

TELEPHONE SETS - THE CALL DIRECTOR

638 AND 639 TYPES - USED WITH STATION LINE CONCENTRATOR

EQUIPPED WITH HEADSET JACK

CONNECTIONS

1.00 INTRODUCTION

1.01 This section covers connections for various service feature arrangements of 638-type (18-button) and 639-type (30-button) telephone sets. It includes terminal board connections in the sets, mounting cord and connector cable conductors, as well as their associated plugs and connectors.

1.02 This section is reissued to:

- Add information on the D50L and D80B mounting cords
- Provide both old and new circuit designation from apparatus cabinet to keys in 638- and 639-type Call Director sets using either Manufacture Discontinued (MD) or even-count color-coded cords and connector cables.

1.03 To facilitate the use of this practice, the circuit leads follow a straight line pattern as near as possible from the apparatus cabinet to the key. Key connector pins (Fig. 1 through 4) are so placed in this section to overlay into corresponding module plug pins in Call Director sets. (See Fig. 6 and 7.)

1.04 Fig. 5 shows the telephone set circuit using either MD or even-count color-coded cords for both 18- or 30-button sets.

1.05 Fig. 6 shows the 638-type Call Director and Fig. 7 shows the 639-type Call Director using the MD or even-count color-coded cords and connector cables.

1.06 Even-count color codes are shown in red and MD color codes in green.

1.07 Conversion to even-count color code should be accomplished whenever practicable.

1.08 Due to extensive changes marginal arrows have been omitted.

2.00 GENERAL

2.01 The 638-type (18-button) and 639-type (30-button) Call Director telephone sets are equipped with two 517A jacks into which the plugs of a 52- or 53-type head telephone set may be connected. A G3L hand set with a P-10E100 resistor assembly across the transmitter may also be used in place of a headset. The internal wiring is arranged to separate electrically the G-type handle from the switchhook contacts when a 289B or equivalent plug is inserted into the jacks. Sets are equipped with a nonilluminated (amber button) flash key, a mechanical (clear plastic) release key, and various module arrangements as covered in Table A. The coding of the set is determined by the module arrangement as illustrated in Table A.



Some conductors of mounting cords are dead dressed with insulators (tubing). When necessary to use these conductors, do not use long-nose pliers to pull off the insulators. This may break the conductor or pull off the spade tip. The insulation should be cut off with electrician's scissors or diagonal pliers.

2.02 Connections to 235A and 236A key telephone units are covered in the section entitled Station Line Concentrators, 235A and 236A Key Telephone Units, Identification and Connections.

2.03 For connections to 1A1, 1A2, or 6A line and signaling circuits, see appropriate section covering these key telephone systems.

2.04 For different types of 638 and 639 telephone sets, see section entitled Telephone Sets, THE CALL DIRECTOR, Selection.

3.00 APPLICATION OF 638- AND 639-TYPE TELEPHONE SETS

3.01 A 235A KTU is associated with each 638-type telephone set. A 236A KTU is associated with each 639-type telephone set. Because of the single common talking and control lead path in these sets, a line concentrator unit must be associated with each telephone set installed and cannot be shared, even on a bridged station basis.

3.02 The 638- and 639-type telephone sets are for use with 1A1, 1A2, 6A, or electrically equivalent key telephone system line circuits.

4.00 INDEX OF TABLES AND CONNECTION FIGURES

Table A identifies module units.

Table B shows combination of relays operated in station line concentrator.

Table C is a conversion table of 638- and 639-type Call Directors equipped with MD cords.

Table D is a conversion table of 638- and 639-type Call Directors equipped with even-count color-coded cords.

Fig. 1 -- 599A key.

Fig. 2 -- 598A key.

Fig. 3 -- 599B key.

Fig. 4 -- 617A key.

Fig. 5 -- Telephone set circuit common to both sets.

Fig. 6 -- Cord and cable connections for the 638-type sets equipped with MD or even-count cords.

Fig. 7 -- Cord and cable connections for the 639-type sets equipped with MD or even-count cords.

TABLE A

DESCRIPTION OF MODULES

Module	Description
105B Blank	Apparatus blank
598A Key	6 pickup keys
599A Key	5 pickup keys and hold key
599B Key	Turnbutton key, 4 pickup keys, and hold key
617A Key	12 signal keys

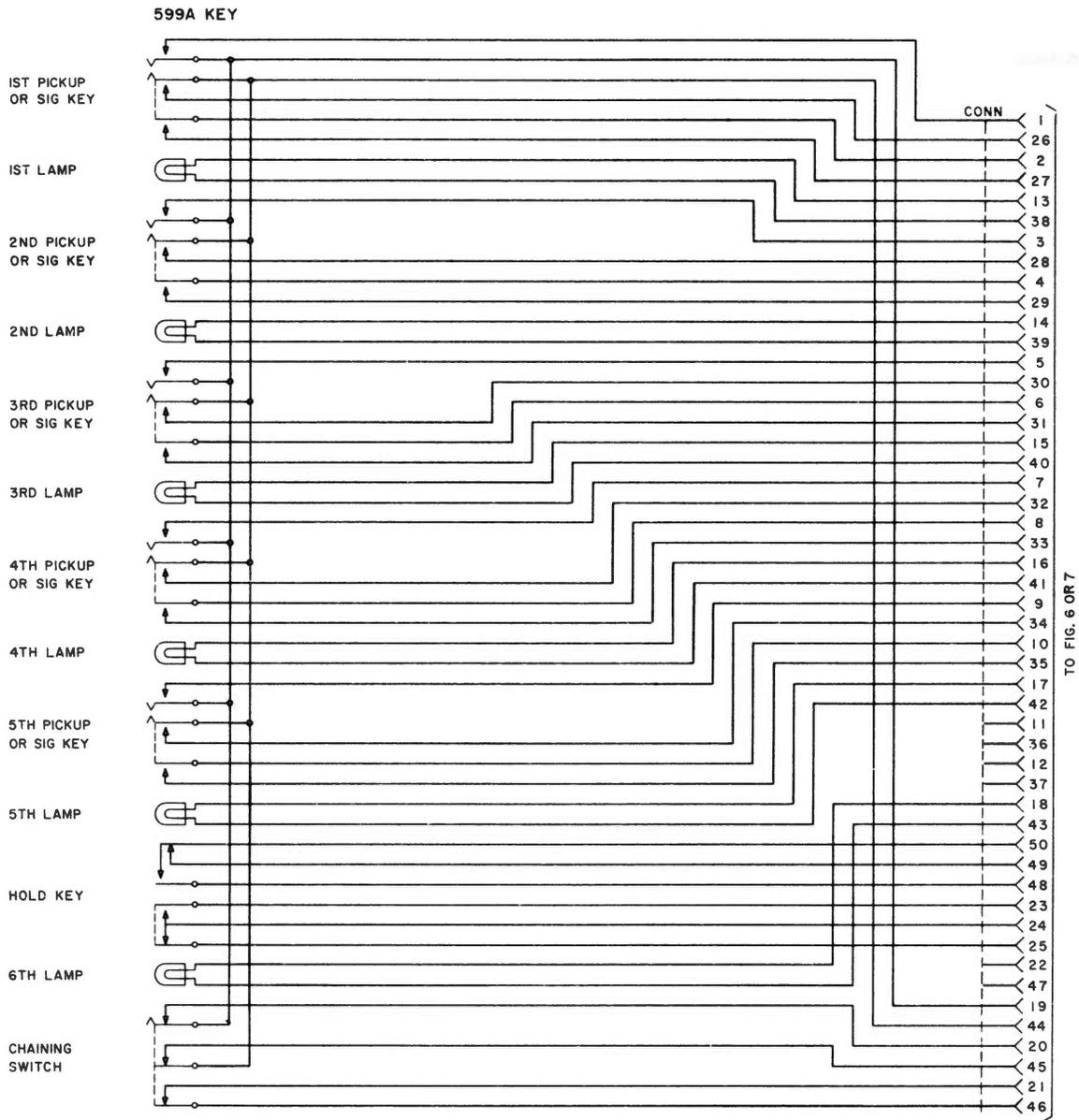


Fig. 1 - 599A Key

TABLE B

COMBINATIONS OF RELAYS OPERATED IN STATION
LINE CONCENTRATOR WHEN ASSOCIATED KEY POSITION IS OPERATED*

Key Pos	Relays																
	236A KTU										235A KTU						
	A	B	C	CA1	D	E	F	G	H	J	A	B	C	D	E	F	G
1	x	x									+	+					
2	x		x								+		+				
3		x	x									+	+				
4	x				x						+			+			
5		x			x							+		+			
6				x				x					+	+			
7			x		x						+				+		
8		x				x						+			+		
9			x			x							+		+		
10					x	x								+	+		
11			x				x				+					+	
12					x		x					+				+	
13						x	x						+			+	
14					x			x						+		+	
15						x		x			+						+
16							x	x				+					+
17	x								x				+			+	
18		x							x					+		+	
19			x						x								
20					x				x								
21						x			x								
22							x		x								
23								x	x								
24	x									x							
25		x								x							
26			x							x							
27					x					x							
28						x				x							
29							x			x							
30								x		x							

*Symbols denote relay operated.

