HEAD TELEPHONE SETS

52, 53, AND F TYPES

1.00 INTRODUCTION

1.01 This section covers the identification, use, replacement part data, and maintenance of 52- and 53-type and F-50721 and F-51106 head telephone sets.

1.02 Due to extensive changes marginal arrows have been omitted.

2.00 GENERAL

2.01 The term **headtelset,** as used in this section, is an abbreviation of the term **head telephone set.**

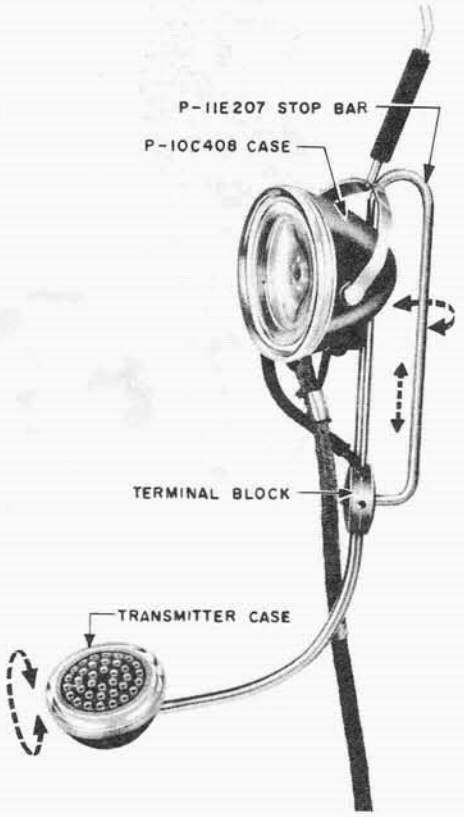
2.02 To avoid damage to the transmitter case, carry the headtelset by some part other than the transmitter case. Care should be exercised not to scratch or nick the thermoplastic parts.

2.03 52-type headtelsets manufactured prior to 1959 may not have been equipped with the rotation stop bar.

2.04 Information on the 153A amplifier to be used with these headtelsets for persons with impaired hearing may be found in Section 993.003.01.

3.00 IDENTIFICATION

3.01 The 52-type headtelset (see Fig. 1) is designed for use only as a headtelset and is fully adjustable to facilitate positioning of the transmitter and receiver. A rotation stop bar is provided to limit rotation of the 55A transmitter arm in the receiver case in order to prevent undue strain on the cord connections.



Note: Arrows indicate direction of movement for adjustment.

Fig. 1 — 52-type Headtelset

3.02 The new 52H and 52J headtelsets are equipped with an L4BL cord and 396A plug (see Fig. 7 and 8). The braided covering of the cord extends into the body of the plug, eliminating need for No. 77 cord tips (see Fig. 3). The operator must grasp the plug to remove it from the jack.

Note: Arrows indicate direction of movement for adjustment.

Fig. 2 — 53-type Headtelset

3.03 The 53-type headtelset (see Fig. 2) is designed for locations having fluctuating traffic conditions. During heavy traffic periods the set can be worn as a headtelset, thus freeing both hands; during light traffic periods, the headband can be removed and the set used as a handset. It is partially adjustable with a fixed distance between the transmitter and receiver.

3.04 The F-50721 headtelset is a modified 53-type headtelset which is used with telephone set F-50682, Ground Observer's Telephone.

3.05 The modification incorporates a 5-conductor spring handset cord with a 1AH4 nonlocking push-to-talk Micro Switch.

3.06 The F-51106 headtelset is a modified 53D headtelset; the modification incorporates the 225A push-to-listen cord switch.

3.07 The 225A switch is a pendant Micro Switch with a stainless steel push-button cover. Operation of the switch when used with the F-51106 headtelset short-circuits the transmitter. A clip is provided for attaching the switch to a belt or wearing apparel.

4.00 USE

4.01 To select a headtelset for a specific use or feature, refer to Table A.

4.02 To order a complete headtelset, select type desired from Table A. For example: Set, Telephone, Head, 53D.

5.00 REPLACEMENT PARTS DATA

Transmitter or receiver units, headbands, cords, plugs, switches, strap assemblies, and other parts shall be replaced by new or repaired parts as shown in Table B.

