



1972

Telecommunications Division

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501A KEY SERVICE UNIT*

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K501A SERIES KEY SERVICE UNITS

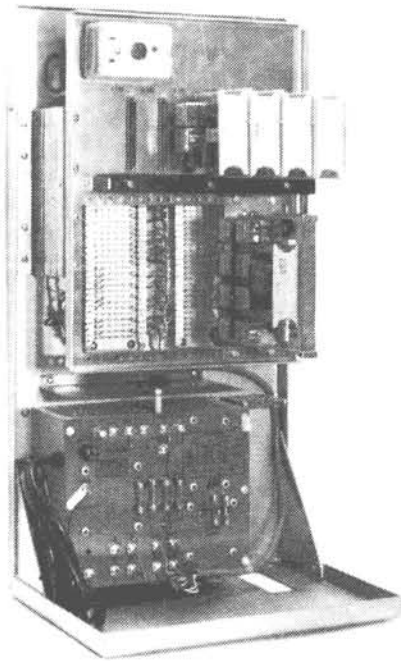


Fig. 1 - K501A KEY SYSTEM

CONTENTS

1.00	General	1
2.00	Identification	1
3.00	Installation	4
4.00	Operation	9
5.00	KSU Interconnection	10

1.00 GENERAL

SCOPE

1.01 This publication covers Identification, Installation, and Operation of K501A Key Telephone Systems.

1.02 This KSP is reissued to revise paragraphs 3.19 and 3.20, and to add tables B and C.

EQUIPMENT COVERED

1.03 K501A type Key Service Units equipped with Key Telephone Units (KTUs) listed in Table A.

2.00 IDENTIFICATION

2.01 Each key telephone system consists essentially of a Key Service Unit, with or without a dial intercom circuit, to which is added one 400 type CO/PBX line card for each incoming line.

2.02 The basic K501A KSU consists of a backboard with connecting blocks, cable clamps, and hooks for station cables; a mounting frame, (hinged and locked to the backboard), upon which is mounted a card mounting assembly including six connectors and an electro-mechanical interrupter. The interrupter is common to the entire system and provides for lamp flashing, lamp winking, and interrupted ringing. The six connectors are factory wired to the connecting blocks on the backboard.

2.03 Power supplies are of three types:

- (1) 182141-101, used in 501A00-00P and 501A09-00P KSUs, is designed for buzzer signaling on intercom.
- (2) 180124-101 is used for floorstand units for up to 18 stations with buzzer signaling, (70 busy lamps maximum.)
- (3) 180125-102 is used in floorstand units for up to 18-stations (70 busy lamps maximum), with buzzer or ringer signaling.

KEY TELEPHONE UNITS (KTUs)

2.04 The K307A KTU provides for a 9-station common talking, dial selective intercom circuit. It is a modular type unit designed to mount within the K501A KSU.

2.05 A K160B card plugs into the K307A KTU to expand rotary-dial selective intercom from 9 to 18 stations. The K307A intercom system can be adapted to handle pushbutton (tone) dialing by adding a 182666-101 T-T Adapter Kit.

2.06 The K357A KTU provides for a 9-station common talking, pushbutton or rotary dial selective intercom circuit. It is designed to mount within the K501A KSU and consists of a panel and 3 plug-in cards (160C, 166A, 166B) and connectors for 3 additional cards.

2.07 The K357A intercom can be expanded in increments of 9 dial codes by adding K160B plug-in cards up to a maximum of 36 codes.

2.08 K400E CO/PBX Line KTU. One KTU is used per CO or PBX line coming into the system and provides for line pickup and hold and for control of visual and audible signals. The unit is designed to work in conjunction with a K403A KTU and a low-level music source to provide music-on-hold. It is equipped with a light-emitting diode (LED) that indicates when the circuit is idle or busy.

NOTE: K400D CO/PBX Line KTUs can be used if music-on-hold is not desired.

2.09 The K401B KTU is a manual intercom circuit and consists of a printed circuit board upon which are assembled a battery feed and busy lamp relay.

2.10 The K401PA KTU is used to provide dial access to a public address system for voice-paging from intercom stations.

2.11 The K401-CAP KTU is used to permit tone and voice signaling using a Call Announcer. One KTU is required per Call Announcer. It can also be used as a paging adapter.

2.12 K403A Music-On-Hold KTU. One KTU is used in a system to provide music-on-hold for up to six lines. Approximate dimensions in inches are 3½"W x 5¼"L x 1¼"D. (18 contacts.)

NOTE: K403A should be used with a K259B or K359A Adapter. If KTU is plugged into an existing 18-Pin connector in K501A KSU it will have to be rewired.

2.13 K405A Two-Line Semi-Automatic Exclusion KTU permits a station to temporarily disconnect other stations from one or two predetermined CO or PBX lines for privacy.

NOTE: The K405A KTU is designed to be plugged into a K259B 2-card panel or a K359A 1-card panel. It has 20 contacts and will not plug into the 18-contact connectors provided in the K501A KSU.

EXPANSION UNITS

2.14 If space is available, KTU capacity of the K501A KSUs can be increased by installing a K259B 2-card adapter or a K359A one-card adapter. The K259B unit provides two 20-Pin connectors while the K359A unit provides one 20-Pin connector.

TABLE A. IDENTIFICATION

CODE	DESCRIPTION
UNITS WITHOUT INTERCOM	
(1) 501A00-101 (2) 501A00-00P (3) 501A00-00F (4) 501A00-0FP (5) 501A00-FPG	KSU, Wall Unit Less Power Supply** KSU, Wall Unit E/W Power Supply* KSU, Floorstand Unit Less Power Supply** KSU, Floorstand Unit E/W Power Supply Less Ringing Generator** KSU, Floorstand Unit E/W Power Supply With Ringing Generator**
UNITS WITH 9-STATION INTERCOM (E/W K307A KTU)***	
(6) 501A09-101 (7) 501A09-00P (8) 501A09-00F (9) 501A09-0FP (10) 501A09-FPG	Same as item (1) except E/W K307A KTU Same as item (2) except E/W K307A KTU Same as item (3) except E/W K307A KTU Same as item (4) except E/W K307A KTU Same as item (5) except E/W K307A KTU
UNITS WITH 18-STATION INTERCOM (E/W K357A KTU)****	
(11) 501A18-101 (12) 501A18-00F (13) 501A18-0FP (14) 501A18-FPG	Same as item (1) except E/W K357A KTU less T-T adapter cards, plus K160B card Same as item (3) except E/W K357A KTU less T-T adapter cards plus K160B card Same as item (4) except E/W K357A KTU less T-T adapter cards plus K160B card Same as item (5) except E/W K357A KTU less T-T adapter cards plus K160B card
* ** *** ****	Will accept K307A KTU Will accept K307A KTU or K357A KTU Expandable to 18-station capacity Expandable to 36-station. The K357A is equipped less Tel-Touch cards, but with a 160B card.
000307-00A 000357-00A 000400-00D 000400-00E 000401-00B 000401-0PA 000401-CAP 000403-00A 182666-101 000405-00A 000160-00C 000160-00B 000166-00A 000166-00B	KTU, 9-station Rotary Dial Intercom, Expandable to 18-station KTU, 9-station RD and T-T Dial Intercom, Expandable to 36-station KTU, CO/PBX Line Card Circuit KTU, CO/PBX Line Card Circuit KTU, Manual Intercom KTU, Paging Adapter KTU, Call Announcer Interface KTU, Music-On-Hold (for 6 lines or less) Adapter, T-T for K307A KTU KTU, Two-line Semi-Automatic Exclusion Card, 9-station Intercom (Included with K307A and K357A) Card, Intercom Expansion (9-station) Detector Card, for Tel-Touch Adapter or 357-00A Translator Card, for Tel-Touch Adapter or 357-00A

TECHNICAL SUMMARY

Power Input. 111, 117, or 123 Vac, 60 Hz
 Number of CO/PBX Lines. 6
 Number of Stations. (See Table A)
MOUNTING SPACE
 501A Wall Unit. 17"H x 14"W x 11"D
 501A Floorstand Unit. 28"H x 13"W x 13"D

3.00 INSTALLATION

MOUNT THE KEY SERVICE UNIT

3.01 The KSU should be centrally located to minimize the length of cable runs.

3.02 The mounting location should provide ample space for mounting the KSU and up to nine 66-type connecting blocks and to allow clearance to open the equipment rack.

3.03 The KSU must be within five feet (length of power cord) of a 115V ac wall service outlet which is not controlled by a switch accessible for false operation.

Caution: Do not splice or add extensions to the power cord as it may cause low voltage and create a fire hazard.

3.04 The wall service outlet must be grounded and should be an individual circuit.

INSTALL CIRCUIT GROUND

3.05 Using 14 gauge wire, connect the power supply ground to an approved (earth) ground.

CONNECT STATION CABLES

3.06 Figure 3 shows station connections which must be made at Blocks A and B located on the inside back panel of the KSU.

3.07 Line connections intercom T, R, L, and LG connections are made to block A.

3.08 Intercom signaling lead connections are made on block B and on terminals 45 through 50 of Block A. The YEL-SLT and SLT-YEL leads from each station connect to "B" and "R" terminals respectively according to the intercom number assigned to the station.

3.09 Block A has terminals for connecting a maximum of five station cables. If more than five phones are to be connected, two or more phones can be connected in parallel to each cable (multiples), or intermediate blocks can be installed near the KSU and terminals 1 through 42 connected in parallel to Block A. Terminals 43 through 50 of each intermediate block are then used for terminating intercom signal (B and R) leads for the stations that are connected to that block. Individual jumpers must be connected from the B and R terminals of Blocks A and B to the B and R terminals on the intermediate blocks according to the intercom number assignment.

