

SERVICE
1A2 KEY TELEPHONE SYSTEM
110A APPARATUS MOUNTING

1. GENERAL

1.01 This section provides identification, installation, and connection information for the 110A apparatus mounting (Fig. 1) used in the 1A2 Key Telephone System (KTS).

1.02 Whenever this section is reissued, the reason(s) for reissue will be listed in this paragraph.

1.03 This issue of the section is based on the following drawings:

SD-69513, Issue 15—400D (MD) KTU

SD-69651, Issue 1—400G KTU

SD-69942, Issue 1—400H KTU

SD-69475, Issue 6—401A (MD) and 401B KTUs

SD-69567, Issue 14—407B (MD), 407C, 420A, 422B, 423A, 424A (MD), 424B (MD), 424C and 425B KTUs

SD-69590, Issue 3—413A, 421A, 448A, and 449A KTUs

SD-69559, Issue 9B—414A, 415A, 416A, 418A, 419A, 461A, and 469A KTUs

SD-69561, Issue 2—417A KTU

SD-69489, Issue 5—428A KTU

SD-69530, Issue 6—429B and 430A KTUs

SD-69922, Issue 2—451B, 498A KTU, and 116A1 Circuit Module (CM)

SD-69917, Issue 1—467A KTU

SD-69921, Issue 1—471A and 479A KTUs

SD-69931, Issue 1—478B KTU.

If this section is to be used with equipment or apparatus reflecting later issues of the drawings, reference should be made to the SDs to determine the extent of the changes and the manner in which the section may be affected.

2. IDENTIFICATION

PURPOSE

2.01 The 110A apparatus mounting provides an alternate mounting facility for 400-series key telephone units (KTUs) as add-on circuits to 1A2 KTS.

ORDERING GUIDE

2.02 Order basic unit as follows:

- Mounting, Apparatus, 110A (Fig. 1)

2.03 Replaceable components for the 110A apparatus mounting are to be ordered as follows:

- Fuse, 70B
- Fuse, 70G
- Fuse, 70H

2.04 The following associated apparatus or equipment is to be ordered separately:

- Block, Connecting, 66B4-25 (2 required)
- Cable, Connector, A25B (2 required)
- Guide, Card, 841059280

NOTICE

Not for use or disclosure outside the
Bell System except under written agreement

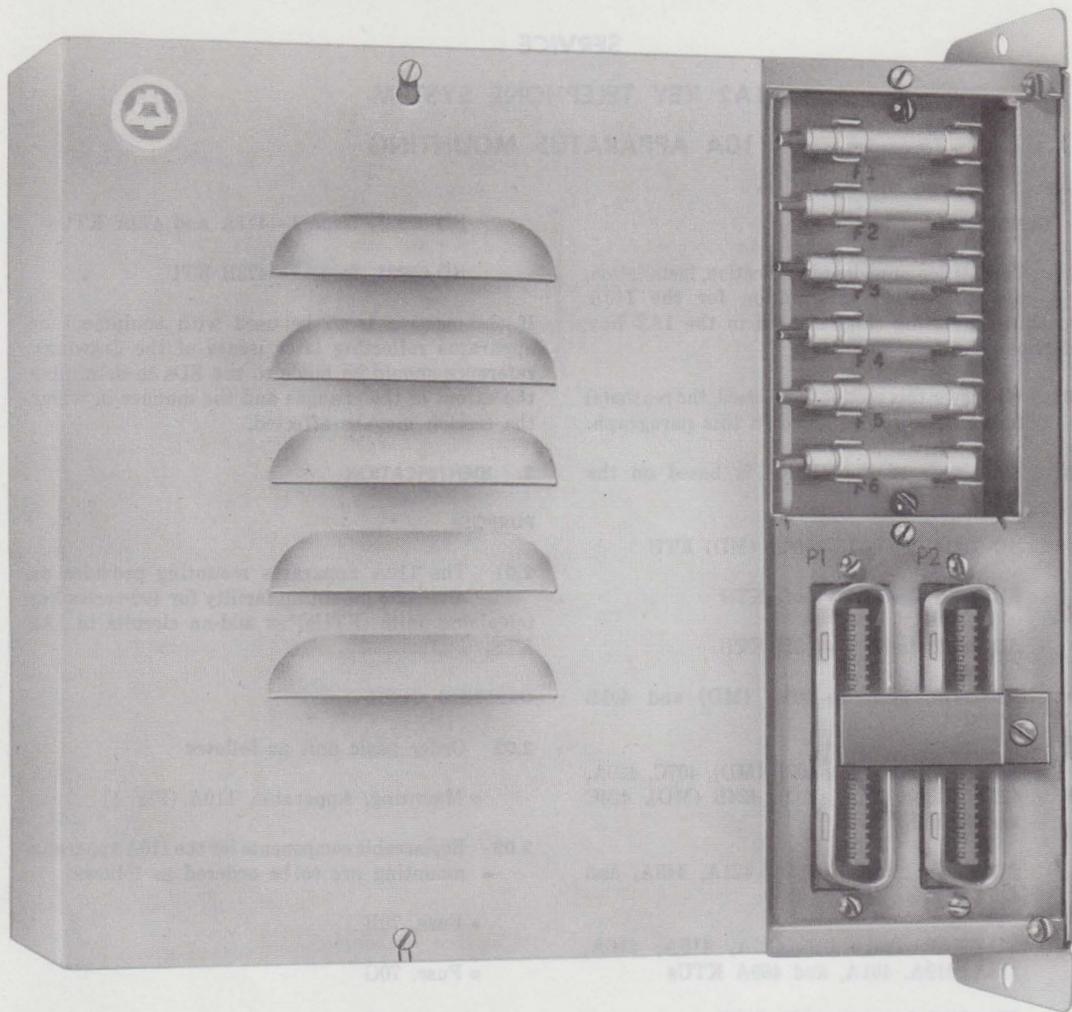


Fig. 1—110A Apparatus Mounting (With Cover)

- Unit, Telephone, Key (as required, see Table A).

DESIGN FEATURES (See Fig. 2)

2.05 The 110A apparatus mounting is designed with the following features:

- Equipped with two connectors (A and B) aligned vertically to accommodate one 8-inch KTU or two 4-inch KTUs (see Table A).
- Connectors A and B are wired to two KS-16671, List 23 plugs (P1 and P2) mounted on the lower right (or rear) of the apparatus mounting.
- Louvered cover held in place on its upper and lower edges by screws.
- Top, bottom, and center (when required for 4-inch KTUs) card guides hold KTUs in place.
- Recessed fuse panel reveals 70-type fuses through a clear plastic cover. To replace fuse, remove cover by loosening two securing screws. See Fig. 1 and Table B.
- Dedicated leads (BAT, GRD, LF, LW, etc) appear on like-numbered pins of, and are strapped common between, connectors A and B. These leads are brought out of the apparatus mounting as individual conductors via plug P1.
- Arranged for wall mounting with choice of positions:
 - 2- by 8 1/2-inch surface using upper and lower holes provided on flanges
 - 8 1/2- by 9-inch surface using three key holes inside apparatus.
- Dimensions approximately 8-1/2 inches by 9 inches by 2 inches.
- A25B connector cables are required to extend the mountings to distributing terminals.

3. INSTALLATION

PLANNING

- Select space for the apparatus mounting and connecting blocks in the same area as the key telephone system being supplemented and as reasonably close to its power supply as possible.
- Decide which position and mounting holes of the apparatus mounting will be used.
- Verify that fusing requirements for the apparatus mounting can be met. See Table B.

INSTALLING

- Mount the 110A apparatus mounting to the wall using appropriate fasteners.
- Install the two 66B4-25 connecting blocks in the terminal field.



In installations where several 110A apparatus mountings are installed, be sure the connecting blocks and apparatus mountings are appropriately identified.

- Connect the A25B connector cables to plugs P1 and P2 and secure them with the connector clamp and screw provided with the mounting.
- Route A25B connector cables to the 66B4-25 connecting blocks and cut down as shown in Fig. 3.

Note: When apparatus mounting is dedicated to a 407- or 424-type KTU, **do not** terminate final eight pairs of P2 connector cable (right connecting block). Tape and store those conductors. This provides terminals necessary for station multiples.

- Terminate dedicated leads from power supply and interrupter, if required, to connecting block P1 (left) (Fig. 4). These connections should be made before installing KTUs in the apparatus mounting. Dedicated leads are those, such as BAT, GRD, LF, LW, etc, which appear on the same-numbered pin of each KTU. RN leads, previously treated as dedicated leads, must be placed separately when required.

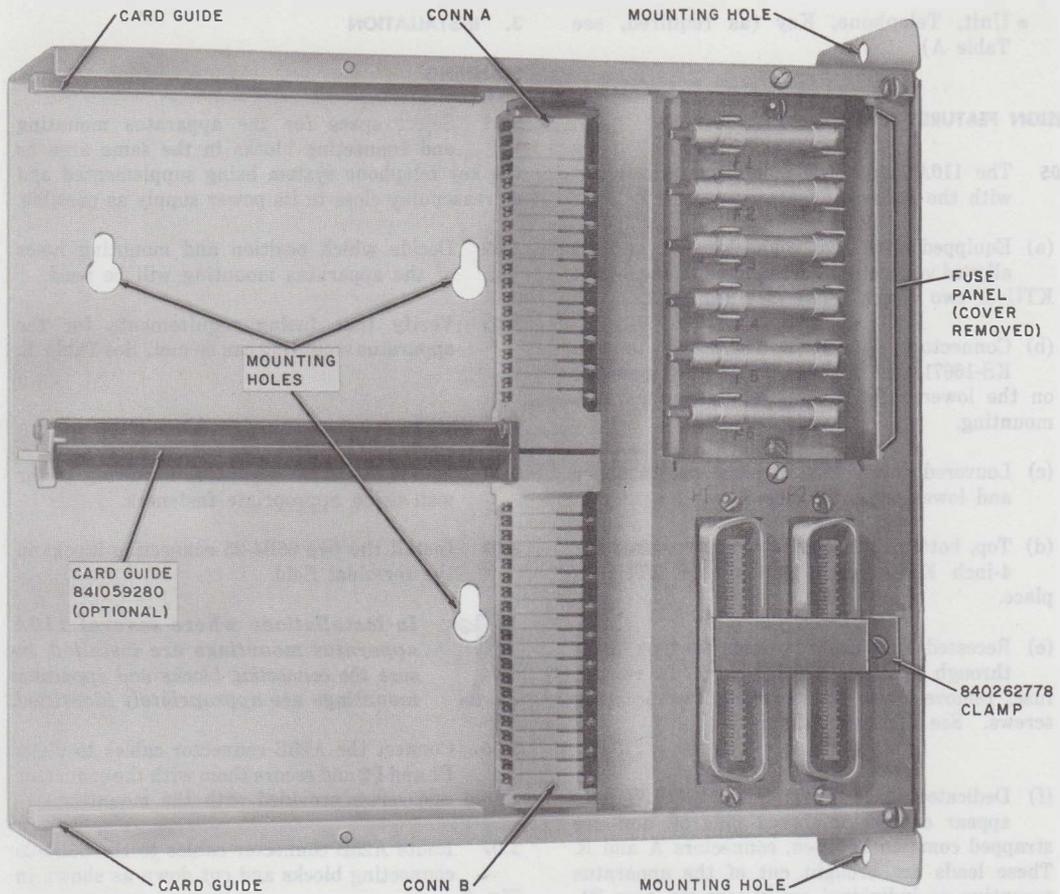


Fig. 2—110A Apparatus Mounting (With Card Guide, Cover Removed)

4. CONNECTIONS

4.01 Figure 5 through 32 show the nondedicated lead connections of the 400-series KTUs that can be installed in the 110A apparatus mounting. Each figure is divided into three sections: field connections are shown on the left, row assignments in the center, and connector pin numbers on the right. Pin numbers are shown for reference only and provide a complete picture of the KTU circuitry when the connection drawing of any KTU is compared to the functional schematic.

4.02 Field connections are made for any KTU by determining the connector used (A or B) and the connecting block on which the connector appears. For example (see Fig. 5), if a 400-type KTU is installed in connector A, field connections are made to block 1 (left); and if KTU is installed in connector B, connections are made to block 2 (right).

4.03 Figure 33 and 34 show power connections and strapping required to furnish a basic dial intercom, using a 407- or 424-type KTU. Figure 35 covers dial intercom station connections.

Table C covers necessary connections to optional KTUs.

4.04 Figure 36 and 37 (407- and 424-type KTUs) and Fig. 38 (425B KTU) show power supply connections and strapping required to furnish a deluxe dial intercom. Figure 39 shows dial intercom station connections, and Table C shows necessary connections to associated and optional KTUs.

CONNECTION INDEX

Fig. 3—Schematic of 110A Apparatus Mounting and Connections of the A25B Connector Cables to 66B4-25 Connecting Blocks

Fig. 4—Dedicated Lead Connections (Interrupter and Power) for 110A Apparatus Mounting

Nondedicated Lead Connections for 400-Series KTUs Used in 110A Apparatus Mounting

Fig. 5—400D (MD), 400G, and 400H KTU (CO or PBX Line Circuit)

Fig. 6—401B KTU (Manual Intercom Line Circuit)

Fig. 7—413A KTU (Auxiliary Ringup Circuit)

Fig. 8—414A KTU (Manual Signaling, Ringdown Private Line Circuit)

Fig. 9—415A KTU (Automatic, DC Signaling Private Line Circuit)

Fig. 10—416A KTU (Station Line Circuit)

Fig. 11—417A KTU (Add-on Conference Circuit)

Fig. 12—418A KTU (Short Range, DC Signaling Private Line Circuit)

Fig. 13—419A KTU (Automatic Signaling, Ringdown Private Line Circuit)

Fig. 14—420A KTU (Long Line Circuit)

Fig. 15—421A KTU (Power Failure Transfer Circuit)

Fig. 16—421A KTU (Wired as Audible Signal Suppressor)

Fig. 17—421A KTU (Wired for DSS Feature)

Fig. 18—421A KTU (Wired as Preset Conference Circuit)

Fig. 19—422B KTU (Station Busy Selector Circuit)

Fig. 20—423A KTU (Dial Tone, Busy Tone, and Audible Ringback Tone Circuit)

Fig. 21—428A KTU (Multiline Exclusion Circuit)

Fig. 22—429B KTU (Supplementary Hold Detector Circuit) and 430A KTU (Flutter Generator Circuit)

Fig. 23—448A KTU (Variable Delay Timer Circuit)

Fig. 24—449A KTU (Immediate Transfer Control Circuit)

Fig. 25—451B KTU (Music-On-Hold Circuit)

Fig. 26—461A KTU (Manual Signaling, Ringdown Private Line Circuit)

Fig. 27—467A KTU (Voltage Monitor Circuit)

Fig. 28—469A KTU (Lamp Extender Circuit)

Fig. 29—471A KTU (Battery Reversal Toll Restriction Circuit)

Fig. 30—478B KTU (TOUCH-TONE® Adapter Circuit)

Fig. 31—479A KTU (Rotary Dial Toll Restriction Circuit)

Fig. 32—498A KTU and 116A1 CM (Music-On-Hold Circuits)

Dial Intercoms

Table C—Basic and Deluxe Dial Intercom Connections—407- and 424-Type KTUs to Associated and Optional KTUs

—Basic Dial Intercom

Fig. 33—Strapping and Power Supply Connections for 407C KTU

Fig. 34—Strapping and Power Supply Connections for 424C KTU

Fig. 35—Station Connections

—Deluxe Dial Intercom

Fig. 36—Strapping and Power Supply Connections for 407C KTU

Fig. 37—Strapping and Power Supply Connections for 424C KTU

Fig. 38—Strapping and Power Supply Connections for 425B KTU

Fig. 39—Station Connections

Fig. 40—Nondedicated Lead Connections for Preset Conference Circuit of a Deluxe Dial Intercom Line (421A KTU and a 413A KTU in 110A Apparatus Mounting).

Fig. 34—Strapping and Power Supply Connections for 424C KTU
 Fig. 35—Station Connections
 Fig. 36—Strapping and Power Supply Connections for 407C KTU
 Fig. 37—Strapping and Power Supply Connections for 424C KTU
 Fig. 38—Strapping and Power Supply Connections for 425B KTU
 Fig. 39—Station Connections
 Fig. 40—Nondedicated Lead Connections for Preset Conference Circuit of a Deluxe Dial Intercom Line (421A KTU and a 413A KTU in 110A Apparatus Mounting).

Fig. 34—Strapping and Power Supply Connections for 424C KTU
 Fig. 35—Station Connections
 Fig. 36—Strapping and Power Supply Connections for 407C KTU
 Fig. 37—Strapping and Power Supply Connections for 424C KTU
 Fig. 38—Strapping and Power Supply Connections for 425B KTU
 Fig. 39—Station Connections
 Fig. 40—Nondedicated Lead Connections for Preset Conference Circuit of a Deluxe Dial Intercom Line (421A KTU and a 413A KTU in 110A Apparatus Mounting).

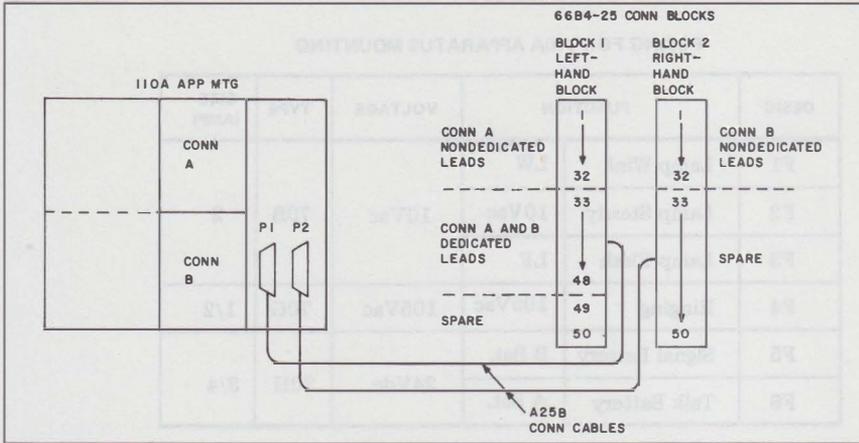
TABLE A

KTU SELECTION AND CONNECTION FIGURE INDEX

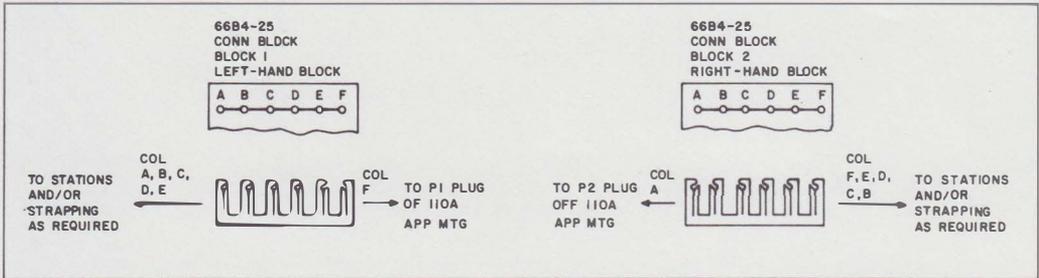
KTU	SIZE		CIRCUIT FUNCTION	FIGURE (SEE NOTE)	REMARKS
	IN.	PINS			
400D,G,H	4	18	CO or PBX Line	5	<p>When the 417A, 420A, or 421A KTU is used in the 110A apparatus mounting, the cable run from the apparatus mounting to the connecting block should be as short as possible, preferably not longer than 10 feet to reduce the possibility of noise pickup on unpaired leads.</p> <p>WORKING LIMITS: The maximum permissible length of cable run for the lamp feeder pairs (10V±, LW, LF) is determined by the lamp load. For a load of 20 lamps, the run from apparatus mounting to power supply shall be a maximum of 30 feet. For lesser loads, the length of run may be increased proportionately.</p>
401A,B	4	18	Manual Intercom	6	
407B,C	8	80	Dial Intercom 10-Code Selector	33, 36	
413A	4	18	Auxiliary Ringup	7, 40	
414A	4	20	Manual Signaling, Ringdown Private Line	8	
415A	4	18	Automatic DC Signaling, Private Line	9	
416A	4	20	Station Line	10	
417A	4	40	Add-On Conference	11	
418A	4	20	Short Range, DC Signaling, Private Line	12	
419A	8	80	Automatic Signaling, Ringdown Private Line	13	
420A	4	18	Long Line	14	
421A	4	18	Power Failure Transfer	15	
			Audible Signal Suppressor	16	
			Direct Station Selection	17	
			Preset Conference	18, 40	
422B	4	40	Station Busy Selector	19	
423A	4	20	Dial Tone, Busy Tone, and Audible Ringback Tone	20	
424A,B,C	4	80	Dial Intercom, 19-Code Selector	34, 37	
425A, B	8	80	Flashing Lamp Circuit	38	
428A	4	40	Multiline Exclusion	21	
429A,B	4	40	Supplementary Hold Detector	22	
430A	4	20	Flutter Generator		
448A	4	40	Variable Delay Timer	23	
449A	4	40	Immediate Transfer Control	24	
451A,B	4	40	Music-on-Hold	25	
498A				32	
461A	4	20	Manual Signaling, Ringdown Private Line	26	
467A	4	18	Voltage Monitor	27	
469A	4	18	Lamp Extender	28	
471A	4	18	Battery Reversal Toll Restriction	29	
478B	8	80	TOUCH-TONE Adapter	30	
479A	8	20	Rotary Dial Toll Restriction	31	

Note: Connection figures are designated for current model KTUs but are applicable for all codes indicated in this table.

