

SC 40
MASTER COPY

RESTRICTED

SPECIFICATION NO. IND/TC/2496

Supersedes Prov. Specn No. DMSRDE/T&GS/88/366(a)
Drawing Plates Attached : Three

GOVERNMENT OF INDIA
MINISTRY OF DEFENCE
DGQA ORGANISATION

Sealed.
vide DC No
8478-TC.
21-8-08.

SPECIFICATION
FOR
SPLINT INFLATABLE

DS CAT NO: 6515-004842

ISSUED BY

CONTROLLER
CONTROLLERATE OF QUALITY ASSURANCE
TEXTILES AND CLOTHING
POST BOX NO. 294
KANPUR 208 004

Handwritten signature

Rs. **11.00**

OF B

YEAR : 2008

(ii)

RECORD OF AMENDMENTS

AMENDMENT Sl. No.	DATE	DETAILS OF AMENDMENTS	AMENDMENT CARRIED OUT BY & DATE

Handwritten signature
S. D. ...

(iii)

CONTENT LIST

Sl. No.	CONTENTS	PAGE No.
0.	FOREWORD	1
1.	SCOPE	2
2.	RELATED SPECIFICATIONS/REFERENCES	2&3
3.	MANUFACTURE	3&4
4.	DIMENSIONS, DESIGN AND REQUIREMENTS	4,5 &6
5.	WORKMANSHIP AND FINISH	6
6.	PRE-INSPECTION BY PRODUCER	6
7.	QUALITY ASSURANCE	7
8.	SAMPLING	7
9.	CRITERIA FOR CONFORMITY	8
10.	TEST METHOD	8
11.	MARKING	8
12.	PRESERVATION & PACKING	8
13.	TECHNICAL LITERATURE/DOCUMENT	9
14.	WARRANTY	9
15.	DEFENCE STORES CATALOGUE NUMBER	9
16.	DRAWING/SKETCHES	10
18.	SUGGESTION FOR IMPROVEMENT	10

*LMH***S.S. Dhillon**
1 + Col.

RESTRICTED

SPECIFICATION NO. IND/TC/2496

0.0 FOREWORD

- 0.1 This specification has been prepared by Controllorate of Quality Assurance (Textiles and Clothing), Kanpur on behalf of the Director General Quality Assurance, Ministry of Defence, New Delhi.
- 0.2 This specification supersedes Provisional specification No. DMSRDE/T&GS/88/366(a).
- 0.3 This specification shall be used for tender enquiry procurement, manufacture and Quality Assurance of the item covered by this specification.
- 0.4 The Quality Assurance Authority for the store covered by this specification is the Controller, Controllorate of Quality Assurance (Textiles & Clothing), P.B. No. 294, Kanpur 208004. Enquiries regarding this specification related to technical particulars shall be referred to the Quality Assurance Authority named in the purchase document viz tender or contract.
- 0.5 This specification is liable to amendment at any time and therefore is applicable only to specific enquiry made at any time, for any subsequent enquiry, a fresh copy of the specification is to be obtained.
- 0.6 This is a restricted document and therefore should not be communicated to any one who is not authorised to receive it.
- 0.7 Any deviation from this specification will not be resorted to without the express written sanction of the Inspection Authority viz. The Controller, Controllorate of Quality Assurance (Textiles and Clothing), Kanpur or his authorised representative.
- 0.8 The store must conform in all respects with this specification and other particulars issued with it.

G.S. Dhillon
G.S. Dhillon

RESTRICTED

SPECIFICATION NO. IND/TC/2496

1.0 SCOPE

1.1 This specification covers the requirements of Splint Inflatable against defence requirements and provides guidance to contractors/suppliers, manufacturers, QA agencies and indenters etc.

