

650A KEY SERVICE UNIT 1P2 KEY TELEPHONE SYSTEM 1- OR 2-LINE CONNECTIONS

1. GENERAL

1.01 This section is reissued to provide additional connection information for one or two CO, Centrex, or PBX PICTUREPHONE® lines when used in single group service.

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

1.03 When required, the KSU may be equipped with a 417A Key Telephone Unit (KTU) to provide audio add-on conference capability to the first line. The added line may be the second line of the KSU, or a line external to the KSU.

1.04 Video and audio station talk pairs (tip and ring) may be bridged in the 1P2 Key Telephone System.

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

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

1.05 For one or two lines, the KSU must be equipped with one 601A KTU which contains two video switches (circuits). Each video switch, when operated, will connect the video portion of a PICTUREPHONE line to a video station. This is the highest priority station on that line. When 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 same line. This arrangement is called single group line service.

1.06 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 made at the 601A KTU in the KSU. All additional 601A KTUs, if provided, must be mounted external to the KSU in the 69D apparatus mounting or equivalent. (Fig. 6 and 7).

1.07 A 607A KTU (cable equalizer) must be provided near the KSU in the outgoing video pair (VOT/VOR) of the 1A service unit 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: For cabling distance other than shown see Section 518-800-110.

The 607A KTU must be installed external to the KSU in a 69B apparatus mounting, or equivalent (Fig. 8). 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 pair.

1.08 The cable path distance between the 650A KSU and the 66-type connecting block field

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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 the video station even though an external 607A KTU is used.

1.09 Power for up to three externally mounted 601A KTUs and one 607A KTU is available from the 51-type power unit used with the 650A KSU (Fig. 2).

1.10 Refer to CD- and SD-69605-01 and SD-69621-01, for additional information.

1.11 Alignment of the 606A and 607A KTUs is covered in Section 518-800-510.

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

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

2. CONNECTIONS

2.01 Optional arrangements for basic 2-line services are provided in Fig. 3 and Table A as follows:

- Single group service without add-on conference (Option X)

Note: Can be arranged by appropriate external connection to provide for video transmission of two lines to a single highest priority station, or one line to each of two such stations (options J and K of SD-69605-01, respectively).

- Single group service with lines 1 and 2 conferenced. (Option Y).

Note: Also provide option J (SD-69605-01) by external bridging of video and control leads of both lines to one video station.

- Single group service with external line conferenced to first line (option Z)

Note: Also provide option J or K (SD-69605-01).

2.02 These service arrangements are provided in the field by option strapping at the 66B3-50 connecting blocks in the KSU and appropriate cross-connections at the external connecting blocks.

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

2.03 For option straps required on the 600A KTU and audible signaling options to be made by connections external to the KSU, see Fig. 5.

2.04 Video 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.

2.05 When add-on conference feature is provided, place option straps on the 417A KTU per note of Table A.

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

2.07 A cross reference of options and features of the two schematic diagrams involved is shown in Table A. The option designations for connections agree with SD-69621-01 and KTU option strapping agrees with SD-69605-01.

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Fig. 2—650A KSU—1- or 2- CO, Centrex, or PBX Single Group Line Service, Connections.

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

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Fig. 7—Connections for Externally Mounted 601A KTU (One Video Line to Two Lower Priority Video Stations).

Fig. 8—Connections for Externally Mounted 607A KTU (Control Cable Equalizer).

TABLE A
FEATURES AND OPTIONS

FEATURES			OPTIONS	
			SD-69605-01	SD-69621-01
Single Station Line Termination (601A KTU)			N	
Lowest Priority Station : Multiple Station Arrangement (EXTERNALLY MOUNTED 601A KTU)			M	
Single Station Video Transmission			J	
Two-Station Video Transmission			K	
Single Group Service	With Add-On Conf	Line 1 and External Line Conferenced	Note	Z
		Lines 1 and 2 Conferenced	Note	Y
	Without Add-On Conference			X
Power	Internal			J
	External			H
External Equalizer			H	

Note: When a conference circuit (417A KTU), which is controlled by a nonlocking key, (control at one station only in single group line service) is used, always strap terminal 6 to 10 (option X) and terminal 1 to 2 (option Z) as shown in SD-69651-01.

