COMMISSION

COMMISSION DIRECTIVE

of 17 March 1982

adapting to technical progress Council Directive 76/756/EEC on the approximation of the laws of the Member States relating to the installation of lighting and light-signalling devices on motor vehicles and their trailers

(82/244/EEC)

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community,

Having regard to Council Directive 70/156/EEC of 6 February 1970 on the approximation of the laws of the Member States relating to the type-approval of motor vehicles and their trailers (1), as last amended by Directive 80/1267/EEC (2) and by the Act of Accession of Greece, and in particular Article 11 thereof,

Having regard to Council Directive 76/756/EEC of 27 July 1976 on the approximation of the laws of the Member States relating to the installation of lighting and light-signalling devices on motor vehicles and their trailers (3), as amended by Commission Directive 80/233/EEC (4), and in particular Article 4 thereof,

Whereas, in the light of experience gained and in view of technical progress, it is now possible not only to supplement certain requirements and bring them more into line with actual test conditions, but also to render them more stringent with a view to increasing the safety of both the occupants of the vehicles and other road users;

Whereas the measures provided for in this Directive are in accordance with the opinion of the Committee for the Adaptation to Technical Progress of Directives on the Removal of Technical Barriers to Trade in the Motor Vehicles Sector,

HAS ADOPTED THIS DIRECTIVE:

Article 1

Annexes I and II to Directive 76/756/EEC are hereby amended as set out in the Annex to this Directive.

Article 2

1. With effect from 1 October 1982, no Member State may, on grounds relating to the installation of the lighting and light-signalling devices, whether mandatory or optional, listed in Items 1.5.7 to 1.5.20 of Annex I to Directive 76/756/EEC:

— refuse, in respect of a type of vehicle, to grant EEC type-approval, to issue the document referred to in the last indent of Article 10 (1) of Directive 70/156/EEC, or to grant national type-approval, or

— prohibit the entry into service of vehicles,

if the installation of the said lighting and light-signalling devices on this type of vehicle or on these vehicles complies with the provisions of this Directive.

2. With effect from 1 January 1983, Member States:

— shall no longer issue the document referred to in the last indent of Article 10 (1) of Directive 70/156/EEC in respect of a type of vehicle in which the installation of the said lighting and light-signalling devices does not comply with the provisions of this Directive,

— may refuse to grant national type-approval in respect of a type of vehicle in which the installation of the said lighting and light-signalling devices does not comply with the provisions of this Directive.

(1) OJ No L 42, 23. 2. 1970, p. 1.
(2) OJ No L 375, 31. 12. 1980, p. 34.
(3) OJ No L 262, 27. 9. 1976, p. 1.
(4) OJ No L 51, 25. 2. 1980, p. 8.

3. With effect from 1 October 1984, Member States may prohibit the entry into service of vehicles in respect of which a certificate pursuant to Article 10 of Directive 70/156/EEC concerning the installation of the said lighting and light-signalling devices was issued after 1 October 1979, where the installation of these devices does not comply with the provisions of this Directive.

Article 3

Member States shall bring into force the provisions necessary in order to comply with this Directive not later than 1 October 1982 and shall forthwith inform the Commission thereof.

Article 4

This Directive is addressed to the Member States.

Done at Brussels, 17 March 1982.

For the Commission

Karl-Heinz NARJES

Member of the Commission

ANNEX

Amendments to the Annex to Directive 76/756/EEC

ANNEX I: INSTALLATION OF LIGHTING AND LIGHT-SIGNALLING DEVICES

Item 1.1 is hereby amended as follows:

'1.1. **Vehicle type with regard to the installation of lighting and light-signalling devices**

Vehicle type with regard to the installation of lighting and light-signalling devices means vehicles which do not differ in the essential respects mentioned in Items 1.1.1-1.1.4.

The following are likewise considered not to be "vehicles of a different type": vehicles which differ within the meaning of Items 1.1.1-1.1.4, but not in such a way as to entail a change in the type, number, positioning and geometric visibility of the lamps and the inclination of the dipped beam prescribed for the vehicle type in question, and vehicles on which optional lamps are fitted or are absent.'

After Item 1.1.2, the following new Items 1.1.3 and 1.1.4 shall be added:

'1.1.3. the headlamp levelling system.

