TELEPHONE SETS

660, 663, 1660, AND 1663 TYPES

1. GENERAL

1.01 This section gives description, assembly, installation, operation, maintenance, and connection information for the 660-, 663-, 1660- and 1663-type telephone sets.

1.02 This section is reissued to show current color codes for the switchhook and TOUCH-TONE dial.

2. IDENTIFICATION

2.01 The 660-, 663-, 1660-, and 1663-type telephone sets (Fig. 1 and 2) are similar in appearance to other card dialer sets.

2.02 These telephone sets have electrical and transmission characteristics of 500-type sets.

2.03 The 660-, 663-, 1660-, and 1663-type sets are available in the following colors:

Black (–3)	Pink (–59)
Green (–51)	Light Beige (–60)
Yellow (–56)	Light Gray (–61)
White (–58)	Aqua Blue (–62)

Turquoise (–64)

2.04 These sets are furnished wired for individual or bridged, and ring and tip parties. With wiring changes, they may also be used for tip party identification or with 1A1 or 1A2 key telephone systems. In addition, the 660A1 telephone sets can be wired for use with the 3-type speakerphone. This requires replacement of the mounting cord and wiring changes within the set.

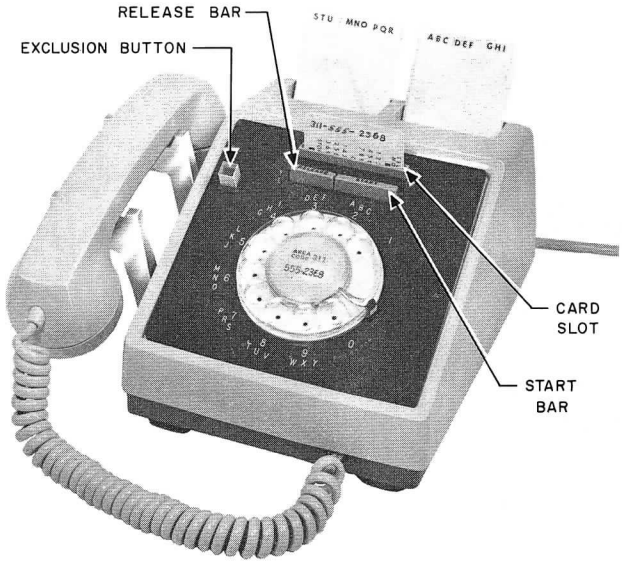


Fig. 1 — 660-Type Telephone Set

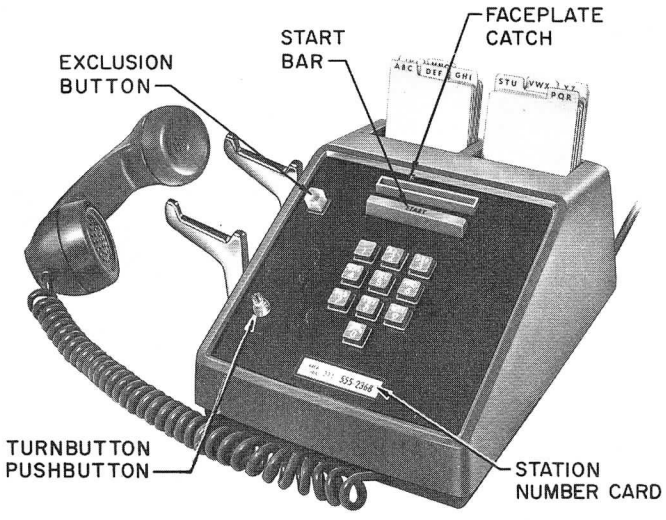


Fig. 2 — 1660-Type Telephone Set

2.05 The 660- and 663-type telephone sets feature both an 8C dial and a 41A dial (Fig. 3). The 41A dial is an electromechanical dial driven by an ac synchronous motor. The motor requires a low voltage power supply.

2.06 To operate the 41A card dial, insert a coded card in the card slot. Depressing the START bar closes the start contacts allowing the motor to drive the commutator disc. The card feeds past the reader mechanism and the coded portion of the card controls the dial output. Pressing the RELEASE bar ejects the card at any time without further pulsing.

2.07 Early 1660- and 1663-type telephone sets use a 26B dial. Later sets use a 26D dial (Fig. 4). On the 26D dial, (S-BK) lead replaces the (BL-W) lead and is wired to the RR punching instead of R. A 26D dial can replace a 26B, but a 26B cannot replace a 26D.

2.08 The 26B dial 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.

2.09 Automatic dialing is accomplished by coding a card. 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.

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

Ringer Volume

2.11 The volume of the ringer is adjustable through the base of the set.

Exclusion

2.12 The exclusion feature, if provided, is actuated by pulling up on the plastic button (Fig. 1 and 2) at the top left of the faceplate. The exclusion switch is connected to the switchhook assembly by a wire link so that exclusion is cancelled when the handset is restored. Sets can be converted to provide exclusion by the installation of a kit of parts. (See Table A.)

