2025/2463

12.12.2025

Only the original UN/ECE texts have legal effect under international public law. The status and date of entry into force of this Regulation should be checked in the latest version of the UN/ECE status document TRANS/WP.29/343, available at: https://unece.org/status-1958-agreement-and-annexed-regulations

UN Regulation No 92 – Uniform provisions concerning the approval of non-original replacement exhaust silencing systems (NORESS) for vehicles of categories L_1, L_2, L_3, L_4 and L_5 with regard to sound emission [2025/2463]

Incorporating all valid text up to:

03 series of amendments – Date of entry into force: 26 September 2025

This document is meant purely as documentation tool. The authentic and legally binding texts are:

ECE/TRANS/WP.29/2019/7

ECE/TRANS/WP.29/2025/3

CONTENTS

1. Scope

This UN Regulation applies to non-original replacement exhaust silencing systems for vehicles of categories L_1, L_2, L_3, L_4 and L_5 ([1]).

2. Definitions

For the purpose of this UN Regulation

2.1. *'Non-original replacement exhaust silencing system or components of this system'* means a system of a type different from that fitted to the vehicle on approval or extension of approval. It may be used only as a replacement exhaust or silencing system.

The acronym NORESS denotes the non-original replacement exhaust silencing system.

2.2. *'Non-original replacement exhaust silencing system component'* means one of the various components which together form the exhaust silencing system ([2]).

2.3. *'Non-original replacement exhaust silencing systems of different types'* means silencing systems which differ significantly in such respects as:

(a) Their components bear different trade names or marks,

(b) The characteristics of the materials constituting a component are different or the components differ in shape or size; a modification in respect to coating (zinc coating, aluminium coating, etc.) is not considered a change of type,

(c) The operating principles of at least one component are different,

(d) Their components are combined differently.

2.4. *'Non-original replacement exhaust silencing system (NORESS) or component thereof'* means any part of the exhaust silencing system defined in paragraph 2.1 intended for use on a vehicle other than a part of the type fitted to the vehicle when submitted for type approval pursuant to UN Regulation No 9, UN Regulation No 41 or UN Regulation No 63.

2.5. *'Approval of a NORESS or component(s) thereof'* means the approval of the whole or a part of a silencing system adaptable to one or several specified types of vehicle, falling under the scope of this UN Regulation, as regards the limitation of their sound level.

2.6. *'Vehicle type'* means vehicles, falling under the scope of this UN Regulation, which do not differ in such essential respects as:

(a) The type of engine (two-stroke or four-stroke with reciprocating or rotary pistons; number and capacity of cylinders; number and type of carburettors or injection systems; arrangement of valves; maximum net power and corresponding engine speed). For rotary piston engines, the cubic capacity should be taken to be double of the volume of the chamber;

(b) Drive train, in particular the number and ratios of the gears of the transmission and the final ratio;

(c) Number, type and arrangement of exhaust silencing systems.

2.7. *'Rated engine speed'* means the engine speed at which the engine develops its rated maximum net power as stated by the manufacturer ([3]).

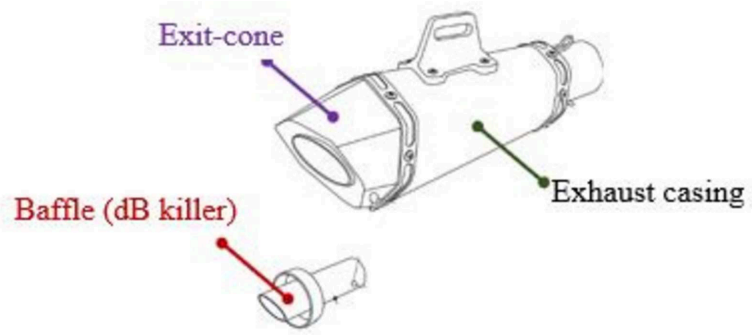
The symbol n_{rated}, denotes the numerical value of the rated engine speed expressed in revolutions per minute.

([1]) As defined in the Consolidated Resolution on the Construction of Vehicles (R.E.3.) (ECE/TRANS/WP.29/78/Rev.7, para. 2).
([2]) Those components are, in particular, the exhaust manifold, the silencer proper, the expansion chamber and the resonator.
([3]) If the rated maximum net power is reached at several engine speeds, the rated engine speed is used in this Regulation as the highest engine speed at which the rated maximum net power is reached.

2.8. *'Exit-cone'* means the final part of the exhaust silencing system outlet through which exhaust gases exit into the air (see figure 1).

Figure 1

Exhaust silencer



2.9. *'Exhaust casing'* means the shell or main external assembly of the exhaust silencing system.

2.10. *'Baffle'* (commonly called 'dB killer') means the component of the exhaust silencing system that contributes to the attenuation of noise by restricting the flow of the exhaust gases exiting into the air.

2.11. *'Fastener'* means a device used to mechanically join two components.

2.12. *'Tamper proofing'* means the activity:

— to hinder and deter unlawful modifications; and

— to ease the detection of unlawful modifications.

2.13. *'Tampering event'* means any action which puts the exhaust silencing system into a state which is not any more compliant with the approved type.

