

**CLASS ANNUAL SURVEY/INTERMEDIATE SURVEY/SPECIAL SURVEY/  
GENERAL EXAMINATION\* CHECKLIST FOR GAS CARRIER**

**Ship Name:** ..... **I.R. No.:** ..... **Report No.:** .....

<b>DOCUMENTATION</b>
<b>STATUTORY CERTIFICATES</b> Valid Statutory certificates available on board.
<b>APPROVED TRIM &amp; STABILITY INFORMATION</b> Confirmation of availability of trim and stability booklet approved by administration.
<b>MANOEUVRING BOOKLET</b> Confirming that the manoeuvring booklet is on board and that the manoeuvring information is displayed on the navigating bridge
<b>FIRE CONTROL PLANS</b> Verification of proper posting of fire control plans (including duplicate sets permanently stored in a prominently marked weathertight enclosures outside deckhouse
<b>STEERING GEAR ENTRIES REQUIRED BY SOLAS/FLAG</b> Verification of entries made in the ship's log for departure steering checks & Emergency steering drills.
<b>DAMAGE STABILITY</b> Availability of damage stability information.
<b>LOADING MANUAL</b> Verified that vessel has an approved Loading Manual.
<b>I.G. SYSTEM OPERATIONAL MANUAL</b> Verification for availability of I.G. Instruction manual (operation, maintenance, safety, health hazard etc.)
<b>DAMAGE CONTROL PLANS &amp; BOOKLET</b> Verification that damage control plan and booklet are available. (Note: Applicable for vessels of 500 GT and over, keel laid on or after 01/01/2009.)
<b>CARGO TANK RELIEF VALVES</b> Verification of certificate for cargo tank relief valve setting and sealing of the relief valves giving details regarding place, date and certifying authority for setting of relief valves
<b>NATIONAL REQUIREMENTS/CODE</b> Availability of applicable code (Note: (IGC-for ships whose keel was laid on or after 01-06-1986/GC Code for ships built before 01-06-1986 but after 31-12-1976) or National requirements and Material Safety Data sheets for the carriage of cargoes)
<b>CONSTRUCTION DRAWINGS MAINTAINED ON BOARD</b> Confirming that structural alterations performed, if any, have been approved by the classification society and reported on the as-built drawings kept on board (Note: applicable for ship constructed on or after 1 <sup>st</sup> Jan. 2007)
<b>DOCUMENT OF APPROVAL FOR STABILITY INSTRUMENT</b> Confirm vessel is provided with DOA for stability instrument (Note: Applicable for new vessel keel laid on or after 01/07/2016 and existing vessel first renewal survey after 01/07/2016)
<b>EMERGENCY TOWING PROCEDURES</b> Confirm that ship specific emergency towing procedures available on board.
<b>COATING TECHNICAL FILE</b> Confirm that Coating technical file is available on board and maintained. (Note: Applicable for ships of not less than 500 gross tonnage provided with dedicated seawater ballast tanks for which the building contract is placed on or after 01/07/2008 or the keels of which are laid on or after 01/01/2009 or which are delivered on or after 01/07/2012.)
<b>SHIP CONSTRUCTION FILE</b> Confirmation that Ship Construction File is available and maintained onboard.

**Condition to be reported using number code as follows:**

- When examined found to be satisfactory and/or examined/tested satisfactory and/or confirmed arrangements exist in satisfactory condition. No repairs considered necessary this time.
  - Repairs now recommended and were carried out satisfactorily. After repairs found to be satisfactory and/or examined / tested satisfactorily and/or confirmed arrangements exist in satisfactory condition.
  - Repairs now recommended and remain outstanding.
  - Opportunity to examine/test was not provided this time. Remains outstanding.
- NA- Not Applicable.

**ALTERNATIVE DESIGN & ARRANGEMENT**

Confirm that where applicable, the approved documentation for alternative design and arrangement is on board

**CARGO INFORMATION**

Information available on board for the each cargo carried giving data for the safe carriage of cargo

**CARGO CONTAINMENT SYSTEM**

Records of the performance of the cargo containment system is available on board

**HARMONIC DISTORTION RECORD FOR VESSEL FITTED WITH HARMONIC FILTER.**

Verification of annual measurement record of harmonic distortion level at bus bar (Applicable for vessel keel laid before 1 July 2017 and for any modification on electrical distribution system on existing vessel, total distortion measured along with equipment running at the time of measurement to be recorded)

**OPERATIONAL MANUAL FOR EFFECT OF HARMONIC FILTER**

Verification that following document are available on board.

- 1) Effect of failure on harmonic filter on electrical distribution system.
- 2) Permitted modes of operation for maintaining harmonic distortion level within acceptable limit during normal operation and during failure of filter.
- 3) Approved copy of relaxation on allowable distortion limit, if any
- 4) Record of harmonic distortion level measured.

(Note: Applicable for vessel keel laid on or after 01 July 2017 and on exiting ship retrofitted with harmonic filter on or after 01 July 2017.)

**NON-DESTRUCTIVE TESTING PLAN**

Confirming that non-destructive testing plan of independent tank type B cargo tank is available.

**INSPECTION/TESTING PLAN OF MEMBRANE CARGO CONTAINMENT SYSTEM**

Confirming that approved inspection/testing plan of membrane cargo containment system is available

**HULL AND WEATHER DECK****GAS DOMES, SUPERSTRUCTURES, DECKHOUSES & WHEELHOUSES**

Verification of sealing arrangements at gas domes, gas tight condition of wheelhouse doors and windows, fixed type side scuttles and windows in superstructure and deckhouse ends facing the cargo area and gas tight bulkhead penetrations.

(Note: Where cargo tank domes penetrate the exposed deck, visually examine closing and sealing devices/ expansion joint between the cargo tank dome and cargo hold coaming for the condition of rubber and any cracks or wear and tear)

**ACCOMMODATION & SERVICE SPACES VENTILATION & AIRLOCKS**

Verification of accommodation, control station/service spaces ventilation system for proper operation and condition of closing devices to air intakes and outlet (to be internally operated in case of carriage of toxic gasses) and airlocks to forward service spaces with access falling in gas dangerous space

**SPACES NOT NORMALLY ENTERED**

Verification of ventilation arrangements (may be portable ventilation) provided for spaces not normally entered such as hold spaces, interbarrier spaces, void spaces, cofferdams, spaces containing cargo piping and other spaces where cargo vapour could accumulate

**VENTILATION OF SPACES IN THE CARGO AREA NORMALLY ENTERED DURING CARGO HANDLING**

Examine that arrangement of mechanical ventilation of space in satisfactory condition and verified its controlled from outside space, Warning notice placed, it's in fixed and negative pressure type, Permitted extraction from lower upper part of when appropriate for compressor room, pump rooms and cargo control rooms when considered gas-dangerous, it's positive type for spaces, containing electric motors driving cargo compressor or pumps and other gas safe space with cargo area, exhaust dusts are clear of the ventilation inlet and opening to Accommodation space, service space control station and other gas free area

**CARGO & PROCESS PIPING AND FITTINGS**

Examination of condition of cargo, bunker, ballast and vent piping system including PRVs, vacuum relief valves, vent masts and headers and devices to prevent the passage of flame on vents to all bunker, hold and void spaces, as far as practicable,. Confirmation that the PRVs are type-approved or marked with date of testing. The verification to include condition of removable pipe lengths/other approved equipment necessary for cargo operation. Examination of liquid & vapour hoses. Examination of process piping insulation form hull structure, pressure relief and drainage arrangements and water curtain protection as appropriate including Expansion arrangements.

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3. Repairs now recommended and remain outstanding.
4. Opportunity to examine/test was not provided this time. Remains outstanding.

NA- Not Applicable.

<b>SPECIAL SPACES</b> Verification of closing and other arrangements of any special enclosed space provided for the protection of the crew in the event of a major cargo release including nearby decontamination showers
<b>DRIP TRAYS</b> Availability of portable or fixed drip trays or insulation of deck plating as protection against cargo leakage
<b>FIRE DOORS AND CONTROLS</b> a. Examination of manual/automatic fire doors, verification of their satisfactory operation and confirmation that no holding back arrangements exist and arrangements for self-closing & locking are in order. b. Confirmation that fire doors provided between machinery space and steering gear compartment are of gastight, self-closing type and without any hold back arrangements. (Note: applicable where emergency fire pump is in steering gear compartment)
<b>ANCHORING &amp; MOORING EQUIPMENT</b> Examining the anchoring equipment & mooring equipment. At renewal survey, during the examination, anchors are lowered and raised using the windlass.
<b>SOUNDING PIPES</b> Sounding pipes, including self closing devices on short sounding pipes
<b>HATCHWAYS</b> Examination and testing of hatchways on freeboard and superstructure decks including efficient condition of closing appliances
<b>WEATHER DECKS</b> Examination of weather decks, shipside plating above waterline and confirm heating arrangement is in order if any for steel structure provided
<b>HULL MARKINGS</b> Verification that hull markings such as freeboard markings, draft markings, vessel name, IMO number, port of registry are legible and in satisfactory condition.
<b>VENTILATORS</b> Examination and or testing of ventilators including efficiency of their closing appliances
<b>SCUPPERS, SANITARY DISCHARGES, VALVES AND CONTROLS</b> Examination scuppers and sanitary discharges and valves together with valves and their control gear
<b>SKYLIGHTS AND FIDDLEY OPENINGS</b> Examination and or testing of skylights and fiddle openings including their closing appliances
<b>EXPOSED CASINGS, DECK HOUSES, COMPANION WAYS AND SUPERSTRUCTURES</b> Examination and/or testing of exposed casings, deck houses, companionways and superstructure bulkheads including closing appliances.
<b>TIGHTNESS TESTING OF CLOSING APPLIANCES</b> Where tightness testing of closing appliances such as hatches, doors, etc. is carried out with ultrasonic equipment, confirmation that firm engaged in tightness testing is approved. Name of the firm:..... IRS approval certificate Number..... Validity.....
<b>THICKNESS MEASUREMENT</b> Where thickness measurements on structure/plating of the vessel is carried out, confirmation that firm engaged in thickness measurement on vessel is approved. Name of the firm:..... IRS approval certificate Number..... Validity.....
<b>REMOTE INSPECTION TECHNIQUES (RIT)</b> Where remote inspection techniques are used in survey, confirmation that firm engaged for RIT is approved. Name of the firm:..... IRS approval certificate Number..... Validity.....
<b>NON-DESTRUCTIVE TESTING (NDT)</b> Where NDT carried out onboard, confirmation that the firm providing NDT services is approved. Name of the firm:.....

