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Working Party on Inland Water
Transport

Working Party on the Standardization
of Technical and Safety Requirements
in Inland Navigation
(Seventeenth session, 16-18 February 1999,
agenda item 3)

AMENDMENT OF THE RECOMMENDATIONS ON TECHNICAL REQUIREMENTS
FOR INLAND NAVIGATION VESSELS

(ANNEX TO RESOLUTION NO. 17 REVISED)

Addendum 1

Note by the secretariat

The secretariat reproduces below the texts of the Rhine Vessel Inspection Regulations (RVBR) identified according to the comparison table contained in TRANS/SC.3/WP.3/R.80, corresponding to chapters 14-17 of the annex to resolution No. 17 revised.

This document, along with documents TRANS/SC.3/WP.3/R.63, TRANS/SC.3/WP.3/R.64 and Corr.1 and 2, TRANS/SC.3/WP.3/R.84/Rev.1, TRANS/SC.3/WP.3/R.84/Add.1 and Corr.1, TRANS/SC.3/WP.3/R.84/Add.2, TRANS/SC.3/WP.3/R.99 and Add.1 and TRANS/SC.3/WP.3/1998/5, completes the translation of the full text of RVBR based on the existing structure of the annex to resolution No. 17 revised.

Rhine Vessel Inspection Regulations (RVBR) 1995	Annex to resolution No. 17 revised	Comments
1	2	3
<p style="text-align: center;">CHAPTER 16</p> <p style="text-align: center;">SPECIAL PROVISIONS FOR VESSELS TO BE MADE UP INTO PUSHED CONVOYS, TOWED CONVOYS OR SIDE-BY-SIDE FORMATIONS</p> <p style="text-align: center;">Article 16.01</p> <p style="text-align: center;"><i>Pusher vessels</i></p> <p>1. Vessels which are to be used for pushing must be fitted with a suitable pushing device. They shall be so constructed and equipped as to</p> <p style="padding-left: 40px;">(a) allow the crew to cross easily and safely to the pushed vessel with the means of coupling;</p> <p style="padding-left: 40px;">(b) allow them to take up a specified position after coupling in relation to coupled vessels; and</p> <p style="padding-left: 40px;">(c) prevent any lateral displacement of the vessels.</p> <p>2. If the couplings are effected by means of cables, pusher vessels shall be equipped with at least two special winches or equivalent coupling devices.</p> <p>3. The coupling devices shall ensure the rigid coupling of the pushed vessel or vessels.</p> <p>For pushed convoys comprising a pusher vessel and a single pushed vessel, the coupling devices shall allow for controlled articulation. The control systems required for this purpose shall have no difficulty in absorbing the forces to be transmitted and shall be easy and safe to control. Articles 6.02 to 6.04 are applicable by analogy to these control systems.</p>	<p style="text-align: center;">CHAPTER 14</p> <p style="text-align: center;">PUSHERS AND SELF-PROPELLED PUSHER VESSELS, PUSHED BARGES AND PUSHED CONVOYS</p> <p style="text-align: center;">(the text of this chapter, as revised by SC.3, can be found in TRANS/SC.3/104/ Add.3)</p>	<p>See comments in document TRANS/SC.3/ WP.3/R.80</p>

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<p>4. For pushers the collision bulkhead referred to in article 3.03, 1 (a) is not required.</p> <p style="text-align: center;">Article 16.02</p> <p style="text-align: center;"><i>Pushed vessels</i></p> <p>1. The following do not apply to barges without steering gear, accommodation, engine rooms or boilers:</p> <p style="padding-left: 40px;">(a) chapters 5 to 7 and 12;</p> <p style="padding-left: 40px;">(b) articles 8.06, 2 to 8, 10.02 and 10.05 (1).</p> <p>If steering gear, accommodation, engine rooms or boilers exist, the corresponding requirements of these Regulations shall apply to them.</p> <p>2. Ships' barges having a length L of 40 m or less shall also meet the following structural requirements:</p> <p style="padding-left: 40px;">(a) The watertight transverse bulkheads referred to in article 3.03, 1, shall not be required if the forward side is capable of bearing a load equal to or at least 2.5 times that stipulated for the collision bulkhead of an inland waterway craft with the same draught, built to the requirements of a classification society approved by all the Rhine river States and Belgium;</p> <p style="padding-left: 40px;">(b) Notwithstanding article 8.06, 1, compartments with inaccessible double bottoms need be balable only if their volume exceeds 5% of the displacement of the barge at maximum loaded draught.</p> <p>3. Other vessels which need to be pushed shall be fitted with coupling devices permitting a safe connection to be made with other vessels.</p>		

