1000 COMBINATIONS AROUND

Which one is correct?

By: Arie Palmers (reg. pilot)

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Nc embarkation platform with cut off ladder

1. Introduction.

Dear reader,

Before you, you see my third article on pilot boarding arrangements. After my two previous articles ('1000 ways to secure a pilot ladder' and '1000 ladders around', I have received a lot of feedback and also questions to get deeper into the matter of combinations and embarkation platforms.

Since the last two articles were published a lot has happened, more and more shipping companies as well as pilot associations worldwide are getting more aware of pilot boarding safety issues and the way to get pilot boarding arrangements safe and compliant. As you might know, sometimes it is a very easy fix.

Concerning embarkation platforms… to get them compliant it often takes more effort: some constructional features must be changed; class agencies will have to approve etc. etc. but the costs to get it right will not be that high.. In this next article I would like to show you the rights and wrongs of these pilot boarding arrangements and what can be done to make them compliant as easy as possible.

In the next chapters we will also, as in the previous articles, get into the rules and I'll try to explain as good as possible what is correct and what is not correct, of course illustrated with pictures out of my own database and from the database of facebook's "dangerousladders".

In this article names of shipping companies/ships and manufacturers will only be displayed for educational purposes, it's not my goal to favor or bash around any company.

Hope you will enjoy reading this article!!

Non-compliant embarkation platform(courtesy of #dangerousladders)

2. When to rig a combination or a single pilot ladder?

Some vessels present themselves with a single rigged pilot ladder and some vessels present themselves with a combination, or embarkation platform. Of course, there is a reason for these two different types of pilot boarding arrangements and in this chapter, I will explain why these two arrangements exist.

In SOLAS ch. V reg. 23 it is stated when to rig a normal pilot ladder and when to rig a combination:

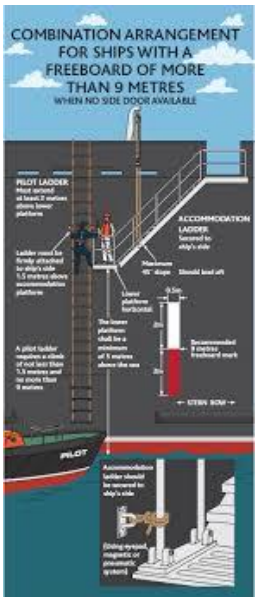
3.3.1: a pilot ladder requiring a climb of not less than 1.5m and not more than 9m above the surface of the water…….

3.3.2: an accommodation ladder in conjunction with the pilot ladder (i.e. a combination arrangement) or other equally safe and convenient means, whenever the distance from the surface of the water to the point of access to the ship is more than 9m.
These simple rules tell us when the distance from the water to the pilot entry point is under 9 m you can rig a single pilot ladder and when the distance is more, a combination must be used…

Non-compliant pba

In this photo of a pilot ladder, you can basically see in one glimpse that in this case the vessel should have rigged a combination rather than a single pilot ladder or should have increased its draught. Wonder why? Let me explain. Right next to the rigged pilot ladder you can see a white and red figure displayed on the hull. This is what we call the pilot mark. My good friend and co-author, deepsea pilot Kevin Vallance has written an interesting article on the origins of the pilot mark, you can find it online by following this next link: https://www.marine-pilots.com/article/13336 .

Basically, this pilot mark displays exactly where the nine-meter mark is on this vessel. Exactly at the dividing line between the upper and lower half's of the pilot mark is the point of 9 meters above the water surface. Again, this has nothing to do with freeboard: maximum climb from water level to entry point shall not exceed nine meters. Unfortunately, in the well-known pilot ladder poster this has been displayed incorrectly as you can see in the photo below which is a small piece of the pilot ladder poster



In this part of the pilot ladder poster there is mentioned that the maximum climb shall not exceed 9 meters, which is not correct as we know now. This would mean that when a pilot boat for example requests the ladder to be rigged at a height of 8 m above the water, you would be allowed to climb an additional 9 meters on top of that. Again, can't repeat is often enough, maximum height for a single pilot ladder shall not exceed more than 9 meters from water surface to pilot access point. It all has to do with the acceleration should you fall from the ladder, after all we climb unsecured, so this must be correct!! When you drop to the earth your acceleration will be 9,81 m/s2 until you have reached maximum velocity. In the table below you will find some examples of falling from different heights and I assumed the weight of the person falling of 80 kg.

