



## Economic and Social Council

Distr.: General  
12 September 2012  
English  
Original: English, French and  
Russian

---

### Economic Commission for Europe

#### Inland Transport Committee

#### Working Party on Inland Water Transport

##### Fifty-sixth session

Geneva, 10–12 October 2012

Item 6 (c) of the provisional agenda

**Standardization of technical and safety requirements in inland navigation:  
Recommendations on Harmonized Europe-Wide Technical  
Requirements for Inland Navigation Vessels (Resolution No. 61)**

### Amendments to Resolution No. 61

#### Note by the secretariat

#### I. Mandate

1. The Working Party on the Standardization of Technical and Safety Requirements in Inland Navigation (SC.3/WP.3), at its fortieth session, considered and approved a new set of amendments to the annex of Resolution No. 61 (ECE/TRANS/SC.3/172/Rev.1 and Amend.1), prepared by the Group of Volunteer Experts and aimed at further development of the annex to Resolution No. 61 in the light of existing EU and River Commissions' requirements applicable to inland navigation vessels (ECE/TRANS/SC.3/WP.3/80, paras. 32–37).
2. The Working Party on Inland water Transport is invited to consider and adopt the draft resolution on additions and amendments to Resolution No. 61, as presented below.

#### II. Additions and amendments to Resolution No. 61 on Recommendations on Harmonized Europe-Wide Technical Requirements for Inland Navigation Vessels

##### Resolution No. ...

(adopted on... October 2012 by the Working Party on Inland Water Transport)

*The Working Party on Inland Water Transport,*

*Responding* to the policy recommendation No. 2 of the UNECE White Paper on Efficient and Sustainable Inland Water Transport in Europe (ECE/TRANS/SC.3/189) calling for coordination and support of measures to modernize the inland water fleet at the pan-European level,

*Reaffirming* the desirability of further developing Resolution No. 61 with due regard to the latest amendments to the Directive 2006/87/EC of the European Union laying down technical requirements for inland waterway vessels,

*Considering* Resolution No. 61 of on Recommendations on Harmonized Europe-Wide Technical Requirements for Inland Navigation Vessels, as amended (ECE/TRANS/SC.3/172/Rev.1 and Amend.1),

*Bearing in mind* the report of the Working Party on the Standardization of Technical and Safety Requirements in Inland Navigation on its fortieth session (ECE/TRANS/SC.3/WP.3/80, paras. 32–37),

*Decides* to amend and supplement the text of the annex to Resolution No. 61 as reflected in the annex to this resolution.<sup>1</sup>

### **III. Amendments to the annex to Resolution No. 61**

#### **A. Amendments to Chapter 3, “Shipbuilding Requirements”**

1. *Add* new paragraph 3–4.1.9 *reading* No accommodation or installations needed for vessel safety or operation may be located ahead of the plane of the collision bulkhead. This requirement shall not apply to anchor gear.

#### **B. Amendments to Chapter 7, “Wheelhouse”**

2. *Add* new section 7–3A *reading*

##### **7–3A REQUIREMENTS CONCERNING ONBOARD COMPUTERS**

###### **7–3A.1 General**

7–3A.1.1 For the purpose of this chapter “onboard computer” means a computer supporting the ship's services and systems without active interfering in these systems.

7–3A.1.2 Taking due account of sections 9–1.1 and 9–2.18 and the specific requirements for radar, Inland AIS and Inland ECDIS, onboard computers shall be designed for use in an atmosphere with air temperature 0 – 40 °C,<sup>2</sup> with 75 per cent relative humidity at a temperature of 35 °C, and at 95 ± 1 per cent relative humidity at a temperature of 20 °C, and also with an extended listing of the vessel of up to 15° and a pitch of up to 5° and a roll of up to 22.5°.

###### **7–3A.2 Displays**

7–3A.2.1 Displays designed for navigation information shall be colour displays, except in cases where the Basin Administration allows the use of monochrome displays.

---

<sup>1</sup> Draft annex is presented in Part III.

