

Chapter 1HELMETS,  
GENERAL PURPOSE TYPE G  
AND PROTECTIVE MK 1A

## CONTENTS

## Para.

- 1 Introduction  
GENERAL PURPOSE HELMET TYPE G
- 3 Description  
PROTECTIVE HELMET, MK 1A
- 8 Description

## Table

	Page
1 Hat/Helmet sizes ... ..	3
2 Helmet sizes ... ..	5

## Fig.

	Page
1 Type G helmet worn with oxygen mask ... ..	2
2 Protective helmet MK 1A ... ..	2
3 Type G helmet : internal view... ..	3
4 Protective helmet MK 1A with visor down ... ..	5
5 Location of reflective tape ... ..	6

INTRODUCTION (Figs.1 and 2)

1 The General Purpose Helmet Type G (Fig.1), is of fabric construction and is fitted with earphones housed in noise excluding earpads. Stud fasteners assembled on each side of the helmet provide fastenings for the oxygen mask attachments, these varying with different types of mask.

2 The Protective Helmet MK 1A (Fig.2) is hard and rigid, and affords protection against head injuries which might otherwise be sustained as a result of buffeting or a crash landing. It also improves the chances of safe ejection if the canopy release mechanism fails.

GENERAL PURPOSE HELMET TYPE GDESCRIPTION (Figs.1 and 3)

3 The Type G helmet is made of open weave fabric and may be worn either as a general purpose helmet or as a head cover under a Protective Helmet MK 1A. (Refer to Para.8). The helmet sizes available are shown in Table 1.



Fig.1 Type G helmet worn with oxygen mask



Fig.2 Protective helmet Mk 1A

TABLE 1 HAT/HELMET SIZES

Hat Size (1)	Helmet Size (2)	Ref/NSN (3)
6 1/2 to 6 3/4	1	22C/8415-99-1252992
6 7/8 to 7	2	22C/8415-99-1252993
7 1/8 to 7 3/8	3	22C/8415-99-1252994
7 1/2 to 7 3/4	4	22C/8415-99-1252995

