711 CONNECTORIZATION OF THE 4A TOLL IN AND OUT LINK FRAME HORIZONTAL MULTIPLES SENDING END

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1. GENERAL

1.1 Scope of Section

1.11 This section describes the procedures for applying 711 Connectors to the Horizontal Multiples of Reused 4A Toll In and Out Link Frames.

1.12 The procedures furnished in this section apply to connectorization of the horizontal multiple (local cable) of the various reused incoming and outgoing link frames shown in Figures 1 and 2.

1.2 Associated Information

1.21 General information on the 711 Modular Connector System is furnished in Handbook 9, Section 390.

1.22 Information on the proper procedures for packing and moving reuse frames is furnished in Handbook 67 Vol. VI Section 2220.

1.23 The "711" Connector Joining Procedures for the receiving Central Office End are furnished in Handbook 9, Section 390.3.

1.24 For other standard applications of the 711 Connectors to 4A Toll Equipment, see Drawing H-396-360.

1.25 CAUTION: Prior to placing the 711 Connectors on the link frame mult cables all power must be removed from the frame. This not only includes individual frame and aisle power, but also floor alarm and miscellaneous fusing.

2. DESCRIPTION OF THE R-4851 TERMINATING TOOL

2.1 The R-4851 tool has been developed to provide a facility to apply the "711" connectors to the horizontal multiples of Reused 4A Toll In and Out Link Frame Equipment.

2.2 The tool is assembled to a 45 Degree Tool Base Mount which in turn mounts on the frame uprights with the aid of two hand driven four post knobs equipped with thread forming screws. See Figure 3.

2.3 The R-4851 is a manually operated, scissor action tool consisting of four wire fanning combs, two sets of spring loaded mandrel latches, two wire retaining springs, two cutter blades and a wire clipping ejector. The tool head contains a handle attached to a stuffer die for pressing wires into the plastic mandrels with the aid of a cam. See Figure 4.

2.4 All the necessary tools required for operations covered in this section are furnished in Tool Set 552.

3. TOOL SETUP AND EQUIPMENT PREPARATION

3.1 Equipment Preparation

3.11 It is recommended to prepare in advance the shop formed cables to be connectorized as follows:

3.111 At each mult cable position remove (if provided) the plastic cable tie to free the horizontal mult cable. Unwrap the plastic tape from the "U" shaped portion of the cable located at the junction of the two frame uprights.

.1 2 Cut the mult cable stitches between the uprights and the first major breakout on each side of the "U" to provide the necessary fanning slack and to baloon the wire bundles.

3.1 3 CAUTION: Extreme care should be exercised when removing the mult cable stitching to avoid damaging the individual wires.

3.1 On frames having a vertical cable secured by cable brackets to the frame uprights it is suggested that when possible the cable brackets be removed from the frame uprights with the cable intact as follows:

3.1 1 Remove the screws that hold the cable bracket to the frame upright. If the cable bracket is located in a position that will not interfere with mounting the R-4851 tool, remove only the top screw. Work the bracket free and replace the screw in its original position. If leaving the mounting screws in place interferes with mounting the tool, remove both screws and send them attached to the frame to be utilized at the receiving end.

3.1 2 Once the cable is free use a piece of No. 9 cord and temporarily tie it out of place to one side to provide an easy access for the R-4851 tool mounting.

3.1 3 If any of the cable brackets while attached to the cable interfere with proper tool positioning or the wire fanning operation, remove the bracket from the cable and ship the bracket attached to the frame to be utilized to remount the cable on the receiving end.

3.124 After all the mult cables have been connectorized, secure the vertical cable to the frame upright in such a manner as to prevent damage to the connectorized cables in transit.

3.2 The R-4851 Tool Setup

3.21 Mount the R-4851 tool against the frame upright in such a manner that the horizontal mult cable lies approximately across the middle of the tool.

