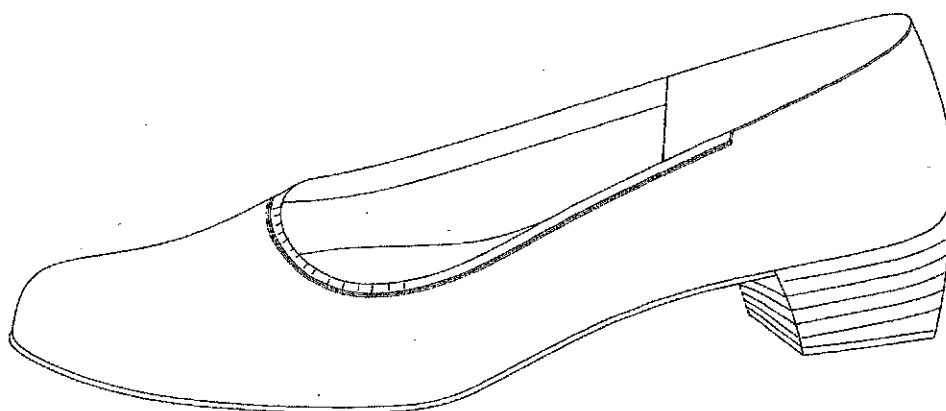


PRODUCT SPECIFICATION

Prepared for the

SOUTH AFRICAN ARMY

Shoes, Women, Service Dress, Court
Elasticated Top-line



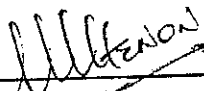
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APPROVAL PAGE

Compiled by: Dick Whittington Shoes



DWS Representative

July 2014

Date

Accepted by:




Armscor Quality Department
General Commodities

2014/08/06

Date

Recommended by:




Project Manager Clothing Systems
Soldier Support
Armscor

2014/08/06

Date

Approved by:




SSO: General Commodities
SA Army

07/08/2014

Date

Approved by:



User System Representative
SA Army

07/08/2014

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AMENDMENT HISTORY

DOC ISSUE	DATE	AMENDMENTS	DOC CHANGE PROPOSAL NO.	CHECKED	
				NAME	INIT.
001	24 July 2014	First Release	N/A	J. Billingham	

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1. Scope

This specification covers the performance, design, manufacture, test and acceptance requirements of Court Shoes for use by female personnel of the South African Army.

The following requirements will be specified in tender invitations and in each order or contract:

- ♦ The size(s) and fitting(s) refer 8.2 and table 7
- ♦ The packing, if other than a specified (refer 11.1)

Special conditions of tender (that cover the conditions of acceptance of the shoes) are given in Annex A. Annex A forms an integral part of this specification

2. Definitions and Abbreviations

For the purpose of this specification, the following definitions shall apply:

acceptable: acceptable to the SA Army and/or the Procurement Authority

batch: A quantity of shoes manufactured at one time, covered by one work ticket and recorded on the product for traceability

bovine leather: A tanned skin from a bovine animal of area not exceeding 213dm² with a soft supple feel

defective: A pair of shoes that an inspection is judged to have a major fault that is likely to cause shoes to fail in wear, or a pair of shoes that is unsightly to the extent that it is unsuitable for issue.

FIFO: first in, first out (stock issuing approach)

heel height: The height, in millimetres, of the heel on a finished shoe, measured along a vertical line at the center of the back of the heel

inorganic tanned leather: Leather tanned with an inorganic tanning agent (or agents) and that may have been retanned with an organic tanning agent (or agents)

lot: A consignment of finished shoes presented for inspection at one time, intended despatch to one destination

nominal: subject to the tolerances normal to good manufacturing practice

NSN: National Stock Number

product: Shoes Court are general purpose footwear for use by personnel on base and off duty.

roughened: Descriptive of a material that has had its original surface removed using a sharp wire brush or an abrasive paper with a grit that avoids burning the surface of the material, and in the case of leather, has had its entire grain surface (when relevant) removed and the fibres raised without impairing the strength of the leather.

SANS: South African National Standard

TPU: Thermo Polyurethane

3. Applicable Documents

The following documents contain provisions which, through reference in this text, constitute provisions of this specification. All documents are subject to revision and, since any reference to a document is deemed to be a reference to the latest edition of that document, parties to agreements based on this specification are encouraged to take steps to ensure the use of the most recent editions of the documents indicated below. Information on currently valid national, international and CKS documents may be obtained from the South African Bureau of Standards*.

