

Proposals for amendments to UN R13H, 13 and 140

Industry proposal

Proposals

Proposal for amendments to UN R13H (Annex 9 - Electronic stability control and brake assist systems; Part A. Requirements for electronic stability control systems, where fitted)

Paragraph 3.4.4., amend to read:

“3.4. ESC malfunction detection

The vehicle shall be equipped with a tell-tale that provides a warning to the driver of the occurrence of any malfunction that affects the generation or transmission of control or response signals in the vehicle's electronic stability control system.

3.4.1. The ESC malfunction tell-tale:

...

3.4.1.5. May also be used to indicate the malfunction of related systems/functions, including traction control, trailer stability assist, corner brake control, and other similar functions that use throttle and/or individual torque control to operate and share common components with ESC.

3.4.4. The manufacturer may use the ESC malfunction tell-tale in a flashing mode to indicate the interventions of ESC and/or ESC-related systems (as listed in paragraph 3.4.1.5., **or using individual direction control for vehicle stability assist**).”

Proposal for amendments to UN R13 (Annex 21 - Special requirements for vehicles equipped with a vehicle stability function)

Paragraph 2.1.4., amend to read:

“2.1.4. Interventions of the vehicle stability function shall be indicated to the driver by a flashing optical warning signal fulfilling the relevant technical requirements of Regulation No. 121. The indication shall be present as long as the vehicle stability function is in an intervention mode. The warning signal specified in paragraph 5.2.1.29.1.2. of this Regulation shall not be used for this purpose.

Additionally, interventions by systems related to the vehicle stability function (including traction control, trailer stability assist, corner brake control, ~~and~~ other similar functions that use throttle individual torque control to operate and share common components with vehicle stability function, **and functions using individual direction control for vehicle stability assist**) may also be indicated to the driver by this flashing optical warning signal.

Interventions of the vehicle stability function used in any learning process to determine the vehicle operational characteristics shall not generate the above signal.”

Proposal for amendments to UN R140 (ESC)

Paragraph 7.4., amend to read:

“7.4. ESC malfunction detection

The vehicle shall be equipped with a tell-tale that provides a warning to the driver of the occurrence of any malfunction that affects the generation or transmission of control or response signals in the vehicle's electronic stability control system.

7.4.1. The ESC malfunction tell-tale:

...

7.4.1.5. May also be used to indicate the malfunction of related systems/functions, including traction control, trailer stability assist, corner brake control, and other similar functions that use throttle and/or individual torque control to operate and share common components with ESC

7.4.4. The manufacturer may use the ESC malfunction tell-tale in a flashing mode to indicate the interventions of ESC and/or ESC-related systems (as listed in paragraph 7.4.1.5., **or using individual direction control for vehicle stability assist**).”

Justifications

Document GRRF-82-12-Rev.3 as amended requires in its paragraph 5.1.6.2.1. that all types CSF, including CSF for stability, indicate their interventions by an optical means:

“5.1.6.2.1. Every CSF intervention shall immediately be indicated to the driver by an optical signal which is displayed for at least 1s or as long as the compensation exists, whichever is longer.”

Until now, the braking regulations covered the stability functions and their indications to the driver, e.g. an intervention of ESC is covered in UN R13H by the malfunction tell-tale per paragraph 3.4.4. However, the braking regulations do not cover the case of stability assistance per electronic steering control.

It would be misleading for the driver that two tell-tales simultaneously flash when a stability assistance including both ESC and CSF is intervening. And it would be of no added value for the driver to know which, from the steering or the braking system, is providing the stability assistance.

The proposals above amend the braking regulations such that the warnings to the driver can include the intervention of a stability assistance by electronic steering control.

The combination of ESC and CSF to achieve stability assistance is useful in lots of different situations (oversteer, understeer, split adhesion surface, etc.). The example below shows the basic functioning of an ESC/CSF combination in the case of oversteer.

Over-Steer Control (OSC)

When the rear wheels are laterally slipping, both longitudinal forces (braking/driving control) and lateral forces (steering control) of the front and rear wheels can help stabilizing the vehicle. Stabilization moment is then generated not only by braking/driving forces but also by steering control, thus enhancing the vehicle stability.

