

## HANDSETS (AMPLIFIER) G6, G7, G8, AND G13 TYPES

### 1. GENERAL

1.01 This section contains identification, connection, conversion, and maintenance information for amplifier-type handsets. These handsets are available as replacements for standard G-type handsets for use by persons with impaired hearing (G6-, G13, and modified G8-type), weak speech (G7-type), and for noisy locations (G8-type). Table A lists these handsets and their component parts.

1.02 This section is reissued to:

- Add information on the 317-type amplifier
- Add information on Early, Later, and Current versions of G6-type handsets
- Add information on Early and Current versions of G8-type handsets
- Add Radio Frequency Interference information
- Add information on handset conversion
- Delete G6AR handset information
- Add Table E for installation of D-180838 Kit of Parts
- Add information on D-180851 Kit of Parts
- Add information on G13D handset
- Add New Fig. 3, 6, and 8
- Show G13A and G13B handset MD
- Revise Tables A, C, and D

Since this reissue covers a general revision, arrows ordinarily used to indicate changes have been omitted.

1.03 The 317-type amplifier may be used on two-wire operation in conjunction with modular G- and K-type and most DESIGN LINE\* handsets for impaired hearing applications when G6 or modified G8 handsets are not available. For additional information on 317-type amplifiers refer to Section 501-226-101.

### 2. IDENTIFICATION

#### 2.01 *G6-Type (Impaired Hearing).*

(a) The G6-type handset is equipped with an internal receiver amplifier unit. The volume control potentiometer in the center of the handle adjusts the loudness setting of the receiver so the handset may be used by persons with normal hearing as well as persons with impaired hearing.

(b) The G6B (MD) handset assembly has the transistorized amplifier and polarity guard units located on a printed circuit board in the receiver cavity. The amplifier, potentiometer assembly, and handset cord connect to a terminal board located in the transmitter cavity.

(c) Three versions of G6B handsets have been produced and are referenced as Early (before 1974), Later (1974-1977), and Current (since 1977). The current version can be identified by a black plastic plate around the volume control assembly instead of the chrome metal plate on previous versions. The receiver amplifier board on the current version has three screw terminals. In the G6B current version, the yellow conductor in the handset cord is removed. This is a normal condition since the yellow lead is not used.

(d) The G6BM handset is identical to the G6B handsets except that it is equipped with a jack to receive the plug-ended H4DU handset cord which must be ordered separately.

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**2.02 Modified G8-Type (Impaired Hearing)**

(a) The modified G8-type handset contains a D-180412 Kit of Parts. This handset is intended for use by customers that require more receiver gain that is available in the G6-type handset. Both versions of the G8-type handset can be modified.

(b) The modified G8 handset is equipped with a receiver amplifier unit. The volume control potentiometer in the center of the handle adjusts the loudness setting of the receiver so the handset may be used by persons with normal hearing as well as persons with impaired hearing. It also has a pushbutton, which when operated, provides an additional 15 dB gain in the receiver circuit and 10 dB loss in the transmitter circuit.

(c) Connect the modified G8 handset the same as the G8 handset.

**2.03 G7-Type (Weak Speech).**

(a) The G7-type handsets are equipped with an internal transistorized transmitter amplifier intended for use by persons with weak speech. The potentiometer in the handle controls the level of the transmitter output. The transistorized transmitter amplifier is located on a printed circuit board at the receiver end of the handle. The polarity guard and one inductor are on a terminal board in the transmitter cavity. The potentiometer assembly, amplifier, and handset cord connect to a terminal board in the transmitter cavity. Internal connections are made by spade-tipped leads.

(b) The G7BM handset is identical to the G7B (MD) handset except that it is equipped with a jack to receive the plug-ended H4DU handset cord which must be ordered separately.

**2.04 G8-Type (Noisy Locations).**

(a) The G8-type handset is equipped with a transistorized receiver amplifier, a volume control potentiometer, and a push-to-listen switch and is intended for use in noisy locations. The volume control provides up to 10 db of additional receive gain. The push-to-listen switch, when operated, decreases the transmitter output and increases the gain of the receiver amplifier.

