



DC IPT

Technical Specification for CAP, SERVICE Ceremonial Band RAF

Defence Clothing Integrated Project Team

PROPERTY OF :-
DEFENCE CLOTHING
INTEGRATED PROJECT TEAM
DE&S Caversfield
Skimmingdish Lane
Bicester
Oxon
OX27 8TS



PREFACE

TABLE 1 – PRODUCT LIST

Item Name	CAP, SERVICE Ceremonial Band	
Development File No	NN/SCD/P876	
Product Support File No.	NV/526/01	
NATO Stock Numbers	Wearer	Pattern Number
8405-99-132-3431	Musician	35/R/1738
8405-99-132-3432	Warrant Officer	35/R/1738 to guide

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TABLE 2 – ISSUE RECORD

Issue No	Comments	Issue Date
5	Reformatted to DE&S template. Updated related specs & docs	03 November 2008
4	Reformatted, related specifications and documents addressed, photographs added	04 August 2003
3	Issue B reformatted without technical change and re – issued. Amendment 6 is included at pages 12 and 13 (March 2002).	13 December 1988

PART 1

1. THE PRODUCT

- a. Use of the Product. A peaked cap, with gold braid or embroidery as appropriate for wear by Musicians and Warrant Officers of the RAF Band. Special measure only.

FIGURE 1. CAP, SERVICE Ceremonial Band, Musician, NATO Stock Number 8405-99-132-3431



Front and left hand side as worn



Back and right hand side as worn

TABLE 3 - RELATED SPECIFICATIONS AND DOCUMENTS

Specification/Document	Detail
BS EN ISO 105 Part X12	Textiles. Tests for Colour Fastness. Colour Fastness to Rubbing.
BS EN 12590	Textiles. Industrial Sewing Threads made wholly or partly from Synthetic Fibres.
BS EN 20139	Textiles. Standard Atmospheres for Conditioning and Testing.
BS 2780	Glossary of Leather Terms
BS 3870 Parts 1 and 2	Stitches and seams.
BS 4060	Specification for Pressed Wool Felts.
BS 4560	Fabrics for linings in uniform clothing
UK/SC/3907	Buttons, anodised aluminium gold and silver
UK/SC/3933	Embroidery (gold and silver), braids, cords and laces (gold and silver).
UK/SC/4687	Embroidery and distinguishing item, silk, worsted, cotton and rayon.
UK/SC/4776	Cloth, Buckram, Jute, Laminated, 2-Ply, Impregnated.
UK/SC/4885	Cloths, barathea worsted, blue-grey.
UK/SC/5146	Braids Cords and Laces, Metallised, Polyester, Gold, Silver
UK/SC/5628	Cloth Velvet Cotton & Silk WR.
UK/SC/5696	Leather, Sheep, Head Leathers

2. PATTERNS.

- a. Master Patterns. The DC IPT at Caversfield holds a Master Pattern for this product. Potential contractors may view the pattern on site by arrangement with the DC IPT Commercial Department.
- b. Standard Patterns. A Standard Pattern may be obtained from the DC IPT Technical Information Office and may be used to provide the criteria for all materials, components and manufacturing features not fully defined in this specification.

PART 2

3. PRODUCT DESIGN

a. Product Description. Cloth cap with PVC peak and embellishment.

