

TYPE 84 AND 840 HANDSETS

Type 84 and 840 Handsets 470-933



Technical
bulletin 470-933

AUTOMATIC ELECTRIC



Subsidiary of

GENERAL TELEPHONE & ELECTRONICS



Factory, development laboratories, and general office at Northlake, Illinois, U.S.A.

AUTOMATIC ELECTRIC COMPANY is an organization of designing, engineering, and manufacturing specialists in the fields of communication, electrical control, and allied arts. For more than sixty years the company has been known throughout the world as the originator and parent manufacturer of the Strowger Automatic Telephone System. Today Strowger-type equipment serves over 75% of the world's automatic telephones. The same experience and technique that have grown out of the work of Automatic Electric engineers in the field of telephone communication are also being successfully applied on an ever-increasing scale to the solution of electrical control problems in business and industry.

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Strowger Automatic Telephone Systems—Complete automatic central-office equipment for exchange areas of any size, from small towns to the largest metropolitan networks.

Community Automatic Exchanges—Unattended automatic units for small rural or suburban areas, with facilities for switching into attended exchanges.

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Makers also of electrical control apparatus for industrial, engineering, and public utility companies, telephone apparatus for railroads and pipe-line companies, private telephone systems of all types, electrical and communication devices for aircraft and airways control, and special communication apparatus for military and naval departments.

TYPE 84 AND 840 HANDSETS

1. GENERAL

1.1 The Type 84 and 840 handsets are equipped with a push-button switch that can be wired to perform various functions not possible with a standard handset. The Type 84 handset is adaptable to most Automatic Electric Company telephones equipped with a manually-adjusted loop compensator, and the Type 840 handset to telephones utilizing self-compensating features. The handset shown in figure 1 represents an 84 or 840 handset as both have the same outward physical appearance.



Figure 1. Type 84 or 840 handset.

1.2 These handsets can be used advantageously in noisy locations to minimize sidetone, thus improving the reception of the distant party. Also, the push-button switch of the handset can control the operation of remotely located equipment, such as a dictation machine. These handsets are also used to conserve battery current on local battery railroad telephone installations.

2. DESCRIPTION

2.1 The Type 84 and 840 handsets are similar in appearance to the standard Type 81 and 810 handsets with the exception of a push-button protruding through the side of the handgrip and a spring combination installed within the interior of the handgrip. The handsets measure approximately 8-1/2" long, 2-3/4" high, and 2-1/2" wide.

2.2 The Type 84 handset is available with 3-, 4-, 5-, or 6- conductor cord while the Type 840 handset has either a 4- or 5-conductor cord depending upon the service function.

Type 84 and 840 handsets are available in black and ten colors (sand beige, dawn gray, jade green, classic ivory, garnet red, turquoise, sunlight yellow, forget-me-not blue, camellia pink, and gardenia white).

3. OPERATION

3.1 For anti-noise operation the push-button 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.

3.2 The push-button switch can be wired for either press-to-talk, or press-to-listen at the user's option. When wired for press-to-talk operation it is necessary to depress the push button to transmit, that is, the transmitter is normally out of the circuit. For press-to-listen operation the transmitter is normally in the circuit. To eliminate the sound from the transmitter input it is necessary to depress the push button. Figures 2 and 3 illustrate the wiring of press-to-talk and press-to-listen handsets respectively.

3.3 For remote control, the push-button switch is wired to actuate the equipment when the push button is depressed.

3.4 On local-battery railroad telephones, where the transmission loop between stations is long, the push button is wired for press-to-talk operation. Depressing the push-button places a 750-ohm resistor in series with the receiver, diverting a portion of the battery receiver current to the transmission circuit.

