



THE JAPAN SHIP OWNERS' MUTUAL PROTECTION & INDEMNITY ASSOCIATION

SPECIAL CIRCULAR

To the Members
Dear Sirs,

No. 16-011
13 July 2016

P&I Condition Surveys for Loss Prevention

We carry out Condition Surveys on both new-entry and already-entered vessels of a certain age. We aim to prevent various types of incidents by checking risk factors, regardless of the impact they may have, that could eventually lead to P&I claims. We would like to explain here the implementation Status of Condition Surveys during the 2015 Policy year.

During the survey, surveyors check items listed in the Condition Survey report forms(*), which have been developed jointly with the International Group of P&I Clubs. Report forms consist of parts A, B, C and D; the contents of parts A, B and D are the same for all types of vessels and part C is specific to the type of vessel undergoing the survey.

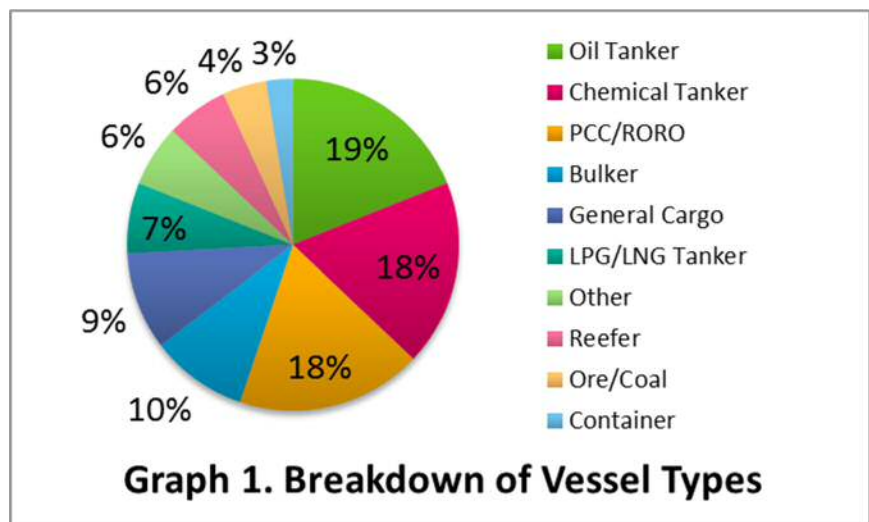
(*) Condition Survey Report Form Version 8.0 is available for download on our website below.

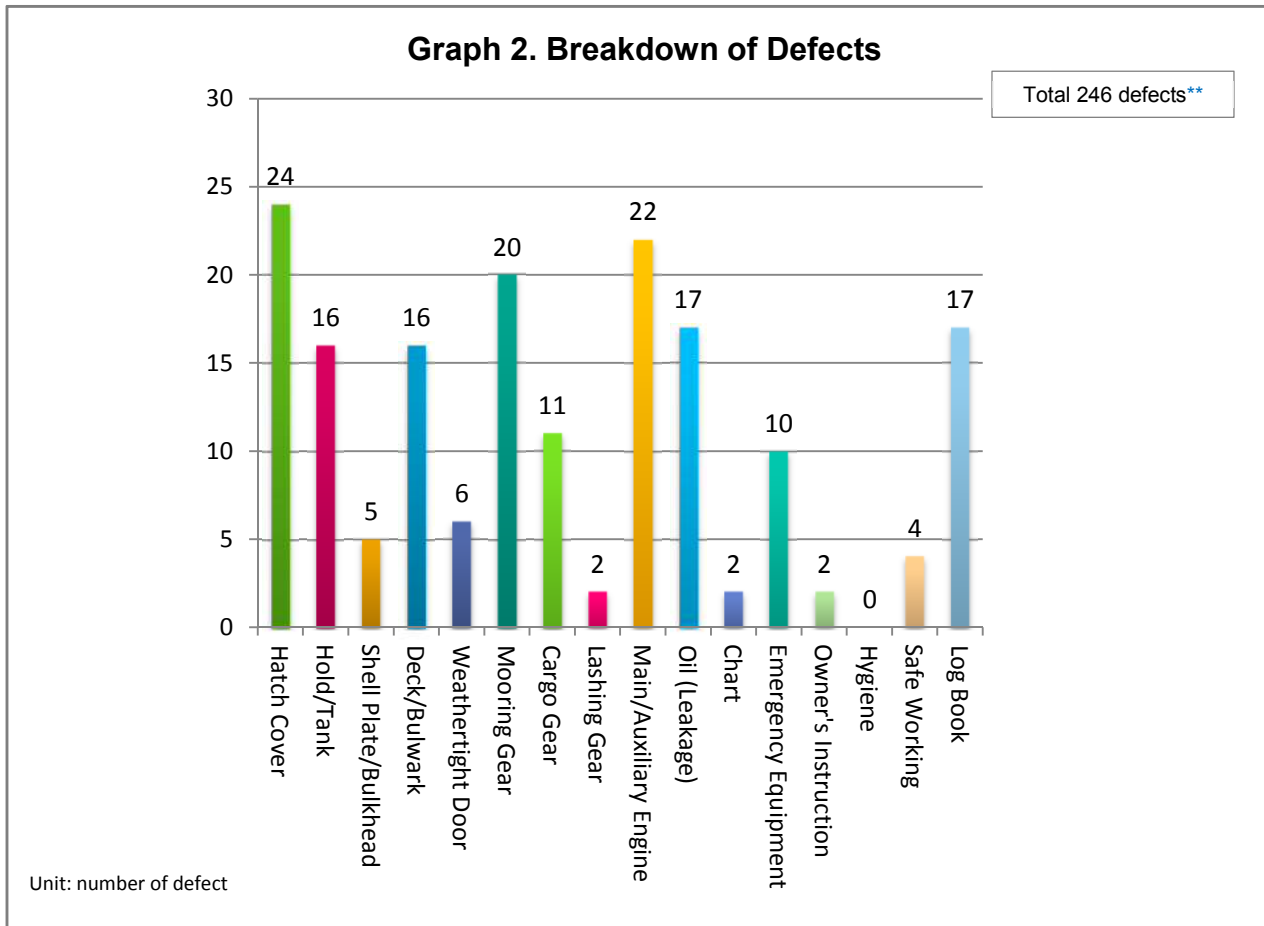
https://www.piclub.or.jp/eng_lossprevention/conditionsurvey/

