

Figure 1

1. INTRODUCTION

These instructions cover applicators that crimp fully insulated Ultra-Fast FASTON* Flag terminals on 22 through 10 AWG wire that has been pre-stripped.

Terminals are retained in a metal carrier strip and supplied in a 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.

This instruction sheet, the parts list and exploded view drawing packaged with the applicator, and the appropriate customer manual (409-5128 for the Model "K" AMP-O-LECTRIC* Machine; 409-5842 for the Model "G" AMP-O-LECTRIC Machine) provide all the information necessary to operate and maintain the applicator and machine.

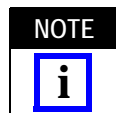
When reading this document, pay particular attention to **DANGER**, **CAUTION**, **NOTE** statements.



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



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



Highlights special or important information.

Reasons for reissue of this instruction sheet are provided in Section 10, REVISION SUMMARY.

2. DESCRIPTION

Major components of the applicator are identified in Figures 1 through 4. The terminal strip enters the applicator from the right, 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 machine. 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 feed cylinder is stopped to allow it to retract by internal spring pressure and to 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 metal carrier strip is sheared from the terminal.

On the return (upward) stroke, the terminated wire is released by the tooling for removal. This is followed by the feed 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 (Figure 3) supports the upper tooling which is the wire crimper, insulation stabilizer, 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 shear depressor is attached to the back of the ram.

The top of the ram contains the ram post, that connects to the machine post adaptor. 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 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 matching tolerances within the applicator to produce correct crimp heights in machines with a preset 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 and floating shear (Figure 4). The strip guide plate supports the front and rear strip guides and the stock drag. The base plate is secured to the machine base mount.

The air feed mechanism is mounted on the right side of the housing. The mechanism consists of the feed air cylinder, the feed adjusting bracket, the feed finger assembly, and related hardware (Figures 1 and 2). The applicator has a quick exhaust valve with a flow control mounted on the extension port of a cylinder. This is connected by a tube to the air feed valve assembly which is mounted to the machine (Refer to 409-5128 or 409-5842). Refer to the appropriate customer machine manual for further description.