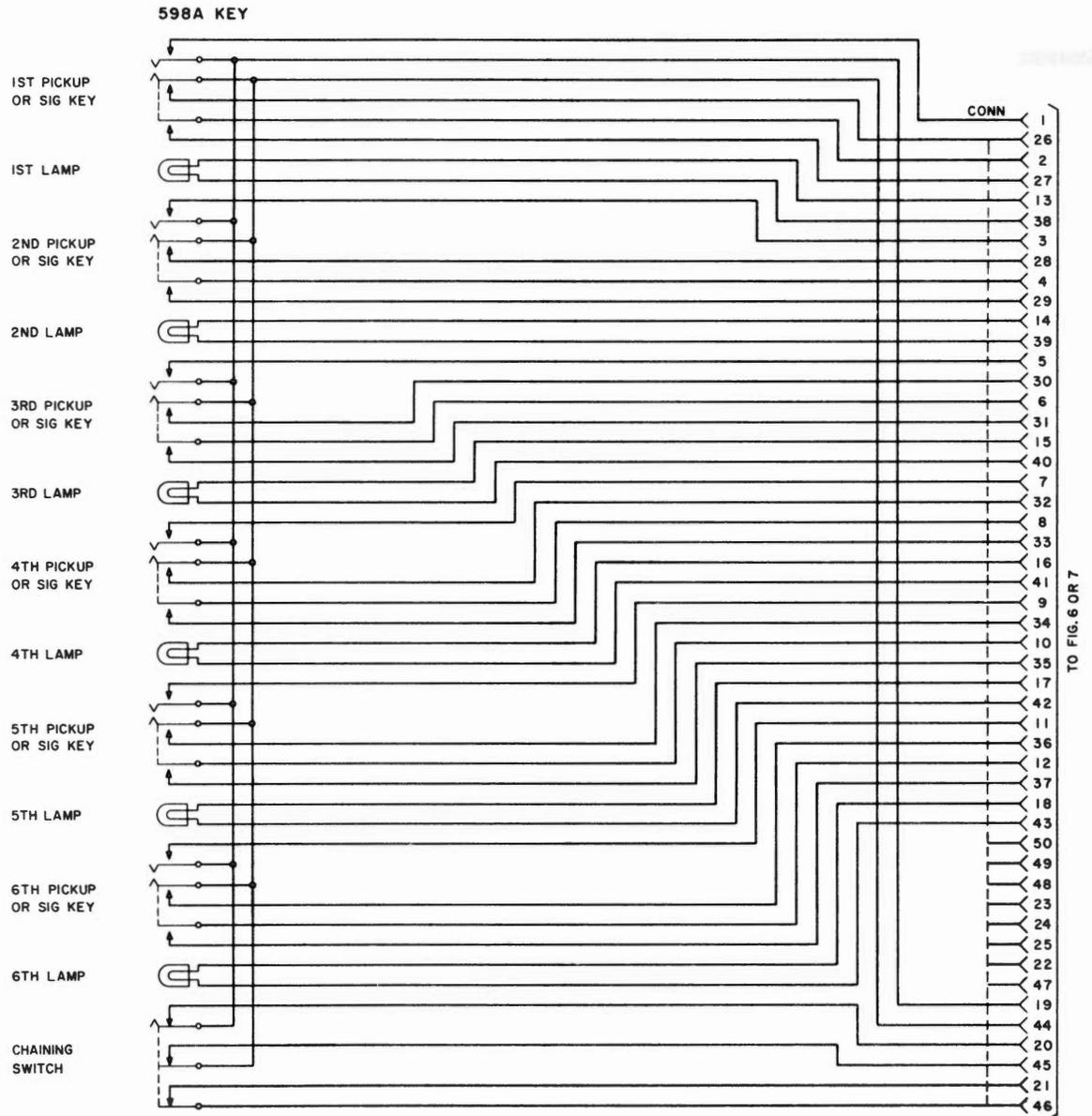


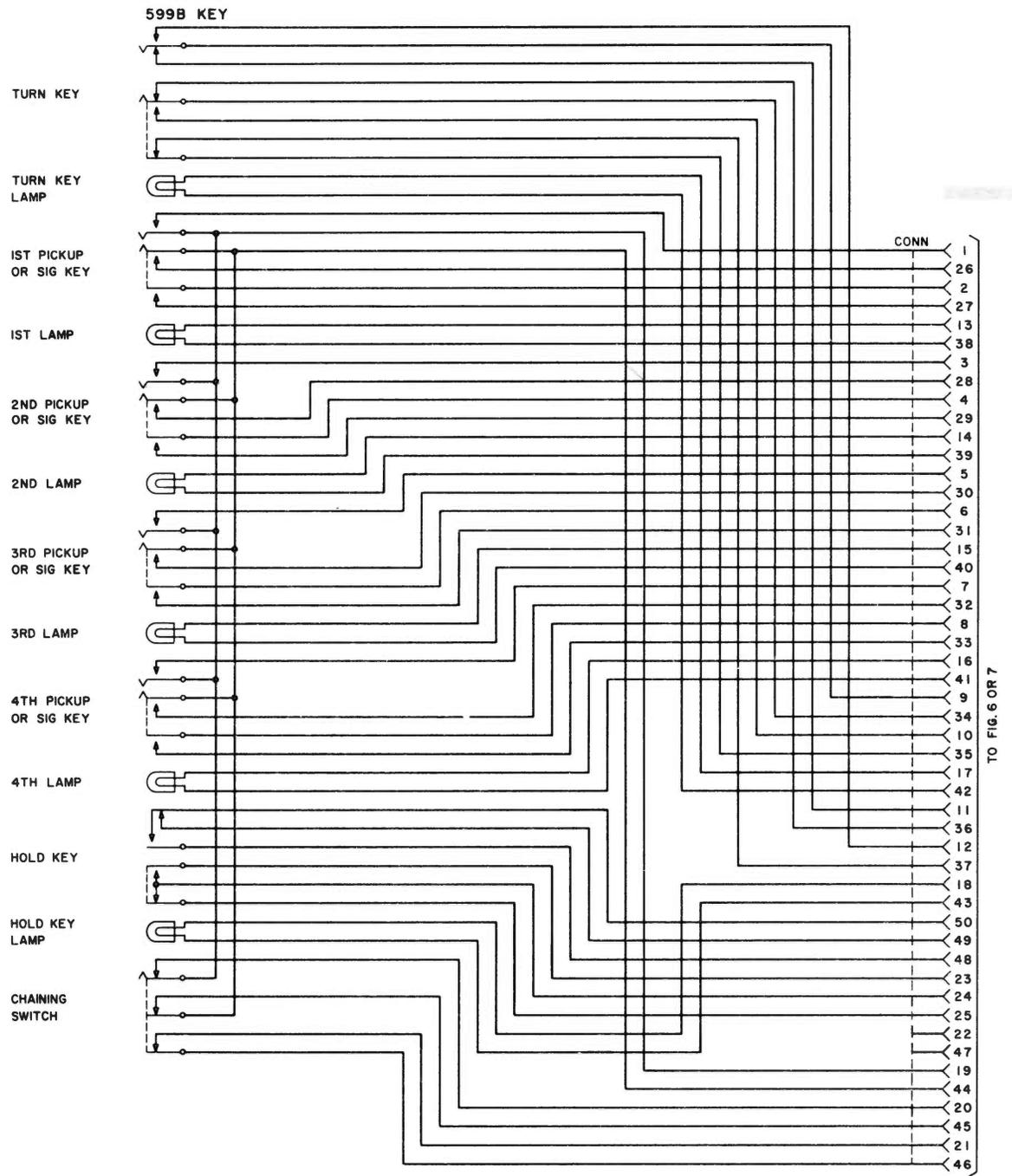
Fig. 2 - 598A Key

TABLE C

CONVERSIONS OF 638- AND 639-TYPE TELEPHONE SET
EQUIPPED WITH MANUFACTURE DISCONTINUED (MD) CORDS

Feature	Work Operation	Key Position							
		1-7-13-19-25	2-8-14-20-26	3-9-15-21-27	4-10-16-22-28	5-11-17-23-29	12-24-30	18	6
Buzzer Signal	Connect stored spade-tipped lead indicated to term. SG of TB VI.	BK	BR-G	BR-W	R-BL	G-BL	S-BR	S-BR	638 - Not convertible. 639 - Connect S-BR to term. SG of TB VI. Connect one of two spares from Fig. 7 to term. 6 of TB 1.
	Disconnect spade-tipped lead indicated from assoc TB. Tape and store.	S-BK	S-W	BR	BK-W	S	O-W	O-W	
6A Add-on	Connect stored spade-tipped lead indicated to term. PB of TB VI.	BK	BR-G	BR-W	R-BL	G-BL	S-BR	S-BR	638 - Not convertible. 639 - Connect S-BR to term. PB of TB VI. Connect one of two spares from Fig. 7 to term. 6 of TB 1.
	Disconnect spade-tipped lead indicated from assoc TB. Tape and store.	S-BK	S-W	BR	BK-W	S	O-W	O-W	
6A Pushbutton	Connect stored spade-tipped lead indicated to term. A (638) or to term. 1A (639) of TB VI.	BK	BR-G	BR-W	R-BL	G-BL	S-BR	S-BR	638 - Not convertible. 639 - Connect S-BR to term. 1A of TB VI. Connect one of two spares from Fig. 7 to term. 6 of TB 1.
	Disconnect spade-tipped lead indicated from assoc TB. Tape and store.	S-BK	S-W	BR	BK-W	S	O-W	O-W	
Locked-in Lamp Release	Connect stored spade-tipped lead indicated to term. SG of TB VI.	BK	BR-G	BR-W	R-BL	G-BL	S-BR	S-BR (639) (638 - Not Convertible.)	638 - Not convertible. 639 - Connect S-BR to term. SG of TB VI. Connect one of two spares from Fig. 7 to term. 6 of TB 1. Connect O-W to avail. lamp grd.
	Move spade-tipped lead indicated from assoc TB to avail. lamp grd.	S-BK	S-W	BR	BK-W	S	O-W	O-W (639) (634 - Not convertible.)	
Line Pickup		Factory Equipped and Wired						639 - Factory equipped 638 - Connect O-W to avail. lamp grd.	Replace 599A key with 598A key. Connect O-W to avail. lamp grd. Connect BR-BL to term. A (638) or to term. 1A (639) of TB VI.

Note: All pickup key positions converted to nonlocking for features in table above must have P-11E977 insulating details placed over the two key contacts adjacent to the key plunger. Insulating details are furnished with the telephone set. Remove the screw detail P-10E837 entirely from the plunger at the key position to be converted.



TO FIG. 6 OR 7

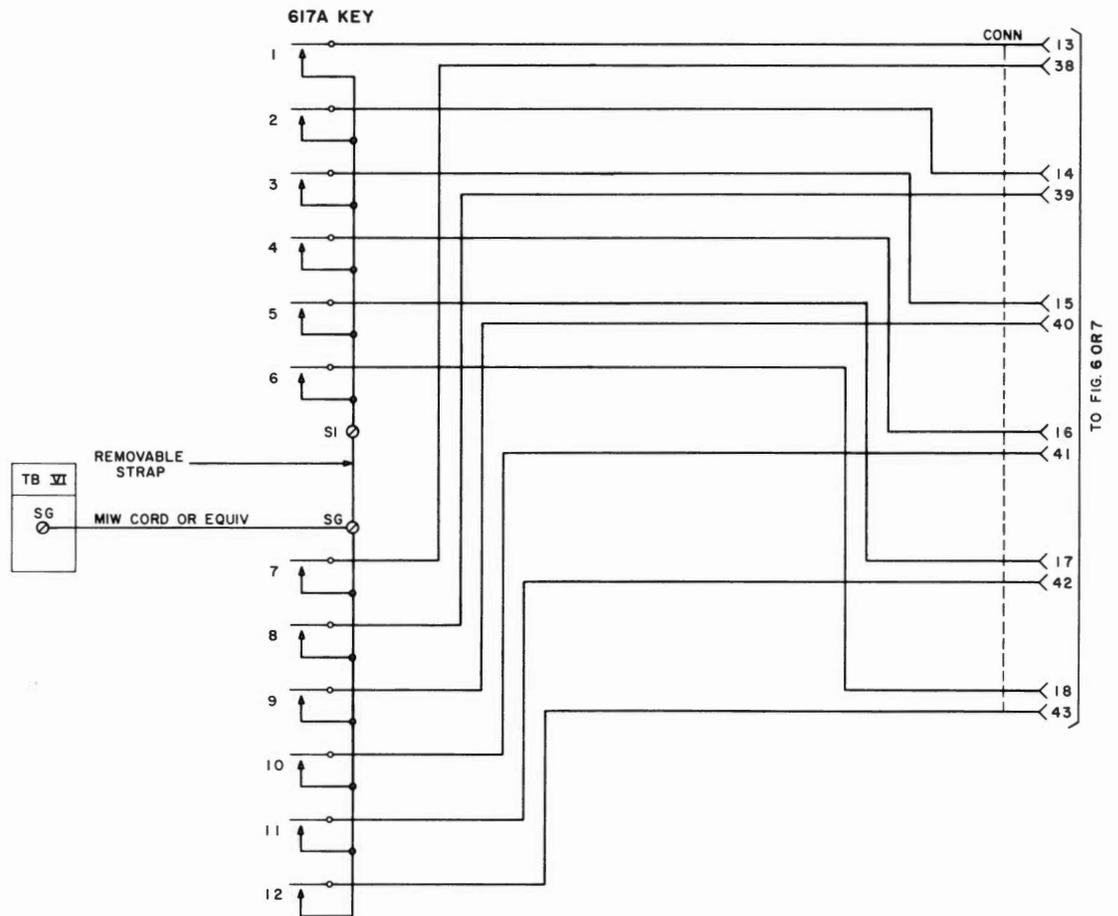
Fig. 3 - 599B Key

TABLE D

CONVERSION OF 638- AND 639-TYPE TELEPHONE SETS
