

## HANDSETS

### IDENTIFICATION AND ASSEMBLY OF PARTS

#### 1. GENERAL

**1.01** This section covers identification and assembly of parts for KS-16504, F-, and G-type handsets. See Section 502-320-100 for information on 220A Hand Telephone Set.

**1.02** This section is reissued to:

- Revise illustrations and tables.
- Add illustrations on G6AR and G7AR handsets.
- Add H3AS and H5AB cords.
- Add G4B handset.
- Add G10A and G10B handsets.
- Reference 220A Hand Telephone Set.

**1.03** Due to extensive changes, marginal arrows have been omitted.

**1.04** See Tables A, B, C, and D for handset components and usage.

#### 2. KS-16504 HANDSET

**2.01** The KS-16504 handset (Fig. 1) is a standard G3A-3 handset with the exception of the transmitter, transmitter cap, and cord. This handset utilizes a pressure transmitter and is coded KS-16504, List 10 transmitter unit. See Table A for other KS-type handsets.

#### 3. F-TYPE HANDSET

**3.01** Assemblies of the F-type handsets are shown in Fig. 2 and 3. For types and uses of these handsets, see Tables B and C.

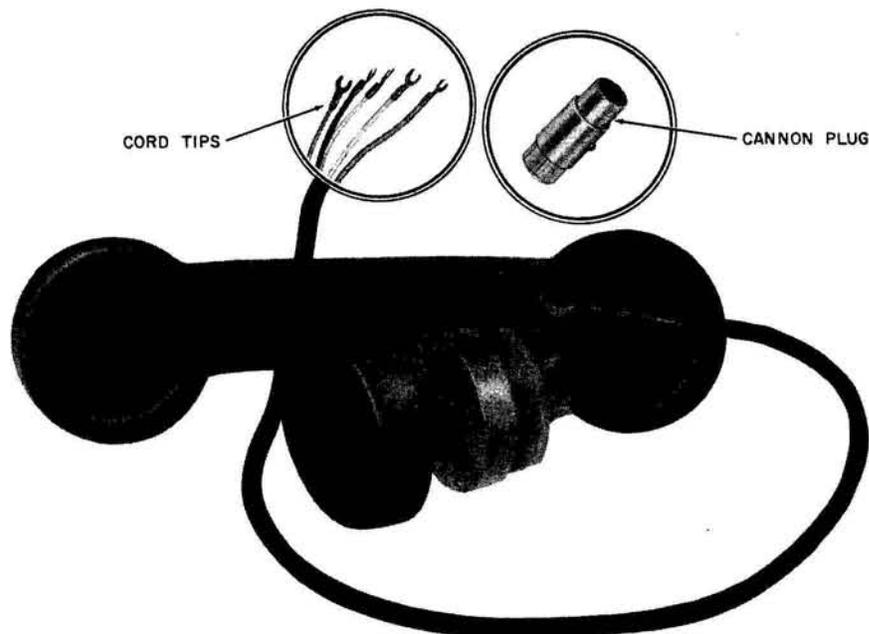


Fig. 1 — KS-16504 Handset



*Explosion-proof handsets, F6AR, F6BR, and F6CR handsets, are listed by the UNDERWRITERS LABORATORIES, INC. for use with telephone sets for hazardous locations. Handset cord is attached to telephone set by means of a bushing designed to confine any possible burning gases to interior of telephone set. (See Fig. 4 and 5.) The F6AR and F6CR handsets are not interchangeable with the F6BR. At least five threads of the threaded bushing must engage threads in housing. Each F6AR, F6BR, and F6CR handset with cord and bushing is a factory assembled unit. If any part except the transmitter and receiver cap requires replacement, REPLACE ENTIRE HANDSET ASSEMBLY. Review section on explosive atmospheres before doing any work involving these handsets.*