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BS 5131 – 1-1.2, Methods of test for footwear and footwear materials – Part 1: Adhesives – Section 1.2: Resistance of adhesive joints to peeling.

05181-100-209, Corrugated Board Boxes for Clothing and Footwear.

CKS 129, Colour for Textiles

SANS 1362, Sewing Threads.

SANS 1437, Footwear soling material and footwear sole and heel components of rubber and plastics.

SANS 1091, National Colour Standard for Paint

SANS 579, Textiles, Mass per unit area of conditioned textile fabric.

SANS 5616, Preparation of samples (leather, elastomeric material and other footwear materials).

SANS 5626, Leather or footwear components – pH value and difference figure of an aqueous extract.

SANS 5635, Shrinkage temperature of leather.

SANS 5636, Determination of (a) tensile strength, (b) percentage elongation caused by a specified force, (c) percentage elongation at break of leather.

SANS 5640, Determination of flex resistance (leather fibreboard and cellulose fibreboard inner soles).

SANS 5642, Determination of water absorption of inner soles an inner sole.

SANS 5647, Leather, footwear upper and lining materials – Flex endurance.

SANS 5649, Determination of density of elastomeric material.

SANS 5650, Determination of hardness of elastomeric material.

SANS 5962, Determination of wet split tear strength of inner sole and runner materials (other than leather).

SANS 6111, Accumulated impact strength of steel shanks.

SANS 6112, Bending modules of steel shanks for footwear.

SANS 6113, Resilience of steel shanks for footwear.

SANS 6117, Moisture stability of insole boards and shank boards for footwear.

SANS 6191, Leather – Adhesion of finish

SANS 6212, Leather and fiberboard, measurement of thickness.

SANS 6213, Leather boards or fiberboards – Collapsing load of molded shapes.

SANS 6215, Abrasion resistance of footwear components (Martindale)

SANS 6233, Footwear – Toe-puff and stiffener material – shape retention.

*Standards South Africa: Tel. +27 (0) 12 4287911

4. Style

The style of the womens court shoes is as follows:

- ◆ Plain vamp ¾ cut ladies court shoes with a medium heel and round toe shape.
- ◆ The topline shall be folded and stitched with one row of stitching around the back part of the shoes. The forepart of the topline shall have an elasticated leather strip which will be attached by a twin row of stitching.
- ◆ The shoe will have a closed back seam.
- ◆ The lining will be a woven nylon material (skinfit) with an open cell foam backer. The counter will be lined with a non woven heelgrip material.
- ◆ The socking material shall be a PU coated non woven material backed with a 3mm +/- 0.50mm latex closed cell foam.
- ◆ The sole shall be a pre moulded TPU sole with an acceptable thread pattern.
- ◆ The heel shall be a knock on heel.
- ◆ The top-piece shall be of TPU.

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5. Illustrations

Illustrations are not to scale and are for guidance only.