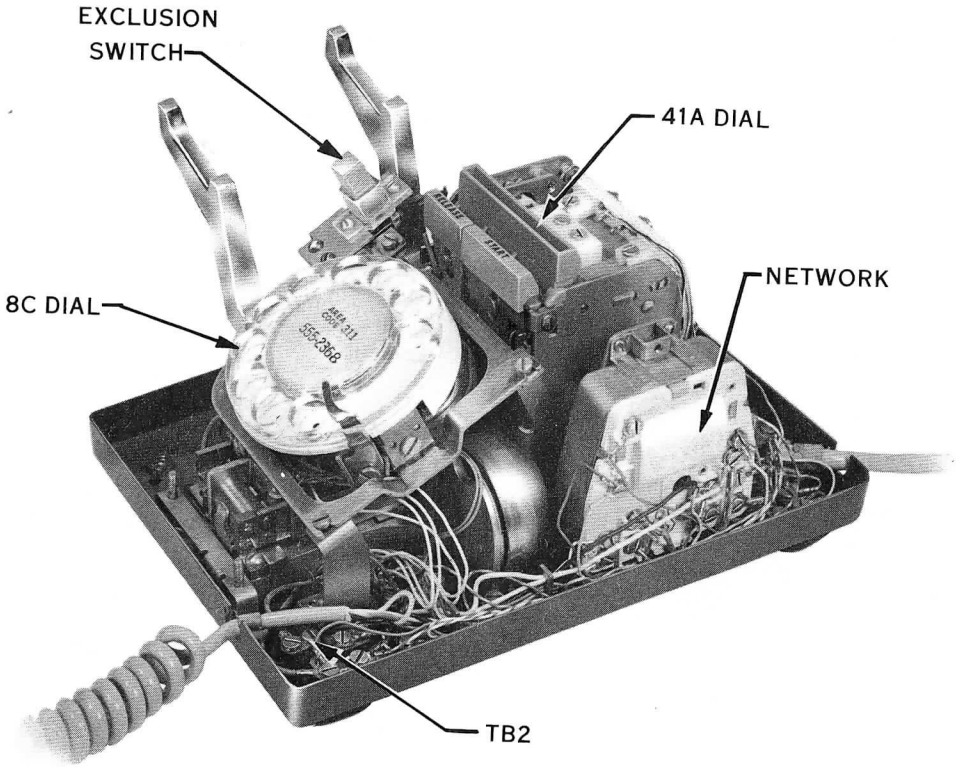


Fig. 3 — 660-Type Telephone Set, Cover Removed

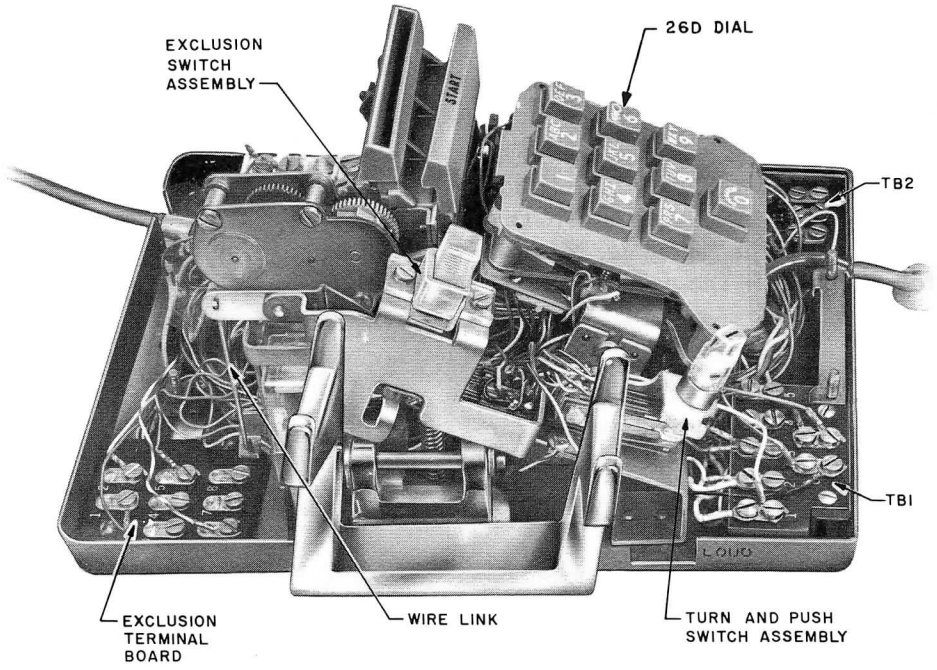


Fig. 4 — 1660-Type Telephone Set, Cover Removed

TABLE A

PIECE PART INFORMATION

Set Code*	Cord*	Regular Faceplate	Nonglare Faceplate¶	Exclusion Conversion Kit†	Housing*	Exclusion Provided	2-Line Pickup Provided	Ringer
660A1	D6AF	P-24E979	P-25E605		P-82B0-	No	No	C4A
660A2	D10L	P-24E978	P-25E604	D-179888‡		Yes		
1660A1	D3BN	P-25E894	P-26E625			No		M1A
1660A2	D6AF	P-25E895	P-26E626	D-179949§		Yes		
1660A3	D10L	P-25E897	P-26E628	D-179950§		No	Yes	
1660A4		P-25E896	P-26E627	D-179951§		Yes		
663A1	D6AF	P-26E820	P-27E707		P-87C2-	No	No	C4A
1663A1		P-26E938	P-27E708			No		M1A

* Add suffix for desired color:

(–03) Black	(–58) White	(–61) Light Gray
(–51) Green	(–59) Pink	(–62) Aqua Blue
(–56) Yellow	(–60) Light Beige	(–64) Turquoise

† Kit contains parts necessary to add exclusion to these sets, less cord. Both must be ordered separately.

‡ Add D-179888 kit to 660A1 to convert to 660A2.

§ Add these kits to the 1660A1 set to convert to these codes.

¶ Must be ordered separately.

2.13 The 1660-type set is arranged to accommodate an exclusion switch and a 2-line pick-up key. The addition of these features changes the set code (See Table A).

2.14 The 663- and 1663-type sets are equipped with headset jacks to permit either handset or headset operation. The HEADSET ON key is located at the top left of the faceplate. No provision is made for exclusion in these sets.

3. ASSEMBLY

3.01 Table A contains piece part information for the 660-, 1660-, 663-, and 1663-type telephone sets.

3.02 To remove housing, loosen four captive screws through access holes in base of set. Lift housing straight off.

3.03 To remove 8C dial:

(1) Loosen three screws holding dial adapter.

(2) Shift dial to left until adapter clears screws.

(3) Lift dial straight up and out. On sets with exclusion, disengage wire link from switchhook assembly.

3.04 To replace 8C dial:

(1) Remove dial from set as shown in 3.03.

(2) Disconnect spade tipped dial leads.

(3) Loosen two screws holding dial to adapter, and remove dial.

(4) Attach replacement dial to adapter making sure dial is positioned properly.

(5) Reterminate dial leads.

(6) On sets with exclusion, start wire link from exclusion switch into hole on switchhook assembly. (See Fig. 5.)

(7) Slide slots of dial adapter under dial mounting screws.

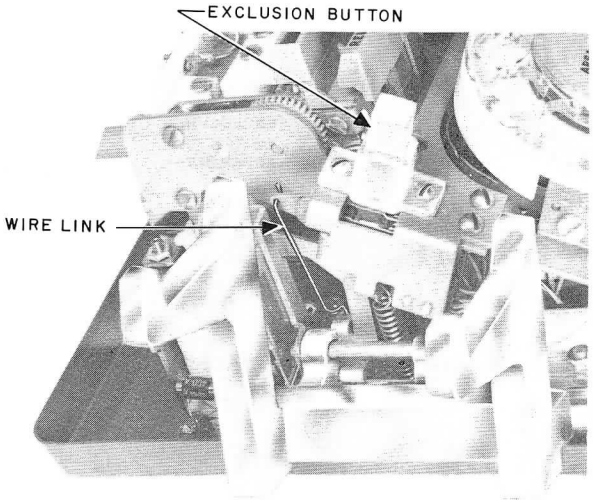


Fig. 5 — Exclusion Switch Assembly

(8) Move dial to right as far as possible and tighten screws.

(9) Check operation of 8C dial and exclusion switch if provided.

3.05 To replace 41A dial:

(1) Temporarily disconnect 18-volt ac power supply to dial.

If dial receives its power from a common source such as a 101G power supply, take care that other services are not affected.

(2) Disconnect wiring from terminal strip on rear of dial (Fig. 6).

(3) Turn set on side and remove three screws holding dial to baseplate. Dial can now be removed.

(4) Place new dial in position taking care not to pinch any wiring between dial and baseplate.

(5) Fasten dial to baseplate with three mounting screws.

(6) Reterminate leads to dial on terminal strip.

(7) Reconnect power supply.

(8) Using properly coded card, check operation of the dial.

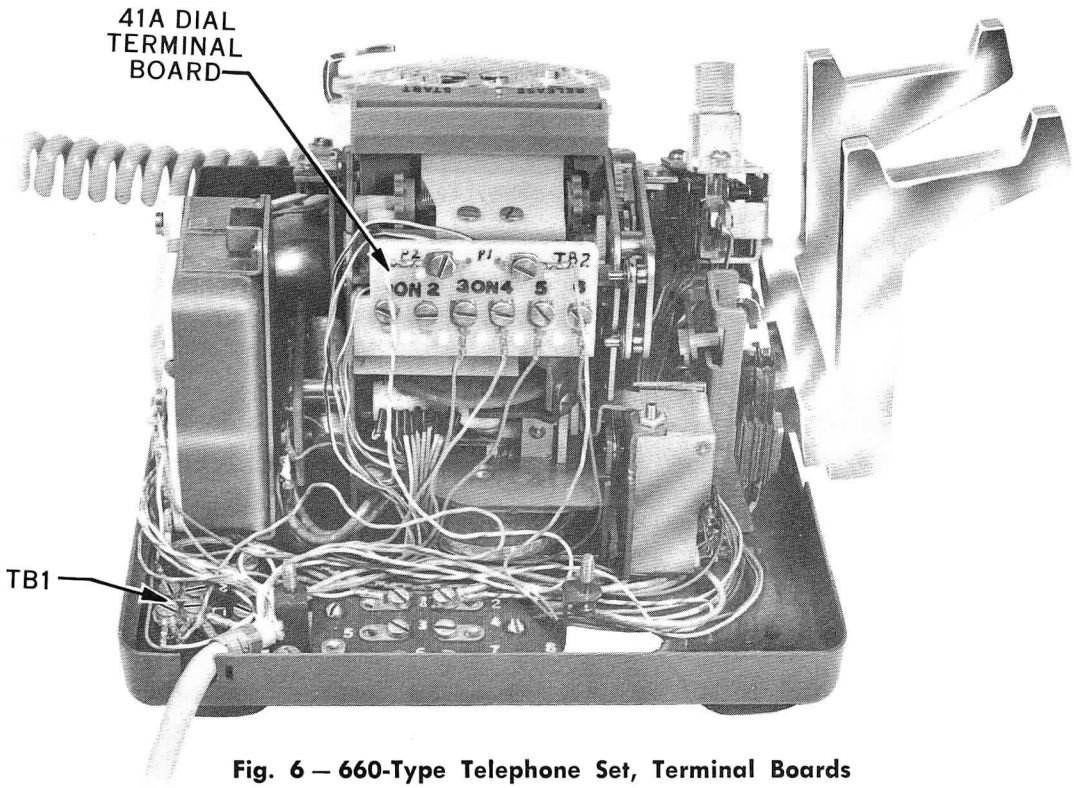


Fig. 6 — 660-Type Telephone Set, Terminal Boards

3.06 To remove 26D dial:

(1) Remove housing as shown in 3.02.

