

## Pilot Ladders – Error Enforcing Conditions and Deficiencies

### Introduction

**CHIRP** Maritime continues to receive plenty of reports related to problems for pilots getting on and off ships. Looking beyond the easy scenario of blaming the crew, **CHIRP** has analysed the reports to look a little more closely at what is going wrong.

It was Sir Isaac Newton who stated in his Third Law that “Every action has an equal and opposite reaction”. Fast forward a few centuries and an apt corollary might be that “Every introduction of a change to regulation can lead to unintended consequences”. Pilot embarkation and disembarkation is a case in point.

### Regulation Change and Unintended Consequences

The last major SOLAS revision on the subject, (Chapter V - Regulation 23), was in 2012 and was accompanied by IMO Resolution A.1045(27). One of the new requirements related to the safe access at deck level. Fixed handhold stanchions are now required at the point of entry and the ladder must be secured at a strong point or points on the deck - this effectively means that securing a pilot ladder by means of the ships side handrails is prohibited. Quite right too – who has not seen bent or fractured handrails? Ships' side rails are not designed or certified to be load bearing.

So now you have a pilot ladder which must be rigged at a gate in the railings, or at the bulwark with support stanchions and a bulwark ladder. This is straightforward if the freeboard is less than 9 metres, and if the pilot ladder requires raising or lowering a little to match the size of a pilot launch then this should not pose a problem for the crew.

But what happens if the freeboard is greater than nine metres? In effect, because the pilot ladder is now in a fixed position (i.e. you cannot move it forward or aft), a combination ladder arrangement will only work at one position. This may be fine when you have vessels which carry a homogenous cargo, but frequently today's trading patterns may make this less likely. The problem may equally apply to a fixed reel pilot ladder when it has to be used in a combination arrangement. Crews are ingenious and try many different methods to “get around” the issue, (more on this further in the article), but it remains a fact that the introduction of regulation has created an unintended problem. For new ships constructed after the regulation change it is equally plausible that the regulation is simply not given proper consideration at the design stage. Some of the examples which follow are from vessels constructed after 2012 and so there is really no excuse not to comply. Class, Shipyards, and Company Management should address potential non-compliance at the design stage, not as an afterthought.

### Solutions?

There are solutions of course, but it takes a little thought and the assistance of naval architects either at the design stage or in the refit period of a vessel. If the problem is that a ladder (whether it be a pilot ladder or fixed upon a reel) cannot be moved in a fore and aft direction to meet a certain height for an accommodation ladder, then surely the introduction of a longitudinal track with suitable securing arrangements to lock the ladder and stanchions in place would enable a ladder to be effectively rigged in a combination arrangement. The modification would need Class certification that the strength was equal to or greater than the 24 kilo-Newtons (close to 2.5 tonnes) required by SOLAS V Regulation 23. This is not impossible – in the words of a pilot who regularly corresponds with **CHIRP**, “I just left a tanker with a totally compliant ladder on a reel with tracks to have it moved sideways to deal with any changes in draft. Not complicated or expensive and easy for the crew to use. It can be done ...” **CHIRP** agrees – it can indeed be done with a little thought. Additionally, it may involve having several removable sections of a ship's side rail, but it is not difficult to comply. “Easy on a tanker with loads of deck space”, we hear you mutter, but what about vessels which are tight on space such as container vessels? Often a pilot ladder reel is squeezed onto a space between container stacks so there is no possibility for a longitudinal track. True, but we are not suggesting that the reel needs to be on a track, and the track can easily be located on the adjacent deck if sufficient slack is arranged where the ladder comes off the reel.

## What have we missed?

The solution above appears ideal to overcome the problem but in the introduction, it was stated that every new regulation introduces problems... so, what have we missed? For all of the good points which were added to Regulation 23 in 2012, one was missing – there is absolutely no mention of how to rig the ladder at deck level! Again, we hear howls of outrage – “We know how to rig a pilot ladder!”. Judging by the large number of reports that we receive on the subject, **CHIRP** would disagree. Since there is no description of how to do it, and since we now appear to live in a world where, if it is not laid down in black and white it just does not get done, crews have invented their own methods and, in many cases, traditional seamanship has been ignored.

