



AMP * HD MINIATURE QUICK-CHANGE
APPLICATORS (SIDE-FEED TYPE)
WITH AIR FEED
for
FULLY INSULATED FASTON * TERMINALS

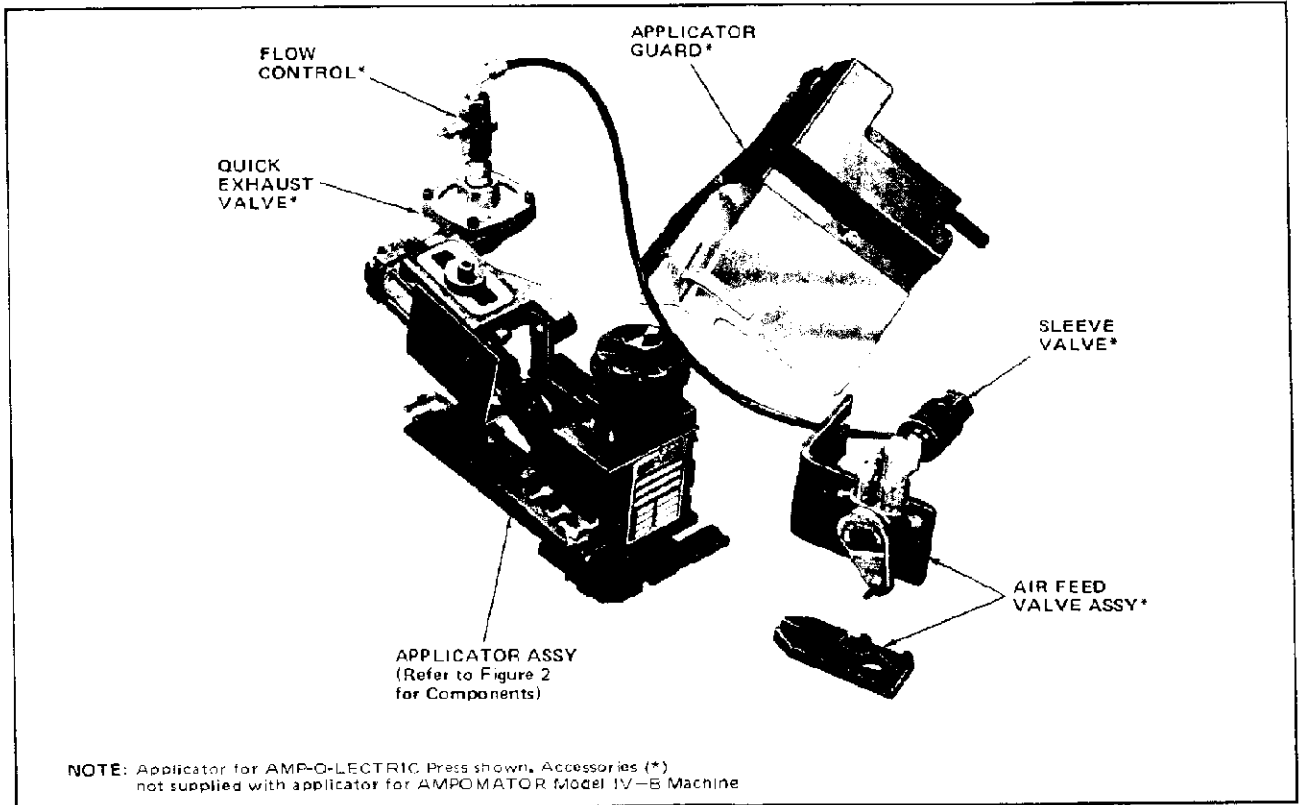
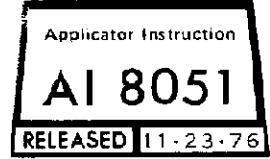


Figure 1.

1. INTRODUCTION

These instructions cover applicators that crimp fully insulated FASTON terminals on No. 22 through No. 14 AWG wire that has been pre-stripped.

