SUB-COMMITTEE ON SAFETY OF NAVIGATION
55th Session
Agenda item 15

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Improved Safety of Pilot Transfer Arrangements

Draft Proposed Revisions of SOLAS V/23 and IMO Resolution A.889(21)

Submitted by the United States
as Coordinator of the Correspondence Group on Pilot Transfer Arrangements

SUMMARY

Executive summary:	Despite ever increasing safety efforts, pilots continue to lose their lives or suffer serious injuries in the course of transferring to ships from pilot launches and cutters, using ladders. It is therefore necessary to consider amendments to the associated IMO instruments. This document reports on the work of the NAV Correspondence Group on pilot transfer arrangements, in particular proposed draft amendments to SOLAS V/23 and Res. A.889(21).
Strategic direction:	5.2
High-level action:	5.2.4
Planned output:	5.2.4.2
Action to be taken:	Paragraph 8
Related documents:	SOLAS V/23, Resolution A.889(21), MSC 82/21/17, MSC 74/24, MSC 74/23/6, DE52/20/1, DE52/21 paragraphs 20.19-20.20

Introduction

1. At its 82nd session, the Maritime Safety Committee considered document MSC 82/21/17 in which Brazil, the United States and IMPA expressed concern that pilots continue to lose their lives or suffer serious injury in the course of transferring to ships from pilot launches and cutters using ladders and proposed that amendments to SOLAS regulation V/23 and resolution A.889(21) on pilot transfer arrangements should be developed. As a result, the Committee included in the work programmes of NAV and DE a high priority item on "Improved safety of pilot transfer arrangements" and assigned NAV as co-ordinator.

2. At its 54th session, NAV established this Correspondence Group on pilot transfer arrangements under the coordination of the United States. The Group was directed to consider document MSC 82/21/17 outlining the proposed amendments to the existing regulation V/23 and resolution A.889(21) as well as any other relevant information and

develop draft texts and a final report for consideration and review by NAV 55 as well as a comprehensive interim report to DE 52 to progress the matter.

3. Representatives of the following Contracting Governments participated in the correspondence group:
AUSTRALIA
BELGIUM
BRAZIL
CANADA
FRANCE
ITALY
NORWAY
PANAMA
SWEDEN
UNITED KINGDOM
UNITED STATES

4. The following intergovernmental and non-governmental organizations were represented:
INTERNATIONAL TRANSPORT WORKERS' FEDERATION (ITF)
INTERNATIONAL MARITIME PILOTS' ASSOCIATION (IMPA)
INTERNATIONAL ASSOCIATION OF INDEPENDENT TANKERS OWNERS (INTERTANKO)

Proposed Revisions to SOLAS regulation V/23 and Resolution A.889(21)

5. The sponsors of MSC 82/21/17 (Brazil, USA, and IMPA) initially proposed revisions to SOLAS regulation V/23 and Resolution A.889(21). Those proposed revisions have been considered by the Correspondence Group along with other relevant information. The group provided an interim report to DE as DE52/20/1. The relevant output from DE is found in DE52/21 paragraphs 20.19 and 20.20. The group subsequently considered the output of DE52 and, following further deliberations, the group proposes the revised text found at Annexes 1 and 2 to this document. The proposed changes to V/23 and A.889(21) are shown with new text underlined and strikeouts for deleted text. In some cases, new text was proposed to the group and then rejected. This text is indicated by both underline and strikeout. This format should serve to capture the deliberations and intent of the group for the benefit of the Sub-Committee.

6. Several areas of the group's deliberations bear special note:

a. There was a proposal for a phase-in period for the revision to SOLAS V/23 and that it should apply differently based on ship size and/or type. There was little support for this.

b. The prohibition against mechanical pilot hoists was opposed by one member of the group. However, there was otherwise broad support within the group for removing this equipment from service. One proposal suggested that an acceptable compromise would be to have a realistic phase-in timetable for this requirement, since the

prohibition of hoists would require their removal from existing ships by the date of entry into force. However, such a phase-in would also allow the continued use of this equipment which is considered highly dangerous by those pilots required to use them. Rather than prohibiting hoists that are already fitted, the draft text specifies that mechanical pilot hoists shall not be used from the date of entry into force.

