



PAKISTAN NAVY SPECIFICATION 05/2018

PROMULGATION DATE:

09 Oct 2018

COMBAT SHOES CAMEL COLOUR

Prepared by:

Directorate of Indigenous Technical Development
Naval Headquarters NSSD area,
West Wharf Road
KARACHI
Tel: 021 48508410
Fax: 021 99214765

CONTENTS

| <u>Description</u> | <u>Page</u> |
|--|--------------------|
| Contents | 03 |
| <u>Details</u> | |
| Designation | 04 |
| Usage | 04 |
| Introduction | 04 |
| Scope | 04 |
| Related Documents | 04 |
| Terms & Definitions | 05 |
| Technical Details of Combat Shoes Camel Colour | 05 |
| Manufacturing Details of Combat Shoes Camel Colour | 05 |
| Quality of Workmanship and finishing | 07 |
| Testing | 07 |
| Tender Sample | 07 |
| Advance Sample | 08 |
| Inspection | 08 |
| Stamping of Accepted/ Rejected Stores by Inspector | 09 |
| Special Instruction | 10 |
| Packing Details | 10 |
| Identification Label | 11 |
| Packing List | 11 |
| Marking of Stores | 11 |
| Delivery | 12 |
| Annexes: | |
| A. Terms & Definitions | 13 |
| B. Technical Details of Combat Shoes Camel Colour | 14 |
| C. Measurements and Dimensions | 20 |
| D. Drawings of Combat Shoes Camel Colour and Packing | 21 |
| E. Guideline for Inspection –.General Defects | 23 |
| F. Feed Back Form | 25 |

1. **DESIGNATION**

1.1 Combat Shoes Camel Colour.

1. **USAGE**

2.1 These shoes will be used by Officers, CPOs and Sailors of SSG (N) and Pak Marines.

2. **INTRODUCTION**

3.1 This specification is prepared by Directorate of Indigenous Technical Development, Karachi, to provide necessary guidance to the potential manufacturers/suppliers of the items mentioned herein. This specification is to be used for testing and deciding upon acceptance, or otherwise, of the items mentioned. Any alteration or addition in this specification can be suggested to ITD Directorate. However, it cannot be implemented without prior approval of DNS. This specification supersedes and replaces PN Specification promulgated earlier in relation to the item mentioned herein. These specifications are based on sample approved by Dress Committee.

3.2 This specification booklet includes 06 Annexes and consists 25 pages, including the cover.

4. **SCOPE**

4.1 This specification covers the technical/ manufacturing requirements of Combat Shoes Camel Colour to be used by Pakistan Navy. It defines and lays down the quality, standards, and details of materials, workmanship and finish. It also defines briefly details of sampling, testing, inspection acceptance/rejection, marking, preservation, packing and delivery etc.

4.2 The supplier/ manufacturer shall comply in every respect with the terms of this specification and ensure that the stores conform to it, in all respects.

5. **RELATED DOCUMENTS**

5.1 The standards and documents that have been referred to in this specification are:

- | | |
|------------------|---|
| a. AATCC-20 | Fiber Analysis –Qualitative. |
| b. ASTM E- 478 | Standard test method for chemical analysis of Copper alloys. |
| c. D2240-04 | Test method for Rubber Property-Durometer Hardness. |
| d. BS ISO 1817 | Rubber, Vulcanized or thermoplastic. Determination of the effect of liquid. |
| e. SATRA TM 92 | Resistance of footwear to flexing. |
| f. SATRA STD 185 | Sole Adhesion tester. |
| g. SATRA TM77 | Flexing Machine- Water Penetration test. |
| h. SATRA STM 461 | Circular Rub Fastness Tester. |
| i. ISO 1833 | Textile – Quantitative chemical analysis. |

- j. ISO 3801 Determination of mass per unit length and area.
- k. ISO 7211/2 Determination of number of threads per unit length.
- m. ISO 7211/5 Determination of linear density of yarn removed from fabric.
- n. ISO 105-C02 Colour fastness to washing: Test 2.
- o. ISO 13934-01 1999 Textile- Determination of maximum force and elongation at maximum force using the strip method.
- p. ISO 13937-01 1999 Textile- Determination of tear force using ballistic pendulum method (Elmendorf).
- q. ISO 17235 – 2016 Leather- physical and mechanical tests- Determination of Softness.
- r. ISO 17131 :2012 Leather – identification of leather with microscopy.
- s. ISO 10195: 2018 Leather – Chemical determination of Chromium (VI) content in leather.
- t. ISO 3377-2 Leather - Determination of tear load.
- u. ISO 4674 – 1 Rubber or plastic – coated fabrics- Determination of tear resistance. Constant rate of tear method.
- v. TM 319 Determination of para - nitrophenol in leather by infra-red analysis.
- w. AATCC 22 Water repellency – Spray test.
- x. ISO 20864:2004 Footwear – Test Method for stiffeners and toe puffs

6. **TERMS & DEFINITIONS**

6.1 Definitions for the terms used in this standard are given at Annex A of this specification.

7. **TECHNICAL DETAILS OF COMBAT SHOES CAMEL COLOUR**

7.1 The Technical Details of Combat Shoes Camel Colour are mentioned at Annex B of this specification.

8. **MANUFACTURING DETAILS OF COMBAT SHOES CAMEL COLOUR**

8.1 **LAST**

8.2 All sizes of last should be equal to the one mentioned at Annex C to this specification. While manufacturing the shoes, a hard material of 3.2 mm thick is to be added on the bottom of the last in order to provide a space for inserting a detachable sock.

8.3 The suppliers/ manufacturer must intimate the size roll of the last/ moulding foot in their possession conforming to the specified particulars and must get representative

samples of last approved by the Inspecting Authority before commencing manufacture.

8.4 Details of dimensions of the specified last of various sizes i.e. from 06 to 14 are given in the Annex C of this specification.

8.5 **CONSTRUCTION**

8.6 The construction of the shoes shall be by Direct Injection Rubber and PU with the upper. The shoes shall be supplied in various sizes as mentioned at Annex C of this specification.

8.7 The Toe puff stiffener shall be incorporated in the footwear in such a manner that they cannot be removed without damaging the footwear.

