



AIMPA

(ALL INDIA MARITIME PILOTS' ASSOCIATION)

GUIDANCE TO SHIPS FOR SAFE RIGGING OF PILOT LADDERS





Guidance to Ships for the Safe Rigging of Pilot Ladders

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Guidance to Ships for the Safe Rigging of Pilot Ladders

Introduction

Ships that require the services of a pilot need to ensure that the Pilot Transfer Arrangements (PTA) they provide are in compliance with the requirements prescribed under SOLAS regulation V/23 and IMO Resolution A.1045(27), [as amended by IMO Resolution A.1108(29)]. Ships failing to do so may be considered to be in serious breach of their responsibility by the concerned authorities. As a result, ships may suffer delays, penalties may be imposed by the Authorities and/or they may be subjected to action via Port State Control (PSC).

Ships should be prepared to confirm that their PTA are in compliance with the above regulations, if asked on the radio by the Pilot / VTS.

It is common for ships to be provided with “bridge posters” approved by the IMO which show, by diagrams, how to rig PTA in accordance with the requirements. There may be additional guidance in the shipboard training manuals on rigging of safe PTA. Despite this it is noticed by many pilots in India that far too many ships provide non-compliant PTA. It shows that there are shortcomings in the existing guidance provided to ships.

Therefore, in addition to the guidance already provided on board your ship, you should pay attention to the guidance in this document. Because it provides more detailed information and advice on certain specific aspects of pilot transfer arrangements to better ensure that they will be in compliance with the requirements.

The more detailed guidance is as follows.

A) Relevant Parts of the SOLAS Regulations and International Standards

1. SOLAS REGULATIONS

SOLAS Regulation V/23

“2.3 A pilot ladder shall be certified by the manufacturer as complying with this regulation or with an international standard acceptable to the Organization” (* Refers to the publication ISO: 799-1(2019) – Ships and Marine Technology – Pilot Ladders) As a result, pilot ladders must have a valid certificate, which must be on board at all times.*

“2.4 All pilot ladders used for pilot transfer shall be clearly identified with tags or other permanent marking so as to enable identification of each appliance for the purpose of survey, inspection and record keeping. A record shall be kept on the ship as to the date the identified ladder is placed into service and any repairs effected.” This means that records of maintenance, repair and inspections of pilot ladders shall be available for examination by authorities. AIMPA recommends that pilot ladders be **inspected before AND after every use**, besides on a regular basis as documented in the ship’s SMS.

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“3.3.4....;the securing strong point, shackles and securing ropes shall be at least as strong as the side ropes.” Note: As ladders are to meet the requirements of ISO:799-1(2019) standard which specifies that the side ropes consist of rope of (MBL) minimum breaking load 24kN force, (approx. 2.5T), AIMPA recommends these strong points and shackles be of a SWL of at least 3T. And securing ropes are of a MBL not less than 24kN force.

SOLAS Regulation I/12(a)(vi) *“The Passenger Ship Safety Certificate, the Cargo Ship Safety Equipment Certificate, the Cargo Ship Safety Radio Certificate and the Cargo Ship Safety Certificate....shall be supplemented by a **Record of Equipment**;*” All items that together form a ship’s pilot transfer arrangements, including, obviously the pilot ladder and its associated equipment can be considered included in this “Record of Equipment” and required to be maintained in good condition.

2. ISO STANDARD [ISO: 799-1: 2019(E)]

Pilot ladders over 30 months old must have a certificate of strength testing. Pilot ladders that fail an inspection, or that are over 30 months old and have no strength testing certificate, should never be used.

B) Securing of Ladders – Unacceptable Methods

A few examples of bad practices that occur around the world are shown below in Fig-1. **All are unacceptable.** However, the “rolling hitch” method described in this guidance is considered as “acceptable practice” by pilots across the world.

