

REFERENCE

212L AND M HAND TELEPHONE SETS

1. GENERAL

1.01 This section is reissued to:

- Change type of fasteners
- Change P-298115 round head machine screws to P-181701 round head machine screws (Fig. 2)
- Add information on 10A extender
- Change Fig. 7

2. IDENTIFICATION

Ordering Guide

2.01 *Basic Hang-Up Type Hand Telephone Sets:*

- Set, Telephone, Hand, 212L-3
- Set, Telephone, Hand, 212M-3

Note: These sets are available in black (-03) only.

2.02 *Replaceable Components are listed in Table A:*

TABLE A
COMBINATION OF APPARATUS

HAND TELEPHONE SET	REPLACEABLE COMPONENTS				
	HANDSET	HANDSET MTG	DIAL OR APPARATUS BLANK	DIAL MTG	HANDSET CORD
212L MODIFIED	G3AR-3	G7-3	NUMBER CARD HOLDER		H4CJ-3
212M MODIFIED					
212L			6A	43A-3	
212M			6D-3		

2.03 *Associated Apparatus:*

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

2.04 These sets are primarily designed for wall or desk mounting. For use on CO and PBX lines, and with 1A1 and 1A2 Key Telephone Systems.

2.05 Refer to Table B for class of service.

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 C for recommended fasteners.

TABLE B
ASSOCIATED APPARATUS

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.

3.02 Where wire is not concealed at subscriber set or wall set, place last wire fastener approximately 2 inches from the set.

Subscriber Sets

3.03 In cases where subscriber set and hangup-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, the maximum inside wire length between subscriber set and hangup hand telephone set is 250 feet.

Hangup-Type Hand Telephone Set

3.04 Whenever possible, hangup-type hand telephone sets should be mounted on walls with line switch to right or left of mounting. Dial should be mounted parallel to wall. This arrangement will reduce the possibility of handset's being knocked from cradle and will prevent cutoffs while dialing (Fig. 1).

3.05 When installing hangup-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 line switch. A 33A auxiliary bracket is used when a G-type mounting is attached to a desk or table where the top overhangs more than 1-1/2 inches (Fig. 2).

3.06 When required, use a 164-type backboard for mounting hangup-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 C.

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

3.08 The 43A dial mounting used with G-type handset mounting are 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 (Fig. 3):

- (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 43A dial mounting may also be tilted as much as 45 degrees backward in 15 degree intervals. Dial is tilted as follows (Fig. 3):

- (1) Loosen dial positioning screw.
- (2) Raise dial and tilt to desired angle.
- (3) Lower dial into place.
- (4) Retighten dial positioning screw.

Station Wire and Mounting Cords

3.10 When terminating wire inside a hangup-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 replacing components listed in Table A, and to cleaning and adjusting contacts.

◆ TABLE C ◆

FASTENERS USED FOR MOUNTING STATION APPARATUS

MOUNTING SURFACE	NUMBER OF FASTENERS (NOTE 1)		SIZE AND TYPE OF FASTENERS (Note 4)
	200 SERIES HANG-UP TYPE TEL SETS	SUB. SETS	
	P-80G603 OR 33A BRACKETS	685A OR 686A	
Hardwood (including Wooden Backboards	4	2	1-1/4 in., No. 8 pan head tapping screws
Softwood	4	4	1-1/2 in., No. 8 pan head tapping screws
Plaster on Wood Lath	4	4	2-in., No. 8 pan head tapping screws (Note 3)
Side of Wood-paneled Desk (place fastener in frame around panel when possible)	4	3	See type of wood surface above.
Metal Desks	4	2	1-in., No. 8 pan head tapping screws
Plaster on Masonry or Plaster Block	4	4	2-1/2 in., No. 8 pan head tapping screws No. 10 plastic anchor
Masonry	4	4	1-1/2 in., No. 8 pan head 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 pan head tapping screw (Note 3)
Metal Sheath on Solid Wood	4	4	1-1/2 in., No. 8 pan head tapping screws
Metal Sheath over Furring on Brick	4	4	1-1/4 in., No. 8 pan head tapping screws
Metal Sheath over Furring or Plaster on Lath	4	4	1-1/2 or 2-in., No. 8 pan head 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.
4. Slotted pan and flat head, type AB thread, tapping screws have a cadmium plated finish.