1.1.4. the suspension system'

Item 1.10.4 is hereby amended as follows:

'1.10.4. of side direction indicator lamps, end-outline marker lamps, front and rear position (side) lamps, parking lamps and reflex reflectors'

Item 2.2.4 is hereby amended as follows:

'2.2.4. Lay out drawing(s) for each individual lamp showing the illuminating surfaces as defined in Item 1.6, the axis of reference as defined in Item 1.7 and the centre of reference as defined in Item 1.8.

This information is not necessary in the case of the rear registration plate lamp (Item 1.5.14).'

Item 4.2.6.1 is hereby amended as follows:

'4.2.6.1. After adjustment of the initial inclination, the vertical inclination of the dipped beam shall be measured in static conditions under all the loading conditions defined in Appendix 1. It shall remain between — 0·5 and — 2·5 % without manual adjustment. Initial adjustment shall be between — 1 and — 1·5 % in the "unladen vehicle" state with one person in the driving seat. The initial adjustments for each type of vehicle must be specified by the manufacturer and must be indicated in a clearly legible and indelible manner on each vehicle close to either the headlamp or the manufacturer's plate by the symbol shown in Appendix 6.'

Item 4.2.6.2.2 is hereby amended as follows:

'4.2.6.2.2. Devices which are adjusted manually, either continuously or non-continuously, shall nevertheless be permitted, provided they have a stop position at which the lamps can be returned to the initial inclination defined in Item 4.2.6.1 by means of the usual adjusting screws. These manually adjustable devices must be operable from the driving seat. Continually adjustable devices must have reference marks indicating the loading conditions that require adjustment of the dipped beam.

The number of positions on devices which are not continuously adjustable must be such as to ensure compliance, starting from an initial inclination of between — 1 and 1·5 %; with the range of values between — 0·5 and — 2·5 % for the loading conditions defined in Appendix 1. For these devices also, the loading conditions that require adjustment of the dipped beam shall be clearly marked near the control of the device (see Appendix 7).'

After Item 4.2.6.2.2, add:

'4.2.6.2.3. The measurement of the variation of dipped beam inclination as a function of load must be carried out in accordance with the test procedure set out in Appendix 5.'

Item 4.4.1. is hereby amended as follows:

'4.4.1. *Presence*

Mandatory on motor vehicles

Optional on trailers.'

Item 4.5.4.1 is hereby amended as follows:

'4.5.4.1. Width

The edge of the illuminating surface furthest from the median longitudinal plane of the vehicle must not be more than 400 mm from the extreme outer edge of the vehicle.

The distance between the inner edges of the two illuminating surfaces shall not be less than 600 mm. Where the vertical distance between the rear direction indicator lamp and the corresponding rear position (side) lamp is not more than 300 mm, the distance between the extreme outer edge of the vehicle and the outer edge of the illuminating surface of the rear direction indicator lamp must not exceed, by more than 50 mm the distance between the extreme outer edge of the vehicle and the outer edge of the illuminating surface of the corresponding rear position (side) lamp.'

Item 4.5.5 is hereby amended as follows:

'4.5.5. *Geometric visibility*

Horizontal angles: see Appendix 4.

Vertical angles: 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.'

Item 4.5.12 is hereby amended as follows:

'4.5.12. *Other requirements*

The light shall be a flashing light, flashing 90 ± 30 times per minute.

Operation of the light signal control shall be followed within not more than one second by the 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 be capable of operating the indicator lamps on the trailer.

In the event of the failure of one direction indicator lamp, which is not due to a short circuit, the others must continue to flash but, under these conditions, the frequency may be different from that specified.

For front direction indicator lamps, the illuminating surface must be not less than 40 mm from the illuminating surface of the dipped-beam headlamps or front fog lamps if any. A smaller distance is permitted if the luminous intensity in the reference axis of the direction indicator lamp is not less than 400 cd.'

Item 4.7.8 is hereby amended as follows:

'4.7.8. Must not be "combined" with another lamp, unless the rear position lamp is reciprocally incorporated with the stop lamp and combined with the rear registration plate lamp.'

Item 4.7.10 is hereby amended as follows:

'4.7.10. *Electrical connections*

Must light up 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.'

Item 4.7.12 shall be deleted.

After Item 4.8.8, add the following new Item 4.8.8.1:

'4.8.8.1. When the rear position lamps are reciprocally incorporated with the stop lamps, the photometric characteristics of the rear registration plate lamp may be modified during the illumination of the stop lamps.'

