ORIGINAL INSTRUCTIONS

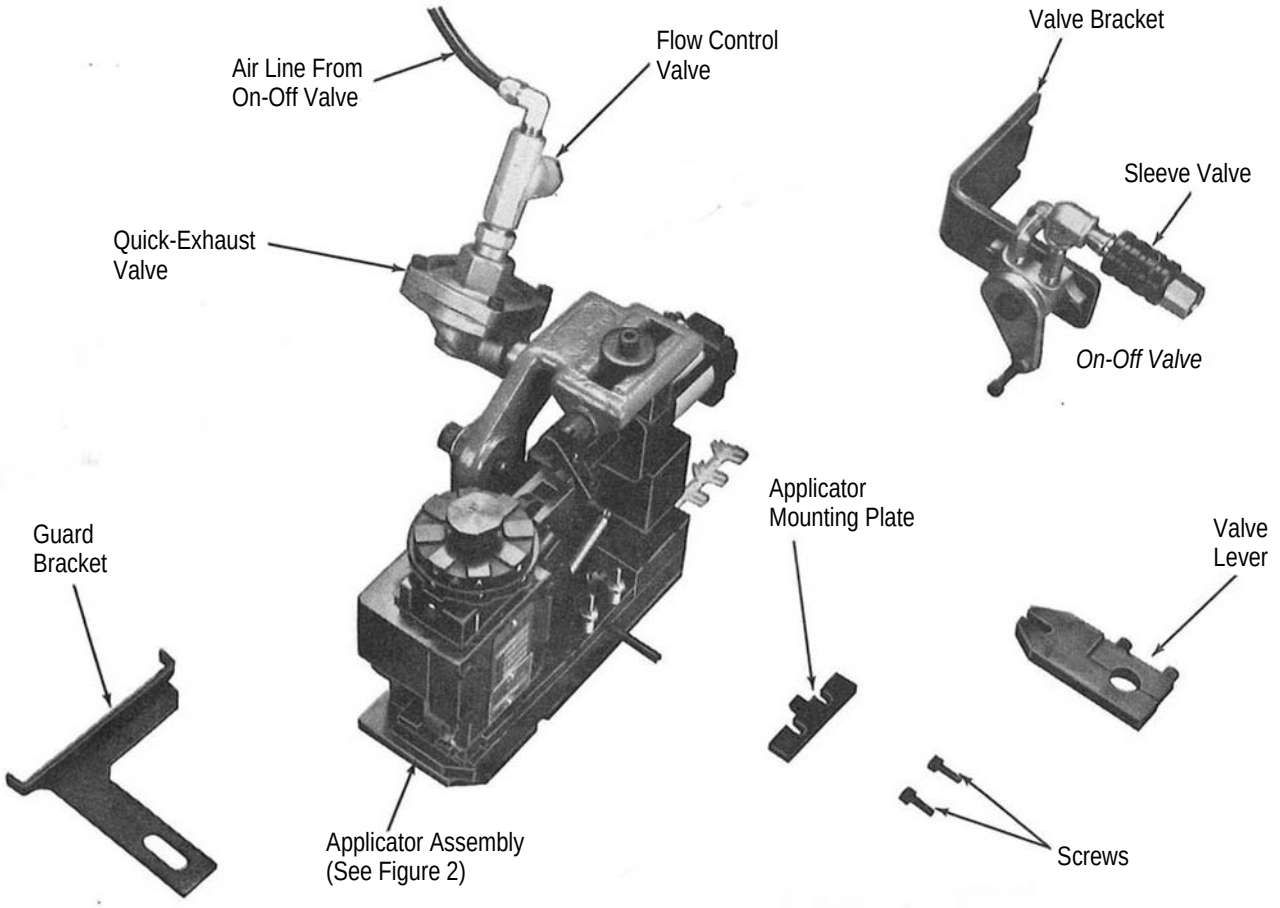

Figure 1

1. INTRODUCTION

These Miniature Quick-Change Applicators, when installed in an AMP-O-LECTRIC machine, (565435-5) apply Tab-Lok terminals to pre-stripped wires. Each applicator accepts the strip form of certain specific terminals. These terminals are identified on the applicator parts list (applicator log) for each applicator. The terminal number on the applicator's data plate is the terminal that was specified when the applicator was ordered.

