

Hold bilge systems

Inspectors have recently noted that the maintenance and testing procedures of hold bilge systems onboard bulk carriers and general cargo ships are being neglected. These oversights may have serious consequences, resulting in unnecessary cargo claims.

Prior to loading a bulk or general cargo, hold testing and inspections must be carried out to ensure that everything is in good working order.

Bulk cargoes are required to comply with the BLU Code section 2.2. Additional guidance can be found in 'Bulk Carrier Practice' published by the Nautical Institute.

Debris from most bulk and general cargoes will inevitably find its way into the hold bilge areas and has to be removed manually. After cleaning of the bilge area it is important that the bilge sounding pipes, bilge suction and bilge non return valves are tested and verified as working correctly.

Sounding pipes

Sounding pipes can become blocked and unusable as a result of cargo residues being left in the bilge well and entering the bottom of the sounding pipe, where over a period of time the cargo residue will dry out and solidify. This problem can be prevented if the sounding pipes are hosed out with water from deck level after the hold has been washed and the bilges have been cleaned. Alternatively an airline can be used to clear out blocked sounding pipes.

Broken sounding rods left in the sounding pipe are also a problem and it is essential that these are removed.

Sounding caps left off or not fully secured during loading or discharging operations increase the risk of cargo entering the sounding pipe and causing a blockage.

Striking plates for the sounding pipes are situated in the hold bilge well and should be checked for wastage when the bilges have been cleaned.

Bilge suction

The bilge suction line in the hold bilge is normally fitted with a perforated strum box which prevents cargo debris from entering the bilge line. The strum box should be thoroughly cleaned after each cargo discharge and if possible, dismantled and checked for damage or corrosion. The end of the bilge suction line must be confirmed as clear, with no debris fouling the end of the suction pipe.



Hold suction arrangement



Hold suction filters

To check that the bilge suction and bilge suction line are clear and working correctly, a nominal amount of clean water should be poured into the bilge well and pumped out.

Non return valves

Non return valves are fitted in the hold bilge pumping systems to ensure that water pumped from the hold bilges to the engine room and over-side or into a holding tank cannot flow back via the bilge line into the hold bilge wells and then into the cargo hold.

Regrettably many ships are neglecting to test and verify the effectiveness of these non return valves.

If cargo debris is trapped in any of the non return valves it will reduce the pumping efficiency of all the other hold bilges.

The easiest way to test the non return valve is to stop the pump (or eductor) and allow water to flood back into the bilge line up to the non return valve. If no water enters the hold bilge then the non return valve is working correctly. However if water flows into the hold bilge, the non return valve, normally situated in the stool space or duct keel, is not working correctly. The non return must then be opened up and cleaned and checked for wear, deformation, dents or damage to any of the structure or fittings.

It is prudent seamanship for all non return valves on the bilge line to be overhauled on a regular basis and this should be a requirement included in the ships planned maintenance system. Following the testing of bilge non-return valves an entry should be made in the deck log.

Spectacle flanges and hold blanks

Bulk carriers often have an eductor or ejector system to allow the easier cleaning of cargo holds and removal of accumulated cargo debris and (washing) sea water. This arrangement requires an additional eductor bilge well fitted in the holds, either amidships or to port and starboard in each hold.

Sea water used to drive the hold cleaning eductor is normally taken from the deck wash line. At the point where the branch line carrying the drive water for the hold eductor leaves the deck wash line, two valves with spectacle flanges and a spool piece are usually fitted. These spectacle flanges prevent accidental hold flooding when the deck line is pressurised.

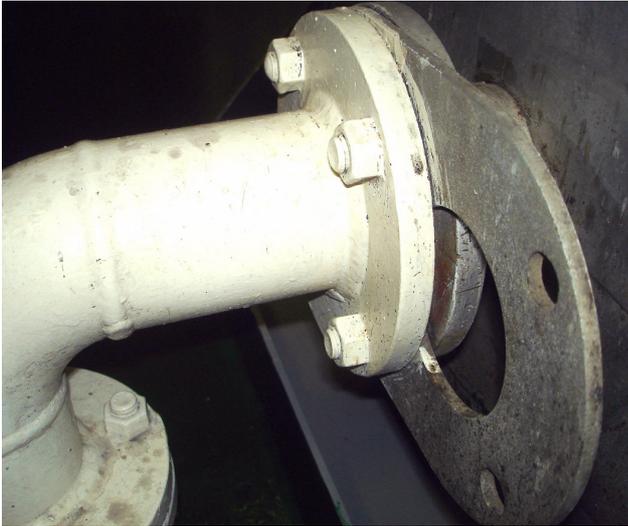


Typical small eductor

It is most important that when the hold cleaning eductor system is not in use, the spectacle flanges must be turned so that the blank spool piece is in the closed position to prevent water flooding back into the cargo hold cleaning line.



Spectacle blank in open position



Spectacle blank in closed position

In addition to the spectacle flanges fitted on deck, the hold cleaning eductor bilge well space in the hold, must also be blanked off.

The discharge line from the hold eductor is usually fitted with a gate valve and a blank at the open end of the discharge line at 900mm above the deck together with a blank flange. When not in use the gate valve must be closed and the blank flange fitted with a gasket and all of the securing bolts.

Checklist

- Sounding pipes clear
- Striking plates in hold bilge wells not wasted
- Bilges clean and dry
- Strum boxes clean
- Test bilge suctions
- Test bilge suction non returns
- Spectacle pieces for hold cleaning eductors in CLOSED position after hold cleaning completed
- Hold cleaning eductor discharge line valve closed and blank flange fitted after hold cleaning completed
- Hold cleaning eductor bilge space blanked off.