

Suggested amendments highlighted in blue (P. Jennison) – “clean” copy

Proposed amendment to ECE Regulation 13

The text reproduced below was prepared by the experts of the informal working group ACV for the amendment of Regulation No. 13. This is to enable the use of automatic couplings systems.

The modifications to the existing text of the Regulation are marked in bold characters.

I. Proposal

Insert new paragraph 2.37., to read:

- 2.37. **"Brake electric/electronic interface"** means the part of a separable electrical/electronic connection between the towing vehicle and the towed vehicle which is dedicated to the braking system and is part of an automated or automatic connector
- 2.38. **"Automated or Automatic Connector"** means a system through which the electrical connection and/or the pneumatic connection between the towing vehicle and towed vehicle is made automatically without direct intervention of a human operator.

Amend paragraph 5.1.3.6. to read:

- 5.1.3.6. a) The electric control line shall conform to ISO 11992-1 and 11992-2:2003 including its Amd.1:2007 and be a point-to-point type using :
- i) the seven pin connector according to ISO 7638-1 or 7638-2:2003 [or,
 - ii) in the case of systems where the connection of the electric control line is automated, an automatic connector providing as a minimum the same number of pins (7) with the same electrical properties and functionality as the ISO 7638 connector. The automatic connector shall meet all the electrical requirements contained within this regulation applicable to the ISO 7638 connector and the requirements specified in Annex 22 of this Regulation.]
- b) The data contacts of the ISO 7368 connector shall be used to transfer information exclusively for braking (including ABS) and running gear

(steering, tyres and suspension) functions as specified in ISO 11992-2:2003 including its Amd.1:2007. The braking functions have priority and shall be maintained in the normal and failed modes. The transmission of running gear information shall not delay braking functions.

- c)** The power supply, provided by the ISO 7638 connector, shall be used exclusively for braking and running gear functions and that required for the transfer of trailer related information not transmitted via the electric control line. However, in all cases the provisions of Paragraph 5.2.2.18. of this Regulation shall apply. The power supply for all other functions shall use other measures.

Amend paragraph 5.2.1.23. to read:

5.2.1.23. Power driven vehicles authorized to tow a trailer equipped with an anti-lock system shall also be equipped with a special electrical connector, conforming to ISO 7638:2003¹, for the electric control transmission.

[In the case of power driven vehicles where the connection of the electric control line is automated, an automatic connector providing as a minimum the same number of pins (7) with the same electrical properties and functionality as the ISO 7638 connector shall be used. This automatic connector shall meet all the electrical requirements contained within this regulation applicable to the ISO 7638 connector and the requirements specified in Annex 22 of this Regulation.]

Comment [C1]: suppl.5 to the 11 series of amend./doc. 2010/64

Amend paragraph 5.2.2.17. to read:

- 5.2.2.17. Trailers equipped with an electric control line and O₃ and O₄ category trailers equipped with an anti-lock system, shall be fitted with a special electrical connector for the braking system and/or anti-lock system, conforming to ISO 7638:2003^{15, 2} **or, where the connection of the electric control line is automated, an automatic connector providing as a minimum the same number of pins (7) with the same electrical properties and functionality as the ISO 7638 connector shall be used. This automatic connector shall meet all the electrical requirements contained within this regulation applicable to the ISO 7638 connector and the requirements specified in Annex 22 of this Regulation.]**

Failure warning signals required from the trailer by this Regulation shall be activated via the above connectors. The requirement to be applied to trailers with respect to the transmission of failure warning signals shall be those,

¹ The ISO 7638:2003 connector may be used for 5 pin or 7 pin applications, as appropriate.

² The conductor cross sections specified in ISO 7638:2003 for the trailer may be reduced if the trailer is installed with its own independent fuse. The rating of the fuse shall be such that the

as appropriate, which are prescribed for motor vehicles in paragraphs 5.2.1.29.4., 5.2.1.29.5. and 5.2.1.29.6.

Trailers equipped with an ISO 7638:2003 connector as defined above shall be marked in indelible form to indicate the functionality of the braking system when the ISO 7638:2003 connector is connected and disconnected. The marking is to be positioned so that it is visible when connecting the pneumatic and electrical interface connections.

Add Annex 22 to read:

Annex 22

REQUIREMENTS FOR THE BRAKE ELECTRIC/ELECTRONIC INTERFACE

1. General

This annex defines the requirements applicable to installations where the connection and disconnection of the brake electric/electronic interface between the towing vehicle and the towed vehicle is automated.

2. Requirements

2.1 The contacts (pins and sockets) for the brake electric/electronic interface shall have the same electrical properties, including current carrying capability, and functionality as the ISO 7638 connector.

2.2. In an automated or automatic connector the coiled cable length l_3 according to ISO 11992-1 is distributed between the towing vehicle and the towed vehicle as follows:

Towing vehicle: 3 m.

Towed vehicle: 4 m.

2.3. A vehicle shall in all modes of operation comply with the provisions of Annex 6 of this Regulation.

2.4. Vehicles being equipped with both a connector conforming to ISO 7638 and an automated or automatic connector shall be constructed in such a way that if both connectors are connected (inadvertently) there is no conflict in the functioning of the electric control transmission or in the transmission of information in accordance with ISO 11992-2:2003 including Amd.1:2007.

2.4.1. This shall be accomplished automatically. Alternatively, if not accomplished automatically, the trailer brakes must be automatically applied and remain applied until the ISO 7638 connector is disconnected.

