

Figure 1

1. INTRODUCTION

These instructions cover Heavy Duty/Side Feed applicators that crimp Fully Insulated FASTON terminals on wire that has been pre-stripped.

These applicators are used on:

- AMP-O-LECTRIC* Model “K” (modified) Terminating Machine PN 565435-5 (reference Customer Manual [409-5128](#)).
- i** **NOTE**
The Model “K” AMP-O-LECTRIC Terminating Machine PN 565435-5 has been superseded by the Model “G” Terminating Machine PN 354500-1 for new applications. For existing applications, the Model “K” is still recommended because of the large number of installed machines.
- AMP-O-LECTRIC Model “G” Terminating Machine PN 354500-[] (reference Customer Manual [409-5842](#)).
 - Standard “T” Terminating Unit when installed on the Model IV-A AMPOMATOR* Machine (reference Customer Manual [409-5289](#)).

The terminals are retained in a plastic housing and are supplied in reel form to be fed into the applicator. The terminals are sheared from the carrier strip before they are crimped to the ends of the pre-stripped wire.

- i** **NOTE**
Refer to the documentation package supplied with Applicator for the terminal number, wire disc setting for each wire size, and the required crimp height.

This instruction sheet, Document Package 854060-1, Applicator Instruction Sheet [408-8098](#), the assembly drawing packaged with the applicator, the applicable 409 Series Customer Manual, and the machine conversion kit provide all the information required to operate and maintain the applicator and machine.

Pay particular attention to DANGER, CAUTION, and NOTE statements.

**NOTE**

Highlights special or important information

**CAUTION**

Denotes a condition which may result in product or equipment damage.

**DANGER**

Denotes an imminent hazard which may result in moderate or severe bodily injury.



Always disconnect air supply and then exhaust system air pressure before performing maintenance or repair on the equipment, unless instructed otherwise.

2. DESCRIPTION

Major components of the applicator are identified in Figures 1 through 7.

The terminal strip enters the applicator from the left, passing under the Terminal Drag 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. 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, allowing the internal spring pressure within the cylinder to retract the Feed Finger.

As the ram begins the upward stroke, air pressure to the air cylinder starts to move the Feed Finger. By the time the ram is completely lifted, the Feed Finger has moved forward, placing the terminal and carrier strip over the Anvil and under the Crimpers. The motion of the Ram controls several cams, which actuate two valves which power the Terminal Feed, Insertion, and Terminal Back-up.

A simplified description of shearing, crimping, and insertion follows:

As the Ram begins its downward stroke, the Insert Cam actuates the latch mechanism, and the latch drops, holding the Terminal Insertion Mechanism. Approximately half way through the downward stroke, the Terminal Back-up moves up, and the Insertion Cylinder is activated. At the bottom of Ram travel, the terminal is crimped to the wire by the Crimper. When the termination is completed, the Ram begins its upward stroke, allowing the Crimper to release the terminated wire. During the upward stroke of the Ram, the latch releases the Insertion Mechanism and the insulation housing is inserted over the crimped terminal to complete the cycle.

The Applicator Ram contains the Insulation Crimper, Wire Crimper, Spacers, and Cams. The Cams (one on each side of the Ram) actuate the valves and the Insertion Latch Assembly (see Figures 2 and 3).

The top of the Ram contains an HD-I Fine Adjust Assembly which consists of a Ram Post, a Wire Crimp Height Adjustment Disc, and an Insulation Crimp Height Adjustment Disc (see Figure 3). In addition, the Fine Adjust Assembly uses a Spacer and solid Shim.

The applicator mounting surface is the Base Plate which supports the Lower Tooling and the Strip Guide Plate. See Figures 1 and 4, respectively.

