

Distr.
GENERAL

TRANS/WP.29/GRE/2001/6
11 June 2001

ENGLISH ONLY

ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

World Forum for Harmonization of Vehicle Regulations (WP.29)

Working Party on Lighting and Light-Signalling (GRE)

(Informal meeting, Ottawa, 4-7 September 2001, agenda item 1.;
forty-seventh session, 1-5 October 2001, agenda item 1.2.)

PROPOSAL FOR A CANDIDATE DRAFT GLOBAL TECHNICAL REGULATION:

UNIFORM PROVISIONS CONCERNING VEHICLES
WITH REGARD TO THE INSTALLATION OF LIGHTING AND LIGHT-SIGNALLING DEVICES

Transmitted by the secretariat.

Note: The text reproduced below is based on informal document No. 1 which had been prepared by the expert from Canada and discussed during the informal meeting of GRE held in Geneva from 10-12 January 2001 (TRANS/WP.29/GRE/2001/20, paras. 3-6). Results of this informal meeting were reflected in the text, which was made available in the GRE website only under the current document symbol (TRANS/WP.29/2001/6, dated 16 February 2001); by error this document was not submitted for printing. As such, the proposal was considered by GRE at its forty-sixth session, where GRE agreed to issue the document under the same symbol, with a different publication date only, incorporating also the results of the forty-sixth session. Wherever applicable, square brackets indicate that further consideration is needed. Starting from paragraph 6.7., the text modifications are marked in detail in comparison with ECE Regulation No. 48 and notes explain the source of the proposed modifications. In Part B. of the document points for further discussion are listed, together with some comments and explanations. The proposal is submitted to GRE for consideration at its informal meeting to be held in Ottawa from 4 September to 7 September 2001 (TRANS/WP.29/GRE/46, paras. 10-13).

Note: This document is distributed to the Experts on Lighting and Light-Signalling only.

GE.01-21929

A. PROPOSAL

PROPOSAL FOR A CANDIDATE DRAFT GLOBAL TECHNICAL REGULATION:

UNIFORM PROVISIONS CONCERNING VEHICLES
WITH REGARD TO THE INSTALLATION OF LIGHTING AND LIGHT-SIGNALLING DEVICES

1. SCOPE

This Regulation applies to power-driven vehicles intended for use on the road, with or without bodywork and with maximum design speed exceeding 25 km/h, and to their trailers. This Regulation does not apply to [motorcycles] or their trailers, nor to agricultural or forestry tractors or machinery.

2. DEFINITIONS

For the purpose of this Regulation:

- 2.1. "Transverse plane" means a vertical plane perpendicular to the median longitudinal plane of the vehicle.
- 2.2. "Unladen vehicle" means a vehicle without driver, crew, passengers and load, but with a full supply of fuel, spare wheel and the tools normally carried.
- 2.3. "Laden vehicle" means a vehicle loaded to its technically permissible maximum mass, as stated by the manufacturer, who shall also fix the distribution of this mass between the axles in accordance with the method described in annex 5.
- 2.4. "Device" means an element or an assembly of elements used to perform one or more functions.
- [2.5. "Function" ...]
- [2.6. "Overall length" ...]
- 2.7. "Lamp" means a device designed to illuminate the road or to emit a light signal to other road users. Rear registration plate illuminating device and retro-reflectors are likewise to be regarded as lamps.
- [2.7. "Lighting and light signalling function" (hereinafter referred as "function") means the emission or reflection of light having the photometric and colorimetric characteristics, required for the approval of the device performing it as separate unit, peculiar to the scopes defined in paragraphs 2.7.9 to 2.7.25. of this Regulation.
[For the purposes of the present Regulation the word "lamp" has the same value of "function", if not otherwise specified.]
[Through the whole text of the GTR change the word "lamp" into "function", according to the above definition.]
/Italy - forty-sixth session of GRE/]

- 2.7.1. "Light source with regard to filament lamps" means the filament itself. In the case of a lamp having several filaments, each one shall constitute a light source.
- 2.7.3. "Independent lamps" means devices having separate illuminating surfaces, 1/ separate light sources and separate lamp bodies.
- 2.7.4. "Grouped lamps" means devices having separate illuminating surfaces 1/ and separate light sources, but a common lamp body.
- 2.7.5. "Combined lamps" means devices having separate illuminating surfaces, 1/ but a common light source and a common lamp body.
- 2.7.6. "Reciprocally incorporated lamps" means devices having separate light sources or a single light source operating under different conditions (for example, optical, mechanical, electrical differences), totally or partially common illuminating surfaces 1/ and a common lamp body.
- 2.7.7. "Single-function lamp" means a part of a device which performs a single lighting or light-signalling function.
- 2.7.8. "Concealable lamp" means a lamp 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 lamp or by any other suitable mean. The term "retractable" is used more particularly to describe a concealable lamp the displacement of which enables it to be inserted within the bodywork.
- 2.7.9. "Driving beam (main-beam, upper-beam) headlamp" means a lamp used to illuminate the road over a long distance ahead of the vehicle.
- 2.7.10. "Passing beam (dipped-beam, lower-beam) headlamp" means a lamp used to illuminate the road ahead of the vehicle without causing undue dazzle or discomfort to oncoming drivers and other road-users.
- 2.7.11. "Direction indicator lamp" means a lamp used to indicate to other road-users that the driver intends to change direction to the right or to the left.
- 2.7.12. "Stop lamp" means a lamp used to indicate to other road-users to the rear of the vehicle that the speed of the vehicle is intentionally [retarded] in a prescribed manner.
- 2.7.13. "Rear-registration plate illuminating device" means a device used to illuminate the space reserved for the rear registration plate; such a device may consist of several optical components.
- 2.7.14. "Front position lamp" means a lamp used to indicate the presence and the width of the vehicle when viewed from the front.
- 2.7.15. "Rear position lamp" means a lamp used to indicate the presence and width of the vehicle when viewed from the rear.

1/ In the case of lighting devices for the rear registration plate and the side direction indicators, replace by "light-emitting surface" in the absence of an illuminating surface.

2.7.16. "Retro-reflector" means a device used to indicate the presence of a vehicle by the reflection of light emanating from a light source not connected to the vehicle, the observer being situated near the source.

For the purposes of this Regulation the following are not considered as retro-reflectors:

- 2.7.16.1. retro-reflecting registration plates;
 - 2.7.16.2. the retro-reflecting signals mentioned in the ADR (European Agreement concerning the international carriage of dangerous goods by road);
 - 2.7.16.3. other retro-reflecting plates and signals which must be used to comply with national requirements for use as regards certain categories of vehicles or certain methods of operation.
- 2.7.17. "Hazard warning signal" means the simultaneous operation of all of a vehicle's direction indicator lamps to show that the vehicle temporarily constitutes a special danger to other road-users.
- 2.7.18. "Front fog lamp" means a lamp used to improve the illumination of the road ahead of the vehicle in case of fog, snowfall, rainstorms or dust clouds.
- 2.7.19. "Rear fog lamp" means a lamp used to improve the visibility of a vehicle from the rear in case of fog, snowfall, rainstorms or dust clouds.
- 2.7.20. "Reversing lamp" means a lamp used to illuminate the road to the rear of the vehicle and to warn pedestrians and other road-users that the vehicle is reversing or about to reverse.
- 2.7.21. "Parking lamp" means a lamp, which is used to draw attention to the presence of a stationary vehicle.
- 2.7.22. "End-outline marker lamp" means a lamp fitted near to the extreme outer edge and as close as possible to the top of the vehicle and used to indicate clearly the vehicle's overall width. This lamp is intended, for certain vehicles and trailers, to complement the vehicle's front and rear position lamps by drawing particular attention to their bulk.
- 2.7.23. "Side-marker lamp" means a lamp used to indicate the presence of the vehicle when viewed from the side.
- 2.7.24. "Daytime running lamp" means a lamp facing in a forward direction used to make the vehicle more easily visible when driving during daytime.
- 2.7.25. "Identification lamps (ID lamps)" means a cluster of three lamps fitted at the top and about the centreline on the front and rear of vehicle to draw particular attention to its bulk. These lamps are intended for certain vehicles and trailers, to complement the vehicle's front and rear position and end outline marker lamps.
- [2.7.26. "Objective luminous flux" means a design value of the luminous flux of a replaceable light source. It shall be achieved, within the specified tolerances, when the replaceable light source is

energised by the power supply at the specified test voltage, as indicated in the data sheet of the light source.]

2.7.27. **"Cornering lamp"** means a lamp used to provide supplementary illumination of that part of the road which is located near to the forward corner of the vehicle at the side towards which the vehicle is going to turn.
/GTB proposal presented during forty-sixth GRE session as informal document No. 5/

2.8. "Light emitting surface" of a lighting device light-signalling device or a retro-reflector means all or part of the exterior surface of the transparent material as defined by the manufacturer of the device (see annex 1).

2.9. "Illuminating surface" (see annex 1).

2.9.1. "Illuminating surface of a lighting device" (paragraphs 2.7.9., 2.7.10., 2.7.18., 2.7.20. and 2.7.27.) means the orthogonal projection of the full aperture of the reflector, or in the case of headlamps with an ellipsoidal reflector of the "projection lens" on a transverse plane. If the lighting device has no reflector, the definition of paragraph 2.9.2. shall be applied. If the light emitting surface of the lamp extends over part only of the full aperture of the reflector, then the projection of that part only is taken into account.

In the case of a passing beam headlamp, the illuminating surface is limited by the apparent trace of the cut-off on to the lens. If the reflector and lens are adjustable relative to one another, the mean adjustment should be used.

2.9.2. "Illuminating surface of a light-signalling device other than a retro-reflector" (paragraphs 2.7.11. to 2.7.15., 2.7.17., 2.7.19. and 2.7.21. to 2.7.25.) means the orthogonal projection of the lamp in a plane perpendicular to its axis of reference and in contact with the exterior light-emitting surface of the lamp, this projection being bounded by the edges of screens situated in this plane, each allowing only 98 per cent 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 illuminating surface, only screens with horizontal or vertical edges shall be used.

2.9.3. "Illuminating surface of a retro-reflector" (paragraph 2.7.16.) means the orthogonal projection of a retro-reflector in a plane perpendicular to its axis of reference and delimited by planes contiguous to the outermost parts of the retro-reflector's optical system and parallel to that axis. For the purposes of determining the lower, upper and lateral edges of the device, only horizontal and vertical planes shall be considered.

2.10. "Apparent surface" for a defined direction of observation means, at the request of the manufacturer or his duly accredited representative, the orthogonal projection of either:

the boundary of the illuminating surface projected on the exterior surface of the lens (a-b), or

the light-emitting surface (c-d),

in a plane perpendicular to the direction of observation and tangential to the most exterior point of the lens (see annex 1 to this Regulation).

- 2.11. "Axis of reference (reference axis)" means the characteristic axis of the lamp determined by the manufacturer (of the lamp) for use as the direction of reference ($H=0^\circ$, $V=0^\circ$) for angles of field for photometric measurements and for installing the lamp on the vehicle.
- 2.12. "Centre of reference" means the intersection of the axis of reference with the exterior light-emitting surface; it is specified by the manufacturer of the lamp.
- 2.13. "Angles of geometric visibility" means the angles, which determine the field of the minimum solid angle in which the apparent surface of the lamp must be visible. That field of the solid angle is determined by the segments of the sphere, the centre of which coincides with the centre of reference of the lamp, and the equator is parallel with the ground. These segments are determined in relation to the axis of reference. The horizontal angles correspond to the longitude and the vertical angles to the latitude.
- [2.14. "Extreme outer edge" on either side of the vehicle, means the plane parallel to the median longitudinal plane of the vehicle and touching its lateral outer edge, disregarding the projection:
- 2.14.1. of tyres near their point of contact with the ground, and of connections for tyre-pressure gauges;
- 2.14.2. of any anti-skid devices mounted on the wheels;
- 2.14.3. of rear-view mirrors;
- 2.14.4. of side direction indicator lamps, end-outline marker lamps, front and rear position lamps, parking lamps, retro-reflectors and side-marker lamps;
- 2.14.5. of Customs seals affixed to the vehicle, and of devices for securing and protecting such seals.]
- [2.15. "Overall width" means the distance between the two opposite extreme outer edges of a vehicle.]
- 2.16. The following shall be deemed to be:
- [2.16.1. "A single lamp" means a device or part of a device having one lighting or light-signalling function, one or more light source(s) and one apparent surface in the direction of the reference axis, which may be a continuous surface or composed of two or more distinct parts meeting the requirements of paragraph 5.7.1. below.

For the purpose of installation on a vehicle, a "single lamp" also means any assembly of two independent or grouped lamps, whether

identical or not, having the same function, if they are installed so that the projection of their apparent surfaces in the direction of the reference axis occupies not less than 60 per cent of the smallest rectangle circumscribing the projections of the said apparent surfaces in the direction of the reference axis.

[In such a case, each of these lamps shall be certified as a type "D" lamp.]

