

94 TYPE CONNECTING BLOCKS

CONTENTS

- | | |
|------------------|-----------------------------|
| 1. GENERAL | 6. CABLE CONNECT DRAWINGS |
| 2. CAUTIONS | 7. WIRING |
| 3. TOOLS | 7.1 Insertion of Conductors |
| 4. CABLING | 7.2 Cutoff of Conductors |
| 5. BUTT LOCATION | 8. VERIFICATION |
| | 9. REPAIR PROCEDURES |

1. GENERAL

1.1 Description - The 94 type connecting block consists of a molded plastic base which provides a nest for 24 "U" shaped metal terminals. A second molded section snaps into the base part to retain the terminals in the assembly and to provide for mounting the assembled block.

1.11 The block permits a solderless, stripless connection to be made. This type of quick connect device is known as a slotted beam insulation displacement type. (See Figure 1)

1.2 The approximate size of the 94 type connecting block is 3" long X 9/16" Width X 3/4" High. Spacing

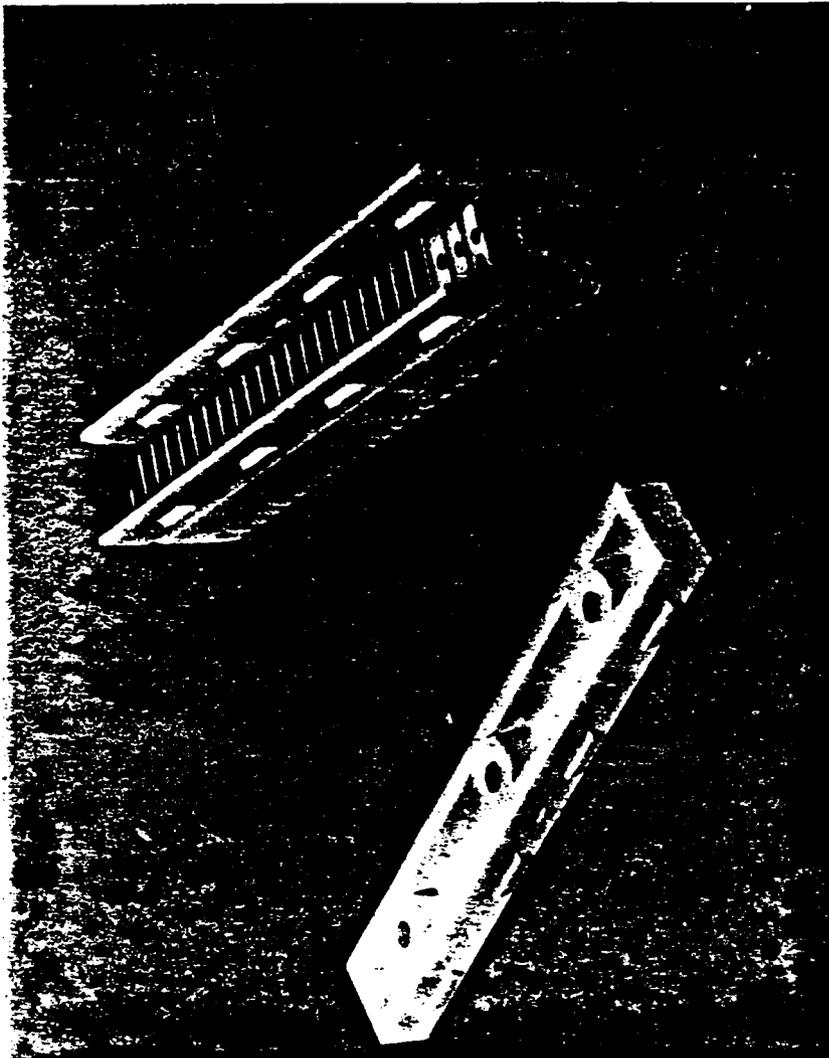


FIGURE 1

NOTICE: NOT FOR USE OR DISCLOSURE OUTSIDE THE BELL SYSTEM EXCEPT UNDER WRITTEN AGREEMENT

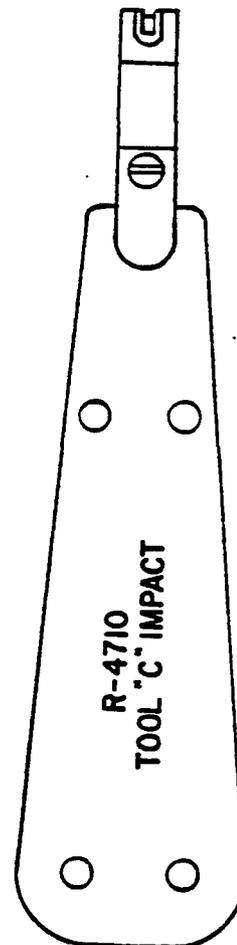


FIGURE 2

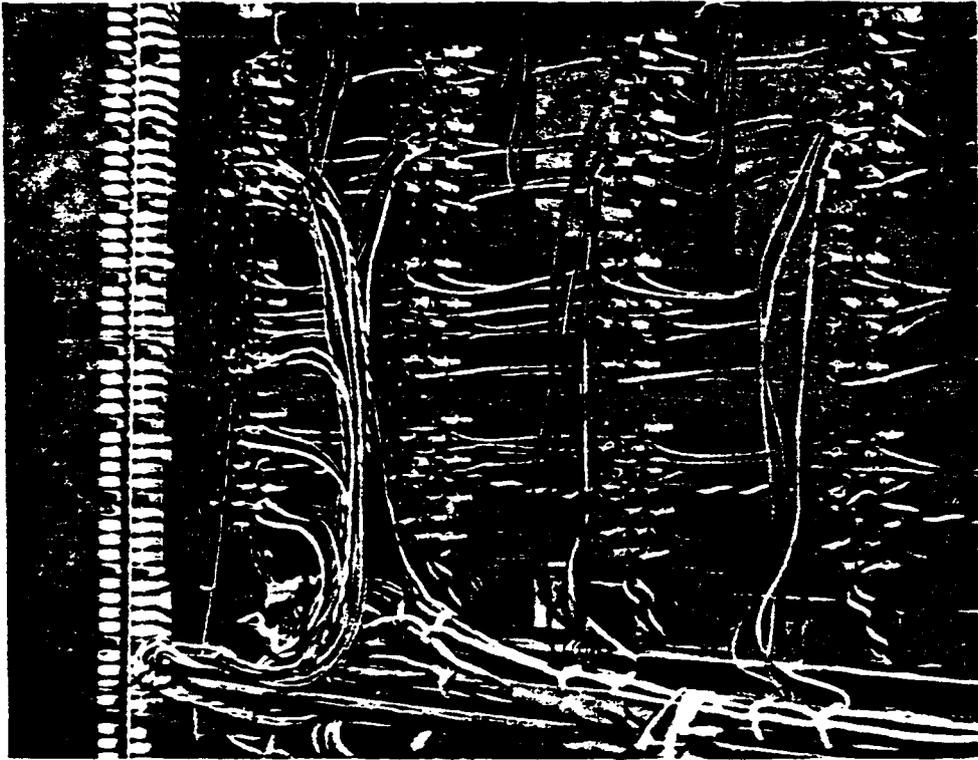


FIGURE 3

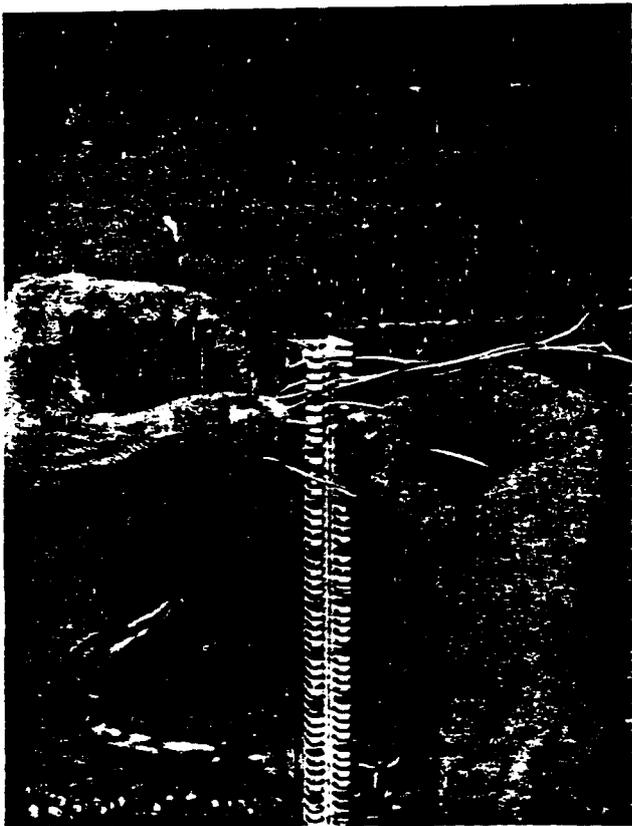


FIGURE 4

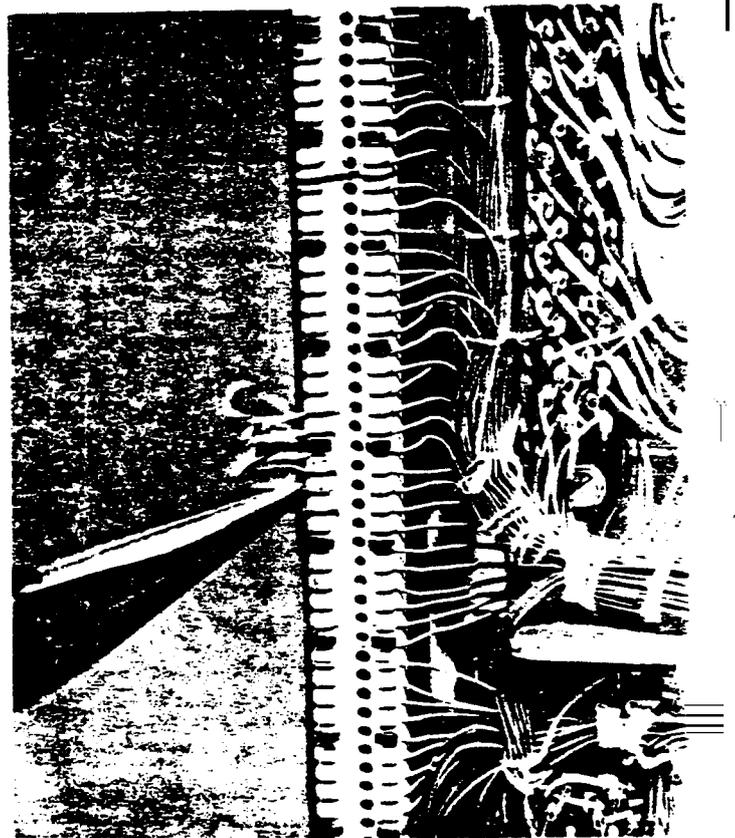


FIGURE 5

of the terminals is on 1/8 inch centers. The design of the connecting block is such that it may be used singly or butted together end-to-end as a continuous strip.

1.3 Mounting of the connecting block is accomplished by one of two methods;

- (a) Self tapping screws into the blind holes in the base of the connector.
- (b) Snapping the connecting block into an extruded plastic strip which may be mounted by various means.

1.4 Test access to the individual terminals is made using a standard test probe via the test point opening located in the center well of the connecting block.

2. CAUTIONS

2.1 The conductors terminating at the 94 type connecting blocks will be 22, 24 or 26 gauge wire, with either (PE) Polyethylene, (PP) Polypropylene, (IPVC) Irradiated Polyvinyl Chloride, or (PVC) Polyvinyl Chloride Insulation.

