

15 April 1987

AGREEMENT

CONCERNING THE ADOPTION OF UNIFORM CONDITIONS OF APPROVAL AND RECIPROCAL RECOGNITION OF APPROVAL FOR MOTOR VEHICLE EQUIPMENT AND PARTS

done at Geneva on 20 March 1958

Addendum 67: Regulation No. 68

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UNIFORM PROVISIONS CONCERNING THE APPROVAL OF POWER-DRIVEN VEHICLES
WITH REGARD TO THE MEASUREMENT OF THE MAXIMUM SPEED



UNITED NATIONS

Regulation No. 68

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Regulation No. 68

UNIFORM PROVISIONS CONCERNING THE APPROVAL OF POWER-DRIVEN VEHICLES
WITH REGARD TO THE MEASUREMENT OF THE MAXIMUM SPEED

1. SCOPE

This Regulation applies to the approval of power-driven vehicles of categories M¹ and N¹ 1/ with regard to the measurement of the maximum speed indicated by the manufacturer.

2. DEFINITIONS

For the purposes of this Regulation:

2.1. "Approval of a vehicle" means the approval of a vehicle type as regards measurement of the maximum speed indicated by the manufacturer;

2.2. "Type of vehicle" means power-driven vehicles which do not differ in such essential respects as:

2.2.1. Shape of the bodywork, engine, transmission, tyres and unladen mass of the vehicle;

2.3. "Unladen mass" means the kerb mass of the vehicle without occupants or load but with fuel, cooling liquid, lubricating oil, tools and spare wheel, if provided in series by the manufacturer of the vehicle.

3. APPLICATION FOR APPROVAL

3.1. The application for approval of a vehicle type with regard to measurement of the maximum speed indicated by the manufacturer shall be submitted by the vehicle manufacturer or by his duly accredited representative.

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

3.2.1. Detailed description of the vehicle type as regards the shape of the bodywork, engine, transmission, tyres and unladen mass of the vehicle;

3.2.2. Drawings and/or photographs of the vehicle's bodywork.

3.3. A vehicle representative of the vehicle type to be approved shall be submitted to the technical service responsible for conducting the approval tests.

4. APPROVAL

4.1. When the maximum speed of a vehicle submitted for approval under this Regulation has been measured in accordance with the requirements of paragraphs/5 and 6 below, this vehicle type shall be approved.

- 4.2. An approval number shall be assigned to each type approved. Its first two digits (at present 00 for the Regulation in its original form) 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 shall not assign the same number to another vehicle type.
- 4.3. Notice of approval or of refusal or of extension or withdrawal of approval or production definitely discontinued of a vehicle type pursuant to this Regulation shall be communicated to the Parties to the Agreement applying this Regulation, by means of a form conforming to the model in annex 1 to this Regulation.
- 4.4. There shall be affixed, conspicuously and in a readily accessible place specified on the approval form, to every vehicle conforming to a vehicle type approved under this Regulation an international approval mark consisting of:
- 4.4.1. A circle surrounding the letter "E" followed by the distinguishing number of the country which has granted approval; 2/
- 4.4.2. The number of this Regulation, followed by the letter "R", a dash and the approval number to the right of the circle described in paragraph 4.4.1.
- 4.5. If the vehicle conforms to a vehicle type approved under one or more other Regulations annexed to this Agreement in the country which has granted approval under this Regulation, the symbol prescribed in paragraph 4.4.1. need not be repeated; in this case the regulation and approval numbers and the additional symbols of all the Regulations under which approval has been granted in the country which has granted approval under this Regulation shall be placed in vertical columns to the right of the symbol prescribed in paragraph 4.4.1.
- 4.6. The approval mark shall be clearly legible and shall be indelible.
- 4.7. The approval mark shall be placed on or close to the vehicle data plate affixed by the manufacturer.
- 4.8. Annex 2 to this Regulation gives examples of the approval marks.
5. REQUIREMENTS
- 5.1. The maximum speed of the vehicle shall be measured in accordance with the following requirements:
- 5.2. Preparation of the vehicle
- 5.2.1. The configuration of the vehicle and its attitude shall be as determined by the manufacturer. In addition, the vehicle shall be clean, the windows and air entries shall be closed and only the accessories necessary for the operation of the vehicle for the purposes of the test shall be in use. The settings of the fuel feed (carburettors or injection pumps) and ignition, the viscosity

of the oils for the mechanical moving parts and the tyre pressures (for operation under full load at maximum speed) shall conform to the specifications of the vehicle manufacturer. The manually controlled reheater, if any, shall be set to the "summer" position unless otherwise specified by the manufacturer.

