

INSTALLATION  
A. E. CO. TYPES 84 AND 840 HANDSETS

1. **GENERAL**

1.01 This section contains descriptive information, and installation and maintenance procedures for A.E.Co. types 84 and 840 handsets.

2. **DESCRIPTION**

2.01 Types 84 and 840 handsets (see Fig. 1) are available for use as an anti-noise device or for control of external equipment. The anti-noise handsets are wired either for push-to-listen or for push-to-talk operation. For anti-noise operation, the pushbutton actuated spring combination is wired to shunt the transmitter out of the circuit, eliminating the sidetone from the sound that enters the user's transmitter. Standard anti-sidetone circuits are designed to permit a portion of the sound picked up by the transmitter to enter the receiver. Shunting the transmitter eliminates this portion of the sidetone, thus permitting only the sounds transmitted by the distant party's transmitter and some line noises to enter the user's receiver. The handsets wired for control of external equipment provide a convenient method of operating equipment located remotely from the telephone set.

2.02 These pushbutton handsets can be used on A.E.Co. types 80, 85, 86, 87, 90, 90M, 182, 183, and 860A telephones. The 84 handset is used on telephones with manually adjusted loop compensation. The 840 handset is used on telephones with self-compensating circuits.



Figure 1. Type 84 or 840 Handset

2.03 Types 84 and 840 handsets are similar in appearance to A.E.Co. 81 and 810 handsets except for the pushbutton protruding through the side of the handgrip and the spring assembly mounted within the handset shell.

3. **INSTALLATION**

Handset Wired for Anti-Noise Operation

3.01 Types 84 and 840 handsets are furnished with cords attached. Handsets wired for anti-noise operation are installed by removing the handset and cord presently connected to the telephone and then connecting the anti-noise handset to the telephone according to the connecting details in either Table 1 (84 handset) or Table 2 (840 handset). For instructions pertaining to the telephone such as housing removal or terminal location, refer to the appropriate 473 series GSP.

Handset Wired for Control of External Equipment

3.02 Installation of handsets wired for control of external equipment is accomplished by removing the handset and cord presently connected to the telephone and then connecting the pushbutton handset to the telephone according to the connecting details in Table 3 (84 handset) or Table 4 (840 handset). Where EXT. EQPT. is specified in Table 3 or 4 for conductor termination, refer to instructions covering the external equipment which the pushbutton handset is intended to control, and terminate these conductors in the telephone, as necessary, to extend pushbutton connection to external equipment.

4. **OPERATION**

Anti-Noise Handsets

4.01 The pushbutton switch can be furnished wired for either push-to-talk or push-to-listen operation at the customer's option. When wired for push-to-listen, the transmitter is normally in the circuit. To eliminate the sound from the transmitter input it is necessary to depress the push-button. When wired for push-to-talk operation, it is necessary to depress

Table 1. Type 84 Cord Termination at Telephone (Anti-Noise Operation)

TYPE TELEPHONE	TRANSMISSION UNIT TERMINALS		
	GREEN	YELLOW	RED
80, 85	3C	4R	5T
86, 87, 183	9	7	6
90, 90M	C3	R4	T5

Table 2. Type 840 Cord Termination at Telephone (Anti-Noise Operation)

TYPE TELEPHONE	TRANSMISSION UNIT TERMINALS			
	GREEN	YELLOW	RED	BLACK
80, 85	3TR	4R	5T	3TR
86, 87, 182, 860A	3	4	5	3
90M	RT3	R4	T5	RT3
183	2	4	5	2

Table 3. Type 84 Cord Termination at Telephone (Control of External Equipment)

TYPE TELEPHONE	TRANSMISSION UNIT TERMINALS				
	GREEN	YELLOW	RED	BLACK OR WHITE	BLUE
80, 85	3C	4R	5T	EXT. EQPT.	EXT. EQPT.
86, 87, 183	9	7	6	EXT. EQPT.	EXT. EQPT.
90, 90M	C3	R4	T5	EXT. EQPT.	EXT. EQPT.

