UNITED NATIONS **E**

Economic and Social Council

Distr.
GENERAL

TRANS/SC.3/2004/1/Add.1
26 April 2004

Original: ENGLISH

ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

Working Party on Inland Water Transport
(Forty-eighth session, 19-21 October 2004,
agenda item 7(a))

AMENDMENT OF THE RECOMMENDATIONS ON TECHNICAL REQUIREMENTS FOR INLAND NAVIGATION VESSELS (annex to resolution No. 17, revised)

Addendum 1

Note by the secretariat

The Working Party on the Standardization of Technical and Safety Requirements in Inland Navigation, at its twenty-seventh session, considered the draft amended text of chapters 16 "Automation", 17 "Crew accommodation" and Z "Working Spaces" of the annex prepared by the Group of Volunteers and circulated as TRANS/SC.3/WP.3/AC.2/2003/1 and Add.1 in the light of comments and remarks by the Governments (TRANS/SC.3/WP.3/2004/7), modified the text as indicated in TRANS/SC.3/WP.3/55, para. 12 and requested the secretariat to submit them to the Working Party on Inland Water Transport for consideration and provisional approval (TRANS/SC.3/WP.3/55, paras. 12-13).

The text of the draft amended chapters 16 "Automation", 17 "Crew accommodation" and Z "Working Spaces" is reproduced below for consideration by the Working Party on Inland Water Transport.

CHAPTER 16

AUTOMATION

16-1 GENERAL

16-1.1 Scope of application

The provisions of this chapter are to be complied with, if no continuous watch is kept in the engine room.

16-1.2 Definitions

16-1.2.1 An 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.

16-1.2.2 Automation system is the complex of automation elements, appliances and connections intended for performing prescribed functions in the field of control and monitoring.

16-1.2.3 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.

16-1.2.4 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.

16-1.2.5 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.

16-1.2.6 Safety system is an automation system that provides a certain automatic influence on the controlled installation in order to prevent its failure.

16-1.2.7 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.).

16-1.2.8 An 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.

16-2 GENERAL PROVISIONS

16-2.1 Automation systems and their elements should comply with the requirements of 6-1.2, 6-2.18 and 6-2.19.

16-2.2 The main propelling machinery and its essential auxiliaries shall be equipped for unattended operation in the machinery space. Remote control, alarm and safety systems shall be such as to ensure smooth functioning of the plant and effective monitoring of all its important parts.

16-2.3 Care shall be taken to ensure that, in the event of a malfunction of the automation systems or breakdown of the electrical, pneumatic or hydraulic supply system for it, the controlled components remain in the condition in which they were before the failure. The failure shall be signalled.

16-2.4 Automated or remote-controlled machinery shall also be equipped with local manual controls. The manual controls shall be such that they cannot be put out of action by any breakdown of the automated or remote-controlled system.

16-2.5 It shall be possible to keep the remote control or automated control system supplied with energy from the second source, which shall come into operation automatically upon failure of the main supply source. If the second power source is not permanently available while the vessel is under way, a buffer device is required.

16-2.6 Automation system devices are to be so constructed that their function can be checked during the operation of the plant.

16-2.7 On the remote control station it shall be indicated that the given commands have been executed.

16-3 REMOTE CONTROL AND AUTOMATED REMOTE CONTROL OF PROPULSION INSTALLATION

16-3.1 Automated remote control or remote control of the propulsion installation shall be possible only from one station at a time. Secondary control stations interconnected with the control mechanisms in the wheelhouse are allowed. If there is more than one control station, an indicator shall be fitted at each station showing from which station the installation is controlled. The changeover of control between the wheelhouse and the engine room shall be possible only from the wheelhouse.

16-3.2 The main engine shall be equipped with an emergency stopping device in the wheelhouse, independent of the automated remote control system or remote control system. [1/]

[1/] Note by the Group of Volunteers**:** Requirements of 11-4.4 and 16-3.2 are similar so it is proposed to change the text of 11-4.4 (in TRANS/SC.3/2004/1) in accordance with the latter.

