584C
CARD PANEL

CONTENTS PAGE

1. INTRODUCTION

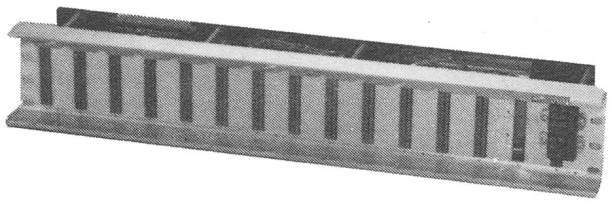
1.01 This section describes the ITT 584C card panel and provides instructions for its application and installation in a key telephone installation.

1.02 This section supersedes KSP584-102 and all previous documents covering the 584C 13-card panel. Whenever this section is reissued, the reason for reissue will be listed in this paragraph.

1.03 This equipment can be configured for use with dial pulse or DTMF (dual tone multifrequency) telephones. The equipment has been granted an FCC registration number under Part 68 of Title 47 of the code of federal regulations. For direct connection to the telephone lines, the equipment must be installed as described, and the FCC registration number must be reported to the serving telephone company.

2. DESCRIPTION

2.01 The 584C card panel is shown in Figure 1. It is designed for use in large centralized 1A2-type key system installations. The 584C card panel provides printed circuit board connectors for 13 type-400 KTUs (Key Telephone Units). Fully equipped with line card KTUs, the panel will provide key telephone service for 13 lines.



AW 84-181

Figure 1: 584C Card Panel

2.02 The 584C card panel measures approximately 23 inches wide, 4 inches high, and 4-3/4 inches deep. It is designed to mount on a standard 23-inch relay rack or on the swing-out equipment mounting frame of a key system apparatus cabinet.

2.03 The 584C card panel is made up of a card mounting assembly, a terminal panel assembly, and the associated hardware. It can optionally be equipped with an interrupter.

CARD MOUNTING ASSEMBLY

2.04 The card mounting assembly forms the front of the 584C card panel. It is equipped with thirteen 18-contact printed circuit card connectors and a 21-pin receptacle for the interrupter. The printed circuit card connectors are numbered 1 through 13 from left to right. They are factory-wired to accommodate most type-400 KTUs. The 21-pin interrupter receptacle is factory-wired to accept the ITT 190478-101 interrupter.

2.05 On the top edge of the card mounting assembly, a KTU retainer bracket is mounted. The bracket is attached to the card mounting assembly with machine screws inserted through elongated holes. When the screws are loose, the bracket can be slid from side to side. To lock the KTUs in place, the bracket is slid to the left and the screws are tightened.

TERMINAL PANEL ASSEMBLY

2.06 The terminal panel assembly makes up the back of the 584C card panel. It is equipped with three 25-pair male connectors, an 18-contact printed circuit board connector, screw terminals for power supply connections, and 22 non-indicating flat fuses. Arrangement of the terminal panel assembly is shown in Figure 2.

2.07 The 25-pair connectors are used to extend the card panel wiring to externally-mounted terminal blocks for cross-connection with station apparatus. The connectors are designated, from top to bottom, 1, 2, and 3. Connector 1 is associated with the first five KTU connectors on the front of the card panel. Connector 2 is associated with KTU connectors 6 through 10. Connector 3 is associated with KTU connectors 11, 12, and 13. In addition, connector 3 includes connections to pin 18 of each connector on the card panel.

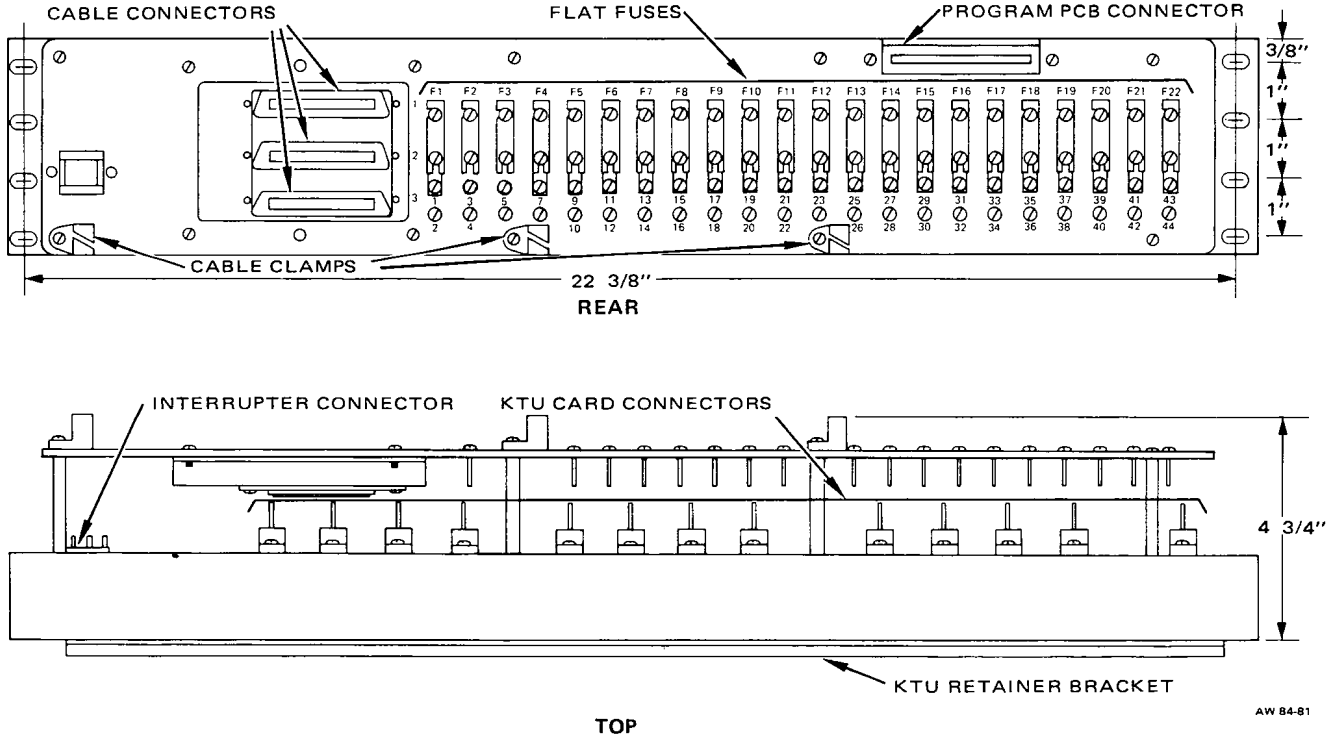


Figure 2: Terminal Panel Assembly

2.08 The screw terminals on the terminal panel assembly are arranged to permit flexibility in connecting the panel to a source of power. The terminals can be used to connect a single key system power supply or the outputs of several different supplies to one 584C panel. Similarly, the terminals can be used to interconnect two 584C panels for connection to a single key system power supply.

