


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

Geneva, 15–18 September 2015

**Report of the Working Party on Brakes and Running Gear
on its eightieth session**
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I. Attendance

1. The Working Party on Brakes and Running Gear (GRRF) held its seventy-ninth session from 16 to 20 February 2015 in Geneva. The meeting was chaired by Mr. B. Frost (United Kingdom of Great Britain and Northern Ireland). 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, Canada, 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 European Association of Automotive Suppliers (CLEPA), the European Tyre and Rim Technical Organisation (ETRTO), 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: Bureau International Permanent des Associations de Vendeurs et Réchappeurs de Pneu (BIPAVER) and Imported Tyre Manufacturers Association (ITMA).

II. Adoption of the agenda (agenda item 1)

Documentation: ECE/TRANS/WP.29/GRRF/2015/16 and Add.1
Informal documents GRRF-80-01, GRRF-80-02 and GRRF-80-14

2. GRRF considered the agenda prepared for the eightieth session and adopted it (ECE/TRANS/WP.29/GRRF/2015/16 and Add.1) as updated and reproduced in GRRF-80-02, including all informal documents received until the session's starting date as well as the following addition of a document reference for item 13(c):

Documentation: ECE/TRANS/WP.29/GRRF/2015/44

3. GRRF also adopted the running order for the session as proposed in GRRF-80-01. The informal documents distributed during the session are listed in Annex I of this report.

4. The secretariat introduced GRRF-80-14, announcing that the next GRRF session would take place on 1-5 February 2016 and recalling that the deadline for the submission of official documents would be 6 November 2015.

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

Documentation: ECE/TRANS/WP.29/GRRF/2015/17
ECE/TRANS/WP.29/GRRF/2015/18
Informal documents GRRF-80-23 and GRRF-80-30

5. The expert from OICA, recalling his presentation at the seventy-ninth session of GRRF introduced ECE/TRANS/WP.29/GRRF/2015/17 and ECE/TRANS/WP.29/GRRF/2015/18 proposing useful information to Contracting Parties applying Regulations Nos. 130 and 131 regarding the application of these regulations for specific categories of vehicles. GRRF received the presentation by the expert of CLEPA (GRRF-80-23).

6. GRRF adopted ECE/TRANS/WP.29/GRRF/2015/17 with the amendments below, and requested the secretariat to submit the proposal (together with ECE/TRANS/WP.29/GRRF/2013/13) to WP.29 and AC.1 for consideration at their March 2016 sessions, as Supplement 1 to Regulation No. 130.

For "Introduction (for information)" read "Introduction"

For "As from sixty km/h, the system shall automatically..." read "The system shall automatically..."

7. GRRF adopted ECE/TRANS/WP.29/GRRF/2015/18 as amended by Annex II (based on GRRF-80-30) and requested the secretariat to submit the proposal (together with ECE/TRANS/WP.29/GRRF/2013/13) to WP.29 and AC.1 for consideration at their March 2016 sessions, as Supplement 2 to the 01 series of amendments to Regulation No. 131.

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

A. Electronic Stability Control (ESC)

8. 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. 60).

B. Modular Vehicle Combinations (MVC)

Documentation: Informal document GRRF-80-28

9. The Chair of the informal working group (IWG) on MVC reported (GRRF-80-28) on the activities of the group's recent meetings. He confirmed that the group was reviewing coupling, braking, the stability and steering aspects of MCV as well as on a definition of a Dolly. He announced the following meeting is scheduled on 26-27 October 2015 in Paris. GRRF endorsed the status report.

C. Clarifications

Documentation: ECE/TRANS/WP.29/GRRF/2015/19
ECE/TRANS/WP.29/GRRF/2015/20
(ECE/TRANS/WP.29/GRRF/2013/13)
Informal documents GRRF-80-11, GRRF-80-27 and GRRF-80-39

10. 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 WP.29 and AC.1 of the adopted text for Regulations Nos. 13 (Heavy vehicle braking), 13-H (Brakes of M₁ and N₁ vehicles), 79 (Steering equipment), 89 (Speed limitation devices), 130 (Lane Departure Warning Systems (AEBS)) and 131 (Advanced Emergency Braking System (AEBS)). At this stage, the proposal was incorporated in Regulation No. 13 (see ECE/TRANS/WP.29/2014/3).

11. The expert from Germany introduced ECE/TRANS/WP.29/GRRF/2015/19, as summarized in GRRF-80-27 and containing the proposal drafted by the experts from Germany and the Netherlands about provisions for electromechanical braking systems for towing vehicles and their trailers. The proposal received some comments on aspects related to the energy measurement from the battery and to the warning light concept.

12. The experts from Germany and the Netherlands invited the GRRF experts to a special interest group meeting on Annex 14 of Regulation No. 13 to take place in Bonn (Germany) on 03 November 2015.

13. The expert from Germany presented GRRF-80-39 introducing the proposal for an 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. The proposal received some comments related to possible design restrictions and warning signals. The expert from Germany invited the GRRF experts to a special interested group meeting on the draft Annex 23 of Regulation No. 13 to take place in Bonn (Germany) on 02 November 2015.

14. The expert from Hungary introduced GRRF-80-11 drafted together with the expert from the Netherlands and containing several corrections. GRRF requested the secretariat to distribute this document with an official symbol at the February 2016 session of GRRF.

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

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

E. Other business

Documentation: Informal document GRRF-80-06

16. The expert from China introduced GRRF-80-06 proposing amendments to the provisions related to the test of Brake Assist Systems (BAS) based on the assumption that in some cases the operation trigger point of BAS would not reflect human capacities. The proposal received some comments on possible design restrictions. The experts from CLEPA and OICA agreed to further study the proposal. GRRF agreed to keep GRRF-80-06 on the agenda of the eighty-first session of GRRF.

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

Documentation: ECE/TRANS/WP.29/GRRF/2015/34
ECE/TRANS/WP.29/GRRF/2015/35
ECE/TRANS/WP.29/GRRF/2015/36
Informal documents GRRF-80-29 and GRRF-80-41

17. The Chair of the IWG on Regulation No. 55 introduced ECE/TRANS/WP.29/GRRF/2015/34 ECE/TRANS/WP.29/GRRF/2015/35 and ECE/TRANS/WP.29/GRRF/2015/36 presenting the outcome of the work done by the group and taking into account the comments received at the previous sessions of GRRF.

18. GRRF adopted the proposals, as reproduced Annex III (based on GRRF-80-41), to the report and requested the secretariat to submit them to WP.29 and AC.1 for consideration at their March 2016 sessions, as Supplement 5 to the 01 series of amendments to Regulation No. 55.

19. The Secretary of the IWG on Regulation No. 55 pointed out that the Task Force of Agricultural Couplings were evaluating the possibility of splitting the requirements for agricultural couplings from Regulation No. 55. GRRF requested the group to conclude this

evaluation and to provide a proposal for amendments to the Terms of Reference of the IWG on Regulation No. 55 to be examined by GRRF at its February 2016 session.

20. The expert from EC introduced GRRF-80-29 aimed at addressing the situation where coupling balls are installed right in front of registration plates or rear fog lamps. The proposal received some comments and the expert from EC agreed to submit a revised proposal to the February 2016 session of GRRF.