4. MAINTENANCE

4.1 To remove the caps and capsules of the transmitter and receiver housing, hold the handset in a horizontal position with the

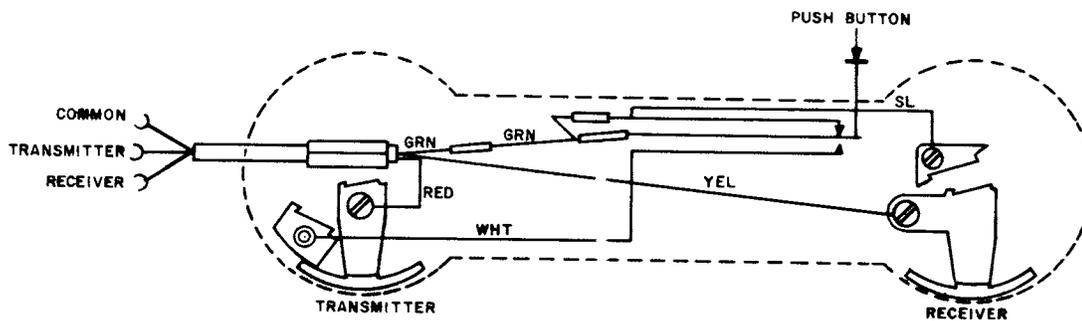


Figure 2a. Type 84 handset wired for press-to-talk operation.

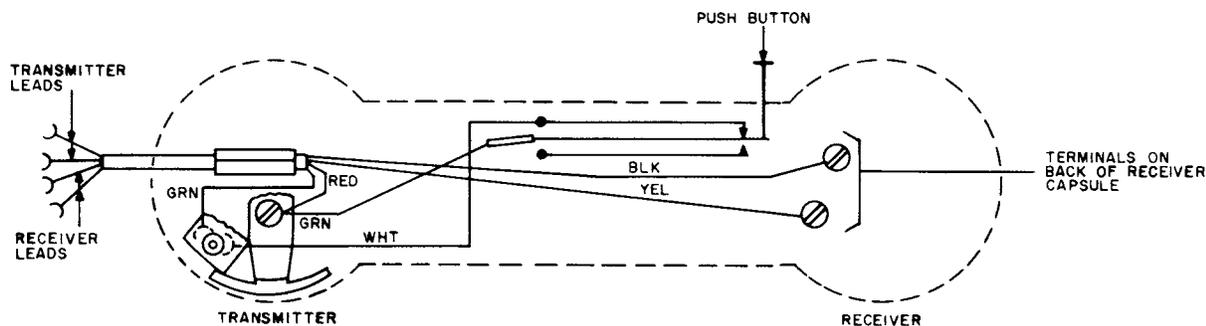


Figure 2b. Type 840 handset wired for press-to-talk operation.

caps facing upward and unscrew the caps. The transmitter capsule is so designed that it cannot be inserted into the receiver housing through error and vice versa. Capsules cannot be repaired at the customer's premises because disassembly without proper facilities will damage the capsule. If difficulty is experienced with a capsule, remove and replace. Defective units should be returned to Automatic Electric Company.

4.2 Cord replacement procedures of the Type 84 and 840 handsets are similar, with the exception that some electrical connections are mechanically different. Use the following procedure to replace the cord in the Type 84 or 840 handset.

- (1) Remove the transmitter and receiver capsules per paragraph 4.1.
 - (2) Lift out the central contact springs from the transmitter and receiver cavities (figure 4). The Type 840 handset has central contact springs in the transmitter cavity only.
- NOTE: Before removing any leads, check Table 1 or Table 2 to determine which leads must be removed.
- (3) Loosen screws and remove leads from central and/or rim contact springs in transmitter and receiver cavities. The leads terminate at the receiver capsule itself in the Type 840 handset.

- (4) Disconnect the cord conductor(s) that are connected to the push-button spring combination. These line cord leads terminate at a screw and nut connection, shown in figure 4, and are covered by a sleeve.
- (5) Remove cord holder screw from rim contact spring and pull out cord.
- (6) Insert leads of replacement cord through entrance hole at transmitter end of handset.
- (7) Check Table 1 or Table 2 to determine which leads must be fed through hand grip. It may be helpful to connect an extra length of wire to the line cord lead to facilitate feeding the lead through the hand grip.
- (8) Connect line cord holder to rim contact spring.
- (9) Connect line cord leads per Table 1 or 2. If a cord lead is connected to the push-button spring combination, ascertain that the sleeve is replaced over the screw and nut connection.
- (10) After all leads have been connected, loop the slack into mouth of hand grip.
- (11) When replacing the central contact spring in the transmitter cavity, the