2.09 Flat, non-indicating fuses on the terminal panel assembly are provided to protect the key system power supply from equipment overloads. Individual fuse values are stamped on the terminal panel assembly. The fuses are easily replaceable.

2.10 The 18-contact connector on the terminal panel assembly is for the PROGRAM A/C PCB. The connector and the program PCB are used to provide two methods of distributing lamp signals. When the program PCB is inserted so that the message PROGRAM A can be read from the top of the 584C panel, the panel is arranged for one-panel operation wherein all interrupter signals are distributed to lines served by the panel. Under this arrangement, fusing is adequate for 17 lamps per line or a maximum of 50 lamps per interrupter contact.

2.11 When the program PCB is inserted so the message PROGRAM C can be read from the top of the panel, the assembly is arranged for two-panel operation wherein the interrupter on the first panel serves both panels. Under this arrangement, half the lamp flash and lamp wink signals from the interrupter are distributed to the second 584C panel. Fusing under this second arrangement is adequate for an average of 8 lamps per line on the main panel and a total of 100 lamps on the second panel.

INTERRUPTER

2.12 The optional interrupter for the 584C card panel (ITT part number 194078-101) plugs into the 21-pin receptacle on the card mounting assembly. The interrupter operates from 10 volts, 60 Hz AC from the key system power supply. It produces a 15 IPM signal for interrupted ringing, a 60 IPM lamp flash signal, and a 120 IPM lamp wink signal. One interrupter can be used to provide the interrupted ringing, lamp flash, and lamp wink signals for one or two 584C card panels.

CHASSIS WIRING

2.13 For reference, the wiring diagrams for the 584C card panel are provided in Figure 15 and Figure 16 at the back of this section.

ORDERING INFORMATION

2.14 Two variations of the 584C card panel are available. Part number 000584-00C is the panel without an interrupter. Part number 000584-0C1 is the panel with an interrupter.

3. INSTALLATION

UNPACKING AND INSPECTION

3.01 Remove the 584C card panel, mounting hardware, and the optional interrupter from the packing carton. Inspect the card panel and interrupter for signs of damage. Make a note of any equipment damage or part shortages and report it promptly.

MOUNTING THE PANEL

3.02 Mount the 584C card panel on the key system mounting frame or relay rack. Position the card panel so the connector for the interrupter is on the right, as viewed from the front. Hold the card panel in place and secure it using the hex head screws provided.

3.03 If necessary, plug in the interrupter.

TERMINAL BLOCK CONNECTIONS

3.04 On the MDF (main distributing frame) or equivalent, mount three 25-pair connecting blocks. Label the blocks A, B, and C. Label the terminals on each block as shown in Figure 3.

3.05 Construct three 25-pair cables to complete the connections from the 584C card panel to the connecting blocks. Attach a 50-pin Amphenol-type female connector to one end of each cable. Follow the standard color code order.

3.06 Connect the first cable from connector 1 on the rear of the 584C card panel to connecting block A on the MDF. Using a punch-down tool, terminate the cable in the standard color code order on connecting block A. In a similar man-

