

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.

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 multipled through bridging adapters with sets furnishing features on a per station basis such as speakerphone, 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 KСУ.

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 KСУ

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

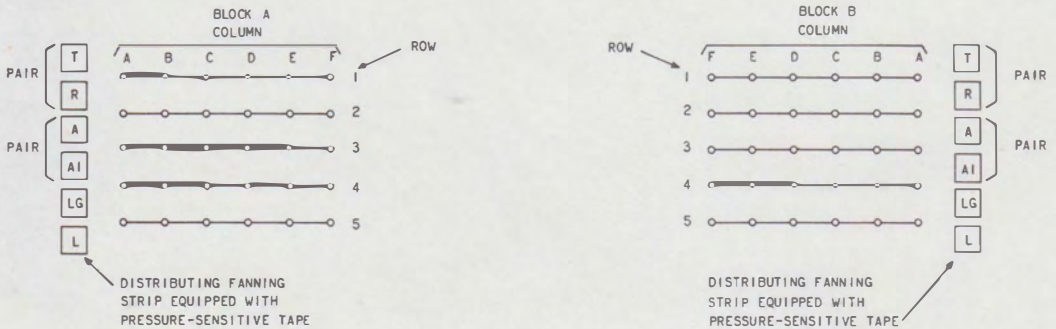


Fig. 1—Method of Counting 66B1-25 Connecting Blocks

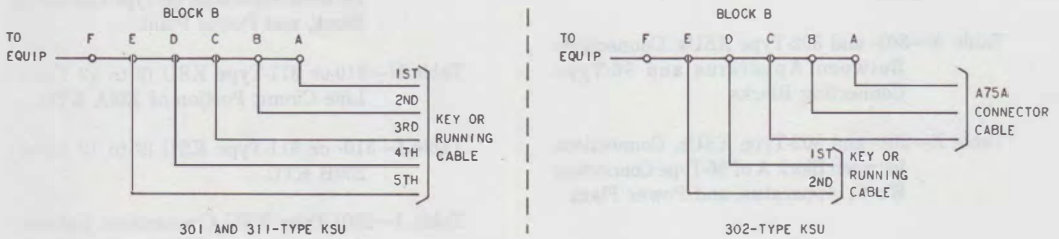


Fig. 2—Key or Running Cable Terminations on 66-Type Connecting Block For 301-, 302-, and 311-Type KSUs