2.11 DO NOT USE any wire that is stranded, or wire that contains cotton, as part of the conductor lead insulation. The use of cotton insulated wire will have an adverse effect on the quality of the connection applied to the 94 type connecting block.

2.2 When seating cable leads or wires in the 94 type connecting blocks, be sure to follow only the procedures described in this section. Improper seating of conductors will lead to open connections.

2.3 The 94 type connecting block terminals are designed to accommodate only one conductor per slot. DO NOT attempt to put more than one conductor in any slot on the connecting block.

2.4 Dress wires in duct framework around 50 pin "KS" connectors on the right side of bay so that TelCo can get at them for maintenance. Secure wires with nylon ties. Refer to Figure 6.

3. TOOLS

3.1 The following tool is required to properly terminate conductors on the 94 type connecting block:

<u>CODE</u>	<u>DESCRIPTION</u>	<u>ORDER NO.</u>
R-4710	Tool, "C" Impact	13471000
"4710"	Blade, Replacement	13471001
R-2761	Knife	13276100
R-4554	Magnifier 5-Power	13455400

3.2 The blade of the R-4710 tool is stamped "4710". The R-4710 tool is used to insert the wires only. The R-2761 Knife is then used to cutoff excess wire ends. Do not use blades stamped "94" to terminate wires to these blocks.

3.3 Both the handle and the blade must be stamped "4710". If not, you are using the wrong tool.

3.4 The impact spring force necessary to trigger the "C" Impact Tool R-4710 can be adjusted in a range of approximately 18 lbs. to 21 lbs. force. This is done by turning the small screw at the end of the handle clockwise or counterclockwise. On the black plastic side of the handle you will see a spring lever move up or down with the turning of the screw clockwise or counterclockwise.

3.5 A normal tool should make good connections at any point in this range adjustment. However, if the operator feels more force will ensure a better connection the impact force can be adjusted upward.

CLOCKWISE = DECREASE FORCE
COUNTERCLOCKWISE = INCREASE FORCE

4. CABLING

4.1 Cables shall enter into the relay rack in accordance with a standard cable plan drawing such as ED-3C358-133 for D3 CH BKS and ED-3C670-10 for D4 CH BKS. Care should be taken to run the ABAM cable leads as specified on cable plan.

5. BUTT LOCATION

5.1 Butt and strip cables in a standard manner at the location shown on the cable plan drawing. However, be sure the cable end is left long enough to reach the farthest 94 type connecting block being terminated.

6. CABLE CONNECT DRAWINGS

6.1 Refer to Cable Connect Drawing CCED-3C358-133 for D3 Channel Bank Bay J-98718J-1, K-1 and L-1.

6.2 Refer to Cable Connect Drawing CCED-3C670-10 for D4 Channel Bank Bay J-98726A, B and C.

6.3 Pay special attention to the running of ABAM cable leads which split at top of bay and run down both sides of bay.

7. WIRING7.1 Insertion of Conductors

7.11 Dress individual conductors at right angles to the side of the 94 type connecting block leaving a minimum of (no less than) 1/2 inch slack in the length of the conductor before it enters the block, and a stub about 3 inches in length of the conductor after entering the block. Grasp the individual conductor between the thumb and forefinger of each hand and insert the conductor into the assigned slot. (See Figure 4)

7.12 Exert enough pressure on the conductor so that it is captured by the plastic slot above the terminal. Proceed in a like manner with each conductor until all have been fanned. Only one conductor may occupy each slot.

7.13 Before using tool R-4710 inspect tool blade to insure that it is free of cracks or any other damage that would prevent good performance. If necessary replace blade identified as "4710", Order Number for this blade is 13471001. Do not use any blade except that identified as "4710" (numbers stamped into blade) in this tool.

7.14 Tool "C" Impact, R-4710 must be held at a right angle to the 94 type block when applying pressure to properly insert conductors in each slot. Push conductors on with tool with an even hand produced pressure. DO NOT hit rear of tool with the palm of your hand. DO NOT hit rear of tool with a mallet.