8.8 Leather used in making upper shall be of good quality full Chrome Cow suede Leather and should be suitable for very hard wear. The minimum thickness of various components of upper should be as that mentioned in Annex B of this specifications.

8.9 Lining used in vamp shall be of drill cloth and are bonded to the toe puff stiffener. The lining should satisfactorily withstand the moulding temperature on operations.

8.10 The tongue should be composed of three layers of fabric lined with polyester and interlined with drill cloth. Tongue shall be attached with vamp and eyelet puttee.

8.11 Good quality Nylon laces with plastic tip should be used.

8.12 Insole should be permanently attached and it shall not be possible to remove it without damaging the footwear. Full socks made up of EVA sheet covered with knitted polyester cloth interlined with grey fabric, which could be detachable and washable.

8.13 All seams should be properly hammered off and all loose ends secured properly.

8.14 The upper components shall be properly skived and fitted. Skiving on the grain side is prohibited.

8.15 The upper components shall be closed by lock stitching.

8.16 02 pairs of Eyelets Brass and 05 pairs of speed lacing hooks of color as per approved sample held with CINS. Placements of eyelets and hooks are shown in drawing at Annex C of this specification.

8.17 The counter stiffeners shall be skived properly so that no ridge is formed in the finished shoes. They shall be reinforced and made hard.

8.18 The insole shall be properly feathered, snuffed and moulded to the bottom shape (contour) of the last.

8.19 The shoes shall remain on the last at least for 24 Hours.

8.20 The vulcanization of sole to the upper shall be done by high-pressure type Moulding Machine, provided with the thermo-regulated heater in bottom and the two side moulds Pressure control/gauge and auto time controlling devices. A piece of compounded Rubber cut to the approximate shape of the sole and correct height for the size of the Mould known as sole Mould in the machine. The Blank may be pre-heated in a cabinet upto desired temperature immediately before moulding.

8.21 Flash and spew on edge of the moulding last and the surplus material on the sole and heel shall be properly trimmed off/ removed.

8.22 A Spare pair of laces round Nylon with plastic tip 225 cm shall be supplied with each pair of shoes. Finish of tips shall be good.

8.23 The midsole is bonded with the outer sole by using any suitable adhesive, reinforced with textile, to improve bonding quality, loose bonding sample should be rejected.

Note: Usage of nails in manufacturing of Combat Shoes Camel Color shall be strictly prohibited.

9. **QUALITY OF WORKMANSHIP AND FINISHING**

9.1 Workmanship and finish of the shoes shall be equal to the sealed sample. It shall be best of its class and to the entire satisfaction of the inspector. Sealed/ Approved sample is either held with DNS/ CINS or accepted/approved from bulk supply held with CINS.

10. **TESTING**

10.1 The material shall be subjected to tests laid down in this specification at Annex B of this specification and related documents. At least two pair of shoes of same or different sizes will be required to complete relevant test mentioned at Annex B of this specification. The material may also be subjected to such tests which are deemed necessary by the inspection authority in order to determine their suitability. Inspecting Authority reserves the right to get the B/R samples tested from any reputable Laboratory other than PN. However, any test considered important by Inspecting Authority other than Annex B may also be conducted in order to check its suitability

11. **TENDER SAMPLE**

11.1 Tender sample to be approved by TSR Committee.

11.2 For each contract following material shall be supplied by the manufacturer at the time of tendering.

- | | | |
|-----|-----------------------------------|--------------------------------|
| i. | Shoes (Combat Shoes Camel Colour) | 05 in No.(two different sizes) |
| ii. | Manufacturing last | One pair |

| | | |
|-------|--------------------------------------|--------------------------------|
| iii. | Pattern (cut component complete set) | One set of same size |
| iv. | Leather for uppers | 1' x 1' (02 pieces) |
| v. | Thread for upper closing | 50 gms |
| vi. | Speed lacing hooks | 12 in number |
| vii. | Eyelets | 06 in number |
| viii. | Laces | 02 in Nos. |
| ix. | Lining Material | 02 meters |
| x. | Sole | 02 Pairs (two different sizes) |
| xi. | In sole | 02 Pairs (two different sizes) |
| xii. | Toe Puff and counter stiffener | 02 each |
| xiii. | In socks | 02 pairs |
| xiv. | Cordura fabric | 1 meter |

12. **ADVANCE SAMPLE**

12.1 Advance sample or pre-production sample, when required, shall be submitted in accordance with terms of the contract for inspection and testing as per Annex B, C and D and approved by CINS. The minimum quantities required are 05 pairs alongwith samples of materials used in manufacturing of Combat Shoes Camel Colour for inspection as mentioned above.

12.2 Whenever Tender, Advance or pre-production sample is not required, the suppliers / manufacturer are advised in their own interest to submit to the Inspecting Officer or his representative an initial delivery of One % of the contract or ten pairs, which ever are more alongwith samples of materials for inspection.

12.3 The approval of the sample mentioned in Para 11 & 12 authorizes the commencement of bulk production but does not relieve the suppliers/ manufactures from compliance with all the provisions of this specification. One approved sample shall be properly sealed by INS and returned to the firm for guidance; rest of the approved sample shall be retained by INS for future use in bulk Inspection.

12.4 The Pre-production sample shall be manufactured by the manufacturer with the same facilitates which will be used for manufacture of the bulk items.

12.5 Firm shall provide advance sample along with quality verification reports of shoes from an accredited laboratory.

13. **INSPECTION**

13.1 **Bulk representative sample** B/R random sampling will be carried out as per rules in vogue.

13.2 **Bulk Inspection** Bulk inspection will be carried out after satisfactory completion of Visual Examination and Testing of B/R Sample as per Annex B, C and D.

13.3 **Inspection of Shoes** 100% of the offered store shall be inspected. The guide lines for such examination/inspection are listed at Annex E. Stage inspection of

Combat Shoes Camel Colour may be carried out by CINS if deemed necessary.

13.4 **Inspection/ Acceptance and Rejection of Stores** Inspection/ acceptance is to be carried out upto the satisfaction of Chief Inspector Naval Stores.

13.5 The shoes shall be examined for the correctness of material, shape, design, dimension, size, workmanship and finish.

13.6 All shoes shall be inspected in pairs and shall be accepted and rejected as pairs. Defective lasting, mouldings and damages to upper and insoles during moulding are to be especially checked.