COMMON AUDIBLE SIGNALS (CAS)

3.10 Common audible terminals appear on Block B, terminals 31 through 36. Strap desired terminals together and connect to the SLT-YEL lead of the station that is to have CAS. Connect the YEL-SLT lead to a vacant B1 terminal.

TO USE BUZZERS FOR INTERCOM SIGNALING, RINGERS FOR CO LINES

3.11 To use buzzers for intercom signaling and ringers for CO signaling, change wiring on Block C as follows:

- (a) Remove BRN strap from C48 and C50
- (b) Connect Ring Battery (110V ac) to C48.
- (c) Move W-BN from C48 to C50.
- (d) Connect 18V ac to C50.

NOTE: To use buzzers for CO and ringers for intercom, connect 18V ac to C48 and Ring Battery to C50.

CONNECT CO/PBX LINES

3.12 Connect CO/PBX lines to terminals C25 through C36 as designated on the block and in Figure 2.

INSTALLATION OF KTUs

NOTE: If the Music-On-Hold feature is to be included in the system, K400E type CO/PBX line KTUs should be used. Otherwise K400D type or K400E type can be used.

3.13 Refer to KSP400-00D or KSP 400-OOE for instructions and strap the KTU for the desired options.

3.14 Be sure card retainer is in unlocked position and install one K400 type KTU for each CO or PBX line by plugging the KTUs into the KTU connectors with the printed circuit side to the installer's left. Push each KTU in firmly. Raise card retainer to locking position and tighten screws.

CHECK VOLTAGES

3.15 Before operation of the system, test and adjust the Power Supply output as follows:

- (1) Plug power cord into a wall service outlet.
- (2) Use a DC voltmeter and measure Talk (A) and Relay (B) Battery outputs.
- (3) If readings are lower than 21V, unplug power cord and move primary tap from 117V terminal to 111V terminal.
- (4) If reading are higher than 28V, unplug power cord and move primary tap from 117V terminal to 123V terminal.

CHECK SYSTEM OPERATION

OPTIONAL FEATURES

Music-On-Hold (K403A KTU)

3.17 Instructions covering this feature are covered in KSP403-00A.

NOTE: K400E Line Cards are required for Music-On-Hold. Also a music source must be customer provided.

Manual Intercom (K401B KTU)

3.18 Instructions covering manual intercom are covered in KSP401-00B. The K401B Manual Intercom may be installed in any vacant card connector of the KSU. A-Battery must be supplied to Pin 18 and A-Ground to Pin 3 of the K401B. To accomplish this, connect C43 and C44 to AG and AB (respectively), of the connector used. For example, if connector number 6, (CKT6), is used, connect C43 to C11 and C44 to C12. The K401B provides talk and lamp circuitry. A signaling arrangement external to the K401B must be separately provided.

Voice-Paging Adapter (K401PA)

3.19 Instructions covering this feature are in KSP401-0PA. This KTU may be installed in any vacant card connector of the KSU.

Call Announcing/Paging Adapter (K401-CAP)

3.20 Instructions covering this feature are included in KSP401-CAP. This KTU may be installed in any vacant card connector of the KSU. A-Battery must be supplied to Pin 18. See paragraph 3.18.

Off-Premise Stations (K346A KTU)

3.21 Instructions covering this feature are included in KSP346-00A.

NOTES:

1. ONLY CLIPS 1, 2, 3, 4 AND 5 OF BLOCK "A" AND CLIPS 2 AND 3 OF BLOCK B ARE USEABLE IN TERMINATION OF STATION CONN. OR EXTERNAL CONN. BLOCK CABLES.
2. COMMON AUDIBLE SIGNAL TERMINATION FOR SIX CO OR PBX LINES. STRAP DESIRED TERMINALS TOGETHER AND CONNECT SLT-YEL CABLE CONDUCTOR TO THE STRAPPED GROUP AND YEL-SLT CABLE CONDUCTOR TO A VACANT B1 TERMINAL.
3. DEPENDING UPON WHERE THE K401(A)962 KTU MANUAL INTERCOM CARD IS INSERTED, IT IS NECESSARY TO STRAP THE CORRESPONDING AG AND AB CLIPS TO CLIPS 43 AND 44 RESP.,.
4. TO USE BUZZERS FOR INTERCOM SIGNALS AND RINGERS FOR CO LINES, CHANGE STRAPPING AS FOLLOWS:
 - A. REMOVE BRN STRAP FROM 48 AND 50 ON BLOCK "C".
 - B. CONNECT RING BATTERY TO TERMINAL 48 ON BLOCK "C".
 - C. MOVE W-BN FROM C48 TO C50.
- D. CONNECT 18 V.± FROM POWER SUPPLY TO TERMINAL 50 OF BLOCK "C".
5. TO USE RINGERS FOR INTERCOM SIGNALS AND BUZZERS FOR CO LINES, CONNECT 105V.± TO TERMINAL 50 AND 18V.± TO TERMINAL 48 ON BLOCK "C".
6. IF DIAL INTERCOM (K307A, OR K357A KTU) IS INCLUDED IN THE PACKAGE, THE CONDUCTORS NORMALLY USED FOR LINE 5 MUST BE CONNECTED FOR DIAL INTERCOM AS SHOWN.
7. IF RINGERS ARE USED FOR AUDIBLE SIGNALS, CONNECT YEL-SLT TO B, OR B1, TERMINAL, AND SLT-YEL TO R, OR R1 TERMINAL.
8. CONNECT DIAL INTERCOM STATION AUDIBLE SIGNALING LEADS PER ASSIGNED DIGITS.

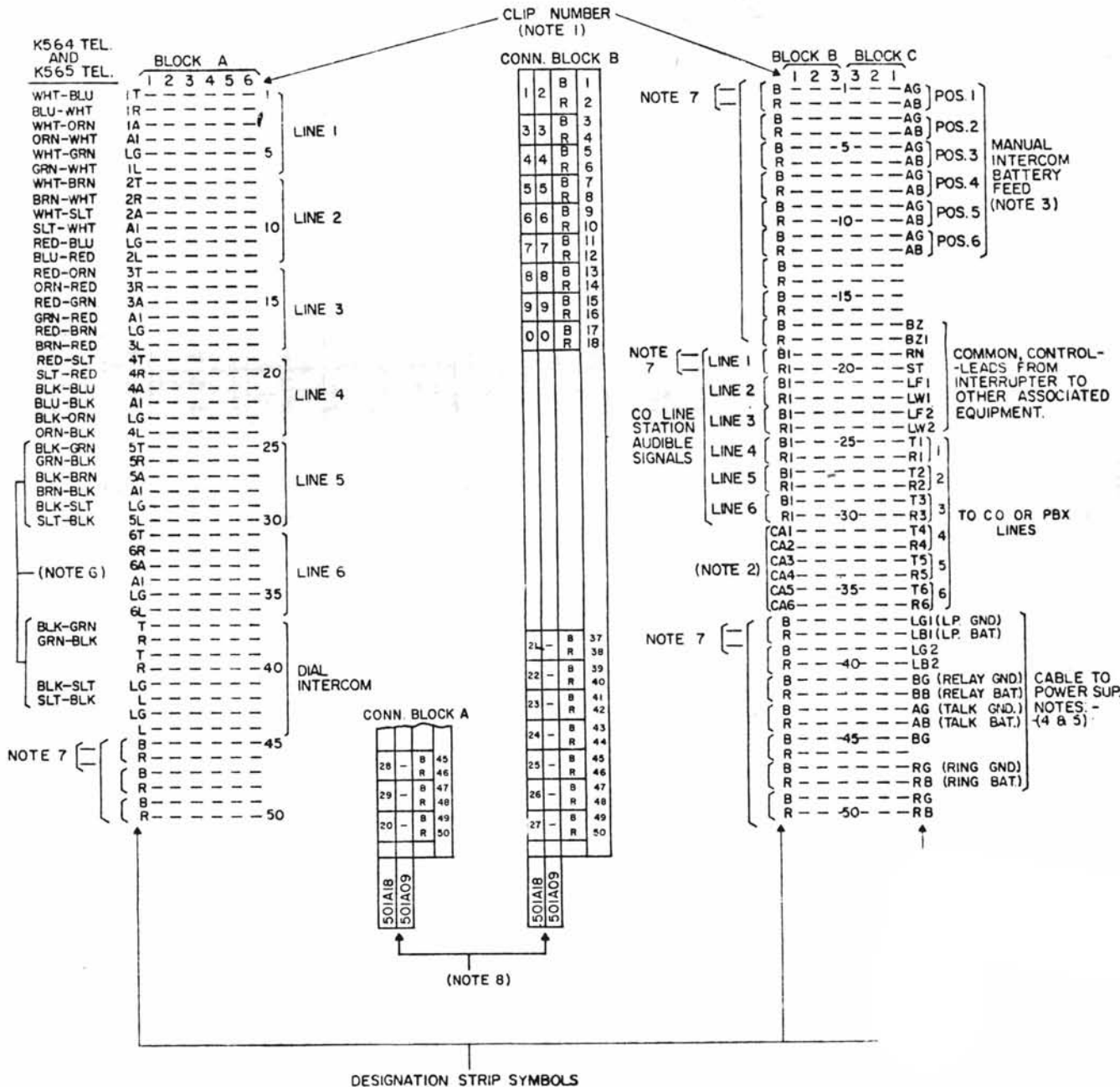


Fig. 3.—K501A Connections

TABLE B
CONNECTIONS BETWEEN STATIONS
AND CONNECTING BLOCK A

NOTES: (Tables B and C)

