



A.I.PER.T. - ASSOCIAZIONE ITALIANA PERITI TRASPORTI

CONVEGNO: RIFIUTO DEL CARICO E PROVA DEL DANNO  
OBBLIGHI DI MITIGAZIONE E SALVATAGGIO

ROMA - VENERDÌ 19 MAGGIO 2023

**LOSS PREVENTION SURVEY: ASPETTI DI CARGOWORTHINESS**

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# AIPAM

Associazione Ingegneri e Periti Avarie Marittime

Association of Experts in Maritime Casualties





# Scopi dell'associazione AIPAM

- Gli scopi per cui l'associazione è stata costituita sono:
  - la promozione e la garanzia di un alto grado di professionalità degli iscritti;
  - la valorizzazione e la tutela dell'immagine professionale dell'ingegnere perito di avarie marittime;
  - lo studio delle cause e concause di sinistri marittimi allo scopo di suggerire l'adozione di opportune misure di prevenzione;
  - la rappresentanza e la tutela degli interessi degli iscritti;
  - la sensibilizzazione degli operatori marittimi sull'importanza del ruolo che i periti e i consulenti tecnici rivestono nella comunità.



# Tipiche attività svolte dai soci AIPAM

I soci AIPAM sono in grado di svolgere le tipiche **attività di consulenza e perizia per Assicuratori Navali H&M, P&I Clubs, Armatori, Cantieri, Noleggiatori**, quali ad esempio:

- visite ispettive preliminari ovvero le " Loss prevention Survey" o "Condition Survey";
- perizie in seguito ad avvenimenti per l'accertamento dei danni;
- analisi delle cause di un evento;
- gestione dei reclami;
- suggerimento di azioni correttive anche in base alle "lesson learned";
- consulenza tecnica durante la preparazione di specifiche di riparazione o costruzione;
- stima dei costi di costruzione e riparazione;
- sorveglianza delle riparazioni;
- valutazione della congruità delle spese affrontate;
- consulenza in caso di contenzioso civile e penale.



# H&M (Hull & Machinery) - P&I (Protection & Indemnity) Differenze tra le coperture

## Corpo e Macchine (Hull & Machinery)



## P&I (Protection & Indemnity)







## H&M (Hull & Machinery) - P&I (Protection & Indemnity) Differenze tra le coperture.

### Corpo e Macchine (Hull & Machinery).



### P&I (Protection & Indemnity).





## H&M (Hull & Machinery) - P&I (Protection & Indemnity) Differenze tra le coperture





# P&I Club – Mutual Insurance Association

## L'International Group of P&I Clubs

### Loss Prevention Survey





# Loss Prevention Survey.

- Shipboard management.
- Maintenance and housekeeping.
- Safety.
- Fire safety.
- Life-saving appliances.
- Pollution and environmental awareness.
- Navigation.
- Apparent structural condition;
- Machinery.
- Cargoworthiness.



# Loss Prevention Survey - Process.

- P&I Club Loss Prevention Department appoint a surveyor.
- The surveyor attends on board the vessel to carry out the survey.
- A list of defects is drawn up and signed at the end of the survey.
- The surveyor draws up the survey report.
- The Loss Prevention Department performs a review of the survey report.
- The Loss Prevention Department manages the risk assessment and the defects rectifications.
- Follow up survey.



# Seaworthiness and Cargoworthiness.

- Seaworthiness is the ability of the vessel to safely navigate the intended waters, meaning that its hull, engines and general instruments are in safe condition prior to and during the commencement of the intended voyage.
- Cargoworthiness basically means the suitability of the vessel to safely carry out the transportation of the intended cargo for a particular voyage.
- This aspect is essential to avoid damage and/or rejection of the cargo.



## Cargoworthiness (Main aspects for general and bulk carriers).

- Cargo hold coating condition.
- Cargo hold Fire Fighting system apparent condition.
- Cargo hold bilge well/Non-return valves/Routine checks.
- Manhole apparent condition.
- Cargo hold structure apparent condition.
- Cargo hold pipework apparent condition.
- Ventilation system and fittings condition.
- Hatch cover watertight test.



## Cargoworthiness – Cargo hold coating condition.

The requirement is to be easily fulfilled on board ships usually assigned to determined cargoes, like grain, wood pulp, etc.

