

## TELEPHONE SETS—830- AND 2830-TYPE

### IDENTIFICATION, INSTALLATION, CONNECTIONS, AND MAINTENANCE

#### 1. GENERAL

1.01 This section is reissued to:

- Add 830C and 2830C telephone sets
- Add 830C and 2830C telephone set bases
- Show 830CT and 2830CT telephone sets rated MD
- Show 830CT and 2830CT telephone set bases rated MD
- Add 832A housing
- Add 35AF3A dial
- Revise Table A
- Include information for ringer biasing spring adjustment.

#### 2. IDENTIFICATION

##### Purpose

2.01 The 830- (rotary dial) and 2830- (TOUCH-TONE® dial) type telephone sets are obtainable as modular or complete desk-type, 10-button, key telephone sets equipped to provide standard key system features.

##### Application

2.02 Used with central office, PBX or intercommunicating line circuits in 1A1, 1A2, or 6A key telephone systems (KTS). These sets are not for use with 1A KTS.

2.03 The 830- and 2830-type telephone sets may be used with either 3- or 4-type speakerphone.



*The limited number of mounting cord conductors can place a restriction on using these telephone sets with 3-type speakerphone (see 3.03).*



Fig. 1—830-Type Telephone Set, Assembled



Fig. 2—2830-Type Telephone Set, Assembled

#### Ordering Guide

2.04 The 830- and 2830-type telephone set can be ordered as modular (830C or 2830C telephone set base) or completely assembled (830C\* or 2830C\*) telephone sets. The 830CT and 2830CT

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telephone sets are rated MD. To order a complete telephone set, list as follows:

- Set, Telephone, 830C-\*
- Set, Telephone, 2830C-\*

\*Complete code by adding color suffix from Table A.

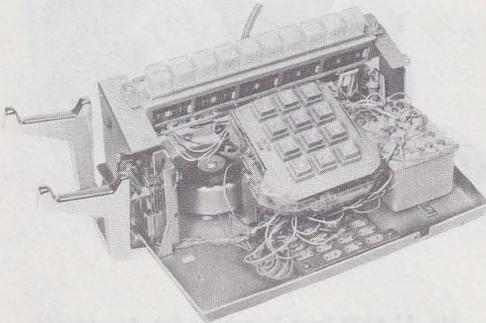


Fig. 3—2830C Telephone Set Base

The telephone set consists of the following:

- (a) 830C or 2830C telephone set base e/w (D50AK) satin-silver (-87) mounting cord
- (b) ♦832A-♦ housing
- (c) 830A\* or 2830A-\* faceplate
- (d) ♦G3A6-♦ handset

To order the modular telephone set, the appropriate coded apparatus listed as modular items in the Ordering Guide (Fig. 5) must be ordered and installed separately in addition to the telephone set base (830C or 2830C). Order telephone set base as follows:

- ♦Set, Telephone Base, 830C♦
- ♦Set, Telephone Base, 2830C♦

The 830C and 2830C telephone set base consists of the following:

- (a) P1B ringer
- (b) KS-20419L1 buzzer
- (c) 647A5 key e/w collar
- (d) P-23F096 terminal board assembly
- (e) 8R-58 dial (830C)
- (f) ♦35AF3A♦ dial (2830C)
- (g) 425E or 4228A network (830C)
- (h) 425K or 4228B network (2830C)
- (i) D50AK-87 mounting cord (Amphenol one end only)

### 2.05 Modular Items (order separately):

- Housing, ♦832A-♦
- Plate, Face, 830A-\* (830C telephone set)
- Plate, Face, 2830A-\* (2830C telephone set)
- Set, Hand, ♦G3A6-♦

### 2.06 Optional Components (order separately):

- KS-15724L1 Diode (for use with station busy lamp)
- P-90D170 Polarity Guard (optional for 2830-type set)
- KS-8109L2 Buzzer (mounting provided for two buzzers)
- KS-20419L1 Buzzer
- 8C-58 Dial (for 830-type set used with speakerphone)

### 2.07 Replaceable Components: (includes those components listed as modular items)

- Ringer, P1B
- Dial, 8R-58 (830-type telephone set)

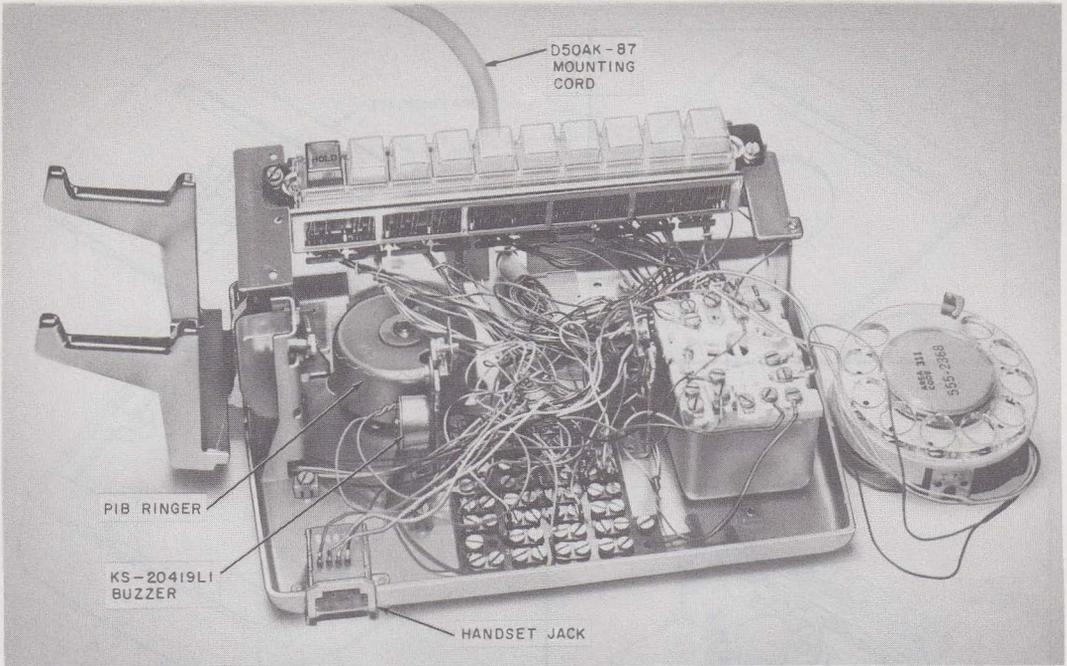


Fig. 4—830CT (MD) Telephone Set Base, Dial Removed

◆ TABLE A ◆  
COLOR ORDERING GUIDE

HOUSING, CORDS, AND HANDSET		COORDINATED COLOR	
COLOR	SUFFIX	COLOR	SUFFIX
Black	-03	Charcoal	-70
Ivory	-50	Muted Ivory	-80
Green	-51	Light Green	-71
Red	-53	Muted Red	-69
Yellow	-56	Light Yellow	-72
White	-58	Light Gray	-73
Light Beige	-60	Muted Beige	-75
Aqua Blue	-62	Muted Blue	-76

