INFORMATIVE PUBLICATION 27/I

GUIDELINES FOR APPROVAL/ACCEPTANCE OF ALTERNATIVE MEANS OF ACCESS

2019
July

Publications I (Informative) are issued by Polski Rejestr Statków S.A.
as guidance or explanatory notes to PRS Rules.

GDAŃSK

Publication 27/I – Guidelines for Approval/Acceptance of Alternative Means of Access – July 2019, based on IACS Rec. No. 91 – Guidelines for Approval / Acceptance of Alternative Means of Access and IACS Rec. 78 – Safe Use of Portable Ladders for Close-up Surveys was accepted by Director for Ship Division and enters into force on 1 July 2019.

PRS/OP, 06/2019

CONTENTS

1 INTRODUCTION

This *Publication* is the guidance for the approval or acceptance, as appropriate, of alternative means of access to be provided for compliance with SOLAS II-1/3-6. The *Ship Structure Access Manual* approved in accordance with SOLAS II-1/3-6 should identify the access arrangements including permanent and alternative means of access as necessary to carry out overall and close-up examination and thickness measurements of any structural member. It also covers means of access used independently or in combination with the provided permanent means of access to areas to be surveyed and measured in accordance with SOLAS II-1/3-6.

2 DEFINITIONS

Approved – means that the construction and materials of the means of access and any attachment to the ship's structure should be to the satisfaction of the Administration. Compliance with the procedures in this publication will satisfy the requirements of an Administration in the absence of any specific instructions from a specific Administration.

Acceptance – it should be demonstrated to the satisfaction of the Owner that the equipment provided has been maintained and is, where applicable, provided with operators who are trained to use such equipment. This should be demonstrated to the PRS surveyors by the production of documents, prior to the equipment being used, which demonstrate that the equipment has been maintained and which indicate any limitations of the equipment.

Initial survey – the means of access should be subject to an initial survey prior to the delivery of the ship, in accordance with regulation I/10 and it should be demonstrated that the means of access specified in plans required by SOLAS II-1/3-6, paragraphs 4.1.1, 4.1.2 and 4.1.3 are obtainable.

Alternative means of access – is a term within SOLAS II-1/3-6 and the *Technical Provisions* (TP) of resolution MSC. 133(76), as amended by MSC.158(78) for portable or movable means of access provided for the survey and thickness measurements of hull structure in areas otherwise not accessible by permanent means of access. For the purpose of this *Publication*, alternative means of access include supplementary or additional means to provide necessary access for surveys and thickness measurements in accordance with SOLAS II-1/3-6.

Portable means of access – are means that generally may be hand carried or arranged by the crew, e.g. ladders, small platforms and staging. Portable means specified as part of the *Ship Structure Access Manual* should be carried onboard the ship throughout the duration of the validity of the relevant access manual.

Movable means of access – may include devices like a “cherry picker”, wire lift platforms, rafts or other means. Unless otherwise specified in the TP, such means need not necessarily be kept on board or capable of being operated by the ship's crew. However arrangements for the provision of such means should be addressed during survey planning. Movable means of access should be included in the *Ship Structure Access Manual* to designate the extent of access to the structural members to be surveyed and measured.

Authorised person – is a specified Company person using the means of access who should assume the role of inspector and check for obvious damage prior to using the access arrangements. Whilst using the means of access, the inspector should verify the condition of the sections used by close-up examination of those sections and note any deterioration in the provisions. Should any damage or deterioration be found, the effect of such deterioration should be assessed as to whether the damage or deterioration affects the safety for continued use of the means of access. Deterioration found that is considered to affect safe use should be determined and measures should be put in place to ensure that the affected section(s) should not be further used prior effective repair.

3 GENERAL

It is recognised that permanent means of access specified in the TP will not give access to all areas required to be surveyed and measured. Therefore, it is necessary that all areas outside of reach (i.e. normally beyond hand's reach) of the permanent means of access should be accessed by alternative means in combination with the permanent means of access, including those specified in International Code on the Enhanced Programme of Inspections during Surveys of Bulk Carriers and Oil Tankers, (ESP Code), as amended.

