

851- AND 2851-TYPE TELEPHONE SETS

IDENTIFICATION, INSTALLATION, CONNECTIONS, AND MAINTENANCE

1. GENERAL

1.01 This section contains information on the 851- and 2851-type telephone sets.

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

- Change Fig. 31, 33, and 34
- Add the KS-20419L2 buzzer.

2. IDENTIFICATION

2.01 The 851BM (MD) or 851CM (rotary dial) and 2851BM (MD) or 2851CM (TOUCH-TONE* telephone dial) are modular telephone sets with a G15A handset and H4DU handset cord.

2.02 The 851CM (rotary dial) and 2851CM (TOUCH-TONE telephone dial) codes are available as a completely assembled telephone set or a basic modular telephone set base.

2.03 **Purpose:** Provides features of a 6-button key station (5-line pickup and hold) at wall installations.

2.04 **Application:** Used with central office or PBX line circuits in key telephone systems. Both the 851- and 2851-type sets are wired for 1A1, 1A2, 6A, or 6B systems. For 1A KTS, internal wiring changes are required.

2.05 **Ordering Guide:** Order as follows.

(a) **Telephone Sets (Complete):**

- Set, Telephone, 851CM-† (Fig. 1)
- Set, Telephone, 2851CM-† (Fig. 2).

*Trademark of AT&TCo.

†Add color suffix from Table A.



Fig. 1—851-Type Telephone Set

(b) **Telephone Set Bases:**

- Base, Telephone Set, 851CM
- Base, Telephone Set, 2851CM.

(c) **Modular Items:**

- Faceplate, 852A-†
- Faceplate, 2852A-†
- Housing, 851A-†
- Handset, G15A-†

NOTICE

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



Fig. 2—2851-Type Telephone Set

- Dial, 8RA (rotary service)
- Dial, 35AF3A (TOUCH-TONE‡ service)
- Ringer, P1B or P3C
- Key, 635A5
- Buzzer, KS-20419L1 or †KS-20419L2‡
- 812365039 (P-23F503) Key Collar
- Lamp, 51A (10V) for all key positions
- Faceplate, 2851A (MD) (TOUCH-TONE telephone dial)
- Faceplate, 2852A (TOUCH-TONE telephone dial)
- Faceplate, 851A (MD) (rotary dial)
- Faceplate, 852A (rotary dial)
- All items listed as modular.

- Cord, Handset, H4DU-†.

(d) **Options:**

- Exclusion
- Buzzer, KS-8109L2 or an additional KS-20419L1 or †KS-20419L2‡
- Station Busy
- Polarity Guard (D-181006 Kit of Parts which includes 840364376 polarity guard and installation sheet)
- 4A Speakerphone
- Amplifier type handsets
- Multiline Conferencing.

(e) **Replaceable Components:**

TABLE A

COLOR ORDERING GUIDE

HOUSING, CORDS AND HANDSET		COORDINATED FACEPLATE	
COLOR	SUFFIX	COLOR	SUFFIX
Black	-03	Charcoal	-70
Ivory	-50	Muted Ivory	-80
Green	-51	Light Green	-71
Red	-53	Muted Red	-69
Yellow	-56	Light Yellow	-72
White	-58	Light Gray	-73
Light Beige	-60	Muted Beige	-75
Aqua Blue	-62	Muted Blue	-76

‡Registered Service Mark of AT&TCo.

2.06 Design Features: The following are design features.

- Sets are surface mounted on wall or vertical surface using mounting holes for standard outlet box or keyhole slots.
- Handset is cradled on top, permitting on-hook dialing when speakerphone is provided.
- All key buttons including hold can be illuminated (lamps are furnished except in Hold position).
- All pickup buttons convertible to signaling.
- An access hole is provided in the P-type ringer for ringer bias spring adjustment. Refer to Section 501-259-101.

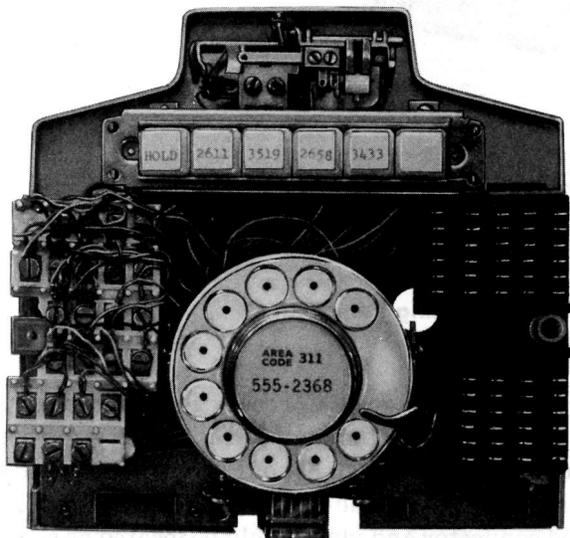


Fig. 3—Early Version 851-Type Telephone Set Base (Housing Removed)

3. INSTALLATION

3.01 When mounting the 851- or 2851-type telephone set, select a location which provides at least 6 inches of clearance on all sides to permit removal of the handset, and for maintenance.

3.02 The telephone set should be mounted before

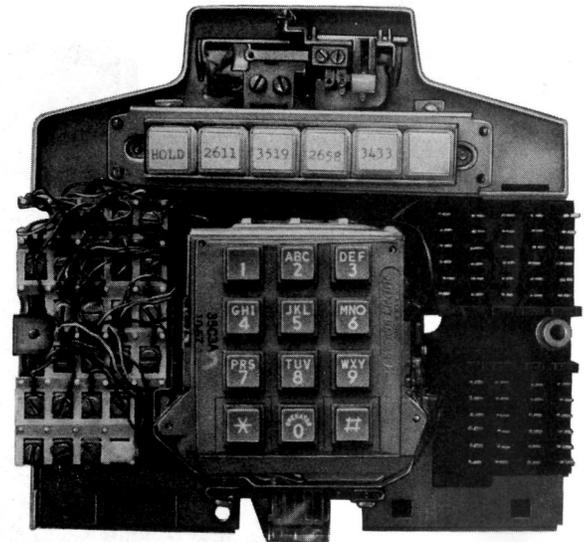


Fig. 4—Early Version 2851-Type Telephone Set Base (Housing Removed)

installing the modular items. To expose the mounting holes, the hinged chassis assembly must be lowered by loosening the captive screws (Fig. 13) holding the top of the chassis. For ease of installation the chassis assembly can be removed from the base pan by springing the hinged brackets sufficiently to clear the pins. The base pan can then be mounted directly to the wall using the keyhole slots, or holes provided for mounting over an electrical outlet box.

Caution: Avoid damage to wall or telephone set whenever chassis is in lowered position.

3.03 All sets except the CM codes can be wired using either inside wiring cable or connector cable. When mounted over an outlet box, bring wiring through opening in base pan before mounting. When exposed, bring wiring up from bottom (right side of handset cord jack). Allow 20-22 inches of cable inside set for routing and terminating.

3.04 With base pan mounted and wiring brought into set, replace chassis assembly if previously removed, but leave in lowered position.

3.05 Where IW cable is used, prepare and route as follows.

- (1) Remove cable sheath to surface of outlet box (Fig. 9) or for exposed wiring remove sheath

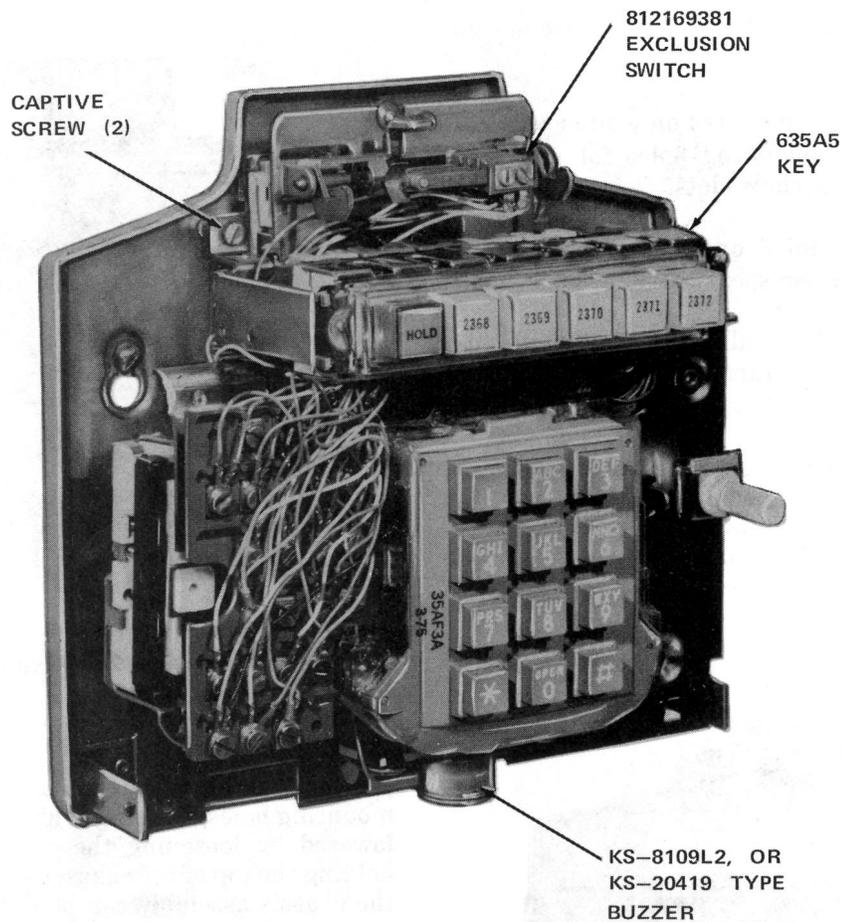


Fig. 5—2851CM Telephone Set With Exclusion (Housing Removed)

to within 2 inches of cable entrance into set (Fig. 8).

- (2) Remove cable clamps. Pinch legs of clamp from front of chassis (Fig. 18).
- (3) Slip one of the clamps provided with set around conductors approximately 9 inches from end of sheath. Add second clamp 2 inches above first.
- (4) Form slack loop as shown in Fig. 8 or 9 and install first clamp in hole to left of cord jack.
- (5) Route cable below jack and install second clamp in hole to left of ringer.
- (6) Twist ends of conductors together and feed through opening between dial, ringer, and connecting blocks.

3.06 On all sets except CM codes, if the set is served by the connector equipped end of an A25B connector cable, a D-180375 Kit of Parts must be used to obtain raw-ended conductors for termination. The mated connector and plug should be located as shown in Fig. 10. Check that connector and plug do not interfere with operation of line switch. Cable is routed and fastened in same manner as IW cable (Fig. 8 and 9).

3.07 Check before terminating that sufficient slack is provided to permit hinging action of chassis assembly.



Cable slack must be in area behind dial and not touching ringer. Chassis cannot be secured if slack lies between base pan and network or base pan and handset cord jack.

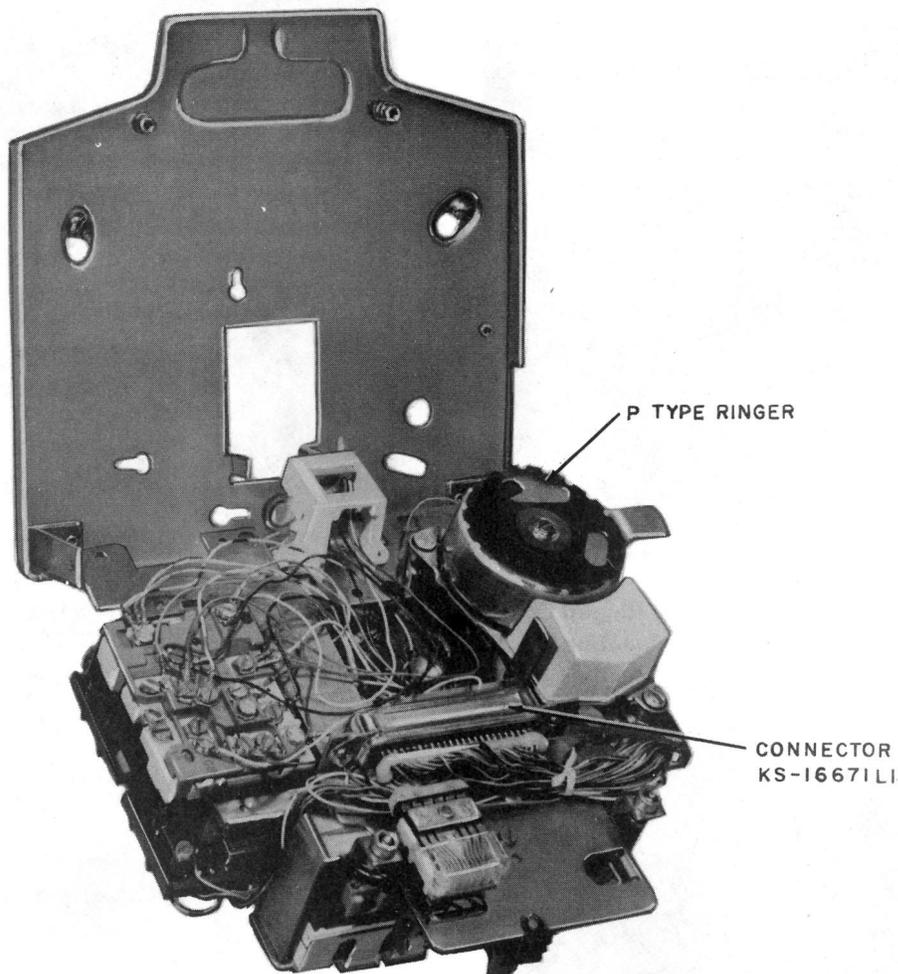


Fig. 6—851CM or 2851CM Telephone Set Showing KS-16671L1 Mounting Cord Connector

3.08 Since individual terminals are not designated on the quick-connect blocks, terminal identification is provided on a label located inside of the housing as a wiring guide (Fig. 21). Terminals 1-30 are on the upper block and 31-54 are on the lower block. Terminals 51-54 are spare. Use a 714B or AT-8762 tool to terminate conductors.

