

TELEPHONE SETS—1662 TYPE

1. GENERAL

1.01 This section gives description, assembly, installation, operation, maintenance, and connection information for the 1662-type telephone set.

1.02 The 1662-type telephone set is the TOUCH-TONE version of the card dialer set. It is similar in appearance and operation to other card dialer key telephone sets except for the dialer (Fig. 1 and 2).

1.03 The 1662-type telephone set provides the following features:

- TOUCH-TONE card dialer (26B dial).
- Provision for adding exclusion.



Fig. 1 — 1662-Type Telephone Set

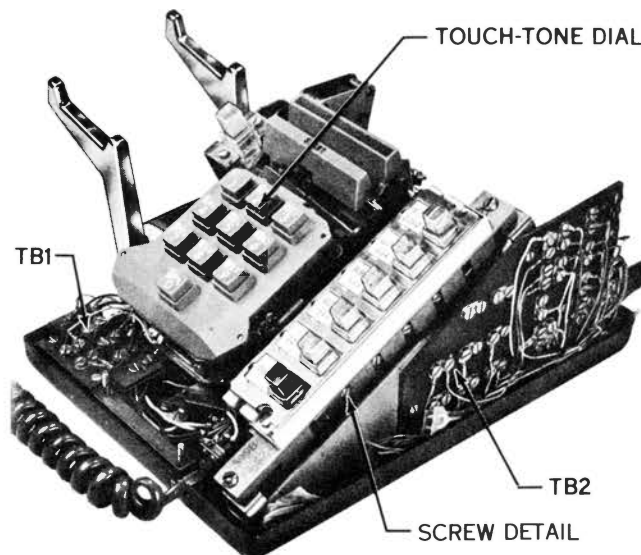


Fig. 2 — 1662-Type Telephone Set, Cover Removed

1.04 The 1662-type set is installed as a regular 4- or 6-button set in accordance with standard practices.

2. IDENTIFICATION

2.01 The 1662-type telephone set is designed for manual or automatic dialing, pickup, signaling, and holding. This is on central office, PBX, and private or intercommunicating lines in 1A, 1A1, 1A2, or 6A key telephone systems.

2.02 Only the 1662A1 set will be manufactured. Features added to the 1662A1 set will change the set code. (See Table A).

TABLE A
PIECE PART INFORMATION

Set	Code*	Key	Card Dialer	Cord*	Regular Faceplate	Nonglare Faceplate	Exclusion Provided	Exclusion Kit †	Housing*
1662	A1 A2 A3	599A 598A 599B	26B	D50K	P-24E242	P-26E623	No	D-179931	P-82BO
1662	A4 A5 A6	599A 598A 599B			P-24E243	P-26E624	Yes		

* Add suffix for desired color, green (-51), white (-58), light beige (-60), light gray (-61).

† Kit contains parts necessary to add exclusion to these sets.

2.03 The 1662-type telephone set uses a 26B dialer which consists of a mechanical card dialer and a 25D TOUCH-TONE dial combined in a unit. The card dialer uses the electrical circuitry of the 25D dial for multifrequency dialing.

2.04 Automatic dialing is accomplished by coding a card similar to that used in other card dialers. (See 4.08 and 4.10.) The punched card causes two sets of contacts to close at one time for each digit. This generates the proper pair of frequencies for the digit desired. This same function is accomplished when a button is depressed on the TOUCH-TONE dial.

2.05 Two P-24E238 packages, each containing twenty code cards, and one P-13E363 set of nine index cards are supplied with each set.

2.06 The set is equipped with an M1A ringer used either as an individual ringer or a common audible signal. The ringer is adjusted by a lever on the bottom of the set. A machine screw blocks the volume control lever from the OFF position.

2.07 For ringer cutoff, remove the screw through a hole in the base of the set. A KS-8109

buzzer can be mounted and used as an auxiliary signal.

2.08 Sets without exclusion can be converted to provide exclusion by installing the D-179931 kit of parts shown in Table A.

2.09 The exclusion feature is actuated by pulling up on the plastic exclusion button at top left of faceplate (Fig. 1).

2.10 Exclusion is cancelled when the handset is restored.

2.11 The 1662-type telephone set is manufactured in green (-51), white (-58), light beige (-60), and light gray (-61). It also is available on special order in black, yellow, rose pink, aqua blue, and turquoise.

Note: These special color sets are not to be promoted and should be ordered only on specific customer request.

3. ASSEMBLY OF PARTS

3.01 Piece part information for the 1662-type telephone set is shown in Table A.

Key Conversion

3.02 To convert a key position from pickup (locking) to signaling (nonlocking), remove the P-10E837 screw detail from key to be converted (Fig. 2). Install screw detail when converting key back to pickup.

3.03 To remove housing:

- (1) Loosen four captive screws through access holes in base.
- (2) Raise rear of housing slightly to clear buttons.
- (3) Lift housing straight up.

3.04 When replacing housing, keep front slightly lower until buttons clear housing.

26B Dial

3.05 To remove 26B dial:

- (1) Remove housing as shown in 3.03.
- (2) Disconnect spade tipped dial leads from network, TB1, and TB2 (Fig. 2).
- (3) Lay set on side and remove two screws holding dial to base. Dial can then be lifted out.

3.06 To replace 26B dial:

- (1) Dress spade tipped leads towards components on which they terminate.
- (2) Temporarily rest dial assembly on front of set.
- (3) Feed three conductors terminating on TB2 between base and bracket holding TB2.

(4) Move dial into position. Be sure locating tabs on dial mounting enter slots in base.

(5) Fasten dial to base with two mounting screws.

Note: Take extreme care not to pinch wiring between dial and base or dial and other components. Also be sure that wiring or components on bottom of dial are not resting on gong. This reduces volume of ringer.

(6) Reterminate spade tipped dial leads.