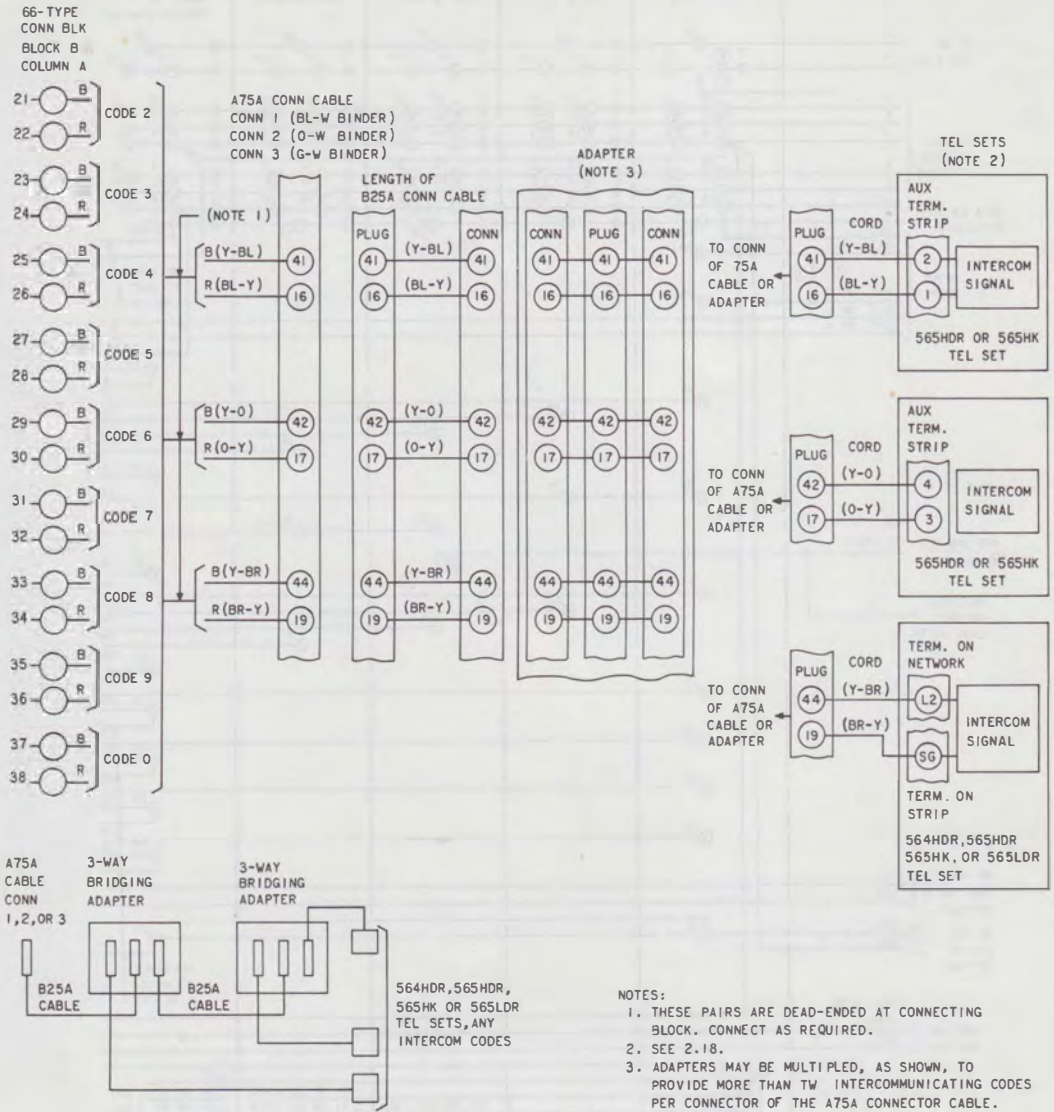


Fig. 3—Suggested Intercom Signal Connections Using 564HDR or 565HDR Telephone Sets, and 302-Type KSU

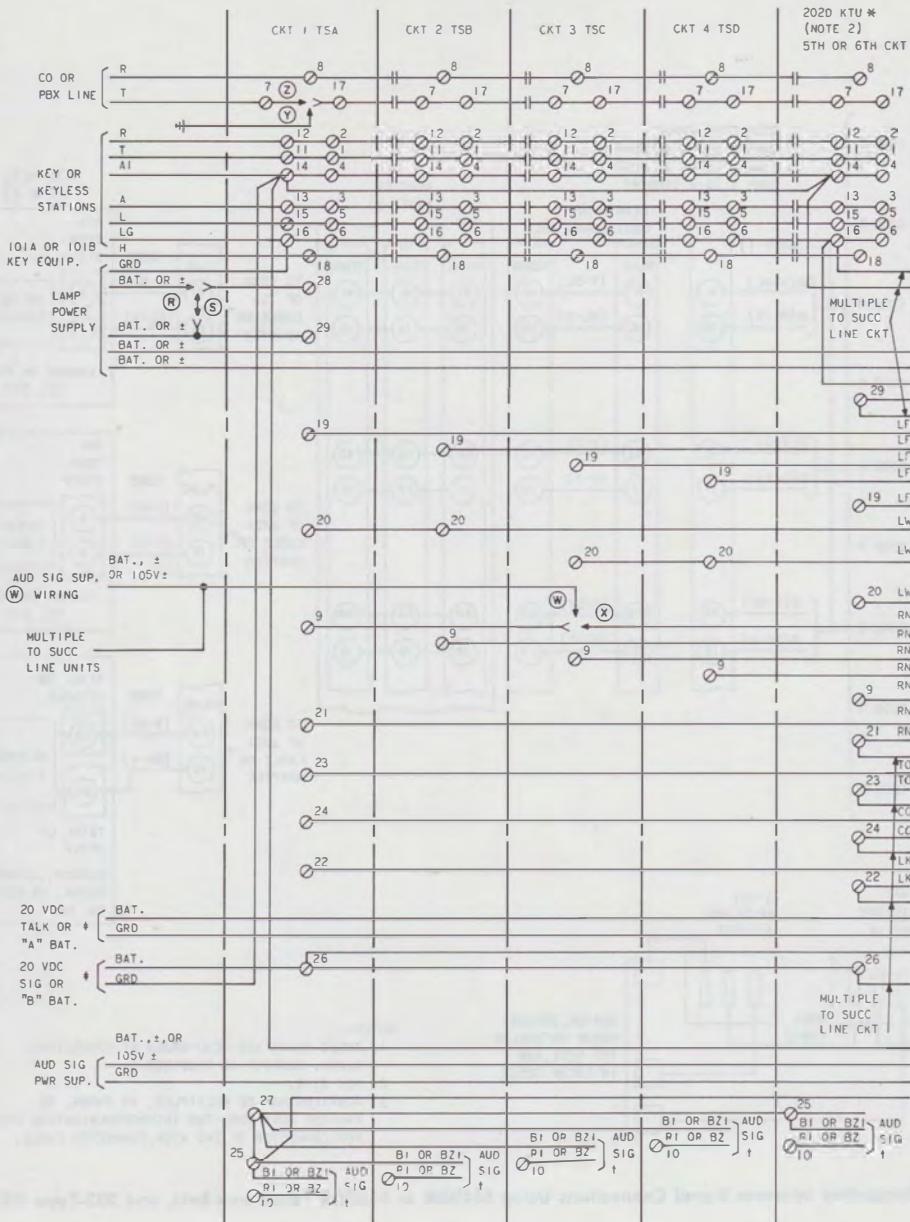
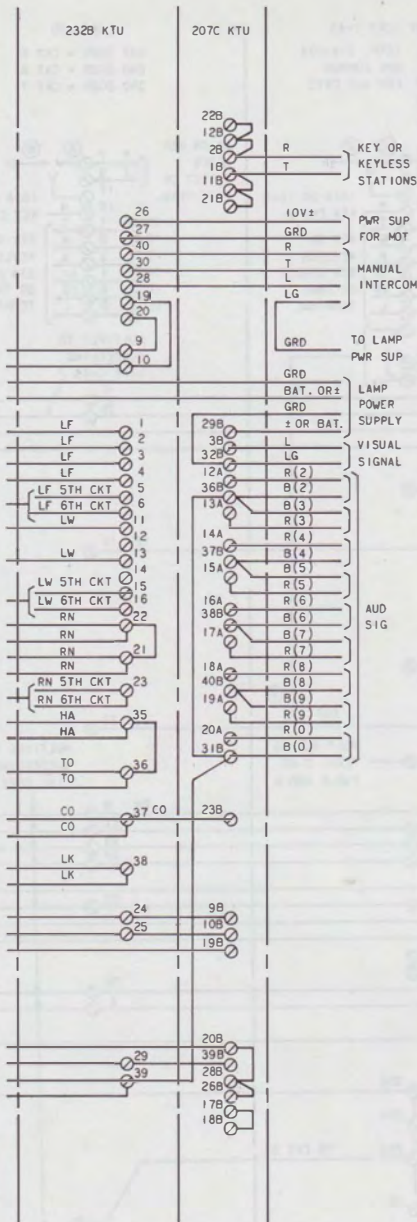