c. A clause was added in the resolution regarding the safe approach of the pilot boat where rubbing bands or other constructional features may pose an obstruction. One member opposed this because it could result in a reduction in defence against ship's side damage. However, the group agreed that complete removal of the rubbing band was not necessary, only an easing or cutting back in the area where the pilot boat may approach. The text also allows for alternative arrangements.

d. The group considered a requirement to secure the lower portion of accommodation ladders used for pilot transfer, recognizing that newer technologies allow for the lower portion to be safely secured without unduly endangering ship's crew.

e. The group added a new section in the resolution to address the installation of pilot ladder winch reels

f. The group considered pilot transfer by helicopter. As the provisions for this type of transfer should be considered both by aeronautical and maritime authorities, the group did not develop any recommendations on helicopter transfer of pilots. However the group wishes to recognize the provisions published by the International Chamber of Shipping in its most recent 'guide to helicopter / ship operations'

7. The Group also considered a proposal by Italy on a modified pilot ladder. This proposal had been previously considered in MSC 74/23/6. In MSC 74/24 (Report of the Maritime Safety Committee), the Committee did not agree to the proposed draft amendments to resolution A.889(21). The Group considered this under its terms of reference as other relevant information. The Group expressed its appreciation to Italy for their work on behalf of pilot safety, but decided that there are too many questions surrounding the feasibility and safety of the step to consider it further at this time.

Action requested of the Sub-Committee

8. The Sub-Committee is invited to consider the proposed draft revisions to SOLAS regulation V/23 and Resolution A.889(21) at the Annexes and decide as appropriate.

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ANNEX 1

DRAFT PROPOSED REVISIONS TO SOLAS REGULATION V/23

REGULATION 23
Pilot transfer arrangements

1 Application

1.1 Ships engaged on voyages in the course of which pilots are likely to be employed shall be provided with pilot transfer arrangements.

1.2 Equipment and arrangements for pilot transfer which are installed on or after [entry into force date] ~~1 January 1994~~ shall comply with the requirements of this regulation, and due regard shall be paid to the standards adopted by the Organization[1].

1.3 Except as provided otherwise, equipments and arrangements for pilot transfer which are provided on ships before [entry into force date] ~~1 January 1994~~ shall at least comply with the requirements of regulation 17 or 23, as applicable, of the International Convention for the Safety of Life at Sea, 1974 in force prior to that date, and due regard shall be paid to the standards adopted by the Organization prior to that date.

1.4 Equipment and arrangements which are replaced after [the date of entry into force of this regulation] ~~1 January 1994~~ shall, in so far as is reasonable and practicable, comply with the requirements of this regulation.

1.5 With respect to ships constructed before 1 January 1994, regulation 23.5 shall apply not later than the first periodic survey after [entry into force date].

1.6 Regulation 23.6 applies to all ~~[existing]~~ ships ~~[from the first renewal survey for the Safety Equipment Certificate on or after [the date of entry into force of this regulation]]~~.

2 General

2.1 All arrangements used for pilot transfer shall efficiently fulfil their purpose of enabling pilots to embark and disembark safely. The appliances shall be kept clean, properly maintained and stowed and shall be regularly inspected to ensure that they are safe to use. They shall be used solely for the embarkation and disembarkation of personnel.

2.2 The rigging of the pilot transfer arrangements and the embarkation of a pilot shall be supervised by a responsible officer having means of communication with the navigation bridge and who shall also arrange for the escort of the pilot by a safe route to and from the navigation bridge. Personnel engaged in rigging and operating any mechanical equipment shall be instructed in the safe procedures to be adopted and the equipment shall be tested prior to use.

2.3 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 purposes 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. Ladders shall be ~~replaced after 5 years or less should the condition of the ladder require~~ inspected at 30-month intervals at a minimum and be load tested and re-certified after 5 years .~~This tag or~~

[1] Refer to Res. A.889(21) (as amended)

permanent marking shall include the expiry date of ropes used on the ladder, if applicable.]

2.4 Reference in this regulation to an accommodation ladder includes a sloping ladder used as part of the pilot transfer arrangements but not for such purposes as shore access when the ship is in port.