The problem arises when ships generally used for general cargo that does not require good painting conditions are occasionally used for loads that require higher standards of cargo hold coating.





# Cargoworthiness – Cargo hold coating condition.

Cargo hold coating condition prior loading of tissue paper reels.



Condition of coating not considered fit to load the intended cargo of tissue paper reels





# Cargoworthiness – Cargo hold coating condition

Temporary mitigation.



Coating of the longitudinal bulkheads on board the vessel chartered for the next voyage.





# Cargoworthiness – FFI Systems.

### INSTRUCTION CHART FOR CO2 FIRE EXTINGUISHING SYSTEM

	NO.1 CARGO HOLD	NO.2 CARGO HOLD	NO.3 CARGO HOLD
1/3	11	16	15
2/3	22	32	30
FULL	33	47	45

**IN THE EVENT OF FIRE IN ENGINE ROOM**

1. PRESSURE THE KEY HAS BEEN TAKEN FROM THE KEY BOX.
2. OPEN THE CABINET DOOR.
3. CHECK THAT ALL PERSONNEL HAVE VACATED THE PROTECTED SPACE.
4. OPEN THE 3-WAY BALL VALVE TO COMPARTMENT ON FIRE MANUALLY.
5. NOW THE CO2 GAS WILL DISCHARGE.
6. DURING THE ABOVE AND UNTIL ARRIVAL IN PORT KEEP ALL OPENINGS CLOSED AND CONTROL VALVE OPEN.
7. DO NOT OPEN THE HATCHES OR OTHER OPENINGS OF COMPARTMENT FLOODED WITH CO2 UNTIL ARRIVAL AT PORT. THIS IS TO PERMIT BURNED CARGO TO COOL AND PREVENT REKINDLING OF THE OTHER.

**EMERGENCY OPERATION**

1. OPEN THE P.O.D. VALVE TO COMPARTMENT ON FIRE MANUALLY.
2. OPEN CYLINDER VALVES MANUALLY.

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	NO.1 CARGO HOLD	NO.2 CARGO HOLD	NO.3 CARGO HOLD
1/3	11	16	15
2/3	22	32	30
FULL	33	47	45

**IN THE EVENT OF FIRE IN ENGINE ROOM**

GO TO THE MASTER CONTROL CABINET LOCATED AT CO2 ROOM OR FIRE CONTROL STATION.

1. ENSURE THE KEY HAS BEEN TAKEN FROM THE KEY BOX.
2. OPEN THE CABINET DOOR.
3. CHECK THAT ALL PERSONNEL HAVE VACATED THE PROTECTED SPACE.
4. OPEN THE 3-WAY BALL VALVE FOR CARGO HOLD.
5. OPEN THE 3-WAY BALL VALVE TO COMPARTMENT ON FIRE MANUALLY.
6. OPEN THE CYLINDER VALVES ACCORDING TO THE TABLE.
7. NOW THE CO2 GAS WILL DISCHARGE.
8. DURING THE ABOVE AND UNTIL ARRIVAL IN PORT KEEP ALL OPENINGS CLOSED AND CONTROL VALVE OPEN.
9. DO NOT OPEN THE HATCHES OR OTHER OPENINGS OF COMPARTMENT FLOODED WITH CO2 UNTIL ARRIVAL AT PORT. THIS IS TO PERMIT BURNED CARGO TO COOL AND PREVENT REKINDLING OF THE OTHER.
10. CONFIRM THE PRESSURE OPERATED DISTRIBUTION VALVE AND CYLINDER VALVES ARE OPEN. IF NOT, FOLLOW EMERGENCY OPERATION.

**EMERGENCY OPERATION**

1. OPEN THE P.O.D. VALVE TO COMPARTMENT ON FIRE MANUALLY.
2. OPEN CYLINDER VALVES MANUALLY.

**IN THE EVENT OF FIRE IN CARGO HOLD SPACES**

GO TO THE BALL VALVE CABINET LOCATED AT CO2 ROOM.

