SRI LANKA STANDARD 889 : 1990

UDC 628.463:678.5

SPECIFICATION FOR

MOULDED THERMOPLASTIC BINS

SRI LANKA STANDARDS INSTITUTION

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SLS 889 : 1990

Gr. 9

SRI LANKA STANDARDS INSTITUTION
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Colombo 3,
Sri Lanka.

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on Plastics Household ware

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Sri Lanka Standards are subject to periodical revision in order to accommodate the progress made by industry. Suggestions for improvement will be recorded and brought to the notice of the committees to which the revisions are entrusted.

This standard does not purport to include all the necessary provisions of a contract.

SRI LANKA STANDARD
SPECIFICATION FOR MOULDED THERMOPLASTIC BINS

FOREWORD

This Sri Lanka Standard was authorized for adoption and publication by the Council of the Sri Lanka Standards Institution on 1990-09-24, after the draft, finalized by the Drafting Committee on Plastics Household Ware had been approved by the Chemicals Divisional Committee.

Clauses 3.11 and 4.1 of this specification call for agreement between the purchaser and the supplier.

For the purpose of deciding whether a particular requirement of this specification is complied with, the final value, observed or calculated, expressing the result of a test or an analysis shall be rounded off in accordance with CS 102. The number of significant places retained in the rounded off value should be the same as that of the specified value in this specification.

In the preparation of this specification, the assistance obtained from the publications of the Standards Association of Australia and the British Standards Institution is gratefully acknowledged.

1 SCOPE

1.1 This specification prescribes the requirements and methods of sampling and test for moulded thermoplastic bins, of capacity not more than 100 litres intended for general use.

1.2 The bins are not intended for food contact applications.

2 REFERENCES

ISO	4582	Plastics - Determination of changes in colour and variations in properties.
ISO	4600	Plastics - Determination of environmental stress cracking (ESC).
ISO	4892	Plastics - Methods of exposure to laboratory light sources.
CS	102	Presentation of numerical values.
SLS	428	Random sampling methods.
SLS	732	Tests for plastics Part 1 : Qualitative evaluation of bleeding of colourant
SLS	871	Code for use of plastic materials for food contact applications. Part 1 : General guidelines for manufacture.

3 REQUIREMENTS

3.1 Material

3.1.1 The bin shall be manufactured from a formulated and compounded thermoplastics material with or without rework material.

3.1.2 Additives may be used as processing aids or to improve the material properties. Additives may also be used as ultraviolet light stabilizers to ensure satisfactory protection against exposure to the environment within 0^{0} to 40 ^{o}C.

3.2 Construction and workmanship

3.2.1 *Body*

3.2.1.1. All surfaces of the bin shall be smooth and free from scratch marks, mould injury, flow marks or any visible foreign material and visible deformation. Bin shall also be free from moulding flash. Any sprue (stalk) shall be neatly removed by milling or cutting.

3.2.1.2 The side walls of the bin shall taper from top to bottom. The taper and the position of the handles shall be such that, when one bin is stored inside another, the degree of nesting shall be not less than half the height of a bin.

3.2.1.3 The internal form and surface of the bin shall be such that it will not trap the contents when bin is being emptied.

3.2.2 *Body handles*

3.2.2.1 Each bin shall be fitted with two diametrically opposite body handles situated above the centre of gravity of the empty bin.

3.2.2.2 The body handles shall be made from metal, thermoset material or thermoplastic material complying to 3.1.

Metal handles and any associated fastenings shall be protected from corrosion, and shall be free from pitting.

3.2.2.3 Each body handle shall be shaped so as to give a hand hold.

3.2.2.4 The gripping part of the handles shall have no sharp corners or edges.

3.2.3 *Base*

The base may have a projection or indentation positioned vertically below each body handle, which shall provide a finger grip.

NOTE
A suitable finger grip may be provided by means of raised cross hatching or radial ribs.

3.2.4 *Lid*

The lid shall fit well with the main body and shall be capable of being removed readily by hand.

