

**650A KEY SERVICE UNIT**  
**1P2 KEY TELEPHONE SYSTEM**  
**ONE LINE AND 6-STATION SINGLE LINK INTERCOM**  
**CONNECTIONS**

**1. GENERAL**

**1.01** This section is reissued to provide additional information for one CO, Centrex, or PBX line and 6-station single link intercom used for PICTUREPHONE® service.

**1.02** Fig. 1 is a general diagram of 66B3-50 connecting blocks and connector field in the 650A Key Service Unit (KSU) with related equipment (66B4-25 connecting blocks) which must be mounted external to the KSU.

**1.03** Add-on conference may be provided between the CO or PBX PICTUREPHONE line and the PICTUREPHONE intercom line by mounting a 417A KTU in a 69D apparatus mounting (or equivalent) external to the KSU (Fig. 7). Add-on conference may be provided between the PICTUREPHONE line and some external line by installing a 417A KTU in the KSU and internal strapping on the 66B3-50 connecting blocks.

**1.04** Basic single link intercom service requires one 605A KTU for each three stations. Example 1 Fig. 3 shows strapping of two 605A KTUs to provide station codes 1-6. Video-audio station bridging may be provided in two arrangements. One arrangement uses two circuits of a 605A KTU and internal KSU wiring option T. (Example 2 Fig. 3). When this arrangement is used, the number of station codes available is reduced by one for each audio station bridged. The second arrangement uses an externally mounted 421A KTU per station code equipped for video-audio station bridging, and internal option W. A 69D apparatus mounting (or equivalent) must be provided for mounting the 421A KTU(s). No station codes are sacrificed using this arrangement. Either of the two arrangements may be selected for any one station code.

*Note:* Option W is always required for the 1-line, 6-station arrangement as covered in this section.

**1.05** Conferencing of Line 1 and the intercom conferenced may be provided in two ways. One arrangement uses an externally mounted 417A KTU mounted in a 69D apparatus mounting (or equivalent) and internal KSU wiring options W, G, and N. This arrangement uses two circuits of a 605A KTU per station code which reduces the number of available codes by one. The second arrangement uses an externally mounted 417A KTU and an externally mounted 421A KTU per station equipped for conferencing. A 69D apparatus mounting (or equivalent) must be provided for each KTU. No station codes are sacrificed when using this arrangement. Either of the two arrangements may be selected for each station code. Since only one single group CO or PBX line is provided in the 650A KSU in the 1-line, 6-station configuration, the line 1 and intercom conferenced feature can be provided only once with that line. An audio station may be bridged to any controlling station without loss of additional station codes.

*Note:* Video and audio A leads must be isolated from each other in single group and single link intercom service.

*Note:* Video pairs for more than one line appearing at a station should be bridged at the KTU equipment and extended only once to the 1A service unit of that station.

**1.06** For one PICTUREPHONE line service, the KSU must be equipped with one 601A KTU, which contains two video switches. Since only one line is connected, the second switch of this 601A KTU is not used. This video switch, when operated, will connect the video portion of a PICTUREPHONE line to a video station. This is the highest priority station on the line. When

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operated, this video switch will disconnect the video portion of the line from a lower priority video station, if provided, via another video switch. Therefore, a chain of video switches establishes a priority arrangement among video stations having access to the line. This arrangement is called single group line service.

**1.07** An option strap must be installed in the last video switch in such a chain to provide video idle line termination. When operated, any video switch in the chain will remove the line termination. If only one video station will have access to a line, then the line termination straps are to be placed at the 601A KTU in the KSU. All additional 601A KTUs, if provided, must be mounted external to the KSU in 69D apparatus mountings, or equivalent (Fig. 9).

**1.08** Optional lower priority intercom video stations may be provided using an externally mounted 421A KTU (in place of 601A KTU) in a 69D apparatus mounting or equivalent (Fig. 8). The highest priority and each lower priority station must be equipped with a separate 421A KTU.

**1.09** A 607A KTU must be provided in the outgoing video pair (VOT/VOR) of the 1A service unit for single group line service when the distance between the 1A service unit and the KSU is greater than:

- 500 ft. with 252A switchboard cable (24 gauge)
- 425 ft. with D-type inside wiring cable (24 gauge)
- 615 ft. with D-type inside wiring cable (22 gauge).

**Note:** At this time, no provision is made for equalization of intercom *only* video station loops. Therefore, on intercom only stations, the externally mounted 607A KTU will not be used, and the above distances should be treated as a maximum. For cabling distance other than shown see Section 518-800-110.

The 607A KTU must be installed in a 69B apparatus mounting or equivalent (Fig. 10) near the KSU. The 877-type network in the 1A service unit at the station must also be removed and replaced by

a 939 type equalizer to provide proper transmission in the incoming (VIT/VIR) video pairs.

**1.10** The distance between the 650A KSU and the 66-type station connecting blocks must not exceed 25 feet. All video, audio, lamp and ringing leads including cross connections must be twisted pairs. The station loop shall not exceed 50 ohms (1000 feet of 24-gauge D-inside wire) to the audio station, or video station when the external 607A KTU is used.

**1.11** The 51C1 power unit in the KSU is not to be used in this arrangement to power KTUs mounted external to the KSU. A 19-type power unit (or equivalent) mounted external to the KSU may be used to power externally mounted KTUs.

**1.12** Refer to CD- and SD-69606-01 and CD- and SD-69621-01 for additional information.

**1.13** Alignment of the 606A and 607A KTUs are covered in Section 518-800-510.

**1.14** Video station connections are covered in Section 518-800-401. Connect audio stations using the connection section covering the telephone set involved.

**1.15** Refer to Section 518-010-105 for proper grounding procedures.

**1.16** Table A shows Features and Options (including externally mounted KTUs).

## 2. CONNECTIONS

**2.01** Option and service straps are provided in the field by strapping at the 66B3-50 connecting blocks in the KSU (Fig. 3 and Table B) and appropriate connections at external connecting blocks.

**Note:** All key telephone units requiring option straps must be strapped by field forces. Strap wires must be skinned.

**2.02** For option straps required on the 600A KTU and audible signaling options to be made by connections external to the KSU, see Fig. 5 and intercom audible signaling arrangements as shown in Fig. 6.

**2.03** Video idle line terminations (options M, N) are provided by strapping on the 601A KTU as follows:

Option N—when a PICTUREPHONE line serves a single video station

Option M—on that 601A KTU serving the lowest priority video station when a PICTUREPHONE line serves more than one station

Options (M, N) are provided as follows:

Circuit 1—strap 7 to 8 and 9 to 10

Circuit 2—strap 1 to 2 and 5 to 6 (not required on 601A KTU installed in KSU).

**2.04** Connections to an external 51-type power unit using the 15-foot wiring harness supplied with the 650A1 KSU are shown in Fig. 4.

**2.05** The internally mounted 422B KTU must have only the following straps installed on TB1:

1 to 2

3 to 4

5 to 6

**2.06** The 423A KTU must have only terminal 1 to 2 (TB1) strapped.

**2.07** *Connection Index*

Table B—6-Station Intercom with Add-on Conference and Video/Audio Station Bridging, AB-, AS-, LK-, BL-, R-, and RC- (Basic Service) Lead Strapping on 66B3-50 Connecting Blocks.

Fig. 2—One CO, Centrex or PBX Line and 6-Station Single Link Intercom, Connections

Fig. 3—Option and Service Straps on 66B3-50 Connecting Blocks in KSU

Fig. 4—Internal and External Power Connections to 66B3-50 Connecting Block in KSU

Fig. 5—Audible Signaling Options Including a Typical Connection Arrangement

Fig. 6—Intercom Audible Signal Connections.

Fig. 7—Connections for Externally Mounted 417A KTU to Provide Add-on Conference Between CO or PBX Line and Intercom Line (Including Audio Station Connections)

Fig. 8—Video-Audio Station Bridging (Using Externally Mounted 421A KTUs) Connections.

Fig. 9—Connections For Externally Mounted 601A KTU (One Video Line to Two Lower Priority Video Stations)

Fig. 10—Connections for Externally Mounted 607A KTU (Control Cable Equalizer)

Fig. 11—Station Busy Tone (Using an Externally Mounted 422B KTU) Connections (Read Notes)

Fig. 12—Signal Key Preset Audio Only Conference (Using Externally Mounted 404A and 421A KTUs) Connections

Fig. 13—Dial Selected Preset Audio Only Conference (Using Externally Mounted 404A, 413A and 421A KTUs) Connections

Fig. 14—Busy Video Station Audible Cutoff (BVSAC) for One Station (Using Externally Mounted 421A KTU) Connections

Fig. 15—Busy Video Station Audible Cutoff (BVSAC) for More Than One Station (Using Externally Mounted 421A and 422B KTUs) Connections

**TABLE A**  
**FEATURES AND OPTIONS**  
**(INCLUDING EXTERNALLY MOUNTED KTU'S)**

FEATURES	NOTES	OPTIONS			EXTERNAL KTU'S REQ'D (NOTE 1)	
		SD-69605-01	SD-69606-01	SD-69621-01		
Single Station Line Termination (601A KTU)		N				
Lowest Priority Station Multiple Sta Arrangement (Externally Mounted 601A KTU)		M				
1-Line 6-Sta Inter- com	Line 1 Not Conferenced With External Line			W,G		
	Line 1 and External Line Conferenced			W,F		
	Line 1 and Intercom Line Conferenced	3,4,		V	W,G,N	417A (1)
		3,5,6		Q	W,G	417A (1) 421A (1)
	Video-Audio Station Bridging	4		Z	W,T	
		2,5		R	W	421A
	Station Busy Tone		(Note 108)	W,S	422B (1)	
	Preset Audio Only Conf	Signal Key		X,Y	W,R	421A (3) 404A (1)
		Dial Selective		W,Y	W,Q	421A (2) 413A (1) 404A (1)
	Busy Video Sta Audible Cutoff	One Station		T	W,M	421A (1)
		More Than One Station		S	W,K	421A (1) 422 (B1)
Lower Priority Video Station	2		N	W	421A	
Power	Internal			J		
	External			H		

**Notes:**

1. KTUs must be mounted external to the KSU in a 69-type apparatus mounting or equivalent. A 19-type power unit (or equivalent) is required to supply power to these units.
2. For Intercom, one 421A KTU is required for each bridged video station in priority arrangement, including the highest priority station.
3. When a conference circuit, (417A KTU), which is controlled by a nonlocking key (with control at one station) is used in a 1P2 Key Telephone System, always strap terminal 6 to 10 (option X) and terminal 1 to 2 (option Z) as shown in SD-69651-01.
4. Uses two circuits of a 605A KTU per station code, reducing available station codes by 1.
5. No loss of available codes.
6. For this arrangement use combination of Fig. 7 and 8.

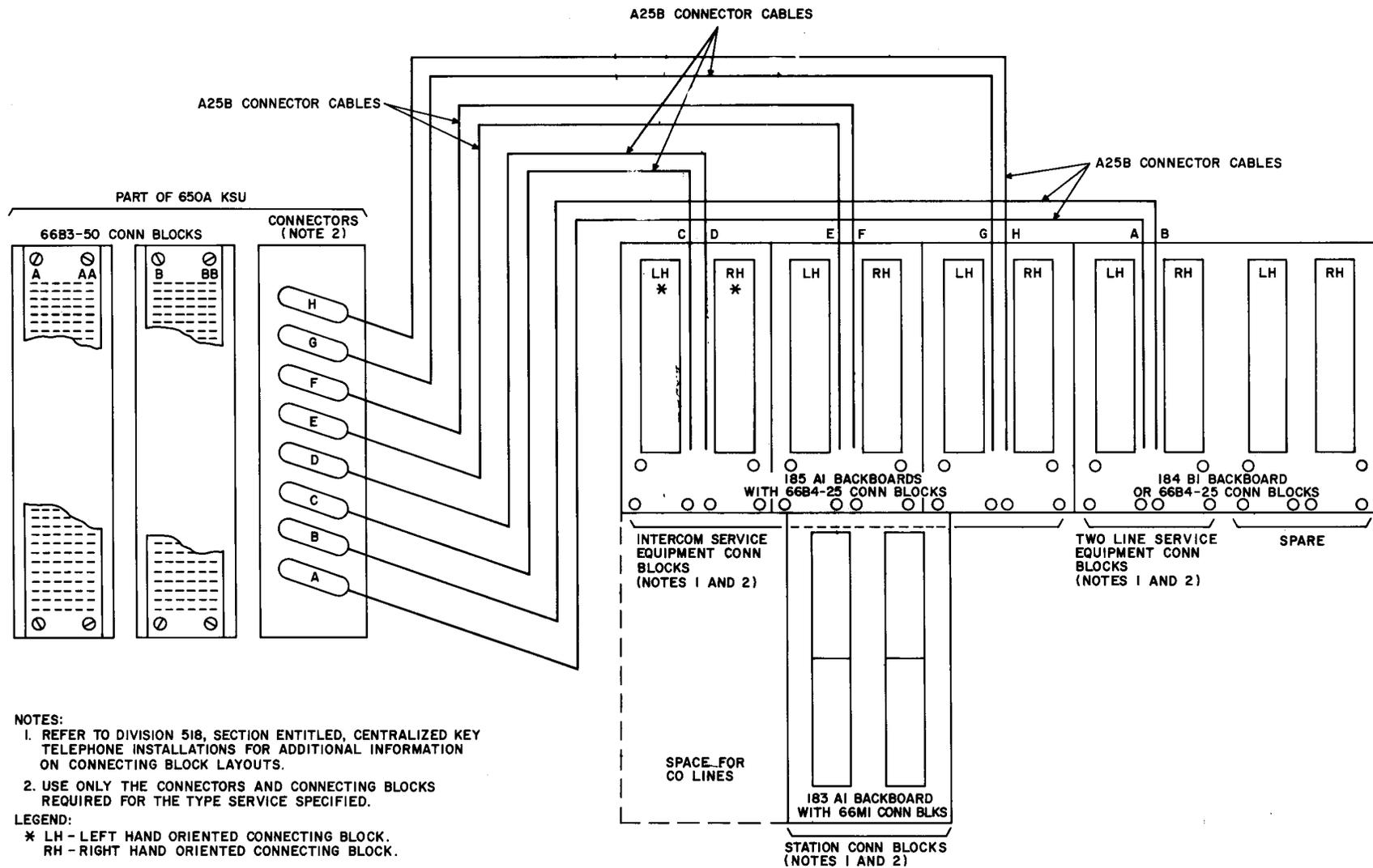


Fig. 1—General Diagram of 66B3-50 Connecting Blocks and Connector Field to Equipment Connecting Blocks

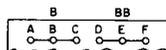
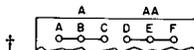
**TABLE B**  
**6-STATION INTERCOM WITH ADD-ON CONFERENCE AND VIDEO/AUDIO STATION BRIDGING**  
 (NOTES 1, 2, 3 AND 4) AB-AS-LK-BL-R- AND RC-LEAD STRAPPING)\* (BASIC SERVICE)  
 ON 66-B3-50 CONNECTING BLOCKS

SIX VIDEO STATIONS (CODES 1-6) (NOTE 4)						FIVE VIDEO STATIONS (CODES 1-5) CODE 1 VIDEO-AUDIO STA BRIDGING (OPTION T) AND/ OR CONTROL STA FOR AOC (OPTION N)					
STA CODES		STRAP		LEAD DESIG		STA CODES		STRAP		LEAD DESIG	
VIDEO	AUDIO	CONN BLK A †		604A KTU	605A KUT‡	VIDEO	AUDIO	CONN BLK A †		604A KTU	605A KUT‡
		FROM	TO					FROM	TO		
1	-	16	4	AS1	AB1 (1)	1	-	16	4	AB1	AB1 (1)
2	-	17	5	AS2	AB2 (1)	2	-	17	5	AS2	AB2 (1)
3	-	18	6	AS3	AB3 (1)	3	-	18	6	AS3	AB3 (1)
4	-	19	7	AS4	AB1 (2)	4	-	19	7	AS4	AB1 (2)
5	-	20	8	AS5	AB2 (2)	5	-	20	8	AS5	AB2 (2)
6	-	21	9	AS6	AB3 (2)	-	1	16	9	AS1	AB3 (2)
		CONN BLK AA †						CONN BLK AA †			
1	-	1	11	LK1	LK1 (1)	1	-	1	11	LK1	LK1 (1)
2	-	2	12	LK2	LK2 (1)	2	-	2	12	LK2	LK2 (1)
3	-	3	13	LK3	LK3 (1)	3	-	3	13	LK3	LK3 (1)
4	-	4	14	LK4	LK1 (2)	4	-	4	14	LK4	LK1 (2)
5	-	5	15	LK5	LK2 (2)	5	-	5	15	LK5	LK2 (2)
6	-	6	16	LK6	LK3 (2)	-	1	1	16	LK1	LK3 (2)
		CONN BLK B †		422B KTU	605A KTU			CONN BLK B †		422B KTU	605A KTU
1	-	13	1	BL1	BL1 (1)	1	-	13	1	BL1	BL1 (1)
2	-	14	2	BL2	BL2 (1)	2	-	14	2	BL2	BL2 (1)
3	-	15	3	BL3	BL3 (1)	3	-	15	3	BL3	BL3 (1)
4	-	16	4	BL4	BL1 (2)	4	-	16	4	BL4	BL1 (2)
5	-	17	5	BL5	BL2 (2)	5	-	17	5	BL5	BL2 (2)
6	-	18	6	BL6	BL3 (2)	-	1	13	6	BL1	BL3 (2)
		CONN BLK B †		407B KTU	605A KTU			CONN BLK B †		407B KTU	605A KTU
1	-	41	27	R1	RC1 (1)	1	-	41	27	R1	RC1 (1)
2	-	42	28	R2	RC2 (1)	2	-	42	28	R2	RC2 (1)
3	-	43	29	R3	RC3 (1)	3	-	43	29	R3	RC3 (1)
4	-	44	30	R4	RC1 (2)	4	-	44	30	R4	RC1 (2)
5	-	45	31	R5	RC2 (2)	5	-	45	31	R5	RC2 (2)
6	-	46	32	R6	RC3 (2)	-	1	41	32	R1	RC3 (2)

**TABLE B (Cont)**  
**STRAPPING REQUIRED FOR ONE CO OR PBX VIDEO LINE**  
**ASSOCIATED WITH 6-STATION INTERCOM**

LEAD DESIG	CONN BLK A †		LEAD DESIG	CONN BLK AA †		LEAD DESIG	CONN BLK B †	
	FROM	TO		FROM	TO		FROM	TO
VIR	1	3	R	31	33	BAT B	25	26
RLB	36	37	T	35	36	CG	39	40
SYC	39	40	SS-RN	43	44			
VOT	43	44	GV	47	48			
VIRI	46	47						
VORI	50				49			

\* AB = A lead for video station; AS = A lead for audio station.



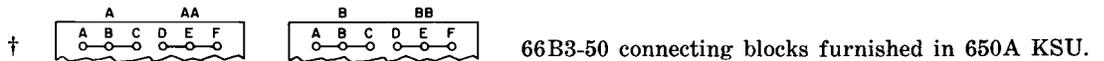
† 66B3-50 connecting blocks furnished in 650A KSU.

‡ Number in parenthesis indicates which 605A KTU is used.

TABLE B (Cont)

FOUR VIDEO STATIONS (CODES 1-4)						THREE VIDEO STATIONS (CODES 1-3)					
CODE 1 OR CODE 2		VIDEO-AUDIO STA BRIDGING (OPTION T) AND/OR CONTROL STA FOR AOC (OPTION N)				CODE 1, CODE 2, CODE 3		VIDEO-AUDIO STA BRIDGING (OPTION T) AND/OR CONTROL STA FOR AOC (OPTION N)			
STA CODES		STRAP		LEAD DESIG		STA CODES		STRAP		LEAD DESIG	
VIDEO	AUDIO	CONN BLK A †		604A KTU	605A KTU‡	VIDEO	AUDIO	CONN BLK A †		604A KTU	605A KTU‡
		FROM	TO					FROM	TO		
1	-	26	4	AB1	AB1(1)	1	-	26	4	AB1	AB1(1)
2	-	27	5	AB2	AB2(1)	2	-	27	5	AB2	AB2(1)
3	-	18	6	AS3	AB3(1)	3	-	28	6	AB3	AB3(1)
4	-	19	7	AS4	AB1(2)	-	3	18	7	AS3	AB1(2)
-	2	17	8	AS2	AB2(2)	-	2	17	8	AS2	AB2(2)
-	1	16	9	AS1	AB3(2)	-	1	16	9	AS1	AB3(2)
		CONN BLK AA †						CONN BLK AA †			
1	-	1	11	LK1	LK1(1)	1	-	1	11	LK1	LK1(1)
2	-	2	12	LK2	LK2(1)	2	-	2	12	LK2	LK2(1)
3	-	3	13	LK3	LK3(1)	3	-	3	13	LK3	LK3(1)
4	-	4	14	LK4	LK1(2)	-	3	3	14	LK3	LK1(2)
-	2	2	15	LK2	LK2(2)	-	2	2	15	LK2	LK2(2)
-	1	1	16	LK1	LK3(2)	-	1	1	16	LK1	LK3(2)
		CONN BLK B †		422B KTU	605A KTU			CONN BLK B †		422B KTU	605A KTU
1	-	13	1	BL1	BL1(1)	1	-	13	1	BL1	BL1(1)
2	-	14	2	BL2	BL2(1)	2	-	14	2	BL2	BL2(1)
3	-	15	3	BL3	BL3(1)	3	-	15	3	BL3	BL3(1)
4	-	16	4	BL4	BL1(2)	-	3	15	4	BL3	BL1(2)
-	2	14	5	BL2	BL2(2)	-	2	14	5	BL2	BL2(2)
-	1	13	6	BL1	BL3(2)	-	1	13	6	BL1	BL3(2)
		CONN BLK B †		407B KTU	605A KTU			CONN BLK B †		407B KTU	605A KTU
1	-	41	27	R1	RC1(1)	1	-	41	27	R1	RC1(1)
2	-	42	28	R2	RC2(1)	2	-	42	28	R2	RC2(1)
3	-	43	29	R3	RC3(1)	3	-	43	29	R3	RC3(1)
4	-	44	30	R4	RC1(2)	-	3	43	30	R3	RC1(2)
-	2	42	31	R2	RC2(2)	-	2	42	31	R2	RC2(2)
-	1	41	32	R1	RC3(2)	-	1	41	32	R1	RC3(2)

\* AB = "A" lead for video station; AS = "A" lead for audio station (use with Fig. 3).