2.14. *'Irrecoverable damage (related to tampering exhaust silencing systems)'* means damage that constitutes permanent evidence of a tampering event.

3. Application for approval

3.1. The application for approval of a NORESS or components thereof shall be submitted by its manufacturer or by his duly accredited representative.

3.2. It shall be accompanied by the under mentioned documents in triplicate and the following particulars:

(a) A description of the vehicle type(s) on which the NORESS or components are intended to be fitted, with regard to the items referred to in paragraph 2.6 above. The numbers and/or symbols identifying the engine type and the vehicle type shall be specified and the vehicle type approval number, if necessary;

(b) A description of the complete NORESS showing the relative position of each of its components, together with instructions for their assembly;

(c) Detailed drawings of each NORESS component to enable it to be easily located and identified, and specification of the materials used. These drawings shall also indicate the location for the mandatory affixing of the approval number.

3.3. At the request of the Technical Service conducting the tests for approval, the manufacturer of the NORESS shall submit:

(a) Two samples of the NORESS or its components submitted for approval;

(b) A sample of the original exhaust silencing system with which the vehicle was equipped when submitted for type approval;

(c) A test vehicle representative of the type to which the NORESS is to be fitted; this vehicle, when measured for sound emission according to the methods described in Annex 3 (including all relevant amendments) to UN Regulation No 9, UN Regulation No 41 or UN Regulation No 63 shall satisfy the following conditions:

(i) If the vehicle is of a type for which approval has been issued pursuant to the requirements of each of UN Regulations Nos 9, 41 or 63:

(a) The sound level, during the test in motion shall not exceed the limit specified in the appropriate UN Regulation by more than 1 dB(A);

(b) The sound level during the stationary test shall not exceed by more than 3 dB(A), the level determined during the approval and indicated on the manufacturer's plate.

(ii) If the vehicle is not of the type for which approval has been issued pursuant to the requirements of the appropriate UN Regulation, the sound level shall not exceed by more than 1 dB(A) the limit applicable at the time when it was first put on the road.

4. Markings

4.1. Each component of the NORESS, excluding pipes and fitting accessories, shall bear:

(a) The trade name or mark of the manufacturer of the NORESS or its components;

(b) The commercial designation given by the manufacturer.

4.2. These markings shall be clearly legible and indelible and also visible in the position at which the NORESS is fitted.

4.3. The NORESS shall be labelled by its manufacturer; indicating the type(s) of vehicle(s) for which it has been granted the approval.

4.4. A component may carry several approval numbers if it has been approved as a component of several replacement exhaust systems.

4.5. The replacement exhaust system shall be supplied in a packaging or carry a label both providing the following particulars:

(a) The trade name or mark of the manufacturer of the replacement silencing system and its components,

(b) The address of the manufacturer or his representative,

(c) A list of vehicle models for which the replacement silencing system is intended.

4.6. The manufacturer shall provide:

(a) Instructions explaining in detail the correct method of mounting on the vehicle,

(b) Instructions for handling the silencing system,

(c) A list of components with the numbers of the corresponding parts, excluding retainers,

(d) The approval mark.

4.7. The approval mark.

5. Approval

5.1. If the NORESS or component thereof submitted for approval under this UN Regulation meets the requirements of paragraph 6 below, approval for that type shall be granted.

5.2. An approval number shall be assigned to each NORESS type approved. Its first two digits (at present 03 corresponding to the 03 series of amendments to the UN Regulation) shall indicate the series of amendments incorporating the most recent major technical amendments made to the Regulation at the time of issue of the approval. The same Contracting Party may not assign the same number to another type of NORESS or component designed for the same type(s) of vehicle.

5.3. Notice of approval or extension or refusal of approval of a NORESS or component thereof under this UN Regulation shall be communicated to the Parties to the Agreement which apply this UN Regulation, by means of a form conforming to the model in Annex 1 to this UN Regulation.

5.4. There shall be affixed to every NORESS and component thereof conforming to a type approved under this UN Regulation an international approval mark consisting of:

(a) A circle surrounding the letter 'E' followed by the distinguishing number of the country which has granted approval ([4]);

(b) The number of this UN Regulation, followed by the letter 'R', a dash and the approval number to the right of the circle prescribed in (a) above;

(c) The approval number shall be indicated in the approval form, together with the method used for the approval tests.

5.5. The approval mark shall be easily legible when the NORESS is fitted to the vehicle, and shall be indelible.

5.6. A component may be marked with more than one approval number if it has been approved as a part of more than one NORESS; in this case the circle does not need to be repeated. Annex 2 to this Regulation gives an example of the approval mark.

6. Specifications

6.1. General specifications

The silencer shall be designed, constructed and capable of being mounted so that:

(a) The vehicle complies with the requirements of this UN Regulation under normal conditions of use, and in particular regardless of any vibrations to which it may be subjected;

(b) It displays reasonable resistance to the corrosion to which it is exposed, with due regard to the normal conditions of use of the vehicle;

(c) The ground clearance provided by the silencer originally fitted, and the possible inclined position of the vehicle, are not reduced;

(d) Unduly high temperatures do not exist at the surface;

(e) Its edges are not sharp or jagged and there is sufficient space for shock absorbers and springs;

(f) Adequate clearance of spring parts is provided;

(g) Adequate safety clearance of pipes is provided;

(h) It is tamper-resistant in a way that is compatible with clearly-defined maintenance and installation requirements.

