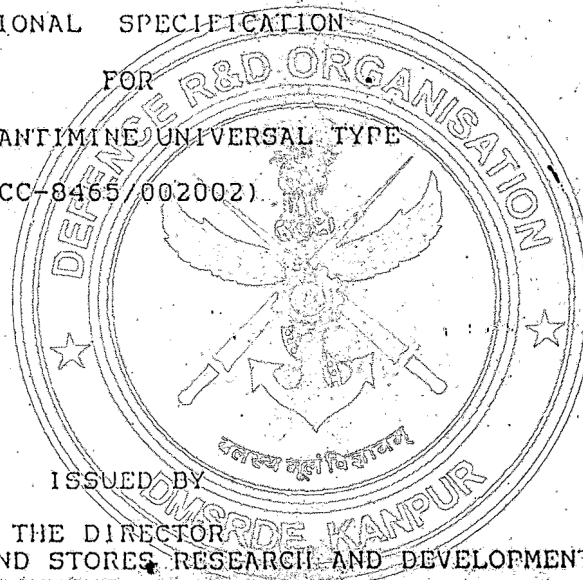


PROVISIONAL SPECIFICATION No.  
DMSRDE/T&GS/84/314(a)  
(DRAWINGS - 8 PLATES ATTACHED)

GOVERNMENT OF INDIA  
MINISTRY OF DEFENCE

PROVISIONAL SPECIFICATION  
FOR  
FACE MASK ANTIMINE UNIVERSAL TYPE  
(CC-8465/002002)



ISSUED BY  
THE DIRECTOR  
DEFENCE MATERIALS AND STORES RESEARCH AND DEVELOPMENT  
ESTABLISHMENT, DMSRDE P.O.  
KANPUR-208 013.

Price: Rs. 50/-

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MINISTRY OF DEFENCE

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PROVISIONAL SPECIFICATION  
FOR  
FACE MASK ANTIMINE UNIVERSAL TYPE  
(CC-8465/002002)

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1. THIS SPECIFICATION CONSISTS OF 25 PAGES.
2. THIS SPECIFICATION IS INTENDED TO GUIDE THE MANUFACTURE, PURCHASE AND INSPECTION OF THE ABOVE STORE AGAINST DEFENCE REQUIREMENTS. THIS SPECIFICATION AND OTHER INFORMATION ISSUED IN CONNECTION THEREWITH WILL BE USED FOR A PARTICULAR ORDER PLACED OR TO BE PLACED BY A COMPETENT AUTHORITY. IT IS NOT TO BE USED FOR ANY PURPOSE, WHATSOEVER, WITHOUT EXPRESS WRITTEN SANCTION OF THE DIRECTOR, DEFENCE MATERIALS AND STORES RESEARCH AND DEVELOPMENT ESTABLISHMENT, DMSRDE P. O., KANPUR-208 013.
3. ANY ENQUIRIES REGARDING THIS SPECIFICATION SHALL BE ADDRESSED TO THE INSPECTION AUTHORITY NAMED IN THE TENDER OR CONTRACT.
4. THE PRODUCTION AGENCY CONCERNED SHALL CAREFULLY CHECK ALL THE DRAWINGS BEFORE COMMENCING WORK AND SATISFY THEMSELVES AS TO THEIR ACCURACY. ANY ERROR, OMISSION OR AMBIGUITY IN THE DRAWINGS SHALL BE IMMEDIATELY REPORTED TO IN WRITING TO THE DIRECTOR, DMSRDE, KANPUR-208 013 AND WORK SHALL NOT PROCEED UNTIL THE AUTHORISED OR REVISED DRAWINGS ISSUED.
5. IN CASE OF DISCREPANCY BETWEEN THIS SPECIFICATION AND ANY SAMPLE OR PATTERN, THIS SPECIFICATION WITH DRAWINGS SHALL BE TAKEN AS CORRECT.
6. THE INSPECTION AUTHORITY MAY AT HIS DISCRETION, CHECK THE RESULTS OBTAINED AT MANUFACTURER'S WORK BY INDEPENDENT TEST AT THE GOVERNMENT TEST HOUSE OR ELSEWHERE.
7. THE QUALITY OF VARIOUS MATERIALS CONSTITUTING THE FACE MASK ANTIMINE UNIVERSAL TYPE SHALL BE APPROVED BY THE INSPECTING OFFICER BEFORE MANUFACTURE.
8. 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.

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## 1.0 SCOPE

1.1 This specification covers the requirements of Face Mask Antimine Universal Type. The face mask is intended to provide protection to the eyes and nerve centres of face against hitting debris and minor fragments emanating from accidental explosions of anti-personnel mines during mine clearance operations.

## 2.0 GENERAL

2.1 The face mask consists of a transparent polycarbonate visor screen, two aluminium alloy side clamps, a cotton webbing harness and accessories for attachment. It is provided in one interchangeable common design to suit Sikh troops for use in conjunction with turban and Non-Sikhs for use with Helmet Combat Fibre Glass. The interchangeability is achieved by reversing the direction of the side clamps while fixing with the visor screen as shown in the drawing.

2.2 This specification lays down the requirements regarding materials, construction, weight and performance of the face mask as well as the materials and construction of its packing cover and maintenance kit.

## 3.0 SEALED SAMPLE

3.1 In appearance, design, workmanship, finish and in all other respects not defined in this specification, the face mask together with its packing cover and maintenance kit shall be as exemplified by the sealed sample held in the custody of the controlling authority.

## 4.0 RELATED SPECIFICATIONS

4.1 A list of specifications to which reference has been made in this specification and their source of availability are given in Appendix 'A'.

