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PROPOSAL FOR A COUNCIL DIRECTIVE

on the approximation of the laws of Member States relating to the installation of lighting and light signalling devices on motor vehicles and trailers

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(submitted to the Council by the Commission)

EXPLANATORY MEMORANDUM

I. GENERAL REMARKS

1. The Community type-approval procedure for motor vehicles and their trailers, which was the subject of the Council Directive of 6 February 1970[1], includes the heading of lighting and light signalling devices. Under this heading there is scope for one or more directives defining the technical requirements and testing methods with which the design and installation of the various lighting and light signalling devices of motor vehicles must comply when EEC approval of the devices themselves or EEC type-approval of the vehicle is requested.

2. On 16 July 1968[2], the Commission forwarded to the Council a proposal for a directive on the lighting and light signalling devices of motor vehicles and their trailers, but the Council was unable to begin its examination of the proposal until 1971. The Council Working Party for Economic Affairs then found that the Commission's proposal would have to be brought up to date; it therefore decided to suspend its study of the document until the Commission sent the Council an amendment to its original proposal or a new proposal.

3. The appropriate departments of the Commission accordingly set about this task with the assistance of experts, notably those of the Working Party for the Removal of Technical Barriers to Trade (Motor Vehicles).

The work gave rise to such substantial amendments to the original proposal, partly owing to technical progress and partly to the outcome

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[1] OJ No. L 42, 23 February 1970

[2] OJ No. C 125, 28 November 1968

of parallel discussions in other international institutions that the Commission felt it was advisable to present a new proposal, a complete recasting of the original proposal having become necessary. In addition, for a more organic arrangement of the directive concerning the installation of lighting and light signalling devices, it was deemed appropriate to insert here regulations relating to the installation of direction indicator light.

Moreover, this fusion had been envisaged in the course of discussions within the framework of the Council, where this proposal had already met with wide agreement. Slight modifications have been introduced in the meantime, taking into consideration the most recent technical developments.

The new proposed directive, presented here, concerns the requirements for the installation of lighting and light signalling devices on motor vehicles; other proposals for directives will be drafted for the design specifications of each lighting and light signalling device.

II. SPECIFIC COMMENTS ON THE PROPOSED DIRECTIVE

Article 1 defines the field of application of the Directive: it covers motor vehicles with at least four wheels and a maximum design speed exceeding 25 km/hr, with the exception of vehicles which run on rails, tractors, agricultural machinery and public works machinery.

Article 2 incorporates, in the EEC type-approval procedure, the mandatory or optional requirements for the installation of lighting and light signalling devices, as listed under 1.5.7 to 1.5.20 of Annex 1.

Article 3 is a special article introduced to ensure that vehicles satisfying the requirements of the directive may be used in certain new Member States with no existing national type-approval procedure.

Article 4 reflects a concern for safety: it provides that changes made in certain components or characteristics of a vehicle type may necessitate a new check and, where necessary, a new vehicle report. Annex I gives

a list of the components or particulars which affect the installation of lighting and light signalling devices.

Article 5 provides for the adaptation of the requirements in the Annexes to technical progress; the procedure is set out in Article 13 of the Council Directive of 6 February 1970 concerning type-approval of motor vehicles and their trailers.

Article 6 sets two time-limits. By the first time-limit the Member States must have adopted and published the necessary measures to comply with the Directive; they may do this at any moment during the intervening period. The second time-limit is the date on which all the Member States must simultaneously enforce the common rules.

The Commission considers that the new wording of the final Article, common to the various proposals, should make it easier to incorporate Community specifications into the municipal law of the Member States.

Finally, Article 6 provides for the notification to the Commission, within a reasonable space of time, of all draft provisions drawn up by the Member States in the field covered by the Directive, in order to enable the Commission to comment thereon, if necessary.

The technical annexes comprise several definitions, the timing for the procedure of applying for EEC type-approval, general and particular specifications for the installation of the various lighting and light signalling devices on the vehicle, and the model approval certificate for a vehicle type in respect of its lighting and light signalling devices.

The long and arduous discussions in the Working Party on Motor Vehicles, which is assisting the appropriate departments of the Commission in drafting the proposed directives, did not prevent broad agreement being reached between the experts of the Member States: some points have not

been settled, however, and certain experts have expressed distinct reservations on them. The appropriate departments of the Commission have none the less presented solutions which take account both of the experts' opinions and of the objectives the Directive sets out to reach, namely the removal of barriers to trade while respecting road safety standards.

It is, however, appropriate to mention these disputed points, together with reservations expressed on the proposed solutions.

1. The British experts proposed that, from a given date, one criterion for EEC type-approval of a vehicle should be double light intensity for stop lights and direction indicators. They considered that this system, designed to improve signal visibility in daylight without increasing dazzle at night, should be adopted for safety reasons.

   A regulation imposing double light intensity for these devices in the United Kingdom had already been prepared. The date for bringing the rule into force was originally set at 1 July 1973, but had been postponed once until 1 January 1974 and then sine die at the Commission's request, in the hope that the other Member States could be convinced of the utility and necessity of this new regulation.

   The experts of the other Member States, while recognizing that the system could favour greater road traffic safety, opposed its compulsory introduction since it was not yet entirely ready for industrial production. The problems still outstanding include the following:

   (a) the extra time-lag in the functioning of the stop lights at night,

time-lag which corresponds to a travelling distance which could be fatal;

(b) an increase in intensity of only 20% does not justify their inclusion, in view of the response time of these devices;

(c) sufficient proof does not seem to have been produced of the positive advantages, including the cost effectiveness, of these devices;

(d) the fitting of the vehicle-hazard warning light could create difficulties.

The Commission considered that the use, for stop lights and direction indicators, of double light intensity devices could be of considerable value as regards road safety once the above problems had been solved. The Commission would then propose the necessary amendments to the Directive by the most suitable procedures.

2. Two colours had been proposed for the main-beam headlights and the dipped-beam headlights, white and selective yellow, the choice being left to the user. The French experts expressed a strong reservation regarding the fact that the choice of colour was left to the user. They considered that the importing State should have the choice and should be free to allow the two colours or to prohibit one of them. It was not possible to accept this suggestion, as it would have been a classic example of a barrier to trade in motor vehicles.

France is at present the only Community country which lays down selective yellow as the only colour for main-beam headlights and dipped-beam headlights.

In view of the fact that neither of the colours had a distinct advantage over the other, as white gave greater visibility but was

more liable to dazzle the drivers of oncoming vehicles, and selective yellow created less dazzle but reduced the driver's visibility, the Commission had decided to authorize the two colours and leave the choice to the user.

3. The Italian and Danish experts expressed reservations regarding the alignment of the dipped-beam headlights, and particularly the specification concerning the vertical alignment of the dipped beam, which must remain between 0.5% and 2.5% without manual adjustment, the initial vertical alignment being 1.5% in the "unladen vehicle" state with one person in the driving seat: the Italian delegation's reservation concerned the whole specification, and that of the Danish delegation, the initial vertical alignment of 1.5%.

4. The Italian experts expressed a reservation regarding the height above the ground of all the rear lights, fixed at a minimum of 350 mm, as they considered that the minimum should be 400 mm.

5. The Commission proposed that the vehicle-hazard warning light should be made compulsory, in order to increase road safety: the Italians expressed a reservation on this.

6. The Commission proposed that the rear fog light should be made compulsory, in order to increase road safety: the Italian and British experts expressed a reservation.

7. The French experts expressed a reservation regarding the proposed

specification that the distance between the rear fog light and the stop light should in all cases exceed 100 mm.

III. CONSULTATION OF THE EUROPEAN PARLIAMENT AND THE ECONOMIC AND SOCIAL COMMITTEE

The Opinion of these two Institutions is required, under the second paragraph of Article 100.

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THE COUNCIL OF THE EUROPEAN COMMUNITIES

Having regard to the Treaty establishing the European Economic Community, and in particular Article 100 thereof;

Having regard to the proposal from the Commission;

Having regard to the Opinion of the European Parliament;

Having regard to the Opinion of the Economic and Social Committee;

Whereas the technical requirements which motor vehicles must satisfy pursuant to national laws relate, inter alia, to the installation of lighting equipment and light signalling devices;

Whereas those requirements differ from one Member State to another; whereas it is therefore necessary that all Member States adopt the same requirements either in addition to or in place of their existing rules, in order, in particular, that the EEC type-approval procedure which was the subject of the Council Directive of 6 February 1970 on the approximation of the laws of the Member States relating to the type-approval of motor vehicles and their trailers may be applied in respect of each type of vehicle;[1]

Whereas common requirements on the construction of lighting and light signalling devices will be the subject of further special directives;

Whereas the approximation of the laws of Member States relating to motor vehicles includes mutual recognition of the inspections carried out by each of them on the basis of common provisions; whereas if such a system is to function successfully, these provisions must be applied by all Member States from the same date;

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1 O.J. No. L 42, 23 February 1970, p.1.

HAS ADOPTED THIS DIRECTIVE:

Article 1

For the purposes of this Directive, 'vehicle' means any motor vehicle intended for use on the road, with or without bodywork, having at least four wheels and maximum design speed exceeding 25 kilometres per hour, including trailers, but with the exception of vehicles which run on rails, agricultural tractors and machinery and public works vehicles.

Article 2

No Member State may refuse to grant EEC or type-approval or national type-approval of a vehicle on grounds relating to the installation of lighting equipment and light signalling devices, whether mandatory or optional, listed under items 1.5.7-1.5.2.0 in Annex 1 if these are installed in accordance with the specifications contained in Annex I of this Directive.