The terminals are retained in a plastic carrier strip and supplied in reel-form to be fed into the applicator. The carrier strip is sheared from the terminals as they are being crimped to the ends of the inserted wires. Refer to the Applicator Parts List and Exploded View Drawing (Applicator Log) for the terminal number, wire disc setting (A through D) per wire size, and the required crimp height.

These instructions cover two different applicators, the difference is in the method of supplying air pressure to the feed air cylinder. One applicator is used in the AMP Split-Cycle Model "T" Press when installed in the AMPOMATOR * Model IV-B Machine. The other is used in the Modified AMP-O-LECTRIC * Model "K" Press.

This instruction sheet, the parts list and exploded view drawing packaged with the applicator, and the

customer manual (CM 5128 or CM 5290) provide all information necessary to operate and maintain the applicator, press, and/or machine.

2. DESCRIPTION

Major components of the applicator are identified in Figures 1 through 4. The terminal strip enters the applicator from the left, passing under the stock drag, then between the strip guides. The lead terminal is always positioned in the "target area", and centered over the anvil, at the beginning of each cycle of the press. This requires air pressure to be applied to the extension port of the feed air cylinder.

On the downward stroke of the ram, air pressure to the cylinder is stopped to allow it to retract by internal spring pressure and exhaust air pressure within. As the ram bottoms, and with a pre-stripped wire inserted in the lead terminal, the terminal is crimped on the wire to produce the desired crimp height. At the same time, the plastic carrier strip is sheared from the terminal.

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On the return (upward) stroke, the terminated wire is released by the tooling for removal. This is followed by the feed air cylinder being pressurized to advance the terminal strip one increment and position the next terminal over the anvil. This completes a cycle of operation.

The applicator ram (see Figure 3) supports the upper tooling which is the wire crimper, insulation stabilizer, terminal holder, and shear depressor. The wire crimper and insulation stabilizer, with crimper spacer between are attached to the ram by the crimper bolt and tubular spacer. The insulation stabilizer is free-floating and is spring-loaded downward. This allows upward movement as it contacts the terminal insulation on the downward stroke of the ram, thus holding the terminal in position on the anvil during crimping, and the shearing of the carrier strip. The wire funnel (when used) is attached to the front of the insulation stabilizer. The shear depressor and terminal holder are attached to the back of the ram.

The top of the ram contains the ram post that connects to the press ram post adapter. On the ram post is the wire disc containing up to four pairs of pads, each pair of a different height. Rotation of the wire disc to align a pair of pads with the lobes on the bottom of the press ram post adapter will produce the desired crimp height. Under the wire disc is a spring disc, ram washer, and laminated washer. The laminated washer provides a means of fine adjustment to compensate for machining tolerances within the applicator to produce correct crimp heights in presses with a pre-set shut height.

The applicator mounting surface is the base plate which supports the lower tooling and strip guide plate. The lower tooling is the anvil, floating shear, and shear plate (see Figure 4). The strip guide plate supports the front and rear strip guides and the stock drag. The base plate is secured to the press base mount.

The air feed mechanism is mounted on the left side of the housing. It comprises the feed air cylinder, feed adjusting bracket, feed finger, feed pawl, and related hardware (see Figure 2). The applicator used in the Model "T" Press has an elbow with a tube connected to the extension port of the feed air cylinder, and a quick-disconnect coupling to the other end for connecting to the machine. The applicator used in the AMP-O-LECTRIC Press has a quick exhaust valve with a flow control mounted on the extension port of the cylinder (see Figure 1). This is connected by a tube to the air feed valve assembly which is mounted on the side of the press. Refer to Customer Manual CM 5128 for further description.

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3. APPLICATOR INSTALLATION AND REMOVAL

WARNING

BEFORE attempting to install or remove the applicator, BE SURE electrical power and air supply are "off".

3.1. Installation

1. Place applicator on press base mount.

NOTE

Press must be equipped with a base mount for miniature quick change type applicators. The AMP-O-LECTRIC Press must have Press Conversion Kit No. 690675-2 installed, which includes the base mount, as described in Applicator instructions AI 8022.