<sup>2</sup> In the Russian Federation – from -10 °C to 40 °C

7-3A.2.2 Colour displays, including multifunctional displays, shall support at least sixty-four colours. Exceptions may be made for displays of individual devices such as speed indicators or echo sounders.

7-3A.2.3 Displays in the wheelhouse shall support a minimum resolution of 1280 x 1024 pixels. Displays of individual devices such as speed indicators, echo sounders and radio navigation receivers, may use lesser resolution.

7-3A.2.4 The display shall ensure that information is easily readable for at least the helmsman and a second member of the crew, simultaneously from a standing and a sitting position, whatever the lighting conditions in the wheelhouse.

7-3A.2.5 Information and control functions shall be logically grouped. Information shall be arranged in accordance with its importance and purpose. Provision shall be made to prioritize the posting of information, which shall constantly be displayed and arranged in relation with other information. The display shall make use of the size and colour of the image and its placement on the screen to post high-priority information.

7-3A.2.6 Information provided on navigation shall be displayed together with the parameters, units of measurement, its purposes and sources.

7-3A.2.7 Information shall be clearly presented on the workspace of the screen (for example, map images and radar information) and one (or more) dialogue field(s) (for example for menus, information or control functions).

7-3A.2.8 Alphanumeric data, text, signs and graphic information (such as radar information) shall be clearly visible from the steering position. The colour and brightness of the image shall be appropriate for the lighting in the wheelhouse in daytime, at night and at twilight.

7-3A.2.9 For the display of alphanumeric data and text, clear, non-italic fonts shall be used.

### **C. Amendments to Chapter 15, “Special provisions for passenger vessels”**

3. *Replace* the first sentence of paragraph 15-9.1 *with* In addition to the life jackets specified in 10-5.4.2.1 (iii) and 10-5.4.3 (ii), passenger vessels shall be supplied with additional rigid lifejackets for children up to a weight of 30 kg or to an age of 6 years in a quantity equal to 10 per cent of the total number of passengers.

### **D. New Chapter 17**

4. *Add* new Chapter 17 *reading*

#### **Chapter 17, “Specific requirements applicable to floating equipment”**

##### **17-1 General**

For construction and equipment of floating equipment Chapters 3, 7 to 14 and 16 shall apply. Floating equipment with its own means of propulsion shall also meet the requirements of Chapters 5 and 6. Propulsion units permitting only short-haul operation shall not constitute own means of propulsion.

##### **17-2 Derogations**

17-2.1 The Administration may grant derogations from the following requirements:

- (i) Paragraphs 3-4.1.1 to 3-4.1.4 and 3-4.1.9 shall apply *mutatis mutandis*;

- (ii) Section 7-2 shall apply mutatis mutandis;
- (iii) the maximum sound pressure levels prescribed by paragraph 12-2.1.8, second sentence, may be exceeded while the floating equipment's working gear is operating, provided that, during service, nobody sleeps on board at night;
- (iv) derogations may be granted from other requirements concerning structure, working gear or equipment provided that equal safety is ensured in each case.

17-2.2 The Administration may dispense with the application of the following requirements:

- (i) Section 10-1, if during operation of floating equipment that equipment can be securely anchored by means of a working anchor or piles. However, floating equipment with its own means of propulsion shall have at least one anchor meeting the requirements of paragraph 10-1.2.1, where an empirical coefficient  $c$  is taken to be equal to 45, and the smallest height is taken for  $T$ , or of paragraph 10-1.2.2;
- (ii) Paragraph 12-4.1, second part of sentence, if the accommodation can be adequately lit by means of electricity.

17-2.3 In addition, the following shall apply:

- (i) for paragraph 8-1.6.2, second sentence, the bilge pump shall be motor driven;
- (ii) for paragraph 8B-8.3, the noise may exceed 65 dB(A) at a lateral distance of 25 m from the ship's side of any stationary floating equipment while its working gear is operating;
- (iii) for paragraph 10-3.1, at least one further portable extinguisher is required if working gear not permanently attached to the craft is placed on the deck. The extinguisher shall be located in the vicinity of this working gear;
- (iv) for paragraph 14-2.2, in addition to the liquefied-gas equipment for domestic use, there may also be other liquefied-gas facilities. Those facilities and their accessories shall meet the requirements of the Administration.

