

HAND TELEPHONE SETS 220-, 226-, 2220-, AND 2226-TYPE

1. GENERAL

1.01 This section contains identification, installation, connection, and maintenance information for the 220- and 2220-series hand telephone sets (Fig. 1, 2, and 3).

1.02 Whenever this section is reissued, the reason for reissue will be listed in this paragraph.

2. IDENTIFICATION

2.01 The 220A (MD), 220B (MD), 220C, 220AL, 220AM, and 226A rotary dial and 2220B (MD), 2220C, 2220BM, and 2226A TOUCH-TONE® dial hand telephone sets are intended for use with other components and apparatus to make up a complete telephone set. Refer to Table A for identification of associated apparatus.

2.02 These handsets are presently used with the TRIMLINE® telephone, Transaction, Elevator, and some DESIGN LINE* telephone sets.

2.03 They consist primarily of a plastic deck and shell, a dial, flexible printed wiring board (network), handset cord jack, transmitter, and receiver units.

2.04 The 220A and 2220B handsets are equipped with jacks which accept the large (maxi) plugs for the H4DB, H5AA, or H5AD handset cord. The 220B, 220C, 220AL, 220AM, 226A, 2220C, 2220BM, and 2226A handsets are equipped with jacks and/or adapters which accept the small (mini) plug for the H4DU (modular) handset cord (Fig. 4).

2.05 The 220A, 220AM, 2220B, and 2220BM handsets are equipped with a dial light which requires an external power source (2012A or C transformer) or equivalent 6-volt supply. The 220B, 220C, 220AL, 226A, 2220C, and 2226A handsets are equipped with light emitting diodes (LED) for dial illumination. Power to light these dials is supplied by CO battery over the incoming line and no local

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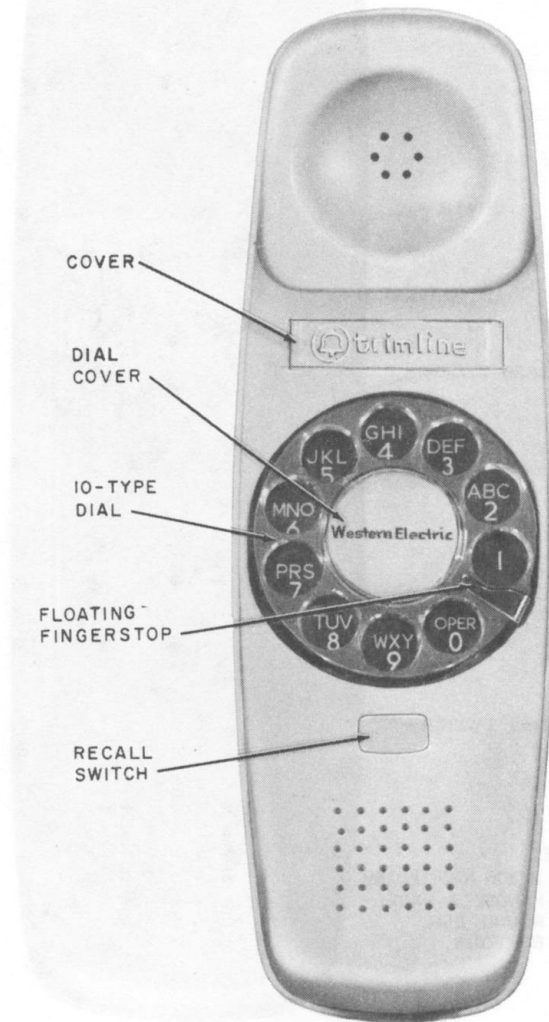
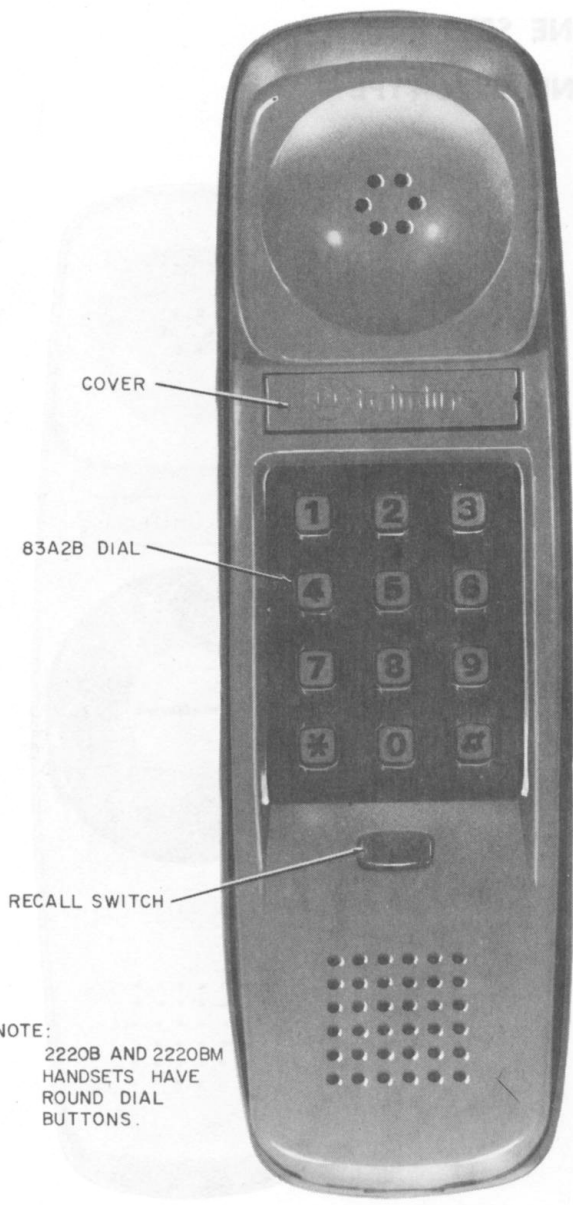


Fig. 1—220-Type Hand Telephone Set

220C, 220AL, 226A, 2220C, and 2226A handsets are equipped with light emitting diodes (LED) for dial illumination. Power to light these dials is supplied by CO battery over the incoming line and no local

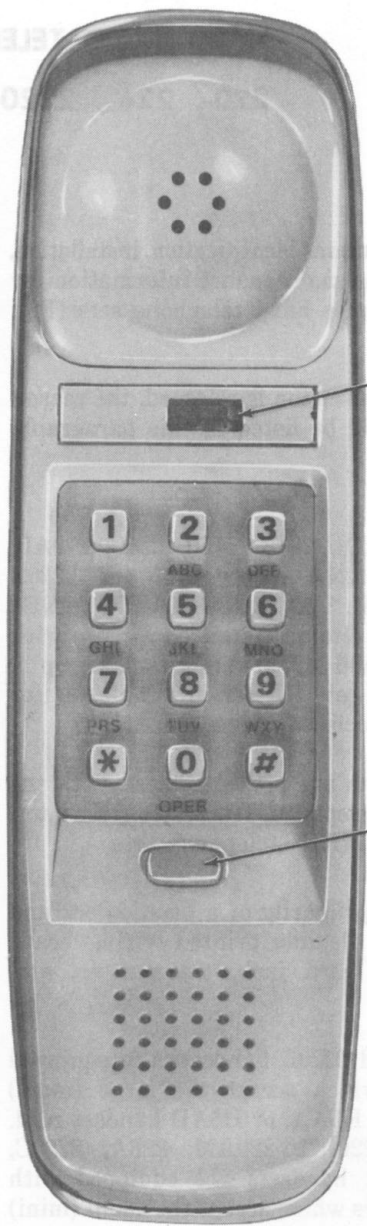
NOTICE

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



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

Fig. 2—2220C Hand Telephone Set



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

Fig. 3—2226A Hand Telephone Set

power is required. The 220C, 220AL, and 226A handsets are furnished from the factory stamped LED at location shown in Fig. 5. The LED equipped TOUCH-TONE dial handsets can be identified by the square dial buttons.

2.06 The 226A and 2226A handsets contain an amplifier which provides up to 20dB of receiver gain for customer's with impaired hearing.

2.07 When an LED-type hand telephone set is provided, instruct the customer that during the time a TOUCH-TONE 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.

2.08 For tip party with identifying ground when the LED-type hand telephone sets are

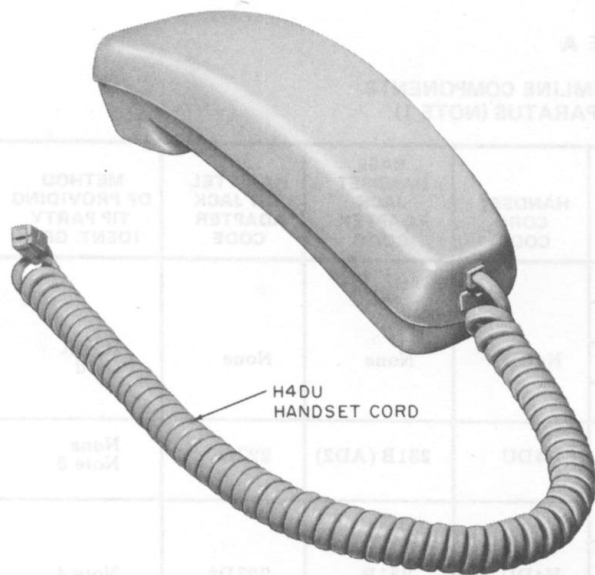


Fig. 4—H4DU Handset Cord Installed in Hand Telephone Set

provided, it will be necessary to open the handset and make connections as indicated in 3.04 and 3.05.

