

## REFERENCE

### 500C/D, 500DM, 501C/D, 554A/B, 554F, 554BM, 554BMP, 554BMPA, AND 556A/B TELEPHONE SETS

## IDENTIFICATION, INSTALLATION, CONNECTIONS, AND MAINTENANCE

### 1. GENERAL

**1.01** This section contains information for the 500C/D manufacture discontinued (MD), 500DM, 501C/D (MD), 554A/B (MD), 554F (MD), 554BMP, 554BMPA, or 556A/B (MD) telephone sets.

**1.02** This section is reissued to add the 554BMPA telephone set. Revision arrows are used to emphasize the more significant changes.

**1.03** Code numbers such as 500C/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. With the introduction of the modular telephone, additional code numbers have been added. All active code numbers of telephone sets covered by this section are listed in Table A.

### 2. IDENTIFICATION

**2.01** The 500-, 501-, 554-, and 556-type telephone sets are single line sets for use in common battery areas, manual or rotary dial.

**2.02** The 500DM telephone set (Fig. 1 and 2) is identical to the 500D (MD) set except the telephone set base and handset are equipped with jacks to accept a plug-ended mounting cord and handset cord. The handset cord and mounting cord are ordered separately. The 500DM set can be modified for certain applications by the addition of a 95C apparatus blank to replace the dial or the addition of a 426A electron tube (Fig. 8). Telephone sets *not* marked "1-PTY" are adaptable for all classes of line and ringer connections. The 500DM sets marked "1-PTY" on the base pan are not adaptable for multiparty service connections; if service other than individual or bridged ringing is required, a 500D2M base, housing, and handset

must be ordered separately. The 554BMP (Fig. 3 and 4) sets marked "1-PTY" on the base pan are not adaptable for multiparty service connections or for A-lead control; if service other than individual or bridged ringing is required, a 554B2P base, housing, and handset must be ordered separately. The 554BMPA telephone set is for single party and is factory wired for A-lead control.

**2.03** Associated with the production of "1-PTY" telephone sets are changes in the ringer, line switch, network, and jack or plug. These changes were not necessarily introduced simultaneously and therefore sets marked "1-PTY" may have only one or more of the changes. Figure 16 is a partial schematic showing the connections when all the changes are incorporated. For sets with less than all the changes, refer to the following paragraphs for each new component.

(a) The 623D2 mounting cord jack replaces the 623D3 (500DM) and the 523A2C plug replaces the 523A3 (554BMP). The (G) lead of the jack or plug terminates on L1 of network and (R) lead on A of network. The (Y) lead has been removed from 623D2 jack and 523A2C plug.

(b) The two-lead C4C ringer replaces the C4A (500DM and 554BMP). The (BK) lead terminates on L1 of network and (R) on K of network. The (S) and (S-R) ringer leads have been removed from the C4C ringer.

(c) The 843767104 line switch replaces the 812162956 (500DM), contact "a" and (S) lead have been removed. Contact "b" (Y) lead terminates on A of network. The 843766163 line switch replaces the 812854057 (554BMP). Contact "a" and (S) lead have been removed. The (BR) line switch lead at contact "c" terminates on C of network.

(d) The 4293-type network replaces the 4228-type (MD) network. Screw terminals "G" and "L2"

### NOTICE

Not for use or disclosure outside the  
Bell System except under written agreement

have been removed, also 824618227 (BK) strap lead has been removed from terminal A of network.



Fig. 1—500DM Telephone Set

**2.04** The 501-type (MD) telephone sets are identical to a similarly coded 500-type set except for the addition of a 3-element, cold-cathode, gas-filled tube, coded 426A. The tube assembly is fastened to the set base with a single screw (Fig. 5).

**2.05** The 554A/B (MD), F (MD), and 556A/B (MD) are standard, wall mounted telephone sets. The 556A/B is the same as the 554A/B except for the addition of a 426A tube. The 554F (MD) is factory equipped with a 9-foot handset cord.

**2.06** The 554BM (MD) telephone set is identical to the 554B set except it is partially modular. The set base and handset are equipped with jacks to accept a plug-ended handset cord. The inside wire connections are the same as for the 554A/B or 556A/B set. The handset cord is ordered separately for this set.

**2.07** The 554BMP set (Fig. 4) is identical to the 554A/B or 556A/B set except it is fully modular. The set base and handset are equipped with jacks to accept a plug-ended handset cord. The base is also equipped with a plug that permits the set to be attached to a jack equipped, 630-type connecting block. The set may be removed and mounted on these connecting blocks at different locations. The handset cord is ordered separately.

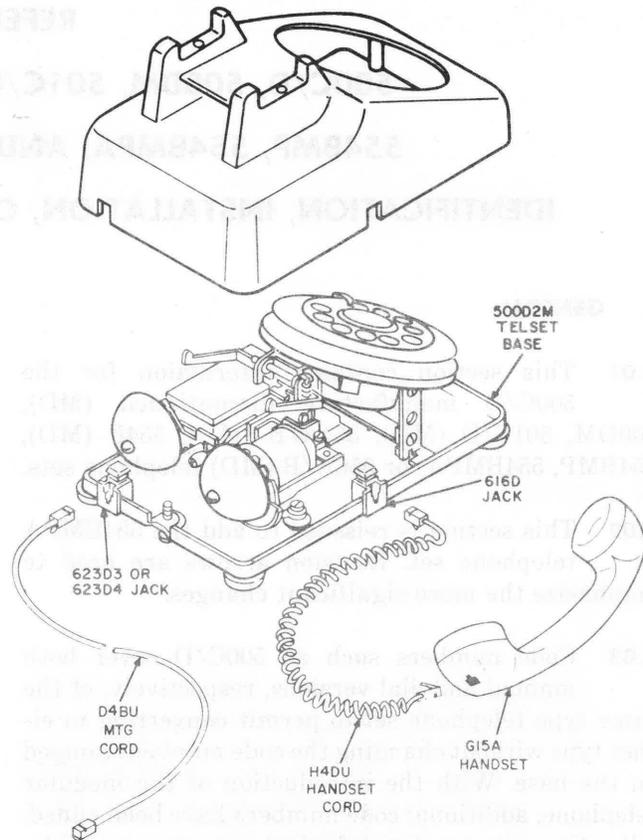


Fig. 2—500DM Telephone Set, Assembly

**2.08** The 554-type sets (not marked "1-PTY") are suitable for A-lead control with wiring modifications (Fig. 14 and 15). The 554BMPA-type set is for single party and is factory wired for A-lead control.

**2.09** The 554BMP telephone set can be modified for specific applications by adding a 95C apparatus blank to replace the dial or the addition of a 426A electron tube (Fig. 12).

**2.10** The 554BMPA-type telephone set is the same as the 554BMP-type telephone set except as follows.

- (a) Wired for 1A1 and 1A2 key systems (Fig. 17).
- (b) Has a H4DU-type cord (12-foot).
- (c) Has a KS-22916, List 5 label attached to the baseplate.

- (d) Has three KS-22914 labels (one shipped loose with the telephone set, one attached to the outside of the individual carton, and one attached to the baseplate).
- (e) Has a 523A4 plug.
- (f) Has a 9CA-type dial.
- (g) Has a 843766163 switch assembly.
- (h) Has a C4B ringer.
- (i) Has a 4228A, 4293F, or 4293N network as an alternate.♦

**2.11** The 500C or 554A (or equivalent) manual telephone set can be ordered modified per D-180405 or D-180406 Kit of Parts, respectively. This kit modifies the set for use with semipublic single slot coin telephone set as an extension station.

**2.12** The G1-, G3-, or G15-type handsets may be replaced by a G6-type handset for impaired hearing, a G7-type for weak speech, or a G8-type for noisy locations. Refer to Section 501-211-102 for amplifier handset connections.

**2.13** The 425A, 4-element tube may be substituted for the 426A tube in cases of excessive power induction. Refer to Section 500-112-100 for information concerning inductive interference.

**2.14** For negative stations in offices without Automatic Number Identification (ANI), the red (R) lead from 426A tube may be connected to G if ringer operation is marginal.

**2.15** These sets are available in all promoted colors. Components available in color include the dial number plate or apparatus blank, handset, handset cord, and housing.

