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agenda item 1.1.)

PROPOSAL FOR DRAFT AMENDMENTS TO REGULATION No. 13

(Braking)

Transmitted by the Expert from the International Organization
for Standardization (ISO)

Note: The text reproduced below was prepared by the expert from ISO in order to adapt the text of the Regulation to the actualized ISO standard. It is based on the text of a document distributed without a symbol (informal document No. 13) during the fiftieth session of GRRF (TRANS/WP.29/GRRF/50, para. 13).

Note: This document is distributed to the Experts on Brakes and Running Gear only.

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A. PROPOSAL

Throughout the Regulation and its annexes, replace the reference to "ISO 11992-1:1998" by the reference to "ISO/DIS 11992-1:2001"

Throughout the Regulation and its annexes, replace the reference to "ISO 11992-2:1998" by the reference to "ISO/DIS 11992-2:2001"

Text of the Regulation,

Paragraph 5.1.3.6., amend to read:

"5.1.3.6. The electric control line shall conform to ISO/DIS:11992-1 and 11992-2:2001 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/DIS 11992-2:2001. 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, although 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."

Paragraph 5.1.3.6.1., amend to read:

5.1.3.6.1. The functional compatibility of towing and towed vehicles equipped with electric control lines as defined above shall be assessed at the time of type approval by checking that the relevant provisions of ISO/DIS 11992:2001 parts 1 and 2 are fulfilled. Annex 17 of this Regulation provides an example of tests that may be used to perform this assessment.

Annex 6

Paragraphs 3.4. and 3.4.1., amend to read:

"3.4. The simulator for checking the response to signals transmitted via the electric control line shall have the following characteristics:

3.4.1. The simulator shall produce a digital demand signal in the electric control line according to ISO/DIS 11992:2001 and shall provide the appropriate information to the trailer via pins 6 and 7 of the ISO 7638:1997 connector. For the purpose of response time measurement the simulator may at the manufacturer's request transmit to the trailer information that no pneumatic control line is present and that the electric control line demand signal is generated from two independent circuits (see paragraph 6.4.2.2.24. and 6.4.2.2.25. of ISO/DIS 11992-2:2001)."

Annex 16, should be deleted.

Annex 17 (former), renumber as annex 16.

Annex 16 (new),

Paragraph 3.1.2., amend to read:

"3.1.2. be capable of receiving all of the messages transmitted by the motor vehicle to be type approved and be capable of transmitting all trailer messages defined within ISO/DIS 11992-2:2001;"

Paragraphs 3.2.2.3.1. and 3.2.2.3.2., amend the reference to "paragraph 5.2.1.29.2." to read "paragraph 5.2.1.29.1.2."

Insert a new paragraph 3.2.2.4., to read:

"3.2.2.4. Supply line braking request:

For power-driven vehicles which can be operated with trailers connected via an electric control line only:

Only the electric control line shall be connected.

Simulate message EBS 22, byte 4 with bits 3 - 4 set to 01b and check that the pressure in the supply line falls to 1.5 bar within the following two seconds.

Simulate a continuous absence of data communication and check that the pressure in the supply line falls to 1.5 bar within the following two seconds."

Paragraphs 3.2.2.4. and 3.2.2.4.1. (former), renumber as paragraphs 3.2.2.5. and 3.2.2.5.1.

Paragraph 4.1.3., amend to read:

"... vehicle messages defined within ISO/DIS 11992-2:2001."

Paragraph 4.2.2.1.1.2., amend to read:

"...

Parameters to be checked:

Message Transmitted by the Simulator		Pressure at the Brake Chambers
Byte Reference	Status	
3 - 4	0	0 bar
3 - 4	33280d (6.5 bar)	As defined in the vehicle manufacturers brake calculation

For trailers according to paragraph 5.2.2.15.2. of this Regulation which invoke the provisions of paragraph 5.2.1.18.4.2. of this Regulation when a braking performance of at least 30 per cent of the prescribed performance can no longer be ensured the data communication shall be checked as follows:

In the case that a permanent failure within the electric control transmission of the trailer braking system precludes the braking

system performance of at least 30 per cent being met, simulate such a failure and check that byte 4, bits 3 - 4 of EBS 22 transmitted by the trailer is set to 01b or data communication is stopped by the trailer."

Paragraph 4.2.2.1.2., amend to read:

"...

The response to the following messages shall be checked:

EBS 12, Byte 3, Bit 1-2	Pressure in the brake chambers or reaction of the trailer
01b	0 bar (service brake released)
00b	The trailer is automatically braked to demonstrate that the combination is not compatible. A signal should also be transmitted via Pin 5 of the ISO 7638:1997 connector (yellow warning).

