AIRMED

OVERHAUL MANUAL

AIRLITE 62 HEADSETS

This manual complies with British Civil Airworthiness Requirements, Section A Chapter A6-2. The technical accuracy of this manual has been verified and is certified as correct

Signed .....

Date 15 September 1988

C.A.A. Design Approval No. DAI/1426/58

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AIRLITE 62 HEADSETS

REVISION RECORD

The introduction of any amendment or revision not verified in accordance with British Civil Airworthiness Requirements, Section A, Chapter A6-2, will invalidate the statement of certification on Page i. Amendments or revisions embodied in this manual, which have been certified under an approved authorisation other than that applicable to the initial certification must be recorded on separate record sheets.

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DESCRIPTION, OPERATION & DATA

The Airlite 62 headset Type 2103001 (Fig.1) is the basic subject of this manual, but related models with alternative or improved components are also within its scope. The Unilite 62 headset Type 2104001, also within the scope of the manual, has one receiver only, carried in the single housing on which the microphone boom is mounted. Unilite components are the same as Airlite except as shown in Fig.1101a. Details of Airlite and Unilite types, in eight or six-letter code form respectively, are on pages 3 and 4.

Headsets made to Ministry of Defence requirements are indicated on Page 3. Headsets embodying specially requested components outside the scope of the coding system, other than those on Page 3, can be identified by the presence of one or more letter 'S' (standing for 'special') in the coding. Some components categorised as 'S' appear in Section 11 of this manual.

1. Description

The Airlite 62 range of headsets incorporates telephone receivers (145), an electro-magnetic microphone (147) and can be provided with attachment points for an oxygen mask. A carbon microphone is sometimes fitted instead of the e.m. variety, and for general applications the oxygen mask attachment points are not incorporated. The receivers are fitted in plastic housings (130 and 141) clamped to the headband (125) and provided with earpads (236) filled with plastic foam. The microphone is attached to the end of a boom which is carried on one of the receiver housing assemblies, and the same housing assembly encloses a terminal board (137) where the main lead wires are connected to the receiver and microphone wires. There is a standard NATO jackplug on the free end of the lead, but other plugs (see Figs.1103/1104) can be fitted as required. Different lengths of main downlead are available and various press-button or switch units can be built into the lead as required. The positions of the receiver housings and microphone boom can be adjusted, whilst covers of washable fabric (237) are fitted over the earpads. At the ends of each of the two mask attachment plates (126 and 142) there are spring-loaded catches by means of which an oxygen mask is held on the front of the headset, and an adjustable counter pressure strap (246) across the back. If these attachment points are not required, simple guide plates (128 and 144) are fitted.

In some cases where interference is a problem reduction in receiver or microphone sensitivity can be achieved by incorporating attenuating resistors into the circuits to give improved voice communication.

2. Operation

The headset is brought into use simply by inserting the jackplug into the aircraft (or other) system socket. ON/OFF or PRESS to TALK switches, if fitted, must be set as required and the microphone positioned close to the mouth.

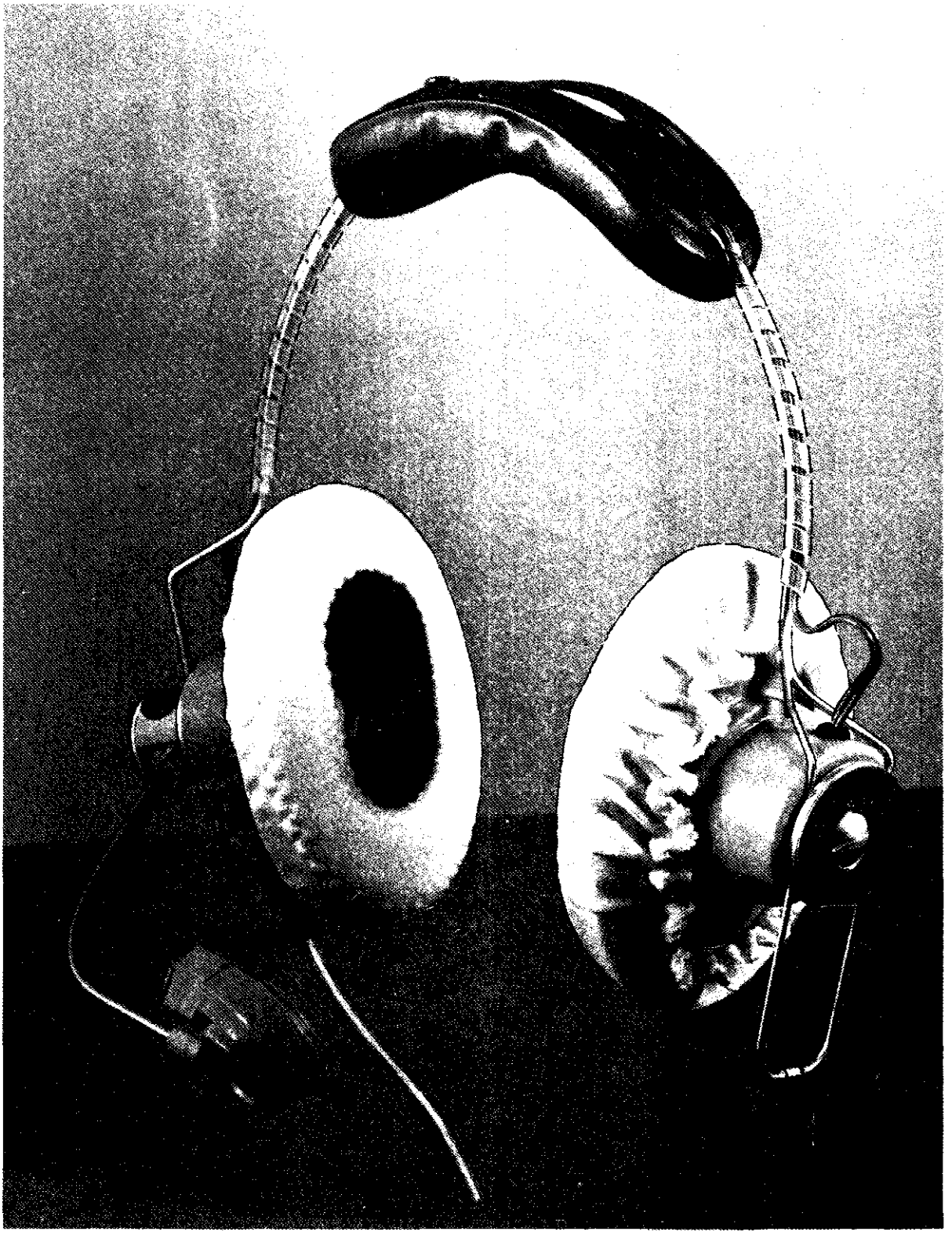


Fig.1
AIRLITE 62 HEADSET
MBG00ABC

3. Data

Weight, type 2103001 code MBGEOABB	365 gm.
Dimensions (packed)	225 x 225 x 80 mm.
Receiver Impedance (nominal)	300 ohms each
Microphone impedance "	100 ohms
Working load	Supply EMF 28V max. * Current 15 mA.

BUILD STANDARD

Headset Type	Stock No.	Code / NATO Number / Remarks
BASIC Airlite 15555	2103001 ≠	Reference Type only, Code required
BASIC Airlite 15555 less boom	2103201	" " " " "
BASIC Unilite 16250	2104001	" " " " "
BASIC Unilite 16250 less boom	2104201	" " " " "
Airlite 16755	2101001	TBEEOABB
16769	2101201	OBEEOABB
16756	2102001	TBGEOABB
16757	2102320	TBGEOAAB
	2148001	VBEEOABB
	2148002	JBEEOABB
M.O.D.Airlite 15555	2149100	HBDEOABC 5965-99-788-1158
15555	2149200	HBGEOABB 788-1157
15555	2149300	GBGFAAAB 756-7762
15555	2149400	ABODCABA 783-4470
15555	2149500	PBODCABA 782-1624
16520	2150000	QBSESABC 531-6629
15500/31	2150300	QBSEOABC 462-4487
15500/27	2150400	QBSESABC 462-4444
15500/47	2150500	" 537-1618
15500/25	2150700	" 462-4352
15500/26	2150900	QBSEOABC 462-4353
15540/19	2151000	TBSESABC 924-6374
15540/22	2151100	TBSESABB 924-9573
15500/7	2151200	JBHCEABA 462-9692
15540/23	2151300	TBSESABB 924-9574
15500/22	2151400	OBSEOABC 462-9699
15540/29	2151500	OBOHOABB 529-8734
15500/28	2151600	OBSEOABB 558-2429
15500/37	2151800	QBSSOBBS 522-7529
15540/18	2152001	GBPEOABC 104-7352
15500/46	2152100	QBSESABB 5965-66-048-0750
15500/30	2152300	QBSSSABC 5965-99-462-4486
15540/28	2152600	OBSSSABC 5965-66-048-0752
16520	2152700	QSSESABC
15500/49	2152800	PBSSSABC 5965-66-048-0751
15500/42	2152900	
-	2158001	KBVEOABC 10ZZ/354-156
15500/32	2158200	SBPEOABC 5965-99-933-3387
15540/9	2158400	GBFEOABB 971-0329
15385/3	2158500	OBGJEAAA 107-2836
15385/5	2158600	OBGCEAAA 111-5417
Airlite 15540/20	2158700	TBEEOABB
M.O.D.Airlite 16540	2158900	SBOSSABS 5965-99-653-7642
15385/8	2159300	GBGOAAAB 636-9202
15385/2	2159400	SBGSEAAA 970-2833
Unilite 16250/1	2150600	QBSESA 525-7366
" 16250/2	2150800	QBSESA 525-8806