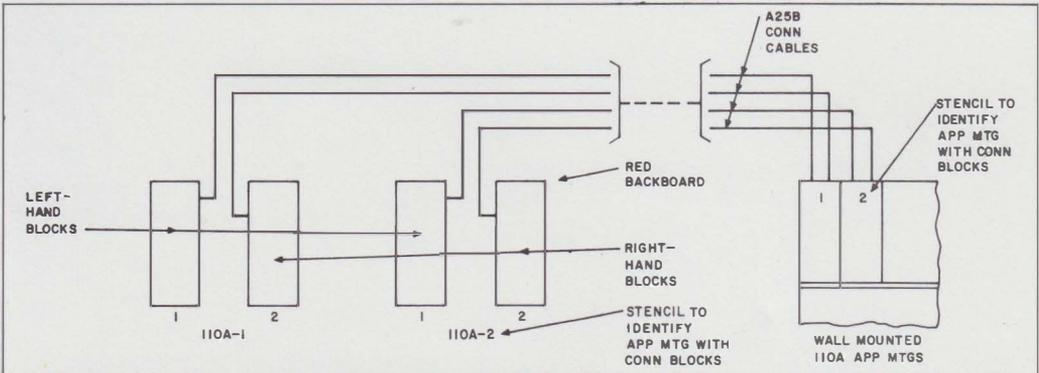
BLOCK DIAGRAM 110A APP MTG



BLOCK DIAGRAM OF 66B4-25 CONN BLOCKS



BLOCK DIAGRAM FOR CENTRALIZED INSTALLATIONS*



* REFER TO SECTION 518-010-101 FOR BACKBOARDS TO BE USED IN CENTRALIZED LOCATIONS.

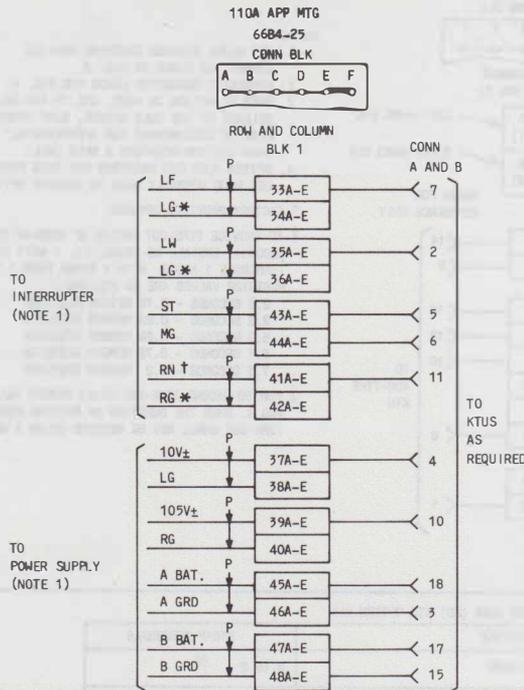
Fig. 3—Schematic of 110A Apparatus Mounting and Connections of the A25B Connector Cables to 66B4-25 Connecting Blocks (Sheet 2 of 2)

TABLE B

FUSING FOR 110A APPARATUS MOUNTING

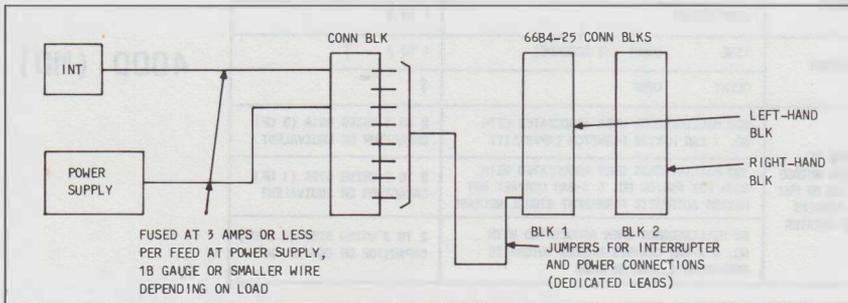
DESIG	FUNCTION		VOLTAGE	TYPE	SIZE (AMP)
F1	Lamp Wink	LW	10Vac	70B	2
F2	Lamp Steady	10Vac			
F3	Lamp Flash	LF			
F4	Ringing	105Vac	105Vac	70G	1/2
F5	Signal Battery	B Bat.	24Vdc	70H	3/4
F6	Talk Battery	A Bat.			





* THESE LEADS USED FOR BALANCING PURPOSES TO PREVENT INDUCED NOISE. THEY MUST BE TERMINATED TO APPROPRIATE GROUND TERMINAL ON PANEL NEAR THE INTERRUPTER.

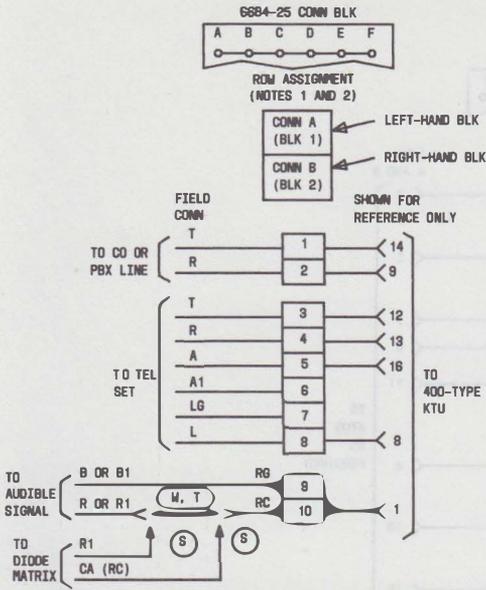
† RN LEADS ARE TO BE PLACED INDIVIDUALLY AS REQUIRED PER CONNECTOR.



NOTES:

1. CONNECT AS REQUIRED (FUSE WHERE NEEDED) SO AS NOT TO EXCEED THE MAXIMUM LOAD LIMITATIONS OF THE POWER SUPPLY. THESE LEADS MAY BE MULTIPLIED FROM BLOCK TO BLOCK PROVIDING THE LIMITATION OF THE POWER SUPPLY IS NOT EXCEEDED.
2. REFER TO SECTION 518-010-101 FOR BACKBOARDS TO BE USED IN CENTRALIZED INSTALLATIONS.

Fig. 4—Dedicated Lead Connections (Interrupter and Power) for 110A Apparatus Mounting



NOTES:

1. SEE BLOCK DIAGRAM COVERING 6884-25 CONNECTING BLOCK IN FIG. 3.
2. TERMINATE DEDICATED LEADS PER FIG. 4.
3. WHEN ZC OPTION IS USED, DUE TO THE DELAYED RELEASE OF THE HOLD BRIDGE, SOME TRANSMISSION LOSS IS ENCOUNTERED FOR APPROXIMATELY ONE SECOND WHEN STATION REENTERS A HELD CALL.
4. OPTION PLUG NOT PROVIDED FOR THIS POSITION: USE PLUG NORMALLY USED TO PROVIDE OPTION R.

* FACTORY PROVIDED OPTIONS

† TO PROVIDE TIME-OUT CYCLES OF RING-UP CIRCUITS FROM 2.5 TO 7.5 SECONDS, INSTALL KS-13490, L1, 1 MATT OR EQUIVALENT RESISTOR BETWEEN TERMINALS 1 AND 3 WITH A STRAP FROM 1 TO 2. TIME-OUT CYCLE AND RESISTOR VALUES ARE AS FOLLOWS:

- 2.5 SECONDS - 0.13 MEGOHM RESISTOR
- 3.3 SECONDS - 0.20 MEGOHM RESISTOR
- 5.0 SECONDS - 0.39 MEGOHM RESISTOR
- 6.7 SECONDS - 0.75 MEGOHM RESISTOR
- 7.5 SECONDS - 1.2 MEGOHM RESISTOR

‡ FOR 30-SECOND TIME-OUT CYCLE REMOVE ALL STRAPS FROM TERMINALS 1, 2, AND 3. WHEN THE DURATION OF MACHINE RINGING IS 1 SECOND OR LESS, TIME-OUT SHALL NOT BE REDUCED BELOW 5 SECONDS.

OPTION STRAPPING ON 400D (MD) KTU OPTION BLK

OPT		FEATURE	STRAP TERMINALS
W*	AUDIBLE SIGNALS	INTERRUPTED RING	5 TO 8 *
T		STEADY RING	6 TO 8
S*		COMMON WITH DIODE MATRIX CONTROL	5 TO 8 *
Y*	VISUAL HOLD CIRCUIT	LAMP WINK	7 TO 10 *
X		LAMP STEADY	7 TO 9
Z †	TIMEOUT	TIME SHORT (10 SECONDS)	1 TO 2 †
‡		DELAY LONG	‡
ZC (NOTE 3)	RELEASE OF HOLDING BRIDGE FROM CO OR PBX LINE CURRENT OPENS GREATER THAN	500 MILLISECONDS WHEN ASSOCIATED WITH NO. 1 ESS HAVING RESWITCH CAPABILITY	2 TO 3 USING 601A (5 UF) CAPACITOR OR EQUIVALENT
ZD		100 MILLISECOND SWEN ASSOCIATED WITH 800A PBX AND/OR NO. 5 X-BAR CENTREX NOT HAVING AUTOMATIC PERMANENT SIGNAL RELEASE	2 TO 3 USING 575A (1 UF) CAPACITOR OR EQUIVALENT
ZJ		50 MILLISECOND WHEN ASSOCIATED WITH NO. 5 X-BAR CENTREX HAVING AUTOMATIC PERMANENT SIGNAL RELEASE	2 TO 3 USING 575B (0.5 UF) CAPACITOR OR EQUIVALENT

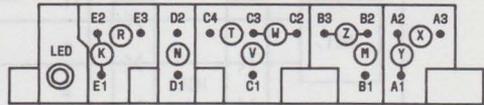
400D (MD) KTU

Fig. 5—Nondedicated Lead Connections for 400D (MD), 400G (MD), and 400H KTU (CO or PBX Line Circuit) in 110A Apparatus Mounting (Sheet 1 of 2)

OPT	FEATURE			OPTION PLUG TO TERMINALS
M	TIMEOUT	TIME DELAY	LONG APPROXIMATELY 20 SECONDS	B1 - B2
Z*			SHORT APPROXIMATELY 8 SECONDS (±1.5 SEC)	* B2 - B3
Y*	VISUAL HOLD CIRCUIT	LAMP WINK		* A1 - A2
X		LAMP STEADY		A2 - A3
W*	AUDIBLE SIGNAL	INTERRUPTED		* C2 - C3
T		STEADY		C3 - C4
S		COMMON	DIODE MATRIX CONTROL	
	RELAY CONTROL		C1 - C3	
R	DELAYED HOLD RELEASE	RELEASE OF HOLDING BRIDGE FROM CO OR PBX BY LINE CURRENT OPENS	MINIMUM OF 25 MS	E2 - E3
K*			600 MS	* E1 - E2
N	CONNECTS TO SOA CUSTOMER PREMISES SYSTEM (NOTE 4)			D1 - D2

400G KTU

TOP VIEW OF OPTION BLOCK WITH HANDLE TOWARD USER. OPTION SYMBOLS SHOWN CONNECTED TO TERMINALS INDICATE FACTORY PROVIDED OPTIONS.



OPT	FEATURE			OPTION PLUG TO TERMINALS
T*	CO OR PBX LINE CIRCUIT			(J1 - J3) *
W*	AUDIBLE SIGNAL	INTERRUPTED		* A2 - A3
X		COMMON	DIODE MATRIX CONTROL	
V			RELAY CONTROL	A1 - A3
S*	HOLD CIRCUIT RELEASE	LONG	ESS #1, ESS #2, DIMENSION B12, 770 PBX	B1 - B2 *
R		SHORT	ALL OTHERS	B2 - B3

400H KTU

TOP VIEW OF OPTION BLOCK WITH HANDLE TOWARD USER. OPTION SYMBOLS SHOWN CONNECTED TO TERMINALS INDICATE FACTORY PROVIDED OPTIONS.

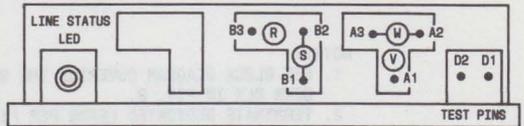


Fig. 5—Nondedicated Lead Connections for 400D (MD), 400G (MD), and 400H KTU (CO or PBX Line Circuit) in 110A Apparatus Mounting (Sheet 2 of 2)

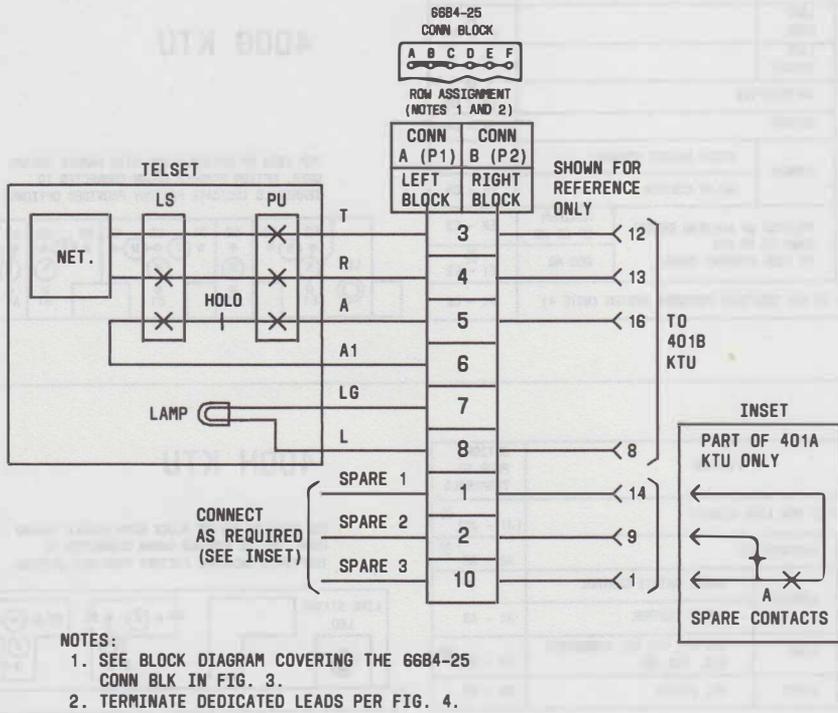
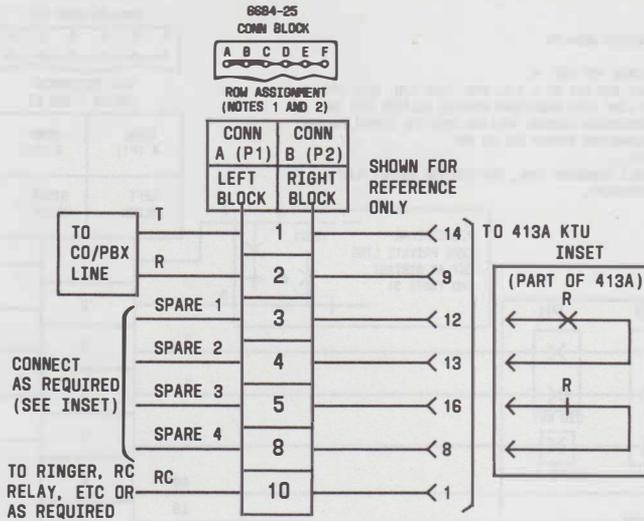


Fig. 6—Nondedicated Lead Connections for 401B KTU (Manual Intercom Line Circuit) in 110A Apparatus Mounting



NOTES:

1. SEE BLOCK DIAGRAM COVERING THE 6684-25 CONN BLK IN FIG. 3.
2. TERMINATE DEDICATED LEADS PER FIG. 4.

OPTION STRAPPING ON 413A KTU OPTION BLK

OPTION	FEATURES		STRAP TERMINALS
X	AUDIBLE SIGNALS	STEADY RING	9 TO 10
Z		INTERRUPTED RING	B TO 10

Fig. 7—Nondedicated Lead Connections for 413A KTU (Auxiliary Ringup Circuit) in 110A Apparatus Mounting

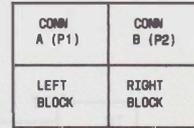
NOTES:

1. SEE BLOCK DIAGRAM COVERING 6884-25 CONN BLK IN FIG. 3.
2. TERMINATE DEDICATED LEADS PER FIG. 4.
3. PVT LINE CKT AT DISTANT END MAY BE A 414A KTU, 419A KTU, 204A KTU, OR ANY OTHER TYPE PVT LINE UNIT REQUIRING RINGING VOLTAGE FOR THE RINGUP CIRCUIT AND FURNISHING RINGING VOLTAGE FROM THE SIGNALING CKT.
4. SIGNAL KEY MAY BE A CONVERTED PICKUP KEY OR ANY EXTERNAL NONLOCKING KEY.
5. FOR SATISFACTORY AUDIBLE RINGBACK TONE, THE RINGING SUPPLY MUST CONTAIN AN AUDIBLE COMPONENT.