([4]) The distinguishing numbers of the Contracting Parties to the 1958 Agreement are reproduced in Annex 3 to the Consolidated Resolution on the Construction of Vehicles (R.E.3) (ECE/TRANS/WP.29/78/Rev.7).

6.2. Specifications regarding sound levels:

The acoustic efficiency of the NORESS or components thereof shall be verified by means of the methods described in UN Regulations Nos 9, 41 or 63. In particular, for the application of this paragraph reference shall be made to the series of amendments to UN Regulation No 92 which was in force at the time of type approval of the new vehicle. When the NORESS or its components is fitted to the vehicle described in paragraph 3.3(c), the sound level values obtained using the two methods (stationary and vehicle in motion) shall satisfy the following condition:

They shall not exceed either of the values measured in conformity with the requirements of paragraph 3.3(c), for the same vehicle when fitted with the original silencing system during the test with the vehicle in motion and during the stationary test.

6.3. Additional requirements

6.3.1. Tampering protection provisions

The NORESS and its components shall be designed and constructed considering tamper proofing measures. This is to prevent components that contribute to sound attenuation from being removed or rendered ineffective. Any tampering event shall cause irrecoverable damage to the assembly.

Software of the NORESS (if any) shall be designed and programmed considering tamper proofing measures.

At the request of the type-approval authority or its technical service, the manufacturer of the NORESS shall describe the tamper proofing measures applied and demonstrate their practical effectiveness.

Compliance with those anti-tampering provisions shall be ensured in any case. It does not depend on the year of production of the vehicle nor on the noise regulation under which the type approval of the vehicle for which the NORESS was designed was granted. Recommendation to comply with the anti-tampering provisions is provided in Annex 5. For the assessment of designs and constructions that are not listed in that annex, the general principles of that annex still apply.

6.3.2. Multi-mode NORESS

NORESS with multiple, manually or electronically adjustable, rider selectable operating modes shall meet all requirements in all operating modes. The reported sound levels shall be those resulting from the mode with the highest sound levels.

6.3.3. Prohibition of defeat devices

The NORESS manufacturer shall not intentionally alter, adjust or introduce any device or procedure solely for the purpose of fulfilling the sound emission requirements of this UN Regulation, which will not be operational during typical on-road operation.

6.3.4. Additional sound emission provisions (ASEP)

6.3.4.1. The ASEP requirements shall also be fulfilled for the NORESS, if it is designed to be used on vehicles that are type approved according to a series of amendments to UN Regulation No 41, where ASEP was part of the issued type approval of the vehicle.

If ASEP has to be tested, these tests and necessary pre-tests have to be done in accordance with the series of amendments of UN Regulation No 41, which was the basis for the issued type approval of the vehicle.

6.3.4.2. If NORESS has different modes or variable geometries, it has to perform the ASEP tests of UN Regulation No 41 also, if it is designed to be used on vehicles that are type approved according to a series of amendments to UN Regulation No 41, where ASEP was not a part of the issued type approval of these vehicles.

These ASEP tests and necessary pre-tests have to be done in accordance with the actual series of amendments of the UN Regulation No 41, which is the actual base for issuing type approvals of these vehicles.

The sound emission of the NORESS equipped vehicle under typical on-road driving conditions, which are different from those under which the type-approval test set out in Annex 3 and Annex 7 of UN Regulation No 41 were carried out, shall not deviate from the test result in a significant manner.

6.3.4.3. The ASEP tests regarding 6.3.4.2 shall be done in comparison on a vehicle, which is equipped with the original exhaust silencer and the NORESS (back-to-back-test). The ASEP tests of the vehicle equipped with the original exhaust silencer shall be done in normal operation mode for road use of the based sound emission approval of the vehicle. These test results build only the base of comparison with the ASEP test results of the NORESS equipped vehicle.

During these tests, the sound-pressure level of the NORESS for each test condition can have in its maximum the same sound-pressure level as the measurement of the vehicle equipped with the original exhaust silencer in its approved mode.

6.3.4.4. If tests regarding 6.3.4.1 or 6.3.4.2 are to be performed for NORESS without multiple, manually or electronically adjustable, rider selectable operating modes or without variable geometries, the vehicle as described in paragraph 3.3(c) shall be used.

6.3.4.5. If ASEP tests regarding 6.3.4.1 or 6.3.4.2 are to be performed for NORESS, which are equipped with multiple, manually or electronically adjustable, rider selectable operating modes or with variable geometries, each vehicle type of the range of approval application of the NORESS has to be tested in each selectable mode of the vehicle and the NORESS.

6.3.4.6. ASEP tests regarding 6.3.4.4 can be done by the manufacturer of the NORESS.

ASEP tests regarding 6.3.4.5 have to be performed by the Technical Service. The test results of these measurements of the original and the NORESS equipped vehicle, and all relevant data of these tests have to be mentioned into the test report of the Technical Service.

