

REFERENCE

AC- AND AD-TYPE TELEPHONE BASES WITH 220-, 226-, 2220-, AND 2226-TYPE HAND TELEPHONE SETS IDENTIFICATION, INSTALLATION, CONNECTIONS, AND MAINTENANCE

1. GENERAL

1.01 This section contains information for the AC1 (MD), AC1P, AC2 (MD), AC2P, AC2PH, AD1 (MD), AD2, AD3, and AD3H telephone bases and associated 220A (MD), 220C, 220AL, 220AM, 226A, 2220B (MD), 2220C, 2220BM, 2220BMG, and 2226A hand telephone sets. For additional information on hand telephone sets, refer to Section 502-303-102.



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 The reasons for reissuing this section are listed below. Revision arrows are used to emphasize the more significant changes.

- Delete D6AP mounting cord from Fig. 35
- Revise paragraph 2.11 and Table K.

2. IDENTIFICATION

2.01 The 220- and 2220-series hand telephone sets (Fig. 1 and 2) contains the dial and speech network. The AC- and AD-type telephone bases contain the ringer, line switch, terminal board, and jacks for the handset and mounting cord. A complete TRIMLINE® telephone set includes the hand telephone set, telephone base, and cords. Refer to Table K for identification of associated apparatus.

2.02 The 2220BMG hand telephone set has an 840364269 polarity guard assembly installed at the factory.

2.03 The 226A and 2226A handsets (Fig. 3) contains a 315B amplifier which provides up to 20 dB of

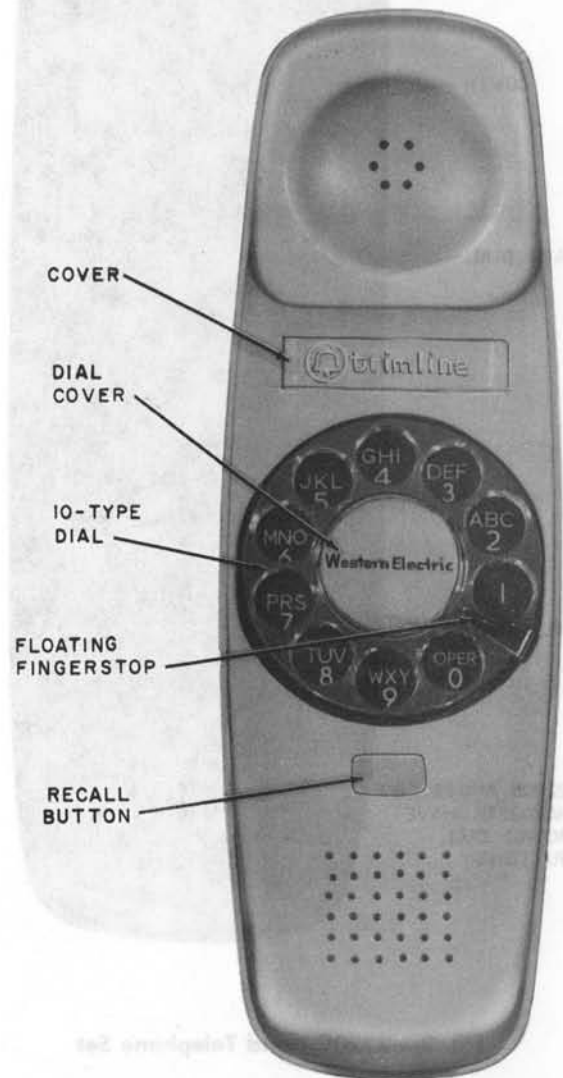
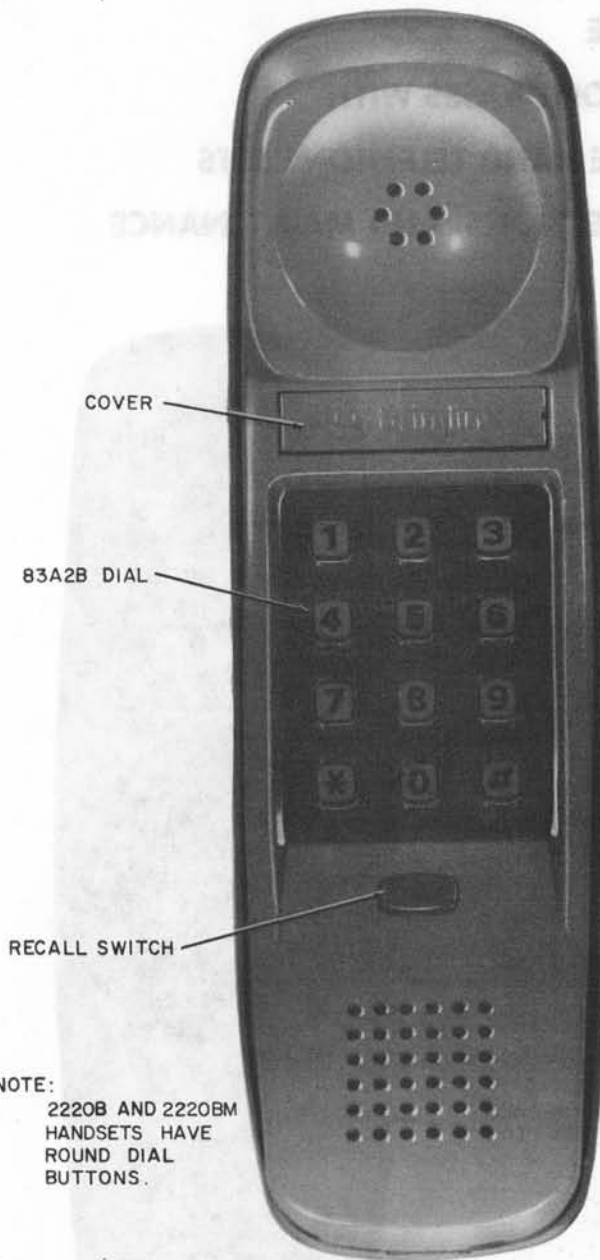


Fig. 1—220-Type Hand Telephone Set

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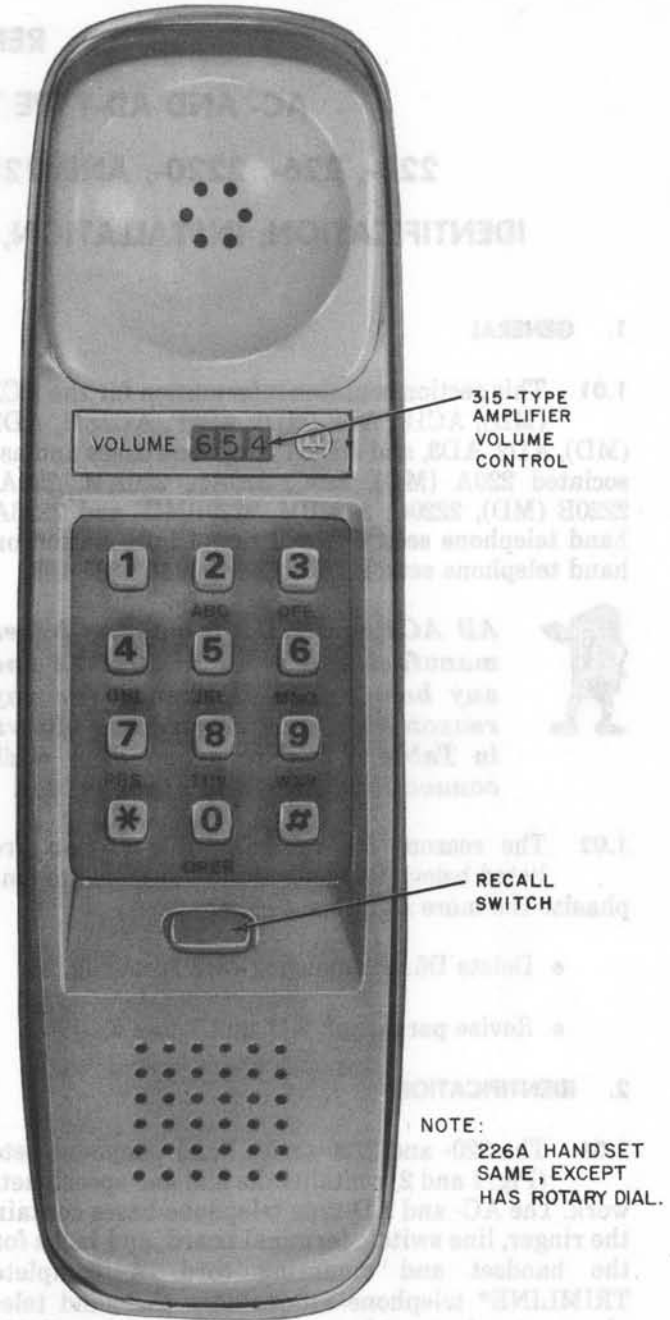


NOTE:
2220B AND 2220BM
HANDSETS HAVE
ROUND DIAL
BUTTONS.

Fig. 2—2220C Hand Telephone Set

receiver gain for customer's with impaired hearing. Refer to Section 502-303-102 for additional information on these handsets.

2.04 The AC-type telephone base is for wall mounted installations and the AD-type telephone base for desk installations (Fig. 4 and 5). Spe-



NOTE:
2226A HANDSET
SAME, EXCEPT
HAS ROTARY DIAL.

Fig. 3—2226A Hand Telephone Set

cial hospital telephone bases, coded AC2PH (wall) and AD3H (desk) are available for use in critical care areas. These bases are manufactured to meet National Electrical Code and National Fire Protection Association Part 76B requirements for hospital sets in critical care areas.

2.05 Some TRIMLINE telephone bases and hand telephone sets are equipped with jacks which accept the *maxi* plugs, others are equipped with jacks which accept the *mini* plugs. Refer to Table K for specific codes and associated apparatus.



The 220C, 220AL, 226A, 2220C, and 2226A hand telephone sets are equipped with light emitting diodes (LEDs) for dial illumination. This type of illumination may not be visible in normal light.



Power for all the LED-type hand telephone sets is supplied from the central office battery over the incoming line. No external ac power is required for dial illumination.



When an LED-type hand telephone set is provided, instruct the customer that during the time a TOUCH-TONE® dial button is depressed the dial light will be extinguished and that the rotary-type dial light will flicker during the run down operation of the dial.



For tip party with identifying ground when the LED-type hand telephone sets are provided it will be necessary to open the handset and make connections as shown in Table D. For additional information refer to Section 502-303-102.



If AC2, AC2P, or AD3 bases are provided and tip party with identifying ground is required, 220A, 220AM, 2220B, 2220BM, and 2220BMG hand telephone sets cannot be used.

A. Ordering Guide

2.06 Basic Components of TRIMLINE Telephone Set:

- Set, Telephone, Hand 220C-*, 220AL-*, 220AM-*, 226A-*, 2220C-*, 2220BM-*, 2220BMG-*, and 2226A-*

- Base, Telephone, AC1P-* (complete)
- Base, Telephone, AC1MP (base less housing)
- Base, Telephone, AC2P-* (complete)
- Base, Telephone, AC2MP (base less housing)
- Base, Telephone, AC2PH-* (complete hospital base)
- Base, Telephone, AD2-* (complete)
- Base, Telephone, AD2M (base less housing)
- Base, Telephone, AD3-* (complete)
- Base, Telephone, AD3M (base less housing)
- Base, Telephone, AD3H-* (complete hospital base)
- Housing, AC1-*
- Housing, AD1-*
- Cord, Handset, H4DB-* (6 and 12 foot lengths), Fig. 6
- Cord, Handset, H4DU-* (6 and 12 foot lengths) used with mini-modular jacks and adapters (Fig. 7)
- Cord, Handset H5AA-* (6 and 12 foot lengths) should normally be used when tip party identifying connections are required (used with 220A or 2220B only and with AC1P or AD2 only)
- Cord, Handset, H5AD-* (6 foot length) equipped with Message Waiting Lamp, optional (AC1, AD1, and AD2 base only and 220A or 2220B handsets only)
- Cord, Mounting, D4BU-* (7, 14, and 25 foot length), Fig. 8
- Cord, Mounting, D5AL-*, D5AN-* (D5AL-7, 14, and 25 foot lengths, Fig. 9, D5AN-6 and 12 foot lengths) AD1 base only.

Note: A complete telephone set consists of a hand telephone set, base, handset cord, and

*Refer to Table B for color suffix.

mounting cord (if required), all of which must be ordered separately. Refer to Table K for identification.



Fig. 4—Hand Telephone Set in Waiting Position on AC-Type Telephone Base

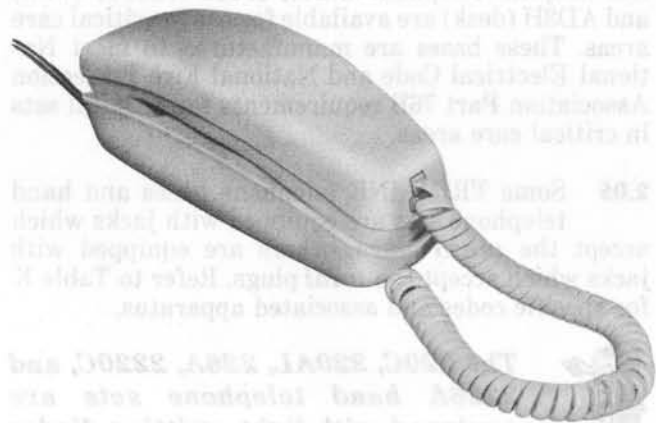


Fig. 5—AD-Type Telephone Base

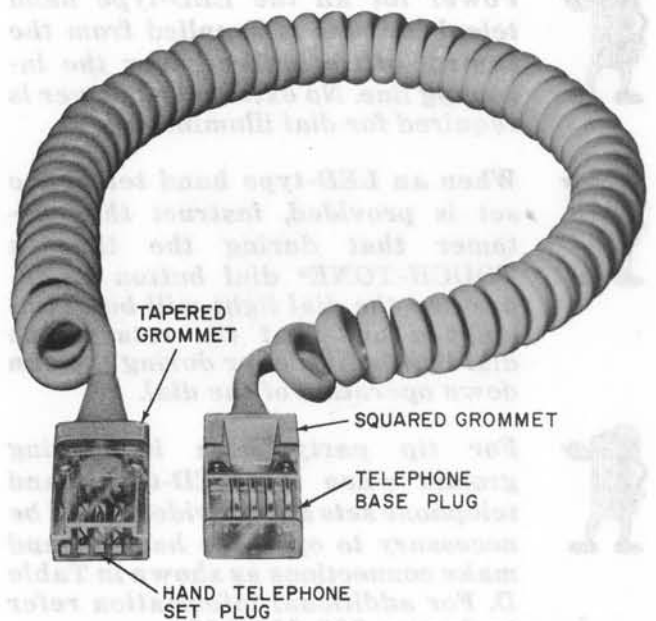


Fig. 6—H4DB Handset Cord

2.07 Associated Apparatus or Equipment (order separately):

- 2012A or C transformer or equivalent 6-volt supply (used with 220A, 2220AM, 2220B, 2220BM, and 2220BMG hand telephone sets).