Ordering Guide

2.09 Basic Handsets:

- Set, Telephone, Hand 220C-†
- Set, Telephone, Hand 220AL-†
- Set, Telephone, Hand 220AM-†
- Set, Telephone, Hand 226A-† (for persons with impaired hearing)
- Set, Telephone, Hand 2220C-†
- Set, Telephone, Hand 2220BM-†
- Set, Telephone, Hand 2226A-† (for persons with impaired hearing).

2.10 Replaceable Components:

- Lamp, 51B or 53B (use 53A for replacement)

† Refer to Table B for color suffix.

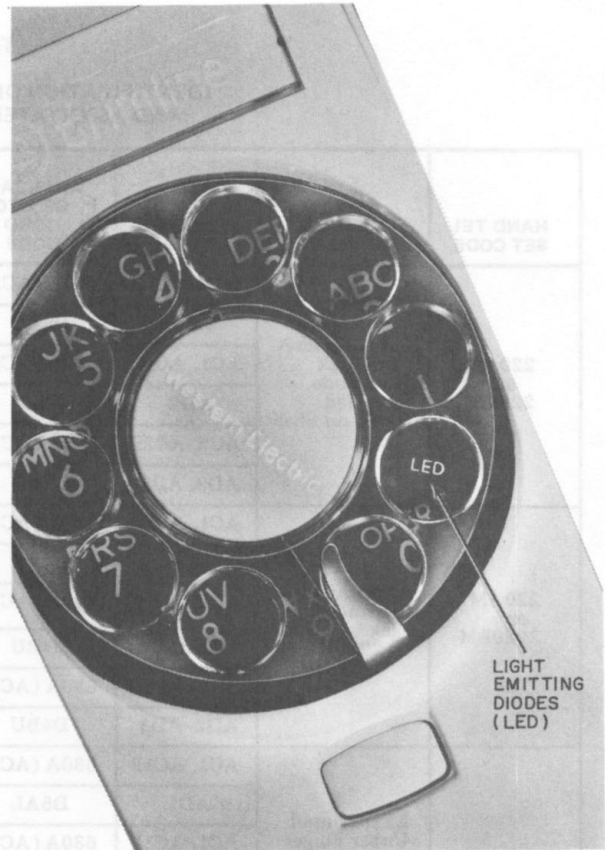


Fig. 5—220C, 220AL, and 226A Hand Telephone Set Identification Stamping (LED)

- Cover, Dial (Fig 1 and Table B)
 - Cover (Fig. 1 and Table B)
 - 812362382 (P-23F238) Light Seal Plate (220A, 220AM, 2220B, and 2220BM only)
 - Deck (220C and 2220C), Table B
 - Shell (220C and 2220C), Table B
 - Amplifier, 315A (226A only)
 - Amplifier, 315B (2226A only)
 - Unit, Transmitter, T1 ‡
 - Unit, Receiver, LB-Type ‡
- ‡ 220B, 220C, 226A, 2220C, and 2226A only.

TABLE A
IDENTIFICATION OF TRIMLINE 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 Handset Cord Jack With Code Stenciled Inside on Shell	AC1, AC1P	630A (AC1P)	H4DB	None	None	H5AA Cord			
		AD1	D5AL							
		AC1, AC1P	630A (AC1P)	H4DU				231B (AD2)	227D	None Note 3
		AD2	D4BU							
		AC2, AC2P	630A (AC2P)							
AD2, AD3	D4BU									
220AM or 2220BM	227D Adapter in Handset Jack of a 220A or 2220B	AC1, AC1P	630A (AC1P)	H4DU	None	227D†	Note 4			
		AD1	D5AL							
		AC1, AC1P	630A (AC1P)	H4DU				None	227D†	None Note 3
		AD2	D4BU							
		AC2, AC2P	630A (AC2P)							
AD2, AD3	D4BU									
220AL	LED Printed Under Finger-stop. 227D Adapter in Handset Jack	AC1, AC1P	630A (AC1P)	H4DU	231B	227D*	D-180824 Kit of Parts			
		AD1	D5AL							
		AC1, AC1P	630A (AC1P)	H4DU				231B (AD2)	None	D-180825 Kit of Parts Note 2
		AD2	D4BU							
		AC2, AC2P	630A (AC2P)							
AD2, AD3	D4BU									
220B or 2220C (Early Version)	(4) Wire Springs in Handset Jack. Square Buttons (2220C) (Minimodular)	AC1, AC1P	630A (AC1P)	H4DU	231B	None	D-180825 Kit of Parts Note 2			
		AD1	D5AL							
		AC1, AC1P	630A (AC1P)	H4DU				231B (AD2)	None	D-180825 Kit of Parts Note 2
		AD2	D4BU							
		AC2, AC2P	630A (AC2P)							
AD2, AD3	D4BU									
220C, 226A, 2220C (Late Version) or 2226A	LED Printed under Finger-stop (220C and 226A) Square Buttons on Dial (2220C and 2226A) (Minimodular)	AC1, AC1P	630A (AC1P)	H4DU	231B	None	D-180825 Kit of Parts Note 2			
		AD1	D5AL							
		AC1, AC1P	630A (AC1P)	H4DU				231A (AD2)	None	D-180825 Kit of Parts Note 2
		AD2	D4BU							
		AC2, AC2P	630A (AC2P)							
AD2, AD3	D4BU									

* Factory installed.

† Field or service center installed.

- Notes: 1. All TRIMLINE components and apparatus are ordered separately.
2. The 220B and 2220C (early version) do not require the 2B2A adapter.
3. This combination of components can not be wired for tip party identification.
4. 227D adapter must be removed for tip party identification.

TABLE B
COLOR SELECTION

COLOR	SUFFIX	COVER 220A, 220B, 220C, 220AL, 220AM, 226A, 2220B, 2220C, 2220BM, 2226A	DIAL COVER 220A, 220B, 220C, 220AL, 220AM, 226A	DECK 220C, 226A (SEE NOTE)	DECK 2220C, 2226A (SEE NOTE)	SHELL 220C, 226A (SEE NOTE)	SHELL 2220C, 2226A (SEE NOTE)
Black	-03	840431035	818850034 (P-88E003)	841375504	841356751	841375256	841356504
Ivory	-50	840431506	818850505 (P-88E050)	841375520	841356777	841375272	841356520
Green	-51	840431514	818850513 (P-88E051)	841375538	841356785	841375280	841356538
Red	-53	840431530	818850539 (P-88E053)	841375546	841356793	841375298	841356546
Yellow	-56	840431563	818850562 (P-88E056)	841375553	841356801	841375306	841356553
White	-58	840431589	818850588 (P-88E058)	841375561	841356819	841375314	841356561
Lt. Beige	-60	840431605	818850604 (P-88E060)	841375579	841356827	841375322	841356579
Aqua Blue	-62	840431621	818850620 (P-88E062)	841375582	841356835	841375330	841356587

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

- Adapter, 227D-29 (220AL, 220AM, and 2220BM only).

2.11 *Optional Apparatus (ordered separately):*

- D-180719 Kit of Parts (220C, 226A, 2220C, and 2226A only) provides inductive hearing aid pickup
- D-180824 Kit of Parts (220AL only) tip party identification
- D-180825 Kit of Parts (220C, 226A, 2220C, and 2226A only) tip party identification
- D-180788 Kit of Parts (2220B and 2220BM only) polarity guard, install in associated telephone base.

2.12 *Design Features:*

- Dial located in handset (rotary or TOUCH-TONE dial)
- Illuminated dial
- Plug-ended handset cord
- Equipped with a recall switch to make repeated calls without hanging up handset
- Polarity Guard (factory provided, 2220C and 2226A only).

3. **INSTALLATION**

- 3.01** The plastic deck and shell of these handsets are held together by two screws located under the cover above the dial (Fig. 6.)