(b) Two versions of G8B handsets have been produced and are referenced as Early (before 1977) and Current (since 1977). The Current version can be identified by a black plate around the switch assembly instead of the chrome metal plate on the previous version. Also, the receiver amplifier board in the current version has three screw terminals.

(c) The G8BM handset is identical to the G8B (MD) handset except it is equipped with a jack to receive the plug-ended H4DU handset cord which must be ordered separately.

**2.05 G13-Type (Impaired Hearing).**

(a) The G13-type handset is equipped with an armored cord and a receiver amplifier unit. The volume control switch in the center of the handle controls the loudness setting of the receiver so the handset may be used by persons with normal hearing as well as persons with impaired hearing. Coin telephones are not assembled or coded with these handsets. The handset must be ordered separately and connected per Table D.

(b) The G13A (MD) and G13B (MD) handsets furnish normal unamplified receiver output until the slide switch is moved to the center or extreme position. The center position furnishes 10 dB and the extreme position furnishes 20 dB of gain. When the slide switch is released a spring returns the switch to its normal position.

(c) The G13D handset equipped with a H4EH handset cord replaces the G13B handset. The G13D handset equipped with a H4EG handset cord (specify cord on order) replaces the G13A handset. The G13D furnishes normal unamplified receiver output until at least one of the two buttons on the handset is depressed. With either button depressed the amplifier furnishes 10 dB of gain and with both buttons depressed 20 dB of gain.

**2.06 D-180838 Kit of Parts (4-wire Operation).**

(a) This kit of parts contains a terminal board (new) and a M1W strap (G), 616WG jack, and two screws which are used to convert the G6B (current), G6BM, G8B (current), and G8BM handsets from two- to four-wire operation per

Table E. These handsets can be identified by a black plastic plate around the volume control assembly instead of the chrome metal plate on earlier models and the three screw terminals on the receiver terminal board.

(b) Remove and discard the *old* terminal board (not in all handsets) and modular jack (if a modular handset) in the transmitter end of the handset. Connect the *new* terminal board and modular jack (if desired) or handset cord per Table E.

**2.07 D-180851 Kit of Parts:** This kit of parts contains modified transmitter and receiver caps, to enable G-type handsets to be used only with 900-series desk telephone sets. The modified handsets cannot be used with 900-series wall telephone sets.

**2.08 226A and 2226A Hand Telephone Sets:** These hand telephone sets provide up to 20 db of receive gain for customers with impaired hearing. For additional information refer to Section 502-303-102.

### 3. CONNECTIONS

**3.01** To connect amplifier-type handsets equipped with spade-tipped cords to rotary dial equipped telephone sets.

- (1) Connect red and black leads to the terminals from which the red and black leads of the replaced handset were removed.
- (2) Connect yellow and green leads to the terminals from which the white leads were removed so that the yellow lead is electrically wired to the *R* terminal on the network and the green lead is wired to the *GN* terminal on the network.
- (3) Test the handset through the full range of volume control.

**3.02** When connecting G6- and G8-type (nonmodular) handsets to telephone sets equipped with TOUCH-TONE® dials, the dial must provide common switch contact arrangements which will prevent dial sidetone amplification by the handset amplifier. If the set contains a 25A3 (MD), 25B3 (MD), or 25H4 (MD) dial, install a 25W3, 25Y3, or 25P4 dial, respectively, and connect dial and handset as shown

in Table C. If these dials are not available replace set.

**3.03** The G6BM, G7BM, and G8BM handsets require a plug-ended H4DU handset cord to be connected between the handset and the telephone set base. The H4DU cord must be ordered separately.

**3.04 Schematics:** Internal connections of the amplifier type handsets are shown in Fig. 1 through 8.

## 4. HANDSET CONVERSION

### MODULAR-TO-NONMODULAR

**4.01** Modular G6-, G7-, and G8-type handsets may be used on nonmodular telephones equipped with spade-tipped cords as follows.

