



PAKISTAN NAVY SPECIFICATION 03/2022
PROMULGATION DATE 18 APRIL 2022

WEATHER PROOF JACKET-KHAKI **(FOR PNP, FIRE BRIGADE AND** **BOAT POOL PERSONNEL)**

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PROMULGATION ORDER

1. This specification is hereby approved and promulgated for information, guidance and compliance by all concerned.
2. Details contained in the specification are to be studied and implemented with due regard to interest of the Service.

SUGGESTIONS FOR AMENDMENT

1. The specification has been prepared to bring the test methods and procedures in line with up-to-date PN requirements and facilities held in Pakistan. CINS may request to amend any test requirement/ test procedure in light of the experience emanating from its inspection history, through the feedback form placed at Annex G. However, such an alteration will be effective when the amendment is promulgated by this Directorate, and will be effective on the contracts which materialize after the promulgation date of respective amendment.

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RECORD OF CHANGES/ AMENDMENT

**PN SPECIFICATION 03/2022
(WEATHER PROOF JACKET KHAKI)**

0101. DESIGNATION

1. Weather Proof Jackets (Khaki) for PNP, PN Boat Pool and Fire Brigade Personnel.

0102. USAGE

1. These jackets will be worn by PNP, PN Boat Pool and Fire Brigade personnel during cold weather.

0103. INTRODUCTION

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 wing (NRDI). However, it cannot be implemented without prior approval from NS Dte (NHQ). This specification supersedes and replaces Annex B (only for PNP Cloth and relevant parameters) of PN Specification No.05/2019 promulgated on 17 Jul 19 and all other specifications/technical details promulgated earlier in relation to the items mentioned herein.

2. This specification booklet includes 07 Annexes and consists of 31 pages, including the cover.

0104. SCOPE

1. This specification covers the requirements of stitching of Weather proof Jacket from approved Khaki Cloth and Manufacturing, Inspection, Stowage & Packaging details of stitched Weather proof Jacket of PNP, Fire Brigade & Boat Pool Personnel. This specification lays down the standards to which the store shown under designation above should conform to. It defines and lays down the quality, standards and details of materials, manufacturing, workmanship and finish. It also lays down the details of testing, inspection (acceptance & rejection), marking, packing and delivery, etc. of stitched Jacket khaki.

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.

0105. RELATED DOCUMENTS

1. The latest standards documents that have been referred to in this specification are:

a.	Khaki Fabric	PN Specifications 11/2021 Dated 31 Aug 21 (Khaki Cloth for Dress Khaki)
b.	AATCC-20A	Analysis of fiber
c.	AATCC 133	Color fastness to heat
d.	ASTM B 117	Metal resistance to corrosion
e.	ASTM D 3776 opt D	Standard test methods for mass per unit area (weight) fabric

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f.	ASTM D 2061	Strength of zippers
g.	ASTM D 2062	Operability of Zippers
h.	ASTM D 4632	Standard test methods for grab breaking load and elongation of geotextiles
j.	ASTM D 5034	Tearing strength of fabric
k.	ASTM D 5169	Shear strength for hook and loops
l.	ASTM D 5170	Peel strength for hook and loops
m.	ASTM E 158	Metal analysis for material composition
n.	ASTM PS 79	Determination of holding strength of stud buttons
p.	ASTM D 4846	Determination of the force required to disengage buttons
q.	BS EN-1006	Color fastness to light
r.	BS EN ISO-25077	Dimensional Change in washing and drying
s.	BS EN ISO-6330 (4N)	Domestic washing and drying procedures for textile testing
t.	ISO-105-C10 (C3)	Color fastness to washing
u.	ISO-105-E01	Color fastness to Water
v.	ISO-105-E04	Color fastness to Perspiration
w.	ISO-2589	Determination of thickness
x.	ISO 3801	Weight per Sq. mtr
y.	ISO-7211/1	Determination of Weave pattern
z.	ISO-7211/2	Threads per inch
aa.	ISO-7211/5	Determination of linear density of yarn removed from fabric
ab.	ISO-13934-01	Tensile properties of fabrics Determination of maximum force and elongation at maximum force using the strip method
ac.	Mil spec A-A-55126B	Fasteners tapes Hook loop synthetic

0106. DEFINITIONS & ABBREVIATIONS

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

0107. TECHNICAL DETAILS

- The Technical Details of Weather Proof Jacket - Khaki are mentioned at Annex B of this specification.

0108. SCHEDULE OF MEASUREMENT

- All measurement schedule of stitched Weather proof Jacket are given at Annex C.

0109. TECHNICAL DRAWINGS

- Technical drawing of stitched Weather proof Jacket is given at Annex D.

0110. MANUFACTURING GUIDE LINES

1. Weather proof Jacket is to be manufactured with Khaki Cloth i.a.w. PN Specifications 11/2021 Dated 31 Aug 21 (Khaki Cloth for Dress Khaki).
2. Weather proof Jacket is to be manufactured as per measurement schedule and drawing at Annex C & D, respectively.
3. Jacket shall be manufactured with pre-shrunk fabric.
4. The pocket flaps and shoulder straps shall be made of same fabric (Khaki fabric of jacket) with good quality of fused buckram in it.
5. The shoulder straps shall be attached/ stitched at crown of sleeve such that center of the straps shall be secured with buttons on the other end near neck.
6. Shoulder straps button shall be stitched at 02 inches distance from the zipper of Hoody.
7. Size (length) of shoulder strap may vary according to the size of the jacket.
8. Buttonholes are to have at least 22 stitches per 2 cm and to be bar-tacked or taper barred.
9. All jackets are to be made to a high standards and sound tailoring production techniques are to be applied in their construction.
10. The sewing thread should match with the main fabric.
11. Unsaturated Polyester Buttons used at sleeves and detachable wadding (front opening) should be Mat finished and Khaki in color (match with base fabric) having 4 holes with 19 mm dia (30 ligne) with 4 mm thickness.
12. Buttons for securing of shoulder straps should be 16mm in dia having 4mm thickness with 4 holes.
13. 05 stud buttons shall be used at front opening having distance of 3.25 - 3.75 inches. Zipper is also used at front opening/ closing.
14. Distance between first two buttons is 3.25 inches.
15. Reinforcement stitching (less No of stitch per inch) will be applied at collar end.
16. All joints of jacket will be secured through single needle stitching and over locked.
17. Collar bottom and hoody shall be attached through zipper.
18. Elbow patch of base fabric shall be stitched on sleeves as per drawing at Annex B.
19. Fixed wadding and lining should be stitched on inner side of the hoody.