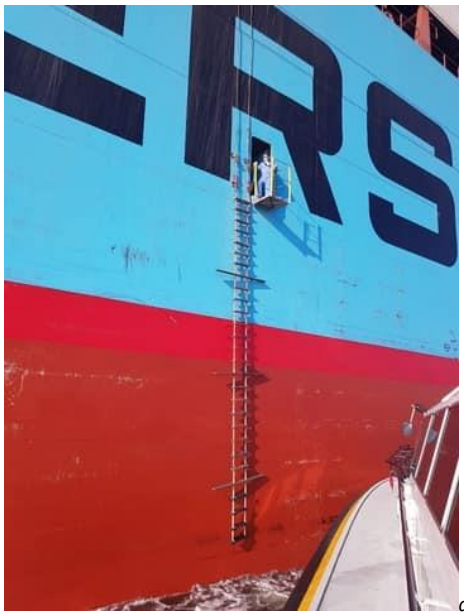
Heights in m	Speed in km/h
1	15,94
2	22,54
3	27,61
4	31,88
5	35,64
6	39,04
7	42,17
8	45,08
9	47,81
10	50,4
15	61,73
20	71,28

This table shows exactly what will happen to you, dropping from different heights, even dropping from a height of only 3 meters can really ruin your day, but as starting point scientists concluded that should you fall from a height of more than 9 meters you will most surely sustain fatal injuries. Again the 9 m is vital! Falling from lesser heights can cause very serious injuries but you should be able to survive as they state.

Back to the pilot mark. We know already that the separation of the white and red indicate the 9 meter mark, some vessels and shipbuilders however still seem to think the pilot mark is merely an indication for the pilot boat where the ladder is situated, but as we know now this is not the case.

In the photo above we see a pilot mark that has been put at the wrong position, probably someone thought is was a good idea to have one here, maybe because it looks good. This vessel, looking at her draught and height from keel to deck, it doesn't even need to have one.

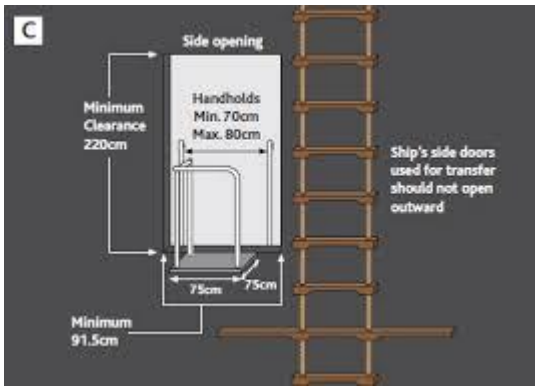
Having a pilot mark displayed on the correct position of the ship is a very good asset and the approaching pilot launch can very easily asses whether the single pilot ladder is the correct pba or a combination should have been rigged.

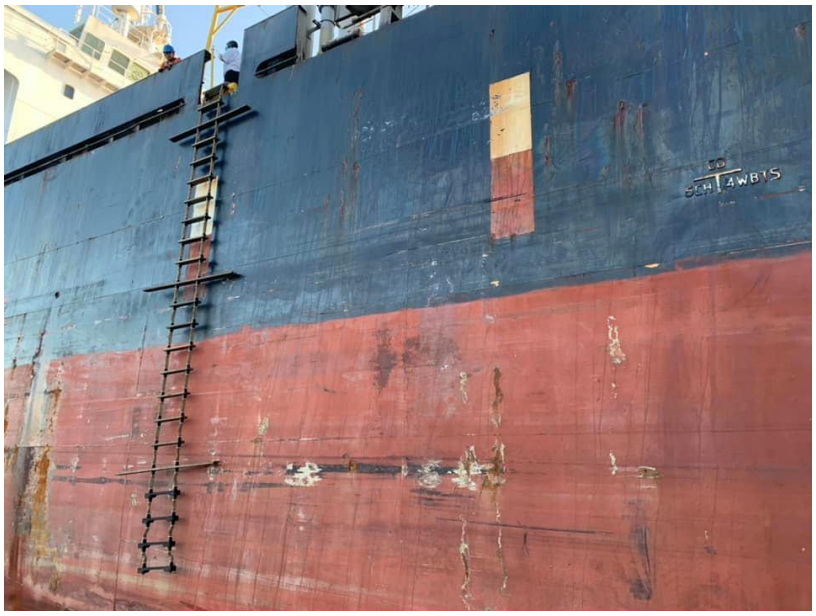


distance water- pilot door exceeds 9m

In the photo on the previous page we see a vessel which has at least a distance from the water surface to the pilot door of 11m, presenting itself with a single pilot ladder. We have seen this is an absolute no go. The ladder on its own already has a length of approximately 9,6 meters at least plus the requested rigging height above the water to get the pilot tender alongside safely, which is 2 meters in the region where I work. Vessels fitted with a pilot door usually have no means to rig a combination. What the vessel should have done, was ballasting till an acceptable height of the pilot door above the water has been obtained, meaning: less than 9 meters.