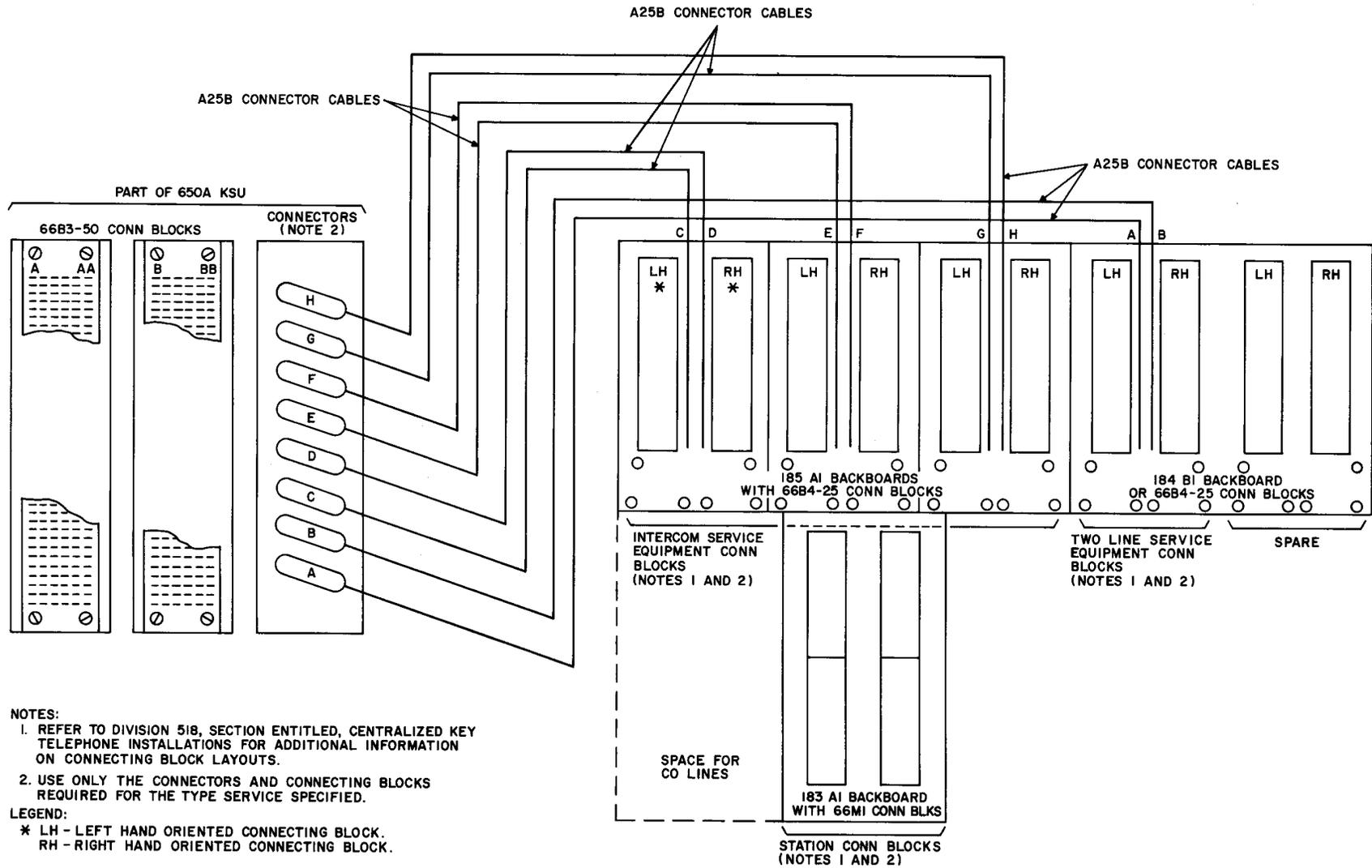


Fig. 1—General Diagram of 66B3-50 Connecting Blocks and Connector Field with Related Equipment Connecting Blocks

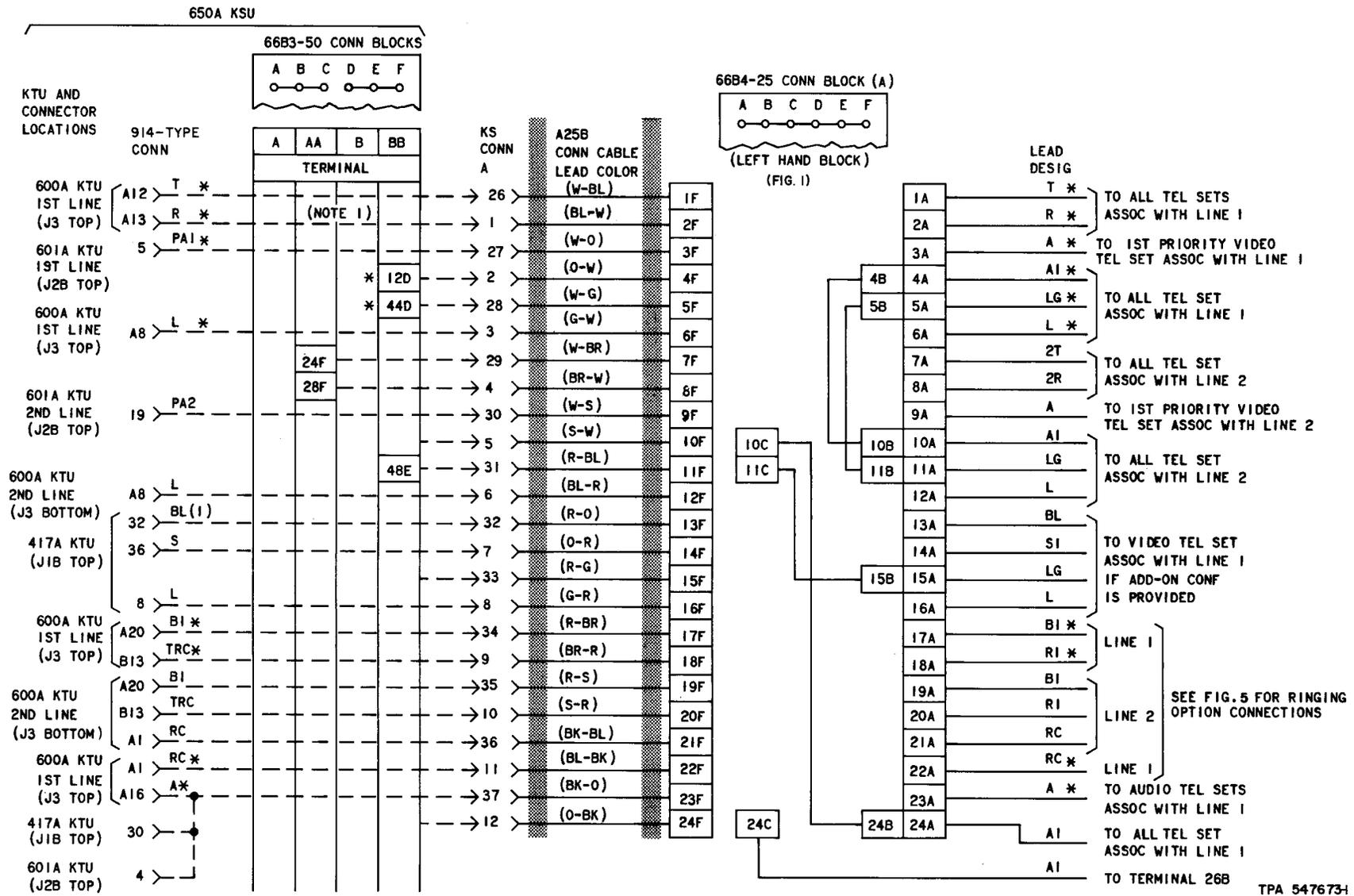


Fig. 2—650A KSU—1- or 2- CO, Centrex, or PBX Single Group Line Service, Connections (Sheet 1)