16-3.3 The design of the automated remote control system or remote control system shall be such that in the event of its failure an alarm will be given and the present speed and direction of propulsion will be maintained until another control is in operation.

16-3.4 Indicators shall be fitted in the wheelhouse for:

(i) the speed and direction of propulsion in the case of fixed-pitch propellers, and

(ii) pitch in the case of controllable-pitch propellers.[2/]

16-3.5 Where the remote control system of the propulsion installation is automated, the number of successive automatic attempts to produce a start shall be limited in order to keep enough air pressure for starting. A signal lamp shall light up at the lowest air pressure still sufficient for starting the main engine.

16-4 ALARM SYSTEM

16-4.1 The alarm system shall sound an acoustic signal in the wheelhouse and engine room and actuate visual signals for each separate alarm function.

16-4.2 The alarm system has to comply with the requirements of 6-2.17.1.

16-5 SAFETY SYSTEM

16-5.1 A safety system shall be provided such that a breakdown in the machinery or boilers presenting an immediate danger will initiate the automatic shutdown of the affected part of the plant and activate an alarm.

~~16-5.2 For multi-engine installations, automatic stopping of an engine caused by a failure of the lubricating-oil system shall be acceptable provided that there is no interference with the other engines.~~ [3/]

~~16-5.3 In the case of propulsion systems with controllable-pitch propellers means shall be provided to prevent engine overload due to propeller-pitch adjustments~~. [4/]

16-5.2 The wheelhouse shall be equipped with devices overriding the safety system of the main engines with the exception of protection against over-revving as well as an alarm indicating that the safety system has been switched off.

[2/] Note by the Group of Volunteers**:** It is proposed to change the text of 11-4.3 (in TRANS/SC.3/2004/1) in accordance with 16-3.4.

[3/] Note by the Group of Volunteers**:** It is proposed to put this requirement to Chapter 5 (in TRANS/SC.3/2004/1 and Corr.1) as the following addition to paragraph 5-1.9: **"For multi-engine installations, automatic stopping of an engine shall be acceptable provided that there is no interference with the other engines."**

[4/] Note by the Group of Volunteers**:** It is proposed to put this paragraph in Chapter 5 (in TRANS/SC.3/2004/1 and Corr.1).

16-6 FIRE DETECTION SYSTEM FOR THE MACHINERY SPACE

16-6.1 A fire detection system, self-monitoring and with facilities for periodic testing, shall be installed in the machinery space.

16-6.2 The fire-detection system shall be capable of detecting rapidly an outbreak of fire in any part of the machinery space under any normal conditions of operation of the machinery. The detection system shall actuate acoustic and visual alarms, different from the signals emitted by any other system, in the wheelhouse and places where they can be heard or seen by the crew member on duty.

16-6.3 It shall be possible to keep the fire detection system supplied with energy from the second source, which shall come into operation automatically upon failure of the main supply source. If the second power source is not permanently available, a buffer device is required.

16-7 BILGE-LEVEL ALARM

A bilge-level alarm system shall be fitted in all machinery spaces. The level sensor or sensors shall be suitably placed to ensure an early warning.

16-8 STANDBY INSTALLATIONS

Where the equipment of importance for the safety of navigation is backed up by standby units, an automatic changeover device shall be provided that actuates a signal when operated.

CHAPTER 17

CREW ACCOMMODATION

17-1 DEFINITIONS

17-1.1 The term "accommodation" means: a space intended for the use of persons normally living on board, including galleys, storage space for provisions, toilets and washing facilities, laundry facilities, landing and gangways, but not the wheelhouse.

17-2 GENERAL

17-2.1 Vessels shall have accommodation for the persons lodging habitually on board, and at least for the minimum crew.

17-2.2 Accommodation shall be so designed, arranged and fitted out as to meet the health, safety and comfort needs of those on board. It shall be of safe and easy access and insulated against heat and cold. Where there is no deck-level access to the accommodation and the difference in level is 0.30 m or more the accommodation shall be accessible by means of companionways. In the fore section of the vessel no floor shall be more than 1.20 m below the plane of maximum draught.