3.211 Proper positioning of the tool in relationship to the mult cable will provide the required cable slack when the wire fanning procedure begins.

3.212 The tool is secured to the frame upright by inserting the top fourpost knob into a threaded upright mounting hole. The knobs are equipped with a No. 12 thread forming screw and require only a few turns to secure the tool against the upright. With the tool held in position by the top screw, locate a clear hole in the bottom mounting slot and insert the second screw.

NOTE: Mounting screws should be hand tightened only.

3.213 Depending on the location of the bay vertical form cable, either side of the frame uprights may be used for mounting the tool.

NOTE: Make sure that the tool is positioned and centered approximately underneath the shop form cable so that there is sufficient and uniform fanning slack.

4. CONNECTOR FANNING, WIRING AND JOINING PROCEDURES

4.01 One at a time insert the two mandrels between the two spring loaded mandrel latches in the R-4851 tool. MAKE SURE THAT THE MANDREL NOTCHES ARE ORIENTED AWAY FROM THE OPERATOR AND DOWNWARD CLOSEST TO TOOL BASE.

CAUTION: IT IS EXTREMELY IMPORTANT THAT BOTH MANDREL ENDS ARE PROPERLY SEATED IN THE MANDREL LATCHES. PROPERLY POSITIONED MANDRELS SHOULD SNAP INTO PLACE. SEE FIGURES 5 & 6.

4.011 At any time while using the R-4851 Tool if a question of correct mandrel placement arises, refer to the instructional label affixed to the tool mount.

4.02 Before proceeding with fanning operations verify the following:

The tool is positioned properly so that the local cable leads access the tool and have enough fanning slack.

The mandrels are seated properly.

4.03 Randomly select a wire pair and dress it (top down) through and across the four wiring combs, splitting the pair between the shorter and longer comb teeth. Secure the wires in the two wire retaining springs.

4.031 It is suggested to save the (six on the left and four on the right) magnet leads for the second set of mandrels as these are usually tighter. Fan these leads in the topmost positions thus reducing the possibility of breakage.

4.04 Select a second wire pair and dress it in the next, lower comb position. Continue these operations until the first set of mandrels are completely wired.

IMPORTANT: BEFORE PROCEEDING MAKE SURE THAT THE MANDRELS ARE IN PROPERLY AND CHECK FOR TWO WIRES IN THE SAME SLOT AND FOR SHIFTS IN THE WIRE POSITIONS.

4.05 Now the R-485l tool is ready for its cut-form cycle. Swing the stuffer head up into position to engage the cam catch with the roller.

4.06 Since the force required for putting the tool thru its cut-form cycle is substantial, it is suggested to firmly hold the tool with one hand while pressing slowly but firmly the handle down thru full travel of the cam.

4.07 Return the handle and the stuffer head to its original (open) position.

4.071 It is IMPORTANT at this time to visually inspect the wired mandrels for any broken wires. This may occasionally happen whenever the local cable leads are too tight, thus breaking inside the tool during its forming cycle. If any broken wires are found, correct per methods of Para. 4.15.

4.08 Install the 711 Receptacle Housings onto the wired mandrels (DO NOT REMOVE MANDRELS FROM TOOL) with the red indexing bar in DOWN and OUTWARD position.

4.09 Press the housing firmly over the mandrel to fully mate the mandrel and the housing. Remove the two wired sections from the tool. IMPORTANT Visually inspect the wired section to make sure that each "Window" has a wire in it! If not, follow instructions of Para. 4.15.

4.10 Now operate the wire clipping ejector with a sudden, upward motion to clear wire ends. Inspect the tool and the stuffer head for leftover clippings. Clear any remaining wire ends with an orange stick.

4.101 The wire clipping ejector is manually operated by placing the index finger of each hand under each side of the T bar handle and with a sudden, non-faltering upward movement of the fingers raise the ejector lever upward clearing all wire clippngs from the cutting assembly.

