

581A TELEPHONE SET BASES

IDENTIFICATION, INSTALLATION, CONNECTIONS, AND MAINTENANCE

1. GENERAL

1.01 The 581A telephone set base (Fig. 1), component parts furnished with the base, and a 6T or 6U rotary dial (Fig. 2), ordered separately, are designed for assembling into a customer-supplied housing and handset handle. To add TOUCH-TONE® dial feature, refer to Ordering Guide and 3.06.

1.02 These components are interchangeable with those used to assemble a F-56659 or F-56660 telephone set, which are no longer manufactured, refer to Section 501-410-101.

1.03 This section is reissued to:

- Include connections for 4-type speakerphone
- Replace Fig. 4 to show new mounting location of P-21F955 board assembly and change guard assembly callout
- Add 4228F network and (BK) strap from terminal H of 4010B network.

2. IDENTIFICATION

Ordering Guide

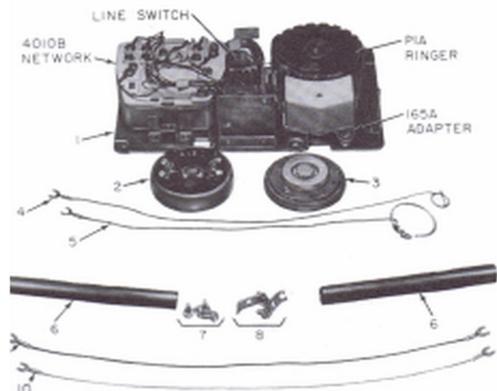
Base, Set, Telephone, 581A

2.01 Replaceable Components:

- Components listed (Fig. 1) legend and (Fig. 2).

2.02 Associated Apparatus or Equipment (ordered separately):

- Cord, Mounting, D3BN-*, 5 feet, 6 inches
- Cord, Mounting, D4BJ-*, 5 feet, 6 inches (when set is used with 1A1 or 1A2 KTS)
- Cord, Mounting, D6AA-*, (specify length) (required when desk stand type telephone is installed)
- Cord, Mounting, D10R-* (specify length) (when rotary dial set is used with 1A1 or 1A2 KTS and 3- or 4-type speakerphone)
- Cord, Handset, H4CJ-*, 6 feet



LEGEND

- | | | |
|----|---|---------------------|
| 1 | 581A Telephone Set Base | |
| 2 | U3 Receiver Unit | |
| 3 | T1 Transmitter Unit | |
| 4 | P-22F047 Spider Assembly | |
| 5 | P-22F046 Connector Terminal and Lead Assembly | |
| 6 | P-483192 Sleeving (2) | |
| 7 | P-43A392 Screws (4) | |
| 8 | P-121932 Connector Assembly (2) | |
| 9 | 840153274 Lead Assembly (BK) | } Required for Desk |
| 10 | 840153290 Lead Assembly (R) | |

Note: The receiver and transmitter units are shipped loose with base. Items 4 through 10 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—6T or 6U Dial and Associated Parts

- Dial, 6T (Chrome) or 6U (Gold) †
- D-180460 Kit of Parts (TOUCH-TONE dial)
- * Add appropriate color suffix.

†Includes (2) P-46J245 (white), (1) P-46J532 (black), and (1) P-46J534 (red) lead assembly, P-296741 (chrome) or P-20F929 (gold) card holder assembly, and (3) P-121457 screws (Fig. 2).

2.03 **Optional Apparatus or Equipment (ordered separately):**

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

2.04 **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
- May be modified for use in 1A1 or 1A2 key telephone systems. The rotary dial desk version may also be modified for use with 3- or 4-type speakerphone

- 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 these standard components.

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 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 P-43A392 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 6T (chrome) or 6U (gold) dial (Fig. 2) using three P-121457 screws furnished with dial.
- (2) Connect dial leads furnished with dial in accordance with Table A.

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) Install #840360390 bracket and P-21F955 board assembly at location on 581A base shown in Fig. 4.
- (3) Refer to Fig. 11 or 12 for dial connections.

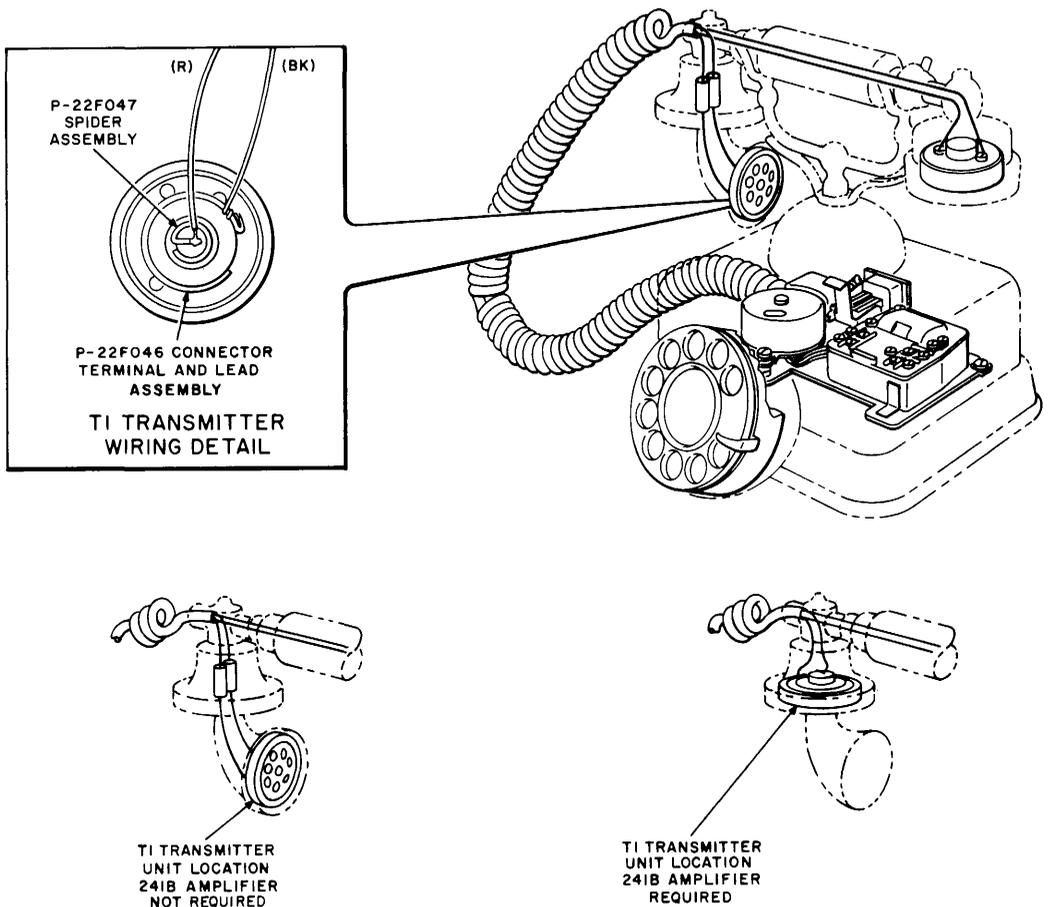
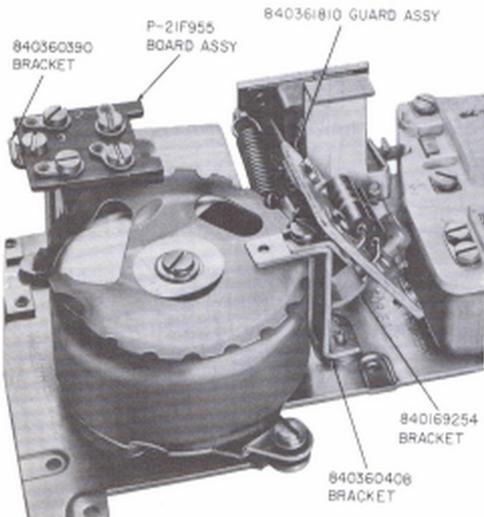


