

# 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

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*Addendum 1: Regulations No. 1 and No. 2\**

*Revision 4*

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UNIFORM PROVISIONS CONCERNING THE APPROVAL OF MOTOR VEHICLE  
HEADLAMPS EMITTING AN ASYMMETRICAL PASSING BEAM AND/OR A  
DRIVING BEAM AND EQUIPPED WITH FILAMENT LAMPS OF CATEGORY R2

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\* The prescriptions of Regulation No. 2 have been superseded by those of Regulation No. 37.



UNITED NATIONS



Regulation No. 1

UNIFORM PROVISIONS CONCERNING THE APPROVAL OF MOTOR VEHICLE  
HEADLAMPS EMITTING AN ASYMMETRICAL PASSING BEAM AND/OR A  
DRIVING BEAM AND EQUIPPED WITH FILAMENT LAMPS OF CATEGORY R2

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Regulation No. 2

UNIFORM PROVISIONS CONCERNING THE APPROVAL OF INCANDESCENT  
ELECTRIC LAMPS FOR HEADLAMPS EMITTING AN ASYMMETRICAL PASSING  
BEAM OR A DRIVING BEAM OR BOTH

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Regulation No. 1

UNIFORM PROVISIONS CONCERNING THE APPROVAL OF MOTOR VEHICLE  
HEADLAMPS EMITTING AN ASYMMETRICAL PASSING BEAM AND/OR A  
DRIVING BEAM AND EQUIPPED WITH FILAMENT LAMPS OF CATEGORY R2

SCOPE 1/

This Regulation applies to motor vehicle headlamps which may incorporate lenses of glass or plastic material.

1. DEFINITIONS

For the purpose of this Regulation,

- 1.1. "Lens" means the outermost component of the headlamp (unit) which transmits light through the illuminating surface;
- 1.2. "Coating" means any product or products applied in one or more layers to the outer face of a lens;
- 1.3. Headlamps of different "types" are headlamps which differ in such essential respects as:
  - 1.3.1. The trade name or mark;
  - 1.3.2. The characteristics of the optical system;
  - 1.3.3. The inclusion of additional components capable of altering the optical effects by reflection, refraction or absorption; and/or deformation during operation;
  - 1.3.4. Suitability for right-hand or left-hand traffic or for both traffic systems;
  - 1.3.5. Ability to provide a passing beam or a driving beam or both;
  - 1.3.6. The materials constituting the lenses and coating, if any.

2. APPLICATION FOR APPROVAL 2/

- 2.1. The application for approval shall be submitted by the owner of the trade name or mark or by his duly accredited representative. It shall specify:

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1/ Nothing in this Regulation shall prevent a Party to the Agreement applying this Regulation from prohibiting the combination of a headlamp incorporating a lens of plastic material approved under this Regulation with a mechanical headlamp-cleaning device (with wipers).

2/ Application for approval of a filament lamp: see Regulation No. 37.

Whether the headlamp is intended to provide both a passing beam and a driving beam or only one of these beams;

Whether, if the headlamp is intended to provide a passing beam, it is designed for both left-hand and right-hand traffic or for either left-hand or right-hand traffic only.

- 2.2. The application shall be accompanied, in respect of each type of headlamp, by:
  - 2.2.1. Drawings in triplicate in sufficient detail to permit identification of the type and representing a frontal view of the headlamp, with details of lens ribbing if any, and the cross-section; the drawings shall indicate the space reserved for the approval mark;
  - 2.2.2. A brief technical specification;
  - 2.2.3. Two samples of the type of headlamp;
  - 2.2.4. For the test of plastic material of which the lenses are made;
    - 2.2.4.1. thirteen lenses;
      - 2.2.4.1.1. six of these lenses may be replaced by six samples of material at least 60 x 80 mm in size, having a flat or convex outer surface and a substantially flat area (radius of curvature not less than 300 mm) in the middle measuring at least 15 x 15 mm;
      - 2.2.4.1.2. every such lens or sample of material shall be produced by the method to be used in mass production;
    - 2.2.4.2. a reflector to which the lenses can be fitted in accordance with the manufacturer's instructions.
- 2.3. The materials making up the lenses and coatings, if any, shall be accompanied by the test report of the characteristics of these materials and coatings if they have already been tested.
- 2.4. The competent authority shall verify the existence of satisfactory arrangements for ensuring effective control of the conformity of production before type approval is granted.