Item 4.8.10 is hereby amended as follows:

'4.8.10. *Electrical connections*

No individual specifications.'

Item 4.8.11 is hereby amended as follows:

'4.8.11. *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 (side) lamps.'

Item 4.9.11 is hereby amended as follows:

'4.9.11. *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 (side) lamps.'

Item 4.10.11 is hereby amended as follows:

'4.10.11. *Tell-tale*

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

Item 4.11.4.1 is hereby amended as follows:

'4.11.4.1. Width:

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.'

Item 4.11.10 is hereby amended as follows:

'4.11.10. *Electrical connections*

These must be such that the rear fog lamp can operate only when the dipped beam or main beam headlamps or the front fog lamps or a combination of these are switched on. They must be such that when the rear fog lamp is switched on it is capable of operating together with the main beam, the dipped beam and the front fog lamps.

When the rear fog lamp is switched on, operating the main-beam or dipped-beam control shall not extinguish the rear fog lamp.

If the front fog lamps exists, the extinguishing of the rear fog lamp must be possible independently from that of the front fog lamps.'

Item 4.11.11 is hereby amended as follows:

'4.11.11. *Tell-tale*

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

After Item 4.11.11 add:

'4.11.12. *Other requirements*

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

Item 4.12.10 is hereby amended as follows:

'4.12.10. *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.'

Item 4.12.11 is hereby amended as follows:

'4.12.11. *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 (side) lamps.'

Item 4.13.7 is hereby amended as follows:

'4.13.7. May be "grouped" with other lamps.'

Item 4.13.11 is hereby amended as follows:

'4.13.11. *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 (side) lamps.'

Item 4.14.4.3 is hereby amended as follows:

'4.14.4.3. Length

At rear of vehicle.'

Item 4.15.4.3 is hereby amended as follows:

'4.15.4.3. Length

At rear of vehicle.'

Item 4.16.4.3 is hereby amended as follows:

'4.16.4.3. Length

At front of vehicle.'

Item 4.16.5 is hereby amended as follows:

'4.16.5. *Geometric visibility*

Horizontal angle: 30° inwards and outwards.

If, on account of adjustable drawbars, it is not possible to satisfy the inward angle requirement of 30°, it may be reduced to 10°.

Vertical angle: 15° above and below the horizontal. The vertical angle below the horizontal may be reduced to 5° in the case of a reflex reflector, less than 750 mm above the ground.'

Item 4.17.4.3 is hereby amended as follows:

'4.17.4.3. Length

At least one reflex reflector must be fitted to the middle third of the vehicle, the foremost reflex reflector being not further that 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 reflex reflectors shall not exceed 3 m.

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

However, for M_1 category vehicles, it is sufficient to have one reflex reflector fitted within the first third and one within the last third of the vehicle length.'

After Appendix 4, the following new Appendices 5, 6 and 7 shall be added:

'Appendix 5

Measurement of the variation of dipped beam inclination as a function of load

1. SCOPE

This Appendix specifies a method for measuring variations in motor vehicle dipped beam inclination, in relation to its initial inclination, caused by changes in vehicle attitude due to loading.

2. DEFINITIONS

2.1. **Initial inclination**

2.1.1. *Stated initial inclination:*

the value of the dipped beam initial inclination specified by the motor vehicle manufacturer serving as a reference value for the calculation of permissible variations.

2.1.2. *Measured initial inclination:*

the mean value of dipped beam inclination or vehicle inclination measured with the vehicle in condition No 1, as defined in Appendix 1, for the category of vehicle under test. It serves as a reference value for the assessment of variations in beam inclination as the load varies.

2.2. Dipped-beam inclination may be defined:

— either as the angle, expressed in milliradians, between the direction of the beam towards a characteristic point on the horizontal part of the cut-off in the luminous distribution of the headlamp and the horizontal plane,

— or by the tangent of that angle, expressed in percentage inclination, since the angles are small (for these small angles, 1 % is equal to 10 mrad).

If the inclination is expressed in percentage inclination, it can be calculated by means of the following formula:

$$\frac{h_1 - h_2}{l} \times 100$$

where:

h_1 is the height above the ground, in millimetres, of the abovementioned characteristic point, measured on a vertical screen perpendicular to the vehicle longitudinal median plane, placed at a horizontal distance 1;

h_2 is the height above the ground, in millimetres, of the centre of reference (which is taken to be the nominal origin of the characteristic point chosen in h_1);

l is the distance, in millimetres, from the screen to the centre of reference.