Fig. 3—Typical Installation, Desk Set Antique-Decorator Housing

TABLE A

DIAL LEAD INSTALLATION (DESK SET TYPE)

LEAD COLOR	CONNECT BETWEEN	
	DIAL TERM.	NET. TERM.
W	R	GN
W	BK	R
R	G	RR
BK	BL	F



♦Fig. 4—Installation Location of Components to Add TOUCH-TONE® Dial and Polarity Guard Features ♦

3.07 If a polarity guard is to be installed in conjunction with 35Y3A TOUCH-TONE dial, install D-180461 Guard Assembly (Polarity Guard), ordered separately, ♦which consists of 840361810 guard assembly, 840360408 and 840169254 brackets, P-44E095 screws, and a P-90D012 printed wiring board assembly♦ only when specified by local instructions for end-to-end signaling purposes when battery and ground reversals are encountered. Refer to Fig. 4 for installation information and Table B for connections.

3.08 Mounting Cord (ordered separately):

- (1) A standard D3BN mounting cord (nonkey system use) is required for the rotary and TOUCH-TONE dial equipped sets.
- (2) Use a D4BJ mounting cord for *A* lead control when used with 1A1 or 1A2 key telephone system and a D10R mounting cord for 1A1 or 1A2 KTS and 3- or 4-type speakerphone.

Note: Only the customer's desk set type rotary dial equipped telephone set is intended for use with 1A1 or 1A2 KTS and 3- or 4-type speakerphone. Refer to Table C for connections.

- (3) Install set end of appropriate cord to 581A base, secure cord stay, and route cord as shown in Fig. 5.
- (4) Terminate cord as shown in appropriate connection figure.

3.09 Handset Cord (ordered separately):

- (1) Install set end of H4CJ handset cord, lay on top of mounting cord and secure cord stay to base as shown in Fig. 5.
- (2) Connect leads to appropriate network terminals (Fig. 8, 9, 10, 11, or 12).
- (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) Install P-22F046 connector terminal and lead assembly and P-22F0467 spider assembly on T1 transmitter unit as shown in Fig. 3.
- (6) Cut the two pieces of P-483192 sleeving to length sufficient to completely insulate the two P-121932 connectors and slide sleeving onto transmitter leads.

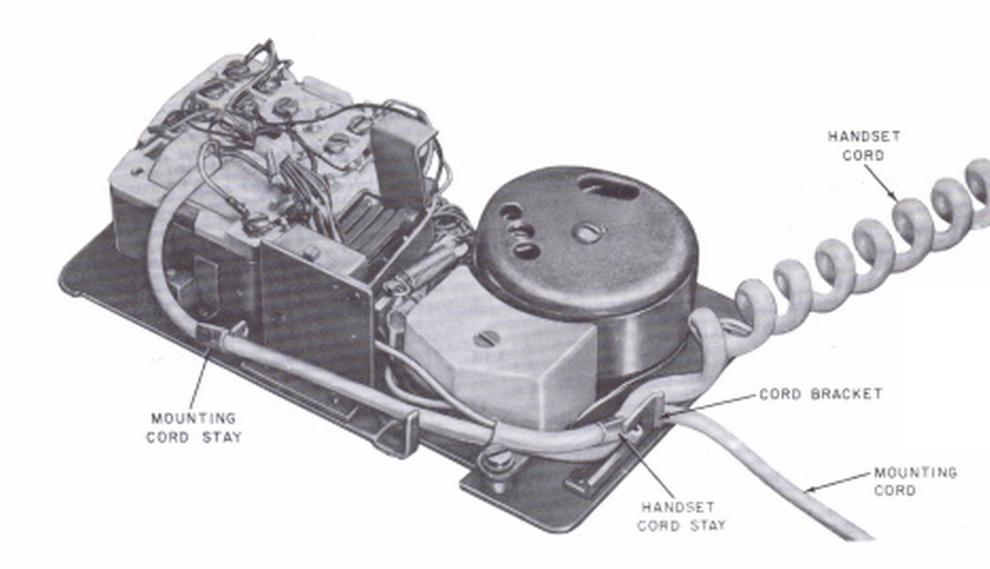


Fig. 5—Installation of Mounting and Handset Cords

◆TABLE B◆

**D-180461 GUARD ASSEMBLY
(POLARITY GUARD)**

WIRE OR LEAD	COLOR	REMOVE FROM	CONNECT TO	
		NETWORK	NETWORK	POLARITY GUARD
Dial	BK	RR		T
Line Switch	BR	C		S
Guard Assy.	G		RR	
	W		C*	

* (O-BK) dial lead remains connected to C of network.

