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Item 4.2.1 of the provisional agenda

1958 AGREEMENT

Consideration of draft amendments to existing Regulations

Proposal for Supplement 1 to the 11 series of amendments to Regulation No. 13
(Heavy vehicles braking)

Submitted by the Working Party on Brakes and Running Gear (GRRF) */

The text reproduced below was adopted by GRRF at its sixty-third session. It is based on ECE/TRANS/WP.29/GRRF/2008/5, not amended. It is submitted to WP.29 and AC.1 for consideration (ECE/TRANS/WP.29/GRRF/63, para. 9).

*/ In accordance with the programme of work of the Inland Transport Committee for 2006-2010 (ECE/TRANS/166/Add.1, programme activity 02.4), the World Forum will develop, harmonize and update Regulations in order to enhance performance of vehicles. The present document is submitted in conformity with that mandate.

Throughout the text of Regulation No. 13, replace the reference to "ISO 11992:2003" by "ISO 11992:2003 including ISO 11992-2:2003 and its Amd.1:2007".

Insert a new paragraph 5.1.3.6.1., to read:

"5.1.3.6.1. The support of messages defined within ISO 11992-2:2003 including Amd.1:2007 is specified within Annex 16 to this Regulation for the towing vehicle and trailer as appropriate."

Paragraphs 5.1.3.6.1. and 5.1.3.6.2. (former), renumber as paragraphs 5.1.3.6.2. and 5.1.3.6.3. respectively.

Paragraph 5.2.1.30.5., delete the reference to footnote 12/ and the footnote 12/.

Paragraph 5.2.2.22.1., delete the reference to footnote 19/ and the footnote 19/.

Paragraph 5.2.2.22.2., delete the reference to footnote 21/ and the footnote 21/.

Add a new Annex 16, to read:

"Annex 16

COMPATIBILITY BETWEEN TOWING VEHICLES AND TRAILERS WITH RESPECT TO ISO11992 DATA COMMUNICATIONS

1. General
 - 1.1. The requirements of this Annex shall only apply to towing vehicles and trailers equipped with an electric control line as defined in paragraph 2.24. of the Regulation.
 - 1.2. The ISO7638 connector provides a power supply for the braking system or anti-lock braking system of the trailer. In the case of vehicles equipped with an electric control line as defined in paragraph 2.24. of the Regulation this connector also provides a data communication interface via Pins 6 and 7 – see paragraph 5.1.3.6. of the Regulation.
 - 1.3. This Annex defines requirements applicable to the towing vehicle and trailer with respect to the support of messages defined within ISO 11992-2:2003 including Amd.1:2007.
2. The parameters defined within ISO 11992-2:2003 including Amd.1:2007 that are transmitted by the electric control line shall be supported as follows:
 - 2.1. The following functions and associated messages are those specified within this Regulation that shall be supported by the towing vehicle or trailer as appropriate:
 - 2.1.1. Messages transmitted from the towing vehicle to the trailer:

| Function / Parameter | ISO 11992-2:2003 Reference | Regulation No. 13 Reference |
|--------------------------------------------|----------------------------|---------------------------------------|
| Service/secondary brake demand value | EBS11 Byte 3-4 | Annex 10, paragraph 3.1.3.2. |
| Two electrical circuits brake demand value | EBS12 Byte 3 Bit 1-2 | Regulation No. 13, paragraph 5.1.3.2. |
| Pneumatic control line | EBS12 Byte 3 Bit 5-6 | Regulation No. 13, paragraph 5.1.3.2. |

2.1.2. Messages transmitted from the trailer to the towing vehicle:

| Function / Parameter | ISO 11992-2:2003 Reference | Regulation No. 13 Reference |
|-----------------------------------------------------|----------------------------|----------------------------------------------------------------------|
| VDC Active / passive | EBS21 Byte 2 Bit 1-2 | Annex 21, paragraph 2.1.6 |
| Vehicle electrical supply sufficient / insufficient | EBS22 Byte 2 Bit 1-2 | Regulation No. 13, paragraph 5.2.2.20. |
| Red warning signal request | EBS22 Byte 2 Bit 3-4 | Regulation No. 13, paragraphs 5.2.2.15.2.1., 5.2.2.16. and 5.2.2.20. |
| Supply line braking request | EBS22 Byte 4 Bit 3-4 | Regulation No. 13, paragraph 5.2.2.15.2. |
| Stop lamps request | EBS22 Byte 4 Bit 5-6 | Regulation No. 13, paragraph 5.2.2.22.1. |
| Vehicle pneumatic supply sufficient / insufficient | EBS23 Byte 1 Bit 7-8 | Regulation No. 13, paragraph 5.2.2.16. |

2.2. When the trailer transmits the following messages, the towing vehicle shall provide a warning to the driver:

| Function / Parameter | ISO 11992-2:2003 Reference | Driver Warning Required |
|--------------------------------|----------------------------|--------------------------------------------|
| VDC Active / Passive <u>1/</u> | EBS21 Byte 2 Bit 1-2 | Annex 21, paragraph 2.1.6. |
| Red warning signal request | EBS22 Byte 2 Bit 3-4 | Regulation No. 13, paragraph 5.2.1.29.2.1. |

1/ VDC (Vehicle Dynamic Control) as defined within ISO 11992-2:2003 including Amd.1:2007 is defined within this Regulation as Vehicle Stability Function – see paragraph 2.32. of the Regulation.

