

SERVICE  
1A1 KEY TELEPHONE SYSTEM  
KEY SERVICE UNITS

1. GENERAL

1.01 This section contains connection information for the 300-, 301-(MD), 302-(MD), 310-, 311-, 2301-, and 2311-type KSUs.

1.02 Information in this section was formerly contained in Sections 518-240-400, 518-240-401, 518-245-101, and 518-245-102, which are hereby canceled.

1.03 For additional information, refer to CD- and SD-69433-01 (300-, 301-, and 302-type); CD- and SD-69434-01 (310-type); and CD and SD-68480-01 (311-type).

2. CONNECTIONS

2.01 Key and power cable connections and strapping between 202D, 230B, 232B, and 207C KTUs for the 300-, 301-, 302-type KSUs, and for the 310-, 311-type KSUs are shown in Fig. 4 and 5, respectively. Key and power cable connections and strappings between the 230B, 238A, 207C, and 216A for the 310- and 311-type KSUs are shown in Fig. 6.

*300-Type Key Service Unit*

2.02 KTUs are interwired. Connect key or running cables directly to the screw terminals on back of the KTUs. See Table A for features, lead designations, and connections. When power is not provided, connect an external power source as shown in Table B.

*301-Type Key Service Unit*

2.03 Connect key or running cables in Columns A through E of 66-type connecting block (Fig. 2). See Table A for features, lead designations, and terminal numbers on connecting blocks A and B.

2.04 When power is not provided, connect an external power source to Column A of connecting block A as shown in Table B.

*302-Type Key Service Unit*

2.05 An A75A connector cable is connected to 66-Type Connecting block as follows:

- Blue binder (connector 1) to Column A.
- Orange binder (connector 2) to Column B
- Green binder (connector 3) to Column C.

2.06 Each connector provides for:

- All Line features
- Dial intercommunicating line
- Common audible signal for all line circuits.

2.07 See Table C for features, lead designations, and connections to blocks A and B.

2.08 Some pairs in each binder group of the A75A connector cable are not terminated. These pairs may be used for dial intercom codes and miscellaneous circuits by terminating on the proper or vacant terminals on the 66-type connecting block.



*These vacant terminals may have wires terminated on Column F that are lying dead at the apparatus end. Make sure that these terminals are cleared before using for miscellaneous circuits.*

2.09 A telephone set may be connected to each connector of the A75A connector cable or extended with a B25A connector cable to a bridging adapter or equivalent.

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**2.10** Fig. 3 shows possible arrangements for intercom signal leads and for extending stations using a 3-way bridging adapter.

**2.11** Connect additional key or running cables to Columns D and E of 66-type connecting blocks (see Fig. 2). See Table A for features, lead designations, and connections to terminal numbers on connecting blocks A and B.

**2.12** When power is not provided, connect an external power source to Column A of connecting block A (see Table B).

**2.13** When key telephone sets are multiplied through bridging adapters with sets furnishing features on a per station basis such as speaker-telephone, line exclusion control, cutoff key, push button and buzzers, station busy lamps, etc, certain control leads must be disconnected, insulated, and stored at the bridged station. This is necessary to avoid interference with working circuits. Refer to appropriate section for the telephone set used.

### **310-Type Key Service Unit**

**2.14** KTUs are interwired. Connect key or running cables directly to the screw terminals on the back of the KTUs. See the following tables for features, lead designations, and connections.

● Table D, 4 to 7 lines

● Table F, 9 to 13 lines

**2.15** When power is not provided, connect an external power source. See the following tables:

● Table E, 4 to 7 lines

● Table G, 9 to 13 lines

### **311-Type Key Service Unit**

**2.16** Connect key or running cables, starting on Column A of the 66-type connecting blocks (Fig. 2). See the following tables for features, lead designations, and terminal numbers on connecting blocks.

● Table D, 4 to 7 lines

● Table F, 9 to 13 lines

**2.17** When power is not provided, connect an external power source to Column A of connecting block D. See the following tables:

● Table E, 4 to 7 lines

● Table G, 9 to 13 lines

### **2301- and 2311-Type Key Service Units**

**2.18** Connections for terminating running and/or key cables and external power wiring to the 66-type connecting blocks are shown in Tables J and K for the 2301- and 2311-type KSUs, respectively. Interwiring of connections between individual KTUs and the connecting blocks is also shown.

**2.19** For further information see CDs and SDs 69352-01 and 69361-01 for the 2301- and 2311-type KSUs, respectively.

### **Signaling Circuit For Manual Intercom**

**2.20** Fig. 7 shows an arrangement for manual signaling when dial intercom is not provided. This arrangement uses terminals normally used for dial intercom. (See *Read* after 2.08).

### **Wink-Hold Circuit**

**2.21** All packages are wired for the wink-hold feature.

### **Steady Hold**

**2.22** For steady hold feature see the connection and strapping diagram for the particular KSU.

### **2.23 Connection Index**

Fig. 1—Method of Counting 66B1-25 Connecting Blocks

Fig. 2—Key or Running Cable Terminations on 66-Type Connecting Block For 301-, 302-, and 311-Type KSUs

Fig. 3—Suggested Intercom Signal Connections Using 564HDR or 565HDR Telephone Sets and 302-Type KSU

Fig. 4—300, 301- and 302-Type KSUs, Connections and Strapping (202D, 230B, 232B, and 207C KTUs)

Fig. 5—310-or 311-Type KSU (4 to 7 Lines) Connections and Strapping (202D, 230B, 232B, and 207C KTUs)

Fig. 6—310- or 311-Type KSU (9 to 13 Lines) Connections and Strapping (230B, 238A, 207C, and 216A KTUs)

Fig. 7—Typical Connections for Manual Signaling When Dial Intercom Circuit is Not Used

Table A—301- and 302-Type KSUs, Connections Between Apparatus and 66-Type Connecting Blocks

Table B—301- and 302-Type KSUs, Connections between Block A of 66-Type Connecting Block, Apparatus, and Power Plant

Table C—302-Type KSU, Connections Between A75A Connector Cable and 66-Type Connecting Blocks

Table D—311-Type KSU (4 - 7 Lines) Connections Between Apparatus and 66-Type Connecting Blocks

Table E—311-Type KSU (4-7 Lines) Connections Between Apparatus, 66-Type Connecting Block, and Power Plant

Table F—311-Type KSU (9-13 Lines) Connections Between Apparatus and 66-Type Connecting Blocks

Table G—311-Type KSU (9-13 Lines) Connections Between Apparatus, 66-Type Connecting Block, and Power Plant

Table H—310-or 311-Type KSU (9 to 13 Lines) Line Circuit Portion of 238A KTU

Table I—310- or 311-Type KSU (9 to 13 Lines) 230B KTU

Table J—2301-Type KSU Connections Between Apparatus and 66-Type Connecting Block

Table K—2311-Type KSU Connections

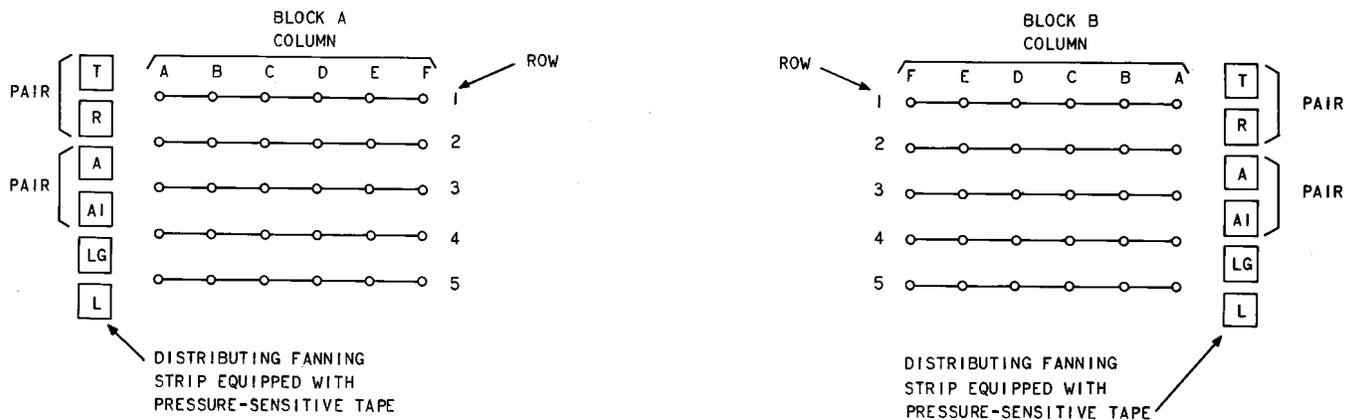


Fig. 1—Method of Counting 66B1-25 Connecting Blocks

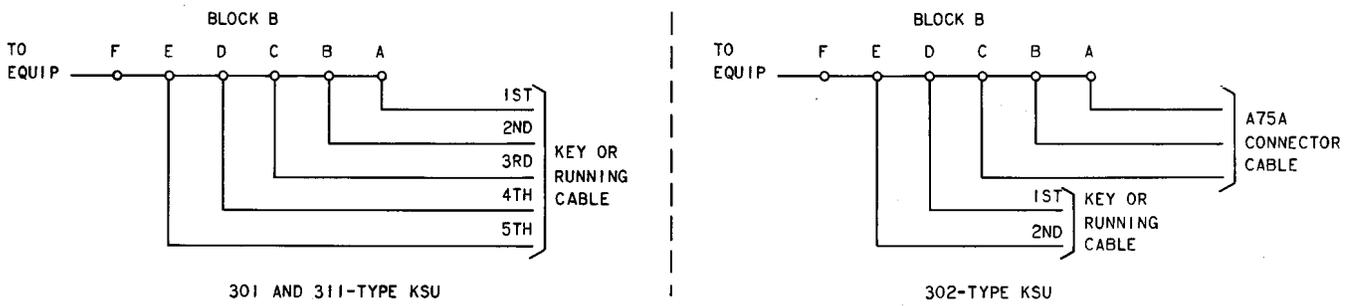


Fig. 2—Key or Running Cable Terminations on 66-Type Connecting Block For 301-, 302-, and 311-Type KSUs