TABLE 4 – PRODUCT COMPONENTS

4.1 Crown, bevel and band	<ul style="list-style-type: none"> • Cloth, baratheia, wool, worsted blue-grey No.4 Pattern No.8373A to Specification UK/SC/4885, NATO Stock No.8305-99-942-5419.
4.2 Additional headband	<ul style="list-style-type: none"> • Braid, worsted textile black, 44.0mm Pattern No. 9337A, Specification UK/SC/4687, NATO Stock No. 8315-99-973-0787.
4.3 Crown and bevel lining	<ul style="list-style-type: none"> • Cloth, twill, viscose, plain weave polyester or plain weave viscose • All linings to be grey or black to meet the colour fastness requirements for perspiration. Table 4 Ref 1.4 of BS 4560
4.4 Crown disc	<ul style="list-style-type: none"> • Cellulose acetate sheet, colourless, 0.1mm thick.
4.5 Interlining crown and bevel	<ul style="list-style-type: none"> • Cloth, compressed felt, wool, white, natural, unstoved. Pattern No.8056A, BS4060, NATO Stock No.8305-99-942-7158 • Or an alternative approved by DC IPT.
4.6 Cord for crown piping	<ul style="list-style-type: none"> • Mercerised piping cord, 8 turns per 2cm 'S' twist first 2.5 turn per 2cm 'Z' twist second doubling; 856 Tex • Or an alternative approved by DC IPT.
4.7 Head leather and front support pocket	<ul style="list-style-type: none"> • Leather, sheep, basil at least 1.0mm and no more than 1.3mm thick, to UK/SC/5696. The term basil is defined in BS 2780. • Or an alternative approved by DC IPT.
4.8 Bow for head leather	<ul style="list-style-type: none"> • Braid, white 13mm ± 1mm.
4.9 Band stiffener	<ul style="list-style-type: none"> • Cloth buckram, jute, laminated 2 ply, impregnated buckram to comply with the buckling and flexibility tests specified in specification UK/SC/4776. • Or Glued hessian plain weave, 1000 g/m². • Or High density polyethylene sheet 1.0mm thickness ± 0.1mm, solid. • Or; High density polypropylene sheet 1.0mm thickness ± 0.1mm, solid.

TABLE 4 – PRODUCT COMPONENTS CONTINUED

4.10 Peak	<ul style="list-style-type: none"> • Flexible PVC, black/beige laminate, with black side polished and beige side flock sprayed, approximately 1mm thick, laminated to flexible vulcanised fibre or flexible fibreboard. • Or Two-part laminate, poly cotton, impregnated with polyurethane with black patent finish approximately 1.0mm thick, laminated to polypropylene/polyethylene, surface finish leather grain, colour to be bottle green, approximately 1.5mm thick. • Total thickness approximately 2.5mm and no more than 2.8mm, to comply with the requirements of Table 9
4.11 Lining for peak	<ul style="list-style-type: none"> • Skiver green or an approved alternative, to comply with the colour fastness requirements of. Table 7. The term skiver is defined in BS 2780.
4.12 Binding for peak	<ul style="list-style-type: none"> • PVC, black, 0.6mm thick.
4.13 Peak embellishment for Musician	<ul style="list-style-type: none"> • Braid, gold, synthetic 6mm. Pattern No 9517A to comply with the requirements of UK/SC/5146, NATO Stock Number 8315-99-130-8323.
4.14 Peak embellishment for Warrant Officer	<ul style="list-style-type: none"> • Embroidery, gold, 16mm raising, to comply with the requirements of UK/SC/3933.
4.15 Binding stiffener at peak	<ul style="list-style-type: none"> • Cloth, velveteen, cotton, fawn to comply with the physical and colour fastness requirements of UK/SC/5628 Table 1 and 2, • Or an alternative approved DC IPT
4.16 Wire for crown	<ul style="list-style-type: none"> • Steel, galvanised, flat section 5mm wide 25 SWG with steel or brass connecting tube. All metal to be rust proofed
4.17 Front support	<ul style="list-style-type: none"> • Sprung Steel support with leather tab or brass tip • Or an alternative approved by the DC IPT
4.18 Chin strap	<ul style="list-style-type: none"> • PVC, black, 10mm wide, at least 1.0mm but not more than 1.3mm thick with buckles.
4.19 Buttons	<ul style="list-style-type: none"> • Button, anodised aluminium RAF 22 ligne. NATO Stock No.8455-99-137-4438. Pattern No 35/R/1766A to UK/SC/3907