- 5.2.2. The running-in of the engine, transmission and tyres shall have been carried out in accordance with the manufacturer's instructions.
- 5.2.3. The mass of the vehicle shall be its kerb mass plus 180 kg or plus half the full load if greater than 180 kg.
- 5.2.4. The fuel used shall be the commercial grade for the type of vehicle tested or, in the event of dispute, one of those prescribed in Regulation No. 15.

5.3. Characteristics of the test track

The measurement shall be effected on either:

A straight track in the conditions set out in paragraph 5.3.1;
or

A loop track in the conditions set out in paragraph 5.3.2.

- 5.3.1. Measurement on straight track
 - 5.3.1.1. Surface condition: the surface shall be hard and smooth and give good adhesion.
 - 5.3.1.2. Lengths
 - 5.3.1.2.1. The length L shall be selected in relation to the precision of the apparatus and the method used for measuring the time t of the run so that the actual speed can be determined within ± 1 per cent. The length actually used for the measurement shall be recorded in the report.
 - 5.3.1.2.2. Stabilizing zone: the stabilizing zone shall be of the same nature as the measuring zone, approximately straight and of sufficient length for the speed of the vehicle to have stabilized at its maximum by the time the vehicle reaches the measuring zone.
 - 5.3.1.3. Slopes
 - 5.3.1.3.1. Longitudinal: in the stabilizing and the measuring zones, the longitudinal slope shall not exceed 0.5 per cent.
 - 5.3.1.3.2. Transverse: the transverse slope shall not exceed 3 per cent.
 - 5.3.1.3.3. A section of loop track may be regarded as "straight" if the requirements of paragraphs 5.3.1. to 5.3.1.3.1. are satisfied and the centrifugal inertia reaction is less than 20 per cent of the initial weight of the vehicle and is compensated by the transverse slope of the track.

5.3.2. Measurement on loop track

5.3.2.1. Surface conditions: the surface shall be hard and smooth and give good adhesion.

5.3.2.2. Length: the length of the loop shall be not less than 2,000/metres. For calculating the maximum speed, the length of run shall be the distance actually covered by the vehicle.

5.3.2.3. Minimum radius of bends: in plan, the loop track shall be a convex curve and may vary from a perfect circle to straight sections linked by approximately circular sections. The radius of curves shall be not less than 200 metres. The effects of centrifugal force shall be compensated by the transverse profile of the curves in such a way that the vehicle holds a normal line without any action on the steering wheel.

5.3.2.4. Correction factor for loop track: a correction factor determined experimentally by the procedure given in annex 3 may be applied for loop track. This correction factor shall be subject to confirmation by the administrative service at the time of approval by the technical service responsible for the tests. The factor may in no case entail a correction exceeding 5 per cent. However, for vehicles equipped with a speed regulator, the factor shall not be applied if the regulator is in operation during the test.

5.4. Atmospheric conditions

5.4.1. Air density

The air density at the time of the test, calculated as set out below, shall not vary by more than 7.5 per cent from the air density in the reference conditions.

The air density shall be calculated by the formula:

$$d_r = d_o \times \frac{H_r}{H_o} \times \frac{T_o}{T_r}$$

where

d_r = air density in the test conditions;

d_o = air density in the reference conditions;

H_r = pressure during the test;

T_r = absolute temperature during the test (K).

Reference conditions

Pressure: $H_o = 1,000$ mbar

Temperature: $T_o = 293/K$ (20°C)

In addition, the atmospheric pressure during the tests shall be not less than 910/mbar and the temperature shall be not less than 278 K (5°C).

5.4.2. Wind

The average wind speed measured at a height of 1 m above the ground shall be less than 3 m/s; gusts shall be less than 5 m/s.

