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Working Party on Noise (GRB)

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agenda item 1.2.1.1.)

PROPOSAL FOR DRAFT AMENDMENTS TO REGULATION No. 51

(Noise emissions)

Transmitted by the expert from the International Organization of Motor Vehicle Manufacturers
(OICA)

Note: The text reproduced below was prepared by the expert from OICA. It suggests amendments to recently proposed new noise emission limit values. The text is based on informal documents Nos. GRB-42-2 and GRB-42-3, distributed without official symbols during the forty-second GRB session, and TRANS/WP.29/GRB/2005/2/Rev.2, superseded by TRANS/WP.29/GRB/2005/5 and ECE/TRANS/WP.29/2006/4, and complemented by ECE/TRANS/WP.29/GRB/2006/2. The modifications to ECE/TRANS/WP.29/GRB/2006/2 are marked in **bold** characters or ~~strikethrough~~ text.

Note: This document is distributed to the Experts on Noise only.

A. PROPOSAL

Part B, the table and footnotes in inserted new paragraph 3., amend to read:

"

Vehicle categories		Limit values (dB(A))		
		Stage 1 <u>*/</u>	Stage 2 <u>**/</u>	Stage 3 <u>***</u> /
2.1.	M _{1a}	72	70	69
2.2.	M _{1b} <u>****/</u>	73	72	71
2.3.	M _{1c}	74	74	73
2.4.	M _{1d}	73	72	71
2.5.	N _{1a} / M _{2a}	72	71	69
2.6.	N _{1b} / M _{2b}	74	73	72
....				

*/ **Date of entry into force of Regulation No. 51.03 plus [6 months] for new vehicle types and plus [4 years] later for new vehicles brought into the market.**

/ **Date of entry into force of Regulation No. 51.03 plus [7 years] for new vehicle types and plus [9 years] later for new vehicles brought into the market. [However, limits and dates to be verified by feasibility studies.]

***/ **No limits and dates to be established at the present.**

****/ **M₁ vehicles with a PMR of 125 kW/t for stage 1."**

B. JUSTIFICATION

The undermentioned OICA table reflects the position and needs of manufacturers whose national regulations are based on the current 02 series of amendments to Regulation No. 51. Basically OICA supports global harmonization, which will bring a further need for discussion with those countries that plan to introduce 03 series of amendments to Regulation No. 51, but have different concepts.

Fleet share: Percentage of all new registered vehicles (see Europe 2004 - ACEA Statistics at the website: www.acea.be)

Limit today: Spread of limits applicable to vehicles of this class with the existing Regulation No. 51.02

OICA proposes to amend the changes that are highlighted in bold.

	Criteria	Fleet share	Stage 1		Stage 2		Stage 3		Limit today	
			Limit	Date	Limit	Date	Limit	Date	min	max
M1-a	M1 <= 120 kW/t	86%	72	X+6 month (date of publication) for new veh. types	70	X+7 years for new veh. types	()	() for new veh. types () for all new vehicles	74	75
M1-b	> 125 kW/t	0,8%	73		72		()		75	76
M1-c	> 200 kW/t	<0,01%	74		74	X+9 years for all new vehicles	()		75	75
M1-d	70/156 EEC +50cm WD +35° HC	0,9%	73		72	together with other regulations	()		75	78
N1 M2 a	<= 2500 kg GVW	11,4%	72	71	()		76		79	
N1 M2 b	> 2500 kg GVW		74	73	()		77		80	

Limits and dates are based on current technology and feasibilities. However, there are uncertainties concerning the vehicle development with regard to other Regulations and new amendments, unknown today, but applicable at these dates. In particular, the balance between emissions, consumption and noise will become more difficult.

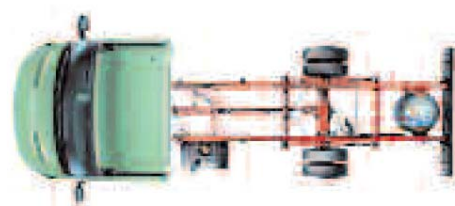
The table below shows all data available to GRB for vehicles of class N1/M2 (excluding USA data, but including data from Europe, Japan, Touchstone Research Laboratory (TRL), India).

