PRIVATE SPECIFICATION

Prepared for the

South African Air Force

MINIATURE COLLAR BADGES, GILT, MESS DRESS
and
FLIGHT CAP BADGE
for
GENERAL OFFICERS
CHIEF WARRANT OFFICERS
SENIOR CHIEF WARRANT OFFICERS

SALM 580
Version 05.0/May 2014

1. Scope

This specification covers the materials and design of miniature collar badges (mess dress) and flight cap badges for personnel of the South African Air Force. This specification covers the variations as given in table 1.

2. Definitions and Abbreviations

For the purposes of this specification, the following definitions apply:

Acceptable: Acceptable to the South African Air Force.

Defective: A badge that fails in one or more respects to comply with the relevant requirements of this specification.

A Lot: Not less than 25 and not more than 150 000 badges of the same type, NSN, finish and style, from one manufacturer, submitted any one time for inspection and testing.

Nominal: Subject to the tolerances normal to good manufacturing practice.

Significant surface: The visible face side of the badge, when the badge is attached to the relevant uniform item.

3. General

No component materials, hobs, dies or tools will be supplied by the South African Air Force.

The badges shall be supplied in four variations (as specified in the order or contract) and shall be as given in table 1.

Table 1 – Badge variations

	1	2	3
	National Stock Number	**Designation**	**Illustration**
1.0	**General Officers**		
1.1	18-174-9755	Insignia, Rank Badge, Collar, General Officers, MMD, gilt, right	

1.2 [a]	18-174-9758	Insignia, Rank Badge, Collar, General Officers, MMD, gilt, left	
2.0	**Chief Warrant Officer & Senior Chief Warrant Officer**		
2.1	18-187-6360	Insignia, Rank Badge, Collar, Chief Warrant Officers/Senior Chief Warrant Officers, Regular, gilt, right	
2.2 [b]	18-187-6357	Insignia, Rank Badge, Collar, Chief Warrant Officers/Senior Chief Warrant Officers, Regular, gilt, left	
2.3	18-187-6363	Insignia, Rank Badge, Collar, Chief Warrant Officers/Senior Chief Warrant Officers, MMD, gilt, right	
2.4	18-187-6361	Insignia, Rank Badge, Collar, Chief Warrant Officers/Senior Chief Warrant Officers, MMD, gilt, left	

[a] The item listed under 1.2 shall have two applications:

- **i) Left MMD collar badge for General Officers**
- **ii) Flight cap badge for General Officers**

[b] The item listed under 2.2 shall serve as a cap badge for CWO & SCWO.

4. Illustrations

Figure 1(a) – General Officers: Right

Figure 1(b) – General Officers: Left

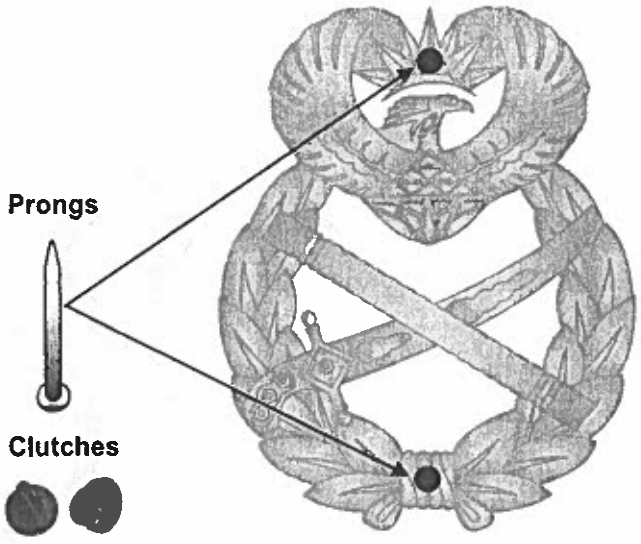


Figure 2 – General Officers: Back view

Figure 3(a) – CWO & SCWO: Right

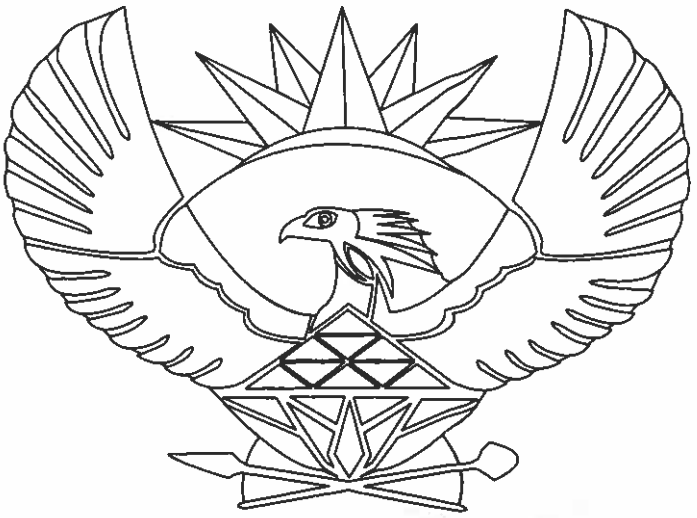


Figure 3(b) – CWO & SCWO: Left

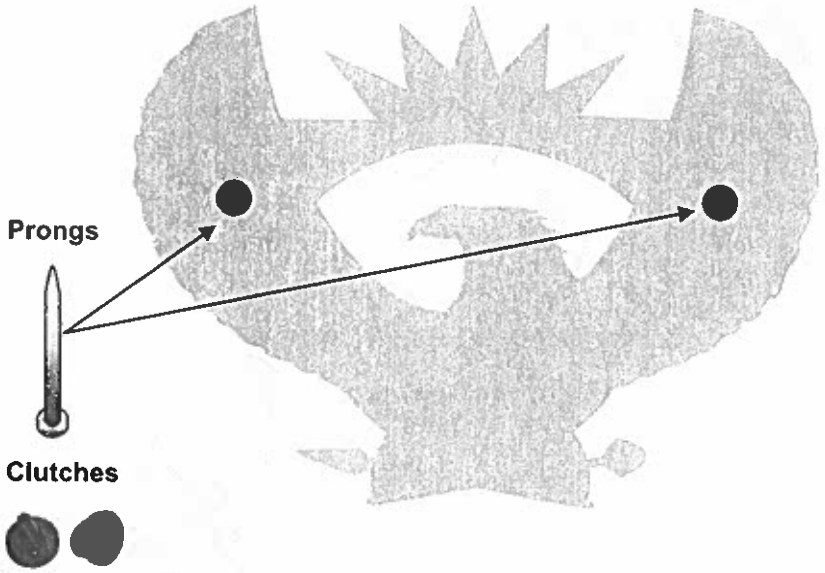


Figure 4 – CWO & SCWO: Back view

5. Design and construction

Illustrations are not to scale and all measurements given are nominal.

5.1 Generic requirements (applicable to all badges)

- be a single badge (NOT composite badge)
- be die-stamped with a male and female
- be made of brass plate as given in paragraph 6.1
- shall give a three-dimensional effect
- be blanked and voided
- be electroplated with gold (paragraph 9.2)
- designs variations to be as given in 5.2 and 5.3 (as relevant)
- fitted with two prongs at the back of the badge
  - to comply with the requirements as specified in paragraph 6.2
- be supplied with two clutches
  - to comply with the requirements as specified in paragraph 6.3
- incorporate the following finishes :
  - polishing (see paragraph 9.1)
  - gold plating (see paragraph 9.2)
- supplied as singles

5.2 General Officers

- design to conform to the design as given in figures 1(a), 1(b) and 2
- dimensions to comply with the dimensions as given in section 7.1
- design elements to include the following:

  - **Crest of the Coat of Arms**
    - positioned at the top of the badge
    - head of secretary bird to turn on the left and right badges

  - **Crossed sword and baton**
    - baton to overlap the sword
    - crossed sword and baton to turn on the left and right badges

  - **Laurel wreath**
    - positioned behind the sword and baton

- be supplied as a left and right badge variation (mirror images)

  - **Left badge:**
    - this badge will have two applications, i.e. left collar badge for General Officers as well as the cap badge for General Officers

- fitted with two prongs at the back of the badge
  - be positioned as given in paragraph 7.1 (approximate positions)

5.3 Chief Warrant Officers/Senior Warrant Officers

- design to conform to the design as given in figures 3(a), 3(b) and 4
- design elements to include the following:

- **Crest of the Coat of Arms**
  - positioned at the top of the badge
  - head of secretary bird to turn on the left and right badges
- **Crossed spear and knobkierie**
  - crossed spear and knobkierie to turn on the left and right badges
  - positioned at the base of the crest

- be supplied as a left and right badge variation (mirror images)
- be supplied as a regular badge and as a MMD badge
  - MMD and REGULAR: dimensions to be as given in section 7.2
- fitted with two prongs at the back of the badge
  - be positioned as given in paragraph 7.2 (approximate positions)
- incorporate the following finishes :
  - polishing (see paragraph 9.1)
  - gold plating (see paragraph 9.2)

6. Component requirements

6.1 Base material

- made of brass that comply with the relevant requirements of Type Designation CZ101 (90/10 brass), condition ½ Hard, of SANS 1303-1
- of nominal thickness 1.1 mm ± 0.1 mm

6.2 Prongs

- made from cold drawn bright nickel silver or brass wire
- hard or silver soldered to the back surface of the badge pins, prior to polishing or plating
- of dimensions to be as given in paragraph 7.3
- sharp point shall be free from burrs
- any distortion of the prongs shall be rectified during soldering
- all soldering shall be clean, strong, smooth and free from flux and excess soldering

NOTE- The type of soldering used shall depend on the base material of the prongs.

6.3 Clutches

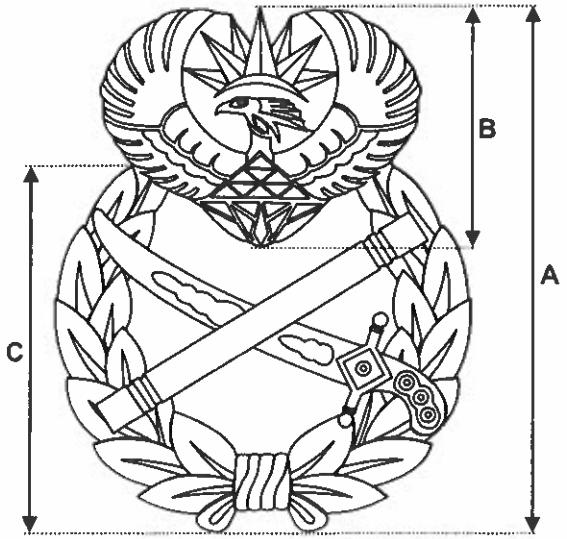
- acceptable rubber PVC clutches
- design to be as given in figure below
- nominal diameter of base to be 11 mm
- colour to be black or white
- the diameter of the shaft (centre hole) shall be such as to permit full and secure engagement of the prong

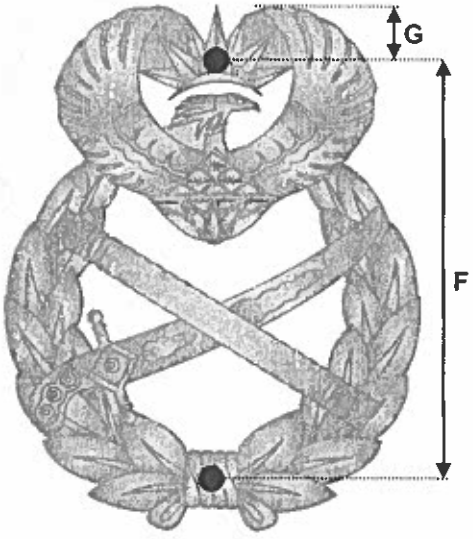
7. Dimensions

Diagrams are not to scale and all measurements given are nominal.

All measurements are subject to a 2 mm tolerance.

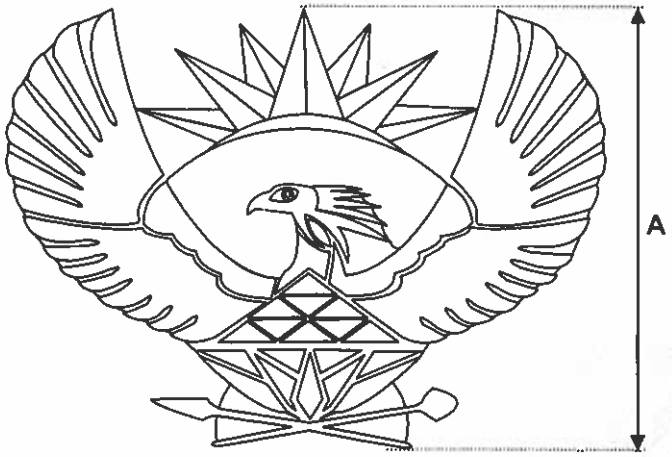
7.1 General Officers: Collar and cap badge

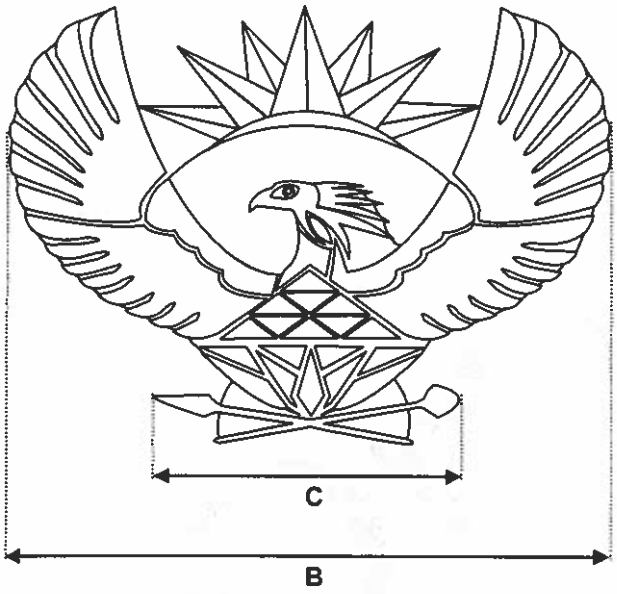


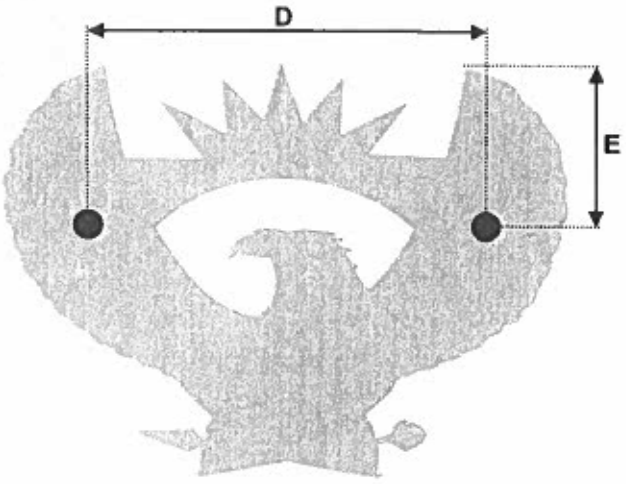


ITEM	A	B	C	D	E	F*	G*
MMD	36 mm	17 mm	25 mm	28 mm	21.5 mm	30 mm	3 mm
* Given for guidance only.							

7.2 Chief Warrant Officers/Senior Chief Warrant Officers: Collar and cap badge

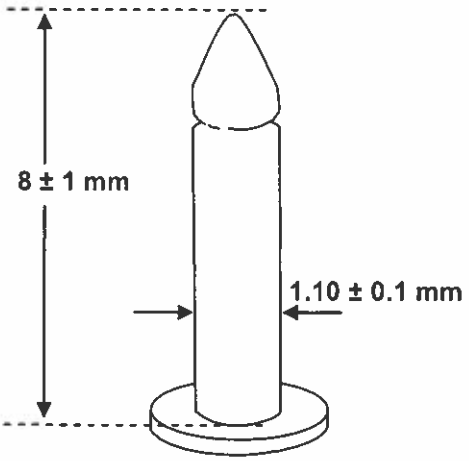






ITEM	A	B	C	D*	E*
REGULAR	25 mm	33 mm	16.5 mm	23 mm	11 mm
MMD	17.5 mm	22.5 mm	12 mm	16 mm	7 mm
* Given for guidance only.					

7.3 Prongs



8. Workmanship

Each metal badge shall be:

- die-stamped, made and finished with acceptable standards throughout
- of uniform and acceptable make, colour and finish

Free from defects that:

- affect their appearance
- affect their serviceability (or both)

Free from:

- burrs
- rough or sharp edges
- surface blemishes

Such that the soldering shall be:

- clean and smooth
- strong
- free from flux and excess soldering

9. Finishing

9.1 Polishing

The polishing shall:

- be carried out prior to the plating of the badges
- be carried out until an acceptable smooth and even surface is obtained
- not cause any loss of definition of the design

9.2 Gold plating

The significant surface, back and prongs shall be electroplated with gold:

The gold coating shall:

- be electroplated with a uniform and bright deposit of gold
- have a minimum gold content of at least 995 parts per 1 000, when tested with an acceptable non-destructive test method (e.g. an instrument operating on the beta-ray back-scatter principle)
- acceptably match the colour of the samples held by the South African Air Force
- have no contact marks from the electroplating process
- render a clean surface
- adhere firmly to the base metals
- when viewed at a distance of 350 mm, be free from the following defects
  - blisters, pits, roughness, cracks, stains, discolouration, mechanical damage

The thickness of the coating shall be:

- 1µ m at any point
- be tested by using an acceptable non-destructive test method (e.g. an instrument operating on the beta-ray back-scatter principle) to determine the thickness on the face side of the badge

The discontinuity of the coating shall be tested as follows:

- use 50% (V/V) aqueous solution of nitric acid at 25°/25° C = 1,42 maintained at 18 °C ± 2°C
- immerse the face side to a suitable depth, in the acid for 60 ± 2 s

Regard the following as evidence of discontinuity:

- evolution of gas bubbles during immersion
- imparting of a blue colour to the acid solution
- definite change in the face side of the badge on removal from the acid solution
- more than 6 pinpoint defects on the significant surface of the badge

10. Cleaning instructions

Each plastics envelope (see table 2) shall contain a cardboard insert with the following information:

CLEANING INSTRUCTIONS:

DO NOT USE ABRASIVE SOLVENTS

CLEAN WITH MILD SOAP AND WATER ONLY

DRY WITH A SOFT CLOTH

11. Packing and marking

11.1 Packing

The badges shall be:

- delivered in a commercially dry condition
- so packed that they will not be damaged in transit or in storage
- packed as given in table 2

11.2 Marking

11.2.1 Bulk plastics envelopes

Bulk plastics envelopes to have a label clearly showing the following information:

- the manufacturer's name or trade mark or both
- the year of manufacture
- the item description
- the quantity
- the designation
- the National Stock Number

Table 2 - Packaging

1			2
PACKAGING MATERIAL [a]			**CONTAINING [b]**
A.	Small plastics envelope		A single badge (Left OR right), clutches and cleaning instruction insert (See section 10)
B.	Bulk plastics envelope with pull and press opening and closure		Envelopes of A
C.	Bulk container for transit		Envelopes of B
	C.1	**Large quantities:** acceptable bulk containers; Maximum mass of packed container to be 15 kg	
	C.2	**Small quantities:** bulk containers to have a maximum height of 278 ± 3 mm	
[a] Of suitable size and shape. **[b] Of the same designation (type).**			

11.2.2 Containers

Each bulk container shall be labelled as given in paragraph 11.2 of SALM 108 "Corrugated board boxes for clothing".

11.3 Additional marking

When so required by the South African Air Force, badges, clutches, envelopes or containers (or any combination of these) to bear information additional to that specified above.

12. Normative references

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

BS 6001-1:1991, *Sampling Procedures for Inspection by Attributes – Part 1: Sampling schemes indexed by acceptable quality limit (AQL) for lot-by-lot inspection.*

SALM 108, *Corrugated board boxes for clothing.*

SANS 1303-1, *Wrought copper alloys Part 1: Chemical composition of copper-zinc alloys (non-leaded and leaded).*

13. Special conditions of tender

See Annex A.

14. Sampling and compliance with the specification

See Annex B.

* ***South African Bureau of Standards: Tel. +27 (0) 12 4287911***

ANNEX A

(Normative)

Special conditions of tender

A-1 Unless otherwise stated, the South African Bureau of Standards shall be the inspecting authority.

A-2 STANDARD SAMPLES, PRE-PRODUCTION STAMPINGS

A-2.1 GENERAL PROCEDURE

A-2.1.1 Plaster models/Computer generated designs and lead impressions

When a new design of the badge is required or when a new hob or die has to be made, a plaster/computer generated design shall have been made and approved by the South African Air Force before the die is cut for the production of lead impressions. Two lead impressions shall then be submitted to the South African Air Force for approval. When any change to an existing hob or die has been made, two lead impressions shall be submitted to the South African Air Force, for approval.

A-2.1.2 Pre-production samples

Written approval of lead impressions will be sent to the manufacturer, who, on receipt of approval, may produce the 3 pre-production samples that are, after approval, to become standard samples.

A-2.2 STANDARD SAMPLES

In the case of new designs, or where any change has been made to the design of the hob or die, or when called for by the South African Air Force, three standard samples shall be submitted to the South African Bureau of Standards prior to production being commenced by the manufacturer. Each of these samples shall conform exactly in detail, colour, form and finish to the badges that are to be manufactured during production. Each sample will be mounted on a card (of suitable size) that is sealed and signed by the South African Bureau of Standards. On approval by the inspecting authority, the three pre-production samples will become standard samples and the cards will be treated as follows:

Note: Approval of this sample will not involve any property that requires assessment by a destructive test, but will be limited to approval of construction, design, colour, dimensions, polish and general finish.

1) Sample 1 will be permanently retained by the South African Air Force as a master sample;

2) Sample 2 will be permanently retained by the South African Bureau of Standards;

3) Sample 3 will be sent by the South African Bureau of Standards to the successful tenderer, who shall associate this sample with the order for the badge(s) required. A manufacturer shall not commence production until the third sample has been received from the South African Bureau of Standards.

A-3 INSPECTIONS AND TESTING

A-3.1 The badges 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 badges supplied to this specification may be in progress.