1.2 The Splint Inflatable is intended to be used in the event of leg injury as first aid measure at extreme cold region.

2.0 RELATED SPECIFICATIONS/REFERENCES

2.1 Reference is made in this specification to :

S. No.	SPECIFICATION No.	PARTICULARS
(i)	IS: 5-1994 (IVth Rev, Amds 1, Reaffirmed 2000)	Colours for ready mixed Paints.
(ii)	IS: 359 -1965 (Reaffirmed 2000, Amds 2, First Rev)	Xylol, Industrial Solvent Grade.
(iii)	IS: 380-1978 (Reaffirmed 2003, Second Rev)	French Chalk Powder.
(iv)	IS: 637 -1994 (Reaffirmed 2003, Second Rev)	Rubber Tubing for General Purposes.
(v)	IS: 1954 - 1990 (IInd Rev, Reaffirmed 2002)	Methods for Determination of Length & Width of Woven Fabric.
(vi)	IS: 1963-1981(IInd Rev, Reaffirmed 2004)	Methods for determination of threads per unit length in Woven fabrics.
(vii)	IS: 1964 - 2001 (IInd Rev)	Methods for determination of weight per unit area and weight per unit length of fabric.
(viii)	IS:1969-1985(IInd Rev, Reaffirmed 1999, Amds 1)	Method for determination of Breaking Load and Elongation at break of woven Textile Fabrics.
(ix)	IS: 3442-1980 (Ist Rev, Reaffirmed 2004, Amds 1)	Methods for determination of crimp and count of yarn removed from fabrics.
(x)	IS: 4084 -1978, (Reaffirmed 2001, Amds 2, First Rev)	Eyelet, Aluminum Alloy Gr NS-3 with washer) No. 18
(xi)	IS: 4227 -1998(Reaffirmed 2003, Second Rev)	Cord Nylon Braided
(xii)	IS: 4229-1992 (Reaffirmed 2003, Amds 1, Second Rev)	Sewing Thread Nylon.
(xiii)	IS: 6110-1983 (ivth Rev, Reaffirmed 2001, Amds 2)	Double Texture Rubberised waterproof fabric.
(xiv)	IS: 7016(P1-1)-1982 (Reaffirmed 2003, First Rev)	Methods of tests for coated and treated fabrics determination of roll characteristics.
(xv)	IS: 7016(P1-2 & 3)-1983 (Reaffirmed 2003, First Rev)	Methods of tests for coated and treated fabrics determination of breaking strength and extension at break.
(xvi)	IS: 7016(P1-7)-1986 (Reaffirmed 2001, First Rev)	Methods of tests for coated and treated fabrics determination of water proofness.
(xvii)	IS: 14181(P1-1, 2&3) -2002 (First Rev)(Amdt No.2)	Plastic Slide Fasteners.

G.S. Dhillon

RESTRICTED

SPECIFICATION NO. IND/TC/2496

2.2 Copies of the IS specification can be obtained on payment from Bureau of Indian Standards, 9 Bahadur Shah Zafar Marg, NEW DELHI -110 002 or their regional offices/Branch offices.

2.3 The copies of IND/GS & IND/TC specification can be obtained on payment from Controllerate of Quality Assurance (General Store), Post Box NO. 127, Kanpur and Controllerate of Quality Assurance (Textiles and Clothing) Post Box. No. 294, Kanpur respectively.

3.0 TERMINOLOGY, DEFINITIONS AND SYMBOLS:-For the purpose of this standard the definitions and terminology given in the Indian standard shall be applicable.

4.0 STANDARD PATTERN

4.1 The standard pattern of Splint Inflatable held in the custody of the Controller, Controllerate of Quality Assurance (Textiles & Clothing), Post Box No. 294, Kanpur - 208001, shall constitute the standard as regards shade appearance, general workmanship, finish and any other particulars or properties not noted / defined in this specification. The Splint Inflatable shall conform in every respect to the terms of the specification in workmanship, finish and also in other respects not defined in the specification. It shall conform to the sealed sample held in the custody of AHSP.

5.0 MATERIAL

5.1 The Splint Inflatable is one sided rubberised, leg shaped inflatable tube provided with a closed end medium duty plastic Slide fastener, spout and a separate air filling assembly.

5.2 The Splint Inflatable shall be manufactured from the following materials:-

- (a) Fabric Nylon Rubberised on one side conforming to the particulars laid down in column 7.3.1 of this Specification.
- (b) Rubber proofed fabric Tape 2.5 cm wide of self material viz fabric Nylon rubberised.
- (c) Plastic Slide Fastener Closed End, Medium Duty 70 cm black conforming IS 14181 (Pt-1).
- (d) Plug, HDPE best trade quality and previously approved.
- (e) Eyelet Aluminium Alloy Gd NS 3 with washer NO.18 conforming IS: 4084.
- (f) Tying Cord Nylon braided conforming IS: 4227 V.No. 3.
- (g) Air Filling Assembly, Non returnable Plastic Valve, inserted and fixed at one end of rubber tube.

6.0 MANUFACTURE

6.1 Splint Inflatable shall be manufactured by hand made goods process i.e. manual bonding as per the drawing attached and sealed sample held with the AHSP. Two layers of the rubberised fabric shall be cut in the shape and design as depicted by the drawing. The splint will be divided into eight segments by providing four partition walls.