3. MARKINGS 3/

- 3.1. Headlamps submitted for approval shall bear the trade name or mark of the applicant.
- 3.2. They shall comprise, on the lens and on the main body, 4/ spaces of sufficient size for the approval mark and the additional symbols referred to in paragraph 4; these spaces shall be indicated on the drawings referred to in paragraph 2.2.1 above.
- 3.3. In the case of headlamps designed to satisfy the requirements both of countries with right-hand traffic and of countries with left-hand traffic, the two settings of the optical unit on the vehicle or of the filament lamp on the reflector shall be marked by the capital letters R and D, and L and G, respectively.

4. APPROVAL

4.1. General

- 4.1.1. If all the samples of a type of headlamp submitted pursuant to paragraph 2 above satisfy the provisions of this Regulation, approval shall be granted.
- 4.1.2. Where grouped, combined or reciprocally incorporated lamps satisfy the requirements of more than one Regulation, a single international approval mark may be affixed provided that each lamp of the grouped, combined or reciprocally incorporated lamps satisfies the provisions applicable to it. This requirement shall not apply to headlamps fitted with a two-filament bulb when a single beam is approved.
- 4.1.3. An approval number shall be assigned to each type approved. The same Contracting Party may not assign the same number to another type of headlamp covered by this Regulation except in the case of an extension of the approval to a device differing only in the colour of the light emitted.
- 4.1.4. Notice of approval or of extension or refusal or withdrawal of approval or production definitely discontinued of a type of headlamp pursuant to this Regulation shall be communicated to the

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3/ In the case of headlamps designed to meet the requirements of traffic moving on one side of the road only (either right or left), it is further recommended that the area which can be occulted to prevent discomfort to users in a country where traffic moves on the opposite side of the road should be outlined indelibly on the front lens. This marking is not necessary, however, where the area is clearly apparent from the design.

4/ If the lens cannot be detached from the main body of the headlamp, a space on the lens shall be sufficient.

Parties to the 1958 Agreement applying this Regulation, by means of a form conforming to the model shown in annex 1 to this Regulation.

4.1.5. In addition to the mark prescribed in paragraph 3.1, an approval mark as described in paragraphs 4.2 and 4.3 below shall be affixed in the spaces referred to in paragraph 3.2 above to every headlamp conforming to a type approved under this Regulation.

4.2. Composition of the approval mark

The approval mark shall consist of:

4.2.1. an international approval mark comprising:

4.2.1.1. a circle surrounding the letter "E" followed by the distinguishing number of the country which has granted approval; 5/

4.2.1.2. the approval number prescribed in paragraph 4.1.3 above.

4.2.2. the following additional symbol (or symbols):

4.2.2.1. on headlamps meeting left-hand traffic requirements only, a horizontal arrow, pointing to the right of an observer facing the headlamp, i.e. to the side of the road on which the traffic moves;

4.2.2.2. on headlamps designed to meet the requirements of both traffic systems by means of an appropriate adjustment of the setting of the optical unit or the filament lamp, a horizontal arrow with a head on each end, the heads pointing respectively to the left and to the right;

4.2.2.3. on headlamps meeting the requirements of this Regulation in respect of the passing beam only, the letter "C";

4.2.2.4. on headlamps meeting the requirements of this Regulation in respect of the driving beam only, the letter "R";

4.2.2.5. on headlamps meeting the requirements of this Regulation in respect of both the passing beam and the driving beam, the letters "CR";

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5/ 1 for Germany, 2 for France, 3 for Italy, 4 for the Netherlands, 5 for Sweden, 6 for Belgium, 7 for Hungary, 8 for the Czech and Slovak Federal Republic, 9 for Spain, 10 for Yugoslavia, 11 for the United Kingdom, 12 for Austria, 13 for Luxembourg, 14 for Switzerland, 15 (vacant), 16 for Norway, 17 for Finland, 18 for Denmark, 19 for Romania, 20 for Poland, 21 for Portugal and 22 for the Russian Federation. Subsequent numbers will 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 to the Contracting Parties to the Agreement by the Secretary-General of the United Nations.



- 4.2.2.6. on headlamps incorporating a lens of plastic material, the group of letters "PL" shall be affixed near the symbols prescribed in paragraphs 4.2.2.3 to 4.2.2.5 above.
- 4.2.2.7. In every case the relevant operating mode used during the test procedure according to paragraph 1.1.1.1 of annex 4 and the permitted voltage(s) according to paragraph 1.1.1.2 of annex 4 shall be stipulated on the approval certificate and on the communication form transmitted to the countries which are Contracting Parties to the Agreement and which apply this Regulation.

