INTERNATIONAL SHIP CLASSIFICATION

RULES FOR CONDITIONS OF CLASSIFICATION – Part B

1 Surveys

1.1 Classification Surveys

All ships including steel barges and passenger ships intended to be classed with IS Class are subjected to Classification Surveys in accordance with the relevant requirements in Chapter 2, 10 and 11.

Classification Surveys comprise the following Initial Surveys.

(a) Classification Survey during Construction*

(b) Classification Survey of Ships Not Built under Survey

1.2 Class Maintenance Surveys

Class Maintenance Surveys consist of the following:

(a) Periodical Surveys
(b) Planned Machinery Surveys
(c) Occasional Surveys

At each of these surveys, tests or inspections are to be carried out to verify that hull, machinery, equipment, firefighting equipment, etc., are in good order.

i. Periodical Surveys

Annual Survey	Refer Part B Chapter 3
Intermediate Survey	Refer Part B Chapter 4
Special Survey	Refer Part B Chapter 5
Docking Survey	Refer Part B Chapter 6
Boiler Survey	Refer Part B Chapter 7
Propeller Shaft and Stern Tube Shaft Survey	Refer Part B Chapter 8

ii. Planned Machinery Surveys

Continuous Machinery Survey (CMS)	Systematic inspections of machinery and equipment, so that each survey interval for all CMS items does not exceed five years.
Planned Machinery Maintenance Scheme (PMS)	Inspections of machinery and equipment specified in according to the machinery maintenance scheme approved by IS Class

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iii. Occasional Surveys

The surveys consist of inspections of hull, machinery and equipment including damaged part and of works for repairs, modifications or conversions, which are carried out separately from (i) and (ii) above. The scope of the surveys and their procedures are determined by IS Class depending on the purpose of the survey.

1.3 Intervals of Periodical Surveys and Planned Machinery Surveys

Annual	Within three months before or after each anniversary date
Intermediate	2nd or 3rd Annual Survey after the Classification Survey during Construction or a Special Survey.
Special	1. Within 3 months before the date of expiry of the Classification Certificate. 2. Commenced at the 4th Annual Survey and be completed within 3 months before expiry date of the Classification Certificate.
Docking	1. Concurrently with Special Surveys. 2. Within 36 months from the date of completion of the Classification Survey or the previous Docking Survey.
Boiler	1. Concurrently with Special Surveys. 2. Within 36 months from the date of completion of the Classification Survey or the previous Boiler Survey.
Propeller Shaft and Stern Tube Shaft	Ordinary Survey of the propeller shaft and stern tube shaft are to be carried out as specified below: (a) Ordinary Survey of Propeller shafts Kind I is to be carried out within 5 years from the date of completion of the Classification Survey or the previous Ordinary Survey. (b) Ordinary Survey for ships fitted with oil-lubricated stern tube bearings, may be postponed for not more than 3 years or 5 years from the date of completion of Partial Survey provided that the Partial Survey is carried out respectively at the time prescribed in (a) above. (c) The propeller shafts Kind 1 adopting the preventive maintenance system in accordance with the requirements 8.1.3, need not be withdrawn at the Ordinary Surveys. The shafts are to be withdrawn for inspection at the times required on the basis of the results of the preventive maintenance. (d) Ordinary Surveys of Propeller shafts Kind 2 or stern tube shafts Kind 2 in this Chapter are to be carried out as prescribed in i) and ii). i) Concurrently with Special Surveys ii) Within 36 months from the date of completion of the Classification Survey or the previous Ordinary Surveys. However, where the part of the construction of the shaft in the stern tube bearing corresponds to the shaft Kind 1 and the construction of the shaft between the stern tube and the shaft bracket bearing corresponds to the shaft Kind 2, the shaft may

	be surveyed at the intervals prescribed in (a), provided that inspection required for the part corresponding to the shaft Kind 2 is carried out at the times prescribed in i) and ii).

2 Planned Machinery Surveys are to be carried out as specified below in (a) through (c)

a) In the Continuous Machinery Survey, each survey item or part is to be examined at the interval not exceeding 5 years.

b) In the Planned Machinery Maintenance Scheme, each survey item or part is to be examined according to the survey schedule table specified in 9.1.3 and at the opportunity of the general inspection including review of the maintenance records which is to be carried out every year.

c) In the Preventive Machinery Maintenance Scheme, each survey item or part is to be examined according to the survey schedule table specified in 9.1.4, and at the opportunity of the general inspection including review of the maintenance and condition monitoring records as well as operation tests which are to be carried out every year.

3 The classed ships are to be subject to Occasional Surveys when they fall under one of the conditions of (a) through (e) below. Periodical Surveys can substitute for the Occasional Surveys where recommendations for carrying out the Occasional Surveys are cleared at the Survey.

a) When main parts of hull, machinery or important equipment or fittings which have been surveyed by IS Class, have been damaged, or are to be repaired or altered.

(b) When load lines are to be changed or to be newly marked.

(c) When an alteration affecting her stability is made.

(d) When the Survey is requested by the owner

(e) Whenever the survey is considered necessary by IS Class

1.4 Periodical Surveys carried out in advance

1.4.1 Special Surveys may be carried out in advance of the due dates of the Special Survey upon application by the Owner.

1.4.2 Annual Surveys and Intermediate Surveys may be carried out in advance of the due dates of each Survey upon application by the Owner. In this case, one or more additional Periodical Surveys are to be carried out in accordance with the provisions specified otherwise by IS Class.

1.4.3 In case where a Periodical Survey other than an Annual Survey or an Intermediate Survey is carried out in advance at the due time of the Annual Survey or Intermediate Survey, the following requirements may be applicable.

(a) Where an Intermediate Survey or a Special Survey is carried out in advance at the due time of the Annual Survey, the Annual Survey may be dispensed with.

(b) Where a Special Survey is carried out in advance at the due time of the Intermediate Survey, the Intermediate Survey may be dispensed with.

1.5 Postponement of Periodical Surveys

Special Surveys, Docking Surveys, Boiler Surveys and Ordinary Surveys for Propeller shafts Kind 2 may be postponed as specified in (1.5.1) or (1.5.2) below subject to the approval by IS Class in advance. However, no postponement is to be permitted on the period **of 36 months** between any two Docking Surveys, Boiler Surveys and Ordinary Surveys for Propeller shafts Kind 2 respectively.

1.5.1 Maximum 3 months for the purpose of allowing the ship to complete its voyage to the port in which it is to be surveyed.

1.5.2 Maximum 1 month for the ship engaged on short voyages.

1.6 Waiver / Additional Requirements

1.6.1 At the Periodical Surveys and Planned Machinery Surveys, the Surveyor may impose additional requirements specified in Chapters 3 through 9 of this Part having regard to the size, service engaged, construction, age, history, results of previous surveys and actual condition of the ship.

1.6.2 When the results of a Periodical Survey suggest the likelihood of heavy corrosion, defects etc., and the Surveyor considers it necessary, close-up surveys, pressure tests or thickness measurements are to be carried out. Thickness measurements procedures and submission of gauging results are to be in accordance with the requirements of Chapter 5.

1.6.3 For tanks and cargo holds where effective coatings are found to be in a good condition, the extent of internal inspection, close-up surveys or gauging requirements specified in Chapters 3 through 9 of this Part may be specially considered at the discretion of the Surveyor.

1.6.4 Continuous Hull Surveys

For ships other than bulk carriers approved by IS Class, at the request of an owner, internal inspections, thickness measurements and pressure tests of tanks and compartments to be carried out at Special Surveys may be dispensed with at the discretion of the Surveyor provided that those inspections and tests have been carried out successively by the relevant Special Surveys (hereinafter, referred to as "Continuous Hull Survey”). If the inspection during Continuous Hull Surveys reveals any defects, the Surveyor may require further tanks and compartments to be examined precisely. IS Class may, where considered necessary, require the Continuous Hull Survey to be carried out by a method other than specified above.

1.6.5 Where inspections have been carried out during the period between the 2nd and the 3rd Annual Surveys according to the requirements for Intermediate Surveys, said inspections to be carried out as Intermediate Surveys may be omitted at the discretion of the Surveyor.

1.7 Bulk carriers

1.7.1 For ships with single side skin construction, the additional requirements of damage stability, transverse watertight corrugated bulkhead and allowable hold loading on double bottom are to be complied when the ship reaches 10 years of age. Ships older than 10 years would have complied at the first Intermediate or Special Survey after 1 July 2003.

In the assessment for compliance, the thickness measurement as deemed appropriate by IS Class is to be carried out.

1.7.2 For ships defined in Para (1.7.1), the thickness measurements as deemed appropriate by IS Class are to be carried out for the vertical corrugated watertight bulkhead abaft the foremost hold at Special Surveys in addition to those according to Table 5.11, in order to verify the continuously complying with Para (1.7.1)

1.7.3 For ships which are required to carry out the annual thickness measurement for the vertical corrugated watertight bulkhead abaft the foremost hold as a result of previous measurement and the surveyor's recommendation, it shall be carried out in addition to Table 3.6.

1.7.4 For ships defined in Para (1.7.1), the following surveys are to be carried out at periodical surveys in addition to the surveys required in this chapter.

a) At annual surveys, the internal inspection of spaces and tanks, close up surveys and thickness measurement are to be carried out in accordance with the requirement of an Intermediate Survey for the foremost hold.

b) Function tests such as bilge well high-level alarms and hold water ingress alarms are to be carried out in addition to those required in 3.2.3, 4.2.3 and 5.2.3 at periodical surveys.

1.8 Ships Laid-up

1.8.1 Ships laid-up are not subject to Class Maintenance Surveys. However, the laid up has to be approved by IS Class

1.8.2 When ships are about to re-enter service, a Periodical Survey equivalent to the coming Periodical Survey and any overdue CMS items are to be carried out. However, if the coming Periodical Survey is a Special Survey, it shall correspond to the age of the ship.

1.9 Machinery Verification Runs

If significant repairs are carried out to main or auxiliary machinery or steering gear, a sea trial or a dock trial may be required at the discretion of the attending surveyor.

2 Ships, Installations, Apparatus, etc. for Special Purposes

2.1 Incinerators of Waste Oil and Waste Substance

Where incinerators of waste oil and waste substance are installed on board, they are to be examined to the satisfaction of the Surveyor

2.2 Surveys of Special Ships

If IS Class judges that the requirements in this Part are impractical due to the special nature of ship's design, services and operating mode, IS Class shall notify the attending surveyor of the scope and extent of the survey

3 Definitions

Ballast tank	Tank which is being used solely for water ballast or a tank which is used for both cargo and ballast will be treated as a Ballast Tank when substantial corrosion has been found in that tank
Close-up	Survey where the details of structural components are within the close visual inspection range of the Surveyor.
Longitudinal members in the transverse section	Include all longitudinal members such as plating, longitudinal and girders at the deck side, bottom, inner bottom and longitudinal bulkheads in the transverse section
Representative tanks	Are those which are expected to reflect the condition of other tanks of similar types and service and with similar corrosion prevention systems. When selecting representative tanks, it should consider the service and repair history on board and identifiable critical and or suspect areas.
Substantial corrosion	Corrosion pattern indicates a wastage in excess of 75% of allowable margins, but within acceptable limits.
Suspect areas	Are locations showing substantial corrosion and/or are considered by the Surveyor to be prone to rapid wastage
Corrosion prevention system	a) A full hard coating supplemented by anodes or b) A full hard coating.
Coating condition is defined as follows: 1. Good 2. Fair 3. Poor	 1. Minor spot rusting. 2. Local breakdown at edges of stiffeners and weld connections and/or light rusting over 20% or more of areas under consideration, but less than as defined for poor condition. 3. General breakdown of coating over 20%or more of areas or hard scale at 10% or more of areas.
Cargo length area	Includes all cargo holds and adjacent areas including fuel tanks, cofferdams, ballast tanks and void spaces.
Bulk carrier	Are ships constructed or converted with a single deck, top-side tanks and hopper side tanks in cargo area and intended primarily to carry dry cargoes in bulk, or ships constructed or converted with a single deck, two longitudinal bulkheads and a double bottom throughout the cargo area and intended for the carriage of ore cargoes in the center holds only
Ships carrying timber cargoes	Cargo ships with timber load lines markings or primarily carrying log cargoes.
Anniversary Date	Date of which the relevant certificate is due.

4 Preparation for Surveys

4.1 Notification

It is **the responsibility of the Owners to notify** the Surveyor or Survey Offices in advance to ensure that the surveys are carried out without disruption. The notification can be sent to the IS Class Office via email enquiry@IS Class.com for quick response.

4.2 Preparation for Surveys

4.2.1 Owners or their representatives shall assume the responsibilities in the preparations for surveys and are to include provisions for easy and safe access, gas freeing, ventilations, lightings, and cleanliness for the execution of the survey.

4.2.2 In bulk carriers, an applicant is to submit a Survey Program identifying the survey items as part of preparation for the Special Survey.

4.2.3 The presence of a responsible Owner's representative during the survey.

4.3 Suspension of Surveys

Surveys may be suspended where essential preparations have not been made or the Surveyor considers that the safety for execution of the survey is not ensured.

4.4 Repairs

When repairs are considered to be necessary, the owner shall obtain the Surveyor's verification after carrying out the necessary repairs.

4.5 Procedure for Tests, Wear and Tear

Speed Trial	Speed trial is to be carried out, where alterations or repairs which might affect ship's speed have been made. Sea or Dock trial of ship or machinery may be required at the discretion of the surveyor.
Inclining Test	Inclining test is to be carried out, where alterations or repairs which may affect ship's stability. Further inclining test may be required where deemed necessary by the Surveyor.
Repairs for Wear and Tear	Where the thicknesses of materials of hull structure, scantlings of equipment, etc. become less than the stipulated wear and tear limits, these are to be renewed either with the original scantlings at the time of construction or the scantlings deemed appropriate by IS Class. Where, however, the original scantlings were larger than the required ones, or where deemed appropriate by IS Class, these requirements may be amended taking into account the location, extent, kind, etc. of the wear and tear.

1 Classification Survey during Construction*

1.1 General

In the Classification Survey during Construction, the construction, materials, scantlings and workmanship of the hull and equipment, machinery, fire protection and detection, means of escape, fire extinction, electrical installation, stability and load lines are to be examined in detail in order to ascertain that they meet the relevant requirements of the Rules.

1.2 Submission of Plans and Documents for Approval

1.2.1. When it is intended to build a ship to the classification with IS Class, the following plans and documents are to be submitted in triplicate for the approval by IS Class before the work is commenced. The same applies also to the cases of any subsequent modifications to the approved plans and documents. Plans and documents may be subjected to inspection by IS Class prior to the submission of an application.

(1) Hull

No.	Plans/Documents	Remarks
1	General arrangement	Details to be included.
2	Midship Section	Athwartship sections at the hold and machinery space, and also in way of the wing tank if fitted designed at maximum load draught
3	Stem, Stern Frame, Propeller Post and Rudder	Drawings and data
4	Construction profile	Showing arrangement of watertight bulkheads, the load draught, sizes of brackets and transverse sections of the ship at 0.1 *L* and 0.2 *L* from both ends of the ship
5	Deck plans	Indicating arrangement and construction of hatchways, hatch beams, etc.
6	Single bottoms and double bottoms	Including bilge hopper tanks if applicable
7	Watertight and oil-tight bulkheads	Indicating the highest position of tank and positions of tops of overflow pipes
8	Superstructure end bulkhead	With details of closing appliances of openings on the bulkheads
9	Members to resist panting in both peaks and their vicinity	Drawings and data
10	Pillars and deck girders	Drawings and data
11	Shell expansion	Dimensions and arrangements of freeing ports and draught at the ballast condition for ships are to be indicated in this plan.
12	Shaft tunnels	To indicate watertight positions

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13	Seating of boilers, engines, thrust and Plummer blocks, dynamos and other important auxiliary engines	Indicating horse powers, heights and weights of main engines, and arrangements of holding down bolts
14	Machinery casings	Including insulations
15	Long deckhouses, if fitted	Drawings and data
16	Masts, mast houses and winch platforms	Drawings and data
17	Pumping arrangements	Indicating capacity of each tank, water or oil
18	Plans showing the height of timber deck cargo and arrangements of lashing and fixing.	For ships marked with the timber load lines or ships which are provided with arrangements for lashing and fixing for timber loading on deck.
19	Fire protection construction	To indicate materials used in the construction of superstructures, bulkheads, decks, deckhouses, trunks, stairways, deck coverings, etc. and arrangements of closing appliances of openings and means of escape
20	Plans showing escape routes	Details are to be included
21	Plans showing fire extinguishing arrangement	Fire extinguishing arrangement, numbers and types of fire pumps, hydrants, hoses, etc.
22	Plans showing arrangement for access	Access for peak tanks, deep tanks, cofferdam, cargo holds having large bilge hopper.
23	Navigation bridge visibility	Plans and data where the length of ship for freeboard length is 45 m or over

(2) Machinery

1	Engine Room arrangement	Machinery arrangement of machinery space, diagram for internal communication systems including diagram for engineers' alarm systems
2	Main and auxiliary engines including their attachments	Drawings and data in relation to the kind of engine
3	Power transmission gears, shafting and propellers	Drawings and data
4	Boilers and pressure vessels	Drawings and data
5	Auxiliary machinery and piping	Plans, drawings, specifications and data reference
6	Steering gear	Plans and data
7	Automatic and remote controls	Plans and data reference
8	Spare parts	List of spare parts
9	Electrical installations	Plans and data

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(5) Other plans and documents which are deemed necessary by IS Class

1	The plans mentioned in (1)	Are to indicate in detail the quality of materials used, scantlings and arrangements of structural members, their attachments, clearance between the bottom of boilers and the top of floors, and other particulars necessary for inspection of proposed constructions
2	A stability information booklet	To be submitted for approval by IS Class
3	For ships to be provided with the loading manual	The loading manual including the conditions for loading and other necessary information.
4	For ships to be provided with a loading computer.	Lines provided with offset table, light load hydrostatic curves, tank capacity plan finished plan, and the results of inclining tests are to be submitted to IS Class.
5	Waiver of Plans and Documents	Submission of the plans and documents may be omitted in accordance with the requirements stipulated otherwise by IS Class, in case where a ship or machinery is intended to be built at the same manufacturer's work based on the plans and documents which have been approved for other ships.
6	For ships to be provided with the damage control plan	The damage control plan is to be submitted for approval by IS Class
7	For ships to be provided with the emergency towing	Drawings indicating a location of emergency towing arrangements provided and reinforced part of hull in way of emergency towing arrangements are to be submitted for approval by IS Class.
8	For ships to be provided with the operating and maintenance manual for the door and inner	The operation and maintenance manual are to be submitted for approval by IS Class.