Article 3

No Member State may refuse or prohibit the sale, registration, entry into service or use of vehicles on grounds relating to the installation of lighting equipment and light signalling devices, whether mandatory or optional, listed under items 1.5.7-1.5.2.0 in Annex 1 if these are installed in accordance with the specifications contained in Annex I to this Directive.

Article 4

The Member States which have granted type-approval must take the necessary measures to ensure that it is informed of any modification of a component or characteristic referred to in Annex 1 (1.1.).
The competent authorities within this State shall assess whether the modified prototype should be subjected to a further set of tests, accompanied by a fresh information document. If it emerges from the tests that the specifications of this Directive have not been met, the modification shall not be authorized.

Article 5

The modifications required in order to adapt the specifications contained in the Annexes to take account of technical progress shall be adopted in accordance with the procedure provided for in Article 13 of the Council Directive of 6 February 1970 on the approximation of the laws of the Member States relating to the type-approval of motor vehicles and trailers.

Article 6

1. The Member States shall adopt and publish the provisions needed in order to comply with this Directive before 1 January 1975 and shall forthwith inform the Commission thereof.

   They shall apply these provisions from 1 October 1975.

2. As soon as this Directive has been notified, the Member States shall take care to inform the Commission, in sufficient time to enable it to submit its comments, of any subsequent draft laws, regulations or administrative provisions which they intend to adopt in the field covered by the Directive.

Article 7

This Directive is addressed to the Member States.

ANNEX I

FITTING OF LIGHTING AND LIGHT-SIGNALLING DEVICES

1. DEFINITIONS

For the purposes of this Directive:

1.1 "vehicle type with regard to the fitting of lighting and light signalling devices" means a category of vehicles which do not differ in such essential respects as :

1.1.1. the dimensions and exterior lines of the vehicle; and

1.1.2. the number and siting of the devices;

1.1.3. the following are likewise not considered to be "vehicles of a different type"

1.1.3.1 vehicles which differ within the meaning of Items 1.1.1. and 1.1.2. above but not in such a way as to entail a change in the kind, number, siting and geometric visibility of the lights laid down for the vehicle type in question;

1.1.3.2. vehicle on which optional lights are fitted or are absent;

1.2 "transverse plane" means a vertical plane perpendicular to the median longitudinal plane of the vehicle;

1.3 "unladen vehicle" means the vehicle in running order, as defined under Item 2.6. of Annex I, model for information document, to the Council Directive of 6 February 1970 on the type approval of motor vehicles and trailers, but without a driver;

1.4 "laden vehicle" means the vehicle loaded to its maximum technically permissible weight, as stated by the manufacturer, who shall also fix its distribution among the axles in accordance with the method described in Appendix 1;

1.5 "light" means a device designed to illuminate the road (headlamp) or to emit a luminous signal. Rear registration plate illuminating devices and reflex reflectors shall likewise be regarded as lights.

1.5.1. "equivalent lights" means lights having the same function and authorized in the country in which the vehicle is registered; such lights may have different characteristics from those fitted on the vehicle when it is approved on condition that they satisfy the requirements of this Annex.

1.5.2. "independent lights" means lights having separate illuminating surfaces, separate light sources, and separate lamp bodies;

1.5.3. "grouped lights" means devices having separate illuminating surfaces and separate light sources, but a common lamp body;

1.5.4. "combined lights" means devices having separate illuminating surfaces, but a common light source and a common lamp body;

1.5.5. "reciprocally incorporated lights" means devices having separate light sources (or a single light source operating under different conditions), totally or partially common illuminating surfaces and a common lamp body;

1.5.6. "concealable illuminating light" means a headlamp capable of being partly or completely hidden when not in use. This result may be achieved by means of a movable cover, by displacement of the headlamp, or by any other suitable means. The term "retractable" is used more particularly to describe a concealable light whose displacement enables it to be inserted within the bodywork;

1.5.7. "main-beam headlight" means the light used to illuminate the road over a long distance ahead of the vehicle;

1.5.8. "dipped-beam headlight" means the light used to illuminate the road ahead of the vehicle without causing undue dazzle or discomfort to oncoming drivers and other road-users;

1.5.9. "fog light" means the light used to improve the illumination of the road in case of fog, snow fall, rainstorms, or dust clouds;

1.5.10. "reversing light" means the light used to illuminate the road to the rear of the vehicle and to warn other road-users that the vehicle is reversing or about to reverse;

1.5.11. "direction indicator light" means the light used to indicate to other road-users that the driver intends to change direction to the right or to the left;

1.5.12. "vehicle hazard warning signal" means the simultaneous operation of all of a vehicle's direction indicator lights to draw attention to the fact that the vehicle temporarily constitutes a special danger to other road-users;

1.5.13. "stop light" means the light used to indicate to other road-users to the rear of the vehicle that the latter's driver is applying the service brake;

1.5.14. "rear-registration-plate illuminating device" means the device used to illuminate the space intended to accommodate the rear registration plate; it may consist of different optical elements;

1.5.15. "side light" means the light used to indicate the presence and the width of the vehicle when the latter is viewed from the front;

1.5.16. "rear light" means the light used to indicate the presence and the width of the vehicle when the latter is viewed from the rear;

1.5.17. "rear fog light" means the light used to render the vehicle more readily visible from the rear in dense fog;

1.5.18. "parking light" means the light used to draw attention to the presence of a stationary vehicle, without a trailer, in a built-up area. In such circumstances it replaces the side and rear lights;

1.5.19. "end-outline marker light" means one of the lights fitted to the extreme outer edges and as close as possible to the top of the vehicle and intended clearly to indicate the vehicle's overall width. This signal is intended, for certain vehicles and trailers, to complement the vehicle's side and rear lights by drawing particular attention to its bulk.

1.5.20. "reflex reflector" means a device used to indicate the presence of a vehicle by the reflection of light emanating from a light source unconnected with the vehicle, the observer being situated near the source;

1.6 "illuminating surface of a light"

1.6.1. "illuminating surface of a headlight" (Items 1.5.7. - 1.5.10.) means the orthogonal projection of the full aperture of the reflector in a transverse plane. If the headlamp glass (or glasses) extend over a part only of full aperture of the reflector, then the projection of that part only is taken into account.

1.6.2. "illuminating surface of a signalling light other than a reflex reflector" (Items 1.5.11 - 1.5.19.) means the orthogonal projection of the light in a plane perpendicular to its axis of reference and in contact with the exterior emitting surface of a light, t light, this projection being bounded by the edges of screens forming a rectangle on this plane, each allowing only 90% of the total luminous intensity of the light to persist in the direction of the axis of reference. To determine the lower, upper and lateral limits of the light, only screens with horizontal or vertical edges are used;

1.6.3. "illuminating surface of a reflex reflector" (Item 1.5.20.) The illuminating surface of a reflex reflector in a plane perpendicular to its axis of reference is bounded by planes touching the outer edges of the light projection of the reflex reflector and parallel to this axis. To determine the lower, upper and lateral limits of the lights, only vertical and horizontal planes are considered;

1.6.4. "outer light-emitting surface" for a defined direction of observation, means the orthogonal projection of the surface of light emission in a plane perpendicular to the direction of observation (see drawing in Appendix 2);

1.7. "axis of reference" means the characteristic axis of the light signal, determined by the manufacturer for use as the direction of reference ($H = 0^{\circ}$, $V = 0^{\circ}$) for photometric measurements and when fitting the light on the vehicle;

1.8. "centre of reference" means the intersection of the axis of reference with the light-emitting surface, specified by the manufacturer of the light;

1.9. "angles of geometric visibility" means the angles which determine the field of the minimum solid angle in which the outer light-emitting surface of the light must be visible.

That field of the solid angle is determined by the segments of a sphere of which the centre coincides with the centre of reference of the light and the equator is parallel with the ground. These segments are determined in relation to the axis of reference. The horizontal angles β correspond to the longitude and the vertical angles α to the latitude.

There must be no obstacle on the inside of the angles of geometric visibility to the propagation of light from any part of the outer light-emitting surface of the light.

This does not apply to any obstacles existing at the time when the light was approved if approval was required.

1.10. "extreme outer edge" on either side of the vehicle shall mean the plane parallel to the median longitudinal plane of the vehicle and coinciding with the latter's lateral outer edge, disregarding any projection (s) such as:

1.10.1. tyres near their point of contact with the ground, and of connections for tyre-pressure gauges;

1.10.2. any anti-skid devices which may be mounted on the wheels;

1.10.3. rear-view mirrors;

1.10.4. of side direction indicators; end-outline marker lights, side and rear lights and parking lights;

1.10.5. Customs seals affixed to the load, and devices for securing and protecting such seals.

1.11. "overall width" means the distance between the two vertical planes defined under Item 1.10. above;

1.12. The following shall be considered to be

1.12.1. "a single light": any combination of two or more lights, whether identical or not, having the same function and colour, if it comprises devices, the projection of whose aggregate light-emitting surfaces in a given transverse plane occupies 60% or more of the area of the smallest rectangle circumscribing the projections of those light-emitting surfaces, provided that such combination is, where approval is required, approved as a single light. This possible combination does not apply to main-beam headlights, dipped-beam headlights and fog lights;

1.12.2. "two lights" or "an even number of lights" : a single light-emitting surface in the shape of a band if placed symmetrically in relation to the median longitudinal plane of the vehicle and extending on both sides to within not less than 0.40 m of the extreme outer edge of the vehicle, if not less than 0.80 m long. The illumination of such a surface shall be provided by not less than two light sources placed as close as possible to its ends. The light-emitting surface may be constituted by a number of juxtaposed elements on condition that the projections of the several individual light-emitting surfaces in transverse plane perpendicular to the median longitudinal plane of the vehicle occupy not less than 60% of the area of the smallest rectangle circumscribing the projections of those individual light-emitting surfaces.