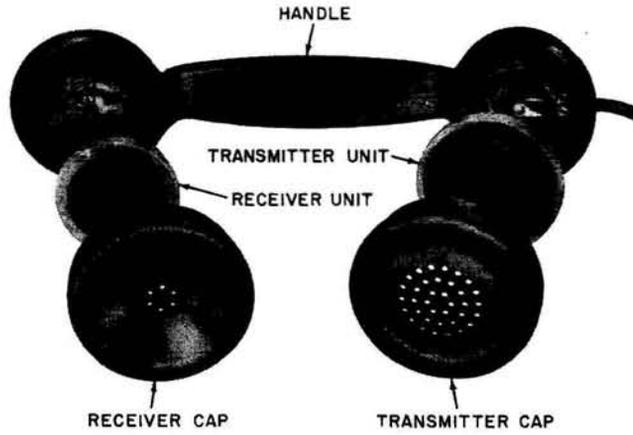


Fig. 2 — F-Type Handset

4. G-TYPE HANDSET

4.01 See Table D for list of G-type handsets.

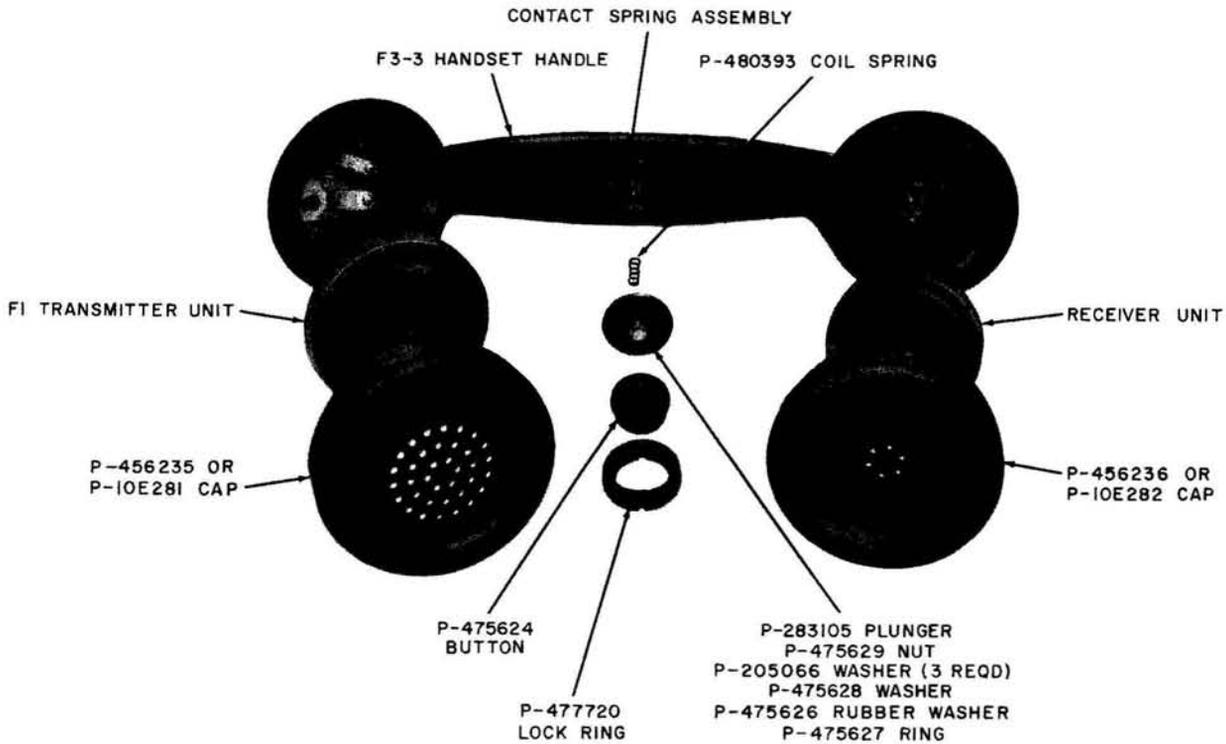


Fig. 3 — F3 Handset, Components

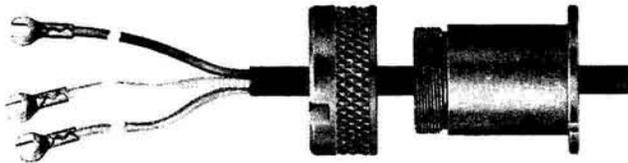


Fig. 4 — Sleeve Bushing on F6AR Handset

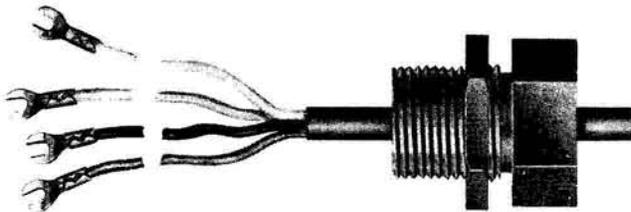


Fig. 5 — Threaded Bushing on F6BR Handset

4.02 Early G-type handsets were equipped with cord retainer posts (Fig. 6). Current G-type handsets contain cord retainer posts molded on the transmitter cup (Fig. 7). These two transmitter cups are not interchangeable.

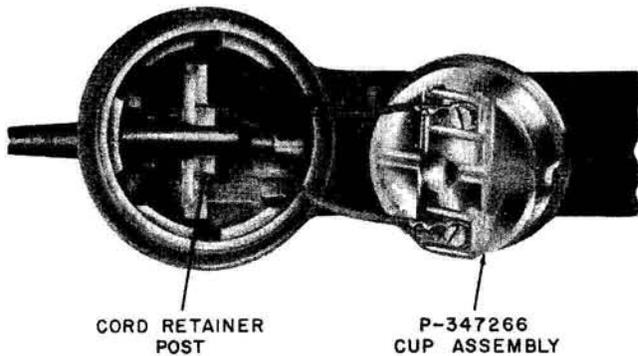


Fig. 6 — Early G3 Handset

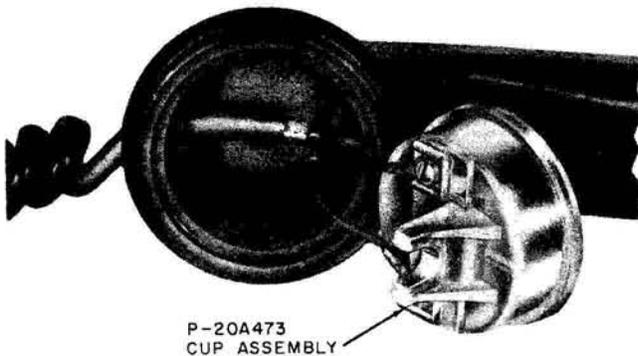


Fig. 7 — Current G-type Handset

4.03 Weighted G1 handsets (Fig. 8) are used on older modified coin collectors. The modified coin collectors are identified by the letter N following the series number.

4.04 Before assembling a handset, check seating surfaces of parts for foreign materials and burrs. All parts must seat properly to ensure a tight acoustic chamber and moisture protection.

