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Motorcycles and mopeds — Brake shoes and lining assembly — Specification



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Foreword

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- (a) a member of International Organisation for Standardisation (ISO),
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The work of preparing Uganda Standards is carried out through Technical Committees. A Technical Committee is established to deliberate on standards in a given field or area and consists of key stakeholders including government, academia, consumer groups, private sector and other interested parties.

Draft Uganda Standards adopted by the Technical Committee are widely circulated to stakeholders and the general public for comments. The committee reviews the comments before recommending the draft standards for approval and declaration as Uganda Standards by the National Standards Council.

The committee responsible for this document is Technical Committee UNBS/TC 08, *Transport and communication*.

Motorcycles and mopeds — Brake shoes and lining assembly — Specification

1 Scope

1.1 This Final Draft Uganda Standard specifies requirements and test methods of motorcycle and moped brake shoes and lining assemblies.

1.2 This standard applies to two-wheeled motorcycles and mopeds (hereinafter referred to as motorcycles) using a bonded brake shoe and lining assembly.

1.3 This standard does not apply to brake components and brake lining assemblies for motorcycle racing.

2 Normative references

The following referenced documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ASTM B85/B85M, *Standard specification for aluminium-alloy die-castings*

ISO 8709, *Mopeds — Brakes and brake systems — Tests and measurement methods*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <http://www.iso.org/obp>

3.2

brake shoes

brake part on which brake lining is bonded

3.3

brake lining

frictional material bonded onto the brake shoe

3.5

coefficient of friction

ratio of frictional force (f) to force (F) applied to the test piece

3.6

specified frictional coefficient allowable deviation ($\Delta\mu$)

allowable value of the difference between the actual measured value of the friction coefficient of the brake lining and the specified value of the friction coefficient confirmed by both the supplier and the buyer

3.7

wear rate (τ)

ratio of volume wear (T) to product of friction (f) and friction distance (m)

4 Requirements

4.1 General requirements

4.1.1 The brake shoe assembly shall be manufactured in accordance with the provisions of this standard.

4.1.2 The dimensions and mounting dimensions of the brake shoe assembly shall comply with the requirements of this standard.

4.1.3 If the brake shoes are made by casting, they shall be treated as aging.

4.2 Materials

Aluminium-alloy die-casting for brake shoes shall comply with ASTM B85/B85M

4.3 Surface quality

4.3.1 Brake shoe

4.3.1.1 There shall be no cracks, under-casting and penetrating defects on the surface of the brake shoe and the difference in surface height shall be in accordance with the product drawings (see annex A) or technical documents. The defects allowed on the surface shall comply with the requirements given in Table 1.

Table 1 — Brake shoe surface quality

No.	Defect type	Requirement
i.	Top marks	The recess shall not be more than 0.4 mm. No protrusions shall be allowed.
ii.	Cold partition	Within 5 mm of the edge of the spring hole (including the unfolded length of the defect). Its length shall not be more than 3 mm.
iii.	Colour marks	These shall not exceed 15 % of the surface area.
iv.	Bubbles	The diameter shall not be more than 3 mm. The number shall not be more than one and shall be less than 3 mm from the edge of the casting.
v.	Mesh glitch	The height shall not be more than 0.1 mm.
vi.	Hollow	The depth shall not be more than 0.1 mm.
vii.	Injury	The depth shall not be more than 0.1 mm.

4.3.1.2 The gate, flash, overflow, and partition of the casting shall be cleaned. The depth of damage caused by cleaning the casting (breaking gate and overflow tank) shall not be more than 0.5 mm and the width shall not be more than 0.5 mm.

4.3.2 Brake plate

4.3.2.1 The brake plate shall not have cracks, scratches, bubbles, missing edges, corners, unevenness, distortion, among others that affect performance.

4.3.2.2 The surface of the brake lining shall be free of oil, and the non-adhesive shall be free of residual glue.

4.4 Friction performance

4.4.1 The frictional performance of the brake lining and its allowable deviation and wear rate shall comply with the requirements given in Table 2.

4.4.2 The test piece shall not show cracks and protruding defects after the test.

Table 2 — Friction performance

Parameter	Requirement				
	100	150	200	250	300
Test temperature ^a , °C	100	150	200	250	300
Coefficient of friction ^b , μ	0.30 - 0.60	0.30 - 0.60	0.30 - 0.60	0.25 - 0.60	0.25 - 0.60
Specified friction coefficient allowable deviation, $\Delta\mu$	± 0.08	± 0.10	± 0.10	± 0.10	± 0.12
Wear rate ^c , γ , 10 cm ² /(N.m)	0.00 - 0.50	0.00 - 0.50	0.00 - 0.70	0.00 - 1.20	0.00 - 1.50
^a temperature of the frictional surface of the test machine disc. ^b the range includes the allowable deviation experiments. ^c Only for the brake lining assembly					

4.5 Bonding requirements

4.5.1 After the brake lining is bonded onto the brake shoe, the circumferential displacements shall not be more than 1.5 mm. The two sides of the brake lining shall not be more than 0.3 mm above (or below) the brake shoe.

4.5.2 The brake lining bonded onto the brake shoe shall be tight and firm with no cracks or brake linings falling off. The bonding area shall not be less than 80 %.