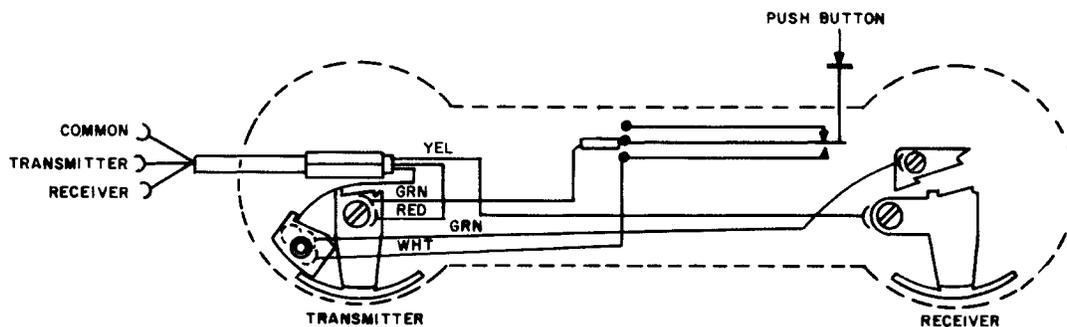


Figure 3a. Type 84 handset wired for press-to-listen operation.

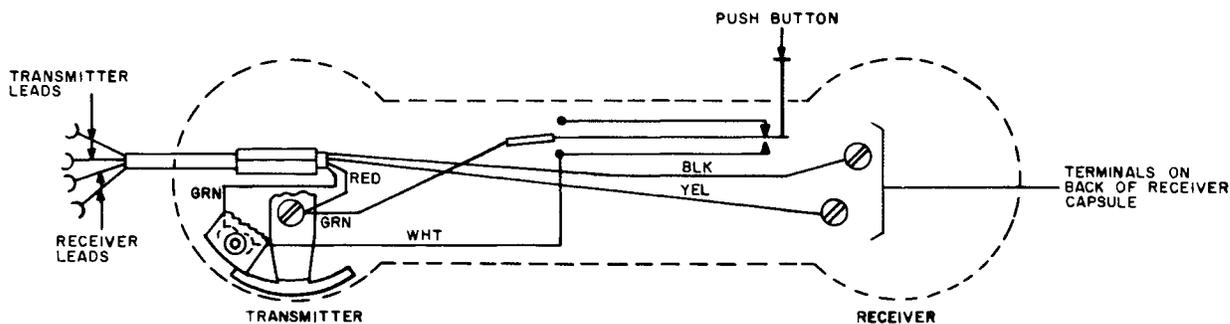


Figure 3b. Type 840 handset wired for press-to-listen operation.

screw and lead termination must face down; the stud faces up.

(12) On the Type 84 handset, the screw on the receiver central contact spring faces up, the stud in position, facing down, in the recess in the receiver cavity.

(13) Replace transmitter and receiver capsules and caps.

4.3 Use the following procedure to replace the push-button spring combination in the Type 84 or 840 handset.

(1) Remove handset caps and capsules.

(2) Disconnect the push-button leads from the transmitter or receiver connections. If a wiring diagram is unavailable, make a sketch showing the switch wiring to facilitate wiring the new switch.

(3) Remove flat-head screw from the side of the hand grip.

(4) It may be helpful on some handsets to remove the spring combination dust cover, and the receiver rim contact spring before attempting to remove the push-button spring combination.

(5) Press the push button into the hand grip, and remove push-button spring combination through receiver cavity.

(6) Unsolder wires and resistor, if provided, from spring combinations noting their position and solder to replacement spring combination. If the replacement switch contains wire leads ascertain they are in the same position.

(7) Place push-button spring combination into receiver cavity, feed in proper leads through handset grip. Replace dust cover.