All the bonded lap joints shall be taped from inside with unvulcanised rubber proofed

fabric tape. One spout of natural rubber shall also be provided on top side edge as shown in the drawing. After assembling, the whole splint shall be vulcanised. The two loose ends of the assembly shall then be machine stitched with 10 to 12 stitches per 2.5 cm. One Plastic Slide Fastener of Medium duty closed end 70 cm black IS: 14181 Pt I shall be stitched centrally as per the drawing.

7.0 DIMENSIONS, DESIGN AND REQUIREMENT

7.1 The splint inflatable shall conform to the design and dimensions as shown in the drawing plates attached to this specification.

7.2 TESTS

7.2.1 Examination of samples taken randomly as per sampling plan given at clause 11 shall show that the splint inflatable fully conform to the requirement laid down at clauses 5, 6 and 7 of this specifications.

7.3 REQUIREMENTS AND TESTS

7.3.1 **Coated Fabric** - The coated fabric shall be manufactured using nylon fabric Deep Orange (Shade No. 591 of IS: 5) having following suggestive particulars:-

Test Method	Width (cm)	Mass (g/m ²)	Breaking Strength (5 cm x 20 cm between Grips) (Kgf)		Ends per cm	Picks per cm	Yarn Count (Denier)
			Warp	Wefl			
	100	70	50	50	40	36	81
	IS:1954	IS:1964	IS: 1969		IS: 1963		IS: 3442

7.3.2 **Rubber Proofing** - The Proofing shall be based on natural rubber composition in orange shade and shall be made from properly compounded natural rubber. Rubber Hydrocarbon content shall be not less than 50% on weight of proofing when tested in accordance with appropriate method described in IS: 6110 Appendix B. The proofing shall neither contain any vulcanised waste, reclaimed rubber, rubber substitutes nor any substances likely to cause tendering of the fabric. The proofing shall be not-irritant and shall be free from objectionable odour and substances injurious to skin. Acetone extract and extractable Sulphur when tested as per the method described in Appendix 'C' of IS: 6110 shall be 8.0% max and 0.2% Max, respectively. The composition of proofing shall also conform to the requirements laid down in clause 7.3.4 and 7.3.5.

The base nylon fabric shall be free from oil, grease and stains etc, and shall be adequately heat set. This fabric shall be given a suitable primer treatment to achieve firm bonding between the fabric and rubber coating. The proofing shall be applied to the fabric in required amount by spreading process, so that a uniform layer is obtained. The coated fabric shall conform to the following particulars:-

G. S. Dhillon

Mass g/m ²	Breaking Strength (5 cm x 15 cm bet grips) Kg(min)		Tear Strength Kg (min)		Rubber Hydrocarbon content %
	One direction	Other direction	One direction	Other direction	50(min)
370 ± 5%	40	40	1.0	1.0	
Test Method	IS: 7016(Pt I)	IS: 7016 (Pt-II)	IS:7016 (Pt 3) Revised single rip method		IS: 6110 Appendix 'B'

7.3.3 Waterproof ness Test - The finished fabric shall hold a 90 cm height of water column for one Hour without allowing percolation of water when tested in accordance with IS: 7016 (Pt VII).

7.3.4 Accelerated Ageing - The finished fabric when subjected to accelerated ageing at a temperature of 70 ± 1°C for 168 hours continuously in an hot air circulating oven as per the method described in IS: 7016 (Pt-VII) shall show no sign of, stiffening softening or other apparent change / deterioration of proofing and shall pass the test specified at clause 7.3.3 above.

7.3.5 Resistance to Xylol - When pieces of finished fabric of about 4 cm square area are immersed in Xylol (IS: 359) for a period of 2 hours and then gently shaken in it for one minute, the proofing shall neither separate, nor show any sign of tackiness or blisters / disintegration. The temperature of Xylol during test shall throughout be maintained at 27 ± 2 °C.

7.3.6 Air Leakproofness test - 100% of the quantity offered in the lot shall be subjected to air leakproofnes test and the failures shall be segregated and rejected during bulk QA, provided the number of such leakage failure does not exceed 5% of the lot. In the event of Air leakage failure of more than 5% quantity, the lot shall be rejected in bulk. Air shall be filled in each unit by mouth through air filling assembly so as to completely inflate the splint. The samples shall then be kept for minimum 5 hours in inflated condition.