6.00 MAINTENANCE

Cords

6.01 On station visits, cords which are adjacent to the connecting block, switch, or headtelset should be inspected closely for exposed conductors. Replace cords which are defective, badly soiled, or worn. To test cords, insert the plug in the jack, energize the headtelset with talking battery, close the switch (if present), and shake or twist the cord while listening in the receiver for an objectionable click or scraping sound.

6.02 A loose cord connection at the plug, switch, or headtelset will also provide a click or scraping sound. Check these connections for tightness before replacing the cord.

TABLE A

PRINCIPAL USE OF HEADTELSETS

Headtelset	Use	Features
52A	Operators — Switchboard — 101-type key equipment	5-foot cord Low-impedance receiver unit
52B	Switchboard — No. 4 Order Turret, 331-type telephone set	10-foot spring cord Push-to-talk locking switch Low-impedance receiver unit
52C	Installations at airports — 102A, 109A, or 111A key equipment	7-foot cord High-impedance receiver unit
52D	Night operator — Switchboard — 84A test set	15-foot spring cord Low-impedance receiver unit
52E	For cable splicers — With 84A test set	7-foot cord Low-impedance receiver unit
52FR	FAA air route traffic control centers — 102A key equipment	7-foot spring cord Push-to-talk locking or nonlocking switch High-impedance receiver unit
52GR	Switching System 300	12-foot spring cord Push-to-talk locking or nonlocking switch High-impedance receiver unit
52H	Operators — Switchboard — 101-type key equipment	5-foot cord Low-impedance receiver unit
52J	Installations at airports — 102A, 109A, or 111A key equipment	7-foot cord High-impedance receiver unit
53A	Order service in test centers — Switchboard — 4A key equipment	5-foot cord Low-impedance receiver unit
53AR	Order service in test centers — Switchboard — 4A key equipment	5-foot semispring cord Low-impedance receiver unit
53C	1A, 3A, or 3C teletype switchboards	5-foot cord Low-impedance receiver unit
53DR	Antiaircraft operation control system — 102A and 109A key equipment	12-foot spring cord Push-to-talk locking or nonlocking switch High-impedance receiver unit
53ER	Air defense direction center installations	5-foot spring cord Low-impedance receiver unit
53F	107-type test set	5-foot cord Push-to-talk locking switch Low-impedance receiver unit
53GR	112A key equipment (Missile Master)	15-foot spring cord High-impedance receiver unit
F-50721	Ground observation post installations — With F-50682 telephone set	15-foot spring cord Push-to-talk nonlocking switch High-impedance receiver unit
F-51106	Civil air defense system filter center(s) installations	12-foot spring cord Push-to-listen locking or nonlocking switch Low-impedance receiver unit

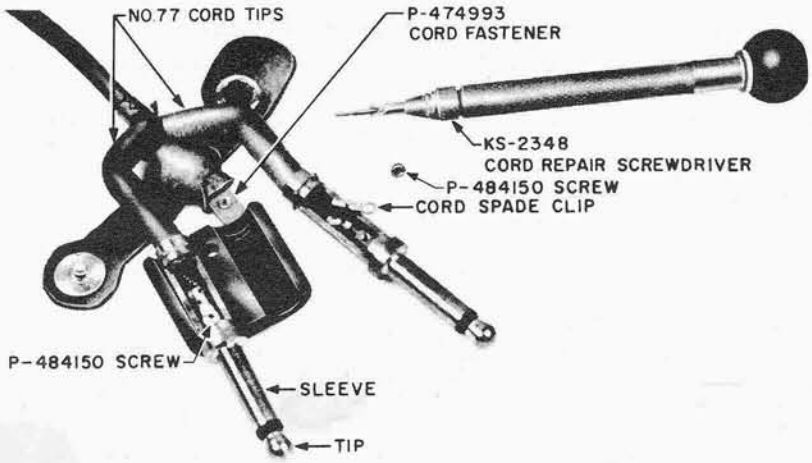


Fig. 3 — Terminating Cord at 289B Plug

6.03 Replace a worn or missing No. 77 cord tip (rubber sleeve) or strap assembly. If strap assembly is fastened around the cord, relocate it around the S hook of the cord at the plug end. (See Fig. 3.)