* 10V max with low-power mics.
≠ NATO No. 5965-99-711-9537

AIRMED

KEY TO AIRLITE 62 CODING

Code Letter	1st Code Letter - Microphone	Stock Ref No.	2nd Code Letter - Telephone Receiver	Stock Ref. No.
0	No microphone fitted	-	No receivers fitted	-
A	300 ohm electro-mag. noise cancelling::	E17/16	600 ohm rocking armature type	1134003
B	50 ohm electro-mag. noise cancelling	E17/17	300 ohm rocking armature type	1134002
C	15 ohm electro-mag. noise cancelling	E17/18	75 ohm rocking armature type	EB/1
D	300 ohm electro-mag. *	1160690	300 ohm r.armature and attenuators	EB/45
E	50 ohm electro-mag. e	1160660	2400 ohm rocking armature type +++	1134001
F	15 ohm electro-mag.	E17/3	4800 ohm rocking armature type +++	1134004
G	100 ohm carbon noise cancelling +	1161170	300 ohm rocking armature type 3T +++	1134009
H	300 ohm moving coil noise cancelling ≠	1160630	150 ohm rocking armature type +++	1134014
I	50 ohm moving coil noise cancelling	1160090		
J	100 ohm m.c. Dyn-a-mike n. cancelling	1160300		
K	100 ohm carbon	1160540		
L	100 ohm carbon noise cancelling	1160570		
M	100 ohm m.c.Dyn-a-mike, low-cost,n.c.	1160870		
N	50 ohm moving coil noise cancelling	1160600		
P	300 ohm moving coil noise cancelling	1160150		
Q	300 ohm screened m.c. noise cancelling	1160240		
R	100 ohm electret and external amplifier	1161080		
T	100 ohm carbon noise cancelling ++	1161020		
U	Electret mic. with internal amplifier	-		
V	100 ohm m.c.Dyn-a-mike low-cost, n.c.(*)	1164050		
W	100 ohm m.c.with amplifier 50V.DC supply	1160840		
X	100 ohm m.c.differential L.V supply	1161060		
	3rd Code Letter - Connecting Plug		4th Code Letter - Downlead	
0	No plug fitted	-	No downlead fitted	-
A	Elcom 6-way PO.6	1136011	3.0 metre 6-core	
B	PO.609	1136061	2.75 metre 6-core	
C	PO.404	E9/9	2.5 metre 6-core	
D	PJ.051(PL.51)	1136005	2.0 metre 6-core	
E	PJ.055(M642/4) & PJ.068(M642/5)	1136014	1.75 metre 6-core (Standard)	1130008 (+)
F	PJ.068(PL.68)	1136007	1.5 metre 6-core	
G	Nato plug 10H/9466652	1136008	1.25 metre 6-core	
H	RAF plug 10H/10991	1136009	1.0 metre 6-core	
I	Deutsch DM-9702-7P	1136012	0.6 metre 6-core	
J	Plessey MK.4 CZ.49017 socket	1138042		
K	PJ.055(PL.55)	1136006	6 ft. 4-core heavy duty	
L	Elcom 8-way PO.8	E9/23	9 ft. 4-core heavy duty	E7/9
M	McMurdo 9-way	1136062		
N	Cannon EPCG/6/15	1136019		
P	Cannon EPCG/8/15	1136016		
Q	PO.610	1136003		
R	Cannon XLR-5-12-C	1136060		
T	PO.316	1136004		
U	PO.420	1136018		
V	PO.620	1136065		
W	Bulgin P-38-P	E9/26		
	5th Code Letter - Lead Switch		6th Code Letter - Ear Pads	
0	No switch fitted	-	No pads fitted	-
A	Press-to-talk switch	1142140	Enclosed foam-filled type	2150029
B	On/Off switch	1142180	Open foam-filled type	2131002
C	Press-to-talk to operate transmitter	1142200	Castellated type	2240140
D	Combined On/Off-/-Press-to-talk	1142100		
E	Combined On/Off-/-Press-to-talk,h.duty	1142010		
F	Amplifier in downlead	-		
	7th Code Letter - Support Plates		8th Code Letter - Receiver Wiring	
0	No support plates fitted	-		
A	Oxygen attachments boom side	2158800	Parallel wired	-
	Oxygen attachments non-boom side	2158810		
B	No oxygen attachments boom side	2150180	Series wired	-
	No oxygen attachments non-boom side	2150027		
C			Individually wired	-
	9th Code Letter - (where used) - Microphone Screen Connection			
A	Screen not connected to microphone			
B	Screen connected to microphone case			

:: replaced by 1161210
* was E17/1
e was E17/2
\+ was E17/11
≠ was E17/32

(*) replaces 1160870
++ replaces 1160570
+++ ground use only,unless tropicalised (green finish)
(+) 1130074 on M.O.D. headsets

SECTION 1

DISASSEMBLY

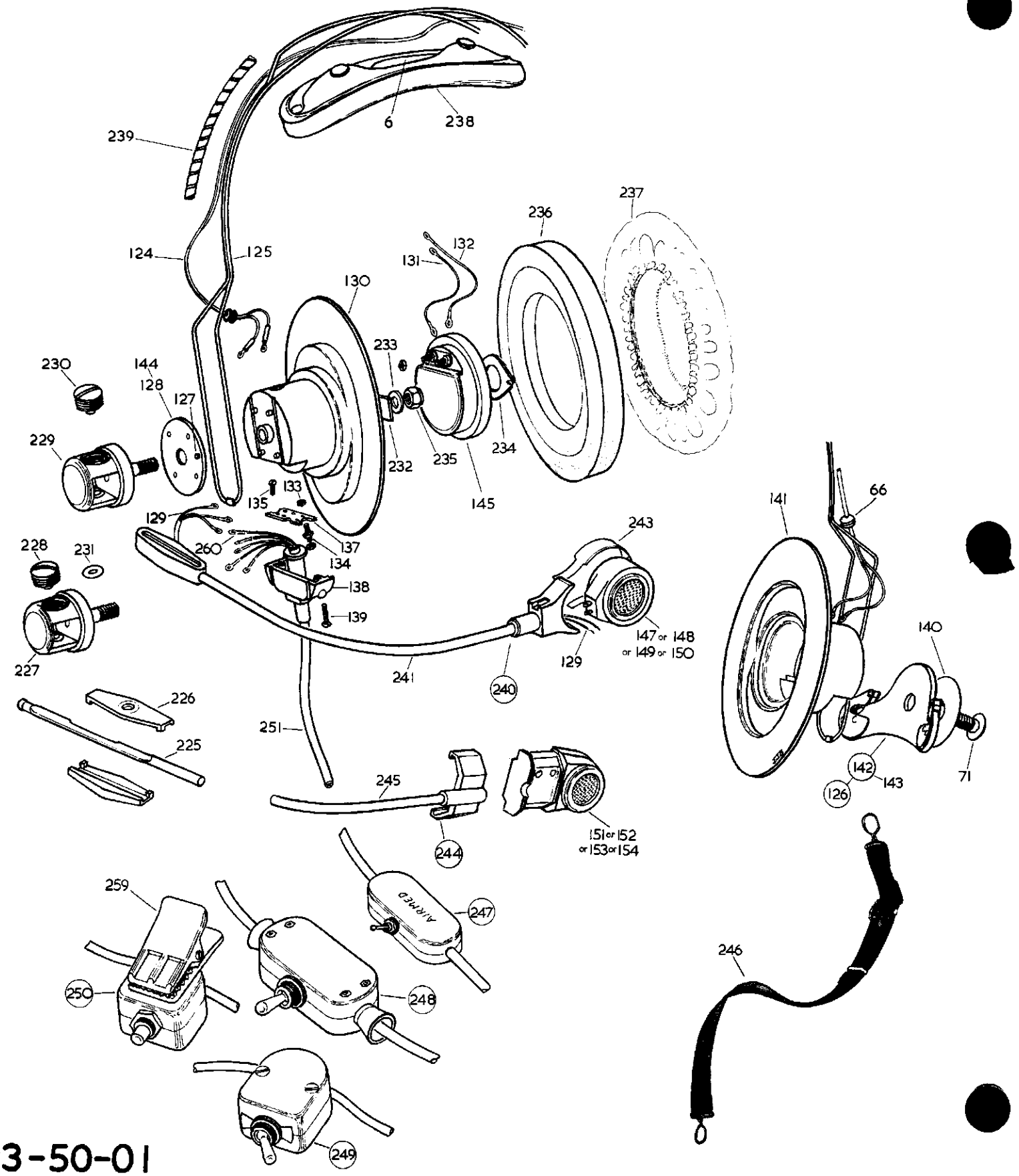

6
238
239
237
236
124
125
131
132
130
233
230
144
128
127
229
232
235
234
145
133
135
129
260
137
134
138
139
228
231
227
243
147 or 148
or 149 or 150
241
240
129
141
66
140
142
143
126
71
226
225
251
245
244
151 or 152
or 153 or 154
259
247
250
248
249
246

Fig. 101

DISASSEMBLY

1. General

The receiver capsules and microphones are sealed units and no attempt should be made to dismantle or otherwise gain access to them. Also, there are components, e.g. - microphone boom assembly, receiver housing, and others with pieces pressed or bonded together, which cannot be separated into their original parts. In the case of the downlead component parts, the lead switch, jack plug and junction box, where fitted, should be opened for inspection but not separated from the cable unless replacement is necessary.

2. Procedure

(1) Remove the counter pressure strap (246) where fitted.

(2) Remove the headpad (238), earpad covers (237) and earpads (236).

(3) On the non-boom side extract the receiver retainer (as 234) from housing (141) and ease out the receiver capsule (as 145).

(4) Remove the two 6BA nuts on the receiver terminals and disconnect the tags of the 'over head' cable (124).

(5) Extract the rubber grommet (66) from the hole in the receiver housing (non-boom side) and withdraw the leads from the housing.

(6) Using a suitable $\frac{1}{4}$" BSF box spanner unscrew the locknut (as 235) and withdraw the retaining screw (71) to release nameplate (140) with support plate (as 128) or mask attachment plate (142) and take housing from the headband wire.

(7) Repeat as in (3)(4) and (5) above on the boom side but note that the leads cannot yet be withdrawn from the housing.

(8) Unscrew the two 8BA screws (139) securing shroud (138) and draw down both shroud and terminal board (137) carefully from housing.

(9) Remove the nuts (one or two in number depending on wiring method), securing the tags of cable (124) to the terminal board. These leads, together with the grommet, can then be drawn out of the housing.

(10) Remove the nuts (three in number) securing the tags of microphone cable (129) to the terminal board.
The terminal board can now be taken away from the receiver housing still attached to the main lead (251) and with the short receiver extension lead(s) (131/132) attached.

(11) Repeat as in (6) above on the boom side to allow removal of the complete boom arm assembly (240) or (244) from the receiver housing, and releasing the other pieces from the headband wire. Note that the clamp plate (232) and friction washer (233) are used on the boom side only.

⑫ Remove spigot screw (230) or (228) to release boom arm assembly from yoke (229) or (227) with housings (226).

NOTE: The tags on the microphone leads will not pass through the bore of the yoke. These pieces should be kept together unless the need for further disassembly arises as described further on.

