AUXILIARY HEADSET FOR USE WITH HANDSET TELEPHONE INSTRUMENT INSTALLATION

CONTENTS PAGE

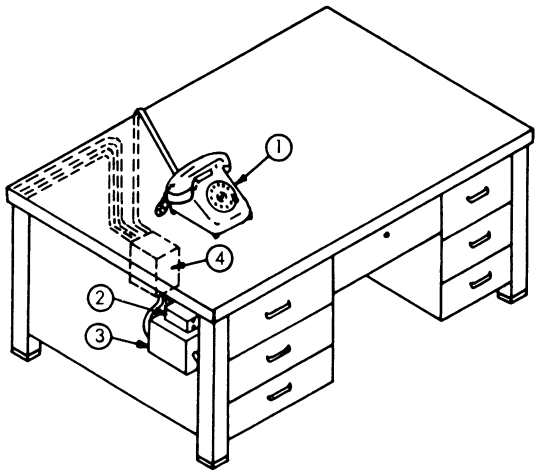
1. GENERAL

1.01 This section provides instructions for adapting telephones for use with an operator's headset. This section is reissued to include information on telephones which have been recently developed, and to provide connection information for improved older model telephones. Because of extensive changes and additions, marginal arrows have been omitted.

1.02 The auxiliary headset service is usually required in locations such as stock brokerages, newspaper offices, etc., where a telephone user must have both hands free for writing or typing while using the telephone, but increased loudness of a speakerphone would be objectionable. Due to a transmission impairment, use of the auxiliary headset is limited to the transmission zones nearest the central office. For a typical arrangement of an auxiliary headset installation, see Figure 1.

1.03 The standard arrangement of the auxiliary headset consists of an operator's headset and the jack box kit shown in Figure 2. The schematic of the jack box kit is shown in Figure 3. Insertion of the headset cord plugs into the jacks automatically disconnects the elements of the telephone handset, and connects the transmitter and receiver of the auxiliary headset in their place. Plugging in the headset when using the standard jack box kit, does not take over the function of the associated telephone hookswitch. Therefore, the handset of the associated telephone set must remain off-hook when the auxiliary headset is being used.

1.04 Auxiliary headset arrangements which use a manually actuated lever key for selecting the mode of operation (headset or handset) are also available. This arrangement permits normal handset operation of the associated telephone without unplugging the auxiliary headset. In some cases, the key is used directly to switch the elements, while in others, it operates a relay which performs the actual switching operation. The latter of these two switching methods can be made to take over the hookswitch functions as well as that of switching the transmitter and receiver. This permits auxiliary headset operation with the handset of the associated telephone remaining in its cradle. For this type of application, a separate BUSY lamp is usually provided to indicate when the telephone set is in the off-hook condition.



1. TELEPHONE SET
2. JACK BOX KIT
3. LEVER KEY (WHEN USED)
4. APPARATUS CABINET (WHEN USED)

Figure 1. Typical Auxiliary Headset Installation.

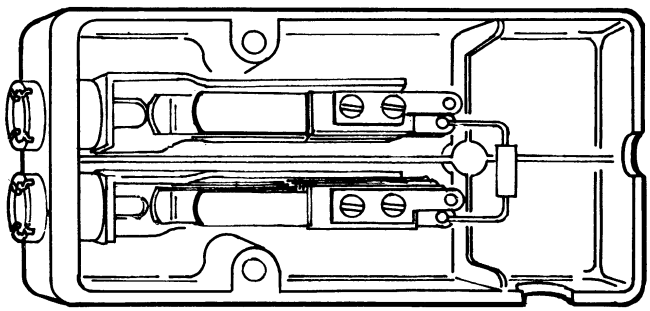


Figure 2. Jack Box Kit.

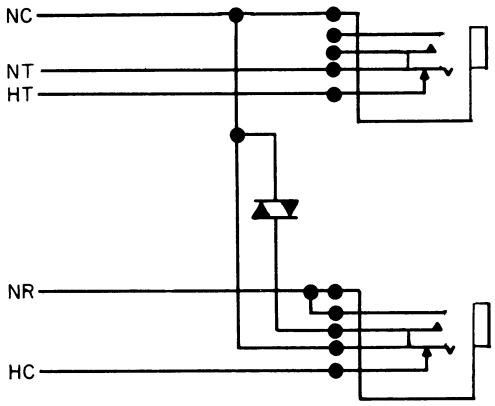


Figure 3. Jack Box Kit Schematic Diagram.

2. INSTALLATION

Standard Auxiliary Headset

2.01 Apparatus required for the standard auxiliary headset installation consists of a (425619) jack box kit (Figure 2), and a twin-plug operator's headset.

2.02 To install a standard auxiliary headset in connection with dial telephone set:

(1) Install the associated dial telephone set according to the appropriate section in this division of General System Practices.

(2) Assemble the jack box kit as follows:

(a) Insert the jacks in the jack mounting holes from the outside of the jack box. Install a plastic jack mounting nut on each jack, and run it down finger tight.

(b) Using 10-conductor, 26 AWG stranded cordage of adequate length to reach to the associated telephone set from the final location of the jack box, wire and solder the jacks as shown in Figure 3. Leave sufficient slack to permit moving the telephone set about its area of location.

