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GOVERNMENT OF INDIA
(MINISTRY OF DEFENCE)

PROVISIONAL SPECIFICATION
NO. DMSRDE/T&CS/93/410(b)
DRAWING - 8 PLATES ATTACHED

SPECIFICATION
FOR
COMBINATION HARNESS

✓
(Cat part no. 4240-000492)

1. THIS SPECIFICATION CONSISTS OF FIVE PAGES.
2. THIS SPECIFICATION IS INTENDED TO GUIDE PURCHASE, INSPECTION AND MANUFACTURE OF COMBINATION HARNESS AGAINST DEFENCE REQUIREMENT.
3. THIS SPECIFICATION OR ANY OTHER INFORMATION ISSUED IN CONNECTION THEREWITH SHALL ONLY BE USED FOR SPECIFIC ORDER PLACED BY A COMPETENT AUTHORITY. IT IS NOT TO BE USED FOR ANY OTHER PURPOSE WHATSOEVER SO EVER WITHOUT THE EXPRESS WRITTEN SANCTION OF APPROPRIATE AUTHORITY.
4. ALL CLAUSES IN THIS SPECIFICATION SHALL BE COMPLIED WITHIN EVERY RESPECT IRRESPECTIVE OF THE SOURCE OF SUPPLY OF THE MATERIAL.
5. IN CASE OF ANY DISCREPANCY BETWEEN THIS SPECIFICATION AND SAMPLE OBTAINED FOR ANY PURPOSE, THIS SPECIFICATION ALONGWITH OTHER CONNECTED SPECIFICATION SHALL BE TAKEN AS CORRECT AT THE TIME OF FINALISATION OF A CONTRACT.
6. WHEREVER A REFERENCE TO ANY OTHER SPECIFICATION OCCURS IN THIS SPECIFICATION IT SHALL BE TAKEN AS A REFERENCE TO THE LATEST VERSION OF THAT SPECIFICATION EXISTING AT THE TIME OF FINALISATION OF A CONTRACT.

ISSUED BY
THE DIRECTOR
DEFENCE MATERIALS AND STORES
RESEARCH & DEVELOPMENT ESTABLISHMENT
DMSRDE PO
G.T. ROAD, KANPUR - 208013

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1. SCOPE

1.1 This specification covers the requirement of Combination Harness intended to be used as an aid for repelling down steep slopes in mountainous terrains. It consists of two parts i.e. Chest Harness and Sit Harness.

2. MATERIALS

2.1 The Combination Harness shall be manufactured from the material mentioned below:-

Sl No.	Material	Particulars
1.	Webbing Nylon Thick 48 mm wide Blue	Prov. Specn no. DMSRDE/T&GS/93/411(b)
2.	Webbing Nylon Thin 38 mm wide Blue	Prov. Specn no. DMSRDE/T&GS/93/411(b)
3.	Webbing Nylon Thin 25 mm wide Blue	Prov. Specn no. DMSRDE/T&GS/93/411(b)
4.	Buckle Steel 48 mm Black Epoxy Painted	As per drawing plate attached
5.	Buckle Steel 38 mm Black Epoxy Painted	As per drawing plate attached
6.	Buckle Plastic Black 48 mm	As per drawing plate attached
7.	Buckle Plastic Black 38 mm	As per drawing plate attached
8.	Buckle Plastic Quick Release 40 mm Black	Prov. Specn. No. DMSRDE/T&GS/93/406
9.	Nylon Sewing Thread for Aerospace Purpose(Shade- 3%, shade no: CI Acid - Blue 247)	IS:4229
10.	Nylon Cord Braided Blue 6.0 mm dia	Annexure 'A'

3. DIMENSIONS

3.1 The Combination Harness shall conform to the dimensions as laid down in the attached drawing. A general tolerance of $\pm 5\%$ is permissible.

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4. MANUFACTURE

4.1 The Combination Harness shall be manufactured as per the details given in the enclosed drawing.

5. WORKMANSHIP

5.1 In appearance, shape, workmanship and finish and in all other respects not defined in the drawing/specn. the harness shall conform to scaled pattern held in the custody of controlling authority.

