CONVENTIONAL DISTRIBUTING FRAMES
93-TYPE CONNECTING BLOCKS
DESCRIPTION, METHODS OF CROSS-CONNECTING, AND REPAIR PROCEDURES

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1. GENERAL

1.01 This section describes the various 93-type connecting blocks used on conventional distributing frames. It also describes the method of cross-connecting and the repair and piece-part replacement procedures.

1.02 When this section is reissued, the reason for reissue will be listed in this paragraph. The Equipment Test List is not affected.

1.03 The 93-type connecting block is a high-density block originally designed to terminate special service equipment. Newer designs provide many additional applications including plain old telephone service (POTS).

1.04 These connecting blocks are used only on conventional type distributing frames, both high- and low-profile.

2. DESCRIPTION

A. General

2.01 The connecting block is 8 inches wide, 3-3/4 inches high, and extends 5-7/8 inches from the frame. It can be installed on either the horizontal or vertical side of both low-profile and high-conventional frames with 8-inch centers, except that multiport bridging codes (93MP2-6, 93MP2-10, and 93MP4-4) can only be mounted on the horizontal side.

2.02 A complete connecting block (Fig. 1) consists of a molded plastic housing (with four mounting screws), the block assembly, fifty 109-connectors, and stick-on labels, each of which are described in subsequent paragraphs.

2.03 The capacity of the block is 480 single-wire terminations (240 pairs or 120 bifurcated pairs), using 22-, 24-, or 26-gauge polyvinyl-chloride (PVC) cable and 22- or 24-gauge ***irradiated*** polyvinyl-chloride (IPVC) cross-connect wire.

B. Housing

2.04 The molded plastic housing is mounted on the frame with four screws. It provides a positive locking mechanizm for the block assembly. This is accomplished by using a locking bar (Fig. 2) that provides an "interference fit" with the block assembly when the assembly is rotated into the locked position. The locking bar is flexible and can be depressed to release the block assembly.

2.05 Two fanning strips are molded into the housing. The lower fanning strip organizes equipment cable wires. The upper fanning strip has four large slotted ports that organize the cross-connect wires.

2.06 The housing has two vertical entry slots (Fig. 2) with built-in locking details to retain the block assembly pivot bar.

C. Block Assembly

2.07 The block assembly has a 20-row by 24-column array of forward facing terminals, formed by 24 interlocking plastic slices. Each slice is a subassembly constructed of three mating plastic parts (cable wire spacer, extended index finger, and cross-connect wire spacer) that are ultrasonically welded together to form a self-contained minature wire organization package.

2.08 Each slice organizes 20 cable leads and 20 cross-connect wires in individual internal concentric wiring channels (Fig. 3). The entrance of each channel is hot-stamped with the respective character designations for each lead (Fig. 1, pin-point identification). The slices are supported by a stainless steel pivot rod and locked together with a bumper that also has a recessed cavity used for seating the identification label. Each slice index strip (20 terminals long) is the seating member for 20 cable leads and 2 quick-clip (109-type) connectors.

2.09 The block assembly can be easily inserted or removed from the housing to facilitate cable dressing. The assembly can also be rotated into the up position (Fig. 4) to expose the entry ports for the outside plant (OSP) cable field.

2.10 The internal channels in the block assembly spatially organize, guide, and snub the wires. The block assembly is equipped with 109-connectors after the equipment cable wiring has been connected.

D. 109-Connectors

2.11 Although the 109-type connector is similar to the 88-type connector, the 109-connector (Fig. 5) is nonsymmetrical in profile and of 2-piece construction. One piece is colored white; the other piece is either slate or blue. The slate or blue piece (left side) has a projecting shelf which acts as a stop for the cutting blade on the wire-insertion tool. The white piece (right side) has a planar surface streamlined for high-density operations. Whenever 109-type connectors are installed on the 93-type block mounted horizontally on the frame, the white side of the 109-connector must be on the right. When 93-type blocks are mounted vertically on the frame, the white side of the 109-connectors must face down.

Note: Do not substitute 88-type connectors for 109-type connectors. Minute snubbing details and the configuration of the clips differ sufficiently to pose operational problems.

2.12 The 109-connector features a minature no-hit, quick-clip, terminal field. The no-hit feature prevents accidental shorting of adjacent terminals when installing or removing cross-connections. The connector uses the 108 selectively solder-plated quick-clip terminal.

2.13 When the 109-connector is mounted on the index strip, the bottom end (Fig. 5) makes a connection with the equipment cable conductors, and the top end provides connections for cross-connect wires. ***No soldering or wire-wrapping of terminals or measuring and stripping of wires is required when using these connectors.***

2.14 There are two types of 109-connectors. The 109A connector is gray and white and has ten single-element quick clips. It is used for all special service applications. The 109B connector is blue and white and has five bifurcated quick clips. It is used for regular subscriber equipment where bridging or back-tapping is often required.

E. Labels

2.15 Each connecting block is packaged with a set of contiguous preprinted, precut, peeloff, stick-on labels for circuit identification (Fig. 1). The matte surface of the label can be stamped with other miscellaneous circuit information.

2.16 Colored labels are provided for some connecting block applications. Yellow labels are provided for Electronic Switching Systems (ESS), violet labels for Switched Maintenance Access Systems (SMAS), and blue labels for outside plant (OSP).

F. Tools

2.17 For routine distributing frame operations, the only tools needed by frame personnel are the AT-8762D impact handle equipped with the AT-8762D-88 blade or the 833A wire insertion tool for connecting wires, and a pair of long-nosed pliers or a miniature spudger (R-1102) for removing wires on the 109-connector.

2.18 The recommended tool for cross-connecting the 93-type block is the AT-8762D impact tool (Fig. 6). The AT-8762D-88 blade can be stored in a quick-release compartment in the handle. The blade is double-ended, one end for seating the wire only and the other end for both seating and cutting the wire in one operation. When using the seat-and-cut end of the blade, the blade is inserted into the connector with the cutting portion of the blade on the left side of the 109-connector on connecting blocks that are mounted horizontally. On vertically mounted connecting blocks, the cutting portion of the blade is on top when it is seated on the 109-connector. The impact force adjusting wheel, located in the handle, should be set at the LO position for connecting 24-gauge wires and set at the HI position for connecting 22-gauge wires to the connector. This tool can also be used for single-wire connection of cable wiring as described in paragraph 2.19.

2.19 Another tool, the 833A wire insertion tool (Fig. 7) can be used for cross-connecting to the 93-type block. Like the AT-8762D tool, it has a double-ended blade. One end is for seating only and the other end for seating and cutting. The blade is rotated by loosening the screw on the tool handle, pulling the blade out, rotating it 180 degrees, and then pushing the blade back into the handle and locking the screw. It can also be used for single-wire connection of cable wiring. When using this tool or the AT-8762D impact tool for connecting ***cable wiring***, the cutting edge of the blade is positioned to the right on horizontally mounted blocks and is positioned on the bottom on vertically mounted blocks.

2.20 A multipair impact tool, the 834B tool (Fig. 8), is used for seating or seating and cutting cable wires on the index strips and is also used to seat the 109-connectors on the index strips. The cutting blades are positioned on the right side of the index strip or 109-connector (seating only) when used on horizontally mounted blocks and are positioned on the bottom side on vertically mounted blocks. The 834B tool should cut the cable leads flush with the index strip. Otherwise, the leads will block the cross-connect channels. ***Never use cutting pliers to cut leads.*** Use another 834B tool or one of the single wire insertion tools covered in paragraphs 2.18 and 2.19.

2.21 The 955A tool (Fig. 9) is used to aid in the seating of cable wiring on the index strip when 22-gauge cable is used.

G. Cable and Wire

2.22 Only 22- or 24-gauge irradiated polyvinyl-chloride (IPVC) wire is used for cross-connecting to the 109-connectors. The wire may be single, paired, tripled, or quad.

2.23 Polyvinyl-chloride (PVC) cable is used for cabling to the index strip. It can be 22-, 24-, or 26-gauge. Twenty-four gauge cable is preferred.

H. Insulators and Guards

2.24 An insulator, AT-8660F Clip, can be inserted on the 109-connector to identify special circuitry that should not be disturbed. There are no other insulators or guards provided for use on these connecting blocks.

I. Test Cords

2.25 The standard test cord, AT-8662C, can be snapped onto the 109-connector to test one pair of cable leads at a time. These cords can be stacked on the connectors to test up to ten cable pairs simultaneously. The ITE 4137 A/B/C continuity test set can be used with this test cord.

2.26 In addition, there is a family of snap-on patch cords of different lengths that can be used for testing one, two or three pairs simultaneously. These patch cords are listed in Table A.

3. CONNECTING BLOCK CODES AND APPLICATIONS

3.01 Each 93-type connecting block has been designed and coded for specific applications as listed in Table B. The following paragraphs contain a brief description of each connecting block.

A. Special Service Codes

93A1A

3.02 This special service block (Fig. 10) is used for universal split lead applications of metallic facility terminals (MFT) A-side. Each slice is capable of terminating 2 circuits (10 leads per circuit) for a total block capacity of 48 circuits.

93B1A

3.03 This block (Fig. 11) complements the 93A1A and terminates the B-side of the universal MFT. Two circuits (6 leads each) are terminated on each slice for a total capacity of 48 circuits.

93C1A

3.04 The 93C1A block (Fig. 12) terminates both the A- and B-sides of a universal MFT. Each slice represents 1 circuit (16 leads) for a total block capacity of 24 circuits.

93D1A

3.05 The A-sides of common MFTs are terminated on this block (Fig. 13). Only 4 circuits (4 leads per circuit) are terminated on each slice, limiting the capacity of the block to 96 circuits.

93E1A

3.06 The 93E1A block has two applications. It terminates the B-sides of common MFTs complementing the 93D1A block. It can also be used as an alternative for terminating the SMAS 4-wire maintenance connector. The index strips for both applications are identical. Four circuits (4 leads each) are terminated on each slice for a total block capacity of 96 circuits. The address labels, as shown in Figures 14 and 15, differ depending upon the application. For the MFT application, the circuits are numbered 1 through 96 and the label is colored white (Fig. 14). For the SMAS 4-wire maintenance connector application, 24 circuits are associated with each group connector and the label is colored violet (Fig. 15).

93G1A

3.07 This block is used to terminate analog facility terminals (AFT). Each slice terminates one circuit (14 leads) for a total block capacity of 24 circuits. Transmission requirements for this circuit necessitate the separation of the transmit and receive pairs as shown on the index strip in Figure 16.

93H1A

3.08 Digital facility terminals (DFT) are terminated on this block (Fig. 17). Each slice terminates 2 circuits (10 leads per circuit) for a block capacity of 48 circuits which serves 2 channel bank groups (24 channels per group).

93J1A

3.09 This block terminates the A-side of 2-wire MFT circuits. Eight circuits (2 leads each circuit) are terminated on each slice (Fig. 18). The capacity of the block is 192 circuits.

93K1A

3.10 The 93K1A connecting block complements the 93J1A block and terminates the B-side of 2-wire MFT circuits (Fig. 19). Like the 93J1A block, 8 circuits are terminated on each slice and the capacity of the block is 192 circuits.

B. Switched Maintenance Access(SMAS) Codes

93L1A

3.11 The 93L1A connecting block is used for 4-wire circuits and has several applications; the facility side for Switched Maintenance Access System (SMAS) 5A and 5B, and the equipment side for SMAS 5A. Five circuits are terminated on each slice (4 leads per circuit). Only 20 slices are utilized for a block capacity of 100 circuits as shown in Figure 20. The address label is violet.

93L1B

3.12 This block (Fig. 21) is used for the facility side of 6-wire SMAS 5A and 5B circuits. Three circuits (6 leads per circuit) are terminated on each of 17 slices for a block capacity of 50 circuits, since only 2 circuits are terminated on slice 21. The address label is violet.

93M1A

3.13 This block (Fig. 22) is used for the equipment side of 4-wire SMAS 5B circuits. Three circuits (6 leads per circuit) are terminated on each of 17 slices for a block capacity of 50 circuits, since only 2 circuits are terminated on slice 21. The address label is violet.

93M1B

3.14 The 93M1B block is used for the equipment side of 6-wire SMAS 5B circuits. Each circuit requires 8 leads. Two circuits are terminated on each slice for a block capacity of 48 circuits (Fig. 23). The address label is violet.

93M2A

3.15 This block is used to terminate the equipment side of 4-wire SMAS 5B circuits. Four circuits (5 leads per circuit) are terminated on each of 20 slices for a block capacity of 80 circuits (Fig. 24). The address label is violet.

93E1A

3.16 Paragraph 3.06 and Figure 15 cover the SMAS application of the 93E1A connecting block.

C. Multiport Bridging and Conference Call Circuit Codes

3.17 This category of connecting block codes requires special instructions for cross-connecting. The instructions are supplied with the connecting block. These blocks can ***only*** be mounted on the horizontal side of the frame.

3.18 The connecting blocks are cabled to multiport bridging circuits and sets of individual 600 Ω balancing resistors mounted in a tray which sits on the crossarm of the frame behind the connecting block (Fig. 25). Paragraphs 3.19 through 3.21 provide a brief description of these connecting blocks.

93MP2-6

3.19 This block is used for 2-wire, 6-way bridging. Figure 26 shows the circuit designations (20 circuits) and Figure 27 shows the bridging circuit.

93MP2-10

3.20 This block is used for 2-wire, 10-way bridging. Figure 28 shows the circuit designations (12 circuits) and Figure 29 shows the bridging circuit.

93MP4-4

3.21 This block is used for 4-wire, 4-way bridging. Figure 30 shows the circuit designations (20 circuits) and Figure 31 shows the bridging circuit.

D. Subscriber Codes

3.22 Subscriber applications require bridging capabilities. Therefore, ***only the 109-B*** connector, which is internally bifurcated, is to be used with these connecting blocks. Each connector provides for 2 1/2 pairs. Two connectors in line (1 slice) provide for 5 pairs.

93S1A

3.23 This block is used for ESS circuits. Four circuits are terminated on each slice for a total of 96 circuits as shown in Figure 32. The label is yellow.

93T1A

3.24 This block can be used for subscriber circuits, tie pairs, or outside plant pairs. Five circuits are terminated on each of 20 slices for a total of 100 circuits as shown in Figure 33. If outside plant pairs are terminated on this block, a blue label is used.

4. METHOD OF CROSS-CONNECTING

4.01 The connecting block housing (Fig. 34) has four large cutouts (fanning ports used to spread cross-connect pairs), and each cutout has a wire entry slot. Six slices, or columns, are accessed by each cutout (120 cross-connect wires).

4.02 Table C shows the various connecting block assemblies and the lead identification as it appears on the top of horizontally mounted blocks or on the right side of vertically mounted blocks.

4.03 To cross-connect a pair of wires, first remove the spiral twist from the end of the wires for about 12 to 14 inches. Each slice of the block assembly has 20 entry ports or channels located to the left of the lead designation.

4.04 Insert the wires into the fanning port (Fig. 34 and 35) and then dress the wires into the region between the block assembly and the housing. To

maintain the proper slack in the cross-connection, it is necessary to hold the wires in this region with one hand while threading each wire into the wire entry slot. A gentle ***push*** on the wire is sufficient to feed it through the channel until it appears at the corresponding port at the front of the block.

4.05 Figure 36 shows the cross-connecting procedure. While maintaining the slack in the wire, ***pull*** the wire through the channel (removing the excess slack) and ***bend*** it to the left (on horizontally mounted blocks) or up (on vertically mounted blocks) across the proper terminal location on the 109-connector. Using either the 833A tool or the AT-8762D impact tool, seat and ***snip*** the wire. The wire can then be dressed down into the storage region located between the slices or columns using a spudger.

> ***Note:*** When using the AT-8762D impact tool to connect 22-gauge wire, the impact setting should be in the HI position.

4.06 Wire clippings should be placed into the distributing frame bag.

5. REMOVING CROSS-CONNECTIONS

5.01 To remove a cross-connect wire (Fig. 37), disconnect it at the terminal by gently pulling it out at the quick-clip terminal with either a pair of long-nose pliers or a miniature spudger. Once the wire becomes dislodged from the clip, ***do not pull it any further.***

5.02 Push the wire ***into*** the block assembly until a loop forms at the wire entry port. Lift the wire at the loop until it is completely removed from its channel. The wire can now be removed from the housing by guiding it through the housing cutout.

