

Power Splice Applicator Assembly 1583800-1

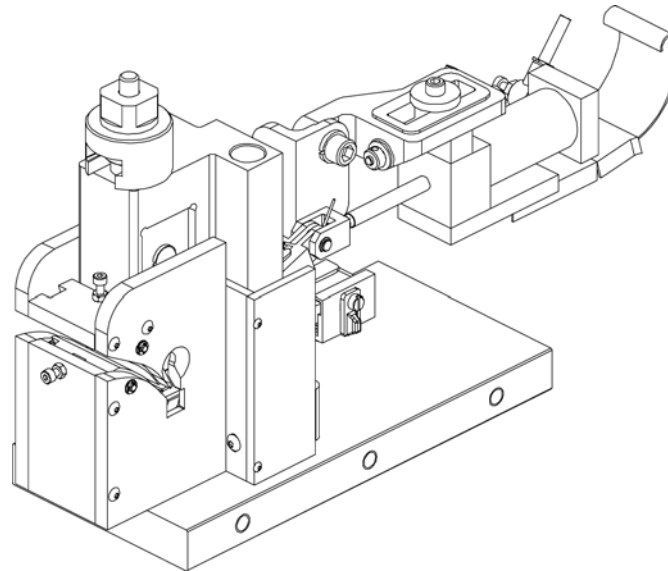


Figure 1

1. INTRODUCTION

The Power Splice Applicator (Figure 1) applies reeled side-feed strip terminals (Part Number 1601953-1) to pre-stripped lead wire and unstripped magnet wire.

This applicator is part of the Power Splice Crimping system.

These instructions, product Application Specification 114-13093, the parts lists and exploded view drawings packaged with the machine, and the machine manual for the Artos TU-10, Programmable Crimping Machine, provide all the information required to operate and maintain the Power Splice Crimping system.

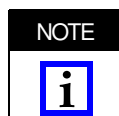
When reading this document, pay particular attention to **DANGER**, **CAUTION**, and **NOTE** statements.



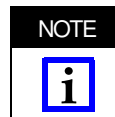
DANGER Denotes an immanent hazard, which may result in moderate or severe injury.



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



NOTE Highlights special or important information.



Dimensions in this document are in metric units [with inch equivalents in brackets].

2. DESCRIPTION

This applicator has been designed specifically for the Power Splice Terminal, Part Number 1601953-1.

The applicator directs the lead wire and magnet wire into the designed terminal saddles. The crimp height may be easily adjusted for many different CMA (circular mil area) wire ranges by using the Artos TU-10 Controller Interface.

The applicator features a unique guard assembly that also acts as a wire management device. The guard features two moveable wire guides that funnel magnet wire into the Power Splice Terminal.

The main components of the applicator are identified on the print of the applicator. See also Figure 2 and Figure 3.

In the air feed system, the feed action is started after the foot switch is depressed to begin the machine cycle. The ram begins its downward motion. The ram continues downward, completes the crimping action, and starts back up. When it reaches the fully raised position, the solenoid valve shifts. This supplies air to extend the feed finger and moves the next terminal over the anvil. The flow control valves control the speed of the feed finger stroke. After full extension, the solenoid valve shifts to retract the feed finger to its "rest" state.