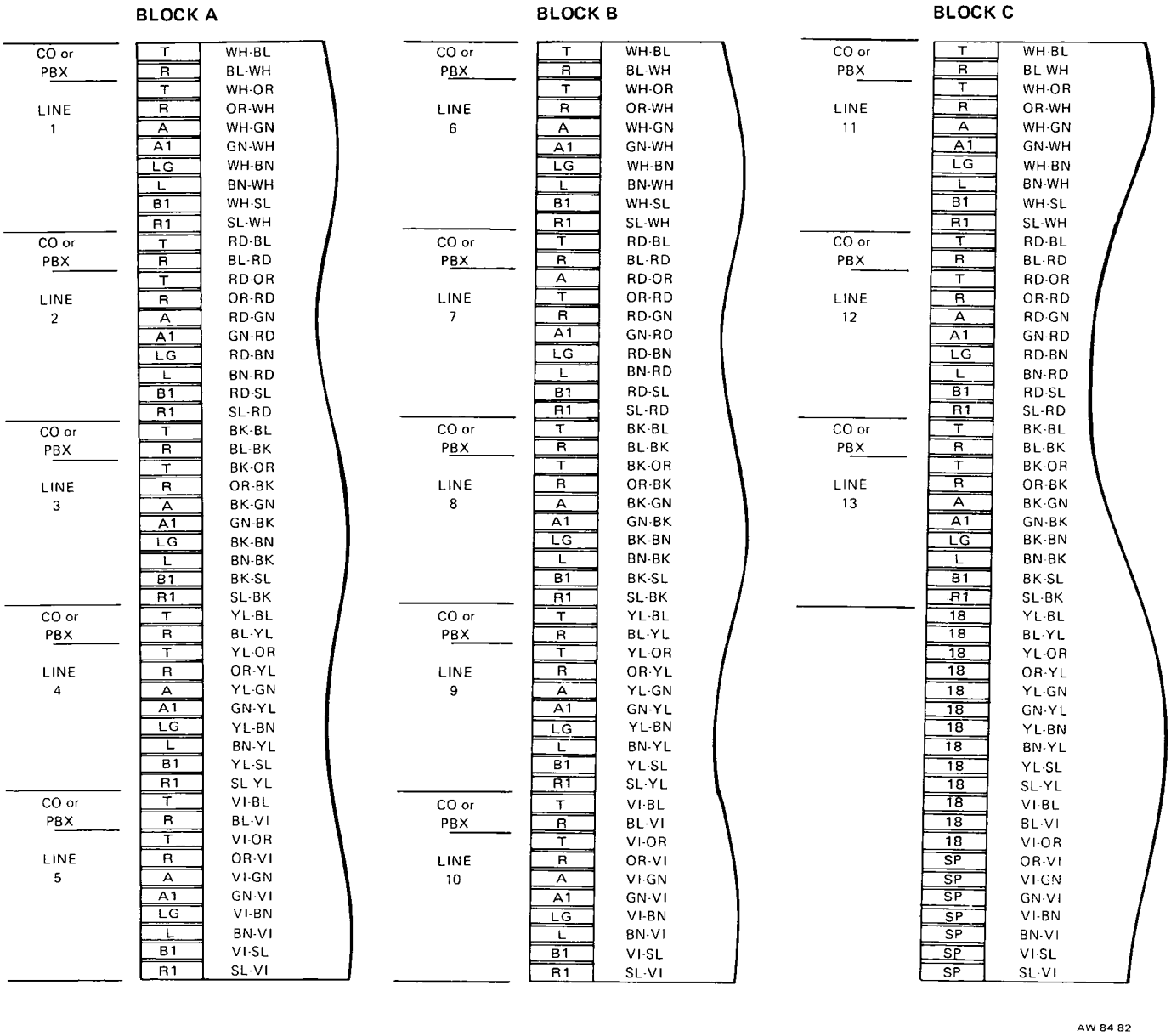


Figure 3: Arrangement of Key System Connecting Blocks

ner, connect the second cable from connector 2 to connecting block B, and the third cable from connector 3 to connecting block C.

POWER CONNECTIONS

Warning: Before making any power connections, make certain there is no output from the key system power supply.

A. Single-Panel Application

3.07 For a single-panel application, where the interrupter serves only the one panel, complete the power supply connections as shown in Figure 4. Use insulated 18 gauge solid copper wire for all connections. Verify that the factory straps are on the proper terminals. Be sure to insert the program PCB so the message PROGRAM A can be read from the top of the panel.

B. Two-Panel Application

3.08 For a two-panel application, where the interrupter on the first panel serves both panels, complete the power supply cabling as shown in Figure 5. Use insulated 18 gauge solid copper wire for all connections. Verify that the factory

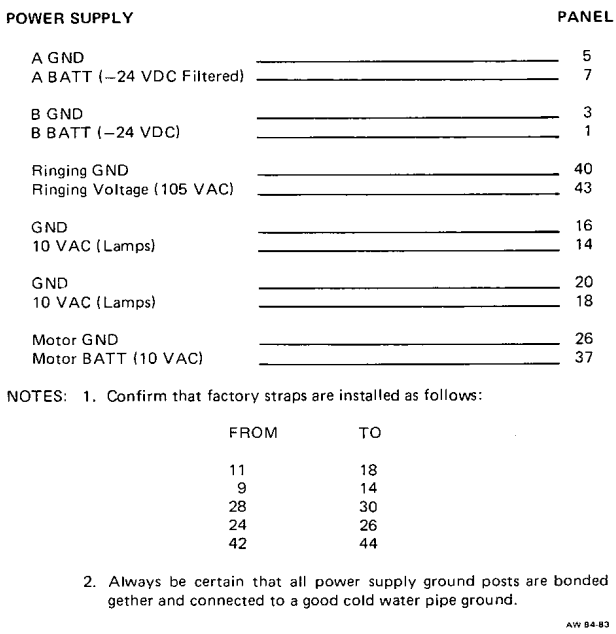


Figure 4: 584C Panel Connections; Program A, Single Panel

straps are on the proper terminals. On each card panel, be sure to insert the program PCB so the message PROGRAM C can be read from the top of the panel.

C. Frame Ground

3.09 Be certain that all power supply ground posts are bonded together and connected to an approved earth ground such as a ground rod or cold water pipe. Use a piece of #14 AWG or larger insulated, stranded copper wire to construct the external frame ground.

KTU INSTALLATION

3.10 Determine the KTU to be inserted in each KTU connector on the 584C card panel. Loosen the screws holding the KTU retainer bracket, then slide the bracket to the left and insert each KTU. Insert each KTU with the component side to the right. Leave the retainer bracket loose until all KTUs have been installed, strapped, and cross-connected.

STATION CONNECTIONS

3.11 On the MDF, mount the required number of station connecting blocks. One 25-pair block can serve one 6-button telephone or one 10-button telephone. One 50-pair block can serve two 6-button or 10-button telephones, or one 20-button telephone.