1.3 Submission of Other Plans and Documents (for new building) *

1	Plans and documents in 2.1.2 are to be submitted	Drawings and data
2	Specifications for hull and machinery	Complete list and the manufacturer’s instructions
3	Calculation sheets	Minimum athwart ship section modulus in way of the midship
4	Corrosion prevention scheme	Full protection plans including the specifications
5	For exceptional loading conditions	Plans showing the particulars of the cargo intended to be carried and its distribution

(**6) Where the requirements of Load Line are applicable:**

1	General arrangement	Drawings and data
2	Midship section	Drawings and data
3	Construction profile or structural arrangement	Drawings and data

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4	Deck plans	Showing the freeboard, superstructure and decks members in hatchways
5	Superstructure end bulkheads	Drawings and data
6	Lines	Drawings and data
7	Hydrostatic curves	indicating the displacement and the change of displacement per cm immersion at each draught up to the freeboard deck
8	Plans showing the height of timber deck cargo and the arrangements of lashing and fixing	For ships that are to be marked with the timber load lines

1.4 Presence of Surveyor

The presence of the Surveyor is required at the following stages of the work in relation to hull and equipment:

1.4.1 When the material tests are carried out.

1.4.2 When the materials or parts manufactured away from the site are being applied to the ship concerned.

1.4.3 When welding tests are being conducted.

1.4.4 When designated by IS Class during shop work or sub assembly.

1.4.5 When each block is assembled.

1.4.6 When hydrostatic tests, watertight tests and non-destructive tests are carried out.

1.4.7 When hull is completed.

1.4.8 When operation tests are carried out on closing appliances of openings, remote control devices, steering gears, anchoring and mooring arrangements, emergency towing arrangements, piping, etc.

1.4.9 When installing of rudder, profiling of keel line, measurement of principal dimensions, measurement of deflection of hull, etc. are carried out.

1.4.10 When a loading computer is installed on board.

1.4.11 When the ships are marked with the load lines.

1.4.12 When Sea trials are carried out.

1.4.13 When stability experiments are carried out.

1.4.14 For ships to be provided with the emergency towing arrangements when emergency towing arrangements are installed on board

1.4.15 When installing of fire extinguishing arrangement, and when the operation test is carried out.

1.4.16 When deemed necessary by IS Class.

1.4.17 The presence of the Surveyor is required at the following stages of the work in relation to machinery:

(a) When the tests of materials of main parts of machinery prescribed in the Rules are carried out.

(b) Main parts of machinery

(i) When the tests to the respective kind of machinery are carried out.

(ii) When the materials are applied to the parts and the parts are installed on board.

(iii) When machining of the main parts is finished and, if necessary, at a proper time during machining.

(iv) In case of welded construction, before welding is commenced and when it is completed.

(v) When shop trials are carried out.

1.4.18 When important machinery is installed on board.

1.4.19 When operation tests are carried out on remote control devices of closing appliances, remote control devices for machinery and gears, automatic control devices, steering gear, mooring arrangements, piping, etc.

1.4.20 When Sea trials are carried out.

1.4.21 When deemed necessary by IS Class.

2 Classification Survey of Ships Not Built Under Survey (Class Entry Survey)

2.1 General

2.1.1 In the Classification Survey of ships not built under IS Class survey, the actual scantlings of main parts of the ship are to be measured in addition to such inspection of the hull and equipment, machinery, fire protection and detection, means of escape, fire extinction, electrical installations, stability and load lines as required for the Special Survey corresponding to the ship's age in order to ascertain that they meet the relevant requirements in the Class Rules.

2.1.2 For ships subject to Classification Survey of ships not built under IS Class survey, plans and documents necessary for registration to IS Class are to be submitted according to the relevant requirements in 2.1.1 and 2.1.3.

2.1.3 For ships that are provided with loading manual, the conditions for loading and other necessary information are to be submitted for approval by IS Class.

2.1.4 For ships that requires damage control plan, the plan is to be submitted for approval by IS Class.

Table 2.1 Hydrostatic Tests			
No.	**Tanks, Spaces**	**Type of tests and pressure/head**	**Remarks**
1	Double bottom	Hydrostatic test with a head of water to the top of air pipe	Where tanks are used for the carriage of the same kind of oil in both sides of center girder need not be tested.
2	Deep tanks	Hydrostatic test with a head of water to the load waterline, to top of overflow pipe, to the level of 2.45 m above the tank top, or to the level of 2/3 D from the tank top, whichever is the greatest	
3	After peaks and stern tube compartments	Hydrostatic test with a head of water to the load water above load waterline, hose waterline. For portions test with a pressure of water not less than 0.2 *MPa* in the hose.	Where they are used as tanks, tests are as specified in column No.2.
4	Forepeaks	Hydrostatic test with a head of water to the load waterline or to the waterline corresponding to the draught of 2/3 D, whichever is the greater. For portions above this greater waterline, hose test with a pressure of water not less than 0.2 MPa.	Where they are used as tanks, tests are as specified in column No.2.
5	Chain lockers located abaft the collision bulkhead	Hydrostatic test with a head of water to the top of chain lockers.	
6	Shell Plating	For shell plating corresponding to those of column No.1 through No.6, to be as specified in each corresponding column.	
7	Watertight decks	Hose test with a pressure of water not less than 0.2 *MPa* in the hose.	For decks corresponding to those of column No.2 through No.6, to be as specified in each corresponding column.
8	Watertight bulkheads and recesses		The boundary of deep tanks or peak tanks as specified in each corresponding column.
9	Shaft tunnels and other watertight tunnels		The boundary as specified in each corresponding column
10	Hatchways with weather-tight steel covers		To be tested in closed position
11	Double plate rudders	Hydrostatic test with a head of 1.5D or 2d, whichever is the	

		smaller, or airtight test with a pressure of 0.05 MPa	

2.1.6 For ships to be provided with the emergency towing arrangements, drawings indicating a location of emergency towing arrangements provided and reinforced part of hull in way of emergency towing arrangements are to be submitted for approval by IS Class.

2.1.7 For ships to be provided with the operating and maintenance manual for the door and inner door, the operating and maintenance manual is to be submitted for approval by IS Class.

2.2 Hydrostatic and Watertight Tests

In the Classification Survey prescribed in 2.2.1, sea trials are to be carried out after hydrostatic tests and water-tight tests carried out in accordance with the requirements in the following (2.2.1) through (2.2.3), machinery to be made in good order, working pressure of boilers to be determined, safety valves to be adjusted and accumulation test of boilers to be carried out. Except hydrostatic tests of boilers and pressure vessels of which important parts have been newly repaired, main steam pipes, and air tanks of which interior cannot be inspected, and tests for gas leakage of refrigerating machinery on board, tests and trials may be dispensed with at the discretion of IS Class.

2.2.1 Double bottoms tanks, fore and aft peak tanks, cofferdams and chain lockers located aft of the collision bulkhead, watertight bulkheads and shaft tunnels are to be tested as specified in Table 2.1.

2.2.2 Hydrostatic, leakage or airtight tests are to be carried out as specified in each chapter of the relevant part of the Rules in relation to the kind of machinery.

3 Sea Trials and Stability Experiments

3.1 Sea Trials

3.1.1 In the Classification Survey of all ships, sea trials specified in following (a) to (j) are to be carried out in full load condition, in the calmest possible sea and weather condition and at the deep unrestricted water. However, where sea trials cannot be carried out in full load condition, sea trials may be carried out in an appropriate loaded condition.

(a) Speed test

(b) Astern test

(c) Steering test and the changeover test from the main to auxiliary steering gears

(d) Turning test. The turning test of an individual ship may be dispensed with, provided that sufficient data are available from the turning test of a sister ship and subject to the special approval by IS Class.

(e) Confirmation of no abnormality for the operating condition of machinery and behaviors of the ship during the trials

(f) Operation test of windlasses

(g) Operation test of automatic and remote-control systems for main propulsion machinery or the controllable pitch propellers, boilers and electric generating sets

(h) The accumulation test of boilers

(i) Measurement of the torsional vibration for the shafting systems

(j) Other tests, where deemed necessary, by IS Class

3.1.2 The results of the tests during sea trial are to be submitted to IS Class.

3.1.3 In the case of classification Survey of ships not built under IS Class survey, the above tests may be dispensed with, provided that sufficient data on the previous tests are available and no alteration affecting the sea trial tests have been made after the previous tests.

3.2 Stability Experiments

3.2.1 In the Classification Survey, inclining experiments of a ship are to be carried out upon completion of the ship. A stability information booklet, which is to be prepared on the basis of the particulars of stability determined by the results of stability experiments and to be approved by IS Class, is to be provided on board.

3.2.2 For ships not built under IS Class survey, inclining experiments may be dispensed with, provided that sufficient information based on previous stability experiments is available and neither alternation nor repair affecting the stability has been made after the previous experiments.

3.2.3 The inclining experiments of an individual ship may be dispensed with, provided that available stability data are obtained from the stability experiments of a sister ship or other adequate means and a special approval is given by IS Class.

5 Alterations

5.1 Inspections of Altered Parts

When any alterations to hull, machinery or equipment, which affect or may affect classification are intended to be made, requirements for Classification Survey during Construction are to apply to the ship.

1 General

1.1 Special Requirements

The survey as comprehensive as Special Survey may be required when considered necessary by IS Class taking into account the service and repair history of the ship or damages to similar ships or tanks and spaces.

1.2 Survey for Combination Carriers

At Annual Surveys for combination carriers such as ore/bulk carriers, the surveys are to be carried out in accordance with the relevant requirements in this Chapter, considering the ship's equipment, structural configuration and past operational experience.

2 Annual Surveys for Hull, Equipment, Fire Extinction and Fittings

1. Inspection of Plans and Documents	At Annual Surveys, inspections of control of plans and documents in Table 3.1 (below) are to be carried out.
2. General Inspection	At Annual Surveys, inspections of hull, equipment, fire extinction and fittings in Table 3.2, are to be carried out.
3. Operation Test	At Annual Surveys, operation tests listed are to be carried out
4. Internal Inspections of Spaces and Tanks	At Annual Surveys, internal inspections of the followings (as applicable) - Engine room and boiler room, Cargo holds, other pump rooms adjacent to cargo holds, cargo compressor rooms and cargo pipe tunnels, Ballast tanks, Cargo holds and suspect areas identified at previous survey are to be carried out
5. Close-up Surveys	At Annual Surveys, close-up surveys of the followings (as applicable) are to be carried out - Bow doors, inner doors, side shell doors and stern doors, Hatch covers and hatch coamings, Structural members in cargo holds, Cargo hold frames.
6. Thickness Measurements	At Annual Surveys, thickness measurements of the followings (as applicable) are to be carried out - fuel oil, ballast, vent pipes including vent masts and headers, and all other piping in cargo pump rooms and cargo compressor rooms and on weather decks, Structural members in ballast tanks, Bow doors, inner doors, side shell doors and stern doors, Hatch covers and hatch coamings, Structural members in cargo holds.

	As to the gauging equipment and thickness measurement report, the provisions of the Rules are to be applied correspondingly as well.

Table 3.1 Inspection of Plans and Documents	
Items	**Inspection**
1. Loading Manual	For ships to be provided with the manual on board. Confirmation as to whether the manual is kept on board.
2. Stability Information Booklet	Confirmation as to whether the booklet is kept on board.
3. Damage Control Plan	For ships to be provided with the damage control plan on board to confirm that the approved plan is kept on board
4. Fire Control Plan	Checking whether the fire control plan is exhibited and those stored in watertight containers.
5. Operating and Maintenance Manual for the bow door and inner door and notice board which indicates the operating procedure of them	For ships to be provided with the manual and notice board onboard; checking whether the manual is kept on board. Checking whether the board is provided onboard.
6. Towing and Mooring Fitting Arrangement Plan	Confirmation that the Towing and Mooring Fitting Arrangement Plan is kept on board

Table 3.2 General Inspection	
Items	**Inspection**
1. Shell plating	General condition of outside of the hull above the load waterline is to be examined.
2. Weather deck plating	
3. Openings on deck and outside of the hull	General condition of coamings and closing appliances of hatchways on exposed deck and within unenclosed superstructures and side port, cargo port and side scuttles below the freeboard or superstructure deck is to be examined.
4. Casings of engine room	General condition of exposed engine casings and their openings, skylights of boiler room and engine room and their closing appliances is to be examined.
5. Ventilators	General condition of coamings and closing appliances of ventilators to spaces below the freeboard deck or the deck of enclosed superstructures is to be examined.
6. Air pipes & sounding pipes	General condition of air pipes & sounding pipes, including their coamings, on weather deck and their closing appliances is to be examined.
7. Watertight bulkhead and superstructure end bulkhead	General condition of watertight doors, penetrations and stop valves on watertight bulkheads and closing appliances of openings on superstructure end bulkheads is to be examined.

8. Load line marks	The indication of deck line and load line are to be checked. The measurement of freeboard is in accordance with the Load Line Certificate and Load Line Convention.
9. Bulwark	General condition of bulwarks and shutters of freeing ports in bulwarks or guard rails is to be examined.
10. Means of access	General condition of permanent gangways or other means of access is to be examined.
11. Scuppers, inlets, other discharge pipes and valves	General condition of scuppers, inlets, other discharge pipes and valves is to be examined as far as practicable.
12. Securing arrangement for on deck timber	General condition of securing arrangement for on -deck timber including eye plates, lashing wires, etc. is to be examined, in case where the arrangement has been approved by IS Class and it shall be in accodance with Cargo Securing Manuals and Code of safe practice for Cargo Stowage and Securing.
13. Anchoring and mooring arrangement	Anchoring and mooring arrangement including their accessories are to be examined as far as can be seen.
14. Fire extinguishing arrangement	General condition of fire extinguishing arrangements is to be examined and checking whether fixed fire extinguishing system, semi-portable or portable fire extinguishers and fireman's outfits are maintained in good order is to be made.
15. Fire protection arrangement and means of escape	Checking that no alteration has been made to these arrangements is to be made.
16. Sails and their accessories	Sails and their accessories are to be examined in the condition of being put in place and ready for unfolding.
17. Emergency towing arrangement (ETA)	General condition of the ETA is to be examined
18. Loading computer	To examine the print-outs to ensure compliance with the stability data. To check the quarterly verification of Stability Test data and actual record.
Additional requirement for bulk carriers over 15 years of age	
20. Piping in the cargo holds. All piping and penetrations in cargo holds, including overboard piping, are to be examined.	

Table 3.3 Operation Tests	
Items	**Tests**
1. Weathertight hatch covers	Hose test (when deemed necessary by the Surveyor) Random checking of the satisfactory operation of mechanically operated hatch covers
2. Closing appliances of watertight door on watertight bulkheads and openings on superstructure end bulkheads	Checking whether the appliances work in good order is to be made as deemed necessary by the Surveyor.