(2) Disconnect spade tipped dial leads from network and TB1 (Fig. 4).

(3) Lay set on side and remove two screws holding dial to base. Dial can then be lifted out.

3.07 To replace 26D dial:

(1) Dress spade tipped leads towards components on which they terminate.

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

(3) Fasten dial to base with two (26B) or three (26D) 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 ringer volume.

(4) Reterminate spade tipped dial leads.

(5) Replace housing and check manual dialing operations. Use properly coded card to check card dialer.

3.08 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.

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

4. INSTALLATION

Caution: *Never connect 48-volt test battery across tip and ring of set without placing a current limiting resistor in series with the battery. Use a KS-13490, List 1 (1000 ohm 1/2 watt) resistor or equivalent. Failure to do so will result in damage to the pulsing switch or the start switch of the 41A dial.*

4.01 Table B shows the capacities of power supplies used with 660- and 663-type card dialers.

4.02 To install station number card (TOUCH-TONE sets), remove faceplate as follows:

(1) Place KS-16750, L1 releaser at edge of faceplate catch (Fig. 2).

(2) Push catch toward rear of set until releaser hits notched portion of faceplate.

(3) Turn point of releaser under faceplate and raise.

(4) Slide number card behind number card retainer.

(5) Replace faceplate using releaser to hold catch until faceplate is in position.

TABLE B

POWER SUPPLY CAPACITIES USED WITH 660- AND 663-TYPE SETS

Power Supply (See Note 1)	Capacity of Power Supply	Maximum Distance Between Dial and Power Supply (in feet)		
		Cable BUA (22 ga)	Cable D, IW (24 ga)	JKT (20 ga)
101G or 101J	6 Dials	1200	800	2050
KS-16886, L2 Transformer	3 Dials	1150	700	1850
2075A Transformer (See Note 2)	1 Dial	675	425	1075

Note 1: This table is based on the premise that the power supply is used for powering 41A dials (rotary dials only) wired independently back to the power supply. If the power supply is used for other services such as lamps, buzzers, etc, or if it is necessary to power more than one dial per conductor loop, check the voltage at the dial. When checking the voltage, any auxiliary equipment should be operating to ensure that the load placed on the power supply is typical of normal operation.

Note 2: For mounting the 2075A transformer, use two No. 6 by 3/4-in. wood screws.

4.03 The 660-type set without exclusion may be converted by the addition of a D-179888 kit of parts (Table A). The kit contains:

(a) Exclusion switch assembly with leads and terminal board attached.

(b) Wire link.

(c) Faceplate with opening for exclusion key.

(d) Necessary hardware.

4.04 In addition to the D-179888 kit of parts, a D10L cord of the correct color must be ordered.

4.05 To convert set from nonexclusion to exclusion:

(1) Remove 8C dial.

(2) Attach exclusion switch assembly to dial adapter with two screws provided. (See Fig. 5.)

(3) Dress exclusion switch leads along left side of 41A dial and between control relay and switchhook assembly so that terminal board is in position at rear of set.

(4) Connect wire link to exclusion switch assembly by placing end of wire link having two 90 degree bends into hole provided in switch assembly. (See Fig. 5.) Start link from left side of assembly.

(5) Remount 8C dial making sure that wire link enters hole provided in switchhook assembly. Tighten dial mounting screws.

(6) Mount terminal board to base with screws provided. (See Fig. 6.)

(7) Replace D6AF cord with D10L cord.

(8) Replace faceplate with one providing an opening for exclusion button.

(9) Replace housing and check set for proper operation.

4.06 The 1660A1 telephone set may be converted to furnish either exclusion, 2-line pickup and signaling, or both. See Table A for proper conversion kit.

4.07 The D-179949 kit contains necessary parts to convert sets to exclusion.

4.08 The D-179950 kit contains necessary parts to convert sets to 2-line pickup.

4.09 The D-179951 kit contains necessary parts to convert sets to 2-line pickup and exclusion.

4.10 To add exclusion to set:

(1) Connect wire link to exclusion switch assembly. The wire link has two 90 degree bends on both ends. Insert short end of wire link (Fig. 4) into hole provided at rear of switch assembly.

(2) Mount switch assembly to switchhook mounting bracket. Be sure wire link enters hole provided in arm of switchhook. Fasten assembly with three furnished screws.

(3) Dress wiring between switchhook and dial so terminal board is located at left rear of set (Fig. 4).

(4) Fasten terminal board to base with two furnished screws.

(5) Replace D3BN with D6AF mounting cord and make proper connections.

(6) Replace faceplate with one supplied in kit of parts.

(7) Replace housing and check set for proper operation.

4.11 To add 2-line pickup and signaling to set:

(1) Mount turnbutton-pushbutton switch assembly (Fig. 4) on left side of set in front of switchhook. Use two shouldered screws furnished in kit.

(2) Dress wiring across front of dial so terminal board is located at right front of set. Fasten terminal board to base with two furnished screws.

(3) Replace D3BN with D10L mounting cord and make proper connections.

(4) Replace faceplate with one supplied in kit of parts.

(5) Replace housing and check set for proper operation.

5. CODING CARD

5.01 It is important to properly punch and check cards for accuracy to ensure satisfactory results. (See Fig. 7 and 8.)

5.02 Code cards as follows:

(1) Write name and telephone number in spaces provided as shown in Fig. 7 and 8.

(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 on the card. (See Fig. 7.)

(3) In Fig. 7 the first digit of the telephone number is 5. In column 1, locate digit 5 in the first group of numbers and punch out the perforation with a pencil or ballpoint pen. In the same column, locate digit 5 in the second group of numbers and again punch out the perforation.

Note: The STOP in column 1 is already punched.

(4) Repeat this procedure for each digit in the telephone number. The digit 0 must be punched out in each group of numbers just as any other digit.

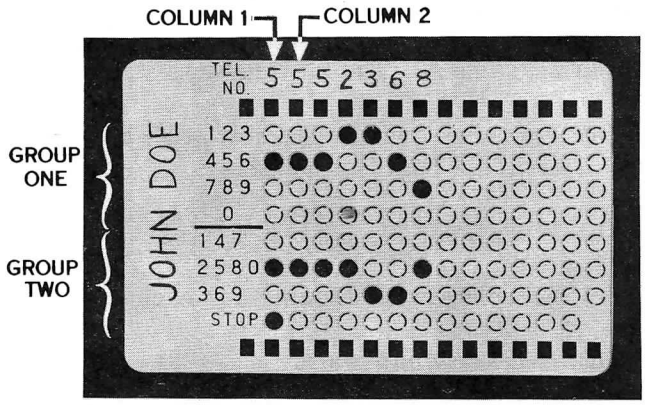


Fig. 7 — Card Coded for 7-Digit Telephone Number

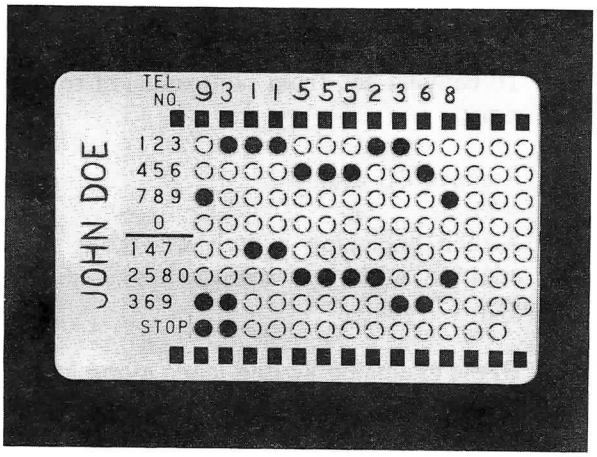


Fig. 8 — Card Coded for Access Code (9), Stop, Area Code (311), and 7-Digit Telephone Number

(5) For DDD calls, punch out the access code.

