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**ECONOMIC COMMISSION FOR EUROPE**

INLAND TRANSPORT COMMITTEE

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

Working Party on Noise (GRB)

REPORT OF THE WORKING PARTY ON NOISE (GRB)  
ON ITS THIRTY-FIFTH SESSION

(13 and 14 September 2001)

ATTENDANCE

1. GRB held its thirty-fifth session on 13 and 14 September 2001, under the chairmanship of Mr. H. Löffelholz (Germany). Experts from the following countries participated in the work, following Rule 1(a) of the Rules of Procedure of WP.29 (TRANS/WP.29/690): Czech Republic; France; Germany; Hungary; Italy; Japan; Netherlands; Norway; Poland; Russian Federation; Slovakia; Spain; Switzerland; United Kingdom; United States of America; Yugoslavia. A representative of the European Commission (EC) participated. Experts from the following non-governmental organizations took part in the session: International Organization for Standardization (ISO); International Organization of Motor Vehicle Manufacturers (OICA); International Motorcycle Manufacturers Association (IMMA); European Association of Automotive Suppliers (CLEPA); European Tyre and Rim Technical Organization (ETRTO).

2. The documents without a symbol distributed during the session are listed in annex 1 to this report.

PROPOSED NEW DRAFT REGULATION CONCERNING THE TYRE ROLLING SOUND EMISSION

Documentation: TRANS/WP.29/GRB/2000/4; TRANS/WP.29/GRB/2000/4/Add.1; TRANS/WP.29/GRB/2001/3; informal documents Nos. 3, 4, 5 and 10 of annex 1 to this report.

3. The Chairman informed GRB that EC Directive 2001/43/EC had been published (informal document No. 5) and proposed to align the proposed draft Regulation (TRANS/WP.29/GRB/2000/4 and Add.1 and TRANS/WP.29/GRB/2001/3) with its provisions. Considering the tyre sound emission limits in the Directive, GRB agreed to align the proposed draft Regulation with the "A" limit values only, because the values for "B" and "C" limits (years 2008 and 2009) were indicative and might be modified by practical experience with the "A" limits. It was made clear that when the final values were known, the "B" and "C" limits would be introduced appropriately as a new series of amendments to the Regulation.

4. Concerning the scope of the proposed Regulation, GRB agreed to specify, in parallel with the EC Directive, that it should apply to newly manufactured tyres intended for fitting to vehicles manufactured on or after 1 October 1980 (see para. 1.1. in annex 2 to this report). This provision was considered sufficient with respect to excluding of tyres used as replacements for collection vehicles (e.g. classic or vintage). Some additional amendments were agreed for documents TRANS/WP.29/GRB/2000/4 and Add.1 and are also reproduced in annex 2 to this report.

5. The expert from ISO informed GRB that, also in ISO/TC 31, the work had been completed and the Coast-by method for measurement of tyre/road sound emission issued as ISO/DIS 13325, for which the voting should terminate on 3 October 2001. He confirmed that this ISO Draft International Standard was identical with informal document No. 4.

6. Recalling his commitment (TRANS/WP.29/GRB/32, para. 9) and the consultation with ETRTO, the expert from the United Kingdom tabled informal document No. 10, proposing a test report (annex 3 - appendix) for the proposed draft Regulation. GRB considered the proposal and adopted some modifications. The adopted version of informal document No. 10 is reproduced in annex 2 to this report.

7. The expert from the United Kingdom gave a presentation of results of several research projects (informal document No. 3) aimed at improving understanding of traffic noise, road surface influence, and the possibilities for its attenuation. He said that the findings and conclusions should be understood as a background for the future consideration of more restrictive tyre rolling emission limits and did not attempt to represent a position of the Government of his country.

8. During the discussion, the question of retreaded tyres was raised, in particular for commercial vehicles. GRB noted that, in the actual operation, approximately 60 per cent of trucks and 80 per cent of trailers run on retreaded tyres. Although difficulties were recognized, GRB considered it a future challenge to subject retreaded tyres also to the rolling sound limitation.

