

KEY SERVICE UNITS

310- AND 311-TYPE

CONNECTIONS AND MAINTENANCE

1.00 GENERAL

1.01 This section covers connections and maintenance for the 310- and 311-type key service units. This section is reissued to show minor changes in Fig. 5, 6, 7, and 8.

1.02 General information for these units is as follows:

- 310-type key service units, apparatus interwired only; connect key or running cables directly to the apparatus.

- 311-type key service units:

(a) Apparatus wired to either: three 66-type terminals (4- to 7-line packages) or four 66-type terminals (9- to 13-line packages).

(b) 66-type terminals furnished with aluminum foil pressure-sensitive tapes, preprinted with lead designations.

1.03 Fig. 1 shows the method of counting the 66B1-25 connecting blocks.

1.04 The aluminum foil tape applied to the 66-type connecting blocks is in one piece. When terminating the first wire, hold wire taut and snap into slot in the faning strip which cuts through the tape.

1.05 The coding and feature make-up of these key service units is covered in the section entitled, Key Service Units, 300 Series, Identification.

1.06 These key service units, designed for wall mounting, are equipped with or without power. Methods for mounting the 16C apparatus mounting are covered in the section entitled Equipment Cabinets and Apparatus Mountings, Installation.

1.07 Index of figures and tables.

Fig. 1 - Method of Counting 66-Type Connecting Blocks

Fig. 2 - Key or Running Cable Termination on 66-Type Connecting Blocks

Fig. 3 - 311 KSU (4 to 7 Lines), Typical Connections for Manual Signaling When Dial Intercommunicating Circuit Is Not Used

Fig. 4 - 310 or 311 KSU (4 to 7 Lines) Connection and Strapping (202D, 230B, 232B, and 207C KTU)

Fig. 5 - 310 or 311 KSU (9 to 13 Lines) Connection and Strapping (230B, 238A, 207C, and 216A KTU)

Fig. 6 - 310 or 311 KSU (4 to 7 Lines) Schematic Drawing, Notes and Wiring Options; Line Circuits and Common Equipment (202D, 230B, and 232B KTU)

Fig. 7 - 310 or 311 KSU (9 to 13 Lines) Schematic Drawing, Notes and Wiring Options; Line Circuits and Common Equipment (230B and 238A KTU)

Fig. 8 - 310 or 311 KSU (4 to 7 or 9 to 13 Lines) Schematic Drawing, Dial Intercommunicating Line Circuit (207C and 216A KTU)

Table A - 311 KSU (4 to 7 Lines), Connections Between Apparatus and 66-Type Connecting Blocks

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

Table C - 311 KSU (9 to 13 Lines), Connections Between Apparatus and 66-Type Connecting Blocks

- Table D - 311 KSU (9 to 13 Lines) Connections Between Apparatus, 66-Type Connecting Block and Power Plant
- Table E - 310 or 311 KSU (9 to 13 Lines) Line Circuit Portion of 238A KTU (Associated with Fig. 5)
- Table F - 310 or 311 KSU (9 to 13 Lines) 230B KTU (Associated with Fig. 5)
- Table G - 310 or 311 KSU (9 to 13 Lines) Line Circuit Portion of 238A KTU (Associated with Fig. 7)
- Table H - 310 or 311 KSU (9 to 13 Lines) 230B KTU (Associated with Fig. 7)

2.00 CONNECTIONS

- 2.01 See Fig. 4 for key and power cable connections and strappings between the 202D, 230B, 232B, and 207C key telephone units.
- 2.02 See Fig. 5 for key and power cable connections and strappings between the 230B, 238A, 207C, and 216A.

310-TYPE KSU

- 2.03 The key telephone units in these packages are interwired only.
- 2.04 Connect key or running cables directly to the screw terminals on the back of the key telephone units. See the following tables for features, lead designations, and connections.

- Table A, 4 to 7 lines.
- Table C, 9 to 13 lines.

- 2.05 Connect an external power source when power is not provided as part of the package. See the following tables:

- Table B, 4 to 7 lines.
- Table D, 9 to 13 lines.

311-TYPE KEY SERVICE UNITS, 4 TO 7 LINES -

- 2.06 Connect key or running cables, starting on clip 1 of the 66-type connecting blocks (see Fig. 2). See Table A for features, lead designations, and terminal numbers on connecting blocks A, B, and C.

