

## 581A TELEPHONE SET BASES

### 1. GENERAL

1.01 This section contains identification, installation, connections, and maintenance information for the 581A telephone set base (Fig. 1), component parts furnished with the base and a 6TA or 6UA rotary dial (Fig. 2), ordered separately, are designed for assembling into a customer-supplied housing and handset.

1.02 This section is reissued to:

- Add D-180778 kit of parts (modular mounting cord jack)
- Add 840401723 inside connector and 840401731 outside connector
- Revise Fig. 1, 2, 3, 4, 6, 9, 11, 12, 14, 16, 17, and 18
- Add Fig. 5, 8, 10, 13, and 15
- Revise Tables A through G
- Add Tables H and I

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

### 2. ORDERING GUIDE

Base, Set, Telephone, 581A (Fig. 1)

#### 2.01 *Associated Apparatus or Equipment (ordered separately):*

- Cord, Mounting, D4BU-29
- Cord, Handset, H4CJ-\*, 6 feet
- Cord, Mounting, D6AA-\* (specify length) (required when candlestick type telephone is installed)

- Cord, mounting, D10R-\* (specify length) [when rotary dial set is used with 1A1 or 1A2 KTS and 3B (MD) or 4-type speakerphone]
- Dial, 6TA (Chrome)† or 6UA (Gold)†
- D-180460 Kit of Parts (TOUCH-TONE® dial).

\* Add appropriate color suffix.

† Includes card holder assembly and three (3) screws (Fig. 2).

#### 2.02 *Optional Apparatus or Equipment (ordered separately):*

- D-180409 Kit of Parts (241B Amplifier)
- D-180461 Guard Assembly (Polarity Guard).

#### 2.03 *Features:*

- Standard components which provide an operative telephone circuit when properly assembled within an appropriate housing and handset
- Components provide a single line, rotary or TOUCH-TONE dial telephone set
- Provisions to add 241B amplifier, TOUCH-TONE dial, and polarity guard (optional).

### 3. INSTALLATION AND CONNECTIONS

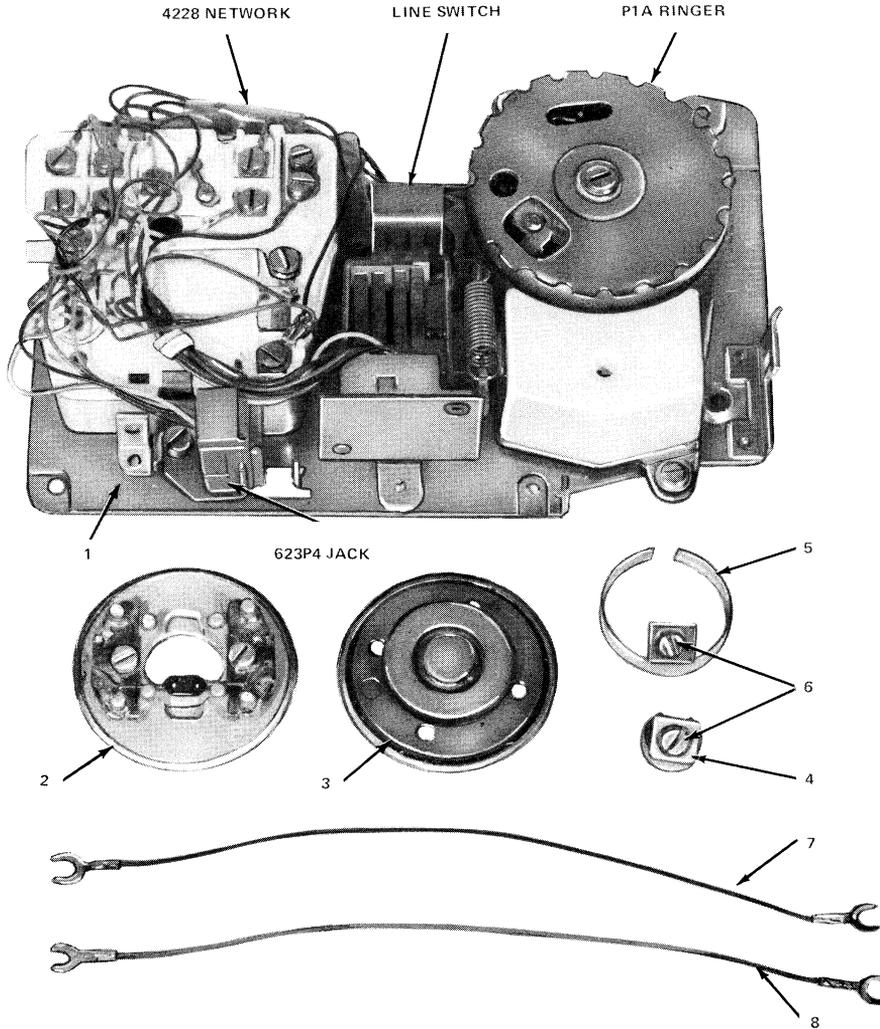
3.01 The customer's housing must be an acceptable housing to accept standard components. The premises must be wired with an appropriate connecting block or jack in order to accept the D4BU-29 plug-ended mounting cord.

#### **Acceptable Telephone Set Housings**

3.02 Older acceptable housings carry an acceptance stamp located on bottom which reads "This Enclosure Conforms To Drawing B-696501". Space

#### NOTICE

Not for use or disclosure outside the  
Bell System except under written agreement



LEGEND

- 1 - 581A Telephone Set Base
- 2 - U3 Receiver Unit
- 3 - T1 Transmitter Unit
- 4 - 840401723 Connector Inside
- 5 - 84041731 Connector Outside
- 6 - 840401673 Screw(s)

- 7 - 840153274 Lead Assembly (BK)      Required for Desk
- 8 - 840153290 Lead Assembly (R)      Candlestick Set Only

Note: The receiver and transmitter units are shipped loose with base. Items 4 through 8 are also shipped loose and packaged as parts group 840151054. Dial must be ordered separately.

Fig. 1—581A Telephone Set Base and Parts Group

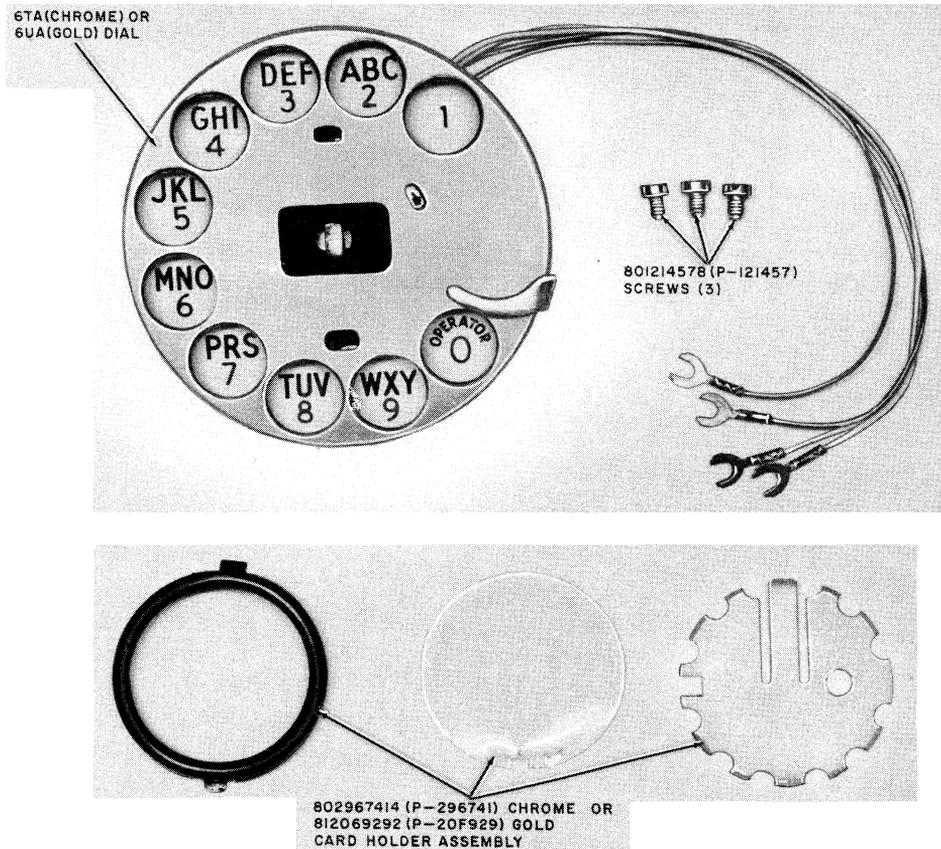


Fig. 2—6TA or 6UA Dial and Associated Parts

for the reviewing telephone company's name and their assignment number is also provided. Newer housings carry the marking "Bell System Identification #". This enclosure conforms to Bell System Voice Communication Technical Reference CAK."

**Note:** Inspect the customer's telephone set components before accepting them for service. Be sure he is aware of any missing or defective components found. All components and wiring furnished as part of the customer's housing

must be removed prior to installation of telephone company parts and returned to the customer.

#### Nonconforming Housings

**3.03** Housings which do not carry the acceptance stamp or identification number must be modified by the local Western Electric Service Center to accept these standard Bell System components. Components and wiring removed by

the service center should be returned to the customer.

**Assembly (Desk Set Type)**

**3.04 Install 581A Telephone Set Base as follows.**

- (1) Remove upper housing from base of customer-owned housing.
- (2) Position 581A telephone set base on base of customer's housing, ensuring that the ringer volume control is accessible through opening of base.
- (3) Fasten 581A base using four screws, furnished with set or screws furnished with the housing. A typical installation in a customer-owned desk set type housing is shown in Fig. 3.