This possible combination does not apply to driving beam headlamps, passing beam headlamps **and** front fog lamps, **and cornering lamps.**]

/GTB proposal presented during forty-sixth GRE session as informal document No. 5/

- 2.16.2. "Two lamps (an even number of lamps)", means two single lamps or a single light-emitting surface in the shape of a band or strip if such band or strip is placed symmetrically in relation to the median longitudinal plane of the vehicle, extends on both sides to within at least 0.4 m of the extreme outer edge of the vehicle, and is not less than 0.8 m long; the illumination of such 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 on a transverse plane occupy not less than 60 per cent of the area of the smallest rectangle circumscribing the projections of the said individual light-emitting surfaces.
- 2.17. "Distance between two lamps" which face in the same direction means the shortest distance between the two apparent surfaces in the direction of the reference axis. Where the distance between the lamps clearly meets the requirements of the Regulation, the exact edges of apparent surfaces need not be determined.
- 2.18. "Operating tell-tale" means a visual or auditory signal (or any equivalent signal) indicating that a device has been switched on and is operating correctly or not.
- 2.19. "Circuit-closed tell-tale" means a visual (or any equivalent signal) indicating that a device has been switched on, but not indicating whether it is operating correctly or not.
- 2.20. Categories of lamps:
- [2.20.1. "Mandatory lamp" means a lamp, the installation of which is required by this Regulation;]
- [2.20.2. "Optional lamp" means a lamp described in this Regulation, the installation of which is left to the discretion of the manufacturer;]
- [2.20.3. "Discretionary lamp" means a lamp described in this Regulation, the installation of which may be required, allowed, or prohibited on the basis of national Regulations of a Contracting Party;]
- [2.20.4. "Additional lamp" means a lamp, the installation of which is not covered by this Regulation, but is subject to the installation requirements of each Contracting Party in whose territory the

vehicle, to which the lamp is fitted, is intended to be registered;]

- [2.20.5. "Supplementary lamp" means a lamp that enhances operation of mandatory, optional or discretionary lamp.]
- 2.21. "Ground" means a substantially horizontal surface on which the vehicle stands.
- 2.22. "Movable components" means those vehicle body panels or other vehicle parts the position(s) of which can be changed by tilting, rotating or sliding without the use of tools. They do not include tiltable driver cabs of trucks.
- 2.23. "Normal position of use of a movable component" means the position(s) of a movable component specified by the vehicle manufacturer for the normal condition of use and the park condition of the vehicle.
- 2.24. "Normal condition of use of a vehicle" means:
- 2.24.1. for a motor vehicle, when the vehicle is ready to move with its [propulsion system activated] and its movable components in the normal position(s) of use;
- 2.24.2 and for a trailer, when the trailer is connected to a drawing motor vehicle in the normal condition of use and the trailer's movable components are in the normal position(s) of use.
- 2.25. "Park condition of a vehicle" means:
- 2.25.1. for a motor vehicle, when the vehicle is at standstill and its [propulsion system is not activated] and its movable components are in the normal position(s) of use;
- 2.25.2. and for a trailer, when the trailer is connected to a drawing motor vehicle in the normal condition of use and the trailer's movable components are in the normal position(s) of use.
- [2.26. "Light-duty vehicle" means passenger car, utility vehicle or light commercial vehicle not exceeding 6 m in length, 2.032 m in width, 3500 kilograms in gross vehicle weight, and with a maximum seating capacity for 9 persons including the driver.]
- [2.27. "Very Heavy-Duty Off-Road Vehicles (VHDORV)" ...]
3. (Reserved)
4. (Reserved)
5. GENERAL SPECIFICATIONS
- 5.1. The lighting and light-signalling devices shall be so fitted that under normal conditions of use of the vehicle and notwithstanding any vibrations to which they may be subjected, they retain the characteristics prescribed by this Regulation and enable the vehicle to comply with the requirements of this Regulation.

In particular, it shall not be possible for the lamps to be inadvertently maladjusted.

- 5.2. All driving beam headlamps, passing beam headlamps and front fog lamps shall be so installed that correct adjustment of their orientation can be easily carried out.
- 5.3. For all light-signalling devices, including those mounted on the side panels, the reference axis of the lamp when fitted to the vehicle must be parallel to the ground; in addition it must be perpendicular to the median longitudinal plane of the vehicle in the case of side retro-reflectors, and of side-marker lamps 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, any specific instructions, laid down by the lamp manufacturer with regard to fitting of the light-signalling device on a vehicle, must be complied with.
- 5.4. In the absence of specific instructions, the height and orientation of the lamps shall be verified with the unladen vehicle under normal condition of use and placed on a ground.
- 5.5. In the absence of specific instructions, lamps constituting a pair shall:
- 5.5.1. be fitted to the vehicle symmetrically in relation to the median longitudinal plane (this estimate to be based on the exterior geometrical form of the lamp and not on the edge of its illuminating surface;
- 5.5.2. be symmetrical to one another in relation to the median longitudinal plane, this requirement is not valid with regard to the interior structure of the lamp;
- 5.5.3. satisfy the same colorimetric requirements; and
- [5.5.4. have substantially identical photometric characteristics.]
- 5.6. On vehicles whose external shape is asymmetrical, the above requirements shall be satisfied so far as possible.
- 5.7. Unless otherwise specified in this Regulation, lamps may be grouped, combined or reciprocally incorporated with one another provided that all requirements regarding colour, position, orientation, geometric visibility, electrical connections and other requirements, if any, for each lamp, are fulfilled.
- [5.7.1. Where a single lamp is composed of two or more distinct parts, it shall satisfy the following requirements:
- 5.7.1.1. the total area of the projection of the distinct parts (composing the apparent surface in the direction of the reference axis) on a plane tangent to the exterior surface of the transparent material and perpendicular to the reference axis shall occupy not less than 60 per cent of the smallest quadrilateral circumscribing the said projection, or
- the maximum distance between two adjacent/tangential distinct parts (composing the apparent surface in the direction of the

reference axis) shall not be more than 15 mm measured perpendicularly to the reference axis.

- 5.7.1.2. No distinct part of a single lamp shall be separated from another distinct part of that lamp by any part of the apparent surface of another lamp of a different colour.]

5.8. Measurements

5.8.1. In height:

The maximum height above the ground shall be measured from the highest point and the minimum height from the lowest point of the apparent surface, in the direction of the reference axis.

In the case of passing beam headlamp, the minimum height in relation to the ground is measured from the lowest point of the effective outlet of the optical system (e.g. reflector, lens, projection lens) independent of its utilisation.

5.8.2. In width:

The maximum distance of the lamp from the extreme outer edge of the vehicle shall be measured from that edge of the apparent surface in the direction of the reference axis which is the furthest from the median longitudinal plane of the vehicle.

The minimum distance between lamps shall be measured between those inner edges of the apparent surface in the direction of the reference axis which are the closest to each other.

5.8.3. In length:

The maximum distance between the lamp and the transverse plane which marks the forward or rearward boundary of the vehicle's overall length (front or rear of the vehicle) shall be measured from that edge of the apparent surface in the direction of the reference axis which is the closest, respectively, to the front or rear of the vehicle.

The minimum distance between two lamps which face in the same direction shall be measured between those edges of the apparent surface in the direction of the reference axis which are the closest to each other.

- 5.8.4. Where the position, as regards maximum or minimum height, width or length, clearly meets the requirements of the Regulation, the exact edges of any apparent surface need not be determined.

- 5.9. In the absence of specific instructions, no lamps other than direction indicator lamps, the vehicle-hazard warning signal and amber side-marker lamps complying with paragraph 6.18.7 below, shall be flashing lamps.

- 5.10. Visibility of red light to the front of a vehicle and of white light to the rear of a vehicle shall be verified as follows:

Note: No account shall be taken of lighting devices fitted for the interior lighting of a vehicle.

- 5.10.1. For the visibility of red light towards the front of a vehicle, with the exception of a red rearmost side-marker lamp, there must be no direct visibility of the apparent surface of a red lamp if viewed by an observer moving within Zone 1 as specified in annex 2.
- 5.10.2. For the visibility of white light towards the rear of a vehicle, with the exception of the reversing lamp(s), there must be no direct visibility of the apparent surface of a white lamp if viewed by an observer moving within Zone 2 as specified in annex 2.
- 5.11. The electrical connections must be such that the front and rear position lamps, the side-marker lamps, the rear registration plate illuminating device and the end-outline marker lamps and identification lamps, if they exist, can only be switched on and off simultaneously. This condition does not apply when using front and rear position lamps, as well as side-marker lamps when combined or reciprocally incorporated with said lamps, as parking lamps, and when side-marker lamps are permitted to flash.
- 5.12. The electrical connections must be such that the driving beam and passing beam headlamps and the front fog lamps cannot be switched on unless the front and rear position lamps, the side-marker lamps, the rear registration plate illuminating device and the end-outline marker lamps and identification lamps, if they exist, are also switched on.

This requirement shall not apply, however, to driving beam or passing beam headlamps when their luminous warnings consist of the intermittent lighting up at short intervals of the driving beam headlamp or the intermittent lighting up at short intervals of the passing beam headlamp or the alternate lighting up at short intervals of the driving beam and passing beam headlamps.

5.13. Tell-tale

Where a "circuit-closed" tell-tale is prescribed by this Regulation, it may be replaced by an "operating" tell-tale.

5.14. Concealable lamps

- 5.14.1. Lamps shall not be concealable with the exception of the driving beam headlamps, the passing beam headlamps and the front fog lamps, which may be concealed when they are not in use.
- 5.14.2. In the event of any failure affecting the operation of the concealment device(s) the lamps shall remain in the position of use, if already in use, or shall be capable of being moved into the position of use without the aid of tools.
- 5.14.3. It must be possible to move the lamps into the position of use and to switch them on by means of a single control, without excluding the possibility of moving them into the position of use, without switching them on. However, in the case of grouped driving beam and passing beam headlamps, the control referred to above is required only to activate the passing beam headlamps.
- 5.14.4. It must not be possible deliberately, from the driver's seat, to stop the movement of switched-on lamps before they reach the

position of use. If there is a danger of dazzling other road users by the movement of the lamps, they shall light up only when they have reached their position of use.

- 5.14.5. When the concealment device has a temperature of -30°C to $+50^{\circ}\text{C}$ the headlamps must be capable of reaching the position of use within three seconds of initial operation of the control.

- 5.15. The colours of the light emitted by the lamps are the following:

driving beam headlamp:	white
passing beam headlamp:	white
front fog lamp:	white
reversing lamp:	white
direction indicator lamp:	amber
hazard warning signal:	amber
stop lamp:	red
rear registration plate illuminating device:	white
front position lamp:	white
rear position lamp:	red
rear fog lamp:	red
parking lamp:	white in front, red at the rear, amber if reciprocally incorporated in the side direction indicator lamps or in the side-marker lamps.
[side-marker lamp:	amber; however the rearmost side-marker lamp may be red]
end-outline marker lamp:	white in front, red at the rear
daytime running lamp:	white
rear retro-reflector, non-triangular:	red
rear retro-reflector, triangular:	red
front retro-reflector, non-triangular:	identical to incident light (white or colourless retro-reflector)
[side retro-reflector, non-triangular:	amber; however the rearmost side retro-reflector may be red]
identification lamps:	amber in front, red at the rear.
<u>Cornering lamp:</u>	<u>white or yellow</u>

/GTB proposal presented during forty-sixth GRE session as informal document No. 5/

- 5.16. Number of lamps

The number of lamps mounted on the vehicle shall be equal to the number(s) specified in each of the paragraphs 6.1. to 6.20.

- [5.17. Kind of lamps

The presence of additional lamps is permitted on vehicles, which are intended to enter into service in the territory of a Contracting Party to this Regulation where such lamps are permitted;

Such lamps shall not interfere with any requirement of the mandatory and/or optional lamps installed in accordance with the requirements of this Regulation;

No Contracting Party to this Regulation shall be bound to permit the entry into service of vehicles fitted with such lamps.]

- 5.18. Except as provided by paragraphs 5.19., 5. 20. and 5.22., lamps may be installed on movable components.
- 5.19. Rear position lamps, [rear] direction indicators and [rear] retro-reflectors must not be installed on movable components unless at all fixed positions of the movable components the lamps on the movable components meet all the position, geometric visibility and photometric requirements for those lamps or a device meeting all requirements for those lamps is installed.
- Should the above functions be obtained by an assembly of two lamps only the lamp installed on the non-movable part of the vehicle must meet the above mentioned requirements.
- 5.20. There must not be any movable component, with or without a light-signalling device installed on it, which in any fixed position hides more than 50 per cent of the apparent surface of front and rear position lamps, front and rear direction indicator lamps, side-marker lamps or any retro-reflector when viewed in the reference axis of this specific device. If this is not practicable:
- 5.20.1. an alternative device meeting all requirements for those lamps is installed; or
- 5.20.2. a notice in the vehicle shall inform the user that in certain position(s) of the movable components other road users shall be warned of the presence of the vehicle on the road by means provided by the manufacturer with the vehicle.
- [5.21. No road illumination device (driving beam headlamp, passing beam headlamp, front fog lamp, etc) shall be mounted on movable component which movement causes the beam pattern of the device to move upwards, unless the device mounted on such movable component will be automatically switched off while the movable component is moved out of its normal position of use specified for a vehicle being in the normal condition of use.]
- 5.22. When a lamp is installed on a movable component and the movable component is in the normal position(s) of use, the lamp must always return to the position(s) specified by the manufacturer in accordance with this Regulation. In the case of passing beam headlamps and front fog lamps, this requirement shall be considered satisfied if, when the movable components are moved and returned to the normal position 10 times, no value of the angular inclination of these lamps, relative to its support, measured after each operation of the movable component, differs by more than 0.15 per cent from the average of the 10 measured values. If this value is exceeded, each limit specified in paragraph 6.2.6.1.1. shall then be modified by this excess to decrease the allowed range of inclinations when checking the vehicle according to annex 6.
- 5.23. Lamps shall be fitted in a vehicle in such a way that the light source can be correctly replaced without the use of special tools,

according to the instructions [provided with the vehicle] by the vehicle manufacturer. This requirement is not applicable to devices equipped with a non-replaceable light source.

5.24. With the exception of retro-reflectors, a lamp even bearing an approval mark [or other required markings] is deemed to be not present when it cannot be made to operate by the sole installation of a light source.

5.25. Any temporary fail-safe replacement of the light-signalling function of a rear position lamp is allowed, provided that the substituting function in case of a failure is similar in colour, main intensity and position to the function that has ceased to operate and provided that the substituting device remains operational in its original safety function. During substitution, a tell-tale shall indicate occurrence of a temporary replacement and need for repair.

5.26. Geometric visibility

There must be no obstacle on the inside of the angles of geometric visibility, as described in 2.13., to the propagation of light from any part of the apparent surface of the lamp observed from infinity.

If measurements are taken closer to the lamp, the direction of observation must be shifted parallel to achieve the same accuracy.

On the inside of the angles of geometric visibility, no account is taken of obstacles, if they were already present when the lamp was photometrically tested.

If, when the lamp is installed, any part of the apparent surface of the lamp is hidden by any further parts of the vehicle, the part of the lamp not hidden by obstacles must still conform to the photometric values prescribed for the device.

When the vertical angle of geometric visibility below the horizontal may be reduced to 5° (lamp at less than 750 mm above the ground) the photometric field of measurements of the installed optical unit may be reduced to 5° below the horizontal.