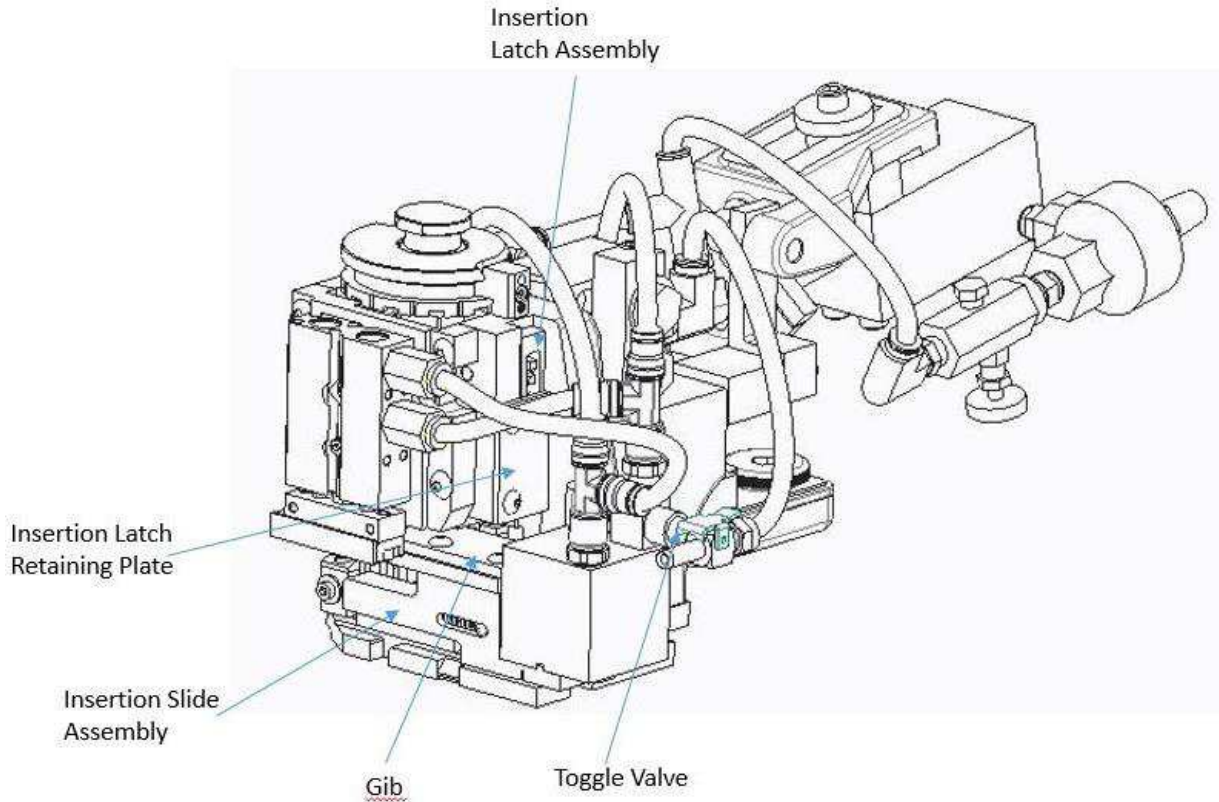


Figure 2

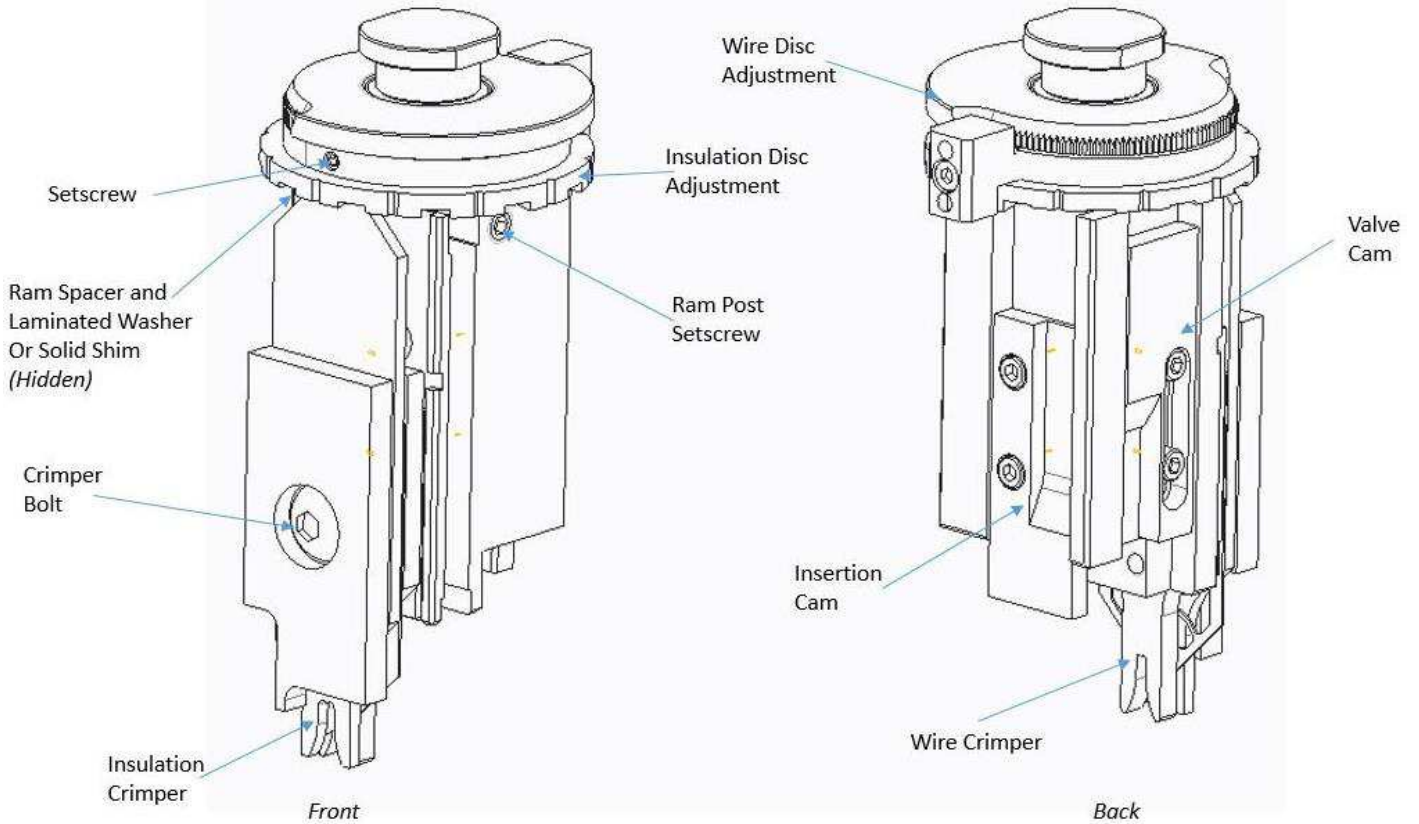


Figure 3

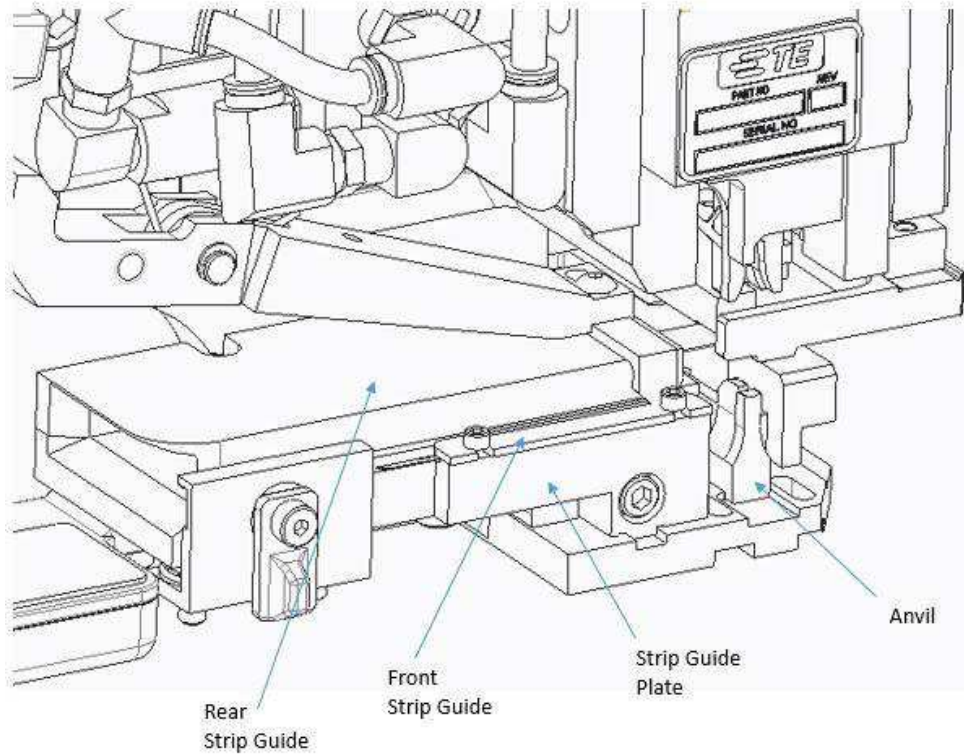


Figure 4

The Lower Tooling is comprised of the Floating Shear, the Insertion Slide, the Anvil, the Front Shear Holder, Shear Insert, and the Wire Clamp (see Figure 5).