‡ Connections shown utilize four 605A KTUs (maximum capability of 12 video-audio switches). Number in parenthesis indicates which 605A KTU is used.

**Notes:**

1. Add-on conferences (option N) requires two of the three switching circuits available in a 605A KTU.
2. Bridging an audio and a video station (option T) requires two of the three switching circuits in a 605A KTU.
3. Should conditions 1 and 2 above coincide; ie, the bridged video station be selected as the controlling station for add-on conference, then the same two switching circuits will serve for both arrangements. Otherwise a third switching circuit would be required, resulting in the loss of an additional station code. If any arrangement other than shown in this table is desired, see Fig. 3 and strap as required.
4. Use strapping in this portion of Table B when 421A KTUs and 417A KTU are provided externally for video-audio bridging and add-on conference respectively.

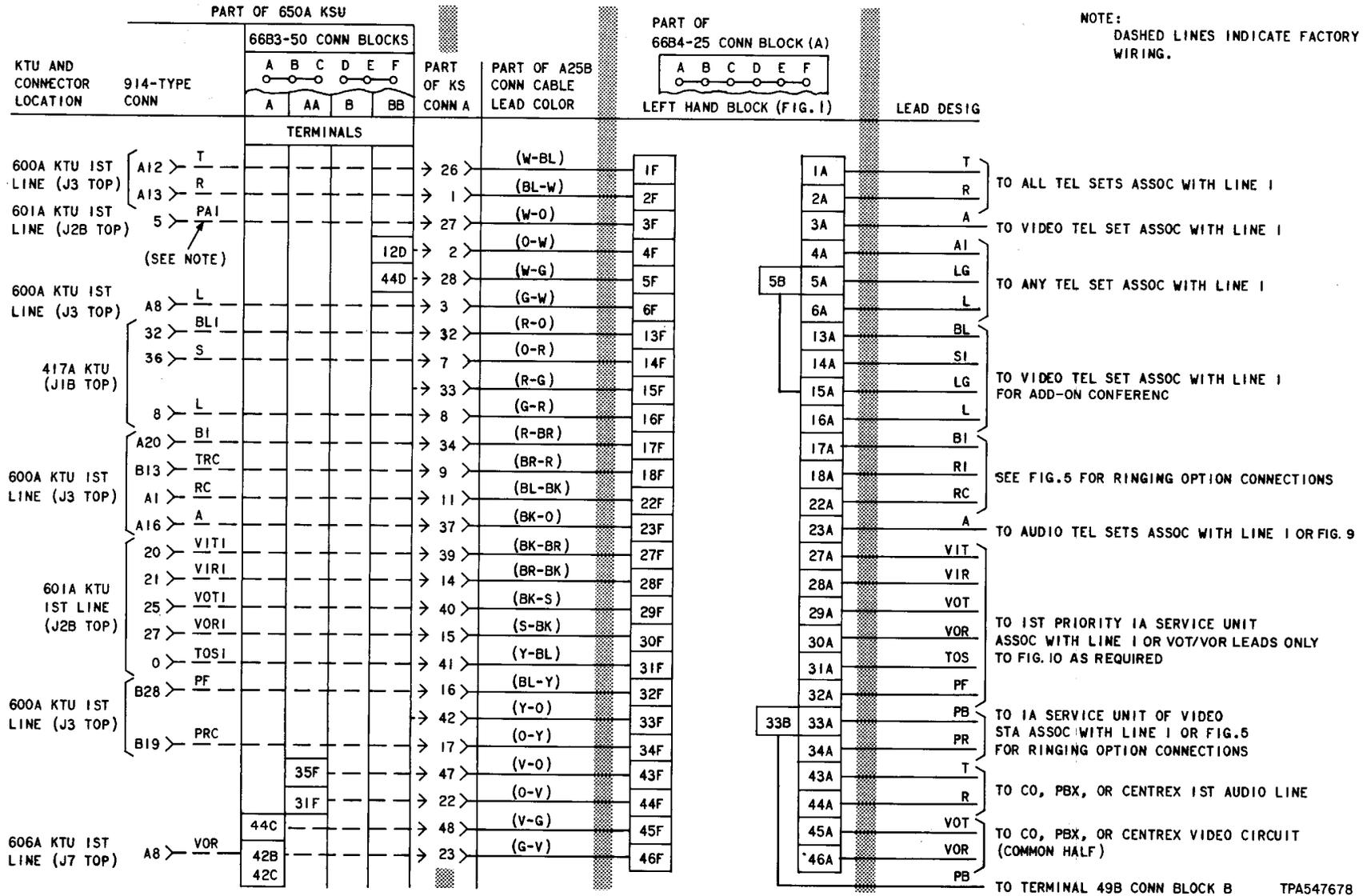


Fig. 2—One CO, Centrex or PBX Line and 6-Station Single Link Intercom, Connections (Sheet 1)

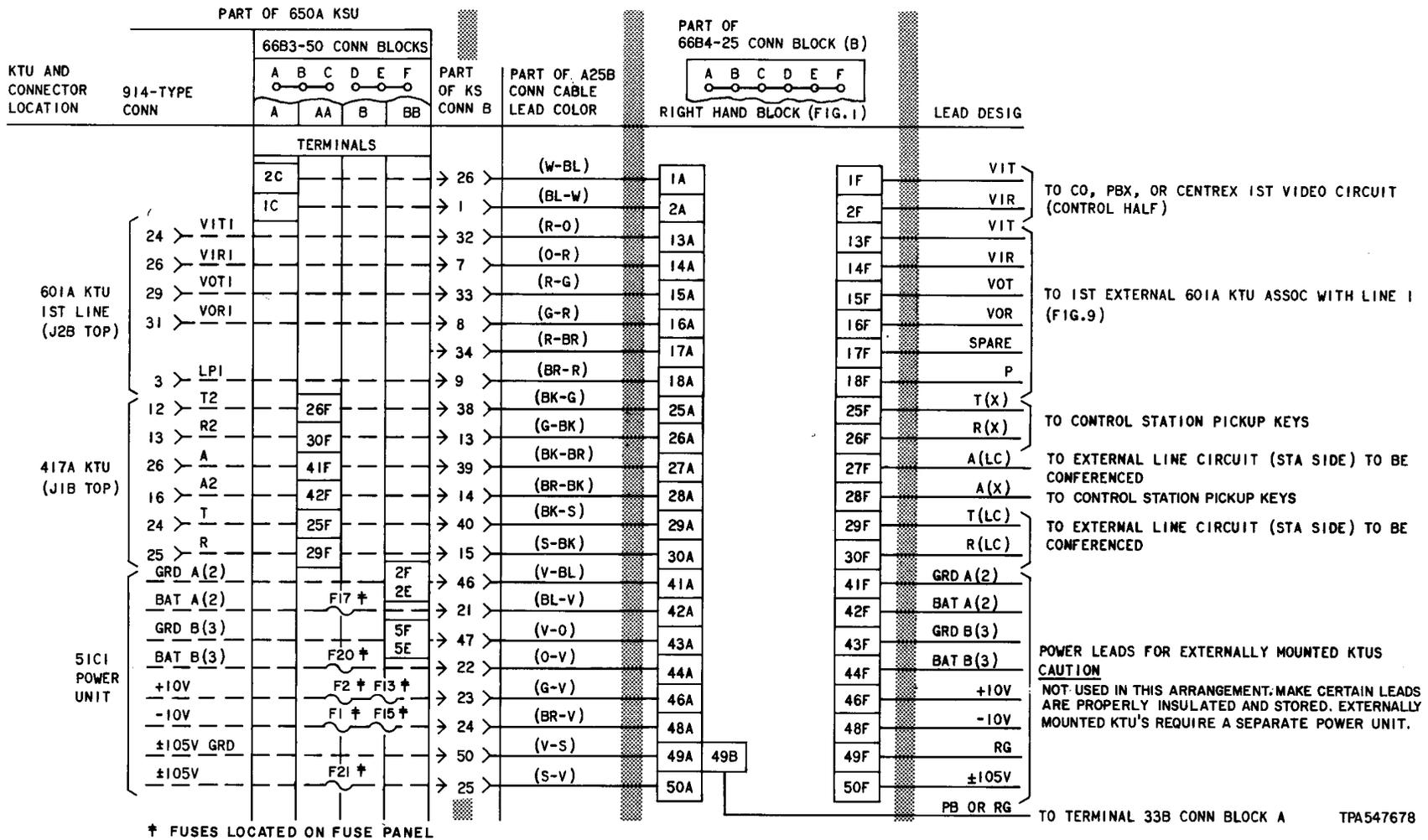


Fig. 2—One CO, Centrex or PBX Line and 6-Station Link Intercom, Connections (Sheet 2)

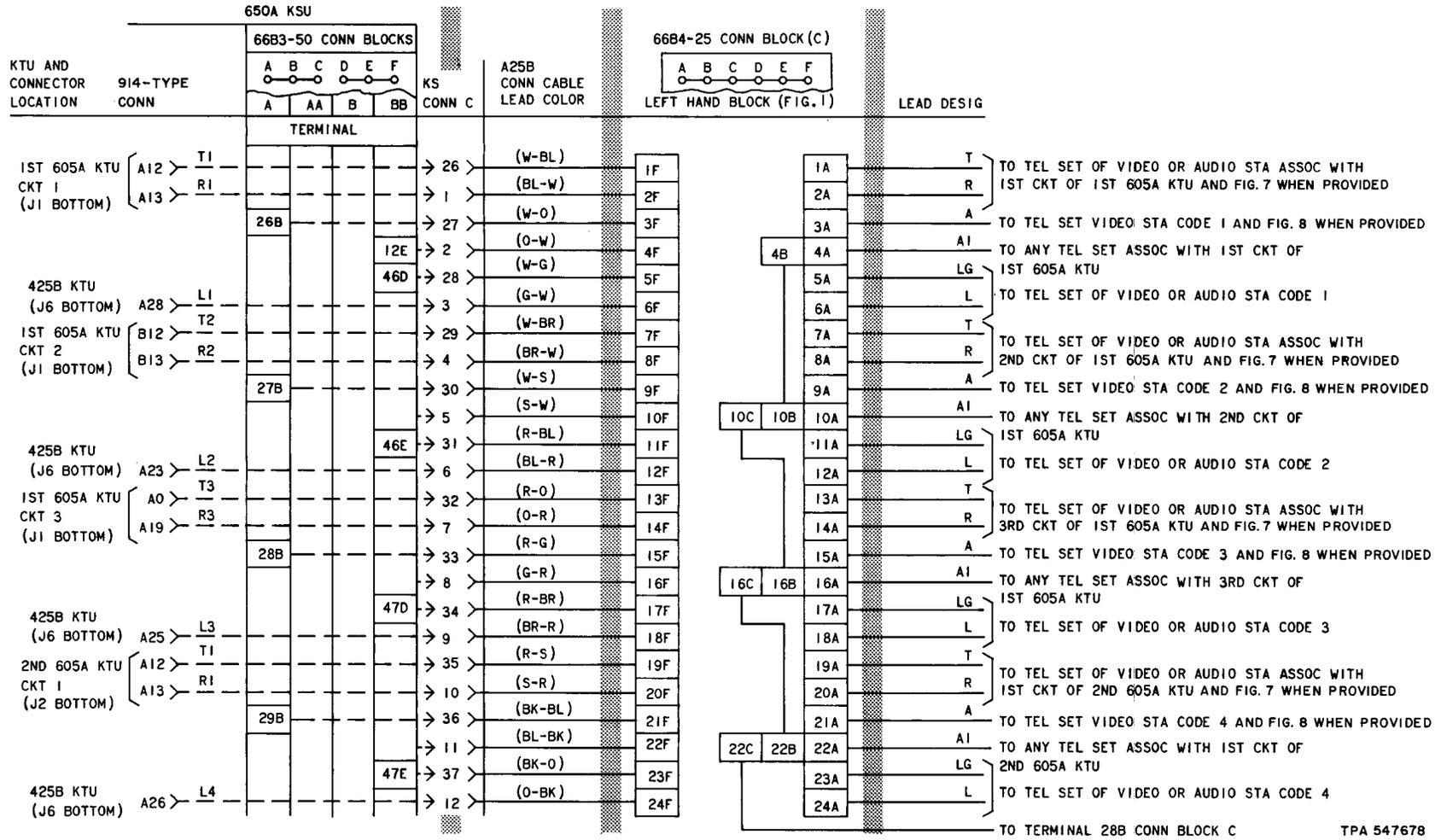


Fig. 2—One CO, Centrex, or PBX Line and 6-Station Single Link Intercom, Connections (Sheet 3)

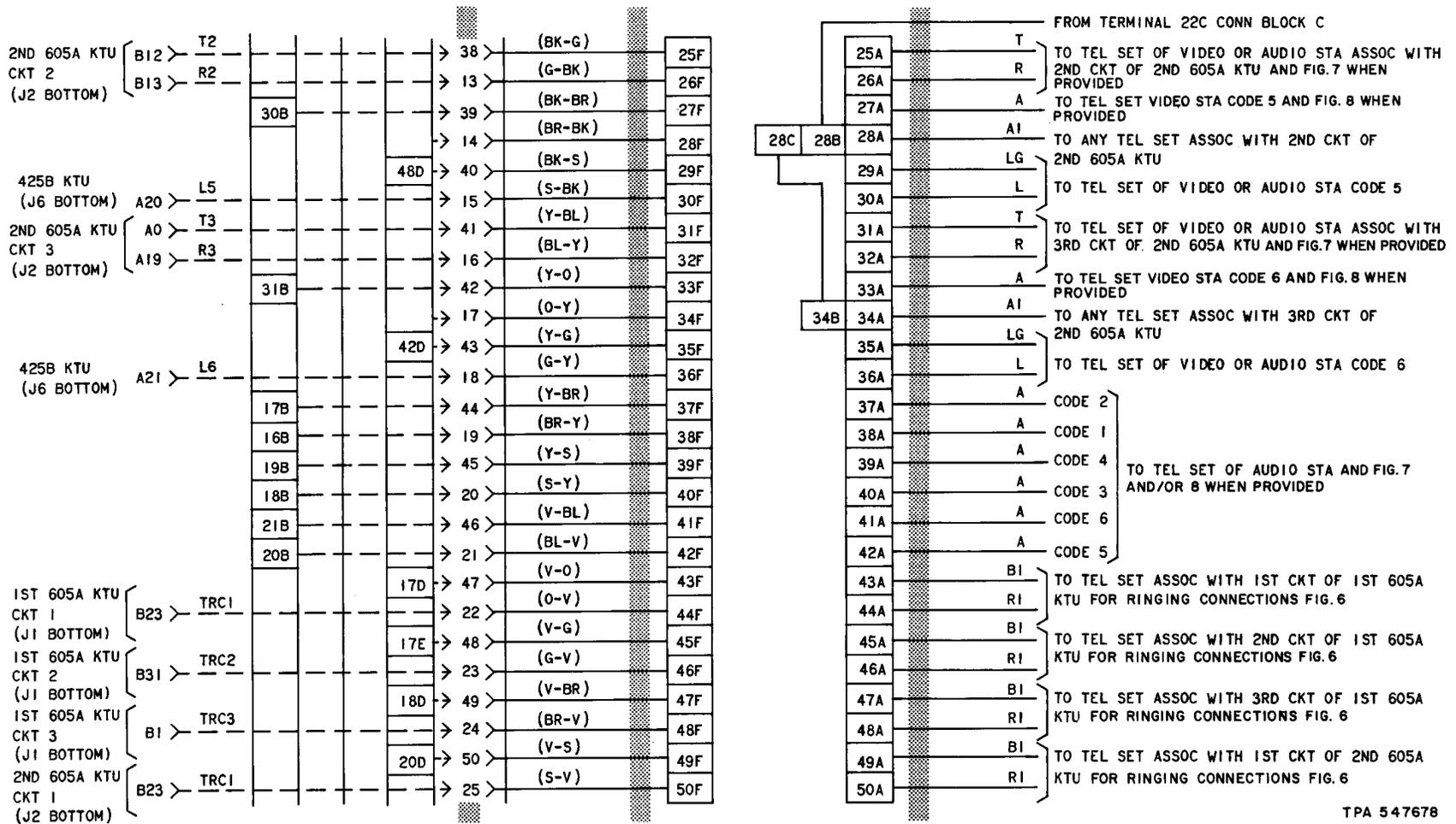
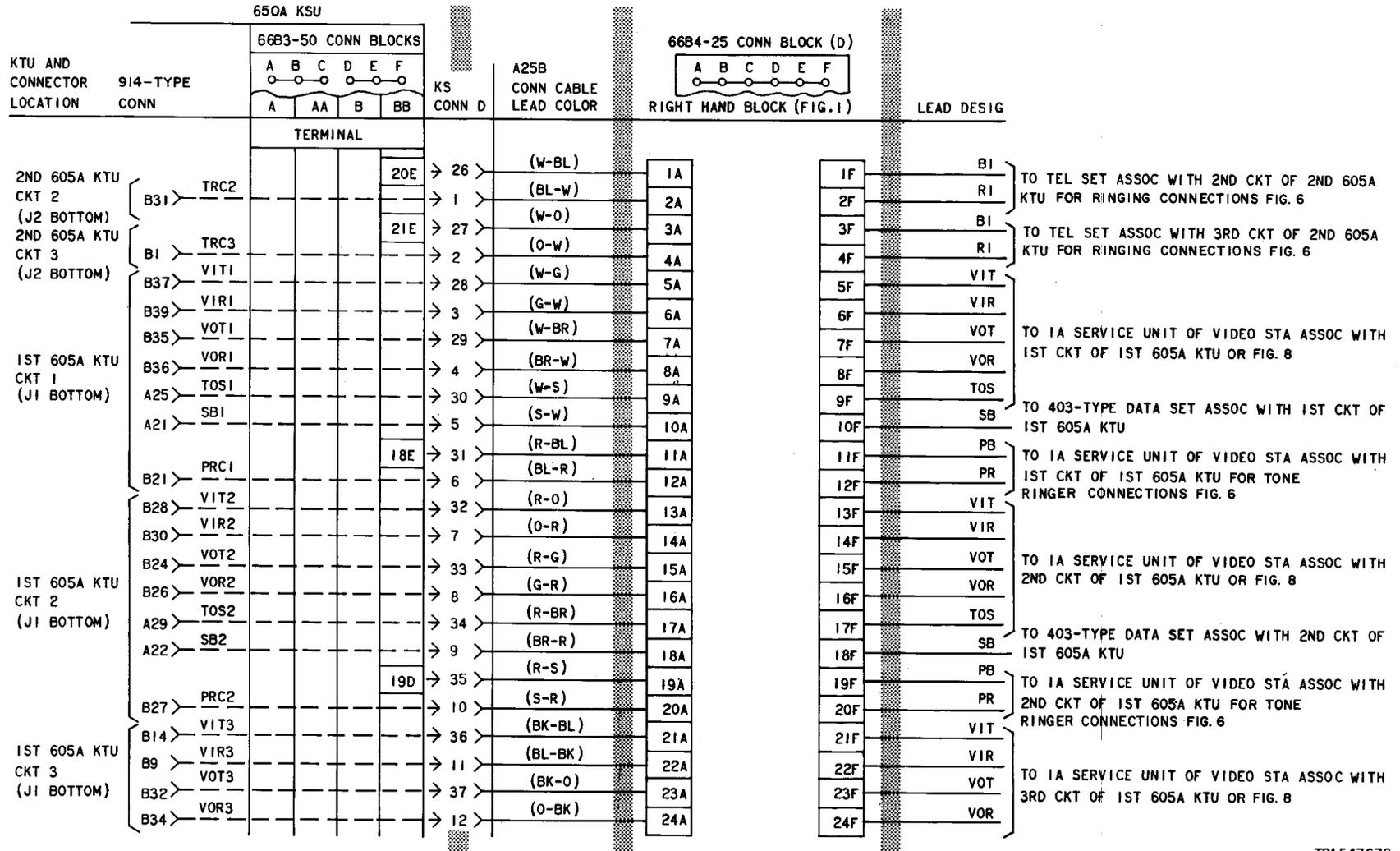