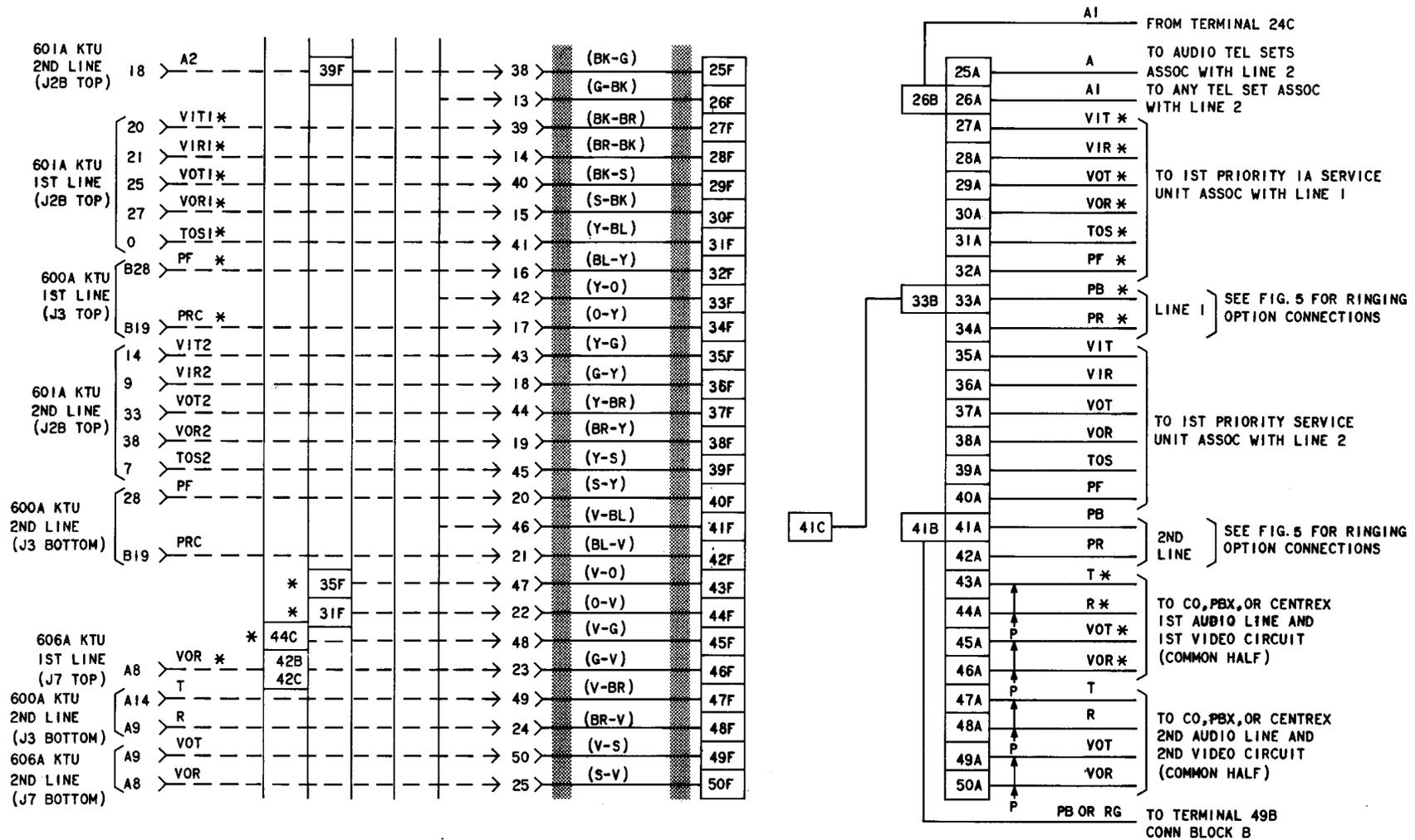


Fig. 2—650A KSU—1- or 2- CO, Centrex, or PBX Single Group Line Service, Connections (Sheet 2)