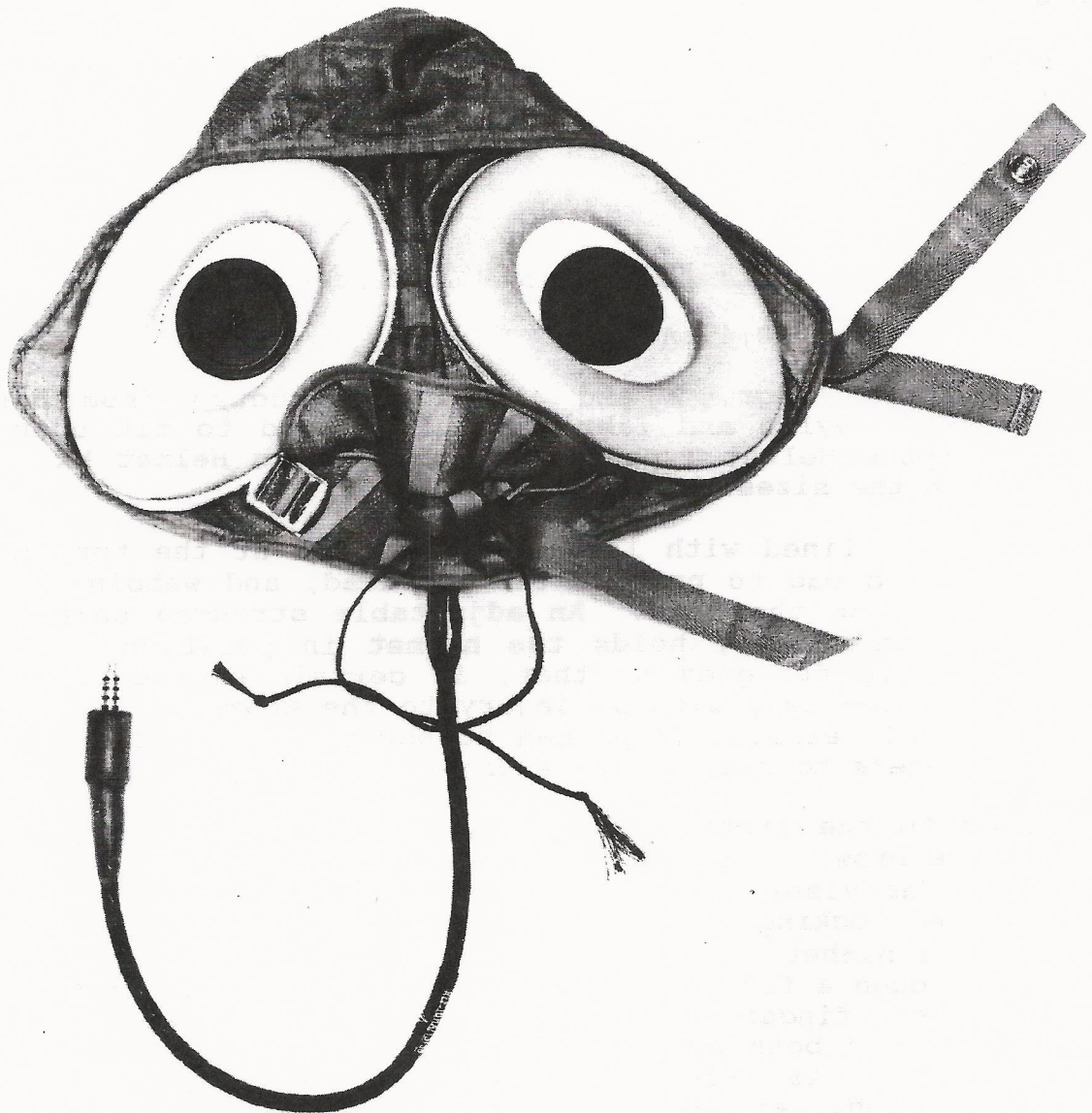


Fig.3 Type G helmet : internal view

4 When an oxygen mask, Type H is used with the helmet, the left-hand strap of the mask assembly is attached to a pair of stud fasteners on the helmet. On the right-hand side, a clip must be attached to the stud fasteners to receive a hook fitted to the right-hand strap of the mask. The procedure for fitting this clip is described in Chap 2-3.

5 If an oxygen mask Type P or Q is used mounting plates must be fitted to the stud fasteners. These plates are fitted with adjustable hooks to which the chain harness of the mask is attached. Fitting instructions for the mounting plates is described in Chap 2-3.

6 The earpads are attached to the inside of the helmet by button fasteners, the connector lead passing to the interior through a slot at the back. A second slot on the left side of the helmet exposes the connector to which the microphone lead is connected when an oxygen mask is worn.

7 Each earpad is in two parts which are bonded together through canvas facings. One part is a semi-rigid rubber moulding which houses the telephone earpiece and also carries the earpad stud fasteners. The other part is a soft leather pad filled with glass fibre wadding.

### PROTECTIVE HELMET Mk 1A

#### DESCRIPTION (Figs. 2,4 and 5)

8 This helmet (Figs. 2 and 4) is constructed from bonded laminations of nylon and fabric and is shaped to fit over the General Purpose Helmet Type G. The Protective Helmet Mk 1A is available in the sizes shown in Table 2.

9 The helmet, lined with leather and padded at the top, has a leather-covered pad to protect the forehead, and webbing straps to support it on the head. An adjustable stressed chin strap with velveteen sleeve, holds the helmet in position, and the attachments are designed so that, in certain emergencies, the helmet will come away without injury to the wearer. If goggles are worn, small elastic loops can be secured to the helmet with button fasteners to retain the headband.

10 Screwed to the front of the helmet, and extending from the crown to the brow, is a track over which a visor can be traversed (Fig. 4). The visor, screwed to a carrier which incorporates a spring-loaded locking device, enables the visor to be located in any one of a number of intermediary positions. Movement of the visor is through a finger grip on the carrier, upward or downward pressure on the finger grip extends or compresses a spring within the carrier, and both actions release the locking device. When the finger grip is released, with the carrier at one of the locking positions, engagement is effected with a locking socket in one side of the track.

TABLE 2 HELMET SIZES

Fitting and Size (1)	Ref/NSN (2)
<p><u>Narrow</u></p> <p>1 1½ 2 3 4</p> <p><u>Regular</u></p> <p>1 1½ 2 4</p> <p><u>Broad</u></p> <p>1 1½ 2 3 4</p>	<p>22C/8415-99-1253074 22C/8415-99-1253077 22C/8415-99-1253080 22C/8415-99-1253083 22C/8415-99-1253086</p> <p>22C/8415-99-1253075 22C/8415-99-1253078 22C/8415-99-1253081 22C/8415-99-1253087</p> <p>22C/8415-99-1253076 22C/8415-99-1253079 22C/8415-99-1253082 22C/8415-99-1253085 22C/8415-99-1253088</p>