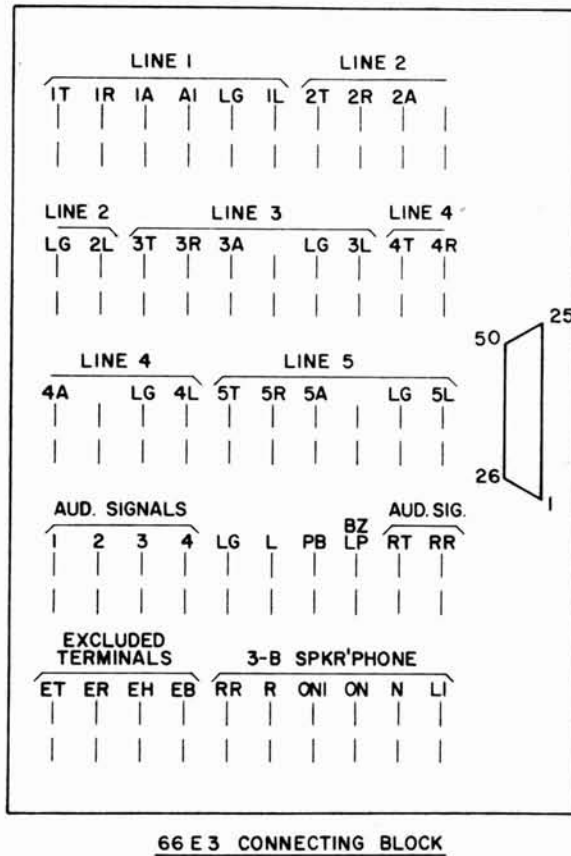
1. Terminate connector or running cables to right on clips as required.
2. Shop wiring from apparatus is terminated this clip.
3. When K401B KTU, manual intercom is required, associated BAT. A and GND. A leads are to be strapped to terms. 44 and 43 of Block C.
4. These spare terminals may be used for manual signaling. See Block B and Fig. 1-A.
5. Paging amplifier input leads connect to T and R of line position used for paging adapter KTU.

BLOCK "A"								
FEATURE	LEAD DESIG.	TERM. NO.	CLIP					
			1	2	3	4	5	6
LINE 1	T	1						
	R	2						
	A	3						
	AI	4						
	LG	5						
LINE 2	L	6						
	T	7						
	R	8						
	A	9						
	AI	10						
LINE 3	LG	11						
	L	12						
	T	13						
	R	14						
	A	15						
LINE 4	AI	16						
	LG	17						
	L	18						
	T	19						
	R	20						
LINE 5	A	21						
	AI	22						
	LG	23						
	L	24						
	T	25						
LINE 6	R	26						
	A	27						
	AI	28						
	LG	29						
	L	30						
DIAL SELECTIVE INTERCOM LINE	T	31						
	R	32						
	A	33						
	AI	34						
	LG	35						
SPARE NOTE 4	L	36						
	T	37						
	R	38						
	T	39						
	R	40						
	LG	41						
	L	42						
	LG	43						
	L	44						
	B	45						
	R	46						
	B	47						
	R	48						
	B	49						
	R	50						

TABLE C. Connection to Blocks B and C

BLOCK "B"				BLOCK "C"													
FEATURE	LEAD DESIG.	TERM. NO.	CLIP			CLIP			TERM. NO.	LEAD DESIG.	FEATURE						
			1	2	3	3	2	1									
DIAL SELECTIVE INTERCOM STATION SIGNALS	B	1	NOTE 1	NOTE 1	NOTE 2	NOTE 3	NOTE 3	1	AG	LINE 1	MANUAL INTERCOM BATTERY FEED						
	R "2"	2						2	AB								
	B	3						3	AG								
	R "3"	4						4	AB								
	B	5						5	AG								
	R "4"	6						6	AB								
	B	7						7	AG								
	R "5"	8						8	AB								
	B	9						9	AG								
	R "6"	10						10	AB								
	B	11						11	AG								
	R "7"	12						12	AB								
	B	13						13									
	R "8"	14						14									
	B	15						15									
	R "9"	16						16									
	STATION AUDIBLE SIGNALS	B						17							17	BZ	COMMON CONTROL LEADS TO OTHER CONNECTING EQUIPMENT
		R "0"						18							18	BZ1	
LINE 1		B1, BZ1	19					19	RN								
		R1, BZ	20					20	ST								
LINE 2		B1, BZ1	21					21	LF1								
		R1, BZ	22					22	LW1								
LINE 3		B1, BZ1	23					23	LF2								
		R1, BZ	24					24	LW2								
LINE 4		B1, BZ1	25					25	T	LINE 1							
		R1, BZ	26					26	R								
LINE 5		B1, BZ1	27					27	T		LINE 2						
		R1, BZ	28					28	R								
LINE 6	B1, BZ1	29					29	T	LINE 3								
	R1, BZ	30					30	R									
COMMON AUDIBLE SIGNALING CIRCUIT	CAS	31						31	T	LINE 4							
	CAS	32						32	R								
	CAS	33						33	T		LINE 5						
	CAS	34						34	R								
	CAS	35						35	T		LINE 6						
	CAS	36						36	R								
SPARE NOTE 4		37						37	LG1	LP. GND.							
		38						38	LB1	LP. BAT.							
		39						39	LG2	LP. GND.							
		40						40	LB2	LP. BAT.							
		41						41	BG	RLY. GND.							
		42						42	BB	RLY. BAT.							
		43						43	AG	TLK. GND.							
		44						44	AB	TLK. BAT.							
		45						45	BG	RLY. GND.							
		46						46									
		47						47	RG	R. G. GND.							
		48						48	RB	R. G. ±							
		49						49	RG	BZ. GND.							
		50						50	RB	BZ. ±							

Fig. 4.—K501A Connections



CIRCUIT	CLIP NUMBER	CIRCUIT DESIGNATION	CABLE CONDUCTOR COLOR	K501A K.S.U. W/O COML. TERM. NO.	K501A K.S.U. W/ COML. TERM. NO.
LINE 1	1	1T	WHT - BLU	A 1	A 1
	2	1R	BLU - WHT	2	2
	3	1A	WHT - ORN	3	3
	4	1I	ORN - WHT	4	4
	5	1G	WHT - GRN	5	5
	6	1L	GRN - WHT	6	6
LINE 2	7	2T	WHT - BRN	7	7
	8	2R	BRN - WHT	8	8
	9	2A	WHT - SLT	9	9
	10	-	-	-	-
	11	1G	RED - BLU	11	11
	12	2L	BLU - RED	12	12
LINE 3	13	3T	RED - ORN	13	13
	14	3R	ORN - RED	14	14
	15	3A	RED - GRN	15	15
	16	-	-	-	-
	17	1G	RED - BRN	17	17
	18	3L	BRN - RED	18	18
LINE 4	19	4T	RED - SLT	19	19
	20	4R	SLT - RED	20	20
	21	4A	BLK - BLU	21	21
	22	-	-	-	-
	23	1G	BLK - ORN	23	23
	24	4L	ORN - BLK	24	24
LINE 5	25	5T	BLK - GRN	25	37 OR 39
	26	5R	GRN - BLK	26	38 OR 40
	27	5A	BLK - BRN	27	-
	28	-	-	-	-
	29	1G	BLK - SLT	29	41 OR 43
	30	5L	SLT - BLK	30	42 OR 44
(3) (4)	31	5	BLU - YEL	BLOCK B	BLOCK B
AUX. SIGNALS	32	6	YEL - BLU		
	33	3	ORN - YEL		
	34	4	YEL - ORN		
HOLD LAMP	35	-	GRN - YEL	AUX. CIR.	AUX. CIR.
	36	-	YEL - GRN		
P.B. SIG.	37	SG	BRN - YEL	GND. TO AUX. APPAR.	
BZ LAMP	38	L2	YEL - BRN	TO BZ LAMP FIELD	
RINGER	39	RT	YEL - SLT	CONN. BLK. B	CONN. BLK. B
	40	RR	SLT - YEL		
(1) (3) EXCLUSION K565 ONLY	41	ET	VIO - BLU	(1) TO SUCCEEDING EXCLUDED PHONES	(1) TO SUCCEEDING EXCLUDED PHONES
	42	ER	BLU - VIO		
	43	EH	VIO - ORN		
	44	EB	ORN - VIO		
(2)(3)(4) 3B SPKRPH.	45	TI	VIO - GRN	CABLE THRU 148 OR 149 B ADAPTER TO 55 BW CONT. UNIT	
	46	RI	GRN - VIO		
	47	P3	VIO - BRN		
	48	P4	BRN - VIO		
	49	AG	VIO - SLT		
50	LK	SLT - VIO			

NOTES:

- 1- THIS FEATURE APPLICABLE TO BOTH K565 () 40M AND K565 () 42 M TELEPHONES.
- 2- THIS FEATURE APPLICABLE TO K565 () 42 M TELEPHONE ONLY.
- 3- THESE FEATURES ARE NOT APPLICABLE TO K564 () 40M TELEPHONE.

4.00 OPERATION

GENERAL

4.01 A typical station telephone will have one red HOLD button and a number of pickup buttons.

4.02 Lamps under the pickup buttons indicate the status of each line whether idle (dark lamp), busy (steady lamp), call coming in (flashing lamp), or on hold (winking lamp or optionally steady lamp).

CENTRAL OFFICE OR PBX LINES

Incoming Call

4.03 An incoming call is indicated by ringing and a flashing line button at all connected telephones. To answer the call, depress the flashing button and pick up the telephone handset.