3. Appliances related to fire protection and escape	Checking whether the appliances work in good order is to be carried out.
4. Fire detection system and fire alarm system including manually operated call points	Checking whether the systems work in good order, including failure alarm of the system, is to be made.
5. Fire pumps including emergency fire pump, piping, hydrants, hoses, nozzles etc.	Operation test of the firefighting system composed of fire pump, hydrants, etc. is to be carried out. For ships having operating system for periodically unattended machinery space, operation test of remote-control system or automatic operation system of one pump is to be carried out.
6. Fixed deck foam system	Checking whether the system works in good order
7. Ventilation system	Checking whether fans work in good order is to be carried out.

3 Annual Surveys for Machinery

3.1 General Inspections

3.1.1 At Annual Surveys for Machinery, general inspection of the whole machinery in the engine room and the following inspections (a) through (c) are to be carried out:

(a) It is to be ascertained that the main propulsion machinery, power transmission machinery, shafting systems, prime movers other than main propulsion machinery, boilers, thermal oil heaters, incinerators, pressure vessels, auxiliaries, piping systems, control systems, electrical installations and switchboards are placed in good order.

(b) Engine room, boiler spaces and means of escape are in good order

(c) For ships adopting the preventive maintenance system a general inspection of the system and review of monitoring parameter's record of the system are to be carried out

3.2 Operation Tests

3.2.1 At Annual Surveys for Machinery, operation tests for the systems and devices listed in Table 3.4 (below) are to be carried out

Table 3.4
Valves for oil tanks
Fuel oil pumps, cargo pumps, ventilating fans and boiler draught fans
Emergency electrical power source
Communication systems
Steering gears
Bilge systems
Safety devices of:
(a) Main propulsion machinery and auxiliary machiner
(b) Boilers, thermal oil heaters, incinerators and gas combustion units (GCUs)
(c) Monitoring devices
(d) Automatic control devices or remote control devices

(e) Engineer's Alarm
Table 3.5
Bilge pumps, ballast pumps, stripping pumps and ventilators
Bilge systems
Level indicators
Pressure indicators
Gauging, detecting and alarming devices
Fire extinguishing arrangement

4.1 General

4.1.1 Surveys Equivalent to Special Surveys

(a) Surveys equivalent to Special Surveys may be required when considered necessary by the IS Class, based on the service and repair history of the ship or damages history of similar ship types or ships with similar tanks and spaces.

(b) Intermediate Surveys for bulk carriers, general dry cargo ships of not less than 500 gross tonnage over 15 years of age are to be carried out to the extent of the previous Special Survey.

4.1.2 Surveys for Combination Carriers

(a) At Intermediate Surveys for combination carriers such as ore/bulk carriers, the surveys are to be carried out in accordance with the relevant requirements in this Chapter, considering the ship's equipment, structural configuration and past operational experience.

4.2 Intermediate Surveys for Hull, Equipment, Fire Extinction and Fittings

4.2.1 Inspection of Plans and Documents	At Intermediate Surveys, inspections of control of plans and documents specified in the Rules to be carried out.
4.2.2 General Inspection	At Intermediate Surveys, inspections of hull, equipment, fire-extinction and fittings specified in the Rules are to be carried out. In addition, conditions of spare parts for fire-extinguishing systems and cross-flooding equipment are to be generally examined.
4.2.3 Performance Test	At Intermediate Surveys, performance tests listed in Table 3.1 (above) are to be carried out.
4.2.4 Internal Inspections of Spaces and Tanks	At Intermediate Surveys, internal inspections listed in the Rules are to be carried out.
4.2.5 Close-up Surveys	At Intermediate Surveys, close -up surveys listed in the Rules are to be carried out.
4.2.6 Thickness Measurements	At Intermediate Surveys, thickness measurements of structural members, identified suspect areas & substantial corrosion areas are to be carried out. As for the gauging equipment and thickness measurement report, the provisions of the Rules are to be applied correspondingly (refers to IS Class Thickness measurement criteria for diminution at the end of this Part-B).

4.3 Intermediate Surveys for Machinery

4.3.1 General Inspections

At Intermediate Survey for Machinery, in addition to the general inspections specified in Annual Surveys for Machinery, the inspections of refrigerated machinery, electrical installations in hazardous areas are to be carried out.

4.3.2 Performance Tests

At Intermediate Surveys for Machinery, the performance tests specified in Annual Surveys are to be carried out.

(a) Requirements for Ships Carrying Timber Cargoes	
Engine room and boiler room	An internal inspection is to be carried out
Ballast tanks	Same as those for cargo ships
Cargo holds	For ships over 5 years of age, an internal inspection of all cargo holds is to be carried out.

Table 4.3 - Close-up Surveys	
Items	Inspections
(a) Requirements for General Dry Cargo Ships of not less than 500 grt	
1. Hatch covers and hatch coamings	A close-up survey of hatch cover plating and hatch coaming plating and their stiffeners is to be carried out.
2. Structural members in cargo holds	For ships carrying timber cargoes over 5 years of age, a close-up survey of structures members is to be carried out in all cargo holds.

Table 4.4 Thickness measurements	
Items	Note
(a) Requirements for Cargo Ships except those specified in the followings	
1. Fuel oil, ballast, vent pipes including vent masts and headers, inert gas pipes and all other piping in cargo pump rooms and cargo compressor rooms and on weather deck	When deemed necessary by the Surveyor as a consequence of the examination, thickness measurements are to be carried out.
2. Structural members in ballast tanks	For ships over 5 years of age, the thickness measurement is to be carried out to evaluate the condition of areas found suspect at the previous Special Survey. Where considered necessary by the Surveyor as a result of the survey, the thickness measurement is to be carried out at the discretion of the Surveyor, where poor coating condition, corrosion or other defects are found in a ballast tank or where a protective coating has not been applied from the time of construction. Where substantial corrosion is found, additional thickness measurements are to be carried out.

3. Bow doors, inner doors, side shell doors and stern doors	When deemed necessary by the Surveyor as a consequence of the examination, thickness measurements are to be carried out.
(c) Requirements for the Bulk Carriers over 5 *years* of age	
1. Structural members in ballast tanks	Where considered necessary by the Surveyor as a result of the survey, the thickness measurement is to be carried out at the discretion of the Surveyor, where poor coating condition, corrosion or other defects are found in a ballast tank or where a protective coating has not been applied from the time of construction The thickness measurements are to be carried out to evaluate the condition of areas found suspect at the previous Special Survey. If the results of such thickness measurements indicate that substantial corrosion is found, the extent of thickness measurements is to be increased.
2. Hatch covers and hatch coamings	Where considered necessary by the Surveyor as a result of the survey, the thickness measurement is to be carried out at the discretion of the Surveyor, where poor coating condition, corrosion or other defects are found in a ballast tank or where a protective coating has not been applied from the time of construction The thickness measurements are to be carried out to evaluate the condition of areas found suspect at the previous Special Survey. If the results of such thickness measurements indicate that substantial corrosion is found, the extent of thickness measurements is to be increased.
3. Structural members in cargo holds	The thickness measurement is to be carried out to determine both general and local corrosion levels at areas subject to close-up survey. The thickness measurement may be dispensed with provided the Surveyor is satisfied by the close-up survey, that there is no structural diminution and the protective coating where fitted were remains effective. The thickness measurements is to be carried out to evaluate the condition of areas found suspect at the previous Special Survey. If the results of such thickness measurements indicate that substantial corrosion is found, the extent of thickness measurements is to be increased in accordance with the Rules.
(d) Requirements for Ships Carrying Timber Cargoes over 5 *years* of age	
Structural members in cargo holds - Structural members subject to close-up survey	The thickness measurement of structural members subject to close-up survey in all cargo holds is to be carried out. The thickness measurement is to be carried out to the same extent as previous Special Survey. The thickness measurement may be dispensed with provided the Surveyor is satisfied by the close-up

	survey, that there is no structural diminution and the protective coating where fitted were remains effective

Table 4.5 Additional Requirements at Intermediate Surveys	
Items	Inspections
Refrigerating Machinery	Examination of refrigerant leakage while the machinery is in operation and the general condition of the safety devices are to be examined.

5.1 General

5.1.1 Inspections to be carried out at the Commencement or Completion of Special Surveys

(a) In case where the Special Survey is commenced in accordance with the requirements of the Rules, the Thickness Measurement is to be carried out at the commencement of the Survey to facilitate planning repairs, as far as practicable.

(b) In case where the Special Survey is completed in accordance with the requirements of the Rules, inspections are at least to be carried out at the completion of the Special Survey. Where considered necessary by the Surveyor as a result of these inspections, inspections may be expanded to include those which have already been carried out.

5.1.2 Survey for Combination carriers

At Special Surveys for combination carriers such as bulk carriers, the surveys are to be carried out in accordance with the relevant requirements in this Chapter, considering into the ship's equipment, structural configuration and past operational experience.

5.2 Special Surveys for Hull, Equipment, Fire extinction and Fittings

5.2.1 Inspection of Plans and Documents

At Special Surveys, inspections of control of plans and documents specified in the Rules are to be carried out.

5.2.2 General Inspection

(a) At Special Surveys, inspections of hull, equipment, fire-extinction and fittings are to be carried out carefully.

(b) In Special Surveys for bulk carriers and general cargo ships, in addition to (a), all piping systems within all cargo holds and ballast tanks, pump rooms, pipe tunnels, cofferdams and void spaces bounding cargo holds and, on the weather, deck are to be examined.

5.2.3 Operation Test

(a) At Special Surveys, operation tests specified in the Rules are to be carried out, and in addition to such operation tests, it is to be confirmed that the loading instrument works in order. In applying the requirements for operation tests, the operation test for mechanically operated hatch covers specified in the Rules is to be carried out for all mechanically operated hatch covers, and it is not

allowed to dispense with operation tests for mooring and anchoring arrangements.

(b) Where considered necessary by the Surveyor, an execution of the inclining test and an alteration of the stability information may be required.

5.2.4 Internal Inspections of Spaces and Tanks

5.2.4.1 At Special Surveys, paying due attention to (a) through (g) below, inspections of structures and fittings such as piping, etc. in tanks and spaces are to be carried out carefully.

(a) Structural members, piping, hatch covers, etc. sensitive to corrosion in the cargo holds where high-corrosive cargoes to steel such as logs, salt, coal, sulfide ore, etc. have been loaded.

(b) Portions sensitive to wearing down by heat such as plating under boilers

(c) Structurally discontinuous portions such as corners of hatchway openings on deck, openings including side scuttles, cargo port, etc.

(d) Condition of coating and corrosion prevention system if applied

(e) Condition of striking plates under sounding pipes

(f) Condition of cement or deck composition, if fitted

(g) Locations on which defects such as cracking, buckling, corrosion, etc. have been found in similar ships or similar structures

5.2.4.2 At Special Surveys, paying attention to items (a) to (g) above, internal inspections of tanks or spaces listed in Table 5.1 to be carried-out.

Table 5.1 Internal inspections of tanks and spaces

Special Survey	Tanks and spaces subject to an inspection	Note
Special Survey for ships up to 5 *years* of age (Special Survey No.1)	Cargo holds Cofferdam Water tanks (tanks used for fresh or sea water) Fuel oil tanks other than those of double bottom Cargo holds (other than those of tanker, Machinery spaces and other spaces	An internal inspection of the fuel oil tanks except both peak tanks may be omitted provided the Surveyor is satisfied with the condition of tanks after the external inspection of the tanks. For ballast tanks where a protective coating is found in poor condition, and it is not renewed or where a protective coating has not been applied, excluding double bottom tanks, an internal inspection is to be carried out at annual intervals. For double bottom ballast tanks with the

		condition as specified, where considered necessary by the Surveyor, an internal inspection is to be carried out at annual intervals.
Special Survey for ships over 5 years and up to 10 years of age (Special Survey No.2)	Tanks and spaces subject to an inspection carried out at Special Survey No.1 Fuel oil tanks in double bottom	Fuel oil tanks excluding both peak tanks need not all be examined internally, provided, after an external inspection and from an internal inspection of each one double bottom tank forward and aft and of one selected deep tank, the Surveyor is satisfied with the condition of the tanks.
Special Survey for ships over 10 *years* of age (Special Survey No.3 and subsequent Special Survey)	Tanks and spaces subject to an inspection carried out at Special Survey No.2 Lubricating oil tanks are to be carried out. In case where postponement of the Special Survey for a ship is granted in accordance with the requirements in 1.1.5, a kind of the Special Survey to be applied to the ship is to be determined based on the original expiry date of the Classification Certificate of the ship.	Fuel oil tanks excluding both peak tanks need not all be examined internally, provided, after an external inspection and from an internal inspection of each one double bottom tank amidship, forward and aft and of a half number of deep tanks, the Surveyor is satisfied with the condition of the tanks. Lubricating oil tanks need not be examined internally, provided, after an external inspection, the Surveyor is satisfied with the condition of the tanks. However, it is not allowed to dispense with the internal inspection of fuel oil tanks and lubricating oil tanks for ships over 15 *years* of age.

2.4.4 At Special Surveys for bulk carriers, in addition to (a) to (g) above, an internal inspection of tanks and spaces listed in Table 5.3 is to be carried out.

2.5 Close-up Surveys

2.5.1 At Special Surveys, a Close-up Survey is to be carried out for portions shown in (a) and (b) below:

(a) Lower parts of shell frames, tank side brackets and lower parts of transverse bulkheads

(b) Lower parts (located on inner bottom plating) of air pipes, sounding pipes, etc.

2.5.3 At Special Surveys for bulk carriers, notwithstanding the provision of 2.5.1 above, a Close-up Survey is to be carried out for structural members and so forth listed in the Table 5.5. For ore carriers, a Close-up Survey for the structural members in wing ballast tanks and wing void spaces is to be carried out in accordance with requirements of Table 5.6.

Table 5.5 Requirements of Close-up Surveys for Bulk Carriers (Excluding Ore Carriers)

Special Survey	Structural members subject to the Close-up Survey
Requirements for Bulk Carriers other than Double Skin Bulk Carriers	
1. Special Survey for ships up to 5 *years* of age (Special Survey No.1)	(1) A sufficient number (at least 1/4 of the total number) of shell frames at the forward, middle, and aft parts on both sides of forward cargo holds and selected frames in remaining cargo holds (2) Two selected cargo hold transverse bulkheads (including stiffeners and girders) (3) One transverse web with associated plating and longitudinals in two representative ballast tanks of each type (topside or bilge hopper tank) (4) Air pipes and sounding pipes in cargo holds in way of tank top (5) All hatch cover plating, hatch coaming plating, and stiffeners
2. Special Survey for ships over 5 *years* and up to 10 *years* of age (Special Survey No.2)	(1) All shell frames in forward cargo hold and a sufficient number (at least 1/4 of the total number for ships less than 100,000 DWT and at least 1/2 of the total number for ships of 100,000 DWT or more) of shell frames in each of the remaining cargo holds including their end attachments and adjacent shell plating (2) All transverse bulkheads (including stiffeners and girders) in all cargo holds (3) One transverse web with associated plating and longitudinals in each ballast tank (4) Both forward and aft transverse bulkheads (including stiffeners and girders) in one ballast tank (5) All deck plating and under deck structure inside the line of hatch openings between cargo hold hatches (6) All piping arrangements in cargo holds. If the surveyor considers it necessary, airtight tests are to be carried out. (7) All hatch cover plating, hatch coaming plating, and stiffeners
3. Special Survey for ships over 10 *years* and up to 15 *years* of age (Special Survey No.3)	(1) All shell frames in the forward and one other selected cargo holds and a sufficient number (at least 1/2 of the total number) of shell frames in each of the remaining cargo holds including their end attachments and adjacent shell plating (2) All transverse bulkheads (including stiffeners and girders) in all cargo holds (3) All transverse webs with associated plating and longitudinals and all transverse bulkheads (Including stiffeners and girders) in each ballast tank (4) Structural members specified in (5) to (7) of Special Survey No.2 above

