

**SHEET INDEX**

FIG.	CONTENTS	SHEET NO.	ISSUE NO.																	OLD SHEET NO.
			2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
	SHEET INDEX SUPPORTING INFORMATION	A1	2																	
	CIRCUIT NOTES BAT. VARIATION	B1	2																	014
	CONNECTIONS FOR FIG. 1,2 & 9,7	B2	2																	012 013
1	TEL SET CKT USING 500R (MAN.) AND 500S (DIAL) TEL SETS	C1	2																	013
2	TEL SET CKT USING 211N (MAN.) OR 211P (DIAL) HAND TEL SET FOR USE WITH SUB SET PER FIG. 8 (KS-14964,L2 CONT UNIT)	C2	2																	012
3	KEY AND XMTR CKT			011																
4	SUB SET KS-16162,L1 (MFR DISC.)	C3	2																	011
5	LOUDSPEAKER																			
6	STA BUSY LAMP CONT CKT(MFR DISC.)																			
7	TEL SET CKT USING 592C (MAN.) OR 592D (DIAL) TEL SET(MFR DISC.)	C4	2																	012
8	SUB SET KS-14964,L2 CONT UNIT	C5	2																	014
9	TEL SET CKT USING 211N (MAN.) OR 211P (DIAL) HAND TEL SET FOR USE WITH KS-16162,L1 SUB SET PER FIG. 4 (MFR DISC.)	C6	2																	015
10	AUX REL CKT FOR USE WITH 750A OR 755A PBX STA CKT (MFR DISC.)	C7	2																	016
11	AUX REL CKT FOR USE WITH 750A OR 755A PBX STA CKT																			
	CIRCUIT REQ	D1	2																	013

DWG ISS	CD	DWG ISS	CD	DWG ISS	CD
1	1				
DWG ISS	CD	DATE ISSUED	DWN	APPD	
2D	2D	7-17-59	EGH	JRD	LHA

**SHEET INDEX NOTES**

1. WHEN CHANGES ARE MADE IN THIS DRAWING, ONLY THOSE SHEETS AFFECTED WILL BE REISSUED.
2. THIS SHEET INDEX WILL BE REISSUED AND BROUGHT UP TO DATE EACH TIME ANY SHEET OF THE DRAWING IS REISSUED, OR A NEW SHEET IS ADDED.
3. THE ISSUE NUMBER ASSIGNED TO A CHANGED OR NEW SHEET WILL BE THE SAME ISSUE NUMBER AS THAT OF THE SHEET INDEX.
4. SHEETS THAT ARE NOT CHANGED WILL RETAIN THEIR EXISTING ISSUE NUMBER.
5. THE LAST ISSUE NUMBER OF THE SHEET INDEX IS RECOGNIZED AS THE LATEST ISSUE NUMBER OF THE DRAWING AS A WHOLE.
6. "OLD SHEET NO." REFERS TO SHEET NO. PRIOR TO ISSUE: 2D

**SUPPORTING INFORMATION**

CATEGORY	NO.

SD-69255-01	AT&TCO STANDARD
Station Systems SPEAKERPHONE SYSTEM NO. 1A TELEPHONE AND SPEAKERPHONE CIRCUIT	
<b>SD-69255-01-A1</b> 11 SHEETS	
<b>BELL TELEPHONE LABORATORIES</b> INCORPORATED	DWG SIZE <b>3S</b> PRINTED IN U. S. A.

CIRCUIT NOTES:

FEATURE OR OPTION	PROVIDE		
	FIG.	APP OR WIR	QUANTITY
TEL SET CKT USING 500R (MAN.) OR 500S (DIAL) TEL SET. SEE NOTE 102	1		AS REQ
TEL SET CKT USING 211N (MAN.) OR 211P (DIAL) TEL SET WITH SUB SET PER FIG. 8 (KS-14964,L2 CONT UNIT). SEE NOTE 102.	2		AS REQ
KEY AND XMTR CKT	3		1 PER TEL SET USED FOR COMB. TEL & SPEAKER-PHONE SERV EXCEPT NOT REQ WITH 592- TYPE SET
SUB SET KS-16162,L1 (MFR DISC.)	4		1 PER TEL SET USED FOR COMB. TEL SPEAKER-PHONE SERV
LOUDSPEAKER	5		1 PER FIG. 4
STA BUSY LAMP CONT CKT (MFR DISC.)	6		1 PER FIG. 4 IF STA ASSOC WITH FIG. 4 IS CONN TO KEY TEL SYS NO. 1A1 LINE CKT OR IF STA BUSY LAMP IS REQ. SEE NOTE 104
TEL SET CKT USING 592C (MAN.) OR 592D (DIAL) TEL SET (MFR DISC.)	7		AS REQ
SUB SET (KS-14964,L2 CONT UNIT)	8		1 PER TEL SET USED FOR COMB. TEL AND SPEAKER-PHONE SERV
TEL SET CKT USING 211N (MAN.) OR 211P DIAL HAND TEL SET FOR USE WITH KS-16162, L1 SUB SET PER FIG. 4 (MFR DISC.)	9		AS REQ
AUX REL CKT FOR USE WITH 566 MB TEL SET & 755A PBX	10	USING SUB SET KS-16162,L1 (MFR DISC.)	1 PER TEL SET
	11	USING CONT UNIT KS-14964,L2	1 PER TEL SET
PARTY LINE		Z	
WHEN CONNECTED TO KEY TEL SYS NO. 1A1. SEE NOTE 104		X	
WITH STA BUSY LAMP CKT		V	
WITHOUT STA BUSY LAMP CKT		T	
WITH SUB SET KS-16162,L1		S	
WITH CONT UNIT KS-14964,L2		R	

102. MANUAL SETS ARE THE SAME AS DIAL EXCEPT REPLACE DIAL WITH APPARATUS BLANK AND TRANSFER LEADS AS INDICATED FOR EACH CIRCUIT FIGURE.

103. WHEN THE 592C OR 592D TELEPHONE SET IS CONNECTED BY MEANS OF SEPARATELY MOUNTED KEYS TO KEY TEL SYS NO. 1A OR 1A1 LINE CKTS, THE RINGER IN THE SET SHALL NOT BE USED.