4.05 See Fig. 9 for assembly of G1-, G3-, and G4-type handsets.



Fig. 8 — Weighted G1 Handset

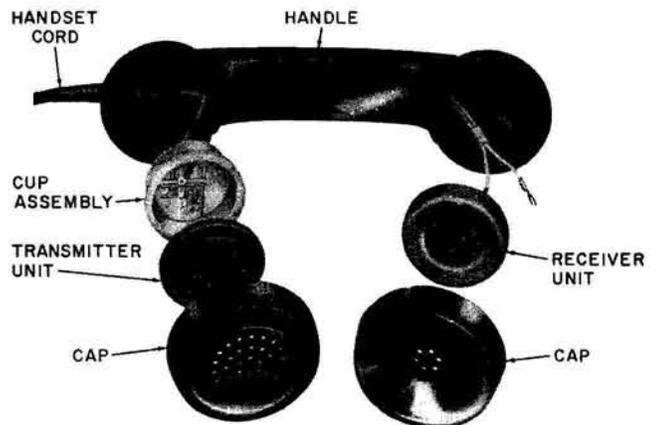


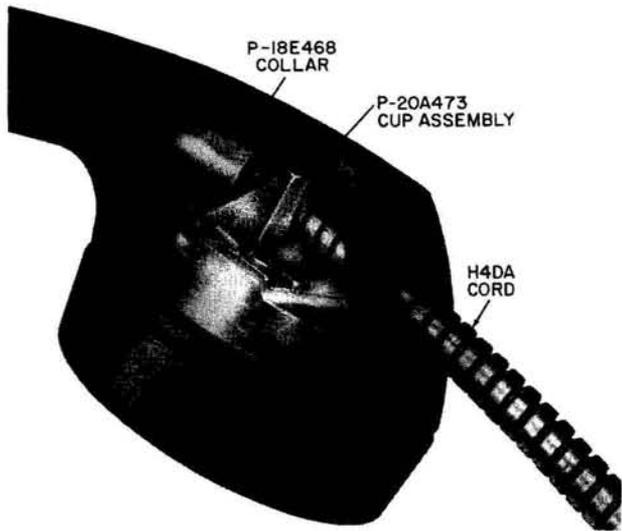
Fig. 9 — G1, G3, and G4 Handsets

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**4.06** The G3R handset is used on coin collectors. It is equipped with an H4DA cord which is an armored cord. (Fig. 10).

**4.07** The G2- and G5-type handsets are push-to-talk or push-to-listen types. See Fig. 11 for assembly of these handsets. The G2-type is rated Manufacture Discontinued (MD).

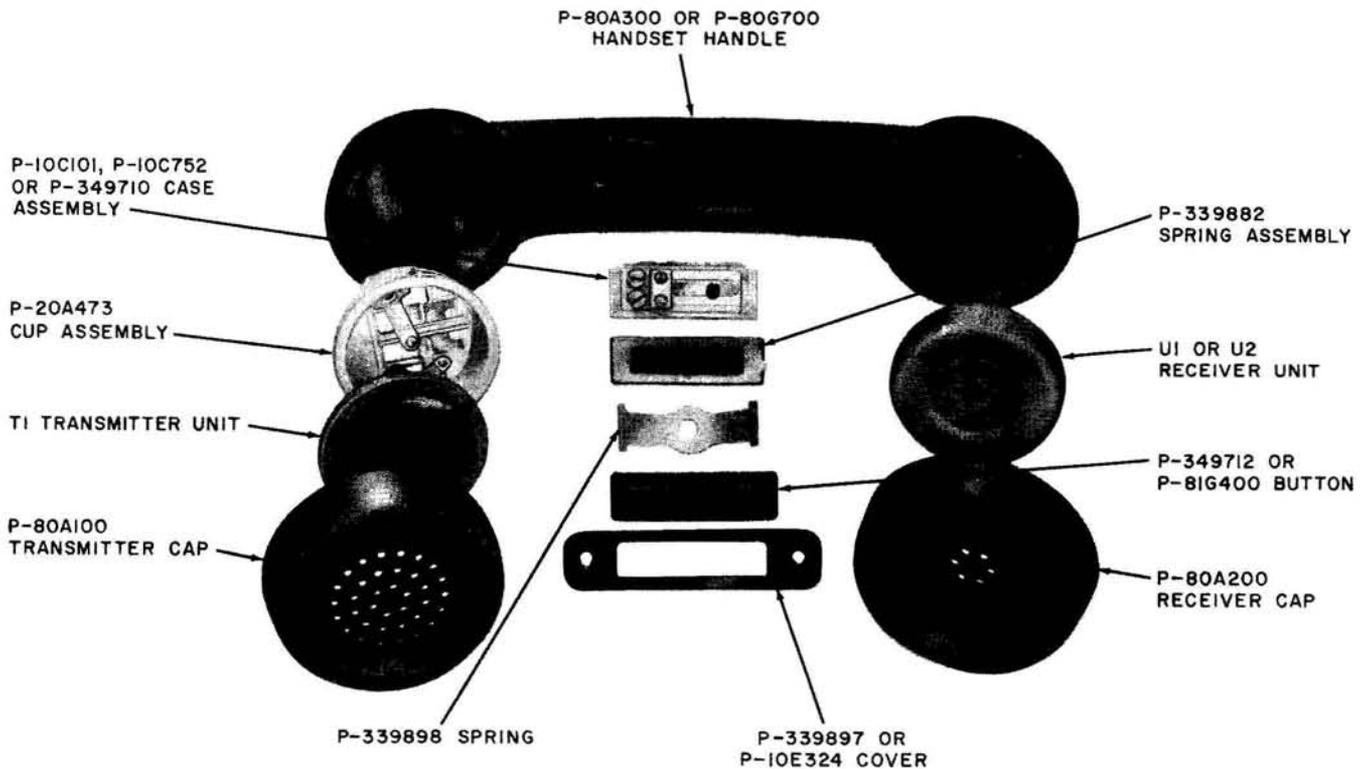
**4.08** The G4A and G4B handsets have two holes in the handle for mounting a shoulder rest (Fig. 12). Do not install shoulder rest when handset is used in hanging position.



**Fig. 10 — G3R Handset**

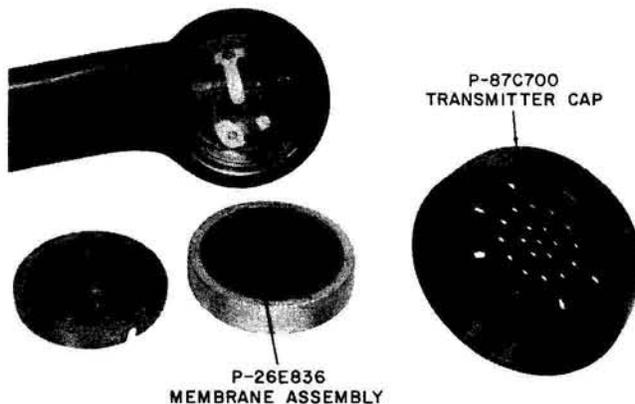


**Fig. 12 — Shoulder Support Assembly**



**Fig. 11 — G2 and G5 Handsets, Assembly**

**4.09** A P-26E836 waterproof membrane assembly, which fits over the transmitter, may be installed in any G-type handset. When this cover is used, it is necessary to install a special P-87C700 transmitter cap (Fig. 13).