1.13. "distance between two lights" which face in the same direction: the distance between the orthogonal projections in a plane perpendicular to the direction in question of the outlines of two illuminating surfaces defined under item 1.6. With a dipped headlight, the illuminating surface is limited on the side where the lines cross by the imaginary projection of the line on to the glass. If the reflector and glass are adjustable, the normal adjustment should be used.

1.14. "optional" a light the presence of which is left to the discretion of the manufacturer.

1.15. "operational warning light": a light showing whether a device has been actuated and is operating correctly.

1.16. "circuit-closed warning light": a light showing that a device has been actuated without showing whether it is operating correctly.

2. APPLICATION FOR TYPE-APPROVAL

2.1 The application for approval of a vehicle type with regard to the fitting of its lights and light-signalling devices shall be submitted by the vehicle manufacturer or his representative.

2.2 It shall be accompanied by the following document in triplicate, and by the following particulars:

2.2.1. A description of the vehicle type with regard to the points listed under items 1.1.1. - 1.1.3. above together with the restrictions on loading, particularly the maximum permissible load in the boot.

2.2.2. A list of the lights fitted by the manufacturer in order to form the lighting and light signalling equipment. Each type shall be duly identified (in particular, approval mark, name and address of manufacturer etc.); equivalent lights may subsequently be added without a new approval being required;

2.2.3. Layout drawing of the lighting and light-signalling equipment as a whole, showing the position of the various lights on the vehicle.

2.2.4. Layout drawing (s) for each individual light showing the illuminating surfaces as defined under item 1.6.

2.3. An unladen vehicle fitted with lighting and signalling equipment as described under item 2.2.2 and representative of the vehicle type to be approved must be submitted to the technical authority conducting approval tests.

2.4. The document provided for in Annex II shall be attached to the type approval document.

3. GENERAL SPECIFICATIONS

3.1. The lighting and light-signalling devices must be so fitted that in normal conditions of use, and notwithstanding the vibrations to which they may be subjected, they retain the characteristics laid down in this Annex and enable the vehicle to comply with the requirements of this Annex. In particular, it shall not be possible for the adjustment of the lights to be inadvertently disturbed.

3.2 The illuminating lights prescribed under items 1.5.7. - 1.5.9. must be so fitted that a correct setting of their alignment can easily be performed.

3.3. For all light signalling devices, including those mounted on the side panels, the reference axis of the light when fitted to the vehicle must be parallel to the bearing plane of the vehicle on the road; in addition, it must be perpendicular to the median longitudinal plane of the vehicle in the case of side reflex reflectors and parallel to that plane in the case of all other signalling devices. In each direction a tolerance of $\pm 3^{\circ}$ shall be allowed. In addition, if specific instructions as regards fitting are laid down by the manufacturer they must be abided by.

3.4 In the absence of specific instructions, the height and alignment of the lights shall be checked with the vehicle unladen and placed on a flat, horizontal surface.

3.5 In the absence of specific instructions, lights constituting a pair shall:

3.5.1. be fitted to the vehicle symmetrically in relation to the median longitudinal plane;

3.5.2. be symmetrical to one another in relation to the median longitudinal plane;

3.5.3. satisfy the same colorimetric requirements;

3.5.4. have substantially identical photometric characteristics.

3.6. On vehicles the external lines of which are assymetrical the above requirements shall be satisfied as far as possible.

3.7. Lights having different functions may be independent or be grouped, combined or incorporated in one device, on condition that each such light complies with the requirements applicable to it.

3.8 The maximum height above ground shall be measured from the highest point and the minimum height from the lowest point of the illuminating surface.

3.9 In the absence of specific instructions no lights other than direction-indicator lights and the vehicle-hazard warning lights may be flashing lights. No red light may be visible towards the front and no white light other than the reversing light shall be visible towards the rear.

3.10. This requirement is considered to have been met if:

3.10.1 for the visibility of a red light towards the front: there must be no direct visibility of a red light if viewed by an observer moving within zone 1 in a vertical plane perpendicular to the median plane of the vehicle and situated 25 m in front of its overall length. (see Appendix 3, figure 1).

3.10.2. for the visibility of a white light towards the rear: there must be no direct visibility of a white light if viewed by an observer moving within zone 2 in a vertical plane perpendicular to the median plane of the vehicle and situated 25 m behind its overall length (see Appendix 3, figure 2);

3.10.3 zones 1 and 2, as seen by the observer, are limited in their respective planes as follows:

3.10.3.1 -- as regards height, by two horizontal planes which are, respectively, 1 and 2.20 m above the ground

3.10.3.2-- as regards width, by two vertical planes towards the front and rear respectively, which make an angle of 15° outside the vehicle by reference to the median plane of the vehicle, pass through the point (or points) of contacts of vertical planes which are parallel to the median longitudinal plane of the vehicle, and limit the overall width of the vehicle.

If there are several points of contact, the one which is furthest towards the front shall correspond to the front plane and the one furthest towards the rear shall correspond to the rear plane.

3.11 The electrical connections must be such that the side and rear lights, the end-outline marker lights if they exist and the rear-registration-plate illuminating device can be switched on only simultaneously.

3.12 The electrical connections must be such that the driving main and dipped beam headlights, and fog lights cannot be switched on unless the lights referred to under item 3.11 above are also switched on. This requirements shall not apply however, to main or dipped-beam headlights when their illuminated warnings consist of the intermittent lighting up at short intervals of the dipped-head lights or in the intermittent lighting up at short intervals of the dipped-beam headlights or in the alternate lighting up at short intervals of the main and dipped-beam headlights.

3.13 The colours of the lights referred to in this Annex are as follows:

main-beam headlight	white or selective yellow
dipped-beam headlight	white or selective yellow
fog light	white or selective yellow
reversing light	white
direction-indicator light	amber
vehicle-hazard-warning-light signal	amber
stop light	red
rear registration plate illuminating device	white
side light	white; selective yellow if the side light is incorporated in a selective yellow headlamp
rear light	red
rear fog-light	red
parking light	white in front, red behind, amber if they are incorporated in the side direction-indicator lights.

end-outline marker light	white in front, red behind
rear reflex-reflector, non-triangular	red
rear reflex-reflector, triangular	red
front reflex-reflector, non-triangular	colourless
side reflex-reflector, non-triangular	amber

3.14 The function of the circuit-closed warning light indicators may be fulfilled by the operating warning light indicators.

3.15 Concealable lights

3.15.1 The concealment of signalling devices shall be prohibited. The lighting devices positioned at the front of the vehicle may be concealed when they are not in use.

3.15.2 An illuminating light in the position of use shall remain in that position if the malfunction referred to in item 3.15.2.1. occurs alone or in conjunction with one of the malfunctions described in item 3.15.2.2.

3.15.2.1. The absence of power for manipulating the light;

3.15.2.2. A break, impedance, or short-circuit to earth in the electrical circuit, defects in the hydraulic or pneumatic leads or Bowden cables, solenoids or other components controlling or transmitting the energy intended to activate the concealment device.

3.15.3 In the event of a defect in the concealment control, a concealed lighting device shall be capable of being moved into the position of use without the use of tools.

3.15.4 It must be possible to move illuminating devices into the position of use and to switch them on by means of a single control and it must also be possible to move them into the position of use without switching them on. However, in the case of grouped main and dipped headlights the control referred to above is required only to activate the dipped headlights.

3.15.5 It must not be possible deliberately to stop, from the driver's seat, the movement of switched-on headlamps before they reach the position of use. If there is a danger of dazzling other road users by the movement of headlamps these may light up only when they have reached their final position.

3.15.6 At temperatures of -30°C to 50°C an illuminating device must be capable of reaching the fully-open position within three seconds of initial operation of the control.

4. INDIVIDUAL SPECIFICATIONS

4.1 Main-beam headlight

4.1.1 Presence
Mandatory on motor vehicles.
Prohibited on trailers.

4.1.2 Number
2 or 4

4.1.3. Arrangement
No particular specifications.

4.1.4. Position

4.1.4.1 Width
The outer edges of the illuminating surface must in no case be closer to the extreme outer edge of the vehicle than the outer edges of the illuminating surface of the dipped head lights.

4.1.4.2 Height
No individual specifications.

4.1.4.3. Length
At the front of the vehicle; this requirement shall be considered to be satisfied if the light emitted does not cause discomfort to the driver either directly, or indirectly through the rear-view mirrors and/or other reflecting surfaces of the vehicle.

4.1.5 Geometric visibility
The visibility of the illuminating surface, including its visibility in areas which do not appear to be illuminated in the direction of observation considered, must be ensured within a divergent space defined by generating lines based on the perimeter of the illuminating surface and forming an angle of not less than 5° with the axis of reference of the headlight.

4.1.6 Alignment
Towards the front.

Apart from the devices necessary to maintain correct adjustment, and when there are two pairs of driving lights, one pair, consisting of headlights functioning as driving lights only, may swivel, according to the angle of lock of the steering, about an approximately vertical axis.

4.1.7. May be "grouped"
with the dipped head light and the other front lights.

4.1.8. May not be "combined"
with any other light.

4.1.9. May be "reciprocally incorporated"

4.1.9.1. with the dipped headlight if the main headlight does not swivel according to the angle of lock of the steering;

4.1.9.2. with the front side lights;

4.1.9.3. with the fog warning lights.

4.1.10. Electrical connections

4.1.10.1 The main headlights may be switched on either simultaneously or in pairs. For changing over from the dipped to the main beam at least one pair of main beams must be switched on. For changing over from the main to the dipped beam all main beams must be switched off simultaneously.