VI. Motorcycle braking (agenda item 5)

A. Regulation No. 78

Documentation: ECE/TRANS/WP.29/GRRF/2015/21
ECE/TRANS/WP.29/GRRF/2015/41
ECE/TRANS/WP.29/GRRF/2015/42
Informal document GRRF-80-24

21. The expert from IMMA introduced ECE/TRANS/WP.29/GRRF/2015/21 proposing a wording to include Electromagnetic Compatibility requirements in Regulation No. 78. GRRF agreed with the principles of the proposal stating that an approval according to Regulation No. 10 is not a prerequisite for obtaining an approval according to Regulation No. 78. GRRF preferred to harmonise the wording of the proposal with the one in ECE/TRANS/WP.29/GRRF/2013/13 and adopted the proposal as reproduced in 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 03 series of amendments to Regulation No. 78.

22. The expert from EC introduced 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 proposal was accepted in principle as it proposed a harmonization with the corresponding EU directive. As the proposed wording would also affect L₆ and L₇ category vehicles, some experts were of the opinion that transitional provisions would be necessary. The expert from EC volunteered to prepare a revised proposal for the February 2016 session of GRRF.

23. GRRF reviewed ECE/TRANS/WP.29/GRRF/2015/41 and GRRF-80-24 under agenda item 5(b) below.

B. Global Technical Regulation No. 3

Documentation: ECE/TRANS/WP.29/GRRF/2015/40
Informal documents GRRF-80-13, GRRF-80-19 and GRRF-80-25

24. The expert from EC introduced ECE/TRANS/WP.29/GRRF/2015/40 and ECE/TRANS/WP.29/GRRF/2015/41, proposing to clarify the possibility to install means to temporarily reduce or disable the ABS function of motorcycles in certain conditions. The expert from Canada submitted an alternative wording (GRRF-80-19) and recalled that an authorization from the Executive Committee AC.3 for developing an amendment to GTR No. 3 would be required. The proposal received some general comments related to road safety. The expert from IMMA briefly introduced GRRF-80-13 commenting the proposals to which the expert from EC responded (GRRF-80-24 and GRRF-80-25). A majority of experts expressed a specific concern related to condition (f). The expert from EC volunteered to prepare two revised proposals for the September 2015 session of GRRF.

25. The expert from EC introduced GRRF-79-17, proposing to apply to tricycles the existing ABS requirements for PTWs. The proposal was accepted in principle as it proposed a harmonization with the corresponding EU directive. As the proposed wording would also affect other Category 3 vehicles, the expert from EC volunteered to prepare a revised proposal for the February 2016 session of GRRF.

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

Documentation: ECE/TRANS/WP.29/GRRF/2014/23/Rev.2
ECE/TRANS/WP.29/GRRF/2015/22
Informal documents GRRF-80-12, GRRF-80-31 and GRRF-80-37

26. The expert from Italy presented GRRF-80-31, introducing ECE/TRANS/WP.29/GRRF/2014/23/Rev.2 and GRRF-80-37 and proposing requirements for the approval of replacement brake discs for L-category vehicles, taking into consideration the latest technologies available in the market as well as comments received during the previous session of GRRF. GRRF adopted the proposal with the following amendments:

- (a) the proposed transitional provisions (paras 12.1 to 12.6) shall be deleted;
- (b) The note under Table A15/2.9 shall read: "There **are** no groups..."

27. The expert from CLEPA introduced ECE/TRANS/WP.29/GRRF/2015/22 proposing to enable the approval according to Regulation No. 90 of test groups instead of single variants. GRRF adopted the proposal with an amendment below:

In paragraph 4.2.3.(b), *for* "approval document" *read* "communication document"

28. GRRF adopted both proposals as amended 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.

29. The expert from CLEPA introduced 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 from OICA expressed some concerns. The experts from OICA and CLEPA agreed review the proposal together. GRRF requested the secretariat to distribute the proposal with an official symbol for its February 2016 session.

VIII. Tyres (agenda item 7)

A. Global Technical Regulation No. 16

Documentation: (ECE/TRANS/WP29/AC.3/42)
Informal documents GRRF-80-04, GRRF-80-05, GRRF-80-20,
GRRF-80-21 and GRRF-80-22

30. The Chair of GRRF recalled the establishment of GTR No. 16 (Tyres) in the Global Registry, 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 ETRTO reported (GRRF-80-04, GRRF-80-05) and presented the status of the work done by the group of interested experts dealing with this amendment (GRRF-80-20, GRRF-80-21 and GRRF-80-22). GRRF explored the possible wording to be

used to allow Contracting Parties to transpose at their wish some of the optional tests in the GTRs and therefore reviewed the precedent case of GTR No. 7. GRRF experts agreed to send written comments to the group of interested experts and to have a webex meeting in October, so that a formal proposal can be submitted for consideration at the February 2016 session of GRRF.

B. Regulation No. 30

Documentation: ECE/TRANS/WP.29/GRRF/2015/23
ECE/TRANS/WP.29/GRRF/2015/24
ECE/TRANS/WP.29/GRRF/2015/25
Informal documents GRRF-80-07 and GRRF-80-09

31. The expert from ETRTO introduced ECE/TRANS/WP.29/GRRF/2015/23 proposing to amend tyre dimensional requirements in Regulation No. 30. GRRF adopted the proposal with the following correction:

Annex 6, paragraph 1.2.4, amend to read:

"1.2.4. in reinforced tyres: to **2.2 bar** ~~2.3 bar~~;"

32. The expert from ETRTO introduced ECE/TRANS/WP.29/GRRF/2015/24 proposing to amend requirements for the load/speed performance test. GRRF adopted this proposal.

33. GRRF requested the secretariat to submit both adopted proposals above to WP.29 and AC.1 for consideration at their June 2016 sessions, as Supplement 18 to the 02 series of amendments to Regulation No. 30.

34. The expert from France presented GRRF-80-09, introducing the proposal ECE/TRANS/WP.29/GRRF/2015/25 as well as ECE/TRANS/WP.29/GRRF/2015/25 and ECE/TRANS/WP.29/GRRF/2015/31 (see paras 39 and 45 below). GRRF supported the concept but was of the opinion that some clarifications would be necessary e.g. concerning para. 2.1. with the definition of a type. The expert from France volunteered to prepare revised proposals.

C. Regulation No. 54

Documentation: ECE/TRANS/WP.29/GRRF/2015/26
ECE/TRANS/WP.29/GRRF/2015/27
ECE/TRANS/WP.29/GRRF/2015/28
ECE/TRANS/WP.29/GRRF/2015/29
ECE/TRANS/WP.29/GRRF/2015/38
Informal documents GRRF-80-10, GRRF-80-15 and GRRF-80-17

35. The expert from ETRTO introduced ECE/TRANS/WP.29/GRRF/2015/26 proposing to amend the tyre marking requirements. GRRF adopted this proposal.

36. The expert from ETRTO also introduced ECE/TRANS/WP.29/GRRF/2015/28 proposing to amend tyre dimensional requirements in Regulation No. 54. GRRF adopted this proposal.

37. GRRF requested the secretariat to submit both adopted proposals above to WP.29 and AC.1 for consideration at their June 2016 sessions, as Supplement 21 to Regulation No. 54.

38. The expert from ETRTO also introduced ECE/TRANS/WP.29/GRRF/2015/27 as amended by GRRF-80-10 proposing to replace the "PSI index" by the pressure in "kPa". The proposal received several comments e.g. on paragraph 3.1.10. and the use of "may" or

"shall". GRRF agreed to resume consideration of this proposal at its next session on the basis of a revised proposal that the expert from ETRTO volunteered to prepare.

39. The expert from France introduced ECE/TRANS/WP.29/GRRF/2015/29 together with the corresponding document relevant for Regulation No. 30 (see para. 34 above).