Fig.4 Protective helmet Mk 1A with visor down

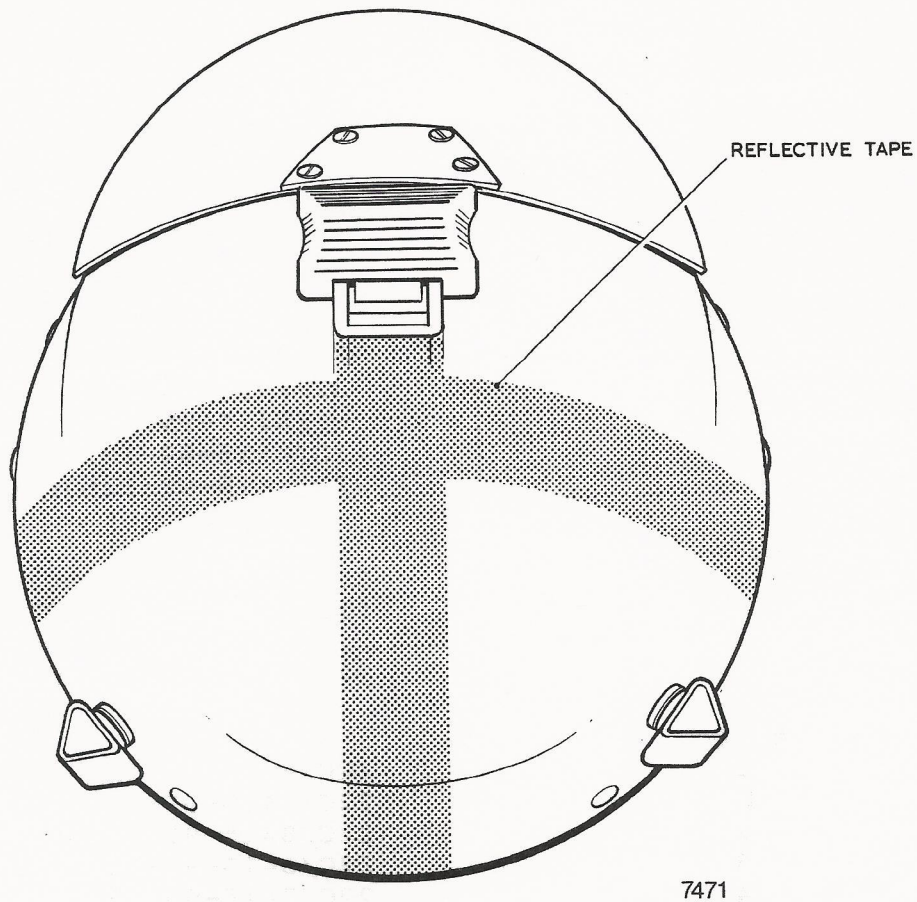


Fig.5 Location of reflective tape

11 Before the helmet is issued for use, two strips of reflective tape (Chap 2-3, Table 1) must be affixed to the shell as shown in Fig.5. The purpose of the tape is to facilitate recognition.

Chapter 1-1FITTING INSTRUCTIONS

## CONTENTS

## Para.

- 1 Introduction
- 2 General Purpose Helmet Type G
- 4 Protective Helmet Mk 1A
- 6 Adjusting the visor
- 7 Donning the helmet
- 8 Fitting goggles

INTRODUCTION

1 For the RN the helmet must be fitted under the supervision of one of the following, who must have received the necessary instruction at the RN Survival Equipment School (Seafield Park):

- Medical Officers
- Survival Equipment Officers (SE)
- Chief and Petty Officers (SE)
- Senior Rating of Small Ships Flights (SAMCO 39 trained)
- Leading Airmen (SE) when authorised by Ship/Station

The fitting must be carried out in accordance with AP 108B-0001-1

GENERAL PURPOSE HELMET TYPE G

2 The helmet should fit closely all round the head and, before making a final selection, several helmets should be tried on. Adjustment can be made to improve the fit, by varying the length of the neck strap (beneath the flap on the inside) and by tightening the chin strap. These adjustments, however, have the effect of drawing the helmet more tightly round the face and neck, but do not improve the fit round the head to any appreciable degree. Selection of the correct size is important, because it ensures maximum comfort, also the correct fit and efficiency of the oxygen mask is dependent upon a correctly fitting helmet. Too small a helmet will cause discomfort after only a short time and will mark the skin. Too large a fit will permit the earpads to hang too low and foul the life jacket. In selecting a suitable size, ensure that:

- 2.1 The earpads are correctly located over the ears.
- 2.2 The helmet is not uncomfortably tight.
- 2.3 A pressure breathing mask can be correctly fitted.

3 If goggles are to be worn, the headband should be passed through the loops behind the earpads. If a helmet is to be used with an oxygen mask, Type P4 or Q4, a helmet connector must be fitted in place of the standard connector.

#### PROTECTIVE HELMET MK 1A

4 It is essential that this helmet fits correctly from the outset, since the fit will not improve with wear. The sensation of pressure caused by a badly fitting helmet becomes intolerable if the helmet is worn for long periods. The helmet should fit well down so that it is supported by the internal support straps and not by side pressure.

5 The wearer should try on several helmets, even if one of the correct size has been selected. This is because there is slight variations between helmets of the same nominal size. The helmet should be worn for approximately 30 minutes before acceptance. If it feels tight at any point it should be rejected, the shape cannot be altered.

