

## **Proposal for a new Supplement to the 01 series of amendments to UN Regulation No. 141**

The text reproduced below was prepared by the expert from the European Association of Automotive Suppliers (CLEPA) to clarify some prescriptions and correct some text inconsistencies. The modifications to the existing text of the Regulation are marked in **bold** for new and ~~struckthrough~~ for deleted characters.

### **I. Proposal:**

1. Annex 3, paragraph 1.5.1, amend to read:

“1.5.1 Test weight.

The vehicle may be tested at any condition of load, the distribution of the mass among the axles being that stated by the vehicle manufacturer without exceeding any of the maximum permissible mass for each axle.

However, in the case where there is no possibility to set or reset the system, the vehicle shall be unladen, **but for systems which will automatically raise the lift axle when no load is detected the vehicle shall be laden enough to avoid lifting of those axles.** For vehicles of category M<sub>1</sub> up to a maximum mass of 3,500 kg, M<sub>2</sub>, M<sub>3</sub>, N<sub>1</sub>, N<sub>2</sub>, and N<sub>3</sub> there may be, in addition to the driver, a second person on the front seat (if fitted) who is responsible for noting the results of the tests.

The load condition shall not be modified during the test”

2. Annex 3, paragraph 2.2, amend to read:

2.2 “With the vehicle stationary and the ignition locking system in the "Lock" or "Off" position, activate the ignition locking system to the "On" or "Run" position. The ~~tyre pressure monitoring system~~ **ECU controlling the tell-tale** shall perform a check of lamp function for the low tyre pressure tell-tale as specified in paragraph 5.5.2. of this Regulation. This last requirement does not apply to tell-tales shown in a common space.”

3. Annex 5 part A, paragraph 2.1.4, amend to read:

“2.1.4. The towed vehicle ECU transmitting the EBS23 and RGE23 messages shall assemble the EBS23 and RGE23 messages from TPMS/ TPRS/ CTIS content received from the ECU providing TPMS/ TPRS/ CTIS functionality and data from other sources not defined in this Regulation.

Signals, other than Tyre Pressure Status (EBS23 Byte 1 Bit 1-2), within messages EBS23 and RGE23 shall be transmitted with the indication “not available” in case ~~the ECU providing TPMS/ TPRS/ CTIS functionality does not provide such data~~ **such data is not available.”**

4. Annex 5 Part A, Table to par 2.2., add a new footnote, as follows:

“2.2. When the towed vehicle transmits the following messages, the towing vehicle shall provide a low tyre pressure warning indication to the driver:

<i>Function / Parameter</i>	<i>ISO 11992-2:2014 reference</i>	<i>Driver warning required</i>
Tyre Pressure Status <i>(For Low Tyre Pressure Warning Indication)</i>	EBS23 Byte 1 Bit 1-2  (00 <sub>2</sub> — tyre pressure insufficient) <sup>(1)</sup>	References to paragraph 5.2.3., 5.2.4., 5.3.4., 5.3.5. and 5.5.2. in this UN Regulation
Tyre/wheel identification <i>(corresponding to Tyre Pressure Status)</i>	EBS23 Byte 2  (XXXXXXXX <sub>2</sub> — actual Tyre/Wheel ID)  OR  (0000000 <sub>2</sub> — Tyre/Wheel ID not defined or wheel not defined and axle > 15 <sub>10</sub> )  OR  (1111111 <sub>2</sub> — Tyre/Wheel ID not available or wheel = 15 <sub>10</sub> and axle = 15 <sub>10</sub> )	References to paragraph 5.2.3., 5.2.4., 5.3.4., 5.3.5. and 5.5.2. in this UN Regulation

<sup>(1)</sup> To be noted that within the definition of EBS 23 “Tyre Pressure Status” ISO 11992-2 qualifies that “an insufficient tyre pressure shall be indicated, if the pressure is outside of a pressure range recommended by the tyre or vehicle manufacturer, to ensure an optimized operation with regard to the fuel consumption of the vehicle and life time of the tyre.”. Therefore, it should be noted that a value of “00<sub>2</sub>” could signify other tyre pressure conditions such as “over-pressure” which are not covered by this regulation.”

5. Annex 5, Part A, Table to par. 2.1.3, add a new footnote, as follows:

<i>Function / Parameter</i>	<i>ISO 11992-2:2014 reference</i>
Tyre/wheel identification (for EBS23 pressure)	EBS23 Byte 2
Tyre pressure	EBS23 Byte 5
Tyre/wheel identification (for RGE23)	RGE23 Byte 1
Tyre temperature	RGE23 Byte 2-3
Air leakage detection	RGE23 Byte 4-5
Tyre pressure threshold detection	RGE23 Byte 6 Bit 1-3
Tyre module power supply status	RGE23 Byte 6 Bit 4-5
Identification data index <sup>(1)</sup>	RGE23 Byte 7
Identification data content <sup>(1)</sup>	RGE23 Byte 8

<sup>(1)</sup> **Content of the Gateway ECU shall be prioritized**

- 6 Annex 5, Part B, paragraph 4, amend to read:

“4 The towed vehicle ECU providing TPMS/ TPRS/ CTIS functionality shall use the source address **207** of "Other Trailer Devices" ~~with respect to its position in the road train as per SAE J1939-71 standard for forwarding TPMS/TPRS/CTIS information with respect to trailer position in a road train like defined in ISO11992-2. i.e. TPMS/ TPRS/ CTIS of the first towed vehicle shall use source address 207 for "Other Trailer #1 Devices.~~  
“

## II. Justification

1. In § 1.5.7 requires that lifted axles have to be fully lowered, but when unladen trailers some lift axle may be lifted automatically. Therefore the test shall be performed with sufficient load to avoid lifting those axles.
2. The direct control of lamp function usually is not under control of the TPMS/TPRS/CTIS. Therefore this shall be delegated to the responsible ECU of the vehicle
3. The expression

*Signals, other than Tyre Pressure Status (EBS23 Byte 1 Bit 1-2), within messages EBS23 and RGE23 shall be transmitted with the indication "not available" in case the ECU ECU(s) providing TPMS/TPRS/CTIS functionality does not provide such data.*

is excluding valid information in the EBS23 like Brake-line-wear information which might be generated by the Gateway ECU itself.

- 4 ECE-R141 is referring to "Low Tyre Pressure Warning", ISO11992-2 is referring to "Tyre pressure insufficient". In the ECE R141 "Low Tyre Pressure Warning" is indicating an underinflated tyre only. Tyre pressure insufficient acc. to ISO11992-2 is stating in chap. 6.5.4.26:

"An insufficient tyre pressure shall be indicated, if the pressure is **outside** of a pressure range recommended by the tyre or vehicle manufacturer, to ensure an optimized operation with regard to the fuel consumption of the vehicle and life time of the tyre."

This includes overpressure also. R121 is defining tell-tale for "Low Tyre Pressure" and malfunction warning but not overpressure.

- 5 Identification data (VIN) in the TPMS/CTIS/TPRS might be hacked or corrupted. This could be crucial if it overrides the information from the Gateway ECU which as a brake ECU has high confidence level, especially if VIN comes from a telematics unit.
  - 6 In road train application the Source Address of the gateway ECU is acc. to ISO11992-2, Table B2, and the message EBS23 to the towing vehicle is sent with the corresponding road train position Source Address. Connected subsystem ECUs do not know the road train position they are and are not adapting their Source Address – this must be covered by the Gateway ECU. Each connected TPMS/TPRS/CTIS shall use the fix Source Address 207d.
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