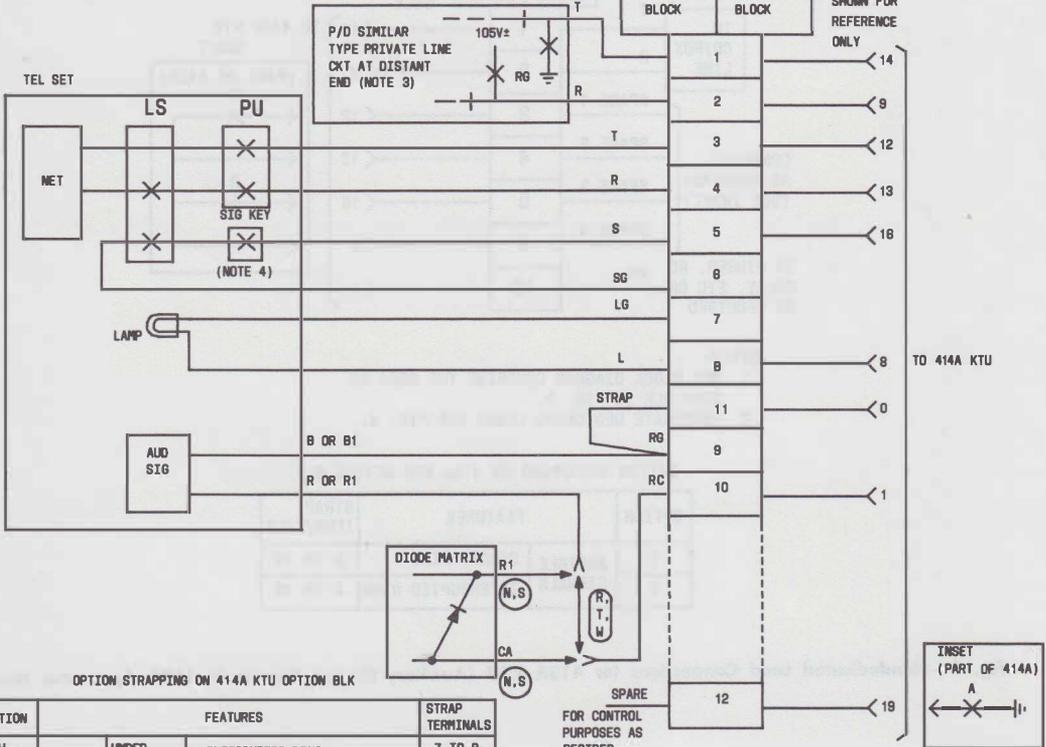
6884-25 CONN BLK



ROW ASSIGNMENT
(NOTES 1 AND 2)



SHOWN FOR REFERENCE ONLY



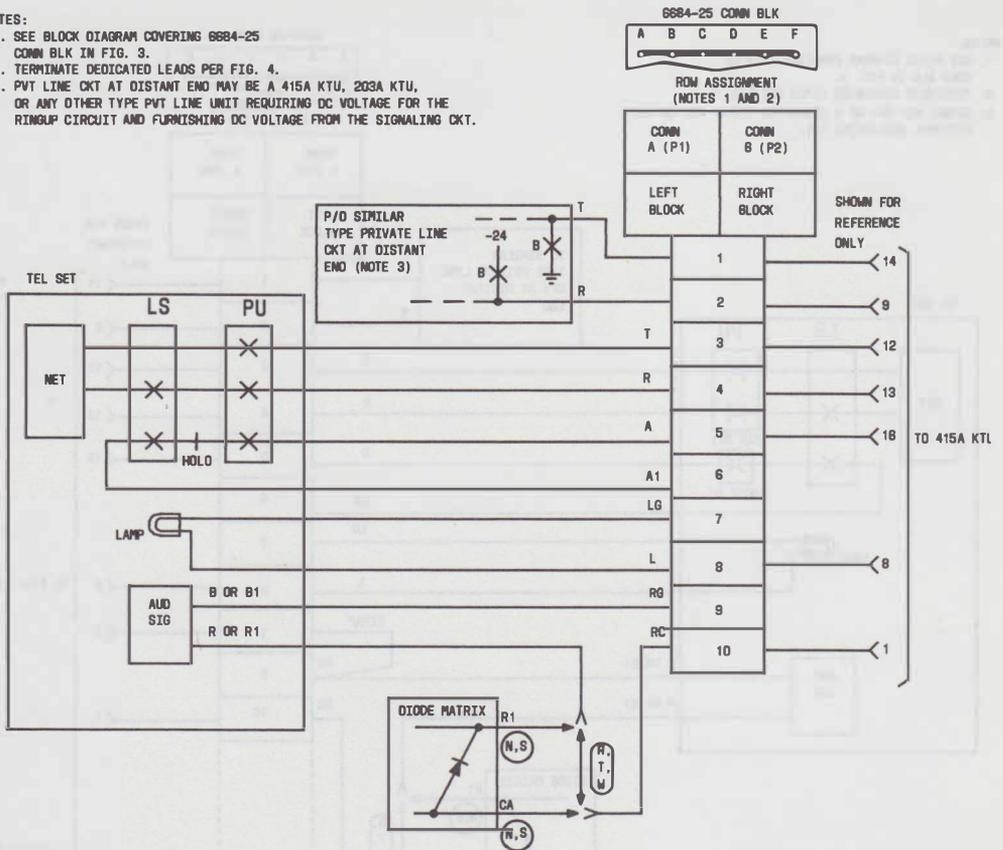
OPTION STRAPPING ON 414A KTU OPTION BLK

OPTION	FEATURES		STRAP TERMINALS
W	AUDIBLE SIGNALS	UNDER CONTROL OF TIME-OUT CIRCUIT (B RELAY)	INTERRUPTED RING 7 TO 8
T		COMMON WITH DIODE MATRIX CONTROL	STEADY RING 8 TO 7
S			7 TO 8
R	UNDER CONTROL OF R RELAY	STEADY RING	4 TO 8
N		COMMON WITH DIODE MATRIX CONTROL	
X	TIME-OUT	10 SECONDS	1 TO 2
Z		16 SECONDS	2 TO 3
WITHOUT X OR Z		23 SECONDS	REMOVE X OR Z STRAPS
M	AUDIBLE RINGBACK TONE (NOTE 5)		9 TO 10

Fig. 8—Nondedicated Lead Connections for 414A KTU (Manual Signaling, Ringdown Private Line Circuit) in 110A Apparatus Mounting

NOTES:

1. SEE BLOCK DIAGRAM COVERING 6884-25 CONN BLK IN FIG. 3.
2. TERMINATE DEDICATED LEADS PER FIG. 4.
3. PVT LINE CKT AT DISTANT END MAY BE A 415A KTU, 203A KTU, OR ANY OTHER TYPE PVT LINE UNIT REQUIRING DC VOLTAGE FOR THE RINGUP CIRCUIT AND FURNISHING DC VOLTAGE FROM THE SIGNALING CKT.



OPTION STRAPPING ON 415A KTU OPTION BLK*

OPTION	FEATURES	STRAP TERMINALS
W	INTERRUPTED RING	4 TO 8
T	STEADY RING	5 TO 8
S	AUDIBLE SIGNALS COUPON WITH DIODE MATRIX CONTROL	4 TO 6
M	AUDIBLE RINGBACK TONE	1 TO 2
Y	VISUAL HOLD SIGNAL	7 TO 8

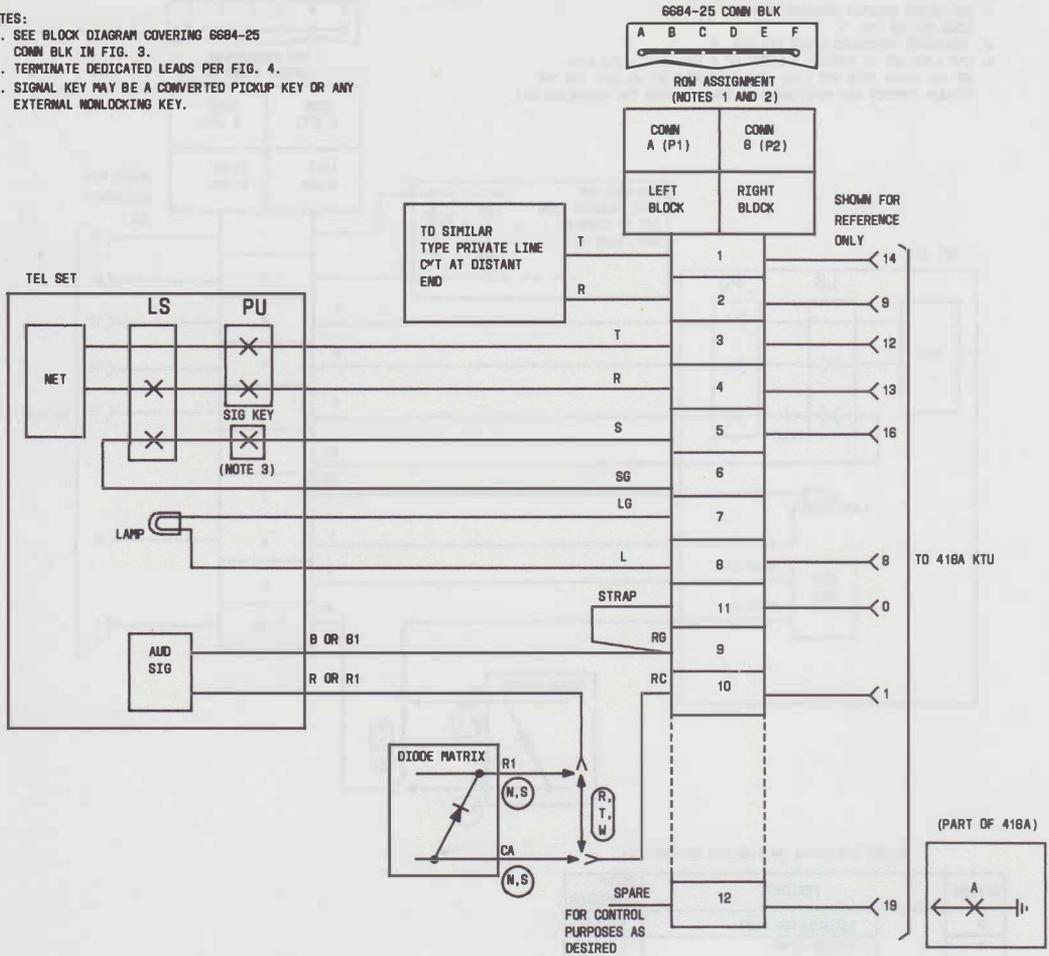
* FOR IDLE LINE TERMINATION CONNECT A KS-13490.L1 810 OHM RESISTOR IN SERIES WITH A 542F, 2 UF CAPACITOR ACROSS TERMINALS 9 AND 10. ORDER COMPONENTS LOCALLY AND INSTALL.

Fig. 9—Nondedicated Lead Connections for 415A KTU (Automatic, DC Signaling Private Line Circuit) in 110A Apparatus Mounting

SECTION 518-215-422

NOTES:

1. SEE BLOCK DIAGRAM COVERING 6684-25 CONN BLK IN FIG. 3.
2. TERMINATE DEDICATED LEADS PER FIG. 4.
3. SIGNAL KEY MAY BE A CONVERTED PICKUP KEY OR ANY EXTERNAL NONLOCKING KEY.



OPTION STRAPPING ON 416A KTU OPTION BLK

OPTION	FEATURES		STRAP TERMINALS
W	AUDIBLE SIGNALS	INTERRUPTED RING	5 TO 8
T		STEADY RING	7 TO 8
S		COMMON WITH DIODE MATRIX CONTROL	5 TO 8
M	AUDIBLE RINGBACK TONE		9 TO 10

Fig. 10—Nondedicated Lead Connections for 416A KTU (Station Line Circuit) in 110A Apparatus Mounting

NOTES:

1. SEE BLOCK DIAGRAM COVERING 6684-25 CONN BLK IN FIG. 3.
2. TERMINATE DEDICATED LEADS PER FIG. 4.
3. ASSOCIATED LAMP AND RINGING CKTS FROM 400-TYPE KTU AND DIAL INTERCOM LINE CONNECT DIRECTLY TO TELEPHONE SETS.
4. STATION LEADS FROM THE TEL SET FOR THE 1ST LINE MUST ALSO BE TERMINATED TO THE STA SIDE OF THE ASSIGNED 400-TYPE KTU.
5. REMOVE AND INSULATE EXCLUSION KEY LEADS FROM IT AND IR IN THE TEL SET IF SO CONNECTED.
6. SIGNAL KEY MAY BE A CONVERTED PICKUP KEY DR AN EXTERNAL NONLOCKING KEY.
7. A DIODE MUST BE INSTALLED IN THE "A" LEAD OF THE TEL SET WHEN Z OPTION IS PROVIDED. FOR METHOD OF CONNECTION USE STATION BUSY LAMP OPTION AS SHOWN IN CONNECTION SECTION OF TYPE SET USED.
8. LAMP INDICATING CONFERENCE CKT IS ACTIVATED.

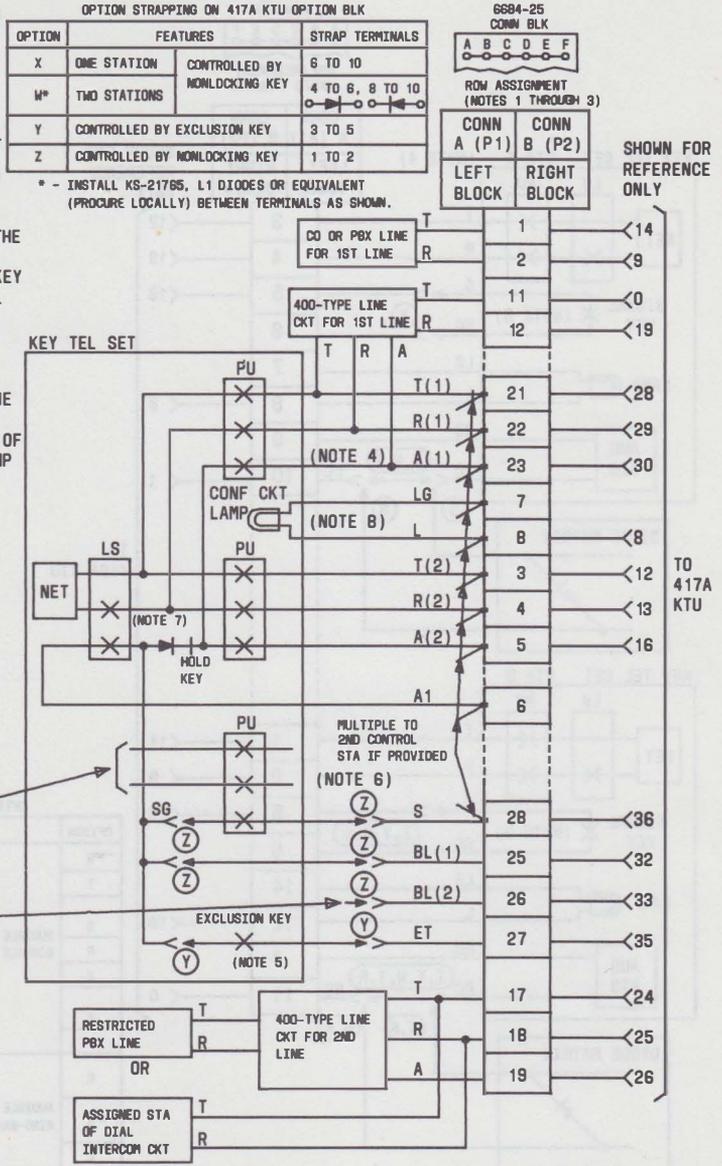
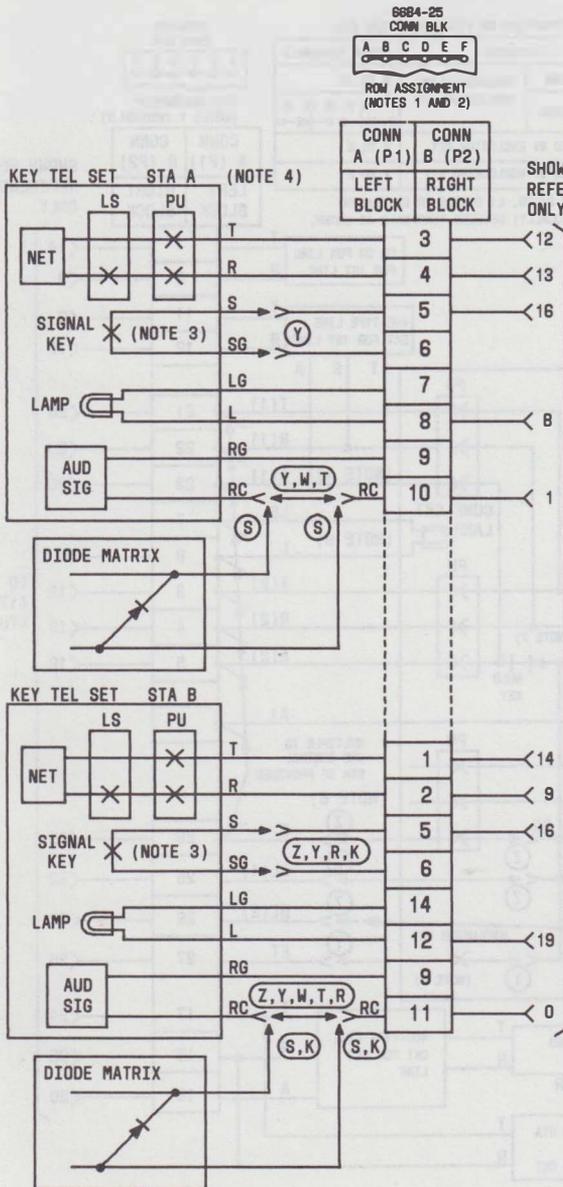


Fig. 11—Nondedicated Lead Connections for 417A KTU (Add-on Conference Circuit) in 110A Apparatus Mounting



NOTES:

1. SEE BLOCK DIAGRAM COVERING 6884-25 CONN BLK IN FIG. 3.
2. TERMINATE DEDICATED LEADS PER FIG. 4.
3. SIGNAL KEY MAY BE A CONVERTED PICKUP KEY OR AN EXTERNAL NONLOCKING KEY.
4. STATION "A" IS ALWAYS ASSIGNED AS THE AUTOMATIC SIGNALING STATION WHENEVER THE ONE-WAY AUTOMATIC, ONE-WAY MANUAL SIGNALING OPTION IS USED.
5. THESE OPTIONS APPLY TO THE SIGNAL KEY AND AUDIBLE SIGNAL AT STA "B" ONLY. THE AUDIBLE SIGNAL AT STA "A" IS UNDER CONTROL OF THE SIGNAL KEY OF STA "B". THE AUDIBLE SIGNAL AT STA "A" MAY BE PART OF A COMMON AUDIBLE ARRANGEMENT PROVIDED THE DIODE MATRIX IS USED FOR CONTROL.
6. THE AUDIBLE SIGNALS AT STAS "A" AND "B" MAY BE PART OF A COMMON AUDIBLE ARRANGEMENT PROVIDED THE DIODE MATRIX IS USED FOR CONTROL.

OPTION STRAPPING ON 418A KTU OPTION BLK

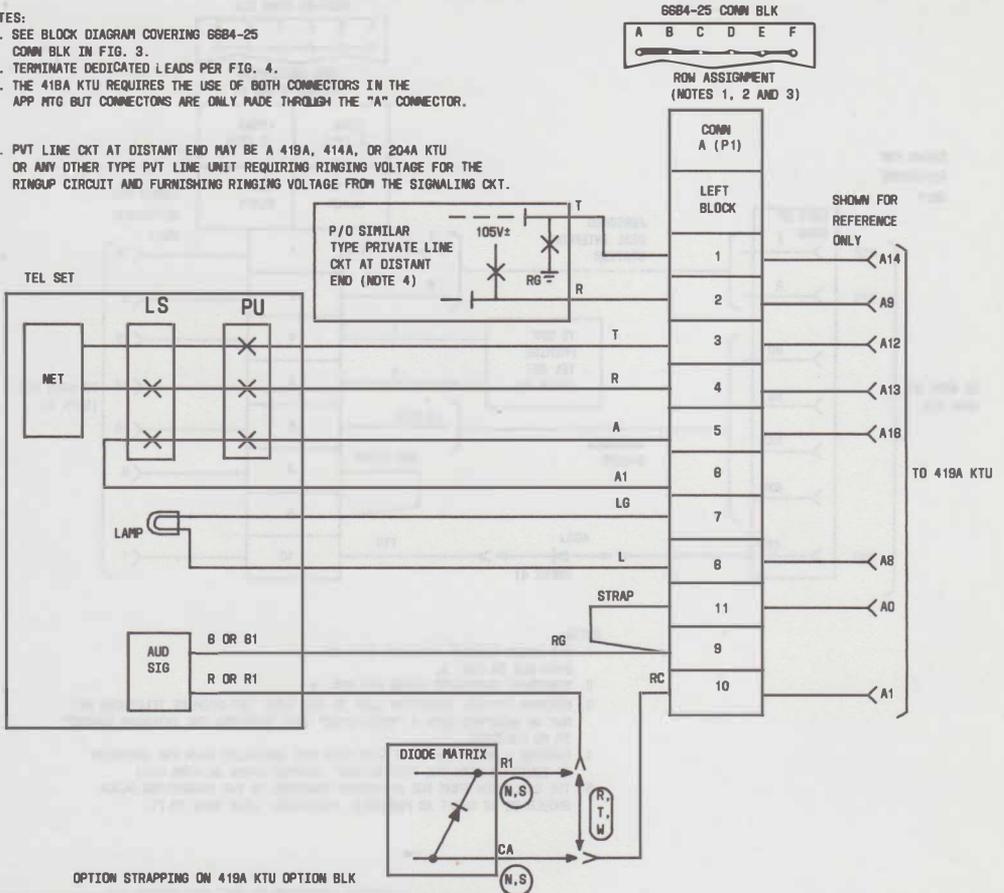
OPTION	FEATURES		STRAP TERMINALS
W	TWO-WAY AUTOMATIC	INTERRUPTED RING	2 TO 3 TO 4 *
T		STEADY RING	1 TO 2 TO 4 *
S		COMMON WITH DIODE MATRIX CONTROL	2 TO 3 TO 4 *
R	ONE-WAY AUTOMATIC, ONE-WAY MANUAL (NOTE 5)	INTERRUPTED RING	3 TO 4
Z		STEADY RING	1 TO 4
K		COMMON WITH DIODE MATRIX CONTROL	3 TO 4
Y	TWO-WAY MANUAL (NOTE 6)		
Q	AUDIBLE RING-BACK	TWO-WAY AUTOMATIC	9 TO 10, 5 TO 7 TO 9 *
H		ONE-WAY AUTOMATIC, ONE-WAY MANUAL	5 TO 7, 9 TO 10
M		TWO-WAY MANUAL	9 TO 10