Fig. 2—One CO, Centrex or PBX Line and 6-Station Single Link Intercom, Connections (Sheet 4)



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Fig. 2—One CO, Centrex or PBX Line and 6-Station Single Link Intercom, Connections (Sheet 5)

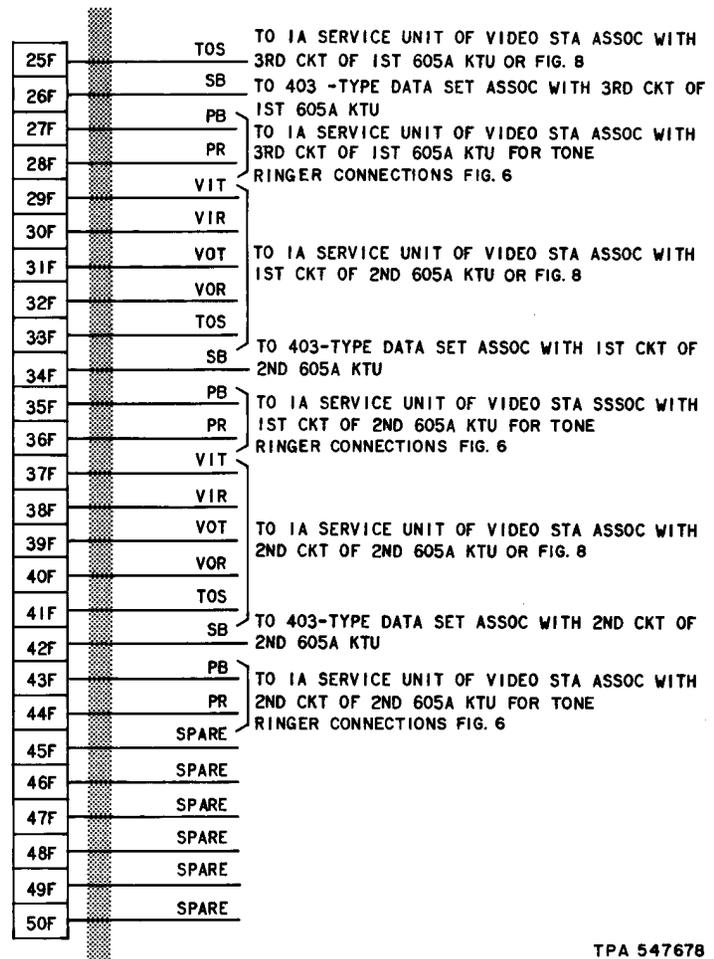
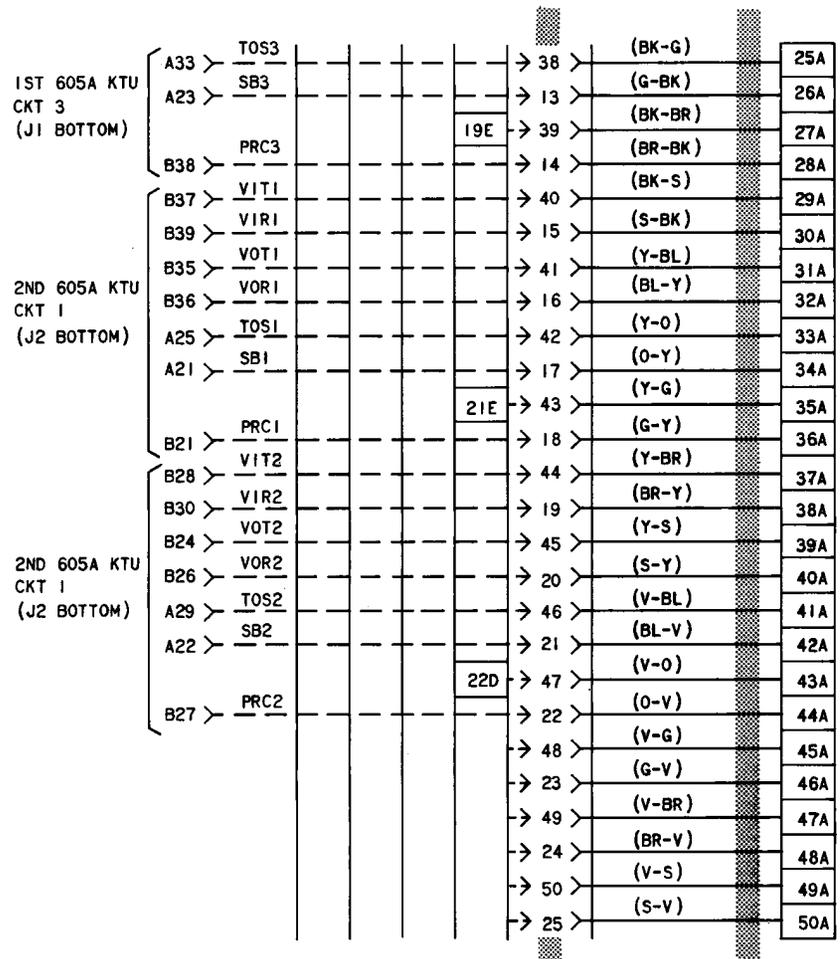


Fig. 2—One CO, Centrex or PBX Line and 6-Station Single Link Intercom, Connections (Sheet 6)

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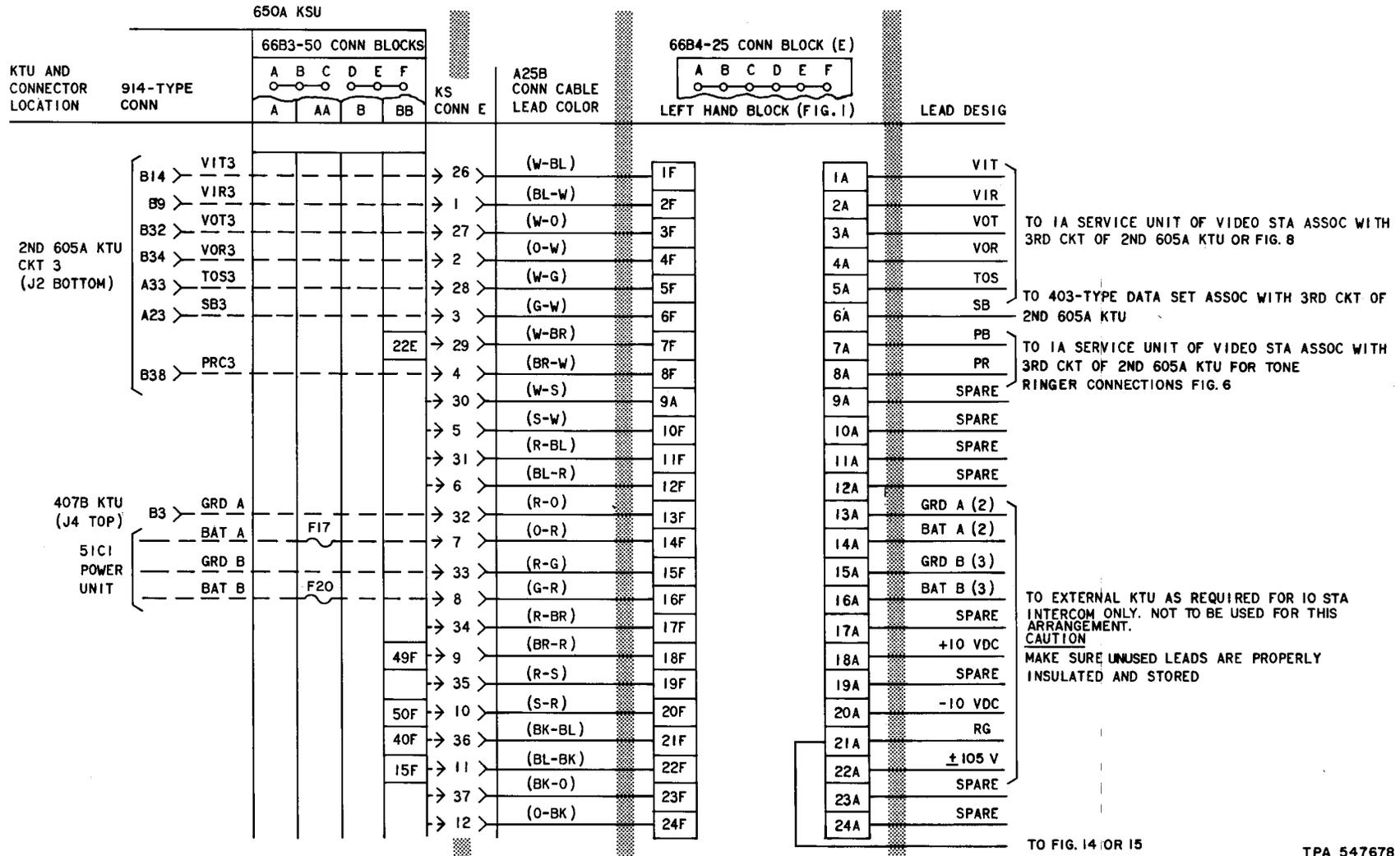
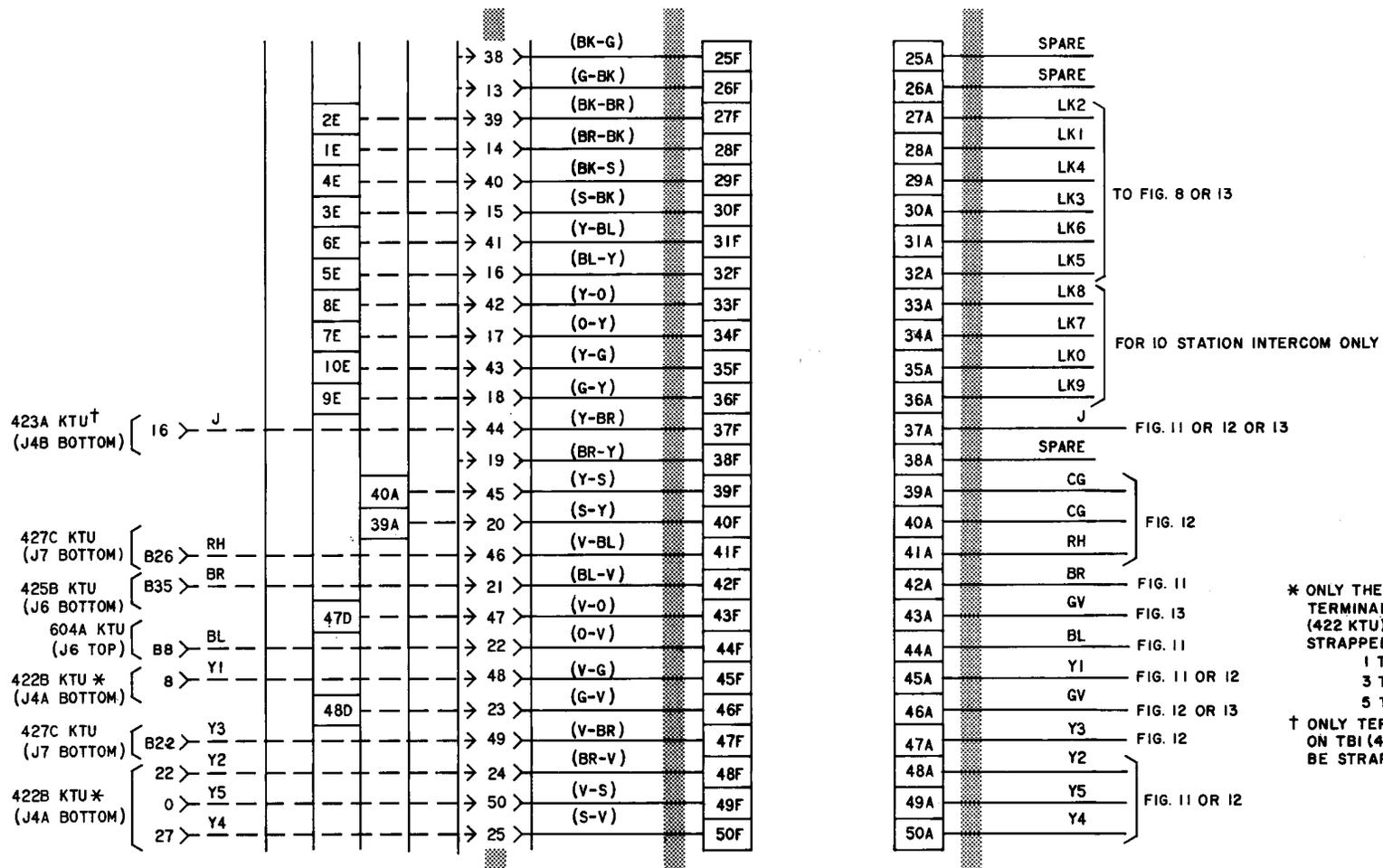


Fig. 2—One CO, Centrex or PBX Line and 6-Station Single Link Intercom, Connections (Sheet 7)

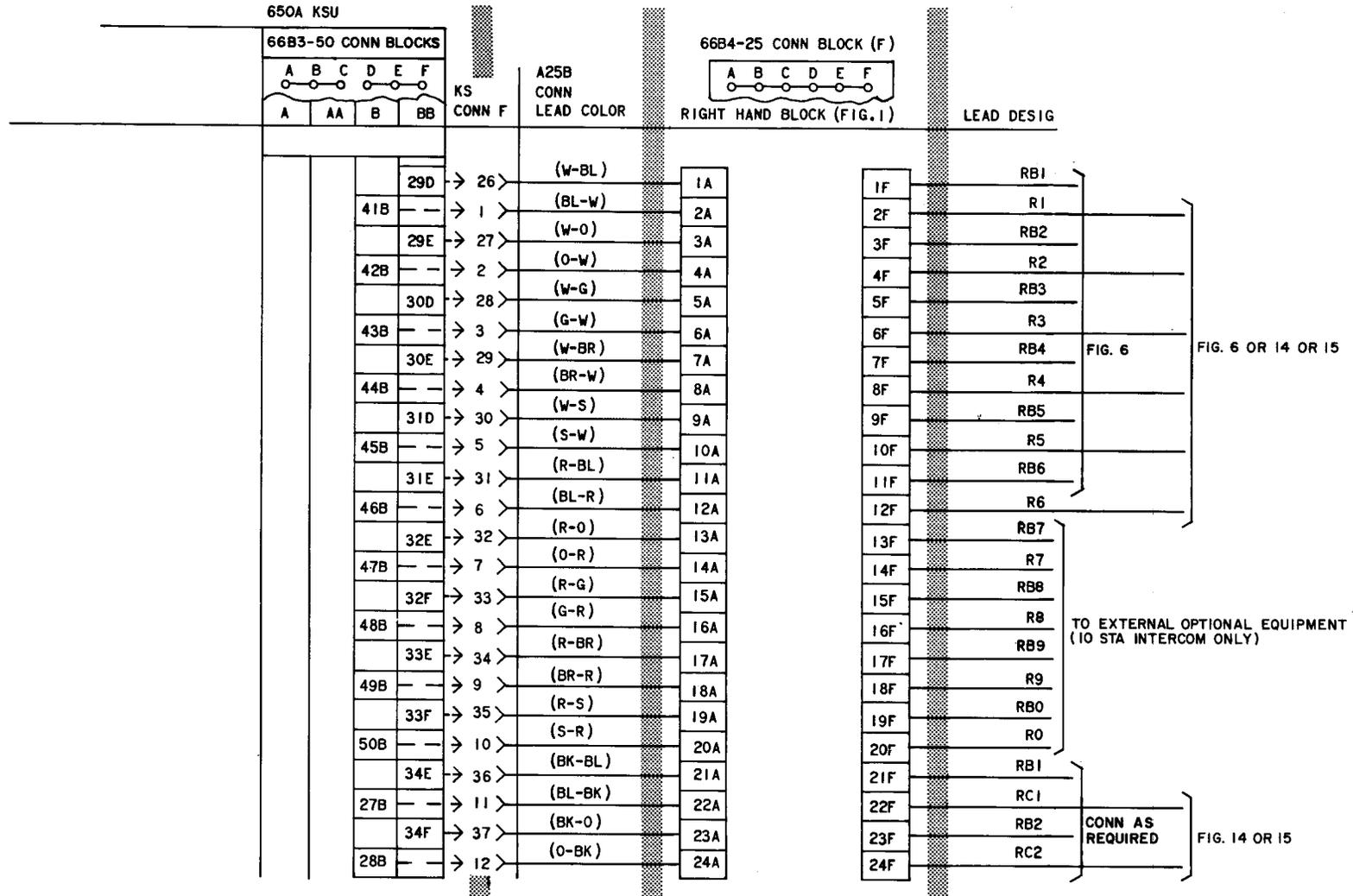


\* ONLY THE FOLLOWING  
TERMINALS ON TBI  
(422 KTU) MUST BE  
STRAPPED:  
1 TO 2  
3 TO 4  
5 TO 6

† ONLY TERMINALS 1 TO 2  
ON TBI (423A KTU) MUST  
BE STRAPPED.

Fig. 2—One CO, Centrex or PBX Line and 6-Station Link Intercom, Connections (Sheet 8)

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Fig. 2—One CO, Centrex or PBX Line and 6-Station Single Link Intercom, Connections (Sheet 9)

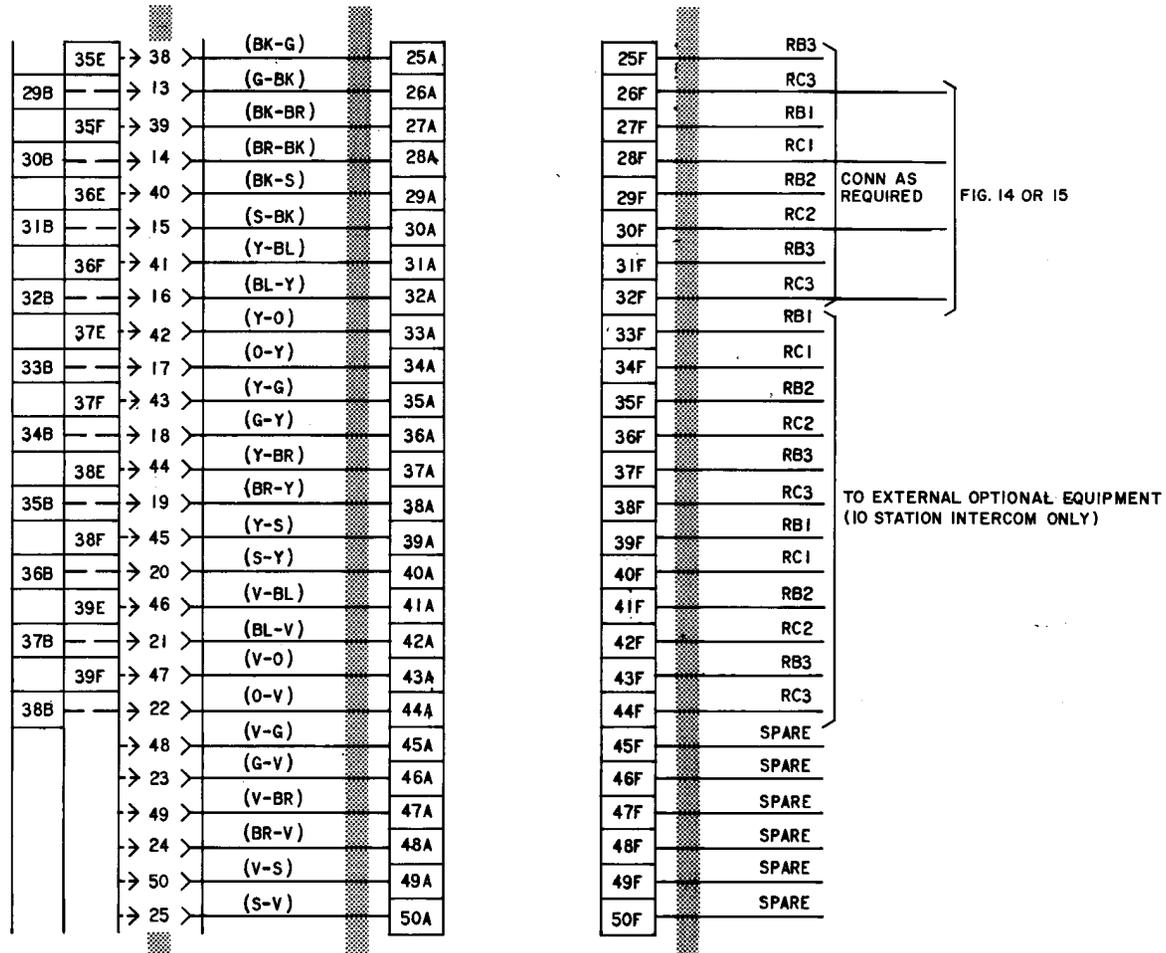


Fig. 2—One CO, Centrex or PBX Line and 6-Station Single Link Intercom, Connections (Sheet 10)

