R-4710 "C" AND R-4710A "C" IMPACT TOOLS DESCRIPTION AND USE

CONTENTS

1. GENERAL

1.01 This section describes the R-4710 "C" and R-4710A "C" impact tools and their use. The R-4710 "C" and R-4710A "C" impact tools are designed for terminating leads to the 94-type terminal block on Package Metallic Facility Terminal Assembly (PMFTA) units. Reference should be made to Section 074-226-119.

1.02 Whenever this section is reissued, the reason for reissue will be listed in this paragraph.

2. DESCRIPTION

2.01 The R-4710 "C" and R-4710A "C" impact tools are equipped with plastic handles and steel blades. The R-4710 "C" and R-4710A "C" handles and blades are stamped accordingly. The blades and handles are interchangeable. However, if a 4710A blade is used in a R-4710 "C" handle, the spring tension may not be enough to cut the conductor after seating on the first try.

A. R-4710 "C" Impact Tool

2.02 The R-4710 "C" impact tool (Fig. 1) has an adjustable impact force of 18 to 21 pounds. The available blades are 4710 and 4710A. The 4710 blade

and R-4710 "C" impact tool are designed to seat conductor ends to a 94-type terminal block on PMFTA units. The 4710A blade and 4710 "C" impact tool are designed to seat and cut off conductor ends to a 94-type terminal block on PMFTA units. When using the 4710 blade, the R-2761 knife must be used to cut off conductor ends.

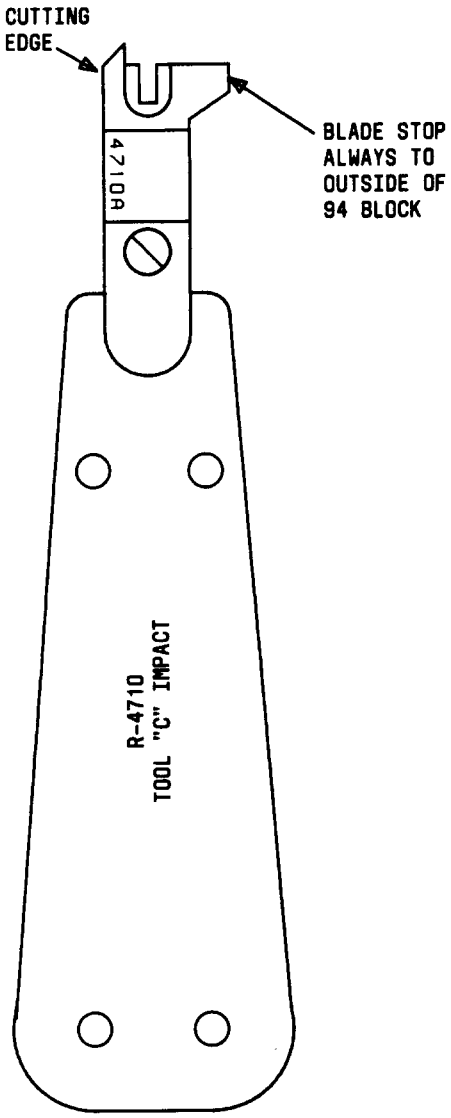

Fig. 1—R-4710 "C" Impact Tool With 4710A Blade

B. R-4710A "C" Impact Tool

2.03 The R-4710A "C" impact tool (Fig. 2) has an adjustable impact force of 25 to 33 pounds with an improved handle over the R-4710 "C" impact tool. The available blades are 4710 and 4710A. The 4710 blade and R-4710A "C" impact tool are designed to seat conductor ends to a 94-type terminal block on PMFTA units. The 4710A blade and 4710A "C" impact tool are designed to seat and cut off conductor ends to a 94-type terminal block on PMFTA units. When using the 4710 blade, the R-2761 knife must be used to cut off conductor ends.