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20. Dori/ draw string shall be passed through metallic eyelets from one end to the other at front of hoody for adjustment.
21. Ends of braided cord and elastic cords shall be properly fused to avoid fraying.
22. Eyelets shall be clinched properly and does not have any protruding edges.
23. The machine stitches shall be of even tension and all loose ends shall be trimmed/ fastened off.
24. Number of stitches for jacket shall be 7/8 per 2.5 cm.
25. Quilting shall be made with 4.5 x 4.5 (\pm 0.5) cm square.
26. Velcro tape (male/ female) of 01 inch is stitched at the back of the hoody as per drawing at Annex D.
27. 01 inch velcro for name tally and Pak Navy tally shall be stitched in line with pocket flap at the distance of 07 inch from center of shoulder seam.
28. Twill tape of 01 inch (left side only) at collar alongwith velcro shall be used for adjustment.
29. Detachable wadding shall be used on inner side of jacket with 10 x button securing. Distance between buttons should be 5.5 ± 0.5 inch.
30. Sleeves of inner wadding shall be attached with zipper at arm hole.
31. 2.75 ± 0.25 inch knitted cuff, black in color shall be used on sleeves of the wadding.
32. The collar is to be free from distortion.
33. Two spare buttons of each type for jacket be provided/ stitched on the jacket at suitable place.
34. Zippers is made of polymeric coil chain of YKK or equal brand.
35. Care label/ main label instruction shall be attached with jacket at inner side of collar.
36. Strict compliance of Quality Control and Quality Assurance parameters will be implemented through Internal/ External audit teams, before commencement of PN Inspection.
37. Velcro 'PAK NAVY' soft tally as per PN Specification No. 03/16 promulgated vide reference PN/MDITD/03/182399 dated 03 May 16 shall be attached above left chest pocket of jacket.
38. Velcro 'PAKISTAN FLAG PATCH' as per PN Specification No.02/2014 promulgated vide reference PD/2400/10/PAK FLAGS/14/1905 DATED 04 Jul 14 will be attached as per drawing at Annex D of this specification.

39. Velcro Soft Name tally as per PN Specification No. 04/16 promulgated vide reference PD/2400/10/Name Tally Camouflage/14/2989 dated 30 Oct 14 will be attached as per drawing at Annex D of this specification.

Note: Dyeing of the fabric should be done with the dyes having high fastness properties. Good quality of dyes from good manufacturer CIBA, Clariant, SDC or equivalent are to be used for dyeing of fabric.

0111. QUALITY OF WORKMANSHIP AND FINISHING

1. Workmanship and finish of the jacket shall be equal to the reference/ approved sample/ sealed pattern. It shall be the best of its class and to entire satisfaction of the INS.

2. The stitched Jacket khaki shall confirm the parameters define at Annex B of this specification.

3. All properties and qualities which may not be defined in this specification i.e. feel/ finish etc. should be as per reference/ sealed/ approved sample. Reference/ sealed/ approved sample is to be obtained from DNS/ PNCSD and held with DNS/ PNCSD/ CINS, for future reference/ inspection/ stock sample etc.

0112. TESTING

1. The material shall be subjected to tests laid down at Annex B of this specification and related documents. Accessories used for manufacturing of stitched Jacket khaki will be required to complete all the tests 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 any B/R samples tested from any reputable Laboratory other than PN. However, any test considered important by Inspecting Authority other than Annex B. e.g. seam strength, zipper strength, buttons strength, etc. or the test laid down in Annex B may also be conducted in order to check its suitability/ quality. Firm is liable to pay all the testing charges.

0113. BATCH/ LOT SIZE AND NO OF SAMPLE

1. No of samples drawn from bulk quantity/ offered store for inspection and testing are as per instruction of Inspecting Officer or according to following table for the Inspection/ testing:

Lot Size	No. Sample
300 ≥800	05
801≥22000	10
22001and over	15

0114. TENDER SAMPLE

1. Tender sample is to be approved by TSR Committee.

2. For each tender 10 samples of Jacket shall be supplied by the manufacturer at the time of tendering along with samples of materials and Quality Assurance Report (test report) from any accredited laboratory.

0115. ADVANCE SAMPLE OR PRE-PRODUCTION SAMPLE

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 and C. The minimum quantities required are 05 x samples along with accessories used in manufacturing of Jacket as mentioned below.
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 Officers or representative an initial delivery of 01 % of the contract or ten pair along with samples of accessories/ materials for inspection and testing.
3. The approval of Tender, Advance or pre-production sample, authorizes the commencement of bulk production but does not relieve the suppliers/ manufacturers from compliance with all the provisions of this specification.
4. One approved sample shall be properly sealed and returned to the firm for guidance; rest of the approved sample shall be retained for future use in bulk Inspection (if deemed necessary).
5. The Pre-production sample shall be manufactured by the manufacturer with the same facilitates which will be used for manufacturing of the bulk items.
6. Firm shall provide advance sample along with quality verification reports from an accredited laboratory, whenever asked/ required by Inspecting authority to ensure compliance of quality assurance parameters during production/ final internal inspection.

a.	Base Cloth	02 x Mtr
b.	Lining Cloth	02 x Mtr
c.	Velcro Tape (Each Type)	02 x Mtr
d.	Braided cord (Each Type)	05 x Mtr
e.	Sewing Thread (Each Type)	01 Tube
f.	Buttons (Each Type)	½ Dozen
g.	Barrel cord Plastic	06 x Nos
h.	Zipper (Each Type)	02 x Nos
j.	Stud Buttons	½ Dozen
k.	Eyelet	½ Dozen
l.	Fleece for pocket Lining	02 x Mtr
m.	Fabric for detachable lining	02 x Mtr
n.	Fabric Piping for Detachable Lining	02 x Mtr
p.	Knitted cuff	0.5 x Mtr
q.	Polyester Wadding	01 x Mtr

0116. INSPECTION

1. Bulk Representative Sample: B/R random sampling will be carried out as per rules in vogue.
2. Bulk Inspection: Bulk inspection will be carried out after satisfactory completion of Visual Examination and Testing of B/R Sample.

3. Inspection of Jacket khaki: 100% of the offered store shall be inspected as per procedure in vogue OR predefine Stage inspection OR as per Annex F (AQL).