13.7 CINS reserves the right to reject the whole supply in case, upon examination, material or packing of any sample or portion of the consignment is found NOT CONFORMING to this specification.

13.8 If on examination of 5% of any delivery, 20% of those examined from bulk supply are found NOT CONFORMING to this specification in respect of the material, pattern, dimensions, workmanship and finish, the whole consignment may be rejected without any compromise.

13.9 All stores and packing NOT fully in accordance with this specification shall be rejected.

13.10 Shoes with major defects as described in Annex E of this specification will be rejected.

13.11 **Responsibility for Inspection** The supplier is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. PN reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

13.12 **Replacement by the Contractor** The supplier manufacture is responsible for replacement of the consignment or any part thereof whenever it is found to be not conforming to this specification. The supplies so tendered in replacement, shall be subjected to testing/Inspection and acceptance by the Inspecting Officer.

13.13 **Responsibility for Safety.** The supplier/manufacturer is wholly responsible for the safety of supplies during inspection, storage at firm's premises, proper packing, dispatch and delivery up to consignee.

14. **STAMPING OF ACCEPTED/ REJECTED STORES BY THE INSPECTOR**
While stamping of accepted/ rejected stores following instructions are to be followed:

14.1 **Stamping of Accepted Stores** The acceptable shoes shall be stamped with Inspector's Individual Acceptance Mark's. The stamping shall be legible.

14.2. **Stamping of Rejected Stores** The rejected shoes shall be marked with

Inspector's Rejection Mark's to avoid re-submission by the supplier.

14.3 The Inspector is the authority in all matters pertaining to inspection.

15. **SPECIAL INSTRUCTIONS**

15.1 **CARE LABEL INSTRUCTIONS** Combat Shoes Camel Colour are capable of being cleaned by using conventional means to maintain smart & functional appearance. Following care instructions in the form of leaflet shall be provided in English and Urdu with each pair of shoe:

- Clean the shoes with a damp cloth using a solution of water and mild soap.
- To extend the life and maintain suppleness of the upper apply a shoe care product appropriate to the upper.
- The sole of shoes shall be cleaned frequently when feel necessary using conventional means to maintain smart and functional appearance.

Note: Firm shall provide usage warranty of one year at the time of inspection.

15.2 **PACKING/ STORAGE INSTRUCTIONS** Polyurethane are prone to degradation due to Hydrolysis damage when they are stored in warm, moist conditions for long period. Firm will ensure adequate storage by providing preferably silica gel bags and holes in the box of each pair of shoe or by any other means upto the satisfaction of inspecting authority. Following packing/ storage instructions shall be provided in English as well as Urdu with the packing list during inspection and with each pair of shoes in the form of leaflet for convenience of Depots and end user:

- Store in a dry and well-ventilated area.
- Frequent usage actually prolongs the life of Combat Shoes Camel Colour.
- Use of poly bags for storage of shoes shall be prohibited.
- In ware houses storage of Polyurethane (PU) soled shoes at higher temperature will shorten the overall storage life of the product. It is recommended that PU sole Combat Shoes Camel Colour are stored at temperature below 30°C and at low level humidity.

Note:

1. Firm shall provide a shelf life certificate for a period of 4 years at the time of inspection.
2. Firm will provide a certificate that CORDURA fabric being used is branded.

16. **PACKING DETAILS** The store when ordered to be delivered 'PACKED' shall be packed as follows:

- The pair of shoes shall be packed in a neat, dry and clean condition in standard wrapping paper and further packed in shoe box as per drawing at Annex D.
- 10 X such boxes of one size only shall be packed in suitable size of 07 x ply

thick carton.

- Packing of mixed sizes shall be avoided and shall not be normally permitted.
- The empty spaces if any shall be filled with suitable cushioning materials.
- Strapping shall be done in accordance with the instruction of Inspecting officer.
- The total weight of package shall not exceed 35kg.
- Each carton packing shall be securely and properly packed.
- Firm will attach brand tags in respect of Cloth CORDURA with each boot.

17. **IDENTIFICATION LABEL** Each shoe shall bear following clear and indelible information on Main Label attached on inside edge of zipper:

- a. Item name/ item description with size and NSN/ patt no.
- b. Contract number and Date.
- c. Year of manufacture.
- d. Contractor's name, initials, or trade mark.
- e. Batch no.

18. **PACKING LIST** Firm is bound to provide a packing list of store offered for inspection alongwith the challan, which include complete details about the store i.e Pattern No., Description of item, size, quantity, Contract No., and date, Challan No. and date. A packing list shall be enclosed after completion of inspection with each packed box giving full details about the stores packed i.e. Pattern No. Description of stores, size, quantity, contract No, and date, I/Note No. or voucher No. and date, consignee, firm's name, date of packing and packer's signature.

19. **MARKING OF STORES** In addition to any special marking required by contract or order, the marking of packages shall be stenciled with quick drying Black ink/ Paint in accordance with Specification No. NS/MISC/002/80 with clearly defined characters as described below:

a. On Front and Top

- (1) Consignee Address.
- (2) Contract No and date.
- (3) Description of Stores Packed and NSN/Patt no.
- (4) Quantity of the Item packed.

b. On Back

- (1) Manufacturers name / Firm's name.
- (2) Voucher No. or inspection note no. and date.
- (3) The No. of individual Package and the total No of Packages in the consignment joined by the word 'of 'e.g. 2 of 300.
- (4) Weight of the package.
- (5) Month and year of packing.

20. **DELIVERY**

20.1 The consignment of store will be delivered in accordance with the terms of contract.

20.2 The store shall be delivered in Brand new, clean and dry condition.

20.3 The contractor/ manufacturer is fully responsible for the safety of the supplies during inspection, storage at firms premises, dispatch and delivery up to consignee.