In the corresponding cases the device shall be marked as follows:

On headlamps meeting the requirements of this Regulation which are so designed that the filament of the passing beam shall not be lit simultaneously with that of any other lighting function with which it may be reciprocally incorporated: an oblique stroke (/) shall be placed behind the passing lamp symbol in the approval mark.

On headlamps meeting the requirements of annex 4 to this Regulation only when supplied with a voltage of 6 V or 12 V, a symbol consisting of the number 24 crossed out by an oblique cross (X), shall be placed near the filament lamp holder.

- 4.2.2.8. The two digits of the approval number which indicate the series of amendments in force at the time of issue of the approval and, if necessary, the required arrow may be marked close to the above additional symbols.
- 4.2.2.9. The marks and symbols referred to in paragraphs 4.2.1 and 4.2.2 above shall be clearly legible and be indelible even when the device is fitted in the vehicle.

#### 4.3. Arrangement of the approval mark

##### 4.3.1. Independent lamps

Annex 5, figures 1 to 9, to this Regulation gives examples of arrangements of the approval marks with the above-mentioned additional symbols.

##### 4.3.2. Grouped, combined or reciprocally incorporated lamps

- 4.3.2.1. Where grouped, combined or reciprocally incorporated lamps have been found to comply with the requirements of several Regulations, a single international approval mark may be affixed, consisting of a circle surrounding the letter "E" followed by the distinguishing number of the country which has granted the approval, and an

approval number. This approval mark may be located anywhere on the grouped, combined or reciprocally incorporated lamps, provided that:

- 4.3.2.1.1. it is visible after their installation;
- 4.3.2.1.2. no part of the grouped, combined or reciprocally incorporated lamps that transmits light can be removed without at the same time removing the approval mark.
- 4.3.2.2. The identification symbol for each lamp appropriate to each Regulation under which approval has been granted, together with the corresponding series of amendments incorporating the most recent major technical amendments to the Regulation at the time of issue of the approval and, if necessary, the required arrow shall be marked:
  - 4.3.2.2.1. either on the appropriate light-emitting surface,
  - 4.3.2.2.2. or in a group, in such a way that each of the grouped, combined or reciprocally incorporated lamps may be clearly identified (see four possible examples in annex 5).
- 4.3.2.3. The size of the components of a single approval mark shall not be less than the minimum size required for the smallest of the individual marks by the Regulation under which approval has been granted.
- 4.3.2.4. An approval number shall be assigned to each type approved. The same Contracting Party may not assign the same number to another type of grouped, combined or reciprocally incorporated lamps covered by this Regulation.
- 4.3.2.5. Annex 5, figure 10, to this Regulation gives examples of arrangements of approval marks for grouped, combined or reciprocally incorporated lamps with all the above-mentioned additional symbols.
- 4.3.3. Lamps, the lens of which is used for different types of headlamps and which may be reciprocally incorporated or grouped with other lamps

The provisions laid down in paragraph 4.3.2 above are applicable.

- 4.3.3.1. In addition, where the same lens is used, the latter may bear the different approval marks relating to the different types of headlamps or units of lamps, provided that the main body of the headlamp, even if it cannot be separated from the lens, also comprises the space described in paragraph 3.2 above and bears the approval marks of the actual functions. If different types of headlamps comprise the same main body, the latter may bear the different approval marks.

4.3.3.2. Annex 5, figure 11, to this Regulation gives examples of arrangements of approval marks relating to the above case.

5. GENERAL SPECIFICATIONS

5.1. Each sample shall conform to the specifications set forth in paragraphs 6 and 7 below.

5.2. Headlamps shall be so made as to retain their prescribed photometric characteristics and to remain in good working order when in normal use, in spite of the vibrations to which they may be subjected.

5.3. Headlamps shall be fitted with a device enabling them to be so adjusted on the vehicle as to comply with the rules applicable to them. Such a device need not be fitted on components in which the reflector and the diffusing lens cannot be separated provided the use of such units is confined to vehicles on which the headlamps setting can be adjusted by other means. Where a headlamp providing a driving beam and a headlamp providing a passing beam, each equipped with its own filament lamp, are assembled to form a composite unit, the adjusting device shall enable each optical system individually to be duly adjusted.