3.09 The 851CM and 2851CM telephone sets are equipped with a KS-16671L1 connector (Fig. 6). An A25B connector cable is required to connect set to key equipment (Fig. 11 and 12).

Note: Care must be exercised in securing the connector cable to eliminate the possibility of

undue strain on the conductors and to prevent damage to the insulation of the conductors which could cause shorts. Plastic tie-wraps should be used to bundle the conductors in order to protect the leads from being damaged when closing the hinged chassis.

3.10 Exclusion Switch: To provide exclusion, install the exclusion switch assembly as follows.

- (1) With chassis in lowered position, fasten switch assembly to line switch bracket using screw provided in kit. Screw must be inserted in hole from rear of bracket.

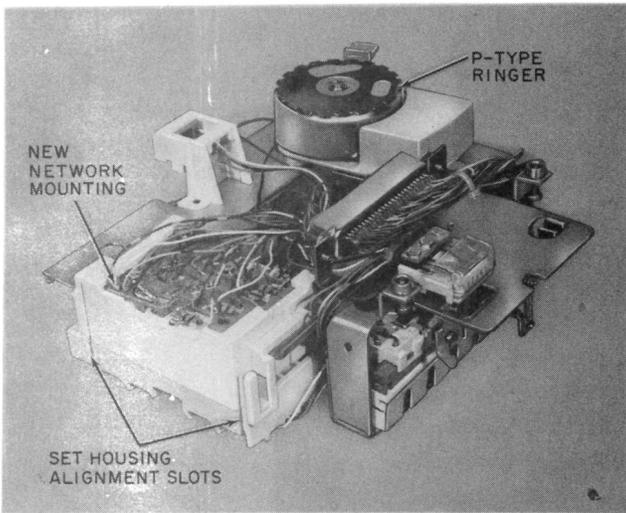


Fig. 7—Rear of 2851-Type Telephone Set Hinged Chassis Assembly With New Network Mounting

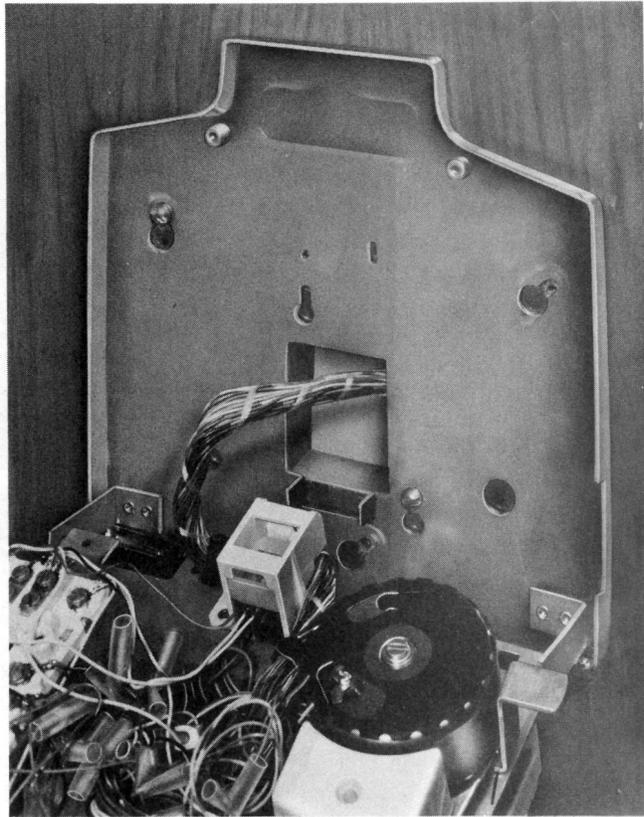


Fig. 9—Inside Wiring Cable, from Outlet Box (Early Version)

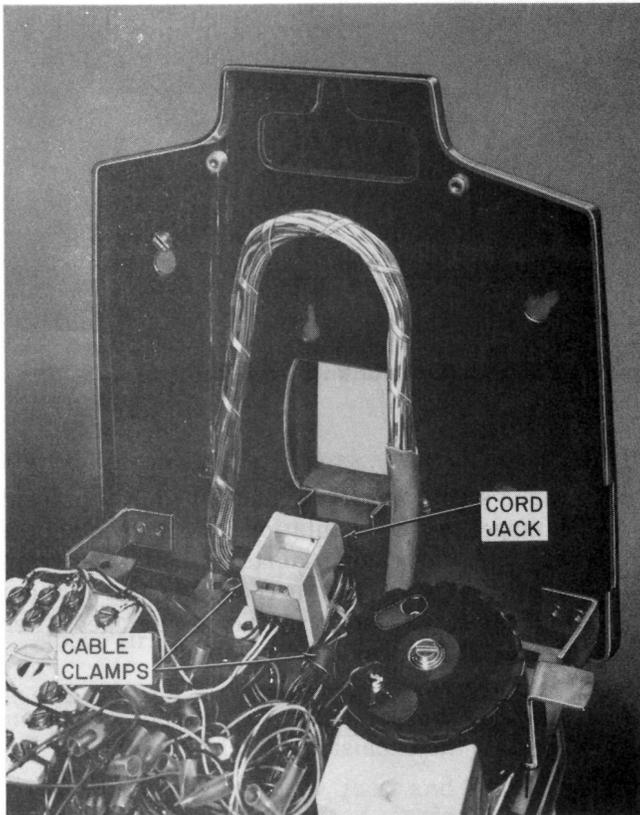


Fig. 8—Inside Wiring Cable, Exposed Wiring (Original Version)

- (2) Position switch assembly horizontally (Fig. 5 or 13) and fasten securely.
- (3) Connect exclusion switch leads as per Fig. 29.

3.11 Polarity Guard: When required with the 2851-type telephone set, install the adhesive backed 840364376 guard to the left side of key bracket in the position shown in Fig. 16. The 819041971 (MD) polarity guard should be installed per Fig. 14.

3.12 3-Type (MD) Speakerphone: These sets are factory-wired for 3-type (MD) speakerphone except that the 851-type telephone set requires the replacement of the 8RA dial with an 8CA dial to provide a second set of off-normal contacts (P3 and P4 leads). When replacing the dial, the adapter brackets must be removed from the 8RA dial and added to the 8CA dial (paragraph 5.02, Fig. 17). With both the rotary and TOUCH-TONE telephone dial sets, a loudspeaker and transmitter must be installed



Fig. 10—Connector Cable and D-180375 Kit of Parts (Early Version)

external to the set and wired to the 55-type (MD) control unit. The control unit can be located near the telephone set (Fig. 26) or at the KTS equipment.

3.13 4A Speakerphone: If 4A speakerphone is provided, the 223D adapter is recommended, however, the 82-type connecting block also may be used to interconnect the 4A speakerphone components [680-type transmitter, 108-type loudspeaker set, and the 85B1 power unit, (Fig. 27 and 28)]

3.14 For connections to the 3-type (MD) or 4A speakerphone system, refer to the appropriate section in Division 512.

3.15 When an 851- or 2851-type set is multiplied with sets furnishing speakerphone features, certain leads must be disconnected, insulated, and stored to avoid interference with working circuits. The leads to be removed are as follows: (V-G), (G-V), (V-BR), (BR-V), (V-S), and (S-V).

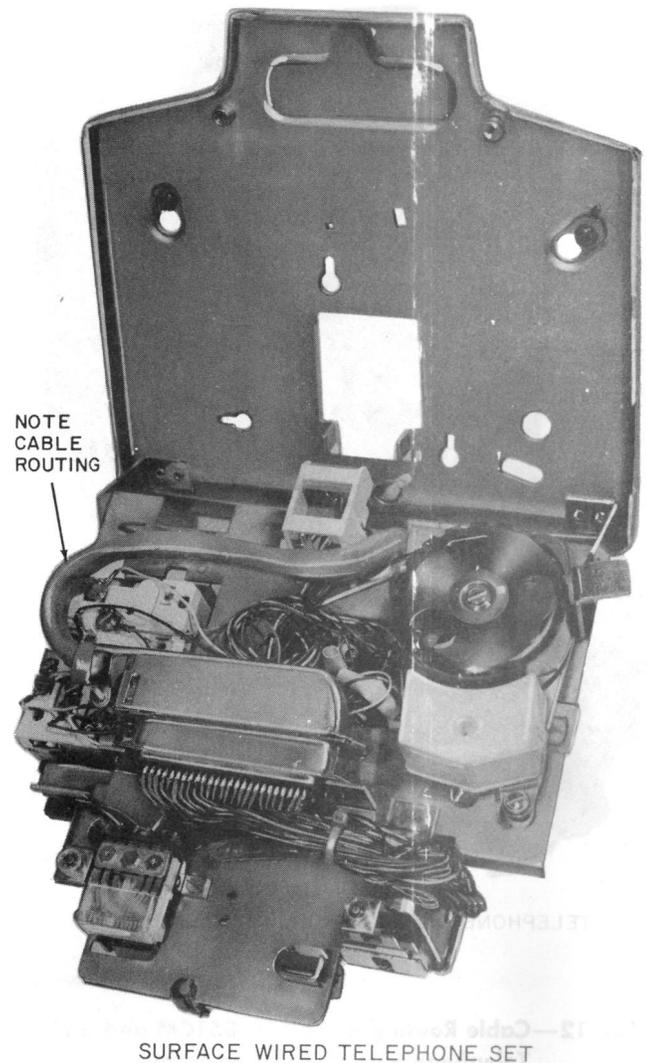


Fig. 11—Cable Routing on Current 851CM and 2851CM Telephone Sets at Exposed Wire Location

3.16 Buzzer: The KS-20419L1 or L2 buzzer is mounted on an insulated bracket below the dial (Fig. 18). If required, an additional KS-20419 type may be added or the existing KS-20419 type may be replaced by the KS-8109L2 buzzer (14-30 volt ac or dc) which would be mounted using both screws.

3.17 Station Busy Lamp: A 533K diode or equivalent is used to provide a station busy lamp feature for multibutton wall telephone sets used in 1A1 and 1A2 key telephone systems. For connection information, refer to Table B.