#### Adjusting the visor

6 In some cases, even though the helmet has been properly fitted, the visor will make contact with the wearer's nose. In such cases the visor may be locally modified to give adequate clearance. Proceed as follows:

6.1 Fit the helmet to the wearer and very carefully lower the visor until it touches the wearer's nose. Using a yellow chinagraph pencil mark a 1 inch vertical centre-line in line with the wearer's nose, then, without moving the visor, mark a line on the shell of the helmet level with the top edge of the visor.

6.2 Remove the helmet from the wearer and move the visor to the fully 'down' position. The distance between the top edge of visor and the yellow line on the helmet shell will indicate the depth of the required cut-out.

6.3 Using a yellow chinagraph pencil, and working from the 1 inch centre-line (Para. 6.1) as a datum, draw a contour on the visor which conforms to the cut-out required for the shape of the nose.

6.4 Remove the visor from the helmet (Refer to Chap 2-3) and carefully clamp it in a vice, taking extreme care to protect it from damage by the vice jaws by padding it each side with a soft material.

6.5 Using a half-round file, remove the necessary materials from the visor to achieve a clearance for the wearer's nose. Radius the cut-away area to form smooth regular curves and thoroughly deburr.

6.6 Refit the visor, fit the helmet to the wearer and check that there is adequate clearance.



Donning the helmet

7 To don the helmet, place the thumbs inside the lobes and ease them apart, thus assisting the helmet to pass over the earpads of the inner helmet or head cover. Keep the chin strap of the fabric helmet fastened. When the helmet is on, fasten the chin strap, but avoid pulling it too tight.

Fitting goggles

8 If goggles are to be worn as an alternative to a visor, the headband should be removed from the eyepiece of the goggles, threaded through the small elastic loops and then reassembled to the eyepieces, the loops should then be fastened to the helmet.

Chapter 2MAINTENANCE  
(ROYAL AIR FORCE AND ROYAL NAVY)

## CONTENTS

## Para.

- General Purpose Helmet Type G
- 1 Maintenance
- 2 Cleaning the helmet
- Protective Helmet Mk 1A
- 3 Maintenance
- 4 Cleaning the visor

GENERAL PURPOSE HELMET TYPE GMaintenance

1 Maintenance consists of cleaning the helmet and renewing defective parts. Periodical examinations must be complied with in accordance with AP 108F-0001-5F(R) and AP 108F-0001-5F(N).

Cleaning the helmet

2 After removing the earpads and cable assembly (Chap 2-3), the helmet may be washed with a mild soap and water. Do not force dry by placing the helmet near a heater, allow to dry naturally. Earpads covered with smooth leather (not those covered with chamois leather) may be sponged with a mild soap and water, and allowed to air dry naturally.

PROTECTIVE HELMET Mk 1AMaintenance

3 Routine maintenance is confined to the examinations detailed in AP 108F-0001-5F(R) and AP 108F-0001-5F(N).

Cleaning the visor

4 Remove the fabric cover. Using clean water only and a very soft, clean, cloth wash the visor, taking great care as it is easily scratched. Dry using a polishing cloth (Chap 2-3, Table 1) and refit the fabric cover.

5 Examine the visor screws for security. If insecure, remove and apply Locking Varnish (Chap 2-3, Table 1) to the threads and refit.

Chaper 2-3

REPAIR

CONTENTS

Para.

- 1 Introduction  
General Purpose Helmet Type G
- 2 Dismantling (WARNING)
- 3 Assembling
- 4 Fitting the clip
- 5 Fitting the mounting plates  
Protective Helmet Mk 1A
- 6 Repair
- 7 Renewing the visor, track and mechanism

Table

	Page
1 List of parts and materials . . . . .	7

Fig.

	Page
1 Type G helmet components . . . . .	2
2 Type G telephone lead connections . . . . .	4
3 Type G helmet earpads and cable assembly . . . . .	5

INTRODUCTION

1 Repair to these helmets is confined to an examination for condition and replacement of these parts.

GENERAL PURPOSE HELMET TYPE G (Fig.1)

Dismantling

2

WARNING . . .

BEFORE ANY ELECTRICAL CIRCUIT IS DISTURBED OR DISCONNECTED ALL ELECTRICAL POWER SUPPLIES IN TO OR FROM THE HELMET ARE TO BE DISCONNECTED.

2.1 Unfasten the adjusting strap from the buckle and withdraw it through the loops attached to the back of the helmet and on the inside of the flap.

2.2 Withdraw the lead and jack plug through the slot in the back of the helmet.

2.3 Unfasten the two earpads from the eight button fasteners and remove them complete with cable assembly from within the helmet (Fig.3).