1. OPEN THE BALL VALVE CABINET FOR CARGO HOLD.
2. CLOSE ALL VENTS, DOORS, HATCHES TO COMPARTMENT ON FIRE. VENTILATION SHUT-OFF.
3. CHECK THAT ALL PERSONNEL HAVE LEFT COMPARTMENT.
4. OPEN THE MANUAL BALL VALVE FOR CARGO HOLD.
5. OPEN THE 3-WAY BALL VALVE TO COMPARTMENT ON FIRE MANUALLY.
6. OPEN THE CYLINDER VALVES ACCORDING TO THE TABLE.
7. NOW THE CO2 GAS WILL DISCHARGE.
8. DURING THE ABOVE AND UNTIL ARRIVAL IN PORT KEEP ALL OPENINGS CLOSED AND CONTROL VALVE OPEN.
9. DO NOT OPEN THE HATCHES OR OTHER OPENINGS OF COMPARTMENT FLOODED WITH CO2 UNTIL ARRIVAL AT PORT. THIS IS TO PERMIT BURNED CARGO TO COOL AND PREVENT REKINDLING OF THE OTHER.

**AFTER DISCHARGE**

1. ALLOW ENOUGH TIME FOR THE CO2 GAS TO EXTINGUISH THE FIRE.
2. DO NOT REOPEN THE SPACE UNTIL ALL REASONABLE PRECAUTIONS HAVE BEEN TAKEN TO ASCERTAIN THAT THE FIRE IS OUT.
3. WHEN THE FIRE IS OUT, VENTILATE THE SPACE THROUGHLY.
4. PERSONS RE-ENTERING THE SPACE MUST WEAR COMPRESSED AIR BREATHING APPARATUS UNTIL THE ATMOSPHERE HAS BEEN CHECKED AND FOUND CONTAIN 21% OXYGEN CONTENT.

**ENGINE ROOM - DISCHARGE INITIALLY THE NUMBER OF CYLINDERS SHOWN IN THE SQUARE**

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# Cargoworthiness – FFI Systems.

- General apparent condition of the systems
- Systems duly serviced by a Classification Society-Recognized organization.
- System release instructions to be duly posted.
- Crew familiarity with release procedures and readiness for emergency situations.



## Cargoworthiness – Cargo hold bilge system.

- Condition and cleaning of the bilge wells.
- Operational test of the cargo hold suction.
- Operational test of the bilge alarms.
- Operational test of the water ingress alarm (if fitted).
- Operational test of the non-return valves.
- Crew familiarity with the systems.





## Cargoworthiness – Cargo hold bilge system.





# Cargoworthiness – Cargo hold bilge system.







# Cargoworthiness – Manholes condition.





## Cargoworthiness – CH Structural / Pipes condition.







# Cargoworthiness – Ballast tanks pressure test.







# Cargoworthiness

Detected leakage from BBDD gasoil tank.