- Dial, 35AF3A or 35C3A (2830-type telephone set)
- Key, 647A5

- Lamp, 51A
- P-22F438 Resonator Assembly
- P-23F101 Collar
- KS-20419L1 Buzzer
- P-23F156, Strip, Contact Assembly
- P-23F157, Strip, Contact Assembly
- P-90D207 Cord Assembly (830B1M and 2830B1M only)
- Cord, Mounting, D50AK-87

**2.08** A subscriber instruction booklet (SIB-2446) is shipped loose with the telephone set and should be left with the customer.

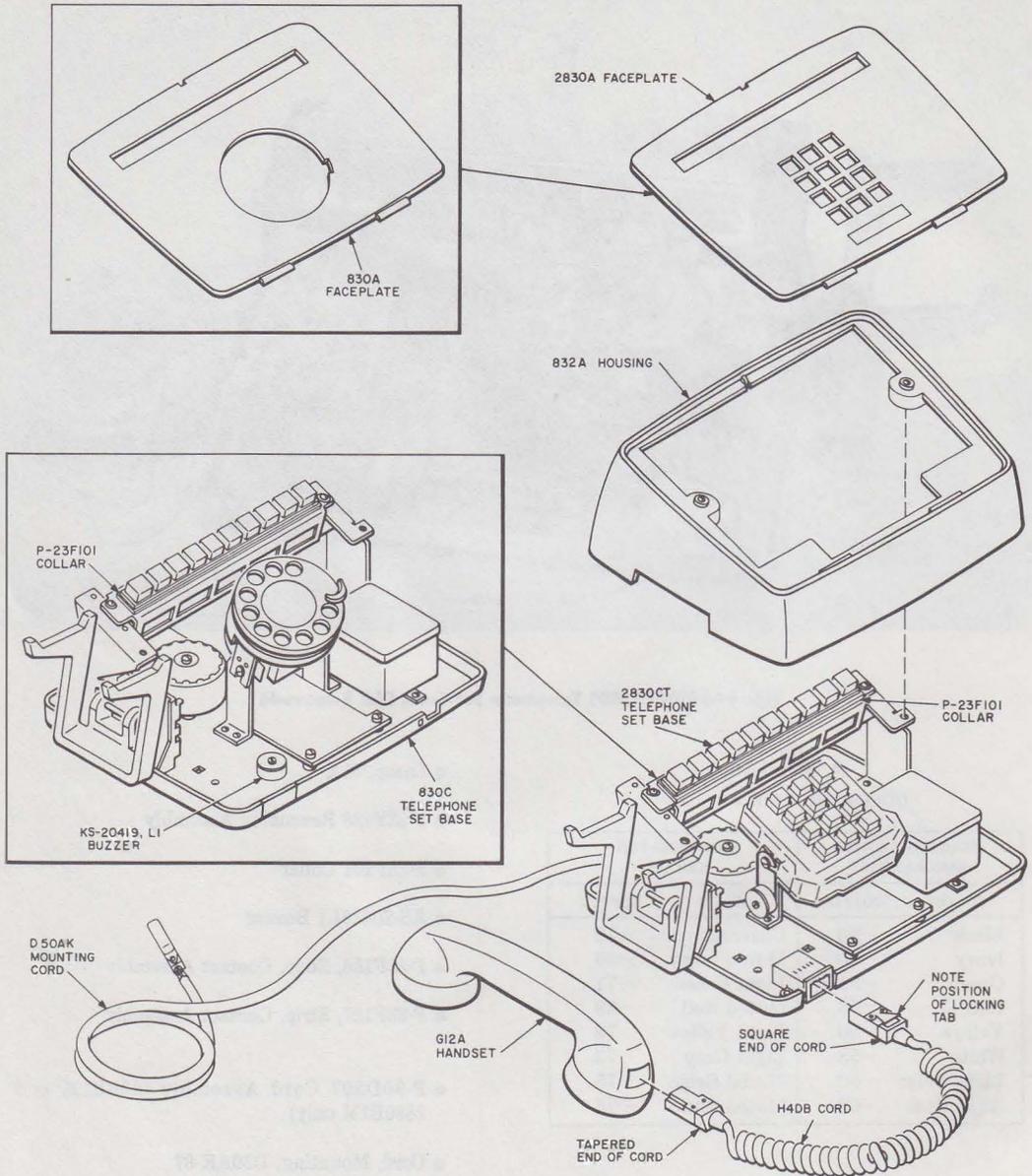
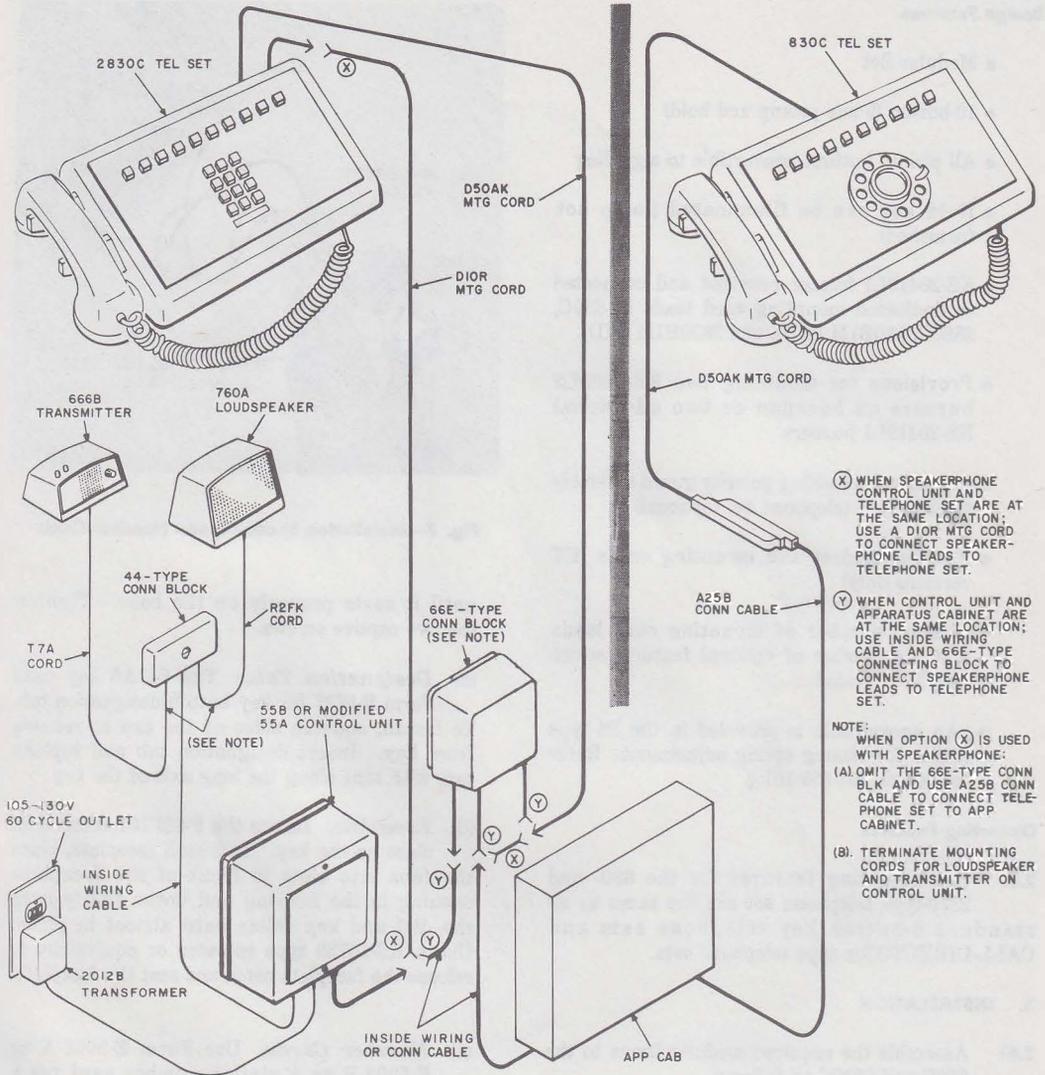