Note: For used when specified by local instructions for end-to-end signaling installations.

- (7) Connect leads from transmitter to respective handset cord leads using the connectors.
- (8) Slide sleeving over the connector, place transmitter unit in cavity and replace cap.



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 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.

Assembly (Desk Stand Type)

3.10 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 3.12 for 6-type dial installation procedures.
- (5) Remove dummy handset cord from base.
- (6) See 3.14 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.

3.11 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 desk stand 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 3.13 for mounting cord installation procedures.

3.12 Rotary Dial (ordered separately):

- (1) Intall 6T (chrome) or 6U (gold) dial (Fig. 2) using three P-121457 screws furnished with dial.
- (2) Connect dial lead furnished with dial to dial and terminal block furnished with customer's desk stand set as shown in Fig. 13.

3.13 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 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. 13).

3.14 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. 13).
- (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. 13).
- (4) Connect the red and black leads furnished with 840151054 parts group items 9 and 10,

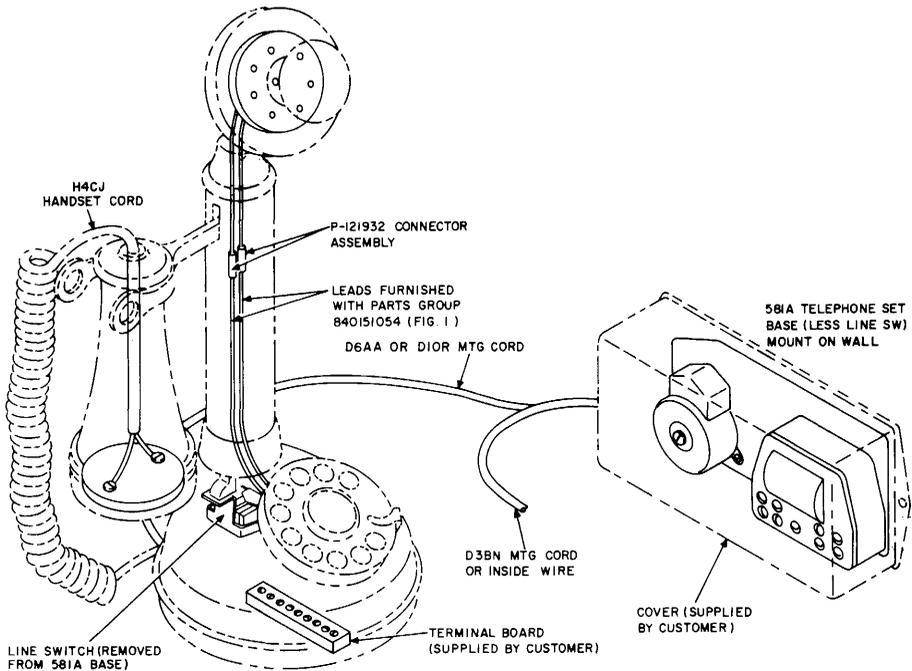


Fig. 6—Typical Installation of Desk Stand Type Telephone Set

(Fig. 1) at terminal block in base of desk stand set, extend leads toward transmitter unit.

- (5) Cut the two pieces of P-483192 sleeving to length sufficient to completely insulate the two P-121932 connectors (Fig. 13) and slide sleeving onto transmitter leads.
- (6) Install P-22F046 connector terminal and lead assembly and P-22F407 spider assembly on T1 transmitter unit as shown on Fig. 3.
- (7) Connect leads from transmitter to respective red and black leads using the connectors.
- (8) Slide sleeving over the connector and replace transmitter and receiver caps.
- (9) Refer to Read, 3.09 for transmitter and receiver unit insulation.

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

3.15 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.

Note: If kit of parts is to be installed on base already modified for TOUCH-TONE service it will be necessary to remove P-21F955 board assembly before installing amplifier board. Connections are then made to the amplifier board.

- (3) Connect amplifier into telephone circuit in accordance with Table D for rotary dial and Table E for TOUCH-TONE dial.

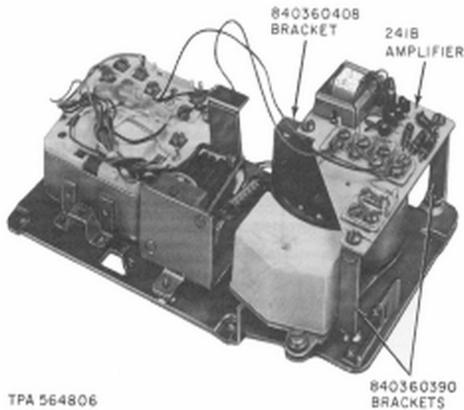


Fig. 7—Installation of D-180409 Kit of Parts

3.16 Line and Ringer Connections:

- (1) For all classes of service refer to Table F or G.
- (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 remove screw and move volume control to off position. Replace screw in normal position and tighten just enough to prevent volume control movement.

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.

TABLE C

1A1 OR 1A2 KTS AND 3- OR 4-TYPE SPEAKERPHONE
CONVERSION (SEE NOTE)

WIRE OR LEAD	COLOR	REMOVE FROM NET. TERM.	CONNECT TO NET. TERM	
			1A1 OR 1A2 KTS ONLY	SPEAKERPHONE WITH 1A1 OR 1A2 KTS
Line Switch*	BR	C	G	G
	W	F	C	C
	S	A	L2	†
Ringer	R	K	A	A
	BK	G	F	F
M1W Cord or Equiv.			K ↔ L1	

Note: For 1A1 or 1A2 KTS only, use D4BJ mounting cord, connect as shown in Fig. 9, 10, or 12. For 1A1 or 1A2 KTS with speakerphone use D10R mounting cord, connect as shown in Fig. 9 or 10.