NOTE: When using the wire ejector system it is imperative that both index fingers be utilized. Failure to do so creates a binding stress which could break the T bar handle where it joins the movable lever.

4.11 Repeat operations of Paragraphs 4.01 thru 4.10 for a second set of mandrels. When the second operation is completed, this time rotate the receptacle housing upward so that the red bar is pointing up and toward the mandrel and snap onto the wired mandrel.

4.12 The assembly of the two mating receptacles is now complete. Verify that the mandrels are fully inserted in the housing. If not, press them in by hand.

4.13 Complete the connectorization of remaining leads of a mult cable. Note that the second assembly does not have a full compliment of wires. Move the R-485l tool to the next position.

4.131 In some older vintage frames the total horizontal multiple lead count may be as low as 66. In these cases split the leads between the two 711 connectors approximately 40 to 60 percent. I.E. Never fan one complete connector and leave only one pair for the second connector. Also, never split the leads evenly as this will cause identification problems to the receiving location.

4.14 CAUTION: POTENTIAL PROBLEM AREAS There is a possibility that the operator may forget and fail to place the mandrels in the tool. If this ever

happens, that is the mandrels have been omitted and the R-4851 tool has been operated (the wires have been cut) proceed as follows:

4.141 Immediately tape down the wires to the springs and combs. Bend back the wires and insert the mandrels. Then fan one wire at a time across the mandrel for each side of the tool making sure that the like wires match. DO NOT MOVE THE TOOL BEFORE OR DURING ITS CLOSING CYCLE!

4.15 The R-4775 tool is used for adding single wires, for reinserting wires which may have been broken or for making any other mandrel wiring changes. Proceed as follows:

4.151 Carefully remove the mandrel from the tool (or separate and remove the mandrel from the wired section). Wrap the wire loosely around the proper mandrel position. Insert the mandrel between the tool jaws with the cutting blade positioned above the wire end to be trimmed. Squeeze the handles to cut and press the wire inot position.

4.152 Reinstall the mandrel back in its proper orientation.

4.16 After a period of usage it may become necessary to adjust the wire retaining springs. This can be accomplished by winding each spring in a clockwise direction onto the shaft assembly until the full length of spring overlaps the shaft evenly on both ends.

No changes are indicated due to extensive revision.

ATTACHMENTS
Figures 1 thru 6 on pages 5 thru 10.

5. SHIPPING CONSIDERATIONS

5.1 The two frames fanned and connectorized in this random manner MUST FOREVER BE MATED by the receiving locations.

5.2 This lack of interchangeability, however, is an acceptable penalty considering the substantial installation effort saved by this method.

5.3 It is, therefore, the sending location's job supervisor's responsibility to identify the equipment and to transmit this information thru job shipping papers as to which frames are to be installed and mated together.

5.4 This can be accomplished by either tagging the connectors (and/or the equipment frames) or by the use of tape.

5.5 NOTE: The 711 Modular Connector System is comprised of three parts: mandrels, receptacle housings, and connector module. Only the mandrels and receptacle housings are required by a sending end office. Sometimes the manufacture inadvertently sends the connector module, in addition to, the other two parts. If this condition occurs the sending end office should exercise due care to insure that the appropriate number of connector modules are sent with the connectorized link frames to the receiving end.