5.03 If the cross-connection is to be removed from the frame, dispose of it as determined by local practices.

6. BRIDGING CONNECTIONS

6.01 The 988A connector (Fig. 38) is used to bridge two adjacent terminals on a 109-connector.

6.02 For bridging or multipling of terminals on adjacent slices (such as the −48 volt bus leads on the 93M1A code), the following procedure is recommended.

6.03 Before the 109-connectors are inserted, unlock the block assembly (depress the locking bar) and rotate it back to the cabling position.

6.04 As an example of a multipling operation, consider the busing requirements for the 93M1A. This code uses a special slice designed for voltage bus applications, as shown in Figure 39. This special slice (column 4) is hot-stamped with red characters (−48) in positions 1 and 20, and a red arrow extending from positions 2 through 19.

6.05 Six slices (columns 1 through 3 and 22 through 24) are blank. Seventeen slices (columns 5 through 21) have identification for three circuits per slice. On each of these slices in positions 1, 7, and 13, a voltage designation (−48) is shown. If current specifications permit, a single voltage lead can be run from slice 4 to slice 21 in each of the three positions (1, 7, and 13). Starting at the special slice (slice 4), run these three leads through the cable channels and at least 18 inches beyond the block. Bend each lead to the right over the index strip and then rotate the block assembly down into the locked position. Dress each lead across the entire block in positions 1, 7, and 13.

6.06 Note that the single wire insertion tools have two functional ends, the seating end and the seating and cutting end. For multipling operations use the seating end to seat all common connections. Starting in position 1 at column 4 and continuing up to column 21, seat the voltage lead. Repeat this operation for positions 7 and 13. Turn the tool to the seating and cutting end and cut the three leads at column 21. Each lead forms a voltage bus for seventeen circuits. Now install the 109-connectors using the 834B tool (Fig. 8).

6.07 The bus leads will block the −48 cross-connect channels but this is not a problem since, for multipling operations, these channels are never used.

7. PIECE-PART DATA

7.02 Table D contains ordering information (comcodes) for blocks, tools, test cords, etc.

7.02 When ordering replacement parts, give both the part number and name of the part as well as the comcode. Do not refer to the BSP section number.

7.03 FREON*TF or FREON TE35 is used to clean the surface of the block assembly when replacing an address lable.

*Registered trademark of E.I. du Pont de Nemours Co. Inc.

8. REPAIR PROCEDURE

8.01 Tools and their use are covered in paragraphs 2.17 through 2.21. Safety glasses or other eye protection devices should be worn when performing any work operation.

Caution: Follow the local procedures for interrupting service before disturbing any cross-connections or cable wires.

A. 109-Connector

8.02 The 109-connector should be replaced whenever it is removed from the block assembly index strip. To remove a 109-connector, proceed as follows:

(1) Remove the cross-connections from the connector using the long-nosed pliers or the fiber spudger.

Note: The wires should not be pulled out of the channel.

(2) Grasp the connector at the top or bottom with the long-nosed pliers

(3) Remove the connector by sharply jerking it. Discard the connector.

Note: When the connector is removed, the equipment cable wires may remain lodged in the quick-clip of the connector. Remove the wires and reinsert them into the index strip, moving them over about 1/4-inch to provide a new point of contact. Reconnect the wire using either the AT-8762D or 833A tool. Remove and discard the wire clippings.

(4) Replace the 109-connector by seating it in the index strip with the 834B tool.

(5) Reterminate the cross-connections, moving them over about 1/4-inch to provide a new point of contact, using either the AT-8762D or 833A tool.

B. Address Label

8.03 To replace an address label, proceed as follows:

(1) Peel off the old label.

(2) Clean the area where the label contacts the connecting block with a clean cloth dampened with FREON TF or FREON TE35. It is important that the surface is clean to allow for the proper adhesion of the new label.

Caution: Do not pour the cleaner directly on the block; a short could occur causing service interruptions. Always pour the cleaning fluid directly on the cloth.

(4) Press on the new label.

C. Connecting Block Assembly

8.04 There is no repair procedure for a faulty connecting block assembly. The entire assembly must be replaced using the following procedure:

(1) Remove each cross-connection from the 109-connectors using either a spudger or long-nosed pliers. Pull each cross-connection individually through the channel, tag it for identification, and bend it back over the fanning port.

(2) After all cross-connections have been removed and tagged, remove all the 109-connectors as described in paragraph 8.02(1), (2), and (3).

(3) Using a spudger or long-nosed pliers, remove all cable wires from the index strips and push each wire back into its channel.

(4) Depress the locking bar (Fig. 40) and rotate the block assembly 90°.

(5) Pull wires through the channels and entry ports, tag each wire for identification, but do not pull them through the housing. Lay the wires out over the bottom edge of the housing.

(6) Lift the block assembly out of the housing (Fig. 40).

(7) Insert new block assembly into housing, leave the block tilted so cable entry ports are accessible, and follow steps shown in Figure 41. However, the cable wires should only extend 1/4 inch past the index strip (not several inches as shown in Figure 41 which depicts an initial installation).

(8) After all cable wires have been seated and cut (and wire clippings removed and deposited in distributing frame bag) and new 109-connectors have been seated (Fig. 42 and paragraph 2.20), follow procedures outlined in paragraphs 4.04 through 4.06 for placing cross-connections.

(9) Place address label on bumper.

D. Housing

8.05 To replace the housing, follow the procedures outlined in paragraph 8.04 with the following exceptions:

(1) All cross-connect and cable wires must be pulled back through the housing ports.

(2) After the block assembly has been removed, the housing can be replaced by removing the four screws and fastening the new housing.

(3) The cable wires must be fanned through the ports in the new housing before reinserting the connecting block assembly.

(4) A new address label is not required.

8.06 After performing any repair procedure, follow the local procedures for restoring circuits to normal.

9. REFERENCES

201-220-101	Conventional Distributing Frames —Description
201-220-501	Conventional Distributing Frames —Inspections

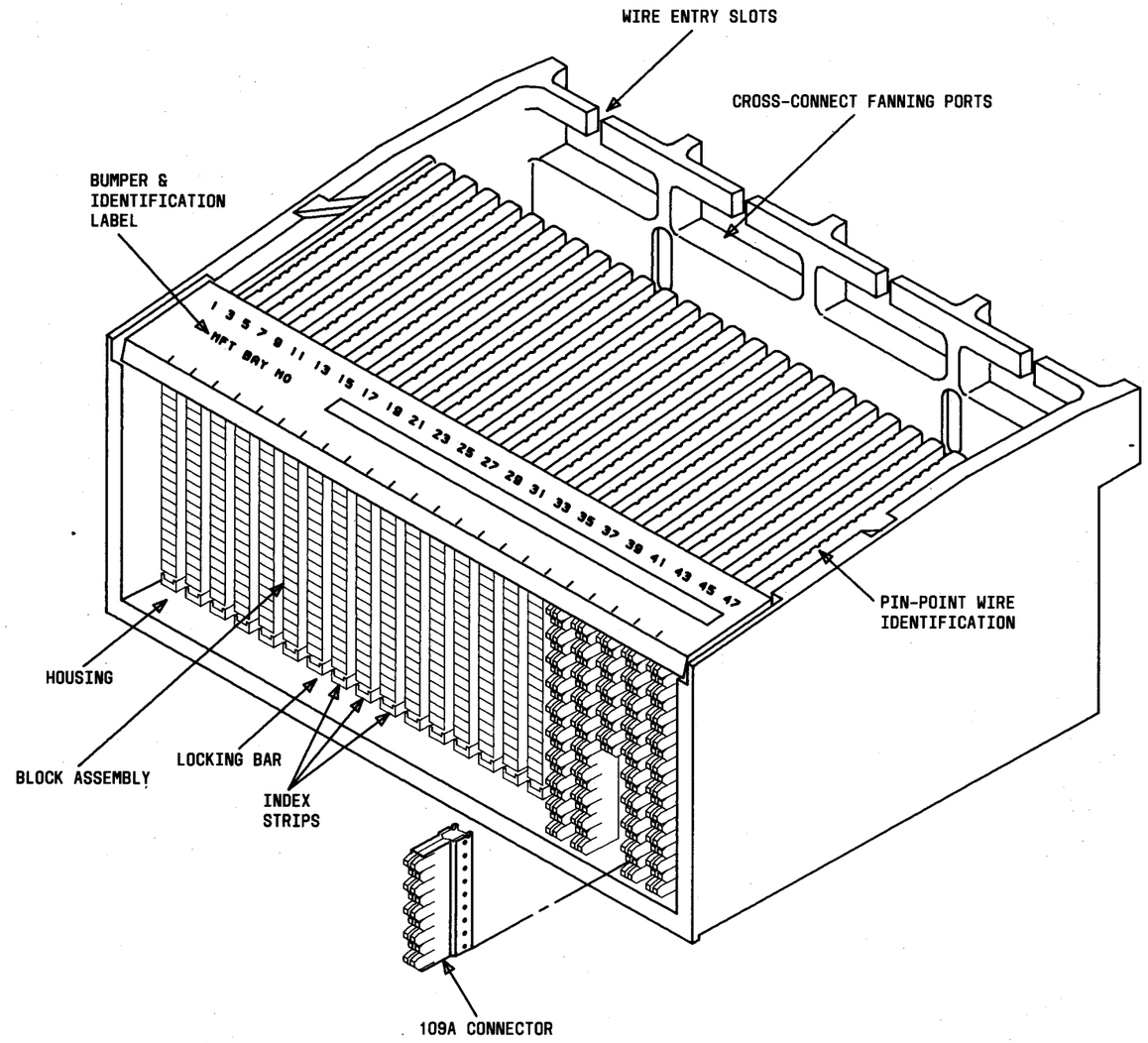


Fig. 1—Typical 93-Type Connecting Block Assembly

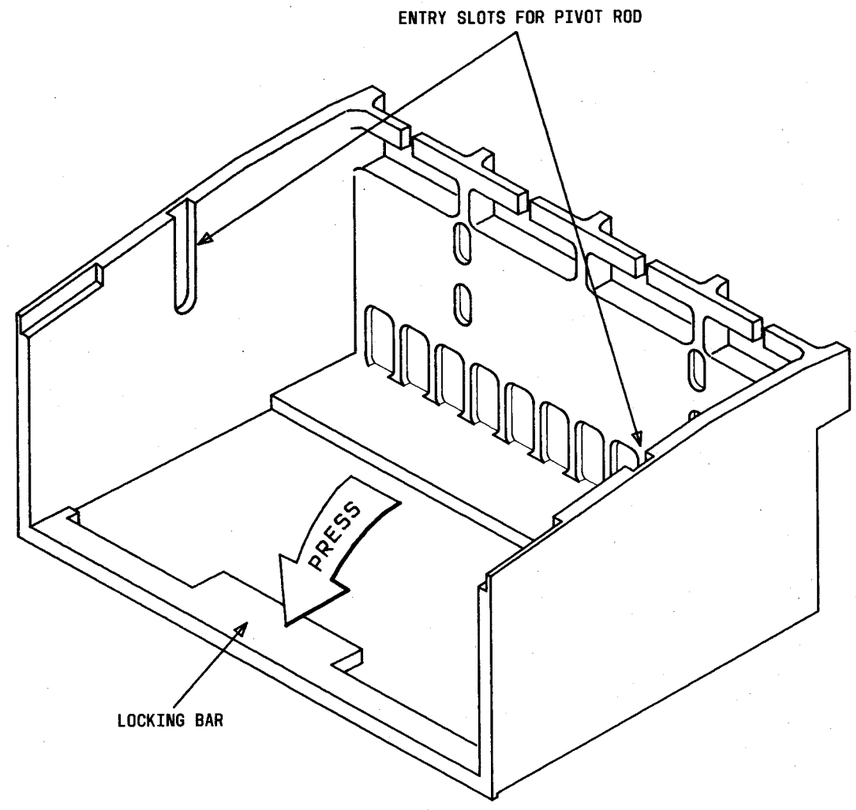


Fig. 2—Connecting Block Housing

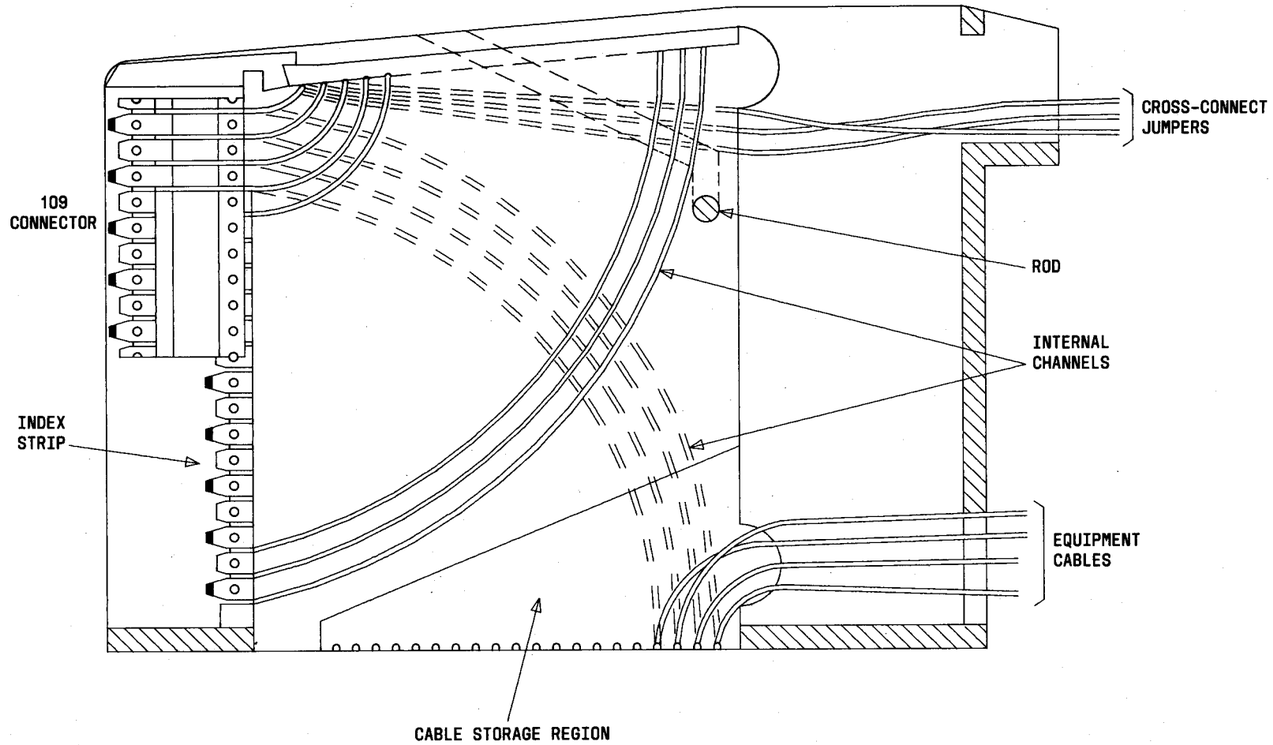


Fig. 3—Cross Section of Block Assembly

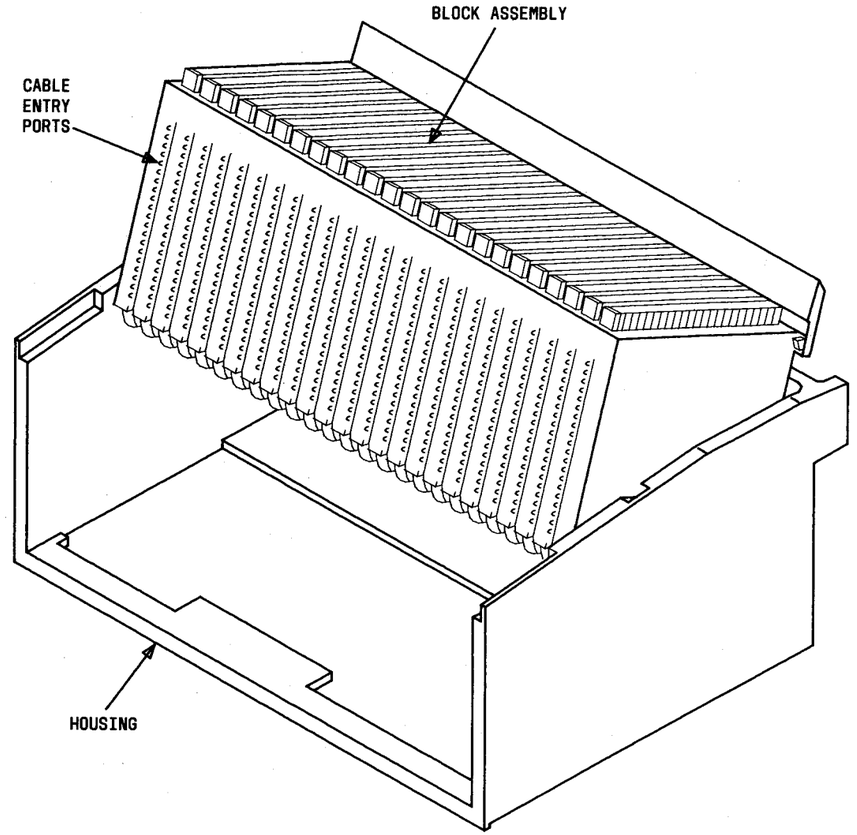
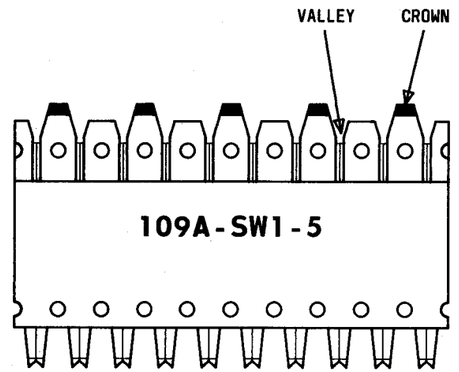
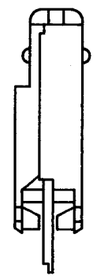


