

Title	RESOLUTIONS / MSC Resolutions / Res.MSC.133(76)
Note	Amended by Res.MSC.158(78)

RESOLUTION MSC.133(76) **(adopted on 12 December 2002)**

ADOPTION OF TECHNICAL PROVISIONS FOR MEANS OF ACCESS FOR INSPECTIONS

 Refer to [IACS UI SC190](#)

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING the new regulation II-1/3-6 of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended (hereinafter referred to as "the Convention") adopted by [resolution MSC.134\(76\)](#), concerning access to and within spaces in the cargo area of oil tankers and bulk carriers,

NOTING ALSO that the aforementioned regulation provides that the means of access referred to therein shall comply with the requirements of Technical provisions for means of access for inspections (hereinafter referred to as "the Technical provisions") to be made mandatory under the Convention;

RECOGNIZING that the Technical provisions referred to above are not intended to inhibit the development of new or novel technologies which provide for an improved means to carry out ship surveys and inspections,

HAVING CONSIDERED, at its seventy-sixth session, the text of the proposed Technical provisions,

1. ADOPTS the Technical provisions for means of access for inspections, the text of which is set out in the Annex to the present resolution;
2. INVITES Contracting Governments to the Convention to note that the Technical provisions will take effect on 1 January 2005 upon entry into force of the new regulation II-1/3-6 of the Convention;
3. REQUESTS the Secretary-General to transmit certified copies of this resolution and the text of the Technical provisions contained in the Annex to all Contracting Governments to the Convention;
4. FURTHER REQUESTS the Secretary-General to transmit copies of this resolution and the Annex to all Members of the Organization, which are not Contracting Governments to the Convention;
5. INVITES Governments to encourage the development of novel technologies aimed at facilitating the survey and inspection of ships and to keep the Organization advised of any positive results.

ANNEX

TECHNICAL PROVISIONS FOR MEANS OF ACCESS FOR INSPECTIONS

Preamble

It has long been recognised that the only way of ensuring that the condition of a ship's structure is maintained to conform with the applicable requirements is for all its components to be surveyed on a regular basis throughout their operational life so as to ensure that they are free from damage such as cracks, buckling or deformation due to corrosion, overloading or contact damage and that thickness diminution is within established limits. The provision of suitable means of access to the hull structure for the purpose of carrying out overall and close-up surveys and inspections is essential and such means should be considered and provided for at the ship design stage.

Ships should be designed and built with due consideration as to how they will be surveyed by flag State inspectors and classification society surveyors during their in-service life and how the crew will be able to monitor the condition of the ship. Without adequate access, the structural condition of the ship can deteriorate undetected and major structural failure can arise. A comprehensive approach to design and maintenance is required to cover the whole projected life of the ship.

In order to address this issue, the Organization has developed these Technical provisions for means of access for inspections, intended to facilitate close-up inspections and thickness measurements of the ship's structure referred to in SOLAS regulation II-1/3-6 on Access to and within spaces in the cargo area of oil tankers and bulk carriers.

Definitions

Terms used in the Technical provisions have the same meaning as those defined in the 1974 SOLAS Convention, as amended, and in [resolution A.744\(18\)](#), as amended.

Technical provisions

- 1 Structural members subject to the close-up inspections and thickness measurements of the ship's structure referred to in SOLAS regulation II-1/3-6, except those in double bottom spaces, shall be provided with a permanent means of access to the extent as specified in table 1 and table 2, as applicable. For oil tankers and wing ballast tanks of ore carriers, rafting may be used in addition to the specified permanent means of access, provided that the structure allows for its safe and effective use.
- 2 Elevated passageways, where fitted, shall have a minimum width of 600 mm and be provided with toe boards not less than 150 mm high and guard rails over both sides of their entire length. Sloping structure providing part of the access shall be of a non-skid construction. Guard rails shall be 1,000 mm in height and consist of a rail and intermediate bar 500 mm in height and of substantial construction. Stanchions shall be not more than 3 m apart.
- 3 Access to elevated passageways and vertical openings from the ship's bottom shall be provided by means of easily accessible passageways, ladders or treads. Treads shall be provided with lateral support for the foot. Where the rungs of ladders are fitted against a vertical surface, the distance from the centre of the rungs to the surface shall be at least 150 mm. Where vertical manholes are fitted higher than 600 mm above the walking level, access shall be facilitated by means of treads and hand grips with platform landings on both sides.
- 4 Tunnels passing through cargo holds shall be equipped with ladders or steps at each end of the hold so that personnel may easily cross such tunnels.
- 5 Permanent ladders, except for vertical ladders, which are fitted on vertical structures for close-up inspection or thickness measurement, shall be inclined at an angle of less than 70°. There shall be no obstructions within 750 mm of the face of the inclined ladder, except that in way of an opening this clearance may be reduced to 600 mm. The flights of ladders shall not be more than 9 m in actual length. Resting platforms of adequate dimensions shall be provided. Ladders and handrails shall be constructed of steel or equivalent material of adequate strength and stiffness and securely attached to the tank structure by stays. The method of support and length of stay shall be such that vibration is reduced to a practical minimum. In cargo holds, ladders shall be designed and arranged so that the risk of damage from cargo handling gear is minimized.

