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1958 Agreement:
Consideration of draft amendments to existing UN Regulations submitted by GRBP

Proposal for a new 06 series of amendments to UN Regulation No. 41 (Noise emissions of motorcycles)

Submitted by the Working Party on Noise and Tyres*

The text reproduced below was adopted by the Working Party on Noise and Tyres (GRBP) at its eighty-first session (ECE/TRANS/WP.29/GRBP/79, para. 6). It is based on ECE/TRANS/WP.29/GRBP/2025/5 as amended by GRBP-81-02 and GRBP-81-15, ECE/TRANS/WP.29/GRBP/2025/4 as amended GRBP-81-03, and ECE/TRANS/WP.29/GRBP/2025/7 as amended by GRBP-81-29. It is submitted to the World Forum for Harmonization of Vehicle Regulations (WP.29) and to the Administrative Committee (AC.1) for consideration at their June 2025 sessions.

* In accordance with the programme of work of the Inland Transport Committee for 2025 as outlined in proposed programme budget for 2025 (A/79/6 (Sect. 20), table 20.6), the World Forum will develop, harmonize and update UN Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.

Paragraph 2.13., amend to read*:*

"2.13. Following is a table containing all symbols used in this Regulation:

Symbol	*Units*	*Explanation*	*Reference*
AA'	–	virtual line on the test track	Annex 4 – Figure 1
a_{wot}	m/s^2	calculated acceleration	Annex 3 – 1.4.2.
$a_{wot,ref}$	m/s^2	prescribed reference acceleration	Annex 3 – 1.3.3.3.1.2.
a_{urban}	m/s^2	prescribed target acceleration	Annex 3 – 1.3.3.3.1.2.
BB'	–	virtual line on the test track	Annex 4 – Figure 1
CC'	–	virtual line on the test track	Annex 4 – Figure 1
K	–	gear weighting factor	Annex 3 – 1.4.3.
k_p	–	partial power factor	Annex 3 – 1.4.4.
L	dB(A)	sound pressure level	Annex 3 – 1.4.1.
$L_{wot(i)}$	dB(A)	L at wot condition	Annex 3 – 1.4.6.
L_{ASEP}	dB(A)	L at RD-ASEP additional operating conditions	Annex 7 – 3.3.3.2.
l_{PA}	m	pre-acceleration length	Annex 3 – 1.3.3.1.1.
m_{kerb}	kg	kerb mass of the vehicle	2.6.
m_t	kg	test mass of the vehicle	Annex 3 – 1.3.2.2.
n	min^{-1}	engine speed	
$n_{AA',min}$	min^{-1}	Minimum engine speed of the RD-ASEP control range at line AA'	Annex 7 – 2.5
$n_{BB',max}$	min^{-1}	Maximum engine speed of RD-ASEP control range at line BB'	Annex 7 – 2.5
$n_{PP'}$	min^{-1}	engine speed at PP'	Annex 7 – 2.6.
n_{idle}	min^{-1}	engine speed at idle	–
$n_{wot(i)}$	min^{-1}	$n_{PP'}$ measured at $L_{wot(i)}$ detection	Annex 7 – 2.6.
n_{adj}	min^{-1}	adjustment factor for low PMR vehicles with high S	Annex 7 – 2.6.
PP'	–	virtual line on the test track	Annex 4 – Figure 1
PMR	–	power-to-mass ratio index	2.9.
P_n	kW	rated maximum net power	2.7.
S	min^{-1}	rated engine speed	2.8.
V	km/h	measured vehicle speed	–
v_{max}	km/h	maximum speed	2.10.
v_{test}	km/h	prescribed test speed	Annex 3 – 1.3.3.1.1.

The following indices are used for measured engine speeds "n" and vehicle speeds "v" to indicate the location or rather time of the measurement:

(a) AA' denoting that the measurement corresponds to the point in time when the front of the vehicle passes the line AA' (see Annex 4 – Figure 1); or

(b) PP' denoting that the measurement corresponds to the point in time when the front of the vehicle passes the line PP' (see Annex 4 – Figure 1); or

(c) BB' denoting that the measurement corresponds to the point in time when the rear of the vehicle passes the line BB' (see Annex 4 – Figure 1).