6. INDIVIDUAL SPECIFICATIONS

6.1. DRIVING BEAM HEADLAMP

6.1.1. Presence

Mandatory on motor vehicles. Prohibited on trailers.

6.1.2. Number

Two or four.

Where a vehicle is fitted with four concealable driving beam headlamps the installation of two more headlamps shall be allowed only for the purpose of providing light-signalling, consisting of intermittent illumination, at short intervals in.

6.1.3. Arrangement

No individual specifications.

6.1.4. Position

6.1.4.1. In width: no individual specifications.

6.1.4.2. In height: no individual specifications.

6.1.4.3. In length:

at the front of the vehicle and fitted in such a way that 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.

6.1.5. 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 headlamp.

The origin of the angles of geometric visibility is the perimeter of the projection of the illuminating surface on a transverse plane tangent to the foremost part of the lens of the headlamp.

6.1.6. Orientation

Towards the front.

6.1.7. Electrical connections

6.1.7.1. The driving beam headlamps shall be switched on either simultaneously or in pairs. For changing over from the passing to the driving beam at least one pair of driving beam headlamps shall be switched on. For changing over from the driving beam to the passing beam all driving beam headlamps shall be switched off simultaneously.

6.1.7.2. The passing beams may remain switched on at the same time as the driving beams.

6.1.7.3. Where four concealable headlamps are fitted their raised position must prevent the simultaneous operation of any additional headlamps fitted, if these are intended to provide light signals consisting of intermittent illumination at short intervals in daylight.

6.1.8. Tell-tale

Circuit-closed tell-tale mandatory.

6.1.9. Other requirements

[6.1.9.1. Driving beam headlamp and/or its beam pattern may swivel about a substantially vertical axis in accordance to the direction of the vehicle travel.]

6.1.9.2. The [aggregate maximum intensity] of the driving beam headlamps which can be switched on simultaneously shall not exceed 225,000 cd.

6.2. PASSING BEAM HEADLAMP

6.2.1. Presence

Mandatory on motor vehicles. Prohibited on trailers.

6.2.2. Number

Two.

6.2.3. Arrangement

No special requirement.

6.2.4. Position

6.2.4.1. In width:

not more than 400 mm from the extreme outer edge of the vehicle;

6.2.4.2. In height:

not less than 500 mm above the ground and not more than [1,200 mm] above the ground.

[for vehicles defined in paragraph 2.27 not more than 1,500 mm above the ground.]

6.2.4.3. In length:

at the front of the vehicle. This requirement shall be deemed 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.

6.2.5. Geometric visibility

Horizontal angles:

45° outwards and 10° inwards.

Since the photometric values required for passing beam headlamps do not cover the full geometric field of vision, a minimum value of 1 cd in the space remaining is required. The presence of partitions or other items of equipment near the headlamp shall not give rise to secondary effects [causing discomfort] to other road users.

Vertical angles:

15° above and 10° below the horizontal,

6.2.6. Orientation

Towards the front.

[6.2.6.1. Vertical orientation

6.2.6.1.1. The initial downward inclination of the cut-off of the passing beam to be set in the unladen vehicle state with one person in the driver's seat shall be specified within an accuracy of 0.1 per cent by the manufacturer and indicated in a clearly legible and indelible manner on each vehicle close to either headlamps or the manufacturer's plate by the symbol shown in annex 7.

The value of this indicated downward inclination shall be defined in accordance with paragraph 6.2.6.1.2.

6.2.6.1.2. Depending on the mounting height in metres (h) of the lower edge of the apparent surface in the direction of the reference axis of the passing beam headlamp, measured on the unladen vehicles, the vertical inclination of the cut-off of the passing beam shall, under all the static conditions of annex 5, remain between the following limits and the initial aiming shall have the following values:

h < 0.8 limits: between -0.5% and -2.5%
 initial aiming: between -1.0% and -1.5%

0.8 < h < 1.0 limits: between -0.5% and -2.5%
 initial aiming: between -1.0% and -1.5%

or, at the discretion of the manufacturer,

limits: between -1.0% and -3.0%
initial aiming: between -1.5% and -2.0%

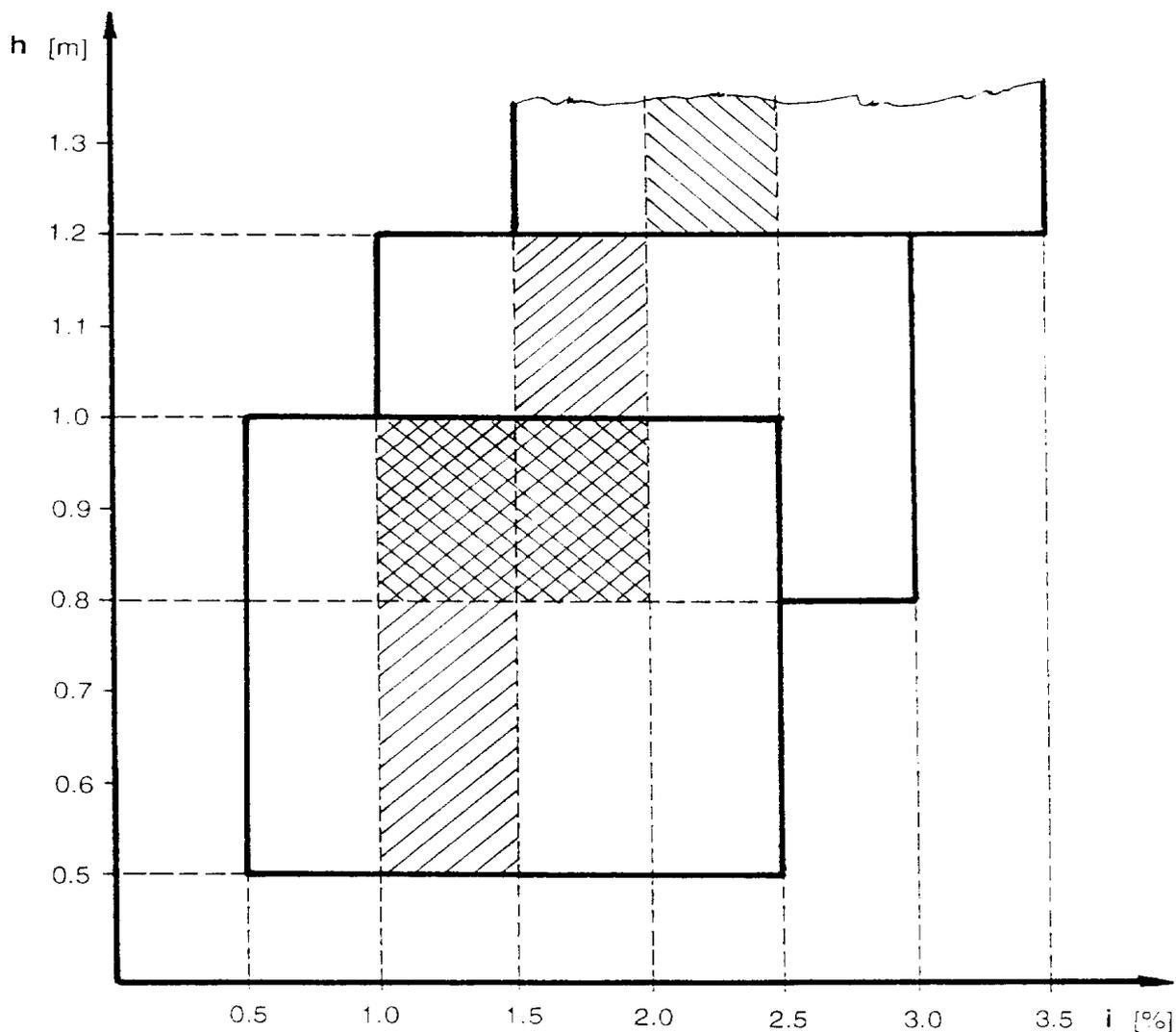
The manufacturer shall, in this case, provide information as to which alternative is to be used.

h > 1.0 limits : between -1.0% and -3.0%
 initial aiming: between -1.5% and -2.0%

The above limits and the initial aiming values are summarised in the diagram below.

For vehicles described in paragraph 2.27 where the headlamps exceed a height of 1,200 mm, the limits for the vertical inclination of the cut-off shall be between: -1.5% and -3.5%. The initial aim shall be set between: -2% and -2.5%.

FIGURE 1



6.2.6.2. Headlamp levelling device

6.2.6.2.1. In the case where a headlamp levelling device is necessary to satisfy the requirements of paragraphs 6.2.6.1.1. and 6.2.6.1.2. the device shall be automatic.

6.2.6.2.2. However, devices which are adjusted manually, either continuously or non-continuously, shall be permitted, provided they have a stop position at which the lamps can be returned to the initial inclination defined in paragraph 6.2.6.1.1. by means of the usual adjusting screws or similar means.

These manually adjustable devices must be operable from the driver's seat.

Continuously adjustable devices must have reference marks indicating the loading conditions that require adjustment of the passing beam.

The number of positions on devices, which are not continuously adjustable, must be such as to ensure compliance with the range of values prescribed in paragraph 6.2.6.1.2. in all the loading conditions defined in annex 5.

For these devices also, the loading conditions of annex 5 that require adjustment of the passing beam shall be clearly marked near the control of the device (see annex 8).

6.2.6.2.3. In case of a failure of devices described in paragraphs 6.2.6.2.1. and 6.2.6.2.2, the passing beam shall not assume a position in which the dip is less than it was at the time when the failure of the device occurred.

6.2.6.3. Measuring procedure

6.2.6.3.1. After adjustment of the initial inclination, the vertical inclination of the passing beam, expressed in per cent, shall be measured in static conditions under all the loading conditions defined in annex 5.

6.2.6.3.2. The measurement of the variation of passing beam inclination as a function of load must be carried out in accordance with the test procedure set out in annex 6.]

6.2.7. Electrical connections

The control for changing over to the passing beam must switch off all driving beam headlamps simultaneously.

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

Passing beam headlamps equipped with gas-discharge light sources shall remain switched on during the driving beam operation.

6.2.8. Tell-tale

Tell-tale optional.

6.2.9. Other requirements

The requirements of paragraph 5.5.2. shall not apply to passing beam headlamps.

[Passing beam headlamp and/or its beam pattern may swivel about a substantially vertical axis according to the direction of the vehicle travel.]

Passing beam headlamps with a light source having an objective luminous flux which exceeds 2,000 lumen shall only be installed in conjunction with the installation of headlamp cleaning device(s).

In addition, with respect to vertical inclination, the provisions of [paragraph 6.2.6.2.2.] shall not be applied.

[Mechanical headlamp cleaning devices shall not be installed on headlamps with plastic lenses.]

6.3. FRONT FOG LAMP

6.3.1. Presence

Optional on motor vehicles. Prohibited on trailers.

6.3.2. Number

Two.

6.3.3. Arrangement

No special requirement.

6.3.4. Position

6.3.4.1. In width:

not more than 400 mm from the extreme outer edge of the vehicle.

6.3.4.2. In height:

not less than 250 mm above the ground and

not more than 800 mm above the ground

No point on the apparent surface in the direction of the reference axis must be higher than the highest point on the apparent surface in the direction of the reference axis of the passing beam headlamp.

6.3.4.3. In length:

at the front of the vehicle.

This requirement shall be deemed 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.

6.3.5. Geometric visibility

Horizontal angles:

45° outwards and 10° inwards.

Vertical angles:

5° above and below the horizontal,

6.3.6. Orientation

Towards the front.

They must be directed forward without [causing undue dazzle or discomfort] to oncoming drivers and other road users.

6.3.7. Electrical connections

[It must be possible to switch the front fog lamps on and off independently of the driving beam headlamps, the passing beam headlamps or any combination of driving and passing beam headlamps.]

[**These must be such that:**

6.3.7.1. **Except when the left or right front fog lamp operate in conjunction with AFS the front fog lamps cannot be switched on unless the rear fog lamp(s) is (are) lit;**

6.3.7.2. **The front fog lamps can be switched off independently of any other lamp;**

6.3.7.3. **Either of the following applies:**

6.3.7.3.1. **the front fog lamps may continue to operate until the position lamps are switched off, and the front fog lamps shall then remain off until deliberately switched on again;**

6.3.7.3.2. **a warning, at least audible, additional to the mandatory tell-tale (paragraph 6.3.8.) shall be given if the ignition is switched off or the ignition key is withdrawn and the driver's door is opened, whether the rear fog lamp(s) in paragraph 6.3.7.1. is (are) on or off, whilst the front fog lamp switch is in the 'on' position.**

6.3.7.4 **In addition to provisions in paragraphs 6.3.7.1. and 6.3.7.3., the front fog lamps shall automatically switch off when upper and/or lower beam headlamps are switched on.]**

6.3.8. Tell-tale

Circuit-closed tell-tale mandatory. An independent non-flashing warning light.

6.3.9. Other requirements

[The front fog lamp and/or its beam pattern may swivel about a substantially vertical axis or it may be activated independently of the other front fog lamp in accordance to the direction of the vehicle travel.]

6.4. REVERSING LAMP

6.4.1. Presence

Mandatory on motor vehicles. Optional on trailers.

6.4.2. Number

6.4.2.1. One or two.

6.4.2.2. In addition one or two reversing lamps may be fitted on all motor vehicles over 6 m in lengths and all trailers.

6.4.3. Arrangement

No special requirement.

6.4.4. Position

6.4.4.1. In width:

no special requirement.

6.4.4.2. In height:

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

6.4.4.3. In length:

at the back of the vehicle.

6.4.5. Geometric visibility

6.4.5.1. Horizontal angles:

45° to right and to left if there is only one lamp,
45° outwards and 30° inwards if there are two lamps.

Vertical angles:

15° above and 5° below the horizontal,

6.4.5.2. In case of reversing lamps installed in accordance with paragraph 6.4.2.2.:

Horizontal angles:

45° to right and to left if there is only one such lamp,
45° outwards and 10° inwards if there are two such lamps.

Vertical angles:

5° above and below the horizontal,

6.4.6. Orientation

Rearwards.

6.4.7. Electrical connection

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

6.4.7.2. When reversing lamp(s) installed in accordance with 6.4.2.2. it (they) shall be switched on and off separately, while at the same time the conditions of paragraph 6.4.7.1. remain satisfied. When one of the conditions of paragraph 6.4.7.1. is no longer satisfied, the lamp(s) shall be switched off, and remain off until the conditions of paragraph 6.4.7.1. are fulfilled and the lamp(s) are deliberately switched on again.