Fig-1

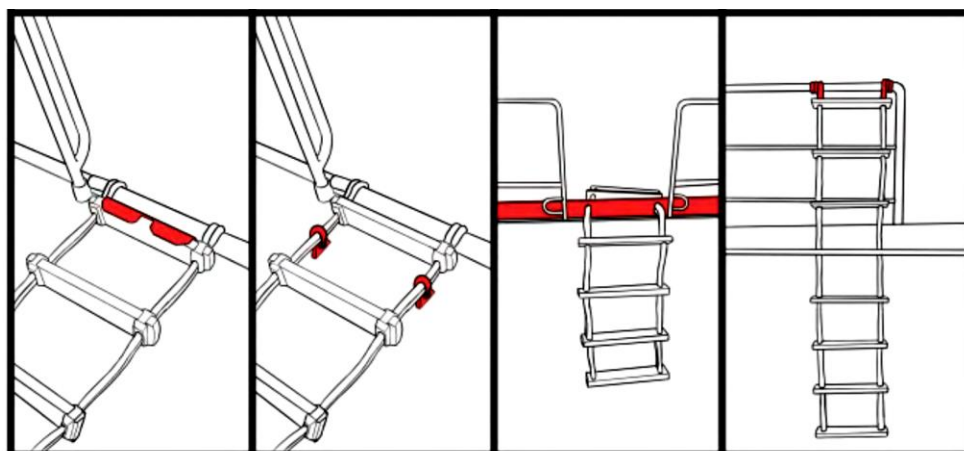
Ladder Secured Using

Bracket (tongue)

Shackles

Spreader

Railings

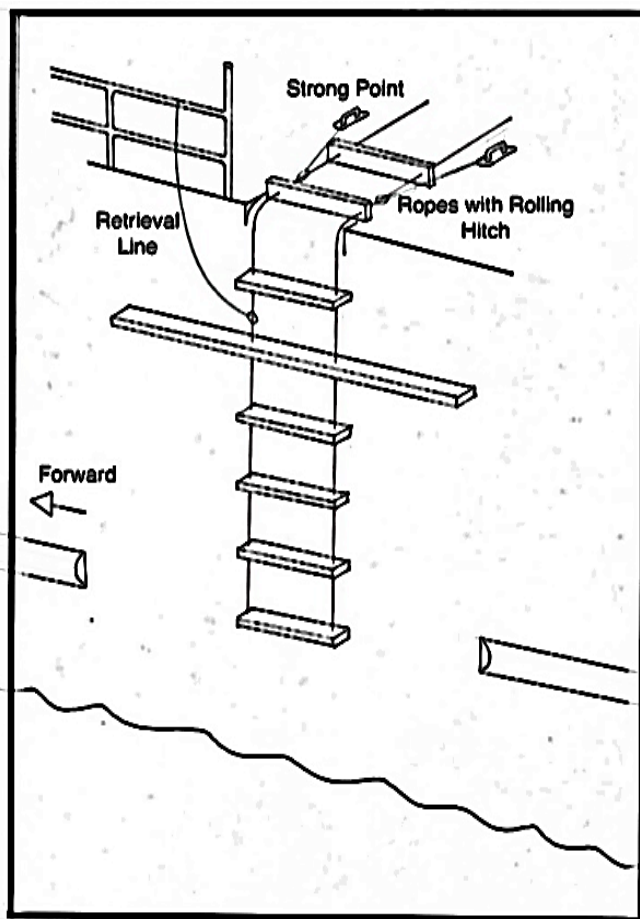


ALL OF THE ABOVE ARE NOT ALLOWED

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C) Securing of Ladders - Acceptable Method

The ladder must be secured only to the **designated** strong points. The most acceptable practice, as described below, shall be adopted. This method, of securing a ladder at an intermediate length, may be referred to as the “**Rolling Hitch Method**”. See Fig-2 to Fig-5 below



The rolling hitch method uses a DEDICATED pair of securing ropes taken from a certified coil of rope. One end is secured to the designated strong point for securing the ladder. The other end is secured to the ladder by applying a rolling hitch around the side ropes of the ladder between a suitable pair of ladder steps. It must be ensured that after securing the rope length is equal to prevent the ladder steps from become sloping (slanted). After applying the rolling hitch, the arrangement must be tested by stepping firmly several times on a step which is outboard of the rolling hitch. This is to check that the rolling hitch turns are tight and are gripping the side ropes. The securing ropes shall be of a minimum breaking load not less than 24kN force (2.5 T approx.) These securing ropes shall be used only for securing the pilot ladder and no other purpose.

