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Working Party on the Construction of Vehicles

Working Party on Brakes and Running Gear (GRRF)
(Forty-sixth session, 13-15 September 1999,
agenda item 1.1.)

PROPOSAL FOR DRAFT AMENDMENTS TO REGULATION No. 13
(Braking)

Transmitted by the Chairman of the EBS II informal group

Note: The text reproduced below was prepared by the experts of the EBS II informal group in order to define the prescriptions of the electric control transmission and the electronic control unit.

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

Throughout the Regulation and its annexes, replace the reference to "ISO/DIS 7638:1996" by the reference to "ISO 7638:1997".

Throughout the Regulation and its annexes, replace the reference to "ISO/DIS 11992-1:[1996]" by the reference to "ISO 11992-1:1998"

Throughout the Regulation and its annexes, replace the reference to "ISO/DIS 11992-2:[1996]" by the reference to "ISO 11992-2:1998"

Throughout the Regulation and its annexes, replace the reference to "ISO/DIS 11992-3:[1996]" by the reference to "ISO 11992-3:1998"

Text of the Regulation,

Paragraph 5.2.1.26.2., amend to read:

"5.2.1.26.2. In the case of a break in the wiring within the electric control transmission external to the electronic control unit(s) and excluding the energy supply, or a failure in the control, it shall remain possible to apply the parking braking system from the driver's seat and thereby be capable of holding the laden vehicle stationary on an 8 per cent up or down gradient. Alternatively, in this case, an automatic actuation of the parking brake is allowed when the vehicle is stationary, provided that the above performance is achieved and, once applied, the parking brake remains engaged independently of the status of the ignition (start) switch. In this alternative, the parking brake shall be automatically released as soon as the driver starts to set the vehicle in motion again. In the case of vehicles of categories M1 and N1, the engine/manual transmission or the automatic transmission (park position) may be used to achieve or assist in achieving the above performance.

It shall also be possible to release the parking braking system, if necessary by the use of tools and/or an auxiliary device carried/fitted on the vehicle."

Paragraph 5.2.1.26.2.1., amend to read:

"5.2.1.26.2.1. A break in the wiring within the electric transmission, or a failure in the control of the parking braking system shall be signalled to the driver by the yellow warning signal specified in paragraph 5.2.1.29.1.2. When caused by a break in the wiring within the electric control transmission of the parking braking system, this yellow warning signal shall be signalled as soon as the break occurs.

In addition, such a failure in the control or break in the wiring external to the electronic control unit(s) and excluding the energy supply shall be signalled to the driver by flashing the red warning signal specified in paragraph 5.2.1.29.1.1. as long as the ignition (start) switch is in the "on" (run)

position including a period of not less than 10 seconds thereafter and the control is in the "on" (activated) position. Where actuation of the parking brake is normally indicated by a separate red warning signal, satisfying all the requirements of paragraph 5.2.1.29.3., this signal shall be used to satisfy the above requirement for a red signal."

Paragraph 5.2.1.26.3., amend to read:

"5.2.1.26.3. Auxiliary equipment may be supplied with energy from the electric transmission of the parking braking system provided that the supply of energy is sufficient to allow the actuation of the parking braking system in addition to the vehicle electrical load under non-fault conditions. In addition, where the energy reserve is also used by the service braking system, the requirements of paragraph 5.2.1.27.7. shall apply."

Paragraph 5.2.1.27.1., amend to read:

"5.2.1.27.1. With the parking brake released, the service braking system shall be able to generate a static total braking force at least equivalent to that required by the prescribed Type-0 test, even when the ignition/start switch has been switched off and/or the key has been removed. In the case of ....."

Paragraph 5.2.1.27.2., amend to read:

"5.2.1.27.2. In the case of a single temporary failure (< 40 ms) within the electric control transmission, excluding its energy supply, (e.g. non-transmitted signal or data error) there shall be no distinguishable effect on the service braking performance."

Paragraph 5.2.1.27.7., amend to read:

"5.2.1.27.7. If auxiliary equipment is supplied with energy from the same reserve as the electric control transmission, it shall be ensured that, with the engine running at a speed not greater than 80 per cent of the maximum power speed, the supply of energy is sufficient to fulfil the prescribed deceleration values by either provision of an energy supply which is able to prevent discharge of this reserve when all auxiliary equipment is functioning or by automatically switching off pre-selected parts of the auxiliary equipment at a voltage above the critical level referred to in paragraph 5.2.1.27.6. of this Regulation such that further discharge of this reserve is prevented. Compliance may be demonstrated by calculation or by a practical test. For vehicles authorized to tow a trailer of category O_3 or O_4 the energy consumption of the trailer shall be taken into account by a load of 400 W. This paragraph does not apply to vehicles where the prescribed deceleration values can be reached without the use of electrical energy."