17-2.3 The competent authority may authorize derogations to the prescriptions of this Chapter if the health and safety of those on board are ensured by other means. The [inspection body] competent authority shall indicate on the certificate any restrictions to the vessel's operating mode/entry into service resulting from the derogations.

17-3 SPECIAL DESIGN REQUIREMENTS

17-3.1 Location and condition

17-.3.1.1 No accommodation shall be located ahead of the plane of the collision bulkhead.

17-3.1.2 The accommodation shall be separated from engine- and boiler rooms by gastight bulkheads and from the holds by watertight bulkheads that extend up to the deck.

17-3.1.3 The accommodation shall be directly accessible from the deck.

17-3.1.4 The accommodation complex shall have at least one day-room partitioned off from the sleeping quarters.

17-3.1.5 The accommodation shall be so designed and arranged as to prevent as far as possible the penetration of foul air from other areas of the vessel such as engine rooms or holds; where forced-air ventilation is used the intake vents shall be so placed as to satisfy the above requirements. The exhaust air from galleys or spaces equipped with sanitary installations shall be expelled directly from the vessel.

17-3 1.6 It shall be possible to heat accommodation in accordance with its intended use. Heating installations shall be appropriate for the weather conditions which may arise.

17-3.1.7 It shall be possible to ventilate the accommodation adequately.

17-3.1.8 Accommodation shall be protected against noise and vibration. Sound pressure levels shall not exceed:

(i) 70 dB(A) in the living quarters;

(ii) 60 dB(A) in the sleeping quarters. This provision does not apply to vessels operating exclusively no more then 14 hours per day. The operating mode restriction shall be mentioned on the certificate.

17-3.1.9 The accommodation shall be provided with emergency exits permitting rapid evacuation. Exits of living and sleeping quarters shall comply with the requirements of article 12-2.2.

17-3.1.10 Pipes carrying dangerous gases or liquids, or which are subjected to such high internal pressure in which the slightest leak could pose a danger to human beings, shall not be located in the accommodation or in corridors leading to the accommodation. An exception to this

rule is made for and hydraulic system pipes, provided they are fitted in metal casings, and for the pipes of liquefied gas installations for domestic purposes.

17-3.2 Dimensions of the accommodation

17-3.2.1 The clear headroom in the accommodation shall be not less than 2.00 m.

17-3.2.2 The free floor area of the living quarters shall be not less than 2 m² per person, and in any event not less than 8 m² in total (not counting furniture, except tables and chairs) [5/].

17-3.2.3 The volume of air per person shall be at least 3.5 m³ in living quarters. In the sleeping quarters it shall be at least 5 m³ for the first occupant and at least 3 m³ for each additional occupant (not counting the volume of furniture). Sleeping cabins shall, as far as possible, be intended for no more than two persons.

17-3.2.4 The cubic capacity of each unit in the living and sleeping quarters shall be not less than 7 m³.

17-4. Approaches, doors and stairways

17-4.1 Doors shall have a total height, coamings included, of at least 1.90 m and a clear width of at least 0.60 m. The prescribed height may be achieved by means of sliding or hinged covers or flaps. It shall be possible to open doors from either side. Coamings shall be not more than 0.40 m high, but shall nonetheless comply with the provisions of other safety regulations.

17-4.2 Companionways shall be permanently fixed and safely negotiable. They shall be deemed to be so when they are constructed according to the requirements of section Z-7.

17-5 Daylight and lighting

17-5.1 The accommodation shall be adequately lighted. The living quarters, galleys and, if possible, the other compartments shall be accessible to daylight.

17-5.2 Standards of natural and artificial illumination shall be fixed by the Administration.

17-6 Fittings

17-6.1 Each crew member living on board shall be provided with an individual berth and an individual clothes locker fitted with a lock. The internal measurements of the berth shall be not less than 2.00 x 0.90 m. The height of the locker shall be not less than 1.7 m and the available horizontal area not be less then 0.25 m^2.