4.1.10.2 The dipped beams may remain switched on at the same time as the main beams.

4.1.11 Circuit-closed warning light

Mandatory

4.1.12 Other requirements

4.1.12.1 The aggregate maximum intensity of the headlight beams which can be switched on simultaneously must not exceed 225,000 cd.

4.1.12.2 This maximum intensity shall be obtained by adding together the individual maximum intensities measured at the time of type-approval and shown on the relevant approval forms.

4.2 Dipped-beam headlight

4.2.1. Presence

Mandatory on motor vehicles. Prohibited on trailers.

4.2.2. Number

2

4.2.3. Arrangement

No individual specifications.

4.2.4. Position

4.2.4.1 Width

The edge of the illuminating surface which is farthest from the vehicle's median longitudinal plane must be not more than 400 mm from the extreme outer edge of the vehicle.

The inner edges of the illuminating surfaces must be not less than 600 mm apart.

4.2.4.2. Height
Above the ground: not less than 500 mm and not more than 1,200 mm.

4.2.4.3 Length
At the front of the vehicle; this requirement shall be considered to be satisfied if the light emitted does not cause discomfort to the driver either directly, or indirectly through the rear-view mirrors and/or other reflecting surfaces of the vehicle.

4.2.5. Geometric visibility

Defined by angles α and β as specified in item 1.9.

α = 15° upwards and 10° downwards;

β = 45° outwards and 10° inwards.

Within this field, almost the whole of the light-emitting surface of the light must be visible.

The presence of panels or other items of equipment near the light must not give rise to secondary effects causing discomfort to other road users.

4.2.6. Alignment

4.2.6.1. The vertical alignment of the dipped beam shall be measured under static conditions and all the load conditions defined in Appendix I. In the "unladen vehicle" state with one person in the driving seat, the vertical alignment shall be 1.5%. It must then remain between 0.5% and 2.5% without manual adjustment.

4.2.6.2 If the preceding condition is satisfied by means of a device acting on the relative position of the headlamp and of the vehicle, in the case of this device failing, the beam must not return to a position less inclined downwards than that in which it was when the device failed.

4.2.6.3. By way of an exception to the requirements of items 4.2.6.1. and 4.2.6.2. a device which is adjustable manually and can be activated without tools shall be permitted for a period of five years from the publication of this Directive.

4.2.7. May be "grouped"

with the main-beam headlight and the other front lights.

4.2.8. May be not "combined"

with any other light.

4.2.9. May be "reciprocally incorporated"

4.2.9.1. with the main-beam headlight, unless the latter swivels according to the angle of lock of the steering;

4.2.9.2 with the other front lights.

4.2.10 Electrical connections

The control for changing over to the dipped beam must switch off all main beams simultaneously. The dipped beams may remain switched on at the same time as the main beams.

4.2.11. Circuit-closed warning light

Optional.

4.2.12. Other requirements

The provisions of item 3.5.2. shall not apply to dipped headlights.

4.3. Fog light

4.3.1. Presence

Optional on motor vehicles. Prohibited on trailers.

4.3.2. Number

2

4.3.3. Arrangement

No individual specifications.

4.3.4. Position

4.3.4.1. Width
The point on the illuminating surface which is farthest from the vehicle's median longitudinal plane must be not more than 400 mm from the extreme outer edge of the vehicle.

4.3.4.2. Height
Not less than 250 mm minimum above the ground. No point on the illuminating surface must be higher than the highest point on the illuminating surface of the dipped headlight.

4.3.4.3. Length
At the front of the vehicle; this requirement shall be considered to be satisfied if the light emitted does not cause discomfort to the driver either directly, or indirectly through the rear-view mirrors and/or other reflecting surfaces of the vehicle.

4.3.5. Geometric visibility

Defined by angles α and β as specified in item 1.9.

α = 5° upwards and downwards,

β = 45° outwards and 10° inwards.

4.3.6. Alignment

The alignment of the fog lights must not vary according to the angle of lock of the steering.

They must be directed forwards without dazzling or causing undue discomfort to drivers travelling in the opposite direction or to other road users.

4.3.7. May be "grouped"

with other front lights.

4.3.8. May not be "combined"

with other front lights.

4.3.9. May be "reciprocally incorporated"

4.3.9.1. with main headlights which do not vary according to the angle of lock of the steering; when there are four headlights;

4.3.9.2. with the side lights provided that the light sources are separate.

4.3.10. Electrical connections

It should be possible to switch the fog lights on and off independently of the main or dipped headlights and vice-versa.

4.3.11. Circuit closed warning light

Optional.

4.4 Reversing lights

4.4.1. Presence

Optional.

4.4.2. Number

1 or 2.

4.4.3. Arrangement

No individual specifications.

4.4.4. Position

4.4.4.1. Width

No individual specifications.

4.4.4.2. Height

Not less than 250 mm and not more than 1,200 mm above the ground.

4.4.4.3. Height

At the back of the vehicle.

4.4.5. Geometric visibility

Defined by angles α and β as specified in item 1.9.

α = 15° upwards and 5° downwards;
β = 45° to right and left if there is only one light;
β = 45° outwards and 30° inwards if there are two.

4.4.6. Alignment

Rearwards.

4.4.7. May be "grouped"

with any other rear light.

4.4.8. May not be "combined"

with other lights.

4.4.9. May not be "reciprocally incorporated"
with other lights

4.4.10. Electrical connections

It can only light up if the reverse gear is engaged and if the device which controls the starting or stopping of the engine is in such a position that operation of the engine is possible. It must not light up or remain lit up if one of the above conditions is not satisfied.

4.4.11. Warning light

Prohibited.

4.5. Direction indicator light

4.5.1. Presence

Mandatory on all vehicles. Indicator types fall into categories (1 to 5) the assembly of which on one vehicle constitutes an "arrangement" ("A" to "E"). Arrangement "A" shall be allowed only on vehicles whose width does not exceed 1.60 m and whose overall length does not exceed 4 m. Arrangements "B" and "C" shall apply to all vehicles. Arrangement "D" shall not be allowed on vehicles fitted for drawing trailers or semi-trailers; it shall be allowed only on vehicles on which the maximum distance between the illuminating surfaces of the front and of the rear direction-indicator lights does not exceed 6 m. Arrangement "E" shall apply only to trailers.

4.5.2. Number

The number of devices shall be such that they can give signals which correspond to one of the arrangements referred to under the following item.

4.5.3. Arrangement

"A" : 2 side indicators (category 3)

"B" : 2 front side indicators (category 4)
2 rear indicators (category 2)

"C" : 2 front indicators (category 1)
2 rear indicators (category 2)
2 repeating side indicators (category 5)

"D" : 2 front indicators (category 1)
2 rear indicators (category 2)

"E" : 2 rear indicators (category 2).

4.5.4. Position

4.5.4.1. Width

The edge of the illuminating surface furthest from the median longitudinal plane of the vehicle must not be more than 400 mm from the outermost edge of the vehicle.
The clearance between the inner edges of the two illuminating surfaces shall be not less than 600 mm.

Where the vertical distance between the rear direction indicator light and the corresponding rear (position) light is not more than 300 mm, the distance between the extreme outer edge of the vehicle and the outer edge of the rear direction indicator light must not exceed by more than 50 mm the distance between the extreme outer edge of the vehicle and the outer edge of the corresponding rear (position) light.

For front direction indicator lights, the illuminating surface must be at a minimum of 40 mm from the illuminating surface of the dipped headlights or fog lights. A smaller clearance is permitted if the luminous intensity in the reference axis of the direction indicator light is equal to at least 400 c.d.

4.5.4.2. Height

Above the ground: not less than 500 mm for indicators of categories 3, 4 and 5.
350 mm minimum for indicators in categories 1 and 2

1,500 maximum for all categories.

If the structure of the vehicle makes it impossible to keep to this maximum figure, the highest point on the illuminating surface may be at 2,300 mm in the case of indicators of categories 3, 4 and 5 and at 2,100 mm in the case of indicators of categories 1 and 2.

4.5.4.3. Length

The distance between the centre of reference of the illuminating surface of the side indicator (arrangements "B" and "C") and the transverse plane which marks the forward boundary of the vehicle's overall length, shall not exceed 1,800 mm. If the structure of the vehicle makes it impossible to keep to the minimum angles of visibility, this distance may be increased to 2.50 m if the vehicle is equipped in conformity with arrangement "C".

4.5.5. Geometric visibility

Horizontal angles: See Appendix 4 to this Item.

Vertical angles: 15° above and below the horizontal.
The vertical angle below the horizontal may be reduced to 5° in the case of side indicators of arrangements "B" and "C" if their height is less than 750 mm.

4.5.6. Alignment

If individual specifications for fitting are laid down by the manufacturer they must be observed.

4.5.7. May be "grouped"

with one or more lights.

4.5.8. May not be "combined"

with another light.

4.5.9. May not be "reciprocally incorporated"

with another light.

4.5.10. Electrical connections

Direction indicator lights shall switch on independently of the other lights.
All direction indicator lights on one side of a vehicle shall be switched on and off by means of one control.

4.5.11. Operating warning light

Required for all direction indicator lights not directly visible to the driver. It may be optical, or auditory, or both.

If it is optical it shall be a flashing light which, in the event of defective operation of any of the direction indicator lights other than repeating side direction indicator lights, is extinguished, remains alight without flashing, or shows a marked change of frequency. If it is entirely auditory it shall be easily audible and shall show a marked change of frequency under like circumstances.