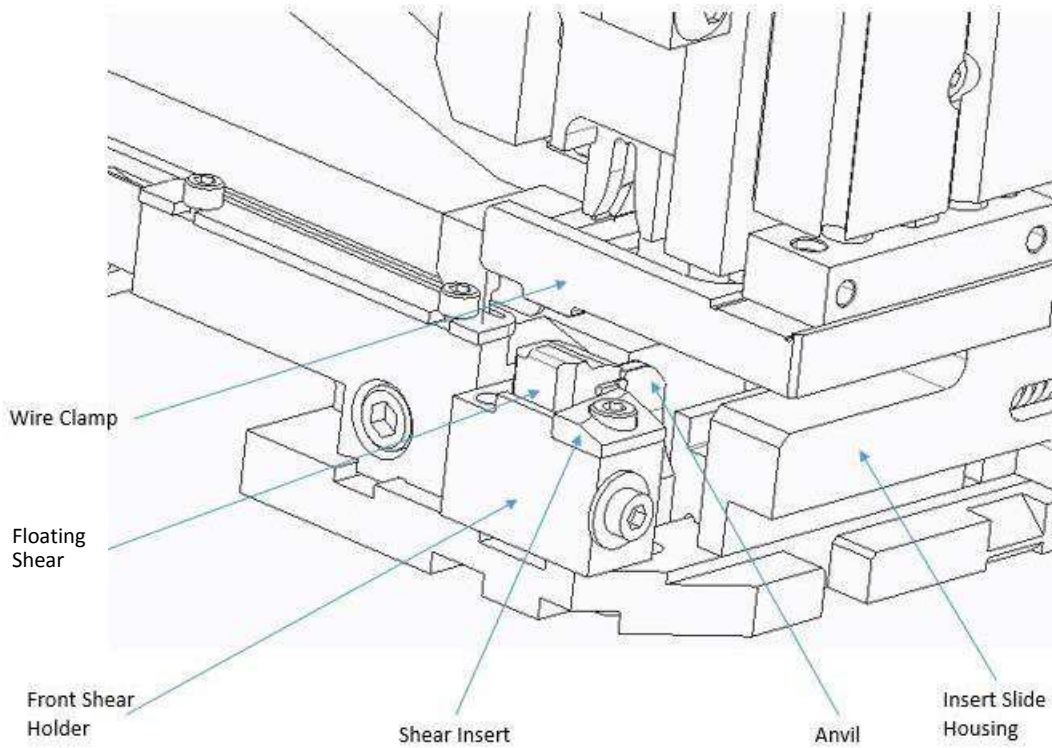


Figure 5

3. TERMINAL STRIP LOADING AND UNLOADING



DANGER

BEFORE attempting to load or unload the Applicator with terminal strip, MAKE SURE the electrical power is "OFF". The air supply may remain "ON" to extend the Feed Cylinder.

3.1. Loading

1. Mount Terminal Reel on Reel Support.



NOTE

Terminal strip must unreel and enter the left end of Applicator with carrier strip down and toward the back.

2. Be sure the Machine Ram is fully raised. If necessary, hand-cycle unit as described in applicable customer manual.
3. Raise Terminal Drag and feed terminal strip into the Applicator between Strip Guides (see Figure 6).