5.03 On a PBX extension where a code (such as 9) is required to reach a central office line, prepare a card for dialing an access code (Fig. 8) as follows:

(1) Punch out the access code in column 1.

(2) If a second dial tone is required, punch out the STOP in column 2.

(3) Beginning in column 2, punch out in the regular manner the directing or area code, if any, and telephone number.

5.04 Check card before using to be sure it is properly punched for the number desired. There should be at least two holes in each column, three if stop is needed. Punch holes out completely.

6. OPERATION

6.01 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 and 2). Card dialer will "read out" punched card.

(4) The 26D dialer will "read out" in 2 to 3 seconds. The card can be removed following "read out", since there is no STOP punched at the end of the number.

(5) After completing call, replace handset.

(6) To abandon call with a 26D or 41A dialer, restore handset. Card dialer will continue to read entire card.

6.02 For cards coded for an access code, repeat steps 1 and 2 in 6.01. 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.

6.03 The card dialer can be dialed manually in the normal manner.

7. MAINTENANCE

7.01 See appropriate sections for maintenance of components such as handset, ringer, etc.

7.02 Maintenance of the card dialer is limited to the following:

(a) Sticking cards—make 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 (26D only). The 26D dial requires negative battery on the (O-BK) lead of the dial and ground or positive potential on the (G) lead.

(e) Wrong numbers—check at least twice on each line with a test code card. Check operation of TOUCH-TONE dial or rotary dial in the normal manner.

7.03 If trouble tests in the card dialer, replace dialer.

Note: Do not make any adjustments of card dialer in the field.

7.04 A nonglare faceplate (Table A) is available for replacement at locations where there are light reflections in the dial area. See 4.02 for removal of faceplate.

8. CONNECTIONS

8.01 Connections for 660-, 663-, 1660-, and 1663-type telephone sets are shown in Fig. 9 through 15 and in Tables C, D, E, F, G, and H.

TABLE C

LINE AND RINGER CONNECTIONS — 660A1 TELEPHONE SET

Wire or Lead			Individual or Bridged	Ring Party	Tip Party			1A1 or 1A2 Key Equipment‡
					No Ident Ground	Identifying Ground		
						1000Ω	2650Ω	
Line Wire	Tip	Connecting Block	1	1	1	1	1	1
	Ring		2	2	2	2	2	2
	Grd A1		5*	5	5	5	5	5
	A		4	4	4	4	4	4
Mounting Cord	G		1	1	2	2	2	1
	R		2	2	1	1	1	2
	Y		1	5	5	5	5	5
	BK		4	4	4	4	4	4
Mounting Cord In Set	G	TB1	L1	L1	L1	L1	L1	L1
	R		L2	L2	L2	L2	L2	L2
	Y		G†	G†	G†	G†	G†	2
	BK		1	1	1	1	1	1
Ringer Leads	R	TB2	7	7	7	7	7	7
	BK		8	8	8	8	8	8
	S		9	9	9	9	9	9
	S-R		10	10	10	10	10	10
Ringer Straps	R	Ntwk	L2	L2	L2	K	B	C
	BK		G	G	G	G	B	L1
	S		K	K	K	B	K	K
	S-R		A	A	A	B	G	A
Switch-hook Leads	S	TB1	L2	L2	L2	A†	A†	2
	[S-W] (Y)		L2	L2	L2	L2	L2	2
	[S-G] (BR)		C†	C†	C†	C†	C†	1

* Ground may be omitted if not required for service. Not required for protection of 41A dial power supply.

† Terminals on network.

‡ For 1A1 or 1A2:

- Move (R) and (S) from L2 of network to C of network.
- Move (BK) from G of network to L1 of network.

( ) Indicates current color code.

[ ] Indicates MD color code.

TABLE D

LINE AND RINGER CONNECTIONS — 660A2 TELEPHONE SET

Wire or Lead			Individual or Bridged	Ring Party	Tip Party			1A1 or 1A2 Key Equipment¶
					No Ident Ground	Identifying Ground		
						1000Ω	2650Ω	
Line Wire	Tip	Connecting Block	1	1	1	1	1	1
	Ring		2	2	2	2	2	2
	Grd A1		5*	5	5	5	5	5
	A		4	4	4	4	4	4
Mounting Cord	W-BL		1	1	2	2	2	1
	BL-W		2	2	1	1	1	2
	O-W		1	5	5	5	5	5
	W-O		4	4	4	4	4	4
Mounting Cord In Set	W-BL		2†	2†	2†	2†	2†	2†
	BL-W		L2‡	L2‡	L2‡	L2‡	L2‡	1†
	O-W		G‡	G‡	G‡	G‡	G‡	P2
	W-O		1§	1§	1§	1§	1§	1§
Ringer Leads	R	TB2	7	7	7	7	7	7
	BK		8	8	8	8	8	8
	S		9	9	9	9	9	9
	S-R		10	10	10	10	10	10
Ringer Straps	R	Ntwk	L2	L2	L2	K	B	C
	BK		G	G	G	G	B	G
	S		K	K	K	B	K	K
	S-R		A	A	A	B	A	A
Switch-hook Leads	S	TB1	L2	L2	L2	A‡	A‡	P2
	[S-W] (Y)		L2	L2	L2	L2	L2	P2
	[S-G] (BR)		C‡	C‡	C‡	C‡	C‡	1

* Ground may be omitted if not required for service. Not required for protection of 41A dial power supply.

† Terminal on exclusion switch terminal board.

‡ Terminal on network.

§ TB1.

¶ For 1A1 or 1A2:

- Move (W) from L2 of TB1 to C of network.
- Move (G) strap from L1 of TB1 to L1 of network.
- Place (G) strap from 2 of exclusion switch to G of network.

( ) Indicates current color code.

[ ] Indicates MD color code.

TABLE E

LINE AND RINGER CONNECTIONS — 1660A1 AND 1660A2 TELEPHONE SETS

Wire or Lead			Indiv or Bridged	Ring Party	Tip Party			Key Equip. 1A1 or 1A2*	Exclu-sion†
					No Ident Ground	Ident Ground			
						1000 Ω	2650 Ω		
Mount-ing Cord in Set	Tip	G	L1	L1	L1	L2	L2	A	L1
	Ring	R	L2	L2	L2	L1	L1	C	L2
	Grd A1	Y‡	A	A	A	G	G	G	A
	A	BK						L2	§
	ET	BL							6¶
	ER	W							5¶
Ringer Leads		R	7	7	7	7	7	7	7
		BK	6	6	6	6	6	6	6
		S	§	§	§	5	§	§	§
		S-R	§	§	§	§	5	§	§
Switch-hook Leads		[S-BR] (W)	F	F	F	C	C	F	F
		[S-G] (BR)	C	C	C	F	F	L2	C
		S				K	K		
		[S-Y] (G)	L1	L1	L1	L1	L1	A	L1
		[S-W] (Y)	L2	L2	L2	L2	L2	G	L2
Ringer Straps		G-R	7 to L2	7 to L2	7 to L1	7 to A	7 to A	7 to C	L2
		G-R	6 to K	6 to K	6 to K	6 to G	6 to G	6 to K	K
Exclusion Straps		BR							1 to L1¶
		Y							2 to L2¶

* Replace D3BN with D4BK mounting cord.

† Replace D3BN with D6AF mounting cord.

‡ For individual or bridged ringing, connect to G at connecting block.

§ Insulate and store.

¶ Terminals on exclusion terminal board.

( ) Indicates current color code.

[ ] Indicates MD color code.