Fig. 4—Connecting Block Assembly—Rotated Upward to Show Cable Entry Ports





END VIEW

Fig. 5—109A Connector

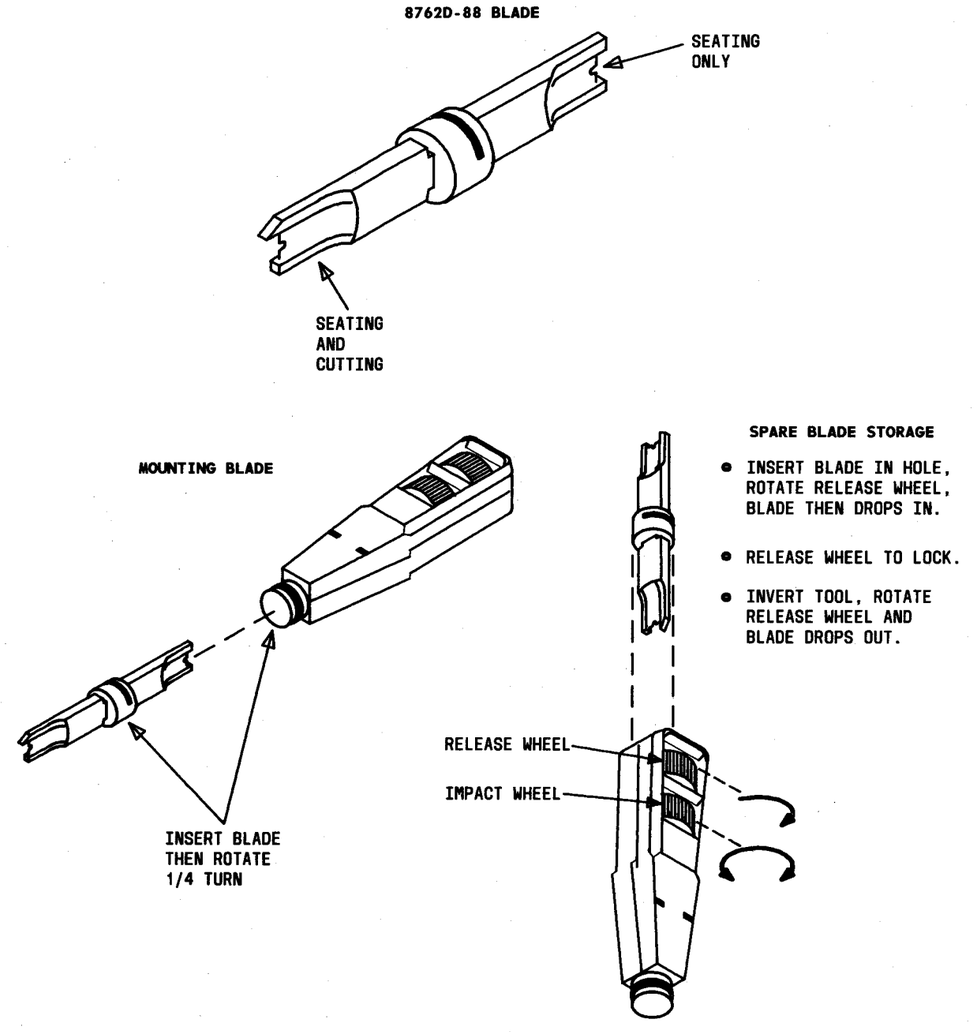


Fig. 6—AT8762D Impact Tool

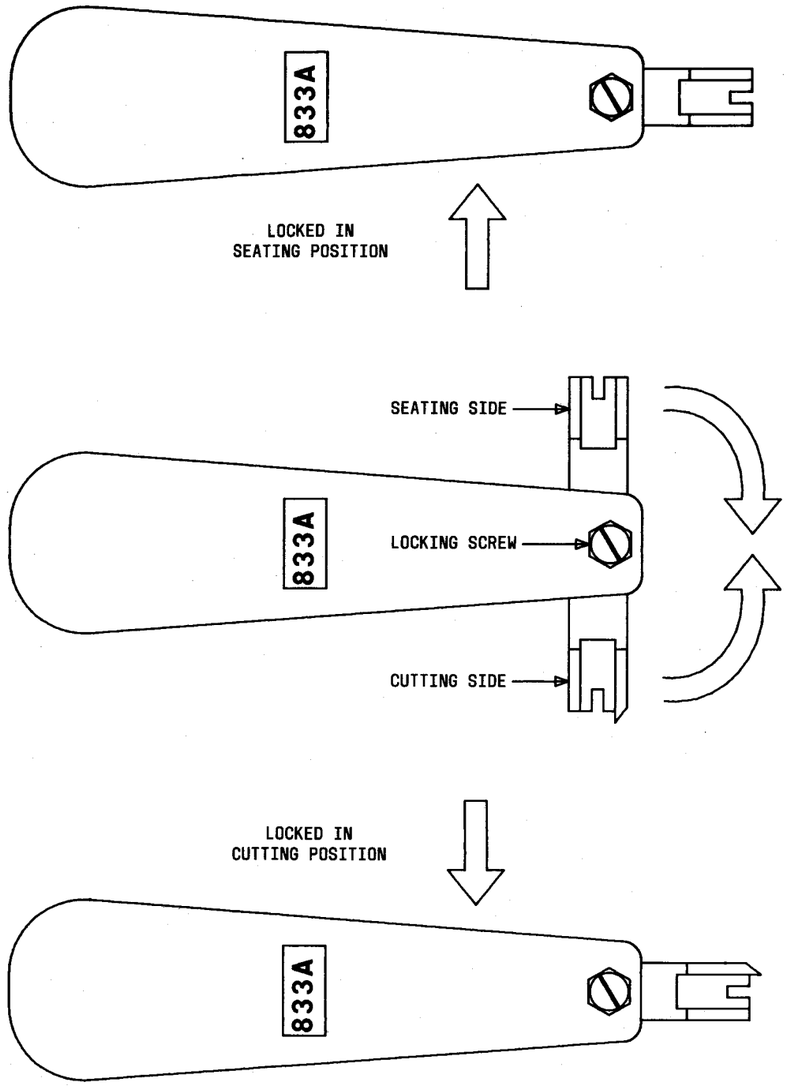


Fig. 7—833A Tool

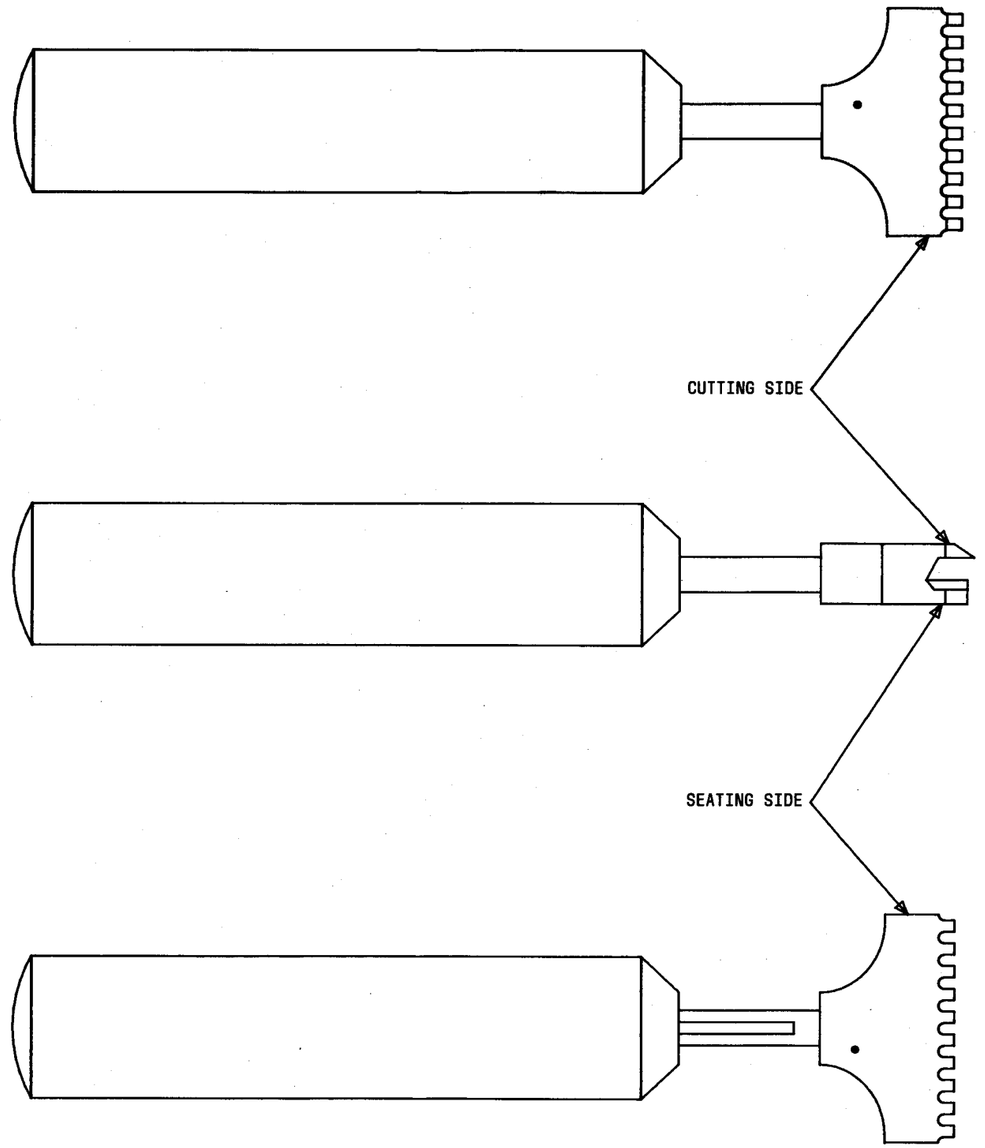


Fig. 8—834B Tool

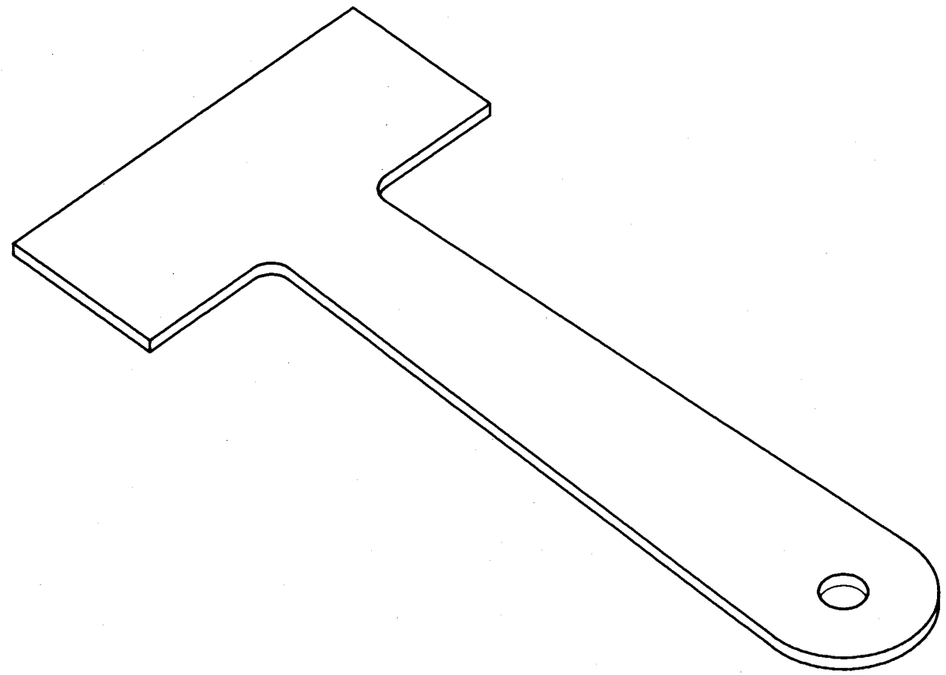


Fig. 9—955A Tool

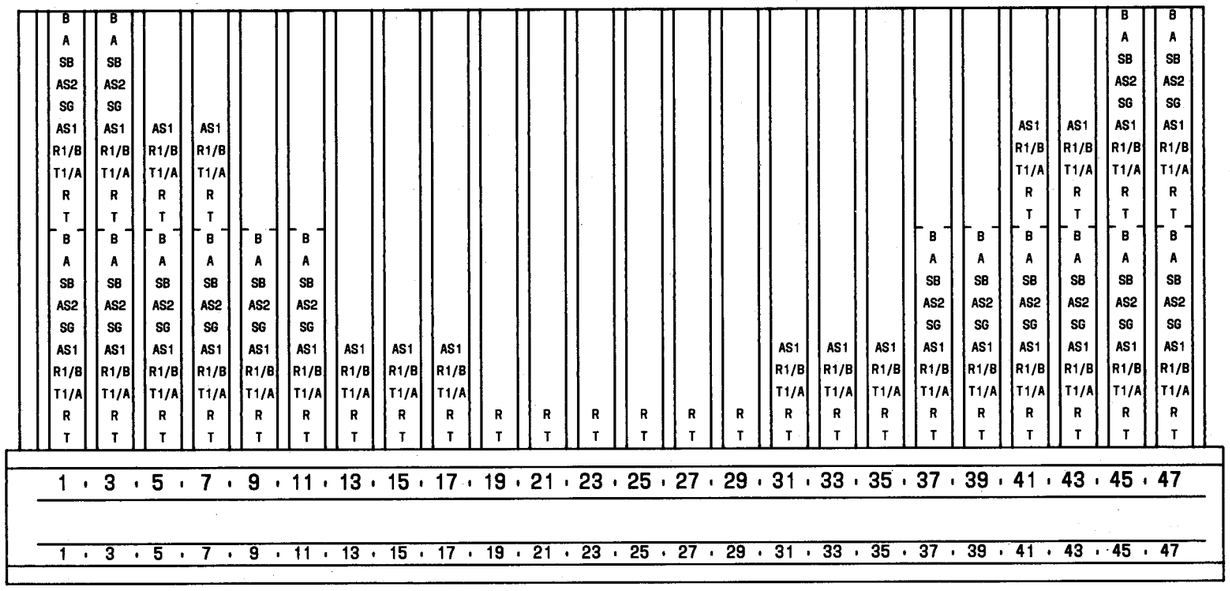


Fig. 10—93A1A Connecting Block

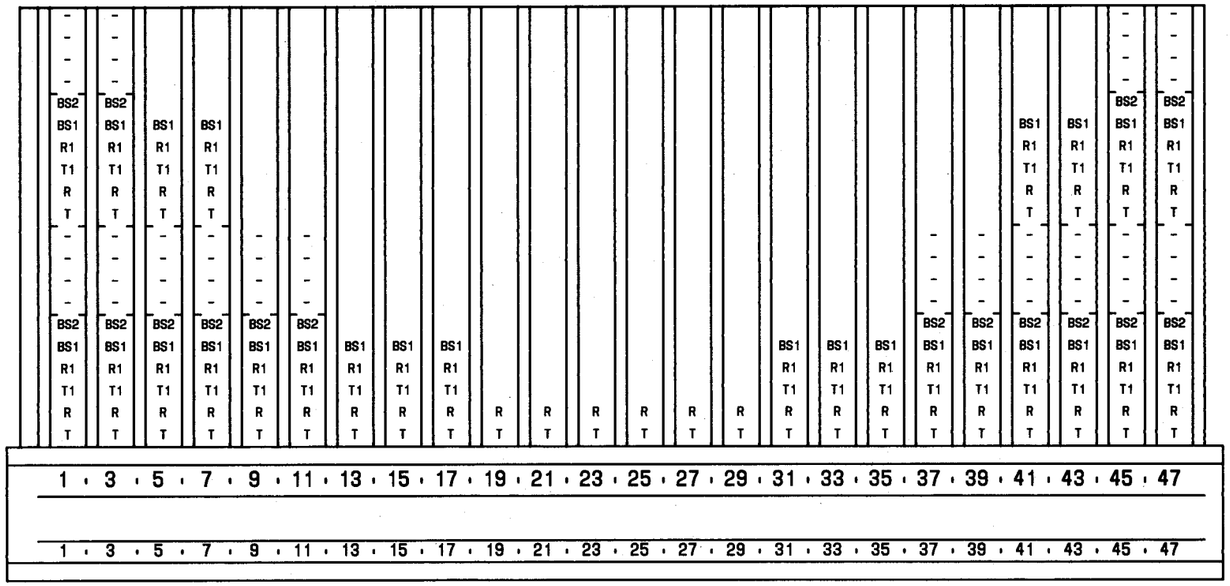


Fig. 11—93B1A Connecting Block

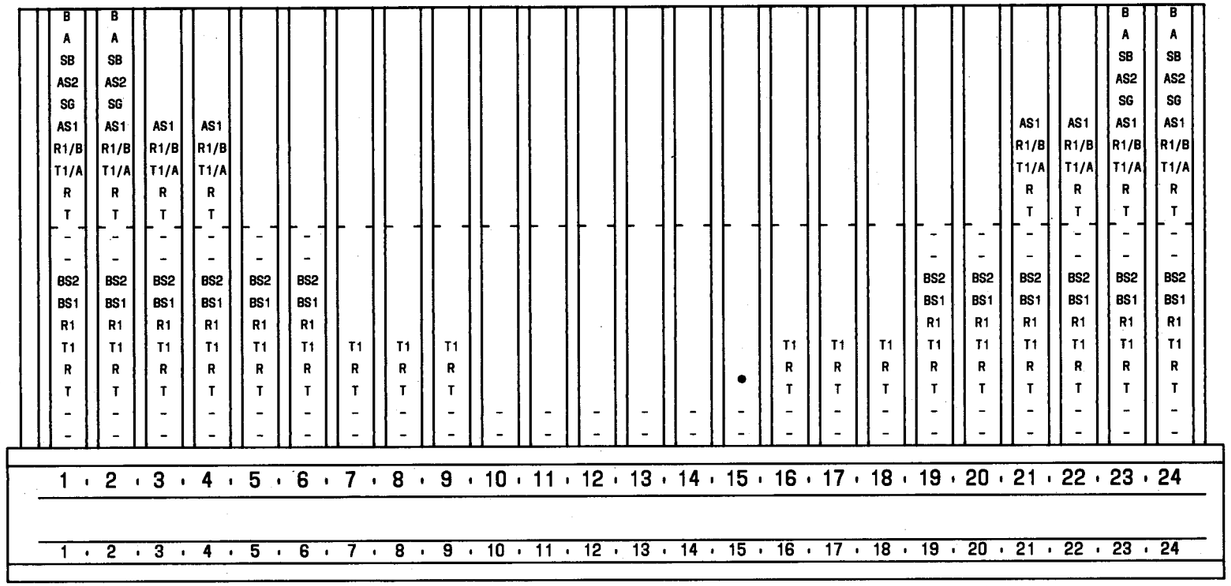


Fig. 12—93C1A Connecting Block

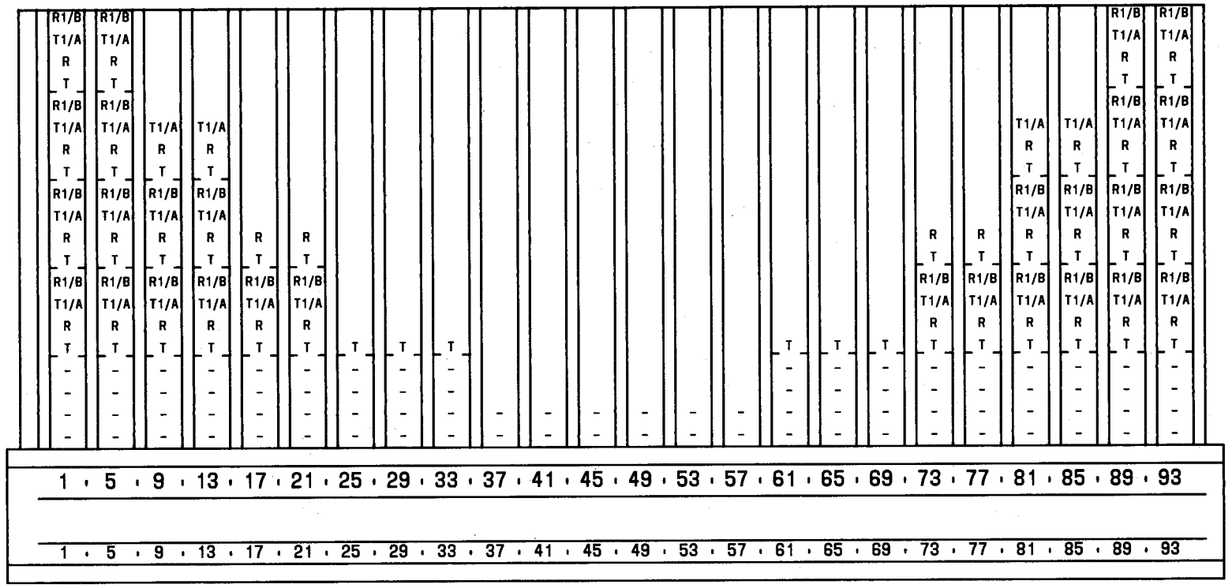


Fig. 13—93D1A Connecting Block

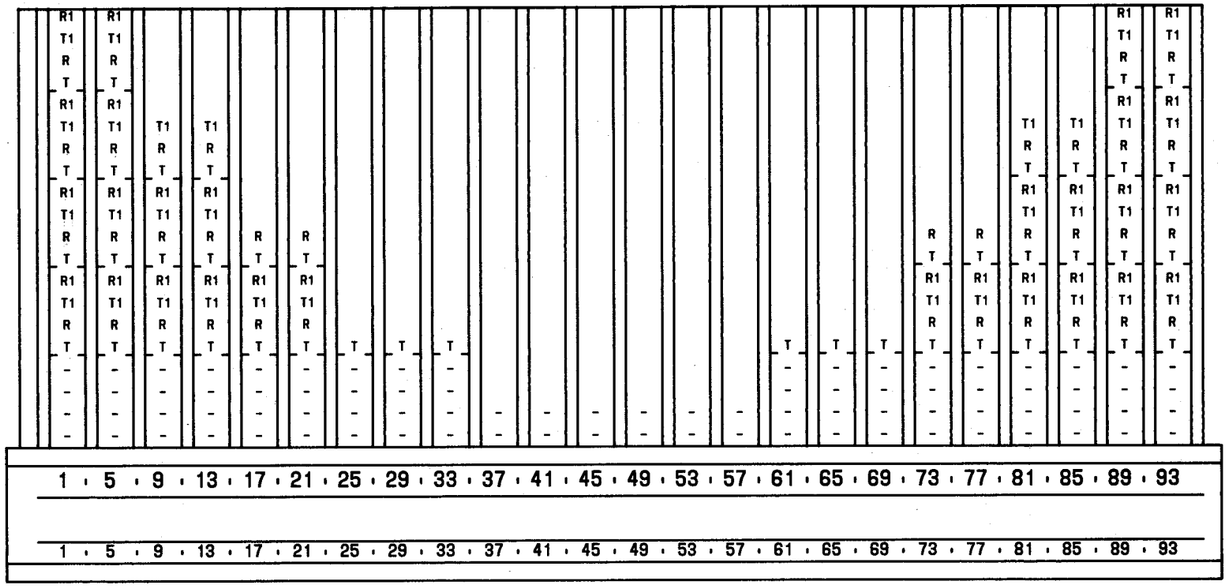


Fig. 14—93E1A Connecting Block (MFT)

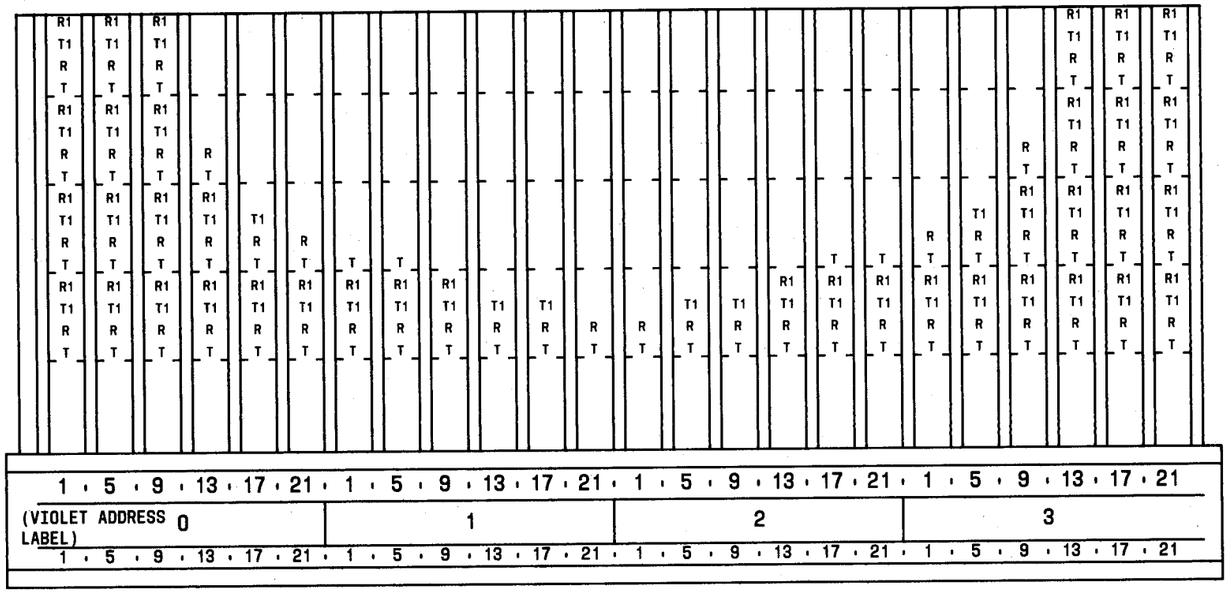


Fig. 15—93E1A Connecting Block (SMAS)

