

SERVICE
1660-TYPE TELEPHONE SETS

1. GENERAL

1.01 This section provides connection information for the 1660-type telephone sets. This information was formerly found in Section 502-660-410 which will be canceled.

1.02 These sets are supplied factory-wired as a 1660A1 (MD) or 1660B1 (MD) only. Modification kits are available for field conversion to provide exclusion, signaling, and/or 2-line pickup. A

modification kit to provide 1-line pickup and hold on either line (nonkey system) for the 1660A1 and 1660B1 telephone sets is also available.

1.03 Refer to appropriate Section in Division 502 for kit of parts and mounting cords (ordered separately) when any of these features are required.

1.04 Speakerphone connections are covered in Division 512.

TABLE A

LINE AND RINGER CONNECTIONS — 1660A1 (MD), 1660A2 (MD),
1660B1 (MD) AND 1660B2 (MD) TELEPHONE SETS

WIRE OR LEAD		TEL SETS		CONNECTIONS							EXCLUSION†	
		1660A1 (MD) AND 1660A2 (MD)	1660B1 (MD) AND 1660B2 (MD)	INDIV OR BRIDGED	RING PARTY	TIP PARTY			1A1 OR 1A2 KEY TELEPHONE SYSTEM*	1660A2 (MD) ONLY	1660B2 (MD) ONLY	
						NO IDENT GROUND	INDENT GROUND					
							1000Ω	2650Ω				
Mtg Cord at Conn. Block	Tip	(G)	(G)	G	G	G	G	G	G	1	1	
	Ring	(R)	(R)	R	R	R	R	R	R	2	2	
	GRD A1	(Y)	(Y)	G	Y	Y	Y	Y	Y	4	4	
	A	(BK)	(BK)						BK	5	5	
	ET	(BL)	(BL)							6	6	
	ER	(W)	(W)							7	7	
Mtg Cord in Tel Set	Tip	(G)		L1	L1	L1	L2	L2	A	L1		
			(G)	G	G	G	G	G	A		G	
	Ring	(R)		L2	L2	L2	L1	L1	L2	L2		
			(R)	L2	L2	L2	L2	L2	L2		L2	
	GRD A1	(Y)		A	A	A	G	G	L1	A	A	
			(Y)	A	A	A	L1	L1	G		A	
	A	(BK)	(BK)						F	‡	‡	
	ET	(BL)	(BL)								6§	
	ER	(W)	(W)								5§	
Ringer Leads		(R)	(R)	7	7	7	7	7	7	7	7	
		(BK)	(BK)	6	6	6	6	6	6	6	6	
		(S)	(S)	‡	‡	‡	5	‡	‡	‡	‡	
		(S-R)	(S-R)	‡	‡	‡	‡	5	‡	‡	‡	
Line Switch		[S-BR](W)		F	F	F	C	C	F	F		
		[S-G](BR)		C	C	C	F	F	C	C		
		(S)	(S)	‡	‡	‡	K	K	‡	‡	‡	
			(BR)	F	F	F	F	F	F		F	
		(W)		C	C	C	C	C		C		
Dial Lead		(G)	(G)	F	F	F	F	F	A	F	F	
Ringer Straps		(G)		7 to L2	7 to L2	7 to L1	7 to A	7 to A	7 to L2	7 to L2		
			(G)	7 to L2	7 to L2	7 to G	7 to A	7 to A	7 to L2		7 to L2	
		(G-R)		6 to K	6 to K	6 to K	6 to G	6 to G	6 to K	6 to K	6 to K	
		(G-R)		6 to K	6 to K	6 to K	6 to L1	6 to L1	6 to K		6 to K	
Exclusion Straps		(BR)	(BR)							L1 to 1§	G to 1§	
		(Y)	(S)							L2 to 2§	L2 to 2§	

* Replace D3BN with D4BK mounting cord.

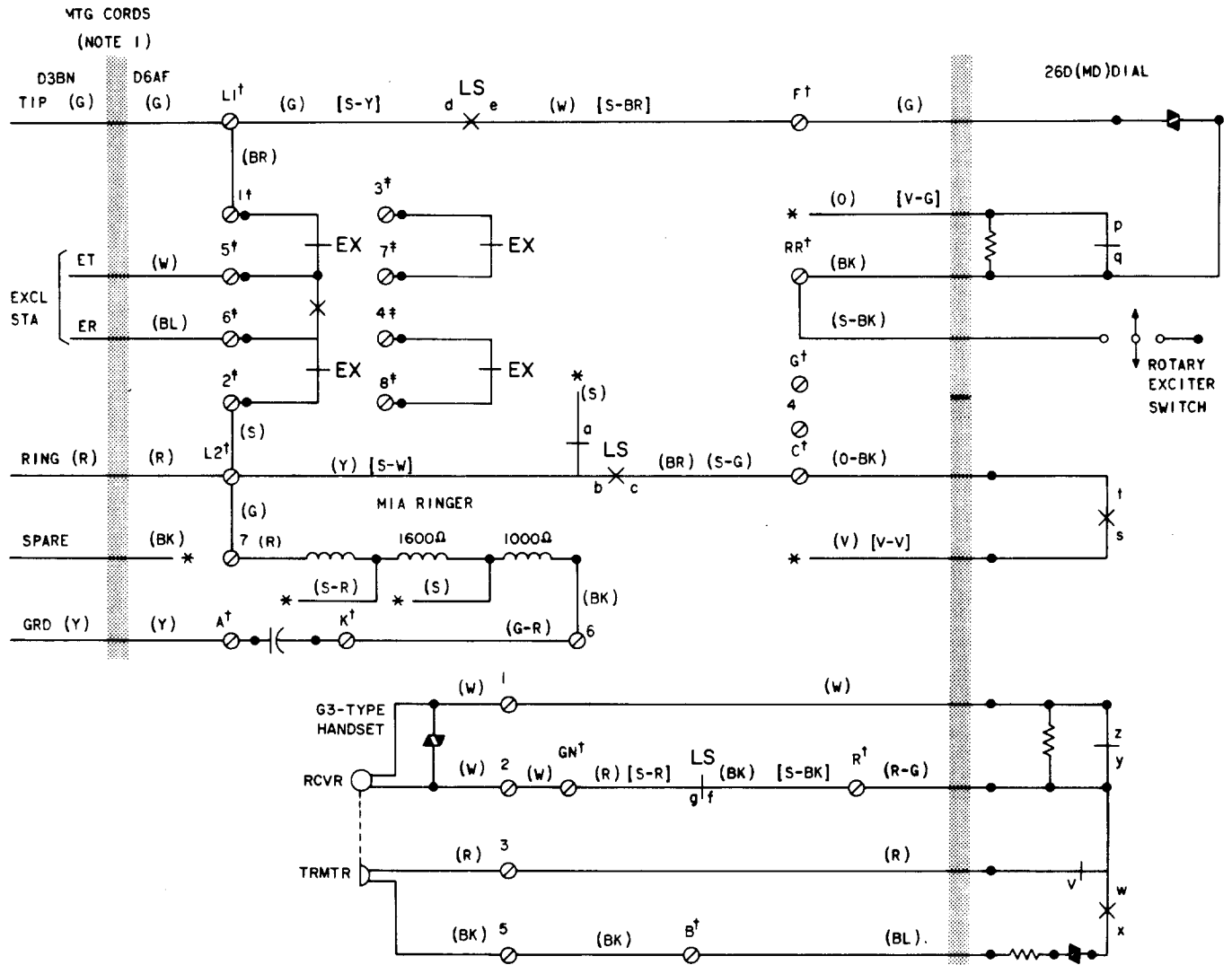
† Replace D3BN with D6AF mounting cord.