(7) Replace housing and check manual and card dialing operations using a properly coded card.

M1A Ringer

3.07 To remove M1A ringer:

- (1) Remove housing and place telephone set on side.
- (2) Remove two screws holding dial to base.
- (3) Lift dial straight up and back toward network to expose ringer. Dial leads are of sufficient length and need not be disconnected.
- (4) Disconnect ringer leads from TB1.
- (5) Remove two screws holding ringer to base and remove ringer.

3.08 To replace ringer, reverse procedure shown in 3.07, again using care that no wiring is pinched between components.

4. INSTALLATION

4.01 An E-4646 designation strip is supplied with each set and is to be installed in the usual manner.

4.02 To gain access to the key, remove faceplate as follows:

- (1) Place KS-16750, L1 releaser at edge of faceplate catch (Fig. 1).
- (2) Push catch toward rear of set until releaser hits notched portion of faceplate.
- (3) Turn point of releaser under faceplate and raise faceplate.

4.03 To restore faceplate, reverse procedure.

4.04 To install station number card, remove faceplate as shown in 4.02. Then slide number card behind number card retainer into proper position (Fig. 1).

Conversion to Exclusion

4.05 Sets without exclusion may be converted to include exclusion by using a D-179931 kit of parts. This kit contains:

- (a) Exclusion switch assembly with leads and terminal board attached.
- (b) Wire link.
- (c) Faceplate with opening for exclusion button.
- (d) Necessary hardware.

4.06 Convert set to exclusion as follows:

- (1) Connect wire link to exclusion switch assembly. The link has two 90 degree bends on both ends for this purpose. Insert short end of wire link (Fig. 3) from rear of switch assembly. A hole is provided for this.
- (2) Mount exclusion switch assembly to switchhook mounting bracket. Be sure the wire link enters hole provided in arm of switchhook. Fasten assembly with three screws furnished in kit.
- (3) Remove nylon screws and fiber washers from left rear of set. If set is equipped with a KS-8109 buzzer, remove temporarily.
- (4) Dress wiring from exclusion switch around switchhook so that terminal board is located at left rear of set (Fig. 3).

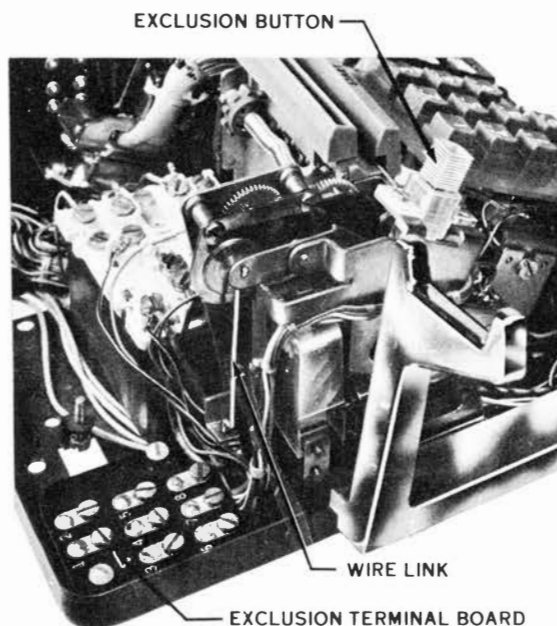


Fig. 3 – Exclusion Switch Assembly

- (5) If buzzer is not provided, fasten terminal board to base with nylon screws and washers furnished with set. Place one washer between terminal board and base. Make connections to exclusion feature as shown in Fig. 7, 8, and 9.
- (6) If buzzer is provided, make connections to exclusion terminal board before fastening to base. Use longer nylon screws and fiber bushings furnished with kit. Mount buzzer above terminal board with bushings between buzzer and terminal board to prevent electrical interference. Mount buzzer with terminals toward outside edges of telephone set.
- (7) Check for proper operation of switchhook and exclusion feature.

KS-8109 Buzzer

4.07 To add KS-8109 buzzer as second audible signal:

- (1) Remove nylon screws and fiber washers from left rear of set.
- (2) Fasten buzzer to base of telephone set (Fig. 4) with nylon screws, placing the fiber washers between buzzer and base. This insulates buzzer from telephone set.

Coding Cards

4.08 The card used with the 1662-type telephone set is similar to that used with the rotary card dialer except:

- (a) The digit "0" appears in both groups of numbers instead of just one.
- (b) A heavy black line separates the two groups of numbers (Fig. 5 and 6).

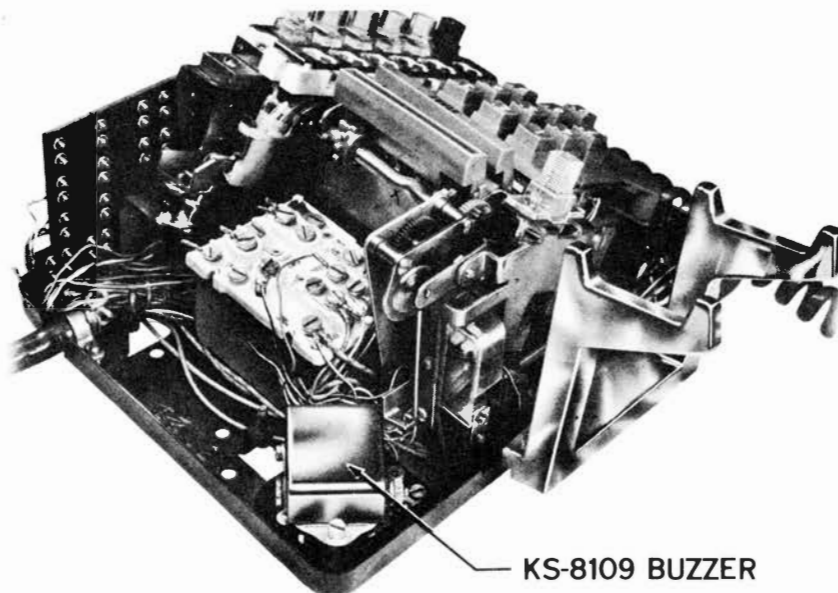


Fig. 4 — Location of KS-8109 Buzzer

4.09 It is important that card is properly punched and checked for accuracy to ensure satisfactory results.

4.10 Code card as follows:

- (1) Write name and telephone number in spaces provided as shown in Fig. 5 and 6.