Fig. 1—Handset in Front

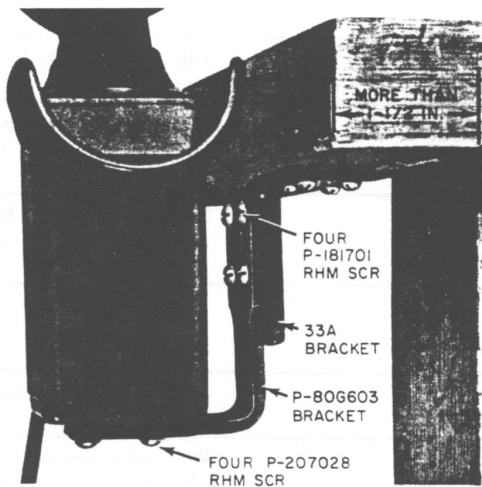


Fig. 2—Installed with 33A Auxiliary Bracket

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 mounting having twin contacts, both contacts on the same spring shall make at approximately the same time.

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

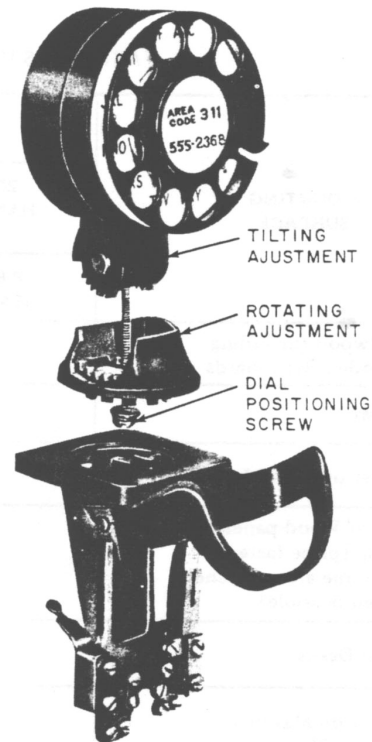


Fig. 3—Positioning Adjustments of 43A Dial Mounting

4.05 Refer to Division 501 for maintenance of dials, ringers, and handsets and to Division 502 for maintenance of subscriber sets.

5. CONNECTIONS

5.01 The 212-type is arranged for, but not equipped with, a 61M filter (Fig. 4) for radio frequency suppression, when this filter is required, remove the dial cord between (Y) of the dial and (BK) of the line switch and connect as follows:

- (1) Connect (BK) filter lead to BK of dial.
- (2) Connect (Y) filter lead to Y of dial.
- (3) Connect (R) filter lead to BK of line switch.