3. Further disassembly

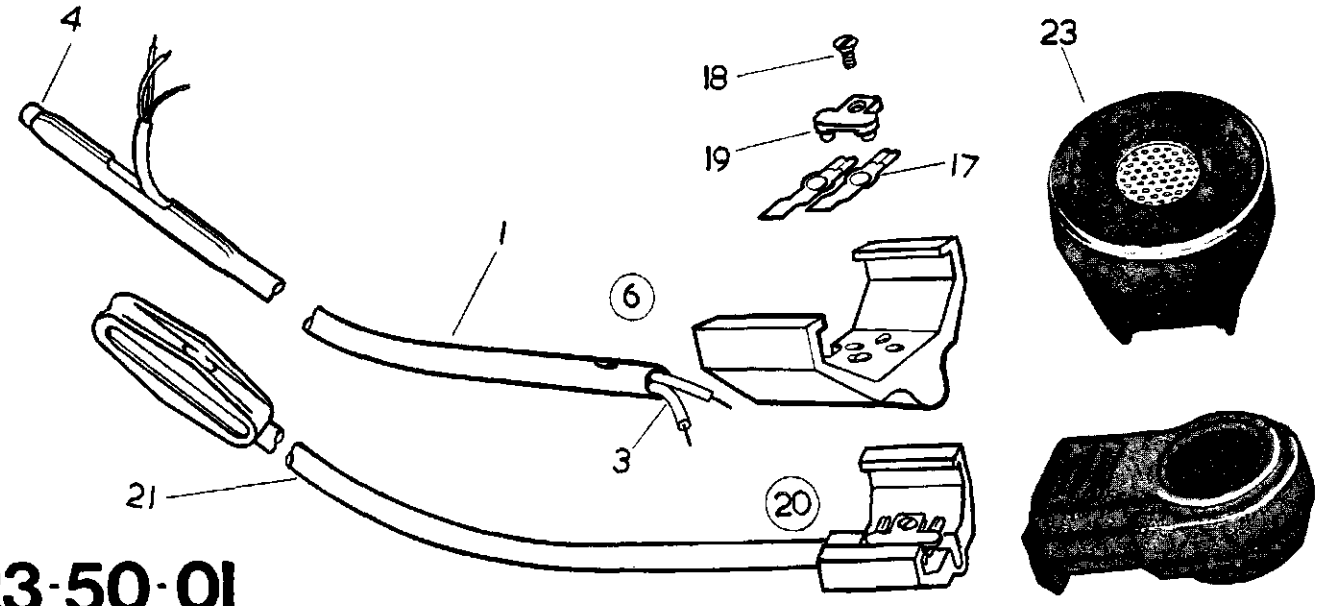
① Boom arm assemblies having the plastic clip (as 20 in Fig.102) permit easy microphone removal. Microphones retained by clip (243) should not normally be removed from the boom arm. If, however, replacement is required, the ends of the clip must be carefully lifted and straightened to allow the capsule to be drawn out. Unsoldering of the leads is necessary for removal of this item.

② Should it prove necessary to remove the microphone leads from the boom arm or to replace the yoke it is possible to pull or cut off the crimped tags at either end of the leads.
Provided that the minimum amount of wire is lost there will normally be sufficient length of lead remaining to allow new tags (260) or (17 in Fig.102) to be crimped on.
When wiring contacts into the plastic clip-type boom arm ensure that the positive connection is nearest to the end of the boom.

③ The headband cable (124) can be removed from the headband wire by 'unwinding' the spiral plastic strappings (239).

④ Any disassembly of plugs (standard type) and/or the junction box from the downlead should be done by reference to Fig.1103.

Carbon microphones, referred to in the First Code Letter table on Page 4 as G. L and T are of the clip-in variety and finished black. L and T are shown in Fig.102 below as (23) and (24) respectively.



BOOM CLIP DETAILS
Fig. 102

SECTION 2

CLEANING

1. Plastic and metal parts

The receiver housing and other small plastic parts may be washed in warm soapy water provided that all wiring and electrical/metallic parts have been dismantled as described in the preceding section of this manual.

The headband wire and microphone boom assembly should be wiped clean using a cloth dampened with warm soapy water. Be particularly careful not to allow moisture to enter the boom arm or microphone (if not detached).

The downlead components may be similarly wiped clean, again guarding against entry of moisture.

2. Headpad, earpads and covers, mask straps

Slightly soiled headpads and earpads may be washed in warm soapy water but do not attempt to clean those which are soiled with heavily ingrained dirt or have lost elasticity after long use. Mask straps may be likewise washed.

The cotton earpad covers may be washed by conventional methods as frequently as desired during normal use of the headset.

3. Precautions against infection

Where appropriate, plastic and metal parts may be wiped with a soft cloth moistened with a dilute disinfectant solution, ensuring that no moisture whatsoever penetrates the inside of receiver capsules, microphone, boom arm or other obscured areas.

NOTE: It is of the utmost importance that all parts are completely dry before commencing reassembly.

INSPECTION/CHECK

1. Headband assembly

(1) Examine for obvious external damage or deterioration.

(2) Check that the lower ends of the headband wires allow the receiver housings to slide freely but will hold firmly in any position to which vertically adjusted.

(3) Make sure that the spiral plastic strapping is intact and in place, the 'over head' receiver leads in good condition with end tags secure and the grommet in both receiver housings neither damaged nor badly fitted.

(4) Examine the headpad for freedom from damage and check that it is sufficiently resilient. It should be securely attached to the headband.

2. Receiver housings

(1) Examine for damage - i.e. cracks, scratches, abrasion and distortion.

(2) Check that the boom-arm slides but remains firm in any position to which adjusted inside the yoke fitting of the receiver (boom-side) housing. Check also that rotary movement to approx. 300° is obtainable and firm positioning possible in any chosen position.

(3) See that the plastic earpads are undamaged and sufficiently resilient, and also that they hold snugly and securely on over the receiver housings.

(4) Check the security of the microphone clip on the boom-end and examine, where possible, the contact tags and cable-end tags of the microphone leads.

3. Downlead cable

(1) Examine cable covering and sleeves for damage and general condition.

(2) Ensure that the jackplug body and switch or junction box casings are free from cracks or other damage.

(3) Check security of wire terminations and electrical connections in jackplug and junction or switch boxes. Remove screws and draw back covers/casings for this purpose. Check that the lead is properly and securely attached to the receiver housing by means of of the two shroud retaining screws, which must be fully tightened.

(4) Operate switches, where fitted, for freedom of movement.

4. Oxygen mask fittings

The attachment rings of the mask straps and the counter pressure strap must pass easily into the spring catches of the mask attachment plates of the headset. The catches themselves should function smoothly and positively. Strap buckles should be readily movable to provide adjustment.

SECTION 4

REPAIR

1. General

If headset performance deteriorates or faults develop in service, repairs may be necessary as follows. Use the guidelines, indicated here, for fault isolation.

2. Repair

In all cases where a fault is isolated no repairs as such should be made to individual component parts. The correct procedure is to replace faulty parts by disassembly and reassembly in accordance with Sections 1 and 5 of this manual.

3. Fault isolation

(1) Transmission faults - microphone

Where microphone is clip mounted replace with any 'known-good' test mic.* and check operation in the normal working system or using a recognised headset testing device. This will reveal the presence of any fault in the original microphone unit.

For microphones otherwise mounted it will be necessary to dismantle and disconnect crimped or soldered joints in order to connect a test microphone. Such connection may be temporary.

(2) Transmission faults - switch or wiring

If a fault is not apparent as a result of (1) above check for electrical continuity of the microphone circuit from the microphone connections to the jackplug segments.
If a 'press-to-talk' switch or press-button is fitted it must be held in the ON position during test.
For wiring arrangements in headset and downlead refer to Figs.501 and 502 in Sect.5., also Fig.1104 for certain other jackplugs.

(3) Other transmission faults

If a fault is not apparent as a result of (1) and (2) above check that there is no reported fault in the transmitter system itself. Where a headset includes an amplifier in the downlead (as opposed to the type integral with the microphone) it is also a possible source of non-transmission.

* Any 'Airmed' type, with or without amplifier, which is compatible with the system as regards operating voltage.

④ Receiver faults

Since it is very unlikely that the telephone receivers will fail both at the same time, first make circuit checks as follows:
Test for continuity from the telephone connections to the segments of the jackplug. For wiring arrangements to receivers refer to Fig.501 in Section 5.

⑤ Receiver faults - telephone

If the receiver system is known to be operating correctly the telephones of a series-wired headset can be checked by bridging the terminals of each telephone in turn (to overcome a possible open circuit in either). Failure to receive a signal under these circumstances will indicate a telephone failure.
Parallel-wired telephones present no problem in that they can be checked by listening to one receiver housing at a time.
Faulty units should simply be replaced.

NOTE: Parts which have to be replaced must be as detailed in the manufacturer's publications or in other approved documents.

SECTION 5
ASSEMBLY

1. General

The microphone and receiver capsules are sealed units which should not be further dismantled or opened up under any circumstances. Headset reassembly will therefore entail replacing suspect items or refitting existing serviceable receivers and microphones.

Similarly all other items described as assemblies or subassemblies made up by cementing, pressing-in or permanent forming must be refitted or replaced without being further dismantled (unless otherwise stated).

In the case of downlead components - i.e. plugs, switches, junction boxes or the cable itself, these may be replaced, if faulty, by new items unless a complete new downlead is considered necessary.

Refer to Figs.501 and 502 for all details of wiring for standard downleads and series or parallel wired headsets.

Refer to Fig.1103 for assembly details of downleads.

2. Procedure

(1) Test the microphone lead, in accordance with Section 7, Para. 3A(1). for insulation resistance.

(2) Position the boom arm assembly (240) or (244) in the yoke (229) or (227) and screw in spigot screw (230) or (228) in conjunction with housings (226). Check that lead (129) is free within the yoke bore.

(3) Reassemble yoke to boom side receiver housing, at the same time attaching support plate (128) or mask attachment plate (as 142), and the headband wire, to the housing.

(4) Refit clamp plate (232), washer (233) and $\frac{1}{4}$" BSF self-locking nut (235).

(5) **Apply Loctite 221 (or similar) to spigot screw threads and screw in to set boom lateral friction (see Sect.7 Para.2A).**

(6) Adjust the $\frac{1}{4}$" nut to set the rotational friction as described in Sect.7 Para 2B.

(7) With the shroud (138) in position and the terminal board (137) already connected to the downlead in accordance with Fig.501 draw the leads of the microphone cable (129) out from the receiver housing and connect them to the three appropriate 8BA screws on the terminal board.

(8) **Pass the leads of the 'over head' cable (124) through the hole in the receiver housing and connect these and/or the short extension leads (131/132) to the appropriate screws on the terminal board according to Fig.501. Apply suitable varnish or Loctite to lock nuts on to all terminal screws.**

(9) Make electrical tests for insulation resistance and continuity as described in Section 7, Paras. 3A (2) and 3A (3).

(10) Attach the shroud securely to the receiver housing by means of screws (139) to retain the downlead.