7.141 Failure to use the tool properly will result in wire ends that are only partly seated.

7.15 After wire ends are seated, cutoff excess wire using R-2761 Knife or equivalent. Place knife blade against 94 block and run it down one channel bank at a time. Take care not to damage 94 blocks. If wire ends are not completely cut by knife. Do not pull wire ends to break them free, as this can unseat connection.

8. VERIFICATION

8.1 Every connection must be visually verified to make sure it is properly seated in its terminal on the 94 block. A connection that is only partly seated may show up as an open later in a quality audit. Reterminate any connection that does not look seated using the R-4710 tool. Metal clip of the terminal will be visible above wire end being terminated, and insulation on both side of wire end should be broken by the terminal clip. Refer to Fig. 8 (Page 7) and Fig. 9 (Page 8). Use R-4554 Magnifier to aid in the inspection of these connections. Connections will be viewed at a 45 degree angle to the block.

8.11 A continuity check will not pick up partly seated conductors which could become opens later. A visual check of the conductors must be made.

8.2 Visually verify that no terminal has more than one wire inserted into it.

8.3 Verify that all wire ends have been properly cutoff and no wire ends remain untrimmed on the block. Untrimmed wire ends will cause shorts.

8.4 Verify that no 94 type blocks have been visually damaged by the insertion and cutoff of wire ends. Replace any badly damaged blocks.

8.5 Verify that all formed wire and cables are properly secured in the bay cable duct.

8.6 Verify using proper continuity test procedures that all wires are properly terminated.

8.7 Verify that TelCo still has access to 50 pin "KS" connectors on right hand side of bay duct framework. See Figure 6.

8.8 Circular holes down center of block can be used to troubleshoot continuity of wires to and from these blocks.

8.9 Verify that ABAM cable leads have been run properly to avoid noise problems. Cable should split and run down both sides of the bay.

9. REPAIR PROCEDURES9.1 Defective Connections

9.11 If an open or wiring error should be found while running tests, the following repair procedure should be followed:

(a) Remove Wire
Using a pair of long nose pliers remove the wire. from the slot by grasping the wire with the long nose pliers adjacent to the block and pulling at a right angle to the top of the block. (See Figure 5) Make sure all insulation from removed wire is out of 94 block terminal.

(b) Reconnect Wire
Dress the correct wire at a right angle to the side of the 94 type connecting block leaving a minimum of (no less than) 1/2 inch slack in the length of the wire before it enters the

block, and a stub about 1/4 inch (instead of 3 inches). Contact with the block terminal by the wire must be made at a new point on the conductor.

9.2 Replace 94 Blocks (Comcode No. 102752938)

9.21 Ordering Information for material to be obtained from Merrimack Valley Works:

<u>Item</u>	<u>Comcode No.</u>
94A Connector Block	102752938
Desig. Strip No. 2-24	842093551
Desig. Strip No. 26-48	842093569
" " No. 50-72	842093577
" " No. 74-96	842093585
" " No. 98-120	842093593
" " No. 122-144	842093601

REASON FOR REISSUE:
Major changes to all paragraphs.

