

## REFERENCE

### AC1 AND AD1 TELEPHONE BASES

#### WITH 220A, 1220A, AND 2220B HAND TELEPHONE SETS

#### 1. GENERAL

**1.01** This section provides identification, installation, maintenance, and connection information for the AC1 and AD1 telephone bases and associated 220A, 1220A(MD), and 2220B hand telephone sets.



*All AC1 and AD1 telephone bases manufactured prior to 10-1-72 and any base which is opened for any reason should be rewired as shown in Table A before proceeding with connections shown in other tables.*

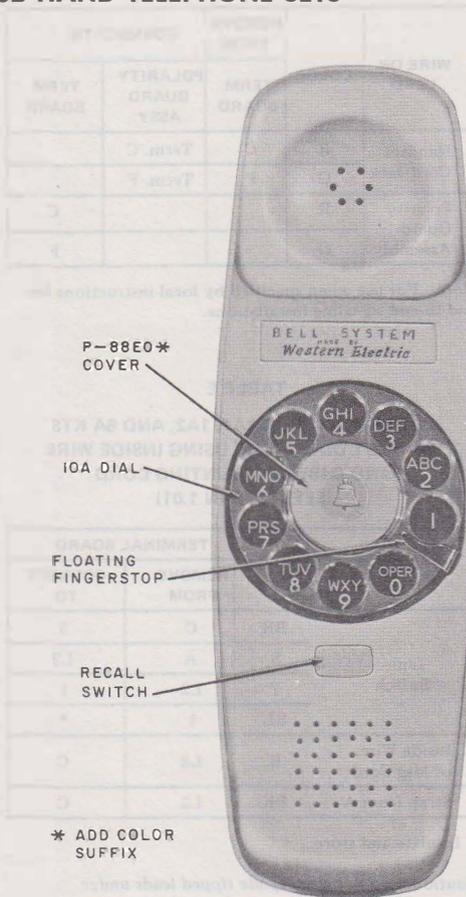
**1.02** This section is reissued to:

- Include information on 1220A(MD) and 2220B hand telephone sets
- Show early and current model P1A ringer connections for AC1 and AD1 telephone bases
- Add Table A and read note 1.01
- Add D4BW-29 mounting cord and new handset and mounting cord lengths

**1.03** Information on the 1220A(MD) and 2220B hand telephone sets was formerly found in Sections 502-304-101 and 502-305-101, respectively, which are hereby canceled.

#### 2. IDENTIFICATION

**2.01** The 220A, 1220A(MD), and 2220B hand telephone sets (Fig. 1 and 2) are components of the dial-in-handset TRIMLINE® telephone set. The hand telephone sets are complete telephone sets except for the handset cord, ringer, and line switch which are housed in either a AD1 (Fig. 3) or a AC1 telephone base (Fig. 7).



**Fig. 1—220A Hand Telephone Set**

**2.02** The AC1 telephone base is used for wall mounted installations while the AD1 base is used for desk type installations.

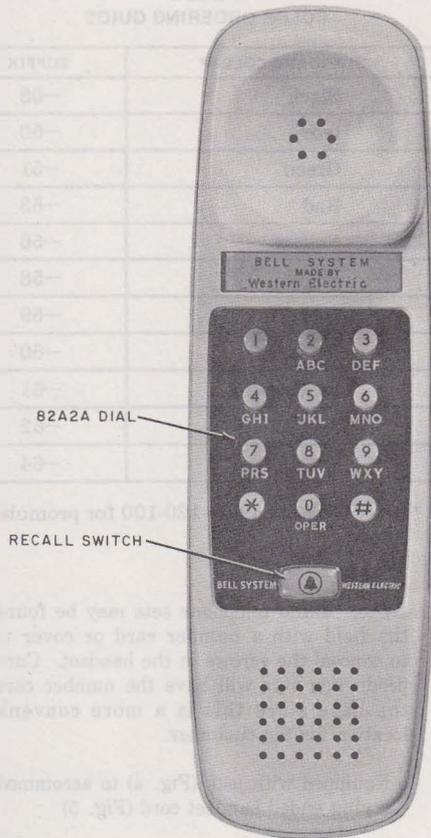


Fig. 2—2220B Hand Telephone Set

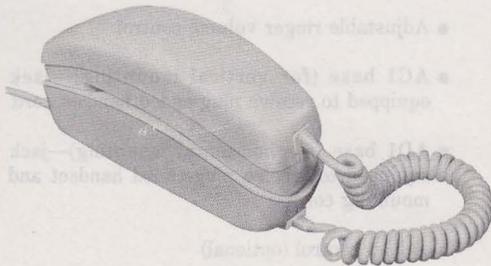


Fig. 3—AD1 Telephone Base With 220A Hand Telephone Set

## Ordering Guide

### 2.03 Basic Telephone Sets and Components:

- Set, Telephone, Hand, 220A-\*, 1220A-\*(MD), 2220B-\*
- Base, Telephone, AC1-\*
- Base, Telephone, AD1-\*
- Cord, Handset, H4DB-\* (5 feet, 6 inches, 6, 9, 12, and 13 feet)
- Cord, Handset, H5AA-\* (5 feet, 6 inches, 6, 9, 12, and 13 feet) should normally be used when tip party identifying connections are required.
- Cord, Handset, H5AD-\* (5 feet, 6 inches and 6 feet, equipped with Message Waiting Lamp.) Optional
- Cord, Mounting, D4BW-29 (7, 14, and 25 feet) with dial light
- Cord, Mounting, D5AL-\*, D5AN-\* (5 feet, 6 inches, 7, 9, 13, 14, and 25 feet) AD1 base. Should only be used for 1A1, 1A2, and 6A KTS with dial light.

**Note:** A complete telephone set consist of a hand telephone set, base, handset cord, and mounting cord (AD1 base), all of which must be ordered separately.

**2.04 Associated Apparatus of Equipment (order separately):** 2012A Transformer (for other suitable transformers, see section on transformers)

### 2.05 Replaceable Components:

- Lamp, 53B (replacement for all handsets)
- Lamp, 51B (current production sets)
- P-82E8-\* Cover
- P-25E803 Number Card Retainer
- P-28E320 Light Seal
- Form E5002A (number card)
- Ringer, P1A

TABLE A

CONVERSION OF EARLY MODEL AC1 AND AD1 TELEPHONE BASES (FIG. 18 AND 20), MANUFACTURED PRIOR TO 10-1-72 TO AGREE WITH CURRENT PRODUCTION MODELS (FIG. 19 AND 21) (SEE READ IN 1.01.)