XXXSDXXX

AZHAR MIR

Commander Pakistan Navy

Director

Annexes:

- A. Terms & Definitions
- B. Technical Details of Combat Shoes Camel Colour
- C. Measurements and Dimensions
- D. Drawings of Combat Shoes Camel Colour and Packing
- E. Guideline for Inspection –.General Defects
- F. Feed Back Form

Distribution:

DP (N)

CINS

DNS

CO PNCSD

ANNEX A TO
PN SPECIFICATION NO.05/2018
PROMULGATION DATE 09 Oct 2018

TERMS & DEFINITIONS

1. **Inspection Authority.** Chief Inspector of Naval Stores (CINS). His verdict in respect of inspection matters is to be taken as final.
2. **Inspecting Officer.** An officer nominated by the Chief Inspector of Naval Stores (CINS) for carrying out inspection of stores supplied by the supplier, against a specified contract or order, in accordance with the particulars stipulated therein.
3. **Inspector.** The term inspector shall include the “Inspection Authority”, inspecting officer and their representatives, duly authorized for the purpose of discharging inspection duties involved.
4. **Sealed Pattern.** It denotes a pattern, sealed and signed by the Inspection Authority & held in his custody, and represents the standard of store in respect of materials, dimensions, design, workmanship and finish, etc. There is only one sealed pattern for each store, which cannot be removed from custody of the inspection authority.
5. **Girth** It is the circumference of the widest part of the toe.

ANNEX B TOPN SPECIFICATION NO.05/2018PROMULGATION DATE 09 Oct 2018**TECHNICAL DETAILS OF COMBAT SHOES CAMEL COLOUR**

| <u>S.NO</u> | <u>ITEM</u> | <u>REQUIREMENT</u> |
|---|--|--|
| <u>UPPER LEATHER (VAMP, COUNTER & EYELET FACING PUTTEE)</u> | | |
| 1. | Identification of leather | Cow Suede Full Grain |
| 2. | Thickness | 2.0 – 2.2 mm |
| 3. | Softness | 5 ± 0.5 mm |
| 4. | Chromium % | 3.7 – 6.0% |
| 5. | Shrinkage | 3.0 % (Max) |
| 6. | Tensile Strength | 225 Kg (Min) |
| 7. | Tear Strength (Kg/cm Thickness) | 45 kg/cm ² (Min) |
| 8. | Dye fastness to Rubbing a. Dry (500 revs) b. Wet (50 revs) | GS 4 or better GS 4 or better |
| 9. | Flexibility | No crack at 50,000 cycles |
| 10. | Para-nitro Phenol | Shall be present |
| 11. | Oil Repellency (Resistant to Liquid hydrocarbons) (UNE-EN ISO 14419:2000) | 7 |
| 12. | Water Vapor Permeability (UNE-EN ISO 14268) | 20 mg/cm ² .h (Min) |
| 13. | Impermeability Water Dynamics (UNE EN ISO 5403:2003) a. Water Absorption at 2 h (%) b. Break through Time (min) c. Amplitude (%) | 20 > 120 10 |
| 14. | Harmful Materials a. Azo Dyes b. Formaldehyde Content c. Chrome VI (UNE-EN ISO 17075: 2008) | Should not present Less than 22 mg/Kg Less than 3 ppm* *Component mg/ Kg Skin |
| 15. | Shade | As per approved sample held with CINS |
| <u>CLOTH CORDURA NYLON (TONGUE, QUARTER & TOP LINE COLLAR)</u> | | |
| 1. | Material | Nylon 100% |
| 2. | Wt/Sq m | 325± 20gms |

| | | |
|-----|-------------------------------------|---------------------------------------|
| 3. | No of Thread/25 mm | |
| | a. Warp | 36 \pm 2 |
| | b. Weft | 26 \pm 2 |
| 4. | Shrinkage | |
| | a. Warp | 2.0% (MAX) |
| | b. Weft | 2.0% (MAX) |
| 5. | Linear Density | |
| | a. Warp | 1000 \pm 100 Den |
| | b. Weft | 1000 \pm 100 Den |
| 6. | Breaking Strength (7.6 x 1.8 cm BG) | |
| | a. Warp | 390 \pm 20 kg |
| | b. Weft | 390 \pm 20 kg |
| 7. | Weave | Plain |
| 8. | Washing Test | |
| | a. Change in Shade | GS 4 or better |
| | b. Staining on Cotton | GS 4 or better |
| | c. Staining on Nylon | GS 4 or better |
| 9. | Shade | As per approved sample held with CINS |
| 10. | Nature of dye | Acid/Dope |
| 11. | Water repellency Standard | Grade V |

WEBBING (QUARTER AND BACK STRAP WITH LOOP)

| | | Back loop | Quarter puttee |
|-----|-----------------------------|---------------------------------------|--------------------------|
| 1. | Material | Nylon | |
| 2. | Width | 25 \pm 1 mm | 75 \pm 2 mm |
| 3. | Wt / Linear meter | 18 \pm 2 grams | 65 \pm 5 grams |
| 4. | Thickness at 300 grams load | 1.25 \pm 0.1 mm | 1.25 \pm 0.1 mm |
| 5. | Weave | Plain | |
| 6. | No of Thread | | |
| | a. Warp (full) | 138 | 720 |
| | b. Weft/ 25 mm | 21 \pm 1 (each double) | 21 \pm 1 (each double) |
| 7. | Linear Density | | |
| | a. Warp | 500 \pm 50 Den | 500 \pm 50 Den |
| | b. Weft | 210 \pm 20 Den | 500 \pm 50 Den |
| 8. | Breaking Strength (7' BG) | 380 \pm 10 Kg | 850 \pm 20 Kg |
| 9. | Washing Test – 2 | | |
| | a. Change in Shade | GS 4 or better | |
| | b. Staining on Cotton | GS 4 or better | |
| | c. Staining on Nylon | GS 4 or better | |
| 10. | Rubbing Test | | |
| | a. Dry | GS 4 or better | |
| | b. Wet | GS 4 or better | |
| 11. | Nature of Dyes | Dope / Acid | |
| 12. | Shade | As per approved sample held with CINS | |