* - USE CONTINUOUS METHOD OF STRAPPING

Fig. 12—Nondedicated Lead Connections for 418A KTU (Short Range, DC Signaling Private Line Circuit) in 110A Apparatus Mounting

NOTES:

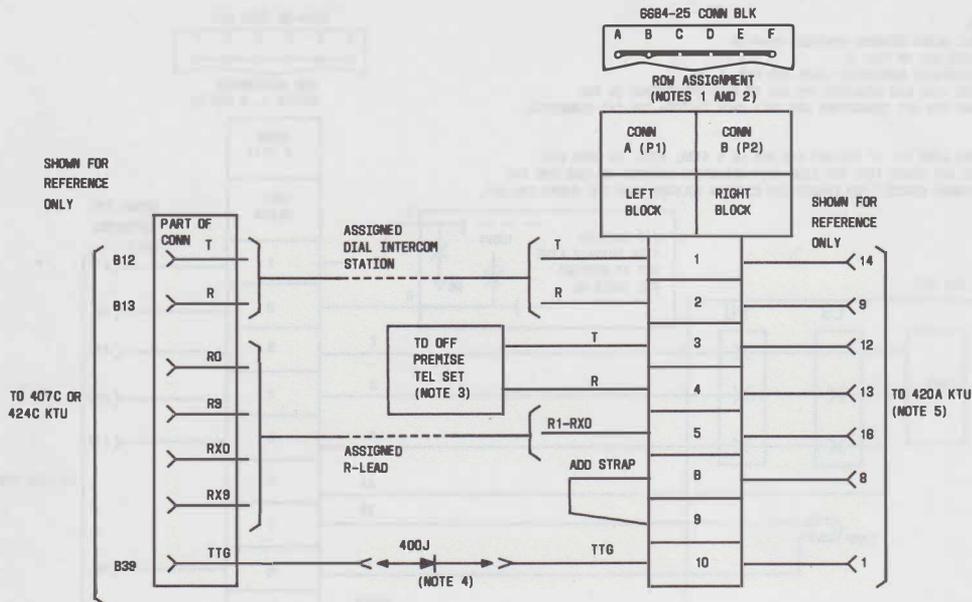
1. SEE BLOCK DIAGRAM COVERING 6684-25 CONN BLK IN FIG. 3.
2. TERMINATE DEDICATED LEADS PER FIG. 4.
3. THE 419A KTU REQUIRES THE USE OF BOTH CONNECTORS IN THE APP MTG BUT CONNECTORS ARE ONLY MADE THROUGH THE "A" CONNECTOR.
4. PVT LINE CKT AT DISTANT END MAY BE A 419A, 414A, OR 204A KTU OR ANY OTHER TYPE PVT LINE UNIT REQUIRING RINGING VOLTAGE FOR THE RINGUP CIRCUIT AND FURNISHING RINGING VOLTAGE FROM THE SIGNALING CKT.



OPTION STRAPPING ON 419A KTU OPTION BLK

OPTION	FEATURES		STRAP TERMINALS
W	AUDIBLE SIGNALS	UNDER CONTROL OF TIME-OUT CIRCUIT (B RELAY)	INTERRUPTED RING 8 TO 8
T		COMMON WITH DIODE MATRIX CONTROL	STEADY RING 5 TO 8
S			8 TO 8
R	UNDER CONTROL OF R RELAY	COMMON WITH DIODE MATRIX CONTROL	STEADY RING 3 TO 5
N			3 TO 5
X	TIME-OUT	6 SECONDS 8 TO 10	
Z		17 SECONDS 7 TO 10	
WITHOUT X OR Z		25 SECONDS REMOVE X OR Z STRAPS	
M	AUDIBLE RINGBACK TONE		1 TO 2

Fig. 13—Nondedicated Lead Connections for 419A KTU (Automatic Signaling, Ringdown Private Line Circuit) in 110A Apparatus Mounting

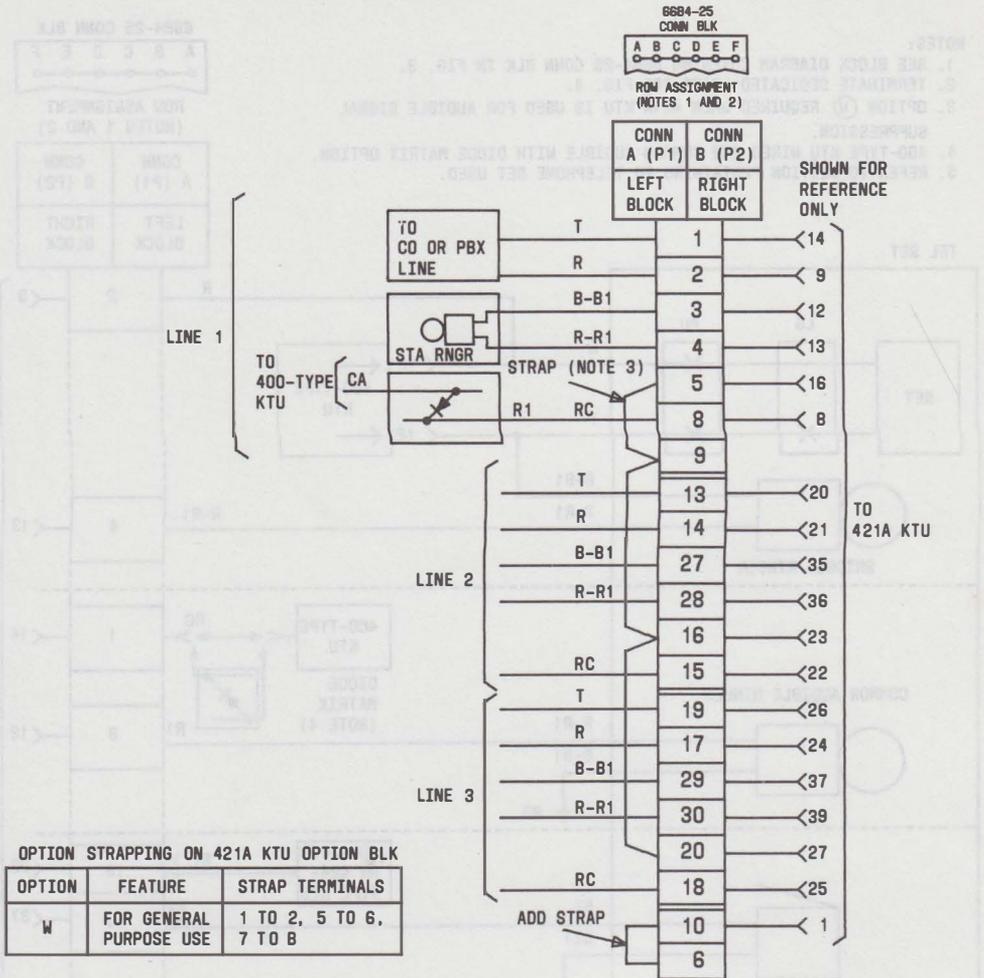


- NOTES:
1. SEE BLOCK DIAGRAM COVERING 6684-25 CONN BLK IN FIG. 3.
 2. TERMINATE DEDICATED LEADS PER FIG. 4
 3. MAXIMUM STATION CONDUCTOR LOOP IS 500 OHMS. OFF-PREMISE TELEPHONE SET MAY BE EQUIPPED WITH A "TOUCH-TONE" DIAL PROVIDED THE INTERCOM CIRCUIT IS SO EQUIPPED.
 4. PROVIDE A 400J DIODE FOR EACH 420A KTU INSTALLED WHEN THE INTERCOM IS EQUIPPED WITH THE "TOUCH-TONE" ADAPTER (440A OR 478B KTU)
 5. THE CABLE RUN FROM THE APPARATUS MOUNTING TO THE CONNECTING BLOCK SHOULD BE AS SHORT AS POSSIBLE, PREFERABLY LESS THAN 10 FT.

OPTION STRAPPING ON 420A KTU OPTION BLK

OPTION	FEATURE		STRAP TERMINALS
J, X	AUDIBLE SIGNALS	AC BUZZER, 18V± OR 10V±	1 TO 4, 7 TO 8
K, X		DC BUZZER, 24V DC	
M, X, R		RINGER, 105V± STEADY	2 TO 4, 7 TO 8
X		INTERRUPTED	
R		INTERRUPTED WITH STATION BUSY	

Fig. 14—Nondedicated Lead Connections for 420A KTU (Long Line Circuit) in 110A Apparatus Mounting



NOTES:

1. SEE BLOCK DIAGRAM COVERING 6684-25 CONN BLK IN FIG. 3.
2. TERMINATE DEDICATED LEADS PER FIG. 4.
3. ADD STRAPS ACCORDING TO NUMBER OF LINES SERVED.

Fig. 15—Nondedicated Lead Connections for 421A KTU (Power Failure Transfer Circuit) in 110A Apparatus Mounting

NOTES:

1. SEE BLOCK DIAGRAM COVERING 6684-25 CONN BLK IN FIG. 3.
2. TERMINATE DEDICATED LEADS PER FIG. 4.
3. OPTION (U) REQUIRED WHEN 421A KTU IS USED FOR AUDIBLE SIGNAL SUPPRESSION.
4. 400-TYPE KTU WIRED FOR COMMON AUDIBLE WITH DIODE MATRIX OPTION.
5. REFER TO SECTION PERTAINING TO TELEPHONE SET USED.

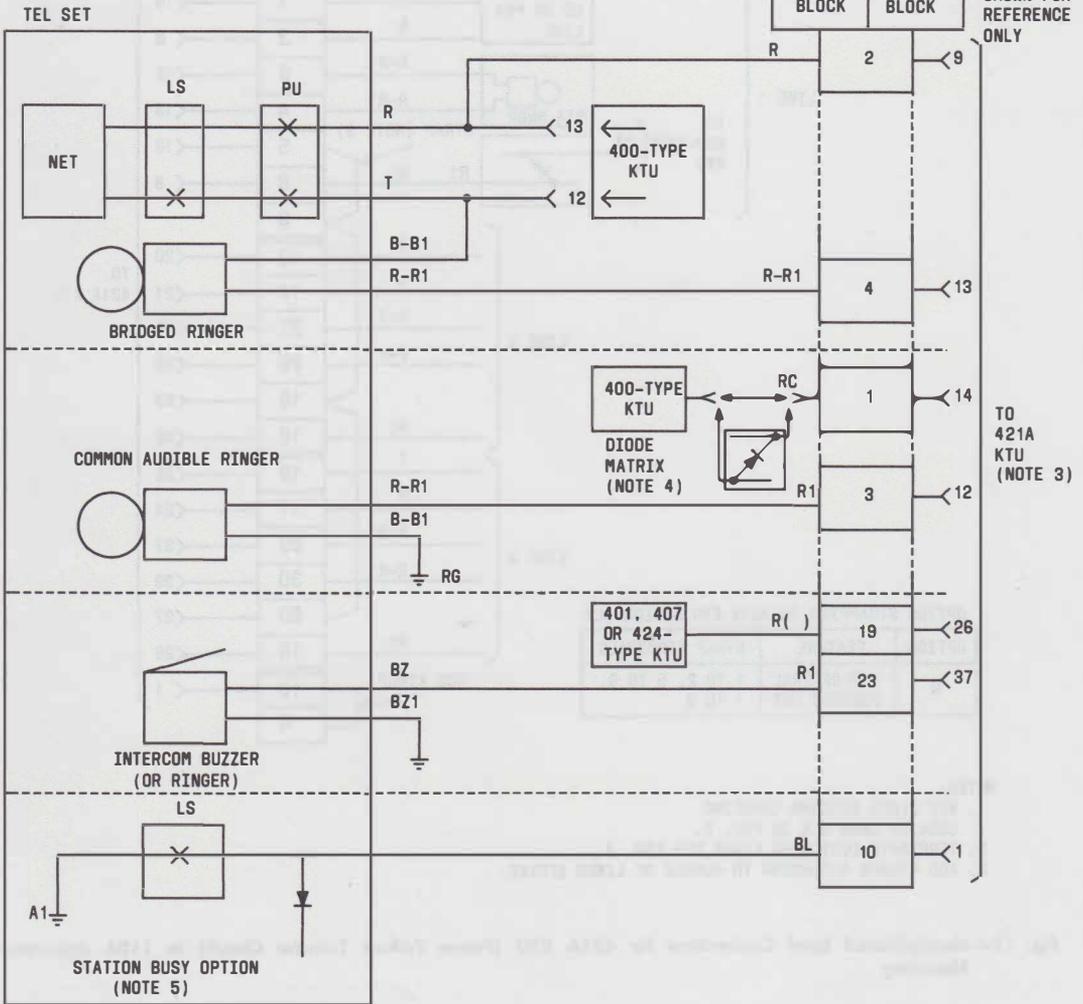
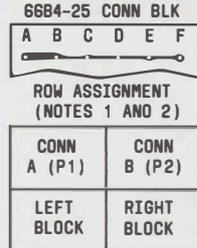
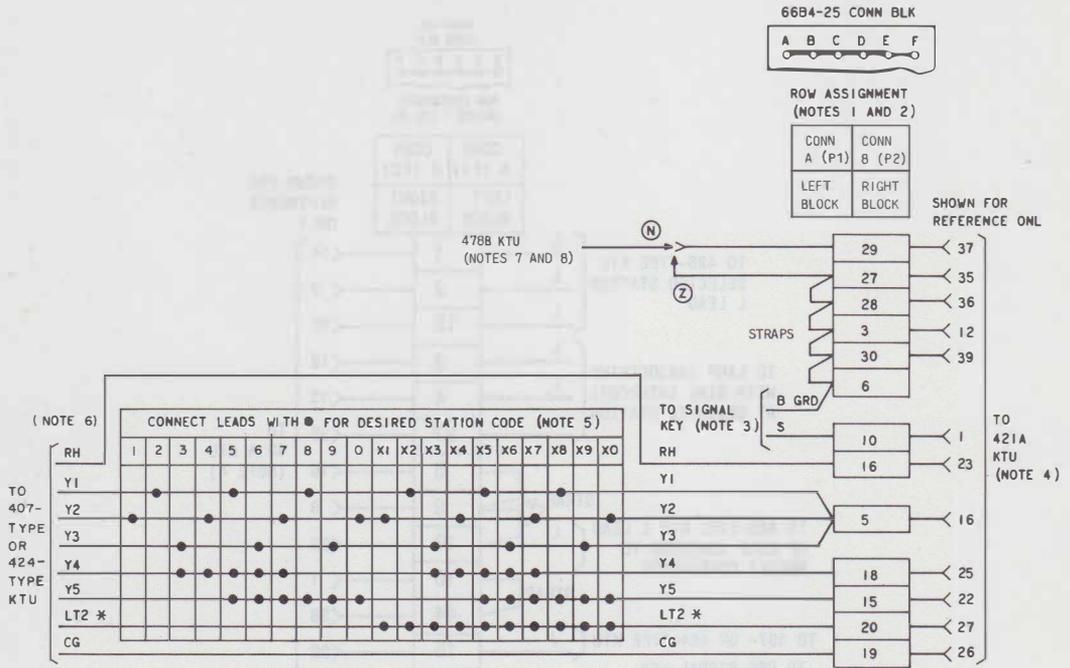
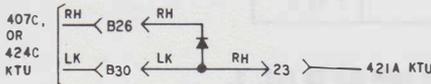


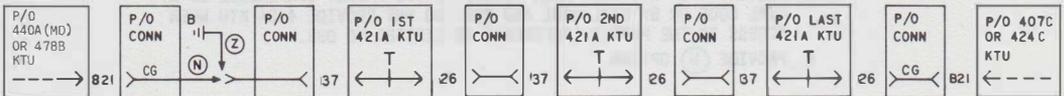
Fig. 16—Nondedicated Lead Connections for 421A KTU (Wired as Audible Signal Suppressor) in 110A Apparatus Mounting



- NOTES:
1. SEE BLOCK DIAGRAM COVERING 66B4-25 CONN BLK IN FIG. 3.
 2. TERMINATE DEDICATED LEADS PER FIG. 4.
 3. PROVIDE SEPARATE SIGNAL KEY FOR EACH STATION CODE TO BE SELECTED.
 4. PROVIDE A SEPARATE 421A KTU FOR EACH STATION CODE TO BE SELECTED.
 5. SELECT CODE AND CONNECT LEADS FOR SELECTED CODE AS SHOWN IN VERTICAL COLUMN.
 6. A 400Ω DIODE (PROCURE LOCALLY) MUST BE CONNECTED AS SHOWN BELOW WHEN PROVIDING DSS IN A DIAL EQUIPPED SELECTOR ONLY ARRANGEMENT.

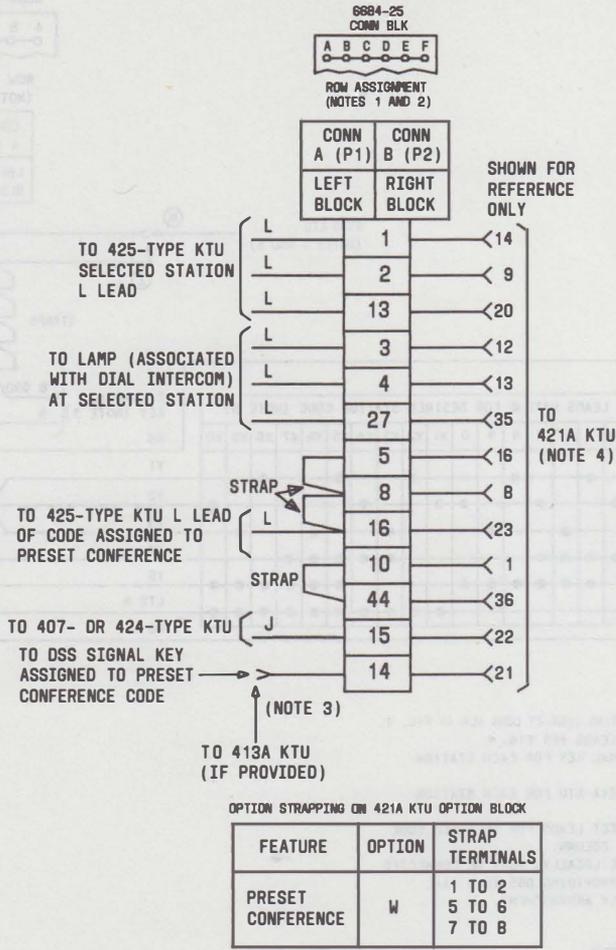


7. IF MORE THAN ONE 421A KTU IS USED FOR DSS, CONNECT AS SHOWN:



8. (N) WITH "TOUCH-TONE".
 (Z) WITHOUT "TOUCH-TONE".
 * USE WITH 424C KTU.