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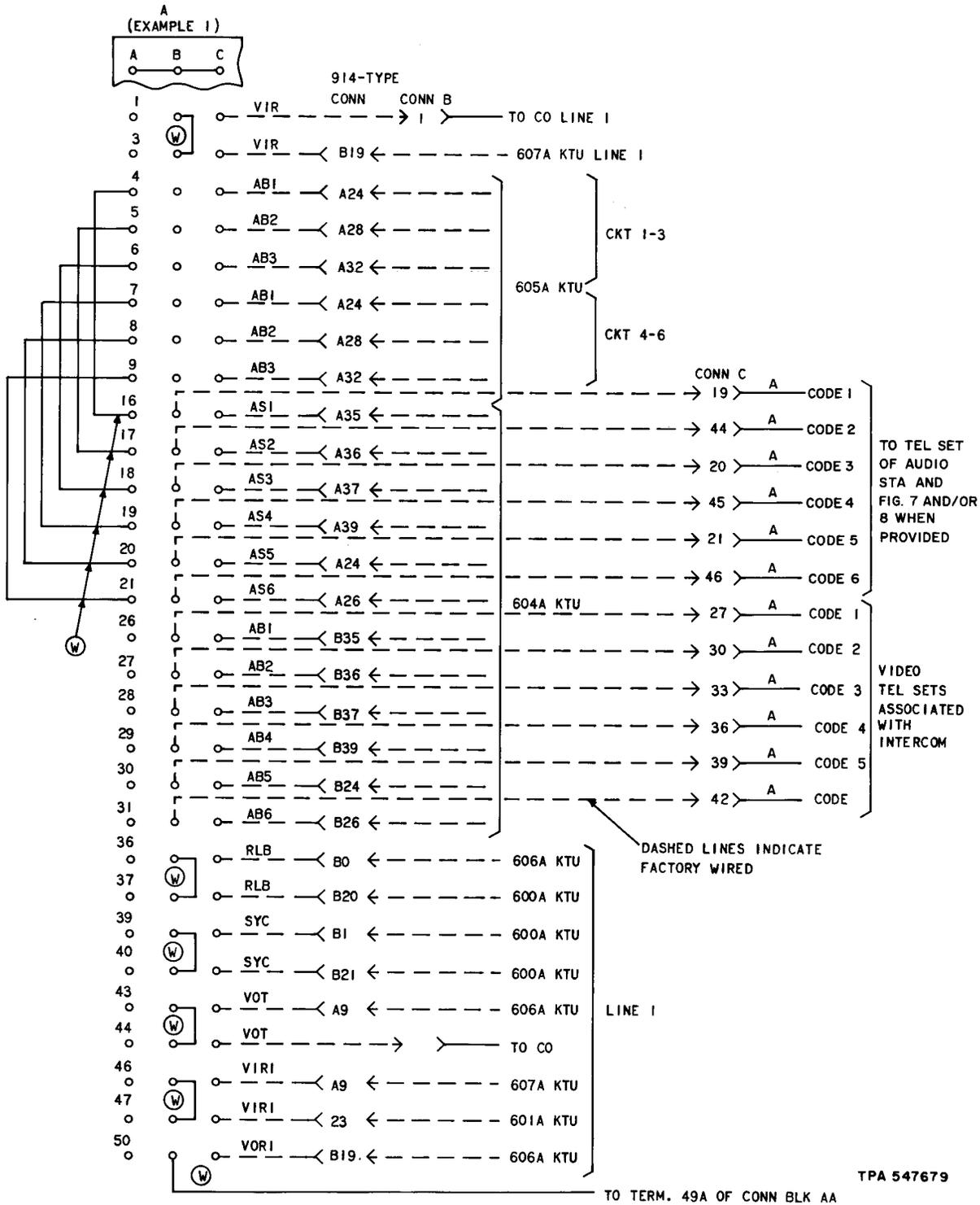


Fig. 3—Option and Service Straps on 66B3-50 Connecting Blocks in KSU (Sheet 1)

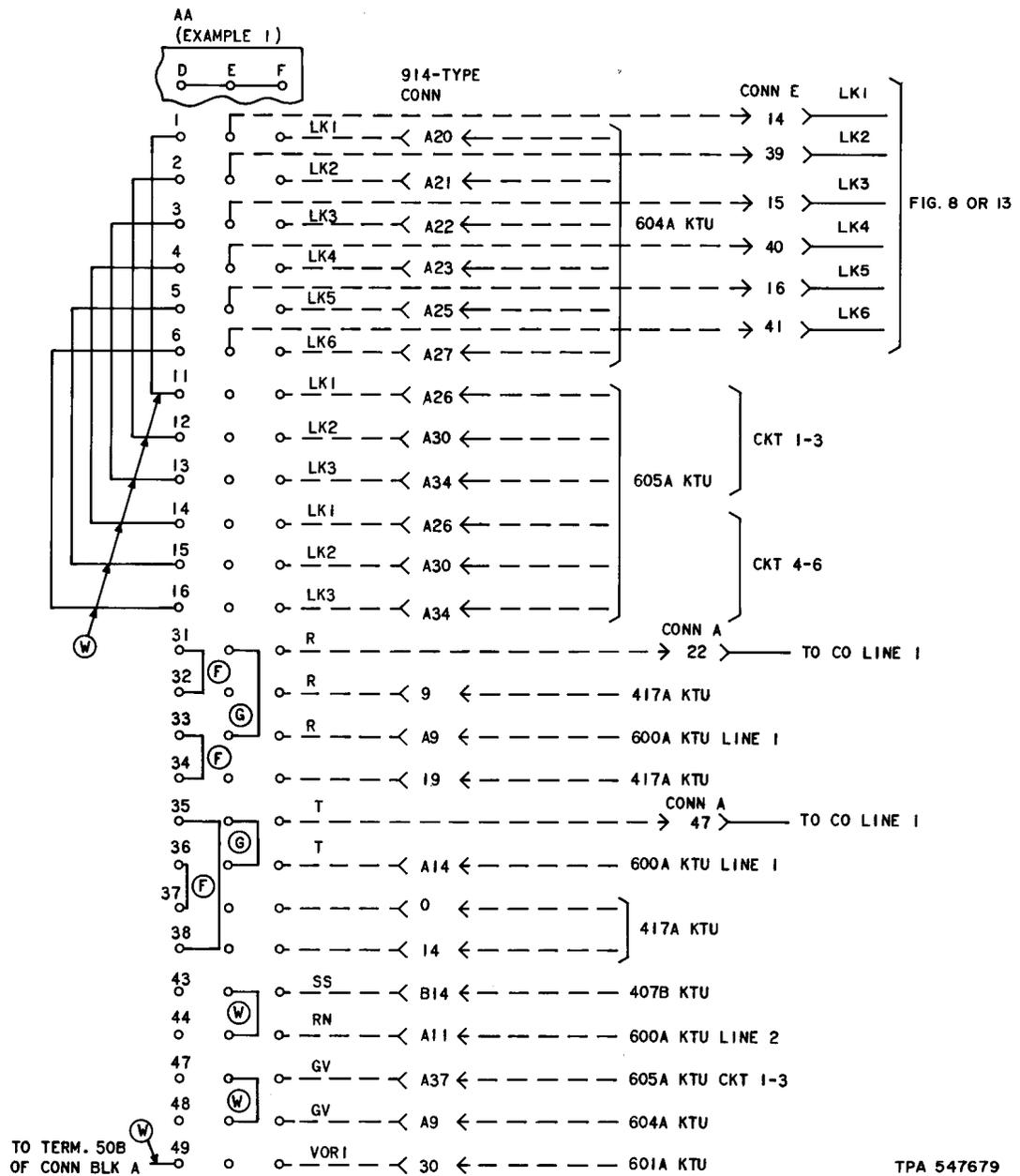


Fig. 3—Option and Service Straps on 66B3-50 Connecting Blocks in KSU (Sheet 2)

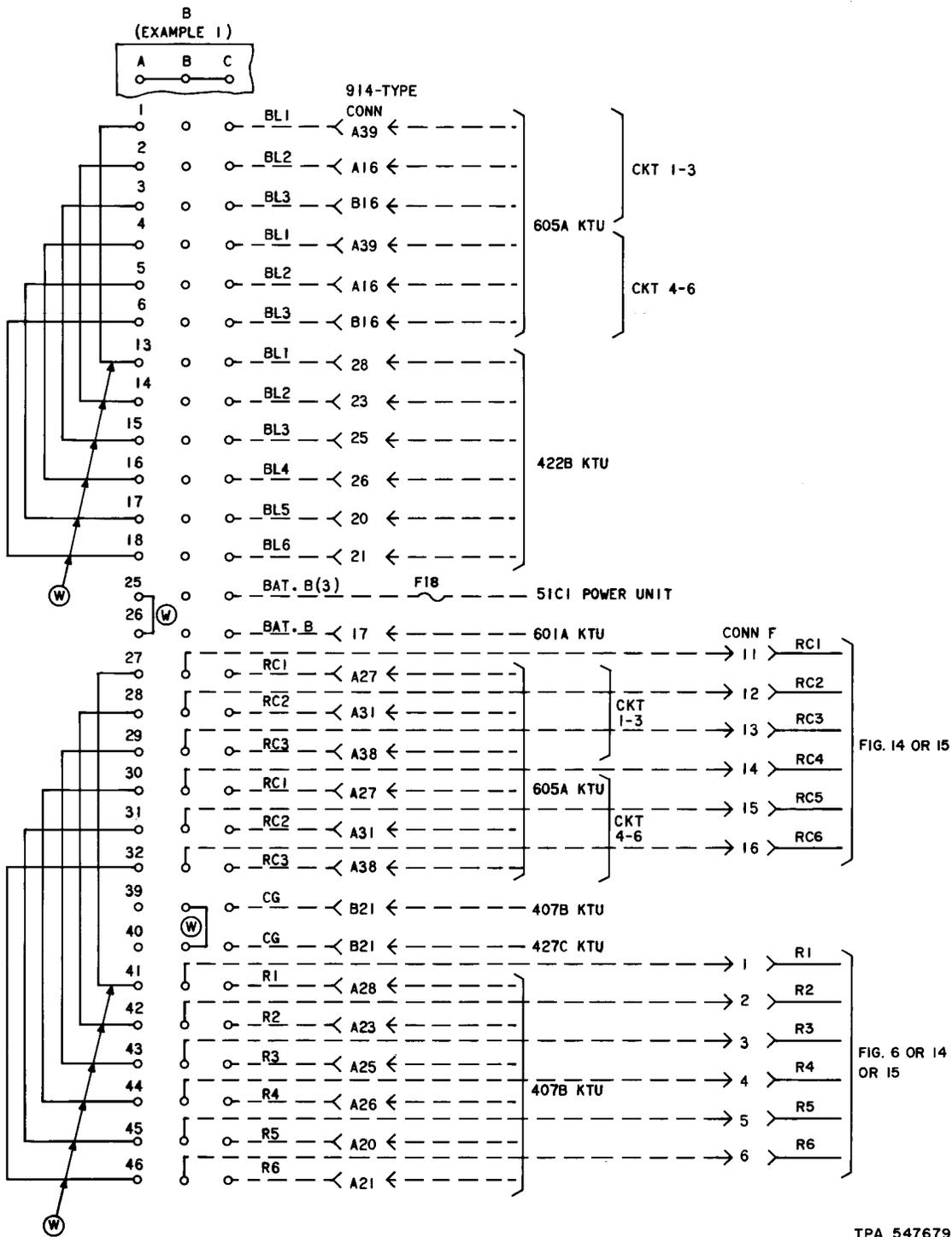


Fig. 3—Option and Service Straps on 66B3-50 Connecting Blocks in KSU (Sheet 3)

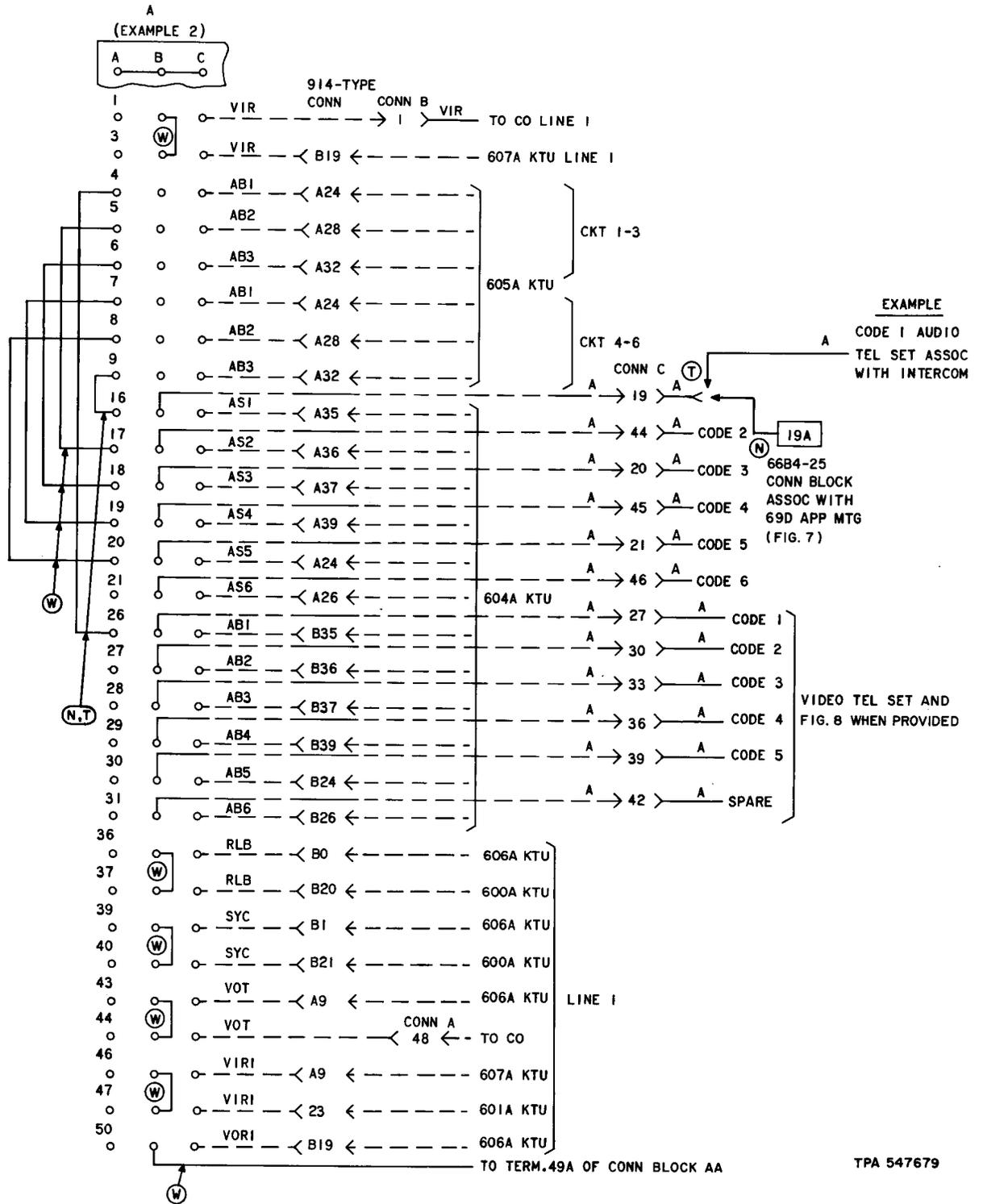


Fig. 3—Option and Service Straps on 66B3-50 Connecting Blocks in KSU (Sheet 4)

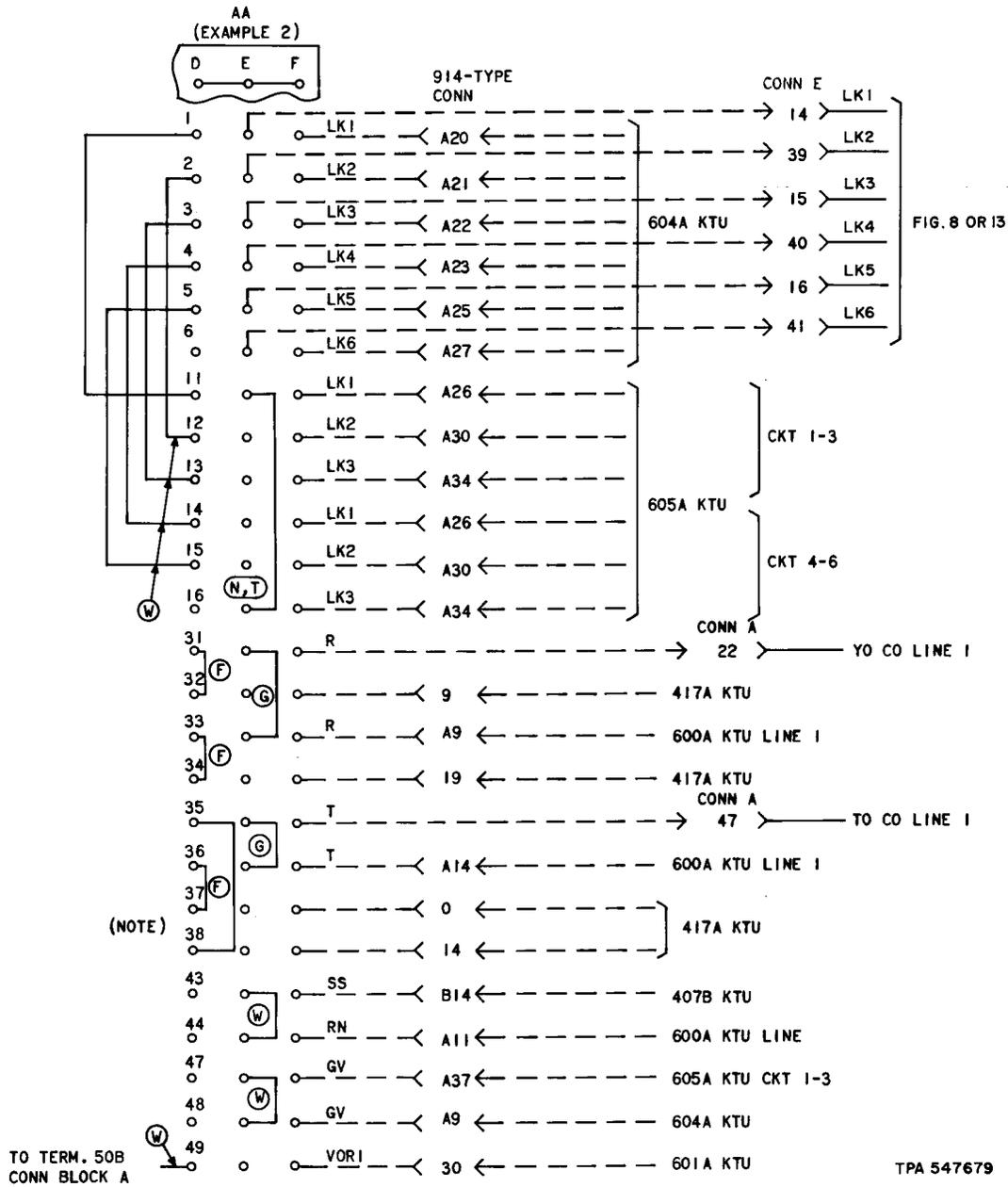


Fig. 3—Option and Service Straps on 66B3-50 Connecting Blocks in KSU (Sheet 5)