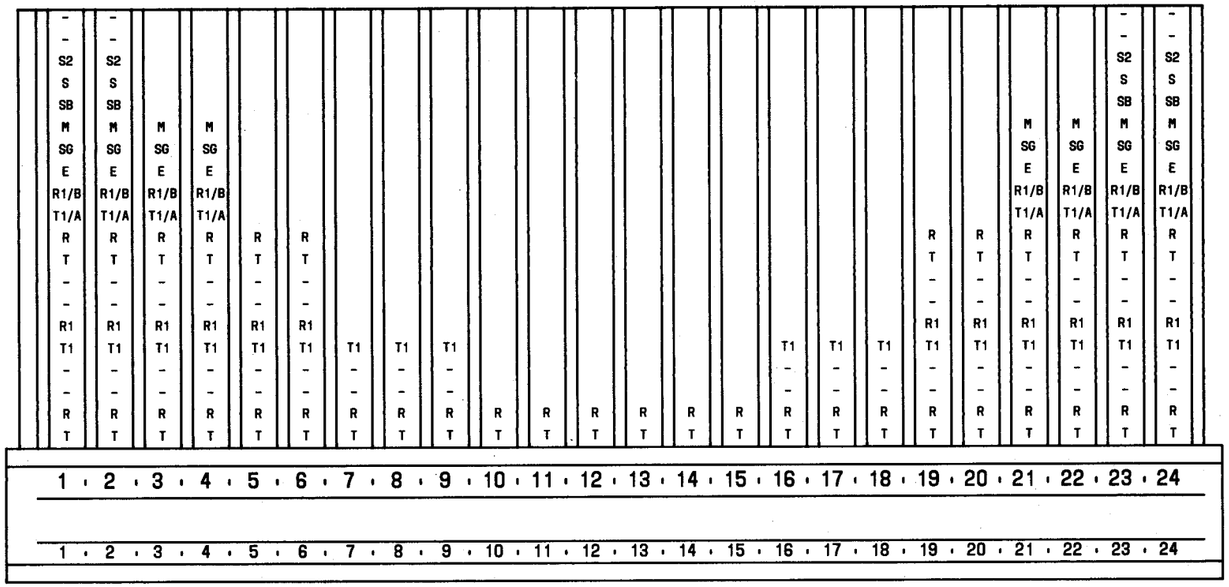


Fig. 16—93G1A Connecting Block

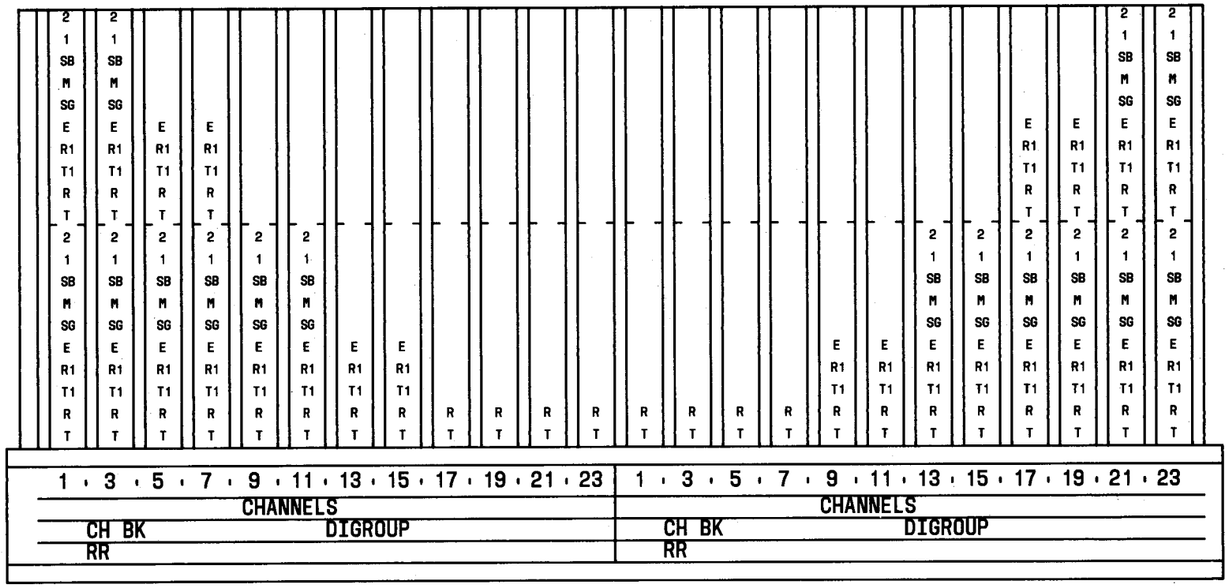


Fig. 17—93H1A Connecting Block

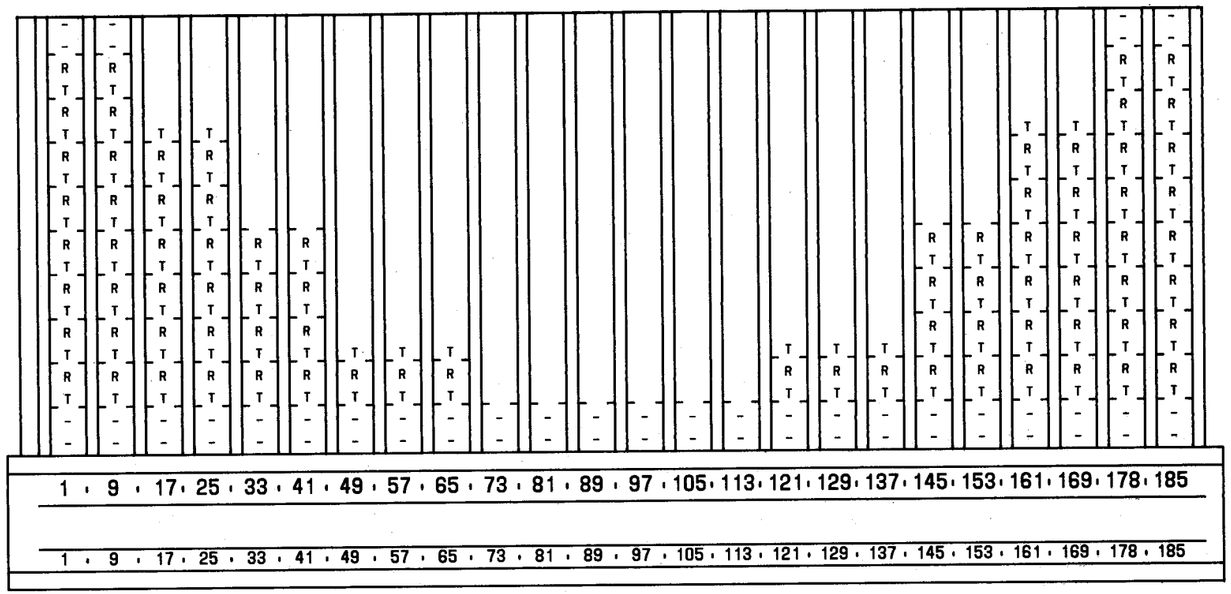


Fig. 18—93J1A Connecting Block

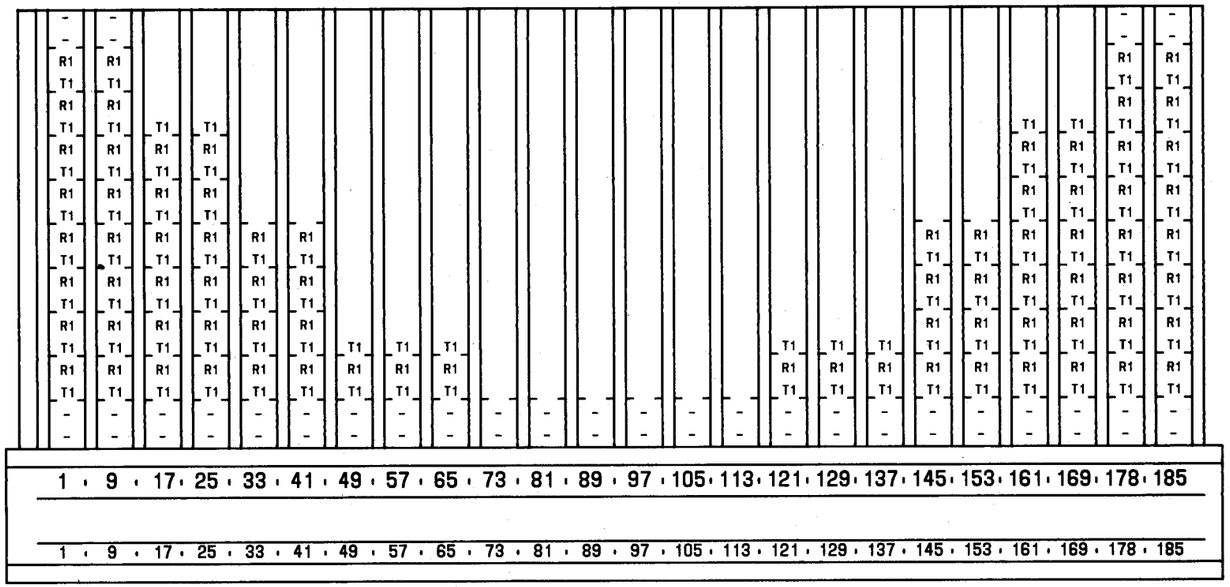


Fig. 19—93K1A Connecting Block

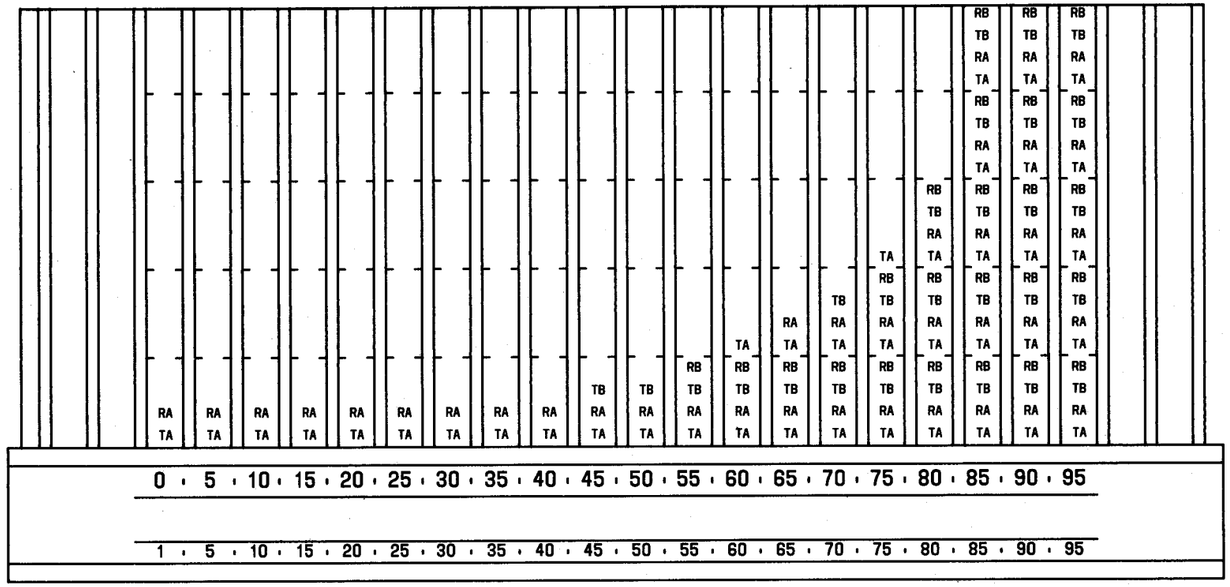


Fig. 20—93L1A Connecting Block

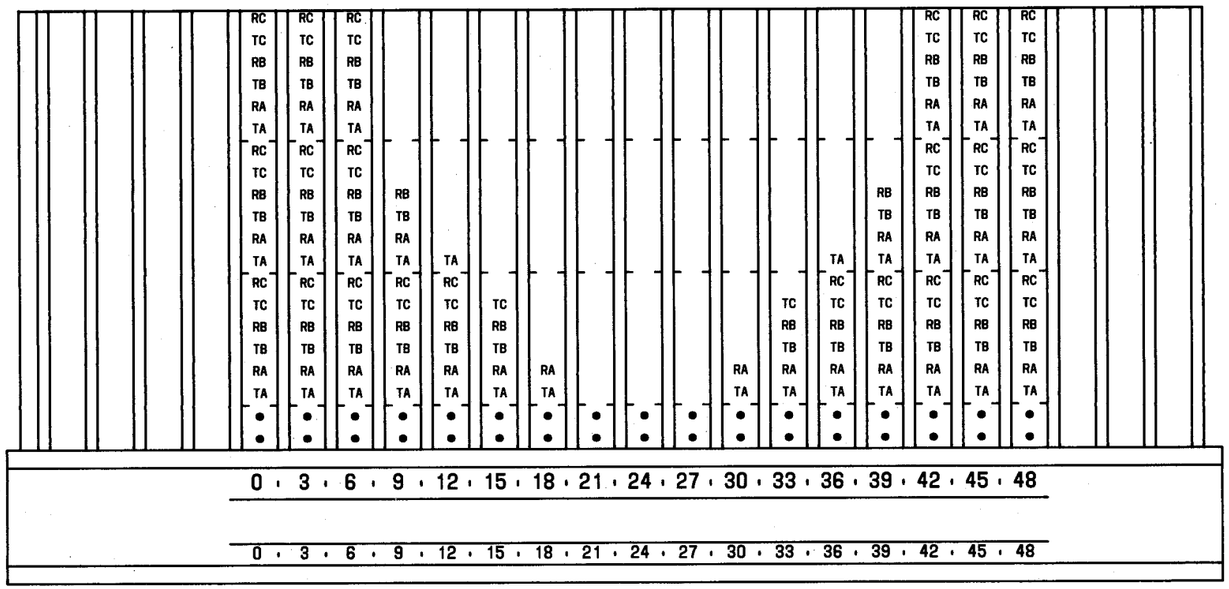


