Transmitted by the expert from OICA

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OICA comments to ETRTO papers

1. ETRTO proposal (document GRRF 65-21)

1.1 Tyre pressure detection of incident-related pressure loss (puncture test)

As ETRTO, OICA can accept the proposed test as a compromise and welcomes the potential safety improvement.

1.2 Detection for a tyre pressure level significantly below the recommended pressure for optimum performance including fuel consumption and safety (diffusion test)

1.2.1 Definition of P_{rec} close to P_{min}

ETRTO suggests fixing the alert threshold not below the minimum cold inflation pressure P_{min} as defined in their industry specification (ETRTO handbook). When defining P_{min}, tyre industry applies already a certain safety margin to prevent any legal risk even in extreme cases.

For decades, a lot of vehicles have been designed and put on the market with a cold recommended inflation pressure P_{rec} (cold inflation pressure recommended by the vehicle manufacturer) which is equal to P_{min}. These vehicles, with or without TPMS, are safe and nobody, neither tyre manufacturers nor authorities, has raised any specific safety concern about this practice until now.

Would the fitment of TPMS make these vehicles dangerous?
These vehicles are safe without TPMS and we believe that TPMS will even enhance their level of safety.

Even if OICA does not contest the need to accept P_{min} as the minimum value for P_{rec} there is a lack of data showing that slight temporary tyre inflations under P_{min} will directly lead to accidents.

Today, no vehicle with $P_{rec} = P_{min}$ which is equipped with TPMS does apply a TPMS alert threshold of P_{min}. If the warning threshold was set to P_{min}, this would be unacceptable for the users.

1.2.2 Legal concern

OICA believes that an industry specification which is neither an international standard nor a regulation cannot be the base for a UNECE requirement because the contracting parties have no influence on this industry standard. In addition, TPMS is a vehicle system and the alert threshold should hence be defined according to a vehicle parameter, for example the cold tyre inflation pressure recommended by the vehicle manufacturer.

1.2.3 Alert delay in test procedure

ETRTO suggests reducing the alert delay in the test procedure from 60 min cumulated driving time to 20 min. In the case of a natural tyre pressure loss due to diffusion, the alert threshold will be reached according to the ETRTO example after 5 to 18 months.
OICA believes that there is no important safety/CO2 impact if the driver is warned after 5 months + 60 min versus 5 months + 20 min.
However, an alert delay of 60 min instead of 20 min for the type approval test will allow reducing the number of false-alerts of the system, for both direct and indirect systems. As a consequence, the TPMS credibility is increased.

It is necessary to distinguish the time driven with underinflation in the real world and the alert delay of the test procedure. Tyre damage due to underinflation is a long term process and the difference between 20 and 60 minutes **cumulated driving time** will not solve this issue.

1.2.4 Environmental consequences of tyre underinflation
The pressure examples of ETRTO do not take into consideration the fact that the test procedure proposed in document GRRF/2009/10 uses the warm tyre pressure as a reference.
However, the test procedure makes that even the system mentioned by ETRTO as a good example of CO2 saving, which simply alerts at a pressure of 40 kPa under P_{rec}, would fail the type approval test.

2. Cidaut Study (document GRRF 65-22)
OICA questions the pertinence of the Cidaut study.

Direct systems do not necessarily warn in real time and are not independent from the tyre type.

In the presentation of indirect systems, the Cidaut indicates a "deviation of 30%" and detection times of at least 5 minutes.

OICA recalls that the latest indirect TPMS are well capable of detecting smaller pressure losses than 30% on one to four wheels. For example, the 20%+5% currently proposed are achievable with 2^{nd} generation indirect TPMS which is already present on the market. In certain cases, especially tyre puncture, the detection time of an indirect system can be less than 5 minutes.

The Cidaut presentation does not address the safety risk of over-inflation due to reduced road adhesion and increased tyre wear.

Article European Tyre Report (document GRRF 65-24)
OICA questions the relevance of an industry journal as an UNECE informal document. The article mentions the name of some vehicle manufacturers providing misleading and partly wrong information which has never been published even inside the Task Force.

OICA clarifies that the "indirect TPMS" mentioned in the European Tyre Report is a first generation TPMS which is not designed to detect long term diffusion of all four tyres but only a relative loss of one tyre compared to the other tyres.

This system is not designed to optimise the tyre pressure but to warn the driver quickly in the case of tyre puncture. Although this fact is well known by ETRTO, the article compares the CO_2 benefit of this run-flat-warning system (one tyre detection system) with systems which are designed to detect an underinflation in all four tyres.

> *"Eating soup with a fork is not efficient and such an evaluation of the capacity of a fork to eat soup is hence nonsense."*

Second generation indirect TPMS which are able to detect a four tyre pressure loss are not mentioned in the report. The use of the term "indirect TPMS" is hence too generalising and misleading in this context and needs some further clarification.

It seems that this article has been brought to GRRF in order to discredit indirect systems in a general way.

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