

REFERENCE

502-, 510-, 511-, 515-, 555-, AND 558-TYPE TELEPHONE SETS

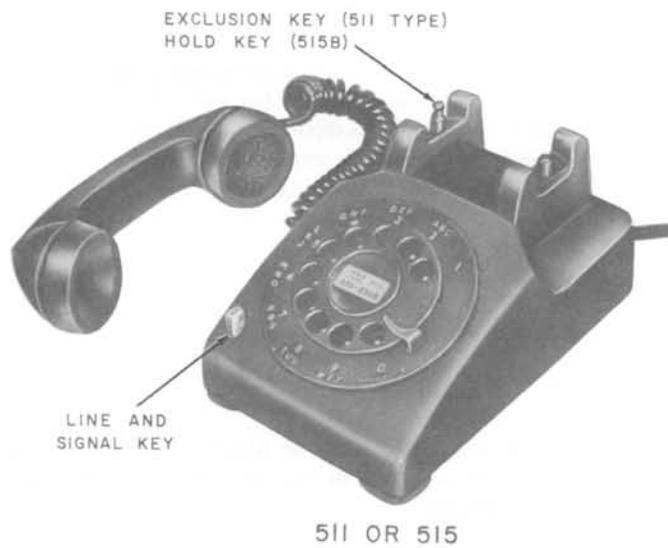


Fig. 1—502-, 510-, 511-, 515-, 555-, and 558-Type Telephone Sets

## SECTION 502-501-102

### 1. GENERAL

1.01 This section covers rotary dial and manual telephone sets equipped with one or two of the following features.

- (1) Exclusion key used to control extension stations or external signaling circuits in key telephone systems (Fig. 2).
- (2) Line and signal key to permit 2-line pickup and control of external signaling circuits in key telephone systems (Fig. 3).
- (3) Hold key and line and signal key.

1.02 Information contained in this section was formerly found in Sections 502-515-100, 502-515-105, 502-515-400, 502-515-401, 502-515-405, and 502-515-415 which are hereby canceled.

1.03 Code numbers such as 511C/D cover both manual and dial versions, respectively, of the same type telephone set to permit converting to either type without changing the code number stamped on the base. The letter R was added to the code number at one time to indicate the set was equipped with a retractile handset cord.

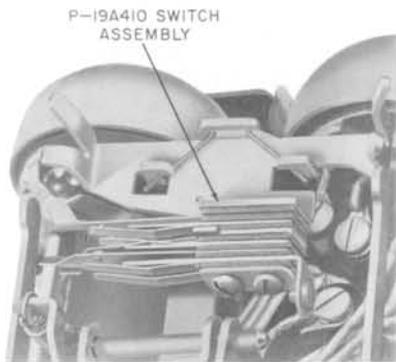


Fig. 2—Typical Exclusion Switch

### 2. IDENTIFICATION

2.01 *Purpose*—These sets are used where exclusion, 2-line pickup, or both are desired in common battery areas, manual or dial.

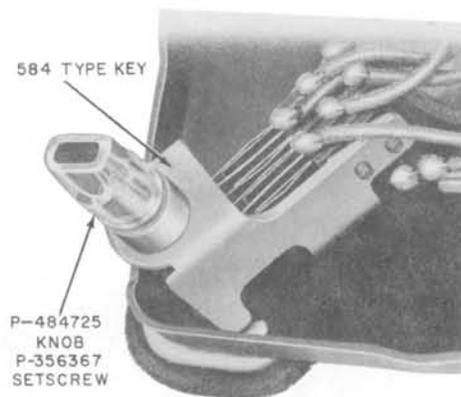


Fig. 3—Typical Turn Key

2.02 *Ordering Guide*—Table A lists components of these sets.

#### 2.03 Color

- (a) All sets available in standard colors indicated in Section 500-120-100.
- (b) Components available in color include dial or apparatus blank, handset, mounting cord, and housing. Components other than housing must have code completed by adding desired color suffix. Housing P-number must have desired color suffix substituted for its last two digits.

### 3. INSTALLATION

#### 3.01 Housings:

- 502-, 510-, 511-, or 515-type sets—housings are secured to the base by two P-44E734 screws.
- 555- or 558- Type Sets

##### (a) Removal:

- (1) Push inward tab of snap fastener located in cord slot (Fig. 4).
- (2) While tab is depressed lift bottom of the housing out and up, releasing snap fastener

**TABLE A**  
**TELEPHONE SET COMPONENT PARTS\***

TEL. SET	CODE	HOUSING	MOUNTING CORD	RINGER	EXCLUSION OR HOLD KEY	584-TYPE KEY AND LEAD ASSEMBLY		
502	A	P-80D900	D6AA	C4A	P-19A410	P-347015		
	B							
510	A	P-80D100	D4BJ		C4A		P-19A410	P-347015
	B		D6AA					
	E							
	F							
511	A(MD)	P-80D700	D10P		H1A		P-19A410	P-20A455
	B(MD)		D16D					
	C							
	D		D20J				P-20F139	P-20F137
	F							
	H							
515	B		D6AA		P-21F195	P-21F217		
555	B				P-21F197	P-21F218		
558	A(MD)	P-81E800		C4A	P-11E244	P-11E256		
	B(MD)							
	C							
	D				H1A	P-20F167	P-20F166	
	F							

\*In addition to parts in tabular listing, sets contain a 425-type network, G-type handset, and 7-or 9-type dial. 95-type apparatus blank included with 502A, 510A, E, 511A, C, and 558 A, C.

SECTION 502-501-102

(Fig. 5) and disengaging latch-spring assembly at top of housing.

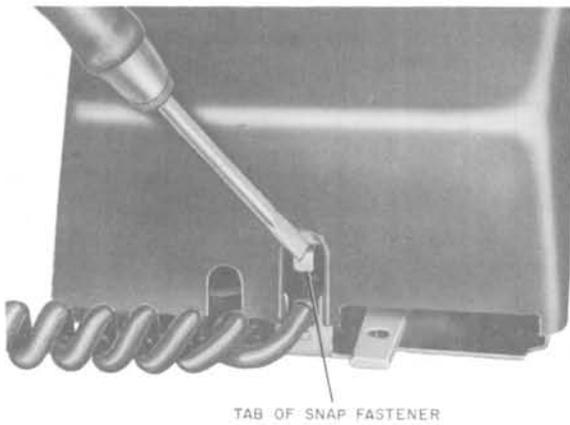


Fig. 4—Removing Wall Set Housing

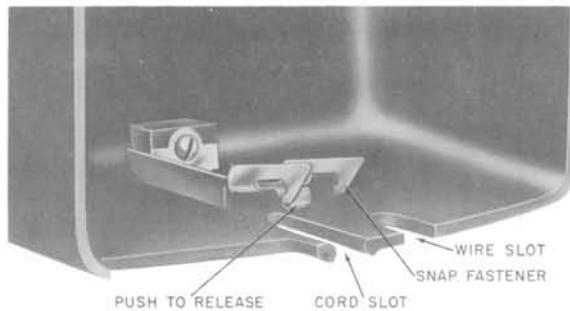


Fig. 5—Wall Set Housing Release

(b) Replacement:

- (1) Slip housing over handset hook and dial engaging latch-spring assembly (Fig. 6).
- (2) Tilt housing approximately 20 degrees from the wall surface and slide along surface to engage latch. Align exclusion switch plunger with the opening provided.
- (3) Lower housing toward dial surface. Align the upper reinforcing ribs with the slots cut into the baseplate. The collar around

the exclusion switch plunger must enter the opening provided.

- (4) When housing is approximately 1/2-inch from the dial, insert a screwdriver between housing and dial (Fig. 7).



*There is a reinforcement ridge around the opening for the 2-line pickup key button. Do not try to force button upward if it is behind this ridge. Lift housing slightly so button will clear ridge. It may be necessary to twist housing to the side to align button and opening.*

- (5) Using the screwdriver tip, force the 2-line pickup key button toward the top of the set. At the same time, pull housing downward, maintaining the 20 degree tilt. Work 2-line pickup key button into opening.

- (6) After 2-line pickup key button is aligned with opening, lower housing and remove screwdriver. Press housing firmly against baseplate, engaging snap fastener.

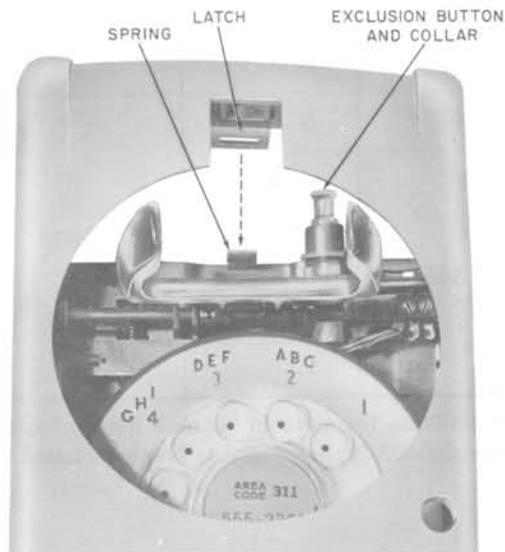


Fig. 6—Replacing Wall Set Housing

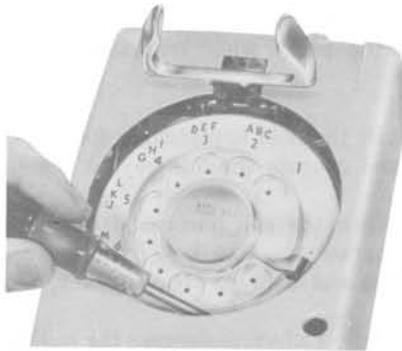


Fig. 7—Wall Set Housing Alignment

### 3.02 Mounting .555- or 558-Type Sets:

- Several holes are provided in the baseplate for more flexibility in mounting to minimize backboard use.
- Can be mounted directly over a conduit outlet box.

### 3.03 Mounting Cords



*Spade tips or skinned wires should contact only the terminal to which the connection is made. Electrical contact with the metal tab of the network housing may cause the finger stop or handset hook on wall sets to become energized with ringing or dc line voltage.*

- Dress cord leads to avoid interference with moving parts and ringer gongs.
- Heavy-duty, extra length D4BP cord can be used to replace D4BJ cord of 510A/B telephone set. To install:
  - (1) Remove ringer mounting screw (Fig. 8).
  - (2) Insert cord stay under ringer frame.
  - (3) Reinsert mounting screw.
  - (4) Position cord grommet so that cord is protected where it enters set.
  - (5) Replace housing.

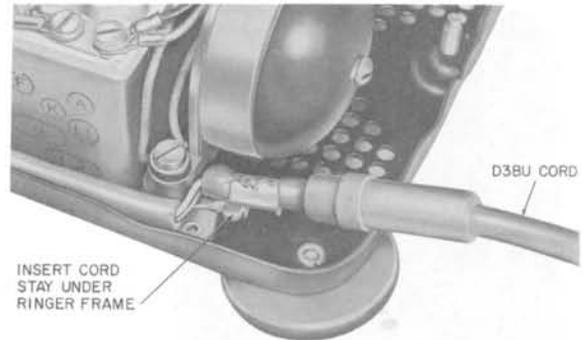


Fig. 8—Installing Heavy-Duty Cord

### 3.04 Apparatus Blanks: 95B (MD) or 95C used in all sets (Fig. 9). To install:

- 95B (MD)—Place as shown in Fig. 10 and 11. Brackets must be inverted in 558-type telephone sets.
- 95C—Fit on dial mounting bracket (Fig. 12) and replace housing.



Fig. 9—95B(MD) or 95C Apparatus Blank Mounted in Set

### 3.05 Ringer:

- (a) Mounted to base with two P-43A456 washer-head mounting screws in rubber grommets.

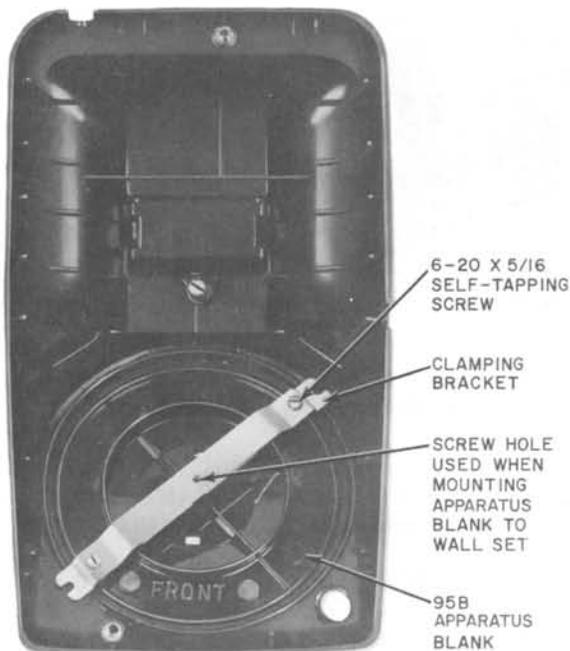


Fig. 10—95B(MD) Apparatus Blank Mounted in Desk-Type Telephone Set

(b) Ringer off position can be provided, when authorized locally, by bending back ringer stop spring to provide a fifth position (OFF) on the ringer volume control.

**Note:** Current model C4A ringers are equipped with a handset cord retainer (boss) to help retain proper dress of handset cord leads.

### 3.06 Handsets:

(a) The G1- or G3-type handsets in these sets may be replaced by a G6AR(MD) or G6B handset for impaired hearing, a G7AR for weak speech, or a G8A(MD) or G8B for noisy locations. Refer to section covering handsets for additional information.

## 4. OPERATION (515B and 555B)

### 4.01 515B and 555B Telephone Sets:



*The following operating instructions should be explained to the customer upon installation of the set.*

If a call is received on one line and it is desired to hold the party while transferring to the other line:

- (1) Lift the hold key plunger (on top of housing) and operate the line key to the second line.
- (2) When the call on second line is completed, operate the line key back to the first line position and depress the hold key plunger.

**Note:** Failure to depress the hold key plunger when a held line is reconnected will automatically place a hold on the unused line, preventing its use for either incoming or outgoing calls. Reversal of the operating sequence (i.e., depressing the hold key plunger before operating line key to held line position) will disconnect the held line.

- (3) If the second line is to be picked up by an extension station, the hold key is left operated (lifted) until the extension is answered. After the extension handset is lifted, the hold key (first set) must be depressed to connect the talking path of the extension.