9. Concluding the consideration of the proposed draft Regulation, GRB invited the secretariat to consolidate documents TRANS/WP.29/GRB/2000/4 and Add.1 with TRANS/WP.29/GRB/2001/3 and the amendments agreed during the session, which are reproduced in annex 2 to this report. For the introductory provisions of TRANS/WP.29/GRB/2001/3, GRB agreed to base them on EC Directive 2001/43/EC. In order to save time, GRB agreed that the consolidated proposal should be prepared as a WP.29 working document and scheduled for consideration by WP.29 and AC.1 during their sessions of March 2002.

10. The expert from Germany agreed to assist the secretariat in checking the consolidated document with Directive 2001/43/EC. In addition, and to allow for any necessary final corrections, GRB agreed to examine the proposal at its next session and, if necessary, communicate any corrections to WP.29 and AC.1 in the form of an informal document. (Note by the secretariat: The related proposal for a new draft Regulation is being published under document symbol TRANS/WP.29/2002/7.)

#### AMENDMENTS TO ECE REGULATIONS

- (a) Regulation No. 51 - development  
(Noise of M and N categories of vehicles)

Documentation: TRANS/WP.29/GRB/2001/2/Rev.1; TRANS/WP.29/GRB/2001/4; TRANS/WP.29/GRB/2001/5; TRANS/WP.29/GRB/2001/6; informal documents Nos. 2, 6, 7, 8, 9, 11 and 12 of annex 1 to this report.

11. For consideration of this item, GRB accepted the suggestion of the Chairman to start with the presentation of informal documents concerning the studies of noise emission methods and proceed afterwards to the detailed consideration of the replies to the questionnaire concerning the needs for an improved test procedure.

12. The expert from the Netherlands presented the results of a model study concerning the growing noise emission of delivery vans and combustion-ignition engine light vehicles in urban traffic (informal document No. 12). He concluded that if the trends of the past would continue, these vehicles would become a dominant traffic noise source from 2004. He proposed to harmonize the limits applicable to those vehicles with the limits for passenger cars and indicated that vehicles achieving noise emission below 78 dB(A) are available and affordable.

13. The expert from Japan presented to GRB the results of a study of pass-by noise testing methods incorporating urban driving conditions (informal document No. 6). The study concluded that the current test method of Regulation No. 51, 02 series of amendments correlated poorly with the actual urban driving conditions. Although the methods proposed by Germany, Netherlands and ISO showed better results, the study allowed to propose modifications to the German and ISO proposals, improving the correlation even further.

14. The expert from ISO tabled informal document No. 11, informing GRB about the status of work by ISO/TC43/SC1/WG42. He said that the proposals submitted to GRB (informal documents Nos. 3, 9 and 10 of the thirty-fourth session) by Germany, Netherlands and ISO were balloted, and that the new research data presented by Japan was also taken into consideration. He envisaged that WG42 could establish a draft international standard at the earliest by the end of 2002. He also recalled that, besides the above, WG42 works on the review of

the test surface specifications and on the review of the stationary noise test, used for checking of exhaust noise of vehicles in service.

15. Considering the replies received to the questionnaire concerning a test method for updating Regulation No. 51, GRB based its evaluation on the replies consolidated in TRANS/WP.29/2001/5, together with the additional responses received from the Russian Federation, Slovakia, ISO/TC43/SC1/WG42 and OICA (informal documents Nos. 2, 9, 7 and 8). In order to facilitate the discussion, the respective experts briefly introduced the informal documents. For each of the fifteen questions, the results of the discussion were summarized by the Chairman and are reproduced in annex 3 to this report.

(b) Regulation No. 59 (Replacement silencing systems)

Documentation: TRANS/WP.29/GRB/2001/7; TRANS/WP.29/GRB/2001/9; informal documents Nos. 1 and 13 of annex 1 to this report.

16. The expert from the Russian Federation introduced document TRANS/WP.29/GRB/2001/7 and provided justifications for the proposed amendments. He also described the aims of his proposal contained in document TRANS/WP.29/GRB/2001/9, which had been prepared following an invitation by GRB at its thirty-fourth session (TRANS/WP.29/GRB/32, para. 36). Informal document No. 1 made the proposal available also in the Russian language.