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<p style="text-align: center;">Article 16.03</p> <p style="text-align: center;"><i>Vessels to propel side-by-side formations</i></p> <p>Vessels for propelling side-by-side formations shall be equipped with bollards or similar devices the number and arrangement of which permit the formation to be securely linked.</p> <p style="text-align: center;">Article 16.04</p> <p style="text-align: center;"><i>Vessels to form part of convoys</i></p> <p>Vessels to form part of convoys shall be equipped with coupling devices, bollards or equivalent devices the number and arrangement of which permit a secure link with the other vessel or vessels of the convoy.</p> <p style="text-align: center;">Article 16.05</p> <p style="text-align: center;"><i>Towing vessels</i></p> <p>1. Vessels to be used for towing operations shall meet the following requirements:</p> <ul style="list-style-type: none"> (a) Towing equipment shall be so arranged that its use does not impair the safety of the vessel, the crew or the cargo; (b) Vessels to be used for towing shall be equipped with tow hooks that can be safely disengaged from the wheelhouse; (c) Towing devices shall consist of winches or tow hooks which can be disengaged from the wheelhouse. Such towing devices shall be installed forward of the propeller plane. This requirement shall not apply to vessels steered by propulsion units such as cycloidal or rudder propellers; (d) Notwithstanding the requirements of (c) above, in the case of vessels to be used only for auxiliary towing duties, a towing device such as a bollard, to be installed forward of the propeller plane, may be used; 		

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<p>(e) Where cables may become caught on the stern of the vessel, guide rings shall be fitted.</p> <p>2. Vessels with a length L of more than 86 m shall not be authorized for downstream towing.</p>		
<p style="text-align: center;">Article 16.06</p> <p style="text-align: center;"><i>Tests for convoys</i></p> <p>1. For the purpose of the issue of the certificate of serviceability of the pusher or self-propelled barge for ensuring the propulsion of a rigid convoy and the insertion of the relevant particulars in the inspection certificate, the Inspection Commission shall decide whether convoys are to be presented to it for inspection and which convoys, and shall carry out the navigation tests described in article 5.02 with the convoy in the requested formation or formations which it considers to be least favourable. The convoy must meet the requirements set out in articles 5.02 to 5.10.</p> <p>The Inspection Commission shall verify that the rigid coupling of all the vessels in the convoy is assured during the manoeuvres prescribed in chapter 5.</p> <p>2. If in the course of the tests referred to in paragraph 1 special equipment installed on vessels pushed or steered in side-by-side formation is used, such as steering gear, propelling or manoeuvring installations or articulated couplings, to meet the requirements of articles 5.02 to 5.10, the inspection certificate of the vessel ensuring the propulsion of the convoy must specify: the formation, its position, and the name and official number of the permitted vessels used which are fitted with special equipment.</p>		

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<p style="text-align: center;">Article 16.07</p> <p style="text-align: center;"><i>Entries on the inspection certificate</i></p> <p>1. If a vessel is intended to push a convoy or to be pushed in a convoy, the inspection certificate shall state that it conforms to the applicable requirements of articles 16.01 to 16.06.</p> <p>2. The following particulars shall be included in the inspection certificate of the vessel intended to ensure propulsion:</p> <p style="margin-left: 40px;">(a) The convoys and formations permitted;</p> <p style="margin-left: 40px;">(b) Types of coupling;</p> <p style="margin-left: 40px;">(c) Maximum coupling forces transmitted and,</p> <p style="margin-left: 40px;">(d) Where relevant, minimum breaking strength of the coupling cables of the longitudinal connection and the number of turns of the cables.</p> <p style="text-align: center;">CHAPTER 15</p> <p style="text-align: center;">SPECIAL PROVISIONS FOR PASSENGER CRAFT</p> <p>The definitions appear in chapter 1.01 (see document TRANS/SC.3/WP.3/R.84/Rev.1).</p> <p>Not mentioned. The requirements apply only to zone 3. Passenger craft must have their own means of propulsion (15.01-2).</p> <p>General provisions are reproduced in article 15.01 (see document TRANS/SC.3/WP.3/R.84/Rev.1).</p>	<p style="text-align: center;">CHAPTER 15 SPECIAL PROVISIONS FOR PASSENGER VESSELS</p> <p style="text-align: center;">15-1 Definitions</p> <p style="text-align: center;">15-2 Scope</p> <p style="text-align: center;">15-3 General provisions</p>	

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<p>Article 15.03 "Transverse bulkheads" is reproduced in document TRANS/SC.3/WP.3/R.84/Rev.1.</p> <p>Article 15.04 "Intact stability and stability in the event of a leak" is reproduced in document TRANS/SC.3/WP.3/R.84/Rev.1.</p> <p style="text-align: center;">Article 15.05</p> <p style="text-align: center;"><i>Calculation of the number of passengers on the basis of free deck area</i></p> <p>1. If articles 15.04 and 15.06 are complied with, the Inspection Commission shall determine the maximum permitted number of passengers as follows:</p> <p>(a) The total area of free deck normally reserved for passengers shall be taken as the basis of the calculation.</p> <p>However, deck space occupied by cabins and lavatories and spaces used permanently or temporarily for operating the vessel shall not be included in the calculation even if passengers have access to them. The spaces situated below the main deck shall not be taken into consideration. However, spaces below the main deck having large windows above deck may be included in the calculation.</p>	<p>15-4 Specific requirements concerning transverse bulkheads</p> <p>15-5 Intact stability and damage stability in the event of a leak</p> <p>15-6 Calculation of number of passengers on the basis of free deck area</p>	<p>See the comments in TRANS/SC.3/WP.3/R.80</p> <p>See the comments in TRANS/SC.3/WP.3/R.80</p>