Negative values denote downward inclination (see Figure 1).

Positive values denote upward inclination.

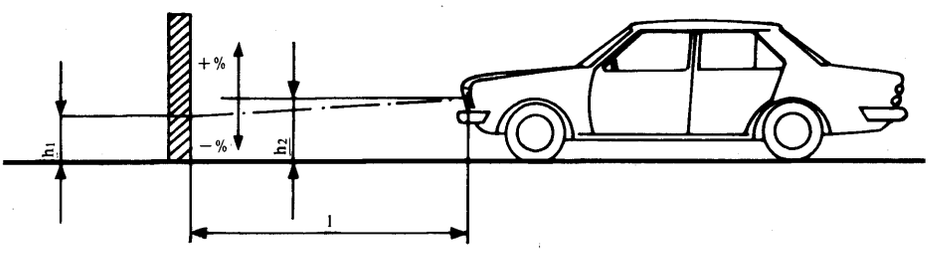


Figure 1

Dipped beam downward inclination of a category M_1 vehicle

Notes:

1. This drawing represents a category M_1 vehicle, but the principle shown applies equally to vehicles of other categories.
2. Where the vehicle does not incorporate a headlamp levelling system, the variation in dipped beam inclination is identical with the variation in the inclination of the vehicle itself.

3. MEASUREMENT CONDITIONS

3.1. If a visual inspection of the dipped beam pattern on the screen or a photometric method is used, measurement shall be carried out in a dark environment (for example, a dark room) of sufficient area to allow the vehicle and the screen to be placed as shown in Figure 1. Headlamp centres of reference shall be at a distance l from the screen of at least 10 m.

3.2. The ground on which measurements are made shall be as flat and horizontal as possible, so that the reproducibility of measurements of dipped beam inclination can be assured with an accuracy of ± 0·5 mrad (± 0·05 % inclination).

3.3. If a screen is used, its marking, position and orientation in relation to the ground and to the median longitudinal plane of the vehicle, shall be such that the reproducibility of the measurement of the dipped beam inclination can be assured with an accuracy of ± 0·5 mrad (± 0·05 % inclination).

3.4. During measurements, the ambient temperature shall be between 10 and 30 °C.

4. VEHICLE PREPARATION

4.1. Measurements shall be carried out on a vehicle which has travelled a distance of between 1 000 and 10 000 km, preferably 5 000 km.

4.2. Tyres shall be inflated to the full-load pressure specified by the vehicle manufacturer. The vehicle shall be fully replenished (fuel, water, oil) and equipped with all the accessories

and tools specified by the manufacturer. Full fuel replenishment means that the fuel tank must be filled to not less than 90 % of its capacity as indicated in the information document, a model of which appears in Annex I to Directive 70/156/EEC.

4.3. The vehicle shall have the parking brake released and the gearbox in neutral.

4.4. The vehicle shall be conditioned for at least 8 h at the temperature specified in Item 3.4.

4.5. If a photometric or visual method is used, headlamps with a well-defined dipped beam cut-off should preferably be installed on the vehicle under test in order to facilitate the measurements.

Other methods may be employed to obtain a more precise reading (for exemple, removal of the headlamp lens).

5. TEST PROCEDURE

5.1. **General**

The variations in either dipped beam or vehicle inclination, depending on the method chosen, shall be measured separately for each side of the vehicle. The results obtained from both left and right headlamps under all the load conditions specified in Appendix 1, shall be within the limits set out in Item 5.5. The load shall be applied gradually without subjecting the vehicle to excessive shocks.

5.2. **Determination of the measured initial inclination**

The vehicle shall be prepared as specified in Item 4 and laden as specified in Appendix 1 (first loading condition of the respective vehicle category).

Before each measurement, the vehicle shall be rocked as specified in Item 5.4.

Measurements shall be made three times.

5.2.1. If none of the three measured results differs by more than 2 mrad (0·2 % inclination) from the arithmetic mean of the results, that mean shall constitute the final result.

5.2.2. If any measurement differs from the arithmetic mean of the results by more than 2 mrad (0·2 % inclination), a further series of 10 measurements shall be made, the arithmetic mean of which shall constitute the final result.