| | | |
|--|---------------------------------------|--|
| <u>PIPING (TONGUE)</u> | | |
| 1. | Material | Nylon 100% |
| 2. | Width | 20 \pm 1 mm |
| 3. | Wt / Linear meter | 6.0 \pm 0.5 grams |
| 4. | Weave | Plain |
| 5. | No of Thread | |
| | a. Warp (full) | 90 (each multifilament) |
| | b. Weft/ 25 mm | 30 \pm 1 (Double each multifilament) |
| 6. | Linear Density | |
| | a. Warp | 500 \pm 20 Den |
| | b. Weft | 210 \pm 20 Den |
| 7. | Breaking Strength (7" BG) | 250 \pm 10 kg |
| 8. | Washing Test – 2 | |
| | a. Change in Shade | GS 4 or better |
| | b. Staining on Cotton | GS 4 or better |
| | c. Staining on Nylon | GS 4 or better |
| 9. | Rubbing Test | |
| | a. Dry | GS 4 or better |
| | b. Wet | GS 4 or better |
| 10. | Nature of Dye | Acid/ Dope |
| 11. | Shade | As per approved sample held with CINS |
| <u>TOP LINE COLLAR FOAM</u> | | |
| 1. | Material | Polyurethane (Open cell) |
| 2. | Density | 0.020 \pm 0.005 g/cc |
| 3. | Cell count (per lineal 25 mm) | 80-90 |
| 4. | Thickness | |
| | With fabric | 14 – 15 mm |
| | Without fabric | 11 – 12 mm |
| <u>LINING AT VAMP & INTERLINING OF TONGUE AND QUARTER</u> | | |
| 1. | Material | Cotton (grey fabric) |
| 2. | Weave | Drill |
| 3. | Wt / Sq m | 310 grams (Min) |
| 4. | Breaking Strength (10.2 x 16.8 cm BG) | |
| | a. Warp | 200 \pm 10 kg |
| | b. Weft | 125 \pm 5 kg |
| <u>LINING AT TONGUE AND QUARTER</u> | | |
| 1. | Material | Polyester |
| 2. | Wt / Sq meter | 260 \pm 5 grams |
| 3. | Thickness | 4.5 – 5.0 mm |

| | | |
|--|-------------------------------------|--|
| 4. | Shade | Black |
| 5. | Weave | Knitted |
| <u>INTER LINING – EVA SHEET AT VAMP</u> | | |
| 1. | Material | EVA Sheet (Closed Cell) |
| 2. | Colour | Black |
| 3. | Thickness | 1.7 – 1.9 mm |
| 4. | Density | 0.112 ± 0.002 g/cc |
| <u>EYELETS WITH SHANK AND CURVED WASHER</u> | | |
| 1. | Material | Brass |
| 2. | Composition a. Copper b. Zinc | 70% ± 5 30% ± 5 |
| 3. | Dia a. Inner b. Outer | 6 ± 0.5 mm 10 ± 0.5 mm |
| 4. | Coating | Powder Coated |
| 5. | Colour | Black |
| <u>SPEED LACING HOOK</u> | | |
| 1. | Material | Brass |
| 2. | Composition a. Copper b. Zinc | 70% ± 5 30% ± 5 |
| 3. | Coating | Powder Coated |
| 4. | Colour | Matching shade with leather |
| <u>LACES NYLON</u> | | |
| 1. | Material | Nylon 100% |
| 2. | Construction | 16 thread, 4 fold each multifilament |
| 3. | Cross-Sectional Shape | Circular |
| 4. | Nature of Dye | Any dye (Sulphur free) |
| 5. | Dye Fastness to Washing | GS 4 or better |
| 6. | Dye Fastness to Light | Class IV or better |
| 7. | Breaking Strength (7" B.G) | 75 kg (Min) |
| 8. | Length with Tips | 225 cm |
| 9. | Tip a. Material b. Length | Plastic 1.5 ± 0.2 cm |
| 10. | Color | Black |
| <u>INSOCKS</u> | | |
| 1. | Material | Closed cell foam laminated with knitted fabric |
| 2. | Thickness (complete) | 4.5 – 5.0 mm |

| | | |
|----|---|--|
| 3. | Foam Density | 0.3 g/cc \pm 0.01g/cc |
| 4. | Knitted Fabric a. Material b. Wt / Sq m c. Weave d. Shade | Polyester 230 \pm 5 gms Knitted Black |
| 5. | Inter lining | Grey Cotton fabric |

INSOLE

| | | |
|----|------------|--|
| 1. | Material | Cellulose board like Texon or equivalent |
| 2. | Thickness | 2.5 – 3.0 mm |
| 3. | Split Tear | 30 N / cm (Min) |
| 4. | Flex Index | 3.5 (Min) |

STITCHING THREAD

| | | Specified | | |
|----|---|---|---------------------------|----------------------------------|
| | | I For Over Locking | II For Upper | III Bottom Stitching of upper |
| 1. | Material | Nylon | Nylon | Nylon |
| 2. | Construction | 2 cord each multifilament | 3 cord each multifilament | 3 cord each multifilament |
| 3. | Linear density | 2/ 210 \pm 20 Den | 3/ 250 \pm 20 Den | 3/ 500 \pm 30 Den |
| 4. | Shade | Matching shade with leather | | |
| 5. | Washing – 2 a. Change shade in b. Staining on Cotton c. Staining on Wool | GS No 4 or better GS No 4 or better GS No 4 or better | | |
| 6. | Dye Fastness to Light | Class IV or better | | |
| 7. | Breaking Strength | 3.0 \pm 0.2 kg | 4.0 \pm 0.2 kg | 7.5 \pm 0.5 kg |
| 8. | Nature of dye | Acid dye | Acid dye | Acid dye |

TOE PUFF AND COUNTERS STIFFENER

| | | |
|----|----------------------------|--|
| 1. | Material | Non woven thermoplastic (TP-8) or equivalent double face adhesive coated |
| 2. | Thickness | 2.0 mm (Min) |
| 3. | Collapsing load(Dome test) | 130-160 N (min) |
| 4. | Extension at break | 15-20% |
| 5. | Shape retention | 60-80% (min) |
| 6. | Peel Strength | 6N/cm (min) |

