


UNIFORM ARTICLE, RAILWAY PROTECTION FORCE ,  
West Central Railway

**Description:-** Boot Ankle Textile (Jungle Boot), Direct Injected (PU) Sole ,  
**P.L.NO-79.12.4926**

<b>Technical Specification</b>	
<b>Article Name</b>	Boot Ankle Textile (Jungle Boot), Direct Injected (PU) Sole.Colour Olive Green.
<b>Upper Material</b>	-The upper shall consist of eater repellant(on visual inspection Minimum rating 80 in the water repellency test as per IS 390:1975 ) Polyester viscose fabric confirming to the requirements given in <b>Annexure B</b> as an outer layer and 100% non woven nylon (cambrelle type) lining conforming to the requirements given in <b>Annexure C</b> as an inner layer or lining. The two fabrics shall be firmly adhered together with flexible adhesive & polyurethane foam of <b>5mm thickness</b> . Inside counter lining shall be of upper material. The color/shade of upper used shall be <b>Olive green</b> . The toe cap and arch piece shall be black colour full chrome tanned leather.
<b>In socks Material</b>	-Each boot shall be provided with a detachable 4.0 mm+-1.0 thick full insock of compress moulded EVA rubber having instep arch support. The outer layer of the insock shall be covered with Cambrelle type or drill cloth material in black colour.
<b>Lace Material</b>	-Each pair of boots shall be provided with a pair of Nylon black laces of 130 cm long having minimum mass of 100 gms per 10 pairs.
<b>Binding Material</b>	-Polyester black binding.
<b>Eyelet Material</b>	-Aluminum Eyelet conforming to <b>IS:5041-1978</b> .
<b>Sole Material</b>	-Direct Injected PU Sole. These Jungle boots with PU Sole shall have shelf life of minimum of 12 month for normal PU Sole.
<b>Toe Puff /Counter</b>	-Material-For toe puffs and stiffeners well struck thermo plastic toe puff & stiffeners of minimum thickness 1.5 mm & 2 mm respectively shall be used.
<b>Insole Material</b>	- Insole will be non-woven polyester fabric conforming to IS 15298 (Part-2) with suitable treatment for providing antistatic properties.
<b>Out sole Material</b>	-Shell be polyurethane (PU) sole ( <b>Requirements as mentioned in Annexure-A</b> ) having anti-slip <b>design moulded directly on to the lasted upper by direct injection process</b> . The design and pattern of PU Sole shall be similar to tread design of sole as shown un figure 2 for reference.
<b>Sizes</b>	- Indian 06 No-12 No full size only.
<b>Mass</b>	-The mass of one pair of finished boots of Size 8 shall be in the range <b>750 gms to 850 gms</b> with an increase or decrease of 50 gms for each bigger or smaller size respectively.
<b>Leg Height</b>	-The leg height of the boots when tested in accordance with <b>IS-15298:Part-1</b> shall be 160 +/- 2 mm, for Size 8 with an increase or decrease by 2.0mm for each bigger and smaller size. The leg height of the pair shall be equal.
<b>Packing Standard</b>	-Each pair of boots shall be wrapped in tissue paper and shall be packed in a three ply corrugated box that will form a unit pack.
<b>Standard</b>	-Boot shall be made to design shown in figure 1 on last <b>IS NO-7329/74 Or equivalent</b> , broad toe, H fitting last.
<b>Brand</b>	-Allen Cooper, Liberty, Red chief. Bata, Lakhani, Lee-cooper , Safari or Similar Standard Company.
The material used should meet the eco-friendly quality parameters as per <b>Annexure D</b> .	

  
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 पश्चिम मध्य रेल्वे/जबलपुर  
 For Chief Security Commissioner  
 RPF/WCR/Jabalpur




## POLYURETHANE SOLE ( DIP PU SOLE)

PARAMETERS	NORMS
Shore "A" Hardness	50 to 60 Shore "A"
Moulded density (kg/m <sup>3</sup> )	500 to 600
Trouser tear strength (IS 15298 part 1) in kN/m	5 Min.
Flexing life test (IS: 15298 part 1)	30,000 flexes cut growth 4mm max.
Abrasion test, (IS: 15298 part 1)	250 mm <sup>3</sup> max.
Hydrolysis test as per (IS: 15298 part 1)	6 mm cut growth maximum

## Annexure B

REQUIREMENTS OF UPPER MATERIAL

S.N	Parameter	Requirement/Norm	Test Method
1.	Blend Composition (for Guidance)	a. Polyester (%): 80 ± 3 b. Viscose: Remainder	IS: 11195
2.	Weave	Twill 2/1	Visual
3.	Mass (gm / m <sup>2</sup> )	290 ± 10%	IS: 1964
4.	Breaking Load in kg(min) (5x20 cm strip) a. Warp b. Weft	200 100	IS: 1969
5.	Elongation in % age	20 % (min.)	IS: 1969