**3.05 Rotary Dial (ordered separately).**

- (1) Install 6TA (chrome) or 6UA (gold) dial (Fig. 2) using three screws furnished with dial.
- (2) Refer to Table A for dial connections.

**3.06 TOUCH-TONE Dial (D-180460 Kit of Parts), ordered separately.**

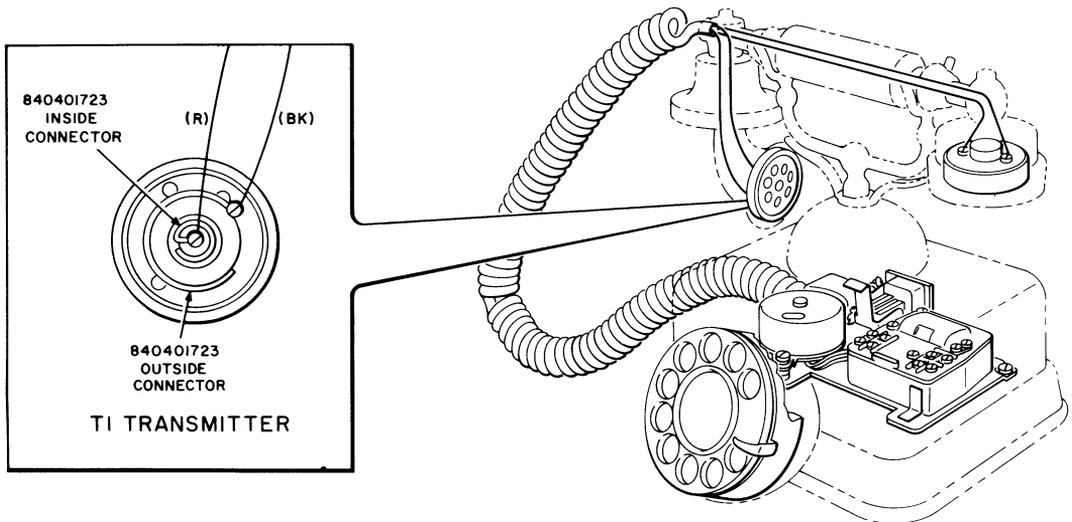
- (1) When the customer's antique-decorator housing is intended to be used with TOUCH-TONE service, install a D-180460 Kit of Parts.
- (2) Refer to Table B for dial connections.

**3.07** If a polarity guard is required in conjunction with a 35Y3A TOUCH-TONE dial, install a D-180461 guard assembly, which consists of guard assembly, brackets, screws, and a printed wiring board assembly. The polarity guard is installed when specified by local instructions for end-to-end signaling purposes when battery and ground reversals are encountered. Refer to Fig. 4 for location and Table C for connections.

**3.08 Mounting cord (ordered separately) and modular jack using a D-180778 Kit of Parts.**



*New 581A bases come equipped with a 623P4 mounting cord jack.*



**Fig. 3—Typical Installation, Desk Set Antique—Decorator Housing**

TABLE A  
 ROTARY DIAL AND  
 HANDSET CONNECTION

WIRE OR LEAD	COLOR	CONNECT TO
6-Type Dial	BL	F
	BL	RR
	W	R
	W	GN
Handset Cord	R	R
	BK	B
	W	GN
	W	R

(1) Mount 623P4 jack and jack bracket to the network as shown in Fig. 5.

(2) Connect the four 623P4 jack leads and rearrange network leads as shown in Table D.

(3) Thread one end of the D4BU mounting cord into the set and plug into 623P4 jack as shown in Fig. 5. For connections refer to Table E or F.

TABLE B

TOUCH-TONE DIAL AND HANDSET CONNECTION

WIRE OR LEAD	COLOR	REMOVE FROM	CONNECT TO
35 Y3A Dial	G	—	F
	BK	—	RR
	R-G	—	R
	R	—	T
	W	—	GN
	BL	—	B
	O-BK	—	C
	W-BL	—	S
Line Switch	R	GN	S
Handset Cord	R	—	T
	BK	—	B
	W	—	S
	W	—	R

### 3.09 Handset Cord (ordered separately).

(1) Lay the set end of H4CJ handset cord on top of mounting cord and secure cord stay to bracket on base as shown in Fig. 5.

(2) Connect leads to appropriate network terminals (Table A or B).

(3) Remove transmitter and receiver caps from customer-owned handset. Insert handset cord leads through handset openings, feeding two white leads into receiver cavity and red and black leads into transmitter cavity.

(4) Connect white leads to U3 receiver unit, place unit in cavity and replace receiver cap.

(5) Snap inside and outside connectors on T1 transmitter unit and terminate red and black handset leads (Fig. 3).



**The transmitter and receiver units, shall not be in contact with any conducting surface. Transmitter and receiver caps and transmitter and receiver clamping surfaces in**

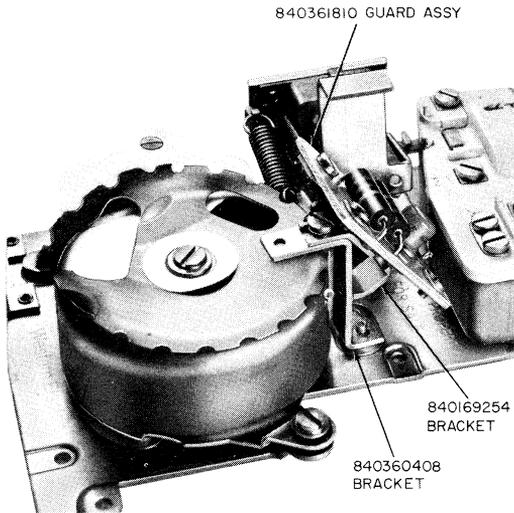


Fig. 4—Installation Location of Components to Add Polarity Guard Feature

*contact with the transmitter or receiver unit shall be made of insulating material such as plastic or rubber. Lacquer or paint shall not be used to provide insulation.*

**D-180409 Kit of Parts, Optional (Desk Set Type)**

**3.10** When the shape of the customer's handset places the center of the T1 transmitter unit grid 2-7/8 inches or further away from the speaker's lips mount a D-180409 Kit of Parts (ordered separately) and install as follows.

- (1) Install the three 241B amplifier mounting brackets at location shown in Fig. 7, using screws furnished with kit of parts.
- (2) Mount amplifier to brackets with screws furnished in kit of parts.
- (3) Connect amplifier into telephone circuit in accordance with Table G for rotary dial and Table H for TOUCH-TONE dial.

TABLE C

**POLARITY GUARD CONNECTIONS FOR TOUCH-TONE TELEPHONE SET D-180461 GUARD ASSEMBLY**

LEAD	COLOR	DISCONNECT FROM	CONNECT TO	
		NET.	NET.	POLARITY GUARD
Dial	BK	RR		T
Line Switch	BR*	C		S
	W†			
623P4 Line Cord Jack Assy	R‡			
Polarity Guard	G		RR	
	W		C	

\* If wired for bridged service or ring party.

† If wired for tip party with no identification ground, 1A1 KTS, or 1A2 KTS.

‡ If wired for tip party with identification ground.

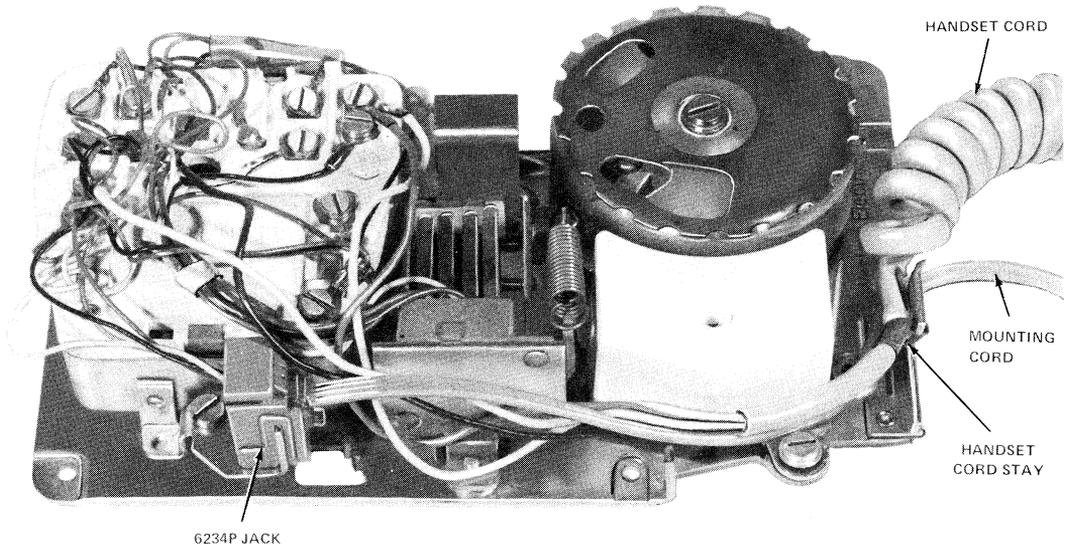


Fig. 5—Installation of Mounting Cord Using D-180778 Kit of Parts

### Assembly (Candlestick Type)

#### 3.11 Convert customer's candlestick housing as follows.

- (1) Remove four mounting screws which secures baseplate to candlestick housing.
- (2) Remove dial bracket retaining screw from elongated hole in baseplate.
- (3) Lift off dial mounting plate and remove dummy dial by removing two screws.
- (4) See 3.13 for 6-type dial installation procedures.
- (5) Remove dummy handset cord from base.
- (6) See 3.15 for handset cord installation procedures.