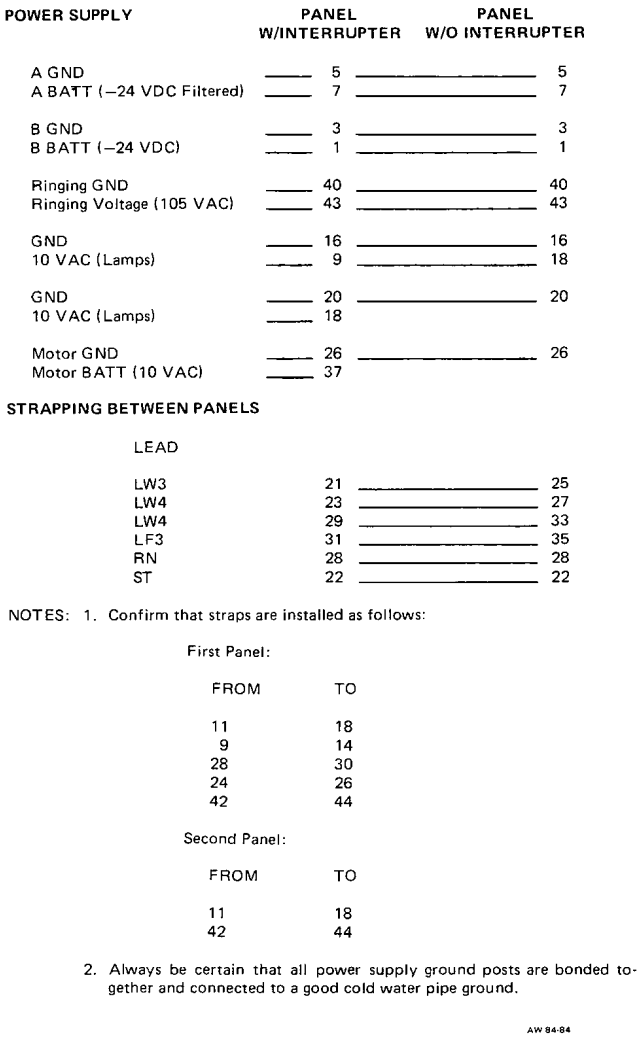


Figure 5: 584C Panel Connections; Program C, Two Panels With One Interrupter

3.12 Connect the 25-pair station cable from each multibutton telephone to a station connecting block. Punch each cable down following the standard color code order. Label each block with the station identification and the proper lead designations. Refer to the applicable Telephone Apparatus Practice or circuit label for lead designations. For reference, typical station block layouts for 6-button, 10-button, and 20-button telephones are shown in Figure 6.

3.13 For each single-line station, punch down the station cable on a 50-pair miscellaneous (MISC) connecting block. Use two-pair (quad) wire for telephones dedicated to a CO/PBX line; use three-pair wire for telephones serving as intercom stations. Label the block with the station line or intercom number and the proper lead designations.

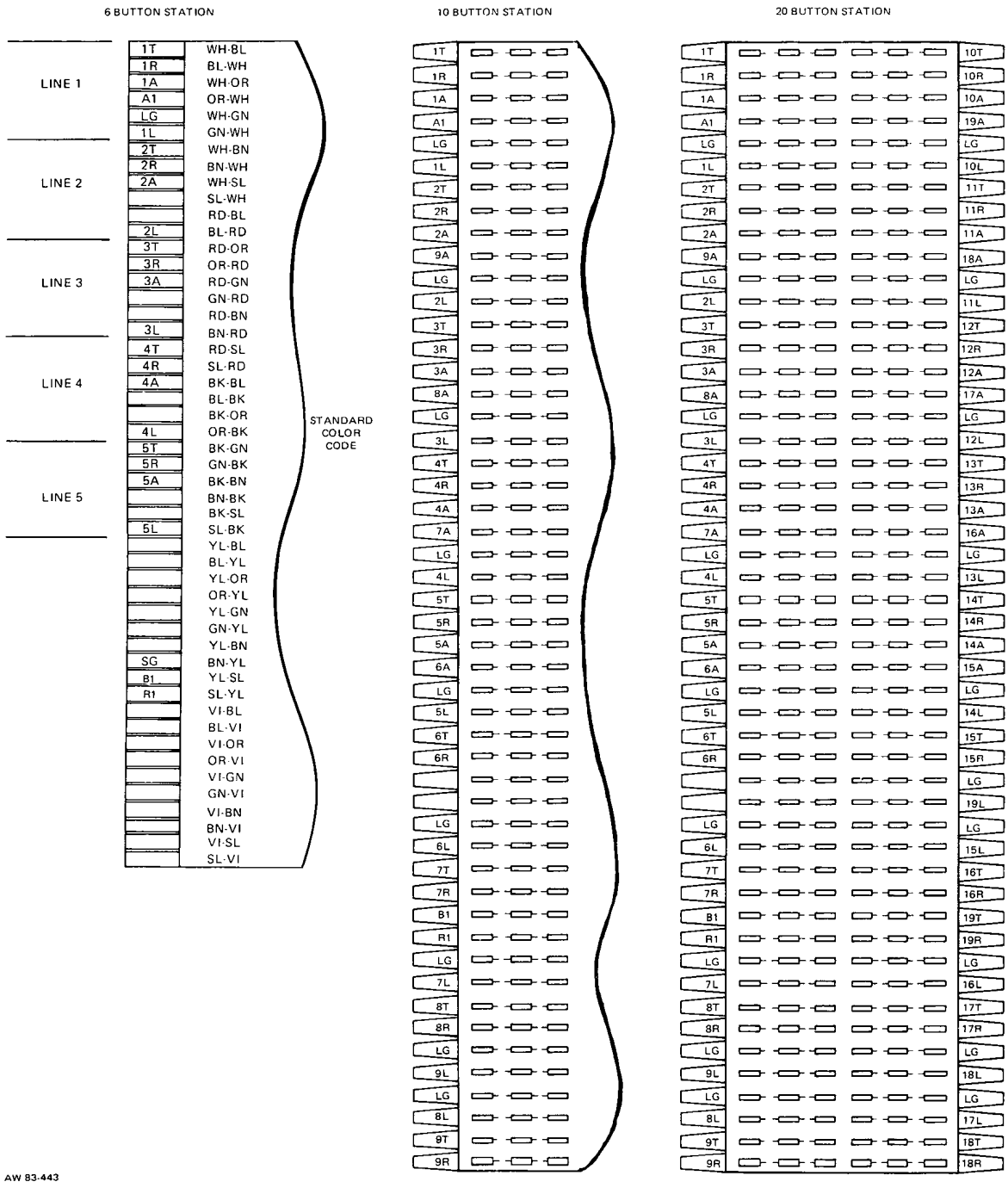


Figure 6: Typical Station Block Layouts

LINE CARD KTU

3.14 One line card KTU (400E or equivalent) is required for each CO or PBX line serving the system. Strap each line card for the required options, then insert each card into the desired KTU connector on the 584C card panel. Cross-connect each KTU as detailed in the following paragraphs. Use standard one-pair and three-pair cross-connect wire.