6.3.4.7. The Type Approval Authority may require any relevant test to verify the compliance of the NORESS to the above-mentioned requirements of paragraph 6.3.4.1 to 6.3.4.6. During these tests the type approval authority can also check the software of the steering units of the NORESS, which are equipped with multiple, electronically adjustable, rider selectable operating modes or with variable geometries.

6.3.4.8. The manufacturer shall provide in addition to the test report of the Technical Service a statement in conformity with Annex 4 of this UN Regulation that the NORESS or components to be approved comply with the additional sound emission provision requirements of the series of amendments to UN Regulation No 41.

In the case of NORESS which are equipped with multiple, manually or electronically adjustable, rider selectable operating modes or with variable geometries the manufacturer of the NORESS has to send the approval authority an additional document with detailed principle(s) and control of the NORESS in accordance to paragraph 6.3.4.9.

6.3.4.9. Additional documentation for NORESS equipped with multiple, manually or electronically adjustable, rider selectable operating modes or with variable geometries.

6.3.4.9.1. The additional documentation package required by paragraph 6.3.4.8 enabling the approval authority to evaluate the sound emission control strategy or strategies to ensure the correct operation of the NORESS shall be made available in the two following parts:

(a) the ‘formal additional documentation package’ that may be made available to interested parties upon request;

(b) the ‘extended additional documentation package’ that shall remain strictly confidential.

6.3.4.9.2. The formal additional documentation package may be brief, provided that it exhibits evidence that all parameters to control the NORESS have been identified. The additional documentation shall describe the functional operation of the NORESS. This material shall be retained by the approval authority.

6.3.4.9.3. The extended additional documentation package shall include information on the operation of all Additional Sound Emission Strategies (ASES) and Base Sound Emission Strategy (BSES), including a description of the parameters that are modified by any ASES and the boundary conditions under which the ASES operate, and indication of which ASES and BSES are likely to be active under the conditions of the test procedures set out in the applicable ASEP requirement of UN Regulation No 41. The extended documentation package shall include all modes of operation.

The extended documentation package shall remain strictly confidential. This material shall be retained by the Type Approval Authority.

6.4. Measurement of vehicle performance

6.4.1. The NORESS or its components shall be such as to ensure that the vehicle's performance is comparable with that achieved with the original exhaust silencing system or components thereof.

6.4.2. The NORESS or, at the manufacturer's choice, the components thereof shall be compared with an original silencing system or components, also in new condition, successively fitted to the vehicle referred to in paragraph 3.3(c).

6.4.3. The verification shall be carried out by measuring the output curve in accordance with paragraph 6.4.1 or 6.4.2. The maximum power and the engine speed at maximum power measured with the NORESS shall not exceed the net power and the engine speed measured under the conditions set out below with the original equipment exhaust system by more than ± 5 per cent.

6.4.4. Test method

6.4.4.1. Engine test method

The measurements shall be carried out on the engine of the vehicle referred to in paragraph 3.3(c), the engine being mounted on a dynamometer.

6.4.4.2. Vehicle test method

The measurements shall be carried out on the vehicle referred to in paragraph 3.3(c). The values obtained with the original silencing system shall be compared with those obtained with the NORESS. The test shall be conducted on a roller dynamometer.

6.5. Additional provisions regarding the NORESS or its components filled with fibrous materials

The use of fibrous absorbent material shall be permitted in the construction of the NORESS only if the requirements in Annex 3 are met.

6.6. Evaluation of the emission of pollutants of vehicles equipped with replacement silencer system

The vehicle referred to in paragraph 3.3(c) with the non-original replacement exhaust silencing system (NORESS) of the type for which approval is requested, shall fulfil the pollution requirements according to the type approval of the vehicle. The evidence shall be documented in the test report.

7. Modification and extension of the approval of NORESS and extension of approval

7.1. Every modification of the type of NORESS or its components shall be notified to the Type Approval Authority which approved the type of NORESS. The said Authority may then either:

(a) Consider that the modifications made are unlikely to have an appreciable adverse effect; or

(b) Require a further test report from the Technical Service responsible for conducting the tests.

7.2. The manufacturer of the NORESS or component thereof or his duly accredited representative may ask the Type Approval Authority which has granted the approval of the NORESS for one or several types of vehicle for an extension of the approval to other types of vehicle. The procedure shall be as described in paragraph 3 above.

7.3. Confirmation or refusal of approval, specifying the modifications, shall be communicated in accordance with the procedure specified in paragraph 5.3 above to the Contracting Parties to the Agreement applying this UN Regulation.

7.4. The competent authority issuing the extension of approval shall assign a series number to each communication form drawn up for such an extension.

8. Conformity of production

The conformity of production procedures shall comply with those set out in the Agreement, Appendix 2 (E/ECE/324-E/ECE/TRANS/505/Rev.2), with the following requirements:

(a) The NORESS approved to this UN Regulation shall be so manufactured as to conform to the type approved by meeting the requirements set out in paragraph 6 above;

(b) The holder of the approval shall ensure that for each type of NORESS at least the tests prescribed in paragraph 6 of this UN Regulation are carried out;

(c) The authority which has granted type approval may at any time verify the conformity control methods applied in each production facility. The normal frequency of these verifications shall be once every two years;

(d) The production is considered to conform to the requirements of this UN Regulation, if the provisions of UN Regulations Nos 9, 41 and 63, corresponding to the type of vehicle, are complied with and if the sound level measured by the method described in the given UN Regulations during the test in motion does not exceed by more than 3 dB(A) the sound level measured during the type approval and does not exceed by more than 1 dB(A) the limits prescribed in UN Regulations Nos 9, 41 and 63 as applicable.