A-3.2 The contractor shall inspect the finished badges for compliance with the specification before submitting them to the inspecting authority for final inspection.

A-3.3 Before acceptance, the badges shall have been inspected and tested by the inspecting authority and found to comply with the requirements of the specification

A-4 DOCUMENTATION

One container of each consignment shall be marked "DOCUMENTS" and in addition to the badges, shall contain the following:

a) The packaging slip or delivery note;
b) where applicable the inspection certificate(s);
c) a copy of the invoice containing the following information:

1. The order number
2. The financial authority number;
3. A full description of the consignment, i.e. National Stock Number, quantity, etc

ANNEX B

(Normative)

Sampling and compliance with the specification

B-1 Sampling

B-1.1 **Sample for inspection**

From the lot, draw at random the number of badges shown in column 2 of table B.1, relative to the appropriate lot size given in column 1.

B-1.2 **Sample for testing**

From the lot, or after inspection, from the samples drawn in accordance with B-1.1 above, draw at random the appropriate number of badges as relevant, shown in column 4 of table B.1.

B-2 Compliance with the specification

B-2.1 The lot shall be deemed to comply with the requirements of the specification if:

B-2.1.1 on inspection of the sample taken in accordance with B-1.1, the number of defectives found does not exceed the appropriate acceptance number given in column 3 of table B.1;

B-2.1.2 on testing the sample taken in accordance with B-1.2, no defectives are found.

Table B.1 - Lot sizes of metal badges

1	2	3	4
Lot size	**Sample for inspection**[1)]		**Sample for testing**[2)]
	Sample size	Acceptance No. (AQL = 1.5)	
25 - 90	8	0	3
91 - 280	32	1	3
281 - 500	50	2	5
501 - 1200	80	3	5
1201 - 3200	125	5	8
3201 - 10 000	200	7	8
10 001 - 35 000	315	10	13
35001 - 150 000	500	14	20

Note: AQL = Acceptance Quality Limit

[1)] Based on table II-A of BS 6001 for general inspection level II.
[2)] Based on table II-A of BS 6001 for special inspection level S-2.

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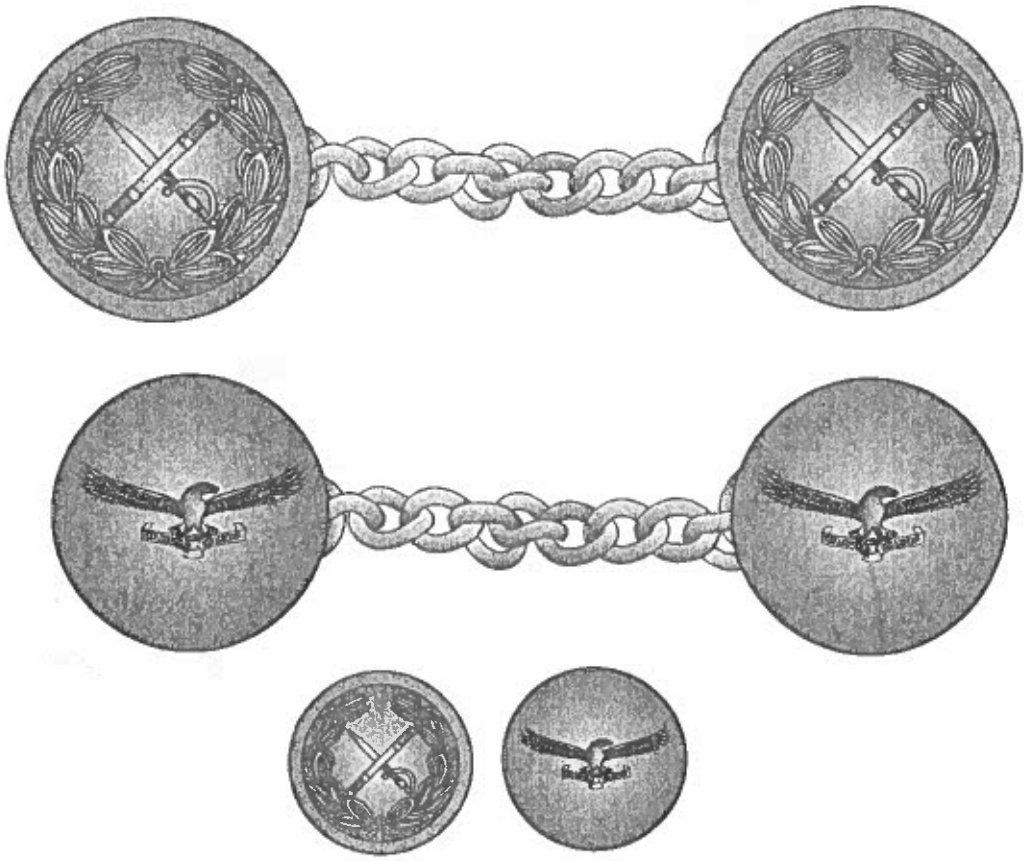
VERSION	DATE	AMENDMENTS	CHECKED	
			NAME	INIT.
1	May 2002			
2	July 2010	Updated Normative references Update format Add illustrations Change thickness of brass plate Add more measurements and amend to reflect measurements of samples and not old spec. Stipulated that badges shall be supplied as singles. Mentioning is made to badges being blanked and voided. Blanked and voided between the head of the secretary bird and sunrise as per sample supplied by SAAF.		
3	February 2011	Add reference to insert containing cleaning instructions		
4	March 2012	Add CWO and SCWO badges		
5	May 2014	Replace old clutches with new type		

PRIVATE SPECIFICATION

Prepared for the

South African Air Force

GILT BUTTONS AND CHAIN SETS



SALM 167
Version 05.0/June 2023

1. Scope

This specification covers the materials and design of seven metal button variations and two button-and-chain-set variations for personnel of the South African Air Force. The button variations covered by this specification are given in table 1.

Table 1 – Button variations

1.1	General Officers	
	Size (mm)	Item
1.1.1	10	Metal Button
1.1.2	13	
1.1.3	16	
1.1.4	22	
1.1.5	22	Button-and-chain-set
1.2	Officers and all other ranks	
	Size (mm)	Item
1.2.1	10	Metal Button
1.2.2	13	
1.2.3	22	
1.2.4	22	Button-and-chain-set

2. Definitions and Abbreviations

For the purposes of this specification, the following definitions apply:

Acceptable: Acceptable to the South African Air Force.

Defective: A button that fails in one or more respects to comply with the relevant requirements of this specification.

Nominal: Subject to the tolerances normal to good manufacturing practice.

Significant surface: The visible face side of the button, when the button is attached to the relevant uniform item.

Size: The nominal diameter of a button.

3. General

No component materials, hobs, dies or tools will be supplied by the South African Air Force.

The buttons shall be supplied in the variations as given in table 1 and supplied against the National Stock Numbers as given in table 2.

Table 2 – National Stock Numbers

1 National Stock Number	2 Designation
18-407-3585	Button, Gilt, General Officers, 10 mm
18-400-5829	Button, Gilt, General Officers, 13 mm
18-407-3583	Button, Gilt, General Officers, 16 mm
18-177-6894	Button, Gilt, General Officers, 22 mm
18-186-5943	Button-and-chain-set, Gilt, General Officer, 22 mm
18-403-7978	Button, Gilt, Officers, 10 mm
18-403-7979	Button, Gilt, Officers, 13 mm
18-403-7980	Button, Gilt, Officers, 22 mm
18-407-3576	Button-and-chain-set, Gilt, Officers, 22 mm

4. Illustrations

4.1 General Officers: Buttons and chain sets

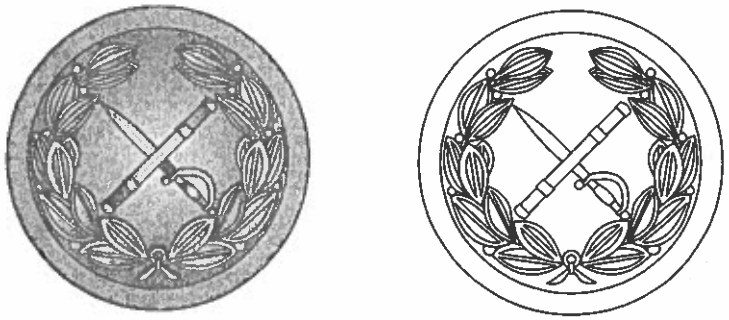


Figure 1 – General Officers: Significant surface of buttons

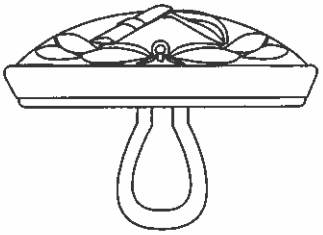


Figure 2 – General Officers: Side view of buttons

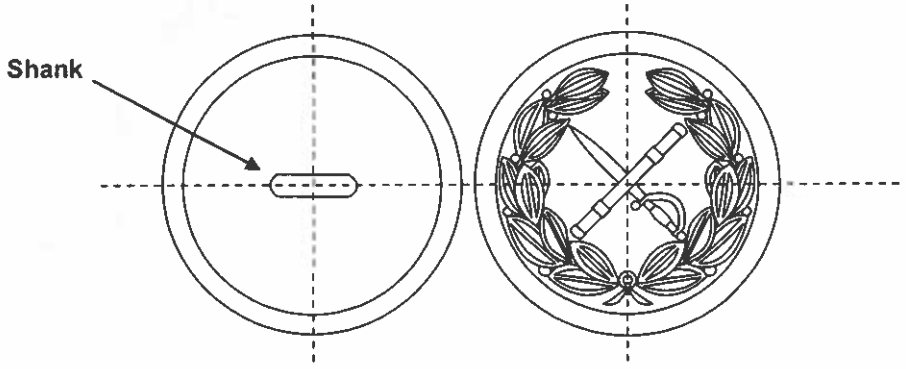


Figure 3 – General Officers: Positioning of shank in relation to emblem on cup

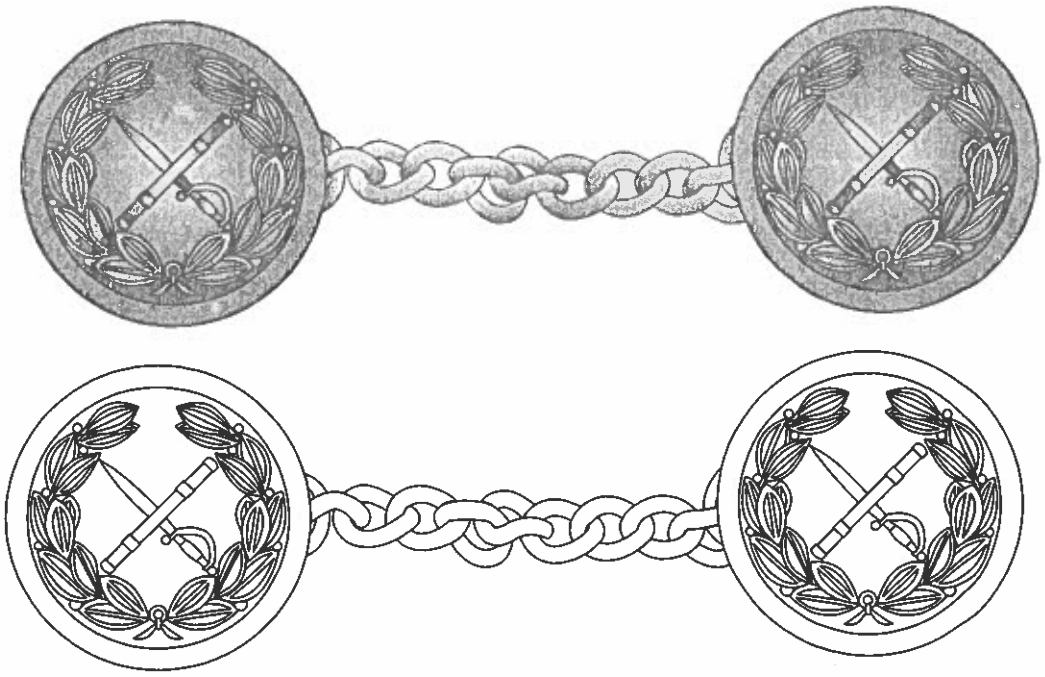


Figure 4 –General Officers: Chain sets

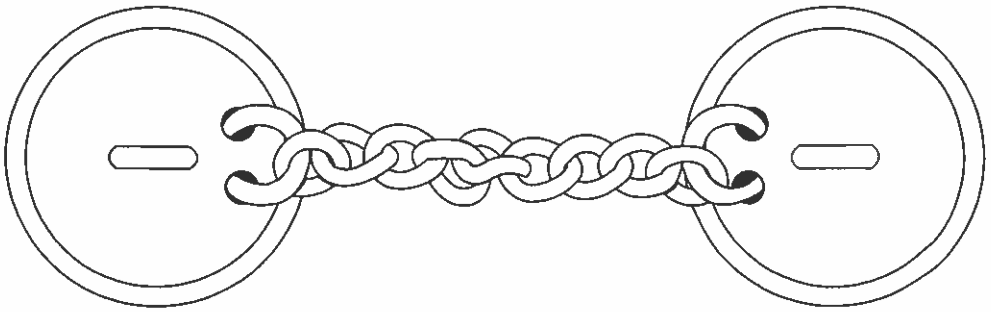


Figure 5(a) – Back view of chain set, with jumperring chain attachment

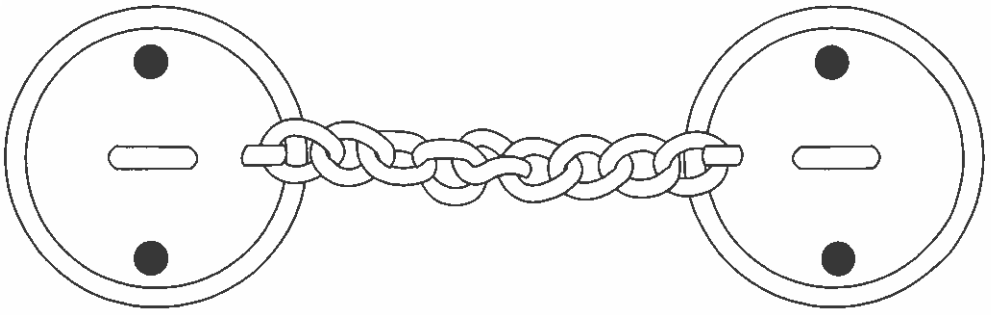


Figure 5(b) – Back view of chain set, with side shank chain attachment

4.2 Officers and all other ranks: Buttons and chain sets

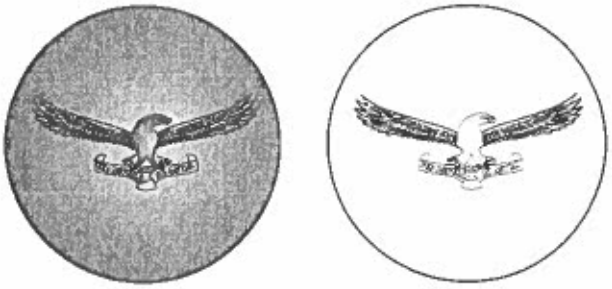


Figure 6 – Officers and other ranks: Significant surface

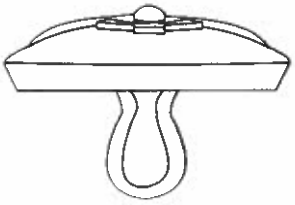


Figure 7 – Officers and other ranks: Side view of buttons

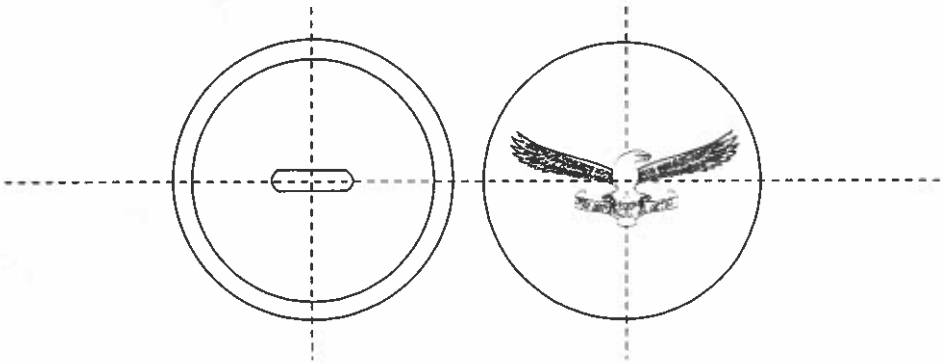


Figure 8 – Officers and other ranks: Positioning of shank in relation to emblem on cup

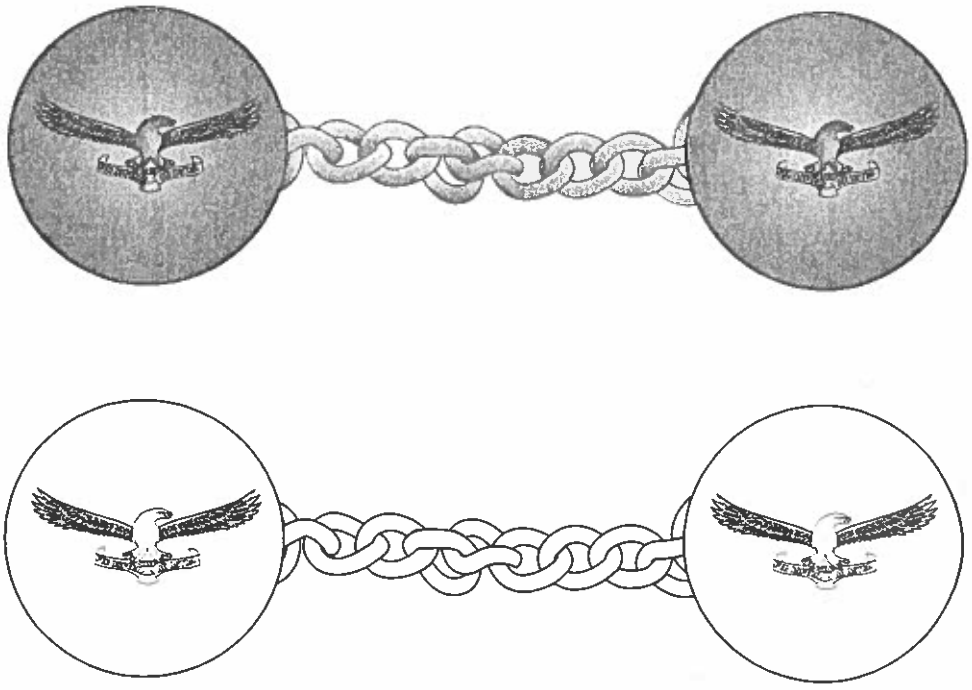


Figure 9 – Officers and other ranks: Chain set

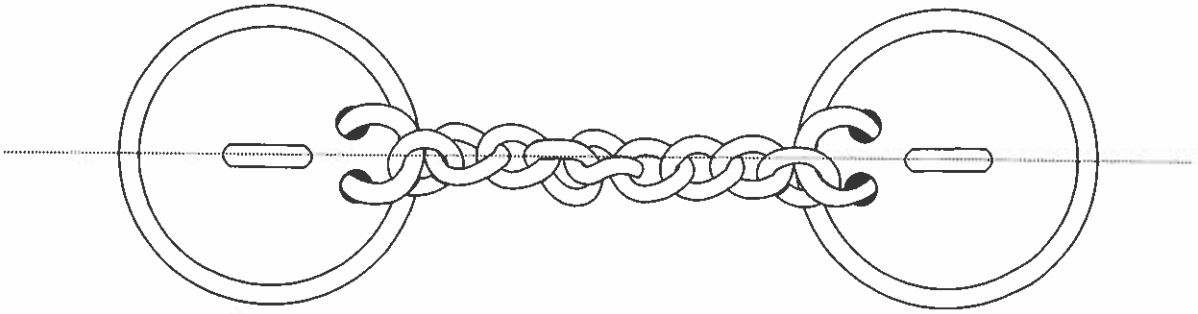


Figure 10(a) – Back view of chain set, with jumperring chain attachment

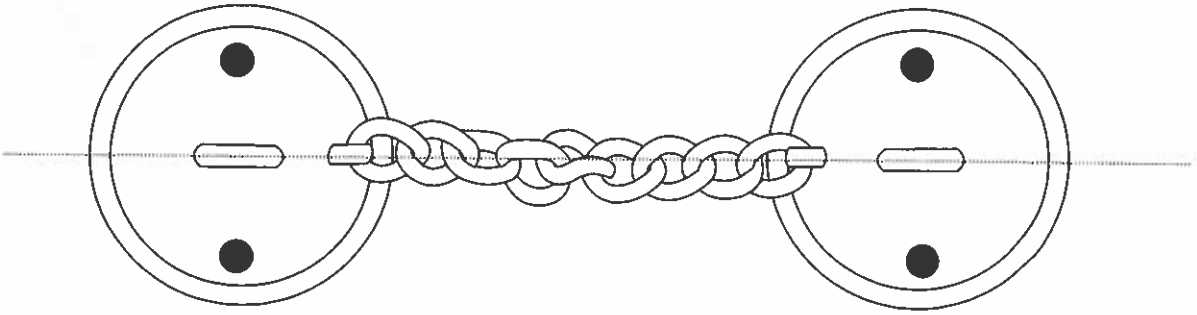


Figure 10(b) – Back view of chain set, with side shank chain attachment

5. Design and construction

Diagrams are not to scale and all measurements given are nominal.