40. The expert from the Slovak Republic introduced ECE/TRANS/WP.29/GRRF/2015/38 as amended by GRRF-80-15. GRRF agreed that only proposed minor correction to footnote 2 in Annex 7, Appendix 1 would be relevant. At the request of the Chair of GRRF, the expert from ETRTO agreed to introduce it in its revised proposal for amendments to Regulation No. 54 to be reviewed by GRRF at its February 2016 session.

41. The expert from France introduced 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 distribute this document with an official symbol at the next session of GRRF.

D. Regulation No. 75

Documentation: ECE/TRANS/WP.29/GRRF/2015/30

42. The expert from ETRTO presented ECE/TRANS/WP.29/GRRF/2015/30 proposing to amend the tyre dimensional requirements in Regulation No. 75. GRRF adopted this proposal and requested the secretariat to submit it to WP.29 and AC.1 for consideration at their June 2016 sessions, as Supplement 16 to Regulation No. 75.

E. Regulation No. 106

Documentation: ECE/TRANS/WP.29/GRRF/2015/31

43. The expert from ETRTO presented ECE/TRANS/WP.29/GRRF/2015/30 proposing amendments related to Improved Flexion (IF) tyres and Very high Flexion (VF) tyres avoiding possible misunderstanding for the application of the EC Regulation No. 167/2013 that refers to Regulation No. 106. GRRF adopted this proposal and requested the secretariat to submit both adopted proposal above to WP.29 and AC.1 for consideration at their June 2016 sessions, as Supplement 13 to Regulation No. 106.

F. Regulation No. 109

Documentation: ECE/TRANS/WP.29/GRRF/2015/39
Informal document GRRF-80-16

44. The expert from the Slovak Republic introduced ECE/TRANS/WP.29/GRRF/2015/39 as amended by GRRF-80-16 proposing clarifications for Regulation No. 109. The expert from ETRTO recalled that the proposed clarifications would also be relevant for Regulations Nos. 30 and 54. GRRF agreed to resume consideration of these clarifications on the basis of a revised proposal that the experts from ETRTO and the Slovak Republic volunteered to prepare for the September 2016 session of GRRF.

G. Regulation No. 117

Documentation: ECE/TRANS/WP.29/GRRF/2015/32
Informal document GRRF-80-07

45. The expert from France introduced ECE/TRANS/WP.29/GRRF/2015/32 together with the corresponding document relevant for Regulation No. 30 (see para. 34 above).

H. Other business

46. 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 documents WP.29-166-21

47. The Chair of GRRF presented the guidance document on automated driving proposed by the IWG on ITS/AD and endorsed by WP.29 at its June 2015 session. GRRF agreed to refer this document to the IWG on ACSF.

B. Remote Control Parking (RCP)

Documentation: Informal document GRRF-80-18

48. The expert from OICA invited the experts of GRRF to witness a demonstration of a vehicle equipped with an RCP system, with the driver being out of his car during the parking manoeuvre and controlling the car's motion via a smartphone or a smart key. The experts were presented a well-functioning vehicle equipped with various sensors ensuring safety redundancies. A day before on 16 September 2015, the Ministers of Transport of the G7 Countries witnessed a similar demonstration at their meeting at the Frankfurt Motor Show. In their declaration, the transport ministers of the G7 States and the European Commissioner for Transport stressed that "A key prerequisite for the widespread deployment of innovative and reliable technologies in road transport is that modern vehicle systems are legally permissible and suitable for mass production. Revising, as appropriate, regulations applicable in the G7 states, and those established under the agreements administered by the UN World Forum for the Harmonization of Vehicle Regulations (WP.29) - is of crucial importance."

49. The expert from OICA introduced GRRF-80-18 (i) presenting the system and those Regulations relevant for this system, (ii) concluding that RCP could be type-approved according to Regulations Nos. 79 and 13-H and (iii) in line with the requirements of the 1968 Vienna Convention on road traffic. The expert of GRRF expressed positive comments about the systems and agreed that clarifications should be added in the relevant Regulations to capture the benefits of such systems without compromising safety. The chair recalled that even though correctly type-approved, such system would still be subject to regulations related to the use of road vehicles. He added that the concern related to cyber security should be addressed.

C. Other ITS issues

50. The Chair of GRRF recalled various cases of cyber-attacks ("hacking") disclosed in specialized media which were not only affecting automated driving vehicles but also conventional vehicles. The expert from the Russian Federation agreed that this subject should be reported to WP.29. He recalled that the Working Party on General Safety (GRSG) already manage regulations on the protection of vehicle against unauthorized use (UN Regulations Nos. 18 and 116). The expert from Japan also agreed that WP.29 should

tackle this issue. He added that both the IWGs on ACSF and ITS/AD would have to tackle this issue within their current mandates. He mentioned that special attention would be needed for connected vehicles and especially those allowing "over the air" (OTA) updates. The expert from Germany stated that "eSecurity" is a serious issue and agreed that WP.29 should tackle this matter.

X. Steering equipment (agenda item 9)

A. Regulation No. 79

Documentation: (ECE/TRANS/WP.29/GRRF/2015/8)
 ECE/TRANS/WP.29/GRRF/2015/37
 ECE/TRANS/WP.29/GRRF/2015/43
 ECE/TRANS/WP.29/GRSG/2015/12
 Informal documents GRRF-78-27, GRRF-80-40

51. Referring to GRRF-78-27, the expert from CLEPA, on behalf of CLEPA and OICA, introduced ECE/TRANS/WP.29/GRRF/2015/37 proposing to align the requirements to be met in case of the steering system and the braking system of a vehicle share the same energy source with those of Regulations Nos. 13 and 13-H. GRRF adopted the proposal as reproduced below:

Insert a new paragraph 5.3.1.6., to read:

- "5.3.1.6. **The requirements for the braking performance in paragraphs 5.3.1.4. and 5.3.1.5. above shall not apply if the braking system is such that in the absence of any energy reserve it is possible with the service brake control to achieve the safety requirement for the secondary braking system mentioned in:**
- (a) **Paragraph 2.2. of Regulation No. 13-H, Annex 3 (for M₁-, N₁-vehicles);**
 - (b) **Paragraph 2.2. of Regulation No. 13, Annex 4 (for M₂-, M₃-, N-vehicles)."**

Paragraph 5.3.1.6. (former), renumber as 5.3.1.7.

52. The Secretary of GRSG introduced ECE/TRANS/WP.29/GRSG/2015/12, proposing amendments to Regulation No. 79 related to the recent adoption of a Supplement to Regulation No. 43 introducing Camera-Monitoring-Systems. GRRF adopted the proposal.

53. GRRF requested the secretariat to submit both adopted proposal above 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.

54. The expert from CLEPA introduced on behalf of CLCCR the proposal ECE/TRANS/WP.29/GRRF/2015/43 superseding ECE/TRANS/WP.29/GRRF/2015/8. The proposal received some comments and was amended during the session as reproduced in GRRF-80-40. GRRF agreed with the proposal but preferred to review it again in February 2016 in view of a possible adoption in June 2016 by WP.29 and AC.1.

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

55. 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 agreed to present GRRF-80-08 at the February 2016 session of GRRF. GRRF agreed to resume consideration of this item at its next session.