17. During the discussion, the expert from CLEPA recalled that previous attempts had failed to extend the scope of the Regulation to heavy vehicles and said that his organization had not registered any need for it in the international market. He also said that the Regulation was functioning in its current form and that, although there were some interpretation problems, no urgent needs existed for an amendment.

18. In his reply, the expert from the Russian Federation reported that needs for the scope extension had been noted in his country and suggested to allow the extension at least to M2 category vehicles. Although GRB registered his view, it agreed to keep the scope of Regulation No. 59 unchanged and delete the amendment proposed to paragraph 1. from document TRANS/WP.29/GRB/2001/7.

19. Concerning the proposals contained in document TRANS/WP.29/GRB/2001/9, GRB agreed to delete the amendments concerning paragraphs 3.4. and 4.1.3. and decided to enclose paragraphs 2.3., 4.1.2. and 6.1.1.3. to 6.1.1.7. in square brackets, marking them for re-consideration. In addition, the following amendments was agreed to paragraph 6.1.1.:

Paragraph 6.1.1., amend to read:

"6.1.1. The non-original exhaust silencing system must be designed, constructed and capable of being mounted so that: 2/"

20. To provide information concerning the world parts manufacturer identifier code (WPMI) proposed for marking of replacement silencing systems in paragraph 4.1.2. of TRANS/WP.29/GRB/2001/9, the expert from ISO distributed informal document No. 13, containing standard ISO 4100-1980.

21. Concluding the consideration of the subject, the Chairman invited CLEPA to review the amendments proposed by the Russian Federation and submit to GRB

for consideration at the next session a proposal for amending Regulation No. 59, taking account of the positions by the Russian Federation.

#### EXCHANGE OF INFORMATION ON NATIONAL AND INTERNATIONAL REQUIREMENTS ON NOISE LEVELS

22. Besides the information from the European Community (see para. 3 above), no information was presented.

#### FUTURE CANDIDATE GLOBAL TECHNICAL REGULATIONS

23. GRB noted the information by the secretariat that WP.29 and the Executive Committee of the Global Agreement (AC.3) continued to deliberate priorities for establishing future global technical regulations (GTR). It was agreed to keep the subject on the session agenda and await the guidance by WP.29 and AC.3 concerning the global harmonization in the area of vehicle noise control.

#### ELECTION OF OFFICERS

24. Following the announcement by the Secretary during the opening of the session, and in compliance with Rule 13 of the Rules of Procedure (TRANS/WP.29/690), GRB called the election of officers during the morning part of the session, on Friday, 14 September 2001 and re-elected Mr. H. Löffelholz (Germany) for the two sessions scheduled for the year 2002.

#### OTHER BUSINESS

25. No proposal was received.

#### AGENDA FOR THE NEXT SESSION

26. The following agenda was agreed for the thirty-sixth session, scheduled to be held in Geneva from 26 February (14.30h) to 1 March (17.30h) 2002 1/:

1. Proposed new draft Regulation concerning the tyre rolling sound emission (final review of document TRANS/WP.29/2002/7)
2. Amendments to ECE Regulations
  - 2.1. Regulation No. 51 - development (Noise of M and N categories of vehicles)
  - 2.2. Regulation No. 59 - (Replacement silencing systems)

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1/ As part of the secretariat's efforts to reduce expenditure, all the official documents distributed prior to the session, by mail and/or placed on the website, will not be available in the conference room for distribution to session participants. Delegates are kindly requested to bring their copies of documents to the meeting. (The web-site address of the GRB documents: <http://www.unece.org/trans/main/wp29/wp29wgs/wp29grb.html>)

3. Exchange of information on national and international requirements on noise levels 2/
4. Future candidate global technical regulations (GTR)
5. Other business

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2/ Delegations are invited to submit brief written statements on the latest status in national requirements and, if necessary, to supplement this information orally.