Fig. 4—300-, 301- and 302-Type KSUs, Connections and Strapping (202D, 230D, 232B, and 207C KTUs) (Sheet 1)



- 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)

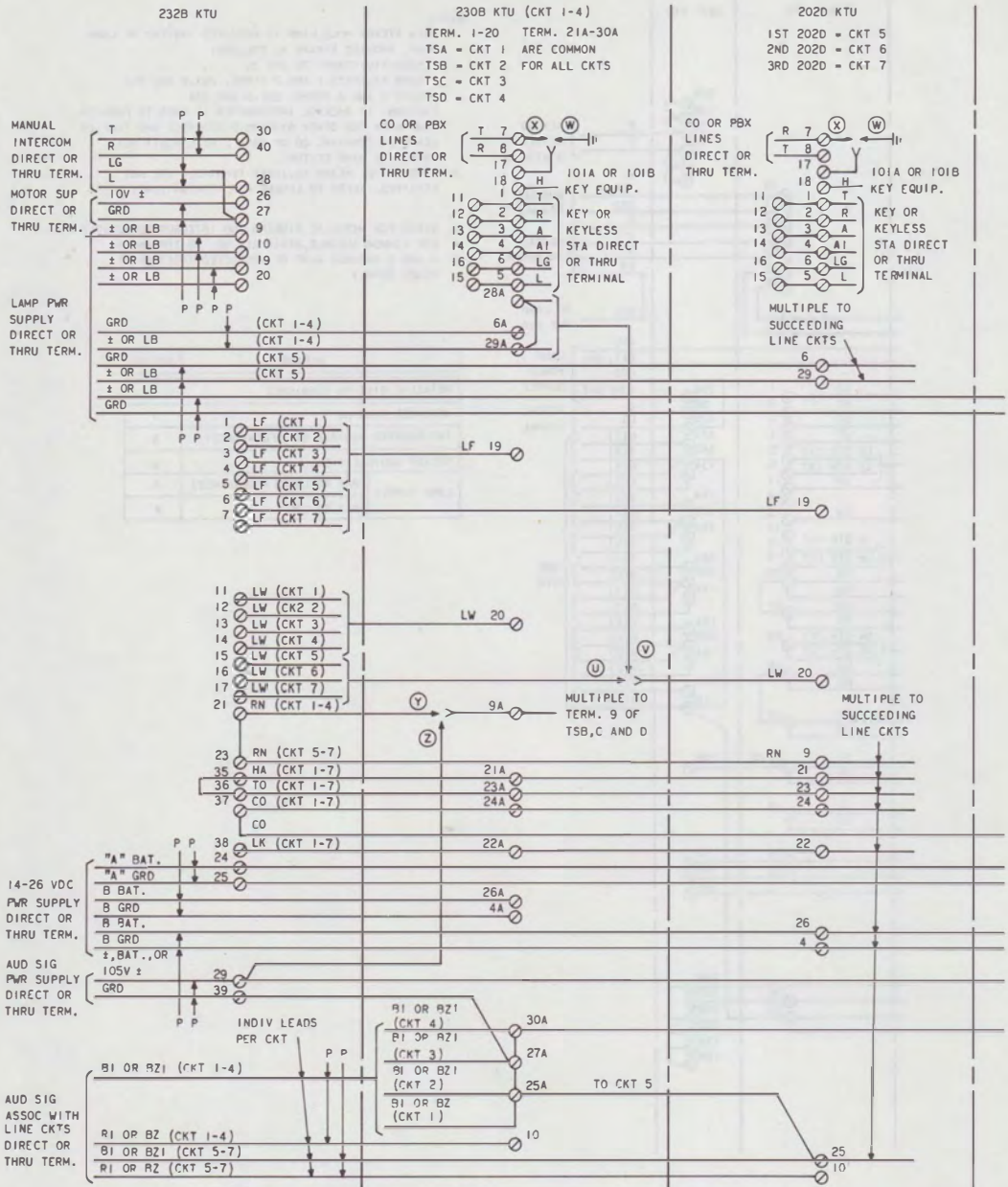


Fig. 5—310- or 311-Type KSU (4 to 7 Lines) Connections and Strapping (202D, 230B, 232B, and 207C KTUs) (Sheet 1)

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:

- (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 (232B KTU) (FURNISHED).
- (Z) STEADY AUDIBLE SIGNAL

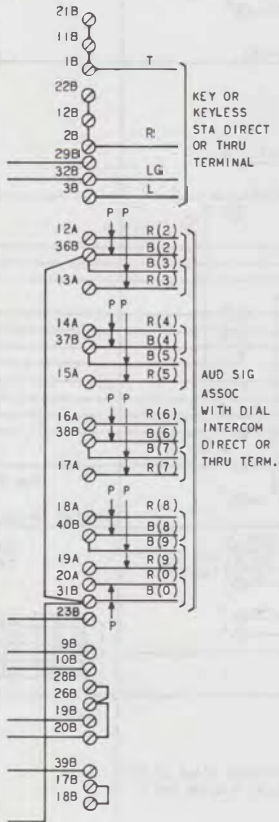


Fig. 5—310- or 311-Type KSU (4 to 7 Lines) Connections and Strapping (202D, 230B, 232B, and 207C KTUs) (Sheet 2)