Fig. 5 shows a card with a grid of circles. The name 'JOHN DOE' is written vertically on the left. The telephone number '552368' is written in the top row. The grid contains various numbers and a STOP sign. The columns are labeled COLUMN 1 and COLUMN 2.

Fig. 5 - Card Coded for 7-Digit Telephone Number

Fig. 6 shows a card with a grid of circles. The name 'JOHN DOE' is written vertically on the left. The telephone number '9311552368' is written in the top row. The grid contains various numbers and a STOP sign. The columns are labeled COLUMN 1 and COLUMN 2.

Fig. 6 - Card Coded for Access Code (9), Stop, Area Code (311) and 7-Digit Telephone Number

- (2) Convert exchange letters to numbers. For example use 2 for A, B, or C and 7 for P, R, or S.

Note: There are two groups of numbers, 1 through 0, at top of card.

- (3) In Fig. 5 the first digit of the telephone number is 5. In column 1, locate digit "5" in the first group of numbers and punch out perforation with a pencil or ball-point pen. Starting in the same column, locate digit "5" in the second group of numbers and again punch out perforation.

Note: The STOP in column 1 is already punched.

- (4) Repeat this procedure for each digit in telephone number. The digit "0" must be punched out in each group of numbers just as any other digit.
- (5) Do **not** punch out the STOP in column following the last digit.
- (6) For DDD calls, punch out the access code (if required), area code, and 7-digit telephone number.

4.11 In certain PBX systems it may be necessary to dial an access code to obtain central office dial tone. To prepare a card for dialing an access code (Fig. 6) do the following:

- (1) Punch out the access code in column 1.
- (2) In column 2 punch out the STOP. Starting in the same column, punch out in the regular manner the directing or area code, if any, and telephone number.

4.12 Check card before using to be sure it is properly punched for number desired. There should be two holes in each column plus a STOP, if required. Punch holes out completely.

5. OPERATION

5.01 Operate card dialer as follows:

- (1) Insert punched card into dialer slot with name on top, facing front of set. Push card down completely.
- (2) Remove handset and listen for dial tone.
- (3) Depress dialer START bar (Fig. 1). Card dialer will read entire card in 2 to 3 seconds.
- (4) After entire card has been read, remove card from dialer slot and store.
- (5) After completing call, replace handset.
- (6) To abandon call during dialing, restore handset. The card dialer will continue to read entire card.

5.02 On cards coded for the access code feature, repeat steps 1 and 2 in 5.01. Depress START bar. After access code is dialed, card will stop. When second dial tone is heard, depress START bar again and the remaining digits will be dialed. Then follow steps 4 through 6 in 5.01.

5.03 Letters and numbers on the TOUCH-TONE dial are grouped in the same sequence as those on a rotary dial. To dial a number using TOUCH-TONE dial, depress button for that letter or number. Depress buttons firmly and in order of telephone number.

6. MAINTENANCE

6.01 See appropriate sections for maintenance of components such as handset, ringer, and keys.

6.02 Maintenance of the 26B card dialer is limited to the following:

- (a) Sticking Cards — Make a visual inspection of dialer for loose parts or wires interfering with dialer.
- (b) Foreign Material — Check for material such as paper clips, hairpins, etc lodged in card slot.
- (c) Faulty Cards — Check cards for proper size by comparing with a working card. Replace bent or mutilated cards.
- (d) Inoperative Dial — Check polarity of line. Maintain battery or negative potential on the *O-BK* lead of dial, and ground or positive potential on *G* lead of dial.
- (e) Wrong Numbers — Check at least twice on each line with a test code card. Check operation of TOUCH-TONE dial by pulsing test number on buttons.

6.03 For more complete test of TOUCH-TONE dial, see section concerning 25-type station dials.

6.04 If trouble tests in 26B card dialer, replace dialer.

Note: No adjustments of dialer are to be made in the field.

6.05 A nonglare faceplate (Table A) is available for replacement at locations where there is trouble in dialing due to light reflections in the dial area. See 4.02 for removal of faceplate.

7. CONNECTIONS

7.01 Connections for 1662A1 and 1662A4 telephone sets are shown in Fig. 7.

7.02 Connections for 1662A2 and 1662A5 telephone sets are shown in Fig. 8.

7.03 Connections for 1662A3 and 1662A6 telephone sets are shown in Fig. 9.

7.04 Connections to 3A speakerphone system are shown in Table B.

TABLE B**3A SPEAKERPHONE CONNECTIONS USING 148A AND 149A ADAPTERS**

Lead Desig	Terminals on 55B Control Unit	148A Adapter Leads	149A Adapter Terminals	Mounting Cord	Terminals in Set TB2
AG	5	S-BK	12A	V-S	A or BL
LK	*	S-Y	11A	S-V	LK
IT	25	S	10A	V-BR	Insulate and store
IR	32	BL-W	9A	BR-V	10
T1	19	BK-W	8A	V-G	9
R1	28	BK-BL	7A	G-V	R
B or B1	8	G-Y	2A	Y-S	6 †
R or R1	9	R-W	1A	S-Y	A ‡
BZ	7	G-W	3B	BL-V	Buzzer
BZ1	6	Y-BK	4B	V-BL	Buzzer
A1	12	G-BK §	A1 §	O-W	A1
A1	12	O-W §	SG §	BR-Y ¶	SG ¶

