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Specification for

Rear marking plates for vehicles

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Foreword

This British Standard has been prepared under the authority of the Automobile Industry Standards Committee of BSI at the request of the Ministry of Transport.

Its purpose is to provide a specification for rear marking plates for vehicles to be used in accordance with the appropriate Regulation in order to give following vehicles adequate warning, both by day and by night, of particular types or lengths of vehicles which might constitute a hazard.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 12, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Amendments issued since publication

Amd. No.	Date	Comments

This British Standard, having been approved by the Automobile Industry Standards Committee, was published under the authority of the Executive Board of the Institution on 30 April 1970

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The following BSI references relate to the work on this standard:
Committee reference AUE/1
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1 Scope

This British Standard specifies requirements for marking plates faced with reflex-reflecting and fluorescent materials for fitting to the rear of certain vehicles and trailers.

The standard includes requirements for colorimetric and photometric properties and tests for certain physical requirements.

2 Definitions

For the purposes of this British Standard the following definitions, together with those given in Appendix A, apply:

2.1

rear marking plate

a rectangular backing plate faced with reflex-reflecting and fluorescent materials and, where appropriate, letters, as prescribed in this specification

NOTE 1 The direct attachment with adhesive of reflex-reflecting and fluorescent materials *only* to the vehicle does not constitute a rear marking plate for the purposes of this British Standard.

2.2

sample unit

a complete rear marking plate, as used

NOTE 2 Photometric units such as lumen (lm), candela (cd), etc., are as defined in BS 233, "Glossary of terms used in illumination and photometry".

3 Design

3.1 Dimensions. Five types of rear marking plates are specified, as shown in Figure 2.

NOTE Except for the mounting position on the vehicle, Types 2 and 3 are identical.

The dimensions of the plates and of the reflex-reflecting and fluorescent areas and the proportions of the letters shall be as prescribed or otherwise authorized in the appropriate Regulation.

3.2 Stiffening. When rear marking plates are to be freely suspended from a vehicle they shall be stiffened either by flanges integral with the plate and forming part of it, or by means of a separate stiffening structure. Such separate stiffening need not be included in the sample unit for the purpose of the bending and corrosion test in Clause 14.

Rear marking plates that have been stiffened shall comply with the requirements of Clause 22.

4 Type test

Representative sample units shall be submitted to an independent testing authority for type testing.

The number of sample units to be selected for testing shall be agreed between the manufacturer and the testing authority but will normally comprise not less than two representative samples of Types 1, 2 or 3, two of Type 4 and two of Type 5. All the sample units submitted shall comply with all the requirements in this standard.

5 Marking

Each rear marking plate shall be permanently and legibly marked, in such a position as to be clearly visible when the marking plate is fitted to the vehicle, with the following information:

- 1) The name, trade mark or other means of identification of the maker.
- 2) The number of this British Standard, i.e. BS AU 152.

NOTE Attention is drawn to certification facilities offered by BSI; see the inside back cover of this standard.

6 Materials

Rear marking plates may be manufactured from any suitable material which shall perform satisfactorily in service and satisfy the requirements of this standard.

7 Preparation and finish of plates

Before the application of the reflex-reflecting and the fluorescent surfaces, the surface of the backing plate shall be free from grease, oil, dirt and any loose or temporary coatings and shall be suitable for and adequate to receive the materials to be applied.

8 Reflex-reflecting and fluorescent surfaces

8.1 Any material may be used for the reflex-reflecting and the fluorescent areas or borders provided that it is applied so as to give the appearance of a continuous surface and that it complies with all the relevant requirements of this standard.

8.2 Where holes are pierced for fixing the rear marking plate to the vehicle or for attaching letters to the marking plate, such holes shall be adequately-protected against any deleterious effect on the applied surface material.