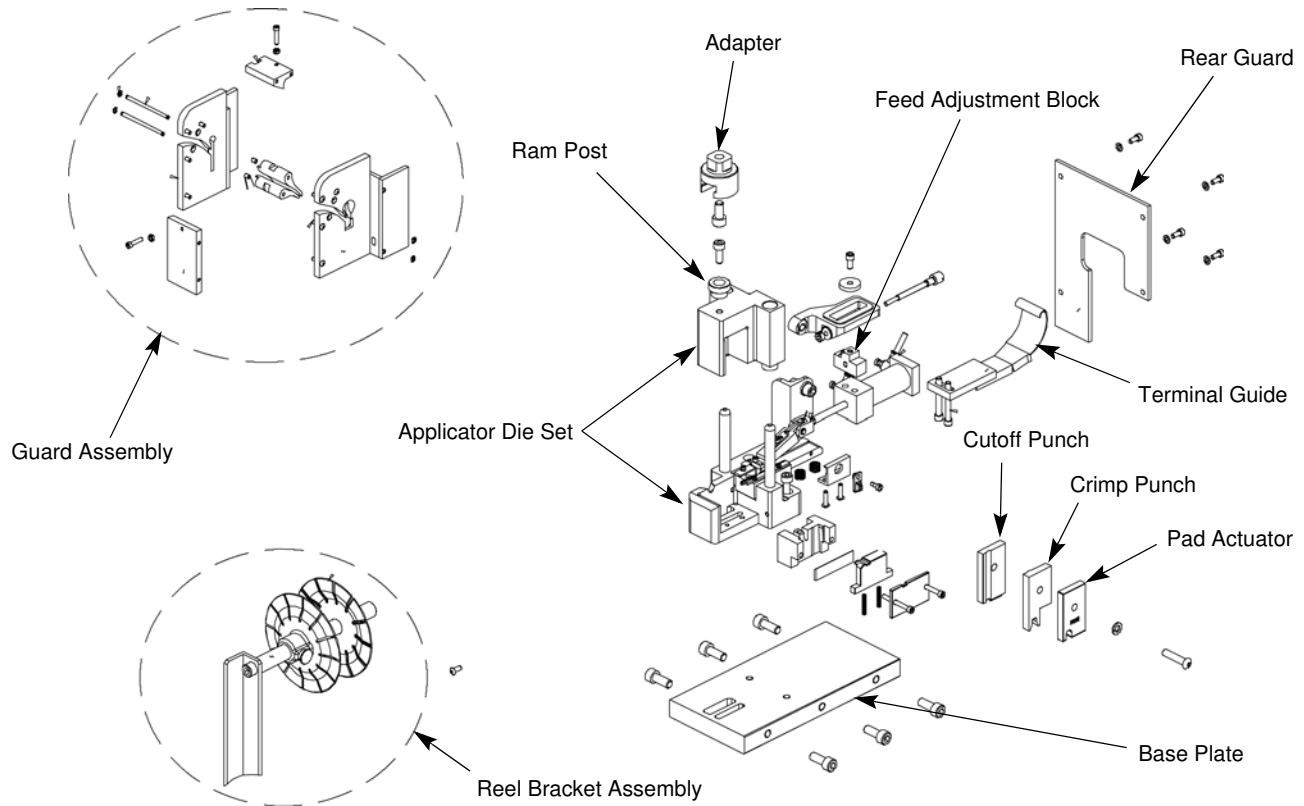


Figure 2

3. APPLICATOR INSTALLATION AND REMOVAL



To avoid personal injury, be SURE power to the machine is turned “off” (or the power cord is disconnected) and the air supply is disconnected BEFORE installing or removing the applicator.

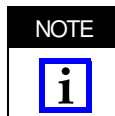


Once the applicator is installed, NEVER attempt to cycle machine under power WITHOUT terminals properly loaded, as described in Section 4; otherwise, the tooling may be damaged.

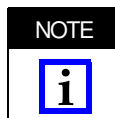
3.1. Applicator Installation

1. Install adapter on the ram of the machine.
2. Remove the existing machine base plate (if necessary) and mount the Power Splice Applicator.
 - a. Lift the upper half of the applicator die set.
 - b. Slide the base plate into the frame of the machine (to engage the ram post into the applicator) and align the bolts to the base plate of the applicator.
 - c. Install and tighten the cap screws to hold the applicator in place. Refer to Drawing Number 1583800.
3. Install the rear guard on the back of the machine frame with the socket head cap screws provided.
4. Connect the air lines to the air cylinder and main feed valve on the machine. At the “rest” position, the feed finger should retract.

5. Raise the terminal stock drag and load the applicator with terminals (refer to Section 4). Make sure a terminal is centered over the anvil, and lower the terminal stock drag. Then cycle the machine while watching crimping action and feeding terminals. Make any necessary adjustments to the terminal feed as described in Section 5.