(11) Assemble the non-boom side receiver housing (141) to the headband wire together with mask attachment plate (142) or support plate (as 128) with nameplate (140) by means of retaining screw (71) and the $\frac{1}{4}$" BSF locknut (as 235).

(12) Adjust the tightness of the locknut to permit movement of the housing up and down the headband wire but also to hold it firm in any chosen position.

(13) Push the grommets (66) into the holes in the receiver housings making sure that they are fully home without being distorted. Check that there is sufficient length of cable to allow full downward adjustment of the housings on the headband wires.

(14) Carry out further electrical tests for continuity as described in Section 7, Para. 3A (4).

(15) Connect the receiver units to their leads on both sides, observing the correct polarity as shown in Fig.501, and insert them in their housings. Hold in place using retainers (234).

(16) Carry out electrical test 3A (5) as described in Section 7.

(17) Make sure that the plastic strapping (239) is correctly wrapped to enclose the headband cable on both sides.

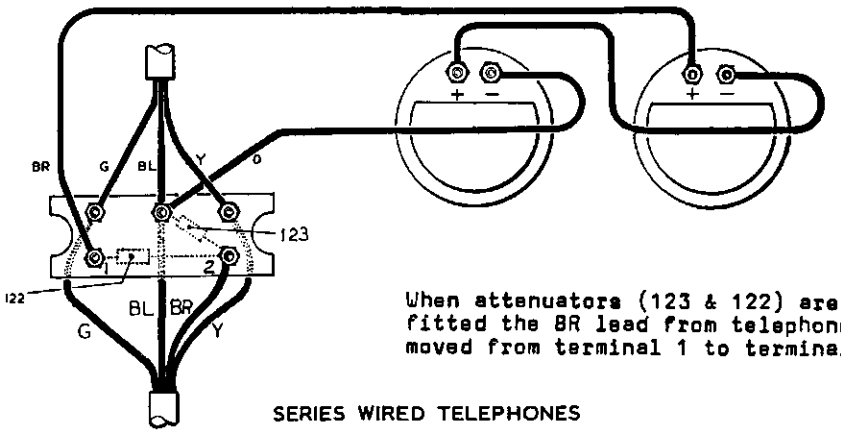
(18) Carry out the 'after assembly' electrical checks, where applicable, according to Section 7, Para. 3B.

(19) Replace the headpad (238), earpads (236) and earpad covers (237).

(20) Replace the counter pressure strap (146) where fitted.

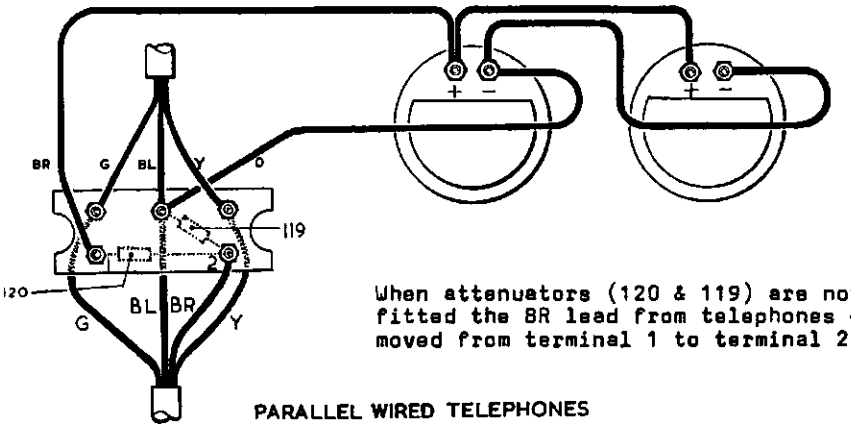
Fig. 501

BASIC WIRING



When attenuators (123 & 122) are not fitted the BR lead from telephone + is moved from terminal 1 to terminal 2.

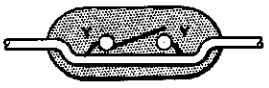
SERIES WIRED TELEPHONES



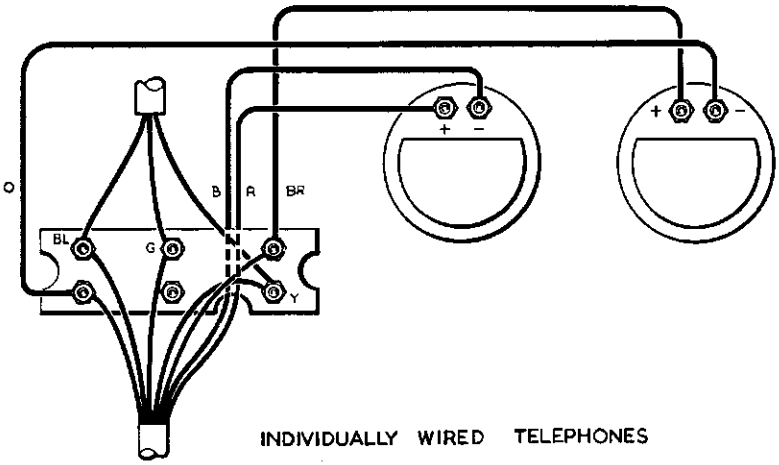
BR— BROWN
G — GREEN
BL— BLACK
Y — YELLOW
O — ORANGE

When attenuators (120 & 119) are not fitted the BR lead from telephones + is moved from terminal 1 to terminal 2.

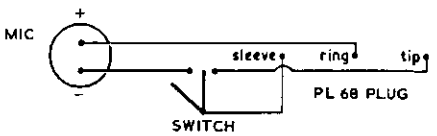
PARALLEL WIRED TELEPHONES



SWITCH CONNECTIONS for on-off switch and press-to-talk switch



INDIVIDUALLY WIRED TELEPHONES



SWITCH CONNECTIONS for transmitter switch

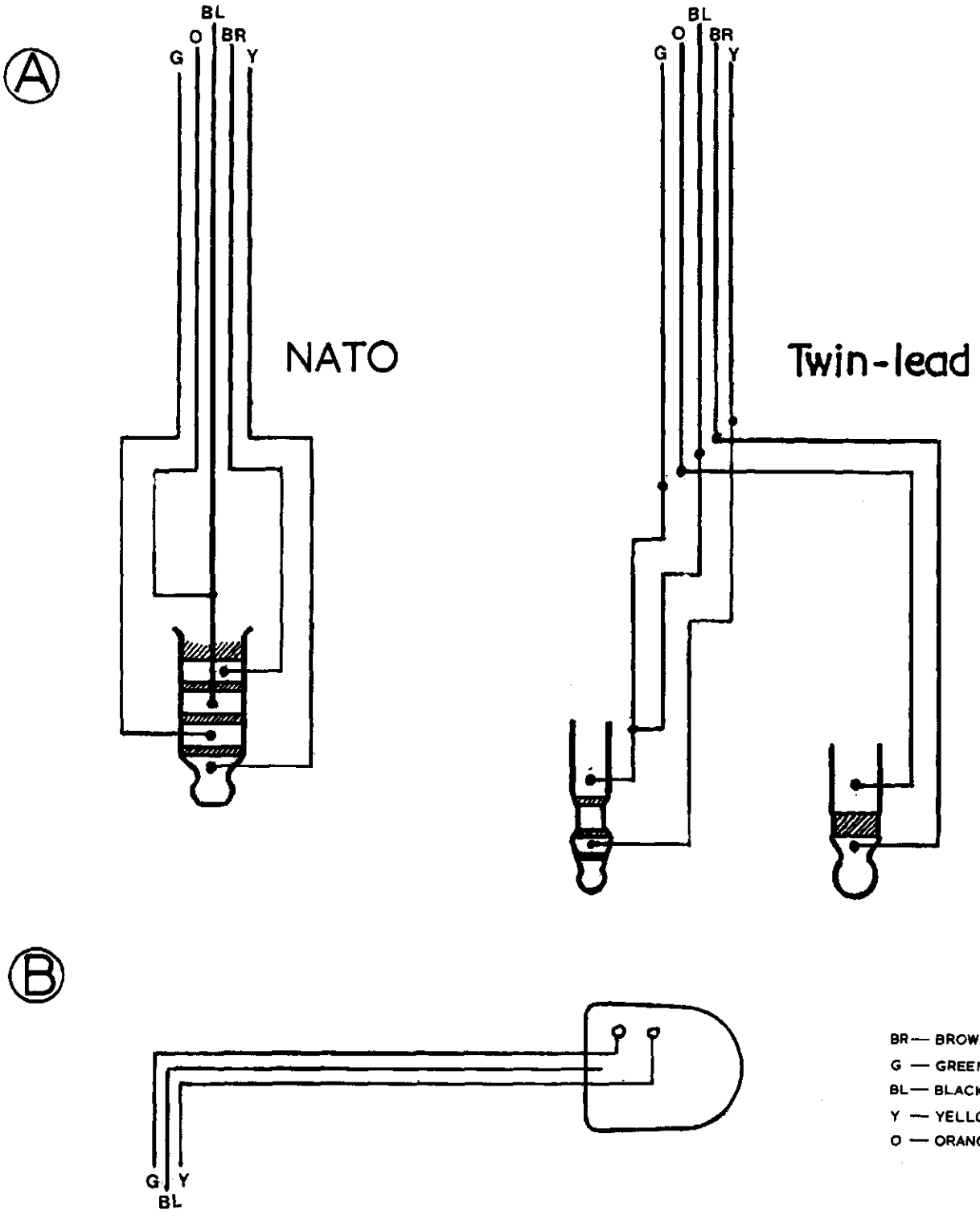


Fig. 502

Ⓐ DOWNLEAD WIRING

Ⓑ MICROPHONE WIRING
(clip-type boom)

SECTION 6

FITS AND CLEARANCES

Not applicable.

SECTION 7

TESTING

1. General

The two mechanical tests and **five** electrical tests necessary during assembly are described in the following sub-sections 2 and 3A. Further electrical tests to be made after assembly are described in sub-section 3B. An audio test is desirable if suitable equipment is available.

2. Mechanical tests

When the boom and yoke have been assembled to the receiver housing measure the frictional values as follows:

A. Lateral movement

The friction should be sufficient to support a weight of 1 oz. attached to the extreme end of the boom but should not support a weight of 4 oz.

B. Rotational movement

The friction should be sufficient to support a weight of 3 oz. attached to the extreme end of the boom but should not support a weight of 8 oz.

3. Electrical tests

A. During assembly

(1) Check the insulation resistance of the wires in the boom arm assembly alone (clip-in microphone removed) before attachment to headsets.

(2) **Check insulation resistance of mic. leads, wire to wire inclu-ding screen,** also between the metal boom tube and each of the three internal wires.
Insulation resistance between the two microphone wires can obviously not be measured with microphones still connected but should otherwise be checked.