3.3 Odour

The bin shall be free from any objectionable odour when tested in accordance with Appendix A.

3.4 **Colour fastness**

3.4.1 *Colour bleeding*

There shall be no staining or marking of the filter paper and the polyvinyl chloride sheet when examined in accordance with **SLS 732 : Part 1.**

3.4.2 *Colour fastness to water*

When tested in accordance with Appendix B the water shall be free from any colour.

3.4.3 *Light fastness*

3.4.3.1 The change in colour when determined visually as prescribed in 3.1 of **ISO 4582 : 1980,** after exposure to a laboratory light source for 150 hours as prescribed in **5.1.3** of **ISO 4892 : 1981,** shall be not less than Grade 4 of the Grey scale.

3.4.3.2 There shall also be no visible changes of appearance when examined as prescribed in **3.2** of **ISO 4582 : 1980.**

3.5 Capacity

The capacity of the bin shall be not more than 100 litres when it is filled to the brim.

3.6 Mass

The mass of the bin shall be not more than 5 kg.

3.7 Bottom thickness

The bottom thickness of the bin shall be not less than 2.5 mm.

3.8 Strength of handles

There shall be no visible weakening of the attachments and no permanent distortion or splitting to the main body of the bin when tested in accordance with Appendix D.

3.9 Impact strength

3.9.1 *Impact strength of the base*

The bin shall not show splitting, puncture or permanent distortion when tested in accordance with Appendix E.

3.9.2 *Impact strength of the side wall*

The bin shall not show splitting, puncture or permanent distortion when tested in accordance with Appendix F

3.10 Deformation resistance

The distortion of the bin mouth shall not exceed 9 percent when tested in accordance with Appendix G.

3.11 Environmental stress crack resistance

The failure limit of the product when tested in accordance with the method A or method B in ISO 4600 :1981 shall be as agreed to between the purchaser and the supplier.

4 PACKAGING AND MARKING

4.1 Packaging

The bins shall be packed as agreed to between the purchaser and the supplier.

4.2 Marking

Each bin shall be marked or labelled legibly and indelibly with the following:

a) Name and address of the manufacturer and/or distributor (including the country of origin);
b) Registered trade mark, if any;
c) Batch or code number ; and
d) The capacity of the bin.

NOTE

Attention is drawn to the certification facilities offered by the Sri Lanka Standards Institution. See the inside back cover of this specification.

5 SAMPLING

5.1 Lot

In any consignment all the bins manufactured from same material and belonging to one batch of manufacture or supply shall constitute a lot.

5.2 Scale of sampling

5.2.1 Samples shall be tested from each lot for ascertaining the conformity of the lot to the requirements of this specification.

5.2.2 The number of bins to be selected from a lot shall be in accordance with Table. 1

TABLE 1 - Scale of sampling

Number of bins in the lot (1)	Number of bins to be selected (2)	Size of the Sub sample (3)	Acceptance number (4)
Up to 90	5	3	0
91 to 150	8	4	1
151 to 280	13	6	1
281 to 500	20	8	2
501 and above	32	10	3

5.2.3 The bins shall be selected at random. In order to ensure randomness of selection tables of random numbers as given in SLS 428 shall be used.

5.3 Number of tests

5.3.1 Each bin selected as in 5.2.2 shall be examined for the requirements given in 3.2 and 4.

5.3.2 Each bin selected as in 5.2.2 shall be examined for the requirements given in 3.3, 3.5, 3.6 and 3.7.

5.3.3 A sub sample of size as given in Column 3 of the Table 1 shall be selected from the bins examined as in 5.3.2 and shall be tested individually for the requirements given in 3.8, 3.9 and 3.10.

5.3.4 The bins tested as in 5.3.3 shall be tested individually for the requirements given in 3.4 and 3.11.

NOTE
Tests for the requirement given 3.11 shall be carried out only if requested.