CIRCUIT NOTES (CONT)

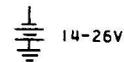
104. WHEN KEY TEL SETS ARE CONNECTED TO KEY TEL SYS NO. 1A1 (OPTION X) AND TO FIG. 4 THE STATION BUSY LAMP CKT (OPTION V) MUST ALWAYS BE USED TO SEPARATE THE LOCKUP CIRCUIT OF (S) RELAY FROM THE "A" LEAD TO THE LINE CKT. WITH KEY TEL SYS NO. 1A OPTION V IS REQUIRED ONLY IF STATION BUSY LAMP FEATURE IS REQUIRED.

105. TIP PARTY IDENTIFICATION CAN NOT BE PROVIDED WHEN FIG. 8 IS USED.

106. WHEN KEY TEL SETS PER SD-69219-01 ARE USED WITH CONTROL UNITS KS-14964,L2, THE ON AND ON1 LEADS FROM THE TEL SET SHALL CONNECT TO THE P3 AND P4 LEADS AT THE STATION CONNECTING BLOCKS SO THAT THE P3 AND P4 LEADS CAN BE SHORT-CIRCUITED BY OFF-NORMAL CONTACTS OF THE DIAL.

INFORMATION NOTES:

301. UNLESS OTHERWISE SPECIFIED: RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN MICROFARADS.



SPEAKERPHONE SYSTEM NO. 1A TELEPHONE AND SPEAKERPHONE CIRCUIT		SD-69255-01-B1
BELL TELEPHONE LABORATORIES INCORPORATED	DWG SIZE 3S	PRINTED IN U. S. A.

CLASS OF SERVICE	INSIDE SET							AT CONNECTING BLOCK	
	DIAL MANUAL	STRAP 6 TERM TO:	GREEN CORD COND.	RINGER LEADS				CORD CONDUCTORS	
				R	BK	S	S-R	RED	GREEN
BRIDGED STATION FLAT AND MESSAGE RATE (FIG. 1 AS SHOWN FOR DIAL SERVICE)	DIAL MANUAL	F (E2)	G G	L2	G	K	A	RING B RING I	TIP
RING PARTY FLAT AND MESSAGE RATE	DIAL MANUAL	(E1) (E1)	(F) (E2)	L2	G	K	A	RING B RING I	TIP
TIP PARTY FLAT RATE (EXCEPT AS LISTED BELOW)	DIAL MANUAL	(E1) (E1)	(F) (E2)	L2	G	K	A	(TIP)	TIP
TIP PARTY DIAL MESSAGE RATE, FLAT RATE AUTOMATIC MESSAGE ACCOUNTING (EXCEPT SXS), AND ZONE REGISTRATION. * SEE NOTE 105.		(E1)	(F)	(K)	G	(6)	(B)	(TIP) B (RING) †	(RING)
TIP PARTY FLAT RATE AUTOMATIC TICKETING AND SXS AUTOMATIC MESSAGE ACCOUNTING. * SEE NOTE 105		(E1)	(F)	(6)	(B)	K	(G)	(TIP) B (RING) †	(RING)

CLASS OF SERVICE		CONNECTIONS AT TERMINAL STRIP OF SUBSCRIBER SET RINGER LEADS
		RED
BRIDGED STATION (FIG. 2 AS SHOWN)		L2
RING PARTY		L2
TIP PARTY (WITHOUT IDENTIFICATION)		L1
MANUAL	FOR FIGS. 2 AND 9	CONNECT FROM L1 ON TERM. STRIP OF SUBSCRIBER SET DIRECTLY TO RR ON NETWORK. CONNECT W HANDSET CORD CONDUCTOR (W SHOWN TO BB OF DIAL) DIRECTLY TO TERM. R OF HAND TEL SET. OMIT LEAD FROM L1 ON TERM. STRIP OF SUBSCRIBER SET TO TERM. 1 OF HAND TEL SET. OMIT LEAD FROM RR ON NETWORK TO BL OF HAND TEL SET. OMIT LEAD FROM I OF SUBSCRIBER SET TO 3 OF HAND TEL SET.
	FOR FIG. 2 ONLY	OMIT P3 AND P4 LEADS. OMIT LEAD FROM G OF NETWORK TO 2 OF HAND TEL SET.
	FOR FIG. 9 ONLY	OMIT ON LEAD.

