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## Economic Commission for Europe

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World Forum for Harmonization of Vehicle Regulations

Working Party on General Safety Provisions

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Regulation No. 67 (Equipment for liquefied petroleum gas (LPG))

### **Proposal for amendments to Regulation No. 67 (Equipment for liquefied petroleum gas)**

**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 requirements for Liquefied Petroleum Gas (LPG) fuel selection systems. The modifications to the current text of the Regulation are 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 II, insert new paragraph 17.1.2.1., to read:*

**"17.1.2.1. Notwithstanding the provisions of paragraph 17.1.2., if the LPG demand control is integrated in the engine electronic control unit and is type approved in a vehicle installation during vehicle type approval according to Regulation No. 67, part II and Regulation No. 10, a separate type approval of the ECU is not necessary. The vehicle type approval shall be pursuant to the applicable provisions laid down in Annex 14 to this Regulation."**

*Part II, insert new paragraph 17.6.1.3., to read:*

**"17.6.1.3. The remotely controlled service valve shall stay in an open position during the commanded stop phase of an automatic stop-start system for a maximum time of 100 seconds."**

*Part II, paragraph 17.11.5., amend to read:*

**"17.11.5. Vehicles with more than one fuel system shall have a fuel selection system which prevents both a flow of gaseous fuel into the petrol tank and a flow of petrol into the gaseous fuel tank also in case of a single fault. The measure shall be demonstrated during the type approval."**

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

**"2.1. The remotely controlled service valve shall stay in an open position during the commanded stop phase of an automatic stop-start system for a maximum time of 100 seconds."**

## II. Justification

1. Reference, paragraph 17.1.2.1.

Engine control units (ECU) can only be operated normally in the specific vehicle environment for which they are designed and calibrated. Therefore, ECUs for gasoline and diesel vehicles are only type approved in a vehicle installation during vehicle type approval. There is no separate ECU type approval, as is currently required for LPG (or compressed natural gas (CNG)) ECUs. Engine control units which contain LPG functionality (for mono- or bivalent gas vehicles) should be type approved like ECUs for gasoline and diesel vehicles. The proposed amendment introduces the type approval of an electronic control unit which contains LPG functionality during the vehicle type approval.

The type approval according to UN Regulation No. 10 is mandatory for the ECU. According to paragraph 4.1.1.1. of this Regulation, type approval in a vehicle installation can be chosen.

2. Reference, paragraph 17.6.1.3. and Annex 14

The Start-Stop functionality of the engine will be used also in CNG vehicle systems to reduce CO<sub>2</sub> emissions. Thereby the number of opening/closing cycles of the CNG tank valves will be increased by a factor of ten.

It is proposed to let the tank valves stay open in a commanded start-stop phase as it is the case for the idling phase of non start-stop vehicles. The same durability requirement as regards opening/closing cycles of the valves as for non-start-stop systems is preserved.

The automatic cylinder valve shall stay in an open position to assure a correct and save operation of the valve over the life of the vehicle. Different durability requirements as regards opening/closing cycles for the type approval can be avoided.

3. Reference paragraph 17.11.5.

Mixed fuel operation can provide advantages for biofuel vehicles. There is no safety risk when running in a mixed fuel operation mode. However for safety issues, it shall be ensured that there is no flow of fuel into the other fuel tank. Therefore, this proposal replaces the restriction for mixed fuel operation by a prohibition of a flow of gaseous fuel into the petrol or diesel tank and a prohibition of a flow of petrol or diesel into the gaseous fuel tank. This shall be avoided under all temperature and pressure conditions and also in case of a single fault. UN Regulation No. 67 regulates only safety issues. The mandatory emission requirements are part of UN Regulation No. 83.

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