The following indices are used for calculated full throttle accelerations a_{wot} and measured sound pressure levels L to indicate the gear used for the test:

(a) "(i)" denoting, in the case of a two-gear test, the lower gear (i.e. the gear with the higher gear transmission ratio) and otherwise referring to the single test gear or gear selector position used; or

(b) "(i + 1)" denoting, in the case of a two-gear test, the higher gear (i.e. the gear with the lower gear transmission ratio).

Measured sound pressure levels L also carry an index indicating the type of the respective test:

(a) "Wot" denoting a full throttle acceleration test (see paragraph 1.3.3.1.1. of Annex 3); or

(b) "CRS" denoting a constant speed test (see paragraph 1.3.3.3.2. of Annex 3); or

(c) "Urban" denoting a weighted combination of a constant speed test and a full throttle acceleration test (see paragraph 1.4.6.2. of Annex 3).

The index "j" referring to the number of the test run can be used in addition to the indices mentioned above."

Paragraph 6.3.1., amend to read:

"6.3.1. The motorcycle manufacturer shall not use any device, procedure or software which would modify any noise related functional parameters of the vehicle for the purpose of passing the tests within this Regulation and which would result in increased noise emissions during typical on-road operation in the RD-ASEP control range of Annex 7 paragraph 2.5, compared to during testing according to the provisions of this regulation.

Insert a new paragraph 8.4., to read:

"8.4. If due to substantially different barometric pressure, humidity, temperature or rider mass, the reference acceleration $a_{wot,ref}$ defined in paragraph 1.3.3.3.1.2. of Annex 3 cannot be reached with the same gear in conformity of production as in type approval tests, the gear selection requirement of paragraph 1.3.3.3.1.3.1. of Annex 3 shall prevail and the conformity of production tests can be performed using an acceleration different from $a_{wot,ref}$."

Paragraph 12, amend to read:

"12.1. As from the official date of entry into force of the 06 series of amendments, no Contracting Party applying this Regulation shall refuse to grant or refuse to accept type approvals under this Regulation as amended by the 06 series of amendments.

12.2. As from 1 January 2029, Contracting Parties applying this Regulation shall not be obliged to accept type approvals to the preceding series of amendments, first issued after 1 January 2029.

12.3. Until 1 January 2030, Contracting Parties applying this Regulation shall accept type approvals to the preceding series of amendments, first issued before 1 January 2029.

12.4. As from 1 January 2030, Contracting Parties applying this Regulation shall not be obliged to accept type approvals issued to the preceding series of amendments to this Regulation.

12.5. Notwithstanding the transitional provisions above, Contracting Parties who start to apply this Regulation after the date of entry into force of the most recent series of amendments are not obliged to accept type approvals which were granted in accordance with any of the preceding series of amendments to this Regulation / are only obliged to accept type approval granted in accordance with the 06 series of amendments.

12.6. Notwithstanding paragraph 12.4, Contracting Parties applying this Regulation shall continue to accept type approvals issued according to the preceding series of amendments to this Regulation, for the vehicles/vehicle systems which are not affected by the changes introduced by the 06 series of amendments.

12.7. Contracting Parties applying this Regulation may grant type approvals according to any preceding series of amendments to this Regulation.

12.8. Contracting Parties applying this Regulation shall continue to grant extensions of existing approvals to any preceding series of amendments to this Regulation.

12.9. From 10 January 2025, ISO 10844:2021 shall be accepted for all approvals granted under this Regulation. Until 10 January 2030, ISO 10844:2014 shall be accepted for all approvals granted under this Regulation."