6. STITCHING

6.1 The Combination Harness shall be machine stitched with lock stitches regulated at 35 to 40 stitches per decimeter with even tension. The ends of the threads shall be securely fastened off and loose threads shall be trimmed off. To prevent unravelling, thread ends/breaks shall be back stitched (overlapped) for not less than 25 mm.

7. MARKING

7.1 Each Combination Harness shall be provided with a white cloth satin label 6 cm x 4 cm securely stitched on each of chest, and sit Harness at the space and position shown in the attached drawing. The label shall be printed with the manufacturer's name, initial or recognized trade mark together with the year of manufacture, nomenclature and cat no. of the store using suitable ink duly approved by the inspector.

8. PACKING

8.1 The Combination Harness after pairing both parts, i.e. Chest and Sit Harness shall be packed as per details given below:-

8.2 Each Combination Harness complete with both parts shall be tied with twine jute 3 ply in 3 places and placed in a suitable size bag made out of 25 micron thick high molecular weight, high density polyethylene film conforming to specn. No. IS: 10889 to form a unit pack.

8.3 Fifty such unit packs shall then be placed one over the other, to make a complete pack in a 600x500x 480mm size rectangular fibre board box moisture resistant (Triple wall) 7 ply Type 'B', conforming to provisional specification no. DMSRDE/SPP/95/429(b). Closing and sealing of boxes shall be done as per satisfaction of the inspector.

8.4 Before despatch each package shall be legibly and indelibly marked to indicate the following details-

- a) Nomenclature and cat no. of the store
- b) Quantity packed in numbers
- c) Lot and Serial No.
- d) Month and year of packing

- d) Month and year of packing
- e) Name and trade mark of the manufacturer
- f) Gross weight of the package
- g) A/T No. and Date
- h) Inspection note no. and date
- i) Name and address of the consignee.

8.5 The box shall finally be strapped by using HDPE straps two each along length and width side at equi-distance.

9. PRE-INSPECTION

9.1 Before tendering the store to the Government inspector the supplier will carry out a thorough check/pre-inspection of each delivery to satisfy himself that the stores fully conform to this specification. In case the pre-inspection is unsatisfactory the store may be rejected outright by inspector.

10. SAMPLING AND CRITERIA FOR CONFORMITY:-

10.1 The quantity of Combination Harness (each comprising of Chest Harness and Sit Harness) offered against one despatch note shall constitute a lot.

10.2 The conformity of a lot to the requirement of the standard shall be determined on the basis of tests/examination carried out on Combination Harness selected from the lot.

10.3 The no. of Combination Harness to be selected at random for examination shall be in conformity with the table given below.

Lot size (Nos)	Sample size (Nos)
1-50	2
51-100	4
101-200	6
201-300	8
301-500	10
501- and above	12

10.4 For assuring himself about the quality of the basic materials the inspecting officer will exercise his option to draw stage control samples of different basic materials for laboratory testing.

10.5 The Inspecting Officer/AHSP may also take out samples of the basic materials from the made up harness to ensure that the webbing/components used in the supplies conform to the stipulated standard. Frequency of drawing such samples will also be at the discretion of the Inspector/AHSP.

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
(177) (18)

11. INSPECTION

- 11.1 If on examination material from any portion of a consignment is found not to be fully in accordance with this specification, the whole consignment is liable to be rejected.
- 11.2 If on examination of 20% of any delivery, 20% of those examined are found not to conform to this specification in any respect the whole consignment may be rejected. However when delivery lots are exceeding 5000 Nos. the decision may be based on examination of 10% only i.e. on examination of 10% of the delivery 20% are found not conform to this specn the whole delivery may be rejected.
- 11.3 The stores not fully in accordance with this specification shall be rejected.

12. WARRANTY CLAUSE

- 12.1 The store supplied against the order shall be deemed to bear a warranty of the contractor against defective materials/workmanship and performance for a period of 12 months from the date of receipt of the stores at consignees depot. If during this period the stores supplied are found by the consignee to be so defective, the same shall be replaced immediately with serviceable stores without any charges or cost.