NOTE: If the telephone is equipped with the hookswitch-button-restoration feature, the handset must be picked up before a button is depressed.

Outgoing Call

4.04 An outgoing call is originated by picking up the telephone handset and pressing an idle line button.

Holding

4.05 When it is desired to hold a call, the hold button is depressed. When the pick-up button associated with that line is depressed again, the hold condition is automatically released.

4.06 The "wink" signal feature uses the same signal lamp used for incoming calls and busy signals, but has a long "on" period and a short "off" period giving the impression of a wink when the line is in a held position.

NOTE: During power failure all lamp functions become inoperative.

Disconnection

4.07 Upon completion of the conversation, returning the handset to the cradle will extinguish the signal lamp and restore the line to the idle (non-busy) condition.

INTERCOM

Placing A Call—Manual Intercom

4.08 Lift the telephone handset, depress the button associated with manual intercom, and operate the manual signaling button.

4.09 If dial intercom is used for signaling, place the call as described in paragraph 4.10. When the called party answers, advise him to go to manual intercom, then go to manual intercom yourself. This leaves the dial intercom idle and ready for another call.

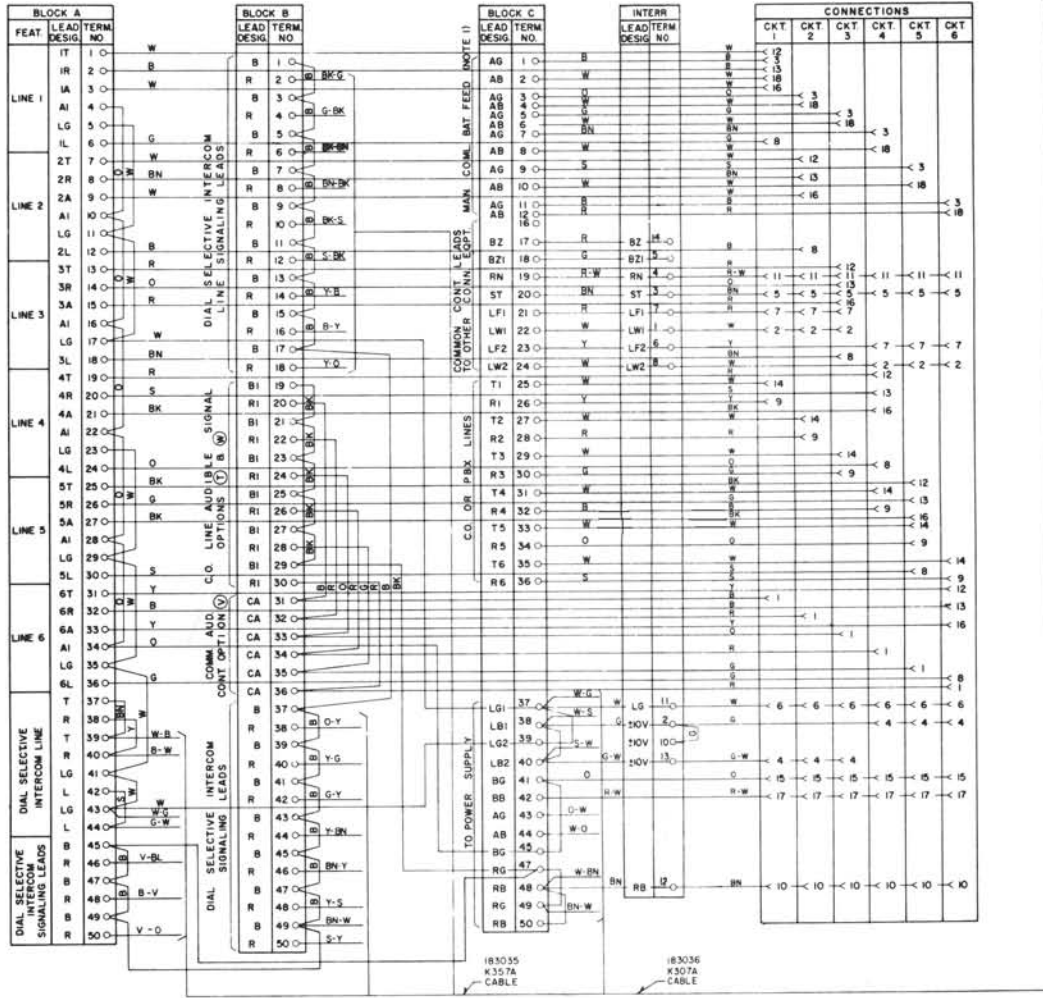
Placing A Call—Dial Intercom

4.10 An intercom call is originated by lifting the telephone handset and depressing the line pick-up button associated with the intercom line. The desired station may then be selected by dialing the required digit or digits. At the completion of dialing the buzzer or bell assigned to the called station only will ring for a period from one to three seconds indicating to the called station that a call is to be answered.

Answering A Call—Manual Intercom and Dial-Selective Intercom.

4.11 An intercom call is answered by pressing the line pick-up button associated with the intercom. Lamp should be lit at that time.

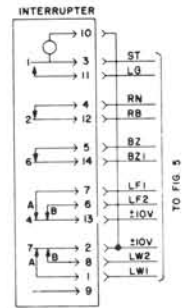
5.00 KSU INTERCONNECTIONS



NOTES
 1. WHEN K401 & K402, MANUAL INTERCOM IS REQUIRED ASSOCIATED BAT A AND GND A LEADS ARE TO BE STRAPPED TO TERMINALS 44 AND 43 ON BLOCK C.
 2. FOR K307A USE CABLE 183036 AND FOR K357A USE CABLE 183035

Fig. 5.—K500 Key Service Wiring Diagram

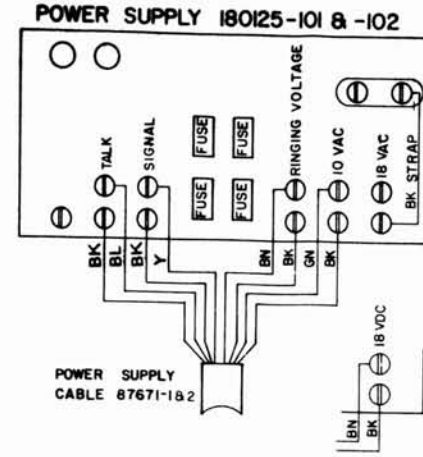
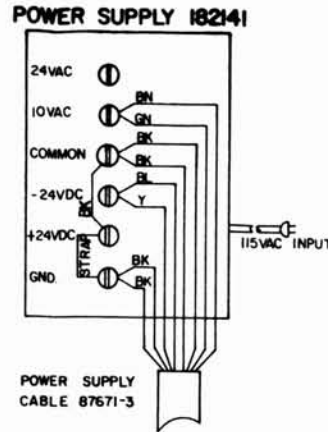
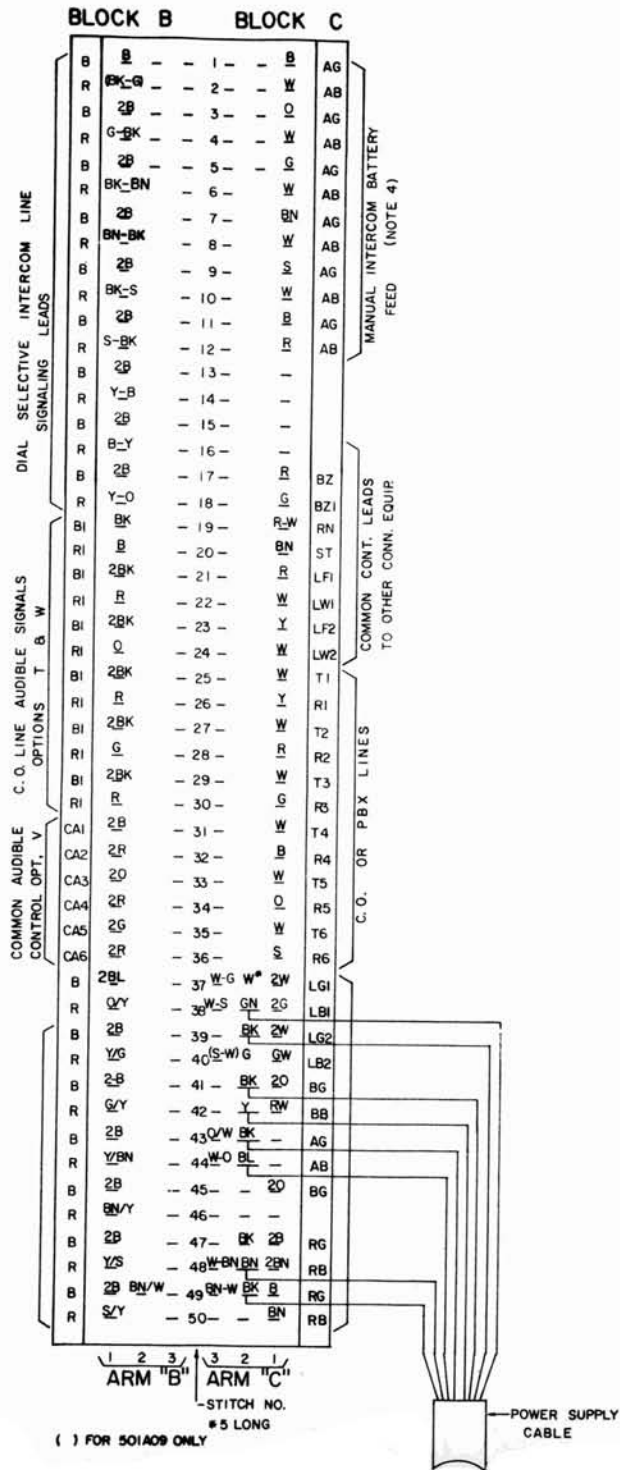
KSU BLOCKS	COLOR	LEAD DESIG	K307A	K357A
A39	W-B	T	26	A1
A40	B-W	R	1	A2
C44	W-O	AB	27	A9
A43	O-W	AG	2	A0
A44	W-G	LG	28	KSU C39
A44	G-W	L	3	A3
C48	W-BN	RB	29	AB
949	BN-W	RG	4	KSU C49
C38	W-S	LB	30	A7
C40	S-W	LB	5	N/A
NC	O-BK	RI	12	NC
92	BK-G	R2	58	NC
94	G-BK	R3	13	3B
96	BN-BN	R4	39	4B
88	BN-BK	R5	14	5B
90	BK-S	R6	40	6B
B2	S-BK	R7	15	7B
84	Y-B	R8	41	8B
86	B-Y	R9	16	9B
B8	Y-O	R0	42	10B
838	O-Y	R21	17	11B
840	Y-G	R22	43	12B
B42	G-Y	R23	18	13B
B44	Y-BN	R24	44	14B
B46	BN-Y	R25	19	15B
B48	Y-S	R26	45	16B
B50	S-Y	R27	20	17B
A46	V-B	R28	46	18B
A48	B-V	R29	21	19B
A50	V-O	R20	47	20B