WIRE OR LEAD (SEE NOTE)	COLOR	REMOVE FROM	CONNECT TO
Ringer Lead	BL	B	*
	S	*	B
	BK†	G	L1
Strap from A	BK	A	L2

\* Insulate and store.

† AD1 base only.

**Note:** Early model AC1 and AD1 bases, the leads from pins 1 and 5 of the mounting and handset cord jacks are (W) and (Y), respectively. In current model, the leads from pins 1 and 5 are (Y) and (W), respectively.

- P-90D231 Polarity Guard Assembly (1220A and 2220B only)

\*Refer to Table B for color suffix.

**2.06** A subscriber instruction booklet (SIB-2426) is shipped loose with the hand telephone set and should be left with the customer.

### Design Features

**2.07** *220A, 1220A, and 2220B Hand Telephone Sets:*

- Illuminated dial

**Note:** Early production handsets will have the lamp in a vertical position, current production handsets have the lamp in horizontal position.

- Equipped with a recall switch
- P-82E800 type cover or number card and associated retainer can be used to conceal housing screws and lamp

TABLE B  
COLOR ORDERING GUIDE

STANDARD COLOR*	SUFFIX
Black	-03
Ivory	-50
Green	-51
Red	-53
Yellow	-56
White	-58
Rose Pink	-59
Lt. Beige	-60
Lt. Gray	-61
Aqua Blue	-62
Turquoise	-64

\*Refer to Section 500-120-100 for promoted colors.

**Note:** Hand telephone sets may be found in the field with a number card or cover used to conceal the screws in the handset. Current production sets will have the number card in the base since this is a more convenient location for the customer.

- Equipped with jack (Fig. 4) to accommodate a plug ended handset cord (Fig. 5)

### 2.08 AC1 and AD1 Telephone Base:

- Factory-wired for individual or bridged service, see Tables C and D for other classes of service
- Adjustable ringer volume control
- AC1 base (for vertical mounting)—jack equipped to receive plug-ended handset cord
- AD1 base (for horizontal mounting)—jack equipped to receive plug-ended handset and mounting cords
- A lead control (optional)
- 4-party full selective or 8-party semiselective ringing by adding 426N diode (optional)

## NOTE:

THE SCREWS USED FOR SECURING THE TERMINAL BOARD SHOULD NOT BE USED FOR STORING SPARE LEADS.

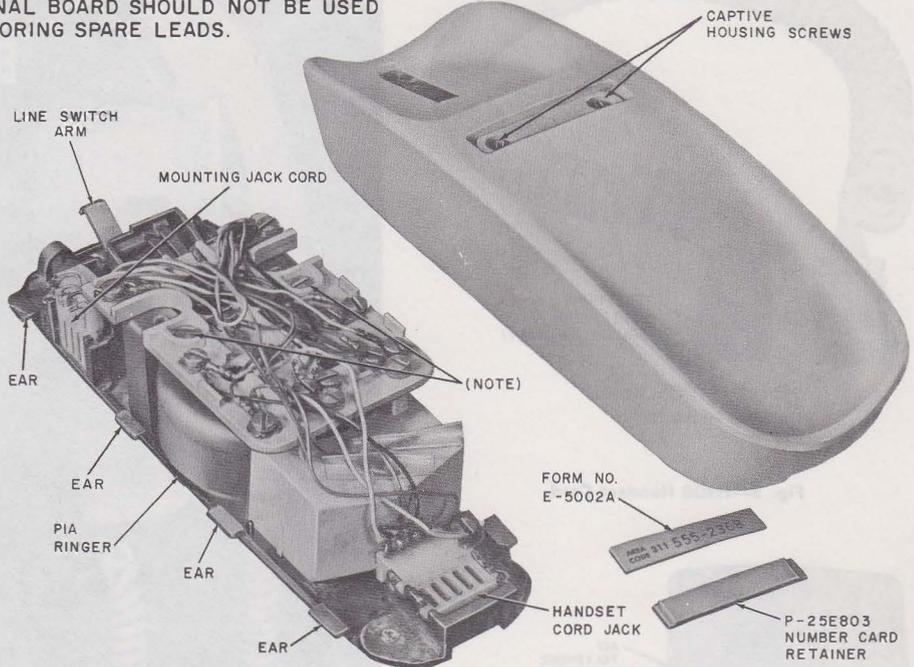


Fig. 4—Interior of AD1 Telephone Base

- Space provided on bases for number card and associated number card retainer (Fig. 6)
- AC1 telephone base provides waiting position for handset without going to on-hook position (Fig. 7)

**2.09** The hand telephone set with base can be used on CO or PBX lines or can be modified for use with 1A1, 1A2, or 6A key telephone systems.

### 3. INSTALLATION

**3.01** When planning the installation of a hand telephone set together with its companion base, consider the following:

- Safety for yourself, customer, and maintenance personnel

- Location—desk, table, wall, etc.
- Availability of power outlet for hand telephone set dial light transformer
- Space requirements
- General appearance of installation

**3.02** The plastic housings of the AC1 and AD1 bases are secured by captive housing screws located behind the number card and number card retainer. To remove the housing from either base assembly use a KS-16750 type releaser or equivalent to remove the number card retainer (Fig. 6). **Be careful not to insert the tip of the releaser too deep or mar the base housing.** Loosen the two captive screws, which are now exposed, and lift the housing off.

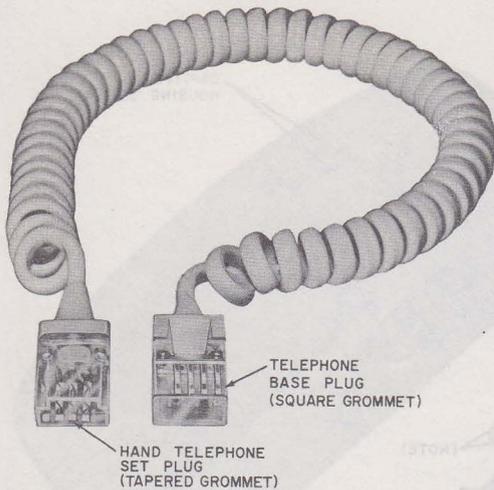


Fig. 5—H4DB Handset Cord

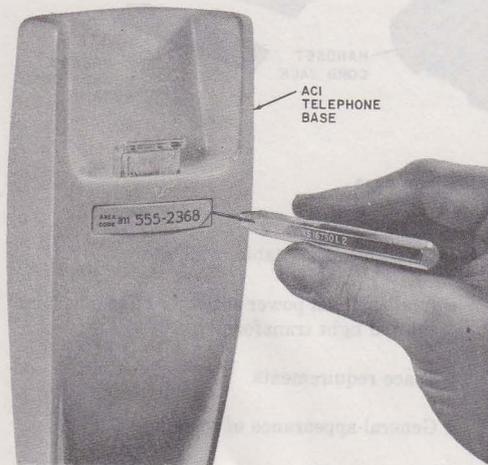


Fig. 6—Removing Number Plate Retainer

**3.03** The AC1 base may be mounted directly to a firm vertical surface. If necessary, use a 155-type adapter or 182-type backboard. Refer to appropriate section in Division 463 for additional information on adapters and backboards.