6 The width of ladders between stringers shall not be less than 400 mm. The treads shall be equally spaced at a distance apart, measured vertically, of between 250 mm and 300 mm. When steel is used, the treads shall be formed of two square bars of not less than 22 mm by 22 mm in section, fitted to form a horizontal step with the edges pointing upward. The treads shall be carried through the side stringers and attached thereto by double continuous welding. All sloping ladders shall be provided with handrails of substantial construction on both sides, fitted at a convenient distance above the treads.

7 No free-standing portable ladder shall be more than 5 m long.

8 Portable ladders more than 5 m long may only be utilized if fitted with a remotely controlled mechanical device to secure the upper end of the ladder.

9 Movable means of access includes such devices as:

.1 hydraulic arm fitted with a stable base and with local control at the safety cage. The operational conditions should be in accordance with applicable safety requirements of the manufacturer; and

.2 wire lift platform.

10 For bulk carriers, access ladders to a cargo hold shall be:

.1 where the vertical distance between the upper surface of adjacent decks or between deck and the bottom of the cargo space is not more than 6 m, either a vertical ladder or an inclined ladder; and

.2 where the vertical distance between the upper surface of adjacent decks or between deck and the bottom of the cargo space is more than 6 m, an inclined ladder or ladders, except the uppermost 2.5 m of a cargo space measured clear of overhead obstructions and the lowest 6 m may have vertical ladders, provided that the vertical extent of the inclined ladder or ladders connecting the vertical ladders is not less than 2.5 m.

Table 1 - Means of access for oil tankers

1 Water ballast tanks, except those specified in the right column, and cargo oil tanks	2 Wing water ballast tanks of less than 5 m width forming double side spaces and their bilge hopper sections
Access to the overhead structure	
<p>1.1 For tanks of which the height is 6 m and over, permanent means of access shall be provided in accordance with .1 to .3:</p> <p>.1 continuous athwartship permanent access arranged at the transverse bulkheads and at every deck transverse, at a minimum of 1.8 m to a maximum of 2.5 m below the overhead structure. If the access is fitted on the side of the unobstructed side of the web plating, then lightening holes of at least 300 mm diameter shall be fitted in the web plating, providing access adjacent to both sides of each tripping bracket;</p> <p>.2 at least one longitudinal permanent means of access at a minimum of 1.8 m to a maximum of 2.5 m below the overhead structure. Where the longitudinal bulkhead contains attached framing, the access shall be provided at that side; and</p> <p>.3 access between the arrangements specified in .1 and .2 and from the main deck to either .1 or .2.</p> <p>1.2 For tanks of which the height is less than 6 m, raft or portable means may be utilized in lieu of the permanent means of access.</p>	<p>2.1 Where the vertical distance between horizontal upper stringer and deck head exceeds 6 m, one continuous permanent means of access shall be provided for the full length of the tank with a means to allow passing through transverse swash bulkheads installed a minimum of 1.8 m to a maximum of 2.5 m from the overhead structure with a vertical access ladder at each end and mid-span of tank.</p> <p>2.2 For bilge hopper sections of which the vertical distance from baseline to the upper knuckle point is 6 m and over, one longitudinal permanent means of access shall be provided for the full length of the tank. It shall be accessible by vertical permanent means of access at both ends of the tank.</p> <p>2.3 Where the vertical distance referred to in 2.2 is less than 6 m, portable means of access may be utilised in lieu of the permanent means of access. To facilitate the operation of the portable means of access, in-line openings in horizontal stringers should be provided. The openings should be of an adequate diameter and should have suitable protective railings.</p> <p>2.4 Whenever practicable, the distance between the overhead structure and the uppermost longitudinal stringer and between the longitudinal stringers should not exceed 6 m.</p>
Access to the vertical structures	
<p>1.3 For tanks of which the height is 6 m and over, containing internal structures, permanent means of access shall be provided to each transverse web.</p> <p>1.4 For tanks of which the height is less than 6 m, raft or portable means may be utilized in lieu of the permanent means of access.</p>	<p>2.5 Vertical permanent means of access shall be provided to each transverse web in the following cases where the vertical distance is 6 m and over:</p> <p>.1 from baseline to the upper knuckle point of the bilge hopper section;</p> <p>.2 from the upper knuckle point of the bilge hopper section to main deck where no horizontal stringers are provided; and</p> <p>.3 between horizontal stringers.</p> <p>2.6 Access holes within 600 mm of the stringer shall be provided in each transverse web/swash bulkhead above each stringer and tank base.</p>

