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Regulation No. 46
(Devices for indirect vision)

Proposal for amendments to the Regulation

Submitted by the experts from the International Motorcycle Manufacturers ^{*/}

The text reproduced below was prepared by the expert from the International Organization of Motorcycle Manufacturers (IMMA) in order to incorporate the L-category mirrors and the installation requirements into the Regulation. The modifications to the current text of the Regulation are marked in **bold** characters.

^{*/} In accordance with the programme of work of the Inland Transport Committee for 2006-2010 (ECE/TRANS/166/Add.1, programme activity 02.4), the World Forum will develop, harmonize and update Regulations in order to enhance performance of vehicles. The present document is submitted in conformity with that mandate.

A. PROPOSAL

Paragraphs 1.1.and 1.2., amend to read:

- "1.1. to devices for indirect vision, for vehicles of category M, N and of **L₂ 1/-category vehicles with bodywork at least partly enclosing the driver,**
- 1.2. to the installation of devices of indirect visions for vehicles of categories M and N¹ and of **L-category vehicles with bodywork at least partly enclosing the driver,** "

Paragraph 2.1.1.13., at the end, add:

"Class VII: Mirrors intended for L category vehicles with bodywork."

Paragraph 5.4.3., amend to read:

"5.4.3. An additional symbol I or II or III or IV or V or VI or **VII**, specifying...."

Paragraph 6.1.1.5., amend to read:

"6.1.1.5. The device for the attachment of mirrors to the vehicle must be so designed that a cylinder with a 70 mm radius (**50 mm in the case of an L-category vehicle**), having ..."

Insert the following new paragraph 6.1.2.1.6.

"6.1.2.1.6. Mirrors for Category L vehicles with bodywork (Class VII)

6.1.2.1.6.1. 'Main' exterior mirrors (Class VII)

The minimum dimensions of the reflecting surface shall be such that:

- (a) Its area shall not be less than 6 900 mm²;
- (b) The diameter of circular mirrors shall not be less than 94 mm;
- (c) Where rear view mirrors are not circular, their dimensions shall enable a 78 mm-diameter circle to be prescribed on their reflecting surface.

The maximum dimensions of the reflecting surface shall be such that:

- (a) The diameter of any circular rear view mirror shall not be greater than 150 mm;
- (b) The reflecting surface of any non-circular rear view mirror shall lie within a rectangle measuring 120 mm x 200 mm."

^{1/} As defined in Annex 7 to the Consolidated Resolution on the Construction of Vehicles (R.E.3) (TRANS/WP.29/78/Rev.1/Amend.2 as last amended by Amend 4).

Insert the following new paragraph 6.1.2.2.4.5.

"6.1.2.2.4.5. 1,000 mm or more than 1,500 mm in the case of Class VII mirrors"

Paragraph 6.1.3.1., amend to read:

"6.1.3.1. Mirrors in Classes I –VI and Class VII (having fitments identical to Class III) shall be subjected to the tests described in paragraph 6.1.3.2.1 and 6.1.3.2.2. Class VII mirrors with a stem, shall be subjected to the tests described in paragraph 6.1.3.2.3."

Insert the following new paragraph 6.1.3.2.3.:

"6.1.3.2.3. **Bending test on the protective housing attached to the stem (Class VII)**

6.1.3.2.3.1. Description of test

The protective housing is placed horizontally in a device in such a way that it is possible to lock the attachment support adjusters firmly. In the direction of the largest dimension of the housing, the end closet to the point of attachment on the adjuster for the support shall be immobilized by a 15 mm-wide rigid stop covering the entire width of the housing.

At the other end, a stop identical to the one described above is placed on the housing so that the specified test load can be applied to it (Figure 2).

The end of the housing opposite to that where the force is exerted may be locked rather than held in position as shown in Figure 2.