9. Penalties for non-conformity of production

9.1. The approval granted in respect of a type of NORESS or its components under this UN Regulation may be withdrawn if the requirements laid down in paragraph 8 above are not complied with, or if the NORESS or its components fail to pass the tests provided for in paragraph 8(b) above.

9.2. If a Contracting Party to the Agreement applying this UN Regulation withdraws an approval it has previously granted, it shall forthwith so notify the other Contracting Parties to the 1958 Agreement applying this UN Regulation, by means of a communication form conforming to the model contained in Annex 1 to this UN Regulation.

10. Production definitively discontinued

If the holder of the approval completely ceases to manufacture a type of replacement silencing system or components thereof in accordance with this UN Regulation, he shall so inform the authority which granted the approval which shall in turn inform thereof the other Contracting Parties to the 1958 Agreement applying this UN Regulation, by means of a copy of the communication form conforming to the model contained in Annex 1 to this UN Regulation.

11. Names and addresses of Technical Services responsible for conducting approval tests, and of Type Approval Authorities

The Contracting Parties to the 1958 Agreement which apply this UN Regulation shall communicate to the United Nations Secretariat the names and addresses of the Technical Services responsible for conducting approval tests and of the Type Approval Authorities which grant approval and to which forms certifying approval or extension or refusal or withdrawal of approval, or production definitively discontinued issued in other countries, are to be sent.

12. Transitional provisions

12.1. As from the official date of entry into force of the 03 series of amendments to this Regulation, no Contracting Party applying this Regulation shall refuse to grant or refuse to accept type approvals under this Regulation as amended by the 03 series of amendments.

12.2. As from 24 months after the date of entry into force of the 03 series of amendments, Contracting Parties applying this Regulation shall not be obliged to accept type approvals to the preceding series of amendments, first issued after 24 months after the date of entry into force of the 03 series of amendments.

12.3. As from 36 months after the date of entry into force of the 03 series of amendments, Contracting Parties applying this Regulation shall not be obliged to accept type approvals issued to the preceding series of amendments to this Regulation (unless the equipment or part is intended as a replacement for fitting on vehicles in use and it is not technically feasible for the equipment or part in question to satisfy the new requirements contained in this Regulation as amended by the 03 series of amendments).

12.4. Until 36 months after the date of entry into force of the 03 series of amendments, Contracting Parties applying this Regulation shall accept type approvals issued according to the preceding series of amendments, first issued before 24 months after the date of entry into force of the 03 series of amendments.

ANNEX 1

Communication

PART A

NORESS for vehicle types approved according to the 04 series of amendments to UN Regulation No 41

(Maximum format: A4 (210 × 297 mm))

issued by: Name of administration:
……
……
……

Concerning (2): Approval granted
Approval extended
Approval refused
Approval withdrawn
Production definitively discontinued

of a vehicle type with regard to a type of NORESS or component there of pursuant to UN Regulation No 92.

Approval No…… Extension No ……

1. Trade name or mark of the vehicle: ……

2. Vehicle type: ……

3. Manufacturer's name and address: ……

4. If applicable, name and address of manufacturer's representative: ……

5. Engine

5.1. Manufacturer: ……

5.2. Type: ……

5.3. Model: ……

5.4. Rated maximum net power: …… kW at …… min^{-1}

5.5. Kind of engine (e.g. positive-ignition, compression ignition, etc.) (3): ……

5.6. Cycles: two-stroke/four-stroke (2)

5.7. Cylinder capacity: ……cm^3

(1) Distinguishing number of the country which has granted/extended/refused/withdrawn an approval(see approval provisions in the Regulation).
(2) Delete what does not apply.
(3) If a non-conventional engine is used, this should be stated.

6. Transmission

6.1. Type of transmission: non-automatic gearbox/automatic gearbox: .....

6.2. Number of gears: .....

7. Equipment

7.1. Exhaust silencer

7.1.1. Manufacturer or authorized representative (if any): .....

7.1.2. Model: .....

7.1.3. Type: ..... in accordance with drawing No. .....

7.2. Intake silencer

7.2.1. Manufacturer or authorized representative (if any): .....

7.2.2. Model: .....

7.2.3. Type: ..... in accordance with drawing No. .....

8. Gears used for test of motor cycle in motion: .....

9. Final drive ratio(s): .....

10. ECE type approval number of tyre(s): .....

If not available, the following information shall be provided:

