

**PROPOSAL FOR AMENDMENT TO INFORMAL DOCUMENT No. GRRF-62-36**

Note: The text reproduced below has been prepared by the experts from the People's Republic of China in order to modify the definition and functional requirements for ESC. The modifications to the existing text of the Regulation are marked in **bold** characters.

**A. PROPOSAL:**

Paragraph 3.2, amended to read:

- 3.2. "Electronic Stability Control System" or "ESC System" means a system that has all of the following attributes:
- (a) That improves vehicle directional stability by ~~at least having the ability to automatically control individually the vehicle brake torques of the left and right wheels on each axle or an axle of each axle group 1/ to induce a correcting yaw moment~~ **by automatically inducing a correcting yaw moment either through selective braking or other means** based on the evaluation of actual vehicle behaviour in comparison with a determination of vehicle behaviour demanded by the driver;
  - .....
  - (e) That has an algorithm to determine the need, and a means to modify ~~engine-driving~~ torque, as necessary, to assist the driver in maintaining control of the vehicle.

Paragraph 4.1(a), amend to read:

- 4.1 Functional requirements. ***An electronic stability control system shall meet the following requirements:***
- (a) Is capable of ~~applying brake torques individually to all four wheels 2/ inducing a corrective yaw moment~~ and has a control algorithm that utilizes this capability;

Paragraph 5.7.1 and 5.7.2, amend to read:

- 5.7.1. System diagram identifying all ESC system hardware. The diagram must identify what components are used to ~~generate brake torques at each wheel, induce a corrective yaw moment and to~~ determine vehicle yaw rate, estimated side slip or the side slip derivative and driver steering inputs.
- 5.7.2. Written explanation describing the ESC system basic operational characteristics. This explanation must include [the outline description ~~a discussion~~] on the system's capability to ~~apply brake torques at each wheel~~ **induce a corrective yaw moment** and how the system modifies engine torque during ESC system activation. The explanation must also identify the vehicle speed range and the driving phases (acceleration, deceleration, coasting, during activation of the ABS or traction control) under which the ESC system can activate.

**B. JUSTIFICATION:**

The definition for ESC given in the proposed GTR is generalized from the common characteristics of the current brake-based systems. However, this definition is so detailed that it may become an obstacle for ESC systems based on other forms of technologies. With ESC, vehicle behaviour is adjusted by a correcting yaw moment. The required yaw moment can be realized by applying braking torque and other methods. If we are concerned with the possibility that a less qualified ESC system based on technologies other than braking might satisfy the criteria for lateral stability and responsiveness, we should amend this GTR in the future rather block out new technologies now.

In addition, we propose to replace “engine torque” with “driving torque” whereas this GTR is applicable to HEV, which use battery as another source of driving torque.

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