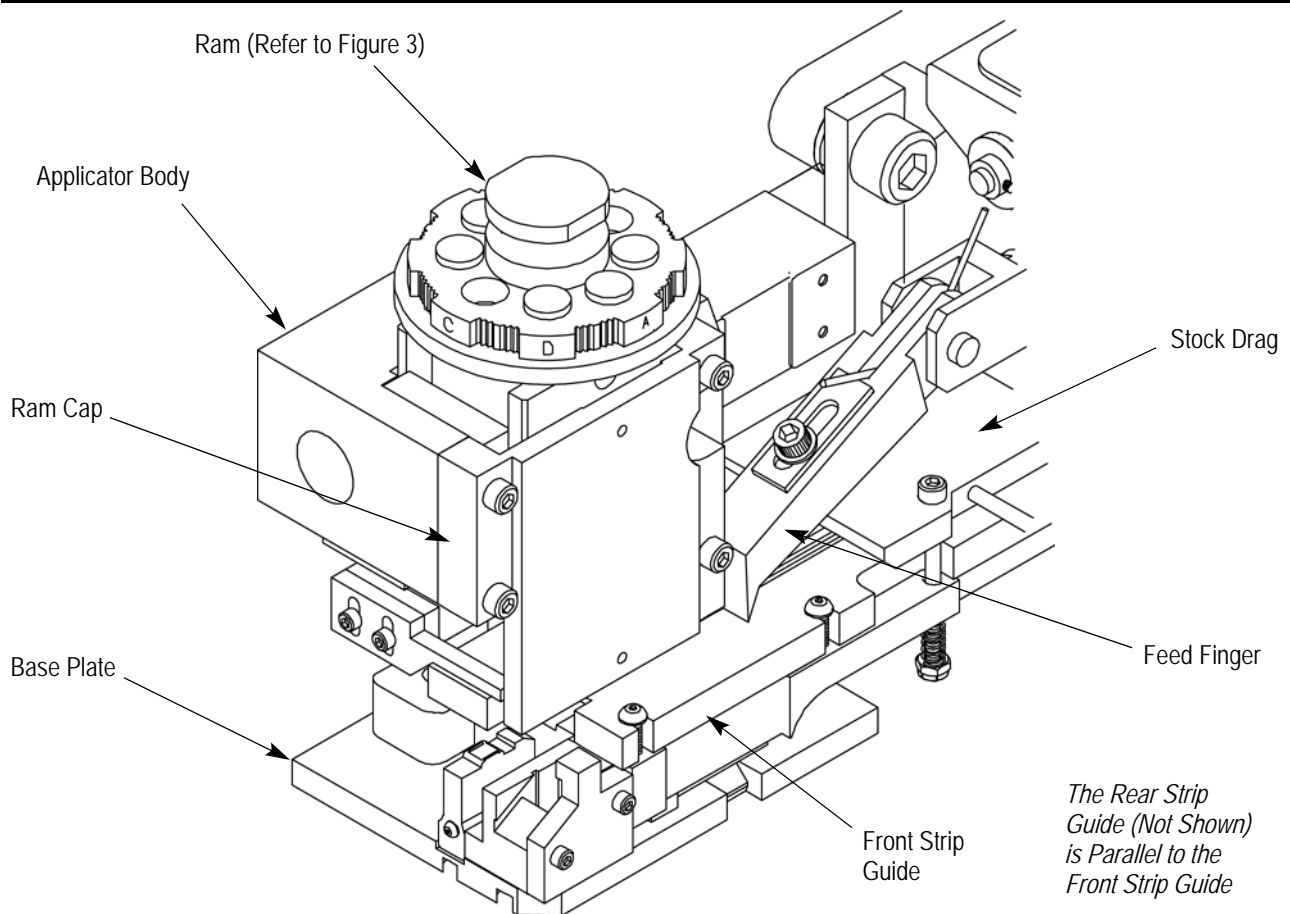


Figure 2

3. APPLICATOR INSTALLATION AND REMOVAL

3.1. Applicator Installation



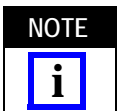
To avoid personal injury, be sure to turn "off" and disconnect electrical power and air supply.

1. Place the applicator on machine base mount.



The machine must be equipped with a base mount for miniature-quick change type applicators. The Model "K" terminating machine must have Conversion Kit 690675-2 installed, as described in Applicator instructions 408-8022.

2. Place the applicator ram post in the machine ram post adaptor while sliding the applicator back into position. It may be necessary to loosen the stop on the mount during placement, and to compress the springs between the wire disc and the spring washer in order for the ram post to be able to enter the ram post adaptor.
3. Secure the applicator with the hold down bracket and two screws. Tighten the stop on the base mount, if it is loosened.
4. Connect tubing to on-off valve or install and adjust the air feed valve assembly as described in Customer Manual 409-5128 or 409-5842.
5. Load the applicator with terminal strip as described in Section 4, TERMINAL STRIP LOADING AND UNLOADING.



Connect electrical power and air supply. BE SURE THEY ARE TURNED "OFF."

6. With the machine in the rest position and the electrical power "off," turn the air supply "on." The feed air cylinder must fully extend and position the lead terminal over the anvil.
7. Make any adjustments necessary, as described in Section 5.
8. Install the guard enclosing the applicator and the air feed valve assembly.

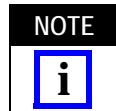
3.2. Applicator Removal



To avoid personal injury, be sure to turn "off" and disconnect electrical power and air supply.

1. Unload terminal strip as described in Section 4, TERMINAL STRIP LOADING AND UNLOADING.
2. Remove the guard enclosing the applicator and disconnect tubing from the on-off valve.
3. Remove two screws and the hold down bracket securing the applicator to the machine base mount.

4. Slide the applicator toward the front of the machine until the ram post is clear of the ram post adaptor. Then lift the applicator out.



If the applicator is NOT to be reinstalled immediately, prepare it for storage as described in Section 9, APPLICATOR STORAGE.

4. TERMINAL STRIP LOADING AND UNLOADING



To avoid personal injury, be sure the electrical power is turned "off" and disconnected before loading terminals. The air supply may remain "on" in order to extend the feed air cylinder.

4.1. Loading

1. Mount the terminal reel on the reel support. The terminal strip must unreel and enter the right end of the applicator with the carrier strip down and toward the front.
2. Be sure the machine ram is fully raised. If necessary, hand-cycle the machine as described in the customer manual.
3. Raise the stock drag, then feed the terminal strip into the applicator between the strip guides.
4. Raise and hold the feed finger and continue to feed the terminal strip until the lead terminals centered over the anvil. Release the feed finger to engage it behind the feed point in the terminal strip. Release the stock drag.
5. With air pressure applied to the feed air cylinder, pull back on the terminal strip to make sure the feed point is against the feed finger.
6. Check to be sure the lead terminal is centered over the anvil. If it isn't centered over the anvil, make any necessary adjustments listed in Section 5.