2. Enter applicator ram post in press ram post adapter while sliding applicator back into position. It may be necessary to loosen stop on mount during placement, and to compress springs between wire disc and spring washer for ram post to enter press ram post adapter.
3. On AMP-O-LECTRIC Press, secure applicator with holddown bracket and two screws. Tighten stop on base mount, if loosened. On Model "T" Press, flip locking latch up to secure applicator in place. Latch will automatically lock.
4. On AMP-O-LECTRIC Press, install and adjust air feed valve assembly as described in Customer Manual CM 5128. On Model "T" Press, attach quick disconnect coupling to solenoid valve on machine.
5. Load applicator with terminal strip as described in Section 4.
6. With press in rest position and electrical power "off", turn air supply "on". Feed air cylinder must fully extend and position lead terminal over anvil.
7. Make any adjustments deemed necessary, as described in Section 5.
8. On AMP-O-LECTRIC Press, install guards to enclose applicator and air feed valve assembly before operating press.

NOTE

When changing from one size terminal to another, the terminal strip feed adjustment will be necessary.

3.2. Removal

1. Unload terminal strip as described in Section 4.
2. On AMP-O-LECTRIC Press, remove guards.

NOTE

If applicator is to be reinstalled in AMP-O-LECTRIC Press, it is not necessary to remove air feed valve assembly. Disconnect tubing from on-off valve.

3. On AMP-O-ELECTRIC Press, remove air feed valve assembly as described in CM 5128, or as noted previously. On Model "T" Press, uncouple quick-disconnect coupling at solenoid valve.
4. On AMP-O-ELECTRIC Press, remove two screws and holddown bracket securing applicator to press base mount. If necessary, loosen stop at left side. On Model "T" Press, push in on release bar to allow locking latch to pivot down.
5. Slide applicator toward front of press until ram post is clear of press ram post adapter, then lift applicator out.

NOTE

If applicator is not to be reinstalled immediately, prepare for storage as described in Section 9.

4. TERMINAL STRIP LOADING AND UNLOADING

WARNING

BEFORE attempting to load or unload the applicator with terminal strip, MAKE SURE electrical power is "off". The air supply may remain "on" to extend feed air cylinder.

4.1. Loading

1. Mount terminal reel on reel support. Terminal strip must unreel and enter left end of applicator with carrier strip down and toward the back.
2. Be sure press ram is fully raised. If necessary, hand-cycle press as described in applicable customer manual.
3. Raise stock drag by rotating drag release lever upward, then feed terminal strip into applicator between strip guides.
4. Raise and hold feed finger (pawl) and continue to feed terminal strip until lead terminal is centered over anvil. Release feed finger to engage feed pawl behind feed point in strip. Release stock drag.
5. With air pressure applied to feed air cylinder, pull back on terminal strip to make sure feed point is against feed pawl.
6. Check lead terminal to be centered over anvil. If not, make necessary adjustments as described in Section 5.