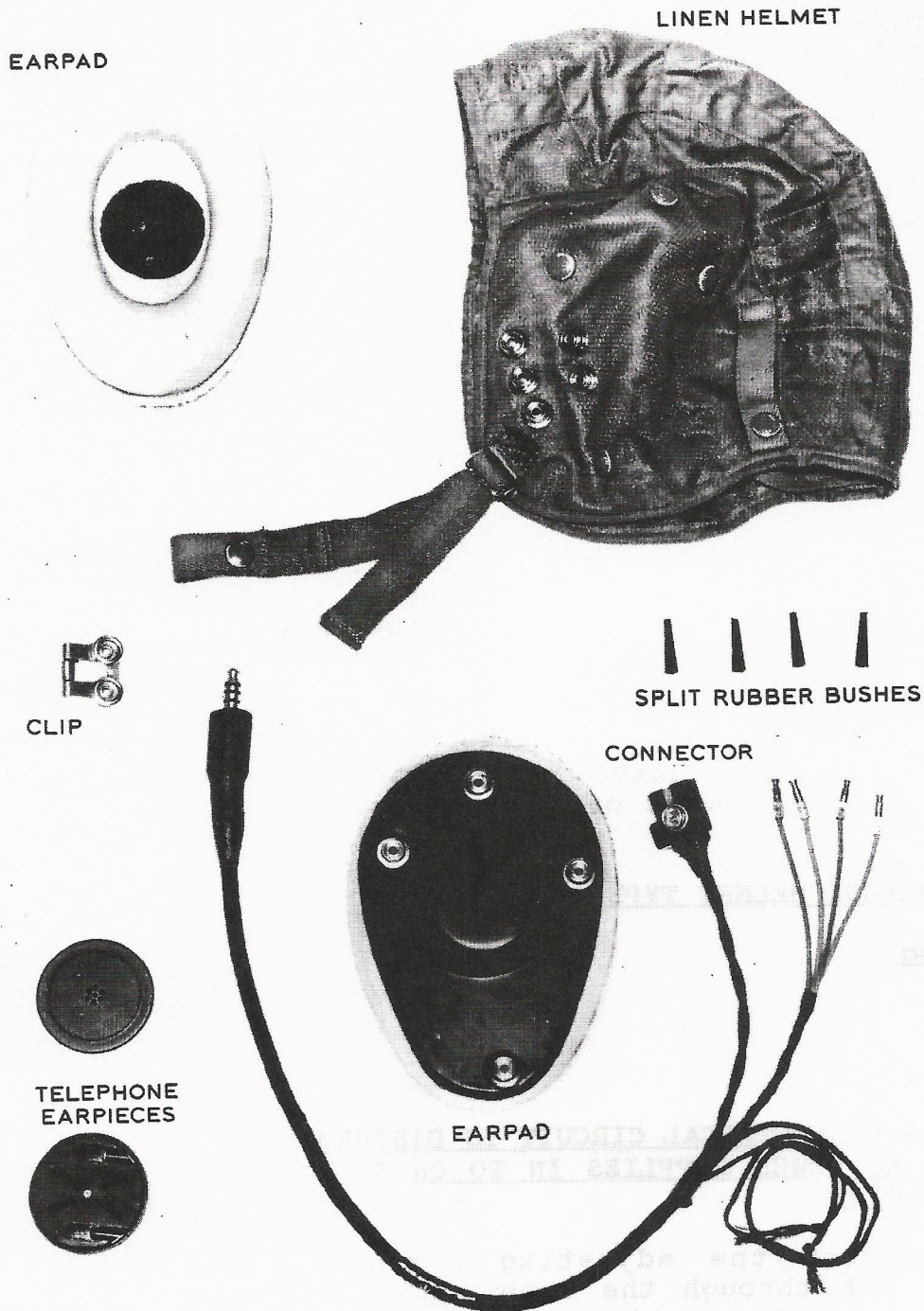


Fig.1 Type G helmet components

2.4 Unfasten the connector from the stud fastener on the left hand earpad.

2.5 Press out the telephone earpiece from each rubber moulding and carefully withdraw until the two terminal screws in the rim of the telephone earpiece are accessible.

2.6 Note the colour and position/polarity of four wires to telephone earpieces. Loosen the terminal screws and disconnect the wires from the telephone earpieces.

2.7 Feed the wires through the rubber mouldings and remove the split rubber bushes from the four wires.

NOTE ...

Do not attempt to separate the rubber moulding from the leather earpad. If there is local separation of the bonding, re-bond using adhesive (Table 1, item 10).

#### Assembling (Figs.2 and 3)

3

3.1 Feed the two wires for each telephone earpiece through the holes in the rubber mouldings (Fig.2).

3.2 Dip the split rubber bushes in dusting powder (Table 1, item 11) and fit them over the wires, tapered end towards the holes in the rubber moulding. Slide the split rubber bushes down the wires until the tapered ends protrude through the holes. Do not pull the split rubber bushes tight in the holes at this stage.