4.6 Strength

The bond shear strength between the brake lining and the brake shoe shall not be more than $3.5 \text{ N/m}^2 \times 10^6 \text{ N/m}^2$.

5 Test methods

5.1 Dimensions

The dimensions and installation dimensions of the brake shoe assembly shall be checked using inspection tools and measuring tools.

5.2 Surface quality and marking

The surface quality shall be determined by visual inspection and measurements by calibrated instruments.

5.3 Friction performance

Brake linings friction performance shall be determined in accordance with ISO 8709.

5.4 Bonding requirements

The circumferential and height difference after bonding shall be measured using calibrated equipment.

5.5 Strength

Brake lining bonding shear strength shall be determined in accordance with ISO 8709.

6 Storage

6.1 The storage of brake shoe assembly shall not cause damage or contamination on the outer surfaces.

6.2 Under normal storage conditions, the brake shoe assembly shall not be corroded.

7 Transport

During the transportation and handling process, the brake shoe assembly shall not be damaged and contaminated by oil and water.

8 Packaging

8.1 Before packaging, the brake shoe assembly shall be cleaned, and the surface of the inserted material shall be made rustproof.

8.2 The brake shoe assembly shall be tightly packed into a dry, rugged package (box).

8.3 The brake shoe assembly and brake lining assembly of the same model size shall be installed in each package (box). A pair of paired brake shoe assemblies and brake lining assemblies shall also be loaded when desired by the user.

8.4 When the pairing process is used to manufacture the outer working surface of the brake shoe assembly, it shall be packaged according to the same batch.

9 Marking

9.1 The manufacturer's name (code) or trademark, (or other mark agreed upon by the supplier and the buyer) shall be legibly and indelibly marked on the working surface of the brake shoe assembly.

9.2 The following specific labelling requirements shall be legibly and indelibly marked on the package:

- a) product name;
- b) model specification;
- c) manufacturer's name and/or trademark;
- d) manufacturer's address; and
- e) standard number (US 2174).

Annex A
(normative)

Brake shoe assembly technical drawings

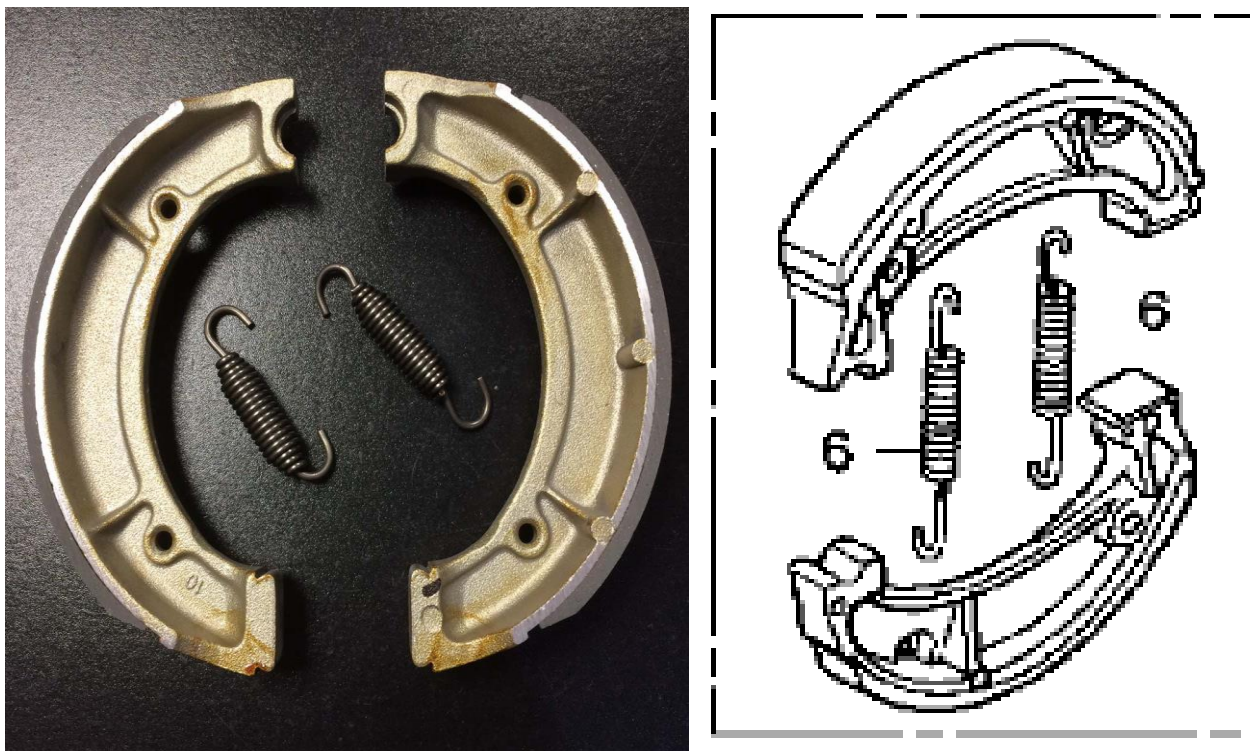


Figure A.1 — Technical drawings of brake shoe assemblies

Bibliography

QC/T226-2014, *Specification of brake shoes assembly and brake lining assembly for motorcycles and mopeds*

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