3 Transfer arrangements

3.1 Arrangements shall be provided to enable the pilot to embark and disembark safely on either side of the ship.

3.2 In all ships where the distance from sea level to the point of access to, or egress from, the ship exceeds 9 m, and when it is intended to embark and disembark pilots by means of the accommodation ladder[2], or by means of mechanical pilot hoists or other equally safe and convenient means in conjunction with a pilot ladder, the ship shall carry such equipment on each side, unless the equipment is capable of being transferred for use on either side.

3.3 Safe and convenient access to, and egress from, the ship shall be provided by either:

.1 a pilot ladder requiring a climb of not less than 1.5 m and not more than 9 m above the surface of the water so positioned and secured that:

.1.1 it is clear of any possible discharges from the ship;

.1.2 it is within the parallel body length of the ship and, as far as is practicable, within the mid-ship half length of the ship;

.1.3 each step rests firmly against the ship's side; where constructional features, such as rubbing bands, would prevent the implementation of this provision, special arrangements shall, to the satisfaction of the Administration, be made to ensure that persons are able to embark and disembark safely;

.1.4 the single length of pilot ladder is capable of reaching the water from the point of access to, or egress from, the ship and due allowance is made for all conditions of loading and trim of the ship, and for an adverse list of 15°; the securing strong point, shackles and securing ropes shall be at least as strong as the side ropes; or

.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 9 m. The accommodation ladder shall be sited leading aft. When in use, means shall be provided to securely fix the lower platform of the accommodation ladder to the ship's side, the lower end of the accommodation ladder shall rest firmly against the ship's side so as to ensure that the lower end of the accommodation ladder and the lower platform is held firmly against the ship's side within the parallel body length of the ship and, as far as is practicable, within the mid-ship half length and clear of all discharges. As far as is practicable, means should be provided to securely fix the lower platform of the accommodation ladder portion to the ship's side. or

[2] Refer to For all ships, guidance on safe practice for the sloping ladder part of combined arrangements may be obtained from r Regulation II-1/3-9 *Means of embarkation on and disembarkation from ships* adopted by Res. MSC.256(84) together with the associated Guidelines.

~~.3 a mechanical pilot hoist so located that it is within the parallel body length of the ship and, as far as is practicable, within the mid-ship half length of the ship and clear of all discharges.~~

.2.1 When a combination arrangement is used for pilot access, means shall be provided to secure the pilot ladder and manropes ~~shall be secured~~ to the ship's side at a point of ~~approximately~~ nominally 1.5 m above the bottom platform of the accommodation ladder.

4 Access to the ship's deck

4.1 Means shall be provided to ensure safe, convenient and unobstructed passage for any person embarking on, or disembarking from, the ship between the head of the pilot ladder, or of any accommodation ladder or other appliance, and the ship's deck. Where such passage is by means of:

.1 a gateway in the rails or bulwark, adequate handholds shall be provided;

.2 a bulwark ladder, two handhold stanchions rigidly secured to the ship's structure at or near their bases and at higher points shall be fitted. The bulwark ladder shall be securely attached to the ship to prevent overturning.

5 Shipside doors

~~The provisions of section 1 notwithstanding.~~ Shipside doors used for pilot transfer shall not open outwards.

6 Mechanical pilot hoists

Mechanical pilot hoists shall not be used. [~~are prohibited~~].

~~6.1 The mechanical pilot hoist and its ancillary equipment shall be of a type approved by the Administration. The pilot hoist shall be designed to operate as a moving ladder to lift and lower one person on the side of the ship, or as a platform to lift and lower one or more persons on the side of the ship. It shall be of such design and construction as to ensure that the pilot can be embarked and disembarked in a safe manner, including a safe access from the hoist to the deck and vice versa. Such access shall be gained directly by a platform securely guarded by handrails.~~

~~6.2 Efficient hand gear shall be provided to lower or recover the person or persons carried, and kept ready for use in the event of power failure.~~

~~6.3 The hoist shall be securely attached to the structure of the ship. Attachment shall not be solely by means of the ship's side rails. Proper and strong attachment points shall be provided for hoists of the portable type on each side of the ship.~~

~~6.4 If belting is fitted in the way of the hoist position, such belting shall be cut back sufficiently to allow the hoist to operate against the ship's side.~~

~~6.5 A pilot ladder shall be rigged adjacent to the hoist and available for immediate use so that access to it is available from the hoist at any point of its travel. The pilot ladder shall be capable of reaching the sea level from its own point of access to the ship.~~