10.1. Tyre manufacturer: .....

10.2. Commercial description(s) of the type of tyre (by axle) (e.g. trade name, speed index, load index): .....

10.3. Tyre size (by axle): .....

10.4. Other type approval number (if available): .....

11. Masses

11.1. Maximum permissible gross weight: .....kg

11.2. Test mass: .....kg

11.3. Power to mass ratio index (*PMR*): .....

12. Vehicle length: ..... m

12.1. Reference length l_{ref}: ..... m

13. Vehicle speeds of measurements in gear (i)

13.1. Vehicle speed at the beginning of the period of acceleration (average of 3 runs) for gear (i): .....km/h

13.2. Pre-acceleration length for gear (i): ..... m

13.3. Vehicle speed $v_{PP'}$ (average of 3 runs) for gear (i): .....km/h

13.4. Vehicle speed $v_{BB'}$ (average of 3 runs) for gear (i): .....km/h

14. Vehicle speeds of measurements in gear (i+1) (if applicable)

14.1. Vehicle speed at the beginning of the period of acceleration (average of 3 runs) for gear (i+1): .....km/h

14.2. Pre-acceleration length for gear (i+1): ..... m

14.3. Vehicle speed $v_{PP'}$ (average of 3 runs) for gear (i+1): .....km/h

14.4. Vehicle speed $v_{BB'}$ (average of 3 runs) for gear (i+1): .....km/h

15. Accelerations are calculated between lines AA' and BB'/PP' and BB'

15.1. Description of functionality of devices used to stabilize the acceleration (if applicable): .....

16. Sound levels of moving vehicle

16.1. Wide-open-throttle test result L_{wot}: .....db(A)

16.2. Constant speed test results L_{crs}: .....db(A)

16.3. Partial power factor k_p: .....--

16.4. Final test result L_{urban}: .....db(A)

17. Sound level of stationary vehicle

17.1. Position and orientation of microphone (according to Appendix 2 of Annex 3 of 04 series of UN Regulation No 41): .....

17.2. Test result for stationary test: ..... db(A) at ..... min^{-1}

18. Additional sound emission provisions:

See manufacturer's statement of compliance (attached)

19. In-use compliance reference data

19.1. Gear (i) or, for vehicles tested with non-locked gear ratios, the position of the gear selector chosen for the test: .....

19.2. Pre-acceleration length l_{PA}: ..... m

19.3. Vehicle speed at the beginning of the period of acceleration (average of 3 runs) for gear (i): .....km/h

19.4. Sound pressure level $L_{wot(i)}$: .....dB(A)

20. Date of submission of vehicle for approval: .....

21. Technical Service performing the approval tests: .....

22. Date of report issued by that Service: .....

23. Number of report issued by that Service: .....

24. Approval granted/extended/refused/withdrawn ([2]): .....

25. Position of approval mark on the motor cycle: .....

26. Place: .....

27. Date: .....

28. Signature: .....

29. The following documents, bearing the approval number shown above, are annexed to this communication:

Drawings, diagrams and plans of the engine and of the exhaust silencing system;

Photographs of the engine and of the exhaust or silencing system;

List of components, duly identified constituting the exhaust silencing system.

PART B

NORESS for vehicle types approved according to UN Regulations Nos. 9 or 63

(Maximum format: A4 (210 × 297 mm))

issued by: Name of administration:
.....
.....
.....

Concerning ([2]):
Approval granted
Approval extended
Approval refused
Approval withdrawn
Production definitively discontinued

of a vehicle type with regard to a type of NORESS or component there of pursuant to UN Regulation No 92.

Approval No..... Extension No .....

1. Trade name or mark of the vehicle: .....

2. Vehicle type: .....

3. Manufacturer's name and address: .....

4. If applicable, name and address of manufacturer's representative: .....

([1]) Distinguishing number of the country which has granted/extended/refused/withdrawn an approval (see approval provisions in the Regulation).
([2]) Delete what does not apply.

5. Engine

5.1. Manufacturer: .....

5.2. Type: .....

5.3. Model: .....

5.4. Rated maximum net power: ..... kW at ..... min^{-1}

5.5. Kind of engine (e.g. positive-ignition, compression ignition, etc.) ([3]): .....

5.6. Cycles: two-stroke/four-stroke ([2])

5.7. Cylinder capacity: .....cm^3

6. Transmission

6.1. Type of transmission: non-automatic gearbox/automatic gearbox: .....

6.2. Number of gears: .....

7. Equipment

7.1. Exhaust silencer

7.1.1. Manufacturer or authorized representative (if any): .....

7.1.2. Model: .....

7.1.3. Type: ..... in accordance with drawing No. .....

7.2. Intake silencer

7.2.1. Manufacturer or authorized representative (if any): .....

7.2.2. Model: .....

7.2.3. Type: ..... in accordance with drawing No. .....

8. Gears used for test of motor cycle in motion: .....

9. Final drive ratio(s): .....

10. ECE type approval number of tyre(s): .....

If not available, the following information shall be provided:

10.1. Tyre manufacturer: .....

10.2. Commercial description(s) of the type of tyre (by axle) (e.g. trade name, speed index, load index): .....

([3]) If a non-conventional engine is used, this should be stated.