3.3 Insert the four wires into the telephone earpieces, (Table 1, item 5) as noted in Para. 2.6, and tighten the terminal screws.

3.4 Ease the wires back through the rubber moulding and press the telephone earpieces into their housings.

NOTE ...

When the telephone earpieces are fitted into the housings ensure the wires are not twisted or bent.

3.5 Pull the wires gently through the split rubber bushes to remove any slack, then pull the split rubber bushes through the holes until they are tight.

3.6 Fasten the connector onto the stud fastener on the left hand earpad.

3.7 Lay the earpads into the helmet ensuring the left-hand earpad is placed in the left-hand position within the helmet.

3.8 Feed the jack plug and lead through the slot at the back of the helmet and fasten the two earpads to the eight button fasteners.

3.9 Feed the adjusting strap through the loops attached to the back of the helmet and on the inside of the flap and fasten it to the buckle.

3.10 After completing a repair, test the helmet in accordance with Chap 3.

## NOTES ... (NAVAL APPLICATION ONLY)

- (1) Under certain flight conditions (Type G helmet) there is a possibility of moisture entering the earpieces (Table 1, item 5) and bridging the exposed knurled end of the terminals. This could result in the wearer receiving an electrical shock. A similar potential could also exist at the terminal screw.
- (2) Before assembling the earpiece fit an insulation sleeve (Table 1, item 12) over the end of each terminal pin so that it covers the knurled portion completely, but does not extend to the plain portion.
- (3) After securing the terminal pins into the earpiece fill the screw entry holes with compound (Table 1, item 13) ensuring that any surplus is removed from the earpiece shell rim. (For RAF equipment use wax (Table 1, item 14)).