Although each applicator accepts only certain terminals, a valuable measure of application flexibility is provided by a wire crimp that can be easily adjusted for as many as four different wire sizes, and an insulation crimp that can be adjusted to accept eight insulation diameters.

This instruction sheet, along with the parts list, and exploded view drawing packed with the applicator, and the Customer Manual (409-5128), provides all the information needed to operate the applicator and machine.

2. APPLICATOR DESCRIPTION AND OPERATION

Major components of the applicator are identified in Figures 1 and 2. The machine is ready for operation when the applicator has been correctly installed as described in Section 3.

When the machine is in the standby condition, the ram assembly if FULLY raised and the lead terminal is in the target area over the anvil. In this state, air pressure is being applied to the retraction side of the feed cylinder through the sleeve valve, on-off valve, flow control valve, and quick-exhaust valve. This holds the feed finger in the advanced position. When the foot switch is pressed, the valve lever on the machine feed arm drive shaft actuates the on-off valve (see Figures 1 and 2). The air supply to the feed cylinder is stopped, and the feed finger is pulled back by the feed return spring (also referred to as the feed finger retract spring). The feed finger picks up the next terminal on the strip. The air in the feed cylinder is exhausted through the quick-exhaust valve.

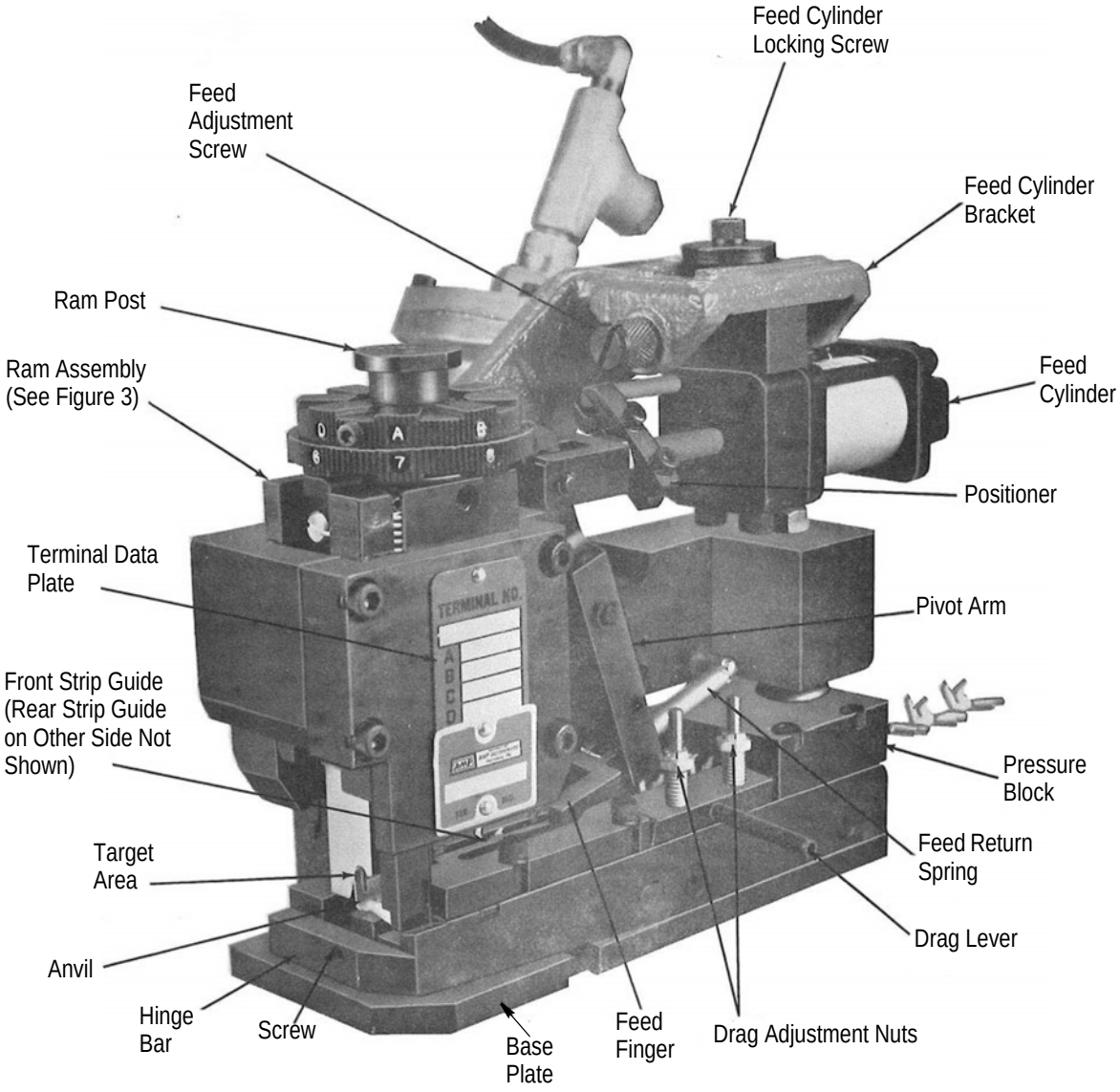

Figure 2

