Submitted by the representative of ETRTO

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agenda item 3.6.1)

ETRTO position on TPMS

A. BACKGROUND

At its last session, GRRF drafted uniform provisions concerning the type-approval of vehicles with regard to Tyre Pressure Monitoring Systems (TPMS), see document GRRF-65-40. Whereas the experts already agreed on the provisions for the "puncture test", they were unable to agree on specific issues of the "diffusion test". The Chairman of GRRF requested guidance from WP.29 as referred to in document ECE/TRANS/WP.29/2009/81.

In the present document, ETRTO presents and explains its position on the open issues.

B. PROPOSAL (refer to document Informal GRRF-65-40)

Paragraph 5.3.1., Adopt the 30 minutes option and delete the 60 minutes option, to read:

"5.3.1. When tested according to paragraph 6.2.6.2., the TPMS shall illuminate the warning signal described in paragraph 5.5. within not more than **30** ~~60~~ minutes of cumulative driving time after the in-service operating pressure in one of the vehicle's tyres, up to a total of four tyres, has been reduced by **20** per cent."

Rationale: A response time of 30 minutes already is longer than the average duration of passenger cars trips in Europe and longer durations will exclude a large part of the European driving cases.
To accept longer duration response would entail inclusion of specific and complicated in § 5.1 about interruptions, TPMS memory, time integration, ….

Paragraphs 6.2.5.2 and 6.2.5.3 are complementary and ETRTO requests to maintain as proposed in document GRRF-65-40, to read:

6.2.5.2. Procedure for the diffusion test according to paragraph 5.3.

Deflate all four tyres, until the deflated tyres are at P_{warm} – 20 per cent, namely P_{test}.

6.2.5.3. In both cases above, in order to compensate for inaccuracies of the measuring equipment, the value P_{test} shall be reduced by a further 5 kPa.

Rationale:
We cannot accept the amendment of Paragraph 6.2.5.3 requested by OICA because the expected performance of TPMS cannot be assured.
If OICA's amendment is accepted, the result will be accepting through legislation an up to **30%** under-inflation from cold pressure which is the reference.
This will lead to detrimental consequences for both safety and CO2 emission reduction.

Example:
For a vehicle where the recommended pressure on cold tyres equals 240 kPa, OICA's request will entail an acceptance value of 180 kPa for warning!!
At 180 kPa, the carrying capacity of the cold tyres is reduced by one-fourth (1/4) i.e. three tyres instead of four to carry the vehicle load with the passengers.
Furthermore, when using pressure data published by NL at GRRF/TPM/TF/CLEPA, on can readily estimate that 30% cold pressure under-inflation results in no CO2 reduction!

Paragraph 6.1.5. in GRRF-65-40 to be amended to read:

6.1.5. Accuracy of measurement equipment.
The accuracy of pressure measurement equipment shall be better than ± 5 kPa.

Rationale:
For the type approval test, we shall apply the rules commonly admitted for the accuracy of gauges and also recommended in ISO 15 037 -1 clause 5.4.2
The tolerance for cold pressure should be set at ± 5 kPa maximum.
Note: NHTSA specifies the use of gauges with an accuracy of ± 2 kPa in "TP138/03" and in ISO 21750, all experts worldwide agreed on +- 3 kPa.

Paragraph 6.2.6.2.1., delete the 60 minutes option on the GRRF Chairman's proposal in the document N° GRRF-65-40:

6.2.6.2.1. Drive the vehicle along any portion of the test course (not necessarily continuously). The sum of the total cumulative drive time shall be the lesser of 30 ~~[60]~~ minutes or the time at which the low tyre pressure telltale illuminates.

A general note:

Any kind of reliable TPMS does not exonerate the driver from periodical pressure checks.

It must be guaranteed that tyre pressure threshold and warning time are always respected in any tyre condition of use and in all vehicle operating conditions.

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