Fig. 5—Station Modular Arrangement, 830- and 2830-Type Telephone Sets



- (X) WHEN SPEAKERPHONE CONTROL UNIT AND TELEPHONE SET ARE AT THE SAME LOCATION; USE A DIOR MTG CORD TO CONNECT SPEAKERPHONE LEADS TO TELEPHONE SET.
- (Y) WHEN CONTROL UNIT AND APPARATUS CABINET ARE AT THE SAME LOCATION; USE INSIDE WIRING CABLE AND 66E-TYPE CONNECTING BLOCK TO CONNECT SPEAKERPHONE LEADS TO TELEPHONE SET.

NOTE:  
WHEN OPTION (X) IS USED WITH SPEAKERPHONE:  
(A). OMIT THE 66E-TYPE CONN BLK AND USE A25B CONN CABLE TO CONNECT TELEPHONE SET TO APP CABINET.  
(B). TERMINATE MOUNTING CORDS FOR LOUDSPEAKER AND TRANSMITTER ON CONTROL UNIT.

A

B

A - INSTALLATION OF TELEPHONE SET AND 3-TYPE SPEAKERPHONE COMPONENTS  
B - TELEPHONE SET INSTALLATION (WITHOUT 3-TYPE SPEAKERPHONE)

Fig. 6—Typical Installations Layouts for 10-Button Key Sets

**Design Features**

- Modular Set
- 10-button (9-line pickup and hold)
- All pickup buttons convertible to signaling
- Hold key can be illuminated (lamp not furnished)
- KS-20419L1 buzzer provided and connected to dedicated mounting cord leads in 830C, 2830C, 830B1M (MD), and 2830B1M (MD).
- Provisions for mounting two KS-8109L2 buzzers on basepan or two additional KS-20419L1 buzzers
- Provisions for adding polarity guard assembly to 2830-type telephone set (optional)
- Plug-in handset and mounting cords (CT versions only)
- Limited number of mounting cord leads restricts number of optional features which may be provided
- An access hole is provided in the P1-type ringer for biasing spring adjustment. Refer to Section 501-259-101.

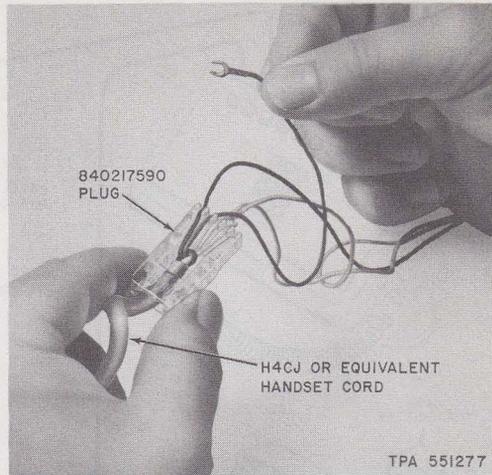
**Operating Features**

**2.09** The operating features for the 830- and 2830-type telephone set are the same as all standard 6-button key telephone sets and CALL-DIRECTOR® type telephone sets.