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  4. Opportunity to examine/test was not provided this time. Remains outstanding.
- NA- Not Applicable.

Approval certificate Number..... Issuing Authority ..... Validity.....
<b>GUARD RAILS AND/OR BULWARKS</b> Examination of the condition and arrangement
<b>SEA WATER PIPE EXPANSION JOINTS</b> Examining visually the condition of any expansion joints in sea water system
<b>COLLISION &amp; WATERTIGHT BULKHEAD OPENINGS</b> Examining the collision and the other watertight bulkheads as far as can be seen. Watertight bulkheads penetrations examination as far as practicable for satisfactory condition
<b>BILGE, BALLAST AND OIL FUEL ARRANGEMENTS</b> Examining, as far as practicable, the bilge, ballast and oil fuel arrangements
<b>MASTS AND STANDING RIGGING</b> Masts, Derricks & Crane columns including their standing rigging
<b>COMPANIONWAYS</b> Verification of Companionways and posting of appropriate notices.
<b>AIR PIPES</b> Examination and or testing of air pipes including efficiency of their closing appliances, weld connection between Air pipes and deck plating. Examining and Confirming that vents from bunker tanks and ballast tanks (with cathodic protection) are equipped with flame screens and mesh provided are in satisfactory condition.
<b>FREEING PORTS</b> Examination of the condition and arrangement including shutters and crew protection bars
<b>GANGWAY, LIFELINES AND MEANS OF EMBARKATION/DISEMBARKATION</b> a. Satisfactory examination of various items pertaining to lifelines, accommodation ladder, gangways, Davits, Winches. Verification of inspection and maintenance records. b. Confirmation that embarkation ladder and accommodation ladder including safety net are in satisfactory condition and marked with safe working load.
<b>EMERGENCY TOWING ARRANGEMENT</b> Examining the towing arrangements and verification of operational readiness (Applicable for vessels of 20,000 DWT and above)
<b>SAFE ACCESS TO BOW</b> Examining arrangements of safe access to bow including trends, side stringer cross members, decking, deck plate, stanchion, rigid hand rails, hand ropes, support points, shelter and confirmation that it is constructed of fire resistant and non slip material.
<b>TOWING AND MOORING EQUIPMENT</b> Confirming that the towing and mooring equipment is properly marked with any restriction associated with its safe operation for ships constructed on or after 01/01/2007
<b>BOW OR STERN LOADING/UNLOADING ARRANGEMENTS</b> Examining when applicable bow or stern loading and unloading arrangements with particular reference to the electrical equipment, fire fighting arrangements and communication between the cargo control room and shore location.
<b>NEW INSTALLATION OF MATERIALS CONTAINING ASBESTOS</b> Confirming that new equipment containing asbestos was not fitted on board since last survey.
<b>INTERNAL SPACES</b> Verification of the permanent means of access where appropriate of the internal spaces as far as practicable.
<b>UPGRADATION/REPAIR TO COATING</b> Confirmation that maintenance, repair and partial recoating had been done as per manufacturer's specification using acceptable coating system, suitable surface preparation and adequate film thickness under the supervision of coating manufacturer's representative/coating inspector. These had been verified through stage/patrol inspection during survey and considered acceptable. (Note: Ballast tank for which coating condition was upgraded to "GOOD" this time during survey are to be listed in the "Remark" section.)

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  3. Repairs now recommended and remain outstanding.
  4. Opportunity to examine/test was not provided this time. Remains outstanding.
- NA- Not Applicable.

**WATERTIGHT CABLE TRANSIT SEAL SYSTEMS**

(Note: Applicable for all vessels contracted for construction on or after 1<sup>st</sup> July 2021)

i) Review of the cable transit seal systems register to confirm that it being maintained.

ii) Confirmation that where any disruption to the cable transits or installation of new cable transits carried out onboard from last annual survey, records are reviewed for the satisfactory condition of those transits.

(Note: If deemed necessary examination of such transits to be undertaken)

iii) Examination of cable transits as far as practicable for their satisfactory condition.

iv) Confirmation that the results of survey are recorded in the cable transit seal system register.

v) Where the cable transits have been examined by an approved service supplier, review of the cable transit seal system register to confirm that it has been properly maintained by the owner and correctly endorsed by the service supplier.

**LOADING INSTRUMENT**

Availability of an approved loading instrument together with its operational manual and verification of test cases

[Capable of verifying compliance with intact and damage stability requirement as per MSC 370(93).

(Note: Applicable for new vessel keel laid on or after 01/07/2016 and existing vessel first renewal survey after 01/07/2016)

**COATING TECHNICAL FILE**

Confirming that maintenance, repair and partial coating of dedicated ballast tanks, as appropriate, are recorded in the coating technical file and the maintenance of the protective coating is included in the overall ship's maintenance scheme.

**MACHINERY SPACES****MACHINERY AND BOILER SPACES**

Confirming that the machinery, boilers and other pressure vessels, associated piping systems and fittings are so installed and protected so as to reduce to a minimum any danger to persons on board, due regard being given to moving parts, hot surfaces and other hazards

**FIRE/EXPLOSION HAZARDS**

a. i) Propulsion system and auxiliary machinery, boilers, all pressurized systems (steam, pneumatic, hydraulic) and their associated fittings were examined to see whether they are being properly maintained and with particular attention to the fire and explosion hazards

ii) Verification that oil/water leakages, accumulation of oil, with potential source of ignition does not exist in the machinery spaces. Leakages if any have been dealt and source of leakages rectified.

iii) Confirmation that floor plates & gratings are secured and found to be in order.

b. Confirmation that lagging material on hot surfaces, anti-splash tapes on joints are in place as required and high-pressure fuel lines are jacketed and spray shields flanged/screwed joints of pipes are in satisfactory condition.

c. Confirmation that arrangement for high pressure fuel oil leak off alarm for propulsion engine, auxiliary engines or any other diesel engines are satisfactory and operational. Drain lines are connected to alarm unit and working satisfactory.

d. Where flexible hoses/pipes are used, examination of hoses/pipes for any signs of material cracking or deterioration to ensure that, there is no damage, cut, kinked, crushed, twisted, hardened, cracked hoses/pipes exists in the oil systems.

e. Confirmation that the supports and retaining devices of low-pressure fuel system provides adequate restraint and are in satisfactory condition.

**STEERING GEAR**

a. All main and auxiliary steering arrangements and their associated equipment and control systems were examined and tested. Steering chains are verified for wear and tear and it was ensured wear is within 12% of the original rule diameter. Confirmation that various alarms required for hydraulic power operated, electric and electro-hydraulic steering gears are, operating satisfactorily and that the recharging arrangements for hydraulic power operated steering gears are being maintained. Log entries made in accordance with statutory requirements were verified where applicable Confirming that various alarms are operating satisfactorily.

Confirm, that the required arrangement to regain steering capability in the event of the prescribed single failure is maintained

b. Confirmation that steering gear compartment is in satisfactory condition and provided with handrail arrangements, grating or non-slip surface.

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  3. Repairs now recommended and remain outstanding.
  4. Opportunity to examine/test was not provided this time. Remains outstanding.
- NA- Not Applicable.

**MEANS OF COMMUNICATION**

All means of communication between the navigating bridge and the machinery control positions including engine room telegraph, as well as the bridge and the main/alternative steering position, if fitted, are tested. Where ships having emergency steering positions there are means of relaying heading information and, when appropriate, supplying visual compass readings to the emergency steering positions. Confirmation that means of indicating the angular position of the rudder are operational.

**BOILERS AND PRESSURE VESSELS**

Periodical Surveys of boilers and other pressure vessels have been carried out as required by the Rules and the safety devices have been tested. External visual examination. External examination of boilers including test of safety & protective devices and test of safety valve using it's relieving gear. For exhaust gas economisers, review of engine log book to verify that Chief Engineer has tested the safety valves at sea within the window period of Annual Survey

**REMOTE CONTROLS**

Examining the means for the operation of the main and auxiliary machinery essential for propulsion and the safety of the ship, including when applicable, the means of remotely controlling the propulsion machinery from the navigating bridge (including the control, monitoring, reporting, alert and safety actions) and the arrangements to operate the main and other machinery from a machinery control room

**BILGE PUMPING ARRANGEMENT**

Examination of the bilge pumping systems and bilge wells including operation of each bilge pump (including hand pumps and eductors), extended spindles and level alarms, where fitted. Operational confirmation of emergency bilge suction and bilge-pumping system for each watertight compartment and drainage from enclosed cargo spaces situated on freeboard deck.