6 METHODS OF TEST

Tests shall be carried out as prescribed in ISO 4582, ISO 4600, ISO 4892, SLS 732 and Appendices A to G of this specification.

7 CRITERIA FOR CONFORMITY

A lot shall be declared as confirming to the requirements of this specification if the following conditions are satisfied:

7.1 Each bin examined as in 5.3.1 satisfies the relevant requirements.

7.2 The number of bins not conforming to one or more requirements when tested as in 5.3.2 is less than or equal to the corresponding acceptance number given in Column 3 of the Table 1.

7.3 Each bin tested as in 5.3.3 and 5.3.4 satisfies the relevant requirements.

APPENDIX A
TEST FOR ODOUR

Pour water at 60 °C until the bin is filled to a level of 25 mm from the rim and maintain the temperature for 30 minutes. Then remove the water from the bin and check the water for any objectionable odour.

APPENDIX B
TEST FOR COLOUR FASTNESS TO WATER

Cut a small piece of the material from a sheet prepared as in 6.2 of SLS 732 : Part 1: 1985 and place it in a 100 ml beaker. Immerse the specimen in approximately ten times its mass of distilled water. Keep in an oven maintained at 70 $\pm$ 1 °C for 24 $\pm$ 1 hours.
Remove the specimen and hold the beaker against a sheet of white paper. Check for any colour in water.

APPENDIX C
TEST RIG

The general layout of the test rig shall be as shown in Figures 1,2,3 and 4. Prepare test loads consisting of free flowing solid material of bulk density between 400 kg/m and 480 kg/m according to the equation given below:

Test load (kg) = Brimful capacity (m^3) x 335

NOTE

The test load can conveniently consist of plastics granules contain in a polyethylene bag to prevent spillage from the bin.