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650A KSU

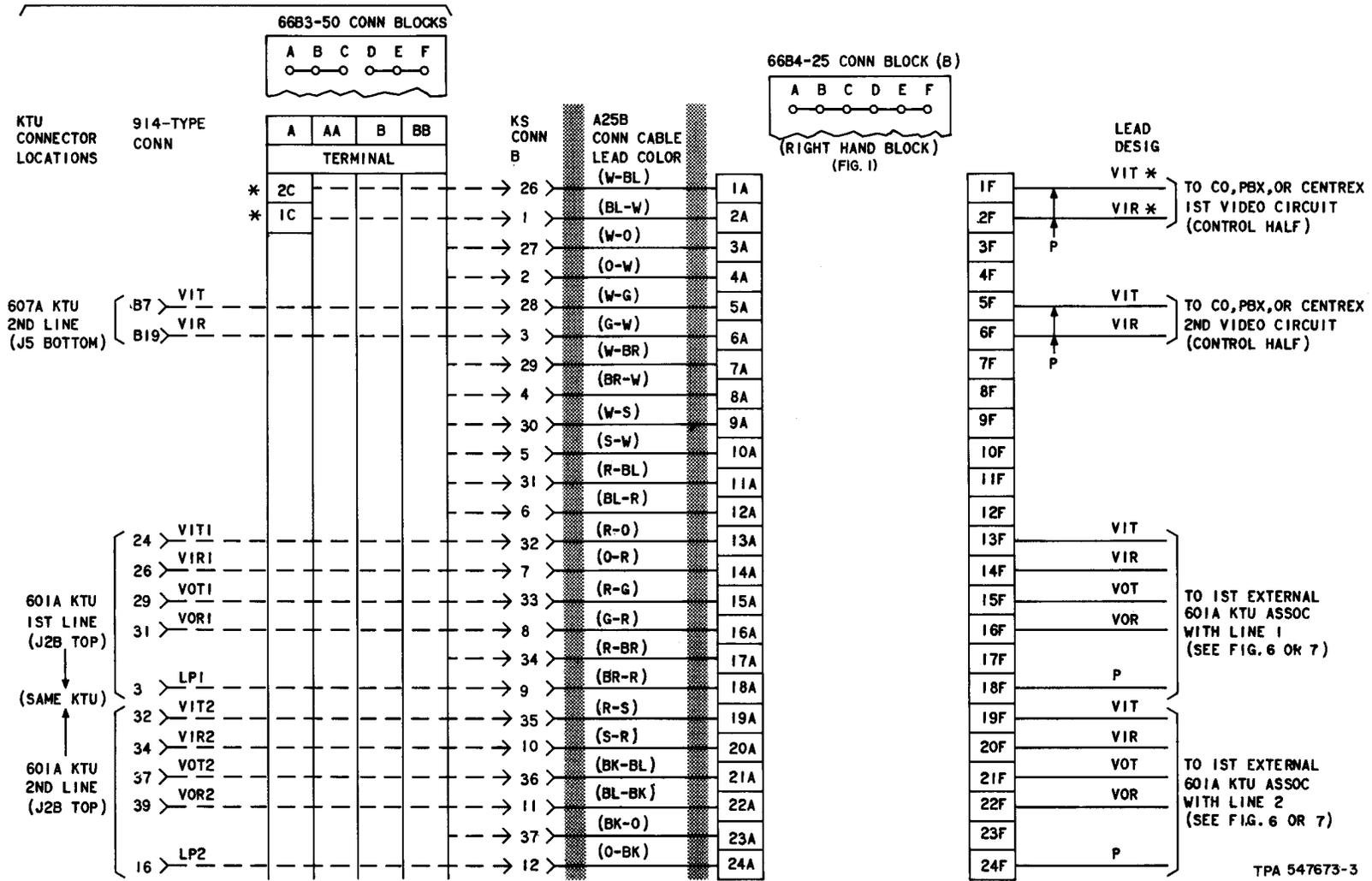


Fig. 2—650A KSU—1- or 2- CO, Centrex, or PBX Single Group Line Service, Connections (Sheet 3)

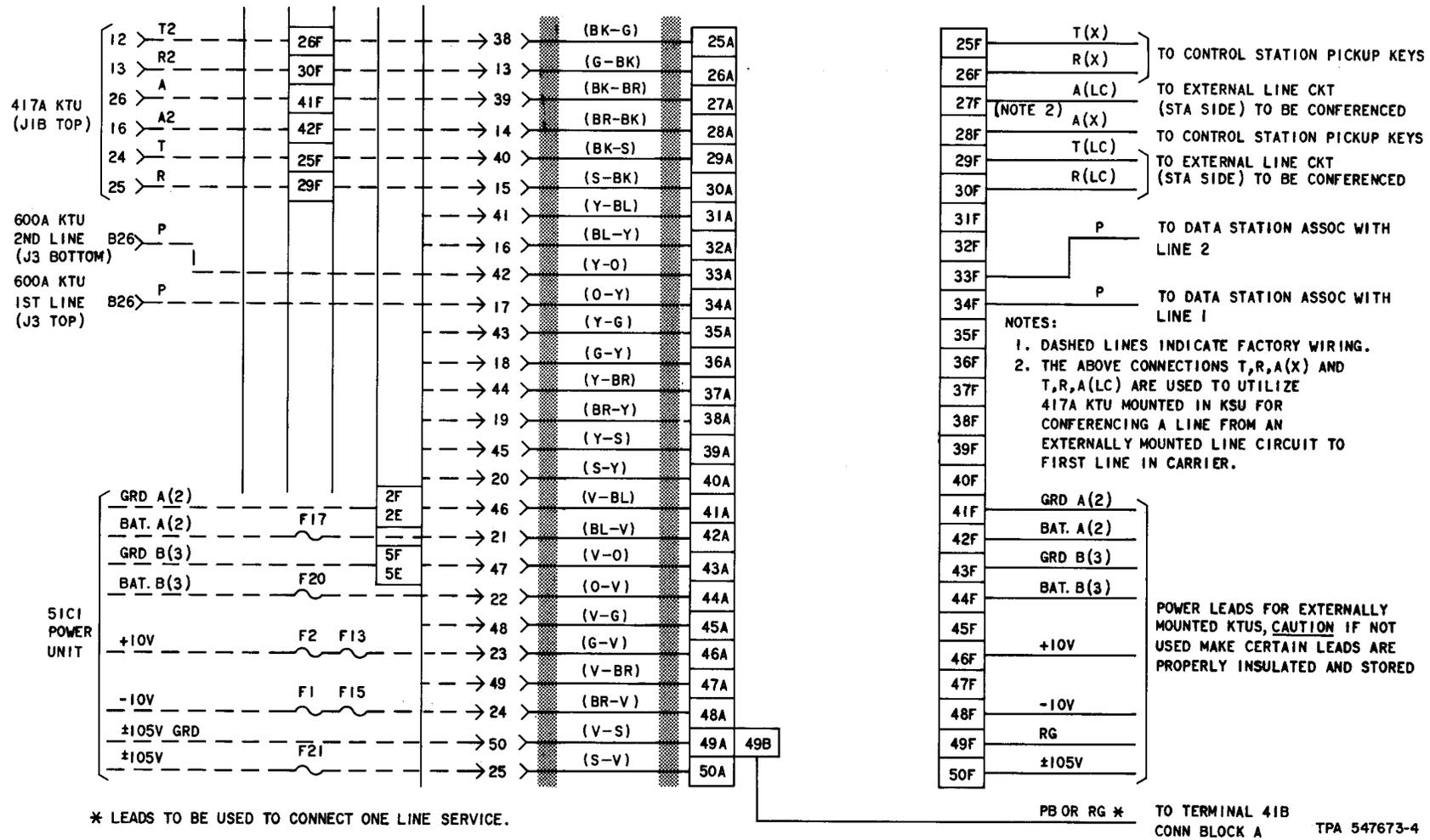


Fig. 2—650A KSU—1- or 2- CO, Centrex, or PBX Single Group Line Service, Connections (Sheet 4)