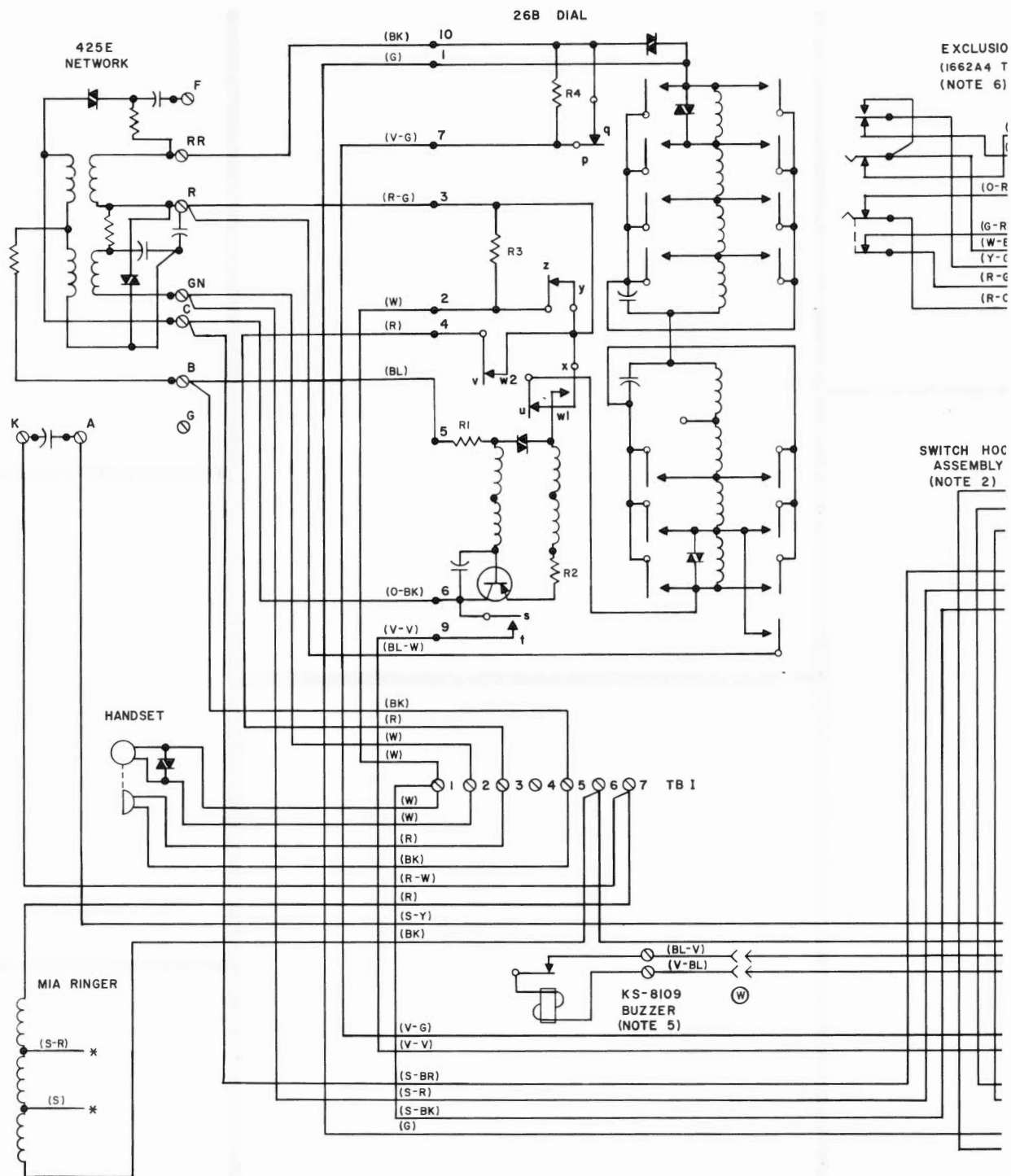
* Connect to LK of 666A transmitter.

† TB1.

‡ Terminal on network.

§ See (S) or (T) option (Fig. 9). When using (T) option with 148A adapter, connect (V-S) of connector cable to SG ground at equipment.

¶ When using 149A adapter only.