**Note:** When disassembling transmitter housing avoid grasping the horn. When reassembling, make sure nut at pivot point is properly keyed.

#### 3.12 Install 581A Telephone Set Base as follows.

- (1) Remove line switch from 581A base (current model only).
- (2) Remove square snap-in cover from bottom of candlestick mounting base.
- (3) Mount line switch to customer's set with actuator toward terminal board.
- (4) A typical installation of a candlestick type telephone set is shown in Fig. 6.
- (5) If 581A base (subset) is wall mounted, adjust ringer volume control to "LOUD" before attaching subset to wall.



**When 581A base is mounted on a wall or other vertical surface, the base should be flush against surface for proper operation of P1A ringer.**

- (6) See 3.14 for mounting cord installation procedures.

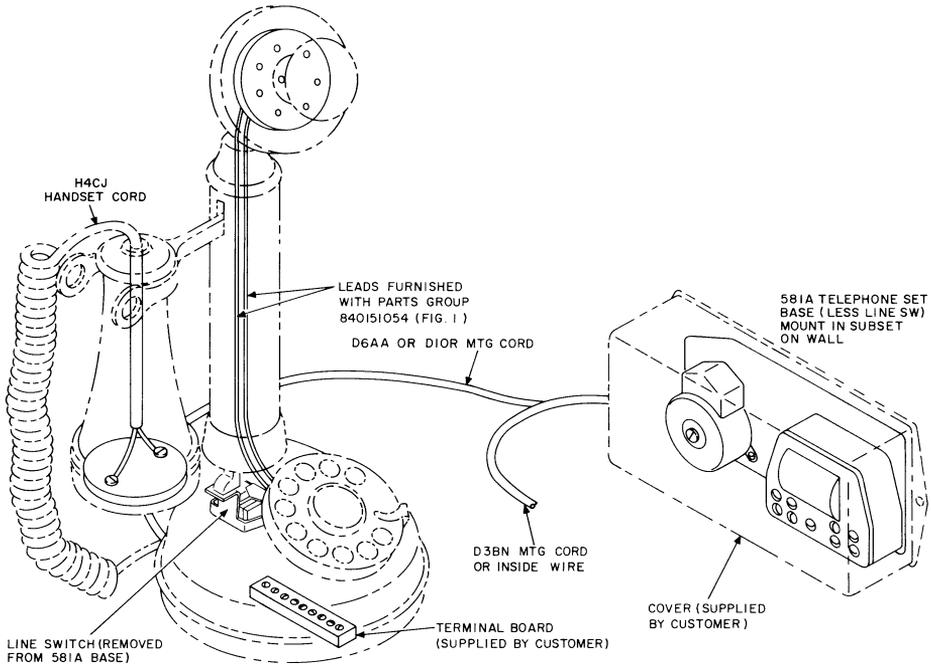


Fig. 6—Typical Installation of Candlestick Type Telephone Set

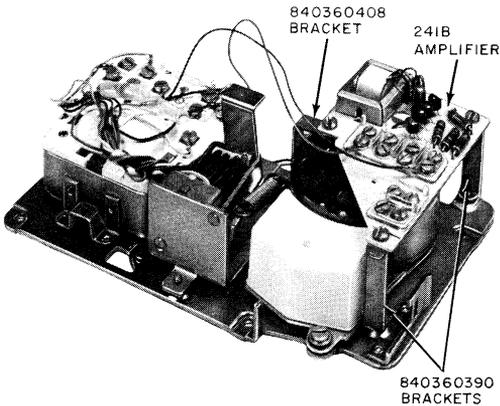


Fig. 7—Installation of D-180409 Kit of Parts

**3.13 Rotary Dial (ordered separately).**

- (1) Install 6TA (chrome) or 6UA (gold) dial (Fig. 2) using three screws furnished with dial.
- (2) Connect dial leads to terminal block furnished with customer's desk stand set as shown in Fig. 17.

**3.14 Mounting Cords (ordered separately).**

- (1) A standard D3BN mounting cord is required for connections between the line wire, connecting block and the 581A base network terminals unless inside wire can be terminated directly in wall mounted subset. A D6AA mounting cord must be used to provide the connections between the 581A base and customer's desk stand set, except for party line service where a D10R mounting cord is used when tip party identification is required.

(2) Install set end of D3BN and D6AA mounting cords to 581A base, secure cord stay and route cord as shown in Fig. 5. D6AA cord can lay on top of D3BN cord.

(3) Terminate cord leads at network terminals. Wire connecting block end of D6AA mounting cord to appropriate terminal block terminals furnished with customer's desk stand set (Fig. 17 or 18).

### 3.15 *Handset Cord (ordered separately).*

(1) Install set end of H4CJ handset cord in opening located in base of customer's desk stand set housing and secure cord stay to base.

(2) Connect two white leads to terminal block located on desk stand base (Fig. 17 or 18).

(3) Remove transmitter and receiver caps from customer-owned set. Insert handset end of cord through opening in receiver handle and terminate two white leads to U3 receiver unit. Insulate and store the red and black handset cord leads at the terminal block and receiver unit (Fig. 17).

(4) Connect the red and black leads furnished with 840151054 parts group items 7 and 8, (Fig. 1) at terminal block in base of desk stand set, extend leads toward transmitter unit.

(5) Snap inside and outside connectors onto T1 transmitter unit and terminate red and black leads (Fig. 3).

(6) Refer to Read, 3.09 for transmitter and receiver unit insulation.

### 3.16 *Line and Ringer Connections.*

(1) For all classes of service refer to Table E or F.

(2) The ringer volume control is blocked from off position by a factory placed stopscrew. To enable ringer cut-off feature, remove screw through access hole in top of ringer gong. Advise customer of cut-off position to avoid future service calls.

(3) To permanently silence ringer for all classes of service, refer to Section 501-259-101.

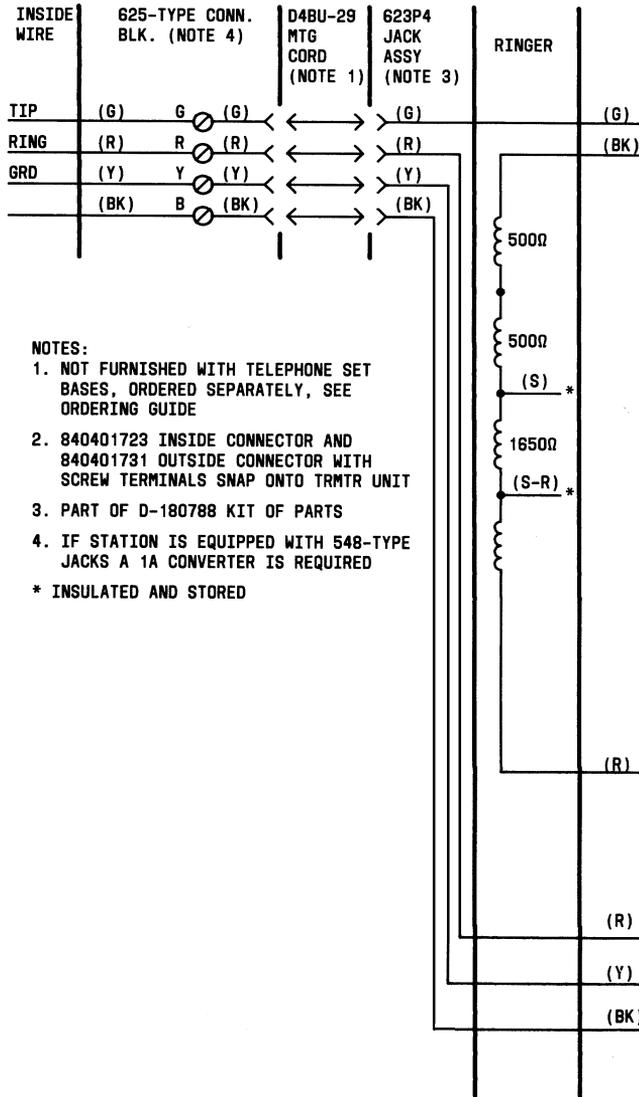
**3.17 *Disconnection of Customer-Owned Telephone Set Housings:*** Disconnected customer-owned telephone set housings should be disabled by the removal of all Bell System components.

## 4. MAINTENANCE

**4.01** Maintenance is limited to those components installed as part of the telephone set base group or listed in the Ordering Guide as replaceable components. Maintenance of housing, handset, and other customer-owned parts is the responsibility of the customer.