Implementation Status of Condition Surveys during the 2015 Policy year

During the 2015 Policy year (20 February 2015 to 20 February 2016), we targeted 88 vessels to undergo a condition survey and achieved a success rate of **86%** (76 vessels). As regards the 12 vessels we could not survey during the 2015 Policy year, we will continue checking their schedule and carry out the surveys when they are available during 2016 Policy year in ports or dockyards without interfere the vessel's schedule. In addition to this, we have carried out surveys on a further 40 vessels, which include those newly-entered, making a total of 116 vessels surveyed during the 2015 Policy year.

Please see Graph 1 for the types of vessels surveyed. Chemical Tankers are surveyed once they reach 5 years old, which explains why they outnumber other types of vessels.





(**) In addition, there are 50 minor defects regarding facilities and 22 regarding documents. The total number of defects was **246**.

Out of 116 vessels, 36 vessels were found in good condition. Surveys on the remaining **80 vessels, or roughly 69% of all Condition Surveys**, resulted in recommendations from us for defects to be rectified.

Most of the vessels received more than one recommendation, and the total number of defects found during the 2015 Policy year was 246. The area where defects were found most frequently was **Hatch Covers** and **Coamings**, followed by Main/Auxiliary Engines and Mooring Gears.

Moreover, **Defects Warranties were attached to 4 vessels**, and we have notified the Members concerned of the resulting restriction in our coverage.

Defects with regard to Hatch Covers/Coamings

As can be seen in Graph 2 above, the most frequent defects are surrounding Hatch Covers and Coamings accounted for 24 defects during the 2015 Policy year.

Mainly defective rubber gaskets on hatch covers and damaged or broken parts of hatch coamings are pointed out. Now we carry out ultrasonic test for vessels with hatch covers, and we test the weather-tightness of hatch covers more accurately than the conventional hose test.

For your information, we would like to introduce the ultrasonic test as follows.

Ultrasonic Testing

1. What is Ultrasonic Testing?

Ultrasonic testing is a reliable method of testing the weather-tightness of hatch covers. Conventionally two kinds of tests have been applied. One is the hose test under which water is jetted on to hatch covers and the other is the chalk test under which after compression bars are chalked, hatch covers are closed and then checked whether chalk sticks to rubber gaskets, after opening the hatch covers.