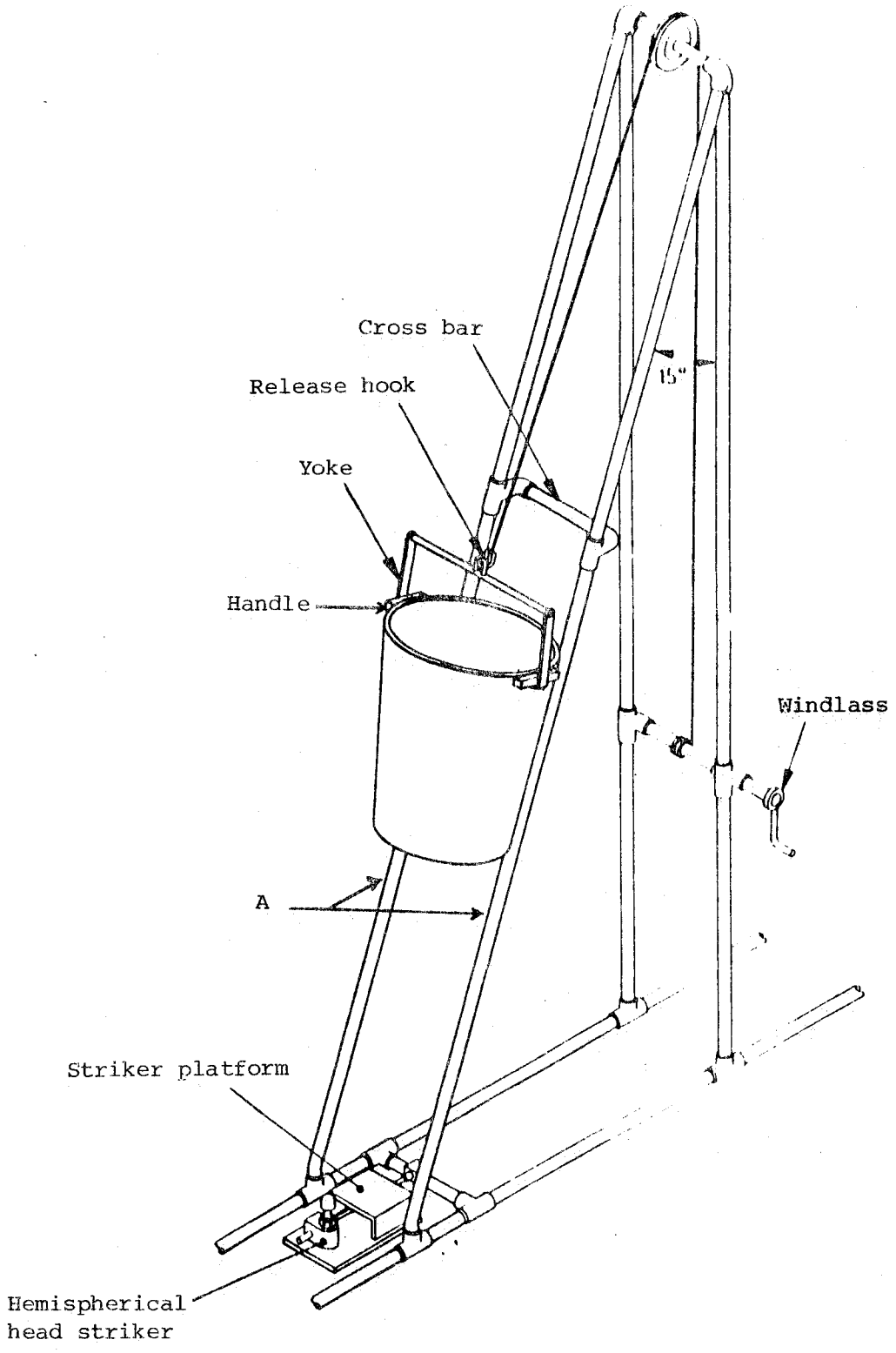