- (1) Remove the transmitter cap, transmitter unit, and transmitter board assembly.
- (2) Remove the jack from the transmitter cup.
- (3) Install a H4CJ cord in accordance with 5.03.
- (4) Reassemble the transmitter board transmitter unit and cup.
- (5) Connect the handset leads in accordance with Part 3.

**4.02** Modular G6-, G7-, and G8-type handsets may be used on consoles equipped with headset jacks by using a 478A adapter. This device plugs into the console jack and converts it to a modular jack. The 478A adapter contains the appropriate padding resistor to compensate for the use of a carbon transmitter.

### NONMODULAR-TO-MODULAR

**4.03** Nonmodular G6-, G7-, and G8-type handsets manufactured since 1974 may be converted to modular type in the field. These handsets may be recognized by the shape of the handset cord entry hole in the handset handle. Only handles with the rectangular holes may be field modified. These handles are equipped with a special convertible transmitter cup so they can be converted to modular by the addition of a 616W-type jack. Convert the handset as follows.

- (1) Remove the transmitter cup, transmitter unit, and transmitter board assembly.
- (2) Remove the spade-tipped handset cord leads from the handset.
- (3) Install a 616W-type jack (ordered separately) by snapping the jack into the cutout provided on the transmitter cup. On G6- and G8-type handsets the white jack lead is not required and may be clipped off.
- (4) Connect and dress the leads from the 616W-type jack to the transmitter board terminals as shown in Fig. 3, 4, or 6.
- (5) Reassemble the transmitter board in the handset and replace transmitter cup on handset.

## 5. MAINTENANCE

### 5.01 Maintenance of G6-, G7-, G8-, and modified G8-type handsets is limited to the following:

- Replacing cracked or broken receiver and transmitter caps
- Replacing defective transmitter units
- Replacing defective handset cords
- Cleaning with water-dampened cloth.

### 5.02 Maintenance of G13-type handsets is limited to cleaning with a water-dampened cloth, as the transmitter and receiver caps are bonded to the handset handle at the time of assembly.



***Do not use cleaning fluids or antirust compounds on transmitter units, receiver units, or other component parts of handset. Discoloration or tarnish on the silver-plated contact surfaces is not objectionable and no attempt should be made to remove it.***

### 5.03 The H4CT handset cord furnished with G6B, G7B, and G8B handsets is no longer available.

If the original cord requires replacement or if a modular handset is to be modified for use on a nonmodular telephone, modify and install an H4CJ cord as follows.

- (1) Tone-out and identify one white conductor.

For identifying purposes, loose knots may be tied in each end of this conductor, designating it green. The other white conductor is designated as yellow.

- (2) Loop and tie or tape the excess length of white conductors to approximate length of red and black conductors.

- (3) Insert conductors in transmitter bowl carefully so as not to disrupt the printed circuit board.

- (4) Connect to transmitter terminal board as shown in Fig. 1, 2, 3, 4, 5, or 6.

### 5.04 **Radio Frequency Interference:** If RFI problems, including Citizen Band Radio, are encountered the procedures of Section 500-150-100 should be followed. If it is found necessary to replace the telephone set with one modified for radio frequency suppression, the appropriate handset (modified for radio suppression) should be ordered at the same time.

### 5.05 **872A1M and 2872A1M Telephone Sets:**

On some 872A1M and 2872A1M telephone sets (TOUCH-A-MATIC® 32 number telephone sets), the white or yellow and green leads from the modular handset jack may have been reversed. If a G6-type handset installed on these sets does not have a receive output, refer to Section 503-603-101 or 503-603-102 for handset jack wiring.

### 5.06 **Modular Telephone Set:** When G6BM or G8BM handsets are connected to some modular telephone sets, an insufficient receiver gain may result. Reverse the white and green handset jack leads on the network. For additional information refer to the appropriate telephone set service section.