- 2.07 Connect an external power source to clip 1 of connecting block D (see Table B) when power is not provided as part of the package.

311-TYPE KEY SERVICE UNITS, 9 TO 13 LINES

- 2.08 Connect key or running cables, starting on clip 1 of the 66-type connecting blocks, (see Fig. 2). See Table C for features, lead designations, and terminal numbers on connecting blocks A, B, C, and D.
- 2.09 Connect an external power source to clip 1 of connecting block D (see Table D) when power is not provided as part of the package.

SIGNALING CIRCUIT FOR MANUAL INTER-COMMUNICATING



Manual intercom is supplied as part of the 4- to 7-line packages. Manual intercom is not supplied as part of the 9- to 13-line packages.

- 2.10 See Fig. 3 for arrangement of manual signaling when dial intercom is not provided. Use spare or vacant pairs.



These terminals may have wires terminated on clip 6 that are lying dead at the apparatus end. Make sure that these terminals are clear of trouble before using for manual signaling.

WINK-HOLD CIRCUIT

- 2.11 All packages are wired for the wink-hold feature. Refer to:
- Fig. 6, Note 2, 4 to 7 lines.
 - Fig. 7, Note 2, 9 to 13 lines.

3.00 MAINTENANCE

- 3.01 Circuit drawings (Fig. 6, 7, and 8) are included as aids for clearing trouble and for wire options as furnished with the packages.
- 3.02 For additional maintenance information, refer to the section covering the key telephone units involved.

TABLE A
311 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	
		Terminal	Clip	Cable Color Blue Binder					
Line 1	T	1	6	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 7	T	25	BK-G		1				
	R	26	G-BK		2				
	A	27	BK-BR		3			1st	
	A1	28	BR-BK		4				
Line 8	LG	29	BK-S		6				
	L	30	S-BK		5				
	T	31	Y-BL		1				
	R	32	BL-Y		2				
A	33	Y-O		3	2nd				
A1	34	O-Y		4					
Line 9	LG	35	Y-G		6				
	L	36	G-Y		5				
	T	37	Y-BR		1				
	R	38	BR-Y		2				
A	39	Y-S		3	3rd				
A1	40	S-Y		4					
Manual Intercom	LG	41	V-BL		6				
	L	42	BL-V		5				
	T	43	V-O	30					
	R	44	O-V	40					
Dial Intercom	LG	45	V-G	27					
	L	46	G-V	28					
	T	47	V-BR					1B	
	R	48	BR-V					2B	
Manual Intercom	LG	49	V-S						
	L	50	S-V						
								32B	
								3B	

TABLE A (Cont)
311 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
		Terminal	Clip	Cable Color Orange Binder				
Aud Sig Assoc With Dial Intercom	Cnde	B	1	W-BL			36B	
	2	R	2	BL-W			12A	
	3	B	3	W-O			36B	
	4	R	4	O-W			13A	
	5	B	5	W-G			37B	
	6	R	6	G-W			14A	
	7	B	7	W-BR			37B	
	8	R	8	BR-W			15A	
	9	B	9	W-S			38B	
	0	R	10	S-W			16A	
Aud Sig Assoc With Line Ckts	Line 1	B1 or BZ1	19	R-BL		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	
Vacant	Line 6	B1 or BZ1	29	BK-S			25	
		R1 or BZ	30	S-BK			10	
	Line 7	B1 or BZ1	31	Y-BL			25	
		R1 or BZ	32	BL-Y			10	
							33	
							34	
							35	
							36	
							37	
							38	
Vacant							39	
							40	
							41	
							42	
							43	
							44	
							45	
							46	
							47	
							48	
Vacant							49	
							50	

TABLE A (Cont)
311 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
		Terminal	Clip	Cable Color Orange Binder		
CO or PBX Lines	Line 1	T	1	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	
Spare		R	8	S-Y	8D	
		T	9	V-BL		7
		R	10	BL-V		8
Vacant		T	11	V-O		7
		R	12	O-V		8
		T	13	V-G		7
		R	14	G-V		8
		T	15	V-BR		
		R	16	BR-V		
		T	17	V-S		
See Table B For Power Connections		R	18	S-V		