2.08 Replaceable Components:

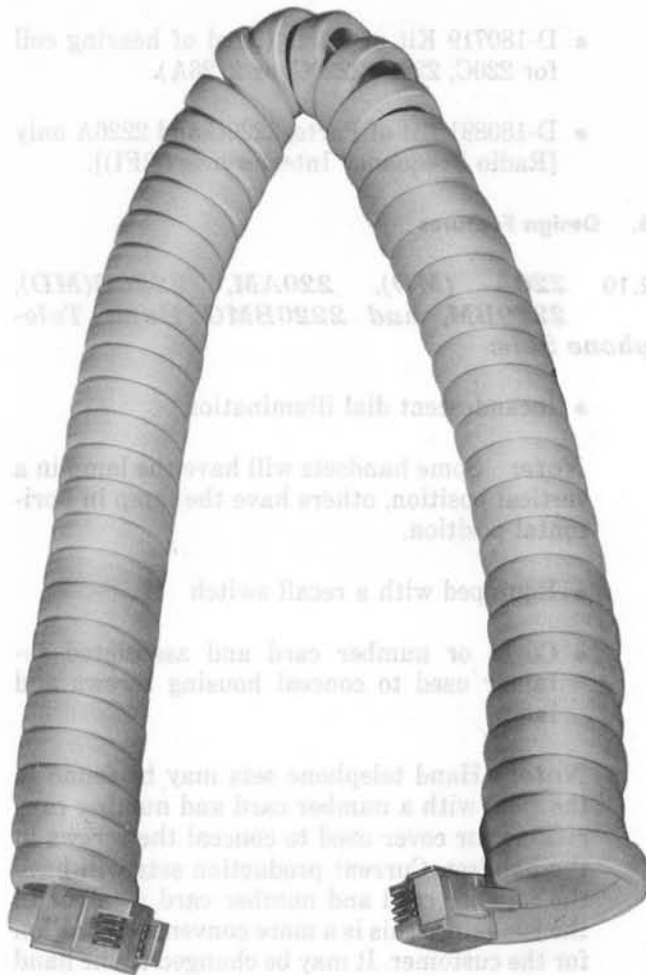


Fig. 7—H4DU Handset Cord

- Lamp, 53A (replacement for 220A, 220AM, 2220B, 2220BM, and 2220BMG handsets)
- Cover (Fig. 2, 3 and Table B)
- Dial Cover (Fig. 1 and Table B)
- 812558039 (P-25E803) Number Card Retainer
- 812362382 (P-23F238) Light Seal Plate [220A (MD), 220AM, 2220B (MD), 2220BM, and 2220BMG only]
- Form E-10361 or E-10365 (number card)
- Cords, Handset, and Mounting (see paragraph 2.06)
- Amplifier, 315B (226A and 2226A only)

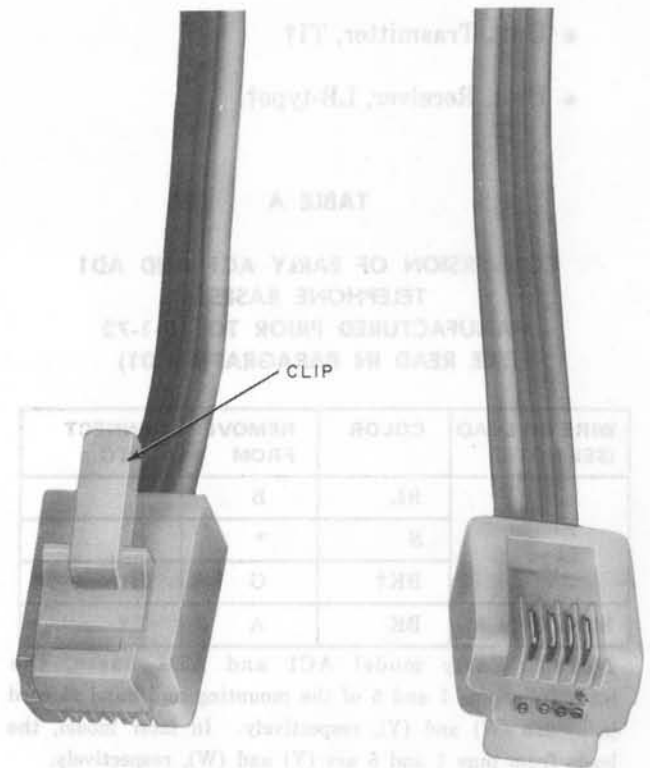


Fig. 8—D4BU Mounting Cord

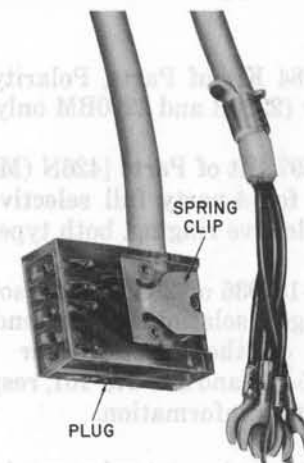


Fig. 9—D5AL Mounting Cord

- Unit, Transmitter, T1†
- Unit, Receiver, LB-type†.

TABLE A

**CONVERSION OF EARLY AC1 AND AD1
TELEPHONE BASES
MANUFACTURED PRIOR TO 10-1-72
(SEE READ IN PARAGRAPH 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

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 later model, the leads from pins 1 and 5 are (Y) and (W), respectively.

* Insulate and store.

† AD1 base only.

2.09 Optional Apparatus (ordered separately):

- D-180984 Kit of Parts, Polarity Guard Assembly (2220B and 2220BM only).
- D-180697 Kit of Parts [426N (MD) or 813BH diode] for 4-party full selective or 8-party semiselective ringing, both type bases.
- If a D-180036 or 28A ringer isolator is used for ringer isolation or to extend the ringing range of these sets, refer to Sections 501-375-100 and 501-375-101, respectively, for connection information.
- A 603A ringing extender can be used when only the ringing range is to be extended. Refer to Section 501-380-102 for connections.
- D-180824 (220AL) or D-180825 (220C, 226A, 2220C, or 2226A) Kit of Parts (tip party identification).

†220C, 226A, 2220C, and 2226A only.

- D-180719 Kit of Parts (hard of hearing coil for 220C, 226A, 2220C, or 2226A).
- D-180891 Kit of Parts, 2220C and 2226A only [Radio Frequency Interference (RFI)].

B. Design Features

2.10 220A (MD), 220AM, 2220B(MD), 2220BM, and 2220BMG Hand Telephone Sets:

- Incandescent dial illumination

Note: Some handsets will have the lamp in a vertical position, others have the lamp in horizontal position.

- Equipped with a recall switch
- Cover or number card and associated retainer used to conceal housing screws and lamp

Note: Hand telephone sets may be found in the field with a number card and number card retainer or cover used to conceal the screws in the handset. Current production sets will have the number card and number card retainer in the base since this is a more convenient location for the customer. It may be changed to the hand telephone set if desired by the customer.

- Equipped with jack to accommodate a plug ended handset cord
- 2220BMG furnished with polarity guard.

2.11 2220C, 220AL, 226A, 2220C, and 2226A Hand Telephone Sets:

- Light emitting diode dial illumination
- Equipped with a recall switch
- Cover used to conceal housing screws
- Handset cord jack accepts H4DU handset cord.
- ♦315-type amplifier in 226A and 2226A hand telephone sets only.♦

Note: The 220C, 220AL, and 226A hand telephone sets are identified by the letters LED

TABLE B
COLOR SELECTION

COLOR	SUFFIX	AC1 HOUSING	AD1 HOUSING	COVER 226A, 2226A	COVER 220A, 220C, 220AL, 220AM, 2220B, 2220C, 2220BM, 2220BMG	DIAL COVER 220A, 220C, 220AL, 220AM, 226A	DECK 220C, 226A (SEE NOTE)	SHELL 220C, 226A (SEE NOTE)	DECK 220C, 2226A (SEE NOTE)	SHELL 2220C, 2226A (SEE NOTE)
Black	-03	828821033	818254039	841376759	840431035	818850034 (P-88E003)	841375504	841375256	841356751	841356504
Ivory	-50	828821504	818254500	841376767	840431506	818850505 (P-88E050)	841375520	841356272	841356777	841356520
Green	-51	828821512	818254518	841376775	840431514	818850513 (P-88E051)	841375538	841375280	841356785	841356538
Red	-53	828821538	818254534	841376783	840431530	818850539 (P-88E053)	841375546	841375298	841356793	841356546
Yellow	-56	828821561	818254567	841376791	840431563	818850562 (P-88E056)	841375553	841375306	841356801	841356553
White	-58	828821587	818254583	841376809	840431589	818850588 (P-88E058)	841375561	841375314	841356819	841356561
Lt. Beige	-60	828821603	818254609	841376817	840431605	818850604 (P-88E060)	841375579	841375322	841356827	841356579
Aqua Blue	-62	828821621	818254625	841376825	840431621	818850620 (P-88E062)	841375587	841375330	841356835	841356587
Brown	-104	828821108	818254104	841376833	840431100	818850109 (P-88E010)	841375595	841375348	841356876	841356629
Rust	-124	828821124	818254120	841376882	840431126	818850125 (P-88E012)	841375603	841375355	841356918	841356660

Note: These are the only recommended deck and shells to be replaced in field.

printed on the dial number plate beneath the finger stop (Fig. 10).



Fig. 10—Rotary LED Hand Telephone Set Identification Stamping

2.12 AC- and AD-Type Telephone Bases:

- Factory-wired for individual or bridged service, see Tables C, D, and E for other classes of service
- Adjustable ringer volume control
- AC1 (MD) and AC1M (MD) (permanent wall type)—jack equipped to receive (maxi) plug-ended handset cord
- AC1P and AC1MP (portable wall type)—jack equipped to receive (maxi) plug-ended hand-

set cord. 523-type plug (Fig. 11) mates with 630-type connecting block

- AC2P and AC2MP (portable wall type)—jack equipped to receive (mini) plug-ended handset cord. 523-type plug (Fig. 11) mates with 630-type connecting block
- AC2PH (wall type)—jack equipped to receive (mini) plug-ended handset cord and a 623D6 jack to receive (mini) plug-ended mounting cord.
- AC-type telephone base provides waiting position for handset without going on-hook (Fig. 4)
- AD1 (MD) and AD1M (MD) (desk type)—jack equipped to receive (maxi) plug-ended handset and mounting cords
- AD2 and AD2M (desk type)—jack equipped to receive (maxi) plug-ended handset cord and (mini) plug-ended mounting cord
- AD3 and AD3M (desk type)—jack equipped to receive (mini) plug-ended handset and mounting cords (Fig. 12)
- AD3H (desk type)—jack equipped to receive (mini) plug-ended handset cord and a 623T6 jack to receive (mini) plug-ended mounting cord.
- Space provided on both bases for number card and associated number card retainer.

2.13 The hand telephone set with base can be used on CO or PBX lines or can be modified for use with 1A1, 1A2, 6A, or 6B 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 (220A, 220AM, 2220B, 2220BM, and 2220BMG only)

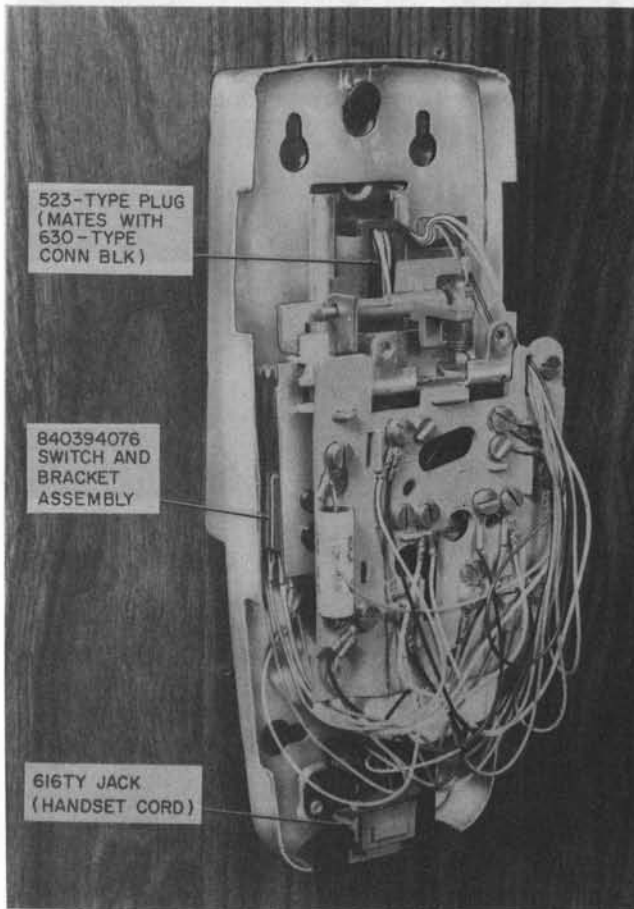


Fig. 11 — Interior View of AC-Type (Except AC2PH) Telephone Base

- Space requirements
- General appearance of installation.

Caution: Be careful not to insert the tip of the releaser too deep or mar the base housing. UNDER NO CIRCUMSTANCES SHOULD A SCREWDRIVER BE USED.

3.02 AC- and AD-Type Telephone Bases Housing Removal.

- (1) Use a KS-21107L1 tool or equivalent to remove number card retainer (Fig. 13).
- (2) Use a 3/16-inch blade screwdriver and back out the two exposed screws.

- (3) Lift housing off the base.

3.03 AC-Type Base Housing Replacement.

- (1) Lift and hold line switch plunger while aligning housing on base.
- (2) Tighten the two captive housing screws.
- (3) Install an E-10361 or E-10365 number card form.
- (4) Replace number card retainer.

3.04 AD-Type Base Housing Replacement.

- (1) Align the housing over the base and gently push down.
- (2) Tighten the two captive screws.
- (3) Install an E-10361 or E-10365 number card form.
- (4) Replace number card retainer.

3.05 Removal of Hand Telephone Set Cover (Shell).

- (1) Use a KS-21107L1 tool or equivalent to remove the cover located above the dial.
- (2) Carefully back out the two exposed screws with a 3/16-inch blade screwdriver.
- (3) Remove handset cover (shell).

3.06 Replacement of Hand Telephone Set Cover.

- (1) Hook the opening in the cover (shell) under the lip of the deck (located below the handset cord jack).
- (2) Gently push the shell and deck together.
- (3) Tighten the two captive screws.
- (4) Replace cover above dial.

3.07 The AC-type telephone bases may be mounted directly to a firm vertical surface. Refer to

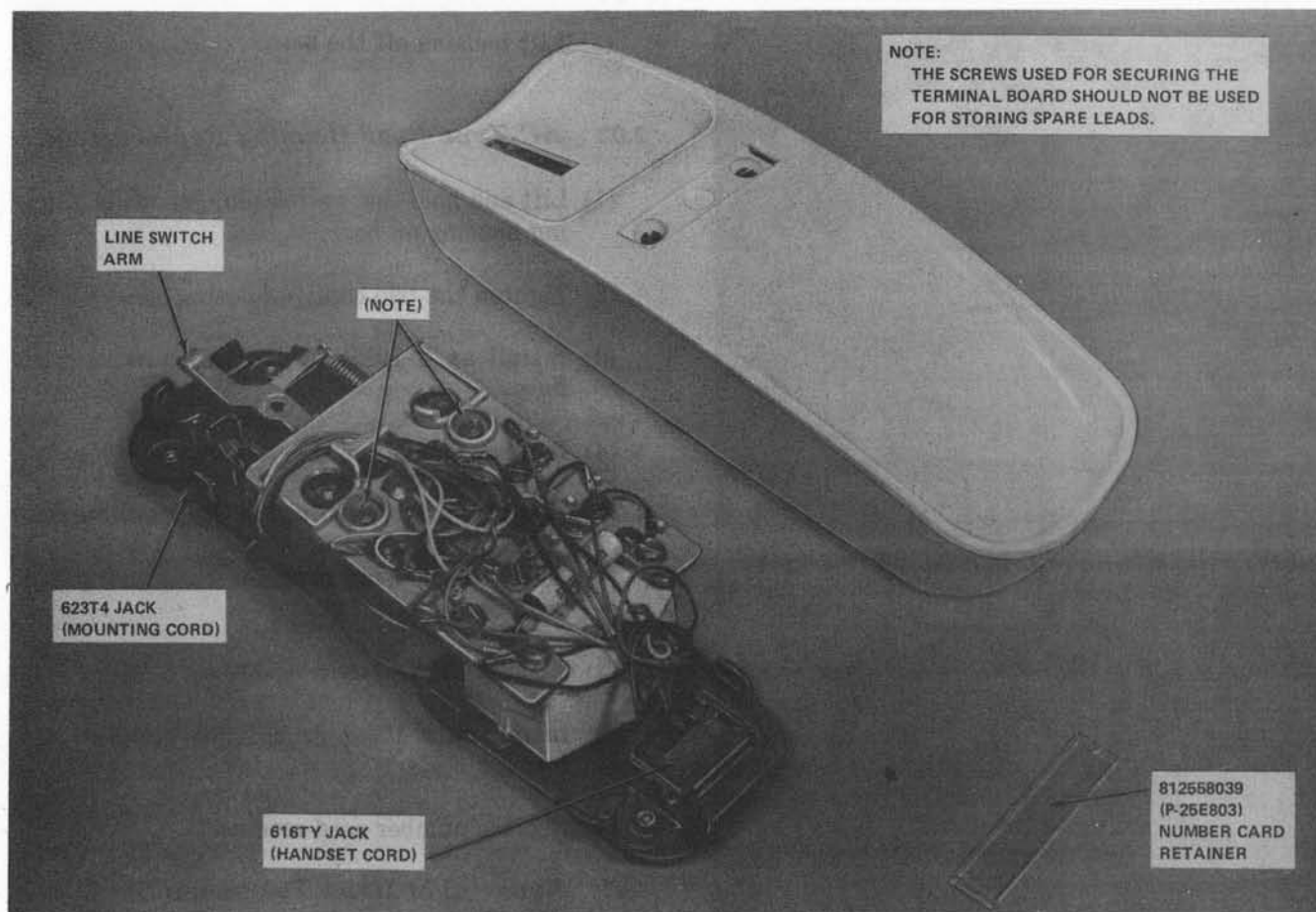


Fig. 12—Interior View of AD3 (Except AD3H) Telephone Base

appropriate section in Division 463 for additional information on adapters and backboards.