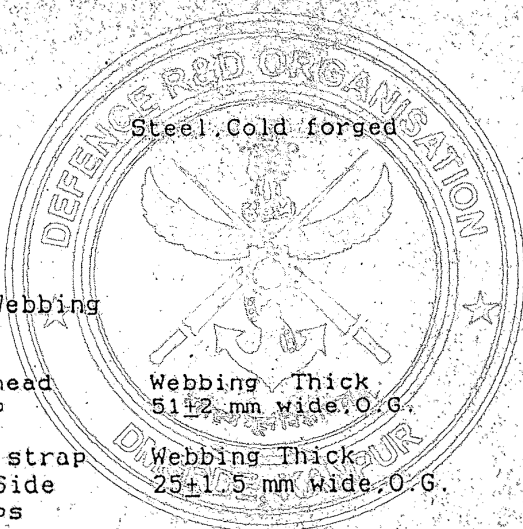
## 5.0 MATERIALS

5.1 The components of the face mask shall be manufactured from the materials shown below against each

<u>Component</u>	<u>Material</u>	<u>Conforming particulars</u>
i) Visor Screen	Transparent Polycarbonate Sheet 4.0±0.2 mm thick, UV stabilised.	Appendix 'B'
ii) Side Clamps	Aluminium alloy flat strip 3 mm thick and 25 mm wide.	Designation No. 53000 112 of IS: 737.

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<u>Component</u>	<u>Material</u>	<u>Conforming particulars</u>
iii) Bolts Mushroom Head Slotted M6X16 M6X20 M6X35	Low Carbon Steel	IS:8022 Bolts Chemically blackened as per Appendix 'C'
iv) Hexagon Nut M6	Low Carbon Steel	IS:1363 Nut Chemically blackened as per Appendix 'C'
v) Washers Plain		
a) Large	Steel	Punched washer A 6.6 of IS:2016-steel chemically blackened as per Appendix 'C'
b) Small	Steel	Punched Washer B 6.6 of IS:2016-steel Chemically blackened as per Appendix 'C'
vi) Wing nut	Steel Cold forged	Wing Nut B M6 IS:2636. Wing Nut chemically blackened as per Appendix 'C'
vii) Cotton Webbing Harness		
a) Forehead strap	Webbing Thick 51±2 mm wide, O.G.	IND/TC/0346(a)
b) Head strap and Side straps	Webbing Thick 25±1.5 mm wide, O.G.	- do -
c) Suspension strap and Loop on the Head strap	Webbing Thin 19±1.0mm wide, O.G.	- do -





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<u>Component</u>	<u>Material</u>	<u>Conforming particulars</u>
d) Buckle Plain	Brass sheet 1.2 mm thick	Any of the three grades of IS:410 Temper Half Hard Buckle bronze finished as per Appendix 'D'.
e) Link	High density polyethylene black pigmented	HDPE 44 MD of IS:7320
f) Fastener (Velcro Tape)	Hook and Loop Tapes Synthetic 25 mm wide, O.G.	IS:8156
g) Eyelet with Plain Washer	Aluminium alloy, Chemically passivated	Designation No. 31000 H2 of IS:737. Size conforming to Eyelet No. 21 of IS:4084.
h) Sewing Thread	Cotton Sewing Thread O.G.	Variety No. 29 of IS:1720.

5.2 The packing cover for the face mask shall be manufactured from the following materials :

i) Outer cloth	Cotton Drill dyed O.G.	Variety No. 3 IS:177
ii) Inner lining	Cotton Flannelette dyed brown	IS:174
iii) Fastener (Velcro Tape)	Hook and Loop Tapes Synthetic 25 mm wide, O.G.	IS:8156
iv) Sewing Thread	Cotton Sewing Thread O.G.	Variety No. 29 IS:1720

6.0 MANUFACTURE

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6.1 The components of the face mask shall be manufactured as per details given below :

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- a) Visor Screen: The visor screen shall be moulded from transparent polycarbonate sheet by thermoforming technique precisely to the curvature and dimensions indicated in the drawing.

All edges of the formed polycarbonate visor screen shall be finished smooth and shall be free from burrs, protrusions and irregularities.

The visor screen shall be optically clear, free from haze, scratches, surface imperfections, irregularities causing visual distortion, colour and residual stresses. The thickness of the finished screen shall be  $4.0 \pm 0.2$  mm at any point.

- b) Side Clamps: The clamps shall be formed from aluminium alloy strip as per shape and dimensions indicated in the drawing. All edges of the clamps as well as the slots provided therein shall be finished smooth and shall be free from cracks, burrs, surface defects and tool marks. The clamps shall be anodised in black colour uniformly without any bare spots.

- c) Cotton Webbing Harness: The harness shall consist of two parts, viz: i) headband and ii) suspension strap which shall be made and assembled as follows :

Headband

The headband shall be made up of forehead strap, head strap with a loop on the top middle portion and two side straps. The shorter arm of the side strap shall be fitted with the plastic link and the longer arm shall be stitched with Hook and Loop Tapes Synthetic (Velcro Tape). All stitchings shall be done by machine stitching with Cotton Sewing Thread O.G., the number of stitches being four per centimetre.

The eyelets shall be fixed on each side of the forehead strap at the middle portion joining the forehead strap and the head strap.

The dimensions and construction of the headband shall be as shown in the drawing.

Suspensions Strap

The suspension strap shall be made up of two lengths of Webbing Cotton Thin 19 mm O.G. It shall be fixed with eyelet at one end and provided with a loop at the other

end. It shall be stitched with two brass buckles in between for adjustment of the length. All stitching shall be done by machine stitching with Cotton Sewing Thread O.G., the number of stitches being four per centimetre. 7  
SM

The dimensions and construction of the suspension strap shall be as shown in the drawing.

#### Assembly of Harness

The headband and the suspension strap shall be assembled together by passing the front portion of the suspension strap (having the eyelet) through the loop provided in the head strap of the headband and by passing the longer arm of the side strap through the loop provided in the rear portion of the suspension strap. The assembled harness shall be as shown in the drawing.

- d) Assembly of the Face Mask. The face mask consisting of the visor screen, side clamps and Cotton Webbing harness shall be assembled using bolts, nuts, washers and wing nuts as shown in the drawing.