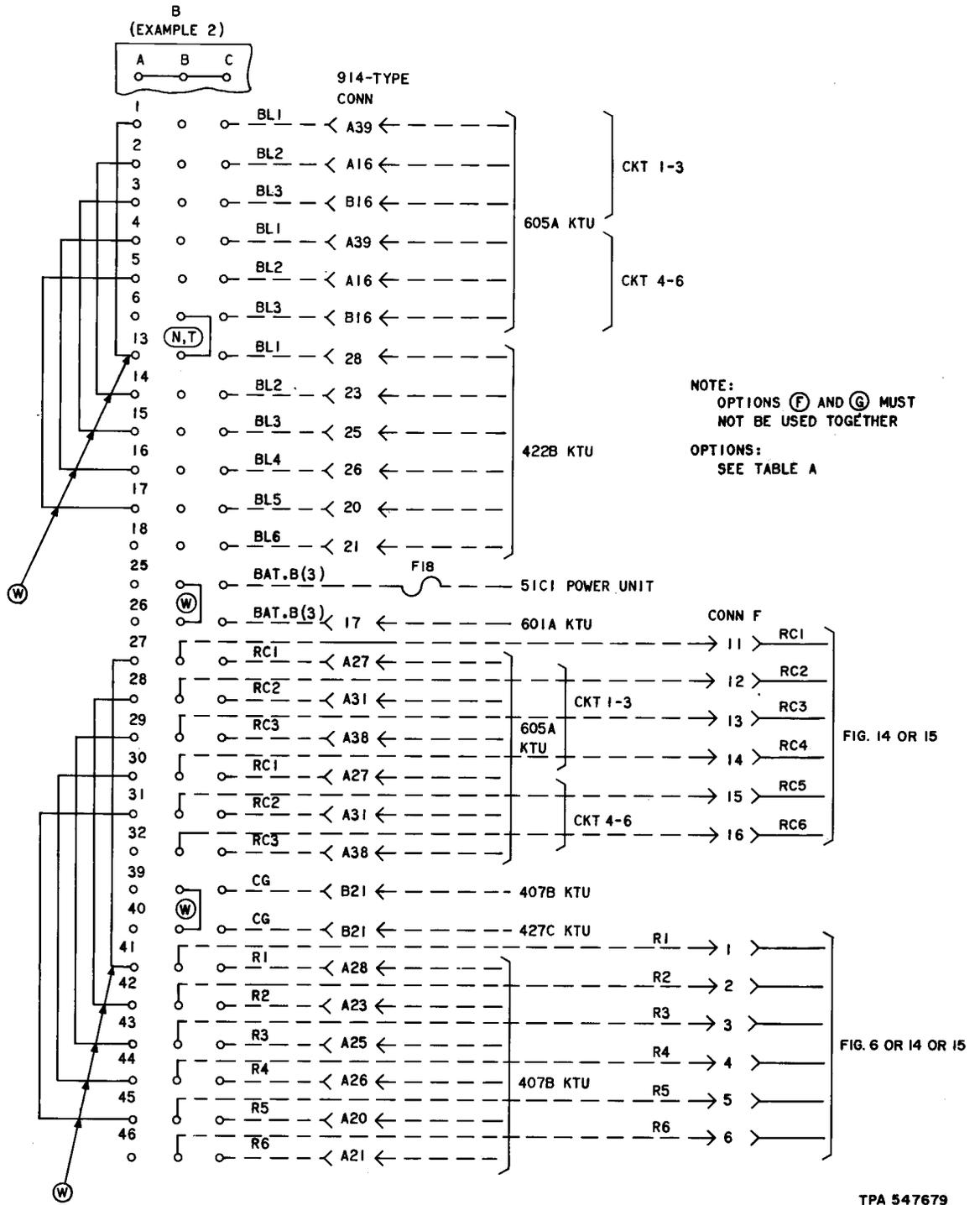
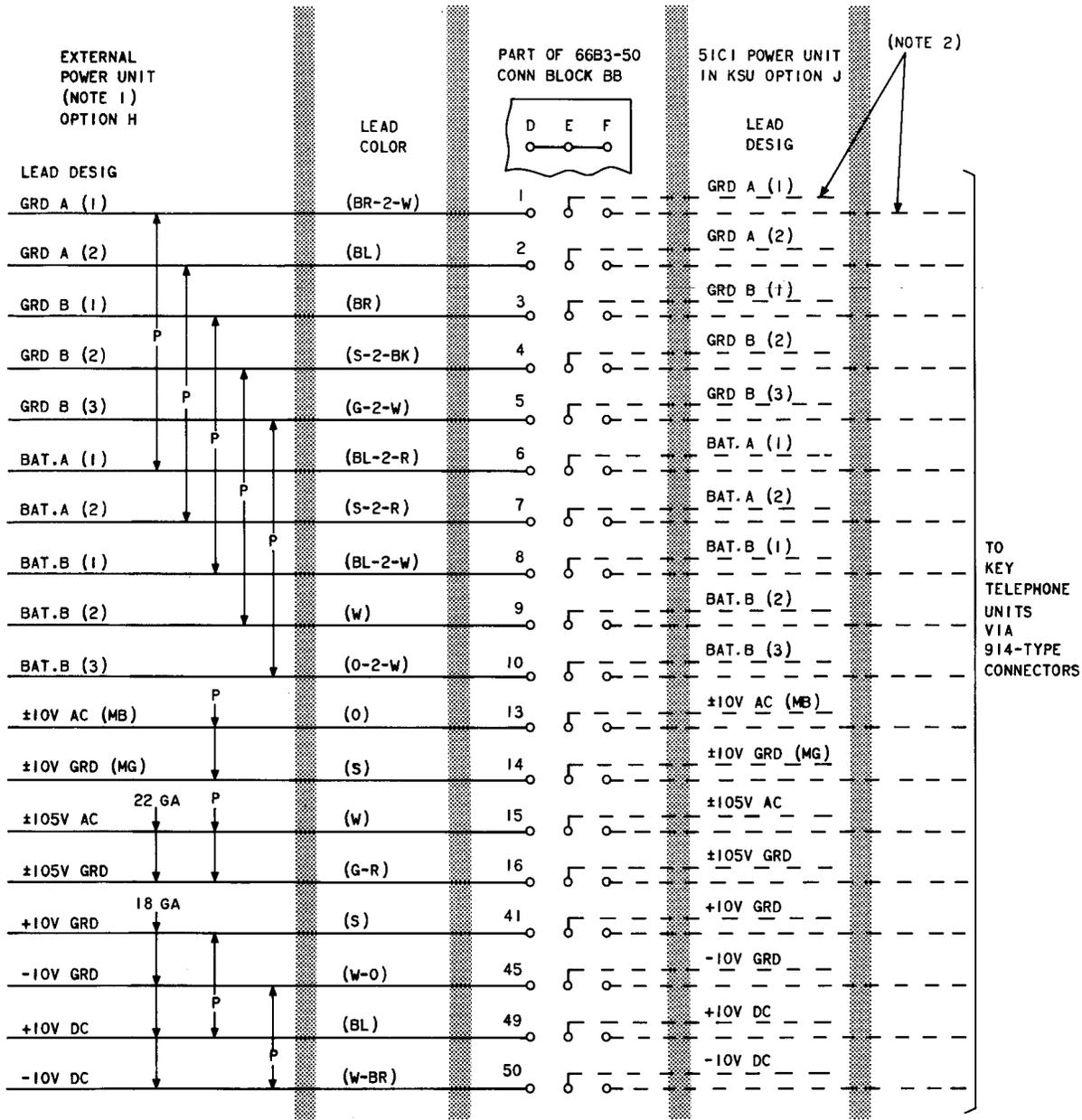
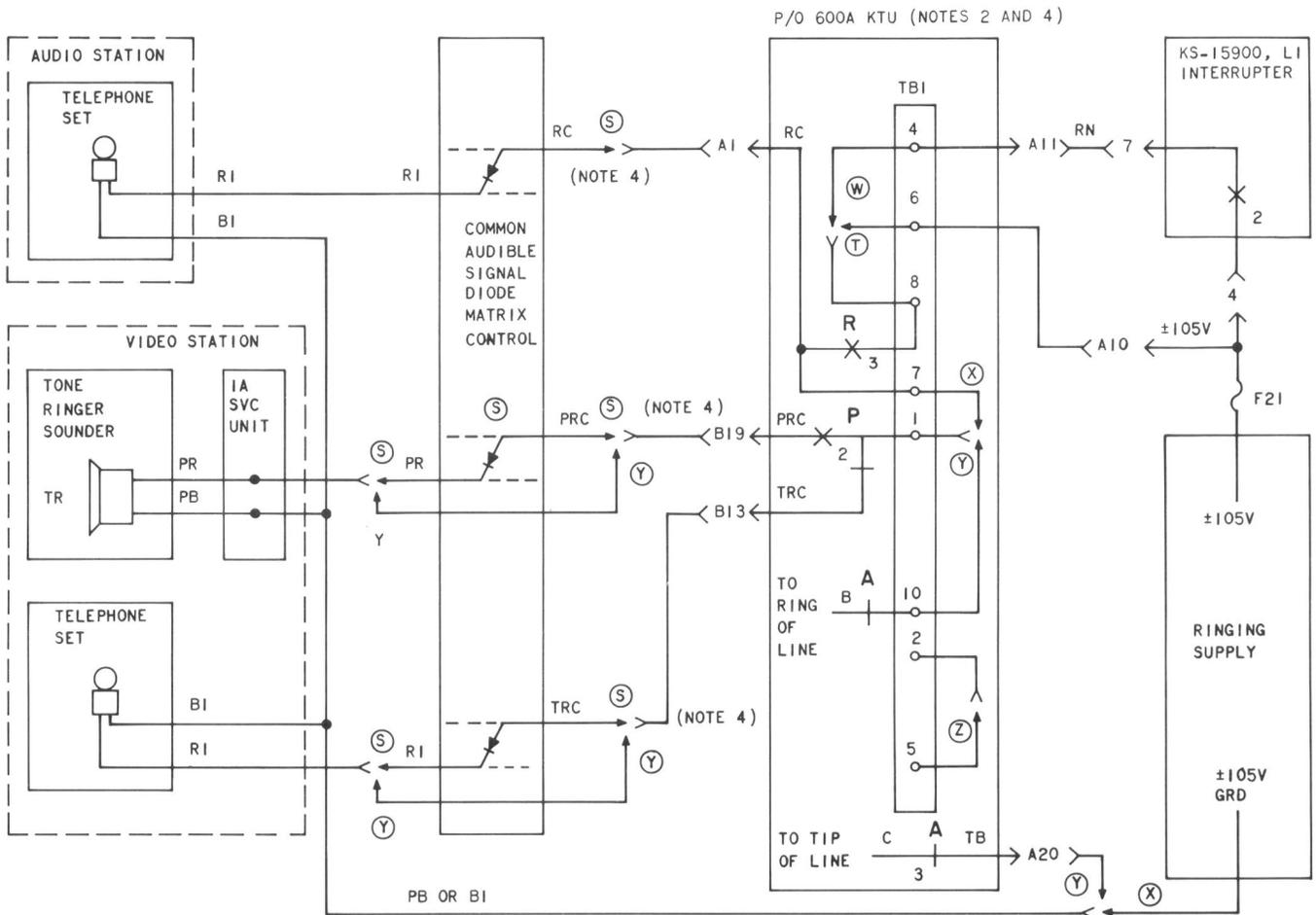


Fig. 3—Option and Service Straps on 66B3-50 Connecting Blocks in KSU (Sheet 6)



- NOTES:
1. THE 15 FT. WIRING HARNESS IS SUPPLIED WITH 650 AI KSU TO CONNECT AN EXTERNAL POWER UNIT.
  2. DASHED LINES INDICATE FACTORY WIRING.

Fig. 4—Internal and External Power Connections to 66B3-50 Connecting Block in KSU



NOTES:

1. REFER TO APPROPRIATE CONNECTION SECTION FOR OPTION STRAPPING TERMINAL ASSIGNMENTS ON CONNECTION BLOCK.
2. AUDIBLE SIGNAL OPTION STRAPS ON 600A KTU MUST BE PROVIDED BY INSTALLER.
3. FOR LONG TIME-OUT DELAY REMOVE STRAP 2 TO 5.
4. WHEN COMMON AUDIBLE SIGNALING (DIODE MATRIX CONTROL) IS NOT REQUIRED, RUN LEADS (RC, PRC, TRC) DIRECT TO STATION(S).
5. TBI TERMINAL NUMBERS 1 TO 10 READ FROM RIGHT TO LEFT AS SHOWN BELOW.

AUDIBLE SIGNALING OPTIONS		
FEATURE OR OPTIONS		WIRING
LINE RINGING		Y
LOCAL RINGING		X
INTERRUPTED RINGING		W
COMMON AUDIBLE SIGNAL	DIODE MATRIX CONTROL	S
STEADY RINGING		T
SHORT TIME DELAY (TIME-OUT) (NOTE 3)		Z

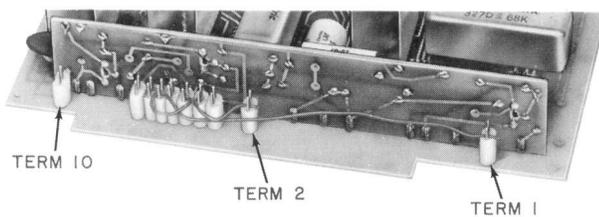
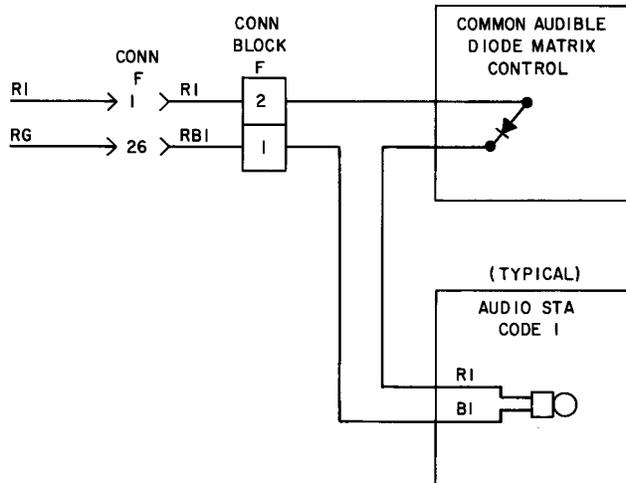
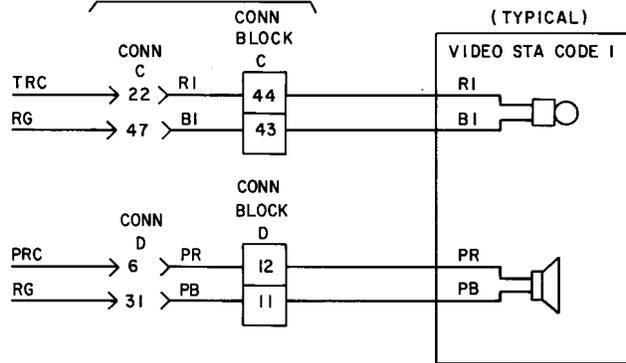


Fig. 5—Ringing Option Connections—Single Group Line Service

TPA 547524

SEE TABLE FOR OTHER  
CONN BLOCK TERMINALS  
FOR STA CODES 2 THROUGH 6  
(FIG. 2)



TABLE

CONN BLK	LEAD DESIG (FIG. 2)						STA CODE	LEAD DESIG (FIG. 2)						CONN BLK		
	RI	BI	PR	PB	R(-)	RB(-)		RI	BI	PR	PB	R(-)	RB(-)			
C	46	45					2	5	2	1					D	
D			20	19						44	43					D
F					4	3						10	9			F
C	48	47					3	6	4	3					D	
D			28	27						8	7					E
F					6	5						12	11			F
C	50	49					4									
D			36	35												
F					8	7										

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Fig. 6—Intercom Audible Signal Connections

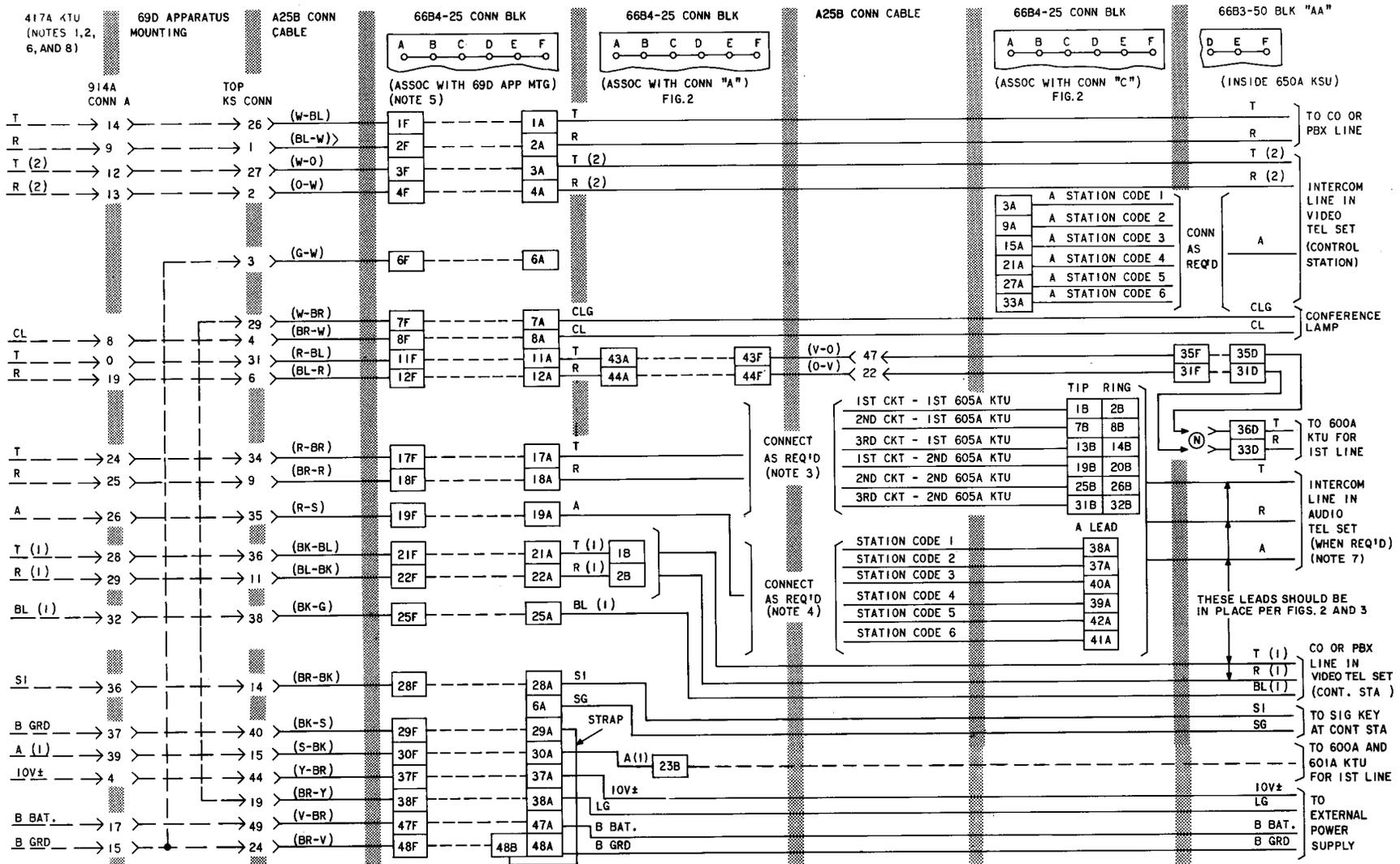
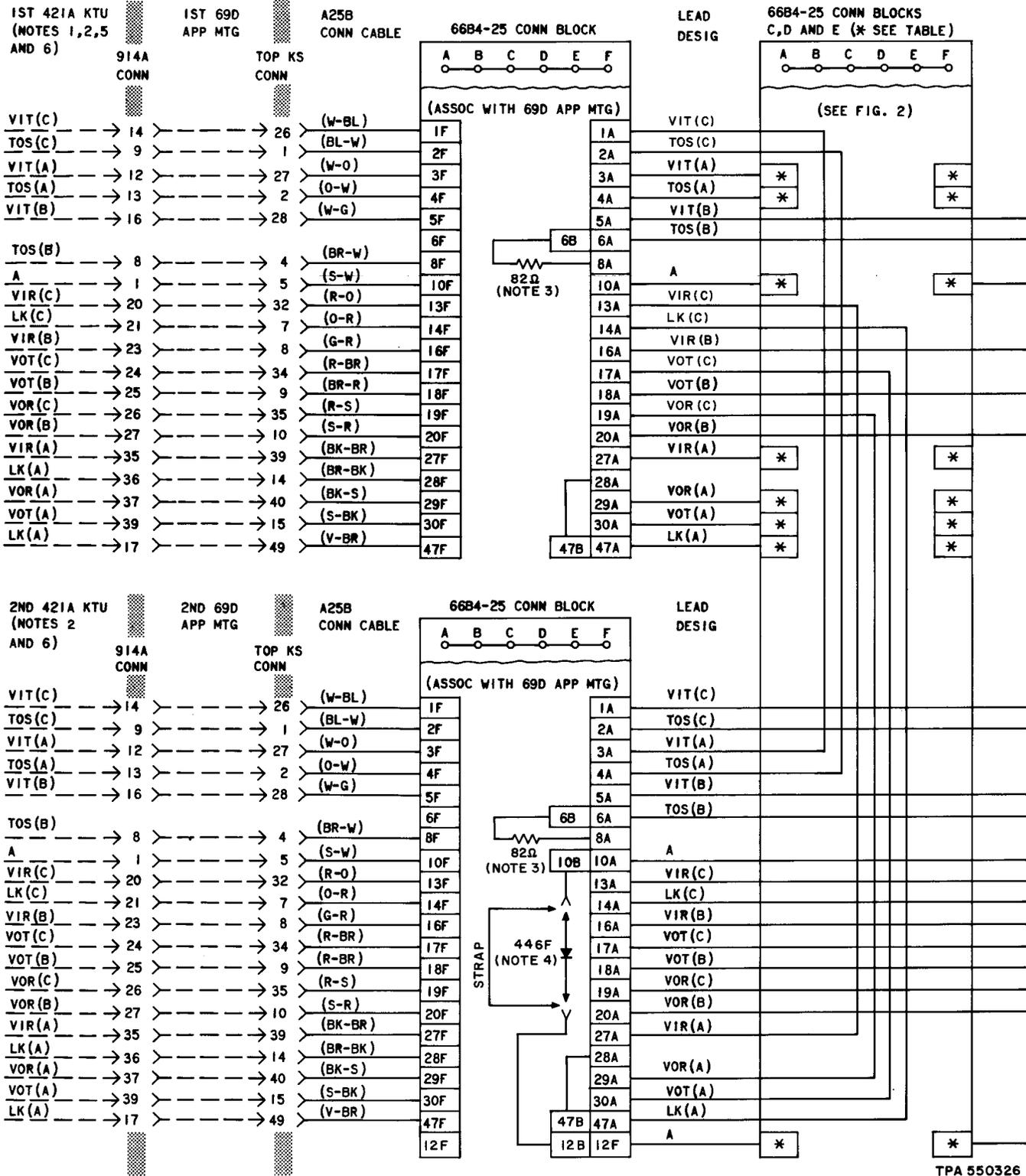


