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REFERENCE

2212L HAND TELEPHONE SET

1. GENERAL

1.01 This section contains identification, installation, maintenance, and connection information for the 2212L (TOUCH-TONE® dial) hand telephone set.

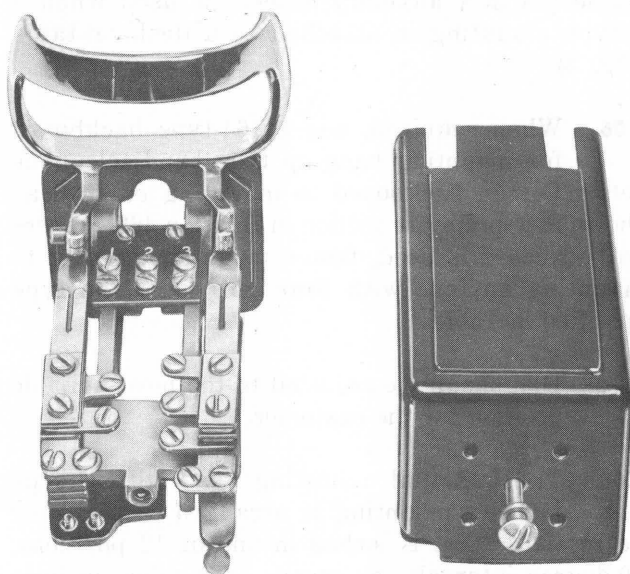


Fig. 1—G8-3 Handset Mounting Front View, Cover Removed

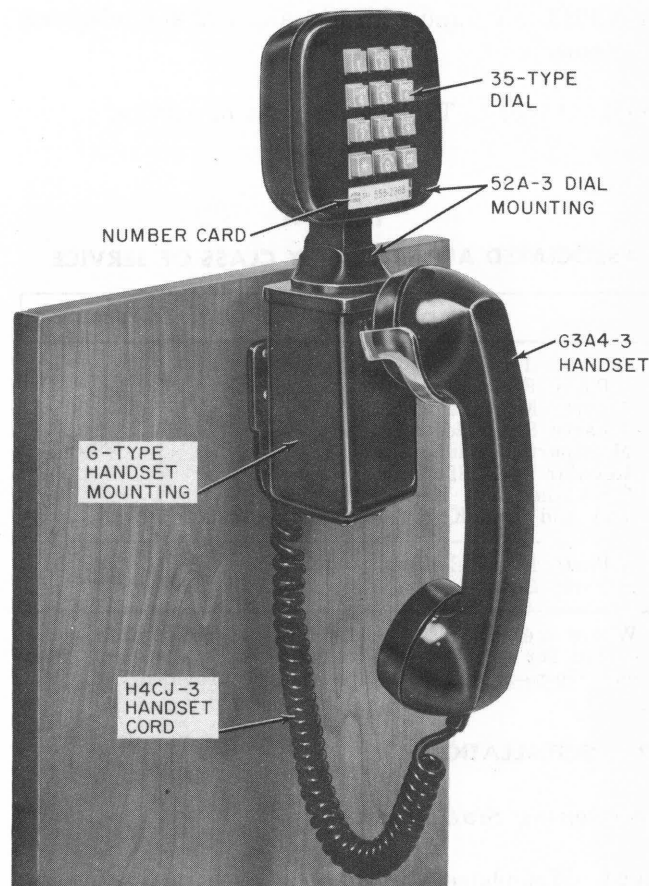


Fig. 2—2212L-3 Hand Telephone Set

2 IDENTIFICATION

Ordering Guide

2.01 Basic Hang-up Type Hand Telephone Set:

- Set, Telephone, Hand, 2212L-3

Note: The 2212L set is available in black (-3) only.

2.02 Replaceable Components:

- Mounting, Handset, G8-3
- Dial, 35A3A
- Mounting, Dial, 52A-3
- Handset, G3A4-3
- Cord, Handset, H4CJ-3

2.03 Associated Apparatus:

- Set, Subscriber, 685A—Refer to Table A.
- Set, Subscriber, 686A—Refer to Table A.

2.04 These sets are primarily designed for wall or desk mounting and can be used on CO and PBX lines, and with 1A1 and 1A2 key telephone systems.

2.05 Refer to Table A for class of service.

TABLE A
ASSOCIATED APPARATUS BY CLASS OF SERVICE

CLASS OF SERVICE	SUBSET
Individual Lines 2-Party Flat Rate 2-Party Message Rate* 4-Party Semiselective Multiparty Divided Code Regular PBX Stations 750A and 755A Keyless Stations 1A1 and 1A2 Key Telephone Systems	685A
4-Party Full Selective 8-Party Semiselective	686A

* Where message rate or tip party identification is required for party-on-tip stations, both 1000- and 2650-ohm tip-to-ground resistance can be provided.

3. INSTALLATION***Fastening Station Sets***

3.01 Telephone sets, subscriber sets, and associated station apparatus should be fastened securely to a substantial mounting surface. Refer to Table B for recommended fasteners.

3.02 Where wire is not concealed at subscriber set or wall set, a fastener should be placed approximately 2 inches from the set.

Subscriber Sets

3.03 In cases where subscriber set and hang-up type hand telephone set are separated, the following should be observed:

- (a) Signal must be heard satisfactorily in area served by talking set.

- (b) To provide adequate transmission and to prevent crosstalk, maximum distance between subscriber set and hang-up type hand telephone set is 30 feet.

3.04 Whenever possible, hang-up type hand telephone sets should be mounted on walls with handset cradle to right or left of mounting. Dial should be mounted parallel to wall. This arrangement will reduce the possibility of handset being knocked from the cradle.