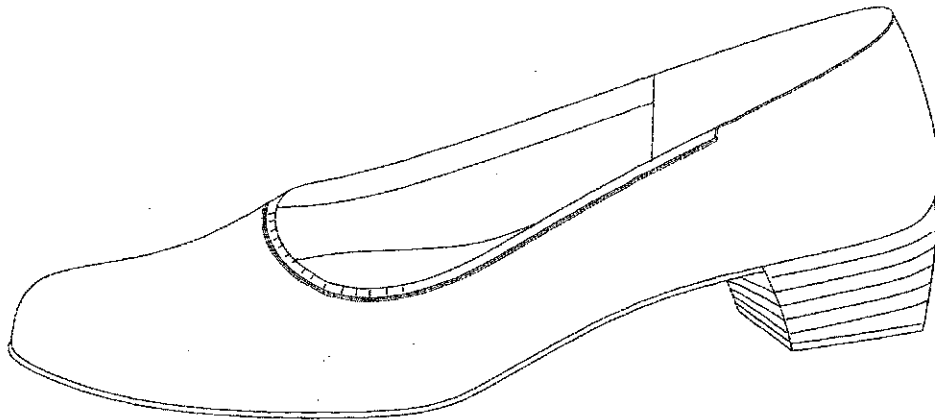


Figure 1 - Side view of Shoe

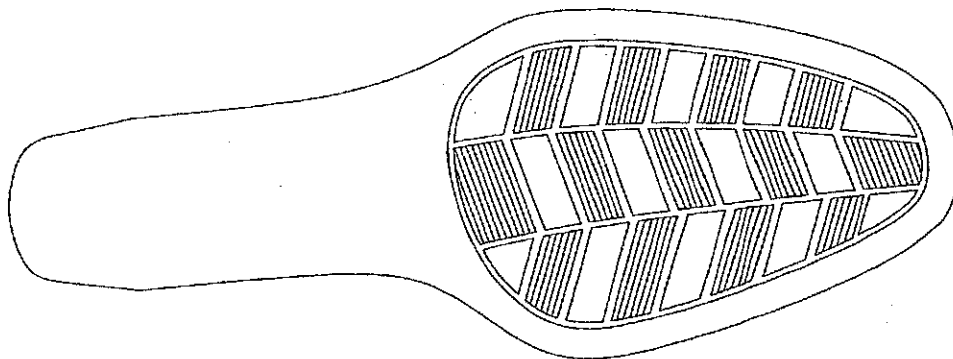


Figure 2 - Tread pattern of outer-sole

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6. Client Furnished Materials

No materials will be supplied by the South African Army.

7. Component Materials

7.1 Upper material and components

7.1.1 Upper Leather

The leather used for the uppers shall:

- ◆ be of bovine leather.
- ◆ be so treated as to produce a soft supple mellow feel.
- ◆ be free from defects that affect its appearance or can affect its serviceability (or both), shall not be pipy, loose grained, hard or bony and shall be well fleshed and free from flay marks.

7.1.1.1 Colour

The colour of the leather shall be Black to Colour No:340C "Jet Black" of CKS 129 "Colour for Textiles", or Brown to Colour No:B01 "Military Brown" of SANS 1091 "National Colour Standard for Paint". The contract/tender will indicate the colour, however if not stipulated the colour is to be confirmed by the tenderer

Note: Colour difference has been defined by referring to the international geometric Grey Scale for the assessment of change in colour. It is accepted that this is not a perfect method. The SABS uses a readily available colour difference meter and will, on request, give the values that are used in work on that instrument. It would be preferable to carry out inter-laboratory tests to obtain a correlation between the results given by the different instruments in use.

7.1.1.2 Physical and chemical requirements for bovine leather

When tested in accordance with the relevant methods given in column 3 of table 1, bovine leather shall comply with the requirements given in column 2 of table 1

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Table 1 - Physical and chemical requirements for bovine leather

1 Property	2 Requirement	3 Test method
Shrinkage temperature, °C, min.....	100	SANS method 5635
Extractable matter content (on a moisture-free basis), %.....	3,0 – 8,0	SANS method 5617 ¹ SANS method 5618
pH value	3,3	SANS method 626 ²
Difference between pH values, max	0,7	
Sulphated ash of water-soluble matter (on a moisture-free and extractable-matter free basis), % max.....	1,7	SANS method 5620
Resistance to wet rubbing, grain side	4	SANS method 6080
Permissible colour change, rating min.....		SANS method 6191
Adhesion of finish, N, min.	3,5	
Dry.....	2,0	
Wet.....		SANS method 5647
Flex endurance (flexometer)	Only fine cracks in the finish are permitted	
After 10 000 cycles		
After 30 000 cycles	Neither the width nor the depth of these cracks shall have increased appreciably and there shall be no sign of flaking or separating of the finish	
Tensile strength, MPa, min.....	10	SANS method 5636
Distension, mm, min	6,5	
At finish crack	7,0	SANS method 5689 ³
At grain crack		

- 1) Use SANS method 618, but express the results on a volatile matter-free basis, using SANS method 5617 to determine the volatile percentage.
2) Record the first pH value and also the difference between the two measured pH values.
3) Report the distension at finish crack and at grain crack

7.1.2 Lining Material

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7.1.2.1 Vamp and quarter lining material

The vamp lining shall be a woven nylon material with an open cell foam backer.

7.1.3 Toe Puffs and Stiffeners

When tested in accordance with the relevant methods given in Column 4 of table 2, toe puffs and stiffeners shall comply with the requirements given in columns 2 and 3 of table 2 respectively.