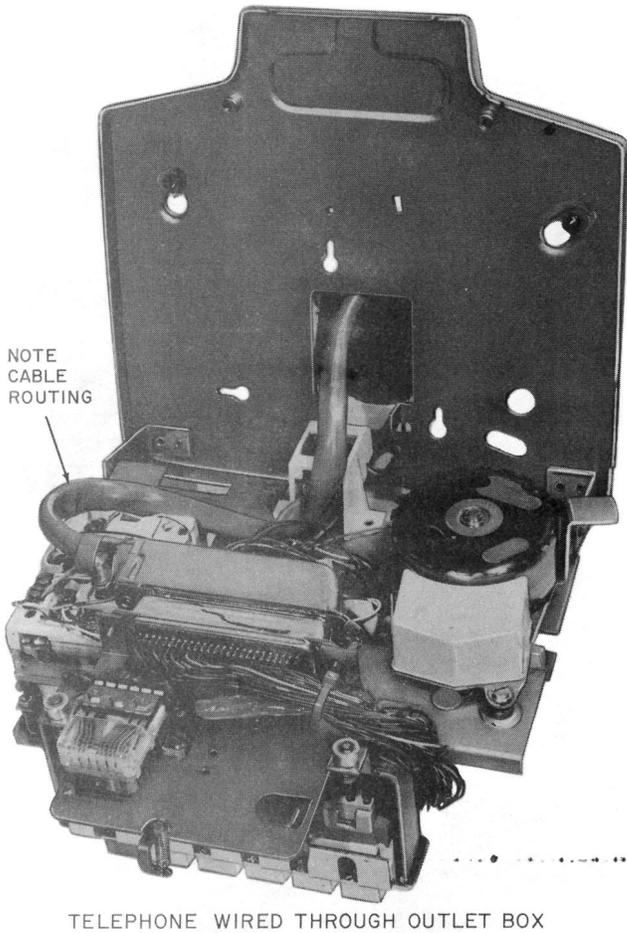


Fig. 12—Cable Routing in Current 851CM and 2851CM Telephone Sets at Prewired Location

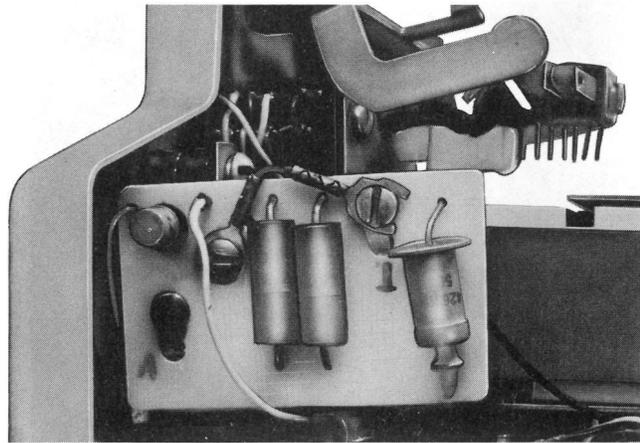


Fig. 14—819041971 (MD) Polarity Guard Position

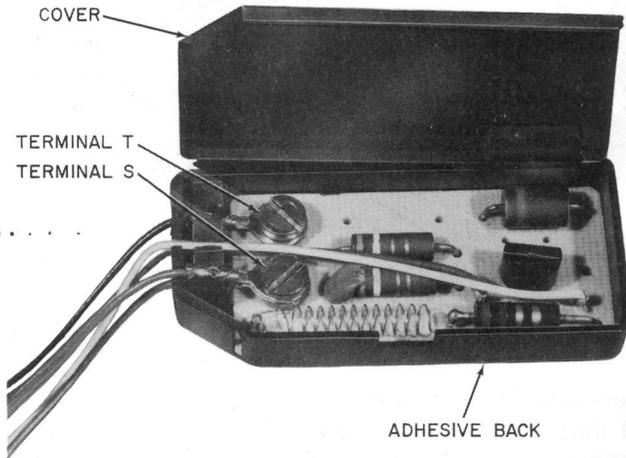


Fig. 15—840364376 Polarity Guard

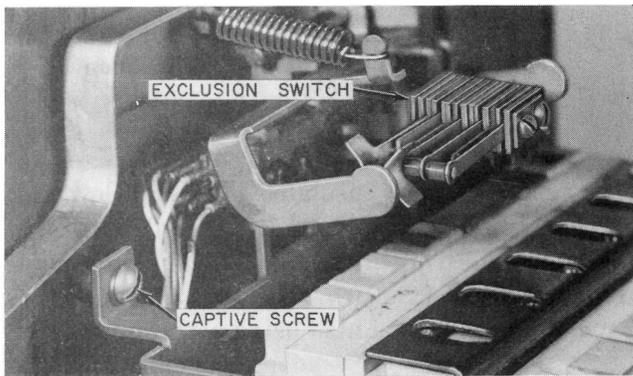


Fig. 13—Exclusion Switch Installed and Hinged Chassis Mounting Screws (Early Version)

3.18 Key Features. The key features are as follows.

- All pickup positions of the 635A5 key are convertible to signaling by the removal of the 812857738 (P-28E773) locking pins from the positions involved and making the necessary wiring change (Table C).
- Lamp and set wiring are provided for illuminating all key positions, except in the hold position. Hold lamp must be furnished separately and insulated and stored lamp leads connected.

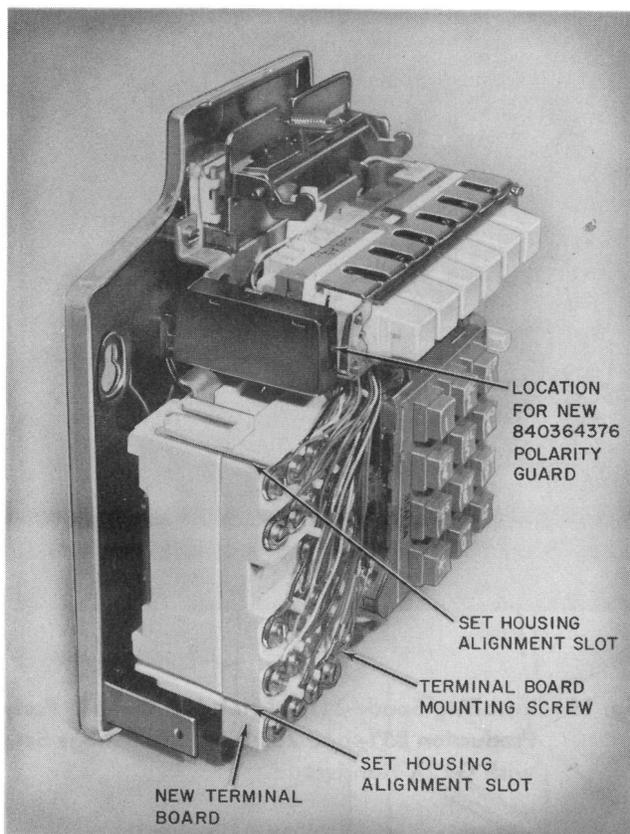


Fig. 16—2851-Type Telephone Set With New Polarity Guard and Terminal Board

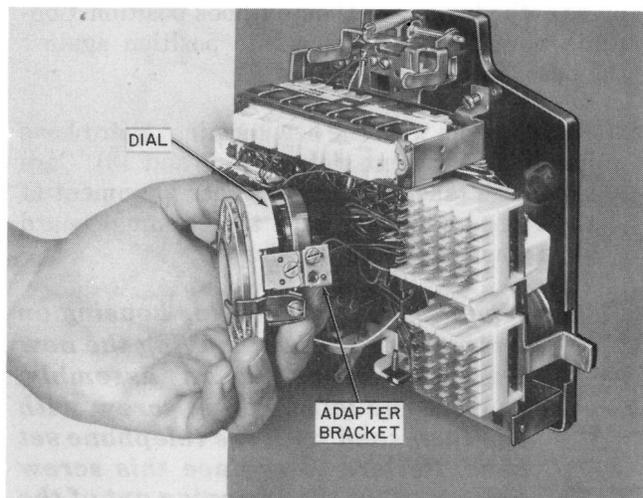


Fig. 17—Dial Adapter Bracket

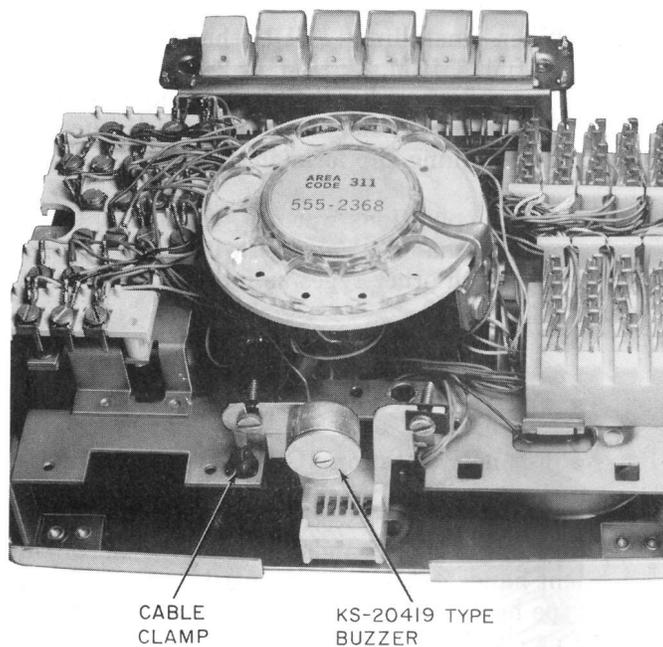


Fig. 18—KS-20419 Type Buzzer Mounted on 851-Type Telephone Set

- Line appearances on the key can be rearranged by switching the color coded plugs on the rear of the key or by rearrangement of the cross connections at the equipment.
- If multiline conferencing option is provided the 635A5 key must be replaced with 635CF5 key, and a 2A1 matrix block (polarity guard) shall be added to the equipment (Table E), in place of polarity guard described in paragraph 3.11. This unit provides eight polarity guard circuits. One polarity guard circuit is required for each line which is conferenceable by multibutton depression. The polarity guard is located between the station side of the line circuit and the station set.

3.19 Install H4DB handset cord in later production modular 851- and 2851-type telephone sets by inserting the end of the cord having the tapered plug into the handset and the square end into jack on bottom of set. Spring locking tab should face away from wall at bottom of set (Fig. 24).

Warning: Cord must be removed from jack in bottom of set anytime chassis assembly must be put in lowered position.

3.20 When installing H4DU handset cord in 851BM, 851CM, 2851BM, or 2851CM telephone sets, either end of cord will fit in telephone set base or handset. The cord should be inserted in the jack until cord retaining clip locks in place.

3.21 Where conditions warrant, the G3A6, G12A, or G15A handset supplied with these sets can be replaced with other types as follows:

- For impaired hearing—G6-type
- For weak speech—G7-type
- For noisy location—G8-type or D-180413.

Note: Refer to Section 501-211-102 for connections of these handsets. An H4CJ or equivalent handset cord must be used on nonmodular type handsets.

3.22 Installation of Spade-Tipped Handset Cords in Early Production Sets Equipped With G12A Handset (Fig. 19):

To install spade-tipped handset cord (H4CJ or equivalent) remove J hook stayband from the cord. Cut back and remove cord sheath to stayband marks. Thread spade-tipped conductors through plug, ordered separately, (spade tips must be bent to clear cord entrance). Pull cord until about 1/4-inch of cord sheath is in the central cavity of the plug. Separate the conductors into two groups and tie an overhand knot, pulling the knot to the cord sheath. Pull cord from plug until strain relief position is attained by knot entering sheath and resting against plug. Feed spade-tipped conductors straight through jack and connect to proper terminals. Insert plug in jack.

3.23 Installation of Spade-Tipped Handset Cords in 851BM (MD), 851CM, 2851BM (MD), and 2851CM Telephone Sets: To install spade-tipped handset cord (H4CJ or equivalent) insert J hook stayband of cord in slot provided in base of telephone set and terminate on appropriate network terminals (Fig. 31, 32, 33, or 34).

3.24 To install housing. Install as follows.

- (1) Refer to paragraph 5.05.
- (2) If chassis assembly is in lowered position, raise and fasten in place with two captive screws.
- (3) Install collar on key.

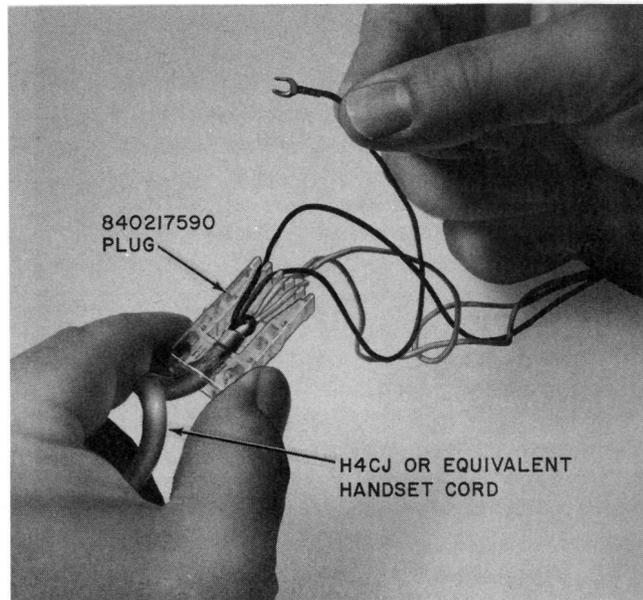


Fig. 19—Installing Spade-Tipped Handset Cords in Early Production 851- and 2851-Type Telephone Sets with G12A Handset

- (4) Withdraw the two mounting screws until they are held in the housing by their threads. With both line switch plungers fully lifted, move the housing directly into position around the telephone set (if an exclusion switch is installed, the left plunger will touch the exclusion switch when the housing is about 3/8-inch from the base). Depress both plungers to their on-hook position. Continue working the housing into position against the base. Release plungers.

Note: Sets with the new terminal board have housing alignment slots (Fig. 7 and 16). Care should be taken to insure proper alignment of the ribbed set cover with the terminal board slots when replacing housing.