~~6.6 The position on the ship's side where the hoist will be lowered shall be indicated.~~

~~6.7 An adequate protected stowage position shall be provided for the portable hoist. In very cold weather, to avoid the danger of ice formation, the portable hoist shall not be rigged until its use is imminent.~~

7 Associated equipment

7.1 The following associated equipment shall be kept at hand ready for immediate use when persons are being transferred;

.1 two man-ropes of not less than 28 mm and not more than 32 mm in diameter properly secured to the ship if required by the pilot; man-ropes shall be fixed at the rope end to the ring plate fixed on deck and should be ready for use when the pilot disembarks, or upon request from a pilot approaching to board (the manropes should reach the height of the stanchions or bulwarks at the point of access to the deck before terminating at the ring plate on deck);

.2 a lifebuoy equipped with a self-igniting light;

.3 a heaving line.

7.2 When required by paragraph 4, stanchions and bulwark ladders shall be provided.

8 Lighting

Adequate lighting shall be provided to illuminate the transfer arrangements overside and the position on deck where a person embarks or disembarks ~~and the controls of the mechanical pilot hoist.~~

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ANNEX 2

DRAFT PROPOSED REVISIONS TO RESOLUTION A.889(21)

RECOMMENDATION ON PILOT TRANSFER ARRANGEMENTS

1 General

Ship designers are encouraged to consider all aspects of pilot transfer arrangements at an early stage in design. Equipment designers and manufacturers are similarly encouraged, particularly with respect to the provisions of paragraphs 2.1.2, 3.1 and 3.3.

2 Pilot ladders

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 Organization. [3]

2.1 Position and construction

2.1.1 The securing strongpoints, shackles and securing ropes should be at least as strong as the side ropes specified in 2.2 below.

2.1.2 The steps of the pilot ladders should comply with the following requirements:

.1 if made of hardwood, they should be made in one piece, free of knots;

.2 if made of material other than hardwood, they should be of equivalent strength, stiffness and durability to the satisfaction of the Administration;

.3 the four lowest steps may be of rubber of sufficient strength and stiffness or other material to the satisfaction of the Administration;

.4 they should have an efficient non-slip surface;

.5 they should be not less than 400 mm between the side ropes, 115 mm wide and 25 mm in depth, excluding any non-slip device or grooving;

.6 they should be equally spaced not less than ~~300~~ 310 mm or more than ~~380~~ 350 mm apart; and

.7 they should be secured in such a manner that each will remain horizontal; ~~and~~

~~.8 step fixtures should be installed to stabilize the steps~~.

2.1.3 No pilot ladder should have more than two replacement steps which are secured in position 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 by steps secured in position by the method used in the original construction of the pilot ladder. When any replacement step is secured to the side ropes of the pilot ladder by means of grooves in the sides of the step, such grooves should be in the longer sides of the step.

2.1.4 Pilot ladders with more than five steps should have spreader steps not less than 1.8 m long provided at such intervals as will prevent the pilot ladder from twisting. The lowest spreader step 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.

~~2.1.5 Step fixtures (chocks or widgets) should be installed to stabilize the steps and be appropriately held in place.~~ [4] ~~(See also 2.2.3 below.)~~

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[3] Refer to the recommendations by the International Organization for Standardization, in particular publication ISO 799:2004, *Ships and marine technology — Pilot ladders*

[4] ~~Refer to the recommendations by the International Organization for Standardization, in particular publication ISO 799:2004, *Ships and marine technology — Pilot ladders*, Part 4.5 (Fig 3)~~

2.1.6 ~~The use of a retrieval line should be avoided whenever possible~~. When a retrieval line is considered necessary to ensure the safe rigging of a pilot ladder, the line should be fastened at or above the last spreader step. The retrieval line should not hinder the pilot nor obstruct the safe approach of the pilot boat.

2.2 Ropes

2.2.1 The side ropes of the pilot ladder should consist of two uncovered ropes not less than 18 mm in diameter on each side and should be continuous, with no joints. ~~below the top step.~~ 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 ~~both parts of the side rope.~~[5]

2.2.2 Side ropes should be made of manila or other material of equivalent strength, durability, elongation characteristics and grip which has been protected against actinic degradation and is satisfactory to the Administration.