6.4.8. Tell-tale

Tell-tale optional.

6.4.9. Other requirements

None.

6.5. DIRECTION INDICATOR LAMP

6.5.1. Presence

Mandatory.

6.5.2. Number

Motor vehicle:

2 front direction indicator lamps

2 side direction indicator lamps

2 rear direction indicator lamps + 2 optional rear direction indicator lamps

Trailer:

[2 side direction indicator lamps]

2 rear direction indicator lamps + 2 optional rear direction indicator lamps.

6.5.3. Arrangement (see figure below)

Where lamps combining the functions of front direction indicator lamps and side direction indicator lamps are fitted, two supplemental side direction indicator lamps may be installed to meet the visibility requirements of paragraph 6.5.5.

[The choice of the photometric characteristics of the front and rear direction indicator lamps must be considered with regard to the distance between these lamps and other lighting and light-signalling devices. In case of the front direction indicator lamp it is its distance from the passing beam headlamp and/or the front fog lamp, if it exists; and for the red rear direction indicator lamp it is its distance from the rear fog lamp if it exists.]

6.5.4. Position

6.5.4.1. In width:

not more than 400 mm from the extreme outer edge of the vehicle, and

not less than 600 mm apart. This distance may be reduced to 400 mm where the overall width of the vehicle is less than 1,300 mm.

6.5.4.2. In height:

not less than 350 mm above the ground and

not more than 1,500 mm above the ground.

If the structure of the vehicle does not permit the upper limit to be respected, and if the optional lamps are not installed, the limit may be increased to 2,100 mm.

If optional rear direction indicator lamps are installed, they shall be placed at a height compatible with the applicable requirements of paragraph 6.5.4.1. and the symmetry of the lamps, and at a vertical distance as large as the shape of the bodywork makes it possible, but not less than 600 mm, above the mandatory direction indicator lamps.

6.5.4.3. In length:

Front direction indicator lamps:

at the front.

Side direction indicator lamps:

the distance **d** (see Figure 2) between the side direction indicator lamp and front of the vehicle shall [not exceed 2.5 m (**Reg.48 requires 1.8 m - 2.5 m is a relaxation for M1 and N1 vehicles and special structural problems**) or 1/2 of the vehicle's overall length, whichever is less].

Rear direction indicator lamps:

at the rear.

6.5.5. Geometric visibility

6.5.5.1. Horizontal angles:

Front direction indicators:

45° inwards and 80° outwards.

The outward angle may be reduced to 45° when direction indicator is supplemented by flashing front side-marker lamp. (Figure 2)

Rear direction indicator:

Motor vehicles:

45° inwards and 80° outwards.

The outward angle may be reduced to 45° when direction indicator is supplemented by flashing rear amber side-marker lamp. (Figure 2)

Trailer

45° inwards and 80° outwards.

Side direction indicator:

5° outwards to 60° outwards to the rear as shown in Figure 2.

6.5.5.2. Vertical angles:

15° above and below the horizontal.

30° above and 5° below the horizontal for side direction indicator lamps.

The vertical angle below the horizontal may be reduced to 5° if the lamps are less than 750 mm above the ground;

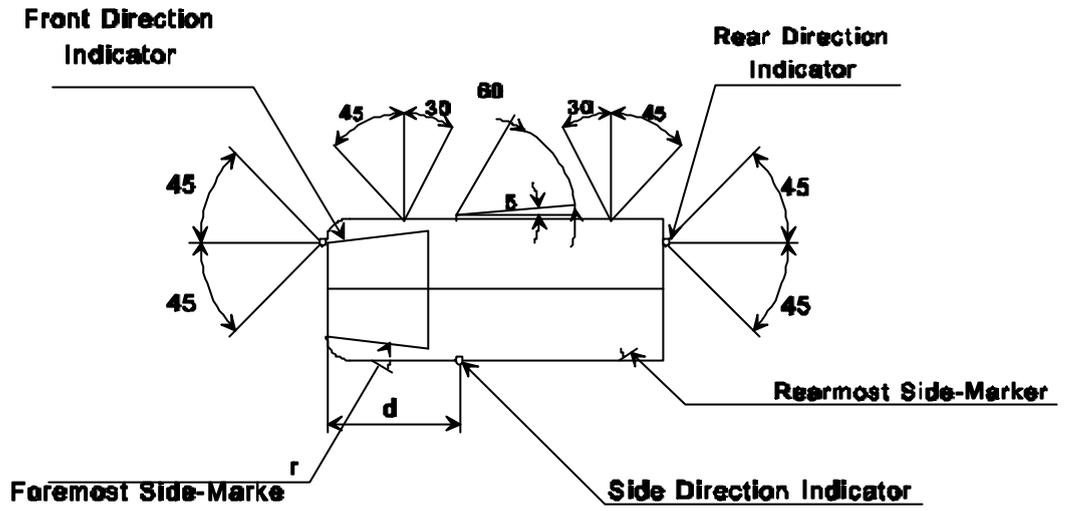
The vertical angle above the horizontal may be reduced to 5° if the optional direction indicator lamps are not less than 2,100 mm above the ground.

6.5.5.3. For the direction indicator to be considered visible throughout the angles of geometric visibility one of the following shall be met:

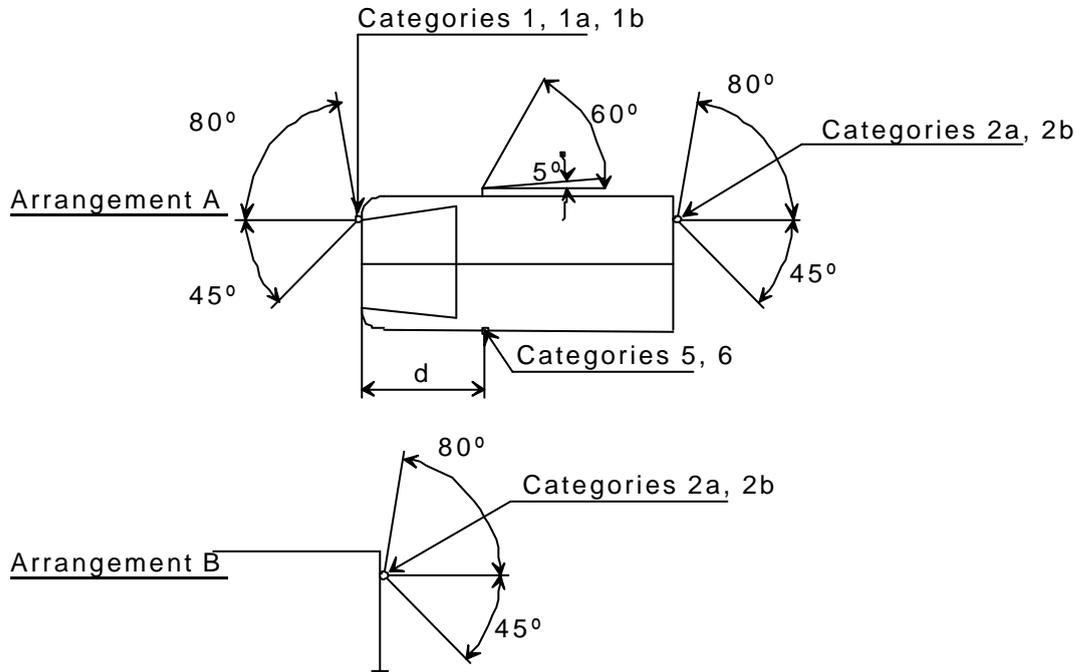
The minimum luminous intensity within the above angles must not be less than 0.3 cd; or

Throughout the angles of geometric visibility, with the outward angle up to 45°, the lamp must provide an unobstructed view of the apparent surface of at least 12.5 cm², except for the side direction indicator for which the minimum area is 10 cm². The apparent surface of any retro-reflector shall be excluded.

FIGURE 2



[



]

6.5.6. Orientation

According to the specifications for installation by the manufacturer, if any.

6.5.7. Electrical connections

Direction indicator lamps shall switch on independently of the other lamps.

All direction indicator lamps on one side of a vehicle shall be switched on and off by means of one control and shall flash in phase.

The amber side-marker lamps, if they flash, shall also flash at the same frequency and in phase with the direction indicator lamps.

All direction indicator lamps may also flash simultaneously in association with vehicle alarm systems and/or immobilisers to draw attention to the vehicle and/or during the setting and unsetting of the vehicle's alarm system.

6.5.8. Tell-tale

Operating tell-tale mandatory for front and rear direction indicator lamps. It may be visual or auditory or both. If it is visual it shall be a flashing light which, at least in the event of the malfunction of any of the front or rear direction indicator lamps, is either extinguished, or remains alight without flashing, or shows a marked change of frequency. If it is auditory only, it shall be clearly audible and shall show a marked change of frequency, at least in the event of the malfunction of any of the front or rear direction indicator lamps.

If a motor vehicle is equipped to draw a trailer, it must be fitted with a special visual operational tell-tale for the direction indicator lamps on the trailer unless the tell-tale of the drawing vehicle allows the failure of any one of the direction indicator lamps on the vehicle combination thus formed to be detected.

For the optional pair of rear direction indicator lamps on trailers, operating tell-tale shall not be mandatory.

6.5.9. 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 emission of light and within not more than one and one-half seconds by its first extinction.

If a motor vehicle is equipped to draw a trailer, the control of the direction indicator lamps on the drawing vehicle shall also operate the direction indicator lamps of the trailer.

In case of failure, other than short-circuit, of one direction indicator lamp, the others must continue to flash, but the frequency in this condition may be different from that prescribed.

Rear direction indicator lamps must not be reciprocally incorporated with stop lamps.

6.6. HAZARD WARNING SIGNAL

6.6.1. Presence

Mandatory. The signal shall be given by simultaneous operation of the direction indicator lamps in accordance with the requirements of paragraph 6.5. above.

6.6.2. Number

As specified in paragraph 6.5.2.

6.6.3. Arrangement

As specified in paragraph 6.5.3.

6.6.4. Position

6.6.4.1. In width:

As specified in paragraph 6.5.4.1.

6.6.4.2. In height:

As specified in paragraph 6.5.4.2.

6.6.4.3. In length:

As specified in paragraph 6.5.4.3.

6.6.5. Geometric visibility

As specified in paragraph 6.5.5.

6.6.6. Orientation

As specified in paragraph 6.5.6.

6.6.7. Electrical connections

The signal shall be operated by means of a separate control enabling all the direction indicator lamps to flash in phase.

The amber side-marker lamps, if they flash, shall also flash at the same frequency (in phase) with the direction indicator lamps.

6.6.8. Tell-tale

Circuit-closed tell-tale mandatory. Flashing warning light, which can operate in conjunction with the tell-tale(s) specified in paragraph 6.5.8.

6.6.9. Other requirements

As specified in paragraph 6.5.9. If a power-driven vehicle is equipped to draw a trailer the hazard warning signal control shall also be capable of bringing the direction indicator lamps on the trailer into action. The hazard warning signal shall be able to function even if the device which starts or stops the propulsion system of the vehicle is in a position which makes it impossible to start the propulsion system.

6.7. STOP LAMP */

6.7.1. Presence

6.7.1.1. System of two lamps:

mandatory

6.7.1.2. Centre high-mounted stop lamp (CHMSL):

mandatory on light-duty motor vehicles

optional on trailers and other motor vehicles

~~Devices of S1 or S2 categories: mandatory on all categories of vehicles.~~

~~Devices of S3 category: mandatory on M1 category of vehicles; optional on N1 category other categories of vehicles. /CDN/~~

6.7.2. Number

~~[Two devices of S1 or S2 category i.e. devices and one device of /698/ S3 category. on all categories of vehicles.] /CDN/~~

6.7.2.1. ~~Except in the case where category S3 device is installed, two optional category S1 or S2 devices may be installed on vehicles in categories M2, M3, N2, N3, O2, O3, and O4. /698/ (deleted by /CDN/)~~

*/ From paragraph 6.7. to paragraph 6.20. the revision marks from previous documents are retained.

Sections of Reg. No.48 (E/ECE/324E/ECE/TRANS/505/Rev.1/Add.47/Rev.1 and amendments) deleted by the secretariat in TRANS/WP.29/GRE/1999/6 are shown as crossed-out text with no legend, text amended by GRE experts is shown as crossed-out or underlined text and is followed by legend identifying the source of the change:

/42/ - TRANS/WP.29/GRE/42;

/43/ - TRANS/WP.29/GRE/43;

/45/ - GRE 45th session;

/698/ - TRANS/WP.29/698;

/CDN/ - Canada.

/edit/ - editorial modification related to elimination of references to the type approval regimen or to the language clarification;

/"originator"/ - comments subsequent to GRE 45th session.

All vehicles:

Two stop lamps symmetrically mounted about the median longitudinal plane and towards the outside edges of the rear of the vehicle ("symmetrical pair of stop lamps"). /CDN/

In addition on light-duty vehicles (optional on other vehicles):
One CHMSL mounted on the centreline of the vehicle. /CDN/

~~6.7.2.2.~~

Only, when the median longitudinal plane of the vehicle is not located on a fixed body panel but separates one or two movable parts of the vehicle (e.g. doors), and lacks sufficient space to install a single CHMSL device of the S3 category /edit/ on the median longitudinal plane above or below /CDN/ such movable parts, either:

~~two~~ CHMSL composed of two lamps ~~devices of the S3 category type "D"~~ may be installed, one on each movable part, or /CDN/

one CHMSL device of the S3 category /edit/ may be installed offset immediately /CDN/ to the left or to the right of the median longitudinal plane.

Other motor vehicles and trailers(optional):

Additional symmetrical pair of stop lamps may be installed if CHMSL is not installed. /CDN/

6.7.3. Arrangement

No special requirement.

