

Proposal for the 04 series of amendments to Regulation No. 100 (Electric power trained vehicles) *

Submitted by the expert from the Netherlands

The text reproduced below was prepared by the expert from the Netherlands, aiming to achieve an identification of buses and trucks equipped with an electric drivetrain which is consistent with already existing regulated identification for Liquefied Petroleum Gas (LPG), Compressed Natural Gas (CNG), Liquid Natural Gas (LNG) and Compressed Hydrogen (H₂) fuelled trucks and busses. This proposal is based upon ECE/TRANS/WP.29/GRSP/2023/10, GRSP-73-17 and GRSP-73-49. The modifications to the current text of the UN Regulation (including ECE/TRANS/WP.29/2023/118) are marked in bold for new or strikethrough for deleted characters.

* In accordance with the programme of work of the Inland Transport Committee for 2023 as outlined in proposed programme budget for 2023 (A/77/6 (Sect. 20), table 20.6), the World Forum will develop, harmonize and update UN Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.



I. Proposal

Contents, list of annexes, amend to read:

"Contents

Page

Regulation

1.	Scope	
2.	Definitions.....	
3.	Application for approval	
4.	Approval	
5.	Part I: Requirements of a vehicle with regard to specific requirements for the electric power train	
6.	Part II: Requirements of a Rechargeable Electrical Energy Storage System (REESS) with regard to its safety	
7.	Modifications and extension of the type approval.....	
8.	Conformity of production.....	
9.	Penalties for non-conformity of production	
10.	Production definitively discontinued.....	
11.	Names and addresses of Technical Services responsible for conducting approval tests and of Type Approval Authorities	
12.	Transitional provisions.....	

Annexes

1	Part 1 - Communication concerning the approval or extension or refusal or withdrawal of approval or production definitively discontinued of a vehicle type with regard to its electrical safety pursuant to Regulation No. 100	
1	Part 2 - Communication concerning the approval or extension or refusal or withdrawal of approval or production definitively discontinued of a REESS type as component/separate technical unit pursuant to Regulation No. 100.....	
1	Appendix 1	
1	Appendix 2.....	
2	Arrangements of the approval marks	
3	Protection against direct contacts of parts under voltage	
4	Verification of potential equalization.....	
5A	Isolation resistance measurement method for vehicle based tests.....	
5B	Isolation resistance measurement method for component based tests of a REESS.....	
6	Confirmation method for function of on-board isolation resistance monitoring system.....	
7A	Verification method for testing authorities confirming document based isolation resistance compliance of electrical design of the vehicle after water exposure	
7B	Vehicle-based test procedure for protection against water effects	
8	Determination of hydrogen emissions during the charge procedures of the REESS.....	
	Appendix 1 - Calibration of equipment for hydrogen emission testing.....	
	Appendix 2 - Essential characteristics of the vehicle family.....	
9	REESS test procedures.....	

	Appendix 1 - Procedure for conducting a standard cycle.....	
	Appendix 2 – Procedure for SOC adjustment	
9A	Vibration test.....	
9B	Thermal shock and cycling test.....	
9C	Mechanical shock.....	
9D	Mechanical integrity.....	
9E	Fire resistance.....	
	Appendix 1 - Dimension and technical data of firebricks	
9F	External short circuit protection	
9G	Overcharge protection	
9H	Over-discharge protection.....	
9I	Over-temperature protection	
9J	Over-current protection.....	
10	Provisions for a label for vehicles of categories M2/N2 and M3/N3 equipped with an electric power train	"

Insert new paragraphs 5.5. to 5.5.3., to read:

- "5.5. Identification of electric power trained vehicles.**
- 5.5.1. On vehicles of the categories M₂/N₂ and M₃/N₃, equipped with a high voltage electric powertrain, labels shall be installed as specified in Annex 10.**
- 5.5.1.1. The requirement of paragraph 5.5.1. shall be considered to be satisfied in the case that the requirement of paragraph 7.1.7. of UN Regulation No. 134 is satisfied.**
- 5.5.2. For hybrid electric vehicles running on diesel or gasoline, the high voltage powertrain shall be considered its first energy source, independent of the capacity of the REESS.**
- 5.5.3. These labels shall be placed on the front of the vehicle and on the left side as well as on the right side of the vehicle; for the side if available in vicinity of a front door. If there is no front door available, the label has to be placed on the first third of the vehicle length.**
- In addition, for vehicles of category M₂ and M₃, a label shall be fixed to the rear of the vehicle."**

Insert new paragraphs 12.5. to 12.9., to read:

- "12.5. As from the official date of entry into force of the 04 series of amendments, no Contracting Party applying this UN Regulation shall refuse to grant or refuse to accept UN type approvals under this UN Regulation as amended by the 04 series of amendments.**
- 12.6. As from 1 September 2026, Contracting Parties applying this UN Regulation shall not be obliged to accept UN type approvals to the preceding series of amendments that were first issued on or after 1 September 2026.**
- 12.7. Until 1 September 2027, Contracting Parties applying this UN Regulation shall accept UN type approvals to the preceding series of amendments that were first issued before 1 September 2026.**
- 12.8. As from 1 September 2027, Contracting Parties applying this Regulation shall not be obliged to accept type approvals issued to the preceding series.**

12.9 Notwithstanding paragraphs 12.8, Contracting Parties applying this Regulation shall continue to accept type approvals issued according to the 03 series of amendments to this Regulation, for the vehicles/vehicle systems which are not affected by the changes introduced by the 04 series of amendments. "

Paragraph 12.5 and 12.6 (former), renumber as paragraph 12.10 and 12.11.