Fig. 7—220A Hand Telephone Set in Waiting Position on AC1 Telephone Base

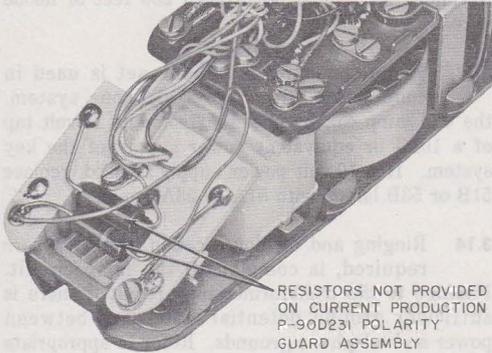
**3.04** When inside wire to the AC1 (wall) telephone base is exposed, terminate the line and transformer wiring at a common bridging point, such as a 42A connecting block. Run one quad station wire from the connecting block to the telephone base. Wiring may enter from the opening at the bottom, top, or through the backplate.

**3.05** In cases where an inside wire is already in place through a wall, an exposed wire run

may be necessary between the dial light transformer and the base.



**Polarity Guards for 1220A and 1220B should only be installed when instructed by local administrative practices or procedures for end-to-end signaling purposes when battery and ground reversals are encountered (Fig. 8).**



**Fig. 8—P-90D231 Polarity Guard Assembly, Installed**

**3.06** To replace the housing on the AC1 base, lift and hold the line switch plunger while housing is placed on the backplate. Release plunger so it will rest properly on the line switch arm of the base assembly. Tighten the captive housing screws and replace the number card and number card retainer.

**3.07** Insert the plug end of the D4BW, and D5AL (Fig. 9) or D5AN mounting cord into the jack located on the underside of the AD1 base assembly. **Make sure that the spring clip of the plug snaps into place to secure the plug.** Lay the cord in the cord channel and slide the cord retainer (early model) over the cord. Place cord under stationary retainer on current models.

**3.08** Connect the hand telephone set to a telephone base by plugging an H4DB or H5AA (tip party identifying ground) cord in the jacks on each component.



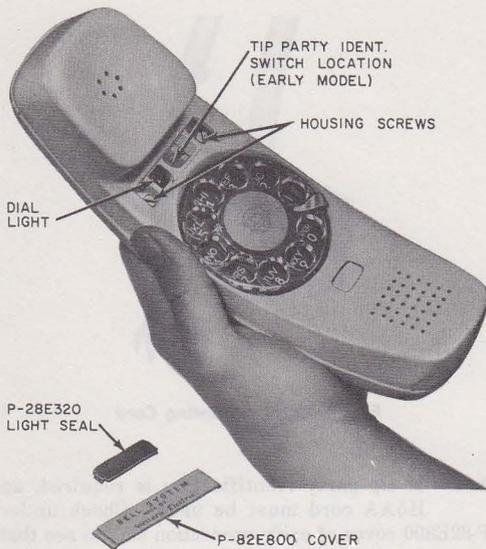
**Fig. 9—D5AL Mounting Cord**

**3.09** If tip party identification is required, an H5AA cord must be used. Check under P-82E800 cover of early production sets to see that screw used in tip party identification switch is tightened down. The absence of a screw or screw hole, in the identification switch position (Fig. 10) indicates that the connection has been made in the network at the factory.

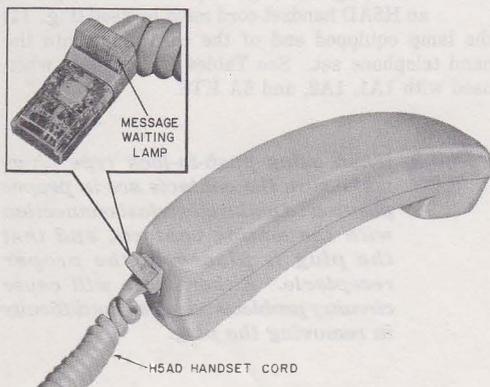
**3.10** If message waiting lamp feature is required, an H5AD handset cord must be used (Fig. 11) the lamp equipped end of the cord plugs into the hand telephone set. See Tables E, F, and G when used with 1A1, 1A2, and 6A KTS.

**THINK** *When using push-in-lock type plugs make sure the contacts are in proper position to make electrical connection with the mating contacts, and that the plug is placed in the proper receptacle. Either error will cause circuitry problems and extreme difficulty in removing the plug.*

**3.11** Where a single dial light is involved, use a 2012A transformer. Select a 105-120 volt ac receptacle not controlled by a switch. Use a 2A clamp to secure transformer to the outlet if transformer is not a current production model having folded-blade prongs. Where two or more dial light sets are installed, refer to the section on station transformers for use with multiple installations.



**Fig. 10—220A Hand Telephone Set Cover and Light Seal Removed**



**Fig. 11—H5AD Handset Cord (Message Waiting Lamp)**



**DO NOT USE 2012B TRANSFORMER.**  
The illumination of the dial diminishes with increased cord lengths. In installations where the illumination

is considered inadequate, replace 51B or 53B lamps with their respective 51A or 53A lamps provided the lamp power is supplied by a 2012A transformer and the combined length of mounting and handset cords exceed 15 feet. Refer to Part 5 Maintenance, for dial lamp replacement.

**3.12** For proper illumination of the dial the length of the wire between the transformer and telephone set should not exceed 250 feet of inside wire.

**3.13** When the hand telephone set is used in conjunction with a key telephone system, the dial lamp can be powered from the 10-volt tap of a 101G or equivalent power supply of the key system. If a 10-volt power supply is used, replace 51B or 53B lamps with 51A or 53A lamps.

**3.14** Ringing and/or identification ground, where required, is common to the lamp circuit. Damage to the transformer may result if there is sufficient ground potential difference between power and telephone grounds. Refer to appropriate section on bonding to power grounds in Division 460.