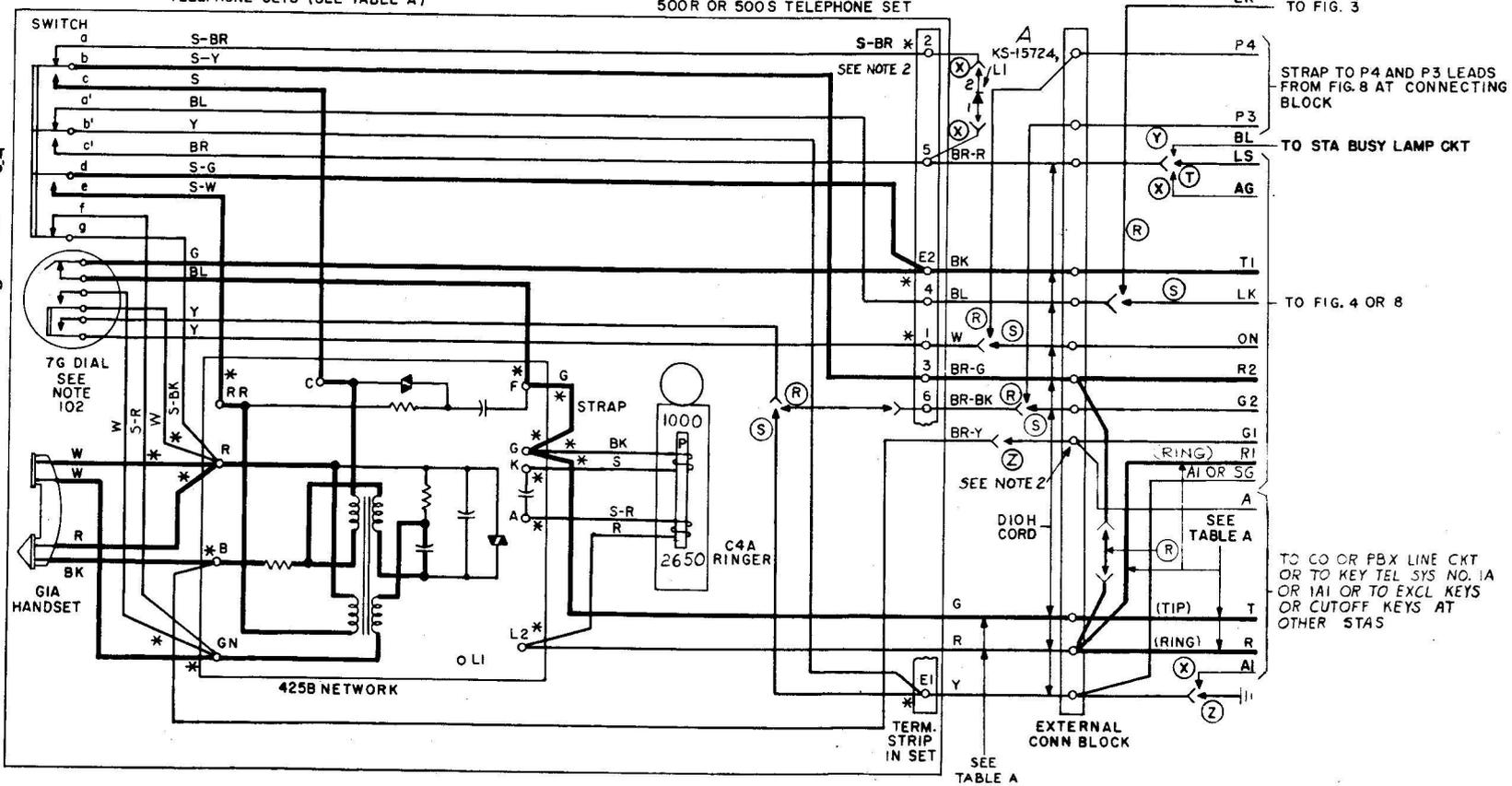
CLASS OF SERVICE	INSIDE SET							AT CONNECTING BLOCK	
	DIAL MANUAL	STRAP TERM 9 TO:	GREEN CORD COND.	RINGER LEADS				CORD CONDUCTORS	
				R	BK	S	S-R	RED	GREEN
BRIDGED STATION FLAT AND MESSAGE RATE (FIG. 7 AS SHOWN FOR DIAL SERVICE)	DIAL MANUAL	F (8)	9 9	L2	9	K	A	RING B RING I	TIP
RING PARTY FLAT AND MESSAGE RATE	DIAL MANUAL	(17) (17)	(F) (8)	L2	9	K	A	RING B RING I	TIP
TIP PARTY FLAT RATE (EXCEPT AS LISTED BELOW)	DIAL MANUAL	(17) (17)	(F) (8)	L2	9	K	A	(TIP)	TIP
TIP PARTY DIAL MESSAGE RATE, FLAT RATE AUTOMATIC MESSAGE ACCOUNTING (EXCEPT SXS), AND ZONE REGISTRATION. * SEE NOTE 105		(17)	(F)	(K)	9	(14)	(B)	(TIP) B (RING) †	(RING)
TIP PARTY FLAT RATE AUTOMATIC TICKETING AND SXS AUTOMATIC MESSAGE ACCOUNTING. * SEE NOTE 105		(17)	(F)	(14)	(B)	K	(9)	(TIP) B (RING) †	(RING)

\* \*\*TRANSFER S SWITCHHOOK LEAD FROM TERMINAL 13 ON TERMINAL STRIP TO TERMINAL A ON NETWORK.  
\* \*\*TRANSFER S-R SWITCHHOOK LEAD FROM TERMINAL 2 ON TERMINAL STRIP TO TERMINAL A ON NETWORK.  
○ INDICATES LEADS WHICH MUST BE MOVED FROM TERMINALS AS FURNISHED.  
† THE RING I CABLE LEAD MUST BE MOVED TO SAME TERMINAL ON EXTERNAL CONN BLOCK AS THE TIP WIRE.

FIG. 1  
TELEPHONE SET CIRCUIT  
USING 500R (MANUAL) AND 500S (DIAL)  
TELEPHONE SETS (SEE TABLE A)

500R OR 500S TELEPHONE SET

- NOTES:  
1. WHEN HANDSET IS LIFTED CONTACTS b, c' CLOSE FIRST AND CONTACTS f, g OPEN LAST. WHEN HANDSET IS REPLACED CONTACTS a, b' CLOSE BEFORE CONTACTS b, c' OPEN.  
2. WHEN SET IS USED WITH AB AI CONTROL LEADS REMOVE S-BR SWITCH LEAD FROM TERM. 2 & TAPE. TRANSFER BR-Y MOUNTING CORD LEAD TO TERM. 2 AND INSTALL KS-15724, LI DIODE AS SHOWN.