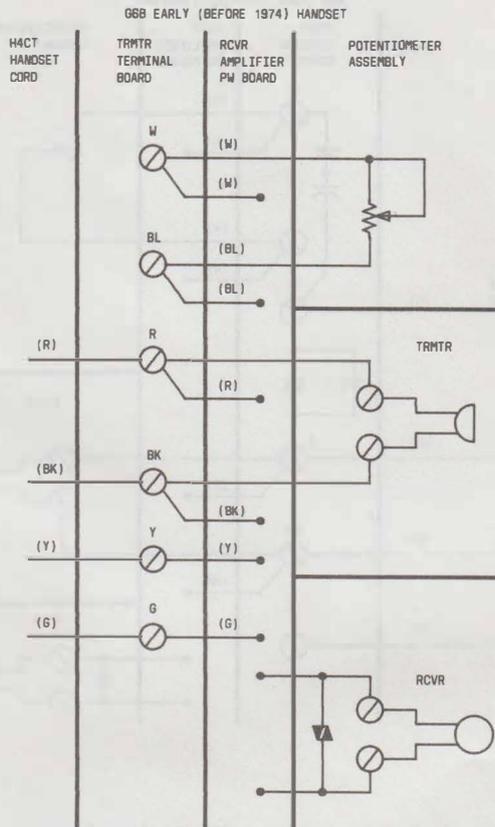


Fig. 1—G6B Early (Before 1974) Handset, Connections

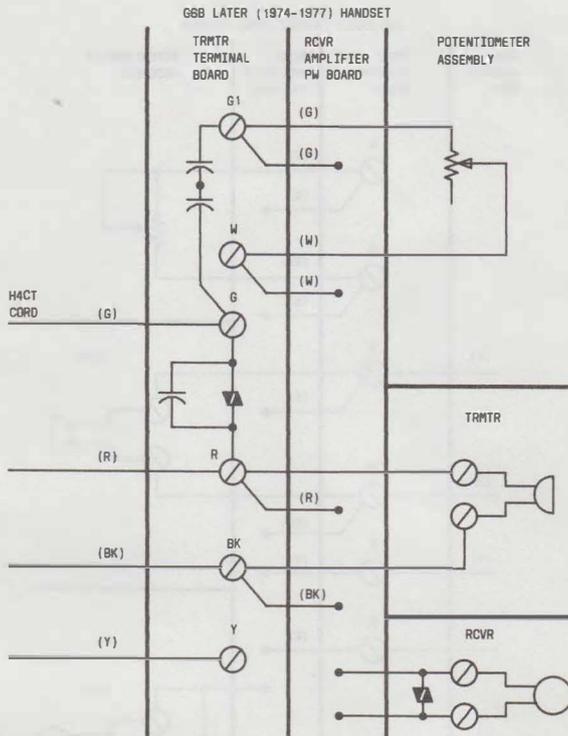


Fig. 2—G6B Later (1974-1977) Handset, Connections

## G6B CURRENT (SINCE 1977) AND G6BM HANDSET

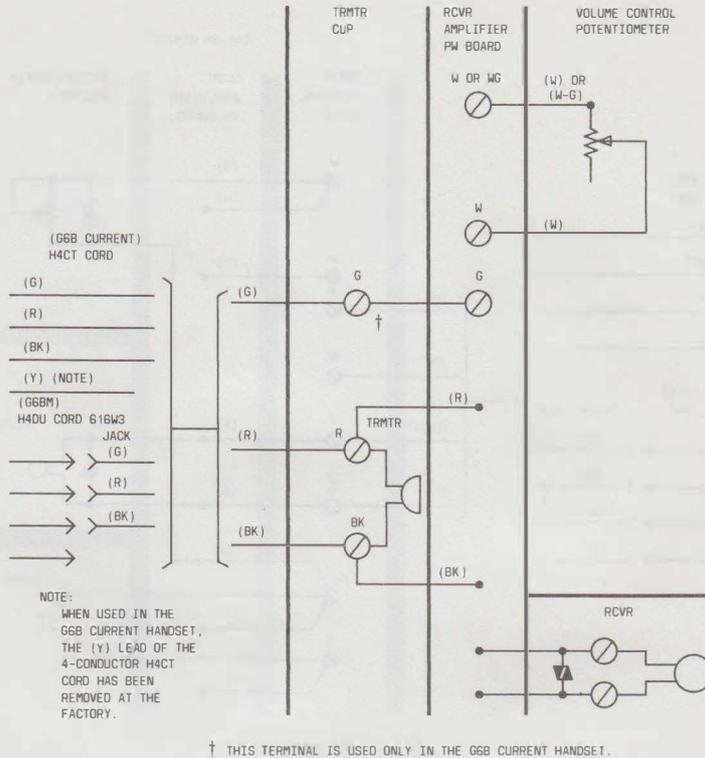


Fig. 3—G6B Current (Since 1977) and G6BM Handset, Connections

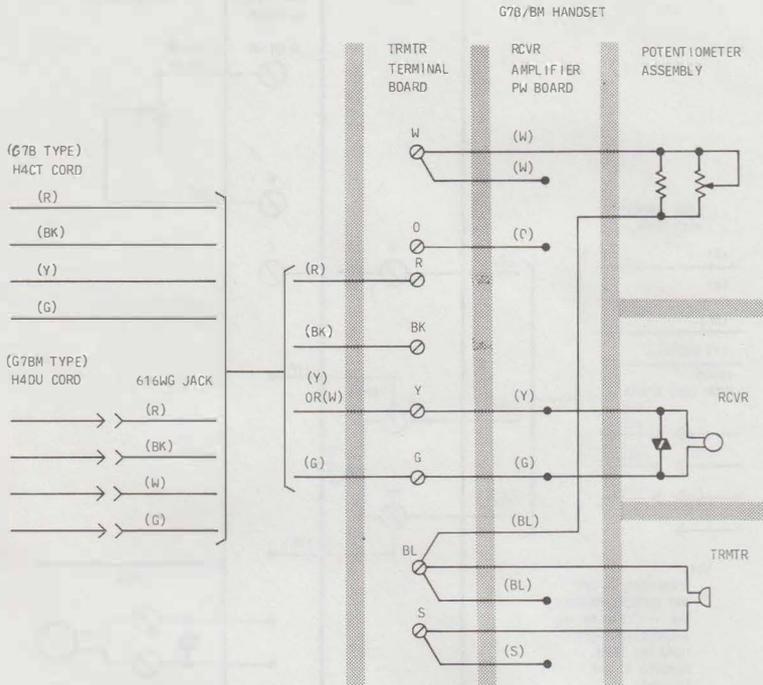


Fig. 4—G7B and G7BM Handset, Connections

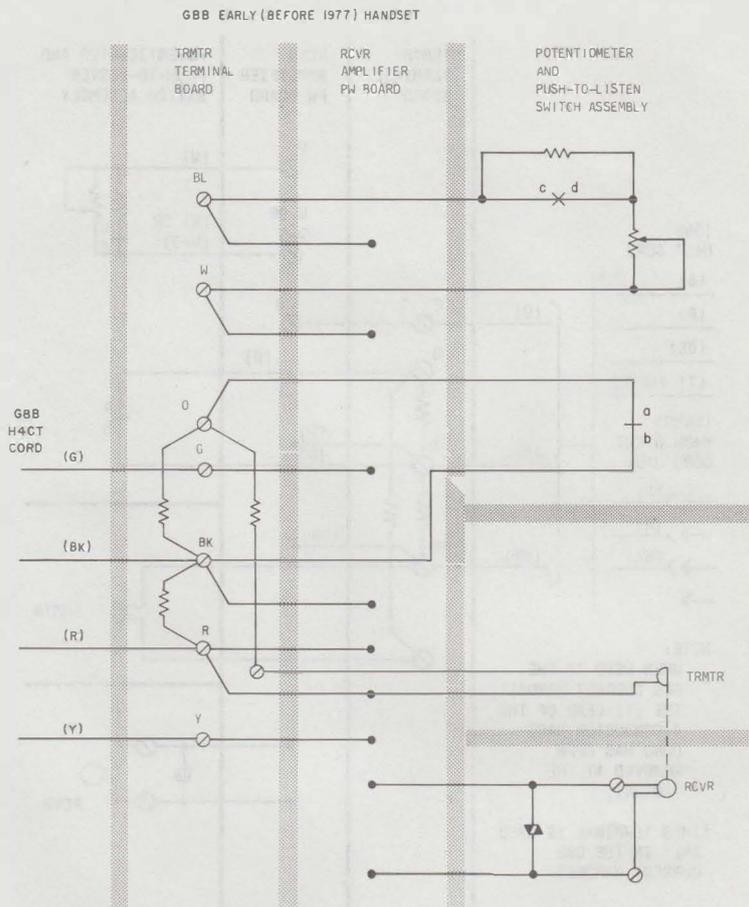


Fig. 5—GBB Early (Before 1977) Handset, Connections

GBBM/B CURRENT (SINCE 1977) HANDSET