Means of access, including alternative means of access, specified in the TP together with the *Ship Structure Access Manual* should be approved (where appropriate) by PRS and where authorised, on behalf of the Administration. In lieu of the alterative means of access required by the regulations and TP, innovative means of access may be allowed, based on case by case acceptance, see section 4.7.

When an alterative means of access is supplied by the builder for compliance with SOLAS regulation II-1/3-6 and TP, it can be approved (where appropriate) by PRS and where authorised, on behalf of the Administration to a recognized National or International Standard. Any limitations to the use of the equipment at sea or in port should be described in the approved *Ship Structure Access Manual*.

Where movable means of access are supplied by a shore-based provider, then the confirmation of its safe and adequate use should be made by the Owner based on recorded maintenance and inspection regime by the provider of the equipment. Cognisance should be taken of the complexity of the equipment when making the judgment on the periodicity of inspections and thoroughness of maintenance by the provider of equipment. The surveyor has the right to reject movable means of access if not satisfied with the documentation or condition of the equipment.

It should be demonstrated as part of the initial survey, that the means of access identified in the *Ship Structure Access Manual* provides the required access, prior to delivery for the first ship in the series, or prior to initial use of a *Ship Structure Access Manual* where an existing means of access is amended, or a new means of access is added.

It should be demonstrated by the Owner that the equipment provided has been maintained and a person operating the equipment is trained in the safe use of such equipment. These should be demonstrated to the surveyors by the production of documents, prior to the equipment being used, which demonstrate that the equipment has been maintained and which indicate any limitations of the equipment.

The records of training, inspections and maintenance should be established in accordance with requirements of the Ships Safety Management System.

4 ALTERNATIVE MEANS OF ACCESS

The Owners are responsible for ensuring that alternative means of access are suitable for the purpose of the appropriate use. The equipment where applicable should be operated by qualified personnel and evidence should be provided that the equipment has been properly maintained by a shore-based provider.

The standing platform should be fitted with anchor points for attaching fall arrest systems. For equipment provided with a self-elevating platform, care should be taken that the locking device is engaged after completion of maneuvering to ensure that the platform is fixed.

4.1 Hydraulic Arm Vehicles (“Cherry Picker”)

4.1.1 Application

Hydraulic arm vehicles or aerial lifts (“cherry picker”) may be used to enable the examination of the cargo hold structure on bulk carriers not accessible by permanent ladders. In the *Ship Structural Access Manual*, the “cherry pickers” may be accepted as movable means for use up to 17 m above the tank top.

4.1.2 Safety Routines

The Owners are responsible for ensuring that movable means of access are suitable for the purpose of the appropriate use. The equipment should be operated by qualified personnel and evidence should be provided that the equipment has been properly maintained by a shore-based provider. The standing platform should be fitted with anchor points for attaching fall arrest systems. For equipment provided with

a self-levelling platform, care should be taken of that the locking device is engaged after completion of manoeuvring to ensure that the platform is fixed.

Safety measures, including the following, should be taken by an authorised person prior to survey to the satisfaction of the attending surveyor(s):

- Lift controls, including safety devices should be serviceable and should be operated throughout the range prior to use. Operators should be trained.
- The equipment range of use should be agreed with the operator before using the equipment.
- Operators should work within the basket.
- Body belts (such as harnesses) with lanyards should be used.
- Permissible load and reach limitations should not be exceeded.
- Brakes should be set, outriggers used, if so equipped, and wheels chocked if on an incline.
- Unless designed otherwise, aerial lift trucks should not be moved when the boom is elevated in a working position with workers in the basket.
- Upper and lower controls should be required and should be plainly marked. Lower controls should be capable of overriding the upper controls.
- Special precautions should be taken to ensure the vessel and the lifting device are stable when aerial lifts are used on other vessels (for example barges, floats).
- Personal flotation devices (PFD) should be used when working over water.
- Caution should be taken for potential crushing hazards (for example booming into the overhead, pinch point).

The operation and training in the use of this type of equipment should be addressed by the Ships Safety Management System.