However, this shall not apply to headlamps assemblies whose reflectors are indivisible. For this type of assembly, the requirements of paragraph 6 below shall apply.

5.4. The components by which the filament lamp is fixed to the reflector shall be so made that, even in darkness, the filament lamp can be fixed in no position but the correct one.

5.5. Headlamps designed to satisfy the requirements both of countries in which traffic moves on the right and of those in which it moves on the left may be adapted for traffic on a given side of the road either by an appropriate initial adjustment when the vehicle is fitted out or by selective setting by the driver. Such initial adjustment or selective setting shall consist, for example, of fixing either the optical unit at a given angle on the vehicle or the filament lamp at a given angle in relation to the optical unit. In all cases, only two precisely differentiated setting positions, one for right-hand and one for left-hand traffic, shall be possible, and the design shall preclude inadvertent shifting of the headlamp from one position to another or its setting in an intermediate position. Where two different setting positions are provided for the filament lamp, the components attaching the filament lamp to the reflector must be so designed and manufactured that, in each of its two settings, the filament lamp will be held in position with the precision required for headlamps intended for traffic on only one side of the road.

- 5.6. Complementary tests shall be done according to the requirements of annex 4 to ensure that in use there is no excessive change in photometric performance.
- 5.7. Conformity with the requirements of paragraphs 5.2 to 5.5 shall be verified visually and, where necessary, by a test fitting.
- 5.8. If the lens of the headlamp is of plastic material, tests shall be done according to the requirements of annex 7.

6. ILLUMINATION

- 6.1. Headlamps shall be so made that the passing-beam filaments of suitable filament lamps give adequate illumination without dazzle, while the driving-beam filaments of suitable filament lamps also give good illumination.

The illumination produced by the headlamp shall be checked on a vertical screen set at a distance of 25 m in front of the headlamp and at right angles to its axis (see annex 6 to this Regulation), and with a standard filament lamp designed for a nominal voltage of 12 V, having a smooth and colourless bulb, and exhibiting the following characteristics at that voltage:

	Consumption in watts	Light flux in lumens
Passing-beam filament	40 ± 5%	450 ± 10%
Driving-beam filament	45 + 0% - 10%	700 ± 10%

The dimensions determining the position of the filaments inside the standard filament lamp are shown on the relevant filament lamp data sheet of Regulation No. 37.

- 6.2. The passing beam must produce a sufficiently sharp "cut-off" to permit satisfactory adjustment with its aid. The "cut-off" must be a horizontal straight line on the side opposite to the direction of the traffic for which the headlamp is intended; on the other side it should be horizontal or within an angle of 15° above the horizontal.

The headlamp shall be so adjusted that:

- 6.2.1. in the case of headlamps designed to meet the requirements of right-hand traffic, the "cut-off" on the left half of the

screen 6/ is horizontal and, in the case of headlamps designed to meet the requirements of left-hand traffic, the "cut-off" on the right half of the screen is horizontal;

- 6.2.2. this horizontal part of the "cut-off" is situated on the screen 25 cm below the outline of the horizontal plane passing through the focus of the headlamp (see annex 6 to this Regulation);
- 6.2.3. the screen is in the position indicated in annex 6. 7/

When so adjusted, the headlamp shall, if it is intended to provide a passing beam and a driving beam, comply with the requirements referred to in paragraphs 6.3 and 6.5 below. If it is intended primarily to provide a passing beam, it need comply only with the requirements referred to in paragraph 6.3. 8/

Where a headlamp so adjusted does not meet the requirements referred to in paragraphs 6.3 and 6.5, its adjustment may be changed, provided that the axis of the beam or the point of intersection HV specified in annex 6 to this Regulation is not laterally displaced by more than 1° (=44 cm) to the right or left. 9/ To facilitate adjustment by means of the "cut-off", the headlamp may be partially occulted in order to sharpen the "cut-off".

If the headlamp is designed solely to provide a driving beam, it shall be so adjusted that the area of maximum illumination is centred on the point of intersection of the lines hh and vv. Such a headlamp need meet only the requirements referred to in paragraph 6.5.

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6/ The adjustment screen should be sufficiently wide to allow examination of the "cut-off" over a range of at least 5° from the line vv.

7/ If, in the case of a headlamp designed to satisfy the requirements of this Regulation with respect to the passing beam only, the focal axis diverges appreciably from the general direction of the beam, lateral adjustment shall be effected to the manner which best satisfies the requirements for illumination at points 75 and 50.