EQUIPPED WITH EVEN-COUNT COLOR-CODED CORDS

Key Position	KEY FEATURE OPTIONS								LINE PICKUP
	BUZZER SIGNAL		6A ADD-ON		6A PUSHBUTTON		LOCKED-IN LAMP RELEASE		
	Connect Stored Spade-Tipped Lead Indicated To Terminal SG of TB VI.	Disconnect Spade-Tipped Lead Indicated From Assoc TB. Tape and Store.	Connect Stored Spade-Tipped Lead Indicated To Terminal PB of TB VI.	Disconnect Spade-Tipped Lead Indicated From Assoc TB. Tape and Store.	Connect Stored Spade-Tipped Lead Indicated To Terminal A (638) or to Terminal 1A (639) of TB VI.	Disconnect Spade-Tipped Lead Indicated From Assoc TB. Tape and Store.	Connect Stored Spade-Tipped Lead Indicated To Terminal SG of TB VI.	Move Spade-Tipped Lead Indicated From Assoc TB to Avail. Lamp Grd.	
1	BL	R-BR	BL	R-BR	BL	R-BR	BL	R-BR	638 and 635 factory equipped and wired
2	O	R-S	O	R-S	O	R-S	O	R-S	
3	G	BK-BL	G	BK-BL	G	BK-BL	G	BK-BL	
4	BR	BK-O	BR	BK-O	BR	BK-O	BR	BK-O	
5	S	BK-G	S	BK-G	S	BK-G	S	BK-G	
6	638-Not convertible. 639-Connect W to term. SG of TB VI. Connect one of two spares from Fig. 7 to term. 6 of TB 1.		638-Not convertible. 639-Connect W to term. PB of TB VI. Connect one of two spares from Fig. 7 to term. 6 of TB 1.		638-Not convertible. 639-Connect W to term. 1A of TB VI. Connect one of two spares from Fig. 7 to term. 6 of TB 1.		638-Not convertible. 639-Connect W to term. SG of TB VI. Connect one of two spares from Fig. 7 to term. 6 of TB 1. Connect G-R to avail. lamp grd.		Replace 599A key with 598A key. Connect G-R to avail. lamp grd. Connect W-O to term. A (638) or to term. 1A (639) of TB VI.
7	BL	BK-BR	BL	BK-BR	BL	BK-BR	BL	BK-BR	of TB VI.
8	O	BK-S	O	BK-S	O	BK-S	O	BK-S	638 and 639 Factory equipped and wired
9	G	Y-BL	G	Y-BL	G	Y-BL	G	Y-BL	
10	BR	Y-O	BR	Y-O	BR	Y-O	BR	Y-O	
11	S	Y-G	S	Y-G	S	Y-G	S	Y-G	
12	W	Y-BR	W	Y-BR	W	Y-BR	W	Y-BR	
13	BL	W-BL	BL	W-BL	BL	W-BL	BL	W-BL	
14	O	W-O	O	W-O	O	W-O	O	W-O	
15	G	W-G	G	W-G	G	W-G	G	W-G	
16	BR	W-BR	BR	W-BR	BR	W-BR	BR	W-BR	
17	S	W-S	S	W-S	S	W-S	S	W-S	
18	W	R-BL	W	R-BL	W	R-BL	W (639) (638-Not Convertible)	R-BL (639) (638-Not Convertible)	639 - Factory equipped 638 - Connect R-BL to avail. lamp grd.
19	BL	R-O	BL	R-O	BL	R-O	BL	R-O	639 - Factory equipped and wired
20	O	R-G	O	R-G	O	R-G	O	R-G	
21	G	R-BR	G	R-BR	G	R-BR	G	R-BR	
22	BR	R-S	BR	R-S	BR	R-S	BR	R-S	
23	S	BK-BL	S	BK-BL	S	BK-BL	S	BK-BL	
24	W	BK-O	W	BK-O	W	BK-O	W	BK-O	
25	BL	Y-S	BL	Y-S	BL	Y-S	BL	Y-S	
26	O	V-BL	O	V-BL	O	V-BL	O	V-BL	
27	G	V-O	G	V-O	G	V-O	G	V-O	
28	BR	V-G	BR	V-G	BR	V-G	BR	V-G	
29	S	V-BR	S	V-BR	S	V-BR	S	V-BR	
30	W	V-S	W	V-S	W	V-S	W	V-S	