2.2.3 Each pair of side ropes should be secured together both above and below each step with a mechanical clamping device, or seizing method with step fixtures (chocks or widgets), which holds each step level when the ladder is hanging freely. ~~(See 2.1.5 above.)~~

3 Accommodation ladders used in conjunction with pilot ladders

3.1 Arrangements which may be more suitable for special types of ships may be accepted, provided that they are equally safe.

3.2 The length of the accommodation ladder should be sufficient to ensure that its angle of slope does not exceed 45 ~~55~~°.

3.2bis The accommodation ladder should be at least 600 mm in width.

3.3 The lower platform of the accommodation ladder should be in a horizontal position and secured to the ship's side when in use.

3.3bis The lower platform should be a minimum of 5 metres above sea level.

3.4 Intermediate platforms, if fitted, should be self-levelling. Treads and steps of the accommodation ladder should be so designed that an adequate and safe foothold is given at the operative angles.

3.5 The ladder and platform should be equipped on both sides with stanchions and rigid handrails, but if handropes are used they should be tight and properly secured. The vertical space between the handrail or handrope and the stringers of the ladder should be securely fenced.

3.6 The pilot ladder should be rigged immediately adjacent to the lower platform of the accommodation ladder and the upper end should extend at least 2 m above the lower platform. The horizontal distance between the pilot ladder and the lower platform should be between 0.1 to 0.2 m.

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 750 mm x 750 mm. The trapdoor ~~shall~~ should open ~~inwards~~ upwards and be secured either flat on the gangway platform or against the rails at the aft end or outboard side of the platform and should not form part of the hand holes. In this case the after part of the lower platform should also be fenced as specified in paragraph 3.5 above, 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.

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[5] Refer to the recommendations by the International Organization for Standardization, in particular publication ISO 799:2004, *Ships and marine technology — Pilot ladders*, Part 4.3a

3.8 Accommodation ladders, together with any suspension arrangements or attachments fitted and intended for use in accordance with this recommendation, should be to the satisfaction of the Administration[6].

4 Mechanical pilot hoists

The use of mechanical pilot hoists ~~shall not be used~~ is prohibited by SOLAS regulation V/23.

~~**4.1 Location and maintenance**~~

~~4.1.1 From a standing position at the control point, it should be possible for the operator to have the hoist under observation continuously between its highest and lowest working positions.~~

~~4.1.2 There should be on board a copy of the manufacturer's maintenance manual, approved by the Administration, which contains a maintenance log book. The hoist should be kept in good order and maintained in accordance with the instructions of the manual.~~

~~4.1.3 A record of maintenance and repairs of the hoist should be entered in the maintenance log book by the officer responsible for its maintenance.~~

~~**4.2 Construction of hoist**~~

~~4.2.1 The working load of a hoist should be the sum of the weight of the hoist ladder or lift platform and falls in the fully lowered condition and the weight of the maximum number of persons which the hoist is designed to carry, the weight of each person being taken as 150 kg. The maximum complement a hoist is permitted to carry should be clearly and permanently marked on the hoist.~~

~~4.2.2 Every hoist should be of such construction that, when operating under the working load determined in accordance with paragraph 4.2.1, each component has an adequate factor of safety having regard to the material used, the method of construction and the nature of its duty:~~

~~.1 the average lifting and lowering speeds should be between 15 m/min and 21 m/min when the pilot hoist is carrying its full working load;~~

~~.2 the pilot hoist should be capable of lifting, lowering, and stopping when carrying 2.2 times its working load.~~

~~4.2.3 In selecting the materials of construction, regard should be paid to the conditions under which the hoist will be required to operate.~~

~~4.2.4 Any electrical appliance associated with the ladder section of the hoist should not be operated at a voltage exceeding 25 V.~~

~~4.2.5 The hoist should consist of the following main parts:~~

~~.1 a mechanically powered winch;~~

~~.2 two separate falls;~~

~~.3 a ladder or platform consisting of two parts;~~

~~.3.1 a rigid upper part for the transportation of any person upwards or downwards;~~

~~.3.2 a flexible lower part, consisting of a short length of pilot ladder, which enables any person to climb from the pilot launch or tender to the rigid upper part of the ladder and vice versa.~~

~~**4.3 Mechanically powered winch**~~

[6] Refer to SOLAS Regulation II-1/3-9 concerning accommodation ladders

4.3.1 The source of power for the winches should be electrical, hydraulic or pneumatic. In the case of a pneumatic system, an exclusive air supply should be provided, with adequate arrangements to control its quality. In the case of ships engaged in the carriage of flammable cargoes, the source of power should not be such as to cause a hazard to the ship. All systems should be capable of efficient operation under the conditions of vibration, humidity and range of temperature likely to be experienced in the ship in which they are installed.