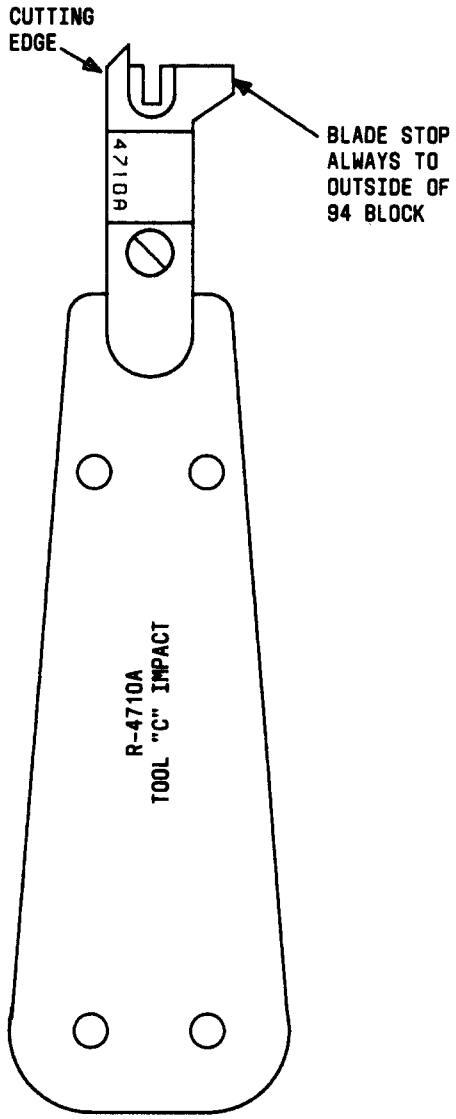

Fig. 2—R-4710A "C" Impact Tool With 4710A Blade

3. USE

A. 94-Type Connecting Block

3.01 The 94-type connecting block consists of a molded plastic base which provides a nest for 24 "U-" shaped, double-ended quick connect metal terminals and a second molded section which snaps into the base to retain the terminals and provides for mounting. The 94-type connecting block is a slotted beam insulation displacement-type that permits a solderless, stripless connection to be made. (See Fig. 3.)

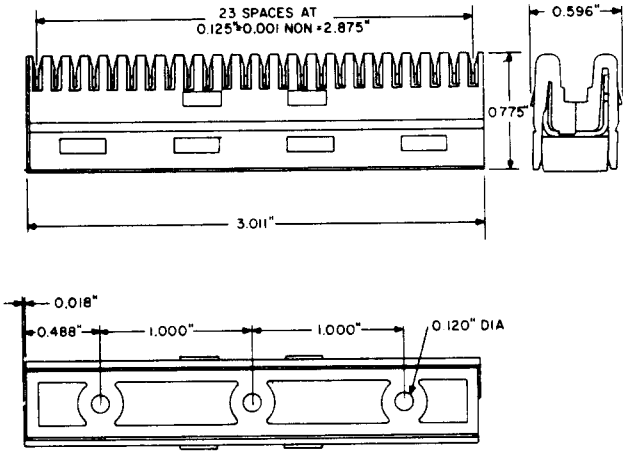

Fig. 3—94-Type Connecting Block

3.02 The 94-type connecting block is approximately 3 inches long, 9/16-inch wide, and 3/4-inch high, with terminals spaced on 1/8-inch centers. Test point openings are located in the center of the connecting block to accommodate a standard test probe for test access to the individual terminals.

3.03 The following admonishments should be observed when connecting conductors to the 94-type connecting block in paragraphs 3.04 through 3.08.

Warning 1: The conductors terminating at the 94-type connecting block will be 22-, 24-, or 26-gauge conductor, with either Polyethylene (PE), Polypropylene (PP), Irradiated Polyvinyl Chloride (IPVC), or Polyvinyl Chloride (PVC) Insulation.

Warning 2: Do not use any conductor that is stranded, or that contains cotton, as part of the conductor lead insulation. The use of cotton insulated conductor will have an adverse effect on the quality of the connection applied to the 94-type connecting block.

Warning 3: When seating cable leads or conductors in the 94-type connecting block, be sure to follow only the procedures described in this section. Improper seating of conductors will lead to open connections.

Warning 4: 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.

Warning 5: Dress conductors in duct framework around 50-pin "KS" connectors on the right side of bay so maintenance access is available. Secure conductors with nylon ties.

B. Insertion of Conductors

3.04 Verify that cables enter the relay rack in accordance with the appropriate cable plan drawings. Cables should be butted and striped in a standard manner at the location indicated on the cable plans and in such a manner that the cable end is long enough to reach the 94-type connecting block being terminated.

3.05 Dress individual conductors at right angles to the side of the 94-type connecting block. The conductor should have a minimum of no less than 1/2-inch slack before entering the block and approximately a 3-inch long stub after entering the block. (See Fig. 4.)