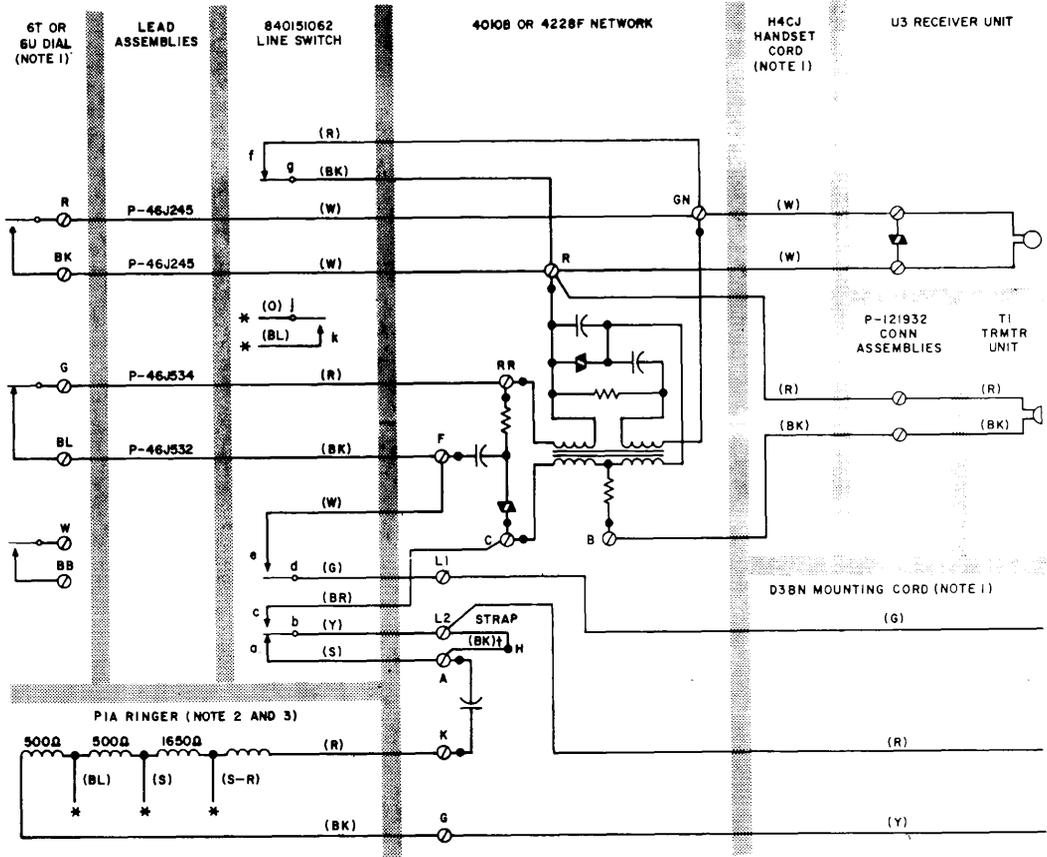
* The telephone set may be dialed in the on-hook condition with speakerphone option.

† Use D-161488 connector to connect (S) line switch lead to LK lead of transmitter.

