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## Economic Commission for Europe

### Inland Transport Committee

#### Working Party on Inland Water Transport

##### Fifty-fifth session

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Item 7 (b) 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

#### Addendum

#### Note by the secretariat

### I. Mandate

1. This document presents Appendix 1 of the draft resolution on additions and amendments to Resolution No. 61 on Recommendations on Harmonized Europe-Wide Technical Requirements for Inland Navigation Vessels (ECE/TRANS/SC.3/172/Rev.1). This appendix contains the amendments to the definitions used in Resolution No. 61, prepared in accordance with the decision of the fiftieth session of the Working Party on Inland Water Transport (SC.3) to further harmonize the text of Resolution No. 61 and Directive 2006/87/EC laying down technical requirements for inland waterway vessels in the Community (ECE/TRANS/SC.3/174, para. 33).

2. The draft amendments were finalized at the thirty-ninth session of the Working Party Working Party on the Standardization of Technical and Safety Requirements in Inland Navigation (SC.3/WP.3) (ECE/TRANS/SC.3/WP.3/78, para. 26). The background information on the proposal is available in Informal Documents SC.3/WP.3 (2011) Nos. 13 and 15.

3. The Working Party may wish to adopt the proposed text as part of the above-mentioned resolution on additions and amendments to Resolution No. 61. The draft resolution is presented in ECE/TRANS/SC.3/2011/9.

4. In doing so, the Working Party may wish to note that the proposed text reflects the decision of the fourth meeting of the Group of volunteer experts on Resolution No. 61 (18–20 April 2011) not to introduce the term “lighter” in the Russian text of the resolution. In view of the fact that in the Russian language the direct translation of the term “lighter” differs from the type of vessels meant in the definition, and of the absence of the official translation of Directive 2006/87 into Russian, the group came to the opinion that in the Russian version of Resolution No. 61 for this specific type of vessels, the relevant terms used in the Russian Federation could be employed.

## **II. Amendments to the definitions used in Resolution No. 61**

### **A. Amendments to Chapter 1**

5. *Amend* paragraph 1-1.2 to read:

1-1.2 In general, these Recommendations shall, with due regard to definitions in 1-2, apply to the following craft:

- (i) vessels having a length  $L$  of 20 meters or more;
- (ii) vessels for which the product of  $L \times B \times T$  is a volume of 100 m<sup>3</sup> or more.

6. *Amend* the first sentence in paragraph 1-1.3 to read:

1-1.3 These Recommendations shall also apply, with due regard to definitions in 1-2, to all of the following craft: [...]

7. For the text in Chapter 1-2 *substitute* the text in annex I.

### **B. Amendments to Chapter 6**

8. For the text of Chapter 6 *substitute* the text in annex II.

### **C. Amendments to other chapters**

9. *Replace* the term “pushed barges” with “lighters” in the following provisions of the resolution:

- (a) 9-2.4.6.5;
- (b) 10-1.2.1, in the explanation of the factor  $k$ ;
- (c) 10-1.3.1, (ii);
- (d) 10-5.4.3, last sentence;
- (e) 16-1.1 (i) and (ii);
- (f) 16-1.2 (iii);
- (g) 16-2, title;
- (h) 16-2.1;
- (i) 23-11.1, table and footnotes to the table.

10. Replace the term “ship-borne barges” with “ship-borne lighters” in the following provisions of the resolution:

- (a) 10-1.2.1, first sentence;
- (b) 16-2.2, introduction sentence;
- (c) 16-2.2 (ii).

**D. Amendments to Appendix II**

11. Replace term “vessel” with “craft” in the following entries of Appendix II on the model ship’s certificate:

- (a) on the cover page under remarks, and
- (b) in boxes 1, 2, 10, 12, 13 14, 15 and 50, second sentence.