3.06 Grasp the individual conductor to be connected between the thumb and forefinger of each hand inserting the conductor into the designated slot on the connecting block. Exert pressure on the conductor until it is secured by the plastic slot above the terminal.

C. R-4710 "C" and R-4710A "C" Impact Tools

3.07 The R-4710 and R-4710A impact tools should be inspected before use in order to assure that

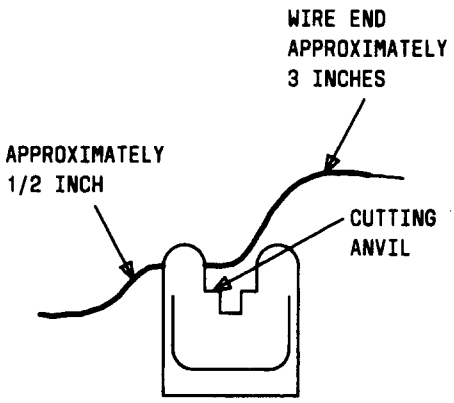

Fig. 4—94-Type Connecting Block With Dressed Conductor

the 4710A blade is free from cracks or other damage that would prevent satisfactory performance. The 4710A blade should be used instead of the 4710 blade so that the conductor can be seated and cut off in one motion of the tool. A replacement, 4710A blade, should be available in the event that the 4710A in use is damaged. To use the R-4710 "C" and R-4710A "C" impact tools, proceed as follows:

(1) Verify that the conductors to be seated have been inserted and fanned as described in paragraphs 3.04 through 3.06.

(2) Hold the impact tool so that the tool blade is arranged with the elbow on the end of the blade to the outside of the 94-type connecting block at all times. (See Fig. 5.)

Note: The elbow is on the blade to prevent the cutting edge of the blade from being positioned to cut the incoming conductor on the wrong side of the block.

(3) Hold the impact tool at a right angle to the 94-type connecting block.

(4) Push tool straight into the block until the impact handle "is triggered."

Requirement: The conductor end should be seated and cut off. (See Fig. 6.)

Note: If the conductor end is not completely cut off, the tool is not at right angles to the block, the blade is defective, or spring tension of the handle needs to be increased per paragraph 4.01. The connection is not acceptable. The conductor must be removed from the block and reseated until it is both seated and cut off in one motion. See paragraph 5.01 for repair of damaged conductors.

3.08 After all the conductors have been seated properly as described in paragraph 3.07, the connections should be verified as follows:

Note: A continuity check will not pick up partially seated conductors which could become open later so a visual check must also be made.

(1) Visually verify that no terminal has more than one conductor inserted into it.

(2) Verify that all conductor ends have been properly cut off and no ends remain untrimmed on the 94-type connecting block.