Table 4. Type 840 Cord Termination at Telephone (Control of External Equipment)

TYPE TELEPHONE	TRANSMISSION UNIT TERMINALS				
	GREEN	YELLOW	RED	BLACK OR WHITE	BLUE
80, 85	3TR	4R	5T	3TR	G9
86, 87	3	4	5	3	EXT. EQPT.
90M	RT3	R4	T5	RT3	TERM. STRIP. 4G
183	2	4	5	2	20

the pushbutton to transmit, i.e., the transmitter is normally out of the circuit. Figs. 2 and 3 illustrate the wiring of push-to-listen and push-to-talk handsets, respectively.

#### Handsets Wired for Control of External Equipment

4.02 The specific function of the pushbutton on an 84 or 840 handset wired for control of external equipment will depend on customer requirements and the type of external equipment controlled by the pushbutton. The pushbutton will usually be used to control on-off operation of a voice reproducing instrument. The pushbutton spring assembly on the type 84 handset is wired to provide a closed circuit when the pushbutton is depressed. The pushbutton spring assembly on the 840 handset is wired to control equipment which operates on the telephone line. Fig. 4 illustrates wiring of handsets used to control external equipment.

### 5. MAINTENANCE

#### Replacement Parts

5.01-a Order numbers for 84 and 840 handsets are as follows:

- (a) Type 84 push-to-listen: L-9035-CO (specify suffix EO for use on type 183 telephone).
- (b) Type 84 push-to-talk: L-9046-CO. (Where L-9046 is to be used on a type 183 telephone, also order a 3HA15-K-A cord and, prior to handset installation,

connect this cord in place of the cord furnished with the handset.)

- (c) Type 84 wired for control of external equipment: L-9048-CO.

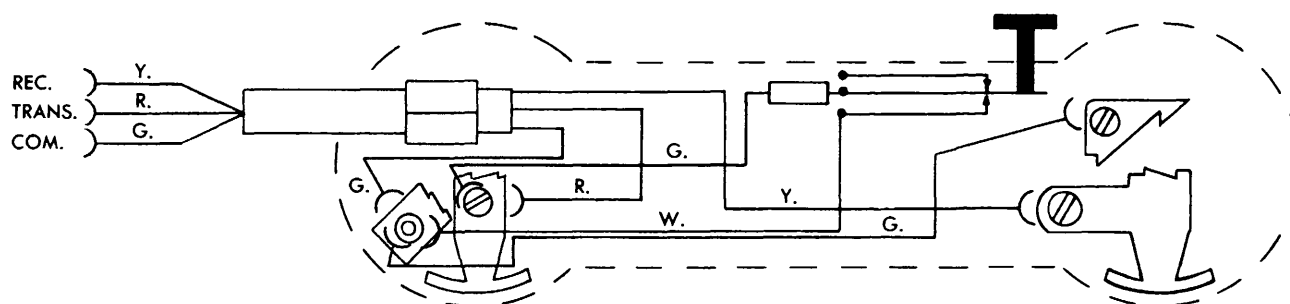
- (d) Type 840 push-to-listen: L-9057-C (and color suffix). Specify suffix DA for use on type 183 telephone (black only). [Where L-9057 is to be used on a type 182 telephone, also order a 4HA4-K- (color suffix) cord and, prior to handset installation, connect this cord in place of the cord furnished with the handset. Also, order a D-543302- (color suffix) cord for use of L-9057 handset on a type 860A telephone.]

- (e) Type 840 push-to-talk: L-9065-C (and color suffix). Specify suffix DA for use on type 183 telephone (black only). (Order separate cords for use on 182 and 860A as described in d.)