**FIRST START ARRANGEMENT**

Operational confirmation of the means provided to bring the machinery into operation from the dead ship condition without external aid

**AUTOMATION**

General Examination of automation equipment. Operation of safety Devices, bilge level detection and alarm systems and control systems. Examination and testing of the general emergency alarm system and confirmation of the engineer's alarm that it is clearly audible in the engineer's accommodation

**SCHEDULE OF BATTERIES**

Endorsed schedule of batteries for essential and emergency services available on board and maintenance being done as per this schedule.

Confirm that changes (If any) in battery type, location and rating are reviewed and endorsed.

**NORMAL OPERATION OF PROPULSION MACHINERY**

Confirming that the normal operation of the propulsion machinery can be sustained or restored even though one of the essential auxiliaries becomes inoperative

**MACHINERY SPACE VENTILLATION**

Confirmation that machinery space ventilation is in good working condition.

**EMERGENCY GENERATOR ROOM VENTILATORS ARRANGEMENT**

Verification that following requirement of emergency generator room ventilation louvers and its closing appliance examined/tested and found satisfactory.

- Manual or power operation of louvers and its closing appliance.
- Operating instruction, where hand –operated system is in use
- Automatic opening of ventilation louvers whenever emergency generator starting/in operation for power operated system where provided including fail to open operation..
- Manual closing operation from outside the space, where open/closed indication clearly marked.

(Note: Applicable for vessel keel laid on or after 01 January 2017)

**CARGO USE AS A FUEL**

Examining, when applicable the arrangement for the use of cargo as fuel and testing, as far as practicable that the gas supply to the machinery space is cut off, in case the exhaust ventilation not functioning correctly and that master gas fuel valve may be remotely closed from within the Machinery space

**MACHINERY VERIFICATION RUNS**

Towards completion of Special/Continuous Survey of Machinery, trial of main & auxiliary machinery including the steering gear & controls carried out to confirm satisfactory operation (In afloat condition).

For Controllable Pitch Propeller, confirmation that pitch position indicators are working satisfactorily from remote

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  - Repairs now recommended and remain outstanding.
  - Opportunity to examine/test was not provided this time. Remains outstanding.
- NA- Not Applicable.

and emergency position, onboard record of hydraulic oil analysis is available and servo oil low pressure and high temperature alarms are operational and oil level in the tank is maintained.

#### **SEA TRIAL**

In case of major repairs to main propulsion machinery or steering gear, confirmation that a sea trial has been carried out satisfactorily to confirm proper operation of the relevant machinery in all respects.

(Note: In case of major repairs to main propulsion machinery or steering gear, the scope of sea trial is to also include a test plan for astern response characteristics based on those required for such an equipment or system when fitted to the new ship. The tests are to be carried out at least over the manoeuvring range of the propulsion system and from all control positions. A test plan is to be provided by the manufacturer and accepted by the surveyor. If specific operational characteristics have been defined by the manufacturer, same is to be included in the test plan and the reversing characteristics of the propulsion plant, including the blade pitch control system of controllable pitch propellers, are to be demonstrated and recorded during trials.)

### **ELECTRICAL INSTALLATION**

#### **ELECTRICAL EQUIPMENT IN GAS DANGEROUS SPACES/ZONES**

Confirming that electrical equipment and cables in gas dangerous spaces and zones is suitable for such locations, is in satisfactory condition and properly maintained. The electric motors driving ventilation fans are positioned outside ventilation duct when carriage of flammable product is intended and the ventilation fan and the ducts, in way of fans only, are of non sparking construction in gas dangerous spaces

#### **INSULATION RESISTANCE**

Verification of insulation resistance of electrical equipment and cables in the gas dangerous spaces and zones (immediate past records may be accepted when the ship is not in a gas free state) where applicable, the Pipelines and Independent cargo tanks are Electrically bonded to Hull.

#### **ELECTRICAL SYSTEM**

a. General examination visually and in operation, as feasible, of the main electrical machinery, the emergency sources of electrical power, the switch gear, other electrical equipment including the lighting system. The precautions provided against shock, fire and other hazards of electrical origin for proper maintenance.

b. Confirmation that light covers including emergency lights are in satisfactory condition.

c. Confirmation that 440 V/220 V panels are not showing low insulation resistance.

d. Confirmation that insulation mat is provided around the electrical switch board, panels.

e. Confirmation that the generator breakers, interlocks and generator automatic starting as applicable are in satisfactory operational condition.

f. verification of insulation monitoring devices for all distribution systems. Operation of power management system, where fitted.

#### **EMERGENCY SOURCE OF POWER**

The operation of the emergency source(s) of electrical power, including their starting arrangement, the systems supplied, and when appropriate, their automatic operation as far as practicable. Examining the emergency lighting in all electric motor rooms for cargo pump.

(Note: This to remain independent from the battery source provided for propulsion and/ or main source of power in case battery systems used as main or an additional source of power for propulsion.)

#### **NAVIGATIONAL LIGHT SYSTEM**

Verification of Navigational light systems for satisfactory operation of lights, audio-visual indications and power supply arrangement for their satisfactory condition.

#### **MONITORING OF HARMONIC DISTORTION**

Confirmation that equipment for continuous monitoring of harmonic distortion level is in good order, alarm tested, logging of measured value verified in engine log book or electronically in case where automation system fitted and found to satisfactory.

(Note: Applicable for vessel keel laid on or after 01 July 2017 and on exiting ship retrofitted with harmonic filter on or after 01 July 2017.)

#### **PROTECTION ARRANGEMENT FOR HARMONIC FILTER**

Confirmation that protection for harmonic filter, including alarm tested and found satisfactory.

(Note: Applicable for vessel keel laid on or after 01 July 2017 and on exiting ship retrofitted with harmonic filter on or after 01 July 2017.)

#### **MOTOR CONTROLS**

Confirmation that motor controls including remote control are in satisfactory operational condition, where provided.

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3. Repairs now recommended and remain outstanding.
4. Opportunity to examine/test was not provided this time. Remains outstanding.

NA- Not Applicable.

<b>ELECTRICAL PROPULSION</b>
Examination of installation, arrangement of electric motors used for propulsion system, including associated cabling, drives, cooling systems (where provided) is to be carried out. Verification of operational and maintenance logs. Confirmation that controls, alarms, indications including remote control system is in satisfactory operational condition.
<b>ADDITIONAL REQUIREMENTS FOR BATTERY PROP NOTATION</b>
<b>DOCUMENTATION AND RECORDS</b>
Confirmation that batteries are type tested as per relevant IEC standard.
Type of battery used: Nickel Cadmium Battery/Lithium-Ion Battery/ Lead Acid Battery/Nickel Metal Hydride Battery*.
Verification that operation and maintenance manual for Battery Management System (BMS) & Power Management System (PMS) is available along with all the required details of batteries such as battery chemistry, test certificates, cell voltages, system voltages, number of battery banks, recommended charge and discharge rates, functional test, monitoring, software maintenance and other environmental requirements as applicable.
Confirmation that battery manufacturer recommended practices for safety have been documented and implemented satisfactorily.
Confirmation that details of schedule as well as records & log towards storage, maintenance, replacement of batteries is available and maintained.
Confirmation from the records that state of health and state of charge of battery system is maintained satisfactorily.
Confirmation that risk assessment towards possible potential hazards associated with type of battery chemistry, system design and its incorporation is available.
Confirmation from the records that the software updates including verification or testing after updates are being carried out.
<b>SYSTEM ARRANGEMENT AND TESTING</b>
Examination of arrangement for battery installation, battery spaces and equipment as far as practicable for satisfactory condition.
Confirmation of satisfactory operational testing of battery room//spaces ventilation systems and cooling systems as applicable.
Examination of firefighting systems in battery spaces.
Testing of all smoke, gas and fire detectors for their satisfactory condition.
Verification of all emergency shutdown arrangements to confirm their satisfactory operation.
Verification of operation of UPS for their satisfactory performance.
Verification and testing of safety systems arrangements towards overcharging, undercharging, high temperature, gas leakage etc. for satisfactory condition.
Testing of audio-visual alarms and controls for system power supply failure, cell temperature high, battery space high temperature, cell voltage etc.
<b>ADDITIONAL REQUIREMENTS FOR PERFORMANCE MANAGEMENT SYSTEM</b>
Confirmation that arrangement of performance management system including associated cabling, sensors and interconnections maintained as per approved plan.
Verification that on loss of hardware, functions of the systems does not get affected. (Applicable where the system is provided with dedicated operator stations and servers)
Confirmation from the records that hardware & software inventory maintained and changes if any, have been verified and found in order.
<b>ADDITIONAL REQUIREMENTS FOR SHIPS USING BIO-FUEL BLEND AS FUEL</b>
Confirmation of following towards use of bio-fuel blend onboard as fuel oil:
a. Availability of documented permission from the Flag Administration for use of bio-fuel blend.
b. Vessel is in possession of required documents issued by the bunker suppliers to show that the bio-fuel blend meets the relevant specification requirements including Test analysis report as per ISO 8217:2017, BDN, Safety Data Sheet, Proof of Sustainability (PoS) for Biofuels).
c. The percentage of bio-fuel in the fuel oil blend supplied to the ship is clearly reflected in the bunker delivery note and that the blend proportion conforms to the limit permitted by Flag Administration.
d. Measures are in place in respect of shelf life of the bio-fuel blend used onboard as declared by the bunker supplier.