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<p>(b) The following shall be deducted from the total area calculated according to (a):</p> <p>areas of corridors, stairways and other passageways;</p> <p>areas under stairways;</p> <p>areas currently occupied by gear or furniture;</p> <p>areas under lifeboats and life rafts even if they are placed at a height such that passengers can stand upright underneath them;</p> <p>small areas, particularly between seats or tables of which effective use cannot be made.</p> <p>(c) The load of passengers shall be calculated as 2.5 passengers per m² of free deck area as specified in (a) and (b); however, this load shall be 2.8 passengers for vessels of a length L_F of less than 25 m.</p> <p>2. The maximum permitted number of passengers shall be indicated on clearly legible notices posted on board in clearly visible places. For vessels with cabins which are also used for day excursions, the number of passengers shall be calculated as for a day excursion vessel and as a vessel with cabins and entered in the inspection certificate.</p> <p>For each of these numbers of passengers, articles 15.02 and 15.04 shall be complied with.</p> <p>For vessels with cabin accommodation which are exclusively used for voyages which include nights, the number of passenger berths shall be the determining factor.</p>		

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<p style="text-align: center;">Article 15.06</p> <p style="text-align: center;"><i>Safety distance, freeboard and draught marks</i></p> <p>1. The safety distance shall be at least equal to the sum:</p> <ul style="list-style-type: none"> (a) of the additional lateral draught, measured at the shell plating, resulting from the permitted angle of list and (b) the residual safety distance prescribed in article 15.04, 2 and 7. <p>For vessels without a bulkhead deck, the safety distance shall be not less than 0.50 m.</p> <p>2. The freeboard shall be at least equal to the sum:</p> <ul style="list-style-type: none"> (a) of the additional lateral draught, measured at the shell plating, resulting from the list calculated in accordance with article 15.04, 2 and (b) the residual freeboard prescribed in article 15.04, 2 and 7. <p>The freeboard shall be at least 0.30 m.</p> <p>3. The maximum authorized draught level shall be determined so as to comply with the safety distance prescribed in 1, the freeboard prescribed in 2 and articles 15.02 to 15.04. For safety reasons, however, the Inspection Commission may allocate a larger freeboard or a greater safety distance.</p> <p>4. A draught mark shall be placed on each side of the vessel in accordance with article 4.04. Additional pairs of draught marks or continuous marking shall be permitted. The position of these draught marks shall be clearly specified in the inspection certificate.</p>	<p style="text-align: center;">15-7</p> <p style="text-align: center;">Freeboard, safety distance, and freeboard marks</p>	

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<p style="text-align: center;">Article 15.07</p> <p style="text-align: center;"><i>Passenger installations</i></p> <p>1. Non-enclosed areas of deck intended for passengers shall be surrounded by a bulwark or a railing not less than 1 m high. The railing shall be installed in such a way that children cannot fall through it. The openings and installations used for boarding and leaving the vessel and the openings for loading and unloading shall be fitted with a suitable safety device.</p> <p>Disembarkation gangways shall not be less than 0.60 m wide and shall be fitted with a handrail on both sides.</p> <p>2.</p> <p>(a) Communicating corridors, stairways, doors and exits intended for passengers' use shall have a clear width of not less than 0.80 m. For the doors of passenger cabins and of other small spaces this width may be reduced to 0.70 m.</p> <p>Where access to part of the vessel or to a space intended for passengers is limited to a single communicating corridor or stairway, their clear width shall not be less than 1 m. On vessels of a length L_F of less than 25 m, the Inspection Commission may permit a width of 0.80 m.</p> <p>In the case of spaces or groups of spaces designed for more than 80 passengers, the sum of the widths of all the passenger exits which should be used by them in case of need shall be at least 0.01 m per passenger.</p> <p>(b) Spaces or groups of spaces designed or equipped for 30 or more passengers or including berths for 12 or more passengers shall have at least two exits. A watertight door in a bulkhead in accordance with article 15.03, 2, 4 or 5, giving access to a neighbouring compartment from which the upper deck may be reached, shall be considered as an exit.</p>	<p>15-8 Passenger accommodation</p>	<p>See the comments in TRANS/SC.3/ WP.3/R.80</p>

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<p>These exits shall be appropriately laid out. If the total width of the exits referred to in (a) is determined by the number of passengers, the width of each exit shall be not less than 0.005 m per passenger. Except in vessels with cabins, one of these two exits may be replaced by two emergency exits.</p> <p>If spaces are situated below the main deck, they shall be provided with at least one exit or, where necessary, an emergency exit giving access directly to the deck or to the open air. This requirement shall not apply to the cabins.</p> <p>Emergency exits shall have a clear opening of not less than 0.36 m² and the length of the smallest side shall be not less than 0.50 m.</p> <p>(c) Stairways below the main deck shall be situated within two vertical planes on each side at a distance of not less than 1/5 of B_F from the shell plating. This distance shall not be compulsory if there is at least one stairway at each side of the vessel in the same space. The stairway shall be fitted with handrails on both sides; for stairways with a width of less than 0.90 m, a single handrail shall be sufficient.</p> <p>3. It shall be possible for the doors of public rooms, with the exception of doors opening on to corridors, to open outwards or to be built as sliding doors; it shall not be possible for unauthorized persons to lock or bolt them when the vessel is in service.</p> <p>Cabin doors shall be so constructed that they can also be unbolted from the outside at any time.</p> <p>4. Escape routes and emergency exits shall be clearly marked and the signs lighted by the emergency lighting.</p>		