**3. INSTALLATION**

**3.01** Assemble the required modular items to the 830C and 2830C as follows:

- (a) **Handset:** Connect spade-tipped handset cord leads to network as shown in Fig. 9. Install J Hook Stayband in slot in front lip of basepan just to the left of cord entrance hole.
- (b) **Housing:** Place the housing over the telephone set so the front bottom edge of the housing makes contact with front of the base. Slowly lower the rear edge of the housing



**Fig. 7—Installation Spade-Tipped Handset Cords**

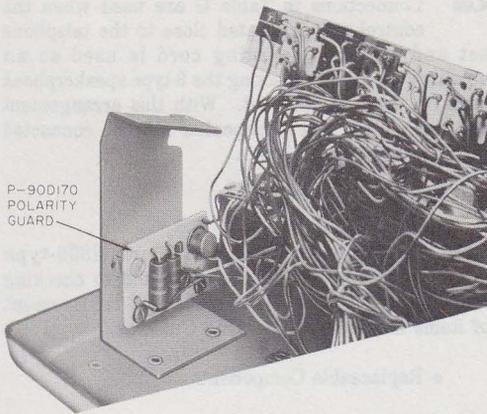
until it seats properly on the base. Tighten the two captive screws.

(c) **Designation Tabs:** The 647A5 key uses Form E-5837 for key button designation tab. To install, squeeze sides of the cap to remove from key. Insert designation tab and replace cap, with tabs along the long axis of the key.

(d) **Faceplate:** Insure the P-23F101 collar is in place on the key. To install faceplate, place the tabs into slots in front of the faceplate opening in the housing and lower slowly over the dial and key collar until almost in place. Use a KS-16750 type releaser or equivalent to release the faceplate catch and seat the faceplate.

(e) **Number Cards:** Use Form E-5002-A or E-5002-B as a station number card for a TOUCH-TONE station and Form E-4203-G or E-4204-G for rotary sets. Insert number card under card retainer of the 2830A faceplate or under fingerwheel of the 8-type dial.

**3.02** Individual signaling may be provided by converting a locking key button to nonlocking. Remove the P-28E773 locking pin from the button to be converted.



**Fig. 8—2830-Type Telephone Set With P-90D170 Polarity Guard, Installed**

- 3.03** When providing 3-type speakerphone with the 830- or 2830-type telephone set and the speakerphone leads are connected to the telephone set through the D50AK mounting cord the use of two pick-up buttons must be sacrificed.
- 3.04** To provide the maximum key features plus the 3-type speakerphone feature, install the 55-type control unit at the same location as the telephone set and connect the speakerphone leads to the telephone set using an auxiliary mounting cord (see Fig. 6, option X) and Table G.
- 3.05** If 4-type speakerphone is provided the 223A adapter is used to interconnect the 4-type speakerphone system (transmitter, loudspeaker set, and power unit).
- 3.06** For connections to the 3- or 4-type speakerphone system refer to the appropriate section in Division 512.
- 3.07** When adding speakerphone to 830-type telephone sets; the 8R dial must be replaced by an 8C dial (ordered separately) to provide the additional off-normal contacts required for speakerphone connection.
- 3.08** When an 830- or 2830-type telephone set is multiplied with sets furnishing speakerphone features, certain leads must be disconnected,

insulated, and stored to avoid interference with working circuits. The designation of leads to be removed are as follows T1, R1, P3 or IT, P4 or IR, AG, and LK.

**3.09** The 830C and 2830C telephone set bases are equipped with a KS-20419L1 (10 volt AC only) buzzer mounted on the basepan (Fig. 5). The buzzer leads are connected to (O-Y) and (Y-O) mounting cord leads. Plastic screw grommets and mounting screws are provided to install two KS-8109L2 buzzers, if required. The 830A1M (MD) and 2830A1M (MD) telephone sets are not factory equipped with a buzzer but either type buzzer may be ordered and installed separately.

**3.10 Polarity Guard** (2830-type only): Should be used only when specified by local instructions for end-to-end signaling installations where battery and ground reversals may be encountered. A P-90D170 polarity guard assembly may be installed on the right key bracket with screw provided (Fig. 8).

**3.11** Operational tests of all features should be made to insure proper operation and customer satisfaction.

**3.12** Where conditions warrant, the G3A6 or G12A handset supplied with these sets can be replaced with other types as follows:

- For impaired hearing—G6-type
- For weak speech—G7-type
- For noisy location—G8-type or D-180413

Refer to Division 501 for connections of these handsets. When either of these handsets is used, an H4CJ or equivalent handset cord must be used. See 3.13.

**3.13 Installation of Spade-Tipped Handset Cords in Early Production Sets (Fig. 7) Equipped with G12A Handset:** To install spade-tipped handset cord (H4CJ or equivalent) remove P-376819 J Hook Stayband from the cord. Cut back and remove cord sheath to stayband marks. Thread spade-tipped conductors through plug 840217590 (spade tips must be bent to clear cord entrance). Pull cord until about 1/4-inch of cord sheath is in the central cavity of the plug. Separate the conductors into two groups and tie

an overhand knot, pulling the knot to the cord sheath. Pull cord from plug until strain relief position is attained by knot entering sheath and resting against plug. Feed spade-tipped conductors straight through jack P-22F620 and connect to proper terminals. Insert plug in jack.

**Note:** On later version of the telephone set base, a notch is provided in front lip of base pan for J Hook Stayband of nonmodular type cords.

#### 4. CONNECTIONS

**THINK** → *Due to the limited number of mounting cord conductors the 830- and 2830-type telephone sets do not follow standard wiring arrangements.*

**4.01** To provide mounting cord leads for illuminating the HOLD button the ringer or buzzer leads must be used, meaning only two of the three options (ringer, buzzer, or hold lamp) may be provided at the same time.

**4.02** To provide station busy lamp modify the telephone set per Table B. The KS-15724L1 diode is used to prevent false busy signals and must be ordered and installed separately.

**4.03** To provide priority hold (I HOLD) modify the telephone set per Table C.

**4.04** To provide individual signaling, modify the telephone set by converting the proper button(s) and make wiring changes per Table E. The keys and their associated cord assembly are adaptable for individual signaling but not for common signaling.

**4.05** To provide 3-type speakerphone leads in the D50AK mounting cord, the buzzer leads along with the lamp and lamp ground leads from the 8th and 9th pick-up key buttons must be used. Refer to Table F for connections.