[5/] At its twenty-seventh session, the Working Party SC.3/WP.3 decided that figures $8m^2$ and 7^3 mentioned in paras. 17-3.2.2 and 17-3.2.4 with regard to the minimum dimensions of living quarters should be carefully checked by the Group of Volunteers to avoid any possible conflict between the two above-mentioned provisions. The Group of Volunteers was asked to report to the Working Party their findings on these two paragraphs checking at the same time, if the figure of $8m^2$ is not excessive (TRANS/SC.3/WP.3/55, para. 12 (xv)).

17-6.2 Berths shall be not less than 0.30 m above the floor. Where one berth is placed over another, the clear headroom above each berth shall be not less than 0.60 m. Berths shall not be arranged in tiers of more then two.

17-6.3 Suitable places for storing and drying work clothes shall be provided, but not in the sleeping quarters.

17-7 Galleys and day-rooms (messrooms)

17-7.1 Galleys shall comprise:

(i) a cooker;
(ii) a sink with waste connection;
(iii) a supply of potable water;
(iv) refrigerator;
(v) sufficient storage and working space.

17-7.2 Galleys may be combined with day-rooms.

17-7.3 Manned vessels shall have a refrigerator and where necessary cold storerooms. The doors of cold storerooms that are large enough to admit a person must be fitted with locks that can be opened from both sides.

17-7-4 The eating area of combined galleys/day-rooms shall be large enough to accommodate the number of crew normally using it at the same time. Seats shall be not less than 0.60 m wide.

17-8 SANITARY INSTALLATIONS

17-8.1 The following sanitary installations at least shall be provided in vessels with accommodation:

(i) one toilet per accommodation unit or per six crew members, which it shall be possible to ventilate with fresh air;
(ii) one wash basin with waste pipe and hot and cold taps connected to a source of potable water per accommodation unit or per four crew members;
(iii) one shower or bath connected up to hot and cold potable water per accommodation unit or per six crew members.

17-8.2 The sanitary installations shall be in close proximity to the accommodation. Toilets shall not have direct access to galleys, mess rooms or combined day-rooms/galleys.

17-8.3 Toilet compartments shall have a floor space of at least 1 m², not less than 0.75 m wide and not less than 1.10 m long. Toilet compartments in cabins for no more than two persons

may be smaller. Where a toilet contains a wash basin and/or shower, the surface area shall be increased at least by the surface area occupied by the wash basin and/or shower (or bath).

17-9 POTABLE-WATER INSTALLATIONS

17-9.1 Vessels with accommodation shall have one or more potable water tanks. Potable water tank filling apertures and potable water pipes shall be marked as being intended exclusively for potable water. Potable water filler necks shall be installed above the deck.

17-9.2 Potable water tanks shall:

(i) be protected against excessive heating;
(ii) have a capacity as prescribed by the basin Administration;
(iii) be made of a material which resists corrosion and poses no physiological danger;
(iv) have a suitable, lockable opening to enable the inside to be cleaned;
(v) have a water level indicator;
(vi) have ventilation caps to the open air or which are fitted with appropriate filters.

17-9.3 Potable water tanks shall not share walls with other tanks. Potable water pipes shall not pass through tanks containing other liquids. Connections are not permitted between the potable water supply system and other pipes. Pipes carrying gas or liquids other than potable water shall not pass through potable water tanks.

17-9.4 Potable water pressure vessels shall operate only on uncontaminated compressed air. Where it is produced by means of compressors, appropriate air filters and oil separators shall be installed directly in front of the pressure vessel unless the water and the air are separated by a diaphragm.

CHAPTER Z

WORKING SPACES

Z-1 GENERAL

Z-1.1 Vessels shall be built, arranged and equipped in such a way as to enable the crew to work and move about safely.

Z-1.2 The necessary on-board working facilities including ~~and~~ permanent fixtures shall be arranged, laid out and protected in such a way as to permit safe, easy movement on board, and maintenance. If necessary, moving parts of machinery and hot parts of installations shall be provided with the means to protect people.