**4.02** Refer to appropriate section for maintenance covering a particular item such as dials or ringers.

**4.03** Refer to connection figures as an aid in locating and clearing trouble.



NOTES:

1. NOT FURNISHED WITH TELEPHONE SET BASES, ORDERED SEPARATELY, SEE ORDERING GUIDE
2. 840401723 INSIDE CONNECTOR AND 840401731 OUTSIDE CONNECTOR WITH SCREW TERMINALS SNAP ONTO TRMTR UNIT
3. PART OF D-180788 KIT OF PARTS
4. IF STATION IS EQUIPPED WITH 548-TYPE JACKS A 1A CONVERTER IS REQUIRED

\* INSULATED AND STORED

Fig. 8—581A Telephone Set Base With D-180778 Kit of Parts (Rotary Dial, Current Version) (Sheet 1 of 2)

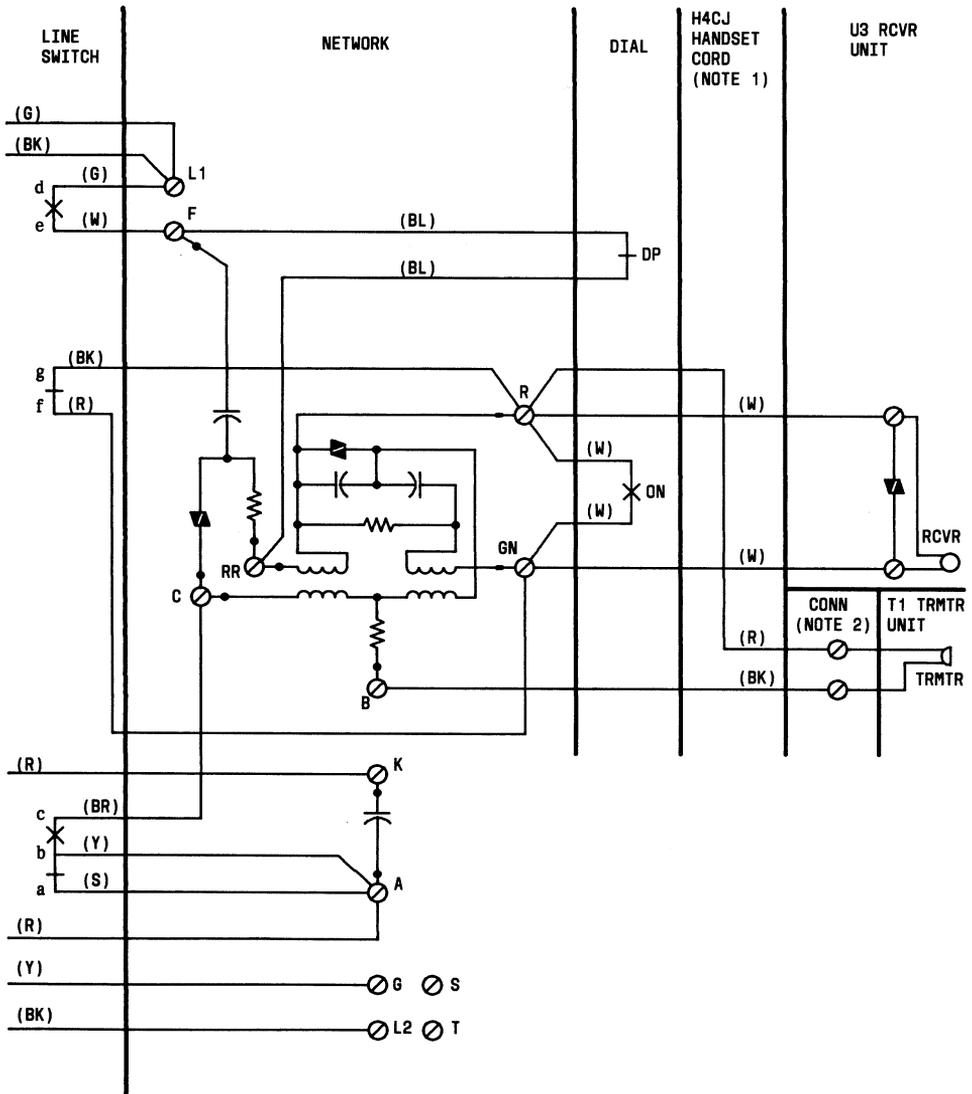
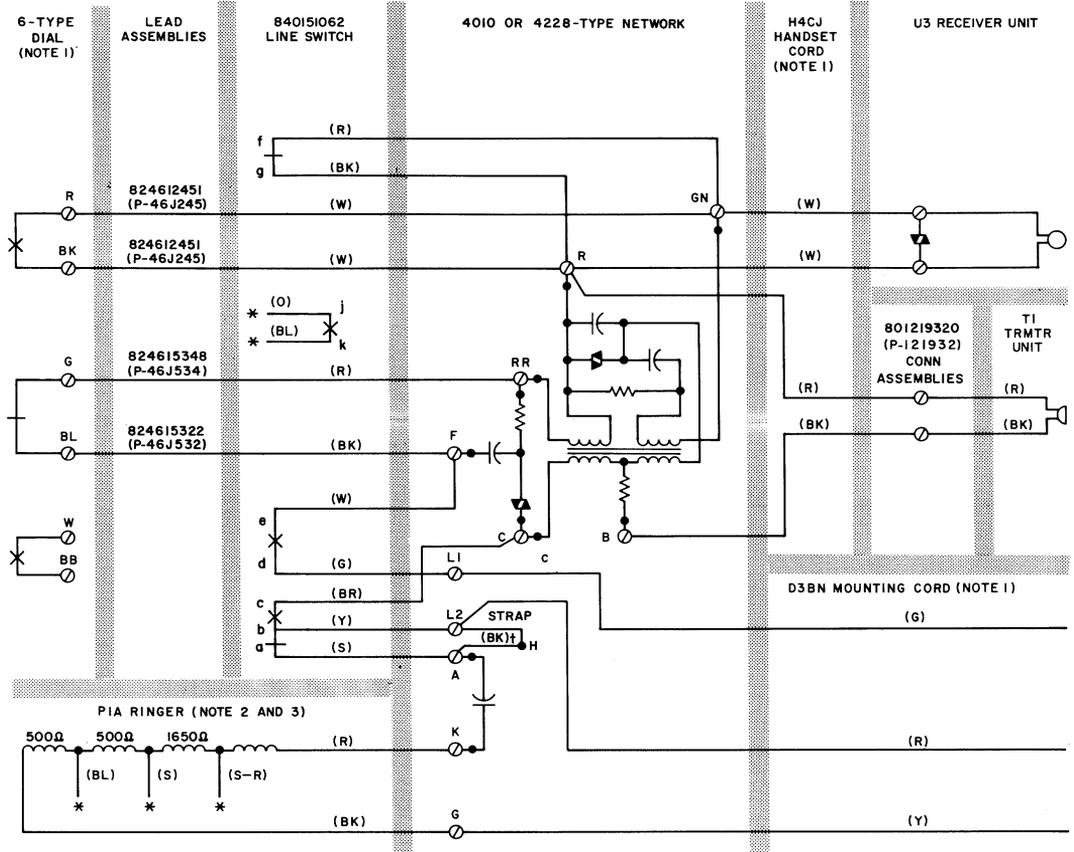


Fig. 8—581A Telephone Set Base With D-180778 Kit of Parts (Rotary Dial, Current Version) (Sheet 2 of 2)

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- NOTES:
1. NOT FURNISHED WITH TELEPHONE SET BASES, ORDERED SEPARATELY, SEE ORDERING GUIDE.
  2. WIRED FOR RING PARTY SERVICE.
  3. PIA RINGERS MANUFACTURED AFTER 10-1-72 ARE NOT PROVIDED WITH (BL) RINGER LEADS.
- \* INSULATED AND STORED  
 † 4010B NETWORK ONLY

Fig. 9—581A Telephone Set Base and Component Parts, Connections (Rotary Dial, Early Version)

TABLE D

## LINE JACK CONVERSION

WIRE OR LEAD	COLOR	REMOVE FROM	CONNECT TO
623P4 Jack	R	—	A
	G	—	L1
	Y	—	G
	BK	—	L2
Strap	BK	L2	A
Line Switch	Y	L2	A
Ringer	BK	G	L1

TABLE E

LINE AND RINGER CONNECTIONS  
(ROTARY TELEPHONE SET)

WIRE OR LEAD	COLOR	INDIVID OR BRIDGED	RING PARTY	TIP PARTY		
				NO IDENT GROUND	IDENT GROUND	
					1000 $\Omega$	2650 $\Omega$
Inside Wire at 625-Type Conn Blk	R	R	R	R	R	R
	G	G	G	G	G	G
	Y	Y	Y	Y	Y	Y
	BK	B	B	B	B	B
623P4 Line Cord Jack Assy	R	A	A	L1	F	F
	G	L1	L1	A	L2	L2
	Y	G	G	G	G	G
	BK	L2	L2	L2	*	*
Ringer	R	K	K	K	K	K
	S-R	*	*	*	*	L1
	S	*	*	*	L1	*
	BK	L1	G	G	G	G
Line Switch	Y	A	A	A	L2	L2
	W	F	F	F	B	B

\* Insulate and store.