**4.06** Connections in Table G are used when the control unit is located close to the telephone set and a D1QR mounting cord is used as an auxiliary cord for connecting the 3-type speakerphone leads to the telephone set. With this arrangement the transmitter and loudspeaker may be connected directly to the control unit.

#### 5. MAINTENANCE

**5.01** Maintenance of the 830- and 2830-type telephone set should be limited to checking for loose or broken connections and replacement of items listed under Ordering Guide as:

- Replaceable Components
- Modular Items

**5.02** For maintenance of buzzers, dials, speakerphone components, and polarity guard, refer to appropriate sections pertaining to these items.

**THINK** → *Telephone sets should not be carried by the switchhook. Line switch failure may be caused by applying excessive strain to the switchhook.*

**5.03** The current production 635-type keys have been modified for easy lamp replacement by merely removing the lamp cap and inserting a 553-type tool through the hole in the top of the button. In early production keys, it was necessary to remove faceplate, key collar, and button for lamp replacement.

**5.04** Early manufactured cords in neutral light pearly-gray (-82) and gray-brown (-83) have been MD. All new mounting cords will be satin-silver (-87). When ordering handset cord complete code by adding approximate suffix from Table A.

**5.05** Current sets may be equipped with a P1B ringer which does not have the S-R, S, or BL leads. For maintenance purposes either the P1B or P1A ringer may be used.

◆ TABLE B ◆

## STATION BUSY LAMP CONNECTIONS

LEAD	OPERATION
Hold Key (G-W)	Remove from terminal 22 and connect to 16
KS-15724L1 Diode	Connect as shown 16 <span style="float: right;">22</span> 
Mtg Cord (Y-O) (Note)	Remove from <span style="border: 1px solid black; padding: 0 2px;">14</span> <span style="border: 1px solid black; border-radius: 50%; padding: 0 2px;">15</span> con- nect to 22

- 830C, 2830C; 830CT(MD), 2830CT(MD);  
830B1M(MD), 2830B1M(MD); or 830A1M(MD),  
2830A1M(MD) later version
- 830A1M (MD) or 2830A1M (MD) (early version)

**Note:** Use spare mounting cord lead if (Y-O)  
lead is used to provide other options.

TABLE C

## I HOLD CONNECTIONS (NOTE)

LEAD		REMOVE FROM	CONNECT TO
Hold Key	(G-W)	22	7
	(BK-BL)	7	22
SP Lead — Use (Y-O)* or spare mounting cord conductor			13

**Note:** For additional information see  
SD-69530-01.

\* (Y-O) lead may be used unless connected for  
other options.

TABLE D

POLARITY GUARD CONNECTIONS FOR 2830-TYPE  
TELEPHONE SET (P-90D170 GUARD ASSEMBLY)

WIRE OR LEAD	COLOR	REMOVE FROM	CONNECT TO	
		NET.	GUARD ASSY.	NET.
Dial	BK	RR	T	
	G-W	C	S	
Line Switch	W	C	S	
Guard Assembly	G			RR
	W			C

**Note:** For use when specified by local instruc-  
tions for end-to-end signaling installations.

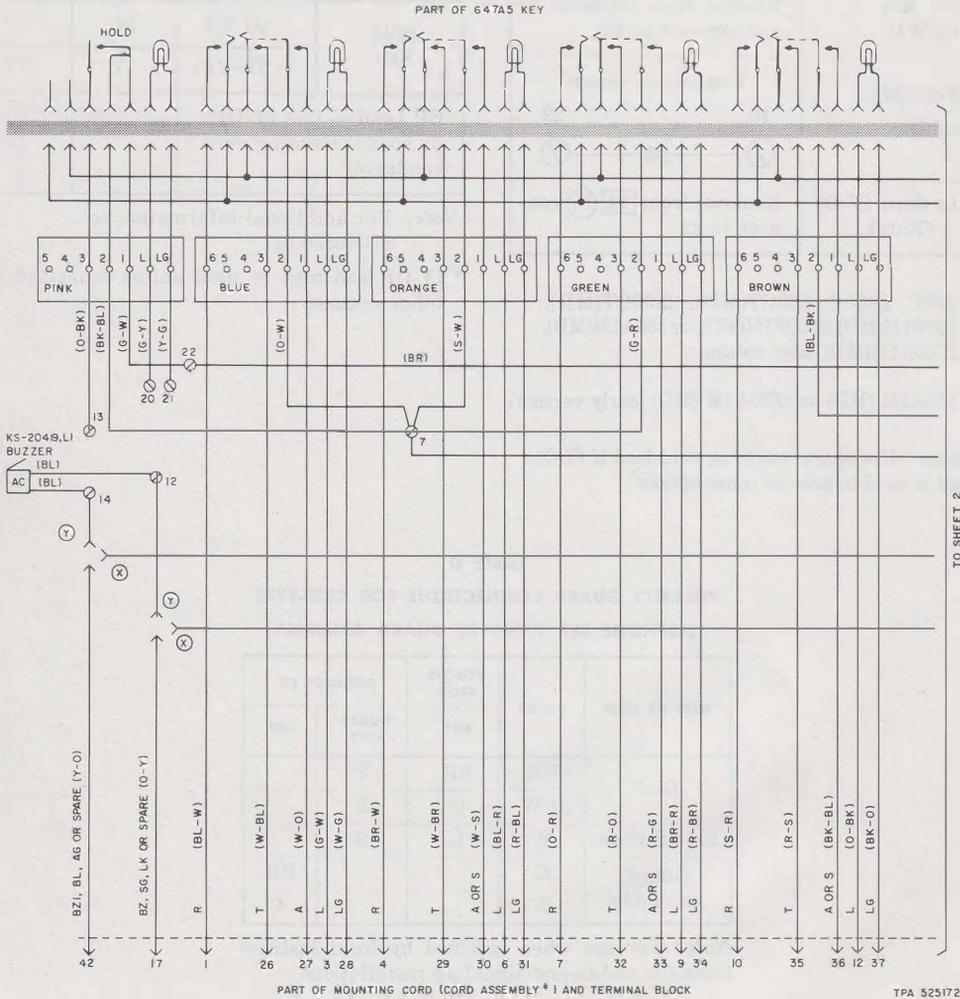


Fig. 9—830- and 2830-Type Telephone Set Connections (Sheet 1 of 4)