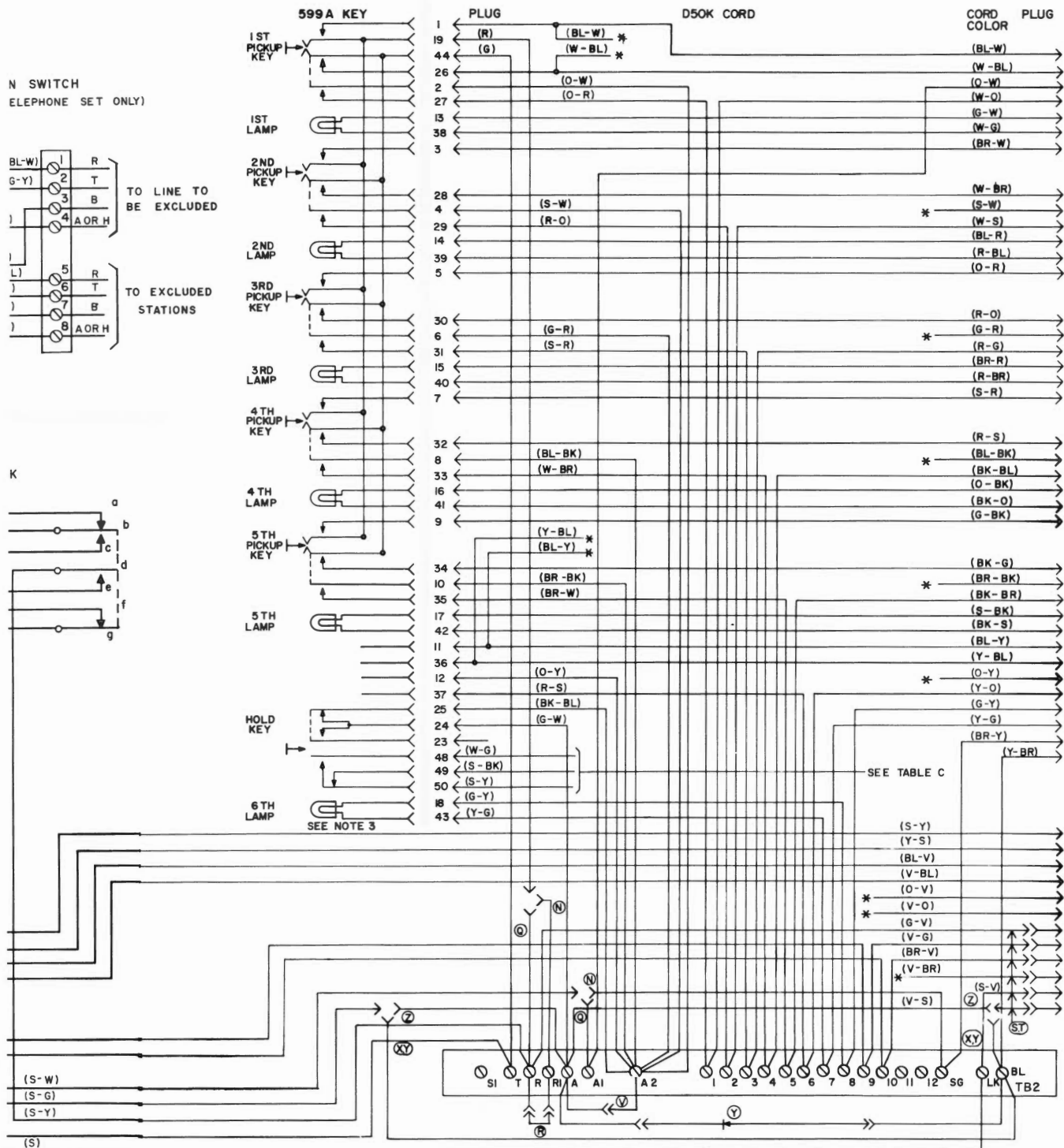
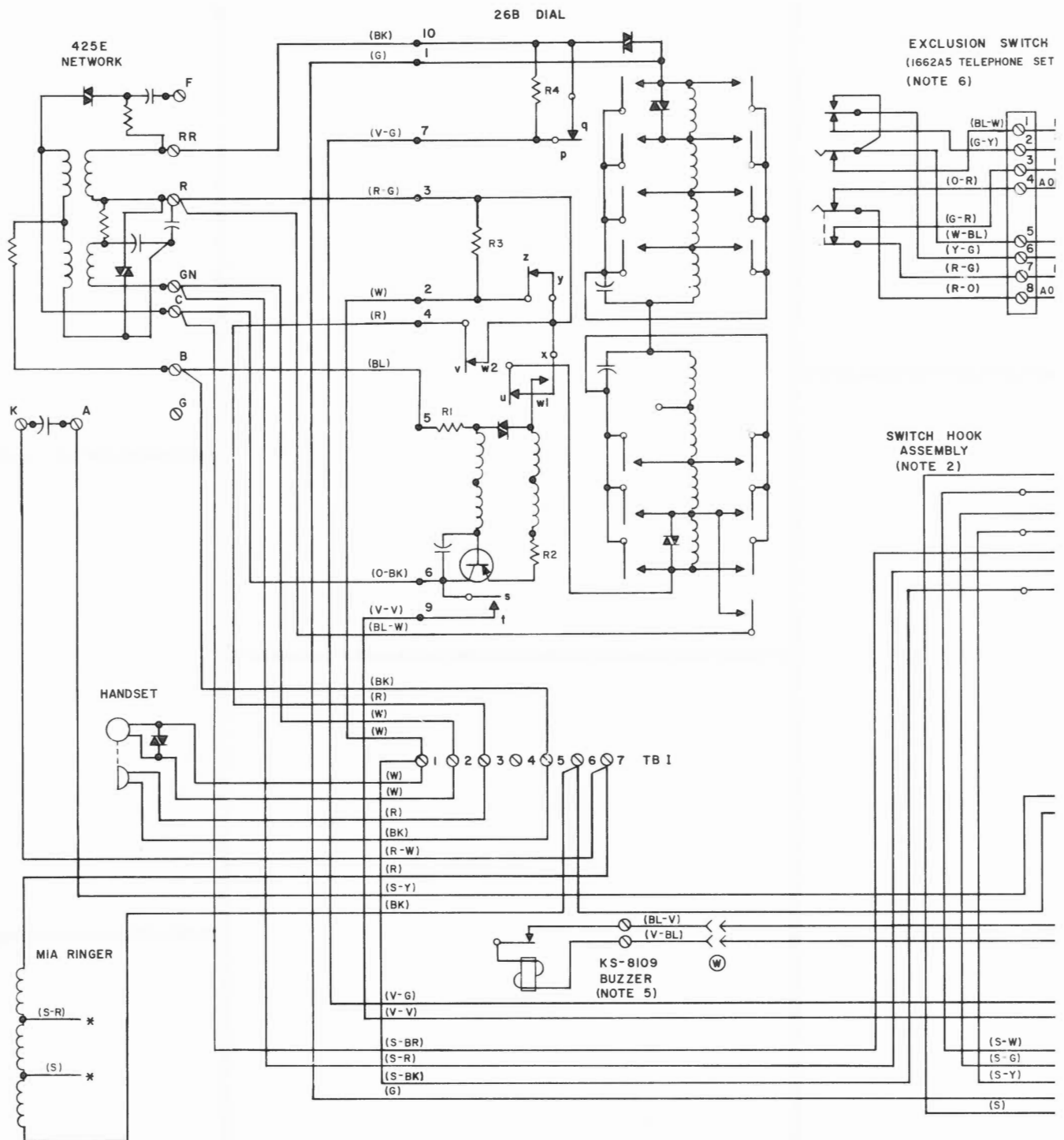