## Annex I

### 1-2 Definitions

#### Types of craft

1. "Craft": a vessel or item of floating equipment;
2. "Vessel": an inland waterway vessel or sea-going ship;
3. "Inland waterway vessel": a vessel intended solely or mainly for navigation on inland waterways;
4. "Sea-going ship": a vessel-intended mainly for navigation at sea;
5. "Motor vessel": a motor cargo vessel or a motor tanker;
6. "Motor tanker": a vessel intended for the carriage of goods in fixed tanks and built to navigate independently under its own motive power;
7. "Motor cargo vessel": a vessel, other than a motor tanker, intended for the carriage of goods and built to navigate independently under its own motive power;
8. "Canal barge": an inland waterway vessel not exceeding 38.5 m in length and 5.05 m in breadth and usually operating on the Rhine-Rhone Canal;
9. "Tug": a vessel specially built to perform towing operations;
10. "Pusher": a vessel specially built to propel a pushed convoy;
11. "Barge": a dumb barge or tank barge;
12. "Tank barge": a vessel intended for the carriage of goods in fixed tanks and built to be towed, either having no motive power of its own or having only sufficient motive power to perform restricted manoeuvres;
13. "Dumb barge": a vessel, other than a tank barge, intended for the carriage of goods and built to be towed, either having no motive power of its own or having only sufficient motive power to perform restricted manoeuvres;
14. "Lighter": a tank lighter, cargo lighter or ship-borne lighter;
15. "Tank lighter": a vessel intended for the carriage of goods in fixed tanks, built or specially modified to be pushed, either having no motive power of its own or having only sufficient motive power to perform restricted manoeuvres when not part of a pushed convoy;
16. "Cargo lighter": a vessel, other than a tank lighter, intended for the carriage of goods and built or specially modified to be pushed, either having no motive power of its own or having only sufficient motive power to perform restricted manoeuvres when not part of a pushed convoy;
17. "Ship-borne lighter": a lighter built to be carried aboard sea-going ships and to navigate on inland waterways;
18. "Passenger vessel": a vessel constructed and equipped to carry more than 12 passengers;
19. "Passenger sailing vessel": a passenger vessel built and fitted out also with a view to propulsion under sail;

20. "Day-trip vessel": a passenger vessel without overnight passenger cabins;
21. "Cabin vessel": a passenger vessel with overnight passenger cabins;
22. "High-speed vessel": a motorized vessel, with the exception of small craft, capable of sailing at a speed greater than 40 km/h in relation to the surface of still water, when this is stated in its ship's certificate;
23. "Floating equipment": a floating installation carrying working gear such as cranes, dredging equipment, pile drivers or elevators;
24. "Worksite craft": a vessel, appropriately built and equipped for use at worksites, such as a reclamation barge, hopper or pontoon barge, pontoon or stone-dumping vessel;
25. "Recreational craft": a vessel other than a passenger vessel, intended for sport or pleasure;
26. "Ship's boat": a boat for use in transport, rescue, salvage and work duties;
27. "Floating establishment": any floating installation not normally intended to be moved, such as a swimming bath, dock, jetty or boathouse;
28. "Floating object": a raft or other structure, object or assembly capable of navigation, not being a vessel or floating equipment or establishment;
29. "Flush-deck vessel": a vessel which has no superstructure on its freeboard deck;

#### **Assemblies of craft**

30. "Convoy": a rigid or towed convoy of craft;
31. "Formation": the manner in which a convoy is assembled;
32. "Rigid convoy": a pushed convoy or side-by-side formation;
33. "Pushed convoy": a rigid assembly of craft of which at least one is positioned in front of the one or two vessels providing the power for propelling the convoy, known as the "pusher(s)"; a convoy composed of a pusher and a pushed craft coupled so as to permit guided articulation is also considered as rigid;
34. "Side-by-side formation": an assembly of craft coupled rigidly side by side, none of which is positioned in front of the vessel propelling the assembly;
35. "Towed convoy": an assembly of one or more craft, floating establishments or floating objects towed by one or more vessels forming part of the convoy;

#### **Particular areas on board**

36. "Machinery space": is the part of the vessel housing the main and auxiliary machinery.
37. "Main engine room": space where the propulsion engines are installed;
38. "Engine room": space where combustion engines are installed;
39. "Boiler room": a space housing a fuel-operated installation designed to produce steam or heat a thermal fluid;
40. "Enclosed superstructure": a watertight, rigid, continuous structure with rigid walls jointed to the deck in a permanent and watertight manner;
41. "Wheelhouse": the area which houses all the control and monitoring instruments necessary for manoeuvring the vessel;