4. Inspection/ Acceptance and Rejection of Stores: Inspection/ acceptance is to be carried out to the entire satisfaction of Chief Inspector of Naval Stores and also as per instruction/ procedure laid down in Official unit order instruction.

5. Common defects in jackets is enclosed as Annex E for consultation/ guideline. However these guide lines may be considered by Inspecting officer in addition to Unit Instruction Order or as per order of Inspecting Authority.

6. The jacket khaki shall be examined for the correctness of material, shape, design, dimension, size, workmanship and finish.

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 the parameters laid down in this specification or the quality of product does not seem up to the mark.

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 pattern, dimensions, workmanship and finish, the whole consignment may be rejected without any compromise.

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

10. The CINS is the authority in all matters pertaining to Inspection.

11. Stamping of Accepted/ Rejected Stores by the Inspector: Following instructions are to be followed:

a. Stamping of Accepted Stores. Each acceptable jacket shall be stamped with Inspector's Individual Acceptance mark or as per Instructing of Inspecting Authority. The stamping shall be legible.

b. Stamping of Rejected Stores. The rejected jacket shall be marked with Inspector's Rejection marked at the back/ visible place of jacket to avoid re-submission by the supplier.

0117. SPECIAL INSTRUCTIONS

1. Care Label Instructions. Following care instructions in the form of leaflet OR attached with Weather proof jacket khaki shall be provided in English and Urdu:

- a. Washing procedure e.g. gentle cycle machine wash.
- b. Ironing procedure e.g. Warm iron.
- c. Drying procedure e.g. Air dry.
- d. Any prohibition e.g. Do not bleach and dry clean etc.

0118. PACKING DETAILS

1. The store when ordered to be delivered 'PACKED' shall be packed as per following instructions:

- a. Each Stitched Jacket khaki shall be properly folded length wise.
- b. The Stitched Jacket khaki shall be packed in a neat, dry and clean condition in polyethylene bag of thickness of 0.06mm ($\pm 0.01\text{mm}$) and suitable size.
- c. 05 x stitched jacket shall be further packed, separately in a thick Carton Boxboard/ Corrugated Carton/ Flouring.
- d. Each Carton shall be securely and properly packed.
- e. Carton consist of following parameters:
 - (1) Carton of 05 ply is used for packing.
 - (2) Weight of outer ply is $180 \pm 5\text{ gm}$.
 - (3) Inner paper ply weight / m^2 $180 \pm 5\text{ gm}$.
 - (4) Corrugated paper weight/ m^2 $120 \pm 5\text{ gm}$.
 - (5) Paper pasted with corrugated sheet $120 \pm 5\text{ gm}$.
 - (6) Each Carton shall consist of same size.

0119. IDENTIFICATION LABEL/ MAIN LABEL

1. Identification label/ main label shall bear following clear and indelible information and shall be stitched alongwith care label:

- a. Item name/ item description with NSN/Pattern No.
- b. Material Composition.
- c. Contract number and Date.
- d. Year of manufacture.
- e. Contractor's name, initials, or trade mark.
- f. Batch No/ Bar code.
- g. Identification of face at suitable places.

0120. PACKING LIST

1. Firm is bound to provide a packing list of store offered for inspection along with the challan, which include complete details about the store i.e. Pattern No., Description of stores, size, quantity, contract No., and Date, Challan No. date and I/ Note No. or voucher no. and date, consignee, Manufacturer/ firm's name, date of packing, packer's signature, stowage instructions and QA certificate/ Lab test report from any accredited lab.

0121. MARKING OF STORES

1. Each carton of jacket will stenciled with quick drying Black indelible ink/ print in clearly define characters as per followings:

a. On Front and Top:

- (1) Consignee Address.
- (2) Contract No and date.
- (3) Description of Stores Packed and NSN/Patt No.
- (4) Stowage / Stacking Instructions.
- (5) Quantity of the Item packed.
- (6) Signature along with stamp of Packaging Manager/ rep of firm.

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.
- (6) Destination i.e. Railway station/ (Navy).

0122. DELIVERY

1. The item shall be delivered in good quality and fulfilling the requirements of PN specification.
2. The store shall be delivered in Brand new, clean and dry condition.

XXXXX SD XXXXX

MUHAMMAD AFSAR
Captain Pakistan Navy
Director

Annexes:

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DEFINITIONS & ABBREVIATIONS

1. DEFINITIONS

- a. Following definitions are used in this specification and will be adopted for use:
- (1) **Inspector.** The term inspector shall include the "Inspection Authority", Inspecting Officers and their representatives, duly authorized for the purpose of discharging inspection duties involved.
- (2) **Inspection Authority.** Chief Inspector of Naval Stores (CINS). His verdict in respect of Sealed Inspection matters is to be taken as final.
- (3) **Inspecting Officers.** An Officers nominated by the CINS for carrying out inspection of stores supplied by the supplier, against a specified contract or order, in accordance with the particulars stipulated therein.
- (4) **Acceptance Quality Level (AQL).** It represent allowable limit/tolerance of defects or non-conformities in an offered store/ lot/ batch. It represent in percentage, also known as Allowable Quality Limits.
- (5) **Minor Defects.** They are small insignificant issues that don't affect the function or form of the item. Highest tolerance of AQL has been set for minor defects.
- (6) **Major Defects.** They would likely result in product return but don't poses safety risk. AQL tolerance depend upon the description/ quality of finished product.

2. ABBREVIATIONS

- a. Following abbreviations are used in this specification and will be adopted for use:
- (1) **CINS:** Chief Inspector of Naval Stores.
- (2) **DITD:** Directorate of Indigenous Technical Development.
- (3) **DNS:** Directorate of Naval Store.
- (4) **PNCSD:** Pakistan Navy Clothing Store Depot.
- (5) **PNCTA:** Pakistan Navy Central Testing Authority.
- (6) **PNP:** Pakistan Naval police.