OUTER SOLE

| | | |
|----|----------------|---------------------|
| 1. | Material | Nitrile Rubber |
| 2. | Hardness | 65 – 70 IRHD |
| 3. | Abrasion (max) | 130 mm ³ |

| | | |
|--|--|--|
| 4. | Density | 1.20 \pm 0.05 g/cc |
| 5. | Shade | As per approved Sample held with CINS |
| <u>MID SOLE</u> | | |
| 1. | Material | Polyurethane (Polyether) |
| 2. | Hardness | 50 -55 IRHD |
| 3. | Density | 0.38 \pm 0.02 g/cc |
| 4. | Shade | As per approved sample held with CINS |
| <u>PERFORMANCE TEST OF WHOLE SHOE</u> | | |
| 1. | Water Resistivity* | Boot should be water resistant for min 30 x minutes |
| 2. | Identification of Leather | Cow Suede Full Grain |
| 3. | Flexing/ Cracking of upper & Sole | No damage less than 50,000 cycles |
| 4. | Height of Upper (Length of Leg) | Length of leg when lasted shall not be less than 203 mm (8 inches) for size – 8. Whereas; other sizes increasing or decreasing by approx. 3mm from size to size. |
| 5. | Stitch / 25 mm | 7-8 |
| 6. | Thickness of Sole for size 8 | |
| | a. At Toe b. At Heel | 30 \pm 2 mm 48 \pm 2 mm |
| 7. | Bond Test (ISO 20346:2004 (E) and ISO 20344:2004) | The bond strength shall not be less than 4.0 N/mm. Unless there is tearing of the Sole, in which case the bond shall not be less than 3.0 N/mm |
| 8. | Seepage Test ** | No staining/ seepage of water through upper seams |
| 9. | Shade | As per approved sample held with CINS |

Note:

Water resistivity. A pair of white cotton socks of an appropriate size properly stuffed with pieces of cloth shall be inserted in the boot. The boot shall then be immersed in water containing a water level upto lower edge of third speed lacing hook from top. Boot tested should not show signs of wetting on sock/seepage of water at interval of 30min.

Seepage Test A pair of white cotton socks of an appropriate size properly stuffed with pieces of cloth shall be inserted in the boot. The boot shall then be immersed in water containing water soluble dye for 2 min. Boot shall be immersed above the sole / heel height and be flexed twice at interval of 30 sec. Not more than 5% of boot tested should show signs of staining on socks/ seepage of water through upper seams.

ANNEX C TO
PN SPECIFICATION NO.05/2018
PROMULGATION DATE 09 Oct 2018

MEASUREMENTS AND DIMENSIONS

SIZE ROLL OF LAST MEASUREMENTS IN MILLIMETERS

| SIZE OF FOOTWEAR | GIRTH | LENGTH ON SIZE STICK/ BOTTOM LENGTH |
|------------------|-------|--|
| 6 | 240 | 263 |
| 7 | 245 | 271 |
| 8 | 250 | 279 |
| 9 | 255 | 287 |
| 10 | 260 | 295 |
| 11 | 265 | 303 |
| 12 | 270 | 311 |
| 13 | 275 | 319 |
| 14 | 280 | 327 |

HEIGHT OF UPPER

| SIZE OF FOOTWEAR | HEIGHT (mm) |
|------------------|-------------|
| 6 | 197 |
| 7 | 200 |
| 8 | 203 |
| 9 | 206 |
| 10 | 209 |
| 11 | 212 |
| 12 | 215 |
| 13 | 218 |
| 14 | 221 |

Note: Tolerance of ± 0.5 mm

ANNEX E TO
PN SPECIFICATION NO.05/2018
PROMULGATION DATE 09 Oct 2018

| <u>GUIDELINES FOR INSPECTION – GENERAL DEFECTS</u> | | | |
|---|---|--------------|--------------|
| Defect | Description | Major | Minor |
| Pairing | Not property paired i.e. right and left not of the same size and fitting | X | |
| | Wide variation in appearance of colour | X | |
| Colour cleanliness and finish | Not specified colour | X | |
| | Colour not uniform, spots and stains clearly noticeable at a distance of 3 feet (914mm) | X | |
| | Colour not uniform, spots and stains not plainly visible at a distance of 3 feet (914mm) | | X |
| | Sole and heel edges not properly finished | | X |
| Design, pattern size | Not as specified | X | |
| | Foreign Object Damage (FOD) free as same can cause catastrophic damage particularly while working in confined areas | X | |
| | Incorrectly lasted upper | X | |
| Material | Any components or items not fabricated from the specified materials | X | |
| Upper leather | Leather not chrome full grain Cow Leather deeply snuffed i.e. fibre structure damaged | X X | |
| | One or more of the following imperfections: Grub or tick marks opened or badly healed scratches, flay cut, brands, bony, loose, | X | |
| | Wrinkles not seriously affecting appearance or serviceability | | X |
| | Stretchy vamp | X | |
| | Stiff tongue | X | |
| | Flesh side with rough fiber | X | |
| | Skiving not done or excessively done | X | |
| | Damage to upper compounds | X | |
| Construction and workman ship | Any Component or assembly misplaced. Operation committed or not properly performed seriously affecting serviceability or appearance | X | |
| | Components poorly positioned | X | |
| | Excessive roughness | X | |
| Sole | Poor sole adhesion | X | |
| | Improper trimming of moulded surface | X | |
| | Damaged outer sole design | X | |
| | Pits or air bubbles observed on midsole | X | |

| | | | |
|---------------------------------|---|---|---|
| | Improper /wrong size marking | X | |
| Stitching | Any open seam | X | |
| | Stitching omitted where required | X | |
| | Loose tension resulting in puckering or damaging the leather | X | |
| | Stitching incorrectly finished off | X | |
| Counters and toe puff stiffener | Soft counter (Stiffeners) | X | |
| Inner sole | Insoles not properly feathered, not likely to affect comfort | | X |
| Eyelets | Not the same number of eyelets in each row | X | |
| | Eyelets not properly Spaced within the row or misalignment between the rows to an extent interfering proper locking | X | |
| | Number of eyelets less than specified but each row having the same number | X | |
| | Not specified size | X | |
| | Poor quality of eyelets | X | |
| Marking | Missing incomplete, incorrect, and illegible | X | |
| | Special instructions are missing | X | |
| Laces | Missing | X | |
| | Spare pair of laces missing | X | |
| | Rough and substandard | X | |
| | Cut marks observed | X | |
| Identification label | Missing | X | |
| Packing | Not as per specification and substandard | X | |

ANNEX F TO
PN SPECIFICATION NO.05/2018
PROMULGATION DATE 09 Oct 2018

FEED BACK FORM

Item Designation: _____

Pattern #: _____

Parent Equipment: _____

PN SPEC #: _____

Problem Faced: _____

Technical Solution: _____

Financial Effect (if any): _____

Name Stamp

COUNTERSIGNED

Name Stamp

RESTRICTED



IMMEDIATE

DID
OFFICE OF NRDI (ITD
WING)

PN/DID/GENERAL/3055162

58455

DNS

20 February 2023

AMENDMENT IN PN SPECIFICATIONS (05/2018) - COMBAT SHOES CAMEL
COLOR FOR SSG(N) AND PAK MARINES

Reference(s):

- A. [PN/NS Dte/GENERAL/737588 dated 16 February 2023](#)
- B. [PN/DID/GENERAL/2036539 dated 29 December 2022](#)
- C. [PN/NS DTE/03/3883593 dated 02 August 2022](#)

Amendments in PN Specification (5/2018) of subject item have been approved by Naval Headquarters vide reference A. Same are enclosed and promulgated herewith for further necessary action, please.