4.5.12. Other requirements

The light shall be a flashing light flashing 90 + 30 times per minute. Operation of the light-signal control shall be followed within not more than one second by the appearance of the light and within not more than one and one-half seconds by the first extinction of the light. All the direction-indicator lights which are on the same side of a vehicle must flash in phase.

4.6.1. Vehicle hazard-warning light signal

4.6.1. Presence

Mandatory

4.6.2. Number

4.6.3. Arrangement

4.6.4. Position
4.6.4.1. Width
4.6.4.2. Height
4.6.4.3. Length
4.6.5. Geometric visibility

4.6.6. Alignment

4.6.7. May/may not be "grouped"
4.6.8. May/may not be "combined"
4.6.9. May/may not be "reciprocally incorporated"

As prescribed opposite the corresponding headings of Item 4.5.

4.6.10. Electrical connections

The signal shall be given by means of a separate control enabling all the direction indicator lights to be supplied with current simultaneously.

4.6.11. Circuit-closed warning light

Mandatory. Flashing warning light, which can operate in conjunction with the warning light (or lights) laid down in Item 4.5.

4.6.12. Other requirements

As laid down under the corresponding heading of Item 4.5.

If a motor vehicle is authorised to draw a trailer the vehicle-hazard warning-light signal control must be also capable of bringing the trailer's direction indicators into action. The vehicle-hazard warning-light must be capable of functioning even if the device which starts up or switches off the engine is in a position which makes it impossible to start the engine.

4.7. Stop lights

4.7.1. Presence

Mandatory

4.7.2. Number

2

4.7.3. Arrangement

No individual specifications.

4.7.4. Position

4.7.4.1. Width

Not less than 600 mm apart. This distance apart may be reduced to 400 mm if the overall width of the vehicle is less than 1.30 m.

4.7.4.2. Height

Above the ground: not less than 350 mm, not more than 1,500 mm, or not more than 2,100 mm if the shape of the bodywork makes it impossible to keep within 1,500 mm.

4.7.4.3. Length

At rear of vehicle.

4.7.5. Geometric visibility

Horizontal angle: 45° outwards and inwards.

Vertical angle: 15° above and below the horizontal.

The vertical angle below the horizontal may be reduced to 5° in the case of lights less than 750 mm above the ground.

4.7.6. Alignment

Towards the rear of the vehicle.

4.7.7. May be "grouped"

with one or more other rear lights.

4.7.8. May not be "combined"
with another light.

4.7.9. May be "reciprocally incorporated"
with the rear (position) light.

4.7.10. Electrical connections
Must light up when the service brake is applied.

4.7.11. Warning light
Optional.

4.7.12. Other requirements
The luminous intensity of the stop lights shall be markedly greater than that of the rear (position) lights.

4.8. Rear-registration-plate illuminating device

4.8.1. Presence
Mandatory

4.8.2. Number

4.8.3. Arrangement

4.8.4. Position

4.8.4.1. Width

4.8.4.2. Height

4.8.4.3. Length

4.8.5. Geometric visibility

4.8.6. Alignment

Such that the device is able to illuminate the site of the registration plate.

4.8.7. May be "grouped"
with one or more rear lights.

4.8.8. May be "combined"
with the rear (position) lights.

4.8.9. May not be "reciprocally incorporated"
with any other light.

4.8.10. Electrical connections
The device shall light up only at the same time as the rear (position) lights.

4.8.11. Warning light
Optical.

4.9. Front (side) lights

4.9.1. Presence

Mandatory on all motor vehicles.
Mandatory on trailers over 1.60 m wide.
Optional on trailers whose width does not exceed 1.60 m.

4.9.2. Number

2

4.9.3. Arrangement

No individual specifications.

4.9.4. Position

4.9.4.1. Width

The point on the illuminating surface which is farthest from the vehicle's median longitudinal plane must not be more than 400 mm from the extreme outer edge of the vehicle.
In the case of a trailer, the point on the illuminating surface which is farthest from the longitudinal plane of symmetry must be not more than 150 mm from the extreme outer edge of the vehicle.
The clearance between the respective inner edges of the two illuminating surfaces must not be less than 600 mm.

4.9.4.2. Height

Above the ground: not less than 350 mm
not more than 1,500 mm
or not more than 2,100 mm if the shape of the bodywork makes it impossible to keep within 1,500 mm.

4.9.4.3. Length

At front of vehicle.

4.9.5. Geometric visibility

Horizontal angle for front side lights
a) Either 45° inwards and 80° outwards,
b) or 80° inwards and 45° outwards.

Vertical angle: 15° above and below the horizontal. The vertical angle below the horizontal may be reduced to 5° if the height of the light is less than 750 mm.

4.9.6. Alignment

Towards the front.

4.9.7. May be "grouped"

with any other front light.

4.9.8. May not be "combined"

with any other lights.

4.9.9. May be "reciprocally incorporated"

with any other front light-signalling or lighting device.

4.9.10. Electrical connections

No individual specifications.

4.9.11. c Warning light ("circuit closed")

Mandatory. This warning light shall not be required if the instrument panel lighting can be turned on only simultaneously with the side lights.

4.10. Rear (position) lights

4.10.1. Presence

Mandatory on all motor vehicles and trailers.

4.10.2. Number

2

4.10.3. Arrangement

No individual specifications.

4.10.4. Position

4.10.4.1. Width

The point on the illuminating surface which is farthest from the vehicle's median longitudinal plane must be not more than 400 mm from the extreme outer edge of the vehicle.

In the case of a trailer, the point of the illuminating surface which is furthest from the longitudinal plane of symmetry must be further than 150 mm from the extreme outer edge.

The clearance between the respective inner edges of the two illuminating surfaces must be 600 mm. This may be reduced to 400 mm where the overall width of the vehicle is less than 1,300 mm.

4.10.4.2. Height

Above the ground: not less than 350 mm and not more than 1,500 mm or 2,100 mm if the shape of the bodywork makes it impossible to keep to 1,500 mm

4.10.4.3. Length

At rear of vehicle.

4.10.5. Geometric visibility

Horizontal angle

for the two rear lights;

a) either 45° inwards and 80° outwards,
b) or 80° inwards and 45° outwards.

Vertical angle

15° above and below the horizontal. The vertical angle below the horizontal may be reduced to 5° if the height of the light is less than 750 mm.

4.10.6. Alignment

Towards the rear.

4.10.7. May be "grouped"

with any other rear light.

4.10.8. May be "combined"
with the rear-registration-plate illuminating device.

4.10.9. May be "reciprocally incorporated"

with the stop lights and the rear fog lights.

4.10.10. Electrical connections

No individual specifications.

4.10.11. Circuit-closed warning light

Mandatory
It must be merged with that of the side lights.

4.11. Rear fog light

4.11.1. Presence

Mandatory.

4.11.2. Number

1 or 2

4.11.3. Arrangement

Such as to satisfy the conditions of geometric visibility.

4.11.4. Position

4.11.4.1. Width
If there is only one rear fog light it must be on the side of the median longitudinal plane of the vehicle which is opposite to the direction of traffic prescribed in the country of registration. In all cases the distance between the rear fog light and the stop light must be greater than 100 mm.

4.11.4.2. Height
Between 250 mm and 1000 mm above the ground.

4.11.4.3. Length
At rear of vehicle.

4.11.5. Geometric visibility

Horizontal angle: 25° inwards and outwards.

Vertical angle: 5° above and below the horizontal.

4.11.6. Alignment

Towards the rear.

4.11.7. May be "grouped"
with any other rear lights.

4.11.8. May not be "combined"
with other lights.

4.11.9. May be "reciprocally incorporated"
with rear position lights.

4.11.10. Electrical connections
Must be such that the rear fog light can light up only when the dipped headlights or the front fog lights are in use. If there are front fog lights, it shall be possible to extinguish the rear fog light independently of the front fog lights.

4.11.11. Circuit closed warning light
Mandatory. An independent, fixed-intensity warning light.

4.12. Parking light

4.12.1. Presence
Optional.

4.12.2. Number
Dependent upon the arrangement.

4.12.3. Arrangement
- either two front lights and two rear lights
- or one light on each side.

4.12.4. Position

4.12.4.1. Width
The point on the illuminating surface which is farthest from the median longitudinal plane of the vehicle must not be more than 400 mm from the extreme outer edge of the vehicle. Furthermore, if there are two lights they must be on the sides of the vehicle.

4.12.4.2. Height
Above the ground: 350 mm minimum:
1,500 or 2,100 mm if the shape of the bodywork makes it impossible to keep to 1,500 mm.

4.12.4.3. Length
No individual specifications.

4.12.5. Geometric visibility
Horizontal angle: 45° outwards, towards the front and towards the rear.

Vertical angle: 15° above and below the horizontal. The vertical angle below the horizontal may be reduced to 5° if the height of the light is less than 750 mm.

4.12.6. Alignment

Such that the lights meet the conditions concerning visibility towards the front and towards the rear.

4.12.7. May be "grouped"

with any other light.

4.12.8. May not be "combined"

with other lights.

4.12.9. May be "reciprocally incorporated"

- at the front: with the side lights, the dipped headlights, the main headlights and the fog lights;
- at the rear: with the rear (position) lights, the stop lights and the rear fog lights;
- with the direction indicators of categories 3, 4 and 5.

4.12.10. Electrical connections

This connection must allow the parking light (s) which are on the same side of a vehicle to be lit independently of any other lights.

4.12.11. Warning light

Optional. If there is one, it must not be possible to confuse it with the warning light for the side and rear lights.

4.12.12. Other requirements

The function of this light may also be performed by the simultaneous illumination of the front and rear position lights on the same side of the vehicle.