5.1 General construction

5.1.1. Buttons

All buttons shall:

- consist of three components:
  - **cup**
    - be made of brass plate (see paragraph 6.1.1)
    - to incorporate two emblem variations (see 5.2)
  - **back plate**
    - be made of brass plate (see paragraph 6.1.2)
  - **shank**
    - be made of brass wire (see paragraph 6.1.3)
    - to have a formed eye (approximately circular in shape)
    - to be so secured to the centre of the back plate that:
      - the shank cannot rotate
      - the shank to be horizontally positioned in relation to the emblem on the face side of the button (see figures 3 and 8)
      - to be positioned through the back and riveted in such a way the wire protrusions on the inside of the back will not pull out (see figure 12 as a guideline)
- be of dimensions as given in table 3
- be constructed in such a way that the cup of the button shall be so attached (securely and neatly) onto the back plate that there is no movement between the two components
- incorporate the following finishes :
  - polishing (see paragraph 9.1)
  - electroplated with gold (see paragraph 9.2)

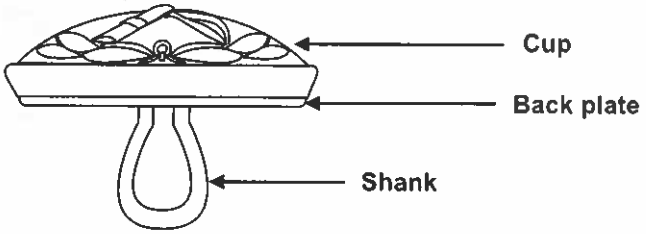


Figure 11 – Component identification

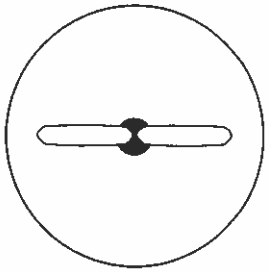


Figure 12 – Shank protrusions on inside of back plate (given for information only)

5.1.2. Chain sets

All chain sets shall be as follows:

- consist of a set of two buttons (to comply with the requirements as given in 5.1.1)
  - General officers: button of diameter 22 mm
  - Officers and other ranks: button of diameter 22 mm
- have a connecting chain
  - of such length that the distance between the centres of the two connected buttons measures 62 mm (see figure 13) when measured in a straight line
  - attached to the backing plate by one of the methods as given in 5.1.2.2 and 5.1.2.3

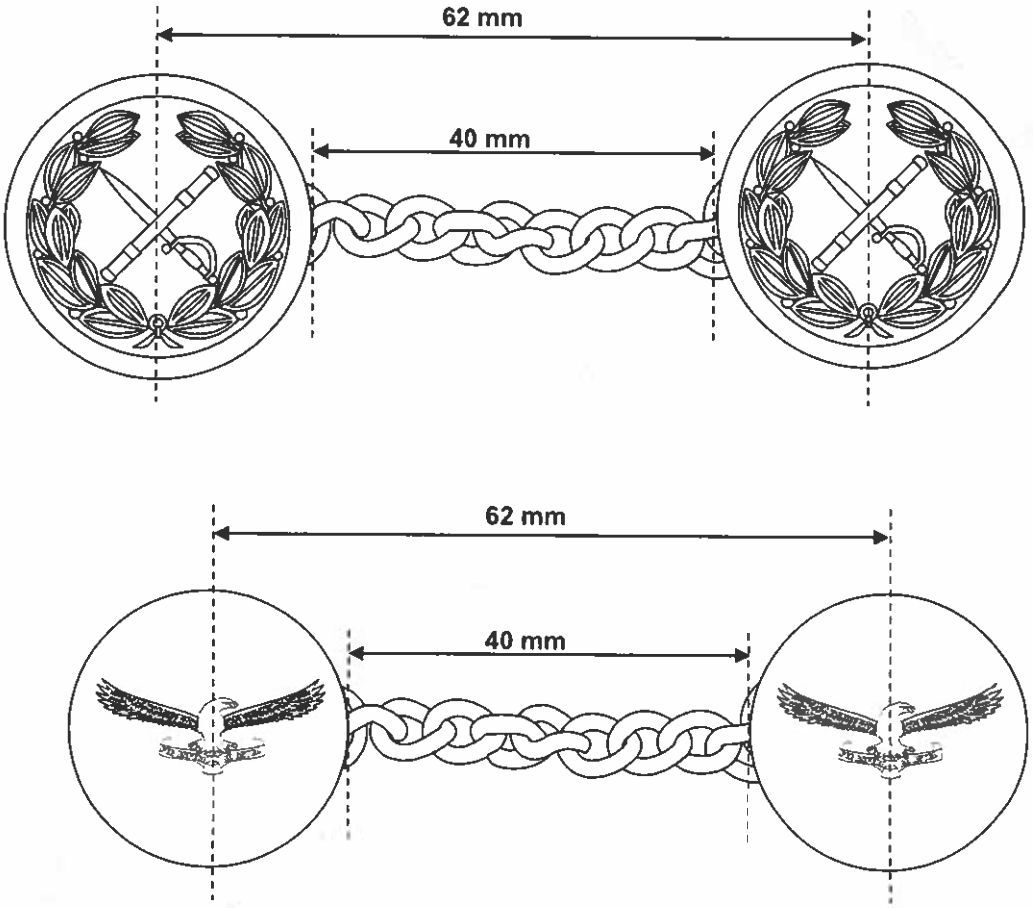


Figure 13 – Chain sets: distance between attached buttons

5.1.2.2 Jumperring chain attachment

- each backing plate to incorporate two holes for attachment of connecting chain by means of jumperrings (see figures 5(a) and 10(a))

5.1.2.3 Side shank chain attachment

- each backing plate to incorporate a side shank for attachment of the connecting chain (see figures 5(b) and 10(b))
  - side shank to be made of brass wire (see paragraph 6.1.3)

- to have a formed eye (circular in shape)
- to be so secured to the side edge of the back plate that:
  - the side shank cannot rotate
  - the side shank to be aligned with the main shank and both shall be horizontally positioned in relation to the emblem on the face side of the button (see figure14)
  - attached in such a way on each button that the emblem shall not be upside down

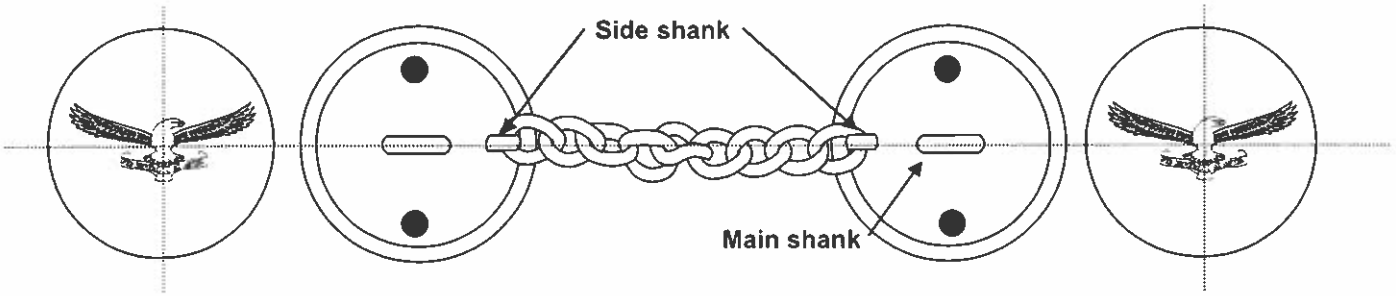


Figure 14 – Attachment of side shanks (applicable to both emblem variations)

5.2 Emblem variations on the cup (significant surface)

The cup (significant surface) shall incorporate two design variations:

5.2.1 OFFICERS and other ranks:

- be die-pressed
- be domed
- incorporate a centrally positioned SAAF eagle[1]
- have a 3-D effect
- SAAF eagle to face towards the left (refers to when the button is attached and worn)
- SAAF eagle to be correctly positioned (not skew or upside down) in relation to the horizontally positioned shank on the back plate (see figures 8 and 14)
- wings of the SAAF eagle not to roll over on the sides of the button
- the dimensions of the emblem shall be reduced/enlarged proportionately to fit the significant surfaces of the relevant buttons

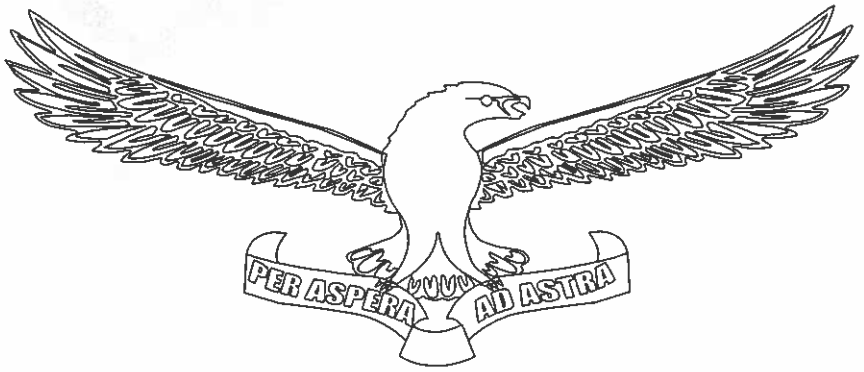


Figure 15 – Emblem for Officers and other ranks[1] (for guidance only)

5.2.2 GENERAL OFFICERS:

- be die-pressed
- be domed

[1] **Design to be as registered at the Bureau of Heraldry. Tel: 012 3235300**

- incorporate a centrally positioned crossed sword and baton with a laurel wreath framing the edges[2] (see figure 16)
- have a 3-D effect
- baton to overlap the sword
- sword and baton to be correctly positioned (not skew) in relation to the horizontally positioned shank on the back plate (see figure 3)
- to have a rim along the outer edge of the button
- the dimensions of the emblem shall be reduced/enlarged proportionately to fit the significant surfaces of the relevant buttons

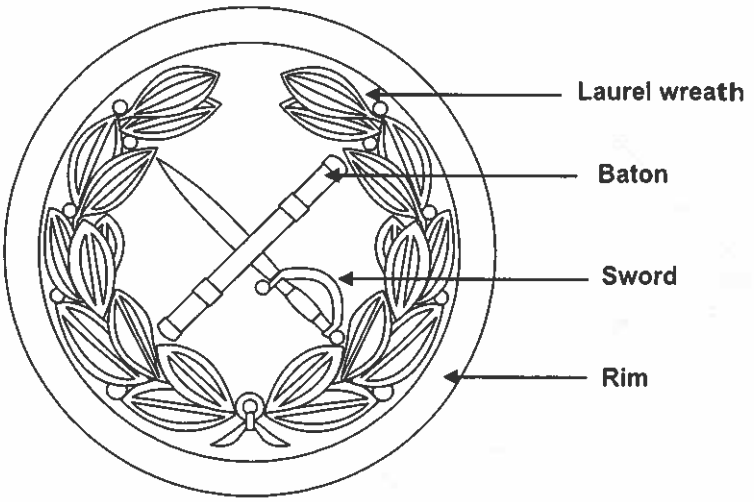


Figure 16 – Emblem for General Officers[2]

6. Component requirements

6.1 Base material

6.1.1 Button cups:

- made of brass that comply with the relevant requirements of Type Designation CZ101 (90/10 brass), condition ½ Hard, of SANS 1303-1
- to comply with the relevant requirements of table 3

6.1.2 Button backs:

- made of brass that comply with the relevant requirements of Type Designation CZ106 (70/30 brass), condition ½ Hard, of SANS 1303-1
- to comply with the relevant requirements of table 3

6.1.3 Shanks:

- made of brass that comply with the relevant requirements of Type Designation CZ108 (common brass), condition ½ Hard, of SANS 1303-1
- to comply with the relevant requirements of table 3

[2] **Design to be as registered at the Bureau of Heraldry. Tel: 012 3235300**

6.1.4 Jumperring:

- made of brass that comply with the relevant requirements of Type Designation CZ106 (70/30 brass), condition ½ Hard, of SANS 1303-1

6.1.5 Connecting chain:

- made of 99.9% Copper wire

7. Dimensions

Table 3 – Dimensions of buttons

1	2	3	4	5	6
Nominal size of button	Measurements in mm				
	Diameter of cup	Thickness of base material for cup and back plate	Diameter of shank wire[1]	Overall length of main shanks [2]	Overall length of side shanks
10	10 ± 0.5	0.4 ± 0.10	1.3 ± 0.10	6.5 ± 0.8	Such as to neatly accommodate the chain
13	13 ± 0.5				
16	16 ± 0.5				
22	22 ± 0.5	0.5 ± 0.10		7.0 ± 0.8	

[1] Given for guidance.
[2] The overall length of a shank shall be measured as the distance between the back of the button and the free end of the shank.

8. Workmanship

Each metal button and chain set shall be:

- die-stamped, made and finished with acceptable standards throughout
- of uniform and acceptable make, colour and finish

Free from defects that:

- affect their appearance
- affect their serviceability (or both)

Free from:

- burrs
- rough or sharp edges
- surface blemishes

Such that the buttons shall be:

- clean and smooth

9. Finishing

9.1 Polishing

The polishing shall:

- be carried out prior to the plating of the buttons
- be carried out until an acceptable smooth and even surface is obtained
- not cause any loss of definition of the design

9.2 Gold plating

The button cups and connecting chains shall be electroplated with gold. In instances where the attachment method of the connecting chain is as specified in 5.1.2.3, the backing plate shall also be electroplated with gold.

The gold coating shall:

- be electroplated with a uniform and bright deposit of gold
- have a minimum gold content of at least 995 parts per 1 000, when tested with an acceptable non-destructive test method (e.g. an instrument operating on the beta-ray back-scatter principle)
- acceptably match the colour of the samples held by the South African Air Force
- have no contact marks from the electroplating process
- render a clean surface
- adhere firmly to the base metals
- when viewed at a distance of 350 mm, be free from the following defects
  - blisters, pits, roughness, cracks, stains, discolouration, mechanical damage

The thickness of the coating shall be:

- 1µ m at any point
- be tested by using an acceptable non-destructive test method (e.g. an instrument operating on the beta-ray back-scatter principle) to determine the thickness on the face side of the button

The discontinuity of the coating shall be tested as follows:

- use 50% (V/V) aqueous solution of nitric acid at 25°/25° C = 1,42 maintained at 18 °C ± 2°C
- immerse the face side to a suitable depth, in the acid for 60 ± 2 s

Regard the following as evidence of discontinuity:

- evolution of gas bubbles during immersion
- imparting of a blue colour to the acid solution
- definite change in the face side of the button on removal from the acid solution
- more than 6 pinpoint defects on the significant surface of the button

10. Cleaning instructions

Each plastics envelope (see table 4) shall contain a cardboard insert with the following information:

CLEANING INSTRUCTIONS:

DO NOT USE ABRASIVE SOLVENTS

CLEAN WITH SOFT CLOTH

11. Packing and marking

11.1 Packing

The buttons and chain sets shall be:

- delivered in a commercially dry condition
- so packed that they will not be damaged in transit or in storage
- packed as given in table 4

11.2 Marking

11.2.1 Small plastics envelopes

Small plastics envelopes to have a label clearly showing the following information:

- the designation
- the size
- the National Stock Number (NSN)

Table 4 – Packaging

1		2	
PACKAGING MATERIAL [a]		**CONTAINING [b]**	
A.	Small plastics envelope with pull and press opening	**Insert with cleaning instructions (see section 10)**	
		A.1	25 x 10 mm buttons
		A.2	25 x 13 mm buttons
		A.3	25 x 16 mm buttons
		A.4	10 x 22 mm buttons
		A.5	1 x chain set
B.	Bulk plastics envelope	Envelopes of A	
C.	Bulk container for transit; Maximum mass of packed bulk container to be 15 kg.	Envelopes of B	

[a] Of suitable size and shape.
[b] Of the same designation.

11.2.2 Bulk plastics envelopes

Bulk plastics envelopes to have a label clearly showing the following information:

- the manufacturer's name or trade mark or both
- the year of manufacture
- the item description
- the quantity
- the designation
- the size
- the National Stock Number

11.2.3 Containers

Each bulk container shall be labelled as given in paragraph 11.2 of SALM 108 "Corrugated board boxes for clothing".

11.3 Additional marking

When so required by the South African Air Force, buttons, chain sets, envelopes or containers (or any combination of these) to bear information additional to that specified above.

12. Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this specification. All standards are subject to revision and, since any reference to a standard is deemed to be a reference to the latest edition of a standard, parties to agreements based on this specification are encouraged to take steps to ensure the use of the most recent editions of the standards indicated below. Information on currently valid national and international standards may be obtained from SABS Standards Division[3].

BS 6001-1:1991, *Sampling Procedures for Inspection by Attributes – Part 1: Sampling schemes indexed by acceptable quality limit (AQL) for lot-by-lot inspection.*

SANS 1303-1, *Wrought copper alloys Part 1: Chemical composition of copper-zinc alloys (non-leaded and leaded).*

13. Special conditions of tender

See Annex A.

14. Sampling and compliance with the specification

See Annex B.

[3] ***SABS: Tel. +27 (0) 12 4287911***
www.sabs.co.za

ANNEX A

(Normative)

Special conditions of tender

A-1 Unless otherwise stated, the South African Air Force (or an organization deputed by it) shall be the inspecting authority.

A-2 STANDARD SAMPLES, PRE-PRODUCTION STAMPINGS

A-2.1 GENERAL PROCEDURE

A-2.1.1 Plaster models/Computer generated designs and lead impressions

When a new design of the button is required or when a new hob or die has to be made, a plaster/computer generated design shall have been made and approved by the South African Air Force before the die is cut for the production of lead impressions. Two lead impressions shall then be submitted to the South African Air Force for approval. When any change to an existing hob or die has been made, two lead impressions shall be submitted to the South African Air Force, for approval.

A-2.1.2 Pre-production samples

Written approval of lead impressions will be sent to the manufacturer, who, on receipt of approval, may produce the 3 pre-production samples that are, after approval, to become standard samples.

A-2.2 STANDARD SAMPLES

In the case of new designs, or where any change has been made to the design of the hob or die, or when called for by the South African Air Force, three standard samples shall be submitted to the Inspection Authority prior to production being commenced by the manufacturer. Each of these samples shall conform exactly in detail, colour, form and finish to the buttons that are to be manufactured during production. Each sample will be mounted on a card (of suitable size) that is sealed and signed by the Inspection Authority. On approval by the inspecting authority, the three pre-production samples will become standard samples and the cards will be treated as follows:

Note: Approval of this sample will not involve any property that requires assessment by a destructive test, but will be limited to approval of construction, design, colour, dimensions, polish and general finish.

1) Sample 1 will be permanently retained by the South African Air Force as a master sample;

2) Sample 2 will be permanently retained by the Inspection Authority;

3) Sample 3 will be sent by the Inspection Authority to the successful tenderer, who shall associate this sample with the order for the button(s) required. A manufacturer shall not commence production until the third sample has been received from the Inspection Authority.

A-3 INSPECTIONS AND TESTING

A-3.1 The buttons 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 buttons supplied to this specification may be in progress.

A-3.2 The contractor shall inspect the finished buttons for compliance with the specification before submitting them to the inspecting authority for final inspection.

A-3.3 Before acceptance, the buttons shall have been inspected and tested by the inspecting authority and found to comply with the requirements of the specification

A-4 DOCUMENTATION

One container of each consignment shall be marked "DOCUMENTS" and in addition to the buttons, shall contain the following:

a) The packaging slip or delivery note;
b) where applicable the inspection certificate(s);
c) a copy of the invoice containing the following information:

1. The order number
2. The financial authority number;
3. A full description of the consignment, i.e. National Stock Number, quantity, etc

ANNEX B

(Normative)

Sampling and compliance with the specification

B-1 Sampling

B-1.1 Sample for inspection

From the lot, draw at random the number of buttons/button pins shown in column 2 of table B.1, relative to the appropriate lot size given in column 1.

B-1.2 Sample for testing

From the lot, or after inspection, from the samples drawn in accordance with B-1.1 above, draw at random the appropriate number of buttons/button pins as relevant, shown in column 4 of table B.1.

B-2 Compliance with the specification

B-2.1 The lot shall be deemed to comply with the requirements of the specification if:

B-2.1.1 on inspection of the sample taken in accordance with B-1.1, the number of defectives found does not exceed the appropriate acceptance number given in column 3 of table B.1;

B-2.1.2 on testing the sample taken in accordance with B-1.2, no defectives are found.

Table B.1 - Lot sizes of metal buttons/button pins

1	2	3	4
Lot size	Sample for inspection[1]		Sample for testing[2]
	Sample size	Acceptance No. (AQL = 1.5)	
25 - 90	8	0	1
91 - 280	32	1	1
281 - 500	50	2	2
501 - 1200	80	3	3
1201 - 3200	125	5	5
3201 - 10 000	200	7	8
10 001 - 35 000	315	10	13
35001 - 150 000	500	14	20

Note: AQL = Acceptance Quality Limit

[1] Based on table II-A of BS 6001 for general inspection level II.
[2] Based on table II-A of BS 6001 for special inspection level S-2.

(4)

For Office Use Only		
DOC ISSUE	**DATE**	**AMENDMENTS**
1	August 2008	
2	June 2010	Update format Replace all photos with illustrations Lengths of shanks amended Diameter of shank wire amended Add reference to jumperrings & composition of connecting chain Add weight of maximum packed container.
3	February 2011	Add reference to an insert containing cleaning instructions
4	June 2017	Correct NSN for 22 mm button, gilt, officer
04.1	December 2022	Add another method for fastening of chain (side shank fastening) Add gold plating on back plate and shanks
04.2	December 2022	Change tolerances in table 3 Omit water and soap from cleaning instructions Revert back to previous version that stipulated only cup and chain was gold plated (not backing plate)
04.3	March 2023	Added: If button and chain set is soldered at the back, THEN the backing plate shall also be gold plated.
05.0	June 2023	5th Release

PRIVATE SPECIFICATION

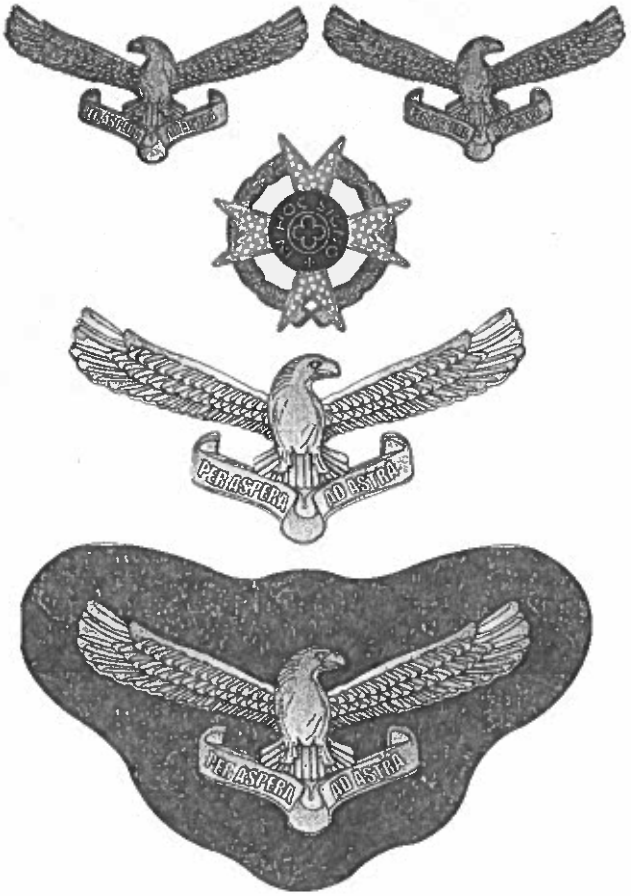
Prepared for the

South African Air Force

BADGES, ORGANIZATION, GILT

for

COLLARS & CAPS
(Including cap badge, black background)



SALM 455
Version 06.0/August 2018

1. Scope

This specification covers the materials and design of seven metal collar and cap badge variations of the South African Air Force. The variations covered by this specification are as follows:

A) Collar badge, left, gilt, Regular

B) Collar badge, right, gilt, Regular

C) Collar badge, left, gilt, Miniature Mess Dress (MMD)

D) Collar badge, right, gilt, Miniature Mess Dress (MMD)

E) Cap badge, gilt, head screw attachment

F) Cap badge, gilt on black background

G) Collar badge, Chaplain, MMD

2. Definitions and Abbreviations

For the purposes of this specification, the following definitions apply:

Acceptable:	Acceptable to the South African Air Force.
Defective:	A badge that fails in one or more respects to comply with the relevant requirements of this specification.
A Lot:	Not less than 25 and not more than 150 000 badges of the same type, NSN, finish and style, from one manufacturer, submitted any one time for inspection and testing.
Nominal:	Subject to the tolerances normal to good manufacturing practice.
Significant surface:	The visible face side of the badge, when the badge is attached to the relevant uniform item.