On top of that we know from one of my previous articles that the ladder has to be secured to the ships hull at 1.5 meters above the platform (SOLAS ch.V V reg 23 3.3.2.1), which has been done as you can see but also (there's always a but…) the ladder should run 2 meters past the platform (IMO A.1045 3.6: …… and should extend at least 2 m above the lower platform.) and that's not the case here. The drawing below, which is a section of the pilot ladder poster shows how this setup should be done correctly.

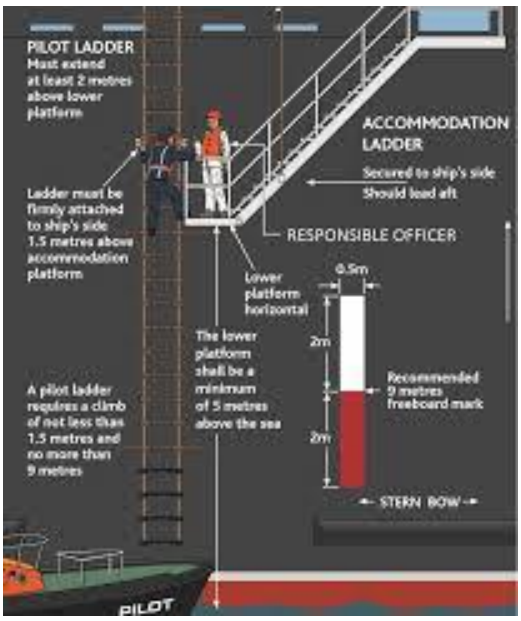




Another incorrectly positioned pilot mark

3. Combination arrangement

In the previous chapter we have seen when a single pilot ladder can be rigged and when a combination must be rigged. In another section of this article, we'll discuss a different type of combination: the embarkation platform. In this section we'll focus on the so-called standard combination arrangement.



Section of the pilot ladder poster

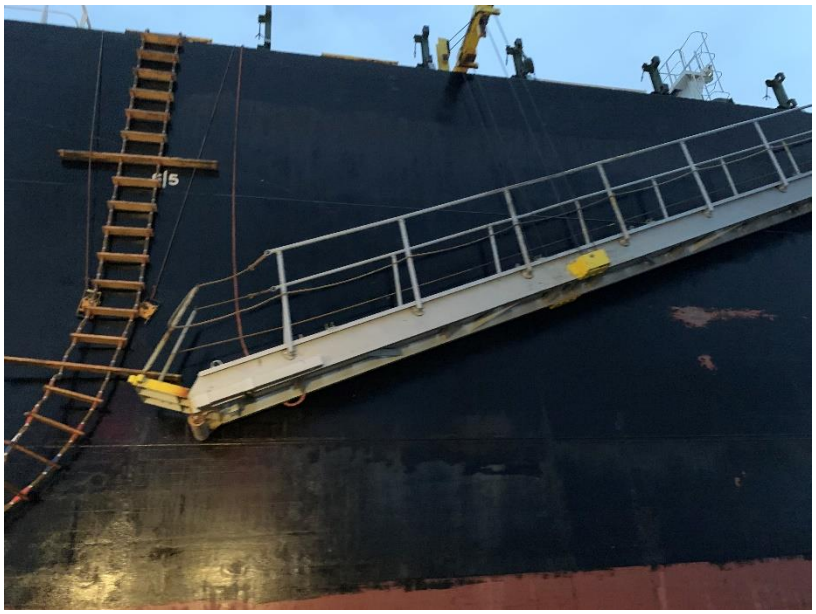
Here we again see a part of the pilot ladder poster, showing us a drawing of how the combination should be rigged. Some pilots demand a guy to assist on the platform, as is displayed on the poster, but since this poster and IMO A. 1045(27) are recommendations, it is not mandatory for any crewmember to stand on the platform. Looking at the picture we can see the assisting responsible officer is wearing a life jacket but is not secured in any way by means of a safety harness. Dangerous practice to stand on a small platform (width at least 600 mm, same as the accommodation ladder: IMO A.1045(27) 3.2) without being secured, especially in adverse weather conditions… And as far as I am concerned, he could hamper the stepping over from ladder to platform. Anyway, I suppose the color of his coveralls is optional and free of choice…….