### 3. INSTALLATION AND MAINTENANCE

#### 554- and 556-Type Telephone Sets



*When a 523A-type plug is used with the 228A adapter, care must be taken to prevent shorting or grounding the plug leads. If the leads are dressed from the stayhook directly through the base pan they are exposed to a shearing action when the plug moves in the adapter slot. In order to eliminate this problem, a slack loop should be formed in the plug leads looping upward from the plug stayhook then down through the base pan slot. Refer to Fig. 6 for lead routing when the 228B adapter is used.*

**3.01** Refer to Section 502-500-110 for installation and maintenance information for the telephone sets covered in this section.

**3.02** If ringing range extension is required, refer to Section 501-322-101 for installation and connection information on the 11-type (MD) extender or Section 501-375-101 for the 28A ringer isolator.

**3.03** On wall mounted telephone sets when replacing housing assemblies on old base assemblies (ie, pre-1957 date of manufacture) trim off upper set (2) of guide ribs to make base and housing assemblies compatible.

### 4. CONNECTIONS

**4.01** Figures 7 through 17 show connections for the 500-series telephone sets.



Fig. 3—554BMP Telephone Set With Handset in Waiting Position

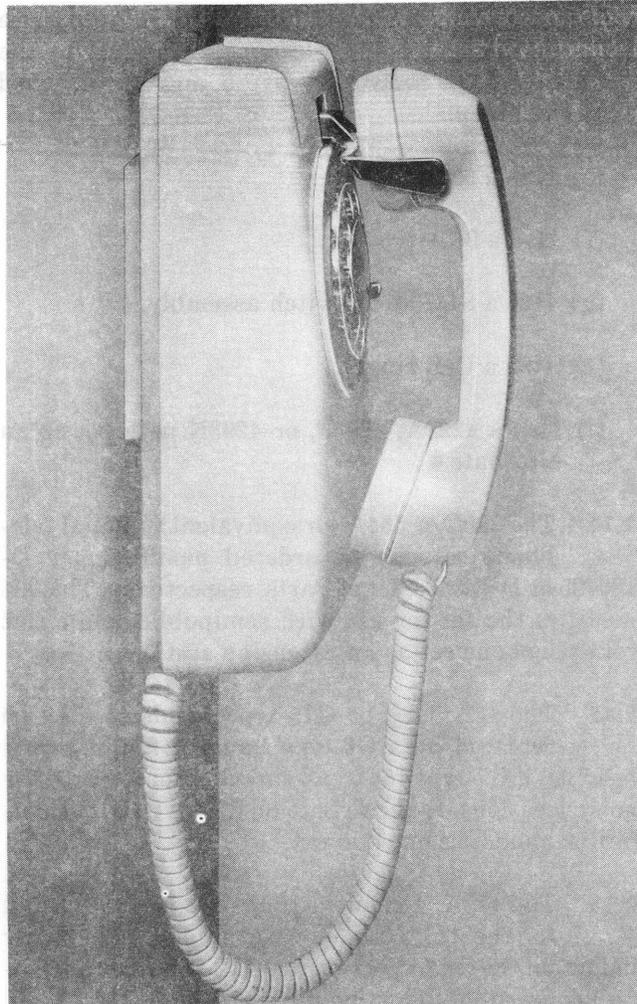
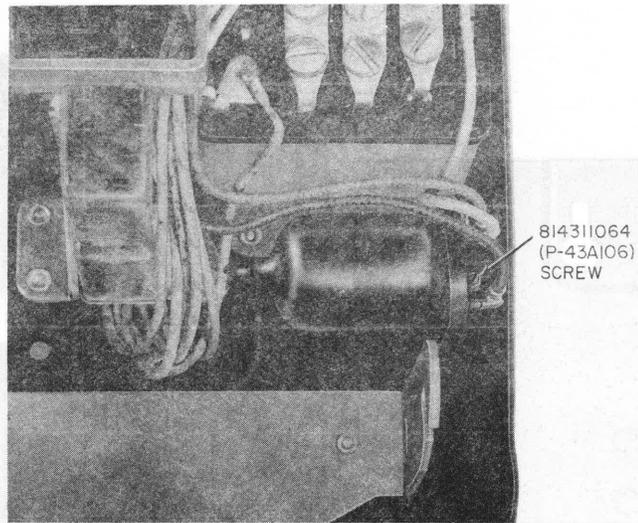