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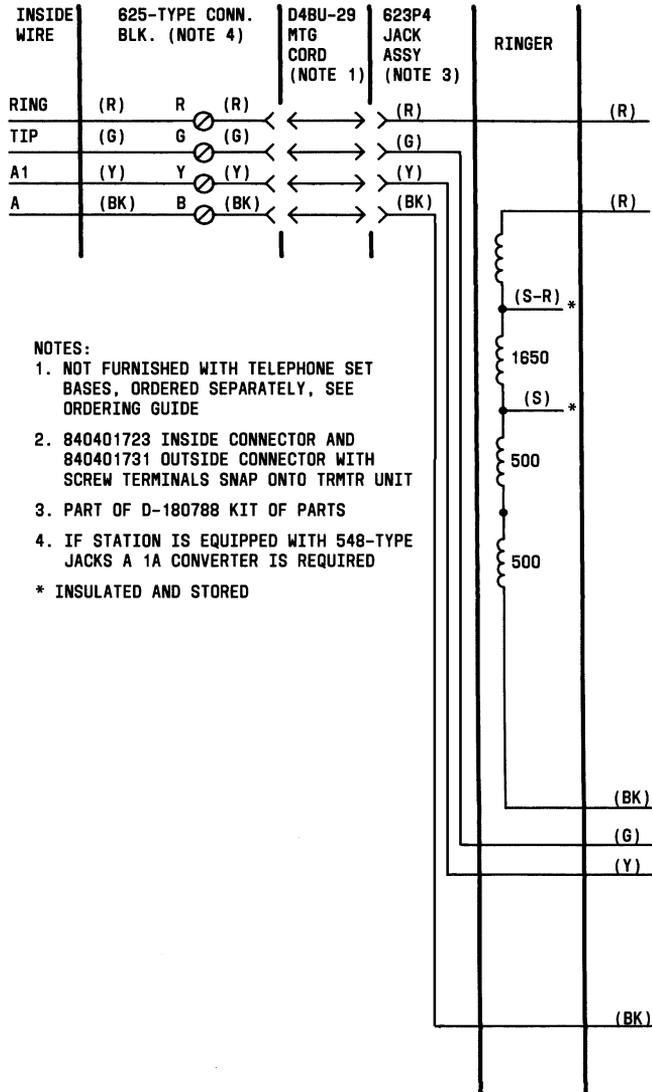


Fig. 10—581A Telephone Set Base, Wiring for 1A1, 1A2 KTS Using D-180778 Kit of Parts (Rotary Dial, Current Version) (Sheet 1 of 2)



SECTION 503-100-120

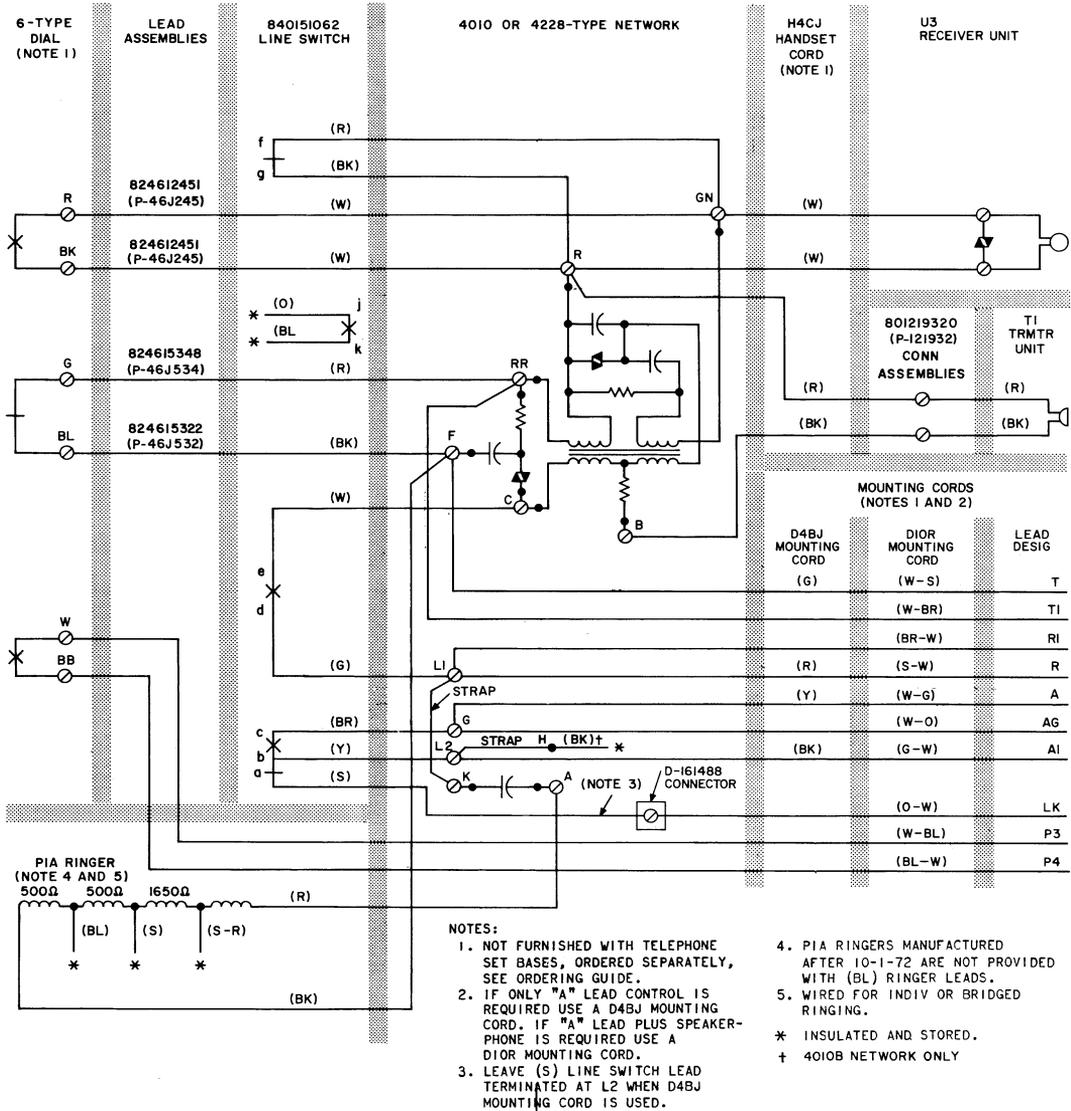
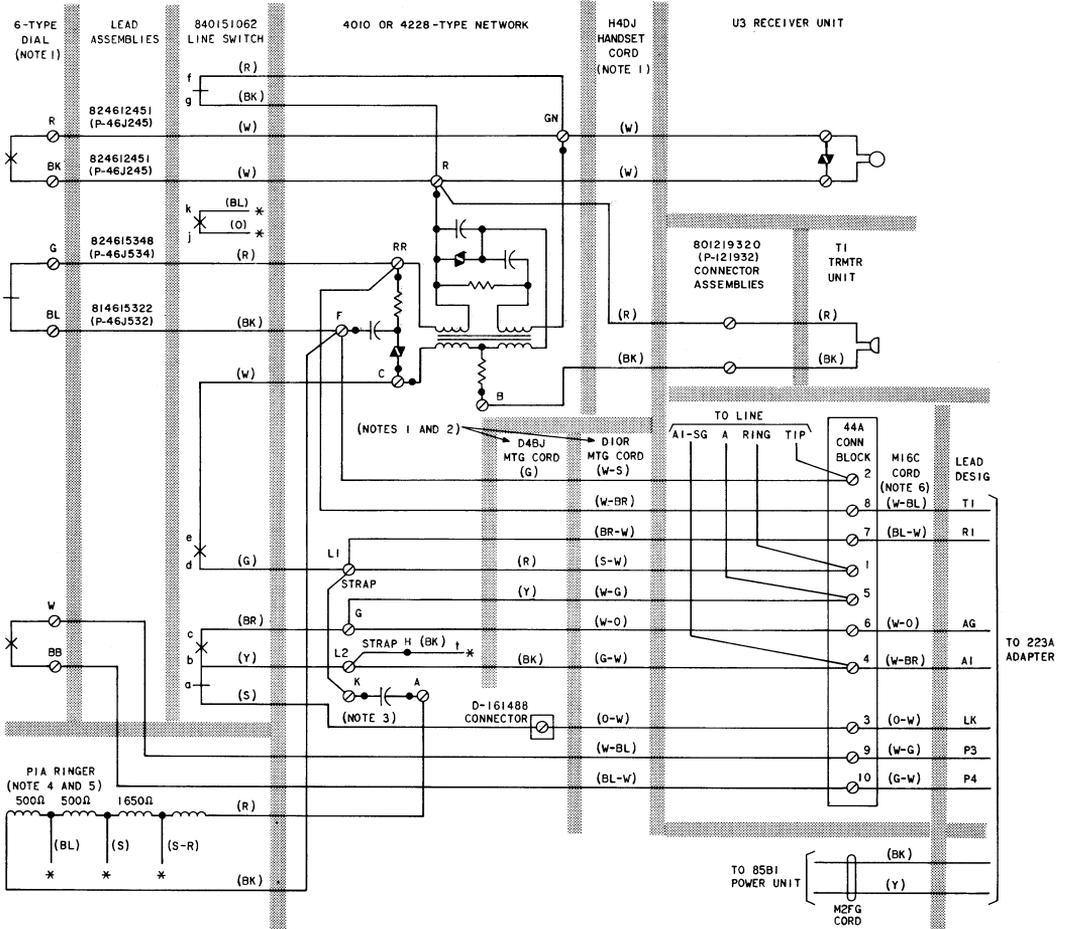