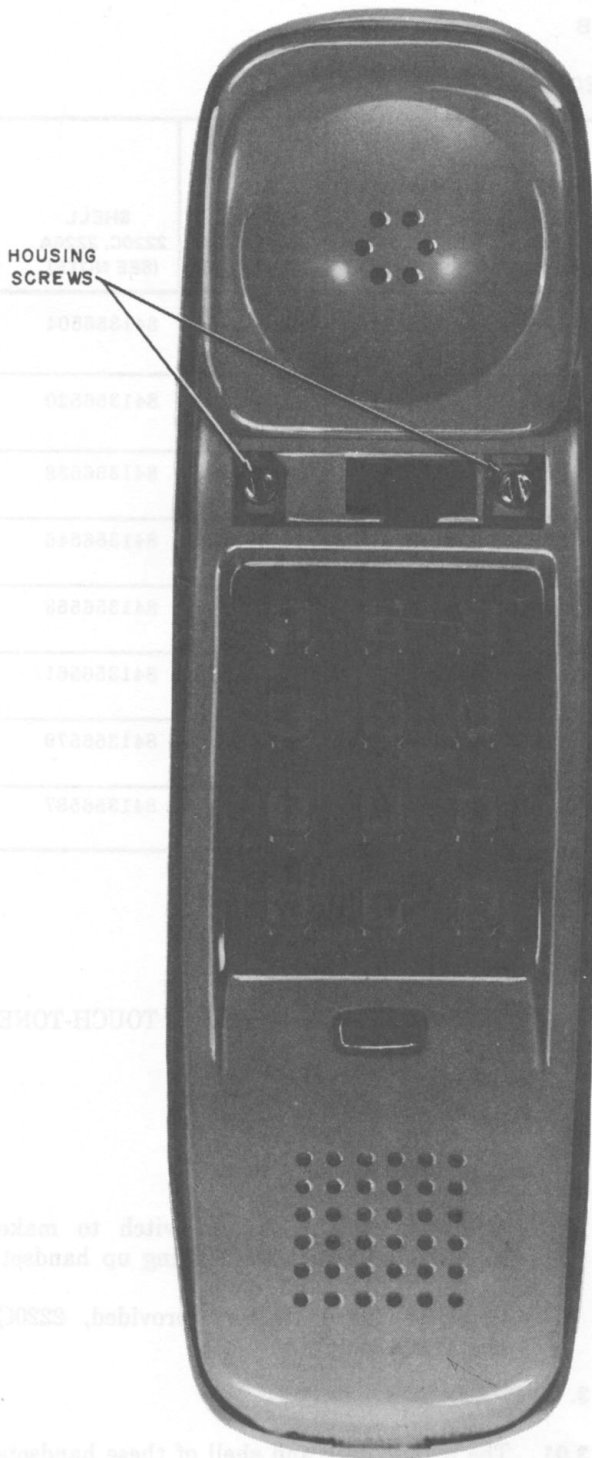


Fig. 6—Location of Housing Screws

3.02 Removal of Hand Telephone Set Cover (Shell).

- (1) Use a KS-21107L1 tool or equivalent to remove the cover located above the dial.



Be careful not to insert tip of the releaser too deep or mar the handset housing. Under no circumstances should a screwdriver be used.

- (2) Carefully back out the two exposed screws with a 3/16-inch blade screwdriver.
- (3) Remove handset cover (shell).
- (4) The chassis can be removed from the deck on the 220C, 226A, 2220C, and 2226A handsets by removing four (4) mounting screws (Fig. 7).



Fig. 7—2220C Hand Telephone Set With Chassis Assembly Removed from Deck

3.03 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.

Tip Party Identification (D-Kits of Parts)

D-180824 (220AL)

3.04 If tip party identification is required, install a D-180824 Kit of Parts in the 220AL hand telephone set as follows.

- (1) Remove shell from handset, 3.01 and 3.02
- (2) Remove the existing 227D adapter from the handset cord jack by grasping adapter on both sides and pulling outwards.
- (3) Install the 227C adapter from the kit of parts into the handset cord jack (Fig. 8).
- (4) Connect the (Y) and (BK) spade-tipped leads to terminals A and 4, respectively, of the network (Fig. 8).
- (5) The 840362776 terminal board, furnished in the kit, mounts in the associated telephone base, refer to Section 502-303-101 or 502-322-400 for installation and connection information.
- (6) Using reverse procedure install shell back on the handset.

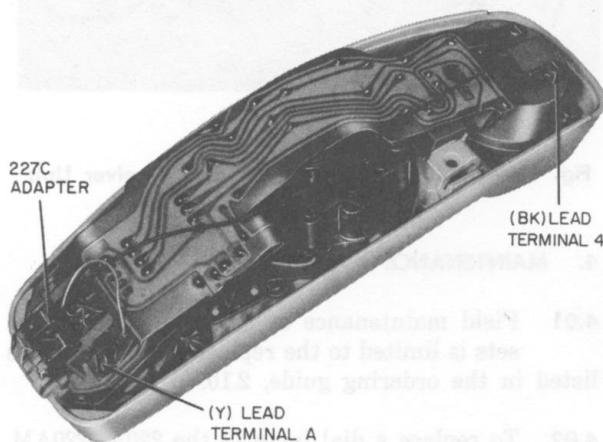


Fig. 8—D-180824 Kit of Parts Installed in 220AL Hand Telephone Set

D-180825 (220B, 220C, 226A, 2220C, and 2226A)

3.05 Install D-180825 Kit of Parts in 220C, 226A, 2226A, and later version 2220C hand telephone set as follows.

- (1) Remove shell from handset, 3.01 and 3.02.
- (2) Install the 282A adapter onto the existing handset cord jack by positioning the adapter on the handset cord jack body as shown in Fig. 9. 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. 9).
- (3) Connect the (Y) and (BK) spade-tipped leads of the adapter to terminals A and 4, respectively, of the network.

Note: The 282A adapter is not required in 220B and early version 2220C handsets since the handset cord jacks are equipped with (W) or (Y) and (BK) spade-tipped leads which should be removed from their stored locations and connected to terminals A and B or 4, respectively.

- (4) The 840362776 terminal board, furnished in the kit, mounts in the associated telephone base, refer to Section 502-303-101 or 502-322-400 for installation and connection information.
- (5) Using reverse procedure install shell back on the handset.

Inductive Hearing Aid Pickup (D-180719 Kit of Parts)

3.06 For customer's with telephone pickup type hearing aids, a D-180719 Kit of Parts may be installed in the 220C, 226A, 2220C, and 2226A handsets as follows.

- (1) Remove the shell and deck from the molded plastic chassis assembly (3.01, 3.02, and Fig. 7).
- (2) Twist and lift off the receiver unit, receiver retainer, and receiver grommet from the receiver cup on the chassis assembly.

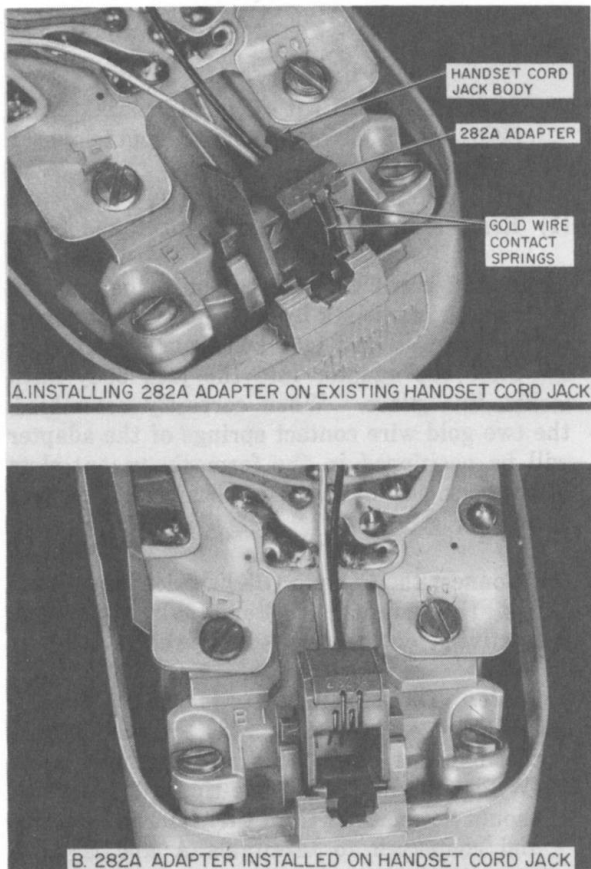


Fig. 9—D-180825 Kit of Parts Installed in 220C, 226A, 2220C, or 2226A Hand Telephone Set

- (3) Remove the receiver retainer and grommet from the receiver unit and **discard only the retainer and grommet.**
- (4) From the kit of parts (Fig. 10) install the receiver grommet in the field coil assembly with the lip of the grommet protruding outside the assembly.
- (5) Place the receiver unit in the coil assembly (Fig. 11).
- (6) With the receiver unit in place in the coil assembly, install the gasket on top of the receiver unit (Fig. 12). Place complete assembly in the chassis assembly receiver cup.



In order to properly insert the receiver unit with the receiver coil into the receiver cup, hold handset in an upright vertical position with the varistor across the receiver unit at the top. Carefully place unit in the receiver cup and snap retainer to the chassis assembly receiver cup (Fig. 13).

- (7) Loosen the two (2) network receiver cup mounting screws (Fig. 14) on back side of the receiver cup. Terminate one (1) of the black (BK) coil leads under each screw (Fig. 15).
- (8) Reassemble the handset.
- (9) Install the card (Fig. 10) which identifies a coil equipped handset in location where the cover above the dial was removed. Place the (clear) card retainer over the card.