6.7.4. Position

6.7.4.1. In width:

~~For M1 and N1 /698/category vehicles: For S1 or S2 categories devices each lamp of the symmetrical pair of stop lamps: that point on the apparent surface in the direction of the reference axis which is farthest from the vehicle's median longitudinal plane~~

not more than 400 mm from the adjacent extreme outer edge of the vehicle; /edit/

~~For the distance in between the inner edges of the apparent surfaces in the direction of the reference axes there is no special requirement. /CDN/~~

~~For all other categories of vehicles: For S1 or S2 categories devices the distance in between the inner edges of the apparent surfaces in the direction of the reference axes shall be not less than 600 mm. This distance may be reduced to 400 mm if the overall width of the vehicle is less than 1,300 mm.~~

For CHMSL S3 category devices /edit/:

the centre of reference shall be situated on the median longitudinal plane of the vehicle.

However, in the case where the two CHMSLs devices of the S3 category /edit/ are installed, according to paragraph 6.7.2., they

shall be positioned as close as possible to the median longitudinal plane, one on each side of this plane.

In the cases where one centre high-mounted stop ~~S3 category~~ lamp offset from the median longitudinal plane is permitted according to paragraph 6.7.2., this offset shall not exceed 150 mm from the median longitudinal plane to the centre of reference of the lamp.

6.7.4.2. In height:

For the symmetrical pair of stop lamps ~~S1 or S2 categories devices/edit/~~:

not less than 350 mm above the ground and ~~not~~

not more than 1,500 mm above the ground ~~(2,100 mm if the shape of the bodywork makes it impossible to keep within 1,500 mm and if the optional lamps are not installed. /Japan/ If the optional lamps are installed, they shall be positioned at a height compatible with the requirements of the width and the symmetry of the lamps, and at the vertical distance as large as the shape of the bodywork makes it possible, but not less than 600 mm above the mandatory lamps/OICA/); /698/~~

For CHMSL ~~S3 category devices~~, ~~/edit/~~ the horizontal plane tangential to the lower edge of the apparent surface shall be:

~~either~~ not ~~be~~ more than 150 mm below the horizontal plane tangential to the lower edge of the exposed surface of the glass or glazing of the rear window, or

not ~~be~~ less than 850 mm above the ground.

However, the horizontal plane tangential to the lower edge of the apparent surface of CHMSL ~~S3 category device~~ shall be above the horizontal plane tangential to the upper edge of the apparent surface of the symmetrical pair of stop lamps ~~S1 or S2 categories devices~~. ~~/edit/~~

6.7.4.3. In length:

For ~~S1 or S2 categories devices~~ symmetrical pair of stop lamps:

at the rear of the vehicle. ~~/edit/~~

For CHMSL ~~S3 category devices~~:

no special requirement. ~~/edit/~~

6.7.5. Geometric visibility

Horizontal angles:

For symmetrical pair of stop lamps ~~S1 or S2 categories devices~~:
~~/edit/~~

45° inwards and outwards ~~to the left and to the right of the longitudinal axis of the vehicle; /edit/~~

For CHMSL S3 category devices /edit/:

10° to the left and to the right of the longitudinal axis of the vehicle;

Vertical angles:

For ~~S1 or S2 categories devices~~ the symmetrical pair of stop lamps /edit/:

15° above and below the horizontal. However, the vertical angle below the horizontal may be reduced to 5°, if the height of the lamp is less than 750 mm. the vertical angle above the horizontal may be reduced to 5° in the case of optional stop lamps installed /edit/ not less than 2,100 mm above the ground; /698/

For CHMSL S3 category devices /edit/:

10° above and 5° below the horizontal.

6.7.6. Orientation

Towards the rear of the vehicle.

6.7.7. Electrical connections

All stop lamps must light up simultaneously only when the service brake is applied. The stop lamps need not function if the device which starts and/or stops the engine is in a position which makes it impossible for the engine to operate.

The stop lamps may be activated by the application of a retarder or a similar device.

[All stop lamps, including the CHMSL, must light up when the service brake is applied by the driver or vehicle deceleration is equal to or greater than [0.7m/s²]. The stop lamps need not function if the device which starts and/or stops the engine is in a position which makes it impossible for the engine to operate.

Once activated, the stop lamps shall be extinguished within one second after all of the three following criteria are met:

- driver has released the service brake control,
- the service brakes are de-energised, and
- vehicle deceleration is less than [0.5m/s²]. /CDN/

/OICA & Japan wait for the outcome of GRRF and ACC deliberations./

6.7.8. Tell-tale

Tell-tale optional; where fitted, this tell-tale must be an operating tell-tale consisting of a non-flashing warning light which comes on in the event of the malfunctioning of the stop lamps.

6.7.9. Other requirements

6.7.9.1. The CHMSL S3 category device /edit/ may not be reciprocally incorporated with any other lamp.

- 6.7.9.2. The CHMSL ~~S3 category device~~ may be installed outside or inside the vehicle. /edit/

In the case where it is installed inside the vehicle:

the light emitted shall not [cause discomfort] to the driver through the rear-view mirrors and/or other surfaces of the vehicle (i.e. rear window);

- 6.7.9.3. Any stop lamp must not be reciprocally incorporated with rear direction indicator lamp.

6.8. REAR REGISTRATION PLATE ~~LAMP~~ ILLUMINATING DEVICE /edit/

6.8.1. Presence

Mandatory.

6.8.2. Number

Such that the device illuminates the site of the registration plate.

6.8.3. Arrangement

Such that the device illuminates the site of the registration plate.

6.8.4. Position

6.8.4.1. In width:

such that the device illuminates the site of the registration plate.

6.8.4.2. In height:

such that the device illuminates the site of the registration plate.

6.8.4.3. In length:

such that the device illuminates the site of the registration plate.

6.8.5. Geometric visibility

Such that the device illuminates the site of the registration plate.

6.8.6. Orientation

Such that the device illuminates the site of the registration plate.

6.8.7. Electrical connections

In accordance with paragraph 5.11.

6.8.8. Tell-tale

Tell-tale optional. If it exists, its function must be carried out by the tell-tale required for the front and rear position lamps.

6.8.9. Other requirements

When the rear registration plate ~~lamp~~ illuminating device /edit/ is combined with the rear position lamp, reciprocally incorporated in the stop lamp or in the rear fog lamp, the photometric characteristics of the rear registration plate ~~lamp~~ illuminating device /edit/ may be modified during the illumination of the stop lamp or the rear fog lamp.

6.9. FRONT POSITION LAMP

6.9.1. Presence

Mandatory. on all motor vehicles. Mandatory on trailers over 1,600 mm wide. Optional on trailers which are not more than 1,600 mm wide. (reinstated) /CDN/

6.9.2. Number

Two.

6.9.3. Arrangement

No special requirement.

6.9.4. Position

6.9.4.1. In width:

~~that point on the apparent surface in the direction of the reference axis which is farthest from the vehicle's median longitudinal plane shall not be~~ more than 400 mm from the extreme outer edge of the vehicle. /edit/

In the case of a trailer:

~~that point on the apparent surface in the direction of the reference axis which is farthest from the median longitudinal plane shall~~
not be more than 150 mm from the extreme outer edge of the vehicle. (reinstated) /CDN/

[The distance between the inner edges of the two apparent surfaces in the direction of the reference axes shall:

~~For M1 and N1 /698/ category vehicles: have no special requirement;] /CDN/~~

~~For all other categories of vehicles: be not less than 600 mm. This distance may be reduced to 400 mm where the overall width of the vehicle is less than 1,300 mm.~~

6.9.4.2. In height:

not less than 350 mm above the ground and ~~/edit/~~

not more than 1,500 mm above the ground ~~(2,100 mm for O1 and O2 categories of vehicles, or if any other categories of vehicles if the shape of the bodywork makes it impossible to keep within 1,500 mm).~~ /Japan/

6.9.4.3. In length:

no individual specification.

6.9.4.4. Where the front position lamp and another lamp are reciprocally incorporated, the apparent surface in the direction of the reference axis of the other lamp must be used to verify compliance with the positioning requirements (paragraphs 6.9.4.1. to 6.9.4.3.).

6.9.5. Geometric visibility

6.9.5.1. Horizontal angles ~~for the two position lamps~~ /CDN/:

45° inwards and ~~80~~ 45° outwards. /OICA/

~~In the case of trailers, the angle inwards may be reduced to 5°.~~

Vertical angles:

15° above and below the horizontal. The vertical angle below the horizontal may be reduced to 5° in the case of lamps less than 750 mm above the ground.

~~To be considered visible the minimum photometric output within the above angles of geometric visibility must be not less than 0.05 cd.~~

~~6.9.5.2. For M1 and N1 /698/category vehicles, As an alternative to paragraph 6.9.5.1., at the discretion of the manufacturer or his duly accredited representative, and only if a front side marker lamp is installed on the vehicle.~~

~~Horizontal angle:~~

~~45° outwards to 45° inwards.~~

~~Vertical angle:~~

~~15° above and below the horizontal. The vertical angle below the horizontal may be reduced to 5° if the lamps are less than 750 mm above the ground.~~

~~To be considered visible, the each position lamp must provide an unobstructed view of the apparent surface of at least 12.5 cm². a minimum of 12.5 cm² of unobstructed view of a projected area of the apparent surface when the apparent surface is projected parallel to a horizontal plane in any direction described by the angles of geometric visibility stated above. The illuminating surface area of any retro reflector that does not transmit light shall be excluded. /CDN/~~

- 6.9.5.2. For the front position lamp to be considered visible throughout the angles of geometric visibility the following shall be met:

The minimum luminous intensity within the above angles must not be less than 0.05 cd;

or

Throughout the angles of geometric visibility, with the outward angle up to 45°, the lamp must provide an unobstructed view of the projected apparent surface of at least 12.5 cm².

The illuminating surface area of any retro-reflector ~~that does not transmit light~~ shall be excluded.

/ OICA (CDN modifications are double underlined.) /

- 6.9.6. Orientation

Forwards.

- 6.9.7. Electrical connections

In accordance with paragraph 5.11.

- 6.9.8. Tell-tale

Circuit-closed tell-tale mandatory. This tell-tale shall be non-flashing and shall not be required if the instrument panel lighting can only be turned on simultaneously with the front position lamps.

- 6.9.9. Other requirements

None.

- 6.10. REAR POSITION LAMP

- 6.10.1. Presence

Mandatory.

- 6.10.2. Number

Two.

- 6.10.2.1. Except in the case where end-outline marker lamps are installed, two optional position lamps may be installed on all vehicles ~~in categories M2, M3, N2, N3, O2, O3, and O4 other than light-duty vehicles~~ /CDN/. /698/

- 6.10.3. Arrangement

No special requirement.

6.10.4. Position

6.10.4.1. In width:

~~that point on the apparent surface in the direction of the reference axis which is farthest from the vehicle's median longitudinal plane shall~~ /edit/

not be more than 400 mm from the extreme outer edge of the vehicle. This condition shall not apply to the optional rear position lamps. /698/

[The distance between the inner edges of the apparent surfaces in the direction of the reference axes shall:

~~For M1 and N1 /698/category vehicles: have no special requirement;]~~ /CDN/

~~For all other categories of vehicles: be not less than 600 mm. This distance may be reduced to 400 mm if the overall width of the vehicle is less than 1,300 mm.~~

6.10.4.2. In height: ~~above the ground,~~

not less than 350 mm above the ground and ~~not~~

not more than 1,500 mm above the ground /edit/ ~~(2,100 mm if the shape of the bodywork makes it impossible to keep within 1,500 mm and if the optional lamps are not installed.~~ /Japan/ If the optional lamps are installed, they shall be placed at a height compatible with the applicable requirements of paragraph 6.10.4.1., the symmetry of the lamps, and at a vertical distance as large as the shape of the bodywork makes it possible, but not less than 600 mm above the mandatory lamps. /OICA/. /698/

6.10.4.3. In length:

at the rear of the vehicle.

6.10.5. Geometric visibility

6.10.5.1. Horizontal angles:

45° inwards and ~~90~~ 45° outwards. /OICA/

Vertical angles:

15° above and below the horizontal. The vertical angle below the horizontal may be reduced to 5° in the case of lamps less than 750 mm above the ground. The vertical angle above the horizontal may be reduced to 5° in the case of optional lamps installed /edit/ not less than 2,100 mm above the ground. /698/

~~To be considered visible the minimum photometric output within the above angles of geometric visibility must be not less than 0.05cd.~~

~~6.10.5.2. For M1 and N1 /698/category vehicles, As an alternative to paragraph 6.10.5.1., at the discretion of the manufacturer or his duly accredited representative, and only if a rear side marker lamp is installed on the vehicle:~~

~~Horizontal angle:~~

~~45° outwards to 45° inwards.~~

~~Vertical angle:~~

~~15° above and below the horizontal. The vertical angle below the horizontal may be reduced to 5° if the lamps are less than 750 mm above the ground.~~

~~To be considered visible, the each position lamp must provide an unobstructed view of the apparent surface of at least 12.5 cm². a minimum of 12.5 cm² of unobstructed view of a projected area of the apparent surface when the apparent surface is projected parallel to a horizontal plane in any direction described by the angles of geometric visibility stated above. The illuminating surface area of any retro-reflector that does not transmit light shall be excluded. /CDN/~~

6.10.5.2. For the rear position lamp to be considered visible throughout the angles of geometric visibility the following shall be met:

The minimum luminous intensity within the above angles must not be less than 0.05 cd;

or

Throughout the angles of geometric visibility, with the outward angle up to 45°, the lamp must provide an unobstructed view of the projected apparent surface of at least 12.5 cm². The illuminating surface area of any retro-reflector that does not transmit light shall be excluded.

/ OICA (CDN modifications are double underlined.) /

6.10.6. Orientation

Rearwards.

6.10.7. Electrical connections

In accordance with paragraph 5.11.

6.10.8. Tell-tale

Circuit-closed tell-tale mandatory. It must be combined with that of the front position lamps.

6.10.9. Other requirements

None.

6.11. REAR FOG LAMP

6.11.1. Presence

Mandatory.

6.11.2. Number

One or two.

6.11.3. Arrangement

No special requirement.

6.11.4. Position

6.11.4.1. In width:

two lamps:

no specific requirements

one lamp:

~~if there is only one rear fog lamp, it must be on the opposite side of the median longitudinal plane of the vehicle to the direction of traffic prescribed in the country of registration, the centre of reference may also be situated on the median longitudinal plane of the vehicle.~~

On the driver's side of the vehicle, the centre of reference may also be situated on the median longitudinal plane of the vehicle..