TABLE 4 – PRODUCT COMPONENTS CONTINUED

4.20 Threads for all purposes	<ul style="list-style-type: none"> • The following sewing threads, or approved alternatives, are to be used the shades are to match those of the cap. • Thread polyester and cotton continuous filament polyester core, cotton sheath, to BS EN 12590, <ol style="list-style-type: none"> a. Metric Ticket No.25 (26) for peak to stiffener. b. Metric Ticket No.36 (35) for bevel, band, sewing in crown, back and front finishing, lining and all hand sewing c. Metric Ticket No.75 for all other sewing.
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TABLE 5 – PRODUCT CONSTRUCTION

5.1 Crown	<ul style="list-style-type: none"> • The crown tip, oval in shape, is to comply with the measurements set out in Table 6. The measurements are to be taken from the crown tip-piping seam. • The crown is to be securely combined to white felt with a suitable adhesive to form a waterproof barrier and the laminate produced is to comply with the requirements set out in Table 8. The bond is to be continuous to ensure that the outer material is free from blisters. • The perimeter of the crown tip is to have a corded piped edge joined in line with the back seam of the bevel quarters.
5.2 Bevel	<ul style="list-style-type: none"> • The bevel, combined to white felt as specified in section 5.1 is to be quartered with the seams opened and pressed flat. • The Band / Bevel seam is to be pressed open through its entire length.
5.3 Band	<ul style="list-style-type: none"> • The band is to be joined at the centre back of the cap in line with the seam of the bevel. Seam is to be open and pressed flat • The band is to have a stitched out welt, 0.6cm from the bottom edge, formed using seam type 6.05.01 of BS 3870.
5.4 Additional headband	<ul style="list-style-type: none"> • The additional headband is to be fitted with the join at the centre front, seamed 1.5cm. The corners are to be turned and stitched to avoid fraying.
5.5 Band stiffener	<ul style="list-style-type: none"> • The stiffener is to be cut sufficiently long to allow a 2cm overlap where it is joined at the back of the cap, slightly offset to reduce thickness. • The stiffener is to be stitched through the outer material immediately below the stitched out welt, and basted through the outer material at the band/bevel seam.

TABLE 5 – PRODUCT CONSTRUCTION CONTINUED

5.6 Lining	<ul style="list-style-type: none"> • The crown lining is to be sewn in with the crown tip-piping seam and be securely tacked at the bottom edge of the stiffener. The lining may be securely glued with a suitable adhesive, machine or hand-sewn. • The lining is to be cut deep enough to allow the side and back bevel to roll without distortion. • A detachable transparent disc, sufficient to cover the crown tip, is to be inserted on top of the crown lining.
5.7 Peak	<ul style="list-style-type: none"> • The peak, black side uppermost, chamfer edged on the brow line and lined on the underside with skiver green, is to be identical in shape to that of the Standard Pattern. • The outer edge is to be bound with black PVC 0.6cm deep when finished. The binding is to be formed to seam type 3.01.01 of BS 3870. • The peak may be fitted to the band stiffener by sewing the inner edge of the peak to either the inner or outer edge of the stiffener. The seam allowance from seam to inner peak edge is not to be less than 0.3cm and not more than 0.5cm. • When fitting the peak to the outer edge of the stiffener, the bottom edge of the stiffener is to be bound in velveteen. • When fitting the peak to the inner edge of the stiffener, an additional strip of band stiffener approx. 2.5cms in depth and running the length of the peak is to be attached to the inner edge of the peak. The bottom edge of the stiffener is to be bound with velveteen. • The peak is to be securely sewn on to the stiffener with approximately four stitches per 2cm. • When fitted, the peak is to be correctly balanced and be central to the front seam of the bevel quarters. • The black surface of the peak is to be free from cracks and all other defects and shall comply with Table 9. • A row of gold braid is to be sewn to the peak adjacent to the PVC binding.
5.8 Headleather	<ul style="list-style-type: none"> • Each cap is to have a brachered head leather, the ends of which are to be overlapped 1cm at the centre back of the cap and tacked together at the top edge through a white braid bow. • The taping on the head leather may be sewn to the band by hand or machine, but in neither case is the leather to show below the bottom edge of the band.