3.05 When installing hang-up type set on desks or tables, handset should normally line up with front of desk or table. This will reduce the chance of accidentally knocking handset off the cradle. A 33A auxiliary bracket is used when a G-type mounting is attached to a desk or table (Fig. 3).

3.06 When required, use a 164-type backboard for mounting hang-up type hand telephone sets. Fasten backboard to mounting surface as shown in appropriate section in Division 463. Where no backboard is used, fasten mounting bracket to mounting surface with four screws of the type specified in Table B.

3.07 Dial should be adjusted to the most suitable position for the customer.

3.08 The 52A dial mounting used with G-type handset mounting is arranged so dial may be rotated. Dial is locked in one of 12 positions, 30-degree intervals, by means of notches in base of dial mounting. Notches engage two studs at the top of handset mounting. Dial may be rotated as follows:

- (1) Loosen dial positioning screw.
- (2) Lift dial slightly and revolve to the desired position.
- (3) Lower dial into place.
- (4) Retighten dial positioning screw.

3.09 The 52A dial mounting may also be tilted as much as 45 degrees backward in 15 degree intervals. Dial is tilted as follows:

- (1) Loosen dial positioning screw.
- (2) Raise dial and tilt to desired angle.

TABLE B
FASTENERS USED FOR MOUNTING STATION APPARATUS

MOUNTING SURFACE	NUMBER OF FASTENERS (NOTE 1)		SIZE AND TYPE OF FASTENERS
	200 SERIES HANG-UP TYPE TEL SETS	SUB. SETS	
	P-80G603 OR 33A BRACKETS	685A OR 636A	
Hardwood (including Wooden Backboards)	4	2	1-1/4 in., No. 8 PH or FH tapping screws
Softwood	4	4	1-1/2 in., No. 8 PH or FH tapping screws
Plaster on Wood Lath	4	4	2-in., No. 8 PH or FH tapping screws (Note 3)
Side of Wood-paneled Desk (place fastener in frame around panel when possible)	4	3	See type of wood sur- face above.
Metal Desks	4	2	1-in., No. 8 PH or FH tapping screws
Plaster on Masonry or Plaster Block	4	4	2-in., No. 8 PH or FH tapping screws No. 10 plastic anchor
Masonry	4	4	1-1/2-in., No. 8 PH or FH tapping screws No. 10 plastic anchor
Sheetrock, Beaver, or Similar Composition Board	4	4	Wall screw anchor
Solid Metal	4	2	10-24 x 1 in., FH bright machine screws
Plaster on Metal Lath; Plaster on Plaster Board	4	2 (Note 2)	Wall screw anchor or 2-in. No. 8 PH or FH tapping screw (Note 3)
Metal Sheath on Solid Wood	4	4	1-1/2-in., No. 8 PH or FH tapping screws
Metal Sheath over Furring on Brick	4	4	1-1/4-in., No. 8 PH or FH tapping screws
Metal Sheath over Furring or Plaster on Lath	4	4	1-1/2 or 2-in., No. 8 PH or FH tapping screws

Notes:

1. Where two fasteners are specified, place fasteners diagonally opposite each other, locate one fastener near the handset cord.
2. Additional fasteners may be required for secure mounting.
3. When mounting on plasterboard, plaster on lath, etc. fasteners must be embedded in stud at least 1 inch.

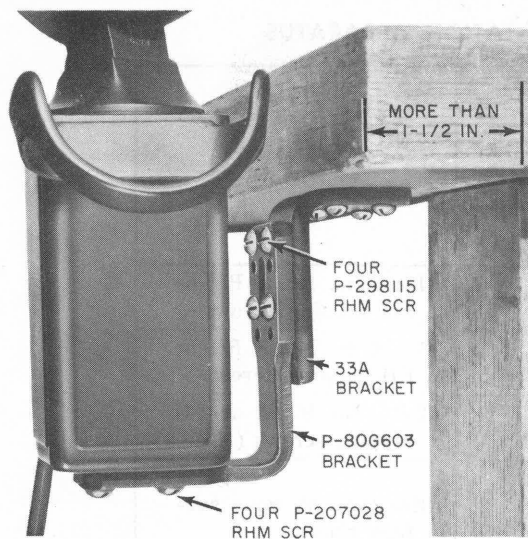


Fig. 3—Installed With 33A Auxiliary Bracket

- (3) Lower dial into place.
- (4) Retighten dial positioning screw.

Station Wire and Mounting Cords

3.10 When terminating wire inside a hang-up type hand telephone set, leave sufficient slack to enable line switch assembly to be reassembled in housing.

4. MAINTENANCE

4.01 Maintenance should be limited to the items listed as replaceable components and to cleaning and adjusting contacts.

4.02 On G-type mountings, the operating stud shall not touch the operating springs when the line switch is in its extreme upward position.

4.03 All contact springs shall have a perceptible follow. In case of a mounting having twin contacts, both contacts on the same spring shall make at approximately the same time.

4.04 To clean contacts, burnish with the 265C tool having a clean blade.

4.05 Binding of line switch may be caused by either a bent line switch or bent pin. If this trouble is encountered, replace the set.

4.06 Maintenance of the 35A3A TOUCH-TONE dial is not recommended and it should be replaced.

- (1) to remove faceplate insert KS-16750 type releaser into hole in top of dial mounting, release tab, and remove faceplate.
- (2) Replace dial.
- (3) To restore faceplate, insert the two tabs on bottom of faceplate into notches and snap in top.