TO FIG 5

NOTE: If low-voltage buzzers are to be used for intercom signaling:
 (1) Remove BN strap from Block C, 48-50.
 (2) Connect 18 VAC to C50.
 (3) Move W-BN wire from C-48 to C-50.
 (If an external 18 VAC source is used, connect the source ground to C-49.)

Fig. 6.—K501A Connections



For 180125-101 Power Supply, BN and BK leads are connected to 18 VAC and associated ground.

NOTES:

1. CONDUCTORS IN ARMS "A", "B", & "C" ARE TERMINATED BY USE OF PART NO. 95661, TOOL. LOOPED CONDUCTORS ARE INSERTED WITH BLUNT END OF BLADE.
2. STRAP TERMINALS ON K357 AS SHOWN WITH NO 24 AWG BTCW.
3. WHEN USING 182723 CARD MOUNTING ASSY USE 183035 CABLE TO CONNECT TO SYSTEM.
4. WHEN USING 182717 CARD MOUNTING ASSY USE 183036 CABLE TO CONNECT TO SYSTEM.
5. STRAP WIRE CIRCUITS 1 THRU 6 WITH NO. 24 AWG BTCW AS SHOWN.
6. CONDUCTORS IN ARMS D,E,F,G,H,&J ARE TERMINATED BY GUN WIRE WRAP.

		K160C					
P31	R/B	A	CGC	AG	1	O/W	J2-1
J2-U	R/B					O/W	P2
P6	B/R	B	TFGC	RI	2	W	J2-3
J2-C	B/R						
P37	BK/O	C	Y5	R4	3	G	J2-11
P33	R/G	D	-5V	RO	4	BK	J2-R
PI	B/W	E	R	R7	5	Y	J2-E
		F		Y4	6	B/BK	PI1
		H		TFG	7	O/R	P7
		J		R3	8	O	J2-A
		K		R6	9	S	J2-16
		L		R5	10	BN	J2-14
P28	W/G	M	LG	RH	11	R/O	P32
P29	W/BN	N	RB IN	R2	12	B	J2-5
J1-W	BN	P	RB OUT	Y1	13	R/S	P35
P30	W/S	R	LB	Y2	14	S/R	PI0
P5	S/W	S	LF	LK	15	G/R	P8
P3	G/W	T	L	J	16	G/R	J2-22
						R/BN	P34
P22	O/V	U	NO	T	17	W/B	J2-19
		V		BV	18	R	J2-B
						V/BN	P49
J1-P	BN	W	RT	Y3	19	BK/B	P36
J2-H	V	X	RB	NC	20	G/V	P23
J2-N	R	Y	R9	TF	21	V/G	P48
J2-1	O/W	Z	RSI	AB	22	W/O	P27
P9	BN/R		TTG				
		TERMINAL	DESIGNATION	DESIGNATION	TERMINAL		
		J1					
		D					

		K160B					
J1-7	O/R	A	TFG	GRD	1	O/W	J1-1
J1-18	R	B	BV	R21	2	O/Y	J1-Z
J1-B	B/R	C	TFGC	RI IN	3	W	PI7
P20	S/Y	D	R27	RI O	4	O/BK	PI2
J1-5	Y	E	R7 IN	R2 IN	5	B	J1-2
PI5	S/BK	F	R7 O	R2 O	6	BK/G	PI12
J1-X	V	H	R8 IN	R23	7	BK/G	P38
						G/Y	J2-V
P41	Y/B	J	R8 O	R3 IN	8	O	PI8
P46	V/B	K	R28	R3 O	9	G/BK	J1-8
P21	B/V	L	R29	R4 O	10	BK/BN	PI3
PI6	B/Y	M	R9 O	R4 IN	11	G	P39
J1-Y	R	N	R9 IN	R24	12	Y/BN	J1-3
P42	Y/O	P	RO O	R5 O	13	BN/BK	P44
J1-4	BK	R	RO IN	R5 IN	14	BN	PI4
P47	W/O	S	R20	R6 O	15	BK/S	J1-10
P43	Y/G	T	R22	R6 IN	16	S	P40
J1-A	R/B	U	CGC	R26	17	Y/S	J1-9
J2-6	BK/G	V	TFR	R25	18	BN/Y	P45
		W		J	19	R/BN	PI9
		X			20		J1-16
P4	BN/W	Y	RG	LK	21		
		Z			22	G/R	J1-15
		TERMINAL	DESIGNATION	DESIGNATION	TERMINAL		
		J2					
		E					

SEE NOTE 2

B/W	J1-E	1	R	T	26	W/B	J1-17
O/W	J1-1	2	AG	AB	27	W/O	J1-22
G/W	J1-T	3	L	LG	28	W/G	J1-M
BN/W	J2-Y	4	RG	RB	29	W/BN	J1-N
S/W	J1-S	5	LF	LB	30	W/S	J1-R
B/R	J1-B	6	TFGC	CGC	31	R/B	J1-A
O/R	J1-7	7	TFG	RH	32	R/O	J1-11
G/R	J1-15	8	LK	-5V	33	R/G	J1-D
BN/R	J1-Z	9	TTG	J	34	R/BN	J1-16
S/R	J1-14	10	Y2	Y1	35	R/S	J1-13
BL/BK	J1-6	11	Y4	Y3	36	BK/BL	J1-19
O/BK	J2-4	12	RI	Y5	37	BK/O	J1-C
G/BK	J2-9	13	R3	R2	38	BK/G	J2-6
BN/BK	J2-13	14	R5	R4	39	BK/BN	J2-10
S/BK	J2-F	15	R7	R6	40	BK/S	J2-15
B/Y	J2-M	16	R9	R8	41	Y/B	J2-J
O/Y	J2-2	17	R21	RO	42	Y/O	J2-P
G/Y	J2-7	18	R23	R22	43	Y/G	J2-T
BN/Y	J2-18	19	R25	R24	44	Y/BN	J2-12
S/Y	J2-D	20	R27	R26	45	Y/S	J2-17
B/V	J2-L	21	R29	R28	46	V/B	J2-K
O/V	J1-U	22	NO	R20	47	W/O	J2-S
G/V	J1-20	23	NC	TF	48	V/G	J1-21
		24		BV	49	V/BN	J1-18
		25			50		
		TERMINAL	DESIGNATION	DESIGNATION	TERMINAL		
		P1					