(c) Connect the varistor to the jack terminals as shown in Figures 2 and 3.

(d) Unscrew the jack mounting nuts and remove the jacks from the jack mounting holes.

(e) Insert the jacks in the jack mounting holes from inside the jack box, as shown in Figure 2. Place the attached cordage in the wire access slot in the edge of the box.

(f) Install a jack mounting nut on each of the jacks and tighten.

(3) Using mounting hardware appropriate for the type of mounting surface, mount the jack box in the desired location.

(4) Remove the telephone set housing.

(5) Terminate the free end of the cordage leads with pressure-crimped spade lugs, and connect to the associated telephone set as shown in Figure 3 and Table 1 (as appropriate). Refer to Figure 4 for a typical example of the wiring at the telephone set transmission unit.

NOTE: The wires to which leads HC and HT (Table 1) are spliced, must first be disconnected from the telephone set circuitry. When splicing to the handset leads, use pressure-crimped spade lugs on both wires and connect with a 5/16-inch long 5-40 or 6-32 round or binding head machine screw and nut. Tape the splice for insulating purposes.

(6) If necessary, use a file or knife to enlarge the line cord opening to accommodate the additional cord.

(7) Plug the headset into the jacks.

Key-Switched Auxiliary Headset

2.03 The auxiliary headset may be equipped with a lever key for selecting the mode of

Table 1. Dial Telephone Set Connection Data for Standard Auxiliary Headset Installations.

Instrument Type / Jack Wiring			Connect Lead NC to Network Terminal	Connect Lead NR to Network Terminal	Connect Lead NT to Network Terminal	Splice Lead HC to ( ) Handset Conductor	Splice Lead HT to ( ) Handset Conductor	Notes
Self-Compensating	NB Series	80, 85, 90M	RT 3	R 4	T 5	Black	Red	1, 2
		86, 87	3	4	5	Black	Red	3
		182	3	4 (Note 4)	5 (Note 4)	Black	Red	3
		182A, 192A	(RT) 3	(R) 4	(T) 5	Black	Red	2
		183	2	4	5	Black	Red	3
	NC Series	80, 85, 90M	RT 23	R 4	T 5	Black	Red	5
		182A, 192A	(RT) 23	(R) 4	(T) 5	Black	Red	5
		186	23	4	5	8 (Note 6)	5 (Note 6)	5, 7
		187	23	4	5	11 (Note 8)	9 (Note 8)	5, 9
Series Rheostat		80, 85 90, 90M	C 3	R 4	T 5	Green (White)	Red (Black)	3, 10
		86, 183	9	7	6	Green (White)	Red (Black)	3, 10
Leich 100			C	F	T	White	Black	3, 11
Leich 700			R (Note 4)	7 (Note 6)	L2 (Note 4)	White	Black	3, 12

Notes:
1. Instruments with WA-1063-A Transmission Units.
2. Instruments with WA-1120-A Transmission Units.
3. Instruments with Potted Transmission Units.
4. Terminal is located on the induction coil.
5. Instruments with WA-1154-A Transmission Units.
6. Terminal is located on the terminal board.
7. Remove RED and BLK wires from terminals 5 and 23 of the transmission unit to terminals 5 and 8 of the terminal board, respectively.
8. Terminal is located on the terminal block.
9. Remove RED and BLK wires from terminals 5 and 23 of the transmission unit to terminals 9 and 11 of the terminal block, respectively.
10. These sets lack automatic sidetone compensation. The colors in parentheses were used prior to April, 1957.
11. White lead was formerly on terminal C. Use terminal S for junction if unused.
12. White lead was formerly on terminal R.

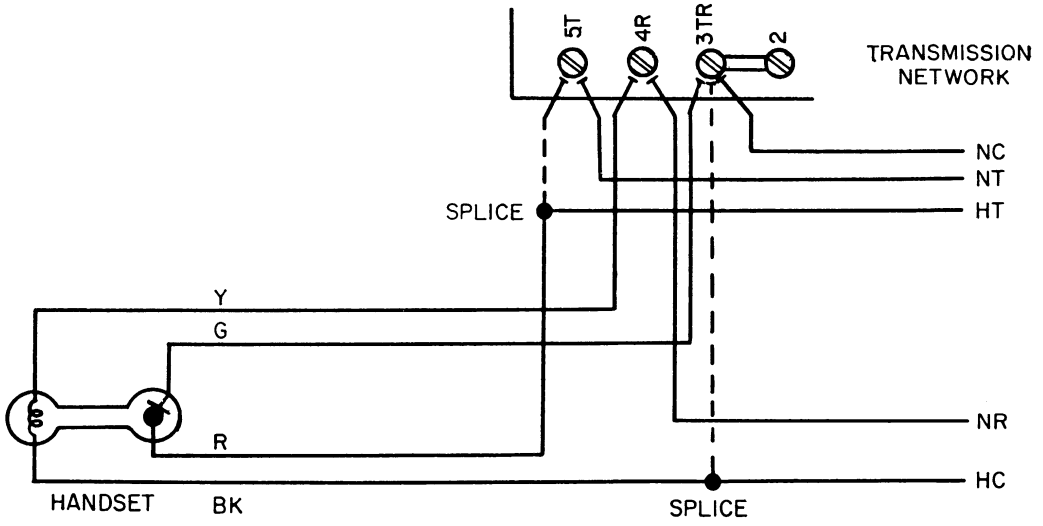


Figure 4. Connection Diagram of a Standard Auxiliary Headset Installation on a Type 80 Dial Telephone.

operation. When this type of installation is used with a dial telephone, the headset may remain plugged into the jacks when the telephone set is used in normal handset operation.