5.4.3. Relative humidity

The relative humidity shall be less than 95 per cent and the track shall be dry.

5.5. Test method

5.5.1. Warming-up

5.5.1.1. Immediately before the test, the parts of the vehicle which might affect the measurement shall be in the stable temperature conditions specified by the manufacturer.

5.5.1.2. During measurement, the gear ratio used shall be that in which the vehicle is able to reach its maximum steady speed. The accelerator shall be fully depressed. Any cold-starting device or manual choke shall be out of operation.

5.5.2. Measurements at the maximum speed

The distance covered and the time taken to cover it shall be determined with sufficient accuracy for the error in the maximum speed not to exceed 1 per cent.

5.5.3. Determination of maximum speed on a straight track

5.5.3.1. Two-direction test

The time T_i taken to cover the measured length shall be measured. It shall be checked that the speed does not vary at any moment during the run by more than 2 per cent. This procedure shall be effected not less than three times in each direction and the variation between the extreme values of the six "Ti" values recorded shall not exceed 3 per cent.

A time T shall be determined by the formula:

$$T = \frac{1}{6} \sum_{i=1}^6 T_i$$

The test speed shall be determined by the formula:

$$V = \frac{L \times 3.6}{T}$$

where

V = speed in km/h;

T = time in seconds;

L = length of the measuring zone in metres.

5.5.3.2. Single-direction test

Testing in one direction only shall be permissible if, in view of the characteristics of the circuit, it is not possible for the vehicle to reach its maximum speed in both directions. In this case:

The characteristics of the track shall be as set out in paragraph 5.3.1.; in addition, the variation in altitude shall not exceed 1 metre between any two points;

The run shall be repeated five times in immediate succession;

The axial wind component speed shall not exceed 2 m/s;

The maximum speed shall be determined by the following correction formula taking into account wind speed:

$$V_i = V_r \pm V_v . f$$

where

The + sign is used if the axial wind component is in the opposite direction to the vehicle, and the - sign if there is a following wind

V_r = maximum speed in km/h measured for each run

$$V_r = \frac{3.6 L}{t}$$

t = time in seconds taken to cover the measured length L (m)

V_v = axial wind component (km/h) = v x 3.6

where v is the axial wind component measured in m/s

f = correction factor = 0.6.

Leaving aside the extreme values of V_i , the maximum speed V is given by:

$$V = \frac{1}{3} \sum_1^3 V_i$$

5.5.4. Determination of the maximum speed on loop track

The time T_i required for a complete circuit shall be recorded. Not less than three measurements shall be made with the vehicle following a path corresponding approximately to that taken at the test speed, i.e. not requiring any correction of course by action on the steering wheel. The difference between the extreme values measured shall not exceed 3 per cent.

The time T shall be determined by the formula:

$$\bar{T} = \frac{1}{3} \sum_{i=1}^3 T_i$$

The apparent maximum speed shall be determined by the formula:

$$V_a = \frac{L \times 36}{T}$$

where

v_a = speed in km/h

T = time in seconds

L = length of the path actually covered on the loop track, in metres.

The speed V_a shall then be corrected by an experimentally determined factor specific to the loop track used and taking into account, in particular, the effects of centrifugal force in the curves and the consequent changes in the attitude of the vehicle:

$$V = V_a \times k$$

where

1.00 k 1.05 where k is the correction factor determined in accordance with annex 3.

6. INTERPRETATION OF RESULTS

The maximum speed indicated by the manufacturer for the type of vehicle, rounded to the nearest 1 km/h, shall be accepted if it does not differ by more than ± 2 per cent from the value measured by the technical service on the vehicle submitted for testing. If the difference is greater than ± 2 per cent, the value taken shall be that found by the laboratory.