A pre-stripped wire is inserted in the open wire barrel of the terminal and the foot switch is depressed to start the machine cycle. AT the beginning of the ram's DOWNWARD stroke, the feed mechanism of the machine actuates the on-off valve to the "off" position, and the feed finer retracts. As the ram is driven DOWNWARD, the spring-loaded terminal positioner holds the terminal to prevent movement during the crimping and shearing action that occurs as the ram approaches the bottom of its stroke. As the ram BOTTOMS, the wire and insulation crimpers roll the open barrels of the terminal around the wire and insulation, then lock them into position at their respective crimp heights. At the same time, the slug blade (also referred to as the shear blade) removes the connecting tab that joins the terminal being crimped to the next terminal on the strip.

As the ram begins its UPWARD stroke, the crimped terminal is released for removal. When the ram approaches the FULLY raised position, the feed mechanism of the machine actuates the on-off valve to the "on" position and the feed finger advances to move the next terminal over the anvil for the next cycle. The flow control valve regulates the speed of the feed finger in advancing the strip.

The ram post (also referred to as the ram mounting post), shown in Figure 2, engages the post adapter of the machine ram (see Figure 3), and it is the machine ram that actuates the applicator. Just below the ram post are a wire disc and an insulation disc. The wire disc has as many as four pairs of pads, depending on the number of different wire sizes the terminals will accept. Each pair of pads has a different height. By rotating the disc, each pair of pads can be aligned with the two bosses on the machine ram post adapter (see Figure 3) to vary the depth of stroke of the wire crimper over the anvil. The insulation disc contains eight pads of differing heights.