‡ Insulate and store.

§ Terminals on exclusion terminal board.

() Current color code.

[] MD color code.



- NOTES:
1. D3BN MTG.CORD FURNISHED WITH 1660A1 TEL SETS. D6AF MTG.CORD (ORDERED SEPARATELY) REPLACES D3BN MTG.CORD TO ADD EXCLUSION FEATURE, 1660A2
 2. 1660A2 TEL SET E/W EXCLUSION SWITCH.
 3. LINE SWITCH SEQUENCE, HANDSET REMOVED.

1. bc - MAKES	3. ab - BREAKS
2. de - MAKES	4. fg - BREAKS
 4. FOR LINE AND RINGER CONNECTIONS REFER TO TABLE A
 5. UNDESIGNATED TERMINALS ARE ON TBI.
 - * INSULATED AND STORED
 - † NETWORK (425G) TERMINALS
 - ‡ EXCLUSION SWITCH TERMINAL BOARD

LS - LINE SWITCH
 EX - EXCLUSION SWITCH (1660A2 SET ONLY)
 () - CURRENT COLOR CODE
 [] - MD COLOR CODE

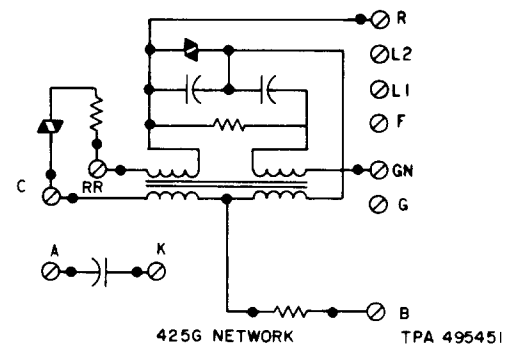
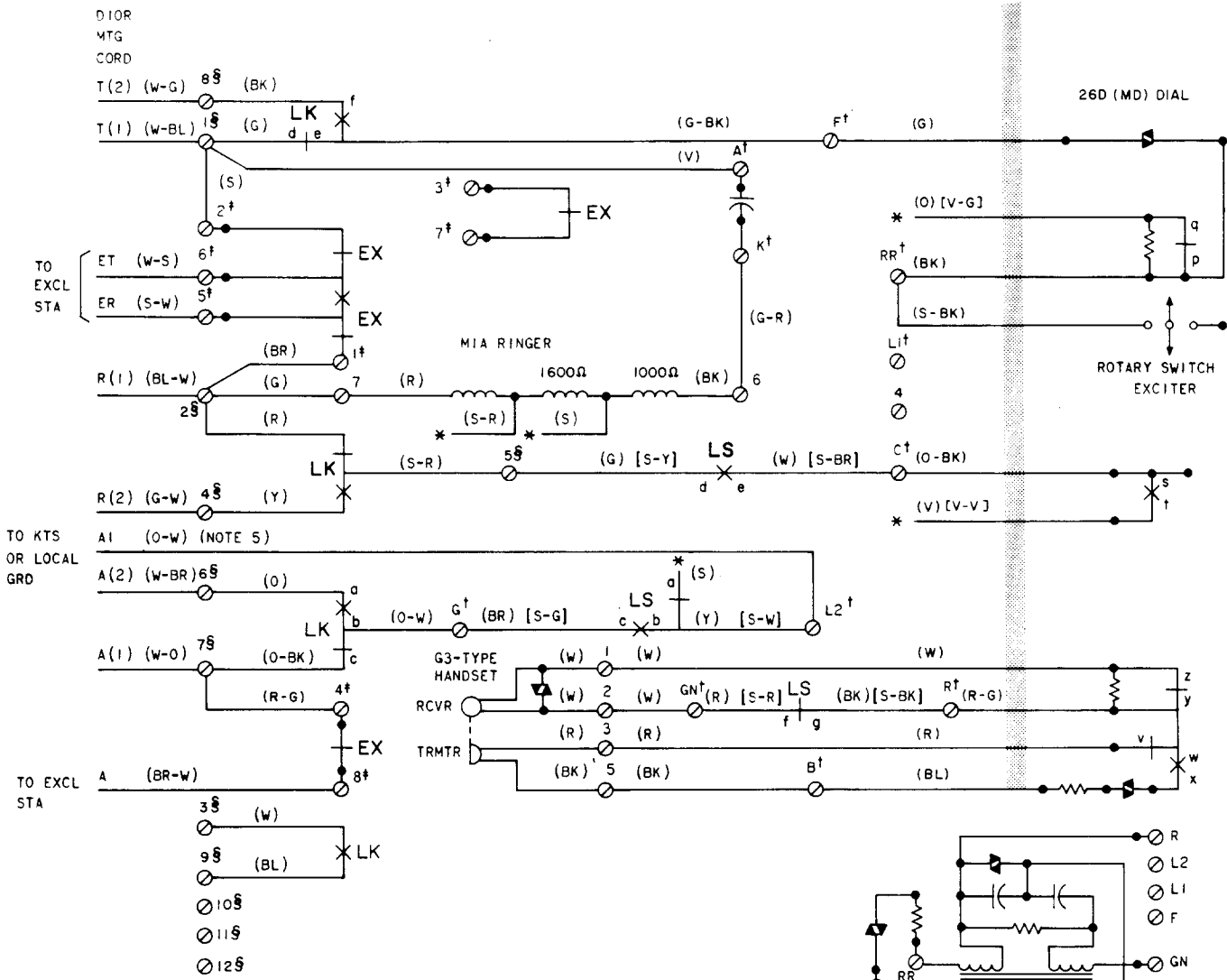