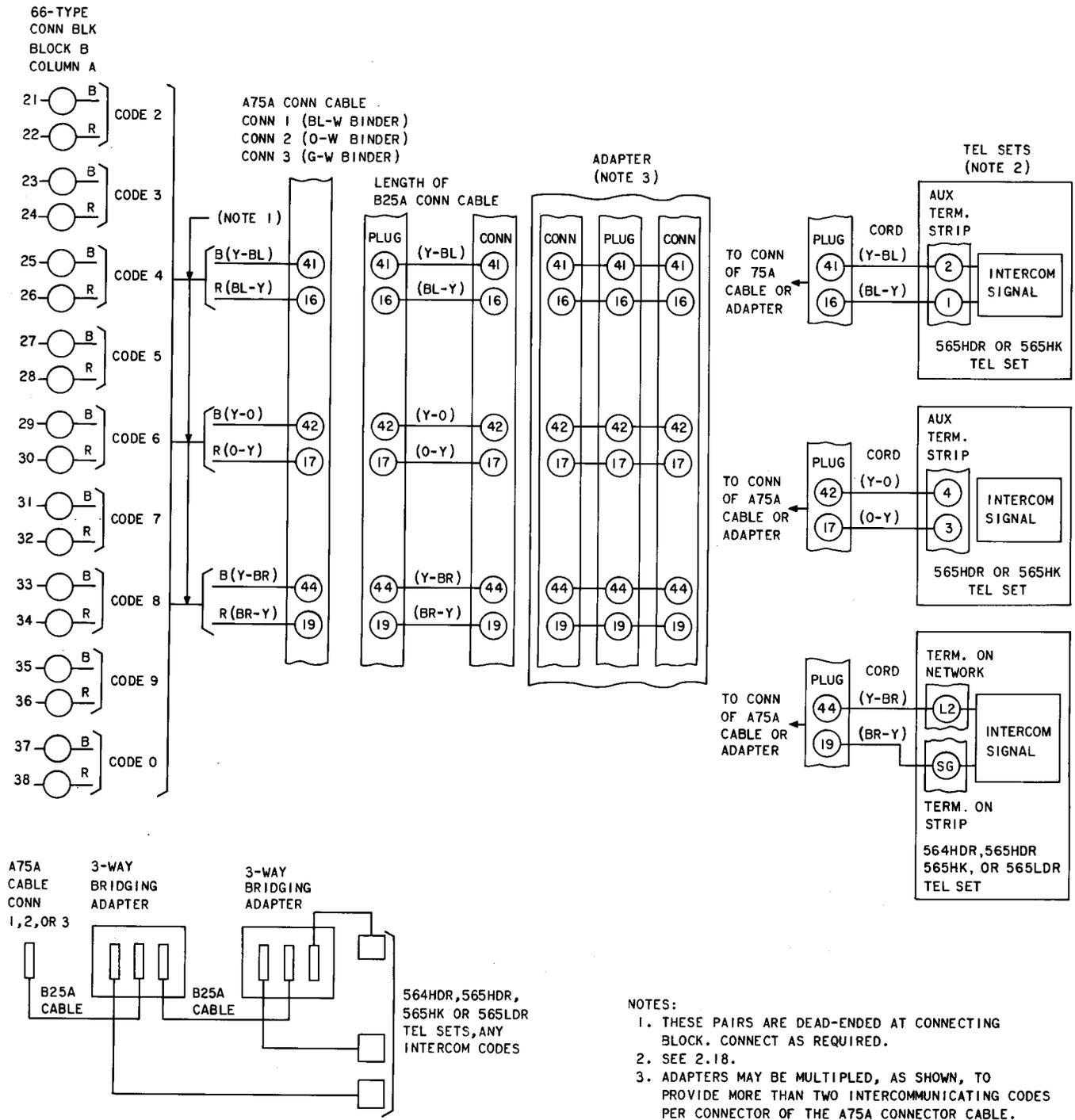


Fig. 3—Suggested Intercom Signal Connections Using 564HDR or 565HDR Telephone Sets, and 302-Type KSU

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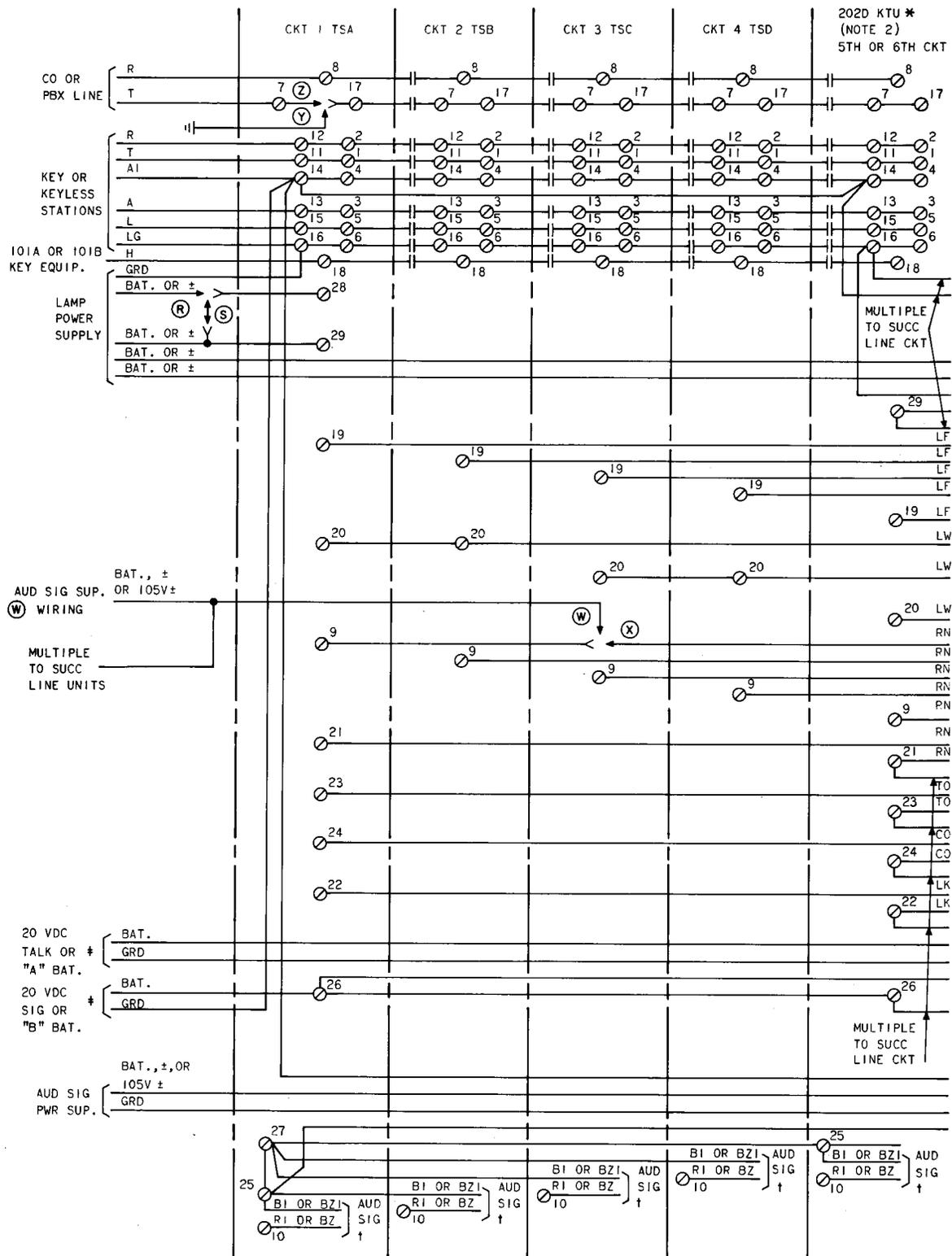
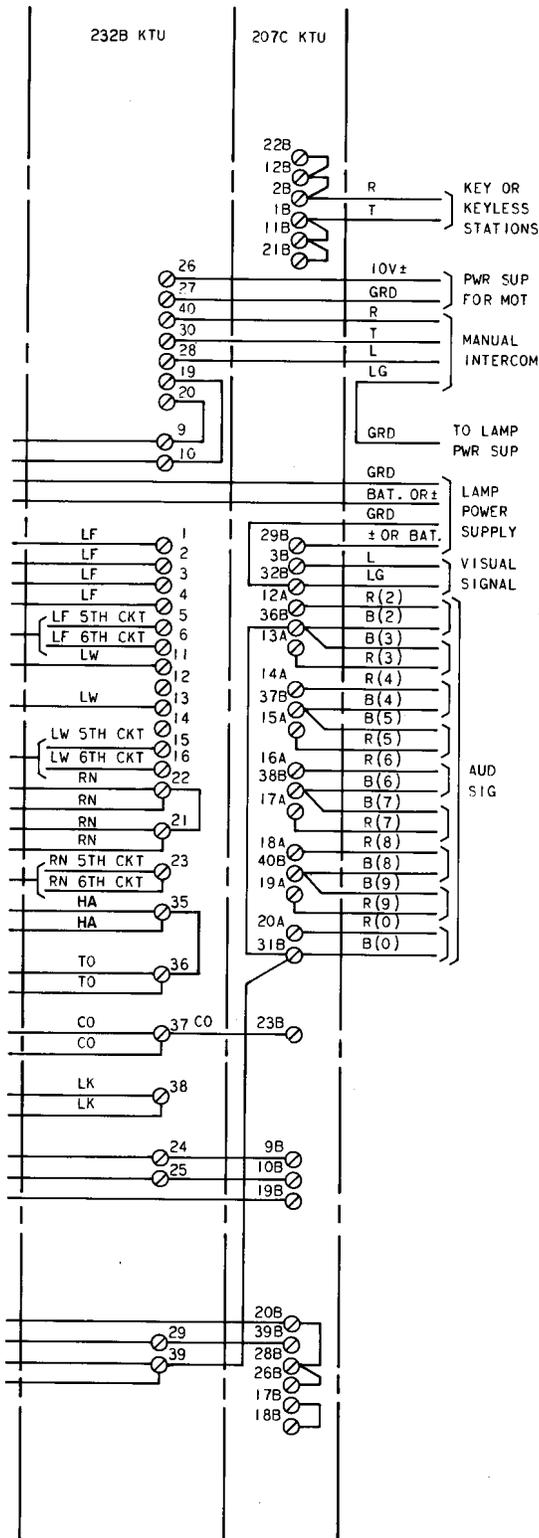


Fig. 4—300-, 301- and 302-Type KSUs, Connections and Strapping (202D, 230D, 232B, and 207C KTUs) (Sheet 1)



NOTES:

1. WHEN STEADY HOLD LAMP IS REQUIRED INSTEAD OF LAMP WINK, PROVIDE STRAPS AS FOLLOWS:  
 202D KTU-TERMS. 20 AND 29  
 230B KTU-CKTS 1 AND 2 TERMS. 20A,B AND 29A  
 CKTS 3 AND 4 TERMS. 20C,D AND 28A  
 CAUTION: IF PACKAGE INTERRUPTER IS USED TO FURNISH LAMP WINK FOR OTHER SYSTEMS, DISCONNECT AND TAPE LW LEADS AT TERMINAL 20 OF EACH LINE CIRCUIT NOT USING THE WINK FEATURE.
2. SYMBOL (||) MEANS ADJACENT TERMINALS ARE NOT STRAPPED. REFER TO LEGEND FOR TERMINATIONS.

