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Inland Transport Committee

World Forum for Harmonization of Vehicle Regulations**Working Party on Passive Safety****Fifty-sixes session**

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Item ?? of the provisional agenda

Draft Regulation on electric vehicles of category L**Proposal for amendments of
ECE/TRANS/WP.29/GRSP/2014/11****Submitted by the chair of the Informal Working Group on
Rechargeable Energy Storage System***

The text reproduced below was prepared by the experts of the Informal Group of RESS to solve the open topics of document GRSP-2014-11 as discussed during the 55. session of GRSP. The modifications to the existing text of document GRSP-2014-11 are marked in bold for new 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

Delete paragraph 12 of the content

Amend heading of Annex 8D, to read:

8D Mechanical shock ~~resulting from stationary vehicle fall down~~

Amending the Scope, to read:

1. Scope

This regulation does not cover post-crash safety requirements of road vehicles.

- 1.1. Part I: Safety requirements with respect to the electric power train of vehicles of ~~categories~~ **category L¹** with a maximum design speed exceeding 6 km/h, equipped with one or more traction motor(s) operated by electric power and not permanently connected to the grid, as well as their high voltage components and systems which are galvanically connected to the high voltage bus of the electric power train.

~~Part I of this regulation does not cover post-crash safety requirements of road vehicles.~~

- 1.2. Part II: Safety requirements with respect to the Rechargeable Energy Storage System (REESS) of vehicles of ~~categories~~ **category {L}** with a maximum design speed exceeding 6 km/h, equipped with one or more traction motors operated by electric power and not permanently connected to the grid.

Part II of this Regulation does not apply to REESS(s) whose primary use is to supply power for starting the engine and/or lighting and/or other vehicle auxiliaries systems.

Insert a new paragraph 5.1.3.3., to read:

5.1.3.3. Fuel cell vehicles

If the minimum isolation resistance requirement cannot be maintained over time, then protection shall be achieved by any of the following:

- (a) **Double or more layers of solid insulators, barriers or enclosures that meet the requirement in paragraph 5.1.1. independently;**
- (b) **On-board isolation resistance monitoring system together with a warning to the driver if the isolation resistance drops below the minimum required value. The isolation resistance between the high**

¹ As defined in the Consolidated Resolution on the Construction of Vehicles (R.E.3.), document ECE/TRANS/WP.29/78/Rev.2, para. 2. - www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html

voltage bus of the coupling system for charging the REESS, which is not energized besides during charging the REESS, and the electrical chassis need not be monitored. The function of the on-board isolation resistance monitoring system shall be confirmed as described in Annex 5.

Renumber paragraph 5.1.3.3. to 5.1.3.4

Amend paragraph 5.2.3., to read:

- 5.2.3. Protection against electrolyte spills
- Vehicles shall foresee that no spilled electrolyte from the REESS and its components shall reach the driver, rider or passenger nor any person around the vehicle during normal condition of use and/or functional operation.
- When the REESS is **in the put upside-down position**, no electrolyte shall spill.

Amend paragraph 6.4.2., to read

- 6.4.2. Mechanical shock ~~resulting from stationary fall-over~~

Amend paragraph 6.4.2.2., to read:

For a high voltage REESS the isolation resistance of the tested-device shall ensure at least 100 Ω /Volt for the whole REESS measured after the test in accordance with Annex 4B to this Regulation. ~~or the protection degree IPXXB shall be fulfilled for the tested device.~~

Delete paragraph 12.

Amend paragraph 3.4.3. of Annex 6 - Part 1, to read:

- 3.4.3. **Rated cCapacity (Ah):**

Insert a new paragraph 4 in Annex 6 - Part 1, to read:

- 4. Fuel Cell (if any)**
- 4.1. Trade name and mark of the fuel cell:**
- 4.2. Types of fuel cell:**
- 4.3. Nominal voltage (V):**
- 4.4. Number of cells:**
- 4.5. Type of cooling system (if any):**

4.6. Max Power(kW):

Renumber the following paragraphs and subparagraphs in Annex 6 - Part 1, to read:

Paragraph 4 to 5

Paragraph 5 to 6

Paragraph 6 to 7

Paragraph 7 to 8

Amend paragraph 1.4.3. of Annex 6 – Part 2, to read:

1.4.3. **Rated c€capacity (Ah):**

Amend paragraph 2.3.2. of Annex 6 – Part 3, to read:

2.3.2. **Rated c€capacity (Ah):**

Amend paragraph 3.2 of Annex 8A, to read:

.....

At the request of the manufacturer a vibration test profile determined by the vehicle-manufacturer, verified for the vehicle application and agreed with the Technical Service may be used as a substitute for the frequency - acceleration correlation of table 1 or table 2. The approval of a REESS tested according to this condition shall be limited to approvals for a specific vehicle type.

.....

Amend paragraph 2.1. of Annex 8C, to read:

.....

- (a) ~~Before starting the test the SOC is at least 95 per cent of the normal operating range as given by the manufacturer;~~
Adjust the SOC to at least 90% of the rated capacity as specified in the Annex 6 Part 1 paragraph 3.4.3. or Annex 6 Part 2 paragraph 1.4.3. or Annex 6 Part 3 paragraph 2.3.2.

.....

Amend the heading of Annex 8D, to read:

~~Mechanical shock resulting from stationary vehicle fall-down~~

Amend paragraph 1. of Annex 9B, to read:

....

The isolation resistance shall be measured after the water resistance performance test has been conducted. ~~The degree of protection of the REESS shall meet the requirements mentioned below.~~

Amend paragraph 2. of Annex 9B, to read:

....

- (b) subsequently, apply 500V DC ~~between all the inputs and the vehicle's exposed conductive parts including the electrical chassis~~ **between all high voltage inputs and the vehicle's exposed conductive parts/electrical chassis** if present to measure the ~~insulation~~ **isolation** resistance.

II. Justification

The above proposed amendments of document GRSP-2014-11 are been discussed by the experts of RESS during the 12th Meeting of the group.

The amendments are made to

- indicate that the new regulation is not dealing with post-crash requirements
- align the new regulation with the requirements of the existing requirements for vehicles of category M and N in UN R100
- introduce necessary editorial changes.