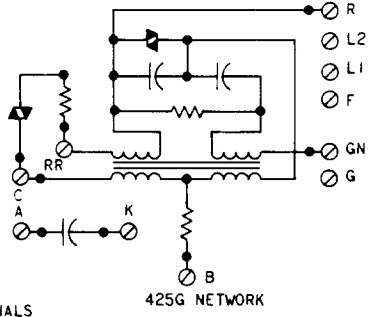
Fig. 1—1660A1 (MD) and 1660A2 (MD) Telephone Sets, Connections



NOTES:

1. LINE SWITCH SEQUENCE, HANDSET REMOVED.
 - 1. bc - MAKES 3. ab - BREAKS
 - 2. de - MAKES 4. fg - BREAKS
2. UNDESIGNATED TERMINALS ARE ON TBI.
3. 1660A3 CODE PROVIDES FOR 2-LINE PICKUP AND SIGNALING. 1660A4 CODE ADDS EXCLUSION FEATURE. INSULATE AND STORE UNUSED MTG CORD CONNECTORS.
4. FOR CONVERSIONS OF 1660A1 AND 1660A2 TO 1660A3 AND 1660A4 TELEPHONE SETS RESPECTIVELY. REFER TO TABLES B AND C.
5. SUPPLY A1 GROUND TO EXCLUDED STATION DIRECT.

- * - INSULATED AND STORED
- † - NETWORK (425G) TERMINALS
- ‡ - EXCLUSION SWITCH TERMINAL BOARD
- § - TERMINAL BOARD 2 (NOTE 2)
- LS - LINE SWITCH
- EX - EXCLUSION SWITCH (1660A4 SET ONLY)
- LK - LINE KEY
- () - CURRENT COLOR CODE
- [] - MD COLOR CODE



TPA 495452

Fig. 2—1660A3 (MD) and 1660A4 (MD) Telephone Sets, Connections

TABLE B
CONVERSION OF 1660A1 (MD) TO 1660A3 (MD) TELEPHONE SET

LEADS	COLOR	REMOVE FROM	FOR 2-LINE PICKUP AND SIGNALING		FOR 1-LINE SIGNALING AND SET RINGER USED AS LINE RINGER		
			SET RINGER USED AS LINE RINGER ON LINE 1 CONNECT TO	SET RINGER USED AS COM. OR PVT. LINE RINGER CONNECT TO	EXT. STA. OR RINGER CUT-OFF BY TURN KEY CONNECT TO	EXT. STA. OR RINGER AND SET RINGER CUT-OFF BY TURN KEY CONNECT TO	
Line Switch	(W)[S-BR]	F of network	C of network				
	(BR)[S-G]	C of network	G of network				
	(G)[S-Y]	L1 of network	TB2-5				
Ringer Strap	(G)	L2 of network	TB2-2*	†	TB2-5	TB2-2	
D10R Mtg. Cord (added)	(W-BL)		TB2-1		A of network	F of network	
	(BL-W)		TB2-2		TB2-5		
	(W-O)		TB2-7		G of network		
	(O-W)		L2 of network		L2 of network		
	(W-G)		TB2-8		TB2-1		
	(G-W)		TB2-4		TB2-2		
	(W-BR)		TB2-6		TB2-7		
	(BR-W)		†	TB2-3	†		
	(W-S)		TB2-3	TB1-6‡	TB2-3		
(S-W)	TB2-9	TB1-7	TB2-9				
Key Assy (added)	(O-W)		G of network				
	(G-BK)		F of network				
	(G)		TB2-1				
	(R)		TB2-2				
	(W)		TB2-3				
	(Y)		TB2-4				
	(S-R)		TB2-5				
	(O)		TB2-6				
	(O-BK)		TB2-7				
	(BK)		TB2-8				
	(BL)		TB2-9				
Strap (added)	(V)		TB2-1 and A of net.*	Store in set	F of net, and A of net.	TB2-1 and A of net.	

* For ringer on line 2 move strap (G) from TB2-2 to TB2-4 and strap (V) from TB2-1 to TB2-8.