3. General

No component materials, hobs, dies or tools will be supplied by the South African Air Force.

The badges shall be supplied in seven variations (as specified in the order or contract) and shall be as given in table 1.

Table 1 – Badge variations

1 Variation	2 National Stock Number	3 Designation	4 Illustration
A	18-400-9125	Collar badge, left, gilt, Regular	
B	18-400-9126	Collar badge, right, gilt, Regular	
C	18-400-9127	Collar badge, left, gilt, Miniature Mess Dress (MMD)	
D	18-400-9128	Collar badge, right, gilt, Miniature Mess Dress (MMD)	
E	18-400-8991	Cap badge, gilt	
F	18-400-9020	Cap badge, gilt on black	
G	18-400-9048	Collar badge, gilt, Chaplain, MMD	

NOTE: The item linked to National Stock Number 18-400-9020 shall consist of two separate components, i.e. a metal badge (Item F) that is attached to a felt backing (see Annex C).

4. Illustrations

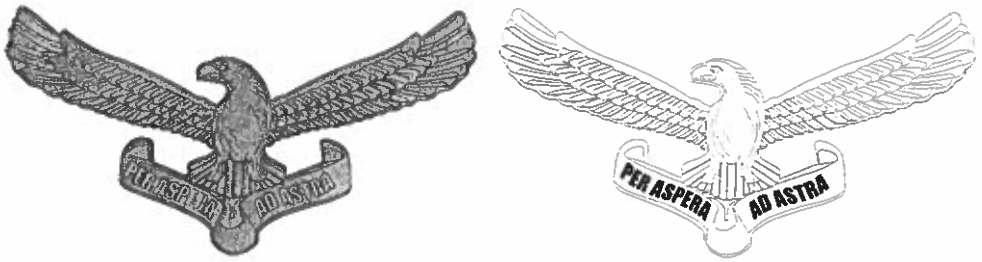


Figure 1 – Significant surface of left collar badge, Regular and MMD (Items A and C)

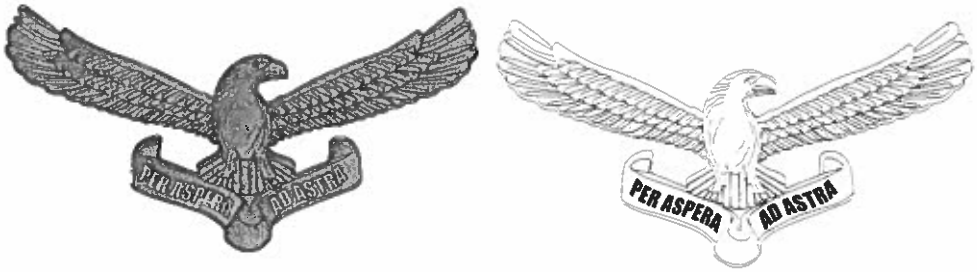


Figure 2 – Significant surface of right collar badge, Regular and MMD (Items B and D)

Figure 3 – Significant surface of cap badge (Items E and F)

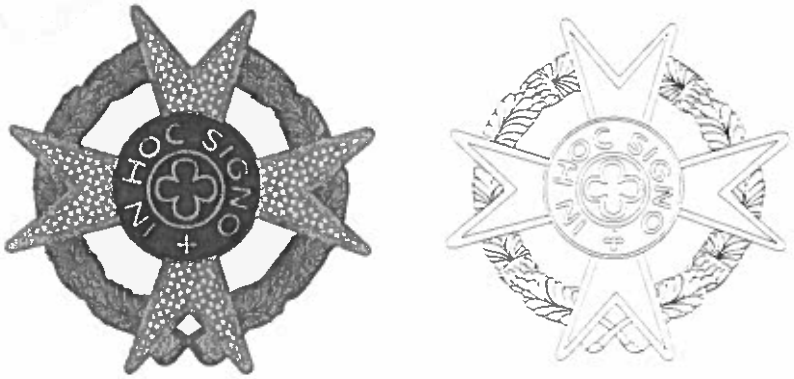
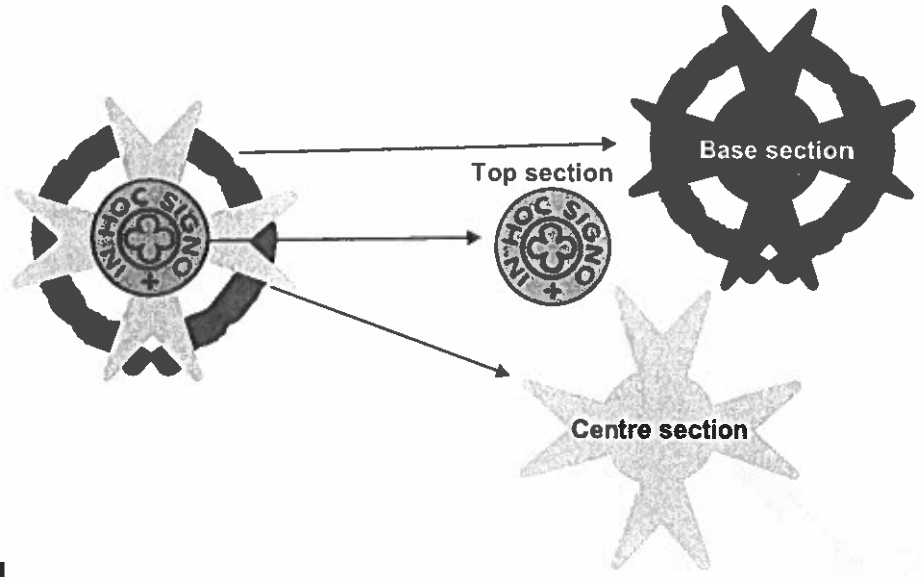


Figure 4 – Significant surface of Chaplains badges (Item G)



Gold plated

Nickel plated

Gold plated, painted and epoxy coated: Pantone colour No. 280C (Blue)

Figure 5 – Three sections of the Chaplains badges (Item G)

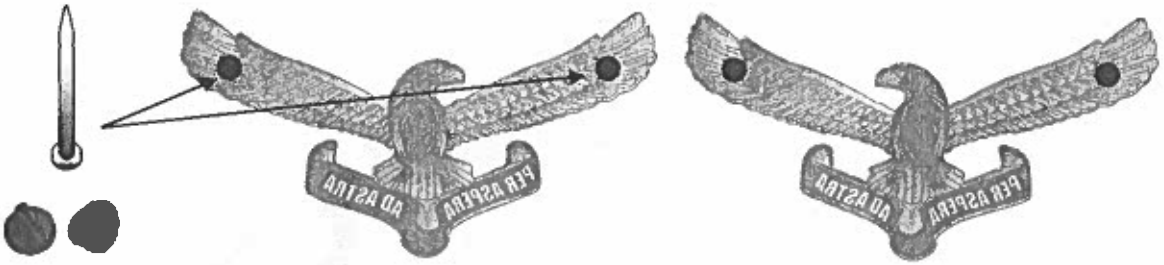


Figure 6 – Back view of collar badges, Regular and MMD (Items A-D)

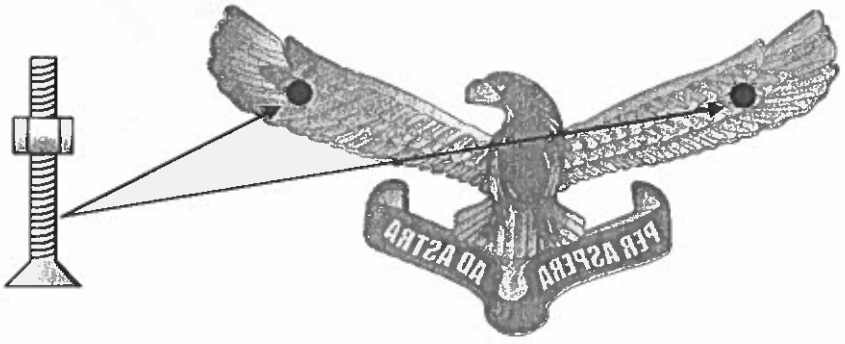


Figure 7 – Back view of cap badge with counter sunk screw attachment (Item E)

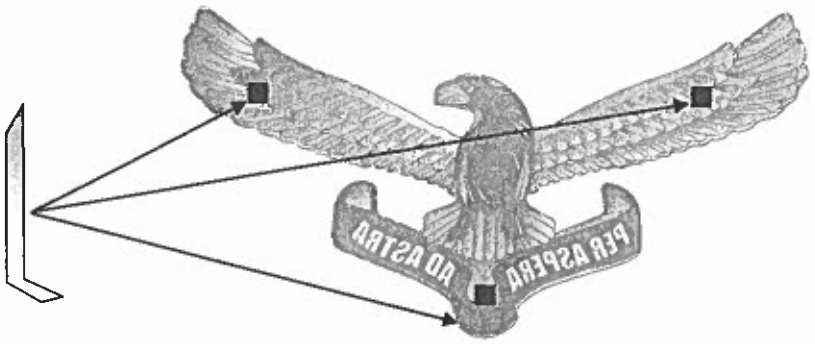


Figure 8 – Back view of cap badge for SAAF Officers (Item F)

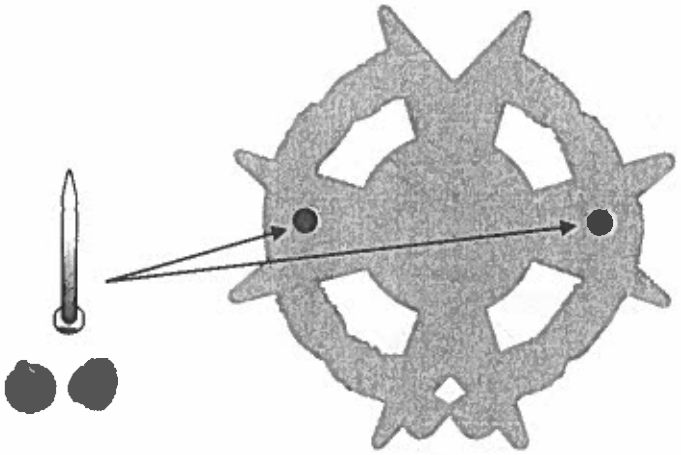


Figure 9 – Back view of badge, Chaplains (Item G)

5. Design and construction

Diagrams are not to scale and all measurements given are nominal.

5.1 SAAF Eagle badges: General requirements (Items A - F)

- single badge and be made of brass as given in paragraph 6.1
- shall give a three-dimensional effect
- incorporate the following finishes :
  - polishing (see paragraph 9.1)
  - gold plating (see paragraph 9.2)

5.1.1 Collar badge, Regular (Items A and B)

- be die-stamped in the shapes as given in figures 1 and 2
- left collar badge with the SAAF eagle's head facing right (refers to when badge is worn)
- right collar badge with the SAAF eagle's head facing left (refers to when the badge is worn)
- dimensions to be as given in figure 12
- fitted with two prongs at the back of the badge (see figure 6)
  - hard or silver soldered to the back
    - → type of soldering used shall depend on the base material of the prong
  - to comply with the requirements as specified in paragraph 6.4

- be of dimensions as given in figure 22
- be positioned as given in figure 13 (approximate position)

- be supplied with two clutches
  - to comply with the requirements as specified in paragraph 6.6

5.1.2 Collar badge, MMD (Items C and D)

- be die-stamped in the shapes as given in figures 1 and 2
- left collar badge with the SAAF eagle's head facing right (refers to when badge is worn)
- right collar badge with the SAAF eagle's head facing left (refers to when the badge is worn)
- dimensions to be as given in figure 14
- fitted with two prongs at the back of the badge (see figure 6)
  - hard or silver soldered to the back
    - → type of soldering used shall depend on the base material of the prong
  - to comply with the requirements as specified in paragraph 6.4
  - be of dimensions as given in figure 22
  - be positioned as given in figure 15 (approximate position)

- be supplied with two clutches
  - to comply with the requirements as specified in paragraph 6.6

5.1.3 Cap badge (Items E and F)

Each badge shall:

- die-stamped in the shapes as given in figure 3
- SAAF eagle's head facing left (refers to when the badge is worn)
- dimensions to be as given in figure 16
- be fitted with one of the following attachments to the back (as given in the order or contract):

  - **Item E:**
    - → each badge to be fitted with two counter sunk screws that are hard or silver soldered to the back of the badge (see figure 7)
    - → to comply with the requirements as specified in paragraph 6.2
    - → to be of dimensions as given in paragraph 7.6
    - → positioned as given in the figure 17 (approximate position)
    - → each to be supplied with two nuts
      - to comply with the requirements as specified in paragraph 6.3
      - be of dimensions as given in paragraph 7.6

  - **Item F:**

    - → fitted with three brass plate strips at the back of the badge (see figures 8 and 10)
    - → soft soldered to the back
    - → to comply with the requirements as specified in paragraph 6.5
    - → be positioned as given in figure 18 (approximate position)

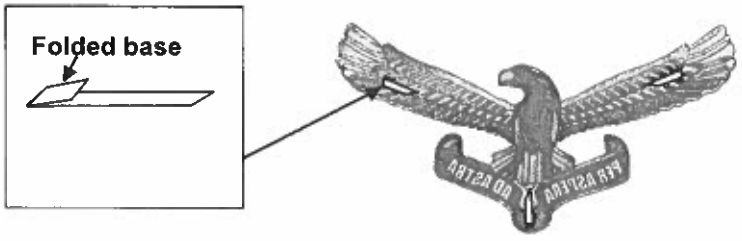


Figure 10 – Fold-over brass strips (Item F)

5.2 Badge, Chaplain (Item G)

- made of brass as given in 6.1
- composite badge (see figure 4)
  - to consist of three separate items
    - → base section
      - to be die-stamped in the shape of a wreath as given in figure 5
      - to be polished
      - to be electroplated with gold (see 9.2)
      - to be soft soldered to the centre section
    - → centre section
      - to be die-stamped in the shape of a Maltese Cross as given in figure 5
      - to be polished (see 9.1)
      - to be electroplated with nickel (see 9.3)
      - to be soft soldered to the top section
    - → top section
      - to be die-stamped in a circular shape as given in figure 5
      - to incorporate the Latin phrase " IN HOC SIGNO" in capital letters, cross at the bottom centre and a centre circle with detail
      - letters and words to be equidistantly spaced
      - to be correctly positioned as given in figure 4
      - to be polished (see 9.1)
      - to be electroplated with gold (see 9.2)
      - to be painted and epoxy-coated (see 9.4)
- shall give a three-dimensional effect
- dimensions to be as given in figures 19 and 20
- fitted with two prongs at the back of the badge (see figure 9)
  - hard or silver soldered to the back
    - → type of soldering used shall depend on the base material of the prong
  - to comply with the requirements as specified in paragraph 6.4
- be supplied with two clutches
  - to comply with the requirements as specified in paragraph 6.6
- prongs at the back to be positioned as given in figure 21 (approximate position)

6. Component requirements

6.1 Base material

- made of brass that comply with the relevant requirements of Type Designation CZ101 (90/10 brass), condition ½ Hard, of SANS 1303-1
- SAAF Eagle badges, base and centre sections of chaplains' badge: nominal thickness 1,1 mm ± 0,1 mm
- top section of chaplain's badge: nominal thickness 1,5 mm ± 0,1 mm

6.2 Counter sunk screws

NOTE: This component is applicable to item E.

- made of brass that complies with the requirements as specified in BS EN 12166
- threaded over their entire length with a standard ISO metric 3,0 x 0,45 thread as given in ISO 261
- of dimensions to be as given in paragraph 7.6

6.3 Nuts

NOTE: This component is applicable to item E.

- made of brass that complies with the requirements as specified in BS EN 12166
- of dimensions as given in paragraph 7.6

6.4 Prongs

NOTE: This component is applicable to items A,B,C,D & G. The type of soldering used shall depend on the base material of the prongs.

- made from cold drawn bright nickel silver or brass wire
- hard or silver soldered to the back surface of the badges, prior to polishing or plating
- of dimensions to be as given in figure 22
- sharp point shall be free from burrs
- any distortion of the prongs shall be rectified during soldering
- all soldering shall be clean, strong, smooth and free from flux and excess soldering

6.5 Brass attachment strips

NOTE: This component is applicable to item F.

- made of brass plate that is of the same brass composition as given in 6.1
- soft soldered to the back surface of the badge, prior to polishing or plating
- of dimensions to be as given in paragraph 7.5 (figure 23)
- such that a base shall be folded over to form a surface that shall facilitate attachment
- all soldering shall be clean, strong, smooth and free from flux and excess soldering

6.6 Clutches

- acceptable rubber PVC clutches
- design to be as given in figure 11
- nominal diameter of base to be 11 mm
- colour to be black or white
- the diameter of the shaft (centre hole) shall be such as to permit full and secure engagement of the prong

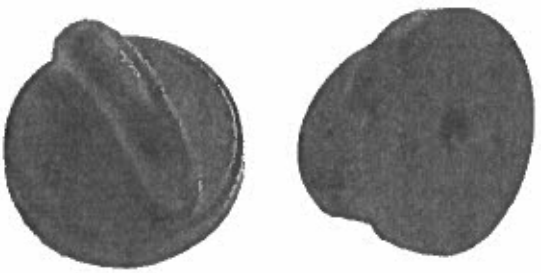


Figure 11 - Clutches

7. Dimensions

Diagrams are not to scale and all measurements given are nominal.