3.08 When inside wire to the AC1 (MD) or AC1M (MD) (wall) telephone base is exposed, terminate the line and dial light 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 of the base.

3.09 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.

3.10 The AC1P, AC1MP, AC2P, and AC2MP telephone bases are equipped with a 523-type plug

which allows the base to be plugged into a 630A-type connecting block. Refer to Section 461-610-100 for connecting block selection and installation information. With this type installation, the customer can unplug the base from the connecting block if the telephone set is to be removed from service.

3.11 The AC2PH special hospital telephone base is wired for use with a 6-conductor mounting cord. They are intended for use with a special hospital jack (USOC code RJ17C, WE code 625H). This jack will prevent the use of standard telephone sets with exposed metal base in designated critical care area of hospitals. This base can be mounted directly to a firm vertical surface using the three slotted mounting holes. If necessary, use a 155-type adapter or 182-type backboard. Refer to appropriate section in Division 463 for additional information on adapters and

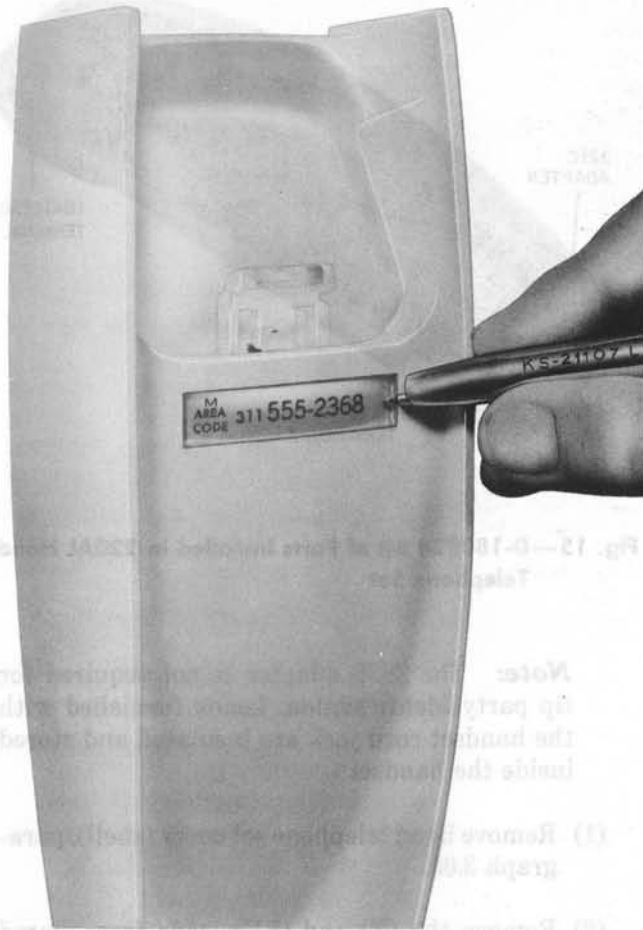


Fig. 13—Removing Number Card Retainer

backboards. Refer to Section 463-400-120 for connecting block installation information.

3.12 On the AD1 (MD) or AD1M (MD) base, insert the plug end of the D5AL 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 later models.

3.13 On AD2, AD2M, AD3, and AD3M, connect the D4BU mounting cord by inserting either plug end of the cord into the jack located on the underside of the base assembly. Refer to Section 461-610-100 for connecting block selection and installation information. **Make sure plug snaps into place to secure the plug.** Place cord under stationary retainer.

3.14 The AD3H special hospital telephone base is wired for use with a 6-conductor mounting cord. They are intended for use with a special hospital jack (USOC code RJ17C, WE code 625H). This jack will prevent the use of standard telephone sets with exposed metal base in designated critical care area of hospitals. Refer to Section 463-400-120 for connecting block installation information.

3.15 On both desk and wall bases, connect the hand telephone set to the base by plugging an H4DB, H4DU, or H5AA handset cord into the jack.

A. Tip Party Identification

3.16 For 220A or 2220B handset use on H5AA handset cord with AC1P, AD1, or AD2 base only. Connect as shown in Table C.

3.17 For 220AL handset, install a D-180824 Kit of Parts (Fig. 14 and 15). Kit consists of a 227C adapter and a terminal board. Install and connect as follows.

- (1) Remove hand telephone set cover (shell), paragraph 3.05.
- (2) Replace 227D adapter (furnished with handset) with the 227C adapter.
- (3) Connect leads from adapter as shown in Table D.
- (4) Reassemble handset (paragraph 3.06).
- (5) Remove base housing (paragraph 3.02).
- (6) Position terminal board over handset cord jack (Fig. 17).
- (7) Make connections as shown in Table D.
- (8) Replace base housing (paragraph 3.03 or 3.04).

3.18 For 220C, 226A, 2220C (later version), and 2226A install a D-180825 Kit of Parts (Fig. 14 and 16). Kit consists of a 282A (MD) or 282B adapter and a terminal board. Install and connect as follows.

- (1) Remove hand telephone set cover (shell), paragraph 3.05.
- (2) Position the adapter on the handset cord jack body as shown in Fig. 16.

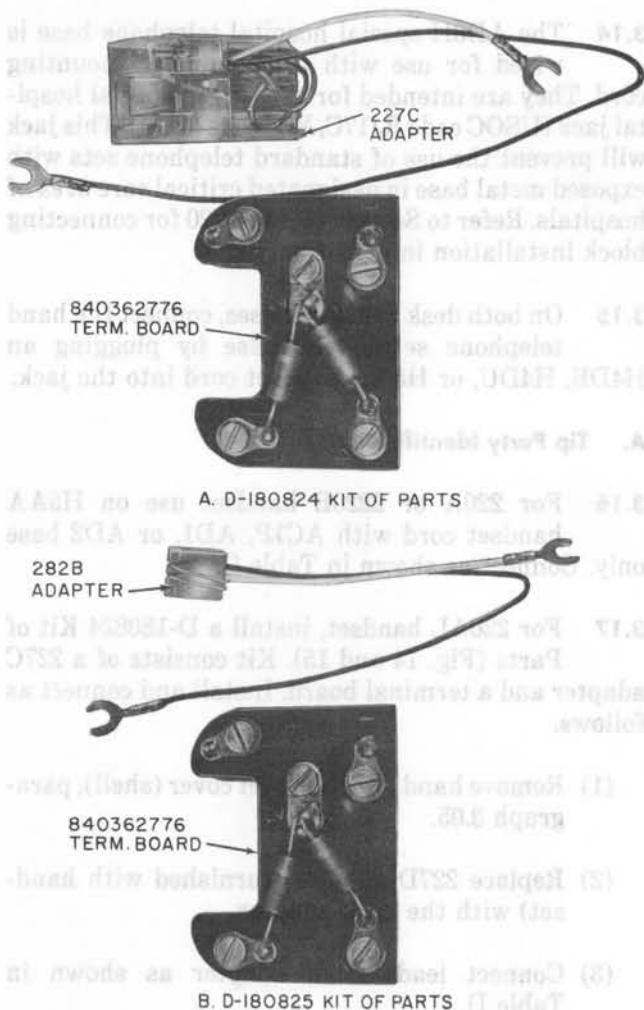


Fig. 14—D-180824 and D-180825 Kit of Parts

- (3) Slide the adapter into the jack body until locked into place. When correctly assembled, the two gold wire contact springs of the adapter will be positioned in the formerly vacant slots of the jack paralleling the existing gold contact springs (Fig. 16).
 - (4) Make connections as shown in Table D.
 - (5) Reassemble handset (paragraph 3.06).
 - (6) Install and connect terminal board [refer to paragraph 3.17 (5), (6), (7), and (8)].
- 3.19 For 2220C (early version), install a D-180825 Kit of Parts.

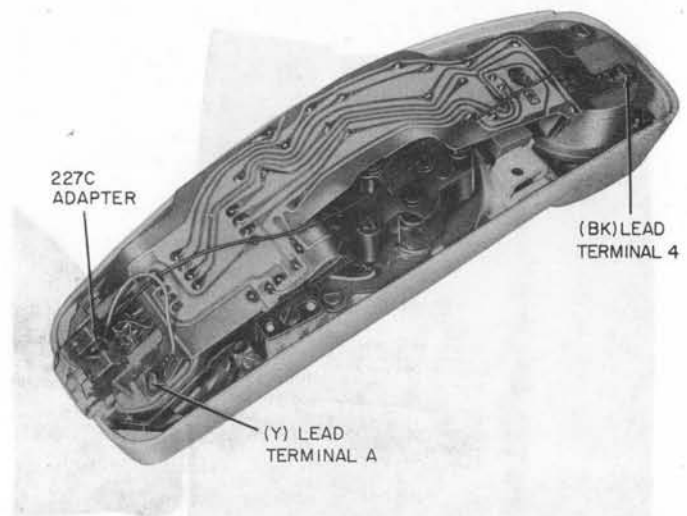


Fig. 15—D-180824 Kit of Parts Installed in 220AL Hand Telephone Set

Note: The 282B adapter is not required for tip party identification. Leads furnished with the handset cord jack are insulated and stored inside the handset.

- (1) Remove hand telephone set cover (shell), paragraph 3.05.
- (2) Remove the (Y) and (BK) leads from stored location and connect as shown in Table D.
- (3) Reassemble handset (paragraph 3.06).
- (4) Install and connect terminal board [refer to paragraph 3.17 (5), (6), (7), and (8)].

B. Polarity Guard

3.20 If a 2220B or 2220BM hand telephone set is provided and a polarity guard is required, a D-180984 Kit of Parts must be ordered separately and installed in the hand telephone set. Refer to Section 502-303-102 for installation and mounting information.



Polarity guard for 2220B or 2220BM should only be installed in accordance with local administrative practices or procedures for end-to-end signaling purposes when battery and ground reversals are encountered.

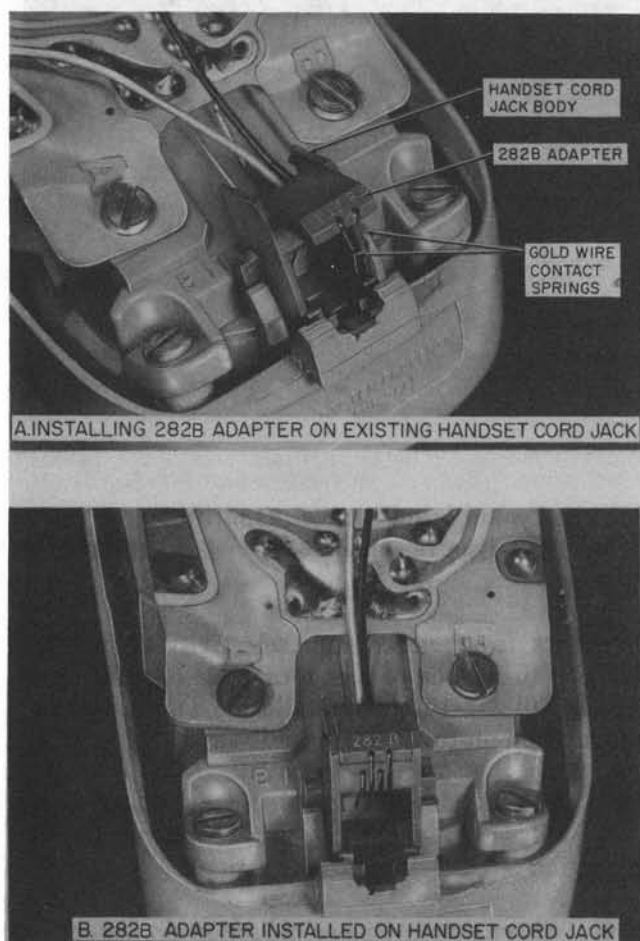


Fig. 16—D-180825 Kit of Parts Installed in 220C, 226A, 2220C, or 2226A Hand Telephone Set

3.21 The 2220C and 2226A hand telephone sets are provided with a built-in polarity guard from the factory. No connections are required.

3.22 If message waiting lamp feature is required, an H5AD handset cord must be used (Fig. 18) the lamp equipped end of the cord plugs into 220A or 2220B hand telephone set when used with AC1, AC1P, AD1, or AD2 telephone bases only.

3.23 Where a single dial light is involved, use a 2012A or C transformer or equivalent 6-volt supply (220A, 220AM, 2220B, 2220BM, or 2220BMG hand telephone set only). 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 fold-blade

prongs. Where two or more dial light sets are installed, refer to the section on station transformers for use with multiple installations.



DO NOT USE 2012B OR D 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 51A or 53A lamps, respectively, provided the lamp power is supplied by a 2012A or C transformer and the combined length of mounting and handset cords exceed 15 feet. Refer to Part 5 Maintenance, for dial lamp replacement.

3.24 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.

3.25 When the hand telephone set is used in conjunction with a key telephone system, the dial lamp can be powered from the key system 10-volt power supply system. If this power supply is used, replace 51B or 53B lamps with 51A or 53A lamps, respectively.

3.26 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.

C. D-180697 Kit of Parts

3.27 The 426N (MD) or 813BH diode (Fig. 19), furnished in this kit of parts is intended for use with AC- or AD-type (except AC2PH and AD3H) when connecting for 4-party full selective or 8-party semiselective ringing. Place the diode in the opening provided in the terminal board. Dress the leads to the appropriate terminal board terminals and replace the existing screw terminals with the two screws from the kit of parts. Refer to Table E for orientation of diode and terminal connections. Refer to Section 501-320-100 for additional information on kit of parts.

3.28 The 28A ringer isolator may be used for ringer isolation or to extend the ringing range of

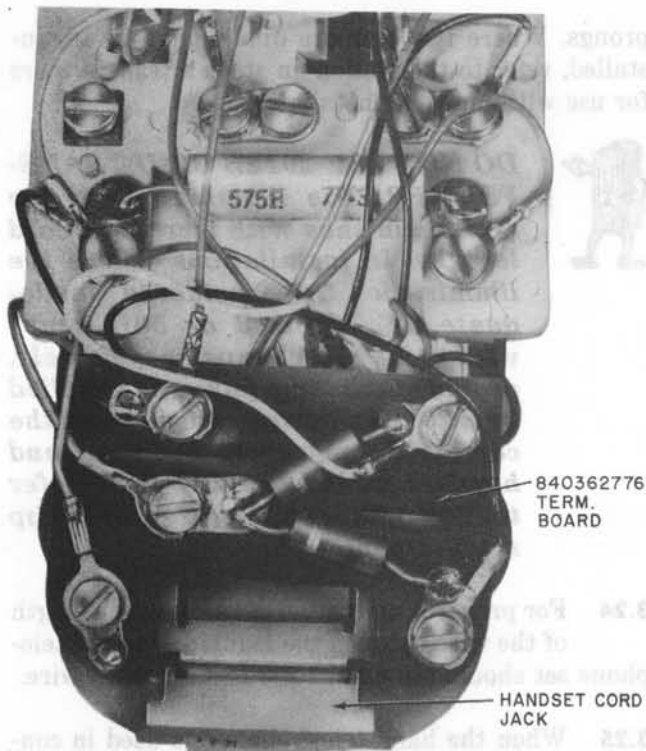


Fig. 17—840362776 Terminal Board Installed in AD-Type Telephone Base

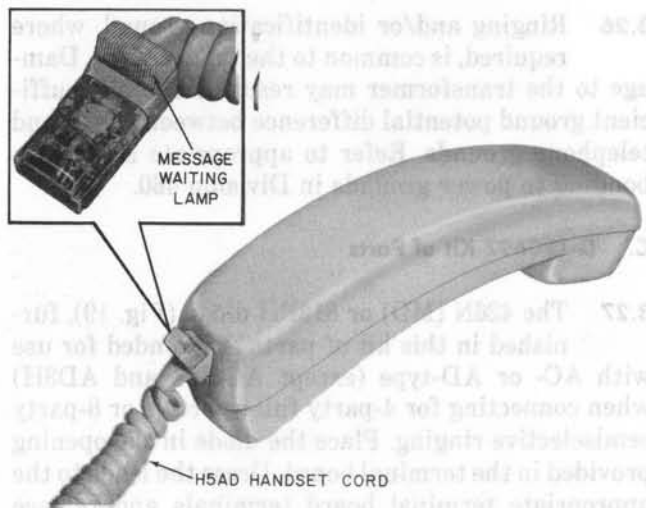


Fig. 18—H5AD Handset Cord (Message Waiting Lamp)

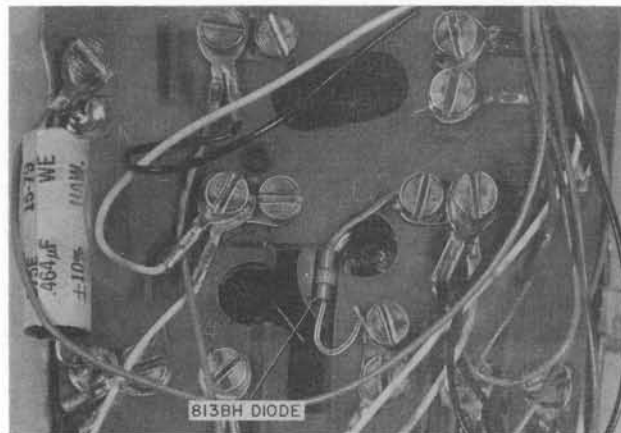


Fig. 19—Typical Installation of 813BH Diode in AC- or AD-Type Telephone Base

these sets. It offers the same selectivity as the 426N (MD), 813BH diode or a cold-cathode tube. Refer to Section 501-375-101 for installation and connection information on the 28A ringer isolator.