3.15 On connecting block A, B, or C, locate the terminals associated with the card connector into which the line KTU was inserted. Referring to Figure 7, cross-connect the terminals as follows:

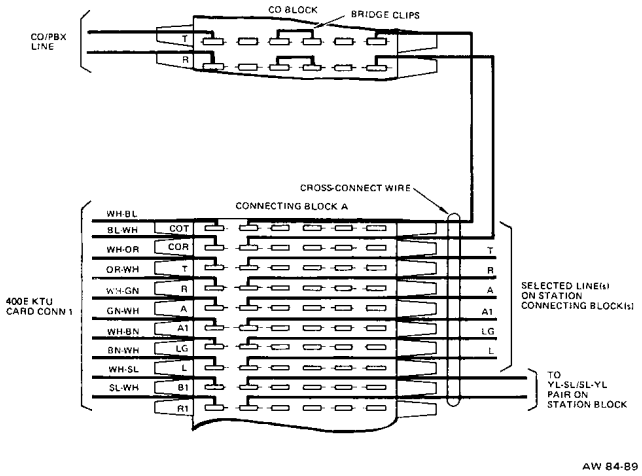


Figure 7: Connecting Details, Line KTU to Multibutton Station

(a) Connect the COT and COR terminals to the Tip and Ring terminals for the CO/PBX line on the CO (trunk) connecting block. Use bridge clips on the CO connecting block to complete the connections to the CO/PBX line.

(b) Connect the T, R, A, A1, LG, and L terminals to the corresponding terminals for the selected line key on the assigned station connecting block. If required, multiple the connections to the T, R, A, A1, LG, and L terminals of the line pickup key(s) for any other assigned station(s).

(c) Connect the B1 terminal to the YL-SL lead on the station block of a telephone that is to ring when the line is called. Connect the R1 terminal to the SL-YL lead of the station block. Multiple the connections to the station block of each telephone that is to ring.

3.16 For a single-line telephone used as a line answering station, cross-connect the T, R, A, and A1 terminals on connecting block A, B, or C to the corresponding terminals on the MISC connecting block. Use bridge clips to complete the connections to the single-line telephone. Refer to Figure 8.

Note: In systems using 400TPL or 400PFL line card KTUs, single-line telephones used as CO/PBX line answering stations will not ring unless connected via a 346A KTU.

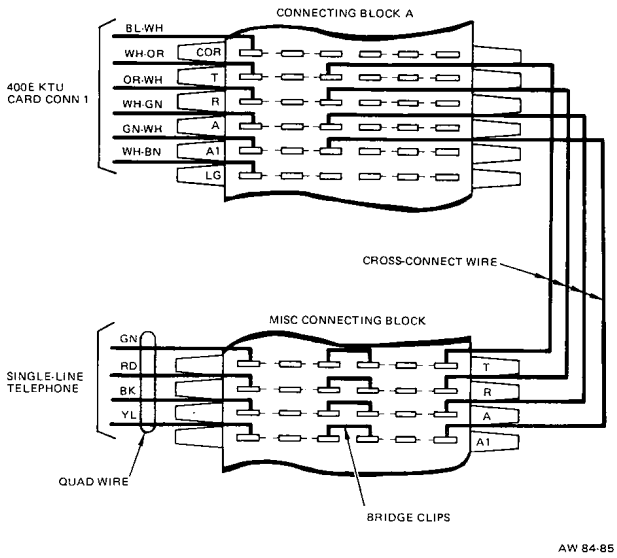


Figure 8: Connecting Details, Line KTU to Single-Line Station

MANUAL INTERCOM SERVICE

3.17 The 401B manual intercom KTU can be used to connect a group of stations to a common talk path, or it can be used to provide a private talk path between two stations. For manual intercom service, insert the 401B manual intercom KTU into an unused card connector on the 584C card panel, then cross-connect the equipment as follows:

(a) On connecting block C, locate the terminal corresponding to pin 18 of the card connector for the 401B KTU. Connect the terminal to A battery (– 24VDC) from terminal 7 on the rear of the 584C card panel, or from the key system power supply.

(b) On connecting block A, B, or C, locate the T, R, L, and LG terminals associated with the card connector for the 401B KTU. Cross-connect these terminals to the T, R, L, and LG terminals for the selected line key on the assigned station connecting block. If required, multiple the connections to the T, R, L, and LG terminals of the line pickup key(s) for any other assigned station(s). See Figure 9 for example.

(c) If necessary, arrange the associated telephones for button and buzzer signaling. (Refer to the applicable Telephone Apparatus Practice for details.)

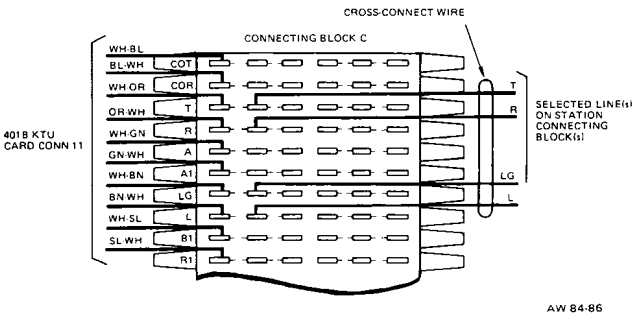


Figure 9: Connecting Details, Intercom KTU to Multibutton Station

(d) For low voltage signaling arrange the equipment as follows, referring to Figure 10.

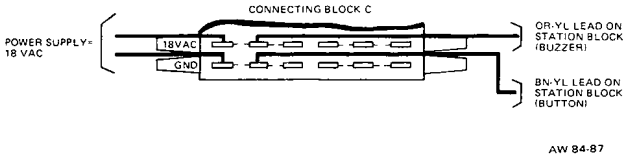


Figure 10: Connecting Details, Button and Buzzer Signaling

(1) Connect a length of #20 AWG insulated, solid copper wire from the 18VAC terminal on the power supply to a spare terminal on connecting block C. Label the terminal 18VAC.

(2) Connect a length of #20 AWG insulated, solid copper wire from the 18VAC GND terminal on the power supply to a spare terminal on connecting block C. Label the terminal GND.

(3) Multiple the 18VAC terminal to the OR-YL lead on the station block of each telephone to be signaled.