Make any adjustments to the machine, as described in the machine manual.



Refer to machine customer manual for machine cycling instructions.

The feed finger should extend and then retract after the ram completes its extend and retract cycle.

6. Loosen the cap screw above the air cylinder and adjust the position of terminal to be centered over the anvil.
7. Make several test cycles under power to be sure that crimping action is correct.
8. Make any additional adjustments that may be necessary.
9. If the machine is not to be used immediately, turn “off” the controller power, disconnect power cord, and disconnect the air lines.

3.2. Applicator Removal

1. Turn the machine “off” and disconnect power cord. Disconnect air supply.
2. Disconnect the air tubing from the air cylinder on the applicator.
3. Remove the applicator in reverse order as described in the installation section. Remove the socket head cap screws and slide the applicator forward until ram post is clear of machine ram.

4. APPLICATOR LOADING AND UNLOADING

4.1. Terminal Strip Loading

Before loading the terminal strip in applicator, be SURE the installed applicator is the correct one for terminal to be applied. Compare terminal number on reel with numbers listed on applicator parts list.

1. Turn the machine “off” and disconnect power cord. Disconnect air supply.
2. Check the ram assembly to be sure it is at the “top dead center” position.

NOTE



Refer to the appropriate customer manual for instructions for hand-cycling the machine to the “top dead center” position.

3. Manually disengage the feed finger from the terminal strip and release the drag.
4. Remove the length of terminal strip (still in applicator) by grasping terminal strip with needle-nose pliers and pulling the strip straight out the back of the applicator.
5. With a reel of terminals installed on the reel support, feed the terminal strip into applicator between strip guides.

NOTE



Be SURE the terminal strip enters strip guides with the open side UP.

6. Lift the stock drag and feed the terminals toward the feed finger.
7. Lift the feed finger and advance strip until the feed finger engages the feed area behind the second terminal.
8. Be sure the applicator feed is properly adjusted by making several test cycles.

4.2. Terminal Strip Unloading

1. Turn the machine “off” and disconnect power cord. Disconnect air supply.
2. Cut terminal strip one or two terminals from end of applicator.

NOTE



The applicator should 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 the loading procedure.

5. ADJUSTMENTS

5.1. Testing Terminations

1. Refer to the appropriate machine customer manual (Artos TU-10 Crimping Machine) for wire crimp adjustments.
2. Make several test cycles and inspect terminations closely.
 - a. Look for 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 7.
 - b. If terminations appear normal, measure the crimp height of each termination as described in 114-13093, packaged with the applicator. The crimp height must agree with the measurement specified by the crimp height formula for the wire size combination being used.
 - c. Record crimp height dimensions for reference.
3. During extensive operation, periodically repeat the inspection to make sure that the applicator is producing correct terminations.

5.2. Terminal Strip Feed Adjustment

1. With the terminal strip loaded in the applicator as described in Paragraph 4.1, check the position of the lead terminal in relation to the center of the terminal anvil and cutoff punch by running several test crimps and inspecting the terminals.

The cutoff punch and trim pad must remove the “ladder carrier” between lead and second terminals - without deforming either terminal.

2. If the carrier is correctly slugged out, and the terminals are centered, and not damaged, proceed to Paragraph 5.3, Terminal Drag Actuation.
3. If adjustment is required (terminal is not centered), continue with Step 4.
4. Adjust forward limit of feed finger stroke as follows:
 - a. Loosen the screw on top of pivot block.
 - b. Turn the air feed adjusting screw counterclockwise to move the forward limit toward anvil, or clockwise to move the forward limit away from the anvil.
 - c. Tighten screw on top of pivot block.
 - d. Repeat Step a through Step c as necessary until the terminal is centered.