Fig. 4—554BMP Telephone Set on 630A4 Connecting Block



**Fig. 5—501-Type Telephone Set, Tube Assembly**

Fig. 6—1220 Adapter With 222A-Type Plug, Showing Recommended Lead Routing

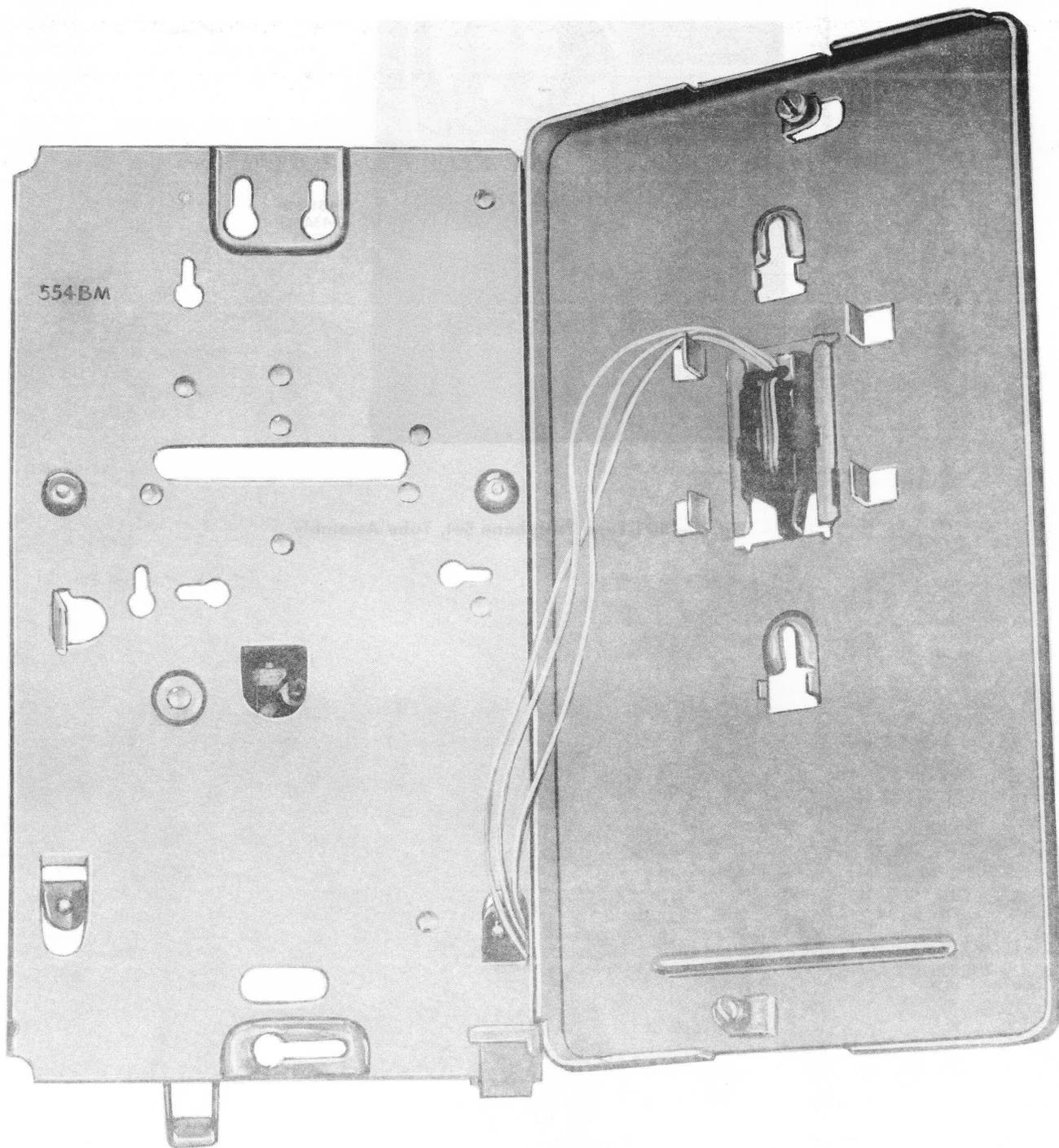


Fig. 6—228B Adapter With 523A-Type Plug, Showing Recommended Lead Routing

TABLE A

TELEPHONE SET REPLACEABLE COMPONENTS

SET	CODE	COMPONENT										
		MTG CORD	TELSET MTG CORD JACK OR PLUG	HANDSET	HANDSET CORD	HANDSET CORD JACK	ELECTRON TUBE	HOUSING ASSY	DIAL	APP BLANKET (NOTE)	NET	RINGER
500	C/D (MD)	D3BN or D4B†		G1- or G3-Type	H4CJ			See Table F	7-(MD) or 9-Type	95C	4293A, 4228A, or 425E	C4A or C4B†
	DM	D4BU	623D3 or 623D4	G15A	H4DU 6'	616D	426A					
501	C/D (MD)	D3BN or D4BT		G1- or G3-Type	H4CJ							
554	A/B,F (MD)			G1- or G3-Type	H4CJ							
	BM* (MD)			G15A	H4DU 6'	616C	426A					
	BMP							523A				
	BMPA			523A4	H4DU 12'		9CA	4293F or 4293N	C4B			
556	AB (MD)			G1- or G3-Type	H4CJ			7-(MD) or 9-Type		425E, 4228A, or 4293A	C4A or C4B	

Note: Required in manual version of telephone sets only.

\* May be converted to BMP code by using 228A or 228B adapter.

† C4B ringer cannot be used if tip party with identifying ground is required.

TABLE B

500C/D, 500DM, AND 501C/D TELEPHONE SET LINE, RINGER, AND TUBE CONNECTIONS

WIRE OR LEAD		COLOR	TERMINAL										
			INDIV OR BRIDGED	RING PARTY	TIP PARTY NO IDENT GRD	TIP PARTY IDENT GROUND				NEGATIVE (-) PARTIES		POSTIVE (+) PARTIES	
						NORMAL CONNECTIONS		CONN TO L.L. EQUIP (NOTE)		RING (1-5)	TIP (2-6)	RING (3-7)	TIP (4-8)
						1000Ω	2650Ω	1000Ω	2650Ω				
Line Wire at Conn Block	Ring Tip Grd Spare	R G Y BK	R G Y B										
Nonmodular Set Mtg Cord at Conn Block		R G Y	R G G	R G Y	G R Y	G R Y	G R Y	G R Y	G R Y	R G Y	G R Y	R G Y	G R Y
Nonmodular Set Mtg Cord in Set		R G Y	L2 L1 G	L2 L G	L2 L1 G	L2 L1 G	L2 L1 G	L2 L1 G	L2 L1 G	L2 L1 G	L2 L1 G	L2 L1 G	L2 L1 G
Modular Set 623D Jack Lead in Set*		R G Y BK	L2 L1 G †	L2 L1 G †	L1 L2 G †	L1 L2 G †	L1 L2 G †	L1 L2 G †	L1 L2 G †	L2 L1 G †	L1 L2 G †	L2 L1 G †	L1 L2 G †
Line Switch Lead		S	L2	L2	L2	A	A	A	A	L2	L2	L2	L2
Ringer Leads ‡§		R BK S S-R	L2 ¶ K A	L2 G K A	L2 G K A	K G B B	B B K G	B B G K	G K B B	G G A K	G G A K	L2 L2 A K	L2 L2 A K
426A Tube**		R BK Y								L1 or G K L2	L1 or G K L2	L2 K G	L2 K G

Note: If bell taps on stations connected to long line equipment, use these connections to retain tip party ground identification.

\* (BK) lead on 623D4 jack assembly only.

† Insulate and store.

‡ To silence ringer for all classes of service, refer to appropriate section in Division 501.

§ When grounded ringer arrangements are used on 96 volt long lines circuits, a D-180036 ringer isolator must be used.

¶ Terminal G on 500C/D or terminal L1 on 500DM.

\*\*Stations without ANI, (R) tube lead may be connected to G if ringer operation is marginal. At negative stations on 96 volt Long Line circuits, (R) lead should be connected to G.

TABLE C

554A/B, F, 554BM, 554BMP, AND 556A/B TELEPHONE SET  
LINE, RINGER, AND TUBE CONNECTIONS

WIRE OR LEAD		COLOR	TERMINAL										
			INDIV OR BRIDGED	RING PARTY	TIP PARTY NO IDENT GRD	TIP PARTY IDENT GROUND				NEGATIVE (--) PARTIES		POSTIVE (+) PARTIES	
						NORMAL CONNECTIONS		CONN TO L.L. EQUIP (NOTE)		RING (1-5)	TIP (2-6)	RING (3-7)	TIP (4-8)
						1000Ω	2650Ω	1000Ω	2650Ω				
Line Wire or 523A Plug Lead in Set	Ring	R	L2	L2	L1	L1	L1	L1	L1	L2	L1	L2	L1
	Tip	G	L1	L1	L2	L2	L2	L2	L2	L1	L2	L1	L2
	Grd	Y	G	G	G	G	G	G	G	G	G	G	G
	Spare	BK	*	*	*	*	*	*	*	*	*	*	*
Line Switch		S	L2	L2	L2	A	A	A	A				
Ringer Leads†‡		R	L2	L2	L2	K	B	B	G	G	G	L2	L2
		BK	L1	G	G	G	B	B	K	G	G	L2	L2
		S	K	K	K	B	K	G	B	A	A	A	A
		S-R	A	A	A	B	G	K	B	K	K	K	K
426A Tube §		R								L1 or G	L1 or G	L2	L2
		BK								K	K	K	K
		Y								L2	L2	G	G

**Note:** If bell taps on stations connected to long line equipment, use these connections to retain tip party ground identification.

\* Insulate and store.

† To silence ringer for all classes of service, refer to appropriate section in Division 501.

‡ When grounded ringer arrangements are used on 96 volt long lines circuits, a D-180036 ringer isolator must be used.

§ Stations without ANI, (R) tube lead may be connected to G if ringer operation is marginal. At negative stations on 96 volt Long Line circuits, (R) lead should be connected to G.

◆TABLE D◆

**554-TYPE TELEPHONE SETS MODIFICATION FOR  
A LEAD CONTROL CURRENT COLOR CODE (NOTE 1)**

WIRE OR LEAD		REMOVE FROM NET.	CONNECT TO	
			NET.	TERM. STRIP (NOTE 2)
Line Switch	W	F	C	
	BR	C	G	
Ringer Leads	R	L2	L1	3*
	BK	L1	F	4*
Line Wire in set	Ring	L2	L1	
	Tip	L1	F	
	A-Lead		L2	
	A1-Grd		G	

**Note 1:** Due to conductor limitations, 554-type telephone sets cannot be provided with A lead control and common audible ringing simultaneously. The 554BMPA set is factory wired for A-lead control.

**Note: 2** Terminal strip 812161966 must be ordered separately.

\* Connect to these terminals on terminal strip if common audible ringing is provided.