Manager, Product Engineering
Control Center

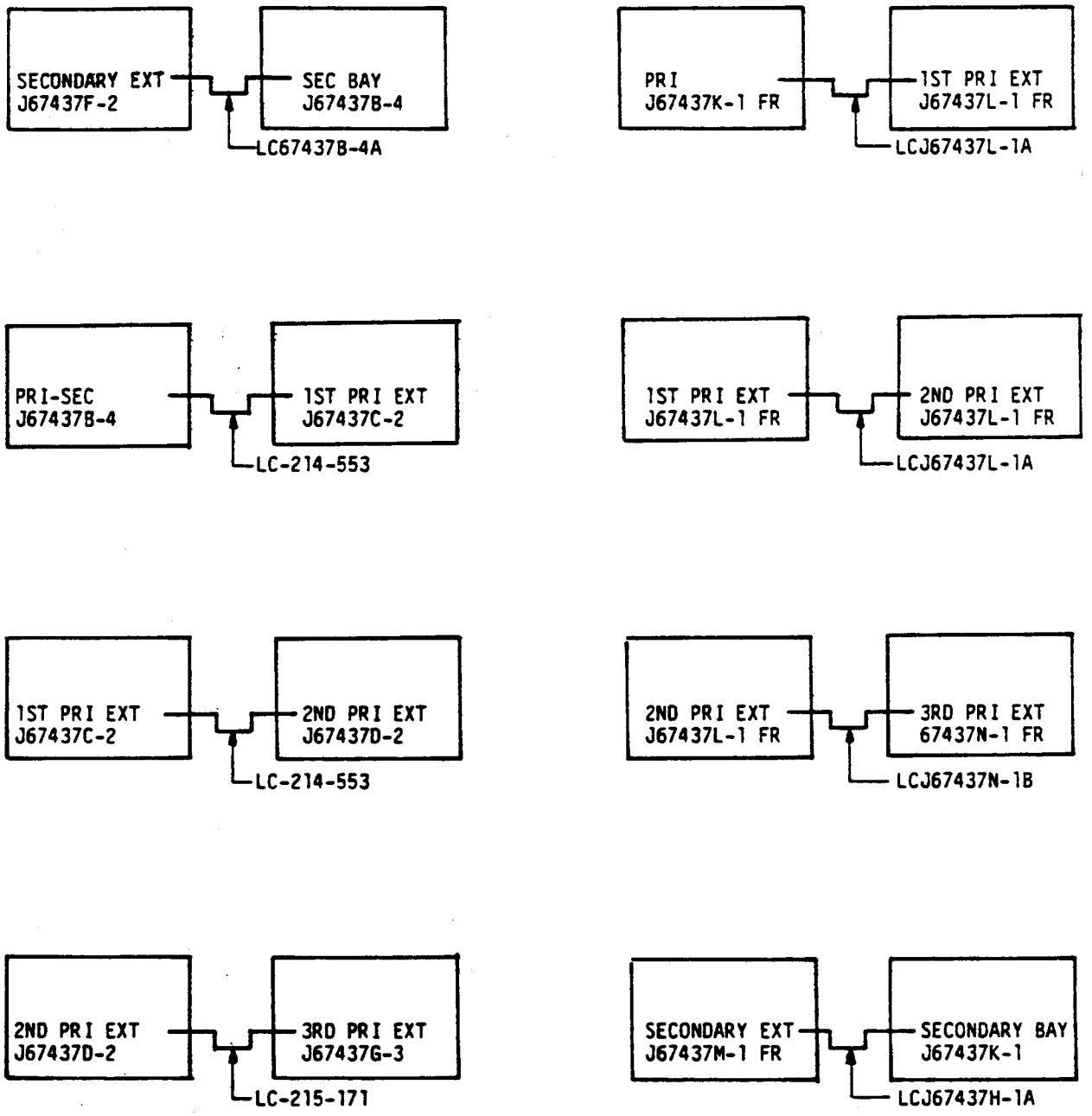


FIGURE 1

INCOMING LINK FRAME