2.04 At a station served by a 10A1 key system, the need for A-lead control in addition to other functions exceeds the capacity of the lever key. Therefore, the relay-controlled auxiliary headset (Figure 7 or 8) must be used in this application. Voltage for operating the relay is obtained from the key system power supply.

2.05 Apparatus requirements for the key-switched auxiliary headset installation are:

(a) One jack box kit (425619).

(b) One lever key (with box) (425602).

(c) One resistor, 50 Ω , 5 W.

(d) One twin-plug operator's headset.

2.06 To install the key-switched auxiliary headset on dial telephone sets:

(1) Install the associated dial telephone set according to the appropriate section in this division of General System Practices.

(2) Determine the desired locations for the jack box and lever key.

(3) Remove the cover from the lever key.

(4) Using mounting hardware appropriate for the type of surface, mount the lever key.

(5) Using station wire, attach the two (a) leads of Figure 5 to terminals 3 and 4 of the lever key. Leave these leads long enough to reach the jack terminals with the jack box mounted in its desired location.

(6) Using 10-conductor, 26 AWG. stranded cordage, attach leads to the remaining terminals of the lever key, and the NR lead to the jack as shown in Figure 5. Leave the cordage long enough to reach to the associated telephone set when it is in its normal location. Leave some slack to facilitate moving the telephone about its area of location.

(7) Remove the telephone set housing.

(8) Terminate the free ends of the cordage leads in pressure-crimped spade lugs, and connect them to the associated telephone set according to Figure 5 and Table 1 (as appropriate).

NOTE: The wires to which leads HC and HT (Table 1) are spliced, must first be disconnected from the telephone set circuitry. When splicing to the handset leads, use pressure-crimped spade lugs on both wires, and connect with

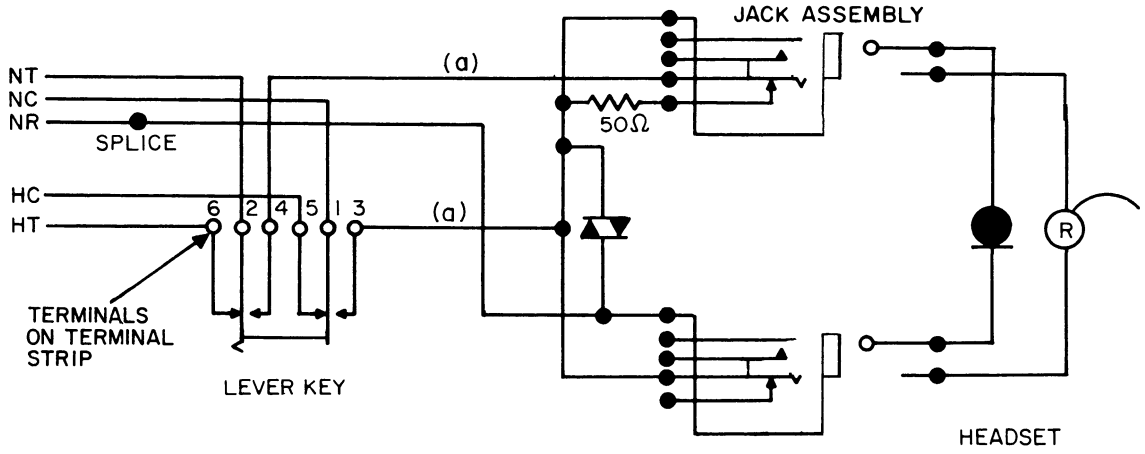


Figure 5. Key-Switched Auxiliary Headset for Dial Telephone Sets Schematic Drawing.

a 5/16-inch long 5-40 or 6-32 round or binding head machine screw and nut. Tape the splice for insulating purposes.

(9) Assemble the jack box kit as follows:

(a) Insert the jacks in the jack mounting holes from the outside of the jack box. Install a plastic jack mounting nut on each jack and run it down finger tight.

(b) Connect leads (a), (a), from the lever key assembly as shown in Figure 5.

(c) Install the varistor and 50Ω, 5 W resistor on the jack terminals as shown in Figure 5.

(d) Unscrew the jack mounting nuts, and remove the jacks from the jack mounting holes.

(e) Insert the jacks in the jack mounting holes from the inside of the jack box as shown in Figure 2. Place the incoming leads in the wire access slot in the edge of the jack box.

(f) Install a plastic jack mounting nut on each of the jacks and tighten.

(10) Using hardware appropriate for the type of mounting surface, mount the jack box.

(11) Replace the telephone set housing.

(12) Replace the cover on the lever key.

(13) Plug the headset into the jacks.