4.07 Refer to Division 501 for maintenance of ringers and handsets and Division 502 for maintenance of subscriber sets.

5. CONNECTIONS

5.01 Polarity guard is optional and must be ordered separately. Polarity guard is intended for use when specified by local instructions for end-to-end signaling installations. Refer to Table C for connections.

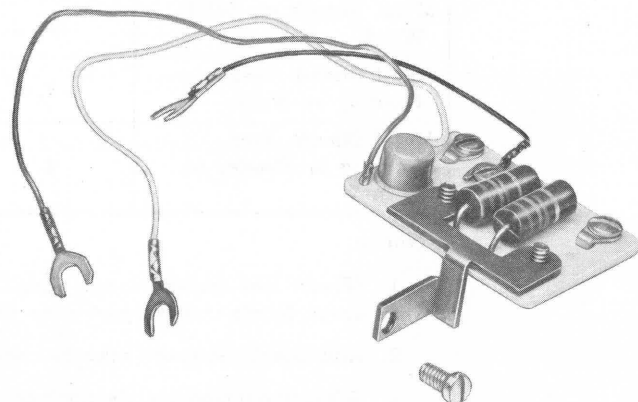


Fig. 4—840359400 Polarity Guard Assembly

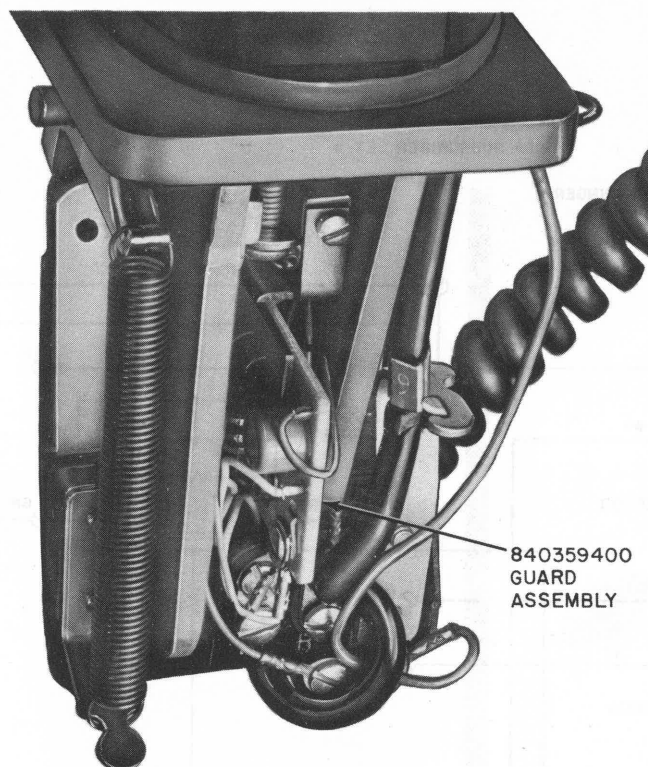
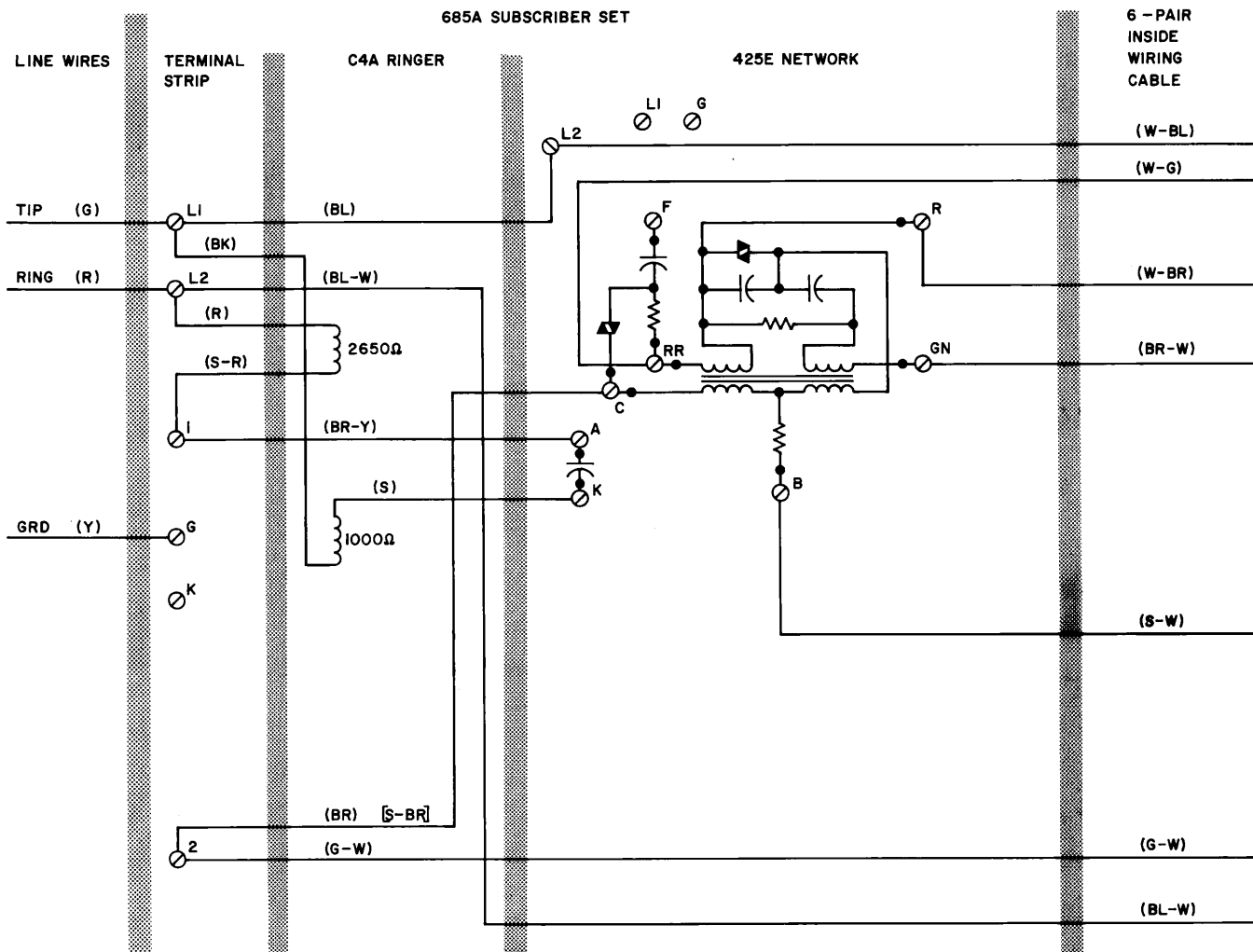