NOTES

1. USE CABLE FORM 182718.
2. STRAP TERMINAL SHOWN WITH PART NO. 190189-26 AFTER INSTALLING CABLE FORM (QTY. 10 EACH).

Fig. 7.—K307A Interconnections J1, J2 and P1

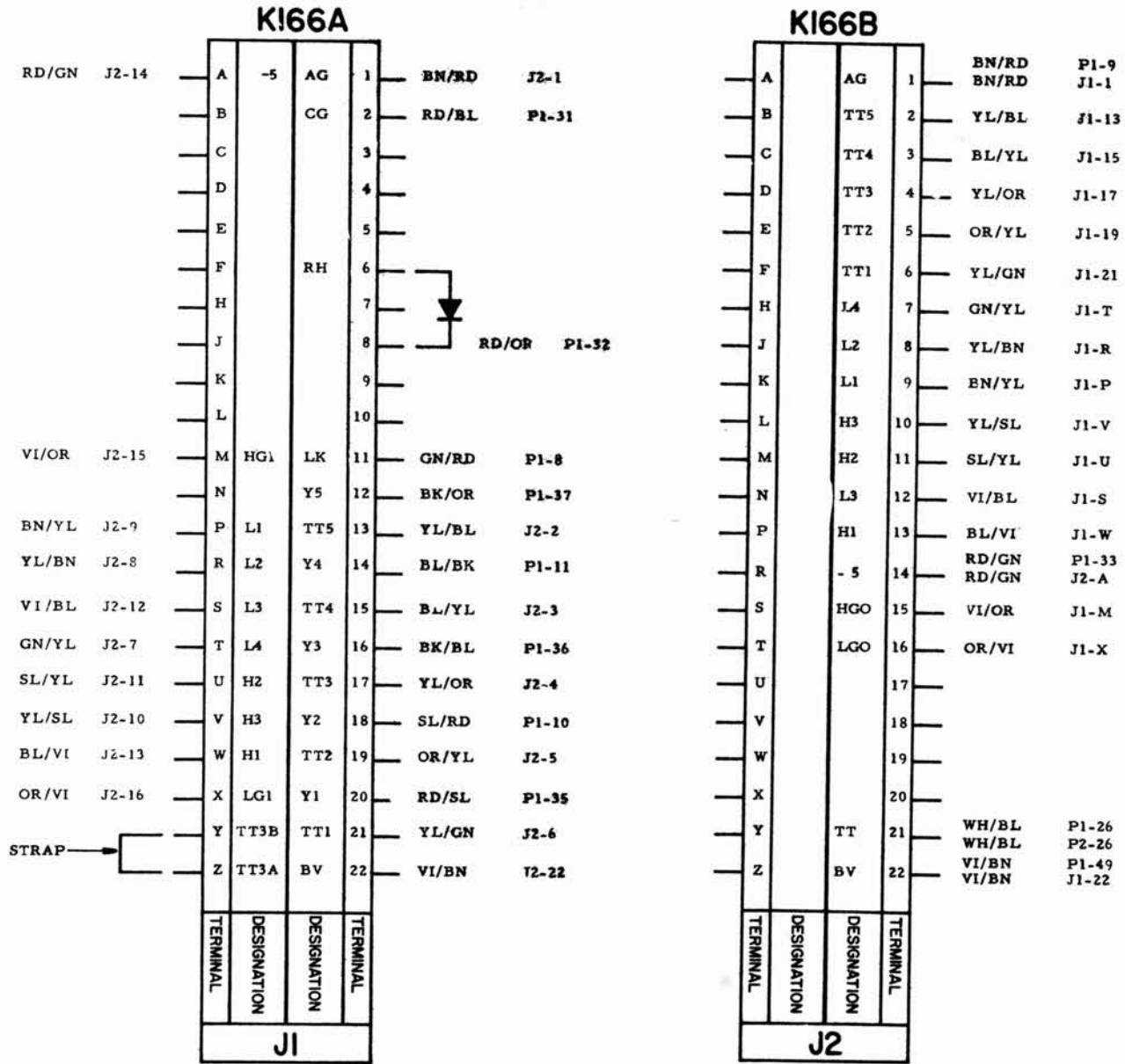
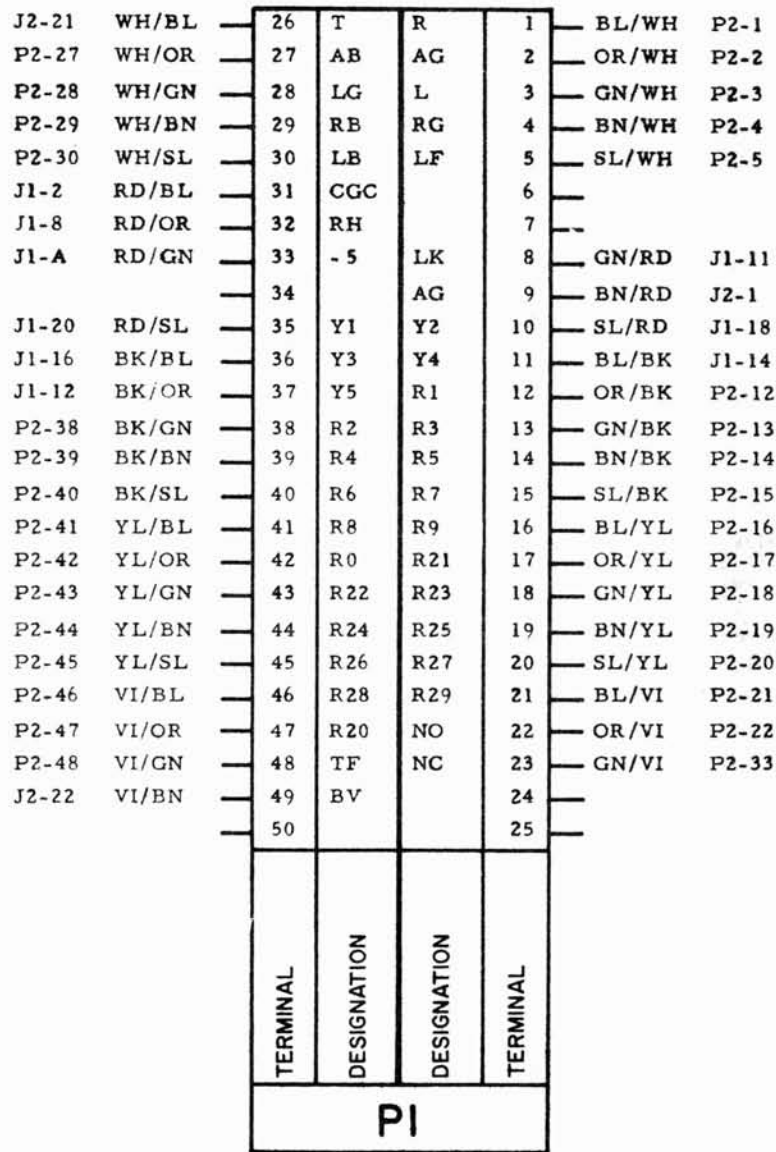
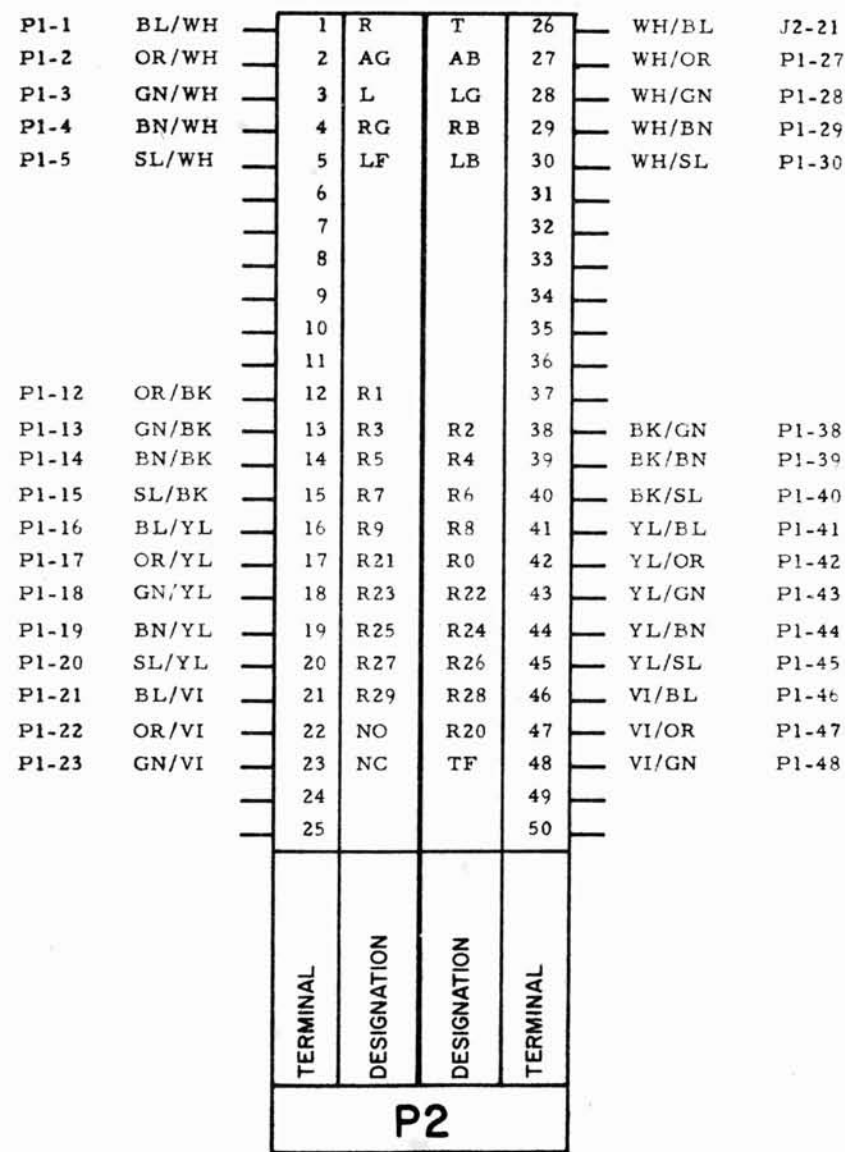


Fig. 8.—Tel-Touch Adapter Interconnections J1 and J2



95510-102
(FEMALE CONNECTOR)



190473-104
(MALE CONNECTOR)

Fig. 9.—Tel-Touch Adapter Interconnections P1 and P2

Card Connectors, as viewed from the rear.