MUHAMMAD YASSAR
YAHYA
CAPT PN
DID

Encl(s):

- 1. [Amendments in PN Specification 05/2018](#)

Distribution:

External:

Information:

Chief Inspector of Naval Stores
Attn: DCINS

HQ COASTAL COMMAND
Attn: SSO LOG COMCOAST

RESTRICTED

RESTRICTED

CSD N
Attn: CO PNCSD

Internal:

Information:

SO TEXTILE DID

PN/DID/GENERAL/3055162 approved by DID CAPT PN MUHAMMAD YASSAR
YAHYA on 20 February 2023 (1522 Hrs)

Note: Computer generated documents do not require signature

RESTRICTED

ANNEX B TO
PN SPECIFICATION NO 05/2018
PROMULGATION DATE 09 OCT 2018

AMENDMENTS IN PN SPECIFICATIONS NO 05/2018

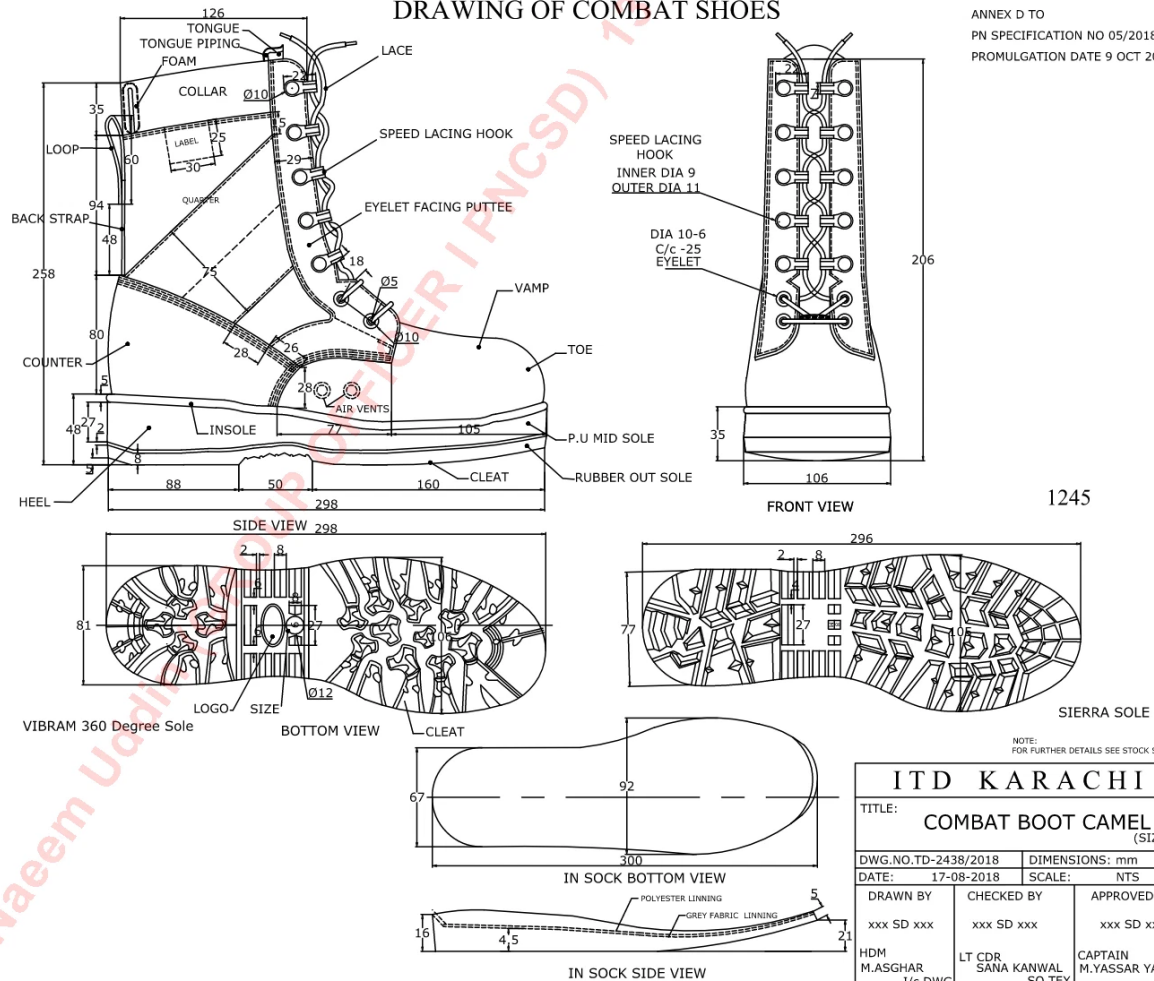
| S NO | ITEM | REQUIREMENT | |
|--|----------------------------|----------------------|--|
| | | FOR: | READ: |
| <u>LINING AT VAMP & INTERLINING OF TONGUE AND QUARTER</u> | | | |
| 1. | Material | Cotton (gray fabric) | Cotton (Beige fabric/ Match with leather) |
| <u>EYELETS WITH SHANK AND CURVED WASHER</u> | | | |
| 5. | Colour | Black | Beige/ Match with leather |
| <u>LACES NYLON</u> | | | |
| 8. | Length with tips | 225cm | 210±10cm |
| 10. | Colour | Black | Beige/ Match with leather |
| <u>IN SOCKS</u> | | | |
| 4. | Knitted Fabric d. Shade | Black | Beige/ Match with leather |
| 5. | Inter lining | Gray Cotton Fabric | Beige Cotton Fabric |