Z-2 PROTECTION AGAINST FALLING

Z-2.1 Decks including gangboards and wherever people walk and work shall be free from obstacles likely to cause tripping and it shall be impossible for puddles to remain.

Z-2.2 Decks including gangboard, engine-room floors, landings, companionway steps and the tops of bollards shall be designed to prevent slipping.

Z-2.3 The tops of gangboard bollards and obstacles in passageways, such as the edges of steps, shall be painted in a colour contrasting with the surrounding decks.

Z-2.4 The outer edges of decks, as well as working spaces where people might fall more than 1 metre, shall be fitted with bulwarks or coamings or with a guard rail, which shall comprise a handrail at least 0.90 m high [6/], a rail at knee height and a foot-rail [7/]. Coamings may be fitted with a hand-rail only. Coaming hand-rails shall not be required where gangboards are fitted with non-retractable guard rails.

Z-3 DIMENSIONS OF WORKING SPACES

Z-3.1 Working spaces shall be large enough to provide every person working ~~at~~ **in** them with adequate freedom of movement.

Z-4 GANGBOARD

Z-4.1 The clear width of the gangboard shall be at least 0.60 m. That figure may be reduced to 0.5 m at certain positions where necessary installations are located such as deck-swabbing cocks and to 0.4 m at bollard emplacements.

Z-4.2 Up to a clear height of 0.90 m above the gangboard, the clear width of the gangboard may be reduced to 0.54 m provided that the clear width above, between the outer edge of the hull and the inner edge of the hold, is not less than 0.65 m. However, the clear width of the gangboard may be reduced to 0.50 m if the outer edge of the gangboard is fitted with a guard rail in accordance with paragraph Z-2.4 to prevent falling. On vessels of 55 m or less in length the guard rail may be dispensed with provided that the safety conditions are deemed satisfactory by the Administration.

Z-4.3 The requirements of 1 and 2 above shall apply up to a height of 2.00 m above the gangboard.

Z-5 ACCESS TO WORKING SPACES

Z-5.1 Points of access and passageways for the movement of people and objects shall be of sufficient size and so arranged that:

6/ Competent authorities may prescribe the height greater than 0.90 m.

7/ See standards ISO 3674 or EN 711.

(i) in front of the access opening, there is sufficient room not to impede movement;

(ii) the clear width of the passageway shall be appropriate for the intended use of the working space and shall be not less than 0.60 m, except in the case of vessels less than 8 m wide, where it may be reduced to 0.50 m;

(iii) the height of the access opening including the coaming, if any, is not less than 1.90 m.

Z-5.2 Doors shall be so arranged that they can be opened and closed safely from both sides. They shall be protected against accidental opening or closing.

Z-5.3 Stairs, ladders or steps shall be installed in accesses, exits and passageways where there is more than a 0.50 m difference in floor level.

Z-5.4 Working spaces which are manned continuously shall be fitted with stairs if there is a difference in floor level of more than 1 m. This requirement shall not apply to emergency exits.

Z-5.5 Vessels equipped with holds shall have at least one fixed ladder in each hold which can be used to enter and leave the hold safely. This requirement shall not apply where two movable hold ladders are provided.

Z-6 EXITS AND EMERGENCY EXITS

Z-6.1 The number, arrangement and dimensions of exits, including emergency exits, shall be in accordance with the use and dimensions of the relevant space. Where one of the exits is an emergency exit, it shall be clearly marked as such.

Z-6.2 Emergency exits or windows, portholes or skylights serving as emergency exits shall have a clear opening of not less than 0.36 m^2, and the smallest dimension shall be not less than 0.50 m.

Z-7 STAIRS, LADDERS AND STEPS

Z-7.1 Stairs and fixed ladders shall be securely attached to the vessel structures.

Z-7.2 Stairs shall be not less than 0.60 m wide; steps shall be not less than 0.15 m deep and not more than 0.3 m high [8/]; steps shall have non-slip surfaces and stairs with more than three steps shall be fitted with hand-rails. The clear width between hand-rails shall be not less than 0.60 m.