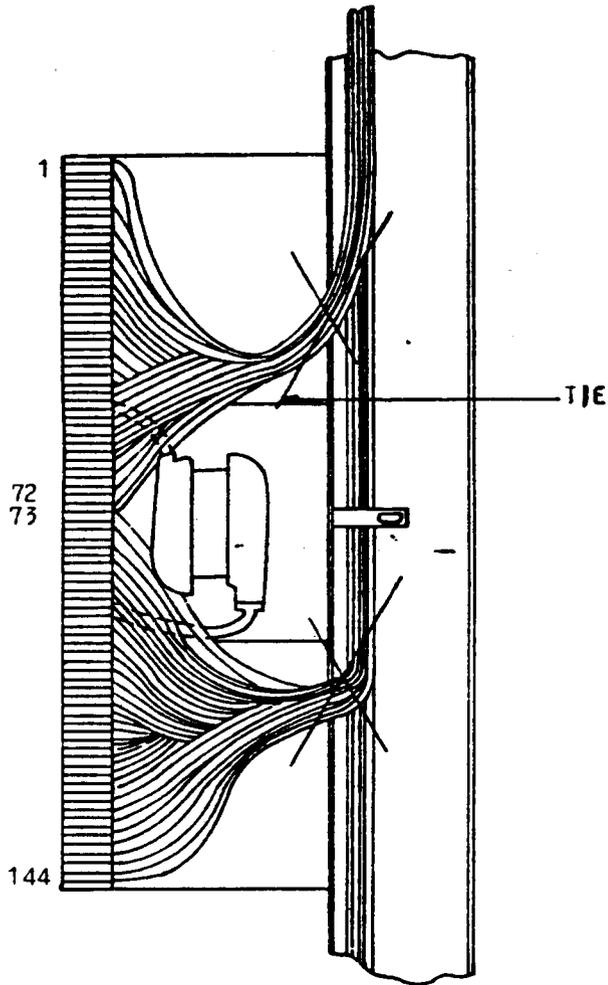
ATTACHMENTS:
Figure 6 on Page 6
Figure 7 & 8 on page 7
Figure 9 on page 9

9.22 If the molded plastic around clip terminals of 94 type blocks becomes damaged the individual blocks can be replaced. Remove all wires from old block. Remove two screws in rear of block holding it to bay. Take block off bay and replace with a new one. New blocks can be ordered from Merrimack Valley Works.

9.3 Individual Terminals within 94 Type Blocks

9.31 If one or more of the "V" clip terminals within the 94 type block become defective they can be replaced. See Figure 1. Place finger nails at rear plate of block, pull sides of block to make rear block plate open. Individual clips that are defective can now be removed from block.

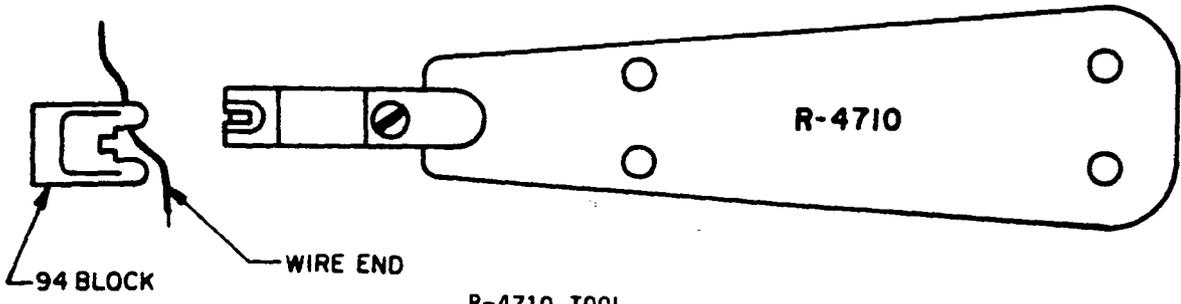
Manager, Engineering Transmission Products



RIGHT SIDE DUCT (FACING REAR OF BAY) SHOWING TYPICAL DRESSING OF SWITCHBOARD AND ABAM CABLE LEADS TO 94 BLOCK TO ALLOW ACCESS TO CONNECTORS

