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**ECONOMIC COMMISSION FOR EUROPE**

INLAND TRANSPORT COMMITTEE

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

Working Party on Noise (GRB)

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

(14 and 15 September 2000)

1. GRB held its thirty-third session on 14 and 15 September 2000 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; Turkey; Ukraine; United Kingdom; United States of America. Representatives 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 Tyre and Rim Technical Organization (ETRTO).

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

GE.00-24711

TYRE-ROAD NOISE LIMITATION

Documentation: TRANS/WP.29/GRB/1999/7; TRANS/WP.29/GRB/2000/4; informal document No. 1 of annex 1 to this report.

3. The expert from the European Commission informed GRB that whilst the recommendation for the common position on EC Directive 92/23/EEC related to tyres, including their rolling noise, had been adopted on 7 September 2000 in the co-decision procedure by the European Parliament during the second reading, the Parliament had adopted 3 amendments, seeking 2 dB(A) limit reduction for passenger car tyres and requesting the European Commission to propose tests for measuring the rolling resistance and the grip of tyres, to be introduced from 1 October 2003. He said that concerning these amendments the conciliation procedure should start and the schedule was tight to complete it.

4. In view of the above information, GRB decided that during the detailed consideration of the proposal for a new draft Regulation (TRANS/WP.29/GRB/2000/4) the question of the tyre rolling sound emission limits applicable to passenger car tyres should be left open.

5. During the consideration a number of technical subjects were discussed and clarified. The amendments to document TRANS/WP.29/GRB/2000/4 agreed by GRB during the session are consolidated in annex 2 to this report.

6. Informal document No. 1, submitted by ETRTO and updating the proposal contained in document TRANS/WP.29/GRB/1999/7, was also considered. Certain contradictions were noted with the proposed draft Regulation and the expert from the United Kingdom agreed to clarify these questions with ETRTO.

7. To illustrate the effect of the proposed tyre rolling sound emission limits, the expert from the Netherlands provided copies of the diagram showing noise emission from 48 car tyre types measured according to the proposal for EC Directive 92/23/EEC, excerpted from the paper "Reduction of Road traffic Noise - The Legislature's point of View" by Reiner Stenschke and Michael Jäcker-Cüppers, published by the Federal Environmental Agency, Bismarckplatz 1, 14193 Berlin, Germany.

REGULATION No. 51 - Development (Noise of M and N categories of vehicles)

Documentation: TRANS/WP.29/GRB/2000/6; informal documents Nos. 2, 5, 6, 8 and 9 of annex 1 to this report.

8. Document TRANS/WP.29/GRB/2000/6 was considered and adopted by GRB, which also agreed to submit it to WP.29 and AC.1 for consideration at their sessions of March 2001, as draft Corrigendum 1 to Supplement 3 to the 02 series of amendments to Regulation No. 51.

9. The expert from ISO presented to GRB an interim report on the development of a representative test method based on the inputs provided by the European Automobile Manufacturers Association (ACEA), Japan Automobile Manufacturers Association (JAMA), Society of Automotive Engineers (SAE) and TÜV Automotive (Technischen Überwachungs-Verein). He described the differences in the approaches taken by these institutions and estimated that the first part of the ISO work might be completed in about two years.

10. The expert from Germany presented informal document No. 6 containing detailed explanations of the noise emission test method being developed by TÜV Automotive and the mathematical modelling of real traffic noise attenuation by gradual noise limit reductions.

11. The expert from Japan presented a study comparing various proposed noise test methods intended to represent urban driving conditions (informal document No. 2), including those of TÜV Automotive, ACEA and the current method of Regulation No. 51 (ISO 362). In the tests, experience had been gained with a large number of vehicles and some problems encountered particular to the proposed test methods and/or vehicle design.

12. The expert from the Netherlands presented informal document No. 8, evaluating the motor traffic noise annoyance regulatory control during the last twenty-five years. He described the behaviour of different vehicle categories and outlined possible improved noise control approaches. His informal document No. 9 evaluated statistically the percentage of population in the Netherlands annoyed by traffic noise and stressed that the correct way for improving the situation must be focused on maximum effect.

13. GRB appreciated the work done so far by all the parties involved and had an exchange of views on the proposed methods, estimating also the time needed to complete the work. The expert from Germany indicated his intention to present a working proposal for consideration during the next session of GRB.

REGULATION No. 63 - Development (Noise of mopeds)

Documentation: TRANS/WP.29/GRB/2000/5.

14. GRB considered and adopted document TRANS/WP.29/GRB/2000/5 and agreed to submit it to WP.29 and AC.1 for consideration at their sessions of March 2001, as draft Corrigendum 2 to the 01 series of amendments to Regulation No. 63. It was noted that its introduction would eliminate the error made during the introduction of the 01 series of amendments, and align the text with the EC Directive 97/24/EEC.

EXCHANGE OF INFORMATION ON NATIONAL AND INTERNATIONAL  
REQUIREMENTS ON NOISE LEVELS

Documentation: Informal documents Nos. 3 and 4 of annex 1 to this report.