TABLE B

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

Feature	Lead Desig	Term. on 66-Type Conn Block	Connecting Block D										Cable Color		To J86731-D Power Plant	
			Clip 6		Clip 5		Clip 4		Clip 1							
			Cable Color BR-W Endr	To	Cable Color BR-W Endr	To	Cable Color BR-W Endr	To	Cable Color	To						
			KTU	Terminal		KTU	Terminal		KTU	Terminal						
Audible Signal Power Supply	Grd	37	W-BL		39											
	± Bat., or 105 V ±	38	BL-W	232B	29											
20 V DC Talk or 'A' Bat.	Grd	39	W-O	232B	25							G-2Y	20 V DC Talk	G		
	Bat.	40	O-W		24							G-1Y		B		
20 V DC Signal or B Bat.	Grd	41	R-BR	1st 202D	4							BL-2Y	20 V DC Signal	} G } R		
	Grd	42	W-Y *	230B	4A							S-2BK				
	Bat.	43	BR-R	1st 202D	26							BL-1Y				
	Bat.	44	Y *	230B	26A							S-1BK				
Lamp and Motor Supply	Grd	45	W-BL *	1st 202D	6							R-Y †	10 V AC	} G } ±		
	Grd †	46	W-O *	230B	6A	R-G	232B	27	W-G *	207C	32B	R-W †				
	10 V AC †	47	W-BR †	232B	9	G-R	232B	26				W †				
	± or Bat.	48	BR †	232B	10				1st 202D	29					R †	
	± or Bat.	49	W-S †	232B	19	BL *			230B	29A						
	± or Bat.	50	S †	232B	20	O *										

* 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 C

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

Feature	Lead Designation	Block A 66-Type Connecting Block			Terminal on 238A KTU
		Terminal	Clip	Cable Color Blue Binder	
Line 1	T	1	6	W-BL	1A
	R	2		BL-W	2A
A	3	W-O		3A	
	AI	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	
	AI	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	
	AI	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	
	AI	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	
	AI	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	
	AI	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	
	AI	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	
	AI	46		G-V	34D
LG	47	V-BR		36D	
	L	48		BR-V	35D
Spare		49		V-S	
		50		S-V	

TABLE C (Cont)

311 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
		Terminal	Clip	Cable Color Orange Binder				
Line 9	T	1	6	W-BL	1E			
	R	2		BL-W	2E			
A	3	W-O		3E				
	AI	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		
	AI	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		
	AI	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		
	AI	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		
	AI	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	
Code 3	B	35		Y-O			32B	
	R	36		O-Y			3B	
4	B	37		Y-G			36B	
	R	38		G-Y			13	
5	B	39		Y-BR			36B	
	R	40		BR-Y			14	
6	B	41		Y-S			37B	
	R	42		S-Y			15	
7	B	43		V-BL			37B	
	R	44		BL-V			16	
8	B	45		V-O			38B	
	R	46		O-V			17	
9	B	47		V-G			38B	
	R	48		G-V			18	
0	B	49		V-BR			40B	
	R	50		BR-V			19	
Spare		49		V-S			40B	
		50		S-V			20	

TABLE C (Cont)

311 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
		Terminal	Clip	Cable Color Green Binder				
Code 21	B	1	6	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				
30	B	19		R-S			24B	30
	R	20		S-R				
Line 1	B1 or BZ1	21		BK-BL			18A	
	R1 or BZ2	22		BL-BK			19A	
Line 2	B1 or BZ1	23		BK-O			38A	
	R1 or BZ2	24		O-BK			39A	
Line 3	B1 or BZ1	25		BK-G			18B	
	R1 or BZ2	26		G-BK			19B	
Line 4	B1 or BZ1	27		BK-BR			38B	
	R1 or BZ2	28		BR-BK			39B	
Line 5	B1 or BZ1	29		BK-S			19C	
	R1 or BZ2	30		S-BK			19C	
Line 6	B1 or BZ1	31		Y-BL			38C	
	R1 or BZ2	32		BL-Y			39C	
Line 7	B1 or BZ1	33		Y-O			18D	
	R1 or BZ2	34		O-Y			19D	
Line 8	B1 or BZ1	35		Y-G			38D	
	R1 or BZ2	36		G-Y			39D	
Line 9	B1 or BZ1	37		Y-BR			18E	
	R1 or BZ2	38		BR-Y			19E	
Line 10	B1 or BZ1	39		Y-S				25A
	R1 or BZ2	40		S-Y				10A
Line 11	B1 or BZ1	41		V-BL				27A
	R1 or BZ2	42		BL-V				10B
Line 12	B1 or BZ1	43		V-O				27A
	R1 or BZ2	44		O-V				10C
Line 13	B1 or BZ1	45		V-G				30A
	R1 or BZ2	46		G-V				10D
Spare		47		V-BR				
		48		BR-V				
Spare		49		V-S				
		50		S-V				