/CDN & Japan double underlined/

/OICA demands to put the entire text relating to only one lamp between square brackets./

6.11.4.2. In height:

not less than 250 mm above the ground and ~~not~~ /edit/

not more than 1,000 mm above the ground. For very heavy duty off-road category N3C (off road) vehicles, the maximum height may be increased to 1,200 mm. /OICA/

6.11.4.3. In length:

at the rear of the vehicle.

6.11.5. Geometric visibility

~~Defined by angles α and β as specified in paragraph 2.13.~~

Horizontal angles: ~~β~~

25° ~~to right and to left~~ inwards and outwards.

Vertical angles: ~~α~~

5° ~~upwards~~ above and 5° ~~downwards~~ below the horizontal;

6.11.6. Orientation

Rearwards.

6.11.7. Electrical connections

These must be such that:

6.11.7.1. The rear fog lamp(s) cannot be switched on unless the driving beams, passing beams or front fog lamps are lit;

- 6.11.7.2. The rear fog lamp(s) can be switched off independently of any other lamp;
- 6.11.7.3. Either of the following applies:
- 6.11.7.3.1. the rear fog lamp(s) may continue to operate until the position lamps are switched off, and the rear fog lamp(s) shall then remain off until deliberately switched on again;
- 6.11.7.3.2. a warning, at least audible, additional to the mandatory tell-tale (paragraph 6.11.8.) shall be given if the ignition is switched off or the ignition key is withdrawn and the driver's door is opened, whether the lamps in paragraph 6.11.7.1. are on or off, whilst the rear fog lamp switch is in the 'on' position.
- 6.11.7.4 Except as provided in paragraphs 6.11.7.1. and 6.11.7.3., the operation of the rear fog lamp(s) shall not be affected by switching on or off any other lamps.

6.11.8. Tell-tale

Circuit-closed tell-tale mandatory. An independent non-flashing warning light.

6.11.9. Other requirements

In all cases, the distance between the rear fog lamp and each stop-lamp must be greater than 100 mm.

6.12. PARKING LAMP

6.12.1. Presence

On motor vehicles not exceeding 6 m in length and not exceeding 2m in width, optional. On all other vehicles, prohibited.
(reinstated) /CDN/

6.12.2. Number

According to the arrangement.

6.12.3. Arrangement

Either two lamps at the front and two lamps at the rear, or one lamp on each side.

6.12.4. Position

6.12.4.1. In width:

~~that point on the apparent surface in the direction of the reference axis which is farthest from the vehicle's median longitudinal plane shall~~
not ~~be~~ more than 400 mm from the extreme outer edge of the vehicle. Furthermore, if there are two lamps, they shall be on the sides of the vehicle. **/edit/**

6.12.4.2. In height:

~~For M1 and N1 /698/ category vehicles: no special requirement;
For all other categories of vehicles: above the ground, not less
than 350 mm nor more than 1,500 mm (2,100 mm if the shape of the
bodywork makes it impossible to keep within 1,500 mm).~~

6.12.4.3. In length:

no special requirement.

6.12.5. Geometric visibility

Horizontal angles:

45° outwards, forwards and rearwards.

Vertical angles:

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

6.12.6. Orientation

Such that the lamps meet the requirements for visibility forwards and rearwards.

6.12.7. Electrical connections

The connection must allow the parking lamp(s) on the same side of the vehicle to be lit independently of any other lamps. The parking lamp(s) must be able to function even if the device which starts and/or stops the engine is in a position which makes it impossible for the engine to operate.

6.12.8. Tell-tale

Circuit-closed tell-tale optional. If there is one, it must not be possible to confuse it with the tell-tale for the front and rear position lamps.

6.12.9. Other requirements

The functioning of this lamp may also be performed by simultaneously switching on the front and rear position lamps on the same side of the vehicle.

6.13. END-OUTLINE MARKER LAMP (**whole 6.13. reinstated**) /42/

6.13.1. Presence

Mandatory on vehicle exceeding [2.10 or 2.032 m] in width.
/OICA or CDN/

Optional on vehicles between 1.80 and [2.10 or 2.032 m] in width.
On chassis-cabs the rear end-outline marker lamps are optional.
/OICA or CDN/

6.13.2. Number

Two visible from the front and two visible from the rear.

6.13.3. Arrangement

No special requirement.

6.13.4. Position

6.13.4.1. In width: (Front and rear)

as close as possible to the extreme outer edge of the vehicle. This condition is deemed to have been met when the point on the apparent surface in the direction of the reference axis which is farthest from the vehicle's median longitudinal plane is not more than ~~400~~ 100 mm from the extreme outer edge of the vehicle.

/CDN - OICA suggests to revert to the original text and to 400 mm. This dimension is unacceptable for CDN./

6.13.4.2. In height:

Front:

Motor vehicles:

the horizontal plane tangential to the upper edge of the apparent surface in the direction of the reference axis of the device must not be lower than the horizontal plane tangential to the upper edge of the transparent zone of the wind-screen.

Trailers and semi-trailers:

at the maximum height compatible with the requirements relating to the width, design and operational requirements of the vehicle and to the symmetry of the lamps.

Rear:

At the maximum height compatible with the requirements relating to the width, design and operational requirements of the vehicle and to the symmetry of the lamps.

6.13.4.3. In length:

no special requirement.

6.13.5. Geometric visibility

Horizontal angles:

80° outwards.

Vertical angles:

5° above and 20° below the horizontal.

6.13.6. Orientation

Such that the lamps meet the requirements for visibility forwards and rearwards.

6.13.7. Electrical connections

In accordance with paragraph 5.11.

6.13.8. Tell-tale

Tell-tale optional. If it exists, its function shall be carried out by the tell-tale required for the front and rear position lamps.

6.13.9. Other requirements

The position of an end-outline marker lamp in relation to corresponding position lamp shall be such that the distance between ~~the projections on a transverse vertical plane of the points nearest to one another on the apparent surfaces in the direction of the respective reference axes of the~~ those two lamps considered is not less than 200 mm. /edit/

Rear end-outline marker lamp and the rear position lamp must have separate and independent light source.

/CDN - OICA demands deletion of this paragraph on the basis that it may mitigate against future developments in distributive lighting./

Provided that all other requirements are met, the lamp visible from the front and the lamp visible from the rear on the same side of the vehicle may be combined in one device.

6.14. REAR RETRO-REFLECTOR, NON-TRIANGULAR

6.14.1. Presence

Mandatory on motor vehicles. (*reinstated*) /CDN/

Provided that they are grouped together with the other rear light-signalling devices, optional on trailers. (*reinstated*) /CDN/

6.14.2. Number

~~Two, the performances of which shall conform to the requirements concerning Class IA or IB retro reflectors in Regulation No. 3.~~
/CDN/

Additional retro-reflecting devices and materials are permitted provided they do not impair the effectiveness of the mandatory lighting and light-signalling devices.

6.14.3. Arrangement

No special requirement.

6.14.4. Position

6.14.4.1. In width:

~~that point on the illuminating surface which is farthest from the vehicle's median longitudinal plane shall not be more than [400] mm from the extreme outer edge of the vehicle. /CDN - OICA votes for retention of 400 mm./~~

[The distance between the inner edges of the two apparent surfaces in the direction of the reference axes shall-

~~For M1 and N1 /698/ category vehicles have no special requirement.~~

~~For N1 category all other categories of vehicles be not less than 600 mm.~~

~~This distance may be reduced to 400 mm if the overall width of the vehicle is less than 1,300 mm.] /edit/~~

6.14.4.2. In height:

~~above the ground, not less than 250 mm and nor~~

~~not more than 900 mm above the ground /edit/ (1,500 mm if the shape of the bodywork makes it impossible to keep within 900 mm). /Japan/~~

6.14.4.3. In length:

at the rear of the vehicle.

6.14.5. Geometric visibility

Horizontal angles:

30° inwards and outwards.

Vertical angles:

10° above and below the horizontal. The vertical angle below the horizontal may be reduced to 5° in the case of a retro-reflector less than 750 mm above the ground.

6.14.6. Orientation

Rearwards.

6.14.7. Other requirements

The illuminating surface of the retro-reflector may have parts in common with the apparent surface of any other lamp situated at the rear.

6.15. REAR RETRO-REFLECTOR, TRIANGULAR

6.15.1. Presence

Mandatory on trailers. Prohibited on motor vehicles.

6.15.2. Number

~~Two, the performances of which shall conform to the requirements concerning Class IIIA retro-reflectors in Regulation No 3. /CDN/~~
Additional retro-reflecting devices and materials are permitted provided they do not impair the effectiveness of the mandatory lighting and light-signalling devices.

6.15.3. Arrangement

The apex of the triangle shall be directed upwards.

6.15.4. Position

6.15.4.1. In width:

~~that point on the illuminating surface which is farthest from the vehicle's median longitudinal plane shall~~
not be more than [400] mm from the extreme outer edge of the vehicle. /CDN - OICA votes for the retention of 400 mm./

~~The inner edges of the retro-reflectors shall~~ not be less than 600 mm apart. This distance may be reduced to 400 mm if the overall width of the vehicle is less than 1,300 mm.

6.15.4.2. In height: ~~above the ground,~~

not less than 250 mm above the ground and ~~not~~

not more than 900 mm above the ground (1,500 mm if the shape of the bodywork makes it impossible to keep within 900 mm). /edit/

6.15.4.3. In length:

at the rear of the vehicle.

6.15.5. Geometric visibility

Horizontal angles:

30° inwards and outwards.

Vertical angles:

15° above and below the horizontal. The vertical angle below the horizontal may be reduced to 5° in the case of a retro-reflector less than 750 mm above the ground.

6.15.6. Orientation

Rearwards.

6.15.7. Other requirements

No lamp shall be placed inside the triangle.

6.16. FRONT RETRO-REFLECTOR, NON-TRIANGULAR

6.16.1. Presence

Mandatory on trailers. (reinstated) /CDN/

Mandatory on motor (*reinstated*) /CDN/ vehicles having all forward facing lamps with reflectors ~~lighting devices~~ concealable. /OICA/

Optional on other motor vehicles. (*reinstated*) /CDN/

6.16.2. Number

~~Two, the performances of which shall conform to the requirements concerning Class IA or IB retro-reflectors in Regulation No 3.~~
/CDN/

Additional retro-reflecting devices and materials are permitted provided they do not impair the effectiveness of the mandatory lighting and light-signalling devices.

6.16.3. Arrangement

No special requirement.

6.16.4. Position

6.16.4.1. In width:

~~that point on the illuminating surface which is farthest from the vehicle's median longitudinal plane shall not be~~ more than 400 mm from the extreme outer edge of the vehicle. /edit/

In the case of a trailer:

not more than 150 mm from the extreme outer edge of vehicle.
(*reinstated*) /CDN/

[The distance between the inner edges of the two apparent surfaces in the direction of the reference axes shall ~~be~~

~~For M1 and N1 /698/ category vehicles:~~

have no special requirement;

~~For all other categories of vehicles: be not less than 600 mm.~~

~~This distance may be reduced to 400 mm where the overall width of the vehicle is less than 1,300 mm.] /edit/~~

6.16.4.2. In height: ~~above the ground,~~

not less than 250 mm above the ground ~~not~~

not more than 900 mm above the ground (1,500 mm if the shape of the bodywork makes it impossible to keep within 900 mm).

6.16.4.3. In length:

at the front of the vehicle.

6.16.5. Geometric visibility

Horizontal angles:

30° inwards and outwards.

In the case of trailers, the angle inwards may be reduced to 10°.
If because of the construction of the trailers this angle cannot be met by the mandatory retro-reflectors, then additional (supplementary) retro-reflectors shall be fitted, without the

width limitation (paragraph 6.16.4.1.), which shall, in conjunction with the mandatory retro-reflectors, give the necessary visibility angle. (reinstated) /CDN/

Vertical angles:

10° above and below the horizontal. The vertical angle below the horizontal may be reduced to 5° in the case of a retro reflector, less than 750 mm above the ground.

6.16.6. Orientation

Towards the front.

6.16.7. Other requirements

The illuminating surface of the retro-reflector may have parts in common with the apparent surface of any other lamp situated at the front.

6.17. SIDE RETRO-REFLECTOR, NON-TRIANGULAR

6.17.1. Presence

Mandatory: ~~On all motor vehicles the length of which exceeds 6 m. On all trailers. /CDN/~~

~~Optional: On motor vehicles the length of which does not exceed 6 m. /CDN/~~

/Japan would like to revert to the original text. This is unacceptable for CDN. In Japan side retro-reflectors on vehicles less than 6 m are optional(allowed), while in Canada front and rear retro-reflectors are mandatory on all vehicles./

6.17.2. Number

Vehicles less than 6 m long:

Two on each side of the vehicle.

Vehicles more than 6 m long:

Such that the requirements for longitudinal positioning are complied with. ~~The performances of these devices shall conform to the requirements concerning Class IA or IB retro reflectors in Regulation No 3.~~ Additional retro-reflecting devices and materials are permitted provided they do not impair the effectiveness of the mandatory lighting and light-signalling devices. /CDN/

6.17.3. Arrangement

no special requirement.

6.17.4. Position

6.17.4.1. In width:

no special requirement.

6.17.4.2. In height: ~~above the ground,~~

not less than 250 mm above the ground ~~nor~~

~~not more than 900 mm above the ground, (1,500 mm if the shape of the bodywork makes it impossible to keep within 900 mm) /Japan/.~~

6.17.4.3. In length:

~~[At least one side retro-reflector must be fitted to the middle third of the vehicle. the foremost side retro-reflector being not further than 3 m from the front; in the case of trailers, account shall be taken of the length of the drawbar for the measurement of this distance. The distance between two adjacent side retro-reflectors shall not exceed 3 m. This does not, however, apply to M1 and N1 /698/category vehicles. If the structure of the vehicle makes it impossible to comply with such a requirement, this distance may be increased to 4 m. The distance between the rearmost side retro-reflector and the rear of the vehicle shall not exceed 1 m. However, for motor vehicles the length of which does not exceed 6 m, it is sufficient to have one side retro-reflector fitted within the first third and/or one within the last third of the vehicle length.] /CDN/~~

~~Foremost side retro-reflector: /OICA/~~

~~forward of the foremost axle of the vehicle and /OICA/ not more than 400 mm from the front of the vehicle,~~

~~Rearmost side retro-reflector: /OICA/~~

~~rearward of the rearmost axle of the vehicle and /OICA/ not more than 400 mm from the rear. /CDN/~~

The distance between two adjacent side retro-reflectors shall not exceed 3 m. [This does not, however, apply to ~~M1 and N1~~ /698/category light-duty vehicles. /edit/] If the structure of the vehicle makes it impossible to comply with such a requirement, this distance may be increased to 4 m.