2.3. The following messages defined in ISO 11992-2:2003 including Amd.1:2007 shall be supported by the towing vehicle or trailer:

2.3.1. Messages transmitted from the towing vehicle to the trailer:

No messages currently defined.

2.3.2. Messages transmitted from the trailer to the towing vehicle:

| Function / Parameter | ISO 11992-2:2003 Reference |
|---------------------------------------------|----------------------------|
| Vehicle service brake active / passive | EBS22 Byte 1, Bit 5-6 |
| Braking via electric control line supported | EBS22 Byte 4, Bit 7-8 |
| Geometric data index | EBS24 Byte 1 |
| Geometric data index content | EBS24 Byte 2 |

2.4. The following messages shall be supported by the towing vehicle or trailer as appropriate when the vehicle is installed with a function associated with that parameter:

2.4.1. Messages transmitted from the towing vehicle to the trailer:

| Function / Parameter | ISO 11992-2:2003 Reference |
|--------------------------------------------------------------------|----------------------------|
| Vehicle type | EBS11 Byte 2, Bit 3-4 |
| VDC (Vehicle Dynamic Control) Active / passive <u>2/</u> | EBS11 Byte 2, Bit 5-6 |
| Brake demand value for front or left side of vehicle | EBS11 Byte 7 |
| Brake demand value for rear or right side of vehicle | EBS11 Byte 8 |
| ROP (Roll Over Protection) system enabled/disabled <u>3/</u> | EBS12 Byte 1, Bit 3-4 |
| YC (Yaw Control) system enabled/disabled <u>4/</u> | EBS12 Byte 1, Bit 5-6 |
| Enable/disable trailer ROP (Roll Over Protection) system <u>3/</u> | EBS12 Byte 2, Bit 1-2 |
| Enable/disable trailer YC (Yaw Control) system <u>4/</u> | EBS12 Byte 2, Bit 3-4 |
| Traction help request | RGE11 Byte 1, Bit 7-8 |
| Lift axle 1 - position request | RGE11 Byte 2, Bit 1-2 |
| Lift axle 2 - position request | RGE11 Byte 2, Bit 3-4 |
| Steering axle locking request | RGE11 Byte 2, Bit 5-6 |
| Seconds | TD11 Byte 1 |
| Minutes | TD11 Byte 2 |
| Hours | TD11 Byte 3 |
| Months | TD11 Byte 4 |
| Day | TD11 Byte 5 |
| Year | TD11 Byte 6 |
| Local minute offset | TD11 Byte 7 |
| Local hour offset | TD11 Byte 8 |

2/ VDC (Vehicle Dynamic Control) as defined within ISO 11992-2:2003 including Amd.1:2007 is defined within this Regulation as Vehicle Stability Function – see paragraph 2.32. of the Regulation.

3/ ROP (Roll Over Protection) as defined within ISO 11992-2:2003 including Amd.1:2007 is defined within this Regulation as Roll-Over Control – see paragraph 2.32.2.2. of the Regulation.

4/ YC (Yaw Control) as defined within ISO 11992-2:2003 including Amd.1:2007 is defined within this Regulation as Directional Control – see paragraph 2.32.2.1. of the Regulation.