4. Special Survey for ships over 15 *years* of age (Special Survey No.4 and subsequent Special Surveys)	(1) All shell frames in all cargo holds including their end attachments and adjacent shell plating (2) Structural members specified in (2) to (4) of Special Survey No.3 above
Requirements for Double Skin Bulk Carriers (excluding Ore Carriers)	
1. Special Survey for ships up to 5 *years* of age (Special Survey No.1)	(1) Two selected cargo hold transverse bulkheads (including stiffeners and girders) (2) One transverse web with associated plating and longitudinals in two representative ballast tanks of each type (this is to include the foremost topside and double side ballast tanks on either side) (3) Air pipes and sounding pipes in cargo holds in way of tank top (4) All hatch cover plating, hatch coaming plating, and stiffeners
2. Special Survey for ships over 5 *years* and up to 10 *years* of age (Special Survey No.2)	(1) One transverse bulkhead in each cargo hold (including stiffeners and girders) (2) One transverse web with associated plating and longitudinals in each ballast tank (3) Both forward and aft transverse bulkheads (including stiffeners and girders) in a transverse section including topside, bilge hopper and double side ballast tanks on one side of the ship (4) A sufficient number (at least 1/4 of total number) of stiffeners (ordinary transverse frames for transverse framing systems or longitudinals for longitudinal framing systems) on side shell and longitudinal bulkhead at forward, middle, and aft parts on both sides of the foremost double side tanks (5) All deck plating and under deck structure inside the line of hatch openings between cargo hold hatches (6) All piping arrangements in cargo holds. If the surveyor considers it necessary, airtight tests are to be carried out. (7) All hatch cover plating, hatch coaming plating, and stiffeners
3. Special Survey for ships over 10 *years* and up to 15 *years* of age (Special Survey No.3)	(1) All transverse bulkheads (including stiffeners and girders) in all cargo holds (2) All transverse webs with associated plating and longitudinals and all transverse bulkheads (Including stiffeners and girders) in each ballast tank (3) A sufficient number (at least 1/4 of total number) of stiffeners (ordinary transverse frames for transverse framing systems or longitudinals for longitudinal framing systems) on side shell and longitudinal bulkhead at forward, middle, and aft parts on both sides of all double side tanks (4) Structural members specified in (5) to (7) of Special Survey No.2 above

4. Special Survey for ships over 15 *years* of age (Special Survey No.4 and subsequent Special Surveys)	(1) All stiffeners (ordinary transverse frames for transverse framing systems or longitudinals for longitudinal framing systems) on side shell and longitudinal bulkhead in all double side tanks (2) Structural members specified in (1), (2) and (4) of Special Survey No.3 above

Table 5.7 Requirements of Close-up Surveys for Ore Carriers

Special Survey	Structural members subject to the Close-up Survey
1. Special Survey for ships up to 5 *years* of age (Special Survey No.1)	(1) One web frame ring in a ballast wing tank (2) Lower part of one transverse bulkhead in a ballast tank (3) Two selected cargo hold transverse bulkheads (including stiffeners and girders) (4) Air pipes and sounding pipes in cargo holds in way of tank top (5) All hatch cover plating, hatch coaming plating, and stiffeners
2. Special Survey for ships over 5 *years* and up to 10 *years* of age (Special Survey No.2)	(1) All web frame rings in a ballast wing tank (2) One deck transverse in each remaining ballast tank (3) Forward and aft transverse bulkheads in a ballast wing tank (4) Lower part of one transverse bulkhead in each remaining ballast tank (5) One transverse bulkhead in each cargo hold (including stiffeners and girders) (6) All deck plating and under deck structure inside line of hatch openings between cargo hold hatches (7) All piping arrangements in cargo holds. If the surveyor considers it necessary, airtight tests are to be carried out. (8) All hatch cover plating, hatch coaming plating, and stiffeners
3. Special Survey for ships over 10 *years* of age (Special Survey No.3 and subsequent Special Surveys)	(1) All web frame rings in each ballast tank (2) All transverse bulkheads in each ballast tank (3) One web frame ring in all in each wing void space However, additional close-up surveys may be carried out for other web frame rings in void spaces as deemed necessary by the Surveyor. (4) All transverse bulkhead in each cargo hold (including stiffeners and girders) (5) Structural members specified in (6) to (8) of Special Survey No.2 above
4. Special Survey for ships over 15 *years* of age (Special Survey No.4 and subsequent Special Surveys)	(1) As for Special Survey No.3

Table 5.8 Requirements of Close-up Surveys for General Dry Cargo Ships Not Less than 500 gross tonnages	
Special Survey	Structural members subject to the Close-up Survey
1. Special Survey for ships up to 5 *years* of age (Special Survey No.1)	(1) Selected shell frames in one forward and one after cargo holds and associated tween deck spaces and lower part of remaining shell frames including their end attachments and adjacent shell plating (2) Lower parts of shell frames in remaining cargo holds including their end attachments and adjacent shell plating (3) One selected transverse bulkhead and lower part of remaining transverse bulkheads (including stiffeners and girders) (4) Air pipes and sounding pipes in cargo holds in way of tank top (5) All hatch cover plating, hatch coaming plating, and stiffeners
2. Special Survey for ships over 5 *years* and up to 10 *years* of age (Special Survey No.2)	(1) Selected shell frames in all cargo holds and associated tween deck spaces and lower part of remaining shell frames including their end attachments and adjacent shell plating (2) One transverse bulkhead and lower part of the remaining transverse bulkhead in each cargo hold (including stiffeners and girders) (3) Both forward and aft bulkhead (including stiffeners and girders) in one side ballast tank (4) One transverse web with associated plating and longitudinals in two representative ballast tanks of each type (topside, bilge hopper, side tank or double bottom tank) (5) Selected area of deck plating and under deck structure inside the line of hatch openings between cargo hatches (6) Selected area of inner bottom plating (7) Air pipes and sounding pipes in cargo holds in way of tank top (8) All hatch cover plating, hatch coaming plating, and stiffeners
3. Special Survey for ships over 10 *years* of age (Special Survey No.3 and subsequent Special Surveys)	(1) All shell frames in the forward cargo hold (the forward lower cargo holds in the case of tween deck spaces), and 25% of frames in each of the remaining cargo holds (tween deck spaces including the cargo holds except for the forward lower cargo hold in the case of tween deck spaces, and lower part of remaining shell frames including their end attachments and adjacent shell plating (2) All transverse bulkheads (including stiffeners and girders) in all cargo holds (3) All transverse bulkheads (including stiffeners and girders) in all ballast tanks (4) All transverse webs with associated plating and longitudinals in each ballast tank (5) All deck plating and under deck structure inside the line of hatch openings between cargo hold hatches (6) All area of inner bottom plating (7) Air pipes and sounding pipes in cargo holds in way of tank top

	(8) All hatch cover plating, hatch coaming plating, and stiffeners
4. Special Survey for ships over 15 *years* of age (Special Survey No.4 and subsequent Special Surveys)	(1) All shell frames in all cargo holds and associated tween deck spaces including their end attachments and adjacent shell plating (2) Structural members specified in (2) to (8) of Special Survey No.3 above

2.6 Thickness Measurements

2.6.1 At Special Surveys, thickness measurement is to be carried out in accordance with (a) through (c) below.

(a) Thickness measurement is to be carried out, according to Table 5.9 below, using an appropriate ultrasonic gauging machines or other approved means. The accuracy of the equipment is to be proven to the Surveyor as required.

(b) Thickness measurement is to be carried out within 12 *months* prior to completion of the survey in question under the supervision of the Surveyor. However, thickness measurements carried out not under the supervision of the Surveyor may be accepted provided that the firm is approved by IACS member and IS Class. The Surveyor may re-check the measurements as deemed necessary to ensure acceptable accuracy with respect to **Appendix -1**.

(c) A thickness measurement record is to be prepared and submitted to IS Class and compared with **Appendix -1** for diminution level.

2.6.2 At Special Surveys, a thickness measurement is to be carried out according to (a) above for structural members and so forth listed in Table 5.9. Where substantial corrosion is found in the results of such thickness measurements, the thickness measurement is to be extended to all the structural members listed in Table 5.10, of which the subtitle corresponds to substantially corroded members.

Table 5.9 Requirements for Thickness Measurements for Cargo Ships

Special Survey	Structural members subject to thickness measurements
1. Special Survey for ships up to 5 *years* of age (Special Survey No.1)	(1) Suspect areas (2) All bow doors, inner doors, side shell doors and stern doors when deemed necessary by the Surveyor (plating and stiffeners)
2. Special Survey for ships over 5 *years* and up to 10 *years* of age (Special Survey No.2)	(1) Suspect areas (2) Each plate in one section of the strength deck plating for the full beam of the ship within 0.5 *L* amidships (3) All bow doors, inner doors, side shell doors and stern doors when deemed necessary by the Surveyor (plating and stiffeners)

3. Special Survey for ships over 10 *years* of age (Special Survey No.3 and subsequent Special Surveys)	(1) Suspect areas (2) Each plate and member in two transverse sections within 0.5 *L* amidships. (In way of two different cargo spaces, if applicable). When the selected section is a transversely framed section, adjacent frames and their end connections in way of the transverse section are to be included. (3) Internals in fore and aft. peak ballast tank (4) Both ends and middle part of each hatch side and end coaming (plating and stiffeners) (5) All cargo hold hatch covers (plating and stiffeners) (6) All bow doors, inner doors, side shell doors and stern doors when deemed necessary by the Surveyor (plating and stiffeners)
4. Special Survey for ships over 15 *years* of age (Special Survey No.4 and subsequent Special Surveys)	(1) Suspect areas (2) Following portions of structural members: (a) All exposed main deck plates, full length (b) Each plate and member in three transverse sections of cargo areas within 0.5 *L* amidships. When the selected section is a transversely framed section, adjacent frames and their end connections in way of the transverse section are to be included. (c) All wind and water strakes, port and starboard, full length (3) Representative exposed superstructure deck plating (poop, bridge and forecastle deck) (4) All keel plates, full length, and an appropriate number of bottom plates in way of cofferdams, machinery spaces and aft end of tanks (5) Plating of sea chests, and shell plating in way of overboard discharges (as deemed necessary by the Surveyor) (6) In all cargo holds, all lowest strakes and strakes in way of tween decks of all watertight transverse bulkheads in cargo spaces together with internals in way (7) Structural members specified in (3) to (6) of Special Survey No.3

Table 5.10 Requirements of Additional Thickness Measurements for Cargo Ships in way of Substantial Corrosion

Structural Member	Extent of Measurement	Pattern of Measurement
1. Plating	(1) Suspect areas & adjacent plates	5-point pattern over 1 square meter
2. Girders	(1) Suspect areas	5-point pattern over 1 square meter
3. Stiffeners	(1) Suspect areas	3 measurements in line across web 3 measurements on flange

2.6.4 At Special Surveys for Bulk Carriers, notwithstanding the provision of 2.6.2 above, a thickness measurement is to be carried out for structural members and so forth listed in the Table 5.11. Where substantial corrosion is found in the results of such thickness measurements, the thickness measurement is to be expanded to all the structural members listed in the table.

Table 5.11 Requirements of Thickness Measurements for Bulk Carriers	
Special Survey	Structural members subject to Close-up survey
1. Special Survey for ships up to 5 *years* of age (Special Survey No.1)	(1) Suspect areas (2) Air pipes and sounding pipes in cargo holds in way of tank top. Depending upon the results of close-up surveys, measurements may be omitted at the discretion of the Surveyor.
2. Special Survey for ships over 5 *years* and up to 10 *years* of age (Special Survey No.2)	(1) Suspect areas (2) Structural members within the cargo length area: (a) Two transverse sections of deck plating, outside the line of cargo hatch openings (b) All strength deck plating, where log cargoes or other cargoes that are prone to accelerate corrosion are loaded (3) At least structural members subject to close-up survey for general assessment and recording of corrosion pattern (4) All piping arrangements in cargo holds. Depending upon the results of close-up surveys, may be omitted at the discretion of the Surveyor. (5) All cargo holds hatch coamings (plating and stiffeners) (6) All cargo hold hatch covers (plating and stiffeners) (7) Wind and water strakes in way of the transverse sections of (2)(a) above (8) Selected wind and water strakes outside the cargo length area
3. Special Survey for ships over 10 years and up to 15 years of age (Special Survey No.3)	(1) Suspect areas (2) Structural members within the cargo length area: (a) Each deck plating outside the line of cargo hatch openings (b) Two transverse sections, one in the midship area, outside the line of cargo hatch openings. When the selected section is a transversely framed section, adjacent frames and their end connections in way of the transverse section are to be included. (3) At least structural members subject to close-up survey for general assessment and recording of corrosion pattern (4) All piping arrangements in cargo holds. Depending upon the results of close-up surveys, may be omitted at the discretion of the Surveyor. (5) All cargo holds hatch coamings (plating and stiffeners) (6) All cargo hold hatch covers (plating and stiffeners) (7) Internals in fore and aft peak ballast tanks (8) All wind and water strakes within the cargo length area (9) Selected wind and water strakes outside the cargo length area
4. Special Survey for ships over 15 years of age (Special Survey No.4 and subsequent Special Surveys)	(1) Suspect areas (2) Structural members within the cargo length area: (a) Each deck plating outside the line of cargo hatch openings (b) Three transverse sections, one in the midship area, outside the line of cargo hatch openings. When the selected section is a transversely framed section, adjacent frames and their end connections in way of the transverse section are to be included. (c) Each bottom plate (3) At least structural members subject to close-up survey for general assessment and recording of corrosion pattern

	(4) All piping arrangements in cargo holds. Depending upon the results of close-up surveys, may be omitted at the discretion of the Surveyor. (5) All cargo holds hatch coamings (plating and stiffeners) (6) All cargo hold hatch covers (plating and stiffeners) (7) Internals in fore and aft peak ballast tanks (8) All exposed main deck plating outside the cargo length area (9) Representative exposed superstructure deck plating (poop, bridge and forecastle deck) (10) All keel plates, full length, and an appropriate number of bottom plates in way of cofferdams, machinery space, and aft end of tanks (11) Plating of sea chests, and shell plating in way of overboard discharges (as deemed necessary by the Surveyor) (12) All wind and water strakes

2.6.5 At Special Surveys for general Dry Cargo Ships not less than 500 GT, notwithstanding the provision of 2.6.2 above, a thickness measurement is to be carried out for structural members and so forth listed in the Table 5.13. Where substantial corrosion is found in the results of such thickness measurements, the thickness measurement is to be expanded to all the structural members listed in the table.

Table 5.12Requirements of Thickness Measurements for General Dry Cargo Ships of Not less than 500 *gross tonnages*

Special Survey	Structural members subject to Close-up survey
1. Special Survey for ships up to 5 *years* of age (Special Survey No.1)	(1) Suspect areas (2) At least the following structural members for general assessment and recording of corrosion pattern: (a) In cargo holds where cargoes highly corrosive to steel such as logs, salt, coal, and sulfide ore have been loaded: lower parts of web (thinnest parts of web in case of built-up type frame) and their lower end brackets of at least three hold frames at forward, middle and aft parts on both sides of each cargo hold (b) At least one plate of lowest strake and strakes in way of tween decks of all watertight transverse bulkheads in cargo spaces specified in (a) above together with internals in way (c) For top side tanks, bilge hopper tanks and deep tanks used as ballast tanks: both ends and middle part (including face plate) of one transverse ring or corresponding main structural members in one tank selected arbitrarily from each type
2. Special Survey for ships over 5 *years* and up to 10 *years* of age (Special Survey No.2)	(1) Suspect areas (2) Following portions of structural members within 0.5 *L* amidships; (a) Each plate in one section of the strength deck plating for the full beam of the ship (b) Each strength deck plate in way of water ballast tanks, if any (c) Each strength deck plate on or underneath which log cargoes or other cargoes that are prone to accelerate corrosion have been carried (3) At least the following structural members for general assessment and recording of corrosion pattern:

	(a) In cargo holds specified in (2)(a) of Special Survey No.1 above: lower and upper parts of web (thinnest parts of web in case of built-up type frame) and their end brackets of a sufficient number (at least 1/3 of total number) of frames at forward, middle, and aft parts on both sides of each cargo hold (b) All plates of lowest strake and strakes in way of tween decks of all watertight transverse bulkheads in cargo spaces specified in (a) above together with internals in way (c) In cargo holds other than (a) above, structural members specified in (2)(a) and (b) of Special Survey No.1 above. (d) For top side tanks, bilge hopper tanks and deep tanks used as ballast tanks: both ends and middle part (including face plate) of approximately half the number of transverse rings or corresponding main structural members and at least one plate of upper and lower ends of each bulkhead in one tank selected arbitrarily from each type (e) For remaining top side tanks, bilge hopper tanks and deep tanks used as ballast tanks: both ends and middle part of one transverse ring or corresponding main structural members (including face plate) (f) Other structural members subject to close-up survey (g) Air pipes and sounding pipes in cargo holds in way of tank top (4) All cargo holds hatch coamings (plating and stiffeners) (5) All cargo hold hatch covers (plating and stiffeners)
3. Special Survey for ships over 10 years and up to 15 years of age (Special Survey No.3)	(1) Suspect areas (2) Structural members within the cargo length area: (a) Each deck plating outside the line of cargo hatch openings (b) Each deck plating inside the line of cargo hatch openings within 0.5 *L* amidships (c) Each plate and member in two transverse sections, one in the midship area, within 0.5 *L* amidships. When the selected section is a transversely framed section, adjacent frames and their end connections in way of the transverse section are to be included. (d) All wind and water strakes (3) Selected wind and water strakes outside the cargo length area (4) At least the following structural members for general assessment and recording of corrosion pattern: (a) Lower and upper parts of web (thinnest parts of web in case of built-up type frame) and their end brackets of a sufficient number (at least 1/3 of total number) of frames at forward, middle, and aft parts on both sides of each cargo hold (b) Other structural members subject to close-up survey (c) Air pipes and sounding pipes in cargo holds in way of tank top (5) Internals in fore and aft peak ballast tank (6) All cargo holds hatch coamings (plating and stiffeners) (7) All cargo hold hatch covers (plating & stiffeners)

4. Special Survey for ships over 15 years of age (Special Survey No.4 and subsequent Special Surveys)	(1) Suspect areas (2) Following portions of structural members (a) All exposed main deck plates, full length (b) Each plate and member in three transverse sections, one in the midship area, within 0.5 *L* amidships. When the selected section is a transversely framed section, adjacent frames and their end connections in way of the transverse section are to be included. (c) Each bottom plate within cargo length area, including lower turn of bilge (d) Duct keel or pipe tunnel plating and internals within cargo length area (3) All wind and water strakes (4) At least the following structural members for general assessment and recording of corrosion pattern: (a) Structural members subject to close-up survey (b) Air pipes and sounding pipes in cargo holds in way of tank top (5) Representative exposed superstructure deck plating (poop, bilge and forecastle deck) (6) All keel plate full length, and an appropriate number of bottom plates in way of cofferdams, machinery spaces and aft end of tanks (7) Plating of sea chests, and shell plating in way of overboard discharges (as deemed necessary by the Surveyor) (8) Structural members specified in (5) to (7) of Special Survey No.3 above

2.7 Pressure Tests

2.7.1 At Special Surveys, a pressure test of tanks is to be carried out as below.

(a) A pressure test as below:

(i) For tanks: the pressure corresponding to the maximum head that can be experienced in service

(ii) For piping: the working pressure

(b) A pressure test of tanks may be carried out when the ship is afloat, provided that an internal inspection of bottom is also carried out.