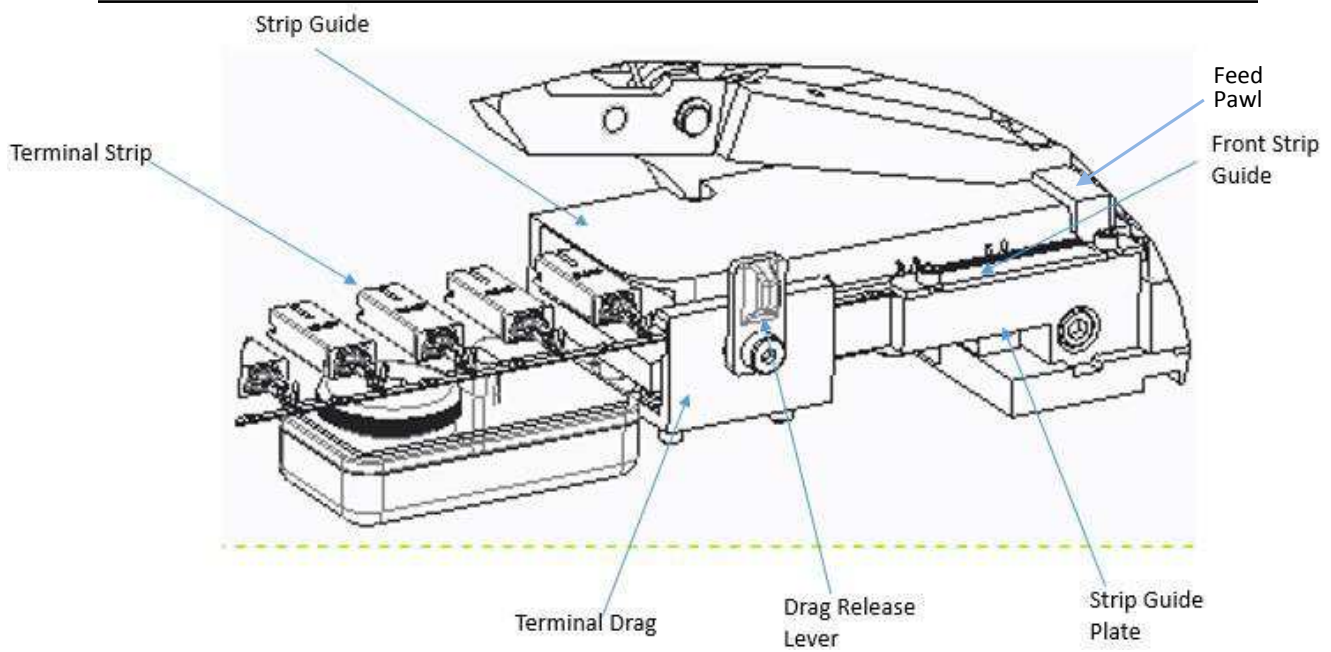


Figure 6

4. Lift and hold Feed Pawl and continue to feed terminal strip until the lead terminal is centered over the Anvil. Release Feed Finger to engage behind feed point in terminal strip. Release Terminal Drag.
5. With air pressure being applied to the Feed Air Cylinder, pull back on the terminal strip to be sure feed point is against the Feed Finger.
6. Check to make sure the lead terminal is centered over the Anvil. If the terminal is not centered over the Anvil, make any necessary adjustments as described in Section 4, ADJUSTMENTS.
7. Adjust the Applicator for proper crimp heights as specified in the Applicator parts list. Follow the procedure in Paragraph 4.1. to adjust the crimp height.

3.2. Unloading

1. Make sure the Machine Ram is fully raised. If necessary, hand-cycle as described in the appropriate customer manual.
2. Raise the Terminal Drag by lifting the Drag Lever upward.
3. Lift and hold the Feed Pawl while pulling the terminal strip back through the Strip Guides.
4. After the terminal strip is out of the Applicator, rewind the terminal strip onto the reel.

4. ADJUSTMENTS



DANGER

BEFORE attempting any adjustments, ENSURE electrical power and air supply are "OFF", unless otherwise specified.

4.1. Crimp Height Adjustment

1. Refer to Applicator Log for the settings of the Wire Disc. The Wire Disc has lettered settings (A through F) used to set the crimp heights for the different terminals and wire sizes being used.
2. To check for proper height, refer to Paragraph 4.7, Wire Crimp Height Adjustment Disc.

