West of England

Loss Prevention Bulletin

Gangways and Accommodation Ladders

For many people the gangway or accommodation ladder is the first point of contact with a ship. Initial impressions are important, and a properly rigged ladder may be the first indication to a visitor that they are boarding a well run vessel.

However, someone obliged to climb a ladder which is unsteady, slippery or unsafe may have formed an unfavourable opinion of the ship and its crew by the time they have reached the top.

Gangway and Accommodation Ladder Incidents

Gangways and accommodation ladders may be hazardous if badly rigged, improperly tended or inadequately maintained. In spite of the acknowledged dangers, accidents associated with such shortcomings continue to arise.

In one incident three seamen sustained injuries, one seriously, after falling to the quay from an accommodation ladder which they were breaking out. In another, failure to raise the gangway while warping astern placed undue stress on the top platform hinge pins which worked loose and caused the gangway to collapse. Similarly, a number of disembarking personnel were injured when an aluminium gangway they were using broke in half. The weakness was traced to a cracked structural member which had deteriorated unnoticed over a period of time.

In another case insufficient monitoring caused the inner rail of an accommodation ladder to become wedged against the davit arm when the tide fell. While attempting to free and lower the inner rail on its collapsible stanchions a crewmember, standing on the upper platform, managed to pull the rail free. However, the sudden release of the rail caused him to stagger backwards and he fell over the platform guard rail into the river. Despite an extensive search his body was never recovered. It was found that the guard rail ropes on the upper platform were only 65cm high rather than the recommended 1 metre.

A further recent example concerned the death of a seaman when the hoist winch gearbox failed while he was rigging the

Inadequate guard rail ropes over which a seaman fell to his death (Courtesy MAIB)

accommodation ladder. The failure of the gearbox caused the lower telescopic section of the ladder to descend uncontrollably. When the ladder reached the end of its travel the bolts holding the rollers sheared and the lower section fell into the water. At the time of the failure the seaman was standing on the lower section rigging stanchions and fell overboard. He was not wearing a fall prevention device or a lifejacket. It was subsequently found that the gearbox had been incorrectly re-assembled following maintenance by the ship's crew.

The damaged telescopic accommodation ladder from which a seaman fell to his death when the hoist winch failed (Courtesy MAIB)

Moreover it is not uncommon for the Managers to be notified of injuries sustained by crew, stevedores, port officials, contractors or other visitors while embarking or disembarking. Steps, whether they are part of a ship's access arrangements or a flight of stairs ashore, may increase the chances of slips and falls occurring. Given that gangways and accommodation ladders are also susceptible to movement by external factors such as cargo operations, tidal conditions, swell and other gangway users, the risks may be magnified.

Rigging

Gangways and accommodation ladders are heavy and cumbersome pieces of equipment. Operating instructions should be posted in the vicinity of the boarding arrangements and it is essential that the personnel required to break out and rig ladders or operate lifting gear are sufficiently experienced, bearing in mind the possible consequences of a mistake. Anyone unfamiliar with such tasks should be closely supervised by a responsible person until considered competent.

If inexperienced crewmembers are required to assist with the rigging of a gangway or accommodation ladder, a risk assessment or job safety assessment should also be carried out beforehand in case additional measures to reduce the risk are necessary before commencing the operation. Suitable protective equipment should be worn as appropriate including personal floatation devices fitted with self activating lights, whistles and reflective material, and safety harnesses of the arrestor type rather than fall restraints. Fall arrestors should always be attached to suitable securing points fixed to the ship's structure.

Surveyors carrying out condition surveys for the Club often report occasions where a vessel's gangway or accommodation ladder was rigged incorrectly. Safety nets are often the subject of such observations and are frequently found to be secured to each side of the ladder along its entire length. This results in the net hanging uselessly below the steps instead of leading away to the side of the ship to catch anyone unfortunate enough to fall off.

Rope guard rails must be tight if they are to be effective, and all stanchions must be fitted in place and properly secured. Steps, handrails and platforms should be free of oil, grease and ice. When landed on the quay, care should also be taken to ensure that the lifting bridle and/or davit arm is kept well above head height or moved clear as necessary.

As far as practicable the approaches to the ladder both on deck and on the quay should be free of hazards to allow safe access and egress to and from the vessel. Close attention should also be paid to any significant difference in height between the ends of the ladder and the quay or deck. This may mean placing and securing a portable step or steps in such locations to minimise the risk of slips and falls. Warning notices should be posted in such cases.