TABLE C (Cont)

311 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
		Terminal	Clip	Cable Color Brown Binder		
Line 1	T	1	6	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		
Spare		29		BK-S		
		30		S-BK		
Spare		31		Y-BL		
		32		BL-Y		
Spare		33		Y-O		
		34		O-Y		
Spare		35		Y-G		
		36		G-Y		
Spare		37		Y-BR		
		38		BR-Y		
Spare		39		Y-S		
		40		S-Y		
Spare		41		V-BL		
		42		BL-V		
Spare		43		V-O		
		44		O-V		
Spare		45		V-G		
		46		G-V		
Spare		47		V-BR		
		48		BR-V		
Spare		49		V-S		
		50		S-V		

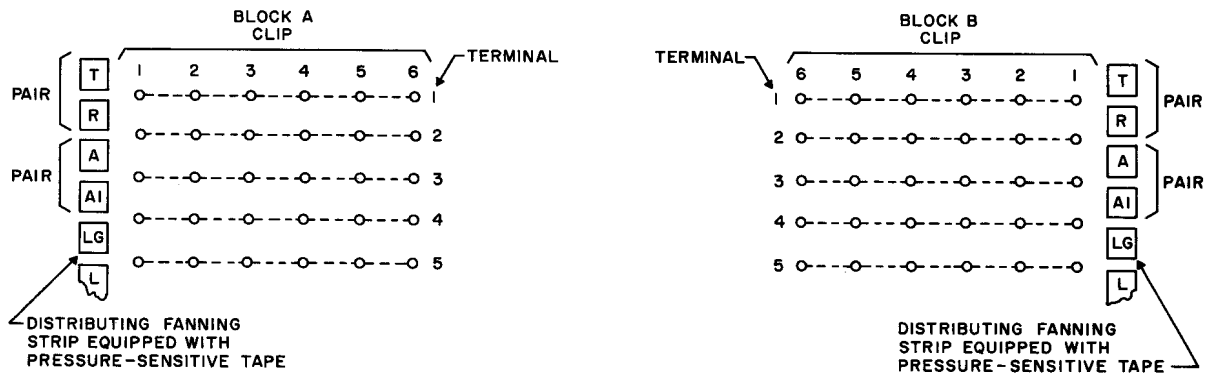


Fig. 1 - Method of Counting 66-Type Connecting Blocks

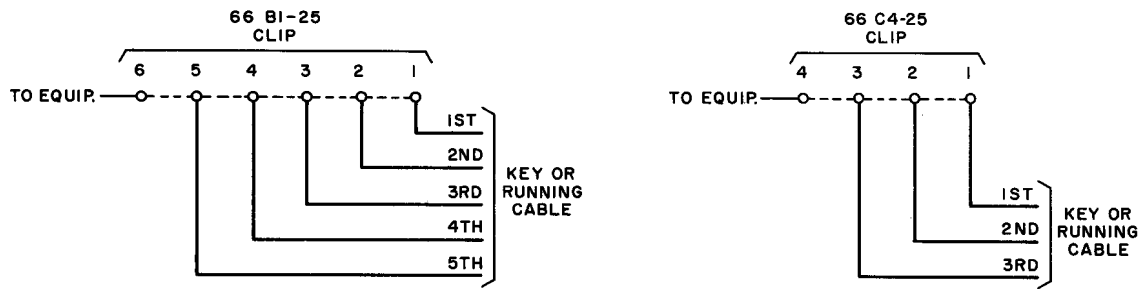
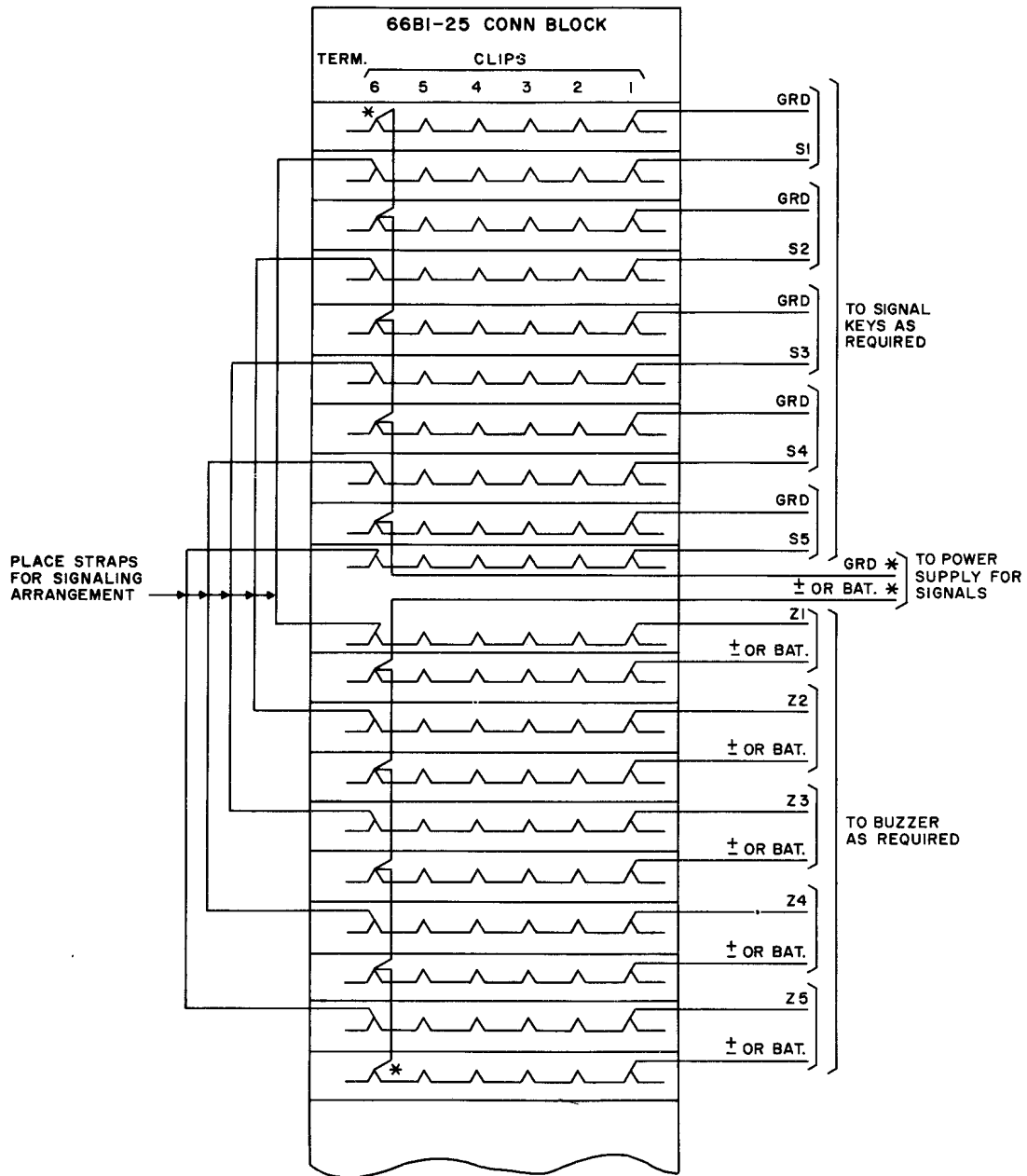


Fig. 2 - Key or Running Cable Termination on 66-Type Connecting Blocks



* Looped connections on clip.
 Note: Make connections to vacant terminals.

Fig. 3 - 311 KSU (4 to 7 Lines), Typical Connections for Manual Signaling When Dial Intercommunicating Circuit Is Not Used