C. Automated Commanded Steering Function (ACSF)

Documentation: Informal documents GRRF-80-03 and GRRF-80-38

56. The Chair of GRRF recalled that the draft Terms of Reference (ToR) for the IWG on ACSF were endorsed by GRRF and WP.29 but subject to minor amendments. The expert from Germany on behalf of Germany and Japan presented GRRF-80-03 proposing a revised version of the ToR. GRRF adopted the revised terms of reference as reproduced in Annex V to this report.

57. The expert from Germany, on behalf of the Co-Chairs of the IWG on ACSF introduced GRRF-80-38 presenting the status of the work done of the IWG on ACSF. The IWG is proposing five categories of ACSF independently of any automation levels definitions as well as testing procedures for the proper assessment of the safety performance of these functions. GRRF endorsed the status report and agreed to resume consideration of this agenda item at its next session.

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

A. Report on the IWVTA informal group and subgroup activities

Documentation: Informal document GRRF-80-42

58. The GRRF Ambassador presented GRRF-80-42 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 Regulation No. 0 and that GRRF actions related to IWVTA should ideally be completed by February 2016.

B. Regulation on tyre installation

Documentation: Informal documents GRRF-80-26 and GRRF-80-36
(ECE/TRANS/WP.29/GRRF/2014/13
Informal document GRRF-79-08)

59. In absence of new proposals tabled by the expert from OICA, the Chair recalled the purpose of ECE/TRANS/WP.29/GRRF/2014/13 amended by GRRF-79-08 proposing a draft Regulation on tyre installation and that the expert from OICA agreed to table a revised proposal addressing the comments received. The expert from Japan tabled GRRF-80-26 addressing concerns expressed at the seventy-ninth session of GRRF. The expert from EC kindly informed GRRF that the lack of harmonization between the draft UN Regulation and the existing EC Regulation 458/2011 might prevent the EU to apply this regulation. The expert from OICA submitted GRRF-80-36 at the end of the session for review and comments by the experts of GRRF in view of the submission of an official document for the February 2016 session of GRRF.

C. Regulation No. 13-H

Documentation: ECE/TRANS/WP.29/GRRF/2015/33
Informal documents GRRF-80-32

(ECE/TRANS/WP.29/GRRF/2014/10
 ECE/TRANS/WP.29/GRRF/2014/11
 ECE/TRANS/WP.29/GRRF/2014/12
 Informal documents GRRF-79-05, GRRF-79-06 and GRRF-79-07)

60. The expert from the UK recalled, on behalf of the group of interested experts dealing with this matter, the purpose of GRRF-79-05, GRRF-79-06 and GRRF-79-07 superseding official proposals for separate Regulations on Brake Assist Systems (BAS) (ECE/TRANS/WP.29/GRRF/2014/11) and on Electronic Stability Control (ESC) (ECE/TRANS/WP.29/GRRF/2014/12) extracted from Regulation No. 13-H (ECE/TRANS/WP.29/GRRF/2014/10). She then introduced ECE/TRANS/WP.29/GRRF/2015/33 as amended by GRRF-80-32 proposing transitional provisions to make sure that Countries mandating the fitment of ESC or BAS on the basis of the existing text of Regulation No. 13-H would be able to continue to mandate this fitment, unaffected by this extraction. GRRF agreed to reconsider this proposal at its February 2016 session.

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

Documentation: Informal documents GRRF-80-34 and GRRF-80-35
 (ECE/TRANS/WP.29/GRRF/2015/12
 ECE/TRANS/WP.29/GRRF/2015/13
 Informal documents GRRF-79-09, GRRF-79-10 and
 GRRF-79-20-Rev.1)

61. The recalled the purpose of ECE/TRANS/WP.29/GRRF/2015/12 as amended by GRRF-79-09 and ECE/TRANS/WP.29/GRRF/2015/13 as amended by GRRF-79-10 proposing a separate Regulation dedicated to Tyre Pressure Monitoring System (TPMS) and removing from Regulation No. 64 the provisions related to TPMS. No document was submitted before the start of the session. The expert from OICA submitted at the end of the session GRRF-80-34 and GRRF-80-35 for review and comments by the experts of GRRF in view of the submission of an official document for the February 2016 session of GRRF.

E. Other business

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

XII. Exchange of views on innovations, automations and self-driving cars (agenda item 11)

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

XIII. Election of Officers (agenda item 12)

64. In compliance with Rule 37 of the Rules of Procedure (TRANS/WP.29/690 and Amends. 1 and 2), GRRF called for the election of officers on Tuesday afternoon. Mr. Frost (United Kingdom) was unanimously elected Chair of GRRF for the sessions scheduled for the year 2016. Mr. Murai (Japan) was elected Vice-Chair of GRRF for the same period.

XIV Any Other business (agenda item 13)

A. Highlights of the March and June 2015 sessions of WP.29

Documentation: Informal document GRRF-80-14

65. The secretariat introduced GRRF-80-14 reporting on the highlights of the 165th and 166th sessions of WP.29 relevant for GRRF. For more information, please refer to the session reports.

B. Definition and acronyms

Documentation: (Informal documents GRRF-76-03 and GRRF-78-04)

66. The secretariat reported that GRSP was using the abbreviation "VSF" as "Vehicle Seat Fixture" and proposed to stop using "VSF" as "vehicle stability function". GRRF didn't support this idea as "VSF" was not only used as an abbreviation but also VSF is part of an approval mark for certain vehicles type-approved according to Regulation No. 13.

C. Any other business

Documentation: ECE/TRANS/WP.29/GRRF/2015/44
Informal document GRRF-80-33

67. The expert from OICA introduced ECE/TRANS/WP.29/GRRF/2015/44 proposing to extend the possibility of actuating the service braking system as described in Regulation No. 89 to vehicles of categories M₂ and N₂ below 5t. Some experts expressed concerns related to the risk of "hot brakes" phenomena when the (adjustable) speed limitation device would function down hills. The expert from OICA agreed to provide more information about the proposal to be presented at the February 2016 session of GRRF. GRRF agreed to resume consideration on this item at its February 2016 session and requested the secretariat to dedicate an agenda item to Regulation No. 89.

68. The expert from IMMA introduced GRRF-80-33 proposing to allow the optional fitment of Emergency Stopping Signals for motorcycles. GRRF welcomed the idea and agreed to resume consideration of this proposal at its February 2016 session.

D. Tributes

69. Learning that Mr. Masahito Yamashita (JASIC) would no longer attend the sessions, GRRF acknowledged his great cooperation with GRRF and wished him all the best for his new responsibilities.

70. Learning that Mr. Georges Dimitri (ETRTO) would retire and, therefore, no longer attend the sessions, GRRF acknowledged their considerable contributions to the activities of the group. GRRF wished them long and happy retirements.

XV. Provisional agenda for the eightieth session

71. The following provisional agenda was endorsed for the eighty-first session of GRRF, scheduled to be held in Geneva from 1 (starting at 2.30 p.m.) to 5 (concluding at 5.30 p.m.) February 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) Electronic Stability Control (ESC);
 - (b) Modular Vehicle Combinations (MVC);
 - (c) Clarifications;
 - (d) Braking symbols in Regulation No. 121 (Identification of controls, tell-tales and indicators);
 - (e) Other business.
4. Regulation No. 55 (Mechanical couplings).
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 automations;
 - (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).

¹ GRRF noted that the deadline for submission of official documents to the UNECE secretariat was 6 November 2015, twelve weeks prior to the session.