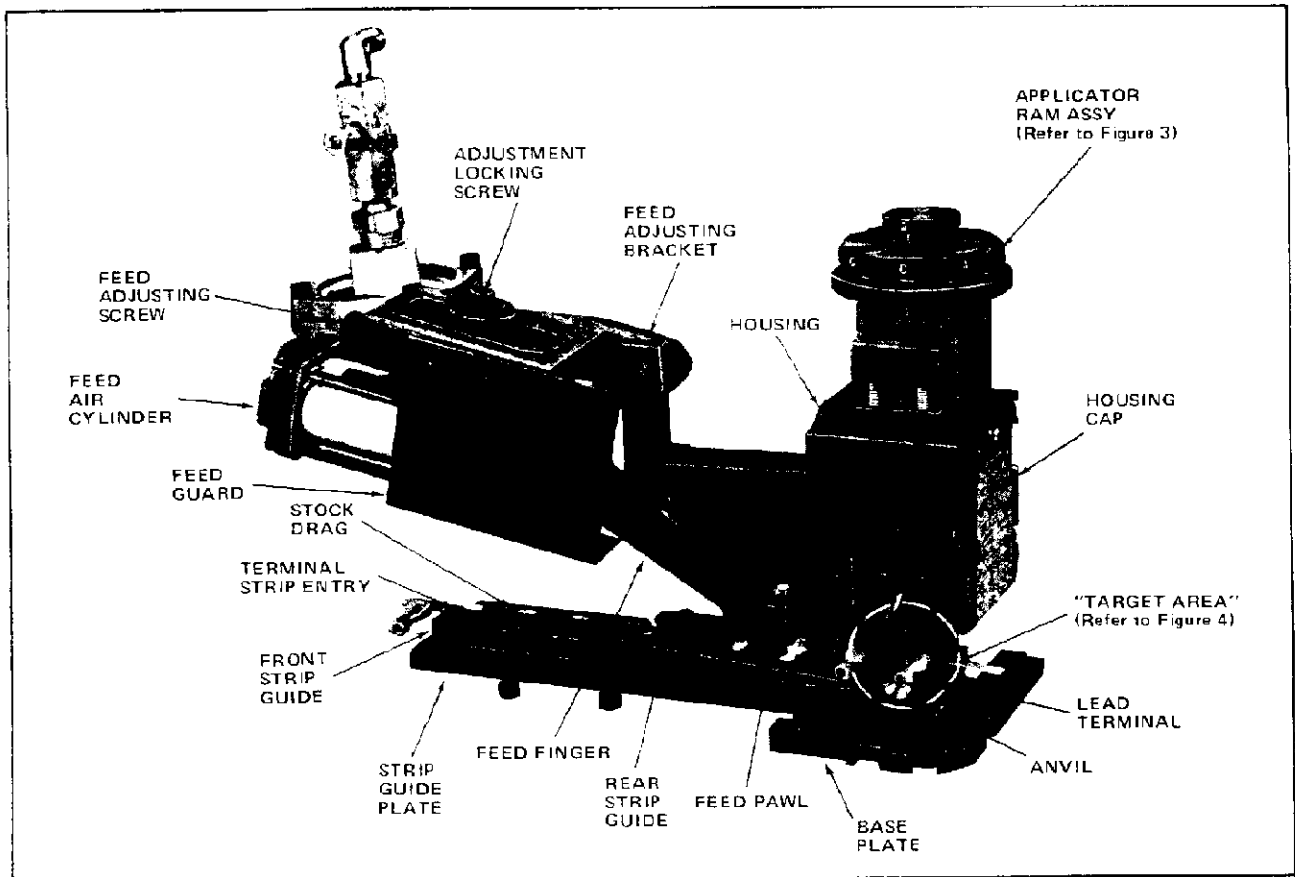


Figure 2.

7. Adjust for proper crimp height as specified in the applicator parts list, and as described in Section 5.

4.2. Unloading

1. Make sure press ram is fully raised. If necessary, hand-cycle press as described in applicable customer manual.
2. Raise stock drag by rotating drag release lever upward.
3. Raise and hold feed finger (pawl) while pulling terminal strip back through strip guides until clear.
4. Rewind terminal strip onto reel.

5. ADJUSTMENTS

WARNING BEFORE attempting any adjustments, MAKE SURE electrical power and air supply are "off", unless otherwise specified.