**Fig. 13 — P-26E836 Membrane Assembly**

**4.10** G6-, G7-, and G8-type handset uses are as follows:

- G6-type — Receiver amplification for impaired hearing (Fig. 14).
- G7-type — Speech amplification for weak speech (Fig. 15).
- G8-type — Receiver amplification and transmitter reduction for noisy locations (Fig. 16).

**4.11** The G8-type (Fig. 16) is also equipped with a push-to-listen button. This button, when operated, increases gain in receiver amplifier and cuts down transmission.

**4.12** To disassemble G6-, G7-, and G8-type handsets, the following steps *must* be taken to avoid damage to components:

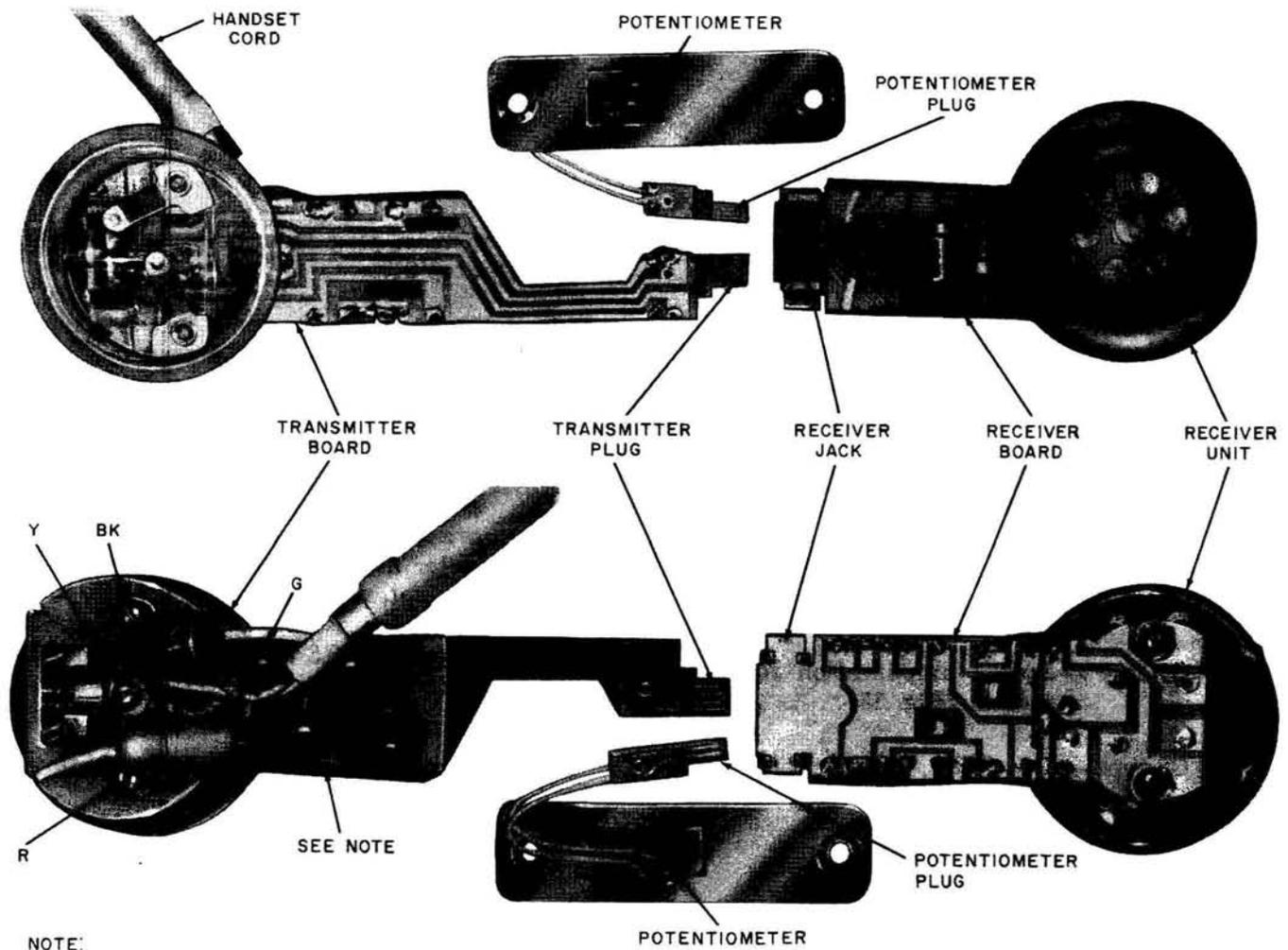
- (1) Remove transmitter cap and unit.
- (2) Remove only receiver cap (not unit).
- (3) Remove Allen set screws holding plate and volume control wheel (potentiometer) with an Allen wrench, size 1/16 inch.
- (4) Disconnect transmitter plug from the receiver jack by pulling on the transmitter cup and at the same time, easing out plug with the aid of an orange stick. (Fig. 17, Step 1).
- (5) Disconnect plug from potentiometer (Fig. 17, Step 2).
- (6) Pull transmitter cup and attached circuit board out far enough to remove handset cord.