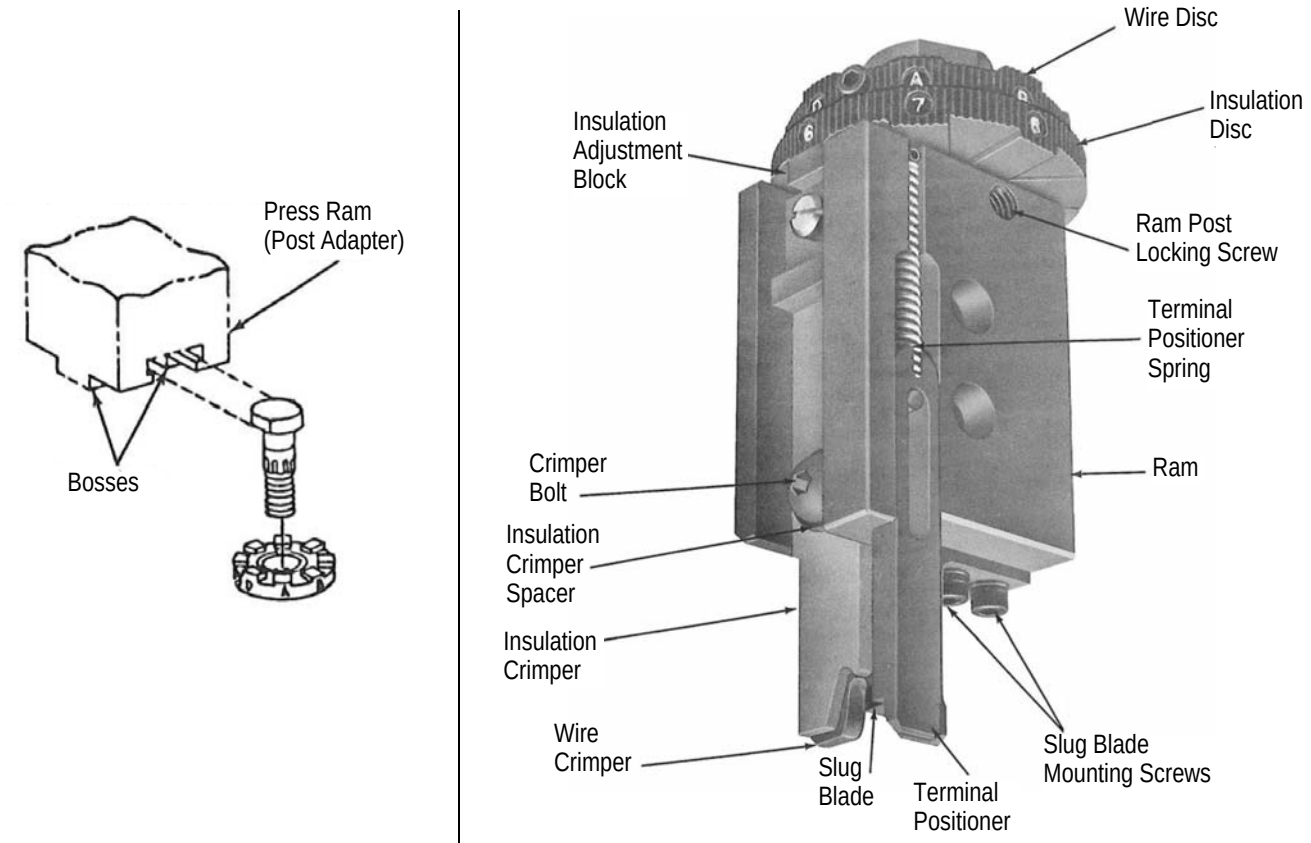

Figure 3

When the disc is rotated, the pads align with the insulation adjustment block to vary the insulation crimp height in relation to the ram and wire crimper stroke.

The wire crimper, held in a preset position by a screw in its upper end and by the crimper bolt, is attached to the ram assembly (Figure 3). The insulation crimper is also held by the crimper bolt, but is free to move vertically so the insulation crimp may be varied in relation to the wire crimp. The slug blade, which cuts the connecting tab from between the lead and second terminals, is attached to the bottom of the ram assembly. The spring-loaded terminal positioner, located on the bottom of the ram assembly, acts as a terminal hold-down during the crimping and shearing process.

The applicator's mounting surface is its base plate, which supports the hinge bar and anvil. The hinge bar is secured by the hinge pin and contains the anvil insert, the shear plate, the strip guides, and the pressure block. The pressure block holds the anvil end of the hinge bar off the base plate, The hinge bar is deflected against the spring tension of the pressure block when the ram bottoms during the crimping process. This action allows the locking tines to be clinched over the tab on the terminal, locking the tab in place on the underside of the terminal.

Mounted on the front strip guide is the spring-loaded stock drag, which applies drag to the terminal strip to prevent overfeed and pullback by the feed finger.

The pivot arm, which pivots on a pin in the frame, is connected to the feed cylinder at its upper end and to the feed finger at its lower end. The length of stroke of the feed finger is controlled by the adjustments on the feed cylinder. The feed cylinder is retracted by air pressure applied through the on-off valve. This extends the feed finger to advance the terminal strip. The feed finger is retracted and the feed cylinder is extended by the feed return spring when the air pressure is shut off.

3. APPLICATOR INSTALLATION AND REMOVAL

CAUTION
With applicator installed, NEVER ATTEMPT to cycle machine under power WITHOUT terminals properly loaded, as described in Section 4. To do so may result in damage to the tooling.

3.1. INSTALLATION (See Figure 1)

1. Turn "off" or disconnect power to machine.

NOTE
Refer to Customer Manual 409-5128 for identification of parts in the AMP-O-LECTRIC machine.

2. Install movable stop on back of base mount of machine if not already installed.

3. Place applicator on machine base mount, insert ram post in machine ram post adapter (see Figure 3), and slide the applicator into position against stops.

4. Fasten applicator in position with applicator mounting plate and two screws.

5. The two screws which secure the reel support to the right side of the machine are also used to secure the on-off valve bracket. Loosen the two screws enough to slide the bracket between the support and the machine, with the valve forward, and then retighten the screws.

6. Connect air line from flow control valve to on-off valve elbow.

CAUTION
Before proceeding, be SURE machine is in "rest" position and clutch is disengaged. This can be checked by opening flywheel cover and manually turning flywheel in the proper direction.