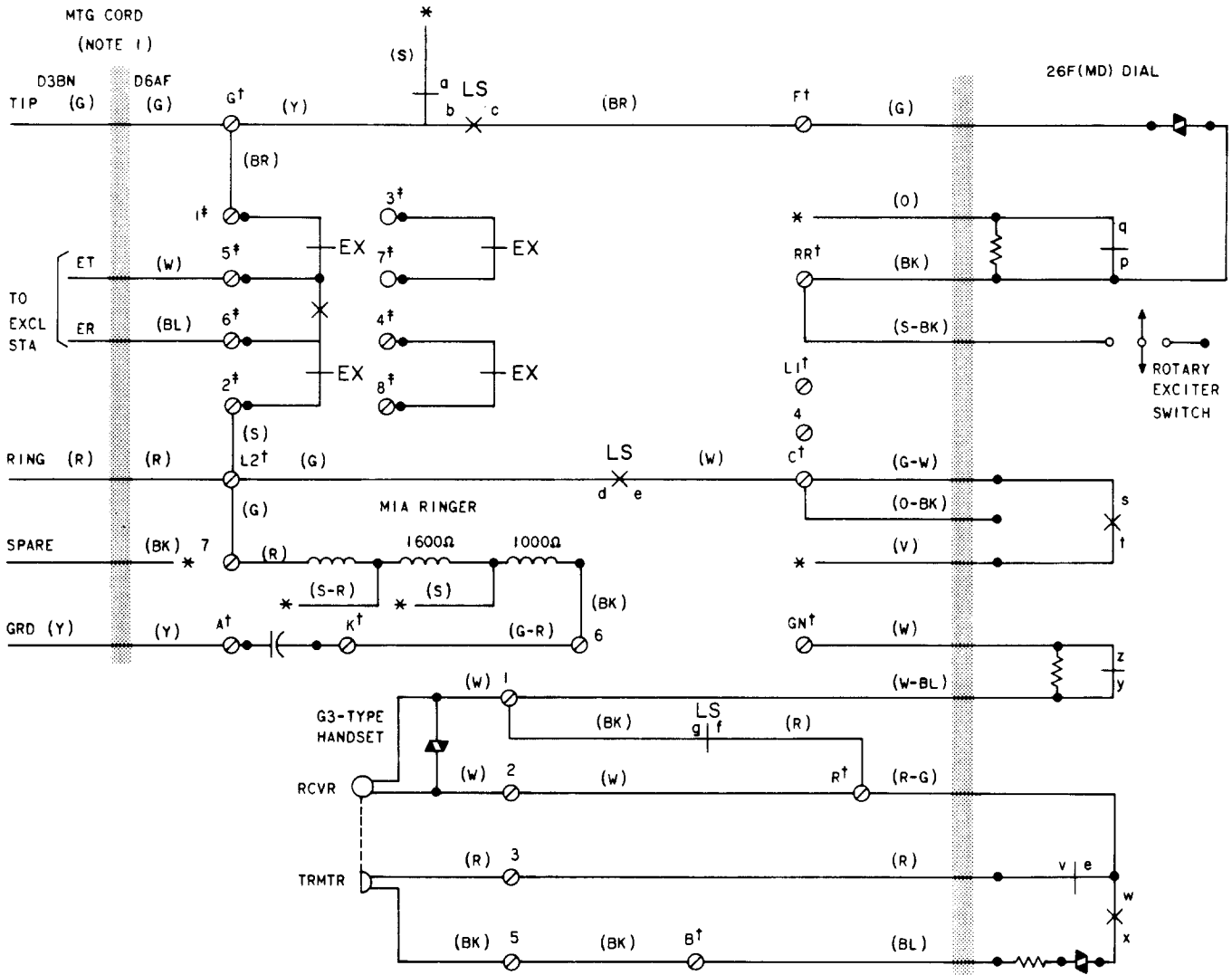
† Insulate and store.

‡ Ringer connected without capacitor for common or private line ringing. If common audible signal power failure feature is provided, connect capacitor in circuit by moving mounting cord (W-S) lead from TB1-6 to A of network.

() Indicates current color code.

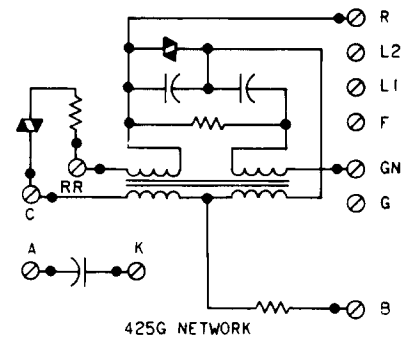
[] Indicates MD color code.

SECTION 502-618-400



- NOTES:
- D3BN MTG CORD FURNISHED WITH 1660B1 TEL SETS. D6AF MTG CORD (ORDERED SEPARATELY) REPLACES D3BN MTG CORD TO ADD EXCLUSION FEATURE 1660A2.
 - LINE SWITCH SEQUENCE, HANDSET REMOVED.

1. bc - MAKES	3. ab - BREAKS
2. de - MAKES	4. gf - BREAKS
 - UNDESIGNATED TERMINALS ARE ON TBI.
 - * INSULATED AND STORED
 - † NETWORK (425G) TERMINALS
 - ‡ EXCLUSION SWITCH TERMINAL BOARD
 - LS - LINE SWITCH
 - EX - EXCLUSION SWITCH (1660B2 SET ONLY)



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Fig. 3—1660B1 (MD) and 1660B2 (MD) Telephone Sets, Connections

TABLE C
CONVERSION OF 1660A1 (MD) TO 1660A4 (MD) TELEPHONE SET

LEADS	COLOR	REMOVE FROM	FOR 2-LINE PICKUP — RINGER ON LINE 1		FOR 1-LINE — SET RINGER USED AS LINE RINGER		
			WITH EXTENSION EXCLUSION CONNECT TO	WITH SIGNALING AND SET RINGER CUTOFF BY EXCL. SWITCH CONNECT TO	WITH EXT. EXCLUSION AND EXT. STA. OR RINGER CUTOFF BY TURN KEY CONNECT TO	WITH SIGNALING, EXT. STA. OR RINGER CUTOFF BY TURN KEY AND SET RINGER CUTOFF BY EXCL. SWITCH CONNECT TO	WITH SIGNALING, SET RINGER CUTOFF BY TURN KEY, AND EXT. EXCL. CONNECT TO
Line Switch	(W)[S-BR]	F of network	C of network				
	(BR)[S-G]	C of network	G of network				
	(G)[S-Y]	L1 of network	TB2-5				
Ringer Strap	(G)	L2 of network	TB2-2*	Excl TB-6	Excl TB-2	Excl TB-6	TB2-2
D10R Mtg Cord (added)	(W-BL)		TB2-1		F of network		
	(BL-W)		TB2-2		TB2-5		
	(W-O)		TB2-7		G of network		
	(O-W)		L2 of network		L2 of network		
	(W-G)		TB2-3	TB2-1	TB2-1	TB2-3	
	(G-W)		TB2-4	TB2-2	TB2-2	TB2-9	
	(W-BR)		TB2-6	TB2-7	TB2-7	†	
	(BR-W)		Excl TB-8	†	Excl TB-8	†	Excl TB-8
	(W-S)		Excl TB-6	TB2-3	Excl TB-6	TB2-3	Excl TB-6
(S-W)	Excl TB-5	TB2-9	Excl TB-5	TB2-9	Excl TB-5		
Key Assy (added)	(O-W)		G of network				
	(G-BK)		F of network				
	(G)		TB2-1				
	(R)		TB2-2				
	(W)		TB2-3				
	(Y)		TB2-4				
	(S-R)		TB2-5				
	(O)		TB2-6				
	(O-BK)		TB2-7				
(BK)	TB2-8						
(BL)	TB2-9						
Straps (added)	(V)		TB2-1 and A of net.*	A of net. and Excl TB-5	A of net. and Excl TB-1	A of net. and Excl TB-5	TB2-1 and A of net.
	(S)		TB2-1 and Excl TB-2†	TB2-1 and Excl TB-2	F of net. and Excl TB-2	F of net. and Excl TB-2	F of net. and Excl TB-2
	(BR)		TB2-2 and Excl TB-1†	TB2-2 and Excl TB-1	TB2-5 and Excl TB-1	TB2-5 and Excl TB-1	TB2-5 and Excl TB-1
	(R-G)		TB2-7 and Excl TB-4†	†	G of net. and Excl TB-4	†	G of net. and Excl TB-4

* For ringer on line 2, move strap (G) from TB2-2 to TB2-4 and strap (V) from TB2-1 to TB2-8.