When installing an older housing on a telephone set base having the new plastic terminal board assembly, replace the left housing screw with one furnished with the telephone set base. Failure to replace this screw will result in the stripping out of the left mounting hole.

- (5) Fasten housing in place with two captive screws.

- (6) Check complete operation of line switch and exclusion feature.

3.25 Use Form E-10361 or E-10365 as a station number card for a TOUCH-TONE telephone dial station and Form E-10360 or E-10364 for rotary sets.

3.26 To Install Faceplate. Install as follows.

- (1) Insert tabs on faceplate into slots of housing.
Use a KS-21107 type releaser or equivalent to depress the tab of the faceplate retainer clip while seating the faceplate. To insure proper positioning of the retainer clip, raise the handle of the releaser well above horizontal, as shown in Fig. 20 before withdrawing the tool.
- (2) If installing 2851A faceplate (2851-type telephone set) place station number card in from front of faceplate in standard manner.
- (3) If installing 2852A faceplate, an 840693253 adapter (furnished) is used to retain the station number card. Install adapter in faceplate with the two retaining tabs toward the top of the faceplate. Check for proper seating of adapter.
- (4) If the latching characteristics of the 802695247 (P-269524) retainer clip is inadequate, replace with an 840155618 clip.

3.27 The 635A5 key uses an E-5837 form (key button designation tabs). To install, squeeze sides of cap to remove from key button. Insert designation tab in cap. When replacing cap or key button make sure assembly snaps into place. If cap does not snap in place properly, rotate 90 degrees and replace.

4. CONNECTIONS

4.01 For sets equipped with a 66S1-type connecting block, terminate IW cable as shown in Fig. 31 and 32 using the terminal identification information inside the housing as a guide in locating terminal numbers (Fig. 21).

4.02 All leads or straps involved in service or option changes are equipped with spade tips. If not factory terminated, leads are insulated and stored.

4.03 For sets equipped with the KS-16671L1 connector (Fig. 6), an A25B connector cable is required.

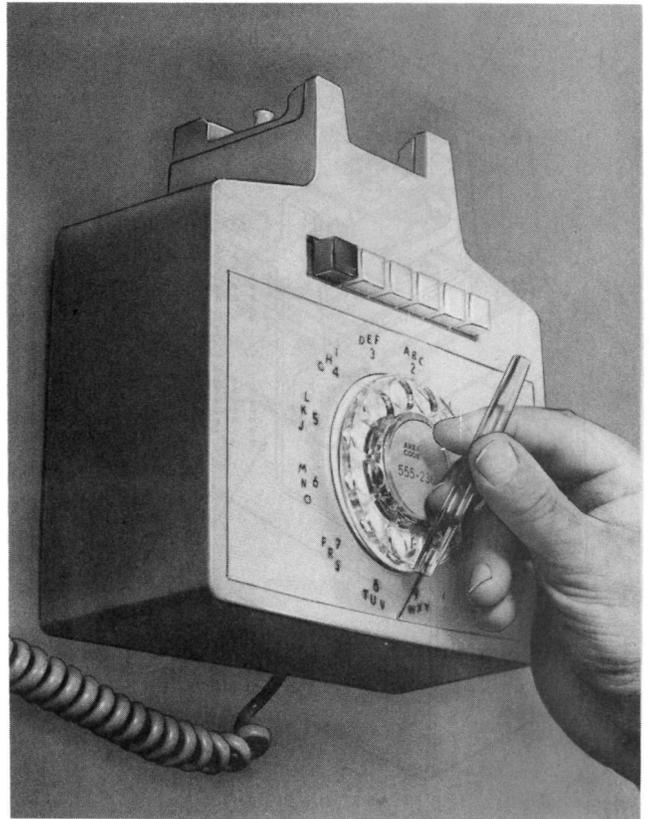


Fig. 20—Installing 851A (MD) or 852A Faceplate

4.04 Connection Index: The following is a connection index:

Table B — Connections for KTS and/or Station Busy Lamp With Speakerphone

Table C — Pickup-Signal Key Conversions

Table D — Polarity Guard Connections for 2851-Type Telephone Set [819041971 (P-90D197) (MD) or 840364376 Polarity Guard]

Table E — 2A1 Matrix Polarity Guard Block Connections

Fig. 29 — Exclusion Switch Connections

Fig. 30 — Hold Lamp Connections

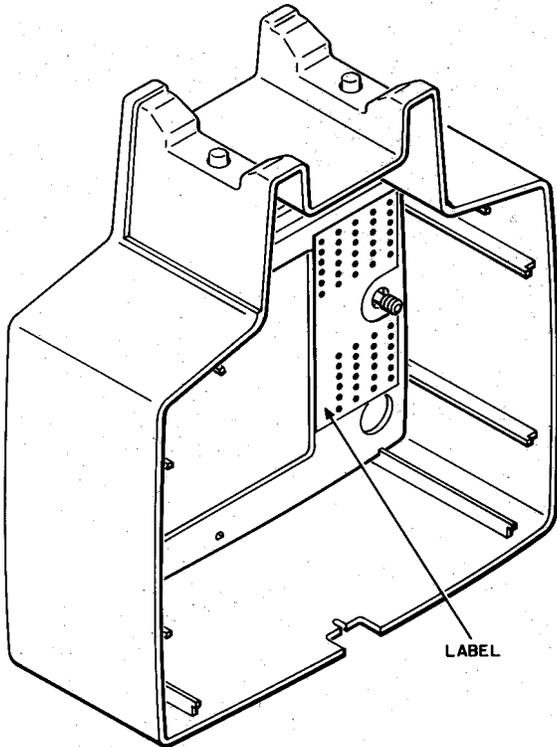


Fig. 21 — Connecting Block Terminal Information

Fig. 31 — 851BT (MD), 851B (MD), or 851BM (MD) Telephone Set, Connections

Fig. 32 — 2851BT (MD), 2851B (MD), or 2851BM (MD) Telephone Set, Connections

Fig. 33 — 851CM Telephone Set, Connections

Fig. 34 — 2851CM Telephone Set, Connections

5. MAINTENANCE

5.01 Maintenance replacement should be limited to the following:

- Complete telephone sets
- Modular items

- Optional items
- Replaceable components.

5.02 When dial replacement is necessary in the 851-type telephone set, use an 8RA dial for nonspeakerphone sets and an 8CA dial for sets with speakerphone. On sets equipped with the new plastic terminal board, first loosen terminal board mounting screw located adjacent to terminal 3 (Fig. 16). Swing terminal board away to allow access to dial mounting screw. On older sets insert screwdriver between terminal board and network for access to dial mounting screw. Remove dial by loosening adapter mounting screws and springing dial brackets sufficiently to release dial from locating pins. Transfer adapter brackets from dial being replaced to new dial (Fig. 17).

5.03 Maintenance of the 35-type TOUCH-TONE telephone dial is not recommended and the dial should be replaced. Adapter brackets are not involved when replacing the TOUCH-TONE telephone dial.

5.04 When necessary to remove housing, the faceplate must first be removed by using a KS-21107 type releaser or equivalent in catch in bottom of faceplate. Housing can then be removed by loosening two captive screws under faceplate.

5.05 For field replacement of 851A housing original version of housing (Fig. 22) can be used with sets equipped with either the early, later, or current base (Fig. 23, 24, and 25). The current 851A housing can not be used with the original version base.

5.06 Access to the ringer is obtained by lowering the hinged chassis assembly. The ringer can be removed by loosening the two shouldered mounting screws.

5.07 The current production 635-type keys have been modified for easy lamp replacement by merely removing the lamp cap and inserting a 553-type tool through the hole in the top of the button. In early production keys it was necessary to remove faceplate, housing, key collar, and button for lamp replacement.