7.4 PLASTIC ZIP

7.4.1 Plastic Zip shall be closed end medium duty 70 cm black zip fastener in the design and dimensions given in the drawing attached to this specification. The zip fastener should conform IS: 14181 Pt-I

7.5 RUBBER TUBE AND SPOUT

7.5.1 Rubber tube and spout for filling air shall be made of natural rubber conforming IS: 637 and in the dimensions as per attached drawing. Rubber tube shall be made of best trade quality material and previously approved QA officer.

Handwritten signature

G. S. Dhillon

7.6 PLASTIC VALVE AND PLUG

7.6.1 Plastic valve shall be non returnable type in best quality of trade and as per drawing attached to this Specification. The plug shall be made HDPE in best quality of trade and as per drawing. The dimensions of valve & plug shall be as per attached drawing.

7.7 EYELET AND TYING CORD

7.7.1 One eyelet of internal dia 5.2 mm with washer No. 18 made of aluminum alloy conforming IS: 4084 Gr-NS 3 shall be provided at the place and in the dimensions given in the attached drawing. The eyelet shall be previously approved by the AHSP.

7.7.2 Nylon Cord conforming to IS: 4227 (V No. 3) be provided for securing the HDPE Plug as given in the attached drawing.

8.0 WORKMANSHIP AND FINISH

8.1 The Splint shall be of high standard in appearance, shade, general workmanship & finish. In all other respects not noted/defined in this specification, the store shall conform to the sealed pattern held in the custody of the AHSP.

8.2 The splint inflatable shall be flexible and free from stickiness, pin holes, cuts, creases, wrinkles, oil and other stains, bare and thin places, joints and other manufacturing defects.

9.0 PRE-INSPECTION OF SUPPLIES BY PRODUCER

9.1 ADVANCE SAMPLES: Manufacturers have to submit advance samples manufactured from approved materials for inspection, testing, and trial/clearance by AHSP prior to commencement of bulk production. For this purpose at least two number of Splints along with two meter running length of base fabric and sufficient quantity of other material used in the splints is required to submit in the AHSP for materials, dimensional check and test proof.

9.2 Manufacturers/Contractors must satisfy themselves first by carrying out thorough pre-inspection of each lot/batch that the stores manufactured are in accordance with the contract and fully conform to the specification, before tendering the same for inspection to QA officer nominated under the terms of contract.

9.3 A declaration by the Contractor that necessary pre-inspection/tests have been carried out on the stores tendered and the same are fit for inspection and test result of such test/findings shall be rendered along with the challan. The declaration shall include the method followed in pre-inspection showing features checked/tested.

lm. xia

CS D...

10.0 QUALITY ASSURANCE

10.1 On examination of samples taken randomly from any portion of the consignment or drawn during surveillance inspection shall conform to the requirements when tested in accordance with the methods mentioned against each in the specification.

10.2 The accepted stores shall be marked with facsimile of acceptance mark of size 13 or 25 mm near the marking label using indelible ink.

11.0 SAMPLING

11.1 The lot size is restricted to 10,000 Numbers.

11.2 The supplier shall offer the stores serially numbered and arranged in such a manner that the entire lot is easily accessible to the sampling officer.

11.2 Based on the lot size offered for quality assurance, sample units for visual examination and dimensional check at the time of sampling be drawn as per column-2 and for bulk inspection as per column-4 of the table using technique of random sampling as per IS: 4905.

11.3 On having satisfied with the preliminary examination, samples if required for laboratory test/examination shall be drawn as per column-5 & 7 of the table.

TABLE FOR SCALE OF SAMPLING AND PERMISSIBLE NUMBER BASED ON 4% AQL ISO: 2859-1989

Lots Size in Nos./ pairs	Sampling Plan for						
	Visual examination/ dimensional check at the time of sampling		Sample size for detail check at Bulk QA stage	Physical Parameters (for laboratory tests)		Chemical Parameters (for laboratory tests)	
	Sample Size	Acceptance No.		Sample Size	Acceptance No.	Sample Size	Acceptance No.
1	2	3	4	5	6	7	8
Upto 280	13	1	32	13	1	3	0
281 - 500	20	2	50	13	1	5	0
501 - 1200	32	3	80	20	2	5	0
1201 - 3200	50	5	125	20	2	13	1
3201-10000	80	7	200	32	3	13	1

Note:-

- i) Sampling shall be done randomly as per IS: 4905-1968 Amdt No.1 (reaffirmed 1991).
- ii) Sampling officer will select sample units randomly and select one ultimate. Item from each sampling unit i.e. as per one bundle/package/bale so as to make desired sample size as given in column (2) for visual examination and QAR will be prepared by him.
- iii) If found satisfactory on visual examination, Samples for lab testing will be drawn from the samples drawn and mentioned in column (2) only.