 DIRECTOR
Defence Materials & Stores
Research & Development Establishment
G.T. Road, KANPUR

Station : KANPUR

Dated: 01.03.03



(17) (10)

NYLON CORD BRAIDED BLUE

Annexure A
to prov. Specn. No. DMSRDE/T&GS/93/410(b)

- 1. Diameter (mm) - 6.0
- 2. Weight/m 'g' - 25±1
- 3. No of Sheath end - 32 each of 3 folds
- 4. No. of core end - 7
no. of folds in each core end - 3 folds each 5 ply
- 5. No. of plaites/cm - 8
- 6. Count of yarn 'Tex' - Sheath - 960
Core - 1240 (resultant of 3 folds each 5 ply)
- 7. Breaking strength 'Kgf' - 500 - 4%
- 8. Nature of Fibre - Polyamide
- 9. Nature of Dye - Acid, Shade - 3% of Shade no. CI Acid Blue 247
- 10. Colour Fastness to:
 - i) Light - Rating 5 or better - IS:2454
 - ii) Washing
 - a) Change in shade - 4 or better - IS:764
 - b) Staining on Nylon -

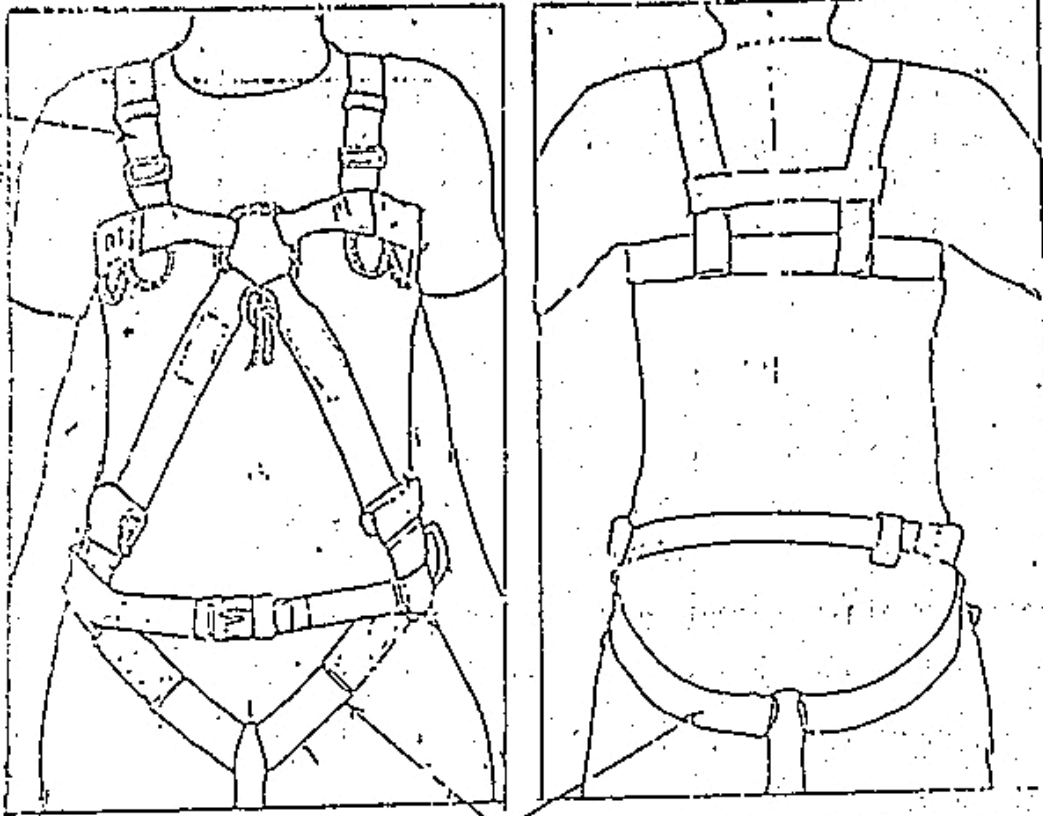
COMBINATION HARNESS

ASSEMBLY

FRONT

BACK

CHEST
HARNESS
(SEE PLATE
2)



SIT HARNESS
(SEE PLATE-3)

DRAWN BY	CHECKED BY	PASSED BY	APPROVED
<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>