PART OF 647A5 KEY

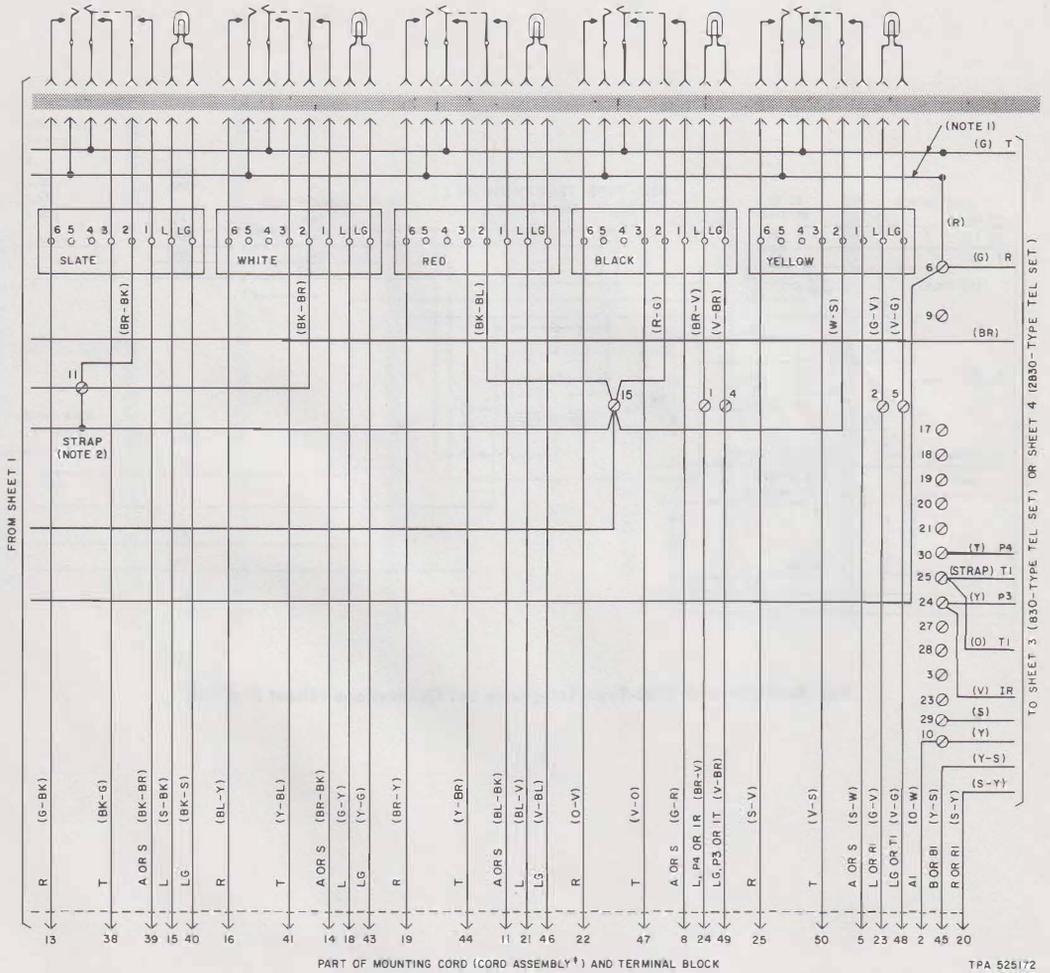


Fig. 9—830- and 2830-Type Telephone Set Connections (Sheet 2 of 4)

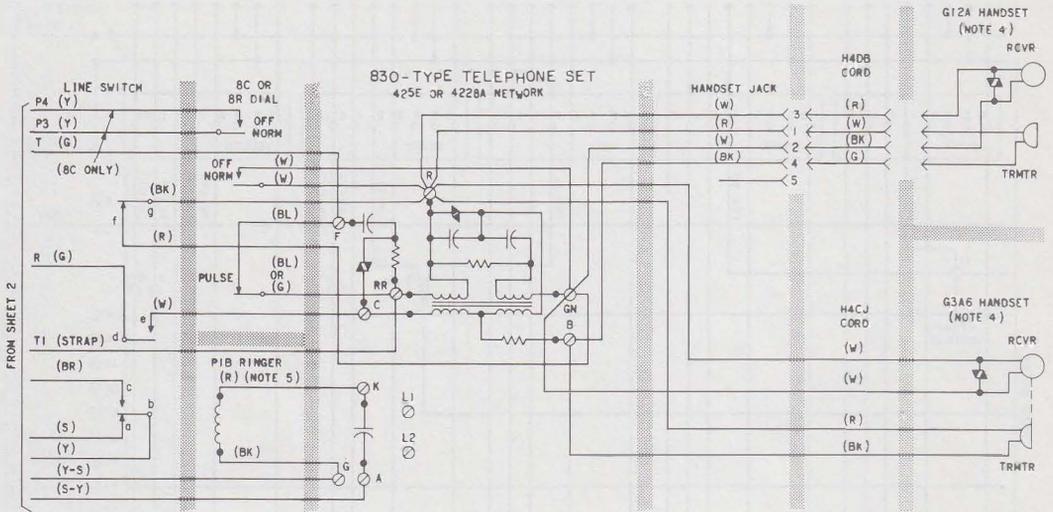
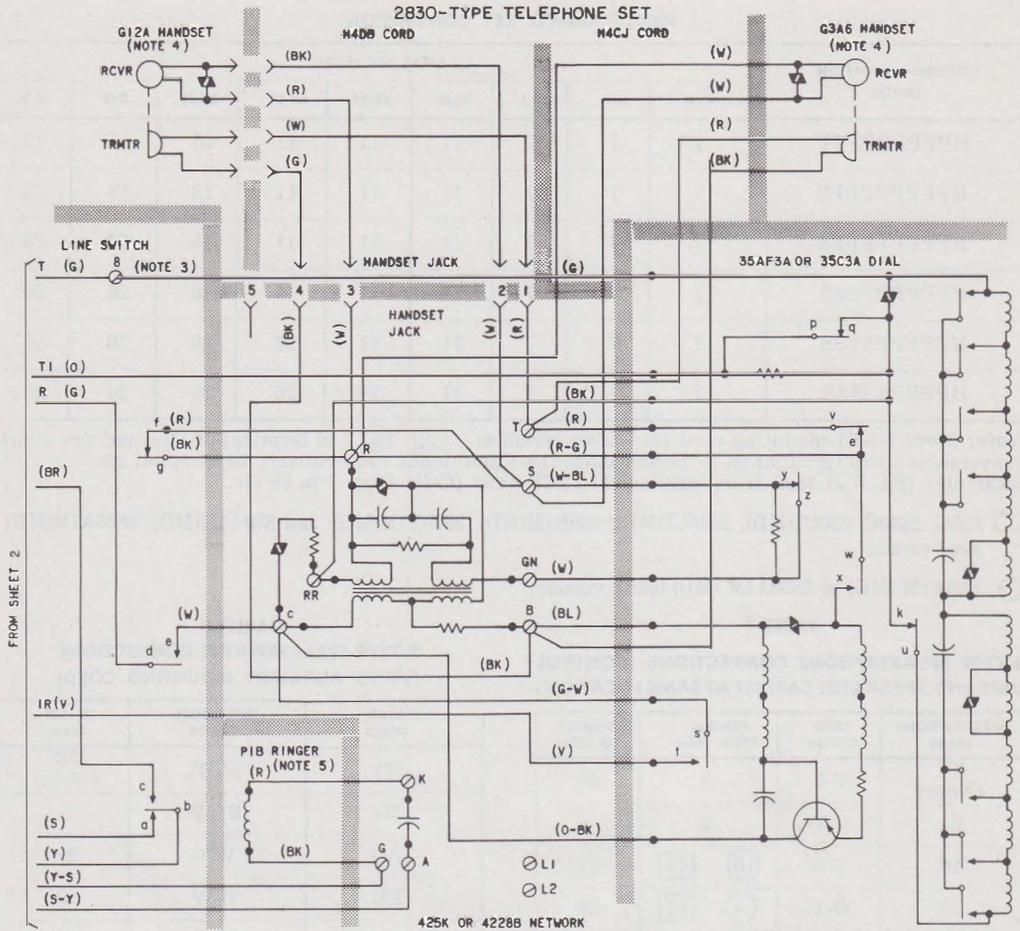