ANNEX B TO
PN SPECIFICATION NO 03/2022
PROMULGATION DATE 18 APR 22

TECHNICAL DETAILS OF WEATHER PROOF JACKET KHAKI

S.NO	ITEMS	STANDARDS	REQUIREMENTS	
1.	<u>Base Fabric</u> PN Specifications 11/2021 Dated 31 Aug 21 (Khaki Cloth for Dress Khaki).			
2.	<u>Lining/ Wadding Fabric Material Specification (For Inner Lining Of Jacket)</u>			
a.	Blend Composition (1) Cotton (2) Polyester	AATCC-20A	30 ± 3%	70 ± 3%
b.	Threads per 25 mm (1) Warp (2) Weft	ISO-7211/2	85 ± 2	55 ± 2
c.	Linear density (1) Warp (2) Weft	ISO-7211/5	30 ^s ± 3 ^s	33 ^s ± 3 ^s
d.	Weave Pattern	ISO-7211/1	1x1 Plain	
e.	Weight per sq meter	ISO-3801	100 ± 2Grams	
f.	Nature of Dye	Chemical Analysis	Vat dye and Disperse dye	
g.	Shade	Visual analysis	Khaki (16-0726 TCX) or match with base fabric	
3.	<u>Lining/ Wadding Fabric Performance Testing</u>			
a.	Shrinkage (1) Warp (2) Weft	BS EN ISO-6330 (4N) BS EN 25077	± 1%	± 1%
b.	BS (10.2X 16.8 cm BG) (1) Warp (2) Weft	ISO-13934-01	(5 cm x 20 cm B.G) 630 ± 5N 470 ± 5N	
c.	Washing Test-3 (1) Change in Shade (2) Staining	ISO-105-C10 (C3)	GS: 4 or better	GS: 4 or better
d.	Perspiration Test (Acidic & Alkaline) (1) Change in shade (2) Staining	ISO-105-E04	Acidic 4 or better 4 or better	Alkaline 4 or better 4 or better
4.	<u>Filling/ wadding material specification</u>			
a.	Material	AATCC-20A	100 % Polyester	
b.	Weight per sq meter (gms)	ISO-3801	150 ± 05 Grams	
c.	Thickness at 300 g Load	ISO-2589	2.4 ± 0.2 mm	
5.	<u>Knitted Cuff</u>			
a.	Blend Composition (1) Cotton (2) Lycra	AATCC-20A	95%	5%
b.	Weight per sq meter	ISO-3801	570 Grams ± 10 Grams	

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	c. No of Needles (1) Wales (2) Coarse	ISO-7211/2	22/ inch ± 3 38/ inch ± 3
	d. Linear density (1) Cotton (2) Splicing	ISO-7211/5	10/1±1 70 ± 5 Denier
	e. Shade	Visual analysis	Black (TCX 19-4006)
	f. Dye (1) Cotton (2) Polyester	Chemical Analysis	Reactive dye Disperse
6.	<u>Knitted Cuff Performance Testing</u>		
	a. Shrinkage (1) Warp (2) Weft	BS EN ISO-6330 (4N) BS EN 25077	± 3 % ± 3%
	b. Washing Test-3 (1) Change in Shade (2) Staining	ISO-105-C10 (C3)	GS: 4 or better GS: 4 or better
	c. Perspiration Test (Acidic & Alkaline) (1) Change in shade (2) Staining	ISO-105-E04	<u>Acidic</u> <u>Alkaline</u> 4 or better 4 or better 4 or better 4 or better
7.	<u>Cut Zipper Nylon Coil (YKK Brand Or Equivalent) Small No 5 (For Attachment Of Lining Sleeve)</u>		
	a. Material of Teeth	AATCC-20A	Nylon
	b. Teeth shape	Visual analysis	Coil
	c. Performance	Visual analysis	Satisfactory
	d. Shade	Visual analysis	Khaki, match with base fabric
	e. Material of Tape	AATCC-20A	Polyester
	f. Slider of zipper (1) Material (2) Nature of coating	ASTM E 158	Zinc alloy (Zinc 93%, Al 4%, Cu 3%) Lacquered
8.	<u>Zipper Front Opening Specification</u>		
	a. Tape Material	AATCC-20A	100% Polyester
	b. Color	Visual analysis	Khaki, match with base fabric
	c. Elements	AATCC-20A	100% Polyester
	d. Zipper part (1) Top stop (2) Open parts	AATCC-20A	100% Polyester/ Brass
	e. Slider material	ASTM E 158	Zinc alloy (Zinc 93%, Al 4%, Cu 3%)
9.	<u>Zipper Front Opening Performance Testing</u>		
	a. Element Slippage	ASTM D 5034	45 N (Min)
	b. Element Pull off	ASTM D 2061	45 N (Min)
	c. Operating force (N)	ASTM D2062	6.9 N (Max)
	d. Cross wise (N)	ASTM D 2061	350 N (Min)
	e. Folded Cross wise (N)	ASTM D 2061	100 N (Min)
	f. Top Stop Strength	ASTM D 2061	70 N (Min)
	g. Separating unit Cross	ASTM D 4632	80 N (Min)

	wise Strength		
h.	Slider Lock Strength	ASTM D 2061	40 N (Min)
j.	Slider Strength 90°/45°	ASTM D 2061	180 N (Min)
k.	Durability	ASTM D 2061 & ASTM D 2062	500 cycles
10.	<u>Zipper For Hood Adjustment Specification</u>		
a.	Tape Material	AATCC-20A	100% Polyester
b.	Color	Visual analysis	Khaki, match with base fabric
c.	Elements	AATCC-20A	100% Polyester
d.	Zipper part (1) Top stop (2) Open parts	AATCC-20A	100% Polyester/ Brass
e.	Slider material	ASTM E 158	Zinc alloy (Zinc 93%, Al 4%, Cu 3%)
11.	<u>Zipper Hood Performance Testing</u>		
a.	Operating force (N)	ASTM D2062	6.9 N (Max)
b.	Cross wise (N)	ASTM D 2061	600 N (Min)
c.	Folded Cross wise (N)	ASTM D 2061	350 N (Min)
d.	Top Stop Strength	ASTM D 2061	100 N (Min)
e.	Separating unit Cross wise Strength	ASTM D 4632	80 N (Min)
f.	Slider Lock Strength	ASTM D 2061	40 N (Min)
g.	Slider Strength 90°/	ASTM D 2061	180 N (Min)
h.	Durability	ASTM D 2061 & ASTM D 2062	500 cycles
12.	<u>Stud Button Material Specification</u>		
a.	Material	AATCC-20A	Brass
b.	Size (Dia)	Physical Analysis	14 mm
13.	<u>Stud Button Performance Testing</u>		
a.	Appearance	Visual analysis	No Sharp point or edges
b.	Resistance to corrosion	ASTM B 117	No corrosion or visual change
c.	Attachment Strength	ASTM PS 79	15 Lbs for 10 Sec
d.	Operability (Open/ Close)	ASTM D4846	2.0-5.0Lbs
e.	Appearance after laundering	ISO-6330 (4N)	No Chipping, Cracking, Paint Loss, color transfer
14.	<u>Braided cord Material Specification (Waist Adjustment)</u>		
a.	Material (1) Outer (2) Inner	AATCC-20A	Polyester Rubber
b.	Thickness	ISO-2589	2.55 mm
c.	Color	Visual analysis	Khaki, match with base fabric
d.	Circumference	Physical analysis	12 mm
e.	Wt/ Linear Mtr	ISO-3801	9 ± 1 gm
f.	Construction (1) Braided (2) Core	Visual analysis	15 03
g.	Nature of Dye	Chemical Analysis	Disperse dye
15.	<u>Braided Cord Performance Testing (Waist Adjustment)</u>		
a.	Breaking Strength in kg	ISO-13934-01	30 ± 5 kg