66B3-50 CONNECTING BLOCKS IN 650A KEY SERVICE UNIT

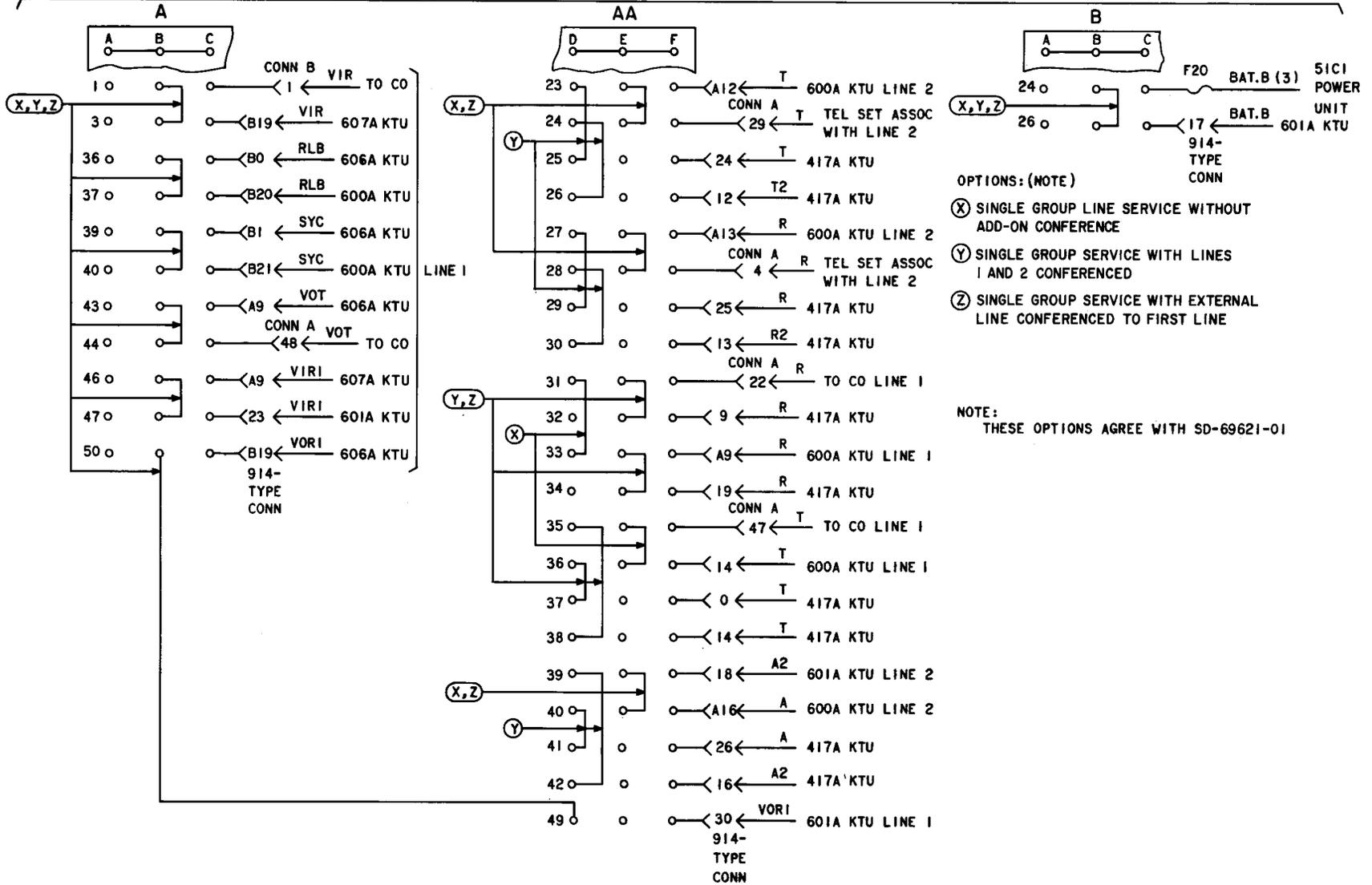