Fig. 5—840359400 Polarity Guard Assembly Installed

TABLE C
840359400 POLARITY GUARD CONNECTIONS

WIRE OR LEAD	COLOR	REMOVE FROM	CONNECT TO	CONNECT TO
		HANDSET MTG	POLARITY GUARD	HANDSET MTG
Inside Wiring	G-W	BK	V	
Dial Strap	O-BK	BK	V	
Dial	BK	BL	T	
Polarity Guard	S			BK
	G			BL
	W		V	



NOTES:

1. CONNECTIONS SHOWN ARE FOR BRIDGED RINGING, REFER TO TABLE D FOR ALL SERVICES PROVIDED.
2. ON EARLIER SETS (BL) STRAP MUST BE MOVED FROM TERMINAL RR OR F TO L2 OF NETWORK.
3. MOVE (BR) [S-BR] STRAP FROM L2 TO 2 OF TERMINAL STRIP. ON EARLIER SETS (BR) [S-BR] STRAP IS ON TERMINAL 2.
4. TO SILENCE RINGER PERMANENTLY CONNECT (R) AND (BK) RINGER LEADS TO K OF THE TERMINAL STRIP.
5. EXTEND A AND AI LEADS TO THE KEY TELEPHONE UNIT, IF REQUIRED.
6. LINE SWITCH SEQUENCE, HANDSET REMOVED.
 - bc MAKES
 - ab BREAKS
 - de MAKES
 - fg MAKES

() CURRENT COLOR CODE.

[] MD COLOR CODE.

Fig. 6—Connections for 2212L-3 Hand Telephone Set Used With Modified 685A Subscriber Set, Bridged Ringing (Sheet 1 of 2)