TABLE F

LINE AND RINGER CONNECTIONS — 1660A3 AND 1660A4 TELEPHONE SETS (See Note 2)

Number of Lines Picked Up	Signaling	Features (Note 2)						Connections to Terminals in Set																				External Connections To Mounting Cord															
		Ringer in Set Used as		Turn Key Used to Cutoff		Excl Key Used to Cutoff		Mounting Cord Leads at TB2										Turn Key Leads		Exclusion Key Leads (Note 1)		Ringer Straps			Line 1		Line 2		Signal Circuit		Excluded Circuit		Common or Private Ringer Circuit		Cutoff Circuit	
		Line Ringer	Com or Prv Line Ringer	Ext Sta or Ext Ringer	Ringer in Set	Ext Sta or Ext Ringer	Ringer in Set	W-BL	BL-W	W-O	O-W	W-G	G-W	W-BR	BR-W	W-S	S-W	G	V-G	Y	BR-BR	BK	G-W	G-R	Tip	Ring	Tip	Ring	S	Grd	Tip	Ring	R	B	Tip	Ring
1	•	•		•		•		5	6	3	4	7	8	*	*	9	10	5	6	5	6	5	6	K	W-BL	BL-W			W-G	G-W	W-BR	BR-W			W-O	O-W
1	•	•		•	•	•		5	6	3	4	7	8	*	*	9	10	5	6	5	6	1	2	K	W-BL	BL-W			W-G	G-W	W-BR	BR-W			W-O	O-W
2	•	•				•		1	2	3	4	7	8	*	*	9	10	5	6	1	2	1	2	K	W-BL	BL-W	W-O	O-W	W-G	G-W	W-BR	BR-W				
2	•		•			•		1	2	3	4	7	8	*	*	9	10	5	6	1	2	9	10	A	W-BL	BL-W	W-O	O-W	W-G	G-W	W-BR	BR-W	W-S	S-W		
2	•		•				•	1	2	3	4	7	8	†	†	9	10	5	6	9	10	*	*	A	W-BL	BL-W	W-O	O-W	W-G	G-W			W-S	S-W		

Note 1: 2-line pickup connections provide exclusion on Line 1. To exclude Line 2, connect exclusion key leads (Y) and (BR) to terminals 3 and 4, respectively.

Note 2: The 1660A3 telephone set does not provide the exclusion feature.

* Connect BK and BR-W leads to terminal 5 and G-W and W-BR to terminal 6 of exclusion terminal board.

† Insulate and store.

TABLE G

LINE AND RINGER CONNECTIONS — 663A TELEPHONE SET

Wire or lead			Indiv or Bridged	Ring Party	Tip Party		
					No Ident Ground	Ident Ground	
						1000Ω	2650Ω
Line Wire	Tip	Connecting Block	1	1	1	1	1
	Ring		2	2	2	2	2
	Grd A1		5*	5	5	5	5
	A		4	4	4	4	4
Mounting Cord	G		1	1	1	1	1
	R		2	2	2	2	2
	Y		4	4	4	4	4
	BK		5	5	5	5	5
Mounting Cord in Set	G	TB1	2	2	2	2	2
	R		C†	C†	C†	F†	F†
	Y		1	1	1	1	1
	BK		3	3	3	3	3
Ringer Leads	R	TB2	7	7	7	7	7
	BK		8	8	8	8	8
	S		9	9	9	9	9
	S-R		10	10	10	9	9
Ringer Straps	R	Ntwk	C	C	2‡	K	3‡
	BK		2‡	3‡	3‡	3‡	K
	S		K	K	K	B	B
	S-R		A	A	A	Strap A to 2‡	Strap A to 2‡
Switchhook Leads	[S-BR] (W)	Ntwk	F	F	F	C	C
Key Assembly Leads	S-V	TB2	2	2	2	C†	C†

* Ground may be omitted if not required for service. Not required for protection of 41A dial power supply.

† Network terminal.

‡ TB1.

( ) Indicates current color code.

[ ] Indicates MD color code.

TABLE H

LINE AND RINGER CONNECTIONS — 1663A TELEPHONE SET

Wire or Lead			Indiv or Bridged	Ring Party	Tip Party		
					No Ident Ground	Ident Ground	
						1000Ω	2650Ω
Line Wire	Tip	Connecting Block	1	1	1	1	1
	Ring		2	2	2	2	2
	Grd-A1		4*	4	4	4	4
	A		5	5	5	5	5
Mounting Cord	G		1	1	1	1	1
	R		2	2	2	2	2
	W		4	4	4	4	4
	BL		5	5	5	5	5
	Y		1	4	4	1	1
	BK		1	4	4	1	1
Ringer Leads	R	Terminal Strip	7	7	7	7	7
	BK		6	6	6	6	6
	S		†	†	†	B‡	†
	S-R		†	†	†	†	B‡
Ringer Straps	BR	Ntwk	K	K	K	G	G
	G		C	C	L1	K	K

* Ground may be omitted if not required for service.

† Insulated and stored.

‡ Network terminal.