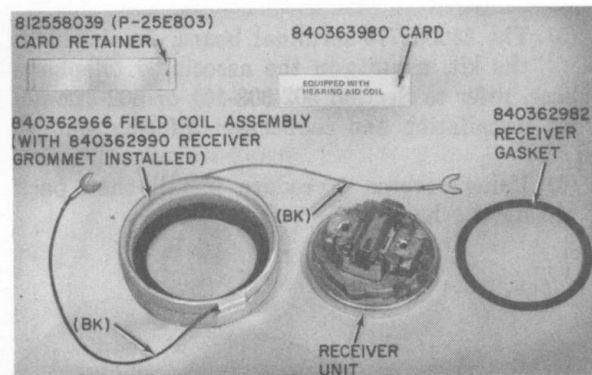


Fig. 10—D-180719 Kit of Parts and Receiver Unit

4. MAINTENANCE

- 4.01 Field maintenance of these hand telephone sets is limited to the replaceable components listed in the ordering guide, 2.10.
- 4.02 To replace a dial lamp in the 220A, 220AM, 2220B, or 2220BM hand telephone set, remove the cover (Fig. 1). A KS-6320 orange stick can be used to remove the lamp (Fig. 16). **Exercise caution to prevent the lamp from flying out of the socket in a dangerous manner.**

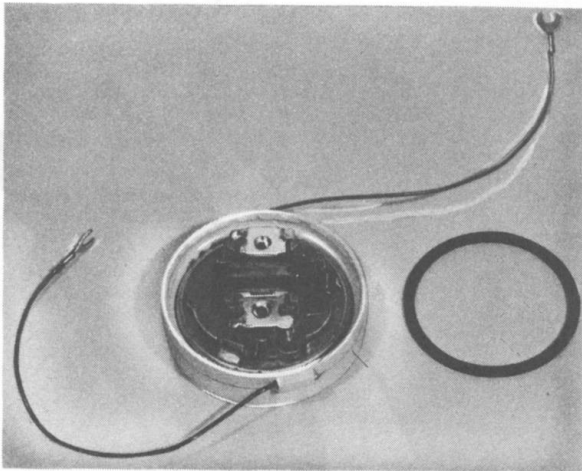


Fig. 11—Receiver Unit Installed in Coil Assembly

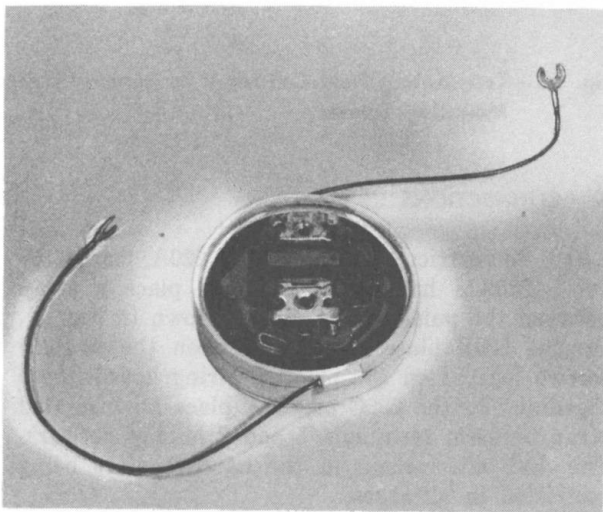


Fig. 12—Receiver Unit and Gasket Installed in Coil Assembly

In early production handsets use a 553A tool to remove the lamp from its vertical position (Fig. 17).

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

4.03 To replace the 315-type amplifier in 226A or 2226A handsets, proceed as follows.



Fig. 13—Field Coil Installed in Receiver Cup of Chassis Assembly

- (1) Remove shell from handset, 3.01 and 3.02.
- (2) Remove the network receiver cup mounting screw and the three (3) 315-type amplifier network connecting screws (Fig. 18). Carefully raise the flexible printed wiring board (network) and remove the amplifier receiver cup mounting screw (Fig. 19). Release the amplifier spring catch by depressing with a KS-21107L1 or equivalent releaser as shown in Fig. 20, and lift amplifier out.
- (3) Install replacement amplifier in reverse order used in removal and reassemble of handset.

4.04 To replace a transmitter or receiver unit in 220B, 220C, 226A, 2220C, or 2226A handset, proceed as follows.

- (1) Remove shell and chassis from handset 3.01, 3.02 and (Fig. 7).
- (2) Twist and lift off the transmitter and/or receiver unit, retainer, and grommet from the cup on the chassis.
- (3) Separate the defective unit from the grommet and retainer.
- (4) Install replacement unit in reverse order used in removal and reassemble of handset.

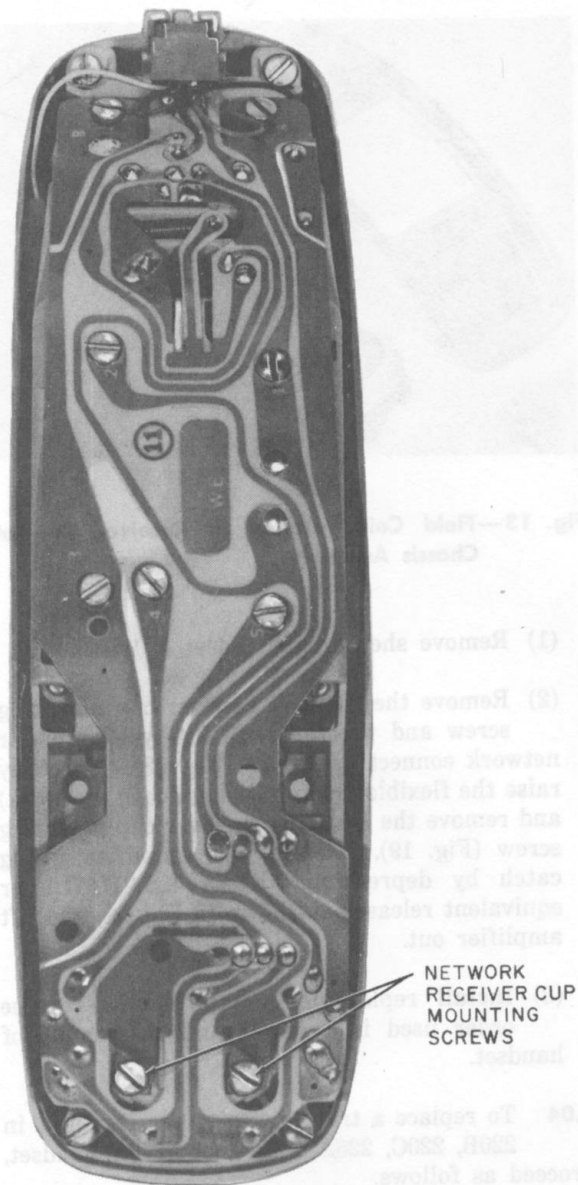


Fig. 14—2220C Hand Telephone Set Showing Location of Network Mounting Screws



In order to properly insert the receiver unit into the receiver cup, hold handset in an upright vertical position with the varistor across the receiver unit at the top. Carefully place unit in the receiver cup and snap retainer to the chassis assembly.



Fig. 15—Terminating Field Coil Leads to Receiver Cup Mounting Screws

5. CONNECTIONS

5.01 To restrict the dial on the 220A, 220AL, or 220AM hand telephone set, place a strap between the pulsing contacts as shown in Fig. 21. On the 220B place a strap between the two (2) screws located on the printed wiring board above the dial. In the 220C or 226A place an insulated strap between terminals 1 and 2 on the network. The dial will remain in the handset after being restricted in all cases.

5.02 For dial restriction of a TOUCH-TONE dial equipped hand telephone set without a polarity guard, reverse tip and ring in telephone base and leave dial in handset.

Note: Any handset with a polarity guard installed cannot be restricted.