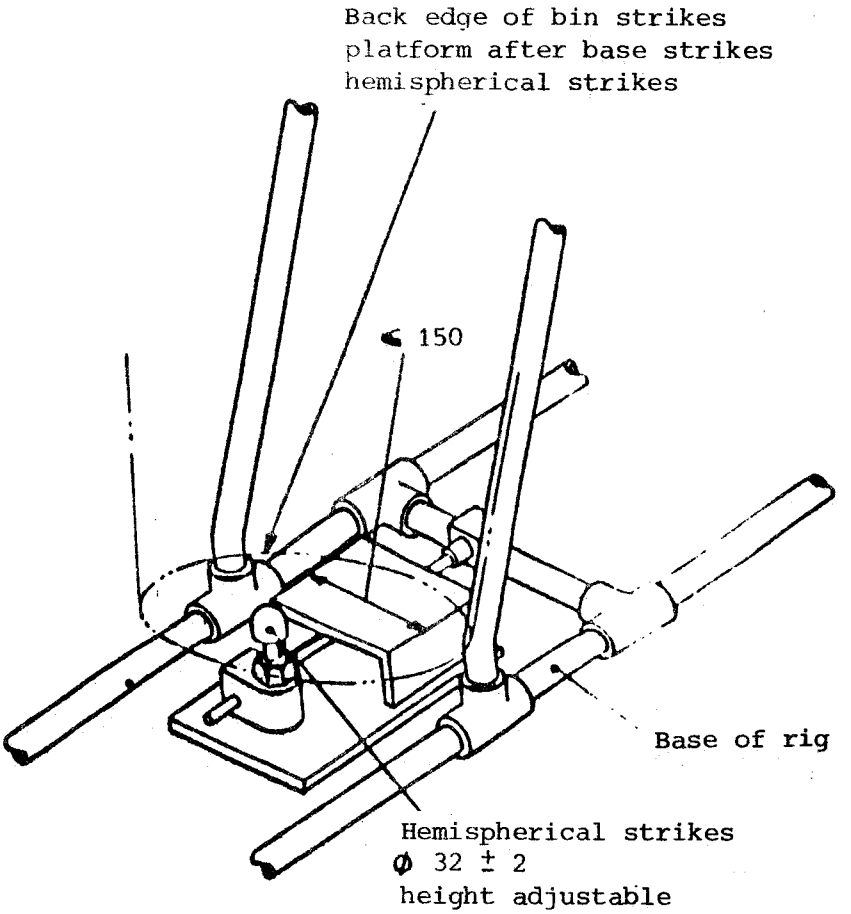