Toe puffs shall be thin enough to avoid a print-through effect on the finished shoe

Table 2 - Requirements for toe-puffs and stiffeners

1 Property	2 Requirement		4 Test method
	Toe-puffs	Stiffeners	
First collapsing load, N, min.....	30-80	80-130	SANS 6213 ¹
Resilience, %, min.....	50	40	SANS 6214 ¹
Moisture resistance, %, in.....	65	60	SANS method
Area shape retention Initial, %.....	60	70	SANS 6233
After 10 collapses, %, min	50	60	BS 5131-1-1-2
Peel strength, N/cm, min.....	5,0	6,0	
Dry.....	3,0	-	
Wet.....			

¹⁾ Report the first collapsing load and the percentage resilience. Calculate the percentage resistance using formula.

7.1.4 Threads

The threads used for attaching the various upper components shall:

- ♦ comply with the requirements of SANS 1362
- ♦ be a continuous filament polyester thread, ticket No: 50.
- ♦ be of a colour that matches the upper material colour.

7.2 Bottom Materials and Components

7.2.1 Inner soles

The innersole shall:

- ♦ be of cellulose fibreboard with a minimum thickness of 1,50mm +/- 0,25mm
- ♦ be a unishank construction with a 2.5mm shank board
- ♦ comply with the requirements given in column 2 of table 3 when tested in accordance with the relevant methods given in column 3 of table 3

Table 3 - Requirements of cellulose fibreboard inner sole and foam

1			2	3
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Property	Requirement	Test method
Cellulose fiberboard		
Water absorption, g/25 cm ² , min.....	0,40	SANS method 5642
pH value, min.....	3,3	SANS method 5626 ¹⁾
Difference figure, max.....	0,7	
Wet stitch tear strength, N/mm of thickness, min.....	40	SANS method 5633
Flex endurance, cycles, min	3 000	SANS method 640
Wet split tear strength, N/mm of thickness, min.....	0,20	SANS method 5962
¹⁾ Record the first pH value and also the difference between the two measured pH values		

7.2.2 Outer soles

The outer soles shall:

- ♦ be a pre moulded TPU sole (see figure 2)
- ♦ be Black of thickness which complies with the requirements given in column 2 of table 4, when tested in accordance with the relevant methods given in column 3 of table 4

Table 4 - Requirements of Outer sole

1 Property	2 Requirement	3 Test method
Thickness mm, min.... +/- 0.20.....	3.5	SANS method 6212
Toe area.....	3.25	
Forepart area between cleats.....	2.5	
Including cleats.....	SOLID	
Heel strike area.....		
Shore A Hardness.....	7.5	

7.2.3 Shanks

Shanks shall be made of steel, of thickness at least 1,0 mm, and of width at least 9.0 mm. When tested in accordance with the relevant methods given in column 3 of table 5, shanks shall comply with the requirements given in column 2 of table 5.

Table 5 - Requirements for steel shanks

1 Property	2 Requirement	3 Test method
Accumulated impact strength, J, min.....	40	SANS method 6111
Bending modulus, N, min.....	700	SANS method 6112
Resilience, %, min.....	80	SANS method 6113

7.2.4 Bottom filler

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The bottom filler shall:

- ♦ be a felt of thickness 3,0mm +/- 0,3mm and
- ♦ comply with the requirements given in column 2 of table 6 when tested in accordance with the relevant methods given column 3 of table 6

Table 6 – Requirements for felt bottom filler

1	2	3
Property	Requirement	Test method
Mass per unit area (free from non-fibrous material, g/m ² , min	490	SANS 579
Non-fibrous material content, %, max.....	3.4	SANS 5113

7.2.5 Inner sole socks

Inner sole socks shall be a full socks of the material specified in Section 4 and shall be laminated to a latex close cell foam material of substance 3.0mm ±0.50mm

7.2.6 Heels

Heels shall be a knock on heel of height 30mm with a TPU top-piece

8. Construction

8.1 General

The general construction requirements are the following:

- ♦ the method of construction shall be according to the stuck-on principle and shall be such that the upper is flat lasted and the inner sole as detailed in 7.2.1 and the outer sole as detailed in 7.2.2 respectively, are used. The heel shall be nailed to the insole and upper.