### **17-3 Additional requirements**

17-3.1 Floating equipment on which persons are present during operation shall be fitted with a general alarm system. The alarm signal shall be clearly distinguishable from other signals and, within accommodation and at all control centres, shall produce a sound pressure level that is at least 5 dB(A) higher than the maximum local sound pressure level. It shall be possible to actuate the alarm system from the wheelhouse and the main work stations.

17-3.2 Working equipment shall have sufficient strength to withstand the loads it is subjected to and shall meet the relevant requirements of the Administration.

17-3.3 The stability (resistance to overbalancing) and strength of working equipment, and where appropriate its attachments, shall be such that it may withstand the forces resulting from the expected heel, trim and movement of the floating equipment.

17-3.4 If loads are lifted by means of hoists the maximum authorized load deriving from stability and strength shall be prominently displayed on panels on deck and at the control stations. If the lifting capacity can be increased by connecting additional floats the values authorized both with and without these additional floats shall be clearly stated.

**17-4 Residual safety clearance**

17-4.1 For the purposes of this Chapter and by way of derogation from section 1-2, residual safety clearance means the shortest vertical distance between surface of the water and the lowest part of the floating equipment beyond which it is no longer watertight, taking into account trim and heel resulting from the moments referred to in paragraph 17-7.4.1.

17-4.2 The residual safety clearance is sufficient according to paragraph 17-7.1, for any spray-proof and weathertight aperture if it is at least 300 mm.

17-4.3 At an aperture that is not spray-proof and weathertight the residual safety clearance shall be at least 400 mm.

**17-5 Residual freeboard**

17-5.1 For the purposes of this Chapter and by way of derogation from section 1-2, residual freeboard means the smallest vertical distance between the surface of the water and the upper surface of the deck at its edge taking into account trim and heel resulting from the moments referred to in paragraph 17-7.4.1.

17-5.2 The residual freeboard is sufficient according to paragraph 17-7.1, if it is at least 300 mm.

17-5.3 The residual freeboard may be reduced if it is proven that the requirements of section 17-8 have been met.

17-5.4 Where the shape of a float differs perceptibly from that of a pontoon, as in the case of a cylindrical float, or where the cross-section of a float has more than four sides, the Administration may require or authorize a residual freeboard that differs from paragraph 17-5.2. This shall also apply to floating equipment consisting of several floats.

**17-6 Heeling test**

17-6.1 Confirmation of stability according to sections 17-7 and 17-8 shall be based on a heeling test that has been carried out in a proper manner.

17-6.2 If during a heeling test it is not possible to achieve adequate heeling angles, or if the heeling test causes unreasonable technical difficulties, this may be replaced by a calculation of the craft's centre of gravity and weight. The result of the weight calculation shall be checked by measuring the draught, and the difference shall not exceed  $\pm 5\%$ .

**17-7 Confirmation of stability**

17-7.1 It shall be confirmed that, when taking into account the loads applied during operation of the working gear and whilst under way, the residual freeboard and the residual safety clearance are sufficient. For that purpose the sum of the trim and heeling angles shall not exceed  $10^\circ$  and the bottom of the float shall not emerge.

17-7.2 Confirmation of stability shall include the following data and documents:

- (i) scale drawings of floats and working gear and the detailed data relating to these that are needed to confirm stability, such as content of the tanks, openings providing access to the inside of the vessel;
- (ii) hydrostatic data or curves;
- (iii) righting lever curves for static-stability to the extent required in accordance with subparagraph (v) below or section 17-8;

- (iv) description of the operating conditions together with the corresponding data concerning weight and centre of gravity, including its unladen state and the position of the working gear when the floating equipment is underway;
- (v) calculation of the heeling, trimming and righting moments, with a specification of the trim and heeling angles and the corresponding residual freeboard and residual safety clearances;
- (vi) a compilation of the results of the calculation with a specification of the limits for operation and the maximum loads.