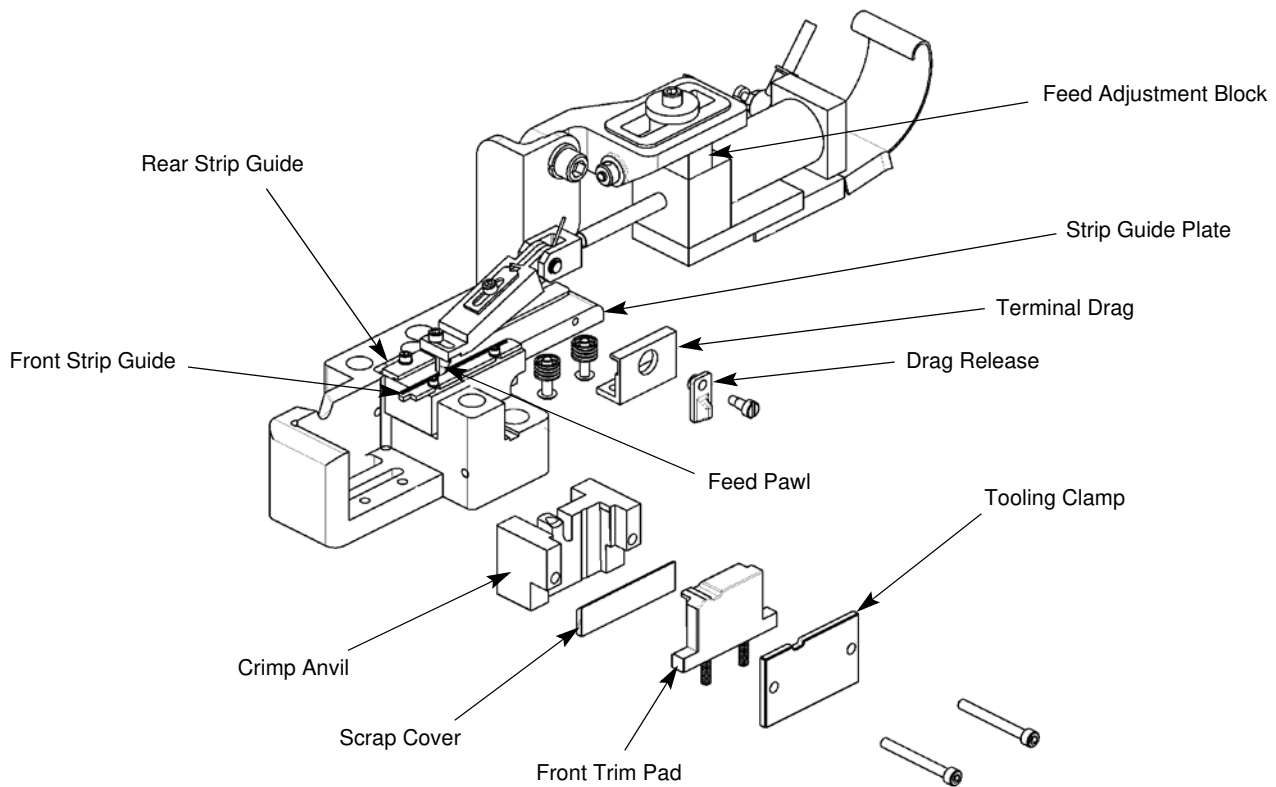


Figure 3

5.3. Terminal Drag Actuation (Figure 3)

The terminal drag must be lowered to provide pressure to the terminal strip so that it will maintain the correct position during the stroke of the feed finger.

Rotate the drag release to point down for drag “on,” and rotate the drag release to point up to release the drag.

6. APPLICATOR OPERATION

The Power Splice Terminal contains two crimp barrels that separate and cradle magnet wire and stripped lead wires prior to crimping. The lower saddle accepts up to six magnet wires that can total up to 30,000 CMA (circular mil area).

The upper saddle accepts up to two pre-stripped lead wires that can total up to 11,000 CMA (circular mil area).



Total CMA for both the magnet wire and the lead wire CANNOT exceed 38,000 CMA.

In one step automatic operation, the magnet wire film insulation is pierced as it is forced into the terminal serrations while the lead wire is terminated during the crimping process.

