

78A1- AND 78B1-TYPE CONNECTING BLOCKS

METHOD OF TERMINATING AND REMOVING CONNECTIONS

1. GENERAL

1.01 This section covers 78A1- and 78B1-type connecting blocks, used on distributing frames in the Electronic Switching Systems (ESS).

1.02 This section is reissued to change Fig. 3 and 3.03 to agree with the new distributing frame with a divided upper jumper wire trough.

1.03 The 756B2 tool is provided to terminate cross-connections on the connecting block and the 724A tool is provided to remove the connections.

2. DESCRIPTION

A. 78A1-64 Connecting Block

2.01 This block (Fig. 1) consists of a molded plastic panel equipped with 128 tin-plated, single-clip connectors arranged in 16 rows with 8 clips in each row. The clips are designed for use with 22-gauge wire. A slotted fanning strip is provided on each side of the block. The connectors extend through the block to form solderless wire-wrap terminals on the rear of the block. This block provides a cross-connection capacity of 64 pairs and is intended for use on trunk distributing frames.

B. 78B1-64 Connecting Block

2.02 This block (Fig. 2) is similar to the 78A1-64 except it is equipped with twin-clip instead of single-clip connectors. The twin-clip connectors provide a capacity of two cross-connections for each of 64 pairs. This block is intended for use on main or intermediate distributing frames. It is also equipped with slotted fanning strips.

C. ESS Distributing Frames

2.03 The distributing frames are provided in modules, each of which consists of a number of verticals as shown in Fig. 3. The main distributing

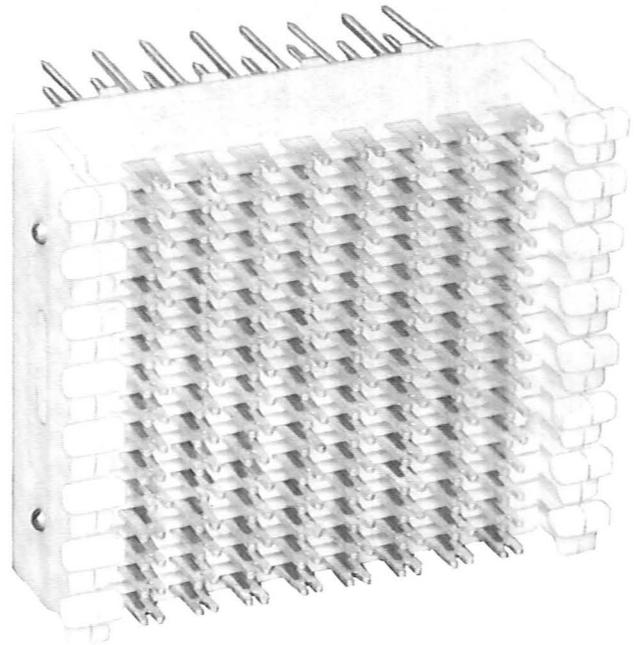


Fig. 1—78A1-64 Connecting Block

frame or intermediate distributing frame consists of ten verticals per module and nineteen 78B1-64 blocks per vertical (Fig. 3). The trunk distributing frame consists of six verticals per module and nineteen 78A1-64 blocks per vertical (Fig. 4).

2.04 Vertical jumper wire troughs and retaining rings are provided alongside each vertical. Upper and lower jumper wire troughs are provided for intervertical jumpers.

D. 756B2 Tool

2.05 This tool consists of a double-ended wire insertion head held in a plastic handle (Fig. 5). One end of the insertion head is designed for installing a conductor into the single clip of the 78A1-64 connecting block. The other end is for use on the twin clip of the 78B1-64 connecting block. The insertion head can be rotated to either