Use a DC insulation tester (e.g. 500 V 'Megger').

All readings should **be at** least 100 M. ohm.

(3) Check the continuity of the microphone cable from the terminal board connections to the wire ends, including screen, at the end of the boom whenever such wires are accessible. The resistance of any lead should not exceed 0.5 ohm at 1.5 V.

④ Repeat as in 3.A. ② and ③ but checking continuity from the jackplug segments to the relevant **wire ends** (refer to Fig.502 A). Where downlead switches are fitted set to ON position whilst testing.

⑤ Test the insulation resistance between the bare metal of the headband and the telephone windings as required by B.C.A.R. Section R, Chapter R3-2, Item 5.1.3. Use the relevant jackplug segments as the test points.

The resistance must be at least 100 M. ohm at 500 V DC.

NOTE; During the foregoing tests for continuity and insulation resistance slide the receiver housings on the headband wire from time to time and move the microphone boom to a variety of positions.

B. After assembly

① When the headset has been assembled the DC resistance of the microphone (e.m. only) and receiver circuits can be checked.

Always use a high impedance test ohmeter, **e.g. 20,000 ohm/volt (Avometer type** or similar) set initially **AT MINIMUM** CURRENT CONDITIONS.

For the quoted components resistances should be as follows:-

Component	Type	Code	Nominal Impedance	Resistance(ohms DC)
Receiver	3T r.a.	G	300	45 ± 15% *
Receiver	4T r.a.	B	300	43 ± 10% *
Microphone	e.m. ≠	D	300	47 ±15% or 33 ±15% †

≠ It is inadvisable to make DC tests on mics of moving coil type. This includes the **moving coil** inserts used in amplified e.m. microphones. (See B. ②)

* Resistance per unit - hence half of this for parallel-wired systems and double for **series**.

† Depending on manufacturer.

② Carbon and amplified e.m. microphones

These microphones are for using with carbon systems only and
** can be tested for performance and/or condition by connecting them to a test circuit as shown in Fig.701.

1. Normal speech into an amplified e.m. ('Dynamike') type positioned just off the lips should produce output in the range 150-350 mV **depending on speech content.**

** NOT low supply voltage mics. - e.g. 1160960 and 1161140

2. Normal speech into a carbon pressure differential type correctly positioned should produce an output of 90-100 mV. with only slight variation due to content.

NOTE: i) With the above tests ensure that all sound passages in and to the microphone are unrestricted.

ii) In general, for carbon systems, the maximum acceptable output produced by normal conversational speech is 300 mV.

③ Amplifiers not integral with microphone - Type 1172001 Ø

These items can be tested by connecting them, as shown in Fig.702, to the same test circuit as in 3.8. ② but with a signal generator in circuit and an oscilloscope in parallel with the output voltmeter.

Proceed as follows to check sensitivity —

1. Connect up the amplifier under test as shown paying particular attention to polarity (incorrect polarity can destroy the microphone).

NOTE: Pin 1 is positive
Pin 2 is negative (commom)
Pin 7 is 'signal in'

2. Set signal generator to produce 2 mV. output shown on the voltmeter at frequency 1 kHz.

3. At supply 28 V. DC and operating current set at 4-5 mA, output from the amplifier should be 300-400 mV, 340 mV being near to ideal. The oscilloscope trace should be smooth sinusoidal without distortion or 'clipping'. Re-check as in 2. periodically.

Proceed as follows to check response —

4. Set signal generator at 200 Hz. frequency, 2 mV. output. Amplifier output should not be more than 2 dB below that in 3. above. (Take 1 dB ≏ 35 mV. as a safe comparison).

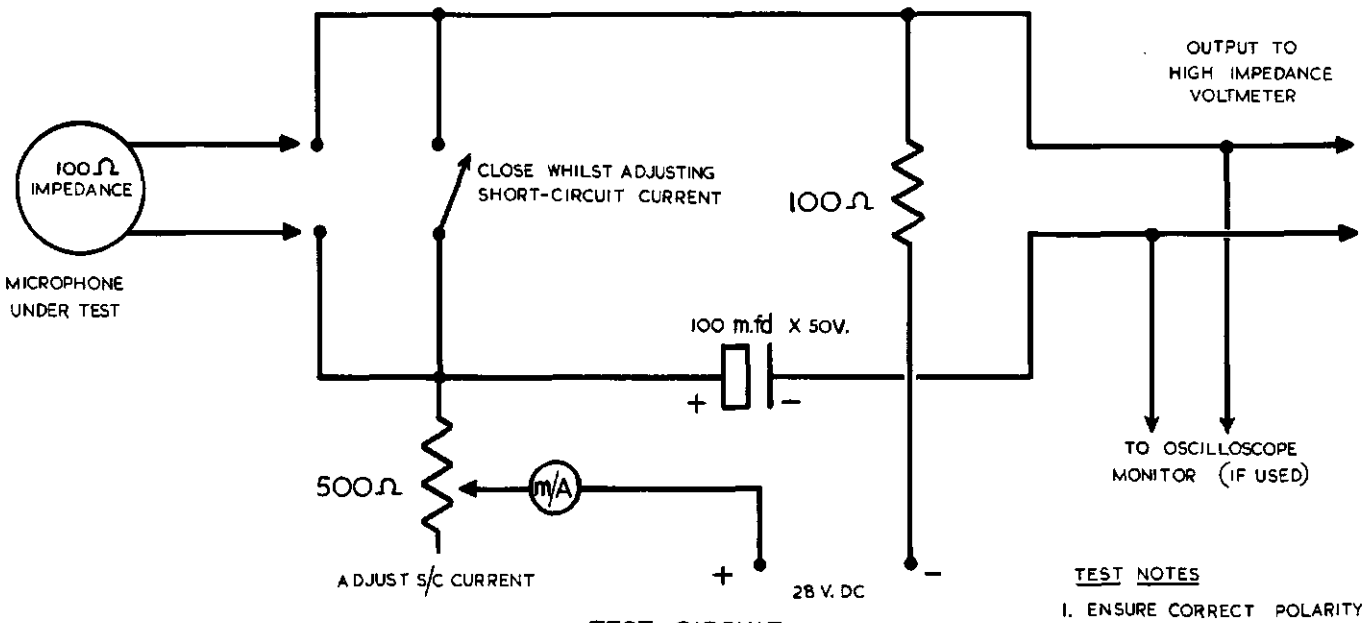
5. Set signal generator to 5 kHz and note the amplifier output which should not be more than 1.5 dB below that in 3. above. (Take 1 dB ≏ 35 mV).

Ø Used in mics. 1160300 and 1160750

④ An audio test is desirable, given that a suitable headset test instrument is available. The basic method is for the wearer of the headset to speak and listen to his own transmission, moving the boom about at the same time. A method involving two persons is sometimes employed as described in the test instrument instructions.

See Section 10 regarding suitable headset testing instruments.

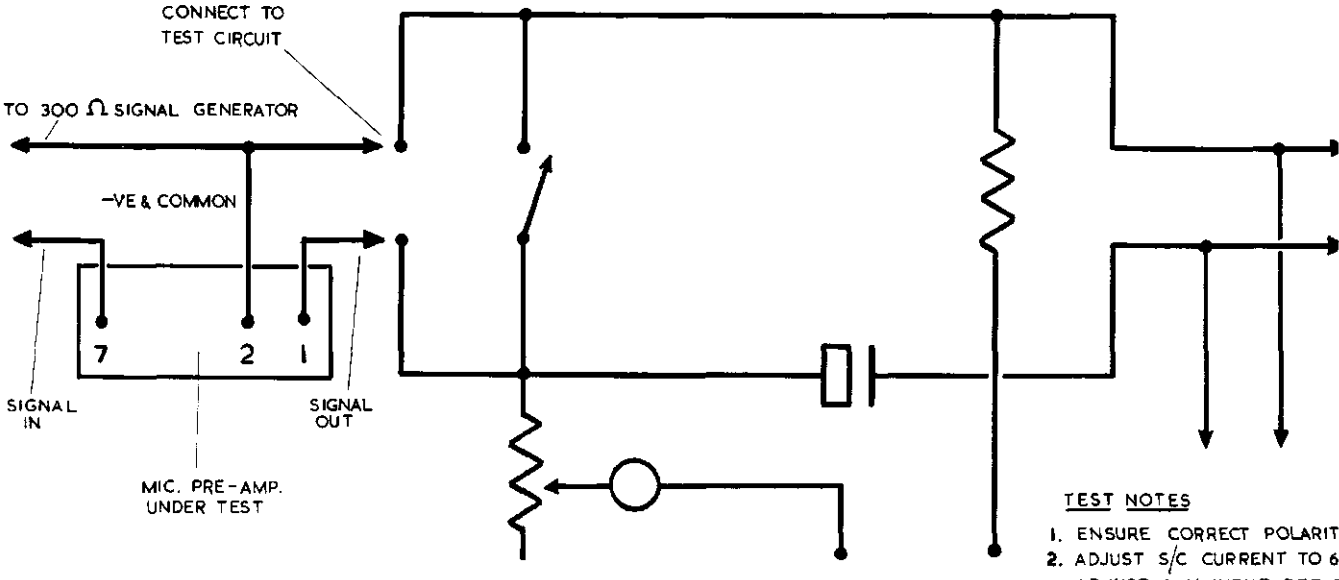
STANDARD CARBON MIC. TEST CIRCUIT



TEST NOTES

1. ENSURE CORRECT POLARITY
2. ADJUST S/C CURRENT TO 60m

Fig. 701 TEST CIRCUIT FOR PRE-AMPLIFIED DYN-A-MIKE AND CARBON MICROPHONES



TEST NOTES

1. ENSURE CORRECT POLARITY
2. ADJUST S/C CURRENT TO 60mA
3. ADJUST 2mV INPUT REF. SIGNAL UNDER LOADED CIRCUIT CONDITIONS – POWER ON.

Fig. 702 TEST METHOD FOR PRE-AMPLIFIER USING STANDARD MIC. TEST CIRCUIT.

AIRMED

SECTION 8

TROUBLE SHOOTING

Trouble shooting, on headsets found inoperative in service or during test after overhaul, requires no directions other than those contained in Section 4.

SECTION 9

STORAGE INSTRUCTIONS

1. Conditions

A. Temperate Climates

(1) Wrap the jackplug and pack the earphone housings with tissue paper.

(2) Wrap the complete headset in tissue paper, pack in a polythene bag and place it in a strong carton (either that in which the headset was supplied or one of similar type).

(3) Prepare and affix a label giving the following information -
i) Headset type and letter coding
ii) Date of last overhaul, if any.