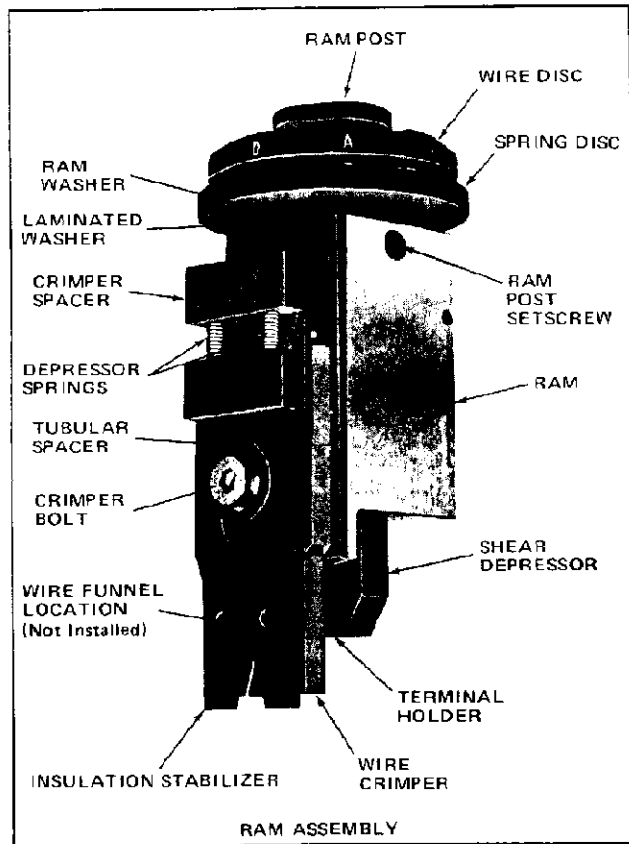


Figure 3.

5.1. Crimp Height Adjustment (See Figure 3)

1. Refer to Applicator Parts List (Log) for wire disc setting (A through D) per terminal number and wire size being used.
2. On AMP-O-LECTRIC Press, remove applicator guard to gain access to wire disc.

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3. Turn wire disc to align a pair of pads (A through D) with lobes on press ram post adapter, as specified. It may be necessary to apply downward pressure to disc when turning, to compress spring between it and spring disc.

4. Replace applicator guard, if AMP-O-LECTRIC Press, before operating applicator.
5. To check for proper crimp height, refer to Section 6.

5.2. Terminal Strip Feed Adjustment (See Figure 2)

NOTE This adjustment must be performed when changing from one terminal size to another, because of the difference in width.

1. On AMP-O-LECTRIC Press, remove applicator guard to gain access to feed mechanism.
2. Apply air pressure to feed air cylinder to position lead terminal over anvil.
3. Pull back on terminal strip to be sure feed point is against feed pawl.
4. Determine direction required to center lead terminal over anvil.
5. Loosen adjustment locking screw on top of feed adjusting bracket.
6. Turn feed adjusting screw as required to center lead terminal on anvil. To retract terminal, pull back on strip while making adjustment.
7. After centering terminal, secure feed adjusting bracket by tightening adjustment locking screw.
8. On AMP-O-LECTRIC Press, install applicator guard before operating applicator.

5.3. Floating Shear Adjustment (See Figure 4)

The floating shear (rear) must be positioned to shear the tab between the terminal and carrier strip with the terminal wire barrel centered over the anvil and under the wire crimper. If adjustment is necessary, perform the following:

1. Remove applicator from press as described in Section 3.
2. Slightly loosen two screws from underneath securing shear holder to base plate.
3. Move shear holder in direction required (front or back). A piece of terminal strip may be used as a gage.
4. After adjustment, tighten two screws to secure shear holder to base plate.
5. If necessary, adjust strip guide plate as described in Paragraph 5.4.
6. Install applicator in press as described in Section 3.