FIG-2

OVER ALL VIEW OF A PILOT LADDER SECURED USING THE “ROLLING HITCH METHOD”

HOW TO APPLY A ROLLING HITCH KNOT – STEP BY STEP

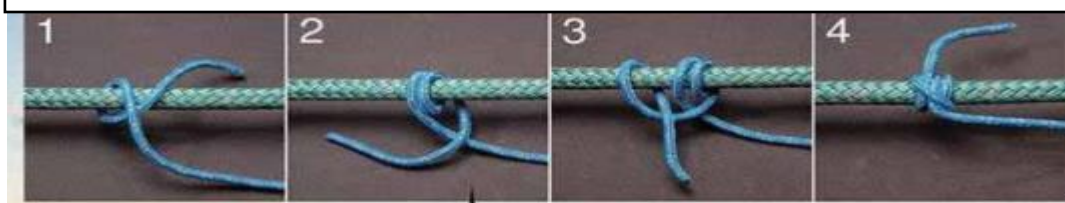
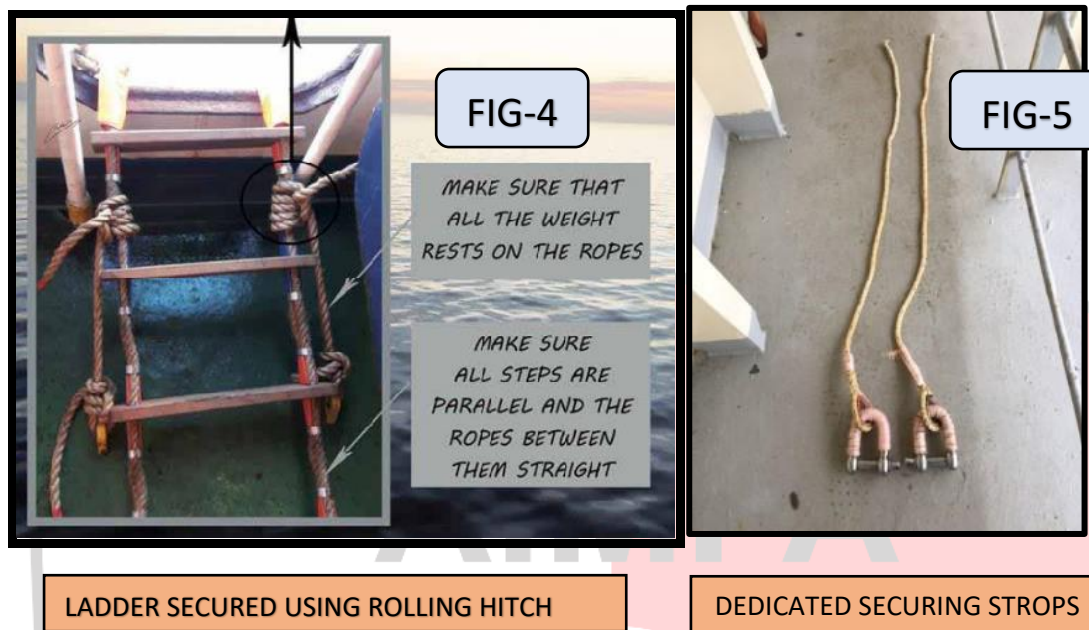


FIG-3

← Ship side

Deck securing point →

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1. It is strongly recommended that the securing ropes for the rolling hitch method be in the form of a pair of dedicated “strops” (Fig-5 above). That is, one end is spliced over a thimble and the other end is seized and whipped to prevent it from fraying. The thimble end can then be simply shackled on to the designated strong points and the free end applied on the ladder side ropes as a rolling hitch. The length of the strops should be sufficient for the purpose. After use, these strops should be stowed away from weather and chemical damage, same as done for the pilot ladder.

2. If such strops are not presently available on board, then two pieces of good rope of CERTIFIED minimum breaking load not less than 24kN force (about 2.5T) may be used to secure the ladder at an “intermediate” length. Later, the ship should make (or arrange for supply), securing strops as shown. With thimble eyes and a certified shackle attached to each thimble. There is no need for the securing ropes to be manufactured with manila. Suitable **non-slip** manmade cordage could be used.