5.03 Fig. 22 through 29 show internal connections for the 220-, 226-, and 2220-, and 2226-type hand telephone sets.

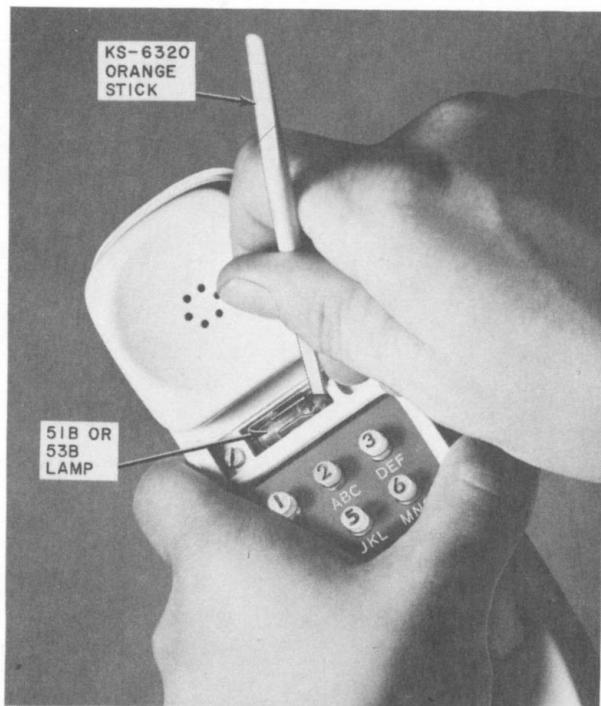


Fig. 16—Removing Dial Lamp from Hand Telephone Set

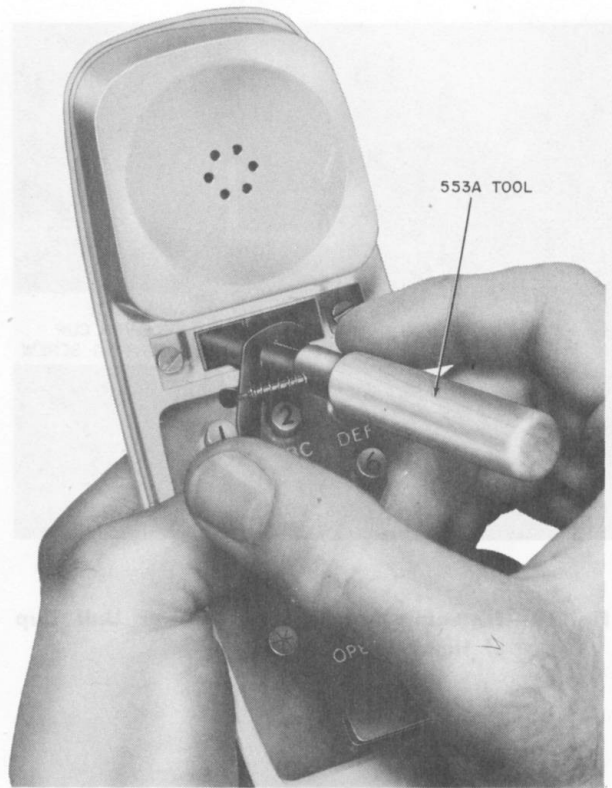


Fig. 17—Removing Dial Lamp Using 553A Tool

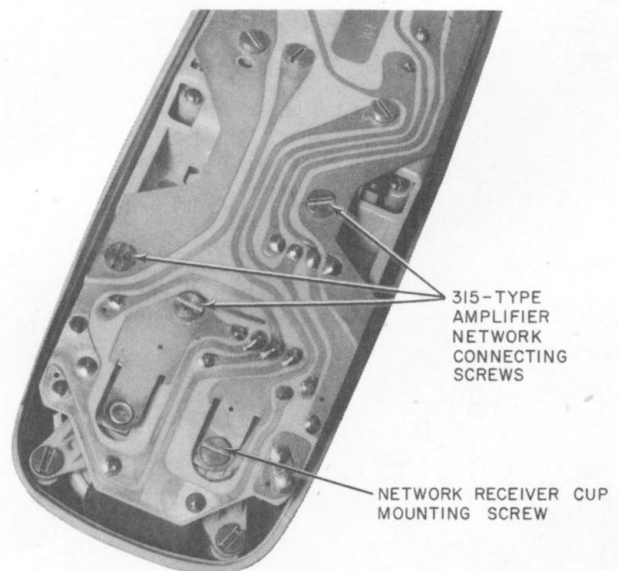


Fig. 18—Location of Mounting Screws Used to Connect Amplifier in Hand Telephone Set

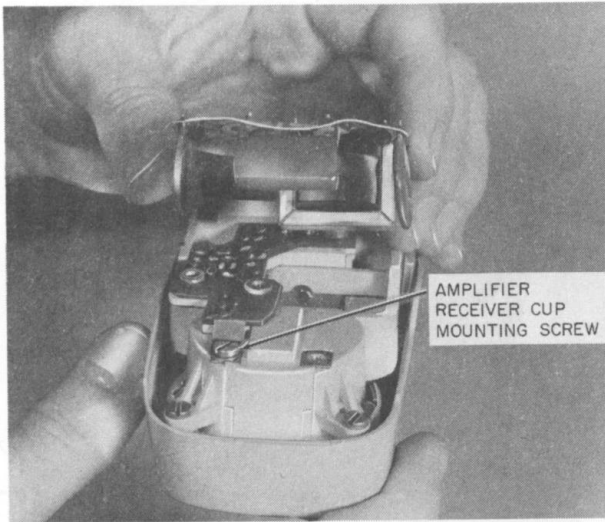


Fig. 19—Fastening Amplifier to Receiver Unit Cup of Hand Telephone Set



Fig. 18—Removing Dial Lamp from Hand Telephone Set

Fig. 17—Removing Dial Lamp Using 223A Tool



Fig. 16—Location of Mounting Screws Used to Contact Amplifier in Hand Telephone Set