**3.15** A 426N diode must be installed in either the AC1 or AD1 base assembly when connecting for 4-party full selective or 8-party semiselective ringing. The two leads from the diode are designated No. 1 and No. 2. Lead No. 1 extends from the flanged (gold) base of the diode; lead No. 2 extends from the housing tip of the diode. Place the diode in the opening provided in the terminal board (Fig. 12). Dress the leads to the appropriate terminal board terminals, refer to Table D for connections.

**3.16** Where extreme noise induction conditions exist, the 426N diode will not be used. Instead, a cold-cathode tube or a ringer isolator installed on a 74A connecting block may be used. See section on inductive noise for connection information.

**3.17** For portable installations of the AD1 telephone base, terminate the line and transformer wiring to 550A jacks or equivalent. Connect the spade-tipped leads of the mounting cord to a 505A plug. Connect other end of mounting cord to AD1 base in normal manner.

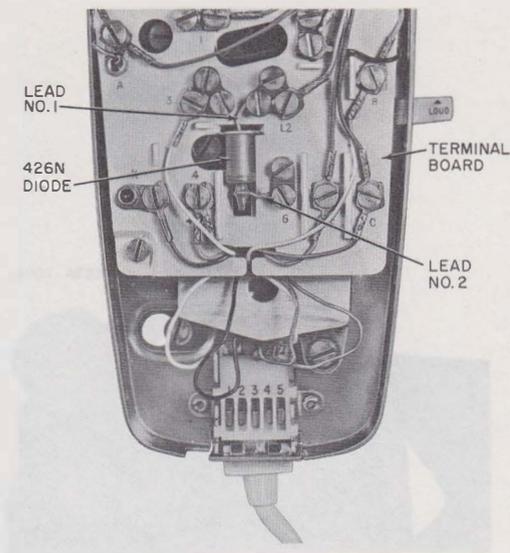


Fig. 12—Typical Installation of 426N Diode in Both AC1 and AD1 Bases



*On 2-party tip stations requiring ground identification, be sure that the jacks and plugs are installed in accordance with the section on jacks and plugs.*

#### 4. OPERATION

**4.01** Instruct the customer on the necessary operating features.

**4.02** **Recall Switch (Fig. 1).** Point out recall switch and explain advantages of switch. Example: If a person receives busy tone at conclusion of dialing a number, he may depress the recall switch for a few seconds; then release. Dial tone will again be heard. This is done in place of depressing line switch plunger on the telephone base.

**Caution:** *If the recall switch is depressed during conversation or dialing, central office equipment may be disconnected.*

**4.03** **"Floating" Finger Stop 220A only:** Demonstrate moveable finger stop by dialing a digit. Then depress recall switch.

**Note:** When demonstrating finger stop, be guided by local instructions in choosing digits to dial. Some digits (i.e., 1 or 9) may be used as special access numbers for services such as DDD in ANI offices.

**4.04** To prevent dialing errors, every digit dialed requires rotation of fingerwheel until finger is stopped by the moveable finger stop (220A only).

**4.05** Demonstrate the ringer volume control. Caution the customer about ringer cutoff if the screw is removed to provide this feature.

#### 5. MAINTENANCE

**5.01** Maintenance of the AC1 and AD1 telephone bases is limited to ringer bias adjustment, burnishing or adjusting contacts, and replacement of defective components as listed in 2.05.

**5.02** For adjustments and ringer cutoff feature of the P1A ringer, refer to the appropriate ringer section in Division 501.

**5.03** In areas where RF suppression is required, replace the hand telephone set with a set that has been modified by the local distributing house. Modified sets will not be stamped **"RF Suppressed See Section 500-150-100"**. Stamp is located adjacent to handset cord jack where the set code is stamped.

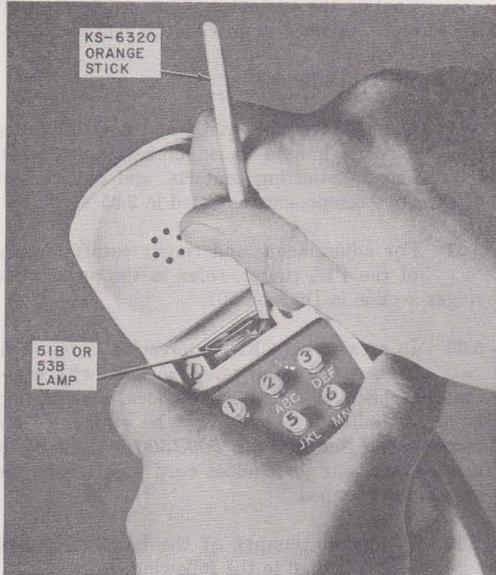
**5.04** Field maintenance of the hand telephone sets is limited to the following:

- Dial lamp
- P-25E803 number card retainer
- P-28E320 light seal
- Form E-5002A number card
- Handset cords
- P-82E800 cover

**5.05** To replace a dial lamp in the TRIMLINE hand telephone set, remove cover or number card retainer, and light-seal plate. Current production hand telephone sets have the lamp in a horizontal position, and a KS-6320 orange stick can be used to remove the lamp (Fig. 13). **Exercise**

*caution to prevent the lamp from flying out of the socket in a dangerous manner.* In early production hand telephone sets use a 553A tool to remove the lamp from its vertical position (Fig. 14).

**Note:** Lamps carried for maintenance reasons should be of the 53B-type since both early and current production handsets accommodate this type.

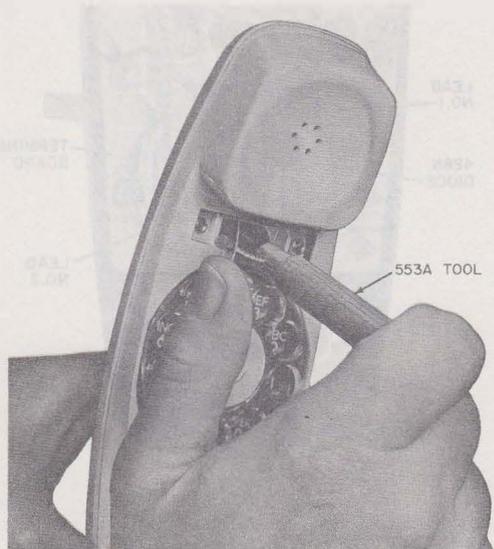


**Fig. 13—Removing Dial Lamp From Current Production Hand Telephone Sets**

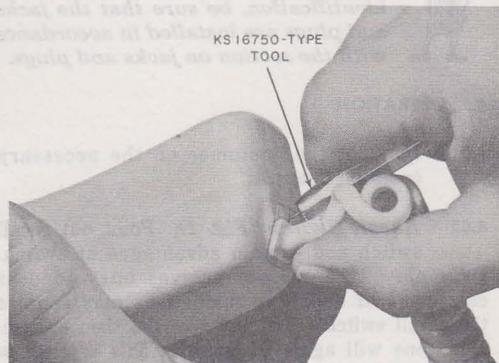
**5.06** To replace a plug ended handset cord (Fig. 15) or mounting cord (Fig. 16) use a KS-16750 type releaser. Insert tool in space provided and hold releaser similar to using a paring knife to apply pressure on the spring clip. When spring clip has been depressed, pull plug out of jack.



