

	<p>HEALTH, SAFETY, ENVIRONMENT AND QUALITY MANAGEMENT SYSTEM</p> <p>0.4. DRY CARGO OPERATIONS</p> <p>DRY CARGO MANUAL</p>	<p>Sect : 0.4 Page : 1 of 13 Date : 7-Aug-25 Rev : 10.3 Appr : DPA</p>
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DRY CARGO OPERATIONS

1. GENERAL

Masters and Officers are to ensure that they are familiar with the contents of the Manuals applicable to their vessel. Additionally, they are to comply with Charterers / Owners instructions for specific cargoes.

The relevant publications relating to cargo characteristics, stowage, securing, precautions etc. are to be referred to. [Refer Appendix A – Cargo Loading Flowchart in this regard.](#)¹

The “Ship Shore Safety Checklist” should be utilised for the loading / unloading of Bulk cargoes.

2. CARGO / BALLAST DISPOSITION

The Master is to ensure that all cargo and ballast operations are conducted in accordance with information contained in the Ship's Approved Stability Information Book so that, during all stages of the voyage:

- The stability of the ship complies with the basic stability criteria for load line assignment.
- Sheer Force and Bending Moment values are within allowable limits.
- The vessel is upright and correctly trimmed with sufficient propeller immersion.
- Minimum Forward Draught requirements, if any, are complied with.
- When loading to the load line marks, full consideration and calculation is to be made for seasonal zones that may be transited during the voyage.


3. STOWAGE

The final responsibility for the stowage and carriage of cargo lies with the Master.

The nature and stowage requirements of the cargo to be loaded are to be established prior to approving the loading plan. Familiarity and previous experience with any cargo to be loaded does not relieve the Master or Chief Officer of the responsibility of specifically establishing these criteria in every case.

The Chief Officer is responsible for ensuring a safe and secure stow. Cargo is always to be loaded and stowed in accordance with the applicable IMO Code and statutory regulations.

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4. STOWAGE PLANNING

When planning cargo stowage, the following are amongst the factors to be taken into consideration:

- Load line requirements.
- Stability, stress and trim.
- Proposed load/discharge rotation.
- Cargo space configuration and cargo handling equipment.
- Cargo space limitations. (Tanktop/hatch cover loading, tank coating etc.)
- Nature, and any special requirements of the cargo.
- Stowage weight limitation of package/unit and point loading criteria.

The terms of any Charter Party or Contract of Affreightment are to be complied with and every effort is to be made to maximise cargo uplift whilst minimising load and discharge times.

5. PORT CAPTAINS / CARGO SUPERINTENDENTS


Masters and Chief Officers are to co-operate closely with any representative appointed by the Owner or Charterer to assist with the cargo operations.

The presence of such a representative does not relieve the Master of the responsibility for planning, stowage and securing of cargo, or relieve the Chief Officer, or any other Officer, of their responsibilities and duties for the supervision of cargo operations.

6. BREAK BULK / UNIT LOADS

When preplanning and supervising the stowage of break bulk or unit load cargoes, the following factors must be taken into consideration:

- Stowage weight limitation of package/unit and point loading criteria.
- Heavy cases are to be reserved for bottom stowage where possible, with smaller packages on top.
- These are to be adequately dunnage to ensure even weight distribution.
- Marks or indications for "this side up" or for "protected" stowage must be carefully observed and adhered to.
- Light cases and cartons are to be stowed one upon the other so that each one below bears the full weight of the one above. No overhangs must occur which might distort the cartons and rupture the contents.

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- Any broken or holed cartons, cases or crates must be examined at the time of loading and if contents are intact, they are to be repaired before stowage. Any cases pilfered or damaged must be rejected or the Bills of Lading claused accordingly.
- All cargo is to be handled using the appropriate handling equipment and any marks or indications regarding the handling of cases, crates, cartons, units etc., are to be carefully observed.
- When loading steel cargoes, special attention must be paid to note and photograph the condition of the cargo prior to loading. The need for attendance by a pre-shipment surveyor should be verified from the Company, if the same is not already required by the Charter Party

7. CARGO GEAR

All equipment used for lifting, lowering and handling loads on board are to be inspected, examined and tested in accordance with Flag Administration and Classification Society regulations.

Masters, Chief Officers and other Deck Officers are to be fully conversant with the regulations for the cargo gear on board their vessel.

Lifting equipment that has not been subject to the required inspections, examinations or tests, or is in any way defective, is not to be used until the required inspections, examinations and tests have been carried out and the Cargo Gear Register endorsed appropriately.