So, we now have a ladder with two lengths of side rope on deck, and the length of the rope from the top step gives sufficient flexibility to allow the ladder to be raised or lowered a few metres. Surely it is a simple enough matter to lash these securely to an eyebolt? Sadly, in many cases it seems that it is easier to jury rig arrangements which are non-compliant and often downright dangerous, as shown in the following examples:



*Figure 1 – Well-worn ladder with shackles impacting against the side chocks*

In this example, the ladder had its weight effectively taken by the chocks. Whether they are plastic or wooden, chocks can be damaged if the shackles take the weight of the ladder directly against them. As it happens this example also resulted in the ladder being secured at the deck level in a manner which caused the steps to lie at an uneven angle. A cursory glance at the photo should be enough to tell you that this ladder is not fit for purpose and is (probably) not certified.



*Figure 2 – Ladder weight supported by a bracket which the step fits into*

With Figure two, the weight is taken by an uncertified bracket and by the whippings around the chock above the step. Additionally, should the ladder jump for any reason there is the potential for a serious accident.



Figure 3 – Ladder supported by strops and not the side ropes

In addition to the lack of stanchions and the ladder running over a wire, it is important to note that the strops in figure 3 are purple (which signifies 1 tonne SWL). This is significantly less than the 24 kN required by regulation and again the ladder weight is not being taken by the side ropes.

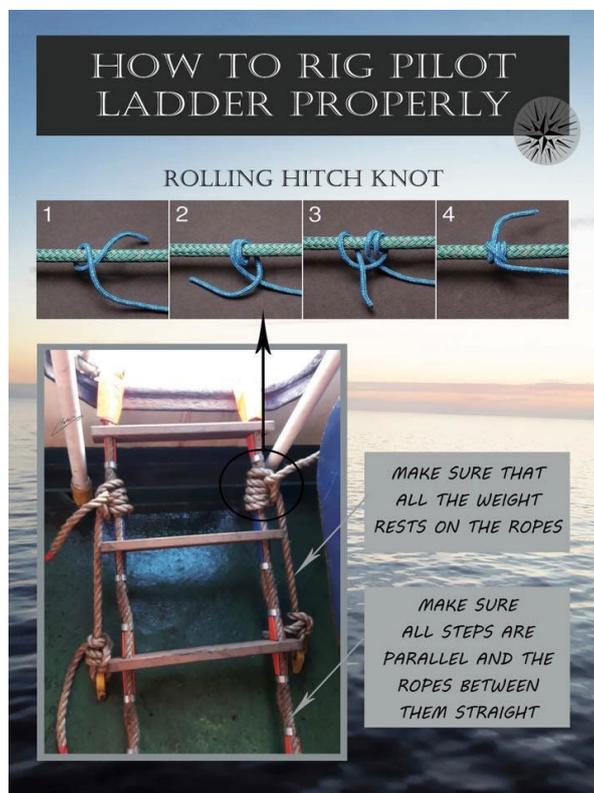


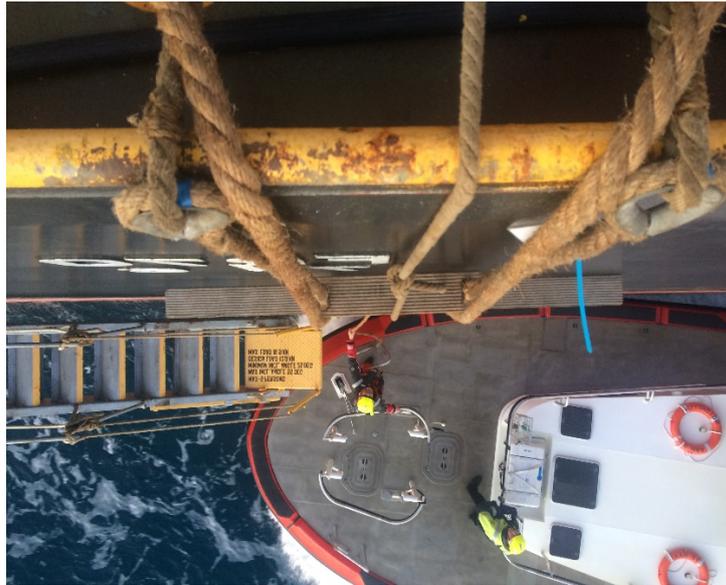
Figure 4 – A simple illustration of how to correctly rig a pilot ladder at deck level