42. "Accommodation": a space intended for the use of persons normally living on board, including galleys, storage space for provisions, toilets and washing facilities, laundry facilities, anterooms and passageways, but not the wheelhouse;
43. "Passenger area": areas on board intended for passengers and enclosed areas such as lounges, offices, shops, hairdressing salons, drying rooms, laundries, saunas, toilets, washrooms, passageways, connecting passages and stairs not encapsulated by walls;
44. "Control centre": a wheelhouse, an area which contains an emergency electrical power plant or parts thereof or an area with a centre permanently occupied by on-board personnel or crew members, such as for fire alarm equipment, remote controls of doors or fire dampers;
45. "Stairwell": the well of an internal staircase or of a lift;
46. "Lounge": a room of an accommodation or a passenger area. On board passenger vessels, galleys are not regarded as lounges;
47. "Galley": a room with a stove or a similar cooking appliance;
48. "Store room": a room for the storage of flammable liquids or a room with an area of over 4 m<sup>2</sup> for storing supplies;
49. "Hold": part of the vessel, bounded fore and aft by bulkheads, opened or closed by means of hatch covers, intended for the carriage of goods, whether packaged or in bulk, or for housing tanks not forming part of the hull;
50. "Fixed tank": a tank joined to the vessel, the walls of the tank consisting either of the hull itself or of a casing separate from the hull;
51. "Working station": an area where members of the crew carry out their duties, including gangway, derrick and ship's boat;
52. "Passageway": an area intended for the normal movement of persons and goods;
53. "Safe area": the area which is externally bounded by a vertical surface running at a distance of 1/5 B<sub>WL</sub> parallel to the course of the hull in the line of maximum draught;
54. "Muster areas": areas of the vessel which are specially protected and in which passengers muster in the event of danger;
55. "Evacuation areas": part of muster areas of the vessel from which evacuation of persons can be carried out;

#### **Marine engineering terms**

56. "Main machinery": is that designed to drive the propelling mechanisms and/or serving the main purpose of the craft;
57. "Auxiliary machinery": is that which contributes to the operation of the main machinery and that which supplies the vessel with all forms of power necessary for the operation of the vessel's various systems and installations;
58. "Plane of maximum draught": the water plane corresponding to the maximum draught at which the craft is authorised to navigate;
59. "Safety clearance": the distance between the plane of maximum draught and the parallel plane passing through the lowest point above which the craft is no longer deemed to be watertight;

60. “Residual safety clearance”: the vertical clearance available, in the event of the craft heeling over, between the water level and the lowest point of the immersed side, beyond which the craft is no longer regarded as watertight;
61. “Freeboard (f)”: the distance between the plane of maximum draught and a parallel plane passing through the lowest point of the gunwale or, in the absence of a gunwale, the lowest point of the upper edge of the craft’s side;
62. “Residual freeboard”: the vertical clearance available, in the event of the craft heeling over, between the water level and the upper surface of the deck at the lowest point of the immersed side or, if there is no deck, the lowest point of the upper surface of the fixed craft’s side;
63. “Freeboard deck”: the deck from which the freeboard is measured shall normally be the uppermost complete deck exposed to the weather, up to which the watertight bulkheads of the hull extend and below which all openings in the craft’s sides are fitted with permanent watertight closures;
- In vessels having a discontinuous freeboard deck, the lowest part of the exposed deck and the continuation of that deck parallel to the upper part of the deck shall be taken as the freeboard deck;
64. “Margin line”: an imaginary line drawn on the side plating not less than 10 cm below the bulkhead deck and not less than 10 cm below the lowest non-watertight point of the side plating. If there is no bulkhead deck, a line drawn not less than 10 cm below the lowest line up to which the outer plating is watertight shall be used;
65. “Water displacement ( $\nabla$ )”: the immersed volume of the vessel, in  $m^3$ ;
66. “Displacement ( $\Delta$ )”: the total weight of the vessel, inclusive of cargo, in t;
67. “Block coefficient ( $C_B$ )”: the ratio between the water displacement and the product of length  $L_{WL}$ , breadth  $B_{WL}$  and draught  $T$ ;
68. “Lateral plane above water ( $A_W$ )”: lateral plane of the vessel above the waterline in  $m^2$ ;
69. “Bulkhead deck”: the deck to which the required watertight bulkheads are taken and from which the freeboard is measured;
70. “Bulkhead”: a wall of a given height, usually vertical, partitioning the vessel and bounded by the bottom of the vessel, the plating or other bulkheads;
71. “Transverse bulkhead”: a bulkhead extending from one side of the vessel to the other;
72. “Wall”: a dividing surface, usually vertical;
73. “Partition wall”: a non-watertight wall;
74. “Length (L)”: the maximum length of the hull in m, excluding rudder and bowsprit;
75. “Length overall ( $L_{OA}$ )”: the maximum length of the craft in m, including all fixed installations such as parts of the steering system or power plant, mechanical or similar devices;
76. “Length of waterline ( $L_{WL}$ )”: the length of the hull in m, measured at the maximum draught;
77. “Breadth (B)”: the maximum breadth of the hull in m, measured to the outer edge of the shell plating (excluding paddle wheels, rub rails, and similar);