8. MARKING OF LIFTING EQUIPMENT


All lifting equipment is to be marked with the Safe Working Load and these markings are to be maintained legible at all times.

9. CARGO GEAR REGISTER

The Cargo Gear Register(s) with all test certificates is to be maintained by the Chief Officer and be available for inspection upon request by any Government or Port State Control Inspector.

10. OPERATIONAL TESTS

All cranes, winches, hoists and other lifting equipment are to be inspected and functionally tested before commencing any lifting operation. On vessels fitted with grabs these shall include inspections and tests of the grabs prior commencement of operation.

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11. ANNUAL INSPECTION

Cranes and their attachments are to be inspected once every 12 months and all other lifting machinery (winches, hoists) are to be thoroughly examined once every 12 months.

This inspection is to be carried out by a Surveyor of the vessel's Classification Society, or an Authorised Person qualified to do so. On completion of the inspection, the person conducting the inspection is to make the appropriate entry in the Register of Materials Handling Equipment (Cargo Gear Book).

12. QUADRENNIAL INSPECTION

At least once every 4 years a thorough examination is to be made of all derricks, cranes and attachments, and other lifting machinery, by a Surveyor of the vessel's Classification Society or Authorised Person qualified to do so, who is to endorse and stamp the Register of [Ship's Lifting Appliances and Items of Loose Gear](#)² (Cargo Gear Book).

A thorough examination means a visual examination, supplemented if necessary, by other means such as hammer tests, with machines and gear dismantled as necessary.

13. ADDITIONAL CARGO GEAR

When additional cargo gear is placed on board, (e.g. Grabs, timber lashing chains, container spreaders) the Chief Officer is to ensure that either the test certificates are carried on board or in event same is placed on board by a Charterer they should have an arrangement to produce the test certificates when requested by a Government Inspector.


Chief Officers must ensure that any additional cargo gear carried is safely stowed and an up-to-date inventory maintained. Grabs carried on vessels are to be maintained in accordance the provided maintenance schedule and records of maintenance are to be maintained on board.

Special attention must be paid to the condition of and testing requirements for timber lashing equipment, in keeping with local rules and regulations.

14. MAINTENANCE EXAMINATION OF LIFTING EQUIPMENT

In addition to the statutory inspections and examinations of lifting equipment, the Chief Officer is to examine lifting equipment as per the Planned Maintenance System, and more often on vessels where the lifting equipment is frequently used.

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15. MAINTENANCE OF EQUIPMENT

All parts of running gear for lifting equipment are to be maintained in a condition permitting its immediate use and be properly greased using lubricants recommended in the Manufacturer's Lubrication Schedule.

All exposed threads and similar fittings are to be protected by a non-permeable grease.

A Report on Wire inspections and condition ([Form 2.3.22³](#)) is to be submitted to [the Company as per Filing System Form⁴](#).

16. CARGO GEAR DOWN TIME

Accurate records are to be maintained of breakdown times of cargo equipment such as cranes, cargo pumps, hatches etc. that lead to downtime.

- Down time records are to detail:
- Date
- Location
- Duration
- Cause
- Action

When appropriate Third-party Damage/Defect Reports are to be compiled.

These downtimes form part of the "ship delays" which are to be reported to the Company Cargo Spaces (Dry Cargo Vessels).


17. CARGO HOLDS AND MAINTENANCE / INSPECTION OF HATCH COVERS AND HATCH OPENING, CLOSING AND SEALING SYSTEMS AND HOLD WATER INGRESS ALARM SYSTEMS.

Cargo holds are to be maintained, as far as practically possible, clean and free of taint, infestation, rust, scale and salt.

Hold/Hatch condition Inspection Reports [using Form 2.3.20⁵](#) are to be completed and submitted [as per Filing System Form⁶](#).

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Maintenance and Inspection of Hatch covers, hatch opening, closing and sealing systems and Cargo Hold water ingress alarm systems in accordance manufacturer's recommendations are incorporated into Planned Maintenance Schedules placed on board and a report on maintenance performed is to be submitted to Company Technical Manager for review and verification.

When Charterers/ Owners require more frequent reporting, their requirements are to be complied with.

