United Nations ECE/TRANS/WP.29/GRBP/2025/4

Economic and Social Council

Distr.: General
2 December 2024

Original: English

Economic Commission for Europe

Inland Transport Committee

World Forum for Harmonization of Vehicle Regulations

Working Party on Noise and Tyres

Eighty-first session
Geneva, 18–21 February 2025
Item 3 of the provisional agenda
UN Regulation No. 41 (Noise Emissions of Motorcycles)

Proposal for a Supplement to the 05 series of amendments to UN Regulation No. 41

Submitted by the experts from the Informal Working Group on Real Driving - Additional Sound Emission Provisions*

The text reproduced below was prepared by the experts from the Informal Working Group on Real Driving - Additional Sound Emission Provisions (IWG RD-ASEP) in order to clarify the application of the Annex 7 ASEP testing conditions of motorcycles. It is based upon the 05 series of amendments to UN Regulation No. 41, up to Supplement 3. The modifications to the UN Regulation are marked in bold for new or strikethrough for deleted characters.

* 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.

I. Proposal

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. 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 at least $0{,}1 * (S - n_{idle}) + n_{idle}$

(d) $n_{BB'}$ shall not exceed $0{,}8 \times S$

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 ~~for v_{test}~~ as indicated in paragraph ~~3.3.1~~**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:

$L_{wot,(i)} + (1 * (n_{PP'} - n_{wot,(i)}) / 1{,}000) + 3$ for $n_{PP'} < n_{wot,(i)}$ and

$L_{wot,(i)} + (5 * (n_{PP'} - n_{wot,(i)}) / 1{,}000) + 3$ for $n_{PP'} \geq n_{wot,(i)}$

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'.

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 ~~above~~ **of this Annex**. To avoid undue workload, testing is restricted to the reference points defined in paragraph 3.2 ~~below~~ **of this Annex** and ~~three~~ **the** additional operating conditions as defined in paragraph 3.3. of this Annex ~~per gear~~.

For vehicles with manual transmissions, ~~The~~ **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** ~~shall be~~ 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 ~~testing shall be limited to 6 operating conditions as defined in paragraph 3.3 of this Annex, and different from the operating conditions which were applied for the determination of L_{urb} according to Annex 3.~~ **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 3.3.1., 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} ~~+/- 5 km/h~~ when its front passes the line AA'.

~~Examples:~~

~~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~~

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) ~~which may be~~ defined by the technical service responsible for conducting approval tests ~~in agreement with~~

~~the type approval authorities~~ 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 ~~may~~ **shall** be defined by the technical service responsible for conducting the approval tests ~~in agreement with the type approval authorities~~.

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.

~~*The*~~ **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 ~~which affect the sound emissions of the vehicle~~.

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 an unusual vehicle behaviour (i.e. front wheel lift up, apparent wheel spin, chain slap, engine lugging) or any other riding condition which may not be expected to occur when the vehicle is operated in real traffic, that test run shall be discarded and a test run with different operating conditions shall be performed."

II. Justification

1. During the application of the Annex 7 ASEP tests of the 05 series of amendments to UN Regulation No. 41, IMMA noticed that Technical Services and Type Approval Authorities had varying interpretations on how to test different user selectable riding modes, on how to determine the number of additional operating conditions and on which speed tolerances to apply for determining deceleration and for the reference test condition of paragraph 3.2.2. (b). With this amendment proposal IWG RD-ASEP would like to clarify the original intent of the 05 series of amendments as well as to ensure uniform application of the ASEP tests.

2. With user selectable riding modes becoming more available on motorcycles, a new paragraph 1.3.3.1.3. is added in Annex 3, to clarify that the Annex 3 tests should be performed

in a mode that does not restrict the vehicle's power, and that has the highest $L_{wot(i)}$. This is relevant to specify as the $L_{wot(i)}$ value will appear on the manufacturer's statutory plate and will be used to determine the 'anchor point' for the ASEP limit line in Annex 7. In Annex 7, paragraph 2.6. it is specified that when the $L_{wot(i)}$ and $n_{wot(i)}$ need to be newly determined, the same user selectable driving mode should be used as described in the paragraph above.

3. A new paragraph 2.8. is included to specify the speed tolerances allowed during the Annex 7 tests. Such speed tolerances were already specified for the $v_{AA'}$ in paragraph 3.3.1. but were lacking for the reference test condition of paragraph 3.2.2.(b). For the determination of deceleration in the context of RD-ASEP testing (paragraph 3.3.1) a tolerance of -5 km/h is specified. A similar 5 km/h tolerance was already applied for the entry speed at AA'. Such tolerance avoids invalidating test runs from small speed deviations.

4. Paragraph 3.1. is rephrased to better describe how to determine the total number of additional operating conditions that should be performed for the RD-ASEP tests, now clearly separating vehicles with manual transmissions from vehicles with variable gear ratios or automatic transmissions with non-lockable gear ratios. To ensure a sufficient number of additional operating conditions, a minimum number of tests is specified. In paragraph 3.3.2. it is clarified that the additional operating conditions can be performed in any of the available user selectable driving modes, but these operating conditions must fit within the total number of additional operating conditions.

5. Also in paragraph 3.3.2., an indent is added for assisting the Technical Service in defining the RD-ASEP operating conditions with either manufacturer documentation or pre-testing of the vehicle without this counting as a reduction in the total number of test runs.