Chairman of the IWG TYREGTR Document: TYREGTR-23-02

Agenda item 6

Note: This document is the next version of the document TYREGTR-22-14 updated after the 20th IWG TYREGTR meeting in October 2018 in Brussels.

Draft Proposal for the Technical Report   
on the development of Amendment No. 2   
to Global Technical Regulation No. 16 (Tyres)

The text reproduced below complementing the proposal for Amendment 2   
to the Global Technical Regulation No. 16.

A. Introduction

1. The Executive Committee for the 1998 Agreement WP.29/AC.3 at its 48th session in March 2017 adopted ECE/TRANS/WP.29/2017/52 tabled by the Russian Federation to request authorization to start work on developing the Amendment No. 2 to UN GTR No. 16 (ECE/TRANS/WP.29/1129, para. 153). After the adoption, this document was assigned the reference number ECE/TRANS/WP.29/ AC.3/48.

2. The government of the Russian Federation assumed the duties of the technical sponsor for the development of the draft Amendment No. 2 to UN GTR No. 16. The European Tyre and Rim Technical Organisation (ETRTO) in cooperation with other tyre manufacturers’ associations agreed to to work on that development.

3. GRRF at its 82nd session in September 2016 endorsed the establishment (reinstating) the informal working group (IWG TYREGTR) dealing with development of Amendment No. 2 to UN GTR No. 16 and consideration of issues addressed to possible further developments of UN GTR No. 16, in particular, feasibility of harmonization of indurance test for LT/C tyres and introduction of global tyre marking. The expert from the Russian Federation proposed his leadership to develop this amendment volunteered to request the authorization to develop Amendment No. 2 to UN GTR No. 16 from the Executive Committee of the 1958 Agreement (AC.3) (ECE/TRANS/WP.29/GRRF/82, para. 28).

4. At its 19th meeting the IWG TYREGTR acknowledged and endorsed that following the decision by WP.29 at its 175th session about reallocation of the tasks related to tyres from former GRRF to GRBP the IWG TYREGTR became the subgroup of GRBP.

B. Development of the Amendment No. 2 to UN GTR No. 16

5. The IWG TYREGTR executed the development of the Amendment No. 2 to UN GTR No. 16 in accordance with the authorization adopted by the AC.3 (ECE/TRANS/WP.29/AC.3/48).

6. The subject of the Amendment No. 2 was preliminary considered at the consequent 15th IWG TYREGTR meeting in January 2017, where the preliminary proposals by the industry whith regard to harmonization of: physical dimensions of LT/C tyres and load range assignment based on inflation pressure corresponding to maximum load rating were discussed.

7. The case-by-case consideration of the relevant proposed amendments to UN GTR No. 16 text started at the 16th IWG TYREGTR meeting held in Moscow in June 2017. During discussions on the proposed amendments regarding to harmonization of: physical dimensions, the tyre industry identified incompatibilities in some cases regarding the UN Regulations and U.S. FMVSS standards, which have to be addressed in the harmonized GTR text. Moreover, the asessment of FMVSS 139 High Speed test versus UN Regulation No. 54 Load/Speed test made by tyre industry indicated uncertainty in terms of severity of test methods for tyres with ‘R’ and ‘S’ speed symbols. Therefore the IWG TYREGTR decided on extending its the mandate for 2 years (till November 2019) in order to give tyre industry the possibility to confirm the initial results on the High Speed harmonised test method. GRRF at its 84th session in September 2017 supported this request, which was further the subject of concent by AC.3 at its 50th seesion in November 2017.

8. At its next, 17th meeting held in November 2017 in Brussels, the IWG TYREGTR made significant progress towards resolving incompatibilities in the UN Regulations and U.S. FMVSS standards. Industry introduced the High Speed test program proposal in order to clarify the test method for the tyres with ‘R’ and ‘S’ speed symbols wth the goal to present the results to the 87th GRRF session in September 2018. This proposal was endorced by the IWG TYREGTR as follows:

1. Program 1: Assess current UN R 54 test at 25 OC vs FMVSS 139 test at 38 OC with SAL\* (+5 km/h/10’) applying from current limit:
2. 30’ at speed corresponding to speed category symbol for UN R 54 Load/Speed test;
3. 30’ at 160 km/h for FMVSS 139 High Speed test;
4. Program 2: Same as Program 1, but UN R 54 test to be made more severe by increasing test temperature to 38 OC;
5. Program 3: UN R 54 test to be made more severe by increasing test temperature to 38 OC, and SAL\* applying from:
6. 60’ at speed corresponding to speed category symbol for UN R 54 Load/Speed test;
7. 30’ at 160 km/h for FMVSS 139 High Speed test.