17-7.3 Confirmation of stability shall be based on at least the following load assumptions:

- (i) specific mass of the dredging products for dredgers:
  - sands and gravels: 1,5 t/m<sup>3</sup>,
  - very wet sands: 2,0 t/m<sup>3</sup>,
  - soil, on average: 1,8 t/m<sup>3</sup>,
  - mixture of sand and water in the ducts: 1,3 t/m<sup>3</sup>;
- (ii) for clamshell dredgers, the values given under point (i) shall be increased by 15 %;
- (iii) for hydraulic dredgers the maximum lifting power shall be considered.

17-7.4 Confirmation of stability shall take account of the moments resulting from the operational conditions.

17-7.4.1 The above mentioned moments to be taken into account shall include in any way the moments resulting from:

- (i) load;
- (ii) asymmetric structure;
- (iii) wind pressure;
- (iv) turning whilst under way of self-propelled floating equipment;
- (v) cross current, if necessary;
- (vi) ballast and provisions;
- (vii) deck loads and, where appropriate, cargo;
- (viii) free surfaces of liquids;
- (ix) inertia forces;
- (x) other mechanical equipment.

The moments which may act simultaneously shall be added up.

17-7.4.2 The moment caused by the wind pressure shall be calculated in accordance with the following formula:

$$M_w = c \cdot \rho_w \cdot A \left( l_w + \frac{T}{2} \right) \quad [kNm]$$

where:

$c$  = shape-dependent coefficient of resistance

For frameworks  $c = 1.2$  and for solid-section beams  $c = 1.6$ . Both values take account of gusts of wind.

The whole area encompassed by the contour line of the framework shall be taken to be the surface area exposed to the wind.

$\rho_w$  = specific wind pressure; this shall uniformly be taken to be 0,25 kN/m<sup>2</sup>;

A = lateral plane above the plane of maximum draught in m<sup>2</sup>;

$l_w$  = distance from the centre of area of the lateral plane A from the plane of maximum draught, in m.

17-7.4.3 In order to determine the moments due to turning whilst under way according to subparagraph 17-7.4.1 (iv) for self-propelled floating equipment, the formula set out in section 15-3.6 shall be used.

17-7.4.4 The moment resulting from cross current according to subparagraph 17-7.4.1 (v) shall be taken into account only for floating equipment which is anchored or moored across the current while operating.

17-7.4.5 The least favourable extent of tank filling from the point of view of stability shall be determined and the corresponding moment introduced into the calculation when calculating the moments resulting from liquid ballast and liquid provisions according to subparagraph 17-7.4.1 (vi).

17-7.4.6 The moment resulting from inertia forces according to subparagraph 17-7.4.1 (ix) shall be given due consideration if the movements of the load and the working gear are likely to affect stability.

17-7.5 The righting moments for floats with vertical side walls may be calculated using the following formula:

$$M_a = 10 \cdot D \cdot \overline{MG} \cdot \sin \varphi \quad (kNm)$$

where:

$\overline{MG}$  = metacentric height, in m;

$\varphi$  = heeling angle in degrees.

That formula shall apply up to heeling angles of 10° or up to a heeling angle corresponding to immersion of the edge of the deck or emergence of the edge of the bottom; the smallest angle shall be decisive. The formula may be applied to slanting side walls up to heeling angles of 5°; the limit conditions set out in the sections 17-7.3 and 17-7.4 shall also apply. If the particular shape of the float(s) does not permit such simplification the righting lever curves according to subparagraph 17-7.2 (iii) shall be required.