## 5. MAINTENANCE

### 5.01 Inspection:

(a) Inspect exterior and interior of these sets for obvious defects such as loose, displaced, or broken parts. Check also for obstruction of moving parts or the presence of foreign matter that may interfere with the proper operation of the set.

(b) Check line terminations before determining trouble causes from Table B.

### 5.02 Mechanical Maintenance

#### (a) Plungers:

- Should move freely throughout entire travel without binding or squeaking.
- Accessible when handhold cover is removed (Fig. 13).
- Clean with KS-2423 cloth moistened with KS-7860 petroleum spirits and lubricate with a No. 2 or softer graphite pencil.

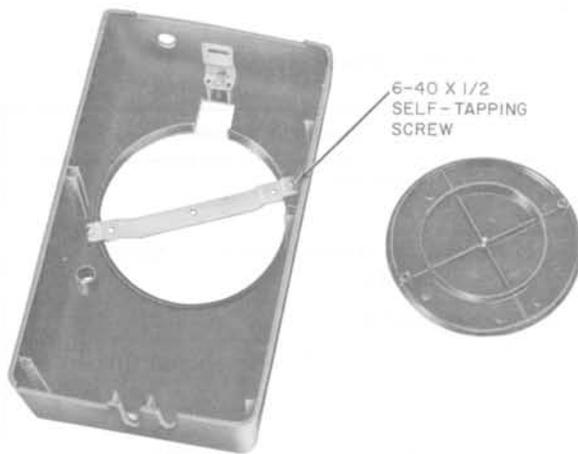


Fig. 11—95B(MD) Apparatus Blank Mounted in Wall-Type Telephone Set

- Replace housing assembly if plungers do not move freely after cleaning and lubricating.

(b) *Operating bracket switch assembly:*

- Should function throughout entire travel without binding or squeaking.
- Clean bosses on operating bracket arms, spring anchor points, operating bracket, and shaft bearing points with KS-2423 cloth moistened in KS-7860 petroleum spirits and lubricate bearing surfaces with a No. 2 or softer graphite pencil (Fig. 14).

(c) *Exclusion switch and plunger unit:*



*Do not perform any field maintenance other than cleaning of contacts with a 265C tool.*

- The exclusion plunger shall:
  - (1) Remain in the operated position when pulled up to the full extent of its stroke.
  - (2) Return to the fully depressed position when the handset is placed on the cradle of desk sets or hook of wall sets.

(3) Drop by its own weight from the mid position to the fully depressed position when the right plunger is depressed (desk sets only).

• The exclusion switch:

- (1) Normally closed contacts shall have perceptible follow when switch is operated.
- (2) Normally open contacts shall have a minimum separation of 0.015 inch.

- Replace set if exclusion switch and plunger unit fails to meet these requirements.

(d) *584-type key:*



*Adjust this key only if replacement of the complete telephone set is impracticable.*

- Use 363 tool to adjust key.
- Be sure there is adequate light.
- Pay particular attention to contact sequence.
- After any adjustments are made, check to be sure the following requirements are still met.
  - (1) Pushbutton shall operate freely to either position and return to normal after being depressed to the limit of its stroke.
  - (2) When button is fully depressed, there shall be perceptible clearance between the bottom pushbutton contact and base set.
  - (3) Contacts for turnbutton operation shall not be made or broken by operation of the plunger as a pushbutton.
  - (4) Pushbutton contacts shall have a minimum separation of 0.030 inch.
  - (5) It shall not be possible to make or break the contacts by any side thrust on the plunger in either position.

TABLE B

## TROUBLES, PROBABLE CAUSE, AND CORRECTIVE MEASURES

TROUBLE	PROBABLE CAUSE	CORRECTIVE MEASURE
Bell Does Not Ring	Ringer disconnected or incorrectly wired in set.	Connect correctly.
	Volume control wheel in cut-off position.	Move control wheel to ring position. Advise customer.
	Open winding.	Replace ringer.
	Metal particles in armature gap.	Remove with Scotch tape or approved equivalent.
	Faulty ringing capacitor.	Replace telephone set.
Bell Too Loud	Volume control wheel in wrong position.	Move control wheel to softer position and advise customer on proper use.
Bell Too Soft	Volume control wheel in wrong position.	Move control wheel to louder position and advise customer on proper use.
	Set on sound-absorbent materials.	Place set on hard surface.
	Cord touching gong.	Dress cord properly.
Bell Taps While Dialing or Operating Switch	Incorrect wiring.	Check mounting cord and ringer connections.
	Loose gong.	Tighten screw as required.
Bell Rings When Other Party Is Called: Cross Ring or False Ring	Incorrect wiring.	Check mounting cord and ringer connections.
	Biasing tension too low.	Place bias spring in high tension notch. If ringer still cross-rings, replace ringer.
Bell Keeps Ringing When Handset Is Removed	Open handset cord or dial pulse contacts.	Replace handset cord or dial.
	Defective network or open set wiring.	Replace set.
	Line contacts on switch do not close.	Check switch cover and ears. Ears should fit into notches.
No Dial Tone or Set Dead	Open mounting cord or handset cord.	Replace cord.
	Defective receiver unit or varistor shorted.	Replace receiver unit.
	Dial pulse contacts open or off-normal shunt contacts closed.	Replace dial.
	Open induction coil.	Replace telephone set.
	Switch contacts do not operate.	Check switch cover for proper installation.

TABLE B (Cont)

## TROUBLES, PROBABLE CAUSE, AND CORRECTIVE MEASURES

TROUBLE	PROBABLE CAUSE	CORRECTIVE MEASURE
Cannot Break Dial Tone	Dial pulse contacts do not open.	Replace dial.
	Dial filter capacitor shorted.	Replace telephone set.
Loud Clicks While Dialing	Dial off-normal shunt contacts do not close.	Replace dial.
Cannot Hear	Open or shorted receiver unit or handset cord.	Replace receiver unit or handset cord.
	Dial off-normal shunt contacts closed.	Replace dial.
	Open induction coil or network.	Replace telephone set.
	Switch receiver contacts do not open.	Check switch cover for interference.
Cannot Be Heard	Defective transmitter or open handset cord.	Replace transmitter or handset cord.
High Sidetone	Defective sidetone balancing network.	Replace telephone set.

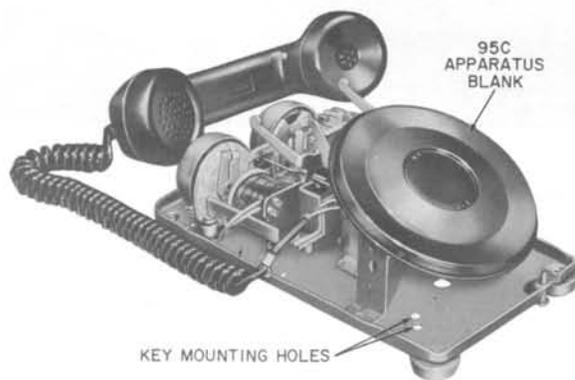


Fig. 12—95C Apparatus Blank Placed on Dial Brackets

- (6) All contacts shall have perceptible follow.
- (7) All normally closed contacts shall break before any normally open contacts makes.



Fig. 13—Removing Handhold Cover

(8) Normally closed turnbutton contacts shall have a break of at least 0.015 inch. Normally open contacts shall have a break of at least 0.025 inch.

(e) Line switch assembly:



*Do not perform any field maintenance other than replacing cover and cleaning contacts.*

- Remove line switch cover by pressing side between thumb and index finger and tilting cover up and away from mounting (Fig. 15).

- Clean contacts with 265C Tool.

(f) **Other Components:** For maintenance of handsets, dials, and ringers refer to section covering these components.

## 6. CONNECTIONS

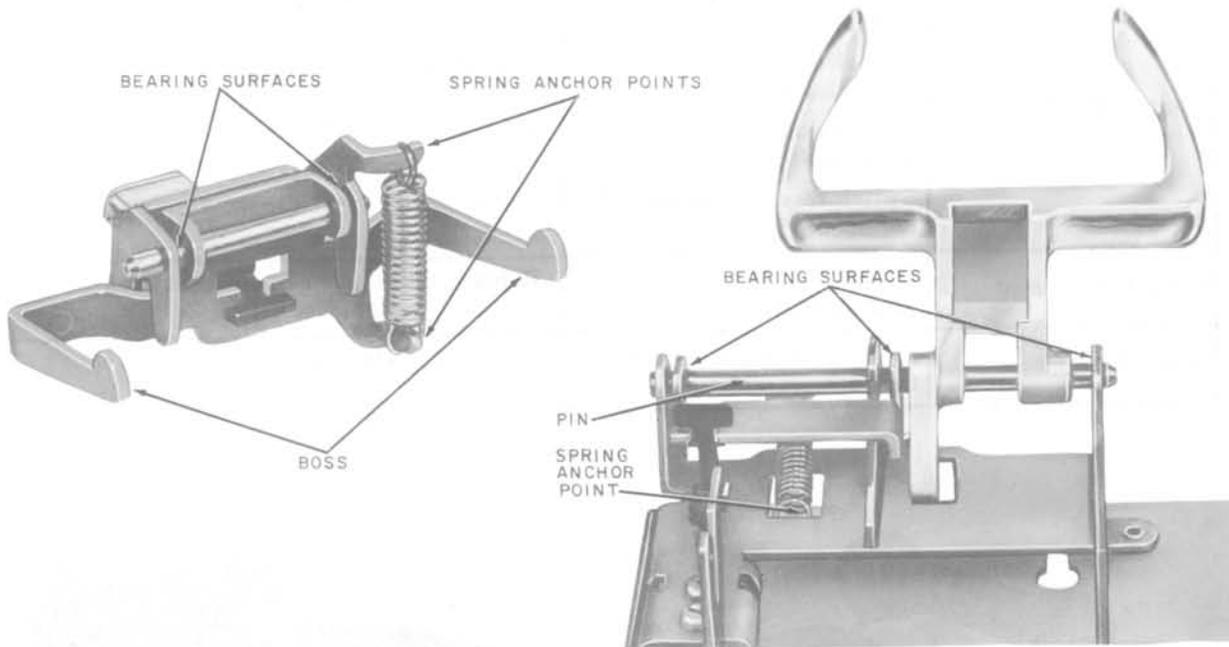


Fig. 14—Operating Bracket Switch Assemblies

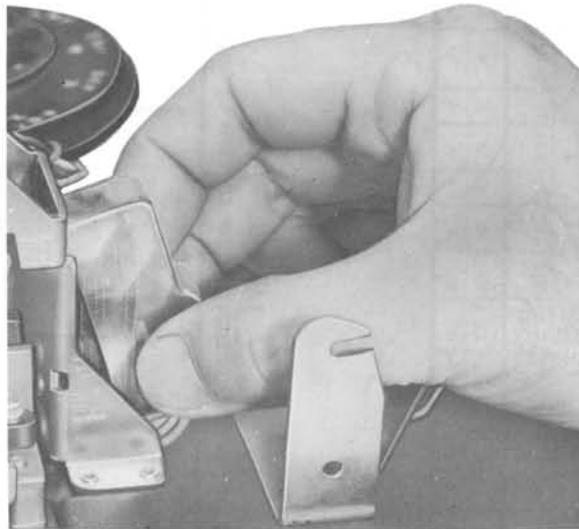


Fig. 15—Removing Line Switch Cover

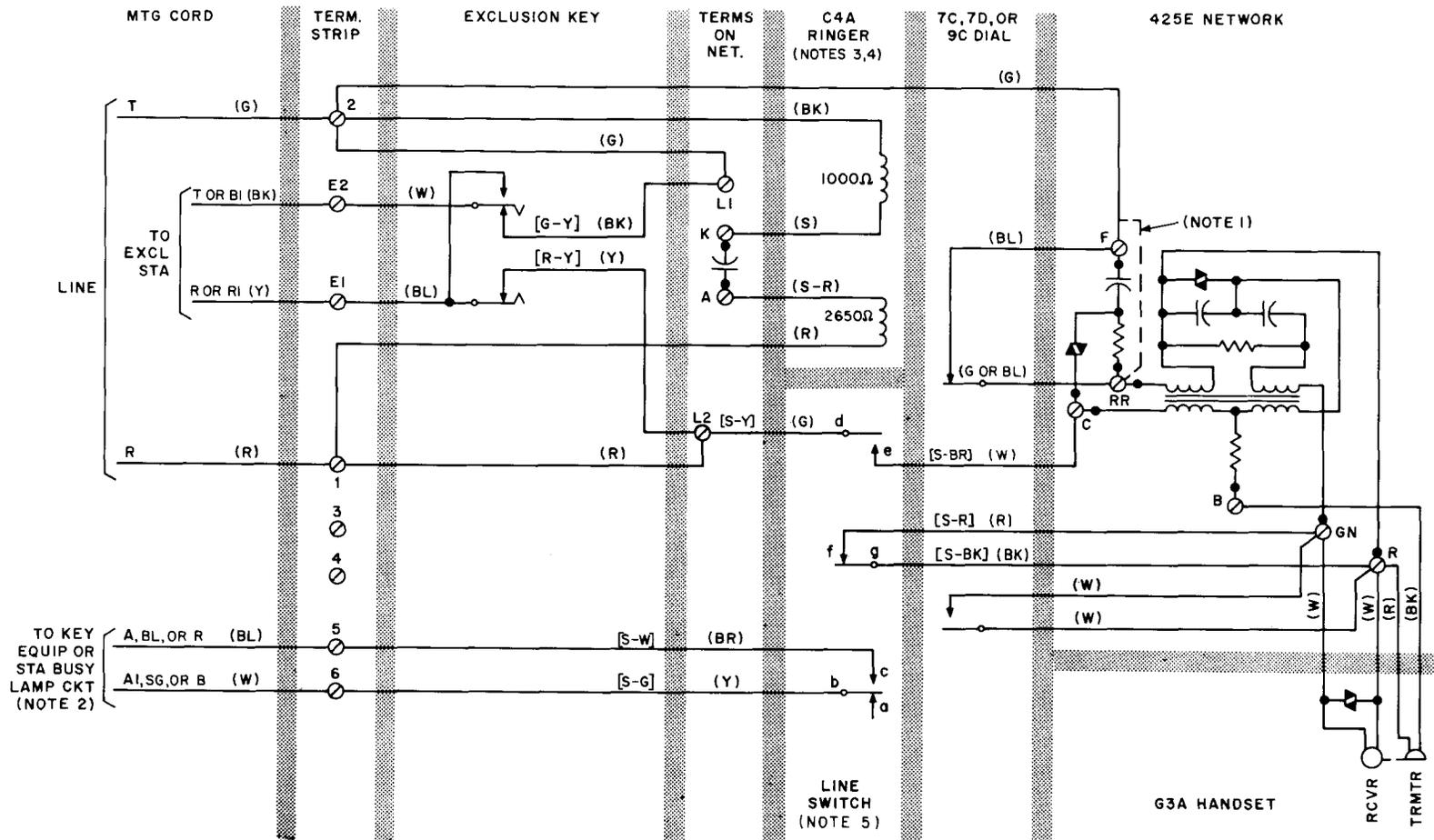
TABLE C  
502A AND B LINE AND RINGER CONNECTIONS