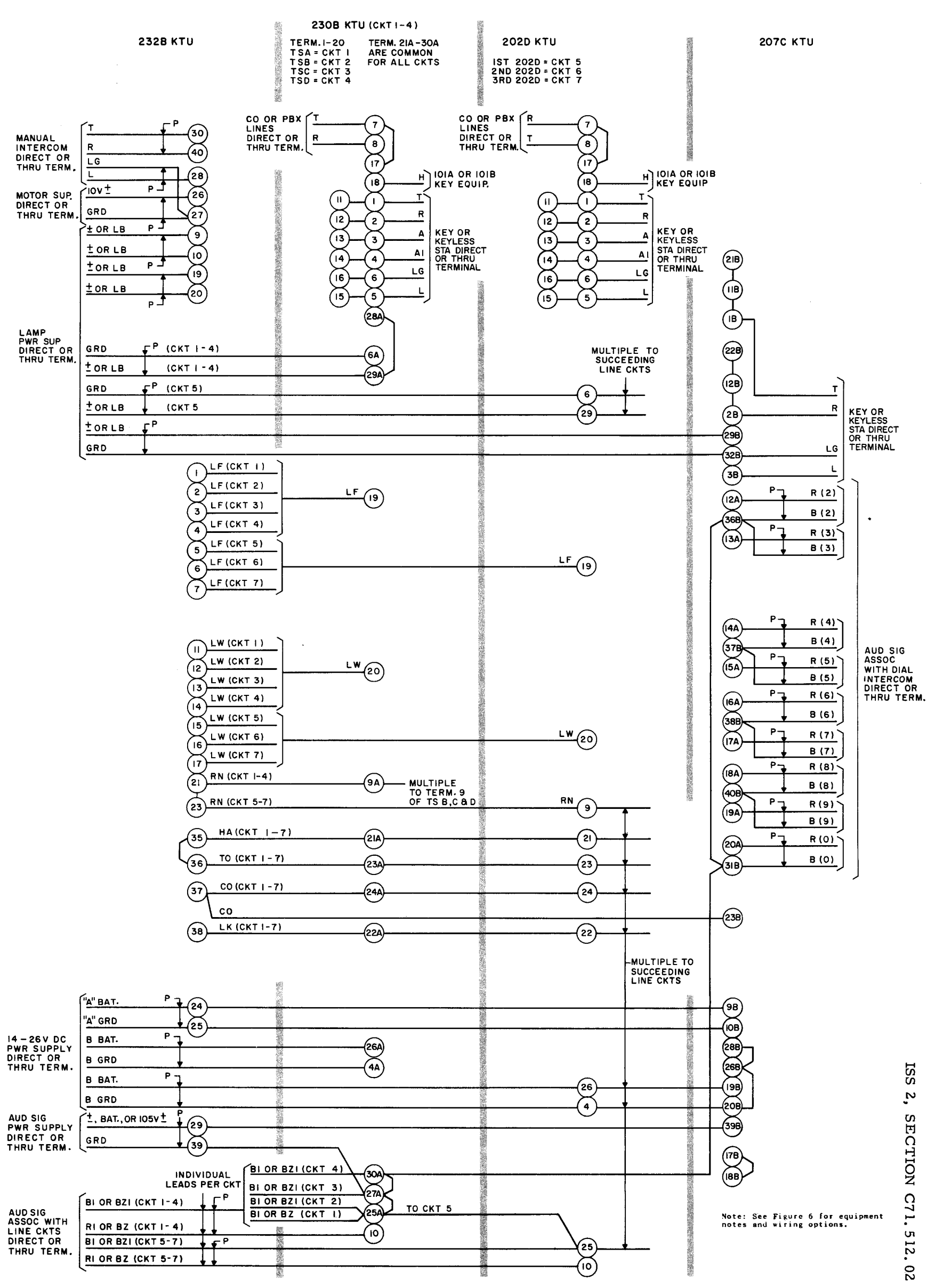


Fig. 4

Note: See Figure 6 for equipment notes and wiring options.

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

○—○ Indicates Factory Strapping

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		1H		1I		1J		1K	HA	Time-out
V	2G		2H		2I		2J		2K	TO	
W	3G		3H		3I		3J		3K	CO	
X	4G		4H		4I		4J		4K	LK	

TABLE F
310 OR 311 KSU (9 TO 13 LINES)
230B KTU

○—○ Indicates Factory Strapping

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.