2.07 The auxiliary headset may be attached to a Touch Calling telephone set also, by use of the key-switching arrangement. However, in this application, the auxiliary headset must be unplugged for normal handset operation of the associated telephone set.

2.08 To install the key-switched auxiliary headset on a Touch Calling telephone set:

(1) Install the Touch Calling telephone set according to the appropriate section of this division of General System Practices.

(2) Determine the desired locations for the jack box and lever key.

(3) Remove the cover from the lever key.

(4) Using mounting hardware appropriate for the type of surface, mount the lever key.

(5) Using station wire, attach the two (a) leads (Figure 6) to terminals 3 and 4 of the lever key. Leave these leads long enough to reach the jack terminals with the jack box mounted in its desired location.

(6) Using 10-conductor, 26 AWG. stranded cordage, attach leads to the remaining terminals of the lever key, as shown in Figure 6. Leave the cordage long enough to reach to the associated telephone set when it is in its normal location. Leave some slack to facilitate moving the telephone about its area of location.

(7) Remove the telephone set housing.

(8) Terminate the free ends of the cordage leads in pressure-crimped spade lugs, and connect them to the associated telephone set according to Figure 6 and Table 2 (as appropriate).

NOTE: Wires A, B, C, and D, must first be disconnected from the telephone set circuitry as indicated in Table 2, before splicing them to the cordage leads as shown in Figure 6. The remaining cordage leads are then connected to the terminals thus vacated, as shown in Figure 6.

(9) Assemble the jack box kit as follows:

(a) Insert the jacks in the jack mounting holes from the out-

Table 2. Connection Data for Auxiliary Headset Installation on Touch Calling Telephones.

Telephone Set Type	LEAD A			LEAD B			LEAD C			LEAD D		
	Ter-minal	Wire Color	Lead To	Ter-minal	Wire Color	Lead to	Ter-minal	Wire Color	Lead To	Ter-minal	Wire Color	Lead To
80	B*	Blk	RCVR	5	Red	XMTR	4	Yel	RCVR	A*	Grn	XMTR
186	8**	Blk	RCVR	5**	Red	XMTR	7**	Yel	RCVR	6**	Grn	XMTR
187	11**	Blk	RCVR	9**	Red	XMTR	10**	Yel	RCVR	8**	Grn	XMTR
182A and 192A	22	Blk	RCVR	5	Red	XMTR	4	Yel	RCVR	3	Grn	XMTR

* Terminals located on terminal strip. All others located on transmission unit.

**Terminals located on terminal board.

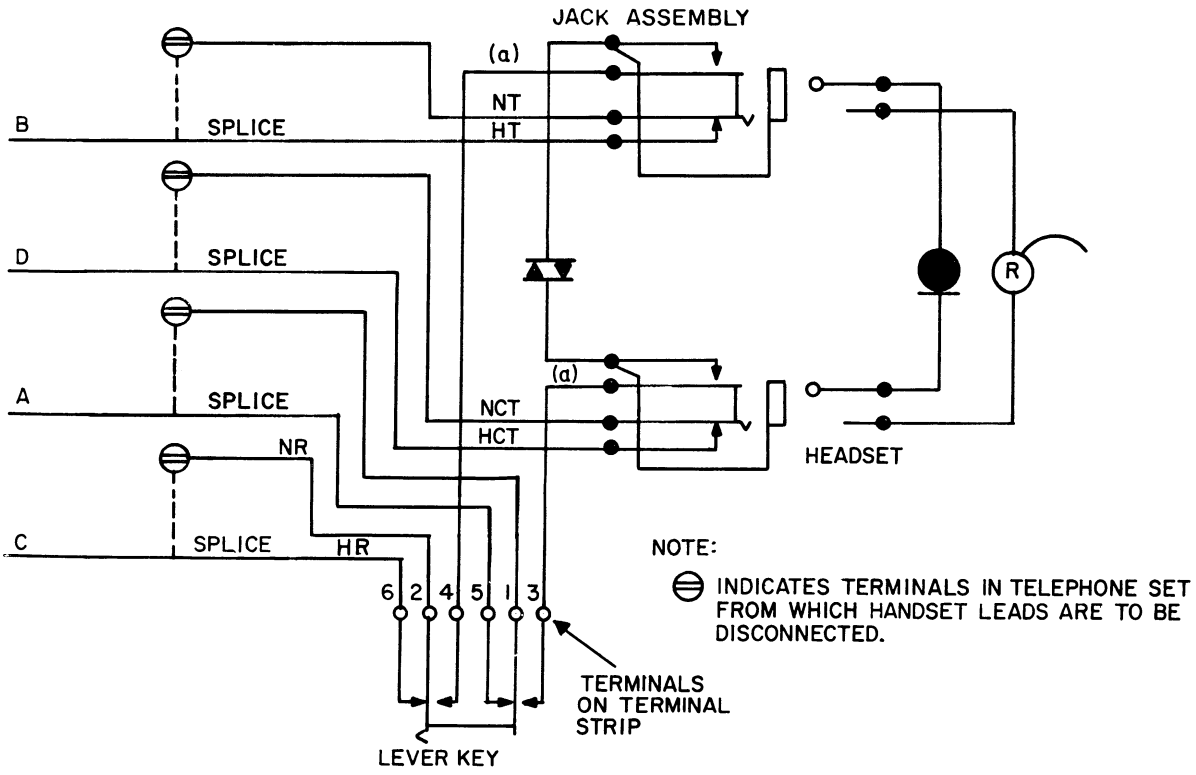


Figure 6. Schematic Diagram of Auxiliary Headset Installation on Touch Calling Telephones.

side of the jack box. Install a plastic jack mounting nut on each jack and run it down finger tight.