3.29 A 603A ringing extender can be used when only the ringing range is to be extended. Refer to Section 501-380-102 for connections.

3.30 Where extreme noise induction conditions exist, the 426N (MD) and 813BH diode should not be used. Instead, a cold-cathode tube or a D-180036 ringer isolator installed on a 74-type connecting block may be used. See Section 501-320-100 or 501-375-100 for connection information.

3.31 For portable installations of the AD1 or AD1M telephone base, terminate the line and transformer wiring to 550A jacks or equivalent. Connect the spade-tipped leads of the D5AL or D5AN mounting cord to a 505A plug. Connect other end of mounting cord to AD1 base in normal manner.



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.

3.32 A D-180719 Kit of Parts is available for use by customers with hearing aids which are equipped with telephone pickup feature. The kit of parts provides a supplementary field used by the

pickup feature of the hearing aid. This kit is intended for use only with the 220C, 226A, 2220C, and 2226A hand telephone sets. For installation information refer to Section 502-303-102.

4. OPERATION

4.01 Instruct the customer on the necessary operating features.

4.02 Recall Switch (Fig. 2). 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.



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

4.03 "Floating" Finger Stop 220- and 226-Type Only: Demonstrate movable 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 (ie, 1 or 9) may be used as special access numbers for services such as Direct Distance Dialed (DDD) in Automatic Number Identification (ANI) offices.

4.04 To prevent dialing errors, every digit dialed requires rotation of fingerwheel until finger is stopped by the movable finger stop (220- and 226-type only).

4.05 To prevent dialing errors when TOUCH-TONE dial (2220B, 2220C, 2220BM, 2220BMG, or 2226A) is used, depress one button at a time.

4.06 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 AC- and AD-type telephone bases is limited to changing the position of the ringer bias spring and replacement of defective components as listed in paragraph 2.08.

5.02 To change the tension of the bias spring and ringer cutoff feature of the P-type ringer, refer to Section 501-259-101 for procedures.

5.03 A D-180891 Kit of Parts is available to modify 2220C and 2226A hand telephone sets and associated AC- or AD-type telephone base for RFI in the on-hook position. Refer to Section 502-303-102 for handset wiring changes, Section 500-150-100 for wiring changes to the bases, and Section 500-150-100 for RFI in off-hook position.

Note: To prevent RFI on the tip side of a two-party line when Automatic Number Identification is provided, a 2220BM hand telephone set modified for RFI must be used.

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

- Dial lamp (220A, 220A, 2220B, 2220BM, and 2220BMG only)
- 812558039 (P-25E803) Number Card Retainer
- 812362382 (P-23F238) Light Seal Plate (220A, 220AM, 2220B, 2220BM, and 2220BMG only)
- Form E-10361 or E-10365 (See note)
- Handset Cords
- Mounting Cords
- Cover
- Dial Cover.

Note: Refer to Section 501-150-102 for ordering information.

Danger: Exercise caution to prevent the lamp from flying out of the socket in a dangerous manner.

5.05 To replace an incandescent dial lamp in the TRIMLINE hand telephone sets, remove cover 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. 20). In early production hand telephone sets use a 553A tool to remove the lamp from its vertical position (Fig. 21).

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

Danger: Do not use a screwdriver.

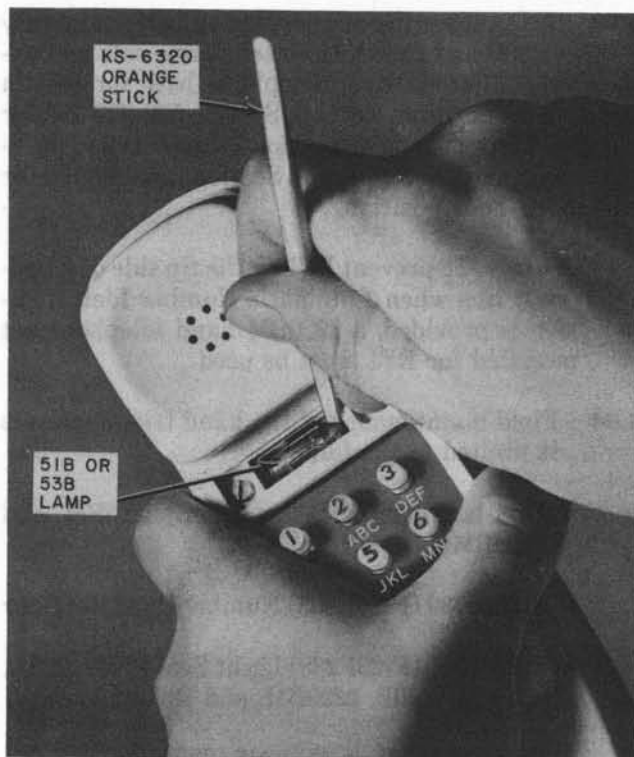


Fig. 20—Removing Dial Lamp From 2220BM Hand Telephone Set

5.06 To replace a plug ended H4DB, H5AA, or H5AD handset cord (Fig. 22) or D5AL or D5AN mounting cord (Fig. 23), use a KS-21107L1 tool. 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. The plug end of the D4BU and H4DU cords can be removed from a jack by depressing the locking tab and pulling plug out.



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

5.07 To prove a base is wired for individual or bridged service.

- (1) Dial ring back number (do not have local test desk call you).
- (2) Fully depress and hold recall button.
- (3) If the ringer operates, the base is wired for individual or bridged ringing.

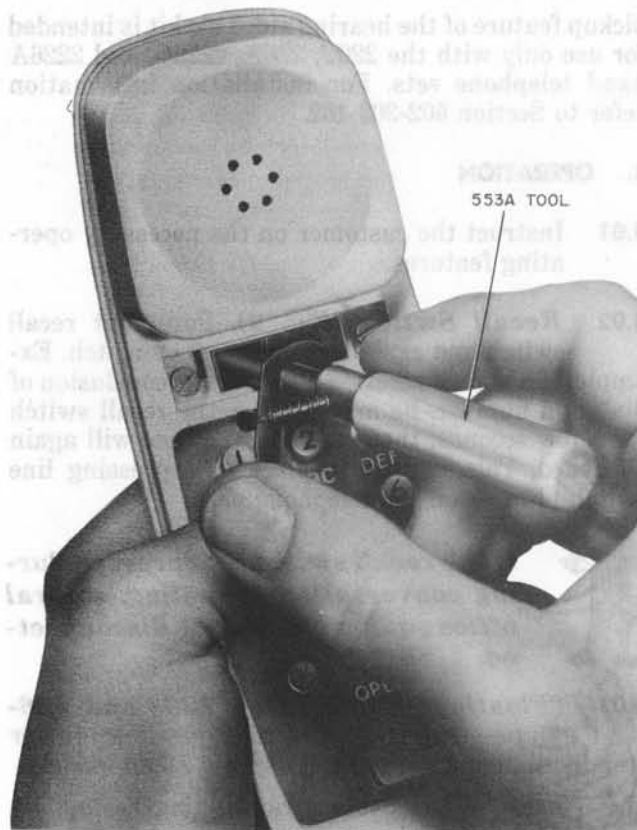


Fig. 21—Removing Dial Lamp Using 553A Tool

6. CONNECTIONS

6.01 To restrict the dial on 220A, 220AL (early version), and 220AM hand telephone sets, place a strap between the pulsing contacts as shown in Fig. 24. For 220AL (current version) handsets, place an insulated strap between the (2) screws located at approximately the center of the flexible printed wiring board (network) above the dial. For 220C and 226A handsets, place an insulated strap between terminals 1 and 2 on network. In all cases the dial will remain in the handset.

6.02 Dial restriction for the 2220B or 2220BM hand 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 2220B or 2220BM handset where local instructions specify using a polarity guard. The dial in

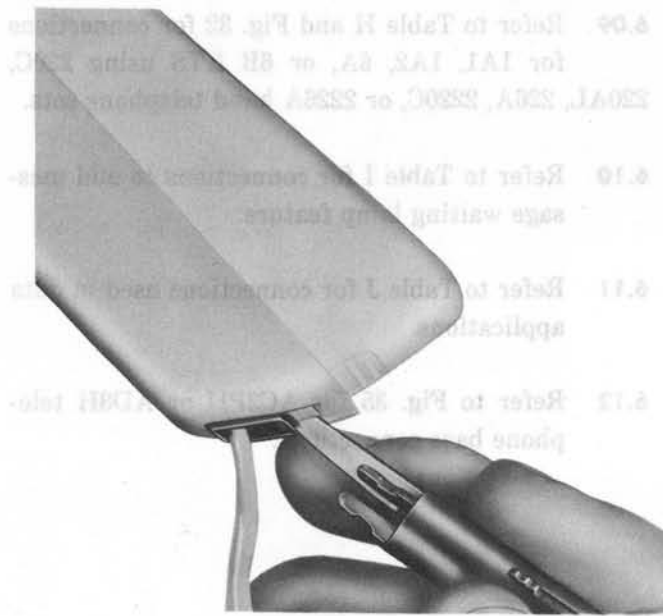


Fig. 22— Handset Cord From Hand Telephone Set Using KS-21107L1 Tool

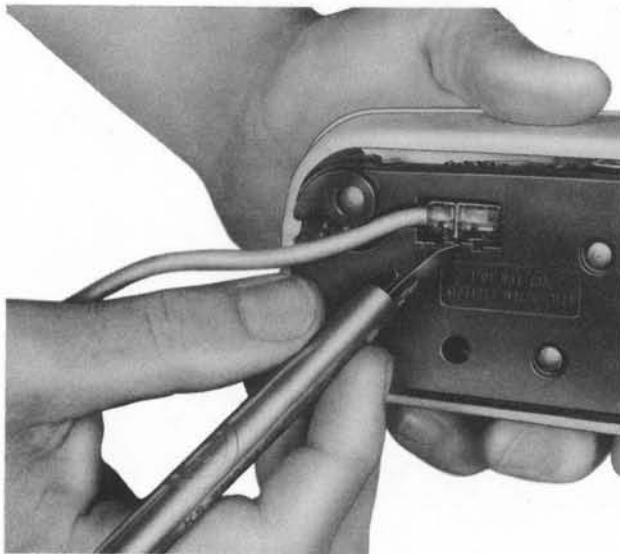


Fig. 23— Mounting Cord From AD1 (MD) Telephone Base Using KS-21107L1 Tool



B. 220AL (CURRENT VERSION) HAND TELEPHONE SET

Fig. 24— Dial Restriction

the 2220BMG, 2220C, and 2226A handset cannot be restricted since they have a built-in polarity guard from the factory.

6.03 Refer to Table C and Fig. 25 through 28 for connections for 2-party service with 220A, 220AM, 2220B, and 2220BM hand telephone sets. 220AM or 2220BM cannot be used on tip party if ANI is provided.

6.04 Refer to Table D and Fig. 29 for connections for 2-party service with 220C, 220AL, 226A, 2220C, and 2226A hand telephone sets.

6.05 Refer to Table D and Fig. 30 and 31 for connections when installing D-180825 and D-180824 Kit of Parts (tip party identification).

6.06 Refer to Table E for connections for 4-party full selective or 8-party semiselective ringing using D-180697 Kit of Parts [426N (MD) or 813BH diode] with 220-type hand telephone sets.

6.07 Refer to Table F and Fig. 33 for connections for 1A1, 1A2, 6A, or 6B KTS without dial light using 220A, 220AM, 2220B, or 2220BM hand telephone sets.

6.08 Refer to Table G and Fig. 34 for conversion of AD2 or AD3 bases for 1A1, 1A2, 6A, or 6B KTS with dial light using 220A, 220AM, 2220B, or 2220BM hand telephone sets.

6.09 Refer to Table H and Fig. 32 for connections for 1A1, 1A2, 6A, or 6B KTS using 220C, 220AL, 226A, 2220C, or 2226A hand telephone sets.

6.10 Refer to Table I for connections to add message waiting lamp feature.

6.11 Refer to Table J for connections used in data applications.

6.12 Refer to Fig. 35 for AC2PH or AD3H telephone base connections.

TABLE C
CONNECTIONS FOR INDIVIDUAL AND 2-PARTY SERVICE WITH 220A, 220AM, 2220B, 2220BM,
AND 2220BMG HAND TELEPHONE SETS (SEE READ PARAGRAPH 1.01) (NOTE 1) (SEE TABLE K)

WIRE OR LEAD	LEAD DESIG	COLOR	INDIV OR BRIDGED (NOTE 2)	RING PARTY (NOTE 2)	TIP PARTY	
					NO IDENT GRD (NOTE 2)	WITH IDENT GRD* (NOTE 2)
Inside Wire at 42A or 625-Type Conn. Block (AD1, AD2, or AD3)	Tip	G	G	G	G	G
	Ring	R	R	R	R	R
	STA GRD and TRNSF	Y	Y	Y	Y	Y
	TRNSF	BK	B	B	B	B
Inside Wire at 630A Conn. Block (AC1P or AC2P)	Tip	G	1	1	1	1
	Ring	R	2	2	2	2
	STA GRD and TRNSF	Y	3	3	3	3
	TRNSF	BK	4	4	4	4
Inside Wire at Term. Board (AC1 or AC2)	Tip	G	L1	L1	L2	L2
	Ring	R	L2	L2	L1	L1
	STA GRD and TRNSF	Y	3	3	3	3
	TRNSF	BK	1	1	1	1
Mtg Cord Jack or 523-Type Plug Leads at Term. Board (AD1, AD2, AD3, AC1P, or AC2P)	Tip	G	L1	L1	L2	L2
	Ring	R	L2	L2	L1	L1
	TRNSF	Y	3	3	3	3
	TRNSF	BK	1	1	1	1
Ringer (Note 2)	—	BK	L1	3	3	3
Strap from A of Term. Bd.	—	BK	L2	L2	L2	A
Handset Cord Jack Leads in Base (2220B and 2220BM only)	Tip	G	F	F	C	C
	Ring	R	C	C	F	F
	TRNSF	Y	3	3	3	3
	TRNSF	BK	4	4	4	4

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

Note 1: AC2, AC2P, and AD3 telephone bases can not be used with 220A, 220AM, 2220B, and 2220BM hand telephone sets for this service.

Note 2: Disconnect, insulate and store (S) lead from terminal B when H5AA handset cord is used and tip party identifying ground is not provided.

* 220AM, 2220BM, and 2220BMG handsets cannot be used for tip party with identifying ground.