(4) Multiple the GND terminal to the BN-YL (SG) lead on the station block of each six-button telephone with a signal pushbutton.

Note: On a 10-button or 20-button telephone it is not necessary to connect buzzer ground since the ground is common via the A1 lead.

BUTTON ACCESS PAGING

3.18 The 401B manual intercom KTU can also be used for button access to a PA system for voice paging. For such applications, insert the 401B KTU into an unused KTU card connector on the 584C card panel, then arrange the equipment as follows:

(a) On connecting block C, locate the terminal corresponding to pin 18 of the card connector for the 401B KTU. Connect the terminal to A battery (– 24VDC) from terminal 7 on the rear of the 584C card panel, or from the key system power supply.

(b) On connecting block A, B, or C, locate the T, R, L, and LG terminals associated with the card connector for the 401B KTU. Cross-connect these terminals as follows:

(1) Connect the T, R, L, and LG terminals to the T, R, L, and LG terminals for the selected line key on the assigned station connecting block. If required, multiple the connections to the T, R, L, and LG terminals of the line pickup key(s) for any other assigned station(s). Refer to Figure 11.

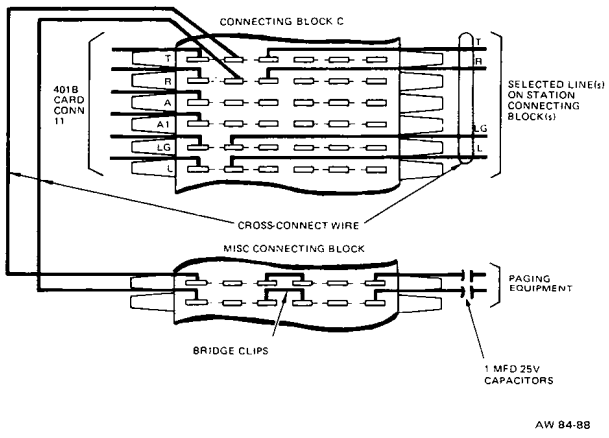


Figure 11: Connecting Details, Intercom KTU to Paging Equipment

(2) Connect the T and R terminals to the MISC connecting block for cross-connection to the paging amplifier.

(c) On each assigned telephone, convert the line pickup key used for paging access to nonlocking operation.

(d) On the MISC connecting block directly across from the T and R appearances of the 401B KTU, connect the input leads to the PA system. Connect a 1 MFD, 25 volt capacitor in series with each lead. Use bridge clips to complete the circuit to the PA equipment.

(e) For on/off control of the paging amplifier, connect KTU card connector pins 1, 9, and 14 as required. Use pins 1 and 14 for a make contact set. Use pins 1 and 9 for a break contact set. Pin 1 corresponds to terminal R1 for the card connector. Pins 14 and 9 correspond to terminals COT and COR, respectively. See Figure 12 for connecting details.

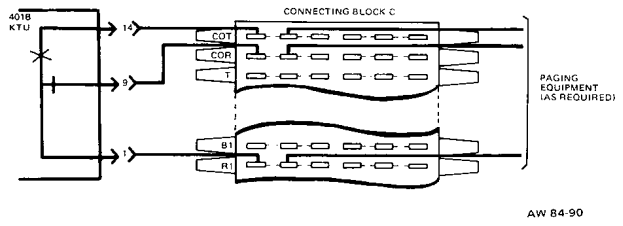


Figure 12: Connecting Details, Paging Equipment On/Off Control

MUSIC-ON-HOLD

3.19 For music-on-hold service, one 403A KTU is required to serve up to six CO/PBX lines. The 403A KTU mounts into a card panel adapter such as the 359A. Refer to the applicable card panel adapter practice for instructions for mounting and wiring the card panel adapter.

OFF-PREMISES LINE

3.20 The 346A off-premises line KTU is used to add standard two-wire telephones to a CO/PBX line. A maximum of six single-line telephones may be connected in parallel across the circuit. Maximum loop resistance is 1200 ohms. If Tel-Touch telephones are used, loop resistance is limited to 500 ohms.

3.21 In a key system not equipped with a dial intercom, install the 346A KTU as follows for a CO/PBX line station:

(a) Insert the 346A KTU into any unused card connector on the 584C card panel.

(b) On connecting block C, locate the terminal corresponding to pin 18 of the card connector for the 346A KTU. Connect the terminal to A Battery (– 24VDC) from terminal 7 on the rear of the 584C card panel or from the key system power supply.

(c) On connecting block A, B, or C, locate the terminals associated with the card connector for the 346A KTU. Cross-connect the terminals as follows:

(1) Connect the T, R, A, and R1 terminals to the T, R, A, and R1 terminals for the associated line card KTU.

(2) Connect the COT and COR terminals to the MISC connecting block on the MDF for connection to the single-line telephone. (See Figure 13.) Multiple the leads to all assigned single-line telephones.

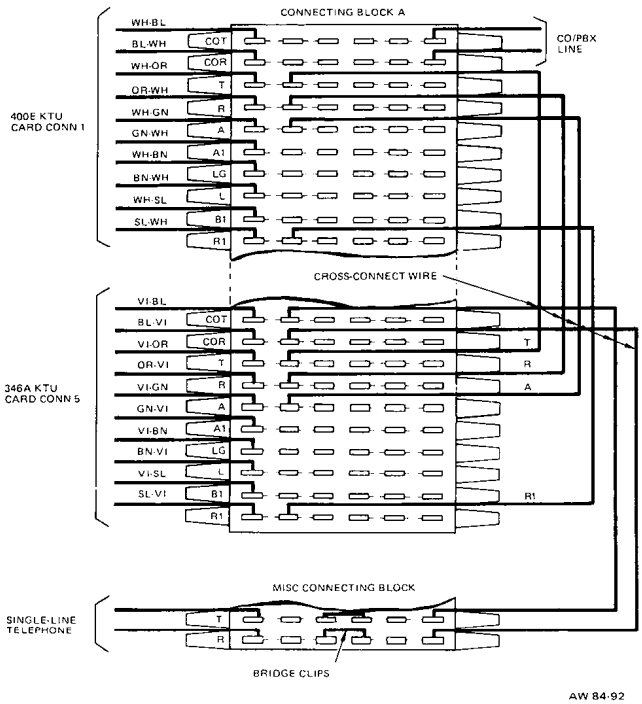


Figure 13: Connecting Details, 346A KTU

MULTILINE EXCLUSION

3.22 One 405A multiline exclusion KTU is used in conjunction with one or two 400E line card KTUs to provide exclusion (privacy) to one or two CO/PBX lines. The 405A KTU mounts into a

20-contact card connector such as the 359A one-card panel adapter, or the 259B two-card panel adapter. The card panel adapter can be mounted on the swing-out equipment mounting frame of the key system apparatus cabinet, or on the MDF. Refer to the applicable card panel adapter practice for instructions on mounting and wiring the card panel adapter.