Fig. 9—830- and 2830-Type Telephone Set Connections (Sheet 3 of 4)



NOTES:

1. TIP AND RING ARE COMMON TO ALL PICK-UP BUTTONS THROUGH CONTACT STRIPS WHICH PLUG INTO KEY BEFORE 508-TYPE PLUGS ARE CONNECTED.
2. BRASS STRAP ON TERMINAL BOARD CONNECTS TERMINALS 7, 11, AND 15.
3. TERMINAL 8 IS USED AS A TIE POINT ON THE 2830-TYPE TELEPHONE SET ONLY.
4. CURRENT 830C OR 2830C TELEPHONE SET IS EQUIPPED WITH A G3A6 HANDSET WHICH IS WIRED DIRECTLY TO THE TELEPHONE SET. EARLY PRODUCTION 830- OR 2830- TYPE TELEPHONE SETS WERE EQUIPPED WITH A G12A PLUG-ENDED HANDSET.

- \* - INSULATED AND STORED
- † - TERM. ON NETWORK
- ‡ - 830A1M (MD), 2830A1M (MD), AND 830B1M (MD), 2830B1M (MD) TELEPHONE SETS ONLY.

- (X) - 830A1M (MD) AND 2830A1M (MD) EARLY VERSION
- (Y) - 830C, 2830C, AND 830CT (MD), 2830CT (MD), AND 830B1M (MD), 2830B1M (MD), AND 830A1M (MD), 2830A1M (MD) LATER VERSION.

5. EARLY PRODUCTION TELEPHONE SETS MAY BE E/W PIA RINGERS WHICH WILL BE CONNECTED AS FOLLOWS:

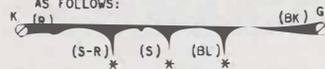


Fig. 9—830- and 2830-Type Telephone Set Connections (Sheet 4 of 4)

**TABLE E**  
**PICKUP SIGNAL KEY CONVERSION**

CONVERSION OPTION (NOTE)	647A5 KEY LEADS								
	O-W	S-W	G-R	BL-BK	BR-BK	BK-BR	BK-BL	R-G	W-S
HPPPPPPPPP	7	7	7	11	11	11	15	15	15
HPPPPPPPPS	7	7	7	11	11	11	15	15	26
HPPPPPPPSS	7	7	7	11	11	11	15	26	26
HPPPPPPSSS	7	7	7	11	11	11	26	26	26
HPPPPSSSSS	7	7	7	11	11	26	26	26	26
HPPPPSSSSS	7	7	7	11	26	26	26	26	26

**Note:** Move (O-Y) mounting cord lead from terminal 12 6 to terminal 26. Beyond five signal conversions strap terminal 26 to 28 and move the signal leads consecutively to terminal 28.

Example: (BL-BK) lead from terminal 11 to 28, then (G-R) from 7 to 28 etc.

830C, 2830C; 830CT(MD), 2830CT(MD); 830B1M(MD), 2830B1M(MD); and 830A1M(MD), 2830A1M(MD) later version

830A1M (MD) or 2830A1M (MD) (early version)

**TABLE F**

**3-TYPE SPEAKERPHONE CONNECTIONS (CONTROL UNIT AND APPARATUS CABINET AT SAME LOCATION)**

SPEAKERPHONE LEADS	LEAD COLOR	REMOVE FROM TERM	CONNECT TO TERM
T1 (Note)	V-G	5	25
R1	G-V	2	6
AG	Y-O	<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">15</span> <span style="border: 1px solid black; padding: 2px;">14</span>	22
LK	O-Y	<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">6</span> <span style="border: 1px solid black; padding: 2px;">12</span>	29
P3 or IT	V-BR	4	30
P4 or IR	BR-V	1	24
A1	O-W	—	10

**Notes:**

1. Add strap from terminal 25 to network terminal (830-type only)
2. Replace 8R with 8C dial on 830-type telephone sets. Connect (Y) leads of 8C dial to terminals 24 and 30.