Annex 2, amend to read:

"Annex 2

Arrangements of the approval marks

Model A
(See paragraph 4.4. of this Regulation)

Figure 1



a = 8 mm min.

The approval mark in Figure 1 affixed to a vehicle shows that the road vehicle type concerned has been approved in the Netherlands (E 4), pursuant to Regulation No. 100, and under the approval number 042492. The first two digits of the approval number indicate that the approval was granted in accordance with the requirements of Regulation No. 100 as amended by 04 series of amendments.

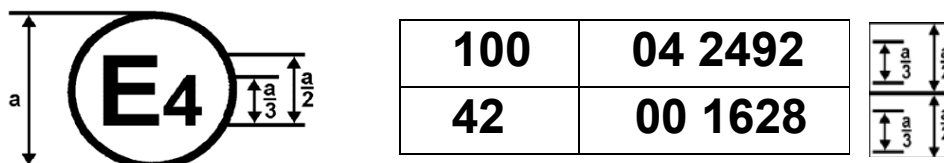
Figure 2



a = 8 mm min.

The approval mark in Figure 2 affixed to a REESS shows that the REESS type ("ES") concerned has been approved in the Netherlands (E 4), pursuant to Regulation No. 100, and under the approval number 042492. The first two digits of the approval number indicate that the approval was granted in accordance with the requirements of Regulation No. 100 as amended by 04 series of amendments.

Model B
(See paragraph 4.5. of this Regulation)



a = 8 mm min.

The above approval mark affixed to a vehicle shows that the road vehicle concerned has been approved in the Netherlands (E4) pursuant to Regulations Nos. 100 and 42¹. The approval number indicates that, at the dates when the respective approvals were granted, Regulation

¹ The latter number is given only as an example.

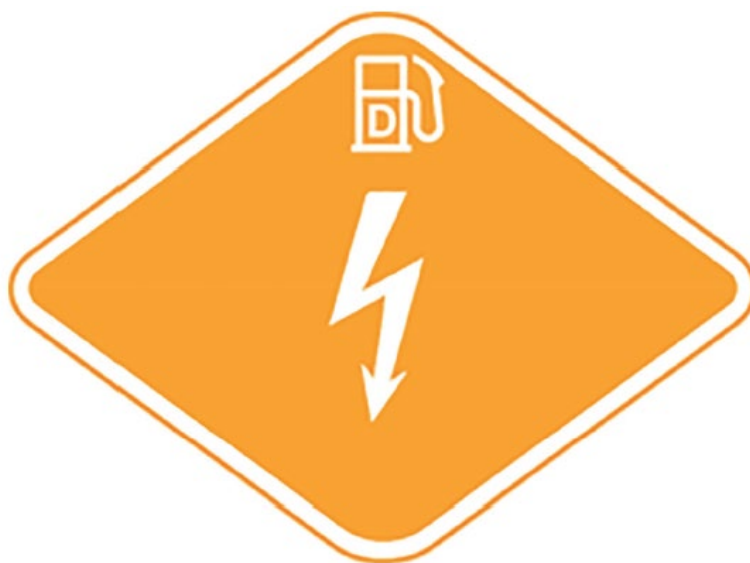
No. 100 was amended by the 04 series of amendments and Regulation No. 42 was still in its original form."

Introduce a new Annex 10, to read:

"Annex 10

Provisions for a label for vehicles of categories M₂/N₂ and M₃/N₃ equipped with an electric power train.

(Paragraph 5.5.1 to 5.5.3. of this Regulation)



The label shall be weather resistant.

The centre zone indicates the first energy source.

The upper zone indicates the second energy source.

Layout and symbols shall be in accordance with ISO 17840-4:2018.

The colour and dimensions of the label shall fulfil the following requirements:

Colours:

Background:	Orange, RGB code 255, 165, 0
Border:	white reflecting
Letters:	white reflecting

Dimensions:

Sticker width:	≥ 110 mm
Sticker height:	≥ 80 mm"

II. Justification

- Provisions for identification of gaseous and liquified fuels have been laid down in UN Regulations for LPG-fuelled M₂/N₂ and M₃/N₃ vehicles (UN Regulation No. 67, para. 17.1.8., including Annex 16 for details), CNG/LNG-fuelled M₂/N₂ and M₃/N₃ vehicles (UN Regulation No. 110, para. 18.1.8., including Annex 6 and 7 for the details) and Compressed Hydrogen-fuelled vehicles M₂/N₂ and M₃/N₃ vehicles (UN Regulation No. 134 para 7.1.7.1. and 7.1.7.3. including Annex 6 for the details).

2. The label will help emergency services to determine how to approach these vehicles in case of a fire, especially the vehicle's REESS or in case the REESS is damaged due to an accident for example.
3. For the installation of labels, this proposal seeks consistency with UN Regulation Nos. 67, 110 and 134.
4. CTIF² recommends the use of symbols which are in line with the international standard **ISO 17840-4, Part 4 Propulsion energy identification**.
5. For the appearance of the label, this proposal seeks consistency with the above mentioned ISO standard.
6. The label required in paragraph 7.1.7. of UN Regulation 134 already includes information about electric safety, so vehicles which satisfy above requirement do not need an additional label as required by this proposal.

² CTIF: historical abbreviation in French for "*Comité Technique International de prevention et d'extinction de Feu*".