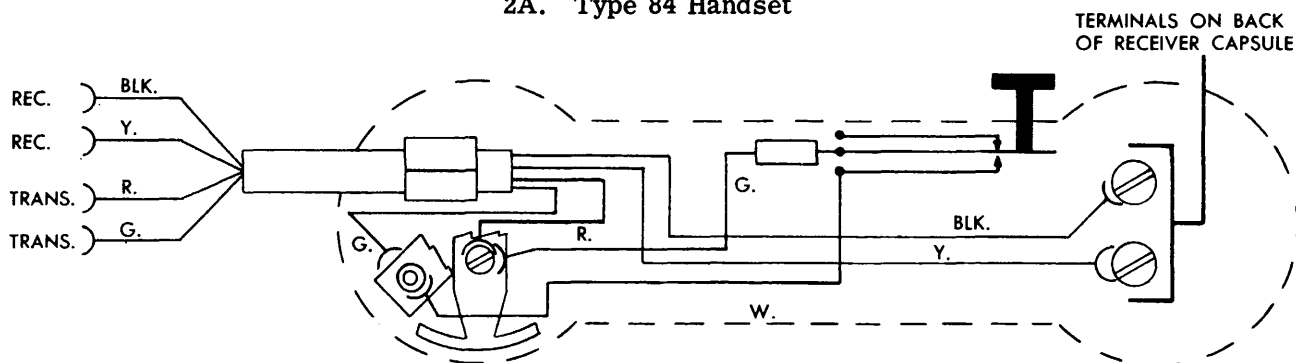
- (f) Type 840 wired for control of external equipment: L-9056-CA.

5.01-b Replacement parts for the 84 and 840 handsets are the same as for A. E. Co. 81 and 810 handsets, respectively, except as follows:

- (a) Pushbutton spring assembly NP-21-A1.
- (b) Dust cover D-490013-A.
- (c) Handset shell D-52149-A (black). (In place of suffix -A, use standard color