Fig. 7—Connections for Externally Mounted 417A and 421A KTUs—as Required Note 7 to Provide Add on Conference Between CO or PBX Line and Intercom Line (Including Audio Station) Connections (Note 6)

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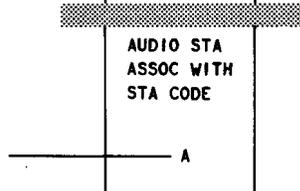
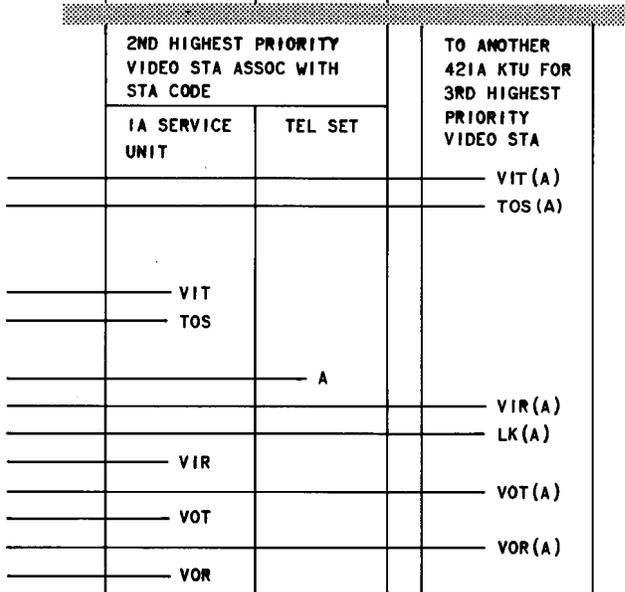
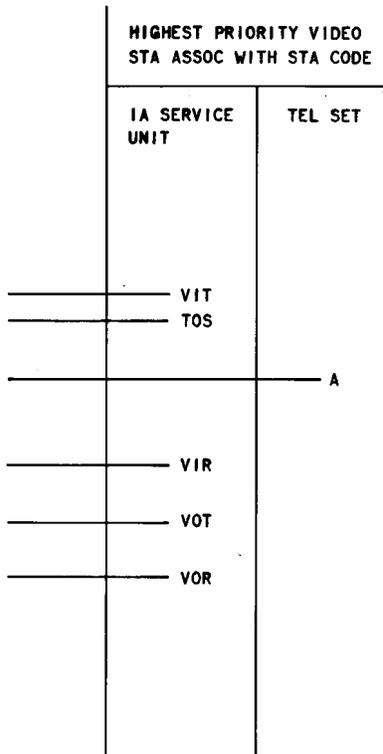


TPA 550326

Fig. 8—Video-Audio Station Bridging Using 421A KTU Mounted Externally, Connections (Sheet 1)

TABLE  
66B4-25 CONN BLOCK TERMINALS  
FOR STA CODES 1-6

STA CODE	66B4-25 CONN BLOCK								
	BLOCK	LEAD DESIG							
		VIT(A)	VIR(A)	VOT(A)	VOR(A)	TOS(A)	LK(A)	VIDEO A LEAD	AUDIO A LEAD
* TERMINAL									
1	C							3A	38A
	D	5	6	7	8	9			
	E						28		
2	C							9A	37A
	D	13	14	15	16	17			
	E						27		
3	C							15A	40A
	D	21	22	23	24	25			
	E						30		
4	C							21A	39A
	D	29	30	31	32	33			
	E						29		
5	C							27A	42A
	D	37	38	39	40	41			
	E						32		
6	C							33A	41A
	E	1	2	3	4	5	31		



NOTES:

- DASHED LINES INDICATE FACTORY WIRING.
- STRAP THE FOLLOWING TERMINALS ON TBI OF ALL 421A KTUS.  
1 TO 2  
5 TO 6  
7 TO 8
- THE 82 OHM RESISTOR (KS-13490 L1) MUST BE ORDERED SEPARATELY AND INSTALLED AS REQUIRED.
- 446F DIODE MUST BE ORDERED SEPARATELY AND INSTALLED WHEN AN AUDIO STATION IS ASSOC WITH THE LOWER PRIORITY VIDEO STATION. WHEN ONLY A LOWER PRIORITY VIDEO STATION IS PROVIDED INSTALL A STRAP IN PLACE OF DIODE.
- USE WITH FIG. 7 FOR ADD-ON CONFERENCE ARRANGEMENT.
- 421A KTU MUST BE MOUNTED ONLY IN THE TOP CONNECTOR OF A 69D APPARATUS MOUNTING FOR THIS ARRANGEMENT. BOTTOM CONNECTOR CANNOT BE USED.

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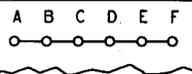
Fig. 8—Video-Audio Station Bridging Using KTU Mounted Externally, Connections (Sheet 2)

601A KTU  
(EXTERNALLY  
MOUNTED)  
(NOTE 3  
AND 4) †

69D APPARATUS  
MOUNTING  
(NOTE 1) †

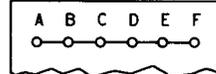
A25B  
CONNECTOR  
CABLE

66B4-25 CONN BLK



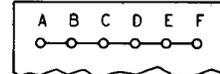
(ASSOCIATED WITH 69D APP MTG)  
(NOTE 2 AND 5)

66B4-25 CONN BLK (B)

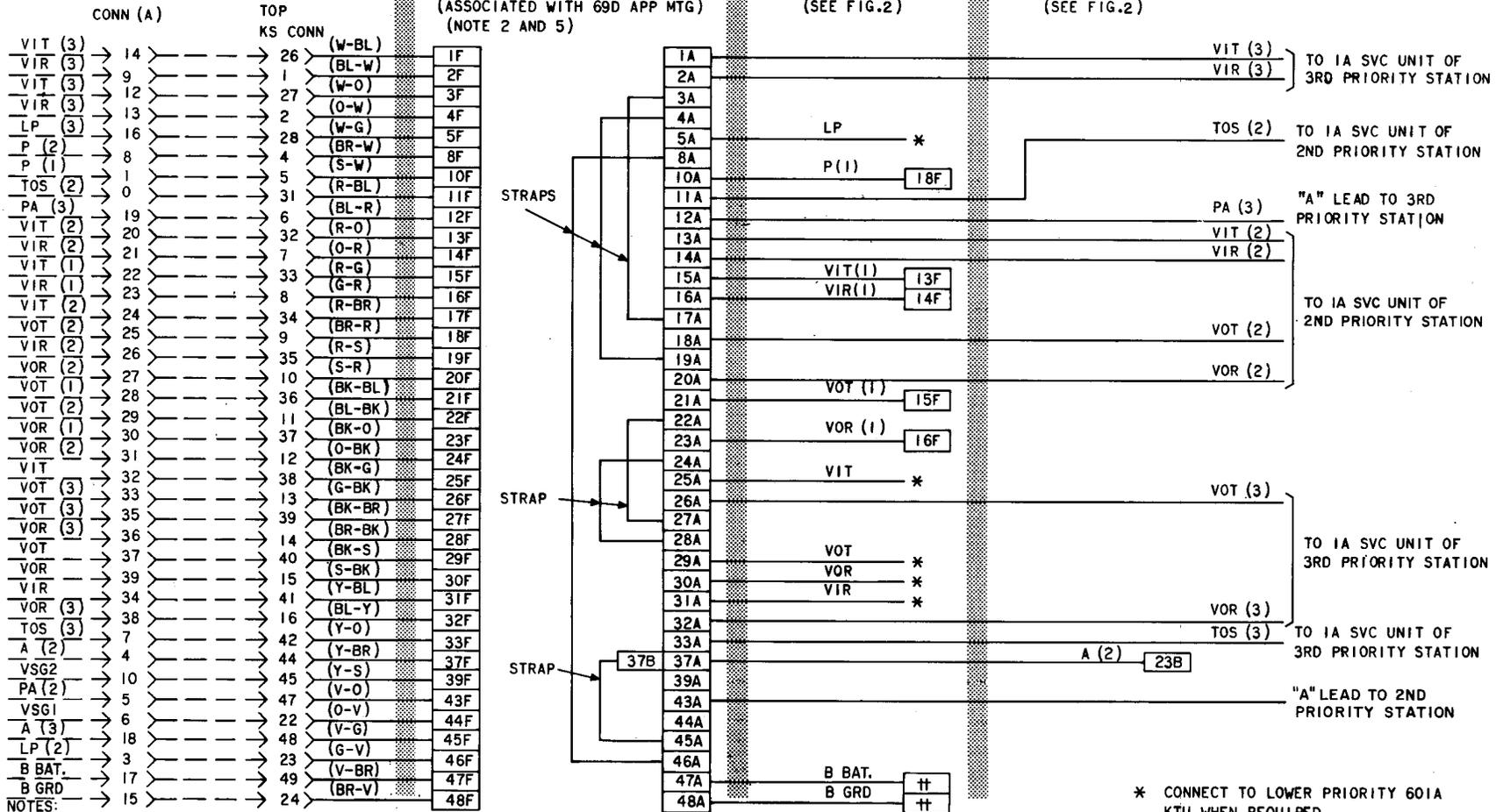


(SEE FIG.2)

66B4-24 CONN BLK (A)



(SEE FIG.2)

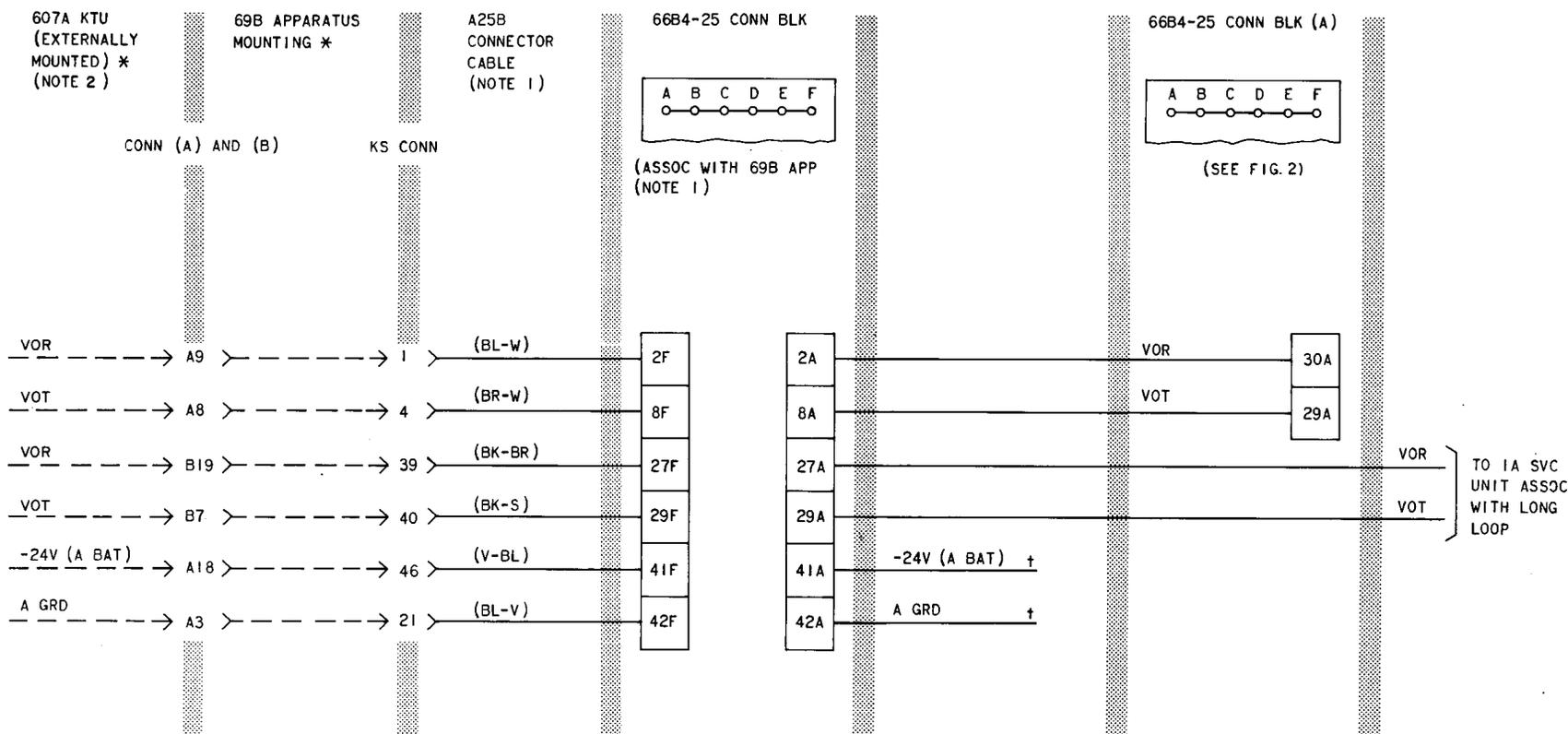


NOTES:

1. USE ONLY ONE 601A KTU IN 69D APPARATUS MOUNTING, MUST BE MOUNTED IN CONNECTOR (A) (TOP CONNECTOR).
2. CONNECTING BLOCK LAYOUT ARRANGED FOR STANDARD CUTDOWN. UNUSED LEADS SHOULD BE TERMINATED OR INSULATED AND STORED.
3. REFER TO 518 DIVISION SECTION ENTITLED "600 SERIES KEY TEL UNITS-IP2 KEY TEL SYSTEM-IDENTIFICATION" FOR (N) OR (M). OPTION WIRING REQUIRED ON 601A KTU (N) SINGLE STATION (M) LOWEST PRIORITY MULTIPLE STATION.
4. STATION NO.1 IS UNDER CONTROL OF INTERNALLY MOUNTED 601A KTU.
5. BECAUSE OF PIN ARRANGEMENTS IN THE 69D APPARATUS MOUNTING, VOT (2) IS NOT PAIRED WITH VOR (2), AND VOT (3) IS NOT PAIRED WITH VOR (3). SHOULD THIS IMPAIR TRANSMISSION, USE AS SHORT A STUB OF A25B CONNECTOR CABLE AS POSSIBLE AND TERMINATE THESE 4 LEADS SO THEY WILL BE PAIRED FROM CONNECTING BLOCK TO THE IA SERVICE UNITS.

- \* CONNECT TO LOWER PRIORITY 601A KTU WHEN REQUIRED.
- † DASHED LINES INDICATE FACTORY FURNISHED WIRING.
- ‡ CONNECT TO EXTERNAL 19-TYPE POWER UNIT OR EQUIVALENT

Fig. 9—Connections For Externally Mounted 601A KTU (1 Video Line to 2 Lower Polarity Video Stations)



NOTES:

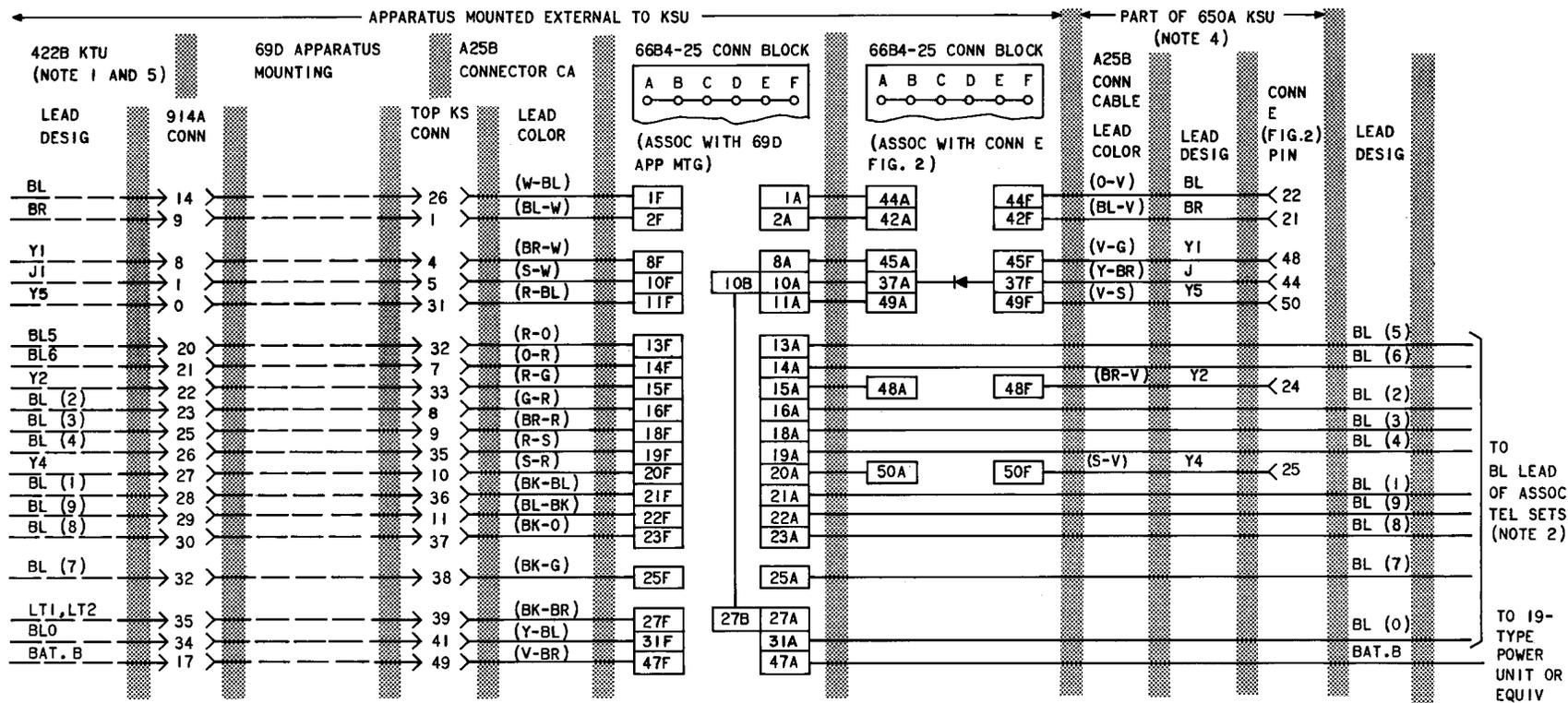
1. CONNECTING BLOCK LAYOUT ARRANGED FOR STANDARD CUTDOWN. UNUSED CONDUCTORS SHOULD BE INSULATED AND STORED.
2. A 607A KTU MUST BE PROVIDED IN THE OUTGOING VIDEO PAIR OF THE 1A SERVICE UNIT WHEN THE DISTANCE TO THE KEY TELEPHONE EQUIPMENT IS GREATER THAN:
  - (1) 500' WITH 252A SWITCHBOARD CABLE (24GA)
  - (2) 425' WITH D-TYPE INSIDE WIRING CABLE (24GA)
  - (3) 615' WITH D-TYPE INSIDE WIRING CABLE (22GA)
 LOCATE 607A KTU NEAR 650A KSU.

\* DASHED LINES INDICATE FACTORY FURNISHED WIRING.

† CONNECT TO 19-TYPE POWER SUPPLY OR EQUIVALENT.

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Fig. 10—Connections For Externally Mounted 607A KTU (Control Cable Equalizer)

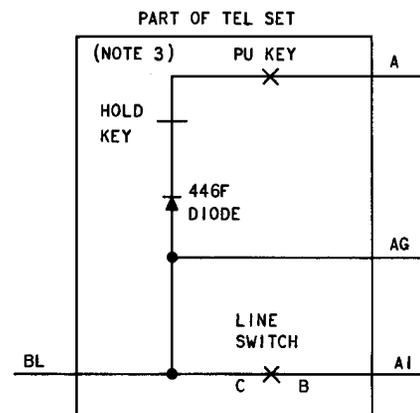
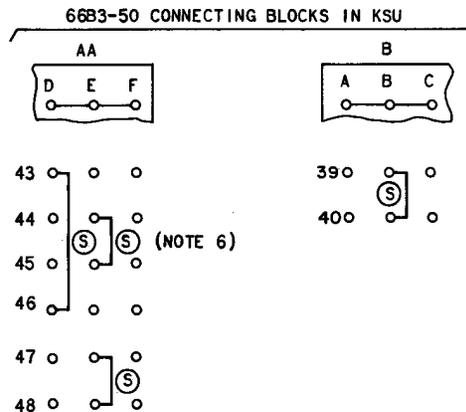


**NOTES:**

1. DASHED LEADS INDICATE FACTORY WIRING.
2. CONNECT BL LEADS TO STATION HAVING THE SAME NUMERICAL SUFFIX.
3. A 446F DIODE MUST BE INSTALLED IN STATION TEL SET AS SHOWN.
4. TERMINALS 4 AND 6 OF TBI MUST BE STRAPPED ON THE 423A KTU IN THE KSU (R OPTION SD-69567-01)
5. TERMINALS 6 AND 8 OF TBI MUST BE STRAPPED ON THE 422B KTU WHICH IS EXTERNALLY MOUNTED (R OPTION SD-69567-01).
6. THIS OPTION AGREES WITH SD-69621-01
7. REMOVE STRAP BETWEEN 43 AND 44 ON CONNECTING BLOCK AA WHEN (S) OPTION IS PROVIDED.
8. (S) OPTION CANNOT BE PROVIDED WITH OPTION (M) OR (K).

