

CHAPTER 25

DRY DOCKING BILL

25-1 GENERAL:-

A Dry Dock is a narrow basin, having walls and a floor, in which vessels may be placed and from which the water may be pumped out, leaving the vessel dry and supported on blocks. It is used in repairing and cleaning the underwater hull of a ship.

A Floating Dry Dock is a rectangular shaped open ended, sectional type, movable dock, capable of being submerged to take a ship's hull and supporting the vessel when pumped dry.

A Caisson is a hollow gate, floating or sliding, used to close off the dry dock after a vessel enters. In the floating type, valves admit water to sink it and it is capable of self pumping for raising.

The Sill is raised above the floor at the entrance to a dry dock and supports the caisson when in place.

Keel Blocks are wooden blocks secured to the bottom of the dry dock on its center line to support the vessel's keel.

Docking Keel Blocks are wooden blocks upon which a vessel's docking keel rests.

Wale Shores are spars extending from the ship's side to the side of the dock to assist in keeping the ship upright.

Docking Plan is a ship's plan, furnishing all necessary information for docking purposes concerning the under-water hull. On the LSM the Docking Plan is No. 07010-1 and is included in the list of ship's plans furnished each vessel.

25-2 PREPARATIONS FOR DOCKING:-

- (a) On Board Docking Vessel
Prior to going in dry dock, the Commanding Officer will submit a complete list of approved job orders with a brief description of each job

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(a) (cont'd.)

to the Material Officer of the Flotilla or the Base to which the ship is attached, together with a list of the men who will be available for work on the hull while in dry dock.

See instructions contained in the following references:-

- (1) Phibtralant Conf. ltr. 5CL43.
- (2) Phibtralant Ltr. SOL-43.
- (3) C&R Manual, Art. 1122 & 1123.
- (4) Naval Regulations, Art. 1022(10).
- (5) BuShips Manual, Chapter 7.

The Executive Officer (First Lieutenant) will normally be responsible for preparations as follows:

- (1) In general charge of preparations.
- (2) Has all ground tackle ready.
- (3) Makes necessary provisions for line handling party on dock.
- (4) Obtains from yard authorities specific instructions for docking including time of docking and length of stay.
- (5) Makes arrangements for floats, stages, lines, wire brushes, scrapers, paint, brushes, and all other necessary equipment.
- (6) Arranges for brow.
- (7) Arranges for connecting up heads and washrooms and policing dock heads and washrooms if used.
- (8) Arranges for disposal of trash and garbage.
- (9) Sounds C&R voids and tanks to insure that they are empty.
- (10) Arranges for fresh and salt water connections.
- (11) Secures C&R sea valves as necessary.

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(a) (cont'd.)

- (12) In the event of freezing weather, takes necessary precautions to prevent freezing of lines, drains, etc.

The Engineering Officer will normally be responsible for preparations as follows:

- (1) Arranges for necessary power, light and steam connections.
- (2) Sounds all fuel and feed water tanks.
- (3) Trims tanks to put vessel on even keel as instructed by Docking Officer.
- (4) Secures engineering sea valves as necessary.

The Gunnery Officer (Communications Officer) will normally be responsible for preparations as follows:

- (1) Houses sound gear if installed.
- (2) Arranges for shore telephone service.

(b) Ashore

In preparing a dry dock to receive a vessel, the Dockmaster first refers to the ship's docking plan. A copy of this plan for each Naval vessel is usually kept in all Navy Yard files, but, as mentioned in paragraph 25-1 above, each LSM carries its own Docking Plan which can be made available to the Dockmaster if necessary.

The Docking Plan shows the following information which enables the Dockmaster to place blocks accurately, and to build them up to proper height and level:

- (1) Full extent of keel with flat and rising portions accurately delineated.
- (2) Peculiarities of stern post and rudder.

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(b) (cont'd.)

- (3) Sections, amidships and elsewhere, to show proper height and bevel of bilge blocks if these be necessary.
- (4) Shape and location of keels, docking keels, bilge keels, struts, propellers, underwater fittings, and projections of all kinds.
- (5) Location of guns, engines and other unusual weights which may require additional blocking.
- (6) The length on the load water line to assist in locating sighting battens.
- (7) The length, overall, beam, and all projections that increase the normal beam.

With the above information in hand, the Dockmaster can proceed to prepare the dock for the ship by setting up the keel and docking keel blocks to the proper heights and in the proper position to receive the keel and docking keels of the ship.