*On the G8-type handset, the BK and BL leads from the push-to-listen switch are connected to the circuit board. After disconnecting handset cord and BK potentiometer lead, pull transmitter board assembly out far enough to disconnect BL lead from push-to-listen switch.*

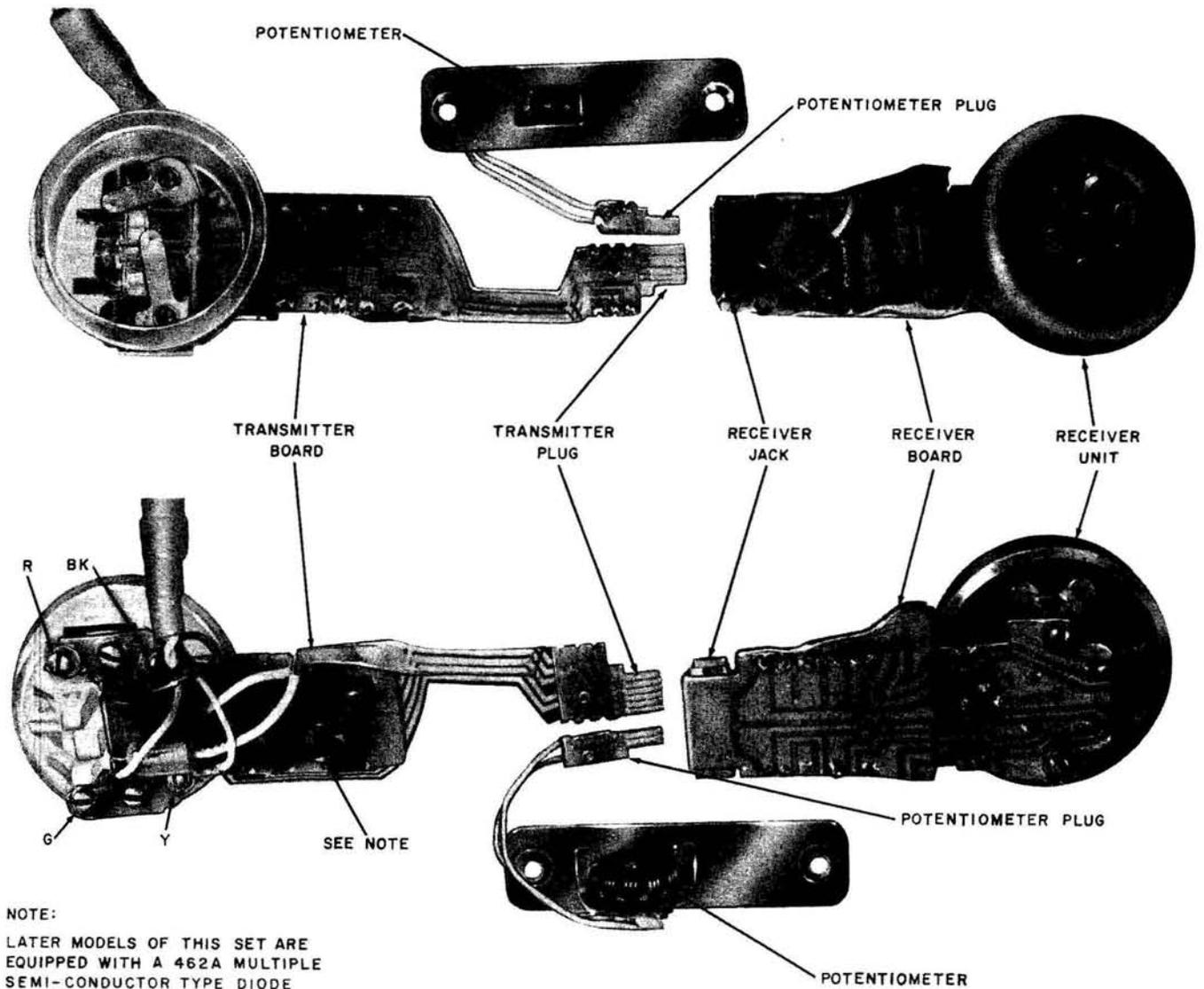
- (7) Remove transmitter cup and attached circuit board from handle.
- (8) Remove receiver unit and attached circuit board only if trouble is located in this unit.

**4.13** To reassemble the G6-, G7-, and G8-type handsets, reverse steps in 4.12 and see Fig. 18.



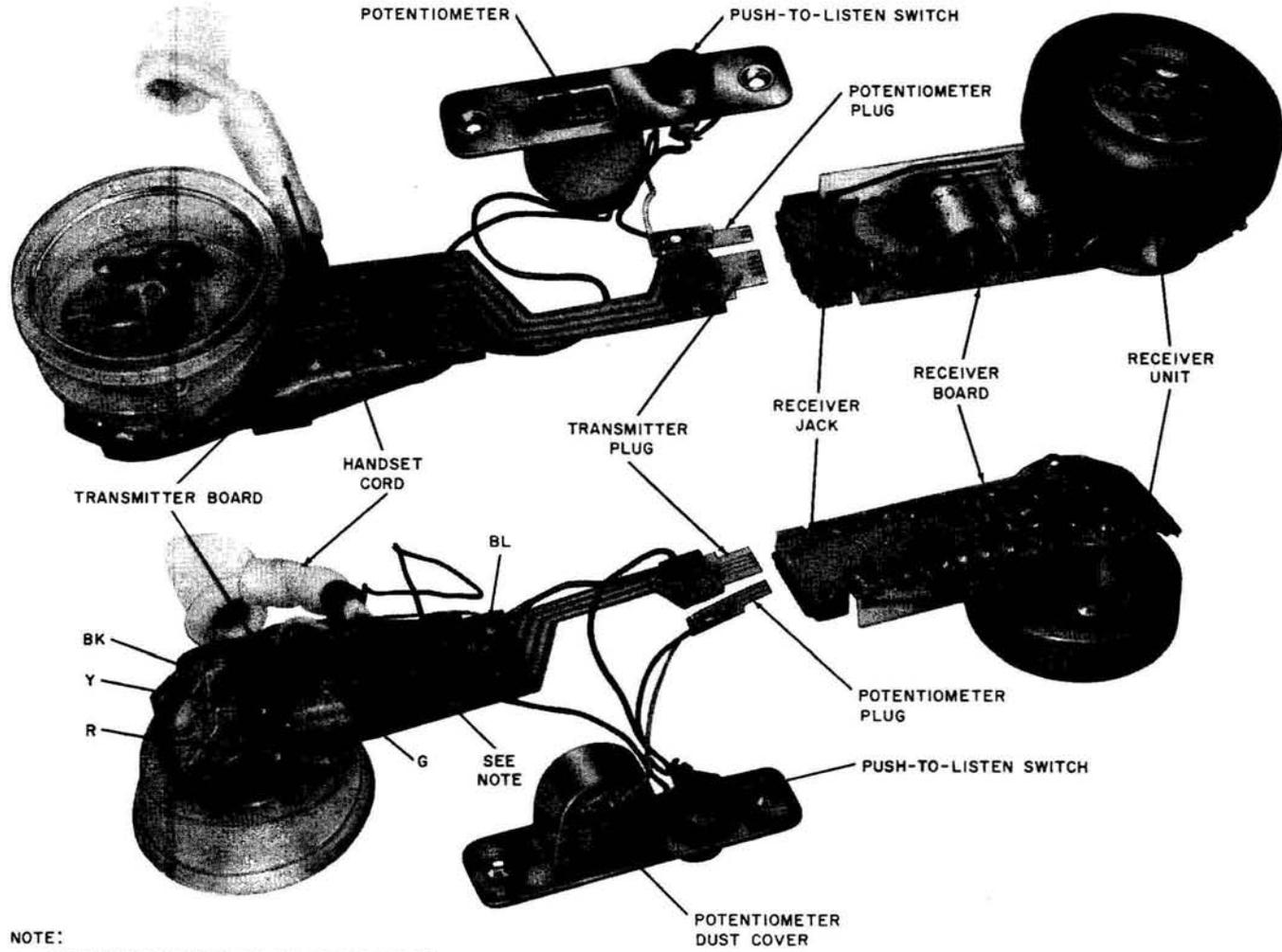
NOTE:  
 LATER MODELS OF THIS SET ARE  
 EQUIPPED WITH A 462A MULTIPLE SEMI-  
 CONDUCTOR TYPE DIODE ASSEMBLY.  
 THIS ASSEMBLY WILL BE DESIGNATED  
 CR5 AND WILL REPLACE CR1, CR2, CR3, AND CR4.

