

Distr.
GENERAL

TRANS/WP.29/GRRF/2001/16

6 July 2001

ENGLISH ONLY

ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

World Forum for Harmonization of Vehicle Regulations (WP.29)

Working Party on Brakes and Running Gear (GRRF)
(Fiftieth session, 10-12 September 2001,
agenda item 1.3.)

PROPOSAL FOR DRAFT AMENDMENTS TO REGULATION No. 13
(Braking)

Transmitted by the Chairman of GRRF Ad Hoc Working Group
"Periodic Technical Inspection" (PTI)

Note: The text reproduced below was prepared by the expert from Germany, on behalf of the informal group "Periodic Technical Inspection" (PTI) summarizing the agreement reached during the tenth meeting of the Ad-hoc working group on PTI. It contains the proposed amendments to Regulation No. 13 concerning special requirements to be applied. It is based on the text of documents TRANS/WP.29/GRRF/2001/2 and TRANS/WP.29/GRRF/2001/9.

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

GE.01-

A. PROPOSAL

Insert a new paragraph 2.30. to read:

"2.30. "Reference braking forces" means the braking forces of one axle generated at the circumference of the tyre on a roller brake tester, relative to brake actuator pressure and declared at the time of type approval."

Paragraph 5.1.4.1., amend to read:

5.1.4.1. The vehicle shall be so designed that the friction components of the brakes, of which the function and efficiency is influenced by wear, can be checked. This shall be achieved without disassembly or removal of the wheels but use of covers for inspection holes is permitted."

Insert a new paragraph 5.1.4.1.1., to read:

"5.1.4.1.1. The above requirement is deemed to be fulfilled when an approximate wear condition of the friction components is confirmed visually or by other means. The manufacturer shall, at the time of type approval, define the wear limit and the method by which assessment of the wear condition can be made.

This information shall be made freely available (e.g. vehicle handbook, electronic data record).

If the type of brake by design, does not allow accessibility of drums and/or discs, the vehicle manufacturer shall declare this and indicate the means of assessment of the wear condition during the lifetime. However, in all cases the provisions of paragraph 5.2.1.11.2. or 5.2.2.8.2. below shall be fulfilled.

NOTE: These means might include reference to a renewal record relating actual wear to the distance covered by the vehicle."

Insert new paragraphs 5.1.4.6. to 5.1.4.7.1., including its corresponding footnote, to read:

"5.1.4.6. Reference braking forces

5.1.4.6.1. Reference braking forces shall be defined for vehicles with compressed air operated brakes, for tests made on a roller brake tester which conforms to the characteristics set out in to the provisions of [draft ISO/TC22/SC2/WG6/N 523-Rev 1 Annex A].

5.1.4.6.2. Reference braking forces are to be determined for a brake actuator pressure range from 1 bar to the pressure generated under Type 0 conditions for each axle. These shall be declared at the time of type approval, by the manufacturer and where appropriate, utilize data supplied by the axle/brake manufacturer and agreed in conjunction with the technical service. These data shall be made available, by the vehicle manufacturer, according to paragraph 5.1.4.5.1. above.

5.1.4.6.3. The declared reference braking forces shall ensure that the vehicle is capable of generating a braking rate equivalent to that defined in annex 4 of this Regulation for the relevant vehicle (50 per cent in the case of vehicles of category M2, M3, N2, N3, O3 and O4 except semi-trailers, 45 per cent in the case of semi-trailers), whenever the measured roller braking force, for each axle irrespective of load, is not less than the reference braking force for a given brake actuator pressure within the declared operating pressure range */.

5.1.4.7. It shall be possible to verify, in a simple way, the correct operational status of those complex electronic systems which have control over braking. If special information is needed, this shall be made freely available.

5.1.4.7.1. At the time of type approval, the means implemented to protect against simple unauthorized modification of the operation to the verification means chosen by the manufacturer (e.g. warning signal) shall be confidentially outlined.

Alternatively, this protection requirement is fulfilled when a secondary means of checking the correct operational status is available.

*/ For the purpose of periodic technical inspection, the minimum limit braking rate values defined for the whole vehicle may need adjustment to reflect national or international in-service requirements."

Paragraph 5.2.1.11.2., amend to read:

"..... are acceptable. ~~The removal of front and/or rear wheels is permitted for this purpose on category M₁ and N₁ vehicles only.~~ The yellow warning"

Annex 2

Insert a new item 16.1., to read:

"16.1. Accessibility of drums and/or discs: Yes/No 2/"

* * *

B: JUSTIFICATION

The tests for vehicles in use should be relatively simple, quick, inexpensive and reliable.

Re. Paragraph 5.1.4.1.

The current text of Regulation No. 13 requires in paragraph 5.1.4.1. "The braking system shall be so designed that the components of the braking system of which the function and efficiency is influenced by wear, can easily be checked". The demand "can easily be checked" is very high. At the moment this is only fulfilled for the linings. For brake drums and discs the situation is such that a check cannot be performed in an easy way in general.

Testing of drums and discs during periodic technical inspection and removing the wheels during the check will not be accepted because of economical and juridical reasons.

It is necessary to inspect the friction components which underlie wear by their function. Furthermore an absolutely exact wear measurement of the braking drums and discs should not be required during periodic technical inspection, but it must be possible to confirm the wear condition. If the type of brake design does not allow accessibility of the friction components, the vehicle manufacturer shall declare this at the time of type approval and indicate the means of assessment of the wear condition during lifetime.

The proposed deletion in paragraph 5.2.1.11.2. aligns with the proposed amendment in paragraph 5.1.4.1.

Re. paragraph 5.1.4.6.

Throughout Europe today it is general practice that vehicles are assessed periodically to ensure their roadworthiness. An essential element of this assessment is the determination of the efficiency of the brakes and braking system. While it is common practice to utilize roller brake testing to determine brake performance, there are no uniform test methods or reliable information available to make comparisons which result in inconsistencies between test centres both nationally and internationally.

It is not within the scope of Regulation No. 13 to define the methods by which brake performance is assessed or the minimum weight vehicles are presented for PTI. However, there is a need to define reference braking performance values for a given axle of a vehicle at the time of type approval. The vehicle or axle manufacturer is able to define the relationship of brake chamber pressure to the braking force produced by the brake on a given axle. Therefore, making this information available for the purposes of PTI is considered as a fundamental element in introducing consistency into the assessment of brake performance.

Re. paragraph 5.1.4.7.

Periodic Technical Inspection of vehicles in use offers the opportunity to examine the function of the braking system even when this is electronically controlled. This must be possible throughout the life of the vehicle as such checking is an essential means of controlling the safety of vehicles in use on the roads.

Whilst it is accepted that the actual braking performance will be measured under selected operating conditions on normal rolling roads, other complex electronically controlled functions, which utilize braking, are not able to actually be tested during periodic technical inspection. Therefore, the manufacturer should allow a possibility to verify in a simple way the correct operational status.

The means provided to protect this method of verification against unauthorized modification will be declared to the technical service but will not be exposed in the public domain.