\* INDICATES CONNECTIONS INSIDE SET PROVIDED WITH SPADE TIPS

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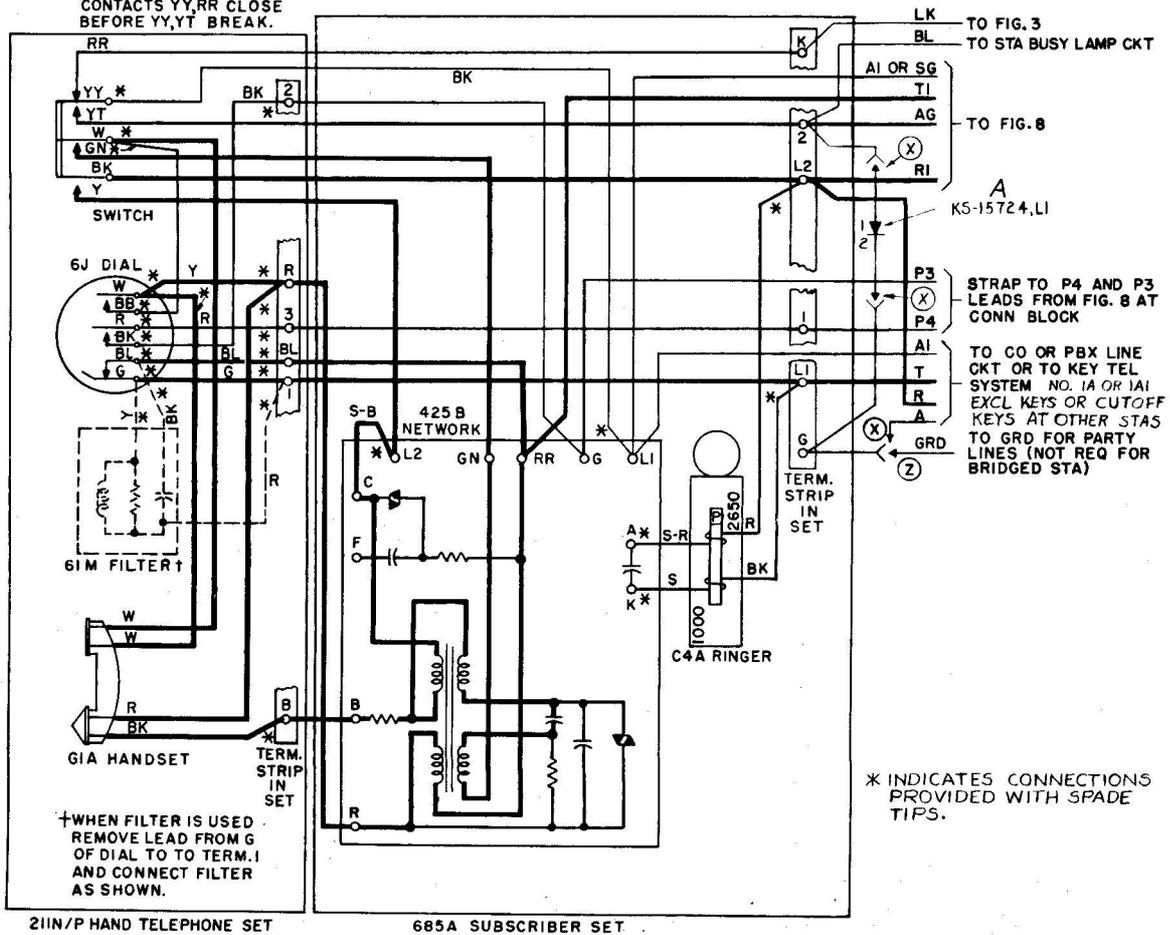
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**FIG. 2**  
TELEPHONE SET CIRCUIT  
USING 211N (MANUAL) OR 211P (DIAL)  
HAND TELEPHONE SET  
FOR USE WITH SUBSCRIBER SET  
PER FIG. 8 (KS-14964, L2 CONTROL UNIT)  
(SEE ALSO FIG. 9 AND TABLE B)

NOTE:  
WHEN HANDSET IS LIFTED  
CONTACTS YT, YX CLOSE FIRST,  
BK, Y SECOND, AND W, GN LAST.  
WHEN HANDSET IS REPLACED  
CONTACTS YY, RR CLOSE  
BEFORE YY, YT BREAK.



**FIG. 3**  
KEY AND TRANSMITTER CIRCUIT

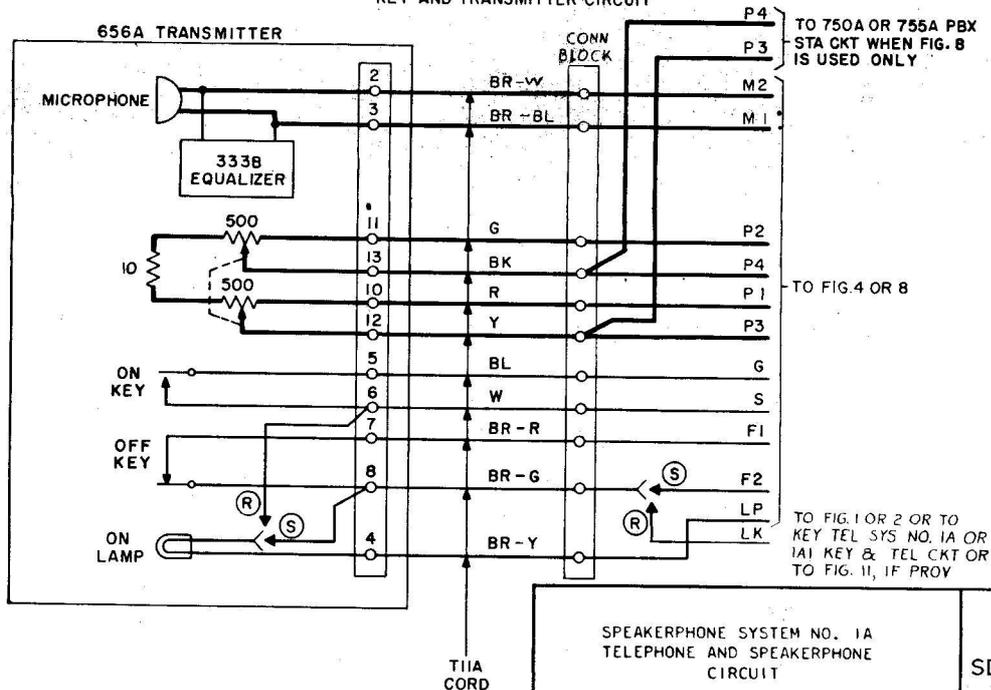
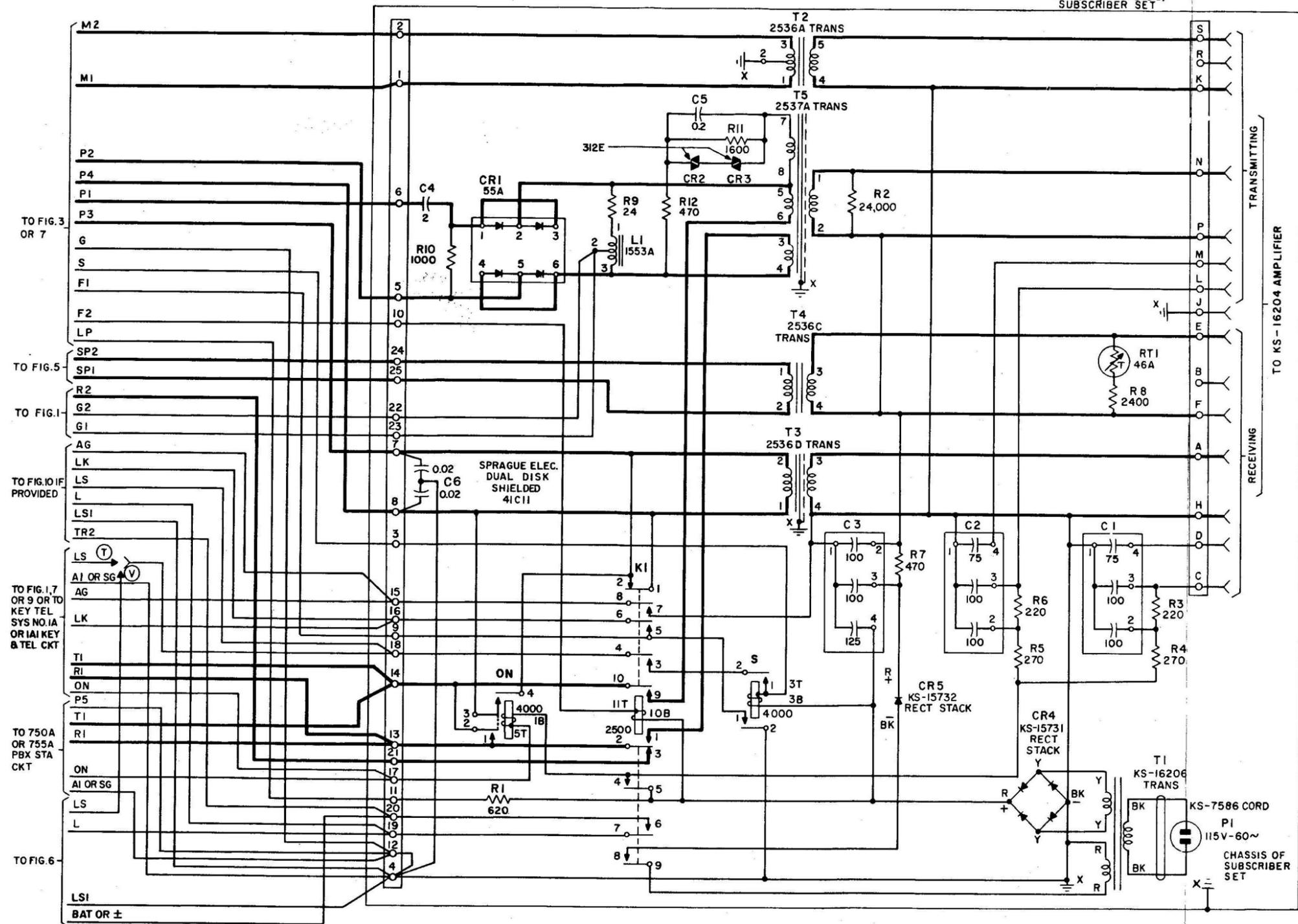