\* WIRED FOR METALLIC RINGING AND INTERRUPTED AUDIBLE  
 † FOR COMMON AUDIBLE, STRAP ALL NO. 10 TERMINALS  
 ‡ A AND B GROUNDS MUST BE CONNECTED TOGETHER AT POWER SUPPLY

WIRING		OPTION
METALLIC RINGING FURNISHED		Z
GROUNDED RINGING		Y
INTERRUPTED AUDIBLE SIG (FURNISHED)		X
STEADY AUDIBLE SIGNAL		W
LAMP SUPPLY	MAX 40 LAMPS (FURNISHED)	S
	MAX 80 LAMPS	R

Fig. 4—300-, 301- and 302-Type KSUs, Connections and Strapping (202D, 230B, 232B, and 207C KTUs) (Sheet 2)

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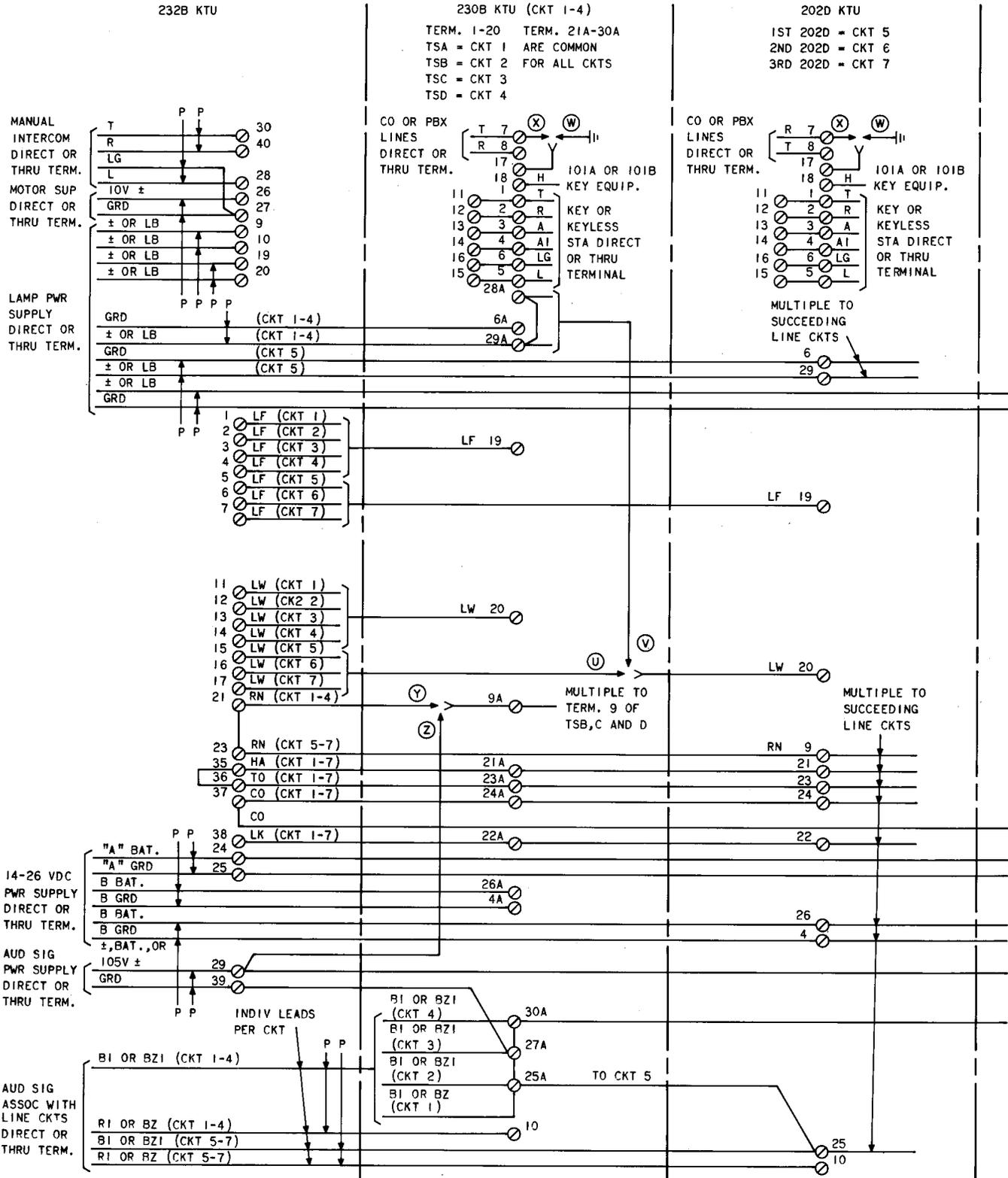


Fig. 5—310- or 311-Type KSU (4 to 7 Lines) Connections and Strapping (202D, 230B, 232B, and 207C KTUs) (Sheet 1)

207C KTU

NOTES:

1. FOR COMMON AUDIBLE SIGNAL STRAP ALL NO. 10 TERMS.
2. WHEN STEADY HOLD SIGNAL IS REQUIRED (V OPTION)  
PROVIDE STRAPS AS FOLLOWS:  
202D KTU-TERM. 20-29  
230B KTU-TERM. 20A,B-29A (CKT 1-2)  
TERM. 20C,D-28A (CKT 3-4)
3. A AND B GROUNDS MUST BE CONNECTED TOGETHER.

OPTIONS:

- Ⓚ WINKING HOLD SIGNAL (FURNISHED).
- Ⓥ STEADY HOLD SIGNAL.
- Ⓦ GROUNDED LINE RINGING.
- Ⓧ METALLIC LINE RINGING (FURNISHED).
- Ⓨ INTERRUPTED AUDIBLE SIGNAL USING ELECTRO-MECHANICAL INTERRUPTER (232B KTU) (FURNISHED).
- Ⓩ STEADY AUDIBLE SIGNAL

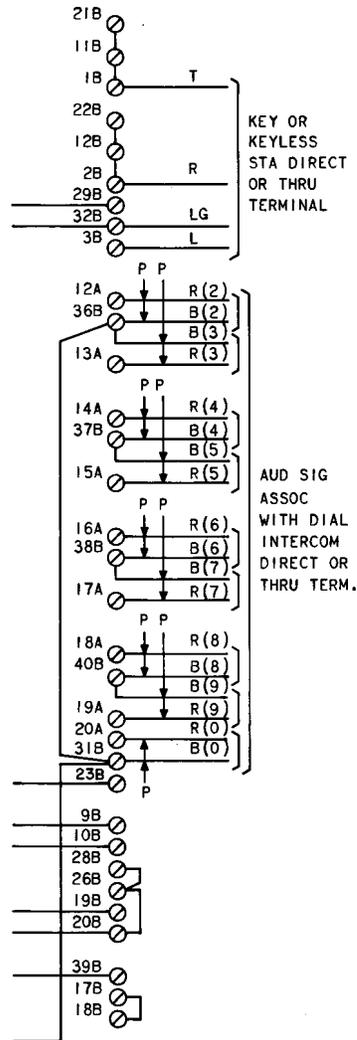


Fig. 5—310- or 311-Type KSU (4 to 7 Lines) Connections and Strapping (202D, 230B, 232B, and 207C KTUs) (Sheet 2)

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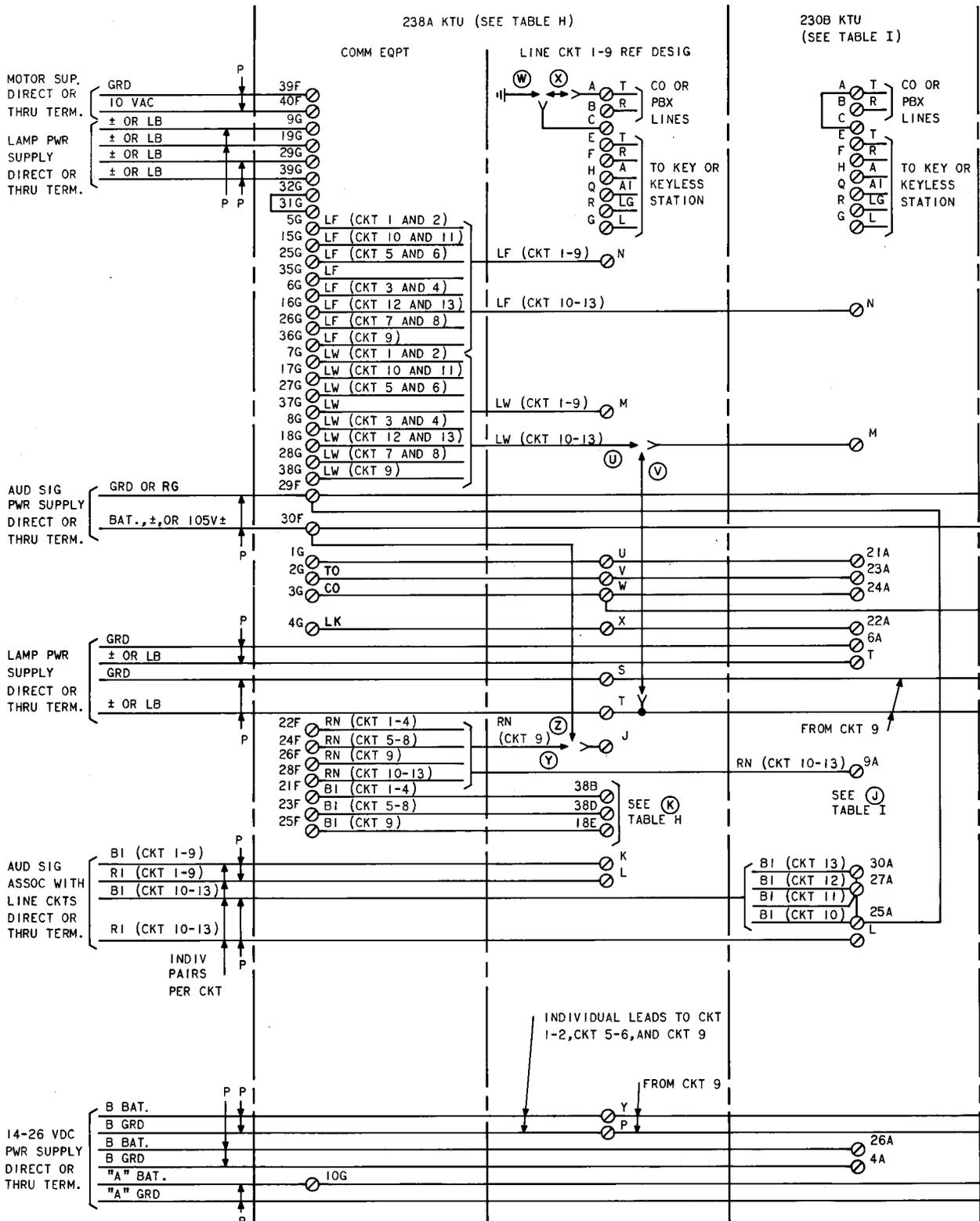
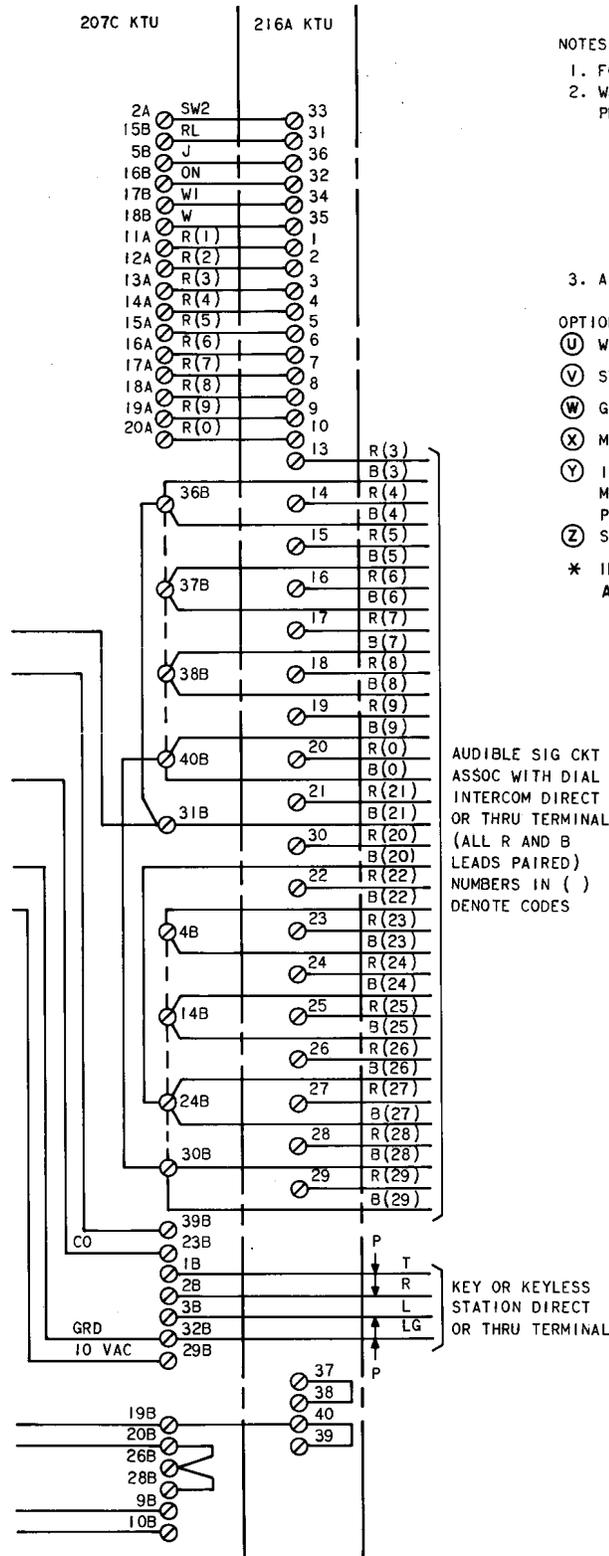