† For exclusion on line 2, move strap (S) from TB2-1 to TB2-8, strap (BR) from TB2-2 to TB2-4, and strap (R-G) from TB2-7 to TB2-6.

‡ Insulate and store.

() Indicates current color code

[] Indicates MD color code

TABLE D
1660A3 (MD) AND 1660B3 (MD)
TELEPHONE SETS
CONDUCTOR ASSIGNMENT
USING 44A CONNECTING BLOCK

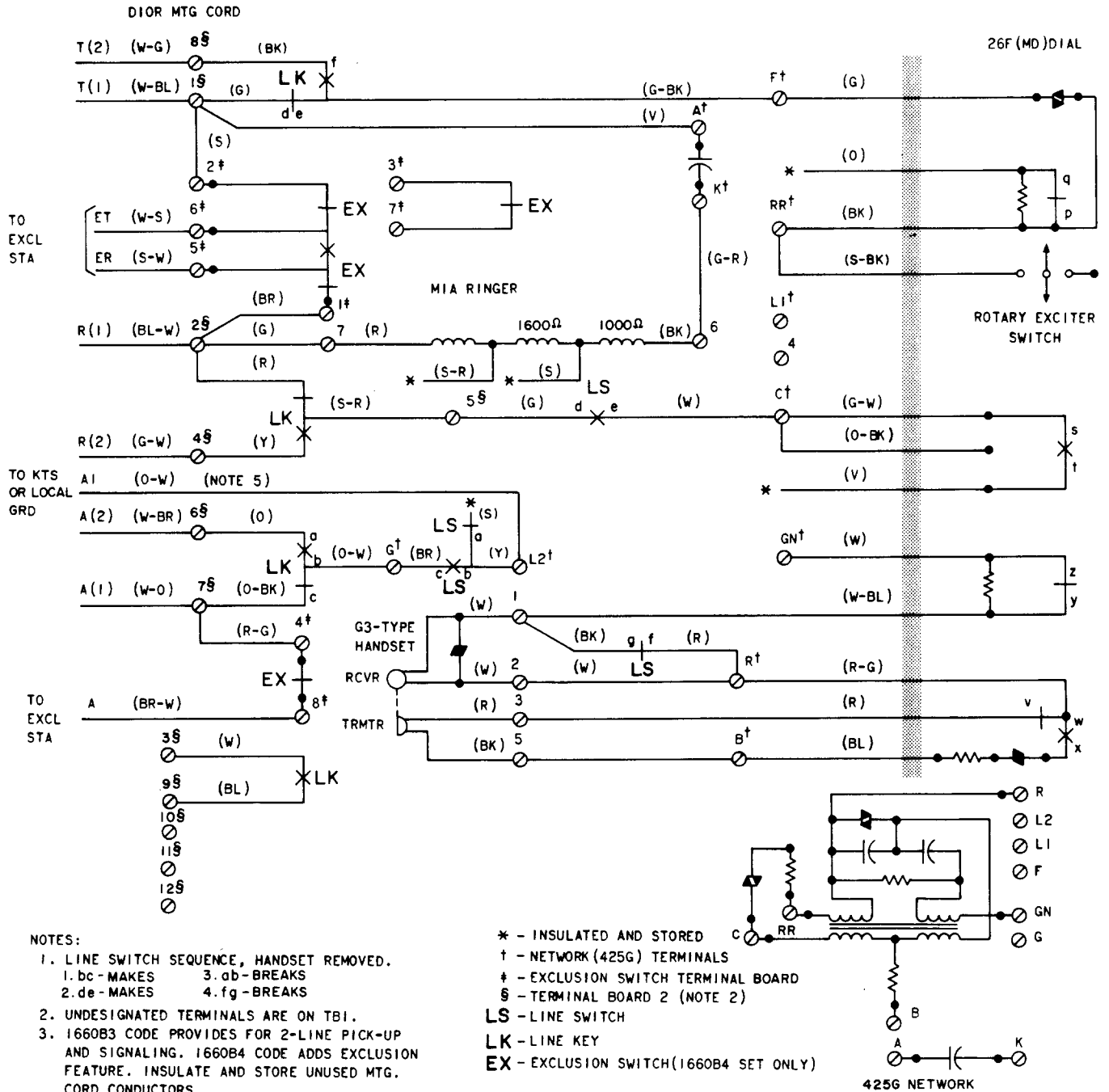
D10R MTG CORD	44A CONN. BLOCK TERMINAL	LINE 1	LINE 2 OR CUTOFF CIRCUIT	SIGNAL* OR COM. RINGER CIRCUIT
(W-BL)	2	T		
(BL-W)	1	R		
(W-O)	5	A		
(O-W)	4	A1 or GRD		
(W-G)	7		T	
(G-W)	6		R	
(W-BR)	10		A	
(BR-W)	9			SPARE or S*
(W-S)	8			S or R
(S-W)	3			G or B

* When both signaling and common ringer are required, connect mtg. cord (BR-W) set end to TB2-3 and place strap between TB2-9 and L2 of network.

TABLE E
1660A4 (MD) AND 1660B4 (MD)
TELEPHONE SETS
CONDUCTOR ASSIGNMENT
USING 44A CONNECTING BLOCK

D10R MTG CORD	44A CONN. BLOCK TERMINAL	LINE 1	LINE 2, CUTOFF, OR SIGNAL CIRCUIT	EXCLUSION OR SIGNAL CIRCUIT
(W-BL)	2	T		
(BL-W)	1	R		
(W-O)	5	A		
(O-W)	4	A1 or GRD		
(W-G)	7		T or S*	
(G-W)	6		R or G*	
(W-BR)	10		A or SPARE	
(BR-W)	9			A or SPARE
(W-S)	8			T or S
(S-W)	3			R or G

* Used when both signaling and exclusion are required.