7.1 Collar badge, Regular (applicable to left and right)

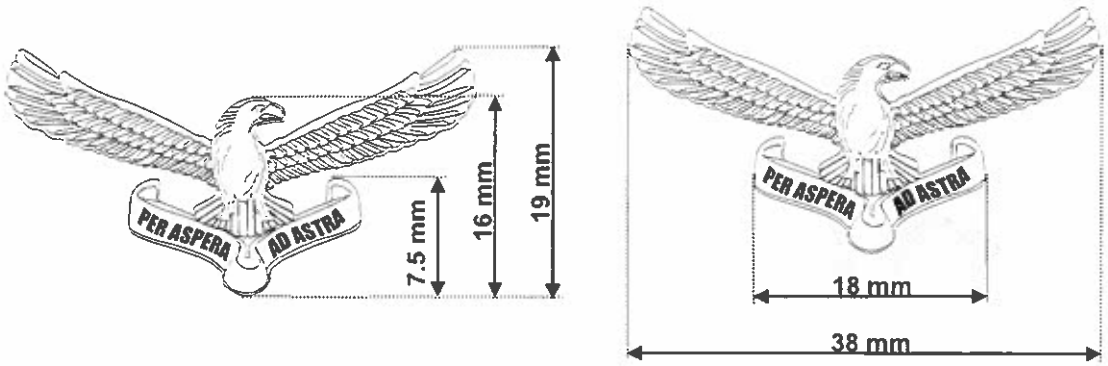


Figure 12 - Dimensions collar badge, Regular

Figure 13 - Positioning of prongs on collar badge, Regular

7.2 Collar badge, MMD (applicable to left and right)

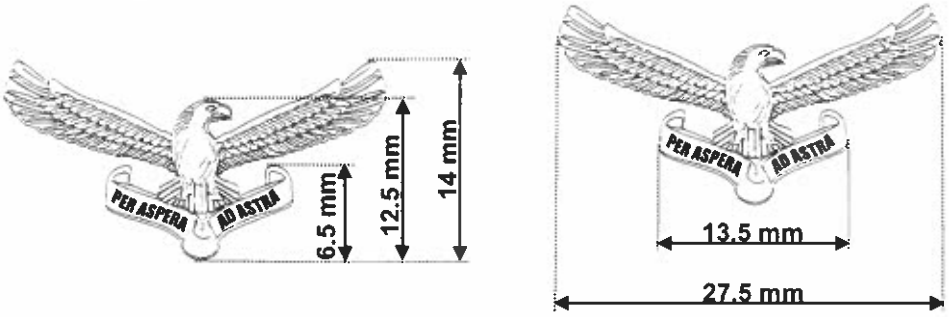


Figure 14 - Dimensions collar badge, MMD

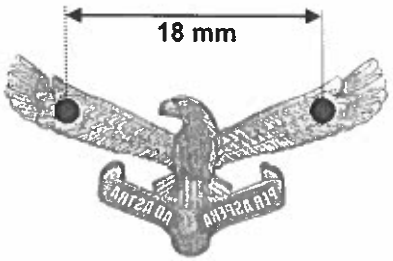


Figure 15 - Positioning of prongs on collar badge, MMD

7.3 Cap badge, SAAF Eagle

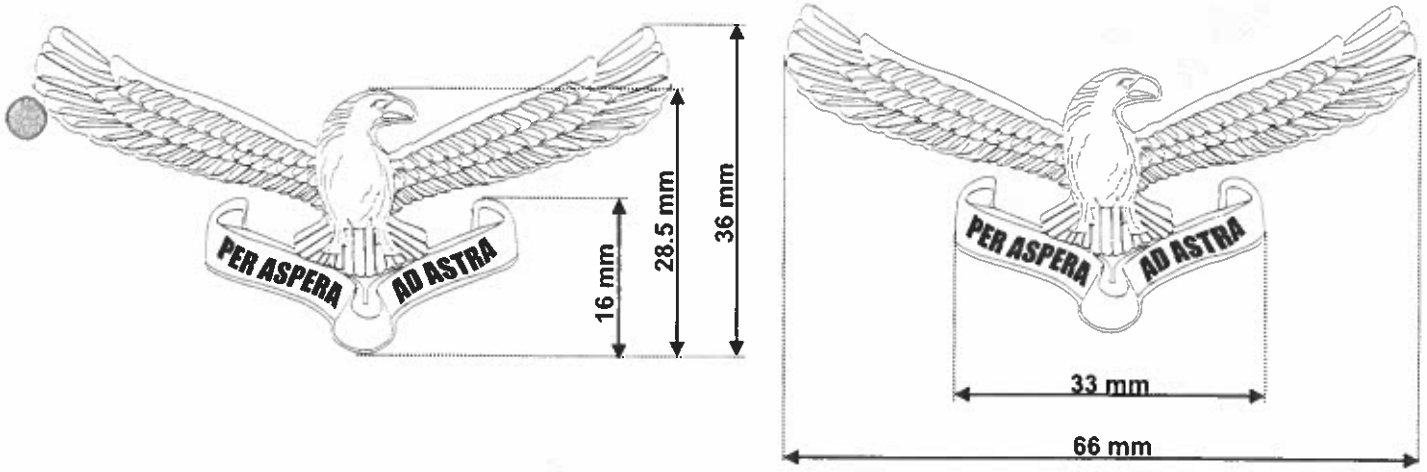


Figure 16 - Dimensions cap badge (Items E and F)

Figure 17 - Positioning of head screw on cap badge (Item E)

Figure 18 - Positioning of brass strips on cap badge (Item F)

7.4 Chaplains, MMD

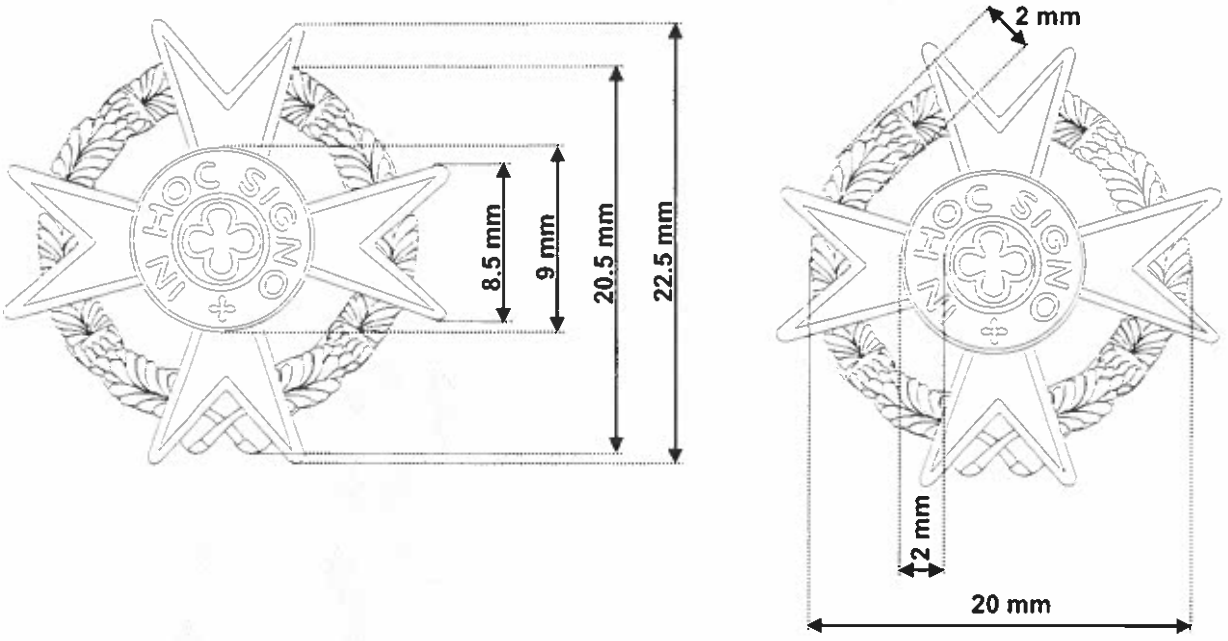


Figure 19 - Dimensions of collar badge, chaplains, MMD (Item G)

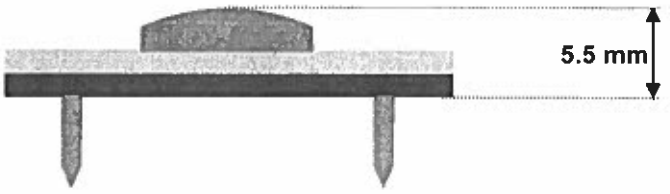


Figure 20 – Dimensions of collar badge, Chaplains, MMD (Item G)

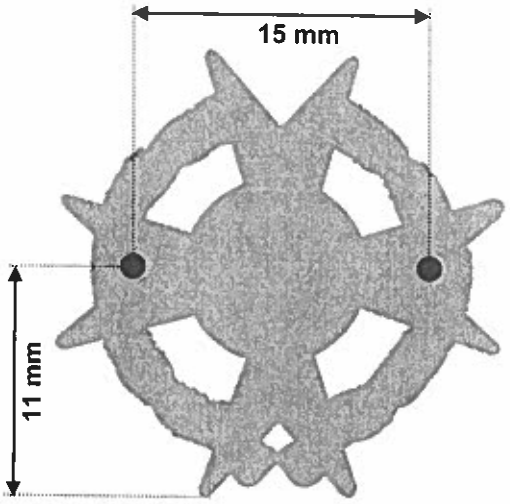


Figure 21 - Positioning of prongs on badge, Chaplains, MMD (Item G)

7.5 Prongs and brass strips

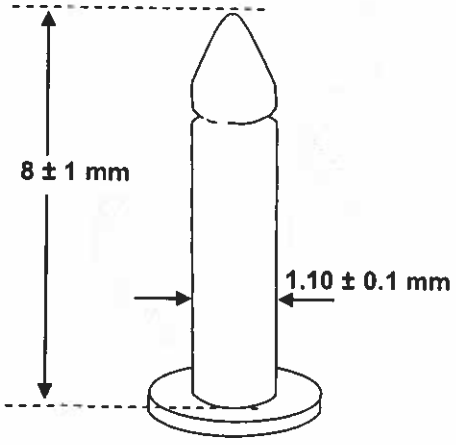


Figure 22 – Prong for collar badges (Items A , B, C, D, and G)

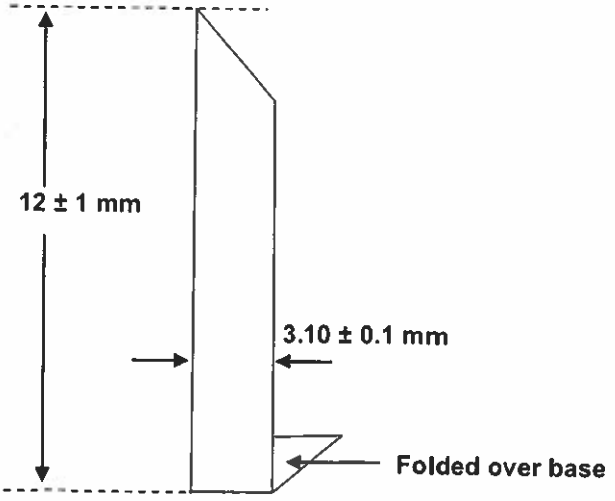


Figure 23 – Brass strips for cap badge (Item F)

7.6 Counter sunk screws

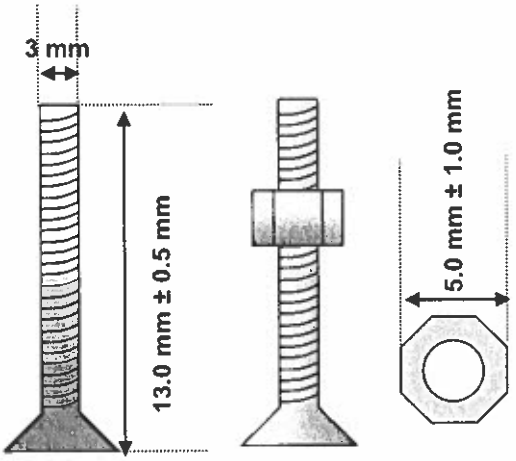


Figure 24 – Counter sunk screws applicable to Item E.

8. Workmanship

Each metal badge shall be:

- die-stamped, made and finished with acceptable standards throughout
- of uniform and acceptable make, colour and finish

Free from defects that:

- affect their appearance
- affect their serviceability (or both)

Free from:

- burrs
- rough or sharp edges
- surface blemishes

Such that the soldering shall be:

- clean and smooth
- strong
- free from flux and excess soldering

9. Finishing

9.1 Polishing

The polishing shall:

- be carried out prior to the plating of the badges
- be carried out until an acceptable smooth and even surface is obtained
- not cause any loss of definition of the design

9.2 Gold plating

The following shall be electroplated with gold:

a) significant surface and back of all SAAF eagles (Items A to F)
b) significant surface and back of the laurel wreath and top piece (Item G)
c) all prongs (Items A, B, C, D, G)

The gold coating shall:

- be electroplated with a uniform and bright deposit of gold
- have a minimum gold content of at least 995 parts per 1 000, when tested with an acceptable non-destructive test method (e.g. an instrument operating on the beta-ray back-scatter principle)
- acceptably match the colour of the samples held by the South African Air Force
- have no contact marks from the electroplating process
- render a clean surface
- adhere firmly to the base metals
- when viewed at a distance of 350 mm, be free from the following defects
  - blisters, pits, roughness, cracks, stains, discolouration, mechanical damage

The thickness of the coating shall be:

- 1µ m at any point on the significant surface of the badge
- be tested by using an acceptable non-destructive test method (e.g. an instrument operating on the beta-ray back-scatter principle) to determine the thickness on the significant surface of the badge

The discontinuity of the coating shall be tested as follows:

- use 50% (V/V) aqueous solution of nitric acid at 25°/25° C = 1,42 maintained at 18 °C ± 2°C
- immerse the face side to a suitable depth, in the acid for 60 ± 2 s

Regard the following as evidence of discontinuity:

- evolution of gas bubbles during immersion
- imparting of a blue colour to the acid solution
- definite change in the face side of the badge on removal from the acid solution
- more than 6 pinpoint defects on the significant surface of the badge

9.3 Nickel plating

The Maltese cross (significant surface and back) shall be electroplated with nickel

The coating shall:

- be electroplated with a uniform deposit
- have a bright finish
- **Nickel:** conform to the requirements as given in SANS 136:1988/ISO 1458:1988 (SABS ISO 1458)
- acceptably match the colour of the sample held by the SAAF
- have no contact marks from the electroplating process
- render a clean surface
- adhere firmly to the base metals
- when viewed at a distance of 350 mm, be free from the following defects
  - blisters
  - pits
  - roughness
  - cracks
  - stains
  - discolouration
  - mechanical damage

The thickness of the coating shall be:

- 5μ m at any point

9.4 Paint and epoxy coating

The paint shall:

- be heat resistant and non-fading
- be an acceptable match to the colour as given in figure 5
- be confined to the area prescribed by the design as given in figure 5
- be covered with epoxy coating
  - be an acceptable clear epoxy resin coating
  - be of acceptable hardness
  - be of nominal thickness 0,5 mm
- when viewed at a distance of 350 mm, be free from the following defects (applicable to the paint and epoxy coating): bubbles, spots, inclusions, cracks, crazing

10. Cleaning instructions

Each plastics envelope (see table 2) shall contain a cardboard insert with the following information:

CLEANING INSTRUCTIONS:

DO NOT USE ABRASIVE SOLVENTS

CLEAN WITH MILD SOAP AND WATER ONLY

DRY WITH A SOFT CLOTH

11. Packing and marking

11.1 Packing

The badges shall be:

- delivered in a commercially dry condition
- so packed that they will not be damaged in transit or in storage
- packed as given in table 2

11.2 Marking

11.2.1 Bulk plastics envelopes

Bulk plastics envelopes to have a label clearly showing the following information:

- the manufacturer's name or trade mark or both
- the year of manufacture
- the item description
- the quantity
- the designation
- the National Stock Number

Table 2 - Packaging

1			2
PACKAGING MATERIAL [a]			**CONTAINING [b]**
A.	Small plastics envelope		Insert with cleaning instructions (see section 10)
	A.1	Items A, B, C, D and G	1 metal badge and two clutches
	A.2	Item E	1 metal badge with 2 nuts
	A.3	Item F	1 metal badge attached to a felt background patch (see Annex C)
B.	Bulk plastics envelope with pull and press opening and closure		Envelopes of A
C.	Bulk container for transit		Envelopes of B
	C.1	**Large quantities:** acceptable bulk containers; Maximum mass of packed container to be 25 kg	
	C.2	**Small quantities:** bulk containers to have a maximum height of 278 ± 3 mm	
[a] Of suitable size and shape. **[b] Of the same designation.**			

11.2.2 Containers

Each bulk container shall be labelled as given in paragraph 11.2 of SALM 108 "Corrugated board boxes for clothing".

11.3 Additional marking

When so required by the South African Air Force, badges, backgrounds, clutches, envelopes or containers (or any combination of these) to bear information additional to that specified above.

12. Normative references

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

BS 6001-1:1991, *Sampling Procedures for Inspection by Attributes – Part 1: Sampling schemes indexed by acceptable quality limit (AQL) for lot-by-lot inspection.*

BS EN 12166:1998, *Copper and copper alloys. Wire for general purposes.*

ISO 261: 1998, *ISO general purpose metric screw threads – General plan.*

SALM 108, *Corrugated board boxes for clothing.*

SANS 136:1988/ISO 1458:1988 (SABS ISO 1458), *Metallic coatings - Electrodeposited coatings of nickel.*

SANS 1303-1, *Wrought copper alloys Part 1: Chemical composition of copper-zinc alloys (non-leaded and leaded).*

13. Special conditions of tender

See Annex A.

14. Sampling and compliance with the specification

See Annex B.

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

ANNEX A

(Normative)

Special conditions of tender

A-1 Unless otherwise stated, the South African Air Force (or an appointed SANAS accredited inspection body) shall be the inspecting authority.

A-2 STANDARD SAMPLES, PRE-PRODUCTION STAMPINGS

A-2.1 GENERAL PROCEDURE

A-2.1.1 Plaster models/Computer generated designs and lead impressions

When a new design of the badge is required or when a new hob or die has to be made, a plaster/computer generated design shall have been made and approved by the South African Air Force before the die is cut for the production of lead impressions. Two lead impressions shall then be submitted to the South African Air Force for approval. When any change to an existing hob or die has been made, two lead impressions shall be submitted to the South African Air Force, for approval.

A-2.1.2 Pre-production samples

Written approval of lead impressions will be sent to the manufacturer, who, on receipt of approval, may produce the 3 pre-production samples that are, after approval, to become standard samples.

A-2.2 STANDARD SAMPLES

In the case of new designs, or where any change has been made to the design of the hob or die, or when called for by the South African Air Force, three standard samples shall be submitted to the appointed inspecting body prior to production being commenced by the manufacturer. Each of these samples shall conform exactly in detail, colour, form and finish to the badges that are to be manufactured during production. Each sample will be mounted on a card (of suitable size) that is sealed and signed by the appointed inspection body. On approval by the inspecting authority, the three pre-production samples will become standard samples and the cards will be treated as follows:

Note: Approval of this sample will not involve any property that requires assessment by a destructive test, but will be limited to approval of construction, design, colour, dimensions, polish and general finish.

1) Sample 1 will be permanently retained by the South African Air Force as a master sample;

2) Sample 2 will be permanently retained by the appointed inspection body;

3) Sample 3 will be sent by the appointed inspection body to the successful tenderer, who shall associate this sample with the order for the badge(s) required. A manufacturer shall not commence production until the third sample has been received from the appointed inspection body.

A-3 INSPECTIONS AND TESTING

A-3.1 The badges 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 badges supplied to this specification may be in progress.

A-3.2 The contractor shall inspect the finished badges for compliance with the specification before submitting them to the inspecting authority for final inspection.

A-3.3 Before acceptance, the badges shall have been inspected and tested by the inspecting authority and found to comply with the requirements of the specification

A-4 DOCUMENTATION

One container of each consignment shall be marked "DOCUMENTS" and in addition to the badges, shall contain the following:

a) The packaging slip or delivery note;
b) where applicable the inspection certificate(s);
c) a copy of the invoice containing the following information:

1. The order number
2. The financial authority number;
3. A full description of the consignment, i.e. National Stock Number, quantity, etc

ANNEX B

(Normative)

Sampling and compliance with the specification

B-1 Sampling

B-1.1 Sample for inspection

From the lot, draw at random the number of badges shown in column 2 of table B.1, relative to the appropriate lot size given in column 1.

B-1.2 Sample for testing

From the lot, or after inspection, from the samples drawn in accordance with B-1.1 above, draw at random the appropriate number of badges as relevant, shown in column 4 of table B.1.

B-2 Compliance with the specification

B-2.1 The lot shall be deemed to comply with the requirements of the specification if:

B-2.1.1 on inspection of the sample taken in accordance with B-1.1, the number of defectives found does not exceed the appropriate acceptance number given in column 3 of table B.1;

B-2.1.2 on testing the sample taken in accordance with B-1.2, no defectives are found.

Table B.1 - Lot sizes of metal badges

1	2	3	4
Lot size	**Sample for inspection[1)]**		**Sample for testing[2)]**
	Sample size	Acceptance No. (AQL = 1.5)	
25 - 90	8	0	3
91 - 280	32	1	3
281 - 500	50	2	5
501 - 1200	80	3	5
1201 - 3200	125	5	8
3201 - 10 000	200	7	8
10 001 - 35 000	315	10	13
35001 - 150 000	500	14	20

Note: AQL = Acceptance Quality Limit

[1)] Based on table II-A of BS 6001 for general inspection level II.
[2)] Based on table II-A of BS 6001 for special inspection level S-2.

ANNEX C

(Normative)

Cap badge, gilt on black, SAAF Officers

C-1 GENERAL - Materials

The item linked to National Stock Number 18-400-9020 shall consist of two separate components:

a) a metal badge
b) a fabric background that incorporates a filler (sandwiched between two layers of fabric)

C-1.1 Metal badge

Metal badge to comply with the requirements as specified for item F of SALM 455.

C-1.2 Felt background fabric

The background fabric shall be an acceptable black felt fabric.

C-1.3 Lining fabric

Acceptable knitted of woven fabric that shall not fray when cut.

C-1.4 Filler

Acceptable non-woven filler of nominal thickness 2,5 mm.

C-2 Make of background

Note: The metal badge shall be attached to the felt before the lining is bonded to the felt.

- to be made of a layer of felt fabric that is lined with lining and interlined with filler
  - felt fabric and lining shall be securely bonded together in such a way that the bonded areas:
    - has a uniform finish
    - is free from perforations, untreated areas and other imperfections (e.g. blisters and ripples)
  - filler to be cut in a triangular shape and securely bonded to the lining (sandwiched between the felt and lining)
- the adhesive used for bonding shall
  - not contain any constituent that may have a toxic or irritating effect on the skin
  - be such that it adheres to both materials and will not under any circumstances emit an unpleasant odour
- shape and dimensions of background to be as given in figures C.1 to C.3

C-3 Attachment of badge to background

- the badge shall be centrally positioned on the felt fabric layer
- brass attachment strips on the back of the metal badge to be pushed through the felt and bent at an angle in order to lie flat
- the lining (together with the filler) shall be bonded to the felt after the metal badge has been attached

Note: The brass attachment strips will not be visible on the back after the lining has been attached.