Fig. 14 — G6AR Handset, Assembly



NOTE:  
 LATER MODELS OF THIS SET ARE  
 EQUIPPED WITH A 462A MULTIPLE  
 SEMI-CONDUCTOR TYPE DIODE  
 ASSEMBLY. THIS ASSEMBLY WILL  
 BE DESIGNATED CR5 AND WILL  
 REPLACE CR1, CR2, CR3, AND CR4.

Fig. 15 — G7AR Handset, Assembly



NOTE:  
 LATER MODELS OF THIS SET ARE EQUIPPED WITH A 462A MULTIPLE SEMI-CONDUCTOR TYPE DIODE ASSEMBLY. THIS ASSEMBLY WILL BE DESIGNATED CR5 AND WILL REPLACE CR1, CR2, CR3, AND CR4.

Fig. 16—G8A Handset, Assembly

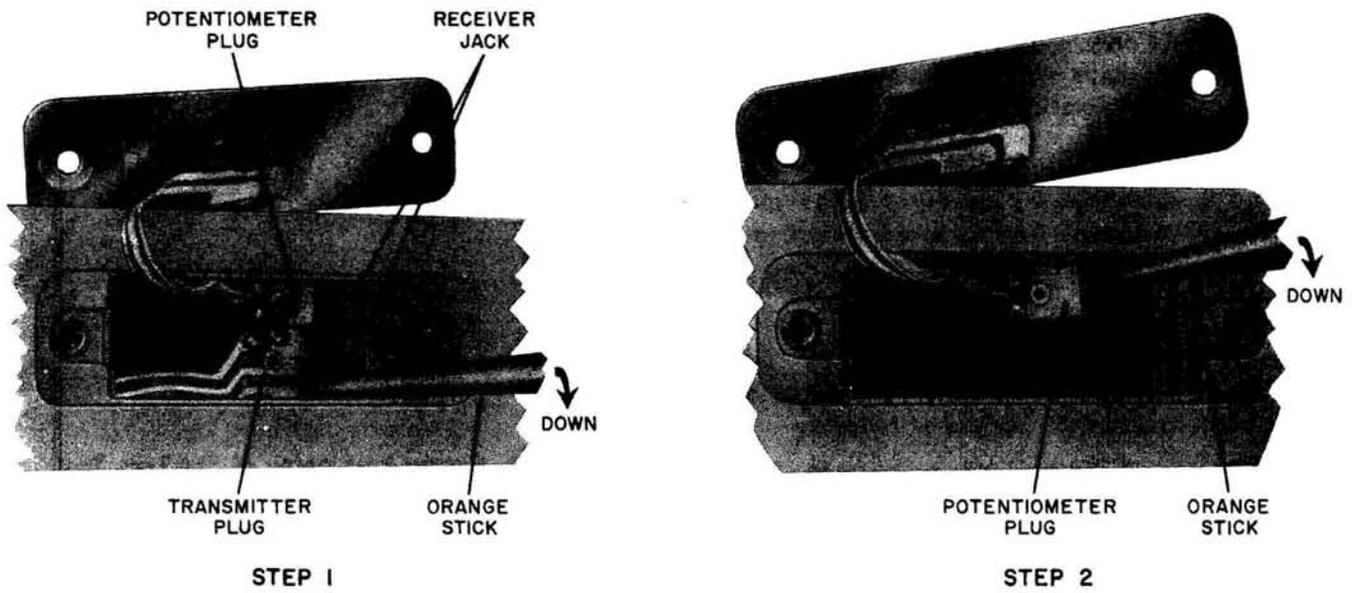


Fig. 17 — Removing Plugs from Potentiometer Well

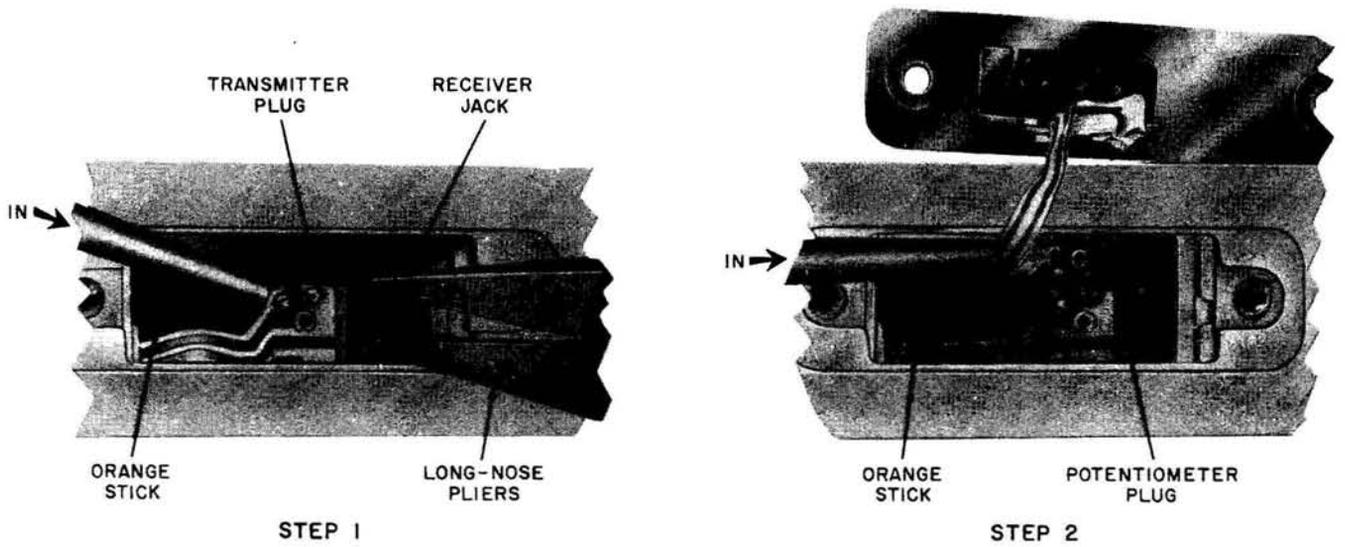


Fig. 18 — Replacing Plugs in Potentiometer Well

5. LOCKING DEVICES

5.01 Locking devices are available for F-type handsets only. When placing these locking devices, tighten caps with a 514-type tool. See Fig. 19 for proper positioning of tool.



*Avoid excessive pressure when using the 514-type tool to avoid stripping or breaking handset threads.*

5.02 Recommended procedure for installing KS-14200 transmitter lock is as follows:

- (1) Place one lock in inverted transmitter cap.
- (2) Place transmitter unit in cap (normal position).
- (3) Place second lock on transmitter unit.