Where, after the marking plate has left the maker's works, it may be pierced with holes which can have a subsequent deleterious effect on the reflex-reflecting or fluorescent material, the marking plate maker shall attach to each plate a label giving adequate instructions for suitably fixing the plate to the vehicle in order to prevent such deleterious effect.

9 Letters and borders

Letters and borders shall be securely attached to the rear marking plate so that they cannot be readily detached therefrom.

10 Adhesive marking plates

Where a rear marking plate is intended to be attached to the vehicle with adhesive, the marking plate maker shall give adequate instructions for the preparation of the surface to which it is to be attached and shall state the materials or surfaces for which the attachment of his marking plate is unsuitable.

11 Colour

11.1 The colour of the reflex-reflecting material, the fluorescent material and the letters shall be as indicated in Figure 2, as appropriate.

11.2 Reflex-reflecting material

11.2.1 When the yellow reflex-reflecting surface is illuminated by CIE Standard Illuminant A¹⁾, with an observation angle of $\frac{1}{3}^\circ$ and an entrance angle $V = \pm 5^\circ$, $H = 0^\circ$, the chromaticity values shall be within the area on the chromaticity diagram defined in Table 1.

The colour shall have chromaticity co-ordinates which lie within the area formed by the straight lines defined by the pairs of points 1 and 2; 2 and 3; 3 and 4; and the spectrum locus.

11.2.2 When the yellow reflex-reflecting surface is illuminated by CIE Standard Illuminant C²⁾ under the condition of normal incidence $\pm 10^\circ$ and viewed at 45° , the luminance factor shall be 29 % min. and 39 % max.

Table 1 — Reflex-reflecting material: chromaticity limits

Colour	Co-ordinate	Chromaticity co-ordinates of points at the corners of the area on the chromaticity diagram			
		1	2	3	4
Yellow	x	0.538	0.520	0.560	0.579
	y	0.460	0.460	0.420	0.420

Table 2 — Fluorescent material: colour limits before and after weathering

Exposure	Dominant wavelength		Excitation purity	Luminance factor	
	Min.	Max.	Min.	Min.	Max.
Unexposed 300 hours' exposure	nm	nm	%	%	%
	610 600	617 —	95 92	31 —	— 60

¹⁾ As defined in the proceedings of the 1951 meeting of the International Commission on Illumination (CIE).

²⁾ As defined in the proceedings of the 1931 meeting of the International Commission on Illumination (CIE).

³⁾ As defined in the proceedings of the 1951 meeting of the International Commission on Illumination (CIE).

⁴⁾ See Road Research Technical Paper No. 42, "Reflex reflectors".

11.3 Fluorescent material. The fluorescent material, when illuminated by CIE Standard Illuminant C²⁾ under the condition of normal incidence $\pm 10^\circ$ and viewed at 45° , shall have a dominant wavelength, purity and luminance factor in accordance with the values given in Table 2.

NOTE The luminance factor includes both the reflected and the fluorescent luminous flux.

11.4 Letters. The letters on the Types 4 and 5 rear marking plates shall be black in colour and when illuminated normally by CIE Standard Illuminant C²⁾ and viewed at 45° they shall have a maximum luminance factor of 5 %.

12 Photometric requirements

The coefficient of luminous intensity (CIL) of the reflex-reflecting surfaces of the marking plate, when illuminated by CIE Standard Illuminant A³⁾, shall be measured for each of the observation angles α and the entrance angles β specified in Table 3.

The CIL at any of the test points in Table 3 at the 2° observation angle shall not exceed 150 cd/lx.

For making the necessary measurements, either of the methods recommended by the CIE or the Road Research Laboratory⁴⁾ for the photometry of reflex-reflecting surfaces shall be used. The normal axis to the plate shall be taken as the H - V direction. The plate shall not be rotated and all measurements shall be made for $\epsilon = 0^\circ$.

The angular subtense values γ and δ shall not exceed $0^\circ 5'$.

NOTE An explanation of the terms and symbols used is given in Appendix A.