7. Install valve lever on feed arm drive shaft of machine with clamp to outside (right). Before tightening screws fully, align lever with on-off valve, then rotate lever clockwise to fully "open" position. While holding in this position, tighten screws to secure lever on shaft.

8. Connect air supply to sleeve valve. With valve "open", feed cylinder should retract and extend feed finger.

9. Hand cycle machine through one complete cycle, while CLOSELY observing operation of applicator. Feed finger should retract at beginning of DOWNWARD stroke and extend again as ram nears end of UPWARD stroke.

10. Load applicator with terminals as described in Section 4, then repeat Step 9 while observing crimping action and feeding of terminals. Make any necessary adjustments to applicator as described in Section 5, or to machine as described in Customer Manual 409-5128.

11. Connect electrical power to machine and turn machine "on". Perform several test cycles under power to ensure correct crimping action. Make any additional adjustments that may be necessary.

12. Install guard assembly.

13. If machine is not to be used immediately, turn machine "off" and close sleeve valve.

3.2. Removal (See Figure 1)

1. Make sure machine is turned "off" and electrical power and air supply are disconnected.

2. Remove guard assembly.

3. Unload terminal strip from applicator as described in Section 4.

4. Remove applicator mounting plate by removing two screws.

5. If applicator is not to be re-installed, remove valve lever from feed arm drive shaft on machine by loosening two screws.

6. Loosen two screws holding reel support and valve bracket to machine, then slide valve bracket out and retighten screws. If air line was not disconnected, lays valve bracket aside, but avoid sharp bends in air line.

7. Slide applicator forward until ram post is clear of press ram post adapter (see Figure 3), then lift applicator from base mount on machine.

4. APPLICATOR LOADING AND UNLOADING

4.1. Terminal Strip Loading

CAUTION
Before attempting to load terminal strip in applicator, be CERTAIN installed applicator is proper one for terminal to be applied. Compare terminal number with numbers listed on applicator data plate and parts list.

1. Turn "off" or disconnect power to machine.

2. Be certain ram assembly is fully raised. If necessary, hand-cycle machine to obtain this condition (see Customer Manual 409-5128).

3. Remove length of terminal strip left in applicator by grasping terminal over anvil with needle nose pliers and pulling strip straight out front of applicator.

4. With reel of terminals installed on reel support, feed terminal strip into applicator between two strip guides.

CAUTION
Be CERTAIN terminal strip enters strip guides with receptacles to the LEFT and open Tab-Lok wire barrels Up and to the RIGHT.

5. Press down on drag lever and feed terminals under pressure block and stock drag until THIRD terminal has passed under feed finger.

6. Be certain applicator is properly adjusted as described in Section 5 by performing several test cycles.

4.2. Terminal Strip Unloading

1. Make sure machine is turned "off" and sleeve valve is closed.

2. Cut terminal strip near entry to strip guides.

NOTE
It is recommended that applicator never be unloaded unnecessarily. A section of terminal strip should always be left in the unit. Since it is not necessary to remove strip section for cleaning, lubrication, or repair, it should only be removed as a part of loading procedure.

3. Press down on drag lever, raise feed finger, and advance lead terminal into position over the anvil.

5. ADJUSTMENTS

5.1. Wire Crimp Adjustment

1. Refer to data plate and select pad letter (A, B, C, D) for AWG wire size to be used.

2. Rotate applicator's wire disc (upper disc) to align selected pad letter with bosses on press ram post adapter (see Figure 3). This should provide proper crimp height for that wire size.

3. After making (Insulation Crimp Adjustment) described in Paragraph 5.2, perform several test cycles and inspect the terminations CLOSELY.

   a. Check for evidence of rough or sharp edges around crimped barrels (flash), deformed crimps, bent terminals, or other defects caused by worn or broken tooling. If necessary, replace tooling as described in Section 6, then repeat this step.

   b. If terminations appear normal, measure crimp height of each termination as described in Instruction Sheet 408-7424, packaged with the applicator. Crimp height must agree with measurement specified on parts list for the wire size being used. Record and retain crimp height dimensions for reference.

   c. If wire crimp height is INCORRECT, remove applicator and install an applicator that is KNOWN to produce terminations of CORRECT crimp height. Make several test crimps and repeat Step b. If crimp height is INCORRECT for this applicator, problem is press shut height, and corrective information may be obtained from appropriate machine manual. If crimp height is CORRECT, problem is in original applicator, and corrective measures are presented in Paragraph 6.5, (Crimp Height Repair).

