

Transmitted by the representative of the
European Commission

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Amendment to Document ECE/TRANS/WP.29/2007/31

(Agenda item 4.2.6 – Regulation No. 64)

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The following text is based on document ECE/TRANS/WP.29/2007/31. New text is inserted in **bold**. Deleted text is shown in ~~strikeout~~.

1 Proposal.

Amend Annex 4 as follows:

Annex 4

TEST FOR RUN-FLAT WARNING SYSTEM

1. Test Conditions
 - 1.1. Ambient temperature

The ambient temperature shall be between 0 °C and 40 °C.
 - 1.2. Test road surface

The test road surface shall be dry and smooth.
 - 1.3. Test location

The test location shall be other than an environment susceptible to radio wave interference such as a strong electric field.
 - 1.4. Condition of the test vehicle in a stationary state

The vehicle's tyres shall be shaded from direct sun when the vehicle is parked.
2. Test Method
 - 2.1. Test procedures for detection of a tyre in the flat tyre running mode. **The requirements of either paragraph 2.1.1 or 2.1.2 shall be met**
 - 2.1.1. **Test 1**
 - 2.1.1.1. The tyres are to be inflated to the pressure recommended by the vehicle manufacturer.
 - 2.1.1.2. With the vehicle stationary and the ignition (start) switch in the "Lock" or "Off" position, turn the ignition (start) switch to the "On" ("Run") position or, where applicable, the appropriate key position. Confirm the activation of the warning signal.
 - 2.1.1.3. Turn off the ignition and reduce the inflation pressure of any one of the tyres until the adjusted tyre inflation pressure is **10070 kPa below the recommended cold inflation pressure.** ~~which is the upper limit for the flat tyre running mode~~
 - 2.1.1.4. Within 5 minutes after reducing the inflation pressure of the tyre, drive the vehicle normally between 40 and 100 km/h.
 - 2.1.1.5. The test is completed when either:
 - (a) the run flat warning system as described in paragraph 5.1.6.1. has activated or,
 - (b) a period of **520** minutes has elapsed, when determined in accordance with paragraph 2.3., from the time the test speed has been reached. If the warning does not activate the test has failed.

The vehicle shall be brought to a halt and the ignition switched off.
 - 2.1.1.6. If the warning signal as required in paragraph 2.1.1.5. above has activated, wait 5 minutes before turning the ignition on; the signal must reactivate and remain active as long as the ignition switch is in the "on" ("run") position.

- 2.1.1.7. Repeat the process described in paragraphs 2.1.1.1 to 2.1.1.6, but with a test speed of 130km/h or higher. All the relevant requirements shall be met for both test speeds.**
- 2.1.2. Test 2.**
- 2.1.2.1 The tyres are to be inflated to the pressure recommended by the vehicle manufacturer.**
- 2.1.2.2 With the vehicle stationary and the ignition (start) switch in the "Lock" or "Off" position, turn the ignition (start) switch to the "On" ("Run") position or, where applicable, the appropriate key position. Confirm the activation of the warning signal. Turn off the ignition.**
- 2.1.2.3. Produce on one tyre a gradual pressure loss of between 10 kPa/min and 20 kPa/min.**
- 2.1.2.4 Drive the vehicle at any speed above 25km/h.**
- 2.1.2.5 The test requirement is satisfied if the system delivers an alert by the time the pressure drop has reached 100kPa.**
- 2.2. Test procedures for detecting a failure of the Run-Flat Warning System.
- 2.2.1. With the vehicle in the normal use condition, simulate a Run-Flat Warning System failure. This may be simulated by, for example, disconnecting connectors for wiring related to the power supply from the power source or wiring related to the input/output to/from the warning system control.
- 2.2.2. With a simulated fault introduced, drive the vehicle normally between 40 and 100 km/h.
- 2.2.3. When:
- (a) the run flat malfunction signal as described in paragraph 5.1.6.4. has activated or,
 - (b) a period of ~~520~~ minutes has elapsed, when determined in accordance with paragraph 2.3., from the time the test speed has been reached. If the warning does not activate the test has failed,
- The vehicle shall be brought to a halt and the ignition switched off.
- 2.2.4. If the warning signal as required in paragraph 2.2.3. above has activated, wait 5 minutes before turning the ignition on; the signal must reactivate and remain active as long as the ignition switch is in the "on" ("run") position.
- 2.3. Calculation of time duration
- The time to be taken for determination of the requirements of paragraphs 2.1.1.5. and 2.2.3. shall be the total elapsed time while the vehicle is driven in the test speed range 40 km/h to 100 km/h.
- The time shall be calculated over a continuous drive but it is not necessary that the vehicle maintains throughout the test a speed within the test speed range. Where the vehicle speed falls outside the test speed range, any time accumulated during such events shall not be considered as part of the total test time duration.
- The type approval authority shall satisfy itself that the run flat warning system records the time within the test speed range on a cumulative basis and does not restart the time calculation if the vehicle falls outside the test speed range."

2 **Justification.**

Requirements for Run-Flat Warning Systems (RFWS) on vehicles equipped with run-flat tyres have been extensively discussed within GRRF. The principle that a RFWS should be fitted has been generally agreed but the technical requirements for such a system have been subject to much debate. The specifications contained in document WP29/2007/31 (as adopted at the 61st GRRF) were generally agreed on the basis that they represented a good first step in an area that had previously remained unregulated. However, there remained concerns among some participants that these specifications could allow situations in which a driver could be driving at high speed for 20 minutes with a tyre in a run-flat condition without any alert being given.

The main rationale for allowing this requirement was that a more rigorous standard would effectively require current systems (which tend to be indirect systems which rely on wheel speed information from the ABS system) to be replaced with more expensive 'direct' systems. It was difficult to justify this additional expense for a run-flat warning system. However, two recent developments have changed this situation.

- The cost of direct tyre pressure monitoring systems is falling. a 2006 study* for the European Commission indicates that the cost of equipping a car with a current direct TPMS system is 28 Euro. More recent information suggests that the USA cost for a direct TPMS system is around \$30 (around 22 Euro).
- The European Commission CO₂ reduction initiative is likely to require the mandatory introduction of high-accuracy TPMS systems on future vehicles. This is almost certain to lead to the increased use of direct systems on cars (both inside and outside the EU) and it is likely that future RFWS will be incorporated into a direct TPMS system.

Given the three year transitory period for the 01 series of amendments, the Commission believes that it is now feasible and desirable from the point of view of vehicle safety to require a higher technical standard for Run Flat Warnings Systems. Therefore this proposal introduces the following modifications:

- 1) The performance test for the RFWS should require the detection of a pressure drop of 100kPa. Two alternative test methods are proposed to establish that this requirement is met.
- 2) The self-diagnostic function should be able to detect a system fault in five minutes (instead of 20 minutes as in the current proposal)

* Review and analysis of the reduction potential and costs of technological and other measures to reduce CO₂ emissions from passenger cars. TNO Final Report to the Commission, 2006