TABLE E

**554-TYPE TELEPHONE SETS MODIFICATION FOR  
A LEAD CONTROL MD COLOR CODE**

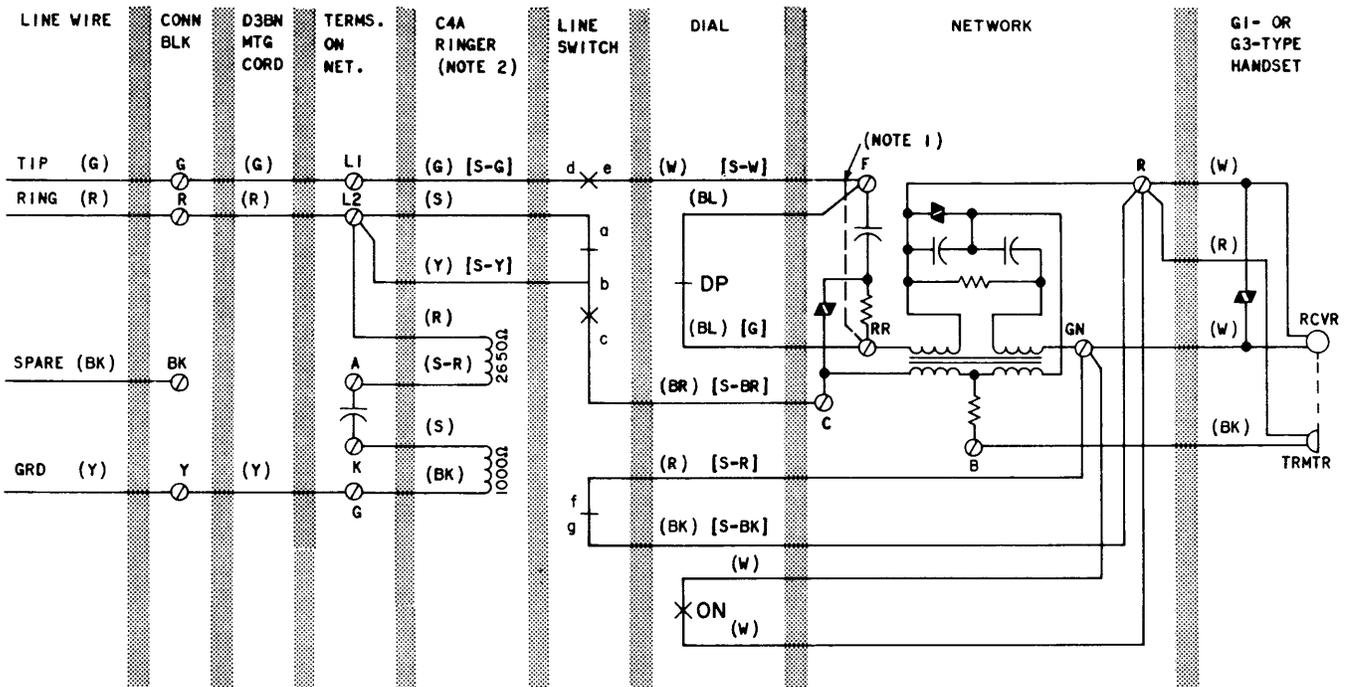
WIRE OR LEAD		REMOVE FROM NET	CONNECT TO	
			NET.	TERM. STRIP.
Line Switch	S-W	F	G	
Ringer Leads	R	L2	L1	3*
	BK	L1	F	4*
Line Wire in set	Tip		F	
	A-Lead	L1	L1	
	A1-Grd		G	

\* Connect to these terminals on terminal strip if common audible ringing is provided.

◆TABLE F◆

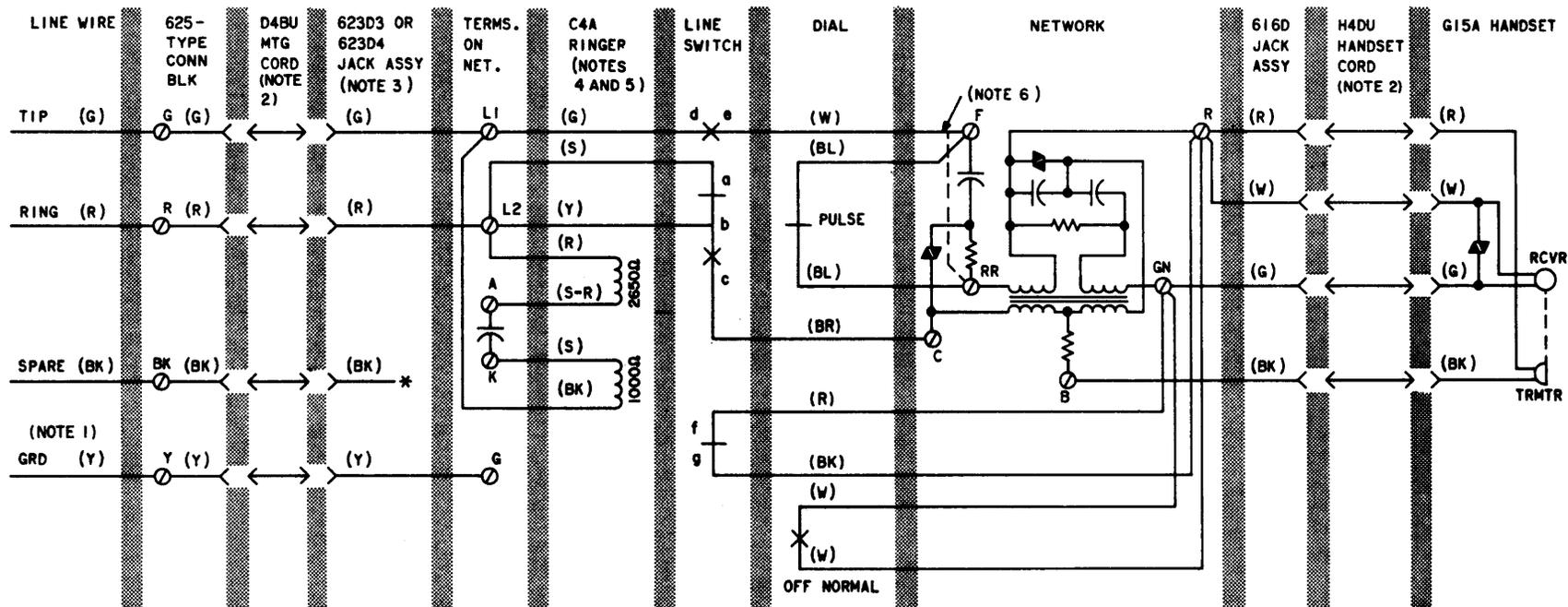
## HOUSING ASSEMBLIES

COLOR	SUFFIX	500DM	554BM/BMP/BMPA
		COMCODE	COMCODE
Black	-03	840183032	818064032
Ivory	-50	840183503	818064503
Green	-51	840183511	818064511
Red	-53	840183537	818064537
Yellow	-56	840183560	818064560
White	-58	840183586	818064586
Lt. Beige	-60	840183602	818064602
Aqua Blue	-62	840183628	818064628



- NOTES:
1. FOR MANUAL SERVICE, MOVE (w) [S-w] LEAD FROM F TO RR TERMINAL.
  2. 500C/D FACTORY WIRED FOR RING PARTY. SEE APPROPRIATE TABLE FOR ALL CLASSES OF SERVICE.
- ( ) CURRENT COLOR CODE  
 [ ] MD COLOR CODE  
 DP DIAL PULSE CONTACT  
 ON DIAL OFF-NORMAL CONTACT

Fig. 7—500C/D (MD) Telephone Set, Connections

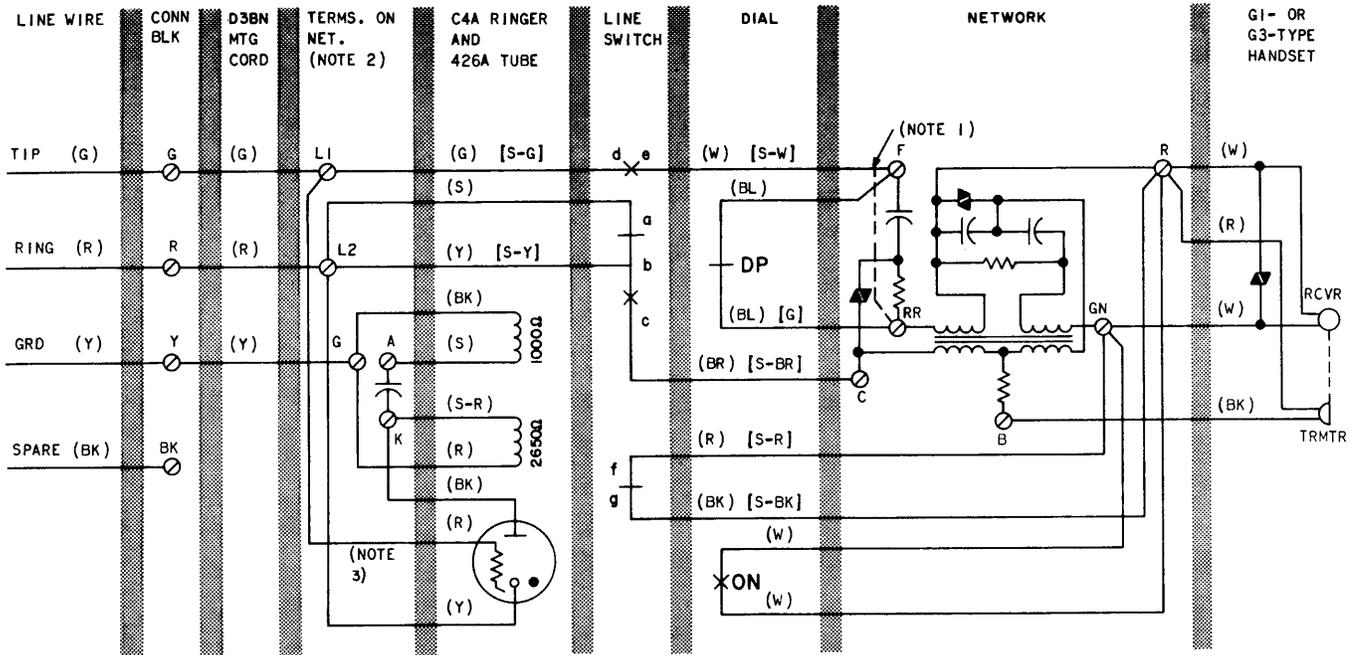


NOTES:

