

JOST - Proposal for an amendment to R13 regarding ACV

- 2.32 All references in this document, concerning ISO7638:1997 are related to manual connectors, not automated.

For the applications to automated coupling systems for vehicles (ACV) the use of connectors according to the technical specifications given by ISO13044-2:20__ shall be applied accordingly.

- 5.1.3.6 **Original text:** 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 7638-2:1997. 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. 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. 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.

Amended text: The connection between the brake ECU (electronic control unit) on towing vehicle and trailer using ACV has to be point-to-point to ensure an explicit and unequivocal correlation. Active connections shall not have any bypasses or dead ends. Therefore tractors and trailer equipped with ACV shall both only have one singular socket according to ISO 7638:1997 (see Figure A to D: Pos 2, respectively Pos 7)

In case of automated connectors the helix cable length of 7m according to ISO 11992:2003 shall be prorated in additional 3 m for the towing vehicle side and 4 m on the trailer side. (By that measure the permitted 40 m overall cable length between the ECU's are prorated into 18 m on the towing vehicle and 22m on the trailer side).

Automated Couplings for Vehicles (ACV) are designed for 24V operation. In specific markets, where 12V is standard, ACV

connectors can be operated at 12V as long as voltage compatibility between truck and trailer is ensured.

The requirements on the response time of the pneumatics circle of the brake system according to annex 6 shall be ensured for both manual and automated connection.

ANNEX to Jost proposal (Figures)

Electric connections between ACV tractor and ACV trailer

ACV mode

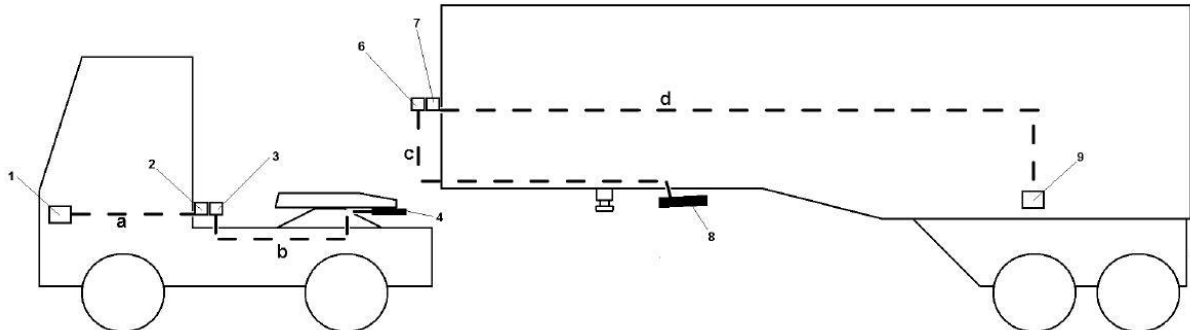


Figure A: Point-to-point connection ECU Tractor (1) and ECU Trailer (9) when Fifth Wheel is closed

ACV mode: No helix cables installed
Connection 3 to 6 via 4 and 8 active

Electric connections between ACV tractor and ACV trailer

Manual mode

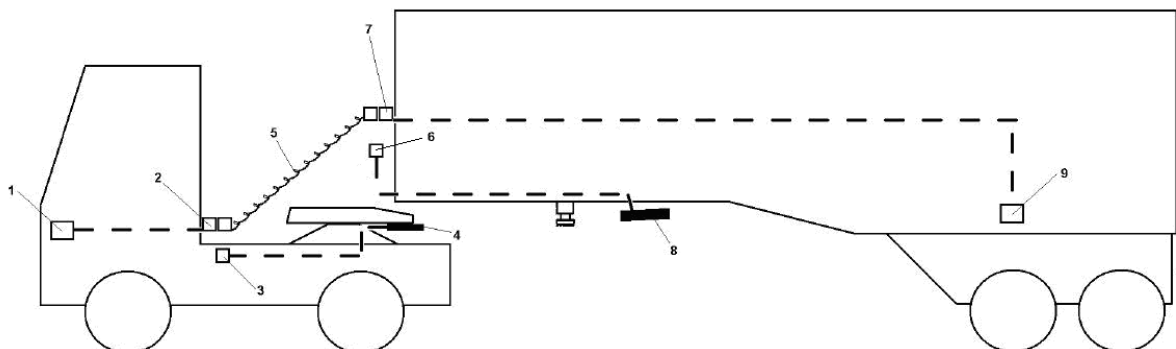


Figure B: Point-to-point connection ECU Tractor (1) and ECU Trailer (9) when Fifth Wheel is closed