(c) At Special Surveys for ships having many water tanks and oil tanks, some water tanks or oil tanks may be exempted from a pressure test were deemed appropriate by the Surveyor taking account of present ship's condition, ship's age and an interval from the previous testing.

2.7.2 At Special Surveys for cargo ships, a pressure test is to be carried out according to (a) above for tanks listed in Table 5.14.

2.7.3 At Special Surveys for general dry cargo ships not less than 500 gross tonnages, notwithstanding the provision of (b) above, a pressure test is to be carried out for tanks and piping systems as in Table 5.14below:

2.7.4 At Special Survey for Bulk Carriers, notwithstanding the provision of (b) above, a pressure test is to be carried out according to (a) above for tanks listed in Table 5.13.

Table 5.13Requirements of Pressure Tests for Cargo Ships	
Special Survey	Tanks subject to pressure tests
1. All Special Survey	(1) All water tanks including cargo holds used for ballast and all cargo holds - Pressure tests of fresh water tanks may be specially considered when deemed appropriate by the IS Class. (2) All fuel oil tanks - Pressure tests may be specially considered when deemed appropriate by the IS Class (3) All lubrication oil tanks - Pressure tests may be specially considered when deemed appropriate by the IS Class

Table 5.14Requirements of Pressure Tests of Bulk Carriers and Dry Cargo Ships of Not less than 500 *gross tonnages*	
Special Survey	Structural members subject to Close-up survey
All Special Surveys	(1) All boundaries of ballast tanks, deep tanks and cargo holds used for ballast within the cargo length area (2) Representative fuel oil tanks within the cargo length area. When deemed appropriate by the IS Class, pressure tests may be specially considered. (3) All water tanks - Pressure tests of fresh water tanks may be specially considered when deemed appropriate by the IS Class. (4) All fuel oil tanks outside the cargo length area - Pressure tests may be specially considered when deemed appropriate by the IS Class.

3 Special Surveys for Machinery

3.1 General Inspections

At Special Surveys for Machinery, in addition to the general inspection specified in 3.3.1, the surveys specified in Table 5.13 are to be carried out. For each ship adopting the preventive maintenance system for propulsion shafting system in accordance with the requirements, general inspection of the shafting system and review of all condition monitoring data available on board the ship on the system are to be carried out in order to ascertain that the system is well maintained.

3.2 Operation Tests and Pressure Tests

At Special Surveys for Machinery, in addition to the operation test specified in 3.3.2, the operation tests specified in Table 5.11 are to be carried out.

1 Docking Surveys

1.1 Surveys in dry dock or on slipway

At Docking Surveys, inspections listed in Table 6.1 are to be carried out in dry dock or on slipway after cleaning of outer shell.

1.2 In-water Surveys

1.2.1 In-water Surveys may be accepted in lieu of Surveys in dry dock or on slipway subject to the prior approval by the IS Class. In any case, Surveys in dry dock or on slipway to be carried out concurrently with Special Surveys are not to be replaced with in-water Surveys. UWILD (underwater survey in-lieu of docking) may be applied when the ship is less than 10 years old after the consideration of Administration and IS Class.

1.2.2 In applying 1.2.1 above, consecutive In-water Surveys are not to be accepted in lieu of Surveys in dry dock or on slipway. However, In-water Surveys may be consecutively carried out in lieu of Surveys in dry docks or on slipways for ships other than these specified in the following (a) to (d) subject to the prior approval of the IS Class and the Administration:

(a) Ships with the class notation "*Enhanced Survey Program*" (*ESP*);

(b) General dry cargo ships;

(c) Ships fitted with propulsion thrusters; and

(d) Ships where the propeller connection to the shaft is by means of a keyed taper.

1.2.3 The following plans and documents are to be included as part of a submission to the Society for approval for conducting In-water Surveys, which is to be obtained prior to commencement.

(a) Plans of shell plating below the waterline showing details of the location and sizes of shell openings, location of bottom plugs, location of bilge keels, location of water- and oil-tight bulkheads, location of welded seams and butts and location of anodes;

(b) Detailed information or drawings of constructions and arrangements indicated in (d) below, together with their color photographs, and detailed instructions for inspection of such constructions and arrangements;

(c) Documents showing the procedure which enables the Surveyor to confirm the clearance of the rudder bearing or the condition of the stern tube bearing based on a review of the operating history, the onboard testing or analysis of sampled stern lubricating oil or lubricating freshwater. Where the bearing is found to be satisfactory, special consideration may be given to the requirements in 1.2.4 (a) or 1.2.4 (d) below;

(d) Other data which may serve the inspections.

1.2.4 Ships intended to be subjected to the In-water Survey are to comply with the following. Special consideration may be given to (a) or (d) below:

(a) A means of measuring the clearance of the rudder in way of each pintle is provided;

(b) Rope-guard ring plates are of such construction as to facilitate the inspection of the shafting between propeller hubs and stern frame boss;

(c) For water lubricated stern tube bearings, a means of measuring the clearance between the propeller shafts and their bearings is provided

(d) For oil or freshwater lubricated stern tube bearings, a suitable means of ascertaining the performance of the stern tube bearings including oil sealing devices is provided

(e) A suitable means of ascertaining the position and identity of each blade of the propellers is provided

(f) Hinged gratings are installed on all sea chests and constructed so as to facilitate opening and closing by the diver

(g) Markings indicating the position of longitudinal and transverse bulkheads and the names of interior spaces on the hull below the load water line, so that the diver or Remotely Operated Vehicle is able to orient his/her/its position relative to the ship

1.2.5 The Surveyor may require internal examinations or dry dock surveys deemed necessary as a result of the In-water Survey.

1.3 Other Surveys

1.3.1 For ships affixed with the notation "*PSCM*" (Propeller Shaft Condition Monitoring System), the records of the parameters monitored are to be reviewed, in addition to a general examination, so as to ascertain those relevant installations are well maintained.

1.3.2 For ships other than those referred to in 1.3.1 above with oil lubricated or freshwater lubricated bearings, it is to be checked as to whether lubricating oil analysis or fresh water sample tests are regularly carried out except for the cases specified in the following 1.3.3. In cases where lubricating oil analysis or water sample tests are carried out, it is to be checked as to whether the reference standards deemed appropriate by the Society are complied with based upon the lubricating oil analysis or fresh water sample test reports, in addition to a general examination.

1.3.3 Ships in which where vibration measurement systems or Fe-density measurement systems are used instead of temperature sensors and temperature recorders, in the case of azimuth thrusters which use roller bearings as the bearings of propeller shaft Kind 1*C*, are to comply with the following requirements:
(a) It is to be confirmed that the lubricating oil sampling and analysis to be carried out regularly.

Table 6.1 Requirements for Docking Surveys	
Items	Inspections
Shell plating including keel plate, stem and stern frame	The structure in way of discontinuity, parts of the structure liable to be excessively corroded and openings in the shell are to be examined carefully. Grillage covers are to be removed where deemed necessary by the Surveyor.
Rudder	Rudder is to be lifted or removed and pintles and gudgeons, etc. are to be examined. The rudder bearing clearance is to be measured. Lift or removal of the rudder may be omitted provided the Surveyor is satisfied with the condition of the rudder by measurement of the clearance.
Sea inlets and overboard discharges and their associated valves below freeboard deck	Sea inlets and overboard discharges are to be examined, and valves, cocks together with their fastenings to the hull are to be dismantled and examined. Dismantling of them may be dispensed with at the discretion of the Surveyor provided they were dismantled and examined in good order at the last Docking Survey.
After end of stern bush	The clearance between the propeller shaft or the stern tube shaft and the after bearing of the stern tube or the shaft bracket bearing or wear down of the bearing is to be measured.
Sealing devices for stern tube and shaft bracket bearing	The efficiency of oil gland is to be checked.
Propeller	Propellers are to be examined. In case where a controllable pitch propeller is fitted, the pitch control device is to be examined under working condition.
Valves and cocks on shell plating, sea chest or distance peace	Main parts of valves and cocks attached to shell plating, sea chests or distance pieces are to be opened up and examined. The bolts or studs fastening these mountings to the shell are to be examined. Overhaul may be dispensed with at the Surveyor's discretion.
Anchor, anchor chain, ropes, hawse pipe, chain locker and cable clenches	At the Docking Surveys carried out concurrently with Special Surveys, anchor and anchor chains are to be ranged and examined. At the Special Survey No.2 and subsequent Special Surveys, the diameter of anchor chain is to be measured. If the mean diameter of a link, at its most worn part, is reduced by 12% or more from its required nominal diameter, it is to be renewed.
Tanks and spaces	At Docking Surveys carried out concurrently with Special Surveys or otherwise**,** the internal inspection and close-up survey to be carried out at the relevant Special Surveys or Intermediate Surveys are to be carried out as far as practicable.
Installations for In-water Surveys	With regard to ships having the approval for conducting In-water Surveys based on the requirements in 6.1.2, Surveyors are to confirm that the means and installations specified in 6.1.2.4 (d) are in good condition.

1 Boiler Surveys

1.1 Surveys of Boilers and Thermal Oil Heaters

During Boiler Surveys, inspections specified in Table 7.1 are to be carried out for boilers and thermal oil heaters.

1.2 Surveys of Steam Generators

Steam generators and other pressure vessels with steam accumulated in them are to be handled in accordance with the requirements for boilers.

Table 7.1 Requirements of Boiler Survey

Items	Inspections
1. Pressure parts of boilers	To be internally examined with the manholes, cleaning holes and inspection holes dismantled. Where necessary for external inspection by the Surveyor, the parts are to be examined to the Surveyor's satisfaction with the insulation around the parts removed.
2. Super-heaters, economizers and exhaust gas economizers	Internal and external examination.
3. Combustion parts of boilers and thermal oil heaters	Internal examination of furnaces and combustion chambers
4. All Valves and cocks	The principal mountings are to be opened up for examination
5. Thickness of plates, tubes and stays	Thickness measurement when deemed necessary by the Surveyor.
6. Safety valves of boilers, super heaters and thermal oil heaters	The safety valves are to be adjusted under steam to a pressure not more than 103 % the approved working pressure. The pressure gauge used for adjustment of safety valves is to be calibrated. The popping pressure of safety valves fitted on thermal oil heaters may be ascertained through bench tests
7. Safety devices, alarm devices and automatic combustion control devices	To be tested in the presence of surveyor.
8. Review of the records of the logbook	(1) Review of the following records since last boiler survey is to be carried out. (a) Operation (b) Maintenance (c) Repair history (d) Quality control of the feed water or thermal oil

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1 Propeller Shaft and Stern Tube Shaft Surveys

1.1 Ordinary Surveys

At Ordinary Surveys of a propeller shaft and a stern tube shaft, the shaft is to be withdrawn for inspections specified in Table 8.1.

1.2 Partial Surveys

1.2.1. At a Partial Survey for propeller shafts Kind 1 of oil lubricated stern tube bearings, the inspections specified below are to be carried out.

a) Propeller shafts exposed in the engine room are to be examined.
b) Records to show that the operation in the barred speed range was avoided.
c) Inspections specified in 1,4,5,6,9 and 10 in Table 8.1 are to be carried out.

1.2.2. At a Partial Survey for the propeller shafts Kind 1C, the "Record for Monitoring System of Stern Tube Bearing and Oil Sealing Devices" is to verified in addition to the inspections specified in 1.2.1

1.3 Shaft Preventive Maintenance System

When a ship applies the preventive maintenance system that has been approved by IS Class, the notation (SPMS) is assigned to the ship's classification system notation and the propeller shaft may be examined as a propeller shaft Kind 1C. However, all condition monitoring data are to be recorded according to the approved preventive maintenance system. The results shall be within permissible limits. In addition, the following items in 1.3.1 through 1.3.4 shall be properly monitored and recorded for diagnosing the lubricating conditions of the shafting system.

1.3.1 Lubricating oil sampling and analysis is to be carried out regularly at intervals not exceeding 6 months and each analysis is to include:

a) Water contents

b) Chlorides contents

c) Metal particles content

d) Oxidation of oil

1.3.2 Oil consumption rate

1.3.3 Bearing temperature

1.3.4 Permissible wear down

Table 8.1 Ordinary Surveys of Propeller Shaft and Stern Tube Shaft	
Items	Inspections
1. Drawing out of the shafts	(1) Drawing the propeller shaft and the stern tube shaft and examining the entire shafts, seals and bearings. (2) Checking and recording the bearing clearances between the bush and the shafts.
2. Connection part with the propeller a. with key	The cylindrical part of the shaft is to be examined from the end of the shaft (or from the aft edge of the liner, if any) for one-third of the length of the shaft taper by a NDT method.
b. keyless	The forward portion of the aft shaft taper is to be examined by a crack detection method. When the propeller is force fitted to the shaft, it shall be ensured that the pull up length is within the upper and lower limits established during the initial fit.
c. coupling flange	The flange fillet and coupling bolts are to be examined by a crack detection method.
3. Other parts of the shaft	The sleeves, the fillet of the coupling flange to the intermediate shaft or to the stern tube shaft and the coupling bolts are to be examined.
4. Stern tube bearing	The stern tube bearings are to be examined.
5. Bearing wear down	The bearing wear down is to be measured.
6. Sealing device	Major parts of the stern tube sealing devices
7. Propeller boss	The propeller boss is to be examined.
8. Controllable pitch propeller	The pitch control gear and working parts are to be examined and the propeller blade fixing bolts are to be examined by a NDT method.
9. Water lubrication system	For water-lubricated stern tube bearings, the lubricating sea water piping is to be examined.
10. Oil lubrication system	For oil-lubricated stern tube bearings, the low oil level alarms of the lubricating oil tank, oil temperature measuring devices and low pressure of the circulation pumps are to be tested
11. Lubrication oil	For oil-lubricated stern tube bearings, the lubricating oil record book is to be inspected.

1 Planned Machinery Surveys

1.1 Application

In a Planned Machinery Survey, surveys in accordance with any of the requirements prescribed in 1.2 to 1.4 are to be carried out. In cases where 1.3 or 1.4 is adopted, the survey items to be covered by the scheme are to be determined according to the shipowners (or the ship management company) application, while the rest of the items are to apply as in 1.2.

1.2 Continuous Machinery Survey

In a Continuous Machinery Survey (hereinafter referred to as "CMS" in this Chapter), every item specified in Table 9.1 is to be surveyed systematically, continuously and sequentially in accordance with the survey schedule table approved by IS Class so that each survey interval for all CMS items may not exceed 5 years.