78. “Breadth overall ( $B_{OA}$ )”: the maximum breadth of the craft in m, including all fixed equipment such as paddle wheels, rub rails, mechanical devices and the like;
79. “Breadth of waterline ( $B_{WL}$ )”: breadth of the hull in m, measured from the outside of the side plating at the maximum draught line;
80. “Height (H)”: the shortest vertical distance in m between the lowest point of the hull or the keel and the lowest point of the deck on the side of the craft;
81. “Draught (T)”: the vertical distance in m between the lowest point of the hull or the keel and the maximum draught line;
82. “Forward perpendicular”: the vertical line at the forward point of the intersection of the hull with the maximum draught line;
83. “Clear width of side deck”: the distance between the vertical line passing through the most prominent part of the hatch coaming on the side deck side and the vertical line passing through the inside edge of the slip guard (guardrail, foot rail) on the outer side of the side deck;
84. “Liquid cargo”: all liquids carried on the vessel, including: cargo, stores, ballast, etc.;
85. “Stores”: cargo consumed in the operation of the vessel (fuel, lubricating oil, fresh water, provisions, etc.);
86. “Empty vessel”: a vessel that is fully prepared and equipped with machinery and systems, but with no cargo, passengers, liquid ballast or stores;
87. “Critical angle ( $\phi_n$ )”: angle of heel at which water begins to fill the vessel through unsecured openings, but not exceeding the angle at which the edge of the freeboard deck is submerged, or at which the middle of the bilge leaves the water;
88. “Capsizing angle ( $\phi_c$ )”: angle of heel at which the vessel begins to capsize under the effect of the heeling moment;
89. “Permissible angle ( $\phi_{perm}$ )”: angle of heel which should not be exceeded and which should be prescribed by the competent authority for the type of vessel under consideration. In general it corresponds to the critical angle  $\phi_n$ , but should not be greater than the capsizing angle  $\phi_c$ ;
90. “Amidships”: is at the middle of the length ( L );

### **Steering system**

91. “Steering system”: all the equipment necessary for steering the vessel, such as to ensure the manoeuvrability laid down in Chapter 5;
92. “Rudder”: the rudder or rudders, with shaft, including the rudder quadrant and the components connecting with the steering apparatus;
93. “Steering apparatus”: the part of the steering system which produces the movement of the rudder;
94. “Drive unit”: the steering-apparatus drive, between the power source and the steering apparatus;
95. “Power source”: the power supply to the steering drive unit and the steering apparatus produced by an on-board network, batteries or an internal combustion engine;
96. “Steering control”: the component parts and circuitry for the operation of a power-drive unit of the steering apparatus;



97. “Steering apparatus control unit”: the control for the steering apparatus, its drive unit and its power source;<sup>1</sup>
98. “Manual drive”: a system whereby manual operation of the hand wheel moves the rudder by means of a mechanical transmission, without any additional power source;
99. “Manually-operated hydraulic drive”: a manual control actuating a hydraulic transmission;
100. “Rate-of-turn regulator”: equipment which automatically produces and maintains a given rate of turn of the vessel in accordance with pre-selected values;
101. “Wheelhouse designed for radar navigation by one person”: a wheelhouse arranged in such a way that, during radar navigation, the vessel can be manoeuvred by one person;