When gangways are placed on top of bulwarks, a suitable bulwark ladder should be used between the deck and the gangway. It should be adequately secured and all gaps between the top of the bulwark ladder and the gangway should be fenced off to a height of at least one metre.

Gangways and accommodation ladders should be adequately illuminated at night, particularly at each end. If there are no permanent fittings, portable lighting should be rigged.

A lifebuoy with a self-activating light plus a separate buoyant lifeline with a quoit or similar device attached should be stationed at the point of access ready for immediate use. Many vessels also place a small box containing a fire plan, stowage plan, dangerous goods list, stability details, crew list and other relevant information at the head of the ladder ready for use in an emergency.

Positioning

Where possible, boarding arrangements should be positioned away from working areas and places where cargo may pass overhead. If there appears to be no safe option using the ship's own equipment, it may be possible to hire a shore gangway if such facilities are available. It should be remembered that tending a shore gangway and ensuring it is rigged safely remains the responsibility of the vessel.

Gangways should never be secured to a ship's guard rails unless they have been designed for that purpose. If positioned through an open section of bulwark or railings, any remaining gaps should be roped off to a height of at least one metre.

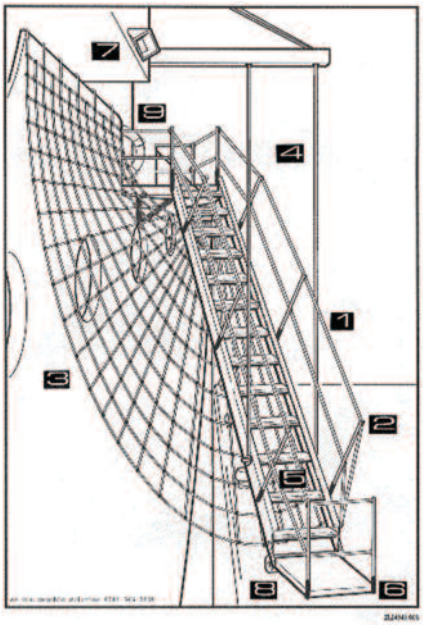
Consideration should also be given to the angle of inclination, making sure that design limits are not exceeded. It may be necessary to provide alternative arrangements if the means of access is likely to become excessively steep. National legislation on this issue may vary, but in the absence of firm rules it may be prudent to observe UK regulations; a gangway should not be used if its angle of inclination is more than 30° above or below the horizontal, similarly for an accommodation ladder if the angle is more than 55° below the horizontal, unless designed and constructed for use at angles greater than these.

Tending

A crewmember should be assigned to monitor the gangway or accommodation ladder as regular adjustment may be required due to the movement caused by tidal conditions and variations in draft and trim.

Regular monitoring is essential as changed circumstances may lead to a vessel's access arrangements rapidly becoming difficult to negotiate.

The deck watch should also look out for potential dangers ashore such as bollards, tracks and cranes bearing in mind that most ladders are constructed of aluminium alloy and are easily damaged.



Important points to be considered during the rigging process:

1. Rope guardrails tight and free of damage and/or degradation
2. Stanchions free of distortion and all in place
3. Safety net positioned between ladder and ship, free of damage and/or degradation
4. Hoisting arrangements clear of head height
5. Steps free of oil, grease and ice
6. Bottom platform level (where fitted)
7. Lighting arrangements positioned effectively
8. Base clear of obstructions
9. Lifebuoy fitted with a light and a lifeline with a quoit available at the point of access

If the position of the ladder is such that cargo residues accumulate on a ladder and its approaches during a port stay, then the residues should be cleaned away regularly to prevent a slip/trip hazard.

To assist those responsible for tending gangways and accommodation ladders, it may be worthwhile noting the times of high and low water on the sailing board each day.

Maintenance

It is a SOLAS requirement that inspection and maintenance of accommodation ladders and gangways be conducted periodically. Monthly inspection and maintenance should be included in the planned maintenance system and should always be carried out by a competent person in accordance with manufacturers' instructions.

In addition to planned maintenance inspections, further checks should be made each time the ladder is rigged, looking out for signs of damage, distortion, cracks and corrosion.