FEATURES					CONNECTIONS TO TERMINALS INSIDE SET												EXTERNAL CONNECTIONS FOR MOUNTING CORD									
NUMBER OF LINES PICKED UP	RINGER IN SET USED AS		EX-CLUSION KEY USED TO CUT OFF		MOUNTING CORD LEADS						EXCLUSION KEY LEADS				RINGER LEADS (NOTES 3 AND 4 FIG. 16)		LINE		EX-CLUSION CIRCUIT		COM OR PVT LINE RINGER CIRCUIT		KEY EQUIP. OR STA BUSY LAMP CIRCUIT			
	LINE RINGER	COM OR PVT LINE RINGER	EXT STA OR EXT LINE RINGER	RINGER IN SET	(R)	(G)	(Y)	(BK)	(BL)	(W)	[R-Y] (Y)	[G-Y] (BK)	(BL)	(W)	(R)	(BK)	(S)	(S-R)	RING	TIP	RING	TIP	R	B	A OR BL	A1 OR GRD
1	•		•		1	2	E1	E2	5	6	L2	L1	E1	E2	1	2	K	A	R	G	Y	BK			BL	W
1		•		•	1	2	E1	E2	5	6	4	3	E2	3	E1	4	A	A	R	G			Y	BK	BL	W

( ) MD COLOR CODE  
( ) CURRENT COLOR CODE

TABLE D  
510A AND B LINE AND RINGER CONNECTIONS (EQUIPPED WITH 4-CONDUCTOR MOUNTING CORD)

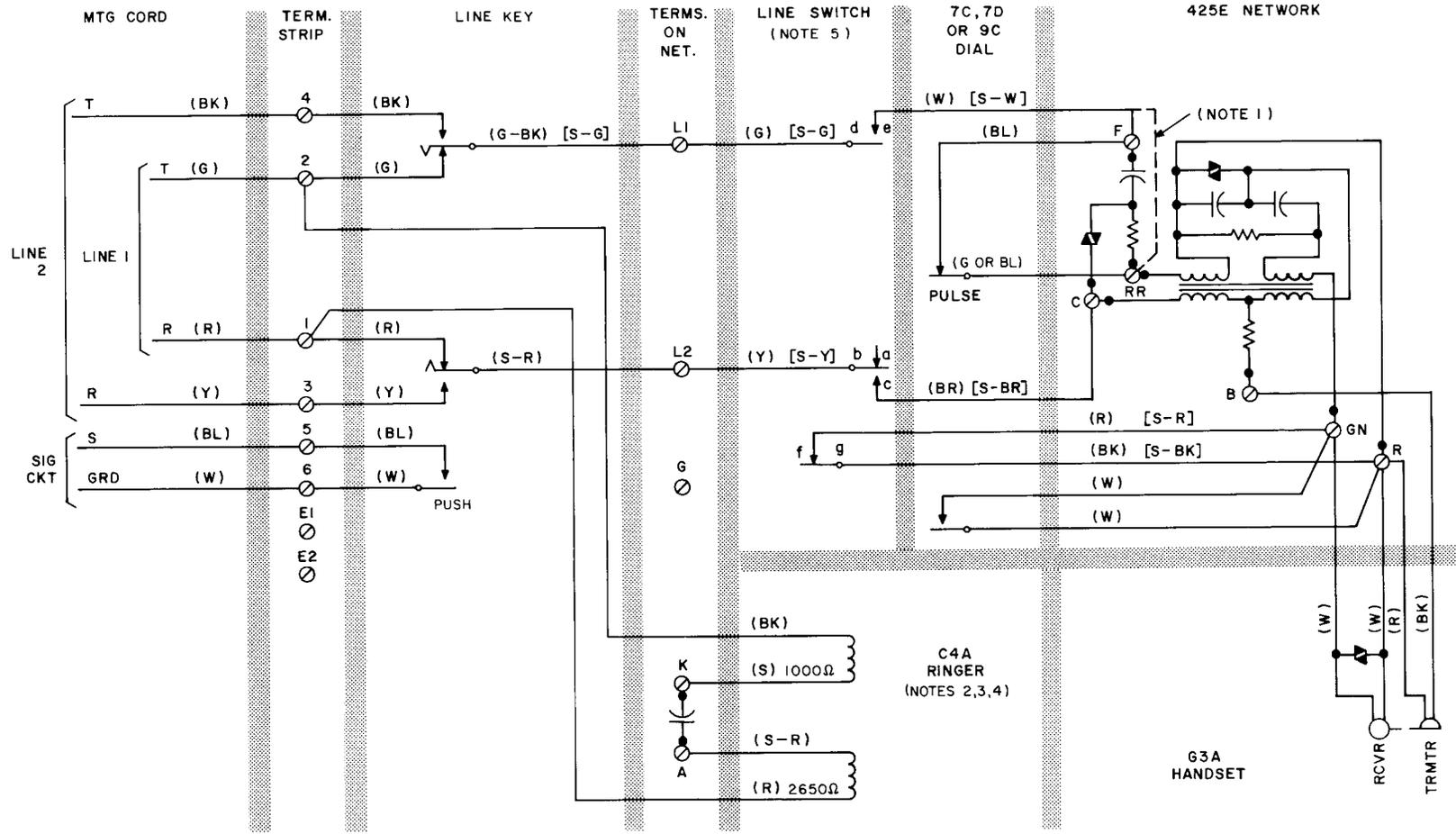
FEATURES (RINGER IN SET USED AS LINE RINGER)						CONNECTIONS FOR TERMINALS INSIDE SET								EXTERNAL CONNECTIONS FOR MOUNTING CORD								
NUMBER OF LINES PICKED UP	SIGNALING	TURN KEY USED TO CUT OFF				MOUNTING CORD LEADS				TURN KEY LEADS		RINGER LEADS (NOTES 2, 4, FIG. 17)		LINE 1		LINE 2		SIGNAL CIRCUIT		CUTOFF CIRCUIT		
		EXT STA OR EXT LINE RINGER	RINGER IN SET	AUXILIARY RECEIVER		R	G	Y	BK	S-R	S-G	R	BK	S	S-R	RING	TIP	RING	TIP	S	GRD	RING
1	•				L2	L1	5	6	L2	L1	L2	L1	K	A	R	G			Y	BK		
1	•		•		L2	L1	5	6	L2	L1	1	2	K	A	R	G			Y	BK		
1		•			L2	L1	3	4	L2	L1	L2	L1	K	A	R	G					Y	BK
1		•	•		L2	L1	3	4	L2	L1	3	4	K	A	R	G					Y	BK
1				•	L2	L1	3	4	G	R	L2	L1	K	A	R	G					Y	BK
2					1	2	3	4	L2	L1	1	2	K	A	R	G	Y	BK				



**NOTES:**

1. (G) LEAD IS CONNECTED TO F TERMINAL IN DIAL SETS AND TO RR TERMINAL IN MANUAL SETS.
2. WHEN A AND AI CONTROL LEADS ARE USED WITH STATION BUSY LAMP CIRCUIT, USE 511C OR D TELEPHONE SET.
3. A 7-TYPE BUZZER ON A 44B BRACKET MAY BE SUBSTITUTED FOR THE RINGER AS A COMMON OR PRIVATE LINE AUDIBLE SIGNAL.
4. TO SILENCE RINGER PERMANENTLY, REMOVE (BK) RINGER LEAD FROM TERMINAL 2, INSULATE AND STORE.
5. LINE SWITCH, OFF-HOOK SEQUENCE:  
 b-c MAKE  
 d-e MAKE  
 a-b BREAK  
 f-g BREAK  
 ( ) CURRENT COLOR CODE  
 [ ] MD COLOR CODE

**Fig. 16—502A and B Telephone Set Connections**



NOTES:

1. (W) [S-W] LINE SWITCH LEAD IS CONNECTED TO F TERMINAL IN DIAL SETS AND TO RR TERMINAL IN MANUAL SETS.
2. RINGER CONNECTIONS PROVIDE FOR RINGING ON LINE 1. FOR RINGING ON LINE 2, CONNECT (R) AND (BK) RINGER LEADS TO TERMINALS 3 AND 4 RESPECTIVELY.
3. A 7-TYPE BUZZER ON A 44B BRACKET MAY BE SUBSTITUTED FOR THE RINGER AS A COMMON OR PRIVATE LINE AUDIBLE SIGNAL.
4. TO SILENCE RINGER PERMANENTLY, REMOVE (BK) RINGER LEAD FROM TERMINAL 2, INSULATE AND STORE.

5. LINE SWITCH, OFF-HOOK SEQUENCE:

- b-c MAKE
- d-e MAKE
- a-b BREAK
- f-g BREAK
- ( ) CURRENT COLOR CODES
- [ ] MD COLOR CODES

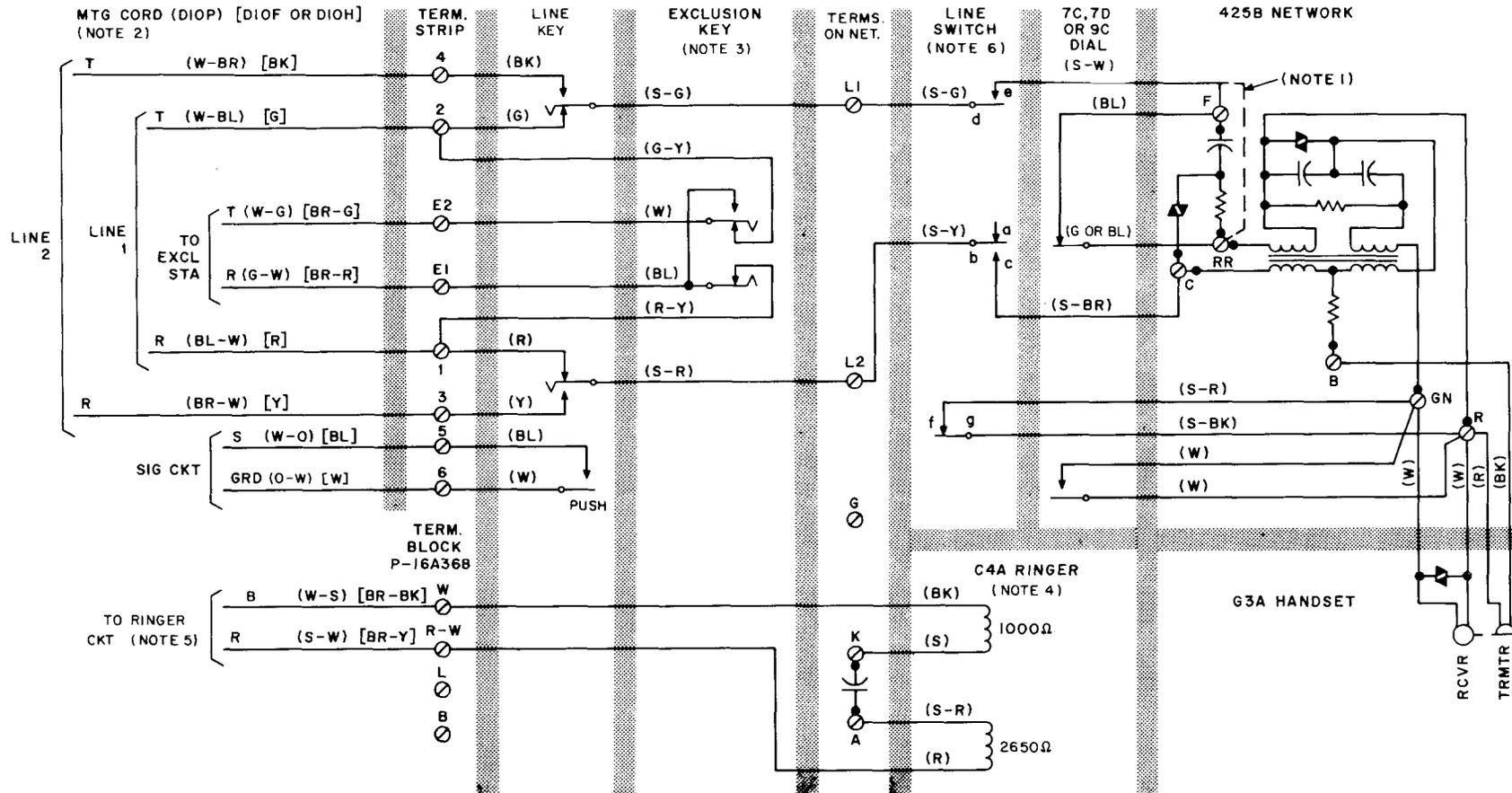
Fig. 17—510A, B, E, and F Telephone Set Connections, Wired For 2-Line Pickup and Signaling

**TABLE E**  
**510E AND F LINE AND RINGER CONNECTIONS (EQUIPPED WITH 6-CONDUCTOR MOUNTING CORD)**

FEATURES							CONNECTIONS TO TERMINALS INSIDE SET										EXTERNAL CONNECTIONS FOR MOUNTING CORD											
NUMBER OF LINES PICKED UP	SIGNALING	RINGER IN SET USED AS		TURN KEY USED TO CUT OFF			MOUNTING CORD LEADS						TURN KEY LEADS		RINGER LEADS (NOTES 2, 3, 4, FIG. 17)		LINE 1		LINE 2		SIGNAL CIRCUIT		CUTOFF CIRCUIT		COM OR PVT LINE RINGER CIRCUIT			
		LINE RINGER	COM OR PVT LINE RINGER	EXT STA OR EXT LINE RINGER	RINGER IN SET	AUXILIARY RECEIVER	R	G	Y	BK	BL	W	S-R	S-G	R	BK	S	S-R	RING	TIP	RING	TIP	S	GRD	RING	TIP	R	B
1	•	•		•			L2	L1	3	4	5	6	L2	L1	L2	L1	K	A	R	G			BL	W	Y	BK		
1	•	•		•	•		L2	L1	3	4	5	6	L2	L1	1	2	K	A	R	G			BL	W	Y	BK		
1	•	•				•	L2	L1	3	4	5	6	G	R	L2	L1	K	A	R	G			BL	W	Y	BK		
2	•	•					1	2	3	4	5	6	L2	L1	1	2	K	A	R	G	Y	BK	BL	W				
2			•				1	2	3	4	E1	E2	L2	L1	E1	E2	A	A	R	G	Y	BK					BL	W