8.2 Lasts

The last shall:

- ♦ have a semi round toe as shown in figure 1.
- ♦ be available in Narrow, Medium and Wide fittings,
- ♦ be in sizes 210 (2) to 280 (10).

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8.3 Upper Construction

The upper shall be a service ladies court shoe

- ♦ with a $\frac{3}{4}$ cut and back seam.
- ♦ the top line folded with an elasticated throat binding
- ♦ the quarter lining shall be stitched to the upper, 1 row around the counter and two rows around the throat.
- ♦ all stitching having 12 to 14 stitches per 25 mm
- ♦ the back seam must be a closed seam and must be seam reduced and taped

8.4 Closing

8.4.1 Skiving

Skiving shall be done in a manner that will prevent the formation of ridges inside the shoe.

8.4.2 Folding

Folding shall be wide enough to allow the edge stitching to pass through the folded edge. Slashes shall not extend further than the stitching line.

8.4.3 Seams

The seams shall comply with the following requirements:

- ♦ all upper seams shall be free from ridges and roughness.
- ♦ there shall be no loose, ragged or uneven seams and all loose thread ends shall have been removed.
- ♦ all seams shall be lock-stitch seams.
- ♦ thread tensions shall be so balanced that the lock is located in the centre of the materials being stitched.
- ♦ the back seam shall be properly reduced or rubbed down.

8.5 Preparation of bottom stock

8.5.1 Inner soles

The inner soles shall be accurately cut to the correct shape of the last and shall be of unishank construction

8.6 Making

8.6.1 Lasting

The lasting shall comply with the following:

- ♦ Toe-puffs and stiffeners of the correct size and properly activated shall be correctly positioned in the uppers.

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- ◆ Stiffeners shall be back-part molded after insertion and shall be well stuck to both the lining and the upper.
- ◆ The seats shall be assembled in such a manner and the upper so pulled over the last as to provide an even lasted margin of at least 13 mm.
- ◆ Cement lasting shall be used for the forepart and waist.
- ◆ Cement lasting shall be used for the seat areas.
- ◆ The heel shall be attached with at least 4 heel nails and in such a way that the heel will not come off during wear.

8.6.2 Pounding

The lasting margin shall be pounded to a smooth level surface, without the removal of any appreciable quantity of lasted upper.

8.6.3 Shank fitting and bottom filling

The shank fitting and bottom filling shall be done as follows:

- ◆ the forward end of the shank shall be flush with the inner sole at the joint line
- ◆ shanks shall be flush with the waist of the inner soles and shall fit the contour of the shoe bottom.
- ◆ the shank shall be securely attached to the inner sole and be positioned between the inner sole and shank board (unishank construction)
- ◆ the felt bottom filler (see 7.2.4) shall be applied carefully and pressed firmly into the inner sole cavity, and shall extend with a uniform even surface to the shank portion.
- ◆ cavities at the heel and the shank portion shall be filled with a strip of the felt bottom filler and the strip shall extend over the steel shank.

8.6.4 Outer sole attachment

- ◆ the lasted overlay of the upper leather shall be roughened.
- ◆ the roughened portions of the outer soles and of the lasted overlay of the upper shall be coated with an adhesive that is compatible with the materials that are to be stuck together.
- ◆ when this adhesive has dried, the lasted upper and the sole shall be stuck together, using a stuck on press, and using time and temperature for activation of the adhesive and the pressure recommended by the adhesive manufacturer

9. Workmanship and finish

9.1 General

Workmanship and finish shall be of a standard at least equal to that of the pre-production samples. (See annex A.2)

9.2 Inner sole socks

Each pair of shoes shall have full socks laminated to a latex closed cell foam as specified in Section 4

9.3 Upper cleaning and polishing

The upper leather shall be properly cleaned and polished.

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9.4 Defects

Inner soles and linings shall be free from protruding grindery, roughness and pleats.