4.2. Unloading



To avoid personal injury, be sure to turn "off" and disconnect electrical power and air supply.

1. Make sure the machine ram is fully raised. If necessary, hand-cycle the machine.
2. Raise and hold the feed finger while pulling the terminal strip back through the strip guides until it is clear. Raise the stock drag, if necessary.
3. Rewind terminal strip onto the reel.

5. ADJUSTMENTS



To avoid personal injury, be sure electrical power and air supply are turned "off" and disconnected, unless otherwise specified.

5.1. Crimp Height Adjustment (Figure 3)

1. Refer to the applicator parts list (applicator log) for the wire disc setting (A through D) for each terminal number and wire size being used.
2. Remove the applicator guard to gain access.
3. Turn the wire disc (A through D) with the lobes on the machine ram post adapter, as specified. It may be necessary to apply downward pressure to the disc when turning, to compress the spring between it and the spring disc.
4. Replace the applicator guard.
5. Turn “on” and connect air supply and electrical power.
6. Measure the crimp height, as described in Section 6, MEASURING THE CRIMP HEIGHT

5.2. Terminal Strip Feed Adjustment (Figure 4)

The advancement of the feed finger controls the location of the lead terminal over the anvil for crimping.

The CORRECT location is for the “window” in the terminal to be centered on the raised portion of the anvil. After determining the direction of adjustment required, adjust as follows:

1. Remove the applicator guard to gain access to the applicator.
2. Loosen the adjustment locking screw on top of the feed adjusting bracket (Figure 1).
3. With air pressure applied to the feed air cylinder, turn the feed adjusting screw as required to center the lead terminal over the anvil. If retracting the terminal, pull back on the terminal strip while making the adjustment.
4. After completing the adjustment, secure in position by tightening the adjustment locking screw.
5. Before replacing the applicator guard, check the adjustment of the floating shear and adjust it if necessary, according to Paragraph 5.3.