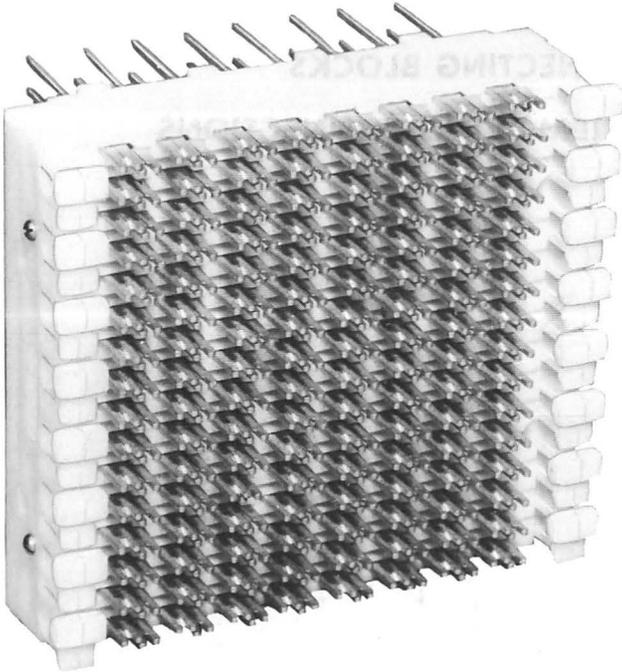


Fig. 2—78B1-64 Connecting Block

position by loosening the screw, rotating it 180 degrees, and retightening the screw to hold the head firmly in position. Since the 756B2 tool has no wire cutoff blade, the conductor must be cut to proper length before seating it in the slot of the clip.

E. 724A Tool

2.06 The 724A tool (Fig. 6) is provided for removing conductors from the 78A1-64 and 78B1-64 connecting blocks. The tool consists of a two-pronged fork with an insulated handle. The fork is sized to fit around the beam of the clip and underneath the seated conductor. Use of the 724A tool reduces the possibility of disturbing or degrading adjacent wire connections during removal of wire.