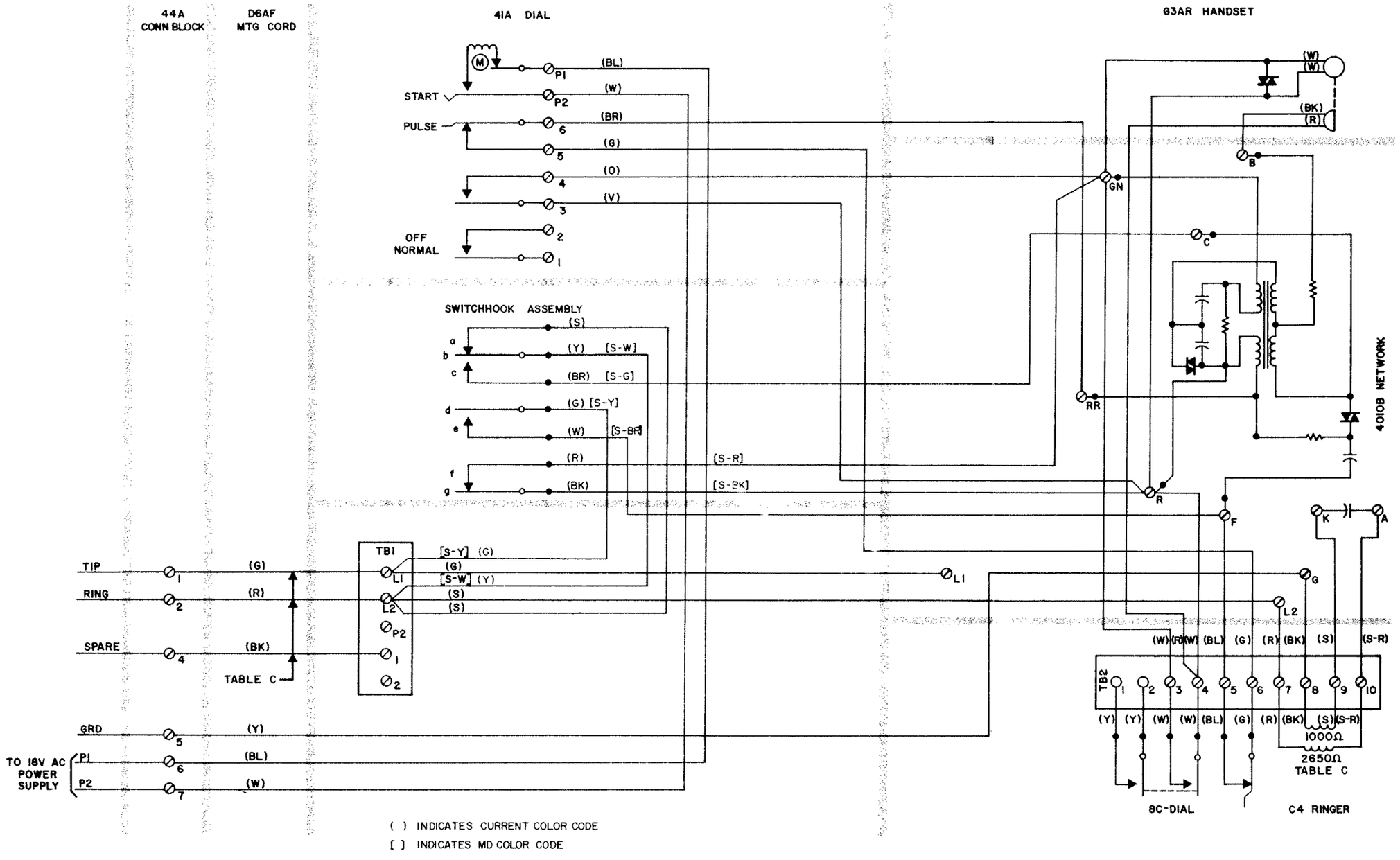
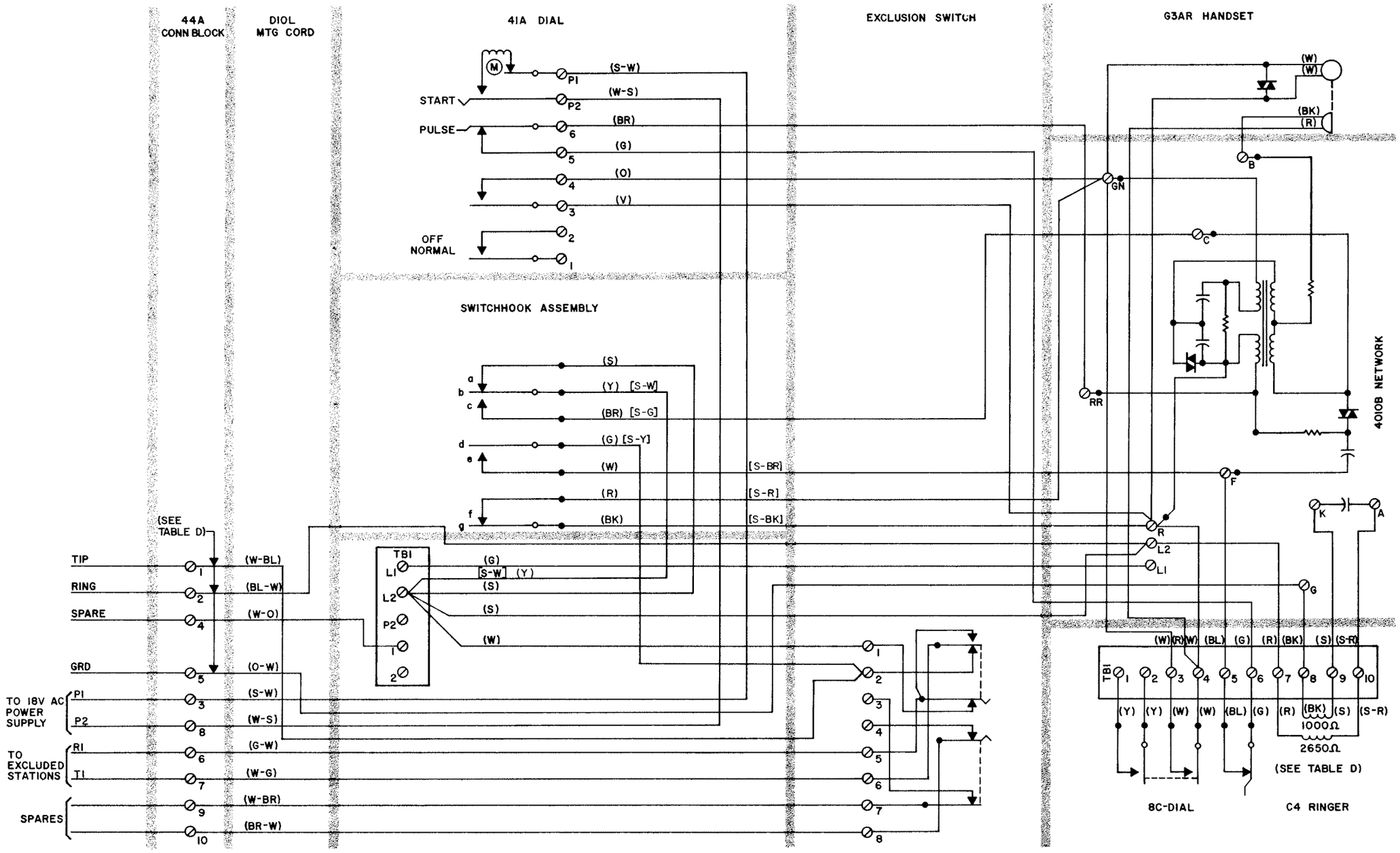


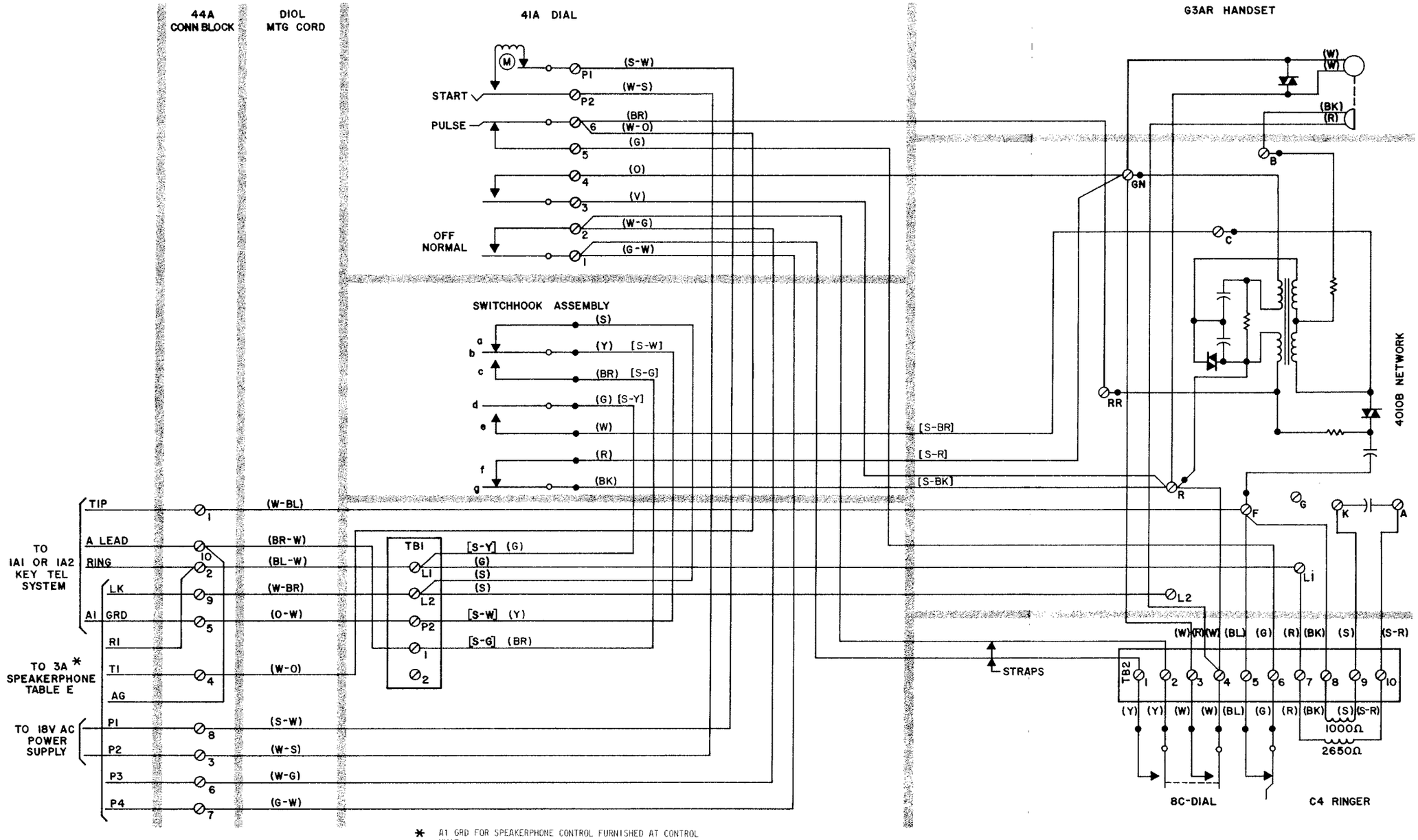
Fig. 9 — 660A1 Telephone Set



( ) INDICATES CURRENT COLOR CODE

[ ] INDICATES MD COLOR CODE

Fig. 10 — 660A2 Telephone Set



* A1 GRD FOR SPEAKERPHONE CONTROL FURNISHED AT CONTROL UNIT.