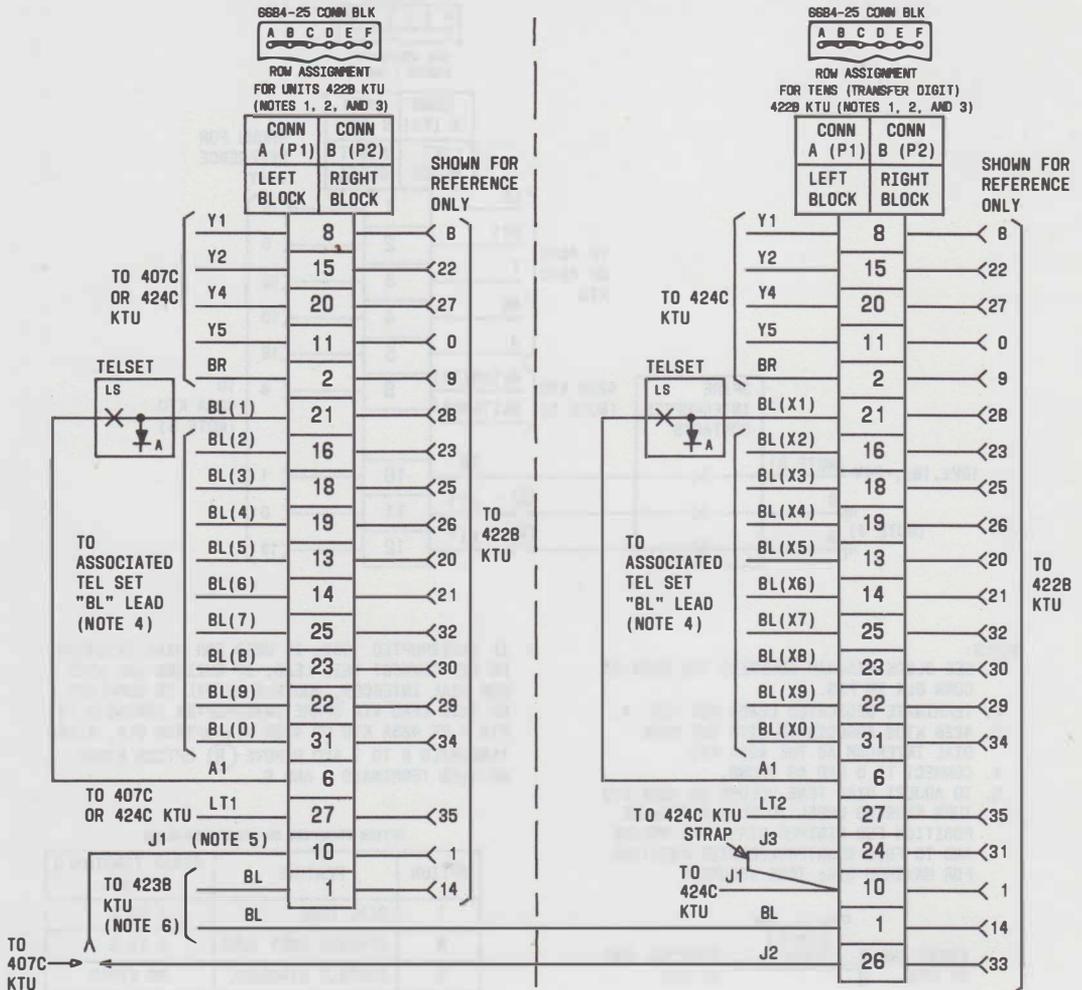
Fig. 17—Nondedicated Lead Connections for 421A KTU (Wired for DSS Feature) in 110A Apparatus Mounting



NOTES:

1. SEE BLOCK DIAGRAM COVERING 6684-25 CONN BLK IN FIG. 3.
2. TERMINATE DEDICATED LEADS PER FIG. 4.
3. PROVIDE 413A KTU ONLY WHEN ACCESS TO THE PRESET CONFERENCE IS BY DIAL CODE OR BY DIAL CODE AND DSS. DO NOT PROVIDE 413A KTU WHEN ACCESS TO THE PRESET CONFERENCE IS LIMITED TO DSS.
4. PROVIDE (W) OPTION.

Fig. 18—Nondedicated Lead Connections for 421A KTU (Wired as Preset Conference Circuit) in 110A Apparatus Mounting



NOTES:

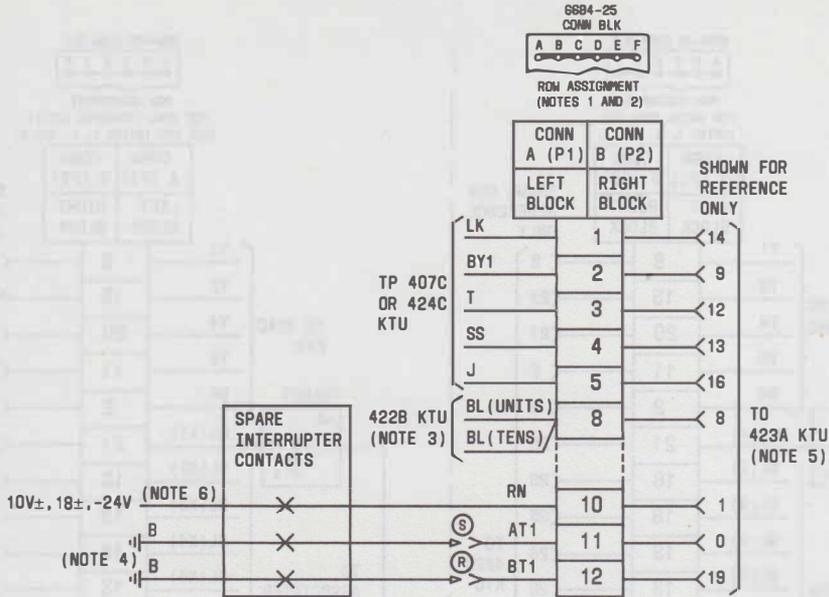
1. SEE BLOCK DIAGRAM COVERING THE 6884-25 CONN BLK IN FIG. 3.
2. TERMINATE DEDICATED LEADS PER FIG. 4.
3. PROVIDE A SEPARATE 422B KTU FOR THE UNITS GROUP (1-D, SINGLE DIGIT NOS.) AND FOR THE TENS GROUP (X1-X0, TWO DIGIT NOS.)
4. PROVIDE AND INSTALL A DIODE IN THE "A" LEAD OF THE ASSOCIATED TEL SETS AS SHOWN IN TEL SET CONNECTION SECTION. FOR CONNECTION, USE THE STATION BUSY OPTION AS SHOWN IN THE CONNECTION SECTION OF THE TYPE SET USED.
5. CONNECT "J1" LEAD OF UNITS 422B KTU WHEN A 407C KTU IS PROVIDED FOR THE DIAL INTERCOM CIRCUIT. WHEN A 424C KTU IS PROVIDED, STRAP THE "J1" LEAD OF 422B KTU TO "J2" LEAD OF TENS 422B KTU.
6. 423B KTU ASSOCIATED WITH SAME DIAL INTERCOM AS THE 422B KTUS.

OPTION STRAPPINGS ON 422B KTU OPTION BLOCK

OPTION	FEATURE	STRAP TERMINALS
R*	STATION BUSY TONE	6 TO B

* - INSTALL 441J OR EQUIVALENT DIODE (PROCURE LOCALLY) AS SHOWN.

Fig. 19—Nondedicated Lead Connections for 422B KTU (Station Busy Selector Circuit) in 110A Apparatus Mounting



NOTES:

1. SEE BLOCK DIAGRAM COVERING THE 66B4-25 CONN BLK IN FIG. 3.
2. TERMINATE DEDICATED LEADS PER FIG. 4.
3. 422B KTUS ASSOCIATED WITH THE SAME DIAL INTERCOM AS THE 423A KTU.
4. CONNECT TO B GRD AS SHOWN.
5. TO ADJUST DIAL TONE VOLUME ON 423A KTU TURN KNURLED WHEEL TO FULL CLOCKWISE POSITION FOR MINIMUM DIAL TONE VOLUME AND TO FULL COUNTERCLOCKWISE POSITION FOR MAXIMUM DIAL TONE VOLUME.

6. IF INTERRUPTED 105V± IS USED FOR DIAL INTERCOM, DO NOT CONNECT THIS LEAD. IF BUZZERS ARE USED FOR DIAL INTERCOM, AUDIBLE SIGNAL IS SUPPLIED ON THIS LEAD VIA SPARE INTERRUPTER CONTACTS TO PIN 1 OF 423A KTU ON 423A KTU OPTION BLK, STRAP TERMINALS 6 TO 7 AND REMOVE (R) OPTION STRAP BETWEEN TERMINALS 4 AND 6.

OPTION STRAPPING ON KTU OPTION BLOCK

OPTION	FEATURE	STRAP TERMINALS ON 423A
T	DIAL TONE	1 TO 2
R	STATION BUSY TONE	4 TO 6
S	AUDIBLE RINGBACK	NO STRAP

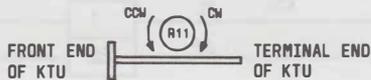
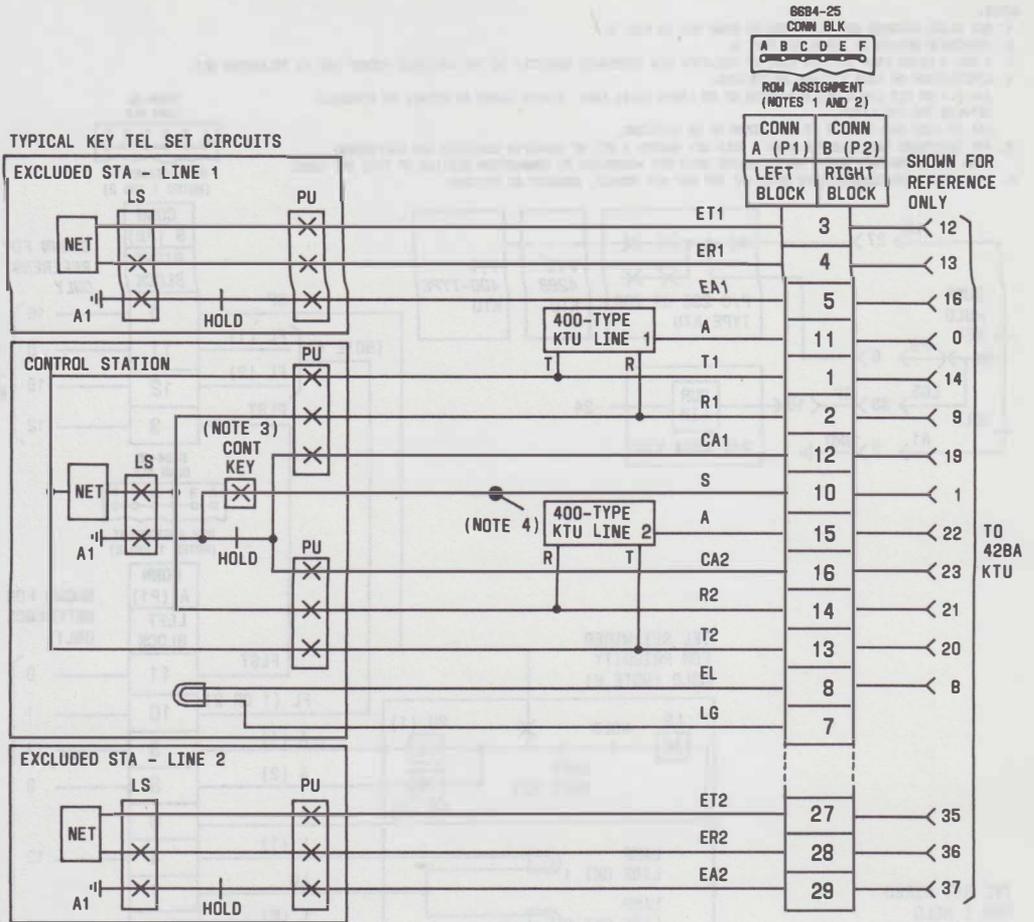


Fig. 20—Nondedicated Lead Connections for 423B KTU (Dial Tone, Busy Tone, and Audible Ringback Tone Circuit) in 110A Apparatus Mounting



NOTES:

1. SEE BLOCK DIAGRAM COVERING 66B4-25 CONN BLK IN FIG. 3.
2. TERMINATE DEDICATED LEADS PER FIG. 4.
3. CONTROL KEY MAY BE LOCKING OR NONLOCKING.
4. S LEAD CAN ONLY MULTIPLE OTHER 428A KTUS CONTROLLED BY THE SAME STATION.

Fig. 21—Nondedicated Lead Connections for 428A KTU (Multiline Exclusion Circuit) in 110A Apparatus Mounting

NOTES:

1. SEE BLOCK DIAGRAM COVERING 6884-25 CONN BLK IN FIG. 3.
2. TERMINATE DEDICATED LEADS PER FIG. 4.
3. T AND R LEADS FROM STATION SIDE OF 400-TYPE KTU TERMINATE DIRECTLY TO THE ASSIGNED PICKUP KEY AT TELEPHONE SET.
4. LIMITATIONS OF 430A KTU ARE AS FOLLOWS:
 - (A) FL1 OR FL2 CAN SERVE A MAXIMUM OF 50 LAMPS (51A) EACH. DIVIDE LAMPS AS EVENLY AS POSSIBLE BETWEEN THE TWO LEADS.
 - (B) SP LEAD CAN CONNECT TO A MAXIMUM OF 20 STATIONS.
5. ANY TELEPHONE SET EQUIPPED WITH A HOLD KEY HAVING A SET OF TRANSFER CONTACTS AND SUFFICIENT CORD LEADS CAN INITIATE I HOLD. REVIRE HOLD KEY ACCORDING TO CONNECTION SECTION OF TYPE SET USED.
6. WHEN USED WITH CONCENTRATOR SETS AND THE 657 KEY MODULE, CONNECT AS FOLLOWS:

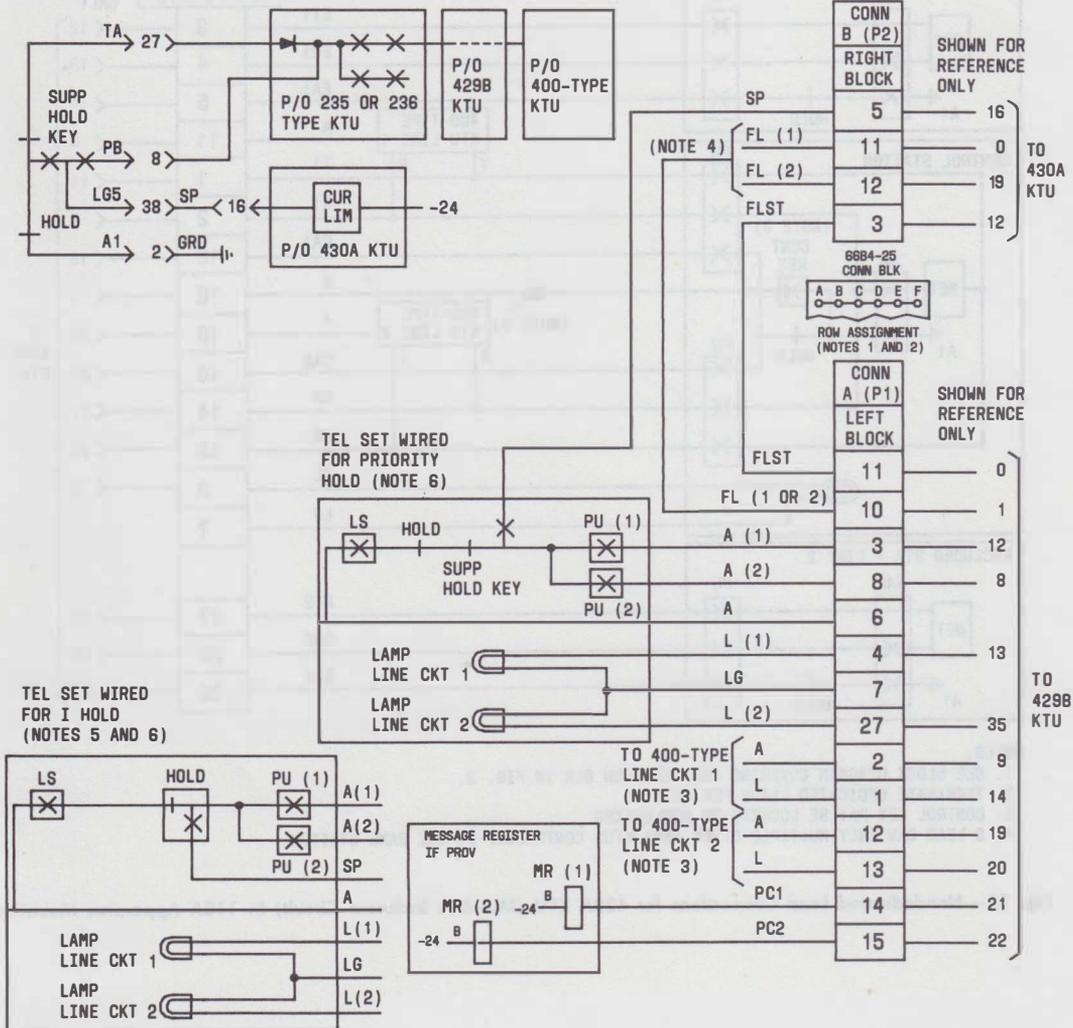


Fig. 22—Nondedicated Lead Connections for 429B KTU (Supplementary Hold Detector Circuit) and 430A (Flutter Generator Circuit) in 110A Apparatus Mounting

NOTES:

1. SEE BLOCK DIAGRAM COVERING THE 6884-25 CONN BLK IN FIG. 3.
 2. TERMINATE DEDICATED LEADS PER FIG. 4.
 3. IF IMMEDIATE RINGER TRANSFER IS REQUIRED, CONNECT TO A TURN KEY OR A 448A KTU.
 4. MULTIPLE RC LEADS FROM BOTH CIRCUITS TO SAME AUDIBLE SIGNAL AT ATTENDANT STATION.
- * FOR LINE RINGING.
 † FOR COMMON AUDIBLE RINGING.
 ‡ CONNECT WHEN COMMON AUDIBLE IS USED AND RINGER IS NOT TO BE CUT OFF.



OPTION STRAPPING ON 448A KTU OPTION BLOCK

AUDIBLE SIGNALS	OPTION	FEATURE	STRAP TERMINALS	
			1ST CKT	2ND CKT
	W	INTERRUPTED RING	8 TO 7 ^B	3 TO 5 ^B
	T	STEADY RING	8 TO 6	3 TO 4
	X	STEADY BUZZER	8 TO 10	3 TO 1

^B FACTORY PROVIDED

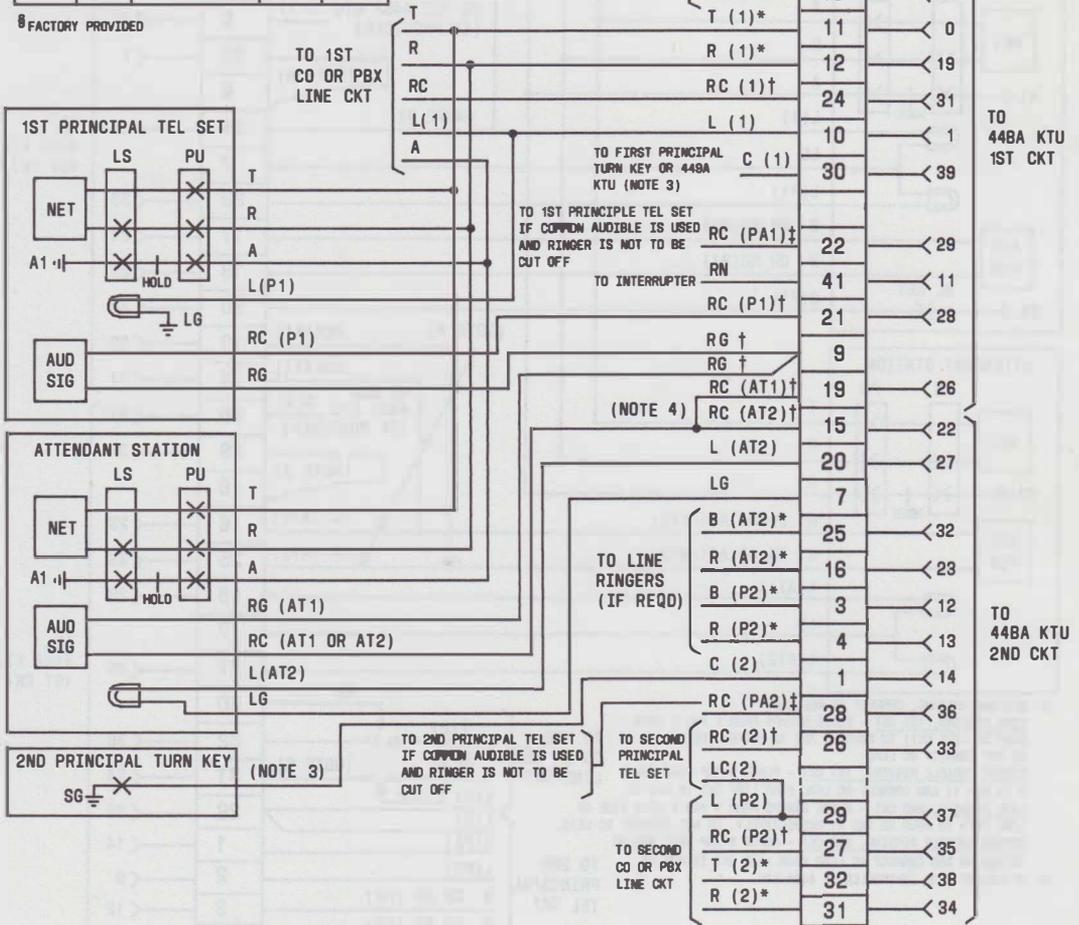


Fig. 23—Nondedicated Lead Connections for 448A KTU (Variable Delay Timer Circuit) in 110A Apparatus Mounting

NOTES:

1. SEE BLOCK DIAGRAM COVERING THE 6884-25 CONN BLK IN FIG. 3.
2. TERMINATE DEDICATED LEADS PER FIG. 4.
3. PROVIDE STRAP ONLY IF CKT IS USED WITH A 448A KTU. IF USED WITH 448A KTU, NONE OF THE RINGER CONNECTIONS SHOWN FOR THAT CKT ARE REQUIRED.
4. MULTIPLE RINGING LEADS FROM BOTH CIRCUITS TO THE SAME AUDIBLE SIGNAL AT THE ATTENDANT STATION.