\* SAL = Steps Above Limits

9. At the following, 18th meeting held in Ottawa in June 2018, the IWG TYREGTR endorced addition of new harmonized provisions for physical dimensions of LT/C tyres in the new Section 3.20 (old Sections 3.20 & 3.21 to be deleted). The provisions were subdivided in the following three categories:

1. Physical dimension for metric sizes (excluding all sizes listed in Annex 6) *-* Most stringent requirements from FMVSS 139/R54 retained;
2. Physical dimension for high flotation sizes (excluding all sizes listed in Annex 6) approved at the 86th GRRF session and adoped by WP.29/AC.1 at its June 2018 session (ECE/TRANS/WP.29/2018/55);
3. Physical dimension for sizes listed in Annex 6(Legacy).

10. At the same meeting, the tyre industry pesented to the IWG the technical assesment and proposal for a harmonised high speed test, which was introduced in the new Section 3.16 (old Sections 3.16 & 3.19 to be deleted). The proposed text was endorsed by the IWG TYREGTR at its 19th session held in Geneva in September 2018.

11. At the same meeting, the IWG TYREGTR agreed with the industry opinion that due to the high complexity in harmonising the endurance test for the LT/C tyres, the proposal would be to keep the tests non harmonised for the time being. However, the both tests were represented in one Section 3.17 as two different tests based on the provisions of FMVSS 139 and UN Regulation No. 54 respectively.

12. The IWG TYREGTR mandated the expert from the Russian Federation to introduce the concept for glogal tyre marking at the 86th GRRF session in February 2018. At that GRRF session the Chair of the IWG TYREGTR introduced a memorandum on a "global marking for tyres". He invited the Contracting Parties to the 1998 Agreement to review this memorandum and assess, whether the approach for tyre global marking in UN GTR No. 16 could be supported and whether it would be feasible to recognize a global tyre marking as an alternative to the existing national/regional tyre marking. The Chair invited GRRF delegates to respond to the memorandum. Meanwhile tyre industry assessed of the today’s situation on tyres bearing 4 marks (DOT, E, CCC and ISI) and 2 marks (DOT and E). Depending on the approach to the market research, its results indicate that 7.7% of stock keeping units bear 4 aforesaid marks and 43% of those bear the both DOT and E marks, which is considerably significant amount. Those tyres may be considered as candidates for a global mark, if it were introduced. Industry has assessed the situation and estimated the potential benefit of introduction of a global mark. Further impact assessment on the introduction of a global marking will be needed.

13. In parallel, the IWG TYREGTR at its 16th meeting started identifying divergences between the current version of UN GTR No. 16 and China tyre regulations with the significant help of the Chinese experts. IWG TYREGTR agreed that the relevant text containing alternative level of requirements as proposed by China may be included in UN GTR No. 16 as per Article 4.2 of the 1998 Agreement subject to the appropriate case-by-case consideration. GRRF at its 84th session welcomed both the engagement of China in the work on UN GTR No. 16 and the remarkable amount of work done to consider the Chinese national regulations.

14. The IWG TYREGTR also considered the number of proposals made by China and India aimed at harmonization of the provisions of its domestic legislation with those of UN GTR No. 16 as follows:

* 1. The proposal by China to use relations between Load Range and Ply Rating is considered as obsolete and should be replaced by Load Index for LT/C tyres. Industry prepared a table showing the relation between Load Range, Ply Rating and the relevant parameters used in the GTR (load index, reference test inflation pressure, etc). This table is added to the Part A of the GTR (technical rationale);
  2. The proposal by China in regards to paragraph 3.4, for reduction of the number of tread wear indicators, will be reflected in the Part A of the GTR (technical rationale) indicating that Contracting Parties may not transpose in their national law the entire GTR text;
  3. In paragraph 3.14, strength test, the GTR requirements are indicated as general requirements, India specific requirements for rim diameter codes 13 and below became the part of the revised table of requirements. The provisions in UN GTR No. 16 are based on US regulations that currently are undergoing review. Therefore the IWG TYREGTR developed compromise language in Amendment No. 2.
  4. The IWG TYREGTR evaluated a proposal made by India to include additional minimum breaking energy values in the strength test (3.14) for small diameter tires. The IWG TYREGTR verified that values for small diameter tubeless radial tires are included in the UN GTR No. 16 text.
  5. China proposal for the new paragraph 3.16.1. - Requirements for High-Speed test were considered together with the new provisions for the harmonised High Speed test.. Current China requirement is to adopt R54 type High speed test for all tyres. It was confirmed that China proposal for High speed test for LT/C tyres is less stringent than harmonized High speed test for LT/C tyres.
  6. The new Annex 11 was introduced in a table format including the requirements for test equipment based on the proposal by China
  7. Considering the outcome of the China assessment of the required and optional tyre markings, the reference table was added to the Part A of the GTR (technical rationale) with the clarification that Contracting Parties may keep optional markings in their national regulations.