FIG. 4 (MFR DISC)  
SUBSCRIBER SET

KS-16162, L1  
SUBSCRIBER SET



TRANSMITTING  
RECEIVING  
TO KS-16204 AMPLIFIER

FIG. 5  
LOUDSPEAKER

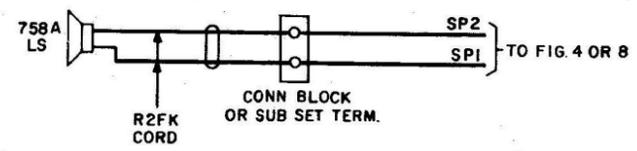
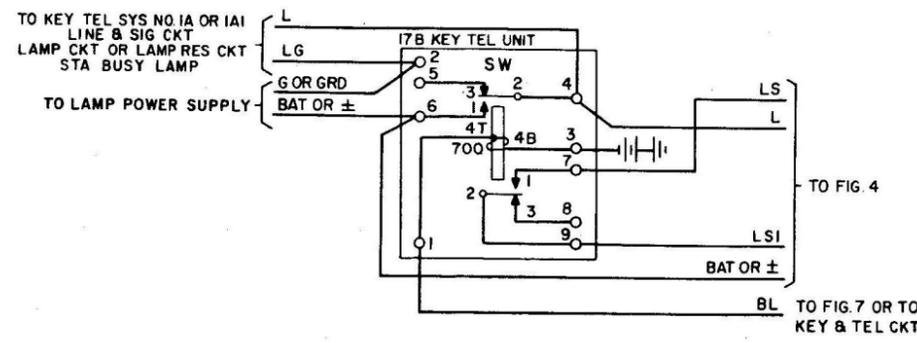
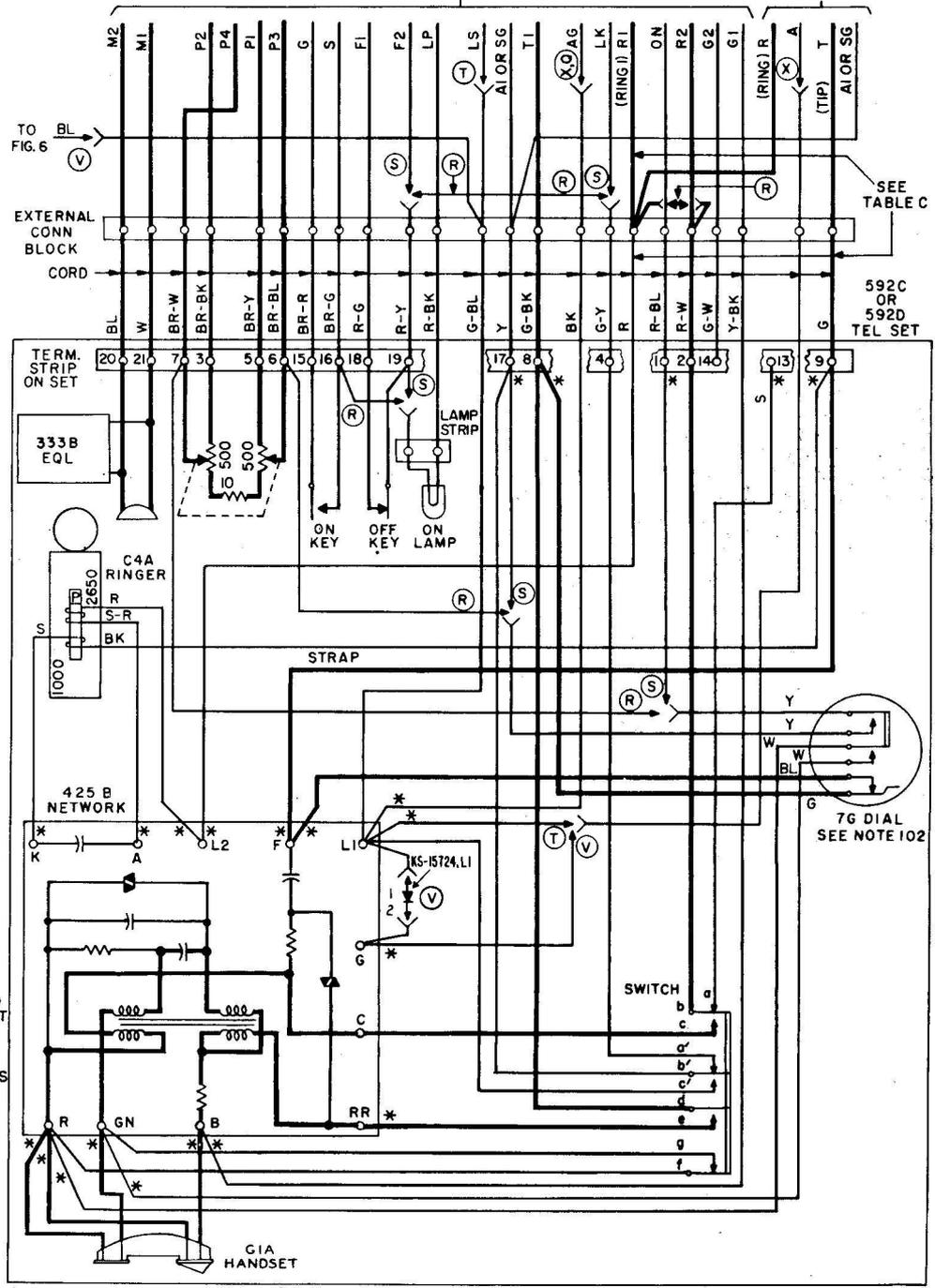