3. METHODS

A. Running Jumpers

3.01 To avoid interference with other jumpers, run the jumpers in the most direct way

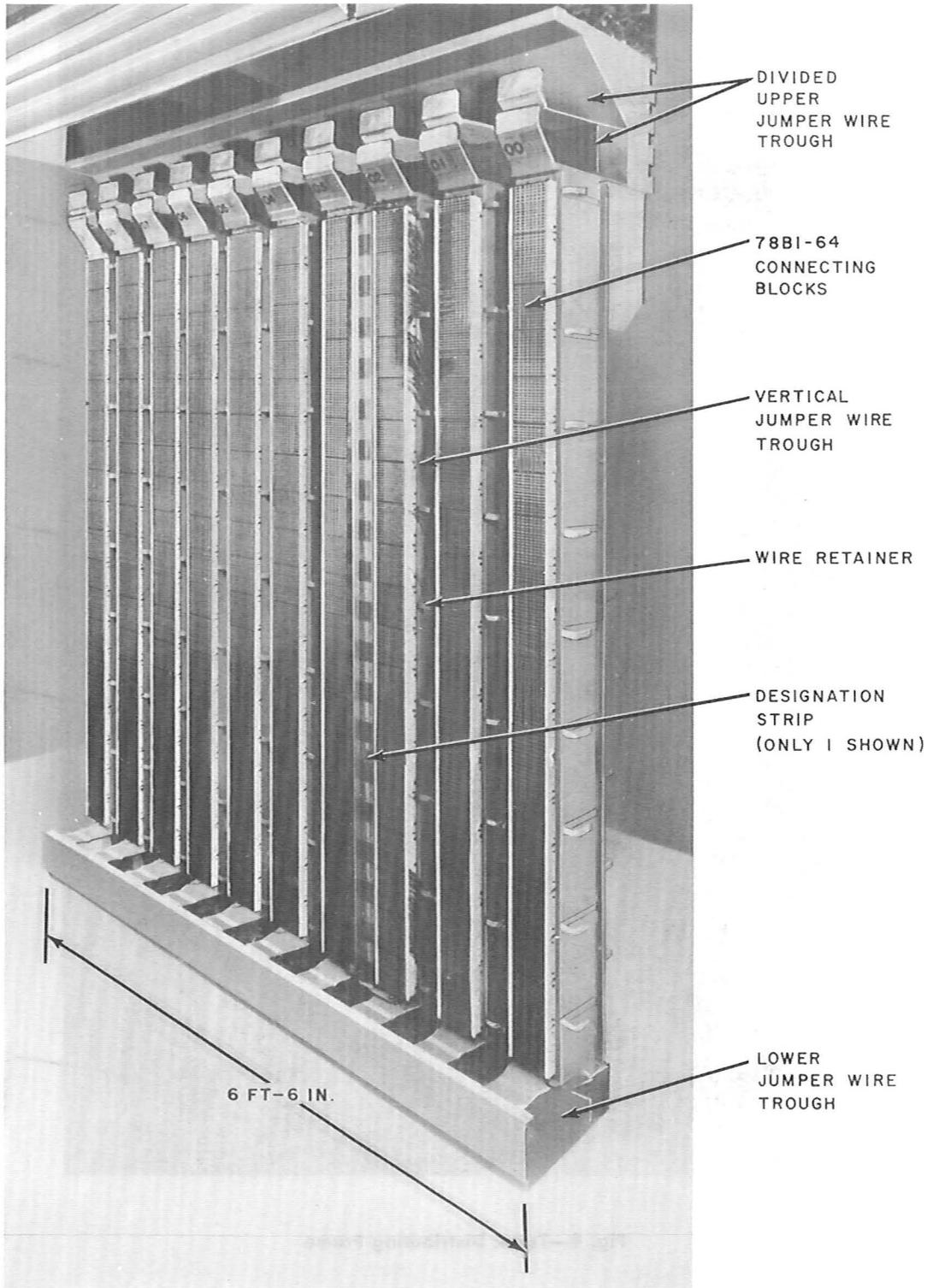


Fig. 3—Main Distributing Frame or Intermediate Distributing Frame

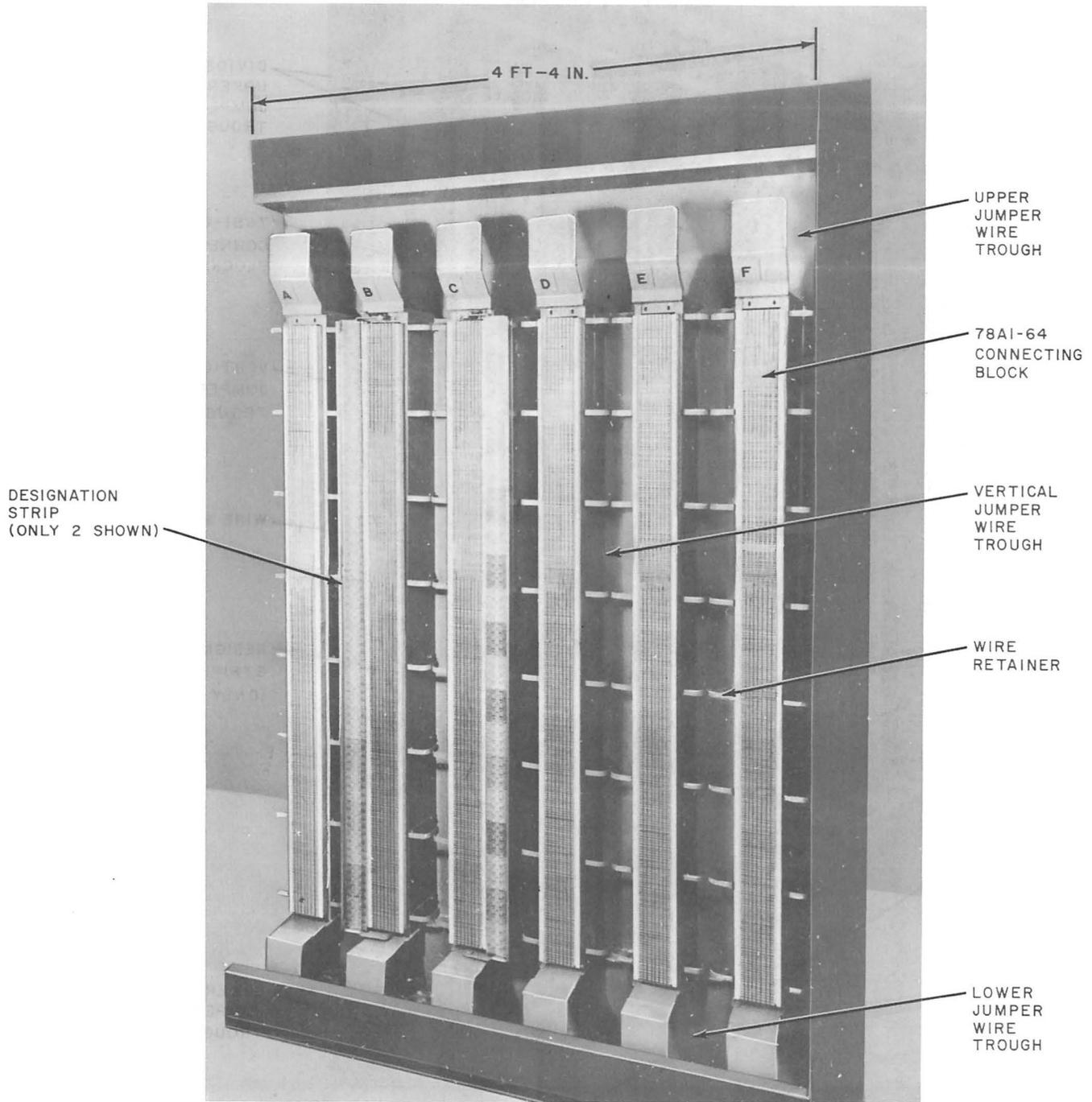


Fig. 4—Trunk Distributing Frame

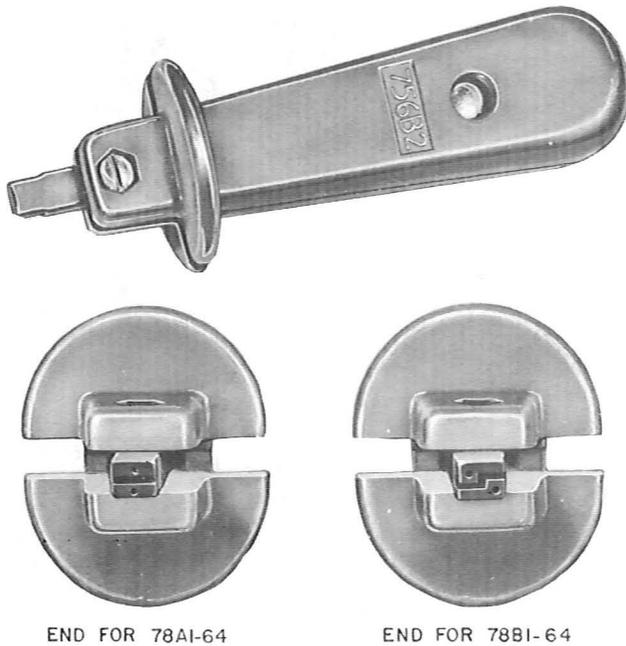


Fig. 5—756B2 Tool



Fig. 6—724A Tool

and on top of other jumpers, except as stated in the following note. Jumpers being transferred from one set of terminals to another should not be allowed to catch or twist around other jumpers. The majority of connections will be within the same vertical.

Note: Intraverticall cross-connections of 3 feet or less in length should be placed behind or along the existing cross-connection to avoid a pile-up at cross-connections.

3.02 Dress all jumpers to the back of the vertical troughs as neatly as possible. Place the jumper between the retaining rings and push to the rear.

3.03 Jumpers from one vertical to another (interverticall) should be run through either the upper or lower jumper wire troughs according to which trough provides the shortest path for the jumpers. If the frame has a divided upper jumper wire trough, the long intervertical jumpers (jumpers between terminals that are separated by ten or more verticals) should always be run in the upper section of the divided trough at the top of the frame.

B. Amount of Slack

3.04 Leave 10 to 12 inches of slack in all jumpers. When a jumper is transferred, the slack may be used but the jumper should not be taut. The slack should be dressed back from the terminal strip. Avoid excessive slack in jumpers along the length of frames.

C. Terminating Connections

3.05 It is not necessary to strip the insulation from the wire prior to making a connection on the 78-type blocks. The terminal is so designed that the insulation is broken at the point of contact sufficiently for electrical contact when the wire is installed.

3.06 Before previously connected wires can be reconnected, the end of the wire containing the broken insulation must be cut off.

Caution: *Once wires are terminated and are within the confines of the fanning strip, do not remove from the fanning strip for tracing or for identification. A wire being traced may be identified by jiggling the wire in the fanning strip and slipping a piece of spaghetti on the terminal that moves.*

3.07 To place the wire in the terminals, proceed as follows:

- (a) Grasp the tool, as shown in Fig. 7, in such a manner that pressure will be applied with the palm of the hand while holding the tool loosely with the thumb and fingers.