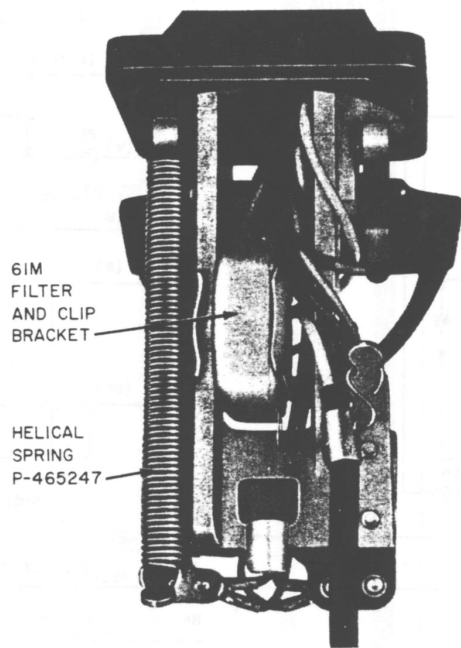
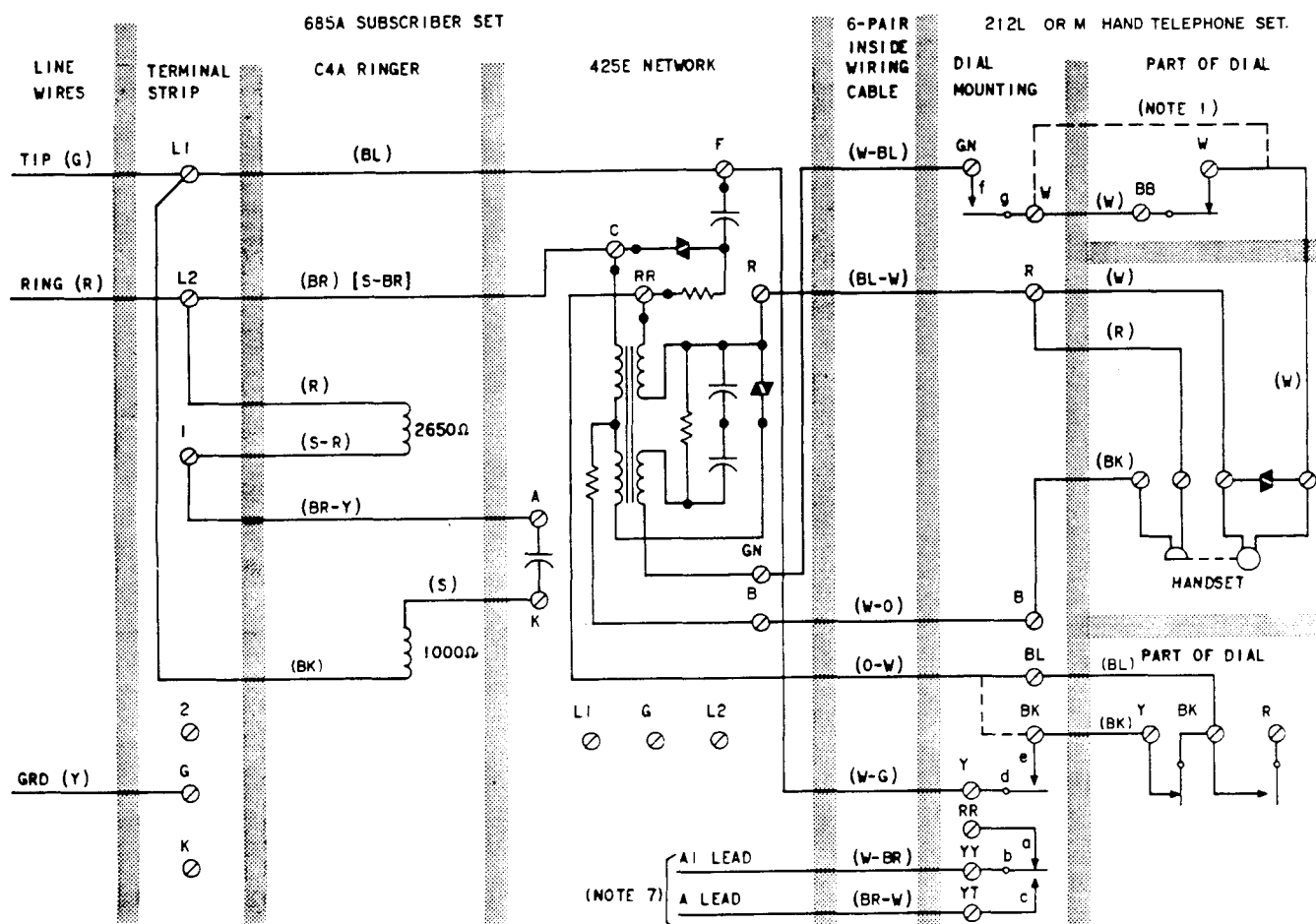