TABLE D
CONNECTIONS FOR INDIVIDUAL AND 2-PARTY SERVICE WITH 220C, 220AL, 226A, 2220C, AND 2226A
HAND TELEPHONE SETS (SEE READ PARAGRAPH 1.01) (SEE TABLE K)

WIRE OR LEAD (NOTE 1)	LEAD DESIG	COLOR	INDIV OR BRIDGED	RING PARTY	TIP PARTY			
					NO IDENT GRD	WITH IDENT GRD		
						BASE TERM BD.	TERM. BD. D-180824 (FIG. 31) D-180825 (FIG. 30)	HANDSET TERM. (NOTES 2, 4, 5 AND 6)
Inside Wire at 42A or 625-Type Conn. Blk. (AD1, AD2, or AD3)	Tip	G	G	G	G	G†	—	—
	Ring	R	R	R	R	R†	—	—
	GRD	Y	Y	Y	Y	Y†	—	—
	—	BK	B	B	B	B†	—	—
Inside Wire at 630A Conn Blk (AC1P or AC2P)	Tip	G	1	1	1	1†	—	—
	Ring	R	2	2	2	2†	—	—
	GRD	Y	3	3	3	3†	—	—
	—	BK	4	4	4	4†	—	—
Inside Wire at Term. Board (AC1 or AC2)	Tip	G	L1	L1	L2	L2	—	—
	Ring	R	L2	L2	L1	L1	—	—
	GRD	Y	3	3	3	3	—	—
	—	BK	1	1	1	1	—	—
Mtg Cord Jack or 523-Type Plug Leads at Term. Board (AD1, AD2, AD3, AC1P, AC2P)	Tip	G	L1	L1	L2	L2	—	—
	Ring	R	L2	L2	L1	L1	—	—
	GRD	Y	3	3	3	3	—	—
	—	BK	1	1	1	1	—	—
Ringer	—	S or BL (Note 2)	B	B	B	—	3	—
		BK	L1	3	3	3	—	—
Line Switch	—	BR	C	C	C	(220C) C (220AL) (226A)	1 (2220C) (2226A)	—
Handset Cord, Jack Leads in Base	Tip	G	F	F	F	F	—	—
	Ring	R	C	C	C	(220C) C (220AL) (226A)	2 (2220C) (2226A)	—
	PTY Ident	Y or W (Note 2)	3	3	3	—	4	—
	PTY Ident	BK	4	4	4	—	5	—
Strap From A of Term. Bd.	Strap	BK	L2	L2	L2	A	—	—

TABLE D (Contd)

CONNECTIONS FOR INDIVIDUAL AND 2-PARTY SERVICE WITH 220C, 220AL, 226A, 2220C, AND 2226A
HAND TELEPHONE SETS (SEE READ PARAGRAPH 1.01) (SEE TABLE K)

WIRE OR LEAD (NOTE 1)	LEAD DESIG	COLOR	INDIV OR BRIDGED	RING PARTY	TIP PARTY			
					NO IDENT GRD	WITH IDENT GRD		
						BASE TERM BD.	TERM. BD. D-180824 (FIG. 31) D-180825 (FIG. 30)	HANDSET TERM. (NOTES 2, 4, 5 AND 6)
Handset Cord Jack Leads in Handset (Note 2)	Tip	G	—	—	—	—	—	—
	Ring	R	—	—	—	—	—	—
227C or 282B Adapter	PTY Ident	Y or W	*	*	*	—	—	A
	PTY Ident	BK	*	*	*	—	—	B or 4

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

Note 1. If AC1, AC1P, AD1 or AD2 bases are provided, a 231B adapter is required (ordered separately).

Note 2. Handsets must be opened to wire for tip party with identifying ground, refer to Section 502-303-102.

Note 3. For bases dated prior to 10-1-72 see READ in 1.01 and note under Table A.

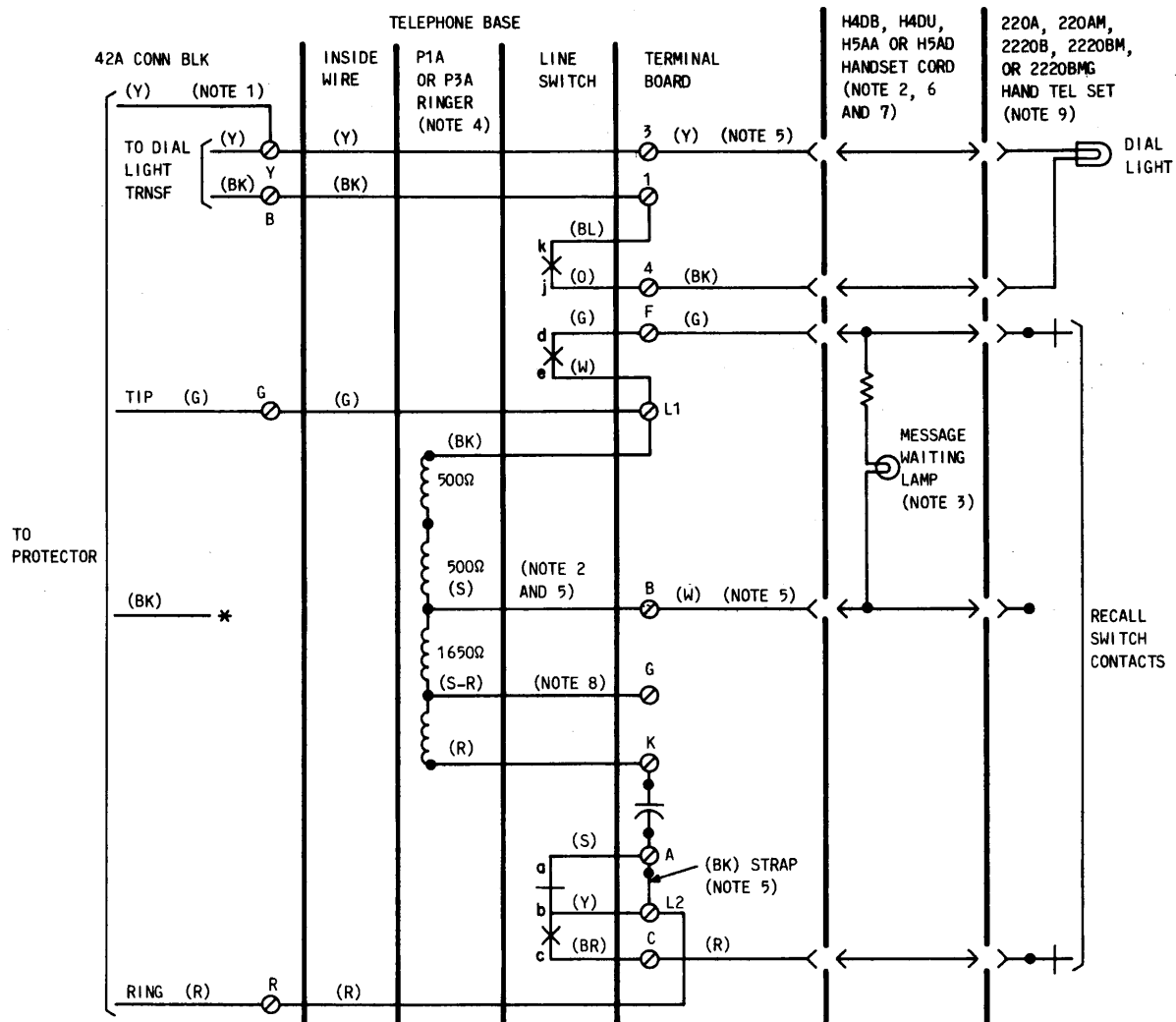
Note 4. The D-180824 Kit of Parts (ordered separately) is used with the 220AL hand telephone set only.

Note 5. The terminal board only of the D-180825 Kit of Parts (ordered separately) is used with the early version 2220C hand telephone sets.

Note 6. The 282B adapter and terminal board of the D-180825 Kit of Parts is required for the 220C, 226A, 2226A, and later version of 2220C hand telephone sets.

* Insulated and stored, 2220C (early version only).

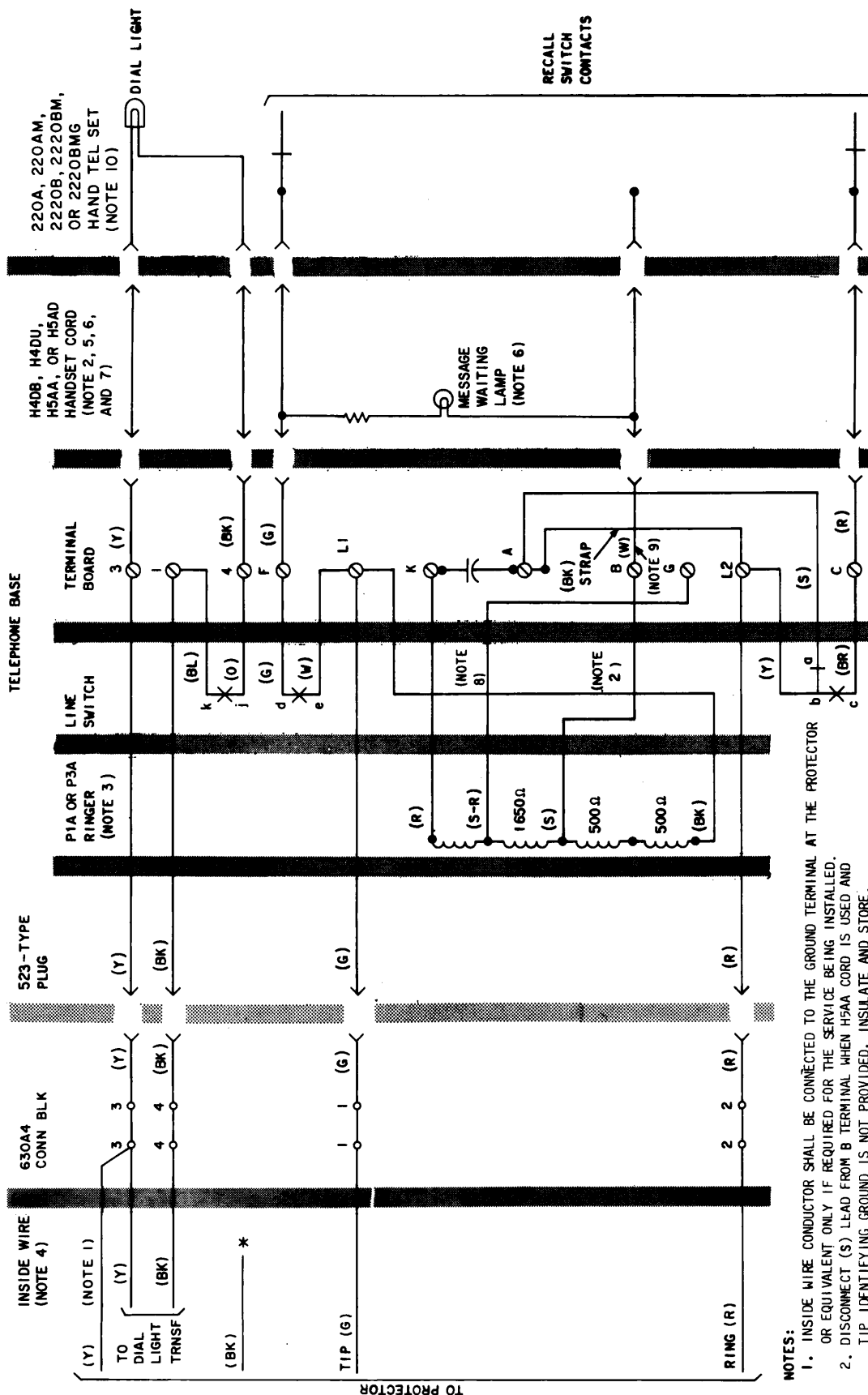
† Connecting block terminals.



NOTES:

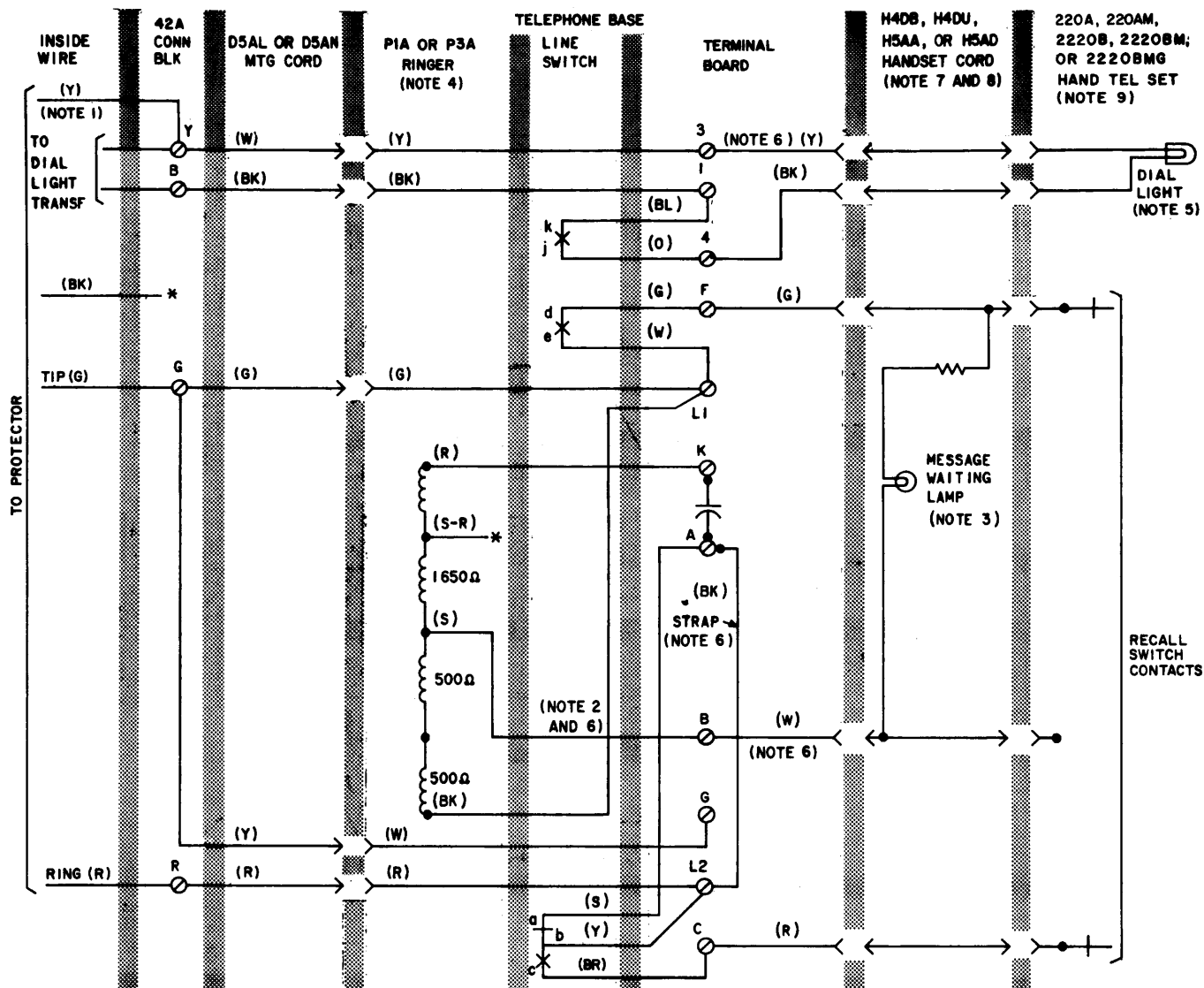
1. INSIDE WIRE CONDUCTOR SHALL BE CONNECTED TO THE GROUND TERMINAL AT THE PROTECTOR OR EQUIVALENT ONLY IF REQUIRED FOR THE SERVICE BEING INSTALLED.
2. DISCONNECT (S) LEAD FROM TERMINAL B WHEN H5AA HANDSET CORD IS USED AND TIP PARTY IDENTIFYING GROUND IS NOT PROVIDED, INSULATE AND STORE.
3. LAMP AND RESISTOR ARE PART OF H5AD HANDSET CORD REQUIRED FOR MESSAGE WAITING FEATURE ON AC1 BASE ONLY. IF 220AM OR 2220BM HAND TELEPHONE SET IS PROVIDED, THE 227-TYPE ADAPTER MUST BE REMOVED.
4. SET WIRED FOR INDIVIDUAL OR BRIDGED SERVICE, FOR ALL CLASSES OF SERVICE REFER TO TABLE C.
5. REFER TO READ IN 1.01 AND TABLE A FOR ADDITIONAL INFORMATION ON WIRING ARRANGEMENT AND LEAD COLORS OF AC1 BASES MANUFACTURED PRIOR TO 10-1-72.
6. H4DB OR H4DU HANDSET CORD SHALL BE USED FOR INDIV. OR BRIDGED RINGING, RING PARTY, AND TIP PARTY WITHOUT IDENT. GRD.
7. WHEN H4DU CORD IS PROVIDED A 227D AND 231B ADAPTER IS REQUIRED ON AC1 BUT 227D ADAPTER ONLY IS REQUIRED ON AC2.
8. INSULATED AND STORED ON EARLY VERSION AC1 ONLY.
9. 220AM, 2220BM, AND 2220BMG ARE EQUIPPED FOR H4DU HANDSET CORD.
- * INSULATED AND STORED

Fig. 25—AC1 (MD) or AC2 (MD) Telephone Base, Connections With 220A (MD), 220AM, 2220B (MD), 2220BM, or 2220BMG Hand Telephone Set



- NOTES:**
1. INSIDE WIRE CONDUCTOR SHALL BE CONNECTED TO THE GROUND TERMINAL AT THE PROTECTOR OR EQUIVALENT ONLY IF REQUIRED FOR THE SERVICE BEING INSTALLED.
 2. DISCONNECT (S) LEAD FROM B TERMINAL WHEN H5AA CORD IS USED AND TIP IDENTIFYING GROUND IS NOT PROVIDED, INSULATE AND STORE.
 3. SET WIRED FOR BRIDGED RINGING. FOR ALL CLASSES OF SERVICE REFER TO TABLE C.
 4. INSIDE WIRING CABLE MAY BE USED IN PLACE OF "D" STATION WIRE.
 5. H4DB OR H4DU HANSET CORD SHALL BE USED FOR INDIV. OR BRIDGED RINGING, RING PARTY, AND TIP PARTY WITHOUT IDENT. GRD. LAMP AND RESISTOR ARE PART OF H5AD HANSET CORD REQUIRED FOR MESSAGE WAITING FEATURE ON ACIP BASE ONLY. IF 220AM OR 2220BM HAND TELEPHONE SET IS PROVIDED, THE 227-TYPE ADAPTER MUST BE REMOVED.
-
7. WHEN H4DU CORD IS PROVIDED A 227D AND 231B ADAPTER IS REQUIRED FOR ACIP BUT ONLY 227D ADAPTER IS REQUIRED FOR AC2P.
 8. INSULATED AND STORED ON EARLY VERSION ACIP ONLY.
 9. (W) LEAD PROVIDED IN ACIP BASE ONLY.
 10. 220AM, 2220BM, AND 2220BMG ARE EQUIPPED FOR H4DU HANSET CORD. INSULATED AND STORED.
- * INSULATED AND STORED.