ANNEX B TO
PN SPECIFICATION NO 05/2018
PROMULGATION DATE 09 OCT 2018

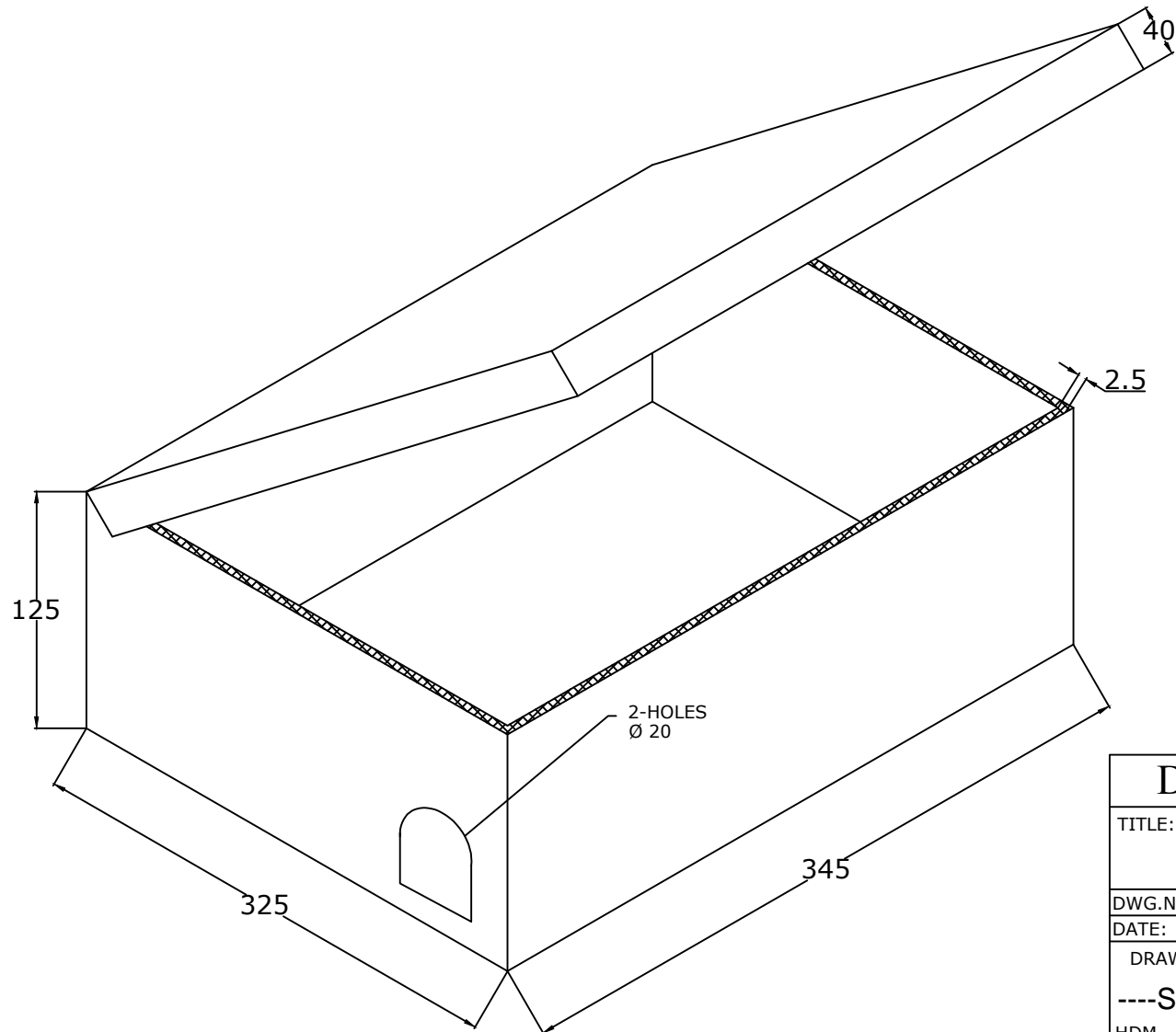
AMENDMENT IN PN SPECIFICATION NO 05/2018
TECHNICAL DETAILS OF COMBAT SHOES CAMEL COLOR

| <u>S NO</u> | <u>PAGE NO</u> | <u>ITEM</u> | <u>REQUIREMENT</u> | |
|--|----------------|-------------------|--|---|
| | | | <u>FOR:</u> | <u>READ:</u> |
| <u>LINING AT TONGUE AND QUARTER</u> | | | | |
| 4. | 17 | Shade | Black | Beige/ Match with leather |
| <u>PERFORMANCE TEST OF WHOLE SHOES</u> | | | | |
| 1. | 19 | Water Resistivity | Boot should be water resistant for min 30 x minutes. | 02 x Air vents of Brass alongwith nylon mesh be provided at inner side of shoes. Refer Annex D for dimensions of air vents placement. |
| 10. | 19 | Sole Design | — | As per attached Annex D. |
| -- | 19 | <u>Note:</u> | <u>Water Resistivity.</u> A pair of white cotton socks of an appropriate size properly stuffed with pieces of cloth shall be inserted in the boot. The boot shall then be immersed in water containing a water level upto lower edge of third speed lacing hook from top. Boot tested should not show signs of wetting on sock/seepage of water at interval of 30 min. | Deleted. |

ANNEX D TO
PN SPECIFICATION NO 05/2018
PROMULGATION DATE 9 OCT 2018



PACKING OF COMBAT SHOES



| DITD KARACHI | | |
|---|--------------------------------|---------------------------|
| TITLE: COMBAT BOOT CAMEL PACKING (SIZE:9) | | |
| DWG.NO. TD-2441/2018 | DIMENSIONS: mm | |
| DATE: 17-08-2018 | SCALE: NTS | |
| DRAWN BY ----SD---- | CHECKED BY ----SD---- | APPROVED BY ----SD---- |
| HDM M.ASGHAR I/c DWG | LTCDR ASMA SOHAIL SO.R&D | CDR AZHAR MIR DITD |