


Economic Commission for Europe
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Working Party on Brakes and Running Gear
Eighty-first session

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Report of the Working Party on Brakes and Running Gear
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I. Attendance

1. The Working Party on Brakes and Running Gear (GRRF) held its eighty-first session from 1 to 5 February 2016 in Geneva. In the absence of the elected Chair for health reasons, the meeting was chaired by the elected Vice-Chair of GRRF, Mr. A. Murai (Japan). 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, China, Czech Republic, Denmark, Finland, France, Germany, Hungary, India, Italy, Japan, the Netherlands, Norway, Poland, Russian Federation, Slovakia, Republic of Korea, Spain, Sweden, Switzerland and the United Kingdom of Great Britain and Northern Ireland (UK). An expert from the European Commission (EC) also participated. Experts from the following non-governmental organizations (NGOs) participated: the International Association of the Body and Trailer Building Industry (CLCCR), the European Association of Automotive Suppliers (CLEPA/MEMA/JAPIA), the European Tyre and Rim Technical Organisation (ETRTO), La Federation Internationale de l'Automobile (FIA), the Federation of European Manufacturers of Friction Materials (FEMFM), the International Motorcycle Manufacturers Association (IMMA), the International Organization for Standardization (ISO), the International Organization of Motor Vehicle Manufacturers (OICA) and Rubber Manufacturers Association (RMA). Upon the special invitation of the Chair, the following NGOs participated: La Fédération de la Manutention (FEM) and Imported Tyre Manufacturers Association (ITMA).

II. Adoption of the agenda (agenda item 1)

Documentation: ECE/TRANS/WP.29/GRRF/2016/1 and Add.1
Informal documents GRRF-81-01, GRRF-81-15 and GRRF-81-16

2. GRRF considered the agenda prepared for the eighty-first session and adopted it (ECE/TRANS/WP.29/GRRF/2016/1 and Add.1) as updated and reproduced in GRRF-81-16, including all informal documents received until the session's starting date.

3. GRRF also adopted the running order for the session as proposed in GRRF-81-01. The informal documents distributed during the session are listed in Annex I of this report.

4. The secretariat introduced GRRF-81-15, announcing that the next GRRF session would take place on 20-23 September 2016 and recalling that the deadline for the submission of official documents would be 24 June 2016.

III. Advanced Emergency Braking Systems and Lane Departure Warning Systems (LDWS) (agenda item 2)

5. The secretariat reminded that *Footnote 5* in the table of Annex 3 in the 01 series of amendments to Regulation No. 131 imposes the review of the target speed in cell H2 before 1 November 2021.

IV. Regulations Nos. 13 and 13-H (Braking) (agenda item 3)

A. Electronic Stability Control (ESC)

6. As no documents were presented for technical change but only to discuss the splitting of the regulation, GRRF discussed this item in conjunction with item 10(c) (see para. 54).

B. Modular Vehicle Combinations (MVC)

7. The Chair of the Informal Working Group (IWG) on MVC reported on the activities of the group's recent meeting held in Brussels on 26 October 2015. He confirmed that the group was reviewing the several aspects of MCV specified in the Terms of Reference (ToR). He invited the Contracting Parties and other interested stakeholders to join the following meeting, scheduled on 2-3 March 2016 in Brussels. GRRF endorsed the status report.

C. Clarifications

Documentation: ECE/TRANS/WP.29/GRRF/2016/19
(ECE/TRANS/WP.29/GRRF/2013/13,
ECE/TRANS/WP.29/GRRF/2015/20)
Informal document GRRF-80-11

8. The Chair of GRRF recalled the purpose of ECE/TRANS/WP.29/GRRF/2013/13, adopted during the seventy-fifth GRRF session. The document remained on the agenda of GRRF, pending submission to the World Forum for Harmonization of Vehicle Regulations (WP.29) and the Administrative Committee of the 1958 Agreement (AC.1) of the adopted text for Regulations Nos. 13-H (Brakes of M₁ and N₁ vehicles), 79 (Steering equipment) and 89 (Speed limitation devices).

9. The expert from Germany gave an oral report on the activities of the Special Interest Group (SIG) of experts dealing with the provisions of Annex 14 of Regulation No. 13. He announced that the group took into consideration the comments received at the previous session of GRRF related to the energy measurement from the battery and to the warning light concept and that the group would submit a revised proposal for the September 2016 session of GRRF.

10. The expert from Germany informed GRRF that he withdrew the proposal made at the at the eightieth session of GRRF for a new Annex 23 to Regulation No. 13 in ECE/TRANS/WP.29/GRRF/2015/20 with provisions for trailers of category O₂ without pneumatic connection and equipped with service braking systems with pneumatic energy storage devices.

11. The expert from Hungary presented ECE/TRANS/WP.29/GRRF/2016/19, tabled by the experts from Hungary and the Netherlands, based on GRRF-80-11. GRRF adopted the document with the following correction:

For "Paragraph 2.2.18., amend ...", read "Annex 12, paragraph 2.2.18., amend ..."

12. GRRF requested the secretariat to submit the adopted proposal above to WP.29 and AC.1 for consideration at their June 2016 sessions, as Supplement 14 to the 11 series of amendments to Regulation No. 13.

D. Braking symbols in Regulation No. 121 (Identification of controls, tell-tales and indicators)

13. GRRF did not receive any new proposal to amend Regulation No. 121 or relevant new information from the Working Party on General Safety (GRSG).

E. Other business

Documentation: Informal documents GRRF-80-06, GRRF-81-20, GRRF-81-20-Rev.1 and GRRF-81-31

14. The expert from CLEPA recalled the presentation (GRRF-80-06) made by the expert from China at the previous session of GRRF. He presented GRRF-81-31 answering to the proposal contained in GRRF-80-06. The experts from the Czech Republic and OICA confirmed the information provided by CLEPA. GRRF agreed that the consideration of GRRF-80-06 and GRRF-81-31 was completed.

15. The expert from CLEPA introduced GRRF-81-20, proposing an amendment to *Footnote 12* in Regulation No. 13. The proposal received some comments and was amended as reflected in GRRF-81-20-Rev.1. GRRF agreed with the proposal and requested the secretariat to distribute the revised document with an official symbol at the next session of GRRF.

V. Regulation No. 55 (Mechanical couplings) (agenda item 4)

Documentation: Informal documents GRRF-80-29, GRRF-81-06, GRRF-81-07, GRRF-81-08, GRRF-81-09, GRRF-81-09-Rev.1, GRRF-81-10 and GRRF-81-34.

16. The expert from CLEPA, Secretary of the IWG on Regulation No. 55 presented GRRF-81-08 with a proposal for a work plan for the finalisation of the work as the mandate of the group was about to terminate. GRRF endorsed the work plan proposed in GRRF-81-08.

17. The expert from CLEPA also presented GRRF-81-06, proposing amendments to Regulation No. 55 in the case of Multiple Vehicle Combinations. GRRF as well as the IWG on MVC supported in principle the proposal and requested that the IWG on Regulation No. 55 prepares an official document for consideration at the next GRRF session.

18. The expert from CLEPA introduced GRRF-81-07, proposing the procedure to identify allowable combinations of performance values D_c and V for drawbar coupling equipment. The expert from the UK noted that an editorial correction would be needed in paragraph 4.1.1. and proposed to assist the Secretary of the IWG to prepare an official document for consideration at the next GRRF session.