1. INSIDE WIRE CONDUCTOR SHALL BE CONNECTED TO THE GROUND TERMINAL AT THE PROTECTOR OR EQUIVALENT ONLY IF REQUIRED FOR SERVICE BEING INSTALLED.
2. H4DU-TYPE CORD AND D4BU CORD ORDERED SEPARATELY.
3. (BK) LEAD ON 623D4 JACK ASSEMBLY ONLY.
4. 500DM FACTORY WIRED FOR BRIDGED SERVICES SEE APPROPRIATE TABLE FOR ALL CLASSES OF SERVICE.
5. FOR SELECTIVE RINGING APPLICATIONS ADD 426A TUBE AND CONNECT PER APPROPRIATE TABLE.
6. FOR MANUAL SERVICE, REPLACE DIAL WITH APPARATUS BLANK AND MOVE (W) LEAD FROM F TO RR TERMINAL.

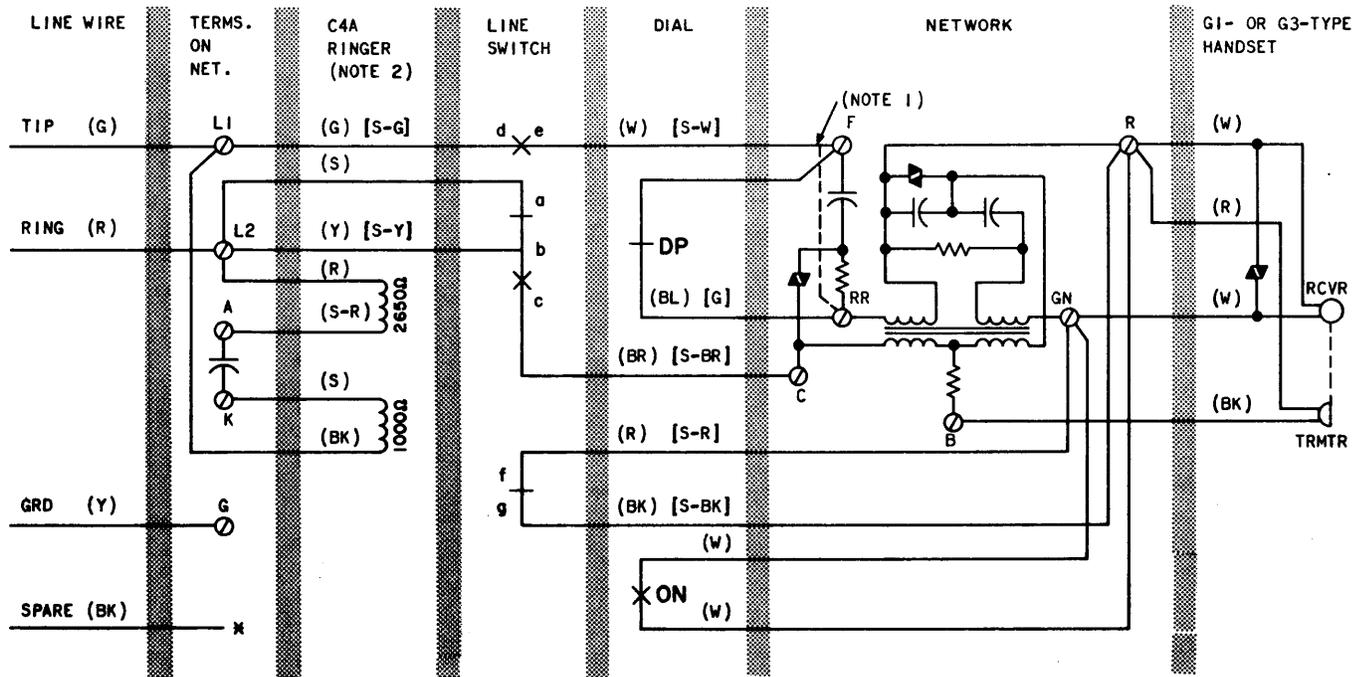
\* INSULATED AND STORED

Fig. 8—500DM Telephone Set, Connections



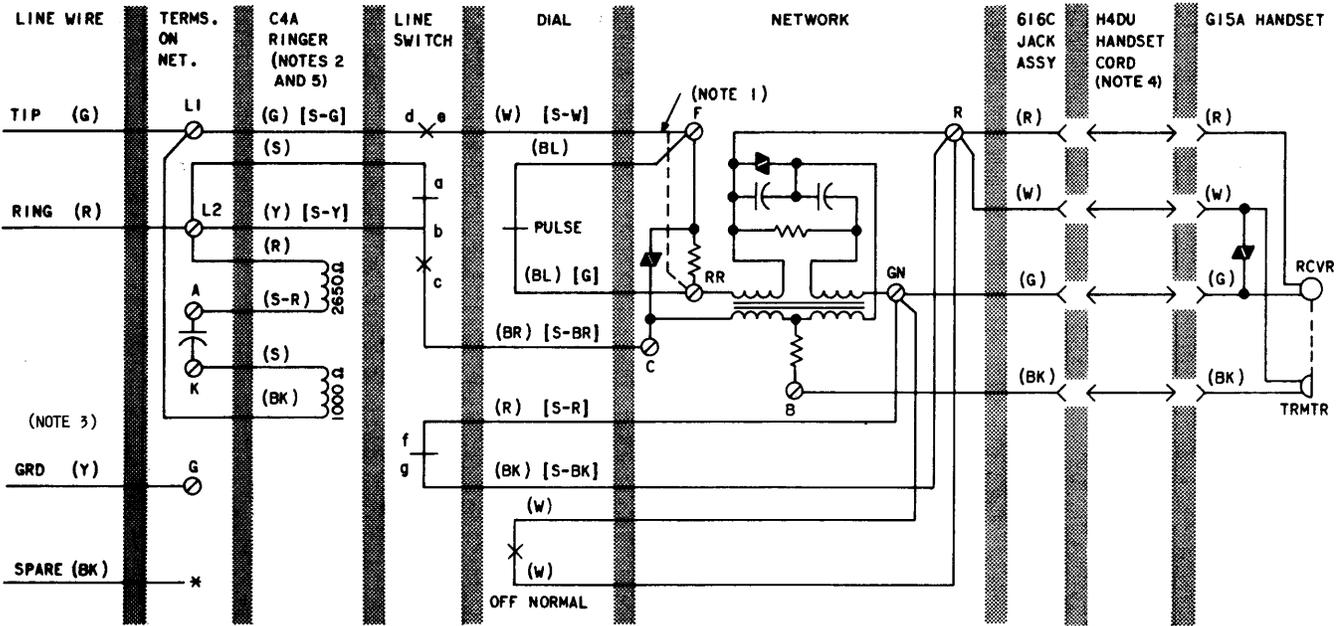
- NOTES:
1. FOR MANUAL SERVICE, MOVE (w) [S-w] LEAD FROM F TO RR TERMINAL.
  2. 501C/D FACTORY WIRED FOR NEGATIVE RING PARTY. SEE APPROPRIATE TABLE FOR ALL CLASSES OF SERVICE.
  3. STATIONS WITHOUT ANI, (R) TUBE LEAD MAY BE CONNECTED TO G IF RINGER OPERATION IS MARGINAL. AT NEGATIVE STATIONS ON 96V LONG LINE CIRCUITS, (R) LEAD SHOULD BE CONNECTED TO G.
- ( ) CURRENT COLOR CODE  
 [ ] MD COLOR CODE  
 DP DIAL PULSE CONTACT  
 ON DIAL OFF-NORMAL CONTACT