Annex 1, item 18, amend to read:

"18. Additional sound emission provisions:

18.1.	*RD-ASEP operating conditions*	*Reference Point (a)*	*Reference Point (b)*	*additional operating condition 1*	*additional operating condition 2*	*additional operating condition 3*
				gear i i= 1 to n (number of gears)		
18.1.1.	Selected gear number					
1.8.1.2.	Approach condition to line AA' (acceleration, deceleration or constant speed)	n.a.	n.a.			
1.8.1.3.	Throttle control position (%)	n.a.	n.a.			
18.1.4.	Vehicle speeds	-	-	-	-	-
18.1.4.1.	Vehicle speed at the beginning of the period of acceleration (average of 3 runs) (km/h)			n.a.	n.a.	n.a.
18.1.4.2.	Pre-acceleration length (m)			n.a.	n.a.	n.a.
18.1.4.3.	Vehicle speed $v_{AA'}$ (average of 3 runs for Reference Points (a) and (b)) (km/h)					
18.1.4.4.	Vehicle speed $v_{PP'}$ (average of 3 runs for Reference Points (a) and (b)) (km/h)					
18.1.4.5.	Vehicle speed $v_{BB'}$ (average of 3 runs for Reference Points (a) and (b)) (km/h)					
18.1.5.	Engine speeds	-	-	-	-	-
18.1.5.1.	Engine speed $n_{AA'}$ (average of 3 runs for Reference Points (a) and (b)) (km/h)					

18.1.	*RD-ASEP operating conditions*	*Reference Point (a)*	*Reference Point (b)*	*additional operating condition 1*	*additional operating condition 2*	*additional operating condition 3*
				gear i i= 1 to n (number of gears)		
18.1.5.2.	Engine speed $n_{PP'}$ (average of 3 runs for Reference Points (a) and (b)) (km/h)					
18.1.5.3.	Engine speed $n_{BB'}$ (average of 3 runs for Reference Points (a) and (b) (min^{-1})					
18.1.6.	Wide open throttle test result L_{wot} for Reference Points (a) and (b) (dB(A))			n.a.	n.a.	n.a.
18.1.7.	max. sound pressure level L_{ASEP} of the additional operating conditions	n.a.	n.a.			
18.1.8.	RD-ASEP limit'					

Note: The columns for the additional operating conditions 1, 2 and 3 in the table above, need to be repeated for each gear that needs to be tested."

Annex 3,

Insert a new paragraph 1.3.3.1.3. to read*:*

"1.3.3.1.3. If the vehicle has user selectable software programs or modes, the test shall be conducted in a mode which does not restrict the vehicle's power performance and which produces the highest $L_{wot(i)}$. Manufacturer documentation is provided to the technical service responsible for conducting approval tests. Based on this documentation, the technical service selects the software program or mode to be tested."

Annex 7,

Paragraph 2.5., amend to read:

"2.5. RD-ASEP control range

The requirements of this annex apply to any vehicle operation with the following restrictions:

(a) $v_{AA'}$ shall be at least 10 km/h

(b) $v_{BB'}$ shall not exceed 80 km/h for vehicles with PMR≤150

$v_{BB'}$ shall not exceed 100 km/h for vehicles with PMR>150

(c) $n_{AA'}$ shall be equal to or greater than $n_{AA',min}$

$n_{AA',min} = 0{,}1 * (S - n_{idle}) + n_{idle}$

(d) $n_{BB'}$ shall be equal to or less than $n_{BB',max}$

For vehicles tested in locked gears: $n_{BB',max} = 0{,}8 \times S$

For vehicles tested in non-locked gear ratios: $n_{BB',max} = S$

The values for the RD-ASEP control range shall be seen as absolute values and shall not be increased or lowered by addition or subtraction of the tolerance as indicated in paragraph 2.8. of this Annex."