19. The expert from Germany introduced GRRF-81-09 proposing ToR for a new IWG on Agricultural Coupling that would remove the Agricultural Coupling provisions from Regulation No. 55 and would include them in a new Regulation. The proposal received some comments to limit the number of classes, as reproduced in GRRF-81-09-Rev.1. GRRF agreed with the proposal for a new IWG that would take into consideration the work done by the Task Force on Agricultural Couplings (GRRF-81-10). GRRF agreed in principle with the proposal of the expert from Spain proposing generic provisions to be defined, which could be used for the approval of specific agricultural coupling at the national level. The secretariat noted that GRRF-81-10 was based on a former version of Regulation No. 55 and proposed that the new IWG on Agricultural Coupling would take

into consideration the latest version of Regulation No. 55. GRRF agreed that the expert from Germany would chair the IWG and that the expert from the Comité Européen des groupements de constructeurs du machinisme agricole (CEMA) would provide the secretariat of the group. GRRF requested that the IWG would first revise and clarify the ToR of the group.

20. The expert from EC recalled the purpose of GRRF-80-29 aimed at addressing the situation in which coupling balls would be installed right in front of registration plates or rear fog lamps. The proposal received some comments, related to the restriction on the use of a release key in paragraph 1.1.4., and he drafted a revised proposal as reproduced in GRRF-81-34. GRRF adopted the proposal as reproduced in Annex II of this report and requested the secretariat to submit it to WP.29 and AC.1 for consideration at their June 2016 sessions, as Supplement 6 to the 01 series of amendments to Regulation No. 55.

VI. Motorcycle braking (agenda item 5)

A. Regulation No. 78

Documentation: ECE/TRANS/WP.29/GRRF/2015/41
ECE/TRANS/WP.29/GRRF/2015/42
ECE/TRANS/WP.29/GRRF/2016/23
Informal document GRRF-81-28, GRRF-81-28-Rev.1

21. GRRF agreed with the proposal of the expert from EC to reintroduce ECE/TRANS/WP.29/GRRF/2015/41 under agenda item 5(a) and to reconsider the proposal clarifying the possibility to install means to disable the ABS function in certain conditions for L-category vehicles. The expert recalled that a majority of experts expressed specific concerns related to the condition (f) in the proposal at the previous session and therefore agreed to delete it, as shown in GRRF-81-28. The proposal, received some comments to amend the text in a more stringent manner. The expert from IMMA advocated for transitional provisions aligned with those of Euro 5 in Europe. He added that the newly proposed wording was too restrictive and may exclude some vehicles that were already equipped with the feature. GRRF agreed therefore on longer transitional provisions for existing vehicle types, and also to not excessively restrict the kind of vehicle that could be equipped with the ABS off switch function, by softening the wording of these provisions. The Contracting Parties agreed on the amended proposal GRRF-81-28-Rev.1. The expert from Italy expressed a scrutiny reservation on the provisions related to the off road switch. GRRF adopted the proposal as reproduced in Annex III and requested the Secretariat to submit it to WP.29 and AC.1 for consideration at their November 2016 sessions, as a new 04 series of amendments to Regulation No. 78, subject to final review by GRRF in September 2016.

22. The expert from EC recalled the purpose of ECE/TRANS/WP.29/GRRF/2015/42, proposing to apply to tricycles the existing Anti-lock Braking Systems (ABS) requirements for Powered Two Wheelers (PTWs). The experts from IMMA and OICA agreed with the proposal. GRRF adopted the proposal and requested the secretariat to submit it to WP.29 and AC.1 for consideration at their June 2016 sessions, as part of the Supplement 3 to the 03 series of amendments to Regulation No. 78.

23. The expert from IMMA introduced ECE/TRANS/WP.29/GRRF/2016/23 proposing amendments to Regulation No. 78 in order to allow the installation of Emergency Stop Signal on motorcycles. GRRF noted that IMMA was coordinating the related activity at the Working Party on Lighting and Light-Signalling (GRE) to introduce the relevant provisions in Regulation No. 53. GRRF adopted the proposal with the minor correction below and

requested the Secretariat to submit it to WP.29 and AC.1 for consideration at their June 2016 sessions, as part of the Supplement 3 to the 03 series of amendments to Regulation No. 78.

In paragraph 5.1.15.1., for "m/s²", read "m/s²"

B. Global technical regulation No. 3

24. The secretariat recalled the discussion at the November 2015 session of the Executive Committee of the *1998 Agreement* (AC.3). He recalled that the *1998 Agreement* specifies, in order to amend a Global Technical Regulation (GTR), that a request for authorization to develop an amendment would be adopted by AC.3 GRRF agreed to first make further progress on the work under agenda item 5(a) and then proceed with the development of amendments to GTR No. 3 and the corresponding request for authorization to develop an amendment to GTR No. 3.

VII. Regulation No. 90 (Replacement brake linings) (agenda item 6)

Documentation: ECE/TRANS/WP.29/GRRF/2016/18
ECE/TRANS/WP.29/GRRF/2016/22
Informal documents GRRF-80-12, GRRF-81-03, GRRF-81-04,
GRRF-81-04-Rev.1, GRRF-81-05-Rev.1, GRRF-81-27, GRRF-81-29
and GRRF-81-33

25. The expert from CLEPA presented ECE/TRANS/WP.29/2016/22 based on GRRF-80-12 proposing amendments to provisions defined for equivalent brake discs and drums and a relaxation of the requirement on the thickness variation for interchangeable replacement discs or drums. The expert presented a revised proposal GRRF-81-04 limiting the thickness variation requirement modification to vehicles of category O₂, O₃, N₃ and M₃. The expert from Italy expressed his concern with the proposed requirement relaxation. After discussion, GRRF agreed on the revised document GRRF-81-04-Rev.1. GRRF adopted the proposal amended by Annex IV to the report and requested the secretariat to submit it to WP.29 and AC.1 for consideration at their June 2016 sessions, as Supplement 3 to the 02 series of amendments to Regulation No. 90.

26. The expert from CLEPA introduced GRRF-81-05-Rev.1 presenting the characteristics of Carbon – Ceramic brakes and proposing to introduce relevant provisions in the Regulation. After discussion, GRRF invited the expert from CLEPA to prepare an informal document proposing amendments to Regulation No. 90 that would include Carbon – Ceramics brakes for consideration at the next GRRF session.

27. The expert from FEMFM introduced GRRF-81-03 proposing a standard Conformity of Production (COP) form to be annexed to Regulation No. 90 that would specify the audit points checked by the Type Approval Authorities in the COP process. The expert from the Russian Federation explained that the proposal would be in contradiction to the provisions of the *1958 Agreement* with regard to COP and that the proposal should be revised to be aligned to the provisions of the Agreement. GRRF didn't oppose to the idea of streamlining the COP process but preferred that a transversal approach across the UN Regulations would be chosen. Therefore, GRRF invited the expert from FEMFM to present his proposal to the World Forum WP.29 or to the IWG on International Whole Vehicle Type Approval (IWVTA).

28. The secretariat introduced GRRF-81-27 containing the request for clarifications of paragraph 5.2.2.1.1 in Regulation No. 90. Only one minimum shear strength requirement is specified for brake shoe assemblies and one requirement for brake pad assemblies in Regulation No. 90 and it is therefore requested that clarification be provided if these requirements are for both cold and hot shear because ISO 6312 specifies methods for both cold and hot shear tests. GRRF confirmed that Regulation No. 90 requested that the test, according to the mentioned ISO standard, has to be run at ambient temperature only. Several experts noted that a general review of Regulation No. 90 would be useful in order to minimize interpretation issues. Following discussions, the expert from Spain prepared and presented ToR for a SIG of experts to explore whether the issues related to the interpretation of the Regulation were minor and could be managed by GRRF or whether they are significant and would require the establishment of a specific IWG. GRRF agreed with the proposal and endorsed GRRF-81-33.