***If transmission troubles are experienced or the dial is inoperative, replace the hand telephone set.***



**Fig. 14—Replacing Dial Lamp in Early Production Hand Telephone Sets**



**Fig. 15—Removing Handset Cord From the Hand Telephone Set**

**5.07** To test hand telephone set proceed as follows:

- (a) Make sure all connections are correct and secure.



**Fig. 16—Removing Mounting Cord From AD1 Telephone Base**

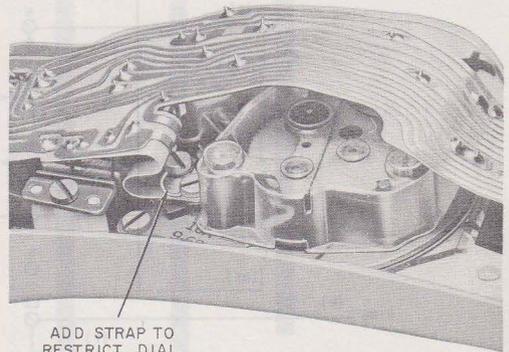
- (b) Listen to set receiver for presence of dial tone.
- (1) If dial tone is heard, dial any digit or digits prescribed by local instructions to break dial tone. If dial tone can be broken, depress and release recall button.
  - (2) If dial tone is not heard, in set receiver, connect dial hand test set at connecting block. If dial tone is heard with hand test set, remove the handset cord at the hand telephone set and move the test set leads to the (G) and (R) conductors at the cord plug. If dial tone is now heard, replace the hand telephone set. If dial tone is not heard, test both handset cord and telephone set base.
- (c) ♦To prove a base is wired for individual or bridged service:
- (1) Dial ring back number.
  - (2) Fully depress recall button.
  - (3) If the ringer operates, the base is wired for individual or bridged ringing.♦

## 6. CONNECTIONS



*When making any wiring changes in the bases, do not use screws securing terminal board as a bridging point or for storing leads (Fig. 3).*

- 6.01** To restrict the dial on the 220A hand telephone set (only) place a strap between the pulsing contacts as shown in Fig. 17. The dial will remain in the handset.

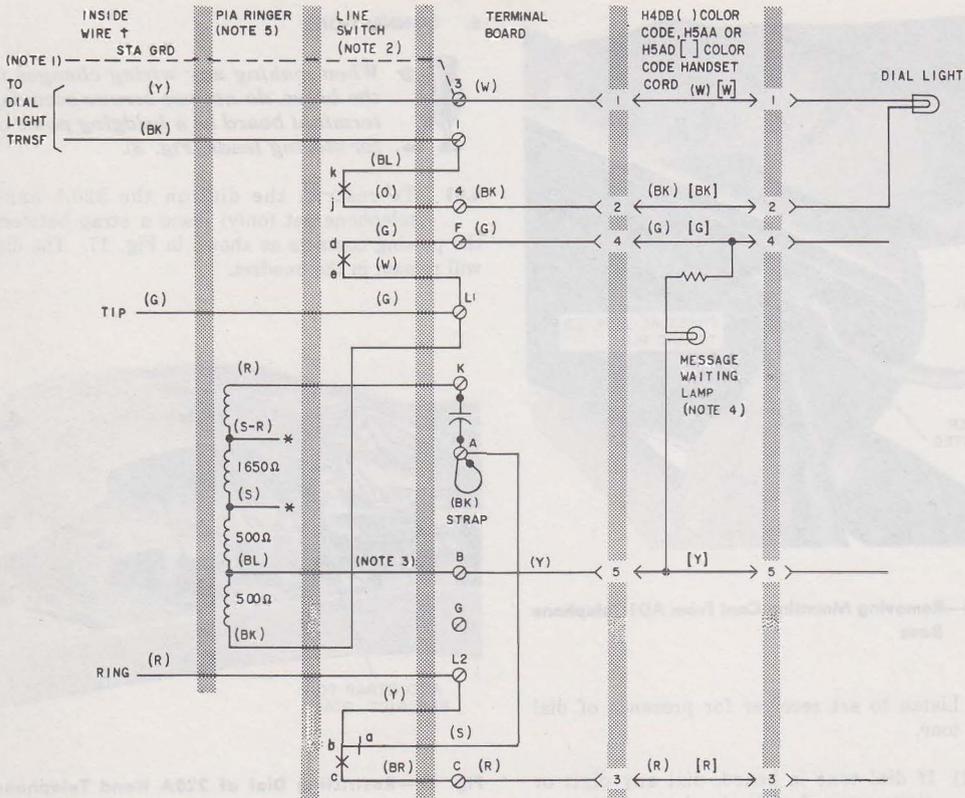


**Fig. 17—Restricting Dial of 220A Hand Telephone Set**

- 6.02** Dial restriction of a TOUCH-TONE® dial equipped telephone set is controlled by the polarity applied to the dial. Reverse tip and ring to restrict dial, and leave the dial in the handset. Check that ringer connections have not been affected by line reversal.

*Note:* Dial restriction cannot be provided on a TOUCH-TONE telephone set where local instruction specify using a polarity guard.

- 6.03** ♦Refer to Tables E, F, and G for connections when used with 1A1, 1A2, and 6A KTS.
- 6.04** Refer to Tables G and H for connections to add message waiting lamp feature.♦
- 6.05** Refer to Table I for connections if a polarity guard is provided.