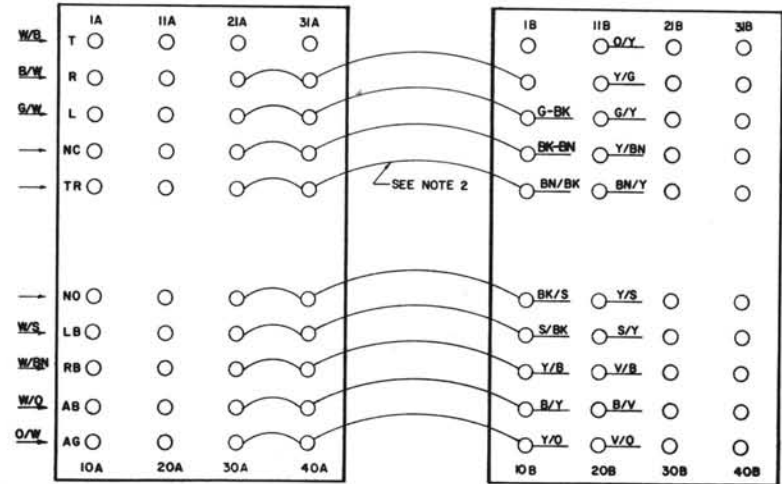
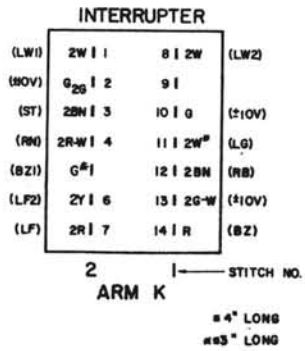
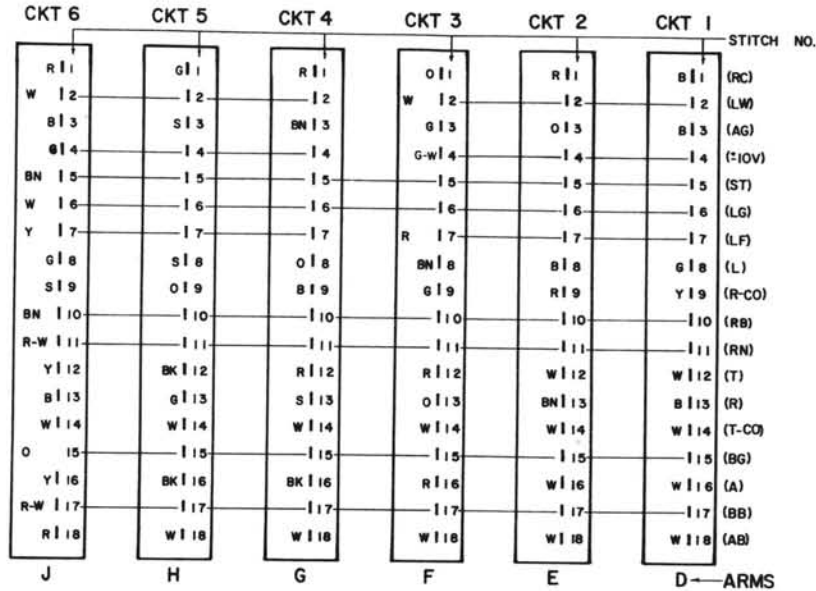


Fig. 10.—K357A Terminal Connections for K501A

31	J5-4	BK/BL	21	J4-4	R/BL	11	J1-2	V	1	J1-17	BL
32	J5-6	BL/BK	22	J4-6	BL/R	12	J1-12	Y	2	J1-E	O
33	J5-9	BK/O	23	J4-9	R/O	13	J1-8	R	3	J1-T	W
34	J5-10	O/BK	24	J4-10	O/R	14	J1-3	W	4	J1-20	V
35	J5-13	BK/GN	25	J4-13	R/GN	15	J1-10	SL	5	J1-21	GN
36	J5-15	GN/BK	26	J4-15	GN/R	16	J1-9	BK	6	J1-U	O
37	J5-F	BK/BN	27	J4-F	R/BN	17	J1-5	GN	7	J1-R	GN
38	J5-J	BN/BK	28	J4-J	BN/R	18	J1-X	O	8	J1-P	BN
39	J5-M	BK/SL	29	J4-M	R/SL	19	J1-Y	BL	9	J1-22	R
40	J5-P	SL/BK	30	J4-P	SL/R	20	J1-4	BN	10	J1-1	BK
TERMINAL BOARD A											

31	J6-2	W/BL	21	J5-2	W/BL	11	J4-2	W/BL	1	J6-4	V
32	J6-T	BL/W	22	J5-T	BL/W	12	J4-T	BL/W	2	J6-6	W
33	J6-7	W/O	23	J5-7	W/O	13	J4-7	W/O	3	J6-9	W
34	J6-12	O/W	24	J5-12	O/W	14	J4-12	O/W	4		
35	J6-18	W/GN	25	J5-18	W/GN	15	J4-18	W/GN	5	J6-13	SL
36	J6-17	GN/W	26	J5-17	GN/W	16	J4-17	GN/W	6	J6-15	BK
37	J6-D	W/BN	27	J5-D	W/BN	17	J4-D	W/BN	7	J6-F	GN
38	J6-K	BN/W	28	J5-K	BN/W	18	J4-K	BN/W	8	J6-J	O
39	J6-L	W/SL	29	J5-L	W/SL	19	J4-L	W/SL	9	J6-M	BL
40	J6-S	SL/W	30	J5-S	SL/W	20	J4-S	SL/W	10	J6-P	BN
TERMINAL BOARD B											