Note: All pickup key positions converted to nonlocking for features in Table above must have P-11E977 insulating details placed over the two key contacts adjacent to the key plunger. Insulating details are furnished with the telephone set. Remove the screw detail P-10E837 entirely from the plunger at the key position to be converted.



NOTE: WHEN THE 617A KEY IS REQUIRED AS A DUAL-PURPOSE KEY, THE BRASS STRAP BETWEEN THE S1 AND SG TERMINALS OF THE KEY MAY BE REMOVED. USE MIW CORD OR EQUIVALENT TO CONNECT S1 TERMINAL OF 617A KEY TO A DISSIMILAR GROUND OR A NONGROUNDED CIRCUIT.

Fig. 4 - 617A Key

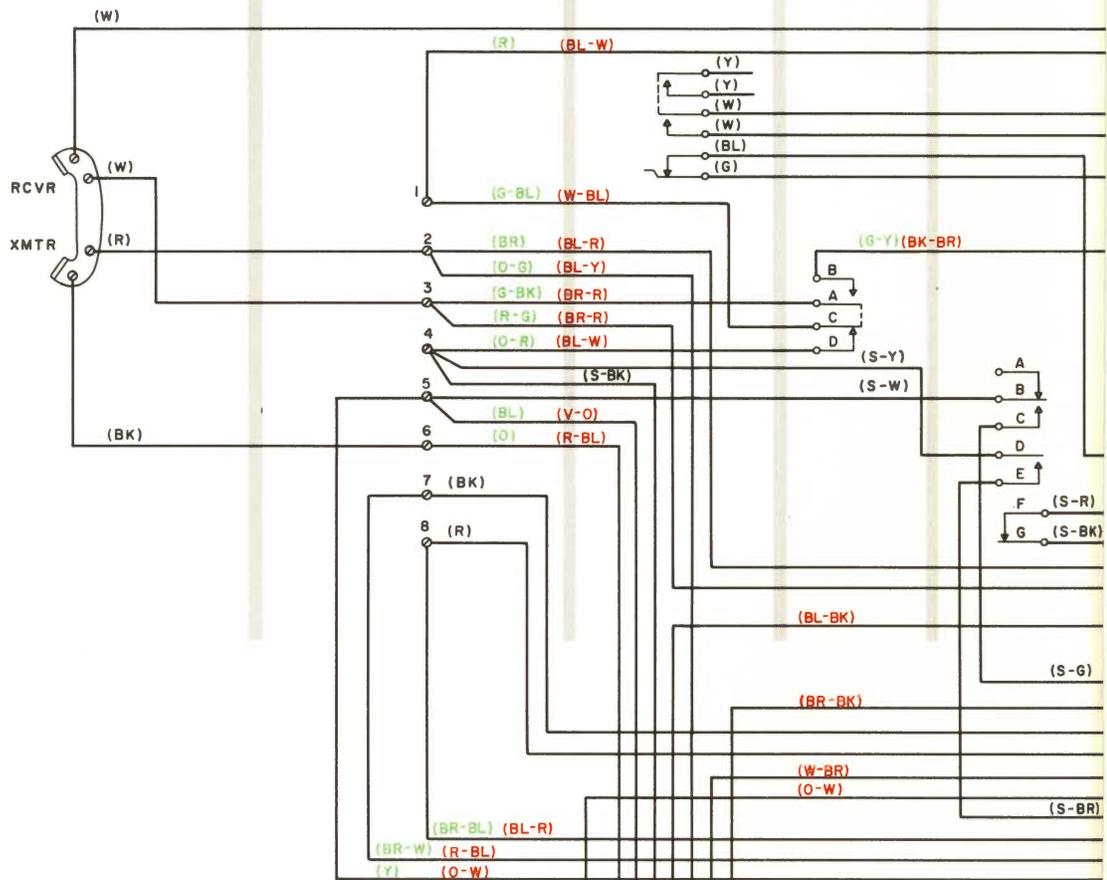
**HAND SET
G3AR**

**TERMINAL
BOARD
NO. 1**

8C DIAL

FLASH KEY

**SWITCH
ASSEMBLY**

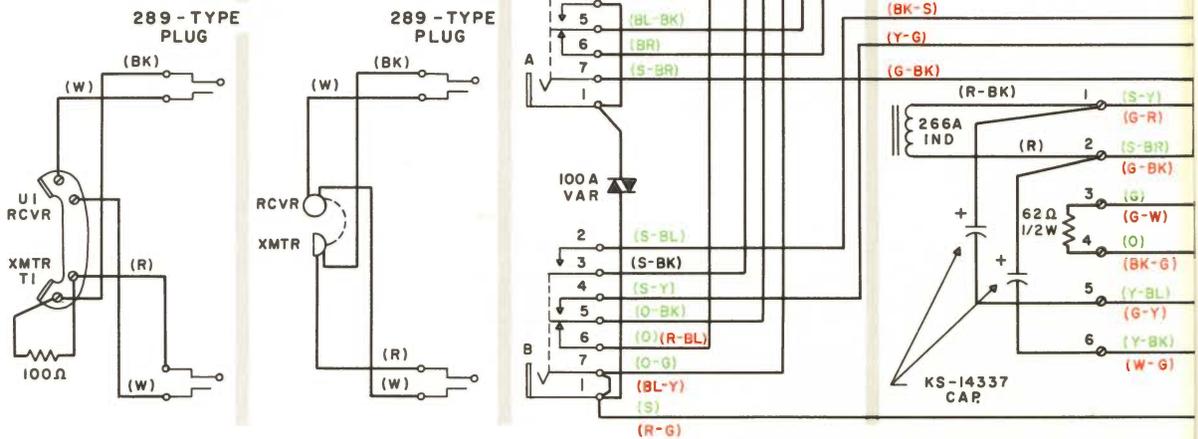


**HAND SET
G3L**