Fig. 26—AC1P or AC2P Telephone Base, Connections With 220A (MD), 220AM, 220B (MD), 220BM, or 2220BMG Hand Telephone Set



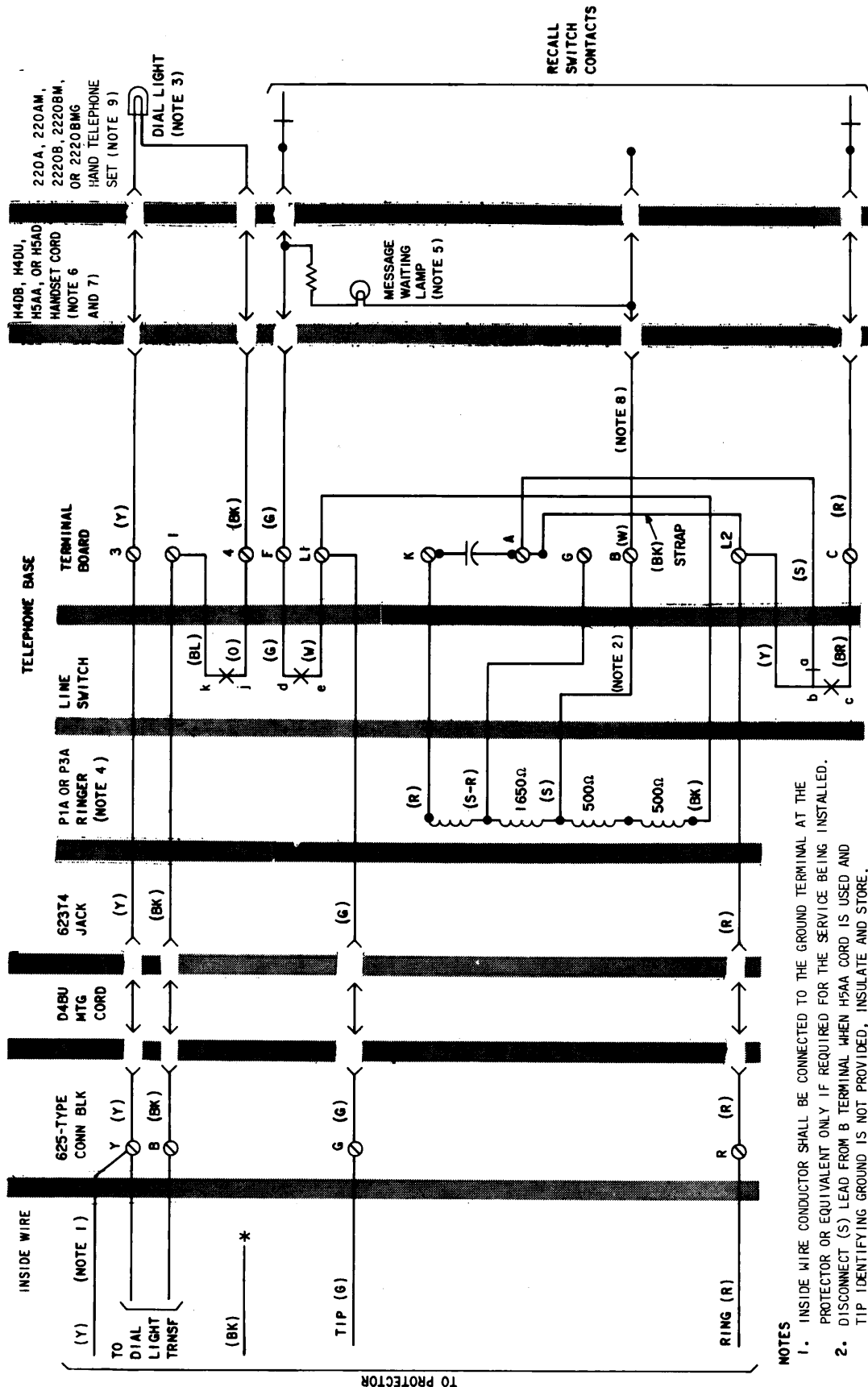
NOTES:

1. INSIDE WIRE CONDUCTOR SHALL BE CONNECTED TO THE GROUND TERMINAL AT THE PROTECTOR OR EQUIVALENT ONLY IF REQUIRED FOR THE SERVICE BEING INSTALLED.
2. DISCONNECT (S) LEAD FROM TERMINAL B WHEN H5AA HANDSET CORD IS USED AND TIP PARTY IDENTIFYING GROUND IS NOT PROVIDED, INSULATE AND STORE.
3. LAMP AND RESISTOR ARE PART OF H5AD HANDSET CORD REQUIRED FOR MESSAGE WAITING FEATURE. IF 220AM OR 2220 BM HAND TELEPHONE SET IS PROVIDED, THE 227-TYPE ADAPTER MUST BE REMOVED.
4. SET WIRED FOR INDIVIDUAL OR BRIDGED SERVICE, FOR ALL CLASSES OF SERVICE REFER TO TABLE C.

5. CHANGE TO 53A LAMP IF COMBINED LENGTH OF HAND TELEPHONE SET CORD AND (ADI BASE) MOUNTING CORD EXCEEDS 15 FEET.
6. REFER TO READ IN 1.01 AND TABLE A FOR ADDITIONAL INFORMATION OR WIRING ARRANGEMENT AND LEAD COLORS OF ADI BASES MANUFACTURED PRIOR TO 10-1-72.
7. H4DB OR H4DU CORD SHALL BE USED FOR INDIVIDUAL OR BRIDGED RINGING, RING PARTY AND TIP PARTY WITHOUT IDENT. GRD.
8. WHEN H4DU CORD IS PROVIDED A 227D AND 231B ADAPTER IS REQUIRED.
9. 220AM, 2220BM, AND 2220BMG ARE EQUIPPED FOR H4DU HANDSET CORD.

* INSULATED AND STORED

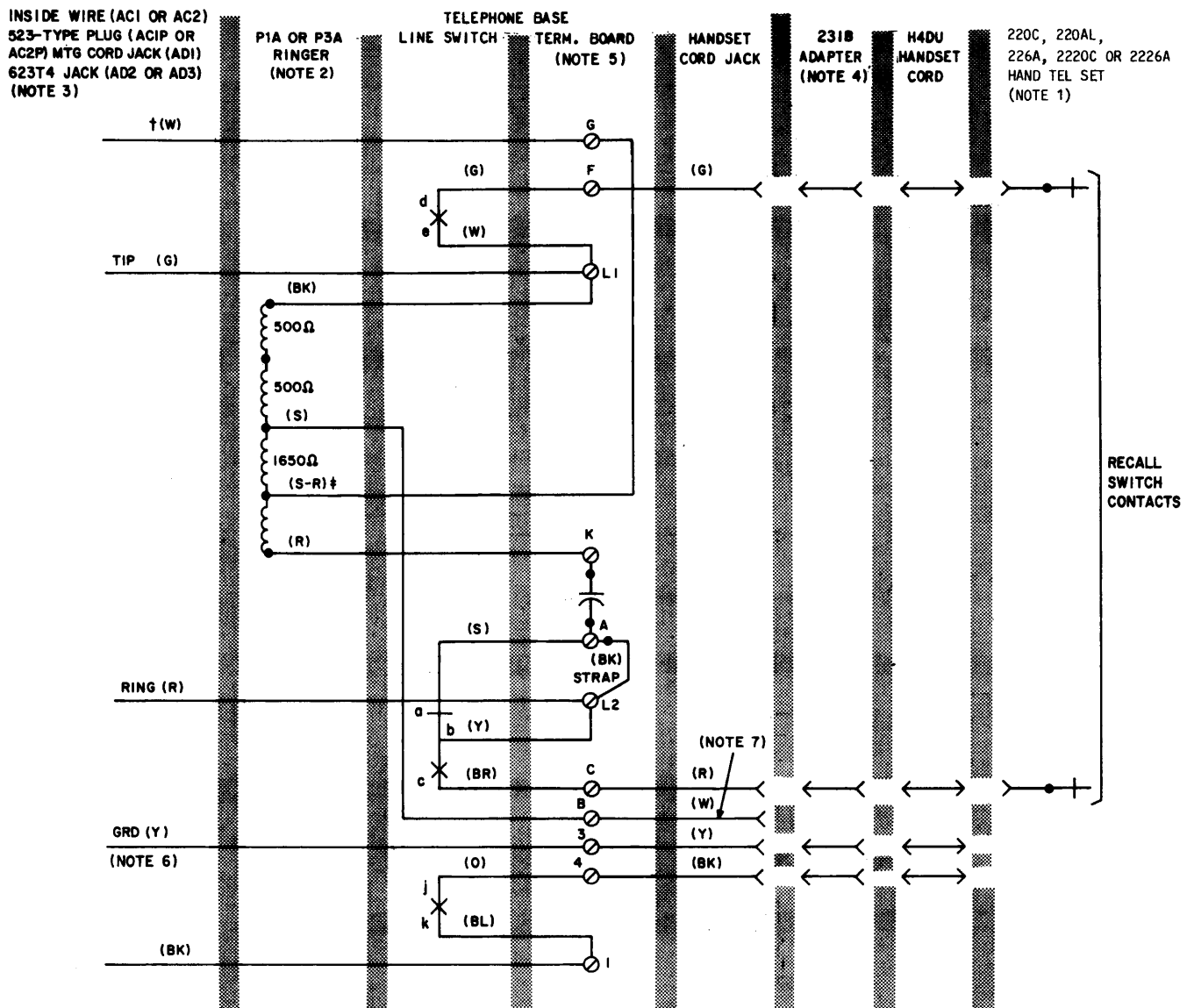
Fig. 27—AD1 (MD) Telephone Base, Connections With 220A (MD), 220AM, 2220B (MD), 2220BM, or 2220BMG Hand Telephone Set



NOTES

1. INSIDE WIRE CONDUCTOR SHALL BE CONNECTED TO THE GROUND TERMINAL AT THE PROTECTOR OR EQUIVALENT ONLY IF REQUIRED FOR THE SERVICE BEING INSTALLED.
2. DISCONNECT (S) LEAD FROM B TERMINAL WHEN H5AA CORD IS USED AND TIP IDENTIFYING GROUND IS NOT PROVIDED, INSULATE AND STORE.
3. CHANGE TO 57A LAMP IF COMBINED LENGTH OF HAND TELEPHONE SET CORD AND BASE MOUNTING CORD EXCEEDS 15 FEET.
4. FACTORY-WIRED FOR BRIDGED RINGING. FOR ALL CLASSES OF SERVICE REFER TO TABLE C.
5. LAMP AND RESISTOR ARE PART OF H5AD HANDSET CORD REQUIRED FOR MESSAGE WAITING FEATURE (AD2 ONLY). IF 220AM OR 220BM HAND TELEPHONE SET IS PROVIDED, THE 227-TYPE ADAPTER MUST BE REMOVED.
6. WHEN H4DU CORD IS PROVIDED A 227D AND 231B ADAPTER IS REQUIRED FOR AD2 BUT ONLY 227D ADAPTER IS REQUIRED FOR AD3.
7. H4DB OR H4DU HANDSET CORD SHALL BE USED FOR INDIVIDUAL OR BRIDGED RINGING, RING PARTY AND TIP PARTY WITHOUT IDENT. GRD.
8. (W) LEAD PROVIDED IN AD2 BASE ONLY.
9. 220AM, 220BM, AND 220BMG ARE EQUIPPED FOR H4DU HANDSET CORD. * INSULATED AND STORED

Fig. 28— AD2 or AD3 Telephone Base, Connections With 220A (MD), 220AM, 220B (MD), 220BM, or 220BMG Hand Telephone Set



NOTES:

1. DIAL LIGHT TRNSF NOT REQUIRED. DIAL LIGHTING IS PROVIDED BY LIGHT EMITTING DIODES (LED) IN THE HAND TEL SET WHICH IS POWERED BY CO BATTERY OVER THE INCOMING LINE.
2. WIRED FOR INDIVIDUAL OR BRIDGED RINGING. FOR ALL CLASSES OF SERVICE REFER TO TABLE D.
3. FOR CONNECTING BLOCK INFORMATION REFER TO APPROPRIATE TABLE.
4. 231B ADAPTER NOT REQUIRED ON AC2, AC2P, OR AD3 BASES.

5. REFER TO READ IN 1.01 AND TABLE A FOR ADDITIONAL INFORMATION ON WIRING ARRANGEMENT AND LEAD COLORS OF AC1 AND AD1 BASES MANUFACTURED PRIOR TO 10-1-72.
 6. INSIDE WIRE CONDUCTOR SHALL BE CONNECTED TO THE GROUND TERMINAL AT THE PROTECTOR OR EQUIVALENT ONLY IF REQUIRED FOR THE SERVICE BEING INSTALLED.
 7. (W) LEAD PROVIDED IN AC1(MD), AC2(MD), AC1P, AD1(MD), AND AD2 BASES ONLY.
- † AD1 BASE ONLY
‡ INSULATE AND STORE ON AD1 ONLY

Fig. 29—AC1 (MD), AC2 (MD), AC1P, AC2P, AD1 (MD), AD2, or AD3 Telephone Base, Connections With 220C, 220AL, 226A, 2220C, or 2226A Hand Telephone Set Wired For Individual or Bridged Ringing