Fig. 21—93L1B Connecting Block

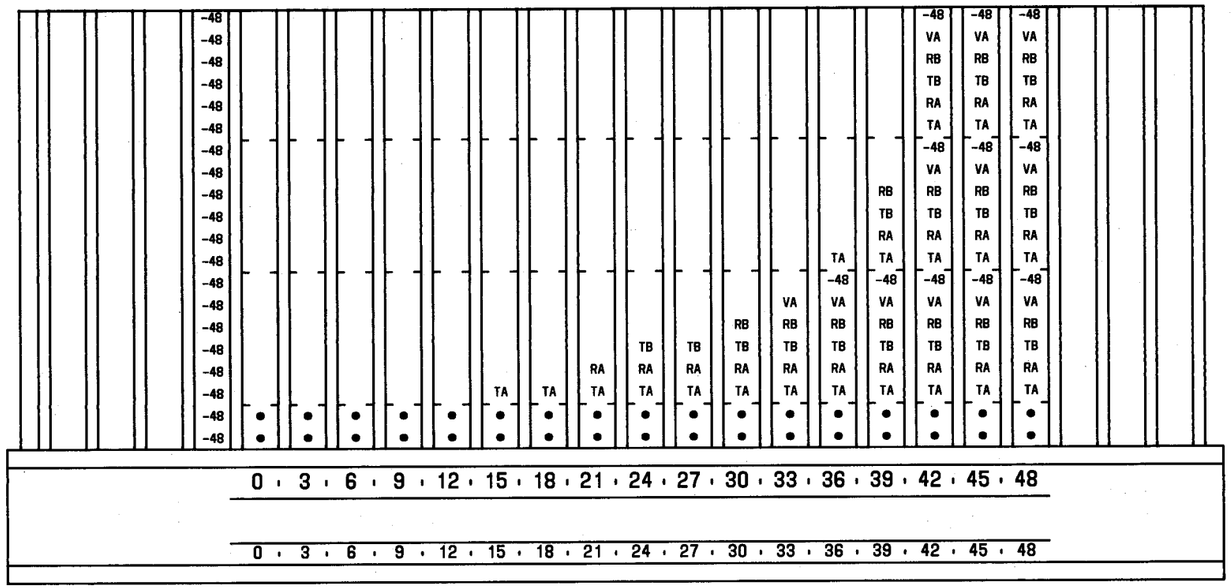


Fig. 22—93M1A Connecting Block

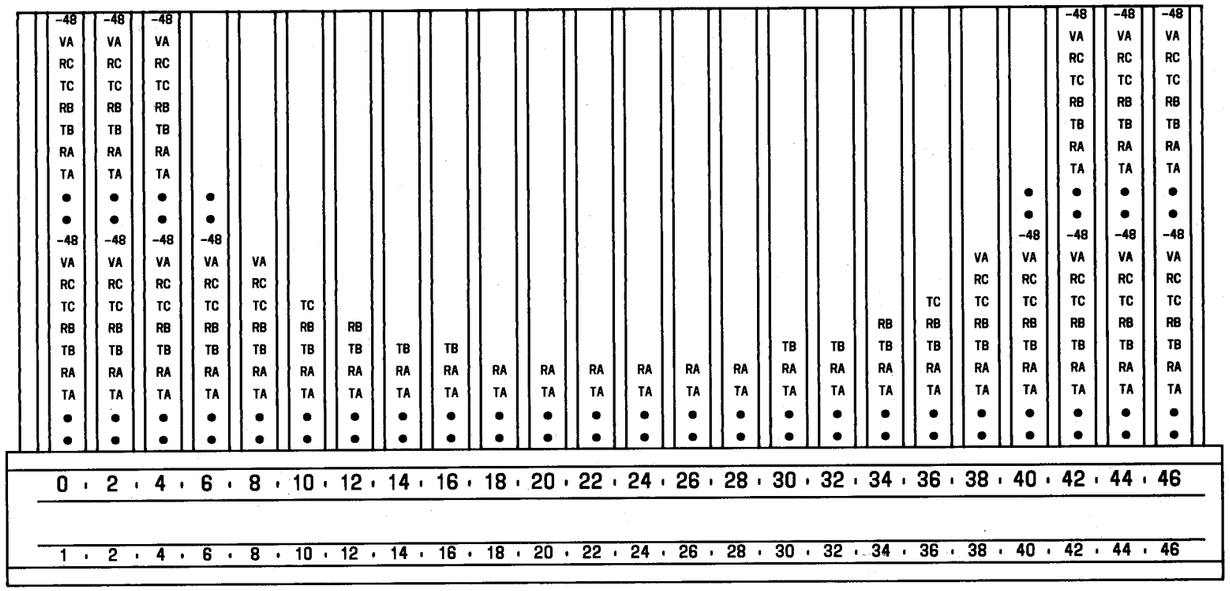


Fig. 23—93M1B Connecting Block

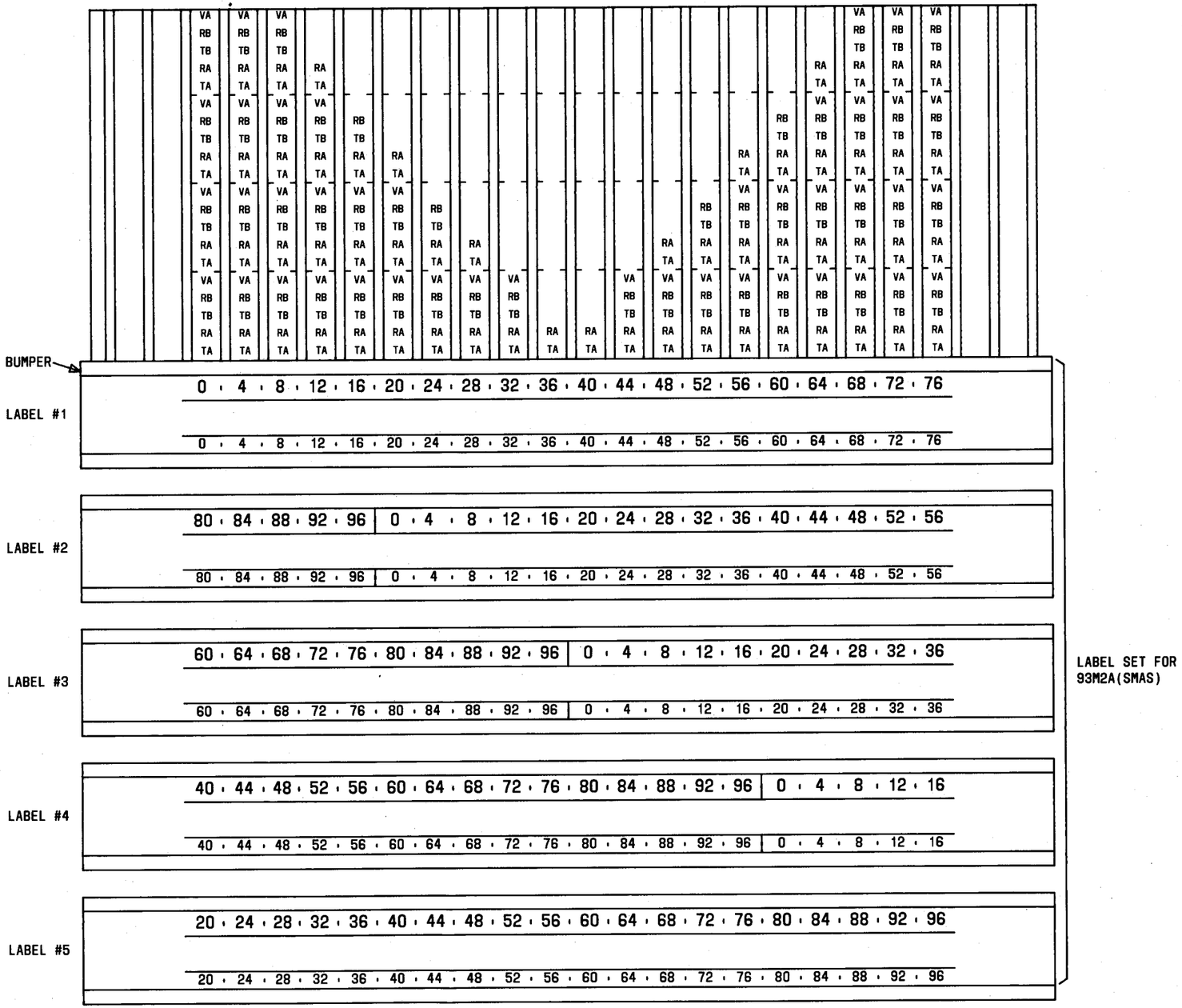


Fig. 24—93M2A Connecting Block

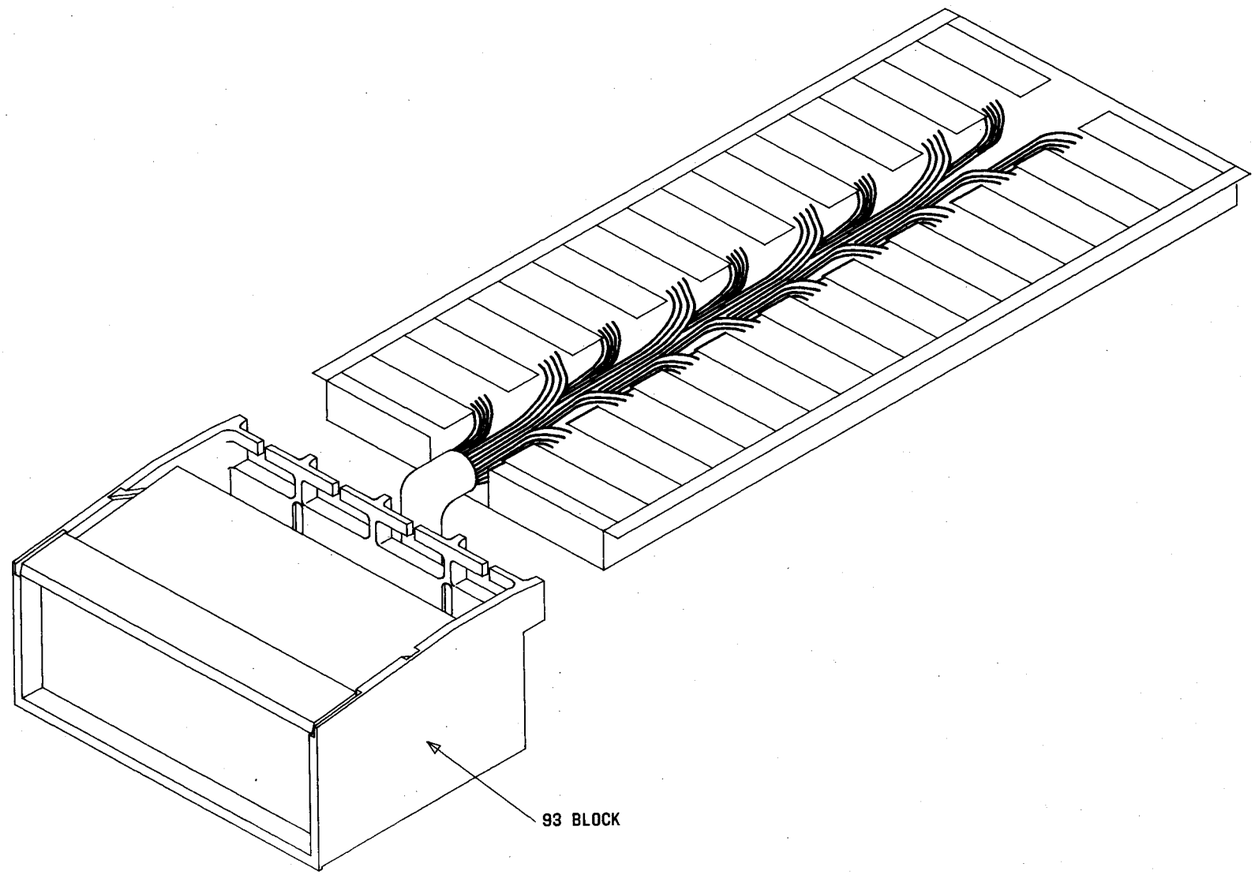


Fig. 25—Multiport Bridging and Conference Call Connecting Block (Showing Bridging Components in Tray and Cabled to Block Assembly)