7. MODIFICATIONS OF THE VEHICLE TYPE AND EXTENSION OF APPROVAL

7.1. Every modification of the vehicle type shall be notified to the administrative department which approved the vehicle type. The department may then either:

- 7.1.1. Consider that the modifications made are unlikely to have an appreciable adverse effect and that in any case the vehicle still complies with the requirements; or
- 7.1.2. Require a further test report from the technical service responsible for conducting the tests.
- 7.2. Confirmation or refusal of approval, specifying the alterations shall be communicated by the procedure specified in paragraph 4.3. above to the Parties to the Agreement applying this Regulation.
- 7.3. 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
 - 8.1. Every vehicle bearing an approval mark as prescribed under this Regulation shall conform to the vehicle type approved.
 - 8.2. The maximum speed measured during checks for conformity of the series production shall not differ by more than ± 5 per cent from the value selected in accordance with the provisions of paragraph 6 for the approval test.
9. PENALTIES FOR NON-CONFORMITY OF PRODUCTION
 - 9.1. The approval granted in respect of a vehicle type pursuant to this Regulation may be withdrawn if the requirements laid down in paragraph 8 above are not met.
 - 9.2. If a Party to the Agreement applying this Regulation withdraws an approval it has previously granted, it shall forthwith so notify the other Contracting Parties applying this Regulation, by means of a copy of the approval form bearing at the end, in large letters, the signed and dated annotation "APPROVAL WITHDRAWN".
10. PRODUCTION DEFINITELY DISCONTINUED

If the holder of the approval completely ceases to manufacture a type of vehicle approved in accordance with this Regulation, he shall so inform the authority which granted the approval. Upon receiving the relevant communication that authority shall inform thereof the other Parties to the Agreement applying this Regulation by means of a copy of the approval form bearing at the end, in large letters, the signed and dated annotation "PRODUCTION DISCONTINUED".

11. NAMES AND ADDRESSES OF TECHNICAL SERVICES RESPONSIBLE FOR
CONDUCTING APPROVAL TESTS, AND OF ADMINISTRATIVE DEPARTMENTS

The Parties to the Agreement applying this Regulation shall communicate to the United Nations Secretariat the names and addresses of the technical services responsible for conducting approval tests and of the administrative departments which grant approval and to which forms certifying approval or refusal or extension or withdrawal of approval, issued in other countries, are to be sent.

Notes

1/ These categories are defined in the Consolidated Resolution on the Construction of Vehicles (R.E.3) (TRANS/SC1/WP29/78 and Amend. 1).

2/ One for the Federal Republic of Germany, 2 for France, 3 for Italy, 4/for the Netherlands, 5 for Sweden, 6 for Belgium, 7 for Hungary, 8 for Czechoslovakia, 9 for Spain, 10 for Yugoslavia, 11 for the United Kingdom, 12/for Austria, 13 for Luxembourg, 14 for Switzerland, 15 for the German/Democratic Republic, 16 for Norway, 17 for Finland, 18 for Denmark, 19/for Romania, 20 for Poland, 21 for Portugal and 22 for the Union of Soviet/Socialist Republics. Subsequent numbers shall be assigned to other countries in the chronological order in which they ratify or accede to the Agreement concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts, and the numbers thus assigned shall be communicated by the Secretary-General of the United Nations to the Contracting Parties to the Agreement.

Annex 1

(Maximum format: A4 (210 x 297 mm))



1/

Communication concerning: approval
refusal of approval
extension of approval
withdrawal of approval
production definitely
discontinued 2/

of a type of power-driven vehicle with regard to the
measurement of the maximum speed, pursuant to
Regulation/No. 68

- 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. Brief description of the vehicle type with respect to shape of the bodywork
and engine
 6. Gear box ratio used
 7. Speed at 1,000 r.p.m. with the ratio used
 8. Unladen mass of the vehicle
 9. Maximum speed as approved

1/ Name of administration.

2/ Strike out what does not apply.