- NOTES:
- LINE SWITCH SEQUENCE, HANDSET REMOVED.
 - bc - MAKES
 - de - MAKES
 - ab - BREAKS
 - fg - BREAKS
 - UNDESIGNATED TERMINALS ARE ON TBI.
 - 1660B3 CODE PROVIDES FOR 2-LINE PICK-UP AND SIGNALING. 1660B4 CODE ADDS EXCLUSION FEATURE. INSULATE AND STORE UNUSED MTG. CORD CONDUCTORS.
 - FOR CONVERSION OF 1660B1 TO 1660B3 AND 1660B4 TELEPHONE SETS, REFER TO TABLES F AND G.
 - SUPPLY A1 GROUND TO EXCLUDED STATION DIRECT.

- * - INSULATED AND STORED
- † - NETWORK (425G) TERMINALS
- ‡ - EXCLUSION SWITCH TERMINAL BOARD
- § - TERMINAL BOARD 2 (NOTE 2)
- LS - LINE SWITCH
- LK - LINE KEY
- EX - EXCLUSION SWITCH (1660B4 SET ONLY)

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Fig. 4—1660B3 (MD) and 1660B4 (MD Telephone Sets, Connections

TABLE F
CONVERSION OF 1660B1 (MD) TO 1660B3 (MD) TELEPHONE SET

LEADS		REMOVE FROM	FOR 2-LINE PICKUP AND SIGNALING		FOR 1-LINE, SIGNALING AND SET RINGER USED AS LINE RINGER		
			SET RINGER USED AS LINE RINGER ON LINE 1 CONNECT TO	SET RINGER USED AS COM. OR PVT. LINE RINGER CONNECT TO	EXT. STA. RINGER CUTOFF BY TURN KEY CONNECT TO	EXT. STA. OR RINGER AND SET RINGER CUT-OFF BY TURN KEY CONNECT TO	
Line Switch	(Y)	G of network	L2 of network				
	(BR)	F of network	G of network				
	(G)	L2 of network	TB2-5				
Ringer Strap	(G)	L2 of network	TB2-2*	†	TB2-5	TB2-2	
D10R Mtg Cord (added)	(W-BL)		TB2-1		A of network	F of network	
	(BL-W)		TB2-2		TB2-5		
	(W-O)		TB2-7		G of network		
	(O-W)		L2 of network		L2 of network		
	(W-G)		TB2-8		TB2-1		
	(G-W)		TB2-4		TB2-2		
	(W-BR)		TB2-6		TB2-7		
	(BR-W)		†	TB2-3		†	
	(W-S)		TB2-3	TB1-6†		TB2-3	
	(S-W)		TB2-9	TB1-7		TB2-9	
Key Assy (added)	(O-W)		G of network				
	(G-BK)		F of network				
	(G)		TB2-1				
	(R)		TB2-2				
	(W)		TB2-3				
	(Y)		TB2-4				
	(S-R)		TB2-5				
	(O)		TB2-6				
	(O-BK)		TB2-7				
	(BK)		TB2-8				
(BL)		TB2-9					
Strap (added)	(V)		TB2-1 and A of net.*	Store in set	F of net. and A of net.	TB2-1 and A of net.	

* For ringer on line 2 move strap (G) from TB2-2 to TB2-4 and strap (V) from TB2-1 to TB2-8.

† Insulate and store

‡ Ringer connected without capacitor from common or private line ringing. If common audible signal power failure feature is provided, connect capacitor in circuit by moving mounting cord (W-S) lead from TB1-6 to A of network.

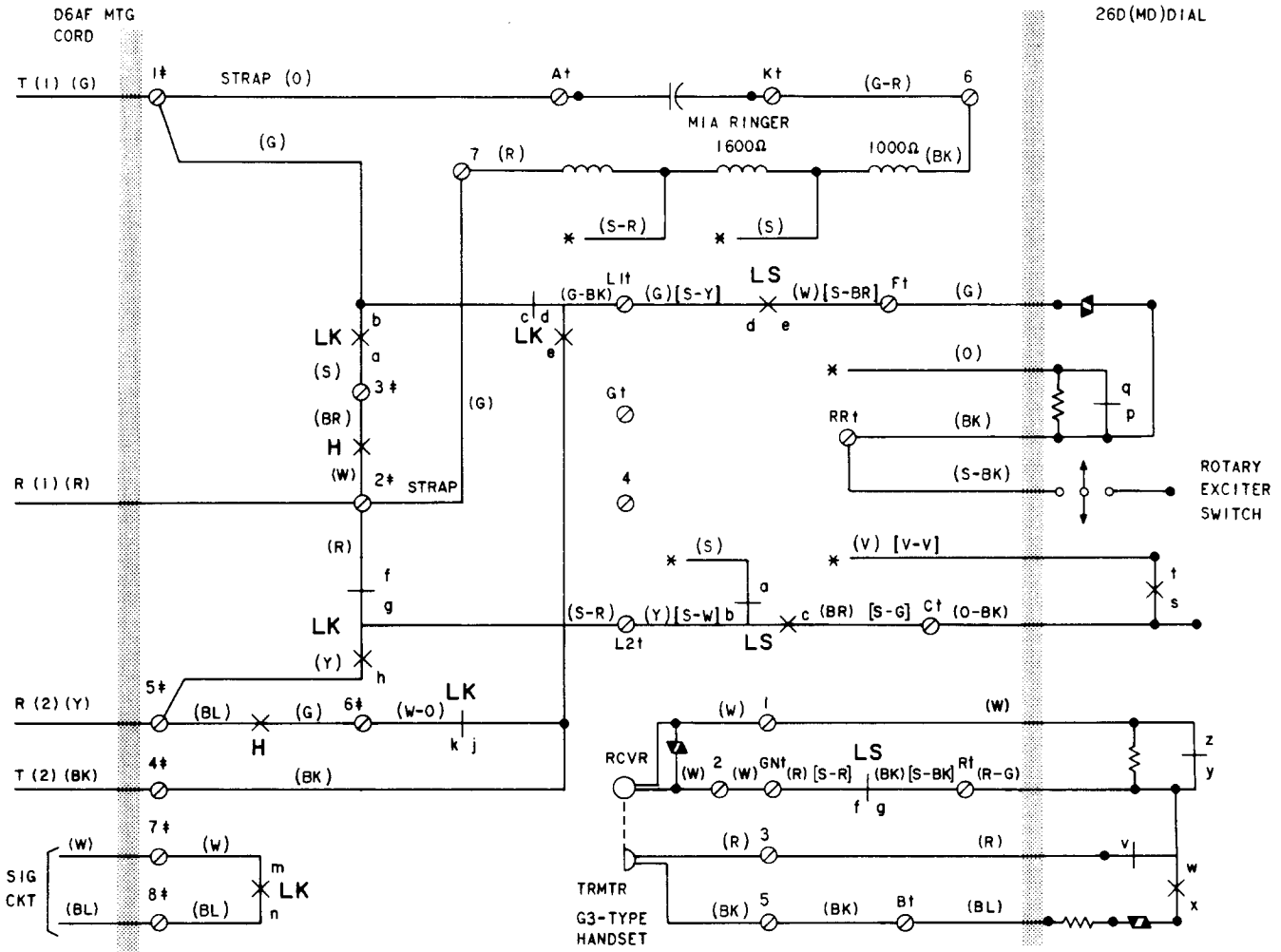
TABLE G
CONVERSION OF 1660B1 (MD) TO 1660B4 (MD) TELEPHONE SET