FIG. 6 (MFR DISC)  
STATION BUSY  
LAMP CONTROL CIRCUIT



**FIG. 7 (MFR DISC)**  
TELEPHONE SET CIRCUIT  
USING 592C (MANUAL) OR 592D (DIAL)  
TELEPHONE SET  
(SEE TABLE C)  
TO FIG. 4 OR 8

TO CENTRAL OFF.  
OR PBX LINE CKT  
OR TO EXCLUSION  
KEYS OR CUTOFF  
KEYS AT OTHER  
STATIONS

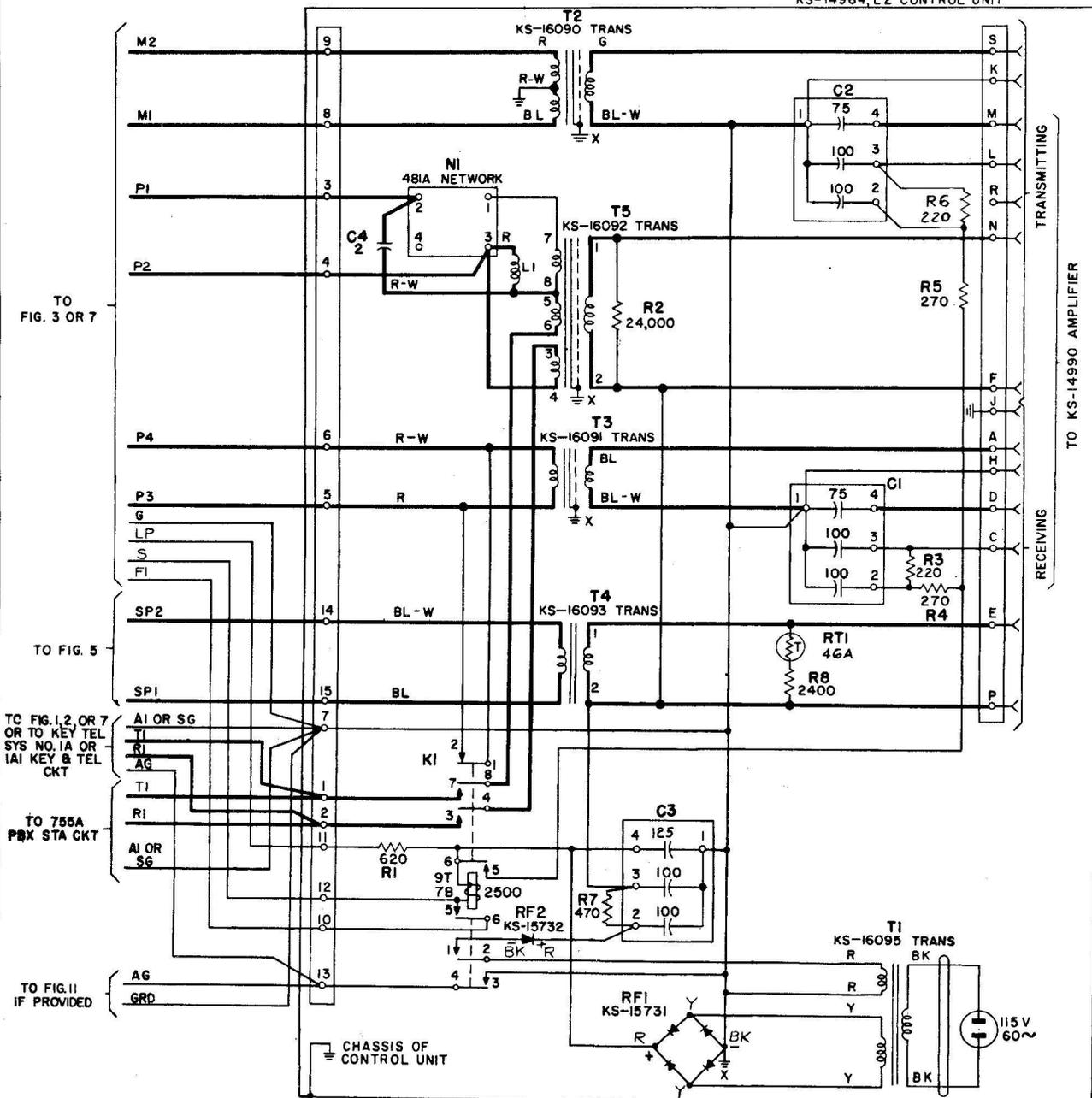


NOTE:  
WHEN HANDSET IS LIFTED  
CONTACTS b,c' CLOSE FIRST  
AND CONTACTS f,g OPEN  
LAST. WHEN HANDSET IS  
REPLACED CONTACTS a,b'  
CLOSE BEFORE CONTACTS  
b,c' OPEN.

\* INDICATES CONNECTIONS PROVIDED WITH SPADE TIPS.