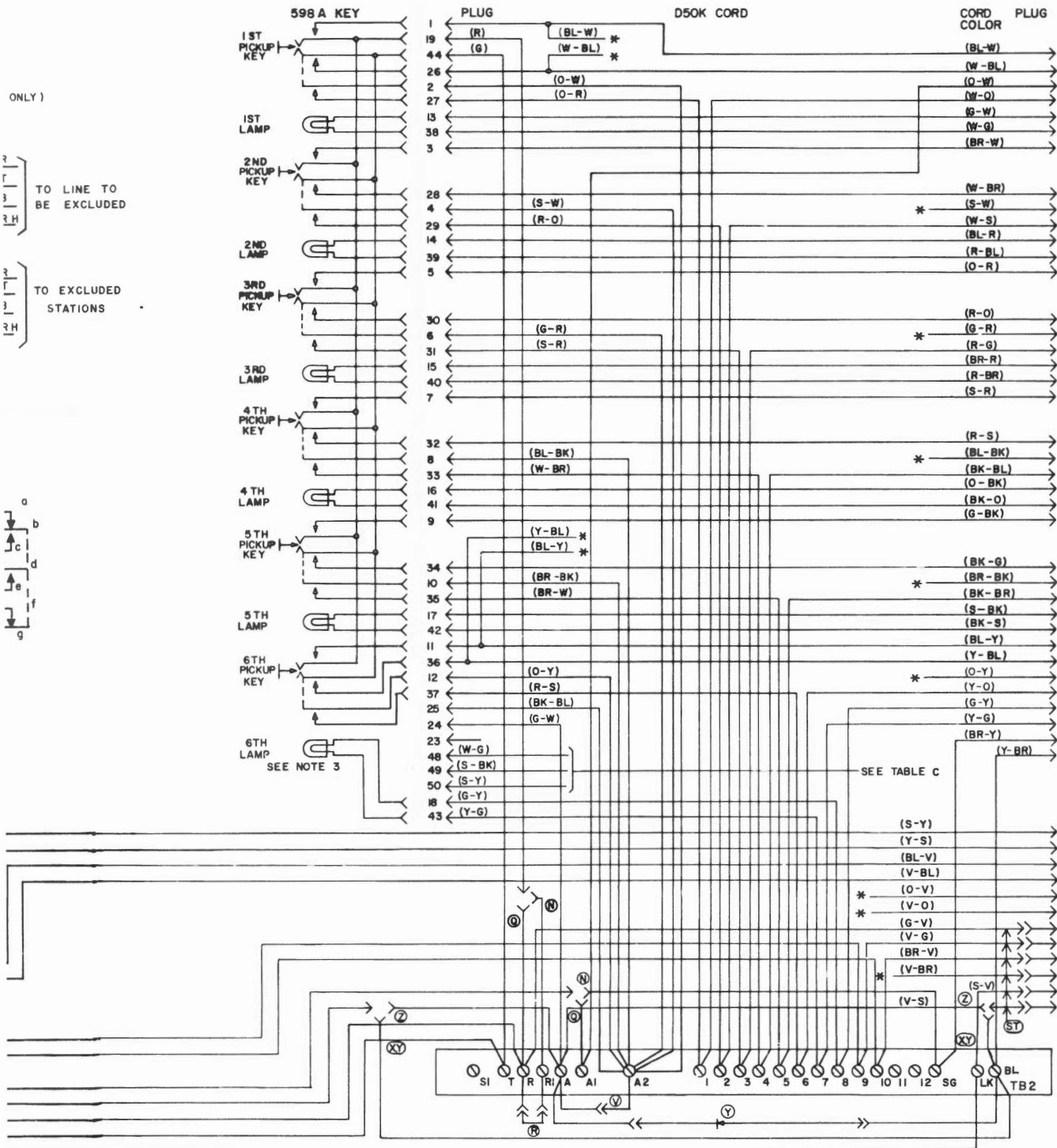