6.04 To place a strap assembly around the S hook, proceed as follows: Form the strap assembly by slipping the E end of the assembly through slot 3, as shown in Fig. 4 (B), and the F end through slots 1 and 2, as shown in Fig. 4 (C).

6.05 Loosen the clamping screws of the plug to free the clamp. Remove the old strap assembly and slip the new assembly over the clamp and S hook so that it is positioned as shown in Fig. 4 (D). Mount the clamp on the plug and tighten the clamping screws.

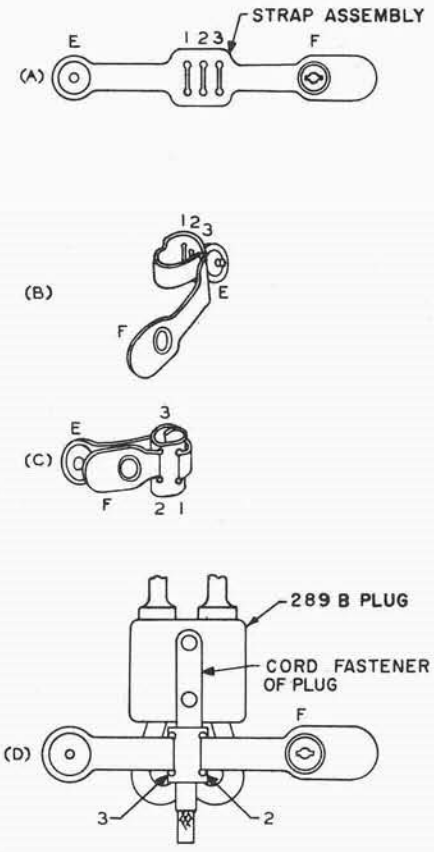


Fig. 4 — Mounting Strap Assembly

TABLE B

HEAD TELEPHONE SET COMPONENTS

Head Tel Set	Cord		Transmitter		Receiver			Plug	Switch	Handle	Cover Assembly	Strap Assembly	Rotation Stop Bar*	Head-band	Headband Pad		
	Type	Length Feet	Cap	Unit	Cap	Unit	Case								Leather	Rubber	Soft Cushion
52A	L4BM	5	P-458981	N1	P-16A600	HC3 or HC1	P-10C408	289B				P-478356	P-11E207	15A	P-240166	P-240121	P-10E121
52B†	L4AH	10	P-458981	N1	P-16A600	HC3 or HC1	P-10C408	289B	KS-8010			P-478356	P-11E207	15A	P-240166	P-240121	P-10E121
52C	L4BM	7	P-458981	N1	P-16A600	HC4 or HC2	P-10C408	289B				P-478356	P-11E207	15A	P-240166	P-240121	P-10E121
52D	L4AK	15	P-458981	N1	P-16A600	HC3 or HC1	P-10C408	289B				P-478356	P-11E207	15A	P-240166	P-240121	P-10E121
52E	L2Y	7‡	P-458981	N1	P-16A600	HC3	P-10C408						P-11E207	15C			
52FR	L4BK	7	P-458981	N1	P-16A600	HC4	P-10C408	289B	225A				P-11E207	15C			
52GR	L6G	12	P-458981	N1	P-16A600	HC4	P-10C408	338A	225A				P-11E207	15C			
52H	L4BL	5	P-458981	N1	P-16A600	HC3	P-10C408	396A				P-478356	P-11E207	15A	P-240166	P-240121	P-10E121
52J	L4BL	7	P-458981	N1	P-16A600	HC4	P-10C408	396A				P-478356	P-11E207	15A	P-240166	P-240121	P-10E121
53A	L4BB or L4BJ-52	5	P-16A541	N1	P-16A544	HC3	P-17A024 or P-458985	289B		P-20A093	P-19A601			15A	P-240166	P-240121	P-10E121
53AR	L4BG	5	P-16A541	N1	P-16A544	HC3	P-17A024 or P-458985	289B		P-20A093	P-19A601			15A	P-240166	P-240121	P-10E121
53C	L4BD	5	P-16A541	N1	P-16A544	HC3	P-17A024 or P-458985			P-20A093	P-19A601			15A	P-240166	P-240121	P-10E121
53DR	L4BE	12	P-16A541	N1	P-16A544	HC4	P-17A024	289B	225A	P-20A093	P-19A601			15C			
53ER	L4BH	5	P-16A541	N1	P-16A544	HC3	P-17A024	289B		P-20A093	P-19A601			15C			
53F	L3J	5	P-16A542	N1	P-16A545	HC3	P-17A025	310	KS-8010	P-20A093	P-19A601			15C			
53GR	L4BH	15	P-16A542	N1	P-16A545	HC4	P-17A025	289B		P-20A093	P-19A602			15C			
F-50721	F-50722	15	P-16A542	N1	P-16A545	HC4	P-17A025 or P-16A543		1AH4	P-20A094	P-19A602			15C			
F-51106	L4BE	12	P-16A542	N1	P-16A545	HC3	P-17A025 or P-16A543	289B	225A	P-20A094	P-19A602	P-478356		15C			