10. Vehicle submitted for approval on
11. Technical service responsible for conducting the approval tests
12. Date of report issued by that service
13. Approval granted/refused/extended/withdrawn 2/.....
14. Reason(s) of extension (if applicable)
15. Number of report issued by that service
16. Position of approval mark on the vehicle

17. Place
18. Date
19. Signature
20. The following documents, bearing the approval number shown above, are annexed to this communication:
 - drawings of the vehicle
 - photographs of the vehicle

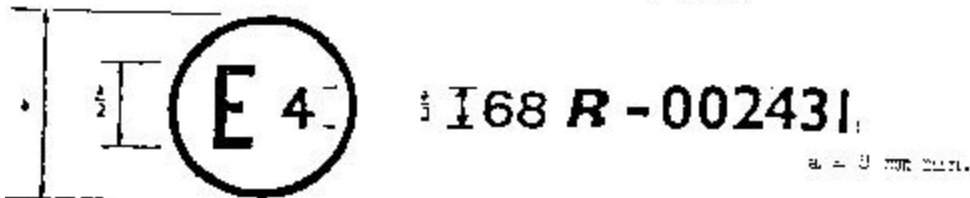
2/ Strike out what does not apply.

Annex 2

EXAMPLES OF APPROVAL MARKS

Model A

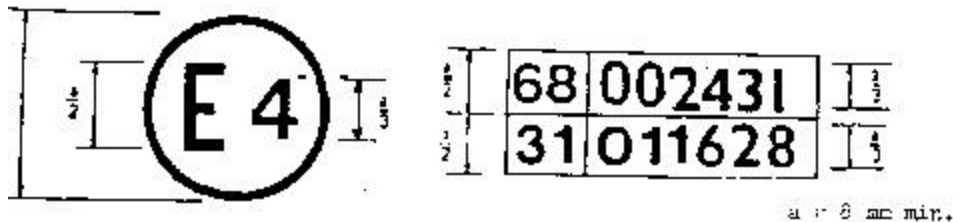
(see paragraph 4.4.1. of this Regulation)



The above approval mark affixed to a vehicle shows that the vehicle type concerned has been approved in the Netherlands (E 4) with regard to the measurement of the maximum speed of motor vehicles, pursuant to Regulation/No./68 and under the approval number 002431. The first two digits of the approval number indicate that the approval was granted in accordance with the requirements of Regulation No. 68 in its original form.

Model B

(see paragraph 4.5. of this Regulation)



The above approval mark affixed to a vehicle shows that the vehicle type concerned has been approved in the Netherlands (E 4) pursuant to Regulations/Nos. 68 and 31. 1/ The first two digits of the approval numbers indicate that, at the dates when the respective approvals were granted, Regulation No. 68 had not been modified, and Regulation No. 31 already included the 01 series of amendments.

1/ The latter number is given as an example only.

Annex 3

PROCEDURE FOR DETERMINING THE CORRECTION FACTOR FOR LOOP TRACK

1. The correction factor k for loop track shall be determined up to the maximum permitted speed.
2. The factor shall be determined for several speeds in such a way that the difference between two consecutive speeds is not more than 30 km/h.
3. For each speed selected, the test shall be carried out in accordance with the requirements of this Regulation by both the possible methods:
 - 3.1. Speed measured in a straight line: V_D
 - 3.2. Speed measured on loop track: V_A
4. For each speed measured the values V_A and V_D shall be plotted on a diagram (fig. 1) and each consecutive pair of points connected by a straight line.

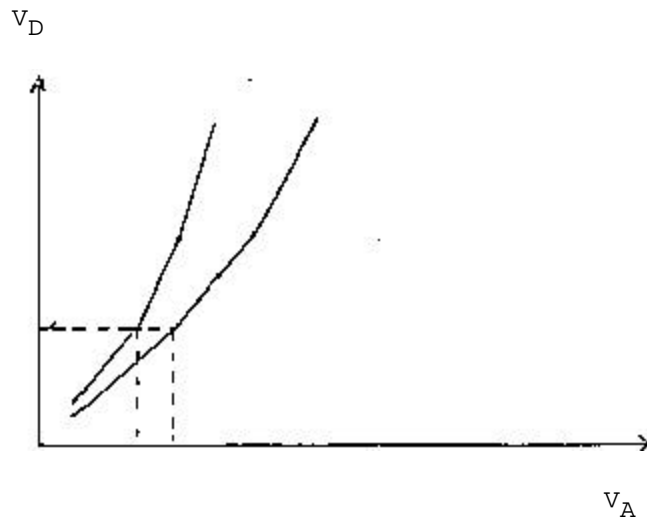


Figure 1