G.S. Dhillon
I + Col.

12.0 CRITERIA FOR CONFORMITY

12.1 The lot shall be considered to be in conformity with the required standard, if the samples drawn for lab test, static and dynamic inspection as above found satisfactory and also are otherwise satisfactory in regard to visual parameters.

13.0 TEST METHOD

13.1 The basic cloth and garniture used shall conform to the specification requirements when tested as per method laid down in the relevant specification.

13.2 Specified test methods as illustrated in clause 7 shall be used to ensure high degree of reproducibility and repeatability.

14.0 MARKING

14.1 Each splint prior to being offered for inspection shall be provided with a white satin cloth label 60 mm x 40 mm, pasted securely on the inside at the edge opposite to the rubber spout with the help of a suitable adhesive. The label shall be indelibly printed with letter size of 4 mm height showing the following particulars:-

- i) Nomenclature of store
- ii) D.S Cat/Part No.
- iii) Manufacturer's Name, Initial or Trade Mark.
- iv) Month and year of manufacture.

15.0 PRESERVATION AND PACKING

15.1 The splint shall be packed to withstand transit hazards such as mechanical damage, effect of temperature, humidity including salty atmosphere, biological attack including Fungi and pests. In addition to above sufficient amount of French chalk powder conforming to IS: 380 shall be evenly sprayed on over and inside of each splint prior to enveloping the same in a polyethylene bag.

15.2 The accepted splint shall be placed in a 70 x 45cm size bag made of 25 micron thick high molecular weight, high density polyethylene film conforming to the specification No. IS: 10889.

15.2.2 Such thirty unit packs so formed shall then be suitably placed in a polypropylene corrugated box conforming to Prov. Specn No. DMSRDE/t&GS/88/356(L) of size 640x420x360 mm to make a complete package. All the joints shall then be properly closed with tape adhesive brown 50 mm. The box shall then be bound with two band of polypropylene strapping across width and one across the length. Each polypropylene strapping shall be one complete piece and the ends shall be sealed with machine.

15.2.3 Before dispatch, each package shall be legibly marked by stencil using indelible marking ink/paint showing the following details:-

- (i) Nomenclature, Cat/Part No. and size of the Store.
- (ii) Qty packed in the package.
- (iii) Lot and serial No. of the box.
- (iv) AT/SO-Extract No. and date.
- (v) Inspection Note No. and date
- (vi) Gross mass of the package in 'Kg'
- (vi) Name and address of Consignee.
- (vii) Firms Name/Trade Mark

G. S. Dhillon
G. S. Dhillon
Lt Col.

RESTRICTED

SPECIFICATION NO. IND/TC/2496

16.0 TECHNICAL LITERATURE AND DOCUMENTS

16.1 Refer clause 2 of this Specification.

16.2 For proper exploitation, care and maintenance of equipment relevant literature/documents shall be provided free of cost with each packed store.

17.0 WARRANTY

17.1 "Except as otherwise provided in the invitation to the tender, the Contractor/seller hereby declare that the goods, stores, articles sold/supplied to the purchaser under this Contract shall be of the best quality and workmanship and new in all respects and shall be strictly in accordance with the specifications and particulars contained/mentioned in the Contract.

17.2 The Contractor/seller hereby guarantees that the said goods/stores/articles would continue to conform to the description and quality aforesaid for a period of 12 months from the date of delivery of the said goods/stores/articles to the purchaser or 15 months from the date of shipment/dispatch from the contractor's work, whichever is earlier and that notwithstanding the fact that the purchaser (Inspector) may have inspected and/or approved the said goods/stores, articles, if during the aforesaid period of 12/15 months the said goods/stores/articles, be discovered not to be conform to the description and quality aforesaid or not having satisfactory performance or have deteriorated and the decision of the purchaser in that behalf shall be final and binding on the Contractor/seller to rectify replace by acceptable goods/stores/articles or such portion or portions thereof as is found to be defective by the purchaser within a reasonable period not exceeding 3 months or as may be allowed by the purchaser in his discretions on the application made thereof by the Contractor/seller and in such an event the above mentioned warranty period shall supply to goods/stores/articles rectified/replaced from the date of rectification/replacement thereof, otherwise the Contractor/seller shall pay to the purchaser such compensation as determined by the purchaser as may arise by reason of the break of the Warranty herein contained".