29. The expert from Italy presented GRRF-81-29 introducing ECE/TRANS/WP.29/GRRF/2016/18. The experts from Spain, UK and EC expressed reservations with the aim of the proposal, taking into account the history of the Regulation No. 90 development. They suggested that a more strategic and coordinated approach was chosen to develop the Regulation. GRRF agreed that this proposal may be reviewed by a SIG dealing with Regulation No. 90.

VIII. Tyres (agenda item 7)

A. Global technical regulation No. 16

Documentation: (ECE/TRANS/WP29/AC.3/42)
ECE/TRANS/WP.29/GRRF/2016/2
ECE/TRANS/WP.29/GRRF/2016/3
Informal document GRRF-81-02

30. The Chair of GRRF recalled the authorization to develop an amendment to GTR No. 16 (see ECE/TRANS/WP29/AC.3/42) and the sponsorship of the Russian Federation for this activity. The expert from the Russian Federation reported on the work done by the group of interested experts dealing with this amendment, introducing the draft amendment 1 to GTR No.1 in ECE/TRANS/WP.29/2016/2 as well as the report contained in ECE/TRANS/WP.29/2016/3. He explained that GRRF-81-02 contained additional information to show the amendments to the existing text of the GTR as well as the origin of the amended text. GRRF adopted both official documents above (and removed the square brackets in paras. 14 and 20 of ECE/TRANS/WP.29/GRRF/2016/3). GRRF requested the secretariat to submit them to WP.29 and AC.3 for consideration and vote at their June 2016 sessions.

B. Regulation No. 30

Documentation: ECE/TRANS/WP.29/GRRF/2016/11
(ECE/TRANS/WP.29/GRRF/2016/13
ECE/TRANS/WP.29/GRRF/2016/14)

31. The expert from France introduced ECE/TRANS/WP.29/GRRF/2016/11 together with ECE/TRANS/WP.29/GRRF/2016/13 and ECE/TRANS/WP.29/GRRF/2016/14 respectively under agenda items 7(c) and 7(g) below, proposing revised clarifications of the definitions. GRRF adopted the proposal and requested the secretariat to submit them to WP.29 and AC.1 for consideration and vote at their June 2016 sessions, as draft

Supplement 18 to the 02 series of amendments to Regulation No. 30, as part of the draft Supplement 21 to Regulation No. 54 and as draft Supplement 9 to the 02 series of amendments to Regulation No. 117.

C. Regulation No. 54

Documentation: ECE/TRANS/WP.29/GRRF/2016/12
ECE/TRANS/WP.29/GRRF/2016/13
ECE/TRANS/WP.29/GRRF/2016/16
ECE/TRANS/WP.29/GRRF/2016/17
Informal documents GRRF-80-17 and GRRF-81-11

32. The expert from France introduced ECE/TRANS/WP.29/GRRF/2016/13 together with the corresponding document relevant for Regulation No. 30 (see para. 31 above).

33. The expert from ETRTO introduced ECE/TRANS/WP.29/GRRF/2016/12, a revised proposal to amend the tyre marking requirements and also containing the amendments previously proposed by the expert from Slovakia. GRRF adopted the proposal and requested the secretariat to submit it to WP.29 and AC.1 for consideration at their June 2016 sessions, as part of the draft Supplement 21 to Regulation No. 54 and as part of the draft Regulation No. 117.

34. The expert from ETRTO presented ECE/TRANS/WP.29/GRRF/2016/16, proposing amendments to Annex 5 to include new sizes. GRRF adopted the proposal with the correction below and requested the secretariat to submit the proposal as corrected to WP.29 and AC.1 for consideration at their June 2016 sessions, as part of the draft Supplement 21 to Regulation No. 54.

The empty cell, corresponding to the tyre size designation "30x9.50-16.5LT" shall read "240"

35. The expert from France introduced ECE/TRANS/WP.29/GRRF/2016/17 (based on GRRF-80-17) proposing provisions for tyres designed for a "special" application that also fulfil the definition of a "snow" tyre. GRRF requested the secretariat to submit the corrected proposal to WP.29 and AC.1 for consideration at their June 2016 sessions, as part of the draft Supplement 21 to Regulation No. 54.

36. The expert from ETRTO introduced GRRF-81-11 proposing amendments to the requirements for the arrangement of tyre markings of Regulation No. 54. The proposal received some suggestions to simplify the verification of the compliance with the arrangement requirements. GRRF invited the expert of ETRTO to submit a revised proposal for consideration at the next session of GRRF.

D. Regulation No. 75

37. GRRF did not receive any proposal to amend Regulation No. 75.

E. Regulation No. 106

Documentation: ECE/TRANS/WP.29/GRRF/2016/15

38. The expert from ETRTO presented ECE/TRANS/WP.29/GRRF/2016/15 proposing the inclusion in the Regulation of load indexes from 201 to 279 to follow the technical evolution of tyres. GRRF adopted this proposal and requested the secretariat to submit both adopted proposals above to WP.29 and AC.1 for consideration at their June 2016 sessions, as Supplement 14 to Regulation No. 106.

F. Regulation No. 109

Documentation: Informal document GRRF-81-12

39. The expert from ETRTO presented GRRF-81-12 proposing editorial corrections in Annex 7 and Annex 10 of the Regulation, to align the requirements with those of other tyre Regulations and on the provisions for tests performed on two metre test drums. GRRF requested the secretariat to distribute this document with an official symbol at the next GRRF session.

G. Regulation No. 117

Documentation: ECE/TRANS/WP.29/GRRF/2016/12,
ECE/TRANS/WP.29/GRRF/2016/14

40. The expert from France introduced ECE/TRANS/WP.29/GRRF/2016/14 together with the corresponding document relevant for Regulation No. 30 (see para. 31 above). The expert from ETRTO introduced ECE/TRANS/WP.29/GRRF/2016/12 addressing both Regulations Nos. 54 and 117 during the review of amendments proposal for Regulation No. 54 (see para. 33).

H. Other business

41. GRRF did not receive any other document to be discussed under this agenda item.

IX. Intelligent Transport Systems (ITS) (agenda item 8)

A. Vehicle automation

Documentation: (Informal document WP.29-167-04)

42. The secretariat referred to the status report (WP.29-167-04) of the secretariat on the UNECE activities on vehicle automation. The expert from IMMA stated that L-category vehicles should be taken into account at an early stage for road safety reasons. The expert from Germany noted the work done by the IWG on Automated Commanded Steering Function (ACSF) on L-category vehicles and invited the expert from IMMA to contribute to the activities of the IWG.

43. The expert from Japan informed GRRF about the G7 transport ministers' activities. The first meeting dedicated to vehicle automation took place during the motor show in Frankfurt in September 2015. The declaration following this meeting stated the importance of the work done and to be done at WP.29 on vehicle automation. He reported about the working group of Sherpa's that took place in Berlin (Germany) in January 2016, to manage the transition between Germany and Japan for the next G7 Transport Minister meeting in Karuizawa Town on 24-25 September 2016, which would be dedicated to Cyber Security and Privacy in the context of the transport and the automotive sector.

B. Remote Control Parking (RCP)

44. The Chair recalled the RCP demonstration organized during the previous session of GRRF. The expert of Germany explained that the draft "ACSF Category A" may cover the requirements for such systems. GRRF agreed with his proposal to handle this matter together with the agenda item 9(c) on ACSF.

C. Other ITS issues

Documentation: Informal document GRRF-81-30

45. The expert from Japan gave a status report on the activities of the IWG on ITS/AD. He recalled that, since September 2015, two sessions took place in Geneva in November 2015 and that the group: (1) designated the representative of Finland as the IWG on ITS/AD Ambassador to WP.1 and its informal group, (2) continued consideration on the definition of automation levels, (3) would further address cyber security and privacy issues on the basis of guideline proposals tabled by Japan and Germany, (4) exchanged information on the activities at the WP.29 subsidiary bodies and (5) elected Mr. Inomata and Mr. Yarnold as Co-Chairs of the group.