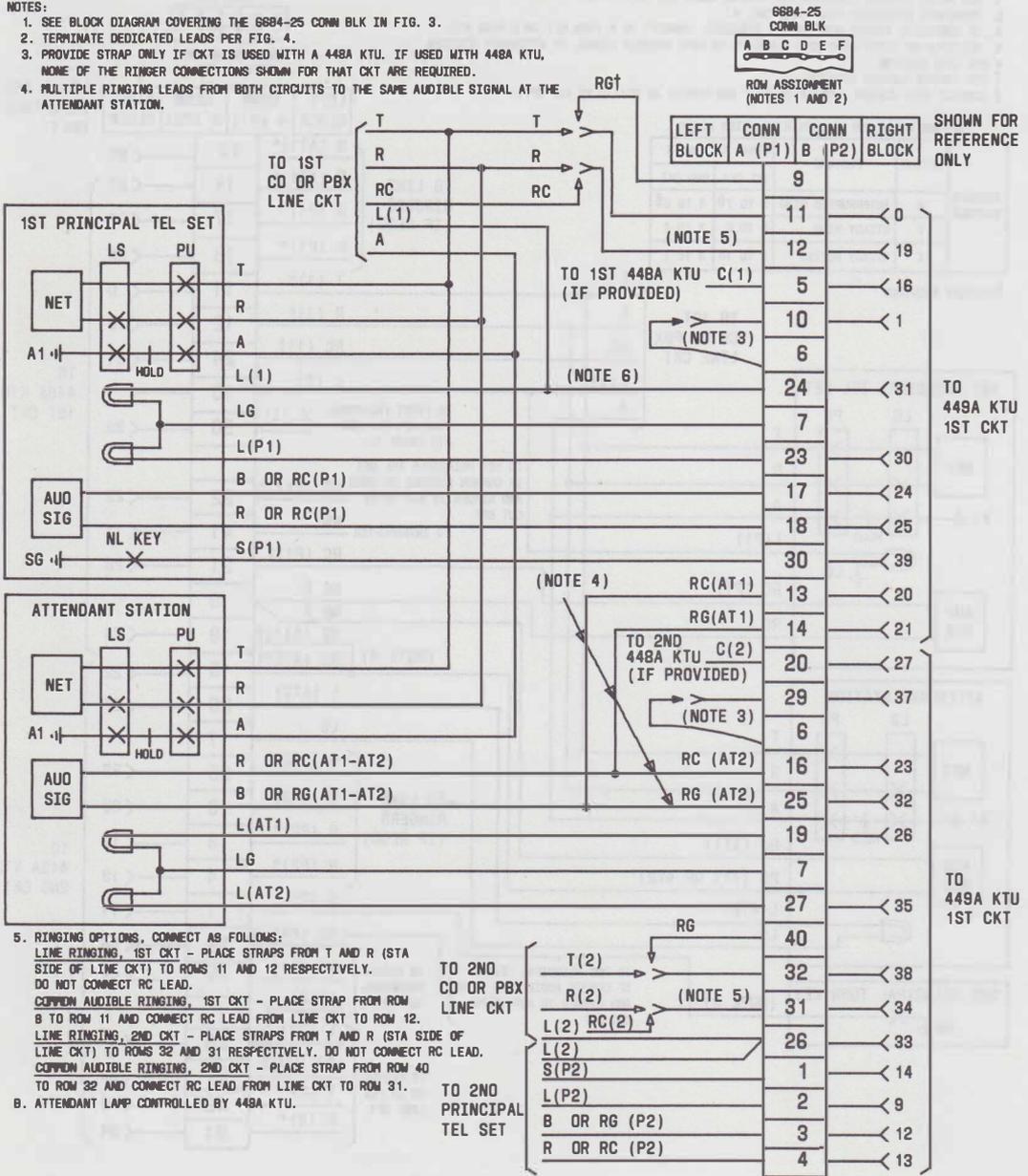


Fig. 24—Nondedicated Lead Connections for 449A KTU (Immediate Transfer Control Circuit) in 110A Apparatus Mounting

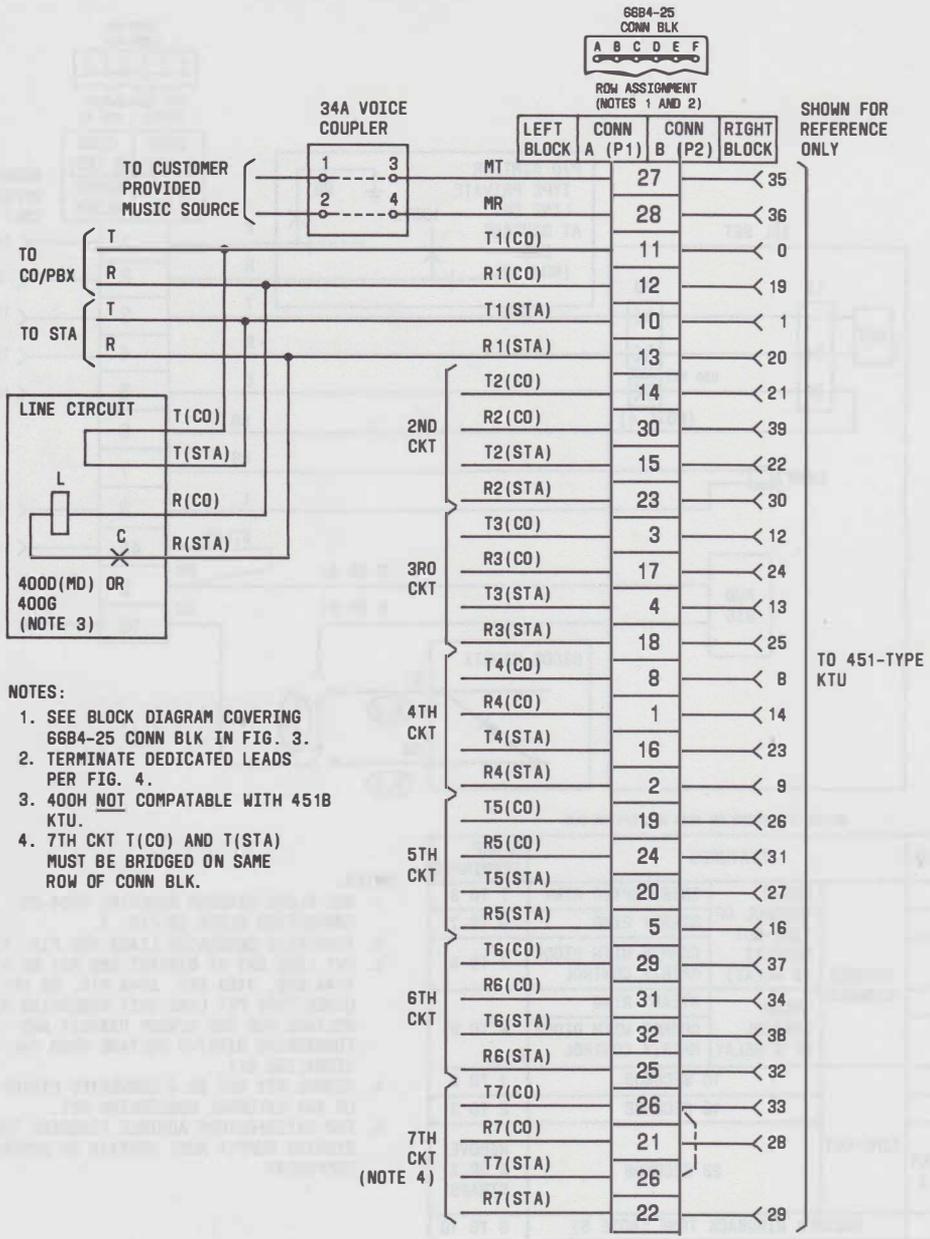
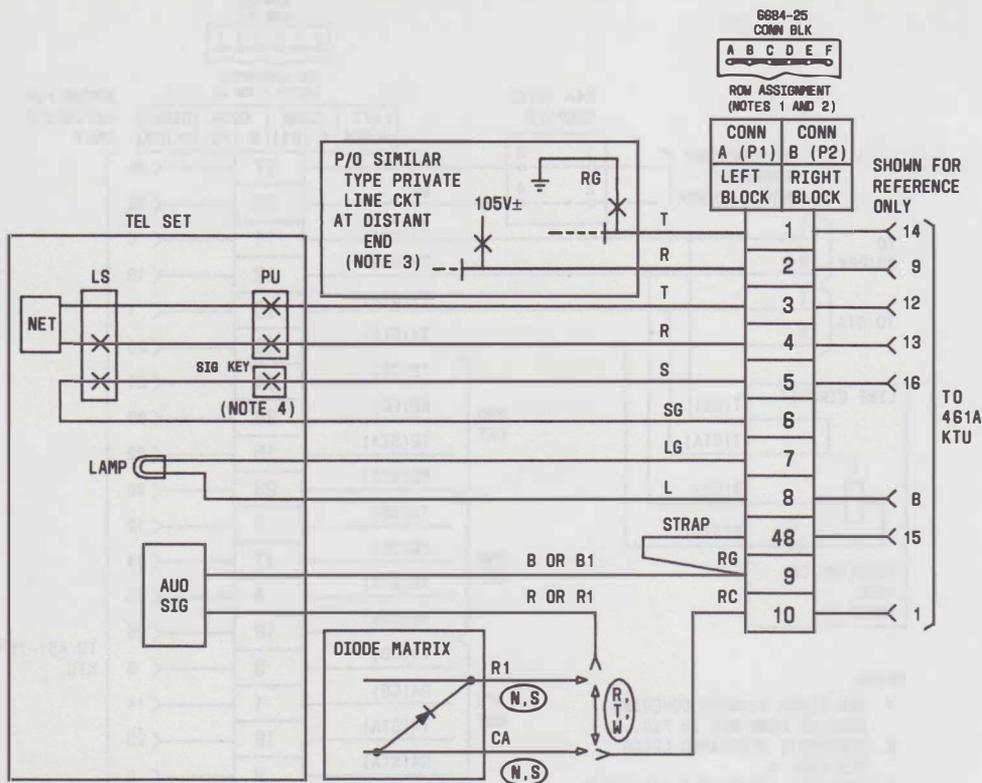


Fig. 25—Nondedicated Lead Connections for 451B KTU (Music-On-Hold Circuit) in 110A Apparatus Mounting



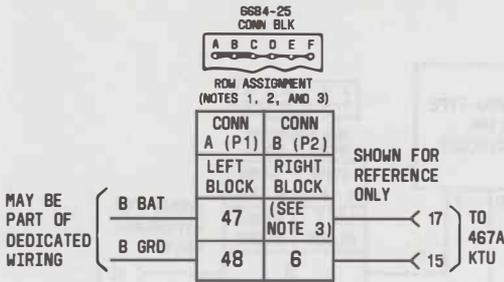
OPTION STRAPPING ON 461A KTU OPTION BLK

OPTION	FEATURES		STRAP TERMINALS
W	AUDIBLE SIGNALS	UNDER CONTROL OF	INTERRUPTED RING 7 TO 8
T		TIME-OUT CIRCUIT (B RELAY)	STEADY RING 6 TO 7
S			COMMON WITH DIODE MATRIX CONTROL 7 TO 8
R			STEADY RING 4 TO 6
N		COMMON WITH DIODE MATRIX CONTROL	
X	TIME-OUT		10 SECONDS 1 TO 2
Z			16 SECONDS 2 TO 3
WITHOUT X OR Z			23 SECONDS REMOVE X OR Z STRAPS
M	AUDIBLE RINGBACK TONE (NOTE 5)		9 TO 10

NOTES:

- SEE BLOCK DIAGRAM COVERING 6684-25 CONNECTING BLOCK IN FIG. 3.
- TERMINATE DEDICATED LEADS PER FIG. 4.
- PVT LINE CKT AT DISTANT END MAY BE A 414A KTU, 419A KTU, 204A KTU, OR ANY OTHER TYPE PVT LINE UNIT REQUIRING RINGING VOLTAGE FOR THE RINGUP CIRCUIT AND FURNISHING RINGING VOLTAGE FROM THE SIGNALING CKT.
- SIGNAL KEY MAY BE A CONVERTED PICKUP KEY OR ANY EXTERNAL NONLOCKING KEY.
- FOR SATISFACTORY AUDIBLE RINGBACK TONE, THE RINGING SUPPLY MUST CONTAIN AN AUDIBLE COMPONENT.

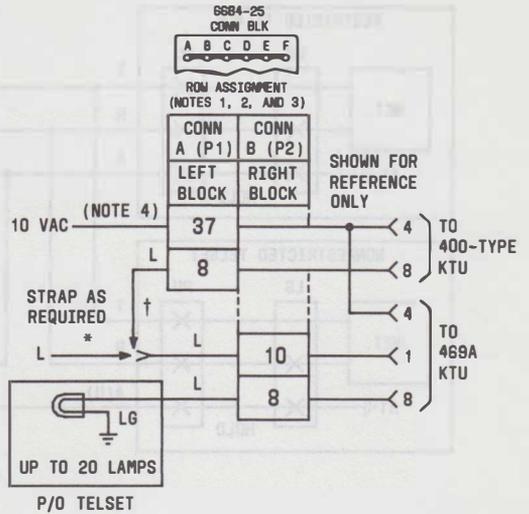
Fig. 26—Nondedicated Lead Connections for 461A KTU (Manual Signaling, Ringdown Private Line Circuit) in 110A Apparatus Mounting



NOTES:

1. SEE BLOCK DIAGRAM COVERING 6684-25 CONN BLK IN FIG. 3.
2. TERMINATE DEDICATED LEADS PER FIG. 4.
3. KTU MAY BE PLUGGED INTO EITHER CONNECTOR, BUT B BAT IS APPLIED AS A DEDICATED LEAD ON ROW 47 OF THE LEFT BLOCK ONLY.

Fig. 27—Nondedicated Lead Connections for 467A KTU (Voltage Monitor Circuit) in 110A Apparatus Mounting

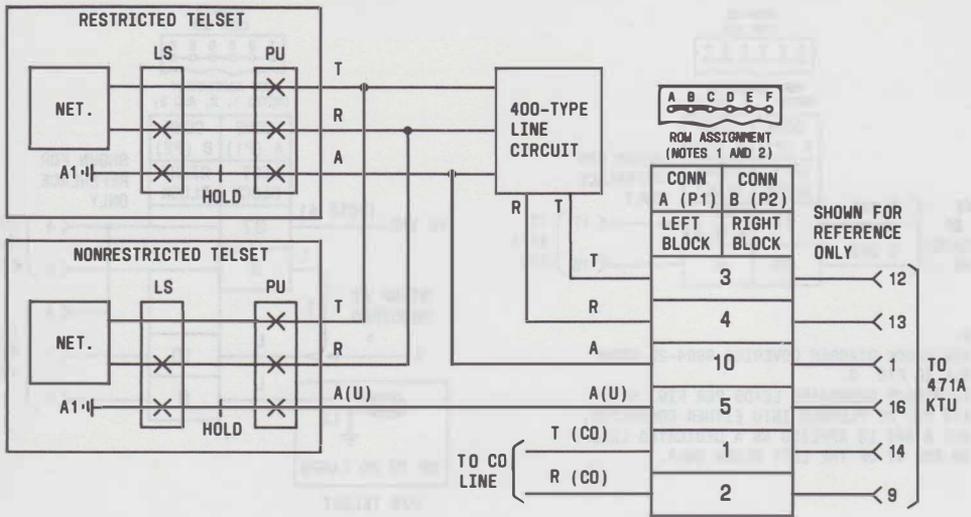


NOTES:

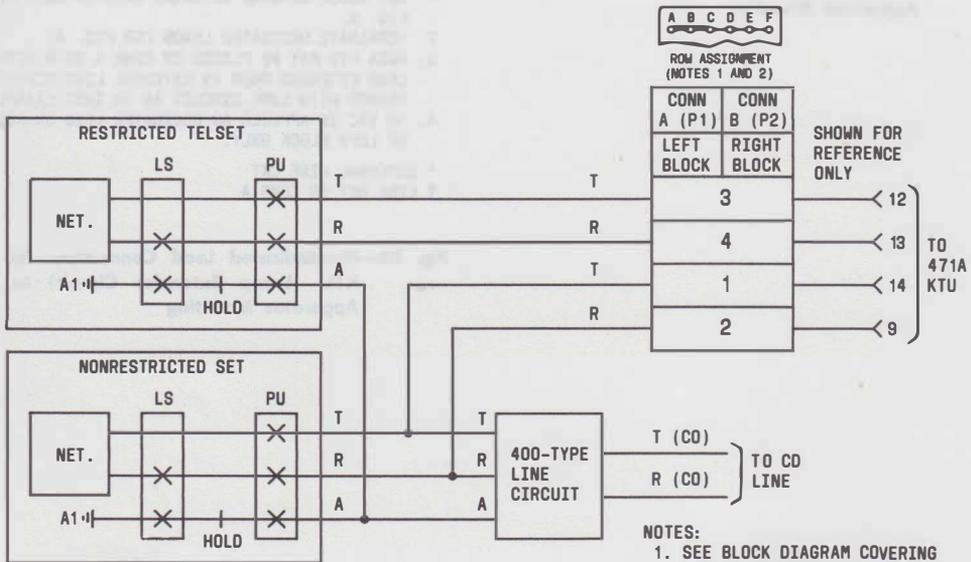
1. SEE BLOCK DIAGRAM COVERING 6684-25 CONN BLK IN FIG. 3.
2. TERMINATE DEDICATED LEADS PER FIG. 4.
3. 469A KTU MAY BE PLACED IN CONN A OR B WITH L LEAD EXTENDED FROM AN EXTERNAL LINE CIRCUIT OR PAIRED WITH LINE CIRCUIT AS IN THIS EXAMPLE.
4. 10 VAC IS APPLIED AS DEDICATED LEAD ON ROW 37 OF LEFT BLOCK ONLY.