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<p>5. On vessels licensed to carry up to 300 passengers, there shall be at least one water closet per 150 passengers. On vessels licensed to carry more than 300 passengers, there shall be separate water closets for each sex, with at least 1 per 200 passengers.</p> <p>6. There shall be no access for unauthorized persons to those parts of the vessel which are not intended for passengers, and in particular to the wheelhouse and machine and engine rooms. In addition, the entrances to those parts of the vessel shall carry, in a clearly visible place, a notice reading "No admittance" or a corresponding symbol.</p> <p>7. Only toughened or laminated glass or a synthetic material authorized for fire protection may be used as glass for windows located in the area accessible to passengers.</p> <p>Article 15.08 "Special requirements for lifesaving appliances" can be found in document TRANS/SC.3/WP.3/1998/5.</p> <p>Article 15.09 "Fire protection and firefighting in passenger spaces" can be found in document TRANS/SC.3/WP.3/1998/5.</p>		
<p style="text-align: center;">Article 15.10</p> <p style="text-align: center;"><i>Supplementary requirements</i></p> <p>1. Only electric lighting shall be used.</p> <p>2. There shall be an emergency source of power within the meaning of article 9.18, 2.</p> <p>3. If direct communication is not possible between the wheelhouse and the crew's quarters, the service areas, the bow and stern of the vessel and areas to which passengers are admitted, facilities shall be provided for rapid and reliable two-way communication.</p>	<p style="text-align: center;">15-9 Specific requirements for lifesaving appliances</p> <p style="text-align: center;">15-10 Fire protection</p> <p style="text-align: center;">15-11 Supplementary requirements</p>	<p style="text-align: center;">See the comments in TRANS/SC.3/ WP.3/R.80</p> <p style="text-align: center;">See the comments in TRANS/SC.3/ WP.3/R.80</p>

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<p>4. Vessels of a length L_F of 40 m or more or licensed to carry more than 75 passengers shall be equipped with a public address system.</p> <p>5. On vessels with cabin accommodation, an alarm system shall be installed comprising:</p> <p>(a) an alarm system for the vessel command and crew.</p> <p>This alarm shall only be given in the premises assigned to the vessel command and crew and may be switched off by the vessel command. It shall be possible to trigger the alarm at least in the following places:</p> <p>In each cabin;</p> <p>In the corridors, lifts and stairwells, such that the distance to the nearest alarm switch is not more than 10 m, with at least one alarm switch per watertight compartment;</p> <p>In the saloons, mess rooms and similar public rooms;</p> <p>In the engine rooms, galleys and other similar spaces subject to fire danger.</p> <p>(b) an alarm installation for passengers.</p> <p>This alarm shall be clearly and unequivocally identifiable in all spaces accessible to passengers. It shall be possible to trigger it from the wheelhouse and from a permanently manned point.</p> <p>Alarm switches shall be protected against improper use.</p> <p>6. Vessels with cabin accommodation shall be equipped with a radio-telephone installation making it possible to communicate with the public telephone network.</p>		

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<p>7. The following spaces and points shall be provided with adequate lighting:</p> <ul style="list-style-type: none"> (a) Places where collective lifesaving appliances are kept and where they are normally prepared for use; (b) Escape routes, passenger accesses, corridors, lifts and stairways in the cabins and accommodation area; (c) Signs for escape routes and emergency exits; (d) Engine rooms and their exits; (e) Wheelhouse; (f) Space containing the emergency source of energy supply; (g) Points where fire extinguishers and pumps can be found; (h) Assembly areas for passengers and crew in the event of danger. <p>8. On vessels with cabin accommodation, the safety plan specifying the tasks of the crew and personnel prescribed by the Police Regulations for the Navigation of the Rhine must be on board. Tasks shall be assigned for the following cases:</p> <ul style="list-style-type: none"> (a) Leak; (b) Fire on board; (c) Evacuation of passengers; (d) Man overboard. 		

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<p>The safety plan shall include a plan of the vessel on which the following are clearly and accurately marked:</p> <ul style="list-style-type: none"> (a) Lifesaving and safety equipment; (b) Watertight doors located under the deck and the location of their controls, and openings such as those referred to in article 15.03, 2 and 6; (c) Fire-resistant doors; (d) Fire dampers; (e) Alarm installations; (f) Fire alarm system; (g) Fire extinguisher installations and fire extinguishers; (h) Escape routes and safety exits; (i) Emergency source of energy supply; (j) Control elements of the ventilation systems; (k) Link to the shore network; (l) Closing devices for the fuel feed pipes; (m) Liquefied gas installations; (n) Loudspeaker installations; (o) Radiotelephone installations. <p>The safety plan and the plan of the vessel in question shall carry the stamp of the Inspection Commission and be posted at appropriate points where they are clearly visible.</p>		