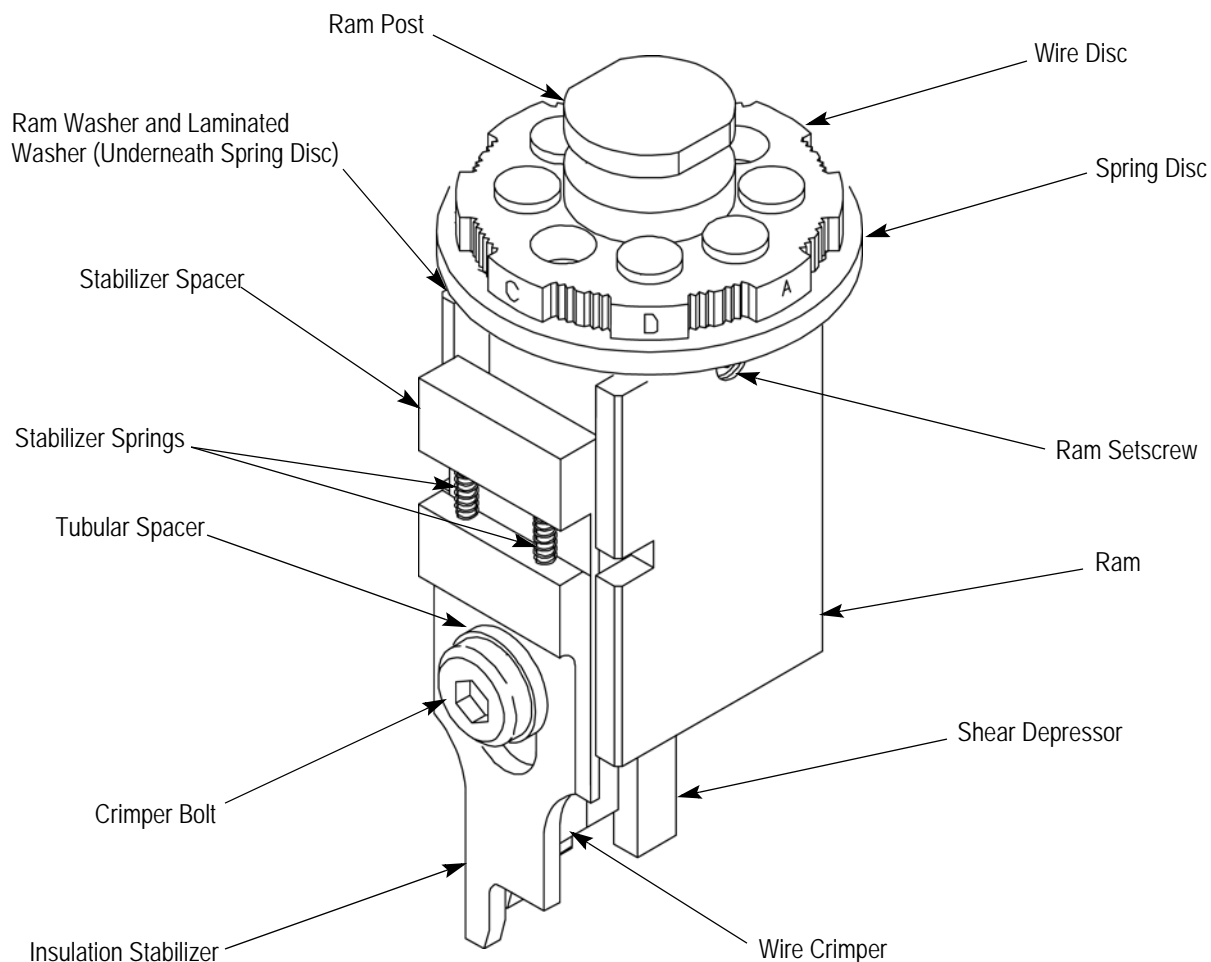


Figure 3

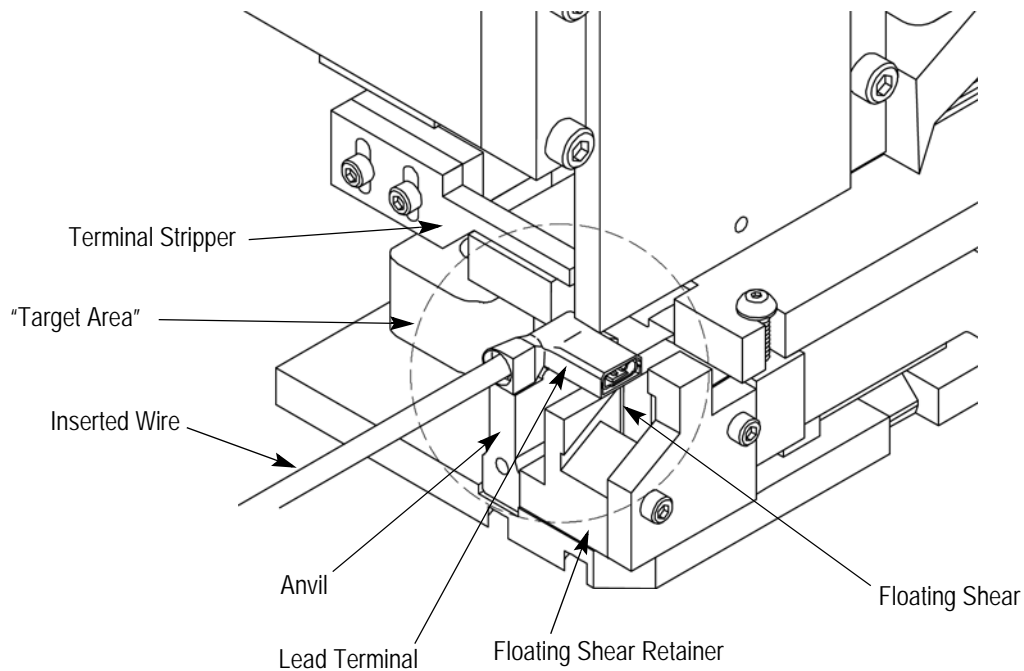


Figure 4

5.3. Floating Shear Adjustment (Figure 4)

The floating shear cutting surface must be centered on the terminal strip tab for proper shearing, and the floating shear retainer must be back flush against the anvil. If necessary, adjust as follows:

NOTE *Before making the floating shear adjustment, be sure the floating strip feed adjustment is correct, as described in Paragraph 5.2.*

1. Disconnect electrical power and air supply.
2. Remove the applicator from the machine as described in Section 3.
3. Slightly loosen the two screws from underneath the base plate securing the floating shear retainer.
4. Using a piece of terminal strip as a gage, center a terminal over the anvil as required for crimping, then move the retainer to center the floating shear on the terminal strip tab while keeping the retainer against and flush with the anvil.
5. After adjustment, tighten the two screws to secure the terminal strip.
6. Re-install the applicator into the machine and install the applicator guard before operating.