10.3. Tyre size (by axle): .....

10.4. Other type approval number (if available): .....

11. Masses

11.1. Maximum permissible gross weight: ..... kg

11.2. Test mass: ..... kg

11.3. Power to mass ratio index (*PMR*): .....

12. Vehicle length: ..... m

13. Sound level of the vehicle in motion..... dB(A)

13.1. Gear (i) for the test of the vehicle in motion .....

13.2. Vehicle speed at the beginning of the period of acceleration (average of 3 runs) for gear (i): ..... km/h

14. Sound level of the stationary vehicle..... dB(A)

14.1. At engine speed..... min^{-1}

14.2. Position and orientation of microphone: .....

15. In-use compliance reference data

15.1. Gear (i) or, for vehicles tested with non-locked gear ratios, the position of the gear selector chosen for the test: .....

15.2. Vehicle speed at the beginning of the period of acceleration (average of 3 runs) for gear (i): ..... km/h

15.3. Sound pressure level $L_{(i)}$: ..... dB(A)

16. Date of submission of vehicle for approval: .....

17. Technical Service performing the approval tests: .....

18. Date of report issued by that Service: .....

19. Number of report issued by that Service: .....

20. Approval granted/extended/refused/withdrawn ([2]): .....

21. Position of approval mark on the motor cycle: .....

22. Place: .....

23. Date: .....

24. Signature: .....

25. The following documents, bearing the approval number shown above, are annexed to this communication:

Drawings, diagrams and plans of the engine and of the exhaust silencing system;

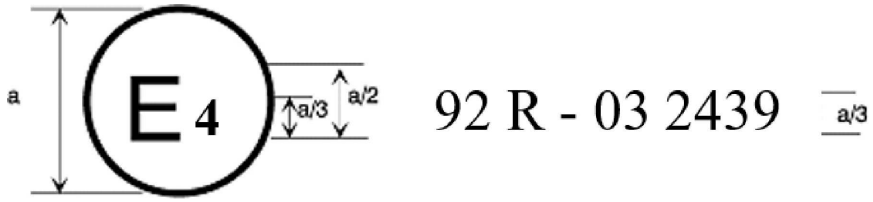
Photographs of the engine and of the exhaust or silencing system;

List of components, duly identified constituting the exhaust silencing system.

ANNEX 2

Example of the approval marks

(See paragraph 5.4 of this Regulation)



a = 8 mm min

The above approval mark affixed to a component of silencing systems shows that the replacement silencing system type concerned has been approved in the Netherlands (E4) pursuant to UN Regulation No 92 under approval No 032439. The first two digits of the approval number 03 indicate that the approval was granted in accordance with the requirements of UN Regulation No 92 as amended by the 03 series of amendments.

ANNEX 3

Requirements for fibrous absorbent materials used in NORESS

(See paragraph 6.5 of this UN Regulation)

1. Fibrous absorbent material *shall be asbestos-free* and may be used in the construction of silencers only if suitable devices ensure that the fibrous absorbent material is kept in place for the whole time that the silencer is being used and it meets the requirements of any one of sections 2, 3, 4 or 5 according to the manufacturer's choice.

2. After removal of the fibrous material, the sound level shall comply with the requirements of paragraph 6.2 of this UN Regulation.

3. The fibrous absorbent material may not be placed in those parts of the silencer through which the exhaust gases pass and shall comply with the following requirements:

   (a) The material shall be heated at a temperature of 650 ± 5 °C for four hours in a furnace without reduction in average length, diameter or bulk density of the fibre;

   (b) After heating at 650 ± 5 °C for one hour in a furnace, at least 98 per cent of the material-shall be retained in a sieve of nominal aperture size 250 μm complying with ISO 3310/1 when tested in accordance with ISO 2599;

   (c) The loss in weight of the material shall riot exceed 10,5 per cent after soaking for 24 hours at 90 ± 5 °C in a synthetic condensate of the following composition:

      (i) 1 N hydrobromic acid (HBr), 10 ml

      (ii) 1 N sulphuric acid (H_2SO_4), 10 ml

      (iii) Distilled water to make up to 1 000 ml

   Note: The material shall be washed in distilled water and dried for one hour at 105 °C before weighing.

4. Before the system is tested in accordance with paragraph 6.2. of this UN Regulation it shall be put into a normal state for road use by one of the conditioning methods in accordance with and as described in paragraph 5.1.4 of Annex 3 of UN Regulations Nos 9 or 63 or in paragraph 1.3 of Annex 5 of UN Regulation No 41, whatever is applicable.

5. Exhaust gases are not in contact with fibrous materials and fibrous materials are not under the influence of pressure variations.

ANNEX 4

Statement of Compliance with the Additional Sound Emission Provisions

(Maximum format: A4 (210 × 297 mm))

This statement is required for non-original replacement exhaust silencing systems (NORESS):

(a) with multiple, manually or electronically adjustable, rider selectable operating modes or variable geometries;

(b) without multiple, manually or electronically adjustable, rider selectable operating modes or without variable geometries specified for the use on L_3 category vehicles that are type approved pursuant to the amendments to UN Regulation No 41 and are subject to the ASEP-requirements series of amendments to UN Regulation No 41 ([1]).

…… (Name of manufacturer) attests that the non-original replacement exhaust silencing systems of this type …… (type with regard to its sound emission pursuant to the … ([2]) series of amendments to UN Regulation No 41) comply with the applicable ASEP requirements of UN Regulation No 41 during the type approval procedure and its production.