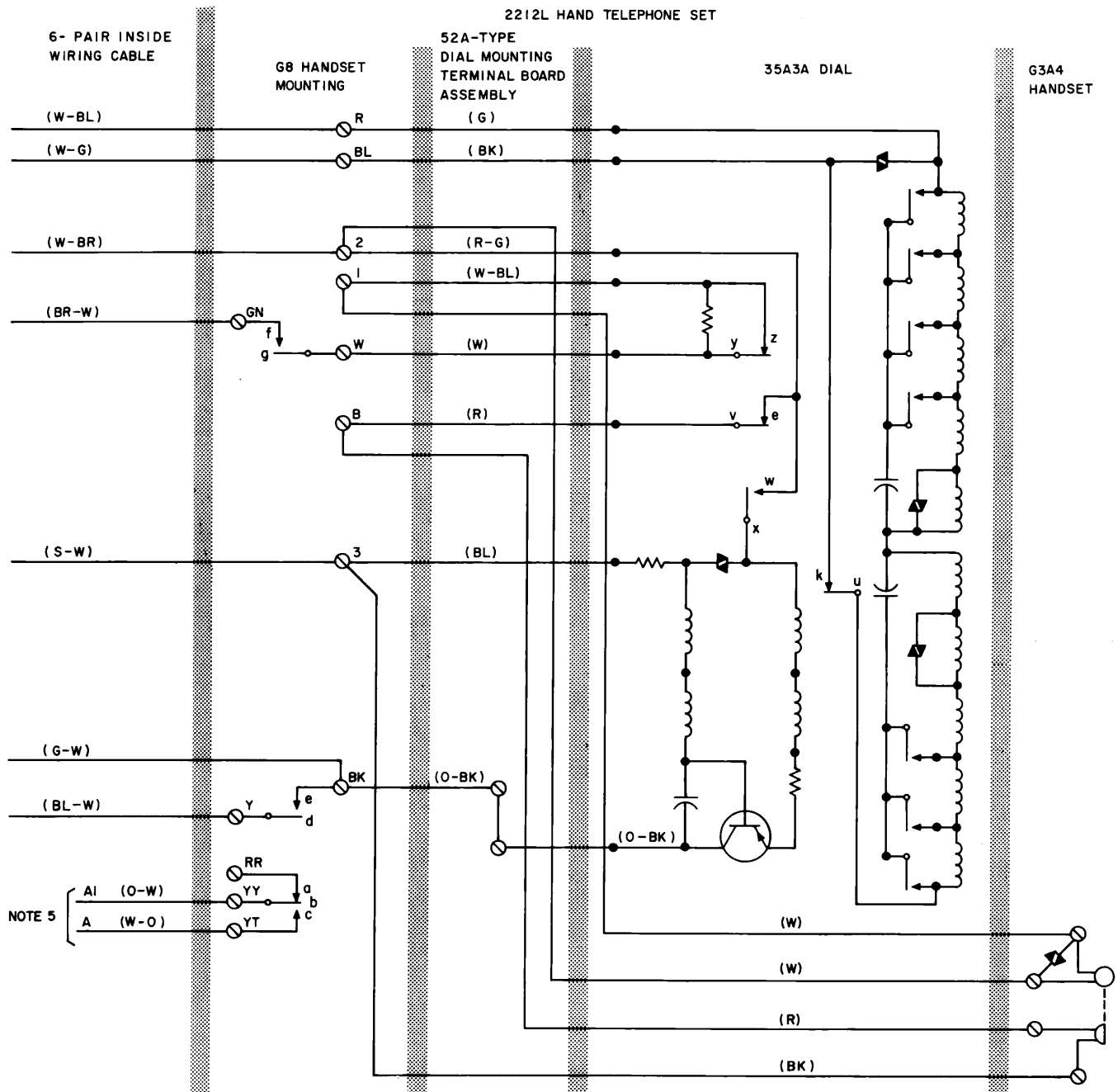


Fig. 6—Connections for 2212L-3 Hand Telephone Set Used With Modified 685A Subscriber Set, Bridged Ringing (Sheet 2 of 2)

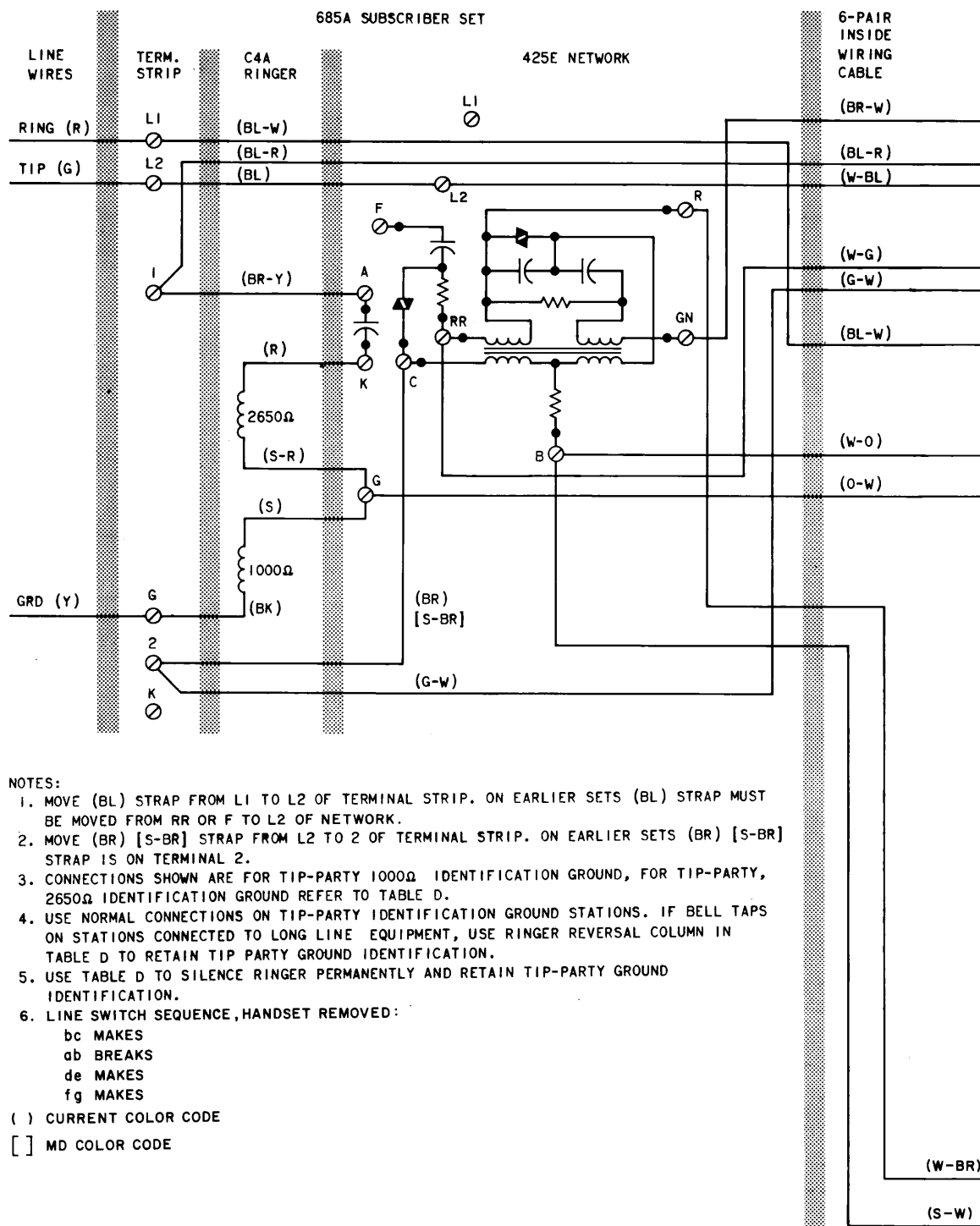


Fig. 7—Connections for 2212L-3 Hand Telephone Set Used With Modified 685A Subscriber Set, Tip-Party Identification (Sheet 1 of 2)