Fig. 6—310- or 311-Type KSU (9 to 13 Lines) Connections and Strapping (230B 238A, 207C, and 216A KTUs) (Sheet 1)



- NOTES:
1. FOR COMMON AUDIBLE SIGNAL STRAP ALL L TERMINALS.
  2. WHEN STEADY HOLD SIGNAL IS REQUIRED (V OPTION) PROVIDE STRAPS AS FOLLOWS:  
 230B KTU-TERM. 20A,B-29A (CKT 10-11)  
 TERM. 20C,D-28A (CKT 12-13)  
 238A KTU-TERM. 6F-16F (CKT 1-2)  
 TERM. 7F-17F (CKT 3-4)  
 TERM. 8F-18F (CKT 5-6)  
 TERM. 9F-19F (CKT 7-8)  
 TERM. 10F-20F (CKT 9)
  3. A AND B GROUNDS MUST BE CONNECTED TOGETHER.

- OPTIONS:
- (U) WINKING HOLD SIGNAL (FURNISHED).
  - (V) STEADY HOLD SIGNAL.
  - (W) GROUNDED LINE RINGING.
  - (X) METALLIC LINE RINGING (FURNISHED).
  - (Y) INTERRUPTED AUDIBLE SIGNAL USING ELECTRO-MECHANICAL INTERRUPTER (COMMON EQUIPMENT PORTION OF 238A KTU) (FURNISHED).
  - (Z) STEADY AUDIBLE SIGNAL.
- \* INDIVIDUAL LEADS TO CKT 1-2, CKT 5-6, AND CKT 9.

AUDIBLE SIG CKT ASSOC WITH DIAL INTERCOM DIRECT OR THRU TERMINAL (ALL R AND B LEADS PAIRED) NUMBERS IN ( ) DENOTE CODES

KEY OR KEYLESS STATION DIRECT OR THRU TERMINAL

Fig. 6—310- or 311-Type KSU (9 to 13 Lines) Connections and Strapping (230B, 238A, 207C, and 216A KTUs) (Sheet 2)

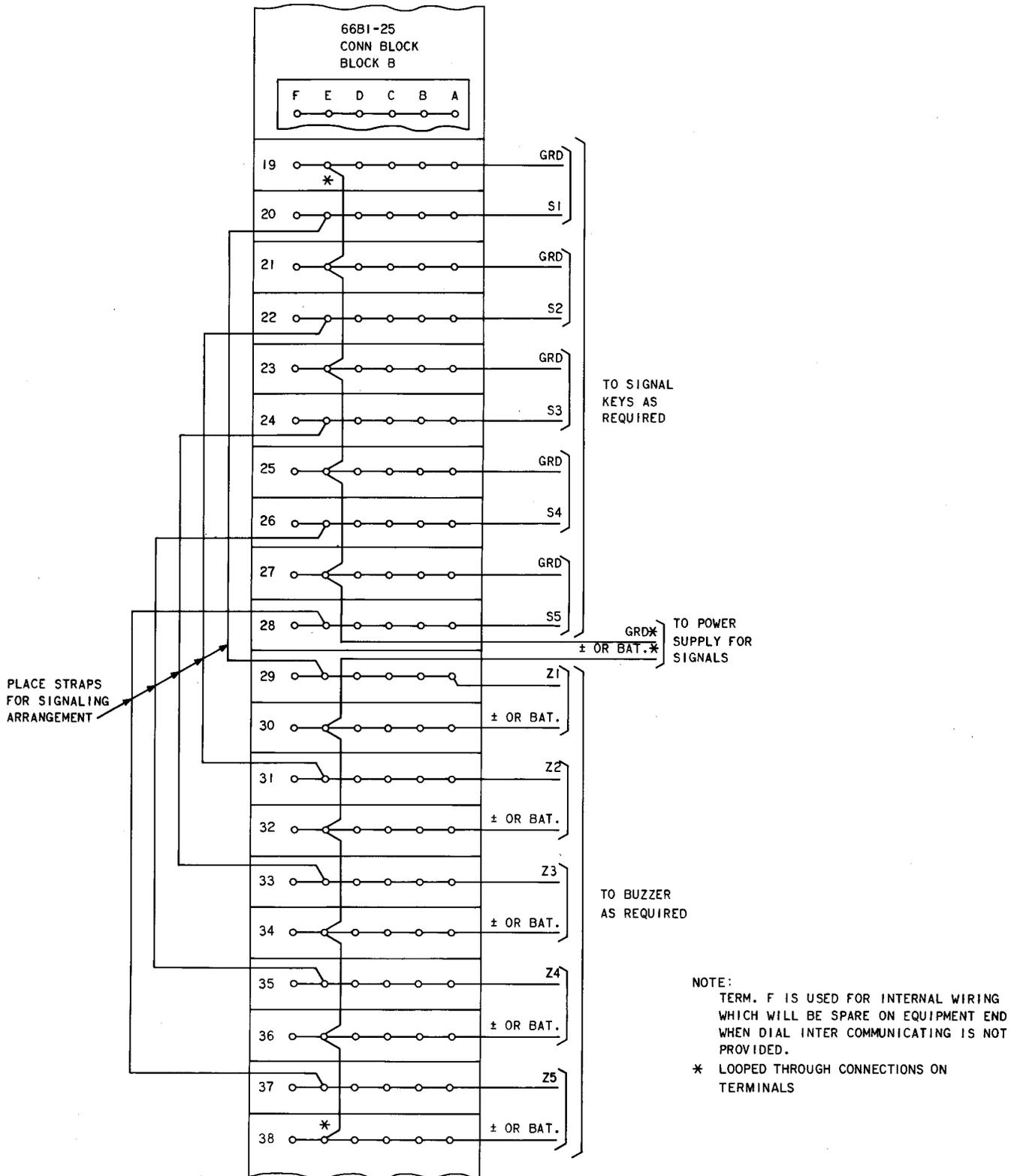


Fig. 7—Typical Connections for Manual Signaling When Dial Intercom Circuit is Not Used

TABLE A

301- AND 302-TYPE KSU'S, CONNECTIONS BETWEEN APPARATUS AND 66-TYPE CONNECTING BLOCKS

FEATURE	LEAD DESIG	BLOCK A 66B1-25 CONN BLK			TERMINAL ON 232B KTU	TERMINAL ON 230B KTU	TERMINAL ON 202D KTU	TERMINAL ON 207C KTU
		ROW	COL	CABLE COLOR O-W BINDER				
Line 1	T	1	↑ F ↓	W-BL		1A		
	R	2		BL-W		2A		
	A	3		W-O		3A		
	A1	4		O-W		4A		
	LG	5		W-G		6A		
	L	6		G-W		5A		
Line 2	T	7		W-BR		1B		
	R	8		BR-W		2B		
	A	9		W-S		3B		
	A1	10		S-W		4B		
	LG	11		R-BL		6B		
	L	12		BL-R		5B		
Line 3	T	13		R-O		1C		
	R	14		O-R		2C		
	A	15		R-G		3C		
	A1	16		G-R		4C		
	LG	17		R-BR		6C		
	L	18		BR-R		5C		
Line 4	T	19		R-S		1D		
	R	20		S-R		2D		
	A	21		BK-BL		3D		
	A1	22		BL-BK		4D		
	LG	23		BK-O		6D		
	L	24		O-BK		5D		
Line 5	T	25		BK-G		1	1st	
	R	26		G-BK		2		
	A	27		BK-BR		3		
	A1	28		BR-BK		4		
	LG	29		BK-S		6		
	L	30		S-BK		5		
Line 6	T	31		Y-BL		1	2nd	
	R	32		BL-Y		2		
	A	33		Y-O		3		
	A1	34		O-Y		4		
	LG	35		Y-G		6		
	L	36		G-Y		5		
Motor Supply	GRD 10V±	37 38	See Table B for Power Connections					
Spare		39 40						
Lamp Supply	± or BAT.	41						
	± or BAT.	42						
	GRD	43						
	± or BAT.	44						
Audible Signal Supply	GRD	45						
	BAT., ±, or 105V ±	46						
20v dc Talk or A Bat.	GRD	47						
	BAT.	48						
20v dc Sig or B Bat.	GRD	49						
	BAT.	50						

TABLE A (Cont)

301- AND 302-TYPE KSU'S CONNECTIONS BETWEEN APPARATUS AND 66-TYPE CONNECTING BLOCKS

FEATURE	LEAD DESIG	BLOCK B 66B1-25 CONN BLK			TERMINAL ON 232B KTU	TERMINAL ON 230B KTU	TERMINAL ON 202D KTU		TERMINAL ON 207C KTU	
		ROW	COL	CABLE COLOR BL-W BINDER						
Manual Intercom Line	T	1	↑ F ↓	W-BL	30					
	R	2		BL-W	40					
	LG	3		W-O	27					
		4		O-W	28					
Audible Signal*	Line 1	B1 or BZ1		5	W-G		25A			
		R1 or BZ		6	G-W		10A			
	Line 2	B1 or BZ1		7	W-BR		25A			
		R1 or BZ		8	BR-W		10B			
	Line 3	B1 or BZ1		9	W-S		27A			
		R1 or BZ		10	S-W		10C			
Line 4	B1 or BZ1	11		R-BL		27A				
	R1 or BZ	12		BL-R		10D				
Line 5	B1 or BZ1	13		R-O			25	1st		
	R1 or BZ	14		O-R			10			
Line 6	B1 or BZ1	15		R-G			25	2nd		
	R1 or BZ	16		G-R			10			
Dial Selective Intercom Line	T	17		R-BR					1B	
	R	18		BR-R					2B	
	LG	19		R-S						32B
		L		20	S-R					3B
	B(2)	21		BK-BL						36B
		R(2)		22	BL-BK					12A
	B(3)	23		BK-O						36B
		R(3)		24	O-BK					13A
	B(4)	25		BK-G						37B
		R(4)		26	G-BK					14A
	B(5)	27		BK-BR						37B
		R(5)		28	BR-BK					15A
	B(6)	29		BK-S						38B
		R(6)		30	S-BK					16A
	B(7)	31		Y-BL						38B
		R(7)		32	BL-Y					17A
B(8)	33	Y-O							40B	
	R(8)	34		O-Y					18A	
B(9)	35	Y-G							40B	
	R(9)	36		G-Y					19A	
B(0)	37	Y-BR							31B	
	R(0)	38		BR-Y					20A	
CO or PBX	Line 1	T		39	Y-S		7A			
		R		40	S-Y		8A			
	Line 2	T		41	V-BL		7B			
		R		42	BL-V		8B			
	Line 3	T		43	V-O		7C			
		R		44	O-V		8C			
	Line 4	T		45	V-G		7D			
		R		46	G-V		8D			
	Line 5	T		47	V-BR			7	1st	
		R		48	BR-V			8		
	Line 6	T		49	V-S			7	2nd	
		R		50	S-V			8		

\* On the 302 KSU the R1 leads and the B1 leads are factory-strapped.