4.13. End-outline marker light

4.13.1. Presence

- Optional on vehicles in classes M_3, N_3, O_3, O_4
- Prohibited on vehicles in classes M_1, M_2, N_1, N_2, O_1, O_2.

4.13.2. Number

2 visible from the front and 2 visible from the rear.

4.13.3. Arrangement

No individual specifications.

4.13.4. Position

4.13.4.1. Width
As close as possible to the extreme outer edge of the vehicle.

4.13.4.2. Height
At the greatest height compatible with the required position in width and with the symmetry of the lights.

4.13.4.3. Length
No individual specifications.

4.13.5. Geometric visibility

Horizontal angle: 30° outwards.

Vertical angle: 5° above and 20° below the horizontal.

4.13.6. Alignment

Such that the lights meet the visibility requirements towards the front and towards the rear.

4.13.7. May not be "grouped"

4.13.8. May not be "combined"

4.13.9. May not be "reciprocally incorporated"

} with other lights

4.13.10. Electrical connections

No individual specifications.

4.13.11. Warning light

Optional

4.13.12. Other requirements

Subject to all the other conditions being met, the light visible from the front and the light visible from the rear, on the same side of the vehicle, may be combined in one device.
The position of an end-outline marker light in relation to the corresponding (side) position light shall be such that the distance between the projections on a transverse vertical plane of the points nearest to one another of the illuminating surfaces of the two lights considered is not less than 200 mm.

4.14. Rear reflex reflector, red, non-triangular

4.14.1. Presence

Mandatory on motor vehicles.
Prohibited on trailers.

4.14.2. Number

2

4.14.3. Arrangement

No individual specifications.

4.14.4. Position

4.14.4.1. Width
The point on the illuminating surface which is farthest from the vehicle's median longitudinal plane must be not more than 400 mm from the extreme outer edge of the vehicle.
The clearance between the interior edges of the reflex reflectors shall not be less than 600 mm. This distance may be reduced to 400 mm if the overall width of the vehicle is less than 1.30 m.

4.14.4.2. Height
Above the ground : not less than 400 mm and not more than 900 mm.

4.14.4.3. Length
No individual specification.

4.14.5. Geometric visibility

Horizontal angle: 30° inwards and outwards.

Vertical angle : 15° above and below the horizontal. The vertical angle below the horizontal may be reduced to 5° if the height of the light is less than 750 mm.

4.14.6. Alignment

To the rear.

4.14.7. May be "grouped"

with any other light.

4.14.8. Other requirements

The illuminating surface of the reflex reflector may have parts in common with the illuminating surface of any other rear light.

4.15. Rear reflex reflector, red, triangular

4.15.1. Presence

Mandatory on trailers.
Prohibited on motor vehicles.

4.15.2. Number

2

4.15.3. Arrangement

The point of the triangle must be uppermost.

4.15.4. Position

4.15.4.1. Width
The point of the triangle must be uppermost. The point of the illuminating surface which is furthest from the vehicle's median longitudinal plane must not be further than 400 mm from the extreme outer edge of the vehicle.

The clearance between the interior edges of the reflex reflectors shall not be less than 600 mm. This distance may be reduced to 400 mm if the overall width of the vehicle is less than 1.30 m.

4.15.4.2. Height
Above the ground: not less than 350 mm
not more than 900 mm

4.15.4.3. Length
No individual specifications.

4.15.5. Geometric visibility

Horizontal angle: 30° inwards and outwards

Vertical angle: 15° above and below the horizontal.

4.15.6. Alignment

To the rear.

4.15.7. May not be "grouped"

with any other light.

4.15.8. Other requirements

No signalling light may be placed within the triangle.

4.16. Front reflex reflector, colourless,(1) non-triangular

4.16.1. Presence

Mandatory on trailers.
Prohibited on motor vehicles.

4.16.2. Number

2

4.16.3. Arrangement

No individual specification.

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(1) Also known as: white reflex reflector.

4.16.4. Position

4.16.4.1. Width
The point of the illuminating surface which is furthest from the vehicle's median longitudinal plane must not be further than 400 mm from the extreme outer edge of the vehicle.

The clearance between the interior edges of the reflex reflectors shall not be less than 600 mm. This distance may be reduced to 400 mm if the overall width of the vehicle is less than 1.30 m.

4.16.4.2. Height
Above the ground : not less than 350 mm
not more than 900 mm

4.16.4.3. Length
No individual specifications.

4.16.5. Geometric visibility

Horizontal angle: 30° inwards and outwards

Vertical angle: 15° above and below the horizontal.

4.16.6. Alignment

Towards the front.

4.16.7. May be "grouped"

with the front side lights.

4.16.8. Other requirements

The illuminating surface of the reflex-reflector may have parts in common with that of the front side light.

4.17. Side reflex reflector, amber, non-triangular

4.17.1. Presence

Mandatory

- on all motor vehicles whose length exceeds 6 m with the exception of those in Class M_1;
- on all trailers.

Optional

- on all motor vehicles in Class M_1
- on motor vehicles other than those in Class M_1 whose length does not exceed 6 m.

4.17.2. Minimum number per side

Such that the rules for position as regards length are complied with.

4.17.3. Arrangement

No individual specifications.

4.17.4. Position

4.17.4.1. Width
No individual specifications.

4.17.4.2. Height
Above the ground : not less than 350 mm
not more than 900 mm

4.17.4.3. Length
Motor vehicles: at least one reflex reflector must be situated within the middle third of the vehicle.

Trailers: the foremost reflex reflector may not be further than 3 m from the front;

the distance between 2 adjacent reflex reflectors may not exceed 3 m;

the distance between the rearmost reflex reflector and the rear of the vehicle may not exceed 1 m.

4.17.5. Geometric visibility

Horizontal angle: 45° to the front and to the rear.

Vertical angle: 15° above and below the horizontal.

4.17.6. Alignment

The reference axis of the reflex reflactor must be horizontal and perpendicular to the vehicle's median longitudinal plane and directed outwards.

4.17.7. May be "grouped"

With other signalling devices.

5. Conformity of production

5.1. Every vehicle manufactured in series must conform to the vehicle type which received type-approval as regards the fitting and characteristics of lighting systems and light-signalling devices.

APPENDIX I

Loading conditions on axles referred to under item 4.2.6.1.

1. For the following tests, the weight of the passengers shall be calculated on the basis of 75 kg [68 kg (average weight of the physical person) + 7 kg (average weight of baggage)].

2. Loading conditions for different types of vehicles:

2.1. Vehicles in class M_1

2.1.1. The angle of the light beam of the dipped head lights shall be determined under the following load conditions:

2.1.1.1. One person on the driver's seat;

2.1.1.2. The driver, plus one passenger on the front seat furthest from the driver;

2.1.1.3. The driver, one passenger on the front seat furthest from the driver, all the seats furthest to the rear occupied.

2.1.1.4. All the seats occupied;

2.1.1.5. All the seats occupied, plus an evenly balanced load in the luggage boot, in order to obtain the permissible load on the rear axle or on the front axle if the boot is at the front. If the vehicle has a front and a rear boot, the additional loading must be evenly divided in order to obtain the permissible axle loads. However, if the maximum permissible laden weight is obtained before the permissible load on one of the axles, the loading of the boot (s) shall be limited to the figure which enables that weight to be reached.

2.1.1.6. Driver, plus an evenly balanced load in the boot, in order to obtain the permissible load on the corresponding axle.

However, if the maximum permissible laden weight is obtained before the permissible load on the axle, the loading of the boot (s) shall be limited to the figure which enables this weight to be reached.

2.1.2. In determining the above loading conditions, it may be necessary to take into account any loading restrictions laid down by the manufacturer.

2.2. Vehicles in categories M_2 and M_3.

The angle of the light beam of the dipped headlights must be determined under the following loading conditions:

2.2.1. Vehicle unladen;

2.2.2. Vehicle laden in such a way that each of the axles carries its technically permissible load.

2.3. Vehicles in category N with loading surfaces.

2.3.1. The angle of the light beam of the dipped headlights must be determined under the following loading conditions:

2.3.1.1. Vehicle unladen;

2.3.1.2. One person in the driver's seat, the load being divided in order to obtain the maximum technically permissible load on the rear axle and the unladen weight on the front axle. Mutatis mutandis, the procedure is the same if the loading surface is situated at the front.