During the CMS, when any defect or damage is found, similar machinery and equipment, or a part of them, are required to be opened up for further inspection and the defective items or failures found to be permanently repaired to the Surveyor's satisfaction. Survey items deemed appropriate by IS Class may be delegated to overhaul inspections by the ship owner (or the ship management company). In this case, the records of the overhaul inspections of the machinery and equipment concerned are to be ascertained as soon as possible. When a regular maintenance has not been carried out, an open-up inspection in the presence of the Surveyor is required.

1.3 Planned Machinery Maintenance Scheme (PMS)

Ship that has an established maintenance system may apply to IS Class for approval to the PMS which permits the ship owner to carry out planned overhaul inspections and maintenance in place of the open-up surveys specified in Table 9.1. The PMS is to be implemented in accordance with the machinery maintenance scheme approved by IS Class. IS Class requests general inspection yearly on every item including review of the maintenance records in order to ascertain that the machinery and equipment are in good order. In case where it is regarded that satisfactory maintenance has not been carried out for any of the machinery and equipment, an open-up inspection of the item in the presence of the Surveyor is required.

1.4 Condition Based Maintenance Scheme (CBM)

A shipowner (or ship management company) that has an established maintenance system may apply to adopt the method in which maintenance of machinery is carried out according to the results of condition monitoring and diagnosis, as specified in the following (a) to (f), in place of the open-up surveys specified in Table 9.1.
(a) The condition-based maintenance method is to be implemented in accordance with a machinery maintenance scheme for CBM approved by the Society.
(b) In cases where no abnormality is found in the results of condition monitoring and diagnosis, a general examination may

be carried out as an alternative to the open-up examinations specified in Table 9.1 based upon manufacturer recommendations regarding maintenance. In cases where an abnormality is found, the shipowner (or ship management company) is to request an examination in the presence of the Surveyor as soon as possible in accordance with the survey schedule table based on the machinery maintenance scheme for CBM.
(c) The condition monitoring system is to be approved by the Society.
(d) The condition monitoring and diagnosis is not to replace routine surveillance or the Chief Engineer's responsibility for making decisions in accordance with his judgement.
(e) The Society confirms on a yearly basis that the condition monitoring system works effectively and is in good condition; this includes inspection of condition monitoring records and machinery maintenance records subject to the scheme so as to confirm said machinery is in good condition, and that maintenance was carried out in cases where monitoring parameter of the machinery exceeded its limiting value.
(f) Where it is regarded that satisfactory maintenance has not been carried out for any of the machinery and equipment, an open-up examination of the item in the presence of the Surveyor may be required.

1.5 Periodical Surveys

In place of the Planned Machinery Surveys prescribed in 1.2 to 1.3 above, the surveys specified in Table 9.1 may be carried out at Special Surveys prescribed in Chapter 1.1.3. to ascertain that they are all placed in good order. However, at Special Surveys of ships equipped with two or more propeller shafting systems driven by identical main engines, surveys of the main engine components that were examined in accordance with the requirements for Special Surveys after the Classification Surveys or the previous Special Survey may be omitted where deemed appropriate by the Surveyor, considering the time the engines were examined, the service history of the engines, the present condition and whether or not they were subject to a Classification Survey during Construction.

Table 9.1 Open-up Surveys of Machinery and Equipment

No.	Items	Inspections
1	Diesel Main Engines	Cylinder covers, cylinder liners, pistons (including piston pins and piston rods), crosshead pins and bearings, connecting rods, crank pins and their bearings, crank journals and their bearings, camshafts and their driving gears, turbo chargers, scavenge air pumps or blowers, air intercoolers, attached pumps (bilge, lubricating oil, fuel oil, cooling water)
2	Steam Turbines for Propulsion	Turbine rotors together with bearings, turbine casings, turbine and reduction gear couplings, nozzle valves and maneuvering valves.
3	Power transmission system	Reduction gears, reversing gears, clutch gears, shafts, bearings and couplings are to be opened up for inspection. For thrust shafts, intermediate shafts and their bearings (excluding stern tube bearings and shaft bracket bearings), the upper bearing halves or their bearing metals and thrust pads are to be removed and examined.
4	Auxiliary engines	Generator engines (including emergency generators engine exceeding 3000 running hours)
5	Auxiliary machinery	The following items are required for inspections:

		1. Air compressors, blowers 2. Cooling pumps 3. Fuel oil pumps 4. Lubricating oil pumps 5. Feed pumps, condensing pumps, drain pumps 6. Bilge pumps, ballast pumps, fire pumps 7. Condensers, feed water heaters 8. Coolers 9. Oil heaters 10. Fuel oil tanks 11. Air reservoirs 12. Cargo piping systems 13. Deck machinery 14. Distilling plants (for boilers used for driving steam turbines)

1 General

1.1 Scope

Surveys requirements specified in this Chapter apply to steel barges (hereinafter referred to as "barges"), notwithstanding the requirements specified in other chapters of the Rules.

1.2 General Requirements on Surveys

1.2.1 The general requirements on Classification Survey during Construction, Periodical Surveys, etc. are to follow the requirements specified in Chapter 1.

1.2.2 Notwithstanding the requirement in 1.1 above, Periodical Surveys for the barges not engaged in international voyages or those less than 24 *meters* in length, are as follows:

(a) Annual Survey specified in Chapter 1, 1.1.3 (a) is not required to be carried out.

(b) Intermediate Survey specified in Chapter 1, 1.1.3 (b) is to be carried out within three *months* either way of the second or third anniversary date.

(c) Surveys other than Annual Survey and Intermediate Survey are to be carried out in accordance with the requirements in Chapter 1, 1.1.3 (c) through (e), Chapter 1, 1.1.3.2 and 1.1.3.3.

2 Classification Survey during Construction*

2.1 General

In Classification Survey during construction, it is to be confirmed that hull structure, hull equipment, machinery, fire protection, fire extinguishing systems, electrical installations, stability and load lines of the barge comply with the relevant requirements.

2.2 Submission of Plans and Documents

2.2.1 Submission of plans and documents for approval

For the barge intended to be subjected to Classification Survey during construction, the plans and documents as listed in Chapter 2, 1.2 which are related to the hull structure and equipment of the barge as well as the following plans and documents are to be submitted to IS Class for approval.

(a) Skeg construction
(b) Joining part construction between push boat and barge
(c) For the barge to be provided with a loading manual, the loading manual including the conditions for loading and other necessary information

** Construction & conversion of vessels outside P.R. China*

2.2.2 Submission of plans and documents for reference

For the barge intended to be subjected to Classification Survey during construction, the following plans and documents are to be submitted to IS Class for reference in addition to the plans and documents for approval specified in 2.2.1.

(a) Plans and documents as listed in Chapter 2, 1.3 which are related to the hull structure and equipment of the barge
(b) Manuals for towing or pusher
(c) Calculation sheets of torsional vibration for generation shafting with a capacity not less than 30 kW
(d) Calculation sheets of battery capacity for navigation light

2.2.3 Submission of plans and documents other than specified in 2.1 and 2.2 above, may be required where deemed necessary by IS Class.

2.3 Presence of Surveyors

2.3.1 In Classification Surveys during construction* for hull construction and equipment of barges, the presence of the Surveyors is required at the relevant stages of the work in relation to the materials, structure and equipment of the barge.

2.3.2 In Classification Surveys during construction for machinery of barges, the presence of the Surveyor is to be required at the following stages of the work notwithstanding the requirements in Chapter 2, 1.4 (b). Submission of the data of the tests carried out in the works may be required where deemed necessary by the Surveyor.

a) When machinery is installed on the barge.
b) When the tests and trials are carried out.
c) When the tests prescribed are carried out.
d) When the tests for machinery of special type are carried out.

2.4 Hydrostatic Tests, Watertight Tests and Relevant Tests

In the Classification Survey during construction, hydrostatic, watertight tests and other relevant tests are to be in accordance with the requirements.

2.5 Sea Trials, Stability Experiments and Function Tests.

2.5.1 In the Classification Survey during construction, sea trials specified in 2.3.1 may be omitted. However, for barges having unconventional construction or special navigation system, the sea trials are required where deemed necessary by IS Class.

2.5.2 Stability experiments are to be carried out in accordance with the requirements.

2.5.3 Function tests are to be carried out in accordance with the requirements.

2.6 Finished Plans

At the completion of a Classification Survey during Construction, the applicant is to prepare finished plans regarding the following drawings, and submit them to ISClass.

** Construction & conversion of vessels outside P.R. China*

(a) General arrangement
(b) Midship section, scantling plans (construction profile), deck plans, shell expansion, transverse bulkheads, plans for rudder and rudder stock, and plans for cargo hatch covers
(c) Bilge, ballast and cargo piping diagrams

2.7 Alteration of Registration Items

Alterations to registration items are to be surveyed in accordance with the requirements.

3 Classification Survey of Barges not Built under Survey

3.1 General

3.1.1 In Classification Survey of barge not built under IS Class survey, the actual scantlings of main structures of the barge are to be measured in addition to such inspections of the hull and equipment, machinery, fire protection and detection, means of escape, fire extinction, electrical installations, stability and load lines as required for Special Surveys corresponding to the barge's age in order to ascertain that they meet the relevant requirements in the Rules

3.1.2 For the barges subjected to Classification Survey specified in 3.1.1, plans and documents specified in 10.2.2 are to be submitted to IS Class following the case of Classification Survey during Construction.

3.1.3 Hydrostatic and watertight tests, etc. are to be carried out in accordance with the requirements.

3.1.4 Sea trials, stability experiments and function tests may be dispensed with, where it is confirmed that sufficient data on these tests are available and no alteration affecting the tests results directly, and deemed appropriately by IS Class.

4 Annual Survey

4.1 General

4.1.1 As for the survey items deemed necessary by Surveyors, surveys corresponding to the Special Survey may be carried out.

4.1.2 Annual Surveys for machinery are not carried out.

4.2 Annual Survey for Hull, Equipment and Fire Extinction

At Annual Survey for hull, equipment and fire extinction, surveys which are related to the barge's construction, equipment and fire extinction are to be followed by the requirements specified in Chapter 3.

5 Intermediate Survey

5.1 General

As for the survey items deemed necessary by IS Class or the Surveyors, surveys corresponding to the Special Survey may be carried out.

5.2 Intermediate Survey for Hull, Equipment and Fire Extinction

At Intermediate Survey for hull, equipment and fire extinction, surveys which are related to the barge's construction, equipment and fire extinction are to be followed by the requirements specified in Chapter 4.

5.3 Intermediate Survey for Machinery

5.3.1 In Intermediate Survey for machinery, open-up inspection to auxiliary generator engines, auxiliary machinery, heat exchanger and air tank as used in the parts of important systems is to be carried out. These open up inspections may be dispensed with, however, where it is verified that these machineries are in satisfactory condition as a result of general inspection and investigation of the maintenance record by the Surveyor.

5.3.2 Where the machinery specified in 5.3.1 consist of the duplicate systems, surveys for either of the machinery may be carried out.

6 Special Surveys

6.1 General

Commencement and completion date of the Special Survey is to be in accordance with the requirements specified in Chapter 5.

6.2 Special Survey for Hull, Equipment and Fire Extinction

Special Survey for hull, equipment and fire extinction is to be in accordance with the relevant requirements specified in Chapter 5 corresponding to the barge's structure, equipment and fire extinction.

6.3 Special Survey for Machinery

At Special Survey for machinery, open-up inspection to auxiliary generator engines, auxiliary machinery, heat exchanger and air tank as used in the parts of important systems is to be carried out. These open-up inspections may be dispensed with, however, where it is verified that these machineries are in satisfactory condition as a result of general inspection and investigation of the maintenance records by the Surveyor.

7 Docking Survey

7.1 General

For Docking Survey of barge, Docking Survey items related to the barges in the requirements of Chapter 6 are to be carried out.

8 Boiler Survey

8.1 General

Boiler Surveys are to be carried out in accordance with Chapter 7

1 Surveys

1.1 Classification Surveys

1.1.1 The passenger ships intended to be classed with the IS Class (hereinafter referred to as "ship(s)" in this Chapter) are to be subjected to Classification Surveys by the Surveyor or in accordance with the requirements in this Chapter.

1.1.2 Classification Surveys are composed of following Surveys.

a) Classification Survey during Construction

b) Classification Survey of Ships not Built under Survey

1.2 Class Maintenance Surveys

1.2.1 Ships classed with IS Class are to be subjected to Class Maintenance Surveys by the Surveyor in accordance with the requirements of Chapter 3 through Chapter 8, as appropriate.

1.2.2 Class Maintenance Surveys consist of Periodical Surveys, Surveys under the Planned Machinery Surveys, Occasional Surveys and Unscheduled Surveys, which are as specified in the following (1.2.2.1) to (1.2.2.3). At each of these surveys, inspections, tests or inspections are to be carried out for the purpose of verification of their compliance with the relevant requirements.

1.2.2.1 Periodical Surveys

A	Intermediate Surveys	The surveys consist of general inspections of hull, machinery, equipment, fire-fighting equipment, etc. and detailed inspections of a certain part of them as specified in Section 11.5.
B	Special Surveys	The surveys consist of detailed inspections of hull, machinery, equipment, fire-fighting equipment, etc. as specified in Section 11.6.
C	Docking Surveys	The surveys consist of bottom inspections normally carried out in a drydock or on slip-way as specified in Section 11.7.
D	Boiler Surveys	The surveys consist of open-up inspections and operation tests of boilers as specified in Section 11.8
E	Propeller Shaft and Stern Tube Shaft Surveys	The surveys consist of open-up inspections etc. of propeller shafts and the stern tube shafts as specified in Section 11.9.

1.2.2.2 Planned Machinery Survey

The surveys of open-up inspections of machinery and equipment as specified in Section 11.10.

1.2.2.3 Occasional Surveys

The surveys consist of inspections of hull, machinery and equipment including damaged part and of works for repairs, modifications or conversions, which are carried out separately from (1.2.2.1) and (1.2.2.2) above.

1.2.2.4 Unscheduled Surveys

The surveys consist of examinations of the status of hull, machinery and equipment which are carried out separately from (1.2.2.1) to (1.2.2.3) above.

1.3 Intervals of Periodical Surveys and Planned Machinery Surveys

1.3.1 Periodical Surveys are to be carried out in accordance with the requirements specified in (a) through (e) below.

(a) Intermediate Surveys	Intermediate Surveys are to be carried out as prescribed in (i) or (ii) below: (i) Within 3 months before each anniversary date for ships engaged in international voyage. (ii) Within 3 months before or after each anniversary date for ships other than ships specified in (i) above.
(b) Special Surveys	Special Surveys are to be carried out within 3 months before the date of expiry of the Classification Certificate
(c) Docking Surveys	Docking Surveys are to be concurrently carried out with Intermediate Surveys and Special Surveys.
(d) Boiler Surveys	Boiler Surveys are to be carried out at intervals specified in Chapter 7
(e) Propeller Shaft and Stern Tube Shaft Surveys	Propeller Shaft and Stern Tube Shaft Surveys are to be carried out at intervals specified in Chapter 8

1.3.2 Planned Machinery Surveys are to be carried out at intervals specified in Chapter 9.

1.3.3 Occasional Surveys are to be carried out on the occasions specified in Chapter 1.

1.3.4 Unscheduled Surveys consist of examinations of the status of hull, machinery and equipment which are carried out separately from 1.3.1 to 1.3.3 above.

1.4 Periodical Surveys carried out in advance

1.4.1 Special Surveys may be carried out in advance of the due dates of the Special Survey upon application by the Owner.

1.4.2 Intermediate Surveys may be carried out in advance of the due dates of the Intermediate Survey upon application by the Owner. In this case, one or more additional Intermediate Surveys are to be carried out in accordance with the provisions specified otherwise by IS Class.

1.4.3 Where a Special Survey is carried out in advance at the due time of the Intermediate Survey, the Intermediate Survey may be dispensed with.

1.5 Postponement of Periodical Surveys

1.5.1 For ships engaged in international voyage, Intermediate Surveys, Special Surveys, Docking Surveys, Boiler Surveys carried out concurrently with Special Surveys and Ordinary Surveys for Propeller shafts Kind 2 may be postponed as specified in (a) or (b) below subject to the approval by IS Class in advance.

a) Maximum 3 months for the purpose of allowing the ship to complete its voyage to the port in which it is to be surveyed.

b) Maximum 1 month for the ship engaged on short voyages.

1.5.2 For ships other than ships specified in 1.5.1 above, Special Surveys, Docking Surveys, Boiler Surveys carried out concurrently with Special Surveys and Ordinary Surveys for Propeller shafts Kind 2 may be postponed not exceed 1 month subject to the approval by IS Class in advance.