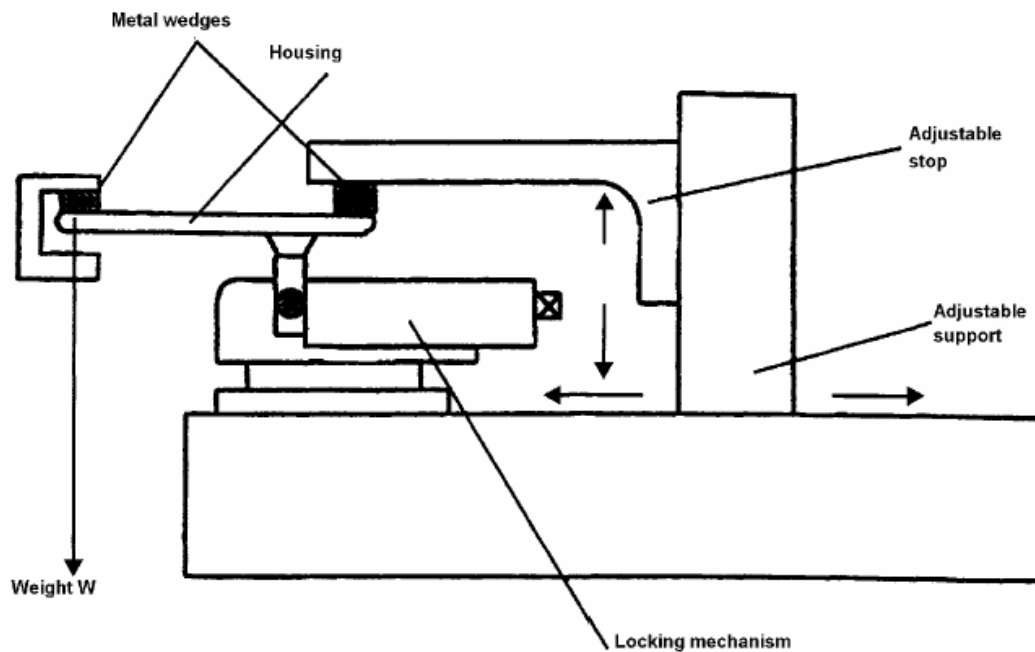


Figure 2: Example of rear view mirror bending-test rig

6.1.3.2.3.2. The test loading shall be 25 kilograms and shall be maintained for one minute."

Paragraph 6.1.3.3.1., amend to read:

"6.1.3.3.1. does not exceed 2.4 mm (2.5 mm for Class VII mirrors) on either side ..."

Paragraph 12.2., replace "Figure 2" by "Figure 3" (twice)

Paragraph 12.3.3., amend to read:

"12.3.3. The coordinates of point R (where applicable);"

Paragraph 12.4., amend to read:

"12.4. "Vehicles of categories **L2, L5**, M1, M2, M3, N1, N2 and N3" mean those defined in the Consolidated Resolution on the Construction of Vehicles (R.E.3), Annex 7 (document TRANS/WP.29/78/Rev.1/Amend.2).

Paragraph 15.2.1.1.1., amend to read

"

Vehicle category	Interior mirror	Exterior mirrors				
	Interior mirror Class I	Main mirror (large) Class II	Main mirror (small) Class III	Wide-angle mirror Class IV	Close-proximity mirror Class V	Front mirror Class VI
M ₁	Compulsory Unless the vehicle is fitted with anything other than safety glazing material in the field of vision prescribed in paragraph 15.2.4.1. Optional If the mirror does not provide rearward vision	Optional	Compulsory 1 on the driver's side and 1 on the passenger's side. Class II mirrors may be fitted as an alternative.	Optional 1 on the driver's side and / or 1 on the passenger's side	Optional 1 on the driver's side and 1 on the passenger's side (both must be fitted at least 2 m above the ground)	Optional (must be fitted at least 2 m above the ground)
M ₂	Optional (no requirements for the field of view)	Compulsory 1 on the driver's side and 1 on the passenger's side	Not permitted	Optional 1 on the driver's side and / or 1 on the passenger's side	Optional 1 on the driver's side and 1 on the passenger's side (both must be fitted at least 2 m above the ground)	Optional (must be fitted at least 2 m above the ground)
M ₃	Optional (no requirements for the field of view)	Compulsory 1 on the driver's side and 1 on the passenger's side	Not permitted	Optional 1 on the driver's side and / or 1 on the passenger's side	Optional 1 on the driver's side and 1 on the passenger's side (both must be fitted at least 2 m above the ground)	Optional (must be fitted at least 2 m above the ground)
N ₁	Compulsory Unless the vehicle is fitted with anything other than safety glazing material in the field of vision prescribed in paragraph 15.2.4.1. Optional If the mirror does not provide rearward vision	Optional	Compulsory 1 on the driver's side and 1 on the passenger's side. Class II mirrors may be fitted as an alternative.	Optional 1 on the driver's side and / or 1 on the passenger's side	Optional 1 on the driver's side and 1 on the passenger's side (both must be fitted at least 2 m above the ground)	Optional (must be fitted at least 2 m above the ground)
N ₂ ≤ 7,5 t	Optional (no requirements for the field of view)	Compulsory 1 on the driver's side and 1 on the passenger's side	Not permitted	Optional 1 on the driver's side and 1 on the passenger's side	Optional 1 on the passenger's side 1 on driver's side (both must be fitted at least 2 m above the ground)	Optional 1 front mirror (must be fitted at least 2 m above the ground)
N ₂ > 7,5 t	Optional (no requirements for the field of view)	Compulsory 1 on the driver's side and 1 on the passenger's side	Not permitted	Compulsory 1 on the driver's side and 1 on the passenger's side	Compulsory , see paragraph 15.2.2.7. and 15.2.4.5.5. 1 on the passenger's side Optional 1 on driver's side (both must be fitted at least 2 m above the ground)	Compulsory , see paragraph 15.2.1.1.2. 1 front mirror (must be fitted at least 2 m above the ground)

Vehicle category	Interior mirror	Exterior mirrors				
	Interior mirror Class I	Main mirror (large) Class II	Main mirror (small) Class III	Wide-angle mirror Class IV	Close-proximity mirror Class V	Front mirror Class VI
N ₃	Optional (no requirements for the field of view)	Compulsory 1 on the driver's side and 1 on the passenger's side	Not permitted	Compulsory 1 on the driver's side and 1 on the passenger's side	Compulsory , see paragraph 15.2.2.7. and 15.2.4.5.5. 1 on the passenger's side Optional 1 on driver's side (both must be fitted at least 2 m above the ground)	Compulsory , see paragraph 15.2.1.1.2. 1 front mirror (must be fitted at least 2 m above the ground)