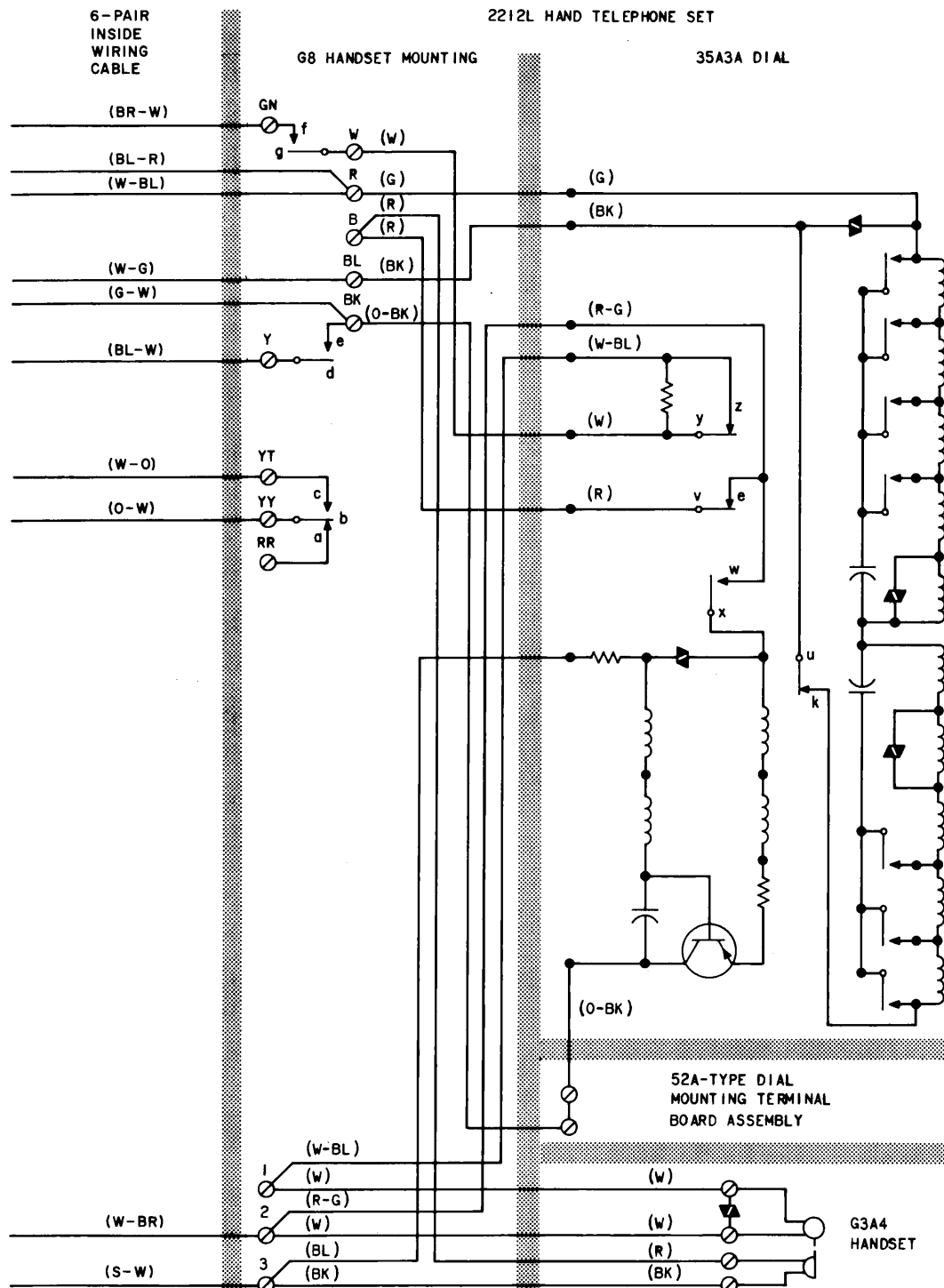
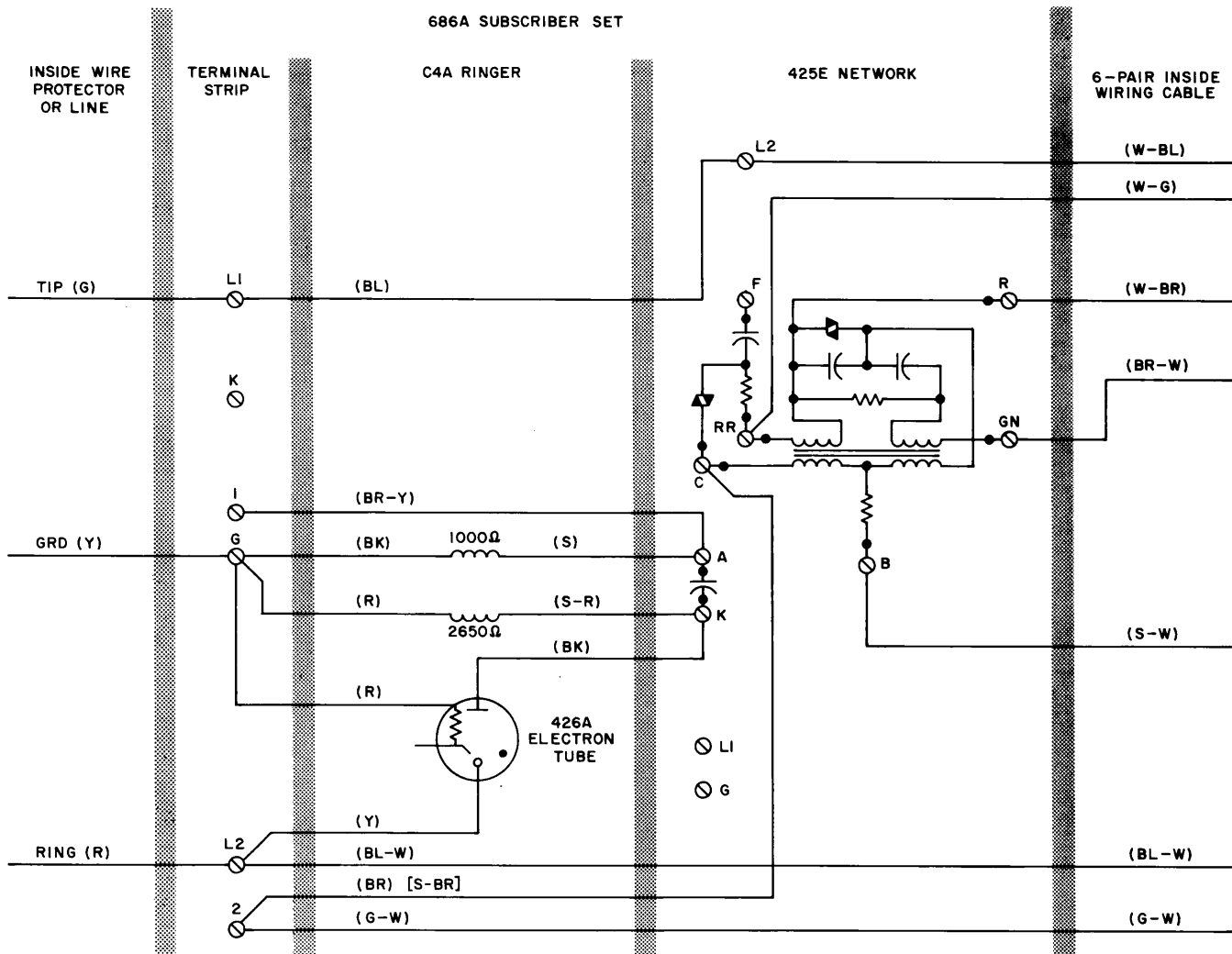