We can also see the pilot on the ladder stepping upwards from the ladder to the platform, again a bad practice, he should only have to step sideways.

As we have seen there are some mistakes in the poster: the climbing sentence printed above the pilot launch is wrong…

SOLAS V ch 23 also tells us requirements in how to rig a combination. In the previous chapter we already saw some regulations passing by 3.3.1 and 3.3.2)

3.3.2.1 tells us that the pilot ladder and manropes (manropes only on request of the pilot 7.1.1!!) must be secured at a point 1.5 m above the lower platform. Without thses securing methods, the ladder can swing free and off course that is a dangerous practice.
3.3.2 tells us the platform also must be secured to the ship's side



Non-compliant combination

This photo shows us a few wrongs in this combination: the ladder is not secured 1.5 m above the platform but at about 60cm. You might think: so what?? Who cares?? Well I do of course. When the ladder has been secured at a point to close to the platform, it will obstruct your access to the ship. Worst cases would be losing your grip an falling back to the pilot launch (seriously injured) or into the water (seriously injured and wet).

The horizontal distance from the pilot ladder to the platform looks all right. Of course there is a rule for that as well. IMO A. 1045(27) tells us: the horizontal distance between the pilot ladder and the lower platform should be between 0,1 and 0,2 m. Well, this makes sense: just a small sideway step from ladder to platform, after all we are no acrobats. Big distances from ladder to platform can easily again result in an accident.

Furthermore, we can see in the photo that the platform is not horizontal. IMO A. 1045(27) tells us the platform should be in a horizontal position (makes sense doesn't it) and secured to the ships side when in use. The lower platform should be at a minimum of 5m above sea level. This is done so that the combination and pilot launch will never touch. Bigger heights may be required by the pilot boat.

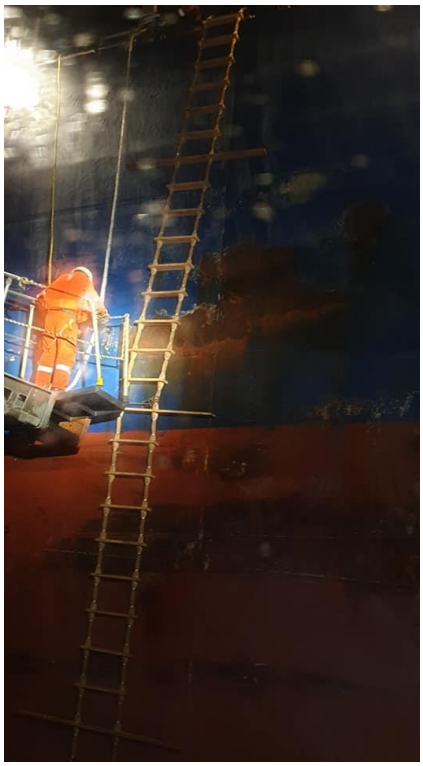
In the first photo on the next page we can clearly see a badly rigged combination:

- platform not horizontal
- platform not secured to the ship's hull
- ladder not secured to the ships hull at 1,5 m above the platform
- retrieval line not rigged properly (we have discussed this in a previous article: retrieval line is optional but when used it must be rigged at or above the bottom spreader and lead forward so it can never get caught to the pilot launch)
- we can also see it is a way to big step from pilot ladder to the platform, this photo shows very well why the distance from ladder to platform must be 0,1-0,2 m

Non-compliant combination

The direction of the combination is also important. SOLAS ch.V reg 23: 3.3.2 …..The accommodation ladder shall be sited leading aft. No why is that?? Suppose anything goes wrong with this combination, for example the wires would break. Should the pilot boat be situated under this combination, the broken combination would end up on top of pilot boat and the people on it.

Wires can break and situated leading aft; the dropping combination will move away from the pilot launch instead of on top of it. Should you be on the combination should it break…. Well good luck…. Injuries will occur of course….or worse…



Non-compliant combination (courtesy of #dangerousladders)

This photo is a good example of hat will happen when the ladder is tied to the platform: the ladder is not firmly against the ship's hull; steps are not horizontal, and the combination can swing free. The guy working on the combination when this photo was taken, doesn't wearing a life jacket or safety harness, tells us something about the safety culture on this vessel. SOLAS ch V reg 23 tells us in 2.2: personal engaged in in rigging and operating any mechanical equipment shall be instructed in the safe procedures etc etc…

As from 2012 when IMO A.1045(27) came into force, the maximum slope of the accommodation ladder was decreased from 55 degrees (IMO A.899) to a maximum of 45 degrees. To me this seems obvious: the steeper it gets, the harder it gets, and will lead to an increased risk of slipping away.