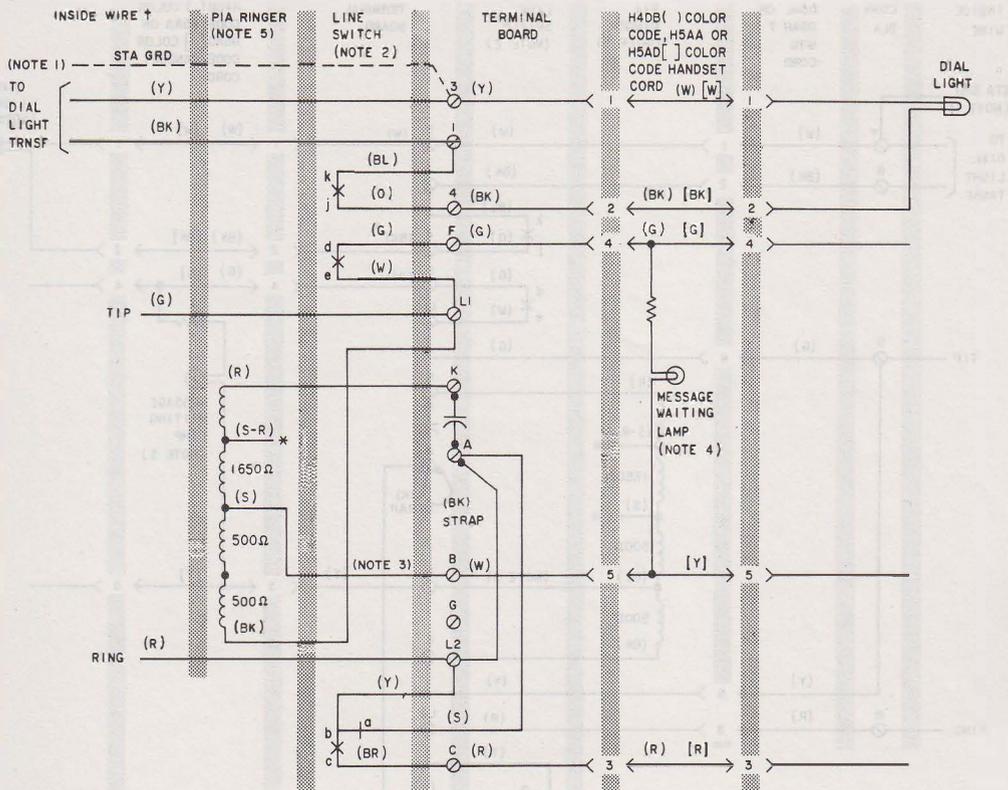
## NOTES:

1. STATION GROUND MAY BE OMITTED IF NOT REQUIRED FOR SERVICE; NOT REQUIRED FOR PROTECTION OF DIAL LIGHT TRANSFORMER.
2. LINE SWITCH OFF-HOOK SEQUENCE:  
bc CLOSES    ab OPENS  
de CLOSES    jk CLOSES
3. DISCONNECT (BL) LEAD FROM TERMINAL B WHEN HSAA HANDSET CORD IS USED AND TIP PARTY IDENTIFYING GROUND IS NOT PROVIDED, INSULATE AND STORE.
4. LAMP AND RESISTOR ARE PART OF HSAD HANDSET CORD ONLY (MESSAGE WAITING FEATURE). [Y] LEAD IS NOT TERMINATED IN SET PLUG.
5. SET WIRED FOR INDIVIDUAL OR BRIDGED RINGING, FOR ALL OTHER CLASSES OF SERVICE REFER TO RINGER CONNECTION TABLE.

\* INSULATED AND STORED

† WHEN USED WITH KTS(Y) INSIDE WIRE LEAD BECOMES "A" LEAD AND (BK) INSIDE WIRE LEAD BECOMES "A" LEAD. SEE TABLES E AND F FOR ADDITIONAL CONNECTIONS.

Fig. 18—AC1 Telephone Base Wiring Diagram (Early Model)

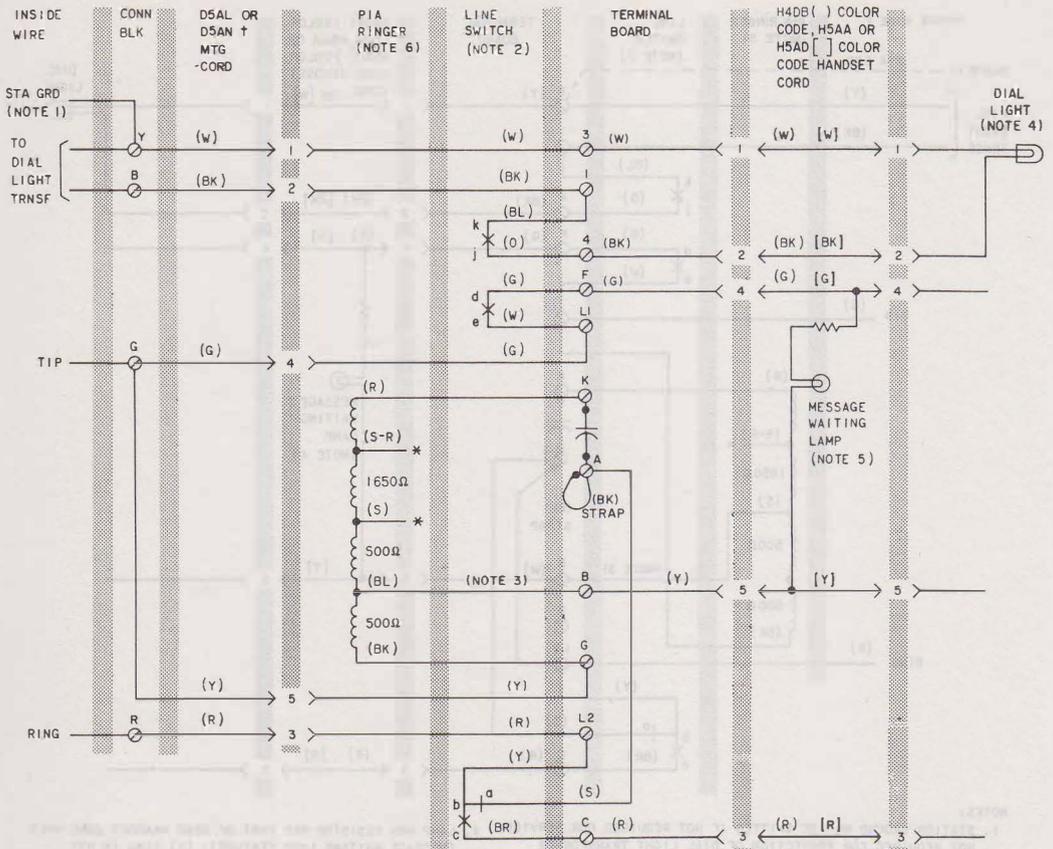


NOTES:

1. STATION GROUND MAY BE OMITTED IF NOT REQUIRED FOR SERVICE; NOT REQUIRED FOR PROTECTION OF DIAL LIGHT TRANSFORMER
  2. LINE SWITCH OFF-HOOK SEQUENCE:  
bc CLOSES    ab OPENS  
de CLOSES    jk CLOSES
  3. DISCONNECT (S) LEAD FROM TERMINAL B WHEN H5AA HANDSET CORD IS USED AND TIP PARTY IDENTIFYING GROUND IS NOT PROVIDED. INSULATE AND STORE.
  4. LAMP AND RESISTOR ARE PART OF H5AD HANDSET CORD ONLY (MESSAGE WAITING LAMP FEATURE). [Y] LEAD IS NOT TERMINATED IN SET PLUG.
  5. SET WIRED FOR INDIVIDUAL OR BRIDGED SERVICE, FOR ALL OTHER PARTY SERVICE REFER TO RINGER CONNECTION TABLE.
- \* INSULATED AND STORED  
† WHEN USED WITH KTS (Y) INSIDE WIRE LEAD BECOMES "A" LEAD AND (BK) INSIDE WIRE LEAD BECOMES "A" LEAD. SEE TABLES E AND F FOR ADDITIONAL CONNECTIONS.