46. The secretariat informed GRRF of the activities of UNECE during the 22nd ITS World Congress that took place in Bordeaux (France) in October 2015. He reported that a ministerial round table (www.unece.org/index.php?id=41175) moderated by the director of the sustainable transport division adopted the Manifesto "ITS for mitigating Climate Change". He added that the UNECE ITS Flagship event co-organised with the French Ministry of Environment (<http://www.unece.org/index.php?id=39185#/>) took place two days after the ministerial round table and that the round table explored ways to implement the vision expressed in the Manifesto.

47. The expert from EC informed (GRRF-81-30) GRRF about the Collaborative ITS (C-ITS) platform report. The secretariat noted that the so-called "Day 1 list" in the report contained mainly systems directly related to road vehicles or indirectly, by interacting with road vehicles through their connectivity. He wondered whether EC would wish to contribute at the World Forum level on these systems. The expert from EC explained that no strategy was decided at this stage but he expected that the type-approval requirements for these vehicle-related systems could be handled by the World Forum, if non-EU Contracting Parties would express their interest in these activities and would wish to contribute.

X. Steering equipment (agenda item 9)

A. Regulation No. 79

Documentation: ECE/TRANS/WP.29/GRRF/2016/20
Informal document GRRF-81-13

48. The expert from CLEPA recalled, on behalf of CLCCR, the proposal ECE/TRANS/WP.29/GRRF/2016/20 previously adopted by GRRF with a scrutiny reservation. CLCCR reviewed the text in square brackets and proposed to delete it as proposed in GRRF-81-13. GRRF adopted the proposal as amended by Annex V to the report and requested the secretariat to submit it together with ECE/TRANS/WP.29/GRRF/2013/13 to WP.29 and AC.1 for consideration at their June 2016 sessions, as Supplement 5 to the 01 series of amendments to Regulation No. 79.

B. Lane Keeping Assist System (LKAS) and Parking Assist System (PAS)

Documentation: (ECE/TRANS/WP.29/GRRF/2015/2 and GRRF-79-04)
Informal documents GRRF-80-08; GRRF-81-14

49. The Chair of GRRF recalled the activities done by the IWG on ACSF and proposed to postpone the discussion on LKAS (ECE/TRANS/WP.29/GRRF/2015/2 and GRRF-79-04) to make sure that the findings of the informal group could be reflected when

working the technical provisions for LKAS. The expert from France recalled that the work on LKAS had a high priority and invited GRRF to reflect on whether a discussion on the submitted documentation should take place at this session. The experts from Germany and OICA agreed that the proposal produced by the SIG on LKAS was of a high quality but noted that some definitions should be aligned with those of ACSF. Therefore, GRRF agreed to defer the discussion to the September 2016 session. GRRF noted that LKAS were considered as discontinuous corrective steering, while ACSF would cover systems similar to LKAS but performing continuously. GRRF agreed that the boundaries of these systems needed clarification. GRRF requested the IWG on ACSF to work on the boundary definitions. GRRF agreed to resume consideration of this item at its next session.

C. Automated Commanded Steering Function (ACSF)

Documentation: Informal documents GRRF-81-18 and GRRF-81-32

50. The expert from Germany, on behalf of the Co-Chairs of the IWG on ACSF, introduced GRRF-81-32 presenting the status of the work done (GRRF-81-18) by the IWG on ACSF. He explained that the IWG was working on the provisions for the proposed five categories of ACSF as well as requirements and testing procedures for the proper assessment of the safety performance of these functions. He clarified that the speed limit for Category E systems would be 130 km/h but that other Categories could work at higher speeds. GRRF endorsed the status report and agreed to resume consideration of this agenda item at its next session.

51. GRRF noted that the ToR of the IWG on ACSF, being submitted for adoption at the March 2016 session of WP.29, were not clearly stating whether the group shall address RCP as an ACSF Category A as drafted by the IWG. Therefore, GRRF requested the IWG to address RCP and requested the secretariat to note this formal request in the session report.

XI. International Whole Vehicle Type Approval (IWVTA) (agenda item 10)

A. Report on the IWVTA informal group and subgroup activities

Documentation: Informal document GRRF-81-19

52. The GRRF Ambassador presented GRRF-81-19 reporting on the activities of the IWG on IWVTA and its subgroups. GRRF noted the progress done by the IWG. GRRF also noted that the pre-testing task force would test procedures related to the draft Regulation No. 0 and that GRRF actions related to IWVTA should ideally be completed by February 2016. The experts noted the work undertaken on the revision of the EU framework Directive and asked to the expert from EC whether it would have an impact on the adoption of the draft Revision 3 to the *1958 Agreement* and on IWVTA. He answered that the process for adoption may be impacted.

B. Regulation on tyre installation

Documentation: ECE/TRANS/WP.29/GRRF/2016/9
Informal document GRRF-81-26

53. The expert from OICA introduced ECE/TRANS/WP.29/GRRF/2016/9 proposing a new Regulation on Tyre Installation. The proposal received some comments to harmonize the provisions with those of the corresponding EU Regulation No. 458/2011

(GRRF-81-26). GRRF adopted the proposal as amended by Annex VI to the report and requested the secretariat to submit the amended proposal to WP.29 and AC.1 for consideration and vote in June 2016.

C. Regulation No. 13-H

Documentation: (ECE/TRANS/WP.29/GRRF/2013/13)
ECE/TRANS/WP.29/GRRF/2016/6
ECE/TRANS/WP.29/GRRF/2016/7
ECE/TRANS/WP.29/GRRF/2016/8
ECE/TRANS/WP.29/GRRF/2016/10
Informal documents GRRF-80-32, GRRF-81-23, GRRF-81-24,
GRRF-81-25

54. The expert from OICA presented ECE/TRANS/WP.29/GRRF/2016/6 removing (as suggested by the IWG on IWVTA) the provisions on ESC and Brake Assist Systems (BAS) from Regulation No. 13-H, taking into consideration the comments received at previous sessions of GRRF as well as the transitional provisions proposed by the expert from UK in ECE/TRANS/WP.29/GRRF/2016/10. He introduced ECE/TRANS/WP.29/GRRF/2016/7 proposing a new Regulation on BAS. He also introduced a proposal for a new Regulation on ESC (ECE/TRANS/WP.29/GRRF/2016/8). After discussion, GRRF agreed on the revised proposals in GRRF-81-23, GRRF-81-24 and GRRF-81-25.

55. GRRF adopted ECE/TRANS/WP.29/GRRF/2016/6 as amended by Annex VII to the report and requested the Secretariat to submit it as well as the adopted proposal in ECE/TRANS/WP.29/GRRF/2013/13 to WP.29 and AC.1 for consideration and vote in June 2016 as draft 01 series of amendments to Regulation No. 13-H

56. GRRF adopted ECE/TRANS/WP.29/GRRF/2016/7 as amended by Annex VIII to the report and requested the Secretariat to submit it to WP.29 and AC.1 for consideration and vote in June 2016.

57. GRRF adopted ECE/TRANS/WP.29/GRRF/2016/8 as amended by Annex IX to the report and requested the Secretariat to submit it to WP.29 and AC.1 for consideration and vote in June 2016.