	at 250 mm BG		
	b. Washing Test-3 (1) Change in Shade (2) Staining	ISO-105-C10 (C3)	GS: 4 or better GS: 4 or better
16.	Braided cord (hood and bottom)		
	a. Circumference	Physical Analysis	15 ± 1mm
	b. Wt/ Linear mtr	ISO-3801	6 ± 1 gm
	c. Material	AATCC-20A	Polyester
	d. Construction	Visual Analysis	03 Cord
	e. Color	Visual Analysis	Khaki, match with base fabric
	f. Nature of Dye	Chemical Analysis	Disperse dye
17.	Braided Cord Performance Testing (Hood And Bottom)		
	a. Breaking Strength in kg at 250 mm BG	ISO-13934-01	40 ± 1 kg
	b. Washing Test -3 (1) Change in Shade (2) Staining	ISO 105-C10 (C3)	GS: 4 or better GS: 4 or better
18.	Care Label Material Specification		
	a. Material	AATCC-20A	Silk
	b. Shade	Visual analysis	White
19.	Velcro Tape Material Specifications		
	a. Material (1) Male (2) Female	AATCC-20A	Nylon Nylon
	b. Color	Visual analysis	Khaki. Match with base fabric
20.	Velcro Tape Performance Testing		
	a. Before Sticking/unsticking 300 times at 300 g	Visual analysis	Satisfactory
	b. After Sticking/unsticking 300 times at 300 g		Satisfactory
	c. Class – I for hook and loops	AATCC-20A/20	100% Nylon with selvage
	d. Type – II		5.8 mil 300 denier hook
	e. Width		1 inch
	f. Thickness () (1) Hook (2) Loop	ASTM D 1777, opt 5	0.05 in (min) 0.095 in (min)
	g. Weight Grams/ linear yard () (1) Hook (2) Loop	ASTM D 3776 opt D	4.7 5.9
	h. Breaking strength lbs (min) () (1) Hook (2) Loop	ASTM D 5034	100 75
	j. Peel strength lbs/inch/ (min) Before wash (1) After 03 launderings	ASTM D 5170	1-1.5 1.0

	k. Shear strength, (1) Before wash (2) After 03 launderings	ASTM D 5169	10 10
	l. Fray resistance after 03 launderings	Mil spec A-A-55126B	No fraying observed
21.	Buttons (For Shoulder Straps, Sleeves & Detachable Wadding)		
	a. Material	Identification of Plastic (Flame Test)	Polyvinyl
	b. Colour	Visual analysis	Khaki, match with base fabric
	c. Size (Dia) (1) Shoulder strap (2) Sleeve & detachable wadding	Physical analysis	16 mm 19 mm
22.	Buttons Performance Testing		
	a. Color fastness to Water	ISO-105-E01	GS: 4 or better
	b. Impact test (67mm)	ASTM D 5171	No cracks, chips or breakage
	c. Color fastness to heat (hot pressing)	AATCC 133	GS: 4 and no chipping, cracking, discoloration or staining
23.	Cord End Securing / Lock		
	a. Material	Identification of Plastic (Flame Test)	Plastic
	b. Shade	Visual analysis	Khaki, match with base fabric
24.	Barrel Cord Lock Plastic		
	a. Material	Identification of Plastic (Flame Test)	Plastic
	b. Colour	Visual analysis	Khaki, match with base fabric
	c. Weight of lock plastic	ISO-3801	2 ± 0.5 Grams
	d. Weight of spring	Physical analysis	0.5 ± 0.01 Grams
25.	Eyelet Brass 10 Mm (Hood And Waist)		
	a. Colour/ Finish	Visual Analysis	Brown
	b. Gauge (1) Eyelet (2) Washer	SWG	22 SWG 25 SWG
	c. Wt/ 10 pcs (1) Eyelet (2) Washer	Visual Analysis	2.5 gm 1 gm
	d. Dimension (1) Inner dia (2) Outer dia	Physical analysis	10 ± 1mm 5 ± 1mm
26.	Lining Of Pocket		
	a. Material	AATCC-20A	Polyester
	b. Wt/ sq mtr	ISO-3801	250 ± 5gm
	c. Color	Visual Analysis	Black
	d. No of Course/ 25.4 mm	ISO-7211/2	43
	e. No of Wales/ 25.4 mm	ISO-7211/2	51
	f. Shrinkage % age	BE EN ISO-6330	