For trailers according to paragraph 5.2.2.15.2. of this Regulation which invoke the provisions of paragraph 5.2.1.18.4.2. of this Regulation when a braking performance of at least 30 per cent of the prescribed performance can no longer be ensured the data communication shall be checked as follows:

In the case that a permanent failure within the electric control transmission of the trailer braking system precludes the braking system performance of at least 30 per cent being met, simulate such a failure and check that byte 4, bits 3 - 4 of EBS 22 transmitted by the trailer is set to 01b or data communication is stopped by the trailer.

Paragraph 4.2.2.2.1.1., amend to read:

"4.2.2.2.1.1. In the case that a permanent failure within the electric control transmission of the trailer braking system precludes the service braking system performance being met, simulate such a failure and check that byte 2, bits 3 - 4 of EBS 22 transmitted by the trailer is set to 01b. A signal should also be transmitted via pin 5 of the ISO 7638 connector (yellow warning)."

Insert a new paragraph 4.2.2.2.1.3., to read:

"4.2.2.2.1.3. Increase the voltage on pins 1 and 2 of the ISO 7638 connector to above a value nominated by the manufacturer which precludes the service braking system performance from being fulfilled and check that byte 2, bits 3 - 4 of EBS 22 transmitted by the trailer are set to 01b. A signal should also be transmitted via pin 5 of the ISO 7638 connector (yellow warning)."

Paragraphs 4.2.2.2.1.3. and 4.2.2.2.1.4. (former), renumber as paragraphs 4.2.2.2.1.4. and 4.2.2.2.1.5.

Annex 18 (former), renumber as annex 17.

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B. JUSTIFICATION

The ISO standard 11992 which specifies the electric control line between towing and towed vehicles was revised in the last two years by the responsible ISO experts. The new versions are as follows:

Road vehicles -

Interchange of digital information on electrical connections between towing and towed vehicles -

Part 1: Physical layer and data link layer

Part 2: Application layer for braking and running gear equipment

Part 3: Application layer for equipment other than braking and running gear

The following modifications have been made:

- The standard now distinguishes exactly between "braking and running gear applications" and "other applications". This is in accordance with Regulation No. 13 which expressly permits only braking and running gear data to be transmitted via the electric control line (paragraph 5.1.3.6.)
- Part 1 contained an unnecessary requirement for the fault handling in case of a short circuit between the data communication cables. This was corrected.
- Supplement 5 to the 09 series of amendments to Regulation No. 13 required the addition of a new parameter "Supply line braking request". This parameter was added to part 2.
- Moreover new parameters for the support of vehicle stability control systems were added.
- The documents were also revised editorially in some places to improve readability and clearness.

From the technical point of view the new versions of ISO 11992 are only an extension of those currently referenced in Regulation No. 13. New developments based on the new documents will be compatible with today's solutions.

The new versions of ISO 11992 will be published as Draft International Standards in 2001. Thus the references in Regulation No. 13 can be updated - with the following advantages:

- Regulation No. 13 and ISO 11992 are consistent documents.
- Annex 16 of Regulation No. 13 can be deleted.
- New safety control systems for vehicle stability are supported.

Some issues in detail:

- The references to ISO 11992-3 can be deleted because all data related to braking and running gear (and therefore to be transmitted via the electric control line) are combined now in part 2.
- For the same reason annex 16 of Regulation No. 13 can be deleted. Since ISO 11992 now clearly distinguishes between "braking and running gear" and other data, interpretation of ISO 11992 for the purposes of Regulation No. 13 (those parameters are permitted and those that are not) is no longer necessary.

- The introduction of the new parameter "Supply line braking request" lead to new test steps in annex 17 to prove the correct implementation.
 - Paragraphs 3.2.2.3.1 and 3.2.2.3.2 of annex 17 currently reference paragraph 5.2.1.29.2 of Regulation No. 13. This paragraph specifies the yellow trailer warning signal. Obviously the failure simulations described in paragraphs 3.2.2.3.1 and 3.2.2.3.2 should lead to the display of the yellow warning lamp foreseen to indicate failures within the braking system of the power-driven vehicle (compare paragraph 5.1.3.6.2.).
 - The current wording of paragraph 4.2.2.2.1.2. of annex 17 assumed that at least one permanent failure within the electric control transmission of the trailer braking system is possible which precludes the service braking system performance. This must not be the case, for example in case of a pneumatic backup circuit. The proposed modification takes this into account.
 - A new test step to check the system behaviour in case of overvoltage was added (paragraph 4.2.2.2.1.3.).
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