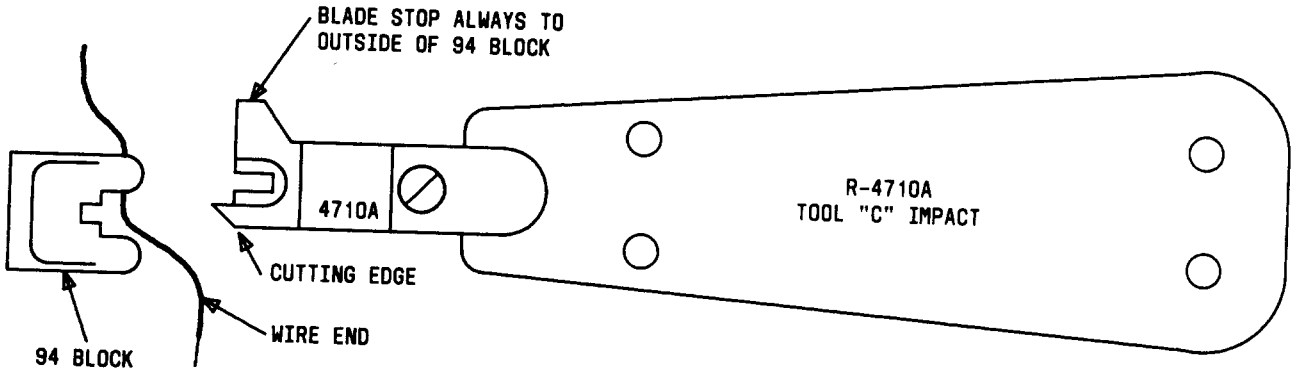

Fig. 5—R-4710A "C" Impact Tool and 94-Type Connecting Block

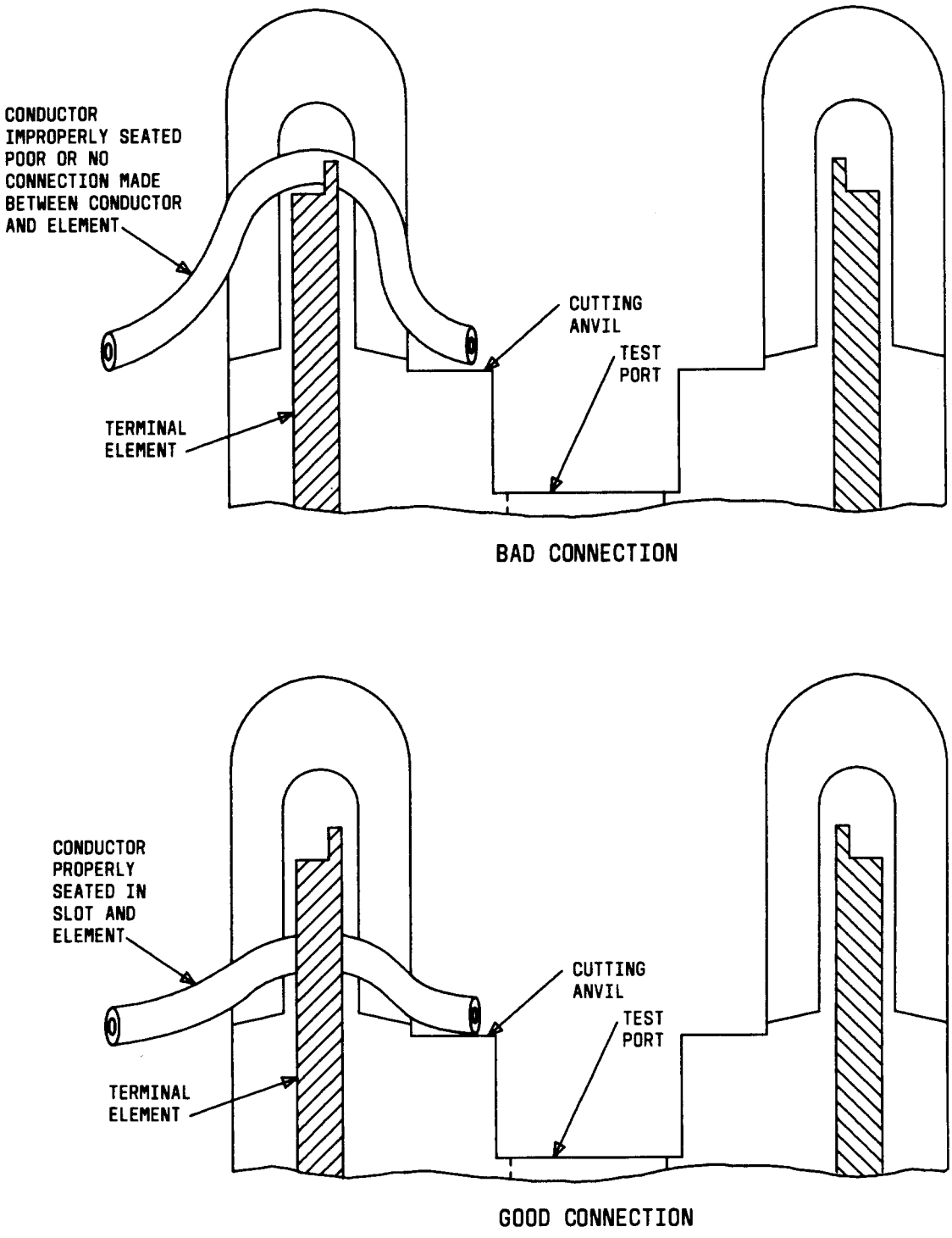

Fig. 6—Conductors Properly and Improperly Seated and Cut Off on 94-Type Connecting Block

Note: Untrimmed conductor ends will cause shorts.

(3) Verify visually that no 94-type connecting block has been damaged by the insertion and cut off of conductor ends.