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	(1) Length (2) Width	(4N) BS EN 25077	±2 % ±2 %
27.	Sewing Thread (For Stitching/ Over Locking)		
a.	Construction	Visual Analysis	03 cord each single
b.	Material	AATCC-20A	Polyester
c.	Linear density	ISO-7211/5	12/3 Tex
d.	Shade	Visual Analysis	Khaki
e.	Balance of Twist	Visual Analysis	03
f.	Direction of Twist	Visual Analysis	S
g.	Nature of Dye	Chemical Analysis	Disperse dye
28.	Sewing Thread Performance Testing		
a.	B.S (24' BG)	ISO-13934-01	0.94 kg (at 19" B.G)
b.	Washing Test No.-3 (1) Change in Shade (2) Staining on Cotton	ISO-105-C10 (C3)	GS: 4 or better GS: 4 or better
c.	Light Fastness	BS 1006	GS: 4 or better
29.	Quilting Thread		
a.	Construction	Visual Analysis	02 Cord each single
b.	Material	AATCC-20A	Polyester
c.	Linear density	ISO-7211/5	31/2 Tex
d.	Shade	Visual Analysis	Khaki
e.	Balance of Twist	Visual Analysis	02
f.	Direction of Twist	Visual Analysis	S
g.	Nature of Dye	Chemical Analysis	Disperse dye
30.	Quilting Thread Performance Testing		
a.	B.S (24' BG)	ISO-13934-01	1.4 kg (at 19" B.G)
b.	Washing test No.-3 (1) Change in Shade (2) Staining on Cotton	ISO-105-C10 (C3)	GS: 4 or better GS: 4 or better
c.	Light Fastness	BS EN-1006	GS: 4 or better
31.	Twill Tape		
a.	Material	AATCC-20A	Cotton
b.	Shade	Visual Analysis	Khaki
c.	Size (Width)	Physical Analysis	25 mm
d.	Threads per Inch	ISO-7211/2	76
e.	Breaking Strength (Full width x 7" B.G)	ISO-13934-01	69.4 kg
32.	Buckram/ Fussing (Pocket Flap & Shoulder Strap)		
a.	Material	AATCC 20 A	Cotton
b.	Wt/ Sq mtr	ISO 3801	162 g/m ²
c.	Shade	Visual	White / matched with base fabric
d.	Threads / 2.5cm (1) Warp (2) Weft	ISO 7211/2	66 53

33.	<u>Buckram/ Fussing Performance Testing</u>		
	a. appearance after 05/10 cycles at 60/40 °C of laundering	BS EN ISO 6330 Visual/ Manual	No pucker Adhere bond, bubble , cracking,

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PROMULGATION DATE 18 APR 22

MEASUREMENTS AND DIMENSIONS OF WEATHER PROOF JACKETS

S.No	DESCRIPTIONS	WEATHER PROOF JACKET								
		SIZE (in)								
	Sizes	S	M	L	X L	2XL	3XL	4XL	5XL	6XL
A.	Length HPS	31	31.5	32	34	34	35	35	35	35
B.	Shoulder	19	19.5	20	20.5	21	21.5	22	22.5	23
C.	Sleeves length	23	23	24	26	26	26	26	26	26
D.	Chest	23.5	24	24.5	25	25.5	26	26.5	27	27.5
E.	Waist	Adjustable Tape/ Draw String								
F.	Bottom	23.5	24	24.5	25	25.5	26	26.5	27	27.5
G.	Arm hole	12	12	12.5	12.5	13	13	13.5	13.5	14
H.	Collar	21	21	21.5	21.5	22	22	22.5	22.5	23
J.	Cuff	7	7	7.5	7.5	7.5	7.5	7.5	7.5	7.5
K.	Shoulder to Pocket distance	8	8	8	8	8	8		8	8
L.	Shoulder Flap	6.5	6.5	6.75	6.75	7	7	7.25	7.25	7.5

INNER WADDING/ JACKET SPECIFICATION

a.	Length HPS	29	29	29	31	31	32	32	32	32
b.	Shoulder	19	19.5	20	20.5	21	21.5	22	22.5	23
c.	Sleeves without rib	20.5	20.5	21.5	23.5	23.5	24	24	24	24
d.	Chest	23.5	24	24.5	25	25.5	26	26.5	27	27.5
e.	Waist	Not Applicable								
f.	Bottom	23.5	24	24.5	25	25.5	26	26.5	27	27.5
g.	Arm hole	11.75	11.75	12	12	12.75	12.75	13	13	13.75
h.	Neck width	7	7	7.5	7.5	8	8	8.5	8.5	9

Tolerance: $\pm 0.5''$

MEASUREMENTS AND DIMENSIONS OF ZIPPER FOR FRONT OPENING

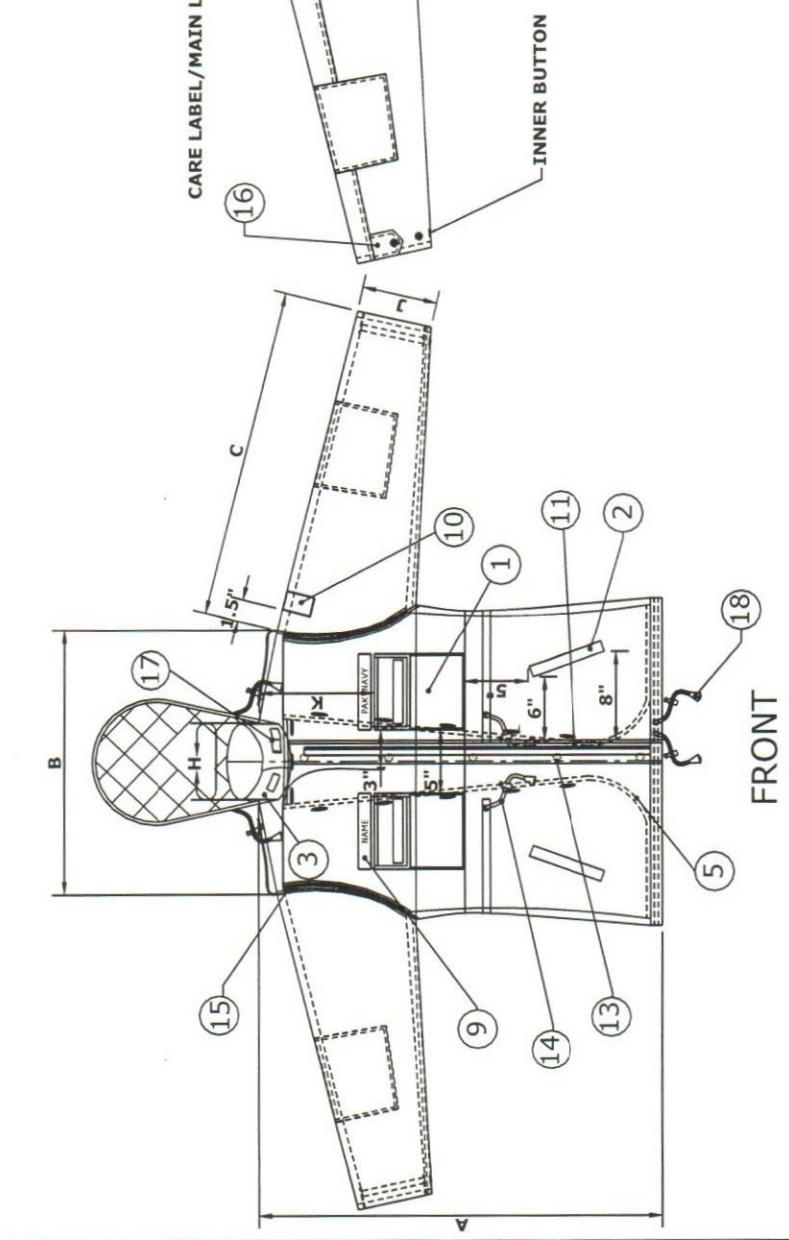
a.	Chain Width	5.70	± 0.14
b.	Chain Thickness	2.58	± 0.08
c.	Element Head	2.08	± 0.08
d.	Element Pitch	3.48	± 0.03
e.	Thickness of Retainer Pin	2.65	± 0.08
f.	Thickness of Separable Pin	2.65	± 0.08
g.	Top Stop Thickness	2.58	± 0.08
h.	Total chain width	29.5	± 2.00
j.	Exposed tape width	12.0	± 1.00