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  3. Repairs now recommended and remain outstanding.
  4. Opportunity to examine/test was not provided this time. Remains outstanding.
- NA- Not Applicable.



e.	Ship specific risk analysis for use of bio-fuel blend is available. Any redundancy requirements onboard as per risk analysis is taken care for the operational safety and emergency contingency measures. <b>Note: Bio-fuel blend is not to be used for emergency equipment e.g. emergency generator, emergency fire pump, etc.</b>		
f.	Confirmation by manufacturers of engines and equipment (e.g. purifiers) on suitability for use of bio-fuel blend onboard.		
g.	Shipboard operational procedures for use/ handling of bio-fuel blend including procedures for procurement, availability test result, storage of biofuel blend, frequency of cleaning of fuel filters, inspection of storage tanks, monitoring of transfer lines and associated piping & fittings and any other requirements specified by the manufacturers of engines/equipment is available.		
h.	Crew members onboard are familiarized with the shipboard procedures regarding the handling and use of bio-fuel blend including contingency measures and records are maintained.		
i.	Maintenance and inspection of fuel oil system including storage tanks, filters, fuel transfer hoses and connectors is undertaken as specified in the shipboard operational procedure and records maintained.		
j.	Logging/ monitoring of all relevant engine parameters, maintenance and checks as specified by the manufacturer is undertaken and records maintained.		
<b>ADDITIONAL REQUIREMENTS FOR IMPRESSED CURRENT CATHODIC PROTECTION (ICCP) SYSTEMS</b>			
<b>DOCUMENTATION AND RECORDS</b>			
1. Confirmation that ICCP Manual is available onboard and attachments details of anodes and reference electrodes along with specification of connecting cables are available for reference.			
2. Confirmation that record of system operation is maintained and downtime if any is recorded. Confirmation that all anode current outputs and potentials monitored are similar to those settled during previous assessment.			
3. Confirmation from records that ICCP system is maintained and adjusted by the supplier on regular basis as per manufacturer's instructions.			
<b>SYSTEM OPERATION</b>			
Confirmation that system is in operation and working satisfactory. Confirmation that operation of indicators and control on the panel including auto/manual switch are found to be satisfactory.			
<b>PROTECTION ARRANGEMENT FOR ANODE CABLES</b>			
Confirmation that protection arrangement for ICCP anode cables is in satisfactory condition.			
<b>ALTERNATIVE DESIGN AND ARRANGEMENT</b>			
Where applicable, examination of alternative design and arrangement for machinery or electrical installations or fire safety, in accordance with the test inspection and maintenance requirements if any specified in the approved documentation is to be carried out			
<b>FIREFIGHTING ARRANGEMENTS</b>			
<b>SERVICING OF FIREFIGHTING APPLIANCES</b>			
Verification of evidences for proper maintenance and servicing of firefighting appliances.			
<b>No.</b>	<b>Item</b>	<b>Inspection Type</b>	<b>Date Last Done</b>
1	Breathing apparatus	Examination	
		Testing	
2	Portable/Semi-portable Fire Extinguishers	Examination	
		Testing	
3	Fixed Fire Extinguishing System (CO <sub>2</sub> /Halon/Foam/DCP/Other* (specify) .....)		
	CO <sub>2</sub>	Weighment	
		5 Yearly servicing	
		10 Yearly servicing	
		Testing	
		Examination	
Halon	Container Content Verified		

**Condition to be reported using number code as follows:**

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  - Repairs now recommended and were carried out satisfactorily. After repairs found to be satisfactory and/or examined / tested satisfactorily and/or confirmed arrangements exist in satisfactory condition.
  - Repairs now recommended and remain outstanding.
  - Opportunity to examine/test was not provided this time. Remains outstanding.
- NA- Not Applicable.

		Servicing	
		Container Pressure Testing	
		Examination	
	Foam	Sample Testing	
		Examination	
	DCP	Testing	
		Examination	
	Other (Specify).....	Testing	
		Examination	
4	Fireman's outfit	Examination	
5	International Shore Coupling	Examination	

#### **WATER SPRAY SYSTEM**

Verification of water spray system including remote starting of pumps and remote operation of any normally closed valves in the system and its means are clearly marked

#### **DRY POWDER EXTINGUISHING SYSTEM**

Verification of condition of dry powder extinguishing system including hand hoses, fixed piping, monitors, pressurizing medium, dry chemical powder and local and or remote controls and its means are clearly marked.

#### **CARGO COMPRESSOR AND PUMP ROOMS**

Verification of carbon dioxide or any other appropriate fire extinguishing system for cargo compressor and pump rooms and its operation clearly marked

#### **FIXED CARBON DIOXIDE FIRE-EXTINGUISHING SYSTEMS**

Examination of the fixed carbon dioxide fire-extinguishing systems for the protection of machinery spaces, cargo pump-rooms and gas dangerous spaces. Where applicable, are provided with two separate controls, one for opening of the gas piping and one for discharging the gas from the storage container, each of them located in a release box clearly identified for the particular space.

#### **MAIN AND EMERGENCY FIRE PUMP**

a. Verification that each main fire pump (including starting and priming arrangements) is capable of producing the required two jets of water simultaneously (whilst also permitting the simultaneous operation of foam system on tankers) at any part of the ship whilst the required pressure is maintained in the fire main (All cargo area and containment area) including testing of remote means of starting one main fire pump

b. Confirmation that emergency fire pump including prime mover and priming arrangements, gauges are in satisfactory condition and pump is building required water pressure and two jets of water simultaneously.  
Tested pressure :.....bar

#### **FIREMAINS, HYDRANTS, HOSES, NOZZLES AND APPLICATORS**

Condition of fire main (no soft patches or doublers) together with flanges and valves, hydrants, hoses, nozzles, applicators, spanners, relief valves and international shore connection

#### **READINESS OF FIRE HYDRANTS, HOSES**

Each hose complete with couplings, nozzle (dual-purpose nozzles where applicable) and tools kept ready for use

#### **PORTABLE EXTINGUISHERS AND FOAM APPLICATORS**

Confirmation that portable fire extinguishers correspond to the fire control plan w.r.t. number, type and location and that when examined were in good condition, fully charged and ready for use

#### **SPARE CHARGES**

Availability of spare charge/s for each portable extinguisher or additional portable extinguishers of the same type

#### **FIRE AND/OR SMOKE DETECTION SYSTEM**

a. Examine for proper functioning and possible testing, any fire detection and alarm system and any sample extraction smoke detection system

b. Confirmation that maintenance as recommended by manufacturer has been undertaken and spares available as per manufacturer's instructions for the system.

#### **Condition to be reported using number code as follows:**

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  2. Repairs now recommended and were carried out satisfactorily. After repairs found to be satisfactory and/or examined / tested satisfactorily and/or confirmed arrangements exist in satisfactory condition.
  3. Repairs now recommended and remain outstanding.
  4. Opportunity to examine/test was not provided this time. Remains outstanding.
- NA- Not Applicable.

<p><b>FIXED FIRE FIGHTING SYSTEM</b></p> <p>i) Examination of fire fighting system (including fixed fire fighting system for the enclosed cargo machinery spaces and enclosed cargo motor room within the cargo area) controls, piping, instructions and marking. Confirmation that its means of operations is clearly marked. Checking for evidence of proper maintenance and servicing including date of last systems tests</p> <p>ii) Verification with regard to correct positioning (for in service condition) of safety pins, where used on cylinder head discharge valves for fixed fire fighting CO2 system are in accordance with manufacture's instruction manual.</p>
<p><b>REMOTE STOPPING OF FANS, OIL PUMPS, VALVES ETC</b></p> <p>a. Verify that the remote controls for stopping fans and machinery in machinery spaces are in working order. Examination of the arrangements for oil fuel, lubricating oil and other flammable oils and testing the remote closing of valves for oil fuel, lubricating oil and other flammable oils and the operation of the remote means of closing the valves on the tanks that contain oil fuel, lubricating oil and other flammable oils.</p> <p>b. Confirmation that quick closing valves are in satisfactory condition and no valve is isolated/disconnected and operating instructions are displayed.</p>
<p><b>CLOSING ARRANGEMENTS FOR SKYLIGHTS, FLAPS ETC</b></p> <p>Examination of closing arrangements of ventilators, funnel annular Spaces, skylights, doorways and tunnel where applicable, including Condition of operating mechanism e.g.: wire ropes, hydraulic piping etc. for cargo space</p>
<p><b>FIREMAN'S OUTFITS</b></p> <p>Confirmation that the fire fighters' outfits including its self-contained compressed air breathing apparatus and emergency escape breathing devices (EEBDs) are complete and in good condition and that the cylinders, including the spare cylinders, of any required self-contained breathing apparatus are suitably charged, and that on board means of recharging breathing apparatus cylinders used during drills or a suitable number of spare cylinders to replace those used are provided, and provision of two-way portable radiotelephone apparatus of an explosion-proof type or intrinsically safe</p>
<p><b>FIRE DAMPERS AND VENTILATION SYSTEMS</b></p> <p>Testing the fire dampers of ventilation ducts and the means of closing the main inlets and outlets of all ventilations systems and testing the means of stopping power ventilation systems from outside the space served.</p>
<p><b>MEANS OF ESCAPE</b></p> <p>a. Confirmation that the means of escape from accommodation, machinery and other spaces are satisfactory</p> <p>b. Confirmation that opening of escape doors are in the way of direction of escape, handrails are provided in the corridors that are being used as escape routes and none of the doors along any designated escape routes require keys to unlock them when moving in the direction of escape.</p>
<p><b>GASEOUS FUEL FOR DOMESTIC PURPOSE</b></p> <p>Examining the arrangements for gaseous fuel for domestic purposes.</p>
<p><b>INERT GAS/DRY AIR SYSTEM</b></p>
<p><b>ENVIRONMENTAL CONTROL</b></p> <p>Verification of arrangements for safe purging of cargo tanks, and arrangements for environmental control within interbarrier and hold spaces in case of tanks other than type C independent tanks or within surrounding spaces of type C independent tanks including monitoring arrangements comprising gas sampling points, pressure relief valves and pressure monitoring Automation and alarm system</p>
<p><b>INERT GAS GENERATION SYSTEM</b></p> <p>Verification of functional readiness of inert gas generation system, together with alarms and controls including arrangements to prevent cargo vapours entering machinery space or other spaces outside cargo tank area, when the inert gas generator is fitted in these spaces.</p>
<p><b>DRY AIR SYSTEM</b></p> <p>Verification of dry air system together with the vapour detection system for the spaces being controlled and rapid inerting arrangement</p>
<p><b>INERT GAS USAGE</b></p> <p>Confirming that use of inert gas has not increased beyond that needed to compensate for normal losses by examining records of inert gas usage.</p>
<p><b>CARRIAGE OF INERT GAS</b></p> <p>Confirming that when applicable arrangements are made for sufficient inert gas to be carried to compensate for normal losses and that means are provided for monitoring the spaces.</p>