	Data include results from EUROPE, JAPAN and INDIA															Total
	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	
N1/M2 cat1		2	1	2	4	1		2							1	13
N1/M2 cat2			1	1	2	4	6	3	1	1						19

The majority of vehicles in subclass N1/M2 above 2,500 kg have test values at 73 dB(A) or higher, taking into account, that many vehicles in this class have driven axles with coupled wheels. Such vehicles are not well reflected in the database (data will be made available).



Basic chassis



chassis with coupled wheels

The proposed limit values by GRB Informal Group of 70/72 dB(A) in stage 2 require that technology has to be changed for the majority of the vehicle fleet. Such a step cannot be done in the short term, taking into account that the concept and design phase for vehicles coming on the market after 2010 have already been started.

It must be kept in mind, however, that off-road vehicles of N1/M2 must also be covered by these limit values. Furthermore, vehicles of the same categories are today mostly equipped with diesel engines, for which industry has to await new requirements concerning exhaust and particle emissions (see above).

	Data include only results from EUROPE, JAPAN and INDIA															
	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	Total
M1-d				1	1	4	4	2								12

The requirements of wading depth and hill climbing capability have been introduced to ensure that only vehicles with real off-road capability belong to that class. This implies that the vehicle concepts used in that class differ strongly from those of class M1-a. The amount of vehicles falling in this class have significantly dropped from 3.9 per cent to less than 1 per cent of the European market.

The spread of limit values in the actual Regulation for off-road vehicles is high and varies from 75 dB(A) until 78 dB(A). The vehicles which are today close to the upper limit range of 78 dB(A) are in the minority but, for them, the proposed value by OICA of 73 dB(A) is already in enforcement.

Vehicles of class M1-b have been separated from class M1-a because of their higher noise emission, due to their different vehicle design. This small group of vehicles with, only 1 per cent market share, would otherwise determine the limit value for the large majority of M1 vehicles. Enforcement of limit values for all M1 vehicles would be dependent on the technical feasibility of these particular vehicles.

An increase of the power-mass ratio (PMR) every 5 years will force vehicles that cannot fulfil the new demand to reduce their noise emission by -3 dB(A) (change from class M1-b Stage 1 (73 dB(A)) to class M1-a Stage 2 (70 dB(A))). Such a step is only feasible with a significant change of the car concept, and should not be considered.

The number of vehicles falling under that new high performance vehicle class has already been reduced by 80 per cent. The OICA proposal for vehicles with a PMR of 125 kW/t would exclude another 10 per cent of high performance vehicles from the class M1-b.

The application of the new 03 series of amendments to the Regulation No. 51 should be mandatory for the new vehicle types 6 months after date of entry into force (publication).

Stage 2 (i.e. first stage of limit reduction after introduction of the new requirements) should be mandatory, in coincidence with other Regulations, at least 7 years after the date of entry into force. This stage 2 should be applicable for new types only.

For stage 1, registration of new vehicles which are type approved under the 02 series of amendments to Regulation No. 51 may be refused 4 years after the date of entry into force of 03 series of amendments to Regulation No. 51.

For stage 2, registration of new vehicles which are type approved under 03 series of amendments to the Regulation No. 51 (Stage 1) may be refused 9 years after date of entry into force of the 03 series of amendments.

If GRB cannot agree with the OICA proposal to maintain the PMR stable in subclass M1-b, OICA proposes that the requirements of stage 2 for registration vehicles falling out of subclass M1-b in stage 2 should be applied to new types only.

The dates of entry into force of the different stages of limit values should coincide with other Regulations and should have enough lead time to allow a cost efficient development. OICA will initiate a study to determine those Regulations that can have an impact on noise.

A lead time of 7 years for the first reduction of limits (stage 2) after publication of the new series Regulation No. 51 enables a treatment of new requirements widely within the concept phase of the vehicle development. The average development cycle is today 7 years starting with the design, concept and feasibility study phase.

For off-road vehicles as well as for high performance vehicles, which will no longer belong to the special classes M1-d and M1b, special provisions are necessary, because the limit values set for class M1-a in stage 1 are a strong enforcement and the consequences are not fully obvious yet.