TABLE D

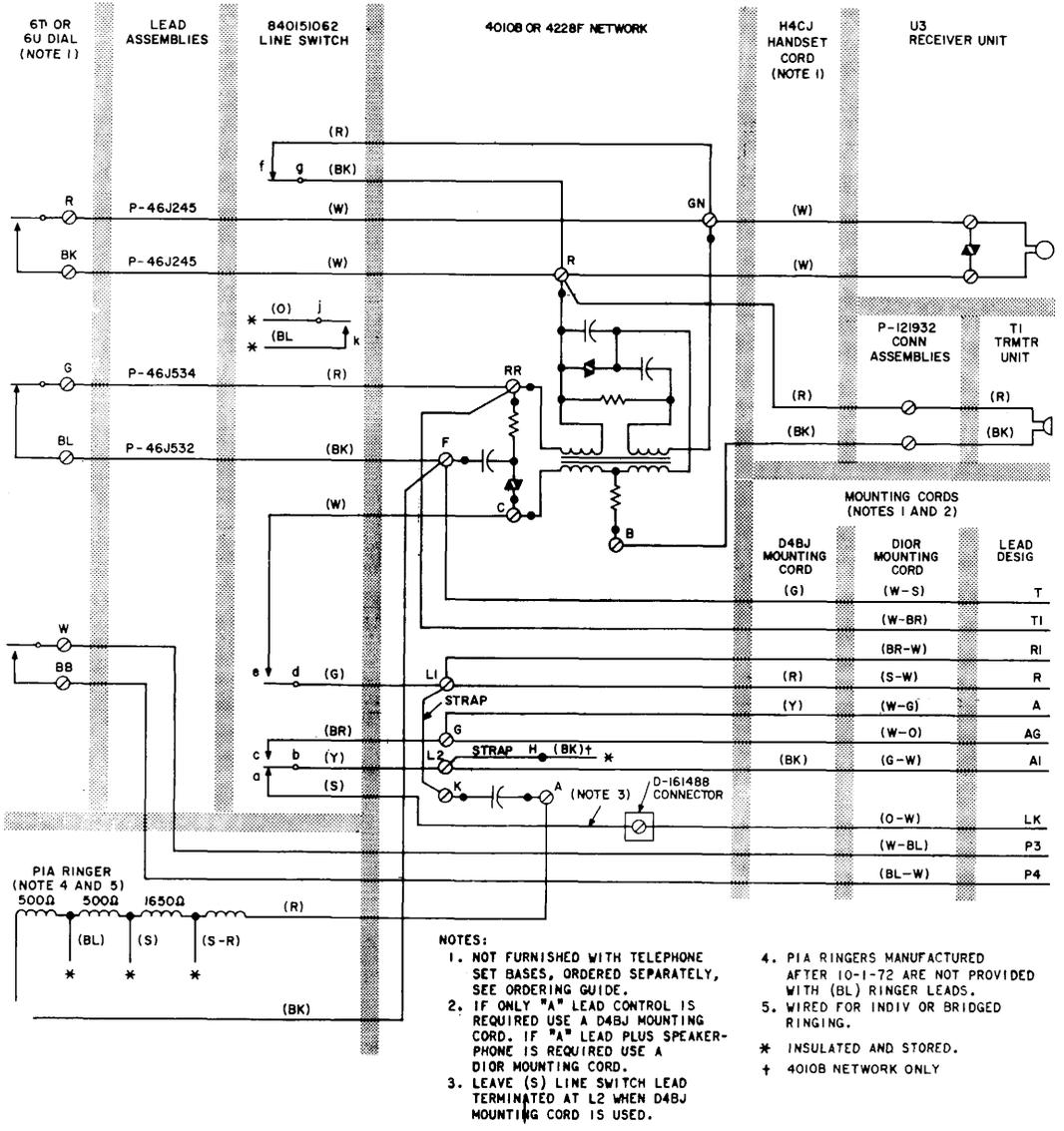
(OPTIONAL) 241B AMPLIFIER CONNECTIONS
(D-180409 KIT OF PARTS) ROTARY DIAL

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	



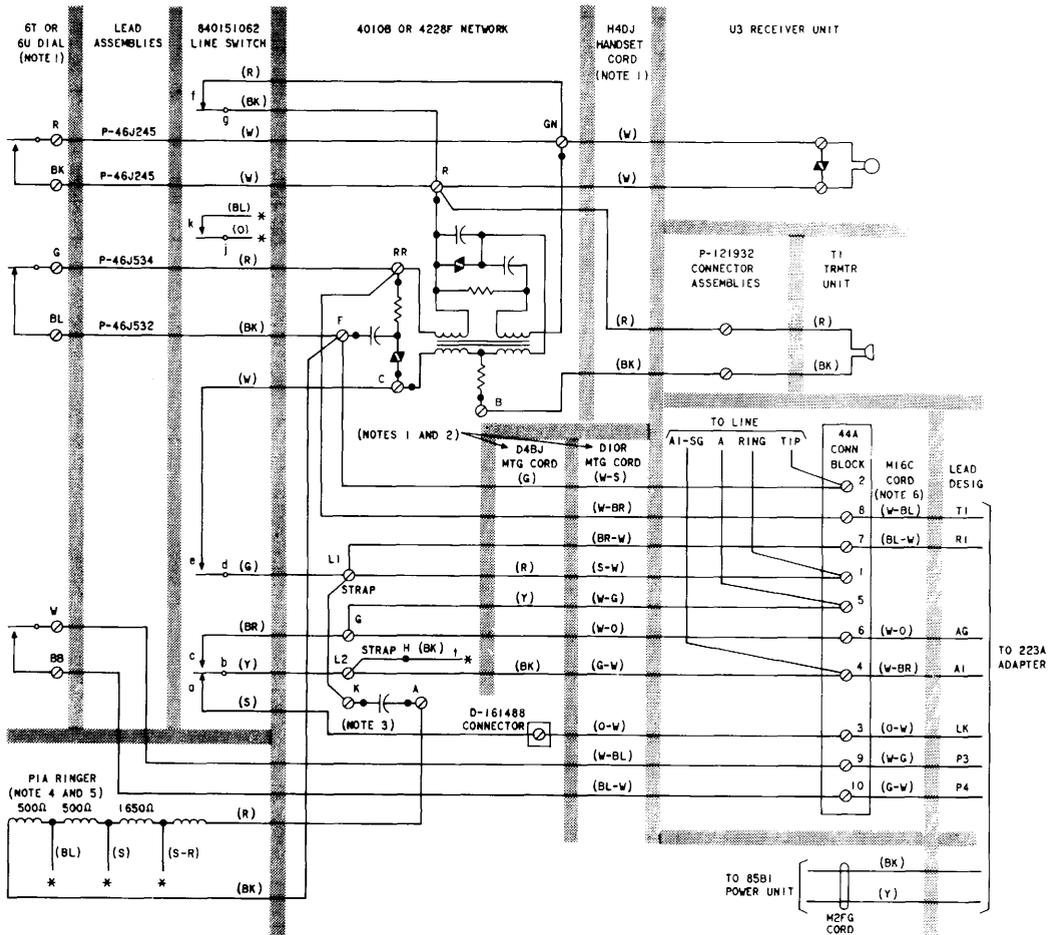
- NOTES:
1. NOT FURNISHED WITH TELEPHONE SET BASES, ORDERED SEPARATELY, SEE ORDERING GUIDE.
 2. WIRED FOR RING PARTY SERVICE.
 3. PIA RINGERS MANUFACTURED AFTER 10-1-72 ARE NOT PROVIDED WITH (BL) RINGER LEADS.
- * INSULATED AND STORED
 † 4010B NETWORK ONLY

◆ Fig. 8—581A Telephone Set Base and Component Parts, Connections (Rotary Dial) ◆



- 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.
- * INSULATED AND STORED.
 † 4010B NETWORK ONLY

