3. The remaining corrosion addition is to be recorded with result of gauged thickness minus renewal thickness. If the result is negative, the structure in way shall be renewed, and the mark "R" is to be indicated in the right-hand column. If the result is between 0 and 0.5 mm, the structure in way shall be additional gauged, and the mark "S" is to be indicated in the right-hand column.

List of amendments effective as of 1 January 2024

Item	*Title/Subject*	*Source*
Page 2	Publication 72/P has been added	PRS
1.1.13	The provisions related to the reference to Publication 72/P have been amended	PRS
1.2	5 definitions has been amended or added	PRS, SOLAS, IP Code, SPS Code
3.4.2.2.2.28	Provision related to CREW BOAT has been amended	PRS
3.4.4.23	Provisions related to gas tankers using their cargo as fuel have been amended	PRS
3.4.4.24	Provisions related to ships other than gas tankers using low-flashpoint gases as fuel have been amended	PRS