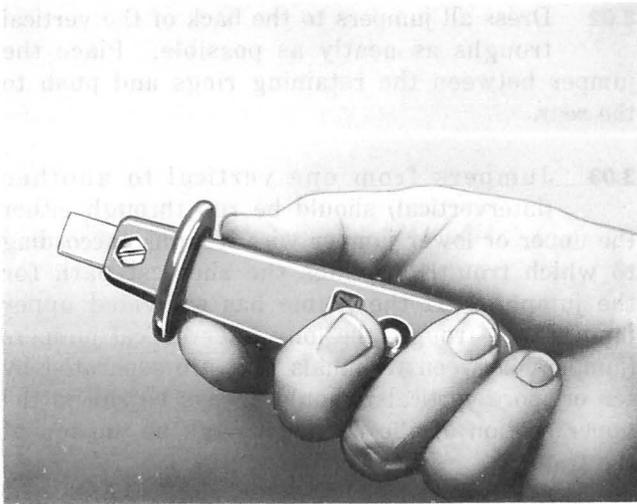
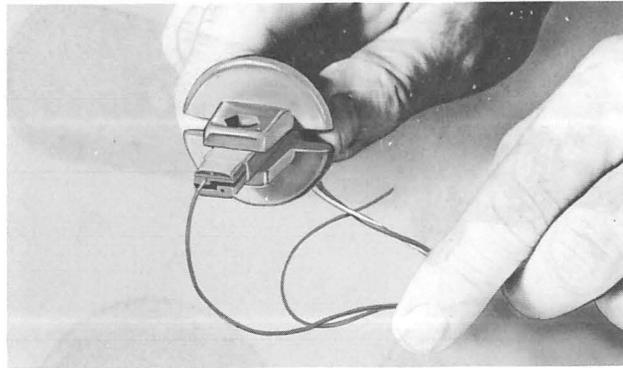


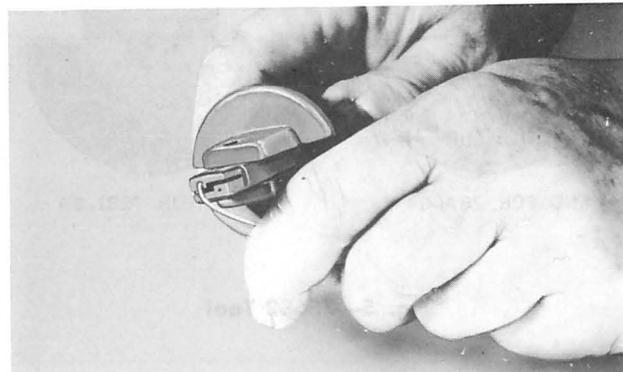
Fig. 7—Proper Method of Holding 756B2 Tool

Note: It is recommended that several trial connections be made on unused clips to gain experience in the use of the 756B2 tool before making actual connections.

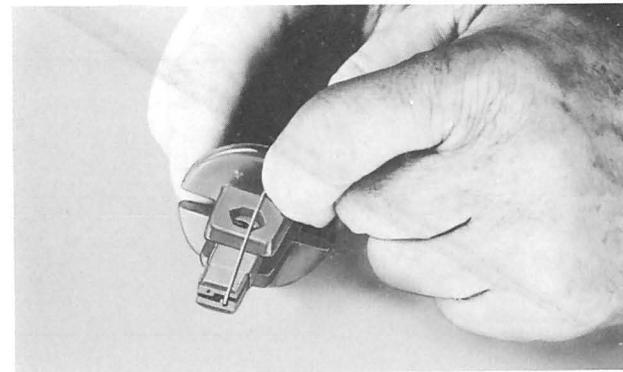
- (b) Place the 756B2 insertion tool near the terminal.
- (c) Insert wire in hole adjacent to the appropriate opening in tool face as shown in Fig. 8A.
- (d) Bend wire down across opening and pull taut by bending back under the tool blade. See Fig. 8b.
- (e) Hold wire and tool in this position and approach terminal.
- (f) Engage the wire under hook of terminal, but before making the termination, rotate the wire into the fanning strip slot.
- (g) Place the 756B2 insertion tool over the terminal so the tool will slide straight forward.
- (h) To make the termination, allow the terminal to guide the tool during the actual insertion of the wire (Fig. 9). The tool has an internal stop to keep it from inserting the wire too deeply. After the wire has been seated, the tool should be withdrawn, straight out. In case unusual resistance or "feel" is encountered,



A



B



C

Fig. 8—Proper Method of Using 756B2 Tool

remove the wire, clip the end, prepare as before, and reconnect.