6.17.5. Geometric visibility

Horizontal angles:

45° to the front and to the rear.

Vertical angles:

10° above and below the horizontal. The vertical angle below the horizontal may be reduced to 5° in the case of a retro-reflector less than 750 mm above the ground.

6.17.6. Orientation

Towards the side.

6.17.7. Other requirements

The illuminating surface of the side retro-reflector may have parts in common with the apparent surface of any other side lamp.

6.18. SIDE-MARKER LAMPS

6.18.1. Presence

Mandatory.

/Japan would like to revert to the original text. This is unacceptable for CDN. In Japan side retro-reflectors on vehicles less than 6 m are optional (allowed), while in Canada front and rear retro-reflectors are mandatory on all vehicles./

~~On all vehicles the length of which exceeds 6 m./CDN/ except for chassis cabs; the length of trailers shall be calculated including the drawbar.~~

~~The SM1 type of side marker lamp shall be used on both M1 and N1 all categories of vehicles; however the SM2 type of side marker lamps may be used on the M1 category of vehicles. /CDN/~~

~~In addition, on M1 and N1 category vehicles less than 6 m in length, side marker lamps shall be used, if they supplement the reduced geometric visibility requirements of front position lamps conforming to paragraph 6.9.5.2. and rear position lamps conforming to paragraph 6.10.5.2. /CDN/~~

~~Optional:~~

~~On all other vehicles. The SM1 or SM2 types of side marker lamps may be used.~~

6.18.2. Minimum Number per side. /edit/

Vehicles less than 6 m long:

Two on each side of the vehicle.

Vehicles more than 6 m long:

Such that the requirements for longitudinal positioning are complied with.

Additional side-marker lamps are permitted provided they do not impair the effectiveness of other mandatory lighting and light-signalling devices. /CDN/

6.18.3. Arrangement

No individual specifications.

6.18.4. Position

6.18.4.1. In width:

no individual specifications.

6.18.4.2. In height: ~~above the ground,~~

not less than 250 mm above the ground ~~nor~~

not more than 1,500 mm above the ground (2,100 mm if the shape of the bodywork makes it impossible to keep within 1,500 mm). /edit/

[6.18.4.3. In length: at least one side-marker lamp must be fitted to the middle third of the vehicle. ~~the foremost side-marker lamp being not further than 3 m from the front; in the case of trailers account shall be taken of the length of the drawbar for the measurement of this distance. The distance between two adjacent side-marker lamps shall not exceed 3 m. If the structure of the vehicle makes it impossible to comply with such a requirement, this distance may be increased to 4 m.~~ The distance between the rearmost side-marker lamp and the rear of the vehicle shall not exceed 1 m.

However, for vehicles the length of which does not exceed 6 m ~~and for chassis-cabs,~~ it is sufficient to have one side-marker lamp fitted within the first third and/or within the last third of the vehicle length.] /CDN/

6.18.4.3. In length:

~~Foremost side-marker lamp on motor vehicles:~~ /OICA/

~~forward of the foremost axle of the vehicle and~~ /OICA/
not more than 400 mm from the front of the vehicle

[Foremost side-marker lamp on trailers equipped with a drawbar:

not less than 1,000 mm from the front of the drawbar and

not more than 1,500 mm from the front of the drawbar.] /OICA/

~~Rearmost side-marker lamp:~~ /OICA/

~~rearward of the rearmost axle of the vehicle and~~ /OICA/
not more than 400 mm from the rear of the vehicle. /CDN/

The distance between two adjacent side-marker lamps shall not exceed 3 m. This does not, however, apply to ~~M1 and N1~~ /698/ ~~category~~ light-duty vehicles. /edit/ If the structure of the vehicle makes it impossible to comply with such a requirement, this distance may be increased to 4 m.

6.18.5. Geometric visibility

Horizontal angles:

45° to the front and to the rear; however for vehicles ~~on which the installation of the side marker lamps is optional~~ less than 6 m long, this value can be reduced to 30°. /OICA/

If the vehicle is equipped with side-marker lamps used to supplement the reduced geometric visibility of front and rear direction indicator lamps conforming to paragraph 6.5.5.2. and/or position lamps conforming to paragraphs 6.9.5.2. and 6.10.5.2.,

the angles are 45° towards the front and rear ends of the vehicle and 30° towards the centre of the vehicle (see the figure in paragraph 6.5.5.2. above).

Vertical angles:

10° above and below the horizontal. The vertical angle below the horizontal may be reduced to 5° in the case of a side-marker lamp less than 750 mm above the ground.

6.18.6. Orientation

Towards the side.

6.18.7. Electrical connections

~~On M1 and N1 category vehicles less than 6 m in length. The foremost and rearmost~~ amber side-marker lamps may be wired to flash, provided that this flashing is in phase and at the same frequency with the direction indicator lamps at the same side of the vehicle. /OICA/

All side-marker lamps may also flash simultaneously in association with vehicle alarm systems and/or immobilisers to draw attention to the vehicle and/or during the setting and unsetting of the vehicle's alarm system.

~~For all other categories of vehicles: no individual specification.~~

6.18.8. Tell-tale

Tell-tale optional. If it exists, its function shall be carried out by the tell-tale required for the front and rear position lamps.

6.18.9. Other requirements

When the rearmost side-marker lamp is combined with the rear position lamp reciprocally incorporated with the rear fog lamp or stop lamp, the photometric characteristics of the side-marker lamp may be modified during the illumination of the rear fog lamp or stop lamp.

~~Rear side marker lamps must be amber if they flash with the direction indicator lamp. /CDN/~~

6.19. DAYTIME RUNNING LAMP ~~6/~~

6.19.1. Presence

Optional on motor vehicles. Prohibited on trailers. (reinstated)
/CDN/

~~6/ The installation of this device may be forbidden on the basis of national Regulations. (included in the description of "optional lamp")~~
/CDN/

6.19.2. Number

Two.

6.19.3. Arrangement

No special requirement.

6.19.4. Position

6.19.4.1. In width:

~~that point on the apparent surface in the direction of the reference axis which is farthest from the vehicle's median longitudinal plane shall~~
not be more than 400 mm from the extreme outer edge of the vehicle. /edit/

~~The distance between the inner edges of the apparent surfaces in the direction of the reference axes shall~~
not be less than 600 mm apart. This distance may be reduced to 400 mm where the overall width of the vehicle is less than 1,300 mm. /edit/

/OICA questions the necessity of specifying any with requirements for DRL./

6.19.4.2. In height: ~~above the ground~~

not less than 250 mm above the ground and ~~not~~
not more than 1,500 mm above the ground.

6.19.4.3. In length:

at the front of the vehicle. This requirement shall be deemed 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.

6.19.5. Geometric visibility

Horizontal angles: ~~outwards~~

20° ~~and~~ inwards and outwards 20°.

Vertical angles: ~~upwards 10° and downwards~~

10° above and below the horizontal. /edit/

6.19.6. Orientation

Towards the front.

6.19.7. Electrical connections

The daytime running lamps shall switch off automatically when the headlamps are switched on, except when the latter are used to give intermittent luminous warnings at short intervals.

The daytime running lamps must be so connected that they cannot be switched on unless the rear position lamps are also switched on. /Vienna Convention Art.32 par. 7/

6.19.8. Tell-tale

Optional.

[Mandatory if a vehicle is not equipped with a device automatically activating all lamps required for operation of a vehicle at diminished ambient lighting condition. /CDN/]
/OICA/

(new subsection - 6.20.) /CDN/

6.20. IDENTIFICATION LAMPS (Front and Rear)

6.6.1. Presence

Discretionary on motor vehicles and trailers wider than 2.032 m

6.20.2. Number

three on the front

three on the rear

6.20.3. Arrangement

As specified in paragraph 6.20.4.1.

6.20.4. Position

6.20.4.1. In width:

mounted symmetrically about the median longitudinal plane of vehicle with the reference axis of the middle lamp on that plane. The lamps shall form an identifiable three-lamp group with lamp centres spaced horizontally 150 mm to 300 mm apart.

6.20.4.2. In height:

as high as practicable. The rear identification lamps may be located on the door or below the door if the door header is narrower than 25 mm.

6.20.4.3. In length:

on the front and on the rear of the vehicle.

6.20.5. Geometric visibility

Horizontal angles:

20° inwards and outwards

Vertical angles:

45° above and below the horizontal.

6.20.6. Orientation

on the front facing forward and on the rear facing rearward

6.20.7. Electrical connections

In accordance with paragraph 5.11.

6.20.8. Tell-tale

Tell-tale optional. If it exists, its function must be carried out by the tell-tale required for the front and rear position lamps.

New subsection 6.21. - GTB proposal presented during forty-sixth GRE session as informal document No. 5

6.21. CORNERING LAMP

6.21.1. Presence

Optional on motor vehicles.

6.21.2. Number

Two.

6.21.3. Arrangement

No special requirement.

6.21.4. Position

6.21.4.1. In width:

that point on the apparent surface in the direction of the reference axis which is farthest from the vehicle's median longitudinal plane shall not be more than 400 mm from the extreme outer edge of the vehicle.

6.21.4.2. In length:

the foremost cornering lamp being not further than 1 m from the front.

6.21.4.3. In height:

minimum: Not less than 250 mm above the ground.

maximum: Not more than 800mm above the ground;

[However, no point on the apparent surface in the direction of the reference axis must be higher than the highest point on the apparent surface in the direction of the reference axis of the dipped-beam headlamp.]

6.21.5. Geometric visibility

Defined by angles α and β as specified in paragraph 2.13.,
 $\alpha = 10^\circ$ upwards and downwards,
 $\beta = 30^\circ$ to 60° outwards.

6.21.6. Orientation

Towards the front side.

6.21.7. Electrical connections

The cornering lamps must be so connected that they cannot be on unless the main-beam headlamps or the dipped-beam headlamps are on the same time. The cornering lamp on one side of the vehicle shall be activated when the direction indicators on the same side of the vehicle are switched on and/or when the steering angle is changed from the straight-ahead position towards the same side of the vehicle.

6.21.8. Tell-tale

None.

6.21.9. Other requirements

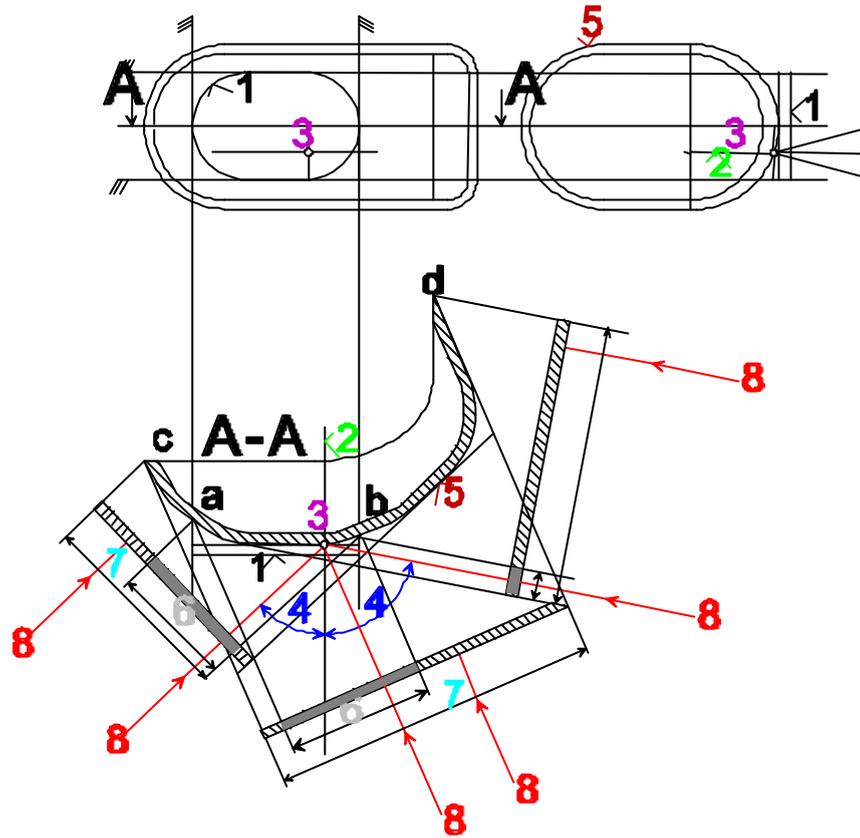
6.21.9.1. The distance between the cornering lamp and front direction indicator lamp on the same side of the vehicle shall be at least 20 mm.

6.21.9.2. The cornering lamps shall not be activated at the vehicle speed above [40] km/h.

6.21.9.3. The vertical inclination shall be specified by the manufacturer. For height see paragraph 6.21.4.3. above.

Annex 1

LAMP SURFACES, AXIS AND CENTRE OF REFERENCE,
AND ANGLES OF GEOMETRIC VISIBILITY



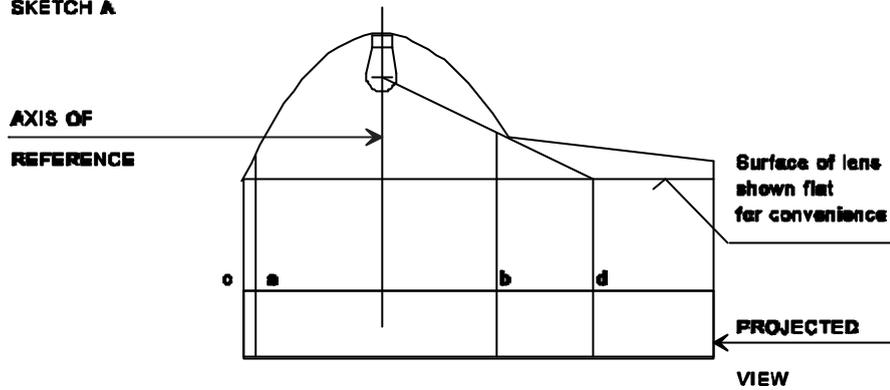
KEY

1. Illuminating surface
2. Axis of reference
3. Centre of reference
4. Angle of geometric visibility
5. Light-emitting surface
6. Apparent surface based on illuminating surface
7. Apparent surface based on light-emitting surface
8. Direction of visibility

Note: Notwithstanding the drawing, the apparent surface is to be considered as tangent to the light-emitting surface.