TABLE 5 – PRODUCT CONSTRUCTION CONTINUED

5.9 Chinstrap and buttons	<ul style="list-style-type: none"> • A button is to be sewn on each side of the cap, to retain the chinstrap, positioned 1cm from the bottom edge of the band and in line with the side seam of the bevel.
5.10 Crown wire	<ul style="list-style-type: none"> • A cap wire with a connecting tube is to be fitted on the inside of the cap above the piping of the crown.
5.11 Front support	<ul style="list-style-type: none"> • The front metal support is to be fitted with a good quality leather tab riveted and turned over at the top of the support. • The tab is to be securely sewn on the inside of the piping of the crown to lie immediately behind the front bevel seam. • The bottom of the support is to be housed in a 2.5cm square pocket of good quality leather sewn to the centre of the band stiffener.
5.12 Seams and stitching to BS 3870	<ul style="list-style-type: none"> • Machine stitching is to be stitch type 301, with at least eight but not more than ten stitches per 2cm. • The piping is to be formed seam type 1.12.01 (with cord). • The brachering on the headleather is to be stitch type 304 with at least six stitches per 2cm. • The felling on the head leather is to have at least six stitches per 2cm.
5.13 General	<ul style="list-style-type: none"> • All seams are to be free from puckering. • The cap is to be free from all ends of sewing thread, be blocked and pressed and delivered in a clean condition.

TABLE 6 – MEASUREMENTS AND TOLERANCES

All Measurements are in centimetres. Unless otherwise stated.

Size	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	S/M	Tolerance mm	
	+	-																		
Crown Length	24.9	25.2	25.5	25.8	26.1	26.4	26.7	27	27.3	27.6	27.9	28.2	28.5	28.8	29.1	29.4	29.7		2	2
	Width	23.7	24	24.3	24.6	24.9	25.2	25.5	25.8	26.1	26.4	26.7	27	27.3	27.6	27.9	28.2	28.5		2
Crown	All sizes 1.2 oval																	2	2	
Bevel	6.4 deep at centre front graduating to 5 at centre back																	2	2	
Band	5 wide																	2	2	
Peak depth	5 deep at centre front																	1	1	
Peak length	23.5 from point to point																	5	5	
Head leather	4 deep																	2	2	
Stiffener	6 deep																	2	2	
Front Support	8 long, 1.2 wide																	2	2	
Chinstrap	1 wide 47 cm long when fully extended																	20	20	

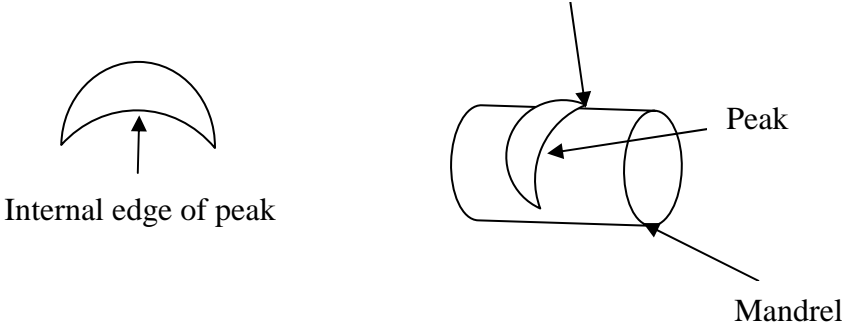
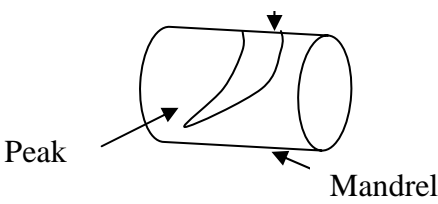
TABLE 7 - METHOD OF TEST The peak lining is to conform to the requirements of the following table.