Caution: Do not wiggle or rock the tool as this may promote wire breakage. Excessive pressure or striking the tool may push the terminal through the block.

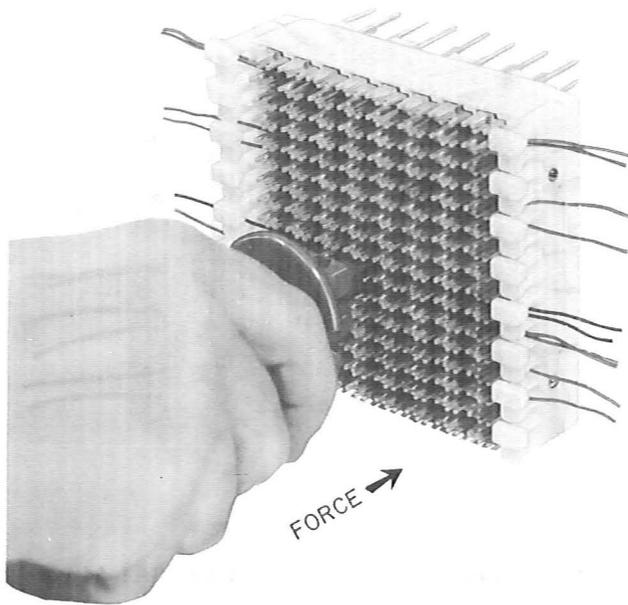


Fig. 9—Use of 756B2 Tool With 78B1-64 Block

- (i) Examine each connection. Tin scraped from a terminal may indicate a connection with excessive conductor damage.
- (j) Perform the same steps for the mating wire of the pair.
- (h) For "back taps" proceed as in (a) through (i), except bend the wire up across the opening as shown in Fig. 8C.

3.08 Dress the wire into the slot in the fanning strip on the side of block nearest the clip connections. All wires are to be dressed into the fanning strip, etc, before seating them. See Fig. 10 and 11.

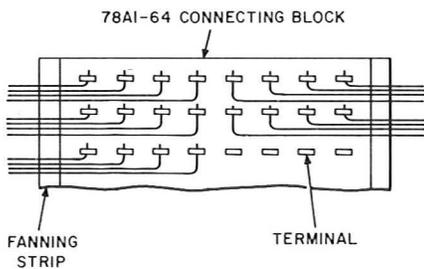


Fig. 10—The Dress of Jumpers on Single-Clip Connecting Blocks

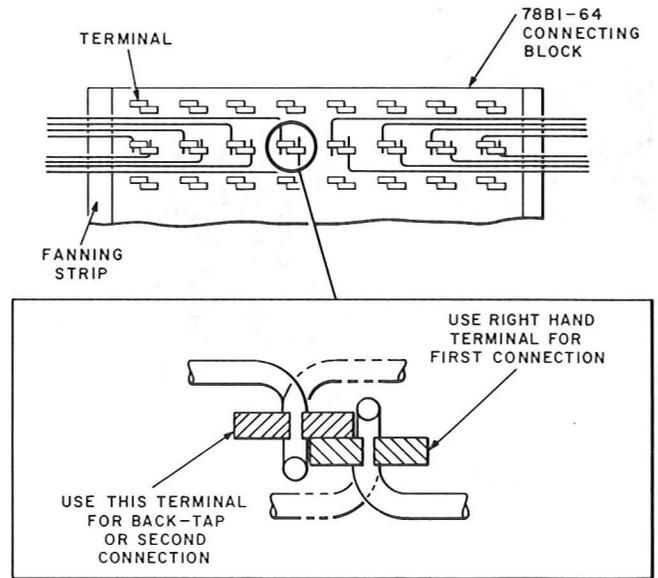
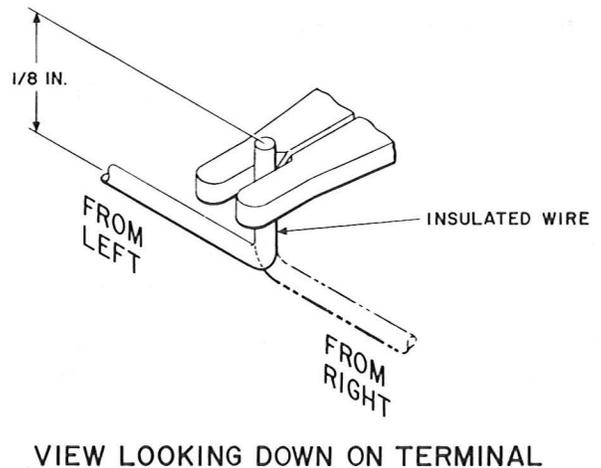


