

1000 LADDERS AROUND

Which one is a pilot ladder?

PART 2.

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Broken pilot ladder

1. Introduction

Dear reader,

On my previous article '1000 ways to secure a pilot ladder' I have received a lot of feedback, among them also a lot of questions regarding the pilot ladders we use, often on a daily basis.

In this article I would like to explain the basics of the pilot ladder...

The reason to write this, is trying to create more awareness on this matter for anyone who is involved in rigging, using, manufacturing, purchasing, maintaining, inspecting etc. etc. pilot ladders. After all we see very often that when/if a pilot rejects a pilot ladder, he is met with surprised, yet even angry reactions.

Reactions I receive on board of the ships I pilot are rarely positive:

- You're the first one to complain
- Received this ladder last week, was delivered on board
- Manufacturer provided a certificate
- I can't do anything about it, it's the way the ship has been designed
- Pilot boarding arrangement is class approved
- We always do it like this

And after telling the master my grieves, the atmosphere sometimes is not relaxed and cooperative anymore, which can cause problems, after all, pilot and bridge team have to work very close together during the voyage in pilot waters, and on the other hand, a lot of crew are very eager to do the job right...instant toolbox meetings. Sometimes names off manufacturers will be displayed, this is done only for educational and explanatory purposes, I will not favour or dislike any manufacturer in this article. Nothing said in this article will grant anyone the favour of not complying to the international rules as the have been laid down by international accepted bodies. With this article I hope the clear some fake assumptions around pilot ladders. For a lot of examples of non-compliant pilot ladders, please check Facebook: #dangerousladders.



Non-compliant pilot ladder

2. Ladder types

To get on or of a ship when it's not alongside in port, there are different options off course. The ones I would like to talk about are ladders... There are a lot of different manufacturers who produce ladders, good and bad ones.

Basically, they sell two types of ladders:

- Pilot ladders
- Embarkation ladders

It's important to be aware of the differences between these two types of ladders. They are constructed to be used for different purposes and therefore are also submitted to different regulations.

In this article we'll only discuss pilot ladders and they are subjected to the following regulations and requirements:

- | | |
|-----------------------------|--|
| - SOLAS Regulation V/23 | mandatory |
| - IMO Resolution A.1045(27) | recommendations (law in some countries) |
| - NEN ISO 799-1(2019) | voluntarily, seen as good practice for ships |

We'll get into the "looks" of a pilot ladder later on, this will help to determine whether a ladder you see in front of you is a pilot ladder or not...

If it is not a pilot ladder, it can't have a valid pilot ladder certificate and has not been tested to the requirements in the rules above.



Damaged rubber step

3. Requirements on steps

Time to get into some rules, we'll do this step by step, so why not start with the steps?

IMO A.1045 tells us the following:

1. If made of hardwood, they should be made in one piece, free of knots. (iso 799-1/2019 specifies this more: ash, oak, beech, teak and other hardwood having equivalent properties). **Wood shall not be treated with PAINT ,VARNISH**, or other coatings which either change the friction coefficient or hide the natural grain).
2. If made of other materials than hardwood: same specifications as wood, the Administration has to approve.....
3. The 4 lowest steps to be made of rubber or equivalent material
4. Non-slip surface
5. 400 mm between the ropes, 115 mm wide and 25 mm thick
6. Equally spaced not less than 310 mm or more than 350 mm.
7. Must be horizontal.

Seems simple, but this often goes wrong, loose steps, steps not horizontal, painted steps etc, all arguments to reject a ladder. Ship has to install a new one, and that will cost time. Time is money, so why don't get it right on the first attempt? The rules are simple, it's really not rocket science and still it goes wrong all the time.



Non-compliant: bottom 4 steps must be rubber

In the photo we see a ladder with 3 rubber steps instead of 4 as required. Therefore, this can never be a certified pilot ladder. We also see a spreader in this ladder. There are rules concerning spreaders as well of course: (IMO A.1045, 2.1.4) Pilot ladders with more than 5 steps should have a spreader not less than 1.8 m long....The lowest spreader should be the fifth step from the bottom of the ladder and the interval between any spreader step and the next should not exceed nine steps.