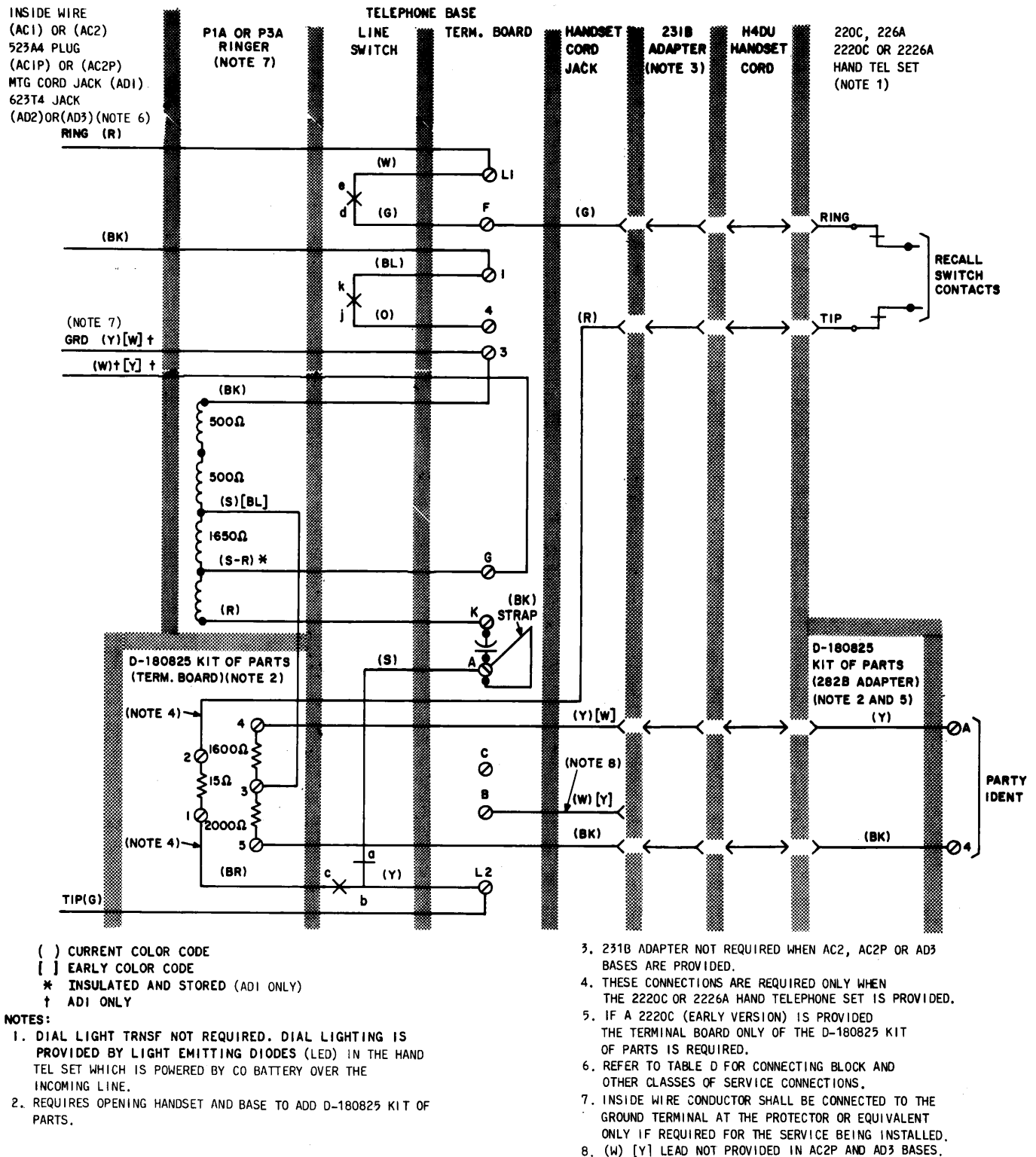
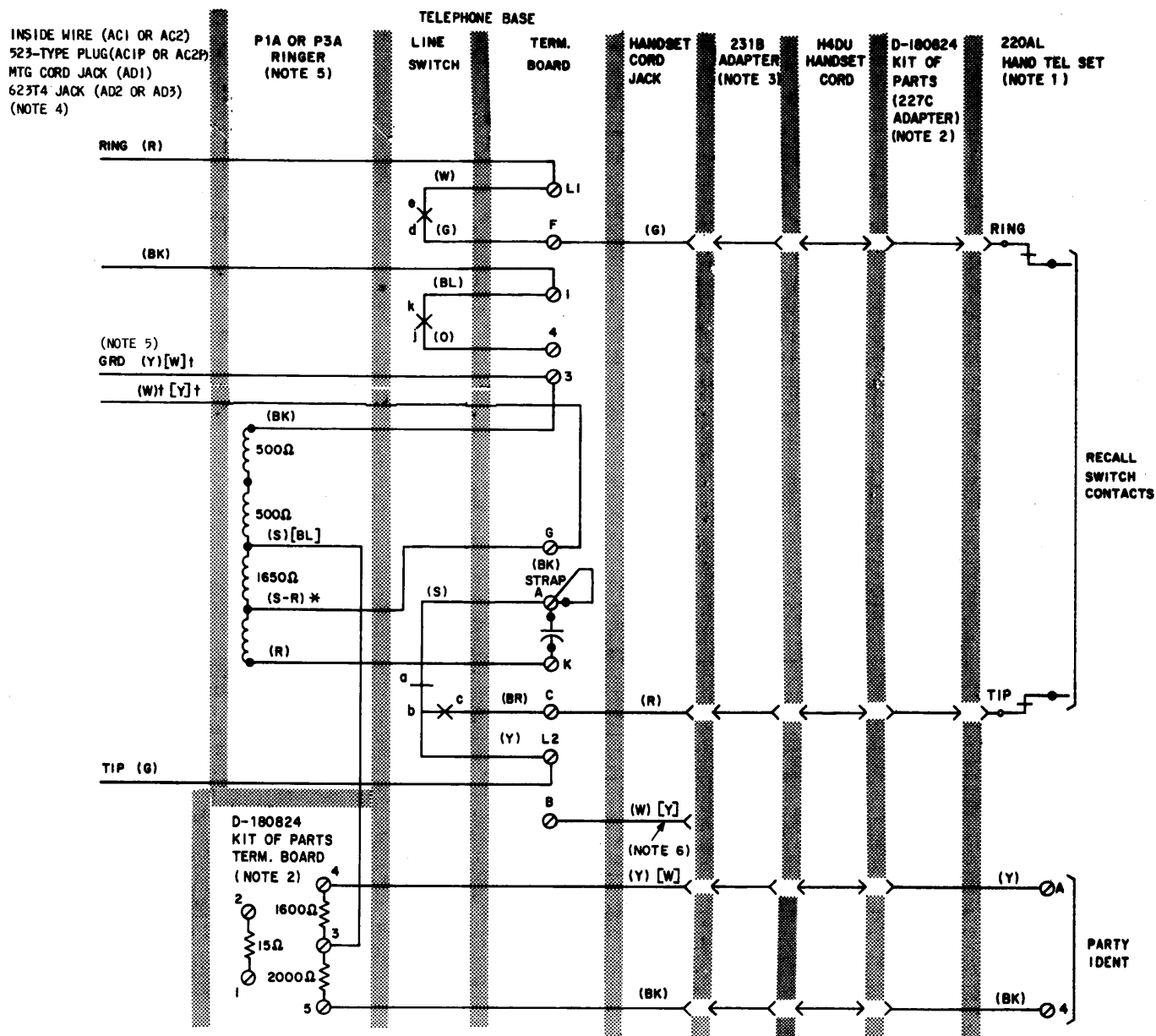


Fig. 30— AC1 (MD), AC2 (MD), AC1P, AC2P, AD1 (MD), AD2, or AD3 Telephone Base With 220C, 226A, 2220C, or 2226A Hand Telephone Set and D-180825 Kit of Parts (Tip Party Identification)



() CURRENT COLOR CODE
[] EARLY COLOR CODE
* INSULATED AND STORED (AD1 ONLY)
† AD1 BASE ONLY

NOTES:

1. DIAL LIGHT TRNSF NOT REQUIRED. DIAL LIGHTING IS PROVIDED BY LIGHT EMITTING DIODES (LED) IN THE HAND TEL SET WHICH IS POWERED BY C O BATTERY OVER THE INCOMING LINE.
2. REQUIRES OPENING HANDSET AND BASE TO ADD D-180824 KIT OF PARTS.

3. 231B ADAPTER NOT REQUIRED WHEN AC2, AC2P OR AD3 BASES ARE PROVIDED.
4. REFER TO TABLE D FOR CONNECTING BLOCK AND OTHER CLASSES OF SERVICE CONNECTIONS.
5. INSIDE WIRE CONDUCTOR SHALL BE CONNECTED TO THE GROUND TERMINAL AT THE PROTECTOR OR EQUIVALENT ONLY IF REQUIRED FOR THE SERVICE BEING INSTALLED.
6. (W) [Y] LEAD NOT PROVIDED IN AC2P AND AD3 BASES.

Fig. 31 — AC1 (MD), AC2 (MD), AC1P, AC2P, AD1 (MD), AD2, or AD3 Telephone Base With 220AL Hand Telephone Set and D-180824 Kit of Parts (Tip Party Identification)

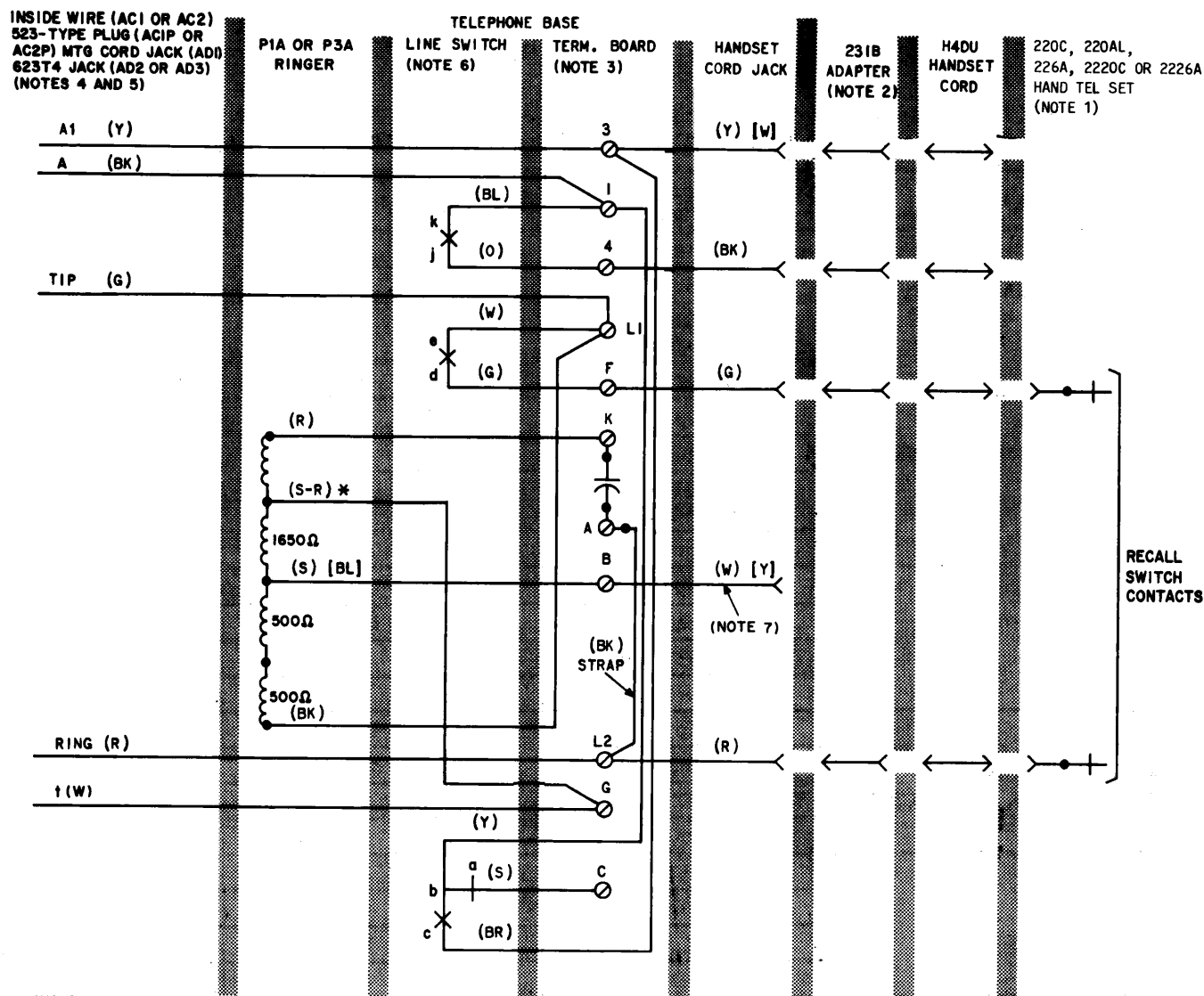


Fig. 32— AC1 (MD), AC2 (MD), AC1P, AC2P, AD1 (MD), AD2, or AD3 Telephone Base Connections, Wired For 1A1, 1A2, 6A, or 6B KTS With 220C, 220AL, 226A, 2220C, or 2226A Hand Telephone Set

TABLE E

**CONNECTIONS FOR 4-PARTY FULL SELECTIVE OR 8-PARTY SEMISELECTIVE RINGING USING
D-180697 KIT OF PARTS (SEE READ IN PARAGRAPH 1.01)**

WIRE OR LEAD		LEAD DESIG	COLOR	—RING	—TIP	+RING	+TIP
Inside Wire at 42A or 625-Type Conn Blk (AD1, AD2, AD3)		Tip	G	G	G	G	G
		Ring	R	R	R	R	R
		STA GRD and/or TRNSF	Y	Y	Y	Y	Y
		TRNSF or Spare	BK	B	B	B	B
Inside Wire at 630A Conn Blk (AC1P, AC2P)		Tip	G	1	1	1	1
		Ring	R	2	2	2	2
		STA GRD and/or TRNSF	Y	3	3	3	3
		TRNSF or Spare	BK	4	4	4	4
Inside Wire at Term. Board (AC1, AC2)		Tip	G	L1	L1	L1	L1
		Ring	R	L2	L2	L2	L2
		TRNSF or STA GRD	Y [W]	3	3	3	3
		TRNSF or Spare	BK	1	1	1	1
Mtg Cord Jack or 523-Type Plug Leads at Term. Board (AD1, AD2, AD3, AC1P, AC2P)		Tip	G	L1	L1	L1	L1
		Ring	R	L2	L2	L2	L2
		TRNSF or STA GRD	Y [W]	3	3	3	3
		TRNSF or Spare	BK	1	1	1	1
Ringer			R	3	3	L2	L1
			BK	K	K	K	K
			S	B	B	B	B
			S-R	G	G	G	G
D-180697 Kit of Parts	426N Diode (MD)	†		L2	L1	3	3
		‡		G	G	G	G
	813BH Diode	Unstriped End		L2	L1	3	3
		Striped End		G	G	G	G
Strap From A			BK	3	3	L2	L1
Line Switch			S	*	*	*	*

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

[] early model bases (Dated prior to 10-1-72)

* Insulate and store.

† Lead on Flanged (Gold) base end.

‡ Lead on Knob end (housing tip).

TABLE F
CONVERSION FOR 1A1, 1A2, 6A, AND 6B
KTS WITHOUT DIAL LIGHT USING 220A,
220AM, 2220B, 2220BM, OR 2220BMG HAND
TELEPHONE SET (FIG. 33) (SEE READ IN
PARAGRAPH 1.01)

WIRE OR LEAD	COLOR	TERMINAL BOARD	
		REMOVE FROM	CONNECT TO
Line Switch	BR	C	3
	S	A	C
	Y	L2	1
Hand Tel Set Cord Jack in Base	R	C	L2
	Y	3	*
	BK	4	*

* Insulate and store.

TABLE G
CONVERSION OF AD2 OR AD3 BASES FOR 1A1, 1A2, 6A, OR 6B KTS
WITH DIAL LIGHT USING 220A, 220AM, 2220B, 2220BM, OR 2220BMG
HAND TELEPHONE SET (FIG. 34) (SEE READ IN PARAGRAPH 1.01)

WIRE OR LEAD	LEAD DESIG	COLOR	74D CONN BLK TERM. BD	BASE TERM. BOARD	
				REMOVE FROM	CONNECT TO
Inside Wire at 74D Conn Blk	Tip		1		
	Ring		2		
	TRNSF		3		
	TRNSF		4		
	A		6		
	A1		5		
623T6 Jack (Note)		R			L2
		G			L1
		Y			3
		BK			1
		BL			B
		W			G
Line Switch	A1	BR		C	B
	A	Y		L2	G
		S		A	C
Ringer		S		B	*
		S-R		G	*
Strap		BK		A	L2
Handset Cord Jack in Base		R		C	L2
		W		B	†

Note: The 623T6 jack and D6AM mounting cord must be ordered separately.

* Insulate and store.

† Insulate and store (AD2 only).

