

Proposal for supplement 3 to the 04 series of amendments to UN Regulation No. 100 (Electric power trained vehicles)

The text reproduced below was prepared by the expert from Germany on behalf of the TF GRSP AVRS, to enable the application of the regulation to vehicles equipped with an ADS [feature type 2]. The modifications to the existing text of the UN Regulation are marked in bold for new or strikethrough for deleted characters.

I. Proposal

Insert a new paragraph 0., to read:

“0. Introduction

0.1. For supplement 3 to the 04 series of amendments:

0.1.1. The Regulation is amended to account for vehicles of category X and Y.

0.1.2. The Regulation was originally drafted for vehicles with driver and manual driving controls. It is the intention of this new amendment to keep the spirit of the regulation and to extend its application to vehicles without driver and without manual driving controls inside the vehicle. In the absence of driver/manual driving controls in the vehicle, provisions related to them shall not be taken into account if not already covered by this amendment.

0.1.3. In case of vehicles with an ADS where those vehicles are also equipped with a manual driving mode operating at a speed of more than 6 km/h it is expected that in the manual driving mode the technical requirements can be applied as they would for a conventional vehicle. In a mode where an ADS feature is active the relevant ADS requirements have to be fulfilled.”

Paragraph 1.1., footnote 1, amend to read:

“¹ As defined in the Consolidated Resolution on the Construction of Vehicles (R.E.3.), document ECE/TRANS/WP.29/78/Rev.~~78~~, para. 2 - <https://unece.org/transport/vehicle-regulations/wp29/resolutions>”

Paragraph 2.1., amend to read:

“2.1. "Active driving possible mode" means the vehicle mode when application of pressure to the accelerator pedal (or activation of an equivalent control) or release of the brake system will cause the electric power train to move the vehicle. **For vehicles of category X and Y, the active driving possible mode means the vehicle mode when the signals sent by the ADS¹ will cause the electric power train to move the vehicle.**”

[Insert new paragraphs 2.57. to 2.58., to read:

“2.57. "ADS feature of type 1 (ADSF-1)" means an ADS¹ feature which includes an ADS fallback response requiring a fallback user

2.58. “ADS feature of type 2 (ADSF-2)” means an ADS feature which does not include an ADS fallback response requiring a fallback user.”]

Paragraph 5.1.4.4., amend to read:

“5.1.4.4. If an isolation resistance monitoring system is provided, and the isolation resistance less than the requirements given in paragraph 5.1.3. is detected, a warning shall be indicated to the driver or whilst the ADS[F-2] is performing the DDT, transmitted as a logic signal to the ADS. The function of the on-

board isolation resistance monitoring system shall be confirmed as described in Annex 6. “

Paragraphs 5.2.3. and 5.2.4., amend to read:

“5.2.3. Warning in the event of failure in REESS

The vehicle shall provide a warning to the driver when the vehicle is in active driving possible mode in the event specified in paragraphs 6.13. to 6.15. **For vehicles of category X and Y whilst the ADS[F-2] [feature] is performing the DDT, the warning shall be transmitted as a logic signal to the ADS.**

In case of optical warning, the tell-tale shall, when illuminated, be sufficiently bright to be visible to the driver under both daylight and night-time driving conditions, when the driver has adapted to the ambient roadway light conditions. **In case of optical warnings provided by an ADS[F2] [feature], the warning shall be visible to occupants under similar condition.** This tell-tale shall be activated as a check of lamp function either when the propulsion system is turned to the "On" position, or when the propulsion system is in a position between "On" and "Start" that is designated by the manufacturer as a check position. This requirement does not apply to the tell-tale or text shown in a common space.

5.2.4. Warning in the event of low energy content of REESS

For pure electric vehicles (vehicles equipped with a powertrain containing exclusively electric machines as propulsion energy converters and exclusively rechargeable electric energy storage systems as propulsion energy storage systems), a warning to the driver in the event of low REESS state of charge shall be provided. Based on engineering judgment, the manufacturer shall determine the necessary level of REESS energy remaining, when the driver warning is first provided. In case of optical warning, the tell-tale shall, when illuminated, be sufficiently bright to be visible to the driver under both daylight and night-time driving conditions, when the driver has adapted to the ambient roadway light conditions.

For vehicles of category X, and Y whilst the ADS[F-2] [feature] is performing the DDT, the warning shall be transmitted as a logic signal to the ADS.”

Paragraphs 5.3.1. and 5.3.2., amend to read:

“5.3.1. At least a momentary indication shall be given to the driver each time when the vehicle is first placed in "active driving possible mode" after manual activation of the propulsion system.

However, this provision is optional under conditions where an internal combustion engine provides directly or indirectly the vehicle's propulsion power upon start up. **The provisions of this paragraph do not apply whilst an ADS[F-2] [feature] is active**

5.3.2. When leaving the vehicle, the driver shall be informed by a signal (e.g. optical or audible signal) if the vehicle is still in the active driving possible mode. Moreover, in case of vehicles of category M2 and M3 with a capacity of more than 22 passengers in addition to the driver, this signal shall already be given when the drivers leave their seat. However, this provision is optional under conditions where an internal combustion engine provides, directly or indirectly, the vehicle's propulsion power while leaving the vehicle or driver seat. **The provisions of this paragraph do not apply whilst an ADS[F-2] [feature] is active.”**

Paragraph 5.3.4., amend to read:

“5.3.4 The state of the drive direction control unit shall be identified to the driver. **The provisions of this paragraph do not apply whilst an ADS[F-2] [feature] is active.”**

Annex 8, paragraph 5.1.1.1., amend to read:

“5.1.1.1. Discharges and initial charges of the REESS

The procedure starts with the discharge of the REESS of the vehicle while driving on the test track or on a chassis dynamometer at a steady speed of 70 per cent $\pm$ 5 per cent of the maximum speed of the vehicle for 30 minutes.

Discharging is stopped:

- (a) When the vehicle is not able to run at 65 per cent of the maximum thirty minutes speed, or
- (b) When an indication to stop the vehicle is given to the driver by the standard on-board instrumentation, or
- (c) **When an indication to stop the vehicle is given by the ADS, or**
- (d) After having covered the distance of 100 km.”

Annex 8, paragraph 5.1.2., amend to read:

“5.1.2. Discharge of the REESS

The REESS is discharged while driving on the test track or on a chassis dynamometer at a steady speed of 70 per cent $\pm$ 5 per cent from the maximum thirty minutes speed of the vehicle.

Stopping the discharge occurs:

- (a) When an indication to stop the vehicle is given to the driver by the standard on-board instrumentation, or
- (b) **When an indication to stop the vehicle is given by the ADS, or**
- (c) When the maximum speed of the vehicle is lower than 20 km/h.”

Annex 9E, paragraph 1., amend to read:

“1. Purpose

The purpose of this test is to verify the resistance of the REESS, against exposure to fire from outside of the vehicle due to e.g. a fuel spill from a vehicle (either the vehicle itself or a nearby vehicle). This situation should leave the ~~driver and passengers~~ **occupants** with enough time to evacuate.”

II. Justification

See paragraph 0. in the proposal.