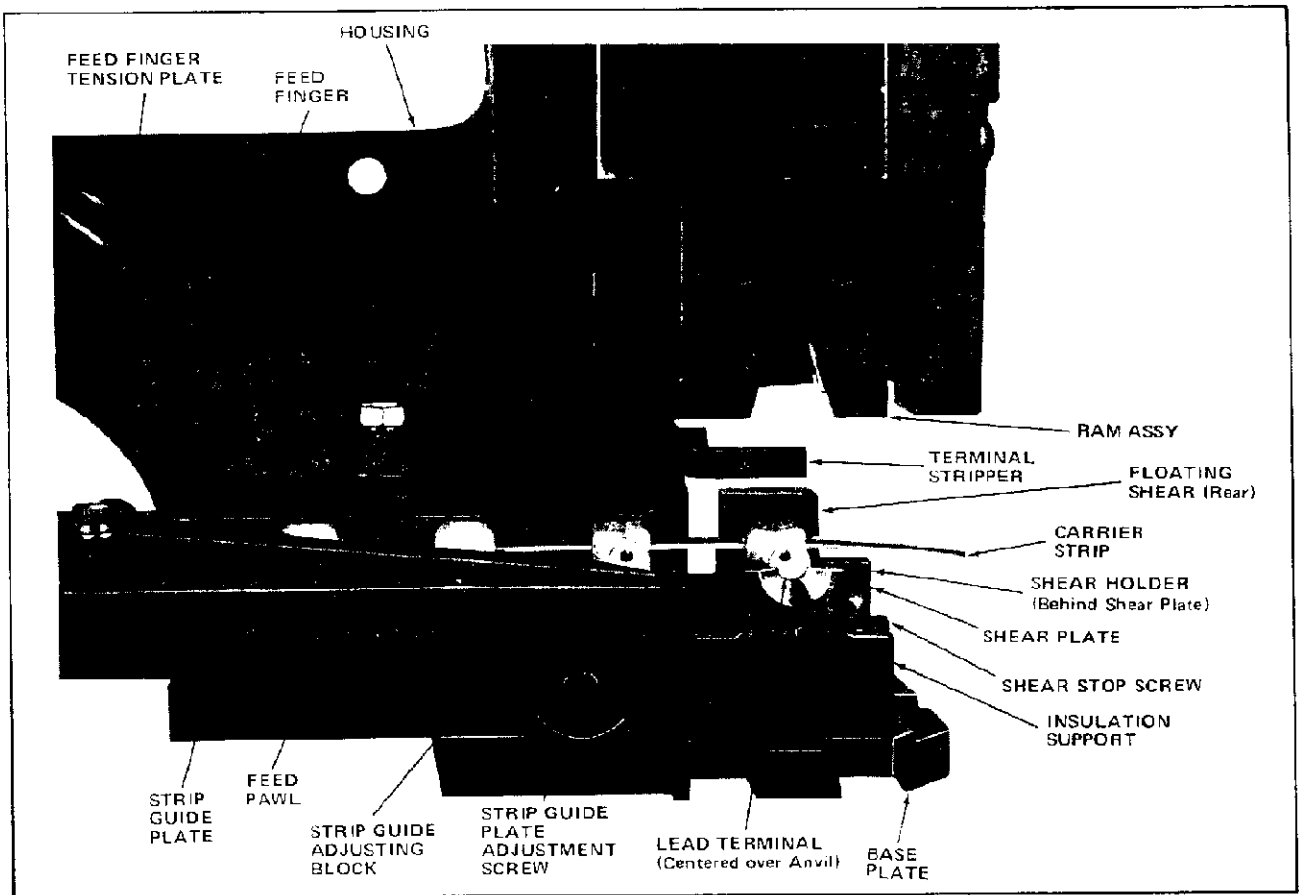


Figure 4.

5.4. Strip Guide Plate Adjustment (See Figure 4)

The strip guide plate, supporting the front and rear strip guides, determines the position of the lead terminal entering the "target area" (front to-rear). If adjustment is necessary, perform the following:

1. Slightly loosen screw from underneath securing strip guide plate to strip guide adjusting block.
2. Turn guide plate adjusting screw **CLOCKWISE** to move plate toward rear, or **COUNTER-CLOCKWISE** to move plate toward front. A length of terminal strip may be used as a gage.
3. After adjustment, tighten screw to secure plate to block.
4. Check adjustment of feed pawl as described in Paragraph 5.5.

5.5. Feed Pawl Adjustment (See Figure 4)

The feed pawl must feed the terminal strip by contacting the feed point as close to the carrier strip as possible to prevent distortion of terminals. If adjustment is necessary, perform the following:

1. On AMP-O ELECTRIC Press, remove applicator guard to gain access.
2. Slightly loosen screw securing feed pawl to feed finger.
3. Slide feed pawl front or back as may be required to obtain proper positioning.
4. After adjustment, tighten screw to secure feed pawl to feed finger.
5. On AMP-O-ELECTRIC Press, install applicator guard, before operating applicator.

5.6. Strip Guide Adjustment (See Figure 2)

This adjustment should never be necessary unless there is a variation in the width of the terminal strip, or strip guides are not parallel. To adjust, perform the following:

CAUTION

DO NOT make this adjustment when front-to-rear adjustment of BOTH strip guides is required. Perform Paragraph 5.4.