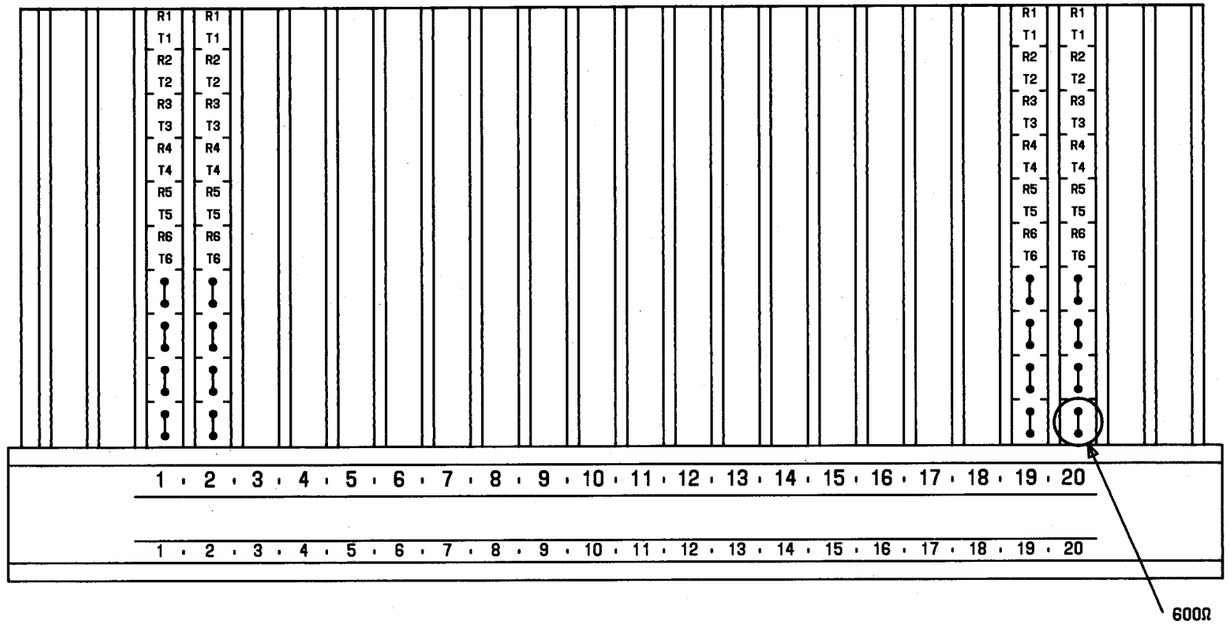


Fig. 26—93MP2-6 Connecting Block

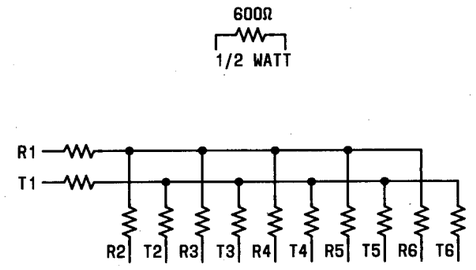


Fig. 27—Circuit Diagram for 2-Wire, 6-Way Bridge

Fig. 26 and 27

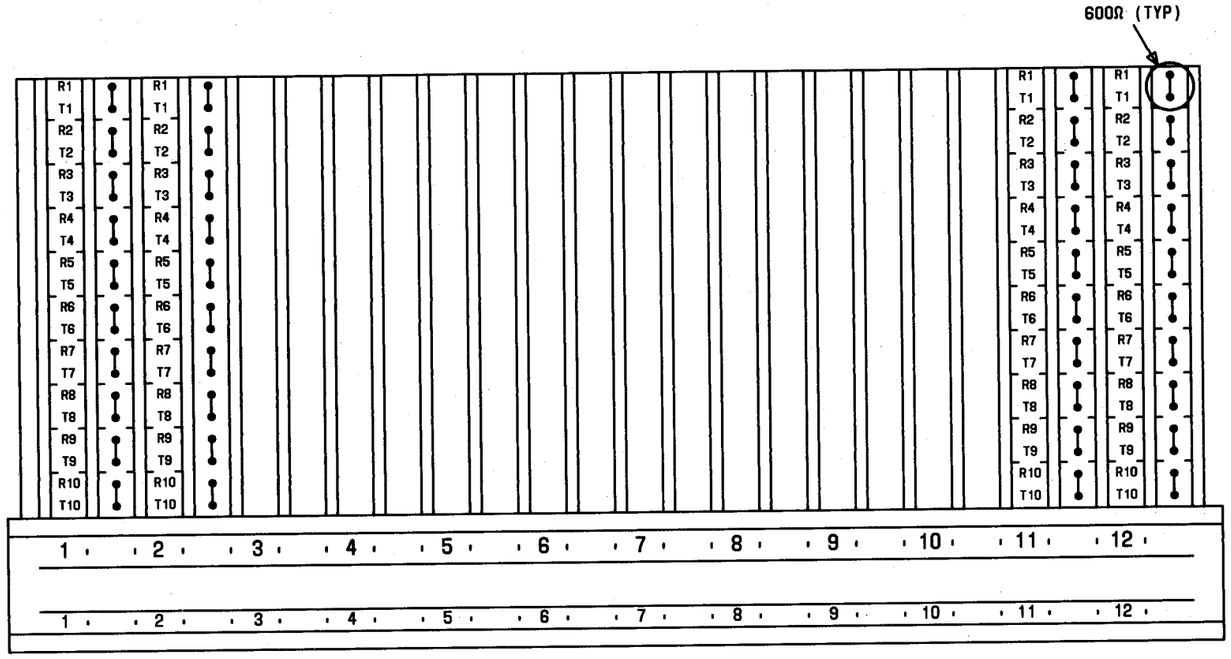


Fig. 28—93MP2-10 Connecting Block

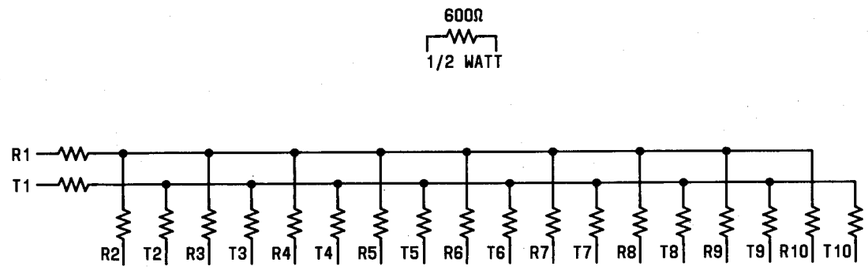


Fig. 29—Circuit Diagram for 2-Wire, 10-Way Bridge

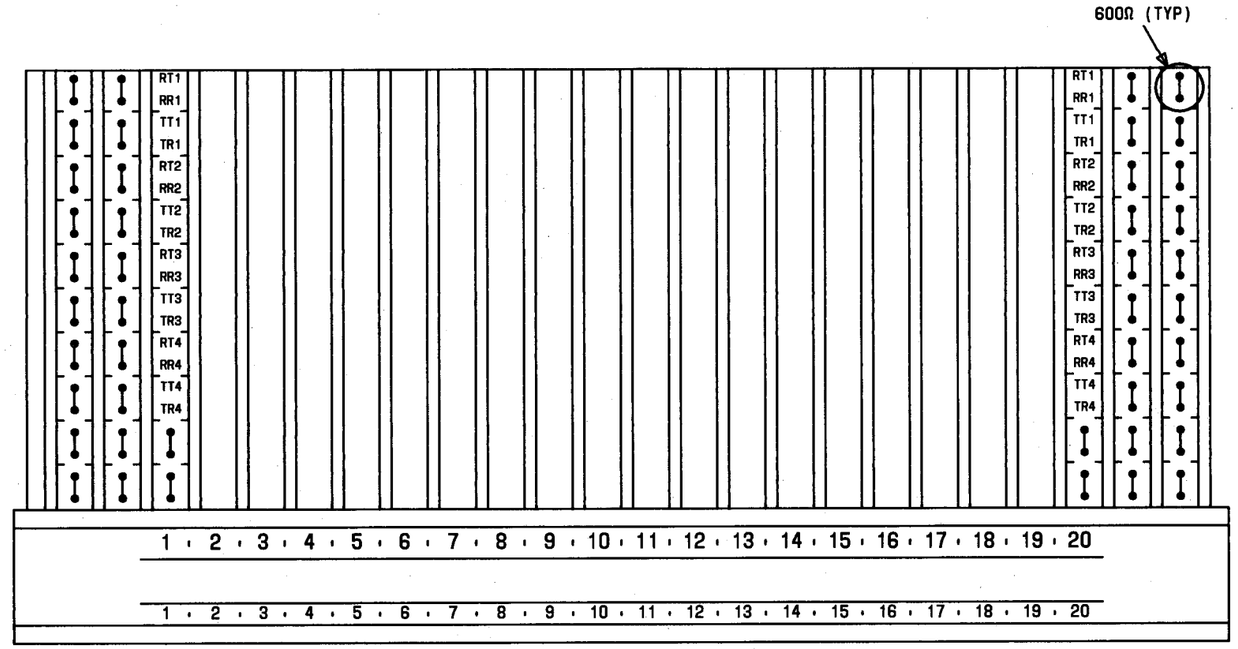


Fig. 30—93MP4-4 Connecting Block

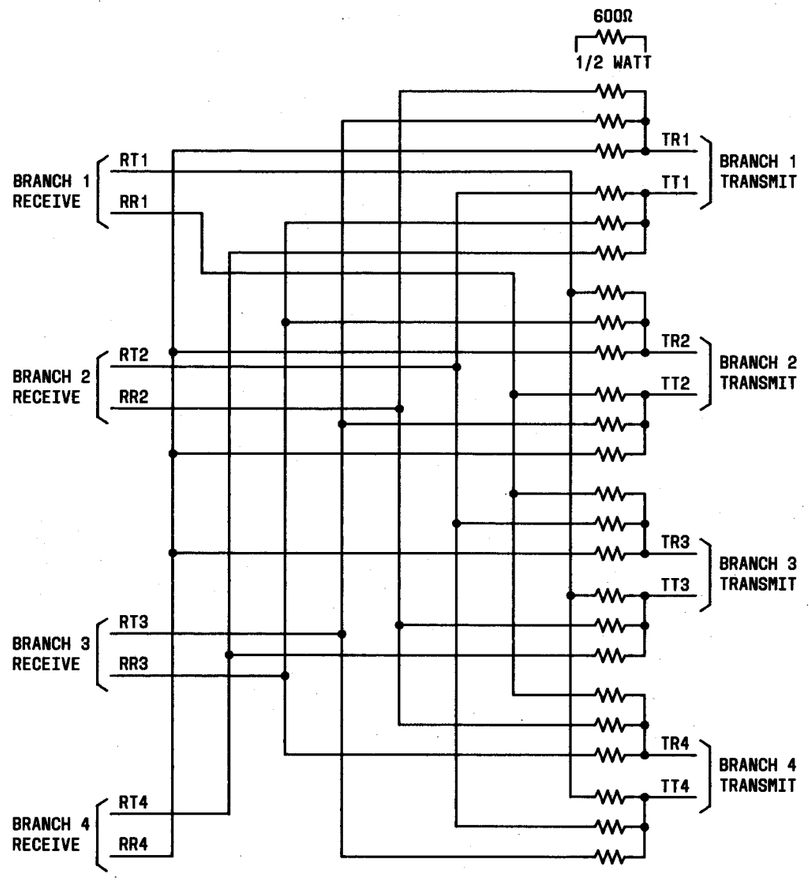


Fig. 31—Circuit Diagram for 4-Wire, 4-Way Bridge

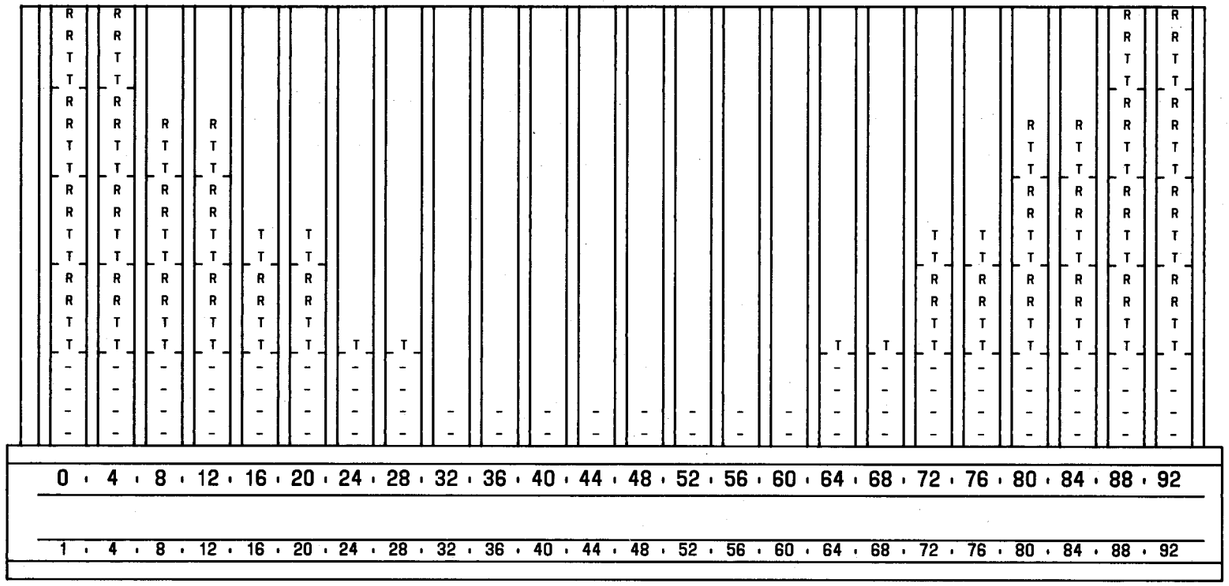


Fig. 32—93S1A Connecting Block

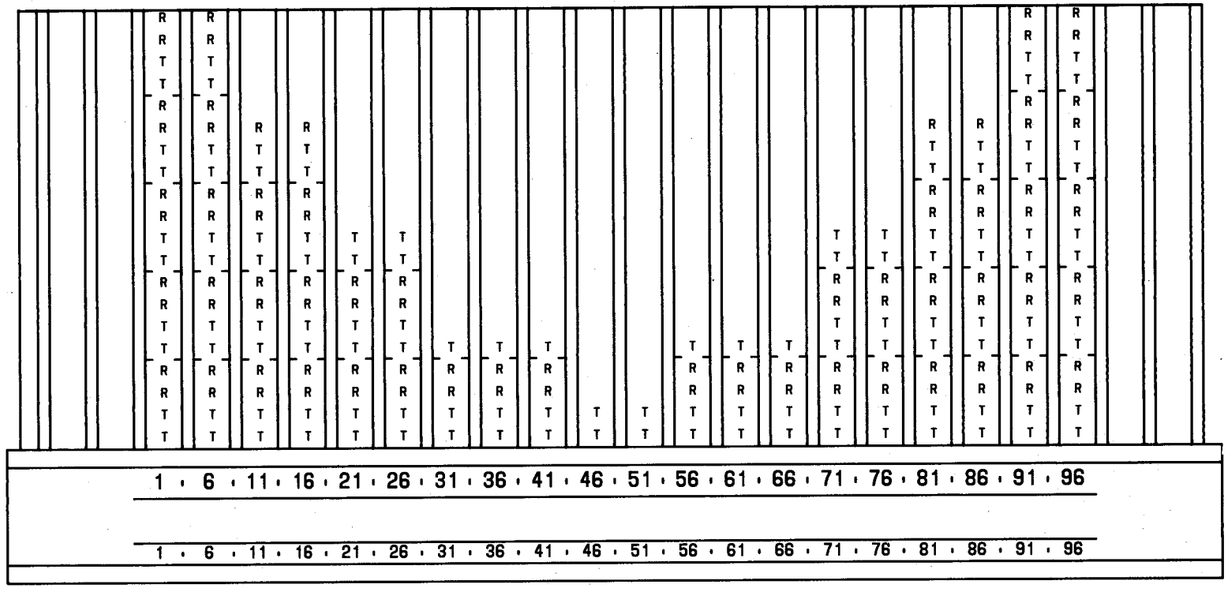


Fig. 33—93T1A Connecting Block

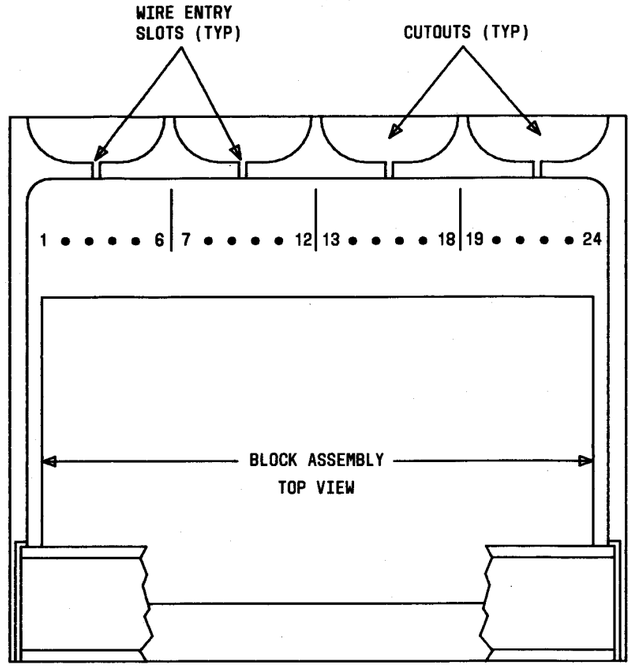


Fig. 34—Connecting Block Housing—Top View

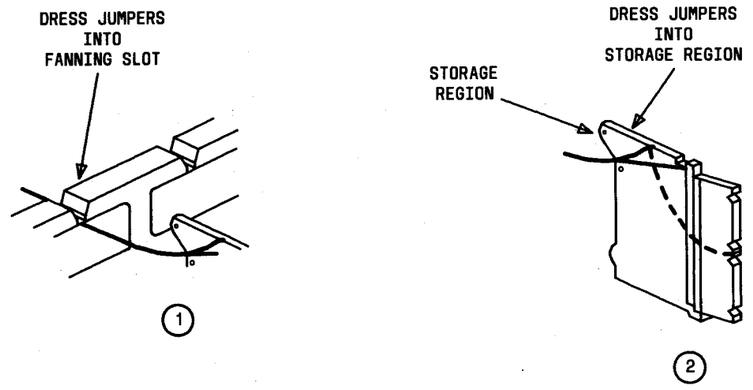


Fig. 35—Dressing and Storing Cross-Connection

Fig. 34 and 35

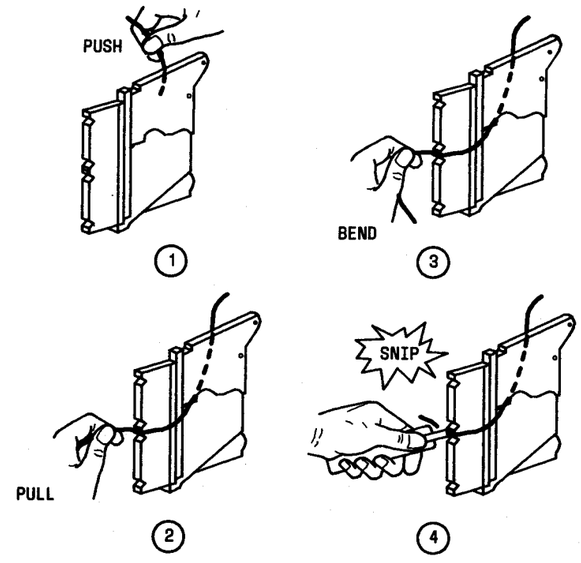


Fig. 36—Cross-Connecting Procedure

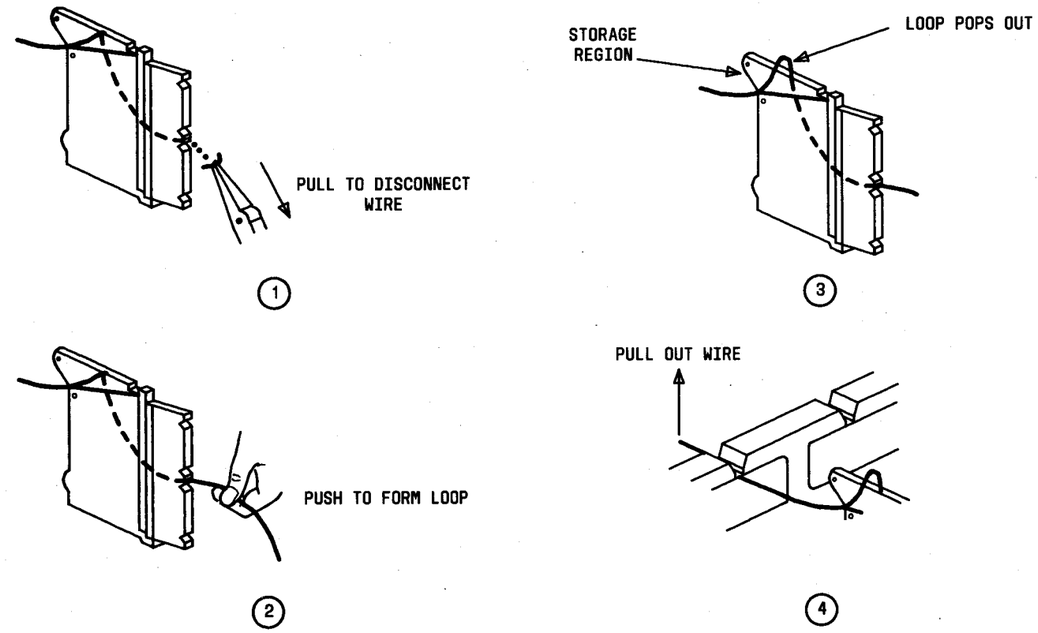


Fig. 37—Removing Cross-Connection

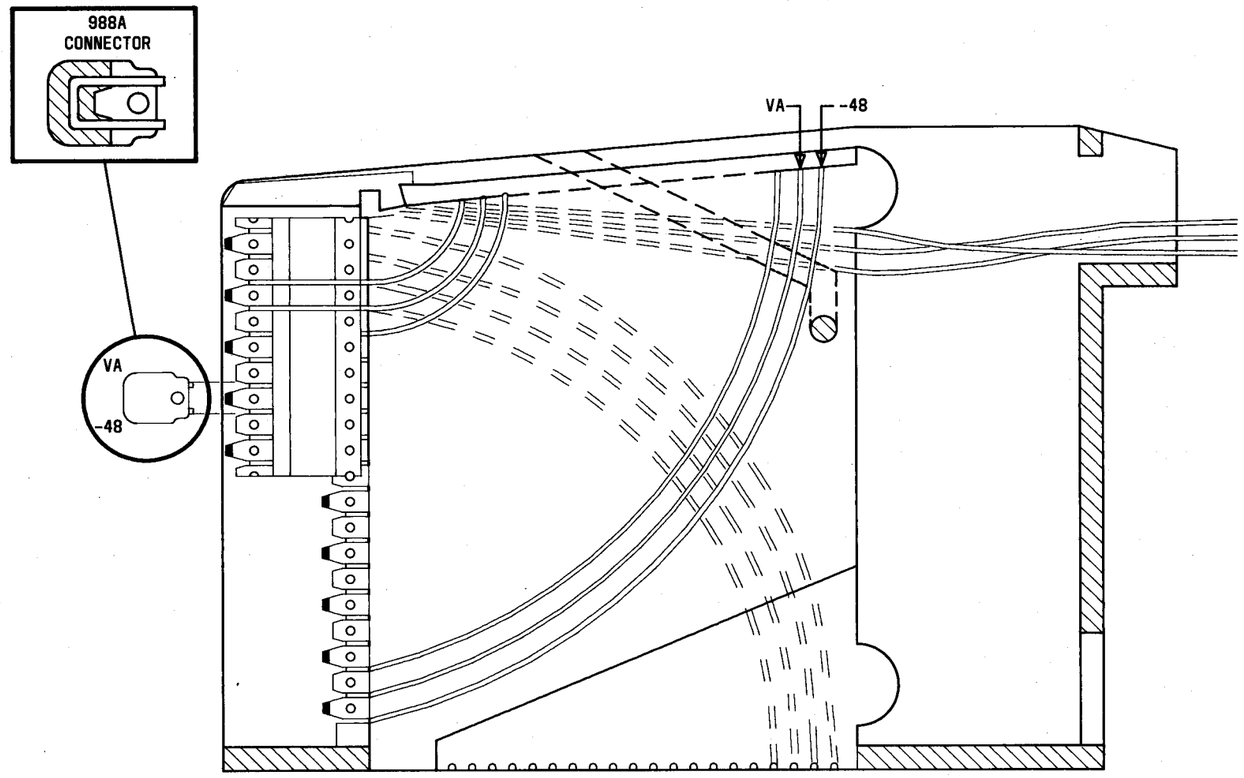


Fig. 38—988A Connector

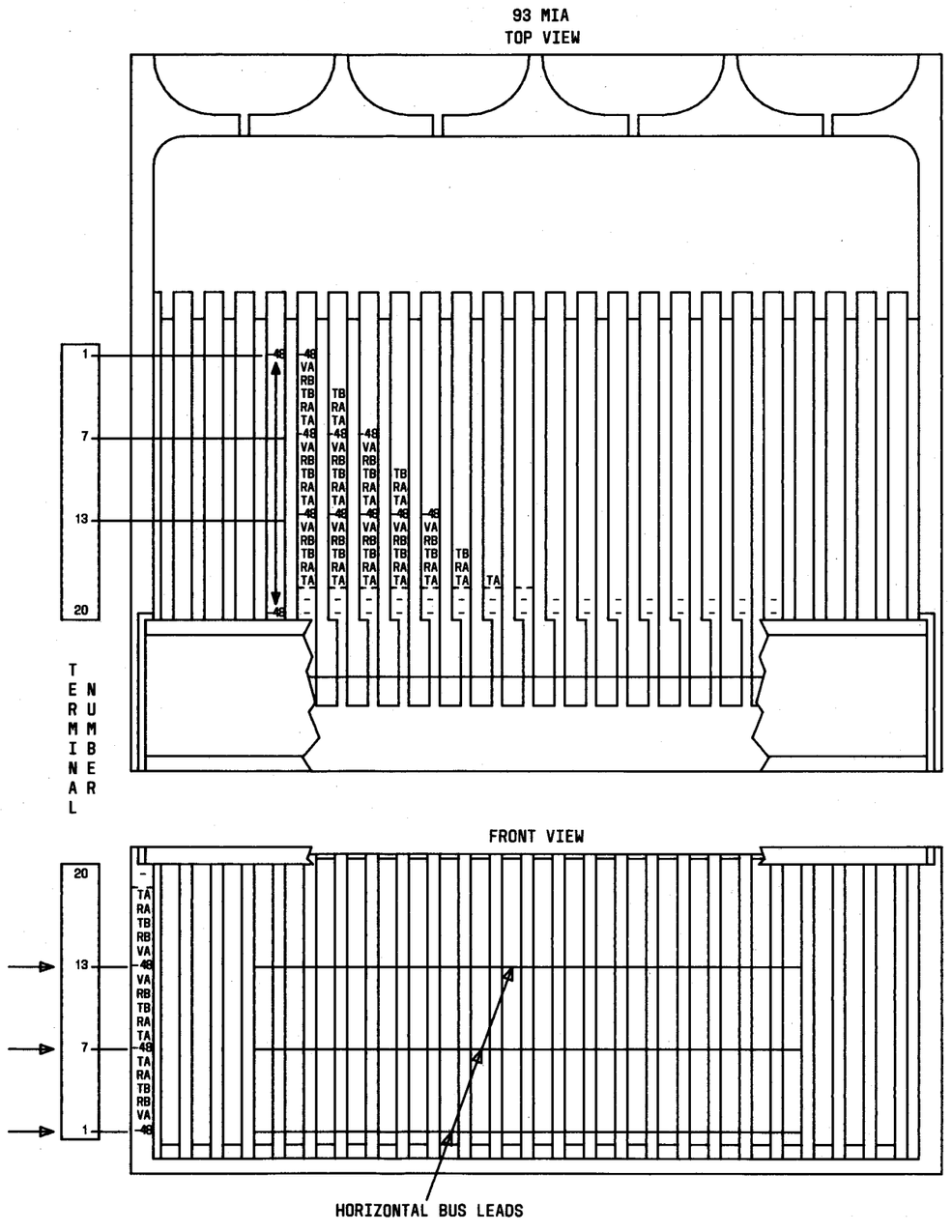


Fig. 39—Multipling Leads on Block

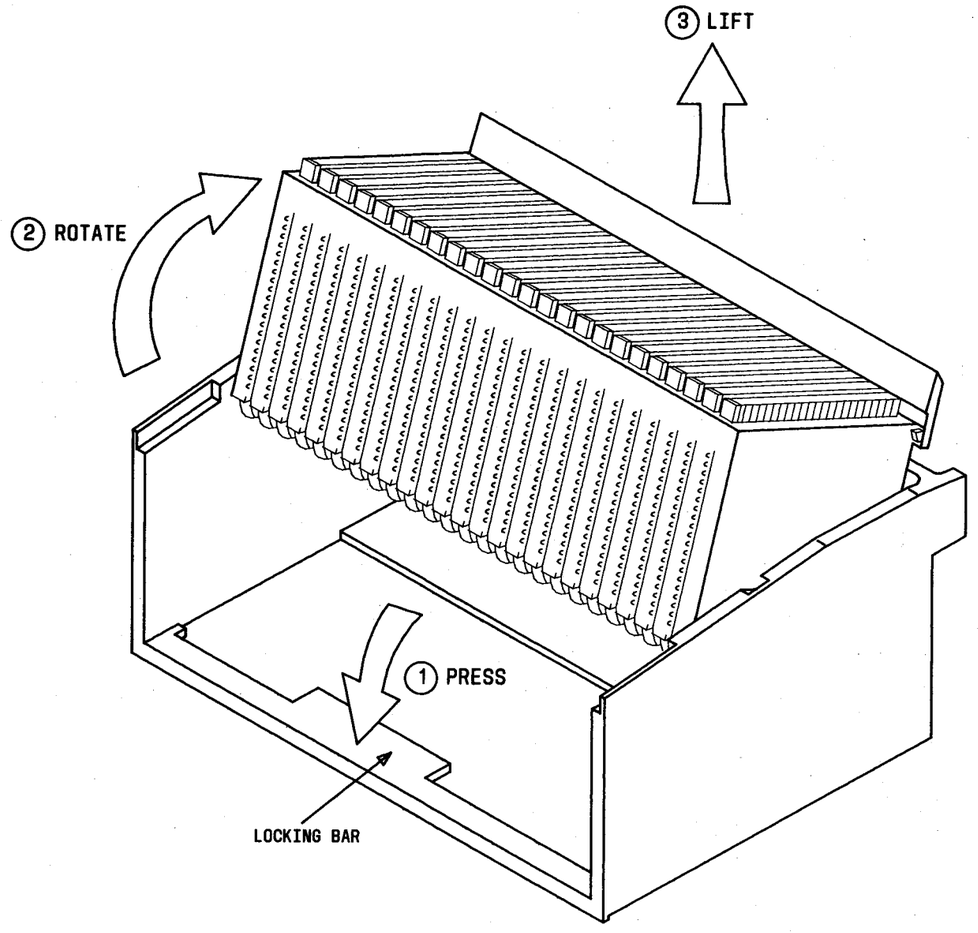


Fig. 40—Removing Block Assembly

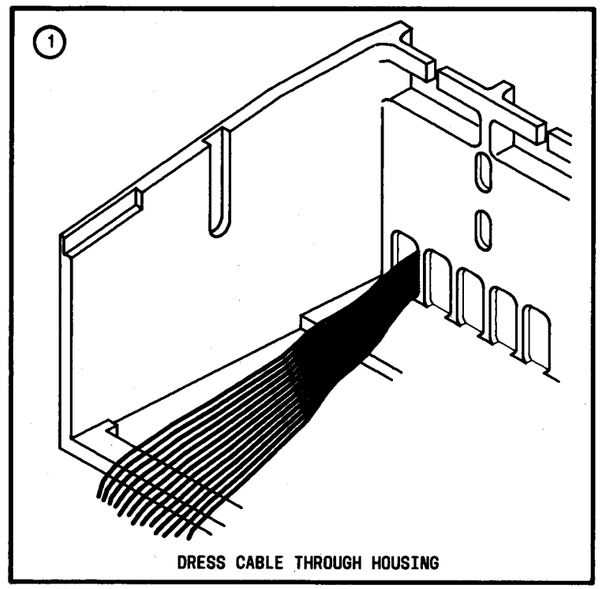


Fig. 41—Method of Connecting Cable Wiring

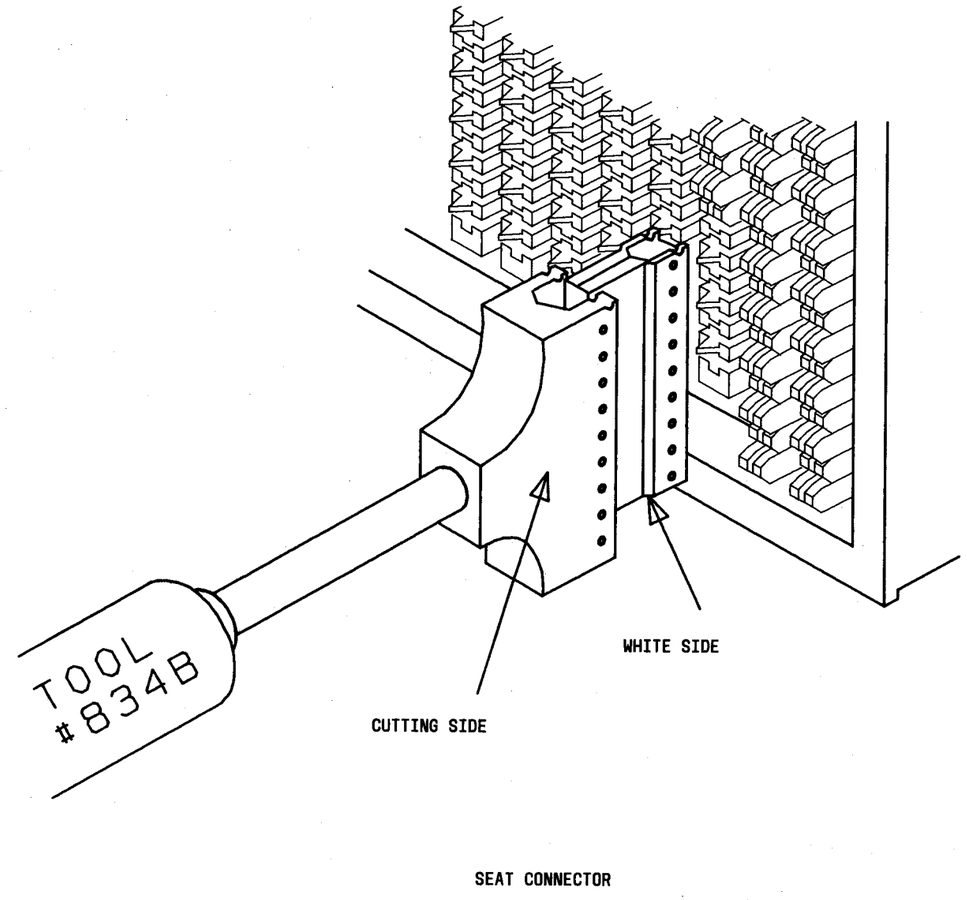


Fig. 42—Seating 109-Connector

TABLE A

PATCH CORD CODES

COMPLETE APPARATUS CODE DESIGNATION			LENGTH CODE	LENGTH	
1-PAIR (2-CONDUCTOR)	2-PAIR (4-CONDUCTOR)	3-PAIR (6-CONDUCTOR)		CENTI-METERS	INCHES
88P2A0A	88P4A0A	88P6A0A	0	65	25.59
88P2A1A	88P4A1A	88P6A1A	1	70	27.56
88P2A2A	88P4A2A	88P6A2A	2	85	33.46
88P2A3A	88P4A3A	88P6A3A	3	105	41.34
88P2A4A	88P4A4A	88P6A4A	4	110	43.31
88P4A5A	88P4A5A	88P6A5A	5	125	49.21
88P2A6A	88P4A6A	88P6A6A	6	140	55.12
88P2A7A	88P4A7A	88P6A7A	7	155	61.02