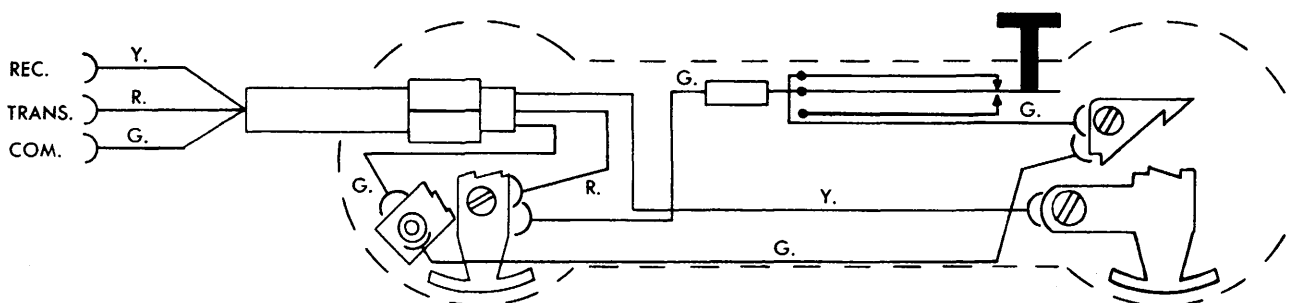
2A. Type 84 Handset



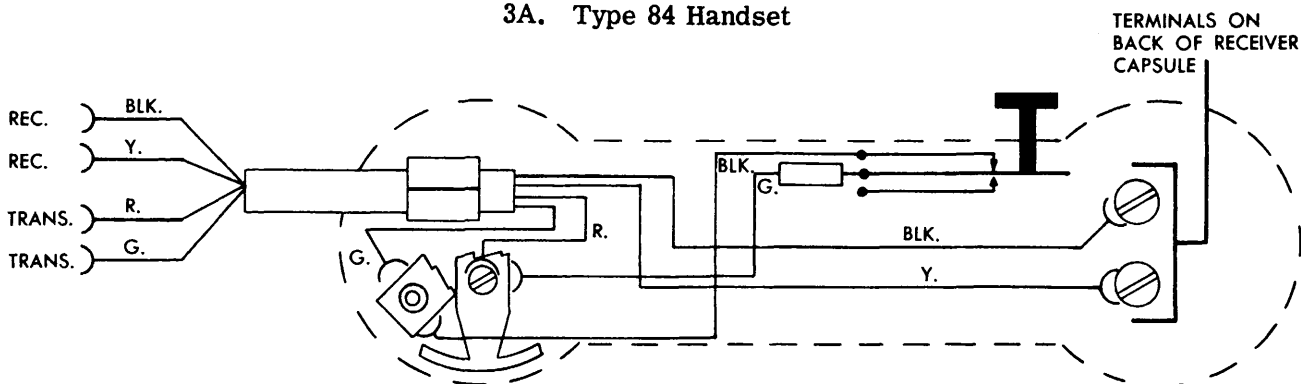
2B. Type 840 Handset

NOTE:  SLEEVE OVER SWITCH TERMINAL.

Figure 2. Handsets Wired for Push-to-Listen Operation



3A. Type 84 Handset



3B. Type 840 Handset

NOTE:  SLEEVE OVER SWITCH TERMINAL.

Figure 3. Handsets Wired for Push-to-Talk Operation

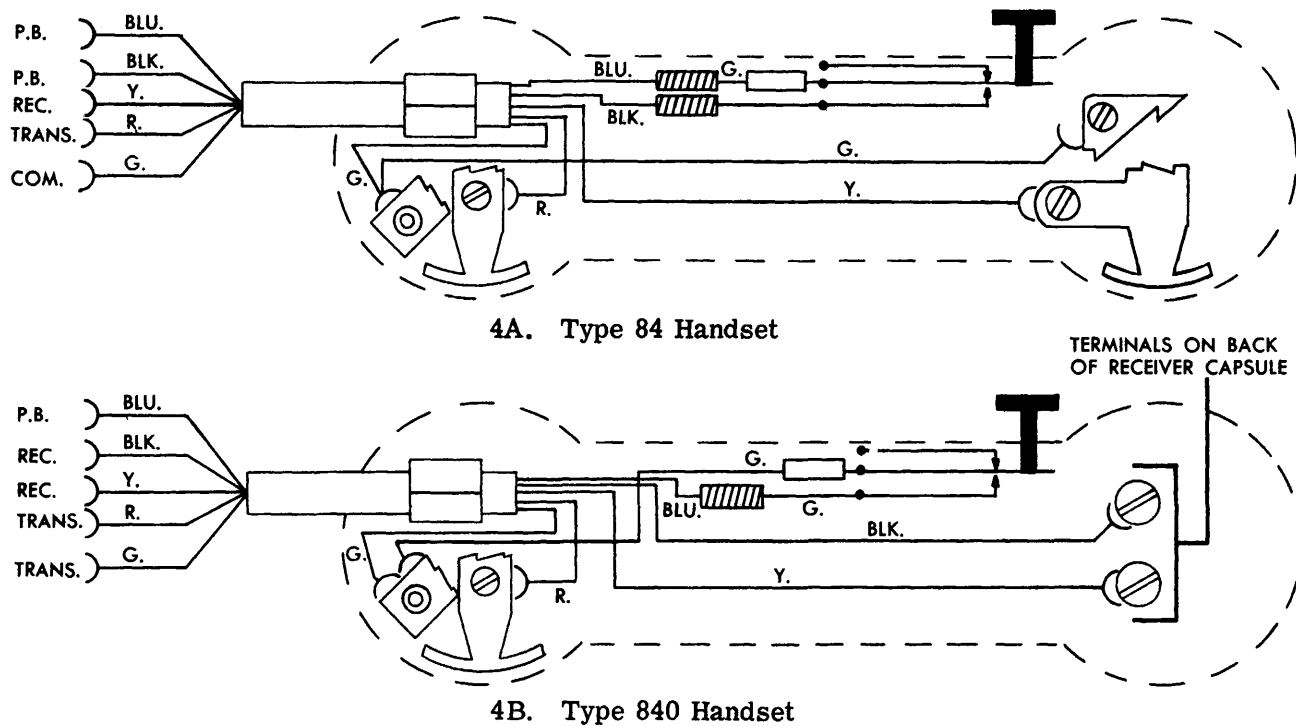


Figure 4. Handsets Wired for Control of External Equipment

designation suffix, as appropriate, when ordering a replacement for a colored 840 anti-noise handset. All other pushbutton handsets are available in black only.)