MANUAL TIE LINE

3.23 For manual tie line service, one 414A KTU is required at each key system for one tie line. The KTU requires a line pickup key and a nonlocking signaling key at the assigned station. The 414A KTU mounts into a 20-contact card connector on the 359A one-card panel adapter, or the 259B two-card panel adapter. The card panel adapter can be mounted on the swing-out equipment frame of the key system apparatus cabinet, or on the MDF. Refer to the applicable card panel adapter practice for instructions on mounting and wiring the card panel adapter.

AUTOMATIC TIE LINE

3.24 For automatic tie line service, one 415A KTU is required at each key system for one tie line. The 415A KTU can be installed into any unused card connector on the 584C card panel.

3.25 Strap the 415A KTU for the required options. Then insert the KTU into the selected card connector and make the following connections:

(a) On connecting block C, locate the terminal corresponding to pin 18 of the card connector for the 415A tie line KTU. Connect the terminal to A battery (−24VDC) from terminal 7 on the rear of the 584C card panel, or from the key system power supply.

(b) On connecting block A, B, or C, locate the terminals associated with the card connector for the 415A KTU. Referring to Figure 14, connect these terminals as follows:

(1) Connect the COT and COR terminals to the Tip and Ring terminals on the CO connecting block for cross-connection to the distant office. Use bridge clips to complete the connections.

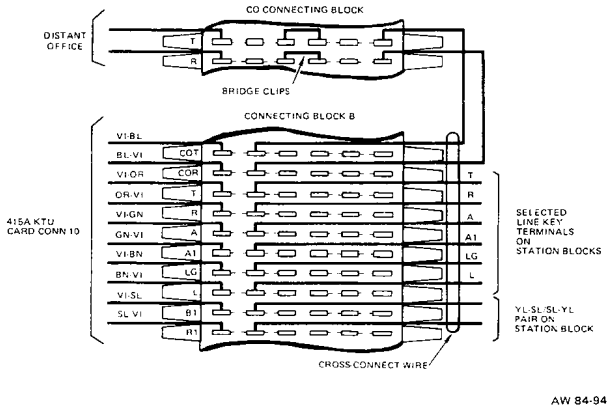


Figure 14: Connecting Details, 415A KTU

(2) Connect the T, R, A, A1, LG, and L terminals to the corresponding terminals of the selected line pickup key on the station connecting block.

(3) Connect the B1 terminal to the YL-SL lead of the selected station block.

(4) Connect the R1 terminal to the SL-YL lead.

3.26 An optional one-card, two-card, or four-card panel adapter may alternately be used to mount the 415A automatic tie line KTU. The card panel adapter can be mounted on the swing-out equipment mounting frame of the key system apparatus cabinet, or on the MDF. Refer to the applicable card panel adapter practice for instructions on mounting and wiring the card panel adapter.

PRIVATE LINE

3.27 The 416A station line KTU serves as the interface between a key telephone and a dedicated single-line telephone. A line pickup key and a nonlocking signaling key are required at the key telephone. The single-line telephone requires no dial since it can only be used to call the key telephone or answer calls from the key telephone. The 416A KTU mounts into a 20-contact card connector such as the 359A one-card panel adapter, or the 259B two-card panel adapter. The card panel adapter can be mounted on the swing-out equipment frame of the key system apparatus cabinet or on the MDF. Refer to the applicable card panel adapter practice for instructions on mounting and wiring the card panel adapter.