88P2A8A	88P4A8A	88P6A8A	8	170	66.92
88P2A9A	88P4A9A	88P6A9A	9	185	72.83
88P2A10A	88P4A10A	88P6A10A	10	205	80.71
88P2A11A	88P4A11A	88P6A11A	11	220	86.61
88P2A12A	88P4A12A	88P6A12A	12	235	92.52

TABLE B

93-TYPE BLOCK-CODES AND APPLICATIONS

CODE	APPLICATIONS
93A1A	Universal MFT A-Side
93B1A	Universal MFT B-Side
93C1A	Universal MFT A & B Sides
93D1A	Common MFT A-Side
93E1A.	Common MFT B-Side/4-Wire SMAS
93G1A	AFT
93H1A	DFT
93J1A	2-Wire MFT A-Side
93K1A	2-Wire MFT B-Side
93L1A.	4-Wire SMAS Facility Side (5A & 5B)
93L1B.	6-Wire SMAS Facility Side (5A & 5B)
93M1A.	4-Wire SMAS Equipment Side (5B)
93M1B.	6-Wire SMAS Equipment Side (5B)
93M2A.	4-Wire SMAS Equipment Side (5B)
93MP2-6	Multiport Bridging Circuits
93MP2-10	Multiport Bridging Circuits
93MP4-4	Multiport Bridging Circuits
93S1A	ESS
93T1A	2-Wire Tie Pair Bifurcated

TABLE C

CROSS CONNECTION IDENTIFICATION

	CONNECTING BLOCK CODE																		
WIRING PORT	93A1A FIG. 10	93B1A FIG. 11	93C1A FIG. 12	93D1A FIG. 13	93E1A FIG. 14, 15	93G1A FIG. 16	93H1A FIG. 17	93J1A FIG. 18	93K1A FIG. 19	93L1A FIG. 20	93L1B FIG. 21	93M1A FIG. 22	93M1B FIG. 23	93M2A FIG. 24	93MP2-6 FIG. 26	93MP2-10 FIG. 28	93MP4-4 FIG. 30	93S1A FIG. 32	93T1A FIG. 33
1	B	—	B	R1/B	R1	—	2	—	—	RB	RC	-48	-48	VA	R1	R1	RT1	R	R
2	A	—	A	T1/A	T1	—	1	—	—	TB	TC	VA	VA	RB	T1	T1	RR1	R	R
3	SB	—	SB	R	R	S2	SB	R	R1	RA	RB	RB	RC	TB	R2	R2	TT1	T	T
4	AS2	—	AS2	T	T	S	M	T	T1	TA	TB	TB	TC	RA	T2	T2	TR1	T	T
5	SG	BS2	SG	R1/B	R1	SB	SG	R	R1	RB	RA	RA	RB	TA	R3	R3	RT2	R	R
6	AS1	BS1	AS1	T1/A	T1	M	E	T	T1	TB	TA	TA	TB	VA	T3	T3	RR2	R	R
7	R1/B	R1	R1/B	R	R	SG	R1	R	R1	RA	RC	-48	RA	RB	R4	R4	TT2	T	T
8	T1/A	T1	T1/A	T	T	E	T1	T	T1	TA	TC	VA	TA	TB	T4	T4	TR2	T	T
9	R	R	R	R1/B	R1	R1/B	R	R	R1	RB	RB	RB	—	RA	R5	R5	RT3	R	R
10	T	T	T	T1/A	T1	T1/A	T	T	T1	TB	TB	TB	—	TA	T5	T5	RR3	R	R
11	B	—	—	R	R	R	2	R	R1	RA	RA	RA	-48	VA	R6	R6	TT3	T	T