Note: The receiver holder No. 10A is used with the 52-type headtelset.
* Use P-294004 screw for mounting.
† Used with a 29A connecting block.
‡ Cord is used with two No. 3 Test Clips (AT-6928) and a 516A capacitor.

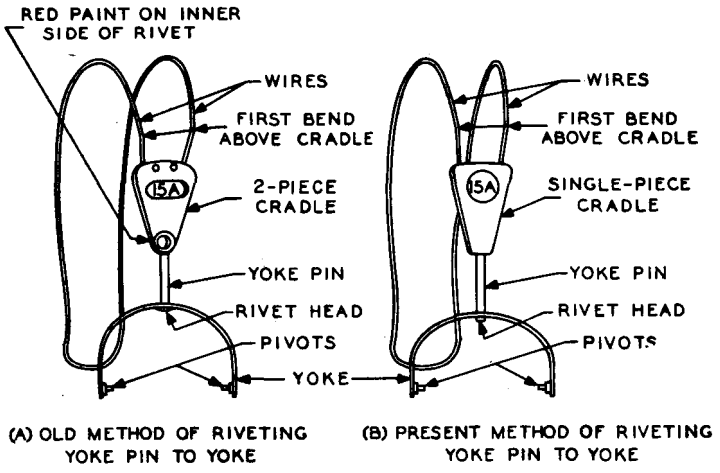


Fig. 5 — 15A Headbands

7.00 HEADBANDS

7.01 Inspect the wires of the headband for nicks and cuts by running the fingernail along the wires. Should the nicks or cuts be deep enough to snag the fingernail, replace the headband.

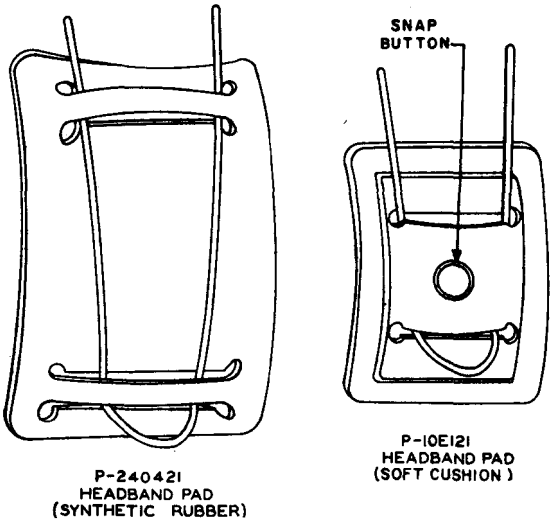
7.02 Adjust badly bent wires. Any adjustment of the wires extending out of the cradle shall not prevent their sliding in the cradle with sufficient friction to maintain their adjusted position.

7.03 Check the movement of the yoke pin in the cradle. If a bind is felt, pull the yoke pin out from the cradle as far as possible and apply a thin film of KS-8496, No. 3 lubricating compound to the shaft of the pin to within 1/2 inch from the cradle.

7.04 Replace the headband if the yoke pin is loose to the extent that it will not hold the receiver holder and associated transmitter arm and transmitter in the adjusted position.

7.05 Replace headbands if any parts are broken or defective, or if the wires are loose to the extent that they will not hold in their adjusted position.

7.06 Replace 15A headbands of the 2-piece cradle construction if the lower rivet holding the two halves of the cradle together is not painted red on the inner end (see Fig. 5).