18. HOLD PREPARATION


At all times the level of cleanliness for all cargo holds is to be for the carriage of grain cargoes. Cleaning and preparation of cargo holds in readiness for cargo is to include:

- Removal of all previous cargo residues, loose rust and scale with particular attention to places where residue may lodge. The under-side of hatch covers should also be inspected.
- If required, wash with salt water, with a final wash with fresh water, ensuring scuppers, drainpipes and bilges are clean and clear, and draining the slop water satisfactorily.
- Spaces to be ventilated and dried.
- The hold should be inspected very closely for infestation, especially when loading grain and grain products.
- Bilges, including strum boxes, to be tested, cleaned and dried. The non-return valves are to be checked and confirmed functional. Water ingress alarm is to be tested at every hold preparation for loading and SMS Form 2.3.21 submitted to Technical Manager [using filing system⁷](#).
- Weather tightness of hatch covers to be checked.
- Hold coating touched up as required, when permitted by the Charter party.
- Ventilation systems to be checked.
- Visual check for evidence of damage to tank top, compartment bulkheads, shipside frames and intermediate decks where appropriate.
- Visual check of all manhole lids and protection covers to be made for evidence of damage or indication of loss of oil/ watertightness. Missing protection covers to be replaced if manhole lid protection consists of cement/concrete filler, this to be renewed if found inadequate.
- On completion the Chief Officer is to inspect the hold to ensure the condition is satisfactory in all respects for loading the intended cargo.

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- The cargo holds condition report is to be submitted using SMS Form 2.3.20 as per Filing System Form.⁸

The erection and use of scaffolding to clean cargo holds is strictly forbidden.

18.1. Checking Bilge System and Water Ingress Alarms

On most ships it is possible to flood the holds via the bilge suction system, from connections to the Ballast system.

Ship staffs are informed that during preparation of Cargo Holds for loading –especially after discharge of cargoes like Logs, Clunker, Concentrates etc, which are not dissolved in water and have high residues. The Cargo Holds must be prepared by a thorough sweeping and collecting of ALL RESIDUES in drums –before commencing any wash down with sea water or high-pressure fresh water.

It must be ensured that Cargo residues are not sucked into Bilge Wells and enter into vessels Bilge Lines and Bilge Valves.

Bilge Valves in some cases are ‘butterfly type’ and in other ‘gate type’ valves. In every case if a cargo residue such as “log bark” traps in these valves, they will not ‘seal shut’ when they are closed.

If the Valves remain stuck in half open position they will not function as a non-return valve and allow water to flow back into the Bilge well should the Bilge Line be pressurized by ballast water from the Ballast /Bilge Pump.

During hosing of cargo holds the ship staffs are to ensure Bilge suction strainers are in place and no cargo residue is entering the Bilge Well.


Any further preventive measures such as use of a ‘chicken mesh wire’ in place over bilge wells can be taken by ship staff.

Upon completion of hosing the Bilge valve suction strainers are to be cleaned and the bilge valve checked for suction and closure.

It may be necessary for Bilge Valves Assembly be opened and inspected and verified for proper closure if the vessel is loading sensitive bulk cargoes such as grain and clinker etc. which suffer heavily by water damage.

Water Ingress Alarms are to be tested at every Hold Cleaning and in preparation of loading bulk cargo – according to procedure as specified by Manufacturer. The Results of the inspection are recorded and reported to Technical Manager by completing SMS Form

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2.3.21 [as per Filing System Form⁹](#). The Manufacturers test procedure for Hold water ingress alarms is to be compiled and posted in Vessel Cargo office and Engine Control room for ready reference.

Preventive Actions:

Ballasting of DB Tanks:

As far as possible and in event conditions allow the Vessels discharge sequence should be prepared such that no ballasting of DB Tanks located below the cargo hold are attended until the cargo hold discharge is completed or near completion.

Ballasting of DB Tanks below filled Cargo holds (Bulk Cargo) should be avoided.

After Hold Cleaning:

- Check the bilge wells are clean and dry.
- Check the Bilge valves including Bilge Lines valves in Machinery space to ensure they are not blocked or choked with cargo residue. Bilge well suctions are to be tested in each cargo hold and ensure they are adequate. The Bilge valves are then to be closed in preparation for loading.

Please note Company SMS Form 2.3.21 is to be completed and submitted to Shore office via e-mail after action above every voyage Hold cleaning.

The Bilge Wells are to be sealed with Burlap or hessian (gunny cloth) prior loading of Bulk cargoes. In no case are they to be covered with plastic or sealed with cement.

The Bilge Well sealing should be such that it will allow water suction from the cargo hold in event of hold flooding and emergency.