TABLE B

301- AND 302-TYPE KSU'S, CONNECTIONS BETWEEN BLOCK A OF 66-TYPE CONNECTING BLOCK, APPARATUS, AND POWER PLANT

FEATURE	LEAD DESIG	CONNECTING BLOCK A															
		ROW ON 66B1-25 CONN BLOCK	COL F			COL E			COL D			COL C			COL A		
			CABLE COLOR CODE	TO		CABLE COLOR CODE	TO		CABLE COLOR CODE	TO		CABLE COLOR CODE	TO		CABLE COLOR CODE	TO	
				KTU	TERM.		KTU	TERM.		KTU	TERM.		KTU	TERM.		KTU	TERM.
Motor Supply	GRD 10V ±	37 38	Y-BR BR-Y	232B	27 26										BL2Y BL1Y	10V AC	G B
Spare																	
Lamp Supply	± or BAT.	41	BR*	232B	9	BR-W*	1st 202D	29							W	10V AC	B‡
	± or BAT.	42	S*	232B	10	S-W*								R-W	B‡		
	GRD ± or BAT.	43 44	BL-W† BL†	230B 230B	6A 28A	O-W† O†	230B 230B	16A 29A	G-W† G†	207C 207C	32B 29B	Y-W† Y†	1st 202D	16	R-Y R		G B‡
Audible Signal Supply	GRD	45	V-G	232B	39												
	±, BAT., or 105V ±	46	G-V		29												
20v dc Talk or A Bat.	GRD	47	V-BR	232B	25										G2Y	20V DC	G
	BAT.	48	BR-V		24										G1Y	Talk	B
20v dc Sig or B Bat.	GRD	49	V-S	230B	4A										S2BK	20V DC	G
	BAT.	50	S-V		26A										S1BK	Sig	B

\* 18 Gauge — G-W Binder.

† 20 Gauge — G-W Binder.

‡ Use loop through method of termination for terminals 41, 42, and 43.

TABLE C

**302-TYPE KSU, CONNECTIONS BETWEEN  
A75A CONNECTOR CABLE AND 66-TYPE CONNECTING BLOCKS**

FEATURE	LEAD DESIG	CONN 1					CONN 2					CONN 3										
		CONN 1 BL-W BINDER		TERMINATION ON 66-TYPE CONN BLOCK			CONN 2 O-W BINDER		TERMINATION ON 66-TYPE CONN BLOCK			CONN 3 G-W BINDER		TERMINATION ON 66-TYPE CONN BLOCK								
		PIN NO.	CABLE COLOR	ROW	BLK	COL	PIN NO.	CABLE COLOR	ROW	BLK	COL	PIN NO.	CABLE COLOR	ROW	BLK	COL						
Line 1	T	26	W-BL	1	↑	↑	26	W-BL	1	↑	↑	26	W-BL	1	↑	↑						
	R	1	BL-W	2			27	W-O	3			27	W-O	3			27	W-O	3			
	A	27	W-O	3			A1	2	O-W			4	2	O-W			4	2	O-W	4		
Line 2	LG	28	W-G	5			28	W-G	5			28	W-G	5			28	W-G	5	28	W-G	5
	L	3	G-W	6			3	G-W	6			3	G-W	6			3	G-W	6	3	G-W	6
	T	29	W-BR	7			29	W-BR	7			29	W-BR	7			29	W-BR	7	29	W-BR	7
Line 3	R	4	BR-W	8	4	BR-W	8	4	BR-W	8	4	BR-W	8	4	BR-W	8						
	A	30	W-S	9	30	W-S	9	30	W-S	9	30	W-S	9	30	W-S	9						
	A1	5	S-W	10	5	S-W	10	5	S-W	10	5	S-W	10	5	S-W	10						
Line 4	LG	31	R-BL	11	31	R-BL	11	31	R-BL	11	31	R-BL	11	31	R-BL	11						
	L	6	BL-R	12	6	BL-R	12	6	BL-R	12	6	BL-R	12	6	BL-R	12						
	T	32	R-O	13	32	R-O	13	32	R-O	13	32	R-O	13	32	R-O	13						
Line 4	R	7	O-R	14	7	O-R	14	7	O-R	14	7	O-R	14	7	O-R	14						
	A	33	R-G	15	33	R-G	15	33	R-G	15	33	R-G	15	33	R-G	15						
	A1	8	G-R	16	8	G-R	16	8	G-R	16	8	G-R	16	8	G-R	16						
Line 4	LG	34	R-BR	17	34	R-BR	17	34	R-BR	17	34	R-BR	17	34	R-BR	17						
	L	9	BR-R	18	9	BR-R	18	9	BR-R	18	9	BR-R	18	9	BR-R	18						
	T	35	R-S	19	35	R-S	19	35	R-S	19	35	R-S	19	35	R-S	19						
Line 4	R	10	S-R	20	10	S-R	20	10	S-R	20	10	S-R	20	10	S-R	20						
	A	36	BK-BL	21	36	BK-BL	21	36	BK-BL	21	36	BK-BL	21	36	BK-BL	21						
	A1	11	BL-BK	22	11	BL-BK	22	11	BL-BK	22	11	BL-BK	22	11	BL-BK	22						
Line 4	LG	37	BK-O	23	37	BK-O	23	37	BK-O	23	37	BK-O	23	37	BK-O	23						
	L	12	O-BK	24	12	O-BK	24	12	O-BK	24	12	O-BK	24	12	O-BK	24						
	Dial Inter-com	T	38	BK-G	17	38	BK-G	17	38	BK-G	17	38	BK-G	17	38	BK-G	17					
Dial Inter-com	R	13	G-BK	18	13	G-BK	18	13	G-BK	18	13	G-BK	18	13	G-BK	18						
	Spare*		39	BK-BR		39	BK-BR		39	BK-BR		39	BK-BR		39	BK-BR						
Dial Inter-com	LG	40	BK-S	19	40	BK-S	19	40	BK-S	19	40	BK-S	19	40	BK-S	19						
	L	15	S-BK	20	15	S-BK	20	15	S-BK	20	15	S-BK	20	15	S-BK	20						
Spare*		41	Y-BL		41	Y-BL		41	Y-BL		41	Y-BL		41	Y-BL							
		16	BL-Y		16	BL-Y		16	BL-Y		16	BL-Y		16	BL-Y							
		42	Y-O		42	Y-O		42	Y-O		42	Y-O		42	Y-O							
		17	O-Y		17	O-Y		17	O-Y		17	O-Y		17	O-Y							
		43	Y-G		43	Y-G		43	Y-G		43	Y-G		43	Y-G							
Com Aud	B1 or BZ1	45	Y-S	5	45	Y-S	7	45	Y-S	7	45	Y-S	9	45	Y-S	9						
	R1 or BZ	20	S-Y	6	20	S-Y	8	20	S-Y	8	20	S-Y	10	20	S-Y	10						
	Spare*		46	V-BL		46	V-BL		46	V-BL		46	V-BL		46	V-BL						
Spare*		21	BL-V		21	BL-V		21	BL-V		21	BL-V		21	BL-V							
		47	V-O		47	V-O		47	V-O		47	V-O		47	V-O							
		22	O-V		22	O-V		22	O-V		22	O-V		22	O-V							
		48	V-G		48	V-G		48	V-G		48	V-G		48	V-G							
		23	G-V		23	G-V		23	G-V		23	G-V		23	G-V							
Spare*		49	V-BR		49	V-BR		49	V-BR		49	V-BR		49	V-BR							
		24	BR-V		24	BR-V		24	BR-V		24	BR-V		24	BR-V							
		50	V-S		50	V-S		50	V-S		50	V-S		50	V-S							
	25	S-V		25	S-V		25	S-V		25	S-V		25	S-V								

\* Dead-ended and stored at connecting blocks. Connect as required.

TABLE D

311-TYPE KSU (4-7 LINES) CONNECTIONS BETWEEN APPARATUS AND 66-TYPE CONNECTING BLOCKS

FEATURE	LEAD DESIGNATION	BLOCK A 66-TYPE CONNECTING BLOCK			TERMINAL ON 232B KTU	TERMINAL ON 230B KTU	TERMINAL ON 202D KTU	TERMINAL ON 207C KTU
		ROW	COL	CABLE COLOR BLUE BINDER				
Line 1	T	1	↑ F ↓	W-BL		1A		
	R	2		BL-W		2A		
	A	3		W-O		3A		
	A1	4		O-W		4A		
	LG	5		W-G		6A		
Line 2	L	6		G-W		5A		
	T	7		W-BR		1B		
	R	8		BR-W		2B		
	A	9		W-S		3B		
	A1	10		S-W		4B		
Line 3	LG	11		R-BL		6B		
	L	12		BL-R		5B		
	T	13		R-O		1C		
	R	14		O-R		2C		
	A	15		R-G		3C		
Line 4	A1	16		G-R		4C		
	LG	17		R-BR		6C		
	L	18		BR-R		5C		
	T	19		R-S		1D		
	R	20		S-R		2D		
Line 5	A	21		BK-BL		3D		
	A1	22		BL-BK		4D		
	LG	23		BK-O		6D		
	L	24		O-BK		5D		
	T	25		BK-G		1	1st	
R	26	G-BK			2			
A	27	BK-BR			3			
A1	28	BR-BK			4			
LG	29	BK-S			6			
Line 6	L	30		S-BK		5		
	T	31		Y-BL		1	2nd	
	R	32		BL-Y		2		
	A	33		Y-O		3		
	A1	34		O-Y		4		
LG	35	Y-G			6			
Line 7	L	36		G-Y		5		
	T	37		Y-BR		1	3rd	
	R	38		BR-Y		2		
	A	39		Y-S		3		
	A1	40		S-Y		4		
LG	41	V-BL			6			
Manual Intercom	L	42		BL-V		5		
	T	43		V-O	30			
	R	44		O-V	40			
	LG	45		V-G	27			
Dial Intercom	L	46		G-V	28			
	T	47		V-BR				
	R	48		BR-V				
	LG	49		V-S				
Dial Intercom	L	50		S-V				
					1B 2B 32B 3B			