So, let's remember: 5th step from the bottom a spreader...



Non-compliant ladder: 5th step from the bottom is no spreader.

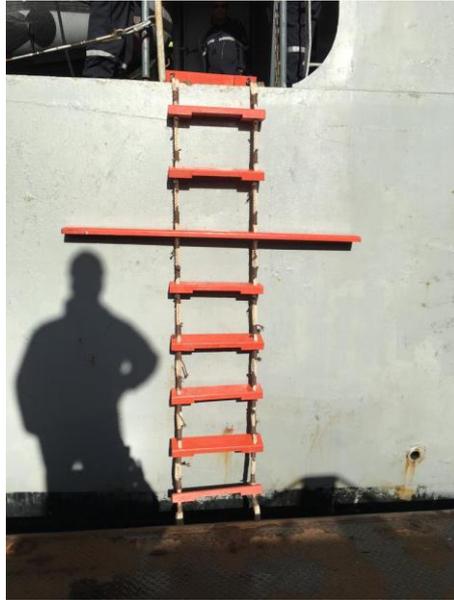
IMO a.1045 2.1.2.1: if made of hardwood, they should be made in one piece, free of knots.

Well that makes sense, every step on the ladder has to be made out of one piece, self-made ideas on steps or spreaders are not allowed and make the ladder non-compliant and it cannot be used anymore..



Modified spreader..non-compliant, loose steps aswell

Here we see a lovely modified spreader made out of 5 parts, nice try...no cigar. As we already know a step can take a weight of 880 kilos and this modification can never have passed any test. Whenever you come across this, tell them it's not okay and have them rig another ladder. According to recommendations, every ship should carry a spare pilot ladder



Painted wood...

Indeed, a lovely colour...as we know steps shall not be painted or varnished, again a no go this ladder!



What were they thinking..

This brand of ladders you come across quite often, looks lovely and bright. We have already seen ladders shall not be painted or varnished, which means this is absolutely a non-compliant ladder, contacted the manufacturer and they promised to stop the yellow paint job.

In the previous iso799 nothing was mentioned about varnish on ladders, in the new iso799-1 it is banned. You can all imagine what happens when varnish gets wet.. it gets slippery.. We can see on the pilot ladder poster the remark: steps shall not be painted slippery or dirty...Well there you go!!!IMO a. 1045 states in 2.1.2.4: they should have an efficient non slip surface...varnish and non-slip don't go together really well.

Based on iso you can't reject (voluntarily remember), but on the 'slippery'-word in the poster it could be a no go., as well as the rules in IMO A.1045 state..

Off course when the ladder is constructed and in use, it has to be possible to identify every single ladder. It's a bit what Bob Ross always said: Every tree needs a friend..

The same goes for ladders: every ladder needs a certificate. To identify each ladder, SOLAS regulation 23, 2.1 states: all pilot ladders used for transfer shall be clearly identified with tags or other permanent marking so as to enable identification of each appliance etc etc...

ISO 799-1 states the following:

The bottom of the top step and the bottom of the lowest spreader step of the ladder shall be marked with:

- The name and address of the manufacturer
- The manufacturer's model designation
- Iso799-1 and solas
- The year of assembly or reassembly of the ladder identification of the approved maritime safety administration, along with any approval indications and
- Where used, identification of an approved organization acting on behalf of the maritime safety administration

The bottom of each replacement step shall be marked with:

- Name and address of manufacturer
- Manufacturer's model designation the words 'REPLACEMENT STEP'
- Iso 799-1 and solas
- The year of production of the step
- Identification of the approved maritime safety administration, along with any approval indications required by the administration and
- Where used, identification of an approved organization acting on behalf of the maritime safety administration.



Correct tag



invalid tag of a ladder with only 2 rubber steps
(different iso number..so no pilot ladder)



This particular tag is an interesting one, We see iso 799, which is the correct iso for a pilot ladder, but when we look closer we see 'embarkation ladder' on the tag. This basically means the tag is wrong, ladder cannot have been tested and approved to specs as required for a pilot ladder.