4.2. Terminal Strip Feed Adjustment

1. Apply air pressure to the Feed Cylinder to position the lead terminal over the Anvil.
2. Pull back on terminal strip to be sure feed point is against Feed Finger (see Figure 6).
3. If the lead terminal is not centered over the Anvil, determine the direction in which the terminal must move to be centered over the Anvil.
4. Loosen the Adjusting Locking Screw on top of Feed Adjusting Bracket.
5. Turn the Feed Adjusting Screw until the lead terminal is centered over the Anvil. To retract the terminal, pull back on the strip while making the adjustment.
6. After centering terminal, secure the Feed Adjusting Screw by tightening the Adjusting Locking Screw.

4.3. Strip Guide Plate and Feed Pawl Adjustments

This procedure moves the plate on which the Strip Guides are mounted. Since the terminal strip is fed into the Applicator between the Strip Guides, it is moved front and back over the Anvil as the Strip Guides are moved.



NOTE

Getting the adjustment of the Feed Pawl to match any change in the position of the Front Strip Guide is also described here (refer to Figure 6).

1. From the bottom side of the Strip Guide Plate, loosen the screw that holds the Strip Guide Adjustment Block to the Strip Guide Plate.
2. With the lead terminal centered over the Anvil, lift and hold (or block) the Feed Pawl up to clear the Front Strip Guide.
3. Turn the Strip Guide Plate Adjustment Screw *clockwise* to move the Strip Guide Plate toward the rear or *counterclockwise* to move it toward the front.



NOTE

The Insulation barrel of the lead terminal should be as close as possible to the Floating Shear.

Tighten the screw to hold the Strip Guide Plate in position.

4. Hand-cycle the machine, checking for proper terminal feed and Strip Guide Plate alignment.
5. If necessary, re-position the Feed Pawl.

4.4. Strip Guide Adjustment

This adjustment is only needed when the Strip Guide is not parallel to the Strip Guide Plate, the Strip Guides are not parallel to each other, or when there is a variation in strip width.



NOTE

The Strip Guides are correctly positioned on the Strip Guide Plate when the applicator is built and normally does not need adjustment.



NOTE

DO NOT use this procedure for front-to-rear positioning of the strip – refer to Paragraph 4.3., Strip Guide Plate and Feed Pawl Adjustments.

1. Lift and hold (or block) the Feed Pawl up to clear the Front Strip Guide, then loosen the screws holding the Strip Guides to the Strip Guide Plate.

2. Move the Strip Guide in the desired direction, making sure it is parallel to the Strip Guide Plate, and then re-tighten the holding screws.
3. Align the Front Strip Guide with the holes in the terminal carrier strip, but make sure that the Strip Guides are parallel, and that the terminal strip can move freely with a minimum of side clearance. Re-tighten the screws.



NOTE
Adjust the Feed Pawl with the Front Strip Guide, if necessary.

4. Hand-cycle the machine, checking for proper terminal feed and Strip Guide alignments.

4.5. Shear(s) and Shear Holder(s) Adjustment

With the lead terminal centered over the Anvil, check if the Floating Shear cuts the terminal from the carrier strip correctly. If necessary, make the following adjustments:



NOTE
Remove the Applicator (and Ram) before proceeding.

A. Front Shear Adjustment

1. From the bottom of the Base Plate, loosen the two screws that secure the Shear Holder to the Base Plate.
2. Move the Shear Holder and Floating Shear in the desired direction, and re-tighten the screws.



NOTE
There should be minimal clearance between the Floating Shear and the Anvil; the Shear must move up and down freely, and must be square to the back of the Anvil.

3. With the Applicator Ram replaced and the lead terminal centered over the Anvil, check that the Floating Shear correctly cuts the terminal from the carrier strip. If the shearing action is not correct, repeat Steps 1 and 2, or check for worn or damaged tooling.

4.6. Carrier Strip Cut or No-Cut Setup

The Shear Holder can be set for the carrier strip to be cut or not cut. For the no-cut orientation, remove the Carrier Strip Cutting Blade (see Figure 7). If it is set to cut, check that the cutting blade is present and in the proper orientation on the Shear Holder.