Fig. 7—Connections for 2212L-3 Hand Telephone Set Used With Modified 685A Subscriber Set, Tip-Party Identification (Sheet 2 of 2)



NOTES:

1. ON EARLIER SETS (BL) STRAP MUST BE MOVED FROM RR OR F TO L2 OF NETWORK.
 2. MOVE (BR) [S-BR] STRAP FROM L2 TO 2 OF TERMINAL STRIP. ON EARLIER SETS (BR) [S-BR] STRAP IS ON TERMINAL 2.
 3. MOVE (Y) TUBE LEAD FROM L2 TO L1 OF TERMINAL STRIP FOR TIP PARTY SERVICE.
 4. TO SILENCE RINGER PERMANENTLY CONNECT (R) AND (BK) RINGER LEADS TO TERMINAL K OF TERMINAL STRIP.
 5. FOR ADDITIONAL INFORMATION CONCERNING INDUCTIVE INTERFERENCE, REFER TO SECTION ON INDUCTIVE NOISE.
 6. LINE SWITCH SEQUENCE, HANDSET REMOVED:
 - bc MAKES
 - ab BREAKS
 - de MAKES
 - fg MAKES
 7. CONNECTIONS SHOWN ARE FOR (-) RING PARTY, REFER TO TABLE E FOR ALL SERVICES PROVIDED.
- () CURRENT COLOR CODE.
 [] MD COLOR CODE.

Fig. 8—Connections for 2212L-3 Hand Telephone Set Used With Modified 686A Subscriber Set (-) Ring Party (Sheet 1 of 2)