- * EXTERNAL LINE CKT
- † LINE CKT IN CONN A

Fig. 28—Nondedicated Lead Connections for 469A KTU (Lamp Extender Circuit) in 110A Apparatus Mounting



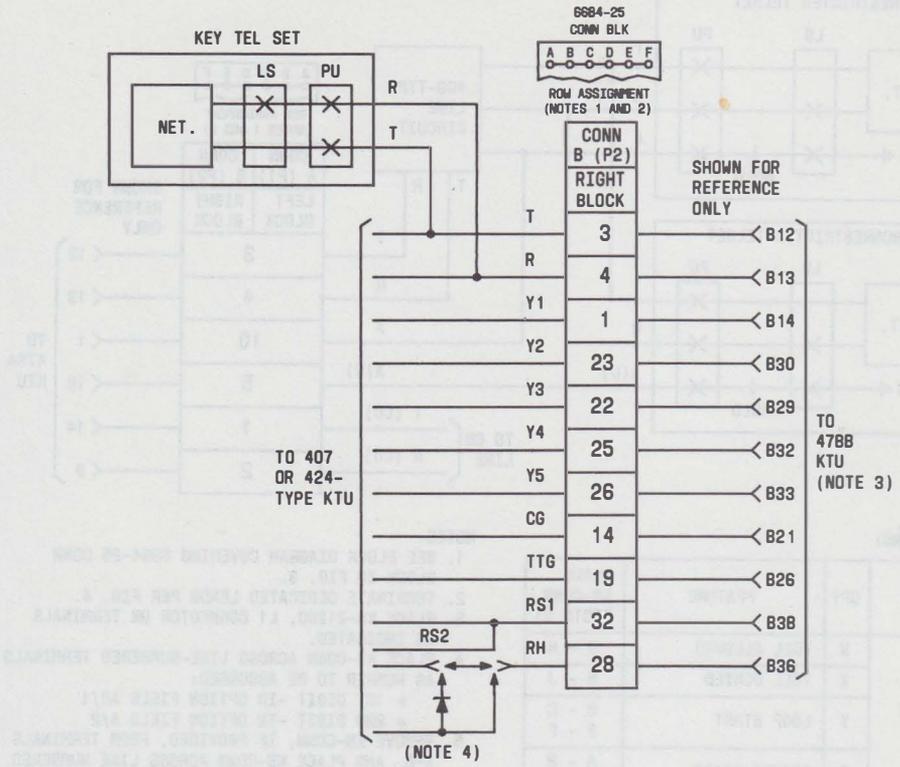
A. STANDARD (PREFERRED) WIRING ARRANGEMENT



B. ALTERNATE WIRING ARRANGEMENT

- NOTES:
1. SEE BLOCK DIAGRAM COVERING 6684-25 CONN BLK IN FIG. 3.
 2. TERMINATE DEDICATED LEADS PER FIG. 4.

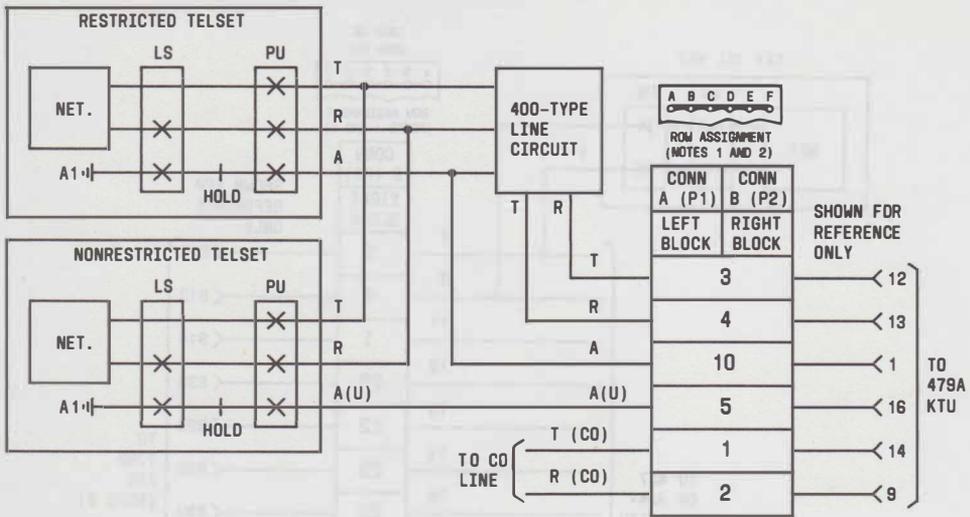
Fig. 29—Nondedicated Lead Connections for 471A KTU (Battery Reversal Toll Restriction Circuit) in 110A Apparatus Mounting



NOTES:

1. SEE BLOCK DIAGRAM COVERING 6684-25 CONN BLK IN FIG. 3.
2. TERMINATE DEDICATED LEADS PER FIG. 4.
3. REQUIRES USE OF BOTH A AND B CONNECTORS.
4. DIODE (400J, LOCALLY PROVIDED) MUST BE FURNISHED IN SYSTEM EQUIPPED WITH DIAL TONE.

Fig. 30—Nondedicated Lead Connections for 478B KTU (TOUCH-TONE Adapter Circuit) in 110A Apparatus Mounting



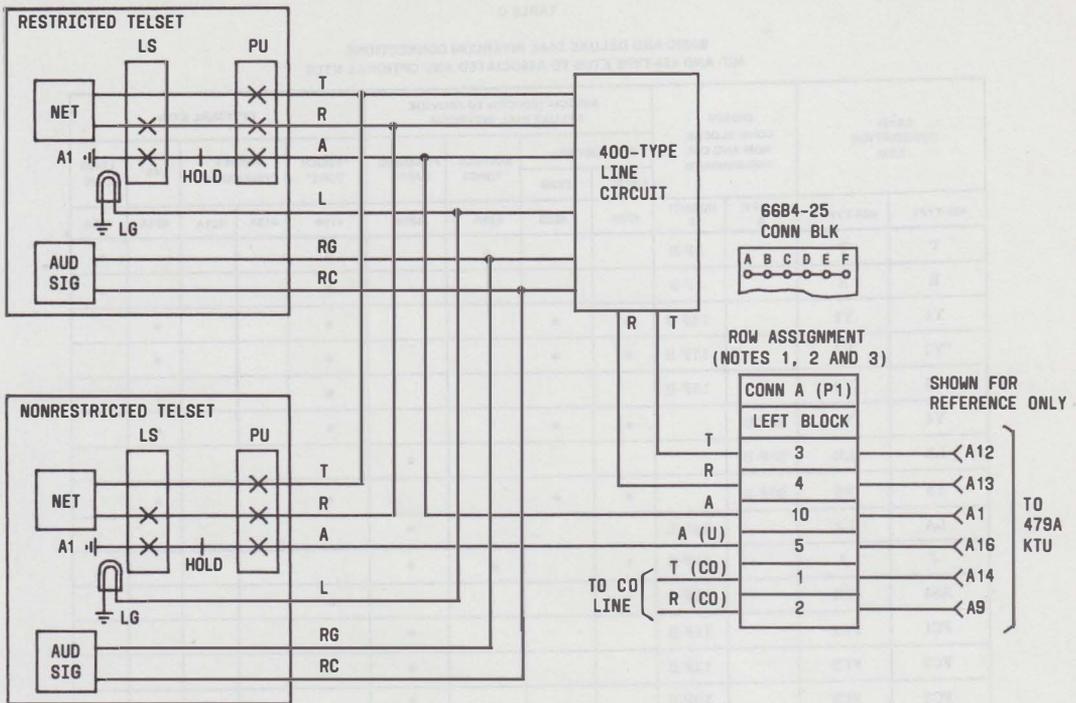
OPTIONS:

UNIT	OPT	FEATURE	PLACE KS-CONN (NOTE 3)
479A KTU	W	TOLL ALLOWED	G - H
	X	TOLL DENIED	H - J
	Y	LOOP START	B - C E - F
	Z	GROUND START	A - B D - E
107A CM	V	2-DIGIT ABSORPTION	A - B
		1ST DIGIT	(NOTE 4)
		2ND DIGIT	
		ABSORB REPEATEDLY AND/OR ABSORB ONLY ONCE	(NOTE 5)
107B CM (NOTE 7)		NPA CODE RESTRICTION	(NOTE 6)

NOTES:

- SEE BLOCK DIAGRAM COVERING 66B4-25 CONN BLOCK IN FIG. 3.
- TERMINATE DEDICATED LEADS PER FIG. 4.
- PLACE KS-2129D, L1 CONNECTOR ON TERMINALS AS INDICATED.
- PLACE KS-CONN ACROSS LIKE-NUMBERED TERMINALS AS NUMBER TO BE ABSORBED:
 - 1ST DIGIT -IN OPTION FIELD AR/1
 - 2ND DIGIT -IN OPTION FIELD A/2
- REMOVE KS-CONN, IF PROVIDED, FROM TERMINALS A-B, AND PLACE KS-CONN ACROSS LIKE NUMBERED TERMINALS AS EACH NUMBER TO BE ABSORBED AS FOLLOWS:
 - REPEATEDLY -IN OPTION FIELD AR/1
 - ONLY ONCE -IN OPTION FIELD A/2
- PLACE KS-CONN ACROSS LIKE-NUMBERED TERMINALS AS NPA CODE TO BE RESTRICTED. EACH 107B CIRCUIT MODULE WILL HANDLE TWO NPA CODES.
- IF 107A IS NOT REQUIRED, TWO 107B MODULES CAN BE MOUNTED ON THE 479A KTU FOR A TOTAL OF FOUR NPA CODES.

Fig. 31—Nondedicated Lead Connections for 479A KTU (Rotary Dial Toll Restriction Circuit) in 110A Apparatus Mounting



NOTES:

1. SEE BLOCK DIAGRAM COVERING 66B4-25 CONN BLK IN FIG. 3
2. TERMINATE DEDICATED LEADS PER FIG. 4
3. THE 479A KTU REQUIRES BOTH CONNECTORS (A AND B) BUT CONNECTIONS ARE MADE VIA CONNECTOR A (P1) ON LEFT BLOCK ONLY

Fig. 32—Nondedicated Lead Connections for 498A KTU and 116A1 CM (Music-On-Hold Circuits) in 110A Apparatus Mounting

TABLE C

BASIC AND DELUXE DIAL INTERCOM CONNECTIONS
407- AND 424-TYPE KTUS TO ASSOCIATED AND OPTIONAL KTUS

LEAD DESIGNATION KTU		8884-25 CONN BLOCKS ROW AND COL ASSIGNMENTS		ASSOCIATED KTUS TO PROVIDE DELUXE DIAL INTERCOM				OPTIONAL KTUS				
				STA BUSY SEL		AUDIBLE TONES	FLASHING LAMPS	"TOUCH TONE"	PRESET CONFERENCE		DSS	LONG LINE
				UNITS	TENS				413A	421A		
407-TYPE	424-TYPE	(LEFT) A	(RIGHT) B	422B	422B	423A	425B	478B	413A	421A	421A	420A
T	T		3F-B			•		•				•
R	R		4F-B					•				•
Y1	Y1		18F-B	•	•			•			•	
Y2	Y2		17F-B	•	•			•			•	
Y3	Y3		15F-B					•			•	
Y4	Y4	28F-B		•	•			•			•	
LR	LR	28F-B					•					
Y5	Y5	29F-B		•	•			•			•	
LA	LA		24F-B				•					
J	J		31F-B	*		•	•			•		
RS1	RS1		32F-B					•				
FC1	FC1		11F-B				•					
FC2	FC2		13F-B				•					
FC3	FC3		10F-B				•					
AL1	AL1		21F-B				•					
AL2	AL2		20F-B				•					
TC	TC		29F-B				•					
D1	D1		5F-B				•					
TTG	TTG		30F-B					•				•
BR	BR		27F-B	•	•		•					
LK	LK		23F-B			•						
RH	RH		19F-B					•			•	
CG	CG		14F-B					•			•	
BY1	BY1		12F-B			•	•					
SS	SS		1F-B			•						
	LT1		27F-B	†			†					
	LT2	30F-B			†		†				†	
	TG		32F-B									
	TD		5F-B									
B(1-0)	B(1-X0)	As Assigned for Station Connection										•
R(1-0)	R(1-X0)									•		

* To 407-Type KTU Only.

† To 424-Type KTU Only.

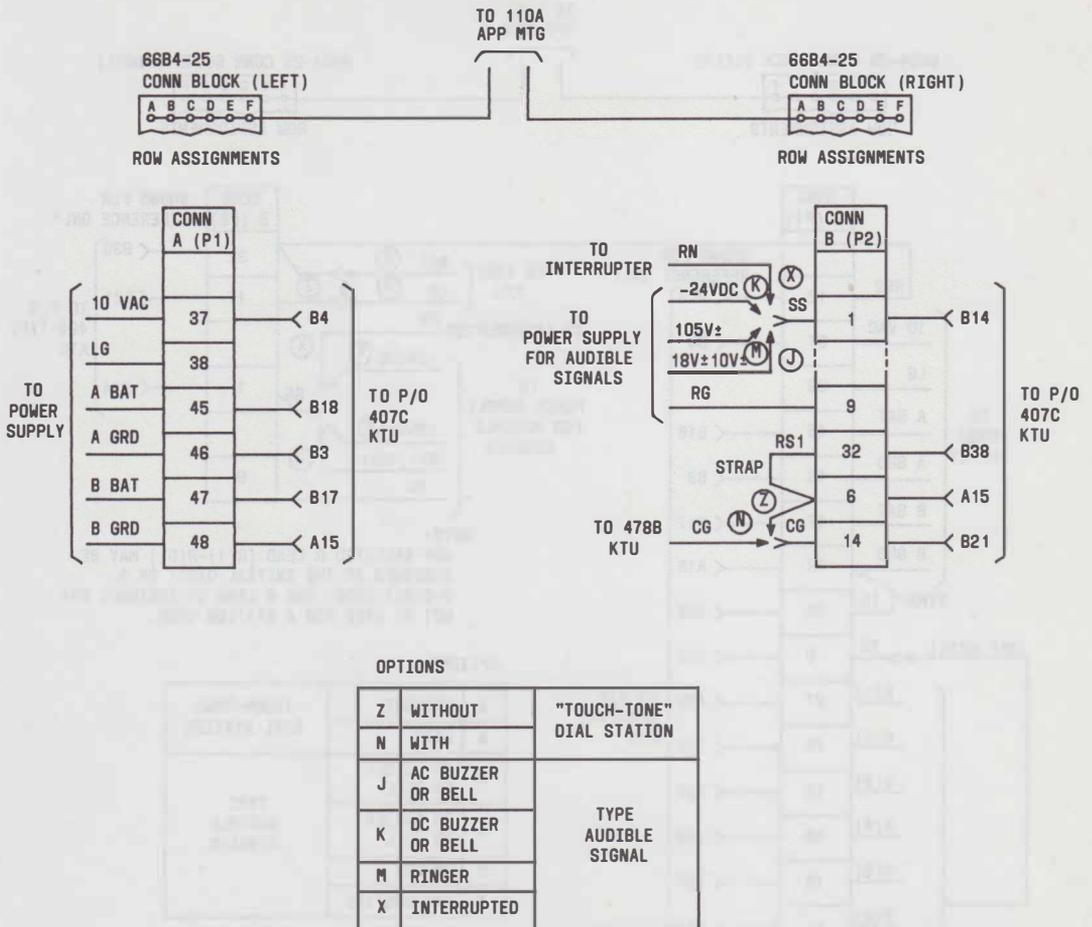


Fig. 33—Basic Dial Intercom, Strapping and Power Supply Connections for 407C KTU in 110A Apparatus Mounting

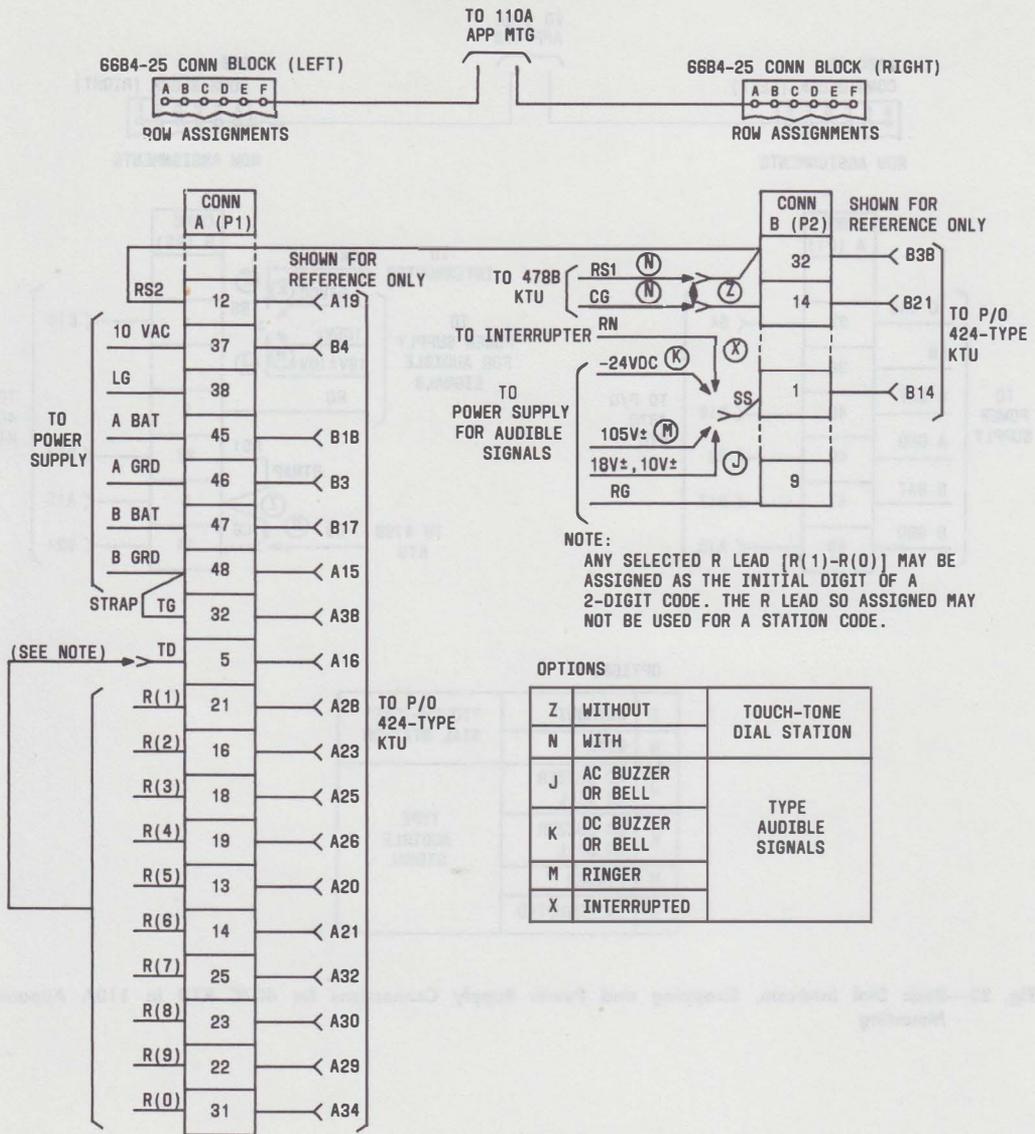
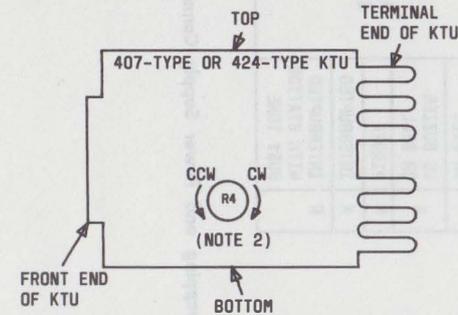
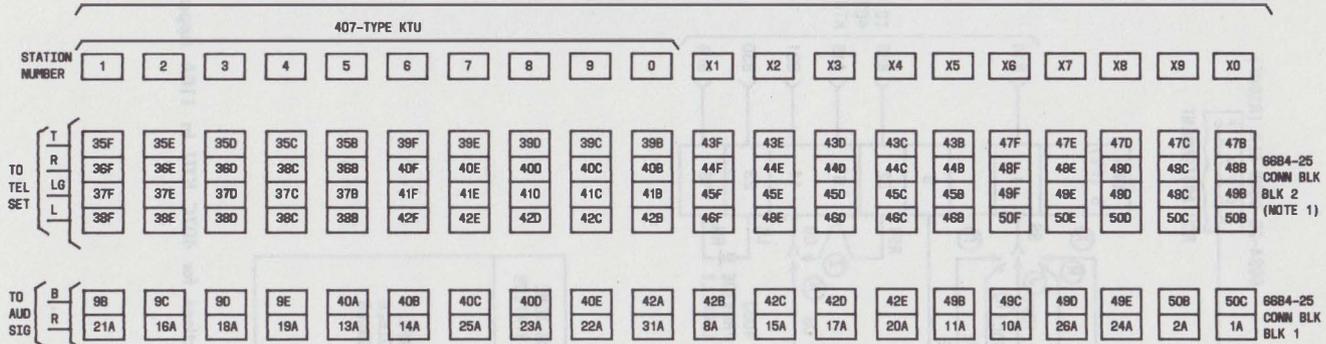


Fig. 34—Basic Dial Intercom, Strapping and Power Supply Connections for 424C KTU in 110A Apparatus Mounting

ROW AND COLUMN ASSIGNMENTS FOR STATIONS 424-TYPE KTU



NOTES:

1. WHEN MAKING STATION CONNECTIONS, RUN STRAPS (T,R,LG,L,B) ON CONN BLKS 1 AND 2 AS SHOWN IN INSET.
2. RESISTOR R4 CAN BE ADJUSTED TO PROVIDE A TIMING CYCLE FOR THE RELEASE OF RELAY B FROM 0.5 SEC TO 2.5 SEC. A TIMING CYCLE OF 1.5 SEC IS PROVIDED BY THE FACTORY. TURN KNURLED WHEEL TO FULL CCW POSITION FOR 0.5 SEC TIMEOUT AND TO FULL CW POSITION FOR 2.5 SEC TIMEOUT.