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Annex 1

## LIST OF INFORMAL DOCUMENTS DISTRIBUTED WITHOUT A SYMBOL DURING THE SESSION

No.	Transmitted by	Agenda item	Language	Title
1.	Russian Federation	2.2.	E/R	Proposals for draft amendments to the ECE Regulation No. 59
2.	Russian Federation	2.1.	E	Answers prepared by the Expert from the Russian Federation on questionnaire concerning development of the ECE Regulation No. 51
3.	United Kingdom	1.	E	Tyres and Traffic Noise
4.	ISO	1.	E	Tyres - coast-by-method for measurement of tyre/road sound emission
5.	European Community	1.	E/F	Directive 2001/43/EC of the European Parliament and of the Council of 27 June 2001 amending Council Directive 92/23/EEC relating to tyres for motor vehicles and their trailers and to their fitting
6.	Japan	2.1.	E	Study on Pass-by Noise Testing Methods Incorporating Urban Driving Conditions
7.	ISO	2.1.	E	Response by ISO/TC43/SC1/WG42 to the questionnaire concerning the development of ECE Regulation No. 51
8.	OICA	2.1.	E	OICA answers to the list of questions set up by GRB-34 regarding a new test method for updating Regulation No. 51
9.	Slovakia	2.1.	E	Replies to the questionnaire concerning the development of Regulation no. 51 prepared by the expert from Slovakia
10.	United Kingdom	1.	E	Proposal for a new draft Regulation: Uniform provisions concerning the approval of tyres with regard to rolling sound emission (Proposal for draft amendments to documents TRANS/WP.29/GRB/2000/4 and Add.1)
11.	ISO	2.1.	E	Status of the work by the ISO/TC43/SC1/WG42 Measurement of noise emitted from road vehicles
12.	Netherlands	2.1.	E	The concern for the urban traffic noise emission of delivery vans and diesels
13.	ISO	2.2.	E	International standard ISO 4100-1980 Road vehicles - World parts manufacturer identifier (WPMI) code

Annex 2

PROPOSAL FOR A NEW DRAFT REGULATION: UNIFORM PROVISIONS CONCERNING THE APPROVAL OF TYRES WITH REGARD TO ROLLING SOUND EMISSIONS

(Amendments to documents TRANS/WP.29/GRB/2000/4 and Add.1, adopted by GRB during its thirty-fifth session)

Paragraph 1.1., amend to read:

"1.1. This Regulation applies to newly manufactured pneumatic tyres primarily designed for use by road vehicles of categories M, N and O, manufactured on or after 1 October 1980. It does not, however, apply to:"

Annex 1,

Insert a new item 6., to read:

"6. Sound level according to paragraphs 4.4. and 4.5. of annex 3 to Regulation No. XXX : ..... dB(A) at reference speed of 70/80 km/h 2/"

Items 6. (former) to 13., renumber as items 7. to 14.

Annex 3, paragraph 4.2., delete the words reading "(note temperature corrected)".

Insert a new Annex 3 - appendix, to read:

"Annex 3 - Appendix

TEST REPORT

Part 1 - Report

1. Type approval authority or Technical Service: .....
2. Name and address of applicant: .....  
.....
3. Test report No.: .....
4. Manufacturer and Brand Name or Trade description: .....
5. Tyre Class (C1, C2 or C3): .....
6. Category of use: .....
7. Sound level according to paras. 4.4. and 4.5. of annex 3: .....dB(A)  
at reference speed of 70/80 km/h 1/

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1/ Strike out what does not apply.



8. Comments (if any): .....
- .....
- .....
9. Date: .....
10. Signature: .....

Part 2 - Test data

1. Date of test: .....
2. Test vehicle (Make, model, year, modifications, etc.): .....
- .....
- .....
- 2.1. Test vehicle wheelbase: .....mm
3. Location of test track: .....
- 3.1. Date of track certification to ISO 10844:1994: .....
- 3.2. Issued by: .....
- 3.3. Method of certification: .....
4. Tyre test details:
- 4.1. Tyre size designation: .....
- 4.2. Tyre service description:
- 4.3. Reference inflation pressure: kPa
- 4.4. Test data

	Front left	Front right	Rear left	Rear right
Test mass (kg)				
Tyre load index (%)				
Inflation pressure (cold) (kPa)				

- 4.5. Test rim width code: .....
- 4.6. Temperature measurement sensor type: .....