Manual mode: Helix cables installed
Connection 3 to 6 via 4 and 8 offline

Key

- 1 ISO 11992-2 or ISO 11992-3 node in tractor, e.g. ECU ABS/EBS or databus device acc. ISO12098
- 2 Bottom connector for helix cable, mounted on tractor
- 3 Connector socket to FACS on tractor acc. to ISO7638 or ISO12098
- 4 Tractor-sided EPI
- 5 Helix cable
- 6 Connector socket from FACS on semi-trailer acc. to ISO7638 or ISO12098
- 7 Semi-trailer-sided connector for helix cable
- 8 Semi-trailer-sided EPI
- 9 ISO 11992-2 or ISO 11992-3 node in semi-trailer, e.g. ECU ABS/EBS or databus device acc. ISO12098
- 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

Electric connection between ACV truck and classic trailer

Manual mode

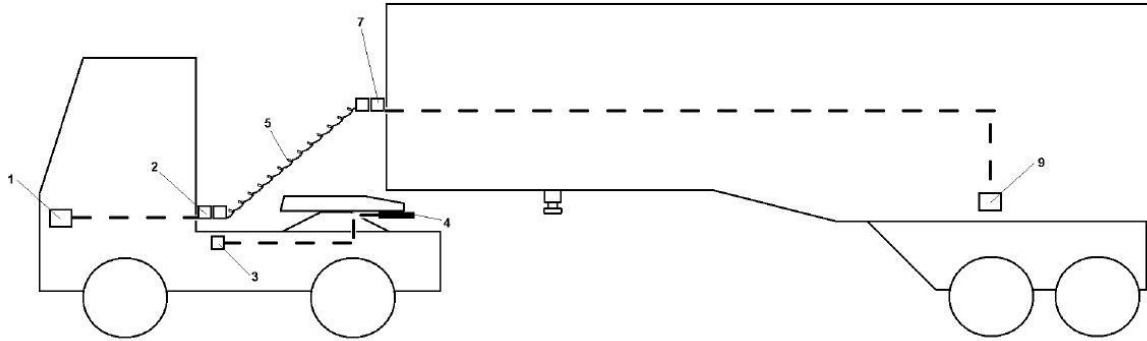


Figure C: Point-to-point connection ECU Tractor (1) and ECU Trailer (9) when Fifth Wheel is closed

**Helix cables installed
Line 3 to 4 offline**

Electric connection between classic tractor and ACV trailer

Manual mode

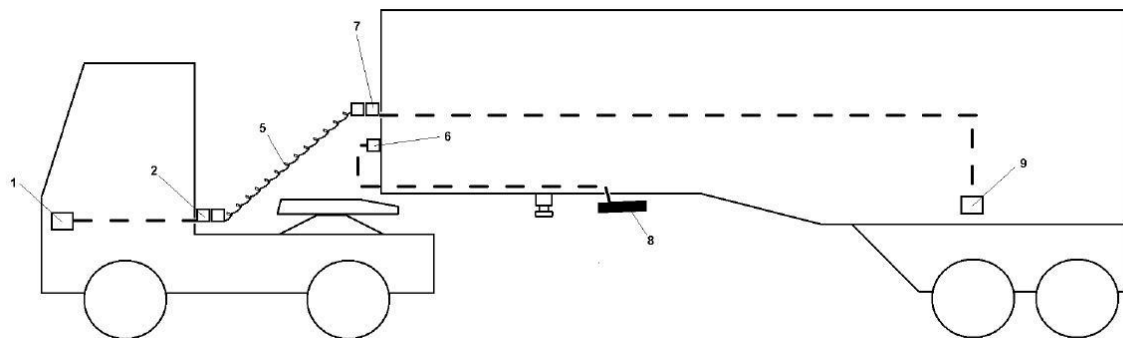


Figure D: Point-to-point connection ECU Tractor (1) and ECU Trailer (9) when Fifth Wheel is closed

**Helix cables installed
Line 6 to 8 offline**