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Economic Commission for Europe**Inland Transport Committee****World Forum for Harmonization of Vehicle Regulations****Working Party on Pollution and Energy****Seventy-second session**

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Item 5 of the provisional agenda

**Regulations Nos. 85 (Measurement of the net power),
115 (LPG and CNG retrofit systems)
and 133 (Recyclability of motor vehicles)****Proposal for a new Supplement to the original version of
Regulation No. 115 (LPG and CNG retrofit systems)****Submitted by the Chair of the informal working group on Gaseous
Fuelled Vehicles***

The text reproduced below was prepared by the Chair of the informal working group on Gaseous Fuelled Vehicles (GFV) and is based on informal document GRPE-71-03 (see report ECE/TRANS/WP.29/GRPE/71, paras. 36-37). The proposal is aimed at simplifying the communication model of approval. The modifications to the current text of Regulation No. 115 are marked in bold for new or strikethrough for deleted characters.

* 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.



I. Proposal

Annex 1A-Addendum, amend to read:

"Annex 1A – Addendum

Addendum to the communication concerning a type of LPG retrofit equipment pursuant to Regulation No. 115

(Approval No. Extension No.)

1. Vehicles on which the retrofit equipment has been tested:

Vehicle No.	1	2	n
Make:			
Type:			
Category:			
Engine type:			
Emission limits level:			
Power:			
Pollution control system type:			

1.1.2. Test results:

~~Ratio $CO_{2CNG} / CO_{2\text{petrol}}$:~~

~~Ratio $Power_{CNG} / Power_{\text{petrol (or diesel)}}$:~~

Vehicle No.	Petrol (or diesel) ¹					LPG				
	Power (kW)	CO ³ (g/km)	HC ³ (g/km)	NO _x ³ (g/km)	CO ₂ ²¹ (g/km)	Power (kW)	CO ³ (g/km)	HC ³ (g/km)	NO _x (g/km)	CO ₂ ²¹ (g/km)
1										
2										
n										

¹ ~~Strike out what does not apply.~~

²¹ Applicable to vehicles of category M₁ and N₁ only.

³ ~~Applicable only to parent vehicles~~

2. Ratios:

2.1. Ratio CO₂: CO₂ LPG/CO₂ petrol:

2.2. Ratio Power: LPG/Power petrol:

3. **List of vehicles type(s) for which the retrofit equipment type is qualified:**

	<i>Vehicle type</i>	<i>Engine type</i>	<i>Power (kW)</i>
1			
2			
3			
n			

"

Annex 1B-Addendum, amend to read:

"Annex 1B – Addendum

Addendum to the communication concerning a type of CNG retrofit equipment pursuant to Regulation No. 115

(Approval No. Extension No.)

1. Vehicles on which the retrofit equipment has been tested:

<i>Vehicle No.</i>	<i>1</i>	<i>2</i>	<i>n</i>
Make:			
Type:			
Category:			
Engine type:			
Emission limits level:			
Power:			
Pollution control system type:			

- 1.1.2. Test results:

Ratio $CO_{2CNG} / CO_{2\text{petrol}}^{\dagger}$:

Ratio $Power_{CNG} / Power_{\text{petrol (or diesel)}}^{\dagger}$:

<i>Vehicle No.</i>	<i>Petrol (or diesel)[‡]</i>					<i>CNG</i>				
	<i>Power (kW)</i>	<i>CO[‡] (g/km)</i>	<i>HC[‡] (g/km)</i>	<i>NO_x[‡] (g/km)</i>	<i>CO₂^{‡1} (g/km)</i>	<i>Power (kW)</i>	<i>CO[‡] (g/km)</i>	<i>HC[‡] (g/km)</i>	<i>NO_x (g/km)</i>	<i>CO₂^{‡1} (g/km)</i>
1										
2										
n										

[‡] ~~Strike out what does not apply.~~

^{‡1} Applicable to vehicles of category M₁ and N₁ only.

[‡] ~~Applicable only to parent vehicles~~

2. Ratios:

2.1. Ratio CO₂: CO₂ CNG/CO₂ petrol:

2.2. Ratio Power: CNG/Power petrol:

3. List of vehicles type(s) for which the retrofit equipment type is qualified:

	<i>Vehicle type</i>	<i>Engine type</i>	<i>Power (kW)</i>
1			
2			
3			
n			

..

II. Justification

1. The proposed amendment aims at simplifying the communication model of approval.
2. The current model requires the communication of a calculated CO₂ factor as well as of the specific CO₂ emissions in gas mode for vehicle types for which the retrofit system is qualified (i.e. other than parent vehicles).
3. Since the specific CO₂ emissions in gas mode are calculated applying the CO₂ factor to the "original" emissions in petrol mode, the communication of only the CO₂ factor is sufficient to establish the CO₂ emissions in gas mode of any vehicle type, when required.
4. For this reason, it is proposed to eliminate the communication of the CO₂ emissions and power figures of each specific vehicle, leaving the communication only for the tested (parent) ones.
5. This would not oblige the retrofit system manufacturer to know in advance the original CO₂ emissions of all qualified vehicles or to ask for an extension of approval when (frequently) a new model or variant of the same vehicle (i.e. with a different CO₂ figure) is put into the market.
6. For instance, in Contracting Parties where CO₂ emissions in gas mode of a vehicle retrofitted in accordance with Regulation No. 115 are required to be published, at the moment of "conversion" registration the administration can easily calculate the CO₂ emissions in gas mode multiplying the CO₂ factor for that specific vehicle (published in Regulation No. 115 communication model) by the original petrol CO₂ emissions (see Certificate of Conformity).