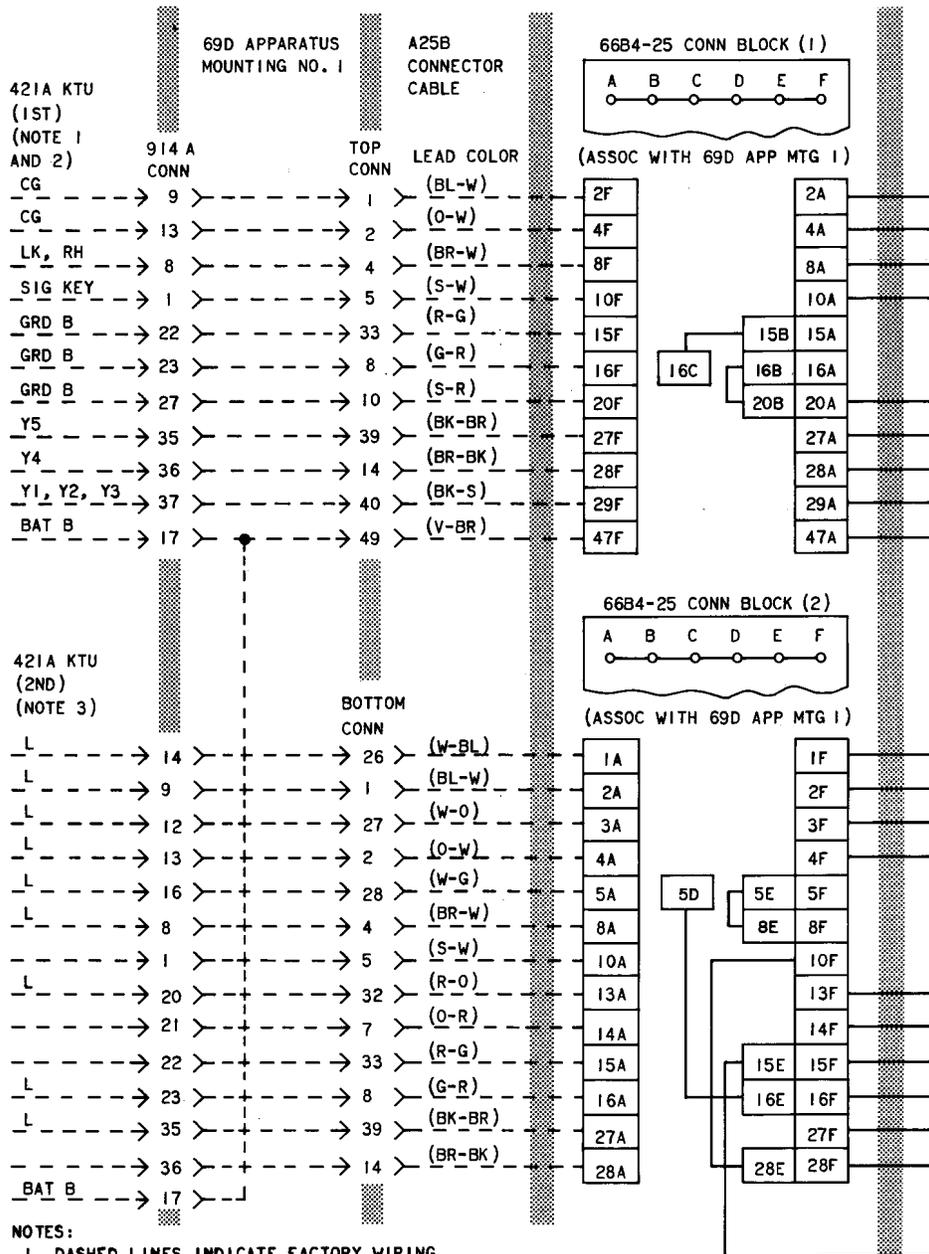
**OPTION:**

- (S) STATION BUSY TONE (NOTE 8).



**Fig. 11—Station Busy Tone (Using an Externally Mounted 422B KTU) Connections (Read Notes)**

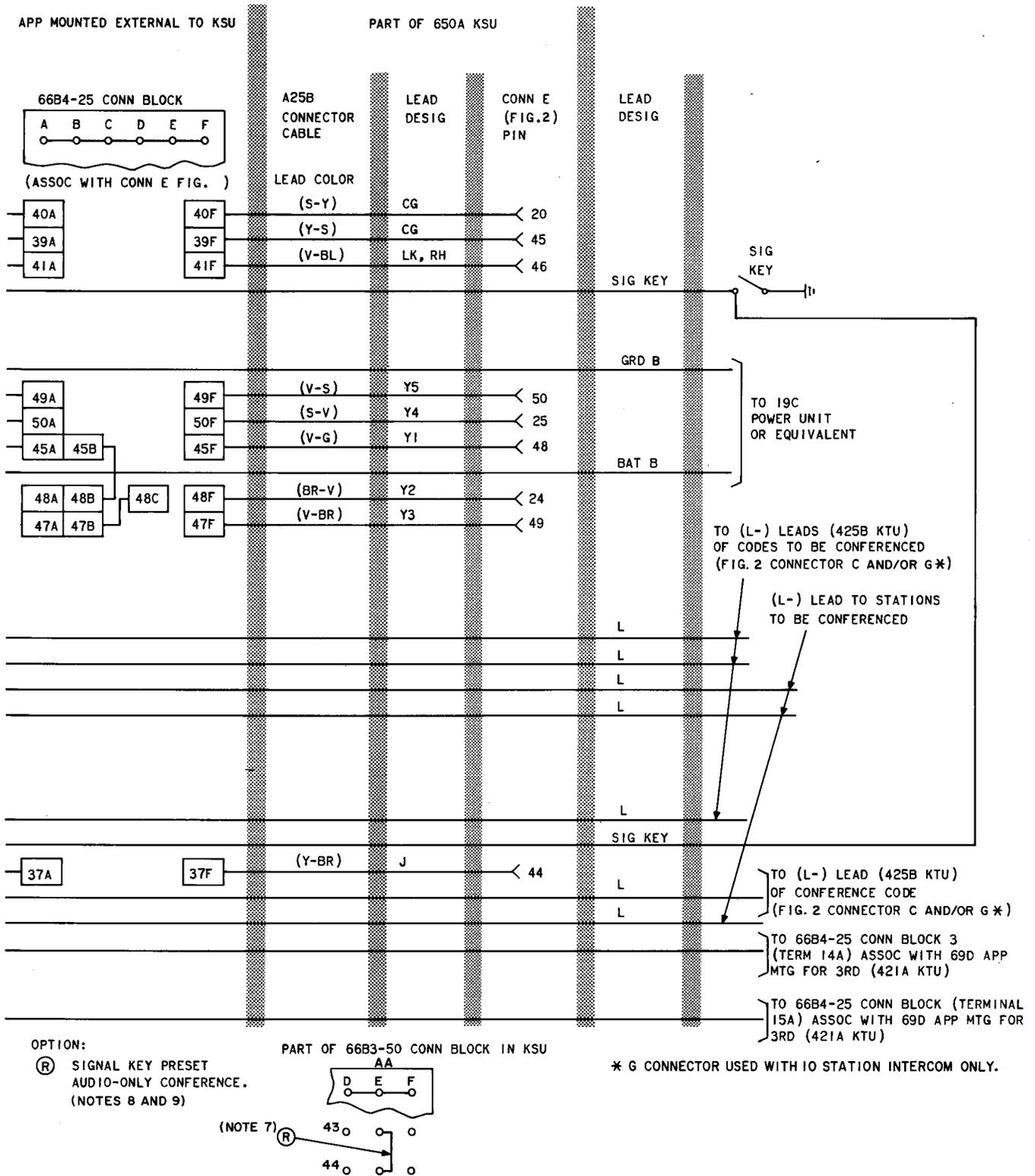
APPARATUS MOUNTED EXTERNAL TO KSU



- NOTES:
1. DASHED LINES INDICATE FACTORY WIRING.
  2. STRAP 1 TO 2 ON TBI TERMINAL STRIP 1ST 421A KTU.
  3. STRAP 1 TO 2 AND 7 TO 8 ON TBI TERMINAL STRIP 2ND 421A KTU.
  4. STRAP 7 TO 8 ON TBI TERMINAL STRIP 3RD 421A KTU.
  5. TEL SET RINGERS TO BE RUNG BY THE DIODE MATRIX SHOULD BE CONNECTED WITHOUT THE RINGER CAPACITOR.
  6. 446F DIODES MUST BE ORDERED SEPARATELY AND INSTALLED AS REQUIRED.
  7. THIS OPTION AGREES WITH SD-69621-01.
  8. MAKE SURE STRAPS BETWEEN TERMINALS 47 AND 48 ON CONN BLOCK AA AND 39 AND 40 ON CONN BLOCK B ARE REMOVED WHEN (R) OPTION IS PROVIDED.
  9. (R) OPTION REDUCES THE NUMBER OF AVAILABLE STATION CODES BY ONE WHEN PROVIDED.

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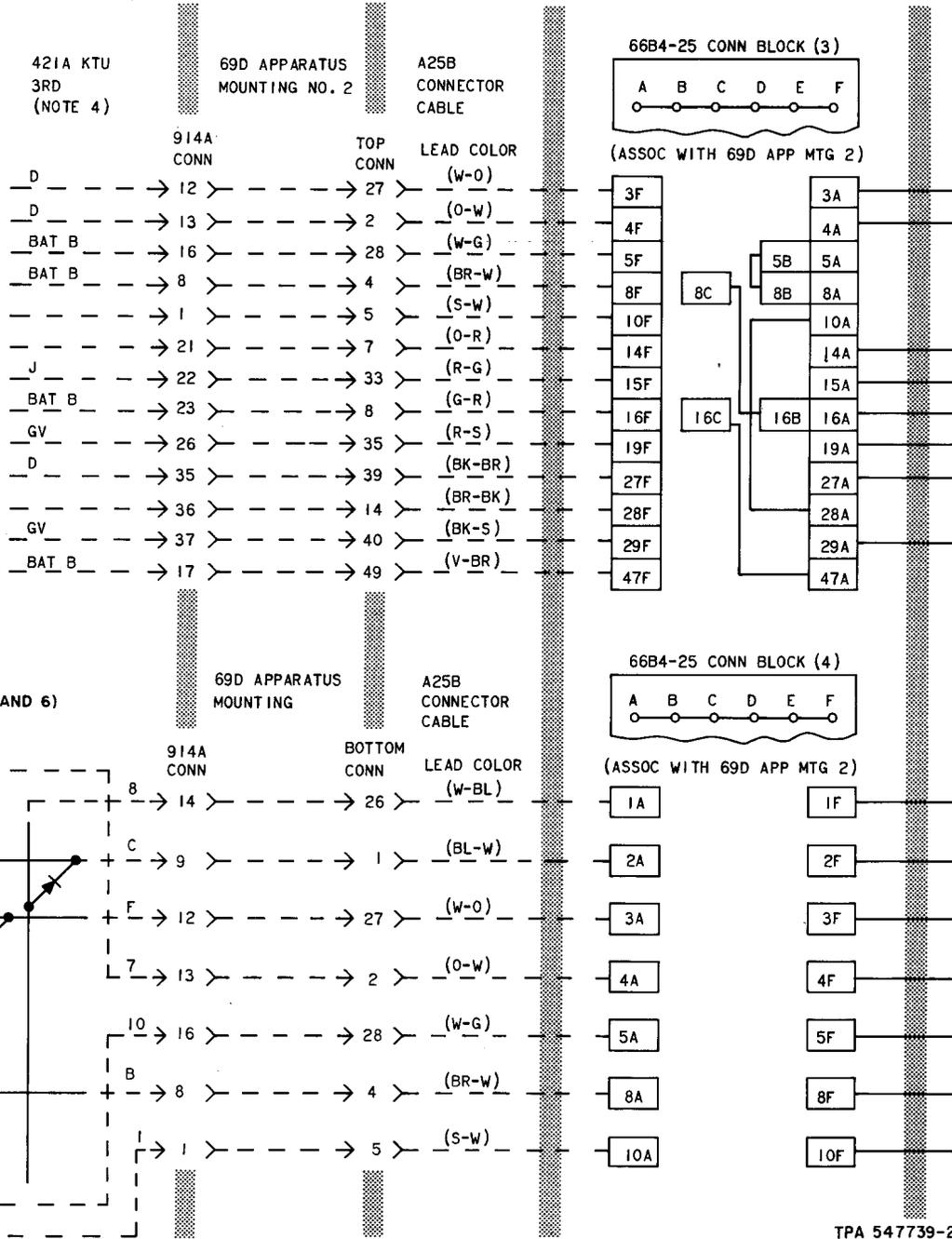
Fig. 12—Signal Key Preset Audio Only Conference (Using Externally Mounted 404A and 421A KTUs) Connections (Sheet 1)



TPA 547739

Fig. 12—Signal Key Preset Audio Only Conference (Using Externally Mounted 404A and 421A KTUs) Connections (Sheet 2)

APPARATUS MOUNTED EXTERNAL TO KSU

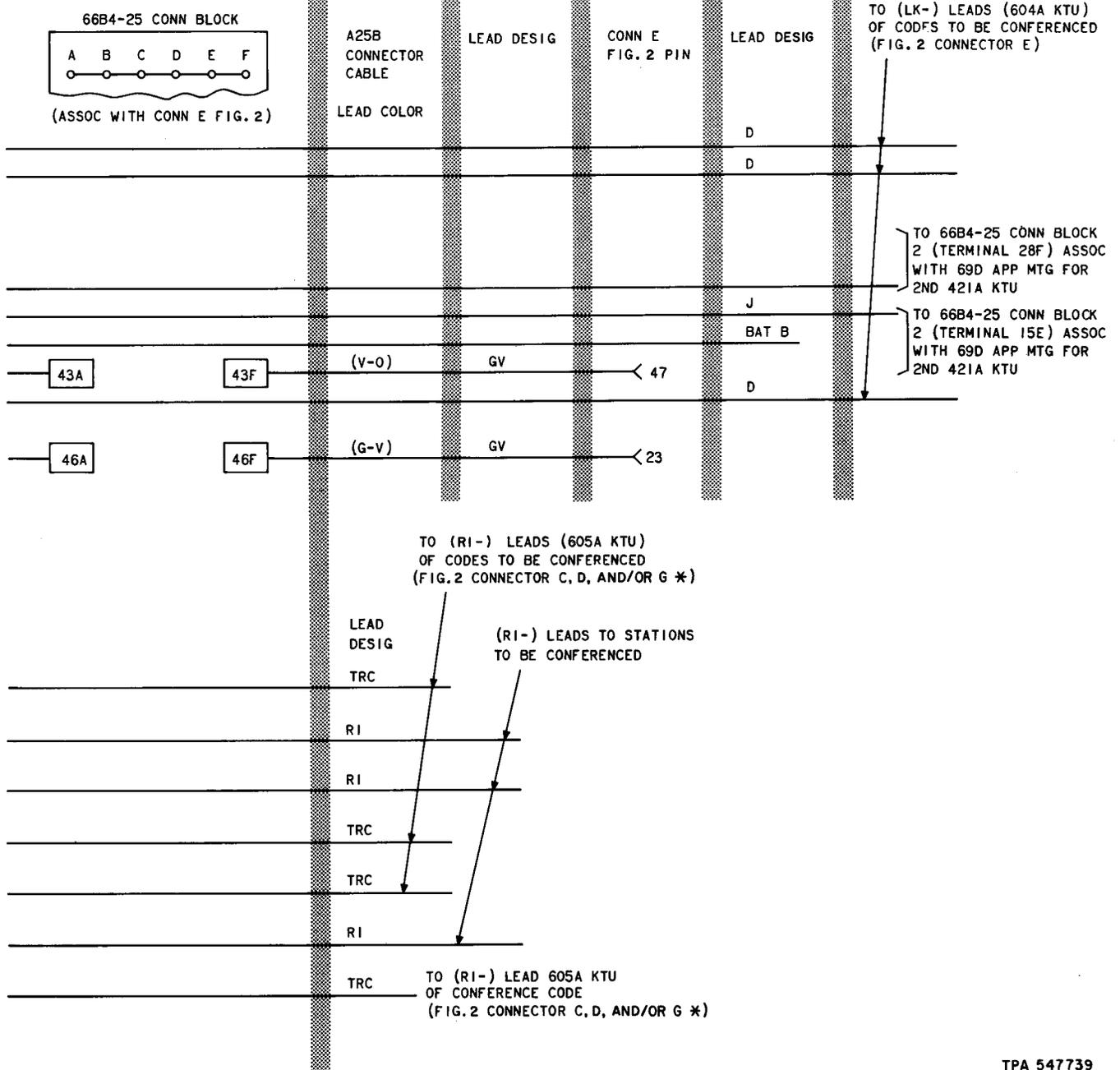


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Fig. 12—Signal Key Preset Audio Only Conference (Using Externally Mounted 404A and 421A KTUs) Connections (Sheet 3)

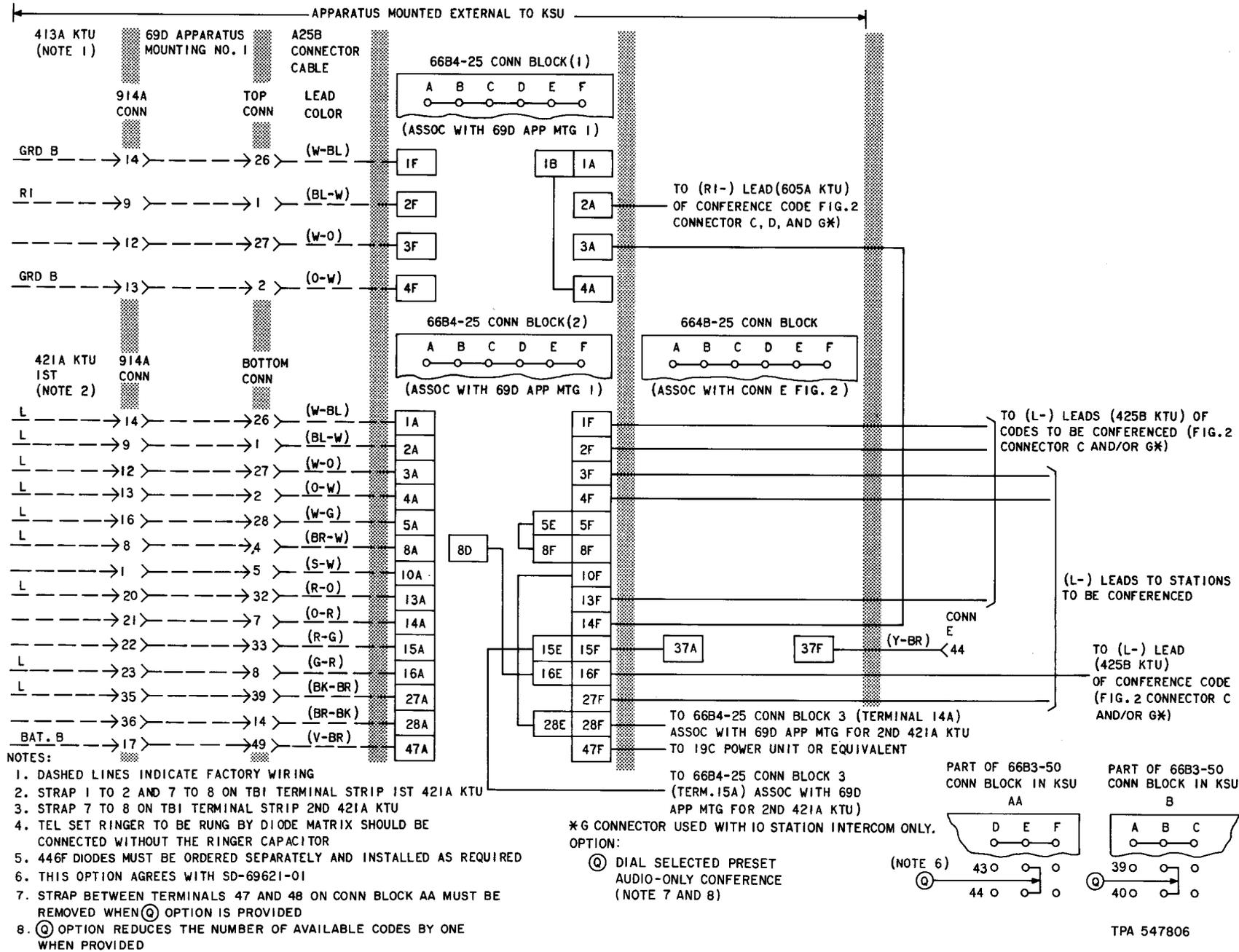
APPARATUS MOUNTED EXTERNAL TO KSU

PART OF 650A KSU



TPA 547739

Fig. 12—Signal Key Preset Audio Only Conference (Using Externally Mounted 404A and 421A KTUs) Connections (Sheet 4)