Fig. 11—The Dress of Jumpers on Twin-Clip Connecting Blocks

3.09 The wire is placed into the retaining slot of the terminal according to the dressing pattern shown in Fig. 12.



VIEW LOOKING DOWN ON TERMINAL

Fig. 12—Placing Wire on Terminal

D. Removing Connections

3.10 Place the 724A tool fingers astraddle the terminal beam and under the wire. Grasp the tool as shown in Fig. 13 and pull the wire from the terminal and away from adjacent terminals.

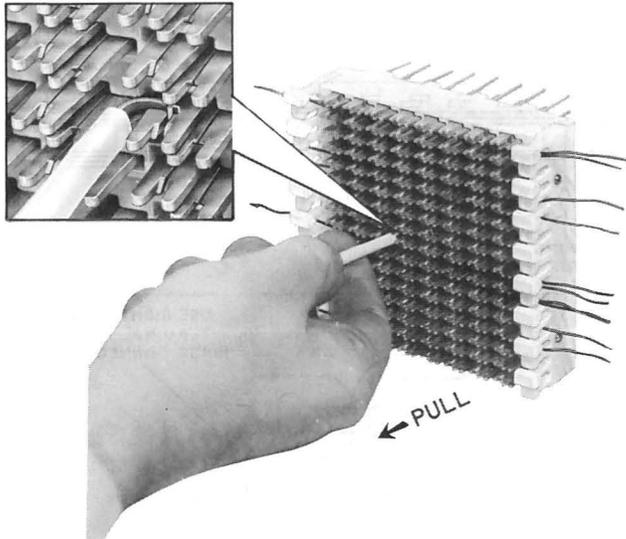


Fig. 13—Use of 724A Tool

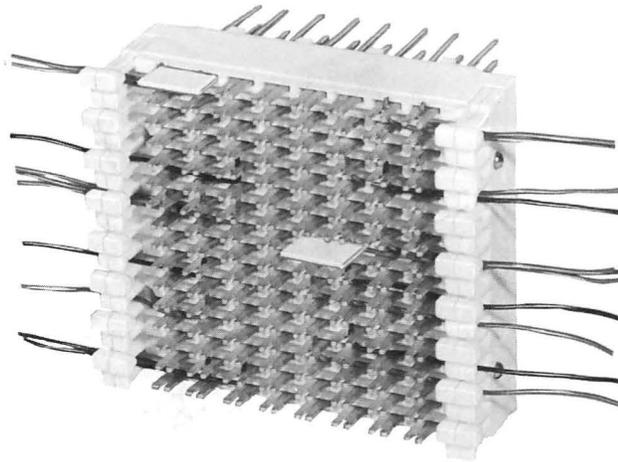


Fig. 14—Special Service Marking on 78A1-64 Block

3.11 Remove small pieces of insulation remaining around the terminals with an insulated tool such as the KS-6320 orange stick or R-1102 fiber spudger.

E. Designation of Special Service Lines

3.12 Identification and protection of special service terminals are provided by clip-terminal insulators. These are narrow U-shaped channels made of red nylon.

3.13 The C clip-terminal insulator (Fig. 14) is for use on the 78A1-64 connecting block.

3.14 The D clip-terminal insulator is for use on the twin-clip terminals of the 78B1-64 connecting block.

3.15 The clip-terminal insulators are long enough to cover two terminals at once.