…… (Name of manufacturer) makes this statement in good faith, after having performed an appropriate evaluation of the sound emission performance of the non-original replacement exhaust silencing system in accordance with the requirements of UN Regulation No 92 during the type approval procedure and its production.

Date: ……

Name of authorized representative: ……

Signature of authorized representative: ……

([1]) Delete the bullet point that does not apply.

([2]) Fill in the series of amendments to UN Regulation No 41, which the NORESS apply.

ANNEX 5

Anti-tampering provisions

(See paragraph 6.3.1 of this Regulation)

1. Introduction

Manufacturers shall either comply with this Annex or alternative solutions may be agreed with the Type Approval Authority or its designated Technical Service, provided that they reach the same objective.

This Annex:

— provides support to interpret the definitions where anti-tampering of exhaust silencing systems is concerned,

— provides guidance and lists good practices for existing NORESS designs, constructions and manufacturing methods.

This Annex is based on construction methods that are commonly used to date (2024) and does not claim to be complete. For the assessment of designs and constructions not listed in this Annex, the general principles of 3.1 still apply.

2. Interpretation of the definitions

2.1. Definition of 'tamper proofing'

Paragraph 2.12 of this UN Regulation reads:

"*Tamper proofing*" means the activity:

— to hinder and deter unlawful modifications, and

— to ease the detection of unlawful modifications.

Tamper proofing presupposes the existence of a tamper proofing design.

A tamper proofing design refers to a design that specifies the tamper proofing measures that the NORESS manufacturer will set to comply with this regulation.

The tamper proofing design shall be part of an integrated design of the complete NORESS.

The effectiveness of the design to meet the anti-tampering requirements is part of the product validation (for example, ISO 9001:2015, clause 8.3). To confirm the effectiveness of the design, or to identify the need for further optimization, the NORESS shall be evaluated, in line with ISO 9001:2015, clause 8.5 or comparable quality systems.

Unlawful modification

In the context of this regulation, an unlawful modification is any deliberate action that makes the exhaust silencing system less effective or puts it in a shape or condition which is not any more compliant with the approved type.

The deterioration by intended use of the vehicle is not deemed to be "unlawful"'.

2.2. Definition of 'irrecoverable damage'

Paragraph 2.14 of this Regulation reads:

"*Irrecoverable damage (related to tampering exhaust silencing systems)*" means damage that constitutes permanent evidence of a tampering event.

Permanent evidence

— Permanent evidence for hardware is easily visible damage to parts of the silencer system that cannot be erased with general tools.

  — General tools are standard tools that are available in general tool shops, like standard hex and torx wrenches, screwdrivers, pliers and other hand tools.

— Permanent evidence for software change (if used) of the NORESS must be easily detectable.'

3. Guidance for the implementation of requirements

Paragraph 6.3.1 of this Regulation reads:

'Tampering protection provisions:

The NORESS and its components shall be designed and constructed considering tamper proofing measures. This is to prevent components that contribute to sound attenuation from being removed or rendered ineffective. Any tampering event shall cause irrecoverable damage to the assembly.

Software of the NORESS (if any) shall be designed and programmed considering tamper proofing measures.

At the request of the type-approval authority or its technical service, the manufacturer of the NORESS shall describe the tamper proofing measures applied and demonstrate their practical effectiveness.'

3.1. General Principles

3.1.1. Manufacturers of exhaust silencing systems shall apply tamper proofing measures to avoid impairment of NORESS integrity.

3.1.2. The performance of the NORESS shall not be capable of being modified into a state that does not conform to the type approval by end-consumers without applying extensive effort (e.g. grinding, welding, milling).

3.1.3. Unlawful modifications shall be easily detectable.

3.2. Good practices for components of the NORESS whose main function is to contribute to the sound attenuation performance

3.2.1. Welding is considered a primary tamper proofing construction method for metals and alloys.

3.2.2. Possible tamper-proofing attachment methods:

(a) welding of a sufficient perimeter to avoid removals;

(b) permanent gluing of a sufficient perimeter to avoid removals;

(c) use of sufficient and expedient stainless-steel rivets.

3.2.3. The following attachment methods are in any case deemed insufficient:

(a) threaded fixing;

(b) aluminium rivets;

(c) circlips;

(d) conventional fasteners.

3.2.4. Possible attachment points:

(a) the exhaust casing;

(b) the exhaust pipe in the exhaust silencing system;

(c) the exit cone only when the two following conditions are satisfied:

— the exit cone is a fixed part of the exhaust silencing system, and

— the exit cone does not allow the removal of any of its parts.

3.3. Good practices for components of the NORESS that do not contribute to the sound attenuation performance

3.3.1. Cosmetic end caps may be attached with conventional fasteners if:

(a) the removal of the end cap does not facilitate removal of baffles or other attenuation devices, and

(b) the cosmetic end caps are not part of the silencing or expansion chambers.

3.4. Good practices for software of the NORESS (if any)

3.4.1. Possible tamper proofing methods for software:

(a) use of a sealed control box that shows signs of opening when software is changed;

(b) protection of the interfaces to update software:

— via access control measures,

— via the logging of version management (to compare the last save date with the initial software version save date).