Fig. 7 - 1662A1 and 1662A4 Telephone Sets, Connections





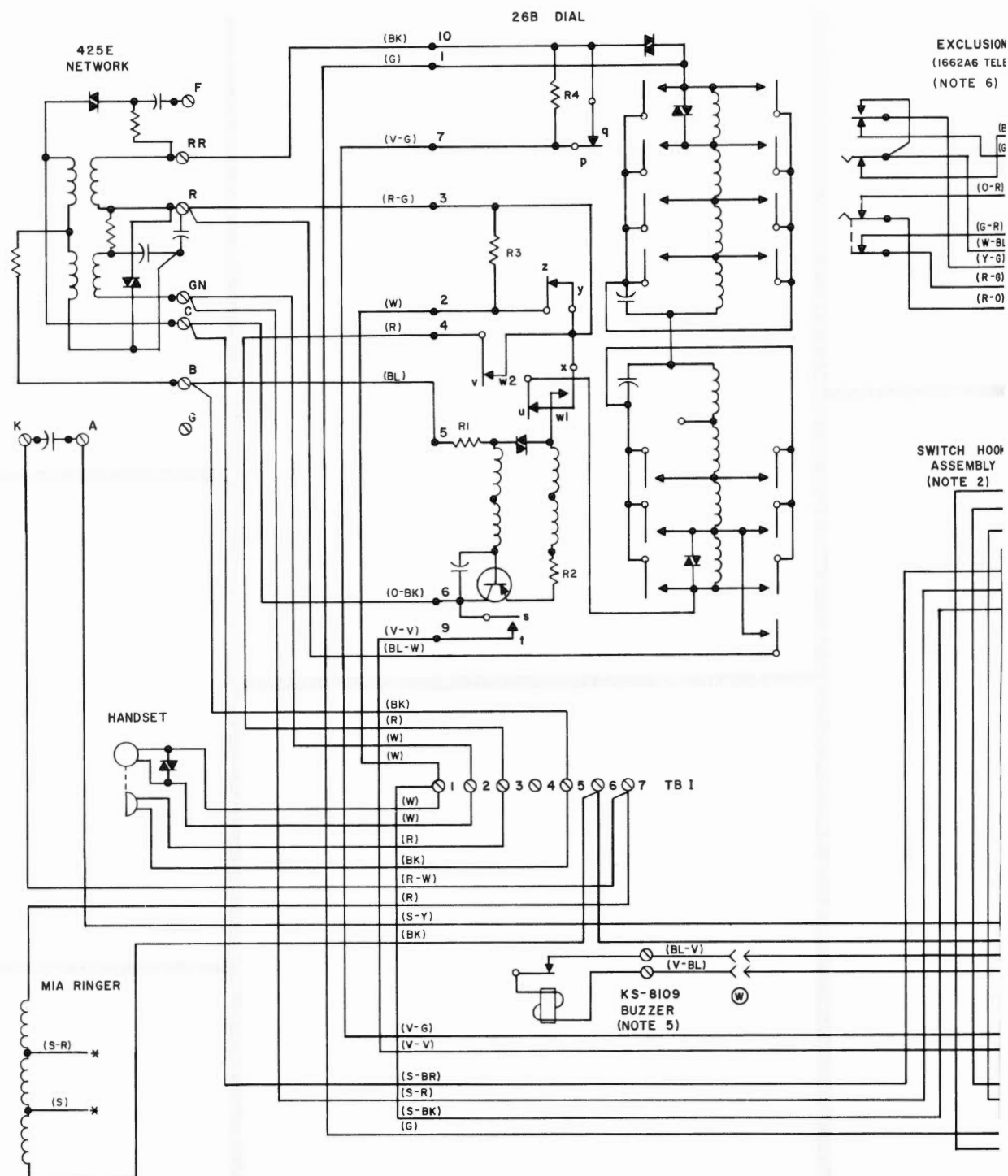
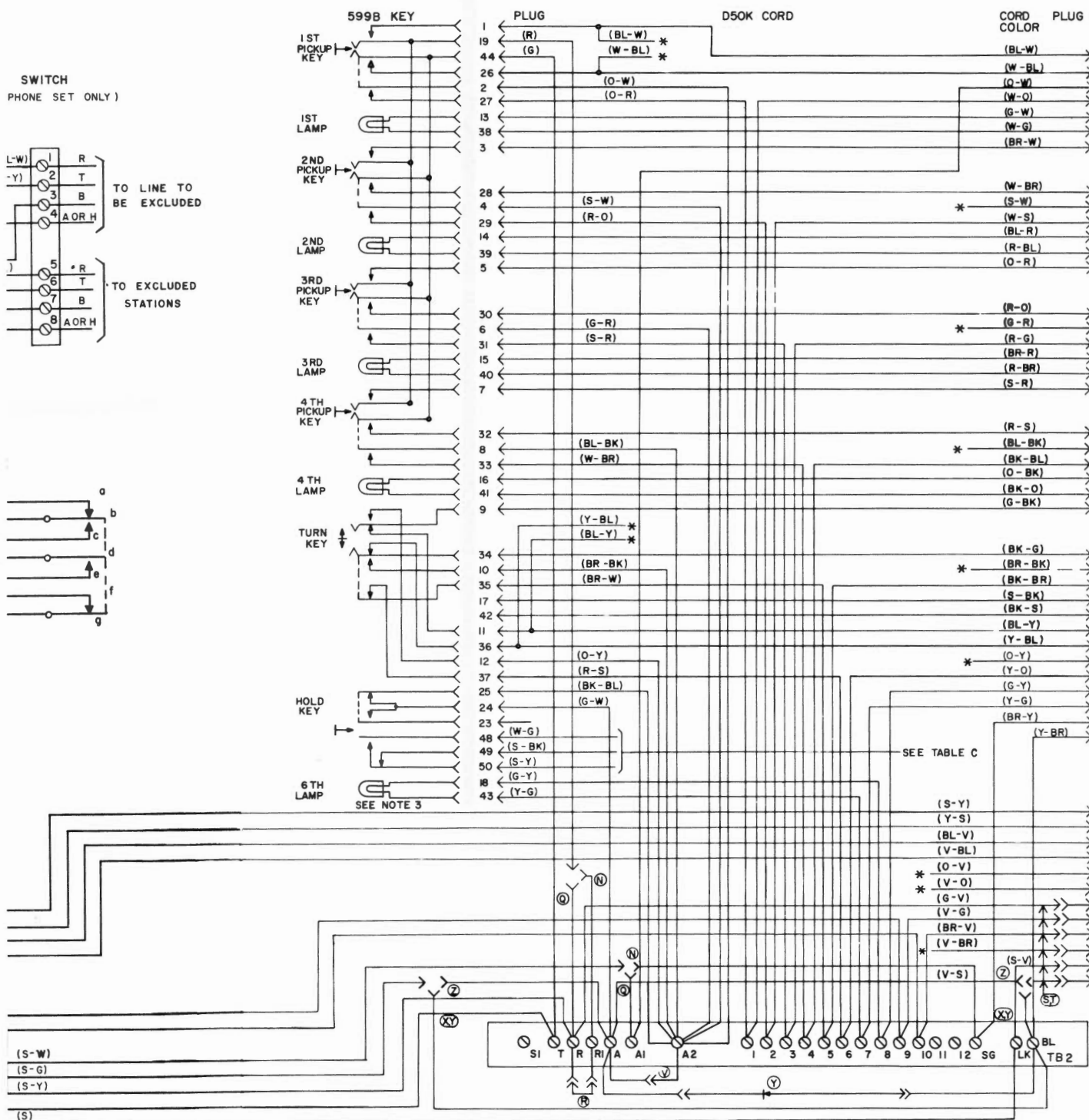
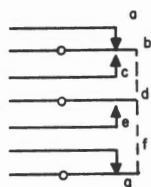


