UNECE Regulation No. 64: Homologation test of “run-flat warning systems” (RFWS) for “run-flat” tyres (RF)

Clarification of ECE/TRANS/WP.29/GRRF/2006/23
Summary of what is necessary

- The “Run-Flat-Warning-System” associated with a “Run-Flat” tyre must have an accuracy and a response time such that the user is alerted well before the tyre pressure is down to 70 kPa, whatever the vehicle speed.

- Reason: At speeds allowed on Europe highways and turnpikes, a punctured “Run-Flat” tyre with no air may fail within a few minutes.

- The homologation test of “RFWS” must take this into account to assure the users’ safety, as required by EU/ DIR-2001/95
ETRTO expressed concerns and has submitted for the September GRRF meeting an Amendment to Regulation 64 (ECE/TRANS/WP.29/GRRF/2006/23) explaining its position.
1- Elements of UK Amendments
Inf. GRRF-59-20 and ECE/TRANS/WP.29/2002/17/Rev.6

• Major concerns for ETRTO:
  – 20 min delay to alert that P = 70 kPa (should be shorter)
  – 20 min to alert of a system malfunction (should be shorter)
  – freedom of choice (?) of test speed within 20 - 120 km/h (needs to be reconsidered)

As a practical consequence, a RFWS homologated along UK Amendment might alert of a real leak only after more than 30 min …
… when the tyre is already completely flat and has exhausted its potential (*)

(*) the Rule would then be useless
Questions

What may happen:
- if the user’s speed is much larger than the test speed for homologation?
- if the pressure change is not a step variation like in the test?
- if the test speed is arbitrarily chosen within 20-120 km/h?
- if ambient conditions are not as favourable as the tests?

Reported Facts

We have found reported facts of our concern in the files of USA-DOT-NHTSA- Office of Defects Investigations (as of July 20th, 2006)

• Out of 21 cases:
  – 15 cases without alert, whereas the tyre was already flat
• NHTSA is inquiring.
ETRTO’s proposal has the aim to improve the regulatory requirements for the RFWS in order to be efficient

ETRTO proposes

1. Two alternative possibilities of test principle:

- follow a method described in ISO 21750:
  “Produce on one tyre a gradual pressure loss between 10 kPa/min and 20 kPa/min and check .... that the system delivers an alert at the latest for a pressure drop of 100 kPa”.

- modify the inf. GRRF-59-20 procedure:
  “deflate the tyre by 100 kPa under the recommended pressure, and check that the RFWS alert delay is \(\leq 5\) min”
2. Specification of test at two speed levels (*) :
   • “between 25 and 70 km/h”, and
   • “at a speed equal to or higher than 130 km/h”

3. Delay to detect a RFWS malfunction :
   • 5 minutes (instead of 20 min)

(*) ISO 21750 for TPMS states only : “… driving at a speed exceeding 25 km/h …” ; but RFWS must imperatively be tested at high speed because of RF tyres performances