## Cargoworthiness – Hidden risks - Perceived risks.







# Cargoworthiness - Detected defect in way of a sounding pipe.





# Cargoworthiness – Ventilation fittings and systems.





# Cargoworthiness – Hatch covers inspection.

**Panels condition.**



**Compression bar.**





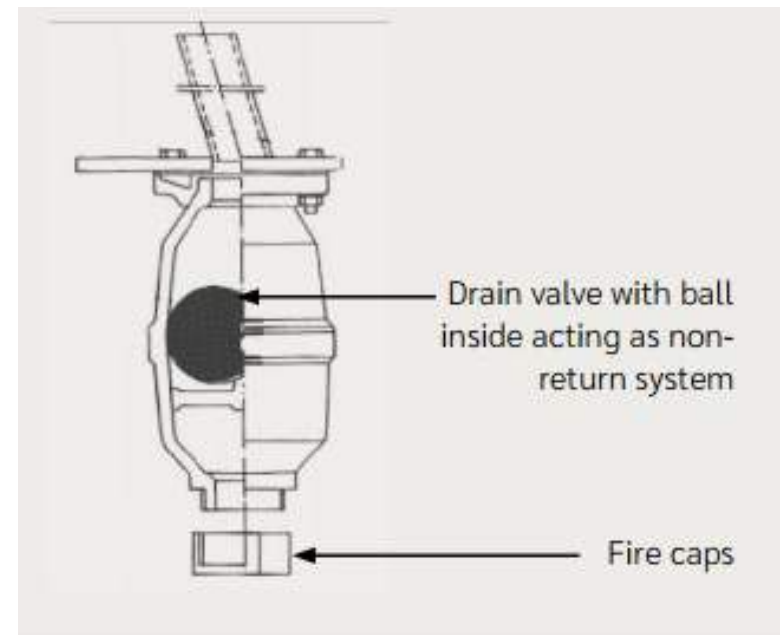


# Cargoworthiness – Hatch covers inspection

## Drain channel.



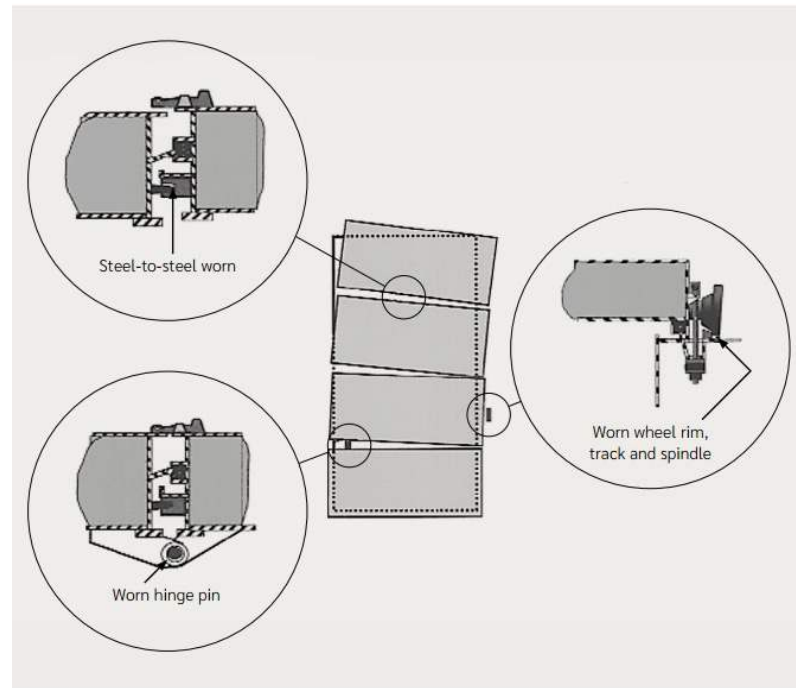
## Non return valve.







# Cargoworthiness – Leakage problems – Poor maintenance





# Cargoworthiness – Hatch covers inspection

**Defective rubber packing.**



**Defective rubber packing.**





# Cargoworthiness – Hatch covers inspection

**Missing/Poor rubber packing.**



**Poor rubber packing.**







# Cargoworthiness – Hatch covers inspection.

## Opening / Closing mechanism.



## Opening/Closing mechanism.







## Cargoworthiness – Use of sealing tape/foam filler



The use of sealing tape and/or high-expansion foam fillers could be considered as an extra precaution, but these are not substitutes for having well-maintained hatch covers.