**HEAD SET
52A OR 53A**

**JACKS
517A**

**TERMINAL
BOARD
NO. 2**



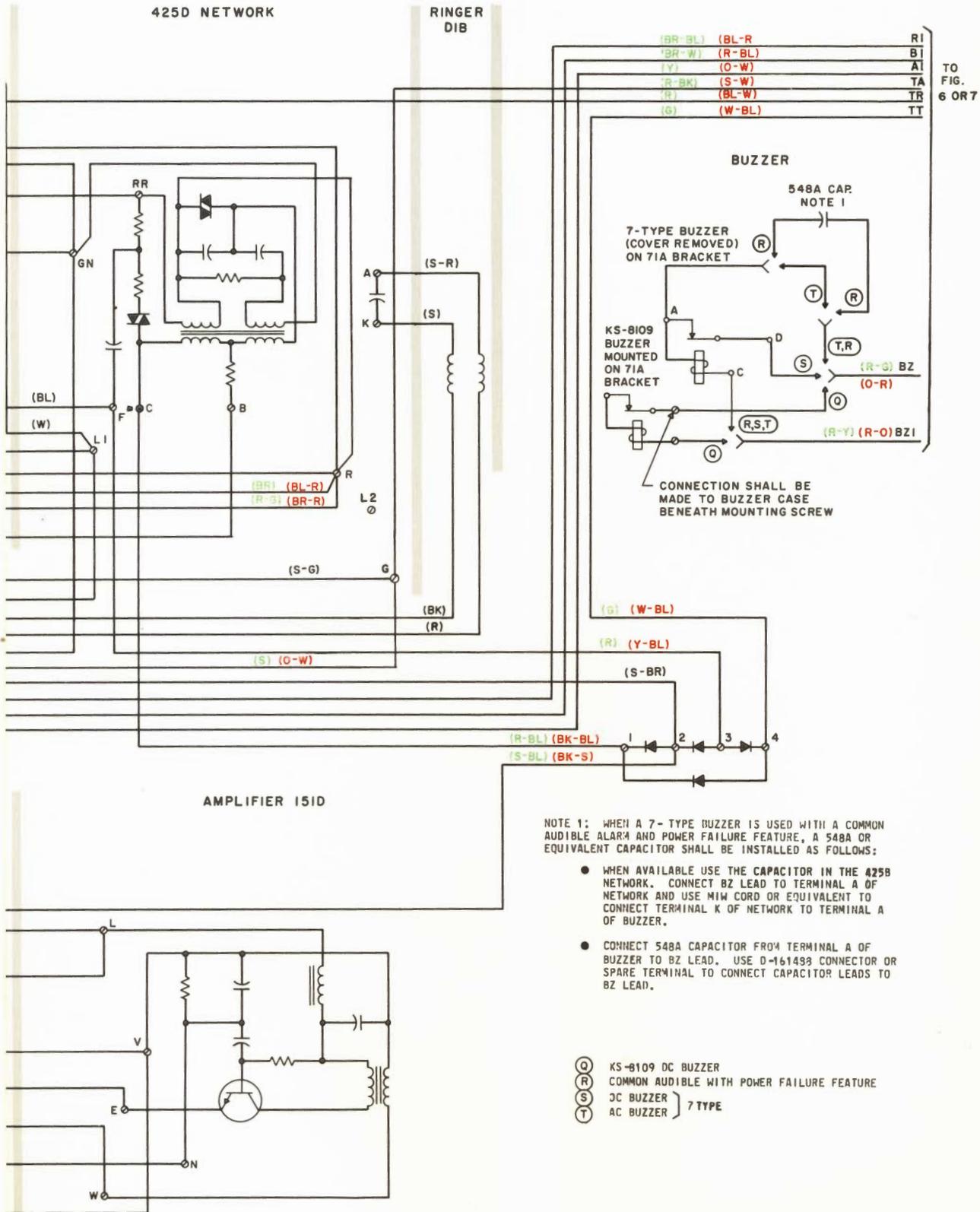
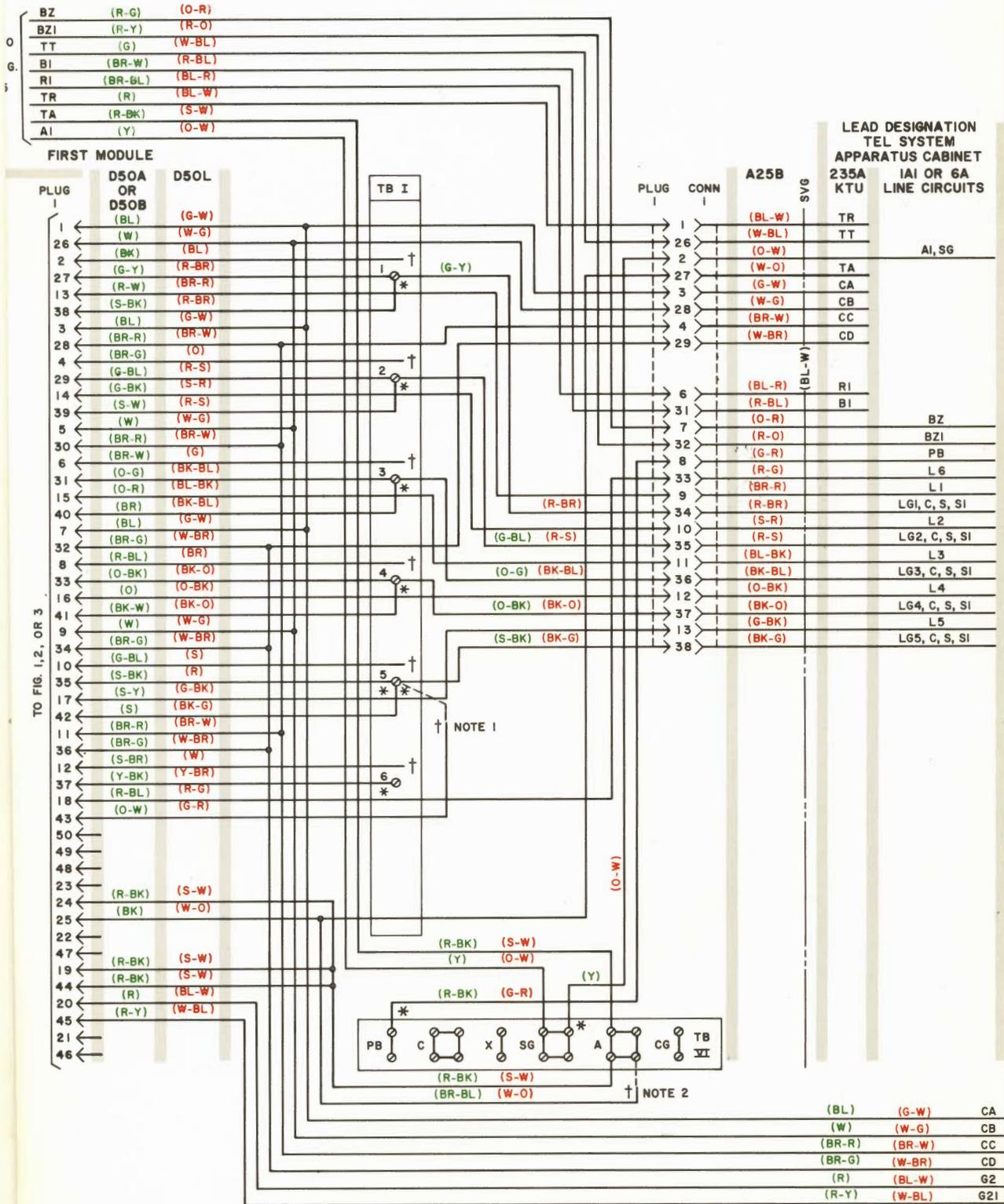


Fig. 5 - Telephone Set Circuit for 638- and 639-Type Telephone Sets

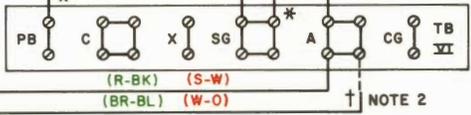


TO FIG. 1, 2, OR 3

LEAD DESIGNATION
TEL SYSTEM
APPARATUS CABINET

PLUG	CONN	A25B	SVG	235A KTU	IAI OR 6A LINE CIRCUITS
1		(BL-W)		TR	
26		(W-BL)		TT	
2		(O-W)			AI, SG
27		(W-O)		TA	
3		(G-W)		CA	
28		(W-G)		CB	
4		(BR-W)		CC	
29		(W-BR)		CD	
		(BL-R)	(BL-W)	RI	
6		(R-BL)		BI	
31		(O-R)			BZ
7		(R-O)			BZI
32		(G-R)			PB
8		(R-G)			L6
33		(BR-R)			L1
9		(R-BR)			LG1, C, S, SI
34		(S-R)			L2
10		(R-S)			LG2, C, S, SI
35		(BL-BK)			L3
11		(BK-BL)			LG3, C, S, SI
36		(O-BK)			L4
12		(BK-O)			LG4, C, S, SI
37		(G-BK)			L5
13		(BK-G)			LG5, C, S, SI