(8) Align push button with the proper hole in hand grip and replace flat head screw.

(9) Reconnect leads per wiring diagram or sketch.

(10) Replace receiver central contact spring, and rim contact spring if removed.

(11) Replace caps and capsules.

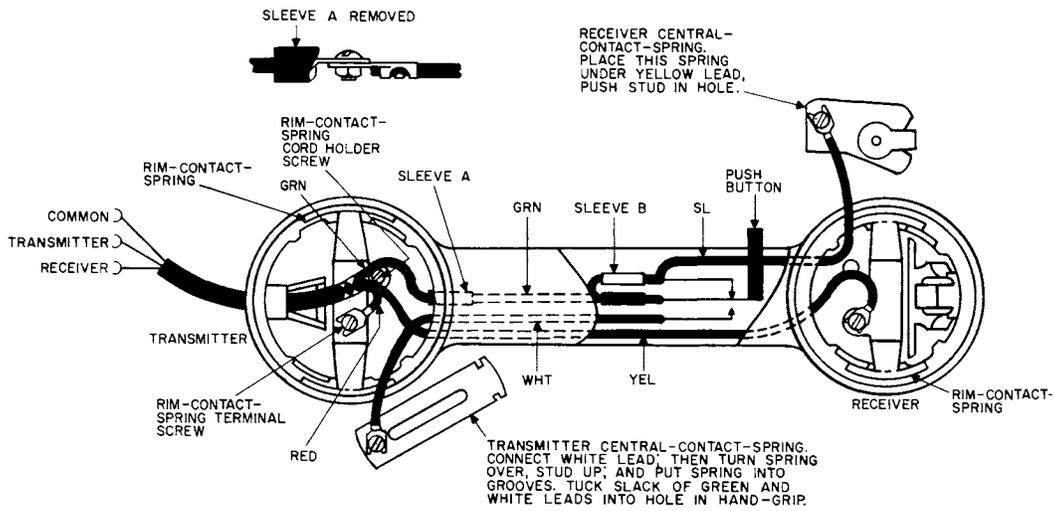


Figure 4a. Cord terminations, Type 84 handset.

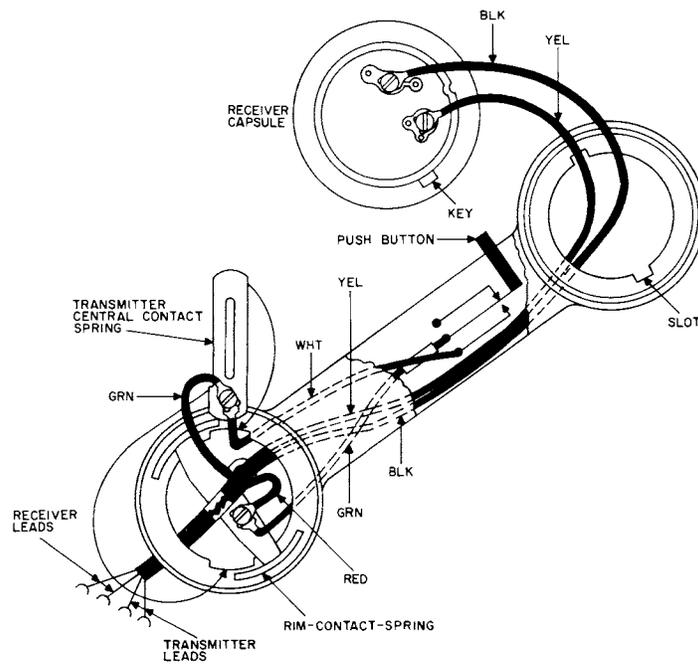


Figure 4b. Cord terminations, Type 840 handset.

5. CONNECTION TO TELEPHONE

To remove the telephone housing refer to the applicable bulletin. Table 3 lists the termina-

tion points for the 84 and 840 handset. The telephones and handsets listed are the most commonly used. For other applications contact Automatic Electric for connection information.