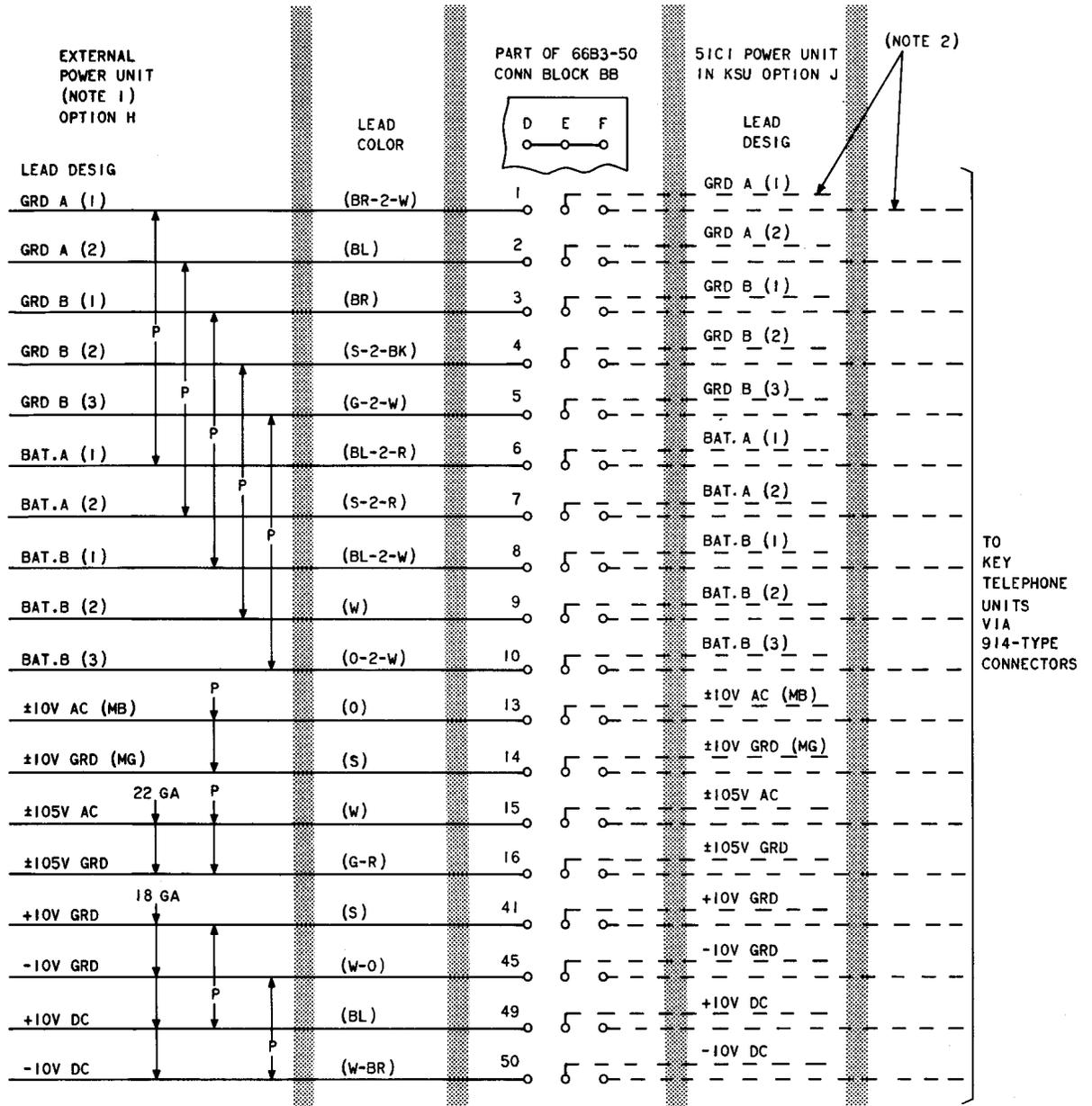
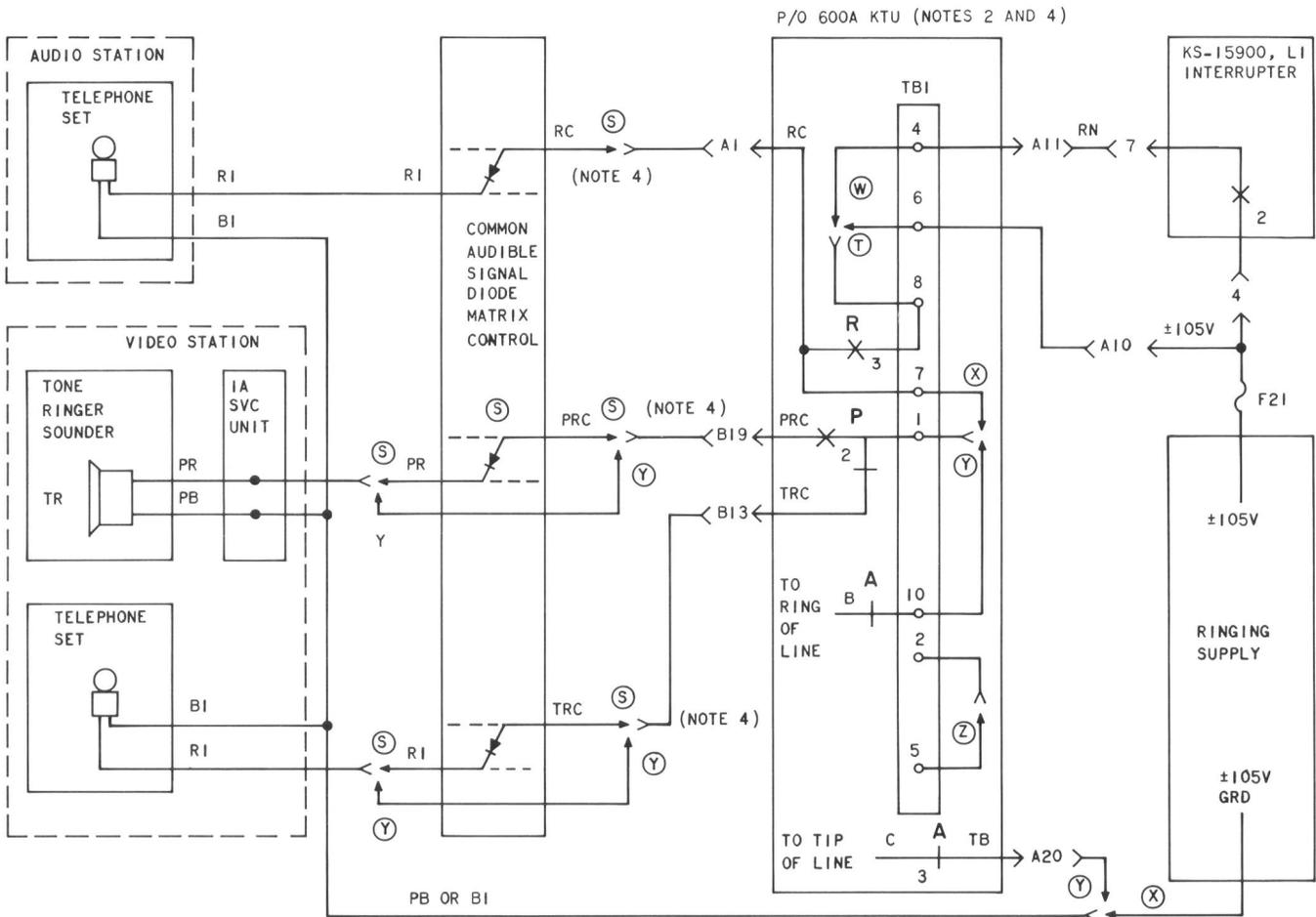