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<p>9. On vessels with cabin accommodation a general evacuation plan shall be posted for passengers in appropriate places. This plan may, however, be combined with the safety plan described in 8.</p> <p>Instructions as to how passengers should proceed in the event of an alarm, fire, damage and evacuation and on where the lifesaving appliances are kept shall be placed in each cabin. These instructions shall be drafted in German, English, French and Dutch.</p> <p>10. In vessels where the hull is made of wood, aluminium or synthetic material, the engine rooms shall be constructed of materials referred to in article 3.04, 3 and 5, or shall be fitted with a permanent fire-extinguisher system within the meaning of article 10.03, 5.</p>		
<p style="text-align: center;">Article 15.11</p> <p style="text-align: center;"><i>Waste collection and disposal facilities</i></p> <p>1. Passenger vessels with more than 50 berths for passengers shall be equipped either with sewage collection tanks or onboard sewage treatment facilities.</p> <p>2. The sewage collection tanks shall be of sufficient volume and shall be fitted with a device to allow their contents to be measured. The vessel shall have its own pumps and pipes for emptying the tanks by means of which the sewage may be discharged into berthing facilities located on both sides of the vessel. The pipes shall be fitted with sewage discharge connections in accordance with European standard EN 1306.</p> <p>3. On completion of the operation, onboard sewage treatment facilities shall be able to guarantee the limit value given in the Police Regulations for the Navigation of the Rhine, permanently and without prior dilution, and shall be equipped with a sampling device.</p>		

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<p>In RVBR the rules applicable to alarm and safety systems installed in engine rooms are the subject of articles 8.03 (to be found in document TRANS/SC.3/WP.3/R.84/Add.1), 9.19 to 9.21 (below) and 15.09-8 (reproduced above).</p> <p style="text-align: center;">Article 9.19</p> <p style="text-align: center;"><i>Alarm and safety systems for mechanical equipment</i></p> <p>Alarm and safety systems for monitoring and protecting mechanical equipment shall meet the following requirements:</p> <p>(a) Alarm systems</p> <p>Alarm systems shall be so constructed that a failure in the alarm system cannot result in the failure of the apparatus or equipment being monitored.</p> <p>Binary transmitters shall be designed on the rest-current principle or on the supervised operating current principle.</p> <p>Visual alarms shall remain visible until the fault has been remedied; an alarm with acknowledgement shall be distinguishable from an alarm without acknowledgement. Each alarm shall also include an acoustic signal. It shall be possible to switch off acoustic alarms. Switching off the acoustic alarm shall not prevent an alarm from being set off by another cause.</p> <p>Exceptions shall be permitted in the case of alarm systems comprising less than five measurement points.</p> <p>(b) Safety systems</p> <p>Safety systems shall be designed to halt or slow down the operation of the affected equipment, or signal a permanently manned station to do so before a critical state is reached.</p>	<p>CHAPTER 16</p> <p>AUTOMATION</p>	<p>See the comments in TRANS/SC.3/WP.3/R.80</p>

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<p>Binary transmitters shall be designed according to the operating current principle.</p> <p>If safety systems are not designed to be self-monitoring, their operation must be verifiable. Safety systems must be independent from other systems.</p> <p style="text-align: center;">Article 9.20</p> <p style="text-align: center;"><i>Electronic equipment</i></p> <p>1. General</p> <p>The test conditions in 2 shall apply only to electronic and peripheral appliances of the steering gear (rudder installation) and the machinery necessary to propel the vessel.</p> <p>2. Test conditions</p> <p>(a) Testing requirements shall not result in damage to or malfunction of electronic appliances. Testing in accordance with relevant international standards, such as IEC 92-504, shall be performed with the appliance working, with the exception of the cold resistance test which involves verifying operation.</p> <p>(b) Variations in voltage and frequency</p> <table><tr><th rowspan="2"></th><th rowspan="2">Range of service</th><th colspan="2">Variations</th></tr><tr><th>Continuous</th><th>Short term</th></tr><tr><td>In general</td><td>Frequency voltage</td><td>± 5% ± 10%</td><td>± 10% 5 s ± 20% 5 s</td></tr><tr><td>Battery-operated</td><td>Voltage</td><td>+ 30%/- 25%</td><td>-</td></tr></table>		Range of service	Variations		Continuous	Short term	In general	Frequency voltage	± 5% ± 10%	± 10% 5 s ± 20% 5 s	Battery-operated	Voltage	+ 30%/- 25%	-		
			Range of service	Variations												
	Continuous	Short term														
In general	Frequency voltage	± 5% ± 10%	± 10% 5 s ± 20% 5 s													
Battery-operated	Voltage	+ 30%/- 25%	-													