Paragraph 5.2.1.27.10., amend to read:

"5.2.1.27.10. In the case of a failure in the electric control transmission of a trailer, electrically connected via an electric control line only, according to paragraph 5.1.3.1.3., braking of the trailer shall be ensured according to paragraph 5.2.1.18.4.1. This shall be the case whenever the trailer provides the "supply line braking request" signal via the data communication part of the electric control line or in the event of the continuous absence of this data communication. This paragraph shall not apply to power-driven vehicles which cannot be operated with trailers connected via an electric control line only, as described in paragraph 5.1.3.5."

Paragraph 5.2.1.29., amend to read:

"5.2.1.29. The general requirements for optical warning signals whose function is to indicate to the driver certain specified failures (or defects) within the braking equipment of the power-driven vehicle or, where appropriate, its trailer, are set out in the following sub-paragraphs. Other than as described in paragraph 5.2.1.29.6. below, these signals shall be used exclusively for the purposes prescribed by this Regulation."

[Paragraph 5.2.1.29.1.1., amend to read:

"5.2.1.29.1.1. a red warning signal, indicating failures defined elsewhere in this Regulation within the vehicle braking equipment which preclude achievement of the prescribed service braking performance and/or which preclude the functioning of at least one of two independent service braking circuits;]"

Paragraph 5.2.1.29.2., amend to read (the footnote does not change):

"5.2.1.29.2 With the exception of vehicles of categories M_1 and N_1, power-driven vehicles equipped with an electric control line and/or authorised to tow a trailer equipped with an electric control transmission and/or anti-lock braking system, shall be capable of providing a separate yellow warning signal to indicate a defect within the anti-lock braking system and/or electric control transmission of the braking equipment of the trailer. The signal shall be activated from the trailer via pin 5 of the electric connector conforming to ISO 7638:1997. */ and in all cases the signal transmitted by the trailer shall be displayed without significant delay or modification by the towing vehicle. This warning signal shall not light up when coupled to a trailer without an electric control line and/or electric control transmission and/or anti-lock braking system or when no trailer is coupled. This function shall be automatic."

Paragraph 5.2.1.29.4., amend to read:

"5.2.1.29.4. Except where stated otherwise, a specified failure or defect shall be signalled to the driver by the above-mentioned warning signal(s) not later than on actuation of the relevant braking control. The warning signal(s) shall remain displayed as long as the failure/defect persists and the ignition (start) switch is in the "on" (run) position."

Insert a new paragraph 5.2.1.29.6. and its corresponding footnote */, to read:

"5.2.1.29.6. Non specified failures (or defects), or other information concerning the brakes and/or running gear of the power-driven vehicle, may be indicated by the yellow signal specified in paragraph 5.2.1.29.1.2. above, provided that all the following conditions are fulfilled:

The vehicle is stationary;

After the braking equipment is first energised and the signal has indicated that, following the procedures detailed in paragraph 5.2.1.29.5. above, no specified failures (or defects) have been identified;

Non-specified faults or other information shall be indicated only by the flashing of the warning signal. However, the warning signal shall be extinguished by the time when the vehicle first exceeds 10 km/h;

Specified failures (or defects) shall be indicated by a constant (not flashing) warning signal. */

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*/ It is permitted that the yellow warning signal may be flashed to indicate a disconnection or change of the control mode of an anti-lock system."

Paragraph 5.2.2.15.1., amend to read:

"5.2.2.15.1. In the case of a single temporary failure (< 40 ms) within the electric control transmission, excluding its energy supply, (e.g. non-transmitted signal or data error) there shall be no distinguishable effect on the service braking performance."

Paragraph 5.2.2.15.2., amend to read:

"5.2.2.15.2. In the case of a failure within the electric control transmission (e.g. breakage, disconnection), a braking performance of at least 30 per cent of the prescribed performance for the service braking system of the relevant trailer shall be maintained. For trailers, electrically connected via an electric control line only, according to paragraph 5.1.3.1.3., and fulfilling paragraph 5.2.1.18.4.2. with the performance prescribed in paragraph 3.3. of annex 4 to this Regulation, it is sufficient that the provisions of paragraph 5.2.1.27.10. are invoked, when a braking performance of at least 30 per cent of the prescribed performance for the service braking system of the trailer can no longer be ensured, by either providing the "supply line braking request" signal via the data communication part of the electric control line or by the continuous absence of this data communication."

Paragraph 5.2.2.17., amend to read:

"... are present before extinguishing the signal. Trailers may utilise this warning signal also for the purpose of signalling non-specified failures (or defects) or other information concerning the brakes and/or running gear of the trailer. This is permissible provided that the activation of the warning signal complies with the requirements defined in paragraph 5.2.1.29.6. of this Regulation."

Annex 6, paragraphs 3.4. and 3.5. (including the footnote of paragraph 3.5., amend to read:

"3.4. The simulator for electric control lines shall have the following characteristics:

3.4.1. The simulator shall produce a digital demand signal in the electric control line according to ISO 11992:1998 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 paragraphs 5.4.2.25 and 5.4.2.26 of ISO 11992-2:1998).

