



Economic Commission for Europe
Inland Transport Committee
World Forum for Harmonization of Vehicle Regulations
Working Party on Brakes and Running Gear
Seventy-seventh session

Geneva, 26 June 2014

**Report of the Working Party on Brakes and Running Gear
 on its seventy-seventh session (Extraordinary session)**
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I. Attendance

1. The Working Party on Brakes and Running Gear (GRRF) held its seventy-seventh session on 26 June 2014 in Geneva. The meeting was chaired by Mr. B. Frost (United Kingdom). Experts from the following countries participated in the work, following Rule 1(a) of the Rules of Procedure of the World Forum for Harmonization of Vehicle Regulations (WP.29) (TRANS/WP.29/690, ECE/TRANS/WP.29/690/Amend.1 and Amend. 2): Australia, Belgium, Brazil, France, Germany, Hungary, Japan, the Netherlands, Portugal, Republic of Korea, Spain, Sweden, Thailand, Turkey, the United Kingdom of Great Britain and Northern Ireland (UK), the United States of America (USA) and Uruguay. Experts from the following non-governmental organizations (NGOs) participated: the European Association of Automotive Suppliers (CLEPA), the International Motorcycle Manufacturers Association (IMMA), the International Organization for Standardization (ISO), the European Tyre and Rim Technical Organisation (ETRTO), the FIA Foundation for the Automobile and Society, and the International Organization of Motor Vehicle Manufacturers (OICA).

II. Adoption of the agenda (agenda item 1)

Documentation: ECE/TRANS/WP.29/GRRF/2014/17

2. GRRF considered and adopted the agenda prepared for the seventy-seventh session (ECE/TRANS/WP.29/GRRF/2014/17).
3. The informal documents distributed during the session are listed in Annex I of this report.

III. Global Technical Regulation on tyres (agenda item 2)

Documentation: ECE/TRANS/WP.29/2013/63
Informal documents GRRF-77-01 and GRRF-77-02

4. The expert from the USA, referring to ECE/TRANS/WP.29/2013/63, reported on the activities conducted by his country on unresolved issues in view of the potential adoption of the draft Global Technical Regulation on tyres.
5. He introduced GRRF-77-01, and requested that clarity be added that ensures that Contracting Parties may determine, where options are available, which testing methods shall be applied in national or regional legislation. He stated that those countries under a self-certification regime had to require one clearly defined test procedure, as vehicles and equipment manufacturers may conduct their own tests to certify their products.
6. The expert from the Netherlands questioned the principle of options, however the expert from ETRTO stated that the availability of several test methods would not present a problem because the 1998 Agreement allows Contracting Parties to transpose one of the test method options. GRRF acknowledged that the expert from the USA could submit a clarification note to be added in the preamble of the draft GTR until the September 2014 session of GRRF.
7. The expert from the USA added that the results of some recent wet grip tests have shown that roughly twenty-five per cent of market tyres in the USA may not fully fit within the tyre categories defined in the GTR as "normal" and "snow tyres".

8. Following the discussion on market specific tyres in North America, the expert from the USA proposed to develop a new category of tyres and include additional wet traction limit values.
9. GRRF reached an agreement by adding a new paragraph in Part A of the draft GTR on tyres, containing a statement about the further technical evaluation necessary to assess whether consideration should be given for certain tyre types, typical in the North American market, as reproduced in Annex II to this report.
10. The expert from the USA introduced further proposals from informal document GRRF-77-01, clarifying the test provisions in paragraph 3.12.
11. He proposed a correction to the temperature correction factor applied to the peak brake force coefficient in paragraph 3.12.2.1.1.1., to read 0.0035 instead of 0.015, as mentioned in other related norms on wet grip testing.
12. GRRF agreed on the correction factor 0.0035 and considered the correction factor originally appearing in the paragraph as an editorial mistake.
13. The expert from the USA provided wording to clarify paragraph 3.12.2.3. concerning test track conditions for the wet grip testing procedure.
14. GRRF agreed that water depth values had to be applied to either wetting method used.
15. Due to the high temperature in some North American testing facilities, the expert from the USA proposed to amend paragraph 3.12.2.3. to increase the maximum temperature of the wetted surface from 30 to 40 °C.
16. The GRRF experts were of the opinion that this temperature increase would decrease the test procedure repeatability. GRRF expressed its preference to keep the value 30 °C.
17. The expert from the USA proposed an amendment to paragraph 3.12.3.1.1.5. containing provisions for vehicles incorporating a track wetting system. This proposal aimed at clarifying the obligation for the track contact point for the water itself and not for the nozzle.
18. GRRF endorsed the proposal.
19. The expert from the USA also proposed an amendment to paragraph 3.12.3.1.2.3. on the tyres conditioning before the test. He expressed his concerns about a literal interpretation that the tyres must be stored “beside the track” for two hours, could be a safety issue for other track users.
20. The expert from ETRTO agreed with the expert from the USA that safety issues should be addressed, but commented that stabilization of tyres for two hours before test was deemed necessary.
21. GRRF agreed with the expert from the USA to amend the paragraph to avoid a misinterpretation of the storage requirement but decided to keep the provision on the two hours tyres conditioning time.
22. The expert from the USA proposed an amendment to paragraph 3.12.3.1.2.5. on the minimum number of braking tests for the track conditioning. He stated that a minimum of ten runs of braking tests might not be needed when the same lane would be used on a daily basis and the (control tyre) coefficients would not vary considerably.
23. Following the discussion, GRRF decided to retain in the draft GTR the existing track conditioning procedure but to qualify it as being an example.
24. The expert from the USA proposed to amend paragraph 3.12.3.1.2.10. with a minimum of two test runs for tyre conditioning. He recalled the specificities of the self-certification

system and explained that the proposed modification would allow countries under self-certification regime to specify exact number of runs during the adoption of this provision.