Figure C.1 – Positioning of metal badge

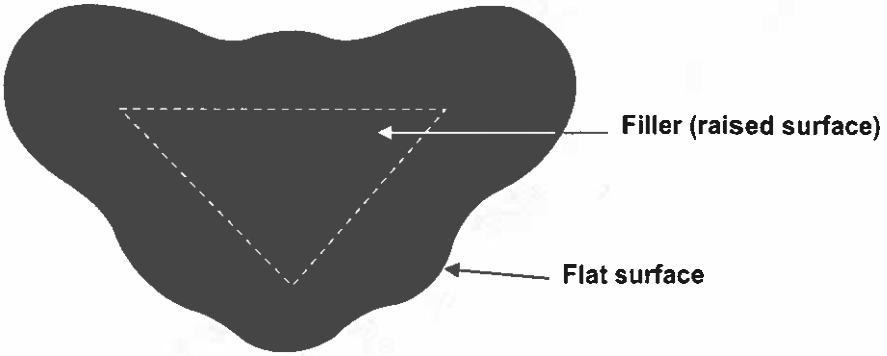


Figure C.2 – Back view (lining) and shape of filler

Figure C.3 – Dimensions of background fabric patch (continues)

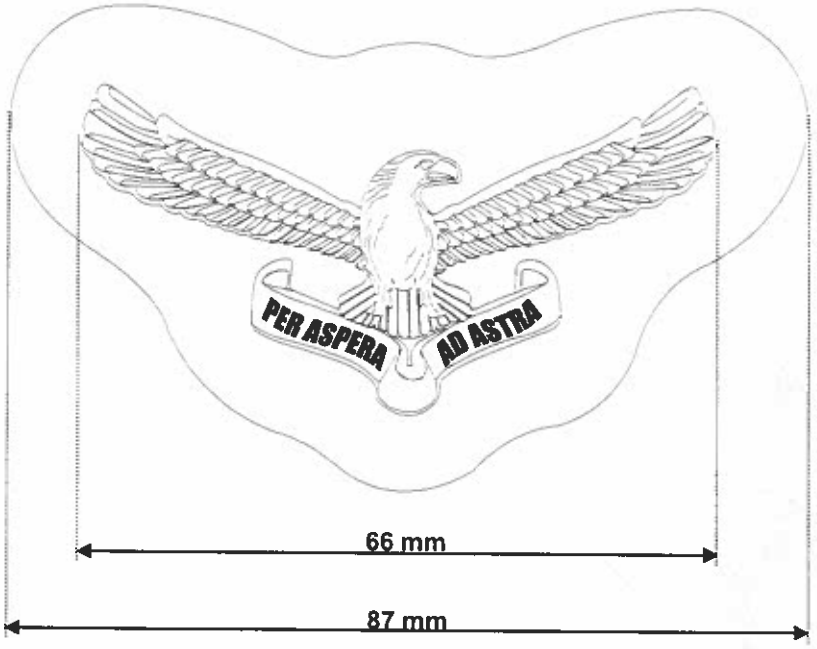


Figure C.3 – Dimensions of background fabric patch (continued)

For office use				
HISTORY SHEET				
DOC ISSUE	**DATE**	**AMENDMENTS**		
1				
2	September 1997			
3	August 2008	Updated Normative references Update format Add illustrations Add reference to SALM 108 Add Annex C Give option of nickel or nickel-plus-chromium plating Add reference to brass attachment strips to back of badge that are positioned on felt background		
4	February 2011	Add reference to insert containing cleaning instructions		
5	May 2014	Replace old clutches with new type		
5.1	March 2018	Add a regular size Chaplains badge		
5.2	April 2018	Counter sunk screws and brass strips are not be plated Brass strips to be soft soldered Delete reference to chromium plating Amend thickness of gold coating: specified thickness only applicable to the significant surface		
5.3	April 2018	Delete reference to Regular chaplains badge Amend all figure numbers		
6.0	August 2018	Sixth release		

PRIVATE SPECIFICATION

Prepared for the

South African Air Force

BADGE IDENTIFICATION
for
SUPPLY SUPPORT
(Regular and MMD)

SALM 652
Version 01.0/July 2014

1. Scope

This specification covers the materials and design of two variations of **SUPPLY SUPPORT** metal badges for the South African Air Force. The variations covered by this specification are as follows:

A) Supply Support, badge, gilt, regular

B) Supply Support, badge, gilt, miniature mess dress (MMD)

2. Definitions and Abbreviations

For the purposes of this specification, the following definitions apply:

Acceptable: Acceptable to the South African Air Force.

Defective: A badge that fails in one or more respects to comply with the relevant requirements of this specification.

A Lot: Not less than 25 and not more than 150 000 badges of the same type, NSN, finish and style, from one manufacturer, submitted any one time for inspection and testing.

Nominal: Subject to the tolerances normal to good manufacturing practice.

Significant surface: The visible face side of the badge, when the badge is attached to the relevant uniform item.

3. General

No component materials, hobs, dies or tools will be supplied by the South African Air Force.

The badges shall be supplied in two variations (as specified in the order or contract) and shall be as given in table 1.

Table 1 – Badge variations

1 Variation	2 National Stock Number	3 Designation	4 Illustration
A	18-189-2539	Supply Support, badge, gilt, regular	

B	18-189-2540	Supply Support, badge, gilt, MMD	

4. Illustrations

All illustrations below are not to scale and given for guidance. The design may be slightly altered, in consultation with SAAF, to accommodate a feasible manufacturing process.

Figure 1 – Significant surface

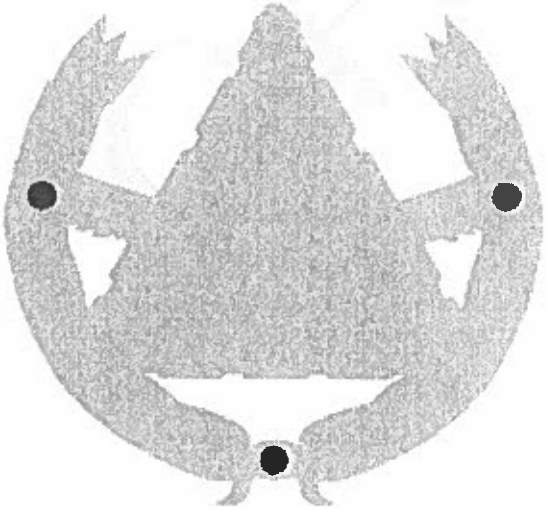


Figure 2 – Back view of Regular badge

Figure 3 – Back view of MMD badge

Visible gold plated areas

Metallic silver painted areas

Figure 4 – Application of plating and paint on the significant surface

5. Design and construction

Diagrams are not to scale and all measurements given are nominal.

Each badge shall:

- be die-stamped in the shape as given in paragraph 4
- be made of brass plate as given in paragraph 6.1
- shall give a three-dimensional effect
- blanked and voided
- be such that the face side shall incorporate the following design elements:
  - a triangle with an interlocking chain around the outer edges that shall stand proud of the triangle
  - a **wreath** that surrounds the other design components
  - a centrally positioned SAAF Eagle that is superimposed on top of all components
  - gold plated and painted areas (see figure 4)

- regular badge shall be fitted with three prongs and the MMD badge shall be fitted with two prongs at the back of the badge
  - hard or silver soldered to the back
    - type of soldering used shall depend on the base material of the pin
  - to comply with the requirements as specified in paragraph 6.2
  - be of dimensions as given in figure 7
  - be positioned as given in figure 6

- be supplied in two sizes
  - dimensions to be as given in figure 5

- be supplied with the relevant amount of clutches
  - to comply with the requirements as specified in paragraph 6.3

- incorporate the following finishes :

- polishing (see paragraph 9.1)
- gold plating (see paragraph 9.2)
- painting (see paragraph 9.3)

6. Component requirements

6.1 Base material

- made of brass that comply with the relevant requirements of Type Designation CZ101 (90/10 brass), condition ½ Hard, of SANS 1303-1
- of nominal thickness 1,5 mm

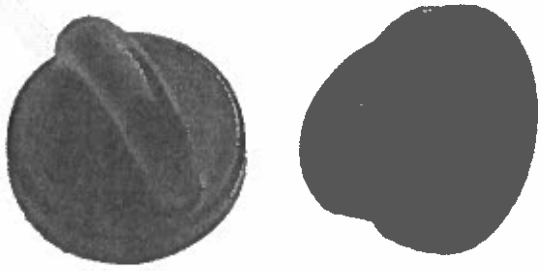
6.2 Prongs

- made from cold drawn bright nickel silver or brass wire
- hard or silver soldered to the back surface of the badge pins, prior to polishing or plating
- of dimensions to be as given in paragraph 7.3
- sharp point shall be free from burrs
- any distortion of the prongs shall be rectified during soldering
- all soldering shall be clean, strong, smooth and free from flux and excess soldering

NOTE- The type of soldering used shall depend on the base material of the prongs.

6.3 Clutches

- acceptable rubber PVC clutches
- design to be as given in figure below
- nominal diameter of base to be 11 mm
- colour to be black or white
- the diameter of the shaft (centre hole) shall be such as to permit full and secure engagement of the prong



7. Dimensions

Diagrams are not to scale and all measurements given are nominal.

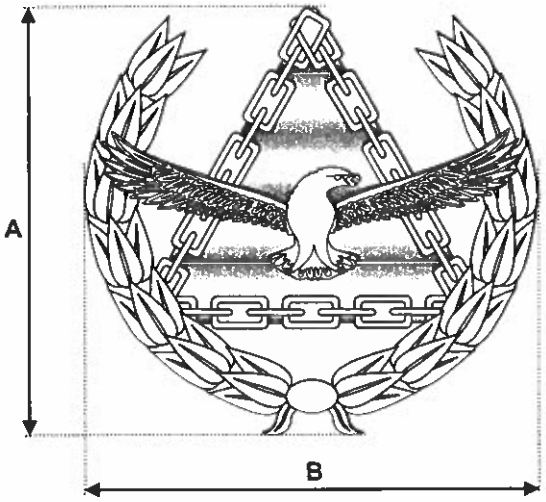


Figure 5 - Dimensions badges

Figure No	Item	A	B
5	**Regular**	36 mm	36 mm
	MMD	27 mm	27 mm

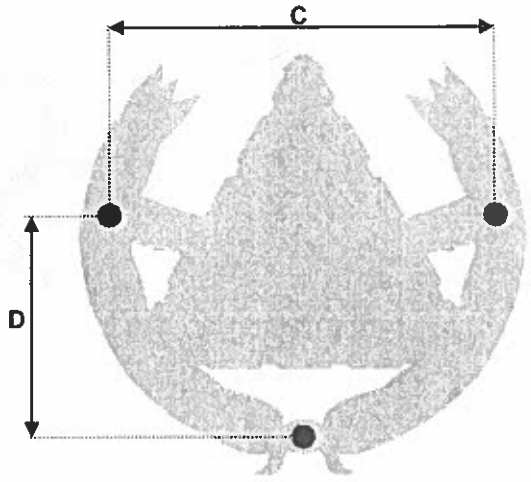


Figure 6 – Positioning of pins on Regular badges

Figure No	Item	C*	D*
6	**Regular**	30 mm	15 mm
	MMD	As appropriate for the size and with two pins only	
*Approximate dimensions and given for guidance			

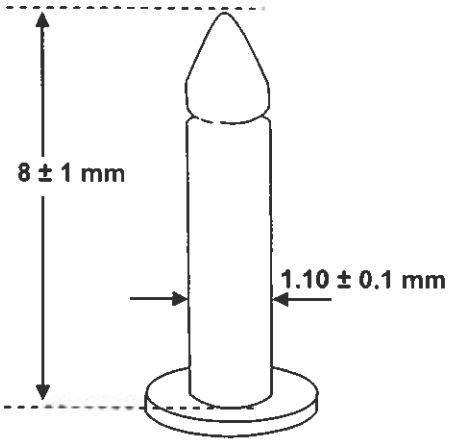


Figure 7 – Dimensions of the prongs/pins

8. Workmanship

Each metal badge shall be:

- die-stamped, made and finished with acceptable standards throughout
- of uniform and acceptable make, colour and finish

Free from defects that:

- affect their appearance
- affect their serviceability (or both)

Free from:

- burrs
- rough or sharp edges
- surface blemishes

Such that the soldering shall be:

- clean and smooth
- strong
- free from flux and excess soldering

9. Finishing

9.1 Polishing

The polishing shall:

- be carried out prior to the plating of the badges
- be carried out until an acceptable smooth and even surface is obtained
- not cause any loss of definition of the design

9.2 Gold plating

The significant surface, back and prongs shall be electroplated with gold:

The gold coating shall:

- be electroplated with a uniform and bright deposit of gold
- have a minimum gold content of at least 995 parts per 1 000, when tested with an acceptable non-destructive test method (e.g. an instrument operating on the beta-ray back-scatter principle)
- be of a colour that shall be as agreed upon between the SAAF and the successful tenderer
- have no contact marks from the electroplating process
- render a clean surface
- adhere firmly to the base metals
- when viewed at a distance of 350 mm, be free from the following defects
  - blisters, pits, roughness, cracks, stains, discolouration, mechanical damage

The thickness of the coating shall be:

- 1μm at any point
- be tested by using an acceptable nn-destructive test method (e.g. an instrument operating on the beta-ray back-scatter principle) to determine the thickness on the face side of the badge

The discontinuity of the coating shall be tested as follows:

- use 50% (V/V) aqueous solution of nitric acid at 25°/25° C = 1,42 maintained at 18 °C ± 2°C
- immerse the face side to a suitable depth, in the acid for 60 ± 2 s

Regard the following as evidence of discontinuity:

- evolution of gas bubbles during immersion
- imparting of a blue colour to the acid solution
- definite change in the face side of the badge on removal from the acid solution
- more than 6 pinpoint defects on the significant surface of the badge

9.3 Painting

The paint shall:

- be heat resistant
- non-fading
- an acceptable silver metallic colour as agreed upon between SAAF and the successful tenderer
- be confined to the area prescribed by the design as given in figure 4
- be covered with epoxy coating
  - be an acceptable clear epoxy resin coating
  - be of acceptable hardness
  - be of nominal thickness 0,5 mm
- when viewed at a distance of 350 mm, be free from the following defects (applicable to the paint and epoxy coating): bubbles, spots, inclusions, cracks, crazing

10. Packing and marking

Each plastics envelope (see table 2) shall contain a cardboard insert with the following information:

CLEANING INSTRUCTIONS:

DO NOT USE ABRASIVE SOLVENTS

CLEAN WITH MILD SOAP AND WATER ONLY

DRY WITH A SOFT CLOTH

11. Packing and marking

11.1 Packing

11.1.1 General

The badges shall be:

- delivered in a commercially dry condition
- so packed that they will not be damaged in transit or in storage
- packed as given in table 2

Table 2 - Packaging

1			2
PACKAGING MATERIAL [a]			**CONTAINING [b]**
A.	Small plastics envelope		1 metal badge, two clutches and cleaning instructions insert (See section 10)
B.	Bulk plastics envelope with pull and press opening and closure		Envelopes of A
C.	Bulk container for transit		Envelopes of B
	C.1	**Large quantities:** acceptable bulk containers; Maximum mass of packed container to be 25 kg	
	C.2	**Small quantities:** bulk containers to have a maximum height of 278 ± 3 mm	
[a] Of suitable size and shape. **[b] Of the same designation.**			

11.2 Marking

11.2.2 Bulk plastics envelopes

Bulk plastics envelopes to have a label clearly showing the following information:

- the manufacturer's name or trade mark or both
- the year of manufacture
- the item description
- the quantity
- the designation
- the National Stock Number

11.2.3 Containers

Each bulk container shall be labelled as given in paragraph 11.2 of SALM 108 "Corrugated board boxes for clothing".

11.3 Additional marking

When so required by the South African Air Force, badges, clutches, envelopes or containers (or any combination of these) to bear information additional to that specified above.

12. Normative references

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

BS 6001-1:1991, *Sampling Procedures for Inspection by Attributes – Part 1: Sampling schemes indexed by acceptable quality limit (AQL) for lot-by-lot inspection.*

SANS 135:1988/ISO1456:1988 (SABS ISO 1456), *Metallic coatings – electrodeposited coatings of nickel plus chromium and of copper plus nickel plus chromium.*

SANS 136:1988/ISO 1458:1988 (SABS ISO 1458), *Metallic coatings - Electrodeposited coatings of nickel.*

SANS 1303-1, *Wrought copper alloys Part 1: Chemical composition of copper-zinc alloys (non-leaded and leaded).*

SALM 108, *Corrugated board boxes for clothing.*

13. Special conditions of tender

See Annex A.

14. Sampling and compliance with the specification

See Annex B.

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

ANNEX A

(Normative)

Special conditions of tender

A-1 Unless otherwise stated, the South African Bureau of Standards shall be the inspecting authority.

A-2 STANDARD SAMPLES, PRE-PRODUCTION STAMPINGS

A-2.1 GENERAL PROCEDURE

A-2.1.1 Plaster models/Computer generated designs and lead impressions

When a new design of the badge is required or when a new hob or die has to be made, a plaster/computer generated design shall have been made and approved by the South African Air Force before the die is cut for the production of lead impressions. Two lead impressions shall then be submitted to the South African Air Force for approval. When any change to an existing hob or die has been made, two lead impressions shall be submitted to the South African Air Force, for approval.

A-2.1.2 Pre-production samples

Written approval of lead impressions will be sent to the manufacturer, who, on receipt of approval, may produce the 3 pre-production samples that are, after approval, to become standard samples.

A-2.2 STANDARD SAMPLES

In the case of new designs, or where any change has been made to the design of the hob or die, or when called for by the South African Air Force, three standard samples shall be submitted to the South African Bureau of Standards prior to production being commenced by the manufacturer. Each of these samples shall conform exactly in detail, colour, form and finish to the badges that are to be manufactured during production. Each sample will be mounted on a card (of suitable size) that is sealed and signed by the South African Bureau of Standards. On approval by the inspecting authority, the three pre-production samples will become standard samples and the cards will be treated as follows:

Note: Approval of this sample will not involve any property that requires assessment by a destructive test, but will be limited to approval of construction, design, colour, dimensions, polish and general finish.

1) Sample 1 will be permanently retained by the South African Air Force as a master sample;

2) Sample 2 will be permanently retained by the South African Bureau of Standards;

3) Sample 3 will be sent by the South African Bureau of Standards to the successful tenderer, who shall associate this sample with the order for the badge(s) required. A manufacturer shall not commence production until the third sample has been received from the South African Bureau of Standards.

(21)

A-3 INSPECTIONS AND TESTING

A-3.1 The badges 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 badges supplied to this specification may be in progress.

A-3.2 The contractor shall inspect the finished badges for compliance with the specification before submitting them to the inspecting authority for final inspection.

A-3.3 Before acceptance, the badges shall have been inspected and tested by the inspecting authority and found to comply with the requirements of the specification

A-4 DOCUMENTATION

One container of each consignment shall be marked "DOCUMENTS" and in addition to the badges, shall contain the following:

a) The packaging slip or delivery note;
b) where applicable the inspection certificate(s);
c) a copy of the invoice containing the following information:

1. The order number
2. The financial authority number;
3. A full description of the consignment, i.e. National Stock Number, quantity, etc

ANNEX B

(Normative)

Sampling and compliance with the specification

B-1 Sampling

B-1.1 Sample for inspection

From the lot, draw at random the number of badges shown in column 2 of table B.1, relative to the appropriate lot size given in column 1.

B-1.2 Sample for testing

From the lot, or after inspection, from the samples drawn in accordance with B-1.1 above, draw at random the appropriate number of badges as relevant, shown in column 4 of table B.1.

B-2 Compliance with the specification

B-2.1 The lot shall be deemed to comply with the requirements of the specification if:

B-2.1.1 on inspection of the sample taken in accordance with B-1.1, the number of defectives found does not exceed the appropriate acceptance number given in column 3 of table B.1;

B-2.1.2 on testing the sample taken in accordance with B-1.2, no defectives are found.

Table B.1 - Lot sizes of metal badges

1	2	3	4
Lot size	**Sample for inspection**[1)]		**Sample for testing**[2)]
	Sample size	Acceptance No. (AQL = 1.5)	
25 - 90	8	0	3
91 - 280	32	1	3
281 - 500	50	2	5
501 - 1200	80	3	5
1201 - 3200	125	5	8
3201 - 10 000	200	7	8
10 001 - 35 000	315	10	13
35001 - 150 000	500	14	20

Note: AQL = Acceptance Quality Limit

[1)] Based on table II-A of BS 6001 for general inspection level II.
[2)] Based on table II-A of BS 6001 for special inspection level S-2.

DOC ISSUE	DATE	AMENDMENTS	CHECKED	
			NAME	INIT.
1	July 2014	First release		

PRIVATE SPECIFICATION

Prepared for the

South African Air Force

IDENTITY TAG and BALL CHAIN

SALM 674
Version 01.0/August 2018

1. Scope

This specification covers the design and make of stainless steel identity tags and ball chains worn by personnel of the South African Air Force.

2. Definitions and Abbreviations

Acceptable: Acceptable to the South African Air Force.

Defective: An identity tag that fails in one or more respects to comply with the relevant requirements of this specification

A Lot: Not less than 25 and not more than 150 000 identity tags from one manufacturer and submitted any one time for inspection and testing

Nominal: Subject to the tolerances normal to good manufacturing practice

SAE: Society of Automotive Engineers

SAE 30304: A general purpose 18/8 stainless steel with good strength and excellent corrosion resistance

SANS: South African National Standard

3. General

The National Stock Numbers for the Identity tags and ball chains shall be as given in table 1.

Table 1 – National Stock Numbers

1	2
National Stock Number	**Item description**
18-402-1334	Tag key, stainless octagonal; 50 mm W
18-402-1318	Chain, bead S/Stl; 0,635 m Lg

4. Illustrations

Illustrations are not to scale and for guidance only.

Figure 1 – Blank identity tags with attached ball chain (incorporating a clasp)

5. Client furnished materials

No component materials, hobs, dies or tools will be supplied by the South African Air Force.