## What other material is CHIRP receiving on the subject?

In addition to the lack of proper securing of pilot ladders at deck level, **CHIRP** continues to receive a considerable amount of correspondence which can generally be broken down into three categories;

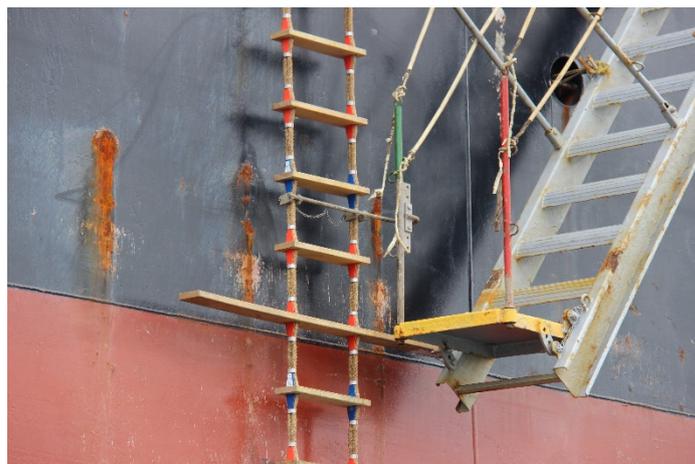
- Non-compliant combination rigs
- Non-compliant trapdoor rigs
- Non-compliance associated with worn ladders

### Non-Compliant Combination Rigs:



*Figure 5 – Ladder weight is actually supported by the whippings of the thimbles*

This picture shows side ropes terminating at thimbles below deck level. Lines through these thimbles run up to the deck where shackles are used to support the ropes. This was pointed out to the crew on deck, but they stated that a single line leading down to the top step was taking the weight! Definitely not compliant and a longer ladder is required so that side ropes can be secured directly on deck.



*Figure 6 – Ladder not attached to hull*

**CHIRP** has received many reports where a combination rig is non-compliant. For the most part these relate to the ladder not being attached to the ship's side (with either magnets or purpose made lugs) and attaching the pilot ladder to the combination ladder. Reports have also been received relating to the security of the stanchions at the lower step of the accommodation ladder. In the figure above the vessel was not permitted to sail from the port until the deficiency was rectified.

**Non-Compliant Trapdoor Rigs:**

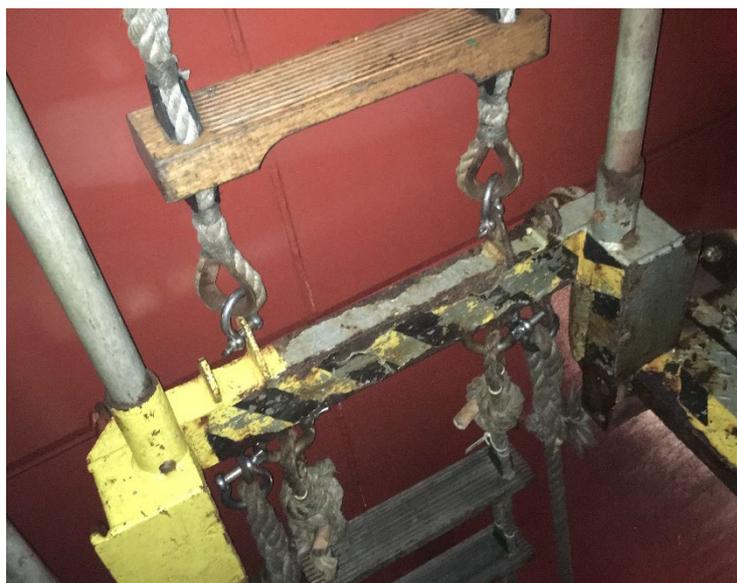
Trapdoor rigs have proven to be the most difficult area to address in order to achieve compliance with the current regulations. The issues reported to **CHIRP** are varied, but there is not a single instance where pilots are happy using these rigs – they are universally described as an accident waiting to happen.

Invariably, problems are encountered when making the transition through the trapdoor with inadequate handholds. Ladders are found to have been rigged with the lower ladder attached directly to the accommodation ladder as shown below. This ladder did not extend 1.5 metres above the platform. Some vessels have made this a two-stage arrangement with a second ladder in order to try to achieve compliance, but this also poses issues.