15. The IWG TYREGTR discussed whether to remove the publication year of the ASTM standards for the various standard reference test tyre (SRTT)) standards. The IWG TYREGTR reviewed the detailed and rigorous quality assurance and control measures in place to assure that SRTT performance remains consistent. In addition, the IWG TYREGTR noted that the revision year is not included on the sidewall of any SRTT. The IWG TYREGTR agreed to remove the revision years from the ASTM SRTT standards listed in 2.77 but recognized that a Contractng Party may choose to include a revision year in its national regulations even though it may be difficult or impossible to obtain and impossible to verify a SRTT from a previous revision year.

16. The 19th IWG TYREGTR meeting acknowledged the completion of research on the subject of Amendment No. 2 to UN GTR No. 16 and addressed the preparation of the final text of the draft Amendment No. 2, the Statement on Technical Rationale and Justification and the Technical Report. This activity was continued at the 20th, 21st,22nd and 23rd IWG TYREGTR meetings.

17. Finally, the UN GTR text was restructured to reflect on the harmonised requirements and merge similar test procedures in the same sections. The new structure of the administrative and technical provisions is represented in the table below.

| *Test name* | *Harmonised* | | *Not Harmonised* |
| --- | --- | --- | --- |
| *Passenger car tyres* | *LT/С type tyres* | *LT/С type tyres* |
| 3.1. Plant codes | 3.1. | | - |
| 3.2. Marking | 3.2. | | - |
| 3.3 Other sidewall marking | 3.3. | | **-** |
| 3.4. Tread wear indicators | 3.4. | | **-** |
| 3.5. Physical dimensions | 3.5.1. | 3.5.2. | **-** |
| 3.6. High speed performance test | 3.6.1. | 3.6.2. | - |
| 3.7. Strenghth test | 3.7.1. | 3.7.2. | - |
| 3.8. Bead unseating resistance test for tubeless tyres | 3.8.1. | 3.8.2. | - |
| 3.9. Endurance tests | 3.9.1. | - | 3.9.2.  3.9.2.1. Endurance and Low inflation pressure performance test from FMVSS139  3.9.2.2. Endurance test from UN Regulation No. 54 |
| 3.10. Flat tyre running mode test | 3.10.1. | - | - |
| 3.11. Rolling sound emission test | 3.11. | | - |
| 3.12. Test for adhesion performance on wet surfaces | 3.12. | | - |
| 3.13. Tyre rolling resistance test | 3.13. | | - |
| 3.14. Snow performance test relative to snow tyre for use in severe snow conditions | 3.14. | | - |

18. The interim results of the IWG TYREGTR work were reported to the 83rd, 84th and 86th GRRF sessions, 68th, 69th and 70th GRBP sessions and to the 49th, 50th 51st, 52nd , 53rd, 54th, 55th, [56th and 57th] AC.3 sessions.

19. [GRBP at its 70th session adopted the working documents on the Amendment No. 2 to UN GTR No. 16 and the final report on Phase 2 on the development of UN GTR No. 16 subject to consideration by WP.29 and AC.3 at their sessions on March 2020.]

C. Future work

20. IWG TYREGTR acknowledged that it is necessary to include in UN GTR No. 16 the provisions related to North American all season tyres following additional evaluation of the adhesion performance on wet surfaces; a future additional category of use might be necessary for certain tyre types typical in the North American market. These provisions could be developed in a further amendment to UN GTR No. 16.

21. The tubeless tyre bead unseating resistance test for passenger car tyres is also under review by the US National Highway Traffic Safety Administration (NHTSA). If NHTSA had amended or eliminated the requirements, the UN GTR No. 16 should be amended at that time.

22. IWG TYREGTR recommends that UN Regulations Nos. 30 and 54 be amended to remove the maximum outer growth diameter requirements for radial tyres that have completed the high speed test and the load/speed endurance test. These provisions have been incorporated in the UN GTR No. 16. If those provisions were removed from UN Regulations Nos. 30 and 54, the similar provisions should be removed from the UN GTR No. 16 as well in a future amendment.

23. The informal working group recommends that potential future amendments be considered pursuant to articles 6.3 and 6.4 of the 1998 Agreement when Regulations in the Compendium of Candidates are amended.

D. Conclusion

24. Following the adoption of the draft Amendment No. 2 to UN GTR No. 16 at its [70th] session, GRBP requests AC.3 voting for establishing this Amendment No. 2 (ECE/TRANS/WP.29/20XX/XX) in the Global Registry.