- (4) Assemble on handle as shown in Fig. 20. Tighten with 514-type tool.

*Note:* If difficulty is encountered when starting transmitter cap threads, put one ring under transmitter and tighten securely. This will compress ring. Remove transmitter cap and place other ring and proceed as outlined in 5.02.

5.03 Locking devices for G-type handsets are not available. If necessary, caps may be cemented to G-type handles. Cement caps to handle for security reasons only.



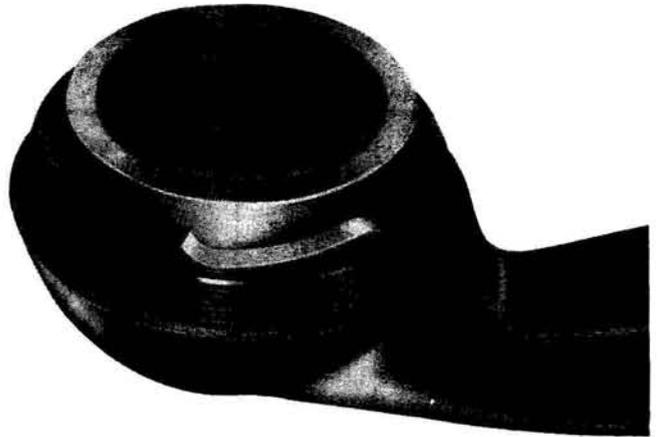
Fig. 19 — Correct Positioning of 514-Type Tool



Fig. 20 — KS-14200 Lock, Order of Assembly

**5.04 To install 24A lock on receiver cap:**

- (1) Remove receiver cap.
- (2) Place lock on rim of bowl (Fig. 21).
- (3) Replace cap and tighten with 514-type tool.

**Fig. 21 — 24A Lock on Receiver Cap**

**TABLE A**  
**KS-16504-TYPE HANDSETS**

HANDSET	CORD	HANDLE	XMTR UNIT	XMTR CAP	RCVR UNIT	RCVR CAP	SPECIAL EQUIP-MENT	USED WITH
KS-16504, L1	H5U-3	B-186704-1	KS-16504, L10	B-186744	U1	P-80A203	No. 134 and No. 144 cord tips	8A announce- ment service
KS-16504, L2	H5W-3	B-186704-2				Cannon plug No. 35324		
KS-16504, L3	H5U-3	B-186704-3		B-186744-2		P-80A260	No. 134 and No. 144 cord tips	KS-19134, L1 con- ference set