1. On AMP-O-ELECTRIC Press, remove applicator guard to gain access.

2. Wedge feed pawl up to clear rear strip guide.
3. Determine if front or rear strip guide should be adjusted. BOTH strip guides must be parallel with front edge of strip guide plate.
4. Loosen screws securing strip guide to plate.
5. Using a piece of terminal strip as a gage, adjust strip guide as required to be parallel with other guide, and to obtain minimum clearance without binding.
6. After adjustment, tighten screws to secure strip guide to plate.
7. Check feed pawl adjustment as described in Paragraph 5.5, and strip guide plate adjustment as described in Paragraph 5.4.
8. On AMP-O-LECTRIC Press, install applicator guard before operating applicator.

6. MEASURING CRIMP HEIGHT (See Figure 5)
 The following procedure must be used to measure the crimp height produced by this type applicator.

WARNING BE SURE electrical power and air supply are "off".

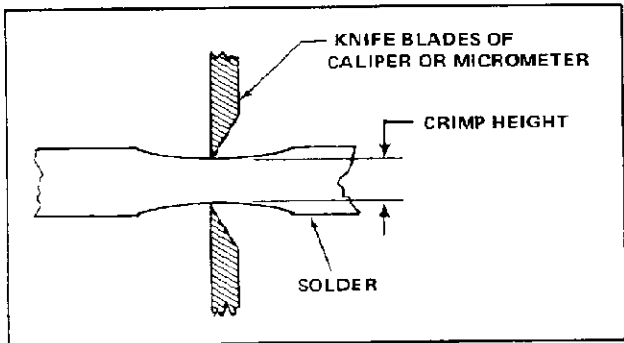


Figure 5.

1. Remove terminal strip from applicator as described in Section 4.
2. Insert a piece of 50/50 solder into "target area" for crimping. Use 1/8 in. diameter solder for No. 22 through 18 AWG wire, and 3/16 in. diameter solder for No. 16 and 14 AWG wire.
3. Hand-cycle press through one cycle of operation. (Refer to applicable customer manual for press.)
4. Remove crimped solder from applicator.
5. Refer to applicator parts list and exploded view drawing for crimp height per wire disc setting.
6. Using calipers or micrometer with knife blades, measure diameter at CENTER of crimp in solder. Measurement should conform to specified crimp height. Record crimp height.

7. If crimp height is INCORRECT, remove applicator as described in Paragraph 3.2 and install an applicator that is KNOWN to produce termination of correct crimp height.
8. Make several terminations with replacement applicator and check crimp height per applicable applicator instructions.
9. If crimp heights are INCORRECT for this applicator, the problem is with the press shut-height and corrective information can be found in appropriate customer manual for press.
10. If crimp heights are CORRECT for this applicator, the problem is in the original applicator. Refer to adjustable crimp height repair in Section 7.

7. REPAIR AND REPLACEMENT

The following procedures cover applicator parts which most often require repair or replacement because of wear. They are considered to be recommended spares which are the customer's responsibility to stock and replace. Refer to the applicator parts list and exploded view drawing packaged with the applicator.

CAUTION Remove applicator from press, as described in Section 3, BEFORE making repairs or replacing parts. AFTER repair or replacement, BE SURE all adjustments are correct as described in Section 5, BEFORE attempting operation.

7.1. Wire Crimper Replacement (See Figure 3)

1. Remove ram assembly from applicator by pulling upward.
2. Remove crimper bolt holding tubular spacer, insulation stabilizer, crimper spacer, and wire crimper to ram. Note orientation of parts for replacement purposes.
3. Install new wire crimper, and other parts removed, using reversed procedure to removal, and as noted in Step 2. Be sure part number of new crimper agrees with part number on parts list. DO NOT tighten crimper bolt at this time.
4. To align wire crimper with anvil, form a piece of heavy paper (or thin soft shim stock) over anvil, then install ram assembly in applicator housing. Push ram assembly DOWN, forcing crimper over anvil to align. When ram is bottomed, tighten crimper bolt to secure wire crimper and related parts to ram.