#### **Electrical equipment and automation**

102. “Earthing”: means electrical connection to the mass of the hull;
103. “Hull return”: the distribution of direct or alternating current is said to be of the “hull return” type when the insulated conductors are connected to one of the feed poles and the hull or superstructure is connected to the other pole;
104. “Safe voltage”: means a voltage presenting no danger to persons. This condition shall be deemed to be satisfied if the windings of transformers, converters and other voltage-reducing devices are electrically separate and the reduced voltage of such devices or the voltage of sources of electric power does not exceed 50 V between the poles in the case of direct current, or between phases in the case of alternating current;
105. “Automated power installation”: is an installation equipped with automatic control, monitoring and protection of the main and auxiliary machinery and related systems interconnected by remote signalling devices;
106. “Automation system”: is the complex of automation elements, appliances and connections intended for performing prescribed functions in the field of control and monitoring;
107. “Automated remote control system”: is an automation system that provides control and monitoring of the operation of the vessel’s machinery from a remote control station by means of single manipulating of the control element (e.g. handle) by the operator and performs automatically all intermediate operations on preparation for putting into operation, switching on, changing operation modes, reversal, blocking and switching off the main and auxiliary machinery and its systems;
108. “Remote control system”: is an automation system that provides control and monitoring of the operation of an individual vessel’s machinery from a remote control station by means of manipulating the control element by the operator for performing all operations including intermediate ones;
109. “Alarm system”: is an automation system that provides actuating visual and acoustic signals when the controlled parameters reach the limit values or deviations from normal working ranges of the power installation occur;
110. “Safety system”: is an automation system that provides a certain automatic influence on the controlled installation in order to prevent its failure;

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<sup>1</sup> [Not applicable to the English text]

111. "Element of an automation system": is electric, electronic or other device being the part of the automation system (sensor, relay, amplifier, chip, logic element, etc.);

112. "Indicator system": is one that provides the operator with current information on the monitored physical parameters of the installation (mechanism, system) and changes in these parameters, and is capable of being incorporated into the overall system of automation;

#### **Properties of structural components and materials**

113. "Watertight": a structural component or device so fitted as to prevent any ingress of water;

114. "Spray-proof and weather-tight": a structural component or device so fitted that in normal conditions it allows only a negligible quantity of water to penetrate;

115. "Gastight": a structural component or device so fitted as to prevent the ingress of gas and vapours;

116. "Non-combustible": a substance which neither burns nor produces flammable vapours in such quantities that they ignite spontaneously when heated to approximately 750 °C;

117. "Flame-retardant": material which does not readily catch fire, or whose surface at least restricts the spread of flames pursuant to the test procedure referred to in section 15.11.1;

118. "Fire-resistance": the property of structural components or devices as certified by the test procedure referred to in section 15.11.1;

119. "Code for Fire Test Procedures": the International Code for the Application of Fire Test Procedures adopted under Resolution MSC.61(67) by the Maritime Safety Committee of the IMO;

#### **Other definitions**

120. "Recognized classification society": a classification society which has been recognized in accordance with the criteria and the procedures of Appendix VI;

121. "Navigation lights": appearances of navigation lights for the identification of craft;

122. "Light signals": signal lights are the light signals emitted by signal lanterns;

123. "Radar installation": an electronic navigational aid for detecting and displaying the surroundings and traffic;

124. "Inland ECDIS": a standardized system for displaying electronic navigational charts for inland waters and associated information, that displays selected information from proprietary electronic navigational charts for inland waters and optionally information from other sensors of the craft;

125. "Inland ECDIS installation ": an installation for displaying electronic navigational charts for inland waters that can be operated in two different modes: information mode and navigation mode;

126. "Information mode": use of Inland ECDIS for information purposes only without radar overlay;

127. "Navigation mode": use of Inland ECDIS with radar overlay for navigating a craft;

128. "Oil-containing water": mixture of water and any quantity of oil formed in the course of operation of a vessel, except for cargo waste;