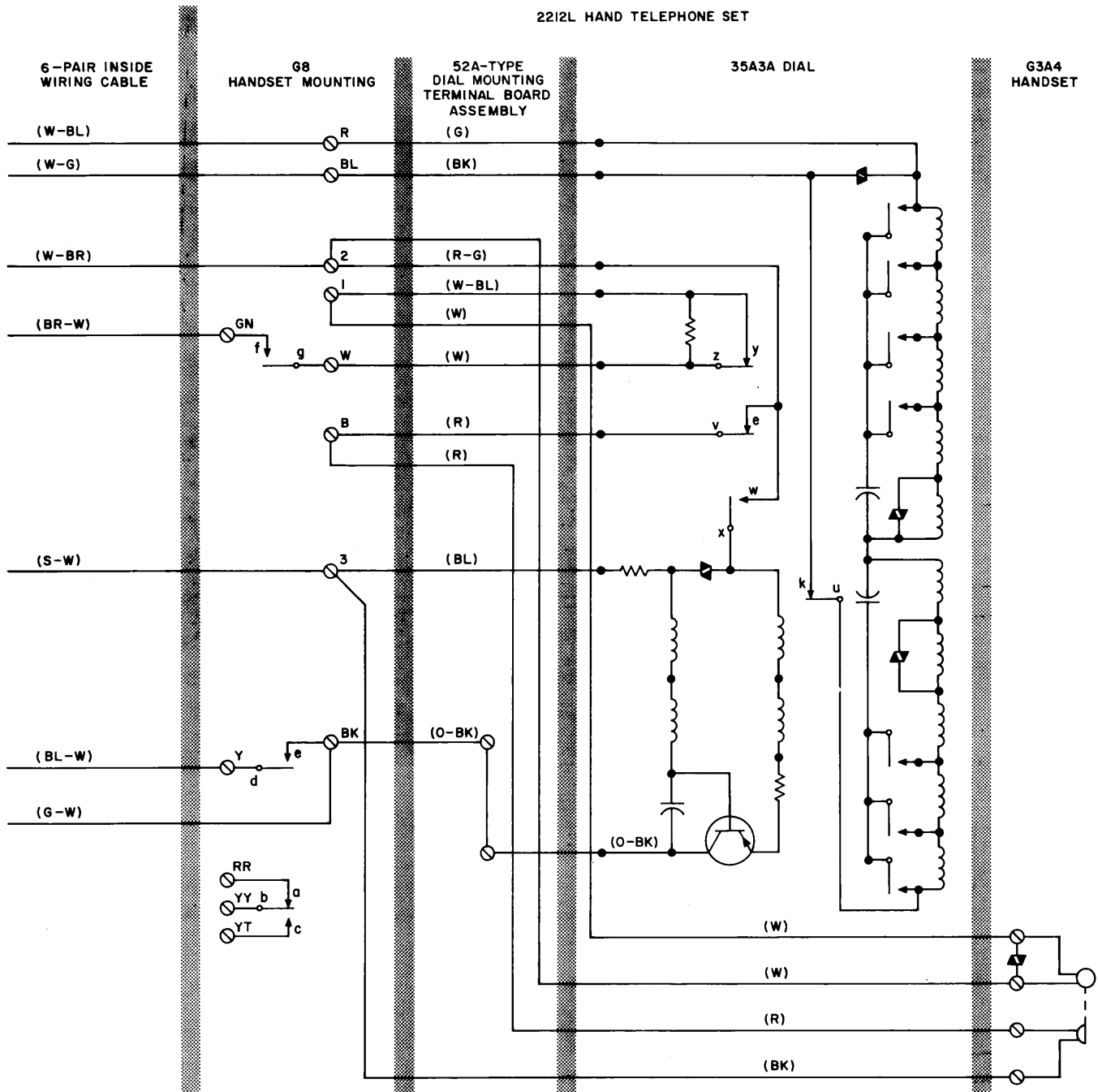


Fig. 8—Connections for 2212L-3 Hand Telephone Set Used With Modified 686A Subscriber Set, (-) Ring Party
(Sheet 2 of 2)

TABLE D
CONNECTIONS — USING 685A SUBSCRIBER SET

WIRE OR LEAD		BRIDGED	RING PARTY	TIP PARTY NO IDENT GROUND	TIP PARTY IDENT GROUND					
					NORMAL CONN		RINGER REVERSAL WHEN CONN TO LL EQUIP.		TO SILENCE RINGER PERMANENTLY	
					1000Ω	2650Ω	1000Ω	2650Ω	1000Ω	2650Ω
Local Wiring (Note)	BR-W	GN*	GN*	GN*	GN*	GN*	GN*	GN*	GN*	GN*
	W-BR	R*	R*	R*	R*	R*	R*	R*	R*	R*
	S-W	B*	B*	B*	B*	B*	B*	B*	B*	B*
	BL-W	L2	L2	L2	L1	L1	L1	L1	L1	L1
	W-BL	L2*	L2*	L2*	L2*	L2*	L2*	L2*	L2*	L2*
	G-W	2	2	2	2	2	2	2	2	2
	W-G	RR*	RR*	RR*	RR*	RR*	RR*	RR*	RR*	RR*
	BL-R				1	1	1	1	1	1
	W-O				B*	B*	B*	B*	B*	B*
	O-W				G*	G*	G*	G*	G*	G*
Ringer Leads	R	L2	L2	L1	K*	G*	G*	G	L1*	G*
	BK	L1	G	G	G	G*	G*	K*	G	G*
	S	K*	K*	K*	G*	K*	G	G*	G*	L1*
	S-R	1	1	1	G*	G	K*	G*	G*	G
Straps — Net. to Term. Strip	BR†	2-C*	2-C*	2-C*	2-C*	2-C*	2-C*	2-C*	2-C*	2-C*
	BL	L1-L2*	L1-L2*	L1-L2*	L2-L2*	L2-L2*	L2-L2*	L2-L2*	L2-L2*	L2-L2*
	BR-Y	1-A*	1-A*	1-A*	1-A*	1-A*	1-A*	1-A*	1-A*	1-A*
Line Wires	Ring	R	L2	L2	L1	L1	L1	L1	L1	L1
	Tip	G	L1	L1	L2	L2	L2	L2	L2	L2
	GRD	Y	G	G	G	G	G	G	G	G

* Network terminal.

† S-BR strap used on earlier production subscriber sets.

Note: For local wiring connections to hand telephone set see Fig. 6 and 7.

TABLE E
CONNECTIONS — USING 686A SUBSCRIBER SET

WIRE OR LEAD	COLOR	NEGATIVE (—) PARTIES		POSITIVE (+) PARTIES	
		RING 1 AND 5	TIP 2 AND 6	RING STATION 3 AND 7	TIP STATION 4 AND 8
Local Wiring (Note)	BR-W	GN*	GN*	GN*	GN*
	W-BR	R*	R*	R*	R*
	S-W	B*	B*	B*	B*
	BL-W	L2	L2	L2	L2
	G-W	2	2	2	2
	W-BL	L2*	L2*	L2*	L2*
	W-G	RR*	RR*	RR*	RR*
Straps — Net. to Term. Strip	BR†	2-C*	2-C*	2-C*	2-C*
	BR-Y	1-A*	1-A*	1-A*	1-A*
	BL	L1-L2*	L1-L2*	L1-L2*	L1-L2*
Ringer Lead	S	A*	A*	A*	A*
	BK	G	G	L2	L1
	R	G	G	L2	L1
	S-R	K*	K*	K*	K*
426A Tube Lead (3-element)	BK	K*	K*	K*	K*
	Y	L2	L1	G	G
	R	G	G	L2	L1
Inside Wire from Protector or Line	R	L2	L2	L2	L2
	G	L1	L1	L1	L1
	Y	G	G	G	G

* Network terminal.

† S-BR strap used on earlier production subscriber sets.

Note: For local wiring connections to hand telephone set see Fig. 8.