D. Regulation No. 64 and Tyre Pressure Monitoring System (TPMS)

Documentation: ECE/TRANS/WP.29/GRRF/2016/4
ECE/TRANS/WP.29/GRRF/2016/5
Informal documents GRRF-81-17, GRRF-81-17-Rev.1, GRRF-81-21
and GRRF-81-22

58. The expert from OICA introduced ECE/TRANS/WP.29/GRRF/2016/4 proposing to remove the TPMS requirements from Regulation No. 64 as suggested by the IWG on IWVTA. He presented ECE/TRANS/WP.29/GRRF/2016/5 proposing a new Regulation on TPMS. Following discussion, GRRF agreed on the proposals as amended and reproduced in GRRF-81-21 and GRRF-81-22.

59. The expert from EC proposed amendments (GRRF-81-17) to ECE/TRANS/WP.29/GRRF/2016/5 clarifying that the manufacturer has the obligation to design a TPMS system which shall detect underinflating under a wide range of driving conditions and not only in the conditions of the test procedures in Annex 3 of the Regulation. GRRF adopted with the proposal as amended (GRRF-81-17-Rev.1). GRRF noted that the agreed proposal would not modify the test procedures as described in Annex 3 of the Regulation. The expert from the Russian Federation and some type-

approval authorities raised a question about general provisions in UN Regulations for which no procedure was defined to verify the compliance with these general provisions for manufacturers. GRRF suggested that WP.29 could have a general discussion on the compliance off the test procedures and could provide guidance to the WP.29 subsidiary bodies.

60. GRRF adopted ECE/TRANS/WP.29/GRRF/2016/4 as amended by Annex X of the report and requested the secretariat to submit it to WP.29 and AC.1 for consideration at their June 2016 sessions, as draft 03 series of amendments to Regulation No. 64.

61. GRRF adopted ECE/TRANS/WP.29/GRRF/2016/5 as amended by Annex XI of the report and requested the secretariat to submit it to WP.29 and AC.1 for consideration at their June 2016 sessions.

E. Other business

62. GRRF did not receive any new document to be discussed under this agenda item.

XII. Regulation No. 89 (agenda item 11)

Documentation ECE/TRANS/WP.29/GRRF/2016/21

63. The expert from OICA presented ECE/TRANS/WP.29/GRRF/2016/21 proposing to extend the possibility of actuating the service braking system to vehicles of categories M₂ and N₂ below five tons. The proposal received some comments on possible safety risks. The expert from Switzerland explained that his country, due to specific geographic characteristics, had long roads with significant slopes and that the requirements shall take this specificity into consideration. The expert from OICA stated that, due to speed limiter (90 km/h), fully loaded vehicles of category M₂ of N₂ below five tons would have a smaller kinetic energy than fully loaded vehicles of category N₁ driving at 130 km/h, therefore, the proposal is not introducing any road safety issue. The expert from Denmark noted that a tell-tale could be provided, in combination with the system actuating the service brakes, to make the driver aware of the service brake application. GRRF agreed to continue consideration of this agenda item at September 2016 session of GRRF and invited GRRF to provide evidences that no additional safety risk would be expected if the requested extension would be granted.

XIII. Exchange of views on innovations, automations and self-driving cars (agenda item 12)

Documentation: Informal document GRRF-81-30

64. The expert from EC reported (GRRF-81-30) on Gear 2030, being a high level group consisting of the executives of the European automotive sector, relevant Ministers and Commissioners of the European Commission. He added that one of the goals of the group was to develop a roadmap for highly automated driving, within two years.

65. The expert from Japan informed on the activities in Japan concerning the establishment of a guideline for the so called "dead-man system" bringing automatically a vehicle to a stop, when there is no obvious driver engagement, as the country faced lately severe bus accidents related to drivers' unconsciousness. He explained that the guideline would be aligned with the provisions defined by the IWG on ACSF on the Minimum Risk Manoeuvre.

XIV Any other business (agenda item 13)

A. Highlights of the November 2015 session of WP.29

Documentation: (ECE/TRANS/WP.29/1118)
Informal document GRRF-81-15

66. The secretariat introduced GRRF-81-15 reporting on the highlights of the 167th session of WP.29 relevant for GRRF. For more information, please refer to the session report (ECE/TRANS/WP.29/1118).

B. Any other business

Documentation: Informal document GRRF-81-27

67. The secretariat introduced GRRF-81-27 under agenda item 6 (see para. 28 above).

68. The Chief of the Vehicle Regulations and Transport Innovations Section, Mr. W. Nissler, informed GRPE about the abolishment of four General Service (G) posts within the United Nations Economic Commission for Europe (UNECE) as decided by the UN General Assembly on 23 December 2015. He explained that a G post was abolished in the Vehicle Regulations and Transport Innovations Section since 1 January 2016 due to the immediate retirement of the current incumbent. He hoped that this unfortunate situation would not affect future services to be provided by the section.

C. Tributes

69. Learning that Mr. Jean-Claude Noirhomme (ETRTO) would retire and, therefore, no longer attend the sessions, GRRF acknowledged their considerable contributions to the activities of the group. GRRF wished him a long and happy retirement.

XV. Provisional agenda for the eighty-second session

70. The following provisional agenda was endorsed for the eighty-first session of GRRF, scheduled to be held in Geneva from 20 (starting at 9.30 a.m.) to 23 (concluding at 12.30 p.m.) September 2016¹:

1. Adoption of the agenda.
2. Advanced Emergency Braking Systems (AEBS) and Lane Departure Warning Systems (LDWS).
3. Regulations Nos. 13 and 13-H (Braking):
 - (a) Modular Vehicle Combinations (MVC);
 - (b) Clarifications;
 - (c) Other business.
4. Regulation No. 55 (Mechanical couplings).

¹ GRRF noted that the deadline for submission of official documents to the UNECE secretariat was 24 June 2016, twelve weeks prior to the session.

5. Motorcycle braking:
 - (a) Regulation No. 78;
 - (b) Global technical regulation No. 3.
6. Regulation No. 90 (Replacement brake linings).
7. Tyres:
 - (a) Global technical regulation No. 16;
 - (b) Regulation No. 30;
 - (c) Regulation No. 54;
 - (d) Regulation No. 75;
 - (e) Regulation No. 106;
 - (f) Regulation No. 109;
 - (g) Regulation No. 117;
 - (e) Other business.
8. Intelligent Transport Systems (ITS):
 - (a) Vehicle automation;
 - (b) Remote Control Parking (RCP);
 - (c) Other ITS issues.
9. Steering equipment:
 - (a) Regulation No. 79;
 - (b) Lane Keeping Assist System (LKAS) and Parking Assist Systems (PAS);
 - (c) Automated Controlled Steering Function (ACSF).
10. International Whole Vehicle Type Approval (IWVTA):
 - (a) Report on the IWVTA informal group and subgroup activities;
 - (b) Other business.
11. Regulation No. 89.
12. Exchange of view on innovations and relevant national activities.
13. Election of Officers
14. Other business:
 - (a) Highlights of the March and June 2016 sessions of WP.29;
 - (b) Any other business.