Agency	Rating for colour change	Method of Test
Rubbing wet	4	BS EN ISO 105 PART X12

TABLE 8 - METHOD OF TEST To Determine Fabric/foam Laminate Bond Strength. The minimum bond strength of the laminated fabric is to be 1.25N/25mm when determined by the following method:

8.1 Sample preparation	<ul style="list-style-type: none"> Specimens which have been conditioned for 24 hours in the standard testing atmosphere defined in BS EN 20139 are to be cut 200mm x 25mm with at least two samples being cut with the 200mm dimension in the warp and weft direction respectively.
8.2 Procedure	<ul style="list-style-type: none"> The conditioned samples are to be delaminated by hand for 100mm. The tails are to be clamped in the jaws of a CRE tensile testing machine. The sample is then to be peeled apart with a jaw separation of 100mm/min for a 50mm length of sample.
8.3 Calculation and expression of results	<ul style="list-style-type: none"> The maximum value of peel bond strength is to be recorded for each sample that peels for 50mm without the foam breaking. If the foam does break during delamination this fact is to be noted and the value at break recorded. The mean value of two results for samples, which delaminate for 50mm without the foam breaking, is to be calculated in the warp and weft direction respectively.

TABLE 9 - TEST FOR THE DELAMINATION OF PEAKS

<p>9.1 Test procedure</p>	<ul style="list-style-type: none"> • Four cap peaks (detached from caps) are to be taken from batches of up to 500 and conditioned for 24 hours in the standard atmosphere defined in BS EN 20139. • Two peaks are to be placed in an environmental chamber at $70 \pm 2^\circ\text{C}$ and 95 - 100% relative humidity for 6 hours \pm 15 minutes. After removal, the peaks are to be examined for delamination of the black PVC and the (green) skiver, delamination of either peak is to render the batch rejected. Any degree of distortion is to be such that it will not affect the subsequent fitting of the peak to a cap; severe distortion of either peak is to render the batch rejected. • Two peaks are to be placed in a freezer at $-20 \pm 2^\circ\text{C}$ for 2½ hours \pm 5 minutes. Immediately after removal, each peak is to be subjected to the following two tests using a mandrel of diameter $150 \pm 1\text{mm}$
<p>9.2 Edge test</p>	<div style="text-align: center;"> <p>Edge of peak to mandrel</p>  </div> <ul style="list-style-type: none"> • Use the minimum of force required to bend the internal edge of the peak around the mandrel, ensuring free contact with the circumference of the mandrel. Repeat with the other side up. Examine both sides of the peak for fractures or cracks; any such damage on either peak is to render the batch rejected.
<p>9.3 Flat test</p>	<div style="text-align: center;"> <p>Flat edge to mandrel</p>  </div> <ul style="list-style-type: none"> • Use the minimum force required to bend the face of the peak around the mandrel, ensuring free contact with the circumference of the mandrel. Repeat with the other side up. Examine both sides of the peak for fractures and cracks, any such damage on either peak is to render the batch rejected.

4. LABELLING REQUIREMENTS The size number NATO stock number and the contract number is to be either:
- Clearly marked on a label sewn to the centre of the crown tip lining, or
 - Clearly embossed on the head leather at the back of the cap, or
 - Clearly printed on a pressure sensitive self-adhesive label to be adhered to the centre of the crown lining.

TABLE 10 – SPECIMEN LABELS

Size
NSN
Contract No.

Example Identification and marking label

- The identification label is to be covered by the crown disc, including pressure sensitive self-adhesive labels.
- The size number is to be 1.2cm high and the remainder of the characters 0.6cm high.