( ) INDICATES CURRENT COLOR CODE

[ ] INDICATES MD COLOR CODE

Fig. 11 — 3-Type Speakerphone, Connections

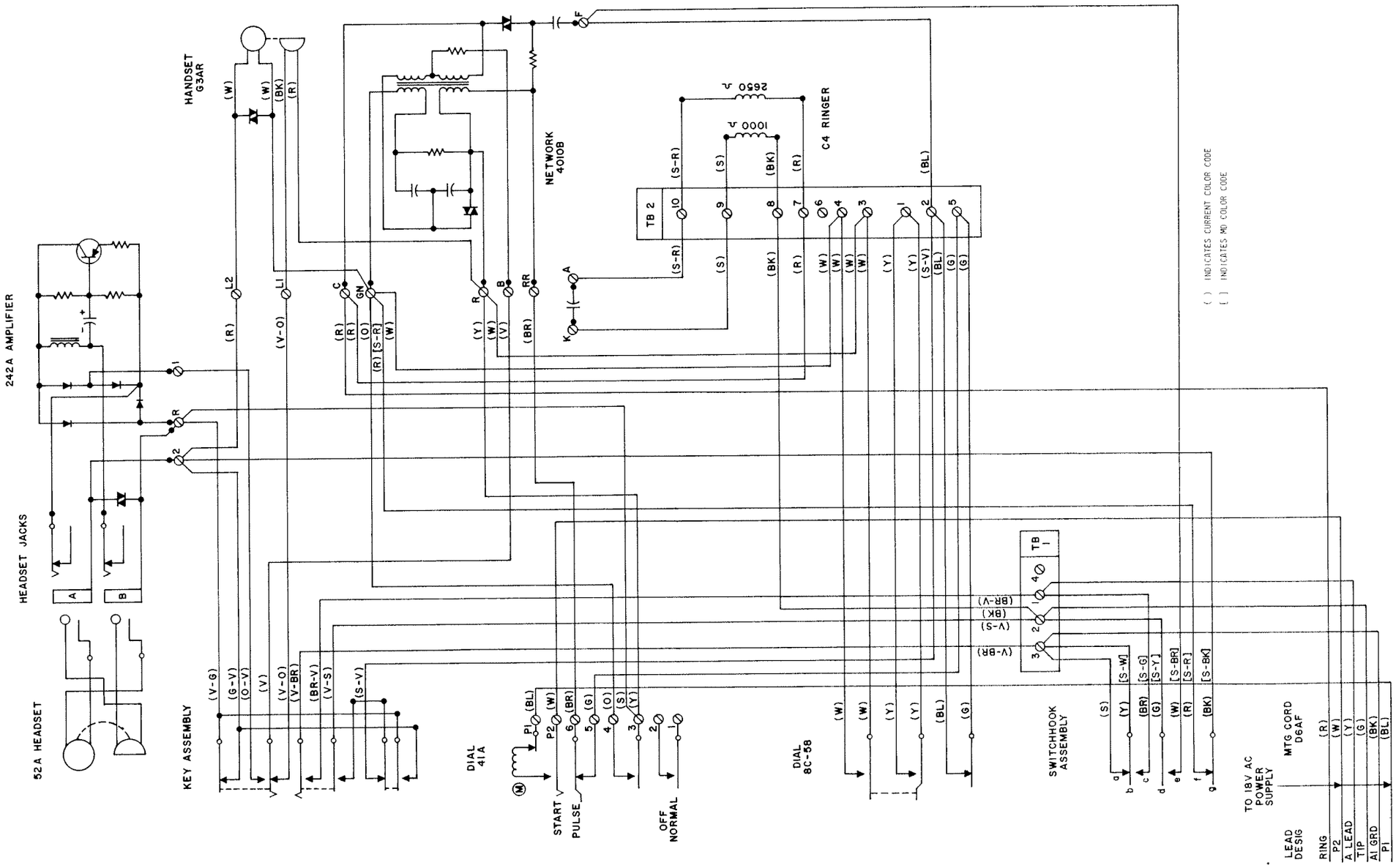


Fig. 12 — 663A1 Telephone Set

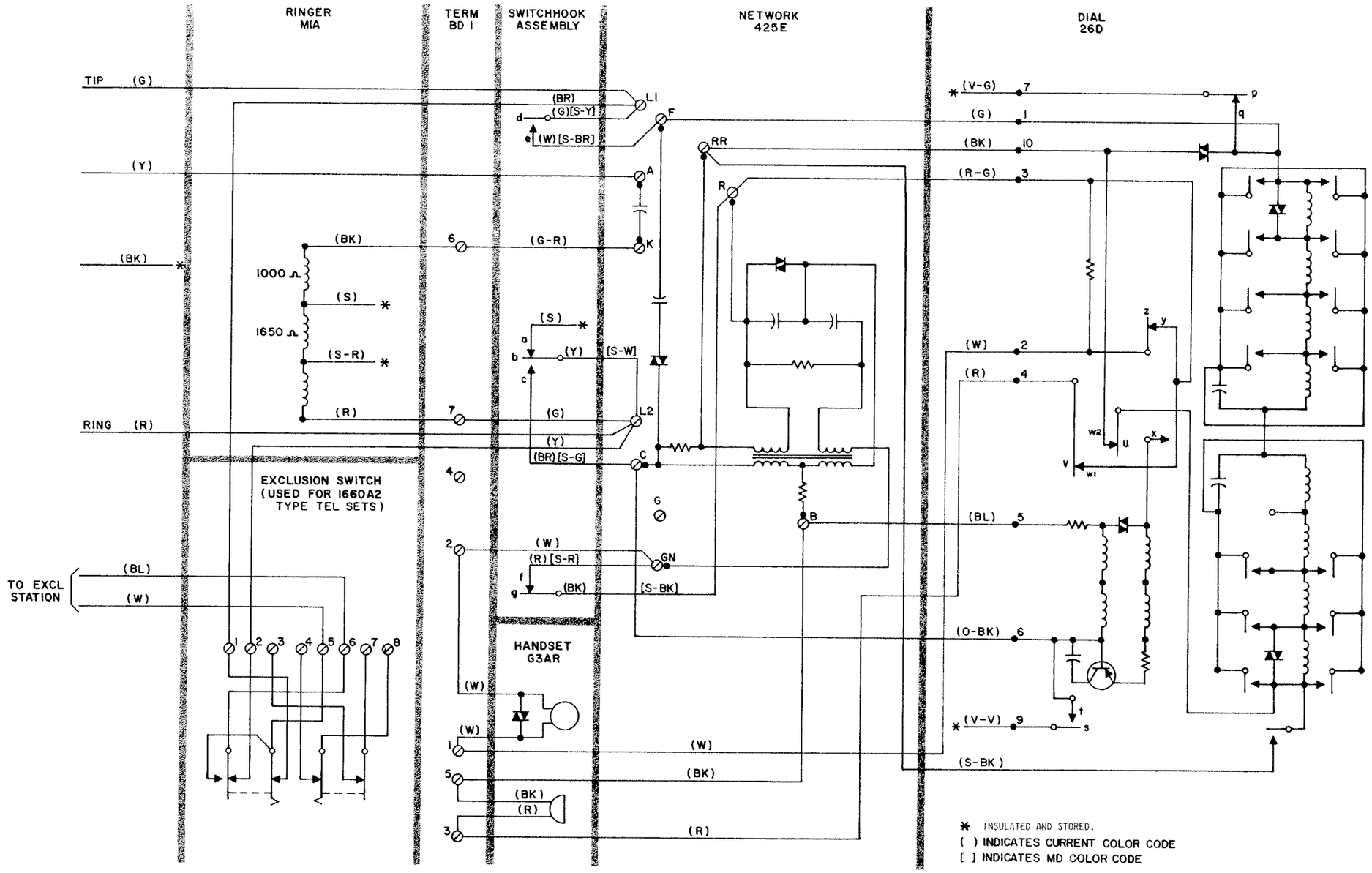