Paragraph 2.6. amend to read:

"2.6. RD-ASEP limits

The maximum noise level recorded during the passage of the motorcycle through the test track shall not exceed:

for $n_{PP'} < n_{wot,(i)}$

$L_{wot,(i)} + (1 * (n_{PP'} - n_{wot,(i)}) /1000) + 3$

and for $n_{PP'} \geq n_{wot,(i)}$

$$\min \begin{cases} L_{wot,(i)} + (5 * (n_{PP'} - n_{wot,(i)}) / 1000) + 3 \\ L_{wot,(i)} + (4 + (n_{BB',max} - n_{AA',min}) / 1000) * \ln((n_{PP'} + n_{adj}) / n_{wot,(i)}) + 6 \end{cases}$$

$$n_{adj}: \min \begin{cases} e^{\wedge}((S - n_{idle}) / (n_{BB',max} - n_{wot,(i)})) \\ 250 \end{cases}$$

Where $L_{wot,(i)}$ and $n_{PP'}$ have the same meaning as in paragraph 1. of Annex 3 and $n_{wot,(i)}$ refers to the corresponding engine speed when the front of the vehicle passes the line PP'. The index "(i)" refers to the gear used, $n_{AA',min}$ is the engine speed as defined in paragraph 2.5.(c) of this Annex and $n_{BB',max}$ is the engine speed as defined in paragraph 2.5.(d) of this Annex.

If the tests according to Annex 3 of this UN Regulation and the RD-ASEP tests are performed with the same vehicle in immediate sequence, the values for $L_{wot(i)}$ and $n_{wot(i)}$ from the Annex 3 test may be used, if agreed by the type approval authority. Otherwise, when compliance with these limits is checked, values for $L_{wot(i)}$ and $n_{wot(i)}$ shall be newly determined by measurements as defined in paragraph 1. of Annex 3, however using the same gear (i), the same user selectable drive mode and the same pre-acceleration distance as during type approval."

Insert a new paragraph 2.8. to read*:*

"2.8. Tolerances

For tests according to paragraphs 3.2.2. (b) and 3.3. of this Annex, a tolerance of +/- 5km/h shall apply, while still respecting the boundaries of the RD-ASEP control range defined in paragraph 2.5 of this Annex.

Examples for paragraph 3.2.2. (b) of this Annex:

- requested $v_{BB'}$=95 km/h → valid $v_{BB'}$= 90-100 km/h
- requested $v_{BB'}$=100 km/h → valid $v_{BB'}$= 95-100 km/h

Examples for paragraph 3.3. of this Annex:

- requested v_{test}=10 km/h → valid $v_{AA'}$= 10-15 km/h
- requested v_{test}=15 km/h → valid $v_{AA'}$= 10-20 km/h
- requested v_{test}=75 km/h → valid $v_{AA'}$= 70-80 km/h
- requested v_{test}=95 km/h → valid $v_{AA'}$= 90-100 km/h
- requested v_{test}=100 km/h → valid $v_{AA'}$= 95-100 km/h"

Paragraph 3.1., amend to read:

"3.1. General

The Type Approval Authority as well as the technical service shall request tests to check the compliance of the motorcycle with the requirements of paragraph 2 of this Annex. To avoid undue workload, testing is restricted to the reference points defined in paragraph 3.2 of this Annex and the additional operating conditions as defined in paragraph 3.3. of this Annex.

For vehicles with manual transmissions, the total number of operating conditions to be tested according to paragraph 3.3. of this Annex is defined by the number of gears of the vehicle multiplied by 3, and reduced by the number of operating conditions which were applied for tests according to paragraph 3.2 of this Annex and for the determination of L_{urb} according to Annex 3.

For vehicles with variable gear ratios or automatic transmission with non-lockable gear ratios the total number of operating conditions to be tested according to paragraph 3.3. of this Annex is defined as 6, and reduced by the number of operating conditions which were applied for tests according to paragraph 3.2 of this Annex and for the determination of L_{urb} according to Annex 3.

Notwithstanding the above, a minimum of 3 operating conditions shall be tested according to paragraph 3.3. of this Annex."