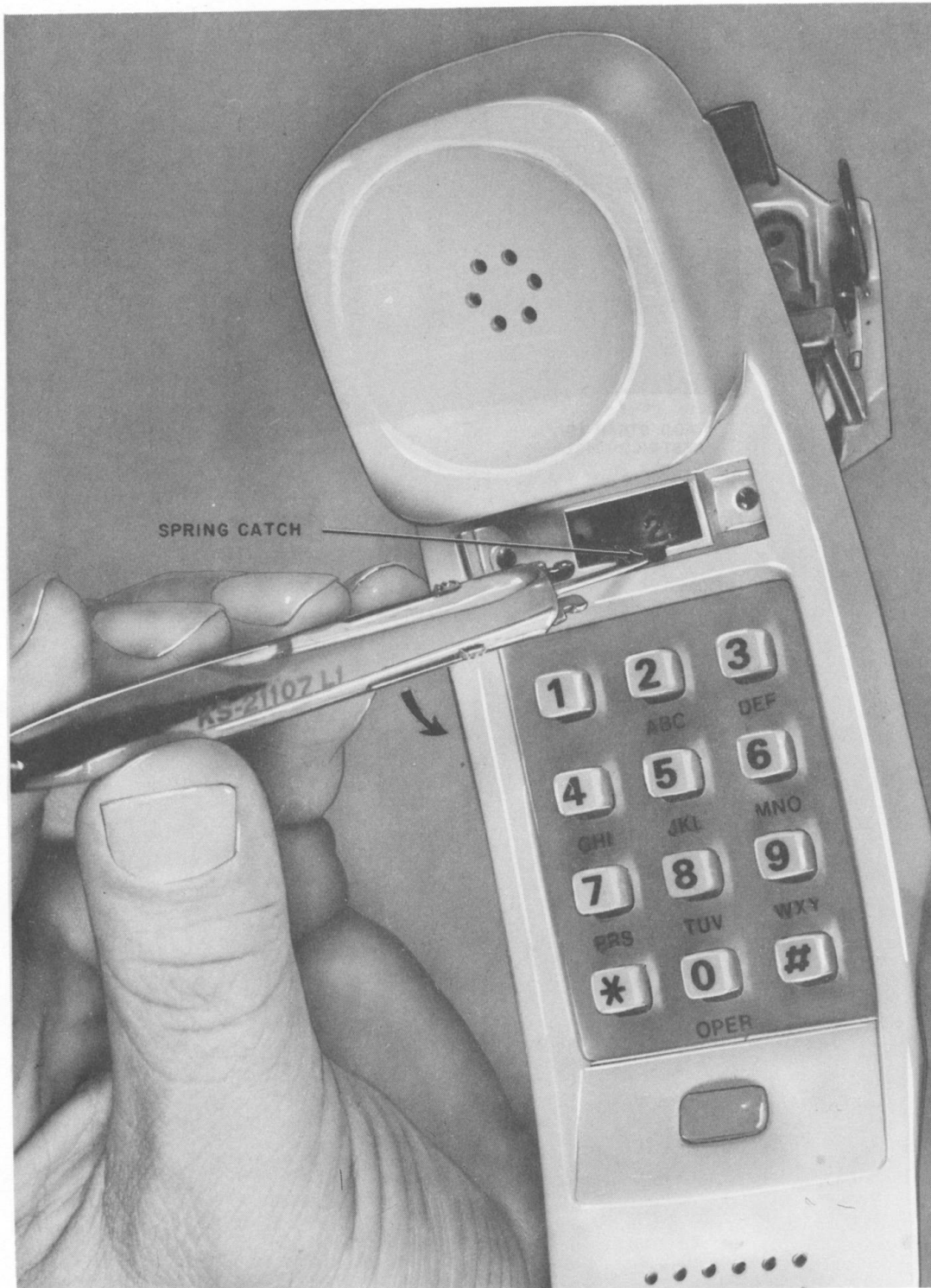


Fig. 20—Releasing Spring Catch on 315-Type Amplifier

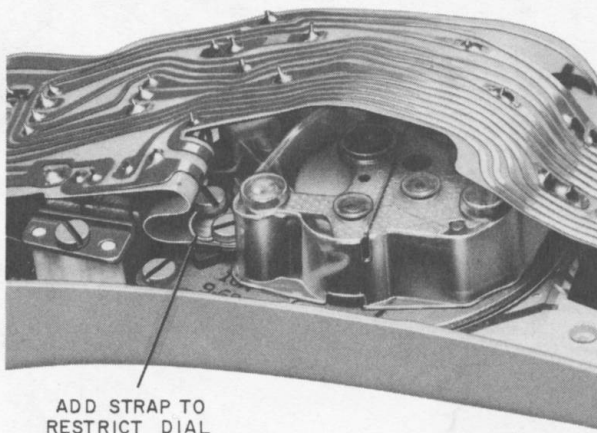
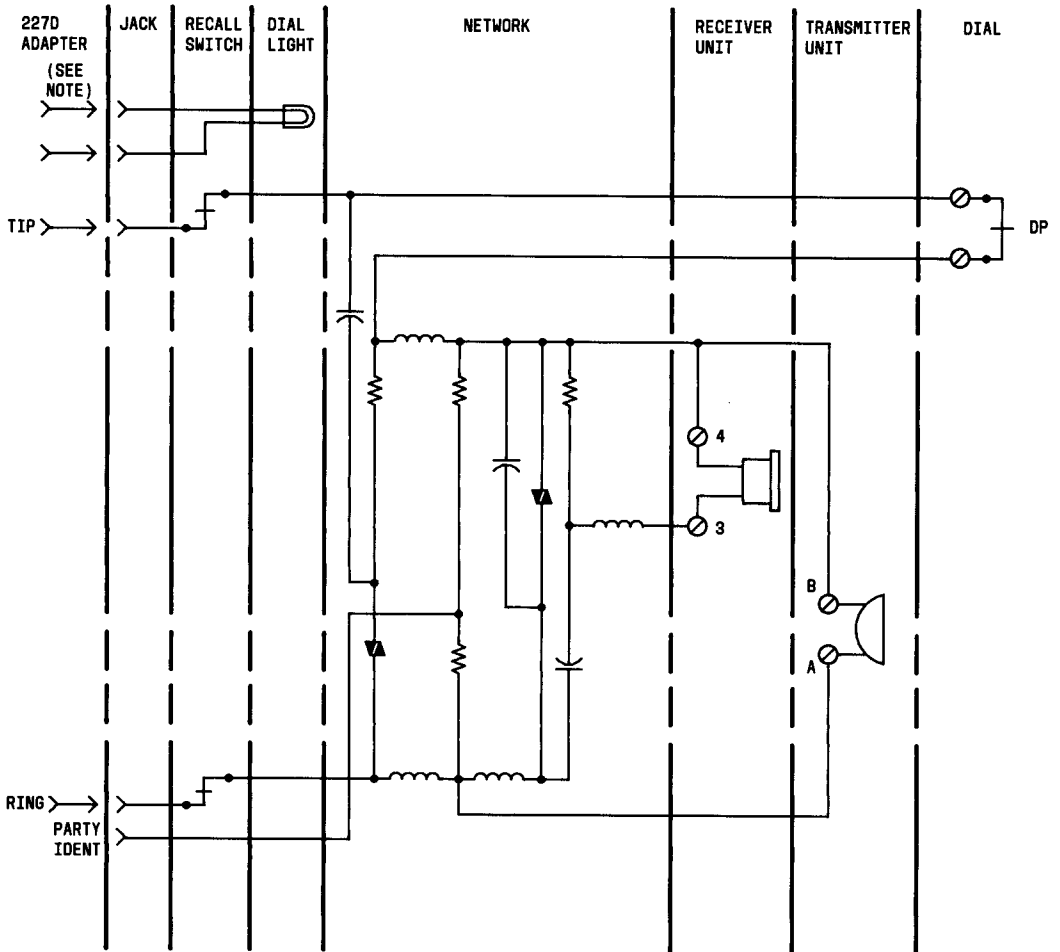