Fig. 11—K357A Terminal Boards A and B

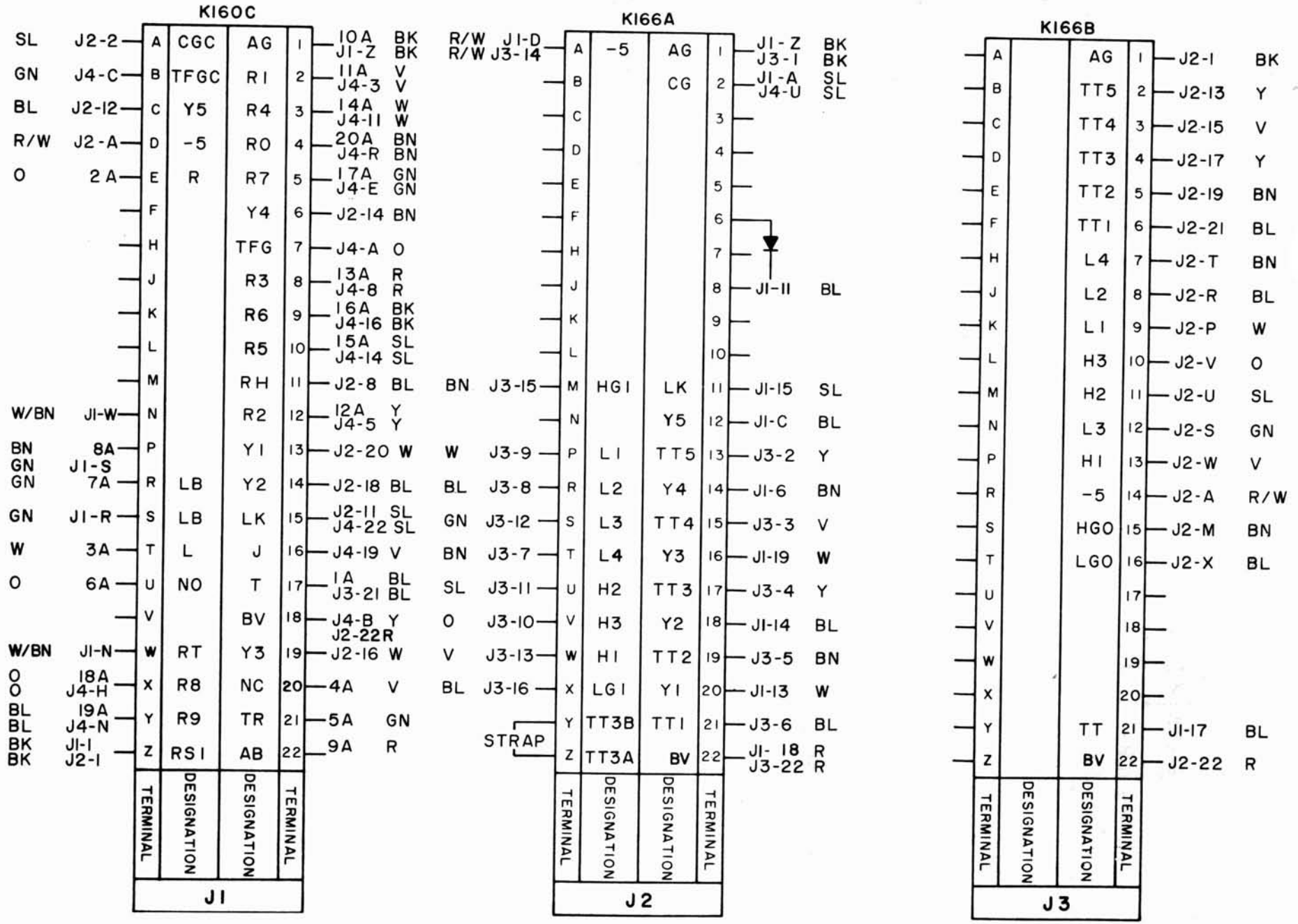


Fig. 12—K357A Connectors J1, J2, and J3

KSP501-00A

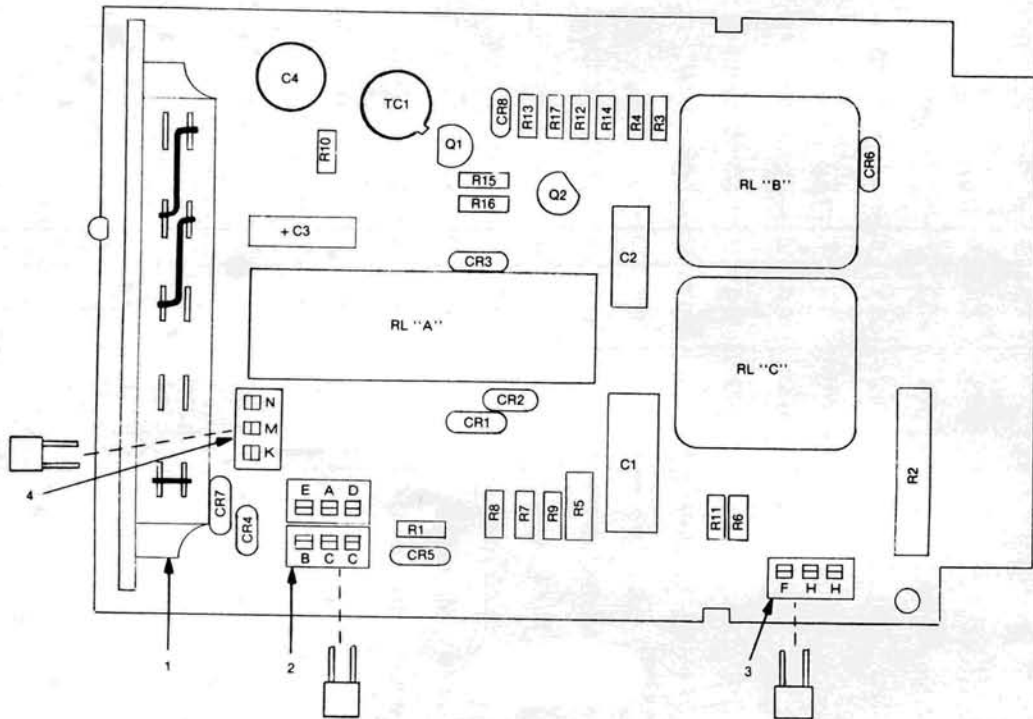


Fig. 14—Location of Option Blocks, 400E KTU

Table D. Wiring Options, 400E KTU

CODE	OPTION	OPTION BLOCK No.	STRAPPING OR JUMPER	
			(Note 1)	(Note 2)
Z	Short time-out (Factory Strapping)	(1)	1 - 2	1 - 2
W	Interrupted ringing (Factory Strapping)	(1)	5 - 8	5 - 8
T	Steady ringing	(1)	6 - 8	6 - 8
V	Auxiliary Common Audible signal control	(1)	4 - 8	4 - 8
Y	Winking lamp on "hold" (Factory Strapping)	(1)	10 - 7	10 - 7
X	Steady lamp on "hold"	(1)	9 - 7	9 - 7
BR	Bridged ringing	(2),(4)	C-D, M-N	C-D, M-N
R G	Ringing from Ring side of line to Ground	(2), (4)	C-B, M-N	C-B, M-N
TU	Ringing from a separate lead to Tip side of line	(2), (4)	K-M, C-C	K-M, C-A
RU	Ringing from a separate lead to Ring side of line	(2), (4)	C-C, M-N	C-A, M-N
DR	Direct ringing (-24 V dc applied thru relay contact)	(2)	C-C	A-E
M	Music on hold (Requires additional equipment)	(3)	H-H	F-H

NOTE 1: Use this strapping when (DR) or (RU) leads or (M) leads are plugged into the K400E KTU. Insert (RU) lead into terminal "C". Insert (DR) lead into "E". Insert (M) leads, (from K403A KTU), into "D" and "F".

NOTE 2: Use this strapping when (DR) or (RU) lead is connected to pin 3 via the card connector. (M) leads from K403A KTU must be permanently wired to pins 12 and 18 of K400E card connector. (Standard on K76A Key Systems.)

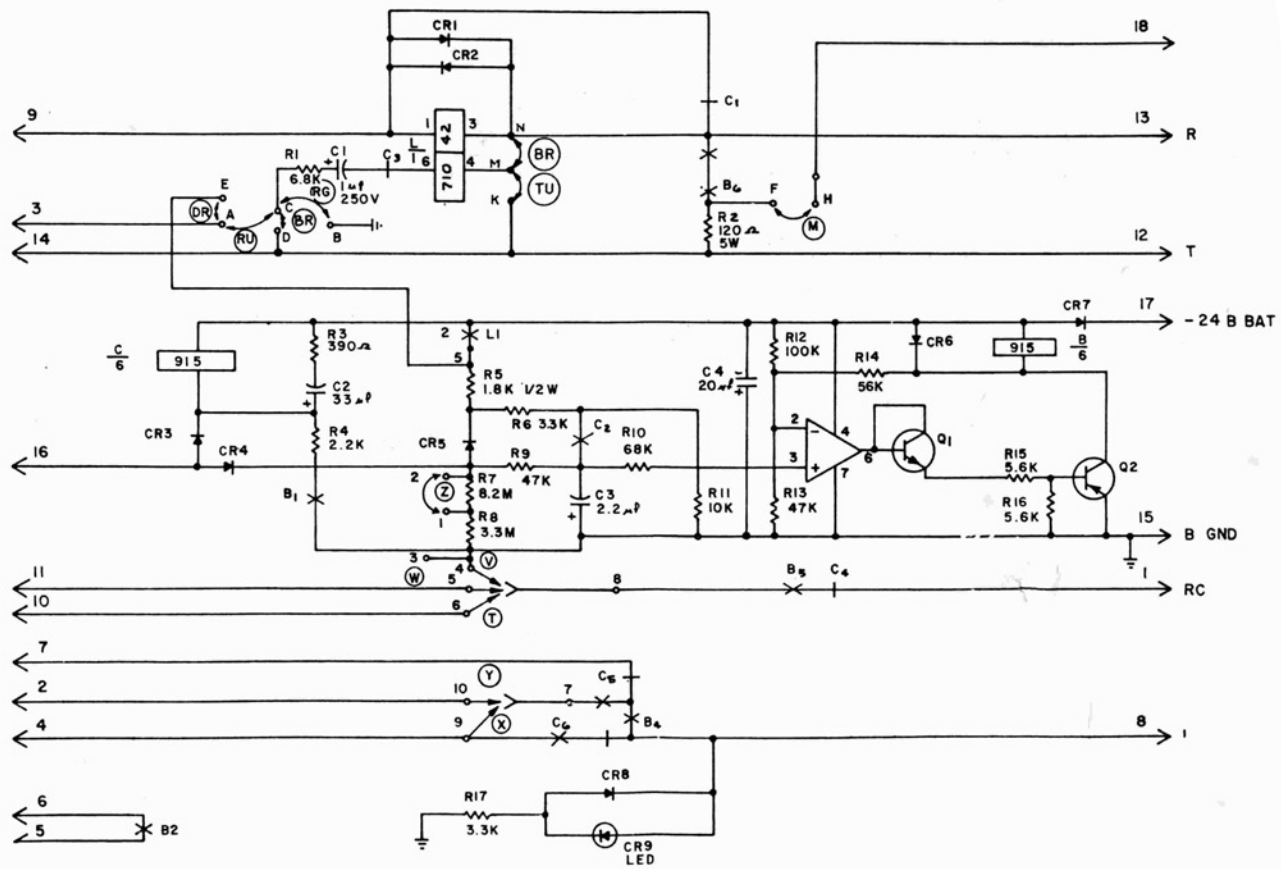


Fig. 15—Circuit Schematic, (Options RU, DR and M Not Shown. See Table D.)

EXHIBIT J

USER INSTRUCTIONS

This device has been granted a registration number by the Federal Communications Commission, under Part 68 Rules and Regulations for direct connection to the telephone lines. In order to comply with these FCC Rules, the following instructions must be carefully read and applicable portions followed completely:

1. Direct connection to the telephone lines may be made only through a standard plug-ended cord to the utility-installed jack. No connection may be made to party or coin phone lines. Prior to connecting the device to the telephone lines, you must:
2. Call your telephone company and inform them you have an FCC registered device you desire to connect to their telephone lines. Give them the number(s) of the line(s) to be used, the make and model of the device, the FCC registration number and ringer equivalence. This information will be found on the device or enclosed with instructions as well as the jack suitable for your device.
3. After the telephone company has been advised of the above you may connect your device if the jack is available, or after the telephone company has made the installation.
4. Repairs to the device may be made only by the manufacturer or his authorized agent. This applies at any time during and after warranty. If such unauthorized repair is performed, registration, connection to the telephone lines and remainder of warranty period all become null and void.
5. If, through abnormal circumstances, harm to the telephone line is caused, it should be unplugged until it can be determined if your device or the telephone line is the source. If your device is the source, it should not be reconnected until necessary repairs are affected.
6. Should the telephone company notify you that your device is causing harm, the device should be unplugged. The telephone company will, when practicable, notify you, that temporary discontinuance of service may be required. However, where prior notice is not applicable, the telephone company may temporarily discontinue service, if such action is reasonably necessary, in such cases the telephone company must (A) promptly notify you of such temporary discontinuance, (B) afford you the opportunity to correct the condition and (C) inform you of your rights to bring a complaint to the FCC under their rules.
7. The telephone company may make changes in its communications facilities, equipment, operations or procedures, where such action is reasonably required in the operation of its business and is not inconsistent with FCC rules. If such changes can be reasonably expected to render the customer's devices incompatible with telephone company facilities, or require modification or alteration, or otherwise materially affect its performance, written notification must be given to the user, to allow uninterrupted service.
8. The following instructions shall also apply in the KX registration:
 - (a) The user should inform the telephone company of the FCC registration number and the ringer equivalence number (if applicable). This information should be filed in affidavits given the phone company and recorded in logs kept by installation and maintenance personnel.
 - (b) That where the TX and KX adjuncts require connections or changes to the internal wiring of the registered telephones or systems, instructions must be provided to inform the user that such connections or changes can be accomplished only by the registration grantee, the grantee's authorized agents, equipment manufacturers, telephone companies, registered telephone refurbishers, and those qualified for installation of unprotected systems under Section 68.215 of the FCC rules. (For equipment that can be installed in a fool-proof manner, and have demonstrated such means of connection in the registration application, the above restrictions are not applicable).
 - (c) That the installation of TX and KX devices can only be made with the permission of the owner of the host equipment.