**TABLE B**  
**F1-, 2-, AND 6-TYPE HANDSETS**

HANDSET	HANDLE	CORD	XMTR UNIT	XMTR CAP	RCVR UNIT	RCVR CAP	USED WITH
F1BR-3	F1-3	H3AT-3	F1	P-10E281	HA1	P-10E282	Coin collectors, 181, 183, 191, 195, 196, and 197 types
F1C-3		H3AS					Outdoor telephone sets, 300, 325, and 326 types
F1E-3		H3N-9					Elevator set, 322 type
F1GR-3		H3AR-3					Hand telephone set, wall set, and 300- and 400-type telephone sets
F1GR-4	F1-4	H3AJ-50		P-349014		P-349015	
F1H-3	F1-3	H3AC-3	T2	P-10E281	HA1	P-10E282	Test sets, 85A, 86A, 87A, 87B, and 88A
F1K-3		H3AP-3					Coin collector when an armored cord is desired
F1L-3		H3AU					
F2A-3	F2-3	H4CA-3	F1	P-10E281	HA1	P-10E282	PBX system
F2B-3		H4BU-3					Telephone sets, 307, 309, and 357 types with local battery talking
F2C-3							Private toll line station associated with 102-type key equipment
F2D-3		H4CE-3					L-carrier order wire
F2ER-3	P-349910	H4CN-3			HA1		Coin collectors, 174, 176, D-178940, and D-178942 types
F2F-3	F2-3	H4CB-3			HA3	P-10E282	Order wire of TD-2 microwave system
F2G-3		H4CE-3					
F6AR-3	F6-3	H3AN-3	K1	P-456235	HA1	P-457594	320-type and some KS-14548 explosion-proof sets
F6BR-3	P-19A693	H4CF-3			HA3		KS-14548 and some KS-14476 explosion-proof sets
F6CR-3	F6-3	H3AN-3			HC5		(Replace F6AR handset where transmission requires.)

**TABLE C**  
**F3-TYPE HANDSET**  
**PUSHBUTTON SWITCH IN HANDLE**

HANDSET*	HANDLE	CORD	XMTR CAP	RCVR UNIT	RCVR CAP	USED WITH
F3B-3	F3-3	H4BY-3	P-10E281	HA1	P-10E282	Telegraph position of toll test-board Type L carrier
F3F-3				HA2		Key equipment, 102 type
F3H-3		H4BW-3		4-wire private line equipment associated with 102A or 109A key equipment		
F3J-3		H3AS-3		Key equipment, 102A		
F3K-3		H4BW-3		HA1		Telephone set, 324A
F3L-3				HA3		4-wire private line equipment associated with 102A and 109A key equipment
F3M-3						
F3N-3		H4BY-3				
F3U-3†	F3-3	H4BW-3	P-10E281	HA1	P-10E282	Type L carrier
F3AAW-3†		H5E		Test set, 83A, for mobile radio telephone		
F3ABW-3†		H6A		Test equipment for RCA and Motorola mobile radio telephone		
F3ADW-3†		H5T-3 and H5L-3		Motorola private line radio telephone equipment		
F3AEW-3†		H5H		General Electric mobile radio telephone systems		
F3WW-3†		H5T-3		Mobile radio telephone — primarily used with 41A control unit		

\* All F3-type handsets have the F1 transmitter unit.

† Manufactured Discontinued (MD).

**TABLE D**  
**G-TYPE HANDSETS**

HANDSET	HANDLE	CORD	XMTR UNIT	XMTR CAP	RCVR UNIT	USED WITH					
G1DR	P-339616	H4BL	T1	P-80A100	U1	PBX system order turrets					
G1FR		H4BN				Telephone sets, 570 type; coin collectors in low temperatures					
G1G		H4CG	T2			Coin collectors equipped with armored cords					
G1J		H4CS	Telephone sets, 525 A and B types								
G2B	P-339885	H5M		P-349533		4-wire circuits					
G3AR	P-80A00	H4CJ or H4CL	T1	P-80A100	U2	Telephone sets, 500, 600, and 700 series					
G3BR						Command Post Alerting Network (COPAN)					
G3CR		H4BL or H4CU				Telephone sets, 610 type; key equipment, 700 type					
G3DR						Key equipment, 112A					
G3FR		H4CP	T2		P-87C700	U1	Coin collector with spring cord				
G3K		H4CU					Telephone sets, 750 type, and 3A cord reel				
G3L							Key mountings, 420 to 426 types and 430 to 432 types				
G3M		H4CW					Coin telephone, 2A				
G3P		H4CY					Coin telephone, 1A, equipped with armored cord				
G3R		H4DA					Coin collectors equipped with armored cord				
G3S		H4CY					Waterproof transmitter cover and armored cord for 1A coin telephone				
G3T		H4DA					Waterproof transmitter cover and armored cord for coin collectors				
G4AR		P-19B929					H4CJ	T1	P-80A100	U1	Telephone sets when shoulder rest is required
G4BR		P-88C000					H4CJ				
G5AR	P-80G700	H5AB	T1	P-80A100	U2	Control unit, 47A-3, for MD and MC mobile radio telephones					
G5BR		H6C				4-wire circuits and loudspeaker paging					
G5CR		H4CM				FAA and private line systems					
G5ER		H5P			U1	Telephone set, 535 type in noisy locations					
G5FR		H4BM				Bendix radio pack set					

**Note 1:** All sets listed use a P-80A200 receiver cap except the G2BR set which uses a P-347266 cap.

**Note 2:** When ordering handsets, handles, caps, or cords, refer to the section on color for proper codes and availability.

**TABLE D**  
**G-TYPE HANDSETS (Cont)**

HANDSET	HANDLE	CORD	XMTR UNIT	XMTR CAP	RCVR UNIT	USED WITH
G5GR	P-80G700	H4CJ	T1	P-80A100	U2	2- and 4-wire private line stations
G5HR		H5P				Key equipment, 102
G5JR		H6D				Switching systems, 300
G5KR		H6E			U1	2A FARM INTERPHONE
G5LR		H6D			U2	Telephone set, 617
G5MR		H4CU				Command Post Alerting Network (COPAN)
G5NR		H5Y			U1	Air-ground base station
G5RR					U2	Switching systems, 306
G6AR						(To amplify receiver)
G7AR		H4CJ				(To amplify transmitter)
G8A					U1	(To amplify receiver, push-to-listen for use in noisy locations.)
G10A		H6E				Any 500, 600, or 700 series telephone set that is compatible with a G-type handset
G10B		H4CT				

**Note 1:** All sets listed use a P-80A200 receiver cap except the G2BR set which uses a P-347266 cap.

**Note 2:** When ordering handsets, handles, caps, or cords, refer to the section on color for proper codes and availability.