(b) Connect leads (a), (a), from the lever key as shown in Figure 6.

(c) Install the varistor and 50 Ω , 5W resistor on the jack terminals as shown in Figure 6.

(d) Unscrew the jack mounting nuts, and remove the jacks from the jack mounting holes.

(e) Insert the jacks in the jack mounting holes from the inside of the jack box, as shown in Figure 2. Place the incoming leads in the wire access slot in the edge of the jack box.

(f) Install a plastic jack mounting nut on each of the jacks and tighten.

(10) Using hardware appropriate for the type of mounting surface, mount the jack box.

(11) Replace the telephone set housing.

(12) Replace the cover on the lever key.

(13) Plug the headset into the jacks.

Relay Controlled Auxiliary Headset

2.09 The auxiliary headset, when installed on key telephones, may be controlled by a relay and lever key combination. This arrangement permits the use of a simple lever key to provide switching of the hookdwitch functions as well as the transmitter and receiver. Power for operating the relay is obtained from the key telephone system power supply.

2.10 Apparatus requirements for the relay controlled auxiliary headset are:

(a) One jack box kit.

(b) One lever key.

(c) One twin-plug operator's headset.

(d) One BUSY visual signal.

(e) One switchboard lamp (437405).

(f) One W.E.Co. 229B KTU.

(g) One Spec. T apparatus cabinet.

2.11 To install a relay-controlled auxiliary headset on a key telephone set:

(1) Install the associated key telephone set according to the appropriate section in this division of General System Practices.

(2) Install the KTU in the apparatus cabinet.

(3) Remove the cover from the lever key.

(4) Using hardware appropriate for the type of mounting surface, mount the lever key in the desired location.

(5) Mount the apparatus cabinet containing the KTU, in a location which is convenient to the telephone set, lever key, and jack box locations.

(6) Remove the telephone set housing.

(7) Using 16-conductor, 26 AWG., stranded cordage, make connections between the KTU and the key telephone set according to Figure 7 and Table 3. Use pressure-crimped spade lugs for terminating the cordage leads.

(8) Using station wire, connect the lever key to the KTU as shown in Figure 7.

(9) Assemble the jack box kit as follows:

(a) Insert the jacks in the jack mounting holes from the outside of the jack box. Install a plastic jack mounting nut on each jack, and run it down finger tight.

(b) Using station wire, attach leads to the jack terminals as shown in Figure 7.

(c) Install the varistor on the jack terminals, connecting it to the jacks as shown in Figure 7.

(d) Unscrew the jack mounting nuts, and remove the jacks from the jack mounting holes.

(e) Insert the jacks in the jack mounting holes from the inside of the jack box, with the attached wires resting in the wire access slot in the edge of the box.

(f) Install a plastic mounting nut on each jack and tighten.