4.2 Wire Lift Platform

4.2.1 Application

Wire lift platforms may be used for inspection of structural members of ballast tanks, cargo oil tanks and cargo holds. Such equipment should be rated for more than one person and be operated by suitably authorized personnel. If carried on board and included in the *Ship Structure Access Manual*, the designer will have to take into consideration safety aspects associated with deployment and use of such means of access. The platform and equipment, including fixed points to the ships structure should be approved on behalf of the Administration being based on a recognised International or National Standard.

The following should be addressed for approval of the wire lift platform:

- accidental loss of balance;
- permissible weight;
- protection against overload;
- secondary means of escape;
- guard rails;
- permissible loads;
- permanent markings of the loads;
- recovery in the event of power loss.

4.2.2 Safety Routines

Safety measures, including the following, should be taken by an authorised person prior to survey to the satisfaction of the attending surveyor(s):

- Lift controls, including safety devices and brakes should be serviceable and should be operated throughout the range prior to use. Operators should be trained.
- Rigging of wires should be in accordance with manufacturer's recommendations and conducted by qualified personnel.
- Fix points to which the wires will be connected should be examined before each use and verified as in good condition (free of wastage, fractures).
- Permissible load limitations should not be exceeded.
- Personnel should work from within the lift basket.
- Body belts (such as harnesses) with lanyards should be used.

– Means should be provided for using fall protection with a lifeline that can be tended from above the platform.

The maintenance of all equipment, the rigging of the equipment, its operation and training in use should be addressed by the Ships Safety Management System.

4.3 Portable Platforms

4.3.1 Application

Portable platforms not more that 3 m in length may be used for access between longitudinal permanent means of access and the structural member to be accessed (see Figure l). Handrails should be provided, unless a safety harness is used in conjunction with the prearranged handgrips in way of the structure being accessed.

Portable platforms may be used as a portable means of access, provided that the platform and equipment, including fixed points to the ship's structure, are specifically designed for the task and approved by PRS and on behalf of the Administration based on a recognised International or National Standard.

Where portable platforms are included in the approved *Ship Structure Access Manual*, then the following should be considered prior to approval:

– permissible loads,
– permanent markings of the loads,
– fixing arrangements,
– guard rails,
– non skid construction.

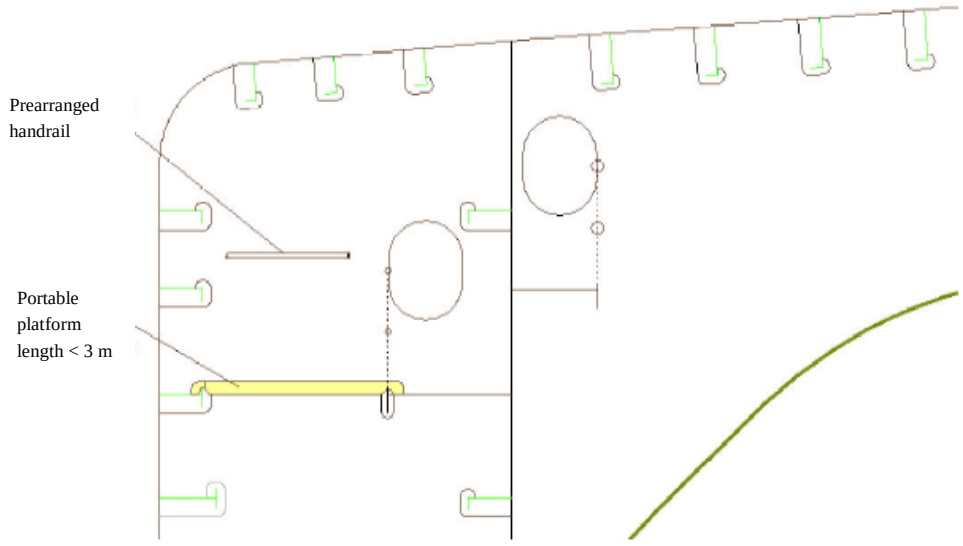

Fig. l Portable platform

4.3.2 Safety Routines

Safety measures, including the following, should be taken by the authorised person prior to survey to the satisfaction of the attending surveyor(s):

– It should be ensured that portable platforms are safety secured and supported prior to use.