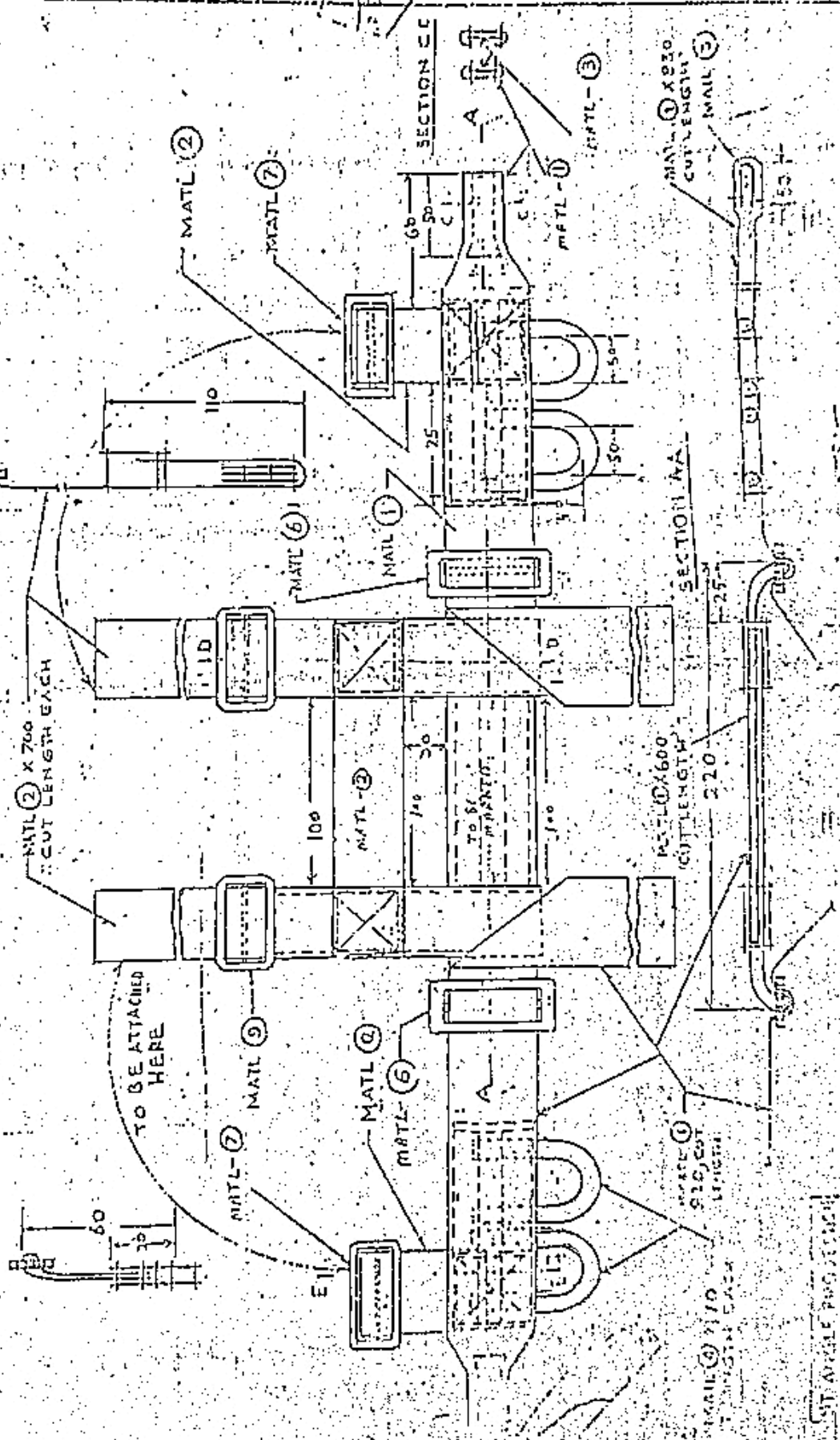
8 PLATES
 PLATE-2

COMBINATION HARNESS
 CHEST HARNESS

PROV. SPECN. NO. D.M.S.R.D.E./TGGS/93/410 (1)