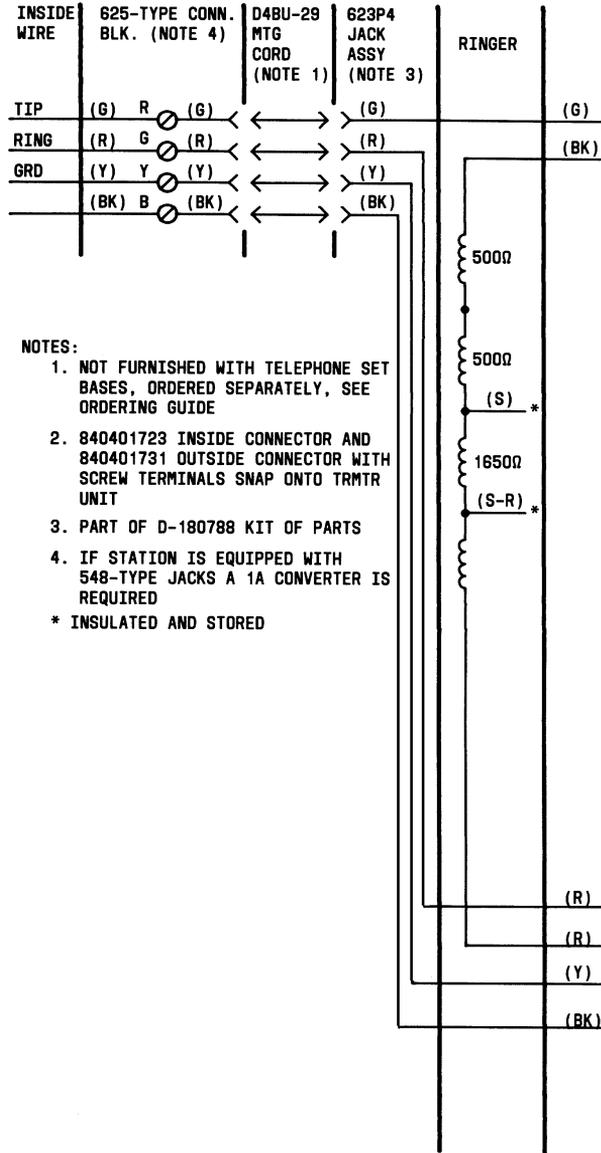
Fig. 11—Wiring for 1A1, 1A2 KTS or 3-Type (MD) Speakerphone and 1A1, 1A2 KTS (Rotary Dial, Early Version)



NOTES:

1. NOT FURNISHED WITH TELEPHONE SET BASES, ORDERED SEPARATELY, SEE ORDERING GUIDE.
  2. IF ONLY "A" LEAD CONTROL IS REQUIRED USE A D4BJ MOUNTING CORD. IF "A" LEAD PLUS SPEAKERPHONE IS REQUIRED USE A DIOR MOUNTING CORD.
  3. LEAVE (S) LINE SWITCH LEAD TERMINATED AT L2 WHEN D4BJ MOUNTING CORD IS USED.
  4. PIA RINGERS MANUFACTURED AFTER 10-1-72 ARE NOT PROVIDED WITH (BL) RINGER LEADS.
  5. WIRED FOR INDIV OR BRIDGED RINGING.
  6. INSULATE AND STORE UNUSED LEADS.
- \* INSULATED AND STORED.  
† 4010B NETWORK ONLY

Fig. 12—Wiring for 1A1, 1A2 KTS or 4-Type Speakerphone and 1A1, 1A2 KTS (Rotary Dial)



NOTES:

1. NOT FURNISHED WITH TELEPHONE SET BASES, ORDERED SEPARATELY, SEE ORDERING GUIDE
  2. 840401723 INSIDE CONNECTOR AND 840401731 OUTSIDE CONNECTOR WITH SCREW TERMINALS SNAP ONTO TRMTR UNIT
  3. PART OF D-180788 KIT OF PARTS
  4. IF STATION IS EQUIPPED WITH 548-TYPE JACKS A 1A CONVERTER IS REQUIRED
- \* INSULATED AND STORED

Fig. 13—581A Telephone Set Base Using a D-180778 Kit of Parts (TOUCH-TONE Dial, Current Version) (Sheet 1 of 2)

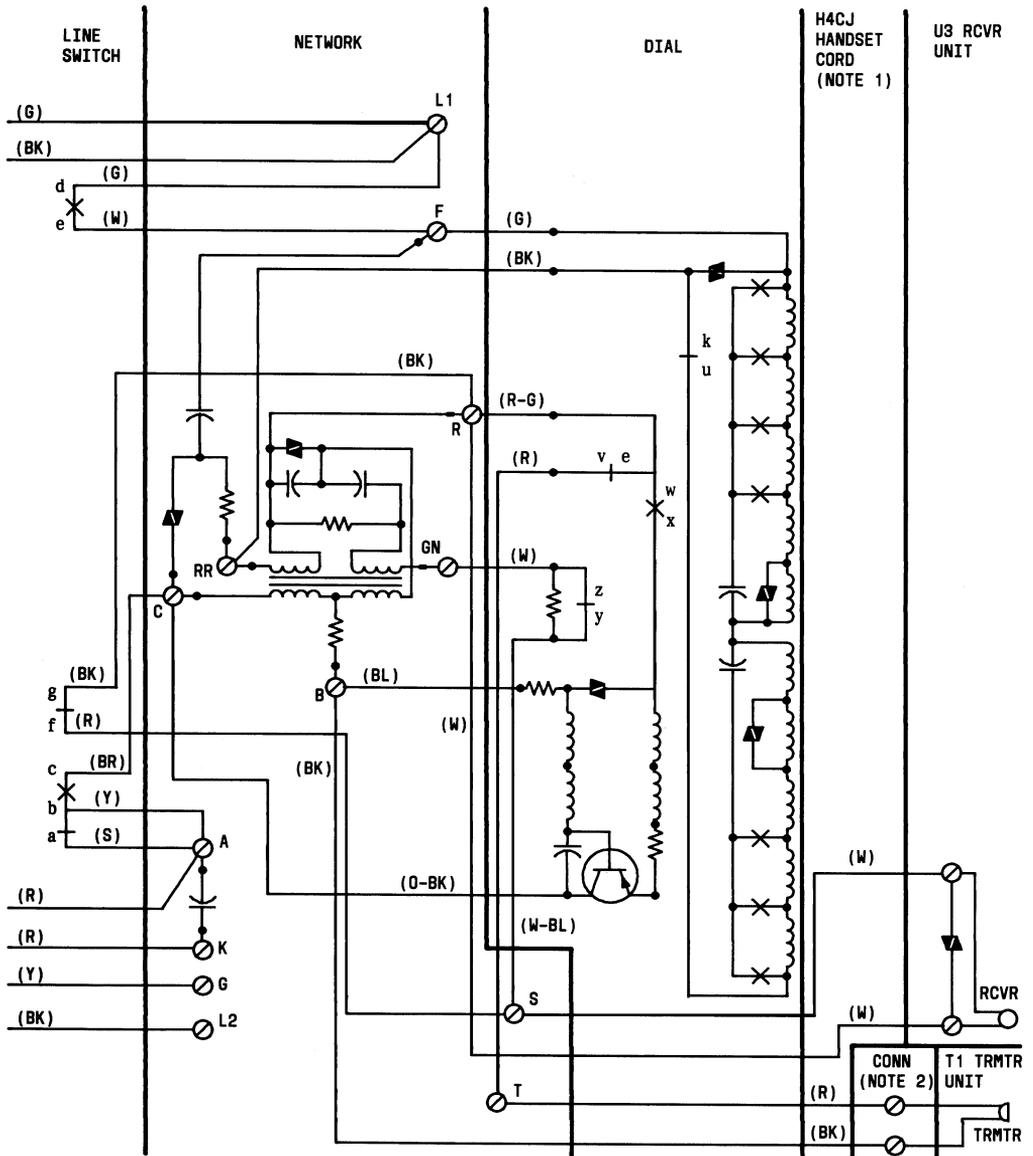


Fig. 13—581A Telephone Set Base Using a D-180778 Kit of Parts (TOUCH-TONE Dial, Current Version) (Sheet 2 of 2)

