

Proposal for amendments to document ECE/TRANS/WP29/GRVA/2022/11

Electric park brake warning

I. Background

Industry presented document GRVA-11-42 at GRVA session of September 2021. This document became official document ECE/TRANS/WP.29/GRVA/2022/11, and was discussed at GRVA-12 in January 2022.

Based on the input received from GRVA-12, industry is proposing an amendment to ECE/TRANS/WP.29/GRVA/2022/11, shown with **purple text**.

The changes brought up with **revision 1** of this proposal are shown with **red text**. The justification is also adjusted accordingly.

II. Proposal

Insert new paragraph 5.2.1.26.5., to read:

“5.2.1.26.5. If the parking braking system detects a request (generated automatically or by the driver) to

- to fully apply the parking brake (i.e. to reach the mechanically locked position of the parking brake), or**
- to gradually control the parking brake action,**

the actuation of the warning as required in-paragraph 2.6. of Annex 8 may be delayed until the parking brake ~~is in a stable state~~ system has detected the correct clamping of the parking brake. {The yellow warning signal specified in paragraph 5.2.1.29.1.2. shall be displayed at the latest 10s after the request for a full parking brake application, in the case the stable state is not reached.}”

Annex 8, paragraph 2.6., reads (for reference only):

“2.6. When the pressure in the line feeding energy to the spring compression chamber - excluding lines of an auxiliary release device using a fluid under pressure - falls to the level at which the brake parts begin to move, an optical or audible warning device shall be actuated. Provided this requirement is met, the warning device may comprise the red warning signal specified in paragraph 5.2.1.29.1.1. of this Regulation. This provision does not apply to trailers.”

III. Justification

1. Current paragraph 2.6. of Annex 8 requires the park brake warning device to be actuated once the brake parts begin to move, i.e. once the pressure in the park brake chamber falls below a given threshold and the applied parking brake force starts building up. This requirement is implemented for quite some time in Regulation No. 13 and fits quite well to the operation of both pneumatic and electric control transmission of the parking braking system.
2. However, a specific issue exists in the case of an electric control transmission, specifically during the transition between parked (applied) and un-parked (released)

states. During this transition between two stable states, the parking brake warning may indeed be already displayed to the driver (while the electric control transmission has not yet reached its new stable -parked- state). The driver may then have a wrong interpretation of the situation (believing the park brake is fully applied).

3. The aim of this proposal is to eradicate this risk of misinterpretation by the driver, by allowing the warning device to be actuated only once the electric transmission of the parking brake is in a stable state securing the park brake application.
4. To improve clarity, the amended proposal makes now explicit the two different use cases which are targeted by the proposal: the driver's request to fully apply the park brake on the one hand, the use by the driver of the park brake as a secondary brake on the other hand.
5. The added text in square bracket is addressing the concerns received at GRVA-12 that the delay of the warning should be limited in time. Industry understands the concern but the proposed way to address it would actually go against the initial aim of the proposal (which is to show the warning only once the parking brake has reached a stable state). Indeed, if for any reason the park brake would never release on driver's request, providing the park brake warning would always remain a wrong information to the driver.

The proposal here is to keep the possible delay of the park brake unlimited (until the parking brake is in a stable state), but instead to require the system to provide a failure warning after 10 seconds. The driver would then be informed of a system failure, while not receiving any wrong information about the park brake actual status. This proposal is kept with square brackets since not strictly necessary; the system should indeed already detect such failures (e.g. a blocked valve preventing to exhaust air from the brake cylinders) and indicate it to the driver.

6. The new wording of revision 1 builds on existing wording in 5.2.1.26.2.3. of the regulation, which avoids creating a new wording with the same meaning ("stable state" indeed means the same as "correct clamping" of the parking brake).

Furthermore, it can be noted that paragraph 5.2.1.26.2.3. specifies that the parking brake red warning can be used to indicate parking brake applied (once the system has detected the "correct clamping" of the parking brake), but this only in the case of a failure in the electric parking brake system. The industry proposal in new paragraph 5.2.1.26.5. is somehow expanding this concept to the nominal operation of the electric parking brake system.