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Using the Docking Plan, the Dockmaster proceeds as follows:

Knowing the ship's draft, the maximum depth over the sill, together with current and tidal variations in the vicinity, he decides upon the time the vessel should enter the dock, and so informs the Commanding Officer. The Commanding Officer thereupon makes the necessary arrangements to insure that the vessel at the time specified shall be absolutely upright, without any list to starboard or port, and with as nearly zero trim as possible.

The dock being prepared, water is admitted, the caisson is floated and removed, and the ship is brought to the dock entrance. After a ship's

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25-3 DOCKING:-

bow has safely entered the mouth of the dock the responsibility for her safety rests upon the Dockmaster, who thereupon hauls her into the dock, replaces and sinks the caisson, starts the docks pumps, centers the ship. As the water is pumped out the ship will settle down and be supported by the keel and docking keel blocks.

Blocks, of any kind, and shores must not come up against any fittings or other hull accessories, parts of the hull itself or projections which would be damaged by heavy local pressures. From the foregoing it will be readily appreciated that, the fore and aft position of the blocks in the dock being fixed, it is highly important to fix also the fore and aft position of the ship in the dock to insure blocks landing in their proper positions. This is accomplished by placing marks on the coping of the dock opposite pre-determined final positions of the ship, such as bow and stern at water line, and setting up sighting battens thereon. It is also equally important to fix the position of the ship athwartships on the deck so that the keel will land on the keel blocks. This is accomplished by bringing bow and stern in line with plumb bobs suspended from chains over the center of the dock, or lining up masts, funnels, etc., with end of the dock, or its centerline.

During the period that a ship is in dock, no change of any kind in the distribution of her weights should be made without the knowledge and consent of the Dockmaster, because the ship when being floated might suddenly change her trim so as to cause serious damage to herself or to the dock.

25-4 FIRE PROTECTION:-

Before dry dock is drained, the Executive Officer (First Lieutenant) will see that the fire main is properly connected up to the yard supply main and will assure himself that there is sufficient pressure on board for adequate fire protection.

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25-5 WORK IN DOCK:-

After the dock is dry the following work will be proceeded with:

- (a) The Hull Board will make the inspections as required by U.S. Navy Regulations, and the BuShip's Manual. The Hull Board will be responsible for submitting the required reports and for making the required entries in the Hull Book.
- (b) Clean bottom, including scaling, wire-brushing or sandblasting of badly corroded plates.
- (c) Cut out and redrive all loose or badly corroded rivets; cut out and reweld all faulty welds.
- (d) Caulk leaky seams and rivets.
- (e) Overhaul underwater valves.
- (f) Repack underwater stuffing boxes.
- (g) Renew zinc and mild steel protectors as necessary.
- (h) Take propeller shaft clearances, rewooding stern and strut bearings if necessary.
- (i) Check pitch of propellers.
- (j) Examine rudder pintles and gudgeons; repair or replace as necessary.
- (k) Paint bottom in accordance with current painting instructions.

If special repairs have been anticipated or are found to be necessary after the dock is empty, the necessary action should be taken immediately in order not to hold the ship in the dock any longer than absolutely necessary.

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25-6 UNDOCKING:-

After the bottom is painted and all underwater repairs completed, a time for flooding the dock is agreed upon by the Commanding Officer and the Dockmaster.

The Commanding Officer will station men at all sea valves prior to flooding with instructions to report all leaks to the bridge as dock is flooded. The line handling party will be stationed at the various lines on board that run ashore.

The Dockmaster will station men at the various lines and shores and elsewhere as needed, to prevent as far as possible, any injury to dock or ship, from a sudden change of weights or an unexpected alteration in wind or tide.

The water enters the dock continuously under the control of the Dockmaster. When it has risen to a sufficient height, the bow ordinarily lifts first from the keel blocks, and shortly afterward the stern. If there has been any material change of weights while the ship has been in dock, she will suddenly and violently take a list to starboard or to port, with consequent damage to herself and the dock. When the ship is safely afloat, the water is allowed free entrance until the level within the dock coincides with that outside. The caisson is floated as quickly as possible, then removed, and the ship is floated out of the dock.

25-7 RECORDS:-

Appropriate entries of work accomplished and other pertinent information shall be made in the:-

- (a) Ship's Log
- (b) Hull Book
- (c) Machinery History
- (d) Engineering Log
- (e) Current Ship's Maintenance Project

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