



**To:** IAMSAClass/IAMSAGROUP

**Purpose:** To describe the procedure to conduct a condition survey

**Date:** 11<sup>th</sup> May, 2008 / Reviewed the 2<sup>nd</sup> January, 2019

**Language:** English

**Reference:** [Hull and Structural Surveys \(IMO \) IACS Guideline](#)

[Available at http://www.iacs.org.uk/download/1863](http://www.iacs.org.uk/download/1863)

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## 1.- Introducción

A Marine Organization evolved in classification, statutory surveys, insurance requirements, cargo insurance, etc. has the role and the compromise to develop rules and regulations according these activities. In spite of the ship's owner is who pay for our services and is our first customer it is impossible for us to ignore our principals' regulations as well as the international law and mandatory regulations in force when we conduct a survey.

## 2.- Surveyors

IAMSAClass/IAMSAGROUP requires of all their surveyors a full commitment with national and international regulations and with our internal procedures as well.

As a part of his preparation, a surveyor should be interested to develop a permanent improvement on his carrier, be familiar with law and regulations in force, to participate on training programs in order to perform his duties in a qualified, competent and trustworthy manner.

Additionally, we expect from our surveyors the following virtues: honesty, courtesy, impartiality, sound judgement, knowledge. The official working language of the Organization is English, and the organization expects that all its surveyors have a good command over spoken and written English

To perform a Condition Survey, the surveyor will be appointed by a Purchase Order in which will be instructed about the services due to render.

## 3.- Equipment and check list

All Pre-Purchase Inspections and Conditions Surveys (PPI) are covering with a digital camera. A portable thickness Measure Instrument could be provided to verify measures on shell, if is required.



Pre-Purchase Inspections and Conditions Surveys form, must be followed by our attending surveyor to produce the assessment according the type of ship to be inspected: Bulk carriers, Containers ships, Refrigerated ships, Tankers, etc. and Client's requirements specially when **customer requires to survey special items**.

#### **4.- Reporting the survey**

**Preliminary Report of Survey.** During the performance of the service, attending surveyor will produce pictures and will send to Technical Department, in real time, in order to produce preliminary reports to our customers.

Preliminary reports allow to our Technical Department to present relevant notices regarding the condition of the ship to our principals. These preliminary reports includes a brief descriptions of each item examined and a full explanation of the important remarks found onboard at the time of the inspection

#### **Final Report**

Final Report Surveys shall be reported within the time frame stipulated and shall contain the full information which has be ascertained by the surveyor as surveyors' statement. All other information based on unauthenticated sources such as statements by the Master, log book entries, etc. shall be qualified as such; e.g. "Master of the vessel stated that .....".

**The final report statement** will include the total set of pictures, usually 200 to 300 photos. **The final report** is made in electronic format an uploaded into the cloud.

#### **Risk Analysis**

All inspection services must consider a risk assessment to evaluate the viability of the service.

#### **5.- Scope of Service – Hull, deck and holds.**

- a) hull condition assessment will cover Weather decks, Super structure decks and deck houses – Visual examination for wastage or holes, for grooving of weld seams and butts, for distortion or buckling (Particularly mid ship region), for indentations (due to cargo operations etc.) and for cracks. Where doubt exists, visual inspection may be supplemented by thickness gauging and/or non-destructive crack detection etc.
- b) Anchoring and Mooring – Visual examination of lowering and hoisting of anchors and efficiency of windlass or capstan brakes while anchor is freely falling. The wear down of anchor windlass chain lifter should be checked to ensure that the



**ICL-CIRMAR-002 (EN) Guideline for Condition Surveys and Pre-purchase inspections**

anchor chain does not jump clear when chain is let go. Examine visible parts of anchors and chains. Verify condition of mooring lines and arrangements.

