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### Economic Commission for Europe

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#### World Forum for Harmonization of Vehicle Regulations

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Item 17.8 of the provisional agenda

**Progress on the development of new gtrs**

**and of amendments to established gtrs – Draft gtr on Electric**

**Vehicle Safety (EVS)**

### **Fourth progress report of the Informal Working Group on Electric Vehicle Safety**

#### **Submitted by the representative from China, Japan, the United States of America and the European Union\***

The text reproduced below was prepared by the representatives of China, Japan, the United States of America and the European Union. It is based on informal document WP.29-167-21, distributed at the 167<sup>th</sup> session (ECE/TRANS/WP.29/1118, para. 137). This document, if adopted, shall be appended to the gtr in accordance with the provisions of paragraphs 6.3.4.2., 6.3.7. and 6.4. of the 1998 Agreement.

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\* In accordance with the programme of work of the Inland Transport Committee for 2014–2018 (ECE/TRANS/240, para. 105 and ECE/TRANS/2014/26, 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.

## **Fourth progress report of the Informal Working Group on Electric Vehicle Safety**

### **I. Introduction**

1. This report provides an update on the progress of the informal working group (IWG) on Electrical Vehicles Safety (EVS) and requests the extension of the mandate. Most recent developments pertain to the conclusions of the ninth IWG meeting that took place in Changchun of China in September 2015.

### **II. Current status**

2. Work of the EVS group is progressing according to the mandate adopted in the 156<sup>th</sup> WP.29 session (ECE/TRANS/WP.29/2012/36 and its Corr1).

3. The UN GTR is expected to address unique safety risks posed by electrical vehicles and their components. Informal group may also consider other topics, insofar as these topics prove to be relevant for the technical requirements to be developed.

4. The UN GTR will be performance-based to the extent possible so as not to restrict future technology development. It will provide the rationale for regulation and set provisions and test protocols to ensure the vehicle system and/or electrical components perform safely and that the vehicle occupants are appropriately protected. The provisions will address the safety of electric vehicles, both in-use and post-crash.

5. To resolve particular technical issues in an efficient manner, nine task force groups have been set up. On the whole they demonstrated the progress necessary to establish the UN GTR within the given mandate.

6. For example, the leakage requirements discussion on aqueous electrolyte battery has been finalized and electrical safety requirements for the 48V system were proposed and the regulatory text incorporated in the draft UN GTR.

7. The discussion on the state of charge of battery is nearing completion and the UN GTR draft text was already submitted to the informal group. The text regarding water resistance requirements was equally submitted to the IWG, with a couple of square bracket items yet to be resolved.

8. While the IWG has been making good progress, more discussion is required on some critical issues, including those that have been more recently proposed, or where the research is still ongoing. These include the Battery Management System functionality, the water immersion test, the long-term fire resistance test, drop and rotation tests, the toxicity and corrosiveness of vented gas, thermal propagation in battery system, vehicle safety requirement during charging and scope expansion to the heavy duty vehicles.

9. Under such circumstances, the informal group discussed the most appropriate way to establish the UN GTR within the given mandate and agreed that the only feasible scenario is a two-step approach. This implies that the UN GTR will try to cover, in Phase 1, near-term critical safety requirements, where the contracting parties are expected to reach an agreement within the given mandate. The remaining safety requirements that require long-term research as well as further improvement of the UN GTR will be covered in Phase 2. A comprehensive outline table has been developed by the IWG to help identifying items to be addressed under these 2 phases.

10. Despite the overall progress and a two-step approach, the informal group would like to request the AC.3's consent for the extension of the mandate covering the first phase of the UN GTR. The informal group intends to submit the draft UN GTR text as an informal document for phase 1 to the sixtieth GRSP session in December 2016 and the vote to establish the UN GTR is expected in November 2017, during the 173<sup>th</sup> session of WP.29 at the earliest.
  11. The exact scope and the timeline for Phase 2 of the UN GTR are expected to be clarified soon after the finalization of the Phase 1 of the UN GTR.
  12. To keep with the proposed timeline, the co-sponsors and task force leaders undertake to engage proactively in the informal group discussion, including the drafting of the draft UN GTR text.
  13. In case of the extension of the current mandate, the tenth EVS group meeting will be held from 29 February to 4 March in Japan, the eleventh EVS meeting is planned to be held in June 2016 in North America and the twelfth EVS meeting is scheduled for October 2016, in Europe.
  14. All the related documents are available on the EVS IWG website.
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