10. International Whole Vehicle Type Approval (IWVTA):
 - (a) Report on the IWVTA informal group and subgroup activities;
 - (b) Regulation on tyre installation;
 - (c) Regulation No. 13-H;
 - (d) Regulation No. 64;
 - (e) Other business.
11. Regulation No. 89.
12. Exchange of view on innovations and relevant national activities.
13. Any other business:
 - (a) Highlights of the November 2015 sessions of WP.29;
 - (b) Any other business.

Annex I

List of informal documents considered during the session

[English only]

Informal documents GRRF-80-...		
No.	(Author) Title	Follow-up
1	(GRRF Chair) Running order	A
2	(Secretariat) Consolidated and updated agenda (incl. the informal documents submitted until 11/09/2015) - updated on 15/09/2015	A
3	(Germany/Japan) Proposal for revised ToR for the IWG on ACSF	A
4	(Russian Federation and ETRTO) Draft amendment to GTR No. 16 (Tyres)	F
5	(Russian Federation and ETRTO) Minutes of the meeting on 25-26 June 2015	F
6	(China) Proposal for amendments to UN Regulation No.13-H	D
7	(France) Amendments to Regulations No. 30, 54 and 117	F
8	(France) Proposal for amendments to GRRF-79-04	D
9	(ETRTO) Proposal for amendments to ECE/TRANS/WP.29/GRRF/2015/23	A
10	(ETRTO) Proposal for amendments to ECE/TRANS/WP.29/GRRF/2015/27	A
11	(Netherlands / Hungary) Proposal for corrigendum to Regulation No. 13	C
12	(CLEPA) Proposal for amendments to Regulations No. 90	C
13	(IMMA) Comments on ECE/TRANS/WP.29/GRRF/2015/40 and ECE/TRANS/WP.29/GRRF/2015/41	F
14	(Secretariat) General information and highlights of the March and June 2015 sessions of WP.29	F
15	(Slovakia) Proposal for amendments to ECE/TRANS/WP.29/GRRF/2015/38	F
16	(Slovakia) Proposal for amendments to ECE/TRANS/WP.29/GRRF/2015/39	F
17	(France) Proposal for an amendment to Regulation No. 54 (Tyres for commercial vehicles and their trailers)	E
18	(OICA) Remote Control Parking (RCP) A safe and comfortable parking solution	F
19	(Canada) Amendment proposal for ECE/TRANS/WP.29/GRRF/40 and /41	F
20	(ETRTO) Draft final report for the draft Amend. 1 to GTR No. 16 (Tyres)	E
21	(ETRTO) Proposal for amendments to Part 1 of GTR No. 16 (Tyres)	E
22	(ETRTO) Proposal for amendments to the Statement of technical rationale and justification part of GTR No. 16	E
23	(CLEPA) Regulation No. 131. AEBS radar sensor mounting position	F
24	(EC) Proposal for amendments to Regulation No. 78	E
25	(EC) Proposal for amendments to GTR No. 3	D
26	(Japan) Proposal for amendments to ECE/TRANS/WP29/GRRF/2014/13 and GRRF-79-08	F
27	(Germany/Netherlands) Summary of the proposal ECE/TRANS/WP.29/GRRF/2015/19	F
28	(MVC) Report from the informal working group on Modular Vehicle Combinations (MVC)	F
29	(EC) Proposal for a Supplement to the 01 series of amendments to Regulation No. 55 (Mechanical couplings)	E
30	(OICA/GRRF) Proposal for amendments to ECE/TRANS/WP.29/GRRF/2015/18	A

<i>No.</i>	<i>(Author) Title</i>	<i>Follow-up</i>
31	(Italy) Presentation introducing ECE/TRANS/WP.29/GRRF/2014/23/Rev.2	F
32	(Experts on TPs) Proposal for amendments to ECE/TRANS/WP.29/GRRF/2015/33	D
33	(IMMA) Presentation on Emergency Stop Signal	F
34	(OICA) Draft (stand-alone) Regulation on TPMS	E
35	(OICA) Draft Regulation No. 64 without TPMS	E
36	(OICA) Draft Regulation on Tyre Installation	E
37	(Italy) Proposal for a Supplement to Regulation No. 90	A
38	(ACSF/Germany) Status report of the IWG on ACSF	A
39	(Germany) Proposal for a new Annex 23 in Regulation No. 13	F
40	(CLCCR) Consolidated version including the amendments to ECE/TRANS/WP.29/GRRF/2015/43 agreed by GRRF	A*
41	(R55) Consolidated version including the amendments to ECE/TRANS/WP.29/GRRF/2015/35 agreed by GRRF	A
42	(GRRF Ambassador) Report to GRRF from the GRRF Ambassador	F

Notes:

- A Endorsed or adopted without amendment.
- A* Endorsed, subject to revision in February 2016
- 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

Adopted amendments to Regulation No. 131

These amendments are based on GRRF-80-30

Introduction, amend to read (including the addition of new references to the existing Footnote 1):

"Introduction (for information)

The intention of this Regulation is to establish uniform provisions for advanced emergency braking systems (AEBS) fitted to motor vehicles of the categories M₂, M₃, N₂ and N₃¹ primarily used under **monotonous** highway **driving** conditions.

While, in general, those vehicle categories will benefit from the fitment of an advanced emergency braking system, there are sub-groups where the benefit is rather uncertain because they are primarily used in other conditions than highway conditions (e.g. buses with standing passengers i.e. Classes I, II and A¹, **category G vehicles¹, construction vehicles, etc.**). Regardless from the benefit, there are other sub-groups where the installation of AEBS would be technically difficult **or not feasible** (e.g. position of the sensor on vehicles of category G¹, **construction vehicles mainly used in off-road areas and gravel tracks, and special purpose vehicles and vehicles with front mounted equipment, etc.**). **In some cases if there may be is a possibility of false emergency braking event because of vehicle design constraints, compliance with mandatory fitment of AEBS should be waived.**

In addition, systems intended for vehicles not equipped with a pneumatic rear-axle suspension require the integration of advanced sensor technology to take into account the variation of the pitch angle of the vehicle. ~~Contracting Parties wishing to apply this Regulation to these vehicles should provide adequate time for this.~~

The system shall automatically detect a potential forward collision, provide the driver with a warning and activate the vehicle braking system to decelerate the vehicle with the purpose of avoiding or mitigating the severity of a collision in the event that the driver does not respond to the warning.

...

"

Annex III

Adopted proposal for a Supplement to Regulation No. 55

These amendments are based on GRRF-80-41

Paragraph 2.5., amend to read:

"2.5. non-standard miscellaneous mechanical coupling devices and components do not conform to standard dimensions and characteristic values as given in this Regulation and cannot be connected to standard coupling devices and components. ~~They~~ These ~~include, for example, are~~ devices which do not correspond with any of the Classes A to L, ~~or T or W~~ listed in paragraph 2.6. ~~such as those~~ **and are** intended for special, heavy transport use **or** miscellaneous devices conforming to existing national standards."

Paragraph 2.6.12., amend to read:

"2.6.12. Class S Devices and components which do not conform to any of the Classes A to L, ~~or T or W~~ **above** and which are used, ~~for example,~~ for special heavy transport or are devices unique to some countries and covered by existing national standards."

Add a new paragraph 2.6.14., to read:

"**2.6.14. Class W Non-standard miscellaneous, automatic drawbar coupling clevis type, including its adapted trailer part, with an integrated automated electric and pneumatic connector between the towing vehicle and towed vehicle. The both mechanical parts shall be approved as a matched pair.**"

Paragraph 2.9., amend to read:

"2.9. Remote indicators are devices and components which give an indication ~~in the vehicle cab~~ that coupling has been affected and that the locking devices have **been positively** engaged."