The maintenance of all equipment, the fixing of the equipment, its operation and training in its use should be addressed by the Ships Safety Management System.

4.4 Staging

4.4.1 Application

Staging is the most common means of access provided especially where repairs or renewals are being carried out. Staging is generally an option for access to any structural members to be surveyed and measured in tanks, holds and spaces but is NOT considered as an alternative to permanent means of access.

Staging not carried on board is not subject to approval as part of SOLAS II-1/3-6. In this case, Owner and/or provider of equipment are responsible for ensuring safety use.

Where staging and the associated equipment including its attachments to the ship's structure are specifically designed for survey and thickness measurement in accordance with SOLAS II-1/3-6, such staging should be approved on behalf of the Administration based on a recognised International or National Standard and necessary consideration is taken for the safety in the use.

4.4.2 Safety Routines

Safety measures, including the following, should be taken by an authorised person prior to survey to the satisfaction of the attending surveyor(s):

- Before working on or near any staging the following should be ensured:
  - a minimum of 6 evenly spaced suspension points – SWR or chains evenly spaced and as near vertically as possible;
  - scaffold tubes are linked by right-angle couplers;
  - an adequate working platform, fully boarded with toe boards and guard rails. Platform transoms (at 1.2 m intervals) resting on ledgers (at 2.5 m interval) and double transoms at platform board overlaps;
  - the staging is level and provided with safe access (such as ladders),
  - the staging is adequately decked (for example has a work surface and platform), and provided with guardrails;
  - the staging is adequate for the work performed taking into account that falls are a significant hazard in site.

Where staging is approved as a part of the *Ship Structure Access Manual* and carried on board, the maintenance of all equipment, the rigging of the equipment, its operation and training in its use should be addressed by the Ships Safety Management System.

4.5 Rafting

4.5.1 Application

Rafting is generally used as term for surveys carried out by means of boats or rafts. Rafting may be an option for use in tanks, holds and spaces which may be filled with water, provided the arrangement of internal structure is as described in this section.

The structure arrangement should allow easy escape to deck from any position being rafted. At least l.0 m clearance above and 0.5 m clearance beyond the breadth of the raft should be allowed for the safe passage passed any internal obstructions.

Bulk cargo holds

For bulk cargo holds designed for filling of water (e.g. ballast holds) and where filling up to a height not less than 2 m below top offside frames is permitted (e.g. air draft holds), rafting may be utilized in lieu of permanent means of access to side frames, provided the structural capacity of the hold is sufficient to withstand static and dynamic loads including sloshing loads at all levels of water needed to survey the side shell frames.

Oil cargo tanks

Rafting of cargo tanks is subject to restrictions on discharging of water in harbour and weather conditions at voyage. Rafting as alterative means of access should therefore not be considered as “readily accessible” in oil cargo tank and do not provide an alterative to fitting of horizontal permanent means of access.

4.5.2 Safe use of rafts or boats for survey.

4.5.2.1 Access to Structures

4.5.2.1.1 For overall survey, means shall be provided to enable attending PRS surveyor(s) to examine the structure in a safe and practical way.

4.5.2.1.2 For close-up survey, one or more of the following means for access, acceptable to the attending PRS surveyor(s), shall be provided:

a) permanent staging and passages through structures,
b) temporary staging and passages through structures,
c) lifts and moveable platforms,
d) rafts or boats,
e) other equivalent means.

4.5.2.1.3 Surveys of tanks or spaces by means of rafts or boats may only be undertaken with the agreement of the attending PRS surveyor(s), who shall take into account the safety arrangements provided, including weather forecasting and ship response in reasonable sea conditions.