#### 17-8 Confirmation of stability in the case of reduced residual freeboard

If a reduced residual freeboard according to paragraph 17-5.3 is used, it shall be proven for all operating conditions that:

- (i) after correction for the free surfaces of liquids, the metacentric height is not less than 0,15 m;
- (ii) for heeling angles between 0 and 30°, there is a righting lever of at least
 
$$h = 0,30 - 0,28 \cdot \varphi_n \text{ (m)}$$

$\varphi_n$  being the heeling angle from which the righting lever curve displays negative values (range of stability); it shall not be less than 20° or 0,35 rad and shall not be introduced into the formula for more than 30° or 0,52 rad, taking the radian (rad) ( $1^\circ = 0,01745$  rad) for the unit of  $\varphi^\circ$ ;

- (iii) the sum of the trim and heeling angles does not exceed 10°;
- (iv) a residual safety clearance meeting the requirements in section 17-4 remains;
- (v) a residual freeboard of at least 0,05 m remains;
- (vi) for heeling angles between 0 and 30°, a residual righting lever of at least

$$h = 0,20 - 0,23 \cdot \varphi_n \text{ (m)}$$

remains, where  $\varphi_n$  is the heeling angle from which the righting lever curve displays negative values; it shall not be introduced into the formula for more than 30° or 0,52 rad.

Residual righting lever means the maximum difference existing between 0° and 30° of heel between the righting lever curve and the heeling lever curve. If an opening towards the inside of the vessel is reached by the water at a heeling angle less than that corresponding to the maximum difference between the lever curves, the lever corresponding to that heeling angle shall be taken into account.

#### **17-9 Draught marks and draught scales**

Draught marks and draught scales shall be affixed in accordance with Article 6 of the Annex to the Convention on the Measurement of Inland Navigation Vessels of 15 February 1966.

#### **17-10 Floating equipment without confirmation of stability**

17-10.1 The application of sections 17-4 to 17-8 may be dispensed with for floating equipment:

- (i) whose working gear can in no way alter their heeling or trim, and
- (ii) where any displacement of the centre of gravity can be reasonably excluded.

17-10.2 However,

- (i) at maximum load the safety clearance shall be at least 300 mm and the freeboard at least 150 mm;
- (ii) for apertures which cannot be closed spray-proof and weathertight the safety clearance shall be at least 500 mm.

#### **17-11 Attestation of a recognized Classification Society**

The Administration may consider the requirements of sections 17-4 to 17-8 to be met by craft built in conformity with the rules of a recognized Classification Society, which shall be confirmed by an attestation of that Society.

## **E. New Chapter 18**

5. *Add new Chapter 18 reading*

## Chapter 18, “Specific requirements applicable to worksite craft”

### 18-1 General

18-1.1 Worksite craft designated as such in the ship’s certificate set out in Appendix 2 may navigate outside worksites only when unladen. That restriction shall be entered on the ship’s certificate. For this purpose worksite craft shall have a certificate issued by the Administration indicating the duration of works and the geographical boundaries of the worksite in which the craft may be operated.

18-1.2 Unless otherwise specified in this Chapter, the construction and equipment of worksite craft shall be in line with Chapters 3 to 14.

### 18-2 Derogations

18-2.1 The Administration may grant derogations from the following requirements:

- (i) Paragraphs 3-4.1.1 to 3-4.1.4 shall apply mutatis mutandis;
- (ii) Chapters 5 and 6 shall apply mutatis mutandis where the craft is self-propelled;
- (iii) Paragraph 10-1.4.5 shall apply mutatis mutandis;
- (iv) the Administration may grant exceptions to the other requirements concerning construction, arrangement and equipment provided that equivalent safety is proven in every case.

18-2.2 The Administration may dispense with the following provisions:

- (i) Paragraphs 8-1.6.2 to 8-1.6.8 if no crew is required;
- (ii) Paragraphs 10-1.2.1 and 10-1.3.1 if the worksite craft can be securely anchored by means of working anchors or piles. However, self-propelled worksite craft shall be equipped with at least one anchor meeting the requirements set out in paragraph 10-1.2.1, where coefficient  $c$  is taken to be 45 and  $T$  is taken to be the lowest height, or in paragraph 10-1.2.2.