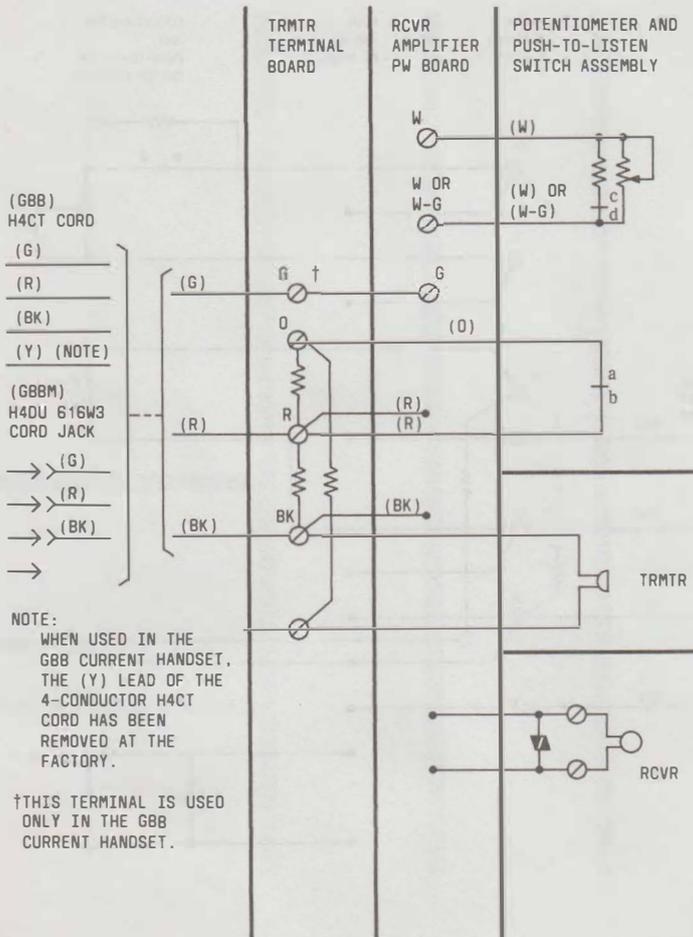


Fig. 6—G8BM and G8B Current (Since 1977) Handset, Connections

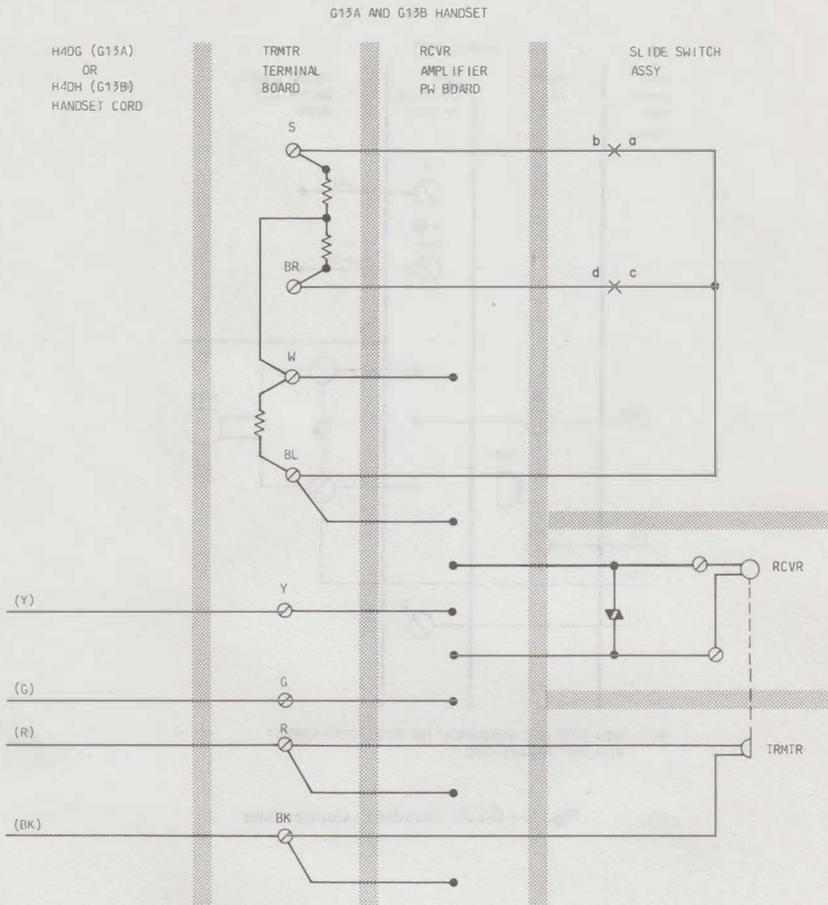
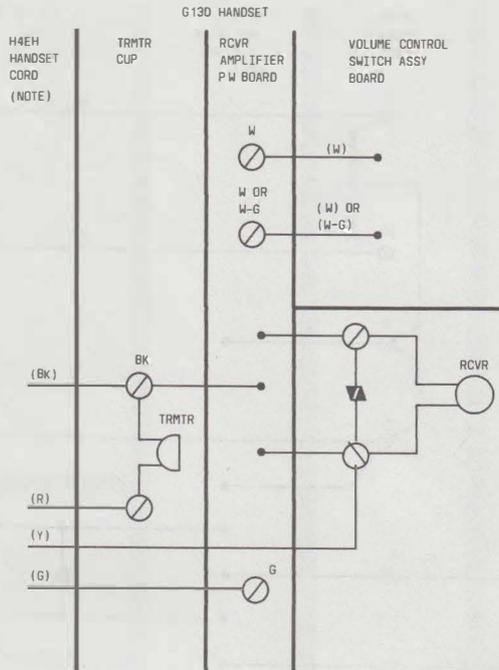


Fig. 7—G13A and G13B Handset, Connections



NOTE: WHEN USED AS A REPLACEMENT FOR G13A, ORDER HANDSET WITH H4EG HANDSET CORD.

Fig. 8—G13D Handset, Connections

TABLE A

## G-SERIES HANDSETS

HANDSET	CONN. FIG. NO.	TRMTR UNIT	REPLACEABLE COMPONENTS			
			CORD	TRMTR CAP	RCVR CAP	HANDLE
G6B (Early) †	1	T1	‡	Table B	Table B	Table B
G6B* (Later) †	2					
G6B* (Current) †	3		H4DU			
G6BM*			‡			
G7B* †	4		H4DU			