6.2 Packing Cover: The packing cover shall be manufactured from Cotton Drill dyed O.G as outer and cotton flannelette dyed brown as inner lining using Cotton Sewing Thread O.G. as per shape, dimensions and details shown in the drawing. It shall be stitched with Hook Tape Synthetic 25 mm wide O.G. on the flannelette inner liner (inner flap) and Loop Tape Synthetic 25 mm wide O.G. on the front portion of the Cotton Drill outer cover at places indicated in the drawing. There shall be proper alignment of the Hook and Loop tapes when the flap of the cover is closed. The front portion of the Drill Cotton outer shall be stitched with a piece of Drill Cotton dyed O.G. to make a pocket as shown in the drawing for keeping the user instruction card.

#### 7.0 DIMENSIONS AND TOLERANCES

7.1 The dimensions of the various components of the face mask and the packing cover shall conform to those shown in the appropriate plates attached to this specification. The permissible tolerances in dimensions of the components have also been indicated in the attached plates.

#### 8.0 MASS

8.1 The mass of the finished face mask shall be  $650 \pm 50$  g.

#### 9.0 MAINTENANCE KIT

9.1 Each face mask shall be provided with a maintenance kit manufactured as per details described in Appendix 'E' and relevant plate of the drawings. The kit shall be tied to one of

the side clamps by means of the tying tape through the slot provided in the side clamps.

## 10.0 WORKMANSHIP AND FINISH

10.1 The face mask, the packing cover and the maintenance kit shall be clean and free from any type of manufacturing defects. All the components shall be finished and assembled neatly to comply with the appropriate drawings.

## 11.0 TESTS

11.1 Resistance to impact : When tested as per method described in Appendix 'F' the visor screen shall not show any sign of dent, cracks or fracture.

11.2 Resistance to penetration: When tested as per method described in Appendix 'G', the visor screen shall neither be fractured nor pierced through by the tip of the striker. Partial penetration or denting shall be permitted.

11.3 Visual distortion: There shall not be any visually detectable distortion of objects seen through the visor screen by unaided eye.

11.4 Light transmission: When tested as per method described in Appendix 'H' the visible light transmission of the visor screen shall not be less than 80 percent.

11.5 Identification test for polycarbonate: Approximately 0.1 to 0.2 g. of the plastic material taken out from the visor screen shall be heated in a test tube and the vapours collected in a glass wool plug. Then about 10 to 15 ml of 1.0 percent methanolic solution of para dimethylamino benzaldehyde shall be added to the pyrolysate followed by the addition of a drop of concentrated hydrochloric acid. Formation of a deep blue colour of the solution indicates that the material is polycarbonate.

## 12.0 MARKING

12.1 Each face mask prior to being offered for inspection shall be legibly and indelibly marked on the headband with the manufacturer's name, initials or recognized trade mark and the year of manufacture and Cat No. of the store as indicated in plate No. 4 of the drawing.

12.2 The packing cover of the face mask shall also be legibly and indelibly marked or stenciled with the details mentioned above as shown in the drawing.

## 13.0 INSTRUCTION CARD

13.1 Each face mask shall be provided with a user instruction card of approximate size 28 cm x 11 cm folded widthwise in the middle so as to make a card of approximate size 14 cm x 11 cm.



having four surfaces available for printing the instructions. The printed card shall be placed inside the pocket provided in the packing cover. The card shall be made of Ivory White sheet of 0.05±0.01 mm thickness. The instructions shall be legibly and indelibly printed as follows :

- i) First surface : Instructions for Maintenance in English as per Appendix 'J'.
- ii) Second surface : Instructions for Maintenance in Hindi as per Appendix 'J'.
- iii) Third surface : Sketch showing the interchangeability of Visor-Clamps Assembly as per Appendix 'K'.
- iv) Fourth surface : Method of fitment of face mask to Helmet Combat Fibre Glass as per Appendix 'L'.

#### 14.0. PACKAGING

14.1 Each face mask shall be packed in the packing cover in such a way that the entire visor screen and part of the side clamps are enclosed in the packing cover with flap portion with the Hook Tapes facing outside. The packing cover shall then be closed by folding the flap and engaging the hook and Loop tapes.

14.2 The face mask with the packing cover and the maintenance kit shall then be packed in a bag (of approximate size 45 cm X 45 cm) made of polyethylene film of not less than 0.05 mm thickness. The bag shall be heat sealed to make a unit pack.

14.3 Fifteen such unit packs shall then be packed in a double walled corrugated fibreboard box of internal dimensions 600 mm X 380 mm X 300 mm, conforming to IS:2771 except that :

- a) The outer face of the board shall be lined with bitumen laminated waterproof paper manufactured from two plies of kraft paper of substance not less than 100g/m<sup>2</sup> and bitumen composition of air blown grade having a softening point of not less than 80 °C.
- b) The minimum bursting strength of the board shall be 15 kgf/cm<sup>2</sup>.
- c) The type of flutes (corrugations) shall be combinations of A and B or B and B.

14.4 The empty spaces inside the box shall be filled in with used newspaper or paper cuttings. The box shall be closed using a good quality gummed tape of not less than 50 mm width. The box shall be finally strapped at two places with HDPE or polypropylene strapping of 12 mm width around the body at a distance of one fifth of the length from each end.

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For 10 Nos.

700 L

240 H

350 W

CMO

Page No. 10 missing &  
to be inserted.

TABLE

Lot size	VISUAL INSPECTION		LABORATORY TESTING	
	No. of samples to be drawn	Permissible No. of minor defectives.	No. of samples to be selected	
1	2	3	4	
Upto 100	5	0	2	
101 to 500	10	1	4	
501 to 1000	20	2	6	
1001 and above	25	3	7	

17.0 BULK INSPECTION

17.1 If on examination of any sample from any portion of a consignment, the material is found not to be fully in accordance with this specification, the whole consignment is liable to be rejected.

17.2 If on examination of 20 percent of any delivery, 20 percent of those examined are found not to conform to this specification in any respect, then the whole consignment may be rejected. However, when the delivery lots are large, i.e. more than 5000 Nos., the decision may be based on examination of 10 percent only, i.e. if on examination of 10 percent of the delivery, 20 percent of those examined are found not to conform to this specification, the whole consignment may be rejected.