5.4. Strip Guide Adjustment (Figure 2)

This adjustment should never be necessary unless there is variation in the width of the terminal strip, or the guides are not parallel. Adjust as follows:

1. Remove the applicator guard to gain access to the applicator.

2. Wedge the feed finger up to clear the strip guides.

3. Determine if front or rear strip guide should be adjusted. BOTH strip guides must be parallel with the front edge of the strip plate.

4. Loosen the screws securing the strip guide(s) to the strip plate.

5. Using a piece of terminal strip as a gage, adjust strip guide as required until the strip guides are parallel. Be sure to obtain a minimum of clearance between the guides without binding.

6. After adjustment, tighten the screws loosened in Step 4.

6. MEASURING CRIMP HEIGHT

The following procedure must be used to measure the crimp height produced by this type of applicator.

DANGER *To avoid personal injury, BE SURE electrical power and air supply are disconnected.*

1. Remove the terminal strip from the applicator as described in Section 4.

2. Insert a piece of 50/50 solder into the "target area" for crimping.

NOTE *Be sure to use 3/16 inch diameter solder for 22 through 14 AWG wire; use 1/4 inch diameter solder for 12 through 10 AWG wire.*

3. Hand-cycle the machine (according to the machine instructions) through one cycle of operation.
4. Remove the crimped solder from the applicator.
5. Refer to the applicator parts list and exploded view drawing for the appropriate crimp height per wire disc setting.
6. Using calipers or a micrometer with knife blades, measure the diameter of the crimped solder at the CENTER of the crimp. The measurement should conform to the specified crimp height. Record the crimp height.

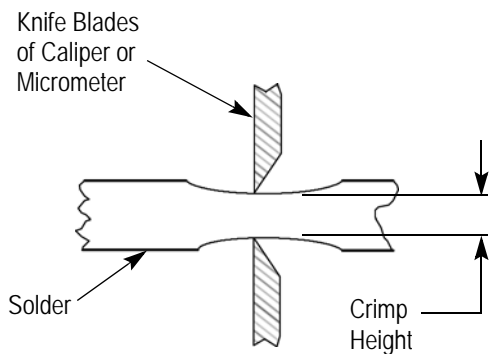


Figure 5

7. If the crimp height is incorrect, remove the applicator as described in Paragraph 3.2 and install an applicator that is known to produce terminations of correct crimp height.
8. If the 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 recommended spares which are the customer's responsibility to stock and replace. Refer to the applicator parts list and the exploded view drawing packaged with the applicator.



Remove the applicator from the machine, as described in Section 3 BEFORE making repairs or replacing parts. After repair or replacement, BE SURE all adjustments are correct and as described in Section 5 before attempting production operation.

Order replacement parts through your TE Connectivity Representative, or call 1-800-526-5142, or send a facsimile of your purchase order to 1-717-986-7605, or write to:

CUSTOMER SERVICE (038-035)
 TYCO ELECTRONICS CORPORATION
 PO BOX 3608
 HARRISBURG PA 17105-3608

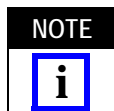
For tool repair service, please contact a TE Representative at 1-800-526-5136.

7.1. Wire Crimper Replacement (Figure 3)

1. Remove the ram assembly from the applicator by pulling upward.
2. Remove the crimper bolt holding the tubular spacer, insulation stabilizer, stabilizer spacer, and wire crimper to the ram. Note the orientation of parts for replacement purposes.
3. Install new wire crimper, and other parts removed, using reversed removal procedure. Be sure the part number of the new crimper agrees with the part number on the parts list. Do NOT tighten the crimper bolt at this time.
4. To align wire crimper with anvil, form a piece of heavy paper over the anvil.
5. Install the ram assembly in the housing and push the ram down, forcing the crimper to align with the anvil.
6. Tighten the crimp bolt when the ram has completely bottomed.