3. In every case it is recommended that the securing ropes, whether plain or made into strops, are included in the ship’s planned maintenance system (PMS) same as for the other items forming part of the pilot transfer arrangements of the ship. Therefore, the securing ropes/strops shall be identifiable against their certificate. For this, it is recommended the rope used should have an **identifying strand woven into it**. And the **shackles should have markings to identify** against their test certificates.

D) Specific Guidance on Avoiding the Use of Shackles for Securing

It is our experience that most ships (perhaps from the time they were built) are fitted with dedicated securing points that are welded on deck close to the ship side so that securing is done using shackles (Fig-6). Using shackles across the side ropes thus became a very widespread practice. To now start securing the ladder with ropes and a rolling hitch gives rise to difficulties when using these securing points (Fig-7), **but it should be possible.**



Fig-6



Fig-7



Fig-8

So, to eliminate the practice of securing ladders using shackles applied across their side ropes, it is necessary that ships comply with the specific, detailed guidance as given below:

1) As an immediate measure:

a) Ships that do not have a pair of sufficiently strong securing points welded at some distance more than, say, 0.75 m inboard of the ship side, should use their existing securing points (see Fig-7) and apply the rolling hitch method described earlier in item-C) above. It is a bit difficult, but the result is acceptable. First, pay out the ladder overside to the desired level above the sea surface. Second, use a couple of pieces of certified securing rope, in good condition, and apply the rolling hitch on the side ropes of the ladder between a suitable pair of steps, tightening all slack in the hitch. Third, pass the free end of the securing ropes through the eye of the securing points and make a round turn. Fourth, equalise the securing ropes adjusting the slack and apply a hitch to finish securing to the point. Fifth, check the ladder steps rest horizontal overside. Sixth, apply some firm pressure by foot a few times to the outboard steps to test the securing.

b) Those ships which already have a pair of sufficiently strong securing points welded at some distance (more than 0.75 m inboard of the ship side), may use those them directly for securing with ropes as described in D-1(a) above and should finish up as shown in Fig-4.

2) As a measure to be taken later on but soonest possible:

Ships should arrange to weld a pair of securing points more than 0.75 m inboard, at the earliest. And then start securing the ladder as described in D-1(a) above. It should look like as shown in Fig-4. Even better would be to also obtain (or make on board) a pair of dedicated securing strops (see Fig-5) and secure the ladder as in (Fig-8).



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E) Unsafe Practice - Rigging Ladders Too Low

It is very important that the lower step of the ladder is at the requested height above the sea surface. Because it is so important, the dangers and some bad practices in this regard are explained in great detail.

1. The Dangers

Failing to take due care to have the ladder step at the height required by the pilot/VTS can lead to the ladder snagging the deck fittings on the boat or getting pinned (crushed) between the boat and shipside. In sea conditions, this can cause the huge weight of the boat to jerk and pull down heavily on the ladder. The ladder can break or get badly damaged. Or worse, the pilot could fall down by this jerk if he is already on the ladder at the time. This can typically happen when disembarking. **Damage to the ladder by such snagging or crushing can be severe and render it instantly unusable.**

The pilot or the pilot boat handler may judge it too risky and can refuse to board or disembark until it is rigged correctly. If the ladder gets damaged due to snagging or crushing, it must be replaced before the pilot can board. Adjusting the ladder length or replacing the ladder takes time. Vessels may not have time if they are already at the pilot station. Therefore, it is **best to get it right the first time.**

2. Never Use Retrieval Lines (Tripping Lines) to Shorten the Ladder

If the lower step is observed as too low after the pilot boat approaches, ship's crew shall not use the recovery line ("tripping line") to temporarily raise the height of the ladder above the sea surface. Because that extra length pulled up by retrieval line and forming a bight (loop) - is dangerous for the pilot to step on while embarking/disembarking. Therefore, recovery lines shall be used only for the purpose of recovering a pilot ladder on board after use. In any case, if fitted, recovery lines shall lead forward with all unnecessary slack picked up.