**TABLE F**  
**511A AND B LINE AND RINGER CONNECTIONS (INTERNAL CONNECTIONS)**

FEATURES (SIGNALING INCLUDED WITH ALL FEATURES)							CONNECTIONS TO TERMINALS INSIDE SET																				
NUMBER OF LINES PICKED UP	RINGER IN SET USED AS		TURN KEY USED TO CUT OFF			EXCLUSION KEY USED TO CUT OFF			MOUNTING CORD LEADS								TURN KEY LEADS		EXCLUSION KEY LEADS (NOTE 3 FIG. 18)				RINGER LEADS (NOTE 4 FIG. 18)				
	LINE RINGER	COM OR PVT LINE RINGER	EXT STA OR EXT LINE RINGER	RINGER IN SET	AUXILIARY RECEIVER	EXT STA OR EXT LINE RINGER	RINGER IN SET	BL-W	W-BL	BR-W	W-BR	W-O	O-W	G-W	W-G	S-W	W-S	S-R	S-G	R-Y	G-Y	BL	W	R	BK	S	S-R
1	•		•			•		L2	L1	3	4	5	6	E1	E2	R-W	W	L2	L1	L2	L1	E1	E2	R-W	W	K	A
1	•		•	•		•		L2	L1	3	4	5	6	E1	E2	R-W	W	L2	L1	L2	L1	E1	E2	1	2	K	A
1	•				•	•		L2	L1	3	4	5	6	E1	E2	R-W	W	G	R	L2	L1	E1	E2	R-W	W	K	A
2	•					•		1	2	3	4	5	6	E1	E2	R-W	W	L2	L1	1	2	E1	E2	R-W	W	K	A
2		•				•		1	2	3	4	5	6	E1	E2	R-W	W	L2	L1	1	2	E1	E2	R-W	W	A	A
2		•					•	1	2	3	4	5	6	E1	E2	R-W	W	L2	L1	R-W	W	E1	E2	E1	E2	A	A



NOTES:

1. (S-W) LINE SWITCH LEAD IS CONNECTED TO F TERMINAL IN DIAL SETS AND TO RR TERMINAL IN MANUAL SETS.
2. WHEN TERMINATING POINTS FOR MOUNTING CORD LEADS ARE NOT INDICATED, CONNECT THEM TO SPARE CONNECTING BLOCK TERMINALS.
3. TWO-LINE PICKUP CONNECTIONS IN TABLE F PROVIDE FOR EXCLUSION ON LINE 1. FOR EXCLUSION ON LINE 2, CONNECT (R-Y) AND (G-Y) EXCLUSION KEY LEADS TO TERMINALS 3 AND 4, RESPECTIVELY.
4. A 7-TYPE BUZZER ON A 44B BRACKET MAY BE SUBSTITUTED FOR THE RINGER AS A COMMON OR PRIVATE LINE AUDIBLE SIGNAL.
5. FOR RINGER CONNECTIONS, TERMINATE (W-S) OR [BR-BK] AND (S-W) OR [BR-Y] LEADS TO LINE 1 OR 2 AT CONNECTING BLOCK.
6. LINE SWITCH, OFF-HOOK SEQUENCE:  
 b-c MAKE  
 d-e MAKE  
 a-b BREAK  
 f-g BREAK  
 ( ) CURRENT COLOR CODE AND CURRENT MOUNTING CORD-DIOP.  
 [ ] MD COLOR CODE AND MD MOUNTING CORD-DIOF OR DIOH.

Fig. 18—511A and B Telephone Set Connections, 2-Line Pickup, Signaling and Exclusion

**TABLE G**  
**511A AND B LINE AND RINGER CONNECTIONS (EXTERNAL CONNECTIONS)**

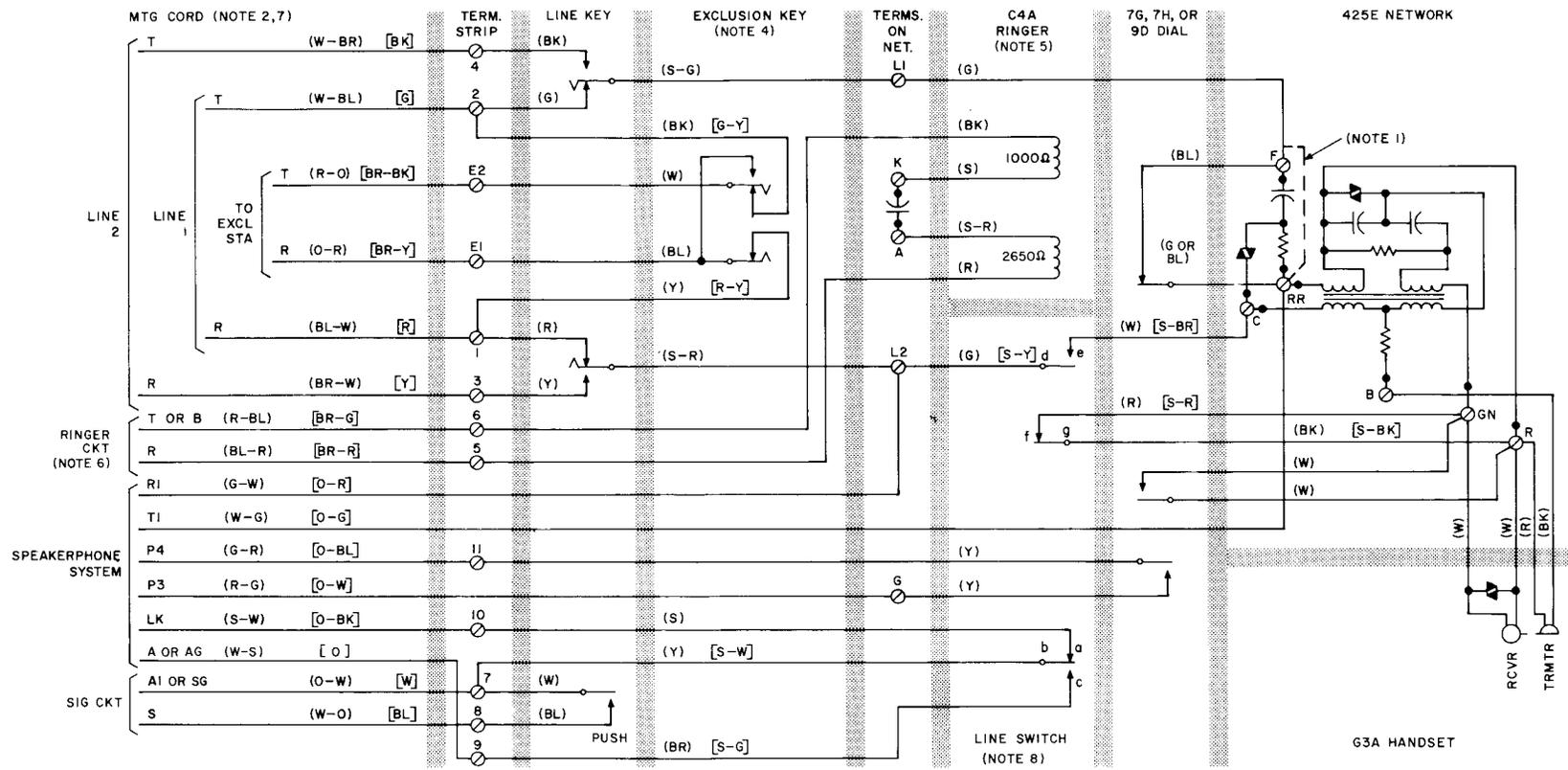
FEATURES INCLUDED WITH ALL FEATURES)									EXTERNAL CONNECTIONS FOR MOUNTING CORD (NOTE 2 FIG. 18)													
NUMBER OF LINES PICKED UP	RINGER IN SET USED AS		TURN KEY USED TO CUT OFF			EXCLUSION KEY USED TO CUT OFF			LINE 1		LINE 2		SIGNAL CIRCUIT		EXCLUSION CIRCUIT		CUTOFF CIRCUIT		LINE 1 OR 2 FOR LINE RINGER (NOTE 3 FIG. 18)		COM OR PVT LINE RINGER CIRCUIT	
	LINE RINGER	COM OR PVT LINE RINGER	EXT STA OR EXT LINE RINGER	RINGER IN SET	AUXILIARY RECEIVER	EXT STA OR EXT LINE RINGER	RINGER IN SET	RING	TIP	RING	TIP	S	GRD	RING	TIP	RING	TIP	RING	TIP	R	B	
1	•		•			•		BL-W	W-BL			W-O	O-W	G-W	W-G	BR-W	W-BR	S-W	W-S			
1	•		•	•		•		BL-W	W-BL			W-O	O-W	G-W	W-G	BR-W	W-BR					
1	•				•	•		BL-W	W-BL			W-O	O-W	G-W	W-G	BR-W	W-BR	S-W	W-S			
2	•					•		BL-W	W-BL	BR-W	W-BR	W-O	O-W	G-W	W-G			S-W	W-S			
2		•				•		BL-W	W-BL	BR-W	W-BR	W-O	O-W	G-W	W-G					S-W	W-S	
2		•				•		BL-W	W-BL	BR-W	W-BR	W-O	O-W							S-W	W-S	

**TABLE H**  
**511C AND D LINE AND RINGER CONNECTIONS**  
**(INTERNAL CONNECTIONS)**

FEATURES (SIGNALING INCLUDED WITH ALL FEATURES)								CONNECTIONS TO TERMINALS INSIDE SET										
NUMBER OF LINES PICKED UP	RINGER IN SET USED AS		TURN KEY USED TO CUT OFF			EXCLUSION KEY USED TO CUT OFF			MOUNTING CORD LEADS		TURN KEY LEADS		EXCLUSION KEY LEADS (NOTE 4, FIG. 19)		RINGER LEADS (NOTE 6, FIG. 19)			
	LINE RINGER	COM OR PVT LINE RINGER	EXT STA OR EXT LINE RINGER	RINGER IN SET	AUXILIARY RECEIVER	EXT STA OR EXT LINE RINGER	RINGER IN SET	[R] (BL-W)	[G] (W-BL)	S-R	S-G	[R-Y] (Y)	[G-Y] (BK)	R	BK	S	S-R	
1	•		•			•		L2	L1	L2	L1	L2	L1	5	6	K	A	
1	•		•	•		•		L2	L1	L2	L1	L2	L1	1	2	K	A	
1	•			•		•		L2	L1	L2	L1	L2	L1	3	4	K	A	
1	•				•	•		L2	L1	G	R	L2	L1	5	6	K	A	
2	•					•		1	2	L2	L1	1	2	5	6	K	A	
2		•				•		1	2	L2	L1	1	2	5	6	A	A	
2		•					•	1	2	L2	L1	5	6	E1	E2	A	A	