  
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6.	Tear Strength in N, Min.		IS:6489 Part 4
	a. Warp	200	
	b. Weft	150	
7.	Mullen Burst in Kg /cm <sup>2</sup>	10 (min.)	IS:1966 Part-1
8.	pH Value	6.0 – 8.5	IS:1390 (Cold method)
9.	Colour Fastness		
	a. Light	3/4 or better -	IS: 2454
	b. Washing	3/4 or better	IS:764
	c. Perspiration	3/4 or better	IS: 971

**Annexure C****REQUIREMENTS OF NON-WOVEN LINING MATERIAL**


Sl. No.	Parameter	Requirement / Norm	Test Method
1.	Blend Composition	Nylon: 100%	IS: 11195
2.	Weave	Non Woven	Visual
3.	Thickness	0.7mm (min.)	-
4.	Mass (gm / m <sup>2</sup> )	150 ± 25	IS: 1964
5.	Tear Strength in N, Min	15	IS 15298 (part1)
6.	Mullen Burst in Kg / cm <sup>2</sup>	5 (min)	IS:7016 Part-6/ IS:1966 Part-1
7.	Abrasion Martindale, Min	25,600 Cycles (dry) 6400 Cycles (wet)	IS 15298 Part 1
8.	Colour Fastness		
	a. Light	3/4 or better	IS: 2454
	b. Washing	3/4 or better	IS:764
	c. Perspiration	3/4 or better	IS: 971

  
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**Annexure D**

The material used should meet the following eco-friendly quality parameters:

Sl	Material	Test	Quality Norm	Test Method
1	Upper, lining fabric	Azo dyes	IS 14898	LC : 4 of IS 14816/ ISO 17234/ ISO 14362
		Pentachlorophenol (PCP)		IS 14575/ ISO 17070
		Formaldehyde		LC : 3 of IS 14816/ ISO 17226
2	Sole	Lead	IS 12254	IS 12240 (Part 5)/ EN 1122
3	Metal parts eg eyelets, buckles, zip etc	Nickel free	SG Criteria	DIN EN 12471