Appendix 1

ELECTRICAL LAYOUT OF AN AUTOMATED CONNECTION BETWEEN VEHICLES - TRACTOR AND SEMI-TRAILER EXAMPLE

I. AUTOMATIC CONNECTION AND MANUAL CONNECTION EQUIPPED VEHICLES

Automatic connection mode

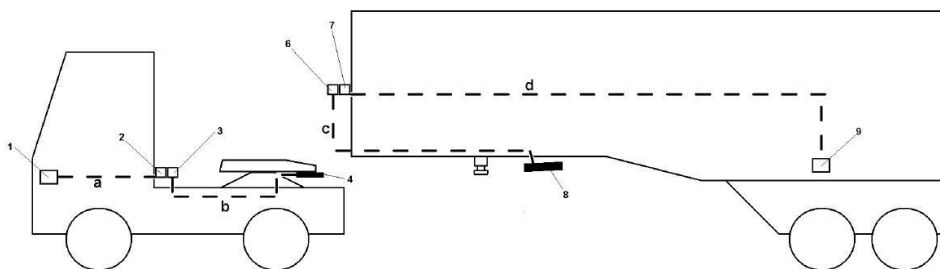


Figure A: Point-to-point connection ECU Tractor (1) and ECU Trailer (9) when Fifth Wheel is closed

Automatic connection mode: No coiled cables connected, Connection between 3 and 6 when 4 and 8 are connected (i.e. fifth wheel coupled)

Key

- 1 ISO 11992-2 node on the towing vehicle, i.e. ECU ABS/EBS
- 2 Bottom connector for helix cable, mounted on towing vehicle
- 3 Connector socket to the ACV on towing vehicle acc. to ISO7638
- 4 Towing vehicle part of the brake electric/electronic and pneumatic interface
- 5 Coiled cable
- 6 Connector socket from the ACV on the towed vehicle acc. to ISO7638
- 7 Towed vehicle-sided connector for helix cable
- 8 Towed vehicle part of the brake electric/electronic and pneumatic interface
- 9 ISO 11992-2 node on the towed vehicle, e.g. ECU ABS/EBS
- a Cable harness from 1 to 2
- b Cable harness from 3 to 4
- c Cable harness from 8 to 6
- d Cable harness from 7 to 9

Manual connection mode

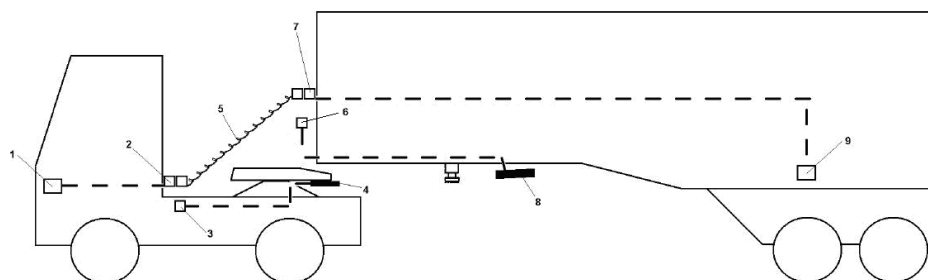


Figure B: Point-to-point connection ECU Tractor (1) and ECU Trailer (9) when Fifth Wheel is closed

Manual mode: Coiled cables connected, Connection between 3 and 6 as 4 and 8 are not connected

II. ONLY ONE PART OF THE VEHICLE COMBINATION IS EQUIPPED WITH AN AUTOMATED CONNECTION

Manual mode A (only the tractor equipped with automated connection)

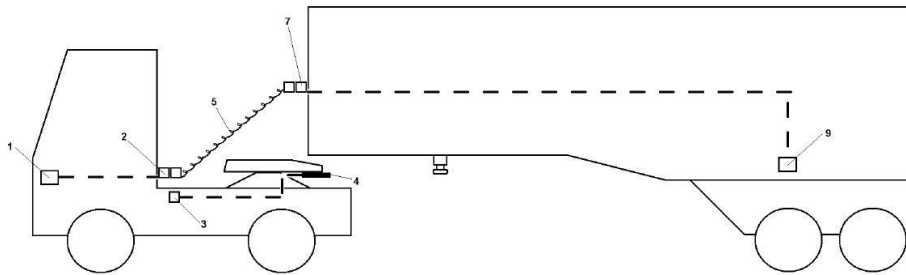


Figure C: Point-to-point connection ECU Tractor (1) and ECU Trailer (9) when Fifth Wheel is closed
Coiled cables connected, Line 3 to 4 is not connected

Manual mode B (only the semi-trailer equipped with automated connection)

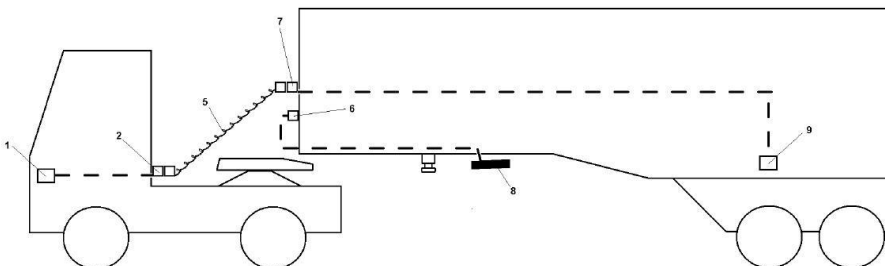


Figure D: Point-to-point connection ECU Tractor (1) and ECU Trailer (9) when Fifth Wheel is closed
Coiled cables connected, Line 6 to 8 is not connected