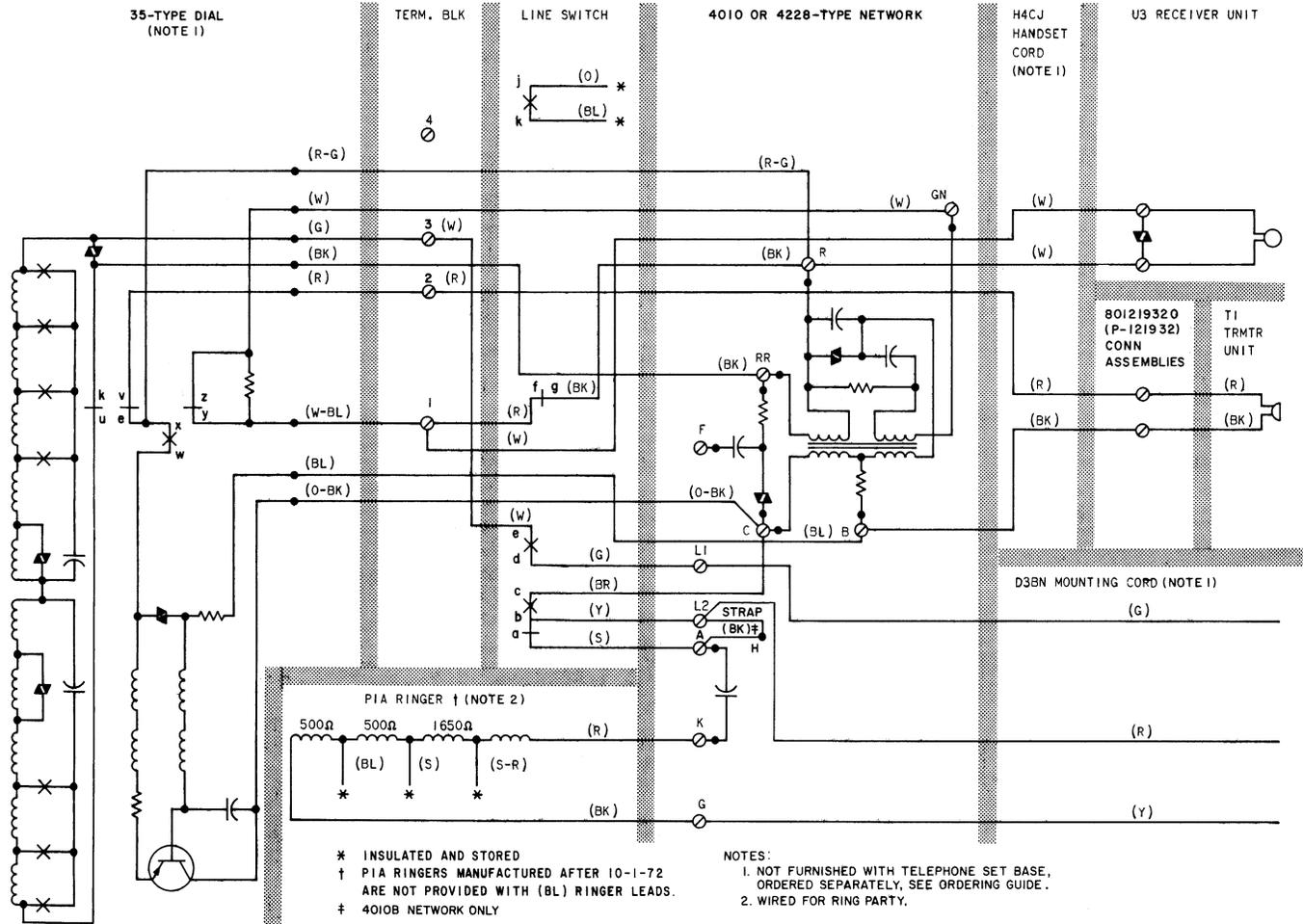


Fig. 14—581A Telephone Set Base and Component Parts, Connections (TOUCH-TONE Dial, Early Version)

TABLE F

LINE AND RINGER CONNECTIONS  
(TOUCH-TONE TELEPHONE SET)

WIRE OR LEAD	COLOR	INDIVID OR BRIDGED	RING PARTY	TIP PARTY		
				NO IDENT GROUND	IDENT GROUND	
					1000Ω	2650Ω
Inside Wire at 625-Type Conn Blk	R	R	R	R	R	R
	G	G	G	G	G	G
	Y	Y	Y	Y	Y	Y
	BK	B	B	B	B	B
623P4 Line Cord Jack Assy	R	A	A	L1	C	C
	G	L1	L1	A	L2	L2
	Y	G	G	G	G	G
	BK	L2	L2	L2	*	*
Ringer	R	K	K	K	K	K
	S-R	*	*	*	*	L1
	S	*	*	*	L1	*
	BK	L1	G	G	G	G
Line Switch	Y	A	A	A	L2	L2
	W	F	F	C	B	B
	BR	C	C	F	F	F

\* Insulate and store.

TABLE H

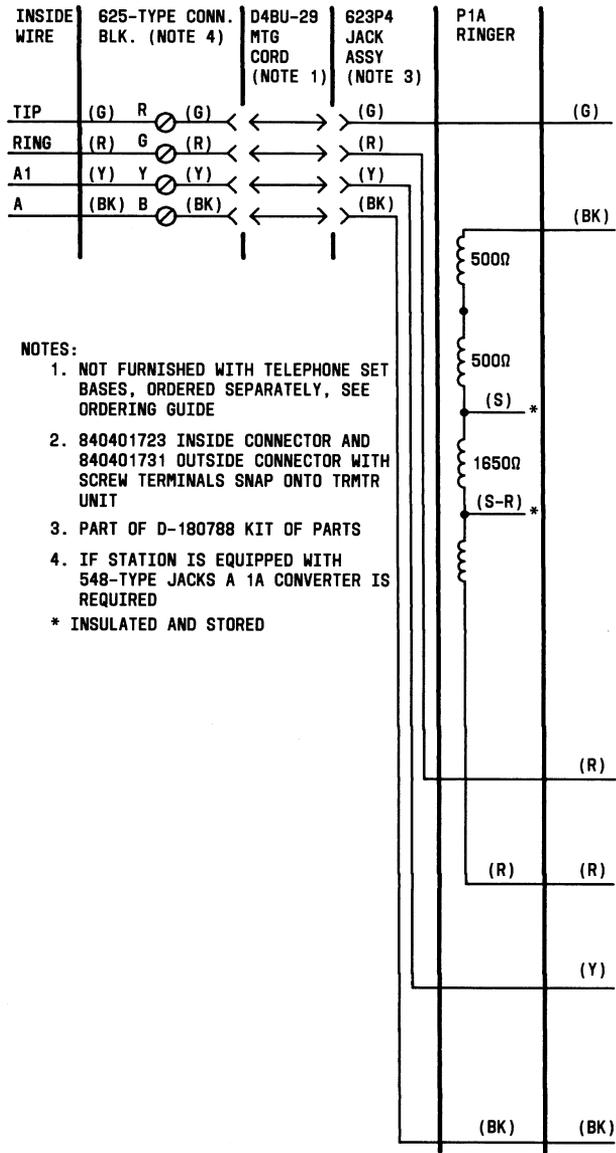
(OPTIONAL) 241B AMPLIFIER CONNECTIONS  
(D-180409 KIT OF PARTS) TOUCH-TONE  
DIAL

TABLE G

(OPTIONAL) 241B AMPLIFIER CONNECTIONS  
(D-180409 KIT OF PARTS) ROTARY DIAL

WIRE OR LEAD	COLOR	REMOVE FROM NET.	CONNECT TO	
			241B AMPLIFIER	NET.
D-180409 Kit of Parts	R		4	R
	BK		1	B
H4CJ Handset Cord (Set End)	R	R	2	
	BK	B	3	

WIRE OR LEAD	COLOR	REMOVE FROM	CONNECT TO	
			241B AMPL	NET.
D-180409 Kit of Parts	R		4	R
	BK		1	B
H4CJ Handset Cord (Set End)	W	TB-1	5	
	R	TB-2	2	
	BK	B	3	
35Y3A Dial	W-BL	TB-1	5	
	R	TB-2	2	
	G	TB-3	6	
	BL	B	3	
Line Switch	R	TB-1	5	
	W	TB-3	6	



- NOTES:
1. NOT FURNISHED WITH TELEPHONE SET BASES, ORDERED SEPARATELY, SEE ORDERING GUIDE
  2. 840401723 INSIDE CONNECTOR AND 840401731 OUTSIDE CONNECTOR WITH SCREW TERMINALS SNAP ONTO TRMTR UNIT
  3. PART OF D-180788 KIT OF PARTS
  4. IF STATION IS EQUIPPED WITH 548-TYPE JACKS A 1A CONVERTER IS REQUIRED
- \* INSULATED AND STORED

Fig. 15—Wiring for 1A1, 1A2 KTS Using D-180788 Kit of Parts (TOUCH-TONE Dial, Current Version) (Sheet 1 of 2)