LEADS	COLOR	REMOVE FROM	FOR 2-LINE PICKUP — RINGER ON LINE 1		FOR 1-LINE — SET RINGER USED AS LINE RINGER		
			WITH EXTENSION EXCLUSION CONNECT TO	WITH SIGNALING AND SET RINGER CUTOFF BY EXCL. SWITCH CONNECT TO	WITH EXT. EXCLUSION AND EXT. STA. OR RINGER CUTOFF BY TURN KEY CONNECT TO	WITH SIGNALING, EXT. STA. OR RINGER CUTOFF BY TURN KEY AND SET RINGER CUTOFF BY EXCL. SWITCH CONNECT TO	WITH SIGNALING, SET RINGER CUTOFF BY TURN KEY, AND EXT. EXCLUSION CONNECT TO
Line Switch	(Y)	G of network			L2 of network		
	(BR)	F of network			G of network		
	(G)	L2 of network			TB2-5		
Ringer Strap	(G)	L2 of network	TB2-2*	Excl TB-6	Excl TB-2	Excl TB-6	TB2-2
D10R Mtg Cord (added)	(W-BL)		TB2-1		F of network		
	(BL-W)		TB2-2		TB2-5		
	(W-O)		TB2-7		G of network		
	(O-W)		L2 of network		L2 of network		
	(W-G)		TB2-8		TB2-1	TB2-1	TB2-3
	(G-W)		TB2-4		TB2-2	TB2-2	TB2-9
	(W-BR)		TB2-6		TB2-7	TB2-7	†
	(BR-W)		Excl TB-8	†	Excl TB-8	†	Excl TB-8
	(W-S)		Excl TB-6	TB2-3	Excl TB-6	TB2-3	Excl TB-6
	(S-W)		Excl TB-5	TB2-9	Excl TB-5	TB2-9	Excl TB-5
Key Assy (added)	(O-W)				G of network		
	(G-BK)				F of network		
	(G)				TB2-1		
	(R)				TB2-2		
	(W)				TB2-3		
	(Y)				TB2-4		
	(S-R)				TB2-5		
	(O)				TB2-6		
	(O-BK)				TB2-7		
	(BK)				TB2-8		
(BL)			TB2-9				
Straps (added)	(V)		TB2-1 and A of net.*	A of net. and Excl TB-5	A of net. and Excl TB-1	A of net. and Excl TB-5	TB2-1 and A of net.
	(S)		TB2-1 and Excl TB-2†	TB2-1 and Excl TB-2	F of net. and Excl TB-2	F of net. and Excl TB-2	F of net. and Excl TB-2
	(BR)		TB2-2 and Excl TB-1†	TB2-2 and Excl TB-1	TB2-5 and Excl TB-1	TB2-5 and Excl TB-1	TB2-5 and Excl TB-1
	(R-G)		TB2-7 and Excl TB-4†	†	G of net. and Excl TB-4	†	G of net. and Excl TB-4

* For ringer on line 2, move strap (G) from TB2-2 to TB2-4 and strap (V) from TB2-1 to TB2-8.

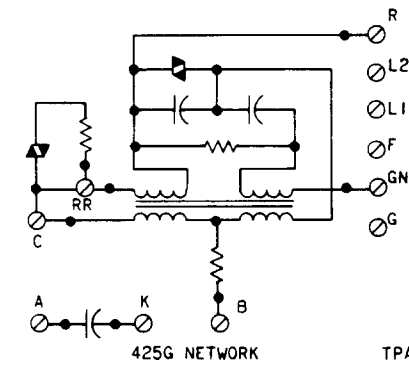
† For exclusion on line 2, move strap (S) from TB2-1 to TB2-8, strap (BR) from TB2-2 to TB2-4, and strap (R-G) from TB2-7 to TB2-6.

‡ Insulate and store.