Fig. 4—Assembly of Filter on G-Type Handset Mounting

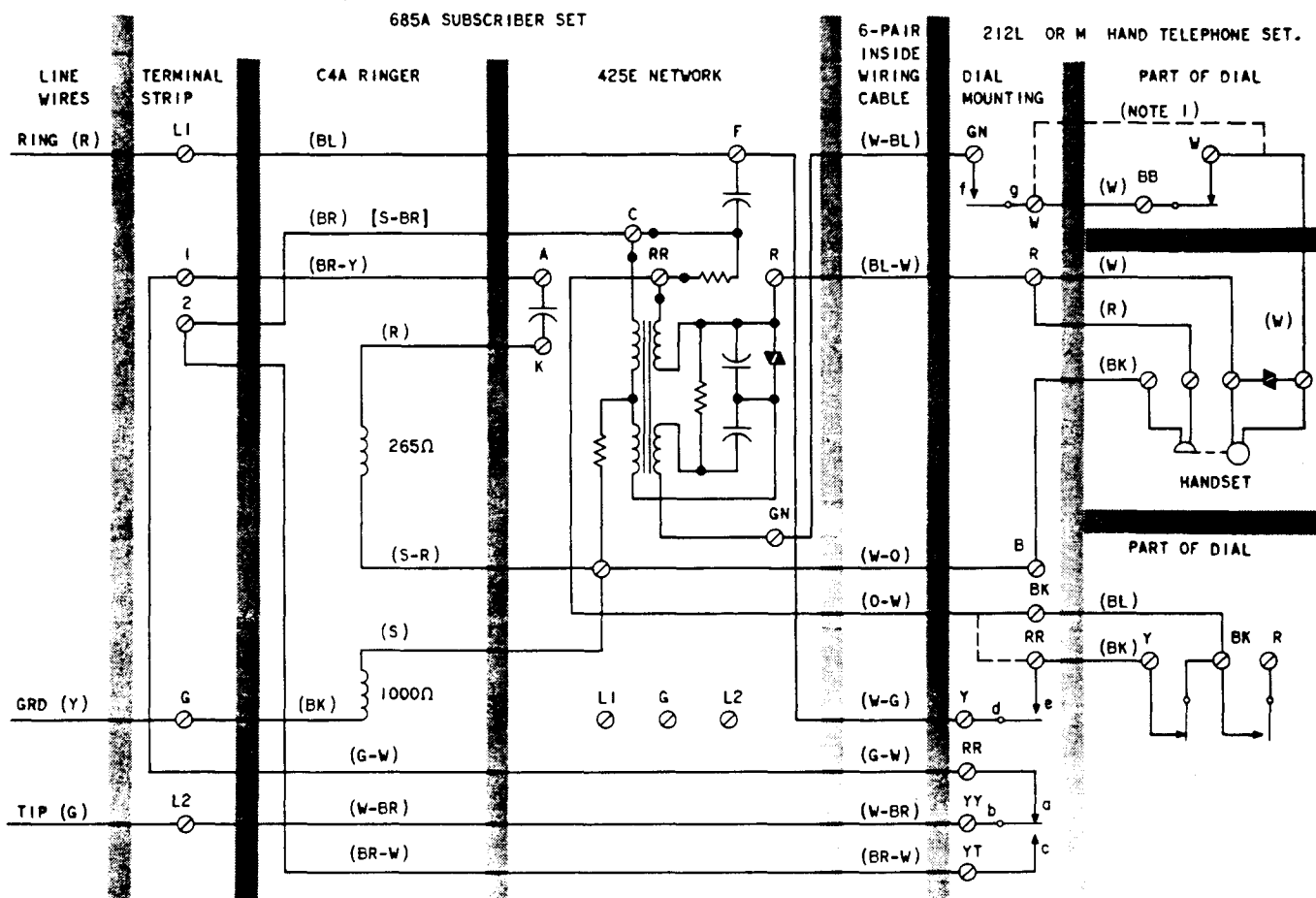


NOTES:

1. DOTTED LINES SHOW MANUAL SET CONNECTIONS.
2. ON EARLIER SETS (BL) STRAP MUST BE MOVED FROM RR TO F OF NETWORK.
3. ON EARLIER SETS (BR) [S-BR] MUST BE MOVED FROM 2 TO L2 OF TERMINAL STRIP.
4. CONNECTIONS SHOWN ARE FOR BRIDGED RINGING, REFER TO TABLE D FOR ALL SERVICES PROVIDED.