Diagram of a 12-position terminal block with two groups of four terminals. The top group (terminals 2, 3, 4, 5) is labeled "TO LINE TO BE EXCLUDED" and has labels R, T, B, and AOR H. The bottom group (terminals 6, 7, 8, 9) is labeled "TO EXCLUDED STATIONS" and has labels *R, T, B, and AOR H. Wires are connected to terminals 2, 3, 4, 5, 6, 7, 8, and 9.



A25B CONNECTOR CABLE

CONN.	LEAD DESIGNATION	CABLE COLOR
1	R	(BL-W)
26	T	(W-BL)
2	A1 OR B	(O-W)
27	A, H, S OR SI	(W-O)
3	L	(G-W)
28	LG	(W-G)
4	R	(BR-W)
29	T	(W-BR)
5	B	(S-W)
30	A, H, S OR SI	(W-S)
6	L	(BL-R)
31	LG	(R-BL)
7	R	(O-R)
32	T	(R-O)
8	B	(G-R)
33	A, H, S OR SI	(R-G)
9	L	(BR-R)
34	LG	(R-BR)
10	R	(S-R)
35	T	(R-S)
11	B	(BL-BK)
36	A, H, S OR SI	(BK-BL)
12	L	(O-BK)
37	LG	(BK-O)
13	R	(G-BK)
38	T	(BK-G)
14	B	(BR-BK)
39	A, H, S OR SI	(BK-BR)
15	L	(S-BK)
40	LG	(BK-S)
16	R	(BL-Y)
41	T	(Y-BL)
17	B	(O-Y)
42	A, H, S OR SI	(Y-O)
18	L	(G-Y)
43	LG	(Y-G)
9	SG	(BR-Y)
44	BL OR LS	(Y-BR)
20	R OR RI	(S-Y)
45	B OR BI	(Y-S)
21	BZ	(BL-V)
46	BZ1	(V-BL)
22		(O-V)
47		(V-O)
23	RI	(G-V)
48	TI	(V-G)
24	IR	(BR-V)
49	IT	(V-BR)
25	LK	(S-V)
50	AG	(V-S)

TO DISTRIBUTION
TERMINAL OR AP-
PARATUS CABINE

- (W) BUZZER
 (N) 1A KEY TELEPHONE SYSTEM
 (B) 1A WITH BUSY LAMP
 (H) 1A WITHOUT HOLD KEY, (598A KEY)
 (R) 1A WITH 3A SPEAKERPHONE
 (C) 1A1 AND 1A2 KEY TELEPHONE SYSTEM
 (Z) 1A1 AND 1A2 WITH STATION BUSY LAMP
 (V) 1A1 AND 1A2 WITHOUT STATION BUSY LAMP
 (S) 1A1 AND 1A2 WITH 3A SPEAKERPHONE

Note 1: Sets are furnished and wired for 1A1 or 1A2 key telephone systems. See table C for connection to 1A key telephone system.

Note 2: Switchhook sequence is as follows:

- (1) Removing Handset
 - (a) cb makes
 - (b) de makes
 - (c) ab breaks (may break before de makes)
 - (d) fg breaks after de makes
- (2) Restoring handset
 - (a) ab makes and de breaks before cb breaks
 - (b) Other contacts, no requirements

Note 3: To use 6th lamp equip key with proper lamp and connect associated leads at equipment or distribution terminal as required.

Note 4: Leads for 3A speakerphone are insulated and stored and must be terminated when feature is desired. A 148A or 149A adapter may be required for connection to speakerphone control unit. (See table B.)

Note 5: When KS-8109 buzzer is provided, connect BZ (BL-V) and BZ1 (V-BL) to terminals of buzzer. Be sure buzzer is insulated from base of set.

Note 6: When exclusion feature is desired, connect exclusion switch to stations by means of cord conductors not in use for other functions. When exclusion switch is connected to 1A key telephone system, the H and B leads must be paired. When connected to 1A1 or 1A2 key telephone system, the A leads may be connected to paired or nonpaired conductors.

Note 7: Make the following wiring changes in addition to table D when converting from pickup to signal:

- (a) For 599A key, convert 5th key to nonlocking, move (BR-W) to A and (BR-BK) to S1 of TB2.
- (b) For 598A key, convert 6th key to nonlocking, move (R-S) to A and (O-Y) to S1 of TB2.
- (c) For 599B key, convert 4th key to nonlocking, move (W-BR) to A and (BL-BK) to S1 of TB2.

TABLE C
1A1 AND 1A2 OR 1A CONVERSION AT TERM. BOARD 2

Option	BK-BL	R of Key	G-W	W-G	S-BK	S-Y
1A1 and 1A2	A2	R	A	*	*	*
1A	*	R1	*	A2	R1	R

TABLE D
PICKUP TO SIGNAL KEY CONVERSION

Key No.	Cord Color	From Pickup	To Individual Signal	To Com. Sig (Note 7)
6	O-Y	A2	SG	S1
5	BR-BK			
4	BL-BK			
3	G-R			
2	S-W			
1	O-W			

* Insulate and store.

Fig. 9 - 1662A3 and 1662A6 Telephone Sets, Connections