10. National Stock Numbers

The shoes shall:

- ♦ be available in Narrow, Medium and Wide fittings only and in the size range 210(2) to 280(10)
- ♦ the National Stock Numbers for the different sizes are as follows

Table 7 - National Stock Numbers

1	2	3
National Stock Number	Mondo-Point	UK Size
TBD	210	2
TBD	220	3
TBD	230	4
TBD	235	5
TBD	245	6
TBD	255	7
TBD	262	8
TBD	270	9
TBD	280	10

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11. Packaging and marking

11.1 Packing

The packaging shall comply with the following requirements:

- ♦ the shoes shall be delivered in commercially clean and dry condition.
- ♦ each pair of shoes shall be wrapped in grease-proof paper and be packed in an individual shoe box that will protect it from damage during normal transportation, handling and storage.
- ♦ the boxes shall be packed in a corrugated board bulk container that complies with the requirements of specification 05181-100-209, "Corrugated Board Boxes for Clothing and Footwear", which is then labelled and sealed.
- ♦ only shoes of the same size shall be packed together in a bulk container. Shoes of different sizes may be packed together to accommodate the last part of an order or contract.
- ♦ the number of pairs in each bulk container shall be as follows:
 - Sizes 210 – 245: 25 per box and
 - Sizes 255 - and larger: 22 per box.

11.2. Marking

11.2.1 Shoes

Each shoe shall bear the following information, neatly and legibly impressed on the waist of the inner sole by means of steel stamps

- ♦ the manufacturer's name or trade mark;
- ♦ the size and fitting;
- ♦ the year of manufacture; and
- ♦ the National Stock number (NSN).

11.2.2 Shoe Boxes

Shoe boxes shall bear the following information written in black, clearly and indelibly marked on the short end of the shoe box:

- ♦ the description; the size of the shoe;
- ♦ the fitting number;
- ♦ the manufacturer's name, trade name or trade mark;
- ♦ the relevant NSN number; ticket/batch number; and
- ♦ any further information specified by the purchaser.

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11.2.3 Bulk containers

In addition to the address for delivery, each bulk container shall be labelled with additional information on the four sides of the lids (outer component). The information shall be written or printed in legible and indelible block letters and the label shall be of a minimum A4-paper size, and shall contain the following:

- ◆ the manufacturer's name or trade mark or both;
- ◆ the description;
- ◆ the size and fitting;
- ◆ the National Stock Number (NSN);
- ◆ the quantity;
- ◆ the order number;
- ◆ the year of manufacture;
- ◆ the gross mass;
- ◆ the inspection authority inspection stamp

11.3 Care-labelling

A swing label with care and use instructions that shall contain the substance of the wording listed below and shall be supplied with each pair of shoes:

- ◆ Remove all dust and dirt using a brush or wet newspaper.
- ◆ Clean your shoes daily with a wax polish of compatible colour.
- ◆ Do not leave near heat as this will make the leather hard and brittle.
- ◆ Do not use any form of heat on your shoes.

12. Test Methods

12.1 Conditioning of test specimens and test conditions

Use SANS method 5616 to condition samples and prepare them for testing. All physical tests and measurements shall be carried out under these conditions unless otherwise specified in the relevant test method.

12.2 Test Methods

Use the test methods as prescribed in tables 1 to 6.

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ANNEXURE A

(Normative)

SPECIAL CONDITIONS OF TENDER

A-1 GENERAL

- A-1.1 Unless otherwise stated, the South African Army (or an organization appointed by it), shall be the inspecting authority.
- A-1.2 Three pre-production samples of the items supplied to the specification shall have been inspected, tested and approved by the inspecting authority before bulk production is commenced. Each one of these samples shall be accompanied by a trim chart containing a sample of each component material and the relevant certificates. It shall be the duty of the manufacturer to give adequate notice to the inspecting authority of the availability of these samples.
- A-1.3 The items supplied to this specification shall be subject to inspection during the course of manufacture. The inspector shall, during normal working hours, be given all reasonable facilities for carrying out his duties and shall have the right of entry into the contractor's factory and the factory or works of any subcontractor where work on samples supplied to this specification may be in progress.
- A-1.4 The contractor shall inspect the finished items supplied to this specification for compliance with the specification before submitting them to the inspecting authority for final inspection.
- A-1.5 Before acceptance, the items supplied to this specification shall have been inspected and tested by the inspecting authority and found to comply with the requirements of the specification.

A-2 DOCUMENTATION

One container of each consignment shall be marked "DOCUMENTS" and in addition to the items supplied to this specification, shall contain the following:

- a) The packaging slip or delivery note;
- b) Where applicable the inspection certificate(s); and
- c) A copy of the invoice containing the following information:
 - the order number;
 - the financial authority number; and
 - a full description of the consignment, i.e. national stock number, quantity, etc.

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