5.3. **Measurement methods**

Any method may be used to measure variations of inclination provided that the readings are accurate to within ± 0·2 mrad (± 0·02 % inclination).

5.4. **Treatment of vehicle in each loading condition**

The vehicle suspension and any other part likely to affect dipped beam inclination shall be activated according to the methods described below.

However, the technical authorities and manufacturers may jointly propose other methods (either experimental or based upon calculations), especially when the test poses particular problems, provided such calculations are clearly valid.

5.4.1. *M_1 category vehicles with conventional suspension*

With the vehicle standing on the measuring site and, if necessary, with the wheels resting on floating platforms (which must be used if their absence would lead to restriction of the suspension movement likely to affect the results of measurements), rock the vehicle continuously for at least three complete cycles; for each cycle, first the rear and than the front end of the vehicle is pushed down.

The rocking sequence shall end with the completion of a cycle. Before making the measurements, the vehicle shall be allowed to come to rest spontaneously. Instead of using floating platforms, the same effect can be achieved by moving the vehicle backwards and forwards for at least a complete wheel revolution.

5.4.2. *M_2, M_3 and N category vehicles with conventional suspension*

5.4.2.1. If the treatment method for category M_1 vehicles described in Item 5.4.1 is not possible, the method described in Item 5.4.2.2 or 5.4.2.3 may be used.

5.4.2.2. With the vehicle standing on the measuring site and the wheels on the ground, rock the body by temporarily varying the load.

5.4.2.3. With the vehicle standing on the measuring site and the wheels on the ground, activate the vehicle suspension and all other parts which may affect the dipped beam inclination by using a vibration rig. This can be a vibrating platform on which the wheels rest.

5.4.3. *Vehicles with non-conventional suspension, where the engine has to be running*

Before making any measurement wait until the vehicle has assumed its final attitude with the engine running.

5.5. **Measurements**

The variation of the inclination of the dipped beam shall be assessed for each of the different loading conditions in relation to the measured initial inclination determined in accordance with Item 5.2.

If the vehicle is fitted with a manual headlamp-levelling system, the latter shall be adjusted to the positions specified by the manufacturer for given loading conditions (according to Appendix 1).

5.5.1. To begin with, a single measurement shall be made in each loading condition. Requirements have been met if, for all the loading conditions, the variation in inclination is within the calculated limits (for example, within the difference between the stated initial inclination and the lower and upper limits specified for approval) with a tolerance of 4 mrad (0·4 % inclination).

5.5.2. If the result(s) of any measurement(s) does (do) not lie within the tolerance indicated in Item 5.5.1 or exceed(s) the limit values, a further three measurements shall be made in the loading conditions corresponding to this (these) result(s) as specified in Item 5.5.3.

5.5.3. For each of the above loading conditions:

5.5.3.1. If none of the three measured results differs by more than 2 mrad (0·2 % inclination) from the arithmetic mean of the results, that mean shall constitute the final result.

5.5.3.2. If any measurement differs from the arithmetic mean of the results by more than 2 mrad (0·2 % inclination), a further series of ten measurements shall be made, the arithmetic mean of which shall constitute the final result.

5.5.3.3. If a vehicle is fitted with an automatic headlamp-levelling system which has an inherent hysteresis loop, average results at the top and bottom of the hysteresis loop shall be taken as significant values.

All these measurements shall be made in accordance with Items 5.5.3.1 and 5.5.3.2.

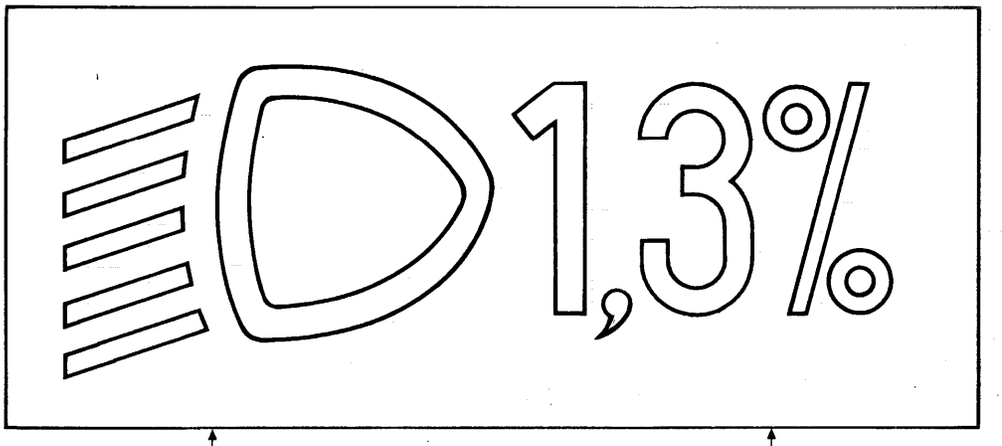
5.5.4. Requirements have been met, if, under all loading conditions, the variation between the measured initial inclination determined in accordance with Item 5.2 and the inclination measured under each loading condition is less than the values calculated in Item 5.5.1 (without safety margin).