(BL)	(G-W)	CA
(W)	(W-G)	CB
(BR-R)	(BR-W)	CC
(BR-G)	(W-BR)	CD
(R)	(BL-W)	G2
(R-Y)	(W-BL)	G2I

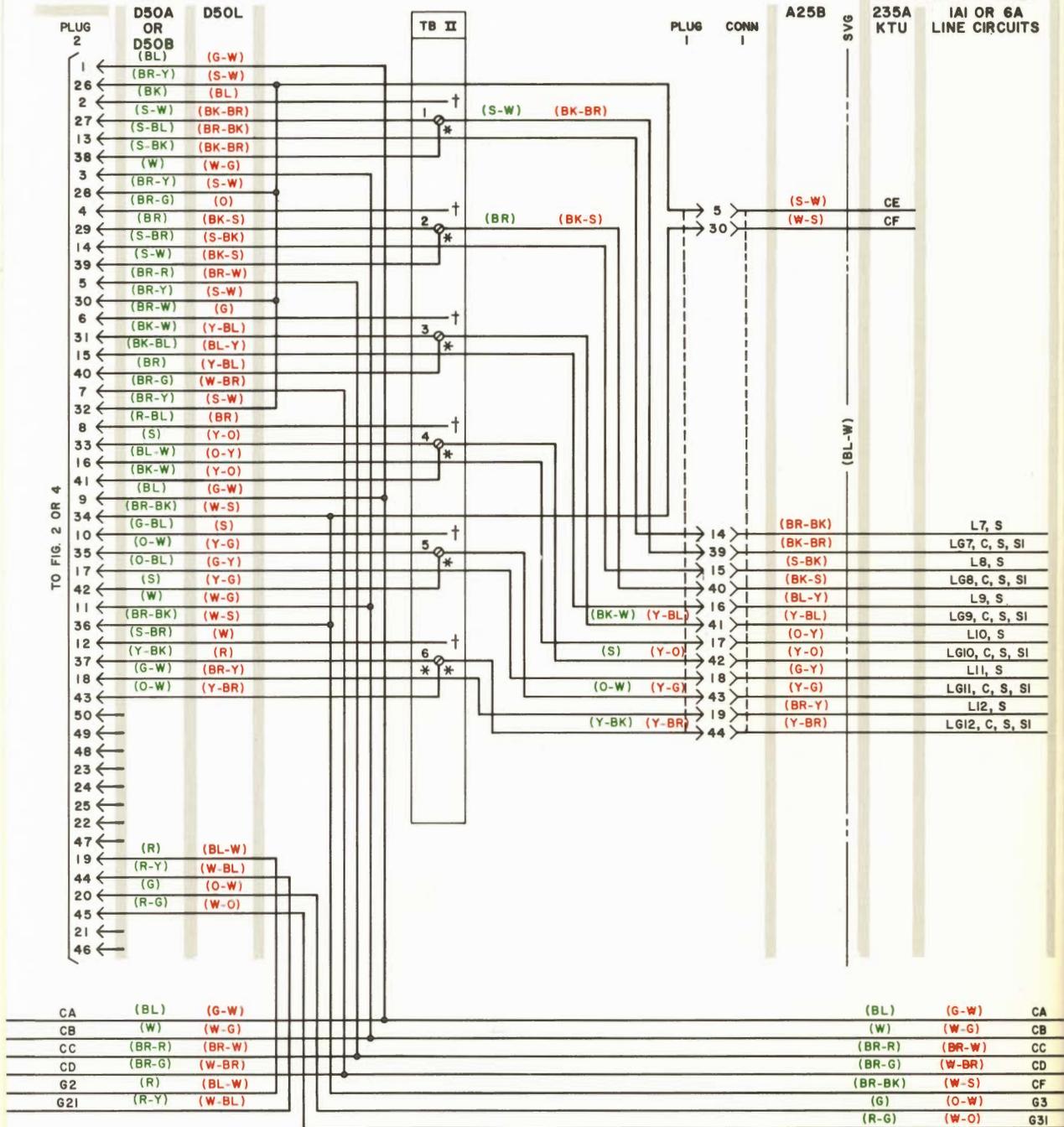


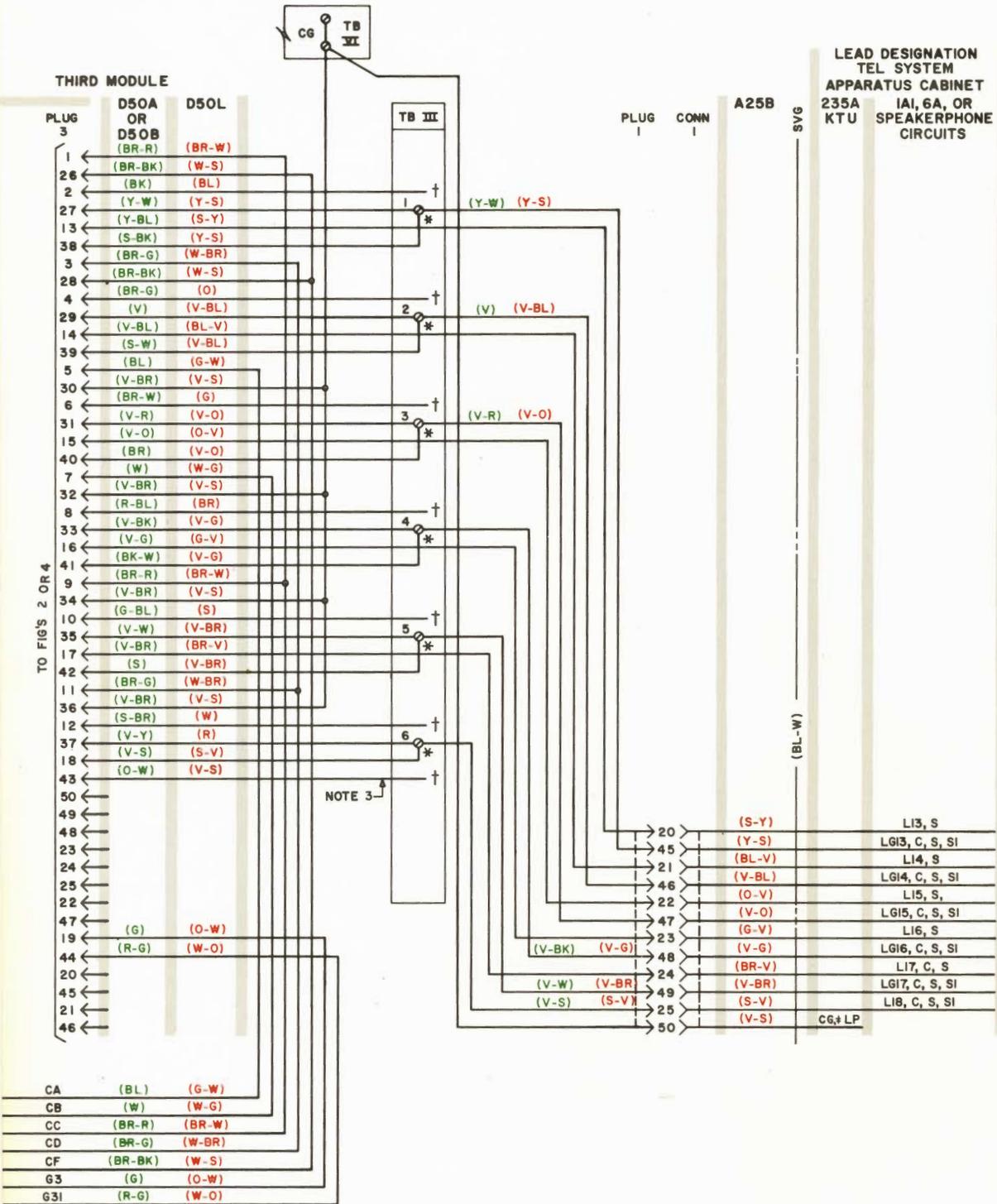
NOTE 2

NOTE 1

SECOND MODULE

LEAD DESIGNATION
TEL SYSTEM
APPARATUS CABINET
235A IAI OR 6A
KTU LINE CIRCUITS





CIRCUIT SYMBOLS:

- ✕ INDICATES LEADS ARE SPADE TIPPED.
- † INDICATES LEADS ARE SPADE TIPPED, INSULATED WITH KS-19147, L1 INSULATOR, AND STORED.

RED INDICATES EVEN-COUNT COLOR CODE.

GREEN INDICATES (MD) COLOR CODE

CIRCUIT NOTES:

NOTE 1 WHEN 599A OR 599B KEYS ARE USED IN FIRST MODULE, HOLD KEY LAMP (6th LAMP) MAY BE USED FOR A MISCELLANEOUS VISUAL SIGNAL. CONNECT INDICATED LEAD TO AN AVAILABLE LAMP GROUND. WHEN 598A KEY IS USED IN FIRST MODULE, INDICATED LEAD IS CONNECTED TO GROUND ON TERMINAL 5 OF TB1.

NOTE 2 WHEN 598A KEY IS USED IN FIRST MODULE, INDICATED LEAD IS CONNECTED TO TERMINAL A OF TB6.

NOTE 3 WHEN 598A KEY IS USED IN THIRD MODULE, INDICATED LEAD IS CONNECTED TO TERMINAL 5 OF TB3 IN 634 SET AND TO TERMINAL 6 OF TB3 IN 635 SET.

NOTE 6 TO CONVERT A KEY POSITION FROM PICKUP (LOCKING) TO SIGNALING (NONLOCKING) REMOVE THE SCREW DETAIL P-10E837 ENTIRELY FROM THE PLUNGER AT THE KEY POSITION TO BE CONVERTED. MAKE THE NECESSARY CHANGES AS SHOWN IN CONVERSION TABLES D OR E. TO CONVERT A KEY POSITION FROM NONLOCKING TO LOCKING, INSERT SCREW DETAIL P-10E837. WHEN CONVERTING A KEY FOR SIGNALING, PLACE A P-11E977 INSULATING DETAIL OVER THE 2 KEY CONTACTS ADJACENT TO KEY PLUNGER.