B. Tropical Climates

(1) Pack the headset as instructed in A. (1) and (2)

(2) Insert the closed carton into a polythene bag or a length of polythene tubing, according to availability, and heat-seal the bag or tubing.

2. Limiting Period

If the headset is stored for long periods it should be overhauled at intervals of three years.

SECTION 10

SPECIAL TOOLS, FIXTURES AND EQUIPMENT

For disassembly and assembly the tools, fixtures and equipment normally found in an electrical workshop will be sufficient.

Electric test meters, etc., as recommended in this manual for testing, have been described in the appropriate places in Sections 5. and 7.

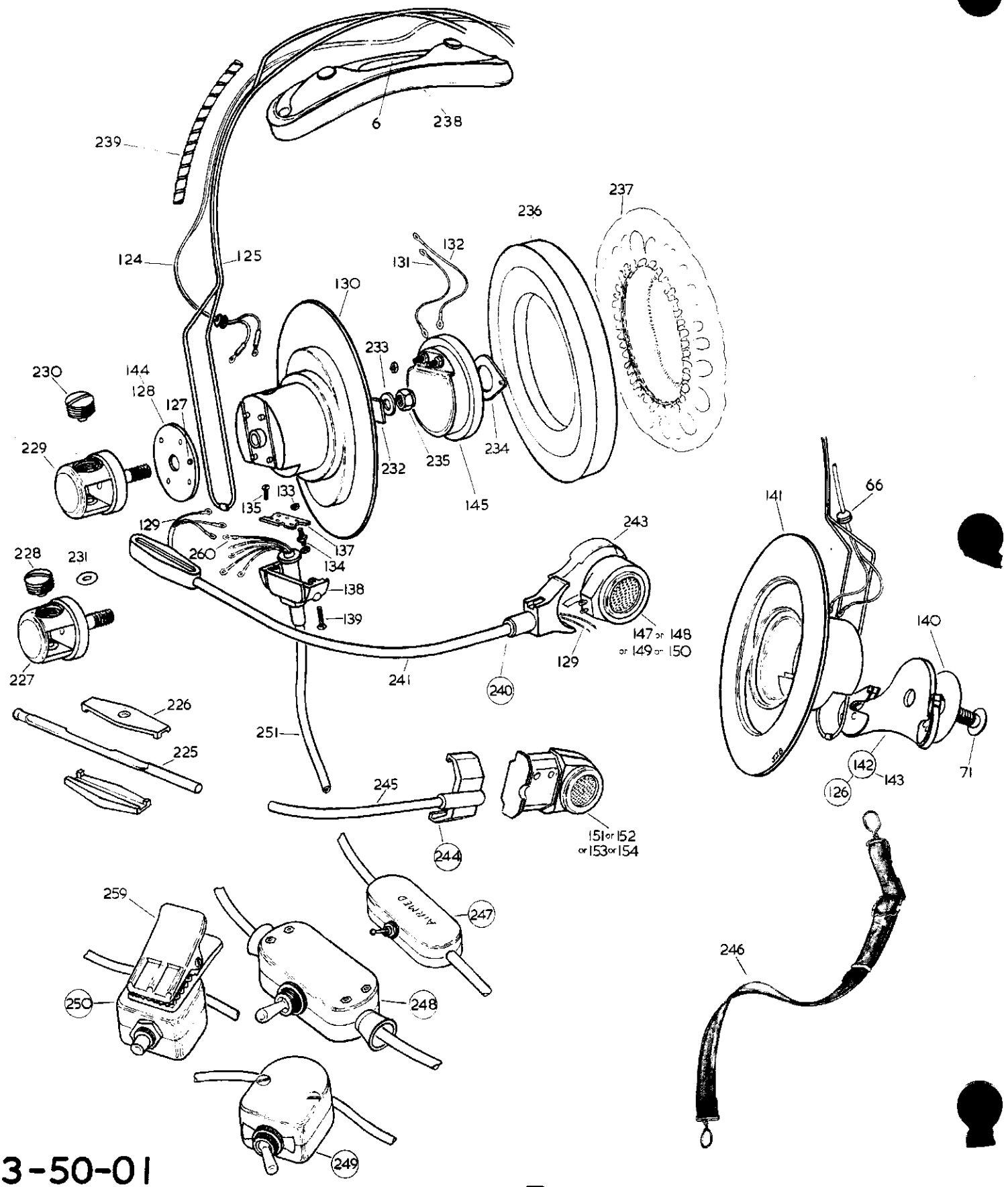
Audio test equipment

The following manufacturers are known to have produced headset testers. Advice regarding availability should be sought direct.

1. Clifford and Snell Ltd., Purley Way, Croydon, CR0 4NZ.
2. Racal Acoustics Ltd., Beresford Avenue, Wembley, HA0 1RV.
3. Telex U.S.A. (for carbon mic. sets), Aldrich Avenue, Minneapolis.
4. Airmed Ltd., Edinburgh Way, Harlow, CM20 2ED.

SECTION 11

ILLUSTRATED PARTS LIST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147 or 148
or 149 or 150
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225
251
245
244
151 or 152
or 153 or 154
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Fig. 1101

Fig. & Item No.	AIRMED Stock No.	Nomenclature 1 2 3 4 5 6 7	NATO Stock No.	Units per Assy.
501				
119	1101023	Resistor 180 ohms	5905-99-970-6261	1
120	1101001	Resistor 470 ohms	5905-99-970-6260	1
122	1101025	Resistor 2000 ohms		1
123	1101024	Resistor 750 ohms		1
1101				
6	2150022	Identification strip	5330-99-970-2841	1
66	1126083	Grommet	5325-99-970-4765	2
71	2150026	Retaining screw	5306-99-970-2840	1
124	2101100	Cable, for series-wired headsets	5995-99-646-6430	1
	2102300	Cable, for parallel-wired headsets	5995-99-970-2842	1
	2158295	Cable, for individually-wired sets		1
125	2150070	Headband	5965-99-970-2835	1
126	2158800	Mask attachment plate assembly, boom side OR	5965-99-970-2850	1
	2158830	Mask attachment plate assembly, boom side, shorter version		1 1
127	1270896	Screw, 8BA, for guide plate stop pin		1
128	2150180	Guide plate assembly, boom side, without mask attachments	5310-99-970-9221	1
129	1130027	Microphone cable	6145-99-635-5799	
	AIR 6126	Microphone cable assy. prepared	5995-99-523-9578	1
130	2150250	Receiver and terminal housing assy.	5805-99-970-1628	1
131	2101120	Extension cable assembly	5965-99-970-2843	1
132	2101120	Extension cable assembly (with sleeves 1126011)	5965-99-970-2844	1
133	1255011	Locknut 8BA	5310-99-912-8916	8/10
134	2101028	Terminal post	5940-99-970-2854	3
135	1270915	Screw 8BA x .218 in. round-head	5305-99-970-6144	2/3
137	2101027	Terminal board	5940-99-107-6063	1
138	2101066	Shroud	5965-99-970-2853	1
139	1268375	Screw 8BA x .500 in. c/sunk-head	5305-99-943-4377	2
140	2101026	Nameplate		1
141	2150028	Receiver housing, non-boom side	5805-99-970-1629	1
142	2158810	Mask attachment plate assembly, non-boom side OR	5965-99-970-2851	1
	2158840	Mask attachment plate assembly, non-boom side, shorter version		1
144	2150027	Guide plate assembly, non-boom side, without mask attachments	5310-99-970-9222	1
145	1134002	Receiver 300 ohms	5965-99-940-2368	2
	1134003	Receiver (alternative) 600 ohms	5965-99-198-7285	2
	1134001	Receiver (alternative) 2400 ohms		2
	1134004	Receiver (alternative) 4800 ohms		2
147	1160090	Microphone 50 ohms moving coil		
148	1160150	Microphone 300 ohms moving coil	5965-99-194-1538	1
	1161210	Microphone, as item 148, attenuated		1
149	1160255	Microphone, as item 147, screened		1
150	1160240	Microphone, as item 148, screened	5965-99-529-9472	1
151	1160300	Microphone, Dyn-a-mike, 100 ohms		1
152	1160870	Microphone, alternative to item 151		1
153	1160960	Microphone, L.T. input 100 ohms m.c.	5965-99-761-7620	1
154	1161020	Microphone 100 ohms carbon	5965-99-742-2810	1
225	2131350	Boom arm, with mic.clip as item 240	5965-99-970-4767	1
226	2131357	Boom housing	5965-99-142-8964	2
227	2131359	Yoke		1
228	2131358	Spigot screw	5305-99-142-8965	1
229	2150090	Yoke, supersedes item 227	5965-99-626-7754	1
230	2150031	Spigot screw, supersedes item 228		1
231	AIR 6766	Adaptor washer used when boom 241 is fitted in yoke 227 with screw 228		1

Fig. & Item No.	AIRMED Stock No.	Nomenclature 1 2 3 4 5 6 7		
1101				
232	2150021	Clamp plate		
233	2150023	Friction washer	5330-99-970-2847	1
234	2150024	Receiver retainer	5965-99-970-2849	2
235	1254007	Locknut ¼"BSF AGS 2002.E3	5310-99-409-5827	1
236	2150029	Earpad, foam-filled	5965-99-970-2852	2
237	2150020	Earpad cover	5965-99-954-6812	2
238	2150060	Headpad assembly	5965-99-970-4766	1
239	1126040	Spiral strapping	9330-99-620-7058	2x4"
240	2150100	Boom arm assembly, with e.m. mic.		1
241	2150110	Boom arm, complete (moulded)		1
*	2131374	Items 241 229 230 as one assembly		1
*	2131364	Items 244 229 230 as one assembly	5965-99-194-4080	1
243	2150102	Microphone retaining clip	5340-99-970-2848	1
244	2151070	Boom arm assy. with carbon mic.clip		1
245	2150115	Boom arm, complete (moulded)		1
246	2158820	Counter-pressure strap	5965-99-633-6652	1
247	2131214	Switch on/off/press-to-talk	5840-99-761-5724	1
248	2131215	Switch, as 247, heavy duty	5965-99-658-5130	1
249	2131212	Switch on/off, with clothing clip	5930-99-952-5627	1
250	2131213	Switch press-to-talk, with cl.clip		1
	2131213	Switch,as 250,wired to key transmitter		1
	AIR 6133	Switch,as 247,p-t-t,wired to key trans.		1
‡ 251	2131260	Downlead assy, NATO plug & switch 247		1
259	1142040	Clothing clip	4920-99-748-0820	1
260	1122003	Crimping tag, 8BA		5
1101a				
1	2150685	Headband assembly		1
2	2150687	Headpad moulding		1
3	2150688	Headpad cushion		1
4	2150690	Slider tube		1
5	2150689	Bridge moulding		1
6	1297405	Joining tube		51mm
7	1126084	Grommet		1
8	1284304	Washer 8BA (to level guide plate)		2
11	2150250	Receiver housing	5805-99-970-1628	1
12	2150180	Guide plate assembly	5310-99-970-9221	1
1102				
1	AIR 5362	Boom, part of item 6	5965-99-653-7644	1
3	AIR 6126	Microphone cable assembly. prepared	5965-99-119-5599	1
	1130027	Cable, for item 3	6145-99-635-5799	
4	1154010	Cap		
6	2305061	Boom arm assy. Superseded by item 20		
15	AIR 5366	Microphone clip, part of item 6	5340-99-653-7645	1
17	2151075	Contact tag	5999-99-653-7646	2
18	1270895	Screw, 8BA x .187 in. c/sunk head	5305-99-640-5740	1
19	2151074	Contact clamp	5999-99-653-7647	1
20	2151070	Boom arm assy. with carbon mic. clip		
21	2151071	Boom arm complete, moulded		
23	1160570	Microphone 100 ohm, carbon, super--seded by item 25	5965-99-539-5528	1
24	1161020	Microphone 100 ohm, carbon	5965-99-742-2810	1
		Synthetic rubber sleeves, 10 mm. long, to identify lead ends (see Figs.501,502,1101,1103) are available as follows -		
	1126008	Sleeve, yellow	5340-99-970-2856	as req.
	1126009	Sleeve, green	5340-99-970-2857	
	1126010	Sleeve, orange	5970-99-633-9247	
	1126011	Sleeve, brown	5970-99-633-9248	
	1126017	Sleeve, red	5340-99-970-8754	
	1126018	Sleeve, blue	5340-99-970-8755	
	1126033	Sleeve, grey		
	1126034	Sleeve, white		
	1126005	Sleeve, black (15 mm. long)	5340-99-914-3081	

