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Item 4.8.3. of the provisional agenda

1958 Agreement:

Consideration of draft amendments to existing

UN Regulations submitted by GRVA

Proposal for Supplement 3 to the 03 series of amendments to UN Regulation No. 79 (Steering equipment)

Submitted by the Working Party on Automated/autonomous and Connected Vehicles *

The text reproduced below was adopted by the Working Party on Automated/autonomous and Connected Vehicles (GRVA) at its fifth session, in February 2020 (see ECE/TRANS/WP.29/GRVA/5, paras. 46 and 52). It is based on ECE/TRANS/WP.29/GRVA/2020/9 as amended, ECE/TRANS/WP.29/GRVA/2020/10 and ECE/TRANS/WP.29/GRVA/2020/11. It is submitted to World Forum for Harmonization of Vehicle Regulations (WP.29) and the Administrative Committee of the 1958 Agreement (AC.1) for consideration and vote at their June 2020 sessions

* In accordance with the programme of work of the Inland Transport Committee for 2020 as outlined in proposed programme budget for 2020 (A/74/6 (part V sect. 20) para 20.37), 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.



Paragraph 5.1.6.1., add a new sub-paragraph 5.1.6.1.2.3., to read:

- "5.1.6.1. A CSF system shall be subject to the requirements of Annex 6.
- 5.1.6.1.1. Every CSF intervention shall immediately be indicated to the driver by an optical warning signal which is displayed for at least 1 s or as long as the intervention exists, whichever is longer.
- 5.1.6.1.2. In the case of a CSF intervention which is based on the evaluation of the presence and location of lane markings or boundaries of the lane the following shall apply additionally:
- 5.1.6.1.2.1. In the case of an intervention longer than:
- (a) 10 s for vehicles of category M₁ and N₁, or
 - (b) 30 s for vehicles of category M₂, M₃ and N₂, N₃,
- an acoustic warning signal shall be provided until the end of the intervention.
- 5.1.6.1.2.2. In the case of two or more consecutive interventions within a rolling interval of 180 seconds and in the absence of a steering input by the driver during the intervention, an acoustic warning signal shall be provided by the system during the second and any further intervention within a rolling interval of 180 seconds. Starting with the third intervention (and subsequent interventions) the acoustic warning signal shall continue for at least 10 seconds longer than the previous warning signal.
- 5.1.6.1.2.3. For vehicles of categories M₂ and M₃ equipped with a Lane Departure Warning System (LDWS) fulfilling the technical requirements of Regulation No. 130, the acoustic warning signal specified in paragraphs 5.1.6.1.2.1. and 5.1.6.1.2.2. may be replaced by a haptic warning, provided it is not solely given via the steering wheel."

Paragraph 5.6.2.3., insert a new sub-paragraph 5.6.2.3.1.3., to read:

- "5.6.2.3. System information data
- 5.6.2.3.1. Following data shall be provided together with the documentation package required in Annex 6 to this regulation to the Technical Service at the time of type approval;
- ...
- 5.6.2.3.1.3. Information about inputs other than lane markings (e.g. road boundaries, infrastructural separation, surrounding traffic, map data) that the system uses to reliably determine the course of the lane."

Paragraph 5.6.4.6.7., amend to read:

- "5.6.4.6.7. The direction indicator shall remain active throughout the whole period of the lane change manoeuvre and shall be automatically deactivated by the system no later than 0.5 seconds after the resumption of ACSF of Category B1 lane keeping function as described in paragraph 5.6.4.6.6. above. Automatic deactivation by the system of the direction indicator is required only if the lane change manoeuvre is initiated automatically, and if the direction indicator control is not fully engaged (latched position) during the lane change manoeuvre."

Annex 8

Paragraph 3.1.1.1., amend to read:

- "3.1.1. Warning test for CSF
- 3.1.1.1. The vehicle shall be driven with an activated CSF on a road with lane markings on each side of the lane. In case of a CSF whose interventions are solely based on the evaluation of the presence and location of lane boundaries, the vehicle shall be driven on a road delimited by the boundaries as declared by the manufacturer (e.g. road edge).

The test conditions and the vehicle test speed shall be within the operating range of the system.

During the test, the duration of the CSF interventions and of the optical and acoustic or haptic warning signal, as relevant, shall be recorded.

In the case of paragraph 5.1.6.1.2.1. of this Regulation, the vehicle shall be driven such that it attempts to leave the lane and causes CSF intervention to be maintained for a period longer than 10s (for M₁, N₁) or 30s (for M₂, M₃, N₂, N₃). If such a test cannot be practically achieved due to e.g. the limitations of the test facilities, with the consent of the type approval authority this requirement may be fulfilled through the use of documentation.

The test requirements are fulfilled if:

- (a) The acoustic or haptic warning, as relevant, is provided no later than 10s (for M₁, N₁) or 30s (for M₂, M₃, N₂, N₃) after the beginning of the intervention.

In the case of paragraph 5.1.6.1.2.2. of this Regulation, the vehicle shall be driven such that it attempts to leave the lane and causes at least three interventions of the system within a rolling interval of 180 s.

The test requirements are fulfilled if:

- (a) An optical warning signal is provided for each intervention, as long as the intervention exists, and
- (b) An acoustic or haptic warning signal, as relevant, is provided at the second and third intervention
and
- (c) The acoustic or haptic warning signal, as relevant, at the third intervention is at least 10s longer than the one at the second intervention."

Paragraph 3.2.4.1. and 3.2.4.2., amend to read:

"3.2.4. Transition test; hands-on test

3.2.4.1. The vehicle shall be driven with activated ACSF with a vehicle test speed between $V_{\text{min}} + 10$ km/h and $V_{\text{min}} + 20$ km/h on a track with lane markings at each side of the lane.

The driver shall release the steering control and continue to drive until the ACSF is deactivated by the system. The track shall be selected such that it allows driving with activated ACSF for at least 65 s without any driver intervention.

The test shall be repeated with a vehicle test speed between $V_{\text{max}} - 20$ km/h and $V_{\text{max}} - 10$ km/h or 130 km/h whichever is lower and may be stopped upon the start of the optical warning.

Additionally, the vehicle manufacturer shall demonstrate to the satisfaction of the Technical Service that the requirements for the whole speed range are fulfilled. This may be achieved on the basis of appropriate documentation appended to the test report.

3.2.4.2. The test requirements are fulfilled if:

During both tests, the optical warning signal was given at the latest 15 s after the steering control has been released and remains until ACSF is deactivated.

During the lower speed test the acoustic warning signal was given at the latest 30 s after the steering control has been released and remains until ACSF is deactivated.

During the lower speed test the ACSF is deactivated at the latest 30 s after the acoustic warning signal has started, with an acoustic emergency signal of at least 5 s, which is different from the previous acoustic warning signal."