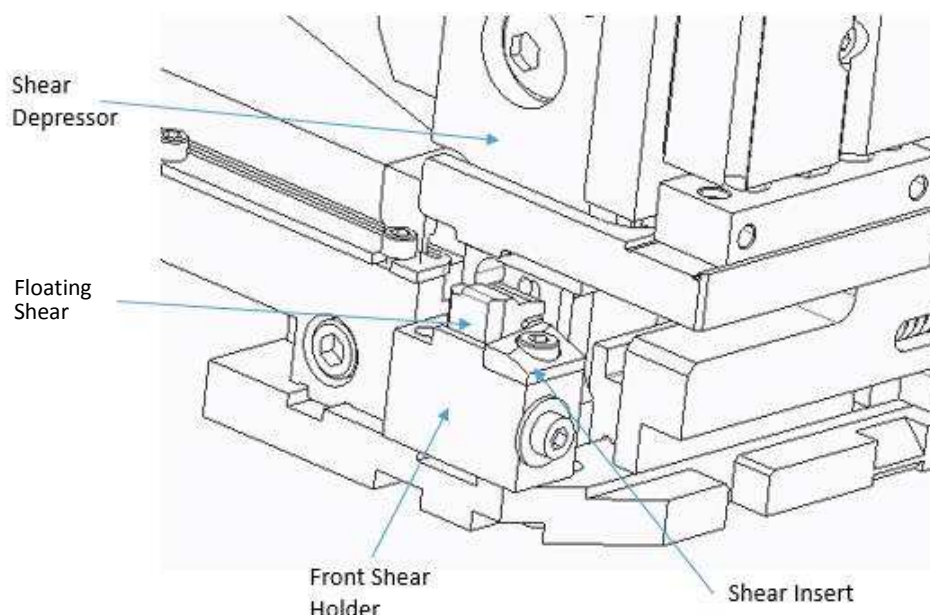


Figure 7

4.7. Wire Crimp Height Adjustment Disc

The Wire Crimp Height Adjustment Disc in this assembly is an adjustable plate with fifty-four increment notches. Each increment represents a change in crimp height of 0.015 mm [.0006 in.]. Turning the Crimp Height Adjustment Disc clockwise decreases the crimp height; turning the disc counterclockwise increases the crimp height.

**NOTE**

Every tenth increment is denoted by a letter ("A" to "F") with the increments between each letter represented numerically ("1" to "9"). Wire sizes and their relevant crimp heights will be listed on the Applicator Log with the corresponding reference setting, such as "A6," "C4," and so forth.

4.8. Insulation Crimp Height Adjustment Disc

The Insulation Crimp Height Adjustment Disc in this assembly is a plate with twelve variable pad heights. Each pad represents a change in insulation crimp height of 0.15 mm [.006 in.]. Turning the lower disc clockwise decreases the insulation crimp height; turning the disc counterclockwise increases the insulation crimp height.

5. REPAIR AND REPLACEMENT

The following procedures cover Applicator parts which most often require repair or replacement because of wear. They are recommended spares, of which it is the responsibility of the customer to stock and replace (refer to the Applicator Parts List packaged with the Applicator).

Exercising great caution, remove the Applicator from the unit. AFTER repair or replacement, BE SURE all adjustments are correct, as described in Section 4 of this document, before attempting operation.

5.1. Wire Crimper Replacement

1. Remove the Ram Assembly by lifting the Ram up and out.
2. Remove the Crimper Bolt holding the Insulation Crimper, Crimper Spacers, and Wire Crimper to the Ram.

**NOTE**

Make note of the orientation of parts for replacement purposes.

3. Install new Wire Crimper and/or other parts removed, by reversing the removal procedure. VERIFY that all part numbers of new parts agree with the part numbers on the parts lists. DO NOT tighten the crimper bolt at this time.
4. To align the Wire Crimper with the Anvil, place a piece of heavy paper over the Anvil, install the Ram into the Applicator Housing, and push the Ram DOWN over the Anvil.

**NOTE**

This forces the Crimper to align with the Anvil.

When the Ram is bottomed, tighten the Crimper Bolt to secure the Wire Crimper, Spacers, and Insulation Crimper to the Ram.

