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(Fifty-sixth session, 20-22 September 2004,
agenda item 6.2.)

PROPOSAL FOR DRAFT AMENDMENT TO REGULATION No. 30

(Pneumatic tyres)

Transmitted by the expert from the United Kingdom

Note: The text reproduced below has been prepared by the expert from the United Kingdom with assistance from Denmark, Japan, and the European Tyre and Rim Technical Organization (ETRTO) in order to introduce a standardized protocol (based on a draft ISO standard) for the testing of "Run-Flat tyres" when operating in the "Flat tyre running mode". The proposals are intended to require that "Run-Flat tyres" operating in the "Flat tyre running mode" are subject to approval in accordance with this Regulation. This proposal should be read in conjunction with TRANS/WP.29/GRRF/2004/9 to which it refers.

Note: This document is distributed to the Experts on Brakes and Running Gear only.

A. PROPOSAL

Paragraph 1., amend to read:

"
(b) competitions

The requirements of paragraph 6.2.1.2. and 6.2.2.2. only apply to "run flat tyres."

Insert new paragraphs 2.38. to 2.42., to read:

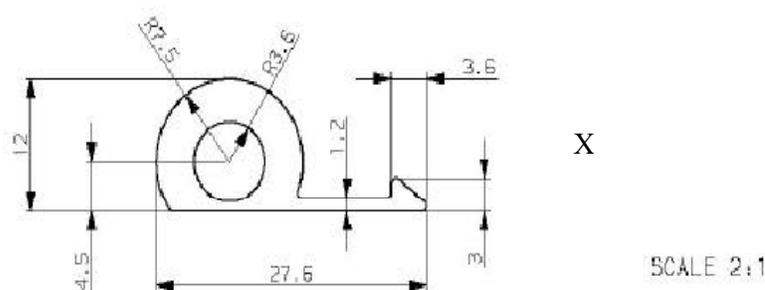
- "2.38. "Normal tyre" being a tyre that is suitable for all normal, on-road, conditions of use.
- 2.39. "Run flat tyre" being a tyre which is specifically designed to operate as a normal tyre in the inflated condition and is also capable of continued, but limited, use under restricted conditions following loss of inflation pressure (deflated);
- 2.39.1. "Self supporting tyre" means any technical solution (for example, reinforced sidewalls, etc.) allowing the pneumatic tyre, mounted on the appropriate wheel and in the absence of any supplementary component, to supply the vehicle with basic tyre functions at a speed of 80km/h (50mph) and specified distance when operating in flat tyre running mode.
- 2.40. "Internally supported run-flat system" means a tyre/wheel assembly which when operating in the deflated condition is supported by an assembly of functionally interdependent component(s), to supply the vehicle with the basic tyre functions at a speed of 80 km/h (50 mph) and specified distance when operating in the flat tyre running mode.
- 2.41. "Flat tyre running mode" describes the state of the tyre, essentially maintaining its structure integrity while operating at inflation pressure between 0 and 70 kPa.
- 2.42. "Basic tyre functions" means the normal capability of an inflated tyre in supporting a given load up to a given speed and transmitting the driving, the steering and the braking forces to the ground on which it runs."

Insert a new paragraph 3.1.3.5., to read:

- "3.1.3.5. on "run flat" or "self supporting" tyres the letter "F" placed in front of the rim diameter marking."

Insert a new paragraph 3.1.12., to read:

- "3.1.12. The symbol below if the tyre is a "run flat tyre", followed by "X" in km, where "X" equals the distance to which the tyre is approved [minimum 80 km/h] when tested in the "flat tyre" running mode. The height of "X" shall be a minimum of 12 mm.



All dimension are expressed in mm."

Renumbered paragraph 4.1.6., amend to read:

"4.1.6. Structure: diagonal (bias ply), bias belted, radial or run flat tyre."

Insert new paragraphs 4.1.21. and 4.1.22., to read:

"4.1.21. The identification of the bead retention rim contours specific for the "flat tyre running mode" of "run flat" or "self supporting tyres".

4.1.22. The specified test distance in km [minimum 80 km] for the "flat tyre running mode" of "run flat" (see annex 7 paragraph 3. [Procedure to assess the for the "flat tyre running mode" of "run flat tyres"])."