Fig. 9—501C/D (MD) Telephone Set, Connections



- NOTES:
1. FOR MANUAL SERVICE, MOVE (w) [S-W] LEAD FROM F TO RR TERMINAL.
  2. 554A/B, F FACTORY WIRED FOR BRIDGED SERVICE. SEE APPROPRIATE TABLE FOR ALL CLASSES OF SERVICE.
- \* INSULATED AND STORED  
 ( ) CURRENT COLOR CODE  
 [ ] MD COLOR CODE  
 DP DIAL PULSE CONTACT  
 ON DIAL OFF-NORMAL CONTACT

Fig. 10—554A/B (MD) and 554F (MD) Telephone Set, Connections

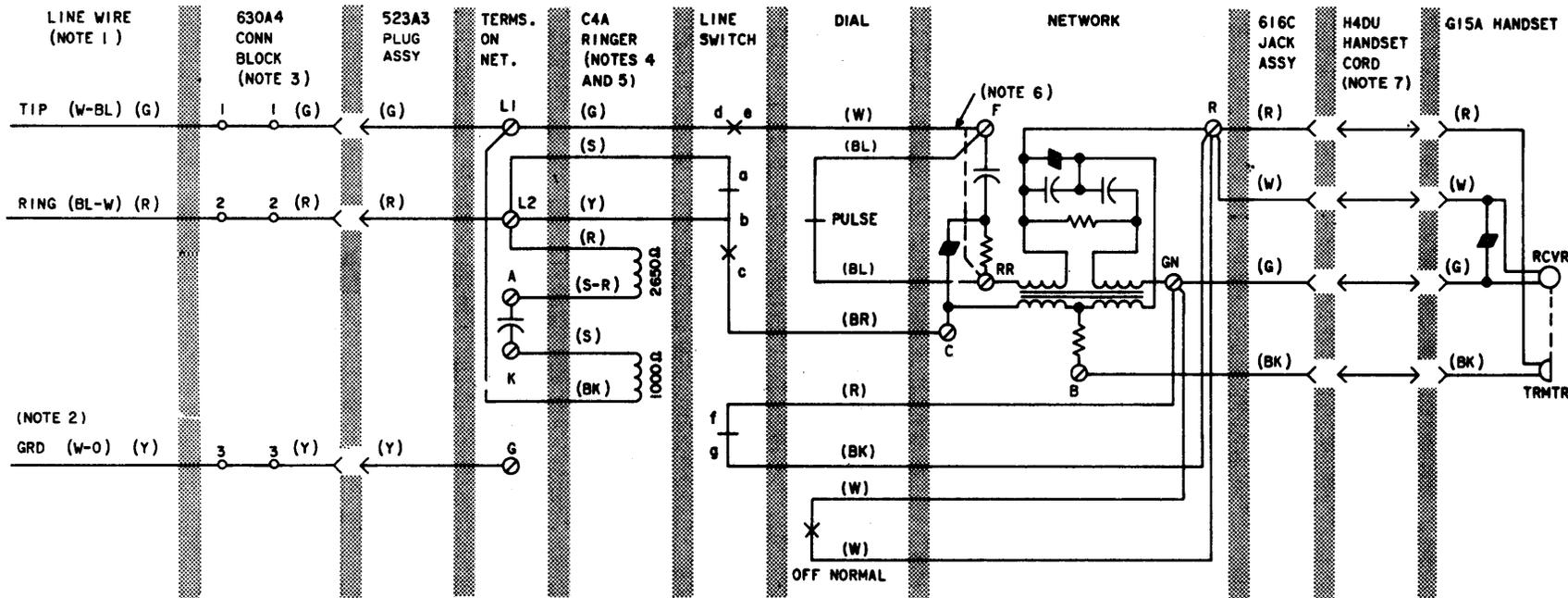


NOTES:

1. FOR MANUAL SERVICE, REPLACE DIAL WITH APPARATUS BLANK AND MOVE (W) [S-W] LEAD FROM F TO RR TERMINAL.
2. 554BM FACTORY WIRED FOR BRIDGED SERVICE. SEE APPROPRIATE TABLE FOR ALL CLASSES OF SERVICE.
3. INSIDE WIRE CONDUCTOR SHALL BE CONNECTED TO THE GROUND TERMINAL AT THE PROTECTOR OR EQUIVALENT ONLY IF REQUIRED FOR SERVICE BEING INSTALLED.
4. H4DU-TYPE CORD ORDERED SEPARATELY.
5. FOR SELECTIVE RINGING APPLICATIONS ADD 426A TUBE AND CONNECT PER APPROPRIATE TABLE.

\* INSULATED AND STORED  
 ( ) CURRENT COLOR CODE  
 [ ] MD COLOR CODE

Fig. 11—554BM (MD) Telephone Set, Connections

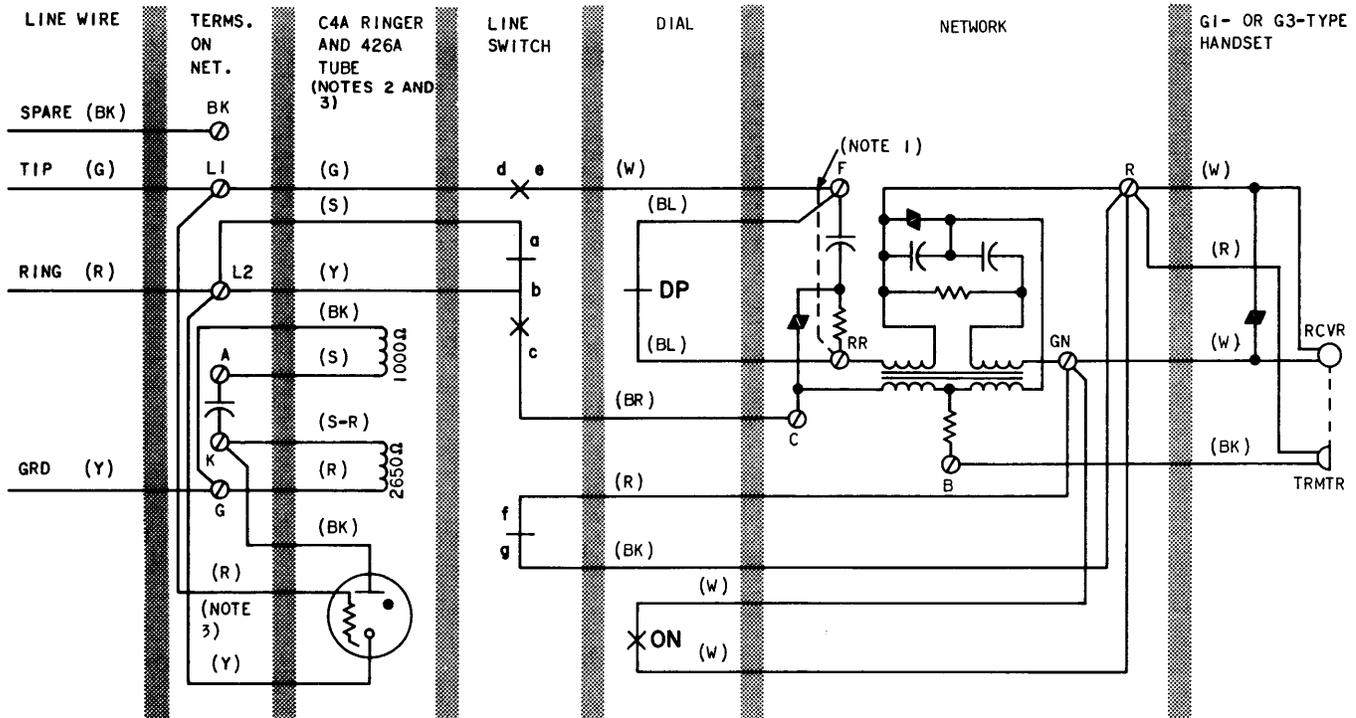


NOTES:

1. SINGLE COLOR CODE CONDUCTOR - "d" STATION WIRE  
TWO COLOR CODE CONDUCTOR - INSIDE WIRE
2. INSIDE WIRE CONDUCTOR SHALL BE CONNECTED TO THE GROUND TERMINAL AT THE PROTECTOR OR EQUIVALENT ONLY IF REQUIRED FOR SERVICE BEING INSTALLED.
3. QUICK CONNECT TERMINALS ON 630A4 CONNECTING BLOCK
4. 554BMP FACTORY WIRED FOR BRIDGED SERVICE. SEE APPROPRIATE TABLE FOR ALL CLASSES OF SERVICE.
5. FOR SELECTIVE RINGING APPLICATIONS ADD 426A TUBE AND CONNECT PER APPROPRIATE TABLE.
6. FOR MANUAL SERVICE, REPLACE DIAL WITH APPARATUS BLOCK AND MOVE (W) LEAD FROM F TO RR OF NETWORK.
7. H4DU-TYPE CORD ORDERED SEPARATELY.