Embarkation ladders, as I have told before, have a different iso number, different specifications than a pilot ladder and will be used for a different purpose. This ladder is what we could call a fake, or at least big mistakes have been made in production and certifying this nice try.

Reject this and ask for a proper one!

With these tags, we'll later on have a look at certificates.

4. Side ropes

To produce a ladder, we need side ropes to assemble the lot. IMO A.1045:

The side ropes of the pilot ladder should consist out of two uncovered ropes not less than 18mm in diameter on each side and should be continuous, with no joints and have a breaking strength of at least 24kN per side rope. The two side ropes should each consist of one continuous length of rope, the midpoint half-length being located on a thimble large enough to accommodate at least two passes of side rope.

That's all, nothing more, nothing less.

It is allowed according to iso 799-1 to use another material to make side ropes, but in that case they must have the same specifications as the manila ropes.

Each side rope has to be made out of one continuous length of rope on every side and at the top end thimble eyes must be installed to secure the ladder to strongpoints on deck. The ropes must be without joints knots or splices except at the very top and the very bottom.

At the bottom the ropes must be short but minimal 5cm. When the ropes are longer, a loop can be made on which the pilot boat could get caught, with fatal results.



Here we see the dangers when the side ropes are too long and are connected together under the pilot ladder. This is non-compliant and dangerous and therefore a very big DON'T!!!

This way they have installed the retrieval line wrong. The retrieval line has to be installed at or above the bottom spreader and has to lead forward. When rigged correct there will be a safe approach of the pilot launch. All other ways of installing are dangerous: the pilot launch can get caught in this retrieval line or in the loop under the ladder. Besides that, a retrieval line is not compulsory, but when installed....please do it right!

Iso 799(2004) and 799-1/2019 explain how the steps must be connected to the side ropes. There have to be holes in the steps where the side ropes will pass through. Alternative means, like slots, are only allowed to put replacement steps in place.

Concerning replacement steps IMO a. 1045 states in 2.1.3: no pilot ladder shall have more than 2 replacement steps which are secured in place by a method different from that used in the original construction of the ladder, and any steps so secured should be replaced as soon as reasonably practicable etc etc..



There is a whole lot wrong with this ladder, but let's focus on the replacement steps here. You can recognise them by looking at each step individually.. we see 3 steps with screws in them, which means 3 replacement steps on this small ladder. Besides that, this old ladder had no 4 rubber steps, no spreader and is "secured" absolutely the wrong way. This vessel comes regularly in our region and is always bound for Ghent.



Every manufacturer has to deliver repair steps and spreaders together with every sold pilot ladder. On this picture we see different repair steps, as the will be delivered with the ladder.

5. Securing steps to side ropes

There are basically 2 methods of assembling the steps to the ladder:

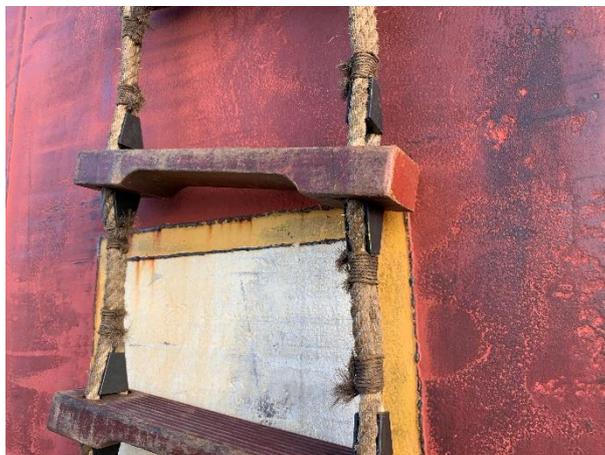
1. Whipping
2. Clamping

Both methods have pro and cons, which we will discuss below.

Whipping is the oldest method of assembling the steps to the side ropes.