15. The expert from the United States of America introduced informal document No. 3, providing justification for the noise control in his country. He explained that the protective noise levels were based on two very extensive social surveys and provided also a summary of health hazards caused by noise (informal document No. 4).

OTHER BUSINESS

(a) Traffic noise modelling

16. No new information concerning this subject was received. GRB agreed to keep the question of the traffic noise modelling in its programme of work. However, it requested the secretariat not to list it in the agenda, unless there was a new development.

(b) Future candidate global technical regulations

17. The Chairman informed GRB that the 1998 Global Agreement had entered into force on 25 August 2000 and that WP.29 was expected to decide on priorities for developing future global technical regulations under this Agreement. He noted that within the area of GRB's responsibility the questions of vehicle noise and tyre noise (Regulation No. 51 and the proposed new draft Regulation considered under the 1958 Agreement) should be candidates for future global technical regulations. GRB accepted the proposal and agreed to await the guidance of WP.29.

(c) Activation of audible warning devices

Documentation: Informal document No. 7 of annex 1 to this report.

18. The expert from Norway inquired concerning a possibility of using Regulation No. 28 audible warning device in an automatic mode during vehicle heavy braking, in order to alert pedestrians and/or other drivers. The question was considered, although GRB came to the conclusion that a link between the braking system and an audible warning device was not desirable.

(d) Demonstration of an instrument for measuring stationary vehicle noise

19. During the session GRB was given the demonstration of stationary vehicle noise measurement, using sound level meter Norsonic NOR-117, specifically suitable for periodic inspections and road-side checks. The function, technical features and accuracy of the instrument were demonstrated in measuring the stationary noise of a passenger car and a motorcycle. Highly evaluated was the feature of accurate indication of the engine rotational speed from the measurement of its exhaust noise. The expert from Norway also distributed leaflets containing technical data of the instrument.

(e) Elections of the Chairman and Vice-Chairman

20. GRB was informed that due to the entering into force of the Terms of Reference and Rules of Procedure of WP.29 (TRANS/WP.29/690) the Chairman and possibly Vice-Chairman should be elected every second session of the year also by the subsidiary bodies of WP.29. This procedure should be mandatory for the year 2001, whilst for 2000 the continuation under the current Chairman was allowed (TRANS/WP.29/735, para. 17). GRB noted the information and agreed to maintain the current situation and to hold the election of the Chairman and Vice-Chairman at its September 2001 session.

AGENDA FOR THE NEXT SESSION

21. The following agenda was agreed for the thirty-fourth session, scheduled to be held in Geneva from 20 (14.30 h) to 23 (12.30 h) February 2001 1/:

1. Proposed new draft Regulation concerning the tyre rolling sound emission
2. Amendments to ECE Regulations
  - 2.1. Regulation No. 51 - development  
(Noise of M and N categories of vehicles)
  - 2.2. Regulation No. 41 (Noise of motorcycles)
3. Exchange of information on national and international requirements on noise levels 2/
4. Future candidate global technical regulations
5. Other business

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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 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.

2/ Delegations are invited to submit brief statements on the latest status in national requirements (if applicable) 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.	ETRTO	1.	E	Proposal for draft amendments to the proposed new draft regulation concerning the approval of tyres with regard to rolling sound emission
2.	Japan	2.	E	Study on Pass-by Noise Testing Methods Incorporating Urban Driving Conditions
3.	United States of America	4.	E	Protective Noise Levels Condensed Version of EPA Levels Document
4.	United States of America	5.	E	Noise: A Health Problem
5.	ISO	2.	E	ISO Noise emitted (external) by accelerating road vehicles
6.	Germany	2.	E	Comparison of the Effects of Type Approval Noise Limit reduction on Noise Emissions in Real Traffic for Different Scenarios
7.	Norway	2.	E	Question to the delegates regarding Audible Warning Devices (Regulation No. 28)
8.	Netherlands	2.	E	Noise of passenger cars 1974-1999 (The paradox of 2 dB(A) increase in traffic noise and a 8 dB(A) decrease in type approval limits
9.	Netherlands	2.	E	Traffic Noise Emission Control - Presentation to GRB

Annex 2PROPOSAL FOR A NEW DRAFT REGULATION: UNIFORM PROVISIONS CONCERNING THE  
APPROVAL OF TYRES WITH REGARD TO ROLLING SOUND EMISSIONS

(Amendments to document TRANS/WP.29/GRB/2000/4,  
agreed by GRB during its thirty-third session)

Paragraph 1.1., amend the words "new pneumatic tyres" to read "newly manufactured pneumatic tyres".

Paragraph 1.1.1., the square brackets should be deleted.

Paragraph 1.1.2., correct to read:

"1.1.2. Tyres having a nominal rim diameter code # 10 (or # 254 mm)  
or \$ 25 (or \$ 635 mm);"

Paragraph 1.2., should be deleted.

Paragraph 3.1.5.1., correct the reference to "paragraph 6.2.1." to read  
"paragraph 6.1.1."

Paragraph 3.2.1., amend the words "tyre to road noise" to read "tyre rolling  
sound" (three times).

Paragraph 4.2.4., reading "the inscription "M+S" ...." renumber as  
paragraph 4.2.5.