\* INSULATED AND STORED

Fig. 12—554BMP Telephone Set, Connections



NOTES:

1. FOR MANUAL SERVICE, MOVE (w) [S-w] LEAD FROM F TO RR TERMINAL.
2. 556A/B FACTORY WIRED FOR NEGATIVE RING PARTY, SEE APPROPRIATE TABLE FOR ALL CLASSES OF SERVICE.
3. STATIONS WITHOUT ANI, (R) TUBE LEAD MAY BE CONNECTED TO G IF RINGER OPERATION IS MARGINAL. AT NEGATIVE STATIONS ON 96V LONG LINE CIRCUITS, (R) LEAD SHOULD BE CONNECTED TO G.

DP DIAL PULSE CONTACT  
 ON DIAL OFF-NORMAL CONTACT

Fig. 13—556A/B (MD) Telephone Set, Connections

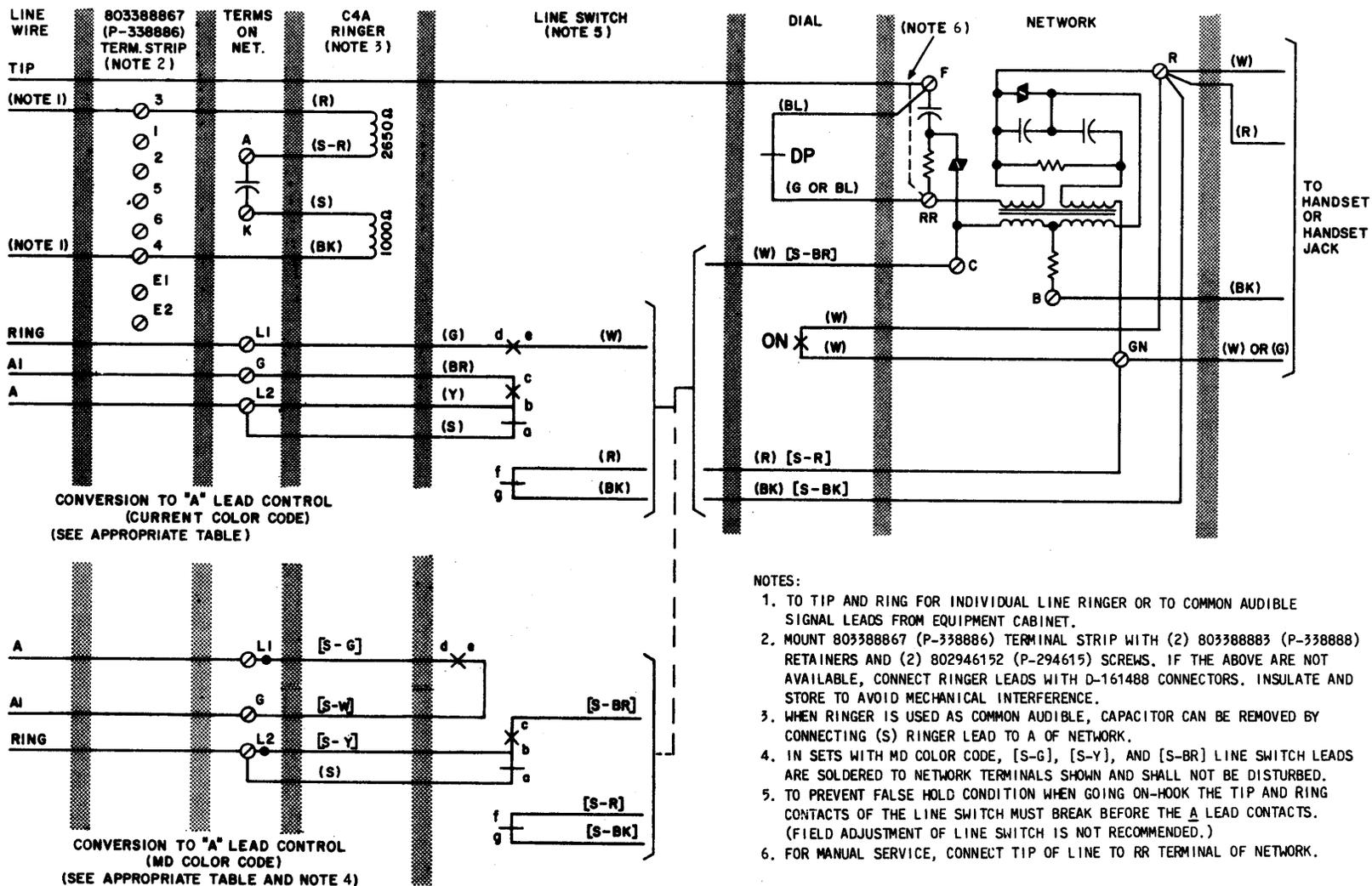
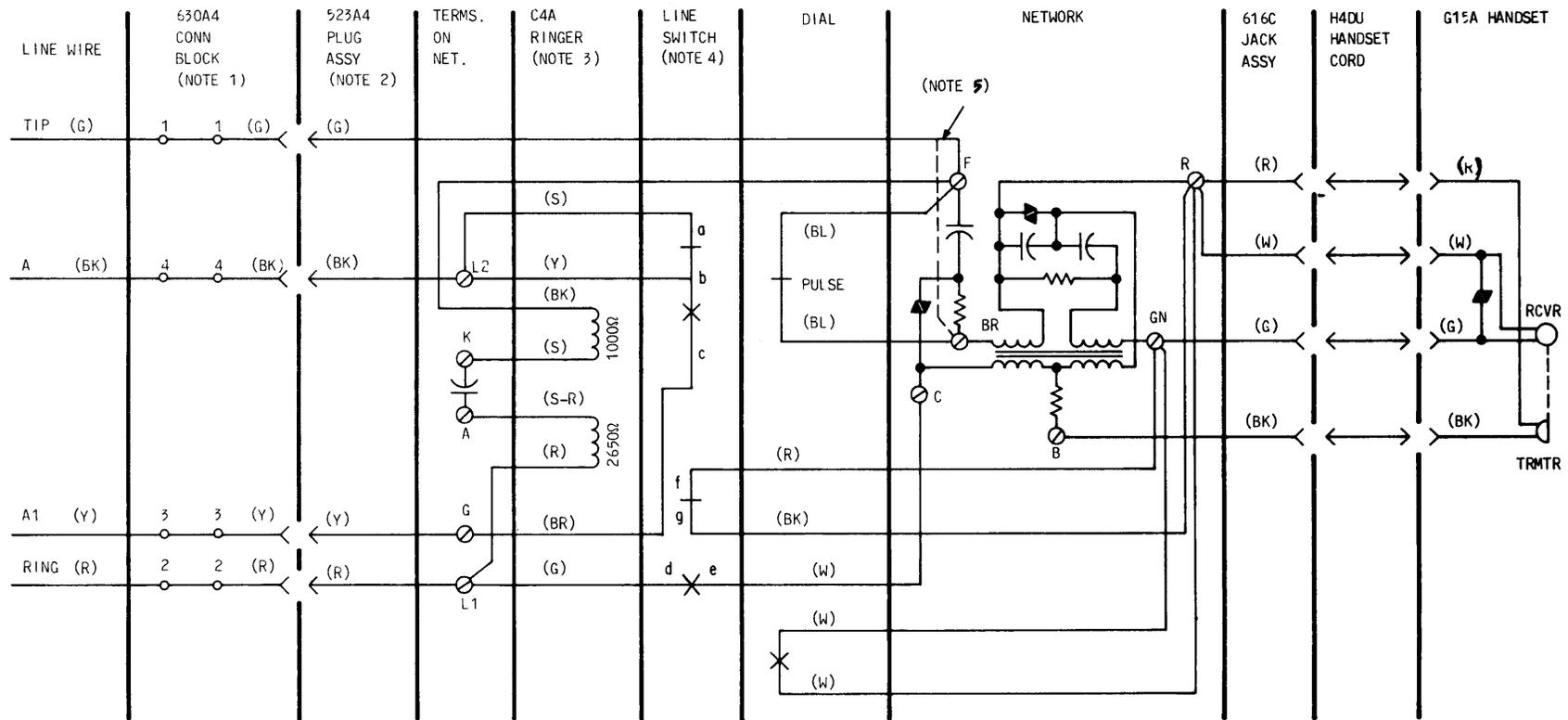