However the demerits of hose test are as follows. Testing is allowed only under limited circumstances since it needs to use water (it is not allowed if the vessel is at private berths or there are cargoes on deck). Cargo holds need to be empty. Results may vary due to the difference of jetting water's angles, pressure, distance, and walking speed of each handler. It may not be possible to ascertain the weather-tightness of hatch covers if there are any recesses which jetting water does not reach appropriately. Testing is not available if the temperature is below freezing.

In contrast, ultrasonic testing is able to check weather-tightness of all hatch covers evenly. It saves a lot of time and trouble. As far as the transmitter can be placed inside the vessel's holds, test results can be obtained even when there is cargo on board. Testing can be conducted even the temperature is below freezing. Furthermore, it can figure out defect points clearly. Therefore the ultrasonic test has been adopted by IACS (International Association of Classification Societies) in recent years and has become the international standard method of weather-tight testing. So, not only JPI but other members of the International Group of P&I Clubs have adopted ultrasonic testing as part of the Condition Survey.

2. Purpose of Ultrasonic testing

Condition Surveys have very various points to be checked, and one of them is to ensure the vessel's Cargo-Worthiness (checking that the condition of cargo spaces, holds etc. are suitable to load and store the intended cargo). To prevent and decrease cargo claims, it is necessary to maintain the Cargo-Worthiness to be a certain level.

For vessels carrying general or bulk cargoes, we conduct weather-tightness test using ultrasonic testing, to ensure the weather-tightness of covers and lids of the vessel's cargo holds and tanks.

By conducting weather-tightness tests, any defects in the covers and lids should be detected and the risks of wet and/or contamination damage caused by sea water ingress to cargo holds and tanks should be prevented. In addition, by actually opening and closing hatch covers during the survey, it can be ascertained whether the opening and closing systems of the hatches work well without delay. The efficiency can be assessed of vessel personnel's response if sudden rain-fall occurs during cargo operations.

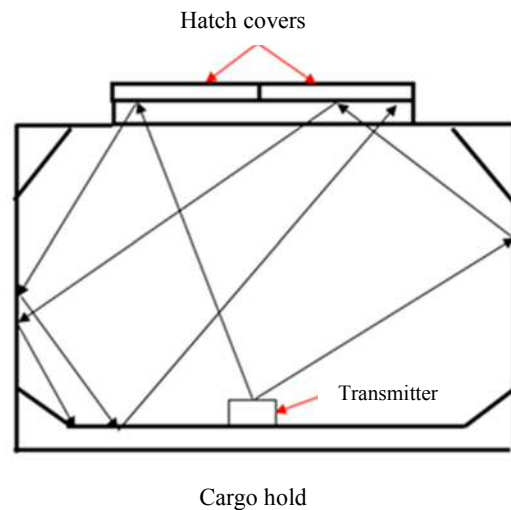
3. Components and Test Method of Ultrasonic testing

Regarding ultrasonic testing, we use equipment approved by the Classification Society .

Components of Ultrasonic test are as follows; 1) Transmitter, 2) Receiver, 3) Detection Microphone, and 4) Headphone. As an example of products, we would like to introduce Cygnus Instruments Limited from United Kingdom.



Transmitter (CYGNUS)
Source : Reprint from the website
of Cygnus Instruments Limited



The test is carried out by two surveyors who have received guidance directly from equipment manufacture. Testing time is roughly 2 hours for each hatch, including time taken to open and close it.

- 1) The transmitter is placed inside the cargo hold and transmitter sends an ultrasound signal.
- 2) The ultrasonic level is measured by the receiver while the hatch covers are kept open. This level is called Open Hatch Value (OHV).
- 3) The hatch covers are then closed and the ultrasonic signal levels surrounding the hatch coamings and joint areas are measured.
- 4) Data is sent to the Receiver through a Microphone.

If the leak level detected is below 10% of the OHV, the hatch covers can be considered as “Weather-Tight”, and thus may be approved as Leak-tight.



Measuring OHV



Measuring Leakage



4. The timing of conducting Ultrasonic testing

We conduct ultrasonic testing during daytime without causing delay to the vessel's schedule, thus during cargo operations at berth, or when the ship is at anchorage, or docking. .

In case of rainy weather, we do not carry out the test because it is hard to measure accurately the ultrasonic level as the rain causes a lower sonic tone.

We try to conduct the test early on in the docking stage, then defects can be rectified before leaving the dock if any have been found. However, the priority is repairing the hull, therefore it is important to confirm the dock schedule in advance and consider whether there is enough time in the schedule for the survey.