VIEW B-B

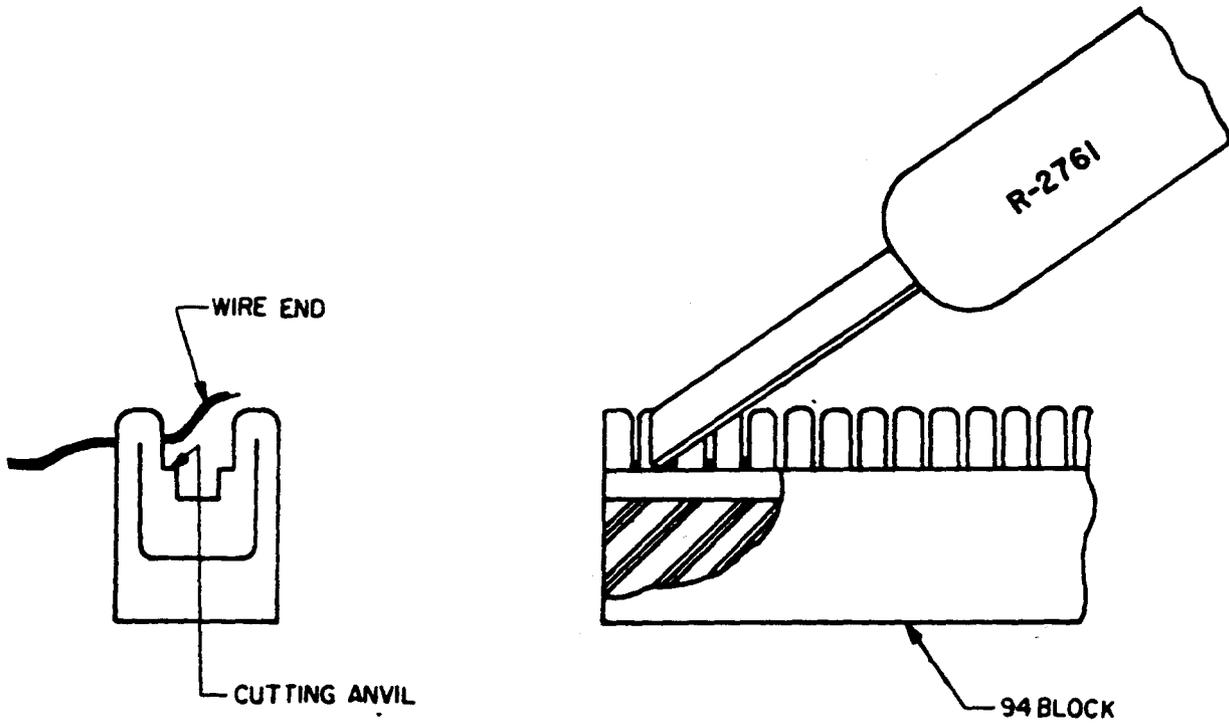
FIGURE 6



R-4710 TOOL

FIG 7

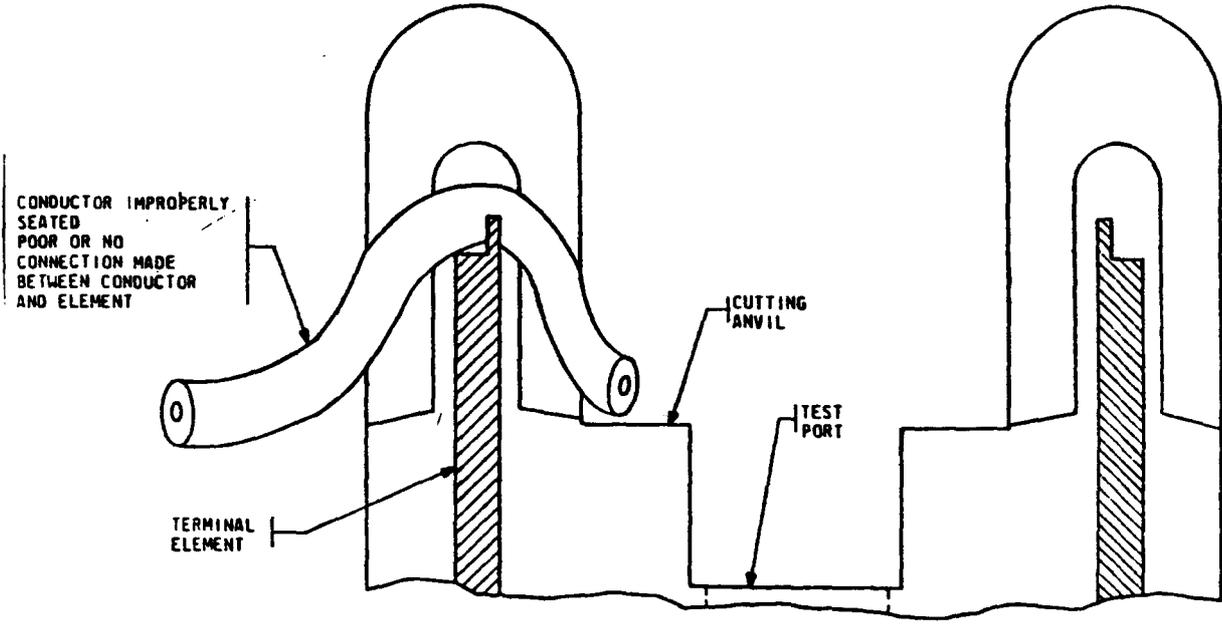
- (A) FAN WIRE ENDS INTO SLOTTED POSITIONS OF 94 TYPE BLOCK, NO MORE THAN ONE WIRE TO A POSITION.
- (B) SEAT WIRE ENDS INTO BLOCK USING "C" IMPACT TOOL R-4710.