17.3 All face masks not fully in accordance with this specification shall be rejected.

18.0 WARRANTY

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

Date :  
KANPUR

DIRECTOR  
DEFENCE MATERIALS AND STORES  
RESEARCH AND DEVELOPMENT ESTI.  
DMRDE P.O., KANPUR-200013.

रक्षा सामग्री एवं वस्तु  
विकास तथा विकास प्रतिष्ठान  
DEFENCE MATERIALS & STORES  
Research & Development Establishment  
एच पी सी नं. 320 / Post Box No. 320  
कानपुर / KANPUR

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(Para 4.1 of this specification refers)

Sl.No.	Specification Number	Title of the specification	Source
1.	IS:737	Wrought Aluminium and Aluminium Alloys, Sheets and Strips (For General Engineering Purposes)	Bureau of Indian Standards, Manak Bhavan, 9 Bahadur Shah Zafar Marg New Delhi-110002 or their regional offices
2.	IS:8822	Slotted Mushroom Head Roofing Bolts	- do -
3.	IS:1363	Black Hexagon Bolts, Nuts and Lock Nuts (Diameter 6 to 39 mm) and Black Hexagon Screws (Diameters 6 to 24 mm)	- do -
4.	IS:2016	Plain Washers	- do -
5.	IS:2636	Wing Nuts	- do -
6.	IS:410	Rolled Brass Plate, Sheet, Strip and Foil	- do -
7.	IS:7328	High Density Polyethylene Materials for Moulding and Extrusion	- do -
8.	IS:8156	Fastener, Hook and Loop Tape, Synthetic	- do -
9.	IS:4084	Eyelets and Washers	- do -
10.	IS:1720	Cotton Sewing Threads	- do -
11.	IS:177	Cotton Drills	- do -
12.	IS:174	Flannelettes	- do -
13.	IS:2771 (Pt. I)	Corrugated Fibreboard Boxes	- do -
14.	IS:4905	Methods of Random Sampling	- do -

Sl.No.	Specification Number	Title of the specification	Source
15.	IS:7569	Cast Acrylic Sheets for use in Luminaries	- do -
16.	IS:2267	Polystyrene Moulding Materials	- do -
17.	IS:5210	High Impact Polystyrene Sheet	- do -
18.	IS:1017	Chamois Leather	- do -
19.	IS:4955	Synthetic Detergents for Household use	- do -
20.	IS:1895	Cotton Newar	- do -
21.	IND/TC/0346(a)	Lightweight Cotton Webbing	The Controller, Controllerate of Quality Assurance (T&C), Post Box No. 294, KANPUR-208004





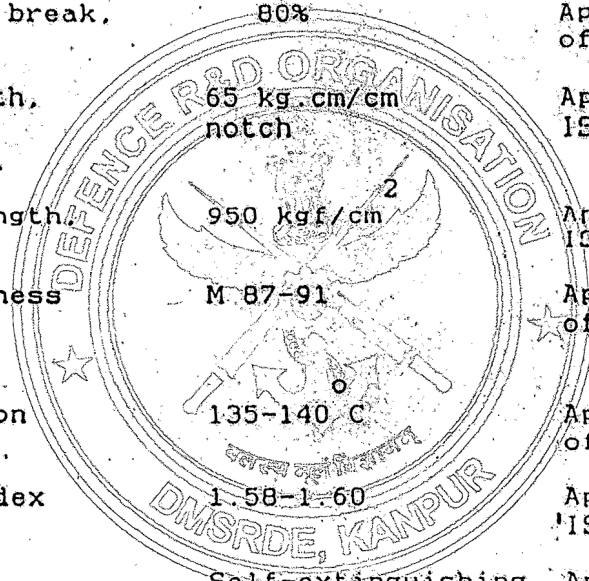
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REQUIREMENTS OF POLYCARBONATE SHEET

B.1.0 The polycarbonate sheet  $4.0 \pm 0.2$  mm thick used for making the visor screen shall be UV stabilised, optically clear, transparent, free from colour, haze, crazing, surface imperfections, scratches, bubbles and irregularities causing visual distortion.

B.2.0 The sheet shall conform to the following requirements :

<u>Properties</u>	<u>Value</u>	<u>Method of Test</u>
Specific gravity	1.20	Appendix 'A' of IS:7569
Tensile strength, min	600 kgf/cm <sup>2</sup>	Appendix 'A-7' of IS:2267
Elongation at break, min	80%	Appendix A-7 of IS:2267
Impact strength, min	65 kg.cm/cm notch	Appendix A-6 IS:2267
Flexural strength, min	950 kgf/cm <sup>2</sup>	Appendix 'C' IS:5210
Rockwell Hardness	M 87-91	Appendix A-11 of IS:2267
Heat distortion temperature	135-140 C	Appendix 'E'-4.1 of IS:7569
Refractive Index	1.58-1.60	Appendix 'F' of IS:7569
Flammability	Self-extinguishing	Appendix 'D' of IS:7569



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METHOD OF CHEMICAL BLACKENING OF STEEL COMPONENTS

C.1.0 Prior to the application of black oxide coating, the mild steel components shall be thoroughly cleaned by a process that shall not cause measurable abrasion or erosion. The cleaned surface shall be free from rust, grease, paint or other foreign matter.

C.2.0 The coating shall be applied under controlled time and temperature conditions. All equipment, together with the solutions or baths shall be free of dirt or possible contaminants. An alkaline oxidising process shall be adopted using black finishing oxidising material.

C.3.0 The recommended method is to employ two processing tanks; one operating at  $140 \pm 2$  C and the other at  $155 \pm 2$  C. About 30 minutes is required in each tank. A typical composition of the solution is given below:

Sodium hydroxide	:	800 - 1000 g
Sodium nitrite	:	200 - 250 g
Sodium nitrate	:	50 - 60 g
Water (Distilled)	:	To make 1 litre of the solution.

C.4.0 The black oxide treated components shall be rinsed thoroughly in running water immediately after processing. Then the components shall be rinsed in hot water at  $90 \pm 2$  C.

C.5.0 The components shall then be immersed for a minimum period of 30 seconds in a 2.5 g/litre chromic acid solution maintained at 70 to 90 C and at a pH of 2 to 3. After the chromic acid dip, the components shall be dried by warm air.