MEASUREMENTS AND DIMENSIONS OF ZIPPER FOR HOOD

a.	Chain Width	6.45	± 0.13
b.	Chain Thickness	2.62	± 0.11
c.	Element Head	1.35	± 0.05
d.	Element Pitch	1.78	± 0.03
e.	Element length	4.06	± 0.06
f.	Element width	2.10	± 0.05
g.	Thickness of Retainer Pin	2.20	± 0.05

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h.	Thickness of Separable Pin	2.20	<u>+0.05</u>
j.	Top Stop Thickness	2.90	<u>+0.15</u>
k.	Total chain width	32.0	<u>±2.00</u>
l.	Exposed tape width	12.8	<u>±1.00</u>



1420

BACK

FRONT

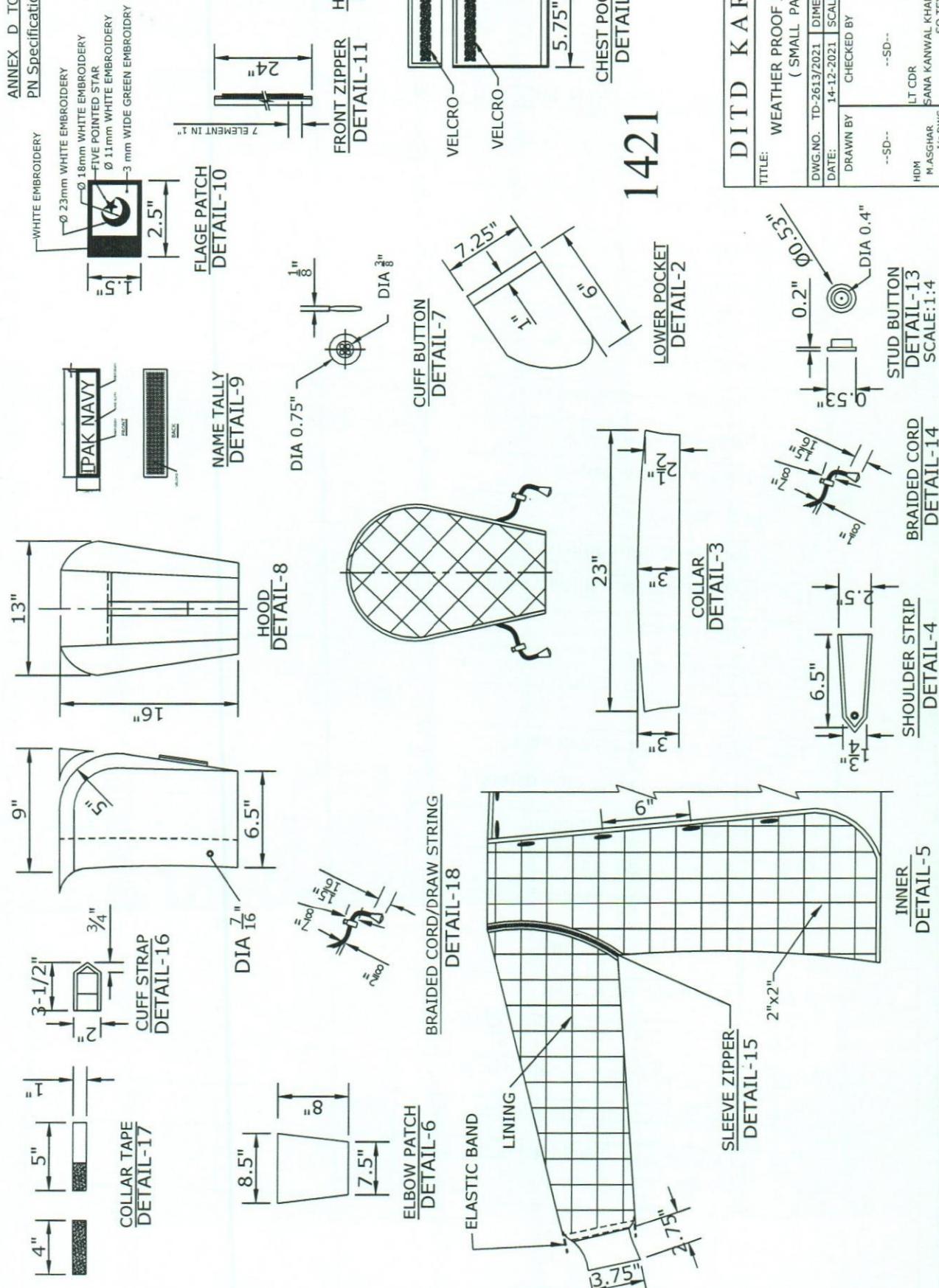
NOTE:
FOR FURTHER DETAILS SEE SEALED STOCK SAMPLE.