6. ORDERING INFORMATION

6.1 Type 84 Handsets

Description	Order Number Handset With Retractable Cord
Common Battery Installation (Push-to-Talk)	L-9046-CO
Local Battery Installation (Push-to-Talk)	{ Type 80, 83, 90M Telephone L-9030-CO
	{ Type 10A Railway Telephone L-9030-EO
	{ Type 183 Telephone L-9030-FO
Anti-Noise Telephone (Push-to-Listen)	{ Type 183 Telephone L-9035-EO
	{ Type 80 and 90M Telephone L-9035-CO
Anti-Noise Telephone (4 Cond Cord)	L-9063-CO
Switch Wired for Control of External Equipment (5 Cond Cord)	L-9048-CO
Switch Wired for Control of External Equipment (6 Cond Cord)	L-9051-AO

NOTE: The above order numbers are for black handsets. If colored handset is desired, use the above order number and indicate color. Colors available are shown in Table 4.

6.2 Replacement Parts Type 84 Handsets

Description	No. Req'd.	Order Number
Handset Shell	1	D-52149-A*
Transmitter Cap	1	D-67422-A*
Receiver Cap	1	D-67423-A*
Transmitter Capsule	{ L-9046 L-9048	
	{ L-9030 L-9051	1 D-38363-A
	{ L-9035 L-9063	1 D-38375-A
Receiver Capsule	{ L-9046 L-9030 L-9035	1 D-51021-A
	{ L-9063	1 D-51022-A
	{ L-9051 L-9048	1 D-51021-B
Spring Assembly	1	NP-21-A1
Switch Shield	1	D-490013-A
Transmitter Central-Contact Spring	1	D-109794-A
Transmitter Rim-Contact Spring	1	D-109756-A
Receiver Central-Contact Spring	1	D-109795-A
Receiver Rim-Contact Spring	1	D-109757-A

6.2 Replacement Parts Type 84 Handsets (Cont'd).

Retractable Cord	L-9046-CO		
	L-9063-CO	1	D-543145-A**
	L-9035-CO		
	L-9035-EO	1	D-543274-A**
	L-9030-CO	1	D-543143-A
	L-9030-EO	1	D-543275-A
	L-9030-FO	1	D-543323-A
	L-9048-CO	1	D-543309-A
Cord and Plug Assembly	L-9051	1	D-543326-A
Jumper Wire		1	D-543070-AW

*Order numbers are for black. If color parts are desired use the order number as shown and indicate color wanted. Colors available are shown in Table 4.

**Replacement cord has four conductors. Cut off black conductor at butt of terminal.

6.3 Type 840 Handsets

Description	Order Number Handset With Retractable Cord
Push-to-Listen { Type 80 and 90M Telephone Type 183 Telephone	L-9057-* L-9057-DA (Black only)
Push-to-Talk { Type 80 and 90M Telephone Type 183 Telephone	L-9065-* L-9065-DA (Black only)
Switch Wired for Control of External Equipment	L-9056-CA (Black only)

*See color suffix chart Table 4.

6.4 Replacement Parts Type 840 Handsets

Description	Amt. Req'd.	Order Number
Handset Shell	1	See Color Suffix Chart
Transmitter Cap	1	See Color Suffix Chart
Receiver Cap	1	See Color Suffix Chart
Transmitter Capsule { L-9056	1	D-38379-A
{ L-9057 L-9065	1	D-38386-A

6.4 Replacement Parts Type 840 Handsets (Cont'd).

Receiver Capsule		1	E-51024-A
Spring Assembly		1	NP-21-A1
Switch Shield		1	D-490013-A
Transmitter Rim-Contact Spring		1	D-109756-A
Transmitter Central-Contact Spring		1	D-109794-A
Receiver Cushion Spring		1	D-109918-A
Retractable Cord	{ L-9056	1	D-54338-A
	{ L-9057-DA	1	D-543342-A
	{ L-9057 L-9065	1	D-543145-*

*See color suffix chart.