8/ A "passing beam" headlamp of this kind may incorporate a driving beam for which no specifications are laid down.

9/ The limit of non-adjustment of 1° to the right or left is not incompatible with vertical non-adjustment. The latter is limited only by the requirements of paragraph 6.5.

6.3. The illumination produced on the screen by the passing beam shall meet the requirements of the following table: 10/

Point on measuring screen		Required illumination in lux
Headlamps for right-hand traffic	Headlamps for left-hand traffic	
Point B 50 L	Point B 50 R	≤ 0.4
" 75 R	" 75 L	≥ 6
" 50 R	" 50 L	≥ 6
" 25 L	" 25 R	≥ 1.5
" 25 R	" 25 L	≥ 1.5
Any point in zone III		≤ 0.7
" " " "	IV	≥ 2
" " " "	I	≤ 20

It is understood that, where the flux of the standard filament lamp used for measurement is other than 450 lumens, the measurements as taken will be corrected proportionally to the rates of the fluxes. There shall be no lateral variations detrimental to good visibility in any of the zones I, II, III and IV.

Headlamps designed to meet the requirements of both right-hand and left-hand traffic must, in each of the two setting positions of the optical unit or of the filament lamp, meet the requirements set forth above for the corresponding traffic system.

6.4 The illumination values in zones "A" and "B" as shown in figure P1C in annex 6 shall be checked by the measurement of the photometric values of points 1 to 8 on this figure; these values shall lie within the following limits:

$$0.7 \text{ lux} \geq 1, 2, 3, 7 \geq 0.1 \text{ lux}$$

$$0.7 \text{ lux} \geq 4, 5, 6, 8 \geq 0.2 \text{ lux}$$

6.5 Measurements of the illumination produced on the screen by the driving beam shall be taken with the same headlamp adjustment as for measurements under 6.3 above, or, in the case of a headlamp providing a driving beam only, in accordance with the final paragraph of 6.2.3. In the case where more than one light source is used to provide the main beam, the combined functions shall be used to determine the maximum value of the illumination ( $E_{\max}$ ).

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10/ See annex 2 on the subject of special headlamps for agricultural or forest tractors and other slow-moving vehicles.

The illumination produced on the screen by the driving beam shall meet the following requirements:

The point of intersection HV of the lines hh and vv shall be situated within the isolux 90% of maximum illumination.

This maximum value shall not be less than 32 lux.

Starting from point of intersection HV, horizontally to the right and left, illumination shall be not less than 16 lux up to a distance of 1.125 m and not less than 4 lux up to a distance of 2.25 m. (Where the flux of the standard filament lamp used for measurements is other than 700 lumens, the measurements as taken must be corrected proportionally to the ratio of the fluxes.)

- 6.6. The screen illumination values mentioned under paragraphs 6.3 and 6.5 above shall be measured by means of a photo-electric cell, the useful area of which shall be contained within a square of 65 mm side.

7. GAUGING OF DISCOMFORT

The discomfort caused by the passing beam of headlamps shall be gauged. 11/

8. STANDARD HEADLAMP

A headlamp shall be deemed to be a standard headlamp if it:

- 8.1. Satisfies the above-mentioned requirements for approval;
- 8.2. Has an effective diameter of not less than 160 mm;
- 8.3. Provides with a standard filament lamp, at the various points and in the various areas referred to in paragraph 6.3 above, illumination equal to:
- 8.3.1. not more than 90% of the maximum limits, and
- 8.3.2. not less than 120% of the minimum limits prescribed in the table in paragraph 6.3.

9. CONFORMITY OF PRODUCTION

Every headlamp bearing an approval mark provided for in this Regulation must conform to the approved type and meet the photometric conditions stated above. Verification of this

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11/ This requirement will be the subject of a recommendation for the benefit of administrations.

requirement shall be effected in accordance with annex 3 and paragraph 3 of annex 4 to this Regulation, and, if applicable, paragraph 3 of annex 7 to this Regulation.

10. PENALTIES FOR NON-CONFORMITY OF PRODUCTION

10.1. The approval granted in respect of a headlamp pursuant to this Regulation may be withdrawn if the requirements specified above are not met or if a headlamp bearing the approval mark is not in conformity with the type approved.

10.2. If a Contracting 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 communication form conforming to the model in annex 1 to this Regulation.