DITD KARACHI

TITLE: WEATHER PROOF JACKET KHAKI
(MAIN BODY)

S.NO	ITEM	QTY	ITEM	QTY	DESCRIPTION	DRAWN BY	CHECKED BY	FINALIZED BY
12	HOOD ZIPPER	01	L	SHOULDER FLAP				
11	FRONT ZIPPER	01	K	SHOULDER TO POCKET DISTANCE				
10	FLAG PATCH	01	J	CUFF				
9	NAME TALLY	02	H	COLLAR				
8	HOOD	01	G	ARM HOLE				
7	CUFF BUTTON	02	F	BOTTOM				
6	ELBOW PATCH	02	E	WAIST				
5	INNER	01	D	CHEST				
18	CORD/DRAW STRING	01	C	SLEEVE LENGTH	--SD--	--SD--	--SD--	
17	COLLAR TAP VELCRO	01	B	SHOULDER				
16	CUFF STRAP	02	A	LENGTH	LT CDR HDM M.ASGHAR I/c DWG.	SANA KANWAL KHAN CAPTAIN MUHAMMAD AFSAR SO TEX	CAPTAIN MUHAMMAD AFSAR SO TEX	

ANNEX D TO
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DIT D KARACHI	
TITLE: WEATHER PROOF JACKET KHAKI (SMALL PARTS)	APPROVED BY
DWG. NO. TD-2613/2021	SD-
DATE: 14-12-2021	SD-
DRAWN BY HMD M. ASGHAR	LTCR SANA KANWAL KHAN
DESIGNER I/C DWG. CAPTAIN MUHAMMAD AFSAR	SO TEX
REV. 00	REV. 00

GUIDELINES FOR INSPECTION – GENERAL DEFECTS

S.No	Defects	Major	Minor
1.	Needle hole	Major	
2.	Skipped stitches		
3.	Threads break		
4.	Broken stitches		
5.	Seam pucker		
6.	Pleated/ defected seam	major >1cm	minor <1cm)
7.	Wrong stitch density	Major at front	Minor at back
8.	Uneven stitch density		
9.	Oil stains/ marks		
10.	Reserved garments parts	Major	
11.	Wrong shade of thread used		
12.	Open seam		
13.	Stitch end		Minor
14.	Asymmetry	Major	
15.	Any missing accessories Dimension color are4 different		
16.	Malfunction of zippers		
17.	Button inside out		
18.	Damaged button		
19.	Button hole too small		
20.	Omitted button hole		
21.	Uncut/ partial cut button hole		
22.	Ragged edges of button hole		Minor
23.	Broken button hole stitches	Major	
24.	Misaligned/ misplaced button and holes		

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25.	Malfunction of zippers	
26.	Zipper slider running not smoothly	
27.	Missed zipper teeth	
28.	Missed zipper puller	
29.	Wavy zippers	
30.	Gap at zippers top and bottoms	
31.	Fussing bubbles/ wrinkles on buckram	Minor (if it's too small)

ACCEPTABLE QUALITY LEVELS (AQL)

1. Acceptable Quality Level (AQL) is maximum average defective items in a lot or limit / percentage of defective items in product /offered store. It is expressed in a percentage. Number of average defective items is determined by following formula:

$$\text{Average defective item} = \frac{\text{No.of defective item found during inspection}}{\text{Total no.of item to be inspected}} \times 100$$

2. AQL process: it is used for inspection of finished product / garment by the QC professionals. AQL standard is depend on the quality of the product to be inspected, random sampling, and experience of inspector. Normally lower figure AQL standard e.g. 01% is used for high quality products/ narrow width fabric and high figure AQL standard e.g. 10% for low quality product/ garment. AQL standard 2.5% means that allowable limit of defective item is 2.5 % of total items inspected .Usually AQL 2.5% is used for major defects, AQL 4.0 % is used for minor defects and AQL 6.5% is used for slight defects, however zero acceptance for critical defects Allowable limit of Major defects are less than minor defects and it depends upon nature of item /offered store. It can be less than 01% or greater than 10%. .Following AQL table is used to determine lot size/ offered store quantity, least No. of sample to be inspected, AQL %, and acceptance & rejection points:

<u>SINGLE SAMPLING PLAN FOR NORMAL INSPECTION OR AS PER ORDER OF INSPECTING OFFICER.</u>											
Lot size	Least No. of sample to be Inspected	Allowable Quality levels(AQL) %									
		• Acceptable/ Allowable defective sample (Ac)		• Rejected /Exceed allowable limit of defective item (Re)							
		1.5%		2.5%		04%		6.5%		10%	
		Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re
281-500	20-80	1-3	2-4	1-5	2-6	2-7	3-8	3-10	4-11	5-14	6-15
501-1200	32-125	1-5	2-6	2-7	3-8	3-10	4-11	5-14	6-15	7-21	8-22
1201-3200	50-200	2-7	3-8	3-10	4-11	5-14	6-15	7-21	8-22	10-21	11-22
3201-10000	80-315	3-10	4-11	5-14	6-15	7-21	8-22	10-21	11-22	14-21	15-22

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10001- 35000	125-500	5- 14	6- 15	7- 21	8- 22	10- 21	11- 22	14- 21	15-22	21	22
35001- 150000	200-800	7- 21	8- 22	10- 21	11- 22	14- 21	15- 22	21	22	21	22
150001- 500000	315-1250	10- 21	11- 22	14- 21	15- 22	21	22	21	22	21	22
500001- above	500-2000	14- 21	15- 22	21	22	21	22	21	22	21	22

3. If the inspector have time constrain then AQL is beneficial/ helpful in inspection of whole lot/ offered store. It safe time, cost and give effective/ statistical result of product /offered store e.g. If inspector needs 5 minutes to check the item , the quantity to be inspected is 2,500 items then it took 208 hours to check the whole consignment/ offered store.it means 26 days approx. for one store. Calculation is as follows:

$$\frac{5 \text{ min} \times 1 \text{ hr}}{1 \text{ item} \times 60 \text{ min}} \times 2,500 \text{ items} = 208.33 \text{ hrs} \cong 26 \text{ days}$$

After Implementing AQL standard so the sample taken from the lot/ offered store is 200 items/ sample:

$$\frac{5 \text{ min} \times 1 \text{ hr}}{1 \text{ item} \times 60 \text{ min}} \times 2,00 \text{ items} = 16.66 \text{ hrs} \cong 02 \text{ days}$$

4. Quality parameters/ AQL limits may be defined by Inspecting Authority (if deemed appropriate) and communicate to the manufacturer, so the manufacturer set their quality levels (AQL limits) accordingly for their internal audit. Therefore, good quality product is ready for inspection.

PN SPECIFICATION NO 03/2022
ANNEX G TO
PN SPECIFICATION NO 03/2022
PROMULGATION DATE 18 APR 22

FEED BACK FORM

Unit Name: _____

Item Description#: _____

Issue/Problem occurred: _____

PN SPEC #: _____

Possibility to resolve Issue: _____

Any Other Remarks: _____

Note:

- It's good to give feedback for improvement in any clothing item.
- Recurring problem will also be intimated through this form.

Name Stamp

COUNTERSIGNED By CO/Admin Authority
Name Stamp

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