INSET: CONTINUOUS METHOD OF STRAPPING TO PROVIDE FOR STATION MULTIPLES

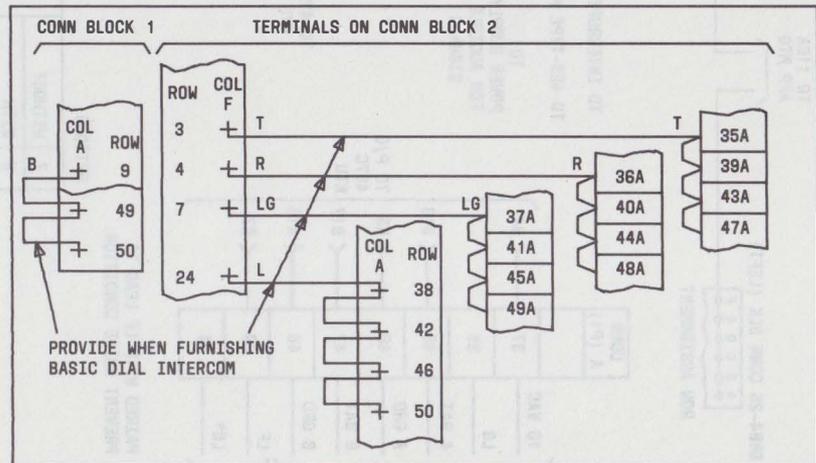
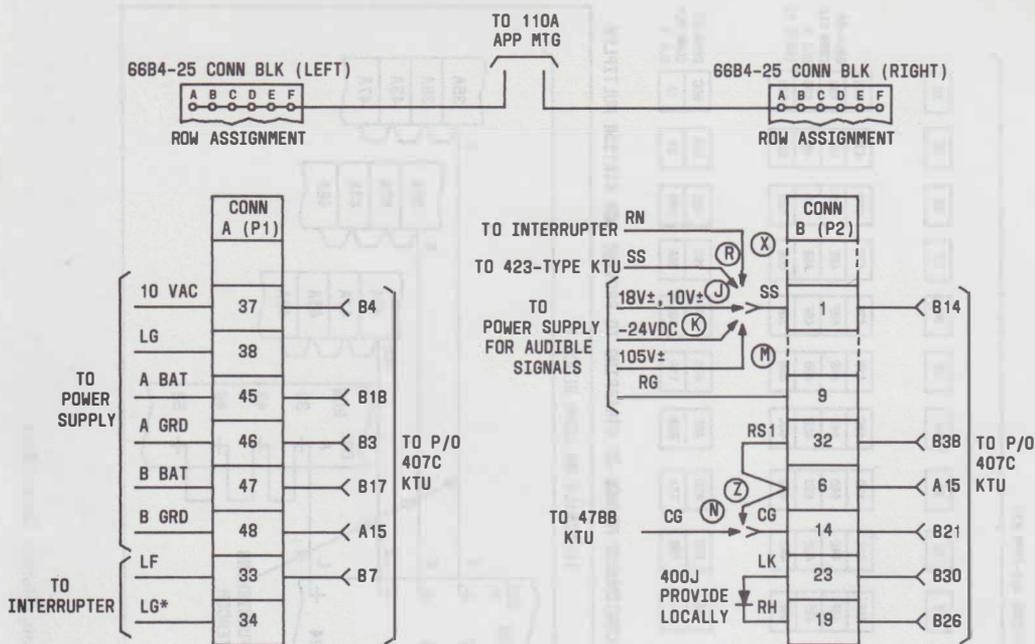


Fig. 35—Basic Dial Intercom, Station Connections



* PAIRED WITH LF LEAD TO PREVENT NOISE CONDITION.

OPTIONS

Z	WITHOUT	TOUCH-TONE DIAL STATION
N	WITH	
J	AC BUZZER OR BELL	TYPE AUDIBLE SIGNALS
K	DC BUZZER OR BELL	
M	RINGER	
X	INTERRUPTED	
R	INTERRUPTED WITH STATION BUSY TONE	

Fig. 36—Deluxe Dial Intercom, Strapping and Power Supply Connections for 407C KTU in 110A Apparatus Mounting

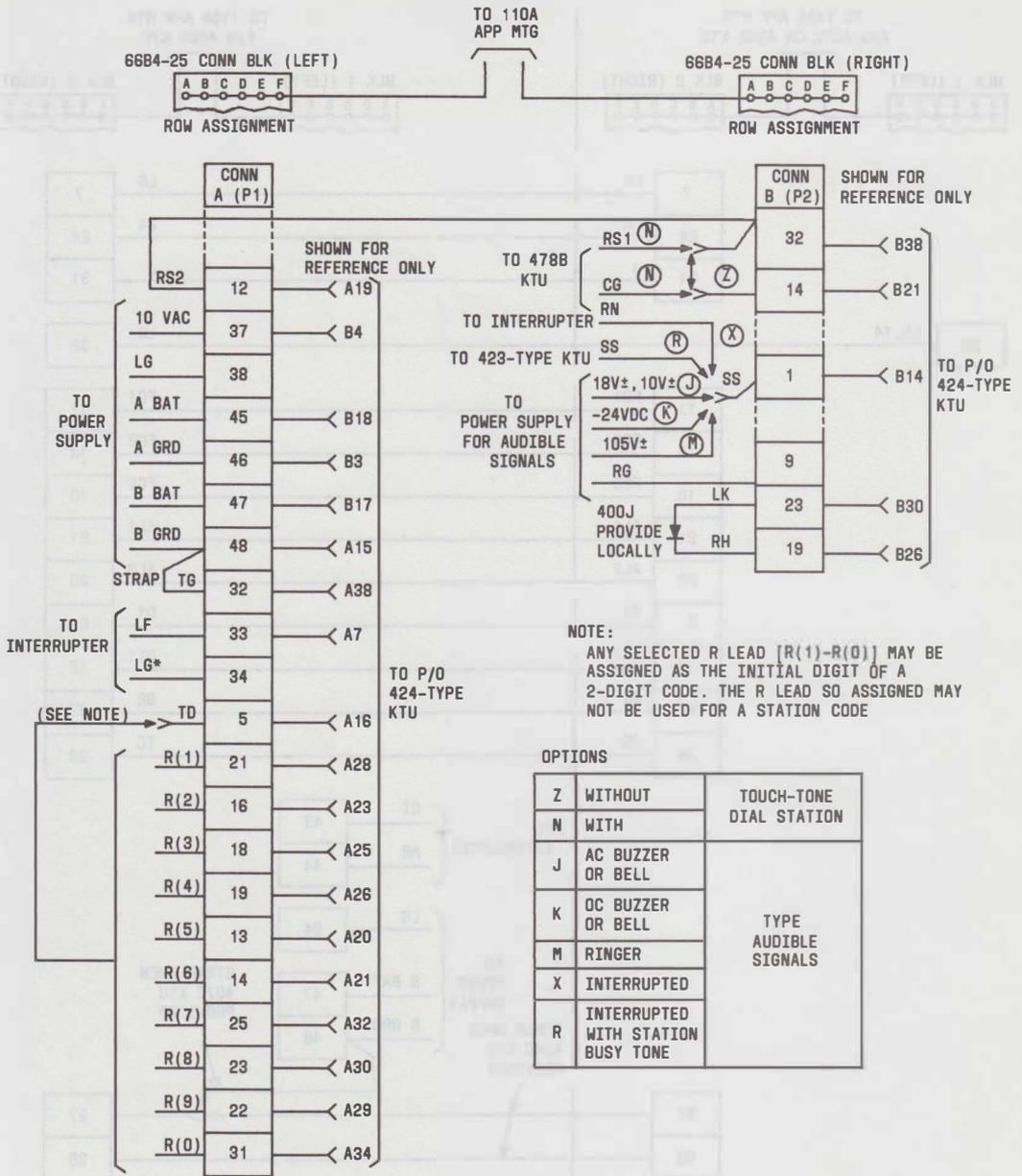


Fig. 37—Deluxe Dial Intercom, Strapping and Power Supply Connections for 424C KTU in 110A Apparatus Mounting

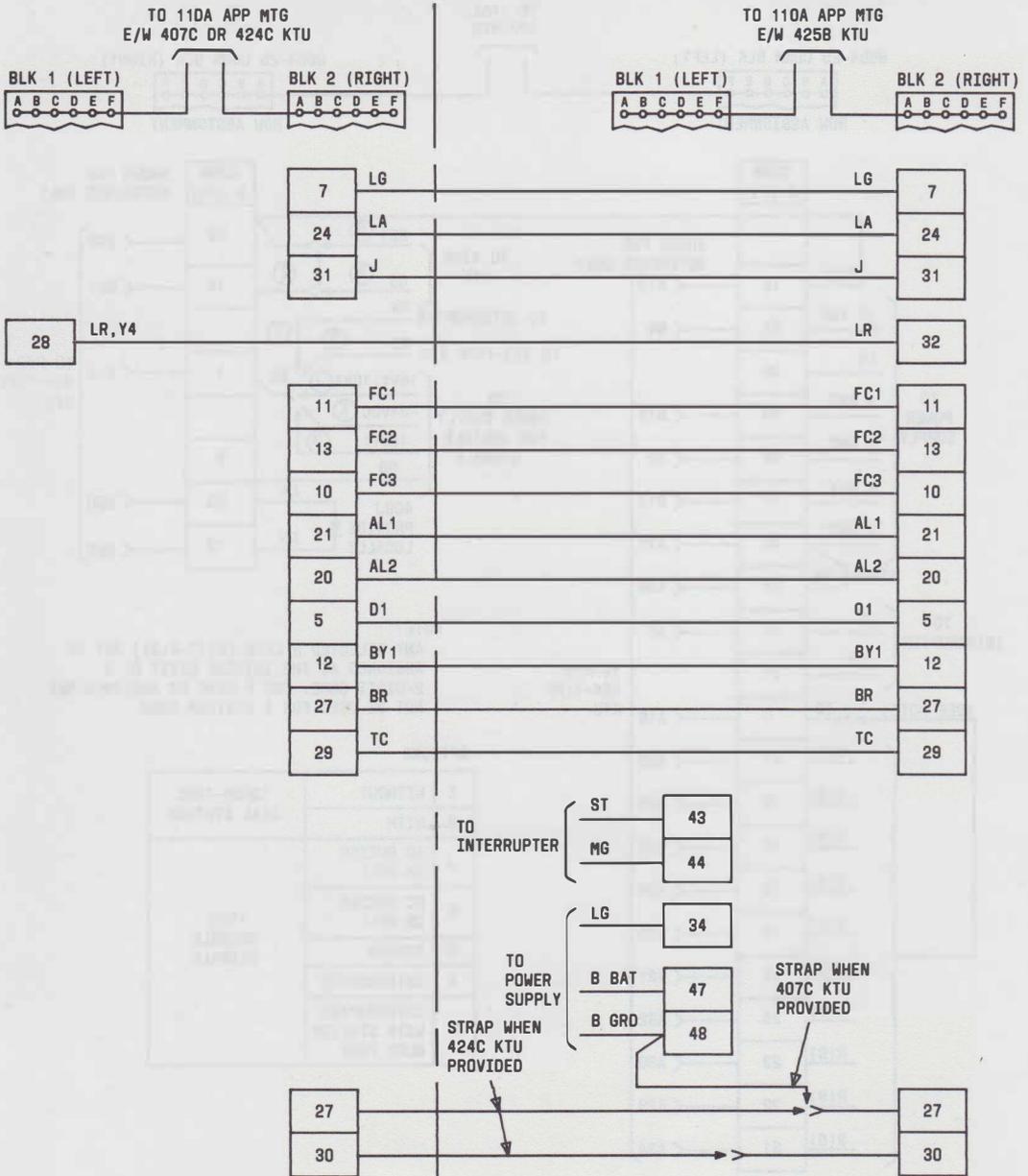
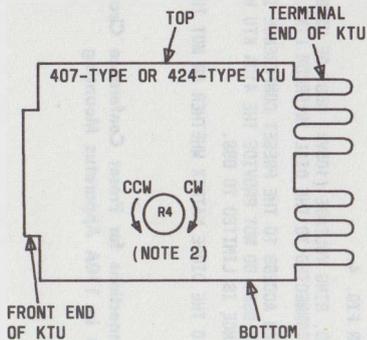


Fig. 38—Deluxe Dial Intercom, Strapping and Power Supply Connections for 425B KTU in 110A Apparatus Mounting

424-TYPE KTU ROW AND COLUMN ASSIGNMENTS FOR STATIONS

		407-TYPE KTU																				
STATION NUMBER		1	2	3	4	5	6	7	8	9	0	X1	X2	X3	X4	X5	X6	X7	X8	X9	X0	
TO TEL SET	T	35F	35E	35D	35C	38B	39F	39E	39D	39C	39B	43F	43E	43D	43C	43B	47F	47E	47D	47C	47B	6884-25 CONN BLK BLK 2 (NOTE 1) 407C/424C KTU
	R	35F	36E	36D	36C	25A	40F	40E	40D	40C	40B	44F	44E	44D	44C	44B	48F	48E	48D	48C	48B	
TO TEL SET	LG	34A	34D	34D	34D	34E	36A	36B	36D	36D	36E	38A	38B	38C	38D	39E	49B	40C	49D	49E	50B	6884-25 CONN BLK BLK 1 425B KTU
	L	21A	18A	18A	18A	13A	14A	25A	23A	23A	31A	8A	15A	17A	23A	11A	10A	28A	24A	2A	1A	
TO AUD SIG	B	9B	9C	9C	9E	40A	40B	40C	40C	40C	42A	42E	42C	42D	40C	48B	48C	48D	49E	50B	50C	6884-25 CONN BLK BLK 1 407C/424C KTU
	R	21A	18A	18A	19A	13A	14A	28A	28A	28A	31A	2A	15A	17A	28A	11A	10A	26A	24A	2A	1A	



NOTES:

1. WHEN MAKING STATION CONNECTIONS, RUN STRAPS (T, R, B, LG) ON CONN BLKS 1 AND 2 AS SHOWN IN INSET
2. RESISTOR R4 CAN BE ADJUSTED TO PROVIDE A TIMING CYCLE FOR THE RELEASE OF RELAY B FROM 0.5 SEC TO 2.5 SEC. A TIMING CYCLE OF 1.5 SEC IS PROVIDED BY THE FACTORY. TURN KNURLED WHEEL TO FULL CCW POSITION FOR 0.5 SEC TIMEOUT AND TO FULL CW POSITION FOR 2.5 SEC TIMEOUT

INSET

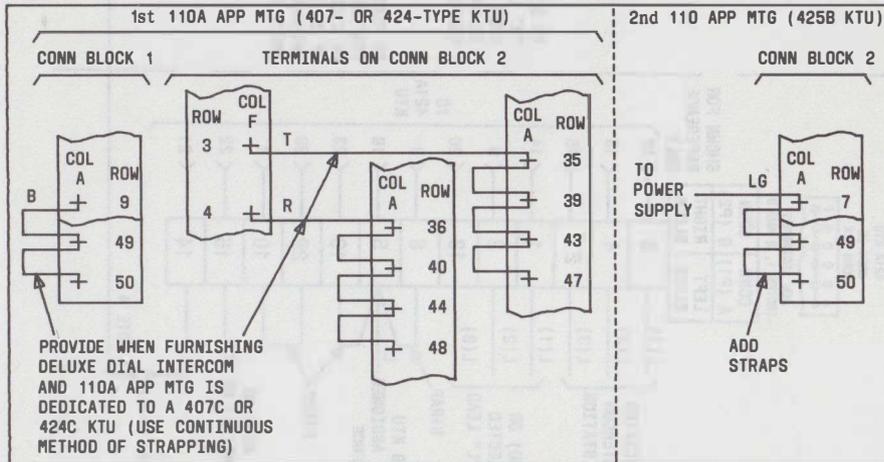
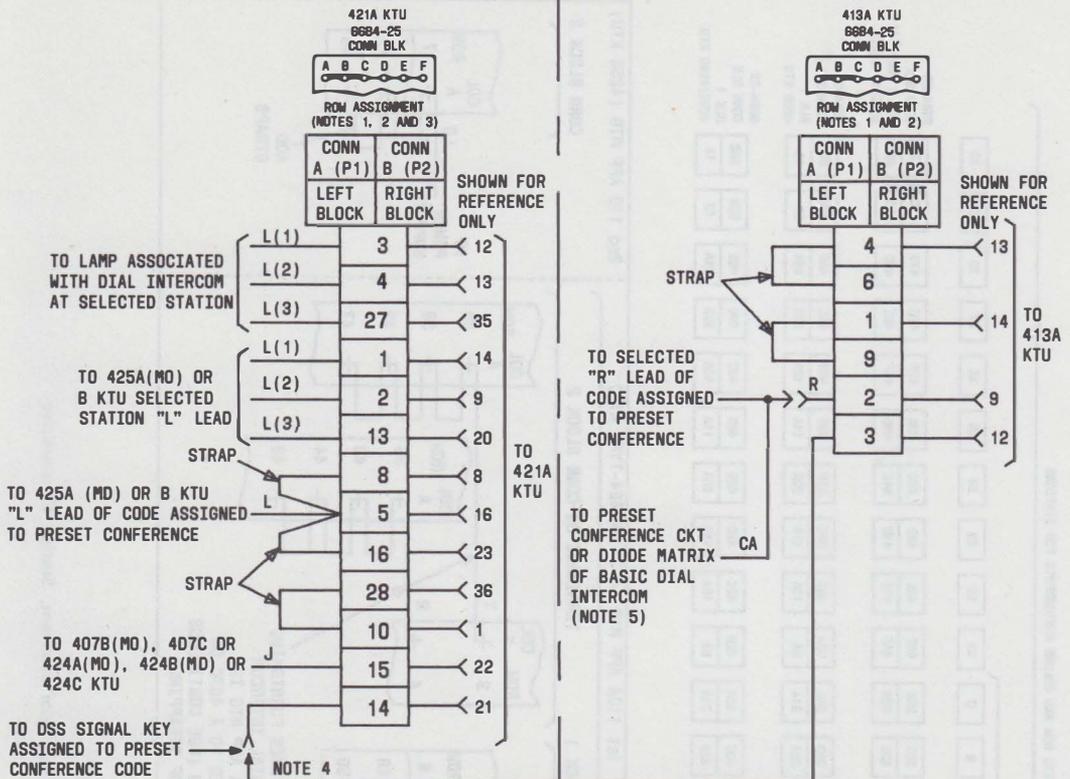


Fig. 39—Deluxe Dial Intercom, Station Connections



OPTION STRAPPING ON 421A KTU
OPTION BLK

NOTES:

1. SEE BLOCK DIAGRAM COVERING 6684-25 CONN BLK IN FIG. 3.
2. TERMINATE DEDICATED LEADS PER FIG. 4.
3. WHEN THIS CIRCUIT IS PROVIDED, RING VOLTAGE (105V±) MUST BE USED TO OPERATE THE AUDIBLE SIGNALS CONNECTED TO THE DIAL INTERCOM LINE.
4. PROVIDE THE 413A KTU ONLY WHEN ACCESS TO THE PRESET CONFERENCE IS BY DIAL CODE OR BY DIAL CODE AND DSS. DO NOT PROVIDE THE 413A KTU WHEN ACCESS TO THE PRESET CONFERENCE IS LIMITED TO OSS.
5. THE "CA" LEAD MUST CONNECT TO THE DIODE MATRIX WHETHER OR NOT THE 413A KTU IS PROVIDED.

OPTION	FEATURE	STRAP TERMINALS
W	PRESET CONFERENCE	1 TO 2, 7 TO 8

Fig. 40—Nondedicated Lead Connections for Preset Conference Circuit of a Deluxe Dial Intercom Line (421A KTU and a 413A KTU) in 110A Apparatus Mounting