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  2. Repairs now recommended and were carried out satisfactorily. After repairs found to be satisfactory and/or examined / tested satisfactorily and/or confirmed arrangements exist in satisfactory condition.
  3. Repairs now recommended and remain outstanding.
  4. Opportunity to examine/test was not provided this time. Remains outstanding.
- NA- Not Applicable.

<b>CARGO HANDLING/CARGO CONTROL ROOMS</b>
<b>CARGO CONTROL ROOM</b> Examining the cargo control room
<b>CARGO TANK GAUGING SYSTEM &amp; EMERGENCY SHUTDOWN SYSTEM</b> Verification of cargo tank liquid level gauges, high level alarms and automatic high- liquid-level shut-off system including manually operated emergency shut-down (ESD) system together with automatic shutdown of cargo pumps and compressors (ESD need not be tested during cargo transfer). Examining, and testing, the liquid level indicators, overflow control, pressure gauges, high pressure and, when applicable, low pressure alarms, and temperature indicating devices for the cargo tanks
<b>CARGO TANK &amp; INTERBARRIER SPACES</b> Verification of cargo tank and interbarrier space pressure and vacuum relief valves including associated gauging, safety system and alarms
<b>CLOSING OPENINGS IN THE SHELL PLATING</b> Examination that the arrangements for closing openings in the shell plating below the freeboard deck
<b>GAS DETECTION EQUIPMENT</b> Verification of test and calibration status of cargo gas leak detection equipment using span gas and test of alarm (30% LEL alarm to be tested with span gas), two set of Portable gas detection equipment suitable for cargoes to be carried and suitable instrument for measuring oxygen is provided
<b>CARGO CONTAINMENT SYSTEM</b> Verification of cargo containment system & associated equipment together with any associated shut down and/or interlock temperature and pressure indicating equipment, including when fitted the thermal oxidation systems and any refrigeration system together with any associated alarms. Verification of records of cold spot examination at the surrounding structures of wing tank, double bottom tank & cofferdam. Examining the insulation and means of support of the cargo tanks and confirming that the secondary barrier remains effective
<b>CARGO AND PROCESS PIPE LINE</b> Cargo pipelines, valves and fittings especially expansion bellows, supports & vapour seals on installed pipes to examine.
<b>HOSES</b> Liquid and vapour hoses should be suitable for their intended purpose type approved or mark with date of testing
<b>CARGO PUMP AND COMPRESSOR ROOMS AND ENVIRONMENT CONTROL</b>
<b>SHIP CONSTRUCTION FILE</b> Examination, for bulk carriers of 150 m and above, where appropriate, the ship's structure in accordance with the Ship Construction File, taking into account identified areas that need special attention
<b>ENVIRONMENT CONTROL</b> Examination of the arrangement for cargo pressure/temperature control, including where fitted, any reliquefaction/refrigeration system/boil off arrangement and confirmation of associated alarms.
<b>ELECTRICAL MOTOR ROOMS VENTILATION AND AIR LOCKS</b> Examination of the ventilation arrangement and air locks including alarms and loss of over pressure protection
<b>PROTECTION OF CARGO PUMP ROOMS</b> Examining all pump room bulkheads for signs of oil leakage or fractures and, in particular, the sealing arrangements of all penetrations of cargo pump room bulkheads. Confirming that potential sources of ignition in or near the cargo pump room are eliminated, such as loose gear, combustible materials, etc., that there are no signs of undue leakage and that access ladders are in good condition. Verifying that installed pressure gauges on cargo discharge lines and level indicator systems are operational. Operation of cargo pump room bilge system and checking pump foundation all intact.
<b>CARGO PUMP ROOM VENTILATION, CLEANLINESS Etc</b> Examination of cargo pump room(s) spaces for freeness from potential sources of ignition, access ladders and cargo pump room drainage arrangements; operation of the ventilation system (damper operation and flame screens) including interlocking arrangement to lighting
<b>PROTECTION OF PERSONNEL</b>
<b>PROTECTIVE EQUIPMENT</b> Verification of availability and condition of protective equipment including eye protection for crew engaged in cargo operations and their storage arrangement

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  2. Repairs now recommended and were carried out satisfactorily. After repairs found to be satisfactory and/or examined / tested satisfactorily and/or confirmed arrangements exist in satisfactory condition.
  3. Repairs now recommended and remain outstanding.
  4. Opportunity to examine/test was not provided this time. Remains outstanding.
- NA- Not Applicable.

**RESPIRATORY & EYE PROTECTION EQUIPMENT**

Availability and condition of respiratory and eye protection equipment suitable for emergency escape for every person on board, where the ship is designated to carry certain products

**DECONTAMINATION AND EYE WASH ARRANGEMENT**

Functional verification of decontamination and eye wash arrangements including arrangements against freezing, where the ship is designated to carry certain products

**FIRST-AID EQUIPMENT**

Availability and condition of first aid equipment including stretchers, oxygen resuscitation equipment and antidotes for cargoes carried on board

**SAFETY EQUIPMENT**

Verification of safety equipment comprising breathing apparatus together with requisite air supplies and its storage arrangement (at least two complete sets in addition to the fire fighting requirements and additional two more complete sets where the ship's cargo carrying capacity is 2000 m3 and over and is designated to carry certain products).

**ADDITIONAL CLASS NOTATIONS****ADDITIONAL CLASS NOTATIONS E.G. SPM, VCS etc.****‘SPM’ NOTATION**

Components of the single point mooring system (bow chain stoppers, bow fairleads, winches and capstans), to verify their satisfactory condition, Hull structures supporting and adjacent to the components to the single point mooring system, to verify that there is no deformation or fracture.

**“HY (LGC)” NOTATION**

Machinery under working condition, to verify the shells of all pressure vessels in the system externally including condition of insulation. Primary refrigerant gas and liquid pipes, cargo vapour and liquid condensate pipes and condenser cooling water pipes,  
The reliquefaction/refrigerent plant spare gear.

**METHANE BURNING EQUIPMENT IF FITTED**

Following components are to be generally examined externally: -

Heat exchangers and pressure vessels for use with methane burning in boilers and machinery, Cargo heaters, vaporizers, masthead heaters and other miscellaneous pressure vessels. Controls and interlock are to be checked, Alarm systems are to be checked, Exhaust fans and/or pressurizing system for gas trunking are to be tested, The relevant instruction and information material such as cargo handling plans, filling limit information, cooling down procedures etc are to be verified as being on board.

**GENERAL****HOUSE KEEPING**

- i) Verification that general housekeeping/cleanliness in engine room, pump room, on deck, accommodation, hospital, galley, wash basins and toilets are satisfactory.
- ii) Confirmation that no loose drums and no heavy items without securing/lashing on deck.
- iii) Confirmation that Spare anchor where provided, its lashing bracket in good condition.

**FLAG SPECIFIC REQUIREMENTS**

Confirmation that flag specific requirements/instructions, if any are complied with.  
Please Provide details in Remark section.

**H.O. INSTRUCTIONS**

Confirmation that H.O. Instructions pertaining to this survey if any communicated separately, have been compiled with.  
Please Provide details in Remark section.

**SURVEY UNDERTAKEN ON BEHALF OF OTHER SOCIETY**

For surveys on behalf of other society, confirmation that authorization, survey status and additional survey requirements if any are available and requirement related to reporting, endorsement of certificate, communication have been followed.

**OVERDUE SURVEY**

Confirmation that H.O. authorization is available for dealing with overdue surveys.

(Note: For dealing with overdue statutory surveys held together with Class surveys, Flag Administration authorization is required, details are to be provided in “Remarks”)

**REINSTATEMENT OF CLASS**

Where the vessel was attended during suspension period, reference of relevant marine miscellaneous reports are provided in “Remarks” section which have been taken into account towards reinstatement of class.