5. LINE SWITCH CONTACTS b AND c MAKE FIRST, CONTACTS f AND g MAKE LAST.
 6. TO SILENCE RINGER PERMANENTLY CONNECT (R) AND (BK) RINGER LEADS TO K OF TERMINAL STRIP.
 7. EXTEND A AND AI LEADS TO KEY TELEPHONE UNIT IF REQUIRED.
- () CURRENT COLOR CODE
- [] MD COLOR CODE

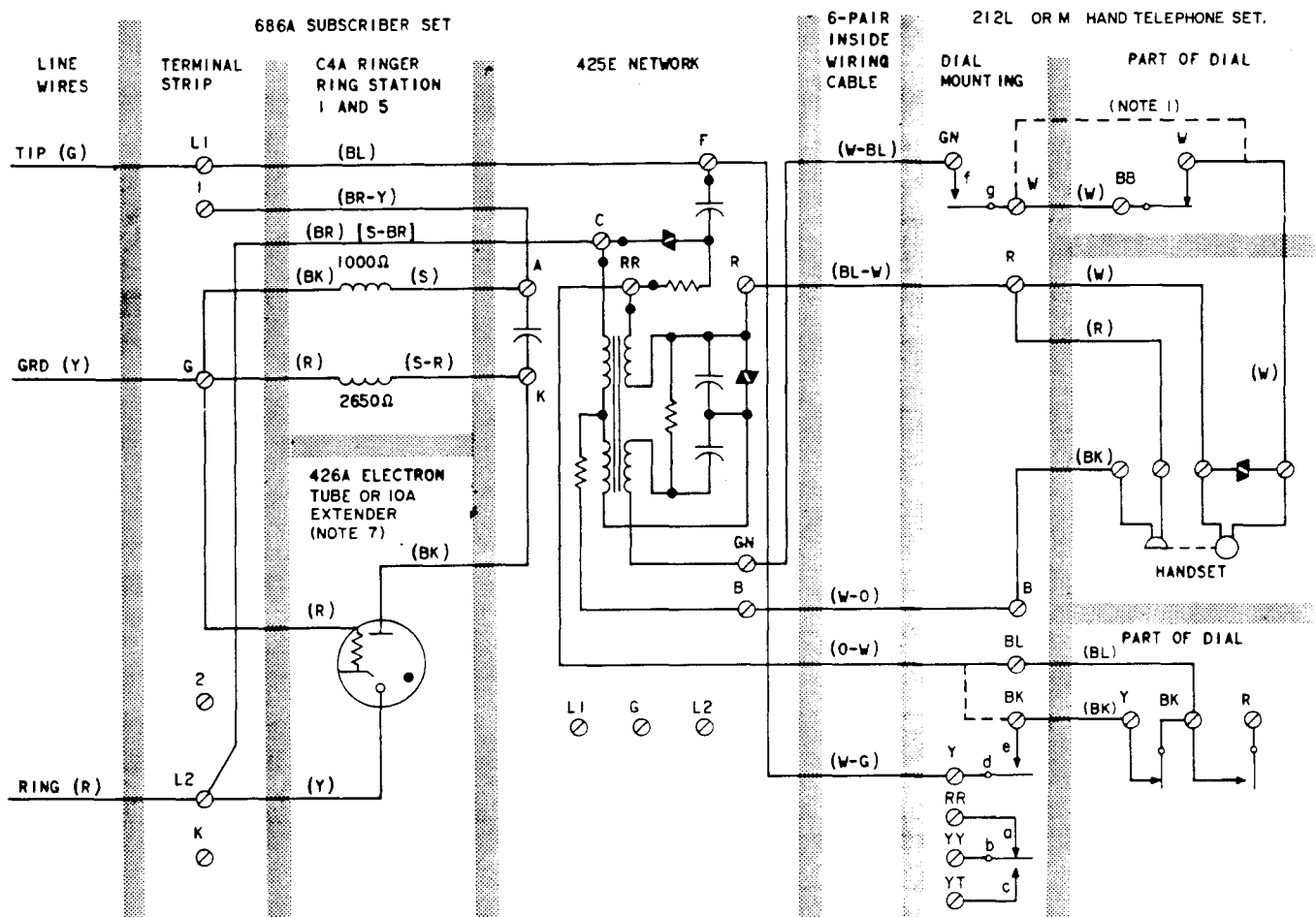
Fig. 5—Connections for 212L and 212M Hand Telephone Sets Used with 685A Subscriber Set, Bridged Ringing