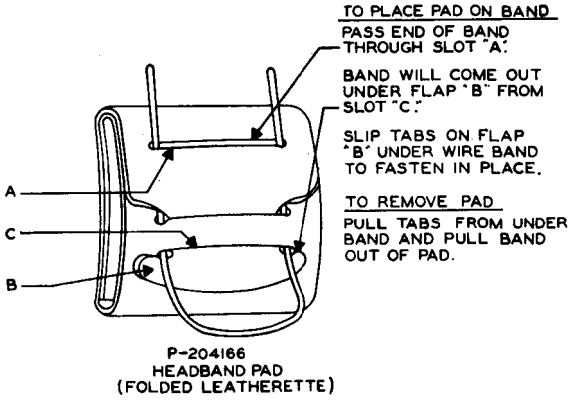


Fig. 6 — Placing Pad on Headband

8.00 HEADBAND PADS

8.01 Headband pads with an objectionable appearance due to soiling from hair oils shall be replaced or cleaned by slightly dampening, with water, a KS-2423 cotton twill cloth.

8.02 Replace pads that are worn, torn, or have a rough surface which might catch in the hair. Attach the folded leather or synthetic rubber pad to the 15A headband (see Fig. 6).

8.03 On the 15C headband the pad is part of the band and cannot be removed.

8.04 The new soft-cushion headband pad (P-10E121) is a rectangular shaped pad, 2 by 2-3/4 inches. The pad is equipped with a snap button which is centered between two slots on the back of the pad (see Fig. 6).

8.05 The pad can be easily positioned, placed, or removed from the headband. The snap when fastened will also prevent the pad from slipping off the headband.

9.00 PLUG

9.01 To detect poor contacts between the tips of the 396A or 289B plug and the springs of the jack, insert the plug in the jack, apply talking battery, and tap the plug while listening for clicks (see Fig. 7 and 9).

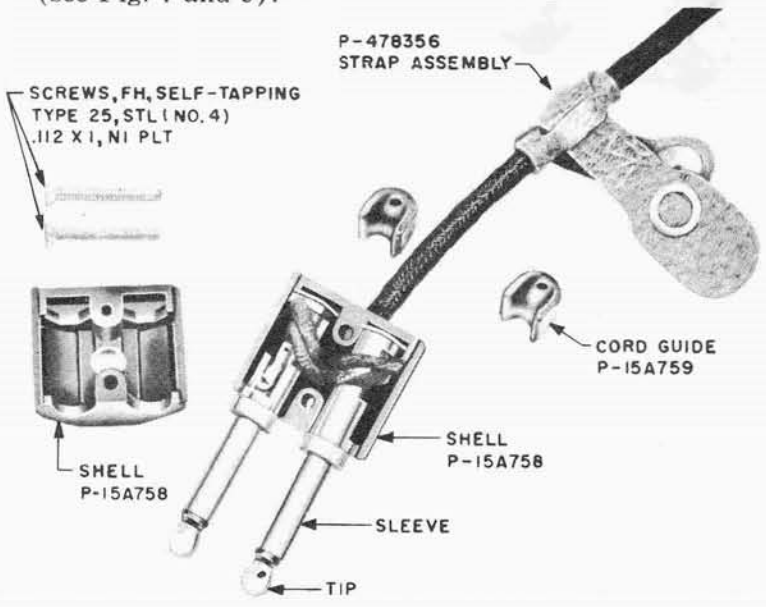


Fig. 7 — 396A Plug — Internal View

Fig. 8 — 396A Plug — Assembled

9.02 If a cutout is caused by wear on one side of the tips, rotate each shaft of the plug a quarter turn in the shell so as to present a new surface to the jack springs. If trouble condition is still present, replace the plug. (See Fig. 7 and 10.)

9.03 To clean the plug, proceed as follows:

- Cut a piece of 5/32-inch cotton sleeving approximately 3 feet long, and at its middle secure it to a substantial support.
- Apply a small amount of metal polish (Bell System) evenly to one of the free ends of the cotton sleeving for approximately 1 foot. Wrap the sleeving one complete turn around one shaft. Hold the sleeving taut with one hand, and move the shaft back and forth until the sleeve and tip of the shaft are clean.
- Remove all excess metal polish from shaft with a clean KS-2423 cotton twill cloth.
- Clean the other shaft in the same manner.