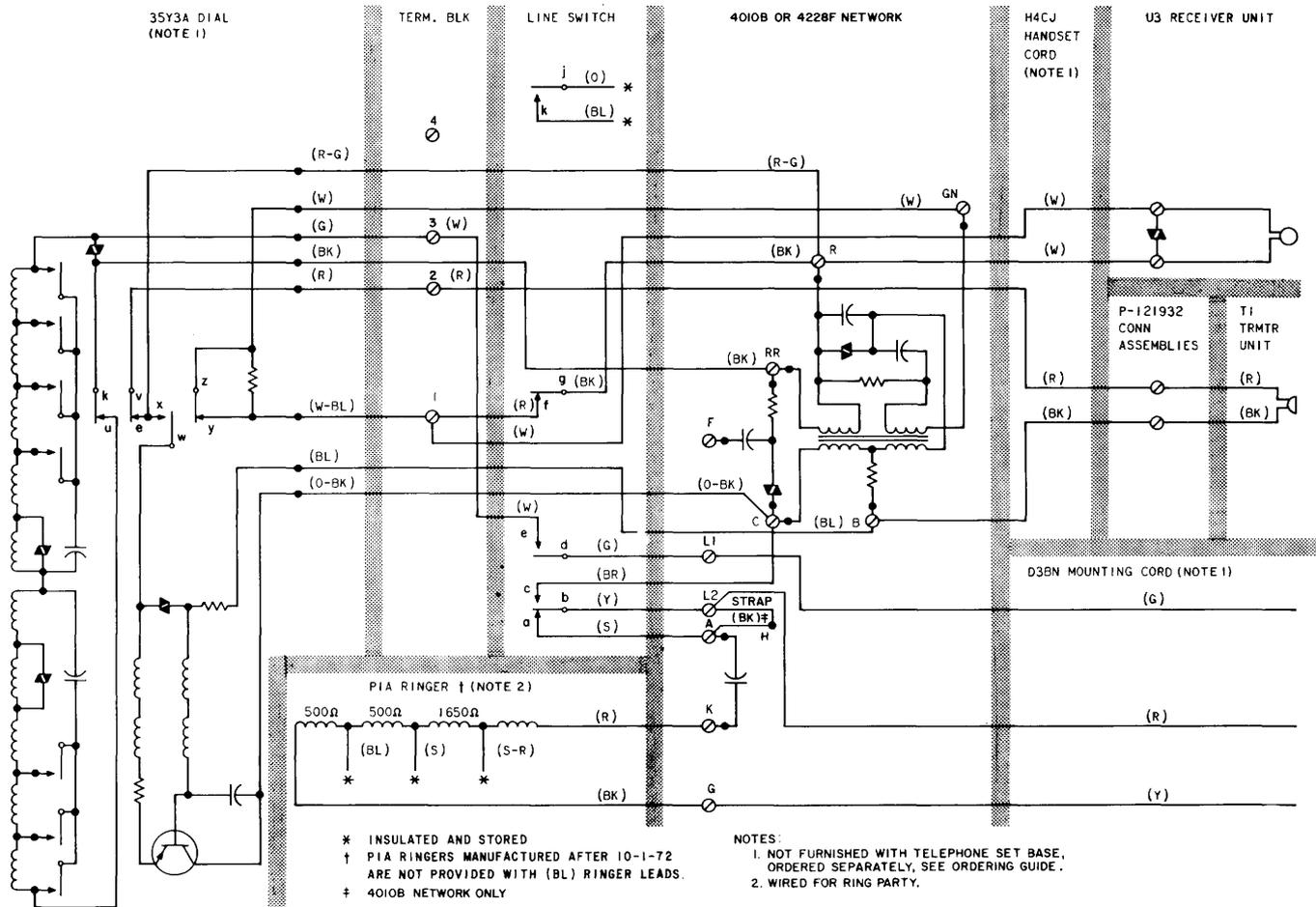
◆ Fig. 9—Wiring For 1A1, 1A2 KTS or 3-Type Speakerphone and 1A1, 1A2 KTS (Rotary Dial) ◆



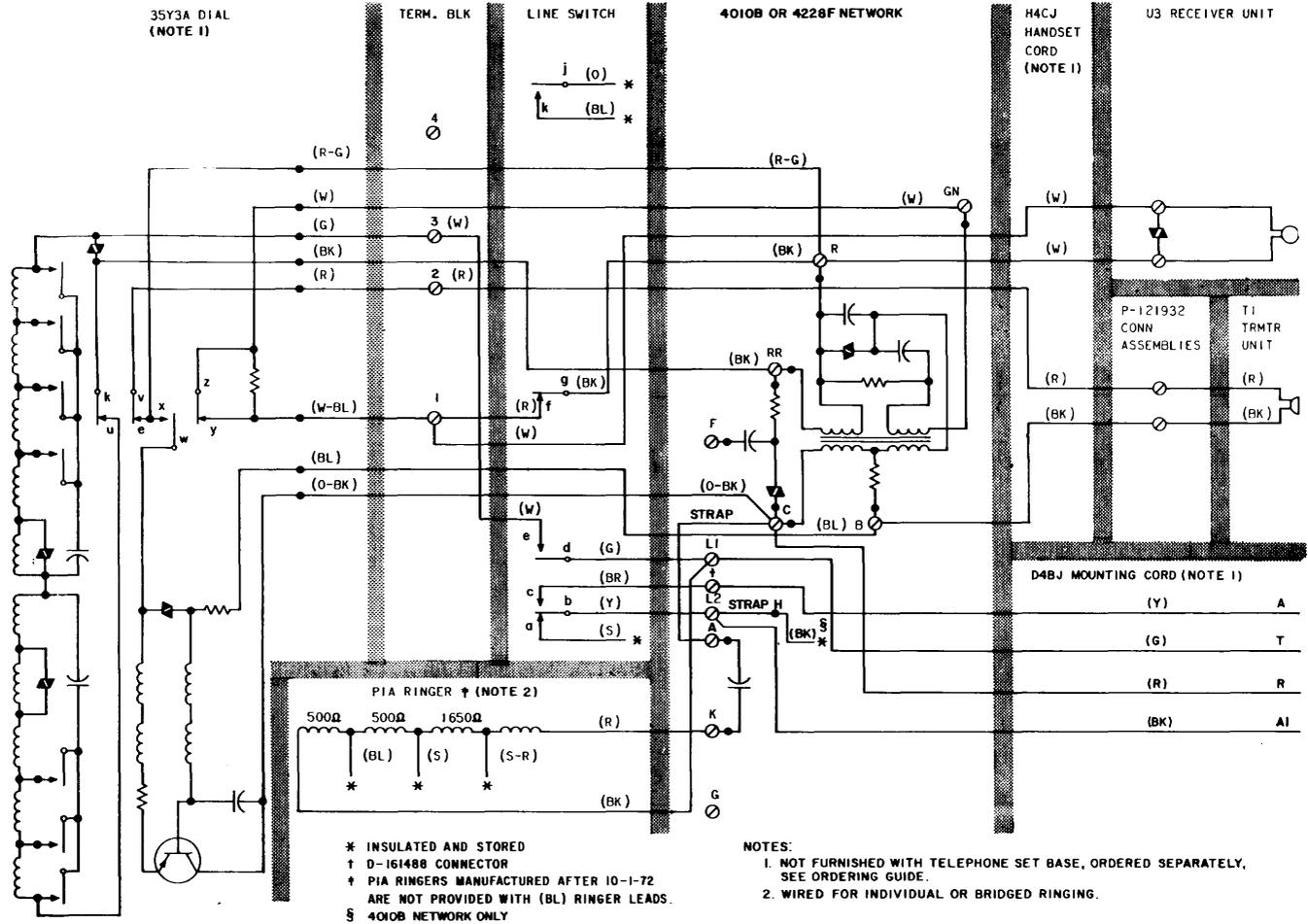
- NOTES:
1. NOT FURNISHED WITH TELEPHONE SET BASES, ORDERED SEPARATELY, SEE ORDERING GUIDE.
 2. IF ONLY "A" LEAD CONTROL IS REQUIRED USE A D4BJ MOUNTING CORD. IF "A" LEAD PLUS SPEAKERPHONE IS REQUIRED USE A DIOR MOUNTING CORD.
 3. LEAVE (S) LINE SWITCH LEAD TERMINATED AT L2 WHEN D4BJ MOUNTING CORD IS 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