Fig. 19—AC1 Telephone Base Wiring Diagram (Current Model)

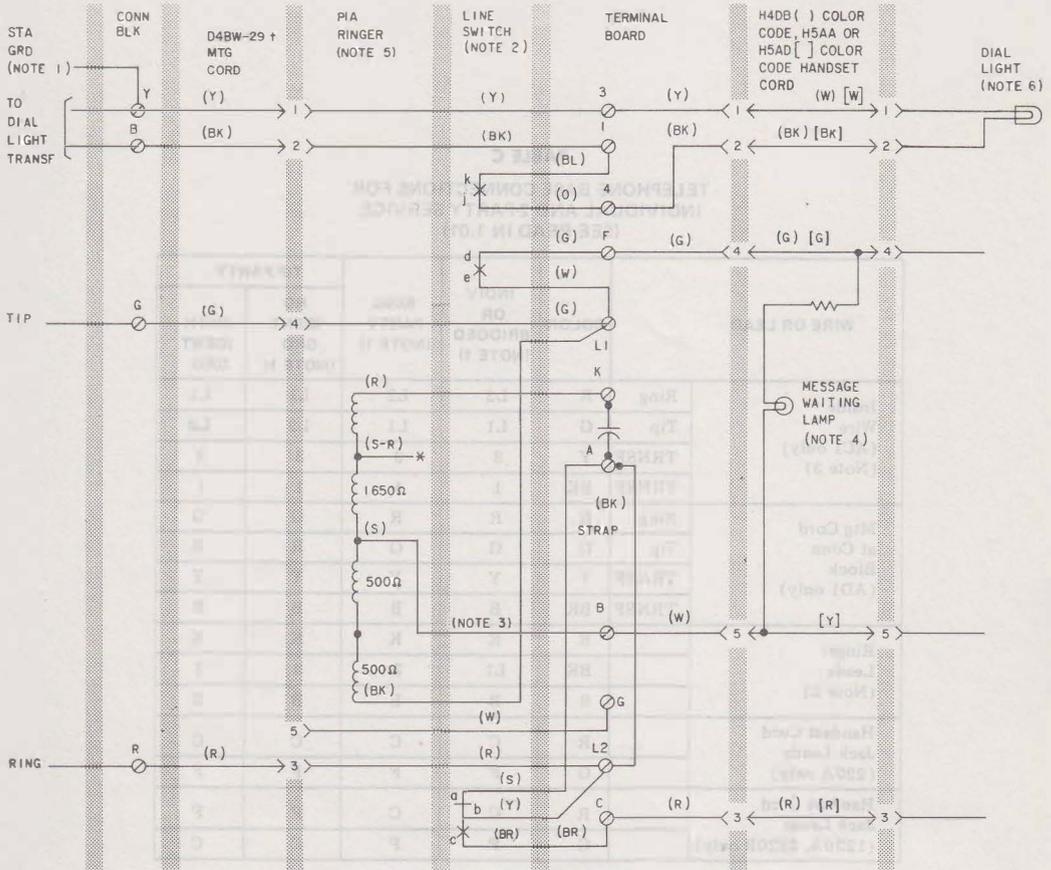
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## NOTES:

1. STATION GROUND MAY BE OMITTED IF NOT REQUIRED FOR SERVICE; NOT REQUIRED FOR PROTECTION OF DIAL LIGHT TRANSFORMER.
  2. LINE SWITCH OFF-HOOK SEQUENCE:  
bc CLOSES      ab OPENS  
de CLOSES      jk CLOSES
  3. DISCONNECT (BL) LEAD FROM TERMINAL B WHEN H5AA HANDSET CORD IS USED AND TIP PARTY IDENTIFYING GROUND IS NOT PROVIDED, INSULATE AND STORE.
  4. CHANGE TO 53A LAMP IF COMBINED LENGTH OF HAND TELEPHONE SET CORD AND (ADI BASE) MOUNTING CORD EXCEEDS 15 FEET.
  5. LAMP AND RESISTOR ARE PART OF H5AD HANDSET CORD ONLY (MESSAGE WAITING FEATURE). [Y] LEAD IS NOT TERMINATED IN HANDSET PLUG.
  6. SET WIRED FOR INDIVIDUAL OR BRIDGED RINGING, FOR ALL OTHER CLASSES OF SERVICE REFER TO RINGER CONNECTION TABLE.
- \* INSULATED AND STORED  
† WHEN USED WITH KTS (W) MTG CORD LEAD BECOMES "AI" LEAD AND (BK) MTG CORD LEAD BECOMES "A" LEAD. SEE TABLES E AND F FOR ADDITIONAL CONNECTIONS.

Fig. 20—AD1 Telephone Base Wiring Diagram (Early Model)



NOTES:

1. STATION GROUND MAY BE OMITTED IF NOT REQUIRED FOR SERVICE; NOT REQUIRED FOR PROTECTION OF DIAL LIGHT TRANSFORMER.
  2. LINE SWITCH OFF-HOOK SEQUENCE:  
bc CLOSES ab OPENS  
de CLOSES jk CLOSES
  3. DISCONNECT (S) LEAD FROM TERMINAL B WHEN H5AA HANDSET CORD IS USED AND TIP PARTY IDENTIFYING GROUND IS NOT PROVIDED, INSULATE AND STORE.
  4. LAMP AND RESISTOR ARE PART OF H5AD HANDSET CORD ONLY (MESSAGE WAITING LAMP FEATURE). [Y] LEAD IS NOT TERMINATED IN SET PLUG.
  5. SET WIRED FOR INDIVIDUAL OR BRIDGED SERVICE, FOR ALL OTHER PARTY SERVICE REFER TO RINGER CONNECTION TABLE.
  6. CHANGE TO 53A LAMP IF COMBINED LENGTH OF HAND TELEPHONE SET CORD AND (ADI BASE) MOUNTING CORD EXCEEDS 15 FEET.
- \* INSULATED AND STORED  
 † FOR KTS USE THE "A" AND "A1" LEADS ARE (Y) AND (BK) IN THE D4BW-29 MTG CORD AND (Y) AND (W) IN THE D5AL OR D5AN MTG CORD.