2.4. Vehicle in category N without loading surface.

2.4.1. Tractive units for semi-trailers.

2.4.1.1. Unladen vehicle without a load on the coupling attachment;

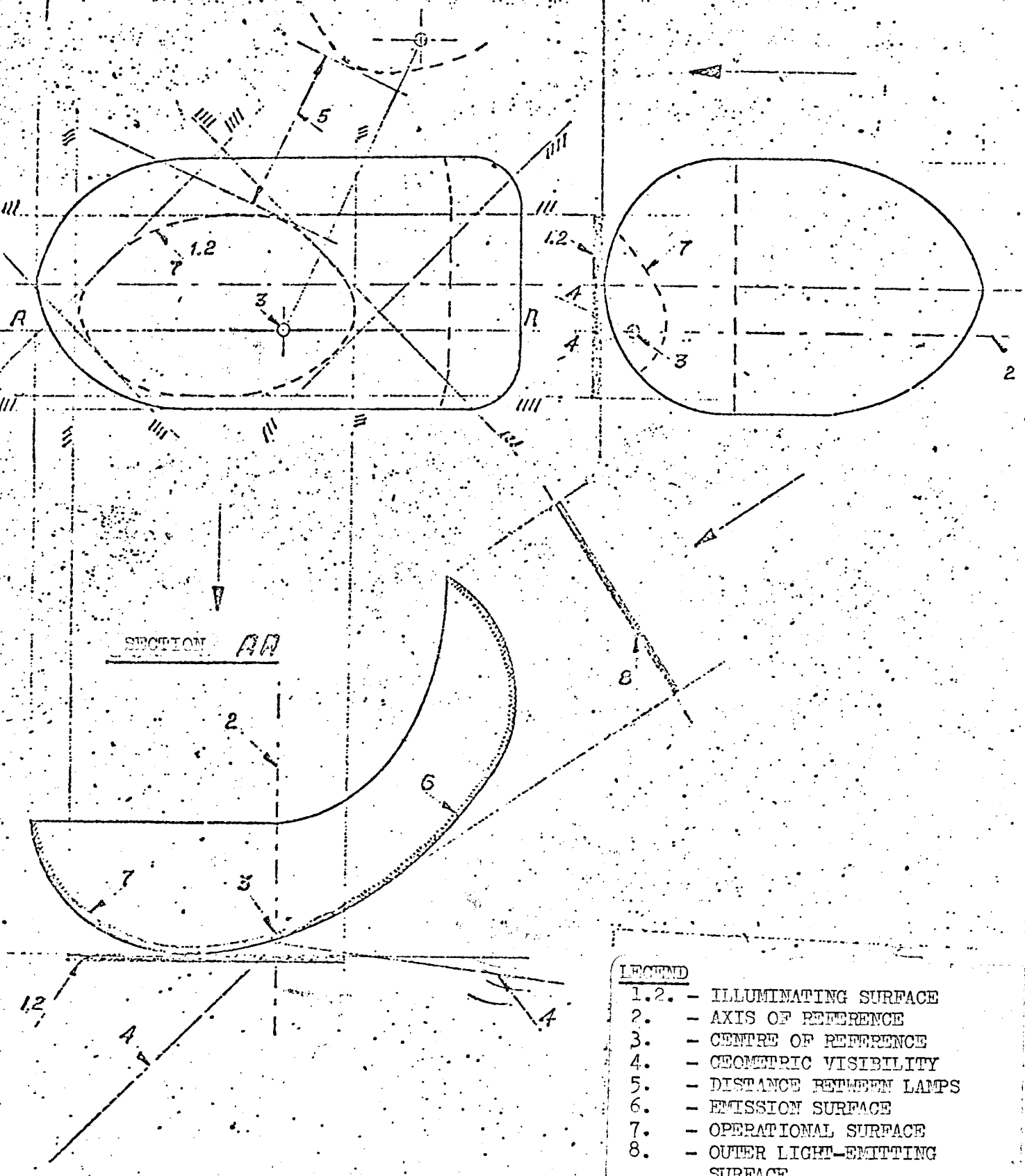
2.4.1.2. One person in the driver's seat, technically permissible load on the coupling attachment in the position on the attachment corresponding to the highest load on the rear axle;

2.4.2. Tractive units for trailers

2.4.2.1. Vehicles unladen

2.4.2.2. One person in the driver's seat, all the other places in the driving cabin being occupied.

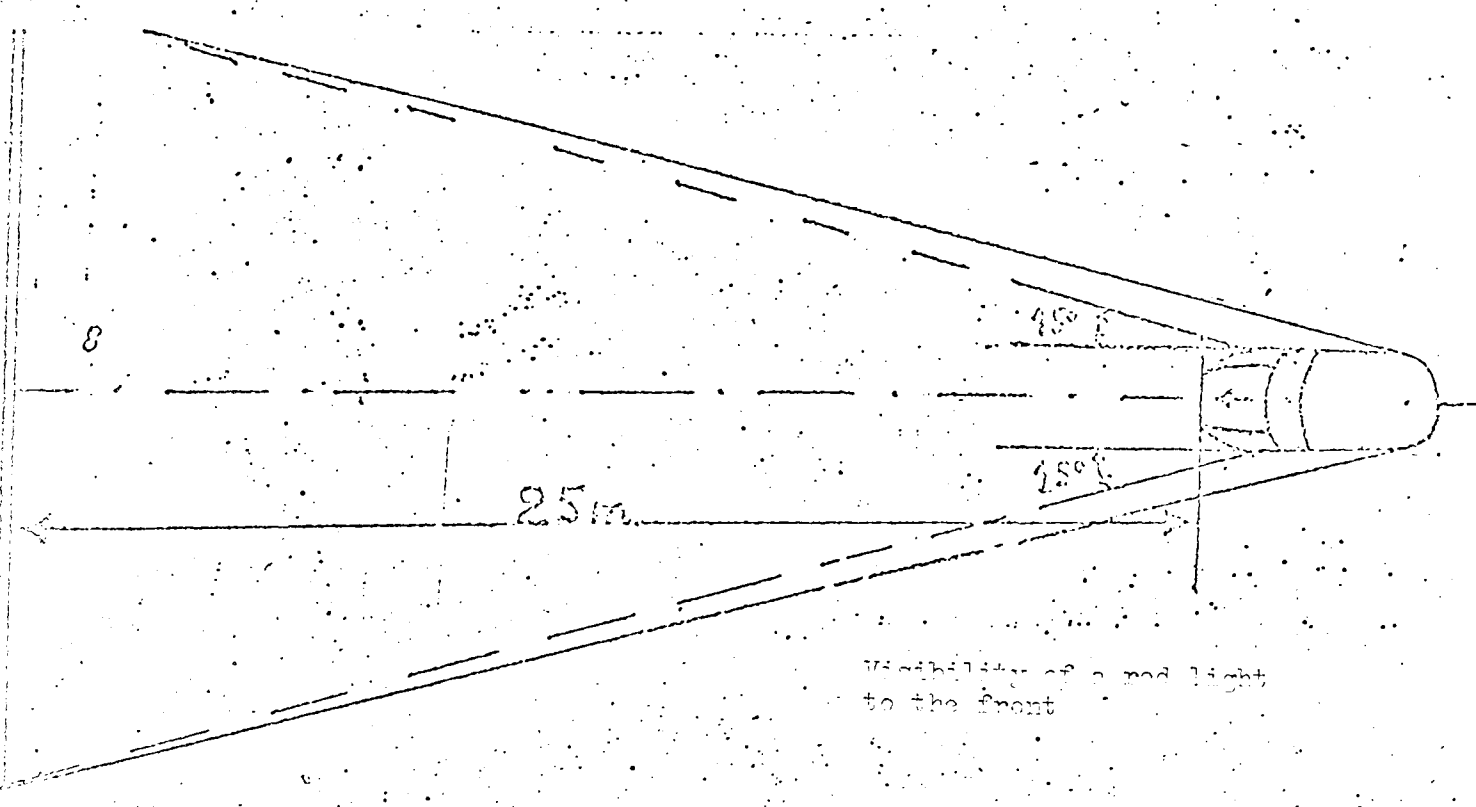
APPENDIX 2



LEGEND

1.2. – ILLUMINATING SURFACE
2. – AXIS OF REFERENCE
3. – CENTRE OF REFERENCE
4. – GEOMETRIC VISIBILITY
5. – DISTANCE BETWEEN LAMPS
6. – EMISSION SURFACE
7. – OPERATIONAL SURFACE
8. – OUTER LIGHT-EMITTING SURFACE.

APPENDIX 2



Visibility of a red light to the front

Visibility of a white light to the rear.