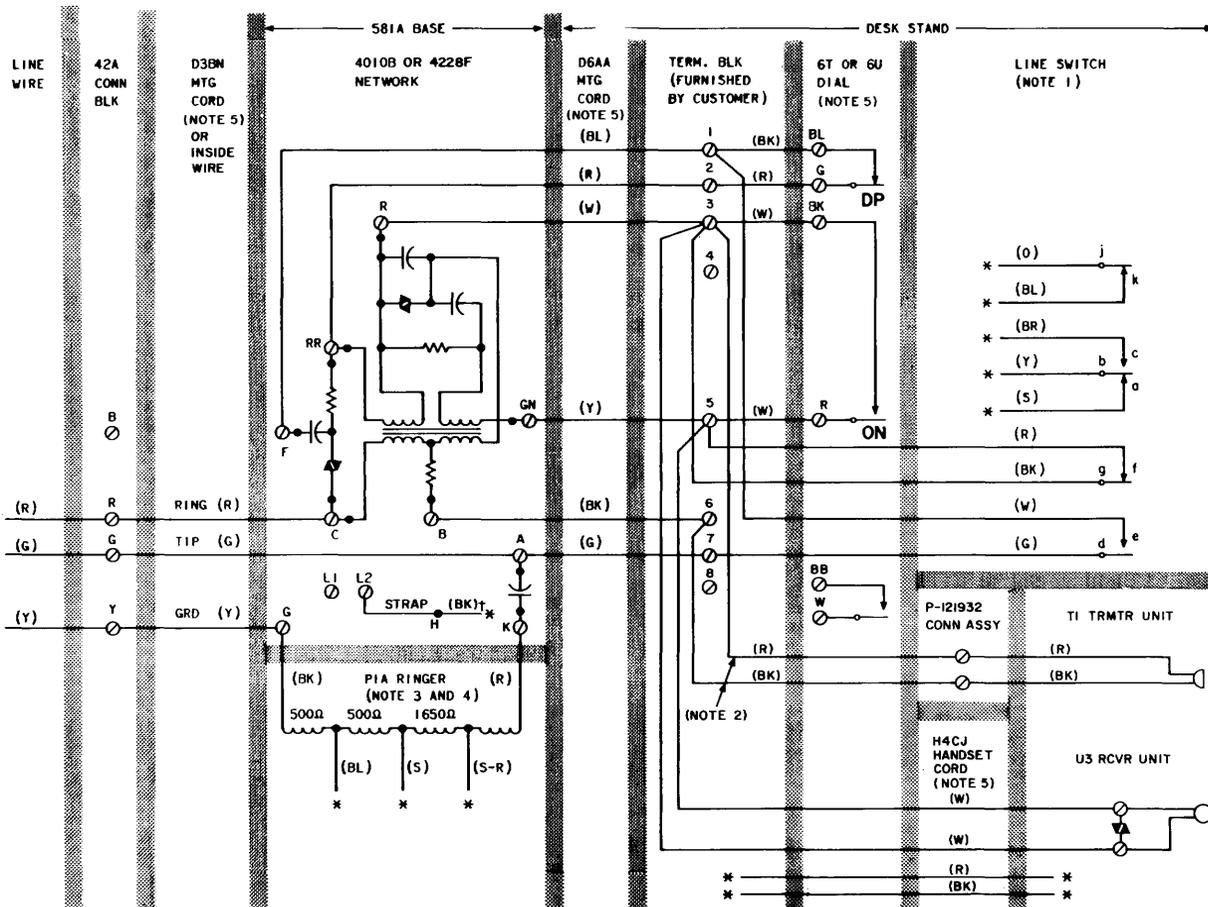
◆ Fig. 10—Wiring for 1A1, 1A2 KTS or 4-Type Speakerphone and 1A1, 1A2 KTS (Rotary Dial) ◆



◆ Fig. 11—581A Telephone Set Base and Component Parts, Connections (TOUCH-TONE Dial) ◆



♦ Fig. 12—Wiring for 1A1 or 1A2 KTS TOUCH-TONE Dial Equipped Telephone Set Base ♦