(d) Handset cord order numbers are listed below for the various pushbutton handsets.

L-9035-CO:	3HA10-K-A.
L-9035-EO:	3HA15-K-A.
L-9046-CO:	3HA10-K-A.
L-9046 (used on type 183 telephone):	3HA15-K-A.
L-9048-CO:	5HA2-K-A.
L-9057-C (color suffix):	4HA6-K- (color suffix).
L-9057-DA:	4HA10-K-A.
L-9057 (used on type 182 telephone):	4HA4-K- (color suffix).

L-9057 (used on type 860A telephone): D-543302- (color suffix).

L-9065-C (color suffix): 4HA6-K- (color suffix).

L-9065-DA: 4HA10-K-A.

L-9065 (used on type 182 telephone): 4HA4-K- (color suffix).

L-9065 (used on type 860A telephone): D-543302- (color suffix).

L-9056-CA: D-543338-A.

#### Cap and Capsule Replacement

5.02 Transmitter and receiver caps are removed by holding the handset with the face of the caps up and then unscrewing the caps. If a capsule is defective, it should be removed from the handset and a new capsule installed.



Cord Replacement (Anti-Noise Operation)

5.03 Cords for anti-noise handsets are replaced as follows:

- (1) Remove caps and capsules from handset.
- (2) Disconnect all leads into handset.
- (3) Loosen flathead screw on side of handgrip.
- (4) Push pushbutton out of hole in handgrip and remove pushbutton spring assembly.
- (5) Insert leads of new telephone handset cord through entrance hole at transmitter end of handset.
- (6) Feed yellow lead (and black lead for 840 handset) through the handgrip into the receiver cavity.
- (7) Screw down line cord holder on transmitter rim contact spring.
- (8) Make handset cord connection(s) at receiver end (see Fig. 2 or 3).
- (9) Replace pushbutton switch assembly (without dust cover) and tighten flathead screw on handgrip. Replace dust cover.
- (10) Make handset cord and pushbutton switch connections at transmitter end (see Fig. 2 or 3).
- (11) Replace capsules and caps.
- (12) Remove telephone housing.
- (13) Disconnect handset cord from telephone (see Table 1 or 2).
- (14) Connect new handset cord to telephone (see Table 1 or 2).
- (15) Replace telephone housing.

Replacement of Pushbutton Spring Assembly (Anti-Noise Handset)

5.04 Replace the pushbutton spring assembly as follows:

- (1) Remove transmitter and receiver cap and capsule.
- (2) Disconnect the pushbutton leads from the transmitter connections (see Fig. 2 or 3).
- (3) On type 84 handset, remove receiver center contact spring.
- (4) Loosen flathead screw on side of handgrip and press the pushbutton into the handgrip. Remove the pushbutton spring assembly through the receiver cavity.
- (5) Remove sleeve and unsolder wires (and resistor if provided) from springs and resolder wires to the corresponding springs on the replacement unit. Replace sleeve (see Fig. 2 or 3).
- (6) Feed pushbutton spring wires through the handgrip to the transmitter cavity.
- (7) Place the pushbutton switch assembly (without dust cover) in position and tighten the flathead screw. Replace dust cover.
- (8) Reconnect leads (see Fig. 2 or 3).
- (9) Replace contact springs, capsules, and caps.

Replacement of Cord and Pushbutton Spring Assembly (Handset Wired for Control of External Equipment)

5.05 The cord or pushbutton spring assembly is replaced on 84 or 840 handsets wired for control of external equipment in the same manner as described for anti-noise handsets (paragraphs 5.03 and 5.04) except that termination at the telephone is specified in Tables 3 and 4 and handset wiring is shown in Fig. 4. The cord conductors which terminate at the spring assembly are fastened together by connecting spade terminals together with a screw and nut. After disconnecting these leads, retain the screw and nut (and the sleeve used to cover the connection) for reconnection after the replacement item has been installed.