TABLE D (Cont)

311-TYPE KSU (4-7 LINES) CONNECTIONS BETWEEN APPARATUS AND 66-TYPE CONNECTING BLOCKS

FEATURE	LEAD DESIGNATION	BLOCK B 66-TYPE CONNECTING BLOCK			TERMINAL ON 232B KTU	TERMINAL ON 230B KTU	TERMINAL ON 202D KTU	TERMINAL ON 207C KTU
		ROW	COL	CABLE COLOR ORANGE BINDER				
Aud Sig Assoc With Dial Intercom	Code	B	1	↑ F ↓	W-BL			36B
	2	R	2		BL-W			12A
	3	B	3		W-O			36B
		R	4		O-W			13A
	4	B	5		W-G			37B
		R	6		G-W			14A
	5	B	7		W-BR			37B
		R	8		BR-W			15A
	6	B	9		W-S			38B
		R	10		S-W			16A
7	B	11	R-BL			38B		
	R	12	BL-R			17A		
8	B	13	R-O			40B		
	R	14	O-R			18A		
9	B	15	R-G			40B		
	R	16	G-R			19A		
0	B	17	R-BR			31B		
	R	18	BR-R			20A		
Aud Sig Assoc With Line Ckts	Line 1	B1 or BZ1	19	R-S		25A		
		R1 or BZ	20	S-R		10A		
	Line 2	B1 or BZ1	21	BK-BL		25A		
		R1 or BZ	22	BL-BK		10B		
	Line 3	B1 or BZ1	23	BK-O		27A		
		R1 or BZ	24	O-BK		10C		
	Line 4	B1 or BZ1	25	BK-G		30A		
		R1 or BZ	26	G-BK		10D		
	Line 5	B1 or BZ1	27	BK-BR			25	
		R1 or BZ	28	BR-BK			10	
							1st	
	Line 6	B1 or BZ1	29	BK-S			25	
		R1 or BZ	30	S-BK			10	
							2nd	
Line 7	B1 or BZ1	31	Y-BL			25		
	R1 or BZ	32	BL-Y			10		
Vacant			33					
			34					
			35					
			36					
			37					
			38					
			39					
			40					
			41					
			42					
			43					
			44					
			45					
			46					
			47					
			48					
			49					
			50					

TABLE D (Cont)

311-TYPE KSU (4-7 LINES) CONNECTIONS BETWEEN APPARATUS AND 66-TYPE CONNECTING BLOCKS

FEATURE	LEAD DESIGNATION	BLOCK D 66-TYPE CONNECTING BLOCK			TERMINAL ON 230B KTU	TERMINAL ON 202D KTU	
		ROW	COL	CABLE COLOR ORANGE BINDER			
Co or PBX Lines	Line 1	T	1	↑ F ↓	Y-O	7A	
		R	2		O-Y	8A	
	Line 2	T	3		Y-G	7B	
		R	4		G-Y	8B	
	Line 3	T	5		Y-BR	7C	
		R	6		BR-Y	8C	
	Line 4	T	7		Y-S	7D	
R		8	S-Y		8D		
Line 5	T	9	V-BL			7	1st
	R	10	BL-V			8	
Line 6	T	11	V-O			7	2nd
	R	12	O-V			8	
Line 7	T	13	V-G			7	3rd
	R	14	G-V			8	
Spare		15	V-BR				
		16	BR-V				
		17	V-S				
		18	S-V				
Vacant		19					
		20					
		21					
		22					
		23					
		24					
		25					
		26					
		27					
	28						
	29						
	30						
	31						
	32						
	33						
	34						
	35						
	36						
See Table E For Power Connections		37					
		38					
		39					
		40					
		41					
		42					
		43					
		44					
		45					
		46					
	47						
	48						
	49						
	50						
See Table E For Power Connections							

TABLE E

311-TYPE KSU (4-7 LINES) CONNECTIONS BETWEEN APPARATUS,  
66-TYPE CONNECTING BLOCK, AND POWER PLANT

FEATURE	LEAD DESIG	CONNECTING BLOCK D												
		ROW ON 66-TYPE CONN BLOCK	COL F			COL E			COL D			COL A		
			CABLE COLOR BR-W BNDR	TO		CABLE COLOR BR-W BNDR	TO		CABLE COLOR BR-W BNDR	TO		CABLE COLOR	TO	
				KTU	TERMINAL		KTU	TERMINAL		KTU	TERMINAL		J86731-D POWER PLANT	
Audible Signal Power Supply	GRD	37	W-BL		39									
	±, BAT., or 105V ±	38	BL-W	232B	29									
20v dc Talk or A Bat.	GRD	39	W-O	232B	25							G-2Y	20V DC Talk	G
	BAT.	40	O-W		24							G-1Y		B
20v dc Signal or B Bat.	GRD	41	R-BR	1st 202D	4							BL-2Y	20V DC Signal	G
	GRD	42	W-Y*	230B 1st	4A							S-2BK		
	BAT.	43	BR-R	202D	26							BL-1Y		
	BAT.	44	Y*	230B	26A							S-1BK		
Lamp and Motor Supply	GRD	45	W-BL*	1st 202D	6							R-Y†	10V AC	G
	GRD†	46	W-O*	230B	6A	R-G	232B	27	W-G*	207C	32R	R-W†		
	10V AC†	47	W-BR†	232B	9	G-R	232B	26				W†		
	± or BAT.	48	BR†	232B	10		1st					W†		
	± or BAT.	49	W-S†	232B	19	BL*	202D	29				R†		
	± or BAT.	50	S†	232B	20	O*	230B	29A	G*	207C	29B	R†		±

\* 20 Gauge Wire.

† 18 Gauge Wire.

‡ Motor supply must be 10 volt ac. When direct current is used for lamps move W-O from terminal 46, clip 6 to terminal 45, clip 5 and W-BR from terminal 47, clip 6 to terminal 48, clip 5.

TABLE F

**311-TYPE KSU (9-13 LINES) CONNECTIONS BETWEEN  
APPARATUS AND 66-TYPE CONNECTING BLOCKS**

FEATURE	LEAD DESIGNATION	BLOCK D 66-TYPE CONNECTING BLOCK			TERMINAL ON 238A KTU
		ROW	COL	CABLE COLOR BLUE BINDER	
Line 1	T	1	↑ F ↓	W-BL	1A
	R	2		BL-W	2A
	A	3		W-O	3A
	A1	4		O-W	4A
	LG	5		W-G	6A
	L	6		G-W	5A
Line 2	T	7		W-BR	31A
	R	8		BR-W	32A
	A	9		W-S	33A
	A1	10		S-W	34A
	LG	11		R-BL	36A
	L	12		BL-R	35A
Line 3	T	13		R-O	1B
	R	14		O-R	2B
	A	15		R-G	3B
	A1	16		G-R	4B
	LG	17		R-BR	6B
	L	18		BR-R	5B
Line 4	T	19		R-S	31B
	R	20		S-R	32B
	A	21		BK-BL	33B
	A1	22		BL-BK	34B
	LG	23		BK-O	36B
	L	24		O-BK	35B
Line 5	T	25		BK-G	1C
	R	26		G-BK	2C
	A	27		BK-BR	3C
	A1	28		BR-BK	4C
	LG	29		BK-S	6C
	L	30		S-BK	5C
Line 6	T	31		Y-BL	31C
	R	32		BL-Y	32C
	A	33		Y-O	33C
	A1	34		O-Y	34C
	LG	35		Y-G	36C
	L	36		G-Y	35C
Line 7	T	37		Y-BR	1D
	R	38		BR-Y	2D
	A	39		Y-S	3D
	A1	40		S-Y	4D
	LG	41		V-BL	6D
	L	42		BL-V	5D
Line 8	T	43		V-O	31D
	R	44		O-V	32D
	A	45		V-G	33D
	A1	46		G-V	34D
	LG	47		V-BR	36D
	L	48		BR-V	35D
Spare		49		V-S	
		50		S-V	

TABLE F (Cont)

311-TYPE KSU (9-13 LINES) CONNECTIONS BETWEEN APPARATUS AND 66-TYPE CONNECTING BLOCKS

FEATURE	LEAD DESIGNATION	BLOCK B 66-TYPE CONNECTING BLOCK			TERMINAL ON 238A KTU	TERMINAL ON 230B KTU	TERMINAL ON 207C KTU	TERMINAL ON 216A KTU
		ROW	COL	CABLE COLOR ORANGE BINDER				
Line 9	T	1	↑ F ↓	W-BL	1E			
	R	2		BL-W	2E			
	A	3		W-O	3E			
	A1	4		O-W	4E			
	LG	5		W-G	6E			
Line 10	L	6		G-W	5E			
	T	7		W-BR		1A		
	R	8		BR-W		2A		
	A	9		W-S		3A		
	A1	10		S-W		4A		
Line 11	LG	11		R-BL		6A		
	L	12		BL-R		5A		
	T	13		R-O		1B		
	R	14		O-R		2B		
	A	15		R-G		3B		
Line 12	A1	16		G-R		4B		
	LG	17		R-BR		6B		
	L	18		BR-R		5B		
	T	19		R-S		1C		
	R	20		S-R		2C		
Line 13	A	21		BK-BL		3C		
	A1	22		BL-BK		4C		
	LG	23		BK-O		6C		
	L	24		O-BK		5C		
	T	25		BK-G		1D		
Dial Intercom	R	26		G-BK		2D		
	A	27		BK-BR		3D		
	A1	28		BR-BK		4D		
	LG	29		BK-S		6D		
	L	30		S-BK		5D		
Aud Sig Assoc with Dial Intercom	T	31		Y-BL			1B	
	R	32		BL-Y			2B	
	LG	33		Y-O			32B	
	L	34		O-Y			3B	
	Code	35		Y-G			36B	
	3	R		36	G-Y			13
	4	B		37	Y-BR		36B	
	R	38		BR-Y				14
	5	B		39	Y-S		37B	
	R	40		S-Y				15
6	B	41		V-BL		37B		
R	42	BL-V					16	
7	B	43		V-O		38B		
R	44	O-V					17	
8	B	45		V-G		38B		
R	46	G-V					18	
9	B	47		V-BR		40B		
R	48	BR-V					19	
0	B	49		V-S		40B		
R	50	S-V					20	

TABLE F (Cont)