Periodic inspections of accommodation ladders and gangways should incorporate the following:

- The structure of the ladder should be closely examined for cracks, distortion, damage and corrosion, and repaired as necessary.
- If an aluminium ladder has fittings made of mild steel, these areas should be examined closely. Accelerated corrosion may occur if the two dissimilar metals come into contact, and deterioration of the separation material could lead to a severely weakened structure.
- Bent stanchions should be replaced or repaired, and guard ropes inspected for wear and renewed where necessary.
- Safety nets should be inspected for damage, actinic degradation and for the impregnation of grease, paint or chemicals which may affect their strength.
- Moving parts such as sheaves, tracks, turntables, bearings and rollers should be free to turn, and greased as appropriate.
- Lifting equipment should be inspected, tested and maintained according to a planned schedule. The condition of hoist wires is to be closely monitored for broken wires, corrosion or distortion, with particular attention paid to areas passing through sheaves. Damaged wires should be replaced in line with the company's wire discard criteria prior to their condition becoming unacceptable. In any event hoist wire replacement should never exceed 5 years. Hoist wires should be provided with a suitable test certificate prior to fitment and it is recommended that the date the hoist wires were last renewed is stencilled in the vicinity of the ladder for easy reference.
- Hoist wires should be periodically treated with a suitable wire rope dressing over their entire length.
- Arrangements should also be made to examine the underside of gangways and accommodation ladders at regular intervals. It is often difficult to gain access to these areas in the course of normal activities and it may be necessary to turn the ladder over periodically to perform a detailed inspection.
- Winch bed plates and supporting structures for sheaves and turntables should be inspected for cracks, distortion, damage and corrosion, and repaired as necessary.
- Control levers/buttons and limit switches should be tested to ensure they are working correctly.
- Operating instructions should be conspicuous, markings on the accommodation ladder or gangway as required by the flag state (such as the maximum safe loading by persons and by total weight) should be legible, and control levers or buttons should be clearly marked.

All inspections, maintenance work and repairs should be recorded in the planned maintenance system in order to provide an accurate detailed history for each appliance.

Checklists

Checklists may be used as an additional safeguard when rigging gangways and accommodation ladders. Members may wish to adapt the attached example to suit their own requirements.

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Gangways and Accommodation Ladders Checklist

Vessel	
Date	
Port	

No.	Checkpoint	Yes/No
Preparatory Work:		
1.	Assemble a sufficient number of experienced personnel	
2.	Arrange supervision of less experienced personnel	
3.	Discuss work plan and allocate tasks	
4.	Conduct a risk assessment if deemed necessary and close out all action points	
5.	Ensure personal protective equipment including suitable personal floatation devices and fall arrestors are worn as necessary	
6.	Check that boarding arrangements will be clear of working areas	
7.	Check for obstructions likely to impede lowering/positioning	
8.	Place lifebuoy with light and buoyant line with quoit close by	
Rigging:		
9.	Test and position lighting arrangements	
10.	Check that ladder is sufficiently stable	
11.	Check that the angle of inclination is satisfactory	
12.	Check safety net for wear and defects	
13.	Fit safety net correctly to span gap between the outboard side of the ladder and the vessel	
14.	Inspect rope guardrails for wear and ensure ropes are pulled tight	
15.	Examine stanchions and fixed guardrails for damage and secure in position	
16.	Ensure bottom platform is level (accommodation ladders, where fitted) and suitably fenced	
17.	Check boarding arrangements are free of oil, grease and ice	
18.	Ensure that lifting equipment/bridle does not cause an obstruction	
19.	Position and secure additional steps if required	
20.	Post notices warning of additional steps as appropriate	
21.	Ensure bulwark ladders, where used, are properly secured	
22.	Rope off any gaps in the bulwark or railings	
23.	Verify that safe access exists at shore side end of ladder	
24.	Verify that safe access exists at shipboard end of ladder	
25.	Examine ladder closely for signs of distortion, cracks or corrosion	
26.	Examine hoisting wires and equipment for wear and damage	
27.	Report and record all defects found and equipment replaced	
28.	Post sailing board	

No.	Checkpoint	Yes/No
Tending:		
29.	Ensure gangway watch is maintained throughout	
30.	Check regularly whether repositioning is required	
31.	Check regularly whether safety net/rope guardrails require adjustment	
32.	Watch out for potential obstructions ashore	
33.	Keep the access arrangements and approaches clear of ice, oil, grease and cargo residue	
34.	Carry out regular checks to ensure that safe access is maintained	