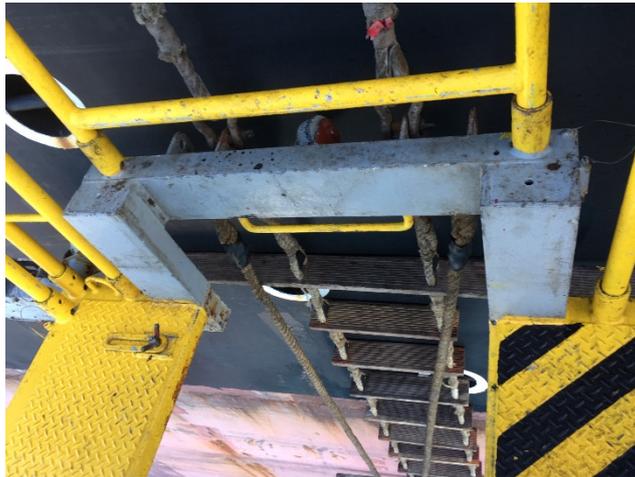


*Figure 7 – Ladder does not extend 1.5 metres above the trap door – how do you transit from ladder through the trap door?*

A single length of ladder, lying flat against the hull and secured 1.5 metres above the accommodation ladder trapdoor is the requirement – this however often means that the pilot has to lean back in order to effect access through the trapdoor. This is illustrated in the following two pictures where the two-stage ladders are also non-compliant. Pilot ladders are suspended from the accommodation ladder frames rather than directly from their side ropes.



*Figure 8 - Two stage non-compliant ladder – weight is not held by man ropes at all*

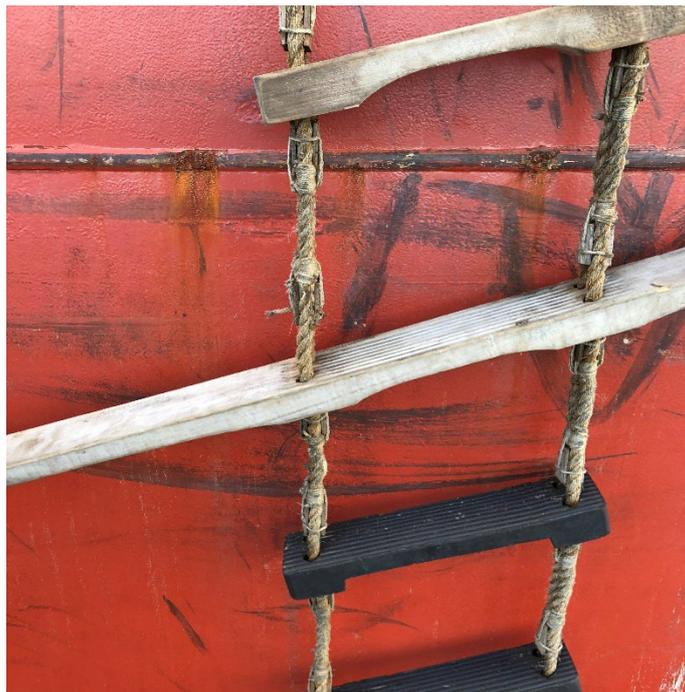


*Figure 9 – Pilot has to lean back to gain access to trapdoor*

Given the foregoing, it should be no surprise that pilots universally dislike these arrangements and, in many cases, wonder who approved them. Part of the worry is that the systems are roughly similar to pilot hoists, which have been banned for many years. Additionally, the gangways and their winch/wire assembly are not covered by the pilot ladder regulations. There is an assumption that all of these arrangements are Class approved. If so, then there is a disconnect between accommodation ladder and pilot ladder regulations and, in our opinion, this needs to be addressed. Above all, the actual practicality of conducting the operation in a safe manner should be taken into account at the design stage well before any Class approval – it’s called Human Centred Design.

#### Non-Compliance associated with a lack of maintenance/inspection:

The following examples do not need much of a description because the captions are clear, but all are indicative of human element issues. The examples do not mean there is a problem with the regulations about pilot ladders but indicate that the safety culture of the vessel and company is inadequate. A thorough maintenance and inspection regime would go a long way towards stopping the near miss reports that are being received.