- c) Structural fire protection – Visual inspection of internal insulation and fire partitions for various types of spaces and verify the condition of vent / air ducts, fire flaps and covers.
- d) Fire Doors – Verify local and remote operation and fire integrity.
- e) Watertight bulk heads and internal structure – Visually examine condition as far as practicable depending upon accessibility especially within engine rooms, pump rooms, fore castle spaces etc. Thickness gauging and/or NDT may be required depending on the condition.
- f) Watertight doors and remote controls – Verify local and remote operation of watertight doors, indicators in bridge, etc. Hose/chalk testing should be carried out if any doubt exists about water tightness.
- g) Ballast tanks identified as uncoated or having soft or poor coating shall be examined to ascertain that the structure remains in a good or fair condition and the watertight integrity is maintained. May be subjected to close up survey, thickness gauging and hydro testing as found necessary by the surveyor or required by the customer.
- h) Structural aspects of cargo system – Examine for wastage, buckling, cracks of lashing material, pad eyes of fittings, guides, shoes, cell guides, etc. as described in the cargo securing manual. Examine cargo piping. Gauging, proof load testing etc. may be carried out as deemed necessary by the surveyor and if is required by the customer.
- i) Minimum Requirements for internal examination of tanks during survey

<b>Tank Category</b>	<b>Age 0 - 5 years</b>	<b>Age 5 - 15 years</b>	<b>Age 15 -25 years</b>	<b>Age &gt;25 years</b>
Peak tanks	All	All	All	All
Ballast tanks	Note 3	All	All	All
Fresh water	None	Note 2	Note 3	All
Fuel Oil	None (1)	Note 2	Note 3	All
Lube oil	None	None	Note 2	All

Note 1. Subject to satisfaction of the surveyor based on external examination and test and if used exclusively for fuel oil

Note 2. At least one tank of each category shall be examined. Examination may be extended to other tanks also based on the condition of the tank examined.

Note 3. At least one tank of each type shall be examined. Examination may be extended to remaining tanks also based on the condition of the tanks examined

**6.- Scope of Service – Main and Auxiliary Machinery**



- a) Following procedures are intended for general guidance only and should not be interpreted as indicating the full and exact extent of any survey. **All operational tests to be carried out must be at the sole discretion of Master.**
- b) Surveyors must ensure that the person responsible for opening up machinery items are made aware as early as possible of the extent of opening up required. The precise amount of opening for each item depends to some extent on details of construction, reported faults or obvious signs of defects. Surveyors must therefore use their experience, judgment and any knowledge of the past history of the installation or similar installations when deciding how extensive the opening up should be.
- c) **The following items shall be checked:**
  - a. Whether any components have been rendered inoperative or removed and if any new/replacement equipment has been placed on board, whether they are of correct/approved type, size, capacity etc.
  - b. Whether any leaks show up on pipelines, above or below the floor plates or on machines or valves and fittings.
  - c. The tightness of the inner stern tube seal.
  - d. The condition of the insulation on pipelines, heaters, boilers, exhaust ducts, etc.
  - e. The general state of maintenance of indicating and monitoring devices (pressure gauges, volt & ampere meters, thermometers, governors etc) and safety valves.
  - f. Whether beside the bilge alarm test other monitoring devices need testing.
  - g. Whether there is free access to, and lighting in emergency exits.
  - h. Completeness and state of maintenance of spare parts.
  - i. Operation of various remote shutdown & closing arrangements (oil fuel pumps, oil fuel tank valves, ventilation fans etc.) and testing various alarms & controls
  - j. Examination of bilge pumping arrangements from various compartments including holds and operation of emergency bilge suction from machinery space.
- d) **Thorough examinations and/or tests** may be demanded in cases of doubt where this seems necessary, or if obvious deficiencies call for it. All essential machinery (pumps, compressors, auxiliary engines, ventilation fans, must be operated to the extent possible and confirmed operating satisfactorily. **Logbook entries** (engine room & Chief Engineer's) should be examined to ensure that machinery has been operating satisfactorily (recorded parameters of main & auxiliary engines etc.) in the period since the last surveys and defects / deficiencies noted have been rectified.