Fig. 21—Restricting Dial of 220A (MD), 220AL, or 220AM Hand Telephone Set

Fig. 20—Releasing Spring Catch on 215-Type Amplifier



NOTE: PROVIDED WITH 220AM HANDSET ONLY.
 DP - DIAL PULSE CONTACTS

Fig. 22—Schematic of 220A (MD) and 220AM Hand Telephone Set

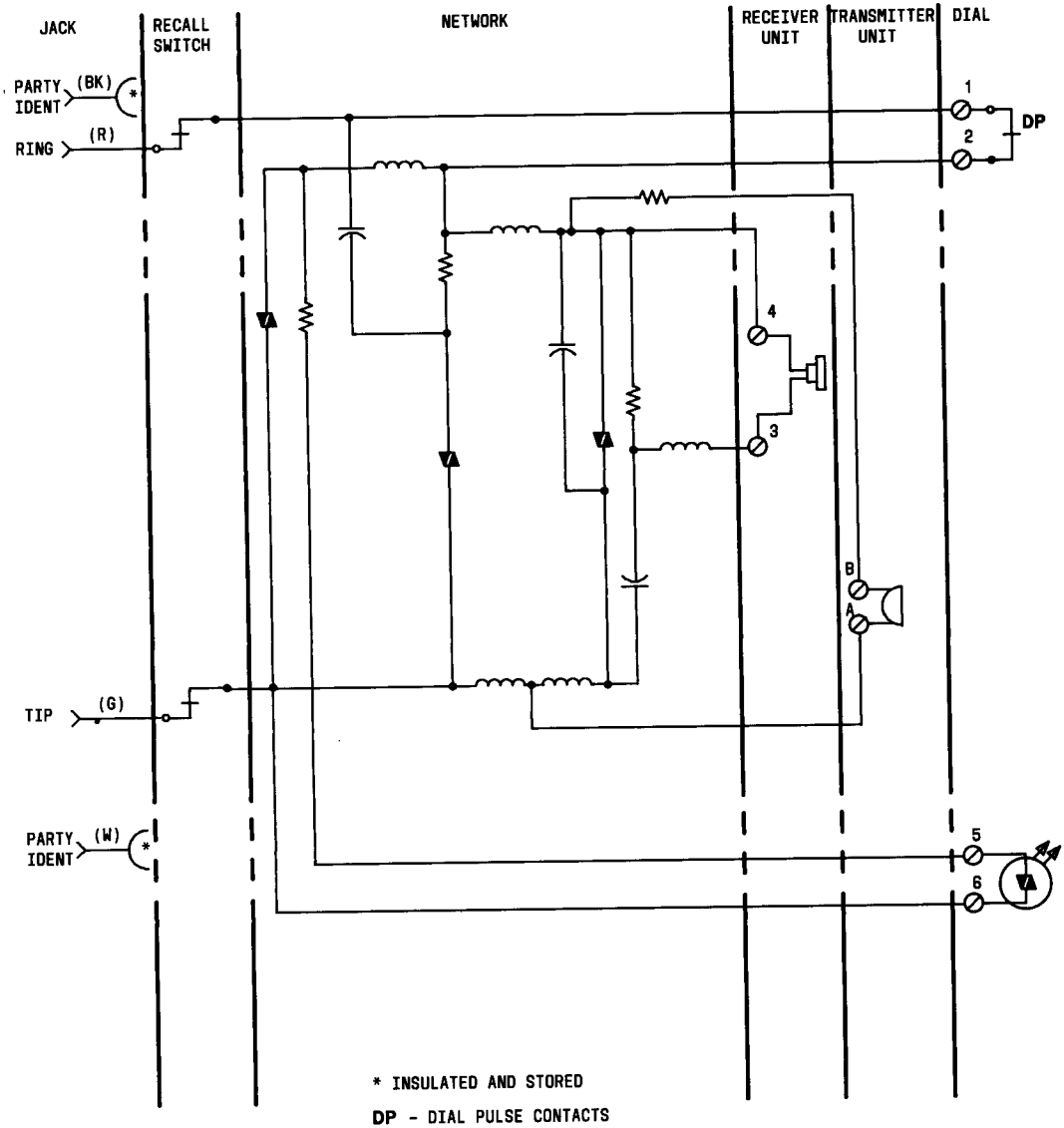


Fig. 23—Schematic of 220B (MD) Hand Telephone Set

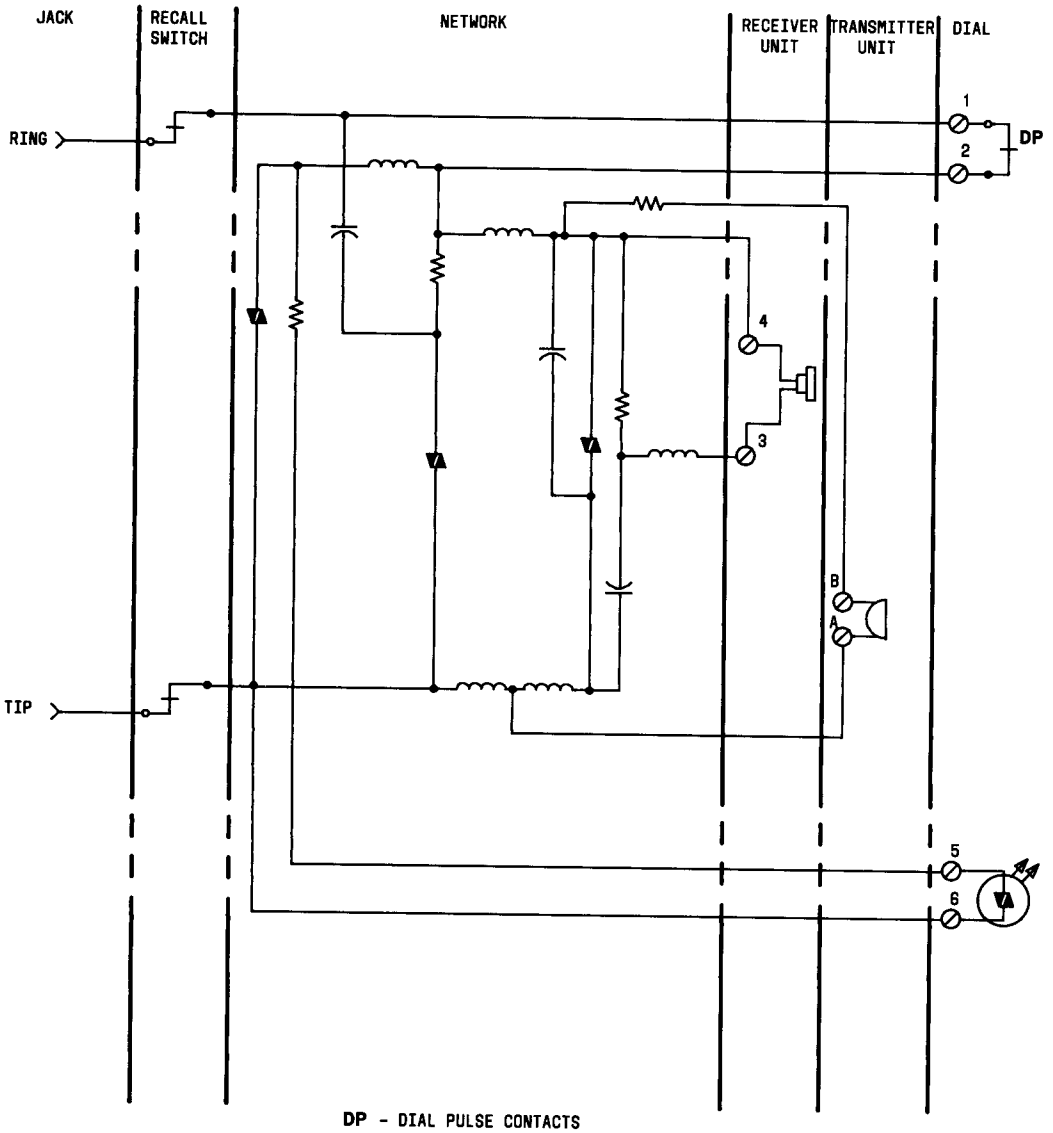


Fig. 24—Schematic of 220C Hand Telephone Set

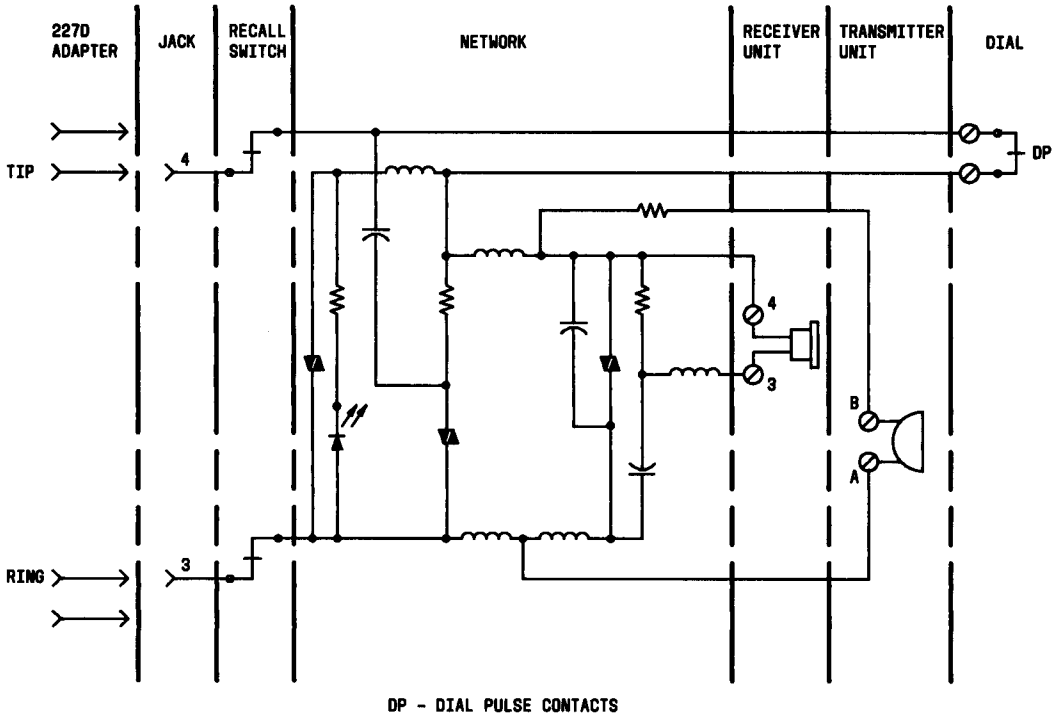


Fig. 25—Schematic of 220AL Hand Telephone Set