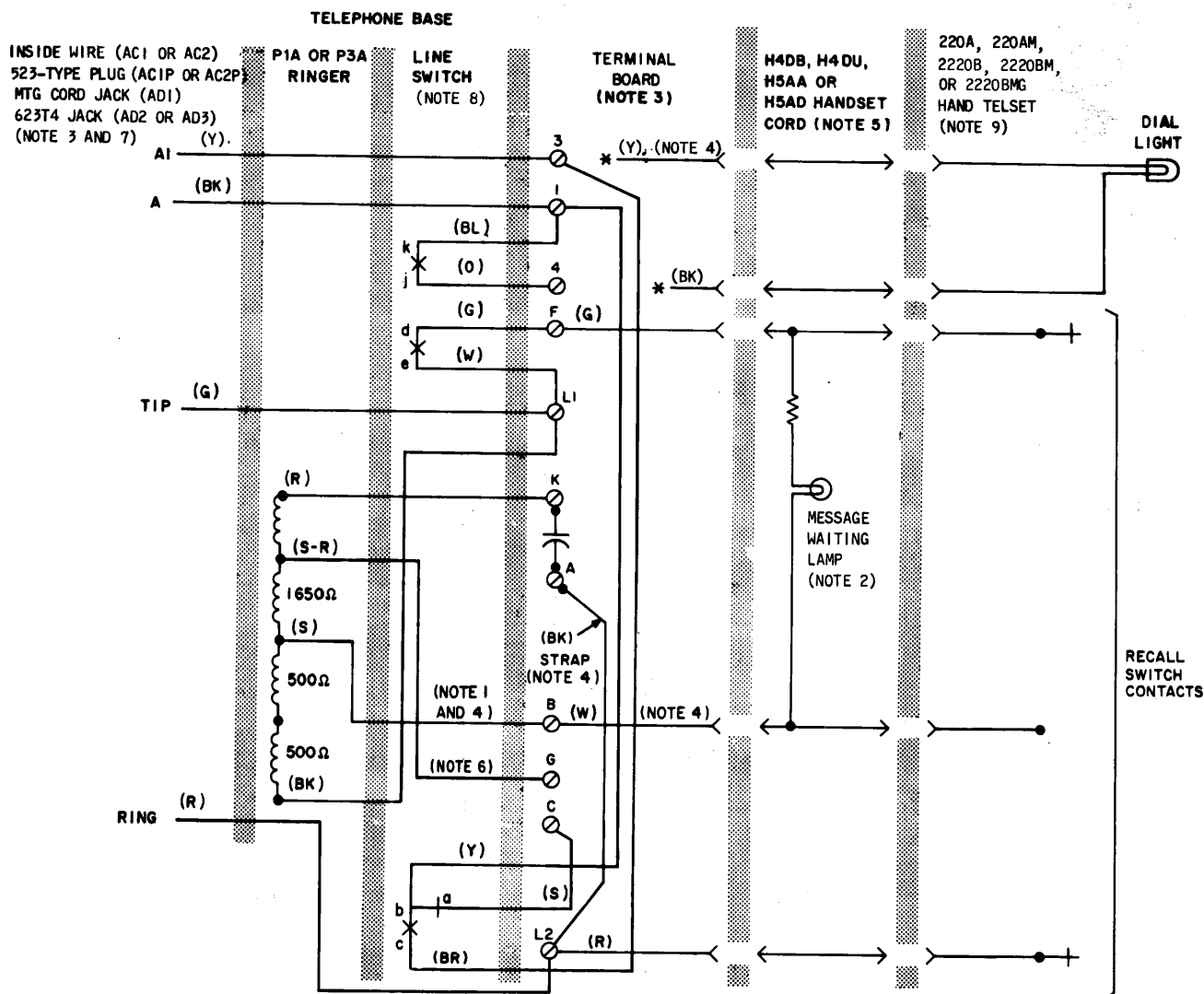
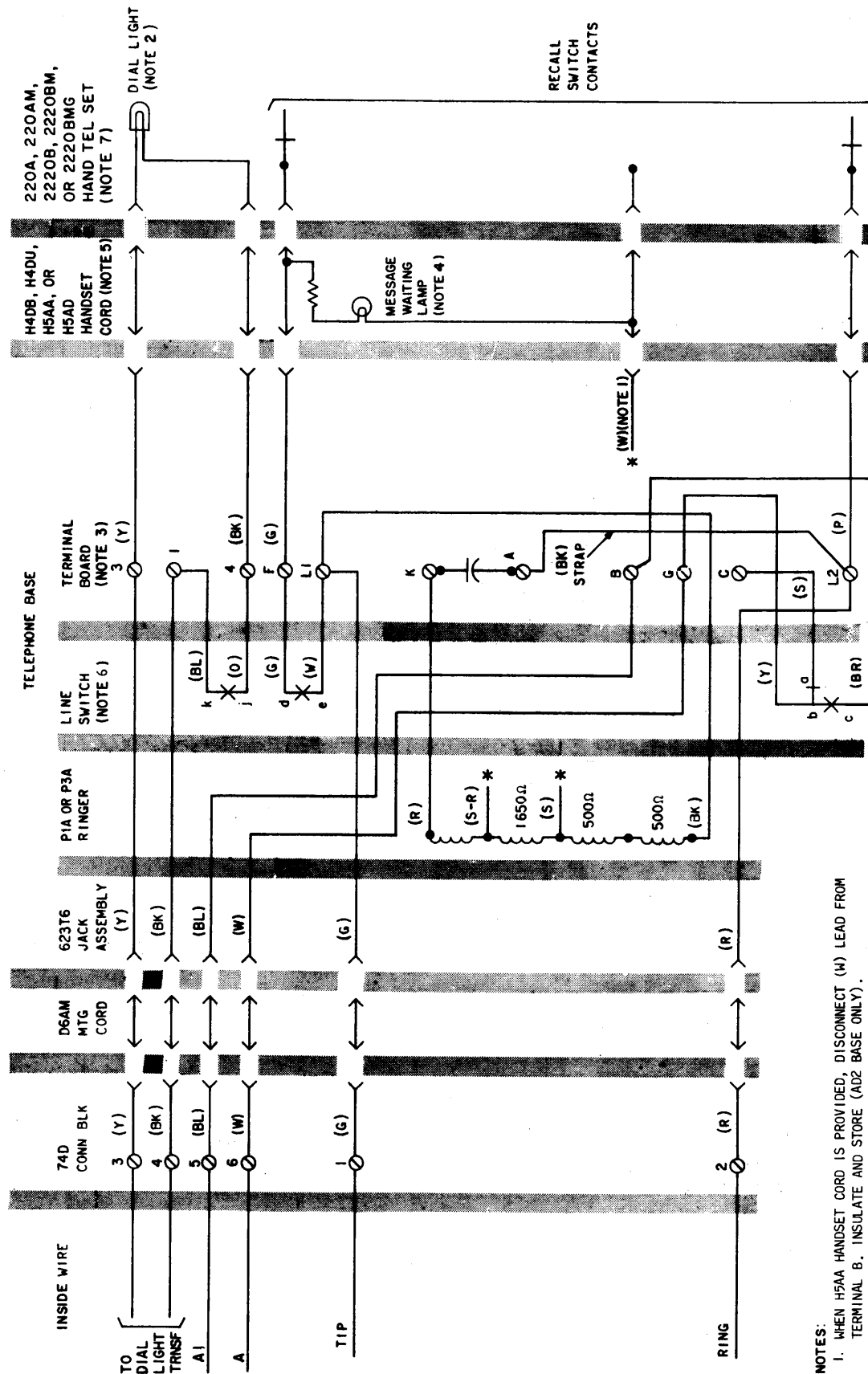


Fig. 33—AC1 (MD), AC2 (MD), AC1P, AC2P, AD1 (MD), AD2, or AD3 Telephone Base Wired For 1A1, 1A2, 6A, or 6B KTS Without Dial Light Using 220A (MD), 220AM, 2220B (MD), 2220BM, or 2220BMG Hand Telephone Set



NOTES:

1. WHEN H5AA HANDSET CORD IS PROVIDED, DISCONNECT (W) LEAD FROM TERMINAL B. INSULATE AND STORE (AD2 BASE ONLY).
2. CHANGE TO 53A LAMP IF COMBINED LENGTH OF HAND TELEPHONE SET CORD AND BASE MOUNTING CORD EXCEEDS 15 FEET.
3. FACTORY-WIRED FOR INDIVIDUAL OR BRIDGED RINGING. FOR KTS SERVICE REFER TO TABLE G.
4. LAMP AND RESISTOR ARE PART OF H5AD HANDSET CORD REQUIRED FOR MESSAGE WAITING FEATURE ON AD2 BASE ONLY.
5. WHEN H4DU CORD IS PROVIDED A 227D AND 231B ADAPTER IS REQUIRED ON AD2 BUT 227D ADAPTER ONLY IS REQUIRED ON AD3.

6. TO PREVENT FALSE HOLD CONDITION WHEN GOING ON-HOOK, THE TIP AND RING CONTACTS OF THE LINE SWITCH MUST BREAK BEFORE "A" LEAD CONTACTS. (FIELD ADJUSTMENT OF LINE SWITCH IS NOT RECOMMENDED.)
7. 220AM, 2220BM, AND 2220BGM ARE EQUIPPED FOR H4DU HANDSET CORD. * INSULATED AND STORED.

Fig. 34—AD2 or AD3 Telephone Base Wired For 1A1, 1A2, 6A, or 6B KTS With Dial Light Using 220A (MD), 220AM, 2220B (MD), 2220BM, or 2220BGM Hand Telephone Set

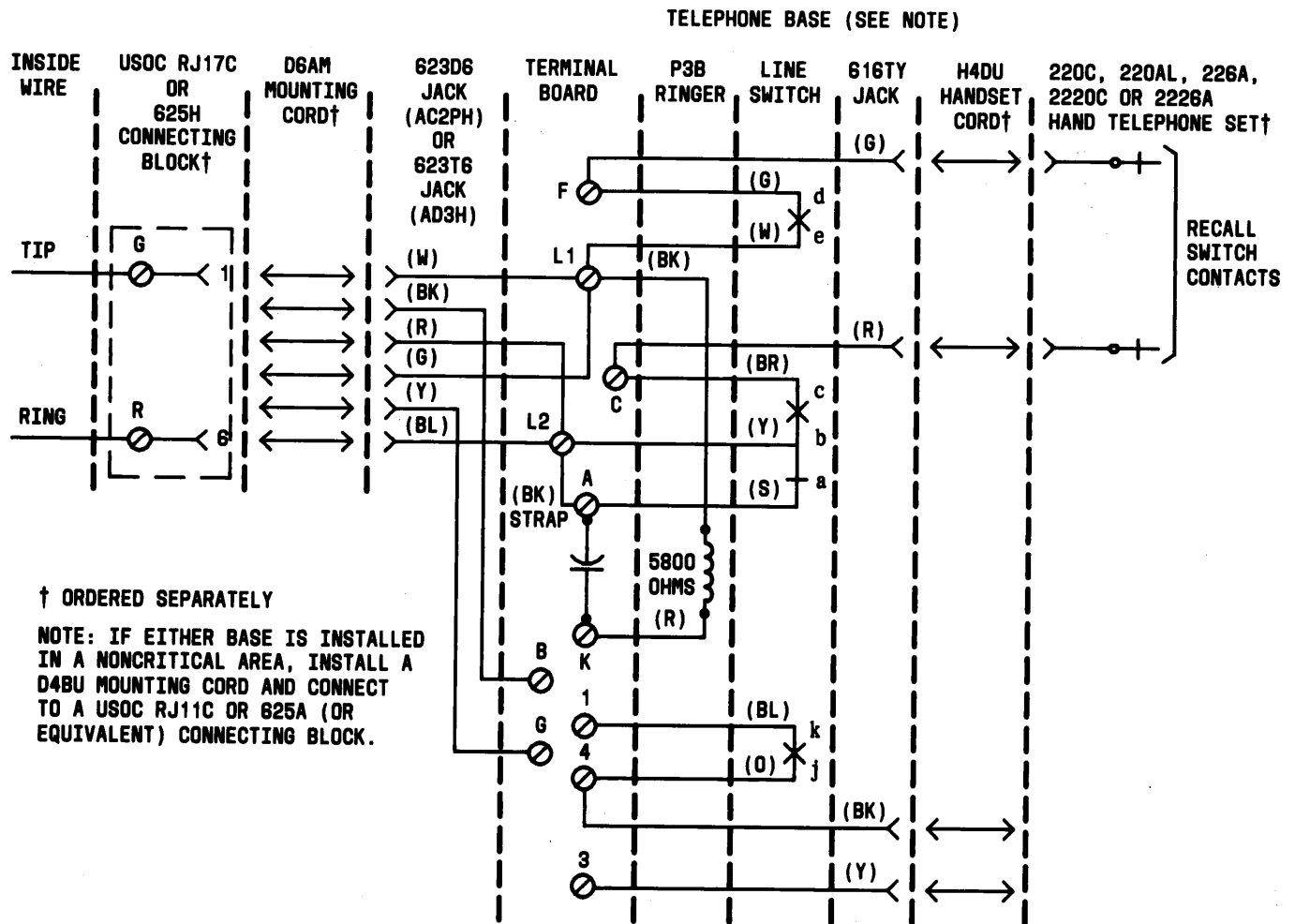


Fig. 35—AC2PH or AD3H Telephone Base Connections With 220C, 220AL, 226A, 2220C, or 2226A Hand Telephone Set

TABLE H

CONVERSION FOR 1A1, 1A2, 6A, AND 6B KTS
USING 220C, 220AL, 226A, 2220C,
OR 2226A HAND TELEPHONE SET (FIG. 32)
(SEE READ IN PARAGRAPH 1.01)

WIRE OR LEAD	COLOR	TERMINAL BOARD	
		REMOVE FROM	CONNECT TO
Line Switch	BR	C	3
	S	A	C
	Y	L2	1
Handset Cord Jack in Base	R	C	L2

TABLE I

CONNECTIONS FOR MESSAGE WAITING
LAMP AND DIAL LIGHT FEATURES FOR
NONKEY SYSTEM APPLICATION
(220A AND 2220B ONLY)
(SEE READ IN PARAGRAPH 1.01)

WIRE OR LEAD	COLOR	TERMINAL BOARD	
		REMOVE FROM	CONNECT TO
Handset Cord Jack Leads (Note)	G	F	L1
	W	B	L2

Note: Install H5AD handset cord in AC1, AC1P, AD1, or AD2 only.

TABLE J

CONVERSION FOR DATA APPLICATIONS FOR
220A, 220AM, 2220B, 2220BM, OR 2220BMG
HAND TELEPHONE SETS
(SEE READ IN PARAGRAPH 1.01)

WIRE OR LEAD	COLOR	TERMINAL BOARD	
		REMOVE FROM	CONNECT TO
Handset Cord Jack Leads	Y	3	*
	BK	4	*

* Insulate and store.

TABLE K

IDENTIFICATION OF "TRIMLINE" TELEPHONE COMPONENTS AND ASSOCIATED APPARATUS (Note 1)

HAND TEL SET CODE	METHOD OF IDENT	TEL BASE CODE	WALL JACK OR MTG CORD CODE	HANDSET CORD CODE	BASE HANDSET JACK ADAPTER CODE	HAND TEL SET JACK ADAPTER CODE	METHOD OF PROVIDING TIP PARTY IDENT. GRD
220A or 2220B	Large Hand- set Cord Jack With Code Stenciled Inside on Shell	AC1, AC1P	630A (AC1P)	H4DB	None	None	H5AA Cord
		AD1	D5AL				
		AD2	D4BU				
		AC2, AC2P	630A (AC2P)	H4DU	231B (AD2)	227D	None (Note 3)
		AD2, AD3	D4BU				
220AM or 2220BM	227D Adapter in Handset Jack of a 220A or 2220B	AC1, AC1P	630A (AC1P)	H4DU	231B	227D†	(Note 4)
		AD1	D5AL				
		AD2	D4BU				
		AC2, AC2P	630A (AC2P)		None	227D†	None (Note 3)
		AD2, AD3	D4BU				
2220BMG	The Adapter for the Handset Cord is Stamped With a "G"	AC1, AC1P	630A (AC1P)	H4DU	None	None (Note 5)	None (Note 3)
		AD1	D5AL				
		AD2	D4BU				
		AC2, AC2P	630A (AC2P)				
		AD2, AD3	D4BU				
220AL	LED Printed Under Fingerstop. 227D Adap- ter in Handset Jack	AC1, AC1P	630A (AC1P)	H4DU	231B	227D*	D-180824 Kit of Parts
		AD1	D5AL				
		AD2	D4BU				
		AC2, AC2P	630A (AC2P)		231B (AD2)		None (Note 3)
		AD2, AD3	D4BU				
		AC2PH, AD3H	D6AM		None		
2220C (Early Version)	(4) Wire Springs in Handset Jack Square Buttons (2220C) (Mini- modular)	AC1, AC1P	630A (AC1P)	H4DU	231B	None	D-180825 Kit of Parts Note 2
		AD1	D5AL				
		AD2	D4BU				
		AC2, AC2P	630A (AC2P)		231B (AD2)		None (Note 3)
		AD2, AD3	D4BU				
		AC2PH, AD3H	D6AM		None		
220C, 226A, 2220C (Late Version) or 2226A	LED Printed under Finger- stop (220C and 226A) Square Buttons on Dial (2220C and 2226A) Mini- modular	AC1, AC1P	630A (AC1P)	H4DU	231B	None	D-180825 Kit of Parts Note 2
		AD1	D5AL				
		AD2	D4BU				
		AC2, AC2P	630A (AC2P)		231A (AD2)		None (Note 3)
		AD2, AD3	D4BU				
		AC2PH, AD3H	D6AM		None		

Note 1. All components and apparatus are ordered separately.

Note 2. The 2220C (early version) do not require the 282B adapter.

Note 3. This combination of components can not be wired for tip party identification.

Note 4. 227D and 231B adapters must be removed for tip party identification and H5AA handset cord provided.

Note 5. This adapter is part of polarity guard assembly.

* Factory installed.

† Field or service center installed.