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agenda item 2.4.)

PROPOSAL FOR DRAFT AMENDMENTS TO THE 02 SERIES OF AMENDMENTS TO
REGULATION No. 46

(Devices for indirect vision)

Transmitted by the expert from the European Commission (EC)

Note: The text reproduced below was prepared by the expert from the EC in order to introduce requirements for determination of the ocular points for seats with a fixed seat-back angle as well as amended requirements for installation of wide-angle (Class IV) and close-proximity (Class V) mirrors on for the vehicles of category $N_2 \leq 7.5$ t. The proposal is based on a document without an official symbol (informal document No. GRSG-89-25), distributed at the eighty-ninth session of GRSG (TRANS/WP.29/GRSG/68, para. 31). The modifications to the current text of the Regulation (up to the 02 series of amendments) are marked in **bold** characters.

Note: This document is distributed to the Experts on General Safety Provisions only.

A. PROPOSAL

The list of contents, the Annexes, amend to read:

"

Annex 10 - Calculation of the detection distance 72

Annex 11 - Determination of the ocular points for a seat with a fixed seat back angle"

Paragraph 12.1., amend to read:

" as defined in Annex 8. **In the case of a seat with fixed seat-back angle, the location of the ocular points shall be adjusted in accordance with the provisions of Annex 11 to this Regulation.** The straight line "

Paragraph 15.2.1.1.1., the table, the fifth column "Wide-angle mirror Class IV", the cell for motor vehicles of category $N_2 \leq 7.5$ t, the text in the cell, amend to read:

**"Compulsory For both sides if a Class V mirror can be fitted
Optional For both sides together if not"**

Paragraph 15.2.1.1.1., the table, the sixth column "Close-proximity mirror Class V", the cell for motor vehicles of category $N_2 \leq 7.5$ t, the text in the cell, amend to read:

**"Compulsory (see paragraphs 15.2.2.7. and 15.2.4.5.5.)
One on the passenger's side
Optional One on the driver's side (both must be fitted at least 2 m above the ground). A tolerance of + 10 cm may be applied"**

Insert a new Annex 11, to read:

"Annex 11

**DETERMINATION OF THE OCULAR POINTS FOR A SEAT
WITH A FIXED SEAT-BACK ANGLE**

1. **The position of the ocular points in relation to the R point shall be adjusted as indicated in the table below by X coordinates from the three-dimensional reference system. The table indicates the basic coordinates for a fixed seatback angle of 25 degrees. The three-dimensional reference system for the coordinates is as defined in Annex 8, Appendix 2 to this Regulation.**

Seat back angle (in degrees)	Horizontal coordinates ΔX
25	68 mm

2. Further correction for fixed seat-back angles other than 25 degrees.

The table below indicates the further corrections, from the ocular position with a fixed seat-back angle of 25 degrees, to be made to the X and Z coordinates of the ocular points when the design seat-back angle is not 25 degrees.

Seat-back angle (in degrees)	Horizontal coordinates ΔX	Vertical coordinates ΔZ
5	186 mm	28 mm
6	177 mm	27 mm
7	167 mm	27 mm
8	157 mm	27 mm
9	147 mm	26 mm
10	137 mm	25 mm
11	128 mm	24 mm
12	118 mm	23 mm
13	109 mm	22 mm
14	99 mm	21 mm
15	90 mm	20 mm
16	81 mm	18 mm
17	72 mm	17 mm
18	62 mm	15 mm
19	53 mm	13 mm
20	44 mm	11 mm
21	35 mm	9 mm
22	26 mm	7 mm
23	18 mm	5 mm
24	9 mm	3 mm
25	0 mm	0 mm
26	9 mm	-3 mm
27	17 mm	-5 mm
28	26 mm	-8 mm
29	34 mm	-11 mm
30	43 mm	-14 mm
31	51 mm	-18 mm
32	59 mm	-21 mm
33	67 mm	-24 mm
34	76 mm	-28 mm
35	84 mm	-32 mm
36	92 mm	-35 mm
37	100 mm	-39 mm
38	108 mm	-43 mm
39	115 mm	-48 mm
40	123 mm	-52 mm

B. JUSTIFICATION

This document addresses two issues:

Amendments to paragraph 12.1. and insertion of a new Annex 11

This is a proposal to alter the position of the ocular (eye) point used to assess the mirror field of view depending on the actual vehicle seat back angle. This allows the field of view test to be carried out under conditions which are more representative of the position of the driver's eyes in an actual vehicle. This amendment is necessary as vehicle designs have changed significantly since the Regulation was originally developed and many vehicles have a more reclined seating position. This means that the position of the ocular point, used for assessing the field of view in the current Regulation, is no longer appropriate in all cases. The proposed amendments in the test procedure should cover all possible seat-back angles declared by the manufacturer. It should not create any additional burden to industry and may, in some cases, make it even easier to obtain an approval.

Amendments to paragraph 15.2.1.1.1.

The amendments propose to require Class IV and Class V mirrors to be fitted to goods vehicles in the 3.5 to 7.5 tonne category which have cabs of a similar height to vehicles in the > 7.5 tonnes category. The current prescriptions of Regulation No. 46 already require these additional mirrors on vehicles over 7.5 tonnes, due to the additional blind spots caused by the height of the driver's cab, which can lead to a high risk of injury to pedestrians and cyclists in close proximity to the vehicle. However, the extra mirrors are not currently required on the vehicles in the 3.5 to 7.5 tonnes category, even though some of these have cabs of a similar height to the larger vehicles and therefore pose a similar risk. This proposal addresses this gap in the Regulation by requiring Class IV and Class V mirrors on vehicles in this weight category where it is possible to fit them at a height of at least 2 m from the ground level. An extra 10 cm tolerance has been added to this height to help enable existing designs to meet this requirement.

It is intended that the implementation dates should be the same as the implementation dates for the 02 series of amendments, so no further transitional provisions are required.