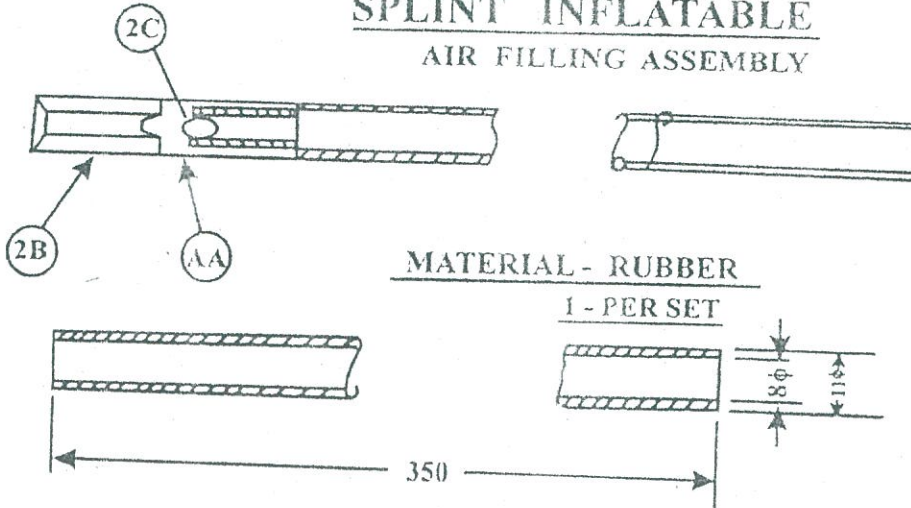
18.0 DEFENCE STORE CATALOGUE No.

18.1 The store covered by this specification shall bear the following DS Cat. No.

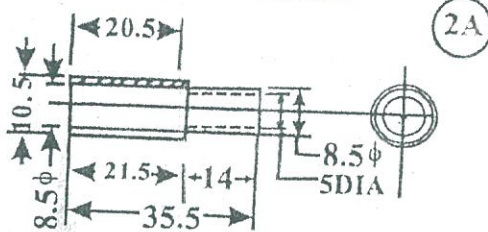
Nomenclature	DS Cat No.
SPLINT INFLATABLE	6515-004842