C.6.0 The black oxide coated steel components shall be uniform in colour.

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METHOD OF BRONZING OF BRASS BUCKLE

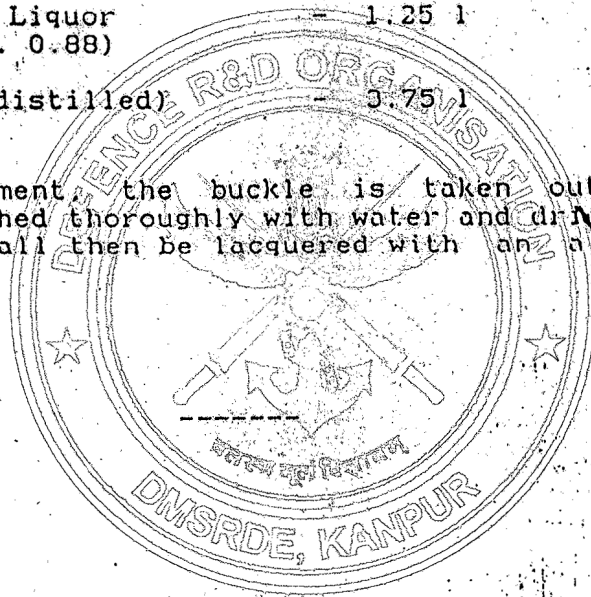
D.1.0 The brass buckle to be bronzed is to be first degreased in a 10% solution of caustic soda and then washed thoroughly with water. It is then pickled in a mixture of sulphuric and nitric acids in the ratio of 3:4 and again washed thoroughly with water till free from acid.

D.2.0 The buckle shall then be immersed in the bronzing solution of composition given below at a temperature of 80 °C for about five minutes.

Composition of the bronzing solution

Copper Carbonate	-	500 g
Ammonia Liquor (Sp. Gr. 0.88)	-	1.25 l
Water (distilled)	-	3.75 l

D.3.0 After treatment, the buckle is taken out of the bronzing bath and washed thoroughly with water and dried in saw dust. The buckle shall then be lacquered with an air drying lacquer cleaner.



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DETAILS OF MAINTENANCE KIT

E-1.0 The maintenance kit shall consist of the following items:

- i) Container bag
- ii) Spare accessories
- iii) Detergent powder for cleaning the visor screen
- iv) Cotton Flannelette dyed brown and
- v) Chamois leather

E-2.0 The details of the kit are given below :

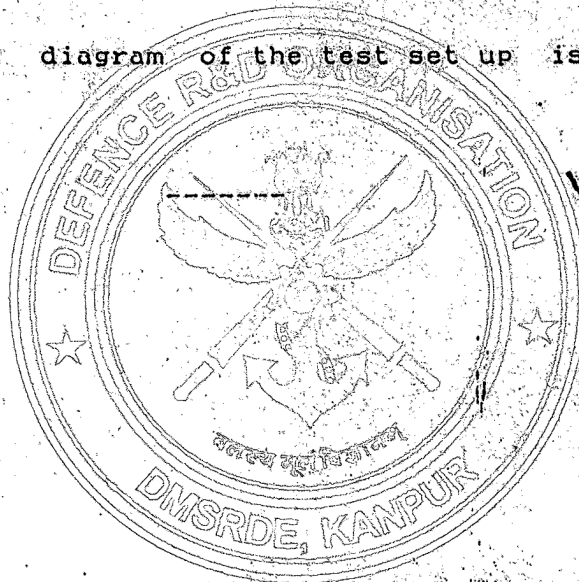
- i) Container bag : The bag shall be made using Cotton Drill dyed O.G., Fastener Hook and Loop Tapes Synthetic 16 mm wide, O.G., Tape Newar 13 mm O.G and Cotton Sewing Thread O.G. It shall be machine stitched to the shape, design and dimensions shown in Plate No. 8 of the drawing.
- ii) Spare Accessories : These shall comprise the following metal components packed in a bag ( of approximate size 15 cm X 10 cm ) made of polyethylene film of not less than 0.05mm thickness and closed at the top by heat sealing.

<u>Components</u>	<u>Quantity</u>
a) Bolts Mushroom Head Slotted, Chemically blackened	
M6 X 16	2 Nos.
M6 X 20	2 Nos.
M6 X 35	2 Nos.
b) Hexagon Nut M6, Chemically blackened	3 Nos.
c) Washer Plain chemically blackened	
Large	2 Nos.
Small	4 Nos.
d) Wing Nut B M6, Chemically blackened	2 Nos.



METHOD OF TEST FOR RESISTANCE TO IMPACT

- F-1.0 The visor screen shall be detached from the finished face mask and it shall be mounted on two wooden mounting supports (each of about 15 mm thick) having the same curvature as that of the visor screen and fitted securely to a wooden base. The visor screen will then rest on the supports approximately 22 cm apart, in a position such that the axis of the cylindrical surface is upper most. The two ends of the visor screen resting on the supports shall then be firmly secured by means of suitable metal clamps.
- F-2.0 Then a smooth solid steel ball of 2 kg mass shall be dropped freely from a clear height of 3.0 m on the centre of the apex of the visor screen.
- F-3.0 The visor screen shall then be removed from the mounting supports and visually examined for any damage.
- F-4.0 A typical diagram of the test set up is shown in Fig. 1.