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<p>(c) Heat test</p> <p>The sample is carried to a temperature of 55° C over half an hour; once this temperature has been reached it is maintained for 16 hours. A performance check test is then carried out.</p> <p>(d) Cold test</p> <p>A sample in the off position is cooled to -25° C and kept at this temperature for two hours. The temperature is then raised to 0° C and a performance check test is carried out.</p> <p>(e) Vibration test</p> <p>Vibration tests shall be carried out at the resonance frequency of the appliances or parts in the three axes, for 90 minutes each time. If no net resonance emerges, the vibration test shall be made at 30 Hz.</p> <p>The vibration test shall be carried out by sinusoidal oscillation within the following limits:</p> <p>In general:</p> <p>f = 2.0 at 13.2 Hz; a = \pm 1 mm (amplitude a = 1/2 vibration width)</p> <p>f = 13.2 Hz at 100 Hz; acceleration \pm 0.7 g.</p> <p>Equipment for mounting on diesel engines or steering gear shall be tested as follows:</p> <p>f = 2.0 at 25 Hz; a = \pm 1.6 mm (amplitude a = 1/2 vibration width)</p> <p>f = 25 Hz at 100 Hz; acceleration \pm 4 g.</p>		

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<p>Sensors for mounting on diesel engine exhaust pipes may be subjected to considerably higher constraints. Account should be taken of this during tests.</p> <p>(f) Electromagnetic compatibility tests shall be performed on the basis of IEC-801-2, 801-3, 801-4, 801-5 with test level 3.</p> <p>(g) The proof that the electronic appliances meet these test conditions shall be provided by the manufacturer. A certificate from a classification society shall also be taken as proof.</p> <p style="text-align: center;">Article 9.21</p> <p style="text-align: center;"><i>Electromagnetic compatibility</i></p> <p>The operation of electrical and electromagnetic installations shall not be impeded by electromagnetic interference. Concomitant general measures shall include:</p> <p>(a) Disconnecting transmission channels between the source of the interference and the user appliances;</p> <p>(b) Cutting down causes of interference at source;</p> <p>(c) Reducing user appliance sensitivity to interference.</p> <p style="text-align: center;">CHAPTER 11</p> <p style="text-align: center;">SAFETY IN WORKING SPACES</p> <p>Articles 11.1-11.10 can be found in document TRANS/SC.3/WP.3/R.84/Rev.1.</p>	<p style="text-align: center;">CHAPTER 17</p> <p style="text-align: center;">CREW ACCOMMODATION AND WORKING SPACES</p>	<p style="text-align: center;">See the comments in TRANS/SC.3/ WP.3/R.80</p>

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<p style="text-align: center;">Article 11.11</p> <p style="text-align: center;"><i>Winches</i></p> <ol style="list-style-type: none"> 1. Winches shall be so designed as to permit work to be carried out in complete safety. They shall be fitted with devices to prevent the accidental return of the load. Winches which are not self-locking shall be fitted with a brake in proportion to their tensile strength. 2. Hand-operated winches shall be fitted with devices to prevent the return of the starting crank. Winches which may be power-operated or hand-operated shall be so designed that the power control cannot activate the manual control. <p>Article 11.12 can be found in document TRANS/SC.3/WP.3/R.84/Add.1.</p> <p style="text-align: center;">CHAPTER 12</p> <p style="text-align: center;">ACCOMMODATION</p> <p style="text-align: center;">Article 12.01</p> <p style="text-align: center;"><i>General</i></p> <ol style="list-style-type: none"> 1. Vessels shall be provided with accommodation for persons normally living on board, or at least for the minimum crew. 2. The accommodation shall be constructed, fitted and equipped so as to meet the requirements of the safety, health and well-being of the persons on board. It shall be easily and safely accessible and insulated against cold and heat. 3. The Inspection Commission may authorize exceptions to the requirements of this chapter if the safety and health of the persons on board are guaranteed in some other form. 		<p>Article 3.03 "Hull" can be found in TRANS/ SC.3/WP.3/R.84/ Rev.1</p>

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<p>4. The Inspection Commission shall include in the inspection certificate any restrictions on the mode of operation or the bringing into service of the vessel resulting from the exceptions referred to in 3.</p> <p>Article 12.02 can be found in document TRANS/SC.3/WP.3/1998/5.</p> <p style="text-align: center;">Article 12.03</p> <p style="text-align: center;"><i>Sanitary installations</i></p> <p>1. Vessels with accommodation shall provide at least the following sanitary installations:</p> <p>(a) One toilet per accommodation unit or per six crew members. It shall be possible to ventilate it with fresh air;</p> <p>(b) One washbasin with drainage, linked to the hot and cold drinking water system per unit of accommodation or per four crew members;</p> <p>(c) One bath or shower connected to the hot and cold drinking water system per unit of accommodation or per six crew members.</p> <p>2. The sanitary installations shall be in close proximity to the living quarters. The toilets shall not be directly connected to the galleys, mess rooms or day rooms with cooking facilities.</p> <p>3. The toilets shall have a surface area of not less than 1 m², a width of not less than 0.75 m and a length of not less than 1.10 m. Toilet spaces in cabins for a maximum of two persons may be smaller. If a toilet contains a washbasin or a shower, the surface area shall be increased by at least the surfaces taken up by the washbasin and shower (or where relevant by the bath).</p>		