7.2. Anvil Replacement (See Figure 2)

1. From bottom of applicator base plate, remove screw securing anvil to plate.
2. Remove anvil from groove in top of plate. Note orientation of anvil for replacement purposes.

3. Install new anvil using reversed procedure to removal. Be sure part number of new anvil agrees with part number on parts list.
4. Check alignment of crimper with anvil as described in Paragraph 7.1, and adjust if necessary.

7.3. Floating Shear and Shear Plate Replacement (See Figure 4)

1. From bottom of applicator base plate, remove two screws securing shear holder to plate.
2. Remove two screws securing shear plate to shear holder.
3. Remove shear stop (screw) retaining floating shear in shear holder. Remove spring from bottom of floating shear.
4. Install new floating shear and/or new shear plate using reversed procedure to removal. Be sure part numbers agree with part numbers on parts list.
5. Adjust floating shear as described in Section 5.

7.4. Adjustable Crimp Height Repair (See Figure 3)

Under the spring disc is a laminated washer which may break or compress, causing applicator to produce terminations with a different crimp height than specified for setting of wire disc. To correct this problem, perform the following:

1. Subtract specified nominal crimp height from average crimp height as recorded in Section 6. This dimension will be thickness of washer(s) (No. 690125-1) to be ADDED under spring disc.

NOTE Washer No. 690125-1 is a peel type, laminated washer consisting of five layers, with each layer being .002 in. thick.

2. Remove ram assembly from applicator housing by pulling upward.
3. Loosen setscrew in side of ram securing ram post, then turn upside down and secure ram post in a vise.
4. Unscrew ram from ram post, leaving spring disc and wire disc on ram post.

CAUTION If spring and wire discs are removed from ram post, detent balls and springs will pop out and may become lost.

5. Measure thickness of old laminated washer after removal from ram post, using a micrometer. ADD this thickness to the thickness determined in Step 1. The total is the thickness required for the new washer.

6. Install new washer on ram post, then install ram. Tighten ram until snug, then check that numbers on wire disc align with center of ram sides. If not, turn ram back slightly until they do, then tighten setscrew to secure ram post.
7. Remove ram assembly from vise, then turn wire disc to other positions to check numbers for centering on sides of ram.
8. Install ram assembly in applicator housing, and install applicator in press. Make some test crimps under power, then measure crimp heights of terminations. If crimp heights are within specified tolerances, applicator may be placed in service. If not, repeat this procedure.

8. CLEANING AND LUBRICATION

For optimum performance and minimum down time, the applicator should be cleaned and lubricated after each eight hours of operation, and each time it is removed from the press to be placed in storage.

8.1. Cleaning

1. Remove applicator from press as described in Section 3.
2. Remove ram assembly from applicator housing by pulling upward.

WARNING If an approved type air hose is used in Step 3, an approved eye protection **MUST** be worn.

3. Using a clean cloth (or an appropriate type air hose), remove all evidence of dirt and other foreign matter. If desired, entire applicator may be immersed in a suitable commercial solvent (one that will not effect paint or plastic) to flush out dirt, chips, etc., then dry with air hose.
4. Lubricate applicator, as described in Paragraph 8.2, before installing ram assembly.

8.2. Lubrication

The applicator is to be lubricated at the following points using SAE No. 20 motor oil (non-detergent) or light grease.

CAUTION DO NOT use an excessive amount of lubricant. Any excess **MUST** be removed. Avoid lubricants between discs on top of ram assembly.

1. Apply a few drops of oil to feed finger pivot point.
2. Apply a thin film of grease to four corners of ram assembly or applicator housing for ram assembly.
3. Install ram assembly in applicator housing, then remove excess grease and oil.

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9. APPLICATOR STORAGE

1. Rather than remove terminal strips from applicator, cut terminal strips several terminals away from point of entry into strip guides. This will leave a sample of the type terminals used in applicator when returned to service.

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2. Remove applicator from press as described in Section 3.
3. Clean and lubricate applicator as described in Section 8.
4. Bottom ram assembly to retain lead terminals between crimper and anvil.