M. Ma
C. S. Dhillon
Lt Col

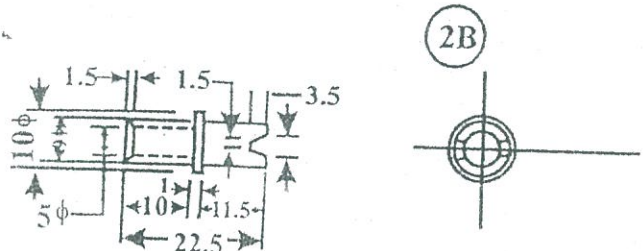
SPLINT INFLATABLE
AIR FILLING ASSEMBLY



MATERIAL - PLASTIC
1 - PER SET



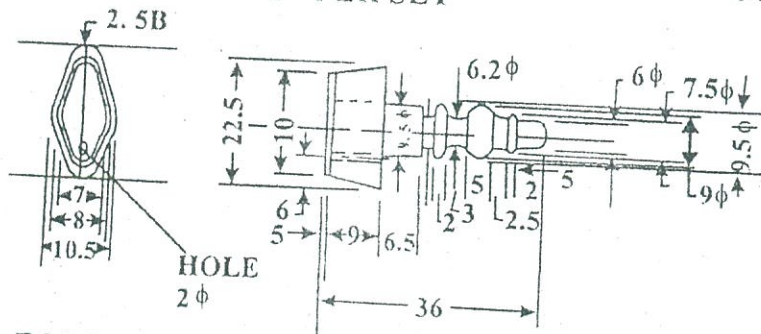
MATERIAL - PLASTIC
1 - PER SET



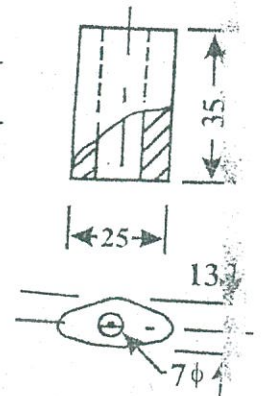
BALL
MTL - PLASTIC
1 - PER SET



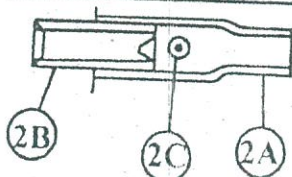
PLUG
MATERIAL - HDPE
1 - PER SET



SPOUT
MATL - NATURAL RUBBER



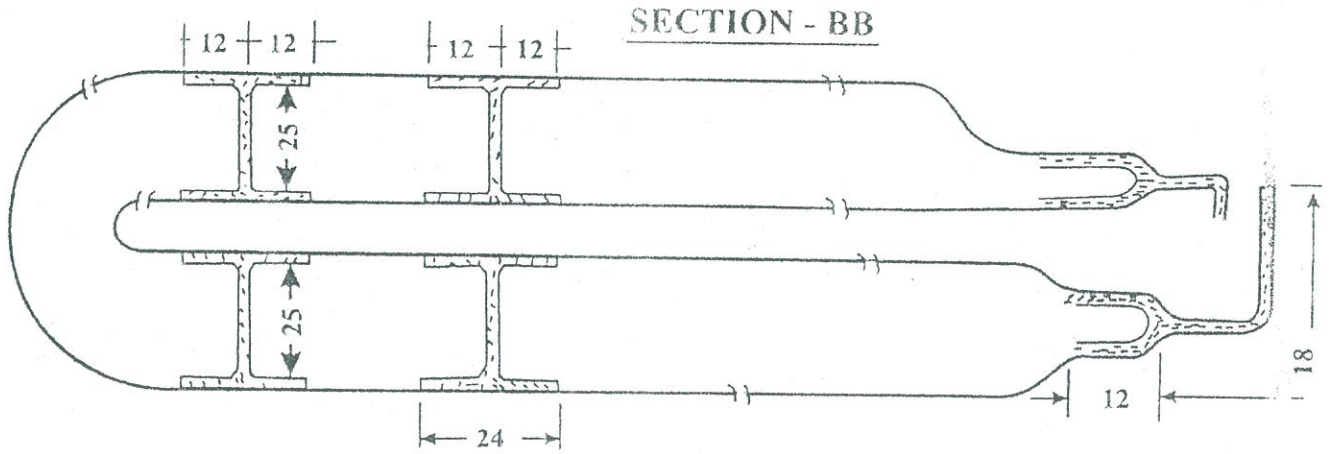
NON RETURNABLE VALV
MATL - PLASTIC (2)



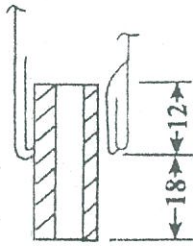
G.S. Dhillon
G.S. Dhillon
1st Col.



SPLINT INFLATABLE

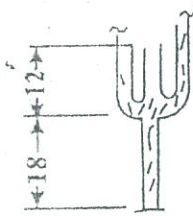


SECTION - CC

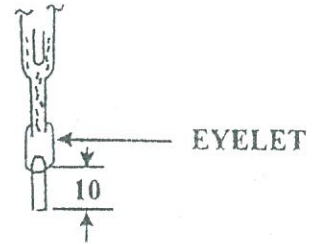


SPOUT

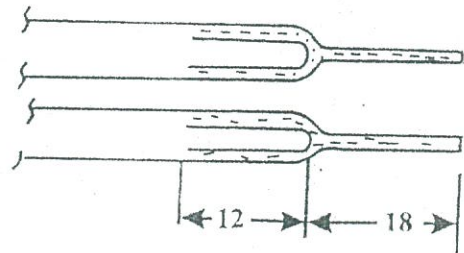
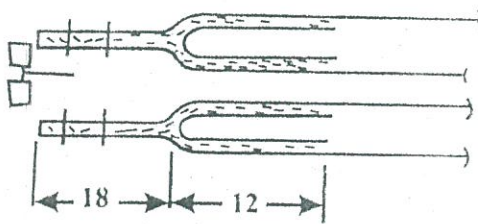
SECTION - DD