SECTION EE

SECTION DD



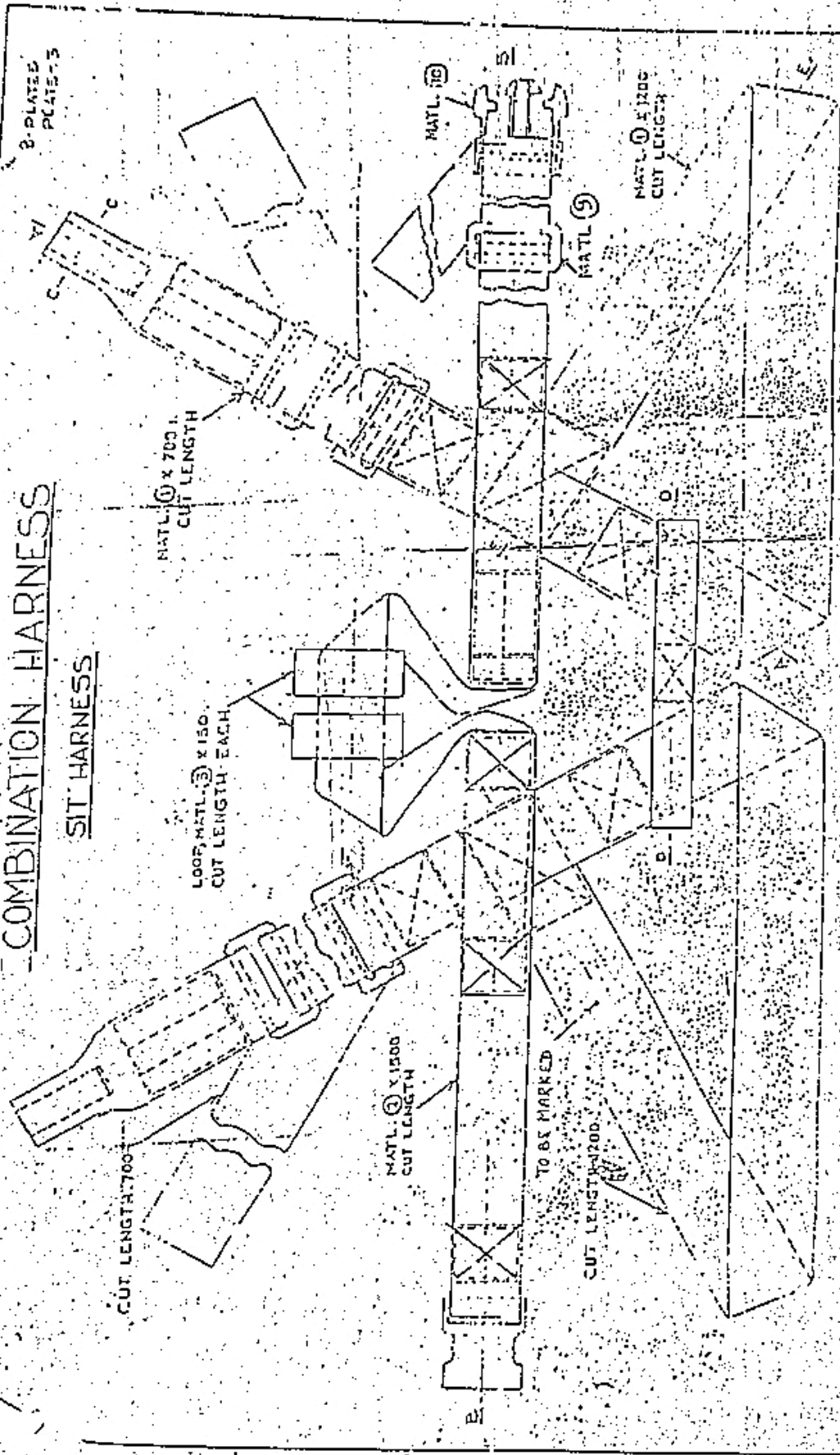
NOTE: ALL FREE ENDS OF WELDING TO BE SEALED

STAMPED AND SIGNED

FINISHED TO PROV. SPECN. No. D.M.S.R.D.S./T&GS/92/410 (4)