Annex I

List of informal documents (GRRF-81-...) considered during the session

[English only]

<i>No.</i>	<i>(Author) Title</i>	<i>Follow-up</i>
1	(GRRF Chair) Running order	A
2	(GTR on Tyre drafting group) Draft Amend.1 to GTR No. 16 (Tyres)	F
3	(FEMFM) Draft proposal for amendments to Regulation No. 90	F
4	(CLEPA) Proposal for amendments to ECE/TRANS/WP.29/GRRF/2016/22	F
4-	(CLEPA) Revised proposal for amendments to ECE/TRANS/WP.29/2016/22	A
Rev.1		
5-	(CLEPA) Carbon - Ceramic brakes	F
Rev.1		
6	(R55) Proposal for amendments to Regulation No. 55	C
7	(R55) Proposal for amendments to the informal document GRRF-81-06	E
8	(R55) IWG-R55 Finalizing Plan	A
9	(Germany) Proposal to establish an IWG on Mechanical Couplings for Agricultural Vehicles (R55-A)	C
9-	(Germany/Netherlands) Amended proposal to establish an IWG on Mechanical Couplings for	E
Rev.1	Agricultural Vehicles (R55-A)	
10	(Germany) Proposal for a new Regulation No. 55-A (Mechanical Couplings for Agricultural Vehicles)	F
11	(ETRTO) Proposal for amendments to Regulation No. 54	E
12	(ETRTO) Proposal for amendments to Regulation No. 109	C
13	(CLCCR) Proposal for amendments to ECE/TRANS/WP.29/GRRF/2016/20	A
14	(France) Presentation about the French views on ACSF	F
15	(Secretariat) General information and highlights of the November 2015 session of WP.29	F
16	(Secretariat) Updated and consolidated provisional agenda of the 81st session of GRRF (incl. informal documents received until 29/01/2016)	A
17	(EC) Proposal for amendments to ECE/TRANS/WP.29/GRRF/2016/5	F
17-	(Secretariat) Proposal for amendments to ECE/TRANS/WP.29/GRRF/2016/5	A
Rev.1		
18	(ACSF) Draft proposal for amendments to Regulation No. 79 to include ACSF > 10 km/h	E
19	(GRRF Ambassador) Report to GRRF from Ambassador to IWVTA	F
20	(CLEPA) Proposal for amendments to Regulations No. 13	F
20-	(CLEPA) Proposal for amendments to Regulations No. 13	C
Rev.1		
21	(Secretariat) Proposal for amendments to Regulation No. 64	A
22	(Secretariat) Proposal for a new UN Regulation on TPMS	B

<i>No.</i>	<i>(Author) Title</i>	<i>Follow-up</i>
23	(Secretariat) Proposal for amendments to Regulation No. 13-H	A
24	(Secretariat) Proposal for a new Regulation on Brake Assist Systems (BAS)	A
25	(Secretariat) Proposal for a new UN Regulation on ESC	A
26	(Secretariat) Proposal for a new UN Regulation on tyre installation	A
27	(Secretariat) Request for clarification of Regulation No. 90	F
28	(EC) Proposal for amendments to ECE/TRANS/WP.29/GRRF/2015/41	F
28- Rev.1	(Secretariat) Proposal for amendments to ECE/TRANS/WP.29/GRRF/2015/41	A
29	(Italy) Presentation supporting ECE/TRANS/WP.29/GRRF/2016/18	F
30	(EC) The C-ITS deployment platform and the GEAR 2030 roadmap on highly automated vehicles	F
31	(CLEPA) CLEPA position on GRRF-80-06	F
32	(ACSF/Germany) Status report on the activities of the IWG on ACSF	F
33	(Spain) ToR proposal for SIG on Regulation No. 90	A
34	(EC) Proposal for a Supplement to the 01 series of amendments to Regulation No. 55	A

Notes:

- A Endorsed or adopted without amendment.
- B Endorsed or adopted with amendments.
- C Resume consideration on the basis of a document with an official symbol.
- D Kept as reference document/continue consideration.
- E Revised proposal for the next session.
- F Consideration completed or to be superseded.

Annex II

Draft Supplement 6 to the 01 series of amendments to Regulation No. 55

Adopted on the basis of GRRF-81-34

Annex 2, insert item 23., to read:

"23. Remarks:"

Annex 7, paragraph 1.1.4., amend to read:

"1.1.4. When the trailer is not coupled to the towing vehicle, the mounted towing bracket and coupling ball shall not (partly) obscure, within the planes of geometrical visibility, any lighting component (e.g. rear fog lamp) or the space for mounting and the fixing of the rear registration plate of the towing vehicle, unless the installed mechanical coupling device can be removed or repositioned without the use of any tools, except an easily operated (i.e. an effort not exceeding twenty (20) Nm) release key which is carried in the vehicle.

If the installed mechanical coupling device is capable of (partly) obscuring any lighting component and/or space for mounting and the fixing of the rear registration plate of the towing vehicle, this shall be duly noted in the test report and clearly stated under 'Remarks' on the vehicle type approval communication form.

If an alternative location for the space for mounting and the fixing of the rear registration plate of the towing vehicle and/or any lighting device is specified by the vehicle manufacturer in the context of a mechanical coupling device (partly) obscuring either one or both, this shall be duly noted in the test report and clearly stated under 'Remarks' on the vehicle type approval communication form."

Annex III

Draft amendments to Regulation No. 78

Adopted on the basis of GRRF-81-28-Rev.1
(The text below contains amendments to
ECE/TRANS/WP.29/GRRF/2015/41)

Insert new paragraph 5.1.14., to read:

"5.1.14. A means to deactivate the antilock brake system is not permitted.

By derogation, vehicles **which are suitable for off road driving and fitted with a riding mode selector allowing an "off-road" or "all terrain" mode** may be fitted with a single means (e.g. switch, lever, button, menu option) to disable the antilock brake system function, which is only permitted under the following conditions:

- (a) The vehicle is stationary; and
- (b) The disablement of the antilock brake system function shall be the result of a deliberate action by the rider according to one of the following methods:
 - (i) Simultaneous actuation of the antilock brake system on/off switch and the front, rear or combined brake system actuator (brake lever or pedal); or
 - (ii) The actuation of the antilock brake system on/off switch for a minimum of 2 seconds; or
 - (iii) The progression through at least two (2) successive steps or levels of actuation of a rotating knob, a touch panel switch or a menu option selector;
- (c) **Disabling of the antilock brake system function shall only be allowed when the riding mode selector is in the "off-road" or "all terrain" mode; and**
- (d) The antilock brake system function shall be automatically activated after each start-up of the vehicle, except for restarts after unintentional stalling of the engine; and
- (e) The disablement of the antilock brake system function shall be indicated by the activation of symbol B.18 as specified in ISO 2575:2010/Amd1:2011 (ISO 7000-2623) or any other equivalent unequivocal indication of the disabled antilock brake system state. Alternatively the warning lamp referred to in paragraph 3.1.13. shall be continuously activated (i.e. lit or flashing); and
- (f) Prohibition of any software and/or hardware defeat device compromising or allowing to circumnavigate one or more of the requirements set out in points (a) to (f); and
- (g) Instantaneous re-enablement of a functional stage **which complies with anti-lock brake system approval requirements** of the antilock

brake system under all operation modes shall be warranted and shall be demonstrated to the satisfaction of the certification authority (e.g. simple press of a button)."

Paragraph 9., amend to read:

"9. Transitional provisions

- 9.1. As from the official date of entry into force of the ~~03 04~~ series of amendments to this UN Regulation, no Contracting Party applying this UN Regulation shall refuse **to grant or refuse to accept UN type approvals an application for approval** under this UN Regulation as amended by the ~~03-04~~ series of amendments.
- 9.2. As from **1 September 2018**, Contracting Parties applying this UN Regulation shall grant approvals only if the type of vehicle corresponds to the requirements of the UN Regulation as amended by the ~~03-04~~ series of amendments.
- 9.3. **As from 1 September 2021, Contracting Parties applying this Regulation shall not be obliged to accept, for the purpose of national or regional type approval, a vehicle type approved to the preceding series of amendments to this Regulation.**
- 9.4. Notwithstanding the transitional provisions above, Contracting Parties whose application of this UN Regulation comes into force after the date of entry into force of the most recent series of amendments are not obliged to accept **UN type** approvals which were granted in accordance with any of the preceding series of amendments to this UN Regulation."

Annex IV

Draft amendments to Regulation No. 90

Adopted on the basis of GRRF-81-04-Rev.1

Paragraph 5.3.3.1., amend to read:

"5.3.3.1. Geometric requirements

The brake discs or drums shall be identical to the original brake disc or drum in respect to all dimensions, geometric features, **tolerances** and basic design."