129. “Domestic waste water”: waste water from galleys, messes, bathrooms (showers and wash basins) or laundries, and human waste water;
130. “Vessel operation refuse”: waste formed in the course of operation of the vessel except for cargo waste.
131. “Household refuse”: organic and inorganic household waste (e.g. remains of food, paper, glass and similar kitchen waste) which does not contain vessel operation refuse;
132. “Collective life-saving appliances”: lifeboats, liferafts, ship’s boats and life-saving buoyancy aids intended for rescue of passengers and the ship’s crew;
133. “Lifeboat”: a boat intended for rescue of people in distress complying with the requirements of the Basin administration, a recognized Classification Society or the International Life-Saving Appliance Code (LSA) of IMO;
134. “Liferaft”: a raft intended for rescue of people in distress, keeping them out of the water complying with the requirements of the Basin administration, a recognized Classification Society or the International Life-Saving Appliance Code (LSA) of IMO;
135. “Life-saving buoyancy aids”: means intended for supporting several persons overboard on the water surface;
136. “Individual life-saving appliances”: means intended for supporting a person overboard on the water surface. They include lifejackets and lifebuoys;
137. “Ship’s certificate”: a certificate issued to a vessel by the competent authority, signifying compliance with the technical requirements of this Resolution;
138. “Administration”: the Administration of the country in which the vessel is registered, or which issues the ship’s certificate;
139. “Basin administration”: the national or international organization that is competent to decide regulations on waterways within a geographical area;
140. “New vessel”: a vessel the keel of which is laid, or which is at a comparable stage of construction, on or after the date of entry into force of these Recommendations decided by the Administration;
141. “Existing vessel”: a vessel in the possession of a valid ship’s certificate or another permission to navigate on the day before the entry into force of these Recommendations decided by the Administration;
142. “Shipboard personnel”: all employees on board a passenger vessel who are not members of the crew;
143. “Persons with reduced mobility”: persons facing particular problems when using public transport, such as the elderly and the handicapped and persons with sensory disabilities, persons in wheelchairs, pregnant women and persons accompanying young children.

## Annex II

### Draft revised Chapter 6

#### Steering system

##### 6-1 General requirements

6-1.1 Vessels shall be fitted with a reliable steering system which ensures provides at least the manoeuvrability required by in chapter 5.

6-1.2 Steering systems shall be so constituted that the rudder position cannot change unintentionally.

6-1.3 The entire steering gear system shall be designed for a permanent list up to 15°, an angle of trim up to 5° and ambient temperatures from – 20 °C to + 50 °C.

6-1.4 The component parts of the steering system shall be rugged enough to always to be able to withstand the stresses to which they may be subjected during normal operation. No external forces applied to the rudder shall impair the operating capacity of the steering system.

6-1.5 The steering system shall comprise a powered-drive unit if the forces required to actuate the rudder require so.

6-1.6 The power-driven unit of the steering apparatus shall be protected against overload by means of an arrangement that restricts the torque applied by the drive unit.

6-1.7 The penetrations for the rudder stocks shall be so designed as to prevent the spread of water-polluting lubricants.

##### 6-2 Steering apparatus drive unit

6-2.1 If the steering apparatus has a powered drive unit, a second independent drive unit or an additional manual drive shall be present. In case of failure or malfunctioning of the drive unit, it shall be possible to bring the second independent drive unit or a the manual drive into operation within five seconds.

6-2.2 If the second steering apparatus control drive unit or manual drive is not automatically brought into service, it shall be possible for the helmsman to bring it into service simply and rapidly by means of a single manipulation.

6-2.3 The second drive unit or manual drive shall ensure the manoeuvrability prescribed in chapter 5 as well.

##### 6-3 Hydraulic drive unit

6-3.1 No other power consumers may be connected to the hydraulic steering apparatus drive unit.

6-3.2 Hydraulic tanks shall be equipped with a warning system that monitors a dropping of the oil level below the lowest content level needed for safe operation.

6-3.3 The dimensions, design and arrangement of the pipework shall, as far as possible, exclude mechanical damage ore damage resulting from fire.

6-3.4 Hydraulic hoses are:

- (i) only permissible, if vibration absorption or freedom of movement of components makes their use inevitable;
- (ii) to be designed for at least the maximum service pressure;
- (iii) to be renewed at the latest every eight years.

#### **6-4 Power source**

6-4.1 Steering systems equipped with two powered drive units shall have at least two power sources.