11. MODIFICATION AND EXTENSION OF APPROVAL OF A TYPE OF HEADLAMP

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

11.1.1. Consider that the modifications made are unlikely to have an appreciable adverse effect and that in any case the headlamp still complies with the requirements; or

11.1.2. Require a further test report from the technical service responsible for conducting the tests.

11.2. Confirmation or refusal of approval, specifying the alterations, shall be communicated by the procedure specified in paragraph 4.1.4 above to the Parties to the Agreement applying this Regulation.

11.3. The competent authority issuing the extension of approval shall assign a series number for such an extension and inform thereof the other Parties to the 1958 Agreement applying this Regulation by means of a communication form conforming to the model in annex 1 to this Regulation.

11.4. Approvals granted before 18 March 1986 remain valid.

12. PRODUCTION DEFINITELY DISCONTINUED

If the holder of the approval completely ceases to manufacture a headlamp 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 1958 Agreement applying this Regulation by means of a communication form conforming to the model in annex 1 to this Regulation.



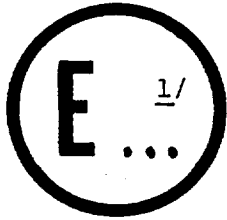
13. NAMES AND ADDRESSES OF TECHNICAL SERVICES RESPONSIBLE FOR  
CONDUCTING APPROVAL TESTS AND OF ADMINISTRATIVE DEPARTMENTS

The Parties to the 1958 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 extension or refusal or withdrawal of approval or production definitely discontinued, issued in other countries, are to be sent.

Annex 1

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

COMMUNICATION



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

- concerning: 2/ APPROVAL GRANTED  
APPROVAL EXTENDED  
APPROVAL REFUSED  
APPROVAL WITHDRAWN  
PRODUCTION DEFINITELY DISCONTINUED

of a type of headlamp  
pursuant to Regulation No. 1

Approval No ... Extension No. ...

1. Trade name or mark of the device: .....
2. Manufacturer's name for the type of device: .....
3. Manufacturer's name and address: .....
4. If applicable, name and address of the manufacturer's representative .....
5. Submitted for approval on: .....
6. Technical service responsible for conducting approval tests: .....

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1/ Distinguishing number of the country which has granted/extended/refused/withdrawn approval (see approval provisions in the Regulation).

2/ Strike out what does not apply.

7. Date of test report: .....
8. Number of test report: .....
9. Brief description:  
 Category as described by the relevant marking: 3/.....  
 .....  
 Number and category of filament lamp or lamps: .....  
 .....  
 Colour of light emitted: white/selective yellow 2/ .....
10. Position of the approval mark: .....
11. Reason(s) for extension (if applicable): .....
12. Approval granted/extended/refused/withdrawn: 2/ .....
13. Place: .....
14. Date: .....
15. Signature: .....
16. The list of documents deposited with the Administrative Service which has granted approval is annexed to this communication and may be obtained on request.

\_\_\_\_\_

3/ Indicate the appropriate marking selected from the list below:

CR, CR, CR, CR, C/R, C/R, C/R, C, C, C, C, C/, C/, C/, C/, R  
 CR PL, CR PL, CR PL, C/R PL, C/R PL, C/R PL,  
 C PL, C PL, C PL, C/PL, C/PL, C/PL, RPL

Annex 2

SPECIAL HEADLAMPS FOR AGRICULTURAL OR FOREST TRACTORS  
AND OTHER SLOW-MOVING VEHICLES

The provisions of this Regulation shall also apply to the approval of special headlamps for agricultural or forest tractors and other slow-moving vehicles, such headlamps being intended to provide both a driving beam and a passing beam and having a diameter D of less than 160 mm, 1/ with the following modifications:

(a) The minimum requirements for illumination laid down in paragraph 6.3 shall be reduced in the ratio

$$\left( \frac{D - 45}{160 - 45} \right)^2$$

subject to the following absolute lower limits:

3 lux at either point 75 R or point 75 L;

5 lux at either point 50 R or point 50 L;

1.5 lux in zone IV;

(b) Instead of the symbol CR provided for in paragraph 4.2.2.5 of the Regulation, the headlamp shall be marked with the letter M in a downward-pointing triangle;

(c) In the communication concerning approval, item 9 in annex 1 shall read: "Headlamp for slow-moving vehicles only".

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1/ If the apparent surface of the reflector is not circular, the diameter shall be that of a circle with the same area as the apparent useful surface of the reflector.