  
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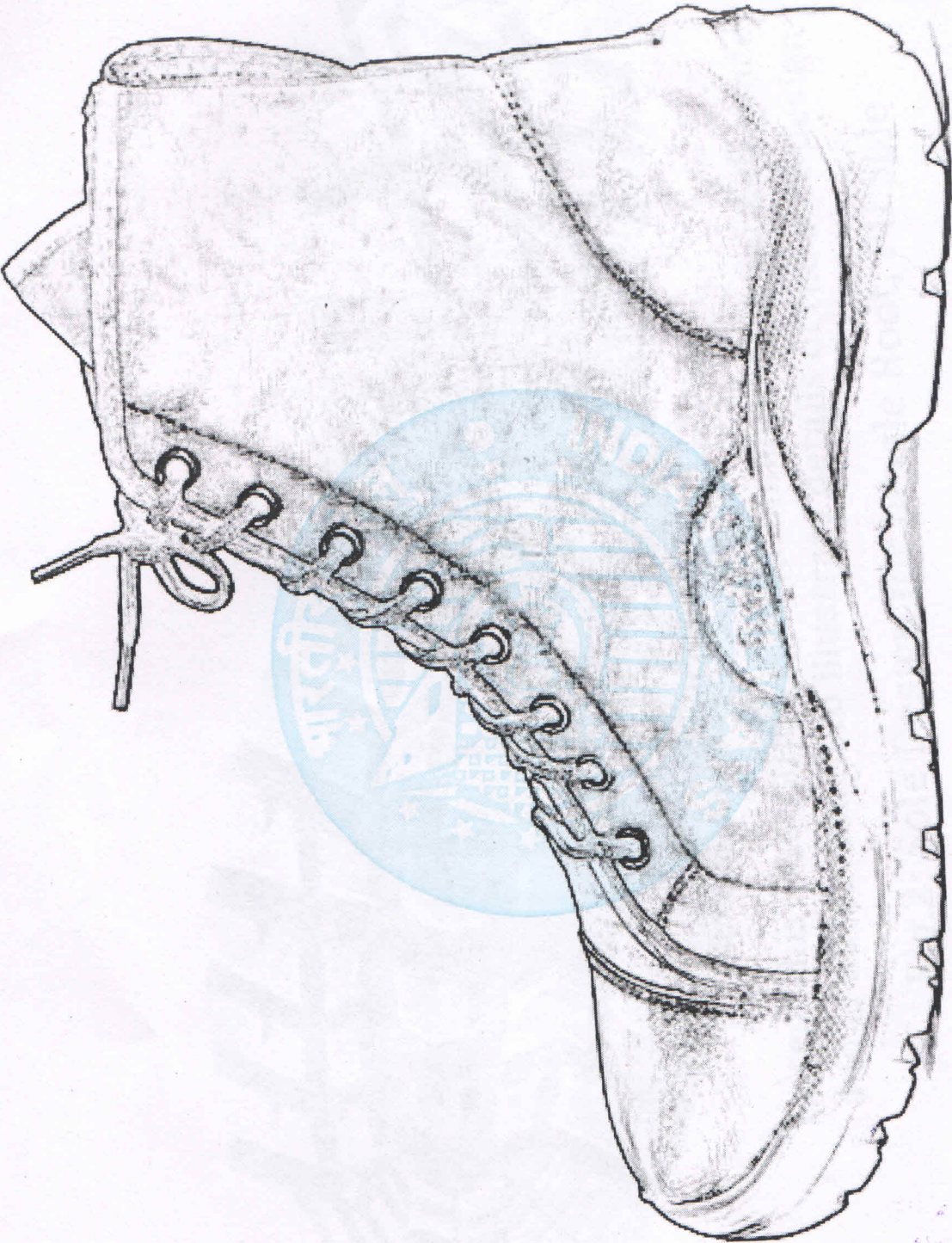
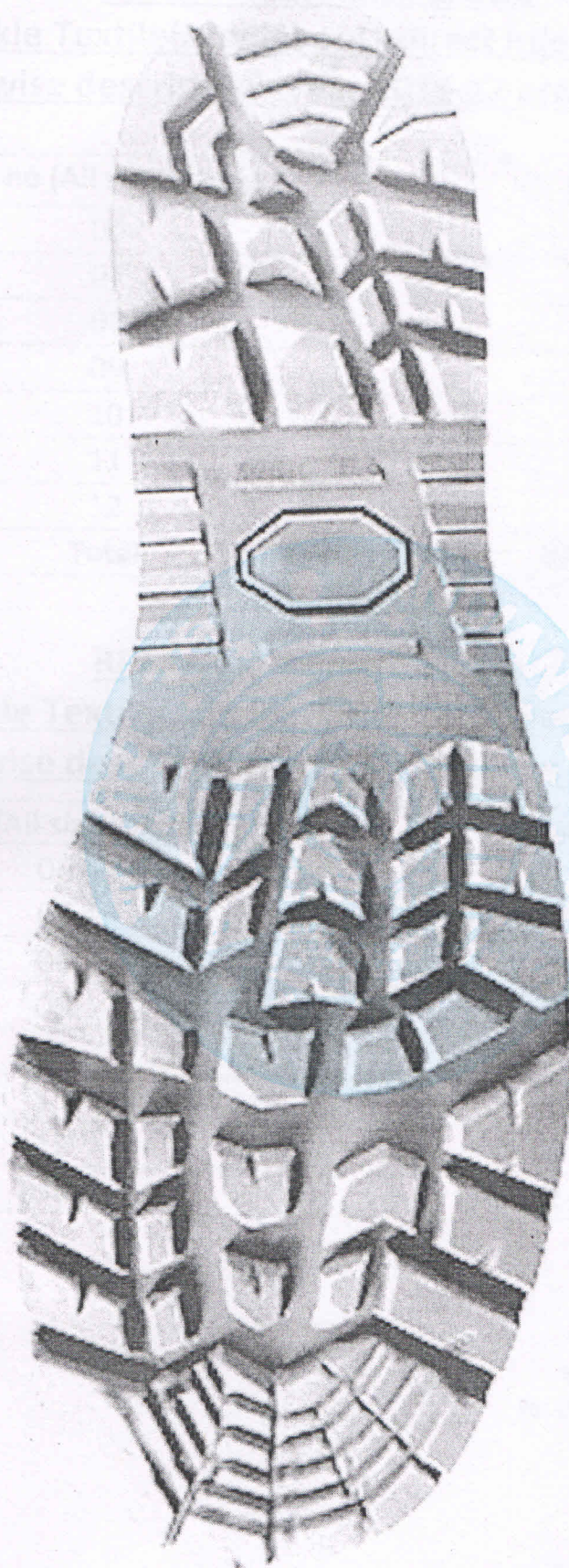


Fig.1: Upper Design of Jungle Boot, PU Sole

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Note:- This illustration is diagrammatic only for reference and is not intended to illustrate details of the sole design

Fig.2: Sole Design for Jungle Boot, PU Sole

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