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<p style="text-align: center;">Article 12.04</p> <p style="text-align: center;"><i>Galleys</i></p> <p>1. The galleys may be combined with the day rooms.</p> <p>2. Galleys shall contain:</p> <ul style="list-style-type: none"> (a) Cooking stove; (b) Sink with drainage; (c) Drinking water supply; (d) Refrigerator; (e) Sufficient space for storage, work and provisions. <p>3. The mess area of galleys combined with a day room shall be sufficient to accommodate the number of crew members who generally use it at the same time. The width of the seats shall not be less than 0.60 m.</p> <p style="text-align: center;">Article 12.05</p> <p style="text-align: center;"><i>Drinking water</i></p> <p>1. Vessels with cabin accommodation shall be equipped with one or more drinking water tanks. The filling apertures of the drinking water tanks and drinking water pipes shall be labelled as exclusively intended for drinking water. The filling sleeves for drinking water shall be installed above deck.</p>		

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<p>2. Drinking water tanks shall:</p> <ul style="list-style-type: none"> (a) Be protected against excessive heating; (b) Have a capacity of not less than 150 l per person normally living on board but at least per member of the minimum crew; (c) Be made of corrosion-resistant material which does not constitute a physiological danger; (d) Be fitted with an appropriate lockable opening for internal cleaning; (e) Be equipped with a water-level indicator; (f) Be fitted with ventilation sleeves to the open air or be equipped with suitable filters. <p>3. Drinking water tanks shall not have a common wall with other tanks. Drinking water pipes shall not pass through tanks containing other liquids. Connections between the drinking water supply and piping systems for gas or liquids other than drinking water shall not pass through drinking water tanks.</p> <p>4. Pressurized water systems for drinking water shall operate only on compressed air of natural composition. If the compressed air is obtained by means of compressors, suitable air filters and oil separators shall be installed directly upstream of the pressurized water system, unless water and air are separated by a diaphragm.</p>		

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<p style="text-align: center;">Article 12.06</p> <p style="text-align: center;"><i>Heating and ventilation</i></p> <ol style="list-style-type: none"> 1. It shall be possible to heat the accommodation according to the purpose for which it is intended. Heating installations shall be suited to any weather conditions which may occur. 2. It shall be possible to ventilate day rooms and sleeping cabins adequately even when the doors are closed. The air inlets and outlets shall ensure an adequate circulation of air under all climatic conditions. 3. The accommodation shall be designed and equipped as far as possible so as to prevent any intake of bad air from other areas of the vessel such as the engine rooms or the holds; in the event of artificial ventilation the air intake openings shall be equipped so as to meet the above requirements. <p style="text-align: center;">Article 12.07</p> <p style="text-align: center;"><i>Other accommodation installations</i></p> <ol style="list-style-type: none"> 1. Each crew member living on board shall have his own berth and a personal lockable clothes cupboard. The minimum internal dimensions of the berth shall be 2.00 by 0.90 m. 2. Suitable points for storing and drying working garments shall be provided away from sleeping cabins. 3. It shall be possible to light all spaces by electricity. Additional lamps using gas or liquid fuel shall only be permitted in day rooms. Lighting installations using liquid fuel shall be made of metal and may only operate with fuels having a flashpoint higher than 55° C or commercial paraffin. They shall be so placed or fixed so that they do not constitute a fire hazard. 		

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<p style="text-align: center;">CHAPTER 13</p> <p style="text-align: center;">FUEL-FIRED HEATING, COOKING AND REFRIGERATING EQUIPMENT</p> <p style="text-align: center;">Article 13.01</p> <p style="text-align: center;"><i>General</i></p> <ol style="list-style-type: none"> 1. Liquefied gas-burning heating, cooking and refrigerating equipment shall meet the requirements of chapter 14 of these Regulations. 2. Heating, cooking and refrigerating equipment and its accessories shall be so designed and placed as not to constitute a danger, even when overheated; it shall be installed so that it cannot overturn or be shifted accidentally. 3. The equipment referred to in 2 shall not be installed in spaces where substances having a flashpoint below 55° C are stored or used. No flue pipe from this equipment shall pass through these spaces. 4. The air intake necessary for combustion shall be ensured. 5. Heating equipment shall be securely connected to the flues. The flue pipes shall be fitted with suitable caps or devices affording protection from wind. They shall be so arranged as to allow for cleaning. <p style="text-align: center;">Article 13.02</p> <p style="text-align: center;"><i>Use of liquid fuels, oil-fired equipment</i></p> <ol style="list-style-type: none"> 1. When equipment runs on liquid fuel, only fuels having a flashpoint higher than 55° C may be used. 	<p style="text-align: center;">17-5 Heating, cooking and refrigerating equipment</p>	<p style="text-align: center;">See the comments in TRANS/SC.3/ WP.3/R.80</p>

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<p>2. Notwithstanding 1, kitchen equipment and appliances with wick burners used for heating and refrigeration which burn paraffin may be used in the accommodation and wheelhouses, provided that the capacity of their supply tank does not exceed 12 litres.</p> <p>3. Appliances with wick burners shall:</p> <p>(a) Be equipped with a metal fuel tank whose filling aperture can be closed and with no soft soldering below the maximum filling level, and shall be so designed and installed that the fuel tank cannot open or empty accidentally;</p> <p>(b) Be capable of being lit without using another liquid fuel;</p> <p>(c) Be installed in such a way as to ensure the evacuation of combustion gases.</p> <p style="text-align: center;">Article 13.03</p> <p style="text-align: center;"><i>Vaporizing oil-burner stoves and vaporizing oil-burner heating appliances</i></p> <p>1. Vaporizing oil-burner stoves and vaporizing oil-burner heating appliances shall be constructed according to the rules.</p> <p>2. If a vaporizing oil-burner stove or a vaporizing oil-burner heating appliance is installed in the engine room, the air intake and the engines shall be so arranged that the heating appliance and the engines can operate simultaneously and safely independently of each other. If necessary, a separate air intake shall exist. The engine room shall be installed in such a way that a flame from the stove cannot reach other parts of the installations in the engine room.</p>		

