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Item 13 of the provisional agenda

Regulation No. 118 (Burning behaviour)**Proposal for Supplement 2 to the 02 series of amendments to
Regulation No. 118 (Burning behaviour)****Submitted by the expert from Germany^{*}**

The text reproduced below was prepared by the expert from Germany clarifying the scope and the application of UN Regulation No. 118. This document together with ECE/TRANS/WP.29/GRSG/2015/28 supersede informal document GRSG-108-09 distributed during the 108th session of the Working Party on General Safety Provisions (GRSG) (see report ECE/TRANS/WP.29/GRSG/87, para. 50). The modifications to the current text of Regulation No. 118 are marked in bold for new characters or strikethrough for deleted characters.

* In accordance with the programme of work of the Inland Transport Committee for 2012–2016 (ECE/TRANS/224, para. 94 and ECE/TRANS/2012/12, programme activity 02.4), the World Forum will develop, harmonize and update Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.



I. Proposal

Contents, item 5., amend to read:

- "5. Part I: Approval of a vehicle type with regard to the burning behaviour of the components used in the interior compartment, the engine compartment and any separate heating compartment **and with regard to the burning behaviour of electric cables and cable sleeves or cable conduits used in the vehicle** and/or the capability to repel fuel or lubricant of insulation materials used in the engine compartment and any separate heating compartment.
6. Part II: Approval of a component with regard to its burning behaviour and/or its capability to repel fuel or lubricant."

Paragraph 1.2., amend to read:

- "1.2. Part I - Approval of a vehicle type with regard to the burning behaviour and/or the capability to repel fuel or lubricant of the components used in the interior compartment, the engine compartment and any separate heating compartment **and with regard to the burning behaviour of electric cables and cable sleeves or cable conduits used in the vehicle.**
- 1.3. Part II - Approval of a component with regard to its burning behaviour and/or its capability to repel fuel or lubricant ~~installed in the interior compartment, the engine compartment or any separate heating compartment.~~"

Paragraphs 5.2. to 5.2.2., amend to read:

- "5.2. Specifications
- 5.2.1. The materials inside and no more than 13 mm beyond the interior compartment, materials of the engine compartment, ~~and~~ materials of any separate heating compartment **and electric cables** used in the vehicle to be type approved shall meet the requirements of Part II of this Regulation.
- 5.2.2. The materials and/or equipment used in the interior compartment, the engine compartment and any separate heating compartment and/or in devices approved as components, **electric cables used in the vehicle** shall be so installed as to minimize the risk of flame development and flame propagation.
- 5.2.3. Such materials and/or equipment shall only be installed in accordance with their intended purposes and the test(s) which they have undergone (see paragraphs 6.2.1., 6.2.2., 6.2.3., 6.2.4., 6.2.5., 6.2.6. and 6.2.7.), especially in relation to their burning and melting behaviour (horizontal/vertical direction) and/or their capability to repel fuel or lubricant.
- 5.2.4. Any adhesive agent used to affix the interior material to its supporting structure shall not, as far as possible, exacerbate the burning behaviour of the material."

Part II, paragraph 6.2.6., amend to read:

- "6.2.6. **Any electric cable (e.g. single-core, multi-core, screened, unscreened, sheathed cables) exceeding a length of 100 mm used in the vehicle** shall undergo the resistance to flame propagation test described in ~~6722:2006, paragraph 12~~ **ISO 6722-1:2011, paragraph 5.22.**

The exposure to the test flame shall be finished, when the conductor (in case of single-core cables) or the first conductor (in case of multi-core cables) becomes visible, or after 15 s for cables with conductor sizes of each less or equal than 2.5 mm² and 30 s for cables with conductor sizes greater than 2.5 mm² or multi-core cables with at least one conductor size greater than 2.5 mm².

The result of the test shall be considered satisfactory if, taking into account the worst test result, any combustion flame of insulating material shall extinguish within 70 seconds and a minimum of 50 mm insulation at the top of the test sample shall remain unburned.

Part II, paragraph 6.2.7.4., amend to read:

"6.2.7.4. Elements for which it is not possible to extract a sample in the prescribed dimensions as specified in paragraph 3.1. of Annex 6, paragraph 3. of Annex 7, **and paragraph 3.1. of Annex 8.**"

II. Justification

1. The original proposal of the 01 series amendments submitted by some Contracting Parties (France, Sweden, Norway, Germany) focused on all electric cables used in the vehicle. The current text of UN Regulation No. 118 permits the interpretation that only electric cables used in the interior compartment, the engine compartment and any separate heating compartment have to be tested concerning flame propagation. The proposal clarifies the application of the provisions to any cable used in the entire vehicle, not only to those in the interior compartment, engine compartment and separate heater compartment.

2. Thus, the references in paragraph 1.3. to the three different compartments are deleted aligning the paragraph with the table of contents, point 6. and the title of Chapter 6.

3. The current text of UN Regulation No. 118 on the burning behaviour of electric cables resulted in discussions and different interpretations of the provisions. One interpretation is that the requirement would have to be applied only to the electric cables covered by standard ISO 6722. This was not the intention of the original proposal and would not ensure a better protection against fire. Therefore, this proposal aims at clarifying the provisions to test any cable (e.g. single-core, multi-core, screened, unscreened, sheathed cables), not only those dealt with in ISO 6722.

4. As short electric cables, cable sleeves and cable conduits fitted to components like e.g. alternators, starters, control devices, etc. have no significant effect on the fire propagation, it seems justified to focus on those materials exceeding a length of e.g. 100 mm. Thus, the amended paragraph 6.2.6. proposes to test electric cables to those materials that exceed a length of e.g. 100 mm.

5. The reference in paragraph 6.2.6. of UN Regulation No. 118 to the cable test specified in paragraph 12. of ISO 6722 is outdated. The correct reference is paragraph 5.22. of ISO 6722-1:2011.

6. In paragraph 6.2.7.4., the wording "and paragraph 3.1. of Annex 8" is reinserted, due to an error occurred in Revision 1 and aligning the provisions at an equivalent status compared to Annexes 6 and 7.