4.3.2 The winch should include a brake or other equally effective arrangement (such as a properly constructed worm drive) which is capable of supporting the working load in the event of power failure. The brake or other arrangement should be capable of supporting the working load when the hand gear is in use.

4.3.3 Any crank handle provided for manual operation should, when engaged, be so arranged that the power supply is automatically cut off.

4.3.4 Efficient arrangements should be provided to ensure that the falls wind evenly on to the winch-drums.

4.4 Controls

4.4.1 Hoists should be fitted with automatic safety devices in order to cut off the power supply when the ladder comes against any stop so as to avoid overstressing the falls or any other part of the hoist: in the case of hoists operated by pneumatic power, the safety cut-out device may be omitted provided that the maximum torque available from the air motor cannot result in overstressing of the falls or other parts of the hoist.

4.4.2 All hoist controls should incorporate an emergency stop to cut off the power supply and, in addition, an emergency stop switch within easy reach of the person or persons carried.

4.4.3 The hoist controls should be clearly and durably marked to indicate "lift", "stop" and "lower". The manner in which these controls operate should correspond to the manner in which the hoist operates and should automatically return to the "stop" position when released.

4.4.4 A portable hoist should be equipped with an interlock that prevents operation of the hoist when the hoist is not correctly installed.

4.5 Falls

4.5.1 Two separate wire falls should be used, made of flexible steel rope of adequate strength and resistant to corrosion in a salt-laden atmosphere.

4.5.2 The falls should be securely attached to the winch-drums and the ladder. These attachments should be capable of withstanding a proof load of not less than 2.2 times the load on such attachments. The falls should be maintained at a sufficient relative distance from one another to reduce the possibility of the ladder becoming twisted.

4.5.3 The falls should be of sufficient length to allow for all conditions of freeboard likely to be encountered in service and to retain at least three turns on the winch-drums with the hoist in its lowest position.

4.5.4 The falls should be so arranged that the ladder or lift platform remains level if one fall breaks.

4.5.5 A minimum safety factor of 6 should be applied to the falls. The devices for attaching the falls to the winch should be capable of supporting 2.2 times the working load with the falls run all the way out.

4.6 Ladder or platform section

4.6.1 The rigid ladder part should be not less than 2.50 m in length and be equipped in such a way that the person carried can maintain a safe position whilst being hoisted or lowered. Such part should be provided with:

.1 a sufficient number of steps to provide a safe and easy access to and from the platform referred to in paragraph 4.6.2;

.2 safe handholds capable of being used under all conditions, including extremes of temperature, together with non-slip steps;

.3 a spreader at the lower end of not less than 1.80 m. The ends of the spreader should be provided with rollers which should roll freely on the ship's side during the whole operation of embarking or disembarking;

.4 an effective guard ring, suitably padded, so positioned as to provide physical support for the person carried without hampering movement;

.5 adequate means for communication between the person carried and the operator and the responsible officer who supervises the embarkation or disembarkation of the person carried.

4.6.2 A hoist designed to operate as a lift platform should have a platform:

.1 with a non-slip surface at least 750 mm by 750 mm exclusive of the surface area of any trap door in the floor;

.2 limited to one person per square metre of floor area or fraction thereof, exclusive of the area of any trapdoor;

.3 with a trapdoor, if provided, at least 750 mm by 750 mm, so arranged that a pilot ladder may be rigged through the trapdoor, extending above the platform to the height of the handrail;

.4 enclosed by a guard-rail at least 1 m above the surface of the platform. At least two intermediate rails should be provided between the floor and the guard-rail. The rails should be set back from the edge of the platform at least 50 mm. Each gate in the rails should have a latch that can keep the gate securely closed.

4.6.3 Below the rigid part mentioned in paragraph 4.6.1, a section of flexible ladder comprising eight steps should be provided and constructed in accordance with the requirements of section 2, except that it need not be equipped with spreader steps; however, it should have appropriate fittings at the top for securing it to the rigid ladder.