Fig. 3—Options and Service Straps on 66B3-50 Connecting Blocks in KSU



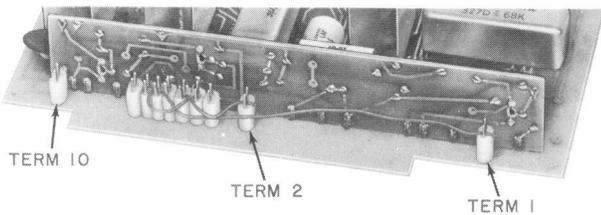
- NOTES:
 1. THE 15 FT. WIRING HARNESS IS SUPPLIED WITH 650 AI KSU TO CONNECT AN EXTERNAL POWER UNIT.
 2. DASHED LINES INDICATE FACTORY WIRING.

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



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

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

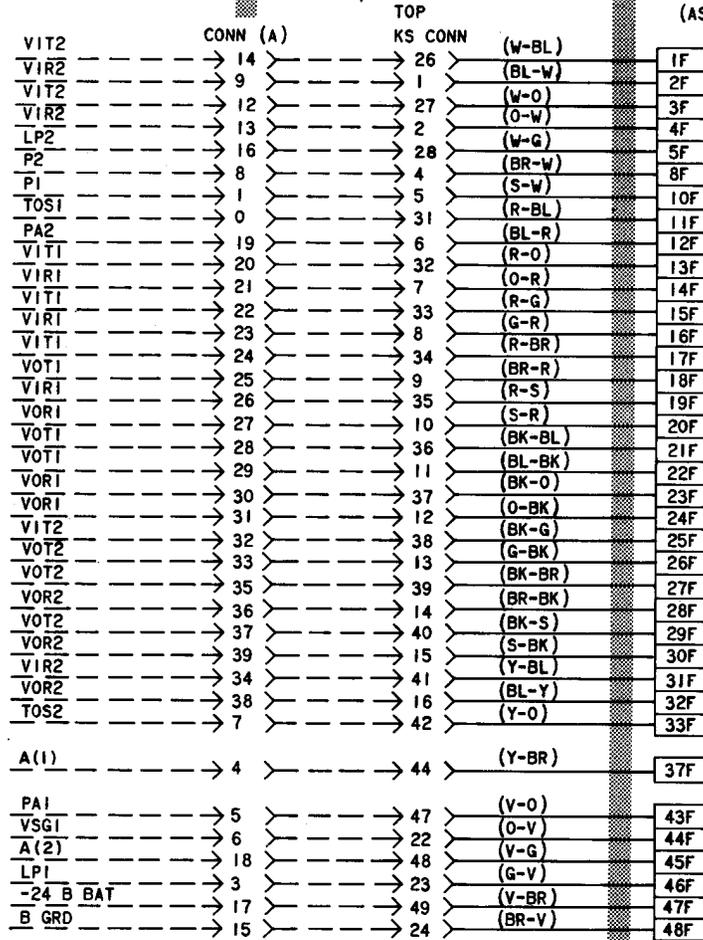
69D APPARATUS
MOUNTING
(NOTE 1)†

A25B
CONNECTOR CABLE

66B4-25 CONN BLK
(ASSOC WITH 69D APP MTG)
(NOTE 2)

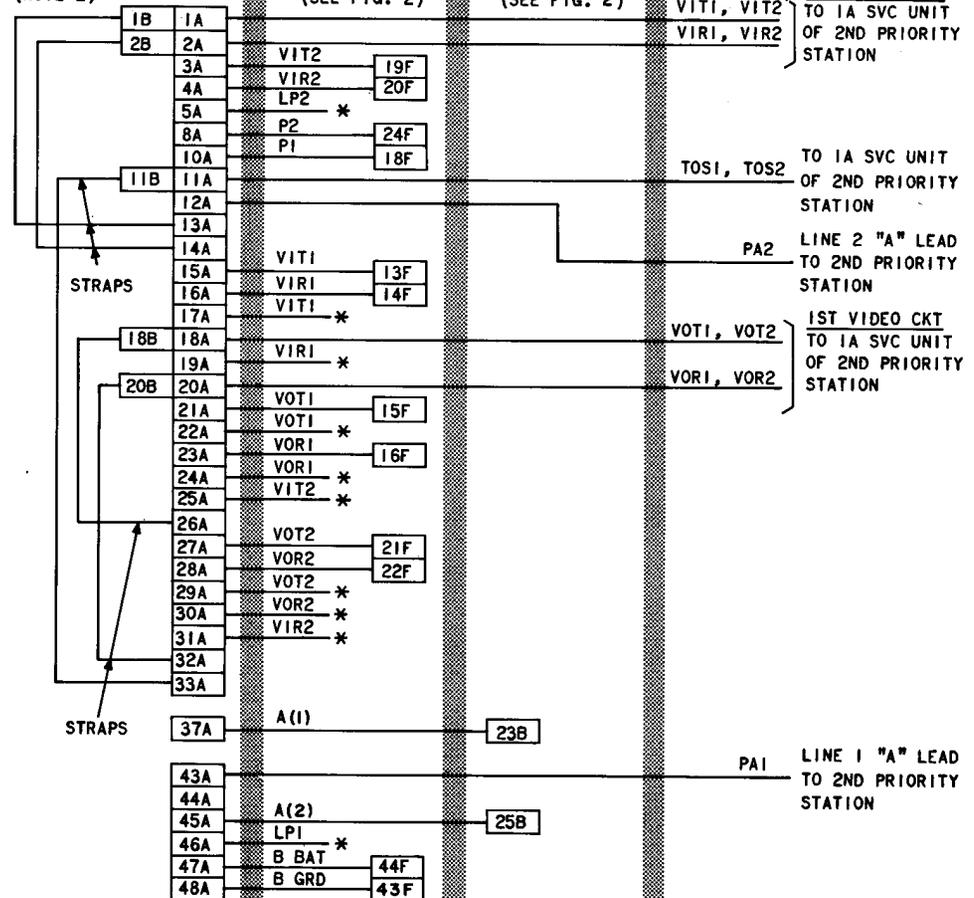
66B4-25
CONN BLK (B)
(SEE FIG. 2)

66B4-25
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)



- * NOT REQUIRED IN THIS ARRANGEMENT. CONNECT TO LOWER PRIORITY 601A KTU WHEN REQUIRED.
- † DASHED LINES INDICATE FACTORY FURNISHED WIRING.

Fig. 6—Connections For Externally Mounted 601A KTU (Two Video Lines to One Lower Priority Video Station)