Paragraph 3.2.8., amend to read:

"3.2.8. in the case of a mechanical coupling device or component designed for a specific vehicle type, the manufacturer of the device or component shall also submit the installation data, **according to Annex 2, Appendix 1**, given by the vehicle manufacturer. The approval authority or technical service may also request that a vehicle representative of the type be submitted."

Paragraph 4.7., amend to read:

"4.7. For devices and components of Class A, **Class K** or Class S, if applicable, for use with trailers of maximum permissible mass not exceeding 3.5 tons, and which are produced by manufacturers not having any association with the vehicle manufacturer and where the devices and components are intended for fitting in the after-market, the height and other installation features of the coupling shall, in all cases, be verified by the type approval authority or technical service in accordance with Annex 7, [paragraph 1]."

Paragraph 5.1., amend to read:

"5.1. Where a vehicle manufacturer applies for approval of a vehicle fitted with a mechanical coupling device or component or authorizes the use of a vehicle

for towing any form of trailer, then, at the request of a bona fide applicant for possible type approval for a mechanical coupling device or component, or of the type approval authority or technical service of a Contracting Party, the vehicle manufacturer shall readily make available to that inquirer or authority or technical service, such information as required in ~~paragraph 5.3. below~~ **Annex 2, Appendix 1**, to enable a manufacturer of a coupling device or component to properly design and manufacture a mechanical coupling device or component for that vehicle. At the request of a bona fide applicant for possible type approval for a mechanical coupling device or component, any information given in ~~paragraph 5.3. below~~ **Annex 2, Appendix 1** which is held by the type approval authority shall be released to that applicant."

Paragraph 5.3., amend to read:

- "5.3. It shall be accompanied by the following information to enable the type approval authority to complete the communication form given in Annex 2.
- 5.3.1. a detailed description of the vehicle type **according to Annex 2, Appendix 1** and of the mechanical coupling device or component and, at the request of the type approval authority or technical service, a copy of the approval form for the device or component;"

Paragraphs 5.3.2. and 5.3.2.1. shall be delete.

Paragraph 13., amend to read:

- "13.1. Until the United Nations Secretary-General is notified otherwise, Contracting Parties applying this Regulation that are Member States of the European Union declare that, in relation to mechanical coupling devices and components, they will only be bound by the obligations of the Agreement to which this Regulation is annexed with respect to such devices and components intended for vehicles of categories other than M₁.
- 13.2. **As from the official date of entry into force of Supplement 5 to the 01 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 according to Supplement 5 to the 01 series of amendments.**
- 13.3. **Until twelve months after the date of entry into force of the Supplement 5 to the 01 series of amendments], Contracting Parties applying this UN Regulation can continue to grant UN type approvals the 01 series of amendments to this UN Regulation without taking into account the provisions of Supplement 05. "**

Annex 1,

Paragraphs 10. and 11., amend to read:

- "10. Instructions for the attachment of the coupling device or component type to the vehicle and photographs or drawings of the mounting points (see **Annex 2, Appendix 1**) given by the vehicle manufacturer:
.....
.....
- 11. Information on the fitting of any special reinforcing brackets or plates or spacing components necessary for the attachment of the coupling device or component (see **Annex 2, Appendix 1**):
.....
....."

Annex 2,

paragraphs 8. and 9., amend to read:

- "8. Instructions for the attachment of the coupling device or component type to the vehicle and photographs or drawings of the mounting points (see **Appendix 1 to this Annex**):
.....
.....
- 9. Information on the fitting of any special reinforcing brackets or plates or spacing components necessary for the attachment of the coupling device or component (see **Appendix 1 to this Annex**):
.....
....."

Insert new Appendix 1, to read:

"Annex 2 – Appendix 1 *

List of installation data for a mechanical coupling device or a component designed for a specific vehicle type

- 1. Description of the vehicle type:**
 - 1.1. Trade name or mark of the vehicle,**
 - 1.2. Models or trade names of vehicles constituting the vehicle type, if available.**
- 2. Masses of the towing and towed vehicles:**
 - 2.1. maximum permissible masses of the towing and towed vehicles,**
 - 2.2. the distribution of the maximum permissible mass of the towing vehicle between the axles,**
 - 2.3. the maximum permissible vertical loading to be imposed on the coupling ball/hook of the towing vehicle,**
 - 2.4. the loading condition at which the height of the tow ball of M1 category vehicles is to be measured - see paragraph 2. of Annex 7, Appendix 1.**
- 3. Specification of fixing points:**
 - 3.1. Details and/or drawings of the installation mounting points for the device or component and of any additional reinforcing plates, support brackets and so on, necessary for reliable attachment of the mechanical coupling device or component to the towing vehicle,**
 - 3.2. The vehicle manufacturer shall specify:**
 - (a) the number and location of the fixing points of the coupling device on the motor vehicle;**
 - (b) the maximum permissible overhang of the coupling point;**

* On the request of (an) applicant(s) for a mechanical coupling device or component designed for a specific vehicle type, the information shall be provided by the vehicle manufacturer either directly or via the type approval authority as listed in this Annex 2 which has issued the approval according to ECE R55 if available. In this last case, the vehicle manufacturer shall beforehand communicate to the coupling device manufacturer the approval number certificate corresponding to its request.
However, this information shall not be provided for purposes other than UN Regulation No. 55 approvals.

- (c) the height of the coupling point above the road surface as specified in Annex 7, paragraph 1.1.1. and the height of the coupling point in relation to the fixing points of the coupling.

3.3. For every fixing point the following shall be specified (if applicable):

- (a) The location of each hole to be drilled in the chassis or the body of the vehicle (specification of the maximum diameter to be drilled);
- (b) The location and size of pre-drilled holes (specification of the diameter of the hole);
- (c) The location and size of captive nuts or bolts (specification of the thread size, quality);
- (d) The material to be used for attachment (e.g. securing bolts, washers etc.);
- (e) Any additional mounting point to be used for the attachment of coupling devices (e.g. the towing eye);
- (f) The specification of the dimensions shall be specified with an accuracy of at least $\pm 1\text{mm}$;
- (g) The vehicle manufacturer may specify other specifications with regard to the fitting of the coupling device (e.g. size and thickness of back plates).

4. Vehicle manufacturer's name and address."

Annex 4,

Table 1, amend to read:

Description of mechanical coupling device or component	Relevant characteristic values to be marked					
	Class	D	D _c	S	U	V
Coupling balls and towing brackets – see Annex 5 para. 1 of this regulation	★	★		★		
Coupling heads	★	★		★		
Drawbar couplings	★	★	★	★		★
Drawbar eyes ^{**}	★	★	★	★		★
Drawbars [*]	★	★	★	★		★
Drawbeams	★	★	★	★		★
Fifth wheel couplings	★	★			★	
Fifth wheel pins	★	★				
Fifth wheel mounting plates	★	★			★	
Hook type couplings	★	★	★	★		★

*

Hinged drawbars shall in addition have the Av-value marked on the type plate

** For coupling devices or components which belong to more than one class, the relevant characteristic values of each class shall be specified."

Annex 5,

Paragraph 1.2., amend to read:

- "1.2. The shape and dimensions of towing brackets shall meet the requirements of the vehicle manufacturer concerning the attachment points and additional mounting devices or components ~~if necessary~~, see Annex 2, Appendix 1."