METHOD OF REMOVING WIRE ENDS

FIG 8

- (A) AFTER WIRE ENDS ARE SEATED IN 94 BLOCK, CUTOFF EXCESS WIRE USING R-2761 KNIFE ALONG CUTTING ANVIL.



BAD CONNECTION

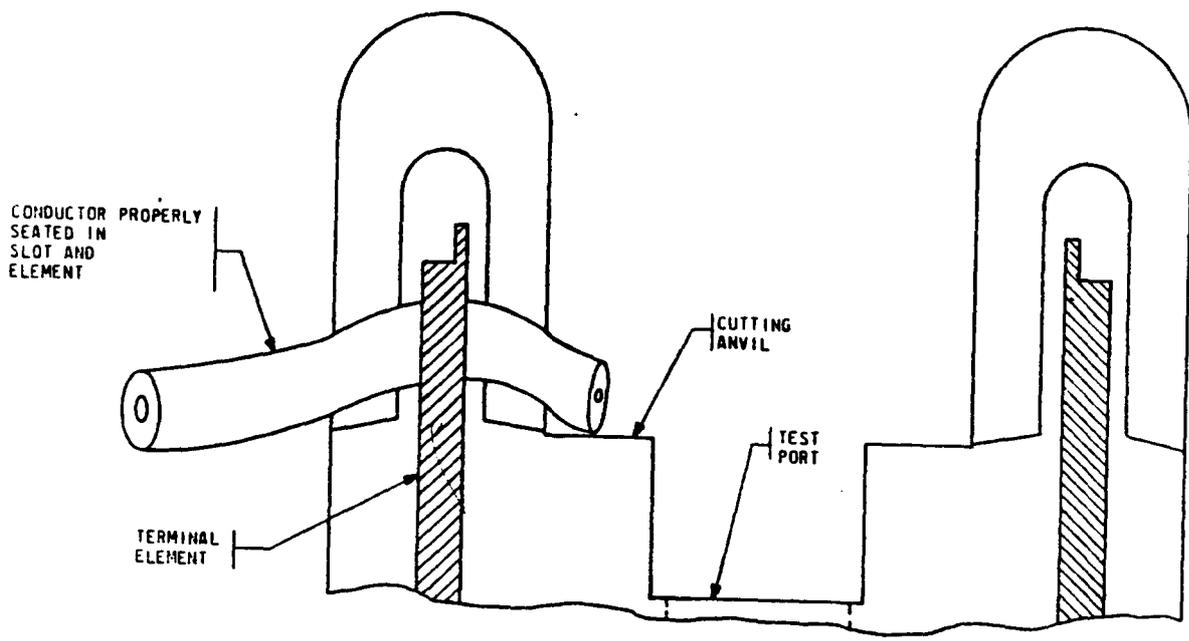


FIG 9

GOOD CONNECTION