* Obtainable as sets to convert to latest standard

‡ For alternative downlead assemblies see Figs.1103/4 & p.111

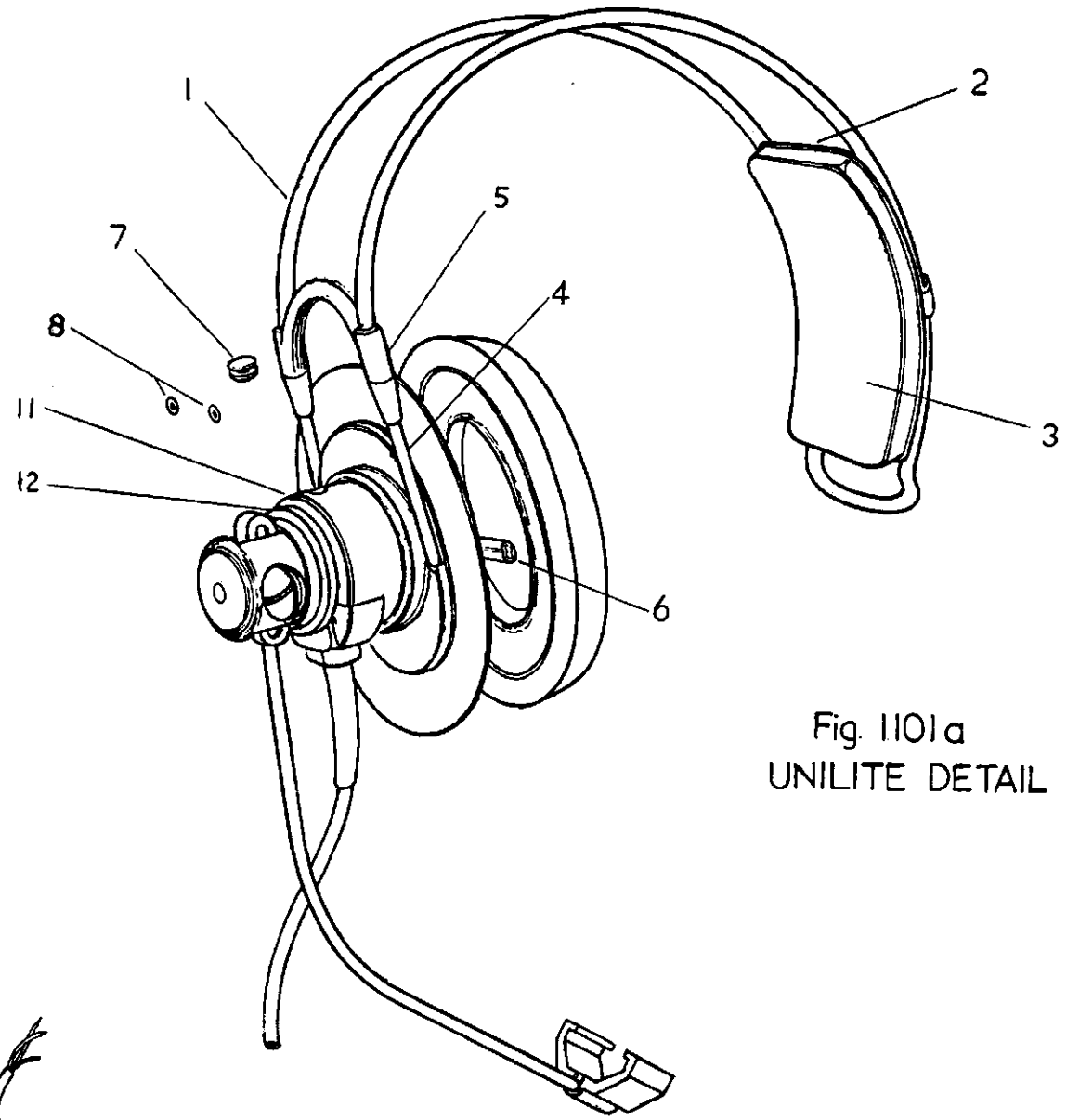


Fig. 1101a
UNILITE DETAIL

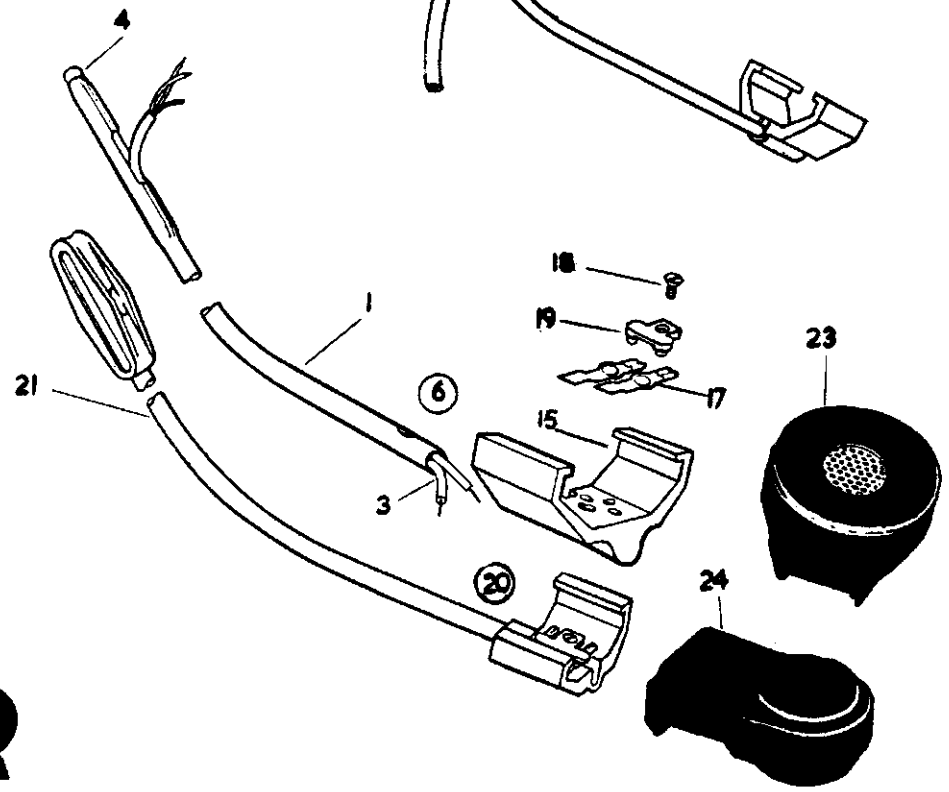
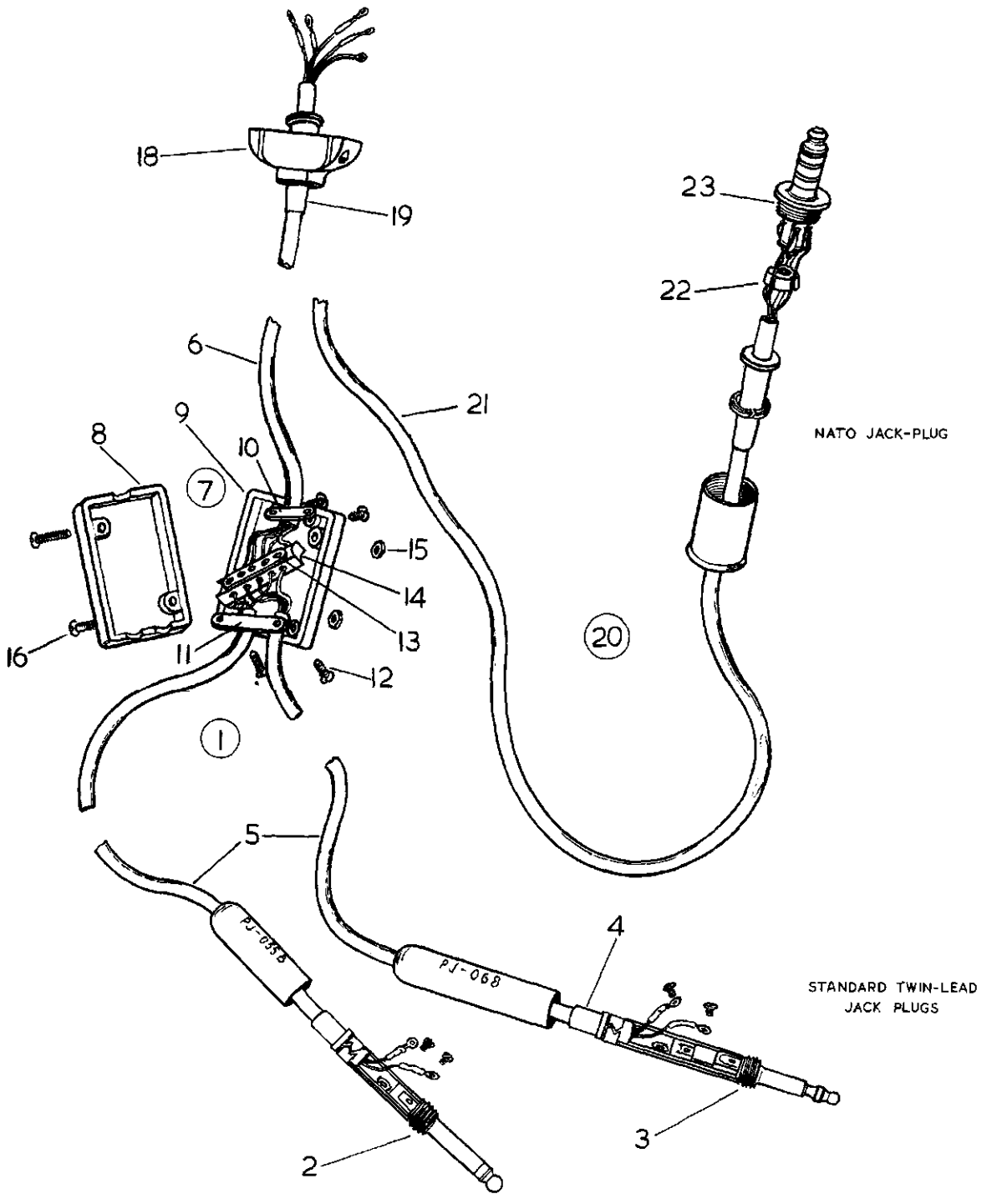