HORIZONTAL MULT CONNECTORIZATION

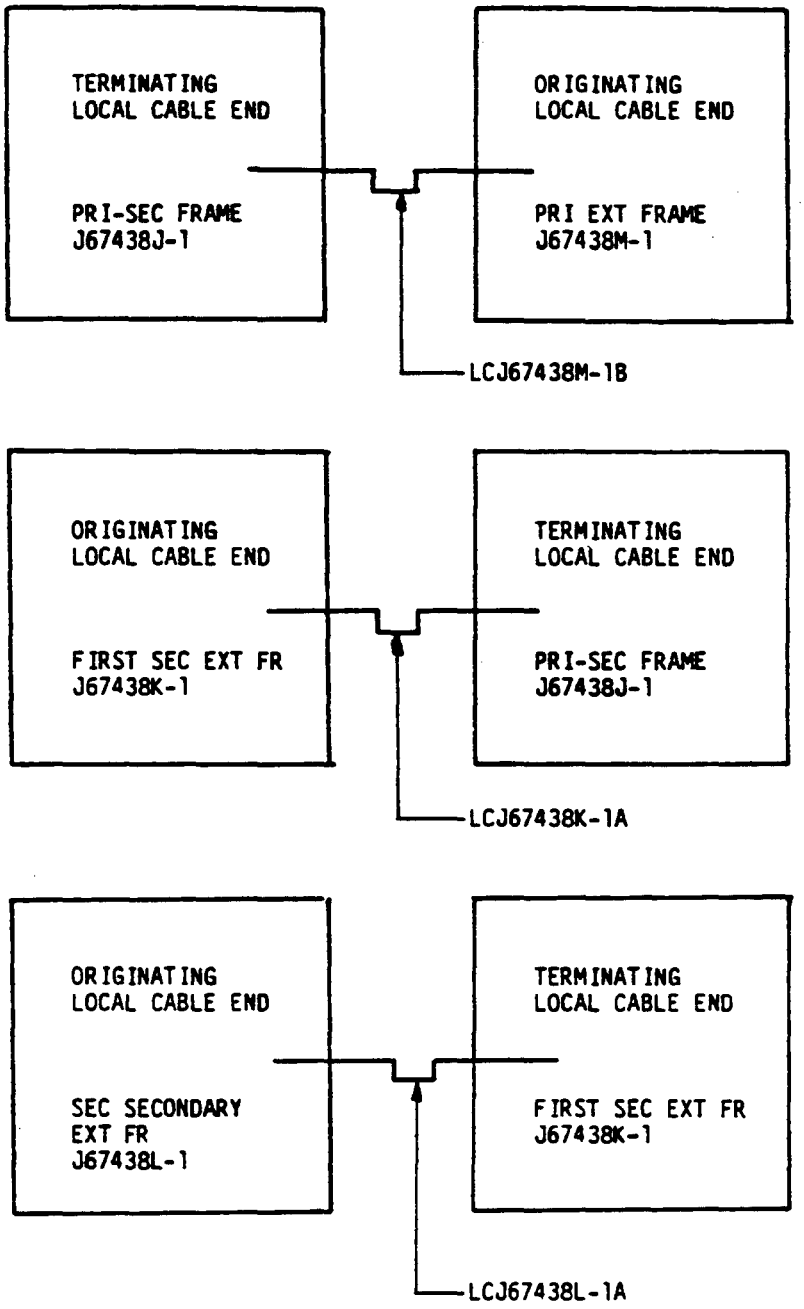


FIGURE 2

OUTGOING LINK FRAME HORIZONTAL