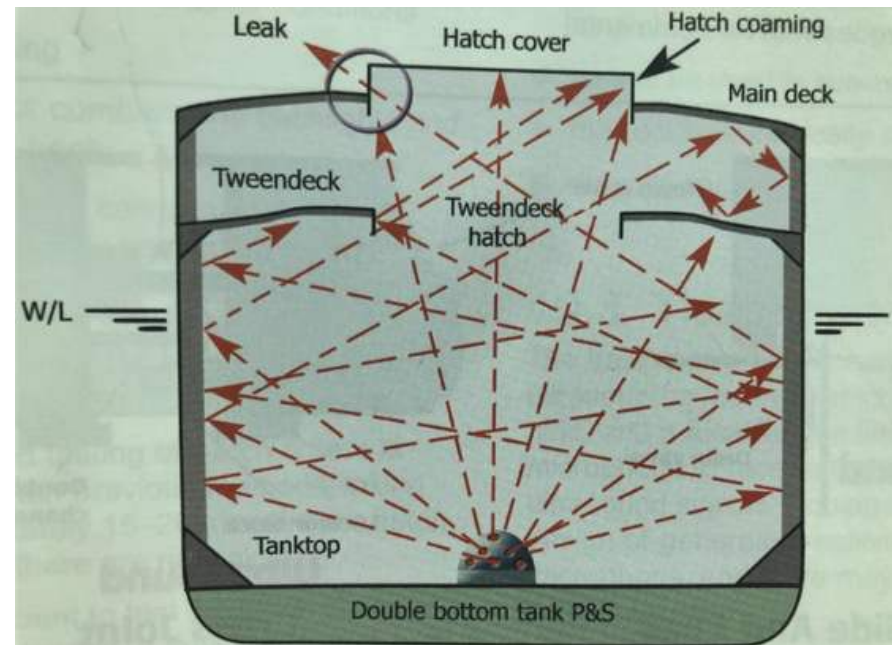


# Cargoworthiness – Hatch cover leak detection test.

## Hose test.



## Ultrasonic watertight test.





## Cargoworthiness – Ultrasonic watertight test.

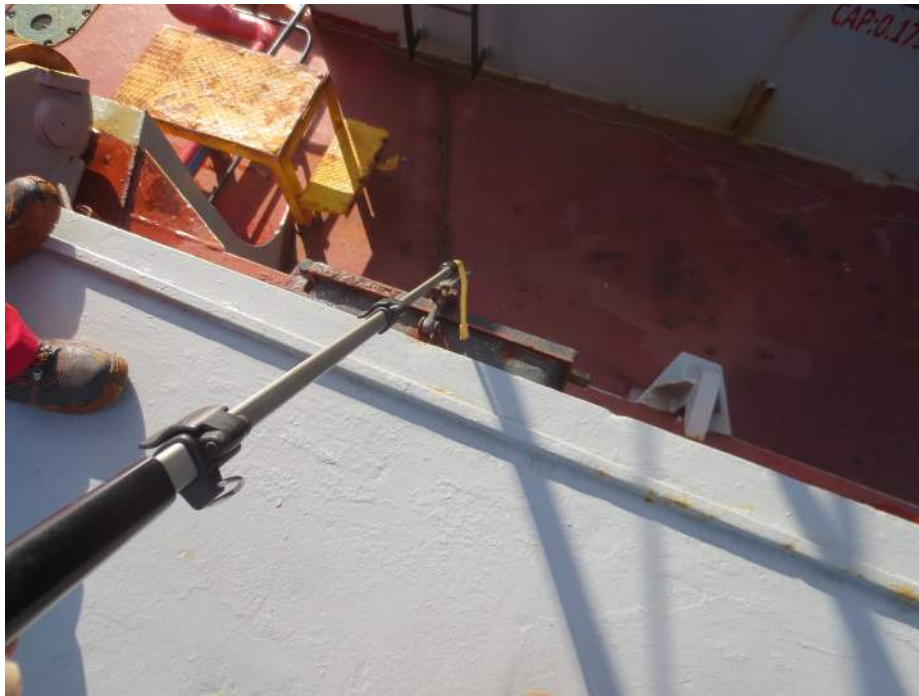


- The International Association of Classification Societies (IACS) has developed standards and criteria under IACS UR Z17 'Procedural Requirements for Service Suppliers' for firms engaged in ultrasonic testing.
- Prior to the closed hatch test, an Open Hatch Value (OHV) for ultrasonic reception should be established, with the hatch covers in the open position. The acceptable range of leakage is less than 10% of the OHV. During the closed hatch test, any anomalies registering greater than 10% of the OHV indicate potential leakage, which should be examined further.
- Ultrasonic testing overcomes most of the limitations associated with hose testing and can be carried out when holds are loaded





# Cargoworthiness – Ultrasonic watertight test.







# Cargoworthiness

Are all the above checks and tests enough to prevent the cargo claims /refuse of the goods?

**No!**

During the loss prevention survey some other procedural aspects have to be checked, such as if the information on cargo care/hazards is provided and understood.

For example, do officers understand when / how to ventilate cargo during the voyage?

There are many procedural aspects to be provided and understood on board the vessel to avoid the rejection or refuse of the goods.



## Cargoworthiness – The stowage of heat-sensitive cargo





## Conclusion - Sharing of the lesson learned and best practice.

- The purpose of the loss prevention survey is to assess the vessel and provided recommendations to address identified hazards and improve overall safety and prevent claims against the Owner.
- Cargo claims and refuse of the goods belonging to the above hazards.
- In addition to the risk assessment, the loss prevention survey could be used to create crew and operator awareness through the discussion of the list of the found defects and to share the lessons learned and the best practices.
- This could be a part of a quality assurance process and the key to mutual success in preventing cargo rejection as much as possible.



Grazie da parte di AIPAM