Fig. 21—AD1 Telephone Base Wiring Diagram (Current Model)



**TABLE C**  
**TELEPHONE BASE CONNECTIONS FOR**  
**INDIVIDUAL AND 2-PARTY SERVICE**  
**(SEE READ IN 1.01)**

WIRE OR LEAD		COLOR	INDIV OR BRIDGED (NOTE 1)	RING PARTY (NOTE 1)	TIP PARTY	
					NO IDENT GRD (NOTE 1)	WITH IDENT GRD
Inside Wire (AC1 only) (Note 3)	Ring	R	L2	L2	L1	L1
	Tip	G	L1	L1	L2	L2
	TRNSF	Y	3	3	3	3
	TRNSF	BK	1	1	1	1
Mtg Cord at Conn Block (AD1 only)	Ring	R	R	R	G	G
	Tip	G	G	G	R	R
	TRNSF	Y	Y	Y	Y	Y
	TRNSF	BK	B	B	B	B
Ringer Leads (Note 2)		R	K	K	K	K
		BK	L1	3	3	3
		S	B	B	B	B
Handset Cord Jack Leads (220A only)		R	C	C	C	C
		G	F	F	F	F
Handset Cord Jack Leads (1220A, 2220B only)		R	C	C	F	F
		G	F	F	C	C

Notes:

1. If H5AA handset cord is used for other than tip party identifying ground, disconnect (S) ringer lead from terminal B; insulate and store.

Caution: Do not store spade tipped leads under terminal board mounting screws.

2. To permanently silence ringer, move (R) ringer lead from terminal K; insulate and store.
3. Inside wire will be run directly to terminal board.

TABLE D

CONNECTIONS FOR 4-PARTY FULL SELECTIVE  
OR 8-PARTY SEMISELECTIVE RINGING USING  
426N DIODE (SEE READ IN 1.01)

WIRE OR LEAD	LEADS OR COLOR	-RING	-TIP	+RING	+TIP
Line Wire at Conn Block	RING	R	R	R	R
	TIP	G	G	G	G
	TRNSF	Y	Y	Y	Y
	TRNSF	BK	B	B	B
Mtg Cord at Conn Block (AD1 Only)	RING	R	R	R	R
	TIP	G	G	G	G
	TRNSF	Y	Y	Y	Y
	TRNSF	BK	B	B	B
Inside Wire or Mtg Cord At Term. Board		R	L2	L2	L2
		G	L1	L1	L1
		Y	3	3	3
		BK	1	1	1
426N Diode *	①	L2	L1	3	3
	②	G	G	G	G
	BK	3	3	3	L1
Ringer Leads		R	K	K	K
		S	B	B	B
		S-R	G	G	G
Strap from A		BK	3	3	L2
Line Switch		S	†	†	†

\* ① Flanged (Gold) base

② Knob end (housing tip)

† Insulate and store.

Caution: Do not store spade tipped leads under terminal board mounting screws.

TABLE E

CONVERSION FOR 1A1, 1A2, AND 6A KTS  
WITHOUT DIAL LIGHT USING INSIDE WIRE  
AND D4BW-29 MOUNTING CORD  
(SEE READ IN 1.01)

WIRE OR LEAD	COLOR	TERMINAL BOARD	
		REMOVE FROM	CONNECT TO
Line Switch	BR	C	3
	S	A	L2
	Y	L2	1
	BL	1	*
Inside Wire or Mtg Cord	R	L2	C
Strap from A	BK	L2	C

\* Insulate and store.

Caution: Do not store spade tipped leads under terminal board mounting screws.

TABLE G

CONNECTIONS FOR MESSAGE WAITING LAMP  
AND DIAL LIGHT FEATURES (1A1, 1A2,  
AND 6A KTS), SEE NOTES  
(SEE READ IN 1.01)

WIRE OR LEAD	COLOR	TERMINAL BOARD	
		REMOVE FROM	CONNECT TO
Inside Wire or Mtg Cord Jack Leads	G	L1	C
	R	L2	L1
Handset Cord Jack Leads	G	F	C
	W [Y]	B	L1
Line Switch	R	C	F
	BR	C	1
	Y		L2
Ringer	S	A	*
	BK	L1	C
Strap From A	BK	L2	L1

Notes:

1. Install D5AL or D5AN mounting cord.
2. Install H5AD handset cord.

\* Insulate and store.

[ ] Early bases (Fig. 18 and 20).

Caution: Do not store spade tipped leads under terminal board mounting screws.

TABLE F

CONVERSION FOR 1A1, 1A2, AND 6A KTS,  
WITH DIAL LIGHT, USING INSIDE WIRE  
AND D5AL OR D5AN MOUNTING CORD  
(SEE READ IN 1.01)

WIRE OR LEAD	COLOR	TERMINAL BOARD	
		REMOVE FROM	CONNECT TO
Line Switch	BR	C	3
	S	A	L2
	Y	L2	G
Mtg Cord Jack Lead	R	L2	C
Strap from A	BK	L2	C

TABLE H

CONNECTIONS FOR MESSAGE WAITING LAMP AND  
DIAL LIGHT FEATURES NONKEY SYSTEM  
USE, SEE NOTES (SEE READ IN 1.01)

WIRE OR LEAD	COLOR	TERMINAL BOARD	
		REMOVE FROM	CONNECT TO
Handset Cord Jack Leads	G W [Y]	F B	L1 L2

NOTES:

1. Install D4BW-29 mounting cord.
2. Install H5AD handset cord.

[ ] Early bases (Fig. 18 and 20)

**TABLE I**  
**P-90D231 POLARITY GUARD ASSEMBLY**  
**CONNECTIONS (AC1 OR AD1) TELEPHONE BASE**  
**AND 1220A OR 2220B HAND TELEPHONE SET**  
**(SEE READ IN 1.01)**

WIRE OR LEAD	COLOR	REMOVE FROM	CONNECT TO	
		TERM. BOARD	POLARITY GUARD ASSY	TERM. BOARD
Handset Cord Jack	R	C	Term. C	
	G	F	Term. F	
Polarity Guard Assembly	R			C
	G			F

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