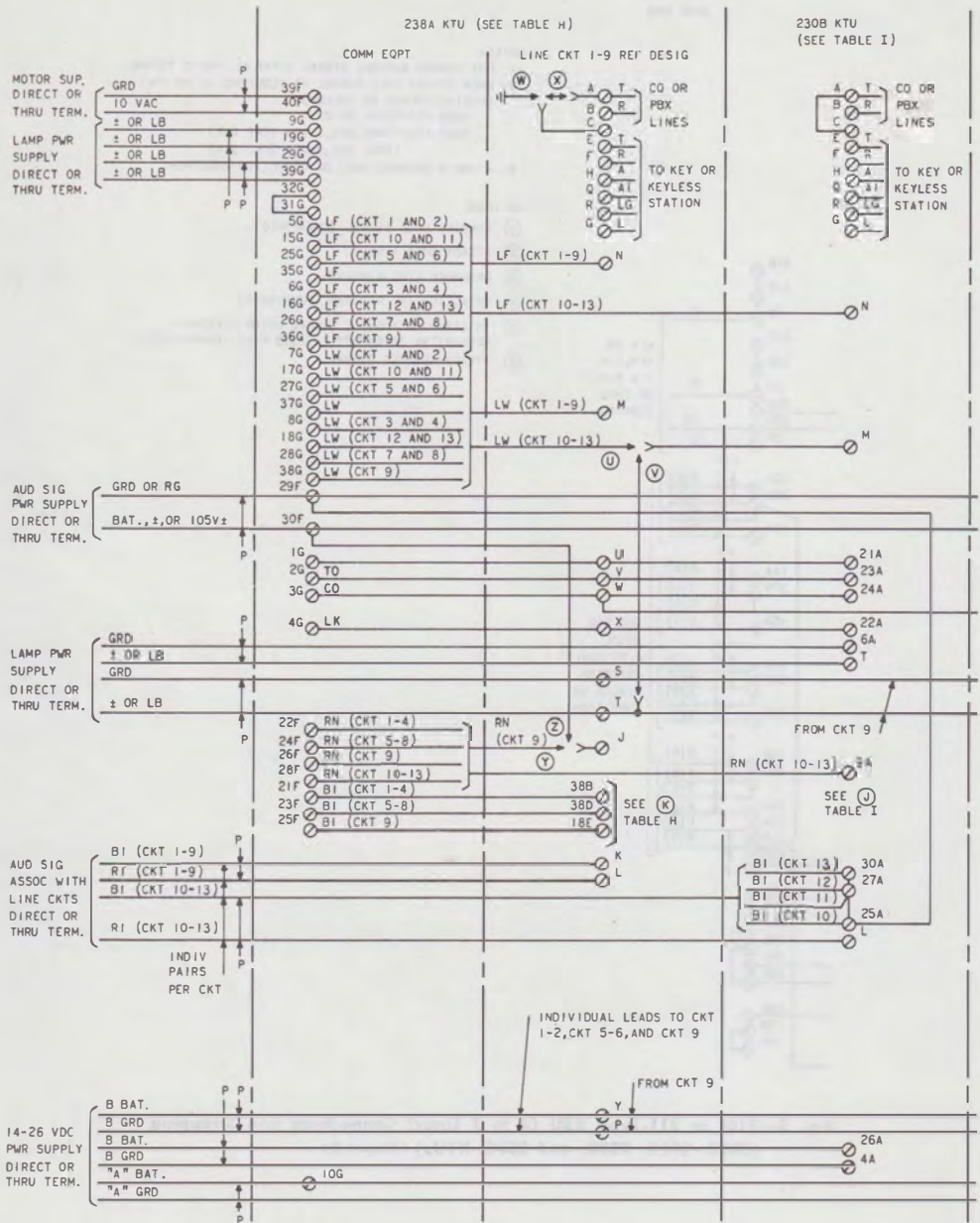
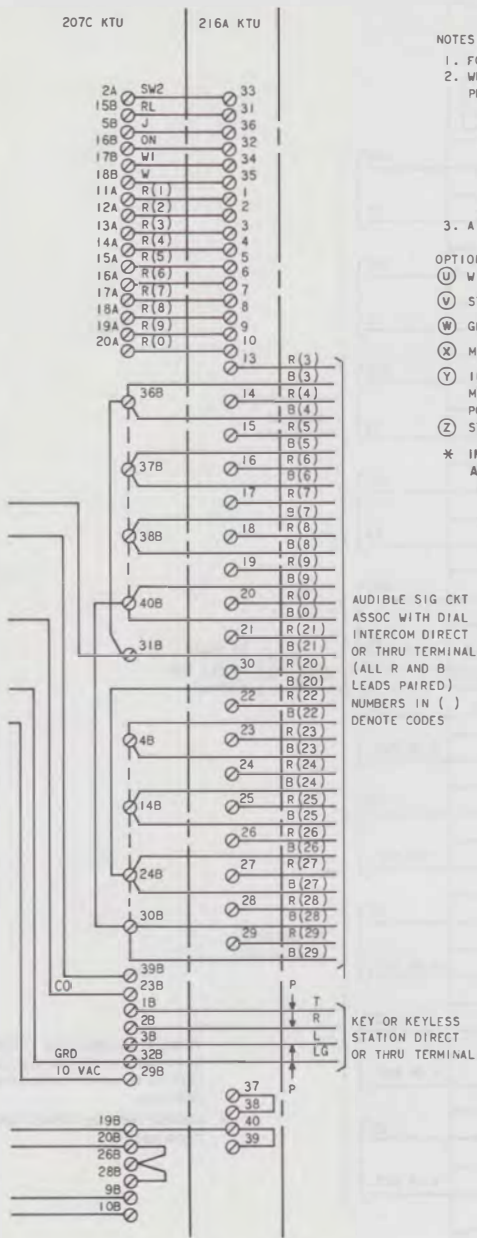


Fig. 6—310- or 311-Type KSU (9 to 13 Lines) Connections and Strapping (230B 238A, 207C, and 216A KTUs) (Sheet 1)



- 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)