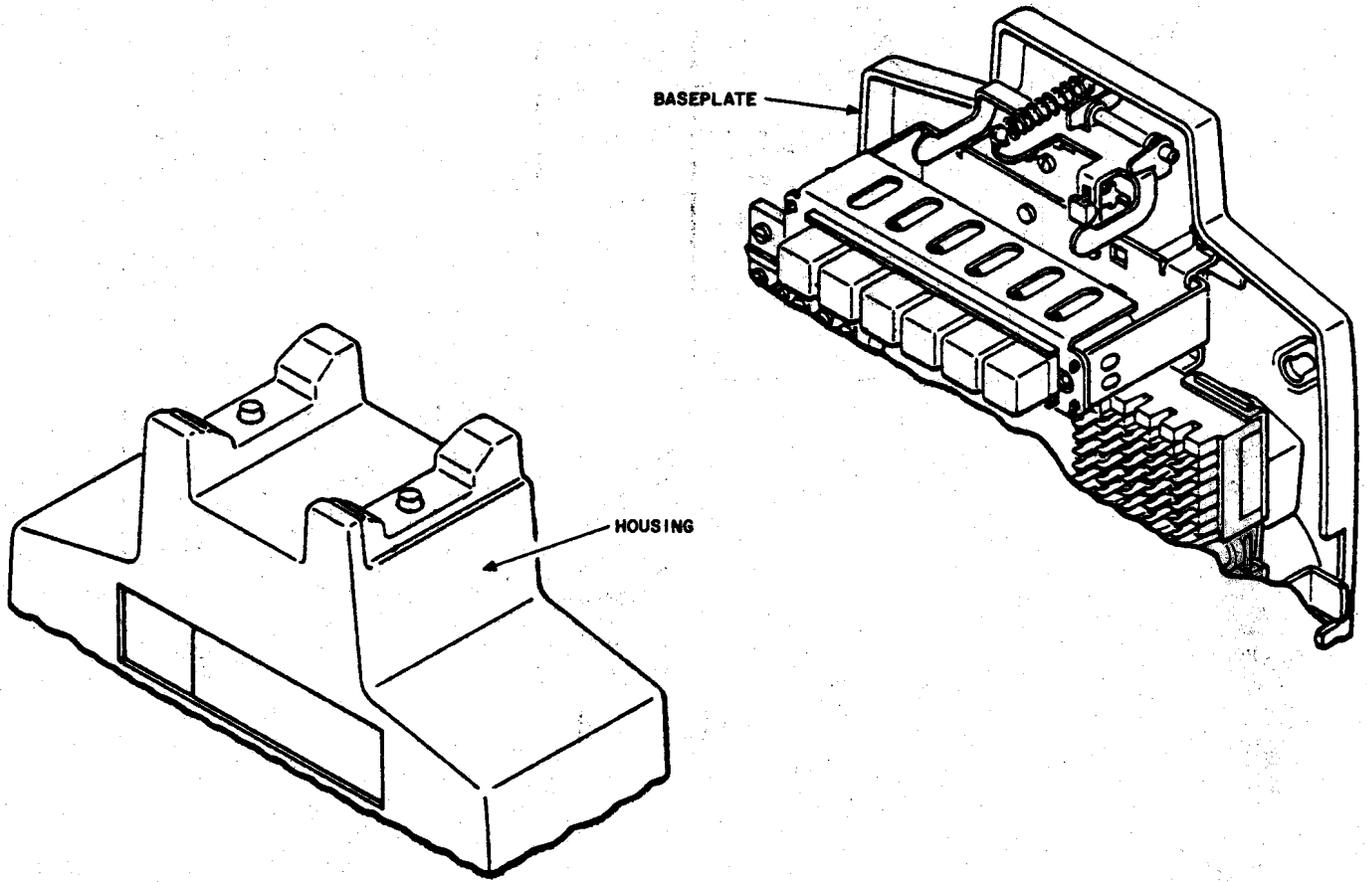


Fig. 22—Original Version Baseplate and Housing

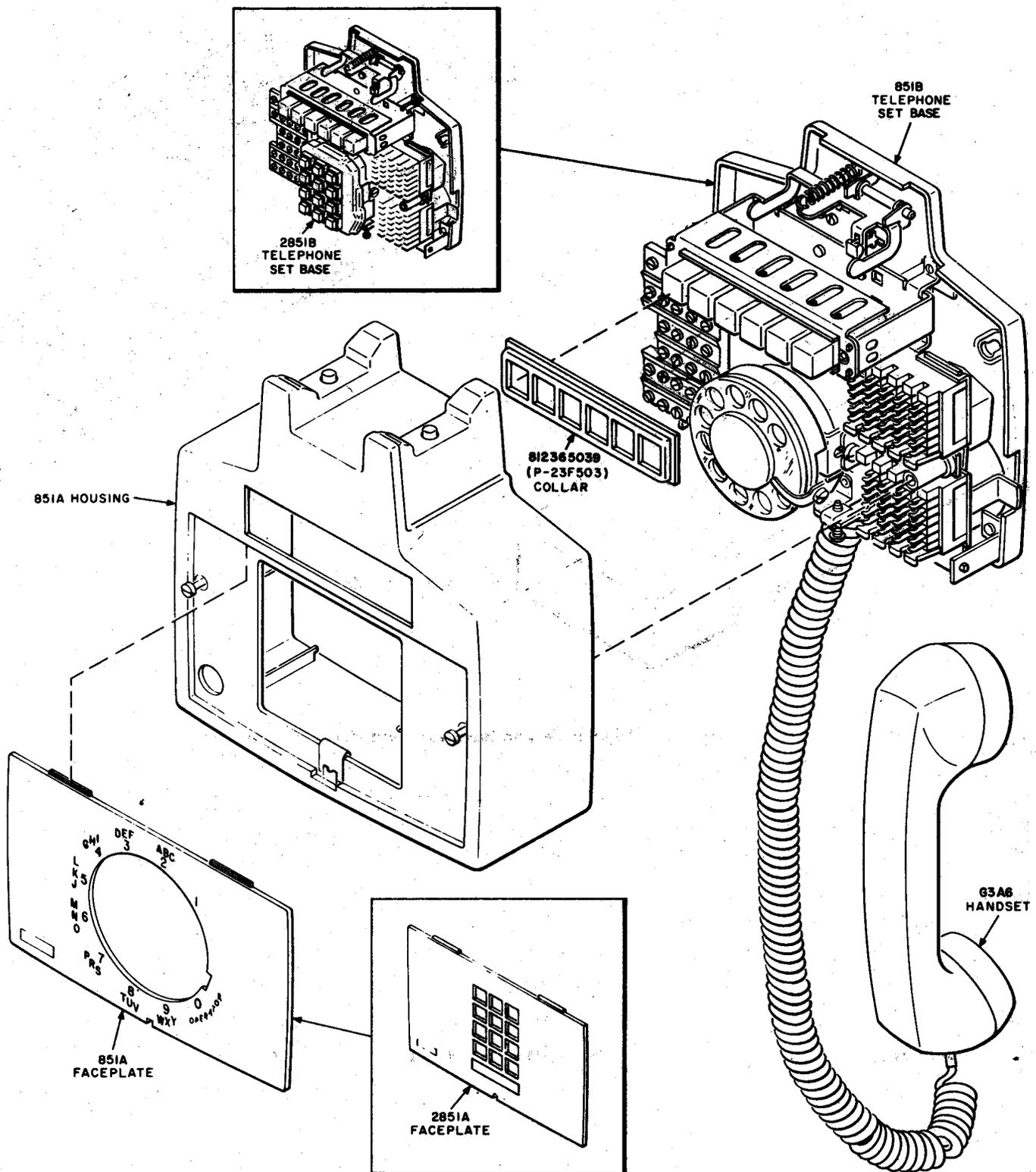


Fig. 23—851B (MD) and 2851B (MD) Telephone Sets, Early Version, Showing Baseplate and 851A Housing

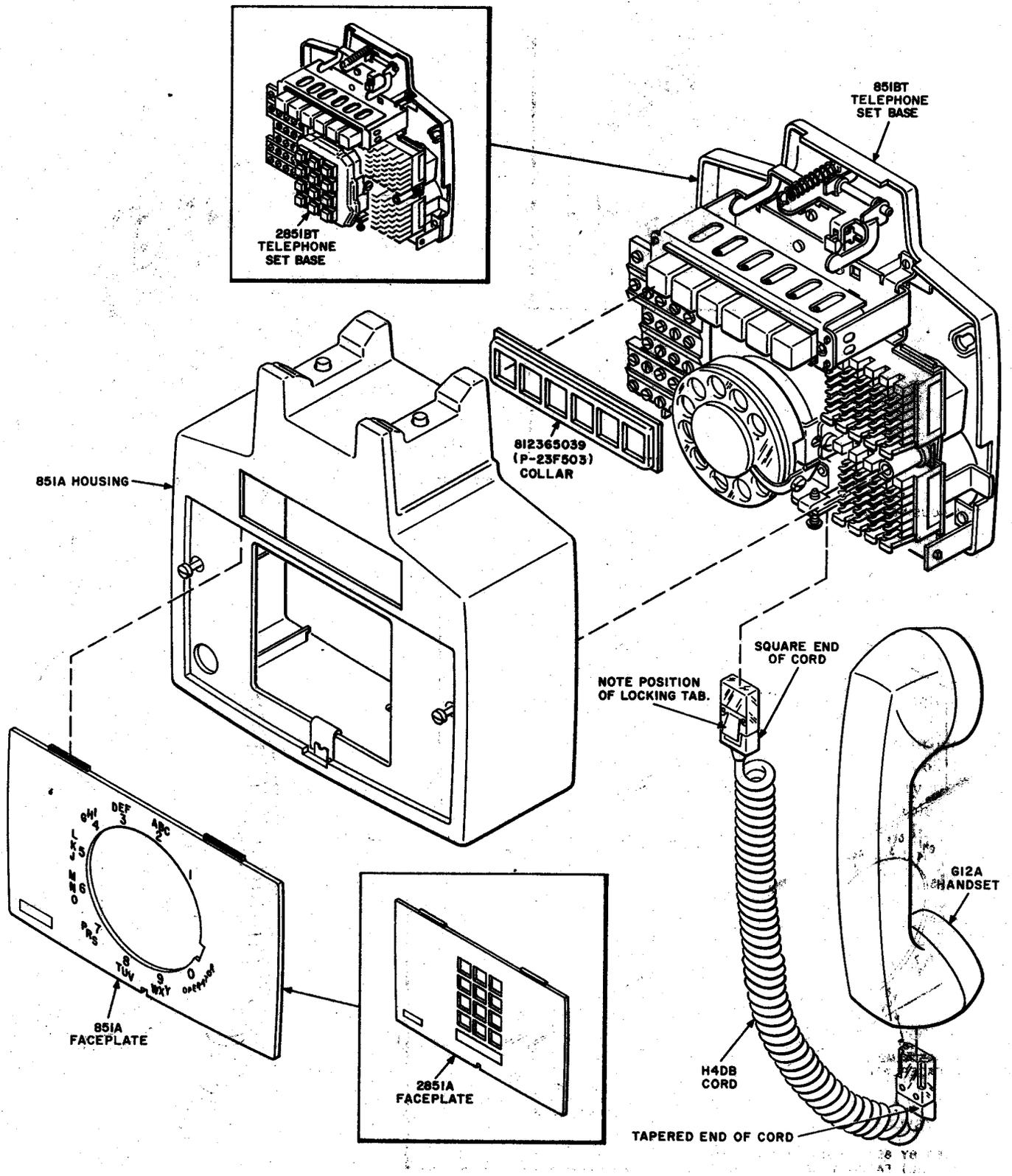


Fig. 24—Station Modular Arrangement, 851BT (MD) and 2851BT (MD) Telephone Sets Showing Later Baseplate and 851A Housing

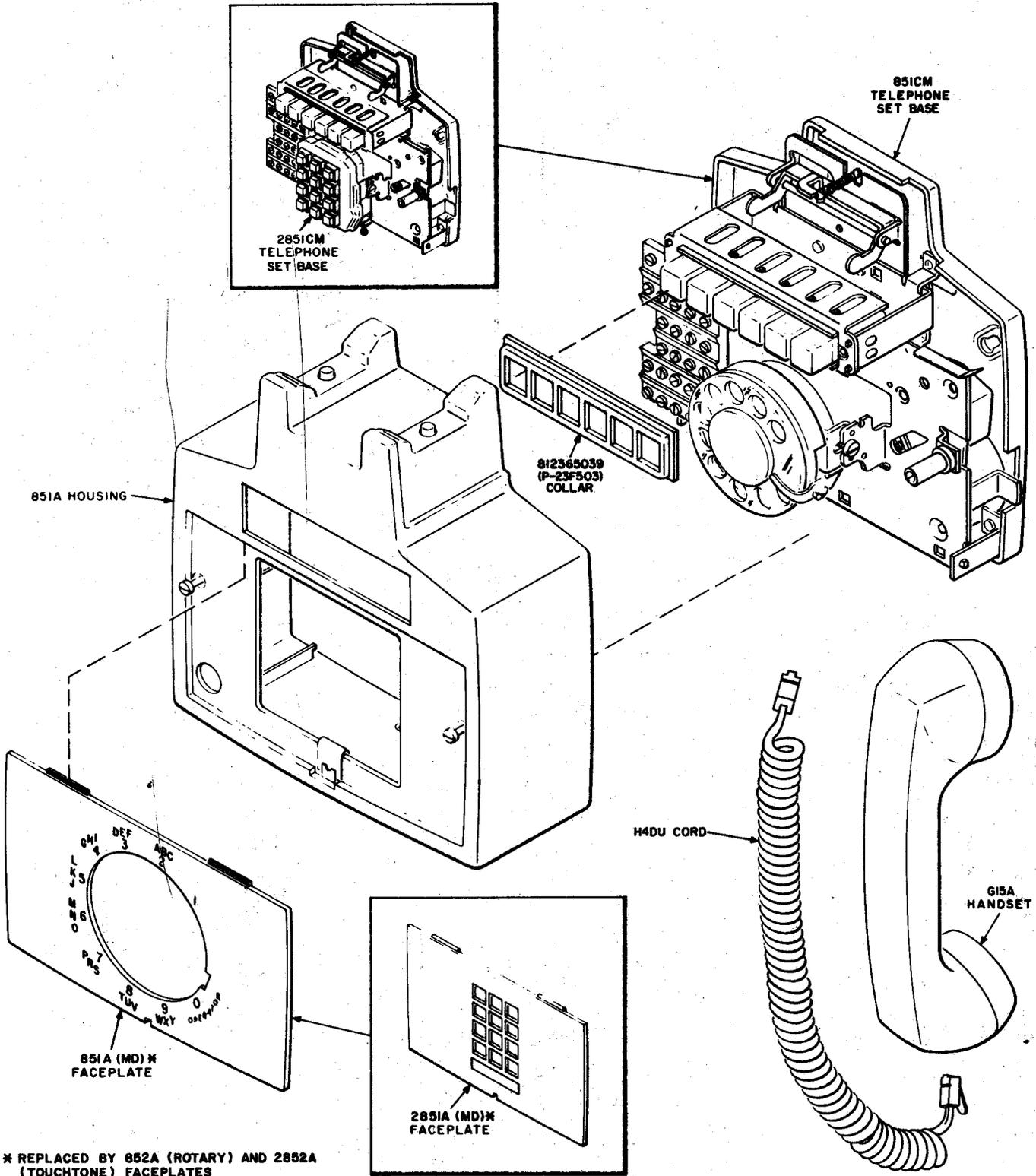


Fig. 25— Station Modular Arrangement 851CM and 2851CM Current Telephone Sets

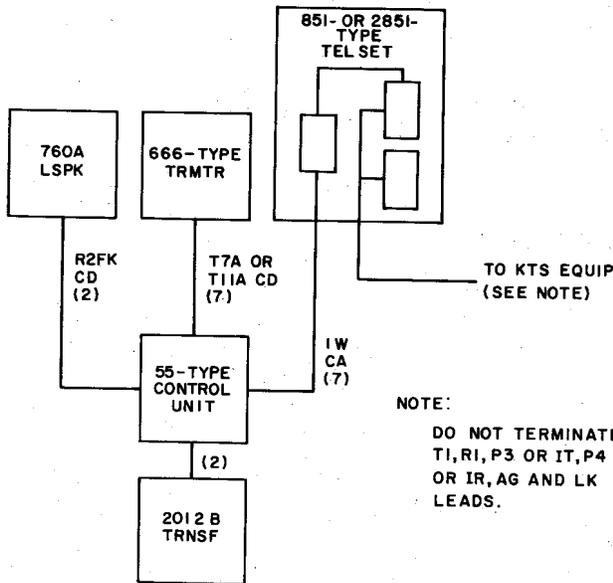


Fig. 26—Block Diagram of 3-Type (MD) Speakerphone Control Unit Located Near Station