6-4.2 If the second power source for the power-driven unit is not permanently available while the vessel is under way, a buffer device is required. Its capacity shall be sufficient to provide power during the period needed for bringing the second power source into operation.

6-4.3 In the case of electrical power sources, no other consumers may be powered by the network supplying the steering system.

#### **6-5 Manual drive**

6-5.1 The hand wheel shall not be driven by a powered drive unit.

6-5.2 Regardless of rudder position, a kickback of the wheel must be prevented when the manual drive is engaged automatically.

#### **6-6 Rudder-propeller, water-jet, cycloidal-propeller, and bow thruster systems**

6-6.1 Where the thrust vectoring of rudder-propeller, water-jet, cycloidal-propeller or bow-thruster installations is remotely actuated from the wheelhouse there shall be two steering apparatus control units each independent of the other, which, mutatis mutandis, meet the requirements of paragraphs 6-1 to 6-5. Such systems are not subject to this section, if they are not necessary in order to achieve the manoeuvrability required by chapter 5 or if they are only needed for the stopping test.

6-6.2 Where there are several rudder-propeller, water-jet, cycloidal-propeller or bow-thruster systems that are independent of each other, the second steering apparatus control unit is not necessary if the vessel retains the manoeuvrability required by chapter 5 if one of the units fails.

#### **6-7 Indicators and monitoring devices**

6-7.1 The rudder position shall be clearly displayed at the steering position. If the rudder position indicator is electrical, it shall have its own power supply.

6-7.2 There shall be at least the following optical and acoustic alarm devices at the steering position:

- (i) oil level in the hydraulic tanks in accordance with paragraph 6-3.2, and working pressure of the hydraulic system;
- (ii) failure of the electrical supply for the steering control;
- (iii) failure of the electrical supply for the drive units;
- (iv) failure of the rate-of-turn regulator;
- (v) failure of the required buffer devices.

## **6-8 Rate-of-turn regulators**

6-8.1 The rate-of-turn regulators and their components shall meet the requirements laid down in paragraph 9-2.18.

6-8.2 The proper functioning of the rate-of-turn regulator shall be displayed at the steering position by means of a green warning light. Any lack of or unacceptable variations in the supply voltage and an unacceptable fall in the speed of rotation of the gyroscope shall be monitored.

6-8.3 Where, in addition to the rate-of-turn regulator, there are other steering control systems, it shall be possible to distinguish clearly at the steering position which of these systems has been activated. It shall be possible to shift from one system to another immediately. The rate-of-turn regulator shall not have any influence on these other steering control systems.

6-8.4 The electrical supply to the rate-of-turn regulator shall be independent of that for the other power consumers.

6-8.5 The gyroscopes, detectors and rate-of-turn indicators used in the rate-of-turn regulators shall meet the minimum requirements and test conditions concerning rate-of-turn indicators for inland waterways as set by the competent authority.

## **6-9 Acceptance and periodical inspections**

6-9.1 The correct installation of the steering system shall be checked by a competent authority. It may, for this purpose, request the following documents:

- (i) description of the steering system;
- (ii) drawings and information on the steering apparatus drive units;
- (iii) information concerning the steering apparatus;
- (iv) electrical wiring diagram;
- (v) description of the rate-of-turn regulator;
- (vi) operating and maintenance instructions for the steering system.

6-9.2 Operation of the entire steering system shall be checked by means of a navigation test. If a rate-of-turn regulator is installed it shall be checked that a predetermined course can be reliably maintained and that bends can be negotiated safely.

6-9.3 Power-driven steering systems shall be inspected by an expert:

- (i) before being put into service;
- (ii) after a failure;
- (iii) after any modification or repair;
- (iv) regularly at least every three years.

6-9.4 The inspection has to cover at least:

- (i) a check of conformity with the approved drawings and at periodical inspections whether alterations in the steering system were made;
- (ii) a functional test of the steering system for all operational possibilities;
- (iii) a visual check and a tightness check of the hydraulic components, in particular valves, pipelines, hydraulic hoses, hydraulic cylinders, hydraulic pumps, and hydraulic strainers;

- (iv) a visual check of the electrical components, in particular relays, electric motors and safety devices;
- (v) a check of the optical and acoustic control devices.

6-9.5 An inspection certificate, signed by the inspector, shall be issued, showing the date of inspection.

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