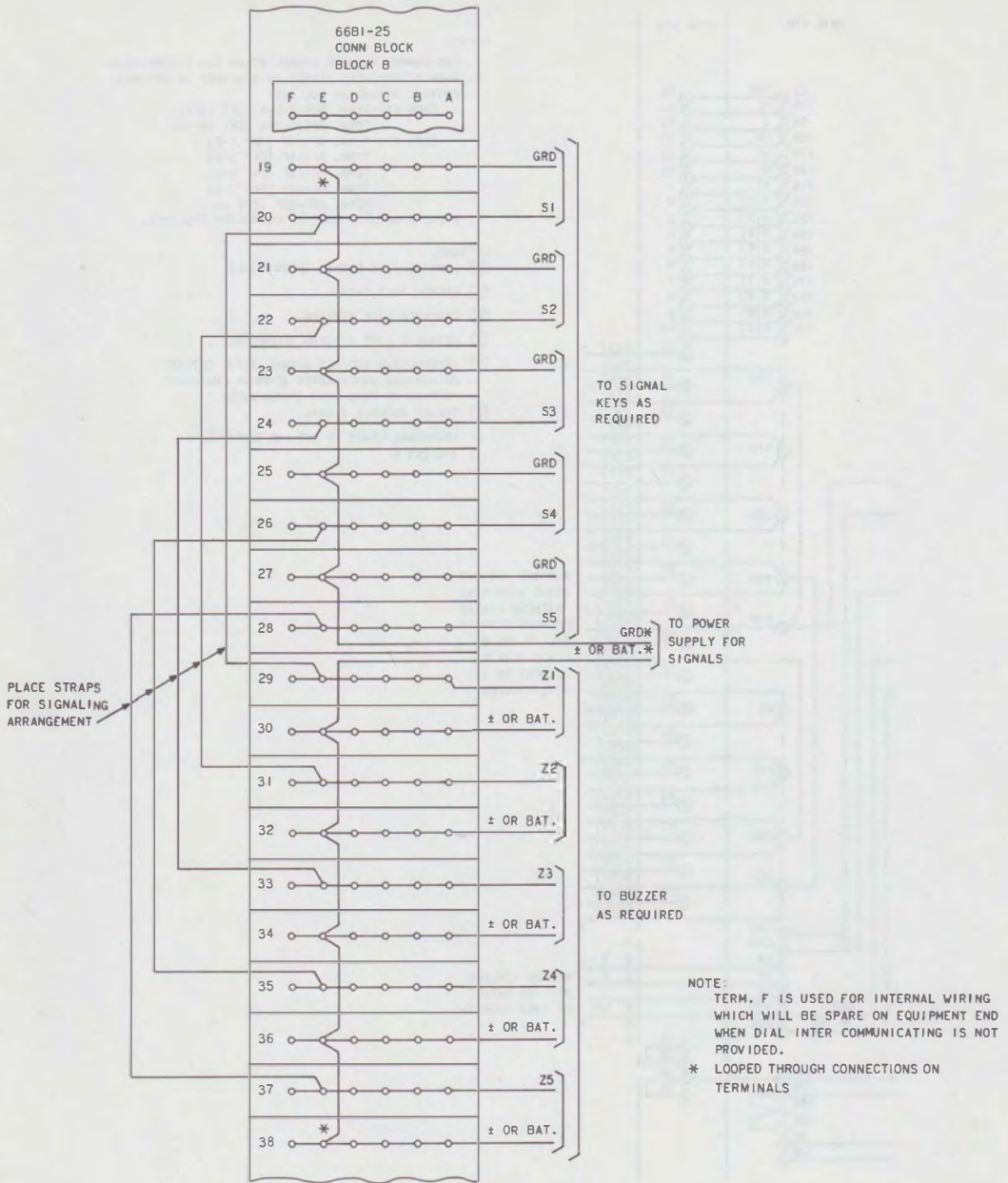


Fig. 7—Typical Connections for Manual Signaling When Dial Intercom Circuit is Not Used