NOTES:

1. DASHED LINES INDICATE FACTORY WIRING
2. STRAP 1 TO 2 AND 7 TO 8 ON TBI TERMINAL STRIP 1ST 421A KTU
3. STRAP 7 TO 8 ON TBI TERMINAL STRIP 2ND 421A KTU
4. TEL SET RINGER TO BE RUNG BY DIODE MATRIX SHOULD BE CONNECTED WITHOUT THE RINGER CAPACITOR
5. 446F DIODES MUST BE ORDERED SEPARATELY AND INSTALLED AS REQUIRED
6. THIS OPTION AGREES WITH SD-69621-01
7. STRAP BETWEEN TERMINALS 47 AND 48 ON CONN BLOCK AA MUST BE REMOVED WHEN (Q) OPTION IS PROVIDED
8. (Q) OPTION REDUCES THE NUMBER OF AVAILABLE CODES BY ONE WHEN PROVIDED

Fig. 13—Dial Selected Preset Audio Only Conference (Using Externally Mounted 404A and 421A KTUs) Connections (Sheet 1)

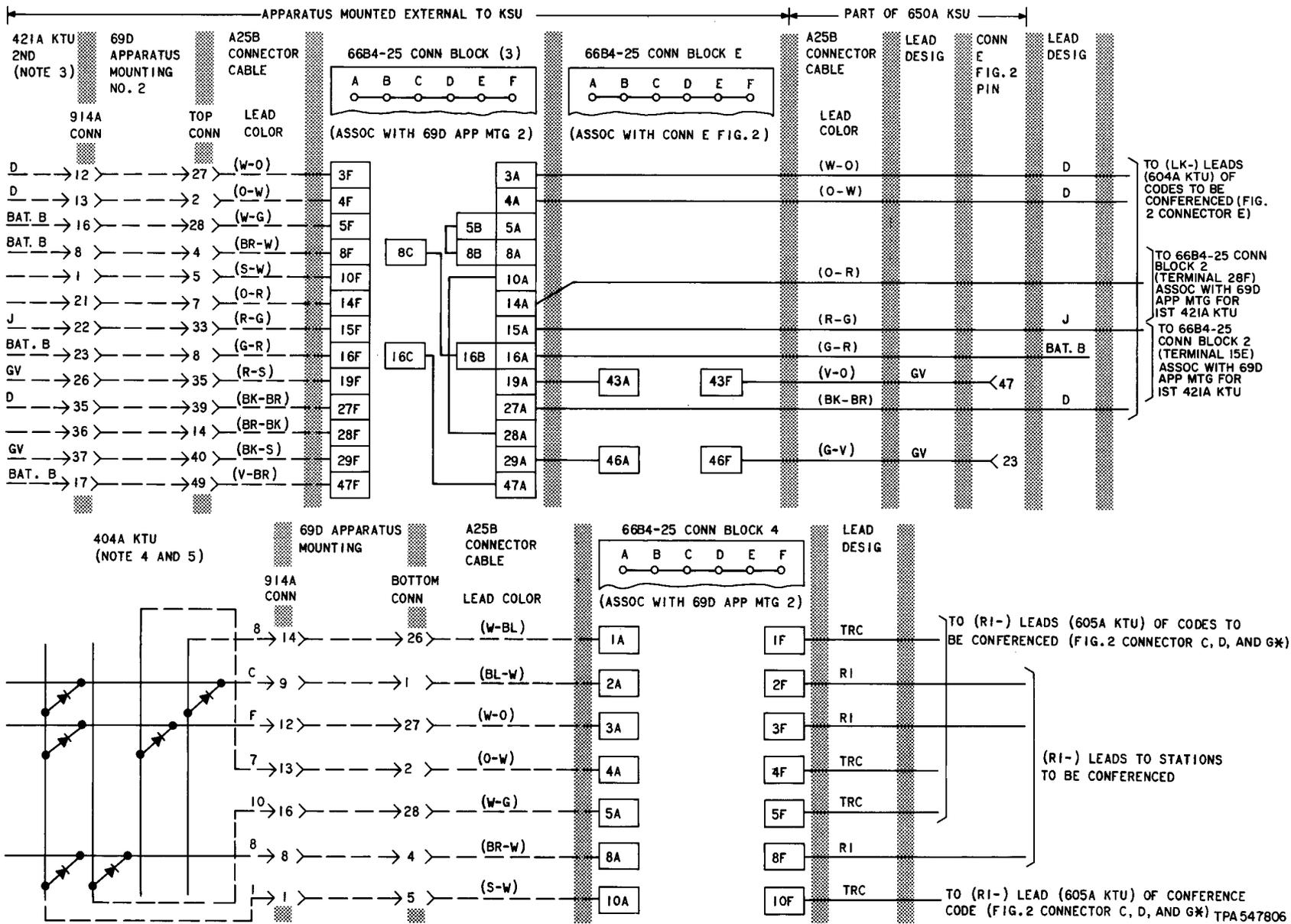
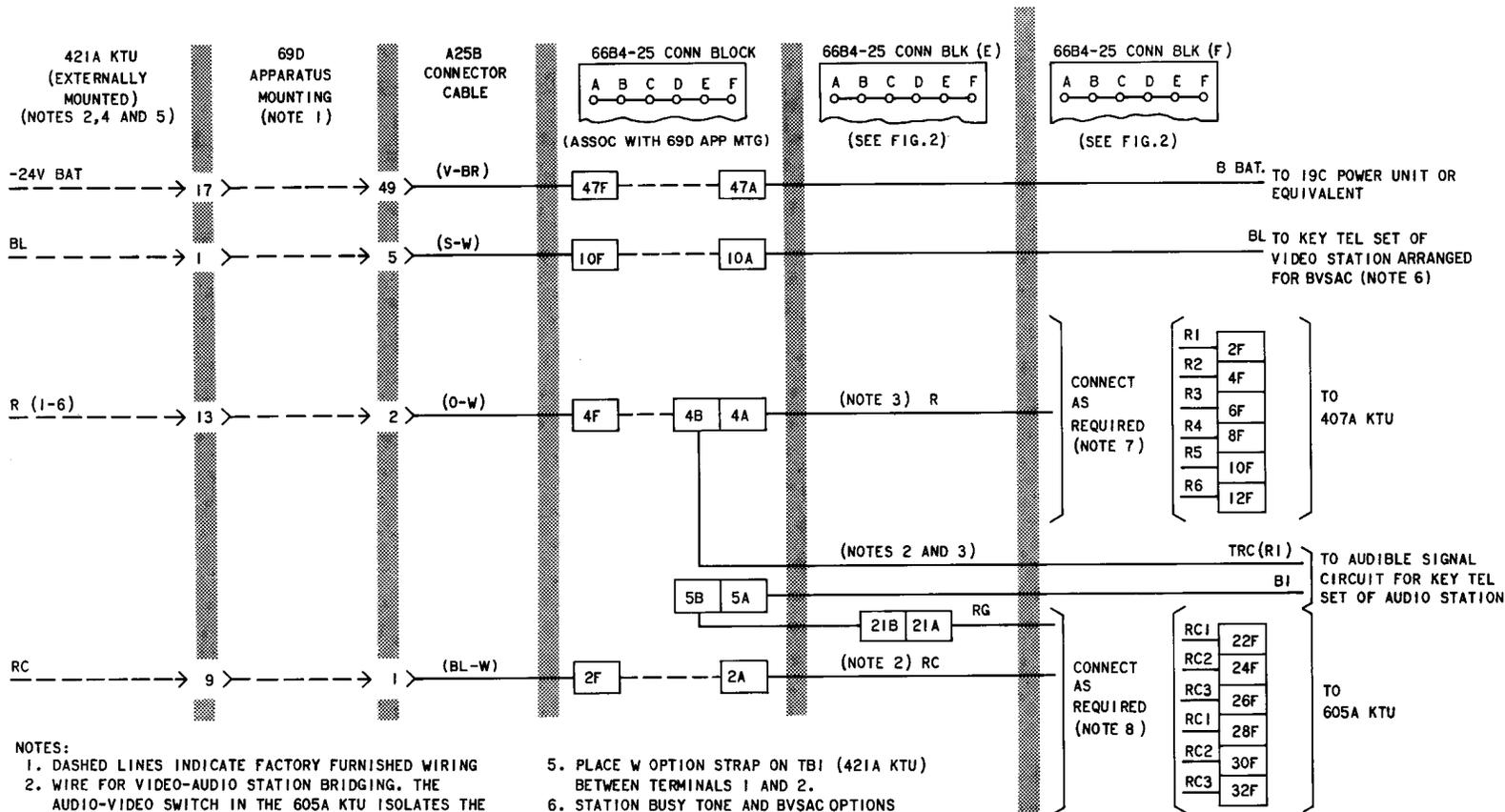
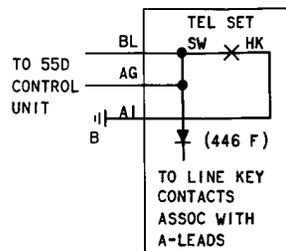


Fig. 13—Dial Selected Preset Audio Only Conference (Using Externally Mounted 404A, 413A, and 421A KTUs) Connections (Sheet 2)



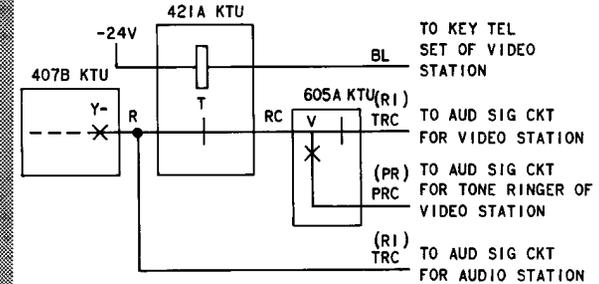
**NOTES:**

1. DASHED LINES INDICATE FACTORY FURNISHED WIRING
2. WIRE FOR VIDEO-AUDIO STATION BRIDGING. THE AUDIO-VIDEO SWITCH IN THE 605A KTU ISOLATES THE RINGING CIRCUITS IN THE VIDEO STATION.
3. THE MAXIMUM ALLOWABLE LENGTH OF UNPAIRED RINGING LEAD IS TEN FEET.
4. A 446F DIODE MUST BE INSTALLED IN THE STATION SET IN THE FOLLOWING MANNER:
5. PLACE W OPTION STRAP ON TBI (421A KTU) BETWEEN TERMINALS 1 AND 2.
6. STATION BUSY TONE AND BVSAC OPTIONS CANNOT BE USED TOGETHER. DO NOT CONNECT STRAPS (R-) TO (RC-) ON 66B3-50 CONNECTING BLOCK B FOR CODE USED WHEN BVSAC IS USED.
7. CONNECT TO "R" LEAD OF STATION CODE ARRANGED FOR BVSAC.
8. THE 605A KTU CONSISTS OF 3-IDENTICAL AUDIO-VIDEO LINK CIRCUITS (TWO 605A KTU'S TOTAL 6 CIRCUITS) CONNECT TO RC LEAD OF CIRCUIT BEING USED FOR STATION ARRANGED FOR BVSAC.



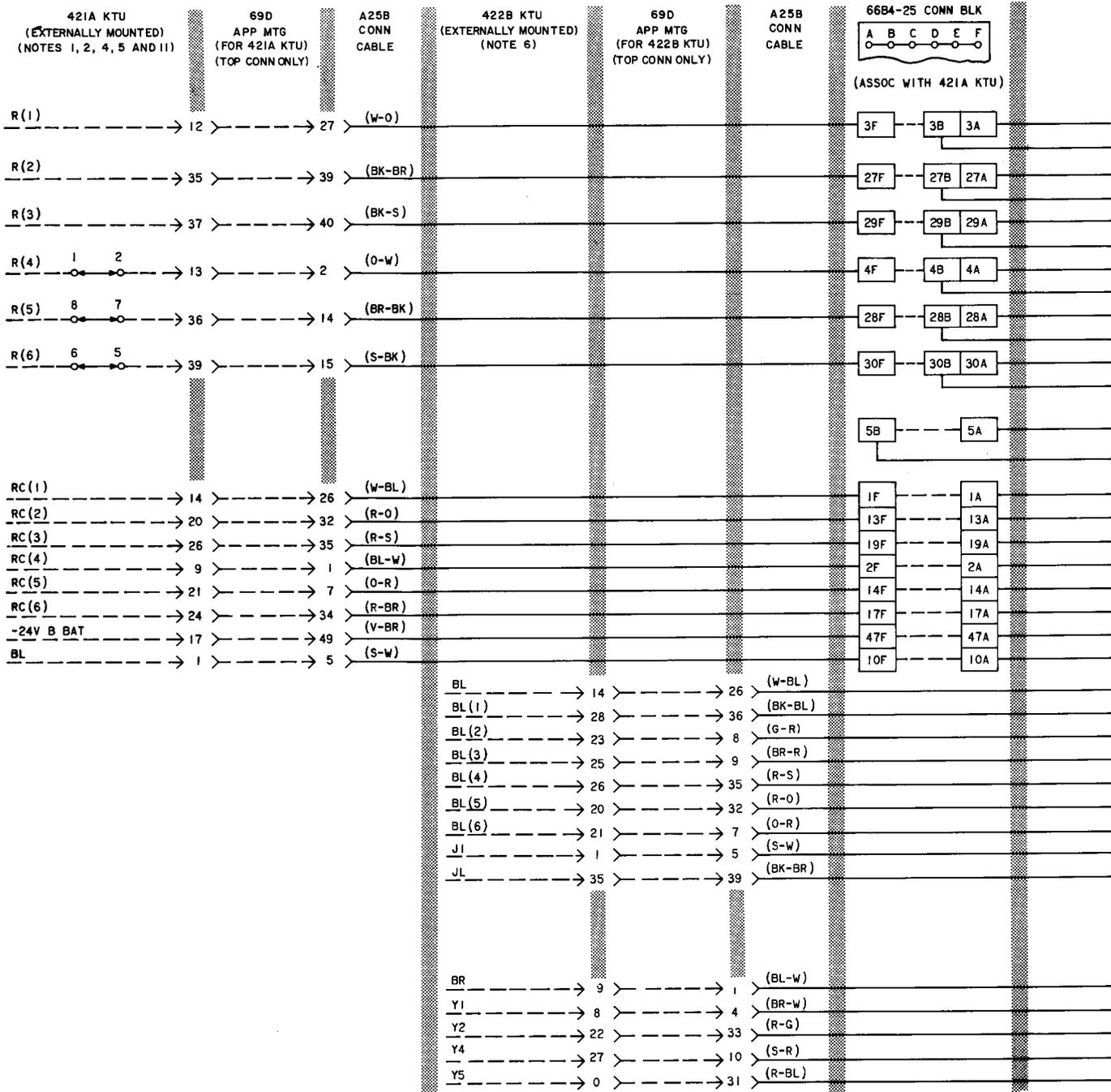
REFER TO APPROPRIATE SECTION FOR TEL SET TO BE MODIFIED

**BLOCK DIAGRAM OF BVSAC FOR 1 STATION**

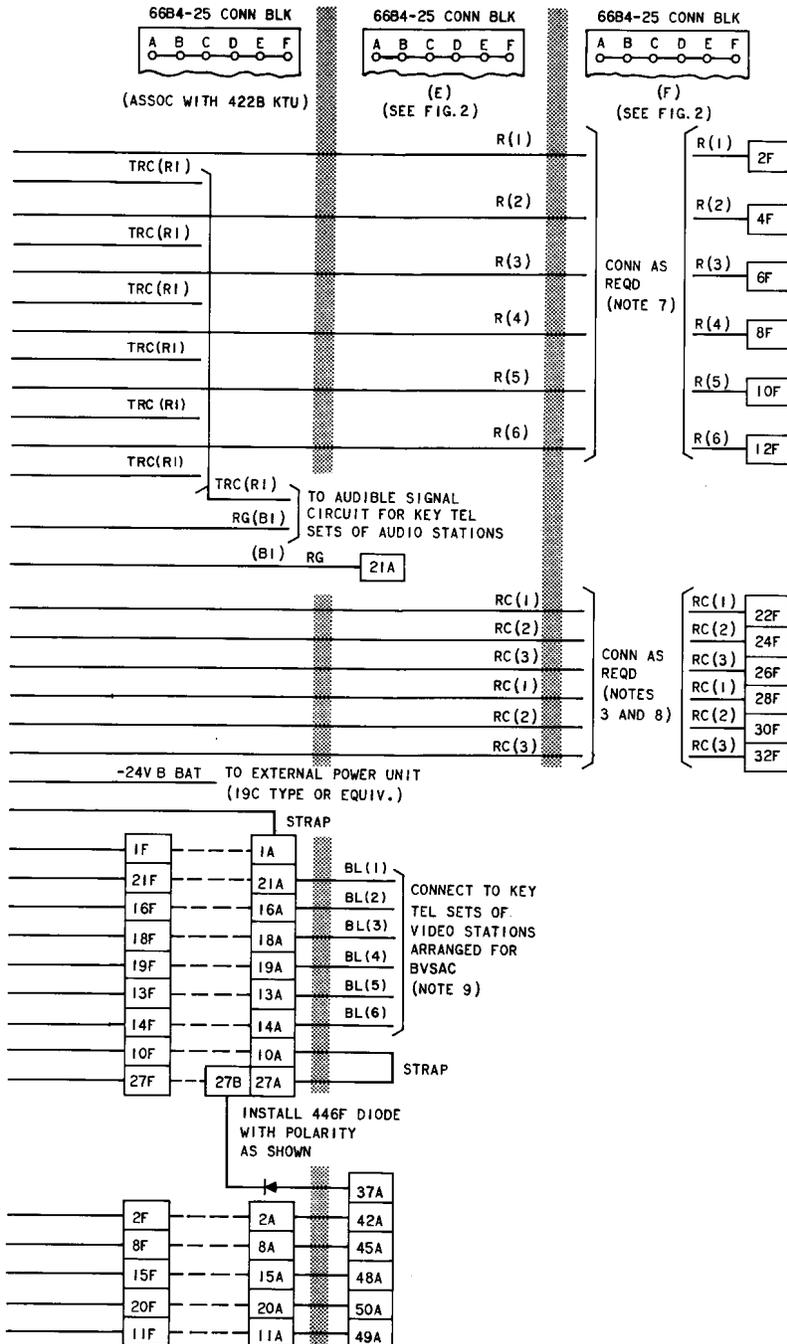


**Fig. 14—Busy Video Station Audible Cutoff (BVSAC) for One Station (Using Externally Mounted 421A KTU) Connections**

**SECTION 518-800-409**

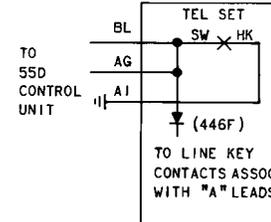


**Fig. 15—Busy Video Station Audible Cutoff (BVSAC) for More Than One Station (Using Externally Mounted 421A and 422B KTUs) Connections (Sheet 1)**



NOTES:

1. DASHED LINES INDICATE FACTORY FURNISHED WIRING
2. STATION ARRANGED FOR BVSAC MUST BE WIRED FOR VIDEO-AUDIO BRIDGING. THE VIDEO-AUDIO SWITCH IN THE 605A KTU ISOLATES THE RINGING CIRCUITS IN THE VIDEO STATION.
3. THE MAXIMUM ALLOWABLE LENGTH OF UNPAIRED RINGING LEAD IS TEN FEET.
4. A 446F DIODE MUST BE INSTALLED IN THE STATION SET IN THE FOLLOWING MANNER:



5. PLACE (W) OPTION STRAP ON TBI (421A KTU) BETWEEN TERMINALS 1 AND 2, 7 AND 8, AND 5 AND 6 AS SHOWN, WHEN REQUIRED.
6. PLACE (R) OPTION STRAP ON TBI (422A KTU) BETWEEN TERMINALS 6 AND 8.
7. CONNECT TO "R" LEAD OF STATION CODE ARRANGED FOR BVSAC.
8. THE 605A KTU CONSISTS OF 3-IDENTICAL AUDIO-VIDEO LINK CIRCUITS (TWO 605A KTU'S TOTAL 6 CIRCUITS) CONNECT TO RC LEAD OF CIRCUIT BEING USED FOR STATION ARRANGED FOR BVSAC.
9. CONNECT BL LEADS TO VIDEO STATIONS ARRANGED FOR BVSAC IN ACCORDANCE WITH STATION CODES 1-6.
10. STATION BUSY TONE AND BVSAC OPTIONS CANNOT BE USED TOGETHER.
11. DO NOT CONNECT STRAPS (R-) TO (RC-) ON 66B3-50, INTERNAL CONNECTING BLOCK (B) FOR CODES USED WHEN BVSAC (OPTION K) IS USED.

Fig. 15—Busy Video Station Audible Cutoff (BVSAC) for More Than One Station (Using Externally Mounted 421A and 422B KTUs) Connections (Sheet 2)