5.2. Anvil Replacement

1. From the bottom of the Applicator Base Plate, remove the screw securing the Anvil to the Base Plate.
2. Remove the Anvil from the Base Plate.
3. Install the new Anvil using the reverse procedure.

**NOTE**

Verify the part number of the Anvil agrees with the part number on the parts lists.

4. Check the alignment of the Wire Crimper with the Anvil as described in Paragraph 5.1, and make any necessary adjustments

5.3. Adjustable Crimp Height Repair

Under the Disc are solid shims. The Fine Adjust Head Assembly PN 879103-[] is factory installed and should require no further adjustment.

If the assembly must be removed from the ram:

1. Be sure to loosen the ram post locking set screw. The ram post can then be removed.
2. Ensure the correct shims (as per the appropriate applicator log) are re-assembled.
3. Upon reassembly, ensure:
 - a. The two ball detents on the fine adjust head assembly are aligned with the center-line of the insulation crimper and oriented relative to the front of the tooling (as shown in Figure 8).

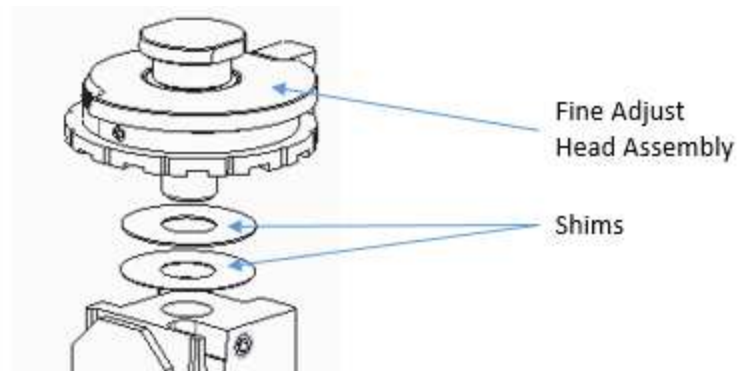


Figure 8

- b. The ram post and ram post locking set screw are tight before re-installing the applicator into the appropriate terminating unit.
4. Install Ram Assembly in Applicator Housing, and install Applicator in the unit.
5. Make some test crimps under power, then measure crimp heights of terminations.
6. If crimp heights are within specified tolerances, Applicator may be placed in service. If not, repeat the procedure.

6. CLEANING AND LUBRICATION

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



DANGER

Disconnect electrical power and air supply when performing maintenance, lubrication, inspection, and repairs.

6.1. Cleaning

1. Remove the Applicator from the unit.
2. Remove the Ram Assembly from the Applicator.
3. Using a clean cloth or air hose, remove all dirt and foreign matter. If desired, the entire Ram may be immersed in a suitable commercial solvent (one that will not affect paint or plastic) to flush out dirt, chips, etc., then dried with an air hose or clean cloth.



DANGER

Compressed air used for cleaning must be reduced to less than 207 kPa [30 psi], and effective chip guarding and personal protective equipment (including eye protection) must be used.

4. Lubricate the Applicator as described in Paragraph 6.2, before installing the Ram Assembly.

6.2. Lubrication

The Applicator is to be lubricated at the following points using SAE 20 motor oil (non-detergent) or light grease.



CAUTION

DO NOT use an excessive amount of lubricant. Any excess MUST be removed. Avoid lubricant around the Wire Disc.

1. Apply a few drops of oil to all pivot points.
2. Apply a thin film of grease to the four corners of the Ram or the Applicator Housing for the Ram Assembly, and to the Transfer Slide Tracks.
3. Apply a small amount of grease in the Cam Tracks on the Applicator.
4. Install the Ram Assembly in the Applicator Housing, then remove any excess grease or oil.

7. APPLICATOR STORAGE

1. Rather than remove the terminal strip from the Applicator, cut the terminal strip several terminals away from the point of entry into the Strip Guides.



NOTE

This will leave a sample of the type terminals used in the Applicator when it is returned to service.

2. Remove the Applicator from the unit.
3. Clean and lubricate the Applicator as described in Section 6.
4. Bottom the Ram Assembly to retain lead terminal between Crimpers and Anvil. Store in a clean, dry area.

8. REVISION SUMMARY

Initial release