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Item 4(a) of the provisional agenda
Awareness of the Proximity of Vulnerable Road Users:
UN Regulation No. 46 (Devices for indirect vision)

Proposal for Supplement 1 to the 05 Series of Amendments to UN Regulation No. 46 (Devices for indirect vision)

Submitted by the expert from the International Organization of Motor Vehicle Manufacturers *

The text reproduced below was prepared by the expert from the International Organization of Motor Vehicle Manufacturers (OICA) to introduce provisions for exterior rear-view mirrors fixed to the protective housing. It is based on GRSG-124-16 distributed at the 124th session of the Working Party on General Safety (GRSG). The modifications to the current text of the UN Regulation are marked in bold for new and strikethrough for deleted characters.

* In accordance with the programme of work of the Inland Transport Committee for 2023 as outlined in proposed programme budget for 2023 (A/77/6 (Sect. 20), table 20.6), the World Forum will develop, harmonize and update UN Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.

I. Proposal

Paragraph 6.1.1.2., amend to read:

"6.1.1.2. (a) Rear-view mirrors (Classes II to VII)

~~The edge of the reflecting surface shall be enclosed in a protective housing (holder, etc.) which, on its perimeter, shall have a value "c" greater than or equal to 2.5 mm at all points and in all directions.~~

In cases where the edge of the reflecting surface is enclosed in a protective housing (holder, etc.), the radius of curvature "c" on its perimeter shall be not less than 2.5 mm at all points and in all directions.

In cases where the edge of the reflecting surface projects beyond the protective housing independent from any adjustment position, the radius of curvature "c" shall apply to the edge of the projecting part.

In cases where ~~If~~ the reflecting surface projects beyond the protective housing **in any adjustment position**, the radius of curvature "c" on the edge of the projecting part shall be not less than 2.5 mm and the reflecting surface shall return into the protective housing under a force of 50 N applied to the point of greatest projection, relative to the protective housing, in a horizontal direction, approximately parallel to the longitudinal median plane of the vehicle.

(b) Rear-view mirrors (Class I)

In cases where the edge of the reflecting surface is enclosed in a protective housing (holder, etc.), the radius of curvature "c" on its perimeter shall be not less than 2.5 mm at all points and in all directions. In cases, where the edge of the reflecting surface projects beyond the protective housing, this requirement shall apply to the edge of the projecting part."

For information only (text unchanged):

"6.1.1.3. When the mirror is mounted on a plane surface, all parts, irrespective of the adjustment position of the device, including those parts remaining attached to the support after the test provided for in paragraph 6.3.2. below, which are in potential, static contact with a sphere either 165 mm in diameter in the case of a Class I mirror or 100 mm in diameter in the case of a Class II to VII mirror, shall have a radius of curvature 'c' of not less than 2.5 mm.

6.1.1.4. The requirements in paragraphs 6.1.1.2. and 6.1.1.3. above shall not apply to parts of the external surface which protrude less than 5 mm, but the outward facing angles of such parts shall be blunted, save where such parts protrude less than 1.5 mm. For determining the dimension of the projection, the following method shall apply:"

II. Justification

1, The current text of UN Regulation No. 46 on "Devices for indirect vision" allows rear-view mirrors of Class I to have a reflecting surface which projects beyond the protective housing.

2. For Class II to VII mirrors, it is only possible to have a reflecting surface projecting beyond the housing in single adjustment positions. In this case, the reflecting surface must return into the protective housing if a force of 50 N is applied. This requirement cannot be met by mirrors where the reflecting surface is assembled onto the housing (frameless).

3. A frameless design of the mirror could reduce the width and height of the mirror significantly (up to 30 per cent). This would then have two major benefits: a reduction of collision probability with bicyclists/pedestrians and a reduction of the aerodynamic resistance (c_w).

Figure (a): Traditional Outside Mirror

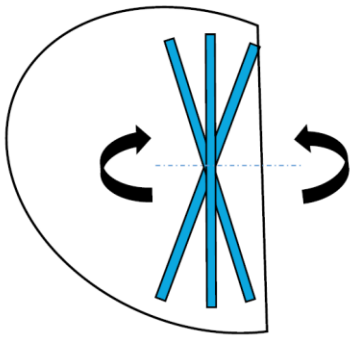
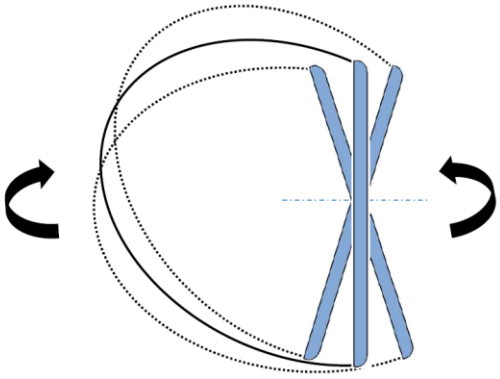


Figure (b): Reflective Surface Fixed to Protective Housing



4. The other requirements on the radius of curvature (paragraphs 6.1.1.3. and 6.1.1.4.) remain unchanged. The impact test according to paragraph 6.3.2. still has to be fulfilled.