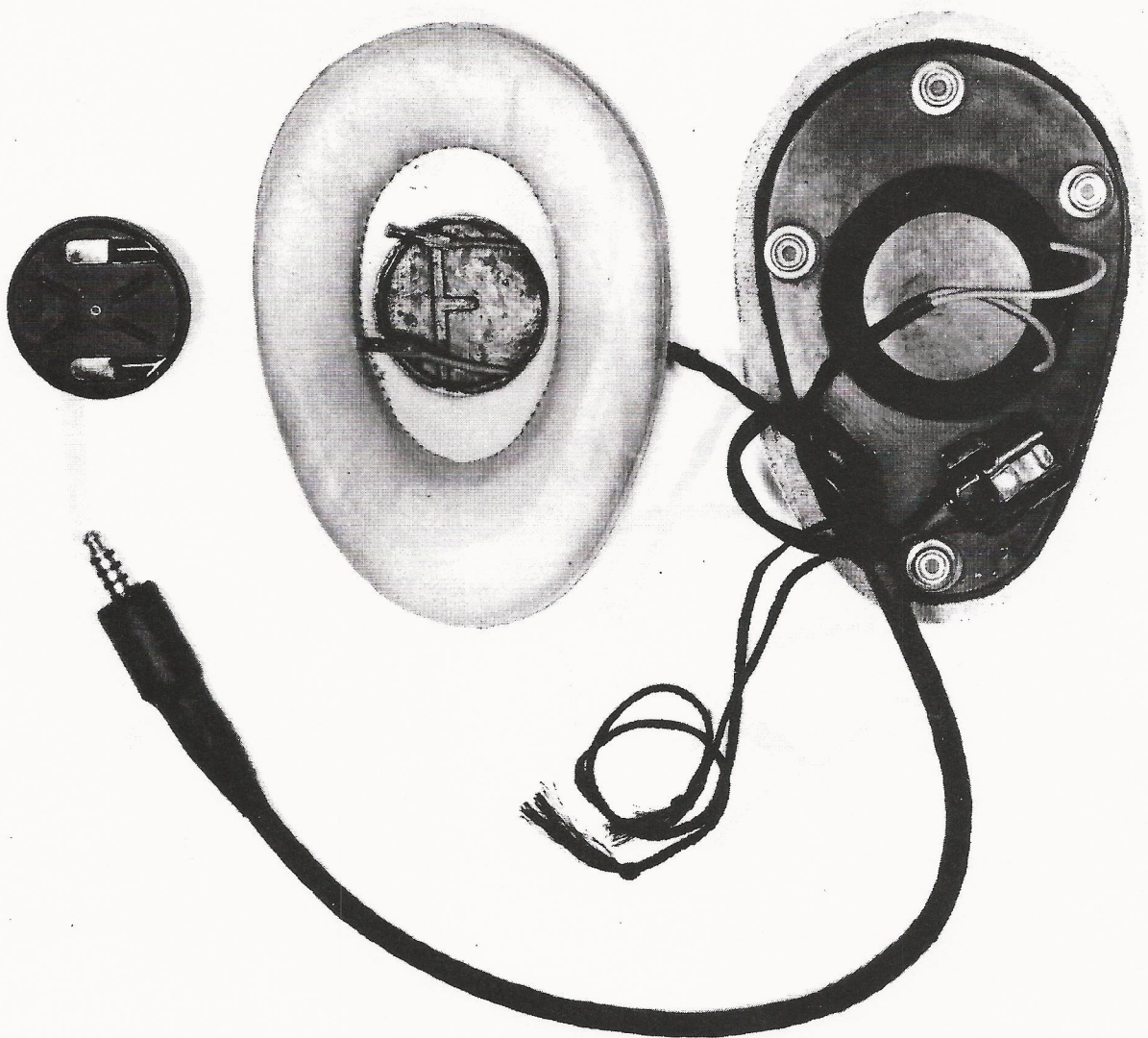


Fig.2 Type G helmet telephone lead connections

Fitting the clip

4 Request the wearer don the linen helmet. Position an oxygen mask, Type H, to determine which stud fasteners afford the better position. There are three stud fasteners for this purpose, the centre and lower form one pair and allow one position while the centre and upper jointly permit a higher position for the mask. Attach the clip (Table 1, item 1) permanently through the selected position using 6BA screws and 6BA nuts (Table 1, items 6 and 7). For information on fitting a Type H mask refer to AP 108F-0901-123A.