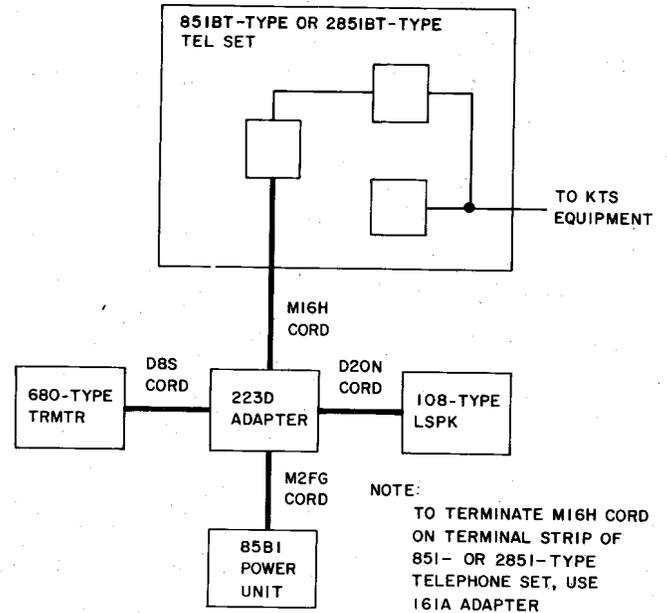


Fig. 28—Block Diagram of 4A Speakerphone Located at Station Using 223D Adapter

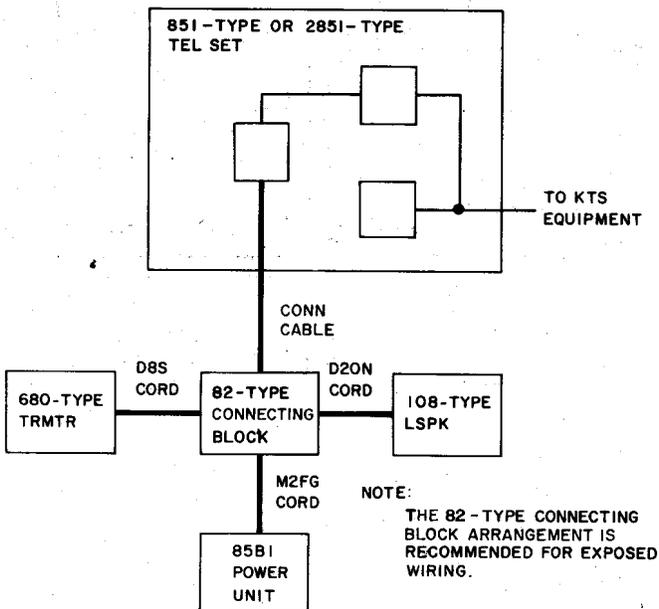


Fig. 27—Block Diagram of 4A Speakerphone Located at Station Using 82-Type Connecting Block

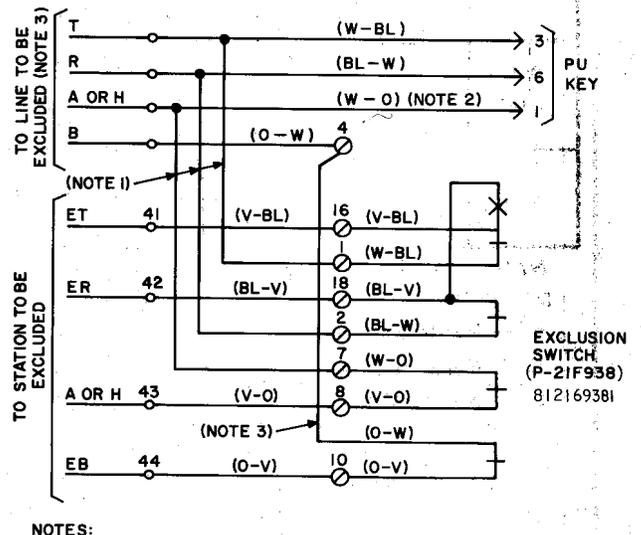
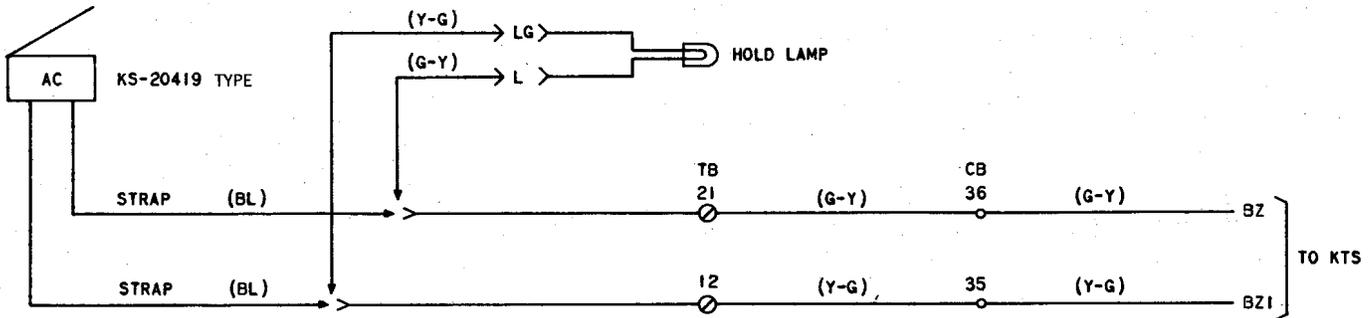


Fig. 29—Exclusion Switch Connections



NOTE:
IF HOLD LAMP OPERATION IS REQUIRED; REMOVE, INSULATE, AND STORE BUZZER LEADS.

Fig. 30—Hold Lamp Connections

◆TABLE B◆

CONNECTIONS FOR KTS AND/OR STATION BUSY LAMP WITH SPEAKERPHONE (SEE NOTE)

STATION BUSY LAMP	KTS CONVERSION	WIRE OR LEAD								533K BUSY LAMP DIODE
		LINE SWITCH			HOLD KEY		STRAP OR MTG CD CONDR			
		Y	BR	G	O-BK	BK-BL	V-S‡	G-V‡	Y-BR	
With- out	1A	11	*	3	9	13	*	3	L2†	
	1A1-1A2	4	3	13	3	9	3	13	L2†	
With	1A	11	L2†	3	9	13	L2†	3	L2†	
	1A1-1A2	4	L2†	13	3	9	L2†	13	L2†	L2† → 3

Note: For battery supply and additional information on station busy lamp, refer to Section 502-110-100.

* Insulate and store.

† Network terminal, undesignated terminals are on terminal board.

‡ Speakerphone leads.

TABLE C
PICKUP-SIGNAL KEY CONVERSIONS

TEL SET	KEY OPTION	KEY LEAD				
		O-W	S-W	G-R	BL-BK	BR-BK
851-or 2851-Type	HPPPPP	9	9	9	9	9
	HPPPPS	9	9	9	9	11
	HPPPSS	9	9	9	11	11
	HPPSSS	9	9	11	11	11
	HPSSSS	9	11	11	11	11
	HPPP*P*S*	9	9	6	6	3
	HPP*P*P*S*	9	6	6	6	3

* For common signaling with intercommunicating or private lines with signaling under line switch control. For 1A KTS, move (Y) line switch lead from terminal 4 to 11.

SECTION 503-601-101

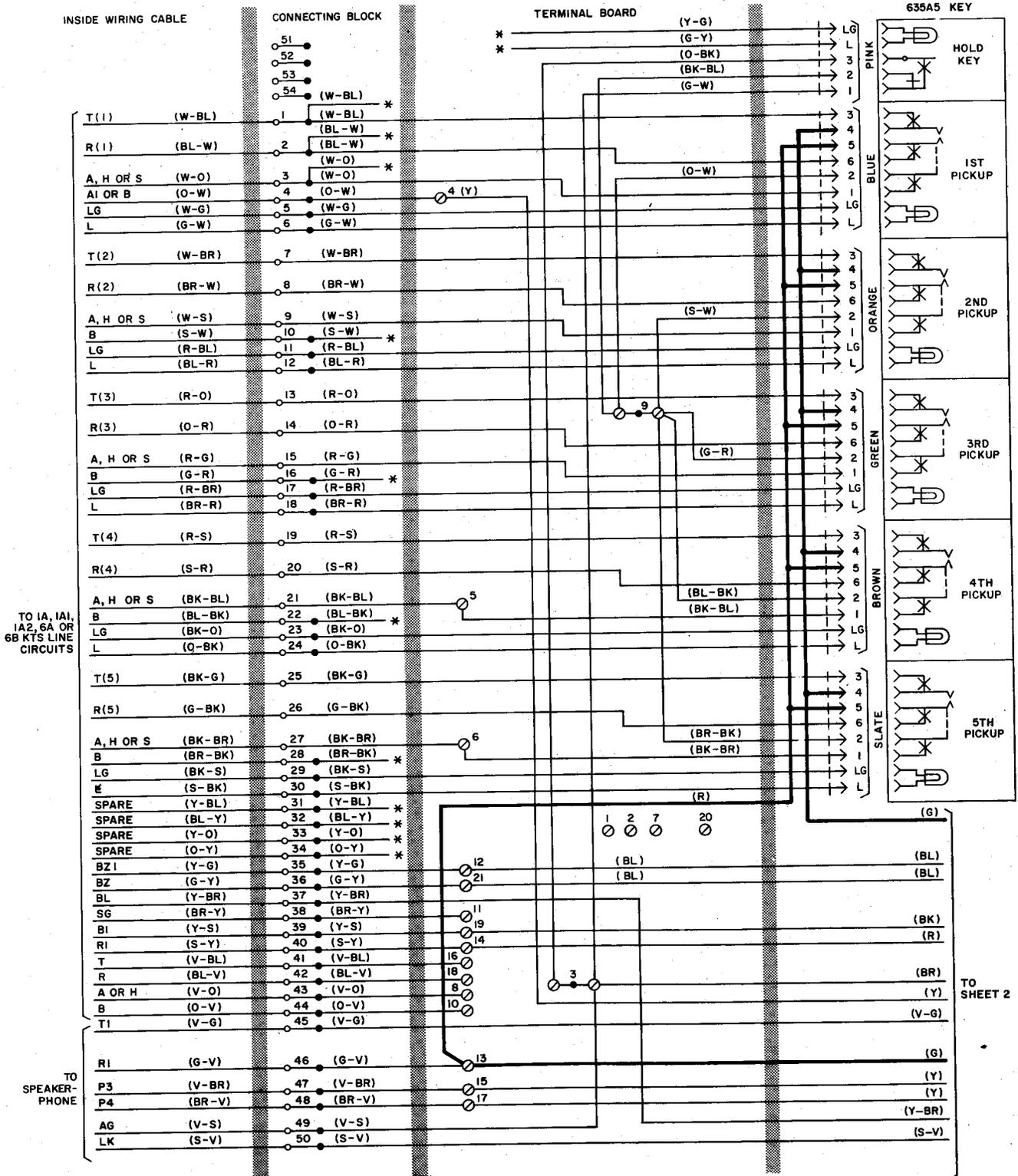


Fig. 31—851BT (MD), 851B (MD), and 851BM (MD) Telephone Sets, Connections (Sheet 1 of 2)

NOTES:

1. CONNECTIONS FOR PIB RINGER SHOWN. RINGER CONNECTIONS FOR SETS EQUIPPED WITH P1A RINGER SAME AS PIB EXCEPT (S) AND (S-R) LEADS ARE INSULATED AND STORED. (BL) LEAD REMOVED FROM CURRENT MODEL P1A RINGERS.
 2. EARLY 851B(MD) TELEPHONE SETS ARE EQUIPPED WITH G3A6 HANDSET WHICH IS WIRED DIRECTLY TO THE TELEPHONE SET. LATER PRODUCTION 851-TYPE TELEPHONE SETS WERE EQUIPPED WITH A G12A HANDSET USING A PLUG-ENDED CORD.
 3. 851 BM TELEPHONE SETS ARE SHIPPED WITH G15A HANDSET AND THE H4DU HANDSET CORD.
 4. FOR MANUAL SERVICE MOVE (G) TIP LEAD FROM F TO RR TERMINAL AND (W) DIAL LEAD FROM R TO GN TERMINAL. DIAL REMAINS ON SET.
- DP - DIAL PULSE
ON - OFF NORMAL