FIGURE 1 - General layout of bin test rig



(All dimensions in millimetres)

FIGURE 2 - Striker base

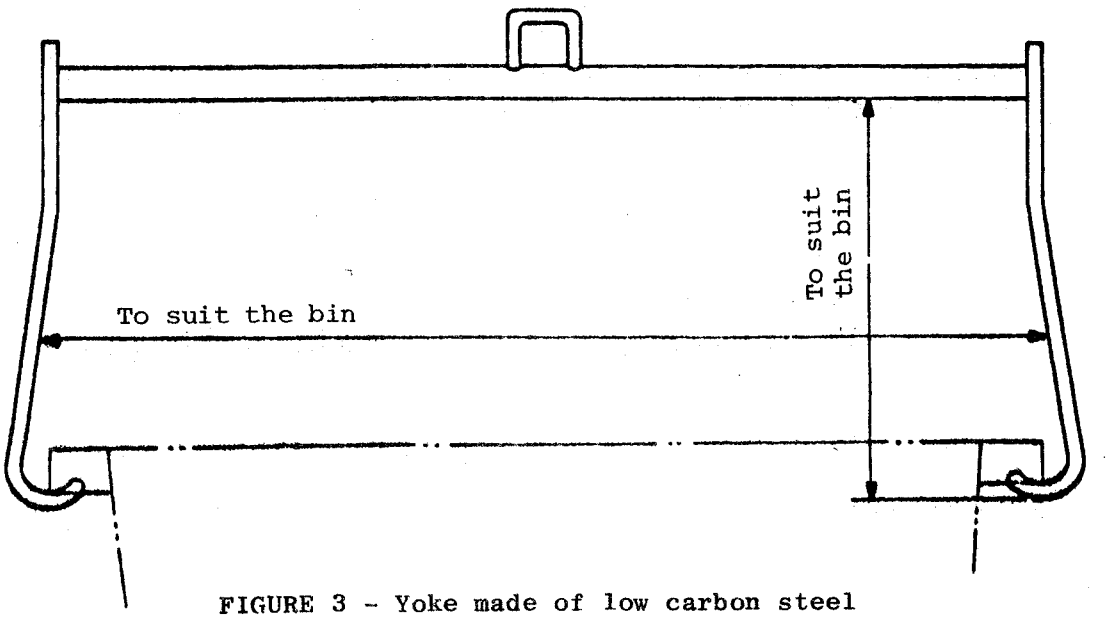


FIGURE 3 - Yoke made of low carbon steel

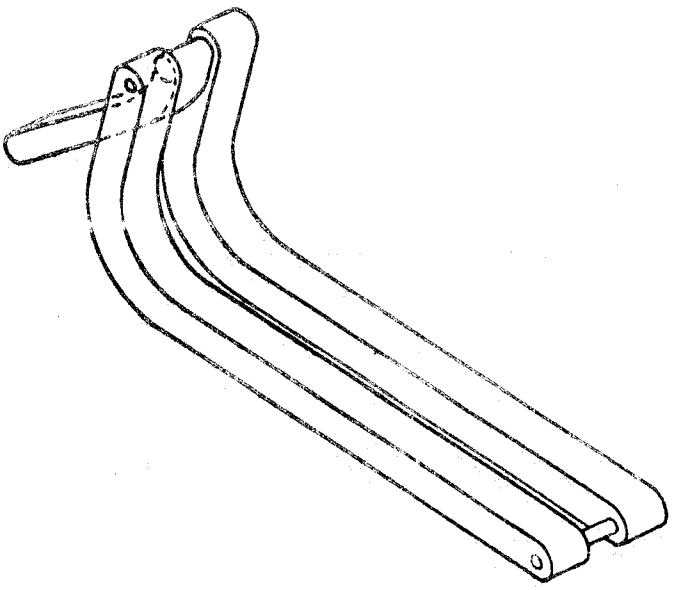


FIGURE 4 - Release hook

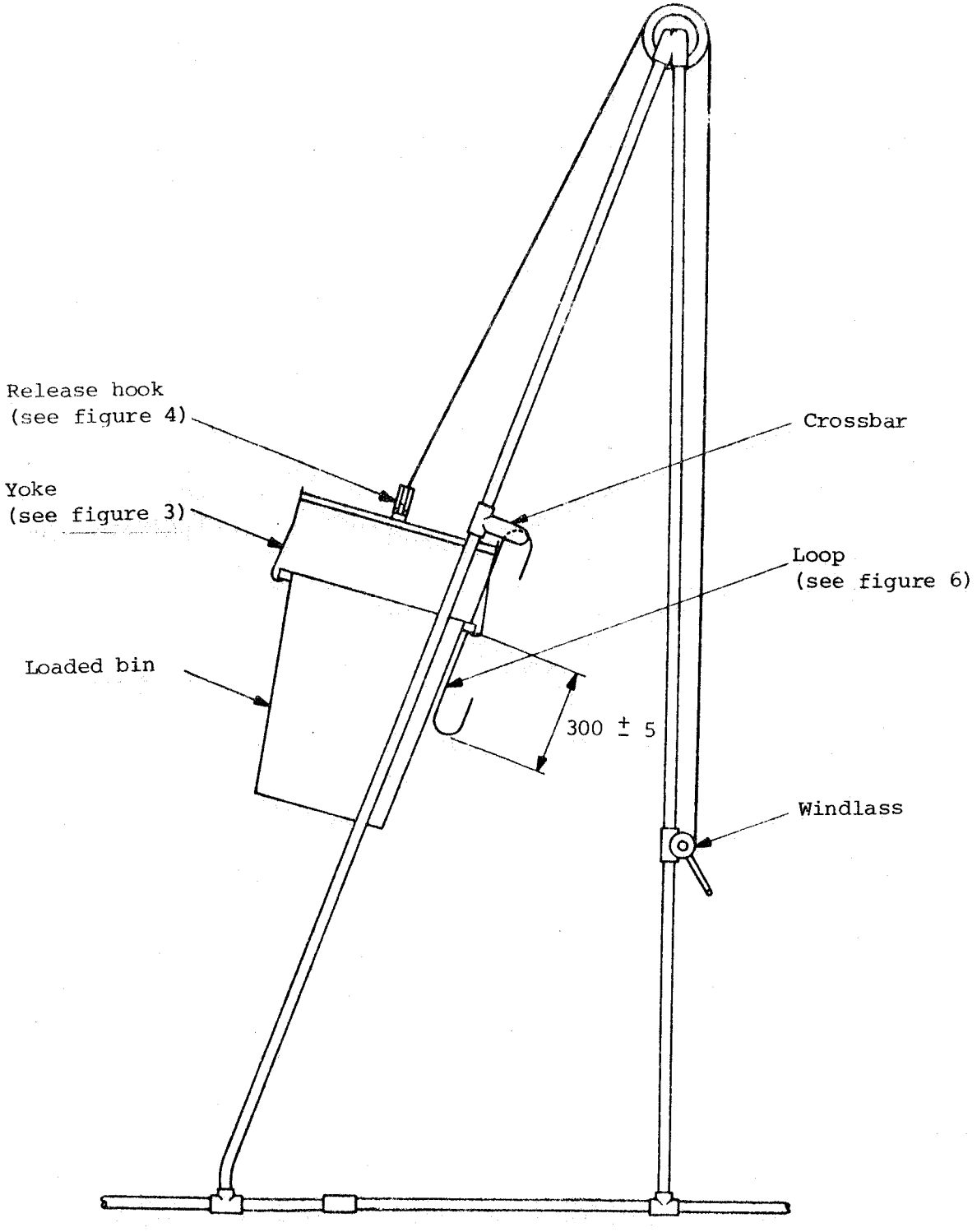
APPENDIX D
TEST FOR STRENGTH OF HANDLES

Set up the test rig as described in Appendix C and as shown in Figures 5 and 6. Fill the bin with half the stipulated test load in Appendix C. Put the loop (see Figure 6) through the hole in one