[ ] MD COLOR CODE

( ) CURRENT COLOR CODE

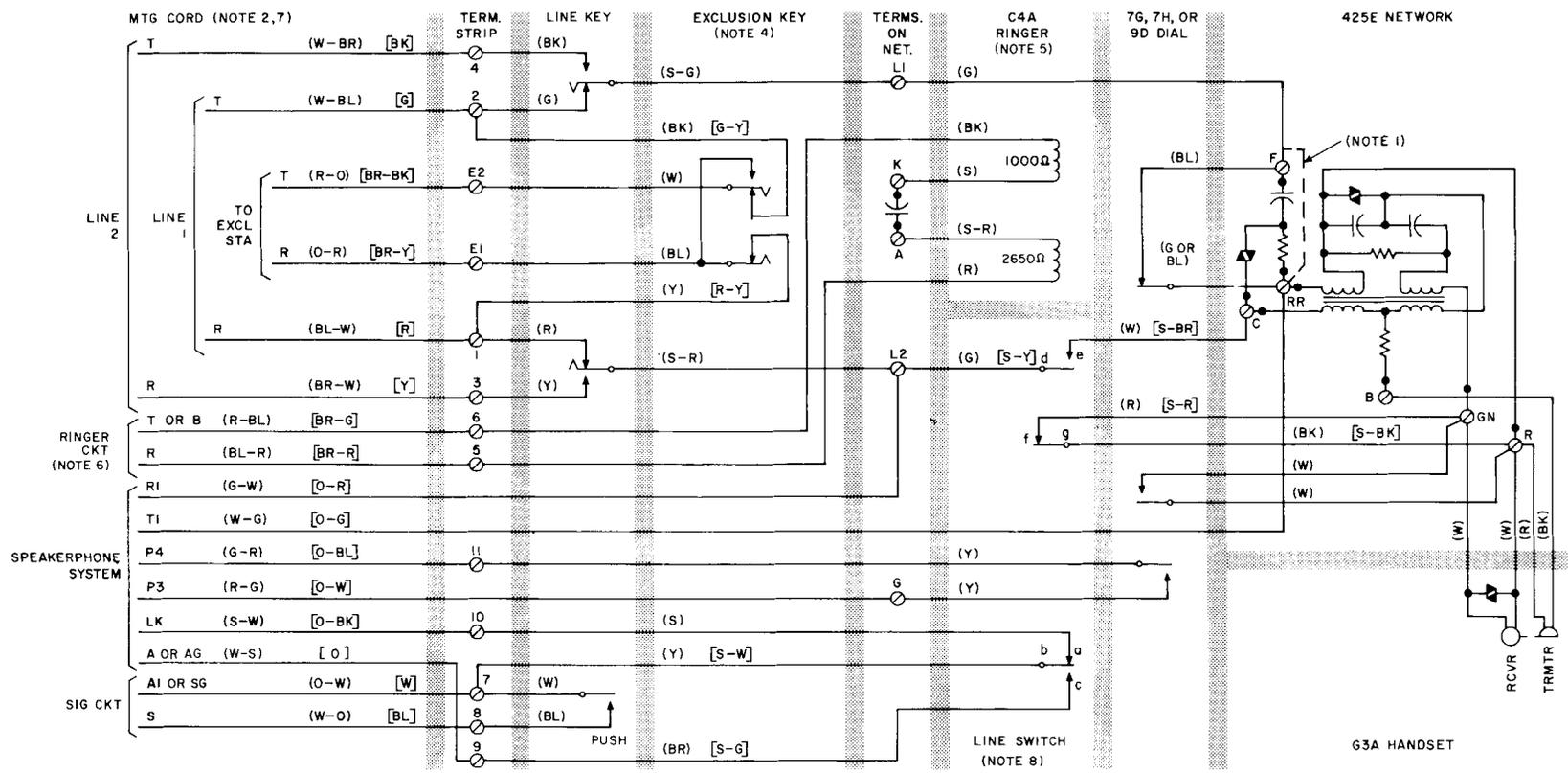


- NOTES:
1. (G) LEAD IS CONNECTED TO F TERMINAL IN DIAL SETS AND RR TERMINAL IN MANUAL SETS.
  2. WHEN TERMINATING POINTS FOR MOUNTING CORD LEADS ARE NOT INDICATED, CONNECT THEM TO SPARE CONNECTING BLOCK TERMINALS.
  3. USE A AND AI CONTROL LEADS IN THE 1-LINE PICKUP FEATURES ONLY.
  4. TWO-LINE PICKUP CONNECTIONS IN TABLE H PROVIDE FOR EXCLUSION ON LINE 1. FOR EXCLUSION ON LINE 2, CONNECT (Y) OR [R-Y] AND (BK) OR [G-Y] EXCLUSION KEY LEADS TO TERMINALS 3 AND 4, RESPECTIVELY.
  5. A 7-TYPE BUZZER ON A 44B BRACKET MAY BE SUBSTITUTED FOR THE RINGER AS A COMMON OR PRIVATE LINE AUDIBLE SIGNAL.
  6. FOR RINGER CONNECTIONS, TERMINATE (BL-R) OR [BR-R] AND (R-BL) OR [BR-G] MOUNTING CORD LEADS TO LINE 1 OR LINE 2 AT CONNECTING BLOCK.
  7. OLDER SETS HAVE A D16D CORD. NEWER 511D SETS HAVE A D16F CORD.
  8. LINE SWITCH, OFF-HOOK SEQUENCE:  
 b-c MAKE      a-b BREAK  
 d-e MAKE      f-g BREAK  
 ( ) CURRENT COLOR CODE  
 [ ] MD COLOR CODE

Fig. 19—511C and D Telephone Set Connections, 2-Line Pickup, Signaling, Exclusion, and Speakerphone

**TABLE I**  
**511C AND D LINE AND RINGER CONNECTIONS (EXTERNAL CONNECTIONS)**

FEATURES (SIGNALING INCLUDED WITH ALL FEATURES)								EXTERNAL CONNECTIONS FOR MOUNTING CORD (NOTES 1, 7, FIG. 19)																
NUMBER OF LINES PICKED UP	RINGER IN SET USED AS		TURN KEY USED TO CUT OFF			EXCLUSION KEY USED TO CUT OFF			LINE 1		LINE 2		SIGNAL CIRCUIT		EXCLUSION CIRCUIT		CUTOFF CIRCUIT		LINE 1 OR 2 FOR LINE RINGER		COM OR PVT LINE RINGER CIRCUIT		KEY EQUIP. OR STA BUSY LAMP CIRCUIT (NOTE 3, FIG. 19)	
	LINE RINGER	COM OR PVT LINE RINGER	EXT STA OR EXT LINE RINGER	RINGER IN SET	AUXILIARY RECEIVER	EXT STA OR EXT LINE RINGER	RINGER IN SET		RING	TIP	RING	TIP	S	GRD	RING	TIP	RING	TIP	RING	TIP	R	B	A OR BL	A1 OR GRD
1	•		•			•		R	G			BL	W	BR-Y	BR-BK	Y	BK	BR-R	BR-G			O	W	
1	•		•	•		•		R	G			BL	W	BR-Y	BR-BK	Y	BK					O	W	
1	•			•		•		R	G			BL	W	BR-Y	BR-BK							O	W	
1	•				•	•		R	G			BL	W	BR-Y	BR-BK	Y	BK	BR-R	BR-G			O	W	
2	•					•		R	G	Y	BK	BL	W	BR-Y	BR-BK			BR-R	BR-G			O	W	
2		•				•		R	G	Y	BK	BL	W	BR-Y	BR-BK					BR-R	BR-G	O	W	
2		•					•	R	G	Y	BK	BL	W							BR-R	BR-G	O	W	



NOTES:

1. (G) LEAD IS CONNECTED TO F TERMINAL IN DIAL SETS AND RR TERMINAL IN MANUAL SETS.
2. WHEN TERMINATING POINTS FOR MOUNTING CORD LEADS ARE NOT INDICATED, CONNECT THEM TO SPARE CONNECTING BLOCK TERMINALS.
3. USE A AND A1 CONTROL LEADS IN THE 1-LINE PICKUP FEATURES ONLY.
4. TWO-LINE PICKUP CONNECTIONS IN TABLE H PROVIDE FOR EXCLUSION ON LINE 1. FOR EXCLUSION ON LINE 2, CONNECT (Y) OR [R-Y] AND (BK) OR [G-Y] EXCLUSION KEY LEADS TO TERMINALS 3 AND 4, RESPECTIVELY.
5. A 7-TYPE BUZZER ON A 44B BRACKET MAY BE SUBSTITUTED FOR THE RINGER AS A COMMON OR PRIVATE LINE AUDIBLE SIGNAL.
6. FOR RINGER CONNECTIONS, TERMINATE (BL-R) OR [BR-R] AND (R-BL) OR [BR-G] MOUNTING CORD LEADS TO LINE 1 OR LINE 2 AT CONNECTING BLOCK.
7. OLDER SETS HAVE A D16D CORD. NEWER 511D SETS HAVE A D16F CORD.
8. LINE SWITCH, OFF-HOOK SEQUENCE:  
 b-c MAKE    a-b BREAK  
 d-e MAKE    f-g BREAK  
 ( ) CURRENT COLOR CODE  
 [ ] MD COLOR CODE

Fig. 19—511C and D Telephone Set Connections, 2-Line Pickup, Signaling, Exclusion, and Speakerphone

**TABLE I**  
**511C AND D LINE AND RINGER CONNECTIONS (EXTERNAL CONNECTIONS)**

FEATURES (SIGNALING INCLUDED WITH ALL FEATURES)								EXTERNAL CONNECTIONS FOR MOUNTING CORD (NOTES 1, 7, FIG. 19)																
NUMBER OF LINES PICKED UP	RINGER IN SET USED AS		TURN KEY USED TO CUT OFF			EXCLUSION KEY USED TO CUT OFF			LINE 1		LINE 2		SIGNAL CIRCUIT		EXCLUSION CIRCUIT		CUTOFF CIRCUIT		LINE 1 OR 2 FOR LINE RINGER		COM OR PVT LINE RINGER CIRCUIT		KEY EQUIP. OR STA BUSY LAMP CIRCUIT (NOTE 3, FIG. 19)	
	LINE RINGER	COM OR PVT LINE RINGER	EXT STA OR EXT LINE RINGER	RINGER IN SET	AUXILIARY RECEIVER	EXT STA OR EXT LINE RINGER	RINGER IN SET	RING	TIP	RING	TIP	S	GRD	RING	TIP	RING	TIP	RING	TIP	R	B	A OR BL	A1 OR GRD	
1	•		•			•		R	G			BL	W	BR-Y	BR-BK	Y	BK	BR-R	BR-G			O	W	
1	•		•	•		•		R	G			BL	W	BR-Y	BR-BK	Y	BK					O	W	
1	•			•		•		R	G			BL	W	BR-Y	BR-BK							O	W	
1	•				•	•		R	G			BL	W	BR-Y	BR-BK	Y	BK	BR-R	BR-G			O	W	
2	•					•		R	G	Y	BK	BL	W	BR-Y	BR-BK			BR-R	BR-G			O	W	
2		•				•		R	G	Y	BK	BL	W	BR-Y	BR-BK					BR-R	BR-G	O	W	
2		•					•	R	G	Y	BK	BL	W							BR-R	BR-G	O	W	

**TABLE J**  
**511F AND H — MODIFICATIONS FOR 1-LINE PICKUP, HOLD, AND SECRETARIAL SERVICE**

WIRE OR LEAD		REMOVE FROM	CONNECT TO		INSULATE AND STORE
		TERM. STRIP	TERM. STRIP		
LINE KEY	W-O	20	1		
EXCLUSION SWITCH	BR	10	2		
	BK	1			•
	W	9	1		
	Y	2			•
MTG. CORD	V-O	11	17		
	G-R	17	16		

**TABLE K**  
**511F AND H TELEPHONE SETS MODIFICATIONS FOR 1-LINE PICKUP, CUTOFF EXTENSION STATION OR EXTENSION LINE RINGER**

WIRE OR LEAD		REMOVE FROM	CONNECT TO		INSULATE AND STORE
		TERM. STRIP	TERM. STRIP	NET	
LINE KEY	W-O	20	3		
	R	2			•
	S-R	15	2		
	V	2			•
EXCLUSION SWITCH	BK	1			•
	Y	2			•
	S	3			•
LINE SWITCH	BR	20	3		
	G	15	2		
STRAP†			1	F	
			18	L2	

†Use M1W cord or equivalent

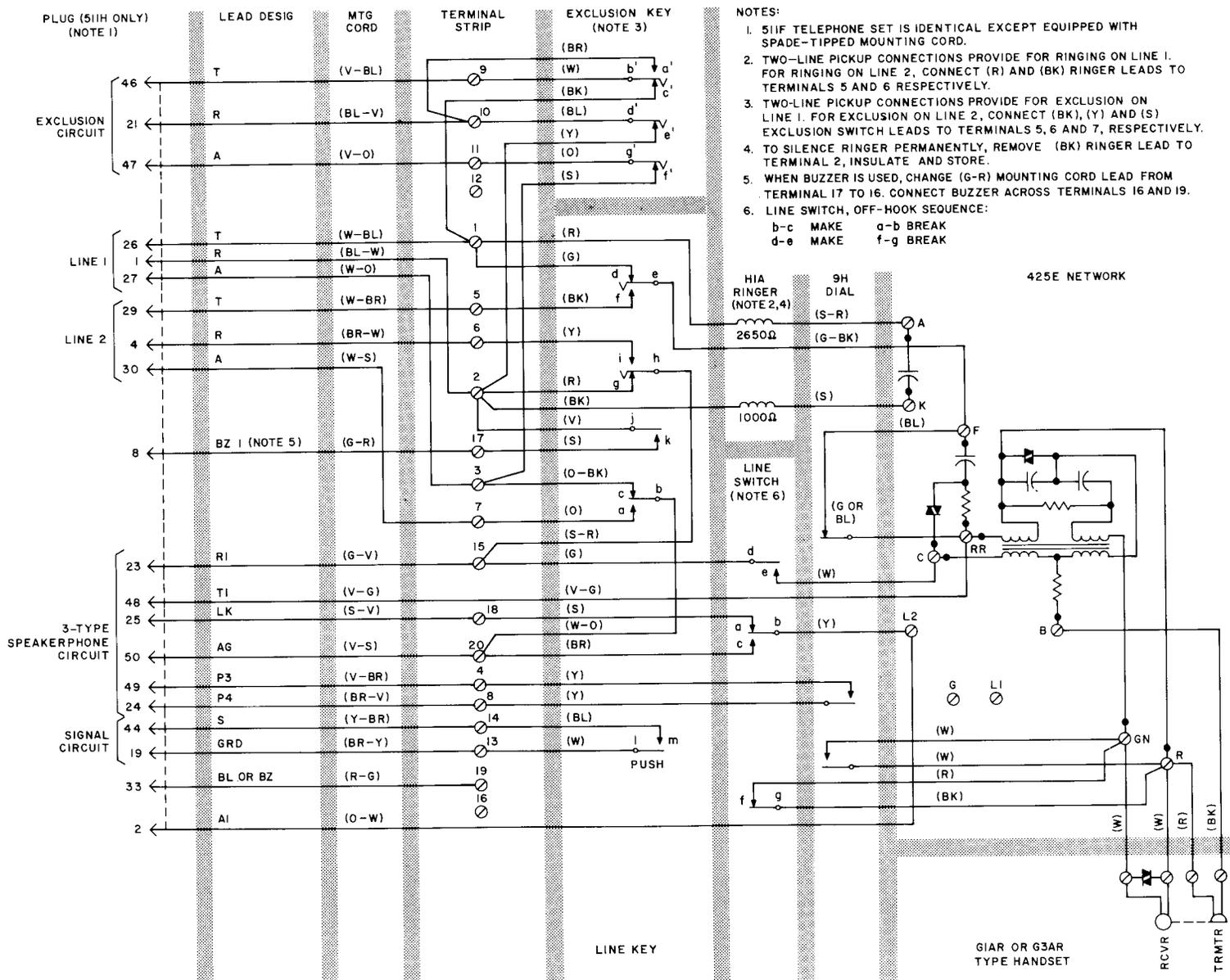


Fig. 20—511F and H Telephone Set Connections, 2-Line Pickup With Exclusion on Line 1, Signaling, and Speakerphone (Factory Wired)