5. Valid Test results:

Run No.	Speed km/h	Direction of run	Sound level left <u>2</u> / measured dB(A)	Sound level right <u>2</u> / measured dB(A)	Air temp. °C	Track temp. °C	Sound level left <u>2</u> / temp. corrected dB(A)	Sound level right <u>2</u> / temp. corrected dB(A)	Comments
1									
2									
3									
4									
5									
6									
7									
8									

2/ Relative to the vehicle

5.1. Regression line slope:

5.2. Sound level after temperature correction according to para. 4.3. of annex 3: ..... dB(A)

\_\_\_\_\_ "

Annex 3CONCLUSIONS BY GRB OF THE CONSIDERATION OF RESPONSES TO THE QUESTIONNAIRE  
CONCERNING A TEST METHOD FOR UPDATING REGULATION No. 51

Note: The conclusions (C) reached by GRB during its thirty-fifth session on the basis of responses to the questions (Q) contained in TRANS/WP.29/2001/5 and informal documents Nos. 2, 7, 8 and 9, as summarized by the GRB Chairman.

Q1: Which noise source should be addressed?

- mainly propulsion noise?
- propulsion and tyre rolling sound emission?
- mainly tyre rolling sound emission?

C1: The whole vehicle, i.e. propulsion and tyre rolling sound emission

Q2: Is it meaningful to include a constant speed test if the result is dominated by tyre rolling sound emission?

C2: Yes, but some would prefer to have a separate limit on constant speed test

Q3: Is it meaningful to include tyre rolling sound emission if the manufacturer can choose the test tyre?

C3: Yes, under the condition that the manufacturer has to select a tyre designated for the vehicle.

Q4: What type of road should be addressed?

- residential streets?
- urban main streets?

C4: Urban streets, including those of residential areas.

Q5: What vehicle speed range should be used?

C5: Different speeds for different vehicle categories (approx. 50 km/h for passenger cars and approx. 35 km/h for trucks); stationary idle test may be needed.

Q6: How should the target acceleration be defined?

C6: The target acceleration should correspond to the actual traffic conditions.

Q7: What limit of acceleration would avoid an excessive torque generated noise of tyres?

C7: Approximately 2 m/s<sup>2</sup>.

Q8: If a partial load test is used for the vehicle, is there a need for an additional test for the acoustic performance of silencers?

C8: No clear answer; the need would depend on the actual test. If the wide-open throttle test would be selected, there will be no need for additional test of the acoustic performance of silencers.

Q9: Is a fixed vehicle speed suitable for the acceleration test since the gearshift behaviour is engine speed related rather than vehicle speed related?

C9: Fixed vehicle speed for the passenger cars, but engine speed for heavy duty vehicles.

Q10: What is the final target for regulating vehicle noise?  
- when is the vehicle sufficiently silent?  
- what are the safety related limits?

C10: Not possible to give a figure; reduce the noise as much as possible, to reach what is a "socially acceptable" noise.

Q11: Are additional specifications necessary to avoid test cycle by-passing?

C11: No, if the test method would represent the urban driving conditions the test method would not be in the area of maximum performance.

Q12: How to handle the adoption of new limits with new test procedures?

C12: Possibly proceed in two steps, but the question should be left open.

Q13: Is there an environmental advantage of averaging test values?

C13: No clear agreement, but mostly averaging discouraged.

Q14: When the tyre rolling sound emission influence the test, should the limits be dependent on the width of the tyres?

C14: Perhaps yes, for a transitional period. The actual resolution of this question depends on the resolution of Q12.

Q15: What should be test conditions and accuracy?

C15: Detailed proposals should be provided by the delegations to ISO/TC43/SC1/WG42

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