SECTION - EE



SECTION - AA



NOTE

ALL PARTITIONS WALL JOINTS
BONDED WITH RUBBER PROOFED
FABRIC TAPE

M. Miller
G.S. Dhillon
1st Col.

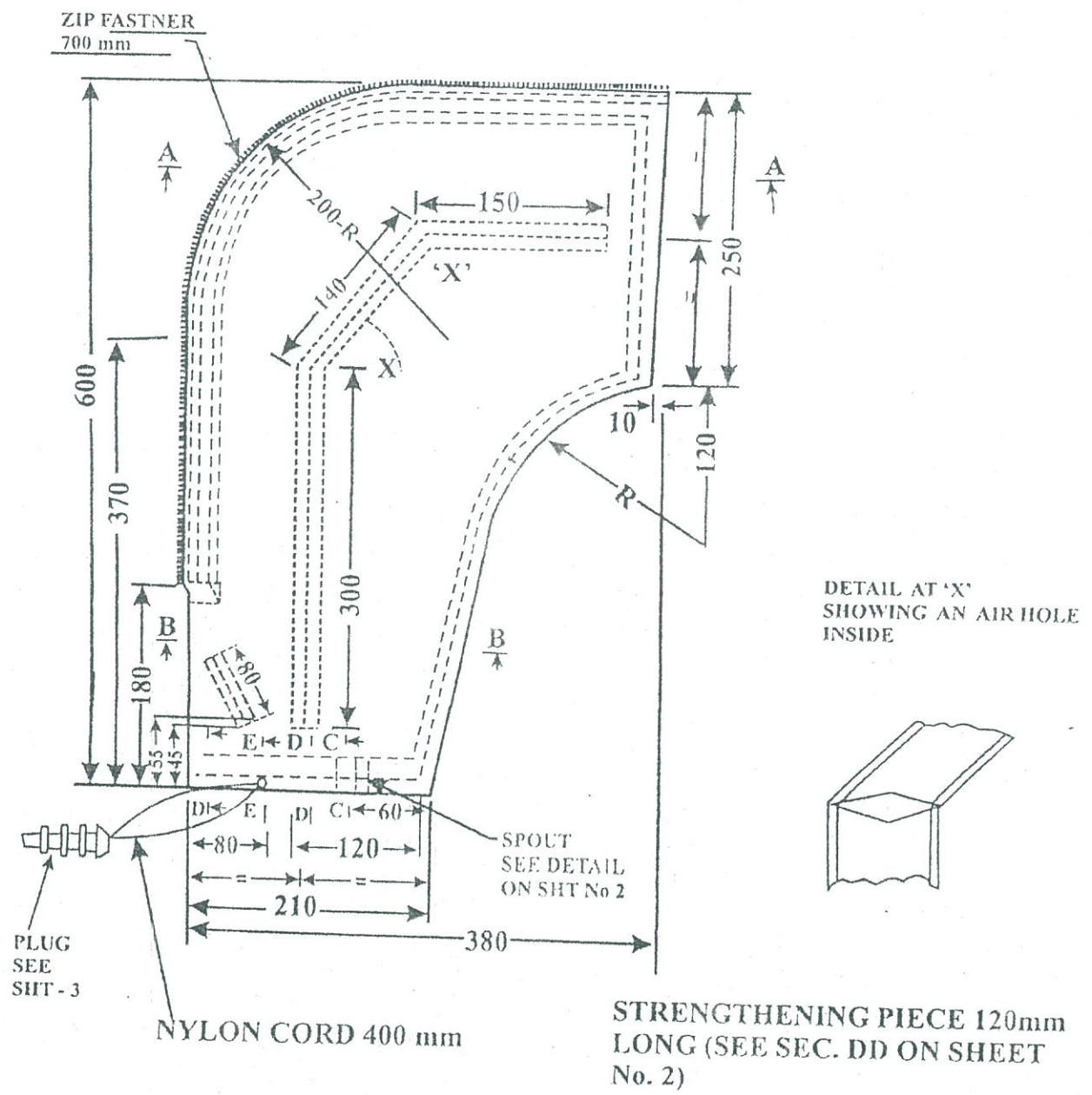
मूल प्रति
MASTER COPY

~~कार्यशील प्रति~~
~~WORKING COPY~~

SPECIFICATION NO IND / TC / 2496

SHEET 1 OF 3

SPLINT INFLATABLE MATL - FABRIC NYLON RUBBERISED



G.S. Dhillon
Lt Col

NOTE - FOR SECTION AA, BB, CC, DD
AND EE, SEE SHT No. 2



RESTRICTED

SPECIFICATION NO. IND/TC/2496

19.0 DRAWINGS/SKETCHES

19.1 Three drawing plates are attached to this specification.

20.0 SUGGESTIONS FOR IMPROVEMENT

20.1 This specification is a live document and subject to change-up dating. Any suggestions for improvement of this document may be sent to :-

CONTROLLER
CONTRAOILLERATE OF QUALITY ASSURANCE
TEXTILES AND CLOTHING
MINISTRY OF DEFENCE
POST BOX No. 294
KANPUR 208 001

DATE:
Date of resealing:
Date of sealing:
Date of issue:

CONTROLLER
CONTRAOILLERATE OF QUALITY ASSURANCE
TEXTILES AND CLOTHING
POST BOX No. 294
KANPUR 208 001

G.S. Dhillon
G.S. Dhillon
1st Col