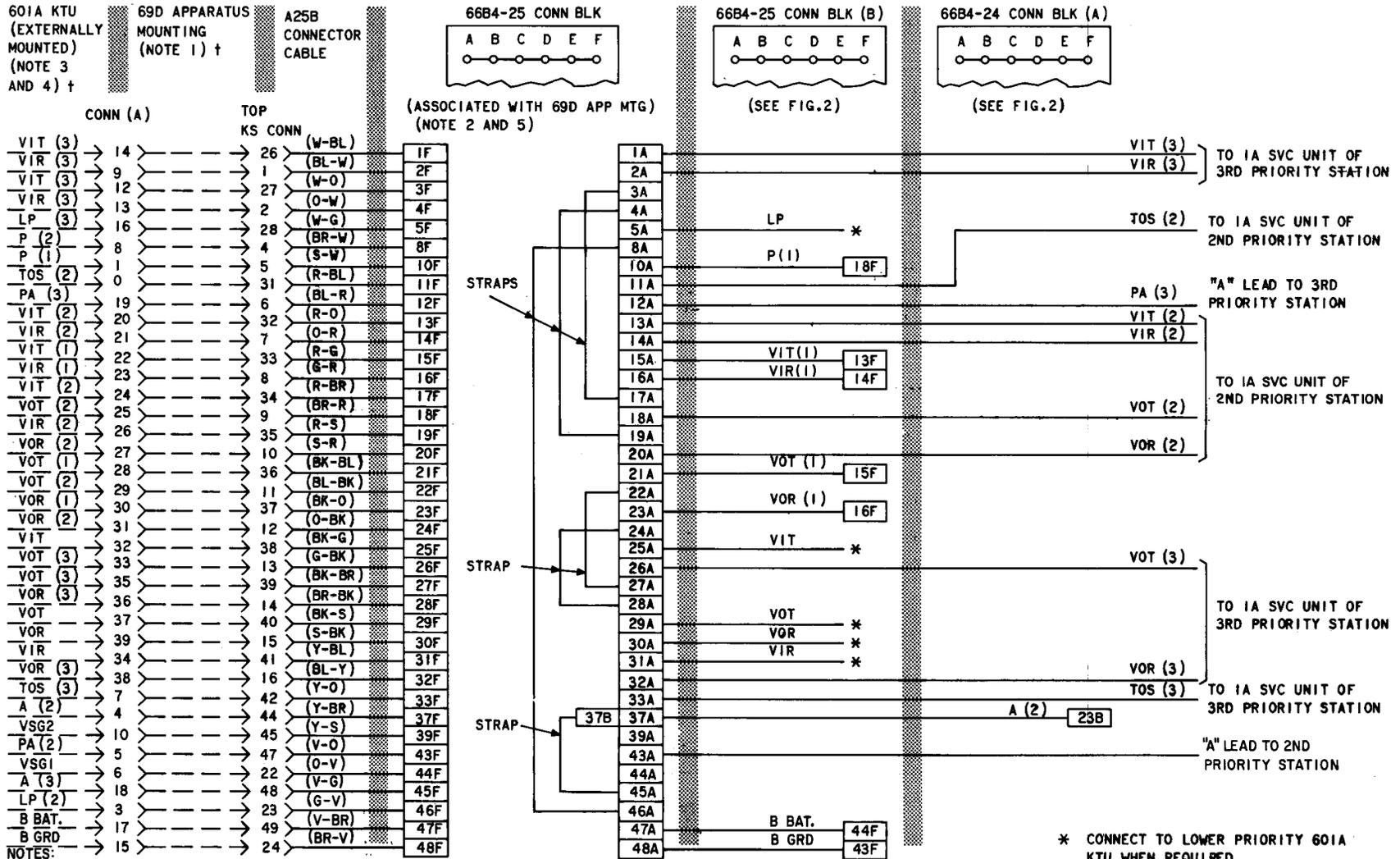
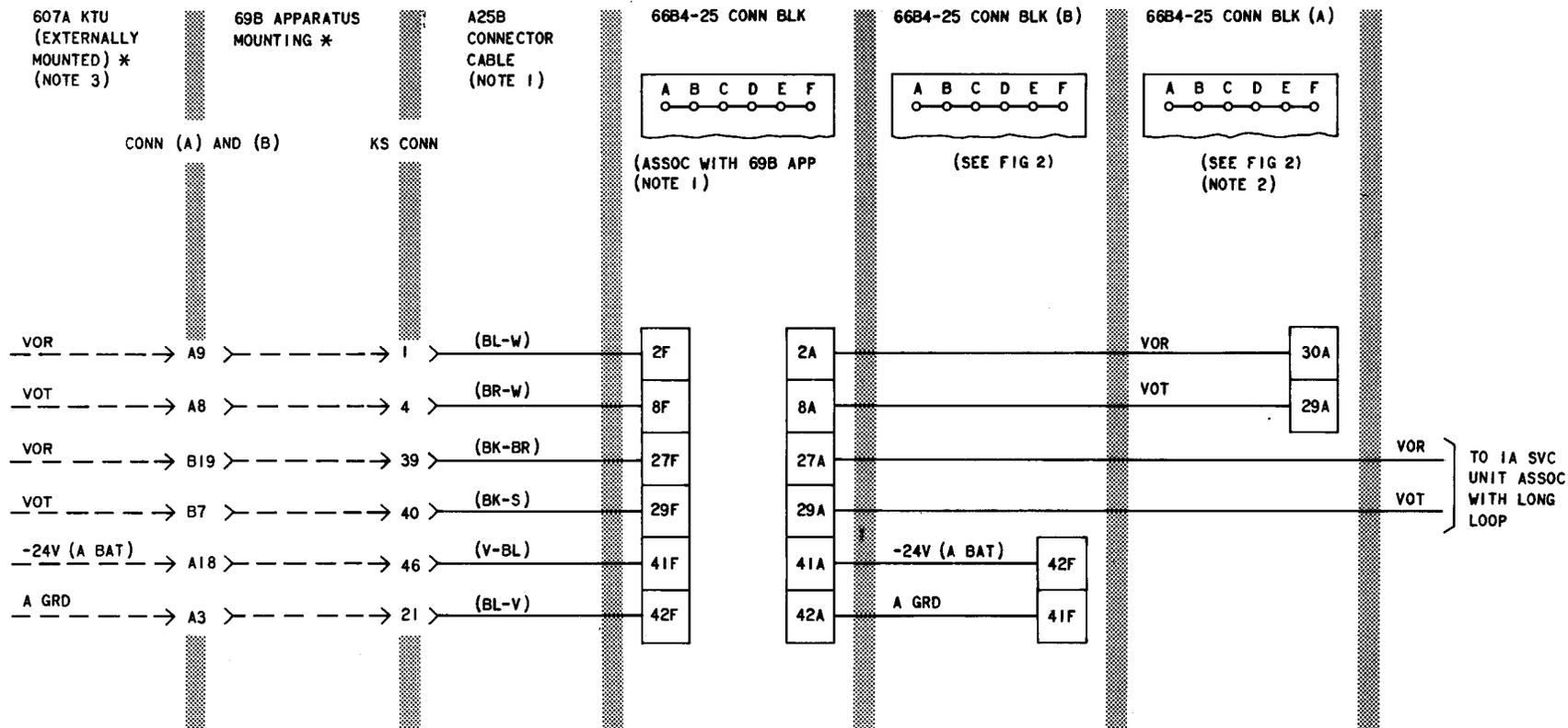


Fig. 7—Connections For Externally Mounted 601A KTU (One Video Line to Two Lower Priority Video Stations)



NOTES:

1. CONNECTING BLOCK LAYOUT ARRANGED FOR STANDARD CUTDOWN. UNUSED CONDUCTORS SHOULD BE INSULATED AND STORED.
2. THIS ARRANGEMENT ASSUMES THAT THE LONG LOOP IS ASSOCIATED WITH LINE 1. FOR LINE 2, SUBSTITUTE 38A AND 37A FOR 30A AND 29A RESPECTIVELY.
3. 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

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Fig. 8—Connections For Externally Mounted 607A KTU (Control Cable Equalizer)