4.5.2.1.4 When rafts or boats will be used for close-up survey, the following conditions shall be observed:

a) only rough duty, inflatable rafts or boats, having satisfactory residual buoyancy and stability even if one chamber is ruptured, shall be used;
b) the boat or raft shall be tethered to the access ladder and an additional person shall be stationed down the access ladder with a clear view of the boat or raft;
c) appropriate lifejackets shall be available for all participants;
d) the surface of water in the tank shall be calm (under all foreseeable conditions the expected rise of water within the tank shall not exceed 0.25 m) and the water level stationary. On no account shall the level of the water be rising while the boat or raft is in use;
e) the tank or space must contain clean ballast water only. When a thin sheen of oil on the water is observed, further testing of the atmosphere is to be done to ensure that the tank or space is safe for entering;
f) at no time shall the upside of the boat or raft be allowed to be within 1 m of the deepest under deck web face flat so that the survey team is not isolated from a direct escape route to the tank hatch. Filling to levels above the deck transverses shall only be contemplated if a deck access manhole is fitted and open in the bay being examined, so that an escape route for the survey party is available at all times;
g) if the tanks (or spaces) are connected by a common venting system, or inert gas system, the tank in which the boat or raft is to be used shall be isolated to prevent a transfer of gas from other tanks (or spaces).

4.5.2.1.5 In addition to the above, rafts or boats alone may be allowed for close-up survey of the under deck areas for tanks or spaces if the depth of the webs are 1.5 m or less. If the depth of the webs is more than 1.5 m, rafts or boats alone may be allowed only:

a) when the coating of the under deck structure is in GOOD condition and there is no evidence of wastage; or
b) if a permanent means of access is provided in each bay to allow safe entry and exit. This means:
   .1 access direct from the deck via a vertical ladder and a small platform fitted approximately 2 m below the deck in each bay; or
   .2 access to deck from a longitudinal permanent platform having ladders to deck in each end of the tank. The platform shall, for the full length of the tank, be arranged in level with, or above, the maximum water level needed for rafting of under deck structure. For this purpose, the ullage corresponding to the maximum water level is to be assumed not more than 3 m from the deck plate measured at the midspan of deck transverses and in the middle length of the tank. (See Figure 2).

If neither of the above conditions are met, then staging or an “other equivalent means” is to be provided for the survey of the under deck areas.

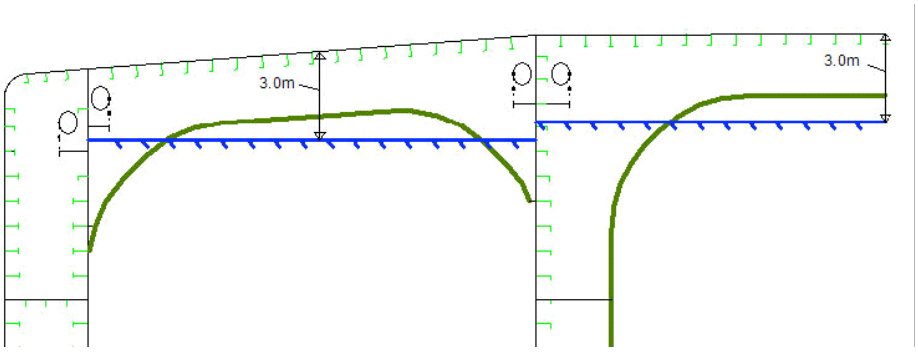

Figure 2

4.5.2.2 Safety Meetings

4.5.2.2.1 The establishment of proper preparation and the close co-operation between the attending PRS surveyor(s) and the company's representatives onboard prior to and during the survey are an essential part in the safe and efficient conduct of the survey.

4.5.2.2.2 Applicable safety procedures and responsibilities shall be discussed and agreed to ensure that the survey is carried out under controlled conditions. Safety meetings shall be held prior to entering the tank or space and regularly during the survey on board.

4.5.2.3 Communication Arrangements and Equipment for Survey

4.5.2.3.1 The attending PRS surveyor(s) shall always be accompanied by at least one responsible person assigned by the company experienced in tank and enclosed spaces inspection. In addition a backup team of at least two experienced persons shall be stationed at the hatch opening of the tank or space that is being surveyed. The back-up team shall continuously observe the work in the tank or space and shall keep lifesaving and evacuation equipment ready for use.

4.5.2.3.2 A communication system shall be arranged between the survey party in the tank or space being examined, the responsible officer on deck, the navigation bridge and the personnel in charge of handling the ballast pump(s) in the pump control room. These communication arrangements shall be maintained throughout the survey.