handle (see note) on the crossbar; attach the yoke to the bin. Raise the bin so that there is 300 $\pm$ 5 mm of slack on the loop (see Figure 5). Release the bin using the release hook.

NOTE

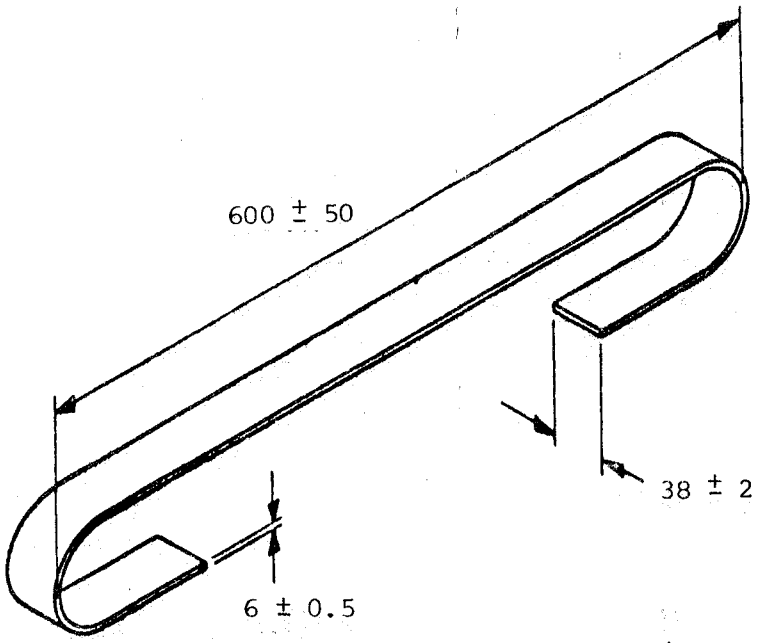
If a hole is not available in the handle suitable mechanism of proper holding should be provided.

Examine the handle and body of the bin for damage. Repeat the test with the other handle.



(All dimensions in millimetres)

FIGURE 5 - Arrangement for handle test



(All dimensions in millimetres)