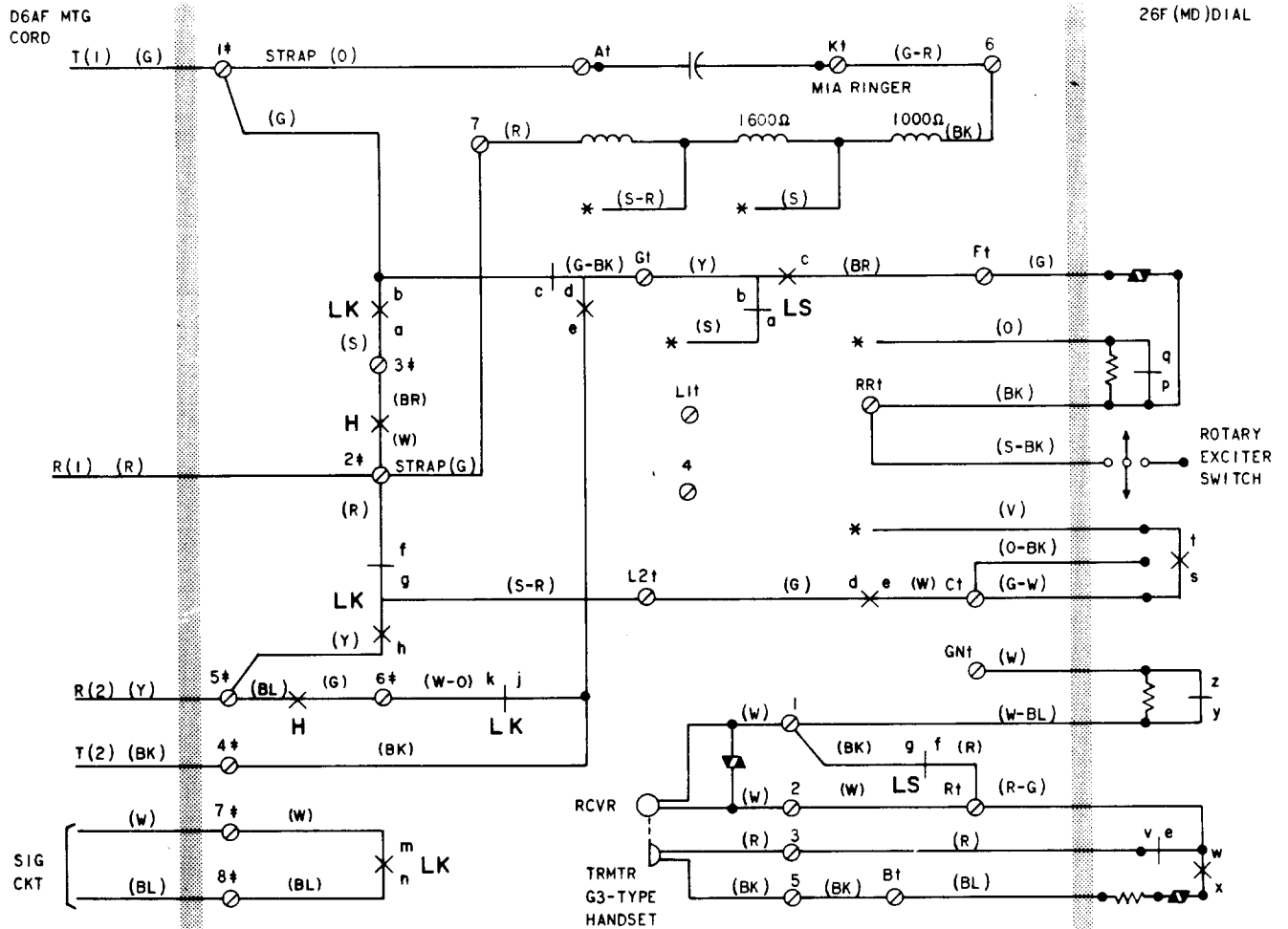
- NOTES:
1. REFER TO TABLE I FOR 2-LINE PICKUP AND HOLD MODIFICATIONS.
 2. UNDESIGNATED TERMINALS ARE ON TBI.
 3. LINE SWITCH SEQUENCE, HANDSET REMOVED.
 - (1) bc - MAKES (3) ab - BREAKS
 - (2) de - MAKES (4) fg - BREAKS

- * - INSULATED AND STORED
- † - NETWORK (425G) TERMINALS
- ‡ - TERMINAL BOARD 2 (NOTE 2)
- LS - LINE SWITCH
- LK - LINE KEY
- H - HOLD KEY
- () - CURRENT COLOR CODE
- [] - MD COLOR CODE



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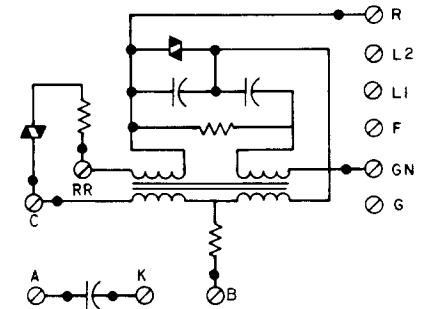
Fig. 5—1660A1 (MD) Telephone Set—Modifications For 2-Line Pickup and Hold (Nonkey Telephone System)



- NOTES:
1. REFER TO TABLE I FOR 2-LINE PICKUP AND HOLD MODIFICATIONS.
 2. UNDESIGNATED TERMINALS ARE ON TBI.
 3. LINE SWITCH SEQUENCE, HANDSET REMOVED.

(1) bc - MAKES	(3) ab - BREAKS
(2) de - MAKES	(4) fg - BREAKS

* - INSULATED AND STORED LK - LINE KEY
 † - NETWORK (425G) TERMINALS H - HOLD KEY
 ‡ - TERMINAL BOARD 2 (NOTE 2)
 LS - LINE SWITCH



425G NETWORK TPA 499813

Fig. 6—1660B1 (MD) Telephone Set—Modifications For 2-Line Pickup and Hold (Nonkey Telephone System)

TABLE H
POLARITY GUARD CONNECTIONS*

	TEL SET LEADS			POLARITY GUARD LEADS	
	1660A1 (MD) AND 1660A2 (MD) (BR)[S-G]LINE SWITCH	1660B1 (MD) AND 1660B2 (MD) 1660B3 (MD) AND 1660B4 (MD) (W) LINE SWITCH (G-W) DIAL	(BK) DIAL	(W)	(G)
	1660A3 (MD) AND 1660A4 (MD) (W) LINE SWITCH				
Remove From	C of net.		RR of net.		
Connect To	S of polarity guard		T of polarity guard	C of net.	RR of net.

* For use when specified by local instructions for end-to-end signaling.

TABLE I
1660A1 (MD) AND 1660B1 (MD) TELEPHONE SETS —
MODIFICATIONS FOR 2-LINE PICKUP AND HOLD (NONKEY TELEPHONE SYSTEM)

WIRE OR LEAD	COLOR	CONNECT TO*
2-Line Pickup Key Assembly	S	3
	G	1
	G-BK	L1 of net.
	BK	4
	R	2
	S-R	L2 of net.
	Y	5
	W-O	6
	W	7
	BL	8
Hold Key Assembly	G	6
	BL	5
	W	2
	BR	3

WIRE OR LEAD	COLOR	CONNECT TO*
D6AF† Mounting Cord	G	1
	R	2
	Y	5
	BK	4
	W	7
	BL	8
	G‡	2
Strap	O (added)	TB2-1 and A of net.

* Terminal of TB2 except where noted otherwise

† D3BN mounting cord replaced with D6AF mounting cord

‡ Move existing strap (G) from L2 of network to TB2-2