Table 1: Connection Chart Type 84 Handsets								
Type Handset	Application	Transmitter Connections		Receiver Connections		Switch Connections		
		Central-Contact Springs	Rim-Contact Springs	Central-Contact Springs	Rim-Contact Springs	Armature	Break Contact	Make Contact
TYPE 84 3-CONDUCTOR CORD								
L-9046	Common battery installation push-to-talk	Green	Red		Yellow			
L-9030	Local battery installation push-to-talk		Red		Yellow	Green		
L-9035	Anti-Noise telephone push-to-listen	Green	Red		Yellow			
TYPE 84 4-CONDUCTOR CORD								
L-9063	Anti-Noise telephone	Green	Red	Black	Yellow			
TYPE 84 5-CONDUCTOR CORD								
L-9048	Switch wired for control of external equipment	Green	Red		Yellow	Blue		Black
TYPE 84 6-CONDUCTOR CORD								
L-9051	Switch wired to control external equipment	Green	Red	Yellow	Black	White		Blue

Table 2: Connection Chart Type 840 Handsets

Type Handset	Application	Transmitter Connections		Receiver Capsule Connections		Switch Connections			
		Central-Contact Springs	Rim-Contact Springs			Armature	Break Contact	Make Contact	
		TYPE 840 4-CONDUCTOR CORD							
L-9057 L-9065	Push-to-Listen Push-to-Talk	Green	Red	Black	Yellow	Green from trans central contact spring	White from trans rim contact spring		
		TYPE 840 5-CONDUCTOR CORD							
L-9056	Switch wired for control of external equipment	Green	Red	Black	Yellow	White from trans rim contact spring		Blue	

TABLE 3: CORD TERMINATIONS AT TELEPHONE
TYPE 84 HANDSETS

Handset	Usage	Handset Cord Terminations Telephone Transmission Unit Handset Cord Conductors																		
		Type 80 Telephone						Type 90M Telephone						Type 183 Telephone						
		Grn	Yel	Red	Wht	Blue	Blk	Grn	Yel	Red	Wht	Blue	Blk	Grn	Yel	Red	Wht	Blue	Blk	
L-9046	Common Battery Installation Push-to-Talk	3	4	5				3	4	5				9	7	6				
L-9030	Local Battery Installation Push-to-Talk	3	4	5					4	5				9	7	6				
L-9035	Anti Noise Telephone Push-to-Listen	3	4	5				3	4	5				9	7	6				
L-9063	Anti Noise Telephone (Used on Type 80T Telephone Only)	3	12	5			11													
L-9048	Switch Wired for Control of External Equipment	3	12	5		Ext Equip	Ext Equip	3	4	5			Ext Equip	Ext Equip	9	7	6		Ext Equip	Ext Equip
L-9051	Switch Wired to Control External Equipment	3	12	5	Ext Equip	Ext Equip		3	4	5	Ext Equip	Ext Equip		9	7	6	Ext Equip	Ext Equip		
TYPE 840 HANDSETS																				
L-9057	Push-to-Listen	3	4	5			3	3	4	5			3	2	4					2
L-9065	Push-to-Talk	3	4	5			3	3	4	5			3	2	4					2
L-9056	Switch Wired for Control of External Equipment	3	4	5		G9	3	3	4	5		Term Strip 4G	3	2	4	5		20		2

TABLE 4: COLOR SUFFIX CHART

Handset L-9057- L-9065-	Retractable Cord D-543145-	Retractable Cord D-543342-	Handset Shell D-52149-	Transmitter Cap D-67422-A (Blk) D-67442-	Receiver Cap D-67647-A (Blk) D-67645-	Color
CA	A		A			Black
CB	B		B	B	B	Sand Beige
CC	C		C	C	C	Dawn Gray
CD	D		D	D	D	Jade Green
CE	E		E	E	E	Classic Ivory
CF	F		F	F	F	Garnet Red
CG	G		G	G	G	Turquoise
CJ	J		J	J	J	Sunlight Yellow
CK	K		K	K	K	Forget-me-not Blue
CL	L		L	L	L	Camellia Pink
CM	M		M	M	M	Gardenia White
DA		A	A	A	A	Black for Type 183 Telephone

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