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  3. Repairs now recommended and remain outstanding.
  4. Opportunity to examine/test was not provided this time. Remains outstanding.
- NA- Not Applicable.

**SURVEY HELD BY OTHER SOCIETY ON BEHALF OF IRS**

Confirmation that on board records verified for any survey held by other society on behalf of IRS. (details to be included in "Remarks")

Where survey undertaken by other society on behalf of IRS, survey status updated with relevant information and a confirmatory survey carried out and found to be satisfactory.

**REVIEW OF PORT STATE AND FLAG STATE INSPECTION REPORTS**

Confirmation that reports of inspection by port state and flag state since last survey reviewed. Repairs/corrective action taken towards the deficiencies examined. Repairs to outstanding reported using Form "Cert-PSC".

Where the vessel was detained, a general examination was carried out as per Flag instruction and as required by survey procedure D-01 in consultation with H.O.

**SURVEY ARRANGEMENTS**

Verification of preparation for survey, means of access, safety arrangements for the safe and efficient conduct of the survey.

**CALLIBRATION STATUS OF MEASURING AND TESTING EQUIPMENT**

Verification of calibration status of measuring and testing equipment used for survey.

**REMOTE INSPECTION TECHNIQUES**

Confirmation that an inspection plan for the use of remote inspection techniques including any confirmatory survey/close-up survey/thickness measurements is submitted to H.O. and reviewed for acceptance prior commencement of survey.

Confirmation that risk assessment undertaken to identify any hazards, to assess the likelihood of an incident occurring and to establish control measures to minimize the risk so that mitigating measures as required are put in place for safe conduct of survey using the remote inspection technique.

Confirmation that a pre-meeting held between all parties i.e. surveyor, service supplier, ship owner's representatives in order to confirm planned arrangements as per inspection plan are in place so as to ensure safe and efficient conduct of the inspection. The equipment, procedure for observing, two-way communication between surveyor and RIT operator, data presentation including pictorial representation and reporting the surveys using RIT discussed and agreed with the parties prior to the RIT survey, and equipment set-up, calibrated prior the inspection.

When the remote inspection technique is used for a close-up survey, confirmation that such remote inspection technique is also able to carry out the required thickness measurements.

Where remote inspection technique is not able to carry out the required thickness measurements, confirmation that means of access for the corresponding thickness measurements provided. Confirmatory surveys/close up surveys including thickness measurement carried out as required at selected locations to verify the results of the remote inspection technique.

If the RIT reveals damage or deterioration that requires attention, confirmation that traditional survey undertaken without the use of a RIT. (Details to be provided in "Remarks")

**CHANGES TO EQUIPMENT/SHIP PARTICULARS/LIST OF SURVEYABLE ITEMS**

Changes to equipment/ship particulars/list of surveyable items reported using corresponding FE forms.

**ADDITION/SUSPENSION/DELETION OF CLASS NOTATION**

For any request for additional class notation where plan approval is required, Head Office authorization has been received. Separate reporting done using relevant checklists for class notations assigned to the vessel. Class certificate has been amended to reflect the amended class notation.

(Note: Details regarding addition/suspension/deletion of class notation is to be included under "Remarks")

**PLAN APPROVAL COMMENTS**

Relevant plan approval comments if any closed out in E-Plan arena.

**ADDITIONAL REQUIREMENTS TOWARDS INTERMEDIATE SURVEY****CARGO CONTAINMENT & CARGO HANDLING SAFETY SYSTEMS****OVERALL AND CLOSE UP SURVEYS**

i) Confirmation that overall and close up survey of ballast tanks as required by rule based on age and type of the vessel has been carried out for satisfactory condition. (Details of finding to be provided in the report.)

ii) Examination of permanent means of access for satisfactory condition, when examining internal spaces, as far as practicable.

**HEATING ARRANGEMENTS**

Verification that the heating arrangements, if any, for steel structures are satisfactory.

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  2. Repairs now recommended and were carried out satisfactorily. After repairs found to be satisfactory and/or examined / tested satisfactorily and/or confirmed arrangements exist in satisfactory condition.
  3. Repairs now recommended and remain outstanding.
  4. Opportunity to examine/test was not provided this time. Remains outstanding.
- NA- Not Applicable.

<b>GAS DOMES</b> Examining and/or testing as considered necessary of closing and sealing devices/ expansion joint of the cargo tanks domes where they penetrate exposed decks
<b>CARGO AS FUEL</b> Examining and testing where applicable/practicable, the arrangements for the use of cargo as fuel, that the gas supply to the machinery space is cut off should the exhaust ventilation not functioning correctly and that the master gas fuel valve remotely closing from the machinery space are being carried out regularly and found in satisfactory condition.
<b>ELECTRICAL EQUIPMENT AND CABLES IN HAZARDOUS ZONES</b> Examining the electrical equipment and cables in hazardous areas and zones such as cargo machinery spaces and areas adjacent to cargo tanks to confirm that are maintained in efficient condition (Note: To check for defective equipment, fixtures and wiring. Examination with reference to the following is to be carried out: -Protective earthing (spot check) -Integrity of flame proof enclosures. -Damage of outer sheath of cables. -Function testing of pressurized equipment and associated alarms. - Testing of systems for de-energizing non-certified safe electrical equipment located in spaces protected by air locks, such as electrical motor-rooms, cargo control rooms, etc.)
<b>INSULATION RESISTANCE</b> Verification of insulation resistance of the circuits for satisfactory condition (Note: In cases where a proper record of testing is maintained, consideration should be given to accepting recent readings).
<b>EXAMINATION OF TANKS, SPACES AND THICKNESS MEASUREMENT</b> Confirmation that internal examination of tanks, spaces including testing and thickness measurements carried out satisfactorily as per the rule requirements and reported separately.
Examination of ballast tanks included examination of the condition of the corrosion prevention system in these spaces and found to be satisfactory.
Where special consideration is allowed as per the survey procedure and/or Main Rules Part 1, Chapter 2, the extent of thickness measurements is reduced, the special consideration is reported under "Remarks".
In case examination of tanks, spaces and thickness measurements are partly carried out, the extent of examination, thickness measurement carried out or pending is reflected in the survey status.
Confirmation that diminution criteria of other class society (under the special survey of which the vessel was built) is adopted for thickness measurement. (Details to be provided in "Remarks" section)
<b>ADDITIONAL REQUIREMENTS TOWARDS SPECIAL SURVEYS</b>
<b>PRESSURE RELIEF VALVES AND VACUUM RELIEF VALVES TESTING</b> Verification that pressure relief valves and vacuum relief valves on cargo tanks and inter-barrier spaces are inspected in opened out condition and adjusted to lift at a pressure as required incl. checking of relief valve harbour settings as applicable for satisfactory condition (Note 1: Valves may be removed from shell for the purpose of making the adjustment under pressure of air or other suitable gas). Verification that pressure setting of relief valves on cargo gas and liquid pipelines checked for satisfactory condition. (Note 2: Valves may be removed from the pipelines for the purpose) (Note 3: For cargo tanks are equipped with relief valves with non-metallic membranes in the main or pilot valves, testing to be carried out in accordance with IRS Rules)
<b>MOORING ROPES AND TOW LINES</b> Confirmation that sufficient mooring ropes and tow lines as required by rules are provided onboard.
<b>AIR PIPES</b> Internal Examination of automatic air pipe heads at special survey as required by IRS Rules, Part 1.
<b>MEANS OF EMBARKATION AND DISEMBARKATION</b> Accommodation ladders, gangways and its winches incl. brake system are to be operationally tested with specified maximum operation load in accordance with IRS Rules

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  2. Repairs now recommended and were carried out satisfactorily. After repairs found to be satisfactory and/or examined / tested satisfactorily and/or confirmed arrangements exist in satisfactory condition.
  3. Repairs now recommended and remain outstanding.
  4. Opportunity to examine/test was not provided this time. Remains outstanding.
- NA- Not Applicable.