4. During extensive operation, periodically repeat Step 3 to ensure that applicator is producing correct terminations.

5.2. Insulation Crimp Adjustment

To adjust insulation crimp height, rotate insulation disc (lower disc) to align number (1 through 8) with top of insulation adjustment block on ram assembly. No. 8 makes the tightest crimp and No. 1 the loosest, a difference of approximately 1.78 mm [.070 in.], providing a wide variation. To find desired insulation crimp, start with No. 1 and make test crimps, and increase setting one number at a time until proper insulation crimp height is obtained.

5.3. Terminal Strip Feed Adjustment

1. With terminal strip properly loaded in applicator as described in Paragraph 4.1, check position of lead terminal in relation to slug blade by performing several test crimps and inspecting the crimped terminals. Slug blade MUST remove connecting tab between LEAD and SECOND terminals - without deforming either terminal.

2. If tab has been correctly slugged out and terminals are not damaged, forward limit of feed finger stroke is correct; proceed to Step 5. Otherwise, continue with Step 3.

3. Close sleeve valve to extend feed finger piston. Loosen two screws holding positioner to feed cylinder shaft and move positioner in required direction on shaft. Retighten screws and open sleeve valve.

4. Repeat Steps 1, 2, and 3 as required. When adjustment is correct, proceed to Step 5.

5. Observe movement of feed finger as press is hand-cycled several times. It should have sufficient - but not excessive - over-travel on backstroke to pick up next terminal.

NOTE
If feed finger stroke length is satisfactory, proceed with Step 10; if not, continue with Step 6.

6. Loosen slightly the feed cylinder locking screw on top of feed cylinder bracket (see Figure 2).

7. Close sleeve valve to depressurize the feed cylinder. Feed return spring MUST pull feed finger back and fully extend cylinder shaft.

8. Turn feed adjustment screw CLOCKWISE to SHORTEN stroke or COUNTER-CLOCKWISE to LENGTHEN stroke.

9. Retighten feed cylinder locking screw, open sleeve valve, and repeat Step 5 to check stroke length.

10. Repeat Steps 6 through 9 until proper stroke length is obtained. Recheck Step 1 (forward limit) before proceeding to Step 11.

11. Hand-cycle machine several times and check side-to-side centering of LEAD terminal on anvil. Lances on bottom of terminal MUST be centered on anvil. If centered, adjustments are complete; if not, proceed to Step 12.

12. Loosed screws holding strip guides and move both guides in desired direction. Tighten screws and check to see that guides are parallel and that terminal strip can move freely without excessive side clearance. Recheck side-do-side centering by repeating Step 11.

5.4. Stock Drag Adjustment

The stock drag must be adjusted to apply only enough pressure to the terminal strip so that it will stop at the end of the feed stroke, and will not pull back on the feed finger return stroke.

1. Turn the drag adjustment nuts (see Figure 2) DOWN to INCREASE drag, or UP to DECREASE drag.

2. Cycle machine under power to be sure drag is properly adjusted.

6. REPAIR AND REPLACEMENT OF COMPONENTS

The following procedures cover those applicator parts which most often require repair or replacement due to wear. Remove applicator from machine before performing maintenance work.

DANGER
Be CERTAIN power to machine is "off" or power cord is disconnected, sleeve valve is "closed", and air supply is discontinued. Press ram should be in the raised position.

NOTE
When removing or replacing parts, wipe parts individually with a clean, dry cloth as they are removed. Then, when replacing parts, wipe mating surfaces of all parts with your fingers to be sure all lint and other foreign matter have been removed.

6.1. Anvil Replacement

1. Turn applicator on its side, remove two screws that fasten anvil mounting plate to bottom of base plate, and remove anvil mounting plate.

2. Remove anvil by sliding it down through anvil insert.

3. Install new anvil by using reversed procedure.

NOTE
Beveled edge on tip of anvil assists in locking of tab during crimping process and must be toward front of applicator when anvil is installed.

6.2. Anvil Insert and Front Shear Plate Replacement

1. Remove anvil as described in Steps 1 and 2 of Paragraph 6.1.

2. Loosen screw in end of hinge bar, in front of anvil (see Figure 2).

3. Lift anvil insert and front shear plate up and out of hinge bar.

4. Re-install parts using reversed procedure. (See note in Paragraph 6.1.)

6.3. Rear Shear Plate and Strip Guide Replacement

1. Remove front strip guide by removing two screws securing it to hinge bar (see Figure 2). Stock drag is attached to front strip guide and is removed with it. Don't remove stock drag from front strip guide unless front strip guide is to be replaced.