Insert new paragraph 12., to read:

- "12. Drawbar type couplings - class w
- 12.1.1. Class W couplings shall as part of an automated sequence of actions automatically mechanically connect the two vehicles and establish the electric and pneumatic braking transmission connection.
- 12.1.2. Class W couplings shall, as part of an automated sequence of actions, automatically break the electric and pneumatic braking transmission connection and mechanically disconnect the two vehicles.
- 12.2. Class W couplings shall satisfy the relevant test requirements given in Annex 6, paragraph 3.3., with the exception of paragraph 3.3.4. The closure and any locking devices shall be tested by means of a static force of 0.25 D acting in the direction of opening. The test shall not cause the closure to open. The locking device shall be fully functional after the test. A test force of 0.1 D is sufficient in the case of cylindrical coupling pins.
- 12.3. The following minimum and simultaneous angles of articulation shall be possible with the coupling not fitted to a vehicle but assembled, coupled, and in the same normal position as when fitted to a vehicle:
- 12.3.1. $\pm 90^\circ$ horizontally about the vertical axis;
- 12.3.2. $\pm 20^\circ$ vertically about the horizontal transverse axis;
- 12.3.3. $\pm 25^\circ$ axial rotation about the horizontal longitudinal axis.
- 12.4. Class W coupling equipped with a remote control shall fulfil requirements of paragraph 13. of this Annex.
- 12.5. Class W coupling shall have a remote indication according to paragraph 13. of this Annex."

Renumber former paragraphs 12. to 12.3.7. as 13. to 13.3.7.

Renumbered paragraph 13.2.1., amend to read:

- "13.2.1. For an automatic coupling procedure, remote indication devices shall indicate the closed and doubly locked position of the coupling in an optical manner according to paragraph 13.2.2. Additionally the open position may be indicated. **In this case, the indication shall be performed** as in paragraph 13.2.3.

The remote indication device shall be automatically activated and reset during every opening and closing of the coupling."

Renumbered paragraph 13.2.9., amend to read:

- "13.2.9. ~~The operating controls and indicators of the remote indication devices shall be mounted within the driver's field of vision and be permanently and clearly identified.~~

When installed in the vehicle cab, the remote indication devices shall be mounted within the driver's direct field of vision, and be clearly identified.

When installed on the side of the vehicle, the remote indication devices shall be permanently and clearly identified."

Renumbered paragraph 13.3.1., amend to read:

"13.3.1. If a remote control device, as defined in paragraph 2.8. of this Regulation, is employed, there shall also be a remote indication device as described in paragraph 13.2. ~~which shall at least indicate the open condition of the coupling.~~"

Renumbered paragraph 13.3.7., amend to read:

"13.3.7. The ~~operating controls and indicators for the~~ remote control devices shall be permanently and clearly identified."

Annex 6,

Paragraph 3.1.3., amend to read:

"3.1.3. The positions of the fixing points for attaching the coupling ball and towing bracket are specified by the vehicle manufacturer (see **Annex 2, Appendix 1** ~~paragraph 5.3.2.~~ of this Regulation)."

Paragraph 3.4.2., amend to read:

"3.4.2. Toroidal eyes of Class L shall be tested ~~in the same manner as standard drawbar eyes~~ as described in paragraphs 3.4.2.1. and 3.4.2.2.

3.4.2.1. They shall be submitted to a pulsating test in the configuration of mounting equivalent to the vehicle installation. The test shall be performed by using the Class K coupling. Alternatively the coupling device may be replaced by a jig representing the same environment with the agreement of the Type Approval Authority or Technical Service.

3.4.2.2. They shall be subjected to a dynamic testing as described in paragraph 3.4.1. in respect to the corresponding characteristic values of the coupling device Class K specified by the manufacturer."

Paragraph 3.5.2., amend to read (with formula for $F_{hs\ res}$ to be deleted):

"3.5.2. Dynamic test:

3.5.2.1. The dynamic test shall be a pulsating test using a Class L toroidal eye and with the coupling mounted as it would be on a vehicle and with all of the necessary parts for vehicle installation. However, any flexible components may be neutralized with the agreement of the type approval authority or technical service;

3.5.2.2. ~~For hHook type couplings intended for use with hinged drawbar trailers, where the imposed vertical load on the coupling, S, is zero, the test force shall be applied in a horizontal direction simulating a tensile force on the hook and varying between 0.05 D and 1.00 D. shall be tested in the same manner as described in paragraph 3.3.2.~~

3.5.2.3. ~~For hHook type couplings intended for use with center axle trailers ($S > 0$): the test force shall represent the resultant of the horizontal and vertical forces on the coupling and shall be applied along an angle, α , that is, from top front to bottom rear (see Figure 21), and equivalent to the calculated angle of the resultant between the horizontal and vertical forces on the coupling. The force, $F_{hs\ res}$ shall be calculated as:~~

$$F_{hs\ res} = \sqrt{F_h^2 + F_s^2}, \text{ where } F_h = D_c \text{ and } F_s = \frac{9.81S}{1000} + 0.8V.$$

3.5.2.3.1. Hook type couplings intended for use with centre axle trailers ≤ 3.5 tons shall be tested in the same way as described in 3.1 of this annex.

3.5.2.3.2. Hook type couplings intended for use with centre axle trailers above 3.5 tons shall be tested in the same way as described in paragraph 3.3.3.2 of this annex."

Delete paragraph 3.5.2.4.

Paragraph 3.6.3., amend to read:

"3.6.3. In the case of steered axles, the resistance to bending shall be verified by theoretical calculations or by a bending test. A horizontal, lateral static force shall be applied in the center of the coupling point. The magnitude of this force shall be chosen so that a moment of $0.6 \times A_v \times g$ (kNm) is exerted about the front axle center. The permissible stresses shall be in accordance with paragraph 5.3. of ISO 7641/1:1983.

~~However, in the case where the steered axles form a twin, tandem, axle front carriage (steered bogie) the moment shall be increased to $0.95 \times A_v \times g$ (kNm)."~~

Annex 7,

Paragraph 1.1., amend to read:

"1.1. Attachment of coupling balls, **hook couplings** and towing brackets

1.1.1. Coupling balls, **hook coupling** and towing brackets shall be attached to vehicles of categories M₁, M₂ (below 3.5t maximum permissible mass) and N1 1/ in a manner which conforms to the clearance and height dimensions given in Figure 25. The height shall be measured at the vehicle loading conditions given in appendix 1 to this annex.

The height requirement shall not apply in the case of category G off-road vehicles as defined in Annex 7 of the Consolidated Resolution on the Construction of Vehicles (R.E.3) ~~(document TRANS/WP.29/78/Rev.1/Amend.2).~~

1.1.1.1. The clearance space shown in Figures 25a and 25b may be occupied by non-demountable equipment, such as a spare wheel, provided that the distance from the **centre** of the ball **or the centre of the hook** on a vertical plane at the extreme rearmost point of the equipment does not exceed ~~300 mm~~ **250 mm**. The equipment shall be mounted to allow adequate access for coupling and uncoupling without risk of injury to the user and without affecting articulation of the coupling.

1.1.2. For coupling balls **or hook coupling** and towing brackets the vehicle manufacturer shall supply mounting instructions and state whether any reinforcement of the fixing area is necessary (see **Annex 2, Appendix 1** ~~paragraph 5.3.2.~~ of this Regulation).

1.1.3. It shall be possible to couple and uncouple ball couplings/**hook coupling** when the longitudinal axis of the ball coupling/**hook coupling** in relation to the center line of the coupling ball/**hook coupling** and mounting:

is rotated horizontally 60° to right or left, ($\beta = 60^\circ$, see Figure 25);

is rotated vertically 10° up or down ($\alpha = 10^\circ$, see Figure 25);

is rotated axially 10° to right or left.