- e) **Main and emergency steering gear.** The state of maintenance of the entire installation including controls and fittings is checked by external examination. A special lookout is to be kept for leaks in the hydraulic system (pipelines, packing, cover seals), mechanical damage to piston rods of hydraulic cylinders and high-pressure hoses, grease lubrication of ball and socket joints of hydraulic cylinders and rudder stocks, rudder stock seals and the condition of limit switches.
- f) In case that a specific authorization allows to **test Steering Gear**, the surveyor will trial the following:
  - a. Switching-on and operating the main gear from the bridge.
  - b. Change over to, and operation of, the emergency gear from the bridge (2nd set of pumps, manual hydraulics, etc.)
  - c. Change over to manual operation and local operation of both sets of gear.
  - d. Run hydraulic cylinder to their limits of travel to check relief valves and/or limit switches (check hydraulic oil pressure).
  - e. Check rudder angle indicators, marking for port/starboard and
  - f. Test of means of communication.
- g) **Steam Boilers.** Steam boilers are to be subject to external inspection to ensure no water or stem leakages, correct operation of pressure gauges/water level indicators etc.
- h) **Electrical Installations.** Carry out external examination of generators for main and emergency power supply, electric motors, main and emergency switchboard, switch cabinets, the run of cables, explosion-proof equipment. The state of maintenance is checked by external inspection and if necessary by following trials:
  - a. Trial of emergency generator with connection to mains.
  - b. Check of parallel running of generators.
  - c. Check of main switches with protective and safety devices, such as:
    - i. Switching off unimportant consumers when the rated current is reached.
    - ii. Reverse power protection
    - iii. Under voltage/under frequency protection
  - d. Check of alarms by random sampling.
- i) **Electrical Installations.** Carry out external examination of generators for main and emergency power supply, electric motors, main and emergency switchboard, switch cabinets, the run of cables, explosion-proof equipment. The state of maintenance is checked by external inspection and if necessary, by following trials:
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- b. Check of parallel running of generators.
- c. Check of main switches with protective and safety devices, such as:
  - i. Switching off unimportant consumers when the rated current is reached.
  - ii. Reverse power protection
  - iii. Under voltage/under frequency protection
- d. Check of alarms by random sampling.
- j) **Fire – Protection and Safety Equipment.** The check of the equipment is affected by external survey and trials. Should any of the defects discovered impair the safe operation of the equipment shall be reported.
- k) Carry out an examination and trials of all **emergency equipment (steering gear, fire pump, compressor, generator/battery etc.)**. All emergency equipment must be in satisfactory condition.
- l) Additionally, **following measurements are to be confirmed** from up to dated reports:
  - a. crank web deflection of main engine(s)
  - b. crank shaft deflection of auxiliary engines (where relevant)
  - c. Axial thrust bearing clearance of shafting
  - d. Insulation resistance of the generators and operationally important electric motors including cabling and switchgear.
  - e. Thickness measures from the last dry-dock (hull, holds, plates, frames, chains, etc.)
- m) **Pumping and piping arrangement** examinations. At the Chief engineer's discretion essential pumps should be opened out sufficiently to enable the Surveyor to establish the condition of cylinders, plungers, casings, impellers, valves etc. At least one seawater pumps must be opened and surveyed. For other pumps, at least one pump of each type (fuel oil, lube oil, fresh water etc.) should be opened up for survey. Lubricating oil, gear oil and fuel pumps as a rule suffer little from wear. Coolers and pressure heaters should be tested when considered necessary.
- n) **Compressors** should be opened up and the working parts examined. It is important to ensure that the tubes or coils of air coolers are in good condition and when considered necessary a hydraulic test to 1.25 times compressed air discharge pressure in the coils/tubes should be applied. Coils may be found locally thinned due to rubbing against supports or casings or there may be internal erosion at bends, which may be detected by slight hammering.

## 7.- Pictures

All examined areas, parts and equipment must be supported by pictures.



### 8.- What to look for

In addition to procedure stated at clause 6, the following table can be considered as memory aids.

What	Where	Why
Cleanliness	Bilges of hold Engine / Pump rooms Accommodations	Safety, Fire, Health
Completeness	Fittings, Securing, Goggles, Cleats, Seals, Wedges, Handles, Gaskets	Tightness of hatches, doors, etc.
Defect and deformations	Winches/Windlasses, tackles, Access arrangements, Hatches Doors/Ramps, Hull/bottom	Safety of function, Hull integrity.
Existence	Draft/LL marks, names plates, safety boards Plans, drawings, stability certificates	Operational safety.
Integrity	Wire mesh gauzes at funnel tops, fuel vents cargo vents heads	Fire safety
Leakages	Shell sides, bottom, tank pipes, wing and hopper tanks, coamings, hatches	Hull integrity
Movability	Flaps, handles, covers, hinges, grips	Fire plus water integrity
Safety	Ladders, rails, stairs, pedestals	Protection of life
Straightness	Hull and deck plating Side walls, floors, beams Frames, strength members	Hull integrity
Tightness	Hatches, tanks, doors, windows	Hull integrity
Thickness	Scantlings, brake lining, chains	Hull safety
Wastage	Welding, corrosion at scantlings and plates. container firings, wires and tackles, ashing eyes, gear, insulation, coating	Hull safety

### Technical Department

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