METHOD OF TEST FOR RESISTANCE TO PENETRATION

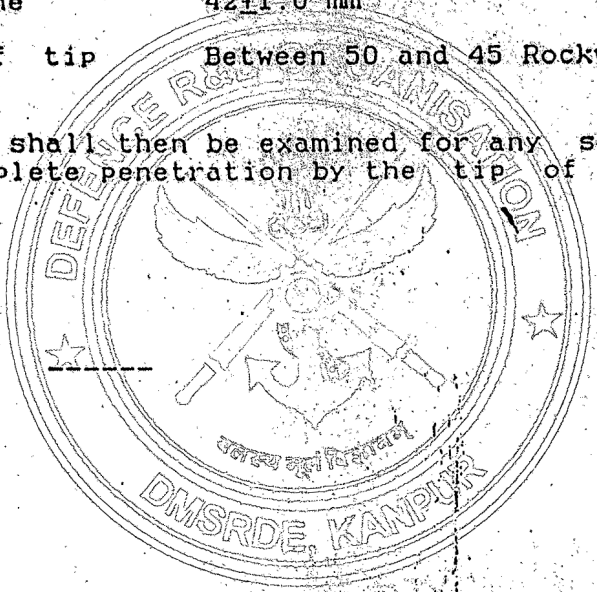
-1.0 A fresh sample of the visor screen (i.e. not previously subjected to any mechanical test) shall be mounted on the wooden fixture in the manner described in Appendix 'F' (Para F-1).

-2.0 Then a cylindrical striker made of steel with one end tapered conically shall be dropped freely from a clear height of 1.0 m from the tip of the striker on the apex of the visor screen through a guide tube.

-3.0 The striker shall have the following characteristics

Mass	1.80±0.05 kg
Angle of cone	60±0.5°
Radius of tip	0.5±0.1 mm
Height of cone	42±1.0 mm
Hardness of tip	Between 50 and 45 Rockwell

-4.0 The visor screen shall then be examined for any sign of fracture or complete penetration by the tip of the striker.



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METHOD OF TEST FOR LIGHT TRANSMISSION

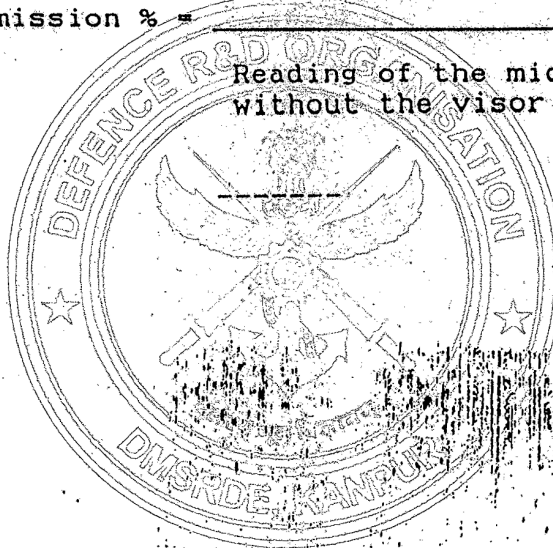
H-1.0 The radiations from a 100 Cp tungsten gas filled lamp shall be allowed to fall on a photoelectric cell with visor filter directly and then the visor screen intercepted between the lamp and the photoelectric cell. Readings on the microammeter which is used in series with the cell shall be recorded in both cases.

H-2.0 The percentage visible light transmission of the visor screen shall be calculated as given below :-

Reading of the microammeter  
when the visor screen is  
intercepted.

Light transmission % = \_\_\_\_\_ x 100

Reading of the microammeter  
without the visor screen



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FACE MASK ANTIMINE UNIVERSAL TYPEINSTRUCTIONS FOR MAINTENANCE

1. To maintain a good field of vision, formation of scratches and accumulation of dust/dirt on the visor screen shall be avoided.
2. Organic solvents like benzene, acetone, carbon tetrachloride and petrol shall never be used for cleaning the visor screen. Metal polishes, waxes and dry-cleaning fluids shall also be not used.
3. The visor screen shall always be cleaned with a soft cloth using a mild soap or detergent dissolved in water. Subsequently it shall be rinsed with clean water and dried thoroughly with a chamois leather to prevent water-spot.
4. Paint splashes, grease, oily spots etc. shall be removed by rubbing lightly with cotton wadding moistened with naphtha, kerosene or methylated spirit.
5. A kit is provided with this face mask for proper maintenance of the visor screen.
6. Use the spare metal components, (provided in the kit) if and when required.