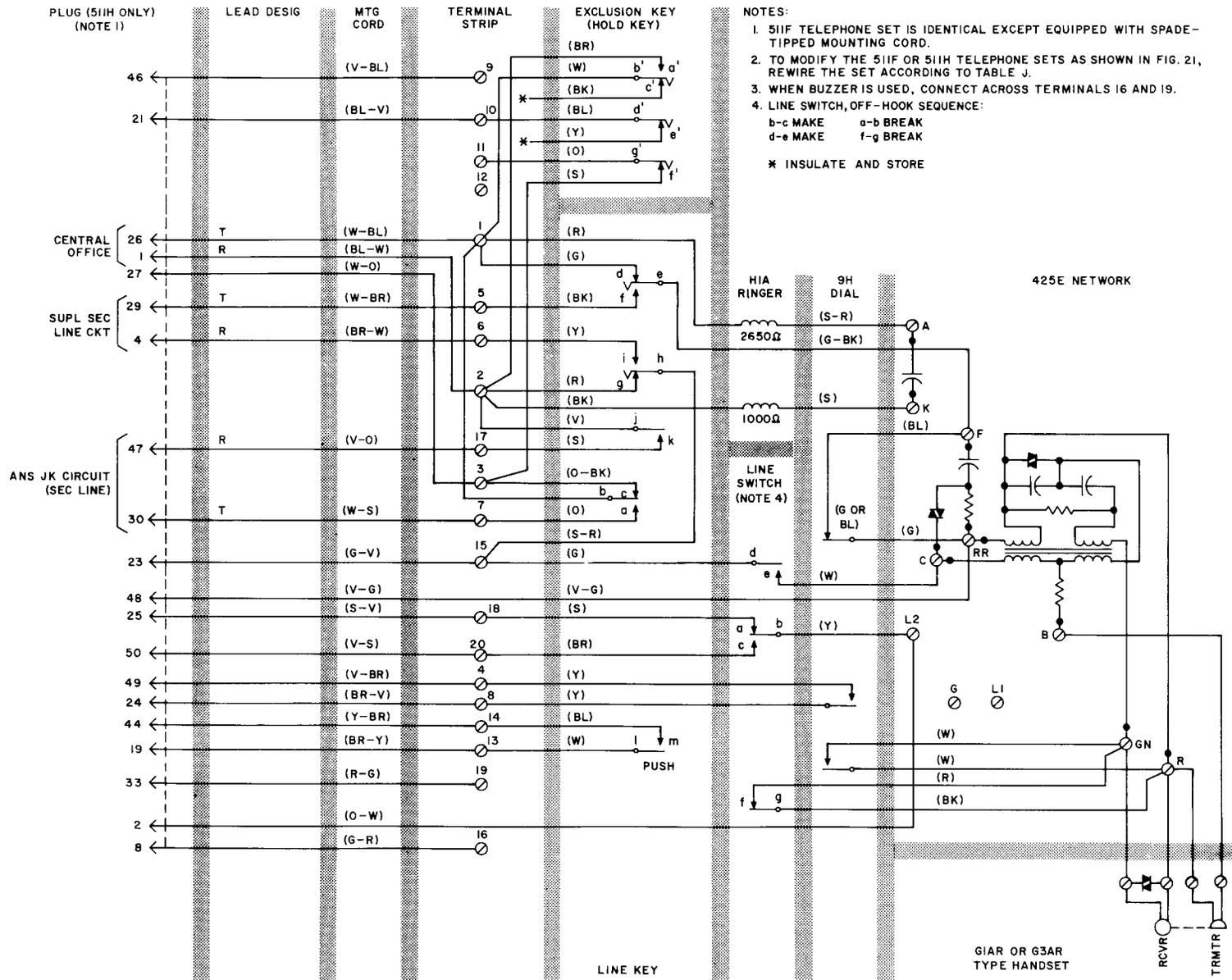


Fig. 21—511F and H Telephone Set Connections, 1-Line Pickup, Hold, and Secretarial Service

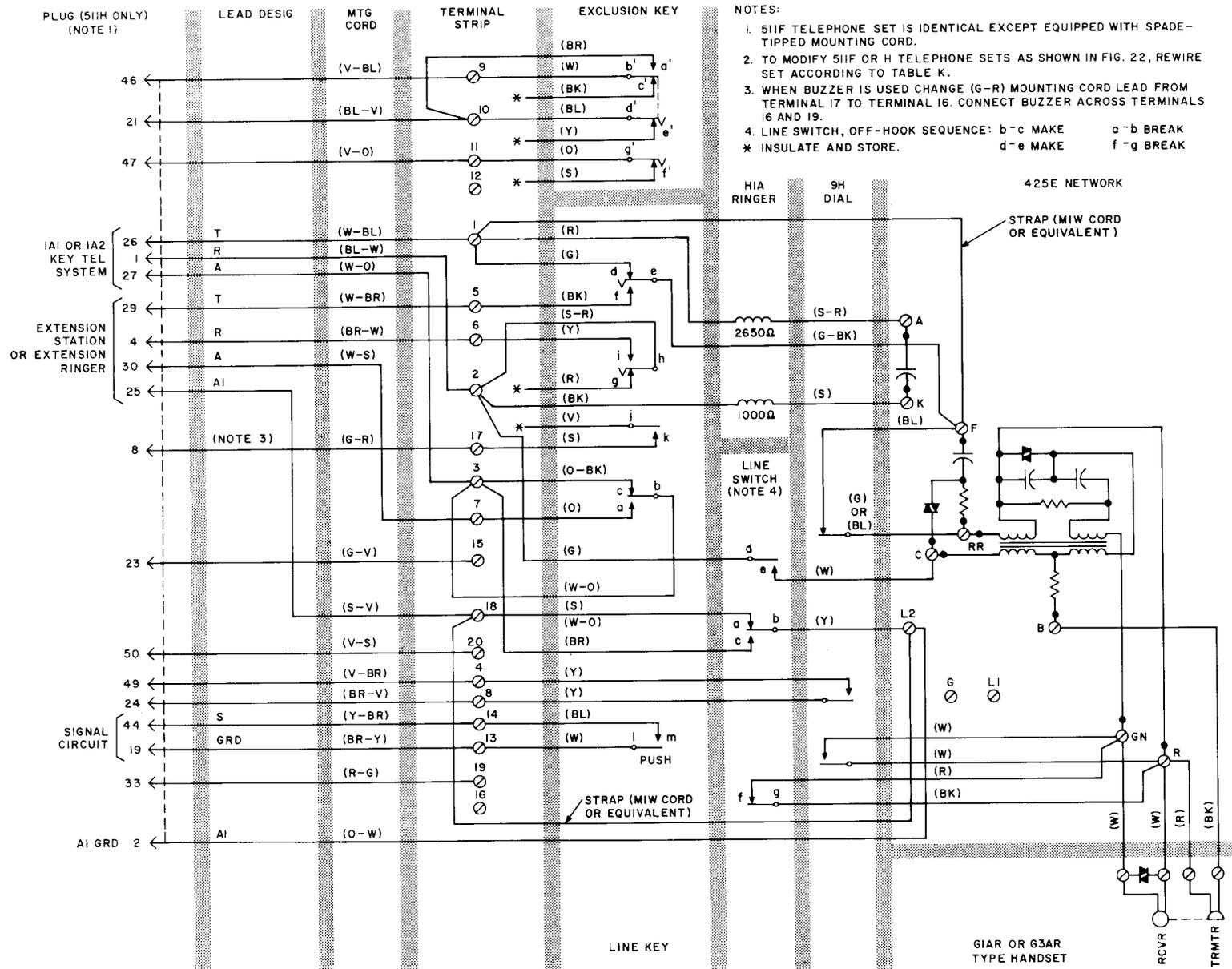
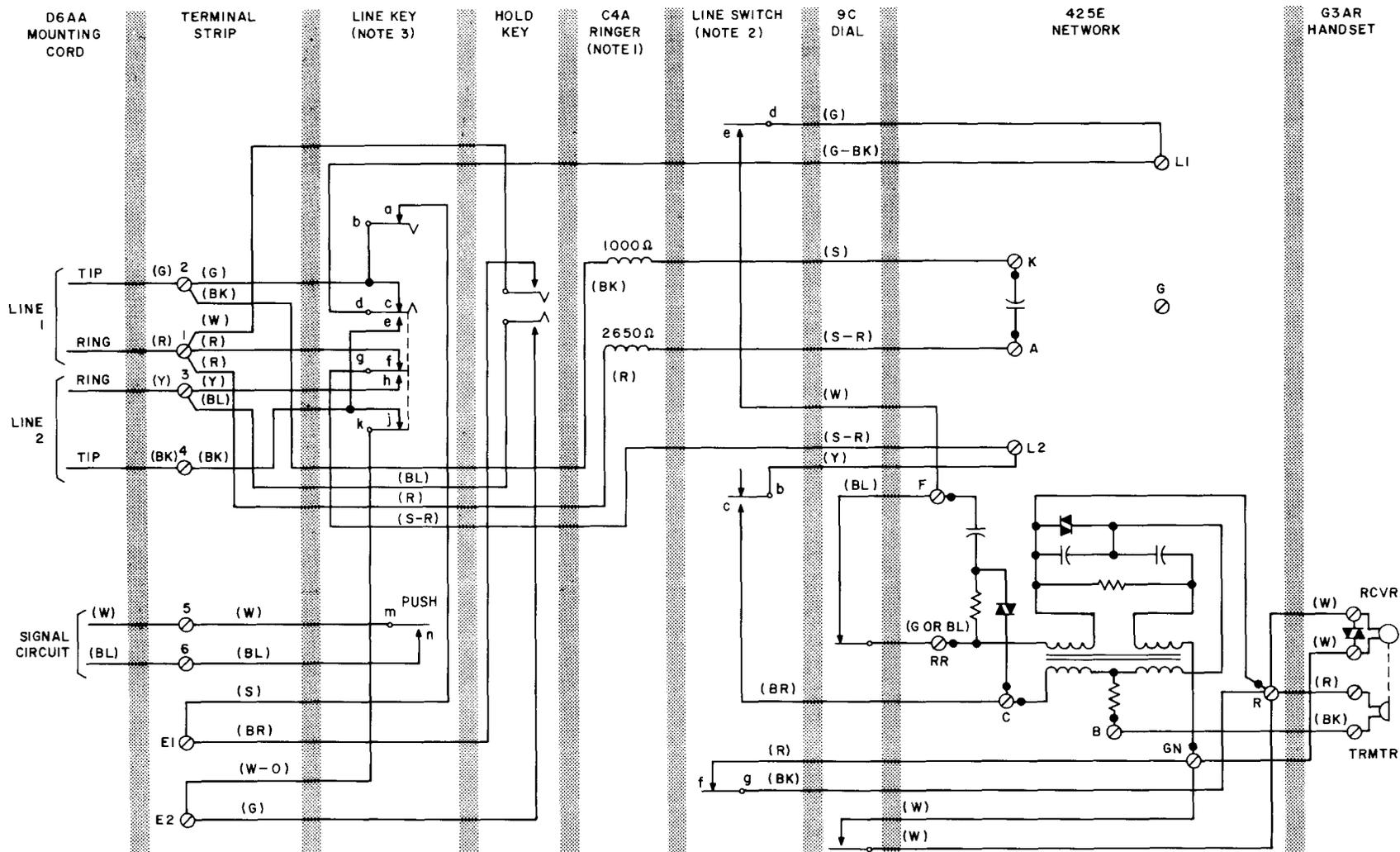


Fig. 22—511F and H Telephone Set Connections, 1-Line Pickup and Cutoff Extension Station or Extension Line Ringer



NOTES:

1. RINGER CONNECTIONS PROVIDE FOR RINGING ON LINE 1. FOR RINGING ON LINE 2, CONNECT (R) AND (BK) RINGER LEADS TO TERMINALS 3 AND 4 RESPECTIVELY.
2. LINE SWITCH, OFF-HOOK SEQUENCE:  
 b-c MAKE      a-b BREAK  
 d-e MAKE      f-g BREAK
3. LINE KEY SEQUENCE:  
 LINE 1 TO LINE 2    a-b MAKE    d-e MAKE  
                           c-d BREAK    g-h MAKE  
                           f-g BREAK    j-k BREAK