* INSULATED AND STORED

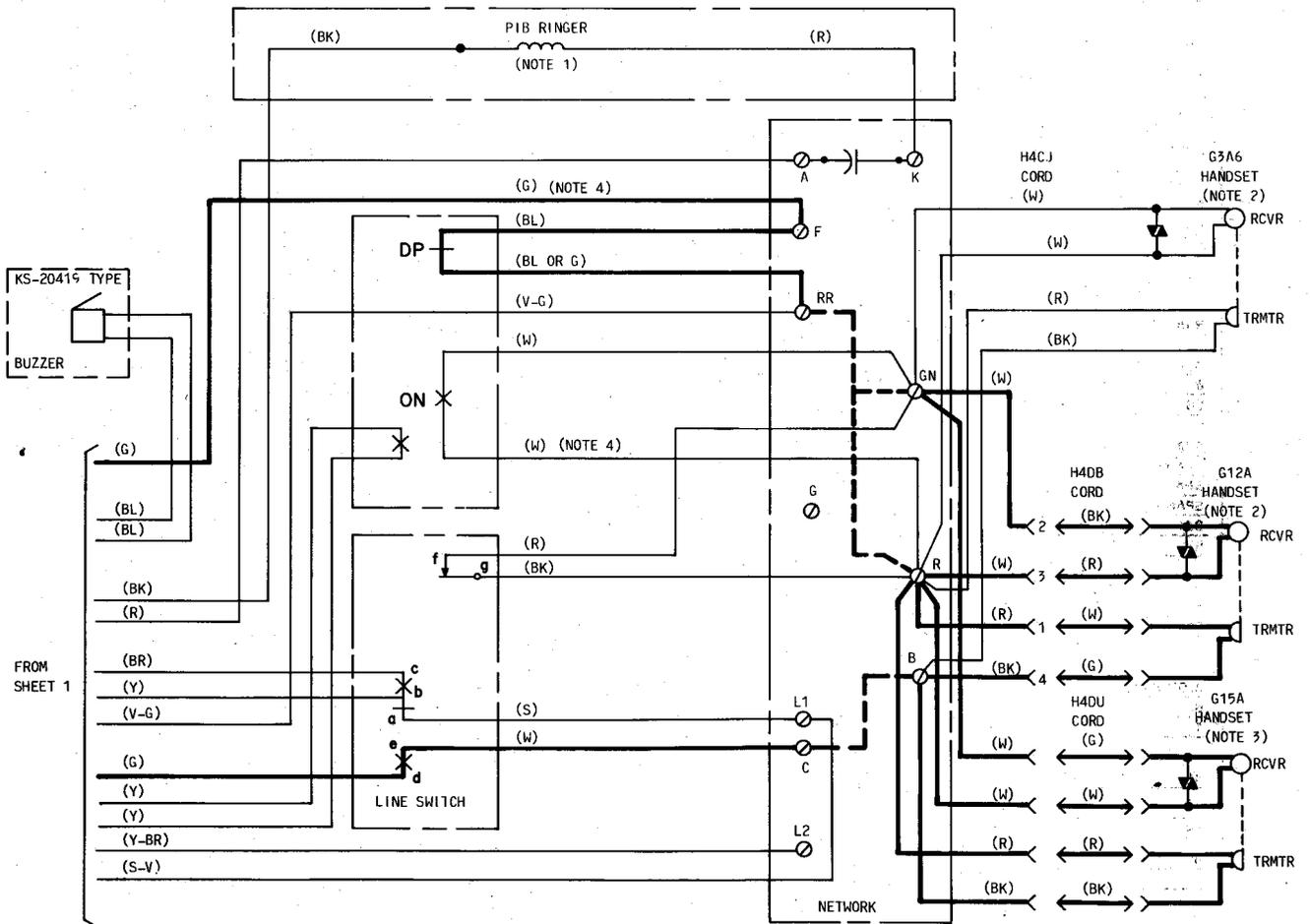


Fig. 31—851BT (MD), 851B (MD), and 851BM (MD) Telephone Sets, Connections
(Sheet 2 of 2)

SECTION 503-601-101

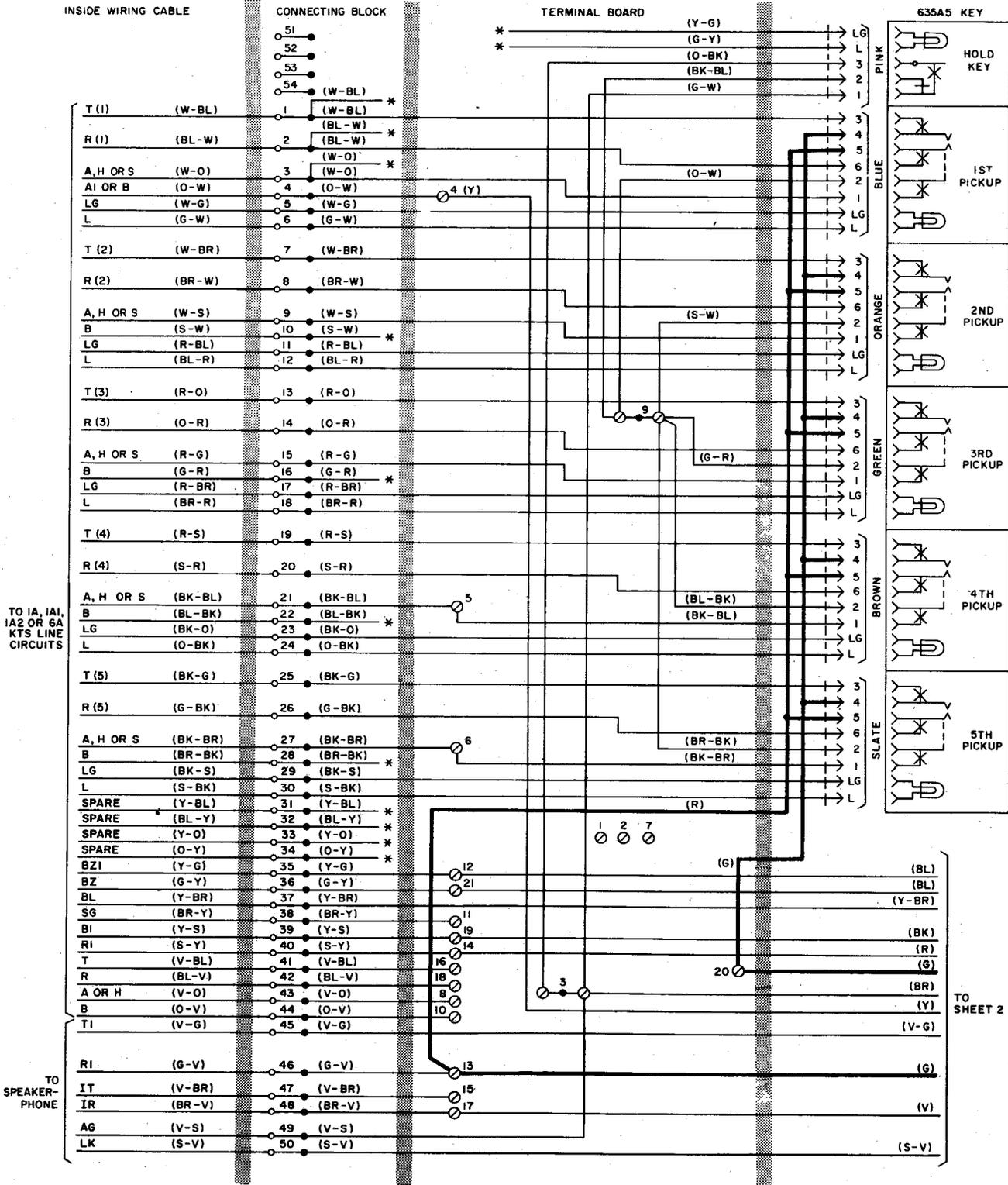


Fig. 32—2851BT (MD), 2851B (MD), and 2851BM (MD), Telephone Sets, Connections (Sheet 1 of 2)

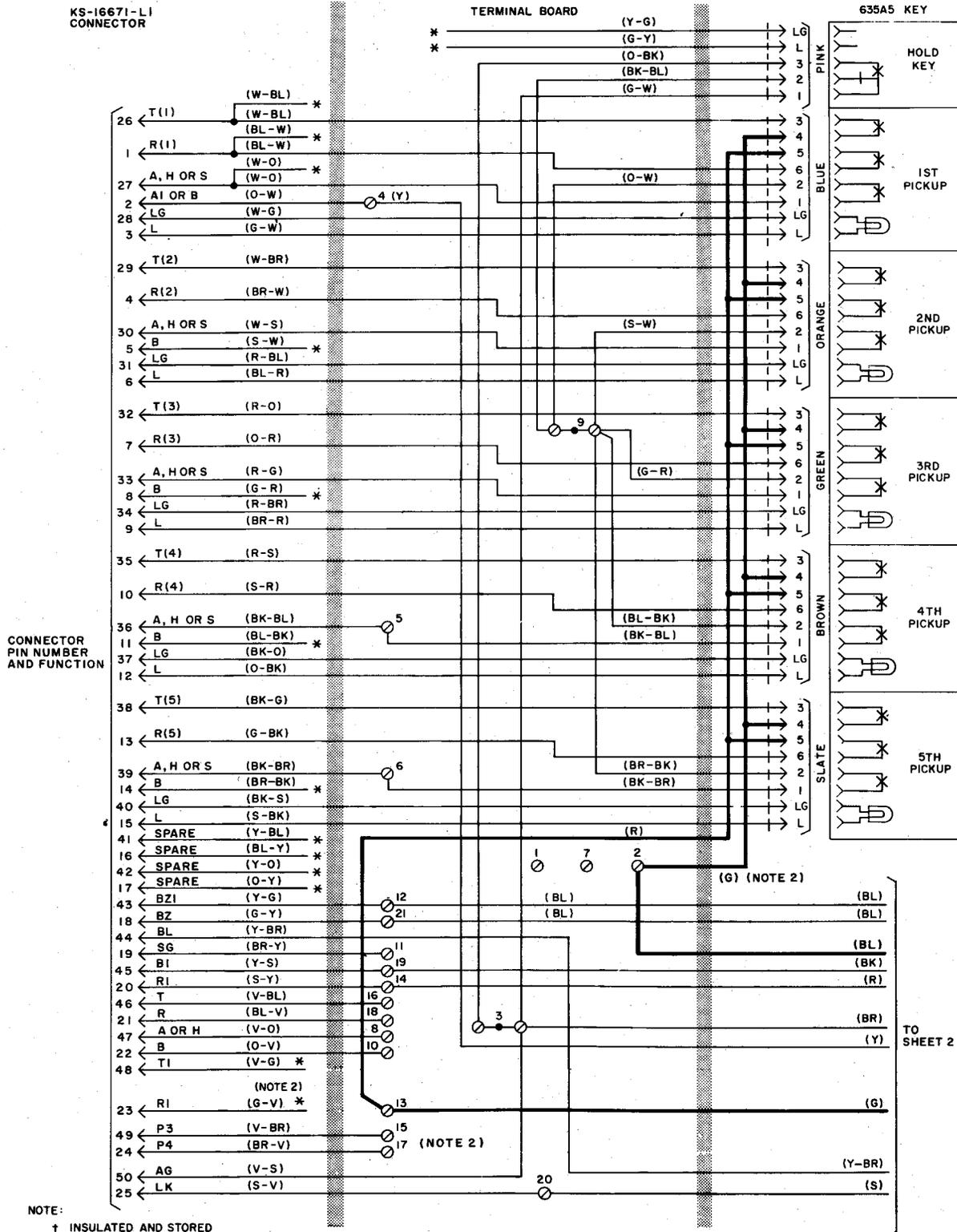


Fig. 33—851CM Telephone Set, Connections (Sheet 1 of 2)

NOTES:

1. CONNECTIONS FOR P2B OR P3B RINGER SHOWN. RINGER CONNECTIONS FOR SETS EQUIPPED WITH P3A RINGER SAME AS SHOWN EXCEPT (S) AND (S-R) LEADS ARE INSULATED AND STORED. (BL) LEAD REMOVED FROM CURRENT MODEL P1A RINGERS.
2. WHEN USING SPEAKERPHONE, REMOVE (G) LEAD FROM TERM 2 AND CONNECT TO TERM F. REPLACE BRA DIAL WITH BCA DIAL AND CONNECT (Y) LEADS TO TERMS 15 AND 17. SPEAKERPHONE LEADS R1(G-V) AND T1(VG) ARE INSULATED AND STORED IN SETS MANUFACTURED AFTER JULY 20, 1979. WHEN INSTALLING SPEAKERPHONE, CONNECT THE R1(G-V) TO TERMINAL 13 AND THE T1(V-G) LEAD TO NETWORK TERMINAL RR.
3. 851CM TELEPHONE SETS ARE SHIPPED WITH G15A HANDSET AND THE H4DU HANDSET CORD.
4. FOR MANUAL SERVICE MOVE (BL) FROM F TO RR TERMINAL AND MOVE (W) DIAL LEAD FROM R TO GN TERMINAL. DIAL REMAINS ON SET.