(10) Install the BUSY visual signal, equipped with the switchboard lamp,

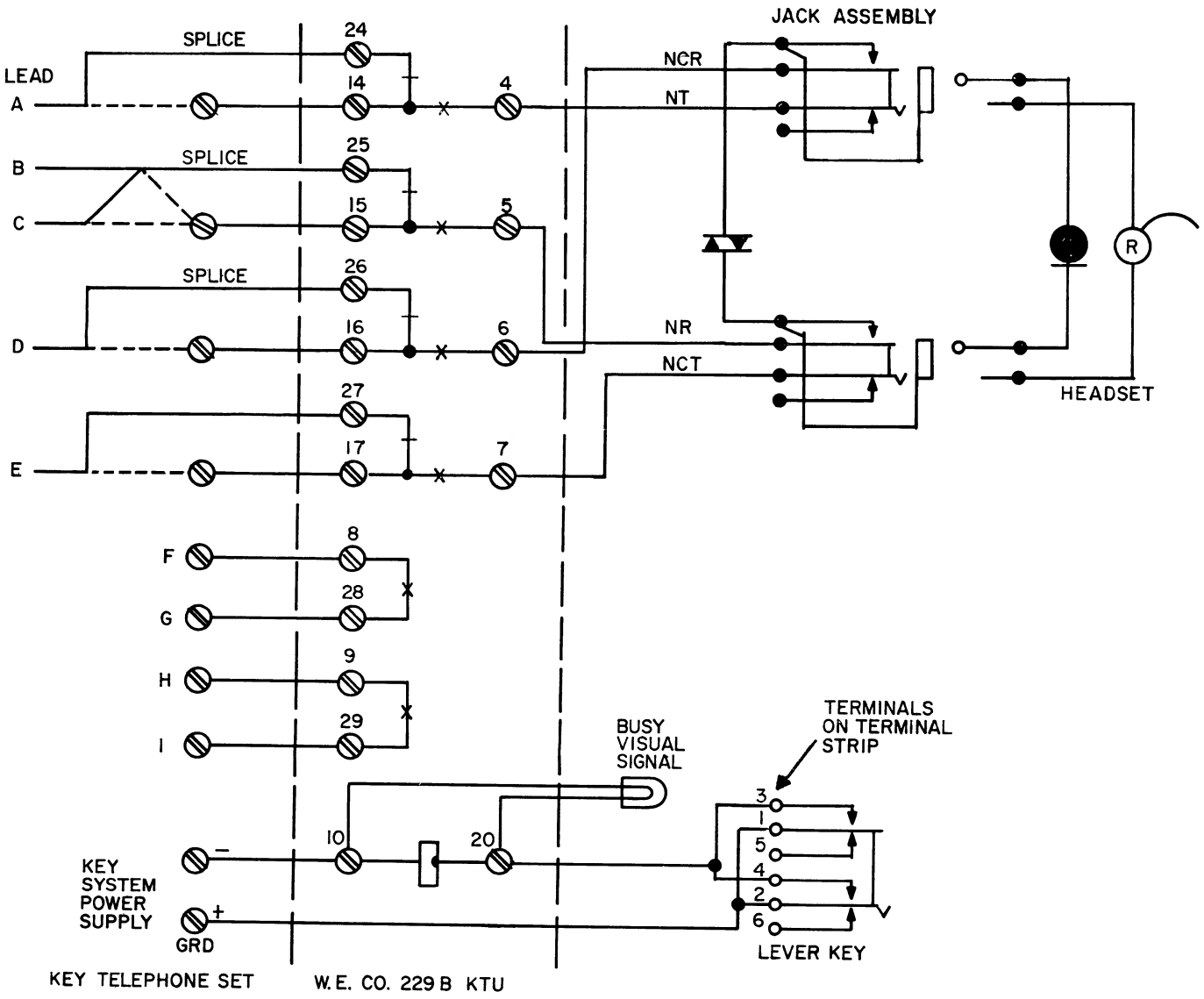


Figure 7. Relay Controlled Auxiliary Headset Connection Diagram for Touch Calling Telephones.

in a conspicuous place near the associated key telephone set. Use station wire to connect to the KTU as shown in Figure 7.

NOTE: The BUSY visual signal is optional, and may be omitted if it is so desired.

(11) Replace the telephone set housing.

(12) Replace the lever key cover.

(13) Plug the headset into the jacks.

2.12 The relay-controlled auxiliary headset with hookswitch function may be used with any conventional telephone set, by providing a separate 18-volt power supply for powering the KTU and BUSY visual signal. Connect this type of arrangement to Touch Calling telephones according to Figure 7 and Table 4. For connections to rotary dial telephone sets, refer to Figure 8 and Table 5. Except for mounting and connecting the power supply, install as instructed in Paragraph 2.09. See the appropriate section in the 490-100 Series of General System Practices for instructions for installing and connecting the power supply.