<b>GAS TIGHT SEALS IN WAY OF BULKHEADS</b> Confirmation that gas-tight seals with efficient lubrication or other means of ensuring the performance of the gas seal are fitted in way of the bulkhead or deck are in efficient condition (where pumps and compressors are driven by shafting through bulkhead or deck).
<b>PIPING SYSTEM</b> Examination of all bilge and ballast piping systems for satisfactory condition and operationally tested to working pressure to ensure that the tightness and condition remains satisfactory.
<b>WATERTIGHT CABLE TRANSIT SEAL SYSTEMS</b> (Note: Applicable for all vessels contracted for construction on or after 1 <sup>st</sup> July 2021)
i) Examination of all cable transit seal systems for their satisfactory condition and review of the cable transit seal systems register to confirm that it being maintained.
ii) Confirmation that where any disruption to the cable transits or installation of new cable transits carried out onboard from last special survey, records are reviewed and examination carried out for the satisfactory condition of those transits. Confirmation that the results are recorded in the Register against each of those cable transits. (Note: Entries that were reviewed and examined during previous annual survey may be excluded)
iii) Confirmation that the Special Survey is recorded in the Register. (Note: A single record entry will be sufficient to record the survey of all transits.)
iv) Where the cable transits have been examined by an approved service supplier, review of the cable transit seal system register to confirm that it has been properly maintained by the owner and correctly endorsed by the service supplier.
<b>EXAMINATION OF TANKS, SPACES AND THICKNESS MEASUREMENT</b> Confirmation that internal examination of tanks, spaces including testing and thickness measurements are carried out satisfactorily as per the rule requirements and reported separately.
Examination of ballast tanks included examination of the condition of the corrosion prevention system in these spaces and found to be satisfactory.
Where special consideration is allowed as per the survey procedure and/or Main Rules Part 1, Chapter 2, the extent of thickness measurements is reduced, the special consideration is reported under "Remarks".
In case examination of tanks, spaces and thickness measurements are partly carried out, the extent of examination, thickness measurement carried out or pending is reflected in the survey status.
Confirmation that diminution criteria of other class society (under the special survey of which the vessel was built) is adopted for thickness measurement. (Details to be provided in "Remarks" section)
<b>ELECTRICAL EQUIPMENT AND CABLES IN HAZARDOUS ZONES</b> Confirmation of electrical equipment and cables in hazardous areas and zones such as cargo machinery spaces and areas adjacent to cargo tanks are maintained in efficient condition (Note: To check for defective equipment, fixtures and wiring. Examination with reference to the following is to be carried out: -Protective earthing (spot check) -Integrity of flame proof enclosures. -Damage of outer sheath of cables. -Function testing of pressurized equipment and associated alarms. - Testing of systems for de-energizing non-certified safe electrical equipment located in spaces protected by air locks, such as electrical motor-rooms, cargo control rooms, etc.)
<b>INSULATION RESISTANCE</b> Verification of insulation resistance of the circuits for satisfactory condition (Note: In cases where a proper record of testing is maintained, consideration should be given to accepting recent readings).
<b>OVERALL AND CLOSE UP SURVEYS</b> i) Confirmation that overall and close up survey of ballast tanks as required by rule based on age and type of the vessel has been carried out for satisfactory condition. (Details of finding to be provided in the report.) ii) Examination of permanent means of access for satisfactory condition, when examining internal spaces, as far as practicable.

**Condition to be reported using number code as follows:**

1. When examined found to be satisfactory and/or examined/tested satisfactory and/or confirmed arrangements exist in satisfactory condition. No repairs considered necessary this time.
  2. Repairs now recommended and were carried out satisfactorily. After repairs found to be satisfactory and/or examined / tested satisfactorily and/or confirmed arrangements exist in satisfactory condition.
  3. Repairs now recommended and remain outstanding.
  4. Opportunity to examine/test was not provided this time. Remains outstanding.
- NA- Not Applicable.



**ADDITIONAL REQUIRMENTS FOR VESSELS WITH “RV(LNG) NOTATION”**

(Note: survey of Regasification is to be carried out during unloading operation with the system in operation)

**DOCUEMNTATION**

Examination of logbooks and operating records pertaining to regasification system to verify whether any irregularities shown in operation.

Confirmation that relevant shipboard instructions and procedures of regasification installation are available.

Verification of records of maintenance of vaporizers, high pressure pumps

**VESSEL ARRANEGEMET AND STRUCTURE**

a. Following to be examined for satisfactory condition for the dedicated regasification spaces/areas:

- Areas dedicated to regasification equipment
- Closing devices of air intakes and openings
- Drip trays or insulation for deck protection and recesses against cargo leakages

b. Examination, as far as practicable, of stripping and vent piping system and high-pressure manifolds of cargo and process including vent line drainage arrangement. Pressure testing and/or thickness measurement carried out based on condition of piping.

(Note: Applicable for Intermediate Survey)

c. Internal examination of satisfactory condition of suction drums.

Where accessible, examination of outer surface of uninsulated suction drum or the outer surface of regasification unit insulation together with any vapour or protective barrier.

(Note: Applicable for Special Survey)

d. Visual examination of suction drum supporting structures including fittings, valves and safety devices in open condition including pressure testing as required.

(Note: Applicable for Special Survey)

e. Verification of tightness of suction drums.

(Note: Applicable during special survey. For ships 10 yrs old, at every alternate special survey, suction drums are to be either hydraulically tested and thereafter nondestructively tested or subjected to thorough non-destructive testing as per rule requirement.)

**SYSTEMS AND EQUIPMENT**

a. External examination of vaporizers and their fittings, heat exchangers for satisfactory condition. Examination of high-pressure pumps as far as practicable, suction drum(s) and their sealing arrangements as applicable,

b. General examination of high-pressure pumps, cargo and process piping including the expansion arrangements, insulation from the hull structure, pressure control valves, inlet/outlet valves, drainage arrangements and high-pressure manifolds.

c. Confirmation that all accessible cargo piping system and components are electrically bonded to the hull and where fitted bonded straps examined.

d. Confirmation that thickness measurement, pressure test and/or opening up and internal examination of equipment and thickness measurement of suction drum(s) carried out where required.

(Note: applicable for Intermediate Survey)

**GAS HANDLING EQUIPMENT AND EQUIPMENT IN HAZARDOUS AREAS**

a. Visual examination of high-pressure pumps in opened up condition including pressure testing of their parts and component as required necessary.

(Note: Applicable for Special Survey)

b. Confirmation that pressure relief valves are examined satisfactorily in opened up condition, adjusted, function tested and sealed and inlet/outlet valves, pressure control valves and discharge valves are tested satisfactorily

(Note: Applicable for special Survey)

c. Confirmation that external and internal examination of vaporizers including their fittings, valves and safety devices in opened up condition including thickness measurement, pressure testing as considered necessary

**SAFETY SYSTEMS, CONTROL, ALARMS AND MONITORING**

a. Examination of pressure gauges, control valves, metering unit, temperature and vibration indicating equipment, relief valves their sealing and associated safety systems and alarms including instrumentation fitted in regasification equipment and in contact with gas. Confirmation the satisfactory working condition of regasification control station

b. Confirmation of satisfactory operational testing of emergency shutdown system. Testing of instrumentation satisfactorily by changing pressure, level and temperature as far as practicable and comparing with test instruments

**Condition to be reported using number code as follows:**

1. When examined found to be satisfactory and/or examined/tested satisfactory and/or confirmed arrangements exist in satisfactory condition. No repairs considered necessary this time.
2. Repairs now recommended and were carried out satisfactorily. After repairs found to be satisfactory and/or examined / tested satisfactorily and/or confirmed arrangements exist in satisfactory condition.
3. Repairs now recommended and remain outstanding.
4. Opportunity to examine/test was not provided this time. Remains outstanding.

NA- Not Applicable.

(Simulated testing may be accepted for sensors that are not accessible.)  
(Note: Applicable for Intermediate survey)

c. Confirmation that satisfactory testing of firefighting system carried out.  
(Note: Applicable for Intermediate Survey)

d. For water spraying system, examination of associated pumps in opened up condition including working test of the system. (Note: Applicable for Special survey)

**FIXED GAS DETECTION EQUIPMENT**  
Examination and testing of fixed gas detection equipment as appropriate.

**ADDITIONAL REQUIREMENTS FOR CLASS ENTRY (EXISTING SHIP)**

**GENERAL**  
Authorization for undertaking the class entry survey including scope of survey, class notation to be assigned is available.

For transfer of class and dual classification cases confirmation that current classification survey status of the losing society/first society is available.

For any request for additional class notation where plan approval is required, Same has been undertaken in consultation of HOD (classification & certification). Include details under “Remarks”.

Separate reporting done using relevant checklists for class notations assigned to the vessel.

**GENERAL EXAMINATION OF ESSENTIAL MACHINERIES**

Examination of oil fuel burning equipment of boiler, economizers and steam/steam generators under working conditions. The adjustment of safety valves of this equipment verified.

External examination of all pressure vessels including their associated piping and protective devices. Internal examination and hydraulic testing carried out satisfactorily as considered necessary.  
(Note: Provide details under remark section where tests carried out.)

Examination of generator circuit breakers, preference tripping relays and generator prime mover governors including verification of insulation resistance, paralleling and load sharing for their satisfactory condition.

Examination of navigating lights and indicators for their working condition including verification of alternative sources of power.

Confirmation that following machinery and items have been dismantled and inspected for satisfactory condition.  
(Note: Details of items inspected undertaken are to be provided in below table.)

Machinery/Items	Details
a. Main Engine	
b. Auxiliary Engine(s)	
c. Pumps	
d. Pressure Vessels (Air bottles)	
e. Compressors	
f. Any other machinery/item (please specify the same under “Details”)	

Examination of following items under working conditions:

a. Bilge Pumps

b. Emergency Fire Pumps

c. Remote control for oil valves, oil fuel pumps, lubricating oil pumps, forced draught fans

Examination of recirculating and ice clearing arrangements, if any for satisfactory condition.

Examination of main and all auxiliary machinery necessary for operation of the vessel at sea together with their essential controls to confirm satisfactory working condition.

Examination and testing of steering gear under working condition including testing of alternate means of steering for satisfactory working.

Verification of initial start arrangements for satisfactory condition.

**Condition to be reported using number code as follows:**

- When examined found to be satisfactory and/or examined/tested satisfactory and/or confirmed arrangements exist in satisfactory condition. No repairs considered necessary this time.
  - Repairs now recommended and were carried out satisfactorily. After repairs found to be satisfactory and/or examined / tested satisfactorily and/or confirmed arrangements exist in satisfactory condition.
  - Repairs now recommended and remain outstanding.
  - Opportunity to examine/test was not provided this time. Remains outstanding.
- NA- Not Applicable.