2.4.2. Messages transmitted from the trailer to the towing vehicle:

| Function / Parameter | ISO 11992-2:2003 Reference |
|--------------------------------------------------------------|----------------------------|
| Support of side or axle wise brake force distribution | EBS21 Byte 2, Bit 3-4 |
| Wheel based vehicle speed | EBS21 Byte 3-4 |
| Lateral acceleration | EBS21 Byte 8 |
| Vehicle ABS active / passive | EBS22 Byte 1, Bit 1-2 |
| Amber warning signal request | EBS22 Byte 2, Bit 5-6 |
| Vehicle type | EBS22 Byte 3, Bit 5-6 |
| Loading ramp approach assistance | EBS22 Byte 4, Bit 1-2 |
| Axle load sum | EBS22 Byte 5-6 |
| Tyre pressure sufficient / insufficient | EBS23 Byte 1, Bit 1-2 |
| Brake lining sufficient / insufficient | EBS23 Byte 1, Bit 3-4 |
| Brake temperature status | EBS23 Byte 1, Bit 5-6 |
| Tyre / wheel identification (pressure) | EBS23 Byte 2 |
| Tyre / wheel identification (lining) | EBS23 Byte 3 |
| Tyre / wheel identification (temperature) | EBS23 Byte 4 |
| Tyre pressure (actual tyre pressure) | EBS23 Byte 5 |
| Brake lining | EBS23 Byte 6 |
| Brake temperature | EBS23 Byte 7 |
| Brake cylinder pressure first axle left wheel | EBS25 Byte 1 |
| Brake cylinder pressure first axle right wheel | EBS25 Byte 2 |
| Brake cylinder pressure second axle left wheel | EBS25 Byte 3 |
| Brake cylinder pressure second axle right wheel | EBS25 Byte 4 |
| Brake cylinder pressure third axle left wheel | EBS25 Byte 5 |
| Brake cylinder pressure third axle right wheel | EBS25 Byte 6 |
| ROP (Roll Over Protection) system enabled/disabled <u>5/</u> | EBS25 Byte 7, Bit 1-2 |
| YC (Yaw Control) system enabled/disabled <u>6/</u> | EBS25 Byte 7, Bit 3-4 |
| Traction help | RGE21 Byte 1, Bit 5-6 |
| Lift axle 1 position | RGE21 Byte 2, Bit 1-2 |
| Lift axle 2 position | RGE21 Byte 2, Bit 3-4 |
| Steering axle locking | RGE21 Byte 2, Bit 5-6 |
| Tyre wheel identification | RGE23 Byte 1 |
| Tyre temperature | RGE23 Byte 2-3 |
| Air leakage detection (Tyre) | RGE23 Byte 4-5 |
| Tyre pressure threshold detection | RGE23 Byte 6, Bit 1-3 |

2.5. The support of all other messages defined within ISO 11992-2:2003 including Amd.1:2007 is optional for the towing vehicle and trailer."

5/ ROP (Roll Over Protection) as defined within ISO 11992-2:2003 including Amd.1:2007 is defined within this Regulation as Roll-Over Control – see paragraph 2.32.2.2. of the Regulation.

6/ YC (Yaw Control) as defined within ISO 11992-2:2003 including Amd.1:2007 is defined within this Regulation as Directional Control – see paragraph 2.32.2.1. of the Regulation.

Annex 17

Add new paragraphs 3.2.2.6. and 3.2.2.7., to read:

"3.2.2.6. Illumination of stop lamps

Simulate message EBS 22 byte 4 bits 5 to 6 set to 00 and check that the stop lamps are not illuminated.

Simulate message EBS 22 byte 4 bits 5 to 6 set to 01 and check that the stop lamps are illuminated.

3.2.2.7. Intervention of Trailer Stability Function

Simulate message EBS 21 byte 2 bits 1 to 2 set to 00 and check that the driver warning defined in paragraph 2.1.6. of Annex 21 is not illuminated.

Simulate message EBS 21 byte 2 bits 1 to 2 set to 01 and check that the driver warning defined in paragraph 2.1.6. of Annex 21 is illuminated."

Add a new paragraph 3.2.3.2., to read:

"3.2.3.2. Paragraph 2.4.1. of Annex 16 defines additional messages that shall under specific circumstances be supported by the towing vehicle. Additional checks may be carried out to verify the status of supported messages to ensure the requirements of paragraph 5.1.3.6.2. of the Regulation are fulfilled."

Add new paragraphs 4.2.2.4. to 4.2.2.6., to read:

"4.2.2.4. Automatically commanded braking

In case the trailer includes a function where its operation results in an automatically commanded braking intervention, the following shall be checked:

If no automatically commanded braking intervention is generated, check that message EBS 22 byte 4 bits 5 to 6 are set to 00.

Simulate an automatically commanded braking intervention, when the resulting deceleration is $\geq 0.7 \text{ m/sec}^2$, check that message EBS 22 byte 4 bits 5 to 6 are set to 01.

4.2.2.5. Vehicle stability function

In the case of a trailer equipped with a vehicle stability function, the following checks shall be carried out:

When the vehicle stability function is inactive, check that message EBS 21 byte 2 bits 1 to 2 are set to 00.

Simulate an intervention of the vehicle stability control function as specified in paragraph 2.2.4. of Annex 21 and check that message EBS 21 byte 2 bits 1 to 2 are set to 01.

4.2.2.6. Support of the electric control line

Where the trailer braking system does not support braking via the electric control line check that message EBS 22 byte 4 bits 7 to 8 are set to 00.

Where the trailer braking system supports the electric control line, check that message EBS 22 byte 4 bits 7 to 8 are set to 01."

Add a new paragraph 4.2.3.2., to read:

"4.2.3.2. Paragraph 2.4.2. of Annex 16 defines additional messages that shall under specific circumstances be supported by the trailer. Additional checks may be carried out to verify the status of supported messages to ensure the requirements of paragraph 5.1.3.6.2. of the Regulation are fulfilled."