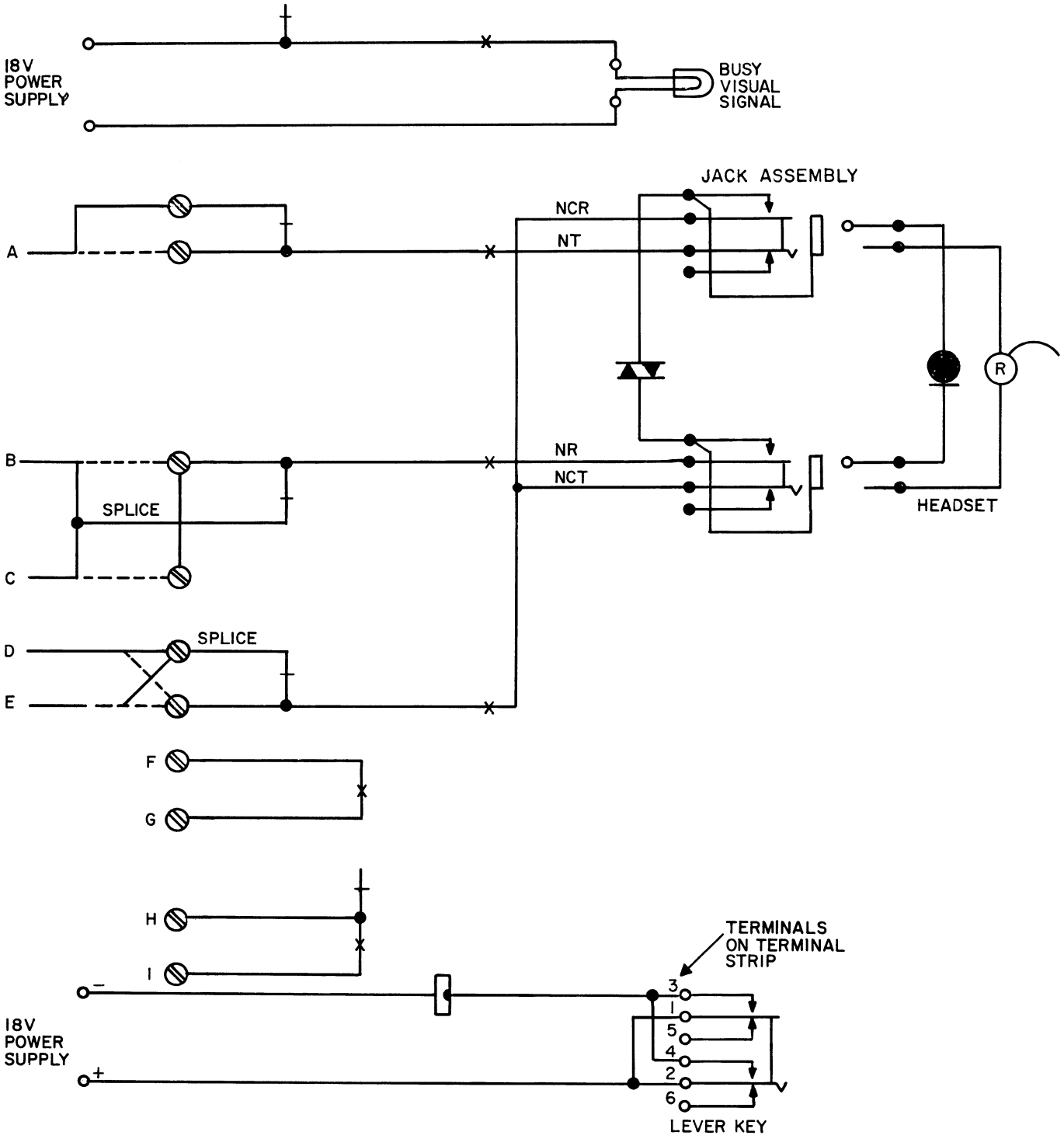


Figure 8. Relay Controlled Auxiliary Headset Connections to Conventional Dial Telephones.

Table 3. Relay Controlled Auxiliary Headset Connections to Key Telephone Sets.

Telephone Set Type	LEAD A			LEAD B			LEAD C			LEAD D			LEAD E			LEAD F			LEAD G			LEAD H			LEAD I		
	Terminal	Wire Color	Unit	Terminal	Wire Color	Unit	Terminal	Wire Color	Unit	Terminal	Wire Color	Unit	Terminal	Wire Color	Unit	Terminal	Wire Color	Unit	Terminal	Wire Color	Unit	Terminal	Wire Color	Unit	Terminal	Wire Color	Unit
86	5	Red	XMTR	4	Yel	RCVR	4	Orn	HKSW	3	Blk	RCVR	3	Grn	XMTR	1B*	—	HKSW	N*	Wh	HKSW	R*	—	HKSW	11	—	HKSW
87A	5	Red	XMTR	4	Yel	RCVR	4	Orn	HKSW	3	Blk	RCVR	3	Grn	XMTR	2	—	HKSW	L2*	Blk	HKSW	L1*	—	HKSW	11	—	HKSW
186	5	Red	XMTR	4	Yel	RCVR	4	Blu	HKSW	8**	Blk	RCVR	6**	Grn	XMTR	1B**	—	HKSW	N**	Wh	HKSW	6	—	HKSW	R**	—	HKSW
187	5	Red	XMTR	4	Yel	RCVR	4	Blu	HKSW	11**	Blk	RCVR	8**	Grn	XMTR	11	—	HKSW	13**	Wh	HKSW	1**	—	HKSW	2**	—	HKSW
860A	5	Red	XMTR	4	Yel	RCVR	4	Grn	HKSW	3	Blk	RCVR	3	Grn	XMTR	20	—	HKSW	13	Brn	HKSW	10	—	HKSW	11	—	HKSW
860B (dial)	N**	Red	XMTR	G**	Yel	RCVR	13	Grn	HKSW	F**	Blk	RCVR	P**	Grn	XMTR	J**	—	HKSW	K**	Brn	HKSW	E**	—	HKSW	11	—	HKSW
WECO 630 Call Director	G	Red	XMTR	L1	Wh	RCVR	L1	Blk	HKSW	Gn	Wh	RCVR	B	Blk	XMTR	5**	—	HKSW	1**	Yel	HKSW	2**	—	HKSW	C	—	HKSW

* Located on terminal strip. All others located on transmission unit.
**Located on terminal board.

Table 4. Relay Controlled Auxiliary Headset Connections to Conventional Touch Calling Telephones.