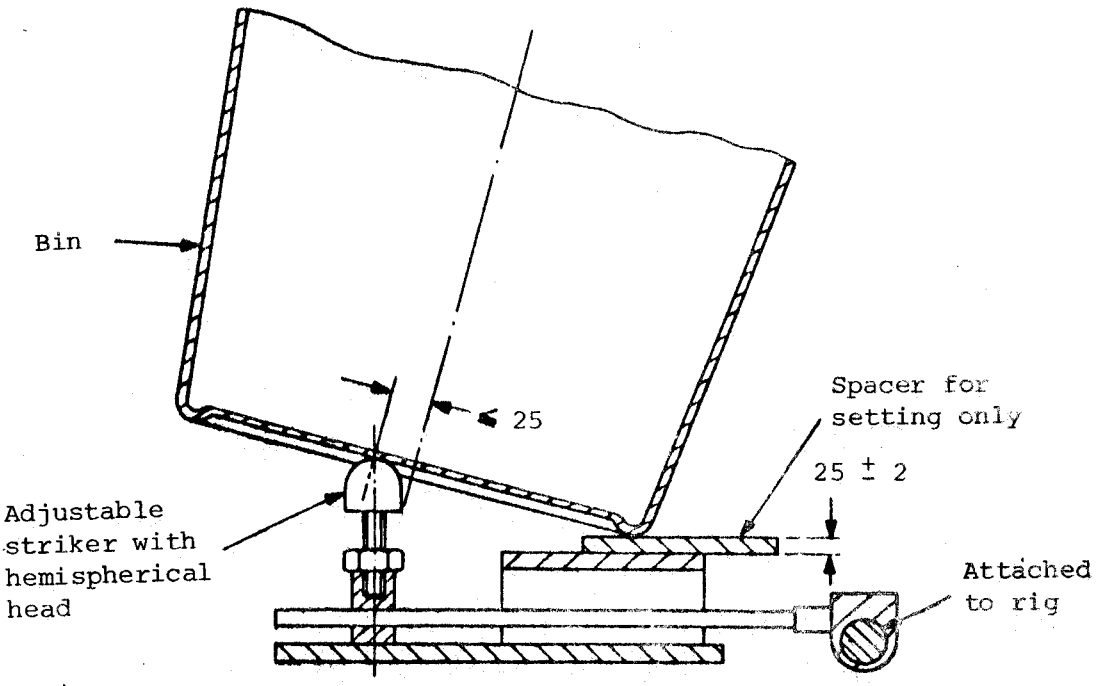
FIGURE 6 - Loop for handle made from low carbon steel

APPENDIX E
TEST FOR IMPACT STRENGTH OF THE BASE

Condition the bin at room temperature for at least 2 hours prior to testing.

Set up the test rig described in Appendix C as shown in Figure 7. Attach the yoke to the bin containing the appropriate test load distributed throughout a minimum of 50 percent of the bin capacity. Lower the bin until the base rim rests on the spacer (see Figure 7). Adjust the position of the striker so that it touches the base within a radius of 25 mm from the centre. Raise the bin along the guide bars A 450 ± 5 mm above the striker. Remove the spacer and release the bin.

Examine the bin for damage.



(All dimensions in millimetres)

FIGURE 7 - Setting position for base impact

APPENDIX F
TEST FOR IMPACT STRENGTH OF THE SIDE WALL

Condition the bin at room temperature for at least 2 hours prior to testing.

Place the bin on its side. Mark the side wall surface of the bin at a point 100 ± 5 mm from the rim of the bin. Drop a striker having a mass of 2.7 ± 0.2 kg with a hemispherical striking surface of 25 ±2 mm radius, from a height of 300 ± 5 cm above the marked point.

Examine the bin for damage.

APPENDIX G
TEST FOR DEFORMATION RESISTANCE

Condition the bin at room temperature for at least 2 hours prior to testing.

Suspend the bin by one of its body handles from a hook or by other suitable means. Measure the distance across the mouth of the bin along an axis running through the handles.

Suspend a 4.0 $\pm$ 0.2 kg weight from the other handle of the bin. Remeasure the above distance after 60 $\pm$ 5 seconds.

Calculate the percentage distortion of the bin mouth.

SRI LANKA STANDARDS INSTITUTION

The Sri Lanka Standards Institution (SLSI) is the National Standards Organization of Sri Lanka established under the Sri Lanka Standards Institution Act No. 6 of 1984 which repealed and replaced the Bureau of Ceylon Standards Act No. 38 of 1964. The Institution functions under the Ministry of Science & Technology.

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The development and formulation of National Standards is carried out by Technical Experts and representatives of other interest groups, assisted by the permanent officers of the Institution. These Technical Committees are appointed under the purview of the Sectoral Committees which in turn are appointed by the Council. The Sectoral Committees give the final Technical approval for the Draft National Standards prior to the approval by the Council of the SLSI.

All members of the Technical and Sectoral Committees render their services in an honorary capacity. In this process the Institution endeavours to ensure adequate representation of all view points.

In the International field the Institution represents Sri Lanka in the International Organization for Standardization (ISO), and participates in such fields of standardization as are of special interest to Sri Lanka.

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