### 18-3 Safety clearance and freeboard

18-3.1 If a worksite craft is used as a reclamation barge or a hopper barge, the safety clearance outside the hold area shall be at least 300 mm and the freeboard at least 150 mm. The Administration may permit a smaller freeboard if proof by calculation is provided that stability is sufficient for a cargo having a specific mass of  $1,5 \text{ t/m}^3$  and that no side of the deck reaches the water. The effect of liquefied cargo shall be taken into account.

18-3.2 The provisions of section 4-4.4 shall apply mutatis mutandis to worksite craft not covered by paragraph 18-3.1. The Administration may determine values departing from the above for safety clearance and freeboard.

### 18-4 Attestation of a recognized Classification Society

The Administration may consider the requirements of section 18-3 to be met by craft built in conformity with the rules of a recognized Classification Society, which shall be confirmed by an attestation of that Society.

### 18-5 Ship's boats

18-5.1 Worksite craft shall not be required to have a ship's boat where:

- (i) they are not self-propelled; or
- (ii) a ship's boat is available elsewhere on the worksite.

This derogation shall be entered on the ship's certificate.

**F. Amendments to Chapter 20B, "Special provisions applicable to river-sea navigation vessels"**

6. *Add new section 20B-8 reading*

**20B-8 SPECIFIC REQUIREMENTS APPLICABLE TO THE VESSELS FORMING THE PUSHED RIVER-SEA NAVIGATION CONVOYS**

**20B-8.1 Definitions**

20B-8.1.1 Pushed convoy with built-in thrust coupling device means a convoy where a pusher enters the aft cut-out of a barge for a certain length and is being connected with the barge in this point.

20B-8.1.2 Pushed convoy with transom thrust coupling device means a convoy where the barge aft end has no cut-outs for the pusher and a pusher has a pushing device being a part of the coupling device.

20B-8.1.3 Fixed coupling means a coupling type where the pusher and the barge form a common structural unit preventing any mutual displacements of both vessels.

20B-8.1.4 A coupling with restricted flexibility means a coupling type allowing mutual displacement of the pusher and the barge with one or two degrees of freedom (pitching or pitching and heaving modes).

**20B-8.2 Design requirements**

20B-8.2.1 For reasons of seaworthiness and for strength calculations, a convoy is considered as a single floating object.

20B-8.2.2 Common loads occurred between the two structures shall be taken by the system of contact surfaces of their hull structures. In case of a fixed coupling, the coupling shall be fixed by at least one power-driven locking device.

20B-8.2.3 For a coupling with restricted flexibility the coupling devices shall meet the following requirements in addition to paragraph 16-1.2 (excluding subparagraph (ii)):

- (i) the coupling device shall ensure coupling and uncoupling of the craft from a local control station or from the wheelhouse;
- (ii) the coupling device shall ensure uncoupling of the craft at the wave height corresponding to the navigation zone according to paragraph 20B-1.1.1 in case of flooding on any one compartment of the barge or the pusher and at permanent list up to 15°;
- (iii) the coupling device shall ensure uncoupling of the craft exposed to wind and waves at working loads;
- (iv) for hydraulically driven systems, the drive shall be mechanically fixed in the closed position with remote indication at the control station.

**20B-8.3 Vessels used for pushing**

20B-8.3.1 Vessels used for pushing shall meet the requirements for craft according to their navigation zone specified in paragraph 20B-1.1.1 as well as requirements of paragraph 16-1.1.

20B-8.3.2 In case of coupling with restricted flexibility the pusher shall be suitable also for towing.

20B-8.3.3 Anchor equipment of the pusher shall correspond to the equipment number according to section 20B-6.2.

20B-8.3.4 Mooring equipment of the pusher shall correspond to the equipment number according to section 20B-6.3.

**20B-8.4 Barge**

20B-8.4.1 A barge shall meet the requirements of section 16-2 as well as sections 20B-3, 20B-4, 20B-5, 20B-6.2 and 20B-6.3.

20B-8.4.2 At longitudinal strength calculations of the barge, the length between the fore and the aft perpendiculars shall be taken as the length between the fore perpendicular of the barge and the aft perpendicular of the pusher.

---