25. GRRF agreed with that proposal.

26. The expert from the USA introduced a further amendment proposal, aimed at clarifying the test provisions in paragraph 3.12.3.1.2.13. He stated that the proposal would offer a clearer explanation on when and how much of a test cycle needed to be re-run in the event of an invalid test.

27. GRRF requested the secretariat to distribute the informal document, as amended and reproduced in Annex II to the report, with an official symbol at its September 2014 session. GRRF also requested the secretariat to submit the amended proposal to WP.29 and AC.3 for consideration at their November 2014 session, subject to a final review by GRRF at its September 2014 session of GRRF.

IV. Other business (agenda item 3)

A. Highlights of the March 2014 session of WP.29

Documentation: ECE/TRANS/WP.29/1108

28. The Secretary reported on the highlights of the 162nd session of WP.29 (ECE/TRANS/WP.29/1108) and referred to para. 36 to the report, containing the mandate for this extraordinary session.

B. Any other business

29. No subject was raised under this item.

Annex I

List of informal documents considered during the session

[English only]

Informal documents GRRF-77-...

<i>No.</i>	<i>(Author) Title</i>	<i>Follow-up</i>
1	(USA) Proposal for amendments to ECE/TRANS/WP.29/2013/63	B
2	(Secretariat) Adopted amendments to the draft GTR on Tyres during the 77th GRRF session	A

Notes:

- A Adopted without amendment.
- B Consideration completed.

Annex II

Adopted amendments to ECE/TRANS/WP.29/2013/63

In Chapter 1, Part A, insert a new paragraph 4, to read:

"4. Additional technical evaluation is necessary to assess whether consideration should be given for certain tyre types typical in the North American market in relation to the specifications in paragraph 3.12 (referring to the Test for Adhesion Performance on Wet Surfaces). Government and industry in the United States of America are coordinating to conduct this evaluation."

Paragraph 3.12.2.1.1.1., amend to read:

"3.12.2.1.1.1. Standard reference test tyre (SRTT) method

When tested using the SRTT and the method given in paragraph 3.12.3.1. the average peak brake force coefficient (pbfc) shall be between 0.6 and 0.8. The measured values shall be corrected for the effects of temperature as follows:

$$\text{pbfc} = \text{pbfc (measured)} + 0.0035 (t - 20)$$

Where "t" is the wetted track surface temperature in degrees Celsius.

The test shall be conducted using the lanes and length of the track to be used for the wet grip test;"

Paragraph 3.12.2.3., amend to read:

"3.12.2.3. Wetting conditions

The surface may be wetted from the track-side or by a wetting system incorporated into the test vehicle or the trailer.

If a track-side system is used, the test surface shall be wetted for at least half an hour prior to testing in order to equalize the surface temperature and water temperature. It is recommended that track-side wetting be continuously applied throughout testing.

For either wetting method, the water depth shall be between 0.5 and 1.5 mm."

Paragraph 3.12.3.1.1.5., amend to read:

"3.12.3.1.1.5. In the case of vehicles that incorporate a track wetting system, the water delivery nozzle(s) shall be such that the resulting water film is of uniform section extending at least 25 mm beyond the width of the tyre contact patch. The nozzle(s) shall be directed downwards at an angle of 20° to 30° **with the water contacting** the track surface between 250 mm and 450 mm in front of the centre of the tyre contact patch. The height of the nozzle(s) shall be 25 mm or the minimum to avoid any obstacles on the track surface without exceeding a maximum of 100 mm. Water delivery rate shall ensure a water depth of 0.5 mm to 1.5 mm and shall be consistent throughout the test to within ± 10 per cent. Note that a typical rate for testing at 65 km/h will be 18 litres per second per metre of wetted track surface width."

Paragraph 3.12.3.1.2.3., amend to read:

"3.12.3.1.2.3. The tyre shall be conditioned for a minimum of two hours such that it is stabilized at the ambient temperature of the test track area. The tyre(s) shall not be exposed to direct sunshine during conditioning."

Paragraph 3.12.3.1.2.5., amend to read:

"3.12.3.1.2.5. **Before testing, the track shall be conditioned e.g. by carrying out at least ten braking tests** on the part of the track to be used for the performance test programme but using a tyre not involved in that programme."

Paragraph 3.12.3.1.2.10., amend to read:

"3.12.3.1.2.10. In the case of a new tyre, **at least** two test runs shall be carried out to condition the tyre. These tests may be used to check the operation of the recording equipment but the results shall not be taken into account in the performance assessment."

Paragraph 3.12.3.1.2.13., amend to read:

"3.12.3.1.2.13. The average value of peak brake force coefficient (pbfc) shall be calculated over at least six valid results. For results to be considered to be valid, the coefficient of variation as determined by the standard deviation divided by the average result, expressed as a percentage, shall be within 5 per cent. If this cannot be achieved with the repeat testing of the SRTT, the evaluation of the candidate tyre(s) shall be discarded and the entire order of testing shall be repeated. **However, if only the candidate tyre(s) test is invalid, the entire test series need not be deemed invalid.**"