Fig. 23—515B Telephone Set Connections

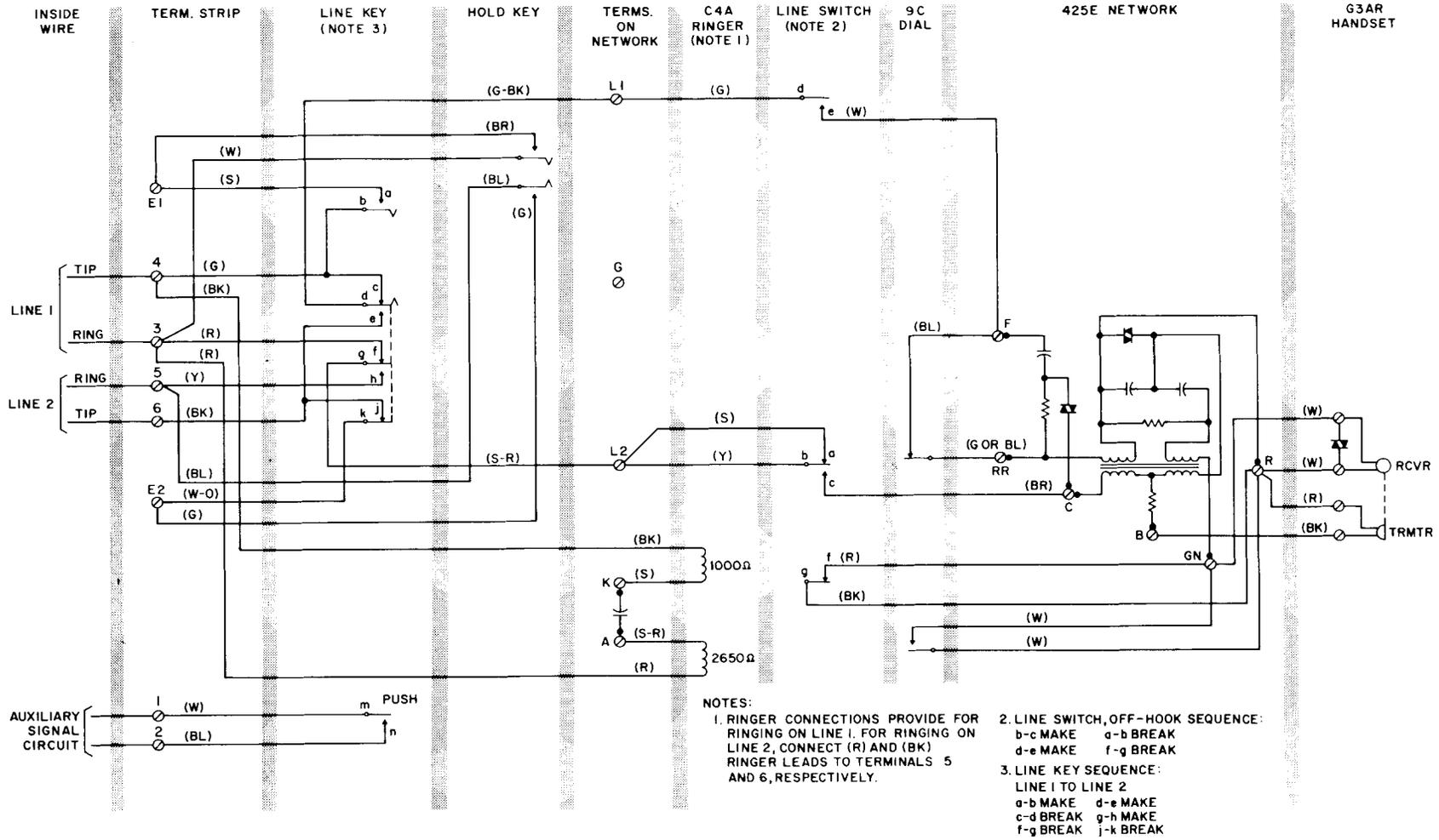


Fig. 24—555B Telephone Set Connections

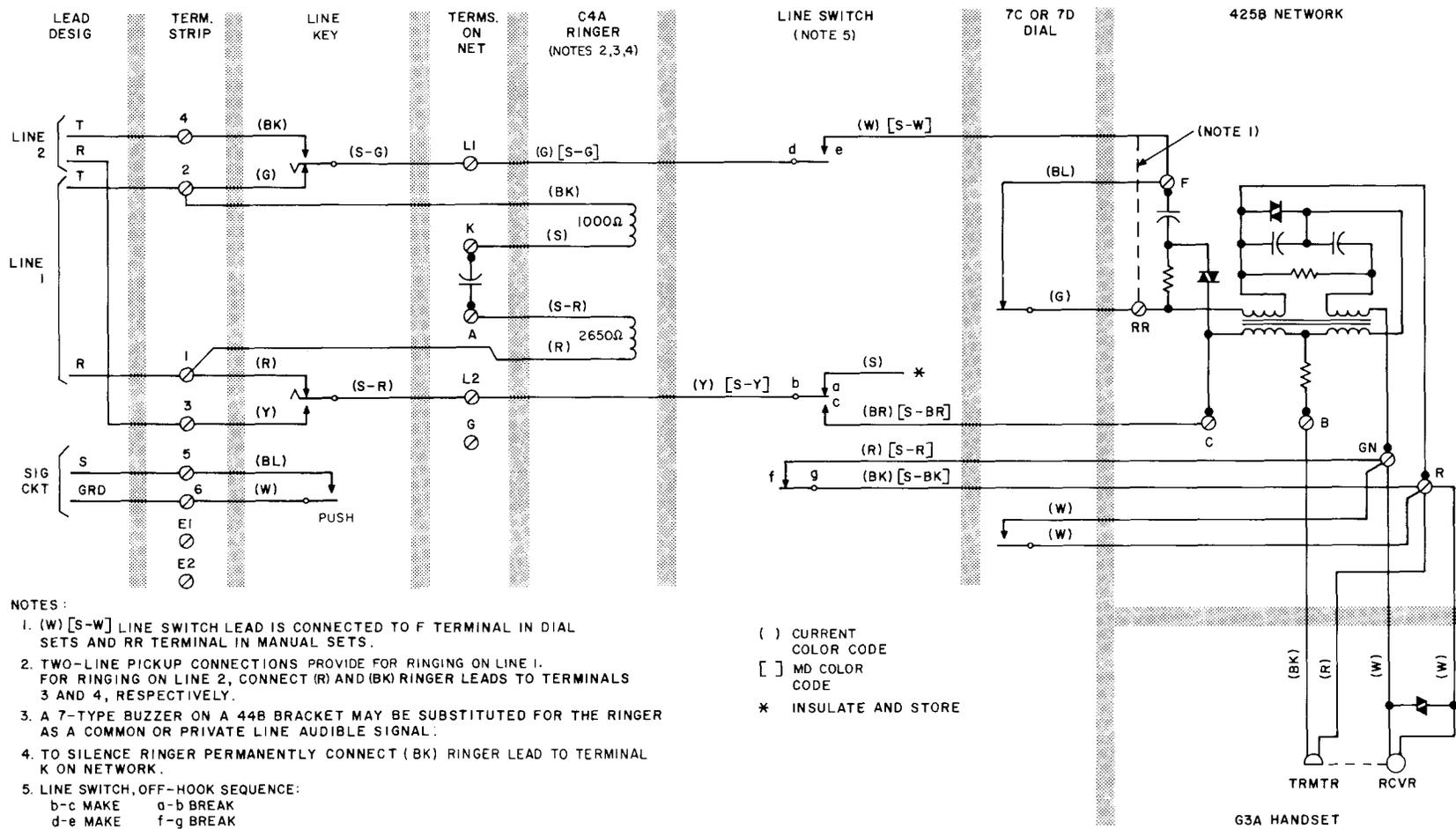


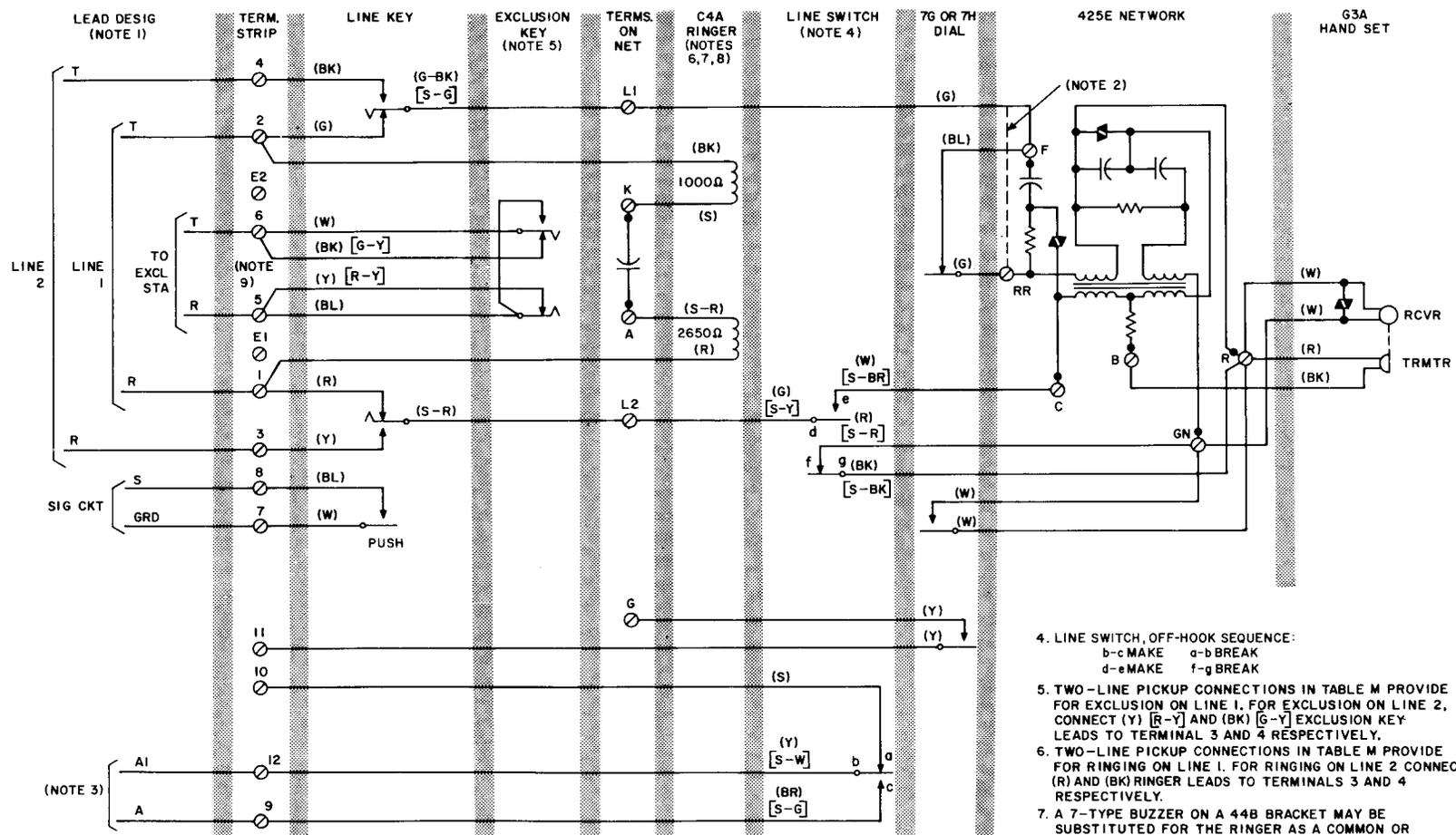
Fig. 25—558A and B Telephone Set Connections 2-Line Pickup, and Signaling

**TABLE L**  
**558A AND B LINE AND RINGER CONNECTIONS**

FEATURES (SIGNALING INCLUDED WITH ALL FEATURES)								CONNECTIONS TO TERMINALS INSIDE SET						CONNECTIONS FOR INSIDE WIRE IN SET									
NUMBER OF LINES PICKED UP	RINGER IN SET USED AS		TURN KEY USED TO CUT OFF					TURN KEY LEADS		RINGER LEADS (NOTES 2, 3, AND 4, FIG. 25)				LINE 1		LINE 2		SIGNAL CIRCUIT		CUTOFF CIRCUIT		COMMON OR PRIVATE LINE RINGER CIRCUIT	
	LINE RINGER	COM OR PVT LINE RINGER	EXT STA OR EXT LINE RINGER	EXTERNAL COM OR PVT LINE RINGER	RINGER IN SET	AUXILIARY RECEIVER	S-R	S-G	R	BK	S	S-R	RING	TIP	RING	TIP	S	GRD	RING OR R	TIP OR B	R	B	
1	•		•				L2	L1	L2	L1	K	A	L2	L1			5	6	3	4			
1	•				•		L2	L1	3	4	K	A	L2	L1			5	6					
1	•		•		•		L2	L1	1	2	K	A	L2	L1			5	6	3	4			
1		•	•				L2	L1	E1	E2	A	A	L2	L1			5	6	3	4	E1	E2	
1		•			•		E1	E2	3	4	A	A	L2	L1			5	6			E1	E2	
1		•		•	•		E1	E2	1	2	A	A	L2	L1			5	6	3	4	E1	E2	
1	•					•	GN	R	L2	L1	K	A	L2	L1			5	6	3	4			
2	•						L2	L1	1	2	K	A	1	2	3	4	5	6					
2		•					L2	L1	E1	E2	A	A	1	2	3	4	5	6			E1	E2	

**TABLE M**  
**558C AND D LINE AND RINGER CONNECTIONS**  
**(INTERNAL CONNECTIONS)**

FEATURES (SIGNALING INCLUDED WITH ALL FEATURES)								CONNECTIONS TO TERMINALS INSIDE SET												
NUMBER OF LINES PICKED UP	RINGER IN SET USED AS		TURN KEY USED TO CUT OFF					EXCLUSION KEY USED TO CUT OFF		TURN KEY LEADS		EXCLUSION KEY LEADS (NOTE 5, FIG. 26)					RINGER LEADS (NOTES 6, 7, AND 8, FIG. 26)			
	LINE RINGER	COM OR PVT LINE RINGER	EXT STA OR EXT LINE RINGER	EXTERNAL COM OR PVT LINE RINGER	RINGER IN SET	AUXILIARY RECEIVER	EXT STA OR EXT LINE RINGER	RINGER IN SET	S-R	[S-G] (G-BK)	[R-Y] (Y)	[G-Y] (BK)	BL	W	R	BK	S	S-R		
1	•		•				•		L2	L1	L2	L1	5	6	L2	L1	K	A		
1	•				•		•		L2	L1	L2	L1	5	6	3	4	K	A		
1	•		•		•		•		L2	L1	L2	L1	5	6	1	2	K	A		
1		•	•				•		L2	L1	L2	L1	5	6	E1	E2	A	A		
1		•			•		•		E1	E2	L2	L1	5	6	3	4	A	A		
1		•		•	•		•		E1	E2	L2	L1	5	6	1	2	A	A		
1	•					•	•		G	R	L2	L1	5	6	L2	L1	K	A		
2	•						•		L2	L1	1	2	5	6	1	2	K	A		
2		•					•		L2	L1	1	2	5	6	E1	E2	A	A		
2		•					•		L2	L1	E1	E2	5	6	5	6	A	A		



NOTES:

1. FOR SET CONNECTIONS TO IA HOME INTERPHONE OR SPEAKERPHONE SYSTEM REFER TO RESPECTIVE SECTION.
2. (G) LEAD IS CONNECTED TO F TERMINAL IN DIAL SETS AND TO RR TERMINAL IN MANUAL SETS.
3. USE A AND AI CONTROL LEADS ON I-LINE PICKUP FEATURES ONLY.

4. LINE SWITCH, OFF-HOOK SEQUENCE:  
 b-c MAKE    d-b BREAK  
 d-e MAKE    f-g BREAK

5. TWO-LINE PICKUP CONNECTIONS IN TABLE M PROVIDE FOR EXCLUSION ON LINE 1. FOR EXCLUSION ON LINE 2, CONNECT (Y) [R-Y] AND (BK) [G-Y] EXCLUSION KEY LEADS TO TERMINAL 3 AND 4 RESPECTIVELY.

6. TWO-LINE PICKUP CONNECTIONS IN TABLE M PROVIDE FOR RINGING ON LINE 1. FOR RINGING ON LINE 2 CONNECT (R) AND (BK) RINGER LEADS TO TERMINALS 3 AND 4 RESPECTIVELY.

7. A 7-TYPE BUZZER ON A 448 BRACKET MAY BE SUBSTITUTED FOR THE RINGER AS A COMMON OR PRIVATE LINE AUDIBLE SIGNAL.
8. TO SILENCE RINGER PERMANENTLY, CONNECT (BK) RINGER LEAD TO TERMINAL K ON NETWORK.
9. ON LATER MODEL SETS, CONNECTIONS TO TERMINALS 5 AND 6 HAVE BEEN TRANSPOSED.

( ) CURRENT COLOR CODES.

[ ] MD COLOR CODES.