Fig. 14—554A/B (MD), 554F (MD), or 554BM (MD) Telephone Set, Wired for "A" Lead Control

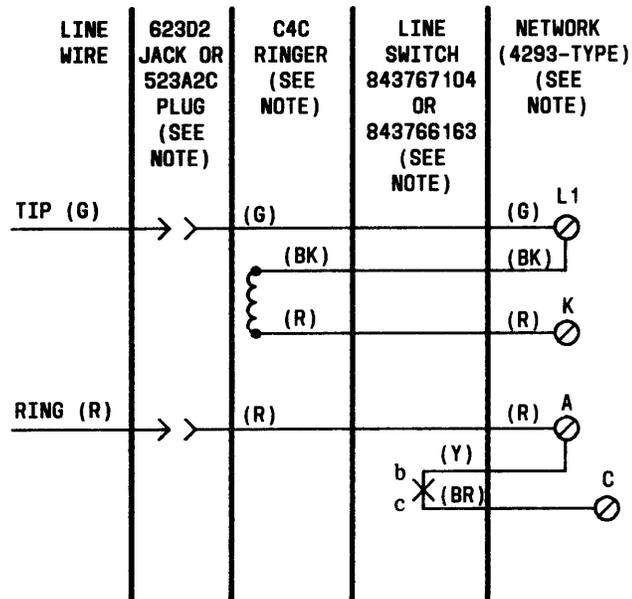


NOTES:

1. QUICK CONNECT TERMINALS ON 530A4 CONNECTING BLOCK.
2. REPLACE 523A3 PLUG WITH A 523A4 PLUG
3. SET WIRED FOR BRIDGED RINGING. COMMON AUDIBLE RINGING - CANNOT BE PROVIDED DUE TO INSUFFICIENT LINE CONDUCTORS
4. TO PREVENT FALSE HOLD CONDITION WHEN GOING ON-HOOK THE TIP AND RING CONTACTS OF LINE SWITCH MUST BREAK BEFORE THE A LEAD CONTACTS. (FIELD ADJUSTMENT OF LINE SWITCH IS NOT RECOMMENDED).
5. FOR MANUAL SERVICE, CONNECT TIP OF LINE TO RR OF NETWORK.

\* INSULATED AND STORED

Fig. 15—554BMP Telephone Set, Wired for "A" Lead Control



**NOTE:**  
 THIS PARTIAL DRAWING SHOWS HOW A TELEPHONE SET MANUFACTURED AFTER 6-1-82 AND MARKED FOR "1-PTY" SERVICE CONNECTIONS IS WIRED IF IT IS EQUIPPED WITH ALL THE ABOVE LISTED COMPONENTS. A SET CAN BE MARKED "1-PTY" WITHOUT HAVING ALL THE LISTED COMPONENTS. IF THIS ARRANGEMENT IS ENCOUNTERED, REFER TO THE FULL SCHEMATIC DRAWING OF THE TELEPHONE SET AND PARAGRAPH 2.03 (a) THROUGH (d) TO COMPARE DIFFERENCES IN THE WIRING.

Fig. 16—500DM or 554BMP Telephone Set, Connections (See Note)

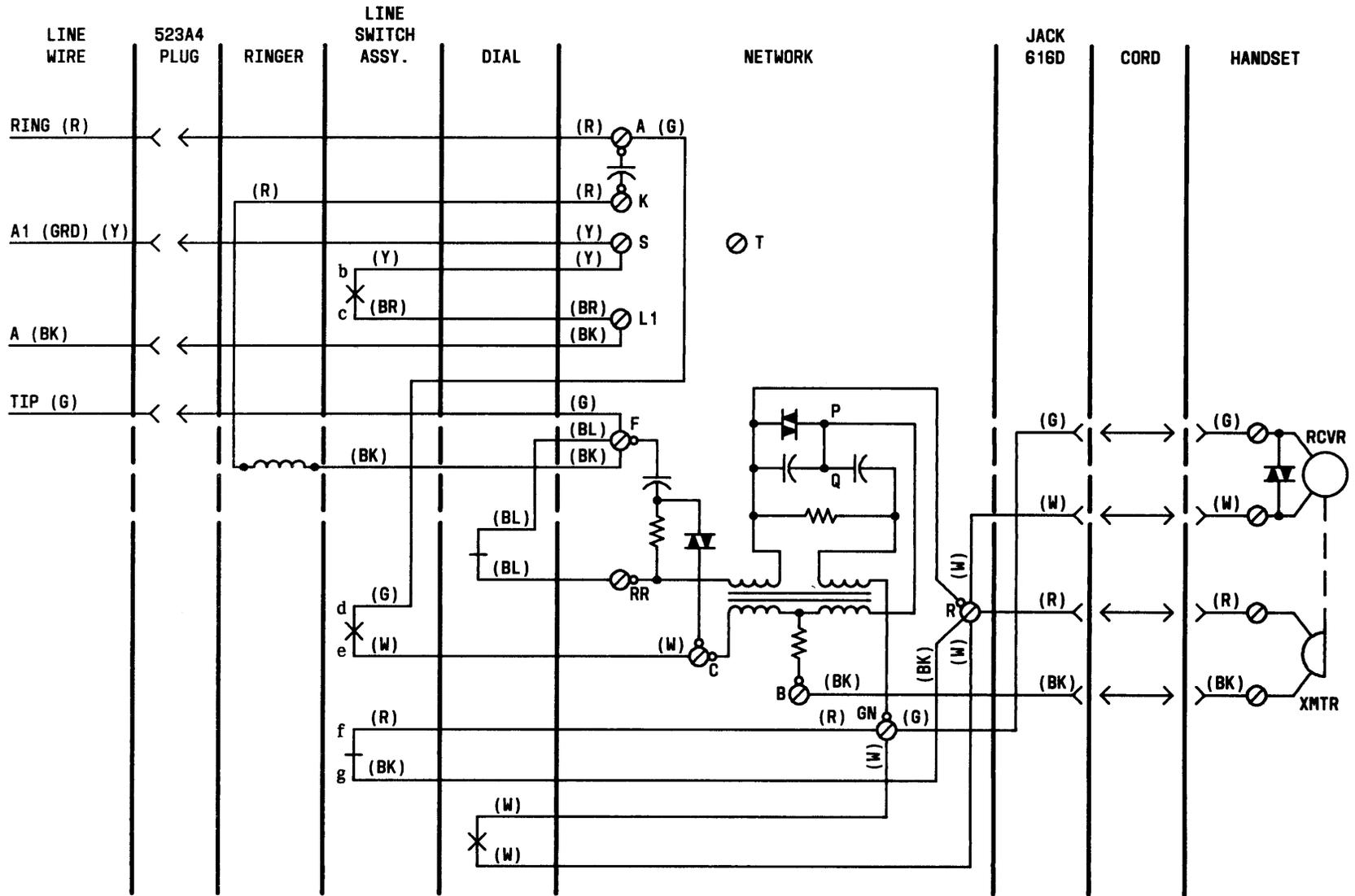


Fig. 17—554BMPA-Type Telephone Set, Connections