2. Remove rear strip guide by removing two screws holding it to hinge bar.

3. Remove shear plate from hinge bar.

4. Install new rear shear plate and/or strip guides using reversed procedure.

5. Re-adjust strip guides so terminal strip moves freely and aligns properly with anvil insert (see Steps 11 and 12, Paragraph 5.3).

6.4. Insulation Crimper, Wire Crimper, and Slug Blade Replacement

1. Remove ram assembly from applicator by lifting upward.

2. Replace parts as follows (see Figure 3):

   a. To replace insulation crimper, remove crimper bolt and insulation crimper spacer (also referred to as crimper pin) and slide insulation crimper out of ram assembly. Note orientation of parts for re-assembly.

   b. To replace wire crimper, remove crimper bolt, insulation crimper, spacer, and insulation crimper. Remove screw in top of wire crimper and lift wire crimper out. Note orientation of parts for re-assembly.

   c. To replace slug blade, remove two screws holding blade to bottom of ram assembly.

3. Install new parts using reversed procedure.

CAUTION
Be CERTAIN parts are oriented properly as noted during removal. Wire crimper MUST be squarely seated against stop at top before screw holding it to ram assembly is tightened.

When installing slug blade, slide it against wire crimper, then tighten two screws only enough to hold blade in place. Install applicator in machine and hand-cycle machine through one complete cycle. Since slug blade can move slightly as it engages shear plates when ram bottoms, shear parts align themselves properly without being damaged because of hinge bar arc. Carefully remove applicator from machine and tighten two screws holding blade to ram assembly.

6.5. Crimp Height Repair

Beneath the insulation disc is a laminated washer which may break or compress, causing applicator to produce terminations with crimp heights that differ from those specified. To correct this problem, perform the following steps:

1. Subtract specified nominal crimp height from average crimp height recorded and retained from Paragraph 5.1, (Wire Crimp Adjustment). This difference will be thickness of washer(s) (690125-1) to be ADDED under insulation disc.

NOTE
Washer No. 690125-1 is a peel type, laminated washer consisting of five layers, with each layer being 0.05 mm [.002 in.] thick.

2. Remove ram assembly from applicator, (it may be necessary to manually actuate feed finger to release ram assembly), and then loosen ram post locking screw (setscrew in side of ram that secures ram post).

3. Unscrew ram from ram post leaving wire disc and insulation disc in place. If necessary, end of ram post may be placed in a vise to free both hands for turning ram.

CAUTION
Do NOT remove wire disc and insulation disc from ram post. Detent balls and springs will pop out and may become lost if discs are removed.

4. Place washer(s) of thickness determined in Step 1 on ram post.

If old washer is broken and must be replaced, measure thickness of broken washer with a micrometer. Add this measurement to the amount to be added (determined in Step 1), and select new washer(s) of this thickness. Place new washer(s) on ram post.

5. Replace ram on ram post, and tighten by hand until snug.

6. Check that numbers on wire disc and letters on insulation disc align properly over insulation adjustment block. Discs are retained in position by bail detents. If necessary, turn ram back slightly until proper alignment is attained, then tighten setscrew to secure ram post.

NOTE
Rotate wire and insulation discs to other positions. When "click" of detent ball is heard, letter or number should be entered over insulation adjustment block.

7. Re-install ram assembly in applicator.

8. Install applicator in machine and make several test crimps under power. Measure crimp height and check it against crimp height specified on applicator parts list. If crimp height is within specified tolerances, applicator may be placed in service. If not, repeat this procedure starting with Step 1.

7. CLEANING AND LUBRICATION

For best performance and minimum down time, applicator should be cleaned, inspected, and lubricated; refer to Instruction Sheet 408-8059 for daily and monthly cleaning.

NOTE
Lubricate Tab-Lok applicators every time applicator is removed from the machine, after four hours of continuous operation, or 10,000 crimp cycles.

8. APPLICATOR STORAGE

For proper applicator storage, refer to Instruction Sheet 408-8059.

9. REVISION SUMMARY

- Updated document to corporate requirements
- Added and/or changed text in Sections 7 and 8
- Added new Section 9, REVISION SUMMARY