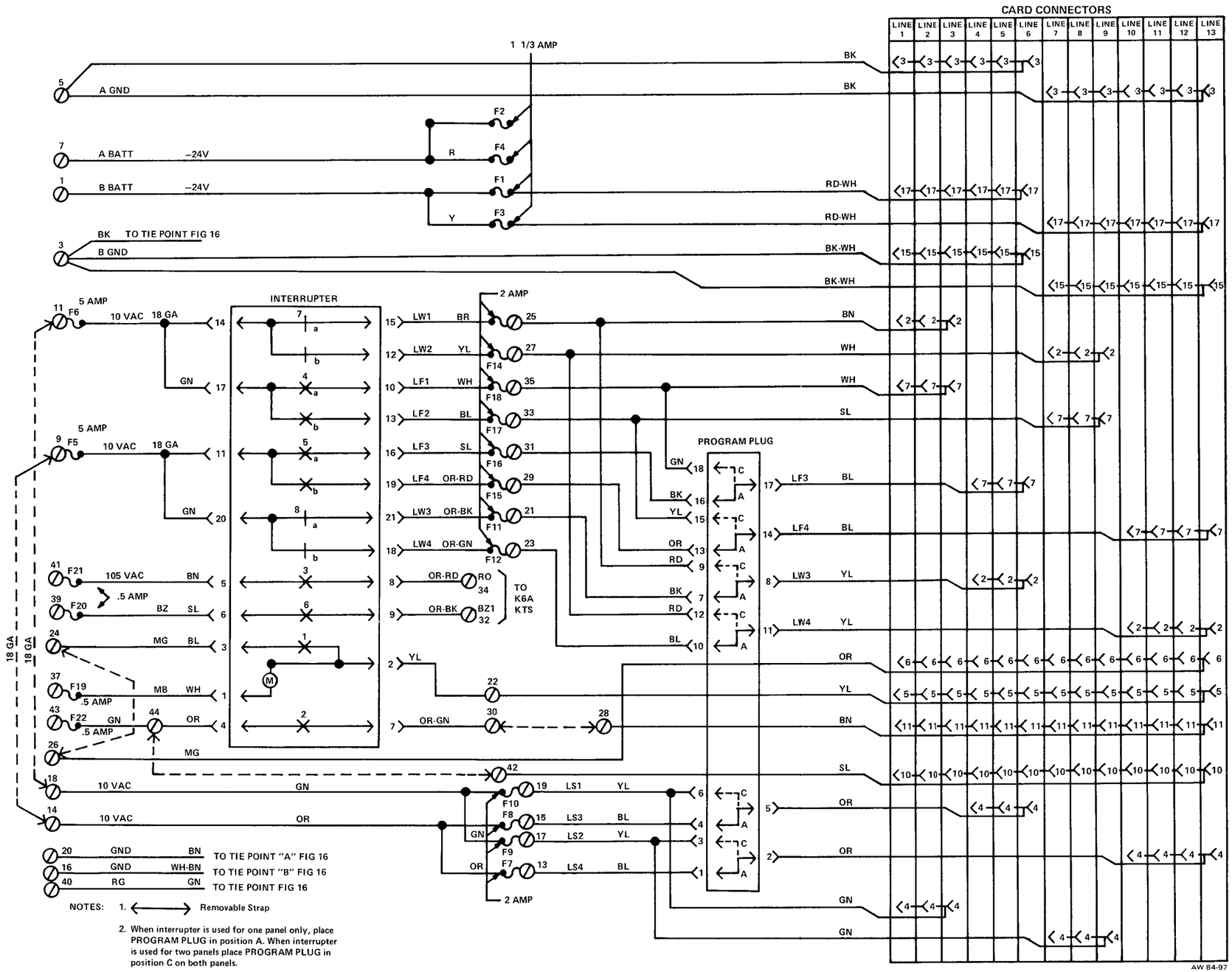


Figure 15: Power Connections and Fuse Designations

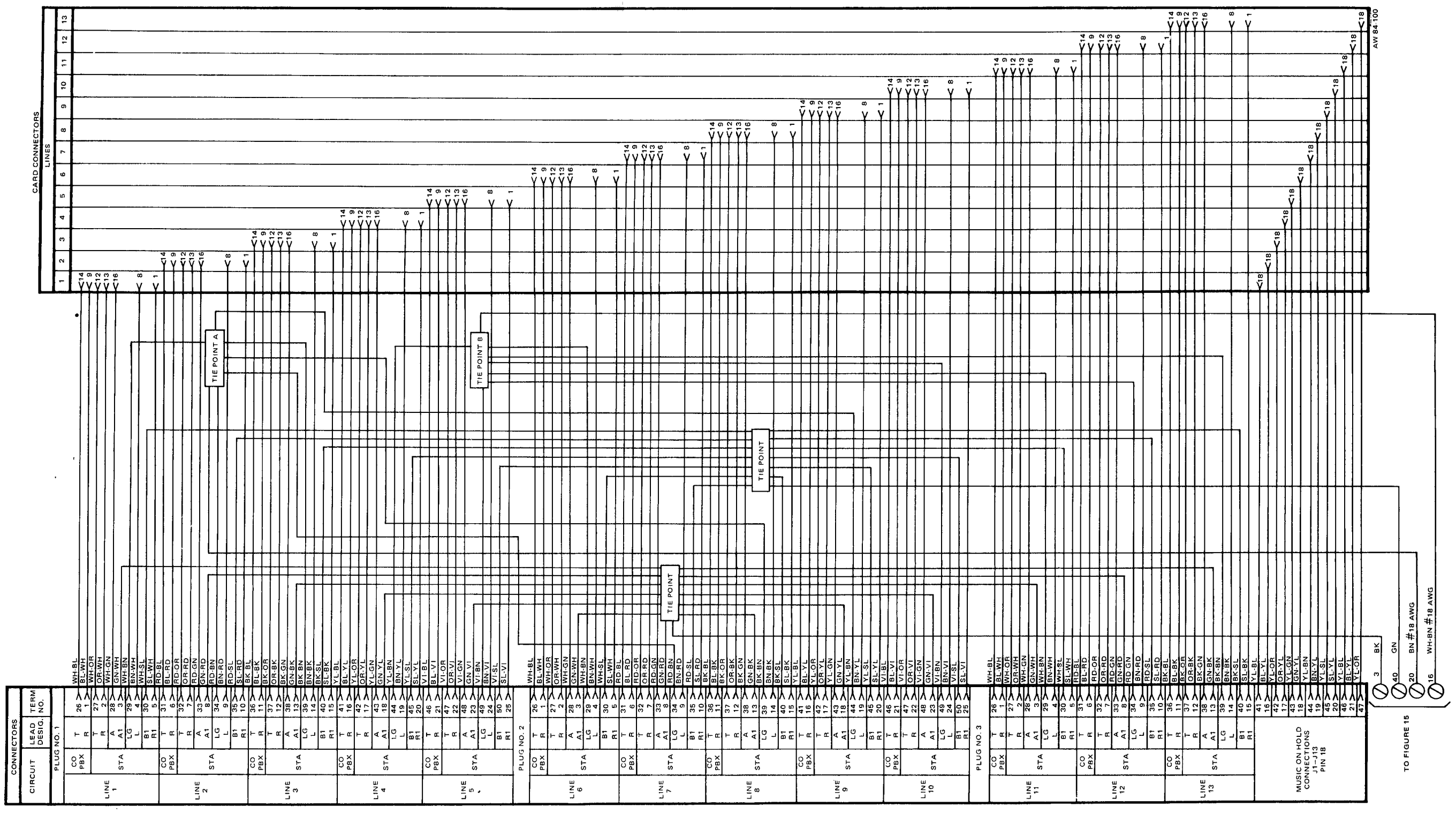


Figure 16: Internal Wiring, 584C Card Panel