Fig. 6 - Cord and Cable Connections for 638-Type Telephone Sets Equipped With Manufacture Discontinued (MD) or Even-Count Color-Coded Cords

TO FIG. 5

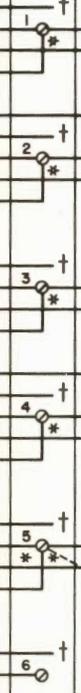
BZ	(R-G)	(O-R)
BZ1	(R-Y)	(R-O)
TT	(G)	(W-BL)
BI	(BR-W)	(R-BL)
R1	(BR-BL)	(BL-R)
TR	(R)	(BL-W)
TA	(R-BK)	(S-W)
A1	(Y)	(O-W)

FIRST MODULE

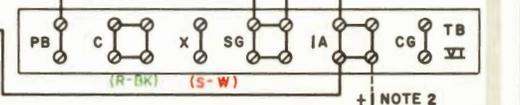
PLUG	D80A	D80B
1	(BL)	(G-W)
26	(W)	(W-G)
2	(BK)	(BL)
27	(G-Y)	(R-BR)
13	(R-W)	(BR-R)
38	(S-BK)	(R-BR)
3	(BL)	(G-W)
28	(BR-R)	(BR-W)
4	(BR-G)	(O)
29	(G-BL)	(R-S)
14	(G-BK)	(S-R)
39	(S-W)	(R-S)
5	(W)	(W-G)
30	(BR-R)	(BR-W)
6	(BR-W)	(G)
31	(O-G)	(BK-BL)
15	(O-R)	(BL-BK)
40	(BR)	(BK-BL)
7	(BL)	(G-W)
32	(BR-G)	(W-BR)
8	(R-BL)	(BR)
33	(O-BK)	(BK-O)
16	(O)	(O-BK)
41	(BK-W)	(BK-O)
9	(W)	(W-G)
34	(BR-G)	(W-BR)
10	(G-BL)	(S)
35	(S-BK)	(R)
17	(S-Y)	(G-BK)
42	(S)	(BK-G)
11	(S-W)	(BK-BR)
36	(S-BK)	(BK-G)
12	(S-BR)	(W)
37	(Y-BK)	(Y-BR)
18	(R-BL)	(R-G)
43	(O-W)	(G-R)
50		
49		
48		
23	(R-BK)	(S-W)
24	(BK)	(W-O)
25		
22		
47	(R-BK)	(S-W)
19	(R-BK)	(S-W)
44	(R)	(BL-W)
20	(R-Y)	(W-BL)
45		
21		
46		

TO FIG. 1, 2 OR 3

TB I



NOTE 1



PLUG CONN

PLUG	CONN
1	
26	
2	
27	
3	
28	
4	
29	
6	
31	
7	
32	
8	
33	
9	
34	
10	
35	
11	
36	
12	
37	
13	
38	

A40A

PLUG	CONN	SYG
1	(BL-W)	
26	(W-BL)	
2	(O-W)	
27	(W-O)	
3	(G-W)	
28	(W-G)	
4	(BR-W)	
29	(W-BR)	
6	(BL-R)	(BL-W)
31	(R-BL)	
7	(O-R)	
32	(R-O)	
8	(G-R)	
33	(R-G)	
9	(BR-R)	
34	(R-BR)	
10	(S-R)	
35	(R-S)	
11	(BL-BK)	
36	(BK-BL)	
12	(O-BK)	
37	(BK-O)	
13	(G-BK)	
38	(BK-G)	

LEAD DESIGNATION
TEL SYSTEM
APPARATUS CABINET
236A
KTU

IAI OR 6A LINE CIRCUITS
TR
TT
TA
CA
CB
CC
CD
RI
BI
BZ
BZ1
PB
L6
L1
LG1, C, S, SI
L2
LG2, C, S, SI
L3
LG3, C, S, SI
L4
LG4, C, S, SI
L5
LG5, C, S, SI
CA1
CA
CB
CC
CD
CH
G2
G21