1.6 Modification of the Requirements

1.6.1 At the Periodical Surveys and Planned Machinery Surveys, the Surveyor may modify the requirements specified in Chapter 3 through Chapter 8 having regard to the size, service engaged, construction, age, service operation, results of previous surveys and actual condition of the ship.

1.6.2 When the results of a Periodical Survey suggest the likelihood of heavy corrosion, defects etc., and the Surveyor considers it necessary, close-up surveys, pressure tests or thickness measurements are to be carried out. Thickness measurements procedures and submission of gauging results are to be in accordance with the requirements of the Rules.

1.6.3 For tanks and cargo holds where effective coatings are found to be in a good condition, the extent of internal examination, close-up surveys or thickness measurements may be specially considered at the discretion of the Surveyor.

1.6.4 Continuous Hull Surveys

At the request of an owner, internal inspections, thickness measurements and pressure tests of tanks and compartments to be carried out at Special Surveys may be dispensed with at the discretion of the Surveyor provided that those inspections and tests have been carried out successively by the relevant Special Surveys (hereinafter, referred to as "Continuous Hull Survey"). If the examination during Continuous Hull Surveys reveals any defects, the Surveyor may require further tanks and compartments to be examined precisely. IS Class may, where considered necessary, require the Continuous Hull Survey to be carried out by a method other than specified above.

1.7 Laid-up Ships

1.7.1 Laid-up ships are not subject to Class Maintenance Surveys specified in Section 1.2 above. However, Occasional Surveys may be carried out at the request of owners.

1.7.2 When laid-up ships are about to be re-entering service, following surveys and surveys for specific matters which have been postponed due to being laid-up, if any, are to be carried out:

(a) When any Periodical Survey or Planned Machinery Surveys designated before laid-up has not been due, the coming nearest Periodical Survey or Planned Machinery Surveys which was designated before laid-up is to be carried out.
(b) When Periodical Surveys or Planned Machinery Surveys designated before laid-up has already become due, these Periodical Surveys or Planned Machinery Surveys are, in principle, to be carried out. However, in case where two or more kinds of the Periodical Surveys have already become due, the Special Survey is to be carried out.

1.7.3 If the survey to be carried out under the requirements of Section 1.7.2 above is a Special Survey, the Special Survey is to be the one corresponding to the age of the ship.

1.8 Machinery Verification Runs

1.8.1 At the time of a special survey, a dock trial in the presence of the attending surveyor is to be carried out to confirm the satisfactory operation of main and auxiliary machinery. If significant repairs have been carried out to main or auxiliary machinery or steering gear, the Surveyor may deem a sea trial necessary.

1.8.2 At the time of extended drydocking, a dock trial may be required at the discretion of the attending surveyor to confirm the satisfactory operation of main and auxiliary machinery. If significant repairs have been carried out to main or auxiliary machinery or steering gear, the Surveyor may deem a sea trial necessary.

2 Ships, Installations, Apparatus, etc. for Special Purposes

2.1 Incinerators of Waste Oil and Waste Substance

Where incinerators of waste oil and waste substance are installed on board, they are to be examined to the satisfaction of the Surveyor.

3 Preparation for Surveys and Others

3.1 The preparation for Surveys and others are to be in accordance with those specified in Chapter 1 Section 1.4.

3.2 Ships engaged on international voyages, irrespective of tonnage including ships of less than 500 gross tonnage, are to be provided with portable atmosphere testing instruments for enclosed spaces.

3.3 Class Survey by Means of Remote Survey - Although the survey method for class maintenance survey is generally attendance on site by a Surveyor, the IS Class may approve survey methods different from the traditional ordinary survey with attendance by a surveyor, provided that survey is carried out in accordance with the requirements specified in Chapter 12 “CLASS MAINTAINANCE SURVEY BY MEANS OF REMOTE SURVEY”, Part B of the Rules for the Survey and Construction of Steel Ships. However, in the case of matters stipulated in international conventions or

instructions from Administrations, this may only be done with Administration acceptance.

4 Classification Surveys during Construction

4.1 General

In the Classification Surveys during construction, the hull and equipment, machinery, fire protection and detection, means of escape, fire extinction, electrical installations, stability and load lines are to be examined in detail in order to ascertain that they meet the relevant requirements in the Rules.

5.2 Submission of Plans and Documents

5.2.1 With respect to ships intended to undergo Classification Surveys during construction, the plans and documents indicated in the following (a) to (f) are to be submitted to IS Class for approval, prior to commencement of the works

(i)	**Hull**
a	Plans specified in Chapter 2.
b	Diagram for ventilation showing air conditioners, ventilators, ducts including insulation, dampers, etc.
c	Arrangement and construction of watertight doors, openings, side scuttles, etc. showing the margin line
d	Arrangement and construction of bilge keels
e	Arrangement and details of fittings of fin-stabilizers, if fitted (Construction of fin-stabilizers in submitted with reference)
f	Arrangement and details of fittings of thrusters including hull structure of their vicinity
(ii)	**Machinery**
a	Plans and data specified in Chapter 2.
(iii)	**Stability**
a	Stability booklet including the calculation sheets for intact stability, damage stability, etc.
b	Damage control plan and booklets
c	Cross-flooding fittings including information to the master of the ship concerning the use of cross flooding fittings
(iv)	**Constructions of fire protection, means of escape and fire extinguishing systems**
a	Constructions of fire protection (showing main vertical zones, horizontal zones, fire protected divisions, fire protected doors, fire protected windows, draft stops, etc., and lists of the materials for fire protection).
b	Means of escape (indicating escape routes, width of access routes, arrangements of low location lighting, the embarkation deck and the muster station)
c	Fire extinguishing arrangements (showing the arrangement, type, volume, number, etc. of fire extinguishing systems, fire extinguishers, fire pumps, hydrants, fire hoses, fireman's outfits, etc. and the arrangement of fire detecting system and alarm system)
(v)	**Loading manual – to be submitted for applicable ships**
(vi)	**Submission of other plans and documents than those specified in (i) to (v) may be required where deemed necessary by the IS Class**

e	Arrangement and details of fittings of fin-stabilizers, if fitted (Construction of fin-stabilizers in submitted with reference)	
f	Arrangement and details of fittings of thrusters including hull structure of their vicinity	

5.3 Submission of Other Plans and Documents

With respect to passenger ships intended to undergo the Classification Surveys during construction, the following plans and documents are to be submitted for reference, in addition to the plans and documents specified in this Chapter:
(a) Plans and documents specified in Chapter 2.
(b) Calculation sheets for the time for equalization of cross-flooding fittings, if fitted
(c) Calculation sheets for volume of combustible materials in accommodation and service spaces
(d) Submission of other plans and documents than those specified in (a) to (c) may be required where deemed necessary by IS Class.

5.4 Omission of Submission of Plans and Documents

Notwithstanding the requirements of submission of the plans and documents specified above may be omitted in accordance with the provisions specified otherwise by IS Class, in case where ship or machinery is intended to be built at the same manufacturer's work based on the plans and documents which have been approved for other ships.

5.5 Presence of Surveyors

5.5.1 In the Classification Survey during construction, inspections are to be carried out at necessary stages of the work from its commencement until its completion.

5.5.2 The presence of the Surveyor is required at necessary stages specified in Chapter 2. To implement surveys specified otherwise by the Society, in lieu of traditional ordinary surveys where the Surveyor is in attendance, the Society may approve survey methods which it considers to be appropriate.

5.6 Hydrostatic and Watertight Tests

In the Classification Survey during construction, hydrostatic tests, watertight tests, etc. are to be carried out in accordance with the requirement of Chapter 2.

6 Classification Survey Not Built under Survey

6.1 General

In the Classification Survey not built under IS Class survey, the hull and equipment, machinery, fire protection and detection, means of escape, fire extinction, electrical installations, stability and load lines are to be carried out in accordance with the requirement in Chapter 2, corresponding to the ship's age for the hull and its

equipment, machinery, fire protection and detection, means of escape, fire extinction, electrical installations, stability and load lines.

6.2 Hydrostatic and Watertight Tests

Hydrostatic tests, watertight tests, etc. are to be carried out in accordance with the requirement of Chapter 2.

7 Sea Trials and Stability Experiments

7.1 Sea Trials

Sea trials are to be carried out in accordance with the requirement of Chapter 2.

7.2 Stability Experiments

Stability experiments are to be carried out in accordance with the requirement of Chapter 2.

8 Alterations

8.1 Inspections of Altered Parts

The inspections of altered parts are to be in accordance with those specified in Chapter 2.

9 Special Surveys

9.1 General

9.1.1 At Special Surveys, the surveys required for a general cargo ship specified in Chapter 5 are to be carried out.

9.1.2 In addition to those specified in 9.1.1 above, the surveys specified in 9.2 and 9.3 are to be carried out.

9.2 Hull, Equipment and Fire Extinguishing System

9.2.1 Hull

At Special Survey for hull and equipment, the following requirements are to be complied with:

a	General inspection of the piping and valves of cross-flooding fittings and operation test of its remote-control system, and valves for significant use are to be overhauled and examined
b	Overhaul inspection of bulkhead valves at the collision bulkhead and its remote-control test from the bulkhead deck
c	General inspection of watertight doors including confirmation of the caution plates and following operation tests (i) Open -close of doors (at door and remote control) (ii) Operation of door indicators (iii) Alarm system (iv) Change over test of mode at the central control console

d	General inspection of side scuttles, gangway, cargo and coal ports and other openings in the shell plating, and watertight test for these openings below the margin line or weather-tight test for these openings above the margin line. As for car ferries, operation test of door indicators and water leakage detectors of shell doors. The time of closing shall be recorded in the log book for doors of cargo ports above the margin line and doors of gangway, cargo and coal ports and side scuttles which are required to be kept closed. The closing device of those shall be examined.
e	General inspection of discharge pipes with their valves attached to shell plating below the margin line, and also overhaul inspection of the valves
f	General inspection of the inboard openings of ash -shoots and rubbish -shoots, and watertight test and overhaul inspection of automatic non -return valves where the inboard openings are below the margin line
g	General inspection of fin-stabilizer
h	Stability information are to be confirmed to be provided on board.
i	The light weight of a ship is to be checked. Where the light weight is different by 2% and more from the previous record, or where the longitudinal center of gravity is different by 1% and more of the ship's length from the previous records, the inclining experiments are to be carried out and the stability information is to be corrected in accordance with the result of the experiments.
j	Damage control plans are to be confirmed to be permanently exhibited on board.

9.2.2 Fire protection, means of escape and fire extinguishing system

At Special Survey for fire protection, escape and fire extinguishing system, the following requirements are to be complied with:

a	General inspection of closing appliances of openings (skylights, funnels and ventilators) of machinery spaces and test of their fire-dampers
b	General inspection and test of doors in machinery spaces
c	General inspection and test of fire damper fitted to the duct whose sectional area is 0.075 *M2* and more
d	General inspection of openings (penetration such as cables, pipes, ducts, girders, etc.) of "A" class or *"B"* class divisions
e	General inspection of electric -radiators and waste-receptacles
f	General inspection of the fire protection of the divisions forming the boundaries of the horizontal zones and the main vertical zones and stairway enclosures.
g	General inspection and test of "A" class fire doors and *"B"* class fire doors including test of both remote and self-closing systems and general inspection of fire windows and side scuttles
h	General inspection of draft stops, ceilings and linings
i	Operation test of sprinkler system, pressure test of pressure tanks, and operation test of alarm systems by both main and emergency source of power
j	General inspection of a lockable screw-down non -return valve of sprinkler systems at the connection with the fire main line, and general inspection of spare sprinkler heads.
k	Test of continuation of the output of water by the automatic starting of fire pumps.

l	General inspection of fire protection, fire extinguishing system, fire detecting system, fire alarm system, ventilation system, and bilge system in the special category spaces, and operation test of these systems
m	Operation test of the alarm system to summon the crew
n	Operation test of the public address system
o	General inspection of fire protection, fire extinguishing system, fire detecting system, ventilation system and bilge system in spaces carrying dangerous goods and operation test of these systems
p	General inspection of means of escape including means of escape from a radio room and special category spaces
q	Fire control plans

9.3 Machinery

At Special Survey for machinery, the following requirements are to be complied with:

a	Operation test of fin-stabilizers
b	General inspection, operation test and proof load test of elevators
c	Operation test of electrical installation for main propulsion use in accordance with the approved test procedures
d	Test of emergency lights
e	General inspection of electrical cables penetrating through divisions of main vertical zones
f	Sea trials may be required, if deemed necessary by the Surveyor.

10 Intermediate Survey

10.1 General

10.1.1 At Intermediate Surveys, the surveys required for a general cargo ship specified in Chapter 4 are to be carried out.

10.1.2 In addition to those specified in 10.1.1 above, the surveys specified in 10.2 and 10.3 are to be carried out.

10.2 Hull, Equipment and Fire Extinguishing Systems

10.2.1 Hull

At Intermediate Survey for hull and equipment, the following requirement is to be complied with. However, watertight test, weather-tight test and overhaul inspection may be dispensed with provided the Surveyor is satisfied with the result of the general inspection.

a	General inspections of the piping and valves of cross-flooding arrangements and operation tests of its remote-control system, and valves for significant use are to be overhauled and examined.
b	Overhaul examinations of bulkhead valves at the collision bulkhead and its remote operation tests from the bulkhead deck.
c	General inspections of watertight doors including confirmation of the caution plates and following operation tests.
	(i) Open-close of doors (at door and remote control)
	(ii) Door indicators
	(iii) Alarm system
	(iv) Changeover of mode at the central control console

d	General inspections of side scuttles, gangways, cargo and coal ports and other openings in the shell plating, and watertight tests for these openings below the bulkhead deck or weathertight tests for these openings above the bulkhead deck and operation tests of door indicators and water leakage detectors of shell doors.
e	General inspections of discharge pipes with their valves attached to shell plating below the bulkhead deck, and also overhaul inspections of the valves.
f	General inspections of the inboard openings of ash-shoots and rubbish-shoots, and watertight tests and overhaul inspections of automatic non-return valves where the inboard openings are below the bulkhead deck
g	General inspections of water tightness at the fixing parts of fin-stabilizers.

10.2.2 Fire Protection, Means of Escape and Fire Extinguishing System

At Intermediate Survey for fire protection, means of escape and fire extinguishing system, the following requirement is to be complied with. However, pressure tests may be dispensed with provided that the surveyor is satisfied with the result of the general inspection.

a	General inspections of closing appliances for openings (skylights, funnels and ventilators) of machinery spaces and operation tests of their fire-dampers
b	General inspections and operation tests of doors in machinery spaces
c	General inspections and operation tests of fire dampers fitted to the ducts whose sectional area is 0.075*m*2 and more
d	General inspections of openings (penetration of cables, pipes, ducts, girders, etc.) of "*A"* class or "*B"* class divisions
e	General inspections of electric-radiators and waste-receptacles
f	General inspections of the fire protection of the divisions inside the main vertical zones and the divisions forming the boundaries of the main vertical zones, horizontal zones and stairway enclosures.
g	General inspections and operation tests of "*A"* class fire doors and "*B"* class fire doors including tests of both remote closing and self-closing systems and general inspections of fire windows and side scuttles
h	General inspections of draft stops, ceilings and linings
i	Operation tests of the sprinkler system, pressure tests of pressure tanks, and operation tests of alarm systems by both main and emergency sources of power
j	General inspections of lockable screw-down non-return valves of sprinkler systems at the connection with the fire main line, and general inspections of spare sprinkler heads.
k	Tests of continuation of the output of water by the automatic starting of fire pumps.
l	General inspections of fire protection, fire extinguishing systems, fire detecting systems, fire alarm systems, ventilation systems, and bilge systems in the special category spaces, and operation tests of these systems
m	Operation tests of the alarm systems to summon the crew
n	Operation tests of the public address systems
o	General inspections of fire protection, fire extinguishing systems, fire detecting systems, ventilation systems and bilge systems in spaces carrying dangerous goods and operation tests of these systems
p	General inspections of means of escape including those from the radio room and special category spaces
q	General inspections of closing arrangements of ventilation ducts and operation tests of fire dampers
r	General inspections and operation tests of smoke dampers

10.3 Machinery

At Intermediate Surveys for machinery, the following requirements are to be complied with:

a	Performance tests of electrical installations for main propulsion use in accordance with the approved test procedures
b	Operation tests of the emergency lighting (including supplementary emergency lighting and low location lighting)
c	General inspections of electrical cables penetrating through the divisions forming the boundaries of the main vertical zones
d	Performance tests for verification of the ability of the machinery to reverse the direction of the thrust of the propellers in sufficient time, including the effectiveness of any supplementary means of maneuvering or stopping the ship, as far as practicable.
e	Sea trials may be required, if deemed necessary by the IS Class

11 Docking Surveys

11.1 Surveys in Dry Dock or on Slipway

At Docking Surveys, inspections listed in Chapter 6, Table 6.1 are to be carried out in dry dock or on slipway after cleaning of outer shell.