Fig. 26—558C and D Telephone Set Connections 2-Line Pickup, Signaling, Exclusion, and Control Leads

**TABLE N**  
**558C AND D LINE AND RINGER CONNECTIONS**  
**(INSIDE WIRE CONNECTIONS)**

FEATURES (SIGNALING INCLUDED WITH ALL FEATURES)									CONNECTIONS TO INSIDE WIRE IN SET													
NUMBER OF LINES PICKED UP	RINGER IN SET USED AS		TURN KEY USED TO CUT OFF				EXCLUSION KEY USED TO CUT OFF		LINE 1		LINE 2		SIGNAL CIRCUIT		EXCLUSION CIRCUIT		CUTOFF CIRCUIT		COM OR PVT LINE RINGER CIRCUIT		KEY EQUIP. OR STA BUSY LAMP CKT (NOTE 3, FIG. 26)	
	LINE RINGER	COM OR PVT LINE RINGER	EXT STA OR EXT LINE RINGER	EXTERNAL COM OR PVT LINE RINGER	RINGER IN SET	AUXILIARY RECEIVER	EXT STA OR EXT LINE RINGER	RINGER IN SET	RING	TIP	RING	TIP	S	GRD	RING	TIP	RING OR R	TIP OR B	R	B	A or BL	A1 or GRD
1	•		•				•		L2	L1			8	7	5	6	3	4			9	12
1	•						•		L2	L1			8	7	5	6					9	12
1	•		•				•		L2	L1			8	7	5	6	3	4			9	12
1		•	•				•		L2	L1			8	7	5	6	3	4	E1	E2	9	12
1		•					•		L2	L1			8	7	5	6			E1	E2	9	12
1		•		•			•		L2	L1			8	7	5	6	3	4	E1	E2	9	12
1	•					•	•		L2	L1			8	7	5	6	3	4			9	12
2	•						•		1	2	3	4	8	7	5	6					9	12
2		•					•		1	2	3	4	8	7	5	6			E1	E2	9	12
2		•						•	1	2	3	4	8	7					E1	E2	9	12

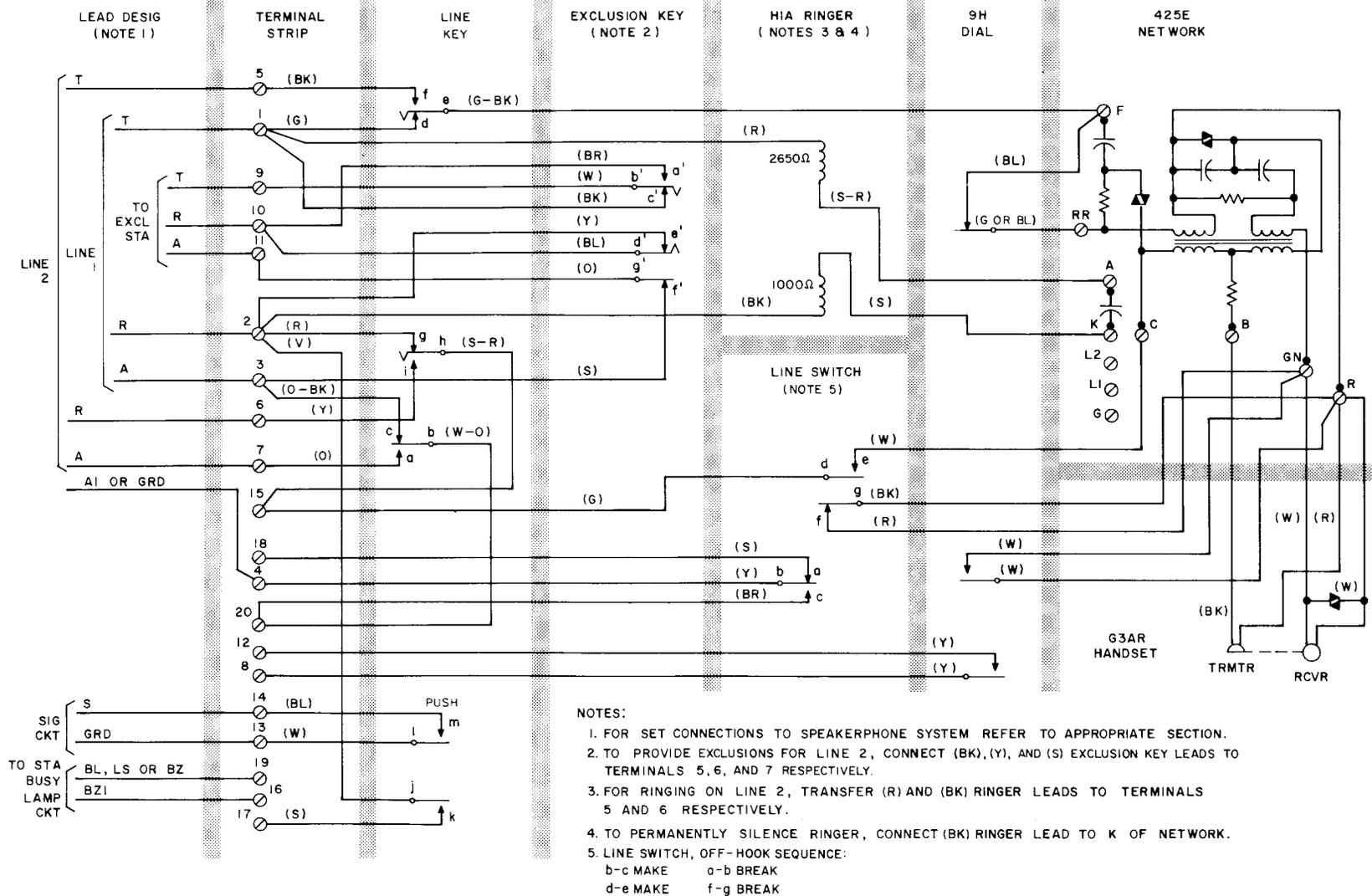


Fig. 27—558F Telephone Set Connections, Wired For 2-Line Pickup With Exclusion on Line 1 and Signaling

TABLE O

**558F MODIFICATIONS FOR 1-LINE PICKUP,  
HOLD, AND SECRETARIAL SERVICE**

WIRE OR LEAD		REMOVE FROM TERMINAL STRIP	CONNECT TO TERMINAL STRIP	INSULATE AND STORE
Line Key	W-O	20	1	
Exclusion Key (Hold)	BR	10	2	
	W	9	1	
	Y	2		•

TABLE P

**558F MODIFICATIONS FOR 1-LINE PICKUP AND  
CUTOFF OF EXTENSION STATION OR EXTENSION  
LINE RINGER**

WIRE OR LEAD		REMOVE FROM TERMINAL STRIP	CONNECT TO TERMINAL STRIP	INSULATE AND STORE
Line Key	R	2		•
	S-R	15	2	
	O-BK	3		•
	W-O	20	3	
Exclusion Key	Y	2		•
Line Switch	G	15	2	
Strap M1W Cord or Equivalent			1 to F on Net.	
			3 to 20	

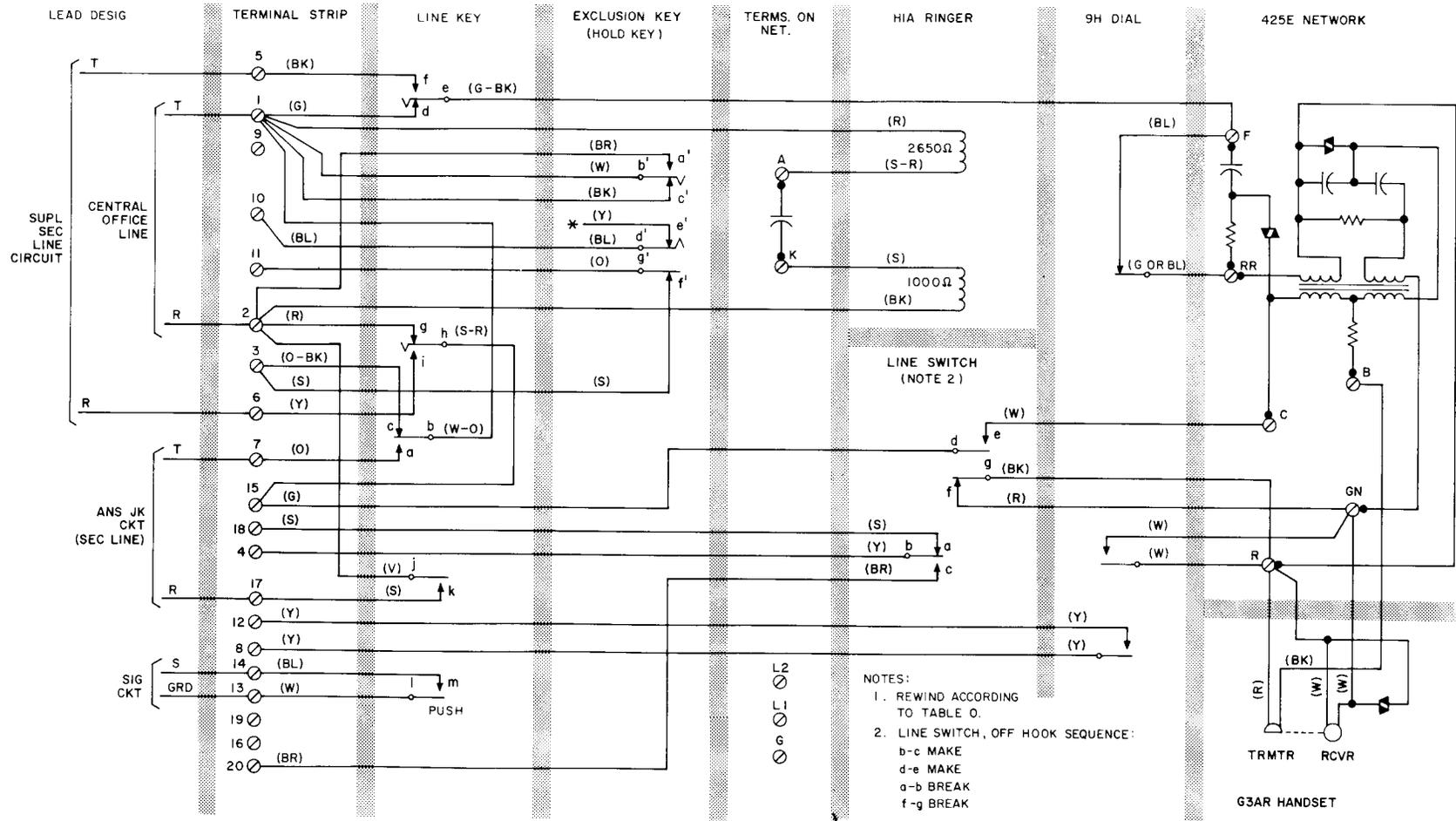


Fig. 28—558F Telephone Set Connections, Wired For 1-Line Pickup, Hold and Secretarial Service

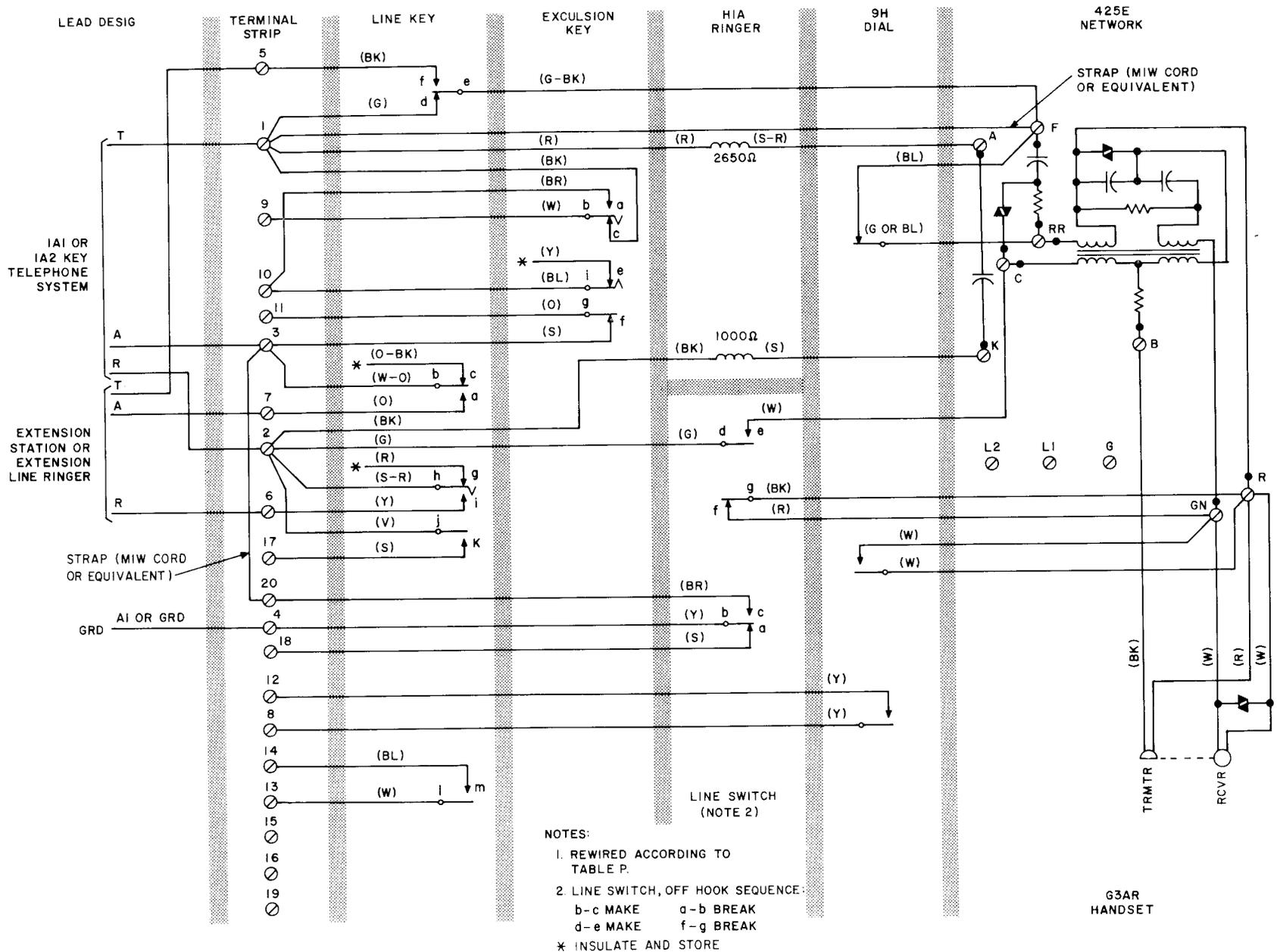


Fig. 29—558F Telephone Set Connections, Wired For 1-Line Pickup and Cutoff Extension Station or Extension Line Ringer