311-TYPE KSU (9-13 LINES) CONNECTIONS BETWEEN APPARATUS AND 66-TYPE CONNECTING BLOCKS

FEATURE	LEAD DESIGNATION	BLOCK C 66-TYPE CONNECTING BLOCK			TERMINAL ON 238A KTU	TERMINAL ON 230B KTU	TERMINAL ON 207C KTU	TERMINAL ON 216A KTU
		ROW	COL	CABLE COLOR GREEN BINDER				
Aud Sig Assoc with Dial Intercom	Code 21	B	1	↑	W-BL		31B	
		R	2		BL-W		21	
	22	B	3		W-O		4B	
		R	4		O-W		22	
	23	B	5		W-G		4B	
		R	6		G-W		23	
	24	B	7		W-BR		14B	
		R	8		BR-W		24	
	25	B	9		W-S		14B	
		R	10		S-W		25	
26	B	11	R-BL		24B			
	R	12	BL-R		26			
27	B	13	R-O		24B			
	R	14	O-R		27			
28	B	15	R-G		30B			
	R	16	G-R		28			
29	B	17	R-BR		30B			
	R	18	BR-R		29			
20	B	19	R-S		24B			
	R	20	S-R		30			
Aud Sig Assoc with Line Ckts	Line 1	B1 or BZ1	21	↓	BK-BL	18A		
		R1 or BZ	22		BL-BK	19A		
	Line 2	B1 or BZ1	23		BK-O	38A		
		R1 or BZ	24		O-BK	39A		
	Line 3	B1 or BZ1	25		BK-G	18B		
		R1 or BZ	26		G-BK	19B		
	Line 4	B1 or BZ1	27		BK-BR	38B		
		R1 or BZ	28		BR-BK	39B		
	Line 5	B1 or BZ1	29		BK-S	18C		
		R1 or BZ	30		S-BK	19C		
	Line 6	B1 or BZ1	31		Y-BL	38C		
		R1 or BZ	32		BL-Y	39C		
	Line 7	B1 or BZ1	33		Y-O	18D		
R1 or BZ		34	O-Y	19D				
Line 8	B1 or BZ1	35	Y-G	38D				
	R1 or BZ	36	G-Y	39D				
Line 9	B1 or BZ1	37	Y-BR	18E				
	R1 or BZ	38	BR-Y	19E				
Line 10	B1 or BZ1	39	Y-S		25A			
	R1 or BZ	40	S-Y		10A			
Line 11	B1 or BZ1	41	V-BL		27A			
	R1 or BZ	42	BL-V		10B			
Line 12	B1 or BZ1	43	V-O		27A			
	R1 or BZ	44	O-V		10C			
Line 13	B1 or BZ1	45	V-G		30A			
	R1 or BZ	46	G-V		10D			
Spare		47	V-BR					
		48	BR-V					
		49	V-S					
		50	S-V					

TABLE F (Cont)

311-TYPE KSU (9-13 LINES) CONNECTIONS BETWEEN APPARATUS AND 66-TYPE CONNECTING BLOCKS

FEATURE	LEAD DESIGNATION	BLOCK D 66-TYPE CONNECTING BLOCK			TERMINAL ON 238A KTU	TERMINAL ON 230B KTU
		ROW	COL	CABLE COLOR BROWN BINDER		
CO or PBX Lines	Line 1	T	1	↑ F ↓	W-BL	7A
		R	2		BL-W	8A
	Line 2	T	3		W-O	27A
		R	4		O-W	28A
	Line 3	T	5		W-G	7B
		R	6		G-W	8B
	Line 4	T	7		W-BR	27B
		R	8		BR-W	28B
	Line 5	T	9		W-S	7C
		R	10		S-W	8C
	Line 6	T	11		R-BL	27C
		R	12		BL-R	28C
	Line 7	T	13		R-O	7D
R		14	O-R	8D		
Line 8	T	15	R-G	27D		
	R	16	G-R	28D		
Line 9	T	17	R-BR	7E		
	R	18	BR-R	8E		
Line 10	T	19	R-S		7A	
	R	20	S-R		8A	
Line 11	T	21	BK-BL		7B	
	R	22	BL-BK		8B	
Line 12	T	23	BK-O		7C	
	R	24	O-BK		8C	
Line 13	T	25	BK-G		7D	
	R	26	G-BK		8D	
Spare		27	BK-BR			
		28	BR-BK			
		29	BK-S			
		30	S-BK			
		31	Y-BL			
		32	BL-Y			
See Table G for Power Connections		33	Y-O			
		34	O-Y			
		35	Y-G			
		36	G-Y			
		37				
		38				
		39				
		40				
See Table G for Power Connections		41				
		42				
		43				
		44				
		45				
		46				
		47				
		48				
		49				
		50				

**TABLE G**

**311-TYPE KSU (9-13 LINES) CONNECTIONS BETWEEN APPARATUS,  
66-TYPE CONNECTING BLOCK, AND POWER PLANT**

FEATURE	LEAD DESIG	CONNECTING BLOCK D													
		ROW ON 66-TYPE CONN BLOCK	COL F			COL E			COL D			COL A			
			CABLE COLOR	TO		CABLE COLOR	TO		CABLE COLOR	TO		CABLE COLOR	TO		
				KTU	TERMINAL		KTU	TERMINAL		KTU	TERMINAL		J86731-D POWER PLANT		
Audible Signal Power Supply	GRD ±, BAT., or 105V ±	37	V-BR		29F										
		38	BR-V	238A	30F										
20v dc Talk or A Bat.	GRD	39	V-S	207C	10B							G-2Y	20V DC Talk	G	
	BAT.	40	S-V	238A	10G							G-1Y		B	
20v dc Signal or B Bat.	GRD	41	W-BL*	238A	9A	W-O*	238A	9C				O-S*	20V DC Signal	G	
	GRD	42	W-G*	238A	9E	W-Y*	230B	4A				R-G*			B
	BAT.	43	BL*	238A	10A	O*	238A	10C				O-BL*			
	BAT.	44	G*	238A	10E	Y*	230B	25A				R-BR*			
Lamp and Motor Supply	GRD	45	BK-G*	238A	29A	Y-G*	238A	29E				R-Y†	10V AC	G	
	GRD†	46	BR-G*	238A	29C	Y-O*	230B	6A	V-G	238A	39F	R-W†			
	10V AC†	47	W-BR†	238A	9G	BK-W*	238A	30A	G-V	238A	40F				
	± or BAT.	48	BR†	238A	19G	BR-Y*	238A	30C				W†		±	
	± or BAT.	49	W-S†	238A	29G	Y-BL*	238A	30E				R†			
	± or BAT.	50	S†	238A	39G	Y-S*	230B	29A							

\* 20-Gauge Wire.

† 18-Gauge Wire.

‡ Motor supply must be 10 volt ac. When direct current is used for lamps move the following lead:

LEAD COLOR	FROM	TO
BR-G	Term. 46, Clip 6	Term. 45, Clip 4
Y-O	Term. 46, Clip 5	Term. 45, Clip 3
W-BK	Term. 47, Clip 6	Term. 48, Clip 4
BK-W	Term. 47, Clip 5	Term. 49, Clip 4

TABLE H

310- OR 311-TYPE KSU (9 TO 13 LINES)  
LINE CIRCUIT PORTION OF 238A KTU

REF DESIG	TERMINAL ON 238A KTU									LEAD DESIG	
	CKT 1	CKT 2	CKT 3	CKT 4	CKT 5	CKT 6	CKT 7	CKT 8	CKT 9		
A	7A	27A	7B	27B	7C	27C	7D	27D	7E	T	CO or PBX Line
B	8A	28A	8B	28B	8C	28C	8D	28D	8E	R	
C	17A	37A	17B	37B	17C	37C	17D	37D	17E	Line Ringing	
D	21E	22E	23E	24E	25E	31E	32E	33E	34E	H	
E	1A 11A ○—○	21A 31A ○—○	1B 11B ○—○	21B 31B ○—○	1C 11C ○—○	21C 31C ○—○	1D 11D ○—○	21D 31D ○—○	1E 11E ○—○	T	Station
F	2A 12A ○—○	22A 32A ○—○	2B 12B ○—○	22B 32B ○—○	2C 12C ○—○	22C 32C ○—○	2D 12D ○—○	22D 32D ○—○	2E 12E ○—○	R	
G	5A 15A ○—○	25A 35A ○—○	5B 15B ○—○	25B 35B ○—○	5C 15C ○—○	25C 35C ○—○	5D 15D ○—○	25D 35D ○—○	5E 15E ○—○	L	
H	3A 13A ○—○	23A 33A ○—○	3B 13B ○—○	23B 33B ○—○	3C 13C ○—○	23C 33C ○—○	3D 13D ○—○	23D 33D ○—○	3E 13E ○—○	A	
J	20A ○—○	40A ○—○	20B ○—○	40B ○—○	20C ○—○	40C ○—○	20D ○—○	40D ○—○	20E ○—○	Audible Signal	
K	18A ○—○	38A ○—○	18B ○—○	38B ○—○	18C ○—○	38C ○—○	18D ○—○	38D ○—○	18E ○—○		
L	19A ○—○	39A ○—○	19B ○—○	39B ○—○	19C ○—○	39C ○—○	19D ○—○	39D ○—○	19E ○—○		
M	6F		7F		8F		9F		10F	Lamp Wink	
N	36E		37E		38E		39E		40E	Lamp Flash	
P	9A ○—○		9B ○—○		9C ○—○		9D ○—○		9E	Grd	Relay Power Supply
Y	10A ○—○		10B ○—○		10C ○—○		10D ○—○		10E	Bat.	
Q	4A 14A ○—○	24A 34A ○—○	4B 14B ○—○	24B 34B ○—○	4C 14C ○—○	24C 34C ○—○	4D 14D ○—○	24D 34D ○—○	4E 14E ○—○	A1	Station
R	6A 16A ○—○	26A 36A ○—○	6B 16B ○—○	26B 36B ○—○	6C 16C ○—○	26C 36C ○—○	6D 16D ○—○	26D 36D ○—○	6E 16E ○—○	LG	
S	29A ○—○		29B ○—○		29C ○—○		29D ○—○		29E	Grd	Lamp Power Supply
T	30A, 16F ○—○		30B, 17F ○—○		30C, 18F ○—○		30D, 19F ○—○		30E, 20F	± or LB	
U			1G ○—○		11G ○—○		21G ○—○		HA	Time-out	
V			2G ○—○		12G ○—○		22G ○—○		TO		
W			3G ○—○		13G ○—○		23G ○—○		CO		
X			4G ○—○		14G ○—○		24G ○—○		LK		

○—○ Indicates Factory Strapping.

**TABLE I**  
**310- OR 311-TYPE KSU (9 TO 13 LINES)**  
**230B KTU**

REF DESIG	TERMINAL ON 230B KTU				LEAD DESIG	
	CKT 1 (10)*	CKT 2 (11)*	CKT 3 (12)*	CKT 4 (13)*		
A	7A	7B	7C	7D	T	CO or PBX Line
B	8A	8B	8C	8D	R	
C	17A	17B	17C	17D	Line Ringing	
D	18A	18B	18C	18D	H	
E	1A 11A ○ ○	1B 11B ○ ○	1C 11C ○ ○	1D 11D ○ ○	T	Station
F	2A 12A ○ ○	2B 12B ○ ○	2C 12C ○ ○	2D 12D ○ ○	R	
G	5A 15A ○ ○	5B 15B ○ ○	5C 15C ○ ○	5D 15D ○ ○	L	
H	3A 13A ○ ○	3B 13B ○ ○	3C 13C ○ ○	3D 13D ○ ○	A	
J	9A ○	9B ○	9C ○	9D ○	Audible Signal	
L	10A	10B	10C	10D		
M	20A ○	20B ○	20C ○	20D ○	Lamp Wink	
N	19A ○	19B ○	19C ○	19D ○	Lamp Flash	
Q	4A	4B	4C	4D	A1	Station
R	6A	6B	6C	6D	LG	
T	29A ○		28A ○		± or Bat.	Lamp Pwr Supply

\* Number in parenthesis denotes circuit in package.