Confirmation that a short sea trial held satisfactorily. (Note: 1. Mandatory where the vessel was laid up for a long period. 2. For class entry of non-compliant vessel subject to IACS PR 1D, sea trial to be undertaken in accordance with approved protocol as per survey procedure B-03)
Any class notation included in H. O. authorization but not assigned. (Note: Include explanation included in “Remarks”).)
<b>AVAILABILITY OF PLANS/DOCUMENTS</b>
All relevant plans/documents are available. If not appropriate actions initiated in consultation with Head Office. (Note: (i) For class entry involving IACS PR 1D, plans/documents listed in Part 1, Chapter 1 Section 3.2.1 to 3.2.5 of the IRS Rules are to be appraised. (ii) Plans/documents as listed in survey procedure B-03 Annexure 2 are to be submitted to head office)
Shipboard arrangement verified against plans/documents and confirmation that no alteration/modification is done to the vessel.
Where plans/documents not available, confirmation that technical data collected in lieu of specific plan/document and sent to Head Office (HOD (PAC-Existing Ships) and HOD (Classification & Certification)).
<b>THICKNESS MEASUREMENTS</b>
Where class entry survey is to be credited as a periodical survey for maintenance of class thickness measurements undertaken by the losing society carried out within the applicable survey window of the periodical survey being credited and accepted based on satisfactory review for compliance with the applicable survey requirements, and confirmatory gauging now undertaken as reported. (Note: Copy of TM to be uploaded)
Where class entry survey is not to be credited as a periodical survey for maintenance of class thickness measurements undertaken by the losing society carried out within 15 months prior to completion of class entry survey (when it is in the scope of a Special Survey)/ within 18 months prior to completion of class entry survey (when it is in the scope of an Intermediate Survey)* and accepted based on satisfactory review for compliance with the applicable survey requirements, and confirmatory gauging now undertaken as reported. (Note: Copy of TM to be uploaded)
<b>EXAMINATION OF BALLAST TANKS AND CARGO SPACES</b>
Examination of ballast tanks and cargo spaces undertaken and are reported separately
In lieu of internal inspection of cargo spaces, the following carried out satisfactorily: 1) Inspection of surrounding ballast tank(s) and void spaces, including external inspection of independent cargo tank(s) and associated supporting systems as far as possible; 2) Review of cargo log books and operational records to verify the correct functioning of the cargo containment system. (Note: Applicable for Gas Carriers)
In lieu of an internal inspection of cargo tanks without internal stiffening and framing, inspections of surrounding ballast tank(s) and void spaces and deck structure, carried out satisfactorily. (Note: Applicable for chemical carriers of 10 years of age and above but less than 15 years of age)
<b>TANKS TESTING</b>
Testing of ballast tanks undertaken as reported separately
<b>ANCHORS AND ANCHOR CHAIN CABLES</b>
Confirmation that anchors examined and chain cables ranged and gauged and found to be satisfactory.
<b>OVERDUE SURVEY AND CONDITIONS OF CLASS</b>
Confirmation that (i) all overdue surveys and (ii) all overdue conditions of class previously issued against the vessel as specified to the Owner by the losing Society, have been dealt with satisfactorily. (Note: Applicable for vessels less than 15 years of age)
Confirmation that (i) all overdue surveys and (ii) all overdue conditions of class previously issued against the vessel have been dealt with satisfactorily by the losing society. (Note: Applicable for vessels of 15 years of age and over)
<b>OUTSTANDING CONDITION OF CLASS</b>
Confirmation that all outstanding conditions of class issued by the losing society which have not been dealt with during class entry have been reflected in the survey status. (Note: Details of outstanding conditions of class dealt with at the time of class entry are to be reported separately)

**Condition to be reported using number code as follows:**

1. When examined found to be satisfactory and/or examined/tested satisfactory and/or confirmed arrangements exist in satisfactory condition. No repairs considered necessary this time.
  2. Repairs now recommended and were carried out satisfactorily. After repairs found to be satisfactory and/or examined / tested satisfactorily and/or confirmed arrangements exist in satisfactory condition.
  3. Repairs now recommended and remain outstanding.
  4. Opportunity to examine/test was not provided this time. Remains outstanding.
- NA- Not Applicable.

**MATERIAL TESTING**

Confirmation that material used for construction of the vessel meet Rule requirements and confirmed through material testing as required by survey procedure B-03.

(Note: (i)Material testing is required to be carried out at accredited laboratory (accredited to ISO 17025 or equivalent) or at a laboratory approved by the respective Flag Administration.

(ii) Applicable to class entry of non-compliant vessel subject to IACS PR 1D)

**NON-DESTRUCTIVE TESTING**

Confirmation that NDT of weld joints undertaken as required by survey procedure B-03.

(Note: Applicable to class entry of non-compliant vessel subject to IACS PR 1D)

**HYDRAULIC TEST**

Confirmation that hydraulic testing of pressure vessel and piping system carried out in accordance with applicable class rules as per survey procedure B-03.

(Note: Applicable to class entry of non-compliant vessel subject to IACS PR 1D)

**COMPLIANCE TO RETROACTIVE RULE REQUIREMENTS**

Confirmation that vessel is in compliance with retroactive Rule requirements which are applicable to the vessel at the time of class entry.

(Note: Applicable to class entry of non-compliant vessel subject to IACS PR 1D)

**INSTRUCTION FROM FLAG ADMINISTRATION**

Confirmation that specific instruction from flag if any is taken into account

**CHANGE OF FLAG/CHANGE OF CERTIFICATION SURVEY (EXISTING SHIP)**

Valid Permanent/ Provisional Registry certificate is available as issued by gaining flag/flag for which certification is being done.

IRS has authorization to carry out surveys on behalf of the flag. HO authorization including scope of survey, requirement for approval of statutory documents on behalf of the flag has been received.

Statutory certificates, supplements & documents issued on behalf of previous flag/RO are available.

Exemptions, where applicable, have been issued by the gaining flag / flag for which certification is being done.

Information on additional flag requirements, if any are taken into account.

All relevant drawings, documents etc. are available. If not appropriate actions initiated.

Plans and documents requiring approval on behalf of gaining flag have been approved.

Confirmation that mandatory certificate, documents required to be carried on board are available.

(Note: Refer Instruction to Surveyors (Statutory) D-05 and Flag instruction)

Confirmation that statutory documents/plans onboard are in the language as required by applicable conventions, codes and confirming flag specific requirements.

Confirmation that marking and carving as required by flag has been done on the vessel.

Confirmation that new flag, port of registry and ship's name are indicated, as applicable, on life boats, life rafts, life buoys, statutory documents as applicable.

Confirmation that vessel is in compliance with new statutory requirements due to changes to statutory regulations as applicable to the vessel on the date of survey.

**STATUS OF SURVEY AND CERTIFICATE**

Confirmation that the Annual Survey/Intermediate Survey/Special Survey\* completed satisfactorily.

General examination of the vessel carried out satisfactorily towards [postponement of special survey/for granting voyage permission/towards class entry/towards condition improvement program/(specify)]\* with the scope of Annual survey/ Intermediate Survey/Special Survey\* relevant to the age and type of the vessel as per Rules.

(Note: (i)Authorisation reference received from head office/flag Administration are to be provided under "Remarks"

(ii)Further survey scope covered for postponement survey are to be confirmed by indicating under "Remarks")

On satisfactory completion of the survey/examination\* Full-Term Certificate issued/endorsed/extended/interim certificate issued/short term certificate issued\*

(Note: Validity of the short-term certificates and other conditions based on which the certificate is issued are to be included in the "Remarks" section)

Confirmation that the Annual Survey/Intermediate Survey/Special survey\* carried out partly as reported. Extent of survey/examination\* carried out/pending\* is reflected in the survey status.

(Note: Explanation for carrying out surveys partly may be included under "Remarks")

**Condition to be reported using number code as follows:**

1. When examined found to be satisfactory and/or examined/tested satisfactory and/or confirmed arrangements exist in satisfactory condition. No repairs considered necessary this time.
2. Repairs now recommended and were carried out satisfactorily. After repairs found to be satisfactory and/or examined / tested satisfactorily and/or confirmed arrangements exist in satisfactory condition.
3. Repairs now recommended and remain outstanding.
4. Opportunity to examine/test was not provided this time. Remains outstanding.

NA- Not Applicable.

Annual Survey/Intermediate Survey/Special survey/General examination\* could not be completed due to reason as provided under "Remarks" and the survey window having been expired it is recommended that the class of the vessel may be suspended. Extent of survey/examination carried out /pending is reflected in the survey status as additional information and pending repairs to deficiencies have been reflected in the survey status as condition of class.

The special survey has been preponed in consultation with the Flag Administration for alignment with statutory renewal surveys. A fresh date for special survey is recommended to be assigned.

The Annual/Intermediate\* survey has been completed before the survey window at the request of the owner and the anniversary date is amended in the class certificate accordingly.

**Condition to be reported using number code as follows:**

1. When examined found to be satisfactory and/or examined/tested satisfactory and/or confirmed arrangements exist in satisfactory condition. No repairs considered necessary this time.
  2. Repairs now recommended and were carried out satisfactorily. After repairs found to be satisfactory and/or examined / tested satisfactorily and/or confirmed arrangements exist in satisfactory condition.
  3. Repairs now recommended and remain outstanding.
  4. Opportunity to examine/test was not provided this time. Remains outstanding.
- NA- Not Applicable.