4.5.2.3.3 Adequate and safe lighting shall be provided for the safe and efficient conduct of the survey.

4.5.2.3.4 Adequate protective clothing shall be made available and used (e.g. safety helmet, gloves, safety shoes, etc.) during the survey.

4.6 Portable Ladders

4.6.1 Application

Portable ladders may be used for access to any structural members as supplementary and/or additional to permanent means of access in accordance with SOLAS II-1/3-6 and should be included in the *Ship Structure Access Manual*.

Portable ladders should be designed based on a recognised International or National Standard. The rungs and steps of portable ladders should be designed to minimise slipping, e.g. be corrugated, knurled, dimpled or coated with skid resistance material.

Step ladders, hanging ladders and ladders more than 5 m long may only be utilized if fitted with a mechanical device to secure the upper end of the ladder.

In accordance with requirements given in *Publication No. 39/P*, paragraph 5.3, the use of a portable ladder fitted with a mechanical device to secure the upper end of the ladder is acceptable for the "close up survey of sufficient extent, minimum 25% of frames, to establish the condition of the lower region of the shell frames including approx. lower one third length of the side frame at side shell and side frame end attachment and the adjacent shell plating of the forward cargo hold" at Annual Survey, required in 2.2.4.1.b, and the "one other selected cargo hold" required in 2.2.4.2.b.

4.6.2 Safety Routines

Safety measures should be taken by an authorised person prior to survey to the satisfaction of the attending surveyor(s), including the following:

– The feet of portable ladders should be prevented from slipping during use by securing the stiles at or near their upper and lower ends, by any anti-slip device or by other arrangements of equivalent effectiveness. Unless otherwise specified in a specification of each portable ladder or relevant safety standards, the ladder should be in general raised at an angle of around 70 degrees to the horizontal.

Portable ladders should be used on top of bottom or deep stringer platform so that the free falling height does not exceed 6 m. If it is necessary to exceed this height, there should be at least 3 m of water above the highest structural element in the bottom to provide a “cushion” or a safety harness is to be used. The free falling height above the water surface should not exceed 6 m.

When climbing ladders in tanks containing water, the surveying personnel should wear “flotation” aids. A flotation aid is a simple form of lifejacket which does not impede climbing or a self-inflatable lifejacket.

Aluminium ladders may be used in cargo tanks, but can not be stored in the cargo area or other gas dangerous spaces. The maintenance of all equipment, the securing of the equipment, its operation and training in use should be addressed by the Ships Safety Management System.

4.6.3 Safe Use of Portable Ladders for Close-up Surveys

4.6.3.1 The Owner should ensure that equipment selected for temporary work affords adequate protection against the risks of falls from a height.

4.6.3.2 The manner is which portable ladders can most safely be used by workers should be specified.

4.6.3.3 Portable ladders should rest on a stable, strong, suitably sized, immobile footing so that the rungs remain horizontal. Suspended ladders should be attached in a manner so that they cannot be displaced and so that swinging is prevented.

4.6.3.4 The feet of portable ladders should be prevented from slipping during use by securing the stiles at or near their upper and lower ends, by any anti-slip device or by other arrangements of equivalent effectiveness. Slip resistant feet should not be used as substitute for the care in placing, lashing or holding a ladder upon slippery surface.

4.6.3.5 Portable ladders should meet the following criteria:

- not more than 5 m in length for freestanding portable ladders,
- non-self supporting and self-supporting portable ladders should support at least four times the maximum intended load,
- the minimum clear distance between side rails for all portable ladders should be according to a recognized standard,
- the rungs and steps of portable ladders should be designed to minimize slipping, e.g. corrugated, knurled, dimpled, coated with skid resistance material.

4.6.3.6 Ladders should be maintained free of oil, grease and other slipping hazards.

4.7 Innovative Approach

Any proposal for innovative means of access should be trialed outside the mandatory requirements of the SOLAS regulation II-1/3-6 and should not be accepted as meeting this regulation until accepted by PRS.

List of changes effective as of 1 July 2019

Item	*Title/ Subject*	*Source*
3	Guidelines A.744(18) changed into ESP Code"	IACS Rec. 91, Rev. 3