12	A	—	—	T	T	T	1	T	T1	TA	TA	TA	VA	RB	T6	T6	TR3	T	T
13	SB	—	BS2	R1/B	R1	—	SB	R	R1	RB	RC	-48	RC	TB	—	R7	RT4	R	R
14	AS2	—	BS1	T1/A	T1	—	M	T	T1	TB	TC	VA	TC	RA	—	T7	RR4	R	R
15	SG	BS2	R1	R	R	R1	SG	R	R1	RA	RB	RB	RB	TA	—	R8	TT4	T	T
16	AS1	BS1	T1	T	T	T1	E	T	T1	TA	TB	TB	TB	VA	—	T8	TR4	T	T
17	R1/B	R1	R	—	—	—	R1	R	R1	RB	RA	RA	RA	RB	—	R9	—	—	R
18	T1/A	T1	T	—	—	—	T1	T	T1	TB	TA	TA	TA	TB	—	T9	—	—	R
19	R	R	—	—	—	R	R	—	—	RA	—	—	—	RA	—	R10	—	—	T
20	T	T	—	—	—	T	T	—	—	TA	—	—	—	TA	—	T10	—	—	T

TABLE D

ORDERING INFORMATION

DESCRIPTION	COMCODE
(Qty), Block, Connecting 93A1A	103045621
(Qty), Block, Connecting 93B1A	103045639
(Qty), Block, Connecting 93C1A	103574679
(Qty), Block, Connecting 93D1A	103045647
(Qty), Block, Connecting 93E1A	103045654
(Qty), Block, Connecting 93G1A	103045662
(Qty), Block, Connecting 93H1A	103045670
(Qty), Block, Connecting 93J1A	103058319
(Qty), Block, Connecting 93K1A	103058335
(Qty), Block, Connecting 93L1A	103245213
(Qty), Block, Connecting 93L1B	103315396
(Qty), Block, Connecting 93M1A	103245221
(Qty), Block, Connecting 93M1B	103625067
(Qty), Block, Connecting 93M2A	103324901
(Qty), Block, Connecting 93MP2-6	103550653
(Qty), Block, Connecting 93MP2-10	103550646
(Qty), Block, Connecting 93MP4-4	103550661
(Qty), Block, Connecting 93S1A	103574687
(Qty), Block, Connecting 93T1A	103316923
(Qty), Tool, Connecting 833A	102962255
(Qty), Tool, Connecting 834B	103208518
(Qty), Handle, Tool, "D" Impact, AT-8762	402024723
(Qty), Blade, D-88, AT8762	402024699
(Qty), Insulator, F Clip, AT8660	401149802
(Qty), Cord Test, C, AT8662	401108949
(Qty), Cord Patch, 88P2A2A	103084190
(Qty), Cord Patch, 88P2A3A	103103529
(Qty), Cord Patch, 88P4A2A	103100467
(Qty), Cord Patch, 88P4A3A	103103560
(Qty), Cord Patch, 88P6A2A	103100517
(Qty), Cord Patch, 88P6A3A	103103586
(Qty), Connector, 109A-5W1-5	103016739
(Qty), Connector, 109B	103169330