* INSULATED AND STORED
 DP - DIAL PULSE
 ON - OFF NORMAL

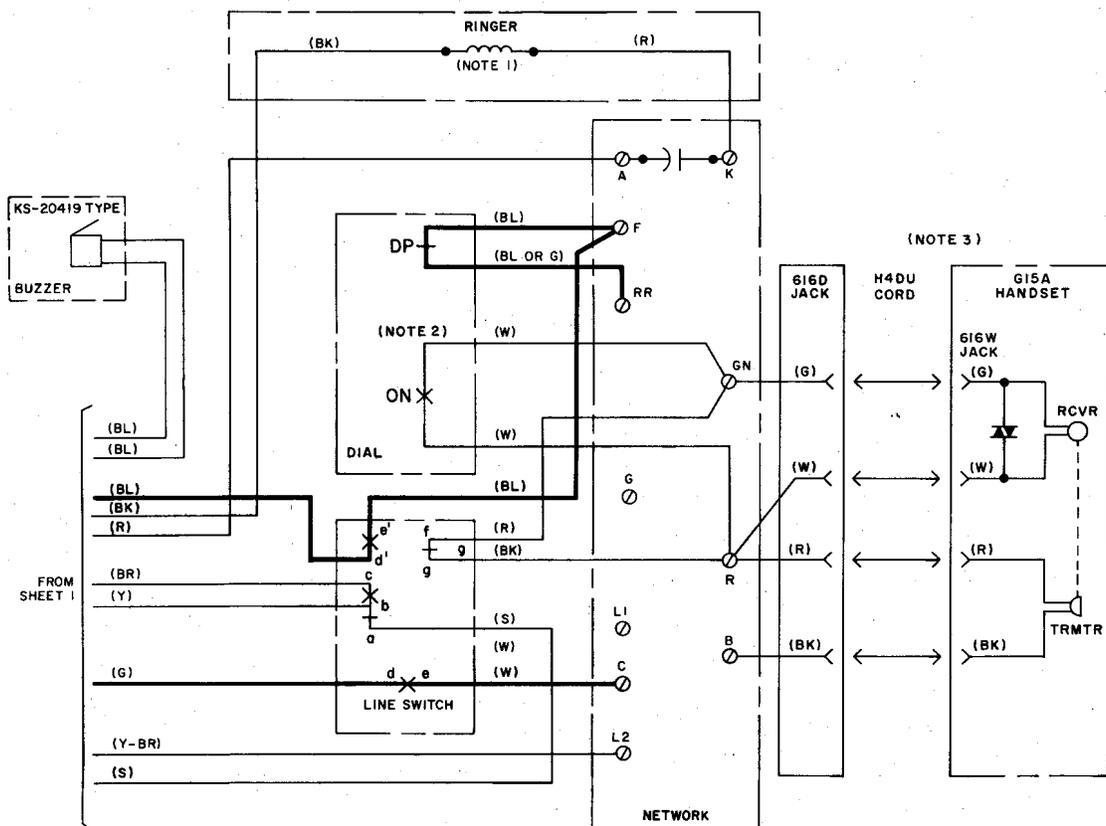


Fig. 33—851CM Telephone Set, Connections (Sheet 2 of 2)

SECTION 503-601-101

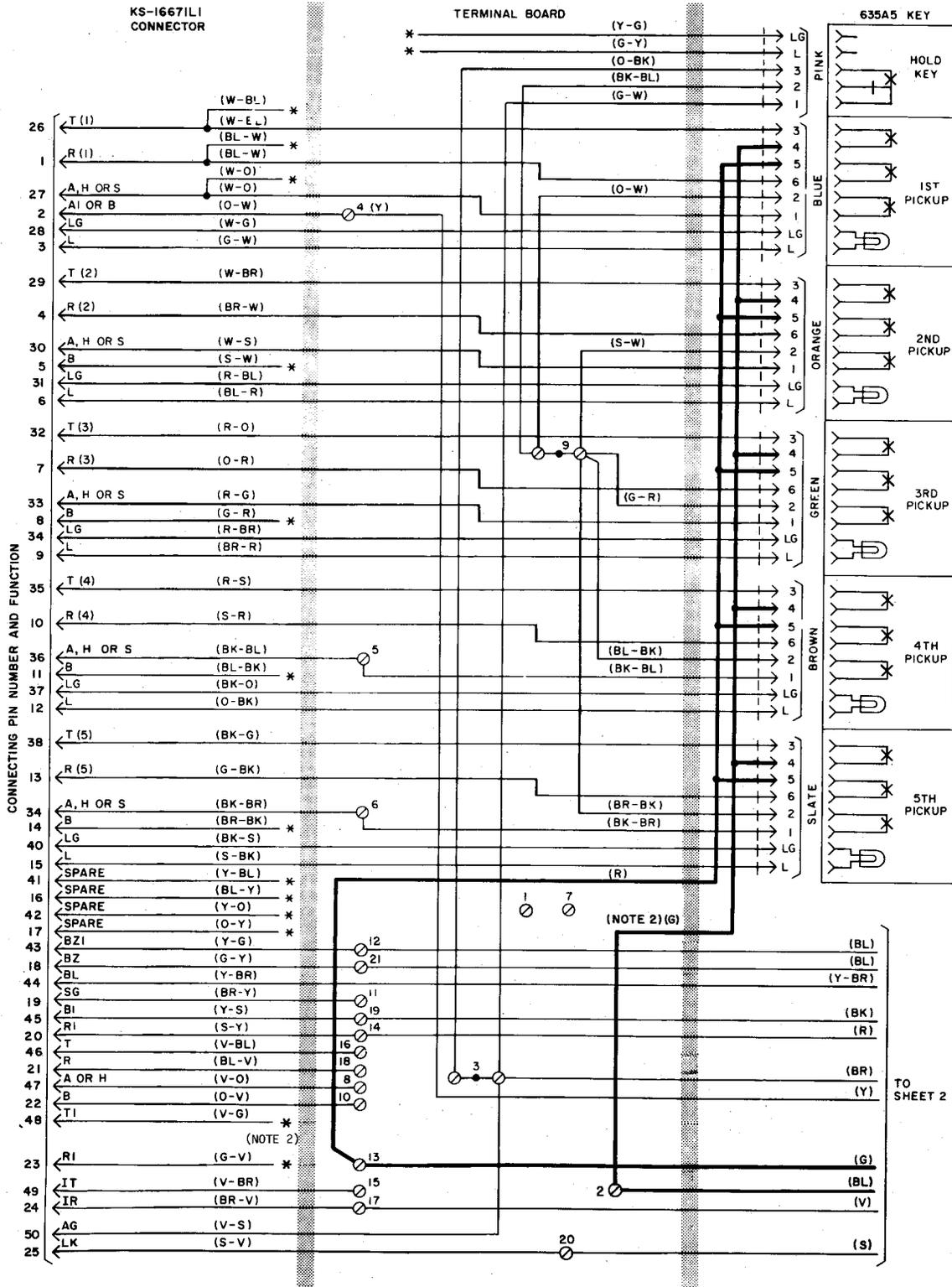


Fig. 34—2851CM Telephone Set, Connections (Sheet 1 of 2)

NOTES:

1. CONNECTIONS FOR P2B OR P3B RINGER SHOWN, RINGER CONNECTIONS FOR SETS EQUIPPED WITH P3A RINGER SAME AS SHOWN EXCEPT (BL), (S), AND (S-R) LEADS ARE INSULATED AND STORED. (CURRENT MODEL P1A RINGERS DO NOT HAVE (RL) LEAD).
 2. WHEN USING SPEAKERPHONE, REMOVE (G) LEAD FROM TERM 2 AND CONNECT TO TERM F. REMOVE (BL) LEADS FROM TERMS F AND 2, INSULATE AND STORE. SPEAKERPHONE LEADS R1(G-V) AND T1(V-G), ARE INSULATED AND STORED IN SETS MANUFACTURED AFTER JULY 20, 1979. WHEN INSTALLING SPEAKERPHONE CONNECT THE R1(G-V) LEAD TO TERMINAL 13 AND THE T1(V-G) LEAD TO NETWORK TERMINAL G.
 3. 2851 CM TELEPHONE SETS ARE SHIPPED WITH G15A HANDSETS AND H4DU HANDSET CORD.
 4. ON SETS MANUFACTURED PRIOR TO 4-1-78, THE GREEN AND WHITE HANDSET CORD JACK LEADS IN TELEPHONE SET WERE CONNECTED TO NETWORK TERMINALS R AND S, RESPECTIVELY.
- * INSULATED AND STORED

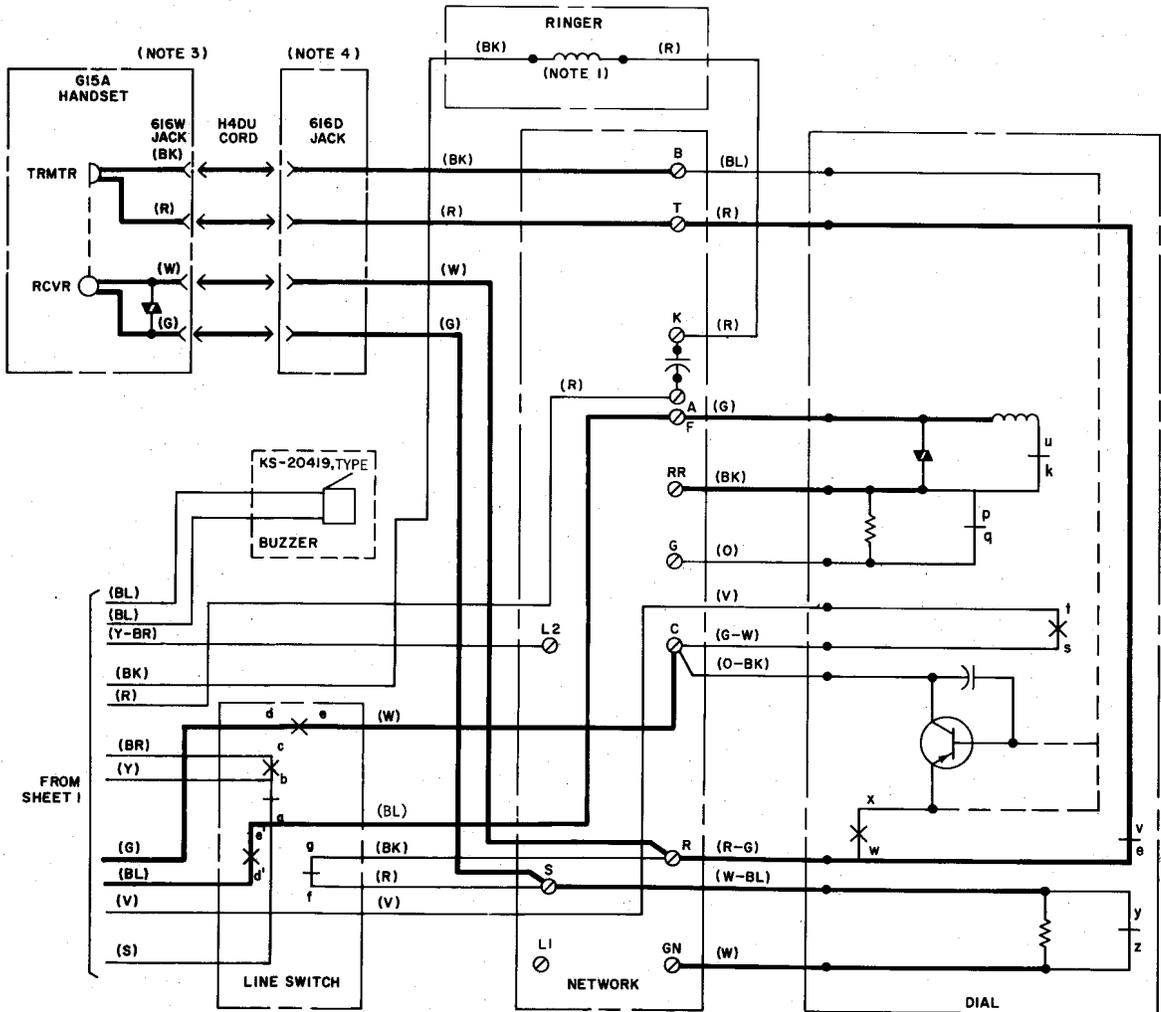


Fig. 34—2851CM Telephone Set, Connections (Sheet 2 of 2)

TABLE D

POLARITY GUARD CONNECTIONS FOR 2851-TYPE TELEPHONE SET [819041971 (P-90D197) (MD) OR 840364376 POLARITY GUARD (Note 1 and 2)

WIRE OR LEAD	COLOR	REMOVE FROM	CONNECT TO	
		NET.	GUARD ASSY	NET.
Dial	BK	RR	T	
	G-W	C	S	
Line Switch	W	C	S	
Guard Assembly	G			RR
	W			C

Note 1: For use when authorized by local instructions to eliminate the affects of battery and ground reversal encountered in end-to-end signaling.

Note 2: The 840364376 polarity guard must be ordered as a D-181006 Kit of Parts.

TABLE E

2A1 MATRIX BLOCK (POLARITY GUARD) CONNECTIONS

LINE		LINE TERM. (LEFT)	STATION TERM. (RIGHT)
1	T	1	1
	R	5	5
2	T	7	7
	R	11	11
3	T	13	13
	R	17	17
4	T	19	19
	R	23	23
5	T	25	25
	R	29	29
6	T	31	31
	R	35	35
7	T	37	37
	R	41	41
8*	T	43	43
	R	47	47

* If more than 8 lines are provided, additional 2A1 matrix blocks are required.