

Informal Paper by Jost as to Agenda item 6

Discussion paper:

Updating ECE-R13 with regard to automated coupling systems (ACS)

The purpose of this paper is to invite the group on a principal discussion how the goal may be best accomplished to incorporate appropriate requirements into ECE-R13 to realise an electric control line as part of “automated coupling systems” (ACS) such as described in ISO 13044.

Jost proposes to keep the existing references to the ISO 7638 connectors known from ECE-R13 as they are.

In addition to these references Jost proposes to add specific requirements to ECE-R13 to allow the realization of electric control lines equivalent to ISO 7638 via ACS alternatively.

The Informal Group is kindly asked to define additional requirements for “ACS” respectively.

GRRF already agreed to refer the Swedish Informal documents GRRF 69-12, GRRF-69-13 and GRRF-69-14 to the informal group (see paragraph C of the Report of the Working Party on Brakes and Running Gear on its sixty-ninth session).

As a rough extract of discussions inside the ISO committees over the last 4 years among experts from the industry (Truck, Trailer, Electrical Connectors, Brakes and Coupling Systems) some points were already detected which seem to be relevant and important enough to be considered:

1. Clear definition of terminology / nomenclature of ACS and related items should be added to ECE-R13 e.g. to section 2.

2. "Point-to-point" connection

According to paragraph “3.5 of ISO 11992 Part 1 a “point-to-point connection” is an electrical connection between two electronic nodes only (that means between two “intelligent electronic devices”). Up to now, the definition of “point-to-point” refers to the ISO 7638 pins 6 and 7.

From R13:

- 5.1.3.6. The electric control line shall conform to ISO 11992-1 and 11992-2:2003 and be a point-to-point type using the seven pin connector according to ISO 7638-1 or 7638-2:2003. The data contacts of the ISO 7368 connector shall be used ...

Therefore ECE-R13 should contain a requirement permitting electric control lines that do not necessarily use the ISO 7368 connector.

Consequently ECE-R13 should stipulate a brake system configuration without parallel data communication paths or dead ends, regardless if ACS is used isolated or in combination with ISO 7638 connectors.

3. Response time measurement (Annex 6)

In Annex 6 a requirement has to be added that both pneumatic response time measurements have to be carried out if a vehicle is equipped with two different pneumatic control lines (manual and automatic connections).

4. Coiled cable length

According to ISO 11992-1, paragraph 6.2.1, the total length of the cable is normally split into three parts, 11, 12 and 13.

12 is the coiled cable length of 7 m.

This cable length is not required for FACS equipped vehicle combinations.

Thus, a derogation from the lengths limitation of 11 (15 m for cable length in towing vehicle) and 13 (18 m for cable length in towed vehicle) shall be expressly permitted by ECE-R13.

In order to observe the maximum permitted maximum total overall cable length of 40 m in draft ISO/CD 13044-2, Annex C it is stipulated:

From ISO 13044-2

C.1.4 ISO 11992 CAN cable length

The respective lengths of the ISO 11992 CAN communication cables shall be such that the following conditions are met:

- Tractor-side harness - for FACS-equipped vehicles - shall not exceed a maximum length of 18 m, wherein the partial length from the ECU unit to the fixed socket shall not exceed 15 m.*
- Trailer-side harness - for FACS-equipped vehicles - shall not exceed a maximum length of 22 m, wherein the partial length from the ECU unit to the fixed socket shall not exceed 18 m.*