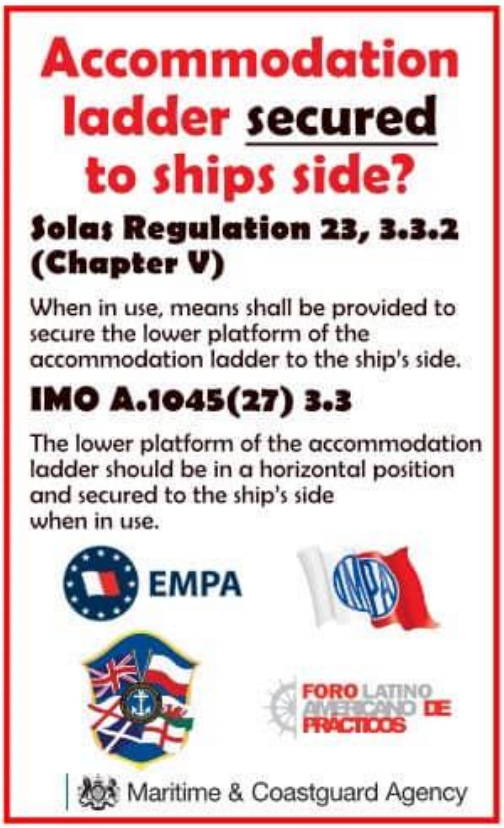
To be able to transfer yourself safely from the ladder to the platform you need stanchion to be able to grab during this step over, as stated in IMO A.1045(27) in rule 3.5: the ladder and platform should be equipped on both sides with stanchions and rigid handrails, but if hand ropes are used, they should be tight and properly secured. The vertical space between the handrail or hand rope and the stingers of the ladder should be securely fenced.

Of course you need fencing when you get on to at platform 60x60 cm dimensions, imagine the ship rolling and pitching due to swell and you would be there without anything to hold on to, again a dangerous practice, but very often we see at least one stanchion is missing. Solutions is to just tell the vessel and come back for round 2 about ten minutes later. I have told before that a lot of non-compliances are very easy fixes and can all be sorted within a few minutes. Even though of course it is rather silly not to put stanchion, what were they thinking?

Non-compliant combination, (courtesy of #dangerousladders)

This photo shows no stanchions on the platform, how to cross over? At least it will be very hard to reach the platform in this case: platform is in front of the ladder and that will make getting onto this platform nearly impossible. Also ladder and platform are not independently of each other secured to the hull, and as you can see on the photo the ladder is not firmly against the ship's hull as required.

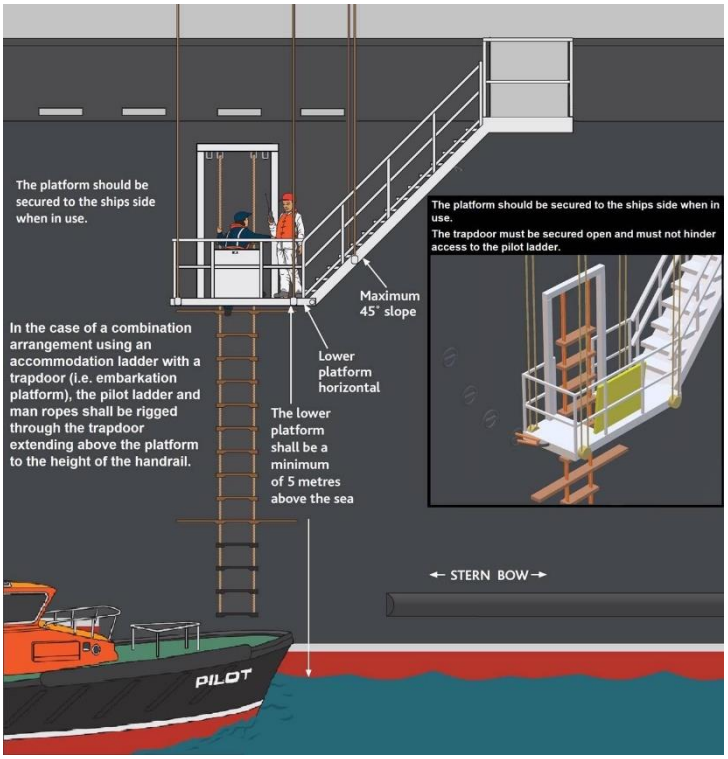
In my opinion ask them to get it sorted and come back after 10 minutes..



4. Embarkation platform

Another version of a combination arrangement we see quite often on bigger vessels, mostly container vessels, is a so-called embarkation platform (aka trapdoor).