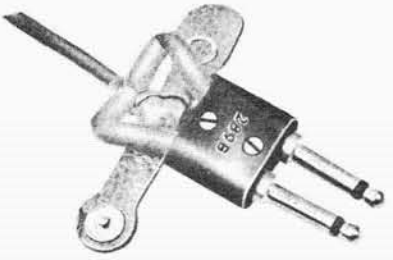


Fig. 9 — 289B Plug — Assembled

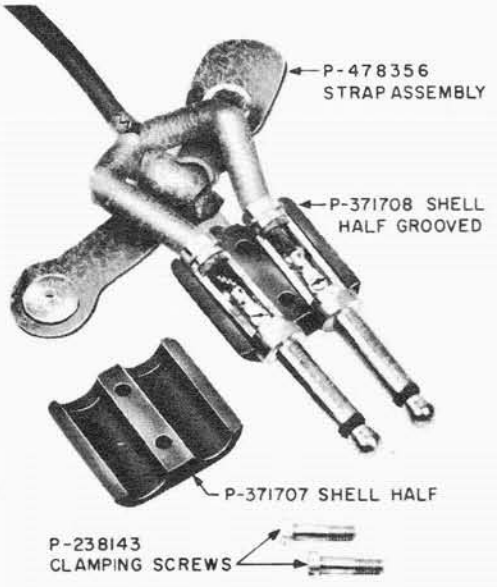


Fig. 10 — 289B Plug — Internal View

10.00 TRANSMITTER AND RECEIVER UNITS, CAPS, AND CASES

Transmitter Unit

10.01 To replace the transmitter unit, unscrew the transmitter cap and remove the unit. If the polyethylene disc (P-12A320) is torn, dirty, wrinkled, or otherwise damaged, replace it. Hold the transmitter cap with the threaded side up and place the disc in it so that it is centrally located in the cap. Place the new transmitter unit, membrane side down, on top of the disc in the cap.

10.02 Place the transmitter case, threaded side down, over the cap, and while maintaining the cap and case in this position, screw the cap on the case finger tight. When properly tightened, there will be a slight gap between the rims of the cap and case.

10.03 The polyethylene disc protects the moisture-resistant membrane of the transmitter unit. When placing the disc, take care to avoid distortion of the disc and do not touch or press on the moisture-resistant membrane of the transmitter unit.

10.04 When testing the transmitter or receiver for continuity, noise, or sidetone, position the switch (if present) to energize the transmitter before making the test.

Receiver Unit

10.05 To replace a defective unit, unscrew the receiver cap from the receiver holder and remove the unit. Mount the new receiver unit so that the code marking on the unit is at the opposite side of the receiver case from the binding posts. When properly tightened, there will be a slight gap between the rims of the case and cap.

Caps and Cases

10.06 There are two models of 52-type headtelset receiver cases. The old type can be identified by a flat surface adjacent to the receiver cap, the new type by a raised lip adjacent to the receiver cap, which provides space for additional threads. (See Fig. 11.)

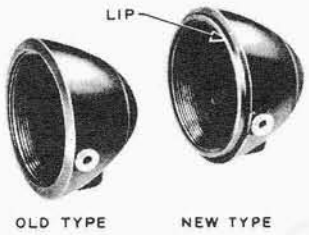


Fig. 11 — 52-type Headtelset Receiver Cases

10.07 When replacing receiver caps or units of the 52-type headtelset, use the combinations of receiver cases, caps, and units specified in Fig. 12.