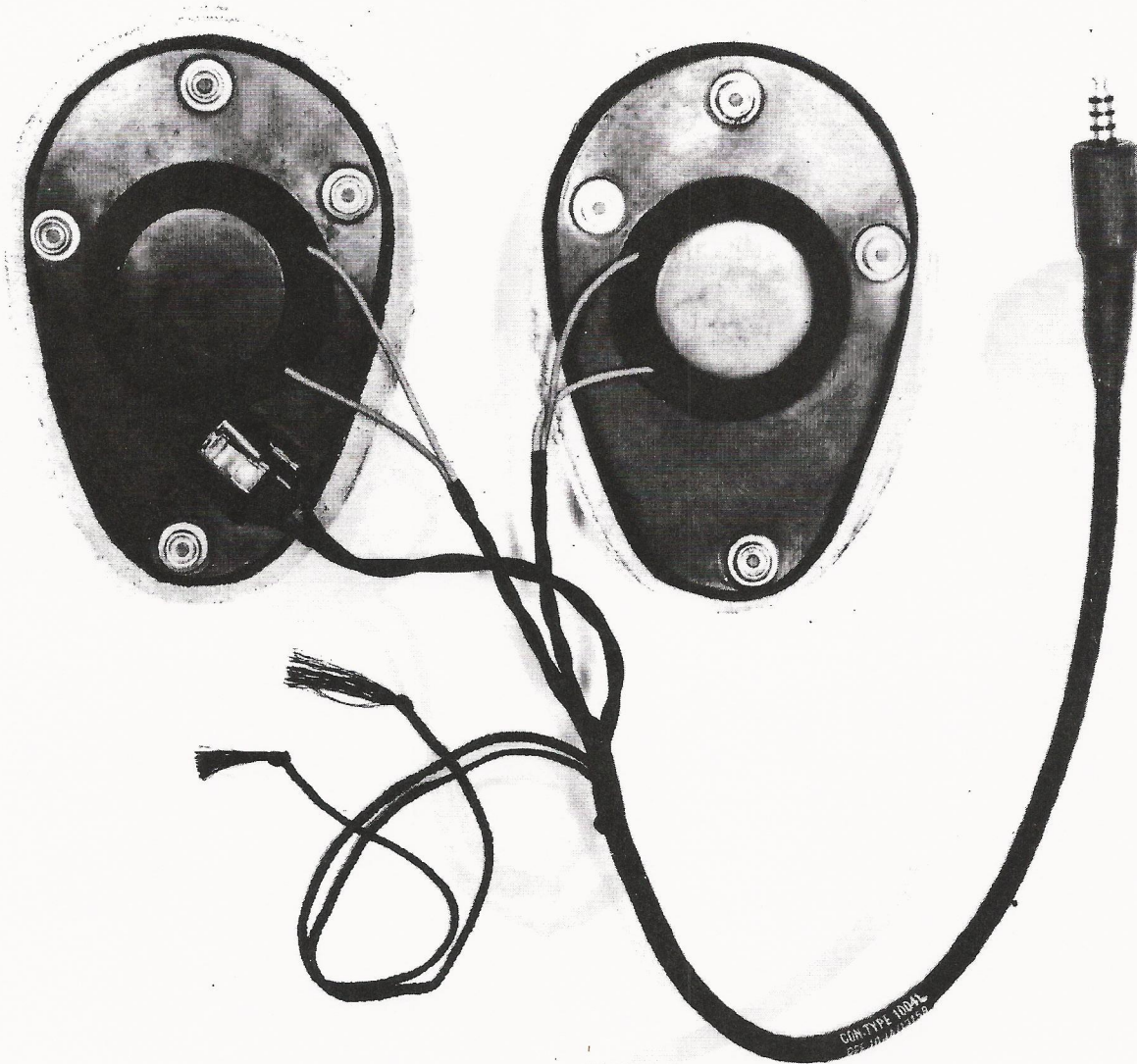


Fig.3 Type G helmet earpads and cable assembly



Fitting the mounting plates

5

5.1 Remove the nuts and screws from the mounting plates (Table 1, items 2 and 3) and retain for reassembly.

5.2 Attach each mounting plate to the lower three stud fasteners on the side of the linen helmet.

5.3 Request the wearer to don the linen helmet and wear an oxygen mask, Type P or Q, and check for comfort and leakage. (Refer to AP 108F-0902-123A). If necessary, the upper three stud fasteners should be used to achieve maximum sealing and comfort.

5.4 When the position of the mounting plates has been determined, secure each mounting plate through the selected position with the screws and nuts retained in Para. 5.1.

NOTE ...

As a result of oxygen mask Mods 121 and 208 the mounting plates are no longer part of oxygen mask Types P and Q.

PROTECTIVE HELMET Mk 1ARepair

6 Repairs to the helmet, other than renewal of the reflective tape and the chin strap, are not permitted, but damaged paint, ie where it has been scratched or worn off, may be touched in with silver cellulose finish. If damage to the helmet is suspected, the helmet must be carefully examined to ensure that the laminations are not broken or their structure weakened. Press very firmly around the suspected area, indicated by damage to the paint, if there is any softness, the helmet must not be used and is to be exchanged for a serviceable one.

Renewing the visor, track and mechanism

7 The Protective Helmet Mk 1A is fitted with a visor Mk 2C complete with track and mechanism. The protective cover (Table 1, item 9) should be in position on the visor at all times during handling and maintenance operations.

8 To replace the visor, remove the four slotted mushroom head screws attaching the visor to the carrier and fit the new visor, using the screws supplied. To replace the track and mechanism, remove the four slotted 4BA countersunk head screws securing it to the underlying packing piece and fit the new track using the four screws supplied. Apply locking varnish (Table 1, item 16) to the screw threads before fitting.

TABLE 1 LIST OF PARTS AND MATERIALS

Item (1)	Ref/NSN (2)	Part No. (3)	Description (4)	Qty. (5)
1	22C/1396	-	Clip	1
2	6D/1600-99- 2243574	-	Plate, mounting, RH	1
3	6D/1600-99- 2243575	-	Plate, mounting, LH	1
4	-	OP4310	Connector	1
5	10AA/19	-	Earpiece Type 53	2
6	28S/5305-99- 1201487	-	Screw, 6BA X 5/16 in long	2
7	28M/5310-99- 4095820	-	Nut, Hex, 6BA	2
8	22C/4063	-	Tape, reflective	A/R
9	22C/1836	-	Protective cover	1
10	33H/8040-99- 9436957	5562	Adhesive, Evostick 528	A/R
11	33C/6850-99- 2202882	-	Powder, dusting	A/R
12	5F/5970-99- 845-0009	-	Sleeving, electrical insulation, 3/8 in long	4
13	33H/8030-99- 2201148	-	Compound, sealing, black	A/R
14	5930-99- 9439190	KT9440-7	Wax, okerine No. 3700	A/R
15	33D/7920-99- 9233882	-	Cloth, polishing	1
16	33H/8030-99- 2248261	5510	Varnish, locking (Loctite 241 or Service equivalent)	A/R

Chapter 3

TESTING

Headset and microphone function and electrical tests

1 Carry out a functional test of the telephones in the general purpose helmet Type G as follows:

1.1 When using test set type 21A 200/1 refer to the appropriate tests as detailed in AP 117L-0402-13.

1.2 When using test set type 2835 refer to the appropriate tests as detailed in AP 117L-0403-1.

Chapter 4STORAGE AND TRANSITStorage

1 To extend the service life of the Protective Helmet Mk 1A the following procedures will be carried out:

CAUTION ...

The helmet must be thoroughly dried and aired before storing, no form of artificial heating is to be applied.

1.1 The visor must be placed in the up position and the protective visor cover fitted over it.

1.2 Store the helmet in a clean, cool, dry place that is well ventilated and free from corrosive fumes.

Transit

2 Place the helmet in its original container or a rigid container, ensuring that the visor is protected and the helmet has ample packing. Seal the container with tape.

3. Mark the container to indicate NSN, description and size. Keep the container in a clean, cool, dry place that is well ventilated and free from corrosive fumes.