Rather recently a drawing popped up on the #dangerousladder page showing how a compliant embarkation platform should be rigged:



We see on this image the ladder has been rigged through the trapdoor fitted in the platform and is resting firmly against the ships hull. The ladder runs up past the platform to the height of the handrail. This way the guy climbing the ladder will have an unobstructed climb and once he reaches the platform, all he has to do is step sideways. A safe way to board the vessel imho.

Rules concerning these pba's have been in force since at least 1979:

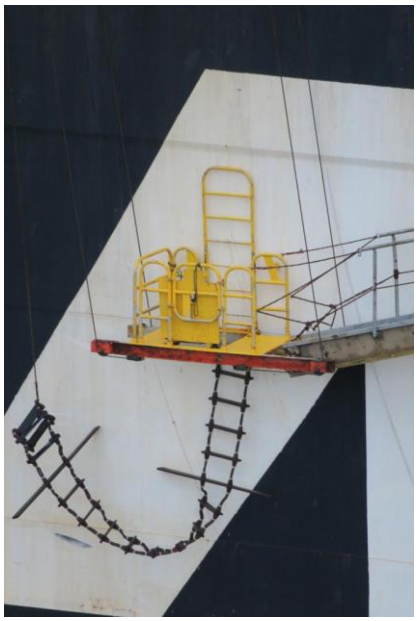
SOLAS ch. V reg. 23, 3.3.2.1: ….In the case of a combination arrangement using an accommodation ladder with a trapdoor in the bottom platform (i.e. embarkation platform), the pilot ladder and manropes shall be rigged through the trapdoor extending above the platform to the height of the handrail.

Mind you : manropes are optional and shall only be rigged on request of the pilot (SOLAS ch.V reg. 23 7.1.1)

A lot of vessels do not comply with these regulations and refer themselves as being built before 2012; 2012 was the year SOLAS ch.V reg. 23 first came into force. Basically what they are saying is: we don't have to be safe… because of some grandfather clause..

SOLAS ch.V reg. 23 clearly states in 2.1: All arrangements used for pilot transfer shall efficiently fulfil their purpose of enabling pilots to embark and disembark safely… seems quite easy to me that when people get will hurt or worse using non-compliant embarkation platforms, they don't really follow

this rule, but… yes yes grandfather clause.. SOLAS ch.5 reg. 23 was preceded by resolution MSC 99(73) (renumbering reg.17 as reg.23) which came into force July 2002. This rule states the same in 2.1, no changes have been made, well that makes things a bit easier.



Non-compliant embarkation platform

To understand that quite a lot of vessels are not complying with the rules, we must get into some regulations, not the most exiting stuff to read, but to get clear understanding of the situation, it is necessary to do so……. Better get out the reading glasses now!!

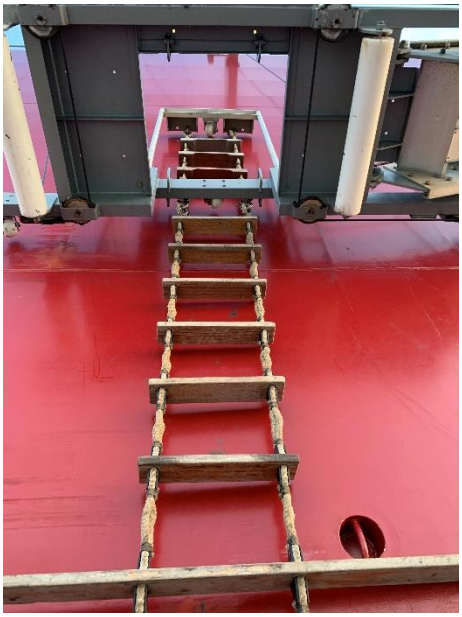
IMO A.1045(27) states in 3.7: The trapdoor should open upwards and be secured either flat on the embarkation platform or against the rails at the aft end of the outboard side and should not form part of the handholds.

Non compliant embarkation platform

In the photo above, you can clearly see that the trapdoor opens the wrong way. Basically you are hanging at this trapdoor which has been secured with 2 small metal pins..