3.4.2. The braking system control must be so designed that its performance in use is not affected by the tester.

3.4.3. For the purpose of response time measurement the signal produced by the electric simulator shall be equivalent to a pneumatic pressure increase from 0.65 to 6.5 bar in no more than 0.2 seconds.

3.4.4. The diagrams in the appendix to this annex give an example of the correct configuration of the simulator for setting and use.

3.5. Performance requirements.

3.5.1 For trailers with a pneumatic control line the time elapsing between the moment when the pressure produced in the control line by the simulator reaches 0.65 bar and the moment when the pressure in the brake actuator of the trailer reaches 75 per cent of its asymptotic value must not exceed 0.4 seconds.

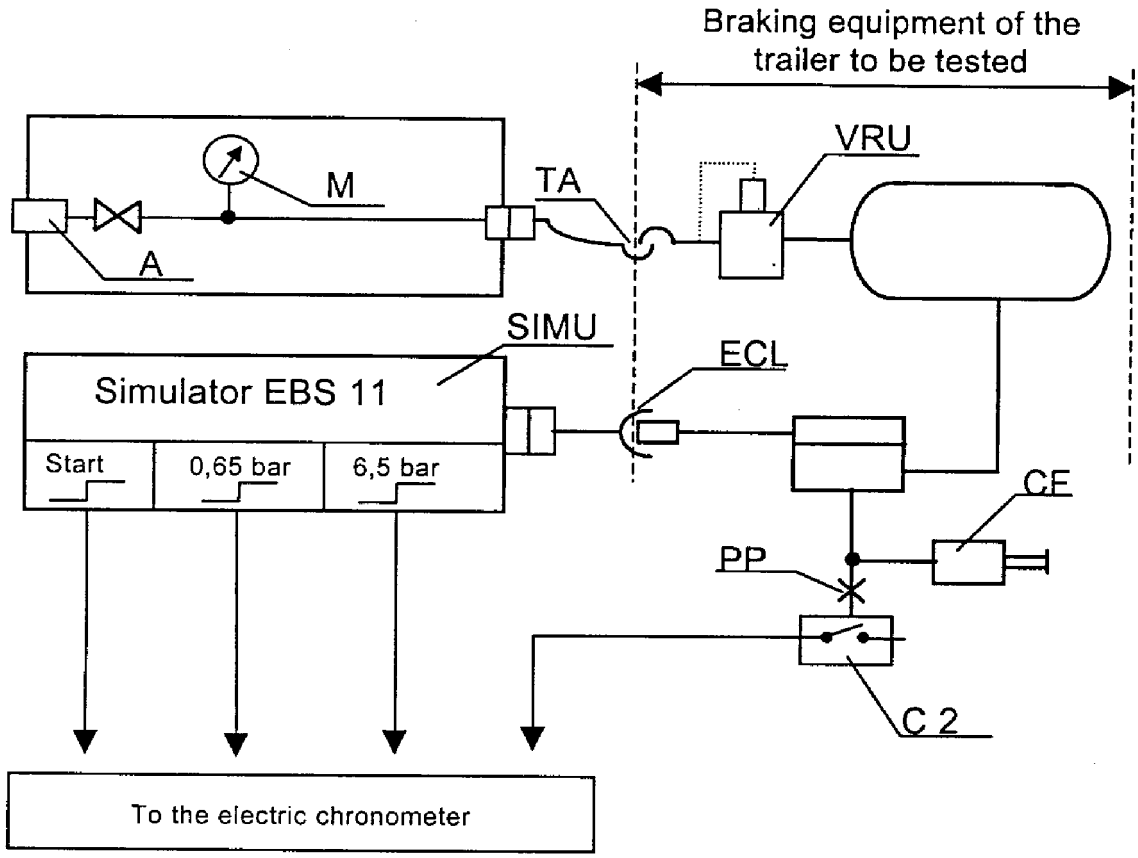
3.5.1.1 Trailers equipped with a pneumatic control line and having electric control transmission shall be checked with the electrical power supplied to the trailer via the ISO 7638:1997 connector (5 or 7 pin).

3.5.2. For trailers with an electric control line the time elapsing between the moment when the signal produced by the simulator exceeds the equivalent of 0.65 bar and the moment when the pressure in the brake actuator of the trailer reaches 75 per cent of its asymptotic value must not exceed 0.4 seconds.

3.5.3. In the case of trailers equipped with a pneumatic and an electric control line, the response time measurement for each control line shall be determined independently according to the relevant procedure defined above.”

Annex 6, appendix, insert a new figure 3., to read:

"3. Simulator for electric control lines



ELC = electric control line corresponding to ISO 7638
SIMU = simulator of Byte 3.4 of EBS 11 according to ISO 11992 with output signals at as start 0.65 bar and 6.5 bar."