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 23 2B KTU	TERMINAL ON 230B KTU	TERMINAL ON 20 2D 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	37	See Table B for Power Connections					
	10V±	38						
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		CABLE COLOR BL-W BINDER	TERMINAL ON 23 2B KTU	TERMINAL ON 230B KTU	TERMINAL ON 20 2D KTU		TERMINAL ON 207C KTU
		ROW	COL						
Manual Intercom Line	T	1	F	W-BL	30				
	R	2		BL-W	40				
	LG	3		W-O	27				
	L	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 ±, BAT., or 105V ±	45 46	V-G G-V	232B	39 29												
20v dc Talk or A Bat.	GRD	47	V-BR		25										G2Y	20V DC	G
	BAT.	48	BR-V	232B	24										G1Y	DC Talk	B
20v dc Sig or B Bat.	GRD	49	V-S		4A										S2BK	20V DC	G
	BAT.	50	S-V	230B	26A										S1BK	DC 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 R	26 1	W-BL BL-W	1 2			26 1	W-BL BL-W	1 2			26 1	W-BL BL-W	1 2		
	A A1	27 2	W-O O-W	3 4			27 2	W-O O-W	3 4			27 2	W-O O-W	3 4		
	LG L	28 3	W-G G-W	5 6			28 3	W-G G-W	5 6			28 3	W-G G-W	5 6		
Line 2	T R	29 4	W-BR BR-W	7 8			29 4	W-BR BR-W	7 8			29 4	W-BR BR-W	7 8		
	A A1	30 5	W-S S-W	9 10			30 5	W-S S-W	9 10			30 5	W-S S-W	9 10		
	LG L	31 6	R-BL BL-R	11 12			31 6	R-BL BL-R	11 12			31 6	R-BL BL-R	11 12		
Line 3	T R	32 7	R-O O-R	13 14	A	A	32 7	R-O O-R	13 14	A	B	32 7	R-O O-R	13 14	A	C
	A A1	33 8	R-G G-R	15 16			33 8	R-G G-R	15 16			33 8	R-G G-R	15 16		
	LG L	34 9	R-BR BR-R	17 18			34 9	R-BR BR-R	17 18			34 9	R-BR BR-R	17 18		
Line 4	T R	35 10	R-S S-R	19 20			35 10	R-S S-R	19 20			35 10	R-S S-R	19 20		
	A A1	36 11	BK-BL BL-BK	21 22			36 11	BK-BL BL-BK	21 22			36 11	BK-BL BL-BK	21 22		
	LG L	37 12	BK-O O-BK	23 24			37 12	BK-O O-BK	23 24			37 12	BK-O O-BK	23 24		
Dial Inter- com	T R	38 13	BK-G G-BK	17 18	B		38 13	BK-G G-BK	17 18	B		38 13	BK-G G-BK	17 18	B	
	Spare*	39 14	BK-BR BR-BK				39 14	BK-BR BR-BK				39 14	BK-BR BR-BK			
Dial Inter- com	LG L	40 15	BK-S S-BK	19 20	B	A	40 15	BK-S S-BK	19 20	B	B	40 15	BK-S S-BK	19 20	B	C
	Spare*	41 16	Y-BL BL-Y				41 16	Y-BL BL-Y				41 16	Y-BL BL-Y			
Spare*		42 17	Y-O O-Y				42 17	Y-O O-Y				42 17	Y-O O-Y			
		43 18	Y-G G-Y				43 18	Y-G G-Y				43 18	Y-G G-Y			
		44 19	Y-BR BR-Y				44 19	Y-BR BR-Y				44 19	Y-BR BR-Y			
		45 20	Y-S S-Y	5 6	B	A	45 20	Y-S S-Y	7 8	B	A	45 20	Y-S S-Y	9 10	B	A
		46 21	V-BL BL-V				46 21	V-BL BL-V				46 21	V-BL BL-V			
Spare*		47 22	V-O O-V				47 22	V-O O-V				47 22	V-O O-V			
		48 23	V-G G-V				48 23	V-G G-V				48 23	V-G G-V			
		49 24	V-BR BR-V				49 24	V-BR BR-V				49 24	V-BR BR-V			
		50 25	V-S S-V				50 25	V-S S-V				50 25	V-S 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		
	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	T	43	V-O	30				
	R	44	O-V	40				
	LG	45	V-G	27				
	L	46	G-V	28				
Dial Intercom	T	47	V-BR				1B	
	R	48	BR-V				2B	
	LG	49	V-S				32B	
	L	50	S-V				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				
Code 2	B	1	↑ F ↓	W-BL			36B	
	R	2		BL-W			12A	
	B	3		W-O			36B	
	R	4		O-W			13A	
	B	5		W-G			37B	
	R	6		G-W			14A	
	B	7		W-BR			37B	
	R	8		BR-W			15A	
	B	9		W-S			38B	
	R	10		S-W			16A	
B	11	R-BL				38B		
R	12	BL-R				17A		
B	13	R-O				40B		
R	14	O-R				18A		