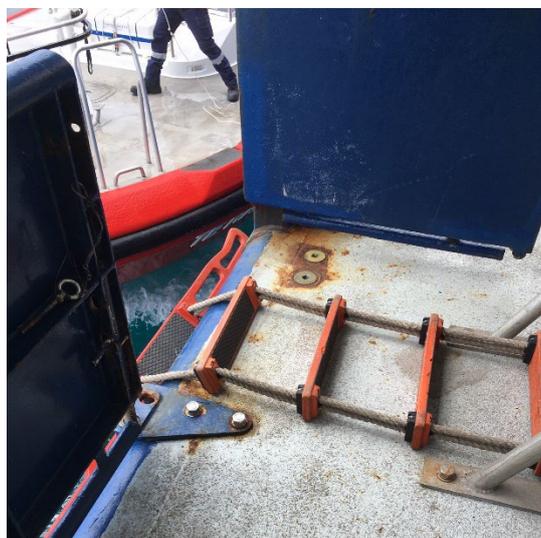
*Figure 10 – Pilot ladder steps not horizontal, chocks missing. Ladder needs replacing*



*Figure 11 – The step on this ladder gave way whilst the Pilot was disembarking*



*Figure 12 – loose chocks – spreader replaced and not constructed of one piece of wood*



*Figure 13 – No stanchions provided to assist pilot boarding*

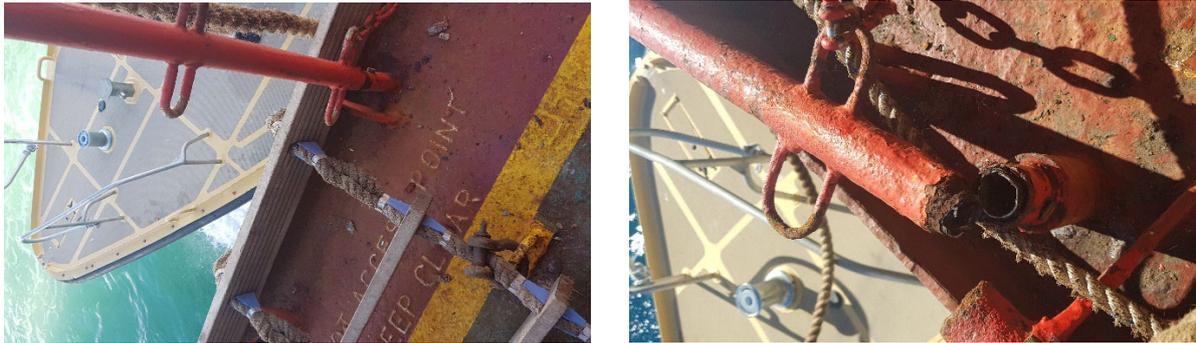


Figure 14 – Stanchion provided for manropes – but failed dramatically when crew on pilot cutter tested the weight

(Dis)honourable mentions:

- Manropes greater than 32mm so unable to hold a grip effectively. In addition, they were incorrectly rigged
- Steps of ladder painted – slipping hazard
- Manropes 16mm and not 28-32mm
- Ladder secured to ships side with only one magnet instead of two (one either side of the side ropes)
- Large loop under ladder which may be a tripping hazard or get caught up in gunwale of pilot boat
- Tripping line (retrieval line) fastened below bottom spreader and leading aft not forward

## Conclusions

From the foregoing it can be surmised that there remains a great deal of work to do in order to make the transfer of pilots to and from a vessel safer. A change in regulation may help, but all mariners can certainly assist by ensuring that their pilot ladders and combination rigs are properly and safely rigged **and** inspected regularly. All pilot ladders should now be certified – it is readily apparent from some of the examples given to **CHIRP** that they are not.

We at **CHIRP** Maritime continue to be astonished at the poor level of seamanship regularly presented to us in these pilot ladder reports. We accept that there is no current good practice available on securing ladders but seafaring is about applying common sense with practical skills to solve problems. It's what we do, and it sets us apart from other professions. There is a right way to rig and maintain ladders that uses these skills and as we see so many deficiencies it leads us to ask the question - is the quality of basic training meeting the requirements of STCW? It would appear not. In fact, it seems to be getting worse as the years go by.



Cute – but dangerously non-compliant