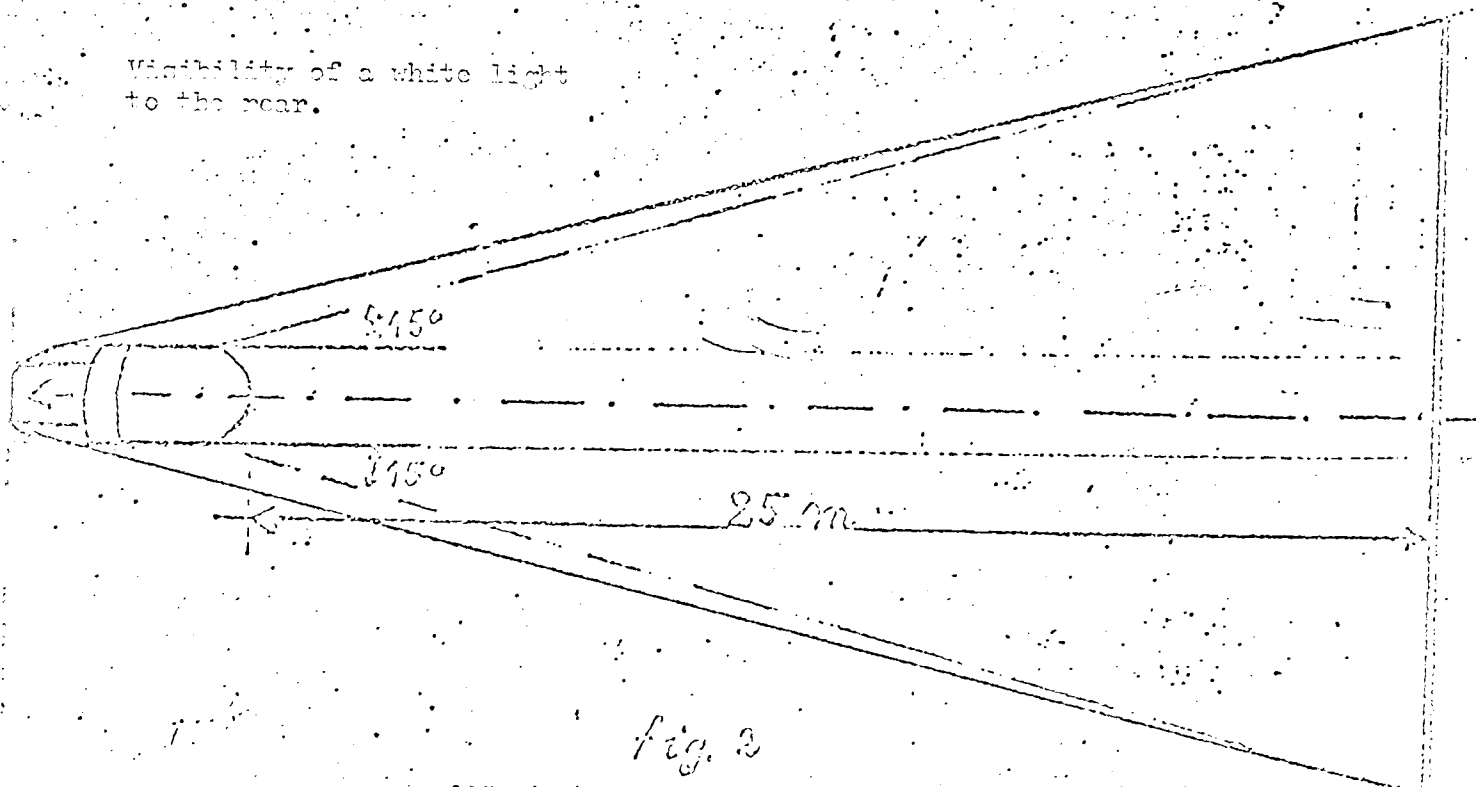


fig. 2

APPENDIX 4

DIRECTION INDICATOR LIGHT
GEOMETRIC VISIBILITY

Diagram A

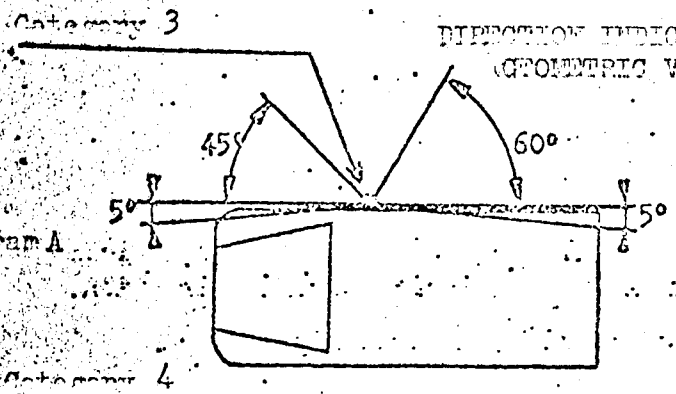
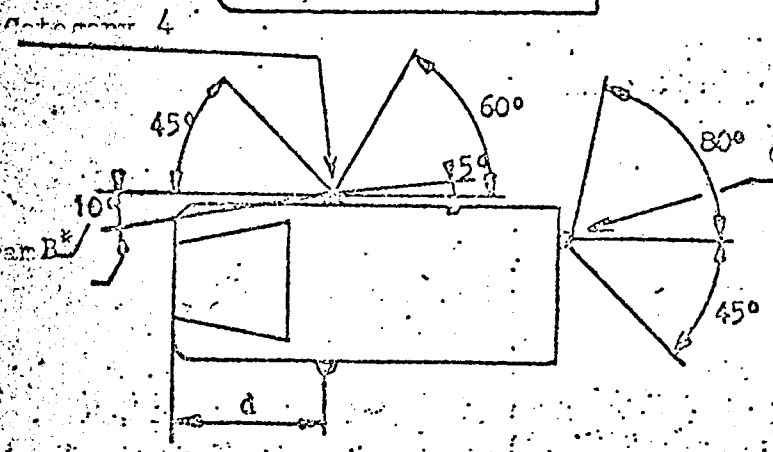


Diagram B*



* The value of 5° given for the dead angle of visibility to the rear of the front-side indicator is an upper limit.
This value may be increased to 10° if it is for practical reasons impossible to keep to the limit of 5°.
$d \leq 1{,}80$ m.

Diagram C*

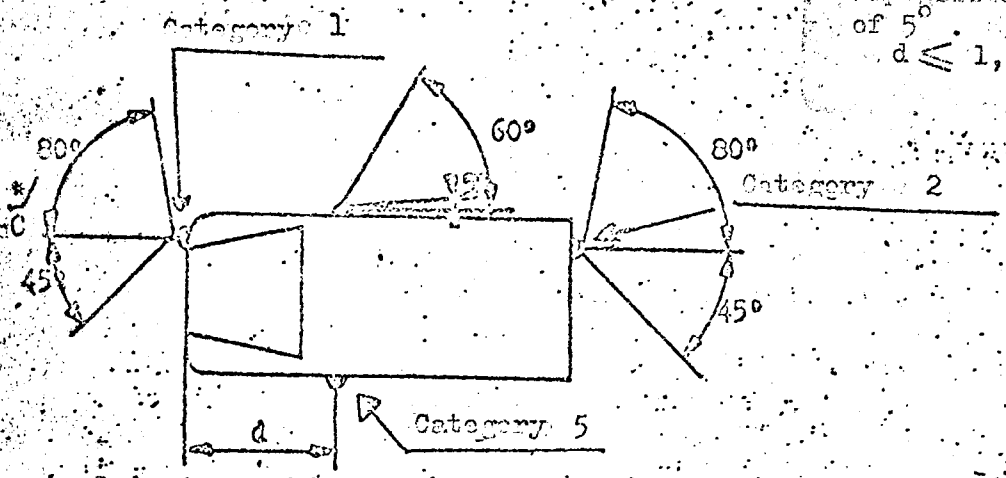


Diagram D

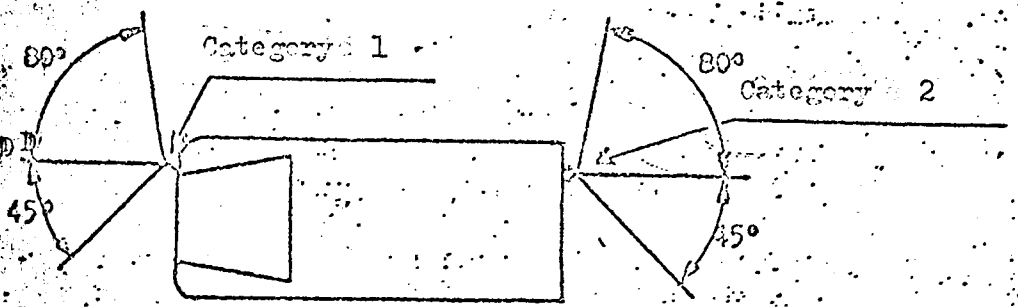
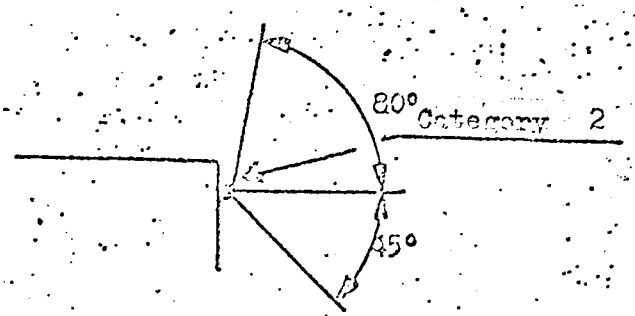


Diagram E



ANNEX II

Name of administration

Annex to the EEC type-approval form for a vehicle type with regard to the fitting of lighting and light-signalling devices. (Articles 4 (2) and 10 of the Council Directive of 6 February 1970 on the approximation of the laws of the Member States relating to the type approval of motor vehicles and their trailers).

EEC type-approval no.

1. Make (trade name) .....

2. Vehicle type and commercial classification .....
.....

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

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

5. Lighting equipment installed on the vehicle submitted for approval (1) (2) .....

5.1. Main-beam headlights: yes/no (*)

5.2. Dipped-beam headlights : yes/no (*)

5.3. Fog-lights: yes/no (*)

5.4. Reversing lights : yes/no (*)

5.5. Front direction indicator: yes/no (*)

5.6 Rear direction indicator: yes/no (*)

5.7. Side direction indicator: yes/no (*)

5.8. Front-side direction indicator: yes/no (*)

5.9. Side direction indicator repeater: yes/no (*)

5.10. Hazard warning signal: yes/no (*)

5.11. Stop-lights: yes/no (*)

5.12. Device for illuminating rear registration plate: yes/no (*)

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(1) Show for each device, on a separate form, the types of equipment duly identified as meeting the requirements for installation for the purposes of Annex I.

(2) Annex the arrangement diagrams for the vehicle, as shown under Item 4.3 of Annex I.

(*) Delete where inapplicable.

5.13. Side lights: yes/no (*)

5.14. Rear lights: yes/no (*)

5.15. Rear fog-light: yes/no (*)

5.16. Parking lights: yes/no (*)

5.17. End-outline marker lights: yes/no (*)

5.18. Reflex reflector rear, red, non-triangular: yes/no (*)

5.19. Reflex reflector rear, red, triangular: yes/no (*)

5.20. Reflex reflector front, white, non-triangular: yes/no (*)

5.21. Reflex reflector side, colourless,non triangular : yes/no(*)

5.2.2. Loading restrictions.

6. Variations .....

7. Vehicle submitted for approval on .....

8. Technical authority responsible for approval test .....

9. Date of report issued by that authority .....

.....

10. Number of report issued by that authority .....

11. EEC type-approval with regard to the lighting and light-signalling devices is granted/refused (*)

12. Done at .....

13. Date .....

14. Signature .....

(*) Delete where inapplicable.