NOTES:

1. DOTTED LINES SHOW MANUAL CONNECTIONS.
 2. ON EARLIER SETS (BL) STRAP MUST BE MOVED FROM RR TO F OF NETWORK.
 3. MOVE (BR) [S-BR] STRAP FROM L2 TO 2 OF TERMINAL STRIP. ON EARLIER SETS (BR) [S-BR] IS ON 2.
 4. CONNECTIONS SHOWN ARE FOR TIP-PARTY 1000 Ω IDENTIFICATION GROUND, REFER TO TABLE D FOR ALL SERVICES PROVIDED.
 5. LINE SWITCH CONTACTS b AND c MAKE FIRST, CONTACTS f AND g MAKE LAST.
 6. USE TABLE D TO SILENCE RINGER PERMANENTLY AND RETAIN TIP-PARTY GROUND IDENTIFICATION.
 7. USE NORMAL CONNECTIONS ON TIP-PARTY IDENTIFICATION GROUND STATIONS. IF BELL TAPS ON STATIONS CONNECTED TO LONG LINE EQUIPMENT, USE RINGER REVERSAL COLUMN IN TABLE D.
- () CURRENT COLOR CODE
[] MD COLOR CODE

Fig. 6—Connections for 212L and 212M Hand Telephone Sets Used with Modified 685A Subscriber Set, Tip-Party Identification



NOTES:

1. DOTTED LINES SHOW MANUAL CONNECTIONS.
2. ON EARLIER SETS (BL) STRAP MUST BE MOVED FROM RR TO F OF NETWORK.
3. ON EARLIER SETS (BR) [S-BR] STRAP MUST BE MOVED FROM 2 TO L2 OF TERMINAL STRIP.
4. CONNECTIONS SHOWN ARE FOR (-) RING PARTY. REFER TO TABLE E FOR ALL SERVICES PROVIDED.

5. LINE SWITCH CONTACTS b AND c MAKE FIRST CONTACTS f AND g MAKE LAST.
 6. TO SILENCE RINGER PERMANENTLY CONNECT (R) AND (BK) RINGER LEADS TO K OF TERMINAL STRIP.
 7. IOA EXTENDER CONNECTIONS SAME AS 426A ELECTRON TUBE.
- () CURRENT COLOR CODE
[] MD COLOR CODE

Fig. 7—Connections for 212L and 212M Hand Telephone Sets Used with 686A Subscriber Set, (-) Ring Party

TABLE D
CONNECTIONS USING 685A SUBSCRIBER SET

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

Note: For local wiring connections to hand telephone set refer to Fig. 5 and 6.

♦ TABLE E ♦
CONNECTIONS USING 686A SUBSCRIBER SET

WIRE OR LEAD	COLOR	NEGATIVE (−) PARTIES		POSITIVE (+) PARTIES	
		RING 1 AND 5	TIP 2 AND 6	RING 3 AND 7	TIP 4 AND 8
Local Wiring (Note)	W-BL	GN*	GN*	GN*	GN*
	BL-W	R*	R*	R*	R*
	W-O	B*	B*	B*	B*
	O-W	RR*	RR*	RR*	RR*
	W-G	F*	F*	F*	F*
Straps — Net. to Term. Strip	BL	L1-F*	L1-F*	L1-F*	L1-F*
	BR-Y	1-A*	1-A*	1-A*	1-A*
	BR†	L2-C*	L2-C*	L2-C*	L2-C*
Ringer Leads	S	A*	A*	A*	A*
	BK	G	G	L2	L2
	R	G	G	L2	L2
	S-R	K*	K*	K*	K*
426A Tube Leads (3-Element) or 10A Extender	BK	K*	K*	K*	K*
	Y	L2	L2	G	G
	R	G	G	L2	L2
Inside Wire from Pro- tector or Line	R	L2	L1	L2	L1
	G	L1	L2	L1	L2
	Y	G	G	G	G

* Network terminal.

† S-BR strap used on earlier sets.

Note: For local wiring connections to hand telephone set refer to Fig. 7.