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Item 9 of the provisional agenda

Other UN Regulations

Proposal for Supplement 11 to UN Regulation No. 65

Submitted by the expert from Germany*

The text reproduced below was prepared by the expert from Germany. The modifications to the existing text of the UN Regulation are marked bold for new and strikethrough for deleted characters. The document is based on informal document GRE-86-14 and takes into account the comments made by the experts from France and the United Kingdom of Great Britain and Northern Ireland.

* In accordance with the programme of work of the Inland Transport Committee for 2022 as outlined in proposed programme budget for 2022 (A/76/6 (Sect.20), para 20.76), the World Forum will develop, harmonize and update UN Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.



I. Proposal

Table of content, Annexes, add reference to a new annex 9:

"9 Test for the base mounting of magnetically attached special warning lamps"

Add new paragraphs 5.10. to read:

5.10. In case of a magnetic attachment the special warning lamp shall be exposed to the test described in Annex 9 to this regulation. During the test the magnetic base mounting shall not move by more than 200 mm from the original position.¹

Insert footnote 1 to paragraph 5.10. to read:

1 The manufacturer shall inform the user, that an attachment is only possible for a roof of adequate steel or a steel mounting plate.

Insert a new Annex 9 to read:

"Annex 9

Test for the base mounting of magnetically attached special warning lamps

The tests shall be performed at $23^{\circ}\text{C} \pm 5^{\circ}$ ambient temperature on a metal surface of sufficient size and the following specifications:

- kind of metal: steel with a nominal yield strength of $180 \text{ N/mm}^2 - 240 \text{ N/mm}^2$;
- thickness of metal surface: $0,7 + 0,1 - 0 \text{ mm}$;
- radius of curvature: $\leq 5000 \text{ mm}$;
- paint thickness: $120 \pm 20 \mu\text{m}$;
- paint protection: Polyurethane film;
- paint protection thickness: $\geq 200 \mu\text{m}$ including glue.
- the metal surface must be $>20\text{mm}$ above any other ferrous or magnetic material.

Figure 1
Metal surface with paint and paint protection film



The special warning lamp shall be magnetically attached to the flat metal surface and subjected to a single shock pulse with a minimum acceleration of 16 g during 30 ms.

The direction of the acceleration shall be in horizontal direction."

II. Justification

1. General remark: A magnetic holder shall be strong enough, that even in case of an emergency breaking or a weak crash the device is still fixed properly. Therefore, the shock test described in the standard ISO 4148 was chosen. Unlike a test with a specific wind speed or the measurement of the pull-off force this test respects in addition the specific mass distribution of the device.
2. Magnetic mountings are widely used for fixing special warning lamps on the roof of a vehicle. The mounting should be strong enough to withstand usual maximum forces during various accelerations and wind loads. Such a test is described in Annex A of the standard ISO 4148 “Road vehicles – Special Warning lamps – Dimensions” with a single shock pulse test resulting in a minimum attachment force described by the movement of the device during this test, as required in paragraph 5.10. But since a lot of vehicles are protected with a special film to avoid scratching the paint, such a film has also to be specified for this test. Therefore, the test itself is described in Annex 9 without reference to standard ISO 4148, but with the same specification, since the ISO-requirements are sufficient to guarantee a proper fixation for magnetic holders without such a protection film.
3. Special warning lamps with a magnetic attachment can only be used for steel roofs of vehicles or a special steel mounting plate shall be used. The manufacturer should point out this.
4. Annex 9 specifies a usual steel roof top of a vehicle. All relevant parameters, including a film to prevent scratching, are fixed to appropriate values, to ensure repeatable tests in different laboratories.
5. The described steel and its shape correspond to the usual roof of a vehicle. The film thickness is determined as the maximum value for such films produced by different manufacturers.¹

¹ For reference, please see the following specifications:
<https://multimedia.3m.com/mws/media/1091986O/3m-industrial-protective-film-7070uv-7071uv-technical-data-sheet.pdf>;
<https://www.orafol.com/products/europe/en/technical-data-sheet/oraguard-2815gf-stone-guard-film-id11205-technical-data-sheet-europe-en.pdf>.