Fig. 1102
BOOM, CLIP and
CARBON MIC. parts



DOWN-LEAD COMPONENTS

Fig. 1103

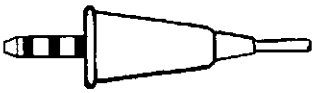
Fig. & Item No.	AIRMED Stock No.	Switch * code	Nomenclature 1 2 3 4 5 6 7	NATO Stock No.	Units Per Assy.
1103					
1	2101060	0	Downlead assy. twin plug, no switch		1
	2102220	A	as Item 1, with P-t-t switch 1101/250		1
	2102100	B	as Item 1, with On/Off switch 1101/249		1
	2102140	C	as 2102220, wired to key transmitter		1
	2102180	E	as Item 1, with On/Off/P-t-t switch (heavy duty) 1101/248		1
	2131230	D	as 2102180, with switch 1101/247		1
2	1136006		Jackplug PJ-055B (receivers)	5935-00-192-4760	1
3	1136007		Jackplug PJ-068 (microphone)	5935-99-971-0432	1
4	1126082		Sleeve, black, heat-shrink, 25 mm. long		2
5 } 6 }	1130008		Cable, 6-core, .187 in. dia.	6145-99-711-6518	as req.
7	2131210		Junction box assembly		1
8	2101062		Junction box lid		1
9	2101061		Junction box case		1
10	2101064		Clamp (short)		1
11	2101065		Clamp (long)		1
12	1290300		Screw No. 3 x .5 in. rs'd c/sunk head		4
13	1276385		Grub screw 6BA x .187 in. long		5
14	2101063		Terminal block		1
15	1255007		Nut 6BA		2
16	1270851		Screw 6BA x .562 in. rs'd c/sunk head		2
18	2101066		Shroud		1
19	1126015		Sleeve, grommet	5975-99-972-9531	1
20	2102060	0	Downlead assy. NATO plug, no switch		1
	2131256	A	as Item 20, with P-t-t switch 1101/250		1
	2131257	B	as Item 20, with On/Off switch 1101/249		1
	2131258	C	as 2131256, wired to key transmitter		1
	2131259	E	as Item 20, with On/Off/P-t-t switch (heavy duty) 1101/248		1
	2131260	D	as 2131259, with switch 1101/247		1
21	1130008		Cable, 6-core, .187 in. diam.	6145-99-711-6518	as req.
22	2102061		Insulation cap		1
23	1136008		Jackplug NATO 10H/9466652	5935-99-946-6652	1
	Other downleads, obtainable under Stock No.'s according to switch required, are as follows. Switch types are as shown in Item 1 detail				
	2131235	0	Downlead assy. PJ-055 plug, no switch		1
	2131236	A			1
	2131237	B			1
	2131238	C			1
	2131239	E			1
	2131240	D			1
	2131245	0	Downlead assy. Cannon 8-way plug, no switch		1
	2131246	A			1
	2131247	B			1
	2131248	C			1
	2131249	E			1
	2131250	D			1

See Page 1110 for downlead assemblies fitted to M.O.D. headsets

* See Page 4, 5th. code letter

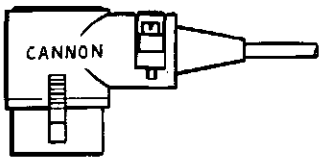
DOWNLEAD PLUGS

RAF JACK PLUG
AM Type 119 RAF Ref. 10H/10991
AIRMED 1136009

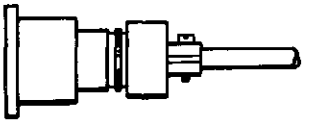


CANNON 6 Way PLUG EP/CG/6/15
AIRMED 1136019

8 Way PLUG EP/CG/8/15
AM Type 746
AIRMED 1136016



DEUTSCH PLUG DM 9702/7P
AIRMED 1136012



PLESSEY MK4 6 PIN CZ 49017
AIRMED 1138042
Outlet Asby. CZ 108111
AIRMED 1138043

GPO (a) 610 Twin 3 Way Jack Plugs
AIRMED 1136003

(b) 316 Single 3 Way Jack Plug
AIRMED 1136004

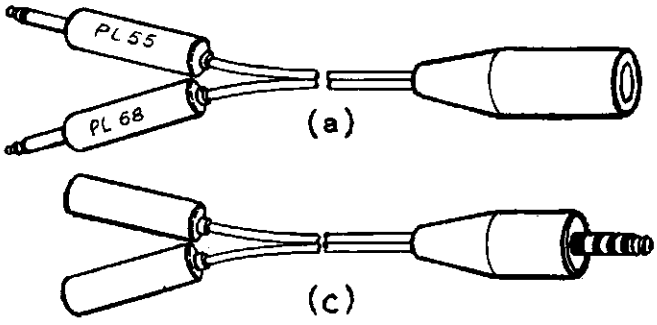
(a)

DOWNLEAD ADAPTORS

(a) AIRMED 2133001 NATO Socket to twin plugs PL 55 and PL 68

(b) AIRMED 2133004 NATO Socket to RAF plug.

(c) AIRMED 2133005 NATO plug to PL 55 and PL 68 sockets



CONNECTION KEY	Microphone +	Microphone −	Earphones or Boom Earphones +	Earphones or Boom Earphones −	Non Boom Earphone +	Non Boom Earphone −	Screen
RAF plug	as	indicated	on plug	—	—	—	Ring 3
CANNON 6 way	2	1	4	5	6	3	6
CANNON 8 way	2	1	4	5	6	3	6 or 8
DEUTSCH	3	4	1	2	—		2
PLESSEY MK4	B	A	D	F	—	—	F
GPO TWIN 610 serrated side	Tip	Sleeve	Tip	Ring	—	—	—
GPO TWIN 610 other side	—	—	—	—	Tip	Ring	—
GPO 316	—	—	Tip	Sleeve	Ring	Sleeve	Sleeve

Fig 1104

DOWNLEAD IDENTIFICATION

With plug descriptions and Headsets to which fitted

	DOWNLEAD		PLUG		HEADSET
Stock No.	NATO stock No.		Description	Stock No.	Stock No.
2101060			PL68 3-way PL55 2-way comb.	1136014	
2102060			NATO 4-way 10H/946662	1136008	
2102260			Deutsch DM-9702-7P	1136012	
2102270			No plug		
2104400		*	NATO 4-way 10H/946662	1136008	
2104430		*	NATO 4-way 10H/946662	1136008	
2104460		*	NATO 4-way 10H/946662	1136008	
2104520			RAF 4-way 10H/10991	1136009	
2104540		*	RAF 4-way 10H/10991	1136009	
2104570		*	RAF 4-way 10H/10991	1136009	
2104630			PL68 3-way	1136007	
2104650			Plessey 6-way	1138042/3	
2131800	5995-99-728-8240		ADM. No plug		2150300
2131820	5995-99-728-8241		ADM. No plug		2151600
2131840		*	Amphenol 19-way GB56T14	1136044/5	
2131870			ADM.63978 12-way	1136017	
2131880	5995-99-460-7221		No plug		
2131910		*	Amphenol 19-way GB56T14	1136044/5	
2131940		*	Amphenol 19-way GB56T14	1136044/5	
2131960	5995-99-728-8242		ADM. No plug		2150000
2131980	5995-99-728-8243		ADM. No plug		2150600
2150140		*	Thorn 19-way 5-2886-14-19P	1136063	2150000
2150360			Thorn 19-way 5-2443-14-19P	1136058	2150300
2150460		*	Thorn 19-way 5-2886-14-19P	1136063	2150400
2150550		*	Thorn 19-way 5-2886-14-19P	1136063	2150500
2150645		*	Thorn 19-way 5-2886-14-19P	1136063	2150600
2150750		*	ADM.63978 12-way	1136017	2150700
2150845		*	Thorn 19-way 5-2886-14-19P	1136063	2150800
2150960			ADM.63978 12-way	1136017	2150900
2151060		*	Thorn 19-way 5-2886-14-19P	1136063	2151000
2151160		*	ADM.70159 7-way	1136037	2151100
2151260		*	RAF 4-way 10H/10991	1136009	2151200
2151360		*	ADM.65565 11-way	1136026	2151300
2151460			ADM.65565 11-way	1136026	2151400
2151550			PO 201 2-way	1136001	2151500
2151650			Thorn 19-way 5-2443-14-19P	1136058	2151600
2151930			Thorn 19-way 5-2443-14-19P	1136058	2151800
2152170		*	Amphenol 19-way GB56T14	1136044/5	2152100
2152570			PO 6900		2151500
2152670		*	Thorn 19-way 05A-14-19P	1136027/8	2152600
2152870		*	Thorn 19-way 05A-14-19P	1136027/8	2152800
2152970		*	Thorn 19-way 05A-14-19P	1136027/8	2152900
2158070			PO 620 6-way	1136065	2158001
2158260			Cannon 8-way EPCG/8/15	1136016	2158200
2158410	5965-99-970-9439		PL 68 3-way	1136007	2158400
2158560		*	NATO 4-way 10H/9466652	1136008	2158500
2158660		*	NATO 4-way 10H/9466652	1136008	2158600
2158960		*	NATO 4-WAY 10H/9466652	1136008	2158900
2159060		*	NATO 4-way 10H/9466652	1136008	2159000

* Integral switch in downlead