8/ Note by the Group of Volunteers: The height of steps is taken from Article 11.07(2) of the draft revised Directive 82/714/EC.

Z-7.3 Fixed ladders and climbing steps shall have a clear width of not less than 0.30 m; step height shall be not more than 0.30 m and the distance from the centre of the step to the vessel structures shall be not less than 0.15 m.

Z-7.4 Fixed ladders and climbing steps shall be clearly identifiable as such from above and shall be equipped with safety handles above exit openings.

Z-7.5 Portable ladders shall be at least 0.40 m wide, and at least 0.50 m wide at the base; it shall be possible to ensure that they will not topple or skid; the rungs shall be securely fixed in the uprights.

Z-7.6 Portable ladders used as hold ladders shall, with a 60° incline, extend to at least 1 m above the deck and in any event above the upper edge of the hatchway coaming.

Z-8 INSIDE SPACES

Z-8.1 The dimensions, arrangement and layout of inside working spaces shall be in accordance with the work to be carried out and shall meet the national health and safety requirements of the Administration. They shall be equipped with adequate non-dazzle lighting and with ventilation arrangements; if necessary, they shall be fitted with heating appliances capable of maintaining an adequate temperature.

Z-8.2 The floors of inside working spaces shall be solid and durable, and shall be designed not to cause tripping or slipping. Windows, portholes and skylights shall be so arranged and fitted that they can be operated and cleaned safely.

Z-8.3 The light switches for the working spaces shall be installed in readily accessible positions near doors.

Z-9 PROTECTION AGAIST NOISE AND VIBRATION

Z-9.1 Working spaces shall be so situated, equipped and designed that crew members are not exposed to harmful vibrations [9/].

Z-9.2 Permanent working spaces shall be so constructed and soundproofed that the health and safety of crew members are not adversely affected by excessive noise.

Z-9.3 Spaces and areas in which people are continuously exposed to noise levels that exceed 85 dB (A) should be marked with danger signs and people who work in them should use individual acoustic protection devices.

9/ Note by the Group of Volunteers: Are to be defined.

Z-10 HATCH COVERS

Z-10.1 Hatch covers shall be easily accessible and safe to handle. Hatch-cover components weighing more than 40 kg shall be designed to slide or pivot or be fitted with mechanical opening devices. Hatch covers operated by lifting gear shall be fitted with easily accessible attachment devices. Non-interchangeable hatch covers and hatch beams shall be clearly marked to show the hatches to which they belong and their correct positions on those hatches.

Z-10.2 Hatch covers shall have provision for being ~~be~~ firmly secured in their working position. Sliding covers shall be capable of being locked in their final positions; they shall be fitted with catches to prevent accidental horizontal movement of more than 0.40 m in any other position. Appropriate devices shall be fitted to hold stacked hatch covers in position.

Z-10.3 The power supply for mechanically operated hatch covers must be cut off automatically when the control switch is released.

Z-10.4 Hatch covers must be capable of bearing the loads to which they are likely to be subjected: if less than 12 people, each assumed to weigh 75 kg, can be supported on a load-supporting hatch cover, a notice stating the number of persons that such a hatch cover can support shall be prominently displayed. Hatch covers designed to receive deck cargo shall have the permissible load in t/m^2 marked on them. Where braces are needed to support the maximum permissible load this shall be indicated in an appropriate place, in which case the relevant drawings shall be kept on board [10/].

Z- 11 WINCHES

Z-11.1 Winches shall be designed in such a way as to enable work to be carried out safely. They shall be fitted with devices that prevent unintentional load release. Winches that do not lock automatically shall be fitted with a brake that is adequate to deal with their design load [11/].

Z-11.2 Hand-operated winches shall be fitted with devices to prevent kick-back of the crank. Winches that are both power driven and hand-operated shall be designed in such a way that the motive-power control cannot actuate the hand-operated control.

10/ Note by the Group of Volunteers: Provisions of Chapter 2, par. 2-2.3.2 (TRANS/SC.3/2004/1) are to be deleted.

11/ Note by the Group of Volunteers: The terminology is to be checked with EN 13711.