Let's continue with IMO A.1045(27) 3.7: …. And the pilot ladder should extend above the lower platform to the height of the handrail and remain in alignment with and against the ship's side. We can clearly see on the photo that the ladder does not run to the height of the handrails. It has been put under the platform, hanging at the beam. Why is this dangerous? When you reach the top of the ladder, you have to lean back and grab some pieces of steel (slippery when wet) on the upward side of the platform (in this case even the trapdoor itself) then you have to pull yourself on your arms up through the gap (whilst loosing grip with your feet) turning sideways as you attempt this and get your body onto the platform.. all of this 5-7 meters above the surface of the water in all possible weather… going down on this particular setup, I had to sit on the platform with my feet through the gap, hold on to pieces of steel with my hands and lower myself through the gap until I felt the fist step of the pilot ladder… sounds lovely doesn't it??

Also because the ladder is hanging under the beam, it is not resting firmly against the ship's hull and basically moves all over the place.



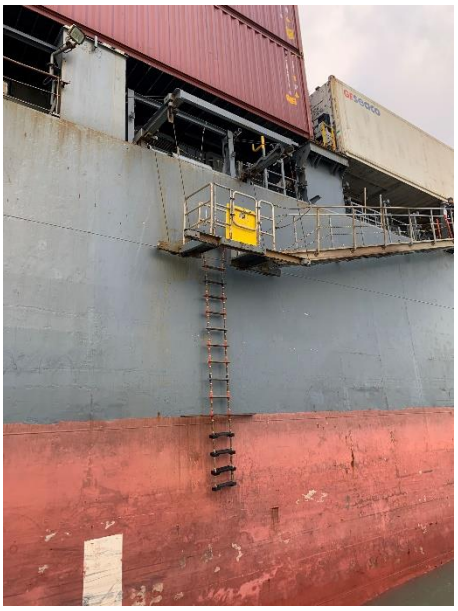
Non complaint embarkation platform

In the setup above it seems like the ladder is running through the trapdoor as required, but look closely: it's 2 pieces of ladder…one is hanging under the beam and the other 3 steps above the platform are between top railing and bottom beam. Again a very unsafe practice!!

Back to some rules:

IMO A.1045(27) was preceded by IMO A. 889(21) from 1999 until 2012 and states in 3.7: if a trapdoor is fitted in the lower platform to allow access from and to the pilot ladder, the aperture should not be less than 750mm x 750mm. in this case the platform should also be fenced as specified in par 3.5 (stanchions and handrails etc (ap)) **and the pilot ladder should extend above the lower platform to the height of the handrail.**

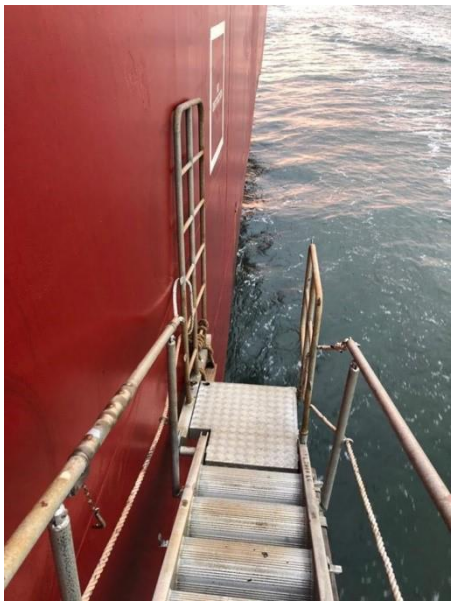
So even in 1999 they concluded that the ladder had to go through the gap to the height of the handrail but wait… it will get even worse when we go back a little bit further in time….



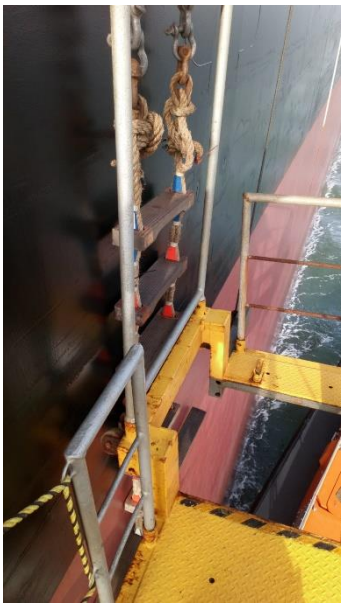
And another one…it's like a pest…

In 1979 IMO A.426 came into force and stated in rule number 9: if a trapdoor is fitted in the lower platform the aperture should be not less than 750mm x 750mm. in this case the after part of the lower platform should also be fenced as in paragraph 6 (stanchions and handrails (ap)) and **the pilot ladder should extend above the lower platform to the height of the handrail.**

So after having looked at the regulations that have been in force even since 1979, we can conclude that 41 years of regulations regarding embarkation platforms have not resulted yet in compliant pilot boarding arrangements. We can now also conclude that vessels referring to the 2012 grandfather clause basically are full of bullocks to put it as politely as I possibly can…. When most of us were still playing with our toy cars, the rules were simple already simple….