4.6.4 The side ropes of the flexible ladder section should be in accordance with section 2.2. Each rope should be continuous, with no joins below the top step.

4.6.5 The steps of the flexible ladder section and those of the rigid ladder section should be in the same vertical line, of the same width, spaced vertically equidistant and placed as close as practicable to the ship's side. The handholds of both parts of the ladder section should be aligned as closely as possible.

4.6.6 If belting is fitted in way of the hoist position, such belting should be cut back sufficiently to allow the hoist to be placed as close as practicable to the ship's side.

4.7 Operation of the hoist

4.7.1 Rigging, testing and use of the hoist should be supervised by a responsible officer of the ship. Any person engaged in rigging and operating the hoist should have been instructed in the rigging and operating procedures as contained in the approved manual and the equipment should be tested prior to use.

4.7.2 Lighting should be provided so that the hoist overside, its controls and the position on the ship where the person carried embarks or disembarks, are adequately lit. A

~~lifebuoy equipped with a self-igniting light and a heaving line should be kept at hand ready for use.~~

~~4.7.3 A pilot ladder complying with the provisions of section 2 should be rigged adjacent to the hoist and available for immediate use, so that access to it is available from the hoist during any point of its travel. The pilot ladder should be capable of reaching the sea level from its own point of access to the ship.~~

~~4.7.4 The position on the ship's side where the hoist will be lowered should be indicated.~~

~~4.7.5 An adequate protected stowage position should be provided for the portable hoist. In very cold weather, to avoid the danger of ice formation, the portable hoist should not be rigged until use is imminent.~~

~~4.7.6 The assembly and operation of the pilot hoist should form part of the ship's routine drills.~~

~~4.8 Testing~~

~~4.8.1 Every new hoist should be subjected to an overload test of 2.2 times the working load. During this test the load should be lowered a distance of not less than 5 m and the brake applied to stop the hoist drum. Where a winch is not fitted with a brake, and depends upon an equally effective arrangement, as prescribed in paragraph 4.3.2, to support the load in the event of power failure, the load should be lowered at the maximum permitted lowering speed, and a power failure should be simulated to show that the hoist will stop and support the load.~~

~~4.8.2 An operating test of 10 % overload should be carried out after installation on board the ship to the satisfaction of the Administration.~~

~~4.8.3 Subsequent examinations of the hoists under working conditions should be made at each annual or intermediate survey and at each renewal survey for the ship's safety equipment certificate.~~

5 Access to deck

Means should be provided to ensure safe, convenient and unobstructed passage for any person embarking on, or disembarking from, the ship between the head of the pilot ladder, or of any accommodation ladder, and the ship's deck; such access should be gained directly by a platform securely guarded by handrails. Where such passage is by means of:

.1 a gateway in the rails or bulwark, adequate handholds should be provided at the point of embarking on or disembarking from the ship on each side which should be not less than 0.7 m or more than 0.8 m apart;

.2 a bulwark ladder, such ladder should be securely attached to the ship to prevent overturning. Two handhold stanchions should be fitted at the point of embarking on or disembarking from the ship on each side which should be not less than 0.7 m or more than 0.8 m apart. Each stanchion should be rigidly secured to the ship's structure at or near its base and also at a higher point, should be not less than 32 mm in diameter and should extend not less than 1.2 m above the top of the bulwarks. Stanchions or handrails should not be attached to the bulwark ladder.

6 Safe approach of the pilot boat

Where rubbing bands or other constructional features might prevent the safe approach of a pilot boat, these should be cut back ~~or other arrangements should be made~~ to provide at least 6 metres of unobstructed ship's side. If this is not possible, then other appropriate

measures should be taken to ensure that persons are able to embark and disembark safely. ~~[There should not be any fender constructions fitted to the ship's side which may obstruct the safe approach of a pilot boat.]~~

7 Installation of pilot ladder winch reels

7.1 Point of access

When a pilot ladder winch reel is provided it should be situated at a position which will ensure persons embarking on, or disembarking from, the ship between the pilot ladder and the point of access to the ship, have safe, convenient and unobstructed access to or egress from the ship.

The point of access to or egress from the ship may be by a ship's side opening, an accommodation ladder when a combination arrangement is provided, or a single section of pilot ladder.