Telephone Set Type	LEAD A			LEAD B			LEAD C			LEAD D			LEAD E			LEAD F			LEAD G			LEAD H			LEAD I		
	Terminal	Wire Color	Unit	Terminal	Wire Color	Unit	Terminal	Wire Color	Unit	Terminal	Wire Color	Unit	Terminal	Wire Color	Unit	Terminal	Wire Color	Unit	Terminal	Wire Color	Unit	Terminal	Wire Color	Unit	Terminal	Wire Color	Unit
80	5	Red	XMTR	4	Yel	RCVR	13	Brn	HKSW	B*	Blk	RCVR	A*	Grn	XMTR	C*	—	HKSW	8	Wht	HKSW	D*	—	HKSW	10	Wht	HKSW
182A	5	Red	XMTR	4	Yel	RCVR	4	Brn	HKSW	22	Blk	RCVR	3	Grn	XMTR	20	—	HKSW	8	Wht	HKSW	10	—	HKSW	11	—	HKSW
186	5	Red	XMTR	4	Yel	RCVR	4	Blu	HKSW	8†	Blk	RCVR	6†	Grn	XMTR	1B†	—	HKSW	N†	Wht	HKSW	6	—	HKSW	R†	—	HKSW
187	5	Red	XMTR	4	Yel	RCVR	4	Blu	HKSW	11†	Blk	RCVR	8†	Grn	XMTR	11	—	HKSW	13†	Wht	HKSW	1†	—	HKSW	2†	—	HKSW
192A	5	Red	XMTR	4	Yel	RCVR	4	Brn	HKSW	22	Blk	RCVR	3	Grn	XMTR	20	—	HKSW	8	Wht	HKSW	10	—	HKSW	11	—	HKSW
860A**	5	Red	XMTR	4	Yel	RCVR	4	Grn	HKSW	3	Blk	RCVR	3	Grn	XMTR	20	—	HKSW	13	Brn	HKSW	10	—	HKSW	11	—	HKSW
860B (dial)	N†	Red	XMTR	G†	Yel	RCVR	13	Grn	HKSW	F†	Blk	RCVR	P†	Grn	XMTR	J†	—	HSKW	K†	Brn	HKSW	E†	—	HKSW	11	—	HKSW

* Located on terminal strip.. All others located on transmission unit.
**Positions D and E may be combined through a single set of contacts.
† Located on terminal board.

Table 5. Relay Controlled Auxiliary Headset Connections to Conventional Self-compensated Dial Telephones.

Telephone Set Type	LEAD A			LEAD B			LEAD C			LEAD D			LEAD E			LEAD F			LEAD G			LEAD H			LEAD I		
	Terminal	Wire Color	Lead To	Terminal	Wire Color	Lead To	Terminal	Wire Color	Lead To	Terminal	Wire Color	Lead to	Terminal	Wire Color	Lead To	Terminal	Wire Color	Lead To	Terminal	Wire Color	Lead To	Terminal	Wire Color	Lead To	Terminal	Wire Color	Lead To
80	5T	Red	XMTR	4R	Yel	RCVR	13	Grn	HKSW	3TR	Blk	RCVR	3TR	Grn	XMTR	3TR	Wh	HKSW	8	—	HKSW	15	—	HKSW	11	—	HKSW
85A, B, C	T5	Red	XMTR	4	Yel	RCVR	13	Grn	HKSW	23	Blk	RCVR	23	Grn	XMTR	23	Wh	HKSW	8	—	HKSW	15	—	HKSW	11	—	HKSW
86	5	Red	XMTR	4	Yel	RCVR	4	Orn	HKSW	3	Blk	RCVR	3	Grn	XMTR	1B*	—	HKSW	N*	Wh	HKSW	R*	—	HKSW	11	—	HKSW
87A	5	Red	XMTR	4	Yel	RCVR	4	Orn	HKSW	23	Blk	RCVR	23	Grn	XMTR	23	Blk	HKSW	L2*	—	HKSW	L1*	—	HKSW	11	—	HKSW
182	5**	Red	XMTR	4	Yel	RCVR	4	Vio	HKSW	3	Blk	RCVR	3	Grn	XMTR	3	Blk	HKSW	8	—	HKSW	10	—	HKSW	11	—	HKSW
182A	5	Red	XMTR	4	Yel	RCVR	4	Grn	HKSW	23	Blk	RCVR	23	Grn	XMTR	23	Wh	HKSW	8	—	HKSW	15	—	HKSW	11	—	HKSW
183	5	Red	XMTR	4	Yel	RCVR	4	Grn	HKSW	2	Blk	RCVR	2	Grn	XMTR	2	Blk	HKSW	16	—	HKSW	15	—	HKSW	11	—	HKSW
186	5	Red	XMTR	4	Yel	RCVR	13	Grn	HKSW	23	Blk	RCVR	23	Grn	XMTR	23	Wh	HKSW	N†	—	HKSW	R†	—	HKSW	11	—	HKSW
187	5	Red	XMTR	4	Yel	RCVR	13	Grn	HKSW	23	Blk	RCVR	23	Grn	XMTR	23	Wh	HKSW	13†	—	HKSW	1†	—	HKSW	2	—	HKSW
192A	5	Red	XMTR	4	Yel	RCVR	4	Grn	HKSW	23	Blk	RCVR	23	Grn	XMTR	23	Wh	HKSW	8	—	HKSW	15	—	HKSW	11	—	HKSW
860A	5	Red	XMTR	4	Yel	RCVR	4	Grn	HKSW	3	Blk	RCVR	3	Grn	XMTR	3	Yel	HKSW	8	—	HKSW	10	—	HKSW	11	—	HKSW
860B	N†	Red	XMTR	G†	Yel	RCVR	13	Orn	HKSW	F†	Blk	RCVR	P†	Grn	XMTR	J†	—	HKSW	K†	Brn	HKSW	E†	—	HKSW	11	—	HKSW

* Located on terminal strip. All others located on transmission unit.
** Located on induction coil.
(1)Located on terminal board.