MULT CONNECTORIZATION

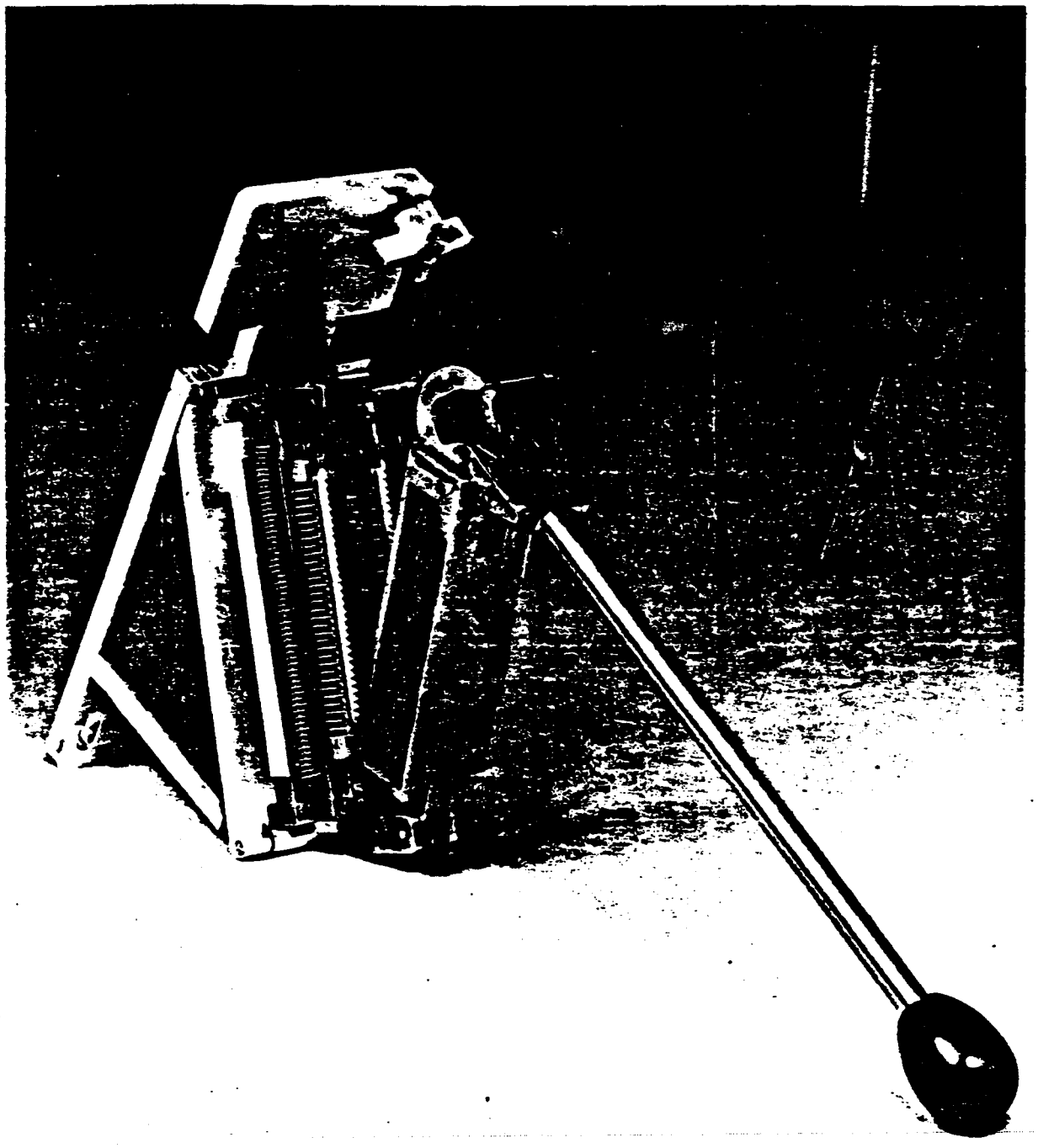


FIGURE 3

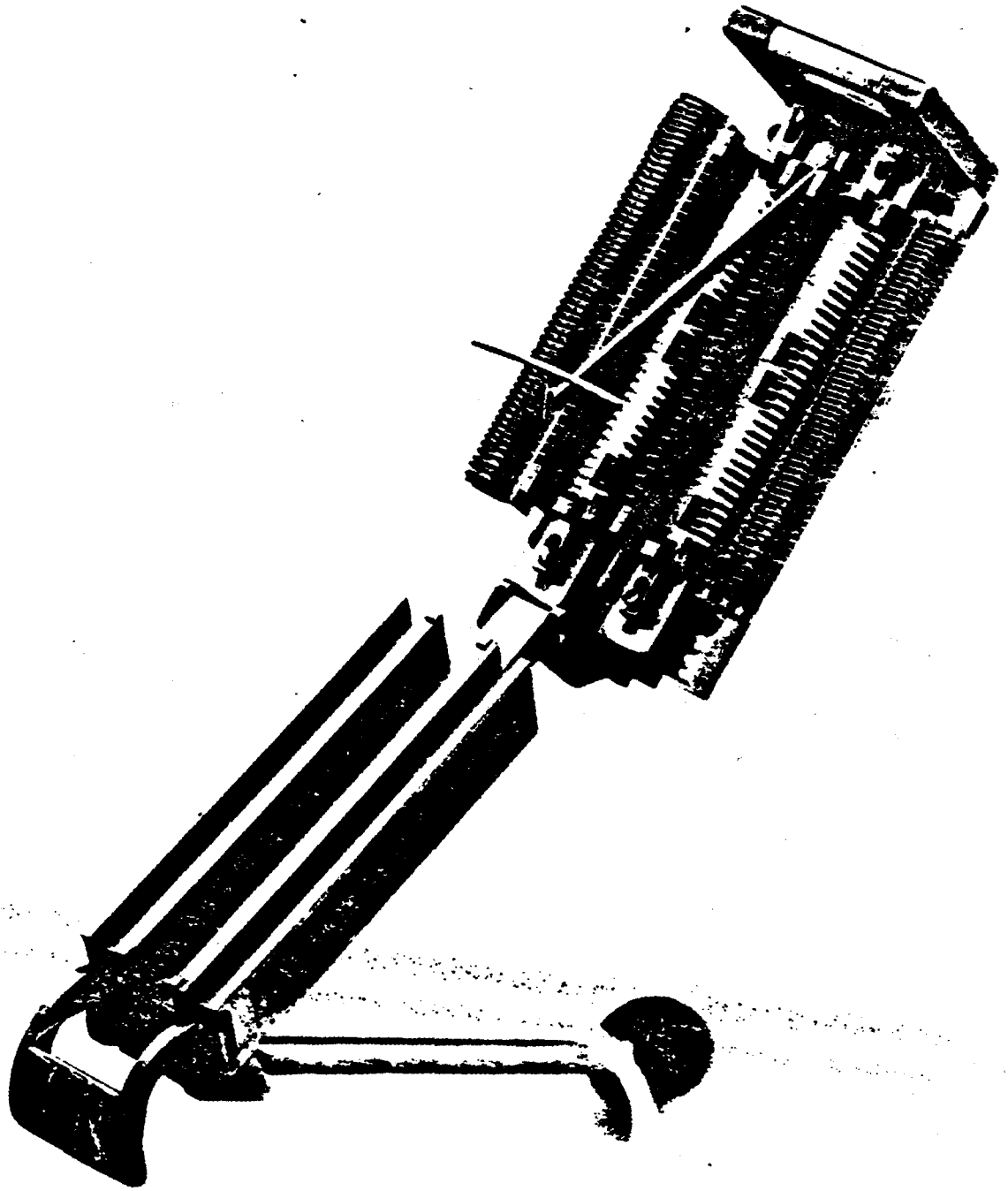