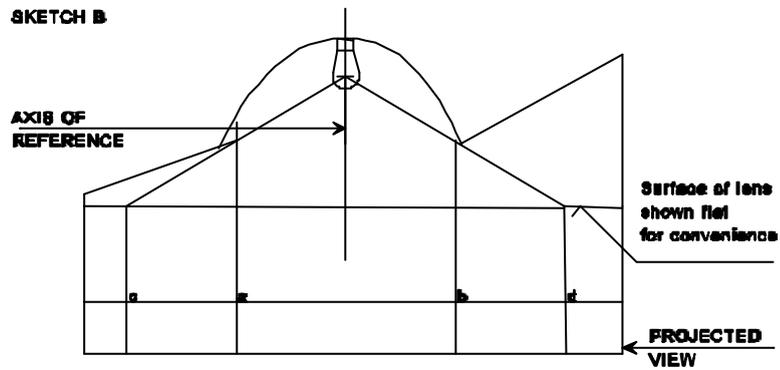
ILLUMINATING SURFACE IN COMPARISON WITH LIGHT-EMITTING SURFACE
(See paragraphs 2.9. and 2.8. of this Regulation)

SKETCH A



	Illuminating surface	Light-emitting surface
Edges are	a and b	c and d

SKETCH B



	Illuminating surface	Light-emitting surface
Edges are	a and b	c and d

Annex 2

VISIBILITY OF A RED LAMP TO THE FRONT
AND VISIBILITY OF A WHITE LAMP TO THE REAR

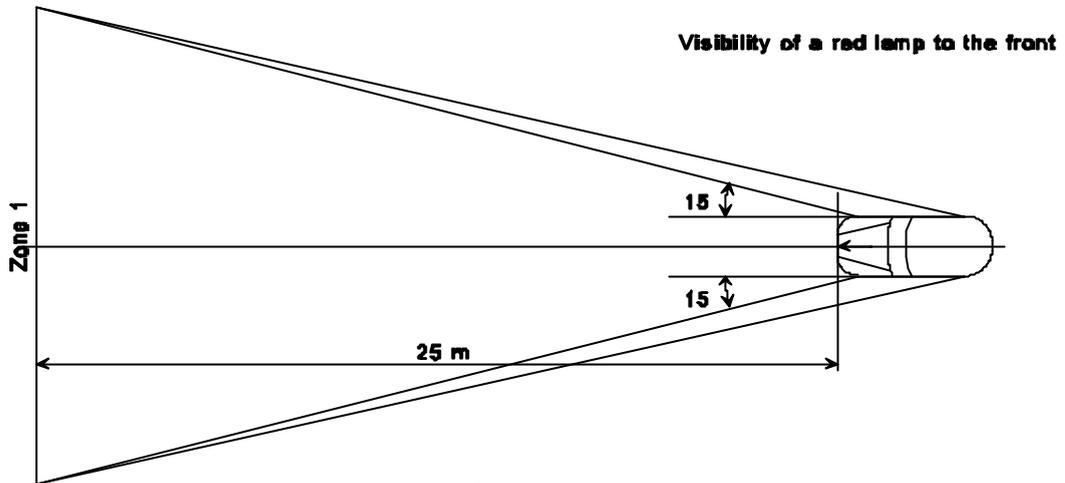


Figure 1

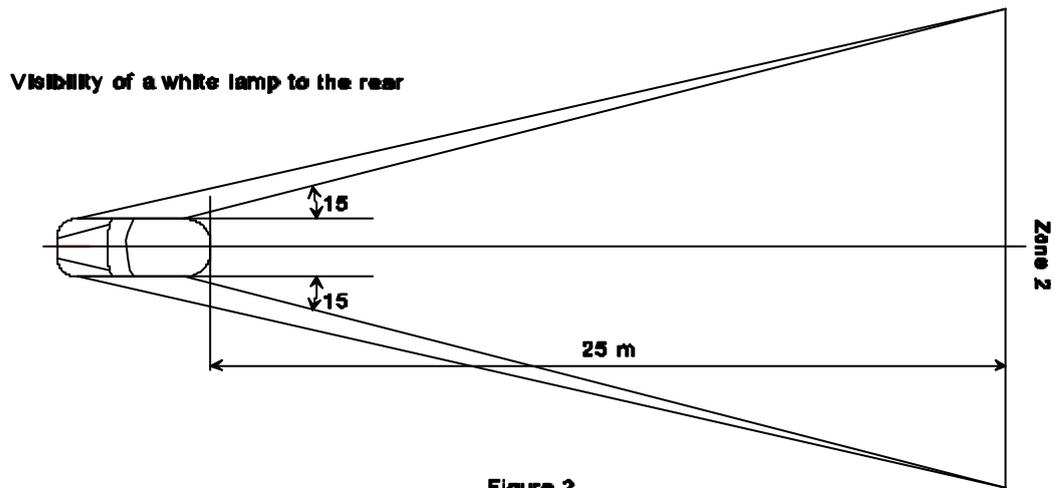


Figure 2

(See paragraphs 5.10.1. and 5.10.2. of this Regulation)

In their respective planes, the zones 1 and 2 explored by the eye of the observer are bounded:

In height: by two horizontal planes 1 m and 2.2 m respectively above the ground,

In width: by two vertical planes which, forming to the front and to the rear respectively an angle of 15° outwards from the vehicle's median longitudinal plane, pass through the point or points of contact of vertical planes parallel to the vehicle's median longitudinal plane delimiting the vehicle's overall width; if there are several points of contact, the foremost shall correspond to the forward plane and the rearmost to the rearward plane.

B. POINTS FOR FURTHER DISCUSSION

Para.	Comment
1.	Wait with the final text, specifically the word "motorcycle", till GRSG concludes its work on definitions of vehicle categories.
2.5.	Text of definition of "function" to be prepared jointly by Italian and Dutch experts.
2.6.	Text of the definition of "overall length" to be adopted from the document prepared by GRSG Common Tasks group which is presently working on defining the characteristics necessary to identify categories of vehicles.
2.7.	Italian proposal during forty-sixth session regarding "lighting function"
2.7.12.	<p>a) Further discussion regarding a proper word describing speed control may be needed.</p> <p>b) GRE Chairman should inform the GRRF Chairman about GRE deliberations regarding the definition of "stop lamp" and verify with him that there is no conflict with any of GRRF definitions.</p> <p>c) Also, it should be noted that Vienna Convention allows activation of the stop lamps only in conjunction of activation of service brake. This comment also applies to paragraph 6.7.7.</p>
2.7.26.	The wording of this paragraph was decided during the 45 th session of GRE; it may change pending final decision of WP.29 discussion (TRANS/WP.29/2001/8). The wording will be verified and the final version inserted.
2.7.27 2.15., 2.16.1.	GTB additions regarding proposal for inclusion of "cornering lamps" in Regulation 48.
2.14. & 2.15.	Definition of the extreme outer edge and overall width may be changed by GRSG which is working on defining the characteristics necessary to define categories of vehicles. Wait with the final wording for the conclusion of GRSG work.
2.16.1.	<p>a) The wording of this paragraph was decided during the 45th session of GRE; it may change pending final decision of WP.29 discussion (TRANS/WP.29/2001/8). The wording will be verified and the final version inserted.</p> <p>b) Definition of type "D" lamps should be created in section 2. - Definitions. Or the reference to type "D" lamps may be replaced by a statement preventing the photometric maximums to be exceeded once two lamps are used.</p>
2.20.1. to 2.20.5	<p>a) WP.29 has to be asked if definition of "discretionary lamp" is appropriate.</p> <p>b) Some lamp type definitions may be deleted if the use of the expressions is avoided throughout of the document. These sections to be revisited at the end of the deliberation on this document.</p>

Para.	Comment
2.24.1., 2.25.1.	GRE may consider defining the term "propulsion system activated".
2.26.	Wait with the final wording of this definition until GRSG decides on how to define the categories of vehicles. The term in this document will be used in the interim.
2.27.	Definition of a very heavy duty off-road vehicle (N3G-veh. Over 12t design for off-road conditions) is contemplated.
5.5.4.	GRE will consider deletion of this paragraph. It may cause problem in future lighting or light-signalling devices development.
5.7.1. to 5.7.1.2.	The wording of this paragraph was decided during the 45 th session of GRE; it may change pending final decision of WP.29 discussion (TRANS/WP.29/2001/8). The wording will be verified and the final version inserted.
5.15.	<p>a) Allowance for rearmost side-marker lamps to be red is reconsidered.</p> <p>b) Allowance for rearmost side retro-reflector to be red is reconsidered.</p> <p>c) GTB in updating Regulation No. 19 should take to the account the decision of GRE regarding the colour white as the only colour for the front fog lamps.</p>
5.17.	GRE will consider removal of this entire paragraph in conjunction with definitions of type of lamps in paragraphs 2.20.1. to 2.20.5.
5.19.	<p>The subject of mounting front direction indicators and reflex reflectors on movable components should be revisited.</p> <p>Tilttable driver cubs were the only reason for allowing those devices to be mounted on the movable components.</p> <p>Tilttable driver cubs are not movable components see paragraph 2.22.</p>
5.21.	Discussion to be continued regarding the new paragraph, introduced during the January 2001 meeting, to eliminating the expression "undue discomfort".
5.23.	The phrase in [] was added to clarify the requirement for manufacturers operated under self-certification.
5.24.	The section in [] was added to clarify the requirement for manufacturers operated under self-certification.
6.1.4.3.	Expression "cause discomfort" should be revisited to find better, tangible definition/description.
6.1.9.1.	This paragraph will be reconsidered once AFS development is concluded.
6.1.9.2.	Measurement procedure has to be established to avoid misrepresentation of the "aggregate maximum intensity".
6.2.4.2.	<p>a) US study reservation with respect to the maximum height of passing beam headlamp; pending US and SAE research.</p> <p>b) GRE will consider an increase for the maximum level allowed for passing beam headlamps for very heavy - off-road vehicles.</p>

Para.	Comment
6.2.4.3.	The phrase "does not cause discomfort to" must be well defined or other phrase like "is not seen by" may be considered.
6.2.5.	Expression "causing discomfort" should be revisited to find better, tangible definition/description.
6.2.6.	Sections 6.2.6.1., 6.2.6.2. and 6.2.6.3 should be rephrased for clarity and global applicability.
6.2.9.	a) Paragraph in [] will be reconsidered once AFS development is concluded. b) The reference to paragraph 6.2.6.2.2. may change depending on the final wording of that paragraph.
6.3.4.3.	Expression "cause discomfort" should be revisited to find better, tangible definition/description.
6.3.6.	Expression "causing undue dazzle or discomfort" should be revisited to find better, tangible definition/description.
6.3.7.	<p>The text of this paragraph could not be accepted by the expert from Canada. Canadian Government receives many complains from the public regarding unnecessary and frivolous use of front fog lamps. Canada suggests that the paragraph 6.3.7 reads the following:</p> <p>"6.3.7.1. The front fog lamps can be switched off independently of any other lamp;</p> <p>6.3.7.2. Either of the following applies:</p> <p>6.3.7.2.1. the front fog lamps may continue to operate until the position lamps are switched off, and the front fog lamps shall then remain off until deliberately switched on again; or</p> <p>6.3.7.2.2. a warning, at least audible, in addition to the mandatory tell-tale (paragraph 6.3.8.) shall be given when the front fog lamp switch is in the 'on' position and the ignition is switched off or the ignition key is withdrawn and the driver's door is opened."</p> <p>Adoption of the above text does allow to continue with the current allowance of parallel paragraph in Regulation No. 48.</p> <p>If the above text is not adopted, the expert from Canada proposes to change the expression in paragraph 6.3.1 from "optional" to "discretionary". Such wording would allow Canadian Government to use its discretion in addressing the front fog lamp problem.</p>
6.3.9.	This paragraph will be reconsidered once AFS development is concluded.
6.5.2.	GRE will resume the consideration on the subject of side direction indicator lamps on trailers during the next session.
6.5.3.	The second paragraph will be replaced by a Table. The experts from Germany offered to prepare a suitable Table. Failing this, the alternative is to adopt the stringiest requirement to satisfy all possible geometrical relations of a direction indicator with other lighting and light-signalling devices.
6.5.4.3.	GRE will continue discussion on the subject of the side direction indicator location.

Para.	Comment
	While 2.5 m is an unacceptable value considering some short vehicles to which this requirement would apply, some experts would like to see a fixed value rather than a reference to the proportion of vehicle's length.
6.5.7., 6.18.7.	Chairman of GRE should inform the Chairman of GRSG that side-markers lamps are allowed by "GTR 48" to be used for the signalling purpose related to the vehicle security system.
6.7. to 6.21.	The text of these sections was not discussed in detail by GRE. They still contain marked revisions of previous meetings and suggestions from several delegations.
6.7.9.2.	Expression "cause discomfort" should be revisited to find better, tangible definition/description.
6.19.4.3.	Expression "cause discomfort" should be revisited to find better, tangible definition/description.
7. to 12.	These sections should be replaced with a generic section tying the 1998 Global Agreement with this and further Global Technical Regulations (GTR). Such section should outline the obligations of the Contracting Parties adopting a GTR. It should also explain subsequent manufacturers' obligations as they relate to the administration of type approval and self-certification.
Annex 1. Annex 2. Annex 9.	Since these annexes are related only to type approval they were eliminated from this proposed GTR.
Annex 3. Annex 4.	These annexes were renumbered as new annexes 1. and 2.
Annexes 5 to 8	These annexes are related to paragraphs 6.2.6.1., 6.2.6.1.1., 6.6.2.2. and 6.2.6.3.1. which have to be rephrased. Their applicability will be evaluated once the final wording of those paragraphs is agreed by GRE.