Paragraphs 5.3.3.1.1. and 5.3.3.1.2., shall be deleted

Paragraph 5.3.4.1., amend to read:

"5.3.4.1. Geometric requirements

As paragraphs ~~5.3.3.1.1.~~ **5.3.4.1.1** and ~~5.3.3.1.2.~~ **5.3.4.1.2** plus the same interface dimensions.

An interchangeable replacement ..."

5.3.4.1.1. For discs, the following maximum values shall be met:

	M_1, N_1, O_1, O_2	$M_2, N_2,$	M_3, N_3, O_3, O_4
Thickness variation	0.015 mm	0.030 mm	0.040 mm
Cheek thickness variation (for ventilated disc only)	1.5 mm	2.0 mm	2.0 mm
Lateral run-out friction surface	0.050 mm*	0.15 mm*	0.15 mm*
Location bore variation	H9	H9	H9
"Top hat" parallelism	0.100 mm	0.100 mm	0.100 mm
Location face flatness	0.050 mm	0.050 mm	0.050 mm
Friction surface roughness**	3.2 µm	3.2 µm	3.2 µm

* N/A in the case of a floating disc

** Ra-value according to ISO 1302:2002

5.3.4.1.2 For drums, the following maximum values shall be met:

	M_1, N_1, O_1, O_2	$M_2, M_3, N_2, N_3, O_3, O_4$
Radial run-out friction surface	0.050 mm	0.100 mm
Location bore variation	H9	H9
Ovality	0.040 mm	0.150 mm
Location face flatness	0.050 mm	0.050 mm
Friction surface roughness*	3.5 µm	3.5 µm

* Ra-value according to ISO 1302:2002"

Annex V

Amendments to ECE/TRANS/WP.29/GRRF/2016/20

Adopted on the basis of GRRF-81-13 (Deleting the proposed amendment to para. 2.1.1.)

Annex 5,

Paragraph 2.1.1., amend to read:

"2.1.1. The hydraulic lines of hydraulic transmission shall be capable of a burst pressure at least four times the maximum normal service pressure (T) specified by the vehicle manufacturer. Hose assemblies shall comply with ISO Standards 1402:1994, 6605:1986 and 7751:1991.

~~**In the case of steering systems fulfilling the requirements of Annex 7, the hydraulic lines of hydraulic transmission shall be capable of a burst pressure [X] times the maximum normal operating pressure (T) specified by the vehicle manufacturer."**~~

Annex VI

Amendments to ECE/TRANS/WP.29/GRRF/2016/9

Adopted on the basis of GRRF-81-26 (The text below only contains the amendments to ECE/TRANS/WP.29/GRRF/2016/9)

Paragraph 4.2., amend to read:

- "4.2. An approval number shall be assigned to each vehicle type approved; its first two digits (00 for the regulation in its initial form) shall indicate the series of amendments incorporating the most recent major technical amendments made to the regulation at the time of issue of the approval. The same Contracting Party shall not assign the same number to another vehicle type with regard to the installation of its tyres."

Paragraph 5.2.2.3., amend to read:

- "5.2.2.3. The manufacturer shall provide in the vehicle owner's handbook, or by any other communication means in the vehicle the necessary information about replacement tyres load capacity."

Paragraph 5.2.3.3., amend to read:

- "5.2.3.3. The manufacturer shall provide the necessary information about replacement tyres speed capacity in the vehicle owner's handbook or by any other communication means in the vehicle. ."

Paragraph 5.2.5.2., amend to read:

- "5.2.5.2. Every vehicle provided with a temporary-use spare unit or run flat tyres shall comply with the technical and transitional provisions of UN Regulation No. 64 with respect to the requirements concerning the equipment of vehicles with temporary-use spare units and run flat tyres.

If specific precautions have to be taken in order to fit a temporary-use spare unit to the vehicle (e.g. temporary use spare unit is only to be fitted on the front axle and therefore a front standard unit must first be fitted on the rear axle in order to address a malfunction of a rear standard unit) this shall be stated clearly in the vehicle owner's handbook or any other communication means in the vehicle, and compliance with the appropriate aspects of paragraph 5.2.1.3. of this Regulation shall be verified."

Annex VII

Amendments to ECE/TRANS/WP.29/GRRF/2013/6

**Adopted on the basis of GRRF-81-23
(The text below only contains the amendments to
ECE/TRANS/WP.29/GRRF/2016/6)**

Paragraph 5.1.3., amend to read:

"5.1.3. The requirements of Annex 8 shall be applied to the safety aspects of all complex electronic vehicle control systems, including those defined in an independent regulation, which provide or form part of the control transmission of the braking function, included those which utilize the braking system(s) for automatically commanded braking or selective braking.

However, vehicles equipped with systems or functions, including those defined in an independent regulation, which use the braking system as the means of achieving a higher level objective, are subject to Annex 8 only insofar as they have a direct effect on the braking system. If such systems are provided, they must not be deactivated during type approval testing of the braking system."

Paragraph 12, amend to read:

"12. Transitional provisions

12.1. As from 01 September 2018 no Contracting Party applying this UN Regulation shall refuse to grant or refuse to accept type approvals to this regulation as amended by the 01 series of amendments.

12.2. Even after 01 September 2018 Contracting Parties applying this UN Regulation shall continue to accept type approvals granted to the 00 series of amendments to this regulation.

However, Contracting Parties applying this regulation shall not be obliged to accept, for the purpose of national or regional type approval, type approvals to the 00 series of amendments to this UN Regulation for vehicle types not fitted with a Vehicle Stability Function (as defined in Regulation No. 13) or ESC and BAS.

12.3. As from 01 September 2018, Contracting Parties applying this regulation shall grant type approvals only if the vehicle type to be approved meets the requirements of this UN Regulation as amended by the 01 series of amendments.

12.4. Contracting Parties applying this regulation shall not refuse to grant extensions of type approvals for existing types, regardless of whether they are fitted with a Vehicle Stability Function (as defined in UN Regulation No. 13) or ESC and BAS or not, on the basis of the provisions valid at the time of the original approval."

Annex VIII

Amendments to ECE/TRANS/WP.29/GRRF/2016/7

**Adopted on the basis of GRRF-81-24
(The text below only contains the amendments to
ECE/TRANS/WP.29/GRRF/2016/7)**

Paragraph 2.2.2., amend to read:

"2.2.2. Vehicle features which significantly influence the performances of the Brake Assist System (e.g. design of the braking system);"

Paragraph 2.2.3., amend to read:

"2.2.3. The design of the Brake Assist System."

Paragraphs 2.8. to 2.12.2, shall be renumbered as paragraphs 2.3. to 2.7.2

Paragraph 4.2., amend to read:

"4.2. An approval number shall be assigned to each type approved, its first two digits shall indicate the series of amendments incorporating the most recent major technical amendments made to the Regulation at the time of issue of the approval. The same Contracting Party shall not assign the same number to another vehicle type with regard to Brake Assist System."

Annex IX

Amendments to ECE/TRANS/WP.29/GRRF/2016/8

**Adopted on the basis of GRRF-81-25
(The text below only contains the amendments to
ECE/TRANS/WP.29/GRRF/2016/8)**

Paragraph 2.2.2., amend to read:

"2.2.2. Vehicle features which significantly influence the performances of the Electronic Stability Control system (e.g. maximum mass, centre of gravity position, track width, distance between axles, tyres dimension and the design of the braking system);"

Paragraph 2.2.3., amend to read:

"2.2.3. The design of the Electronic Stability Control system."