COMBINATION HARNESS

SIT HARNESS



NOTE: ALL STITCHES DONE WITH
 MATERIAL 6
 2 FOR STITCHING SEE DRAWING

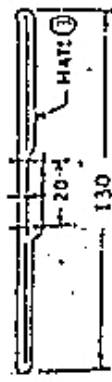
DESIGNED BY	DRN	CHKD	APPROVED BY
DESIGNED BY: [Signature]	DRN: [Signature]	CHKD: [Signature]	APPROVED BY: [Signature]

ATTACHED TO PRVM. SPECN. NO. O.M. S.P.D.E / T.C. GS/ 971410 P-1

COMBINATION HARNESS
SIT HARNESS (SECTION)

8 PLATES
PLATE - 4

SECTION DD



SECTION EE



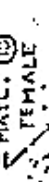
SECTION CC



SECTION DB



MATE 10
FEMALE



SECTION AA



MATE 11
CUT LENGTH



MATE 3
WIRE

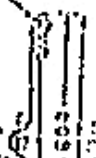


FIGURE PROJECTION	DRN.	CHK'D BY	DESIGNED BY	APPROVED BY
CONFORMS TO MIL-STD-883C				

ALL DIMENSIONS IN INCHES
UNLESS OTHERWISE SPECIFIED

DRG. ATTACHED TO PROV. SPECN. No. D.M. S.R. D.E./T.C.65/93/410 (A)

COMBINATION HARNESS

LIST OF MATERIALS

B. PLATES
PLATES

S.No. J.N.O. W.I.E. N.I.C.L. A.T.T. Q.R.E.

1 WEBSRING NYLON THICK 48 mm ^{WIDE} BLUE

2 " " THIN 38 mm ^{WIDE} " "

3 " " " 25 mm ^{WIDE} " "

4 CORD NYLON BRAIDED 6 mm DIA BLUE

5 SEWING THREAD, NYLON, FOR AEROSPACE PURPOSE (Shade-3) Shade of Cl. Pearl Blue 24-

6 BUCKLE STEEL 48 mm BLACK EPOXY PAINTED

7 " " 38 mm " "

8 BUCKLE PLASTIC 48 mm

9 " " 38 mm

10 QUICK RELEASE PLASTIC BUCKLE 40 mm

Checked by: *[Signature]* Passed by: *[Signature]* Approved by: *[Signature]*

DES. ATTACHED TO PROJ. SPECN. NO. O.M.S.R. D/E/ T.E.G.S/ 93/410

COMBINATION HARNESS

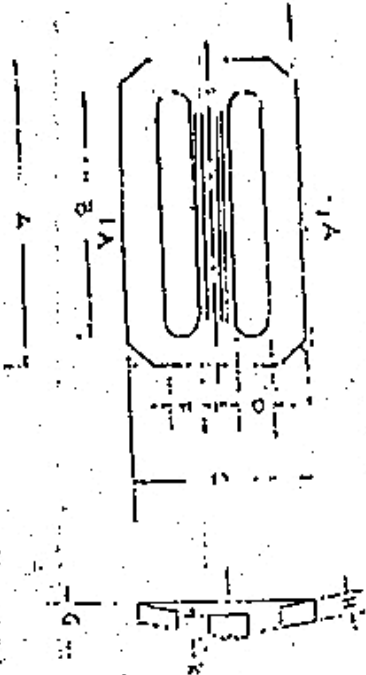
B-PLATES
PLATE-6

BUCKLES PLASTIC

MATERIAL NYLON-6 (INJECTION MOLDING GRADE)

SECTION AA

UNSTRETCHED



- 1. SPECIFIC GRAVITY - 1.14
- 2. TENSILE STRENGTH - 57 MPa (mm²) - ASTM-635
- 3. ELONGATION AT BREAK - 40-75% - ASTM-635
- 4. TENSILE MODULUS - 2200 MPa (mm²) - ASTM-635
- 5. HARDNESS ROCKWELL - R 110 ± 5
- 6. BUCKLE BREAKING LOAD - 800N (at fracture rate of 10mm/min)