फेस मास्क फटीमाइन यूनीवर्सल टाइपअनुसंधान के लिए अनुदेश :-

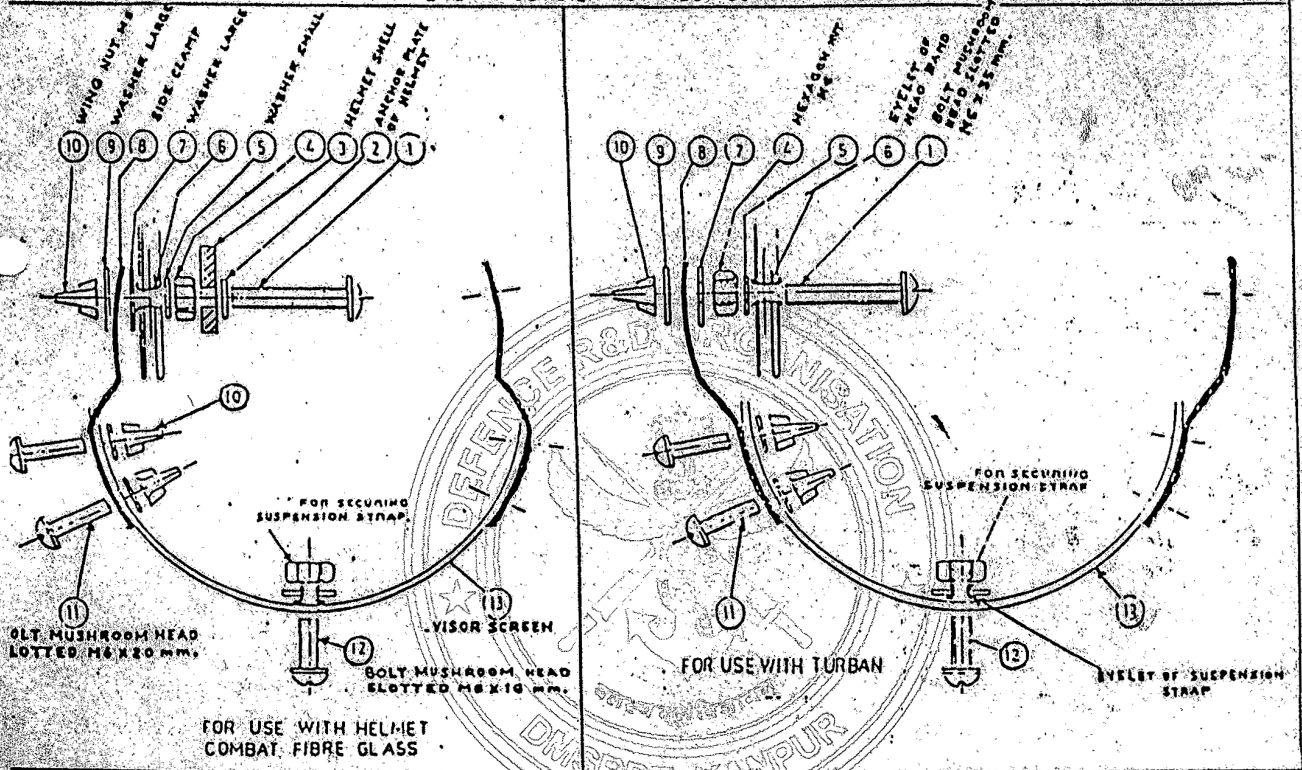
1. दृश्यों के क्षेत्र के अन्दर अनुसंधान के लिए अग्रभाग आवरण पर धूल/गंदगी के टेर तथा खरोंच को संरचना से बचना चाहिए।
2. अग्रभाग आवरण को साफ करने के लिए कार्यात्मक धिलायक जैसे बेन्जेन, एसीटोन, क्वॉर्न टेट्राक्लोरायड तथा पेट्रोल आदि का प्रयोग नहीं करना चाहिए। धातु पॉलिश, वैक्स तथा शुष्क सफाई तरल का प्रयोग भी नहीं करना चाहिए।
3. अग्रभाग आवरण में हमेशा पानी में पुतले धाले डिटरजेंट या मृदु साबुन को महीन कपड़े में लगाकर साफ करना चाहिए इसी प्रकार इस पर पानी के धब्बों को रोकने के लिए इसे साफ पानी में धोकर सांभर के चमड़े से पूरी तरह गुलाना चाहिए।
4. फेंट के छींटे, ग्रीस, तेल के धब्बों आदि को नापट्टा, मिट्टी के तेल या मेथिलेटिड स्पिट में भंगोकर रुई के कपड़े से हल्के हल्के साफ करना चाहिए।
5. अग्रभाग आवरण के समुचित अनुसंधान के लिए इस फेस मास्क के साथ एक किट उपलब्ध है।
6. जब तथा जहां आवश्यक हो वहां अनिवार्य धातु अवयवों (किट में उपलब्ध) का प्रयोग करे।



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# FACE MASK ANTIMINE UNIVERSAL TYPE

## INTERCHANGEABILITY OF VISOR CLAMPS ASSEMBLY

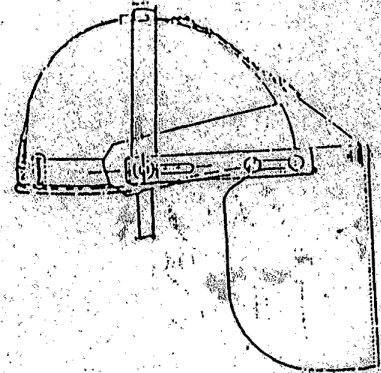
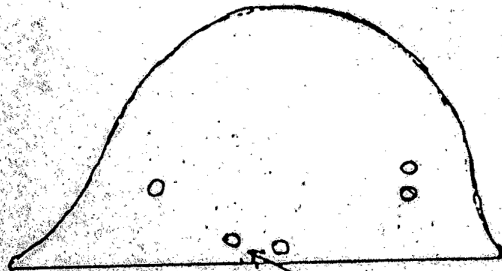


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APPENDIX 'L'

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METHOD OF FITMENT OF FACE MASK ANTIMINE UNIVERSAL TYPE  
TO HELMET COMBAT FIBRE GLASS