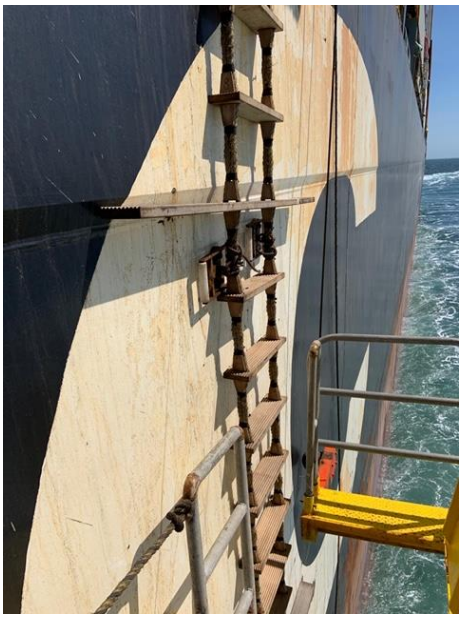
Some hybrid between combination and embarkation platform, non-compliant.



Ok, last one..(courtesy of k. vallance)

By reading all text above you might get the feeling it's a rather disastrous: dangerous pilot boarding arrangements, people dying on them, on bad photo after another, but luckily it is not all misery now!

One of the leading companies, shall not reveal their name, but main office in Geneva, and the vessels are black (lol) has taken serious steps to modify each vessel in their fleet that still has a non-compliant embarkation platform. This is a big task and will take some time.



A good one!! (courtesy of kees koppejan)

Here we see a modified embarkation platform. The beams are gone, and the ladder runs through the trapdoor, is secured 1,5 m above the platform. The ladder is running even up to the deck where it has been secured to strongpoints. This is not the typical 'trapdoor'system but seems more like a hybrid between standard combination and embarkation platform. Imho this is a lot safer than securing the ladder to the embarkation platform itself: the wires of the embarkation platform don't have to deal with strong forces should the pilot launch hit the ladder. Rules concerning embarkation

platforms are not clear on this matter. Nowhere it is mentioned how and where the ladder must be secured. This also is the case with a single pilot ladder; no rule is explaining how and where the ladder must be secured. Only in IMO A.1045 ch 7 , that deals with pilot ladder winch reels, it has been mentioned that the ladder should be secured to strongpoints on deck. In my opinion a serious omission in the regulations. Basically all rules concerning pilot boarding arrangements need a full and thorough revision without escape clauses. Rules need to be made simple and clear and not multi interpretable!

Compliant!(courtesy of #dangerous ladders)

The photo above again shows a compliant embarkation platform. The ladder in this case runs through the trapdoor to the height of the handrails. We also see that the ladder is firmly attached to the ship's hull. This is a safe way of boarding a vessel: when you reach the platform, all you must do is take a small step sideways, very nice to see. Manropes also have been rigged, but we know they are optional and to be rigged on request of the pilot.

More and more companies are following to ban the non-complaint embarkation platforms by changing them in correct ones, a big task lies ahead of most companies. Some companies (will not reveal their name) still show a stubborn behavior and refuse to change their systems. All they say is: class approved…. We know class approved doesn't mean compliant in accordance with IMO and SOLAS regulations.

Also a lot of pilot just keep climbing them without making remarks and of course as long as we keep climbing, they'll keep coming and captain's then wonder why some pilots complain: mr. pilot you are the first one to complain…

Luckily a lot of pilot associations are also publishing letters, memo's and articles concerning non-compliant embarkation platforms:

http://www.americanpilots.org/APA_Request%20-%20dangerous%20trapdoors.pdf

https://insurancemarinenews.com/insurance-marine-news/pilots-death-leads-to-demands-that-imo-crack-down-on-dangerous-ladders/

https://www.marine-pilots.com/article/15291

5. Epilogue

After reading this article I can only hope you are more aware about the do's and don't concerning combinations and embarkation platforms.

Basically this article was only about a few rules from SOLAS ch V reg 23: rule 3 in total and IMO A.1045(27) rule 3 in total. Of course all the rules I have mentioned in previous articles are applicable to these systems but as you saw the focus was on these few simple rules this time. As I have stated before, the rules must be revised to make them easier and more understandable, because everything that can be misinterpreted, will be..

I am looking forward to your remarks and feed back on this article, please do not hesitate to contact me, should you have any!

For now please stay safe and have a good watch!

Kind regards

Arie Palmers (reg. pilot)