FIG. 8  
SUBSCRIBER SET  
KS-14964, L2 CONTROL UNIT

KS-14964, L2 CONTROL UNIT



TO FIG. 3 OR 7

TO FIG. 5

TO FIG. 1, 2, OR 7  
OR TO KEY TEL  
SYS NO. 1A OR  
1A1 KEY & TEL  
CKT

TO 755A  
PRX STA CKT

TO FIG. 11  
IF PROVIDED

TRANSMITTING

TO KS-14990 AMPLIFIER

RECEIVING

SPEAKERPHONE SYSTEM NO. 1A  
TELEPHONE AND SPEAKERPHONE  
CIRCUIT

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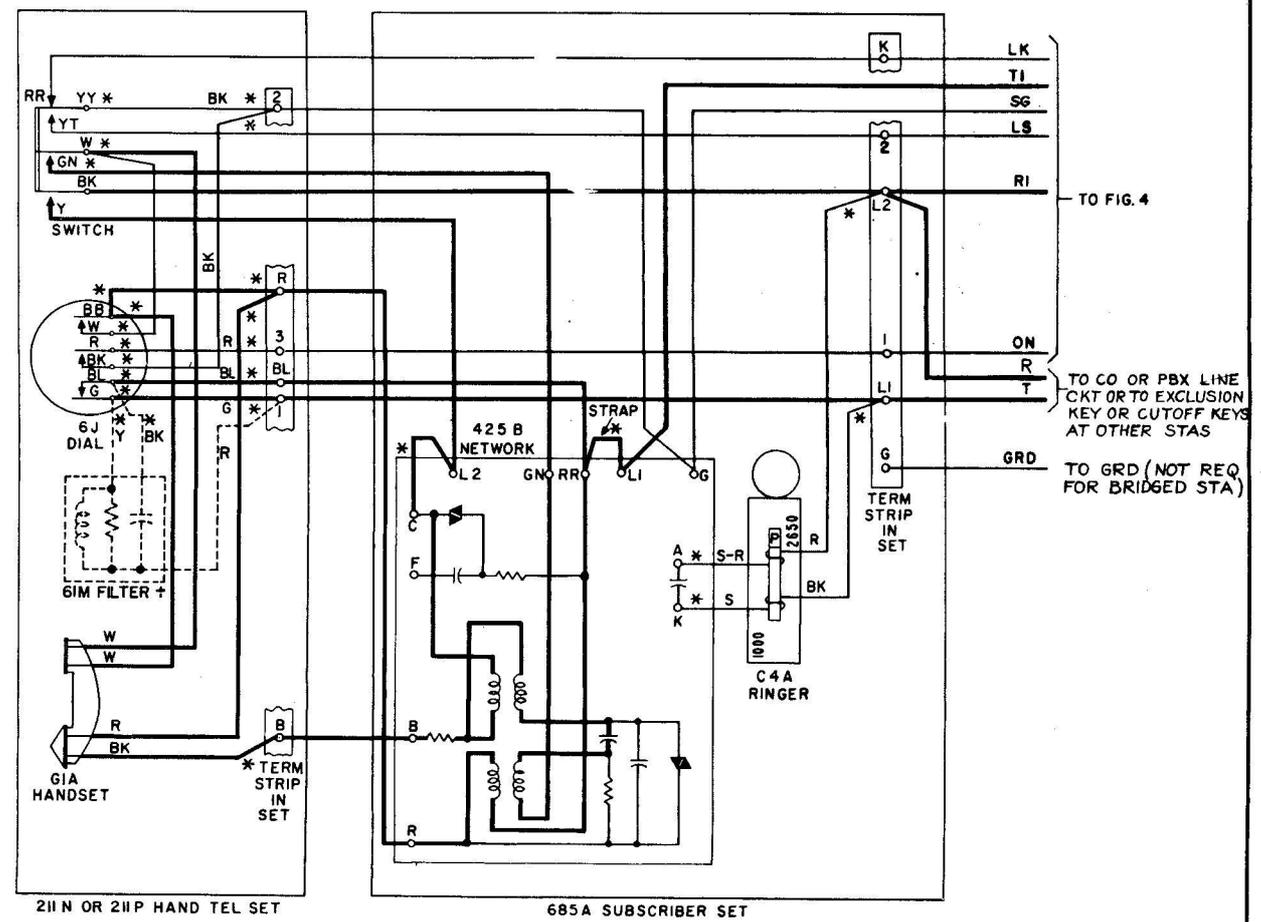
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DWG SIZE  
3S

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**FIG. 9 (MFR DISC)**  
 TELEPHONE SET CIRCUIT USING 211N (MANUAL)  
 OR 211P (DIAL) HAND TELEPHONE SET  
 FOR USE WITH KS-16162, L1 SUBSCRIBER SET PER FIG. 4  
 (SEE ALSO FIG. 2 AND TABLE B)

**NOTE:**  
 WHEN HANDSET IS LIFTED  
 CONTACTS YT, YY CLOSE FIRST,  
 BK, Y SECOND, AND W, GN LAST.  
 WHEN HANDSET IS REPLACED  
 CONTACTS YY, RR CLOSE  
 BEFORE YY, YT BREAK.



† WHEN FILTER IS USED  
 REMOVE LEAD FROM  
 G OF DIAL TO TERM. I  
 AND CONNECT FILTER  
 AS SHOWN.