Paragraph 4.2., amend to read:

"4.2. An approval number shall be assigned to each type approved, its first two digits shall indicate the series of amendments incorporating the most recent major technical amendments made to the regulation at the time of issue of the approval. The same Contracting Party shall not assign the same number to another vehicle type with regard to electronic stability control."

Annex X

Amendments to ECE/TRANS/WP.29/GRRF/2016/4

Adopted on the basis of GRRF-81-21 (The text below only contains the amendments to ECE/TRANS/WP.29/GRRF/2016/4)

Paragraph 4.4.1., footnote 3, to read as follows:

"
³ The distinguishing numbers of the Contracting Parties to the 1958 Agreement are reproduced in Annex 3 to the Consolidated Resolution on the Construction of Vehicles (R.E.3), document ECE/TRANS/WP.29/78/Rev. 4, Annex 3 - www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html"

Paragraphs 12.3. to 12.5., amend to read:

- "12.3. As from 1 September 2018, no Contracting Party applying this UN Regulation shall refuse to grant or refuse to accept UN type approvals under this UN Regulation as amended by the 03 series of amendments.**
- 12.4. Even after 1 September 2018 Contracting Parties applying this regulation shall continue to accept type approvals granted to the 02 series of amendments to this regulation.**
- However, Contracting Parties applying this Regulation shall not be obliged to accept, for the purpose of national or regional type approval, Type Approvals to the 02 series of amendments to this regulation for vehicle types not fitted with Tyre Pressure Monitoring System.**
- 12.5. As from 1 September 2018, Contracting Parties applying this UN Regulation shall grant UN type approvals only if the vehicle type to be approved meets the requirements of this UN Regulation as amended by the 03 series of amendments."**

Note: GRRF clarified, after consultation of the representatives of France and the Russian Federation, that the text in the symbol in paragraph 5.1.4.1. and 5.1.4.1.1. included in the circle shall not be translated in French or Russian.

Annex XI

Amendments to ECE/TRANS/WP.29/GRRF/2016/5

Adoption based on GRRF-81-22 and GRRF-81-17-Rev.1 (The text below only contains the amendments to ECE/TRANS/WP.29/GRRF/2016/5)

Table of contents, Annex 1, Title, amend to read:

"Communication concerning the approval (or refusal or extension or withdraw of approval or production definitely discontinued) of a vehicle type with regard to its equipment with **tyre pressure monitoring system temporary-use-unit**, pursuant to Regulation No. [TPMS]"

Paragraph 2.2., amend to read:

"2.2. "Vehicle **type**" means vehicles which do not differ significantly in such essential aspects as:"

Paragraph 5.1.1., amend to read:

"5.1.1. Any vehicle of categories M₁ up to 3,500 kg and N₁, in both cases with all axles equipped with single tyres, and fitted with a tyre pressure monitoring system complying with the definition of paragraph 2.1.1. shall meet the performance requirements contained in paragraphs 5.1.2. to 5.5.5. below and shall be tested in accordance with Annex 3."

Paragraph 5. to 5.5.5., amend to read:

"5. Specifications and tests

5.1. General

5.1.1. Any vehicle of categories M₁ up to 3,500 kg and N₁, in both cases with all axles equipped with single tyres, and fitted with a tyre pressure monitoring system complying with the definition of paragraph 2.1.1. shall meet the performance requirements contained in paragraphs 5.1.2. to 5.5.5. of this Regulation over a wide range of road and environmental conditions encountered in the Contacting Parties..

5.1.2. The effectiveness of the tyre pressure monitoring system fitted on a vehicle shall not be adversely affected by magnetic or electrical fields. This shall be demonstrated by fulfilling the technical requirements and respecting the transitional provisions of Regulation No. 10 by applying:

- (a) The 03 series of amendments for vehicles without a coupling system for charging the Rechargeable Electric Energy Storage System (traction batteries).
- (b) The 04 series of amendments for vehicles with a coupling system for charging the Rechargeable Electric Energy Storage System (traction batteries).

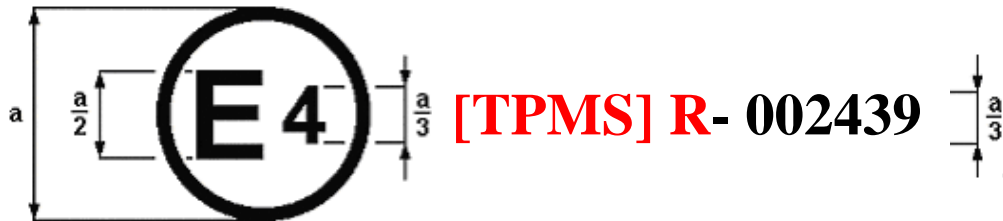
5.1.3. The system shall operate from a speed of 40 km/h or below, up to the vehicle's maximum design speed.

- 5.1.4. The vehicle shall fulfil the tests (puncture, diffusion and malfunction) as specified in Annex 3.
- 5.2. Tyre pressure detection for incident-related pressure loss.
 - 5.2.1. The TPMS shall illuminate the warning signal described in paragraph 5.5. within not more than ten (10) minutes of cumulative driving time after the in service operating pressure in one of the vehicle's tyres has been reduced by twenty (20) per cent or it is at a minimum pressure of 150 kPa, whatever is higher.
- 5.3. Detection for a tyre pressure level significantly below the recommended pressure for optimum performance including fuel consumption and safety
 - 5.3.1. The TPMS shall illuminate the warning signal described in paragraph 5.5. within not more than sixty (60) minutes of cumulative driving time after the in-service operating pressure in any of the vehicle's tyres, up to a total of four tyres, has been reduced by twenty (20) per cent or it is at a minimum pressure of 150 kPa, whatever is higher.
- 5.4. Malfunction detection.
 - 5.4.1. The TPMS shall illuminate the warning signal described in paragraph 5.5. not more than 10 minutes after the occurrence of a malfunction that affects the generation or transmission of control or response signals in the vehicle's tyre pressure monitoring system..
- 5.5. Warning indication.
 - 5.5.1. The warning indication shall be by means of an optical warning signal conforming to Regulation No. 121.
 - 5.5.2. The warning signal shall be activated when the ignition (start) switch is in the "on" (run) position (bulb check). This requirement does not apply to tell-tales shown in a common space.
 - 5.5.3. The warning signal must be visible even by daylight; the satisfactory condition of the signal must be easily verifiable by the driver from the driver's seat.
 - 5.5.4. The malfunction indication may be the same warning signal as the one used to indicate under-inflation. If the warning signal described in paragraph 5.5.1. is used to indicate both under-inflation and a malfunction of the TPMS, the following shall apply: with the ignition (start) switch in the "on" (run) position the warning signal shall flash to indicate a malfunction. After a short period of time the warning signal shall remain continuously illuminated as long as the malfunction exists and the ignition (start) switch is in the "on" (run) position. The flashing and illumination sequence shall be repeated each time the ignition (start) switch is in the "on" (run) position until the malfunction has been corrected.
 - 5.5.5. The tell-tale of the warning described in paragraph 5.5.1. may be used in a flashing mode in order to provide information about the reset status of the tyre pressure monitoring system in accordance with the owner's manual of the vehicle."

Annex 2, amend to read:

"...

(See paragraph 4.4. of this regulation)



a = 8 mm min.

The above approval mark affixed to a vehicle shows that the vehicle type concerned has, with regard to the equipment of a tyre pressure monitoring system, been approved in the Netherlands (E 4), pursuant to Regulation No. [TPMS] under approval number ~~022439~~ **002439**. The approval number indicates that the approval was granted in accordance with the requirements of Regulation No. [TPMS] in its original form."

Note: The number of the Regulation on TPMS will be known after its entry into force. Therefore this number is replaced by [TPMS] for the time being.