G7BM*			‡			
G8B (Early) *†	5		‡			
G8B (Current) *† (D-180412)	6		‡			
G8BM *			H4DU			
G13A-52 †	7		Receiver and transmitter caps are ultrasonically bonded to the handle, therefore, components cannot be replaced.			
G13B-52 †						
G13D-52		8				

\* Add color suffix shown in Table B.

† MD

‡ If set is equipped with H4CT cord (not available) replace with H4CJ cord.

TABLE B

ORDERING GUIDE  
TRANSMITTER CAP, RECEIVER CAP, AND HANDLE

COLOR	SUFFIX	TRANSMITTER CAP		RECEIVER CAP		HANDLE	
		COMCODE	P-NUMBER	COMCODE	P-NUMBER	COMCODE	P-NUMBER
Black	-03	818011033	P-80A103	818012031	P-80A203	818077034	P-80G703
Ivory	-50	818011504	P-80A150	818012502	P-80A250	818077505	P-80G750
Green	-51	818011512	P-80A151	818012510	P-80A251	818077513	P-80G751
Red	-53	818011538	P-80A153	818012536	P-80A253	818077539	P-80G753
Yellow	-56	818011561	P-80A156	818012569	P-80A256	818077562	P-80G756
White	-58	818011587	P-80A158	818012585	P-80A258	818077588	P-80G758
Rose Pink	-59	818011595	P-80A159	818012593	P-80A259	818077596	P-80G759
Lt. Beige	-60	818011603	P-80A160	818012601	P-80A260	818077604	P-80G760
Aqua Blue	-62	818011629	P-80A162	818012627	P-80A262	818077620	P-80G762