7.1.1 The access position and adjacent area should be clear of obstructions, including the pilot ladder winch reel, for distances as follows:

.1 a distance of 915 ~~750~~ mm in width measured longitudinally.

.2 a distance of 915 ~~750~~ mm in depth, measured from the ship's side plating inwards.

.3 a distance of 2200 ~~2000~~ mm in height, measured vertically from the access deck.

7.2 Physical positioning of pilot ladder winch reels

Pilot ladder winch reels are generally fitted on the ship's Upper (Main) Deck or at a ship's "Side Opening" which may include side doors, gangway locations or bunkering points. Winch Reels fitted on the Upper Deck may result in very long pilot ladders.

7.2.1 Pilot ladder winch reels which are fitted on a ship's upper deck for the purpose of providing a pilot ladder which services a ship side opening below the upper deck, or alternatively, an accommodation ladder when a combination arrangement is provided, should:

.1 be situated at a location on the Upper Deck from which the pilot ladder is able to be suspended vertically, in a straight line, to a point adjacent to the ship side opening access point or the lower platform of the accommodation ladder.

.2 be situated at a location which provides a safe, convenient and unobstructed passage for any person embarking on, or disembarking from, the ship between the pilot ladder and the place of access on the ship.

.3 be situated so that safe and convenient access between the pilot ladder and the ship's side opening by means of a platform which should extend outboard from the ship's side for a minimum distance of 750mm, with a longitudinal length of a minimum of 750mm. The platform should be securely guarded by hand rails

.4 safely secure the pilot ladder and manropes to the ship's side at a point on the ships side at a distance of 1500 mm above the platform access point to the ship side opening or the lower platform of the accommodation ladder.

.5 if a combination arrangement is provided, have the accommodation ladder secured to the ship's side at or close to the lower platform so as to ensure that the accommodation ladder rests firmly against the ship's side.

7.2.2 Pilot ladder winch reels fitted inside a ship's side opening should:

.1 be situated at a position which provides a safe, convenient and unobstructed passage for any person embarking on, or disembarking from, the ship between the pilot ladder and the place of access on the ship.

.2 be situated at a position which provides an unobstructed clear area with a minimum length of 915 ~~750~~ mm and minimum width of 915 ~~750~~ mm and minimum vertical height of 2200 ~~2000~~ mm.

.3 If situated at a position which necessitates a section of the pilot ladder to be partially secured in a horizontal position on the deck so as to provide a clear access as described above, then allowance should be made so that this section of the pilot ladder may be covered with a rigid platform for a minimum distance of 915 ~~750~~ mm measured horizontally from the ship's side inwards.

7.3 Hand rails and hand grips

Hand rails and hand grips should be provided to assist the pilot to safely transfer between the pilot ladder and the ship. The horizontal distance between the hand rails and/or the hand grips should be 750 mm.

7.4 Securing of the pilot ladder

Where the pilot ladder is stowed on a pilot ladder winch reel which is located either within the ship's side opening or on the Upper Deck;

7.4.1 the pilot ladder winch reel should not be relied upon to support the pilot ladder when the pilot ladder is in use.

7.4.2 the pilot ladder should be secured to a strong point, independent of the pilot ladder winch reel.

7.4.3 the pilot ladder should be secured at deck level inside the ship side opening or, when located on the ship's Upper Deck, at a distance of not less than 915 ~~750~~ mm measured horizontally from the ship's side inwards.

7.5: Mechanical securing of pilot ladder winch reel:

All pilot ladder winch reels should have mechanical or electrical means of preventing the winch reel from being accidentally operated as a result of mechanical failure or human error.

7.5.1 pilot ladder winch reels may be manually operated or, alternatively, powered by either electrical, hydraulic or pneumatic means.

7.5.2 manually operated pilot ladder winch reels should be provided with a brake or other suitable arrangements to control the lowering of the pilot ladder and to lock the winch reel in position once the pilot ladder is lowered into position

7.5.3 electrical, hydraulic or pneumatically driven pilot ladder winch reels should be fitted with safety devices which are capable of cutting off the power supply to the winch reel and thus locking the winch reel in position.

7.5.4 Powered winch reels should have clearly marked control levers or handles which may be locked in a neutral position.

7.5.5 A failsafe mechanical device or locking pin should also be utilised to lock powered winch reels.