A1, SG

BZ

BZ1

PB

L6

L1

LG1, C, S, SI

L2

LG2, C, S, SI

L3

LG3, C, S, SI

L4

LG4, C, S, SI

L5

LG5, C, S, SI

(S-W) (BK-BR) CA1

(BL) (G-W) CA

(W) (W-G) CB

(L-R) (BR-W) CC

(O-V) (W-BR) CD

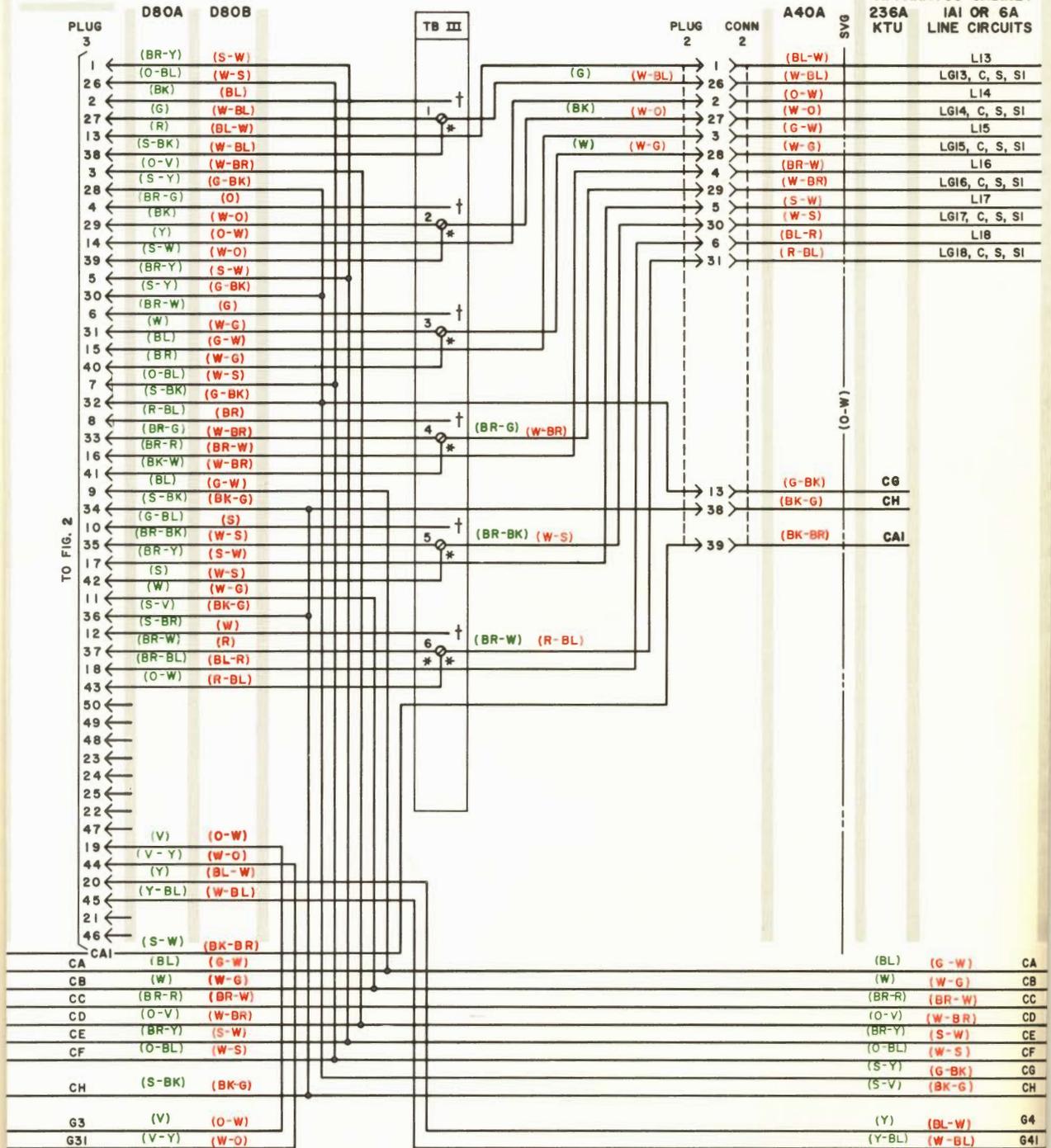
(S-BK) (BK-G) CH

(R) (BL-W) G2

(R-Y) (W-BL) G21

THIRD MODULE

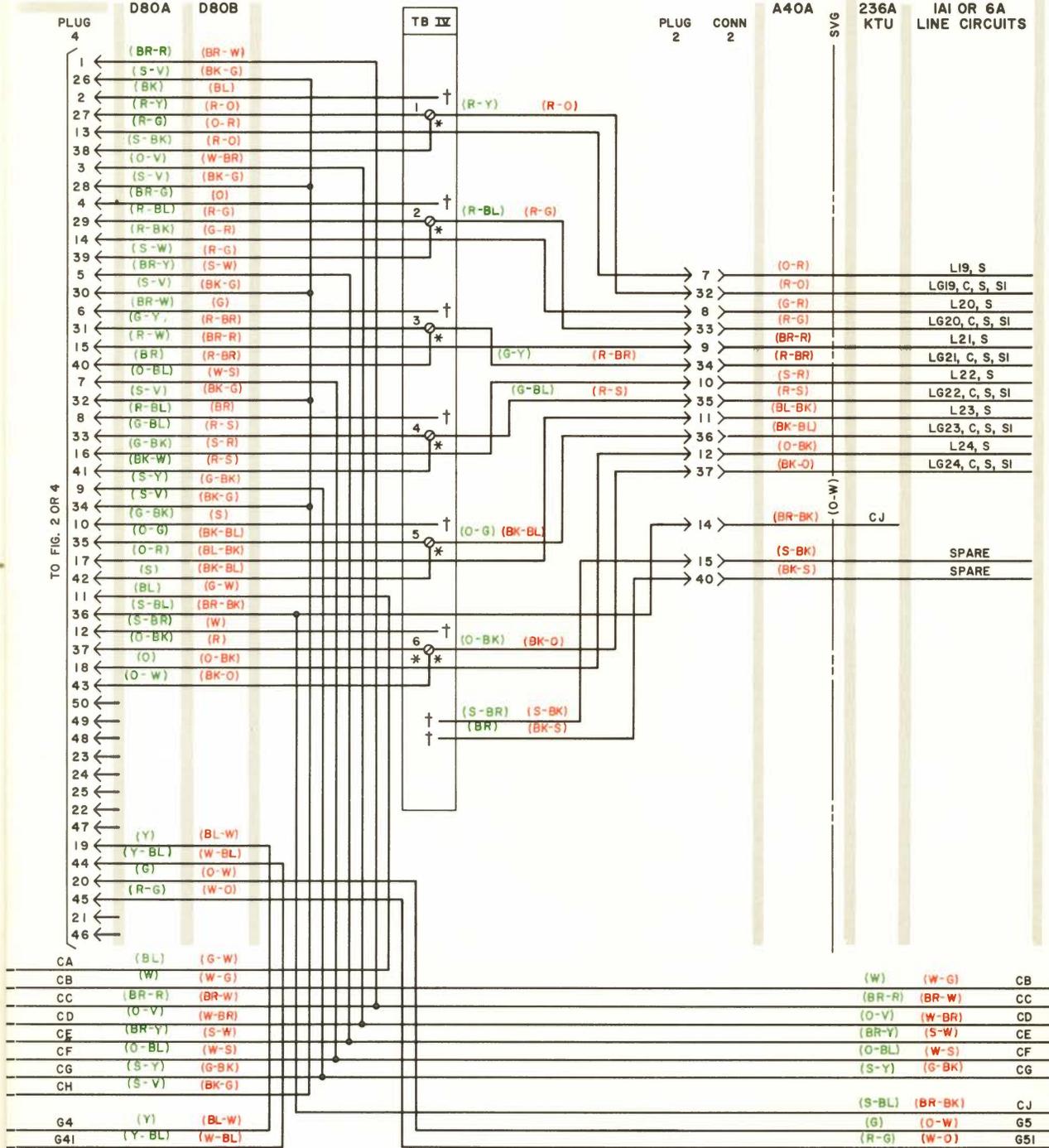
LEAD DESIGNATION
TEL SYSTEM
APPARATUS CABINET
236A IAI OR 6A
KTU LINE CIRCUITS



TO FIG. 2

FOURTH MODULE

LEAD DESIGNATION
TEL SYSTEM
APPARATUS CABINET
236A
KTU IAI OR 6A
LINE CIRCUITS



TO FIG. 2 OR 4

CA	(BL)	(G-W)			
CB	(W)	(W-G)		(W)	(W-G) CB
CC	(BR-R)	(BR-W)		(BR-R)	(BR-W) CC
CD	(O-V)	(W-BR)		(O-V)	(W-BR) CD
CE	(BR-Y)	(S-W)		(BR-Y)	(S-W) CE
CF	(O-BL)	(W-S)		(O-BL)	(W-S) CF
CG	(S-Y)	(G-BK)		(S-Y)	(G-BK) CG
CH	(S-V)	(BK-G)			
G4	(Y)	(BL-W)		(S-BL)	(BR-BK) CJ
G41	(Y-BL)	(W-BL)		(G)	(O-W) G5
				(R-G)	(W-O) G51

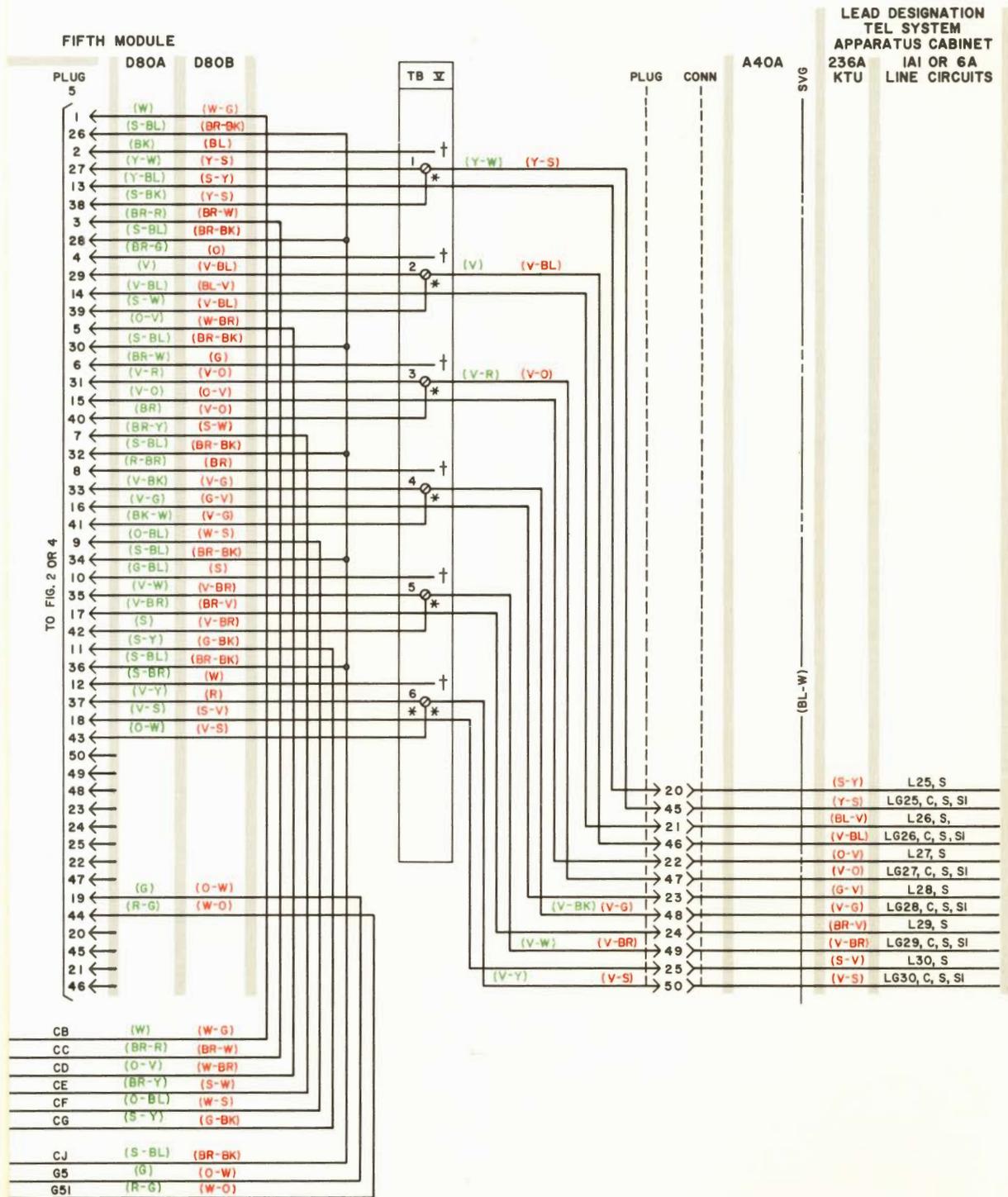


Fig. 7 - Cord and Cable Connections for 639-Type Telephone Sets Equipped With Manufacture Discontinued (MD) or Even-Count Color-Coded Cords