

PROPOSAL FOR DRAFT AMENDMENT TO REGULATION No. 30

(Pneumatic tyres)

Transmitted by the experts from Japan

Note: The text reproduced below has been prepared by the experts from Japan in order to introduce requirements and a test procedure for type approval of "Run Flat System" operating in "Flat tyre running mode", while considering a standardized protocol (based on a draft ISO 16992).

A. PROPOSAL

Paragraph 2.1.4., amend to read:

"..., radial ply, run flat tyre;"

Insert a new paragraph 2.3.7., to read:

"2.3.7. "Run flat tyre" or "Self supporting tyre" describes a pneumatic tyre structure provided with any technical solutions (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 the basic tyre functions, at least, at a speed of 80km/h (50mph) and a distance of 80km when operating in flat tyre running mode.

Insert new paragraphs 2.32. to 2.35., to read:

"2.32. "Flat tyre running mode" describes the state of the tyre, essentially maintaining its structural integrity, while operating at an inflation pressure between 0 and 70 kPa.

2.33. "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.

2.34. "Run flat system" or "Extended mobility system" describes an assembly of specified functionally dependant components, including a tyre, which together provide the

specified performance granting the vehicle with the basic tyre functions, at least, at a speed of 80 km/h (50mph) and a distance of 80 km when operating in flat tyre running mode.

2.35. "Deflected section height" is the difference between the deflected radius, measured from the centre of the rim to the surface of the drum, and one half the nominal rim diameter as defined in ISO 4000-1.

Insert a new paragraph 3.1.3.5., to read:

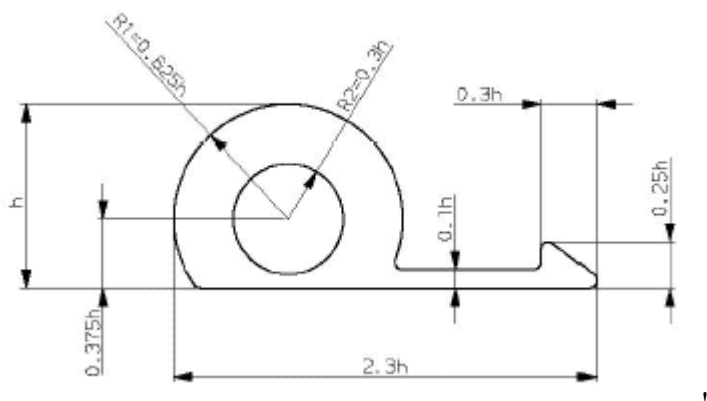
"3.1.3.5. on "run flat" or "self supporting" tyres the letters "RF" placed in front of the rim diameter marking."

Paragraph 3.1.4.1., amend to read:

"3.1.4.1. On tyres suitable for speeds in excess of 300 km/h, the letter "R" placed in front of the rim diameter code marking shall be replaced by inscription "ZR" and the tyre shall be marked with a service description consisting of the speed symbol "Y" and the corresponding load index. The service description shall be marked within brackets, for example,"(95Y)"

Insert a new paragraph 3.1.12., to read:

"3.1.12. The symbol below if the tyre is a "run flat" or "self supporting" tyre, where "h" is at least 12 mm.



Paragraph 4.1.4., amend to read:

"4.1.4. "Structure: diagonal (bias ply), bias belted, radial, run flat tyre;"

Insert a new paragraph 4.1.16., to read:

"4.1.16. the identification of the bead retention rim contours specific 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 ply, run flat tyres: 4 %."

Paragraph 6.1.5.3.2., amend the word "Radial" to read "Radial, Run flat tyre".

Insert new paragraph 6.2.1.2., to read:

"6.2.1.2. Where application is made for the type approval of a "run flat system" the above load speed test is carried out on one tyre, inflated as per 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 as specified in paragraph 3. of annex 7. The second test may be carried out on the same sample if the manufacturer agrees."

Insert a new paragraph 6.2.2.2., to read:

"6.2.2.2. If a "run flat system" tyre which, after undergoing the test as specified in paragraph 3. of annex 7., does not exhibit a change in the deflected section height, compared to the deflected section height at the start of the test, higher than 20 % and retains the tread connected to the two sidewalls, it is deemed to have passed the test."

Annex 1,

Item 5.3., amend to read:

"5.3. Structure: diagonal/bias-belted/radial/run flat tyre 2".

Annex 7,

Paragraph 1.2., the table, amend the words "Radial tyres" to read "Radial/Run flat system".

Insert a new paragraph 3., to read:

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

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. Remove the valve insert and wait until the tyre to deflate completely.

3.4. Mount the tyre-and-wheel assembly to a test axle and press it against the outer surface of a smooth wheel $1.70\text{ m} \pm 1\%$ or $2.0\text{ m} \pm 1\%$ in diameter

- 3.5. Apply to the test axle a load equal to 65 % of the maximum load rating corresponding to the load capacity index of the tyre
- 3.6. At the start of the test, measure the deflected section height (Z1).
- 3.7. During the test the temperature of the test room must be maintained at $38^{\circ}\text{C} \pm 3^{\circ}\text{C}$.
- 3.8. Carry the test through, without interruption in conformity with the following particulars:
 - 3.8.1. time taken to pass from zero speed to constant test speed: 5 minutes
 - 3.8.2. test speed: 80 km/h
 - 3.8.3. duration of test at the test speed: 60 minutes
- 3.9. At the end of the test, measure the deflected section height (Z2).
 - 3.9.1. calculate the change in % of the deflected section height compared to the deflected section height at the start of the test as $((Z1 - Z2) / Z1) * 100$.

Paragraph 3. (former), renumber as paragraph 4. and amend to read:

- "4. Equivalent test methods
... described in paragraphs 2. and/or 3. above ..."

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B. JUSTIFICATION

Recently, there are some discussions regarding "run flat system" in GRRF that a run flat system can be approved for any distance which a manufacture arbitrarily specifies for use under "flat tyre running mode". However, as a regulation, it is sufficient to specify a minimum distance to ensure the safety. It is a distance of 80km in this proposal, which comes from a draft ISO standard (ISO16922). The reason behind this idea is that when a tyre is flat, it is basically a failure mode, and a driver should reduce speed and replace the tyre or tyres as soon as possible.