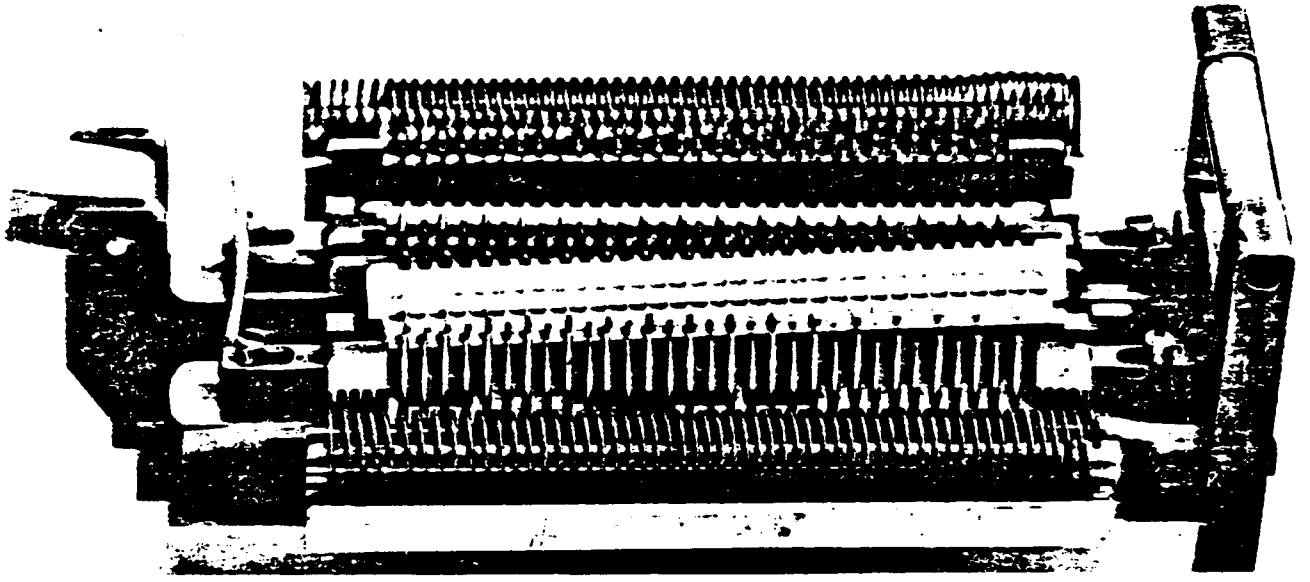
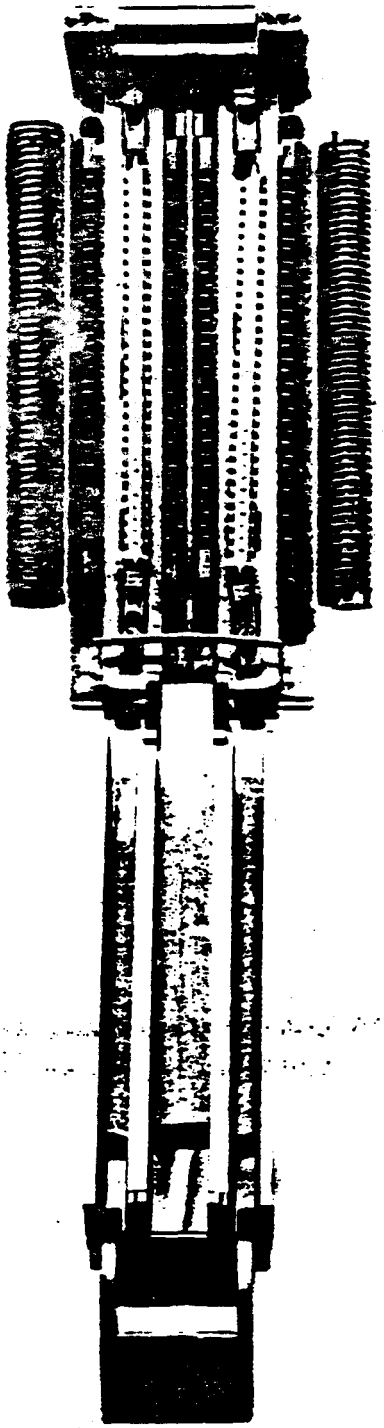


FIGURE 4



Proper Orientation of the Mandrel Notch

FIGURE 5



Properly Placed Mandrel

Mandrel Improperly Positioned - Not Seated and Not Aligned

FIGURE 6