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<p style="text-align: center;">Article 13.04</p> <p style="text-align: center;"><i>Vaporizing oil-burner stove</i></p> <ol style="list-style-type: none"> 1. It shall be possible to light vaporizing oil-burner stoves without the assistance of another combustible liquid. They shall be installed over a metal drip pan covering all the fuel-carrying parts, which has a height of not less than 20 mm and a capacity of not less than 2 litres. 2. For vaporizing oil-burner stoves installed in an engine room, the metal drip pan prescribed in 1 shall have a depth of not less than 200 mm. The lower edge of the vaporizing oil burner shall be placed over the edge of the drip pan. In addition, the drip pan shall be placed not less than 100 mm above the floor. 3. Vaporizing oil-burner stoves shall be fitted with a suitable regulator which, for each selected position, shall ensure a practically constant flow of fuel to the burner and shall prevent any leak of fuel in the event of the accidental extinction of the flame. Regulators are considered to be appropriate when they operate even when subjected to shocks and in the event of a tilt of up to 12° and which, in addition to a level-regulating float: <ol style="list-style-type: none"> (a) Comprise a watertight closing device which functions safely and reliably in the event that the permissible level is exceeded or (b) Are fitted with an overflow pipe if the drip pan has sufficient capacity to collect the contents of the fuel tank. 4. If the fuel tank of a vaporizing oil-burner stove is installed separately: <ol style="list-style-type: none"> (a) The height at which it is placed shall not exceed that established in the requirements for use drawn up by the manufacturer of the appliance; 		

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<p>(b) It must be placed so as to ensure protection from unacceptable heating;</p> <p>(c) It shall be possible to cut off the fuel feed from the deck.</p> <p>5. The flues of vaporizing oil-burner stoves shall comprise a draught damper.</p> <p style="text-align: center;">Article 13.05</p> <p style="text-align: center;"><i>Vaporizing oil-burner appliances</i></p> <p>Vaporizing oil-burner appliances shall meet the following conditions:</p> <p>(a) An adequate ventilation of the combustion chamber shall be ensured before fuel is fed in;</p> <p>(b) The fuel feed shall be regulated by a thermostat;</p> <p>(c) The lighting of the fuel shall be effected by means of an electrical device or a pilot light;</p> <p>(d) Flame monitoring equipment shall cut off the fuel feed when the flame goes out;</p> <p>(e) The main switch shall be placed outside the installation space in an easily accessible place.</p> <p style="text-align: center;">Article 13.06</p> <p style="text-align: center;"><i>Forced-air heating appliances</i></p> <p>Forced-air heating appliances comprising a combustion chamber around which the heating air is carried under pressure to a distribution system or to an enclosed space shall meet the following conditions:</p> <p>(a) If the fuel is vaporized under pressure, the supply of combustion air shall be ensured by a fan;</p>		

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<p>(b) The combustion chamber shall be well ventilated before the burner is lit. This ventilation may be considered to have been carried out when the combustion air fan continues to operate after the flame has been extinguished;</p> <p>(c) The fuel feed shall be cut off automatically:</p> <p style="padding-left: 40px;">if the fire goes out;</p> <p style="padding-left: 40px;">if the combustion air supply is not adequate;</p> <p style="padding-left: 40px;">if the heated air exceeds a preset temperature, or</p> <p style="padding-left: 40px;">if the safety equipment ceases to receive power.</p> <p style="padding-left: 40px;">In such cases the fuel feed shall not be automatically restored after the cut.</p> <p>(d) It shall be possible to switch off the combustion air and heating air fans from outside the spaces to be heated;</p> <p>(e) If the heating air is drawn in from the outside, the intake louvres shall be located at a reasonable height above deck. They shall be so designed that rain and spray cannot blow in;</p> <p>(f) The heating air pipes shall be made of metal;</p> <p>(g) It shall not be possible to close the heating air outlets completely;</p> <p>(h) It shall not be possible for any fuel leaks to reach the heating air pipes;</p> <p>(i) It shall not be possible for the forced air from the heating appliances to be sucked into an engine room.</p>		

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<p style="text-align: center;">Article 13.07</p> <p style="text-align: center;"><i>Solid fuel heating</i></p> <p>1. Solid fuel heating appliances shall be placed on a rimmed metal sheet, so placed that burning fuel or hot ashes will not fall outside this sheet.</p> <p>This requirement does not apply to appliances installed in compartments constructed of fire-resistant materials and intended exclusively for boilers.</p> <p>2. Solid fuel boilers shall be fitted with thermostatic regulators operating on the air required for combustion.</p> <p>3. A means of extinguishing the ashes easily shall be placed near each heating appliance.</p>		