5.5.5. If only one of the calculated upper or lower limits of variation is exceeded, the manufacturer shall be permitted to choose a different value for the stated initial inclination, within the limits specified for approval.'

Appendice 6

Marquage pour le réglage initial indiqué dont il est question au point 4.2.6.1 de l'annexe I

Exemple



Symbole standard pour feu de croisement conformément à l'annexe II, figure 3, de la directive 78/316/CEE

Valeur du réglage initial indiqué

La dimension du symbole et des caractères est laissée au choix du constructeur.

Appendice 7

Dispositifs de commande du réglage des feux visés au point 4.2.6.2.2 de l'annexe I

1. PRESCRIPTIONS

1.1. Le rabattement du faisceau de croisement doit être obtenu, en tout état de cause, de l'une des façons suivantes:

a) par déplacement de la commande vers le bas ou vers la gauche;

b) par rotation de la commande dans le sens opposé à celui des aiguilles d'une montre;

c) par pression de la commande (système pression-traction).

En cas de système de réglage à plusieurs boutons-poussoirs, le bouton-poussoir commandant le rabattement maximal doit être situé à gauche ou au-dessous du ou des boutons-poussoirs correspondant aux autres positions d'inclinaison du faisceau de croisement.

Les dispositifs de commande du type à rotation visibles de champ ou dont seul le bord est visible doivent être actionnés comme s'ils étaient des dispositifs du type a) ou c).

1.1.1. Ce dispositif de commande doit être pourvu de symboles indiquant clairement les mouvements qui correspondent à l'orientation vers le bas et vers le haut du faisceau de croisement.

1.2. La position «0» correspond au réglage initial conformément au point 4.2.6.1 de l'annexe I.

1.3. La position «0» qui, conformément au point 4.2.6.2.2 de l'annexe I doit être une position de «repos», ne doit pas forcément se trouver au bout de l'échelle.

1.4. Les marques employées sur le dispositif doivent être expliquées dans le manuel du conducteur.

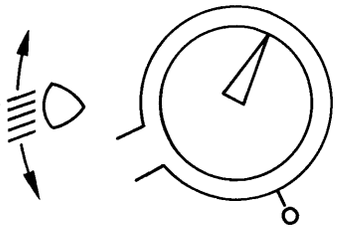
1.5. Only the following symbols may be used to identify the controls:



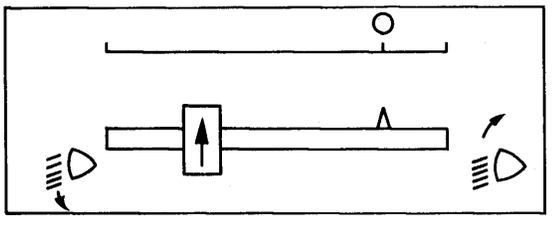
Standard symbol for dipped beam headlamp according to Figure 3 of Annex II to Directive 78/316/EEC, showing the arrows which correspond to the direction of the dipped beam adjustment.

2. EXAMPLES

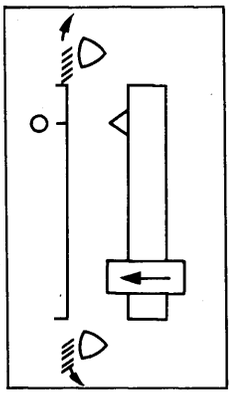
Example 1:



Example 2:



Example 3:



ANNEX II

After Item 5.2 add the following new Item:

'5.2.1. Headlamp levelling device: yes/no (*)'.