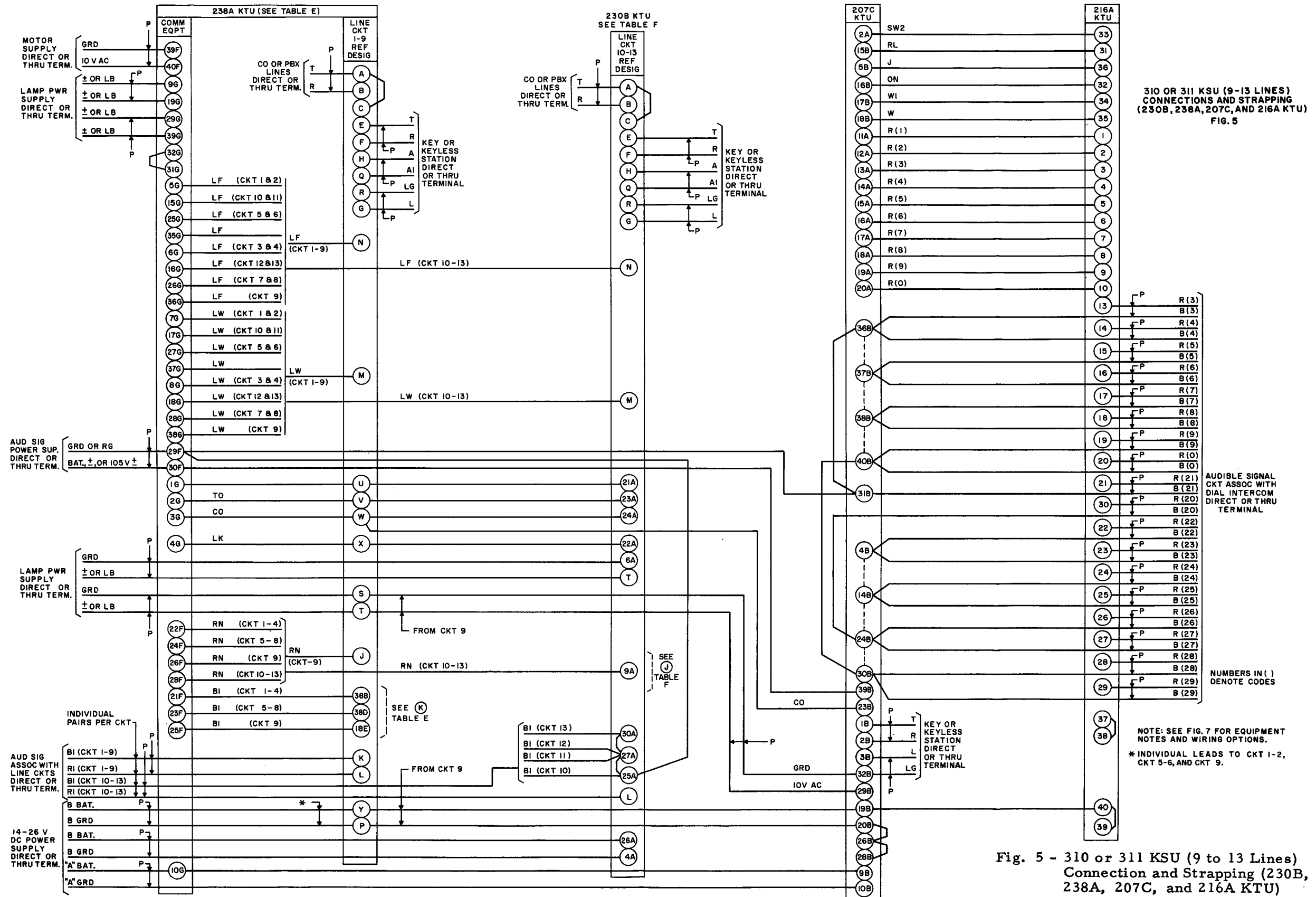


Fig. 5 - 310 or 311 KSU (9 to 13 Lines) Connection and Strapping (230B, 238A, 207C, and 216A KTU)