3. Sufficient Crew to Be in Attendance to Adjust the Length of the Ladder.

At the actual time and place of boarding the wind and sea conditions may have changed or may not be as per earlier estimates. So the pilot may require the height of the lower step to be adjusted at the last moment. Therefore, have sufficient crew in attendance during transfer to quickly carry out such adjustment. Else the transfer may have to be aborted and the ship may have to turn around and seek permission to approach again after adjusting the ladder in open waters.

4. Length of Ladder Should Be Checked Using a Proper Method

Checking the height of the ladder above the sea surface should not be only by visual estimation or some approximation. Instead, use shall be made of the length markings that are made on the ladder by its manufacturer. Or of a weighted measuring tape/rope. And properly calculating the height above the sea surface of the point on the ship after which the ladder goes over the side. Then. From this height, subtract the height above the sea surface as desired by the pilot/VTS. The result will be the length of the ladder to be paid out over the side.

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In the case of a combination ladder using a trap-door (embarkation platform) arrangement - the height of the point from which the ladder is suspended for a given angle of inclination must be calculated after allowing for the length of the suspended ladder and the desired height of the lower step above the sea surface.

F) Other Common Issues

1. Plain Ladder or a Combination?

As a rule of thumb: a person on the ladder should never be able to fall more than 9 meters to the water. If that is the case, rig a combination ladder.

2. Ladder Reels

For ships with a pilot ladder reel/winch there are additional measures that need to be observed.

- a) The pilot ladder must be secured to the deck using the rolling hitch method described above. **The winch reel shall not take the weight of the ladder during pilot transfer.**
- b) The winch reel should be secured from accidentally moving by a mechanical fastening or via a dedicated reel bolt.
- c) For a powered reel, the hoist controls shall be mechanically locked to prevent accidental use. If no lock is present then the air supply / power supply shall be isolated from the reel.

3. Combination Ladders

Rig as per requirements of SOLAS regulation V/23 & IMO Resolution A 1045(27) (as amended)

3.1 Pay Special Attention To:

- a) Secure the lower end of the accommodation ladder/gangway to the ship side.
- b) Both the side ropes of the ladder must be secured to the shipside to prevent it from twisting.
- c) The lower platform shall not overlap the ladder. It shall be close to the ladder - between 0.10 to 0.20 meters from the ladder.
- d) Ensure the lower platform is horizontal and hinges locked in position.
- e) Ensure that all required stanchions are in place on the lower platform. And a properly tight safety rope is rigged on these stanchions.

3.2 Trapdoor Arrangement

SOLAS regulation V/23.3.3.2.1 states *“In case of a combination arrangement using an accommodation ladder with a trapdoor in the bottom platform (i.e. embarkation platform), the pilot ladder and man ropes shall be rigged through the trapdoor extending above the platform to the height of the handrail.”*

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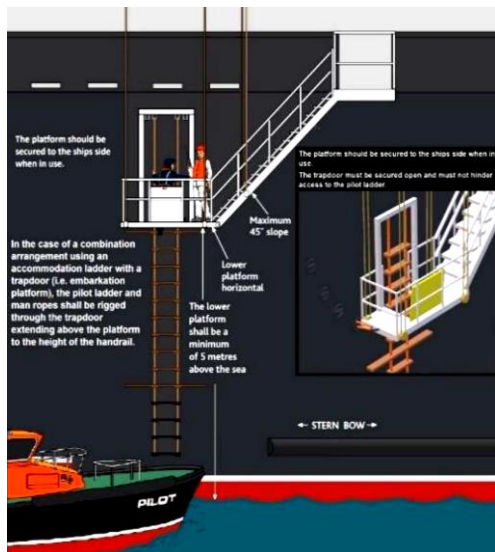


Fig-9 (adjacent) shows an example of a compliant trapdoor arrangement. The ladder extends up through and beyond the embarkation platform till the height of the handrail. And the ladder's securing ropes extend to securing points on a cross bar located well above the handrails.