6. Component materials

The identity tags and ball chains shall be manufactured from stainless steel according to either of the following stainless steel composition grades:

- 304S15 of BS 970
- SAE No 30304 (AISI TYPE 304) of SAE J405

7. Dimensions

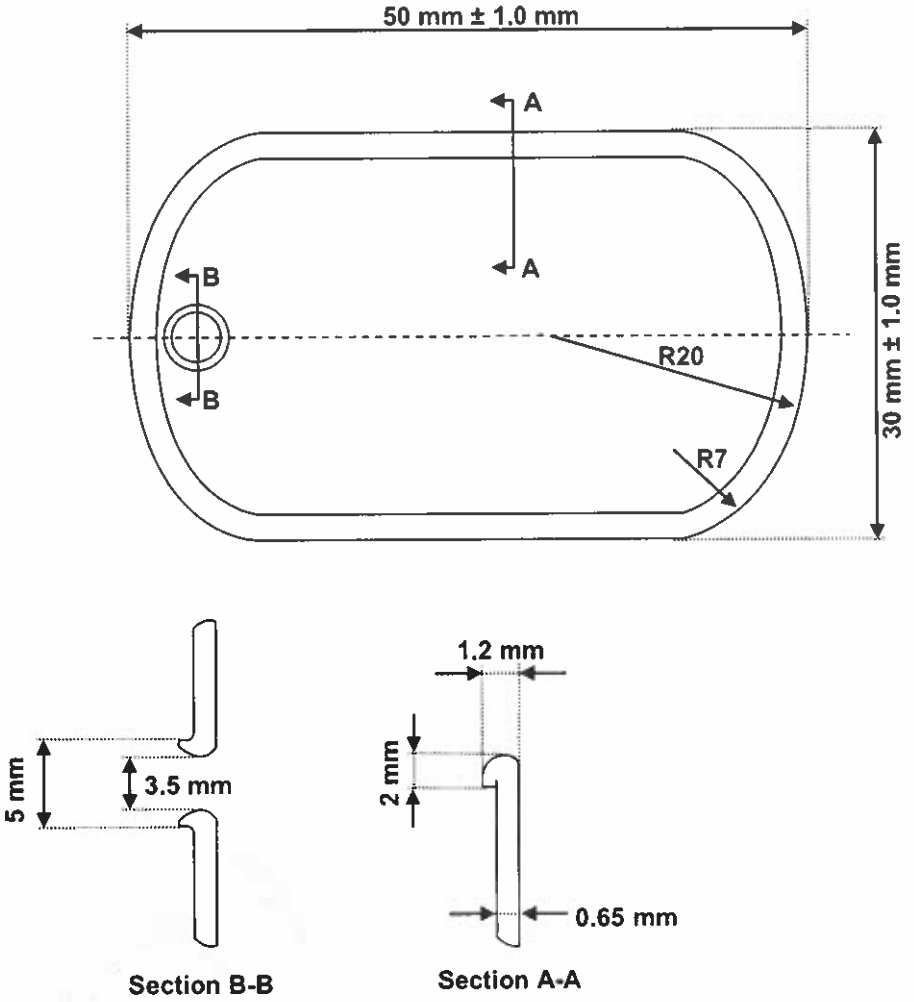


Figure 2 - Identity tag shape and dimensions

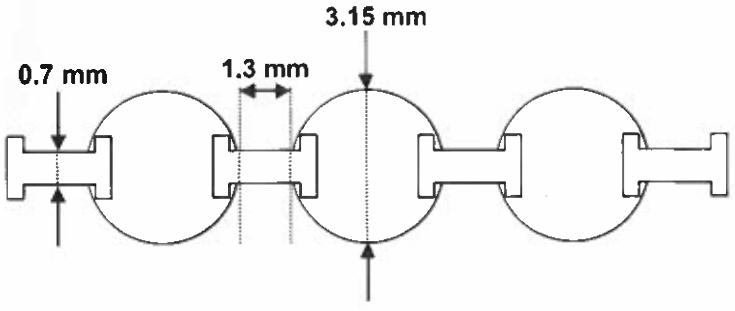


Figure 3 – Ball chain shape and dimensions

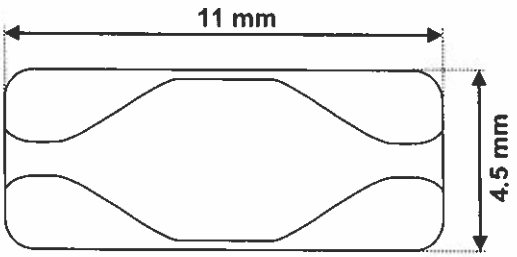


Figure 4 - Clasp shape and dimensions

8. Design and construction

8.1 Identity tag

- have the shape and nominal finished dimensions as given in figure 2
- have beaded edges which are shown in section A-A and section B-B in figure 2
- have a flat reverse side
- face side and reverse side of each identity tag shall have a smooth, polished finish that shall be blemish free
- to comply with the hardness requirement as given in paragraph 9.2

NOTE: Only blank identity tags shall be supplied by the successful bidder. Personal details of the SAAF members are to be stamped onto the identity tag prior to issue, using a combination of alphanumeric characters as prescribed by SAAF.

8.2 Ball chain

- have the shape and dimensions as given in figure 3
- to consist of a number of hollow spheres
  - connected by rod-links (to make chain flexible) which have sufficient upsets to prevent them from being pulled out of the sphere
- have an extended length of 650 mm when fitted with a clasp
- have a smooth finish
- tensile strength requirement to be as given in paragraph 9.3

8.3 Clasp

- have the shape and dimensions as given in figure 4
- be fitted to each ball chain length
- have a smooth finish
- have an opening in the middle that narrows down to slots in the ends
  - the size of the slot openings shall permit the two end spheres of the ball chain to be inserted separately and moved along the slots to the ends of the clasp
- tensile strength requirement to be as given in paragraph 9.3

9. Performance requirements and test methods

9.1 General

- samples for testing shall be taken in accordance with paragraph B-1.1 of Annex B

9.2 Hardness of identity tag

9.2.1 Test method

- test in accordance with SANS 055, apply a load of 5 kg and determine the Vickers hardness of each identity tag at any point exceeding 4 mm from the edge of the hole

9.2.2 Requirement

- identity tags shall have a maximum hardness of 179 Vickers

9.3 Tensile strength test and requirement of ball chain and clasp

9.3.1 Test method

- use as a test piece, a length of ball and chain which includes the closed clasp and at least 10 rod-links on either side of the clasp
- clamp the test piece by the free ends in an acceptable testing machine
- apply a tensile force at a moderate speed to the test piece until fracture occurs and note the maximum force recorded

9.3.2 Requirement

- each ball chain and clasp shall withstand a force of not less than 100N and not more than 150N before fracture

10. Workmanship

Each identity badge and ball chain shall be:

- made and finished with acceptable standards throughout
- of uniform and acceptable make, colour and finish
- completely durable

Free from defects that:

- affect their appearance
- affect their serviceability (or both)

Free from:

- burrs and cracks
- rough or sharp edges

11. Packing and marking

11.1 Packing

11.1.1 General

The identity tags and ball chains shall be:

- delivered in a commercially clean and dry condition
- so packed that they will not be damaged in transit or in storage
- packed as given in table 2

Table 2 - Packaging

1		2
	PACKAGING MATERIAL [a]	**CONTAINING** [b]
A	Individual plastics envelope	Single ball chain and attached clasp
B	Individual plastics envelope	Two identity tags
C	**Large quantities:** acceptable bulk containers; Maximum mass of packed container to be 25 kg	As specified in A or B
D	**Small quantities:** bulk containers to have a maximum height of 278 ± 3 mm	

[a] **Of suitable size and shape.**
[b] **Contents to be the same type of item.**

11.2 Marking

11.2.1 Plastics envelopes

Each individual plastics envelope to have a label clearly showing the following information:

- the manufacturer's name or trade mark or both
- the year of manufacture
- the item description
- the National Stock Number(s)
- VAT number of contractor

11.2.2 Containers

Each bulk container shall be labelled as given in paragraph 11.2 of SALM 108 "Corrugated board boxes for clothing".

11.3 Additional marking

When so required by the South African Air Force, identity tags, ball chain, clasps, envelopes or containers (or any combination of these) to bear information additional to that specified above.

12. Normative references

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

304S15, *Specification for wrought steels for mechanical and allied engineering purposes. Bright bars for general engineering purposes.*

BS 970, *Wrought steels for mechanical allied engineering purposes – Part 1: General inspection and testing procedures and specific requirements for carbon, carbon manganese, alloy and stainless steel.*

BS 6001-1:1991, *Sampling Procedures for Inspection by Attributes – Part 1: Sampling schemes indexed by acceptable quality limit (AQL) for lot-by-lot inspection.*

SAE Handbook, *Volume 1: Materials, J405: Chemical composition of SAE wrought stainless steels.*

SAE J405, *The chemical composition of standard types of wrought stainless steel.*

SALM 108, *Corrugated board boxes for clothing.*

SANS 055, *Methods of hardness testing of metallic materials.*

* **SABS** ***Standards Sales: Tel. +27 (0) 12 4287911***

ANNEX A

(Normative)

Special conditions of tender

A-1 GENERAL

A-1.1 Unless otherwise stated, the South African Air Force or an appointed SANAS accredited inspection body shall be the inspecting authority.

A-1.2 Three pre-production sample identity tags, ball chains or combination (as specified in the order or contract), 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 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 identity tags, ball chains or combination (as specified in the order or contract) 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 identity tags, ball chains or combination (as specified in the order or contract) supplied to this specification may be in progress

A-1.4 The contractor shall inspect the finished identity tags, ball chains or combination (as specified in the order or contract) for compliance with the specification before submitting them to the inspecting authority for final inspection.

A-1.5 Before acceptance, the identity tags, ball chains or combination (as specified in the order or contract) 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 identity tags, ball chains or combination (as specified in the order or contract), shall contain the following:

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

ANNEX B

(Normative)

Sampling and compliance with the specification

B-1 Sampling

B-1.1 Sample for inspection

From the lot, draw at random the number of items shown in column 2 of table B.1, relative to the appropriate lot size given in column 1.

B-1.2 Sample for testing

From the lot, or after inspection, from the samples drawn in accordance with B-1.1 above, draw at random the appropriate number of items as relevant, shown in column 4 of table B.1.

B-2 Compliance with the specification

B-2.1 The lot shall be deemed to comply with the requirements of the specification if:

B-2.1.1 on inspection of the sample taken in accordance with B-1.1, the number of defectives found does not exceed the appropriate acceptance number given in column 3 of table B.1;

B-2.1.2 on testing the sample taken in accordance with B-1.2, no defectives are found.

Table C.1 - Lot sizes

1	2	3	4
Lot size	**Sample for inspection[1)]**		**Sample for testing[2)]**
	Sample size	Acceptance No. (AQL = 1.5)	
25 - 90	8	0	3
91 - 280	32	1	3
281 - 500	50	2	5
501 - 1200	80	3	5
1201 - 3200	125	5	8
3201 - 10 000	200	7	8
10 001 - 35 000	315	10	13
35001 - 150 000	500	14	20

Note: AQL = Acceptance Quality Limit

[1)] Based on table II-A of BS 6001 for general inspection level II.
[2)] Based on table II-A of BS 6001 for special inspection level S-2.

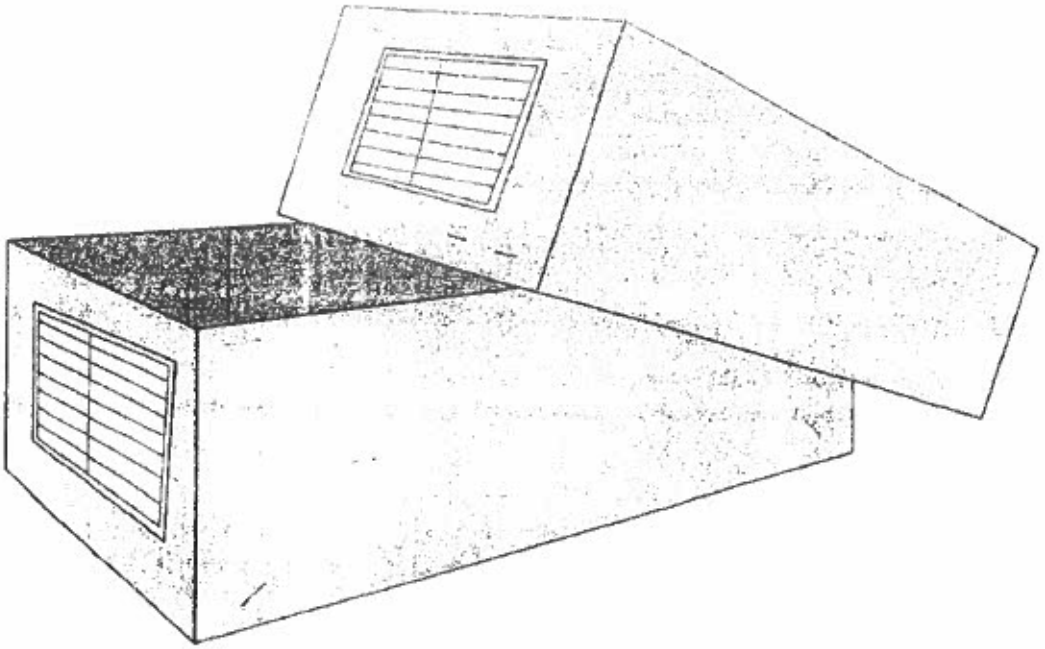
For office use only		
HISTORY SHEET		
VERSION	**DATE**	**AMENDMENTS**
0.1	April 2018	First draft; Based on 05181-100-225
0.2	April 2018	Add NSNs an spec number Delete Annex A Amend packaging
01.0	August 2018	First release Amend packaging for identification tags

PRIVATE SPECIFICATION

Prepared for the

SOUTH AFRICAN AIR FORCE

CORRUGATED BOARD BOXES FOR CLOTHING (TELESCOPIC TYPE)



SALM 108
Version 06.0/August 2018

1. Scope

This specification covers the requirements for the material, design, dimensions, and physical properties of corrugated board components (inner and outer) of telescopic type corrugated board boxes used for packing clothing and footwear for personnel of the South African Air Force.

2. Definitions and Abbreviations

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

where relevant: the definitions given in SANS 431 and SANS 456

acceptable: acceptable to the South African Air Force

FIFO: First in, First out

nominal: subject to the tolerances normal to good manufacturing practice

IFCC: International Fibreboard Case Code

inner component: a component that has sides, ends, and a bottom but no top

outer component: a component that has sides, ends and top but no bottom and that fits telescopically over the inner component

SANS: South African National Standard

3. Style

The style is as follows:

- IFCC style No. 0301
- telescopic type
- having an inner and an outer container

4. Illustrations

Illustrations are not to scale and are for guidance only.

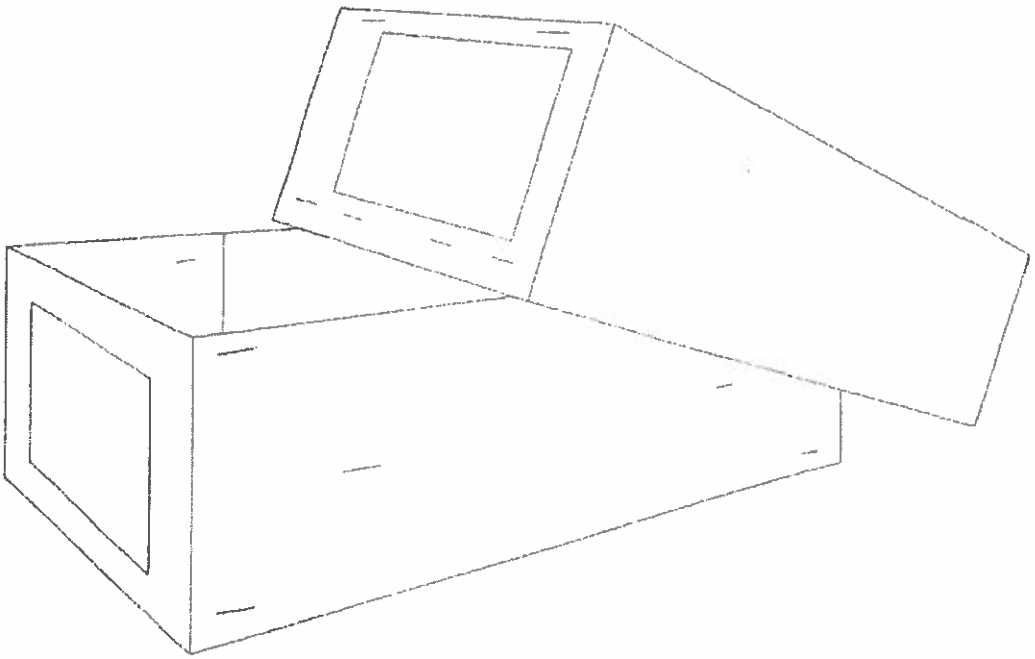


Figure 1 – Base and lid components of telescopic cardboard box
(assembled and ready to serve as a container for storage of finished goods)

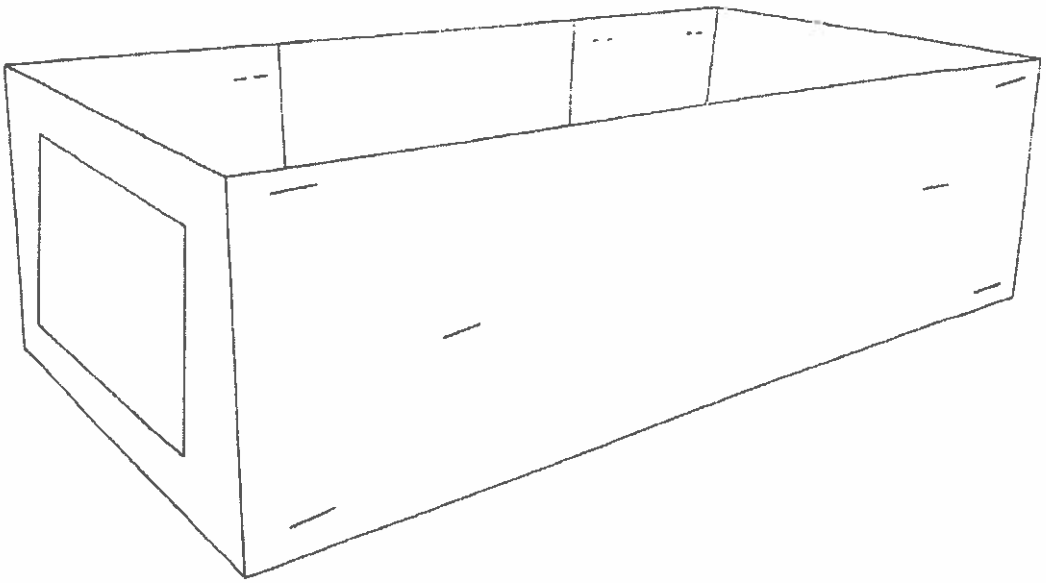


Figure 2 – Base component of telescopic cardboard box
(assembled and ready to serve as the base of a container for storage of finished goods)

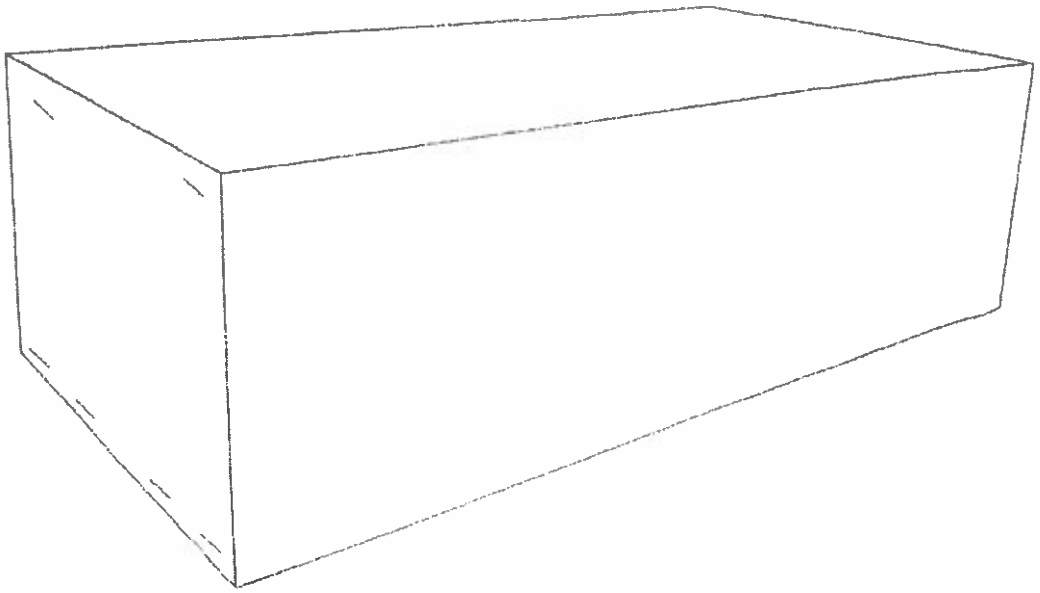


Figure 3 – Lid component of telescopic cardboard box
(assembled and ready to serve as the lid of a container for storage of finished goods, without the label to show the staples on the short end)

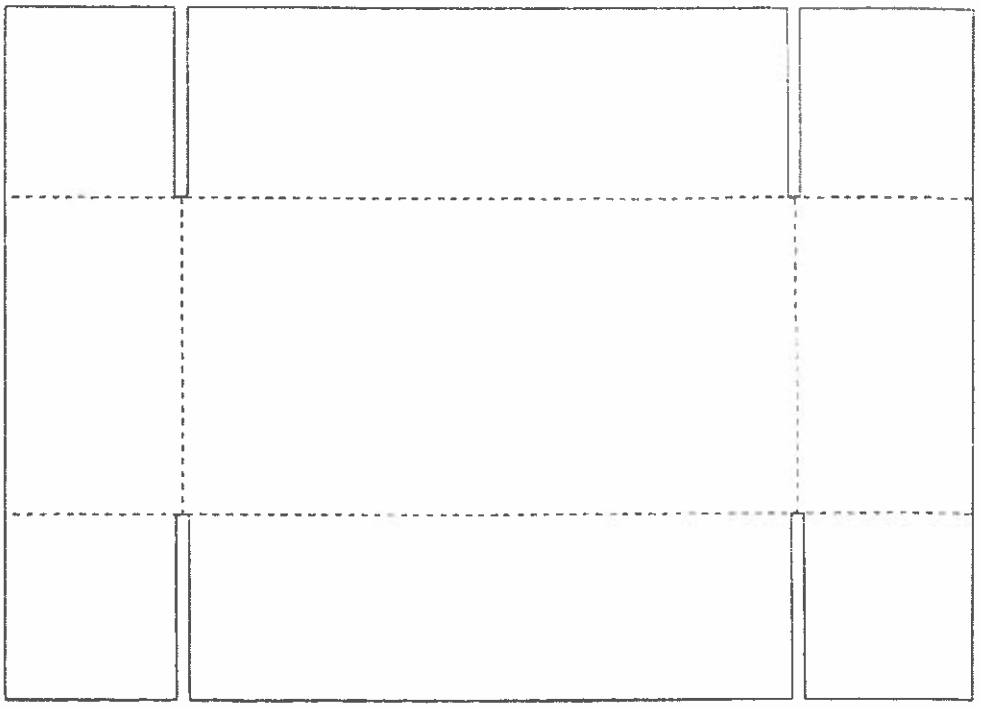


Figure 4(a) – Design of telescopic cardboard box when unassembled (Base component)

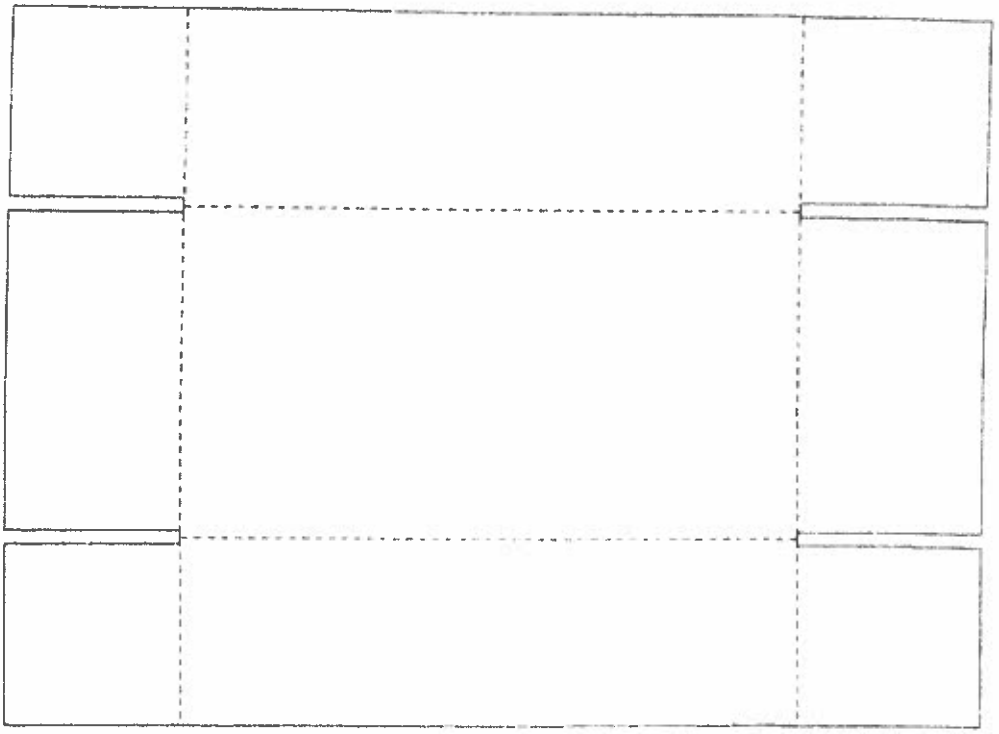


Figure 4(b) – Design of telescopic cardboard box when unassembled (Lid components)

5. Client Furnished Materials

No materials will be supplied by the South African Air Force.