Annex 3

VERIFICATION OF CONFORMITY OF PRODUCTION OF HEADLAMPS EMITTING  
AN ASYMMETRICAL PASSING BEAM OR DRIVING BEAM OR BOTH

1. Headlamps bearing an approval mark shall conform to the approved type.
  2. Conformity shall be deemed satisfactory from a mechanical and geometrical standpoint if the discrepancies do not exceed inevitable manufacturing variations.
  3. As regards photometric performance, the conformity of headlamps of the series shall not be contested if, during photometric tests of any headlamp, selected at random and equipped with a standard (reference) filament lamp,
    - 3.1. none of the values measured deviates unfavourably by more than 20% from the prescribed value (for values B 50 R or L and zone III, the maximum unfavourable deviation may be 0.2 lux (B 50 R or L), or 0.3 lux (zone III);
    - 3.2. or if,
      - 3.2.1. for the passing beam, the prescribed values are met at HV (with a tolerance of 0.2 lux) and at least one point of the area delimited on the measuring screen (at 25 m) by a circle 15 cm in radius around points B 50 R or L (with a tolerance of 0.1 lux), 75 R or L, 50 R or L, 25 R or L, and in the entire area of zone IV which is not more than 22.5 cm above line 25 R and 25 L,
      - 3.2.2. and if, for the driving beam, HV being situated within the isolux  $0.75 E_{max}$ , a tolerance of 20% is observed for the photometric values.
  4. If the results of the tests described in paragraph 3 above do not satisfy the requirements, the tests for the headlamp in question shall be repeated with another standard (reference) filament lamp.
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Annex 4

TESTS FOR STABILITY OF PHOTOMETRIC PERFORMANCE  
OF HEADLAMPS IN OPERATION

TESTS ON COMPLETE HEADLAMPS

Once the photometric values have been measured according to the prescriptions of this Regulation, in points for  $E_{max}$  for driving beam and HV, 50 R, B 50 L for passing beam (or HV, 50 L, B 50 R for headlamps designed for left-hand traffic) a complete headlamp sample shall be tested for stability of photometric performance in operation. "Complete headlamp" shall be understood to mean the complete lamp itself including those surrounding body parts and lamps which could influence its thermal dissipation.

1. TEST FOR STABILITY OF PHOTOMETRIC PERFORMANCE

The tests shall be carried out in a dry and still atmosphere at an ambient temperature of  $23^{\circ} C \pm 5^{\circ} C$ , the complete headlamp being mounted on a base representing the correct installation on the vehicle.

1.1. Clean headlamp

The headlamp shall be operated for 12 hours as described in subparagraph 1.1.1. and checked as prescribed in subparagraph 1.1.2.

1.1.1. Test procedure

The headlamp shall be operated for the specified time so that:

- 1.1.1.1. (a) in the case where only one lighting function (driving or passing beam) is to be approved, the corresponding filament is lit for the prescribed time, 1/
- (b) in the case of a reciprocally incorporated passing lamp and driving lamp (dual filament lamp or two filament lamps):

If the applicant declares that the headlamp is to be used with a single filament lit 2/ at a time, the test shall be carried

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1/ When the tested headlamp is grouped and/or reciprocally incorporated with signalling lamps, the latter shall be lit for the duration of the test. In the case of a direction indicator lamp, it shall be lit in flashing operation mode with an on/off time ratio of approximately one to one.

2/ Should two or more lamp filaments be simultaneously lit when headlamp flashing is used, this shall not be considered as being normal use of the filaments simultaneously.

out in accordance with this condition, activating 1/ each specified function successively for half the time specified in paragraph 1.1.;

In all other cases, 2/1/ the headlamp shall be subjected to the following cycle until the time specified is reached:

15 minutes, passing-beam filament lit  
5 minutes, all filaments lit,

(c) in the case of grouped lighting functions all the individual functions shall be lit simultaneously for the time specified for individual lighting functions (a) also taking into account the use of reciprocally incorporated lighting functions (b) according to the manufacturer's specifications.

1.1.1.2. Test voltage

The voltage shall be adjusted so as to supply a wattage 15% higher than the rated wattage specified in the Regulation for filament lamps (Regulation No. 37) at a rated voltage of 6 V or 12 V, and 26% higher than the rated wattage for 24 V filament lamps.