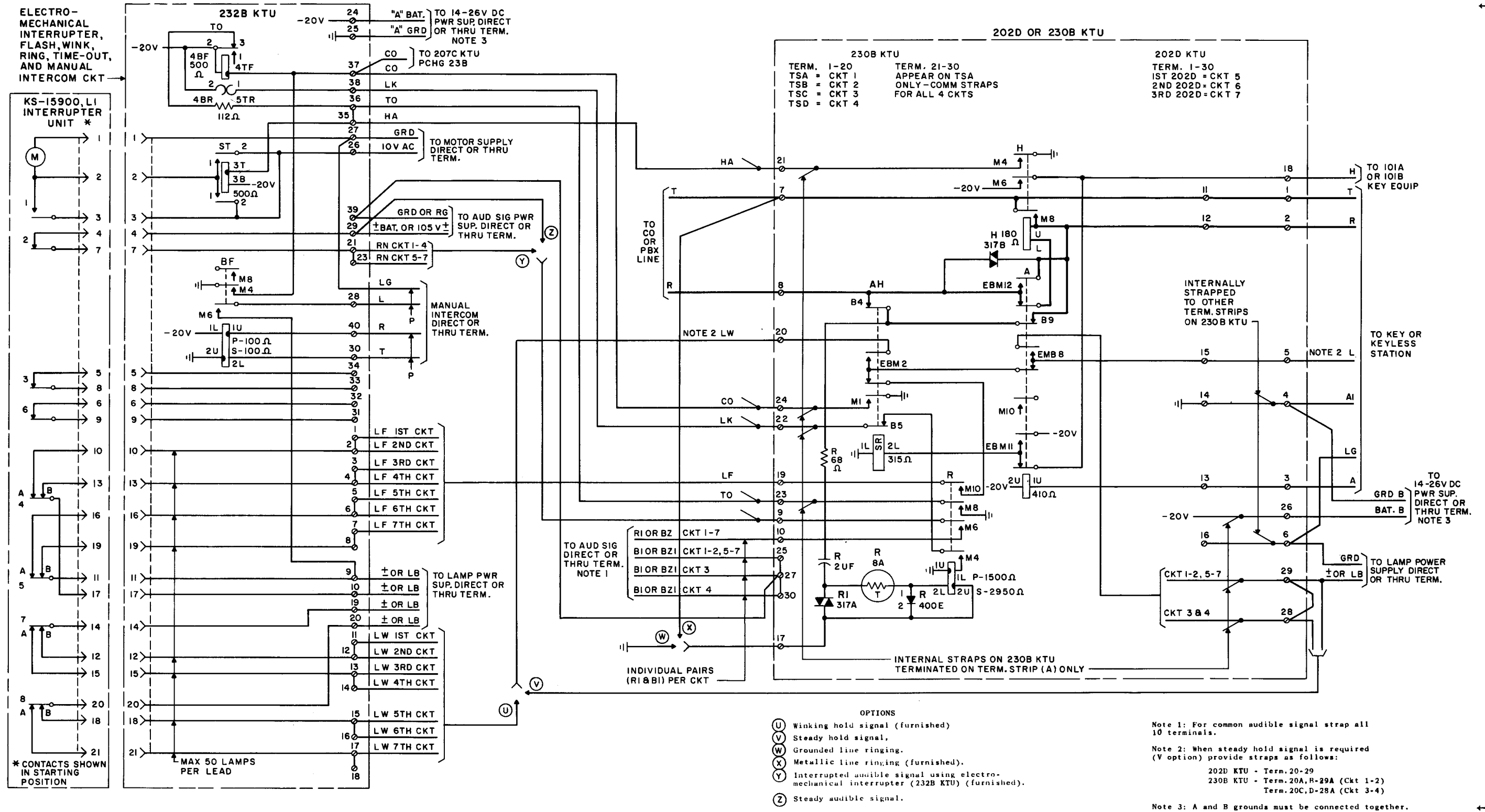


Fig. 6 - 310 or 311 KSU (4 to 7 Lines) Schematic Drawing, Notes and Wiring Options; Line Circuits and Common Equipment (202D, 230B, and 232B KTU)

TABLE G

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

○—○ Indicates Factory Strapping

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	T or LB	
U	1G		11G		21G		31G		41G	HA	Time Out
V	2G		12G		22G		32G		42G	TO	
W	3G		13G		23G		33G		43G	CO	
X	4G		14G		24G		34G		44G	LK	

TABLE H

310 OR 311 KSU (9 TO 13 LINES)
230B KTU

○—○ Indicates Factory Strapping

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	2A	9B	9C	9D	Audible Signal	
K	25A	27A		30A		
L	10A	10B	10C	10D		
M	20A	20B	20C	20D	Lamp Wink	
N	19A	19B	19C	19D	Lamp Flash	
P	4A				Grd	Relay Power Supply
Y	26A				Bat.	
Q	4A	4B	4C	4D	A1	Station
R	6A	6B	6C	6D	LG	
S	6A				Grd	Lamp Power Supply
T	28A		28A		T or Bat.	
U	21A				HA	Time Out
V	23A				TO	
W	24A				CO	
X	22A				LK	

* Number in parenthesis denotes circuit in package.