6. Physical and Performance Requirements

The corrugated board boxes shall comply with the following physical characteristics.

6.1 Paper

- paper shall be manufactured from processed cellulose fibre and shall be reasonably free from defects as listed in section 7
- the relevant surfaces of the paper shall be such as to accept the adhesives commonly used in the manufacture of corrugated board

6.1.1 Fluting and liners

- to comply with the requirements of SANS 431 "Liners and fluting for corrugated board" for the relevant types (grammage) as specified in table 1
- grammage of the fluting and liners of the inner and outer component parts to comply with the requirements as given in table 1
  - the nominal grammage values given in table 1 are subject to a tolerance of ± 5%

Table 1 – Grammage of fluiting and liners

1	2	3
Property	**Requirement**	**Test Method** [a]
Grammage, g/m², min.	935 [b]	ISO 536
Damp-ply adhesion (B and C flute), N/m.	400 [c]	See 10.2
Water absorption of facing g/m² after 30 min. max (outer and inner) .	120 [b]	See 10.3
Thickness, mm, min.	6,0 [c]	See 10.4
Bursting strength, kPa, min.	1700 [c]	ISO 2758

[a] *Condition all specimens and test pieces in accordance with ISO 187, using the conditioning atmosphere 23/50. See also 10.1.*

[b] *The average of two determinations (one specimen from each of two components) to be reported .*

[c] *The average of six determinations (two specimens from each of three components) to be reported.*

6.1.2 Corrugated board

- to be wet-strength double wall simplex corrugated board of C and B fluting construction
- to comply with the requirements as given in table 2
- the direction of the corrugations in the sides of the inner and outer components shall be parallel to the direction of the stacking load (refers to closed and assembled boxes)

Table 2 - Physical Properties of Corrugated Board

1	2	3	4	5	6
Component	**Nominal grammage, g/m²**				**Test Method**
	Liners			**Fluting B and C**	
	Inner	**Centre**	**Outer**		
Inner	230	160	230	125	ISO 536 [a]
Outer	230	160	230	125	

[a] Condition all specimens and test pieces in accordance with ISO 187, using the conditioning atmosphere 23/50.Determine the average actual grammage, but use 20 test pieces.

6.2 Adhesives

- the adhesives used in making corrugated board and in the construction of the box shall not have any deleterious effect on the intended contents of the container

6.3 Dimensions and design

- IFCC style No. 0301 as given in Annex B of SANS 456:2009 "Corrugated board containers"
- dimensions to comply with the requirements as given in section 8

6.4 Creasing

- the creasing of the board shall be such that when a box is tested in accordance with paragraph 10. 5, there is no splitting of any liner
- the creasing of the board shall be such that when a component is assembled, there shall be no splitting of any liner
- there shall be no overlap of the flaps when each component is assembled

6.5 Staples

- staples shall be of a steel wire
- the wire shall have a coating (such as zinc, tin, copper, or enamel) that is not readily removable by the stapling process
- the staples shall have a nominal crown length of 30 mm, and each leg shall be long enough to be clinched on the inside of the board for a length of at least 7 mm

6.6 Storage requirements

- dry storage for a period not exceeding 15 months under the following conditions:
  - Temperature range: - 10° to 50°
  - Humidity: Maximum 50% relative humidity, Minimum 25 % relative humidity
- the components shall, before delivery, be stored in such a manner that they are reasonably protected from adverse atmospheric conditions and from fungal and insect attack

6.7 Transport requirements

- suitable for rail, road and air transport

6.8 Durability requirements

- single journey use

6.9 Strapping

- acceptable polypropylene strapping of nominal width 10 – 12 mm
- manufactured in accordance with high grade commercial practice

7. Workmanship

The box component parts to be:

- cut and made with first-class workmanship throughout
- of uniform and acceptable make and finish

To be free from:

- defects, such as listed below or any other imperfection that affect their serviceability
  - fibre bundles, holes, splinters, specs and breaks

8. Dimensions

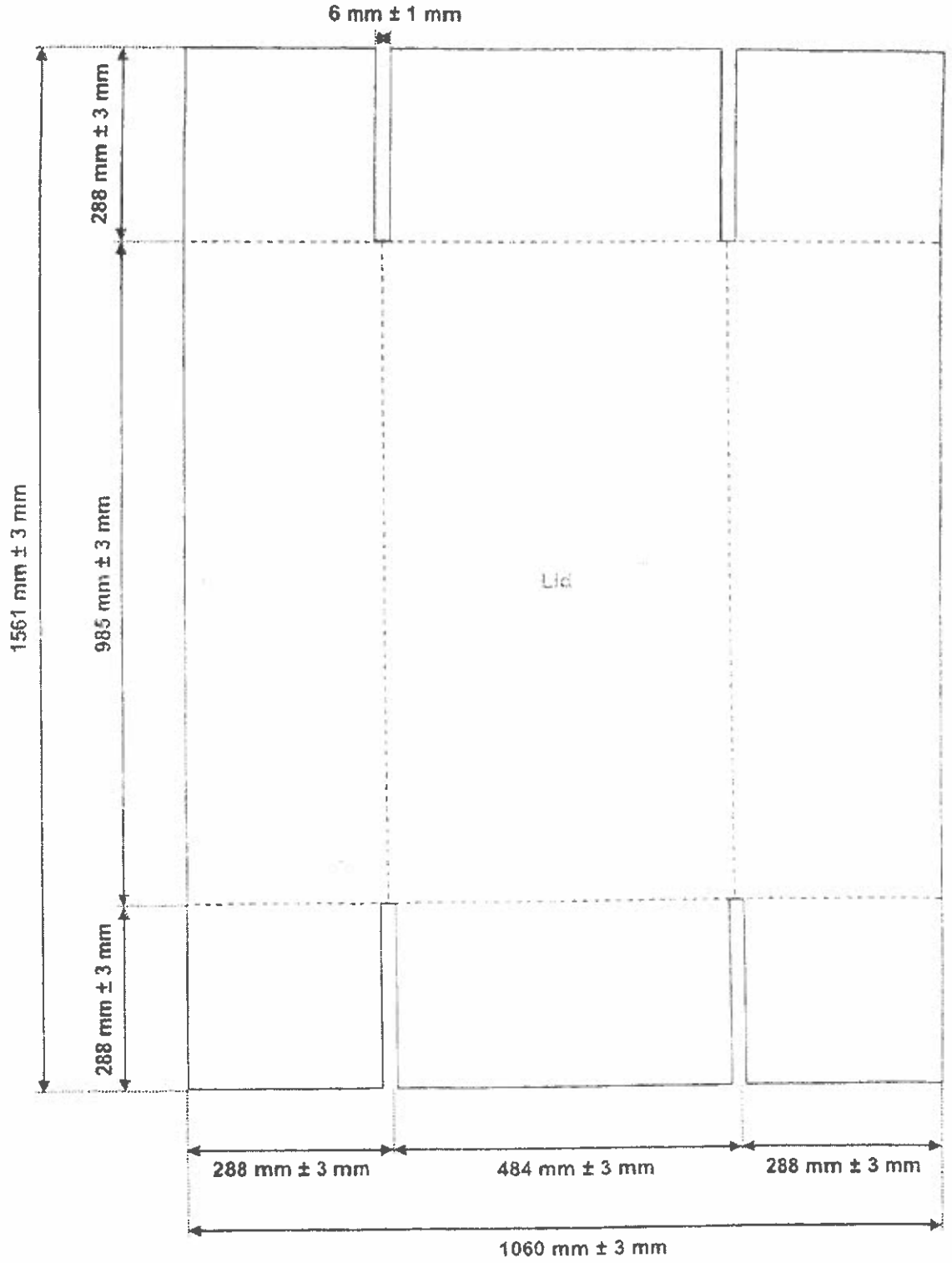


Figure 5 – Dimensions of the lid component of the telescopic board box (flat measurements)

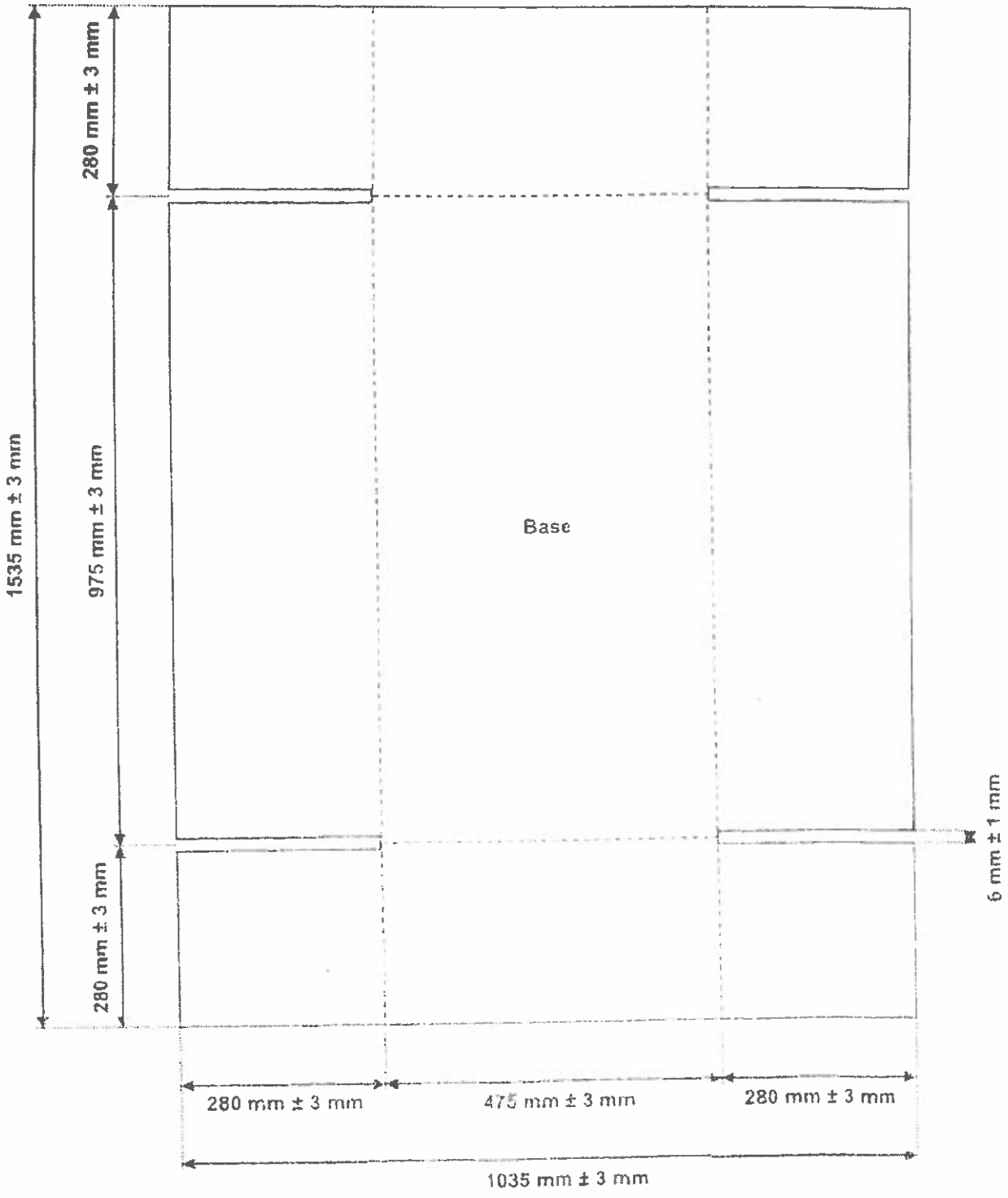


Figure 6 – Dimensions of the base component of the telescopic board box (flat measurements)

9. Assembly/Securing of boxes

Unless inconsistent with the text, all measurements are nominal.

9.1 Stapling

- each joint shall be stapled (see 6.5) with a minimum of three staples if the crown length is 30 mm (min).
  - in instances where the crown lengths of the staples are less than 25 mm, a minimum of five staples shall be required to secure the joints
- staples shall not commence more than 25 mm away from each end of a joint, and shall be adequately clinched

9.2 Strapping of boxes

- once packed, each corrugated box (base and lid unit) shall be secured with at least three lengths of strapping, i.e. two in the width and one in the length
- secured by means of metal clasps or a fusing technique (as relevant) in such a way that it shall not come undone by itself (to withstand transportation, stacking, handling and storage)
- tensioning to be such that after it is permanently secured, the strapping shall not cause any damage to the contents of the container

10. Test methods

10.1 General

10.1.1 Test specimens

- unless otherwise stated, take test specimens from areas of the board that are uncreased and undamaged and, where possible, from different units in the sample

10.1.2 Conditioning

- unless otherwise stated, condition, inspect, and test all specimens in a controlled atmosphere that, has a relative humidity of 50 % ± 2 % and a temperature of 23 °C ± 2 °C
- during conditioning, position each specimen so that all surfaces are freely exposed to the conditioning atmosphere
- ensure that the air of the conditioning and testing laboratories is so circulated that the humidity and temperature are uniform throughout the laboratory
- allow sufficient conditioning time for the moisture content of the specimens to attain equilibrium with the conditioning atmosphere

NOTE - In cases of doubt determine the mass of each specimen at hourly intervals until the results of the last two determinations do not differ by more than 0,25 % of the final mass. For preference, approach equilibrium from the dryer condition.

10.2 Test method for damp-ply adhesion

- test in accordance with paragraph 6.13 of SANS 456:2009 "Corrugated board containers"

10.3 Test method for water absorption of outer facing of board

- determine the average water absorption of the top side of a liner in accordance with ISO 535, "Paper and board -- Determination of water absorption – Cobb method ", but use 6 test pieces, a testing time of 30 minutes and water at a temperature of 23°C ± 1°C
- omit the rejection of test pieces that have been saturated with water
- in cases where the test result exceeds 150 g/m², report the result at 150 + g/m²

10.4 Test method for determining thickness (calliper) of corrugated board

- test in accordance with paragraph 6.8 of SANS 456:2009 "Corrugated board containers"

10.5 Accuracy and degree of creasing of corrugated board

- test in accordance with paragraph 6.14 of SANS 456:2009 "Corrugated board containers"

11. Packing, Labelling and Documentation of Goods

NOTE: This section covers the packaging, labelling and documentation of <u>manufactured goods</u> that are to be packed into containers as specified in this specification.

11.1 Packing

- items to be packed in containers made in accordance with this specification
- stapling and strapping to comply with the requirements as given in section 9
- containers to be sealed with 50 mm broad tape
- quantities as given in Annex A to serve as a guideline

11.2 Labelling

Each bulk container shall have a label securely attached to the outside of all four short sides (both upper and lower components). The labels shall be visible when the containers are stacked and shall provide the following information in legible and indelible block letters:

- to be a A4 paper size (landscape layout) and markings to be in the following sequence (see fig 7):
  - the order number
  - the National Stock Number (NSN)
  - the item description
  - the size designation
  - the year of manufacture
  - the colour (only if product is supplied in more than one colour)
  - the gross mass of the packed container
  - FIFO colour coded system
- minimum letter height of 45 pt. ARIAL

- left column: all CAPITAL LETTERS
- right column: Capitalize first letter of each word

11.3 Documentation

One container per consignment marked "DOCUMENTS" is to accompany each consignment with the following:

- the packaging slip/delivery note
- the inspection certificate (where applicable)
- the copy of the invoice containing the following information:
  - order number
  - financial authority number
  - full description of consignment, i.e. National Stock Numbers, quantities, etc.

11.4 Additional marking

When so required by the South African Air Force, containers to bear information additional to that specified above.

12. Packing and Delivery of Containers

NOTE: This section covers the delivery requirements of the containers when delivered to the clothing and/or footwear supplier.

12.1 General

- the relevant requirements of SANS 456 to apply

12.2 Packing

The component parts of the box to be:

- packed flat in bundles of 25
- delivered in a commercially dry condition
- so packed that they will not be damaged in transit or in storage

12.3 Marking

- each component part to bear the date of manufacture (month and year): e.g. 08/2008

Figure 7 – Example of bulk container labelling

ORDER NR	2D142199
NSN	18-180-1234
DESCRIPTION	Shoes, Service Dress
SIZE	9W
QUANTITY	100
YEAR	2013
COLOUR*	Black
GROSS MASS	22.6KG

**Include only if product is supplied in more than one colour.*

13. 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 Standards South Africa*.

IFCC, *International fibreboard case code.*
ISO 187, *Paper and board – Conditioning of samples.*
ISO 535, *Paper and board -- Determination of water absorption – Cobb method.*
ISO 536, *Paper and board – Determination of grammage.*
ISO 2758, *Paper - Determination of bursting strength.*
SANS 431, *Liners and fluting for corrugated board.*
SANS 456:2009, *Corrugated board containers.*

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

ANNEX A

(Informative)

Guideline packing quantities

Series No.	Item		Qty per carton
1	1.	Towels bath blue	40
	2.	Towels hand blue	60
	3.	Face cloth blue	150

Series No.	Item		Qty per carton
2	1.	Caps Garrison	200
	2.	Cap service	18
	3.	Drawers multi colour	400
	4.	Hat service blue/grey	200
	5.	Jackets F/D, x/small, small	50
	6.	Jackets F/D, med, large, x/large	45
	7.	Jackets SD Blue Grey	30
	8.	Shirt L/S	60
	9.	Shirt S/S	100
	10.	Shirt F/D L/S	80
	11.	Shirt F/D S/S	100
	12.	Shirt mess dress	50
	13.	Short Gym Blue	200
	14	T-shirt blue/grey	100
	15.	Trousers F/D blue/grey	60
	16.	Trousers Blue Grey	70
	17.	Vest white	150

Series No.	Item		Qty per carton
3	1.	Aprons foodhandlers bib blue/grey	200
	2.	Apron foodhandlers bib type white	200
	3.	Bags duffel blue/grey canvas	40
	4.	Belts individual web 57mm	200
	5.	Cap foodhandlers white	200
	6.	Coats cold weather 3/4 duffel	15
	7.	Coats foodhandlers white	50
	8.	Coveralls two-piece	30
	9.	Gloves black	100 prs
	10.	Raincoats nylon blue/grey	50
	11.	Shirts foodhandlers	60
	12.	Sleeping bag nylon outers	7
	13.	Tracksuits	30
	14.	Trousers foodhandlers, blue check	80

Series No.	Item		Qty per carton
4	1.	Belts waist (all sizes)	400
	2.	Boots combat black size 5-9	15
	3.	Boots combat black size 10-12	12
	4.	Boots combat black size 13-15	10
	5.	Boots fireman size 6-12	10
	6.	Boots gum size 5-10	10
	7.	Boots safety black size 5-10	12
	8.	Boots safety black size 11-14	10
	9.	Shoes canvas blue/grey size 5-11	20
	10.	Shoes canvas blue/grey size 12-14	12
	11.	Shoes gunfloor black size 5-11	15
	12.	Shoes gunfloor black size 12-13	12
	13.	Shoes gym leather size 5-14	20
	14.	Shoes mens black evening wear size 6-10	15
	15.	Shoes mens black evening wear sizes 11-13	12
	16.	Shoes safety black size 5-10	12
	17.	Shoes safety black size 11-14	10
	18.	Shoes service black size 5-11	15
	19.	Shoes service black size 12-14	12
	20.	Socks mens cushion sole	200
	21.	Socks mens Black	200
	22.	Socks mens size 9-12	200
	23.	Ties, men	1 000
	24.	Pantihose	900
	25.	Uniform men's S/D	20
	26.	Uniform men's E/W	20
	27.	Skirts ladies	60
	28.	Slacks ladies	60
	29.	TRS men's	60
	30.	Jackets, ladies E/W	20
	31.	Skirts, ladies E/W	50
	32.	Waistcoat, ladies	100
	33.	Jersey, unisex	60

For office use only	

HISTORY SHEET

DOC ISSUE	DATE	AMENDMENTS/HISTORY
1	September 1984	First release
2	January 1996	
3	June 2008	Updated format, references and layout of specification. Add annex B. Refer to two separate labels on the short sides of the containers: Label A & Label B
4	April 2011	Amended height of box
5	July 2014	Amend label requirements of bulk container. Add specific size of wording.
05.2	March 2018	Add illustrations Dimensions to reflect flat measurements of box Add information and layout of specification Add Normative references
05.3	April 2018	Delete Annex A Amend dimensions Change numbering to ensure paragraph 11.2 refers to the same information as in version 5
06.0	August 2018	6th Release