Note: Connecting blocks or terminals that have been badly damaged must be replaced per paragraphs 5.02 through 5.04.

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

(5) Verify using proper continuity test procedures that all conductors are properly terminated. The circular holes along the block center are designed for a standard test probe.

(6) Verify that access is available to 50-pin, "KS"-type connectors on the right-hand side of the bay duct framework.

4. ADJUSTMENTS

4.01 A normal R-4710 "C" and R-4710A "C" impact tool should make good connections at any point in its adjustment range. However, if more force is needed to ensure a better connection, the impact force can be adjusted upward. The spring force necessary to trigger the "C" impact tools, R-4710 and R-4710A, can be adjusted by turning the small screw at the end of the handle. The screw must be turned clockwise to decrease force and counterclockwise to increase force. Observe on the black plastic side of the handle a spring lever which moves up or down with the turning of the screw clockwise or counterclockwise. The spring tension adjustment ranges of the "C" impact tools are as follows:

R-4710—18 to 22 pounds

R-4710A—25 to 33 pounds.

5. REPAIR PROCEDURES

A. Damaged Conductor

5.01 When an open conductor or wiring error is found while performing tests, perform the following repair procedures:

(1) Remove the conductor that has the open or wiring error with a pair of long nose pliers by grasping it adjacent to the connecting block and pulling at a right angle to the top of the connecting block.

(2) Reconnect the conductor by dressing it at a right angle to the side of the 94-type connecting block, leaving a minimum of 1/2-inch slack in the conductor length before it enters the block, and a stub of 1/4 inch (instead of 3 inches) after entering the block. Reseat the conductor as described in paragraph 3.07.

Note: Contact with the 94-type connecting block terminal must be made at a new point on the conductor.

B. Replacement of Damaged 94-Type Connecting Blocks

5.02 The 94-type connecting blocks should be replaced if the molded plastic around the clip terminals becomes damaged. New 94-type connecting blocks can be ordered by supplying the following information.

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

5.03 To replace a damaged 94-type connecting block, proceed as follows:

(1) Obtain a replacement 94-type connecting block as described in subparagraph 5.01(1).

(2) Obtain a wiring diagram for the 94-type connecting block to be replaced.

(3) Remove all conductors from old 94-type connecting block.

(4) Remove the two screws located in the rear of the 94-type connecting block that fastens to the bay.

(5) Remove the old 94-type connecting block and replace it with the new 94-type connecting block.

(6) Secure the two screws that fasten the 94-type connecting block to the bay.

(7) Using the wiring diagram for the 94-type connecting block that was replaced, reseat all conductors per subparagraph 5.01(2).

C. Replacement of Damaged "U" Clip Terminals

5.04 The "U" clip terminals within the 94-type connecting block can be replaced if they become defective or bent when using the R-4710 "C" or R-4710A "C" impact tool. To replace the "U" clip terminals on the 94-type connecting block, proceed as follows:

(1) Obtain new "U" clip terminals to replace the defective terminals.

(2) Obtain a wiring diagram applicable to the bay and 94-type connecting block to be repaired.

(3) Remove all conductors from the 94-type connecting block.

(4) Remove the three screws located in the rear of the 94-type connecting block that fastens it to the bay.

(5) Remove the 94-type connecting block.

(6) Place finger nails at the rear plate of the 94-type connecting block.

(7) Pull the sides of the 94-type connecting block to make the rear block plate open.

Note: Individual "U" clips that are defective can be removed from the 94-type connecting block and replaced with a good "U" clip.

(8) Replace the rear block plate on the 94-type connecting block after the defective "U" clips have been replaced.

(9) Secure the 94-type connecting block to the bay by fastening the three screws located at the rear of the connecting block to the bay.

(10) Reseat all conductors per subparagraph 5.01(2).

6. ORDERING INFORMATION

6.01 When ordering the R-4710 "C" and R-4710A "C" impact tools, the following information shall be included:

- R-4710 "C" or R-4710A "C" impact tool
- WECo installation number 13471002
- Item address number 6874867
- Shipping Address
- Name and telephone number of contact.

6.02 The telephone company service center shall order the R-4710 "C" and R-4710A "C" impact tools from the following:

Western Electric Co.
IMDARC
P. O. Box 265
West Chicago, IL 60185.