In the photo above, we find the whipping method and right away we see the danger of this method, when no proper maintenance has been given. The whipping ropes are, as the side ropes, natural fibre and have to be inspected and maintained on a regular base. Whippings can come loose as you can see and then the steps are not hold in place anymore. This will lead to loose and not horizontal steps. An accidental is waiting there. The ladder is also non-compliant because the chock displayed in the photo is too short, get into that later.



Loose steps due to worn out whippings

Clamping is a method that has been invented by one of the bigger ladder manufacturers back in 1986. They have also patented the system. The danger in this system is that, when the clamps have not been installed correctly, they will 'choke' the side ropes, and that can result into breaking of the sideropes, because the internal structure of these ropes will be damaged. In the beginning many people were very reluctant about this method, but now more and more manufacturers use them. In the next 2 photos I will show a good and a bad and dangerous way of clamping.



This is a proper clamping method: clamp is around the rope, but doesn't touch itself, which obviously means the rope will not be choked.



Here we see the clamps are too tight and the result is visible: ropes gets stuck in between the two ends of the clamps...rope comes apart and the ladder could break when you use it.

We have already mentioned the word “chock”. Chocks are used to keep each step stable and free from tumbling when you step on it. In ISO799 there’s a formula to calculate how high each chock maximal can be: 0,7 times the width of a step (iso799-1/2019 5.7) and imo a.1045 rule 2.1.2.5 tells us a step has to have a minimum width of 115 mm (the should be no less than 400mm between the side ropes, 115 mm wide and 25 mm in depth etc etc).

Conclusion: at 115mm wide, the height of a chock can maximal be $0,7 \times 115 = 80,5\text{mm}$. Funny enough there is no minimum height.....

Rather ridiculous we have to get into this matter this deep, but it’s just to explain what can happen when you encounter an illegal ladder with too small chocks..



*Chocks too low, step might tumble, unstable
Nc ladder*



*correct chocks, nc securing (spreader)
And nc tripping line*

6. Pilot ladder certificates

In a previous part of this paper we have been talking about identification of pilot ladders via tags or permanent marking on the ladder. Every ladder comes with a certificate and in this section I will show you some certificates and try to do some explanation.

First back to the rule book:

SOLAS 2.3: a pilot ladder shall be certified by the manufacturer as complying with this regulation or with an international standard acceptable to the organisation (iso799:2004 red.). Ladders shall be inspected in accordance with the regulations 1/6,7 and 8 (survey as described in SOLAS).

IMO a. 1045 2: a pilot ladder should be certified by the manufacturer as complying with this section or with the requirements of an international standard acceptable to the organisation (iso 799:2004)

We see that both SOLAS and IMO refer to iso799 for certification. When we look at the foreword of iso799 we can learn that this a voluntarily standard. Isn't it strange that mandatory requirements refer to a voluntarily standard for execution of certification??? Feels like an omission.

Must say, iso states that it is intended to supplement existing IMO requirements for pilot ladders. ISO can be used for independent acceptance of pilot ladders complying with SOLAS, certification must be issued from a signatory state of solas.

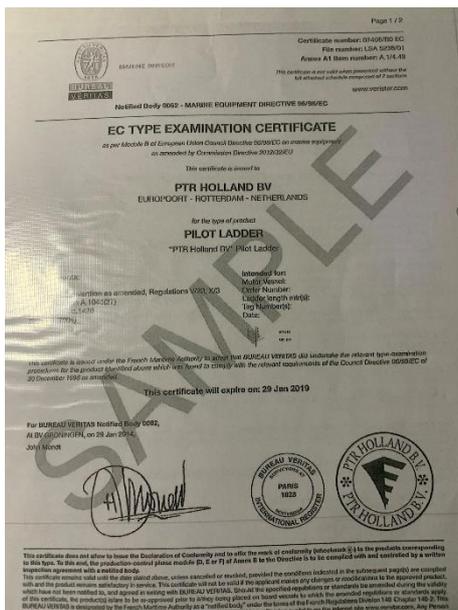
Basically, there is no fixed certificate format and we can see that in the wide variety of lay outs in certificates around, they come in every size and shape.. from professional looking to something a 6 year old can produce.

