



Economic Commission for Europe**Inland Transport Committee****Working Party on Inland Water Transport****Working Party on the Standardization of Technical
and Safety Requirements in Inland Navigation****Fifty-seventh session**

Geneva, 24–26 June 2020

Item 4 (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, revision 2)****Amendment proposals to the annex to resolution No. 61,
revision 2, based on the European Standard laying down
technical requirements for inland navigation vessels,
Edition 2019****Transmitted by Romania****I. Mandate**

1. This document is submitted in line with the programme of work of the Transport subprogramme for 2020 (ECE/TRANS/2020/21, chapter IV, table, section A, para. 11) adopted by the Inland Transport Committee at its eighty-second session (ECE/TRANS/294, para. 136).
2. At its fifty-sixth session, the Working Party on the Standardization of Technical and Safety Requirements in Inland Navigation (SC.3/WP.3) considered the draft of a new chapter on special provisions for electrical propulsion systems and other amendment proposals to the annex to resolution No. 61, revision 2 (ECE/TRANS/SC.3/WP.3/2020/3). SC.3/WP.3 took note of the proposal by Romania to supplement the draft with the relevant provisions for the control system in the wheelhouse from the European Standard laying down Technical Requirements for Inland Navigation Vessels (ES-TRIN) and asked the secretariat in consultations with Romania and other interested member States to finalize the draft for its fifty-seventh session (ECE/TRANS/SC.3/WP.3/112, paras. 53–55).
3. The proposal transmitted by Romania, finalized by the secretariat, is given below.

II. General remarks

4. The provisions of a new chapter XX, “Special provisions applicable to electric vessel propulsion” (ECE/TRANS/SC.3/WP.3/2020/3) correspond to the text of article 11.05

“Monitoring equipment” of ES-TRIN edition 2019. However, the application of this new chapter of the annex to resolution No. 61 will require additional provisions for electronic equipment (Article 10.18 of ES-TRIN) and the automatic device for the reduction of the engine speed (Article 8.03(4) of ES-TRIN) (see footnotes 3 and 4 to ECE/TRANS/SC.3/WP.3/2020/3). It is therefore proposed to supplement the annex to resolution No. 61 with the following provisions.

III. Amendment proposals to section 1-2, “Definitions”, section 8-2, “Automation” and section 9-2, “Technical requirements” of chapter 9, “Electrical installations”

A. Section 1-2, “Definitions”

5. Section 1-2, “Definitions”

Add a new definition 112 bis¹

112 bis “Power electronics”: an installation, appliance, assembly or device for converting electrical energy with switching electronic devices or a system comprised thereof.

B. Section 8-2, “Automation”

6. *Add a new paragraph 8-2.3.6*

8-2.3.6 Where vessels have only one propulsion engine, that engine may be equipped with an automatic device for the reduction of the engine speed only if an automatic reduction of the engine speed is indicated both optically and acoustically in the wheelhouse and the device for the reduction of the engine speed can be switched off from the helmsman's position.

C. Section 9-2, “Technical requirements”

7. *Add a new subsection 9-2.19²*

9-2.19 Power electronics

9-2.19.1 A separate device for disconnecting from the mains must be provided for each power electronics system. The combination fuse-switch may be used for consumer equipment up to a nominal current of 315 A. In all other cases, a circuit-breaker must be provided on the network side.

9-2.19.2 The power electronics should be readily accessible for repairs and measurements. Appropriate devices must be provided for checking functions and detecting malfunctions.

9-2.19.3 Control and signal electronics must be galvanically separated from power circuits.

9-2.19.4 Converter systems must ensure safe operation even with the largest permissible voltage and frequency fluctuations. For impermissibly high frequency and/or voltage variations in the supply voltage, the system must switch itself off or remain in a safe operating condition.

9-2.19.5 Electric charges in assemblies should be reduced to a voltage below 50V in less than 5 seconds after disconnecting from the network. If longer discharge times are required, a warning sign must be affixed to the device.

¹ See the annex to ECE/TRANS/SC.3/WP.3/2018/6, part I, definition 11.5.

² See ECE/TRANS/SC.3/WP.3/2018/6, part IV, Article 10.18.

9-2.19.6 The failure of external control signals, must not lead to a dangerous condition.

9-2.19.7 Power electronics must be designed and installed in such a way that the failure of control voltages cannot lead to threats or damage to the system or device where the power electronics is installed, or to the overall system.

9-2.19.8 In the installation which is required for propulsion and manoeuvrability as well as safety of the crew, craft or cargo, components must be provided for monitoring the individual power electronic assemblies and subsystems in order to facilitate error detection in the event of a malfunction and prevent the existence of undetected errors.

9-2.19.9 The monitoring of the power electronics must detect errors with certainty and prevent them from remaining unrecognized.

9-2.19.10 Except for components, only power electronics that have undergone the type examination may be used. If the power electronics feature protective and monitoring devices, the examination must also include proof of the response thresholds and coordinated interaction of all protective and monitoring equipment. The type examination report is to be included with the system documentation.

8. *Renumber* the existing subsection 9-2.19 as 9-2.20.
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