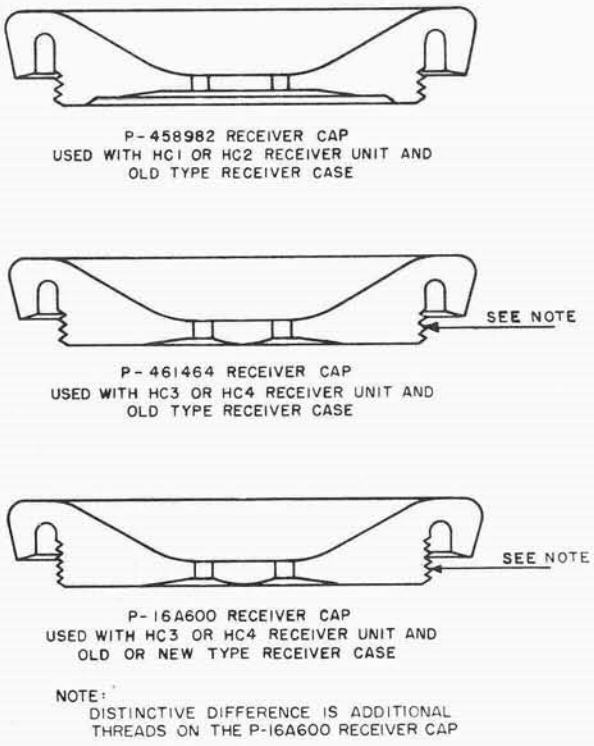


Fig. 12 — 52-type Headtelset Receiver Caps

10.08 When positioning an HC1 or HC2 receiver unit in the receiver case of a 52-type headtelset, mount it so that the receiver terminals are in the position nearest to the ends of the contact springs.

10.09 When positioning an HC3 or HC4 receiver unit in any receiver case, mount it so that the code marking is on the opposite side of the case from the binding post.

10.10 Replace a broken, chipped, or cracked cap or case and one having threads damaged sufficiently to prevent screwing the cap tightly on the case. Weld lines on the caps are not to be confused with cracks.

10.11 Replace the headtelset when the receiver case of the 52-type or the receiver-case band of the 53-type is not capable of holding the transmitter arm in an adjusted position.

10.12 Where a 52-type headtelset is being used most often as a handset, relace it (when authorized) with a 53-type headtelset.

THINK

If the 52-type headtelset is not replaced with a 53-type headtelset, proceed as follows: Apply Ceresin over the terminal screws flush with the surface of the terminal block. To facilitate applying Ceresin, work it with the hands to make it pliable. Ceresin will insulate the terminal screws. To order: Ceresin, Black, Natural, Fisher Scientific Co., Cat. No. C-244.

11.00 CONNECTING BLOCK AND SWITCHES (See Fig. 13)

11.01 Check the terminal screws of the 29A connecting block for tightness and replace the connecting block if found cracked, chipped, or defective.

11.02 The 225A Micro Switch has a locking and a nonlocking position. Make certain that it will remain in the locked position when required.

11.03 Make certain that the switch opens, closes, or shorts the transmitter circuit by listening for sidetone while operating the switch.

11.04 Make certain that the clip of the 225A switch or the 1AH4 Micro Switch is securely fastened and is free of burrs or nicks which might catch or tear wearing apparel.

11.05 Replace a switch which does not operate freely or is chipped, cracked, or otherwise defective.

11.06 The nonlocking 1AH4 Micro Switch is similar to the 225A switch, except that the metal slide over the plunger of the switch which provides the locking feature has been omitted.

11.07 Place the KS-8010 switch on the cord with the ON end toward the plug.

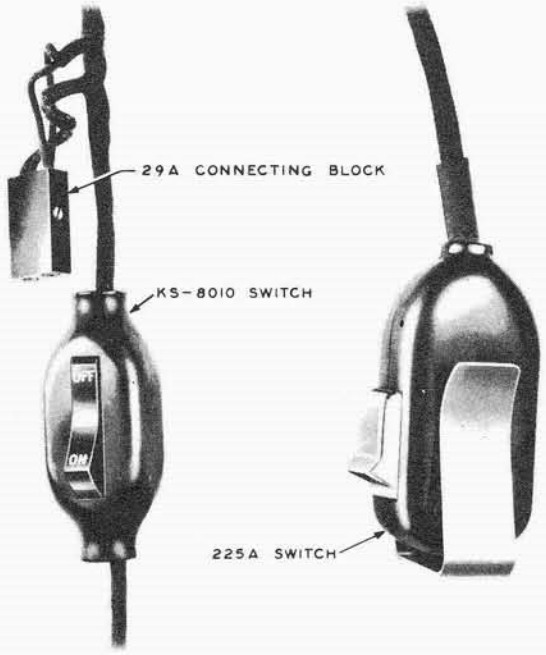


Fig. 13 — 29A Connecting Block, KS-8010 Switch, and 225A Micro Switch