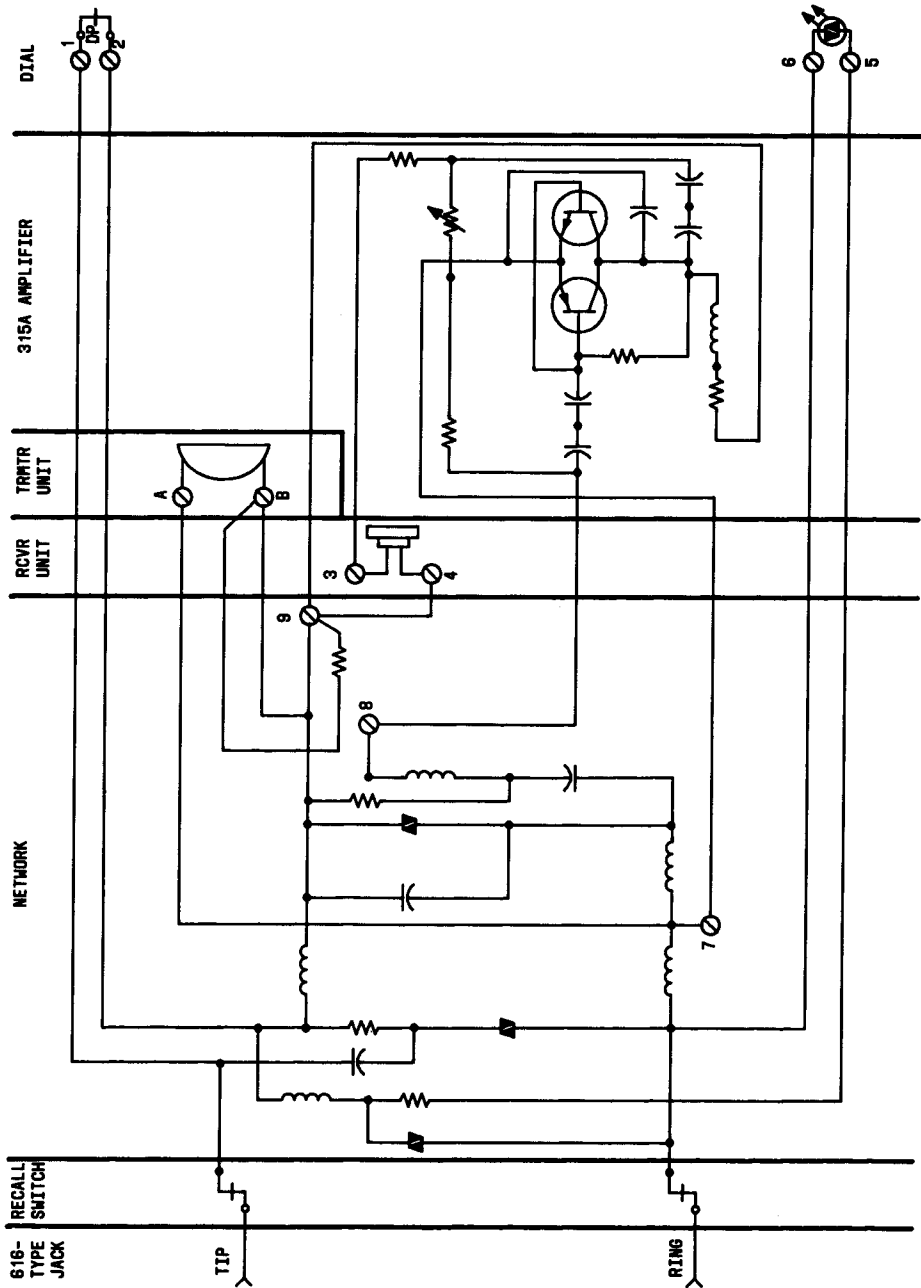
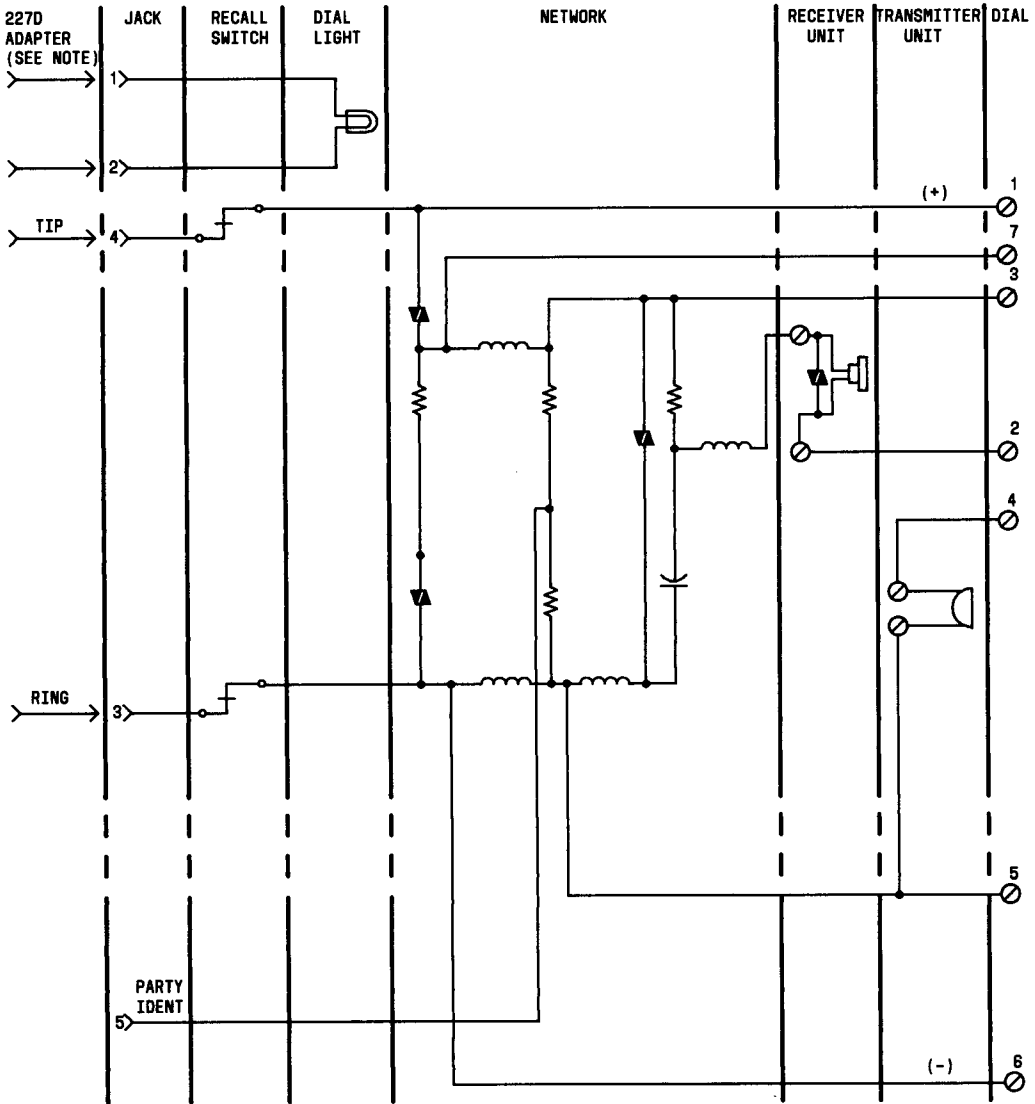
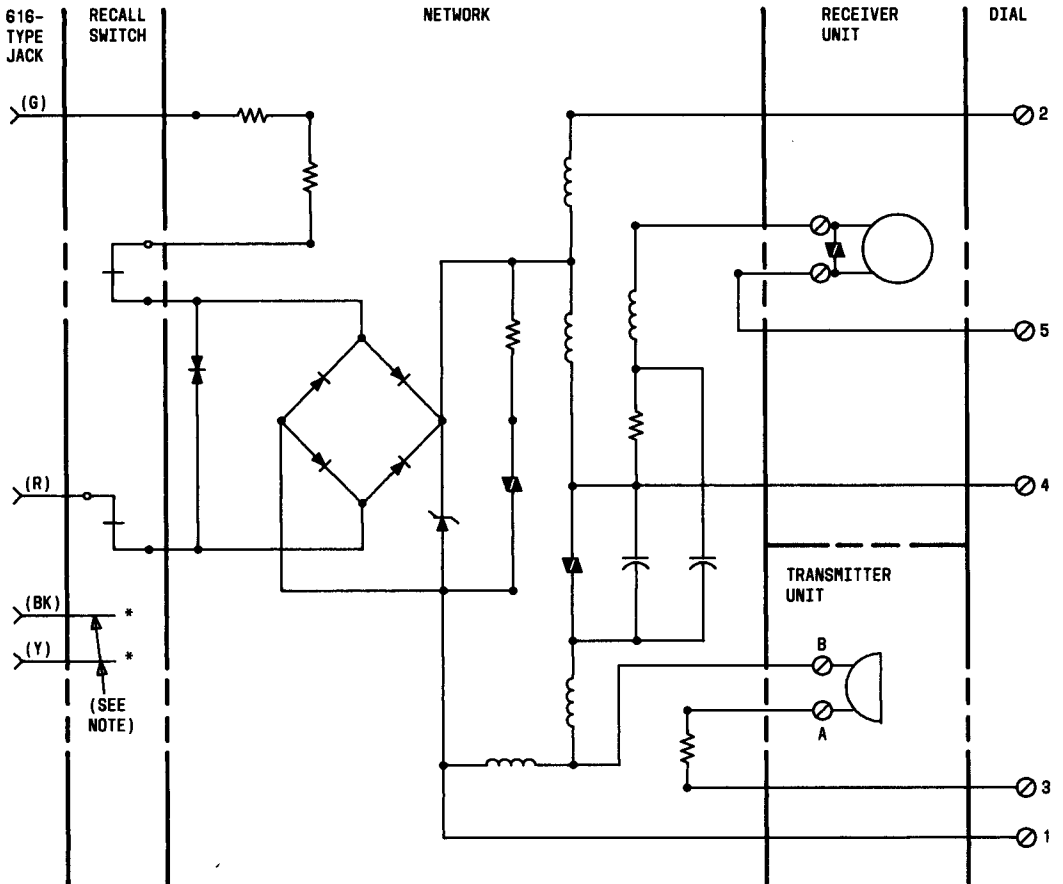


Fig. 26—Schematic of 226A Hand Telephone Set



NOTE:
PROVIDED WITH 2220BM HANDSET ONLY.

Fig. 27—Schematic of 2220B (MD) and 2220BM Hand Telephone Set



*INSULATED AND STORED
 NOTE: THESE LEADS ARE FURNISHED IN
 EARLY VERSION 2220C HANDSETS ONLY.

Fig. 28—Schematic of 2220C Hand Telephone Set

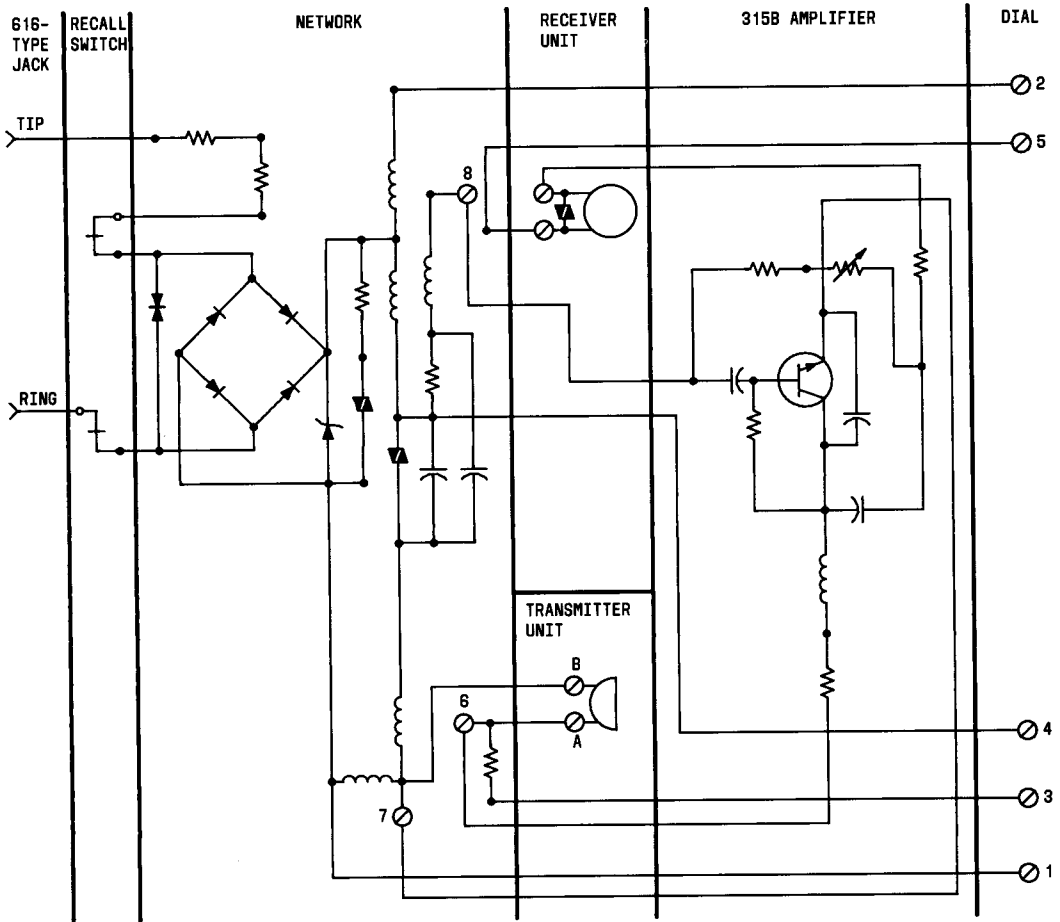


Fig. 29—Schematic of 2226A Hand Telephone Set