The Bilge valves are checked for proper suction before loading to ensure they are ready to suck from Holds in event of emergency on loaded condition. [Non return valves are to be tested and witnessed in each bilge well as to be not passing.](#)¹⁰


[For sensitive cargoes a spade may be set in the bilge line after cleaning, to ensure no water enters the hold. This must be in an accessible point in the engine room and clearly indicated on the bilge system line diagram.](#)¹¹

Line diagrams are displayed in Engine Room and Ships Cargo Office for proper operation and testing of cargo hold bilge system.

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¹⁰ W 07 / 2024

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19. POST DISCHARGE HOLD INSPECTIONS

Upon completion of discharge in any hold or cargo compartment, a thorough inspection for any damage attributable to cargo operations is to be carried out. This is especially important after completion of a bulk cargo using grabs [and mechanical front end loaders](#)¹².

If any damage is observed, a damage report is to be completed, and the concerned parties notified.

20. CARGO HOLD ACCESS

No hold space is to be entered unless it has been well ventilated, and the atmosphere tested and found safe.

Whenever practicable, the permanent means of access is to be used which is to be adequately illuminated at all times.

Masters are reminded of the stringent access requirements of stevedores in some countries, for example the Australian Waterside Workers' Federation. Any damage to such means of access must be repaired immediately and the details recorded on a Damage/Defect report.

21. DAMAGE TO CARGO IN HOLDS ADJACENT TO BUNKER TANKS

Masters are reminded of damage that could occur to certain cargoes when fuel in adjacent tanks is heated.


When carrying such cargoes, distribution of bunkers is to be arranged to minimise possible risks.

22. ILLUMINATION OF CARGO SPACES / DECKS

Any cargo spaces and deck areas where men are working is to be adequately illuminated at all times.

Whenever a cargo is carried which may lead to the formation of an explosive atmosphere, all electrical circuits within the space which are not intrinsically safe are to be isolated. Before reconnecting the circuit, the atmosphere is to be checked.

¹² W 07 / 2024

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23. PRECAUTIONS FOR PERSONNEL WORKING IN CARGO SPACES

In addition to the safe atmosphere and illumination requirements in a cargo space, the following precautions are to be taken to ensure the safety of personnel working therein:

- All openings through which a person may fall are to be adequately fenced. Guard rails are to be tight with stanchions secured in position and properly maintained.
- Dunnage is not to be left loosely stowed over the working area.
- When work is to be carried out near a stack of cargo, the cargo must be secured to prevent it falling.
- When work is being done on a stack of cargo, or in places where there is a risk of falling, a safety net is to be rigged. It must not be secured to hatch covers.
- If it is necessary to climb the face of a stow, a portable ladder is to be used, ensuring that it is safely secured.

24. CARGO SECURING AND LASHING¹³


Unit cargo, logs, ingots, steels and project cargo may be carried. These cargoes may require complexed lashing, dunnaging and tomming.

The Master is to follow the advice in the vessels Lashing and Securing manual, and must also insist on any extra securing arrangements he deems necessary for the safe carriage of the cargo, and the safety of the crew and ship. Crew may not weld pad eyes, securing points or fixtures to the vessel. This work must be carried out by the charterers appointed contractors. If the Master is not satisfied with the quality on workmanship, quality or type of lashings, he is to advice the charterer, managers and vessel operator, who will resolve the issues. Under no circumstances are lashings to be looped around vents pipes, bulwark stanchions, hatch frames or other ship fittings.

25. CARGO ACCESS EQUIPMENT (HATCH COVERS / DRIVE MACHINERY)

Cargo access equipment is to be regularly inspected and maintained in accordance with the Manufacturer's Instructions and the Planned Maintenance System.

¹³ W 07 / 2024 (Entire Section)

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26. OPERATION

Instructions for the safe operation of cargo access equipment are to be posted in prominent positions. The Chief Officer is to ensure that those engaged in operating the equipment are fully aware of the operational procedures including the locking arrangements and associated dangers.

The operation of cargo access equipment is to be undertaken under the supervision of an Officer.

27. SAFETY PROCEDURES

Refer to the Company's Safety Manual.

28. INSPECTION

Cargo access equipment is to be carefully inspected prior to the commencement of each voyage with particular attention being paid to the weather tight seals and securing arrangements.

All weather deck and other external cargo access equipment is to be regularly inspected while the ship is at sea, [and hold sounded daily \(weather permitting\)](#)¹⁴.

¹⁴ W 07 / 2024