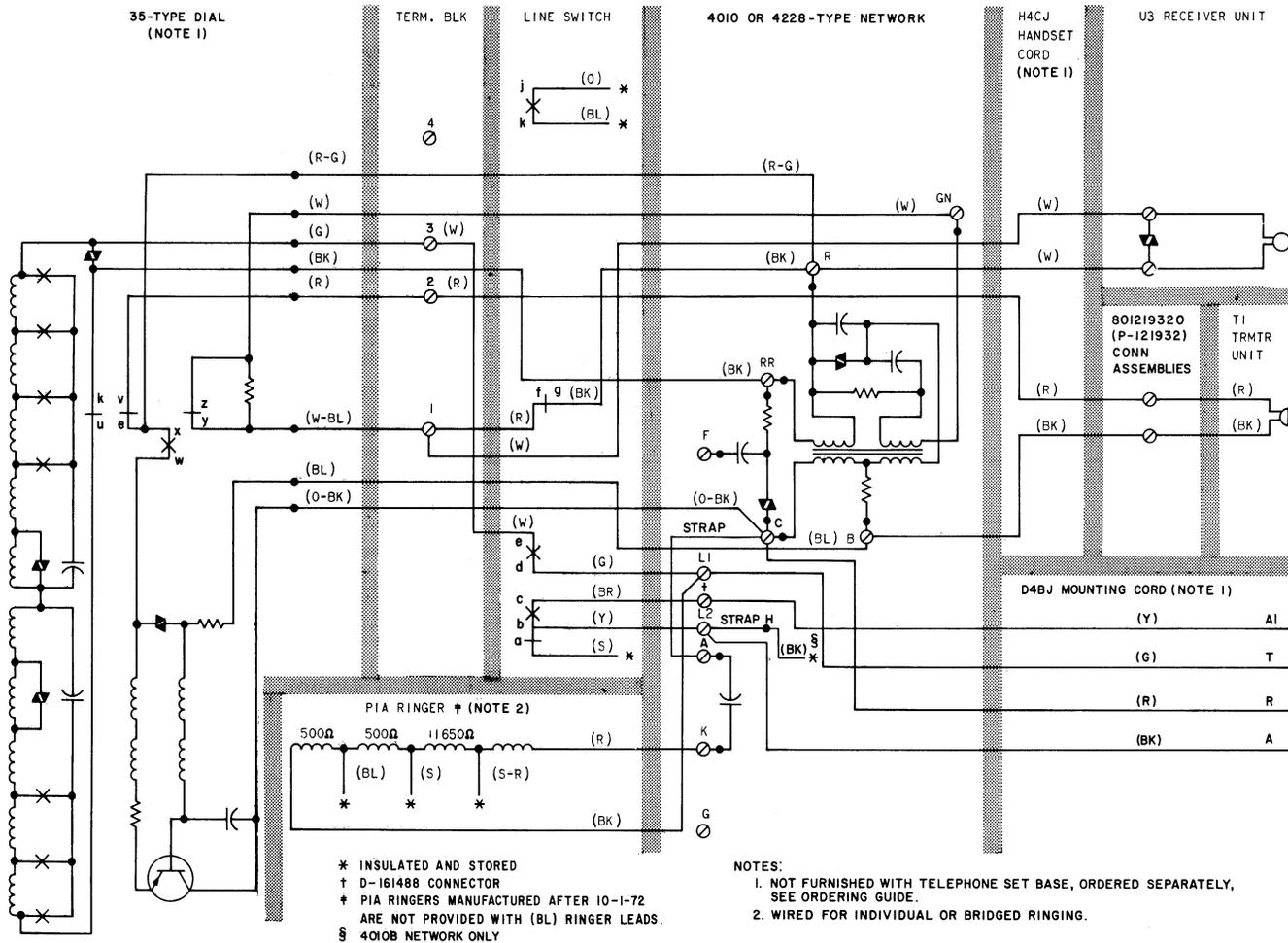
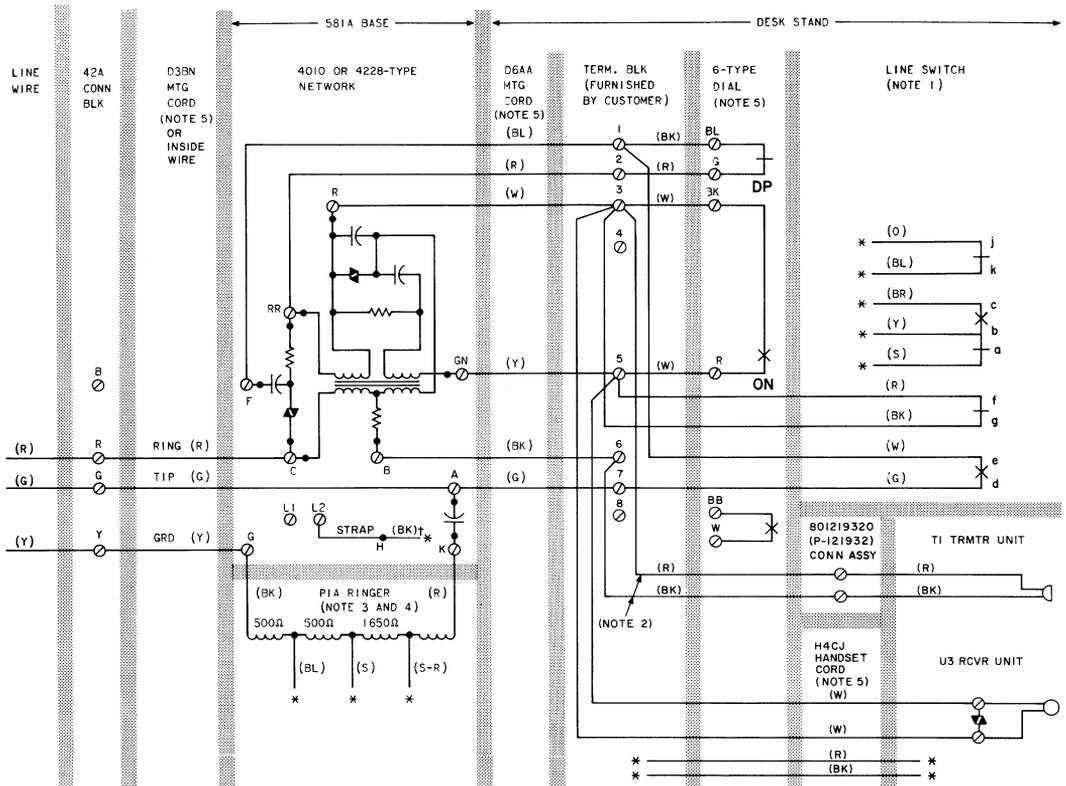


Fig. 16—Wiring for 1A1, 1A2 KTS (TOUCH-TONE Dial, Early Version)



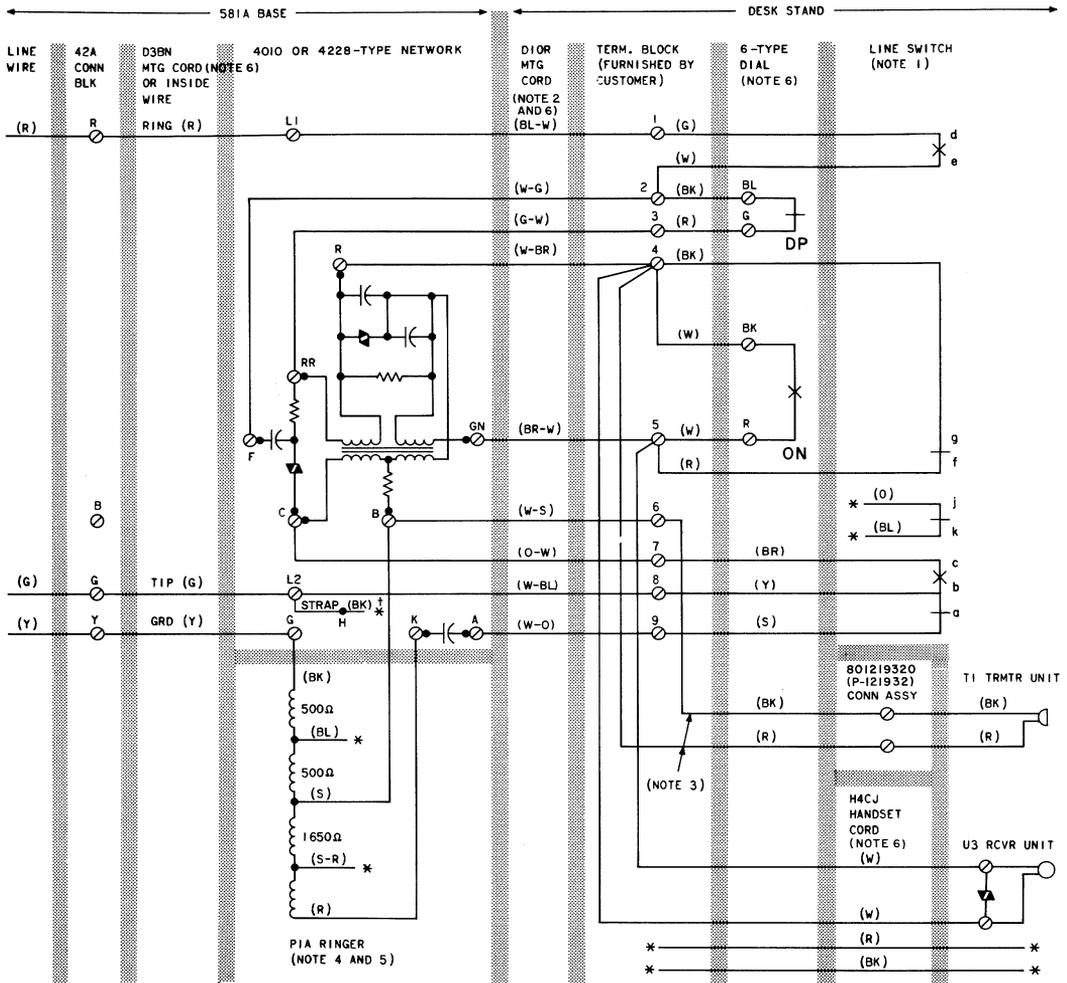
NOTES:

1. LINE SWITCH REMOVED FROM 581A TELEPHONE SET BASE AND INSTALLED IN CUSTOMER-SUPPLIED DESK STAND.
2. LEADS FURNISHED WITH 840151054 PARTS GROUP, FIG. 1.
3. WIRED FOR TIP PARTY SERVICE, WITH NO IDENT GRD.
4. PIA RINGERS MANUFACTURED AFTER 10-1-72 ARE NOT PROVIDED WITH (BL) RINGER LEADS.
5. NOT FURNISHED WITH TELEPHONE SET BASE, ORDERED SEPARATELY, SEE ORDERING GUIDE.

- \* INSULATED AND STORED
- + 4010B NETWORK ONLY
- DP - DIAL PULSE CONTACT
- ON - DIAL OFF NORMAL CONTACT

Fig. 17—Candlestick Type Telephone Set Connections (With D6AA Mounting Cord)

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NOTES:

1. LINE SWITCH REMOVED FROM 581A TELEPHONE SET BASE AND INSTALLED IN CUSTOMER-SUPPLIED DESK STAND.
2. INSULATE AND STORE (S-W) LEAD.
3. LEADS FURNISHED WITH 840151054 PARTS GROUP.
4. WIRED FOR TIP PARTY SERVICE WITH 1000Ω IDENT GRD.
5. PIA RINGERS MANUFACTURED AFTER 10-1-72 ARE NOT PROVIDED WITH (BL) RINGER LEADS.
6. NOT FURNISHED WITH TELEPHONE SET BASE, ORDERED SEPARATELY, SEE ORDERING GUIDE.

- \* INSULATED AND STORED.
- + 4010B NETWORK ONLY
- DP - DIAL PULSE CONTACT
- ON - DIAL OFF NORMAL CONTACT

Fig. 18—Candlestick Type Telephone Set Connections Wired for Tip Party Identification (With D10R Mounting Cord)

TABLE I

## MODIFICATIONS FOR 1A1 OR 1A2 KTS

LEAD	COLOR	NET. TERM.	
		REMOVE FROM	CONNECT TO
Line Switch	S	A	L2
	Y	A	L2
	BR	C	G
	G	L1	A
	W	F	C
623P4 Line Cord Jack Assembly	G	L1	F
Ringer	BK	L1	F