7. REPAIR AND REPLACEMENT OF PARTS

These procedures cover the applicator parts which most often need repair or replacement because of wear. Remove the applicator from the machine before doing any maintenance work. Refer to the exploded view drawing and parts list packaged with the applicator for identification of parts. Be sure to order replacements for parts used from spare parts stock, so that they will be available when needed.



To avoid personal injury, be sure the power and air supply are disconnected before repair or replacement of parts. The machine ram should be in the raised position. Wipe parts with a clean, dry cloth as they are removed from applicator. Then, when putting them back into applicator, wipe mating surfaces with your fingers to make sure that all lint and other foreign matter has been removed.



Remove the front guard assembly to perform any of the listed repairs or replacements. To avoid personal injury, be sure to exercise extreme caution when working around the applicator when the front guard is not in place.

7.1. Crimp Anvil Replacement (Figure 3)

1. From the side of the applicator, remove the two screws from the lower applicator die set which hold the tooling clamp, front trim pad, scrap cover, and crimp anvil in place.
2. Replace the crimp anvil, if required.

3. Install tooling using reverse procedure.

7.2. Front Trim Pad Replacement (Figure 3)

1. From the side of the applicator, remove the two screws from the lower applicator die set assembly which hold the tooling clamp, front trim pad, scrap cover, and crimp anvil in place.
2. Replace the front trim pad, if required.
3. Install tooling using reverse procedure.

7.3. Crimp Punch Replacement (Figure 2)

1. Remove the upper die set assembly from the applicator by pulling upward.
2. Remove the bolt, which holds the pad actuator, crimp punch, and cutoff punch to the applicator die set assembly.
3. Replace the crimp punch, as required.
4. Re-install parts using reverse procedure.
5. Tighten bolt that was removed.

7.4. Cutoff Punch Replacement (Figure 2)

1. Remove the upper die set assembly from the applicator by pulling upward.
2. Remove the bolt, which holds the pad actuator, crimp punch, and cutoff punch to the applicator die set assembly.
3. Replace cutoff punch as required.
4. Install parts using reverse procedure.
5. Tighten the bolt that was removed.

8. PREVENTIVE MAINTENANCE

For best performance and minimum downtime, the Power Splice Applicator should be cleaned, inspected, and lubricated after each 200 hours of operation, and each time it is removed from the machine to be placed in storage (Section 9).

8.1. Cleaning

1. Remove the applicator from the machine. Refer to Paragraph 3.2.
2. Remove the upper die set assembly from applicator by pulling upward.
3. Using a clean, dry cloth, remove dirt, chips, etc., from applicator. The entire applicator may be immersed in a suitable commercial solvent (one that won't affect paint or plastic) once a month to flush out chips.

NOTE



It is not necessary to remove the section of terminal strip to clean the applicator.

4. Lubricate applicator as described in Paragraph 8.2.

5. Re-assemble the applicator.

8.2. Lubrication

Lubricate the applicator each 200 hours of operation at the following points with SAE 20 motor oil (non-detergent), or where specified, light grease. Do NOT use too much oil or grease on applicator.



Any excess lubricant must be wiped off before placing applicator back in service.

1. Take the upper die set assembly out of the applicator, clean the shafts, and apply a thin coat of grease to each shaft.
2. Carefully lay applicator on its side and put one drop of oil on the feed finger pin. Wipe the feed finger pin to remove excess oil.
3. Set the applicator upright.
4. Wipe off excess oil.
5. Put the upper die set back into the applicator, and wipe off excess oil or grease.

9. APPLICATOR STORAGE

1. When storing the applicator, or taking it out of machine for any reason, use the following procedure to keep tooling from being damaged by the bottoming of the ram assembly.
2. Cut terminal strip one or two terminals from end of applicator.
3. Take applicator out of machine as described in Paragraph 3.2.
4. Clean and lubricate the applicator as described in Section 8.
5. Lower the ram assembly to hold the lead terminal between crimper and anvil. This will also identify the type of terminal to be used when the applicator is put back in service.

10. REVISION SUMMARY

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

- Updated document to corporate requirements.