FRONT SIDE RIVET  
TO BE REMOVED HELMET - FACE MASK ASSEMBLY

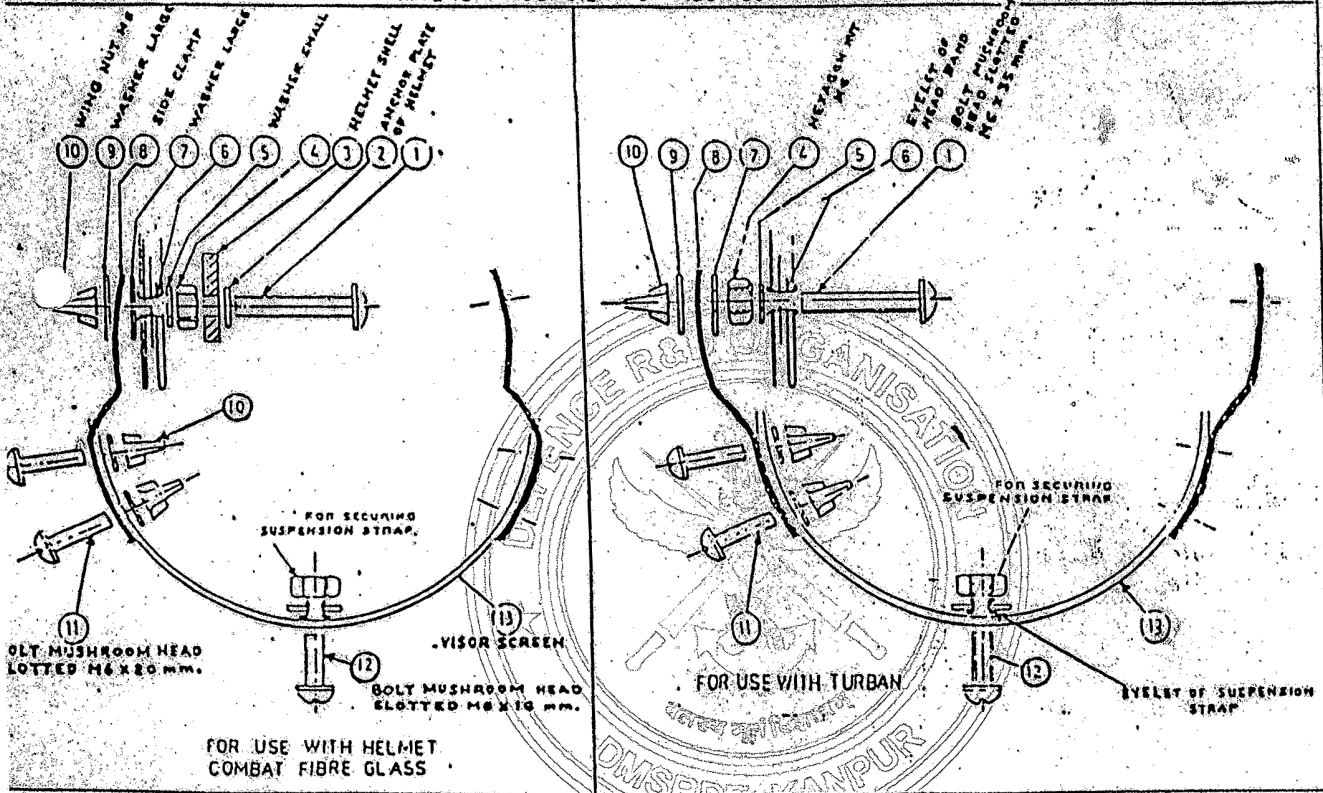
INSTRUCTIONS

- i) Remove the front side rivets from both sides of the helmet.
- ii) Slightly enlarge the size of the corresponding holes of the anchor plates fitted inside the helmet.
- iii) Insert the Bolts Mushroom-Head Slotted M6 X 35 mm from inside and tighten them with Hexagon Nut M6 from outside.
- iv) Then insert Washer Steel small, Eyelet of cotton webbing harness (keeping the forehead strap in the front and head strap over the helmet), Washer Steel Large, Side Clamps through the slots, Washer steel large and finally tighten them with wing nuts.
- v) Bring the longer arm of the side strap to the rear part of the helmet and insert its end through the plastic buckle of shorter arm of the side strap, turn it and fasten it by pressing the hook and loop tape pieces of the velcro fastener.
- vi) A sketch of the helmet-face mask assembly is shown above.

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# FACE MASK ANTIMINE UNIVERSAL TYPE

## INTERCHANGEABILITY OF VISOR CLAMPS ASSEMBLY



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# TEST SET UP FOR RESISTANCE TO IMPACT

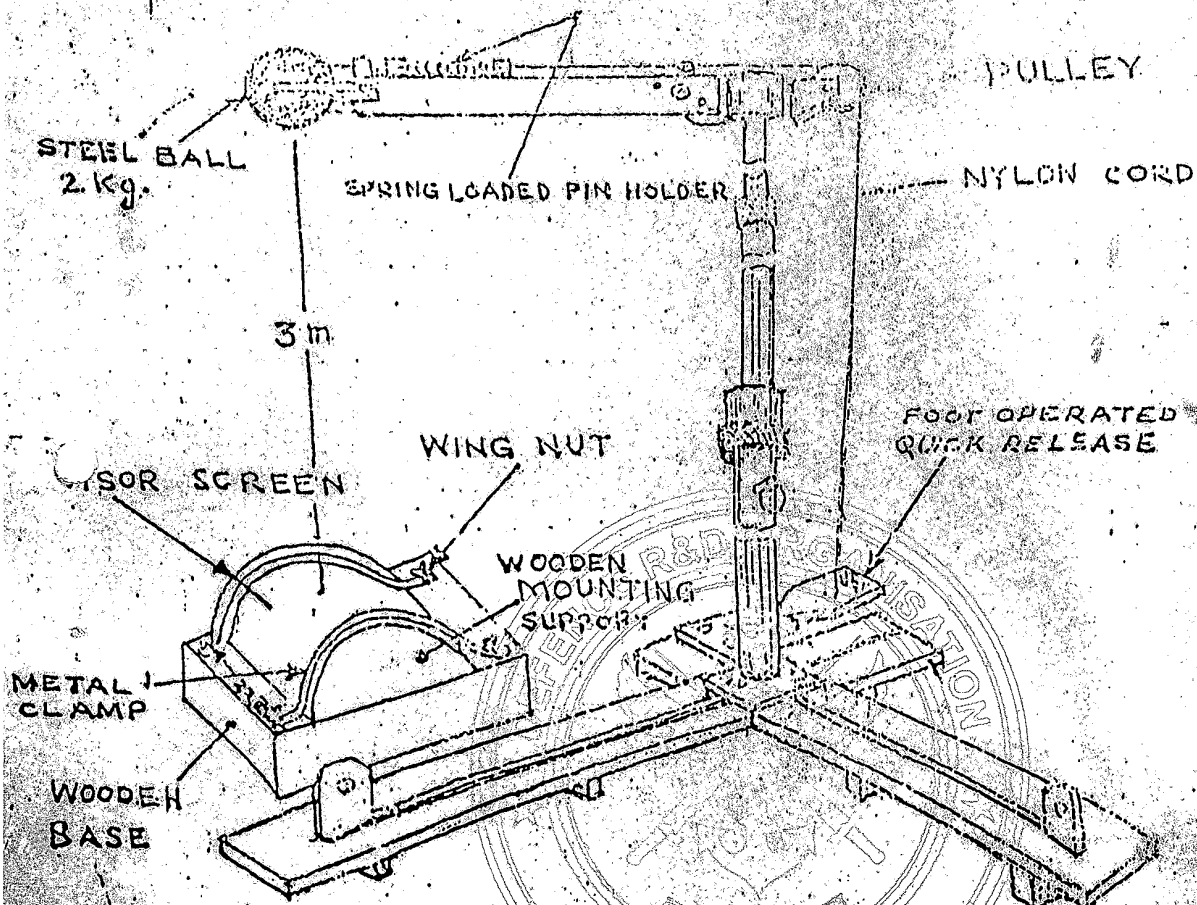


FIG. 1

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