7.2. Anvil Replacement (Figure 2)

1. From the bottom of the applicator base plate, remove screw securing the anvil to the plate.
2. Remove the anvil from the groove in the top of the plate. Note the orientation of the anvil for replacement purposes.
3. Install new anvil using reversed removal procedure.



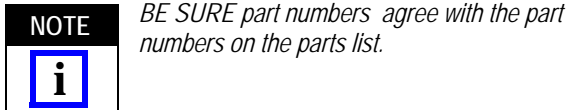
BE SURE part number of new anvil agrees with the part number on the parts list.

4. Check the alignment of the crimper as described in Paragraph 7.1. Adjust if necessary.

7.3. Floating Shear and Shear Holder Replacement (Figure 4)

1. From the bottom of the applicator base plate, remove the two screws securing the shear retainer to the shear holder.
2. Remove two screws securing the shear retainer to the shear holder.
3. Remove the spring from the bottom of the floating shear.

4. Install new floating shear and/or new shear holder using the reversed removal procedure

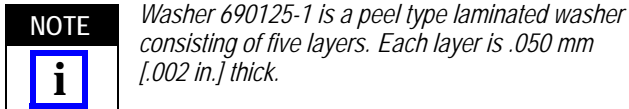


5. Adjust the floating shear as described in Section 5.

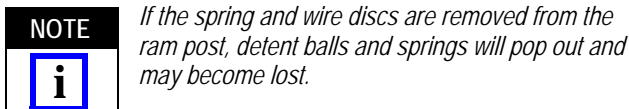
7.4. Adjustable Crimp Height Repair (Figure 3)

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

1. Subtract the specified nominal crimp height from the average crimp height, as recorded in Section 6. The dimension will be the thickness of washer(s) 690125-1 to be added under the spring disc.



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



5. Using a micrometer, measure the thickness of the laminated washer removed from the ram post. 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 the ram until it is snug, then check that the numbers on the wire disc align with the center of the ram sides. If they don't align, turn the ram back slightly until the numbers on the wire disc DO align with the center of the ram side.
7. Tighten the setscrew to secure the ram post.
8. Remove the ram assembly from the vise, then turn the wire disc to other positions to check numbers for alignment with the center of the ram sides.
9. Install the ram assembly in the applicator housing.

10. Install the applicator in the machine and re-install the applicator guard.

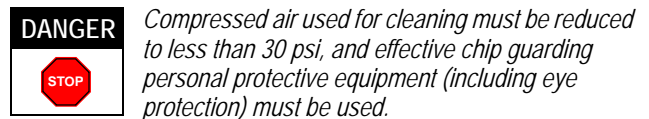
11. Connect power and make several test terminations. Measure the crimp heights of the terminations as described in Section 6. If the crimp heights are within specified tolerances, the applicator may be placed in service. If the crimp heights are NOT within specified tolerances, this procedure should be repeated.

8. CLEANING AND LUBRICATION

For optimum performance and minimum downtime, the applicator should be cleaned and lubricated after each eight hour shift and each time it is removed from the machine to be placed in storage.

8.1. Cleaning

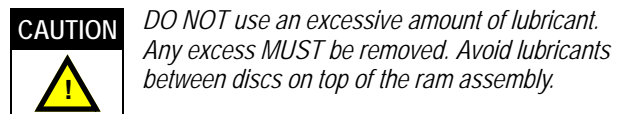
1. Remove the applicator from the machine as described in Section 3.
2. Pull the ram assembly upward to remove it from the applicator housing.



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

8.2. Lubrication

Lubricate the applicator at the following points using SAE 20 motor oil (non-detergent) or a lightweight grease.



1. Apply a few drops of oil to the feed finger pivot point.
2. Pull upward on the ram assembly to remove the ram assembly from the applicator housing.
3. Apply a thin film of grease to the four corners of the ram assembly or applicator housing for the ram assembly.
4. Install the ram assembly in the applicator housing.
5. Remove excess grease and oil.

9. APPLICATOR STORAGE

1. Cut the terminal strip several terminals away from the point of entry into the applicator strip guides. This will leave a sample of the type of terminal being used with the applicator.



Terminal strips should NOT be removed from the applicator.

2. Remove the applicator from the machine as described in Section 3.
3. Clean and lubricate the applicator as described in Section 8.
4. Fully bottom the ram assembly in order to retain the lead terminals between the crimper and the anvil.

10. REVISION SUMMARY

Since the previous version of this document, the following changes were made:

- Corrected typographical errors
- Updated document to corporate requirements.