Paragraph 3.2.2., amend to read:

"3.2.2. Test speed and gear selection

The vehicle shall be tested at each of the following operating conditions:

(a) $v_{PP'} = 50$ km/h

The selected gear (i) and pre-acceleration condition shall be the same as those used in the original type approval test of Annex 3 of this Regulation.

(b) $v_{BB'}$ corresponding to $n_{BB'} = n_{BB',max}$ as defined in paragraph 2.5 (d)

$v_{BB'}$ shall not exceed the values as specified in paragraph 2.5 (b) of this Annex.

The selected gear shall be 2nd. If the 3rd gear satisfies requirements of $n_{BB'}$ and $v_{BB'}$, 3rd shall be used. If the 4th gear satisfies requirements of $n_{BB'}$ and $v_{BB'}$, 4th shall be used. If the 5th gear satisfies requirements of $n_{BB'}$ and $v_{BB'}$, 5th shall be used. If the 6th gear satisfies requirements of $n_{BB'}$ and $v_{BB'}$, 6th shall be used.

If in 2nd gear under the above-mentioned condition for $n_{BB'}$ the vehicle speed at line BB' would exceed the value for $v_{BB'}$ as specified in paragraph 2.5 of this Annex, the test shall be performed in 2nd gear and a maximum vehicle speed as specified in paragraph 2.5 of this Annex shall be reached at line BB' instead.

If during the test unusual riding conditions (such as apparent wheel spin or front wheel lift up) occur, the test shall be performed in the next higher gear, and the maximum vehicle speed as specified in paragraph 2.5 of this Annex shall be reached at line BB' instead."

Paragraph 3.3.1., amend to read:

"3.3.1. Test procedure

The vehicle shall approach the line AA' at constant speed or in acceleration or deceleration, according to the throttle operation which may be requested by the technical service responsible for conducting approval tests in agreement with the type approval authorities.

The approach velocity shall be chosen as such that the vehicle reaches a prescribed test speed v_{test} when its front passes the line AA'.

When the front of the vehicle passes the line AA' the throttle control shall be adjusted as rapidly as possible to a position (partial throttle, wide open throttle or maintain present throttle control position) defined by the technical service responsible for conducting approval tests and shall be kept in this position until the rear of the vehicle passes line BB'.

When the rear of the vehicle passes line BB' the throttle control shall be shifted to the idle position as rapidly as possible.

The throttle position between lines AA' and BB' shall not result in a deceleration of the vehicle. A deceleration is present when:

- $v_{PP'} < v_{AA'}$ - 5km/h, or
- $v_{BB'} < v_{AA'}$ - 5km/h, or

- $v_{BB'} < v_{PP'}$ - 5km/h."

Paragraph 3.3.2., amend to read:

"3.3.2. Test speed, gear and mode selection and throttle operation

The conditions of this paragraph shall be defined by the technical service responsible for conducting the approval tests.

To assist defining these conditions, manufacturer documentation is provided to the technical service responsible for conducting approval tests. The technical service responsible for conducting approval tests can request pre-testing of the vehicle.

The test speed v_{test} may be any speed within the RD-ASEP control range as defined in paragraph 2.5. of this Annex. The vehicle may be tested in any of the available gears, including the 1st gear.

Within the total number of additional operating conditions defined in paragraph 3.1 of this Annex, the vehicle may be tested in any of the available user selectable software programs or modes.

The throttle operation shall be in accordance with paragraph 3.3.1. of this Annex.

The throttle operation before line AA' and between lines AA' and BB' shall be defined and described in a way that it can be performed by a skilled rider who has made himself familiar with the riding characteristics of the test vehicle and that the correct execution can be assessed by observation without the necessity of technical equipment on the vehicle or at the test site other than the equipment which is required for the tests according to Annex 3.

If the requested operating conditions lead to a riding condition which may not be expected to occur when the vehicle is operated in real traffic (for example, front wheel lift up, apparent wheel spin, chain slap, engine lugging), that test run shall be discarded and a test run with different operating conditions shall be performed."