The applied wattage shall in all cases comply with the corresponding value of a filament lamp of 12 V rated voltage, except if the applicant for approval specifies that the headlamp may be used at a different voltage. In the latter case, the test shall be carried out with the filament lamp whose wattage is the highest that can be used.

1.1.2. Test results

1.1.2.1. Visual inspection

Once the headlamp has been stabilized to the ambient temperature, the headlamp lens and the external lens, if any, shall be cleaned with a clean, damp cotton cloth. It shall then be inspected visually, no distortion, deformation, cracking or change in colour of either the headlamp lens or the external lens, if any, shall be noticeable.

1.1.2.2. Photometric test

To comply with the requirements of this Regulation, the photometric values shall be verified in the following points:

Passing beam:

50 R - B 50 L - HV for headlamps designed for right-hand traffic  
50 L - B 50 R - HV for headlamps designed for left-hand traffic.

Driving beam:

Point of  $E_{max}$

Another aiming may be carried out to allow for any deformation of the headlamp base due to heat (the change of the position of the cut-off line is covered in para. 2 of this annex). A 10% discrepancy between the photometric characteristics and the values measured prior to the test is permissible including the tolerances of the photometric procedure.

1.2. Dirty headlamp

After being tested as specified in subparagraph 1.1. above, the headlamp shall be operated for one hour as described in paragraph 1.1.1., after being prepared as prescribed in paragraph 1.2.1., and checked as prescribed in paragraph 1.1.2.

1.2.1. Preparation of the headlamp

1.2.1.1. Test mixture

The mixture of water and a polluting agent to be applied to the headlamp shall be composed of nine parts (by weight) of silica sand with a grain size distributed between 0 and 100  $\mu\text{m}$ , one part (by weight) of vegetal carbon dust of a grain size distributed between 0 and 100  $\mu\text{m}$ , 0.2 part (by weight) of Na CMC <sup>3/</sup> and an appropriate quantity of distilled water, the conductivity of which is lower than 1 mS/m for the purpose of this test.

The mixture must not be more than 14 days old.

1.2.1.2. Application of the test mixture to the headlamp

The test mixture shall be uniformly applied to the entire light emitting surface of the headlamp and then left to dry. This procedure shall be repeated until the illumination value has dropped to 15-20% of the values measured for each following point under the conditions described in this annex:

Point of  $E_{max}$  in driving beam photometric distribution for a driving/passing lamp.

Point of  $E_{max}$  in driving beam photometric distribution for a driving lamp only.

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<sup>3/</sup> Na CMC represents the sodium salt of carboxymethylcellulose, customarily referred to as CMC. The Na CMC used in the dirt mixture shall have a degree of substitution (DS) of 0.6-0.7 and a viscosity of 200-300 cP for a 2% at 20° C.



50 R and 50 V 4/ for a passing lamp only, designed for right-hand traffic.

50 L and 50 V 4/ for a passing lamp only, designed for left-hand traffic.

1.2.1.3. Measuring equipment

The measuring equipment shall be equivalent to that used during headlamp approval tests. A standard (reference) filament lamp shall be used for the photometric verification.

2. TEST FOR CHANGE IN VERTICAL POSITION OF THE CUT-OFF LINE UNDER THE INFLUENCE OF HEAT

This test consists of verifying that the vertical drift of the cut-off line under the influence of heat does not exceed a specified value for an operating passing lamp.

The headlamp tested in accordance with paragraph 1. of this annex shall be subjected to the test described in paragraph 2.1. of this annex without being removed from or readjusted in relation to its test fixture.

2.1. Test

The test shall be carried out in a dry and still atmosphere at an ambient temperature of  $23^{\circ} \text{C} \pm 5^{\circ} \text{C}$ .

Using a mass production filament lamp which has been aged for at least one hour the headlamp shall be operated on passing beam without being dismantled from or readjusted in relation to its test fixture. (For the purpose of this test, the voltage shall be adjusted as specified in paragraph 1.1.1.2. of this annex). The position of the cut-off line in its horizontal part (between vv and the vertical line passing through point B 50 L for right-hand traffic or B 50 R for left-hand traffic) shall be verified 3 minutes ( $r_3$ ) and 60 minutes ( $r_{60}$ ) respectively after operation.

The measurement of the variation in the cut-off line position as described above shall be carried out by any method giving acceptable accuracy and reproducible results.

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4/ 50 V is situated 375 mm below HV on the vertical line v-v on the screen at 25 m distance.