2.7 In the case where the vertical distance referred to in 2.5 is less than 6 m, portable means may be utilised in lieu of the permanent means of access.

Table 2 - Means of access for bulk carriers*

1 Cargo holds	2 Ballast tanks
Access to overhead structure	Top side tanks
1.1 At least 3 permanent means of access shall be fitted to provide access to the overhead structure at both sides of the cross deck and in the vicinity of the centreline. Each means of access shall be accessible from the cargo hold access or directly from the main deck and installed at a minimum of 1.8 m to a maximum of 2.5 m below the deck.	2.1 For each topside tank of which the height is 6 m and over, one longitudinal continuous permanent means of access shall be provided along the side shell webs and installed at a minimum of 1.8 m to a maximum of 2.5 m below deck with a vertical access ladder in the vicinity of each access to that tank.
1.2 Alternatively, movable means of access may be utilized for access to the overhead structure of cross deck if its vertical distance is 17 m or less above the tank top.	2.2 If no access holes are provided through the transverse ring webs within 600 mm of the tank base and the web frame rings have a web height greater than 1 m in way of side shell and sloping plating, then step rungs/grab rails shall be provided to allow safe access over each transverse web frame ring.
Access to vertical structures	2.3 Three permanent means of access, fitted at the end bay and middle bay of each tank, shall be provided spanning from tank base up to the intersection of the sloping plate with the hatch side girder. The existing longitudinal structure may be used as part of this means of access.
1.3 Permanent means of vertical access shall be provided in all cargo holds and built into the structure to allow for an inspection of a minimum of 25 % of the total number of hold frames port and starboard equally distributed throughout the hold including at each end in way of transverse bulkheads. But in no circumstance shall this arrangement be less than 3 permanent means of vertical access fitted to each side (fore and aft ends of hold and mid-span). Means to readily secure safety cages to the permanent means of access shall be provided. Permanent means of vertical access fitted between two adjacent hold frames is counted for an access for the inspection of both hold frames. A means of portable access may be used to gain access over the sloping plating of lower hopper ballast tanks.	2.4 For topside tanks of which the height is less than 6 m, a portable means may be utilized in lieu of the permanent means of access.
1.4 In addition, portable or movable means of access shall be utilized for access to the remaining hold frames up to their upper brackets and transverse bulkheads.	Bilge hopper tanks
	2.5 For each bilge hopper tank of which the height is 6 m and over, one longitudinal continuous permanent means of access shall be provided along the side shell webs and installed at a minimum of 1.2 m to a maximum of 1.8 m below the top of the clear opening of the web ring with a vertical access ladder in the vicinity of each access to the tank.
	2.6 If no access holes are provided through the transverse ring webs within 600 mm of the tank base and the web frame rings have a web height greater than 1 m in way of side shell and sloping plating, then step rungs/grab rails shall be provided to allow safe access over each transverse web frame ring.
	2.7 For bilge hopper tanks of which the height is less than 6 m, a portable means may be utilized in lieu of the permanent means of access.
	Double skin side tanks
	2.8 Permanent means of access shall be provided in accordance with the applicable sections of table 1.

* For ore carriers, permanent means of access in wing ballast tanks shall be provided in accordance with the applicable sections of table 1.