Paragraph 4.2.5., renumber as paragraph 4.2.6.

Paragraph 5.4., amend to read:

"5.4. In the space referred to in paragraph 4.3. and in accordance with  
the requirements of paragraph 4.4. there shall be affixed to every  
tyre size, conforming to the type of tyre approved under this  
Regulation, an international approval mark consisting of:"

Paragraph 6.1.1., amend the words "rolling noise" to read "rolling sound", and  
in the Table, column "Limit dB(A)" enclose all limit values into square  
brackets, indicating that re-consideration is necessary.

Paragraph 6.1.2., amend the words "rolling noise" to read "rolling sound".

Paragraph 6.2.3., renumber as paragraph 6.1.3. and amend the words "rolling  
noise" to read "rolling sound".

Paragraph 7.1., amend to read:

"7.1. Every modification of the type of tyre approved with respect to  
rolling sound emission in accordance with ...."

Paragraph 7.1.1., amend to read:

".... adverse effect on the tyre rolling sound emission and that the tyre will comply with the requirements of this Regulation; or"

Paragraph 8.2., amend the word "sample" to read "random sample".

Paragraph 8.3., amend to read:

"8.3. Production shall be deemed to conform to the requirements of this Regulation if the levels measured comply with the limits prescribed in paragraph 6.1. above, with an additional allowance of +1 dB(A) for possible mass production variations."

Paragraph 12., amend to read:

"12. INTRODUCTORY PROVISIONS

(To be proposed by the experts from Germany and the United Kingdom)"

Annex 1., item 4., amend to read:

"4. Brand name and/or Trade description(s) of the type of tyre: .....  
....."

Annex 2, the title, amend to read:

"ARRANGEMENT OF APPROVAL MARKS"

Annex 3,

The title, amend to read:

"COAST-BY TEST METHOD FOR MEASURING TYRE ROLLING SOUND EMISSION"

Paragraph 0., amend to read:

"0. Introduction

The presented method contains ..... measurement method, in order to obtain the sound level of a set of tyres mounted on a test vehicle rolling on a specified road surface. The maximum sound pressure level .... regression analysis. Such test results cannot be related to tyre rolling sound measured during acceleration under power or deceleration during braking."

Paragraph 1.1., amend to read:

"..... the windscreen recommended by the manufacturer shall meet or exceed the requirements of Type 1 instruments in accordance with IEC 60651:1979/A1:1993, second edition."



Paragraph 1.1.1., correct the reference to "IEC 942:1988" to read "IEC 60942:1988".

Paragraph 2.3., amend to read:

"2.3. Ambient noise

2.3.1. The background sound level (including any wind noise) shall be at least 10 dB(A) less than the measured tyre rolling sound emission. A suitable windscreen .... characteristics of the microphone.

2.3.2. Any measurement affected .... shall be ignored."

Paragraph 2.4.4., amend the words "tyre noise" to read "tyre rolling noise", and separate the parts "Requirements" and "Recommendations ..." into separate paragraphs 2.4.4.1. and 2.4.4.2., to read:

"2.4.4.1. Requirements:

(1) Spray suppression ....

.....

(e) Suspension shall be .... normal for unladen condition.

2.4.4.2. Recommendations to avoid parasitic noise:

(a) Removal or modification on the vehicle that may contribute to the background noise of the vehicle is recommended. Any removals or modifications shall be recorded in the test report.

.....

(d) Windows and sliding roof .... closed during testing."

Paragraph 2.5.3., amend to read:

"..... than the reference pressure  $P_r$  and within the interval:

$$P_r \cdot \left( \frac{Q_t}{Q_r} \right)^{1.25} \leq P_t \leq 1.1 P_r \cdot \left( \frac{Q_t}{Q_r} \right)^{1.25}$$

For Class C2 and Class C3 the reference pressure  $P_r$  is the pressure corresponding to the pressure index marked on the sidewall.

For Class C1 the reference ....."

Paragraph 3.1., amend to read:

"..... If abnormal noise (e.g. ventilator, self-ignition) is emitted by the test vehicle during the measurement, the test must be disregarded."

Paragraph 3.2., amend the reference to "paragraph 4.2." to read "paragraph 4.1."

Paragraph 4., amend to read:

"4. Interpretation of results

A measurement shall be invalid if an abnormal discrepancy between the values is recorded (see para. 2.3.2. of this annex)."

Paragraph 4.2., amend to read:

"4.2. Regression analysis of rolling sound measurements

The (not temperature corrected) tyre rolling sound level  $L_R$  in dB(A) is determined by a regression analysis according to:

$$L_R = \bar{L} - a \cdot \bar{n}$$

where:

$\bar{L}$  is the mean value of the rolling sound levels  $L_i$ , measured .....  
....."

Paragraph 4.3., amend to read:

"4.3. Temperature correction

For Class C1 and Class C2 tyres, the final result ....."

Paragraph 4.3., amend the words "tyre-road noise" to read "tyre rolling sound".

Annex 4,

Paragraph 5.1., amend the words "tyre-road noise" to read "tyre rolling sound".

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