Paragraph 15.2.1.1.3., amend to read:

"15.2.1.1.3 Rear view mirrors required for L-category vehicles with body work

Category of vehicle	Interior mirror (Class I)	Main exterior mirror(s) (Classes III and VII)
L category motor vehicles fitted with bodywork which partly or wholly encloses the driver	1 ⁽¹⁾	1, if there is an interior mirror; 2, if there is not an interior mirror
(1) No interior rear-view mirror is required if the visibility conditions referred to in paragraph 15.2.5.4.1. below cannot be met. In this case two exterior rear-view mirrors are required, one on the left and one on the right hand side of the vehicle.		

Where a single exterior rear view mirror is fitted this shall be located on the left hand side of the vehicle in those countries where the traffic drives on the right and on the right hand side of the vehicle in those countries where the traffic drives on the left.

Insert the following new paragraphs 15.2.1.1.4. and 15.2.2.9.

"15.2.1.1.4. Optional rear-view mirrors for L-category vehicles

The fitting of an exterior rear-view mirror on the side of the vehicle opposite to that of the mandatory rear-view mirror referred to in paragraph 15.2.1.1.3, is permissible. The rear-view mirror shall meet the requirements of this Regulation."

"15.2.2.9. All Class VII mirrors shall be attached in such a way that they remain in a stable position under normal vehicle driving conditions."

Figures 2 to 9, renumber as Figures 3 to 10

Paragraph 15.2.4.1., replace "see Figure 3" by "see Figure 4"

Paragraph 15.2.4.2.2., replace "see Figure 4" by "see Figure 5"

Paragraph 15.2.4.3.2., replace "see Figure 5" by "see Figure 6"

Paragraph 15.2.4.4.2., replace "see Figure 6" by "see Figure 7"

Paragraph 15.2.4.5., replace "see Figures 7a and 7b" by "see Figures 8a and 8b"

Paragraph 15.2.4.6.1., after the second indent, insert:

"For the defined field of vision, see also paragraph **15.2.4.9.2.**"

Replace "in Figure 8" by "in Figure 9"

Paragraph 15.2.4.7., amend to read:

"15.2.4.7. L-category mirror (Class VII).

15.2.4.7.1. Exterior rear-view mirror on the driver's side

The field of vision must be such that the driver can see at least a 2,50 m wide, flat, horizontal portion of the road, which is bounded by a plane parallel to the median longitudinal vertical plane and passing through the outermost point of the vehicle on the driver's side of the vehicle and extends from 10 m behind the driver's ocular points to the horizon (see Figure 10).

15.2.4.7.2. Exterior rear-view mirror on the passenger's side

The field of vision must be such that the driver can see at least a 4 m wide flat, horizontal portion of the road which is bounded by a plane parallel to the median longitudinal vertical plane passing through the outermost point of the vehicle on the passenger's side and which extends from 20 m behind the driver's ocular points to the horizon (see Figure 10).

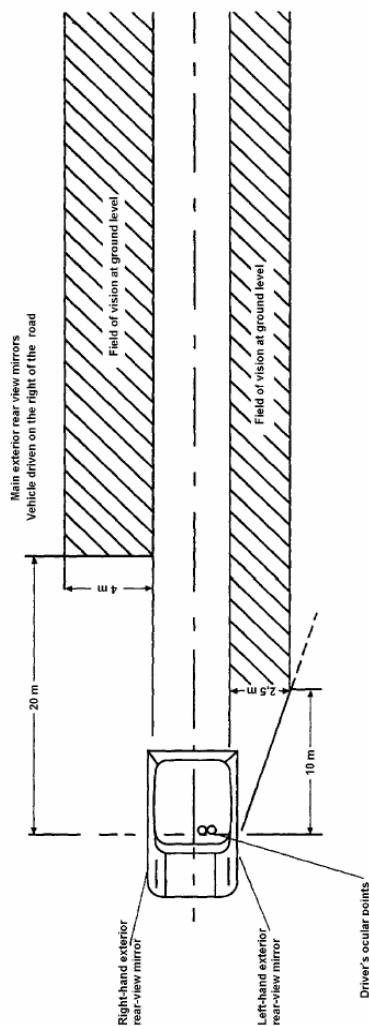


Figure 10: Field of vision of Class VII mirrors"

Paragraphs 15.2.4.7. to 15.2.4.9., renumber as paragraphs 15.2.4.8. to 15.2.4.10.

Paragraphs 15.2.4.9.2. (new), first indent, amend to read:

"15.2.4.9.2. Exterior mirrors (Classes II, III, IV, V, VI **and VII**)"

B. JUSTIFICATION

The text reproduced below was prepared by the expert from the International Organization of Motorcycle Manufacturers (IMMA) in order to incorporate the L-category mirrors and installation requirements into the Regulation.