830C, 2830C; 830CT(MD), 2830CT(MD); 830B1M(MD), 2830B1M(MD); or 830A1M(MD), 2830A1M(MD) later version

830A1M (MD) or 2830A1M (MD) (early version)

**TABLE G**

**3-TYPE SPEAKERPHONE CONNECTIONS (USING AUXILIARY MOUNTING CORD)**

LEAD DESIG	DIOR CORD COLOR	TEL SET TERM.
T1	W-BL	RR <sup>‡</sup> (Note)
R1	BL-W	6
AG	W-O	22
LK	O-W	29
P3 or IT	W-G	30
P4 or IR	G-W	24
A1	W-BR	10

<sup>‡</sup> Term. on network

**Note:** Terminal 25 in 2830-type sets. (O) dial lead should also terminate on 25.

◆ TABLE H ◆

## CORD ASSEMBLY, MOUNTING CORD, AND CABLE CONDUCTOR ASSIGNMENT

D50AK MTG CORD (TEL SET END) OR P-90D207 CORD ASSEMBLY*				D50AD*, D50AK MOUNTING CORD				A25B CONN CABLE		
TEL SET TERM	LEAD COLOR	LEAD DESIG	PLUG TERM	CONN TERM	LEAD DESIG	LEAD COLOR	PLUG TLRM	CONN TERM	LEAD DESIG	LEAD COLOR
Line 1 (Blue) Plug	BL-W	R	1	1	R	BL-W	1	1	R	BL-W
	W-BL	T	26	26	T	W-BL	26	26	T	W-BL
	W-O	A	27	27	A	W-O	27	27	A	W-O
	G-W	L	3	3	L	G-W	3	3	L	G-W
	W-G	LG	28	28	LG	W-G	28	28	LG	W-G
Line 2 (Orange) Plug	BR-W	R	4	4	R	BR-W	4	4	R	BR-W
	W-BR	T	29	29	T	W-BR	29	29	T	W-BR
	W-S	A or S	30	30	A or S	W-S	30	30	A or S	W-S
	BL-R	L	6	6	L	BL-R	6	6	L	BL-R
	R-BL	LG	31	31	LG	R-BL	31	31	LG	R-BL
Line 3 (Green) Plug	O-R	R	7	7	R	O-R	7	7	R	O-R
	R-O	T	32	32	T	R-O	32	32	T	R-O
	R-G	A or S	33	33	A or S	R-G	33	33	A or S	R-G
	BR-R	L	9	9	L	BR-R	9	9	L	BR-R
	R-BR	LG	34	34	LG	R-BR	34	34	LG	R-BR
Line 4 (Brown) Plug	S-R	R	10	10	R	S-R	10	10	R	S-R
	R-S	T	35	35	T	R-S	35	35	T	R-S
	BK-BL	A or S	36	36	A or S	BK-BL	36	36	A or S	BK-BL
	O-BK	L	12	12	L	O-BK	12	12	L	O-BK
	BK-O	LG	37	37	LG	BK-O	37	37	LG	BK-O
Line 5 (Slate) Plug	G-BK	R	13	13	R	G-BK	13	13	R	G-BK
	BK-G	T	38	38	T	BK-G	38	38	T	BK-G
	BK-BR	A or S	39	39	A or S	BK-BR	39	39	A or S	BK-BR
	S-BK	L	15	15	L	S-BK	15	15	L	S-BK
	BK-S	LG	40	40	LG	BK-S	40	40	LG	BK-S
Line 6 (White) Plug	BL-Y	R	16	16	R	BL-Y	16	16	R	BL-Y
	Y-BL	T	41	41	T	Y-BL	41	41	T	Y-BL
	BR-BK	A or S	14	14	A or S	BR-BK	14	14	A or S	BR-BK
	G-Y	L	18	18	L	G-Y	18	18	L	G-Y
	Y-G	LG	43	43	LG	Y-G	43	43	LG	Y-G
Line 7 (Red) Plug	BR-Y	R	19	19	R	BR-Y	19	19	R	BR-Y
	Y-BR	T	44	44	T	Y-BR	44	44	T	Y-BR
	BL-BK	A or S	11	11	A or S	BL-BK	11	11	A or S	BL-BK
	BL-V	L	21	21	L	BL-V	21	21	L	BL-V
	V-BL	LG	46	46	LG	V-BL	46	46	LG	V-BL
Line 8 (Black) Plug 1 4	O-V	R	22	22	R	O-V	22	22	R	O-V
	V-O	T	47	47	T	V-O	47	47	T	V-O
	G-R	A or S	8	8	A or S	G-R	8	8	A or S	G-R
	BR-V	L, P4 or IR	24	24	L, P4 or IR	BR-V	24	24	L, P4 or IR	BR-V
	V-BR	LG, P3 or IT	49	49	LG, P3 or IT	V-BR	49	49	LG, P3 or IT	V-BR
Line 9 (Yellow) Plug 2 5	S-V	R	25	25	R	S-V	25	25	R	S-V
	V-S	T	50	50	T	V-S	50	50	T	V-S
	S-W	A or S	5	5	A or S	S-W	5	5	A or S	S-W
	G-V	L or R1	23	23	L or R1	G-V	23	23	L or R1	G-V
	V-G	LG or T1	48	48	LG or T1	V-G	48	48	LG or T1	V-G
10 [6] 12	O-W	A1	2	2	A1	O-W	2	2	A1	O-W
	O-Y	SG, LK, or Spare	17	17	SG, LK, or Spare	O-Y	17	17	BZ, SG, LK, or Spare	O-Y
[15] 14	Y-O	BL, AG, or Spare	42	42	BL, AG, or Spare	Y-O	42	42	BZ1, BL, AG, or Spare	Y-O
	A	R or R1	20	20	R or R1	A	20	20	R or R1	S-Y
G	Y-S	B or B1	45	45	B or B1	Y-S	45	45	B or B1	Y-S

[ ] Terminal on 830A1M (MD) or 2830A1M (MD) (early version) telephone sets.

\*Required with 830A1M(MD), 830B1M(MD) and 2830A1M(MD), 2830B1M(MD) only.