During running, placing the transmitter inside the empty hold is best, but as we stated above, test results can be obtained even when there is cargo on board as long as the transmitter can be placed. Since it takes around two hours for one hatch, it is indispensable to schedule in advance and obtain kind cooperation of the vessel's crew for carrying out the test smoothly.

5. Reasons for conducting Ultrasonic testing

1) In the case of relatively small-sized vessels, hatch covers are often not heavy enough to apply pressure equally, and the rubber gaskets slacken easily. The weather-tightness of hatch covers is achieved by using cleats securely and applying equal pressure on every contact surface of rubber gaskets and compression bars. On the other hand, hatch covers of large sized vessels, enough pressure can be applied. However, the shock of opening and closing is very powerful, so that guide plates cannot sustain the effect and can be changed in shape. This may lead to difficulty in opening and closing of the hatch covers.

2) Removal of contaminant

When a contaminant is caught between rubber packing and the compression bar, leakage could be take place from the hold. It is necessary to clean and remove any contaminant on the hatch covers before the test.

We would ask you please to pay attention to the condition of rubber gaskets during maintenance on a regular basis.

6. Result and Risks Covered

It is usually the case that a vessel fails an ultrasonic test because of a lack of weather-tightness.

If the leak level detected is over 10% of the OHV, the hatch covers cannot be considered weather-tight and the Association may in its discretion reject payment of "Any cargo claims caused by or contributed to by water ingress through the hatch covers of cargo holds" etc. that is to say, we may attach Defects Warranty to the vessels.

Condition Surveys during the 2016 Policy year

As stated earlier, during the 2015 Policy year, we carried out Condition Surveys on 86% of targeted vessels. During the 2016 Policy year, we have (as of 20th April 2016) targeted 140 vessels and intend to achieve a success rate of 100% of this target.

Condition Surveys can be a tool not only for preventing accidents but for helping the vessel's superintendents and management companies, busy with daily maintenance. The Condition Surveys also provide independent oversight of the condition of the vessel. Our Members' kind understanding and cooperation would be highly appreciated.

Changes to the Survey Criteria

Condition Survey criteria have been partly revised since 20th February 2016.

If an entered vessel's Fleet or Management Company has changed, we need to conduct a Condition Survey.

Our intention is to confirm the vessel's state after a change of management system due to change of the Fleet or Ship Management Company.

The new survey criteria are as follows.

Survey Criteria

(1) Pre-entry surveys: All vessels - 10 years old and over, however also;

Any chemical tankers etc. ^{*1} - 5 years old and over

(*1) chemical tanker with coated tanks, methanol tanker, product tanker, sulphuric acid tanker, molasses tanker, clean tanker, ore/chemical carrier

(2) Entered vessels: All vessels - at 15 years old, however also;

(a) Any vessels suffering two or more similar accidents due to un-seaworthiness

(b) Any chemical tankers etc. ^{*1} - at 5 years old

(c) Any reefer vessels ^{*2} - at 10 years old

(d) Any tankers which have carried Heavy Fuel Oil (HFO) as cargo within the last 12 months

- 10 years old and over; unless;

the vessel has undergone our Condition Survey within the last 12 months; or

the vessel has undergone a special survey by a Classification Society within the last 6 months; or

the vessel has a current CAP 1 or CAP 2 rating issued by an IACS classification society.

(*2) reefer, cold-storage/oil carrier

(3) Re-inspection

(a) All vessels surveyed under (1) and (2): Every 5 years

(b) Vessels entered at 20 years old and over: Every 2 years

(C) In case of the Fleet or Ship Management Company changed

Note:- (1) One or two surveyors of the Association's designated organisation will conduct a Condition Survey in accordance with the Association's requirements, focusing on: certificates/documentation; maintenance; navigation plans; lifesaving appliances; fire control plans; seaworthiness; cargo-worthiness and; other aspects depending on the vessels' type and their special characteristics. A Condition Survey takes between half a day and 2 days at most without causing any delays to the vessel. Our requirements include a weather-tightness test for hatch covers, a pressure test for ballast tanks, and the internal inspection of cargo holds/tanks; it is impossible to accomplish them all without the presence of crew. Upon completion of the survey, the surveyor will brief the Master on recommendations, if any.

(2) In addition to our criteria stated above, we carry out surveys on vessels suffering claims which may have been caused by a lack of seaworthiness, in order to seek the causes of the claims.

(3) It is our intention to carry out a Condition Survey prior to a ship's entry with the Association. If this cannot be achieved, we carry out the Condition Survey within 30 days of the date of entry.

Yours faithfully,
The Condition Survey Committee