B	15	R-G				40B		
R	16	G-R				19A		
B	17	R-BR				31B		
R	18	BR-R				20A		
Line 1	B1 or BZ1	19	R-S		25A			
	R1 or BZ	20	S-R		10A			
	B1 or BZ1	21	BK-BL		25A			
	R1 or BZ	22	BL-BK		10B			
	B1 or BZ1	23	BK-O		27A			
	R1 or BZ	24	O-BK		10C			
	B1 or BZ1	25	BK-G		30A			
R1 or BZ	26	G-BK		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		
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	↑ P	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					
See Table E For Power Connections			33					
			34					
			35					
			36					
			37					
			38					
			39					
			40					
			41					
			42					
		43						
		44						
		45						
		46						
		47						
		48						
		49						
		50						

TABLE E

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

FEATURE	LEAD DESIG	ROW ON 66-TYPE CONN BLOCK	CONNECTING BLOCK D											
			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		25							G-2Y	20V DC Talk	G
	BAT.	40	O-W	232B	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			
	L	6		G-W	5E			
Line 10	T	7		W-BR		1A		
	R	8		BR-W		2A		
	A	9		W-S		3A		
	A1	10		S-W		4A		
	LG	11		R-BL		6A		
	L	12		BL-R		5A		
Line 11	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 12	T	19		R-S		1C		
	R	20		S-R		2C		
	A	21		BK-BL		3C		
	A1	22		BL-BK		4C		
	LG	23		BK-O		6C		
	L	24		O-BK		5C		
Line 13	T	25		BK-G		1D		
	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		
Dial Intercom	T	31	Y-BL			1B		
	R	32	BL-Y			2B		
	LG	33	Y-O			32B		
	L	34	O-Y			3B		
Aud Sig Assoc with Dial Intercom	Code	B	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		CABLE COLOR GREEN BINDER	TERMINAL ON 238A KTU	TERMINAL ON 230B KTU	TERMINAL ON 207C KTU	TERMINAL ON 216A KTU
		ROW	COL					
Aud Sig Assoc with Dial Intercom	Code 21	B	1	↑	W-BL		31B	21
		R	2		BL-W			
	22	B	3		W-O		4B	22
		R	4		O-W			
	23	B	5		W-G		4B	23
		R	6		G-W			
	24	B	7		W-BR		14B	24
		R	8		BR-W			
	25	B	9		W-S		14B	25
		R	10		S-W			
26	B	11	R-BL		24B	26		
	R	12	BL-R					
27	B	13	R-O		24B	27		
	R	14	O-R					
28	B	15	R-G		30B	28		
	R	16	G-R					
29	B	17	R-BR		30B	29		
	R	18	BR-R					
20	B	19	R-S		24B	30		
	R	20	S-R					
Aud Sig Assoc with Line Ckts	Line 1	B1 or BZ1	21	F	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 R	1 2	↑ F ↓	W-BL BL-W	7A 8A	
	Line 2	T R	3 4		W-O O-W	27A 28A	
	Line 3	T R	5 6		W-G G-W	7B 8B	
	Line 4	T R	7 8		W-BR BR-W	27B 28B	
	Line 5	T R	9 10		W-S S-W	7C 8C	
	Line 6	T R	11 12		R-BL BL-R	27C 28C	
	Line 7	T R	13 14		R-O O-R	7D 8D	
	Line 8	T R	15 16		R-G G-R	27D 28D	
	Line 9	T R	17 18		R-BR BR-R	7E 8E	
	Line 10	T R	19 20		R-S S-R		7A 8A
	Line 11	T R	21 22		BK-BL BL-BK		7B 8B
	Line 12	T R	23 24		BK-O O-BK		7C 8C
	Line 13	T R	25 26		BK-G G-BK		7D 8D
Spare			27	BK-BR BR-BK			
			28				
			29	BK-S S-BK			
			30				
			31	Y-BL BL-Y			
			32				
			33	Y-O O-Y			
			34				
See Table C for Power Connections			35	Y-G G-Y			
			36				
			37				
			38				
			39				
			40				
			41				
			42				
			43				
			44				
See Table G for Power Connections			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	} W†		±	
	± or BAT.	48	BR†	238A	19G	BR-Y*	238A	30C							
	± or BAT.	49	W-S†	238A	29G	Y-BL*	238A	30E							
	± or BAT.	50	S†	238A	39G	Y-S*	230B	29A							R†