Fig. 13 — 1660A1 and 1660A2 Telephone Sets

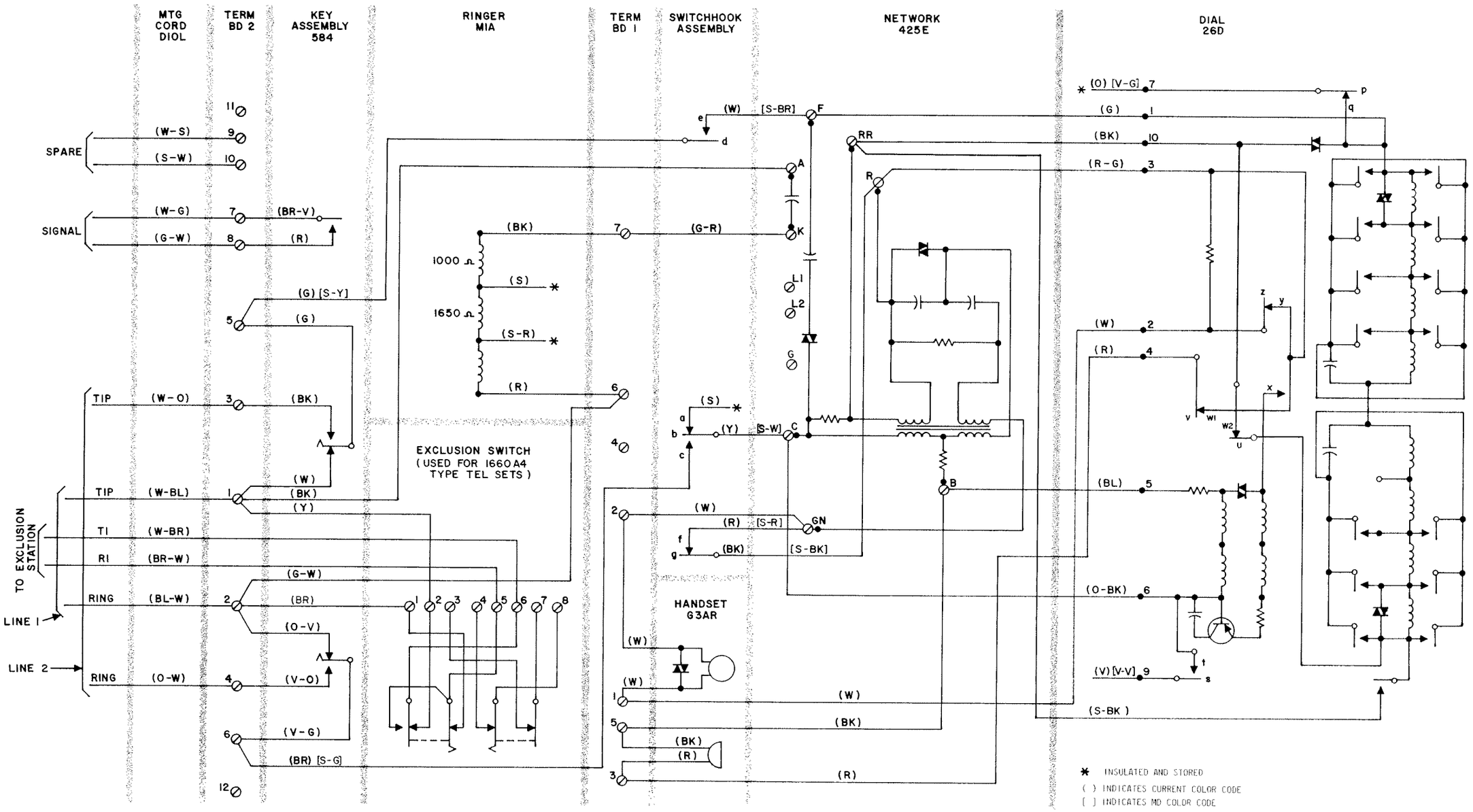


Fig. 14 — 1660A3 and 1660A4 Telephone Sets

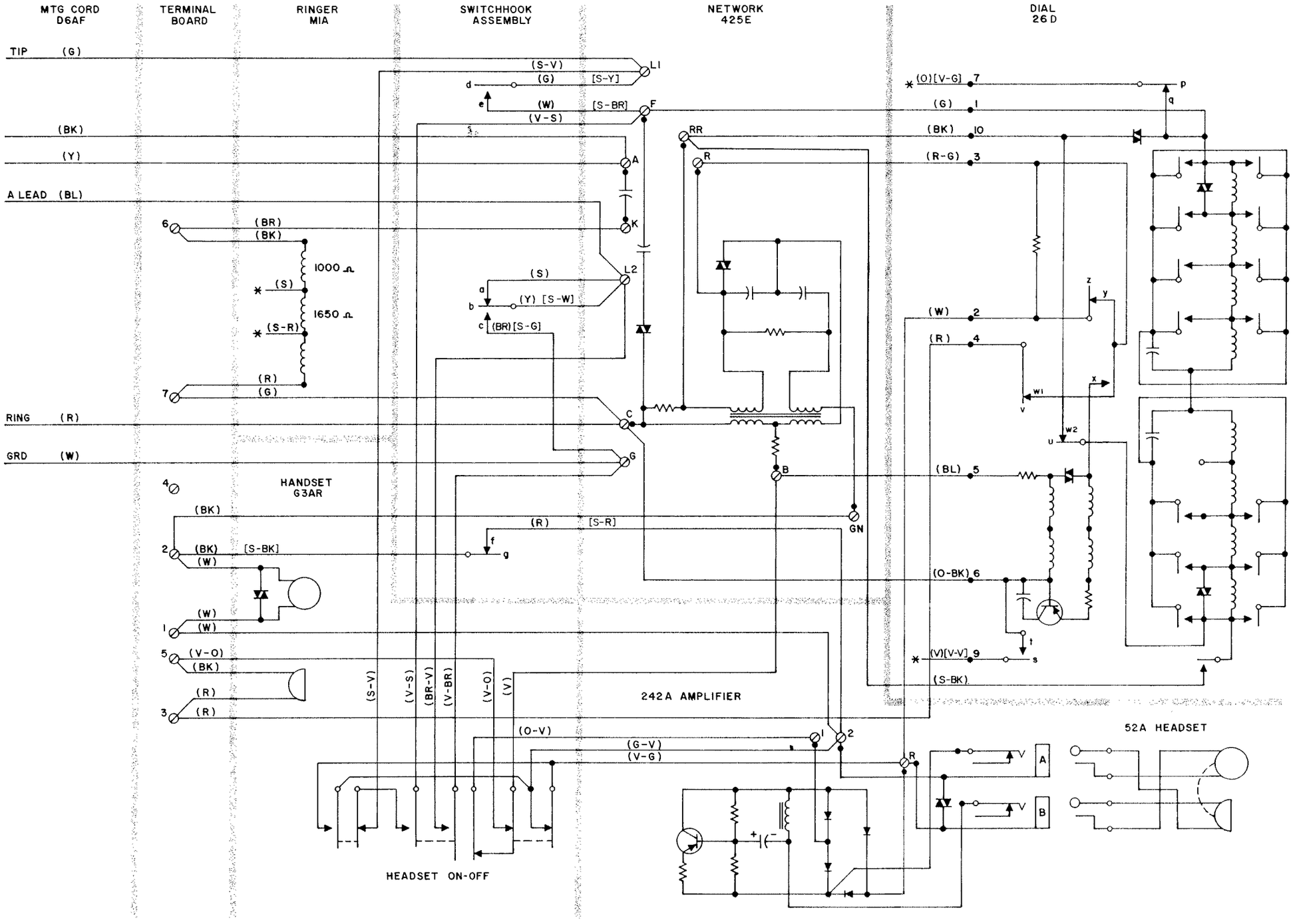


Fig. 15 — 1663A1 Telephone Set