○ ○ Indicates Factory Strapping.

**TABLE J**  
**2301-TYPE KSU CONNECTIONS BETWEEN APPARATUS**  
**AND 66-TYPE CONNECTING BLOCKS**

FEATURE	LEAD DESIG	BLOCK A 66B1-25 CONNECTING BLOCK		CABLE COLOR BLUE BINDER	TERMINAL ON 232A OR B KTU*	TERMINAL ON KTU		TERMINAL ON 202C OR D KTU	TERMINAL ON 207C KTU
		ROW	COL			230A	230B†		
Line 1	T	1	↑ F ↓	W-BL		1A			
	R	2		BL-W		2A			
	A	3		W-O		3A			
	A1	4		O-W		4A			
Line 2	LG	5		W-G		6A			
	L	6		G-W		5A			
	T	7		W-BR		1B			
	R	8		BR-W		2B			
Line 3	A	9		W-S		3B			
	A1	10		S-W		4B			
	LG	11		R-BL		6B			
	L	12		BL-R		5B			
Line 4	T	13		R-O		1C			
	R	14		O-R		2C			
	A	15		R-G		3C			
	A1	16		G-R		4C			
Line 5	LG	17		R-BR		6C			
	L	18		BR-R		5C			
	T	19		R-S		1D			
	R	20		S-R		2D			
Line 6	A	21		BK-BL		3D			
	A1	22		BL-BK		4D			
	LG	23		BK-O		6D			
	L	24		O-BK		5D			
Line 5	T	25		BK-G			1	1st	
	R	26		G-BK			2		
	A	27		BK-BR			3		
	A1	28		BR-BK			4		
Line 6	LG	29		BK-S			6		
	L	30		S-BK			5		
	T	31	Y-BL			1	2nd		
	R	32	BL-Y			2			
A	33	Y-O			3				
A1	34	O-Y			4				
Motor Supply	GRD	37	Y-BR	27					
	10v ±	38	BR-Y	26					
	Spare	39	Y-S						
		40	S-Y						
Lamp Supply	± or BAT.	41‡	V-BL	9					
	± or BAT.	42‡	BL-V	10					
	GRD	43	V-O		30A	6A			
Audible Signal Supply	± or BAT.	44‡	O-V		29A	29A			
	GRD	45	V-G		25A	30A			
20v dc Talk or A Bat.	BAT., ±, or 105V ±	46	G-V	29					
	GRD	47	V-BR	25					
20v dc Sig or B Bat.	BAT.	48	BR-V	24					
	GRD	49	V-S		26A	26A			
	BAT.	50	S-V		27A	4A			

\* 232B KTU is arranged internally to disable time-out feature when BF relay is operated.

† 230B KTU is arranged for individual fusing of circuits 1-2 and 3-4 lamp input power.

‡ With 1 to 72 lamps, strap terminals 41, 42, and 44; with 73 to 144 lamps, strap terminals 42 and 44 and run separate power lead to 41.

(TABLE J (Cont))  
**2301-TYPE KSU CONNECTIONS BETWEEN APPARATUS  
 AND 66-TYPE CONNECTING BLOCKS**

FEATURE	LEAD DESIG	BLOCK A 66B1-25 CONNECTING BLOCK			TERMINAL ON 232A OR B KTU*	TERMINAL ON KTU		TERMINAL ON 202C OR D KTU		TERMINAL ON 207C KTU	
		ROW	COL	CABLE COLOR ORANGE BINDER		230A	230B†				
Manual Intercom Line	T	1	↑ F ↓	W-BL	30						
	R	2		BL-W	40						
	LG	3		W-O	*						
	L	4		O-W	28						
Audible Signal	Line 1	B1 or BZ1		5	W-G		25A	30A			
		R1 or BZ		6	G-W		10A	10A			
	Line 2	B1 or BZ1		7	W-BR		25A				
		R1 or BZ		8	BR-W		10B				
	Line 3	B1 or BZ1		9	W-S		28A	30A			
		R1 or BZ		10	S-W		10C	10C			
	Line 4	B1 or BZ1		11	R-BL		28A	25A			
		R1 or BZ		12	BL-R		10D	10D			
	Line 5	B1 or BZ1		13	R-O				25	1st	
		R1 or BZ		14	O-R				10		
	Line 6	B1 or BZ1		15	R-G				25	2nd	
		R1 or BZ		16	G-R				10		
Dial Selective Intercom Line	T	17		R-BR						1B	
	R	18		BR-R						2B	
	LG	19		R-S						32B	
	L	20		S-R						3B	
	B(2)	21		BK-BL						36B	
	R(2)	22		BL-BK						12A	
	B(3)	23		BK-O						36B	
	R(3)	24		O-BK						13A	
	B(4)	25		BK-G						37B	
	R(4)	26		G-BK						14A	
	B(5)	27		BK-BR						37B	
	R(5)	28		BR-BK						15A	
	B(6)	29		BK-S						38B	
	R(6)	30		S-BK						16A	
	B(7)	31		Y-BL						38B	
	R(7)	32		BL-Y						17A	
B(8)	33	Y-O							40B		
R(8)	34	O-Y							18A		
B(9)	35	Y-G							40B		
R(9)	36	G-Y							19A		
B(0)	37	Y-BR							31B		
R(0)	38	BR-Y							20A		
CO or PBX	Line 1			39	Y-S		7A				
				40	S-Y		8A				
	Line 2			41	V-BL		7B				
				42	BL-V		8B				
	Line 3			43	V-O		7C				
				44	O-V		8C				
	Line 4			45	V-G		7D				
				46	G-V		8D				
	Line 5			47	V-BR				7	1st	
				48	BR-V				8		
	Line 6			49	V-S				7	2nd	
				50	S-V				8		

\* Connect to convenient lamp ground.

TABLE K

## 2311-TYPE KSU — CONNECTIONS

FEATURE	LEAD DESIG	BLOCK A 66B1-25 CONNECTING BLOCK			TERMINAL ON 232A OR B KTU*	TERMINAL ON 230A OR B KTU†	TERMINAL ON 202C OR D KTU	TERMINAL ON 207C KTU
		ROW	COL	CABLE COLOR BLUE BINDER				
Line 1	T	1	↑ F ↓	W-BL		1A		
	R	2		BL-W		2A		
	A	3		W-O		3A		
	A1	4		O-W		4A		
	LG	5		W-G		6A		
	L	6		G-W		5A		
Line 2	T	7		W-BR		1B		
	R	8		BR-W		2B		
	A	9		W-S		3B		
	A1	10		S-W		4B		
	LG	11		R-BL		6B		
	L	12		BL-R		5B		
Line 3	T	13		R-O		1C		
	R	14		O-R		2C		
	A	15		R-G		3C		
	A1	16		G-R		4C		
	LG	17		R-BR		6C		
	L	18		BR-R		5C		
Line 4	T	19		R-S		1D		
	R	20		S-R		2D		
	A	21		BK-BL		3D		
	A1	22		BL-BK		4D		
	LG	23		BK-O		6D		
	L	24		O-BK		5D		
Line 5	T	25		BK-G		1	1st	
	R	26		G-BK		2		
	A	27		BK-BR		3		
	A1	28		BR-BK		4		
	LG	29		BK-S		6		
	L	30		S-BK		5		
Line 6	T	31		Y-BL		1	2nd	
	R	32		BL-Y		2		
	A	33		Y-O		3		
	A1	34		O-Y		4		
	LG	35		Y-G		6		
	L	36		G-Y		5		
Line 7	T	37		Y-BR		1	3rd	
	R	38		BR-Y		2		
	A	39		Y-S		3		
	A1	40		S-Y		4		
	LG	41		V-BL		6		
	L	42		BL-V		5		
Manual Intercom Line	T	43		V-O	30			
	R	44		O-V	40			
	LG	45		V-G	27			
	L	46		G-V	28			
Dial Selective Intercom Line	T	47		V-BR			1B	
	R	48		BR-V			2B	
	LG	49		V-S			32B	
	L	50		S-V			3B	

\* 232B KTU is arranged internally to disable time-out feature when BF relay is operated.

† 230B KTU is arranged for individual fusing of circuits 1-2 and 3-4 lamp input power.

**TABLE K (Cont)**  
**2311-TYPE KSU — CONNECTIONS**

FEATURE	LEAD DESIG	BLOCK B 66B1-25 CONNECTING BLOCK			TERMINAL ON 232A OR B KTU	TERMINAL ON KTU		TERMINAL ON 202C OR D KTU	TERMINAL ON 207 KTU
		ROW	COL	CABLE COLOR ORANGE BINDER		230A	230B		
Audible Signal Associated With Dial Selective Intercom Line	B(2)	1	↑ F ↓	W-BL				36B	
	R(2)	2		BL-W				12A	
	B(3)	3		W-O				36B	
	R(3)	4		O-W				13A	
	B(4)	5		W-G				37B	
	R(4)	6		G-W				14A	
	B(5)	7		W-BR				37B	
	R(5)	8		BR-W				15A	
	B(6)	9		W-S				38B	
	R(6)	10		S-W				16A	
	B(7)	11		R-BL				38B	
	R(7)	12		BL-R				17A	
	B(8)	13		R-O				40B	
	R(8)	14		O-R				18A	
	B(9)	15		R-G				40B	
	R(9)	16		G-R				19A	
	B(0)	17		R-BR				31B	
	R(0)	18		BR-R				20A	
Aud Sig Assoc with Line Ckts	Line 1	B1 or BZ1	19	R-S		25A	30A		
		R1 or BZ	20	S-R		10A	10A		
	Line 2	B1 or BZ1	21	BK-BL		25A			
		R1 or BZ	22	BL-BK		10B			
	Line 3	B1 or BZ1	23	BK-O		25A			
		R1 or BZ	24	O-BK		10C			
	Line 4	B1 or BZ1	25	BK-G		28A	30A		
	R1 or BZ	26	G-BK		10D	10D			
Line 5	B1 or BZ1	27	BK-BR			25	1st		
	R1 or BZ	28	BR-BK			10			
Line 6	B1 or BZ1	29	BK-S			25	2nd		
	R1 or BZ	30	S-BK			10			
Line 7	B1 or BZ1	31	Y-BL			25	3rd		
	R1 or BZ	32	BL-Y			10			
CO or PBX	Line 1	T	33	Y-O		7A			
		R	34	O-Y		8A			
	Line 2	T	35	Y-G		7B			
		R	36	G-Y		8B			
	Line 3	T	37	Y-BR		7C			
		R	38	BR-Y		8C			
	Line 4	T	39	Y-S		7D			
	R	40	S-Y		8D				
Line 5	T	41	V-BL			7	1st		
	R	42	BL-V			8			
Line 6	T	43	V-O			7	2nd		
	R	44	O-V			8			
Line 7	T	45	V-G			7	3rd		
	R	46	G-V			8			
Ringling Supply*	GRD	47	V-BR			28A	30A		
	105V ±	48	BR-V	29					
Local Ground	GRD	49	V-S†						
	GRD	50	S-V†						

\* Do not mount ringing supply (frequency-generator) in cabinet with equipment, due to noise difficulties.

† Connect to ground terminal on J86731D, List 1 power plant.