TABLE C

## HANDSET AND TOUCH-TONE DIAL CONNECTIONS

LEADS				
HANDSET	DIAL		CARD DIALER	CONNECT TO
G6-, G7-, OR G8-TYPE (NONMODULAR)	25P4, 25W3 35A3A, 35E4A 35Y3A, 35AD4A	25Y3 35C3A 35D3A 35AF3A	26F, 36E	
Y	R-G	R-G	R-G	R term. on net.
G	W-BL	W-BL	W-BL	Spare term.
R	R	R	R	Spare term.
BK	BL	BL	BL	B term. on net.
	G	G	G	Spare term.
	BK	BK	BK	RR term. on net.
	W	W	W	GN term. on net.
	O-BK	O-BK	O-BK	C term. on net.
		G-W	G-W	C term on net.
		V	V	Spare term.
		O	O	Spare term.
			S-BK	RR term. on net.

TABLE D

## G13-TYPE HANDSET CONNECTIONS FOR COIN AND COINLESS PUBLIC TELEPHONE SETS

HANDSET LEADS	G13A AND G13D (NOTE 1)		G13B AND G13D		G13D (NOTE 2)		
	1234G TEL SET	1235G TEL SET	1A2, 2A2, 1C2 2C2, 2755 TYPE TEL SET	1A1, 2A1, 1C1, 2C1 TEL SET	1D1 2D1	1D2 2D2	F-60761 TEL SET
	CONNECT TO	CONNECT TO TB4 TERM.	CONNECT TO TB2 TERM.	CONNECT TO TB2 TERM.	CONNECT TO TB2 TERM.	CONNECT TO TB2 TERM.	CONNECT TO TB2 TERM.
R	TR	R	3	3	3	3	6
BK	BB	BK	5	6	6	6	5
Y <sup>‡</sup>	BBX	W*	8	8	7	8	6
G <sup>‡</sup>	W	W <sup>†</sup>	7	2	4	7	11

\* Connect the (Y) handset lead to the W terminal with the (W) lead going to terminal 2 of TB2.

† Connect the (G) handset lead to the W terminal with the (W) lead going to terminal 10 of TB2.

‡ Early production G13D handsets have yellow and green wire marking tape to designate the yellow and green leads.

**Note 1:** If G13D handset is used instead of the G13A, order a G13D equipped with a H4EG handset cord.

**Note 2:** Specify length of handset cord (2 feet 8 inches, 4 feet 6 inches, or 6 feet).

TABLE E

## D-180838 KIT OF PARTS FOR 4-WIRE OPERATION

HANDSET	COMPONENT	LEAD COLOR	CONNECT TO NEW TERM. BOARD
G6B (Current) or G6BM (Note)	616WG Jack Leads	BK	BK
		R	R
		G	G
		W	Y
	H4CT Cord	BK	BK
		R	R
		G	G
		Y	Y
	Amplifier Board	BK	BK
		R	R
G*		G-W	
New Term. Board	W-BL	BL	
G8B (Current) or G8BM (Note)	616WG Jack Leads	BK	BK
		R	R
		G	G
		W	Y
	H4CT Cord	BK	BK
		R	R
		G	G
		Y	Y
	Amplifier Board	BK	BK
		R	R
		G*	G-W
	Potentiometer	R	R
		O	O
	New Term. Board	W-BL	W

\* Use (G) strap provided in kit of parts to connect G of amplifier board to G-W of terminal board in G6BM and G8BM handsets.

Note: Remove terminal board on transmitter cup and replace with terminal board provided in D-kit of parts.