11.2 In-Water Surveys

In-water Surveys may be accepted in lieu of Surveys in dry dock or on slipway in subject to the prior approval by IS Class. However, any two consecutive Docking Surveys are not to be carried out in water.

11.3 Others

For each ship adopting the preventive maintenance system for propulsion shafting system in accordance with the requirements specified in Chapter 8, general inspection of the shafting system and review of all condition monitoring data available on board the ship on the system are to be carried out in order to ascertain that the system is well maintained.

12 Boiler Survey

12.1 General

Boiler Survey is to be carried out in accordance with the requirements of Chapter 7.

13 Propeller Shaft and Stern Tube Shaft Surveys

13.1 General

Propeller shaft and stern tube shaft surveys are to be carried out in accordance with the requirements of Chapter 8.

14 Planned Machinery Survey

14.1 General

Planned Machinery Survey is to be carried out in accordance with the requirements of Chapter 9.

15 Class Maintenance Survey by means of Remote Survey

Although the survey method for class maintenance survey is generally attendance on site by a Surveyor, the Society may approve survey methods different from the traditional ordinary survey with attendance by a surveyor, provided that survey is carried out in accordance with the requirements specified below in “CLASS MAINTAINANCE SURVEY BY MEANS OF REMOTE SURVEY”. However, in the case of matters stipulated in international conventions or instructions from Administrations, this may only be done with Administration acceptance.

15.1 Remote Inspection Techniques and Remote Survey

15.1.1 This Section specifies principles and minimum requirements for carrying-out remote surveys. “Remote inspection techniques” is a means of survey that enables examination of any part of the structure using such as unmanned aerial vehicles or drones without the need for direct physical access of the surveyor on site.
A “Remote Survey “is a process of verifying that a ship and its equipment are in compliance with the rules of the IS Class where the verification is undertaken, or partially undertaken, without attendance on board by a surveyor.

15.1.2 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 a surveyor.

15.1.3 In addition to the requirements of this Section, special attention is to be paid in cases when it is necessary to comply with the domestic laws and regulations of coastal State. In particular, sufficient confirmation is to be taken in advance for selecting the method of communication and communication infrastructure.

15.1.4 These requirements apply to all vessels, self-propelled or not. Notwithstanding above, survey for mobile offshore drilling units and special purpose barges and survey for floating offshore facilities for petroleum gas production, storage and offloading, the IS Class may permit the application of remote survey methods different from those specified in this Section were deemed appropriate by IS Class.

15.1.5 Information and Communication Technology (ICT)

Information and Communication Technology (hereinafter referred to as” ICT”) are the technologies used in the scope of remote surveys for gathering, storing, retrieving, processing, analyzing, and transmitting information which includes both software and hardware.

15.1.6 Eligibility of the Remote Survey

(a) Eligibility of the remote survey is to be decided based on type and scope of the requested survey, in accordance with **Section 16.1** and, if applicable, Administration acceptance and possible instructions, when the class survey is also related to a

statutory item, and the IS Class is carrying out the statutory survey on behalf of the flag State Administration.

(b) A remote survey is deemed eligible when it provides the same level of assurance, as if it was conducted with attendance on board by a Surveyor.

(c) 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 15.1.8) may be used. For simple/limited verifications, other types of ICT may be accepted by the Surveyor.

15.1.7 Planning of the Remote Survey

(a) 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 is to be based on the scope of the remote survey.

(b) 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 IS Class to:

(i) properly interact with personnel/crew involved in the remote survey, before and during the survey process,

(ii) agree on ICT means to be used

(iii) verify that personnel/crew involved in the remote survey are suitably skilled to use the electronic devices and/or software used by the Society to perform the remote survey

(iv) acquire as deemed necessary information on identity and ranking of personnel/crew involved in the remote survey,

(v) provide the survey item/scope to the personnel/crew involved in facilitating the remote surveys, including the tests that will be performed,

(vi) communicate, during the remote survey, additional actions depending on the evidence to be collected.

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

(i) live-streaming video and audio connection

(ii) exchange of data / electronic documents

(iii) other means acceptable to the Society

(e) The owner is to provide the necessary facilities for the safe execution of the survey

15.1.8 Performance of the Remote Survey

(a) To ensure that the Surveyor can properly perform the remote survey according to the applicable rules, the available evidence is to allow the attending Surveyor to:

(i) Examine and assess a survey item and/or a group of items and/or supporting documents,

(ii) Verify and assess applicable tests and/or services.

(b) 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.

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

(i) live-streaming video and audio

(ii) recorded videos provided by the Owner's representative

(iii) photos provided by the Owner's representativ

(iv) other data and/or supporting documents acceptable to the Society.

(d) The live videos, recorded videos and still images taken during the remote survey is to be kept confidential and not to be used for any purpose other than to assist the remote surveyor in conducting the remote survey. Further, they are not to be disclosed to any third part, or copied, reported or altered without written consent of the IS Class.

(e) The applicant or any person on its behalf is not to record the videos containing the voice of the remote surveyor.

15.1.9 Assessment of the Remote Survey

(a) The Surveyor is to evaluate all evidence received and accept them before crediting the remote survey.

(b) The means used for the remote survey is to 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.

(c) 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.

16 Scope and Procedures

16.1 Scope - Eligible Survey Items

(a) 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.

(b) A remote survey may be proposed as an alternative to a survey attended on board by a Surveyor for the surveys listed in Table 16.1.

(c) When the class survey is also related to a statutory item, and the Society is carrying out the statutory survey on behalf of the Administration, then the Administration acceptance is required, and possible additional requirements are to be complied with.

(d) 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 IS Class.

Table 16.1 Eligible Remote Survey Items

No.	Surveys and related items eligible to remote survey	Notes
1	Postponement, issuance, deletion of Condition of Class	*
2	Postponement of Class surveys	*
3	Items of Continuous Survey for Machinery or Planned Maintenance Scheme	*
4	Occasional survey for change of ship's name	*
5	Occasional survey for loss of anchor	*
6	Occasional survey for minor machinery or equipment damage	*
7	Occasional survey for minor hull damage	*
8	Occasional survey for minor deficiencies/defects not subject to a Condition of Class	*
9	In-water bottom survey	*
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	*
11	Non-propelled / un-manned barges/pontoon – annual surveys when no survey of hull compartments is due	*
12	Minor retrofit / installation/upgrade of equipment	*
13	Documentary or data based initial / periodical / renewal / occasional verifications and surveys	-

Notes: (*) means that live streaming may not be required for minor survey scope or that a combination remote survey method, as listed in Section 15.1.8, may be used at the sole discretion of the IS Class.

16.2 Procedures

16.2.1 Eligibility – Refer to Section 15.1.6

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

(a) 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 IS Class prior to the survey.

(b) The Owner's representative is to confirm the identity of the ship at the commencement of the survey.

16.2.3 Requirements for a remote survey when live streaming is used

(a) The Owner's representative is to ensure that:

(i) the Owner's representative is attending onboard and has access to the areas intended to be surveyed.

(ii) the Owner's representative has at his disposal a 2-ways visual and audible communication means complying with the requirements in Section 15.1.5.

(iii) ICT solution is available on the communication means and meets the requirement described in Section 15.1.5.

(b) In the case these requirements cannot be fulfilled, the remote survey may be rejected.

(c) The Surveyor is to verify the identity of the ship at the commencement of the survey by live streaming.

16.2 Recording of Evidence

16.2.1 Required Evidence

(a) In principle, live streaming video and audio is to be applied to remote surveys as a primary means.

(b) 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:

(i) Recorded video and audio

(ii) Photos

(iii) Master's/chief engineer's statement

(iv) Ship's logbook

(v) Owner's confirmation

(c) Live streaming video and audio - Live streaming video and audio using ICT are to be in accordance with the requirements in Section 15.1.5.

(d) Recorded videos/photos - For the recorded videos/photos, the following information is to be available:

(i) Confirmation that they were actually taken on the ship by the Owner's representative

(ii) Date and time when they were taken

(iii) Identity of the personnel/crew responsible for taking evidence

(e) 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.

(f) Ship's logbook - The Master is to make entries into ship's logbook on the following occasions and submit copies of the relevant pages when requested by the Surveyor:

(i) when a remote survey is carried out by the Surveyor

(ii) when videos/photos are taken and submitted to the Surveyor with the Master's/Chief Engineer's statement and additional documents as applicable.

(g) 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.

16.2.1 Retaining/Filing Evidence

(a) The evidence submitted by the Owner’s representative or master is to be retained/filed in accordance with the IS Class procedures which is to include:

(i) type of evidence to be retained/filed

(ii) duration/location to be retained/filed

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

16.2.2 Other Supporting Documents

(a) 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.

(b) While the Surveyor is to verify that the documents are duly prepared and issued to the ship, they may not be required to be retained/filed by the Society as evidence.

1. General

1.1 Overview

At present, there are two regulations governing the requirements for safe and environmentally sound ship recycling:

- Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, which will enter into force in June 2025.
- The EU Regulation on Ship Recycling (EU SRR), which is in force since 31 December 2020.

Both HKC and EU aims to ensure that ships undergoing recycling do not pose any unnecessary risk to human health, safety and environment. One of the main concerns is the fact that ships may contain hazardous materials such as asbestos, ozone-depleting substances, heavy metals and others, which may have negative impacts both on workers' health safety and to environment.

HKC is applicable to ships, operating in the marine environment, which are equal to and above 500 GT. The HKC has two key issues:

- Inventory of hazardous materials (IHM, 13 hazmats)
- Authorisation of ship recycling facilities

EU SRR is applicable to ships, of 3rd party flags, operating in the marine environment calling European Union and United Kingdom ports or anchorages, equal to and above 500 GT. The EU SRR has two key issues:

- Inventory of hazardous materials (IHM, 15 hazmats)
- European list of approved ship recycling facilities

Navy ships and domestic ships are excluded from the scope of HKC and EU SRR.

1.2 Surveys

All surveys and endorsements are to be carried out in accordance with Chapter 2, Regulation 10 of the HKC and Article 8 of the EU SRR.

2. Inventory of Hazardous Materials (IHM)

The IHM is a list of hazardous materials that are present on a ship. The IHM quantifies and locates hazardous materials on board which are known to represent a potential hazard to people and the environment.

The IHM consists of three parts:

- Part I: Hazardous materials contained in the ship's structure and equipment
- Part II: Operationally generated wastes
- Part III: Stores

The IHM Part I is prepared either during the construction of the ship or while the vessel is in operation. For latter, hazmat experts should be contracted for the preparation of the IHM. Refer to Annex 2 Preparation of IHM for more details.

IHM Part II and III shall be prepared by the shipowner once the decision is given to send the ship for recycling. The IHM Part II and III can be prepared by the crew or by a hazmat expert (details in 4).

Scope of IHM		**Shipbuilding & Operation**	**Preparation prior to Recycling**	
HKC	**EU SRR**	**Part I Structure & Equipment**	**Part II Operationally generated wastes**	**Part III Stores**
Appendix 1	Annex I	✓		
Mandatory for new/existing ships & new installations				
Appendix 2	Annex II	✓		
Mandatory for new ships/ installations; as far as practicable for existing ships				
Table C Materials – Potentially hazardous items			✓	✓
Table D Materials – Regular consumable goods potentially containing hazardous materials				✓

3. IHM Part I Approval and Certification

IHM Part I reports, which are prepared according to the MEPC Guidelines for the Development of the Inventory of Hazardous Materials, shall be certified by a competent authority.

The EU SRR requires investigation of 15 hazardous substances, listed in Annexes I and II to the regulation, while HKC requires 13. The table below shows the details of the Annexes and Appendices as well as the details of the IHM.

			Hazardous Material	Threshold Value
Annex I to the EU SRR	Appendix 1 to the HKC	Table A of the Res. MEPC 379(80)	Asbestos	0.10%
			Ozone-depleting substances (ODS)	No threshold value
			Polychlorinated biphenyls (PCB)	50 mg/kg
			Anti-fouling systems containing organotin	2500 mg total tin/kg
			Anti-fouling systems containing cybutryne	1000 mg/kg
			Perfluorooctane sulfonic acid	10 mg/kg

			Hazardous Material	Threshold Value
Annex II to the EU SRR	Appendix 2 to the HKC	Table AB of the Res. MEPC 379(80)	1. Any hazardous materials listed in Annex I / Appendix 1	
			2. Cadmium and Cadmium Compounds	100 mg/kg
			3. Hexavalent Chromium and Hexavalent Chromium Compounds	1000 mg/kg
			4. Lead and Lead Compounds	1000 mg/kg
			5. Mercury and Mercury Compounds	1000 mg/kg
			6. Polybrominated Biphenyl (PBBs)	50 mg/kg
			7. Polybrominated Diphenyl Ethers (PBDEs)	1000 mg/kg
			8. Polychlorinated Naphthalenes (more than 3 chlorine atoms)	50 mg/kg
			9. Radioactive Substances	No threshold value
			10. Certain Shortchain Chlorinated Paraffin (Alkanes, C10-C13, chloro)	1%
			11. Brominated Flame Retardant (HBCDD)	100 mg/kg

4. Ready for Recycling Certificate (RfRC)

To obtain the RfRC, the ship owner first needs to prepare IHM Parts II and III and find a ship recycling facility which recycles ships to which the Convention applies. The owner shall send IHM Parts II and III to the respective ship recycling facility, together with the up-to-date IHM Part I, so that the ship specific Ship Recycling Plan (SRP) can be prepared by the ship recycling facility.

Once the SRP is ready, the owner shall request a final survey from the Administration or Recognised Organisation for the verification of the following:

- Up-to-date IHM Part I, and approved IHM Parts II and III, have been prepared by the ship owner and are on board.
- The approved SRP by the competent authority of the ship recycling facility, is on board and has been developed taking into account the hazmats listed in the IHM.

Appendix -1 : Thickness Measurement and Diminution

1 Thickness measurement

1.1 Maximum allowable diminution levels for General Dry Cargo Ships and all other ships including non-propelled barges and passenger ships.

Allowable limit is the difference between the thickness from measurement at ship building and from measurement at the specific survey.

1.2 Criteria for ships' length* in 85 m and greater than 85 m.

No.	Description of plating and stiffeners	Maximum Allowable Limit
	Hull Envelope	
1.	Strength deck plating	30%
2.	Side shell plating	30%
3.	Bottom shell plating	30%
4.	Deck plating inside line of openings, where fitted	30%
5.	Forecastle deck plating	30%
6.	Poop deck plating	30%
7.	Superstructure deck plating	30%
	Miscellaneous & Internal Structure	
1.	Strength deck longitudinals	25%
2.	Side shell longitudinals	25%
3.	Bottom shell longitudinals	25%
4.	Transverse bulkhead plain plating	30%
5.	Transverse bulkhead corrugated plating	25%
6.	Transverse bulkhead stiffeners	25%
7.	Longitudinal bulkhead plating	30%
8.	Longitudinal bulkhead stiffeners	25%
09.	Inner bottom plating	30%
10.	Inner bottom longitudinals	25%
11.	Hopper sloping plating	30%
12.	Hopper sloping longitudinals	25%
13.	Topside sloping plating	30%
14.	Topside sloping longitudinals	25%
15.	Salt Water Ballast Tank frames	25%
16.	Cargo hold shell frames and end brackets	25%
17.	Cargo hold hatch cover plating	30%
18.	Cargo hold hatch cover stiffeners	25%
19.	Cargo hold hatch coaming plating	30%
20.	Cargo hold hatch coaming stiffeners	25%
21.	Salt Water Ballast Tank Floor	25%
22.	Web frame plating	25%
23.	Web frame face plates	25%

*refers to Ship' Load Line Length as per Load Line Convention

24.	Web frame secondary structure	30%
26.	Other miscellaneous plating	25%
27.	Other miscellaneous longitudinals or stiffeners	30%
28.	Plating of sea chests	30%
29.	Shell plating in way of overboard discharges	30%

1.3 Criteria for ships' length less than 85 m

For ships's length less than 85 meters, the maximum allowable of plate thickness up to 30% for deck plating and super structures. and for profiles up to 25% on original values will be still valid under IS Class rules. But the thickness of the plating is not to be less than:

For deck plating: thickness must be greater than **0.9 (5.5+0.02*L) in any cases.**
For Side/bottom plating: thickness must be greater than **0.9 (5.0+0.04*L) in any cases.**

Note: when comparing the thickness between in this appendix and specific guidelines, the thickness mentioned in the specific guidelines shall be used and consulted as a priiority.