\* INDICATES CONNECTIONS  
 PROVIDED WITH SPADE TIPS

FIG. 10 (MFR DISC)  
 AUXILIARY RELAY CIRCUIT FOR  
 USE WITH 750A OR 755A PBX  
 STATION CKT

DRAWING  
 ISSUE  
 2D <sup>REV</sup>  
 DK

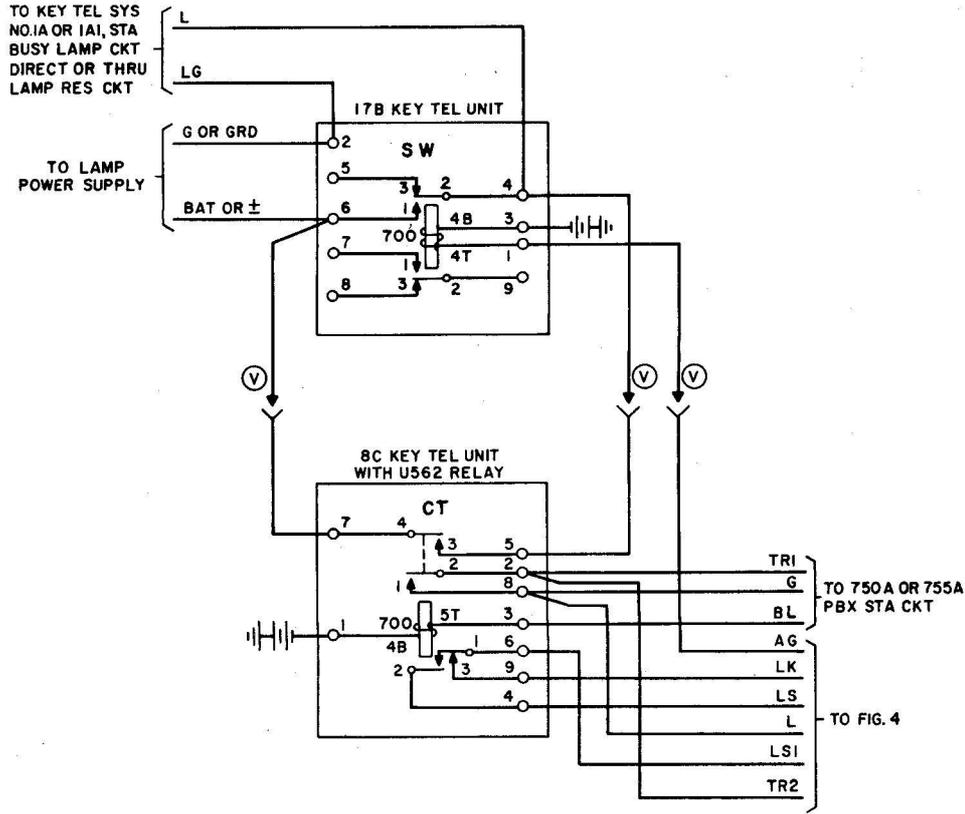
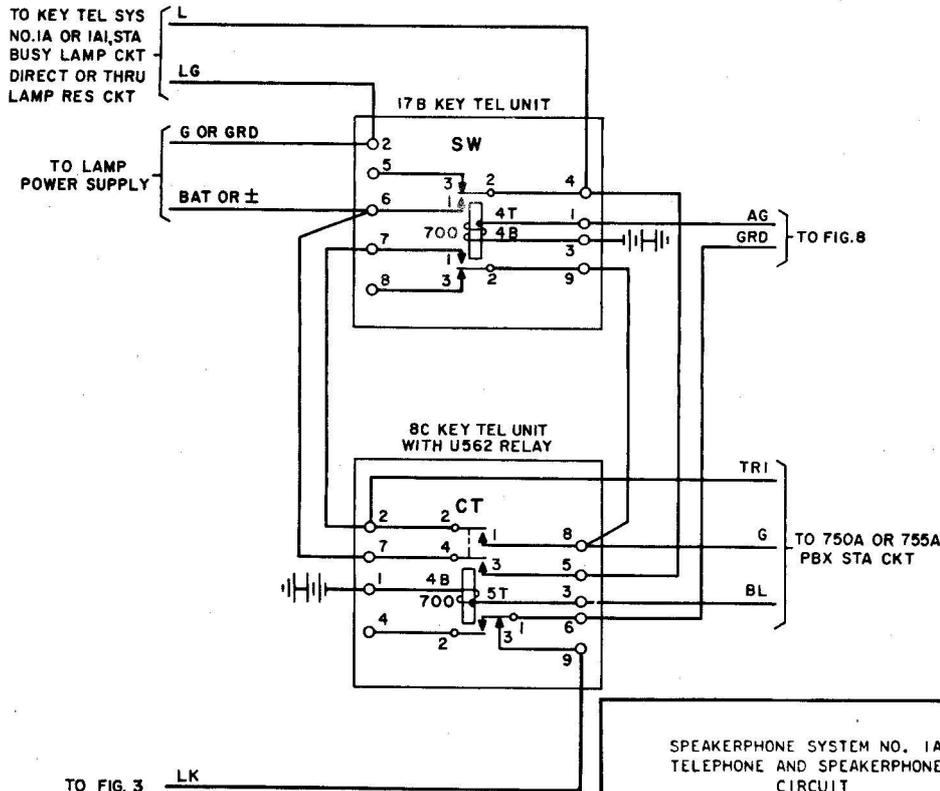


FIG. 11  
 AUXILIARY RELAY CIRCUIT FOR  
 USE WITH 750A OR 755A PBX  
 STATION CKT



SPEAKERPHONE SYSTEM NO. 1A TELEPHONE AND SPEAKERPHONE CIRCUIT		SD-69255-01-C7
BELL TELEPHONE LABORATORIES INCORPORATED		
DWG SIZE 3S		PRINTED IN U. S. A.

CIRCUIT REQUIREMENTS

SPEAKERPHONE SYSTEM NO. 1A, TELEPHONE AND SPEAKERPHONE CIRCUIT

DRAWING

ISSUE

20

CGR  
DHC

APPARATUS				MECH REQ			CIRCUIT PREPARATION				DIRECT CURRENT FLOW REQ					REMARKS	
DESIG	CODE	OPTION	FIG.	BSP FIG.	CONT PRES	ARM. TRVL	BLOCK OR INSULATE	TEST CLIP DATA		TEST SET PREP	SEE TEST NOTE	TEST WDG	TEST FOR	AFTER SOAK	TEST		READJ
								CONN BAT.	CONN GRD					NA.	NA.		NA.
RELAYS																	
KI	U893		8	134/123	H	35	5B(KI) 6B(KI)			G			0		7.4	7.0	
KI	U1455		4	129/117	H	47			T(KI)	G			0		9.4	8.9	
ON	U1452		4	305/136	H	SPL			T(ON)	G	I		0		6.1	5.8	ARM. TRVL 41
S	U1454		4	242/101	H	29			T(S)	G			0		5.1	4.8	ARM. TRVL 29
8C KEY TEL UNIT																	
CT	U562		10, 11	111/106	H	44			T(CT)	G			0		15.5	14.8	
17B KEY TEL UNIT																	
SW	UA141		6,10, 11	132/132	H	47			T(SW)	G			0 H		12.6 9	12.0 8.5	

TEST NOTES:

1. FRONT CONTACTS 1-2T MAKE 8 TEST, 10 READJ.

SPEAKERPHONE SYSTEM NO. 1A  
TELEPHONE AND SPEAKERPHONE  
CIRCUIT

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