Some ships whose trapdoor (embarkation platform) arrangement does not comply with the above requirement claim exemption by citing SOLAS regulation V/23.1.1.3 – the so called “grandfather” clause. However, a grandfather clause cannot be an excuse for not providing a safe boarding arrangement. Such ships will be considered to have

provided non-compliant pilot transfer arrangements. Port managements in India will support pilots who refuse to use such arrangements.

G) Low Freeboard Transfers



Fig-10



Fig-11

Ships whose freeboard is low as compared to the height of the pilot boat's deck pose a special risk to pilots trying to transfer. Low freeboard ships, being smaller than most, are more prone to large motions in waves. Pilots thus have to judge the motion of the ship as well as the pilot boat. This is tricky. Therefore, on such ships it is very important that compliant handholds at the deck access are fitted: i.e. diameter 32 mm or more, extending at least 1.2 meters above the deck or the top of the bulwark, spaced not less than 0.7 m and not more than 0.8 m apart. Rigidly secured at base level and also at a higher point (recommend near the top of the rail or top of bulwark, as applicable). And, ships should rig manropes (28 to 32mm dia manila rope) through the top of these handholds. Attending crew to put these ready manropes overside only if requested by the pilot.

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When approaching, ships should take into account that the pilot may take a much longer time to board or disembark as he has to judge the safe moment to do so. If the conditions are rough, transfer may be cancelled by the pilot. Ships should consider this in their approach passage plan.

The dangers of transfer on/off low freeboard ships is even greater when the deck of the ship is lower than the deck of the pilot boat. Special measures will need to be worked out with the port.

Fig-10 shows a non-compliant PTA. There are no proper handholds provided as required by the regulations. The pilot is forced to hold the ladder with his (left) hand at waist level. Which is at about the level of his centre of gravity. He will find it hard to remain balanced at the critical moment of transfer to/from the boat.

Fig-11 shows compliant handholds provided (yellow) secured at a higher point also (red) and manropes (light green) rigged. As shown, the pilot can now hold on to the manrope with his hand above shoulder height, well above his centre of gravity, allowing good balance at all times during the transfer. Manropes provide a better handgrip. Manropes also allow the supporting force, passing through the pilot's arm, to continuously align itself in the optimal direction throughout the ship's or boat's motion in the seaway. This greatly eases the strain on the pilot's arm and wrist reducing chances of injury to them.

Summary & Conclusion:

1. Prior to deploying the ladder check the condition of side ropes, chocks and steps. If in doubt about the ladder DO NOT USE IT!
2. Obtain the rigging side and required height above the waterline from VTS/Pilot Station.
3. Rigging and securing of the ladder MUST be supervised by a 'responsible Officer'. Pay special attention that the height of the lower most step is at the required height. And, in the case of a combination arrangement, pay special attention to the securing of the pilot ladder and lower platform of the slant ladder, to the shipside.
4. Secure the ladder by dedicated securing ropes using a rolling hitch which is properly gripping around the side ropes. Ensure after securing that the securing ropes are of equal length.
5. If the ladder is on a reel ensure ALL precautions listed above are taken.
6. If a recovery line (tripping line) is required it MUST lead forward and be tied not lower than the lowest spreader of the ladder.
7. At low freeboards, ensure that handholds complying with the regulations are provided. Keep manropes ready for immediate use.

Thank you for your attention.

As can be seen from all of the above, a lot of the pilot's safety is in your hands!

Disclaimer: This document supplements the applicable SOLAS Regulations and IMO Resolutions which shall always prevail.



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Acknowledgements: AIMPA acknowledges with thanks the base of public knowledge on pilot ladder safety created by the following persons / sources and which was used in compiling these guidelines.

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Capt. Arie Palmers – Pilot. Prolific contributor to the on-line pilot ladder safety campaign “Dangerous Ladders”

Capt. Troy Evans – Pilot. For his article “Strength of Pilot Ladders and Intermediate Securing of Pilot Ladders” published Nov 2020 (Rev-1) in the journal of the NZMPA

MAIB Investigation Report No.21/2017** published October 2017 (Very Serious Marine Casualty – pilot transfer between the Sunmi and Patrol) (** Note by AIMPA: The report concerns a transfer involving a vessel with a ladder with a “climb” of less than 1.5 m i.e. a transfer at “Low Freeboard”)

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