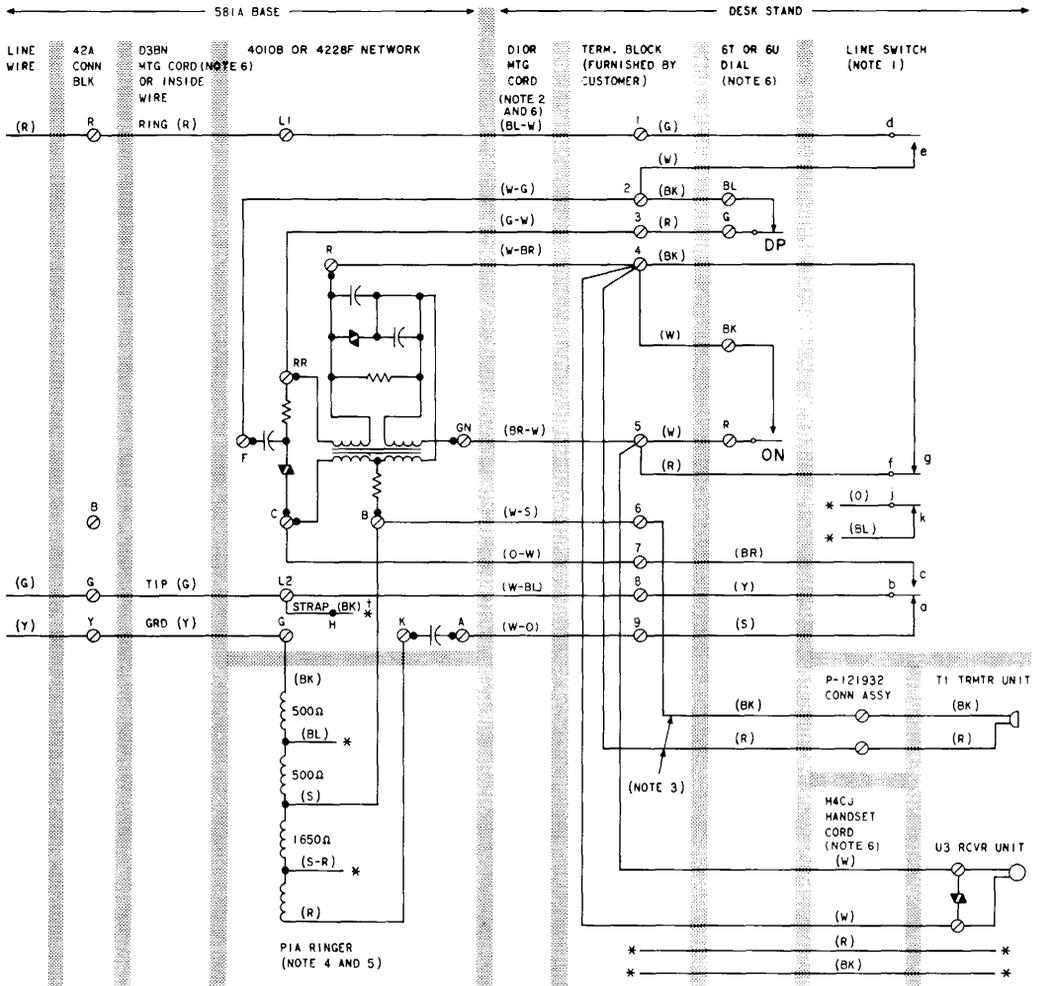


NOTES:

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. 13—Desk Stand Type Telephone Set Connections (With D6AA Mounting Cord) ◆



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. 14—Desk Stand Type Telephone Set Connections (With D10R Mounting Cord)

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

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	

Note: Remove P-21F955 board assembly from 581A base, not required when TOUCH-TONE and 241B amplifier features are installed at same time.

◆ TABLE F ◆

LINE AND RINGER CONNECTIONS FOR ROTARY AND TOUCH-TONE
TELEPHONE SETS (FIG. 8 AND 11)

WIRE OR LEAD		COLOR	INDIV OR BRIDGED	RING PARTY	TIP PARTY NO IDENT GROUND	TIP PARTY IDENT GRD	
						1000Ω	2650Ω
Inside Wire at Conn Block	Ring	R	R	R	R	R	R
	Tip	G	G	G	G	G	G
	GRD	Y	Y	Y	Y	Y	Y
D3BN Mtg Cord at Conn Block		R	R	R	G	G	G
		G	G	G	R	R	R
		Y	G	Y	Y	Y	Y
D3BN Mtg Cord at Net.		R	L2	L2	L2	L2	L2
		G	L1	L1	L1	L1	L1
		Y	G	G	G	G	G
Ringer Lead‡ at Net.		R	K	K	K	K	K
		S-R	*	*	*	*	B
		S	*	*	*	B	*
		BL	*	*	*	*	*
		BK	G†	G†	G†	G†	G†
TOUCH-TONE Dial Only		G	3	3	C†	C†	C†
		O-BK	C†	C†	3	3	3
Net. Strap		BK	A	A	A	*	*

* Insulated and stored.

† Network terminal.

‡ P1A ringers manufactured after 10-1-72 are not provided with (BL) ringer lead.

♦TABLE G♦

LINE AND RINGER CONNECTIONS FOR DESK STAND TELEPHONE SET

WIRE OR LEAD		COLOR	INDIV OR BRIDGED	RING PARTY	TIP PARTY NO IDENT GROUND	TIP PARTY IDENT GRD	
						1000Ω	2650Ω
Inside Wire and D3BN Mtg Cord at Conn Block	Ring	R	R	R	R	R	R
	Tip	G	G	G	G	G	G
	GRD	Y	Y	Y	Y	Y	Y
Inside Wire at D3BN Mtg Cord at Net.		R	C	A	C	L1	L1
		G	A	C	A	L2	L2
		Y	G	G	G	G	G
Ringer Leads†		R	K	K	K	K	K
		S-R	*	*	*	*	B
		S	*	*	*	B	*
		BL	*	*	*	*	*
		BK	C	G	G	G	G
D6AA Mtg Cord (Fig. 6 and 13)		BL	F↔1†	F↔1†	F↔1†		
		R	RR↔2†	RR↔2†	RR↔2†		
		W	R↔3†	R↔3†	R↔3†		
		Y	GN↔5†	GN↔5†	GN↔5†		
		BK	B↔6†	B↔6†	B↔6†		
		G	A↔7†	A↔7†	A↔7†		
Line Switch		BR	*	*	*	7†	7†
		Y	*	*	*	8†	8†
		S	*	*	*	9†	9†
D1OR Mtg Cord (Fig. 6 and 14)		BL-W				L1↔1†	L1↔1†
		W-G				F↔2†	F↔2†
		G-W				RR↔3†	RR↔3†
		W-BR				R↔4†	R↔4†
		BR-W				GN↔5†	GN↔5†
		W-S				B↔6†	B↔6†
		O-W				C↔7†	C↔7†
		W-BL				L2↔8†	L2↔8†
		W-O				A↔9†	A↔9†
S-W				*	*		
Net. Strap		BK	*	*	*	*	*

* Insulate and store

† Terminals on customer supplied terminal block. Numerals shown in Table G and Fig. 13 or 14 are for reference only and may not appear as such on equipment. All other terminals are on network.

‡ P1A ringers manufactured after 10-1-72 are not provided with (BL) ringer leads.