* 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	± LB	
U	1G ○		11G ○		21G ○		22G ○		23G	HA	Time-out
V	2G ○		12G ○		22G ○		23G ○		24G	TO	
W	3G ○		13G ○		23G ○		24G ○			CO	
X	4G ○		14G ○		24G ○					LK	

○—○ Indicates Factory Strapping.

TABLE I
 TERMINAL AND CONNECTIONS BETWEEN APPARATUS
 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	Lamp Wink	
M	20A	20B	20C	20D	Lamp Flash	
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			TERMINAL ON 232A OR B KTU*	TERMINAL ON KTU		TERMINAL ON 202C OR D KTU	TERMINAL ON 207C KTU
		ROW	COL	CABLE COLOR BLUE BINDER		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	2nd	
	L	30		S-BK			5		
	T	31		Y-BL			1		
	R	32		BL-Y			2		
Motor Supply	A	33		Y-O			3		
	A1	34		O-Y			4		
	LG	35		Y-G			6		
	L	36		G-Y			5		
Spare	GRD	37	Y-BR	27					
	10v ±	38	BR-Y	26					
Lamp Supply	± or BAT.	41†	Y-S						
	± or BAT.	42†	S-Y						
	GRD	43	V-BL	9					
	± or BAT.	44†	BL-V	10					
Audible Signal Supply	GRD	45	V-O		30A	6A			
	BAT., ±, or 105V ±	46	O-V		29A	29A			
20v dc Talk or A Bat.	GRD	47	V-G		25A	30A			
	BAT.	48	G-V	29					
20v dc Sig or B Bat.	GRD	49	V-BR	25					
	BAT.	50	BR-V	24					
			V-S		26A	26A			
			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					81B		
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 6681-25 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-C		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	↑	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 R1 or BZ	19 20	R-S S-R		25A 10A	30A 10A		
	Line 2	B1 or BZ1 R1 or BZ	21 22	BK-BL BL-BK		25A 10B			
	Line 3	B1 or BZ1 R1 or BZ	23 24	BK-O O-BK		25A 10C			
	Line 4	B1 or BZ1 R1 or BZ	25 26	BK-G G-BK		28A 10D	30A 10D		
	Line 5	B1 or BZ1 R1 or BZ	27 28	BK-BR BR-BK				25 10	1st
	Line 6	B1 or BZ1 R1 or BZ	29 30	BK-S S-BK				25 10	2nd
	Line 7	B1 or BZ1 R1 or BZ	31 32	Y-BL BL-Y				25 10	3rd
CO or PBX	Line 1	T R	33 34	Y-O O-Y		7A 8A			
	Line 2	T R	35 36	Y-G G-Y		7B 8B			
	Line 3	T R	37 38	Y-BR BR-Y		7C 8C			
	Line 4	T R	39 40	Y-S S-Y		7D 8D			
	Line 5	T R	41 42	V-BL BL-V				7 8	1st
	Line 6	T R	43 44	V-O O-V				7 8	2nd
	Line 7	T R	45 46	V-G G-V				7 8	3rd
Ringling Supply*	GRD 105V ±	47 48		V-BR BR-V	29	28A	30A		
Local Ground	GRD GRD	49 50		V-S† S-V†					

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

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