Paragraph 6.1.4.2.2., amend to read:

"6.1.4.2.2. in radial tyres and in run flat tyres "

Paragraph 6.1.5.3.2., amend to read:

"6.1.5.3.2. Coefficient "b" Radial and Run flat tyres "

Insert new paragraphs 6.2.1.2. and 6.2.1.2., to read:

"6.2.1.2. Where application is made for the type approval of a "run flat tyre" (see paragraph 2.3.8. and 3.1.3.5.) the load speed test is carried out on one tyre, inflated in accordance with paragraph 1.2. of annex 7, at the load and speed conditions marked on the tyre (see paragraph 3.1.4.1.). Another load/speed test must be carried out on a second sample of the same tyre type at zero pressure as specified in paragraph 3. of annex 7. The second test may be carried out on the same sample if the manufacturer agrees.

6.2.2.2. If a "run flat tyre" which, after undergoing the test at a pressure of 0 – 70 kPa, does not exhibit a decrease in the deflected section height, compared to the deflection at the start of the test greater than 20 per cent and the tread remains connected to the two sidewalls, it is deemed to have passed the test."

Insert a new paragraph 8.2.1.1., to read:

"8.2.1.1. In the case of verifications with regard to approvals in accordance with paragraphs 6.2.1.2. to 6.2.2.2. these shall be carried out using the same procedure and distance requirements (see annex 7 to this Regulation) as that adopted for original approval. The type approval authority shall satisfy itself that all tyres falling within an approved type comply with the approval requirement. The assessment shall be based upon the production volume of the tyre type at each manufacturing facility, taking into account the quality management system(s) operated by the manufacturer."

Annex 1, item 5.3., amend to read:

"5.3. Structure:radial/run flat tyres 2/"

Annex 7,

Insert a new paragraph 3., to read:

"3. Procedure to assess the "flat tyre running mode" of "run flat tyres"

3.1. Mount a new tyre on the test rim specified by the manufacturer pursuant to paragraphs 4.1.12. and 4.1.15. of this Regulation.

3.2. Carry out the procedure as detailed in paragraphs 1.2. to 1.5. above with a test room temperature at $38\text{ °C} \pm 3\text{ °C}$ in relation to conditioning the tyre-and-wheel assembly as detailed in paragraph 1.4.

3.3. Mount the tyre-and-wheel assembly on a test axle and press it against the outer face of a smooth wheel $1.70\text{m} \pm 1\%$ or $2\text{m} \pm 1\%$.

3.4. Measure the vertical distance (Z1) between the surface of the drum and the rim flange.

3.5. During the test the temperature of the test room must be maintained at $38\text{ °C} \pm 3\text{ °C}$.

3.6. Carry the test through, without interruption in conformity with the following particulars:

3.6.1. time taken to pass from zero speed to constant test speed: 5 minutes

3.6.2. speed 80 km/h

3.6.3. duration of test at the test speed: a minimum of [60] minutes with increments in minutes to equate with the distance specified in paragraph 4.1.22. of this Regulation.
(Calculate the test time as $((\text{distance} \times 60) / \text{speed}) = X$ test time in minutes)

3.7. At the end of the test, measure the vertical distance (Z2) between the surface of the drum and the rim flange.

- 3.7.1. calculate any decrease in % of the deflected section height compared with the deflection at the start of the test $((Z1 - Z2) / Z1) \times 100.$ "

Paragraph 3. (former), renumber as paragraph 4. and amend the reference to "paragraph 2." to read "paragraphs 2. and/or 3."

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B. JUSTIFICATION

There is a proposal to extend Regulation No. 64 to include run-flat tyres and allow vehicle manufacturers to gain a vehicle approval for the fitment of this equipment, although a procedure to test these tyres in the "Flat tyre running mode" has not been available.

However, parallel discussions within an International Standards Organization (ISO) working group has resulted in a draft ISO standard for the marking and test procedure of "run flat tyres". This proposal is largely based on that draft and will allow these tyres to be approved in the "Flat tyre running mode" for both original and replacement equipment and it is considered that the test procedure for these tyres belongs in this Regulation.
