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**Economic Commission for Europe**

Inland Transport Committee

**World Forum for Harmonization of Vehicle Regulations****Working Party on General Safety Provisions****105<sup>th</sup> session**

Geneva, 8–11 October 2013

Item 8 of the provisional agenda

**Regulation No. 67 (LPG vehicles)****Proposal for amendments to Regulation No. 67 (LPG vehicles)****Submitted by the expert from the European Association of Automotive Suppliers \***

The text reproduced below was produced by the expert from the European Association of Automotive Suppliers (CLEPA) to introduce type approval provisions for "valve control at stop-start". It supersedes ECE/TRANS/WP.29/GRSG/2013/12 and introduces into UN Regulation No. 67 similar provisions as those for UN Regulation No. 110 (see ECE/TRANS/WP.29/GRSG/2013/26). The modification to the current text of the Regulation is marked in bold for new or strikethrough for deleted characters.

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\* In accordance with the programme of work of the Inland Transport Committee for 2010–2014 (ECE/TRANS/208, para. 106 and ECE/TRANS/2010/8, 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

*Part I, insert a new paragraph 4.4., to read:*

- "4.4. In addition to provisions of paragraphs 4.1. and 4.2., one of the following additional marks shall be used for remotely controlled service valves and remotely controlled shut-off valves which comply respectively with paragraph 4.7. of Annex 3 or with paragraph 1.7. of Annex 7:**
- (a) "H1"
  - (b) "H2"
  - (c) "H3" "

*Part II, insert a new paragraph 14.1.3., to read:*

- "14.1.3. "Commanded stop phase" defines the period of time during which the combustion engine is switched off automatically for fuel saving and is allowed to start again automatically."**

*Part II, insert new paragraphs 17.6.1.4. and 17.6.1.5., to read:*

- "17.6.1.4. Notwithstanding the provisions of paragraph 17.6.1.2., the remotely controlled service valve may stay in an open position during the commanded stop phases.**
- 17.6.1.5. If the remotely controlled service valve is closed during commanded stop phases, the valve shall comply with paragraph 4.7. of Annex 3."**

*Part II, insert new paragraphs 17.9.6. and 17.9.7., to read:*

- "17.9.6. Notwithstanding the provisions of paragraph 17.9.4., the remotely controlled shut-off valve may stay in an open position during the commanded stop phases.**
- 17.9.7. If the remotely controlled shut-off valve is closed during commanded stop phases, the valve shall comply with paragraph 1.7. of Annex 7."**

*Annex 3, insert new paragraph 4.7., to read:*

- "4.7. If the remotely controlled service valve is closed during commanded stop phases, the valve shall be submitted to the following numbers of operations during the endurance test of paragraph 9. of Annex 15:**
- (a) 200,000 cycles (mark "H1") if the engine shuts off automatically when the vehicle comes to a halt.
  - (b) 500,000 cycles (mark "H2") if, in addition to (a), the engine also shuts off automatically when the vehicle drives with the electric motor only.
  - (c) 1,000,000 cycles (mark "H3") if, in addition to (a), the engine also shuts off automatically when the accelerator pedal is released.

**Notwithstanding the above-mentioned provisions, the valve complying with (b) shall be deemed to satisfy (a), and the valve complying with (c) shall be deemed to satisfy (a) and (b)."**

*Annex 7, insert new paragraph 1.7., to read:*

- "1.7. If the remotely controlled shut-off valve is closed during commanded stop phases, the valve shall be submitted to the numbers of operations**

according to paragraph 4.7. of Annex 3 during the endurance test of paragraph 9. of Annex 15."

*Annex 14, insert new paragraph 2.1., to read:*

**"2.1. Notwithstanding the provisions of paragraphs 1. and 2., the remotely controlled service valve(s) and shut-off valves may stay in an open position during the commanded stop phases."**

## **II. Justification**

1. The stop-start or hybrid-electric functionality of the engine will also be used in Liquefied Petroleum Gas (LPG) vehicle systems to reduce CO<sub>2</sub> emissions. Therefore, the number of opening/closing cycles of the LPG tank valves will be increased by a factor of fifty. The current Regulation requires the valve to be closed when the engine is switched off. It is proposed to let the tank valves stay open in a commanded stop-start phase as it is the case for the idling phase of non-stop-start vehicles. The same durability requirement as regards opening/closing cycles of the valves as for non-stop-start systems is preserved. The remotely controlled service valve may stay in an open position to assure a correct and save operation of the valve over the lifetime of the vehicle.

2. If the automatic valves are closed during commanded stop phases, the cylinder valves shall be type approved according the expected cycle number.

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