1.1.4. When the trailer is not coupled to the towing vehicle, the mounted towing bracket and coupling ball/**hook coupling** shall not obscure the mounting space provided for the rear registration plate or affect the visibility of the rear registration/ license plate of the towing vehicle. If the coupling ball/hook

coupling or other items do obscure the rear registration plate they shall be removable or repositionable without the use of tools except, for example, an easily operated (i.e. an effort not exceeding 20 Nm) release key which is carried in the vehicle.

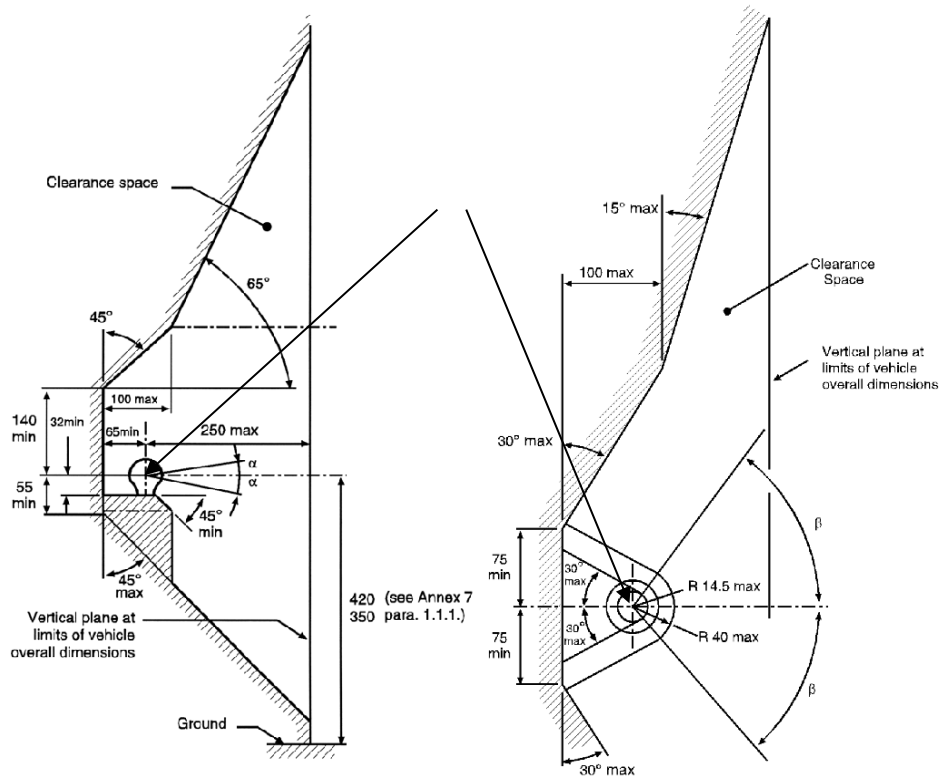


Figure 25 a

Figure 25 b"

Paragraph 1.2., amend to read:

"1.2. Attachment of coupling heads **or toroidal drawbar eyes**.

1.2.1. Class B coupling heads are permitted for trailers of maximum mass up to and including 3.5 tons.

With the trailer horizontal and carrying the maximum permitted axle load, coupling heads or **toroidal drawbar eyes** shall be fitted so that the center line of the spherical area into which the ball fits is 430 ± 35 mm above the horizontal plane on which the wheels of the trailer rest.

In the case of caravans and goods trailers, the horizontal position is regarded as when the floor or loading surface is horizontal. In the case of trailers without such a reference surface (e.g. boat trailers or similar) the trailer manufacturer shall give an appropriate reference line defining the horizontal position. The height requirement shall apply only to trailers intended to be attached to vehicles mentioned in paragraph 1.1.1. of this annex. In all cases the horizontal position shall be determined to within $\pm 1^\circ$.

1.2.2. It shall be possible to operate the coupling heads/ **toroidal drawbar eyes** safely within the free space of the coupling ball/**hook coupling** given in figures 25a and 25b, up to angles of $a = 25^\circ$ and $b = 60^\circ$.

- 1.2.3. The design of the drawbar including the coupling head/**toroidal drawbar eyes** for use on O1 and O2 center axle trailers shall be such as to prevent the coupling head/**toroidal drawbar eyes** from digging into the ground in the event of separation from the main coupling."

Paragraph 1.3.4., amend to read:

- "1.3.4. Minimum angle for coupling up and uncoupling

Coupling and uncoupling of the drawbar eye shall be possible when the longitudinal axis of the drawbar eye in relation to the center line of the jaw is simultaneously rotated:

50° horizontally to right or left;

6° vertically up or down;

6° axially to right or left.

This requirement shall also apply to Class K hook type couplings **for vehicles having maximum permissible mass above 3.5t.**"

Annex IV

Adopted amendments to Regulation No. 78

Insert new paragraph 5.1.14., to read:

- "5.1.14. The effectiveness of the braking systems, including the anti-lock system, 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 Energy Storage System (traction batteries).
 - (b) The 04 series of amendments for vehicles with a coupling system for charging the Rechargeable Energy Storage System (traction batteries)."

Annex V

Adopted revised terms of reference for the IWG on ACSF

I. Terms of Reference

1. The informal group shall review the requirements and limitations associated with **Automatically Commanded Steering Function technology (ACSF)** as defined in Regulation No. 79. It shall prepare a draft regulatory proposal regarding advances in control system technology and the transport opportunities provided by the Vienna and Geneva Conventions.
 2. The informal group shall address the following issues:
 - a. Review the current speed limitation (10 km/h) with the purpose of permitting ACSF functionality during interurban journeys.
 - b. Define Human Machine Interface (HMI) requirements for communicating between ACSF-system and the driver (e.g. system status, malfunction, transition).
 - c. Define requirements to enable the evaluation of ACSF during periodic technical inspection.
- Constraints:
- The driver shall be able to activate and deactivate the system.
 - The driver shall, at all times, be able to override the system.
3. The group will focus on systems for vehicles of categories N and M.
 4. The group should take full account of existing data and research in developing its regulatory proposals. It should consider pre-existing standards (e.g. ISO, SAE and JSAE) and Regulations from other territories for ACSF developing its proposals.
 5. Draft regulatory texts should be submitted to the eighty-first session in February 2016.
 6. The target completion date for the informal group's work shall be the eighty-second session of GRRF in September 2016.
 7. A final decision on regulatory proposals rests with WP29 and the Contracting Parties.

II. Rules of Procedure

1. The informal group is a sub group of GRRF, and is open to all participants of GRRF.
2. Two Co-Chairs and a Secretary will manage the informal group.
3. The official language of the informal group will be English.
4. All documents and/or proposals must be submitted to the Secretary of the group in a suitable electronic format in advance of the meeting. The group may refuse to discuss any item or proposal which has not been circulated [ten] working days in advance.
5. An agenda and related documents will be circulated to all members of the informal group in advance of all scheduled meetings.
6. Decisions will be reached by consensus. When consensus cannot be reached, the chairman of the group shall present the different points of view to GRRF. The chairman may seek guidance from GRRF as appropriate.

7. The progress of the informal group will be routinely reported to GRRF – wherever possible as an informal document and presented by the chairman or his representative.
 8. All documents shall be distributed in digital format. Meeting documents should be made available to the Secretary for publication on the dedicated website.
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