We have to be pragmatic in this one and take a look at the tags on the ladder to get this clear. Everything on the tag has to be in the certificate as well off course.

- Name of manufacturer
- Certifying body
- Solas/imo/med iso approved or not
- Production date
- Expiry date (30 months strength test in case of iso approval)
- Unique identification number, off course same number as displayed on the ladder
- Ship has to write the date when the ladder was taken in use.
- Also in English
- Class agency

All repairs to the ladder have to be logged. What more simple way could there be than to add that to the certificate, keeps all the paperwork in the same place.

I'll show some examples of certificates I came across on board of vessels I have piloted in the continuation of this article



This certificate was shown to me on a vessel where I had doubts on the originality of the pilot ladder. Big marking across: SAMPLE. No date, no number no nothing. Captain said this was all he had. This means a fake certificate.. The ladder was also a fake rebuilt ladder. Surveying bodies and flag state inspectors will off course demand a replacement of the pilot boarding arrangement.

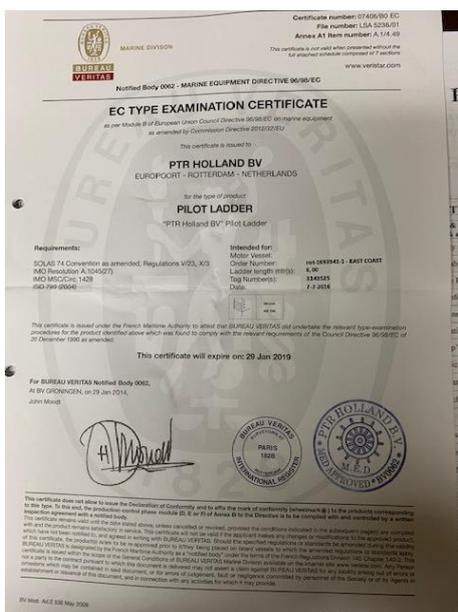


On this certificate we find no dates, no official stamps, iso799 and on the bottom iso9001.....makes one wonder..

We have to be careful, because more and more cheap low quality ladders start flooding the market. Are they certified? Or just a nice homemade certificate with stamps on it??



In 2017 AMSA came across this counterfeit inspection certificate. They contacted the manufacturer of the pilot ladder and luckily this manufacturer was fully certified. It was just the inspection certificate that was a fraud. You can look this up on the AMSA website.



On this certificate which I found on a vessel with a non-compliant embarkation platform, we see all the approvals and stamps. We can also find that the certificate for this particular ladder has expired on 29 of January 2020..... If iso799 approved this should mean the ladder has to undergo a 30 month strength test..

7. Actions to be taken with a non-pilot ladder

Whenever you come across a ladder that is no pilot ladder, it will be dangerous for you to use. Refuse to use and then ask them to replace it by a proper one. For every vessel it is compulsory to have a spare ladder ready for direct use. If they do have one, you can still report them to psc, that's entirely up to you. In my opinion, when the problem has been solved, the case is closed. All they need to do is order a new ladder in port and maybe put the old ladder in the messroom, hang it to the wall and put cd's or plants on it.

When they don't have a spare one, there's a problem...violation of the rules. Every pilot all around the world has a right to refuse a dangerous pilot ladder, but from my own experience I can tell you a lot of pressure will be put on you from outside, urging you to use the ladder anyway. It can be difficult to reject. But after all it's your life on the line when things go wrong and not theirs. Your loved ones want to see you come home vertical and not horizontal, and like I have stated before, insurance companies can deny liability when you used a non-compliant pba: you did on your own behalf and therefore the risk is totally yours.

Again, the best option you have is reject and report.....



I will not even comment on this invention, but I'll just admire this one in silence and bow my head towards so much neglect of pilot safety

8. Epilogue

After reading this second article, I hope I have cleared up some things for you, dear reader. Feel free to comment on this article, if you have improvements on this, please do not hesitate to let me know.

Feel free to share this article, sharing is caring.

Let's make the pilot ladder world a safer one!

Thanks very much for your time and attention.

Stay safe and vertical

Kind regards,

Arie Palmers (reg.pilot)