DIMENSIONS

	A	B	E	O	E	F	G	H	K
BUCKLE 48mm	58	48	32	55	75	55	6	4	4
BUCKLE 35mm	48	35	30	55	55	5	4	4	4

NOTE: Length of lines A to H to be provided by the circular shape

FIRST ANGLE PROJECTION DRAWN

CHECKED

PASSED

APPROVED BY

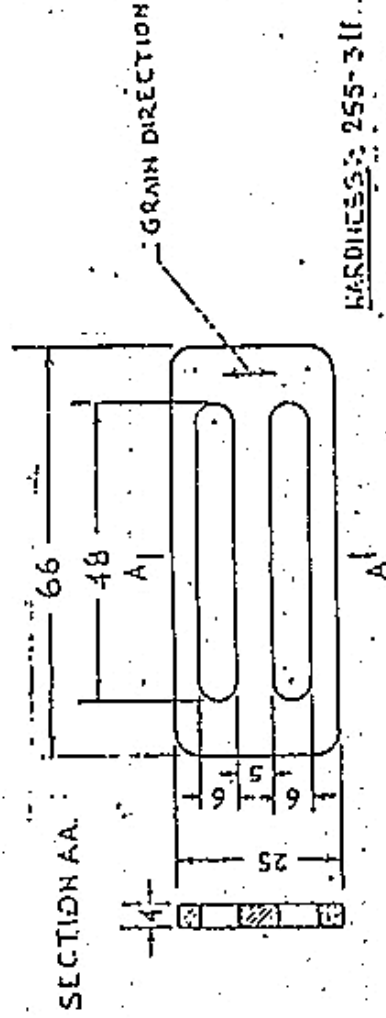
DIMENSIONS IN MILLIMETERS

DRG. ATTACHED TO PROV. SPECN. NO. P.M.S.S.D.E./T & GS/93/410

D-PLATES
PLATE-7

COMBINATION HARNESS BUCKLE STEEL 48 YMM

MATL:- ALLOY STEEL FLAT 4 MM THICK
CONFORMING TO SdE: 37 MN 2
OF IS: 1570



HARDNESS: 255-311 ENH

FINISH:- TO BE FINISHED
SMOOTH, COATED WITH
PURE EPOXY POWDER
BEACIC COLOUR, MATT
FINISH COATING
THICKNESS: 0.025 MM
(MIN.)

PROOF LOAD: 5000N (MIN)

Note: Corners to be rounded off to circular shape

FIRST ANGLE PROJECTION | DIMENSIONS IN MM

SCALE

DRAWN

CHECKED

PASSED

APPROVED

DRG. ATTACHED TO PROV. SPECN. NO. D.M.5.R.D.E./T&GS/93/410

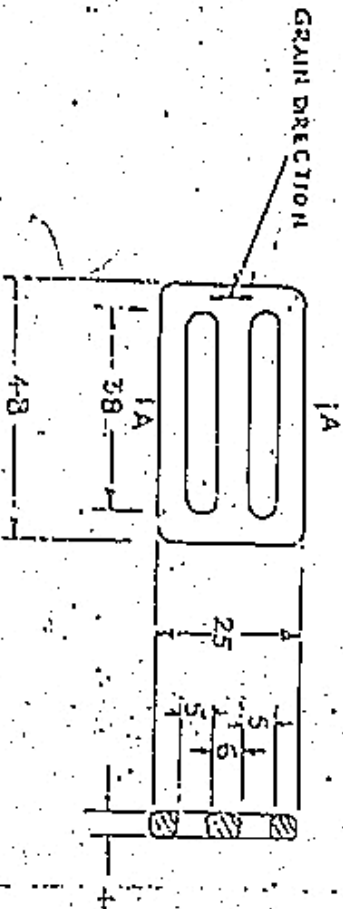
8 PLATES
PLATE-6

COMBINATION HARNESS

BUCKLE STEEL 38mm

MATL:- ALLOY STEEL FLAT 4mm THICK
CONFORMING TO Gde.37 Mn2
OF IS:1570

SECTION AA



HARDNESS : 255 - 311 BHN

FINISH : TO BE FINISHED SMOOTH COATED
WITH PURE EPOXY POWDER
BLACK COLOUR, MAT FINISH.
COATING THICKNESS OF 0.25mm.
(MIN.)

PROOF LOAD : 5000 N (MIN)

Note:- Corners to be rounded off to circular shape.

FIRST ANGLE PROJECTION

DRAWN BY

CHECKED

PASSED BY

APPROVED BY

1 DIMENSIONS IN MM SCALE 1:1

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